The World's Largest Digital TV Trade Magazine
since 1981

TELE satellite INTERNATIONAL

DTT
IPTV
3DTV

B 9318 E
04-05 2012

Test Report
SKYWORTH HS18
The Ideal Mini HDTV Receiver

Test Report
PANODIC
Alan Yu Markets an Extremely Small and Elegant Receiver

Test Report
AMIKO
Jozsef Zsiman Introduces an Excellent New Combo Tuner HDTV Receiver

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Eagle Chain Embraces the Internet and Expands Product Range to IPTV

Company Report
AZBOX
Hugo Condessa Adds the USA to His Network of Wordwide Dealers

Test Report
SPAUN SAT-HD An Amazing New HDTV Signal Analyzer

TELE satellite AWARD 04-05/2012

PANODIC

Digital World,Simple Life

Over a decade of experience in digital set top boxes

we have models for worldwide market

HD DVB-S2 with CI MPEG-4/H.264 HDS-275SCI

- USB PVR and Timeshift Ready
- HD MPEG-4 DVB-S2 with CI slot
- Media playback: MP3, JPEG, AVI (Divx), MKV
- Up to 5000 channels
- HD output:576I/720P/1080P
- 15 Days EPG(need program support)
- EUP

- DVB-T/T2
- DVB-C
- ISDB-T
- DVB-S2+DVB-T
- HD DVB-T IP
- DVB-S/S2
- HD DVB-T+CONAX
- ISDB-T+DVB-T
- IP VOD BOX
- Mobile Device

DVB-S FTA SDS-552ANP

- SD MPEG2 DVB-S FTA version
- USB PVR and time shift ready
- Media playback: OGG/JPEG/BMP/ MPGE PS/MPEG4
- Up to 5000 channels
- Advanced Automatic and blind scan
- NIT Network Search compliant

DVB-T2 HDT-129N

- Full HD DVB-T2 compliant
- Media playback: MP3,WMA,FLAC,JPG, JPEG,MPG,MPEG,VOB,AVI,TS,TRP,M2T, M2TS, MP4, MKV, MOV, DIVX *
- Up to 5000 channels

HD IP Set Top Box IV210

- Online playback: 1Mbps ADSL supports smoothly, streaming DVD quality video/2Mbps ADSL for smoothly, streaming 720p quality video from bundled/Service or Content providers/TV live, VOD, download
- Content Access: Network open content source, Network specific content service
- Video decode: Full HD H.264, MPEG-1/2/4, DivX, WMV9, XviD, RMVB, FLV), MJPEG
- Audio decode: MP3, WAV, WMA, AAC-LC/HC, OGG Vorbis, RA, Dolby D
- Display resolution: 1080P
- WiFi 802.11(b/g/n): USB WiFi dongle, built-in USB WiFi module (Optional), SSID auto search, WEP/WPA encryption
- IP allocation: Static IP /DHCP/PPPOE

Android IP Set Top Box IV3010

- Android operate system mediaplayer
- Video Decoding:H.264(1080p/i HP@L4.1),MEPG1/2/4*1080p/i)
- Video Output:NTSC,PAL,720p,1080p/i,HDMI/YPbPr/CVBS
- Audio Decoding:MP1/2/3,WMA,WAV,OGG,AAC,etc

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Dear Readers,

Everything is getting smaller and more compact. In this issue we're introducing two new entries into the mini receiver class: receivers that are so small you can easily hide them behind your TV yet they come without any loss in user-friendliness or functionality. An additional chapter in this trend towards miniaturization can be seen in another way in those larger "true" receivers: they are becoming ever more complex and offer ever increasing possibilities.

Examples of these complex receivers are two additional models that we are introducing in this issue of TELE-satellite. Receivers that you can ideally use to receive TV channels via the Internet or that can be consistently improved with software updates.

Receivers are becoming more and more boxes that can do it all - it only makes sense: as a TV viewer you don't want to be concerned with how the TV channels get to your TV's screen. The result is: receivers should be able to receive all the different variants, whether it's transmissions via satellite, via cable, terrestrially or through the Internet. And, of course, they should be able to record all of these programs (PVR).

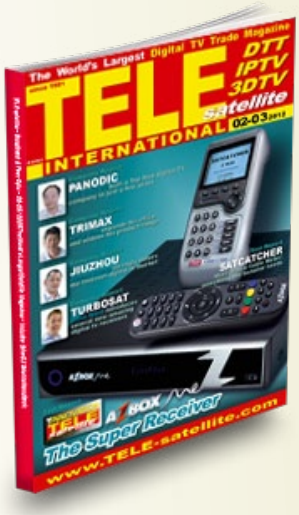
The big challenge for receiver manufacturers is to do all of this and yet make their receivers easier to use. TV viewers still have to decide whether they want to watch TV via satellite or through the Internet; the user menus in the receivers are totally different for satellite TV channels and Internet TV channels.

Logically, from a TV viewers point of view, he should be able to put whatever channel he wants in each and every receiver channel memory location; it shouldn't matter if the TV channel is received via satellite, via a terrestrial antenna, via the cable connection or over the Internet.

We are only at the early stages of this integration. The different distribution methods still require different user interfaces. This is going to change. The miniaturization will bring together the different methods into one receiver and as a result the operation of the receiver will also become unified.

What's true in the real world for the hardware is also true in the virtual world with the software.

Alexander Wiese
Editor-in-Chief TELE-satellite International



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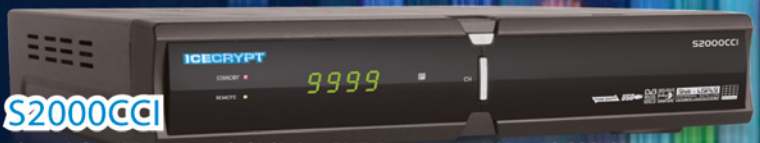
www.TELE-satellite.com

ICECRYPT

DIGITAL SATELLITE RECEIVERS

S1500C

1 Card Reader | External USB 2.0 Devices (PVR Ready)
Event Recording by EPG | HDMI Output



S2000CCI

Smart Card Reader | 2 CI Slots | PVR Ready via USB | 10,000 Channels

S3000HDCCI+

High Definition | Embedded Conax | CI Slot | DiSEqC 1.2 fully supported

S3500HDCCI+

Full High Definition | Embedded Conax | CI Slot | DiSEqC 1.2 fully supported
Linux Embedded | Web Browsing | Free TV+ | USB PVR Ready

S4000HDPVR

High Definition PVR Receiver | Linux embedded
500GB, 1TB and 2TB HDD options | Twin Tuner

STC6000HD PVR

Satellite, Terrestrial, Cable and Combo Options
Twin Tuner Full HDTV PVR (Up to 1TB)
Simple plug-in Detachable Tuner (DVB-S2/DVB-T2/DVB-C)
Embedded Linux OS | 2 Smart Card Readers & 2 CI Slots

CAMS

MPEG2 Cams available in
Conax, Viaccess & Irdeto

MPEG4 Cams
available
Free to
Air & Irdeto

Professional CAMs for Decoding MPEG2
Broadcasts in a Professional Environment
available in 2, 4 and 8 Channel Options

LNBs

Large range of LNBs available.
Single | Twin | Quad
Octo | Quattro | Monoblocks

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BREAKING NEWS!

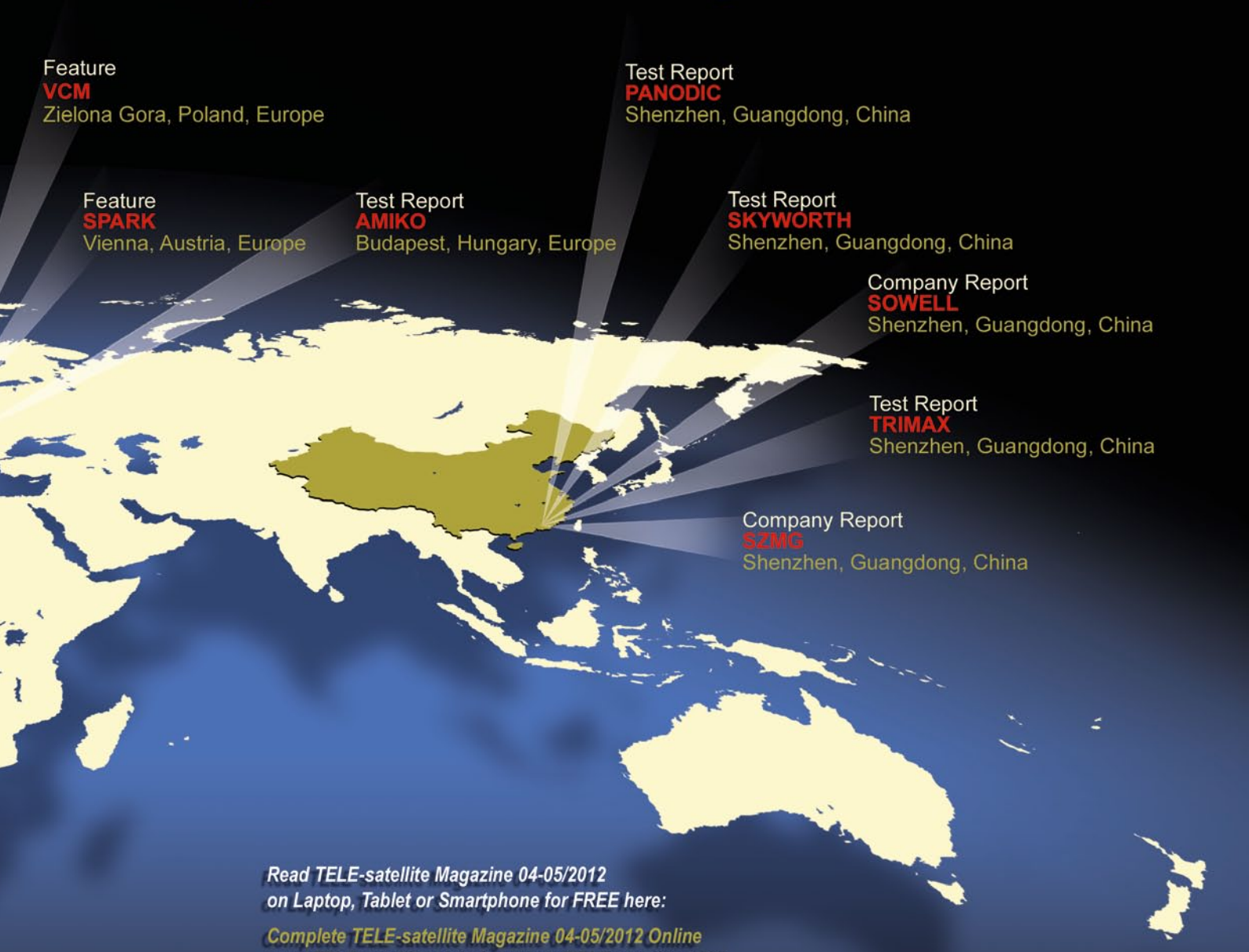
Stay Tuned for Live Reports
In This TELE-satellite Issue

04-05/2012

The World's Largest Digital TV Trade Magazine
since 1981
TELE DTT IPTV 3DTV Satellite
INTERNATIONAL

All Reports in TELE-satellite are Original and Exclusive!

from Around the World!
We Report Directly From



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***Company Reports** are written by TELE-satellite's editorial staff on location*
***Test Reports** are written by TELE-satellite's engineering staff located at different strategic reception points around the world*

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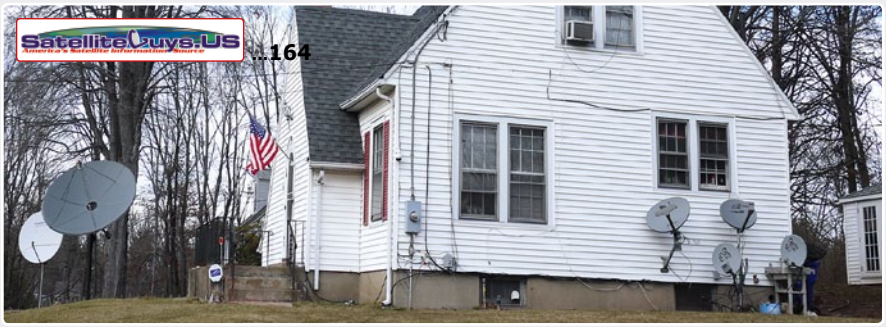

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AMIKO®

HbbTV

NEW

ALIEN²

FULL HD HYBRID SET-TOP BOX WITH DUAL LINUX OS

OPERA

AVAILABLE VERSIONS:

TRIPLE TUNER

T1	T2	T3	
☑	☑	☐	DVB-S/S2
☐	☐	☑	DVB-T
☐	☐	☑	DVB-C

TWIN TUNER

T1	T2	T3	
☑	☑	☐	DVB-S/S2
☐	☐	☐	DVB-T
☐	☐	☐	DVB-C

ONLINE USER'S MANUAL

3G *SUPPORT

USB HUB SUPPORT

DIGITAL SET-TOP BOX

- Available in Triple Tuner Version with Terrestrial+Cable Hybrid Tuner
- Two Conax Embedded Card Readers
- Spark and E2 OS simultaneously stored on the same receiver with easy switching
- HbbTV - Interactive Television
- WebTV - Watch Internet Streaming TV on your Television
- Multimedia Playback (MKV, AVI, MPG, FLV, MOV, WMV and much more...)
- File Sharing via Local Network
- Wired and Wireless Network Connection Support
- USB 3G Internet Modem Compatible

AND MORE!

- Spark Portal - Bringing Popular Internet Applications to your Television's Screen
- Watch and Download your Favourite YouTube Videos
- SHOUTcast - Access Hundreds of Thousands Web Radios
- Opera Web Browser (with Flash Lite)
- USB Wireless Keyboard & Mouse Support
- Online Subtitle Downloads
- Multi-Language Spark Online User's Manual and F.A.Q. videos
- Expandable Possibilities with Plug-In support
- Continous Software Development and easy-to use Online Upgrades

MKV | DUAL LINUX OS | PORTAL | WEBTV | 2x USB | WiFi SUPPORT | ONLINE UPDATES

SPARK PORTAL

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HTS12

HD DVB-S/S2+DVB-T、CA
LAN、2Tuner-PVR、Timeshift

HS14

HD DVB-S/S2、CI、CA、LAN
2Tuner-PVR、Timeshift

HS15

HD DVB-S/S2、CI+、Conax CAS
LAN、MP4、1080p、PVR、Timeshift

HTJ1

HD DVB-T、MP4、1080p
PVR、Timeshift、Mediaplayer

HT21（Mini Receiver

HD DVB-T、MP4、1080p、PVR、
Timeshift、Powerful Mediaplayer

HD DVB-S/S2 HSJ1

Conax CAS(optional)、MP4、1080p、PVR、Timeshift

Skyworth

More than 30,000,000 families are enjoying wonderful and smooth Audio-visual experience with SKYWORTH set-top boxes.

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The 17th International Digital Multimedia & Entertainment Technology Exhibition & Conference
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Feira e Congresso ABTA 2012
Exhibition: 31 July - 2 August 2012

IBC 2012 RAI Amsterdam
Exhibition: 7-11 September 2012

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PRODUCTS LEADING INTO

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AZBox ME
Today's absolute
best Linux Receiver

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INNOVATION TELE satellite AWARD 04-05/2011

Fulan ST7111
Excellently designed operating software
with built-in customer service

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AWARD THE FUTURE

INNOVATION TELE satellite AWARD MAGAZINE

INNOVATION TELE satellite AWARD 08-09/2009

GLOBAL INVACOM OPTICAL LNB
The first worldwide production-ready optical satellite reception and transmission system with excellent results – an investment that already makes sense today

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INNOVATION TELE satellite AWARD 10-11/2011

Tenow TBS6984
Made for TV addicts who can never watch and record enough channels.

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Kompetenz in Satellitentechnik

WE ARE DISTRIBUTOR OF THOMSON MAXIMUM digital technology STRONG DIGITAL TV TOPFIELD

WE ARE SELLING:

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ALPS · CIBERTINI · MEGASAT · Inverto digital-labs · SPAUN · Stab

THOMSON

THT91

Digital FTA Terrestrial Receiver

- Terrestrial Receiver for direct connection to SCART connector,180 ° rotatable
- automatic sorting of channel list
- Remote control operates receiver via Infrared Sensor Eye
- USB port for watching & playing
- Record one programme and watch another one on the same frequency
- PVR function and EPG
- Event/One Touch recording
- 1 hour recording (file size approx. 2 GB)
- Quick and easy installation and user-friendly menu
- 1.000 channels memory capacity
- Fast channel zapping)
- Full multi-lingual DVB subtitling

... and much more

STRONG DIGITAL TV

5303

Digital FTA Terrestrial Receiver

- For digital FTA TV & Radio programmes
- USB port
- Record one programme and watch another one on the same frequency
- Comprehensive PVR functions
- Adjustable EPG Timer
- Enhanced power supply for USB devices
- Event recording
- Slide show while MP3 is playing
- Quick and easy installation
- 1.000 channels memory capacity
- Electronic TV Programme Guide (EPG)
- Booking of events directly from EPG
- 8 Favourite lists for TV and Radio
- USB port: software update, recording & playing video/music /viewing photos
- Multi-lingual support on screen menu
- Support of active antenna by 5 V output
- Power saving automatic standby function
- Connections: ANT IN, TO TV, 2 SCARTs (TV, VCR), S/PDIF coaxial, USB port

... and much more

LOOK, LISTEN AND LIVE THOMSON

TSR600CI+

- HDTV (1080i) receiver for all digital Free-To-Air and pay TV programmes via its CI+ slot
- CI+ compatible slot accepting a wide range of CAM's including CI+ modules
- Pre-installed channel lists
- USB port for recording of TV/Radio programmes playing MP3 music and viewing JPG images
- Event (daily, weekly) and one touch recording
- Timeshift: pause live TV and resume later
- Standby switch on the front
- 4000 channels memory capacity
- 8 Favourite lists for TV and radio
- Electronic TV Programme Guide (EPG)
- Parental lock function for menu and rating control selectable per channel
- Multi-lingual support on screen menu
- Software update via satellite (OTA) and external USB storage device.
- Connectors: SAT IN, SAT OUT, HDMI, TV SCART (RGB, CVBS, Audio L&R)

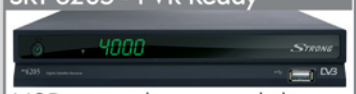
STRONG DIGITAL TV

PRIMASAT I

DVB-S Receiver, USB PVR Ready

- For digital Free-To-Air TV and Radio
- USB 2.0 port

SRT 6205 - PVR Ready



USB recording capability

- UHF Modulator to connect the receiver to TV
- 2 Common Interface slots
- USB port

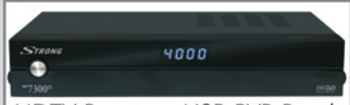
STRONG DIGITAL TV

SRT 7805 HD+

HDTV Receiver, USB PVR Ready

- HDTV (1080i) • USB port
- HD + compatible (HD+ smart card for 12 months including

SRT 7300 CI+



HDTV Receiver, USB PVR Ready

- HDTV (1080i) • USB port
- CI + compatible slot for most CA - modules

TOPFIELD

SRP-2401 CI+

HDTV DVB-S Receiver

- Digital Satellite Receiver with CI & HDD
- 2 Common Interfaces for CONAX, CRYPTOWORKS, IRDETO, NAGRAVISION, SECA & VIACCESS • 2 tuners
- MPEG-2 digital and fully DVB compliant
- SCPC and MCPC receivable from C/Ku-band satellites
- 10,000 Services TV (7,000) & Radio (3,000) programmable
- 32-bit Color On-Screen Display (OSD)
- Firmware Upd. by Over-The-Air or USB-Stick
- S/PDIF for digital audio or
- Dolby AC-3 bitstream output
- Recoding capacity: Determined by USB-External HDD capacity
- Full Picture in Graphic (PIG) function
- Capable of time-shifting & single recoding
- MP3 (MPEG-1 Layer 3) decoding
- NTFS Read/ Write supported
- CI+ Service Descramble supported

New measurements on stock

Premium

Satlook ICE

- DVB satellite-receiver 920-2150MHz
- Spectrum-analyzer with expanded spectrum
- DVB-S (Free to Air) and Analog TV-picture
- Digital readout of BER and SNR.
- Super bright 5" 16:9 TFT-LCD color display

... and much more

Mid Range

Satlook LITE

- Very handy and easy to use Satellite-TVmeter.
- "EasyFind"-satellite identification
- Very sensitive
- Digital BER and S/N-ratio

... and much more

Cost Effective

Digisat PRO ACCU

- Measure signallevel from two LNB´s at the same time.
- Measured information are displayed on the LCD.
- DiSEqC, 22 kHz, 13/18v and mA readout.
- Generate DiSEqC, 22 kHz and 13/18v to control LNB/switch.

... and much more

Consumer

AirBeeper

- Very small and handy meter for installation of DVB-T antennas.
- Extremely easy to use, no buttons or knobs.
- Pitch-tone indication in the earphone

... and much more

DOEBIS GmbH

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D-56271 Mündersbach

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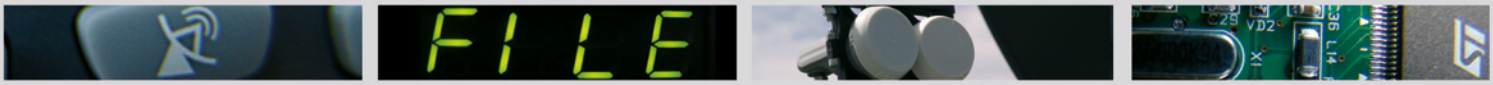

HDTV & Ethernet connection

smart

CX 10

DVB-S HDTV Receiver

- HbbTV
- PVR-ready
- LAN / Ethernet connection
- FULL HD 1080p
- NAGRA embedded
- USB interface for external storace devices
- e-SATA interface
- Unicable ready

DVB-S FTA Receiver

THOMSON

TSR 200

- USB port for recording and playback on an external USB medium
- S/PDIF for digital audio output
- 4000 program presets
- Electronic program guide (EPG)
- IR sensor for desired positioning
- LED display
- Easy installation with installationassistant

Big Dishes

PRODELIN
A TriPoint Global Company

240 RXO

NEW

370 RXO

2.4M - C & KU-BAND
- Precision compressionmolded centerfed reflector
- Series 1252 - Az/El Mount
- Series 1253 - Polar mount
- Low transportation cost withthree panel reflector
- Individual panels inter-changeable and fieldreplaceable
- Galvanized steel mounts Reader

3.7M - C & KU-BAND
- C-Band Intelsat F1, H4 and GType approved: approval #IA031A00 (without LNA) and# IA031AA0 (approved LNAincluded)
- Intelsat approved LNA kit eliminatescostly field testing
- C-Band INSAT & wide-bandavailable
- Precision compression molded foursegment offset reflector
- Installation time reduced withimproved mount design
- Fully galvanized steel Az/El mount
- Reflector/Feed electrical Anti-Icingavailable
- Two axis tracking configurationavailable

Dishes

CIBERTINI TRIAX PRODELIN

40 cm – White
70 cm – White, Black, Red
90 cm – White, Black, Red
100 cm – White, Black, Red
120 cm – White
130 cm – White, Black

Big dishes directly from our warehouse!

NEW

- 160 cm
- 180 cm
- 240 cm
- 300 cm
- 370 cm

Optical fibre LNB

invacom

Innovation in Communications

Fibre LNB / Fibre Flange LNB

AVAILABLE ACCESSORIES:

Optical 2, 4 or 8 way MDU can imitate a twin, quad or quattro LNB, and you can have up to 32 MDUs from one Fibre Optic LNB

1x2, 1x4 or 1x8 optical fibre coupler

Optical cable from 1,0 meter up to 200 meters

The Fibre Optic LNB can feed the whole Ku-band to up to 32 end-points.

Full LNB range INVACOM available as:

SNH-031, TWH-031, QTH-031, QDH-031, SNF-031, TWF-031, QTF-031 and QDF-031

Parts

Multifeedholder for 2, 3, or 4 LNB

Wallmounts
- 15 cm distance – Aluminium
- 25 cm distance – Aluminium
- 35 cm distance – Aluminium
- 45 cm distance – Aluminium
- 55 cm distance – Aluminium
- 35 cm distance – Steel
- 45 cm distance – Steel
- 50 cm distance – Steel
- 70 cm distance – Steel

- F-Connector – 7 mm
- F-Connector – 7 mm waterresistant
- F-Connector – 4 mm and more

Remotesystems
- AV-Linker – Videosender for remote control
- Remote Blaster
- Zapline 2 and more

BIGLink

Koaxialcable
- High Qualitiy coax cable
- Minicable Coax
- Mini-Twincable Coax
- > 100 dB / > 110 dB

Flat-Dishes

SELFSAT

- Works on all Ku-band Satellites
- Cross polarization improved
- Ideal for High Definition reception

SELFSAT Flat-Dishes available as:

H30D / H30D2 / H30D4

STRONG DIGITAL TV

Slimsat SA Series

- Satellite antenna with integrated Single- Twin- or Quad LNB
- Simple: Installation within a few minutes

NEW

Slimsat Flat-Dishes available as:

SA 61 / SA 62 / SA 64

LNBs

- MTI
- BEST
- INVACOM
- ALPS
- INVERTO
- MAXIMUM
- TITANIUM, etc.

- Single Universal
- Twin Universal
- Quattro Universal
- Quad Universal
- Octo LNB
- Monoblock Single Universal
- Monoblock Twin Universal
- Monoblock Quad
- C Band
- Circular

and many more

Inverto

- Red Extend - 40mm, 0,3dB
- Black Premium - 40mm, 0,2dB
- Black Ultra - 40mm, 0,2dB
- Black Multiconnect - 23mm, 0,2dB

All available as:
- Single Universal
- Twin Universal
- Quattro Universal
- Quad Universal

Full LNB range INVERTO available from stock

Motors

Aktuatoren/ Actuators

Mini Actuators – 6", 10", 12"
Regular Actuators – 12", 18", 24"
Heavy Actuators – 24", 36"

H-H Mounts

SG 99 / SG 99 II – up to 1,00 m
SG 107 – up to 1,10 m
SG 2500 A DiSEqC 1.2 – up to 1,00 m
Stab HH100 DiSEqC 1.2 – up to 1,00 m
Stab HH120 DiSEqC 1.2 – up to 1,20 m

Multiswitches/ DiSEqC-Switches

- SPAUN
- DTRON
- JAEGER
- JOHANSSON
- MAXIMUM
- BEST

From 2 in/1 out
up to 17 in/36 out

SPAUN™ Full range

Balcony mounting parts

25 cm distance – Steel
50 cm distance – Steel

120 cm length
– Ø 6 cm

ALSO AVAILABLE:
- Balcony stand 100 cm Aluminium
- Balcony stand 100 cm Steel
- Balcony stand "Holland"
- Balcony holder L-form 25 cm
- Balcony holder L-form 50 cm

Unicable solution

Inverto digital-labs

IDLP-USS2OO-CUO1O-8PP

This cascadable Unicable switch is the smallest form factor Unicable switch enabling the reception of 2 satellites and installations with up to 8 satellite receivers over a single cable. In addition to its eight User Bands Unicable output, the multiswitch also features two legacy outputs, a terrestrial antenna input and is powered by an external power supply

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Skyworth HS18 DVB S2

- *Ideal for hidden installation on the back of TVs*
- *Perfectly suited as a fully featured camping receiver*
- *Fully functional PVR thanks to the USB interface*
- *Supports all of the standard picture formats*
- *Very sensitive IR remote control signal receiver*

DVB
HD DIGITAL SATELLITE RECEIVER
USB
RS232

An HD Compatible Mini DVB-S2 Receiver

The SCART connector is very widely used in Europe and for many years there have been small satellite receivers that you simply plugged into the SCART connector. But when the SCART connector was developed, there was at that time no HDTV and as a result these little SCART receivers don't measure up to today's requirements. In order to display HD content on a TV, you have to use the HDMI jack.

And it's exactly this concept that Skyworth has addressed: the Skyworth HS18 is the first mini receiver with an HDMI output. With the HS18 the HDMI cable is a mere 10cm in length and not only that, it's incorporated directly into the receiver. This lets the set top box disappear completely behind the TV right next to the HDMI jack.

Thanks to the included mounting material, the 100g HS18 can easily be fixed in place so that the tension on the HDMI cable won't be too much. It's small 11 x 7 x 1.7cm size takes up almost no space at all and yet comes with all the different connection capabilities you'd expect to find in a modern receiver. This includes, of course, the satellite IF input, a USB 2.0 interface for external storage devices, a port for an RS232 adapter plug, a jack to plug in the external IR receiver as well as a jack for the external 12V power supply. The package also includes a small but handy remote control. The buttons are clearly labeled and provide a comfortable back pressure when pressed.

One of the LEDs that is integrated into the infrared receiver shows the current operational status of the box, if it's red the receiver is in standby and if it's green the receiver is in operation. All in all, we were quite pleased with the workmanship quality of the Skyworth HS18 and we also liked that it's just a little bit larger than a pack of cigarettes.

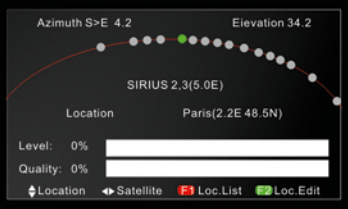
When you turn the receiver on for the first time, you're greeted with the main menu and its six submenus. As usual, we started with the system settings with which you can set up the receiver to your personal requirements. The very fist step is to select the desired OSD language. You can choose from English, French, German, Italian, Spanish Portuguese, Russian, Turkish, Polish, Arabic as well as Farsi.

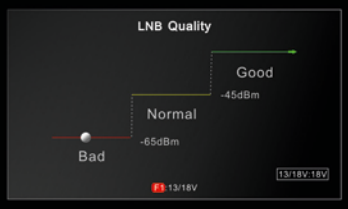
The HS18 works quite well with the available TV equipment in that it supports picture resolutions in 480i, 480p, 576i, 576p, 720p 50Hz, 720p 60 Hz, 1080i 50 Hz, 1080i 60 Hz as well as 1080p 50 Hz and 1080p 60 Hz. Clearly, if you own the HS18, you will be perfectly prepared for the day when HDTV is transmitted via satellite in 1080p. We also found the two Auto modes quite practical whereby in the first mode the resolution is automatically matched to the incoming satellite signal while the second mode orients the receiver to the resolution of the TV.

All of these capabilities are even further enhanced by the automatic time synchronization. Skyworth put some thought into this and doesn't ask the user to enter the local time difference from GMT but rather provides a list of countries and cities to choose from. We found this to be not only more practical but also much more customer-oriented! Other settings possibilities include the ability to individually set the sharpness, contrast and brightness of the video output.

Once the Skyworth HS18 has been matched to the

DVB S2





- Installation Meter & Full Measurement for DVB-S2
- Real-Time and Multi-Analyzing Spectrum
- Constellation Chart
- LNB Test MDU & Unicable
- BER, S/N(MER),FEC Measurement
- Auto Search,Blind Search,NIT Search,Manual Search
- Satellite Name & Degree Auto Detective & Display
- Auto DiSEqC1.0/DiSEqC1.1/DiSEqC1.2,USALS
- Local satellites list showing automatically
- Easy upgrading by Ethernet & USB & RS232 Port
- Satellite List Editable by Editor via PC
- Li-ion Battery(2350mAH), last 6 hours, Fast Charge(2 to 3 hours)
- Accessories: Adaptor,Car Charger,upgrading cable,AV cable,
- Water-Proof Bag,Compass,User Manual
- Size:162x100x42(mm) Weight: 0.45kg

Tiny But Mighty

Size:162mmx100mmx42mm

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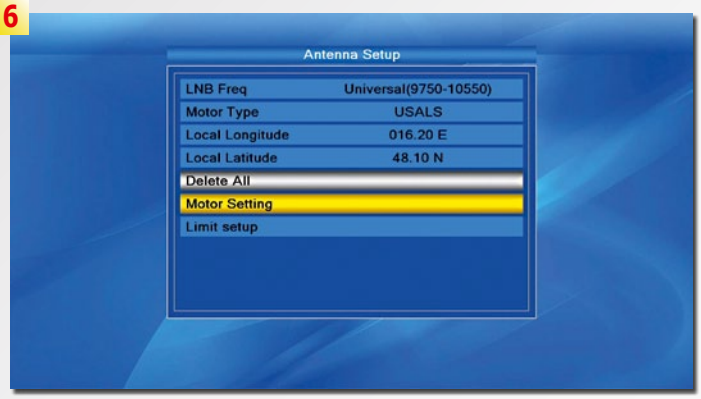

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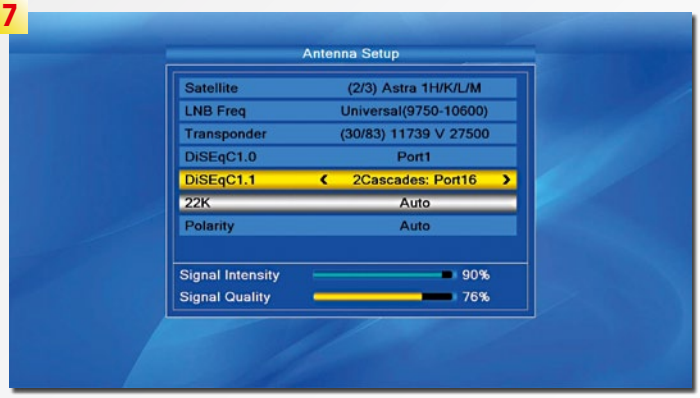

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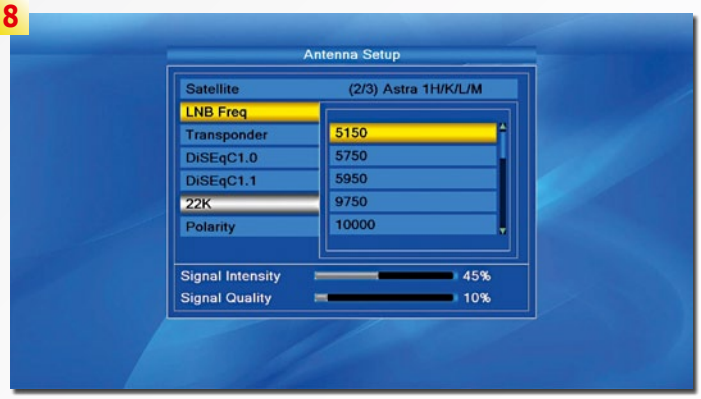

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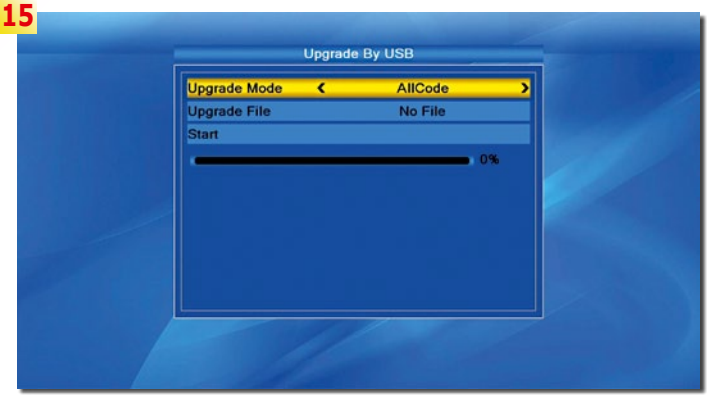

available TV system, the next step would be to set up the correct connection to the satellite antenna. The HS18 supports all of the available DiSEqC protocols, that is, 1.0 for reception of up to four satellites, 1.1 for up to 16 satellites as well as 1.2 and 1.3 for motorized antennas. The list of preprogrammed satellite positions is made up of 46 entries and includes all of the standard European satellites. We were happy to see that the list itself was very up-to-date. The transponder list as well as the satellite list can easily be edited so that it really only takes just a few button-pushes on the remote control to add, edit or delete transponder or satellite entries.

On the LNB side of things there are a large number of preprogrammed LOF values available for the C-band and the Ku-band; manual LOF entry is not possible. Once the receiver knows exactly what satellites it can receive, the next step involves filling up the channel list. To accomplish this task, there are three search modes available: an automatic channel scan on one satellite, an automatic channel scan on multiple satellites and also a transponder scan.

The user will like the ability to limit the automatic channel scan to FTA-only (free-to-air) and also to TV or radio only and to TV and radio. Added to this is the integrated network scan and as a special bonus there's also a BlindScan. The BlindScan feature functioned quite well in our tests and managed to find 1461 TV channels and 516 radio channels on HOTBIRD at 13°E in just four minutes. In comparison the automatic channel scan of HOTBIRD at 13°E with the help of the preprogrammed transponder data found 1478 TV channels and 522 radio channels in about six minutes.

Once the channel list has been filled with hundreds of channels, it would be nice for the user to have a decent channel sorting and editing function; the Skyworth HS18 doesn't disappoint here either. In a clearly and logically designed menu individual channels can be assigned a PIN code, deleted, moved, renamed or moved into one of the 32 freely namable Favorites Lists. It deserves to be mentioned here that if needed all the

1. Main Menu (Antenna installation)
2. Main Menu (System settings)
3. Main Menu (Tools)
4. PVR Menu
5. The extensive satellite list with all usable European orbital positions
6. Antenna settings including position entry for DiSEqC 1.3
7. DiSEqC 1.1 for up to 16 LNBs is also supported
8. The LNB LOF values can be selected from a preprogrammed list; manual entry is not possible
9. Channel scan on one satellite
10. Transponder scan
11. The HS18 also supports BlindScan
12. Thanks to extensive editing capabilities, the channel list can easily be matched to a user's requirements
13. All channels on a satellite can be deleted with the push of just one button
14. Setting the time by choosing the country and city
15. The receiver's software can quickly be updated via USB storage devices

channel entries from a single satellite can be deleted at one time; this would save some users a lot of time and aggravation.

In general we were quite happy with the quick reaction time of the receiver to remote control commands as well as with the sensitive IR receiver. Both of these

displayed through the Skyworth HS18. For this purpose there are two modes available: a complete overview of a single channel and also a simultaneous display of five channels in a grid format. Both formats are clear-

The new HS18 receiver from Skyworth comes with a fully functional and quite sensitive DVB-S2 tuner. Whether it was weak signals, such as those on BADR at 26°E that come in relatively weak here in Austria, or narrow band SCPC signals, the receiver could not be brought out of its rhythm. As a result, the

same transponder. As you would expect with a high-quality product, Skyworth also included a time shift function with the HS18 that allows the user to pause a live program and come back to it at a later time without missing a thing. In this way you can answer that telephone call or handle some other unavoidable interrup-

make using the receiver that much easier and can put a smile on the lips of users when they're working with the receiver such as when sorting the channel list.

Once the receiver has been completely set up according to the user's requirements, the main menu can be left simply by pushing the „Exit" button. This takes the receiver to the first channel in the channel list. An informative Info bar appears that displays the title of the current and upcoming programs plus provides information on the availability of teletext, subtitles or EPG data.

As long as the programming provider offers EPG data for the next several days, it can be evaluated and

ly organized and offer the user a good overview of the upcoming programs. Since the Skyworth HS18 is a PVR receiver, timer recordings can be set up directly from the EPG. Unfortunately, you can only set up a total of eight timers; considering the number of TV channels that are available today, this number is somewhat small.

But this is made up for by the well-arranged channel list that can be easily accessed with a single push of the OK button. The list can be further refined to those channels from individual satellites or from specific groups (provider, CAS). A practical search function with the use of the OSD keyboard is also available to help make finding specific channels much easier.

HS18 had no trouble at all receiving the 12634V transponder on TURKSAT at 42°E with a symbol rate of 2.222 MS/sec. We were also surprised at the picture and audio quality of the small HS18. It can be used in an RV with a 24" monitor just as well as with a 50" LCD TV in your living room at home.

Even though the HS18 isn't much larger than a pack of cigarettes, it easily becomes a fully featured PVR receiver thanks to its USB 2.0 port and the use of an external storage device. Its capabilities exceed many other mini receivers in that it can record two HD channels simultaneously while showing a third TV channel live. Since the HS18 only has a DVB-S2 tuner, all three channels have to be on the

tion in the middle of your favorite show without missing a beat.

The incorporated media player in the HS18 plays back all the prerecorded TV and radio content but is trumped by an MP3 jukebox, a picture viewer and a video player for all of the standard formats (for example, MPEG, VOB, TS, MKV, AVI).

This makes the small Skyworth HS18 box a fully-featured multimedia receiver with which you can not only enjoy TV and radio programs, but you can also enjoy listening to your favorite songs. And let's not forget that it can also play the latest video clips from the Internet and lets you present your vacation pictures and videos to all of your friends.

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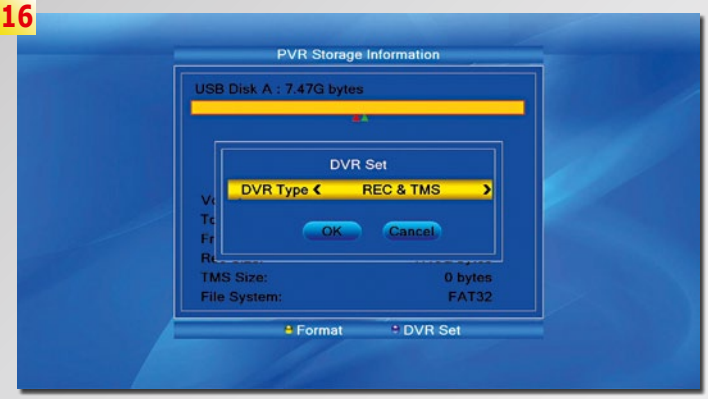

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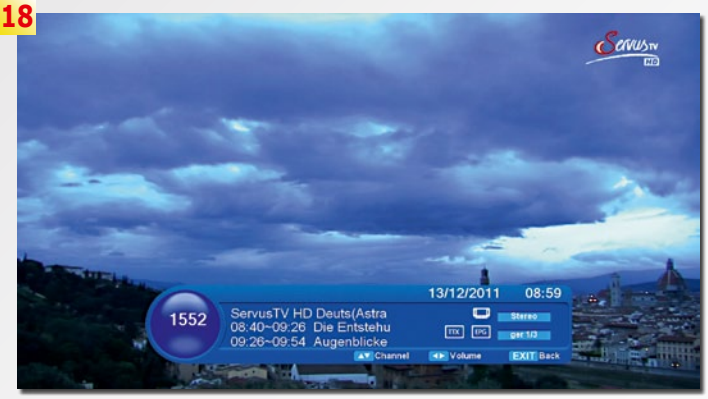

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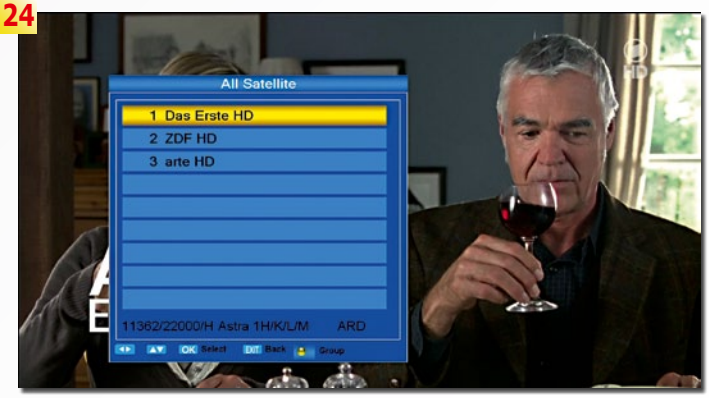

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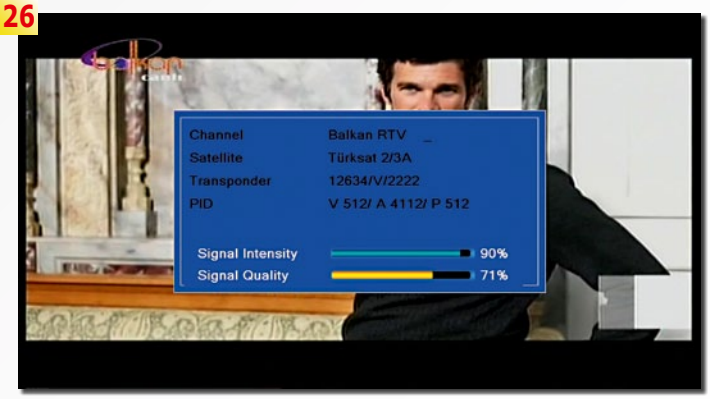

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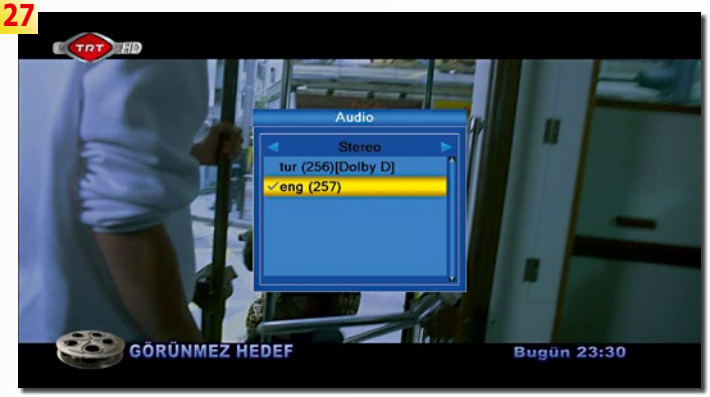

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16. The Skyworth HS18 becomes a fully-featured PVR receiver with the addition of a USB 2.0 storage device

17. TimeShift is also supported

18. An Info bar appears at the bottom of the screen with every channel change and provides information on the current and upcoming program

19. EPG display of five channels

20. EPG display of one channel

21. Timer entries can be set up directly from the EPG

22. Channels can be easily searched for using the OSD keyboard

23. Two HD recordings can be handled at the same time; if a third recording is started, the receiver asks the user to stop a current recording

24. While a recording is in process, the channel list only shows those channels that are on the same transponder

25. The media player can play back content previously stored on a USB 2.0 storage device.

26. SCPC reception on TURKSAT 42°E is no problem at all

27. Thanks to language selection, multiple audio channels can be managed

28. The list with entries after scanning a satellite

29. The HS18 is also a fully-featured MP3-Player, picture viewer and media center

30. MP3 playback

31. Videos can be played back in a variety of formats without any interference

32. AVI playback

We should also mention that the Skyworth HS18 is one of only a very few digital receivers that we have recently tested that can work with the NTFS data system. This is particularly advantageous because you are no longer restricted by the FAT system which would require another file for anything over 4GB. This makes it easier to edit any recordings and, for example, convert them into a DVD at a later time on your PC.

On top of all these features that were just mentioned, the little Skyworth comes with yet even more small but practical features including a dedicated button on the remote control to adjust the video signal resolution as well as an integrated teletext decoder. The internal software of the HS18

HD DIGITAL SATELLITE RECEIVER
DEF
MNO
WXYZ
ABC
JKL
TUV
GHI
PQRS
MENU
EXIT
PR+
PR-
OK
LIST
V.FORMAT
PAUSE
FIND
TXT
EPG
FAV
SAT
SHIFT
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can also be easily updated through a USB storage device. And as long as we're talking about updates, the next software revision from Skyworth should include the activation of the RJ45 interface and the integrated card reader.

All in all, we had a lot of fun thoroughly testing the Skyworth HS18. It's a sophisticated receiver that is loaded with features all of which are packed into a housing that is only a few centimeters in size. Thanks to its small size it can easily be used anywhere, whether it's in your RV or in your living room.

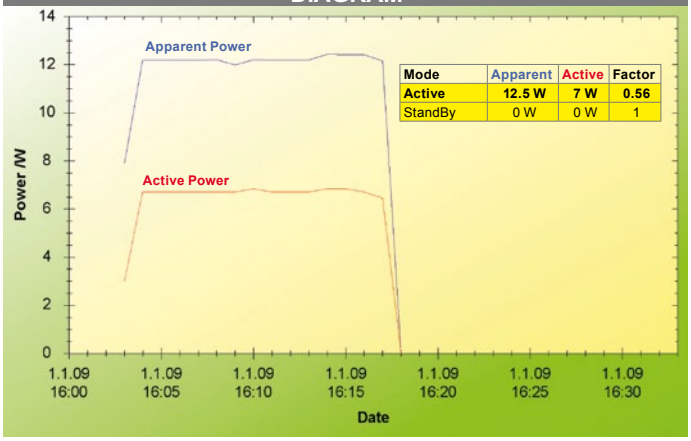
Expert Opinion

Thomas Haring
TELE-satellite
Test Center
Austria

+ **Sophisticated and stable software, wide assortment of features and applications and excellent workmanship. Because of its small size it's an ideal receiver for RVs but would also make a very practical receiver for your living room**

– **None**

ENERGY DIAGRAM



The first 15 minutes active use with channel switching, recording, playback, etc. The second 15 minutes in Standby

TECHNICAL DATA

Manufacturer	Shenzhen Skyworth Digital Technology CO., LTD. Unit A 13-16/F, Skyworth Mansion., Gaoxin Ave. 1.S. Nanshan District, Shenzhen 518057, China
Internet	www.skyworthdigital.com
Email sales	ganweicai@skyworth.com
Tel	+86-755-26010018
Model	HS18
Function	Very small DVB S2 PVR Receiver with HDMI
Input frequency	950 - 2150 MHz
EPG	yes
C/KU-Band	yes
HDTV support	yes (up to 1080p)
RS232	yes
Ethernet	yes
USB 2.0	yes
Size	11 x 7 x 1.7 cm
Weight	115 Gr

Highlights

www.spaun.com Quality made in Germany

Compact Headend 8 / 16 x DVB-S(2) into QAM
BluBox 8 and BluBox 16

- 8 / 16 x DVB-S(2) (QPSK/8PSK) into DVB-C (QAM)
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- Laser output power: +6 dBm
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CATV SPLITTER AND TAP

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WDE-4420 ENCODER

WDE-4220 MPEG-2/4 ENCODER

WDM-4140 MULTIPLEXER

WDQ-3204 QAM MODULATOR

WDE-H2220 HD ENCODER

WDT-1204 TS RECEIVER

4 OUTPUT RETURN OPTICAL RECEIVER

WR8602JDS ROOM OPTICAL RECEIVER

OPTICAL SWITCH

WR8602RJL ROOM OPTICAL RECEIVER

1550nm INTERNAL MODULATION OPTICAL TRANSMITTER

1550nm EXTERNAL MODULATION OPTICAL TRANSMITTER

1310nm EXTERNAL MODULATION OPTICAL TRANSMITTER

ERBIUM DOPED FIBER AMPLIFIER

CATV OPTICAL FIBER COMMUNICATION SYSTEM PLATFORM.WOS-3000

Panodic M3601E

- ***innovative user concept***
- ***optimised for DVB-T reception of SD and HD channels***
- ***fully-fletched integrated PVR***
- ***recordings can be edited on the PC***

PANODIC
Digital World,Simple Life

Elegant Receiver Taking Up Almost No Space At All

As an avid reader of TELE-satellite you will have noticed a persistent trend in recent times: Set-top boxes are shrinking all the time and it seems the race is on to launch the smallest box. All this is not without a reason, because not everybody has enough space or technical fondness to display bulky technical gadgets in the living room. The package we received from Panodic already hinted at the rather diminutive size of the M3601E DVB-T receiver and after we had opened it all we found was a 11.5 x 7.5 x 2.5 cm black box weighing a mere 118 g. Just think of it, a piece of cheesecake is heaver than this receiver – in all senses of the word!

We appreciated both design and build quality of the M3601E and we almost thought it looked too good to be hidden behind a flat screen TV or attached to the wall using the wall-mounting openings on the bottom side of the box. As far as connections are concerned, this new Panodic mini-receiver sports HDMI and RF connections on the left side, as well as the obligatory power socket and connector for the separate IR receiver on the right side. We're talking about DVB-T here, so an external power unit providing a 5V current is more than enough – after all, there are no LNBs requiring up to 18V from the device.

Obviously, the Panodic DVB-T receiver is shipped with a remote control, but when looking at the layout of the control, there's nothing obvious about it at all. Everything seems to be upside down at first sight. What we mean by that? Well, all buttons controlling PVR functions are positioned in the uppermost section of the remote control, followed by the arrow keys that follow the conventional cross-shaped arrangement. It is only in the lower section that the numeric keypad is located. In addition, the 'Stop' button cannot be found next to all the PVR buttons, but appears on the lower right side of the arrow keys. You might wonder what that is all about, and to be honest, so did we at first. But the manufacturer has looked at which buttons are used most frequently as well as which section of a remote can be reached most easily and then designed its remote control layout accordingly. Not such a bad move, we have to say. So that you don't have to take our word for it we asked our colleagues at the editorial office what they thought about the remote control, and the feedback was overwhelmingly positive. It does take some time to leave behind acquired habits and get used to it, though.

Unfortunately, the external IR receiver is a component we cannot praise so highly, as it did not always pick up commands sent from the remote control. It was more point and shoot rather than remote controlling, if we wanted to make sure the receiver followed our commands. On a more positive note, the integrated LED which indicates the current operating mode (green = on, red = standby) is a very useful feature.

Right after turning on the Panodic M3601E for the very

Hybrid OTT BOX+DVB-S2/T2/C

- IPTV
- Movie Online
- Web Browser (Optional)
- USB Mouse, Keyboard
- Fully MPEG-2 / MPEG-4 (H.264 / VC-1) and DVB-S/DVB-S2 Compliant
- Network Application (Youtube, Podcast, Yahoo, Picasa, Flickretc etc.)
- Multi-media Player (TS, MKV, AVI, VOB etc.,)
- DLNA
- WiFi
- Recording & Playback with External Storage Devices(e-SATA / USB2.0 / HDD)
- Firmware Upgrade (USB / Online / OTA)
- VOD
- Conax CAS7.0 (Optional)
- 2 USB

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HD DVB-S2

- Fully MPEG-2/MPEG-4(H.264/VC-1) and DVB-S/DVB-S2 Compliant
- Multi-media Function (Playback TS, MKV, AVI, VOB etc.)
- Record & Playback with External Storage Devices (USB Stick/HDD)
- Support HDMI output (up to 1080i)
- Conax CAS7.0 Embedded (Optional)
- One Common Interface(CI) (Optional)
- Ethernet
- Support OTA (Optional)
- WiFi (Optional)
- 2 USB

HD DVB-T

- Fully DVB-T/MPEG-2/MPEG-4/H.264 Compliant
- PVR Recording (Viewing one channel and Recording another channel Simultaneously)
- Multi-media Function (Playback TS, MKV, AVI, VOB etc.)
- Record TV and playback with External Storage Devices (USB stick/HDD)
- Advanced Time-shift function
- Format Resolution: 1080i, 720p, 576p
- OTA (Optional)

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first time an installation wizard pops up on the screen and smoothly runs the user through the following routines: language, location, HDMI output resolution and video aspect ratio. We liked the fact that language selection and location are interlinked, so that the receiver automatically activates the corresponding OSD language after a country has been selected. It goes without saying that the language can be changed at any time so that a Frenchman in London will also be happy, to give just one example. A list of all supported languages can be found in the Technical Data table.

We mentioned different HDMI output resolutions in the installation wizard a moment ago. The following modes are available: 576i, 576p, 720p, 1080i as well as 1080p, which makes this DVB-T receiver a perfect choice even for so-called Full HD. Every time this setting is changed a small window pops up asking the user to confirm the selection within 15 seconds, otherwise the receiver will switch back to the previously used format. This might not sound like such a big deal, but not all TVs are 1080p compatible and the 'wrong' selection would create nothing but a black screen. And that means no OSD either to undo the setting. They say a small leak will sink a great ship, but with the Panodic M3601E you'll be on the safe side again after 15 seconds.

The aspect ratio settings are more or less self-explanatory and considering the fact that video output invariably is via HDMI we take it as a given that virtually all users will go for 16:9. Events broadcast in 4:3 can be presented with bars on both sides or can be zoomed up to cover the entire screen, depending on your personal preferences. The initial installation process is completed with an automatic channel search that in our case took less than 60 seconds for the entire VHF and UHF frequency bands.

Even though all major settings are dealt with during the installation routine we do recommend visiting the main menu for a quick look around. It is made up of the following items: Channel List Editing, System Setup, Tools, Game and Rec. Compared to satellite television, the range of DVB-T channels is small by any standard, but still Panodic offers professional channel list management even in its DVB-T receiver. Channels can be sorted alphabetically or according to FTA/encryption, they can be renamed, deleted or marked as 'not suitable for children'. A total of eight favourites lists can be created so that even in very large families each member will have their own customised channel list. With a small receiver like the Panodic M3601E it may be necessary from time to time to clear the existing channel list and create a new one – after the box was used in a different area with different local channel frequencies, for example. There is a dedicated menu item even for that procedure, and we have to say we are truly impressed by so much attention to detail.

In System Setup the receiver's parameters can be adjusted to make sure it both works with your existing antenna and other equipment in the living room. The manufacturer has even added a neat wizard to help with optimum antenna alignment – which is another feature we truly appreciated. Based on a previous channel search it automatically selects one of the detected frequencies and displays easy-to-view signal strength and signal quality bars. This way it is child's play to find the best possible alignment of a mobile DVB-T antenna. In case no previous channel search exists users have to manually select a reference channel for signal analysis. It is in this antenna alignment menu (and only here!) that the 5V power supply for the antenna can be turned on or off. Once the optimum alignment is achieved an automatic or manual channel search can be performed, which can be restricted to free-to-air channels only, if required.

The internal clock can be set manually, but of course the time stamp transmitted via DVB-T channels can be used instead. Users only have to select their region and the receiver then automatically determines the correct time zone, i.e. the time difference to GMT. Each time zone is shown together with large cities in that particular zone, so that there is no excuse for not getting the time zone right. Automatic switching between daylight saving and standard time rounds off this very worthwhile menu item.

When we opened the channel list editor for the first time we couldn't find any way to rename the eight favourites lists, but when we looked

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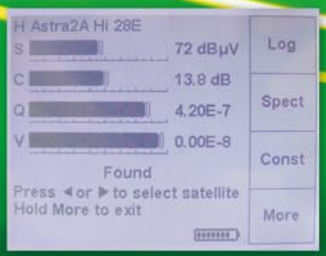
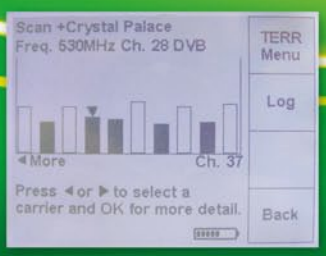
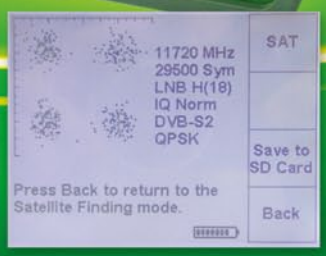
HD-STM

The latest addition to the award winning range from Horizon is a Combination DVB-S2 Satellite and DVB-T Terrestrial Meter offering a much needed solution for the requirements for both Home and Commercial installations.

The HD-STM is a lightweight, simple to use yet professional instrument for perfectly aligning satellite dishes and Digital antenna.







- Large 320 by 240 dot matrix screen
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- Multi-function display of Pre and Post BER/MER calculation, Signal Strength, C/N Quality, and Viterbi
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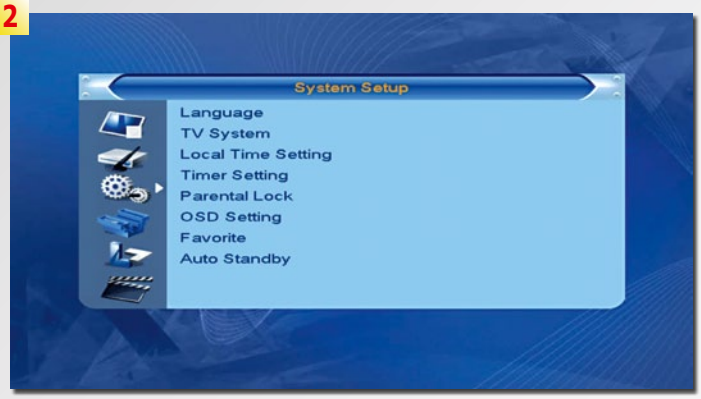

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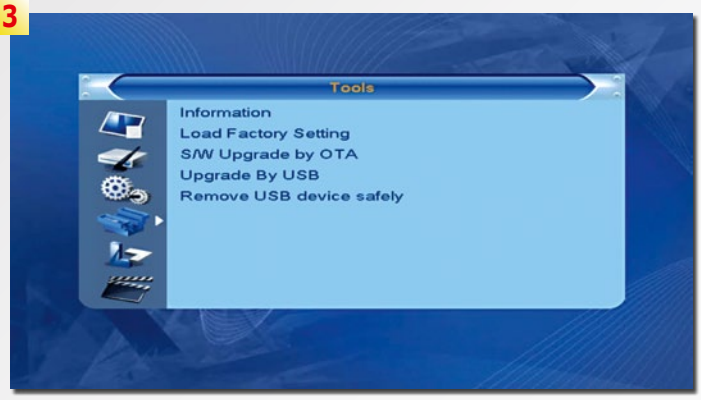

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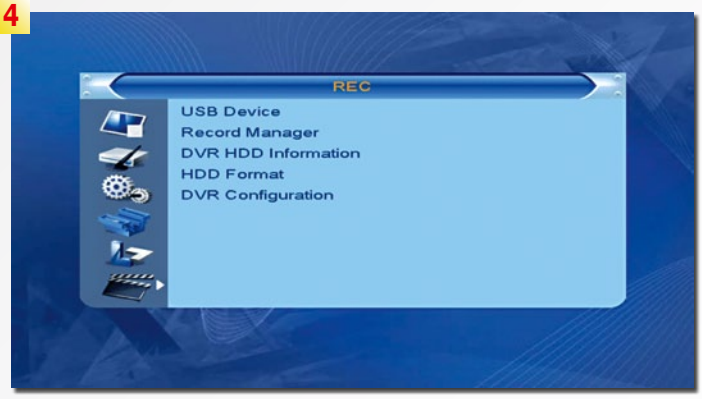

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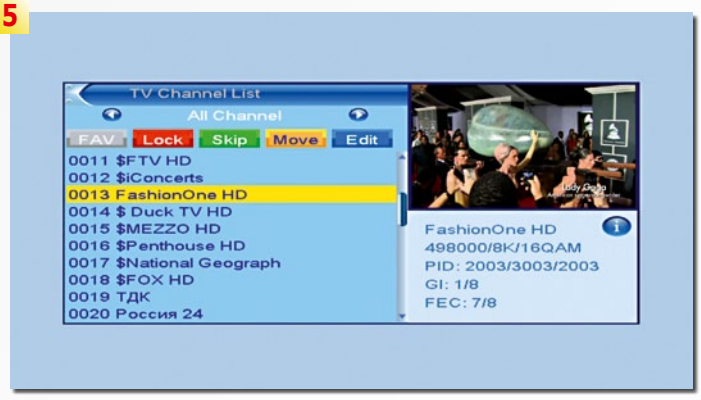

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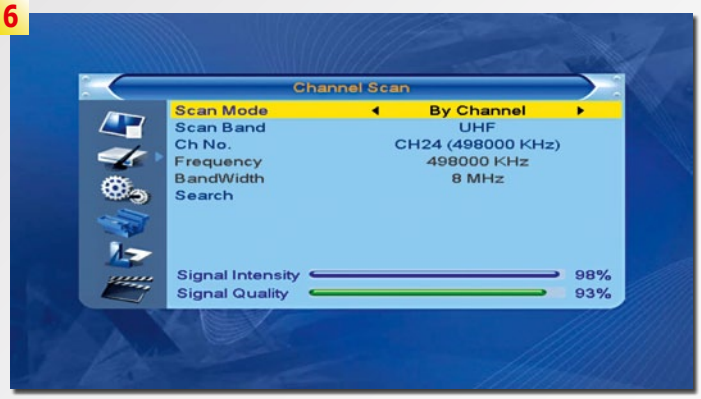

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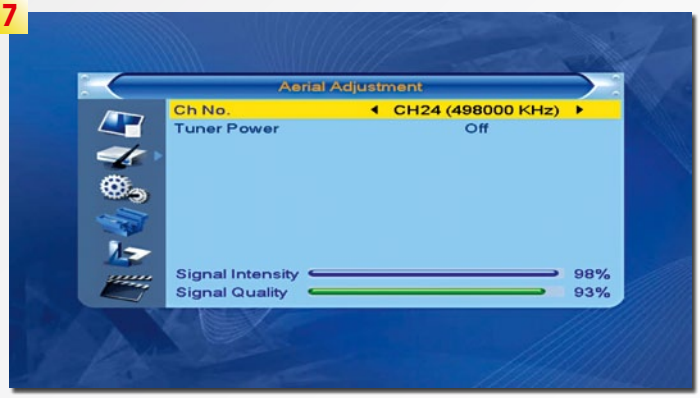

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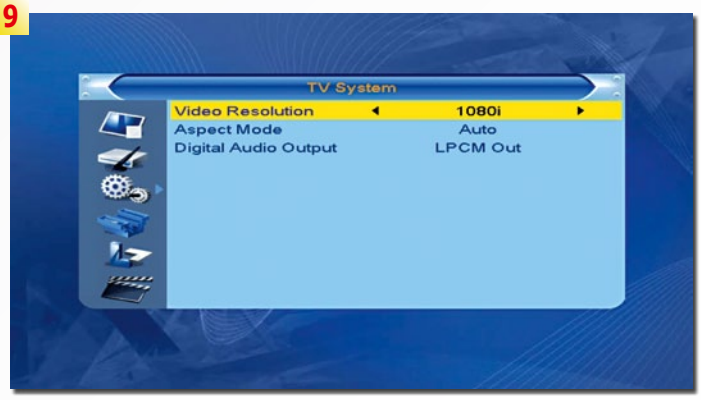

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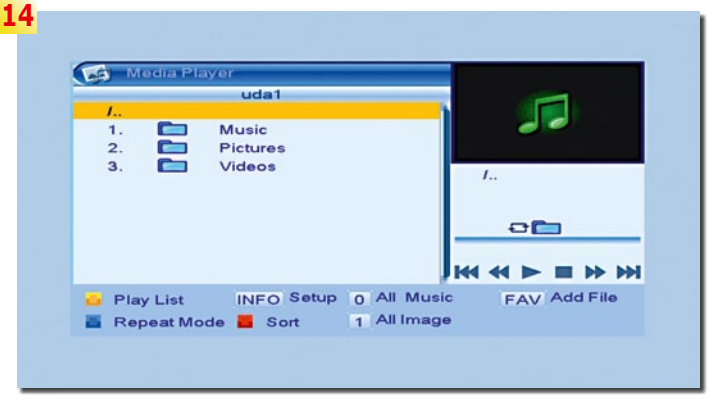

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at System Setup we were all the wiser. As a matter of fact, it is here that Panodic has added a dedicated menu item for doing just that. Plus, it is also possible here to create, display and edit up to eight timer entries as well as to protect menu access and access to certain channels with a PIN.

TELE-satellite editorial staff are frequently asked what makes a great set-top box, and our answer always stays the same: A cleverly designed and implemented OSD, reliable software and a reasonable user concept. We know that shiny features like an integrated PVR, blind scan or DivX playback always catch our attention and more often than not determine which brand or model we buy, but without a perfect operating system all those features are more or less worthless. The M3601E leaves nothing to be desired, and quite frankly we did not expect anything less from Panodic. A simple touch of the 'OK' button calls up the channel list and an info bar pops up every time we change the channel and displays the current and next event as well as date, time and additional parameters of the currently selected channel. That's all great and wonderful, but how can you plan a cosy evening in front of the telly without knowing which channel broadcasts the latest blockbuster movie, TV documentary or your favourite sports event?

With the Panodic M3601E you need not worry, since it comes with a fully-fledged EPG which shows a chart with the programming of five channels at a time. Using the colour-coded function keys you can scroll through the available information on a day-by-day basis or in two-hour increments. Since the M3601E also boasts full PVR functionality it is possible to mark events for recording.

Picture this: You're right in the middle of a suspense movie und just before the murder mystery is solved there is somebody on the phone or at the door. Thankfully, the new Panodic DVB-T box allows for timeshift viewing, so every time somebody or something interrupts your viewing pleasure you can pause the live broadcast and continue from that very scene at a later stage. What's more, you're not limited in your choice of storage medium and can attach either a USB memory stick, external HDD or even SD memory card to the USB 2.0 port.

Manual recording is another feature of this mini receiver which can stand any test, as it allows HDTV recording as well, even though it is not possible to record more than one channel simultaneously. What we truly appreciated, however, was a range of PVR setup options in the main menu which – among other things – lets you decide whether or not a buffered

1. Installation wizard of the Panodic M3601E
2. System setup with a number of configuration options
3. A USB memory sticks can be used to update the receiver's firmware
4. The ME3601 is a fully-fletched PVR receiver with a range of useful functions
5. Channel list editing
6. Manual channel search
7. Antenna alignment with signal indicators
8. Language settings
9. Video output formats
10. Clock adjustment
11. Manual timer entry
12. Up to eight timer entries can be saved
13. Up to eight favourites list can be renamed in the main menu
14. Music, images and videos can be played back by the receiver
15. Playing back HD videos from the Internet

timeshift recording should be added automatically to a recording that is started manually. If you activate this feature you can save an entire event even though you only pressed the 'Rec' button some time into the event. Furthermore, you can select auto standby, which turns off the receiver after a recording is completed. This particular option will definitely prove its worth in everyday use, but can of course be turned off if not required. The PVR functions are rounded off with MP3 playback, photo presentations on the TV screen as well as playing back VOB, MPEG, TS, MKV and DivX videos downloaded from the Internet.

An essential part of our test routine involves analysis of audio and video quality and we can firmly say that the tiny Panodic receiver passed with flying colours. Thanks to its HDMI output it provided excellent video to both our 52-inch plasma and a 22-inch LCD for mobile use. We were truly impressed by this top-quality performance, which incidentally also goes for the audio output. The fact that the M3601E's built-in tuner is only DVB-T compatible is a minor drawback, because this means HDTV reception is not possible in regions that have implemented DVB-T2 for HDTV (such as Great Britain, among others). MPEG-4 is only broadcast via DVB-T2 at our test location as well, so we decided to pick up MPEG-4 signals from INTELSAT 904 at 60° East and EUTELSAT W9A at 9° West and then modulated these signals onto a standard DVB-T carrier. Surprise, surprise: All of a sudden we were able to receive some Russian SD channels (from 60° East) plus Fashion One from the United States (from 9° East) in brilliant high-definition quality. This only goes to show that the chipset of the DVB-T receiver is fully HDTV (MPEG-4/H.264) compatible, but does not support DVB-T2. If you live in a market that has specified DVB-T with MPEG-4 the M3601E will be perfectly suited to your requirements.

A small box like this Panodic receiver lends itself to mobile use, so we also found out how it deals with weak signals – a situation we are often faced with when out and about. No matter how weak the signal, and no matter how many artificially inserted error bits (yes, we really added error bits into a DVB-T signal until the data stream became virtually useless for reasonable video!), the software of the box never froze but instead did its job with remarkable steadfastness. Yet, Panodic never stops improving its set-top boxes and will make available firmware updates from time to time

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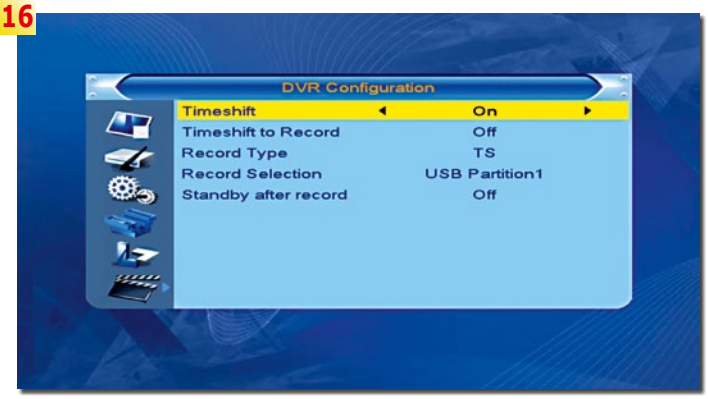

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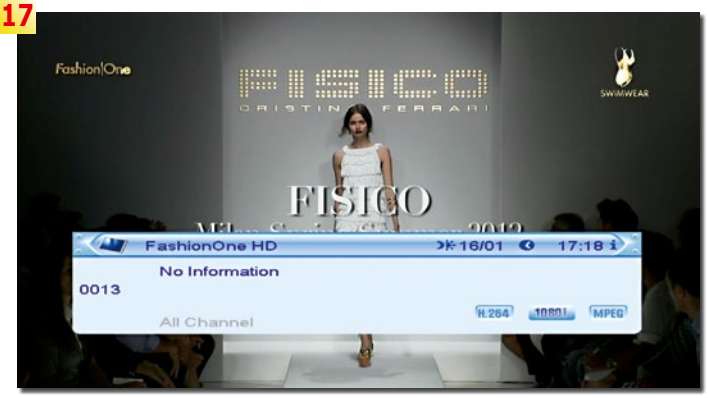

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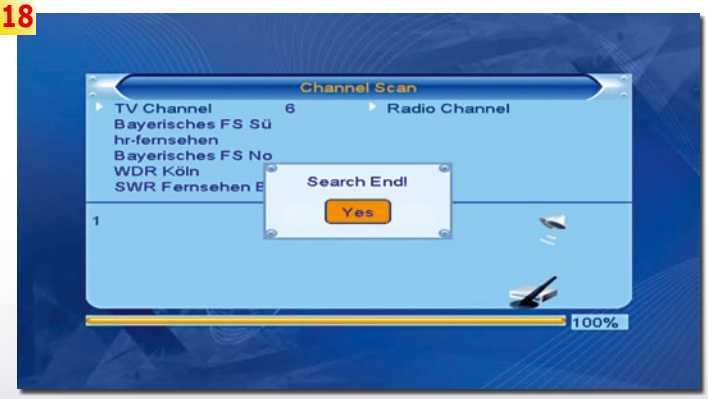
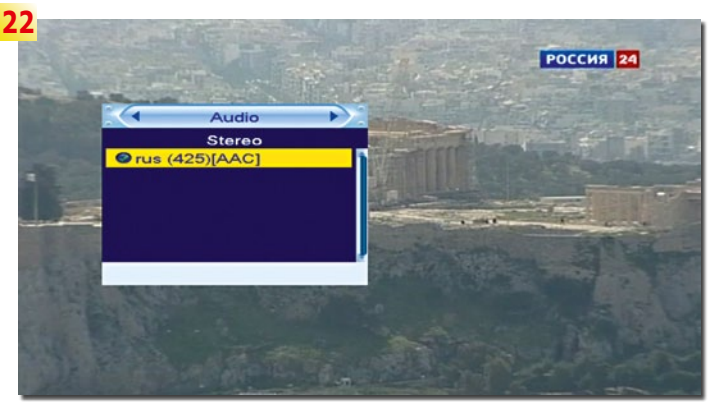
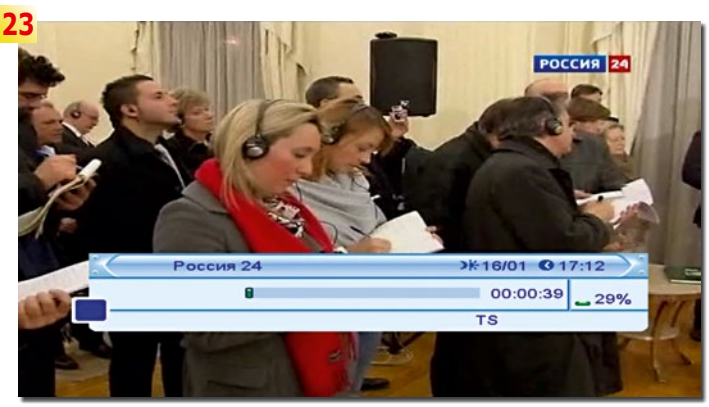
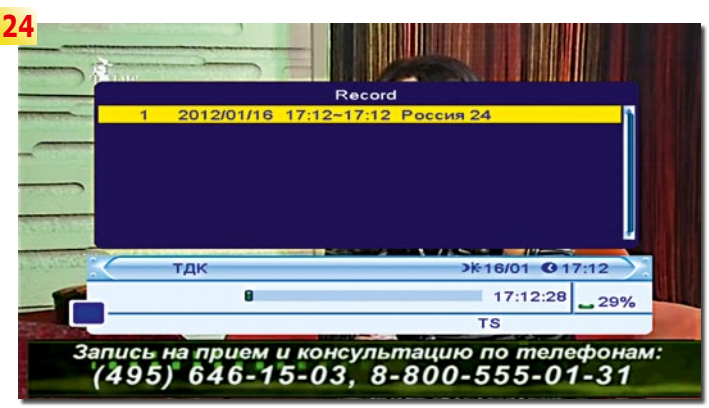


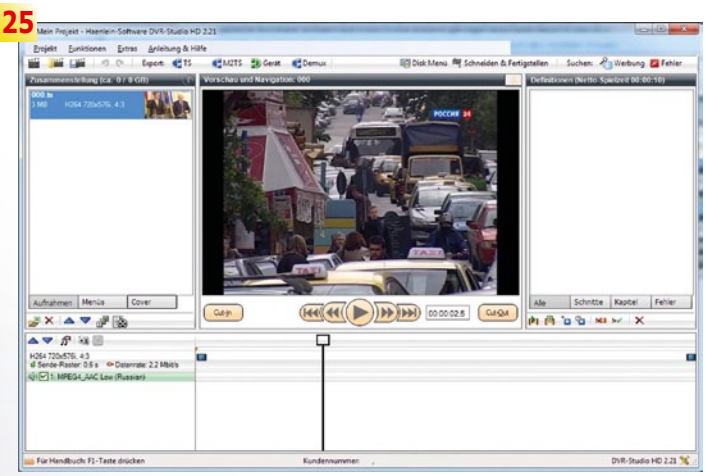






via its website. Those software updates can easily be performed using any USB storage medium.

If you think the list of features has already grown too long for a box of this size, we may have to prove you wrong one last time. The Panodic M3601E comes with two integrated video games (Othello and Sudoku) which might come handy when a



16. PVR settings
17. MPEG-4/H.264 HDTV reception with DVB-T
18. Automatic channel search
19. Info bar with information on current and next event
20. EPG showing five channels
21. Timer entries can be created right from the EPG
22. Audio selection
23. Playing back a previously recorded event
24. Display of current recording
25. Events recorded by the M3601E can easily be edited or saved onto a DVD using a PC

commercial break just drags on for too long.

In summary, testing the new Panodic DVB-T receiver was more than just our job. Rather, we truly enjoyed every step of the way. What we discovered was a sophisticated set-top box offering not only technically mature software but also a very small size. This way it will blend in nicely with the rest of your living room equipment, but will also be a perfect companion while camping or staying at your holiday home.

Experte Opinion

Thomas Haring
TELE-satellite
Test Center
Austria

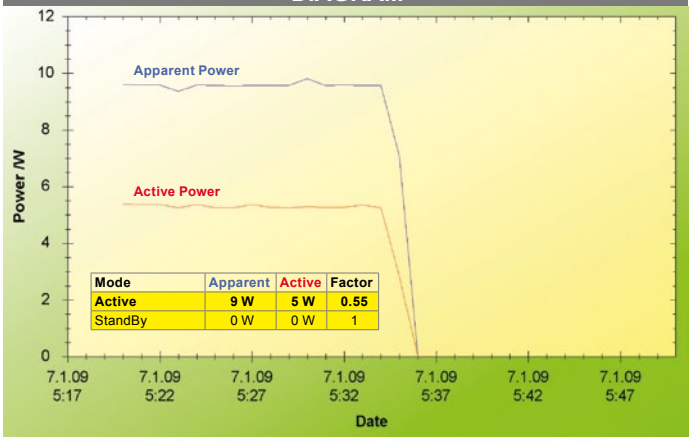
+ **Easy to operate DVB-T receiver with user-friendly OSD. The unconventional design of the remote control requires some getting used to, but then proves it has been developed with users in mind. The ME3601E sports a wide range of useful features.**

− **The external IR receiver does not pick up commands easily and must be pointed at very accurately with the remote control. Unfortunately, DVB-T2 is not supported.**

TECHNICAL DATA

Model	Panodic M3601E
Function	DVB T Mini Receiver with HDMI and PVR
Manufacturer	Panodic, 12/F Grentech Building, Keji C Road 3rd, Nanshan, Shenzhen 518057, China
Tel	+86-755-8659 0230
Email	market@micoelectric.com
Website	www.panodic.com
Input frequency	UHF (474-858 MHz) VHF (177.5-226.5 MHz)
EPG	yes
Supported standards	DVB T MPEG4
Video resolution	576i, 576p, 720p, 1080i, 1080p
RS232	no
Ethernet	no
USB 2.0	yes
HDTV	yes (only via DVB T)
MPEG4/H.264	yes (only via DVB T)
Supportes languages/regions	English, French, German, Spanish, Italien, Greek, Portugiese, Russian, Polish, Croatian, Slovenian

ENERGY DIAGRAM



Active use with recording, playback, channel switching, etc. during the first 15 minutes. Standby during the second 15 minutes.

Hdmisat

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HSF 005

HDSF 006

HD Satellite Finder

HDSR 620
HD DVB-S2

HAV 2401
2.4G Wireless AV Sender

HDTR 810
HD DVB-T

HIR 300
IR Remote Extender

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Http://www.hdmisat.com
E-mail:sales1@hdmisat.com

Amiko STHD-8820 CICXE PVR

- ***for reception of both DVB-T and DVB-S/S2 with low threshold tuners***
- ***automatic detection of DiSEqC configuration***
- ***extensive customisation options for the OSD***
- ***individual channel lists can be saved and transferred to other receivers***
- ***perfectly suitable for DXers thanks to 12V relay and blind scan***

The Best of Two Worlds

Satellite television (DVB-S/S2) offers a virtually unlimited range of channels from all corners of the world, while terrestrial broadcasting in the UHF/VHF bands (for example DVB-T in Europe) allows reception of channels from closer to home. Many of those local channels cannot be offered via satellite due to costs or licencing restraints, but are nonetheless part of what viewers watch every day.

So why not launch a set-top box that is able to receive and process DVB-S/S2 signals just as well as DVB-T channels? As we are witnessing different types of media converge, why not do the same for satellite and terrestrial television?

Hardware engineers at AMIKO have achieved just that. Their latest combo receiver bears the model name STHD-8820 CICXE PVR.

When we opened the packaging we noticed right away that we were in for quite a treat. Everything smacked of high quality and attention to detail, and the pleasant surprises just kept rolling on: We discovered a manual boasting excellent design, easy-to-understand text and various different languages. It came with a warranty card that had the receiver's correct serial number already printed on it, so that customers can easily register the product online with the manufacturer.

But let's get to the heart of the matter and look at the receiver itself and the remote control that comes with it.

The remote sports an ergonomic design that makes it sit nicely in your hand. The material used is of high quality, so that it doesn't only look nice, but has a really nice feel to it too. Added to that is a user-friendly arrangement of buttons, all of which are clearly labelled and have a convenient pressure point. We found that all buttons we needed were positioned right where we would have expected them so that you'll be best friends with the remote control in a matter of minutes.

The manufacturer's attention to detail shows in many ways, one of which is a strap on the remote that makes sure the cover of the battery compartment cannot be dropped accidentally when exchanging the batteries. Big cheers from us for so much thoughtfulness.

The receiver itself measures 300x231x64 mm and weighs some 1.8 kg. If it were a young woman we could easily say it would be fit for the world's catwalks. The core of the box is a 400 MHz CPU with 1024 Mbits DDR SDRAM. The front panel is made of a stylish reflecting material and features a total of five buttons for operating the receiver without the help of a remote control (on/off, channel up/down, volume up/down). Hidden behind a flap we found the integrated Conax card reader (hence the CX in the model designation) as well as a CI slot for

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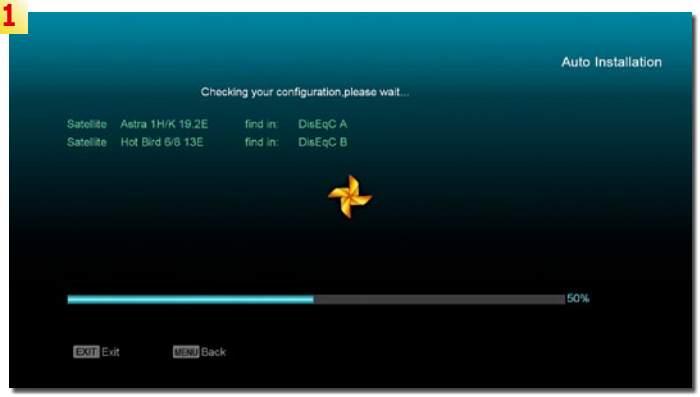

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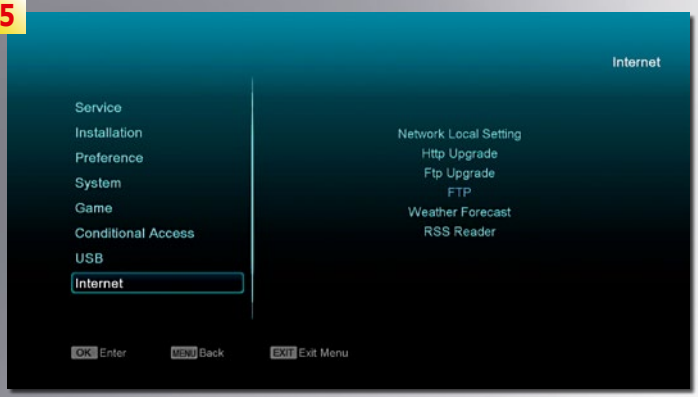

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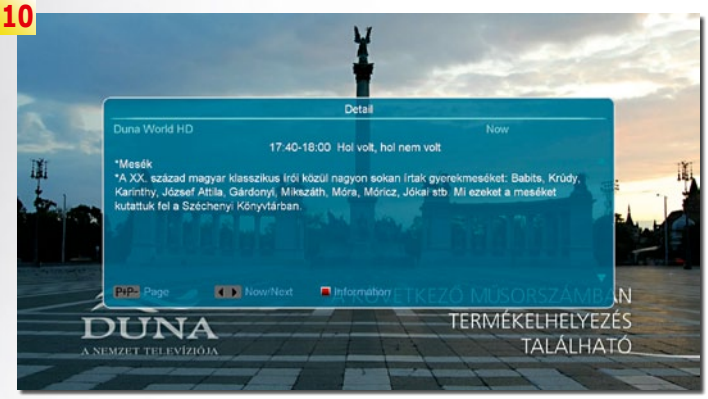

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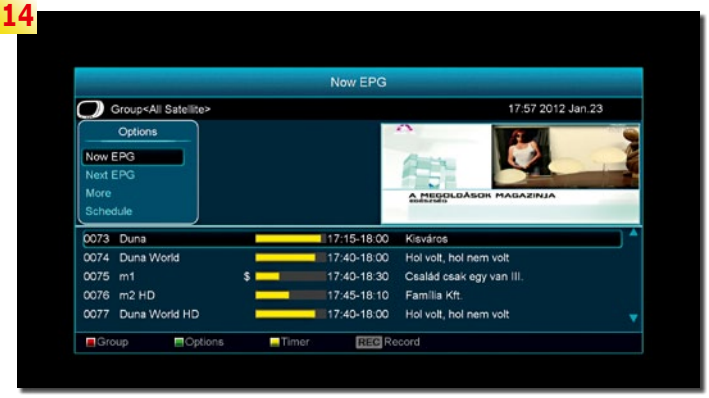

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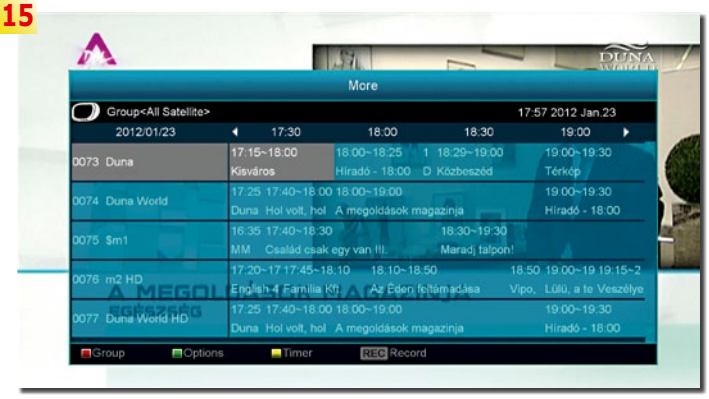

all standard common access modules. All this makes the new AMIKO receiver a reasonable choice for pay TV reception as well. The front panel characteristics are rounded off by a USB interface which can be used to attach a USB memory stick, for example, to watch photos or listen to music with the help of the receiver. Thanks to USB connectivity on the front panel there is no need any longer to fiddle around in the back whenever you want to present your holiday photos on the TV screen.

Speaking of the back panel: It will please most users no end, since it sports all required connection options and some more, all neatly arranged and demonstrating what makes a top-notch set-top box these days. Obviously, there is an antenna input for each tuner as well as loop-through output, followed by an HDMI output for connecting the receiver to the TV panel, a USB 2.0 interface for an external storage medium to make full use of the box's PVR features, an RS-232 interface, a total of three RCA jacks for stereo audio and CVBS video, one optical and one digital audio output, an RJ45 Ethernet socket, a mechanical mains switch and last but by no means least a switchable 0/12V output – a specification that is hard to come by and will be appreciated all the more by satellite DXers. Altogether, we were highly impressed with the level of workmanship and the range of features offered by the AMIKO receiver.

After we had connected the AMIKO STHD-8820 CICXE PVR to our satellite antenna, a DVB-T antenna, our router and a TV display our fingers were itching to flip that mains switch and let the receiver prove its worth.

One of the first elements catching our attention was the beautiful and perfectly readable VFD display in the middle of the front panel. It permanently displays the current time in the left section, while the right section of the display provides status information or shows the name of the currently selected channel. A number of small icons light up to indicate the reception mode (DVB-S/S2 or DVB-T) or a storage medium attached to the USB interface, among other things. While these icons are too small to be recognisable from a distance, we nonetheless found them to be a useful addition to the brilliant VFD display.

AMIKO has decided to do without an installation wizard, which means the first piece of information your TV screen will show is 'No Channel'. No need to worry, though, as now is a good moment to tap into the main menu. It sports a user-friendly design and is based on a logical structure: All main menu items are neatly arranged in the left

1. The Auto Install assistant automatically determines the existing DiSEqC configuration
2. Menu items for channel list editing
3. System preferences
4. Both an integrated CA slot and a CI slot are available
5. The AMIKO STHD-8820 CICXE PVR is Internet-ready thanks to its RJ45 socket
6. Channel search on EUROBIRD 9° East
7. SCR option
8. Useful azimuth/elevation calculator
9. Info bar
10. Extended EPG information
11. The channel list can come with one, two or three columns depending on a user's preferences
12. The channel list can be restricted to certain CA systems, if required
13. The channel list can be restricted to favourites only
14. Current schedule for five channels
15. Complete EPG data for five channels

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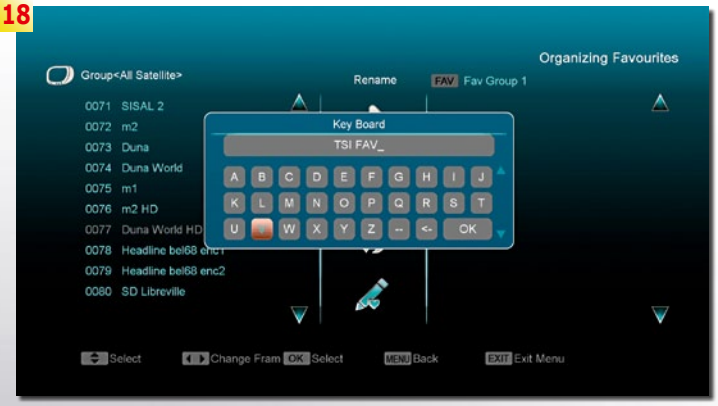

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column, while the right column shows all corresponding sub-items that belong to any given menu section. We ventured into the 'Preferences' right away, which is required to make sure receiver and TV panel work on common ground.

The STHD-8820 CICXE PVR offers video in 576i, 576p, 720p 50Hz, 720p 60Hz, 1080i 50 Hz, 1080i 60Hz as well as 1080p for either 50Hz or 60Hz devices. It goes without saying that we went for maximum quality and chose 1080p – after all it's a nice move by the manufacturer to provide hardware that can deal natively with 1080p sources. As far as video settings are concerned you can also select how 4:3 material should be displayed on a 16:9 screen (letterbox or pan & scan), as you would expect from any HDTV receiver.

In the 'Preferences' section you can select your settings for OSD language, audio, subtitles, EPG and teletext. The receiver comes with a real-time clock (RTC) that can either be set manually, or you can have it pick up the time signal that is transmitted on DVB-T and DVB-S data streams. If you choose the automatic option you have to indicate the time difference between your time zone and GMT so that the receiver can calculate the correct local time. While it is possible to change between standard and daylight saving time, this has to be done manually as the manufacturer has not implemented automatic adjustment.

The 'Preferences' section is also the place to go for a range of channel list options and for adjusting contrast, brightness and transparency of the OSD.

16. Easy channel search with OSD keyboard

17. Teletext

18. Favourites lists can easily be edited and renamed

19. Channels can be moved to the favourites list with a single touch of a button

20. Audio settings

They say that looks can be deceiving, so we tried to find out if the receiver can live up to its outside promises. First, its channel list has to be filled with TV and radio channels – and off we went to the antenna settings and channel search. Before we proceeded our eyes seemed to be glued to a menu item that read 'Auto Install'. Out of sheer curiosity we called up that function and after a few moments the receiver had found out the precise configuration and DiSEqC setup of our reception installation. And before we knew it a channel search had started on all satellites.

Of course you can always choose to do all the work yourself and select 'Satellite Settings', which allows you to define parameters such as DiSEqC protocol (1.0 for up to four LNBs, 1.1 for up to 16 LNBs, 1.2 and 1.3 for controlling motorised antennas) and LOF values (predefined – even for SCR LNBs – or free to select). The list of default satellites includes 28 positions, made up of those birds that are most commonly used in Europe. Considering the fact that the AMIKO STHD-8820 CICXE PVR comes with a switchable 12V output we would have expected a more comprehensive list, to be honest, or at least a few positions that are off the beaten track.

For the actual channel search, the following options are available: Single Scan, TP Scan, TP Edit, Auto DiSEqC and Auto Scan. Single Scan stands for a search performed across an entire satellite, while TP Scan can be selected if only one transponder needs to be scanned. For both types the scan be restricted to FTA channels, TV, radio or TV and radio. In addition, both search modes can be performed with or without network scan turned on. If you need to adjust the internal transponder list you best select TP Edit which allows you to add, delete or edit individual entries. Auto Scan is

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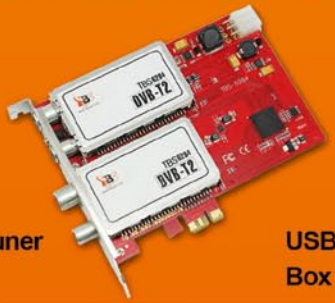

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Karmacom's term for blind scan and will set the hearts of satellite DXers and feed hunters racing.

The channel memory holds up to 6000 entries and a Single Scan on HOTBIRD 13°E took six minutes and delivered 1487 TV channels and 407 radio stations. The same search performed as blind scan was completed after nine minutes with a result of 1499 TV channels and 408 radio stations. With less than ten minutes for either scan type the receiver's performance is above average and does not tax your patience too much. If the exact parameters of a reception setup are not know, Auto DiSEqC is the search method of choice, as it finds out the correct parameters all by itself. We tried out that feature for a number of different setups in our test and can happily confirm that the results were always flawless, even for positions such as BADR 26°E at port 3 of our DiSEqC switch.

Subscribers of pay TV are schmoozed with the so-called Fast Scan function, which only scans transponders for those signals that are used by a specific pay TV provider. This way your channel list is not filled to the brim with offerings you are not interested in and will never watch anyway. Currently the Fast Scan list includes Cyfra+, Cyfra+ HD, TNK and TNK HD, but in future we expect this list to grow by a number of additional providers.

We did like the fact that it is possible with DVB-S/S2 reception to calculate the exact antenna alignment with the help of a very useful OSD menu item. All you need to provide is your current location as well as your desired satellite position and the receiver will automatically find out the right azimuth and elevation values for you.

By its very nature, looking for DVB-T channels is a much quicker affair. Here, too, you can select manual or automatic search, the latter having taken less than one minute for the entire frequency spectrum in our test.

It goes without saying that all available channels were found without further ado. If you only want to look for or add new channels to your existing line-up a manual search lets you do that easily and quickly. For indoor antennas without power supply a 5V current can be switched on that is provided to the antenna via the existing coax cable.

We could hardly wait for some moving images to appear on screen, but first it is advisable to give the main menu one final look and customise the channel list. To this end the AMIKO STHD-8820 CICXE PVR offers a dedicated menu item that can be accessed to move, delete or rename channel entries, to mark individual channels for skipping, or to

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21. Timer management
22. The AMIKO STHD-8820 CICXE PVR offers 1080p video output
23. Various OSD settings
24. New and useful: The info bar can be moved from the bottom to the top of the screen
25. PVR settings
26. AMIKO has even implemented a fully-fletched FTP client
27. Weather forecast
28. RSS newsreader
29. Recording function, as seen in the right section of the info bar: Available storage space is shown
30. All channels that are currently not available (due to active recording) are shown in grey
31. DVB-T reception
32. List of recordings
33. Image viewer
34. JPEG images can be presented on the TV panel
35. Playback of a TS file

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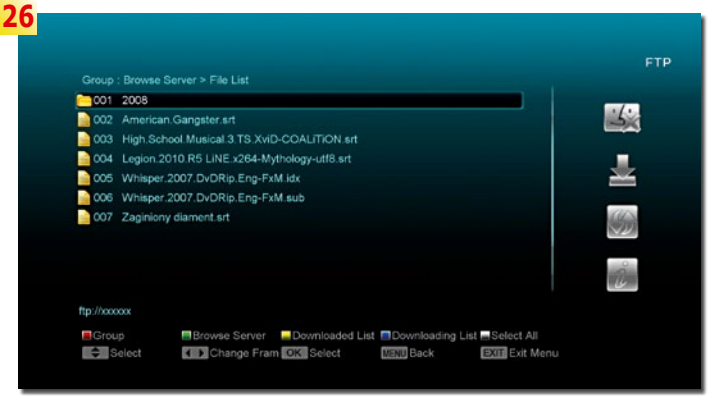

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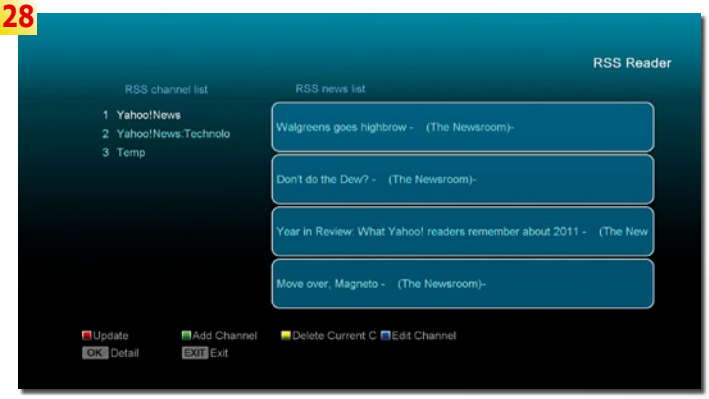

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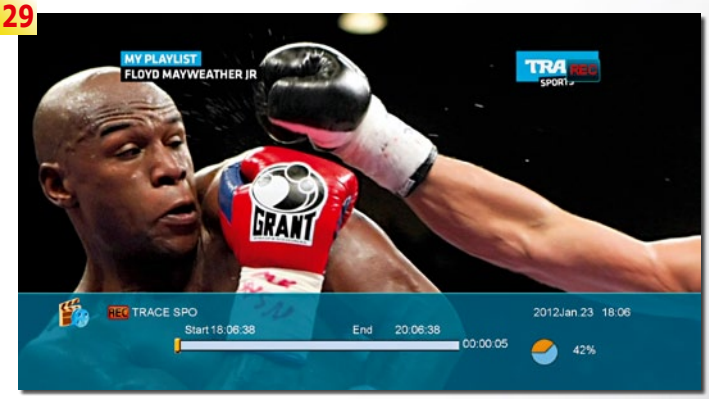

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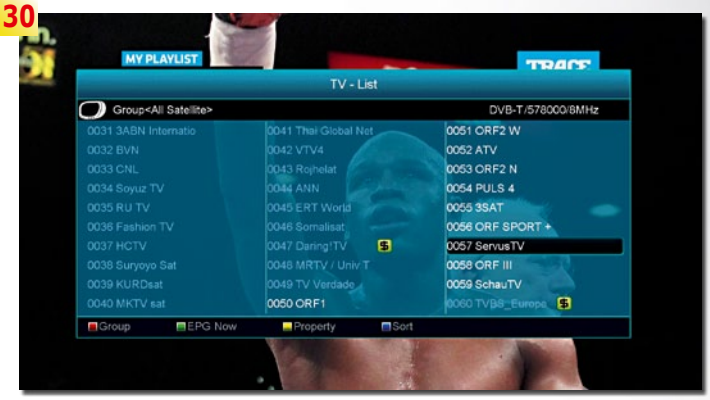

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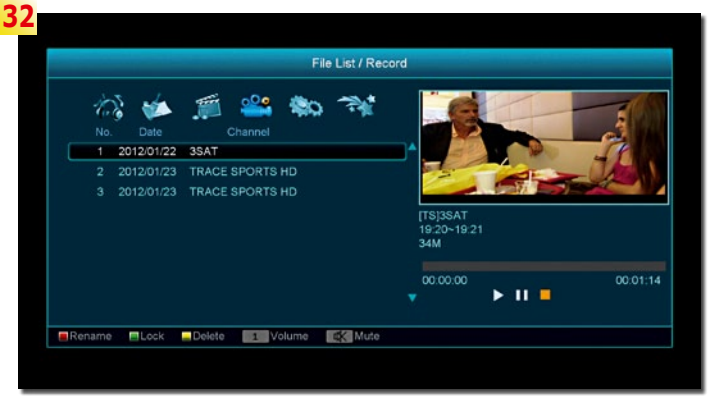

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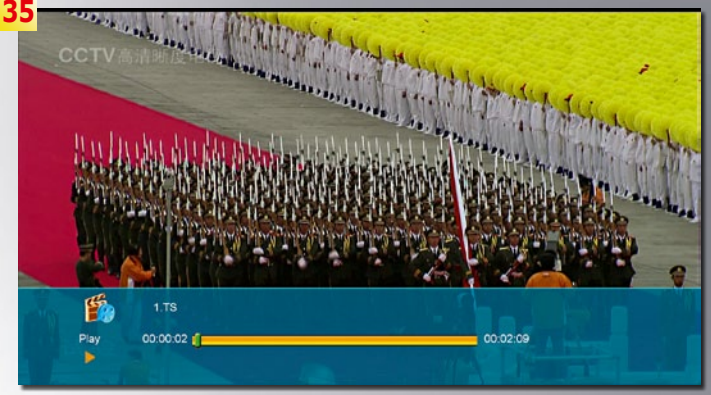

create a PIN-protected parental lock for certain channels. Favourites lists can of course be created as well, even though the manufacturer has opted to offer a separate menu item for favourites lists management. While this may sound unusual for some, we feel that it's a clever move.

Now that all basic parameters are set we can finally say good-bye to the main menu and let the receiver switch to the first channel on the list. As soon as the channel appears an info bar at the bottom of the screen pops up showing the title of the current and next events plus icons for teletext, encryption, subtitles, HD content and language options, if available. Two bars indicate signal quality and signal strength of the current channel and thus give a quick hint at the current reception situation.

A simple touch of the 'Info' button calls up extended event information of the current broadcast, while the red function button retrieves all kinds of technical data for a more professional look at the signal. You may even move the info bar from the bottom to the top of the screen using a special menu item, and this is something we haven't seen before and find a rather innovative option.

Users can also choose whether the channel list that appears after pressing the 'OK' button is made up of one, two or three columns. A number of additional features can be called up using the colour-coded function keys. The red button changes the content of the channel list to specific groups (all channels, favourites, channels of specific satellites, or alphabetic sorting), individual providers, different CAS systems, HD only or terrestrial channels only. The green button activates the extended electronic program guide for the currently selected channel and the yellow button allows direct editing of channel list entries. Use this feature to quickly rename or block individual channels, to add them to a favourites list or to mark them for skipping. Finally, the blue button can be used to sort all entries according to FTA/CAS, alphabet (A-Z or Z-A) or blocked/non-blocked channels.

If channels provide the relevant information, the AMIKO's EPG is a valuable planning tool for a lazy evening in front of the telly. Press the 'EPG' button and the receiver presents content information for five channels at a time. The red button with the group function we know from channel list management is available here as well and can be used to restrict EPG data to a specific favourites list, for example. The AMIKO STHD-8820 CICXE PVR is able to offer a preview for up to seven days and since it comes with full PVR functionality it is possible to select any event for recording with the yellow function key.

While watching TV it is possible to change the language, activate closed captioning or change a NVOD sub-channel on the fly – the manufacturer has implemented all these functions with dedicated keys on the remote control. What's more, one press of a button is also all it takes to call up the satellites or favourites list. If you're looking for a specific channel and only know its name but not its position on the channel list, a fully-functional OSD keyboard can be activated to enter the name or a part of it. Even the video resolution can be changed with a dedicated button on the remote control without having to take a detour to the main menu. Talk about ease of use!

The integrated zoom function is a nice gadget, but due to ever decreasing video resolutions in standard definition it's not really worth its while. If active, it offers up to 16-fold enlargement, together with a corresponding reduction of video detail, of course.

We should want to mention the top-notch teletext decoder of the AMIKO set-top box. True, most users these days have high-speed Internet access, smartphones and all sorts of other electronic media channels, but teletext still has not lost any of its appeal as a quick information source while watching TV. The STHD-8820 CICXE PVR provides teletext either through its

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36. Language selection
37. Satellite list
38. RASD TV via INTELSAT 14 45° West comes in flawlessly
39. With the useful Fast Scan option only transponders of particular pay TV providers are scanned

built-in decoder or creates VBI insertion so that the TV panel's decoder can be used instead.

Both tuners used by AMIKO left nothing to be desired in our test. Their reception capabilities are brilliant and thus meet the exacting demands Karmacom places on all components. The DVB-S2 tuner can easily deal with weaker signals as well, even when they only hover around the threshold level.

When tested with signals from ASTRA 2D at 28.2E or BADR 26E the AMIKO box impressed with flawless reception and processing of channels from those two birds. Carriers with small bandwidths, such as those from TURKSAT 42E, for example, did not pose a problem either, and even RASD TV on INTELSAT 14 45W – usually a very bitter pill to swallow – came in nicely with the AMIKO STHD-8820 CICXE PVR.

It was the same story with DVB-T reception: We used a small indoor antenna without external power supply and had nothing to complain about, even though the incoming signal was extremely error-prone and put a lot of strain on the receiver's error correction routines. If we had to do some nit-picking, the only issue we can think of is the lack of DVB-T2 compatibility, which would have added even more shine to this set-top box.

Signal output via HDMI as well as optical or coax digital audio passed our test with flying colours. Thanks to 1080p output this AMIKO receiver served up brilliant video to our large-sized LCD and plasma panels, and the digital audio output brought out the best from our home cinema amplifier. Zapping is great fun with extremely fast channel switching times of about one second if two different DVB-S2 transponders are concerned. Channels on the same transponder are available even faster. It doesn't get any better than this.

While the AMIKO STHD-8820 CICXE PVR does not come with an integrated hard disk it does, however, offer USB 2.0 to hook up an external storage medium in order to make full use of the receiver's PVR functions. No matter whether it's SD or HD, DVB-S, DVB-S2 or DVB-T, the set-top box will record all input signals, even though it can only deal with one recording at a time. Once a recording has begun, it is possible to watch another channel live, but not to record a second channel at the same time. We don't want to sound like we're complaining for the sake of it, but given its dual tuner concept we would have liked to see two recordings being possible simultaneously. Time shift viewing, on the other hand, is possible on a second channel, and you can even add the content of the time shift buffer to a recording that is started too late. That means the whole event is recorded, even though you only pressed the 'REC' button some time into the broadcast – provided you haven't changed channels. This option can be activated in the PVR section of the main menu.

A total of eight timer entries can be set to make sure you'll never miss your favourite show or movie. Each entry can be marked for single, daily, weekly or monthly recording.

This latest AMIKO receiver comes with an interesting 'Record Scrambled' option that can be turned on or off. The reason behind is a persistent problem with PVRs and pay TV. Recordings that are saved with encryption can only be played back until the corresponding provider changes the decryption key on the smart card (which happens at regular intervals). After that, the recording becomes useless. If 'Record Scrambled' is turned off, all pay TV recordings are first decrypted and only then saved on the attached storage medium.

You should bear in mind, though, that this way it is not possible to record an encrypted channel and watch another encrypted channel at the same time. We believe that this is a small price to pay for lasting recordings.

We looked at all PVR functions of the AMIKO STHD-8820 CICXE PVR in depth and discovered no problems or flaws. But then again, we would not have expected anything less from that manufacturer. A dedicated overview lists all available recordings, which can be renamed or deleted, if required. It is also possible to simply unplug the storage medium from the receiver, attach it to a PC and create a DVD with recorded events using appropriate software.

If TV and radio reception, recording and playback are not enough for you, the receiver comes with an MP3 jukebox, an image viewer and a movie player for MPEG, VOB and TS files downloaded from the Internet. Unfortunately however, the AMIKO set-top box does not support DivX.

In this day and age of global communication via the Internet it is only a logical step for an increasing number of manufacturers to add network connectivity to their set-top boxes. Karmacom is no exception and their AMIKO STHD-8820 CICXE PVR comes with both an RJ45 Ethernet socket as well as a WiFi option with an external WiFi dongle that can be connected to the USB port. While you may choose any brand you like for that dongle, you must make sure it comes with a Ralink-RT5370 chip, since this is the only chip that is currently compatible with the receiver.

Thanks to its integrated DHCP support it will automatically obtain valid IP and DNS addresses from the router, so that users don't need to worry about all those settings. If need be, it is of course possible to enter all parameters manually as well.

For the time being AMIKO does not offer a web browser, but has implemented a fully-featured FTP client instead. If you're one of those persons always interested in the weather, you will like the built-in weather fore-

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cast, and for the information hunters and collectors among you the latest news are downloaded from RSS feeds.

The impressive range of features of the AMIKO STHD-8820 CICXE PVR is completed by three integrated video games (Snake, Tetris, Othello) which can spice up seemingly unending commercial breaks. The box's firmware can be updated by using a USB storage medium, with the RS232 interface on the back panel or – even more conveniently – directly over the Internet.

Apart from revised firmware versions the manufacturer also offers new channel and transponder lists for download from time to time. Your personal channel list can also be backed up on an external storage medium and can later be restored to your receiver or transferred to any other AMIKO receiver. Electronics dealers will love that feature as it allows to them to provide current channel lists to their customers at any time.

Environmental awareness has become one of the catchwords of our times, and AMIKO has focussed on the environmental impact of its products as well. In standby mode the AMIKO STHD-8820 CICXE PVR consumers less than 0.5W, even though this means the front display stays completely dark and does not even show the time. In addition, the receiver takes some moments to power up from deep standby.

If you expect your set-top box to be up and running in a blink, you may select 'Fake Standby' in the menu, which does not save energy, but keeps the receiver alert for any commands you might throw at it. In case you can't live without the current time on the front display but still want all other functions in standby this can also be adjusted in the main menu, even though the standby power consumption will then increase to 2W.

The AMIKO STHD-8820 CICXE PVR sports all features we have come to expect from a modern receiver. Thanks to its two tuners it is capable of processing all DVB-S, DVB-S2 and DVB-T channels available where you live. What's more, this receiver is capable of finding out the antenna configuration all on its own, which adds even more fun when using it. Both tuners have a very low threshold, so you can be sure not to miss a single channel and to get the max out of your antenna equipment.

Expert Opinion

Thomas Haring
TELE-satellite
Test Center
Austria

+

Very sophisticated and well-conceived receiver targeted to both average users and reception pros.

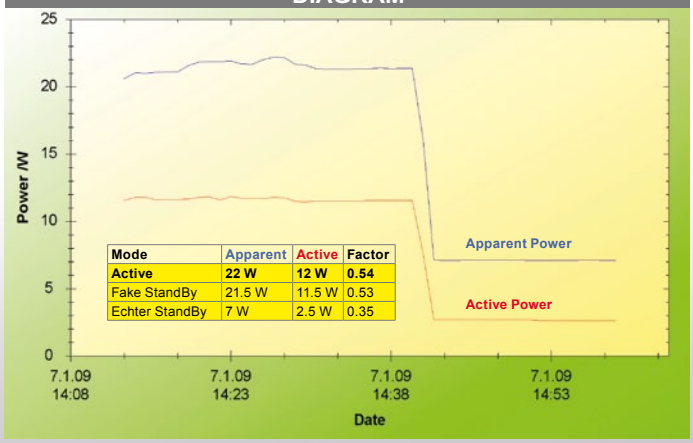
Perfectly suited to all current and future HDTV offerings thanks to 1080p video output.

Brilliant ease-of-use with logical user interface.

–

Even though two tuners are available it is not possible to record two events at the same time.

ENERGY DIAGRAM



First 15 minutes: Active use with channel switching, recording, playback, etc. Second 15 minutes: Deep standby

TECHNICAL DATA

Manufacturer	AMIKO EU
Website	www.amikostb.com
Model	STHD-8820 CICXE PVR
Function	DVB-S / DVB-S2 & DVB-T Combo Receiver with PVR
Input frequency DVB-S / DVB-S2	950 - 2150 MHz
Input frequency DVB-T	UHF (470-860 MHz) VHF (170-230 MHz)
Symbol rates DVB-S	2 - 45 Ms/s
Constellation DVB-T	QPSK, 16QAM, 64QAM
EPG	yes
Video resolution	576i, 576p, 720p 50/60 Hz, 1080i 50/60 Hz, 1080p 50/60 Hz
DiSEqC	1.0, 1.1, 1.2, 1.3
SCR	yes
RS232	yes
Ethernet	yes
USB 2.0	yes
CI Slot	yes
Card Reader	yes (Conax)
HDTV	yes
MPEG4/H.264	yes
OSD languages	English, German, Greek, Italian, Russian, Spanish, Ukrainian, Rumanian, Hungarian, Croatian, Bulgarian, Czech, Slovenian, Slovakian, Serbian, Hebrew, Portuguese, Dutch, Polish
DVB-T regions	United Kingdom, Germany, Greek, Slovenia, Australia, Denmark, France, Italy, Poland, Russia, Spain, Sweden
Power Supply	100 - 240V AC, 50/60 Hz

SPAROS SAT HD of SPAUN

- *very sensitive tuner*
- *easy recognition of satellite name*
- *accepts INI files from popular satellite charts*
- *compares very favorable to high-end signal analyzers*
- *expansive ways to export measurement data*

SPAUN
SPAROS SAT HD
SPAROS SAT HD
Serial number : 8122
Version : 1.5
Bandwidth 950-2150 MHz
DVB-S/S2
MPEG2/4
www.spaun.de
VDC
RF
80V DC
Max
USB
BATT

Uncompromising Performance

The SPAUN SPAROS SAT HD comes in robust plastic enclosure. Thanks to that, the meter will not get broken even if you treat it without big respect. The enclosure is very handsome and when you attach a strap included in the kit, you can conveniently hang the analyzer on your neck. When opened, the lid can be used as a shade protecting the display from sunlight. Additionally, the internal side of the lid is an excellent place to look for the foiled paper with SPAUN's quick start instructions for this model.

SPAROS SAT HD has been equipped with a very clear 4.3" TFT liquid crystal display with a bright backlit. There are 8 buttons and a round "tuning knob". As you probably guessed already, it is not a mechanical knob but an array of sensors that can detect your clockwise and anticlockwise finger movements. The three buttons to the left of the "knob" in the upper row are: ON/OFF switch, Parameter menu (transponder lists) and Setup menu. The lower row is used to choose analyzer modes: Spectrum, Measurement and TV watching. The remaining two buttons to the right of

TELE satellite AWARD 04-05/2012

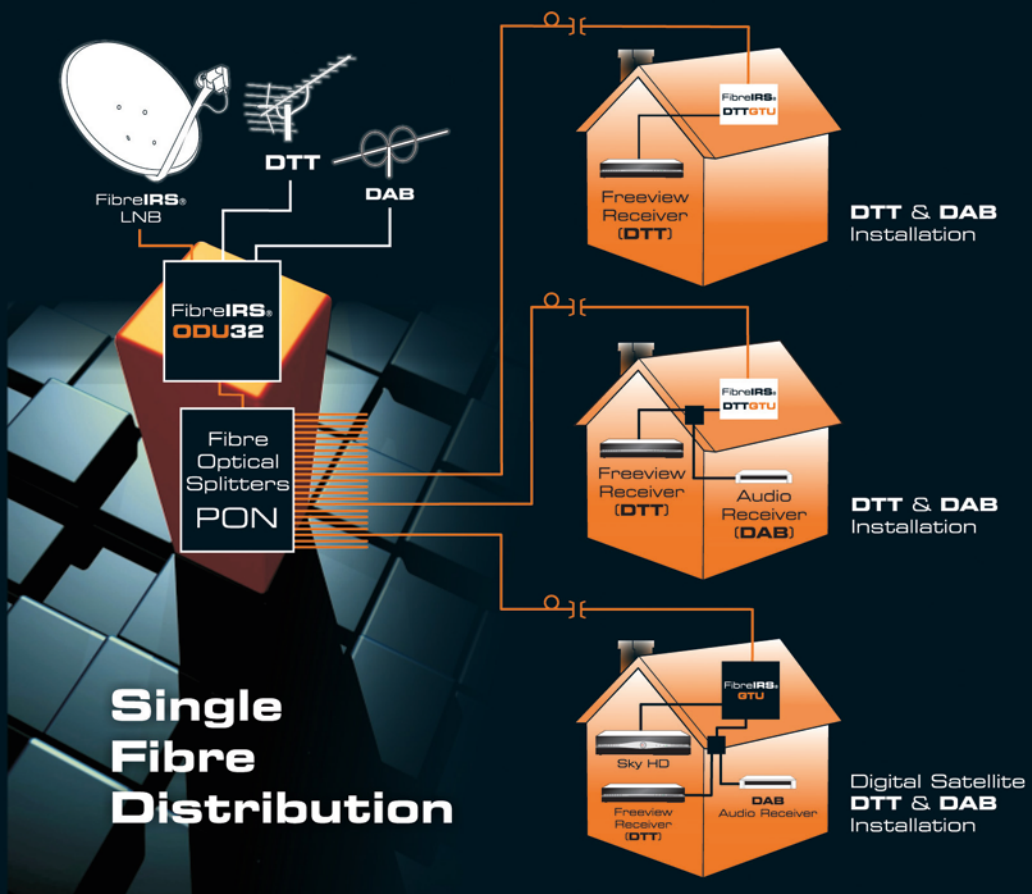
SPAROS SAT HD
Very useful meter for setting up critical satellite systems

www.TELE-satellite.com/TELE-satellite-1205/eng/spaun-sparos.pdf

FibreIRS®

The **New** Generation
Fibre Integrated Reception System

The only cost effective solution for distributing
Satellite IF, DTT and DAB over a Single Fibre Optic Network.



- Compatible with all digital satellite STBs
- Compatible with all DTT/Freeview™ STBs
- Compatible with all DAB Tuners
- Can be easily expanded to **256** points
- Simple installation* via 'Plug & Play' technology
- Ideal for short or long cable runs.

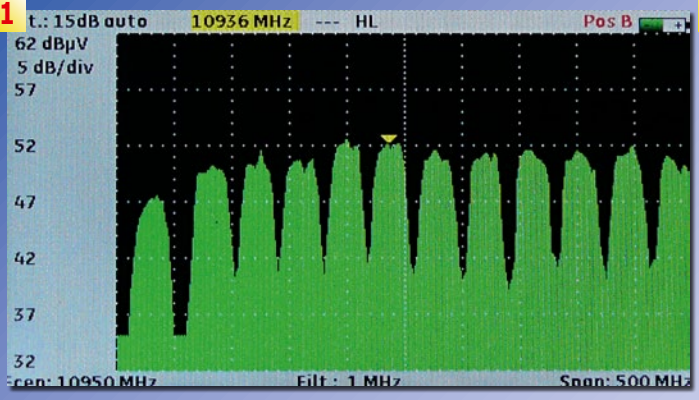
*Compared with existing Fibre Systems

Single Fibre Distribution

globalinvacom.com
fibre@globalinvacom.com

global invacom
completing the picture

1



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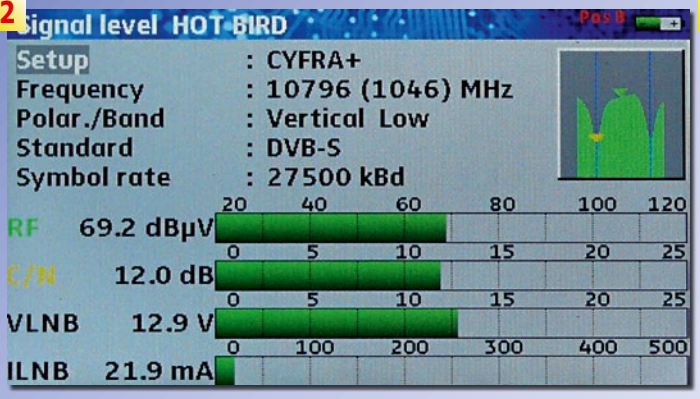

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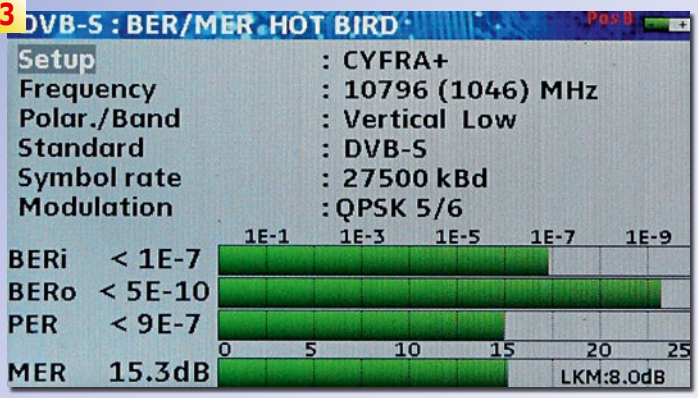

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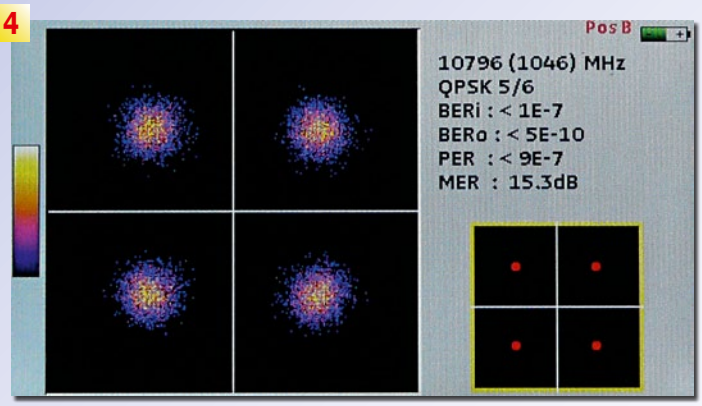

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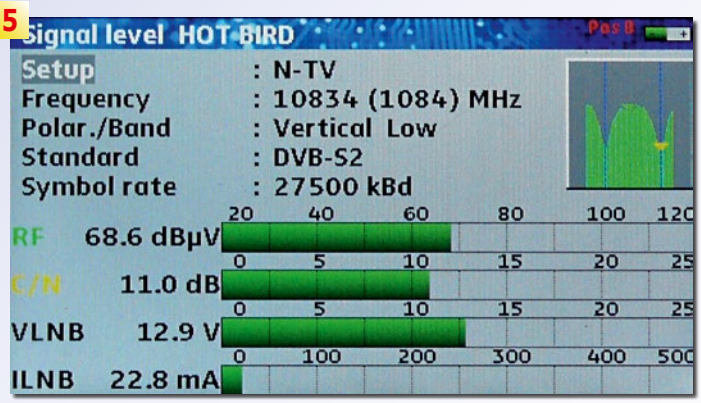

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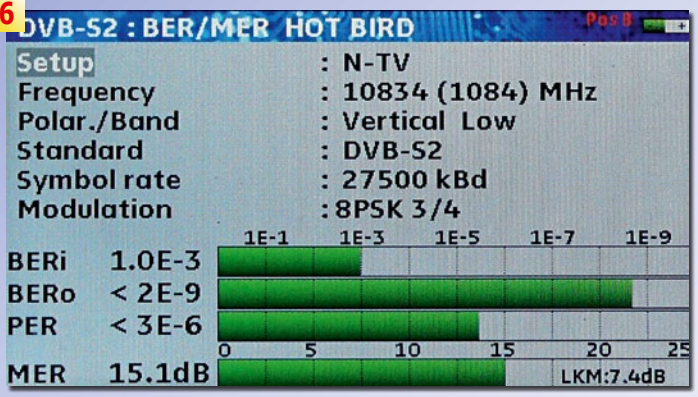

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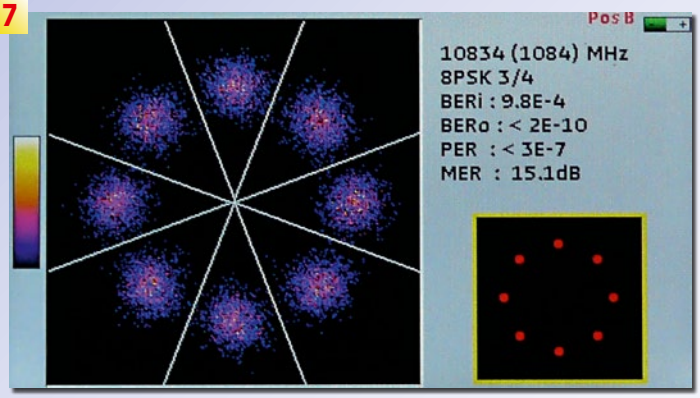

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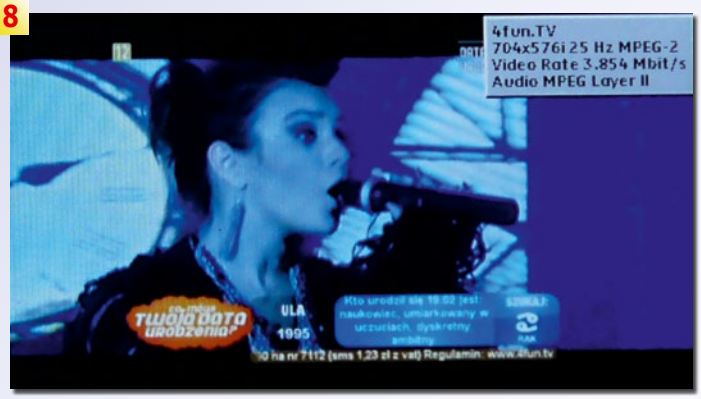

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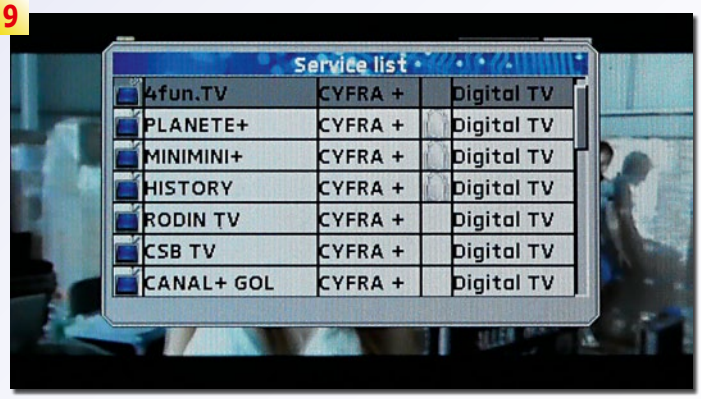

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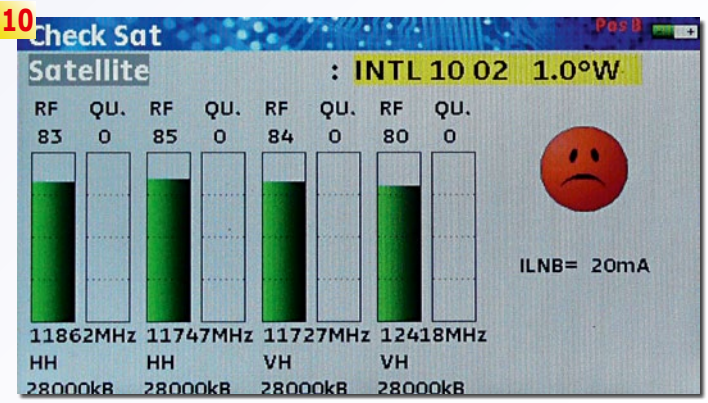


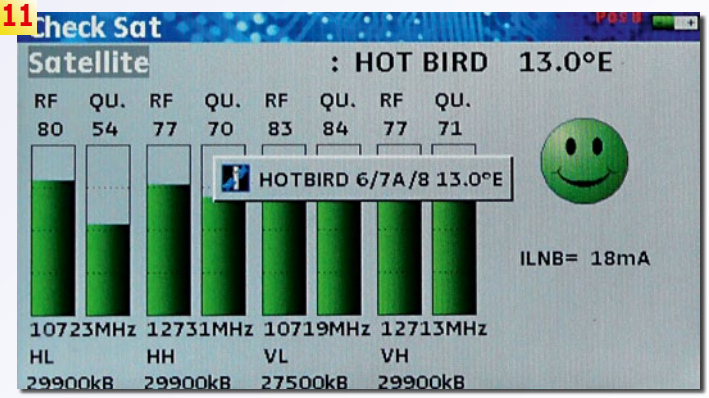
the "knob" are: Enter and Escape. Except for the display and the controls, there are two LED indicators: one showing that power is applied to the LNB and the other to indicate that the internal accumulator is being charged.

Except for the RF input with an F type connector, there are: A-type USB port, Mini-B USB port and DC power input jack on the right side of the meter. The USB port can be used to upload either new firmware or new configuration files (with transponder data and antenna setups) prepared on a PC. Of course, all this is done with a USB memory stick. You can also download the measurement results or screenshots from the meter to the USB stick. In this way, you can process the data later on your PC. The SPAROS SAT HD comes with a USB stick containing the initial configuration files that match those preprogrammed in the meter. More about it later. As expected, a plug type AC/DC adapter is also included in the SAT HD kit.

So, how should you start using the SPAROS SAT HD? Here is our advice for a simple fixed antenna setup. Once you have mounted your dish on a pole and attached a LNB to its holder, connect the analyzer to the LNB. After switching the SPAROS SAT HD on, go to Configuration menu and change "Sat. remote supply" from Off to On or Auto. The latter setting is advised if you do not want to repeat the action every time you switch your analyzer on. The remaining settings in the Configuration menu will be probably OK for most users setting a fixed dish in Europe as they are prepared for a universal Ku-Band LNB.

The next step is to switch the analyzer to spectrum mode (the leftmost button in the bottom row) and change the azimuth and elevation of your dish until you see signal peaks on the display. Fine tune your dish to maximize the peaks. Your antenna is now receiving a satellite but which one? To find it out, press the Spectrum button again. Spectrum disappears and you can see a chart showing signal strength and quality of four transponders of one satellite. Satellite name is shown in the upper part of the window. If your dish is aimed at this satellite, you will see high green quality bars and a merry green smiley icon. If not, the bars indicating signal quality will be low or completely empty and the smiley icon will be sad and red. In such situation, press enter button and use the "knob" to change satellite. Continue until you find out which satellite your dish is presently directed to.

Once you know where your dish is "looking at", you know if you need to move it eastward or westward. For example, if you want to receive EUROBIRD 2 on 28.2° East and you have just discovered with SPAROS SAT HD that your dish is currently

11


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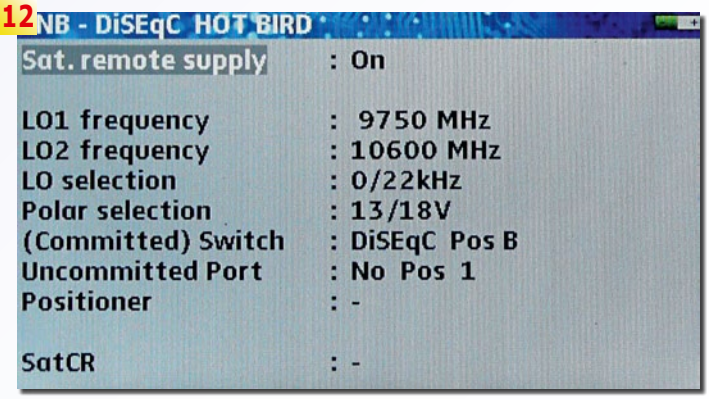

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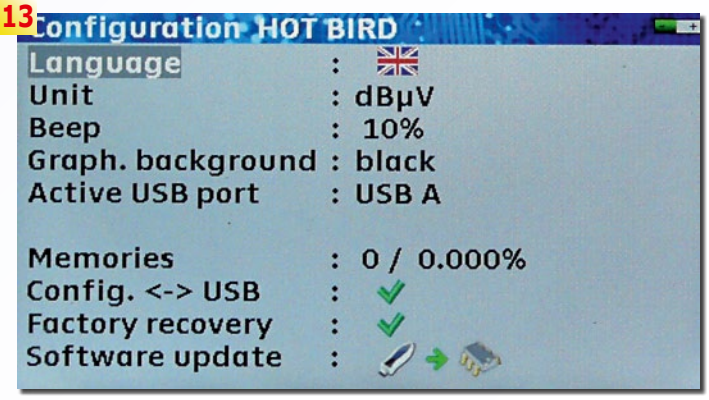

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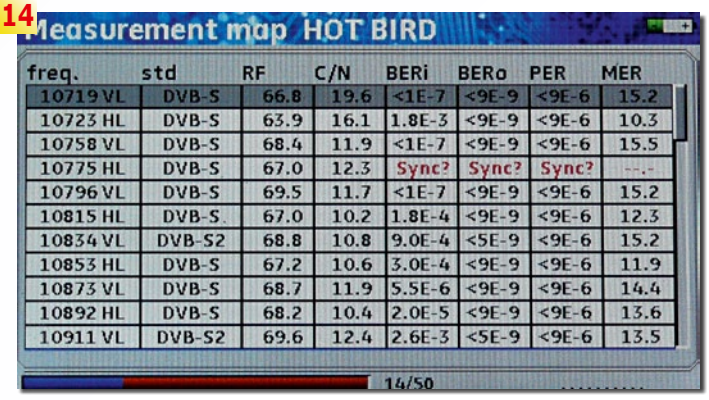


1. Spectrum view

2. DVB-S transponder measurement results – first window

3. DVB-S transponder measurement results – second window

4. DVB-S transponder constellation diagram (QPSK)

5. DVB-S2 transponder measurement results – first window

6. DVB-S2 transponder measurement results – second window

7. DVB-S2 transponder constellation diagram (8PSK)

8. MPEG-2 video decoded

9. Every FTA channel from the current transponder can be selected for viewing

10. No, your antenna is not presently aimed at INTELSAT 10-02 on 1° West; SPAROS SAT HD could not lock to anyone of four transponders from this satellite.

11. Correct! Your antenna is directed to HOTBIRD on 13° East. SPAROS managed to lock to all four transponders associated with this satellite. After another button press, the analyzer double chekked its diagnosis by comparing information transmitted in the NIT tables of the transponders (see the pop-up in the foreground).

12. In this menu, you can configure SPAROS to work with almost any reception system.

13. This window is used for setting up meter user interface and managing meter memories and software.

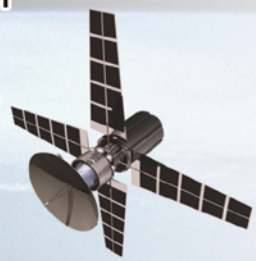
14. All transponders associated with a preprogrammed reception setup (e.g. DiSEqC 1.0 switch and four LNBs) are being measured. The results can be stored in the internal memory and later copied to an external USB Flash memory.

aimed at HOTBIRD 13° East, you know that you should turn it 15 degrees eastward. Switch the analyzer back to spectrum mode (by pressing spectrum button twice) and turn slowly your dish eastward until you see again signal peaks. Adjust azimuth, elevation and tilt for maximum peak height and check which satellite it is. In this way, after a short while, you will have your dish aimed at EUROBIRD 2 on 28.2° East.

Does it end the process? Not exactly. We are sure that after spending money on a signal analyzer, you would like to have each of your dishes set up perfectly. So, it is time to switch to measurement mode now (Measurement button). Press Enter key when the word Setup is highlighted at the top your screen. This will activate transponder switching. Now turn the "knob" and find a transponder that gives rather high readings of RF power and C/N ratio. Some installers would start making the final dish adjustment looking at this screen but we suggest to press Measurement button again and display the next window in which among others, MER is shown (the very bottom line). Modulation Error Ratio is the parameter you should maximize. Usually it is both very sensitive to azimuth, elevation and tilt adjustment as well as quite stable. It is our favorite parameter when we fine tune antenna

Intelsat / GVF Type Approved

- Original designer of patented rolled edge reflector
- Production capacity(≧ 1 Million units per month)
- High performance
- Highly accurate reflector surface(RMS≦0.1mm)
- State of art test equipments and facilities



VSAT Antenna System
DTH Antenna System
Fly Away, Movable Antenna

AZURE✦SHINE

AZURE SHINE INTERNATIONAL INC.

No. 1000, Gwang Fu Road, Pa Teh City, Taoyuan, 33455, Taiwan R.O.C.
Http://www.azureshine.com.tw/ E-mail: azure.shine@azureshine.com.tw
Tel: 886-3-3611393 Fax: 886-3-3615877

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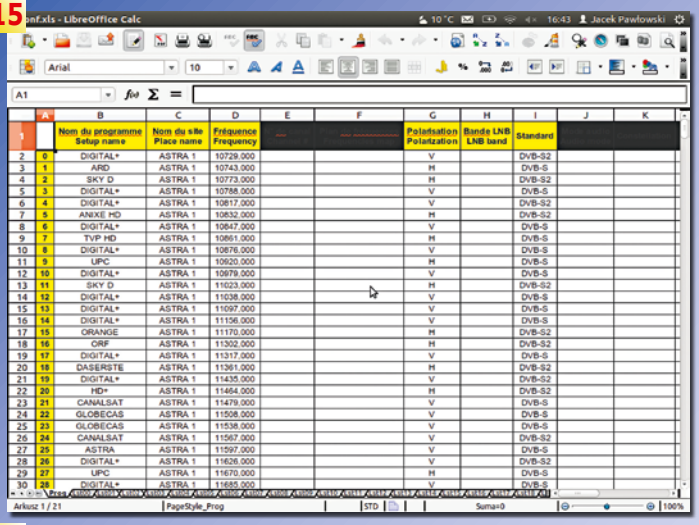
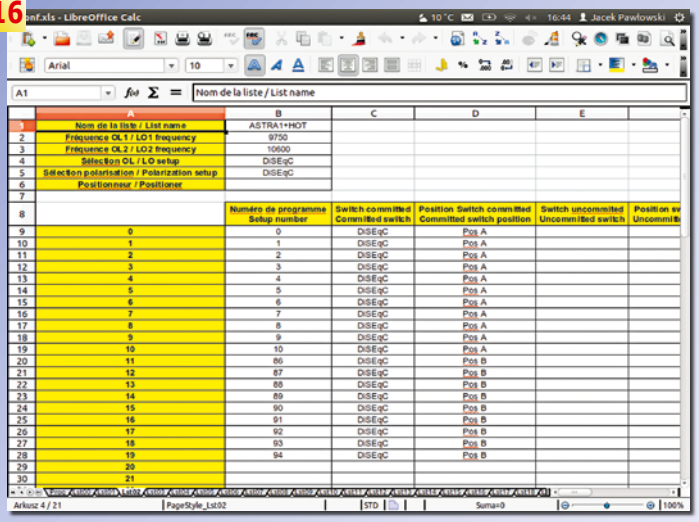


	Nom du programme Setup name	Nom du site Place name	Fréquence Frequency	Polarisation Polarization	Bande LNB LNB band	Standard
0	DIGITAL+	ASTRA 1	10728,000	V		DVB-S2
1	ARD	ASTRA 1	10743,000	H		DVB-S
2	SKY D	ASTRA 1	10773,000	H		DVB-S2
3	DIGITAL+	ASTRA 1	10788,000	V		DVB-S
4	DIGITAL+	ASTRA 1	10817,000	V		DVB-S2
5	ANIXE HD	ASTRA 1	10832,000	H		DVB-S2
6	DIGITAL+	ASTRA 1	10847,000	V		DVB-S
7	TVP HD	ASTRA 1	10861,000	H		DVB-S
8	DIGITAL+	ASTRA 1	10876,000	V		DVB-S
9	UPC	ASTRA 1	10920,000	H		DVB-S
10	DIGITAL+	ASTRA 1	10979,000	V		DVB-S
11	SKY D	ASTRA 1	11023,000	H		DVB-S2
12	DIGITAL+	ASTRA 1	11038,000	V		DVB-S
13	DIGITAL+	ASTRA 1	11097,000	V		DVB-S
14	DIGITAL+	ASTRA 1	11156,000	V		DVB-S
15	ORANGE	ASTRA 1	11170,000	H		DVB-S2
16	ORF	ASTRA 1	11302,000	H		DVB-S2
17	DIGITAL+	ASTRA 1	11317,000	V		DVB-S
18	DASERSTE	ASTRA 1	11361,000	H		DVB-S2
19	DIGITAL+	ASTRA 1	11435,000	V		DVB-S2
20	HD+	ASTRA 1	11464,000	H		DVB-S2
21	CANALSAT	ASTRA 1	11479,000	V		DVB-S
22	GLOBECAS	ASTRA 1	11508,000	V		DVB-S
23	GLOBECAS	ASTRA 1	11538,000	V		DVB-S
24	CANALSAT	ASTRA 1	11567,000	V		DVB-S2
25	ASTRA	ASTRA 1	11597,000	V		DVB-S
26	DIGITAL+	ASTRA 1	11626,000	V		DVB-S2
27	UPC	ASTRA 1	11670,000	H		DVB-S
28	DIGITAL+	ASTRA 1	11685,000	V		DVB-S

16



	Nom de la liste / List name	ASTRA1+HOT
	Fréquence OL 1 / LO1 frequency	9750
	Fréquence OL 2 / LO2 frequency	10600
	Sélection OL / LO setup	DiSEqC
	Sélection polarisation / Polarization setup	DiSEqC
	Positionneur / Positioner	

Numéro de programme Setup number	Switch committed Committed switch	Position Switch committed Committed switch position	Switch uncommitted Uncommitted switch	Position sw Uncommitte
0	DiSEqC	Pos A		
1	DiSEqC	Pos A		
2	DiSEqC	Pos A		
3	DiSEqC	Pos A		
4	DiSEqC	Pos A		
5	DiSEqC	Pos A		
6	DiSEqC	Pos A		
7	DiSEqC	Pos A		
8	DiSEqC	Pos A		
9	DiSEqC	Pos A		
10	DiSEqC	Pos A		
11	86	DiSEqC	Pos B	
12	87	DiSEqC	Pos B	
13	88	DiSEqC	Pos B	
14	89	DiSEqC	Pos B	
15	90	DiSEqC	Pos B	
16	91	DiSEqC	Pos B	
17	92	DiSEqC	Pos B	
18	93	DiSEqC	Pos B	
19	94	DiSEqC	Pos B	
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21				

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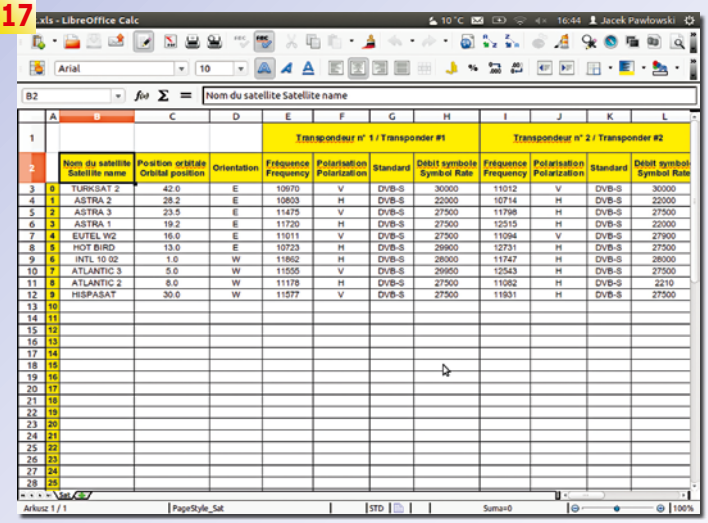
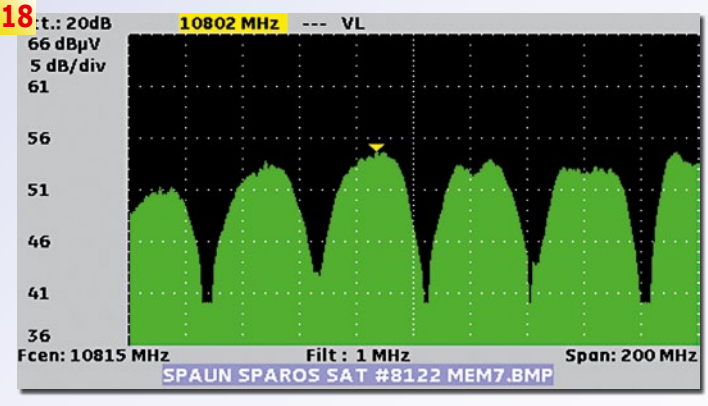


	Nom du satellite Satellite name	Position orbitale Orbital position	Orientation	Transponder n° 1 / Transponder #1 Fréquence Frequency	Polarisation Polarization	Standard	Débit symbole Symbol Rate	Transponder n° 2 / Transponder #2 Fréquence Frequency	Polarisation Polarization	Standard	Débit symbole Symbol Rate
0	TURKSAT 2	42.0	E	10970	V	DVB-S	30000	11012	V	DVB-S	30000
1	ASTRA 2	28.2	E	10803	H	DVB-S	22000	10714	H	DVB-S	22000
2	ASTRA 3	23.5	E	11475	V	DVB-S	27500	11798	H	DVB-S	27500
3	ASTRA 1	19.2	E	11720	H	DVB-S	27500	12515	H	DVB-S	22000
4	EUTEL W2	16.0	E	11011	V	DVB-S	27500	11094	V	DVB-S	27900
5	HOT BIRD	13.0	E	10723	H	DVB-S	29900	12731	H	DVB-S	27500
6	INTL 10 02	1.0	W	11862	H	DVB-S	28000	11747	H	DVB-S	28000
7	ATLANTIC 3	5.0	W	11555	V	DVB-S	29950	12543	H	DVB-S	27500
8	ATLANTIC 2	8.0	W	11178	H	DVB-S	27500	11082	H	DVB-S	2210
9	HISPASAT	30.0	W	11577	V	DVB-S	27500	11931	H	DVB-S	27500

18



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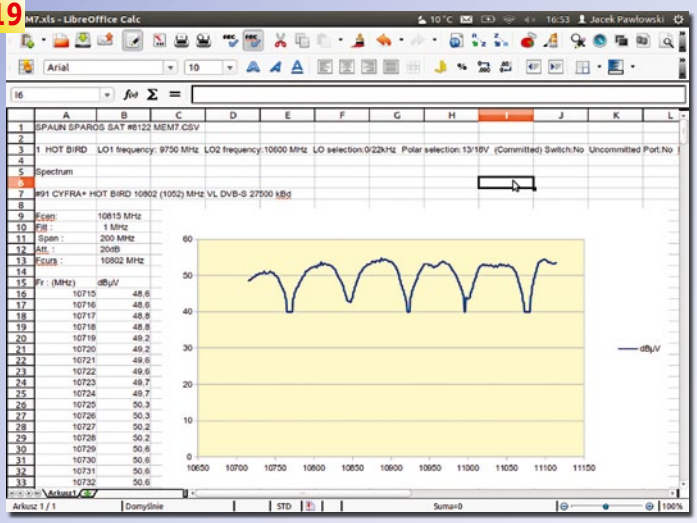


SPAUN SPAROS SAT #8122 MEM7.CSV

1 HOT BIRD LO1 frequency: 9750 MHz LO2 frequency: 10600 MHz LO selection:0/22kHz Polar selection:13/18V (Committed) Switch:No Uncommitted Port:No

Spectrum

#91 CYFRA+ HOT BIRD 10802 (1052) MHz VL DVB-S 27500 kBd

Fcen:	10815 MHz
Filt :	1 MHz
Span :	200 MHz
Att:	20dB
Fcurs :	10802 MHz

Fr : (MHz)	dBµV
10715	48.6
10716	48.6
10717	48.8
10718	48.8
10719	49.2
10720	49.2
10721	49.6
10722	49.6
10723	49.7
10724	49.7
10725	50.3
10726	50.3
10727	50.2
10728	50.2
10729	50.6
10730	50.6
10731	50.6
10732	50.6

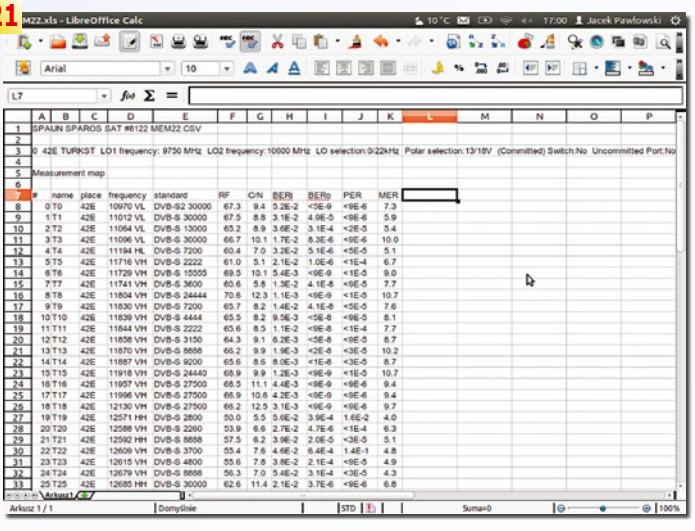
20

Measurement map 42E TURKST

freq.	std	RF	C/N	BERi	BERo	PER	MER
10970 VL	DVB-S2	67.3	9.4	5.2E-2	<5E-9	<9E-6	7.3
11012 VL	DVB-S	67.5	8.8	3.1E-2	4.9E-5	<9E-6	5.9
11064 VL	DVB-S	65.2	8.9	3.6E-2	3.1E-4	<2E-5	5.4
11096 VL	DVB-S	66.7	10.1	1.7E-2	8.3E-6	<9E-6	10.0
11194 HL	DVB-S	60.4	7.0	3.2E-2	5.1E-6	<5E-5	5.1
11716 VH	DVB-S	61.0	5.1	2.1E-2	1.0E-6	<1E-4	6.7
11729 VH	DVB-S	69.5	10.1	5.4E-3	<9E-9	<1E-5	9.0
11741 VH	DVB-S	60.6	5.8	1.3E-2	4.1E-8	<9E-5	7.7
11804 VH	DVB-S	70.6	12.3	1.1E-3	<9E-9	<1E-5	10.7
11830 VH	DVB-S	65.7	8.2	1.4E-2	4.1E-8	<5E-5	7.6
11839 VH	DVB-S	65.5	8.2	9.5E-3	<5E-8	<9E-5	8.1
11844 VH	DVB-S	65.6	8.5	1.1E-2	<9E-8	<1E-4	7.7
11858 VH	DVB-S	64.3	9.1	6.2E-3	<5E-8	<9E-5	8.7
11870 VH	DVB-S	66.2	9.9	1.9E-3	<2E-8	<3E-5	10.2
11887 VH	DVB-S	65.6	8.6	8.0E-3	<1E-8	<3E-5	8.7
11918 VH	DVB-S	68.9	9.9	1.2E-3	<9E-9	<1E-5	10.7
11957 VH	DVB-S	68.5	11.1	4.4E-3	<9E-9	<9E-6	9.4
11996 VH	DVB-S	66.9	10.6	4.2E-3	<9E-9	<9E-6	9.4
12130 VH	DVB-S	66.2	12.5	3.1E-3	<9E-9	<9E-6	9.7
12571 HH	DVB-S	50.0	5.5	5.6E-2	3.9E-4	1.6E-2	4.0
12588 VH	DVB-S	53.9	6.6	2.7E-2	4.7E-6	<1E-4	6.3
12592 HH	DVB-S	57.5	6.2	3.9E-2	2.0E-5	<3E-5	5.1
12609 VH	DVB-S	55.4	7.6	4.6E-2	6.4E-4	1.4E-1	4.8
12615 VH	DVB-S	55.6	7.8	3.8E-2	2.1E-4	<9E-5	4.9
12679 VH	DVB-S	56.3	7.0	5.4E-2	3.1E-4	<3E-5	4.3
12685 HH	DVB-S	62.6	11.4	2.1E-2	3.7E-6	<9E-6	6.8
12729 HH	DVB-S	61.7	11.1	8.2E-3	8.0E-8	<9E-6	8.4
12729 VH	DVB-S	60.7	11.1	2.9E-2	4.0E-5	<9E-6	6.0

SPAUN SPAROS SAT #8122 MEM22.BMP

21



SPAUN SPAROS SAT #8122 MEM22.CSV

0 42E TURKST LO1 frequency: 9750 MHz LO2 frequency: 10600 MHz LO selection:0/22kHz Polar selection:13/18V (Committed) Switch:No Uncommitted Port:No

Measurement map

#	name	place	frequency	standard	RF	C/N	BERi	BERo	PER	MER
0	T0	42E	10970 VL	DVB-S2 30000	67.3	9.4	5.2E-2	<5E-9	<9E-6	7.3
1	T1	42E	11012 VL	DVB-S 30000	67.5	8.8	3.1E-2	4.9E-5	<9E-6	5.9
2	T2	42E	11064 VL	DVB-S 13000	65.2	8.9	3.6E-2	3.1E-4	<2E-5	5.4
3	T3	42E	11096 VL	DVB-S 30000	66.7	10.1	1.7E-2	8.3E-6	<9E-6	10.0
4	T4	42E	11194 HL	DVB-S 7200	60.4	7.0	3.2E-2	5.1E-6	<5E-5	5.1
5	T5	42E	11716 VH	DVB-S 2222	61.0	5.1	2.1E-2	1.0E-6	<1E-4	6.7
6	T6	42E	11729 VH	DVB-S 15555	69.5	10.1	5.4E-3	<9E-9	<1E-5	9.0
7	T7	42E	11741 VH	DVB-S 3600	60.6	5.8	1.3E-2	4.1E-8	<9E-5	7.7
8	T8	42E	11804 VH	DVB-S 24444	70.6	12.3	1.1E-3	<9E-9	<1E-5	10.7
9	T9	42E	11830 VH	DVB-S 7200	65.7	8.2	1.4E-2	4.1E-8	<5E-5	7.6
10	T10	42E	11839 VH	DVB-S 4444	65.5	8.2	9.5E-3	<5E-8	<9E-5	8.1
11	T11	42E	11844 VH	DVB-S 2222	65.6	8.5	1.1E-2	<9E-8	<1E-4	7.7
12	T12	42E	11858 VH	DVB-S 3150	64.3	9.1	6.2E-3	<5E-8	<9E-5	8.7
13	T13	42E	11870 VH	DVB-S 8888	66.2	9.9	1.9E-3	<2E-8	<3E-5	10.2
14	T14	42E	11887 VH	DVB-S 9200	65.6	8.6	8.0E-3	<1E-8	<3E-5	8.7
15	T15	42E	11918 VH	DVB-S 24440	68.9	9.9	1.2E-3	<9E-9	<1E-5	10.7
16	T16	42E	11957 VH	DVB-S 27500	68.5	11.1	4.4E-3	<9E-9	<9E-6	9.4
17	T17	42E	11996 VH	DVB-S 27500	66.9	10.6	4.2E-3	<9E-9	<9E-6	9.4
18	T18	42E	12130 VH	DVB-S 27500	66.2	12.5	3.1E-3	<9E-9	<9E-6	9.7
19	T19	42E	12571 HH	DVB-S 2800	50.0	5.5	5.6E-2	3.9E-4	1.6E-2	4.0
20	T20	42E	12588 VH	DVB-S 2260	53.9	6.6	2.7E-2	4.7E-6	<1E-4	6.3
21	T21	42E	12592 HH	DVB-S 8888	57.5	6.2	3.9E-2	2.0E-5	<3E-5	5.1
22	T22	42E	12609 VH	DVB-S 3700	55.4	7.6	4.6E-2	6.4E-4	1.4E-1	4.8
23	T23	42E	12615 VH	DVB-S 4800	55.6	7.8	3.8E-2	2.1E-4	<9E-5	4.9
24	T24	42E	12679 VH	DVB-S 8888	56.3	7.0	5.4E-2	3.1E-4	<3E-5	4.3
25	T25	42E	12685 HH	DVB-S 30000	62.6	11.4	2.1E-2	3.7E-6	<9E-6	6.8

adjustment. When maximizing MER, you will notice that you are maximizing the other green bars too. And, as a matter of fact, that's all you do to set your dish.

The SPAROS SAT HD what we got for this was preprogrammed by SPAUN with the data of a few popular European satellites. SPAUN also added a USB memory stick with the MS Excel configuration files that you can edit, convert to CSV format and upload to the meter's internal memory. The analyzer does not accept XLS files directly.

SPAUN prepared two spreadsheet files. The first file, called Sat.xls, contains a list of all satellites that you want SPAROS to be able to identify along with the corresponding four transponders for each of them. The analyzer we got for the test had in its memory as well as in the corresponding file 10 European satellites as in the table below.

Four transponders are defined for each satellite (frequency, polarization, DVB-S or S2, symbol rate). As you already know, these transponders are used by the SPAROS SAT HD for satellite identification. If, for example, one of the transponders is switched off and no longer transmits, you need to replace its data with another one which is active. Once you edit the XLS file, you should execute a built-in Excel macro, and a corresponding CSV file will be generated which when stored on the USB stick can be imported to the meter. This is really simple!

And what about the other configuration file? Well, it is a little bit more complex. Except for identifying satellites based on their four transponders, SPAROS SAT HD can measure a larger number of their transponders and show the results in a form of a table. Such table can be stored in memory as well as exported to USB stick for further processing. This feature can be useful to check if the reception system can receive various transponders of different frequencies and polarizations. Some reception systems require DiSEqC commands to switch between satellite and we can order the SPAROS SAT HD to do that by putting the parameters in the second configuration file.

It is also an MS Excel file but it is called SConf.xls. In its first spreadsheet tab, it can contain up to 1000 transponders from as many satellites as you need. On the following twenty tabs, you store configuration data for specific reception systems. So, for example, the list Lst00 can contain the transponders numbers referring only to the transponders from ASTRA 1 (fixed antenna, no DiSEqC commands needed), while the list Lst02 can be dedicated for a 2-satellites setup and contain the transponder numbers from ASTRA 1 and HOTBIRD along with the DiSEqC commands: Position A or Position B. So when the installer has a customer having a popular setup with a monoblock LNB for ASTRA 1 and HOTBIRD, he makes

15. Editable list of all satellites and transponders preprogrammed in the SPAROS SAT HD internal memory

16. One of many possible configurations preprogrammed in the meter's internal memory; this exemplary setup is for the ASTRA/HOTBIRD reception system with a DiSEqC 1.0 switch

17. Another configuration file stores the information about which four transponders of a given satellite should be used when recognizing antenna alignment

18. Spectrum view can be stored and later copied to a USB stick as a graphic file

19. Spectrum view can also be stored as an CSV file containing list of values; after converting it to a spreadsheet file, you can do your own chart

20. Transponders assigned to a preprogrammed reception setup (here: fixed antenna aimed at TURKSAT 42° East) can be saved as BMP graphics...

21...or a CSV file that can be opened by any spreadsheet application and processed or charted as needed.

Satellite name	Orbital position	Orientation
TURKSAT 2	42	E
ASTRA 2	28.2	E
ASTRA 3	23.5	E
ASTRA 1	19.2	E
EUTEL W2	16	E
HOT BIRD	13	E
INTL 10 02	1	W
ATLANTIC 3	5	W
ATLANTIC 2	8	W
HISPASAT	30	W

SPAROS SAT HD measure the system with the use of Lst02 configuration. No need to enter transponders data or DiSEqC commands manually – the analyzer will know what to do to measure the transponders from two satellites. SConf.xls can contain up to 50 transponders in each configuration list (Lst0 through Lst19). Similarly as Sat.xls, SConf.xls is editable and generates a CSV files for SPAROS when an Excel macro is invoked.

But what to do if we want to add more satellites or more transponders – is a manual entry the only option? No! You can download from the Internet INI files containing transponder data for every possible satellite. They are available on the pages with satellite charts like for example www.satbeams.com. If you follow the instruction in the user guide, you will learn how to download the INI files and import them to the Excel spreadsheet.

The SPAROS SAT HD can do more than what we described so far. Except for identifying a satellite based on its four transponders, it can read the NIT table and in this way double check identification. The analyzer can measure all parameters of a particular transponder, show its constellation diagrams and decode and display video and audio of FTA channels. It can export the measurement results to CSV as well as BMP files. It can even export spectrum views as graphics (BMP) as well as CSV files. Such CSV file when imported to MS Excel can be used for creating your own charts.

At the beginning, we were worried that it would be difficult to operate SAPROS SAT HD because it has few buttons. But we discovered that our worries were completely unjustified. Menu structure is very logical and not too deep. And we were especially delighted with the operation of the "tunning knob". It was fast and precise at the same time. There is really no need for a numerical keypad with such well designed "knob".

You can not fully evaluate an analyzer if you do not compare it with competitive instruments. So we did it. We chose two high class, multipurpose analyzers (satellite/terrestrial/cable) with large graphical displays as our references to which we compared the performance of the SPAROS SAT HD. TURKSAT satellite on 42° East was our test signal source. We used a 90 cm dish which does not give very strong signal from that satellite at our test location in Western Poland. And thanks to that, we discovered the strongest point of SPAROS SAT HD. It locked without any problem even to very weak signals and as well as signals with very low symbol rates. Despite being apparently more powerful, its competitors were unable to lock to many signals that SPAROS SAT HD processed smoothly. See the attached charts with MER results. MER zero reading means that the meter was unable to lock. The tuner of SPAROS SAT HD is really brilliant!

When you compare channel power results, you will see that SPAROS SAT HD is quite close to other meters and its results are rather higher than lower than its competitors. The other charts presents MER readings. Here you can see how many transponders were receivable for the SPAROS SAT HD but not for the other analyzers (zero result in our chart). Please note, that except for TURKSAT transponders, we also included one strong transponder from ASTRA1 (11436 MHz, vertical). With such strong signal, SPAROS measured visibly higher MER what also proves how good and noiseless its tuner is.

Initially, we were concerned that the lack of blindscan might be regarded as a drawback. But when we saw that its competitors having the blindscan feature can not lock to many low SR signals, we changed our mind. Taking transponders data from INI files (instead of trying to blindscan them) can be quite a reasonable approach.

However, there is one thing SPAUN could improve. If it happens that there is a non-receivable transponder on your list, SPAROS will end up with "Sync?" results in the transponder list. However, it takes a long while before the SAT HD decides that

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SATVISION Thomson TTR110 ENERGIESPARSIEGER Gerät mit den geringsten kombinierten Energieverbrauch 4 DVB-T Receiver mit PVR im Test Heft 12/2010

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Digital Satelliten Receiver TSR200

Digital Terrestrial Receiver TTR100

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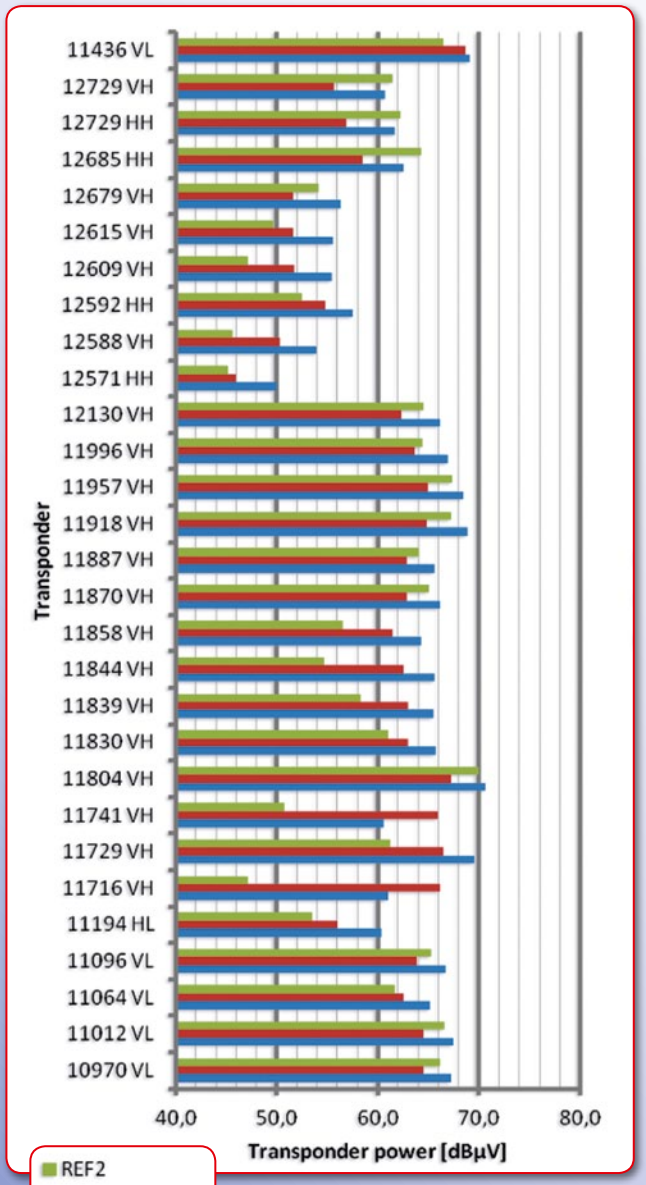
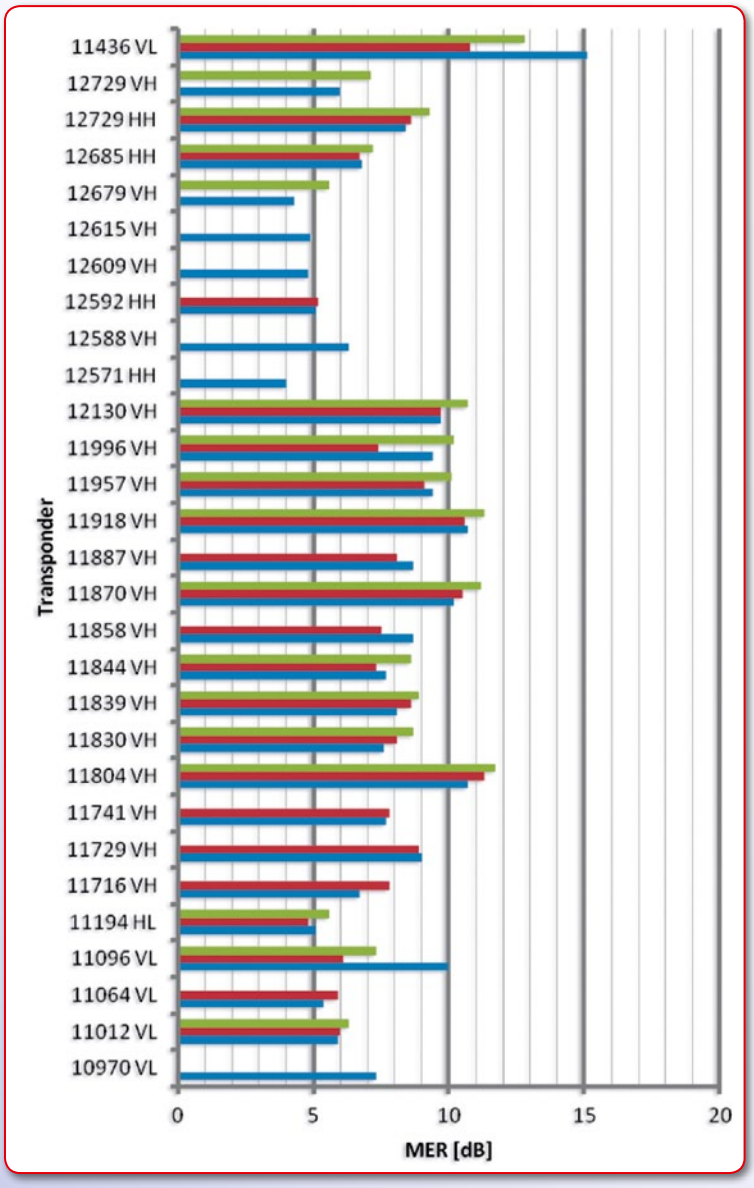
it is unable to receive such transponder. In our opinion, it tries too long to lock to the signal. Of course, if all transponder are receivable, completing the measurements of the whole transponder list is quite fast.

The SPAUN SPAROS SAT HD is a powerful satellite meter, which does a perfect job in aligning dishes. We especially liked its highly sensitive tuner, which could lock in to weak signals. An important feature, when you are in the process of aligning a dish and keep getting weak signals until you finally found the right focus.





Expert Opinion

Jacek Pawlowski
TELE-satellite
Test Center
Poland

+

Extremely useful for demanding installers dealing with DX setups due to its exceptional tuner capable of receiving very weak transponders with low SR
Very good operation of the "tunning knob"
Brilliant LCD
Convenient method of configuration with easily available and up-to-date INI files
Possibility to store and export numerical results as well as graphics, spectrum views and data
The installer can pre-program the meter for typical installations (like ASTRA1/HOTBIRD) and later execute all the measurements with minimal effort

–

none

TECHNICAL DATA

Manufacturer	SPAUN electronic GmbH & Co. KG, Germany
Web	www.spaun.com
E-mail	contact@spaun.com
Phone	+49-7731-8673-0
Fax	+49-7731-8673-17
Model	SPAROS SAT HD
Function	DVB S / DVB S2 and DSS Signal Analyzer
Input frequency	950-2150 MHz
Input power level	40-120dBµV
Spectrum analyzer span values	0, 10 20, 50, 100, 200, 500, 1000, 1200 MHz
Symbol rate	1-45 Ms/sec
Video decoder	MPEG2 and MPEG4
DiSEqC	1.0, 1.1, 1.2
Battery operation time	ca. 2.5 hours
Dimensions	192 x 200 x 102 mm
Weight	1.5 kg

DESCRIPTION:KU SUPER MINI SINGLE
MODEL :BKS-01

KU-BAND

Features:

1.Dual Polarity Switchable
2. Super low Noise
3. Digital Ready
4. High Gain Output
5. Easy Installation
6. Waterproof

DESCRIPTION:C-BAND SINGLE
MODEL :BC-103B

C-BAND

Features:

1.Dual Polarity Switchable
2. Super low Noise
3. Digital Ready
4. High Gain Output
5. Easy Installation
6. Waterproof

KU-BAND SINGLE
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KU-BAND TWIN
MODEL:BK-201B

KU-BAND QUAD
MODEL:BK-401

KU-BAND OCTO
MODEL:BK-801

KU BAND DUAL SINGLE
MODEL:BKM-01

C-BAND TWIN
MODEL:BCM-12B

C-BAND QUAD
MODEL:BCM-14

C-BAND ONE CABLE SOLUTION
MODEL:BCS-11

C-BAND V./H. OUTPUT
MODEL:BCM-11

C+KU-BAND
MODEL:BCK-13

DiSEqC 2x1
MODEL:BDS-23

DiSEqC 4x1
MODEL:BDS-43

DiSEqC 4x1
MODEL:BDS-45

DiSEqC 8x1
MODEL:BDS-81

DiSEqC 4x1
MODEL:BDS-46

DiSEqC 4x1
MODEL:BDS-47

MULTISWITCH 2x4
MODEL:BMS-24

MULTISWITCH 2x6
MODEL:BMS-26

MULTISWITCH 2x8
MODEL:BMS-28

MULTISWITCH 4x4
MODEL:BMS-44

MULTISWITCH 4x6
MODEL:BMS-46

MULTISWITCH 4x8
MODEL:BMS-48

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SPAUN SMF 790 LTE Stop Band Filter

■The SPAUN SMF 790 filter inserted next to the antenna input of a DVB-T receiver. The filter effectively blocks any unwanted signals from nearby LTE mobile phone and data transmitter

- ***safely blocks interference from LTE networks***
- ***very easy to install***
- ***performance better than its specifications***
- ***small product but very effective***

Do Not Allow LTE Data Transmissions To Interfere With Your DVB-T/T2 Reception

3GPP LTE wireless high speed data transmissions for mobile phones and data terminals may in some circumstances interfere with regular terrestrial TV reception. That's because the highest part of the classical terrestrial TV range is today dedicated for LTE rather than DVB-T/T2. As digital TV requires much less bandwidth than analog TV to transmit the same number of TV channels, it became possible to dedicate part of its original frequency range for high speed data transmissions. But because most of the existing antenna installation pass the whole frequency range up to 862 MHz, LTE signals may find their way into your DVB-T/T2 receiver's input.

Despite the fact that LTE data is transmitted in a different frequency range than DVB-T/T2 terrestrial signals, if they are strong enough they can interfere with regular TV reception. If LTE signals are strong and you do not use any filter, some intermodulation might take place in your receiver's demodulator. Spurious signals created due to intermodulation will manifest themselves as excessive noise degrading the quality of the desired signals. You can easily detect this with an analog signal (unwanted additional white/black dots and audio noise). With a digital receiver you can detect it by measuring signal quality. If signal quality measured by your receiver changes over time, or worse your receiver from time to time looses completely the ability to process video and audio, one of possible causes can be interference created by LTE signals intermodulating with your receiver's input. It is very easy to confirm such hypothesis: just connect the SMA 790 and observe if signal quality improves.

For the best results, the SPAUN SMF 790 filter should be placed before the first active component of the reception system. An active component is an amplifier, a multiswitch, a receiver or any equipment that requires electric power to operate. In simple installations with no additional components, you connect the filter anywhere between the antenna and the receiver. Probably it will be more practical to put it next to the receiver. In more complex installation, the filter should be inserted before the amplifier or the multiswitch whatever happens first when looking from the antenna side. One filter should be enough for the whole network if only your signal distribution equipment is well shielded and the connectors are firmly attached to coaxial cable ends.

If the antenna has a built-in amplifier, you will have no choice but to connect the filter at the antenna output. The results could be slightly worse because LTE signals will have the opportunity to mix up with terrestrial TV signals in the antenna amplifier and can intermodulate one another. However, such not desired intermodulation should be minimal in well designed amplifiers having high dynamic range. So even if you have an active antenna with a built-in am-

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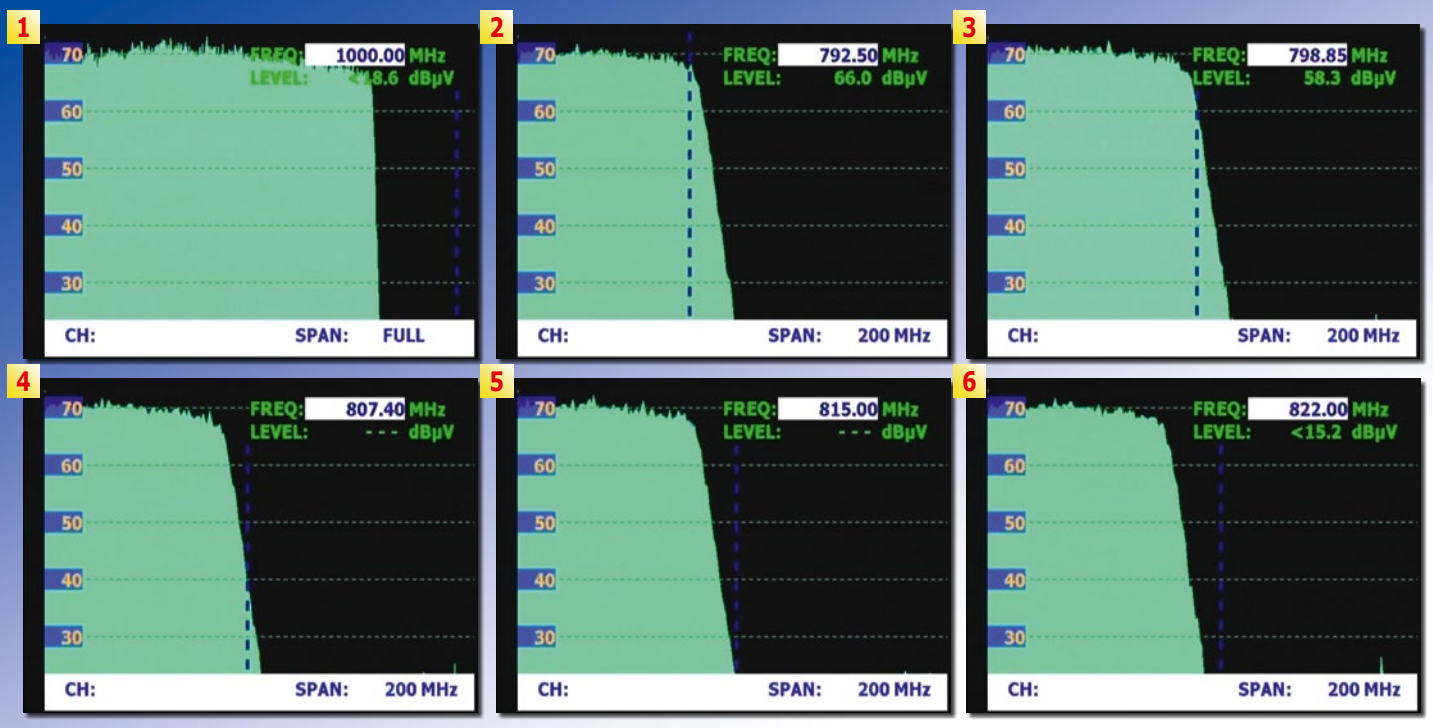
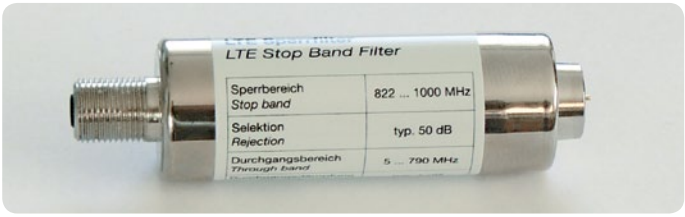


1. The SPAUN SMF 790 has a very sharp roll off at the higher end of the terrestrial/cable frequency range.
2. Up to 792 MHz there is practically no attenuation.
3. At approx. 799 MHz the filter has a 10 dB attenuation.
4. Attenuation increases to 30 dB at approximately 807 MHz.
5. Full 50 dB attenuation is reached at 815 MHz.
6. In accordance with specifications, there is more than 50 dB attenuation at 822 MHz and above



plifier, it will still make sense to connect the SMA filter before the next active component (amplifier, multiswitch, receiver).

According to its specifications, it should pass the range from 5 through 790 MHz with minimum attenuation while severely attenuate the frequency band from 822 through 1000 MHz (where LTE signals are transmitted). The range from 790 to 822 MHz is a transition region where attenuation gradually changes from single decibels to over 50 dB.

In order to check whether the SMF 790 complies with the published specifications, we used a noise generator and a signal analyzer capable of measuring the signal up to1000 MHz. Perhaps the term "noise generator" does not sound as a measurement equipment to non-specialists but in fact it is a very useful device. When combined with a spectrum analyzer it produces nice spectral views that reveal the true frequency characteristics of a filter.

As our measurements revealed (and you can see that on the attached screen shots), the SMF 790 starts rolling off at about 792 MHz and reaches its maximum attenuation at 815 MHz. So it is even sharper than the specifications promise. We confirm that it attenuates signals more than 50 dB in the range 815-1000 MHz. We took two additional measurements at -10 dB and -30 dB. As this happened at 799 and 807 MHz, we can calculate that the filter roll-off is: 20 dB per 8 MHz. That is a very steep transfer characteristic what you can evidently see in our screen shots. We can do nothing but praise SPAUN for such excellent performance! It safely blocks the LTE signals from entering your DVB-T/T2 terrestrial receiver.

TECHNICAL DATA

Manufacturer	SPAUN electronic GmbH & Co. KG, Germany
Web	www.spaun.com
E-mail	contact@spaun.com
Phone	+49-7731-8673-0
Fax	+49-7731-8673-17
Model	SMF 790
Function	LTE Stop Band Filter
Pass band	5-790 MHz
Pass Band Attenuation	1 dB typ.
Stop Band	822-1000 MHz
Stop Band Attenuation	50 dB typ.

Expert Opinion

Jacek Pawlowski
TELE-satellite
Test Center
Poland

+ Very steep frequency characteristics
Low attenuation in the pass band and high attenuation in the stop band
Actual performance better than specification

– None

SATCATCHER DIGIPRO ST COMBI

UNICABLE

QUALITY ENGINEERING HQ

USALS

PERFECT MOTOR SETUP

ASD™

ACTIVE SATELLITE DATA

- DVB – T TEST
- DVB -- S TEST
- FM TEST
- DAB TEST
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- CAMERA TEST
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- HIGH BUILD QUALITY
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- FULL EDIT BY HAND

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TRIMAX TM-6800+

- *Exclusive feature: ASI output that usually only comes with professional signal meters*
- *Another treat: CAM that even accepts CI+ smartcards*
- *Perfect for feed hunters thanks to spectrum analyzer*
- *Fast and easy satellite search with the help of pre-stored transponder data for virtually all positions*
- *Automatic NIT access for satellite names*

TM-6800HD+
MAIN MENU
Spec
Spectrum Analy
Constel
Find
Set
Angle
Store
System
USB
TRIMAX
TRIMAX
F1
F2
F3
F4
22K
13V
18V
SPT
CONS
OK
MENU
FIND
CAPT
DATA
USB
EXIT
1
2
3
4
5
6
7
8
9
0
.
POWER
AV
LOCK

Genie in a Box

TELE satellite AWARD 04-05/2012
Trimax TM-6800+
All the features you need, plus professional extras like ASI and spectrum display
www.TELE-satellite.com/TELE-satellite-1205/eng/trimax.pdf

If we had to give a catchy name to the new Trimax flagship it would be 'Genie in a Box'. It's small, yet can do almost anything you want it to do. The new Trimax signal meter arrived in a stylish box which is kept close with two magnets – now that's something new! Once opened we discovered the meter itself, packed in a protective soft-bag made of nylon, a mains charger, a vehicle charger, an RCA A/V cable as well as a neckstrap.

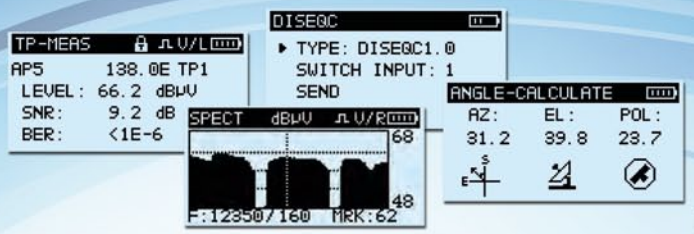
Let's start with the high-quality protective bag which we found extremely convenient. Taylor-made for the TM6800+ it can be used to carry the meter on the neck using the available strap. Lateral flaps are available to keep the display readable even in direct sunlight.

More often than not signal meters that appear neat and tiny on marketing material turn out to be much bulkier than expected, so that single-hand operation quickly loses much of its appeal. As far as the Trimax6800+ is concerned, however, we can happily confirm that an average sized hand is big enough to hold the meter – and use it, too. We know that many installers are not too happy with neckstraps, so this target group in particular will appreciate the meter's convenient size.

And if that alone does not make your heart beat higher, just have a closer look at the connection options of the new Trimax meter: Apart from the obligatory HF input on the top side of the box, you will also find the A/C socket as well as an ASI connection, a feature that is absolutely unique for signal meters in this segment. Even many top-of-the-range

DEVISER

www.devisertek.com



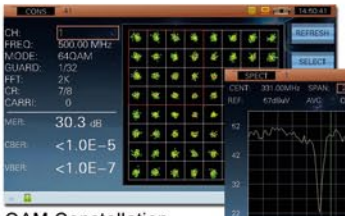
S20/S30

Satellite Finder

- S20 supports DVB-S
- S30 supports DVB-S2
- C, Ku, Ka or L band
- SNR and BER
- Spectrum function
- Support DiSEqC 1.0/1.1
- Signal level and quality display together
- 128×64 matrix LCD with back-lighted
- Large lithium battery capacity, over 4 hours working time
- Software upgrade and parameter set via USB interface

S7000

TV Analyzer


QAM Constellation

Spectrum

TR101 290 Three level Monitoring

- All standards in one: QAM(J.83A/B/C), 8VSB, DVB-T/H/T2, DVB-S/S2
- Digital/Analog TV and Satellite TV analysis
- MPEG2 Transport stream analyzer and monitoring via TS-ASI input & RF input
- Fast spectrum analysis with 5~2150 MHz frequency span
- DSP Technology to support different Video decoding: MPEG-2, MPEG-4 and H.264 for 1080i, 720p and 576i, support PAL/NTSC/SECAM color system
- Support SD&HD Video format
- CI module (Common Interface) for encrypted channels
- TS-ASI input and output
- TS record and TS replay
- IPTV analysis option
- GPS option
- HDMI, LAN and USB interface
- Easy to use
- High resolution 7" TFT LCD with bright display for indoors and outdoors use
- W245×H194×L105, light weight
- Working time >4 hours (battery)

DVB-T Signal

DVB-S2 Constellation

Deviser Electronics Instrument Co., Ltd
No.40 Yibin Road, Nankai District, Tianjin 300113, China
Tel: +86-22-27682088, 27645003 ext 803 ▪ Fax: +86-22-27645002
Http://www.devisertek.com ▪ E-mail: overseasbiz@deviser.com.cn

DEVISER

professional meters only offer ASI as an additional option.

The bottom side of the device sports a USB interface, an HDMI output, the power socket for external power supply (12V) and a common interface for CAMs with full CI+ compatibility – another exclusive feature in this price segment! The CI+ socket is protected by a plastic flap on the back side, which also hides the battery pack which can easily be changed whenever required.

Pressing the 'On' button for two seconds powers up the signal meter, and after approximately 15 seconds it is ready to take your commands. The main menu boasts a neat design and we did not even need to consult the manual to find all the functions we were looking for. A total of eight options are available from the main menu:

- Spectrum analyzer
- Constellation diagram
- SAT finder
- SAT settings
- Angle calculation
- Memory functions
- System configuration
- USB options

In order to perform an initial quick test we hooked the LNB cable from one of our antennas (aligned towards ASTRA 19.2E) to the meter and selected 'Spectrum analyzer' in the main menu.

It was only a matter of seconds until the spectrum was created on the display, showing a span of 1250 MHz.

In order to speed up spectrum refresh rates the following frequency spans are available: 1250 MHz (full span), 200 MHz, 100 MHz, 50 MHz and 32 MHz. The setting can be changed loop-wise with the 'F1' function key.

When in spectrum mode the arrow buttons of the signal meter take over very useful functions: Using the 'Up' and 'Down' buttons you can scroll along the y-axis which displays the signal level. With the 'Left' and 'Right' buttons, on the other hand, you can move a marker along the x-axis, which displays the frequency value.

With this user concept it is possible at any time to find out the signal level of a selected frequency and to initiate a scan starting from the marked frequency position.

This is a very useful feature if you need to align your antenna to a more exotic orbital position: Instead of having to pre-edit the transponder list all you need to do is move the marker to a peaked signal within the displayed spectrum.

We truly appreciated the fact that the Trimax TM6800+ locks a signal within a mere second, provided the marker is placed on a valid transponder. Pressing the 'OK' button will start a scan that lists all channels in a matter of seconds – a real treat for feed hunters as well!

Unfortunately, the spectrum analyzer does not react swiftly enough to allow antenna alignment using the spectrum display only. The refresh rate simply does not keep up with signal changes.

If you're done with the spectrum a simple touch of the 'Menu' button will bring you back to the main menu. We went ahead with the constellation diagram.

Before the meter can display that diagram you have to select either a pre-stored channel or the current frequency. In our case the settings list was still empty, which is why we chose the current frequency which we had selected with the marker in the spectrum mode.

The constellation diagram can display both QPSK and 8PSK modulations, with the 8PSK modulation being divided up into nine squares rather than eight segments forming a circle. The QPSK modulation is shown correctly with four squares. Constellation diagrams are created rapidly and with a similar performance as in our reference unit.

The following important information is shown on the screen:

- Frequency
- Symbol rate
- Polarisation
- Modulation
- Satellite name
- MER
- C/N
- BER
- FEC
- Two bar diagrams with signal quality and signal level given in percent

What did make us stop short was the fact that the display invariably presented identical values for MER and C/N, even though the two parameters should be measured independently. MER stands for Modulation Error Ratio and indicates the relationship between average signal performance and average error performance within a constellation.

In other words, the MER value is a figure that correlates with the size of a cloud within a square of the constellation diagram. C/N, on the other hand, is short for Carrier to Noise Ratio and

indicates the transponder performance in relation to background noise. According to Trimax, one of the upcoming firmware updates for the TM6800+ will address and solve that issue.

All data gathered from the constellation function can be saved onto a connected USB storage medium by pressing the 'Point' button. If you prefer the data to be stored in the device's internal memory you need to press 'F4' instead. The constellation diagram can be redrawn at any time with a simple touch of the 'Up' button.

After that, press the 'Menu' button once to move back to the frequency/channel option and a second time to call up the main menu again.

The next option we tested was the 'SAT finder' function and to this end we hooked one of our 60cm offset antennas to the Trimax meter. That antenna is mounted onto a portable pole and was not aligned to a specific satellite at the time.

We wanted to find out what it takes to perfectly align an antenna with the help of the meter and so we tested two very different scenarios: ASTRA 19.2E as an example for one of Europe's most popular and powerful satellites, and HISPASAT 30.0W as an example for a satellite with lots of DVB-S2 transponders and a critical reception situation with a 60cm antenna, particularly when it comes to LNB skew.

Using the 'SAT finder' function is child's play, mostly thanks to the pre-installed settings list, which includes at least one transponder for virtually all relevant satellite positions.

So in most cases all you have to do is select the desired satellite in the first menu item and you can quickly go about antenna alignment.

The signal strength and signal quality bars on the display are easy to read even from a distance, which is an enormous aid in everyday installation situations. As soon as a signal is locked the bars change their colour from red to green and the meter generates a sound that changes in pitch as the reception quality increases (or decreases). The signal performance is always given in dBµV as well.

If you prefer to use a different transponder you can either select it from the settings list (if pre-stored) or you can manually key in the required parameters. Once the signal is detected and locked you can initiate a san covering that particular transponder only.

It does not take more than a few minutes with the Trimax TM6800+ to find ASTRA 19.2E and HISPASAT 30.0W. Using the pre-defined satellite list you only need to select the corresponding satellite and then choose a Ku band transponder.

Next, we started to slowly move the antenna until the meter indicated a hit with green bars and a clearly audible sound. Could we have asked for more?

Of course it can always happen that the same transponder configuration is used on two different but neighbouring satellite positions so that it makes sense to call up a channel of the required satellite on the display to do some cross-checking and verification.

In case none is available on the channel list we recommend you do a transponder search.

It is here that the NIT function of the Trimax TM6800+ comes into play and shows its full worth. As soon as a signal is locked the current satellite name pops up on the display, which means installers know right away which satellite the antenna is pointing to, even if identical transponder data are used in different positions. We should emphasise that the NIT feature comes by no means as standard for most meters and is a valuable aid when it comes to making sure you've hit the right spot.

To call up the TV picture on the display you need to be in the main menu and press the 'Menu' button. The meter then switches to playback mode and behaves more or less like any ordinary satellite receiver.

Using the 'Up' and 'Down' button you can zap up and down the channel list or you can use the numeric keypad to select a channel number. If you want to access the channel list all you need to do is press the 'OK' button. The currently showing channel stays on the display in a small window and you can swiftly select a channel on the list and switch to that channel.

In case you're wondering whether the 'Left' and 'Right' buttons also have a dedicated function in playback mode: Use them to switch between TV and radio reception. There is no option to quickly jump back and forward within the channel list

1. Our tests were performed with a portable 60cm offset antenna.
2. A small motorised antenna was used to test the meter's DiSEqC 1.2 functions.

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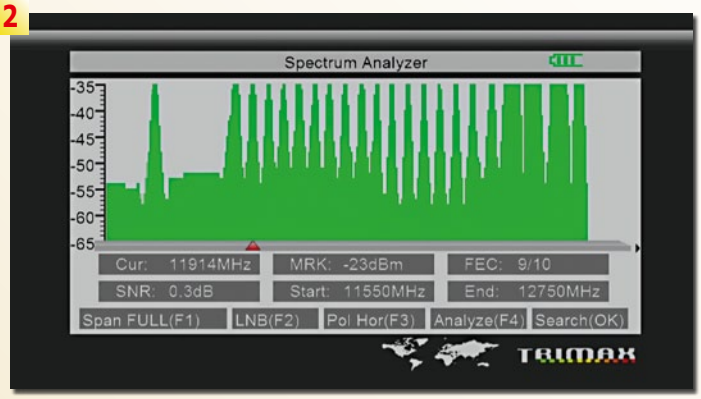

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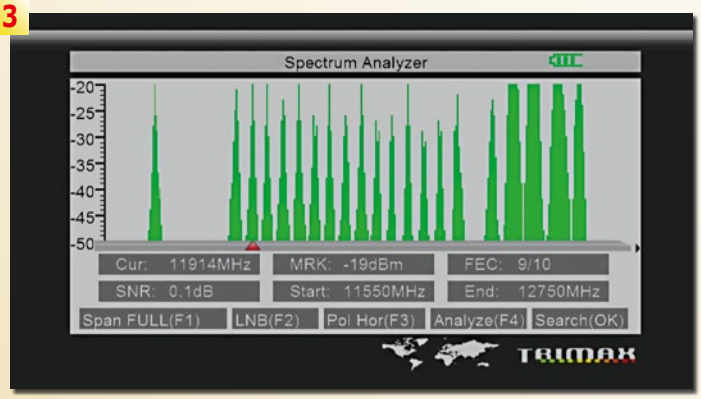

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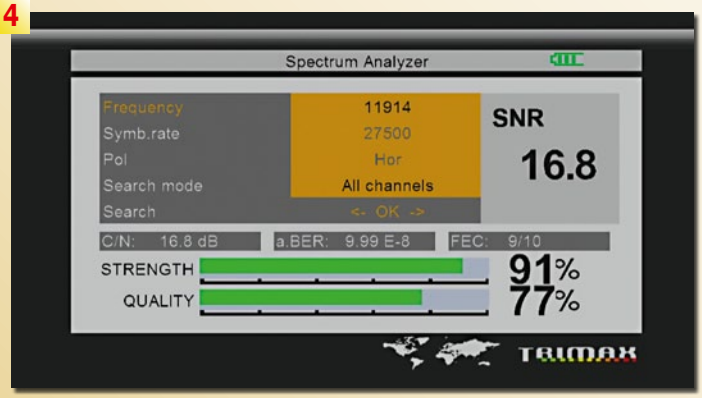

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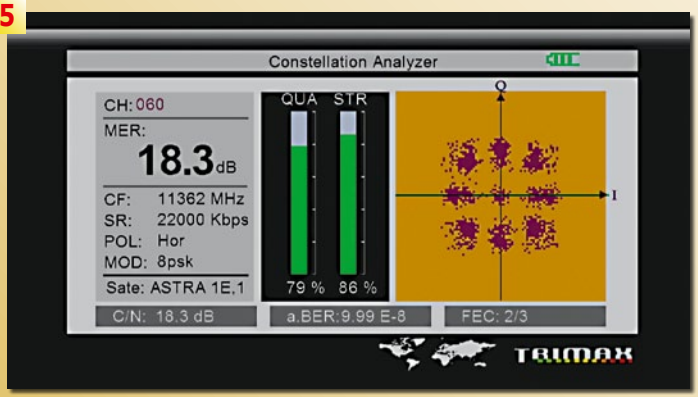

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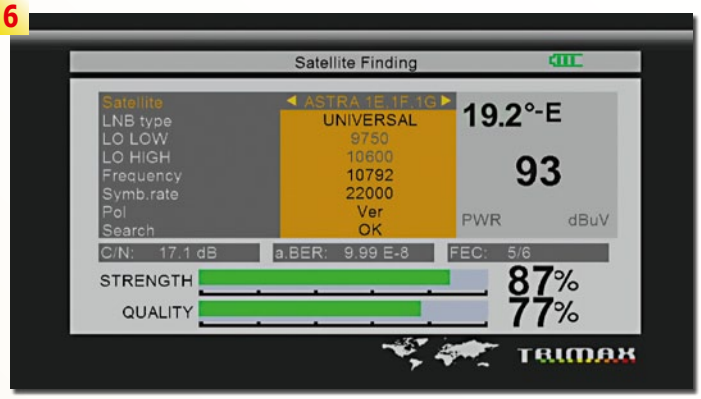

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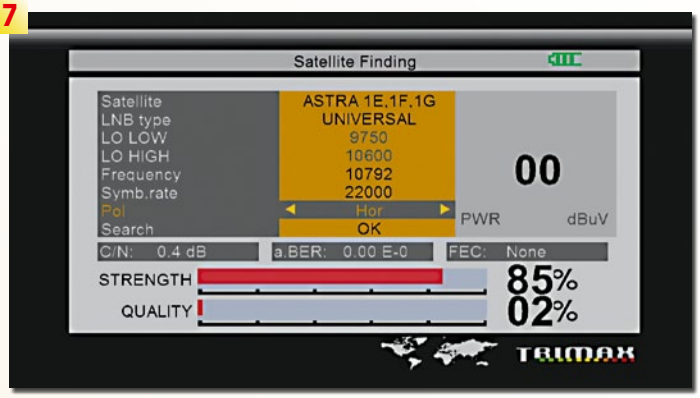

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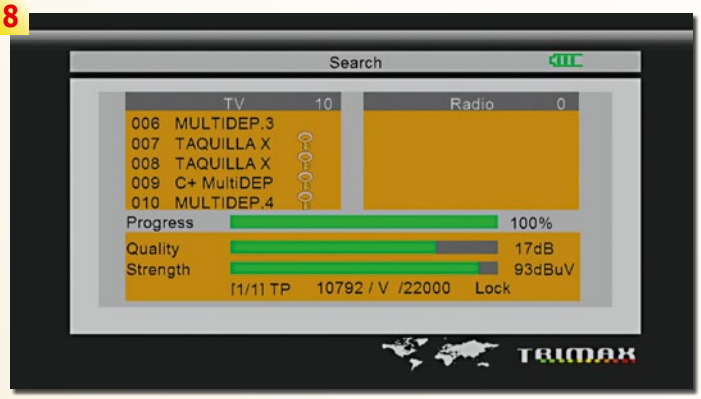

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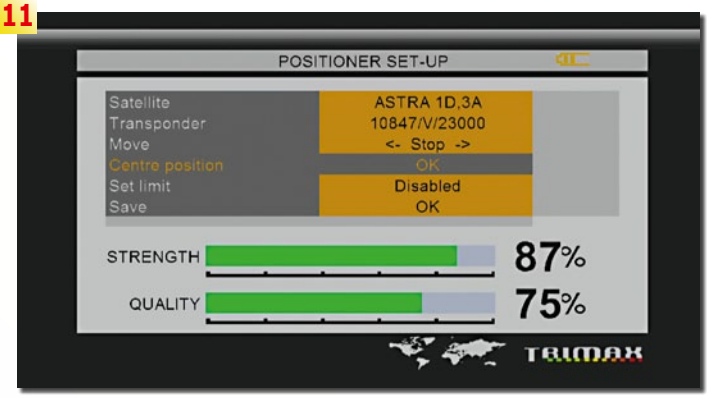

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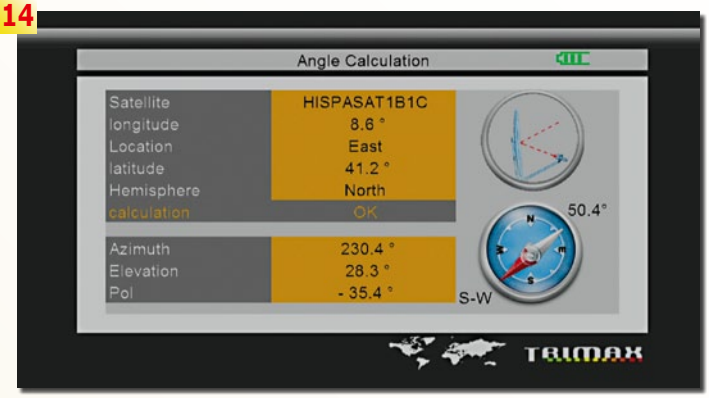

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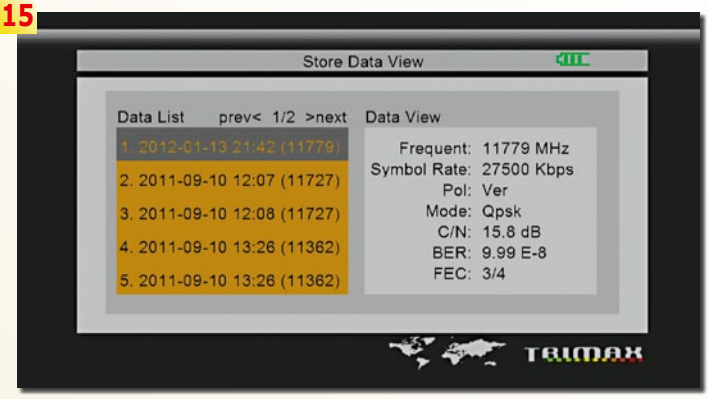

with its hundreds or potentially thousands of entries, and there are no favourites lists, so be prepared to wisely manage your channel list and stick to the bare essentials – unless you are of the severely patient kind.

Since it took much less time than expected to align our antenna to the two satellite positions we had some time to spare, so why not have a closer look at the built-in tuner and its threshold capabilities?

We pointed our 60cm antenna towards ASTRA 2D and tried to catch BBC HD on transponder 49 (10847 V 23000-8/9 QPSK). According to ASTRA/SES our location in Portugal would require an antenna with at least 120cm for successful reception. Nonetheless, we achieved reliable and stable reception of BBC HD with only half that diameter. Quite frankly, we had no idea how that came about, but it does speak volumes about the reception quality of the Trimax TM6800+ tuner.

The fourth menu item of the meter includes a settings editor, which allows to edit the satellite list, define DiSEqC parameters and LNB types for each satellite and start a channel search on an entire satellite or a single transponder.

In our opinion a channel search across an entire satellite should be avoided by all means, as it is very tiresome and time-consuming at a later stage to switch between channels on a list that boasts hundreds or thousands of entries, but no favourites options (see above). What does make sense is saving one free-to-air channel per polarisation level and satellite, so that you can quickly and easily verify if your antenna alignment is successful.

While such a settings list can of course be compiled on the meter itself, it is a job that takes some time and effort. Luckily, there is an easier way: On its website www.trimaxtec.net the manufacturer provides the 'Satellite list edit tools for TM6xxx series Meter/Finder.rar' file via its Download Center.

What you get is a settings editor, which at this stage only comes with an installation wizard in Chinese. But rest assured, all you need to do is click the right button during the installation pro-

1. Main menu of the TM6800+.

2. Spectrum analyzer: The marker was moved to 11914 MHz and the signal was locked automatically after one second. An FEC of 9/0 was identified.

3. The spectrum can be moved vertically with the 'Up' and 'Down' buttons.

4. In the spectrum a signal scan can be initiated from the frequency selected with the marker.

5. Constellation diagram with additional signal information. An 8PSK modulation can be seen here.

6. With the 'SAT finder' function it is possible to quickly align an antenna. Thanks to the NIT function the satellite name is extracted from the NIT stream.

7. SAT finder: Signal strength peaks, signal quality doesn't: This is a clear indication that the antenna is aligned towards the wrong satellite since the transponder data don't match.

8. Automatic search: The Trimax TM6800+ is a fast performer.

9. List of default satellites which can be edited as required.

10. Satellite configuration. DiSEqC 1.0/1.1/1.2 protocols are supported.

11. DiSEqC 1.2 menu: It is possible to rotate the antenna, set limits and save the current position.

12. Automatic scan of an entire satellite.

13. Search progress. Only pre-stored transponders are scanned and there is no blind scan function.

14. Angle calculator: Based on the current position the Trimax TM6800+ is able to determine the correct angle values.

15. Saved constellation diagrams: All measured parameters can be saved for future documentation.

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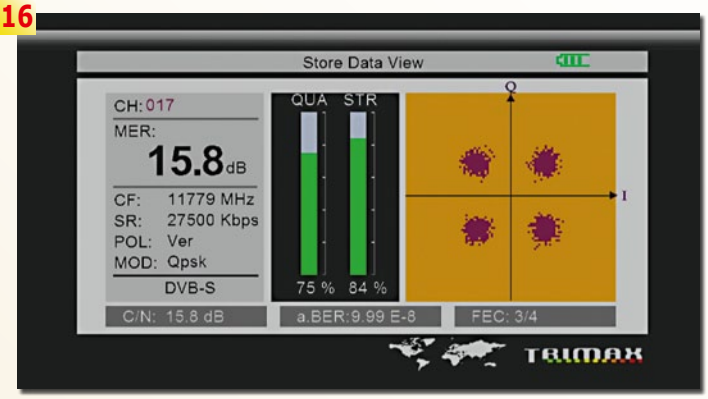

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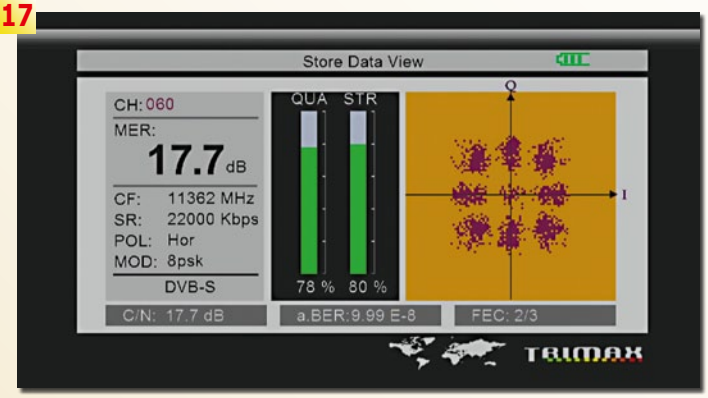

cess, and the software itself is in English.

It's interesting that the settings list is not transferred to the meter with an RS-232 or USB cable, but using regular files which can be stored on any USB storage medium.

DiSEqC options can be accessed through the satellite list menu item. Here you can chose either DiSEqC 1.0/1.1 or DiSEqC 1.2, and we tested how the meter controlled our small motorised setup that moves a 45cm antenna.

The available functions include EAST/WEST movement of the antenna, saving of the current position in relation to the active satellite, setting of limits and going to zero position. The current firmware version of the TM6800+ does not allow to specifically enter the saved position in the DiSEqC motor and it is not possible to directly move to saved positions.

The next menu item is called 'Angle calculation' and can be used for convenient calculation of Azimuth and elevation values based on the entered geographic position.

It's part of our job to never take a manufacturer's word for anything, so we double-checked the calculations for a number of setups and are pleased to say that all results for elevation, Azimuth and polarisation (LNB skew) turned out to be absolutely correct.

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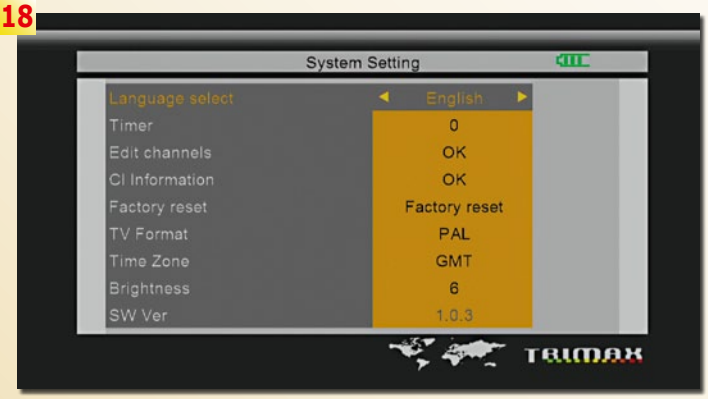

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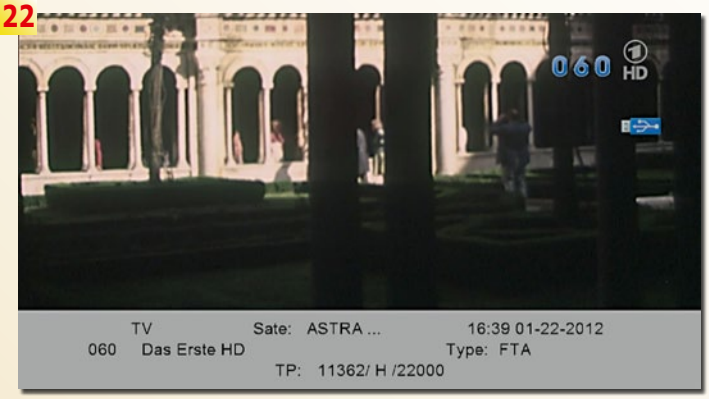

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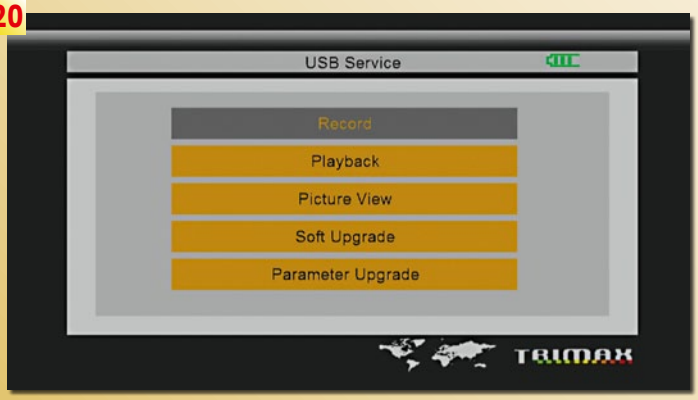

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We pressed the 'Menu' button once more to call up the main menu and to activate the 'Memory functions' from there.

Use this feature to save and retrieve constellation diagrams complete with all corresponding measurement values such as BER, C/N, frequency, symbol rate, FEC and polarisation. Here again it is possible to export data directly onto a connected USB storage medium by pressing the 'Point' button.

Back in the main menu we proceeded with having a closer look at 'System configuration', where settings such as language (English, Spanish, German, Italian, Turkish), TV aspect ratio, time zone or display brightness can be adjusted.

The channel list editor can also be launched from here and CAMs inserted into the CI slot can be configured. We tried out a range of CAMs (Seca, Viaccess and DragonCAM) and the meter identified all of them correctly and offered the corresponding module menus. Last but not least, the 'System configuration' section of the main menu must be accessed if a default reset is required or to display the currently installed software, which in our test unit was version 1.0.3.

From the main menu we proceeded with calling up 'USB options', which consist of a menu offering the following options:

- Record: Starts a recording if the user has set channel, date, start time and duration of the recording beforehand.
- Playback: Lists recordings available from the connected USB storage medium and plays back the selected recording.
- Picture View: Displays JPEGs that are saved on the storage medium.
- Soft Upgrade: Updates the device's firmware.
- Parameter Upgrade: Upgrades the settings list that we pre-arranged on the PC using the editor software.

To get a well-founded impression of the Trimax TM6800+ we exclusively and intensively tried it out for several days. After a short familiarisation period we were able to quickly align antennas as well as detect and also solve problems.

Here are some of the special features we particularly appreciated: The large display is something we will never want to do without again. Even HD channels are presented crisply and with amazing details.

The small overall size of the device makes the display appear even bigger. The on-screen menu is designed to make full use of the display size as well, which means the font size is ideal and all texts and information are easy to read at a glance.

Another feature that enhances user-friendliness is a backlit keypad – the illumination can be turned on or off and comes very handy at night or in dark rooms.

In everyday use the spectrum analyzer did not react quickly enough to be used as a real-time spectrum. Only if you reduce the frequency span to 50 MHz the spectrum's refresh rates reach real-time performance.

Nonetheless, the spectrum mode sports a number of highly useful features: You might think that a marker that can be used to scroll to a transponder in order to then initiate a signal scan on that frequency is nothing out of the ordinary.

In actual fact, however, only few signal meters are capable of correctly handling such a feature and the Trimax TM6800+ does not only handle it, but performs brilliantly. Feed hunters in particular will love that as it allows them to quickly find active transponders and then hunt for transmissions on those frequencies. For a job like that the refresh rate of the spectrum at the full 1250 MHz frequency span is more than sufficient.

Just like in the constellation mode it is possible to create a screenshot of the current spectrum by simply pressing the 'Point' button. This is a very helpful function when it comes to professional documentation and acceptance of an installation job. After all, nothing beats substantiated evidence in case of queries at a later stage.

The undisputed highlight of the TM6800+ is the BNC connection on the upper side. It can be used to put out the current transponder as an ASI stream at any time. The ASI protocol is used for the transmission of DVB transponders, irrespective of the modulation type.

Broadcasting equipment such as demodulators, modulators, multiplexers, headends etc. generally come with ASI inputs and outputs. For a signal meter like the TM6800+ to offer such an output is nothing short of a miracle as it allows to quickly diagnose flaws whenever a signal does not arrive properly at a particular device.

It is important to note at this point that professional systems cannot be re-programmed on the fly for individual tests, so it does make sense to use the TM6800+ instead to provide a device with an ASI data steam for

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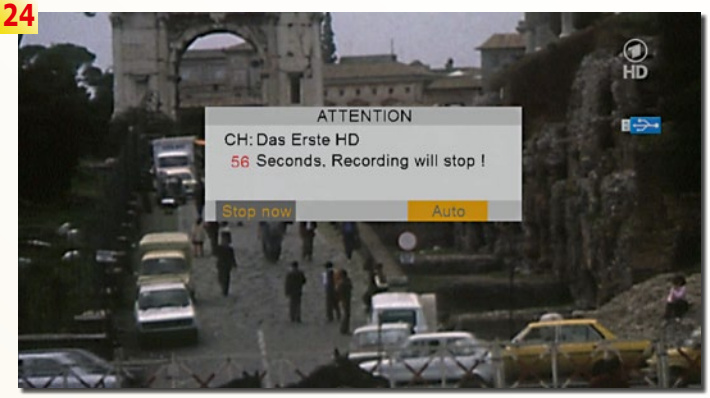

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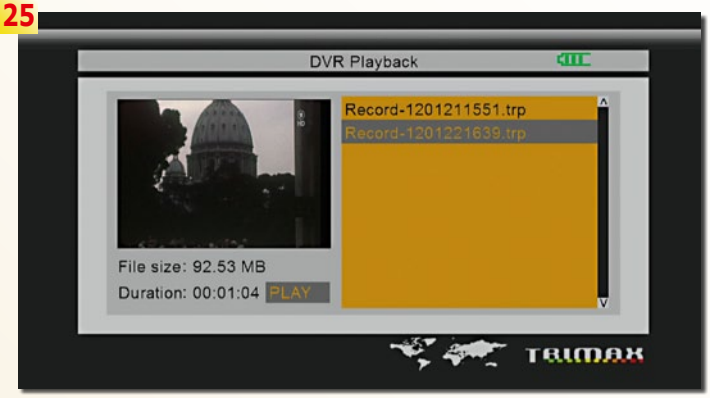

16. Presentation of a saved QPSK constellation diagram with corresponding information.

17. Presentation of a saved 8PSK constellation diagram with corresponding information.

18. Configuration menu of the Trimax TM6800+.

19. The channel list editor can be called up from the constellation menu.

20. USB menu of the TM6800+.

21. Recordings of the currently selected channel can be programmed for future documentation.

22. An HD channel is shown on the display of the TM6800+.

23. Additional and more detailed information can be displayed if required.

24. Once the programmed period of time has elapsed the recording is finished automatically.

25. Recordings can be played back in a dedicated small window.

evaluation purposes. Any installer who also sets up and services small-scale head-ends will find the Trimax TM6800+ to be a perfect companion.

What's more, the demand for head-ends in communal distribution systems will remain on the rise in the years to come.

The bottom line is that the Trimax TM6800+ is just what we were looking for. The meter definitely allows speedy satellite antenna alignment and is a valuable aid in the hunt for errors and flaws. The Trimax TM6800+ has finally managed to propel a handheld meter into the professional league.

The TM6800+ is currently available in two versions, for DVB-S/S2 (our test meter) and for DVB-C/T. Versions for DVB-T2 and with a combination of tuners are in the pipeline. If you want to exchange tuners all you need to do is remove a cover on the back (which is attached with two screws) and remove the tuner component, which again is screwed to the device.

With the TM6800+ Trimax has launched a wonderful little miracle box offering a whole range of professional features, with the ASI output shining particularly bright. Installers of communal antennas as well as feed hunters will find that the new meter can easily become their equipment of choice. Talk about 'Genie in box'...

Expert Opinion

Vitor Martins Augusto
TELE-satellite
Test Center
Portugal

+

ASI output for professional use
- Spectrum analyzer assisting in the hunt for unknown transponders
- Perfect design and size of the display for optimum use
- Automatic detection of selected satellite thanks to pre-stored transponder list
- Tuner with very low threshold

–

BER and C/N values are identical
Refresh rate of spectrum analyzer with high frequency span not high enough

TECHNICAL DATA

Manufacturer	Trimax Technology Limited, Room 1016-1019 Max Smart Centre, 21 Bao Xing Road, Bao'an, 518133 Shenzhen, China
Tel	+86-755-21636899
Fax	+86-755-21636879
E-mail	sales@trimaxtec.net
Website	www.trimaxtec.net
Model	TM-6800+
Type	Handheld Satellite Meter for DVB-S / DVB-S2 or DVB-T / DVB-C
Tuner	Exchangeable DVB-S / DVB-S2 Tuner (Tested Device)
Frequency range	920-2150MHz (DVB-S / DVB-S2)
Input Level	-80 to -20dB
Input Impedance	75 Ω
Power out	13/18V (DVB-S / DVB-S2)
Ku/C-band	Selectable
Min. level in	About 35 dBµV (noise)
Max level in	About 90 dBµV
Display of signal level (analogue)	dB on LCD/Monitor
Display of signal level (digital)	C/N, BER, FEC, MER
SAT-Finder	Sound and light alarm when upon signal lock
Keyboard	Numeric keypad with backlight, allows use at night
Display	4.3 inch TFT LCD screen (16:9), allows reproduction of MPEG2 and MPEG4 channels
Extra functionality	Constellation analyzer, Spectrum analyzer, Stream output by ASI CI+ compatible, CAM Interface Recording and reproduction of TV channels Capture and browsing of pictures Capture of OSD and signal strength Supports multiple OSD languages Supports SCR (Unicable)
Output	Audio and video input/output (S-VIDEO, HDMI)
DiSEqC	1.0, 1.1, 1.2, USALS
Upgrade Functions	Firmware and Settings, editable on PC
Supplied Accessories	Power-supply (100-240V/50/60Hz 14.5V, 1.5Amp) 12V Car-charger Softbag with neckstrap A/V-Cable
Battery	Fast charge LI-ION battery (1950mA), can last around 3 hours
Weight	0.6 Kg

Last Minute Firmware Update

• Just before editorial deadline a new firmware release, v1.0.3, found its way into our test center. We immediately upgraded the software of our Trimax TM-6800+ to check out the new features.

The upgrade procedure is fairly easy, as the meter can be flashed by just copying the firmware file to a USB memory. Within the USB menu of the TM-6800+ the "Soft Upgrade" function will list all found *.bin files on the root folder of the USB memory. The selection can be made by using the UP- and DOWN-keys. The OK-Key will initiate the upgrade process. We noticed that the meter verifies the integrity of the firmware file prior to flashing it, thus avoiding a bad flash due to a wrong or faulty firmware file. Very good!

After a reboot we could use the new firmware and we noticed a few minor, but important changes:

• The meter supports DiSEqC-1.2 and USALS for motorized dishes. USALS is far easier and comfortable to use, since all the user has to do is to specify his location and the meter (like any USALS compatible receiver) will calculate the position of all the satellites. No more searching and storing satellites manually! Of course you will need a USALS-compatible motor.

• Well hidden in the menu for the LNB configuration is the SCR or Unicable option. This allows the installer to check unicable installations using the TM-6800+. Normally you will find this option only in much more expensive meters and we were quite surprised of finding this option. SCR/Unicable installations allow up to 8 users to be connected to a SCR-LNB through the same single LNB cable. A special SCR/Unicable switch will provide each user with a reserved bandwidth, allowing an independent viewing of all 4 satellite bands. This is the ideal installation for i.e. older multi-family buildings where the installer wants to maintain existing cables and the passing of new cables is not viable.

• Using the "."-key we could store the constellation diagram and measured data to a USB disk or the internal memory. With this firmware update, up to 20 datasets can be stored within the meters internal memory. This should be enough for a day without the hassle of carrying a USB disk. The CAPT-Key will grab screenshots of most screens, thus allowing an easy documentation of the measurements carried out.

It is good to see that the Trimax is committed to release updated firmware for the TM-6800+ this soon and our positive impression of this device just got better!

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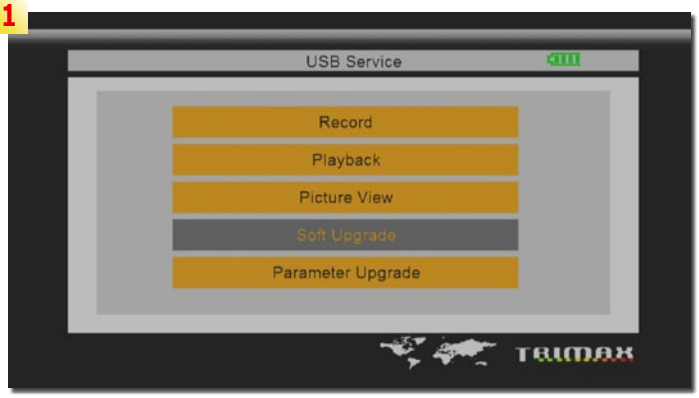

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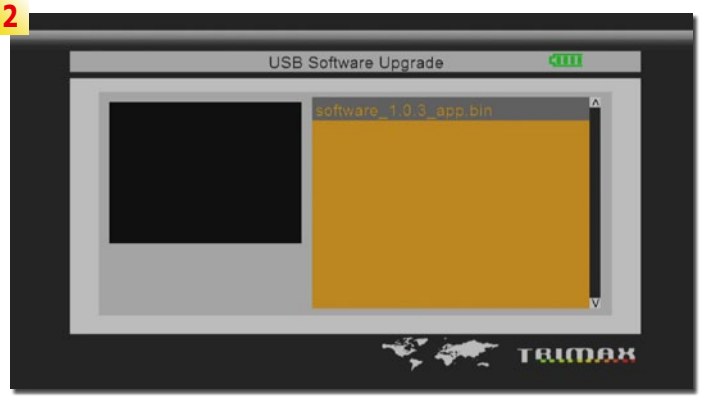

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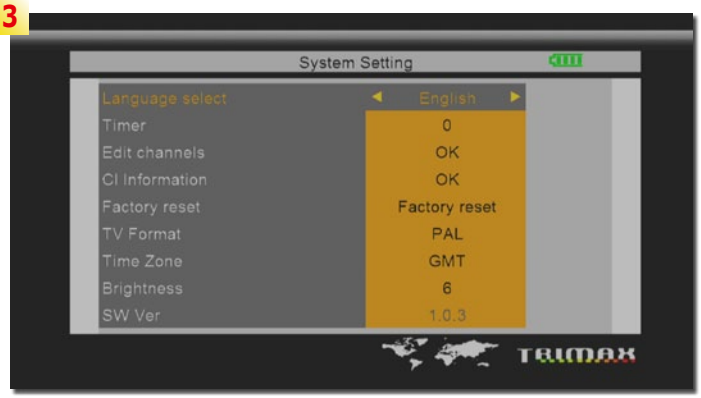

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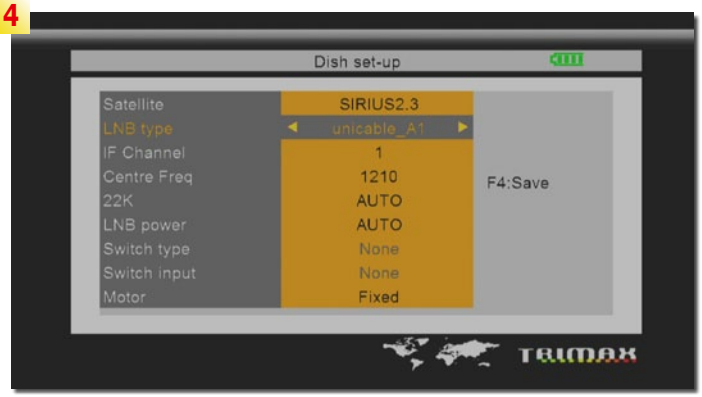


The Wonderful World of Spark

- *seamless integration of IPTV in satellite receiver*
- *compatible with HDTV and 3D TV*
- *automatic PVR integration for IPTV*
- *user-friendly on-screen menus*
- *perfectly matched to content provider*

Part 2: KartinaTV

IPTV the way it should be!

Thomas Haring

State-of-the art satellite receiver range offered by manufacturer Fulan: Their Spark operating system adds full Internet connectivity to satellite reception and allows to watch IPTV content in SD and HD quality.

1

2

1. You can find KartinaTV in the 'Networking' menu of the Spark software

2. Before you can start enjoying KartinaTV you have to key in your username and password

3. The channel list of the KartinaTV application is very pleasing to the eye. It goes without saying that Cyrillic characters are used if required

3

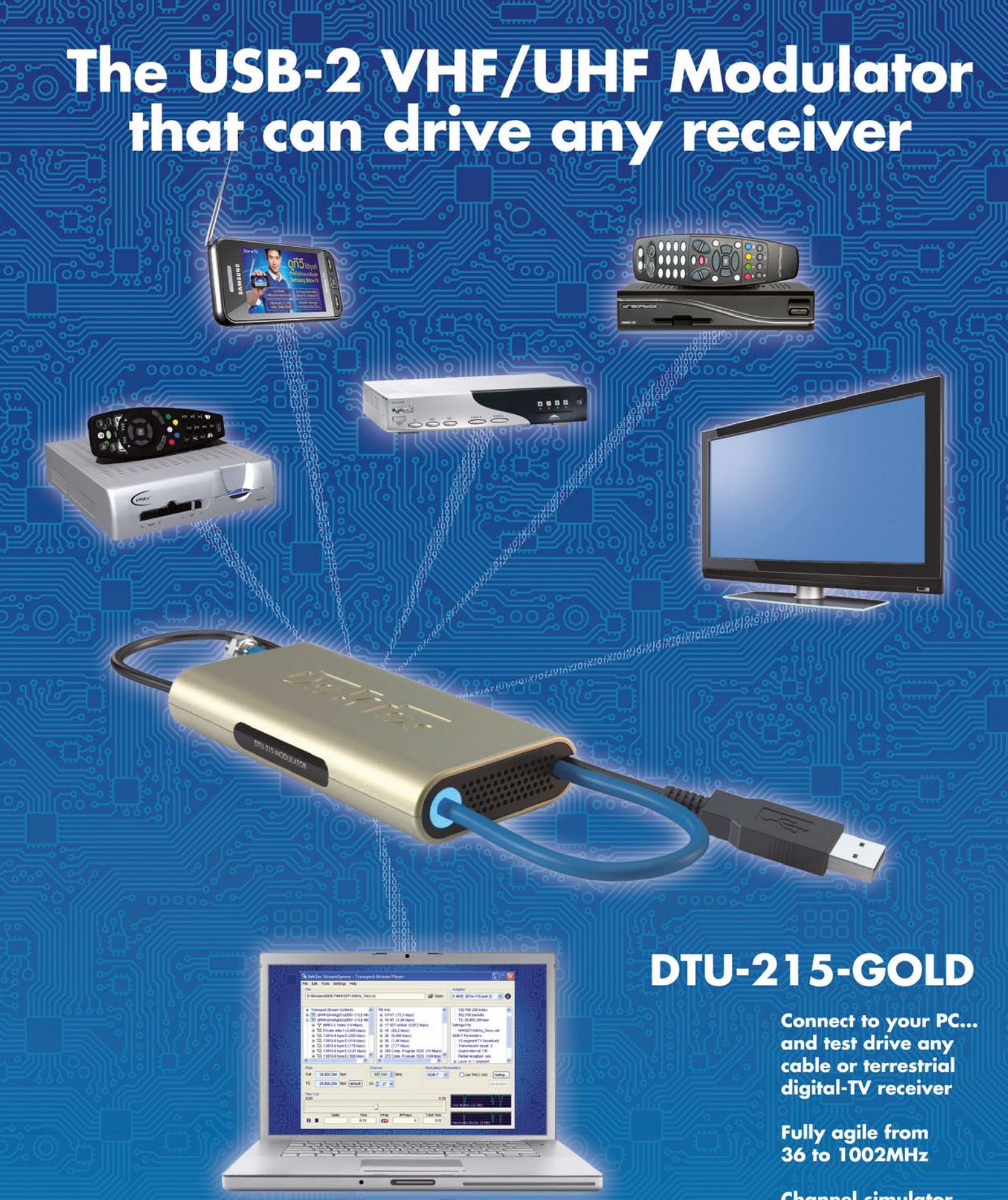
For a perfect online match to the Spark software you don't have to look further than KartinaTV, an IPTV provider that is seamlessly integrated in the receiver's software. Offering in excess of 120 different channels KartinaTV has in store a truly extensive line-up of primarily Russian-language TV stations and is available worldwide over the Internet. In addition to virtually all public and commercial TV channels from Russia, there are a number of international channels available in SD quality plus 18 HD channels, one Full HD channel and two 3D channels. Various themed channels and a total of four adult entertainment channels cater for different target groups and round off the provider's IPTV offering.

Access to KartinaTV is fully integrated in Fulan's Spark operating software with a dedicated menu item which can be found in the 'Networking' section. After all, we're talking about content distributed via the Internet. Completely independent from all satellite features of the receiver KartinaTV has its own user interface and operating structure. Both the on-screen menus and the available additional features and functions are tailor-made for the Kartina IPTV package and create a unique user experience.

Basically, KartinaTV is pay TV and this means only subscribers with a valid user name and password are able to access content. That's the reason why the Spark software will first make sure you are authorised to watch KartinaTV content before making any channel available, and you need a subscription with KartinaTV to obtain your login data.

Right after we had completed the login process we were greeted by the channel list on the right half of the screen and a window showing the first channel of the

The USB-2 VHF/UHF Modulator that can drive any receiver



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Fully agile from 36 to 1002MHz

Channel simulator included

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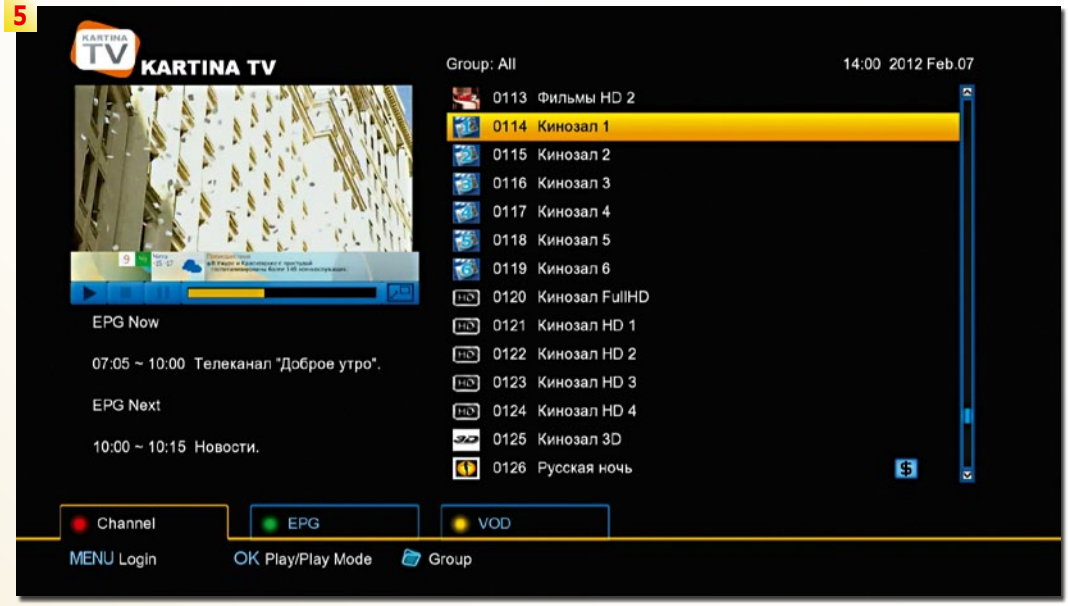
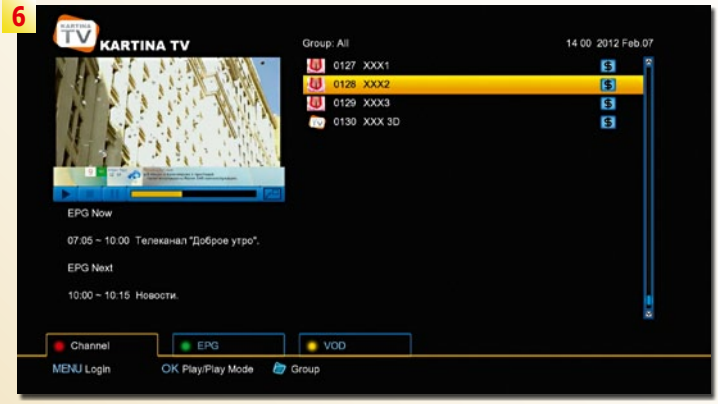
DekTec

www.dektec.com





4. More than 120 SD, HD, 3D and FullHD channels are available

5. EPG information of the current channel is shown in the lower left area of the screen

6. The channel line-up includes three adult channels as well

7. Here the comprehensive KartinaTV EPG lists events that were already broadcast but can be still viewed on demand

list on the top left section. Right below that window the EPG data of the current channel starts to build up after a few seconds. The reason there is a slight delay is the fact that KartinaTV has to load all EPG data and channel logos from the Internet when it is first started. This is a one-time process, though, and with all subsequent channel changes EPG information will be displayed right away.

The channel list layout is of remarkable clarity and very appealing, it even shows the channel logo next to its name and looks more like a web interface than a set-top box OSD. Whenever the channel list is called up a small window in the upper left corner of the screen shows the currently selected channel. This way you can stay glued to the current broadcast while scrolling up and down the list. If you want to switch to a channel on the list all you need to do is press the 'OK' button twice to make the list disappear and to watch the channel in full-screen mode. Just like with satellite television, a touch of the 'Info' button reveals the title of the current and next events.

In theory, zapping could be awesome with such a great-looking and easy-to-use interface, but it is here that an inherent weakness of IPTV comes to the fore: You're forced to wait approximately three seconds from the time you select a channel until it actually appears on screen, as this is the time it takes for the receiver to request, receive, process and finally display the online data stream.

One of the most useful features of the channel list is the category option, which means you can restrict the channels on the list to genres such as music, news, entertainment, sports or nature, to name just a few.

For many of our readers IPTV probably equates to low-quality video full of pixelisations and artefacts, matched to awful audio. In this day and age of hi-def satellite television, who would take up with something like that? If you, too, think along those lines, you better think again! We per-

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8. A dedicated button in EPG mode can be used to quickly switch to another channel

9. Current and next events as shown in the info bar

10. EPG data for MTV HD

11. Time shift viewing is integrated in the Spark operating software. It allows to pause and continue viewing at any time

12. The vast VOD library is grouped into various categories, which makes it easy to navigate

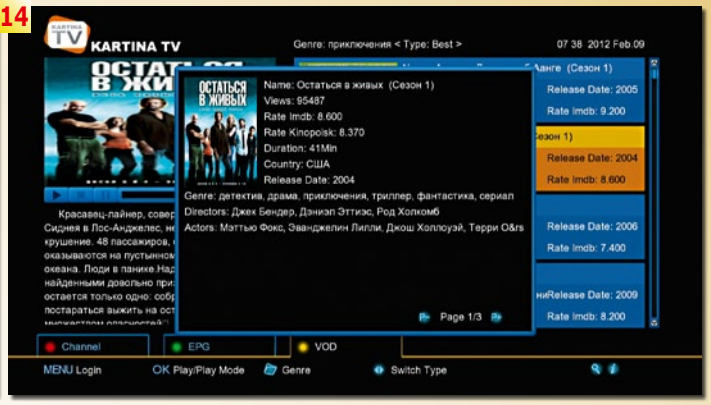
formed a small-scale field test with colleagues and visitors to our editorial office and showed them satellite TV channels alongside IPTV channels from KartinaTV: The result of our experiment was that none of these persons was able to tell which was satellite TV and which was IPTV. What's more, the KartinaTV FullHD channel even prompted some to believe they were watching a Blu-ray movie. While this is a tad far-fetched and will not hold its own under professional examination, it still goes to show that the KartinaTV video quality is a far cry from early IPTV trials.

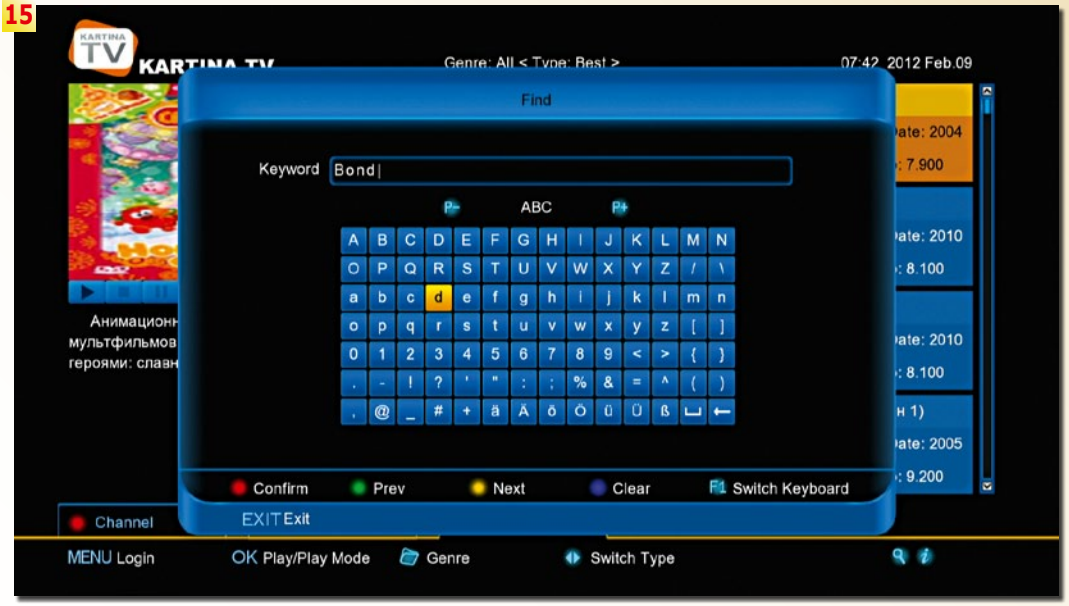
One of the great aspects of KartinaTV is that SD channels don't require more than a 1 Mb/s Internet connection for reliable reception (with KartinaTV recommending 1.8 Mb/s). If you're going for HD or even FullHD resolution we found the minimum to be 2 Mb/s and KartinaTV recommends 8 Mb/s. Even though, most Internet connections these days will easily be capable enough for stable reception of KartinaTV and its IPTV channels.

We all turn into couch potatoes every once in a while and don't want to leave our place in front of the telly no matter what. For an evening like that it is paramount to know what's on TV – and the KartinaTV EPG delivers brilliantly. Not only is it a virtually endless well of information, it also presents all information quickly and in a very user-friendly way.

In our test we were able to call up EPG data for a total of 14 days for all channels on the list, with information being available four days into the past and ten days into the future. The current program stays on screen in a small window while the EPG is active, which means commercial breaks can be used conveniently to browse the electronic TV guide and there's no risk of missing a single second of the broadcast you're watching.

Most receivers running the Spark operating software do not come with an integrated hard disk and can only be turned into a fully-fledged PVR for DVB-S/S2 or DVB-T channels with an external storage medium. It's a different story with IPTV and KartinaTV makes full use of





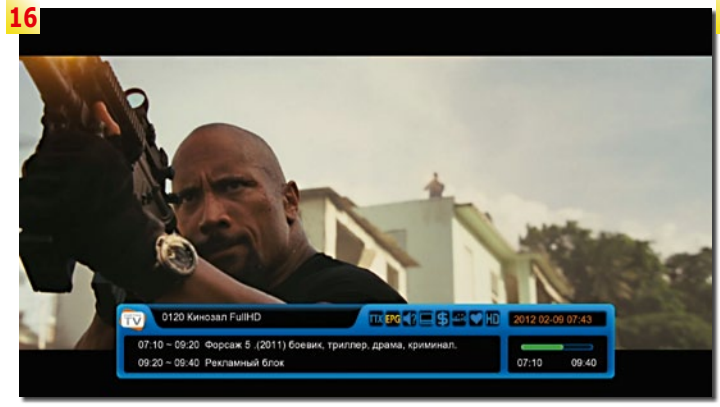
13. VOD movie selection

14. Each movie comes with a detailed summary

15. It is possible to search for a specific title.

16. The channel line-up is rounded off by a FullHD channel with outstanding video quality

17. KartinaTV is already offering 3D content from time to time, using side-by-side transmission technology



all technical possibilities by providing shift viewing, for example, without the need for a physical storage medium. IPTV reception allows to pause the live program at any given time and to continue again from that very point at a later stage.

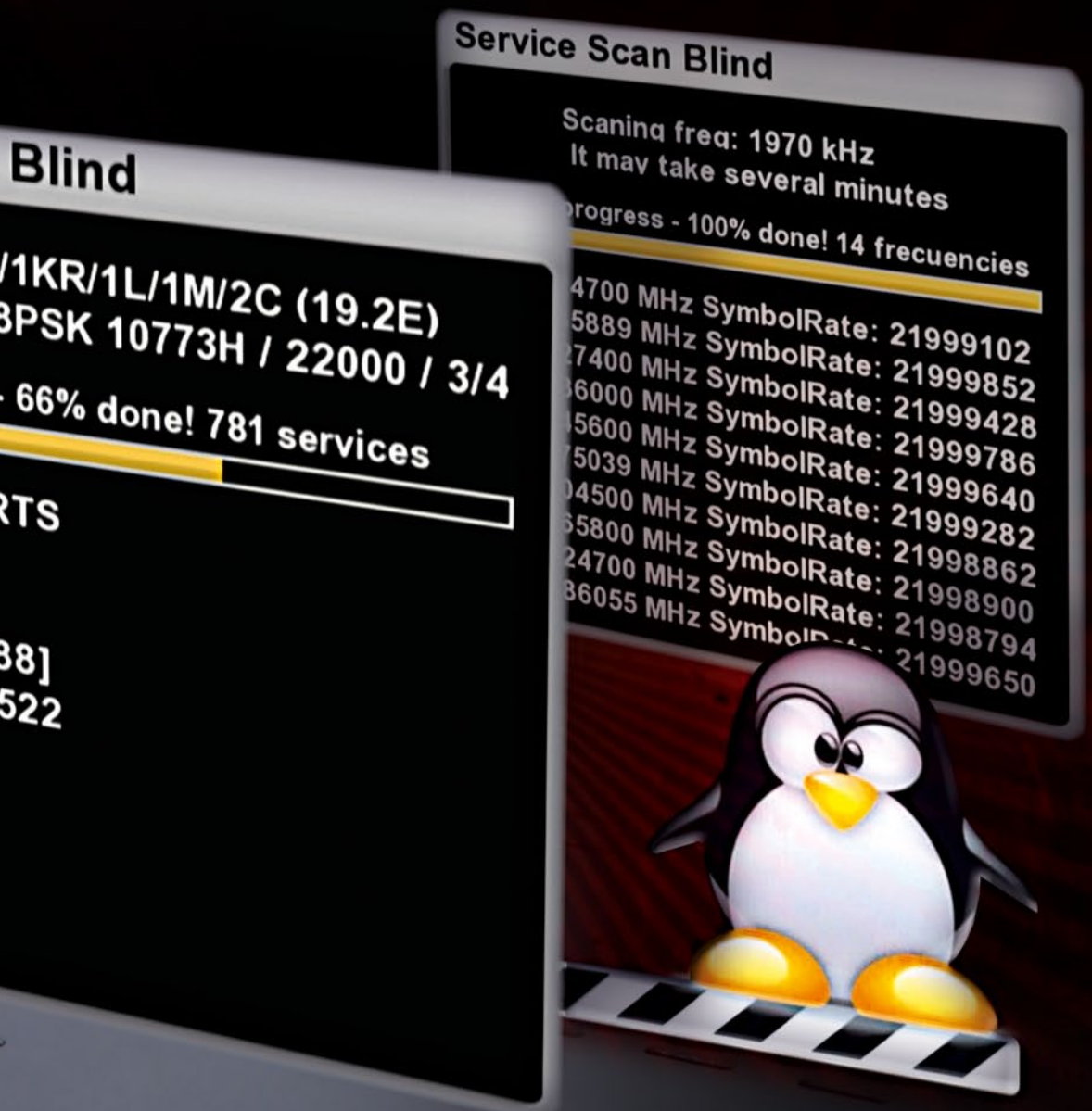
KartinaTV even offers content that was broadcast within the four preceding days on any channel of the line-up. This is a major advantage of streaming content over the Internet. Another major benefit of IPTV when compared to DVB-T or DVB-S is video-on-demand (VOD). KartinaTV runs an extensive library, offering its subscribers individual content from a total of 27 different categories. Every VOD movie comes with a comprehensive summary, IMDB rating, number of requests within the KartinaTV network and cover view. The VOD database has something in store for everyone and will please the kids with the latest animated blockbuster just as well as their parents with a suspense movie or romantic comedy. Never again will you say "there's nothing on TV tonight!" VOD content can of course be paused and continued at any given time and the integrated search function of the KartinaTV application will guide you through the vast content library so that you can really find the movie that's right for you.

On our voyage of discovery through the Spark software's KartinaTV application we discovered many great features and quite some pleasant surprises. It was simply great to find out how perfect implementation of all KartinaTV features can turn a DVB-S/S2 receiver into a fully-functional IPTV receiver. KartinaTV worked flawlessly and reacted swiftly in a variety of different test scenarios. Thanks to its excellent video quality and generous default features IPTV has the potential to become a worthwhile alternative or addition to satellite reception.

As far as KartinaTV is concerned, it primarily targets Russian speakers all over the world who don't have access to satellites that transmit channels from Russia. For them, Fulan's Spark operating software is a reliable and technically sound option.

Revealing the Secrets of the AZBox ME Super Box

Part 1: Blindscan



- ***automatically looks for all active transponders***
- ***also detects channels with very low symbol rate***
- ***makes full use of the AZBox ME tuner's capabilities***
- ***finds all active channels***
- ***blind scan mode currently in beta mode***

Blindscan for the AZBox ME

Vitor Martins Augusto

In TELE-satellite 02-03/2012 we introduced the new Opensat super box by the name of AZBox ME. At the time we were not able to test the blind scan function, as it was not yet implemented. Opensat has meanwhile released a new version of the receiver's firmware which features a beta version of the blind scan mode. The updated software was launched much quicker than we expected and thus proves once again Opensat's commitment and customer dedication. It is the feed hunters among us who will appreciate more than anybody else that Opensat always keeps its promises and does not leave us in the dark as far as new features are concerned.

Naturally, we turned on our AZBox ME right away to have an in-depth look at how Opensat delivers blind scan functionality. The new firmware image needs to be flashed before the amended software is available. Since the AZBox ME comes with a large flash chip that allows parallel installation of up to three different firmware versions, we decided to install the new v1.6 firmware in memory bank no. 2.

For the sceptics among you we are happy to reveal that the flash procedure does not require a degree in engineering: You simply reboot the receiver and as soon as the boot menu is displayed on the VFD display you press the VOL+ button to get the boot loader into flash mode. Next, the receiver's IP address appears on the VFD display and has to be entered in a web browser. We used Mozilla Firefox, which works best with the web functions of the recceiver. If you prefer Chrome or the Internet explorer, they can be used just as well in this case.

The web browser then displays a website that is generated by the receiver. Here, you first have to decide which of the three available memory banks you want to use for the new firmware. In addition, you may access the 'MICOM Upgrade' menu to update the front processor as well. Please bear in mind, though, that this should only be done when absolutely necessary. Never use a wrong file out of the blue, as this may result in the remote control not working any longer and the VFD staying dark.

The 'Device Info' menu item calls up various receiver parameters and 'Reboot!' will restart the box. As mentioned before, we had decided to install the new version in memory bank 2, so we selected

1. Browser showing the FlashMeTM Interface. The user can select between three memory-banks for parallel firmware installations.

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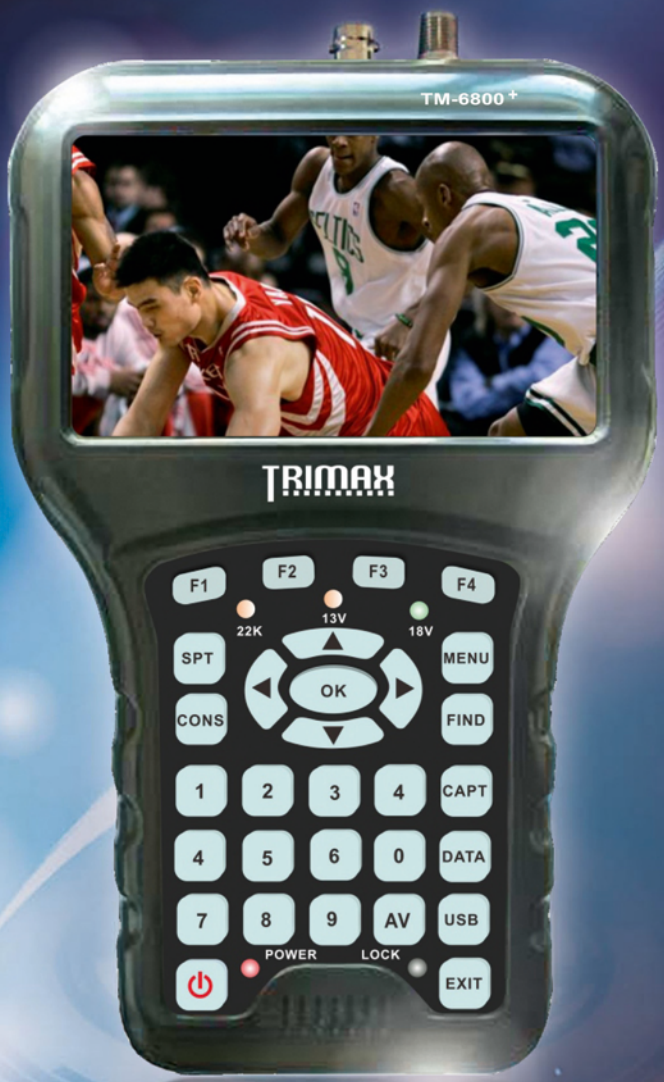

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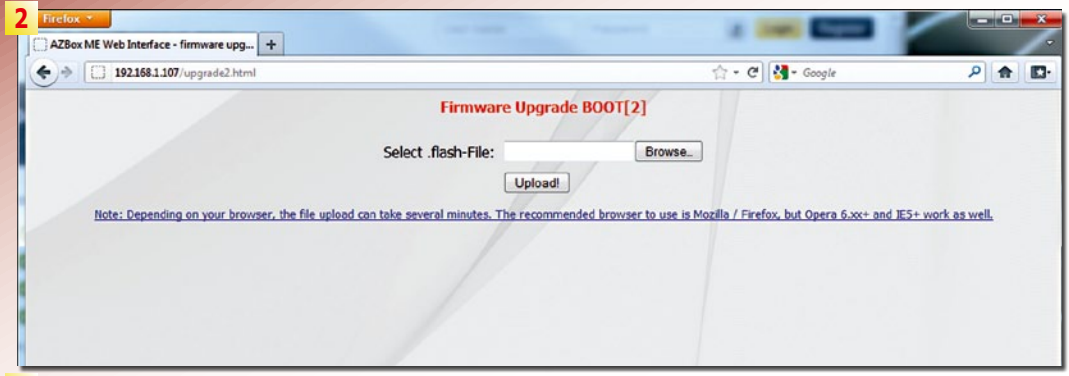
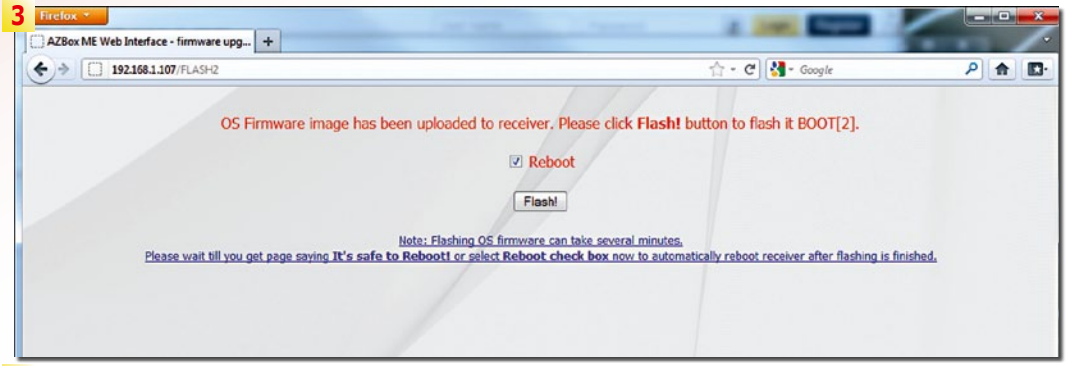
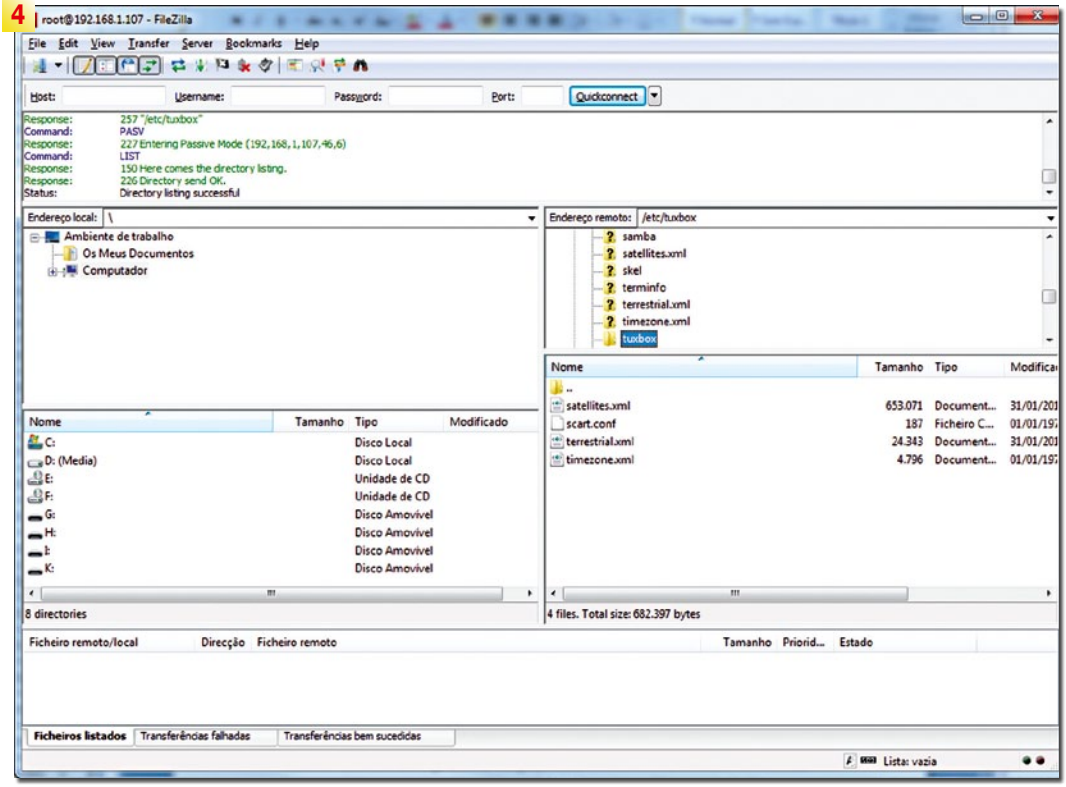
jerrycsz@gmail.com | jerrychu@trimaxtec.net







2. On the first step, the user must upload the desired firmware image.

3. After the upload, the receiver can be configured to automatically reboot after the flashing process. This is usually a good idea.

4. Existing channel and satellite settings can easily be backed up and restored, by just using any FTP client. Navigate to /etc/tuxbox and copy the existing files.

'Firmware Upgrade (BOOT 2)'. In actual fact, it does not make a difference at all which position you choose – the result always stays the same. All you need to know in the boot loader menu is which number (0, 1 or 2) corresponds to which image.

On the next page you can select the required firmware by pressing the 'Browse' button. Once the right file is chosen a click on the 'Upload!' button initiates the file transfer from the PC to the receiver. This process only takes a few seconds and after it is completed the next page appears on the screen.

On this third page you can determine whether or not the receiver should re-boot automatically after the new firmware has been flashed. We recommend activating this function because it means you can leave the box unattended during the entire upgrade process. Once the new firmware is installed the receiver will boot all on its own with the new software. Simply press the 'Flash!' button and let the magic begin. You should avoid by all means to interrupt this process or, even worse, unplug the receiver. But then again, this would not really cause any major damage since the boot loader will be unaffected and the worst that could happen is that you have to restart the flash process for the memory bank in question. What's more, even with a failed flash process there are still two other intact firmware images in the memory that can be used to boot the receiver. And if the worst case occurs and you manage to screw up both the firmware and boot loader the AZBox ME boasts a kind of panic button on the back panel which activates an emergency image to allow a new flash process.

So now that the new v1.6 firmware was in place we called up the installation wizard to adjust the software according to our requirements. Instead of initiating a channel search we decided to use the settings list we had saved previously, because we wanted to get a first impression of the revised firmware straight away. It always pays off to have copies of one's current settings on the PC as it saves valuable time in cases like that. A number of settings editors for Linux receivers are available from the Internet, but in actual fact all you have to do is copy a directory with the help of an FTP client. The settings can be found in the /etc/tuxbox directory and you may use any standard FTP application such as Filezilla, for example, to create backups of your existing settings and to restore those backup copies onto the receiver again. The only thing you need to know is your receiver's IP address to access its file directory. Key in 'root' as user name and leave the password field empty by default. If your receiver can be accessed via the Internet you should, however, change the default setting and set a password to protect unauthorised access. With MS Windows press the 'Windows' key plus 'R' and key in 'telnet 192.168.1.100' (make sure

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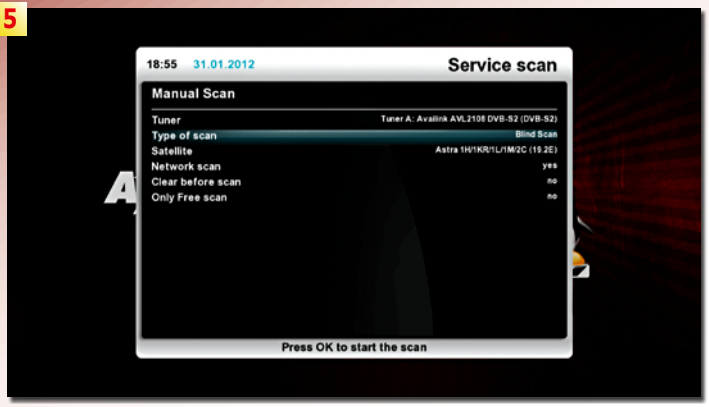

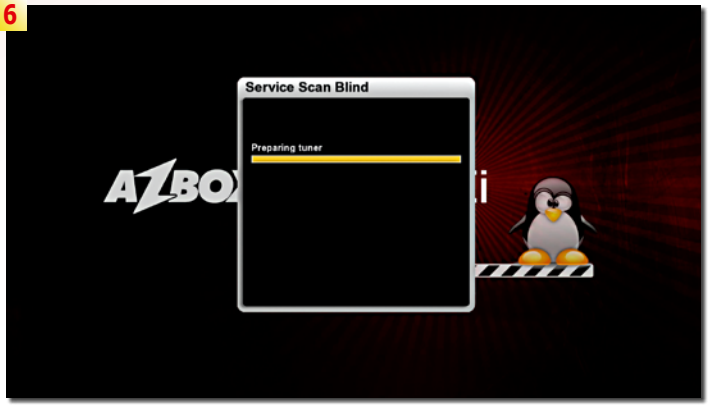

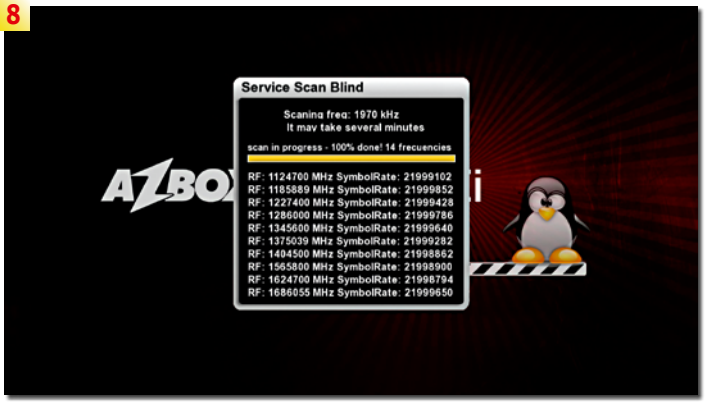

5. The new blind scan functionality is seamlessly integrated in the service scan menu.

6. Initialisation of the tuner.

7. Pass 1: The tuner searches for active frequencies.

8. Pass 2: All found frequencies are analysed to determine the correct Symbol Rate and to obtain other transponders broadcasted in the NIT.

you use your receiver's actual address!). Use 'root' without a password to log in and once you're in the Linux shell type in the command 'passwd'. Then you set the password and key it in a second time to make sure it is correct. From now on that password is required for logging in as 'root' user.

Now the time has finally come for checking out the new blind scan functions. All features are seamlessly incorporated in the firmware and can be found in the signal search menu – right where we would have expected them. With the new firmware the 'Blind Scan' option is added to the existing 'Multisat', 'Single Transponder' and 'Single Satellite' modes.

Blind scan with the AZBox ME is a three-step affair: First, the tuner scans the entire frequency band for transponders. Next, reception parameters are determined for each found frequency. In case 'Network Scan' is active all associated transponder data are extracted from the NIT stream. The third step comprises the actual blind scan, which means the individual transponders are scanned for channels.

In our test we were looking for answers to the following questions:

- How many channels are found using blind scan as opposed to the pre-defined transponder list?
- How fast is blind scan?
- Are channels with low symbol rates also found using blind scan?
- Are the data of transponders found with blind scan stored in the transponder list so that those transponders will also be found using regular search modes?

To find those answers we started out with deleting all channels transmitted from HISPASAT 30.0W and initiated a standard transponder search ('Single Satellite' mode) with active network scan. In general, providers take advantage of 'their' transponders to transmit information on other transponders they also use, so that users can be sure their receivers find all channels of individual providers, no matter over how many transponders they are spread. More often than not, pre-defined transponder lists are not fully up-to-date and therefore it makes sense to always use the benefits of network mode to make sure your receiver can find all available channels. The search on HISPASAT 30.0W took some 24 minutes and yielded a total of 548 channels.

We then proceeded with performing the same search on the same satellite using the newly added blind scan function. Once again, we made sure 'Network Scan' was turned on. This time the search only lasted 18 minutes and resulted in 613 identified channels. Needless to say, we were rather impressed with the capabilities of the AZBox ME's blind scan mode.

We gave the channel list a quick look and stumbled across three channels that might be of particular interest to satellite DXers. (table 1)

Many tuners struggle with symbol rates of around 2000 Kbit/s and if that happens these channels are either not found at all in a search or not demodulated correctly. We were all the more surprised to find out that the AZBox ME seems to be in a league of its own as far as low symbol rates are concerned.

Excited by those promising first results we hooked our 1m offset antenna to the AZBox and aligned it towards TELSTAR 12 (15.0W). This is a position that is not widely known and used in Central Europe as it only transmits few FTA channels. Transponder 10 at 12608H seems to be the most obvious choice – it is used by Globecomm to broadcast BBC Persian, among others.

To be frank, there is another reason we chose TELSTAR 12 for a blind scan search: It

RibamontanaTV	RibamontanaTV	TV	Hispasat 1C/1...	10918	H	1999
Radio Vida 1	RadioVida	TV	Hispasat 1C/1...	12704	V	2222
SOLIDARIA	Net 1	TV	Hispasat 1C/1...	12704	V	2222

Tabel 1

Compulsory Digitisation Declared by The Government Opens Up A Huge Market For Digital CATV Product Sales

Be There To Maximise Your Market Share

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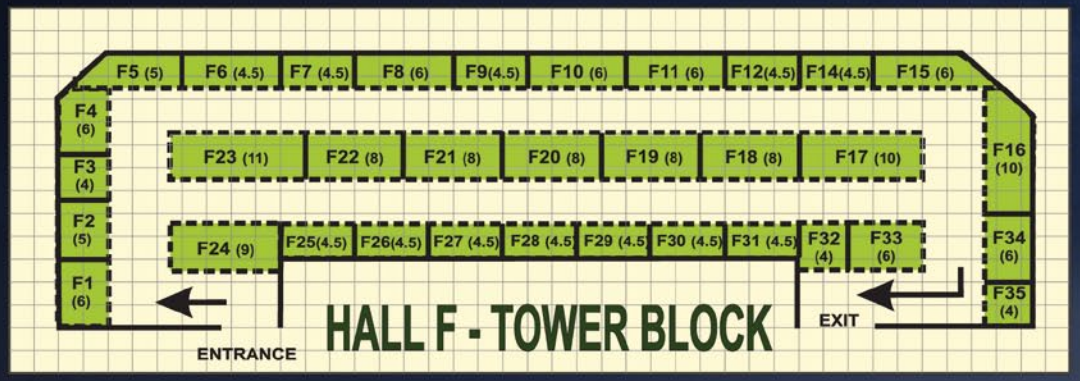

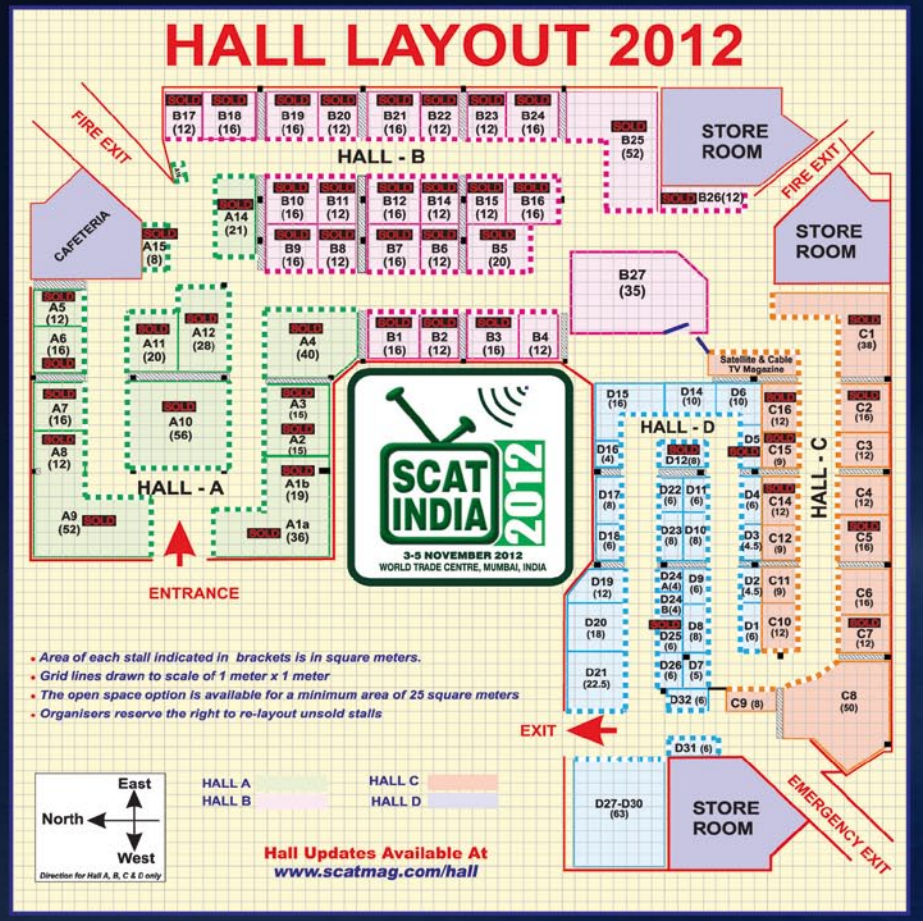

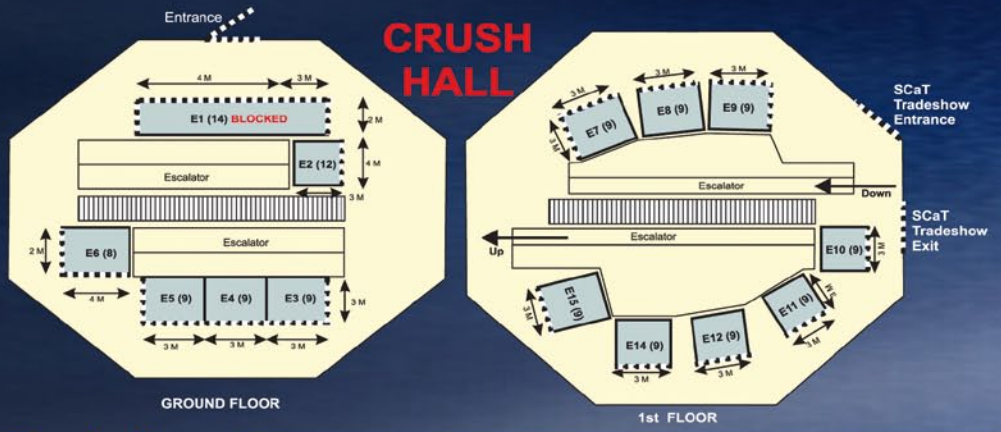

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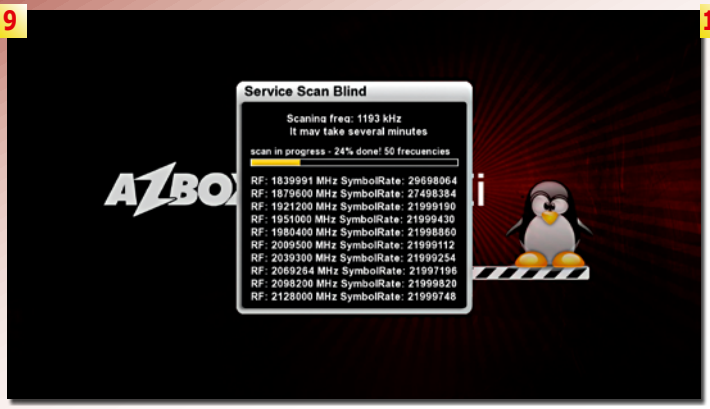


9. Thanks to the NIT, the transponder search is speeded up a lot.

10. Pass 3: On the last stage, all listed transponders are scanned for valid channels.

11. Blind scan of Hispasat 30.0W.

12. Pass 1: Frequency scan.

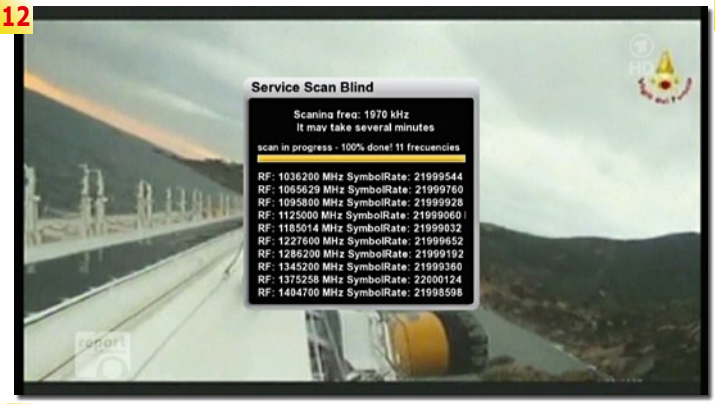
13. Pass 2: Transponder analysis.

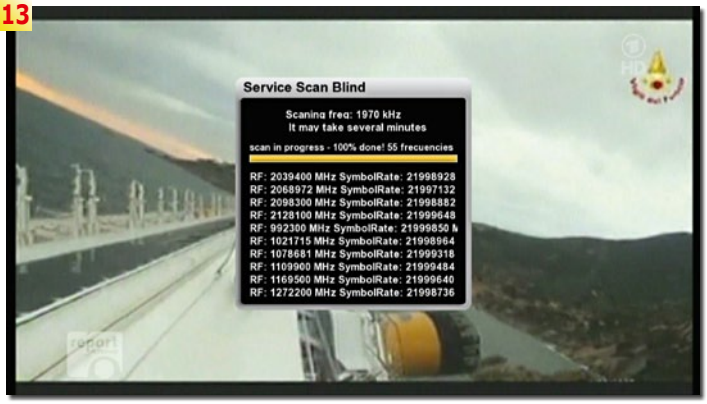
14. Pass 3: Channel scan for each of the 55 transponders.

15. Ribamontana TV: FTA channel with particularly low Symbol Rate

16. The AZBox offers detailed information of the active channel.

17. Visualization of the different PIDS used by the current channel. This is important for channel- and feed-hunters: they





is the position of choice for a number of regular feeds which come with totally out-of-the-ordinary symbol rates. To make matters worse, those rates usually are also very low and hardly exceed the 2000 to 5000 Kbit/s bracket.

To make sure the AZBox ME's new firmware does not rely on 'dirty' tricks or use any shortcuts we performed a blind scan with the HISPASAT satellite configuration still in place. In such a case a regular transponder search would hardly bring a result since transponders on different satellites generally have different frequencies and deviating reception parameters.

One of the found channels was TUNIS TV with a symbol rate of 2893 Kbit/s, which goes to show yet again how capable the tuner of the AZBox ME really is. It should definitely be able to meet even the exacting demands of feed hunters and satellite DXers.

As our in-depth test progressed we moved the antenna further west until we reached INTELSAT 905 (24.5W). Apart from NTA International and RTI 1 there are no FTA channels transmitted in the Ku band from that position. There are, however, numerous transponders dedicated to feeds only, which prompted us to perform another blind scan. This time, many transponders were found again in steps 1 and 2 of the blind scan process, while not a single result was achieved in step 3, when the actual channels should be scanned.

To obtain a second opinion we attached our reference meter (Spaun Sparos 609)

15

16

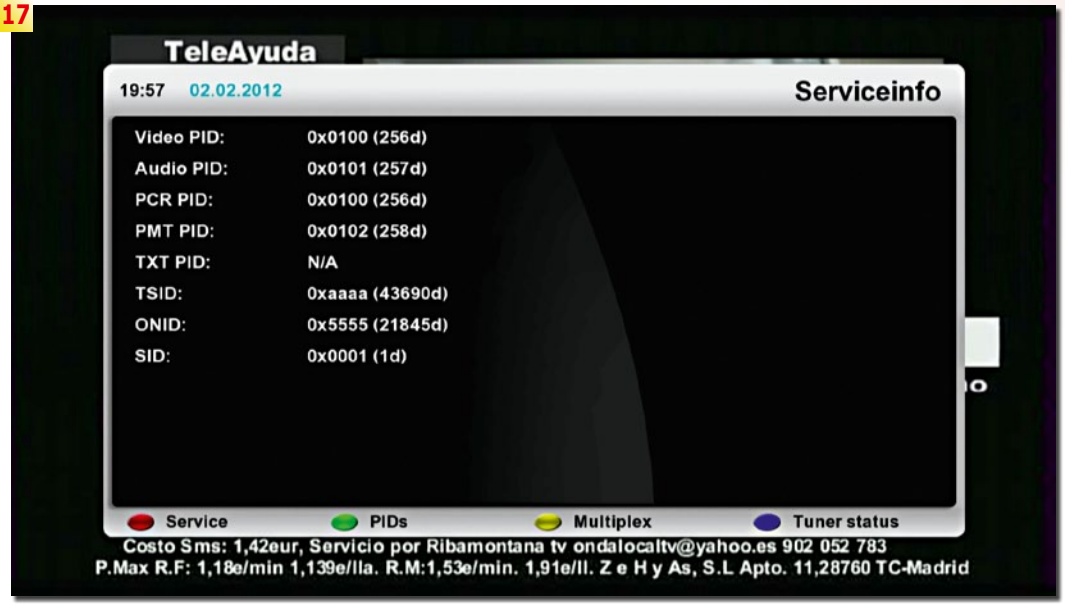
can compare these PIDs with the ones specified on popular satellite websites to make sure they did indeed find a new channel and not just an existing channel with a different name.

18. Service Info of Ribamontana: the Symbol Rate is specified in Bit/s instead of the usual Kbit/s! Clearly a very low SR, showing the excellent capabilities of the tuner.

19. Tunisia 1 on TELSTAR 15.0W. Also a channel with low Symbol Rate. Most receivers are not able to receive such channels.

20. Verification of TELSTAR 15.0W with our spectrum analyzer. We compared the number of found transponders with the number of spikes seen on the spectrum (only one image shown, but of course we used all four bands: V-L, H-L, V-H and H-H). The blind scan did not miss any transponder!

17



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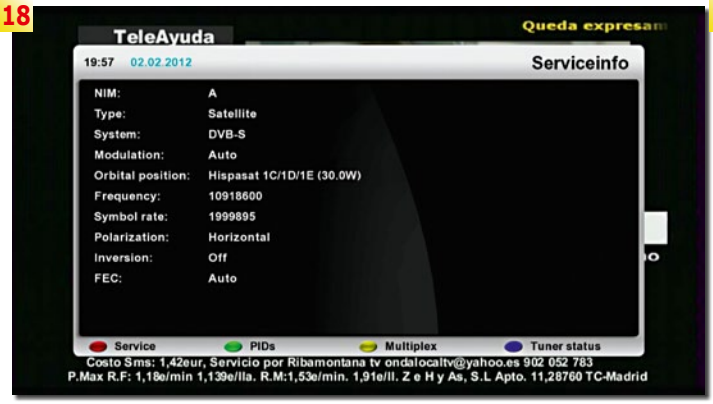

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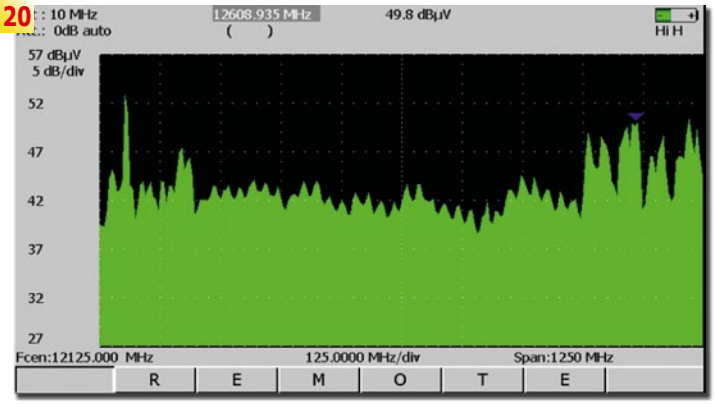
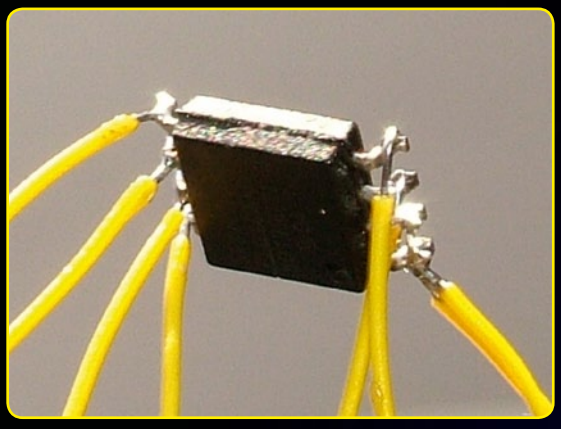


to the antenna output of the AZBox ME and looked at the spectrum analyser to find out what was going on. It turned out that the beta version of the blind scan mode has a bug which can prevent the receiver from switching from high band to low band (0 kHz signal instead of 22 kHz signal) in the final step of a blind scan. What happens then is that transponders found in the low band are later scanned in the high band, which of course yields no results.

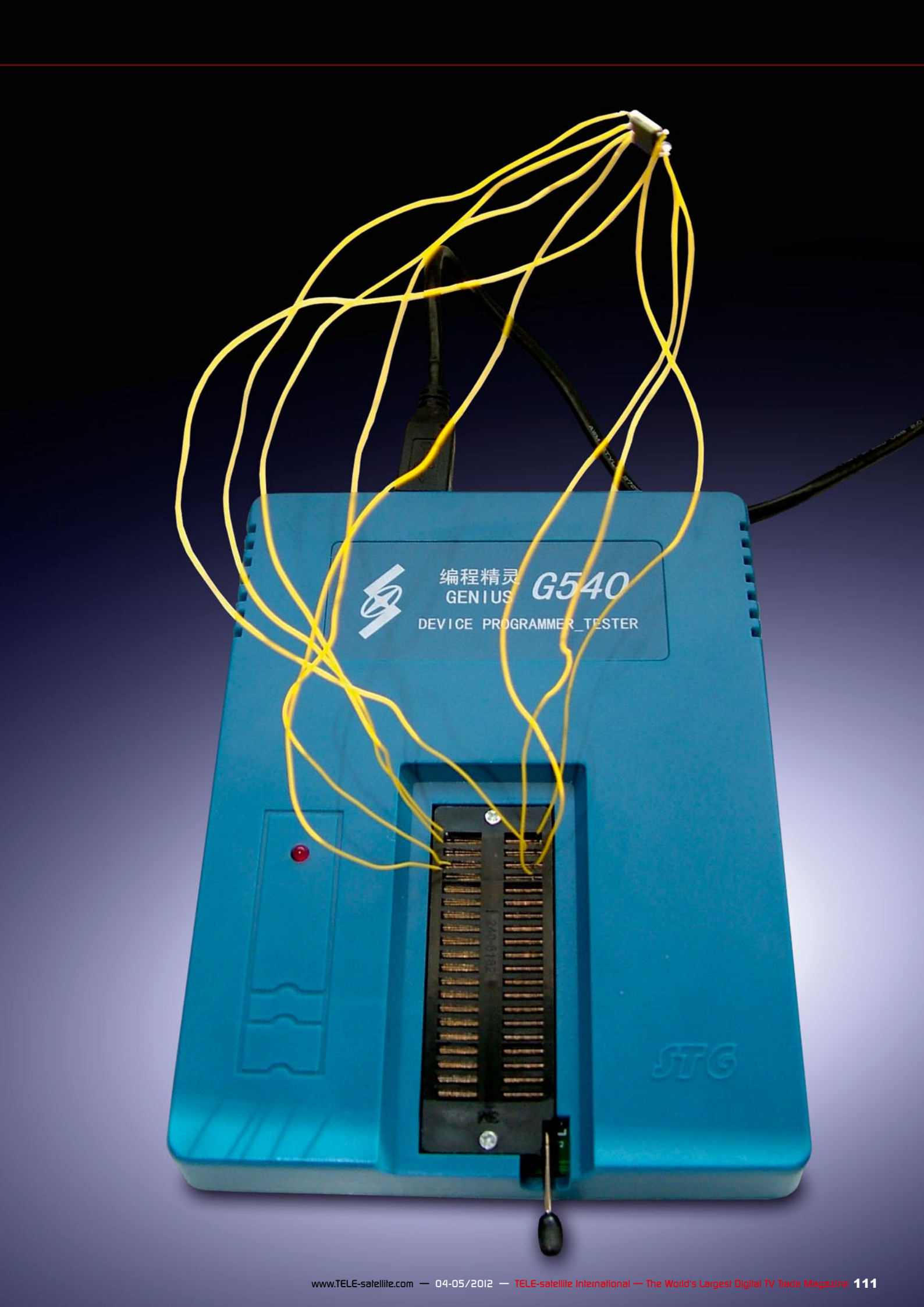
When we examined the 'satellites.xml' file, which Linux receivers generally use to save their transponder list, we found that details of transponders found using blind scan unfortunately are not added to the general transponder list. Opensat's software engineers are currently addressing that issue and will offer a fix shortly.

While the new blind scan mode still leaves some room for improvement, feed hunters may nonetheless use it at this stage to write down the frequencies of all detected transponders and then perform manual scans using that data. In addition, we have nothing but praise for Opensat's speedy firmware development which keeps adding great features to a receiver that never ceases to amaze us. We're all looking forward to the final release version of the blind scan feature, yet even now the AZBox ME is a fascinating box already. It's hard to believe such a small and inexpensive satellite receiver can offer so many useful functions. You can be sure this isn't the last time you read about that super box.

Flash or no flash - Flashing the wrong firmware can cause trouble



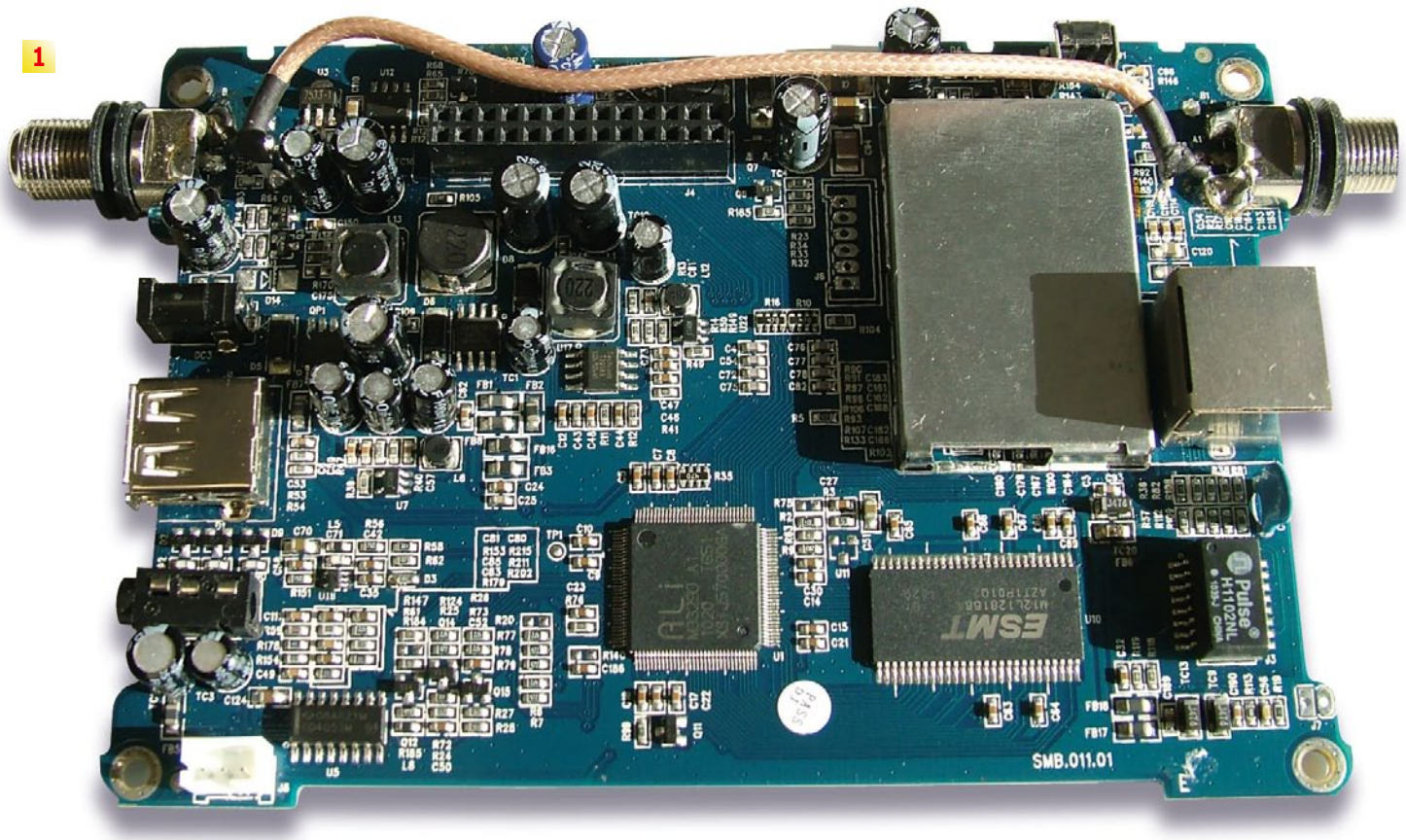
- *Vitor finds a way to bring a satellite meter back from the dead*
- *be careful when installing a new software*
- *simple device programmers are helpful*
- *a soldiering iron is sufficient for connecting the wires*
- *remember to make backups before starting any work*


编程精灵
GENIUS G540
DEVICE PROGRAMMER_TESTER

This is the story on how the desire to change the localized settings of a satellite meter ended up with the external programming of its flash chip

Vitor Martins Augusto

1



2

I own a satellite meter, which is being sold under many different brands. It is easy to recognize the different OEM versions, as they look pretty much the same, with slight variations on the colour and logo. Because my model came pre-configured with Asian locations and my distributor does not provide any localized firmware for the European region, I figured that I could upgrade the firmware with a release made available from a different distributor. I expected to get some extra functionality, but above all, I hoped that the new settings would match my region. Actually, the only annoyance that got me to look for a different firmware in the first place was the fact that I could not edit the name of my location. I had to program "Shanghai" with my latitude and longitude, but I could not change the name to my hometown "Porto". This annoyed me. A lot.

1. Picture of the main board of my satellite meter.

2. The ALI M3329D processor gives hopes that there is a possible JTAG programming route to rescue the firmware.

After copying the new firmware file onto a USB pen, I activated the flashing procedure on my satellite meter and the device turned itself off, as

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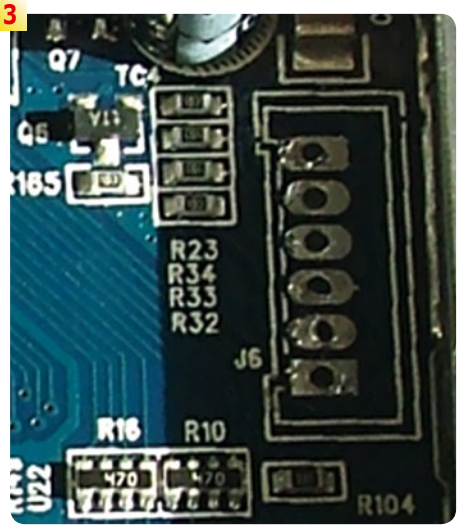

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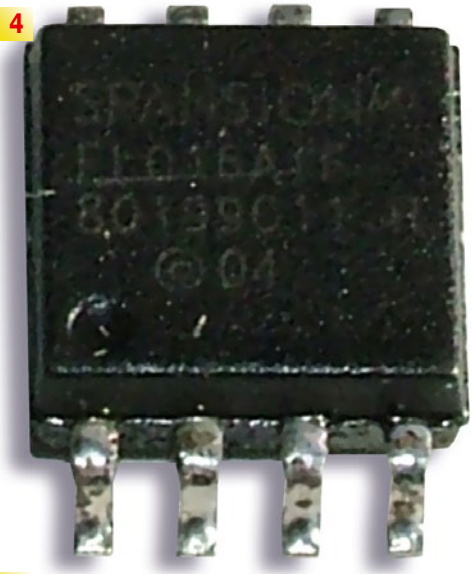

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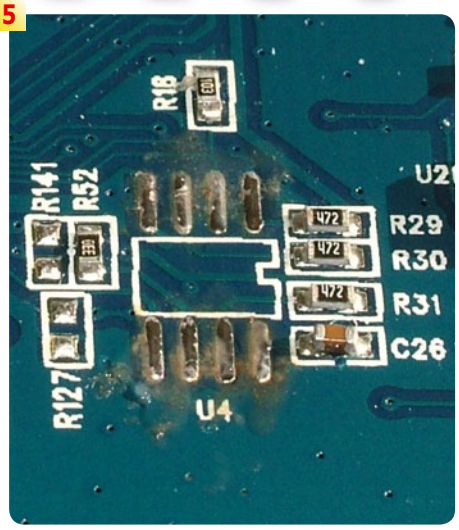


expected. Unfortunately, it would not turn on again: I was holding a dead device!

"No big deal", I thought, since this meter is provided with an extra RS-232 cable, that fits in the Audio/Video jack. Since no flashing software was provided, I assumed that the flashing could be done with HyperTerminal's X-Modem protocol, which is how the firmware is flashed in with many other satellite meters of the same kind.

I tried the obvious settings: 115200, 8N1, but got no reply. A little scared, I started to press all conceivable key combinations on the meter, hoping that the boot loader would allow a recovery USB flashing procedure. No luck.

To make sure that the boot loader was at least operational, I opened both the original firmware, which I had backed up before flashing the meter (the meter has this option and you should definitely use it) and the firmware I just flashed with an HEX-editor and both revealed the same boot loader. All bytes were equal. This should mean that even though I flashed a wrong firmware (at this point I was not certain if I had a different hardware revision or if the firmware had some kind of OEM check), at least the boot loader should be operational.

Again, I tried several flashing tools for hand held satellite meters, but none did seem to work.

At this point I was pretty certain that my only way out of having transformed my meter into a brick was to actually program the flash chip myself. There are two options for this: one is to look out for a JTAG-adapter on the main board, the other is to use an external device programmer to write the flash chip.

I opened up the meter and looked for the typical flash chip but somehow didn't find it! Only after a long search did I notice that this board was using a serial Eeprom, which means that the flash chip is actually a tiny chip with only 8 pins (4 each side). I found pins which correspond to a regular JTAG, but the main CPU of the board was an ALI chip. I had no JTAG utility that would program a Spansion S25FL016A through an ALI CPU. A Google search did, however, point me to two interesting facts:

1) There are plenty of satellite receivers using the exact same CPU, unfortunately with different flash chips. Someone had adapted a flashing utility for this CPU and even included the source code (C++).

2) From the router hacking scene (DD-WRT and OpenWRT), I found out that this Spansion S25L016A is not so uncommon with routers and that later revisions of the same flashing utility would actually support this flash chip, but not the ALI CPU. Again, I got hold of the source code.

The next attempt was pretty straight forward: I implemented the flash definitions of one source code into the source code that had the ALI CPU support. I soldered some wires to the JTAG on the board and tried if I could connect though the JTAG port to the CPU and flash. Short answer: I couldn't. Since there were too many unclear factors (wrong connections to the JTAG, too long wires, errors in the compiled utility, etc.), I decided that this route was too risky.

This meant that I would have to program the flash externally. Because I did not own a device programmer, I searched eBay to figure out if there was a cheap solution. I always wanted to own a device programmer, anyway, as it is a really useful device. I was sick of having to build parallel port programmers that would only support one single chip type, whenever I needed to program a new chip.

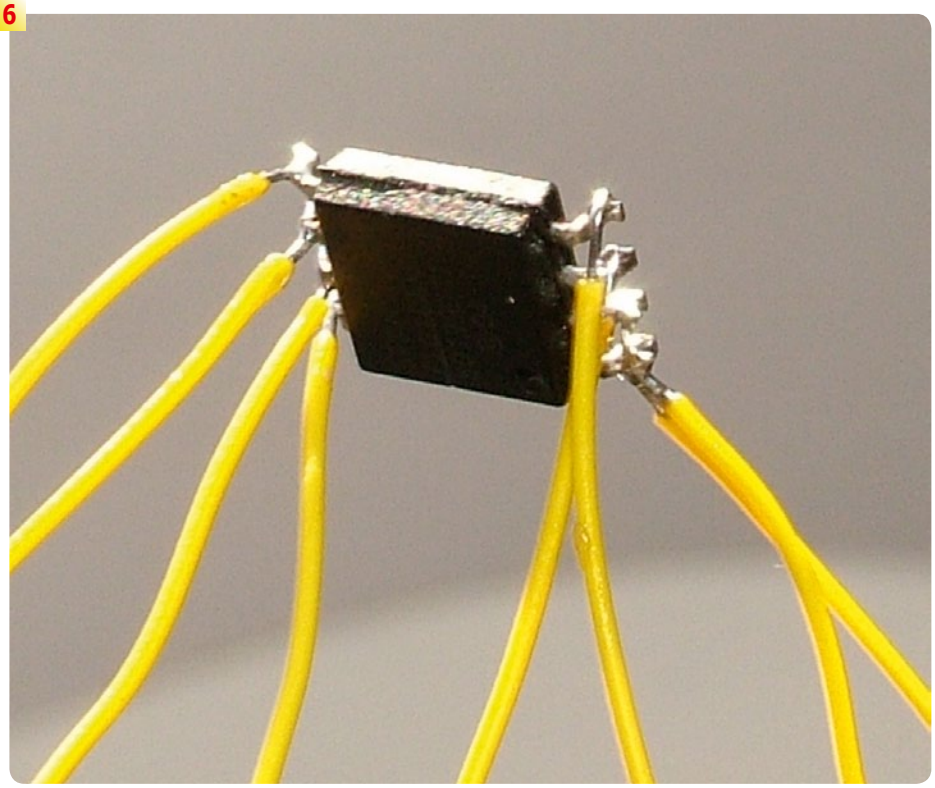
EBay revealed a huge amount of different device programmers at a broad price range. I decided to spend as little money as possible and bought one for just 37 Euros and free shipping. I thought that the risk was small, plus the list of supported devices did include my Spansion flash!

After two weeks the device programmer finally arrived. I installed the software and tried to read and write some Atmel chips. Everything worked fine.

The next step was to desolder the S25FL016A from my dead satellite meter. Unfortunately I only own a regular soldering iron and I was not able to desolder this chip, mainly because I didn't want to destroy it. Instead, I asked a friend for help, who owns a professional soldering station with tweezers and within 2 seconds, the chip was desoldered without any harm done on either the chip or the PCB.

Back home, I connected wires to each of the 8 pins, since I didn't own a compatible chip holder for my programmer. After connecting all wires to the device programmer, the chip was indeed recognized and I started the programming cycle. The software of the programmer erased the chip (all bytes are set to &HFF), programmed my original backup of the firmware and finally did a verification, to check

6



if the programmed bytes matched the ones from the original file. Everything went smoothly without any error.

This gave me the courage to solder the Spansion back onto the board. I turned the meter on and... It worked again!

Not satisfied I did a more exhaustive Google search and this time came up with a support site for yet another OEM version of my meter. Though the website was in Russian language, I got around with Google's translator and found out that it actually offered two firmware releases, a flashing tool and a settings editor. Despite the fact that the tools were in Russian language too (using Cyrillic characters), I tried them out and this time I checked the hardware revision of my satellite meter and compared it with the pictures shown on the website: they matched.

So after having returned the meter from the brick-land for just half an hour, I flashed it with this firmware version, only to find out that the meter was dead again. No problem, I thought. I could always flash it externally with my new programmer.

But since I would have to ask my friend to desolder the Spansion again, I tried the flashing tool first. Without being able to understand any message displayed, I managed to figure out how to use it and who would have guessed it! It worked! I was able to flash my backup to the meter, without having to desolder anything. Had I only known about this tool two weeks ago!

Not satisfied, I wondered how this tool managed to establish a connection through the serial port, since I hadn't been able to do so in my own previous trials. The answer: the meter uses even parity instead of none... This must be the first device I see with such configuration: 115200 8E1. Now I could see the boot loader messages on HyperTerminal, too.

3. A JTAG interface is quickly found. Unfortunatly no success trying to program the firmware this way.

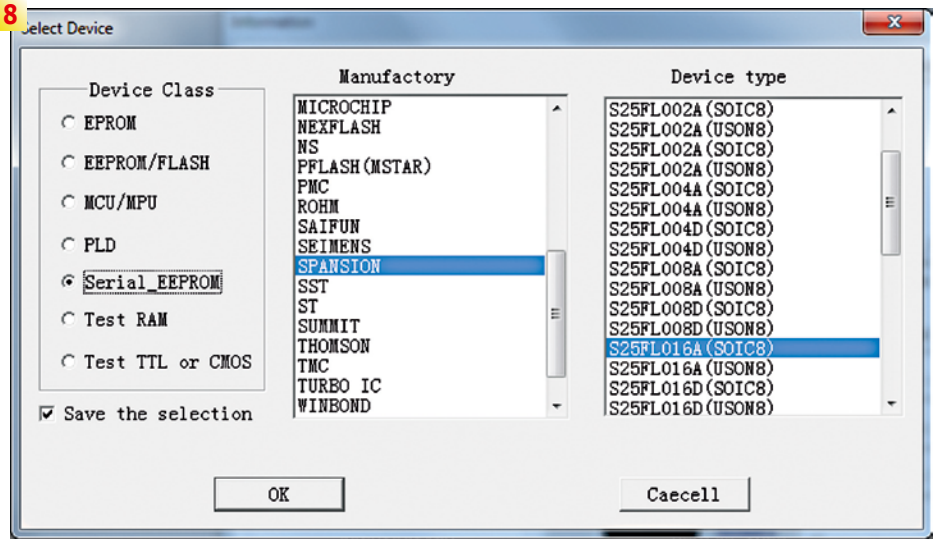
4. The flash chip, a Spansion S25FL016A, had to be desoldered.

5. No harm was done to the PCB. It is important not to overheat the PCB, to avoid traces popping out.

6. Due to a lack of a suitable chip adapter, small wires were soldered on the 8 pins of the chip.

7. The chip was connected to the device programmer. Extra care was taken to avoid any mistake connecting the right wires to the programmer.

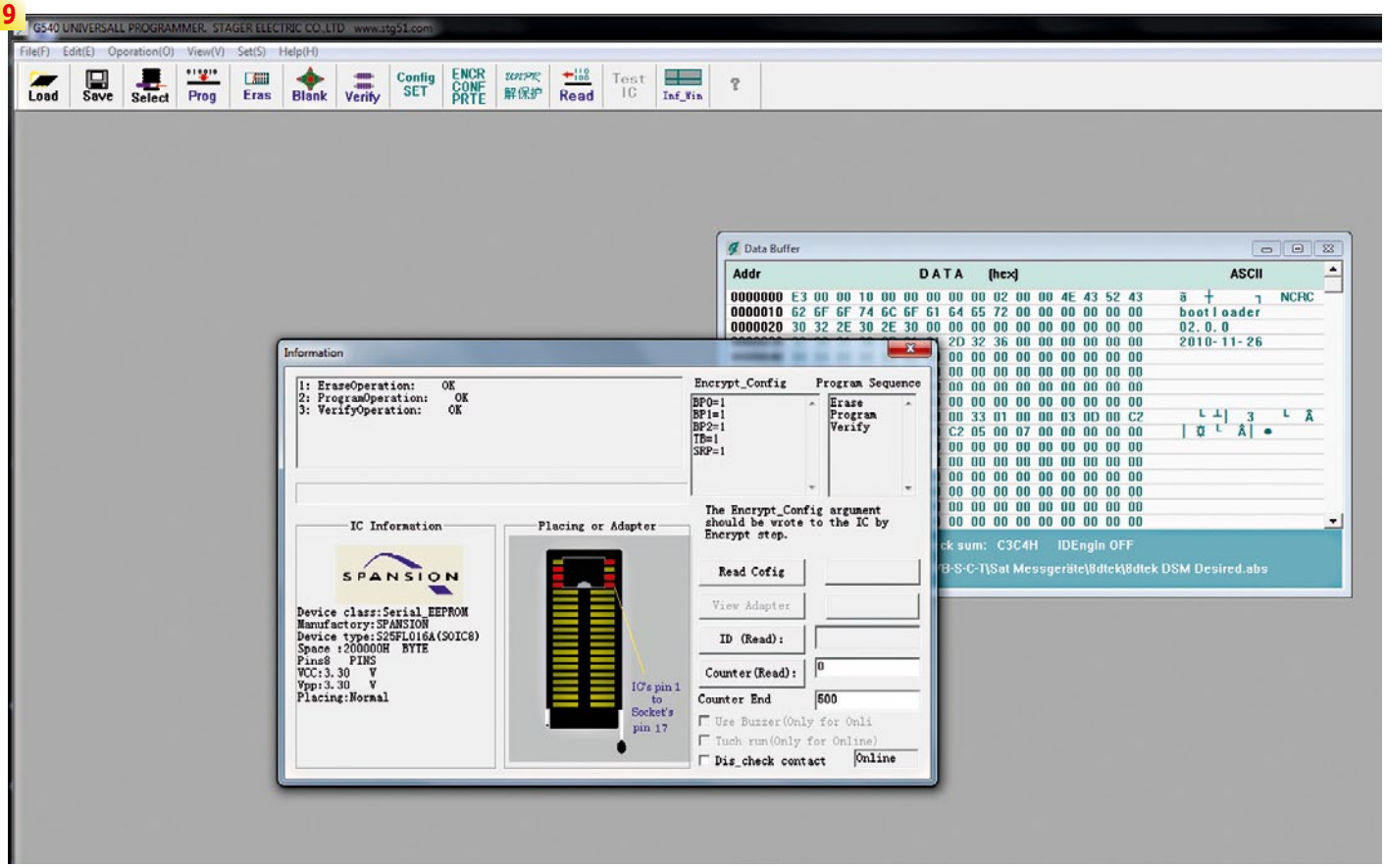
7



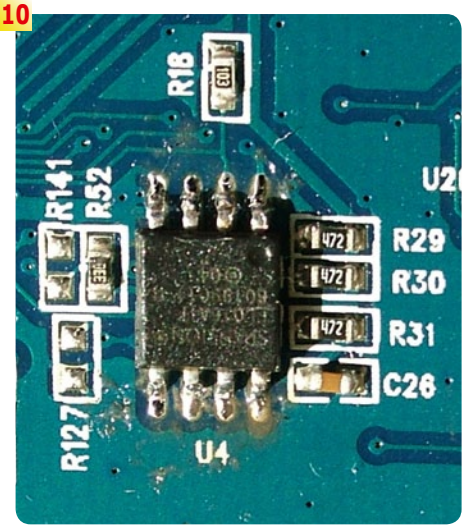
8

sure that you have a plan B, if things go wrong. Normally, boot loaders do provide a way to flash the firmware, even if your device is dead (unless you managed to delete the boot loader, too).

3) You are totally at ease, if you own an external programmer, which supports your flash chip. My cheap programmer has proven to be very good value for money. It is impressive how such a cheap programmer manages to support that many devices. Another thumbs up for this device, because it works even if you just solder some wires to the pins of your chip, instead of using a proper adapter. Professional



9



10

Conclusions

1) Never trust a firmware-image from a different OEM model, even if it looks exactly as yours! You might have a different hardware revision, or the OEM producers might have implemented some kind of firmware-check, that prevents cross flashing. The reason is of course the different level of support that each brand invests in its devices.

2) Before flashing a device, make

8. Selection of the chip using the software included with the programmer.

9. The flashing operation was successful!

10. After programming, the chip was soldered back to the board and the meter is working again!

programmers would not work in such way, requiring for each chip package the correct adapter (and such adapters cost more than my cheap programmer).

After this adventure, I can say that I am much more fond of my satellite meter and I have a deep respect on how miniaturized it is. It is a pretty good meter for standard installations and for amateur enthusiasts of satellite reception. Not being able to use it for two weeks made me realize how much I depended on it. So I promised myself to not flash it with any firmware again…

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OK
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EPG
VOL
REC
PAGE
FOLDER
STOP
PLAY
PAUSE
PREV
NEXT
PLAY MODE
AUDIO
OPTION
FAV
SAT
TTX
AMIKO
Energy Efficiency Rating
eco friendly
0.54
power factor
tested by TELE-satellite
Manufacturer | Amiko
Website | www.amikostb.com
Function | DVB S / DVB S2 & DVB T Combo Receiver with PVR
DVB S2/LAN | • / •
Channel Memory | unlimited
DiSEqC | 1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI | — / •
Scart/Digital Audio | • / •
TELE satellite AWARD 04-05/2012
AMIKO STHD-8820 CICXE PVR
Perfect Box to Receive all Available HDTV Programmes
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www.TELE-satellite.info/12/05/amiko
Direct Contact to Sales Manager
CH+
CH−
V−
V+
STANDBY/ON
AMIKO
STHD8820
ETHERNET
VIDEO
TV
S/PDIF
HDMI
LOOP
RS 232
AERIAL IN
AERIAL OUT
POWER
AMIKO

Manufacturer | Skyworth
Website | www.skyworthdigital.com
Function | Very small DVB S2 PVR Receiver with HDMI
DVB S2/LAN | • / •
DiSEqC | 1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI | — / •
Scart/Digital Audio | — / —
TELE satellite AWARD 04-05/2012
Skyworth HS-18 DVB-S2
Sophisticated, fully-featured miniature receiver
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www.TELE-satellite.info/12/05/skyworth
Direct Contact to Sales Manager
PR+
PR−
OK LIST
EPG
MENU
FAV
EXIT
FIND
V.FORMAT
TXT
PAUSE
INFO
TV/AV
SLEEP
SAT
RECORD
PLAY
STOP
SHIFT
FAST
Energy Efficiency Rating
eco friendly
0.56
power factor
tested by TELE-satellite
HD DIGITAL SATELLITE RECEIVER
LAN
IR
DC IN 12V
USB
RS232
SKYWORTH

Manufacturer	Panodic
Website	www.panodic.com
Function	DVB-T Mini Receiver with HDMI and PVR
DVB-S2/LAN	— / —
DiSEqC	—
S-Video/HDMI	— / •
Scart/Digital Audio	— / —

TELE satellite AWARD 04-05/2012
Panodic M3601E DVB-T
Extremely small receiver with high-sensitivity HDTV tuner

Energy Efficiency Rating eco friendly 0.55 power factor tested by TELE-satellite

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Manufacturer	AZBox
Website	www.azbox.com
Function	HDTV DVB-S/DVB-S2 Linux Receiver with Multimedia Features and large Flash-memory for 3 Boot Images
DVB-S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / USALS
S-Video/HDMI	— / •
Scart/Digital Audio	— / •

INNOVATION TELE satellite AWARD 02-03/2012
AZBox ME
Today's absolute best Linux Receiver

Energy Efficiency Rating eco friendly 0.51 power factor tested by TELE-satellite

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AUDIO
INFO
V.F
TV/R
MENU
EXIT
OK
RCL
OPT
SUB
TEXT
FAV
EPG
AV
SAT
Manufacturer | Jiuzhou
Website | www.jiuzhou.com.cn
Function | DVB S/DVB S2, DVB T PVR Digital Receiver
DVB S2/LAN | • / •
Channel Memory | 4000
PVR | •
S-Video/HDMI | • / •
Scart/Digital Audio | • / •
TELE satellite AWARD 12-01 /2012
Jiuzhou Combo PVR DTS6695
Top-notch receiver for the whole family
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POWER
CH+
CH-
VOL-
VOL+
Digital Satellite & Terrestrial Combo Receiver
LNB IN
S/PDIF
L
R
CVBS
RF IN
RF OUT
RS232
LOOP OUT
NETWORK
S-VIDEO
Pr
Pb
Y
TV SCART
HDMI
Energy Efficiency Rating
eco friendly
0.2
power factor
tested by TELE-satellite
JIUZHOU

Resolution
Subtitle
Teletext
OK
MENU
EXIT
FAV
EPG
RECALL
VOL
CH
INFO
Page up
Page down
TV/RAD
PIP
PIP Swap
PIP S. List
Manufacturer | Icecrypt
Website | www.icecrypt.com
Function | HD PVR enabled satellite receiver
DVB S2/LAN | • / •
Channel Memory | 10000
DiSEqC | 1.0 / 1.1 / 1.2
S-Video/HDMI | — / •
Scart/Digital Audio | — / •
TELE satellite AWARD 12-01 /2012
Icecrypt S3500HDCCI
Extremely small and extremely powerful
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Direct Contact to Sales Manager
ICECRYPT S3500HDCCI
FullHD
USB
DVB
STANDBY / REMOTE
CH
CI Slot
Smart Card Slot
IR Rec.
LNB IN
LNB OUT
RS-232C
LAN
HDMI
RoHS
Energy Efficiency Rating
eco friendly
0.4
power factor
tested by TELE-satellite
ICECRYPT

Manufacturer	Icecrypt
Website	www.icecrypt.com
Function	Two tuner HD receiver with Linux OS
DVB S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3 (USALS)
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

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Icecrypt STC6000HD PVR
Well designed features in a well designed box

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/11/11/icecrypt
Direct Contact to Sales Manager

Manufacturer	Skyworth
Website	www.skyworth.com.hk
Function	ISDB-T Receiver with PVR function
DVB S2/LAN	— / —
Channel Memory	1000
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / —

TELE satellite AWARD 10-11/2011
Skyworth HI-11 PVR ISDB-T
Easy to use terrestrial receiver for South America

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/11/11/skyworth
Direct Contact to Sales Manager

Manufacturer | Icecrypt
Website | www.icecrypt.com
Function | Digital Satellite Receiver with PVR ready
DVB S2/LAN | • / •
Channel Memory | 5000
DiSEqC | 1.0 / 1.1 / 1.2 / 1.3 (USALS)
S-Video/HDMI | — / •
Scart/Digital Audio | • / •
TELE satellite AWARD 08-09/2011
Icecrypt S3000HDCCI
Super fast blindscan finds all channels
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www.TELE-satellite.info/11/09/icecrypt
Direct Contact to Sales Manager
ICECRYPT
S3000HDCCI DIGITAL SATELLITE RECEIVER
eco friendly 0.47 power factor
Energy Efficiency Rating
tested by TELE-satellite

Manufacturer | Jiuzhou
Website | www.jiuzhou.com.cn
Function | DVB S/DVB S2, ISDB-T PVR Digital Receiver
DVB S2/LAN | • / •
Channel Memory | 4000
PVR | •
S-Video/HDMI | • / •
Scart/Digital Audio | — / •
TELE satellite AWARD 08-09/2011
Jiuzhou DTS6696
Ideal living room HD Combo receiver for South America
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Direct Contact to Sales Manager
JIUZHOU
Digital Satellite & Terrestrial Combo Receiver
eco friendly 0.57 power factor
Energy Efficiency Rating
tested by TELE-satellite

Manufacturer	Amiko
Website	www.amikostb.com
Function	Digital HDTV DVB S2 including dual boot
DVB S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

TELE satellite AWARD 04-05/2011

Amiko SHD-8900 Alien
Innovative dual boot receiver with two different operating systems

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Business Voucher
www.TELE-satellite.info/11/05/amiko
Direct Contact to Sales Manager

eco friendly 0.5 power factor — Energy Efficiency Rating — tested by TELE-satellite

Manufacturer	Fulan
Website	www.fulansoft.com
Function	Digital HDTV Receiver with Dual-Boot and Spark online-plattform
DVB S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	— / •

INNOVATION TELE satellite AWARD 04-05/2011

FULAN ST7111
Excellently designed operating software with built-in customer service

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Business Voucher
www.TELE-satellite.info/11/05/fulan
Direct Contact to Sales Manager

eco friendly 0.55 power factor — Energy Efficiency Rating — tested by TELE-satellite

Manufacturer | Jaeger / Doebis
Website | www.doebis.de
Function | Digital HDTV DVB S2 Receiver with Smart Card reader for HD+
DVB S2/LAN | • / —
Channel Memory | 5000
DiSEqC | 1.0 / 1.2
S-Video/HDMI | — / •
Scart/Digital Audio | • / •
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www.TELE-satellite.info/11/01/jaeger
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TELE satellite AWARD 12-01/2011
JAEGER HD+ 2011
Excellent Family Friendly HDTV Receiver optimized for the HD+ Transmission Standard in Germany
JAEGER HD+ 2011
5000
POWER
Smartcard
Digitaler Satelliten-Receiver
HD +
IF OUT
LNB IN
USB
HDMI
TV
OPTICAL
220-240V~ 50/60Hz 25W
Energy Efficiency Rating
eco friendly
0.62
power factor
tested by TELE-satellite
JAEGER

Manufacturer | AZBox
Website | www.azbox.com
Function | Digital HDTV Receiver with DVB S2 and DVB T Tuners and various Multimedia & Internet Features
DVB S2/LAN | • / •
Channel Memory | 15000
DiSEqC | 1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI | — / •
Scart/Digital Audio | • / •
TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/11/01/azbox
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TELE satellite AWARD 12-01/2011
AZBOX PREMIUM HD
Perfect receiver for watching all TV channels available in South America
AZBOX
TUN HD1
Premium HD
HDMI
DOLBY DIGITAL
RoHS
CAUTION
SCART TV
AZBOX

Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	Digital PVR DVB T Receiver
DVB T2/LAN	— / —
Channel Memory	1000
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

TELE satellite AWARD 06-07/2010

JIUZHOU DTT6720
Future-proof HDTV receiver for terrestrial TV loaded with features and outstanding picture quality

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Business Voucher
www.TELE-satellite.info/10/07/jiuzhou
Direct Contact to Sales Manager

Energy Efficiency Rating eco friendly 0.58 power factor tested by TELE-satellite

JIUZHOU

Manufacturer	AZBox
Website	www.azbox.com
Function	HDTV DVB S2 receiver with various Multimedia & Internet Features
DVB S2/LAN	• / •
Channel Memory	15000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

TELE satellite AWARD 04-05/2010

AZBOX PREMIUM HD PLUS
Excellent video quality with full Internet access

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/10/05/azbox
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Energy Efficiency Rating eco friendly 0.52 power factor tested by TELE-satellite

AZBOX

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www.TELE-satellite.info/12/01/netup

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Manufacturer	NetUP
Website	www.netup.tv
Function	Dual DVB-T / DVB-C - CI Professional PC Card
Channel Memory	unlimited
Channel Bandwidth	6,7,8 MHz
FFT mode	2K, 8K
Operating System	Linux

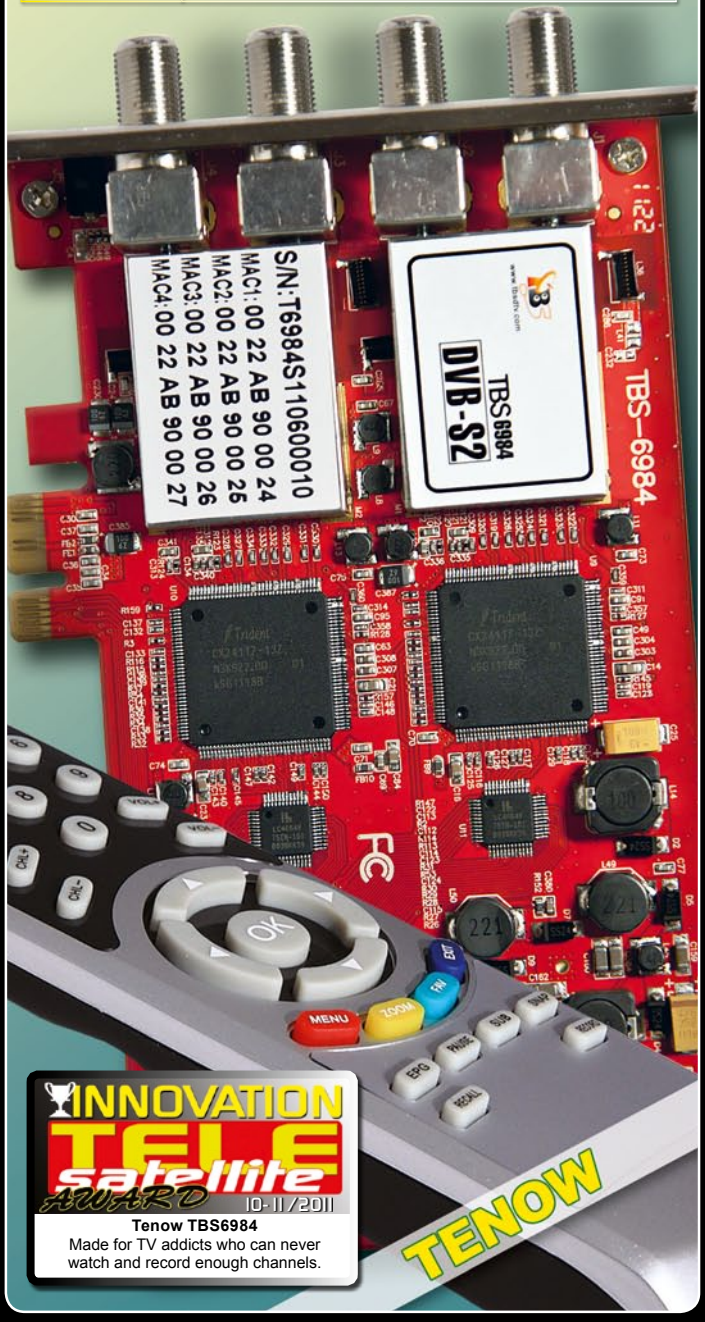
TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/11/11/tenow

Direct Contact to Sales Manager

Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	DVB-S2 PCI-E card with 4 tuners compatible with Windows and Linux operating systems
Channel Memory	unlimited
Satellite Memory	unlimited
Symbol Rates	1-45 Ms/sec (QPSK), 2-36 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x



INNOVATION TELE satellite AWARD 10-11/2011

Tenow TBS6984
Made for TV addicts who can never watch and record enough channels.

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/11/11/tenow

Direct Contact to Sales Manager

Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	DVB-S2 PCI-E professional card with Blindscan function
Channel Memory	unlimited
Satellite Memory	unlimited
Symbol Rates	0.2-45 Ms/sec (QPSK), 0.2-45 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x

TELE satellite AWARD 10-11/2011

Tenow TBS6925
Has every reception feature you could possibly ask for, plus blind scan. The card of choice for true die-hard professionals venturing to the extreme edges of satellite reception.

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/11/11/tenow

Direct Contact to Sales Manager

Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	DVB T / DVB T2 PCI-E card with 2 Tuners
Channel Memory	unlimited
Channel Bandwidth	6,7,8 MHz
FFT mode	1K, 2K, 4K, 8K, 16K, 32K
Center IF Frequency	3 ~ 5 MHz

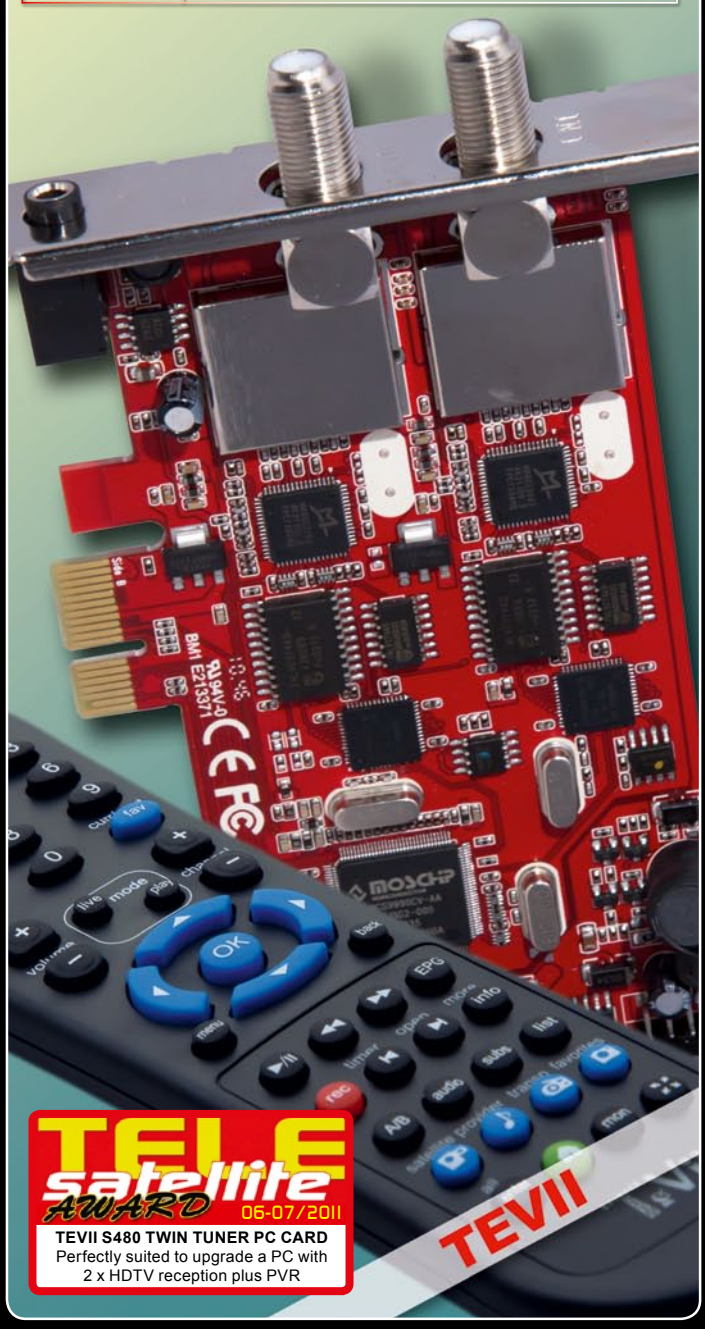
TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/11/07/tevii

Direct Contact to Sales Manager

Manufacturer	TeVii Technology
Website	www.tevii.com
Function	PCI-E card for TV & Radio reception on the PC in SDTV and HDTV with two separate Tuners
Channel Memory	unlimited
Satellite Memory	178 preprogrammed - added by user: unlimited
Symbol Rates	2-45 Ms/sec
DiSEqC	1.0, 1.1, 1.2, 1.3



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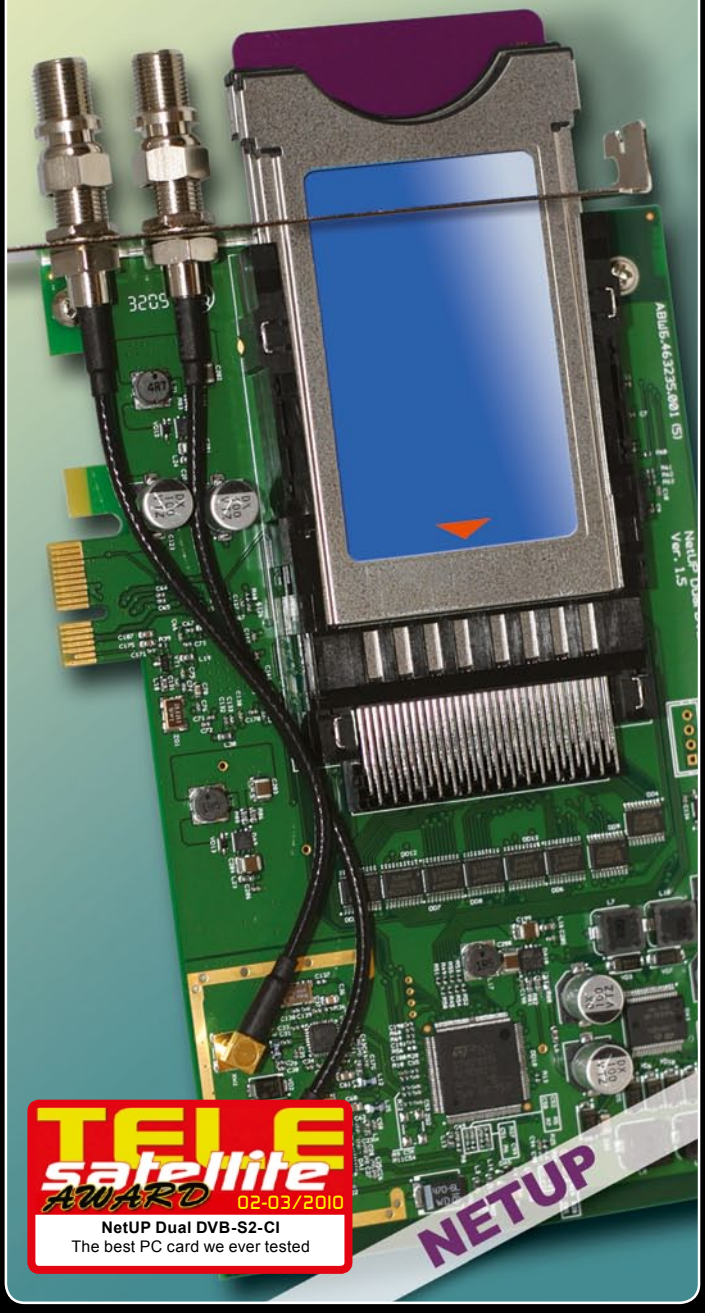
Business Voucher
www.TELE-satellite.info/10/03/netup
Direct Contact to Sales Manager

Manufacturer	NetUP
Website	www.netup.tv
Function	Two Tuners DVB S2 PCIe card
Channel Memory	unlimited
Satellite Memory	—
Symbol Rates	1 to 47 Ms/sec (QPSK), 1 to 31.5 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2



TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/09/09/tevii
Direct Contact to Sales Manager

Manufacturer	TeVii Technology
Website	www.tevii.com
Function	PCI-E card for TV reception on the PC in SDTV and HDTV
Channel Memory	unlimited
Satellite Memory	177
Symbol Rates	2-45 Ms/sec
DiSEqC	1.0, 1.1, 1.2, 1.3

CHINA

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www.TELE-satellite.info/12/05/spaun

Direct Contact to Sales Manager

Manufacturer	SPAUN Electronic
Website	www.spaun.com
Function	DVB S / DVB S2 and DSS Signal Analyzer
Frequency Range	950-2150 MHz
Video Output	—
Built-in Monitor	4.3" TFT LCD display (16:9)

TELE satellite AWARD 04-05/2012

SPAROS SAT HD
Very useful meter for setting up critical satellite systems

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/12/05/trimax

Direct Contact to Sales Manager

Manufacturer	Trimax Technology
Website	www.trimaxtec.net
Function	Handheld Digital TV Meter for DVB S / DVB S2 or DVB T / DVB C
Frequency Range	920-2150MHz (DVB S / DVB S2)
Video Output	S-VIDEO, HDMI
Built-in Monitor	4.3 inch TFT LCD screen (16:9)

TELE satellite AWARD 04-05/2012

TRIMAX TM-6800+
All the features you need, plus professional extras like ASI and spectrum display

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/12/03/satcatcher

Direct Contact to Sales Manager

Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Digital and analog cable TV meter
Frequency Range	46~862 MHz (for digital TV) and 46~870 MHz (for analog TV)
Video Output	—
Built-in Monitor	120 x 64 3.5“ LCD color display

TELE satellite AWARD 02-03/2012

Satcatcher Digipro C Max
More than a cable meter: includes everything a professional installer needs

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/12/01/horizon

Direct Contact to Sales Manager

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Satellite and terrestrial antenna meter
Frequency Range	45~861 MHz (terrestrial) and 950~2150 MHz (satellite)
Video Output	—
Built-in Monitor	LCD display

TELE satellite AWARD 12-01/2012

Horizon HD-STM
Perfect choice for an installer who values a practical instrument.

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/12/01/lexium

Direct Contact to Sales Manager

Manufacturer	WS International
Website	www.lexium-dvb.com
Function	Digital Satellite Meter with AutoFind and QuickSweep features
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	LCD display

TELE satellite AWARD 12-01/2012

LEXIUM FastAlign 7100 Pro
Excellent
Dish Installation Tool

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/12/01/deviser

Direct Contact to Sales Manager

Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Satellite Antenna Meter
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	LCD display

TELE satellite AWARD 12-01/2012

Deviser S20 Satellite Meter
Ideally suited to fastly install dishes

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/11/09/8dtek

Direct Contact to Sales Manager

Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	Satellite Meter for Antenna Alignment
Frequency Range	L-Band (950-2150 MHz), DVB-S/S2 and analog signal
Video Output	A/V (composite + mono)
Built-in Monitor	Color graphic 16:9 LCD

TELE satellite AWARD 08-09/2011

8DTEK DSM DESIRED
A HDTV signal meter and receiver all in one with plenty of professional features

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/11/07/8dtek

Direct Contact to Sales Manager

Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	Satellite Meter for Antenna Alignment
Frequency Range	L-Band (950-2150 MHz), DVB-S/S2 and analog signal
Video Output	Composite
Built-in Monitor	Color graphic LCD

TELE satellite AWARD 06-07/2011

8DTEK DSM GIFTED
Very useful small tv meter with high-end features

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/11/07/satcatcher

Direct Contact to Sales Manager

Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Signal meter for digital signals in DVB-S, DVB-T and DAB. Analogue signals in FM radio.
Frequency Range	46~870 MHz
Video Output	Composite
Built-in Monitor	120 x 64 3.5“ LCD color display

TELE satellite AWARD 06-07/2011

SATCATCHER DIGIPRO ST COMBO
Combo Signal Analyzer with Huge Memory for Satellite and Terrestrial Channels

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/10/11/horizon

Direct Contact to Sales Manager

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Antenna Alignment Meter
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	LCD display

TELE satellite AWARD 10-11/2010

HORIZON HD-S2
Extremely easy to use with an amazing list of features for the pros

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/10/09/spaun
Direct Contact to Sales Manager

Manufacturer	SPAUN Electronic
Website	www.spaun.de
Function	TV Signal Analyzer with WiFi Receiver
Frequency Range	45~865 MHz (terrestrial) and 950~2150 MHz (satellite)
Video Output	RCA Composite
Built-in Monitor	7 inch 16:9 color LCD display

TELE satellite AWARD 08-09/2010
SPAROS 609 WIFI OPTION
Converts the signal analyzer to a universally usable tool

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/10/09/horizon
Direct Contact to Sales Manager

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital and analog terrestrial TV meter with spectrum analyzer and USB data output
Frequency Range	49~861 MHz
Video Output	—
Built-in Monitor	LCD display

TELE satellite AWARD 08-09/2010
HORIZON HD-TM USB PLUS
Small, economic and fast terrestrial signal meter

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/10/07/satcatcher

Direct Contact to Sales Manager

Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Signal Meter for DVB-T, analogue TV, digital DAB radio, analogue FM radio
Frequency Range	46~870 MHz
Video Output	—
Built-in Monitor	120 x 64 3.5“ LCD color display

TELE satellite AWARD 06-07/2010

SATCATCHER DIGIPRO T MAX
Easy to use signal meter that doesn't stop at DVB-T. Everything you want from a signal meter

TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/10/05/8dtek

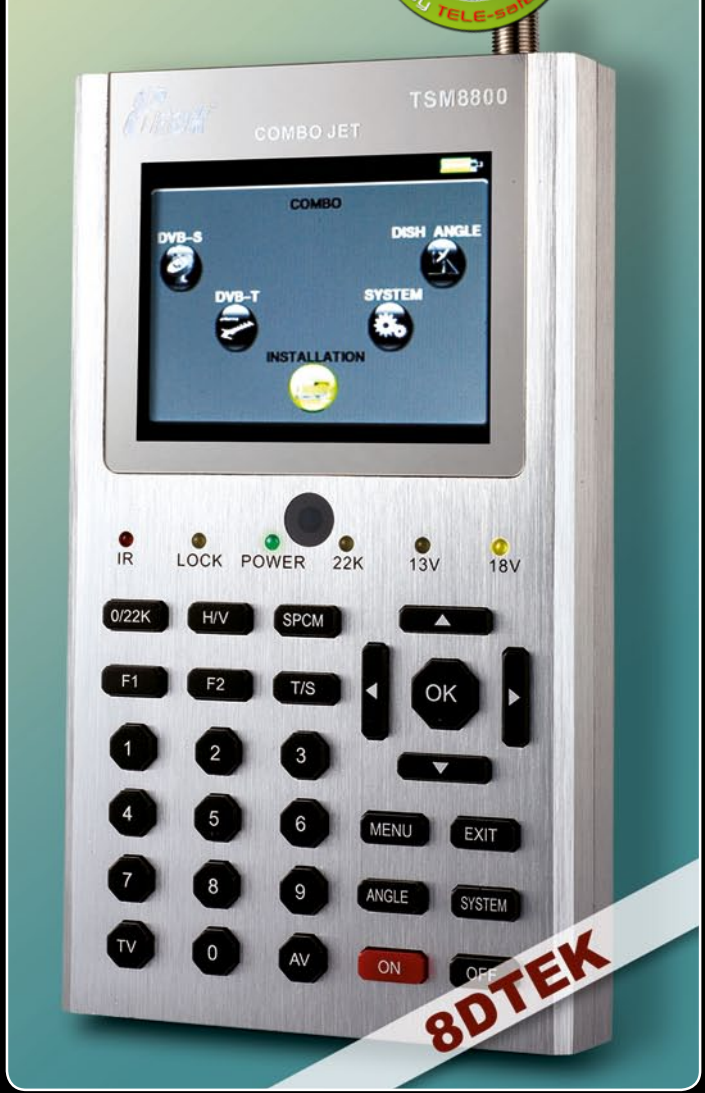
Direct Contact to Sales Manager

Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	DVB Signal Meter with tv monitor for DVB-S and DVB-T
Frequency Range	950~2150 MHz (satellite) and UHF/VHF (terrestrial)
Video In/Output	RCA/RCA
Built-in Monitor	3.5“ LCD color display

TELE satellite AWARD 04-05/2010

8DTEK TSM-8800
Easy menu operation and exceptionally simple to operate

Energy Efficiency Rating eco friendly 0.6 power factor tested by TELE-satellite



TELE-satellite Magazine

Business Voucher

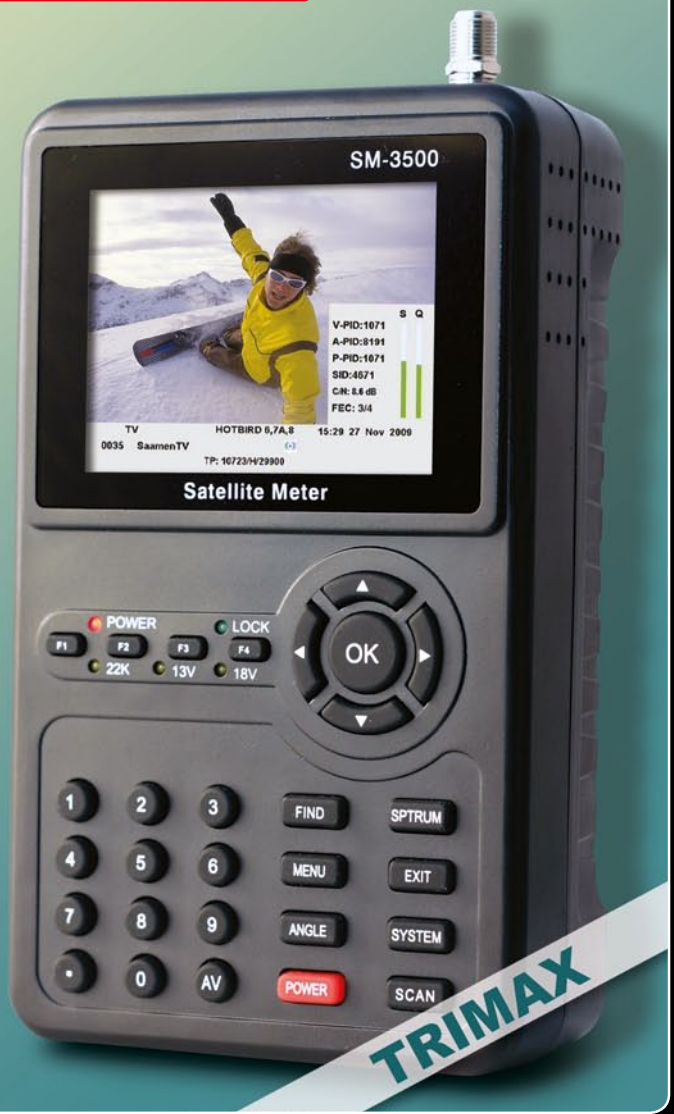
www.TELE-satellite.info/10/03/trimax

Direct Contact to Sales Manager

Manufacturer	Trimax Technology
Website	www.trimaxtec.net
Function	Satellite Meter with TV and Spectrum
Frequency Range	930~2150 MHz
Video Output	RCA Composite
Built-in Monitor	3.5" LCD color display

TELE satellite AWARD 02-03/2010

TRIMAX SM-3500
A well-balanced digital meter with spectrum display and TV mode



TELE-satellite Magazine

Business Voucher

www.TELE-satellite.info/10/01/horizon

Direct Contact to Sales Manager

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Handheld Satellite Meter for fast and easy Dish Alignment
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	128x64 Pixel LCD

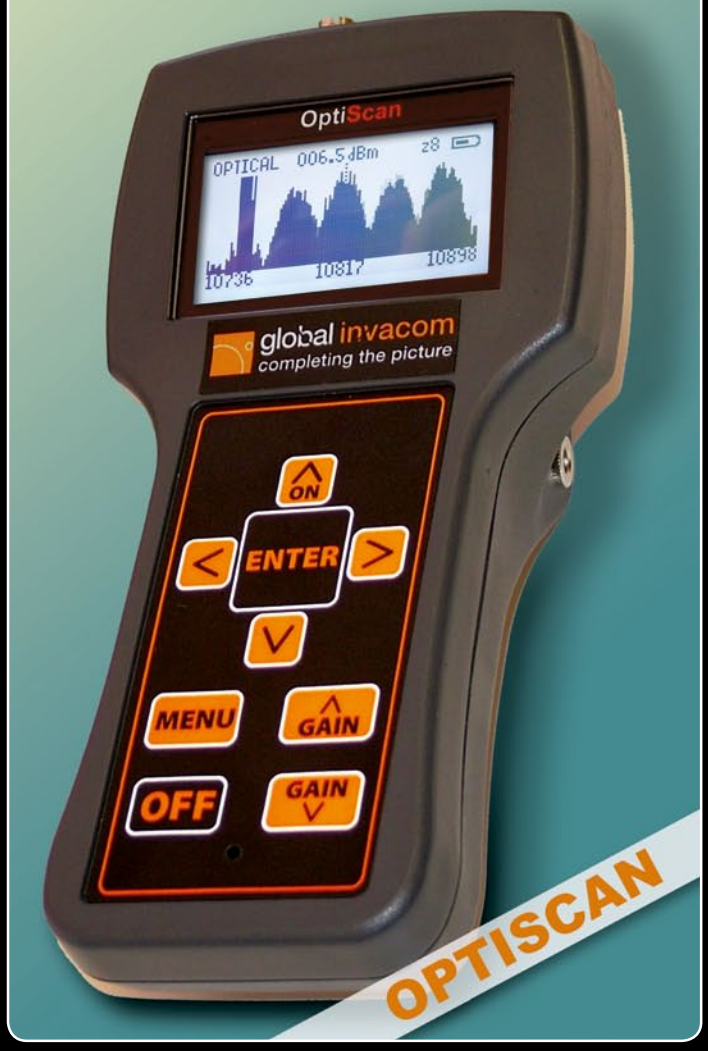
TELE satellite AWARD 12-01/2010

HORIZON NANOSAT
Ideal for the speedy alignment of satellite antennas

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/10/01/gi
Direct Contact to Sales Manager

Manufacturer	Global Invacom
Website	www.globalinvacom.com
Function	Signal Analyzer with an Optical Input
Frequency Range	950(160)~2150 MHz
Optical Range	+10 to -25 dBm
Video Output	—
Built-in Monitor	Eight-digit LCD display

TELE satellite AWARD 12-01/2010
GLOBAL INVACOM OPTISCAN
Future-proof satellite signal analyzer for optical and coaxial LNBs



TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/09/11/horizon
Direct Contact to Sales Manager

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Satellite Meter optimized for Ka-Band
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	LCD display

TELE satellite AWARD 10-11/2009
HORIZON HD-TC8
Ideal multirange signal analyzer for the Ka and Ku-bands, optimized for Turbo Coded Data Transmissions

AWARD
WINNING
21
IPTV
RECEIVERS OF
21ST CENTURY
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TELE satellite
AWARD
MAGAZINE

Manufacturer	Logitech
Website	www.logitech.com
Function	IPTV Receiver

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/12/03/googletv
Direct Contact to Sales Manager

Manufacturer	Amiko
Website	www.amikostb.com
Function	DVB S / DVB S2 & DVB T Combo Receiver with PVR
IPTV	KartinaTV

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/12/05/amiko
Direct Contact to Sales Manager

Manufacturer	Amino
Website	www.aminocom.com
Function	IPTV Set-top-Box
Stream Protocol	UDP
Menu Standards	NetUP Middleware
WLAN	—

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/11/03/netup2
Direct Contact to Sales Manager

Energy Efficiency Rating eco friendly 0.52 power factor tested by TELE-satellite

Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	IPTV Set-Top-Box
Stream Protocol	UDP
Menu Standards	HTML4, Javascript 1.5, Java Virtual Machine
WLAN	• (via USB stick)

TELE satellite AWARD 12-01/2011
JIUZHOU DTP8300
IPTV Receiver Equipped with Top-Notch Technology

TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/11/01/jiuzhou
Direct Contact to Sales Manager

Energy Efficiency Rating eco friendly 0.57 power factor tested by TELE-satellite

Energy Efficiency Rating
eco friendly
0.98
power factor
tested by TELE-satellite
Manufacturer | NetUP
Website | www.netup.tv
Function | IPTV Gateway for DVB Signals
Stream Protocol | UDP
Menu Standards | NetUP Middleware
WLAN | —
INNOVATION
TELE satellite
AWARD
10-11/2010
NETUP DVB-IP GATEWAY 4X
Perfect ease of use, combined with reliable technology – ideal for IPTV providers.
TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/10/11/netup
Direct Contact to Sales Manager
NetUP
NETUP

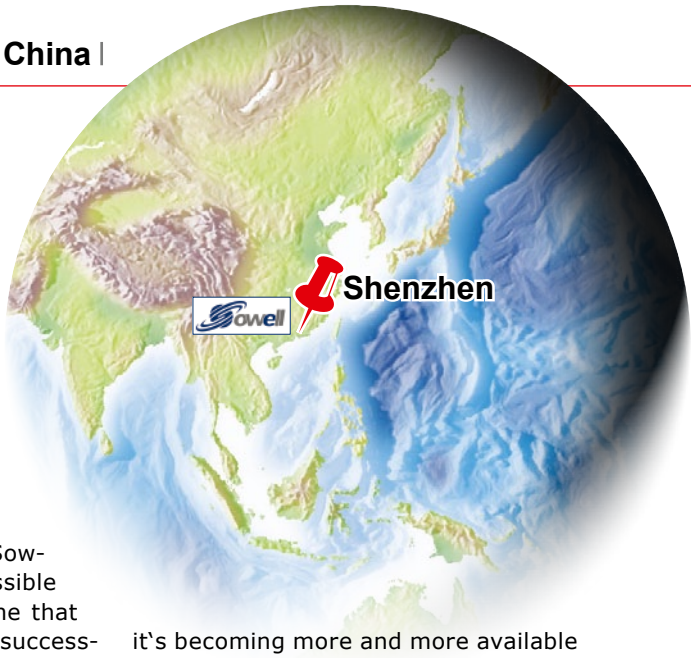
Manufacturer | AZBox
Website | www.azbox.com
Function | HDTV DVB S2 and IPTV receiver with various Multimedia&Internet Features
Stream Protocol | UDP
Menu Standards | html
WLAN | —
INNOVATION
TELE satellite
AWARD
08-09/2010
AZBOX ULTRA HD
Fully Equipped Satellite and Internet HDTV Receiver
TELE-satellite Magazine
Business Voucher
www.TELE-satellite.info/10/09/azbox
Direct Contact to Sales Manager
AZBOX Ultra HD
HD Satellite Receiver
Energy Efficiency Rating
eco friendly
0.45
power factor
tested by TELE-satellite
AZBOX

IPTV is Future

■ General Manager Eagle Chain in Sowell's showroom with one of the company's success receivers.

- ***Already operating the first IPTV project***
- ***3D planned for the future***
- ***Integration of TV reception with IPTV***
- ***60% of all Sowell receivers are already HD***

Receiver Manufacturer Sowell Expands Into IPTV



What does the future of TV reception look like? What type of transmission technologies will be used in the future? Eagle Chain is the General Manager of receiver manufacturer Sowell and has been thinking quite a bit about the future of his company. What kind of receivers does the market want? What kind of receivers will Sowell manufacture? Of all the possible future scenarios, he chose one that he believes will be the most successful: IPTV.

It would require high-speed Internet connections, although these days it's becoming more and more available around the world. "I was just in Africa and played around with our IPTV box", reveals Eagle Chain. His results: when there are Internet connections, they

■ Receptionist Lichan Li greets visitors in a friendly way.

■An information board invites cooperation with Sowell.

are generally fast enough for TV via the Internet. Internet access is not as yet available throughout the continent, but it's only a matter of time. "I have good expectations for our company in this market", he continues as he establishes why he even flew to Africa.

In addition to learning more about this market that's hardly been penetrated, it was also the perfect opportunity to test his IPTV boxes and check out his self-developed technology. "We've recently started keeping an eye on an IPTV network in Bangkok, Thailand. We designed a complete system for a provider there including the IPTV receivers for end users", we learn from General Manager Eagle Chain. "At the moment the network is laid out to handle up to 50,000 users; we could set it up to supply up to 500,000 users with IPTV." It's a turnkey solution developed by the Sowell engineers. "The system is carrying 45 SD channels and 5 HD channels."

But Sowell doesn't see itself as just a supplier of IPTV solutions for providers in the future, they also see an interesting future as a supplier of independent IPTV receivers. "The number of expatriates is always increasing and more often than not it's unlikely that they'll be able to see their TV channels via satellite from home. IPTV is ideal for this group."

As an example, Eagle Chain points out two IPTV Chinese-language services. "Here in China the IPTV service from www.pptv.com is very popular and for those Chinese people living in the USA it's the IPTV provider www.kylintv.com." For other language groups there are just as many providers and with the consistently increasing number of Internet providers appearing, the interest in this type of programming service also continues to increase. "We're working on developing very comfortable receivers for these IPTV providers." In other words, the user no longer has to access these channels through his laptop and make due with a small monitor; instead he can use a standalone IPTV receiver and that big-screen TV in his living room.

IPTV isn't the only thing that Sowell is looking at for the future. "We're also

SOWELL

OEM Receiver Manufacturer, China

www.sowell-tech.com

www.TELE-satellite.com/TELE-satellite-1103/eng/sowell.pdf
www.TELE-satellite.com/TELE-satellite-1205/eng/sowell.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 50 100

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 25 ..... 50 Mio US$

Production Certificates

DVB

Main Products

Receiver for DVB-S/S2, DVB-T/T2, DVB-C and ISDB-T, Receivers with 3D graphics, IPTV Boxes, Linux Boxes

■ Receiver manufacturer Sowell's offices can be found in this office complex in Shenzhen; actual production takes place a half hour's drive away in Bao'an.

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TELE satellite AWARD 04-05/2012
SPAUN SMF 790 LTE Filter
Most effective way to block interference from LTE (3G) mobile networks
www.TELE-satellite.com/TELE-satellite-1205/eng/spaun-SMF.pdf

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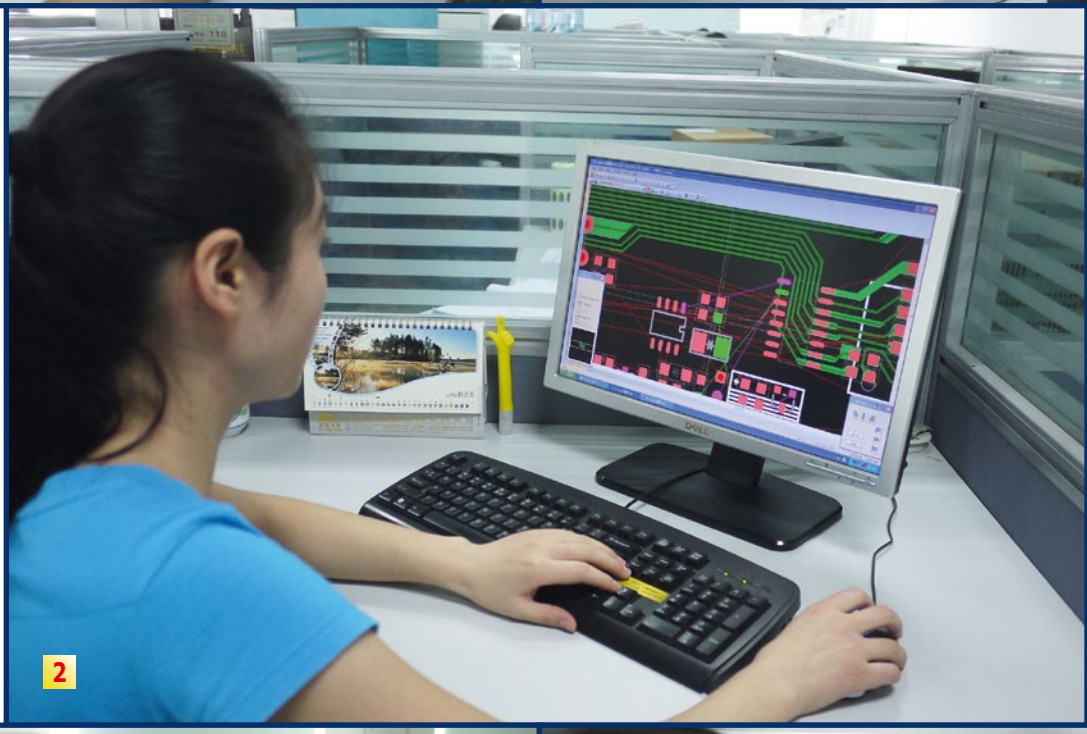
1

preparing for 3D; for the OSD menus as well as for the presentation of TV programs." The latter involves a software solution where 2D content is converted into 3D content. "This product will become available from us in the 3rd quarter of 2012", promises Eagle Chain. Naturally Sowell is also working on incorporating the Android operating system into their receivers. "This is the best way to combine TV reception and the Internet."

With this the circle is now complete; Eagle Chain is convinced that the Internet will play a larger and larger role in the future. You can't disagree with it; Sowell is in the process of developing the right products for the future.



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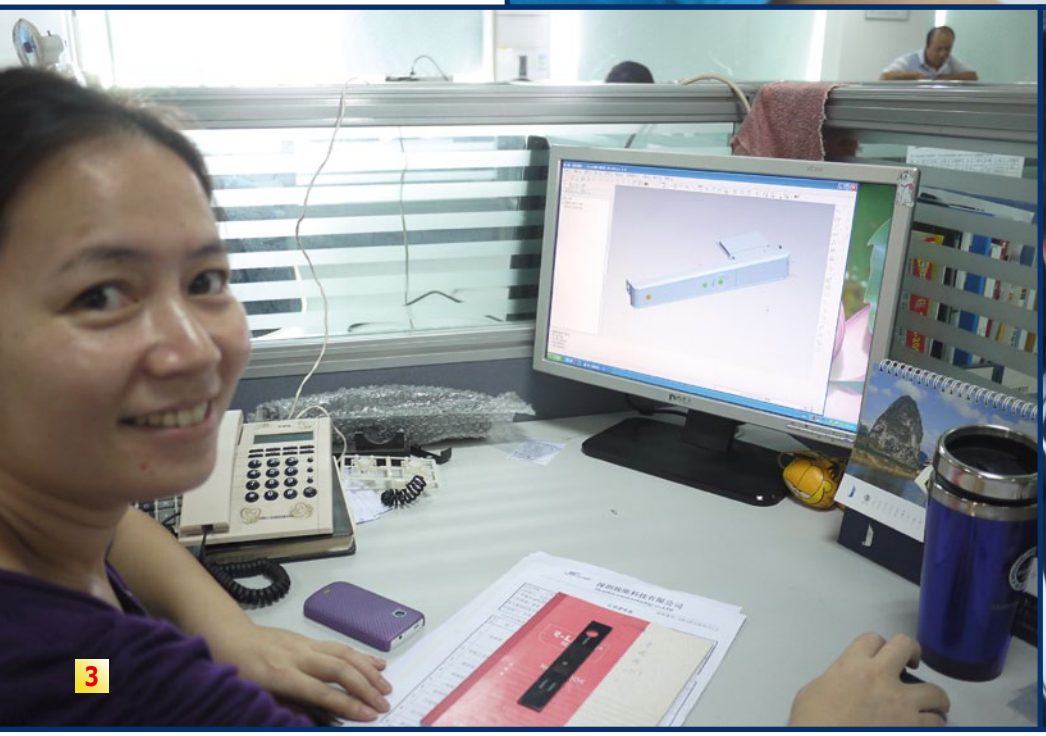

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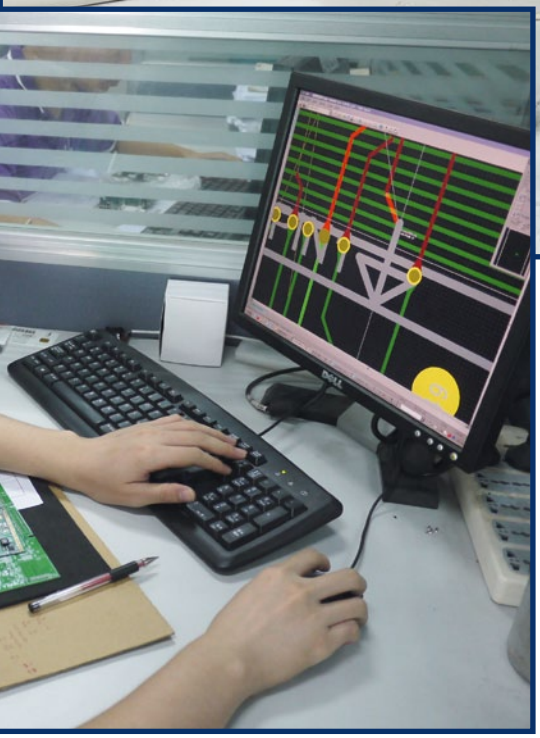
4



1. Engineer Lin Ling is Sowell's 3D project team leader. He and his team are developing the hardware for the new 3D receivers. "One of our engineers works in Germany and together with us is developing the 3D software."

2. One of the employees in the large Sowell R&D Team. She is one of the PCB designers.

3. Hui Liu is a member of the design team that deals with everything visual including the receiver front panels. Here we see how Hui Lin redesigns a front panel for an OEM customer.

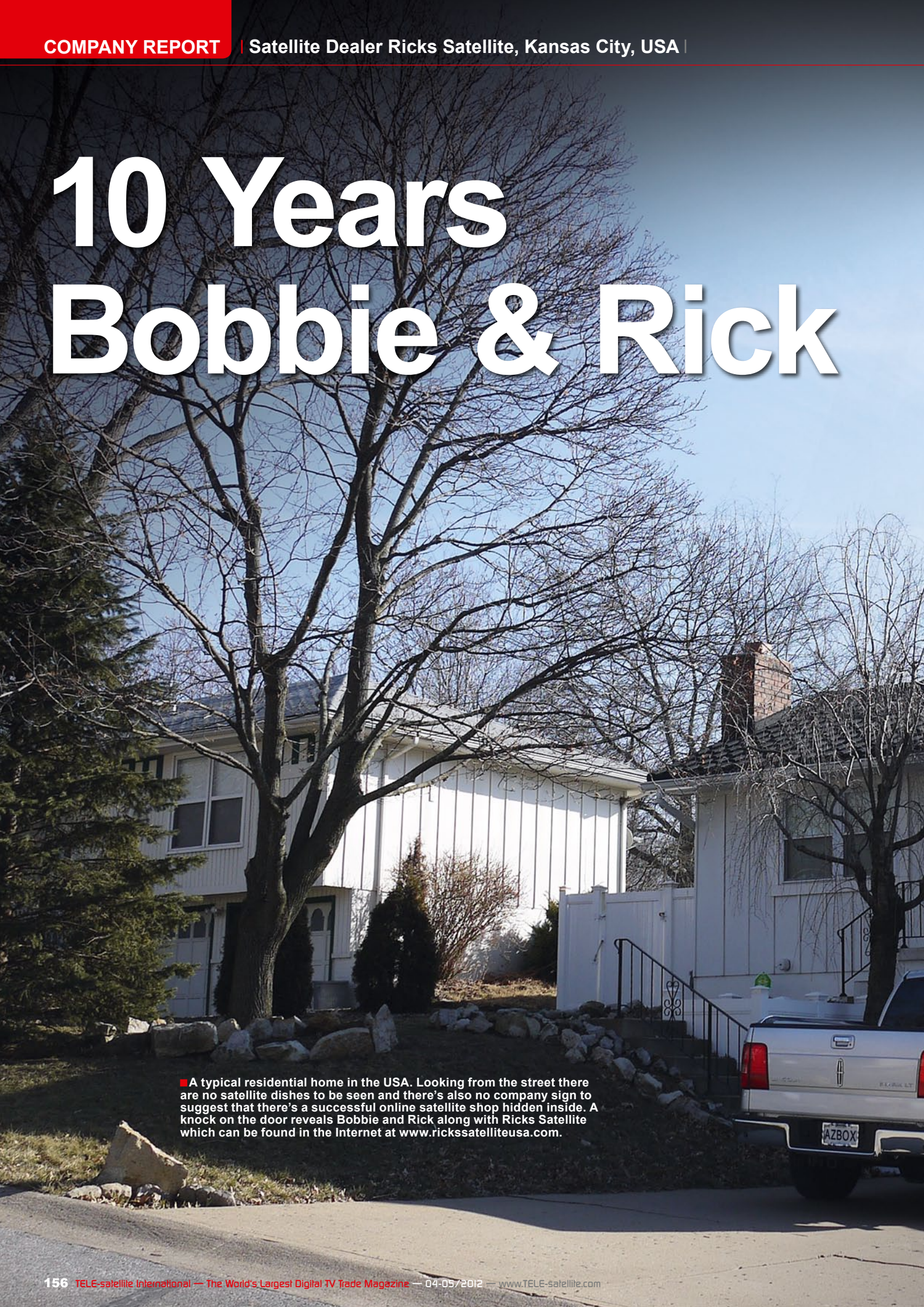
4. Total concentration: Roy Lin is the software engineer team leader; they are currently working on the Realtek Chipset that will be installed in the new IPTV receivers. The TV monitor in the background is displaying the OSD of this IPTV sample unit.

5. Linux receivers are still in high demand. Bing Nie is Project Manager for Sowell's Linux-based HDTV receivers.

6. Nothing tops a test of the actual product. Jiang Tingshan is one of the four engineers in the test center. Here we see him as he checks the scan function of a new software version.

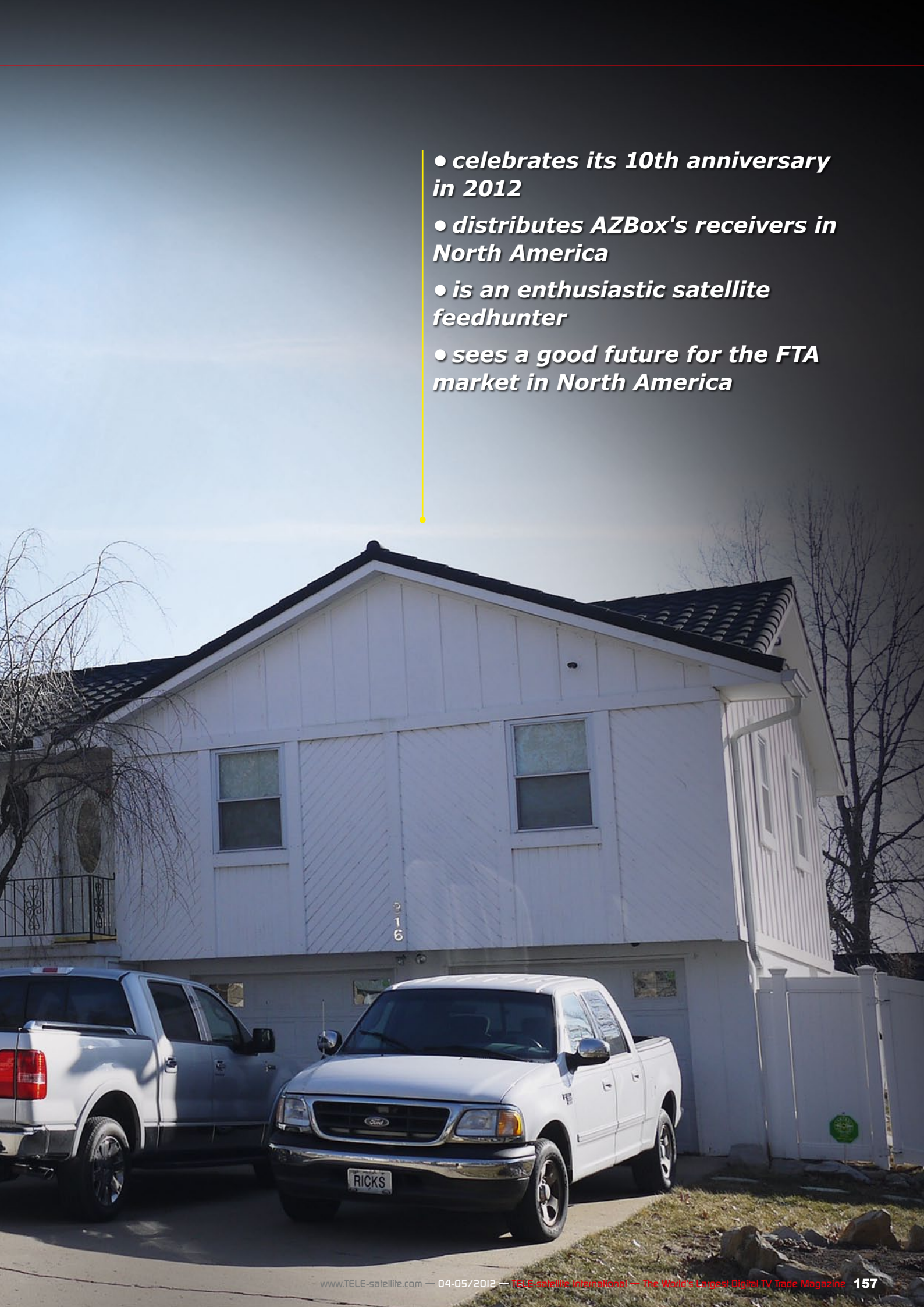
7. Sometimes changes to the hardware are necessary during development. This is done here. Even the verification of technical data takes place here in the instrument room.

10 Years Bobbie & Rick



A typical residential home in the USA. Looking from the street there are no satellite dishes to be seen and there's also no company sign to suggest that there's a successful online satellite shop hidden inside. A knock on the door reveals Bobbie and Rick along with Ricks Satellite which can be found in the Internet at www.rickssatelliteusa.com.

- ***celebrates its 10th anniversary in 2012***
- ***distributes AZBox's receivers in North America***
- ***is an enthusiastic satellite feedhunter***
- ***sees a good future for the FTA market in North America***



Married Couple Builds an Online Satellite Shop

Exactly 10 years have passed since Rick Caylor started Ricks Satellite together with his wife Bobbie. It's a small company, a "Mom and Pop shop" as Rick puts it. We paid them a visit at their home in Blue Springs, Missouri, a suburb of Kansas City. And it's from here that they operate their online shop for satellite products with emphasis on AZBox receivers.

Rick Caylor himself is quite the satellite enthusiast. "I set up my first satellite system in December of 1984; it was a 2.8-meter C-band dish", remembers Rick. "I still remember my old Kenwood receiver with its tuning knob; you could use it to quickly scan all 24 analog channels." Rick has been fascinated with satellite reception ever since. Back then his "real" job was as a manager at an auto parts company; satellite reception was his hobby in the evenings.

But he was interested in all those new receivers that kept coming out. "Sometime in the mid 1990's I started working for a satellite installer but I didn't get paid in money, instead I got paid in receivers!" We would like to point out to our younger TELE-satellite readers that in those days satellite receivers still came with hefty price tags; it was an expenditure that you really had to think about. It was a good decision working for those receivers. "At some point I amassed a collection of about 50 receivers and I was very familiar with each and every one of them since I fully tested them all." Today Rick has shown that his enthusiasm back then was a treasure trove of experience; the operation of all of the receivers was intuitively easy.

Then one day coincidence came to his aid: his employer, the auto parts company, reorganized and offered Rick a position that didn't appeal to him. Instead, he decided to go out on his own. His wife Bobbie supported him and said, "You have to do what you really like to do." She was right. In 2002 Rick and Bobbie started the company Ricks Satellite. "It wasn't easy in the beginning", says Rick, "My wife had to have a second job on the side."

A successful couple: Rick and Bobbie together run the satellite online shop Ricks Satellite in Blue Springs, Missouri, USA. It's an area with 60,000 inhabitants located east of Kansas City. It's an excellent location: Kansas City likes to be referred to as the heart of America; it's not only the geographical center of the USA, it's also the mathematical center of USA's population.

The young company managed to sell 50 receivers in the first year. 10 years later sales have greatly increased: „We sold over 1100 receivers in 2011 with the AZBox Receivers being the biggest seller." But receiver sales are only one part of their business. "We also sell complete systems for GALAXY 19 reception at 97W. In 2011 it totaled 300 systems, most of which were with 75cm dishes, some shipped with 90cm antennas." Rick explains to us what all the fuss is about with GALAXY 19: "It is currently the most interesting of all satellites in North America in terms of FTA." The satellite TV market in North America is supplied by two large PayTV providers that each have their own reception systems. Rick provides us with even more background: "The last analog terrestrial transmitters were turned off about two years ago. The problem is that the new digital terrestrial transmitters don't have the same range as the old analog transmitters. And so, for many people living in outlying regions the only solution was to subscribe to a satellite PayTV service. Rick says: "The Satellite Pay Services normally require a two year contract and then after you subscribe to a basic package, you can then subscribe at an extra fee to the same local channels that they used to receive for free with an terrestrial antenna when

they were analog. Additional receivers for other rooms are also another $5.00 a month."

Rick continues: "Many people that went to the Satellite Pay services are canceling their service when their original 2 year commitment is over."

This is where GALAXY 19 comes into play: "There are only one-time reception system costs involved with this satellite, after that, no additional costs. That's why we're now getting quite a few complete system orders for this satellite." Rick is convinced that more and more viewers are ready to give up paying monthly subscription fees and that they'll find happiness with the FTA alternative. "Unfortunately, only a few potential viewers are aware of this possibility, but the word is slowly getting out."

Since Rick is himself a satellite enthusiast, he knows exactly what receivers are appropriate for the North American market. One receiver brand stands out in particular: "AZBox has exactly the receivers that are optimally suited for this region", says Rick. He is so enthusiastic about their products that he has even taken over the North American distribution of that brand name. "The AZBox re-

1. Bobbie, Rick's better half, is always on the telephone. "I get almost 200 telephone calls from customers a week."

2. UPS bringing a delivery of receivers. The garage and a separate building extension serve as the warehouse. Ricks Satellite is purely an online shop and ships to its customers from around the world via mail and courier.

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2012

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■ **In Rick's warehouse: boxes of AZBox receivers are stacked up all the way to the ceiling. These units are quite popular in North America since they can receive modes that are used by a number of North American services and that can't by received by most other satellite receivers.**

1. Rick Caylor is a guest on "The Power Hour" radio show every second Friday on GALAXY 19 (11.836V SR20765, Channel Star4, Mono Right) and reports (not only) on satellite reception. The broadcasts are archived in the Internet at www.thepowerhour.com

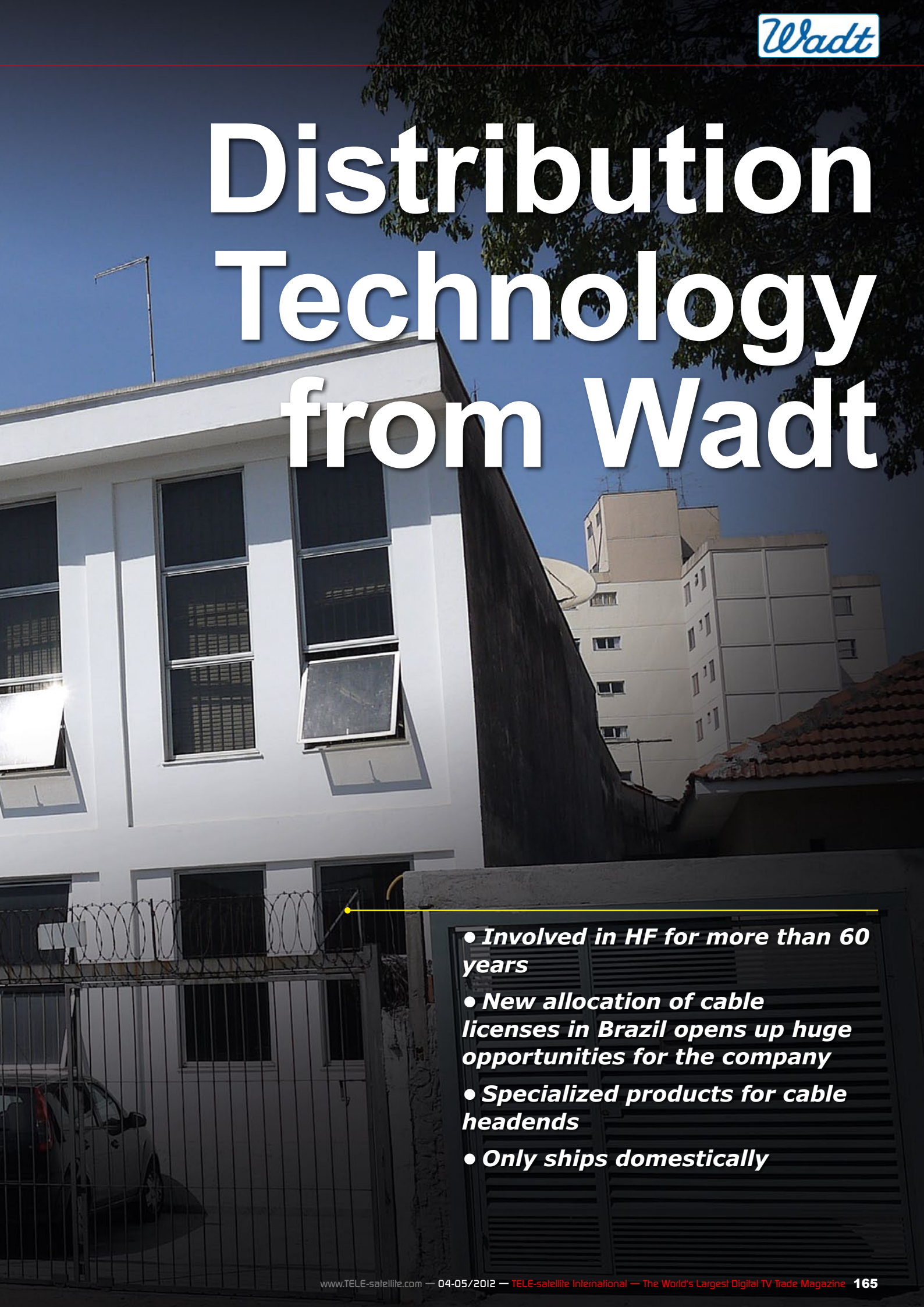
2. There's no doubt about it! A satellite enthusiast is working here! Rick is constantly putting receivers to the test and connecting them to his satellite antennas.

ceivers can receive modes that otherwise could only be received with much more expensive professional receivers." 8PSK and 4:2:2 he points out as an example. Sure enough, Rick was able to start a new business with AZBox receivers: he sells them also to uplinkers and professional users thereby saving them almost ten times the cost of a professional box. "Obviously, this works for only a few applications, such as, for monitoring."

Clearly, this niche has become so large that Rick can divide his business into three nearly identical segments: satellite enthusiasts (hobbyists), professional users (uplinkers) and FTA viewers (regular viewers). Rick is happy with the way his business has developed: "We had a 20% increase in business in 2011 and AZ Box was one of the major reasons for that and we anticipate another 20% increase in 2012 with that distributed evenly across all three business segments."

Rick and Bobbie made the right decision 10 years ago: they converted their hobby into a successful business. They had to deal with a number of difficulties but now there's no holding back. With the right products Ricks Satellite business can only continue to climb upwards.

The dish antennas on the roof provide a clue to what goes on inside this building; it caught the interest of the TELE-satellite editorial staff: the company Eletronica Wadt, which has been involved with reception technology since 1945, resides here.



Distribution Technology from Wadt

- *Involved in HF for more than 60 years*
- *New allocation of cable licenses in Brazil opens up huge opportunities for the company*
- *Specialized products for cable headends*
- *Only ships domestically*

A Family Company in the Cable Distribution Field

The company Wadt has been in existence for three generations. It was founded by Nelson Wadt back in 1945. It's a story of emigration in that Nelson Wadt is originally from Germany.

The company, that has been successful for so many years, is all by itself interesting because of its success, but since they manufacture cable distribution equipment, it's the perfect reason for us to pay them a visit.

The company founder's grandson, Joao Alfredo Wadt Miranda, who today is the company's Technical Director, thinks back to the products that started it all: "It was car radios for Ford vehicles that my Grandfather manufactured first." It was already obvious back then what path the company would take - namely further in the direction of reception. When the first cable TV systems were being installed, Wadt was right in the middle of things offering the first cable headends.

"Wadt's best times were before 1994", remembers the company founder's Grandson, "Back then we had 200 employees." Those days are over; in 1994 the Brazilian government lifted the high import duties after which HF products came into the country at low prices.

Wadt had to specialize and focused

■ Neide is the daughter of the company's founder and takes care of Wadt's finances. Joao, Neide's son and the company founder's grandson is headend manufacturer Wadt's Technical Director in Sao Paulo, Brazil.

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This is what a headend rack with modulators from Wadt looks like. All slots are assembled by Wadt from imported components.

on cable distribution technology. "China supplied us the components and we assembled modulators and amplifiers as well as other components that are used for TV signal distribution", explains Joao regarding the company's strategy today. "We employ 25 people of which 15 are in manufacturing, three are in engineering with the remaining in administration and sales", he lists for us.

Roughly 10,000 units are shipped by Wadt every year. The company founder's daughter, Neide, who still actively takes care of the company's finances, tells us more about these sales figures: "Our sales equate to about 2 million Brazilian Real each year."

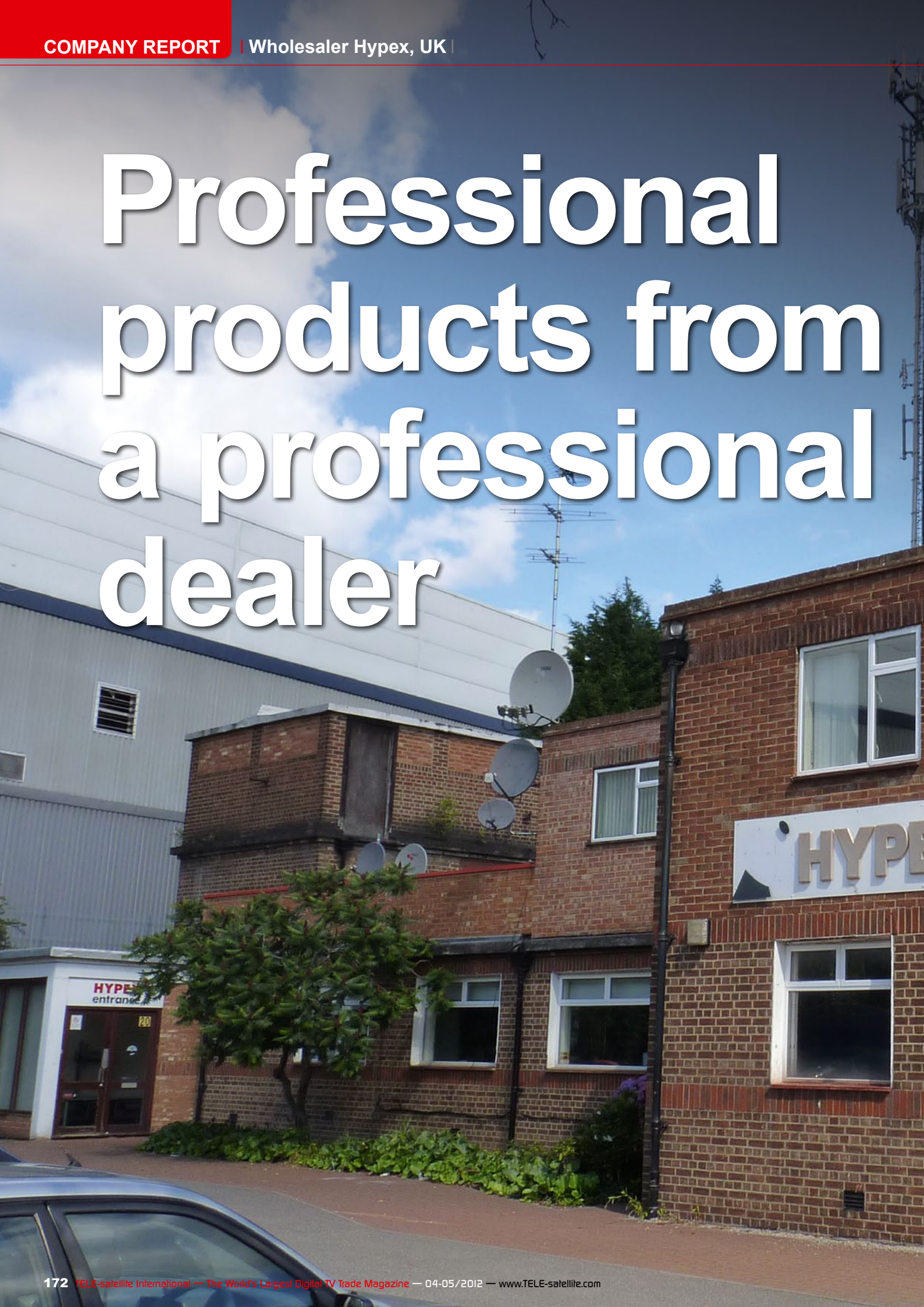
But things will be changing here as Joao tells us: "For years now the Brazilian government hasn't issued any new cable licenses but that's in the process of changing." With the new cable systems and new cable companies he foresees a big new market for Wadt. "We already have the new digital TV modulators available", says Joao. Any new cable systems will no longer employ analog technology.

Wadt even has satellite receivers and digital terrestrial TV receivers to offer but Joao doesn't see much of a future for this segment because of low product prices. "We're concentrating completely on cable distribution technology", confirms Joao. He is convinced that this decision will keep the old company Wadt alive and well for decades to come.

■ One of Wadt's technicians at work.

■ The dish antennas on Wadt's roof caught our eye: one of them is fitted with a triple combination - a C-band LNB for linear signals, a C-band LNB for circular signals as well as a Ku-band LNB. A 3.2-meter antenna, a 1.8-meter dish as well as a 1.5-meter dish can be found on the roof.

Professional products from a professional dealer



- *Ships large dishes to Great Britain and Europe*
- *Offers successful product lines from ICECRYPT and GLOBALINVACOM*
- *Low prices thanks to minimal overhead costs*
- *Consistent sales despite pricing pressure*

An image from the old days: Hypex resided here up until recently. Now the company moved into a 6000 square foot warehouse only about a mile from here in Wembley in western London.

Success with range of products

Not many digital TV product dealers can boast over 30 years success in the business (in 2012 it will be 33 years). One of the few wholesalers that fall into this category is the company Hypex in London. We paid a visit to them just before they moved into their new warehouse.

Hypex was founded in 1979 by Shyv Sood. He is an electrical engineer and recognized back then the need for commercial receivers and other broadcasting equipment.

As a one-man operation he sold among other things DX Communications amateur radio receivers. Relatives from his family came later on and started working for his company and so Hypex became stronger and stronger over the years. Just a few years ago the company became a limited liability corporation and now operates under the name Hypex, Ltd.

Hypex is a pure wholesaler and does not sell to end users. Managing Director Neal tells us more: "We ship to roughly 600 active dealers of which 15% are outside of Great Britain." Hypex customers can be found as far away as Malaysia. Neal explains how it came to that: "Over those many years our company has become very well-known and established and aside from that many Asian companies have their own branch office in Great Britain. For those it's much sim-

Neal is Managing Director for Hypex and personally takes care of their professional broadcast and cable TV customers.

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FS-9300 PVR

2x TUNER, eSATA, 2x CA, 2x CI

FS-9200 PVR

1x TUNER, 2x CA, 2x CI, 300mm

FS-9100 PVR

1W Stand-by | 1W Stand-by power consumption | Easy update of plugins via USB

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■ **Keith Rhoden is the Warehouse Manager and one of Hypex's 12 employees. Here he is preparing a dish to be shipped out. In the background are two 2.4-meter antenna packages ready for the truck driver. He along with two other employees takes care of the warehouse and shipping. Another four Hypex employees are in sales with the remainder in administration and bookkeeping.**

pler to place their orders directly with us as opposed to going through the national distributor from their own country."

What can you order from Hypex? As a provider of professional satellite reception components, Hypex offers a large assortment of satellite dishes. "We even sell antennas up to 20 meters in diameter."

Giant antennas like these are only rarely ordered but the sales figures for smaller sizes look quite different: "We typically sell about one 4.0-meter dish a year, with 3.0-meter antennas it's about 10 a year and we sell about 100 of the 2.4-meter dishes a year." Those are very high sales numbers for dishes of these sizes. "The 2.4-meter dish is primarily used by our dealers and installers for private customers from Arabic countries here in London who want to watch TV from home."

Naturally the sales numbers for smaller dishes are much higher. "We offer 60cm, 80cm and 110cm dishes of which we sell about 5000 pieces a year."

There's another product group that has similar sales numbers: Hypex also offers Turbosat receivers (Icecrypt). "Our bestseller is the S2000Ci; it makes up about 40% of all our receiver sales", Neal tells us after having a look at his sales statistics, "This is followed by the T5000 DVB-T receiver at 20%."

The sales numbers for these receivers were about the same for 2010 and 2011 at about 5000 receivers per year.

The LNB group is much higher from a numbers point of view but not from a value standpoint. Roughly 25,000 LNBs pass through the Hypex warehouse every year. A bright light for this group (in every sense of the word) would be the fibre-optic LNBs from GlobalInvacom. "In 2010 we sold about 250 of these LNBs but in 2011 this number tripled to 750." If this trend continues, it will be Hypex's strongest growing segment.

Additional digital TV products offered by Hypex are TV wall mounts. "We sell about 8000 wall mounts a year for TVs of all shapes and sizes." Hypex is diversifying into other areas and offers for

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www.technikb-sat.hu

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The products can be branded. In case of larger order the products will be delivered free of charge.

example cable conduit. In all, Hypex works closely with 15 manufacturers as a distributor for Great Britain.

How does all of this translate into sales? Neal reveals to us: "The past several years have been constant for us at about 2.5 million British Pounds." The number of products sold is going up but pricing pressure keeps the overall value down. That's why the continuous search for new products and product groups is the secret to success for a company like Hypex that has kept itself permanently successful for so many decades. Here's to the next 30 years!

1.What's that on the top shelf? Yes, they're the fibre-optic LNBs, converters and distributors from GlobalInvacom. It's the fastest growing product group at Hypex.

2. A look into a cabinet at Hypex: Icecrypt receivers are one of their success products. TV wall mounts (in the foreground) are another success story.

HYPEX
ICECRYPT
HD TV receiver
T2200
HD DRAMA HD SPORT HD CHILDRENS HD NATURE HD FILMS
FREEVIEW HD TV
S2000CCI
Supports USB 2.0 PVR
SANUS
FULL
2
ICECRYPT
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AMIKO
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BOMARE
DEVISER
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PREVAIL
KAIFA
ALUOSAT
SKYWORTH
JIUZHOU
SOWELL
PANODIC
TENOW
AZURESHINE
BOIINGSAT
TRIMAX
MOTECK
GLOBALSAT
TEVII

AB-COM

Satellite Receiver Manufacturer, Slovakia

www.TELE-satellite.com/TELE-satellite-1111/eng/abcom.pdf
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ALUOSAT

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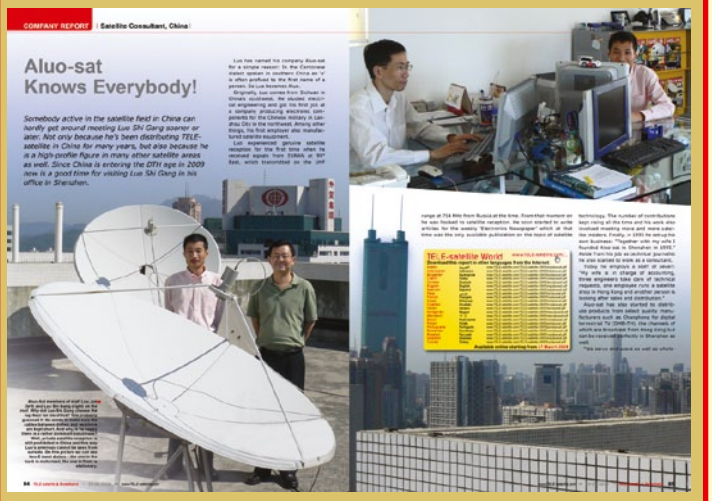


www.TELE-satellite.com/TELE-satellite-0905/eng/aluosat.pdf

APPLIED INSTRUMENTS

Signal Analyzer Manufacturer, USA

TELE satellite Recommended

www.appliedin.com

www.TELE-satellite.com/TELE-satellite-1111/eng/applied.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0.....25.....50

Average Turnover (Previous, This, Next Year Estimates)

0.....10.....20 Mio U$D

Production Certificates

DVB

Production Categories

own brand

Main Products

Cable TV Signal Analyzers, Satellite TV Analyzers, Noise Signal Generators, Noise Power Ratio Test Instrument

AZBOX

Satellite Receiver Manufacturer, Portugal

TELE satellite Recommended | QM Qualified

www.azbox.com

AZURESHINE

Professional Dish Manufacturer, Taiwan

TELE satellite Recommended | QM Qualified

www.azureshine.com.tw

www.TELE-satellite.com/TELE-satellite-0707/eng/azureshine.pdf

QM Qualified – Operator Market Qualified

BOIINGSAT

LNB Manufacturer, China

www.boiingsat.com

www.TELE-satellite.com/TELE-satellite-1105/eng/boiingsat.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 500 1000

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 12.5 ..... 25 Mio US$

Production Certificates

RoHS in preparation

Main Products

LNBs for Ku and C bands, Ka band in preparation. Variants in Single, Twin, Quad, Quattro and Octo.

BOMARE

TV and Receiver Manufacturer, Algeria

www.TELE-satellite.com/TELE-satellite-1103/eng/bomare.pdf

BSD

Satellite Information Website, Brazil

www.portalbsd.com.br

www.TELE-satellite.com/TELE-satellite-1201/eng/bsd.pdf

DEVISER

Signal Analyzer Manufacturer, China

www.devisertek.com

www.TELE-satellite.com/TELE-satellite-1107/eng/deviser.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 12.5 ..... 25 Mio US$

Production Certificates

RoHS, CE, UL, ISO 10012, ISO 90001

Production Categories

OEM, own brand

Main Products

Signal Analyzers for Cable, Terrestrial, Telecommunications, Fiber Optic and Satellite, Spektrum Analyzers, Vector Network Analyzers, Broadcasting Measurement Instruments, QAM Meters

DISHPOINTER

Software Programming, UK

www.dishpointer.com

www.TELE-satellite.com/TELE-satellite-0803/eng/dishpointer.pdf

DOEBIS

Satellite Wholesaler, Germany

www.doebis.de

www.TELE-satellite.com/TELE-satellite-1011/eng/doebis.pdf

GLOBALINVACOM

Fibre Optic Products, UK

www.globalinvacom.com

www.TELE-satellite.com/TELE-satellite-1009/eng/globalinvacom.pdf
www.TELE-satellite.com/TELE-satellite-1005/eng/globalinvacom.pdf
www.TELE-satellite.com/TELE-satellite-0909/eng/globalinvacom.pdf

GOLDEN MEDIA

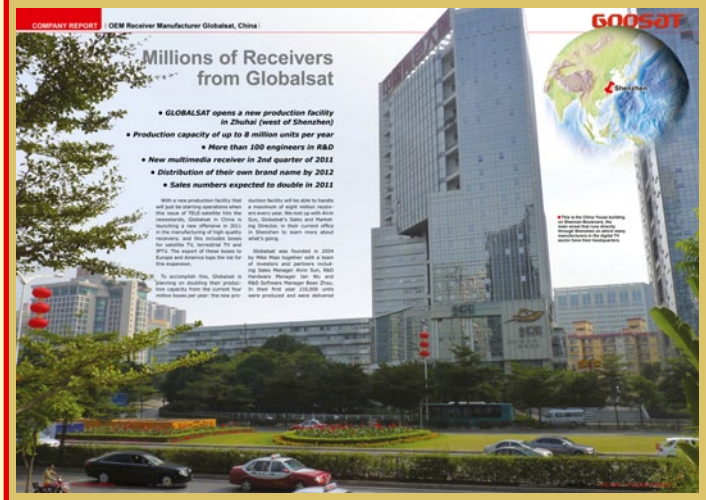
Manufacturer and Distributor, Germany

www.cynextra.com

www.TELE-satellite.com/TELE-satellite-1009/eng/goldenmedia.pdf

GLOBALSAT

Receiver and TV Manufacturer, China



www.TELE-satellite.com/TELE-satellite-1103/eng/globalsat.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 75 ..... 150 Mio US$

Production Certificates

RoHS, FCC, UL, CE, DVB, ISO

Main Products

Receiver for HDTV and SDTV in DVB-S/S2, DVB-T, DVB-C, ISDB-T, HD+, CI+ and HbbTV, Multimedia Receiver, IPTV Boxes, Media Player, TV Monitors with built-in receivers

– Operator Market Qualified

HORIZON

Signal Analyzer Manufacturer, UK

TELE satellite Recommended | QM Qualified

www.horizonhge.com

www.TELE-satellite.com/TELE-satellite-1111/eng/horizon.pdf
www.TELE-satellite.com/TELE-satellite-0801/eng/horizon.pdf
www.TELE-satellite.com/TELE-satellite-0701/eng/horizon.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 50 100

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 2.5 ..... 5 Mio GB£

Production Certificates

RoHS

Production Categories

own brand and OEM

Main Products

Satellite, Terrestrial and Cable Signal Analyzers and Meters

HUBER+SUHNER

Fibre Optic Cables and Distribution, Switzerland

www.TELE-satellite.com/TELE-satellite-1111/eng/huber+suhner.pdf

INPA

Receiver Manufacturer, Turkey

www.TELE-satellite.com/TELE-satellite-1201/eng/inpa.pdf

JIUZHOU

Receiver Manufacturer, China

TELE satellite Recommended | QM Qualified

www.jiuzhou.com.cn

www.TELE-satellite.com/TELE-satellite-1003/eng/jiuzhou.pdf
www.TELE-satellite.com/TELE-satellite-0903/eng/jiuzhou.pdf
www.TELE-satellite.com/TELE-satellite-0803/eng/jiuzhou.pdf

KAIFA

Satellite Receiver Manufacturer, China

www.TELE-satellite.com/TELE-satellite-1003/eng/kaifa.pdf

MEGASAT

Wholesaler and Manufacturer, Germany

www.TELE-satellite.com/TELE-satellite-1109/eng/megasat.pdf

MFC

Satellite Filter Manufacturer, USA

www.microwavefilter.com

www.TELE-satellite.com/TELE-satellite-0903/eng/mfc.pdf

MOTECK

Antenna Motor Manufacturer, Taiwan

www.moteck.com

www.TELE-satellite.com/TELE-satellite-0707/eng/moteck.pdf

NETUP

IPTV Software and Hardware Producer, Russia

www.TELE-satellite.com/TELE-satellite-1101/eng/netup.pdf

PANODIC

Receiver Manufacturer, China

www.panodic.com

www.TELE-satellite.com/TELE-satellite-1203/eng/panodic-mico.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 1000 2000

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 50 ..... 100 Mio US$

Production Certificates

RoHS, DVB, EMC

Production Categories

OEM

Main Products

Receivers for DVB-T/T2, DVB-S/S2, DVB-C, ISDB-TB, IPTV, DVD Players, Projectors

QM Qualified – Operator Market Qualified

PREVAIL

Fiber Optic and CATV Manufacturer, China

www.prevail-catv.com

www.TELE-satellite.com/TELE-satellite-1105/eng/prevail.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 12.5 ..... 25 Mio €uro

Production Certificates

RoHS

Production Categories

OEM

Main Products

Fiber Optic Nodes and Systems, Optical Receivers and Transmitters, CATV Equipment, Bi-directional Network Transmission Equipment, Head-Ends, Splitters, Taps

SAPRO

Manufacturer and Wholesaler, Czech Republic

www.sapro.cz

www.TELE-satellite.com/TELE-satellite-1109/eng/sapro.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 2.5 ..... 5 Mio €uro

Production Certificates

DVB

Production Categories

own brands Di-Way, Di-Box, SatElita, Dreamsky, HD-Box

Main Products

Satellite Receivers for economic range, mid range and high range, Wholesaler for LNBs, dishes, accessories

SATBEAMS

Software Programming, Belgium

www.satbeams.com

www.TELE-satellite.com/TELE-satellite-1011/eng/satbeams.pdf

SATELLITEGUYS

Satellite Forum & Customer Support, USA

www.satelliteguys.com

www.TELE-satellite.com/TELE-satellite-1205/eng/satguys.us.pdf

SKYWORTH

OEM Receiver Manufacturer, China

www.skyworth.com

www.TELE-satellite.com/TELE-satellite-1103/eng/skyworth.pdf
www.TELE-satellite.com/TELE-satellite-1003/eng/skyworth.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 1250 2500

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 1.250 ..... 250 Mio US$

Production Certificates

RoHS, CE, REACH, DVB

Main Products

Receiver for DVB-S/S2, DVB-T, ISDB-T with single, twin and combo tuner, Receiver Sticks for USB, SCART in DVB-S and HDMI in DVB-S2

SOWELL

OEM Receiver Manufacturer, China

www.sowell-tech.com

www.TELE-satellite.com/TELE-satellite-1103/eng/sowell.pdf
www.TELE-satellite.com/TELE-satellite-1205/eng/sowell.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 50 100

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 25 ..... 50 Mio US$

Production Certificates

DVB

Main Products

Receiver for DVB-S/S2, DVB-T/T2, DVB-C and ISDB-T, Receivers with 3D graphics, IPTV Boxes, Linux Boxes

SPAUN POWER

Power Supply Manufacturer, Germany

www.spaun.com

www.TELE-satellite.com/TELE-satellite-1011/eng/spaun.pdf

SPAUN

High Quality Accessory Manufacturer, Germany

www.spaun.com

www.TELE-satellite.com/TELE-satellite-0811/eng/spaun.pdf

QM Qualified – Operator Market Qualified

SMARTWI

Wireless Card Reader Producer, Denmark

www.smartwi.net

www.TELE-satellite.com/TELE-satellite-1011/eng/smartwi.pdf
www.TELE-satellite.com/TELE-satellite-0709/eng/smartwi.pdf

SVEC

Professional Dish Manufacturer, China

www.svec.com.cn

www.TELE-satellite.com/TELE-satellite-1003/eng/svec.pdf

TENOW

PC Card Manufacturer, China

www.tenower.com

www.TELE-satellite.com/TELE-satellite-1103/eng/tenow.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 1.5 ..... 3 Mio €uro

Production Certificates

RoHS, DVB

Main Products

PC-Cards for DVB-S/S2, DVB-T/T2, DVB-C with single, dual and quad tuner, CAM Box for DVB-S2, USB-Stick for DVB-S/S2, DVB-C and ISDB-T

TEVII

PC Card & Receiver Manufacturer, Taiwan

www.tevii.com

www.TELE-satellite.com/TELE-satellite-1101/eng/tevii.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 25 50

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 2.5 ..... 5 Mio US$

Production Certificates

RoHS

Production Categories

OEM, ODM

Main Products

PC Cards for DVB-S/S2 and DVB-T/MPEG-4, Boxes for DVB-S/S2, DVB-T/MPEG-4, PC Sticks for DVB-S/S2

TRIMAX

Signal Analyzer Manufacturer, China

TELE satellite Recommended | QM Qualified

www.trimaxtec.net

www.TELE-satellite.com/TELE-satellite-1103/eng/trimax.pdf
www.TELE-satellite.com/TELE-satellite-1203/eng/trimax.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 10 20

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 2.5 ..... 5 Mio US$

Production Certificates

RoHS, FCC, DVB

Main Products

Signal Analyzer with built-in Monitor for DVB-S/S2, DVB-T and DVB-C, Satellite Receiver based on Android

TURBOSAT

Wholesaler and Manufacturer, UK

TELE satellite Recommended

www.turbosat.com

www.TELE-satellite.com/TELE-satellite-1203/eng/turbosat.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 2.5 ..... 5 Mio GB£

Production Certificates

DVB

Production Categories

own brand ICECRYPT

Main Products

Satellite Receiver for DVB-T/T2, DVB-S/S2, LNB, SmartCards

WS INTERNATIONAL

Wholesaler and Manufacturer, USA

TELE satellite Recommended

www.wsidigital.com

www.TELE-satellite.com/TELE-satellite-1109/eng/wsinternational.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 ..... 10 20

Average Turnover (Previous, This, Next Year Estimates)

0 ..... 2.5 ..... 5 Mio U$D

Production Certificates

DVB

Production Categories

own brands LEXIUM

Main Products

Receiver for DVB-S, dishes 75cm up to 4.5m, LNB and LNB holders for KU and C band, DiSEqC switches, signal analyzers

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The 26 Satellite Antennas from SZMG in Shenzhen

The TV Organization of Shenzhen managed to construct a very impressive Ground Station in the Xili suburb (north of Nanshan on the western side of the big city of Shenzhen) in just a couple of years. Roughly 12 million people live in the greater Shenzhen area and because of all the high-tech companies that call this city home, it's an area with the highest income per person in all of Mainland China. Many of the worldwide leading Digital TV receiver manufacturers are headquartered here and it's for this reason that TELE-satellite reports quite often from Shenzhen.

The city has acquired special status: in addition to the state-run CCTV channels, only one channel from each of the 22 provinces is allowed to be transmitted via satellite. Shenzhen is in the Guangdong province (also known as Canton in the west) and Guangzhou is the capital city with 10 million inhabitants. So, only the TV channel from Guangzhou is allowed to transmit via satellite and is therefore receivable everywhere in China. As an exception to the "One TV channel from each Province" rule, Shenzhen TV can also transmit via satellite so that everyone in China and, thanks to satellite spillover, those in neighboring countries, can see what's going on in Shenzhen.

The fact that Shenzhen TV happens

A guard post is located just outside the entrance to the SZMG Ground Station. On the site are 20 reception antennas as well as 6 transmission dishes. Shenzhen is situated directly on the coast; the SZMG Ground Station is only 50m above sea level.

to be a special station can be seen if you pay a visit to their brand new, ultra modern ground station. Our station tour guide is Zhang Bing; he's been working for Shenzhen TV as a Broadcast Engineer since 1994 and witnessed first hand the stunning growth of the station. "Shenzhen TV started in 1984", explains Zhang Bing to us during the tour, "Today there are more than 2000 people working here of which 260 are in the technical field and of those there are 70 Broadcast & Transmission engineers."

The channel has been transmitting via satellite since 2004: "We transmit two channels via CHINASAT 6A at 125E - our HD channel is on 4.040H and the SD channel plus three radio channels are on 3.845H." The mentioning of the three radio channels, that naturally are also transmitted terrestrially via FM, points out the fact that Shenzhen TV offers more than just one TV channel. "We've been transmitting four SD DVB-T TV channels since 2006. And since 2008 we've been using DMB-TH to transmit five TV channels terrestrially in HD. We also offer cable subscribers in Shenzhen 10 TV channels and we're getting ready for distribution via IPTV."

Sure enough, Shenzhen TV changed its name to Shenzhen Media Group back in 2006 and is now know by the abbreviation SZMG. Shortly after that in 2007 ground was broken on the Ground Station in Xili. "We have six uplink antennas and 20 downlink antennas", says Zhang Bing as he gestures to these dishes that have been very professionally arranged. SZMG uses the downlink antennas to receive the transmissions and SNG feeds for their own channel.

He explains to us the function of the uplink antennas: "All of the antennas are used in pairs: one main dish and a backup dish. Two 6.2-meter antennas handle our own SNG uplink in the Ku-band, Two additional antennas for our SNG uplink in the C-band in which the main dish is 9.0 meters in diameter and the backup dish is 7.3 meters wide."

1

2

3

1. The way to the left takes you to the SZMG Ground Station and to the right is the research center for Shenzhen TV's employees.
2. SZMG reminds you in a friendly manner not to walk on the grass.
3. Entrance sign to the transmission building of SZMB in Shenzhen, China

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■ The brand new NOC at SZMG in Shenzhen, China. Some of the TV screens are still dark and will come to life when their own uplink is turned on.

■ Engineer Zhang Bing gestures to the 9.0-meter antenna and says, "This dish is pointed to INTELSAT 904 at 62E and receives the images from the UK Football League."

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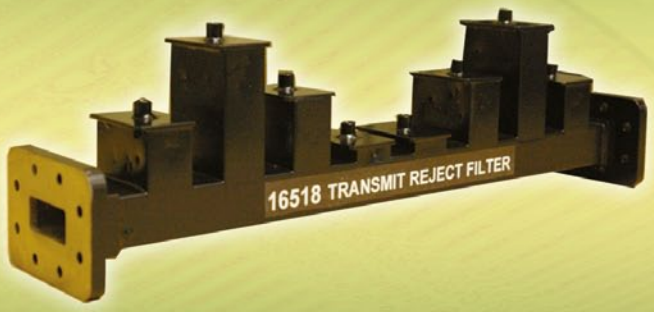

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And now for the highlight of our visit: Shenzhen TV will soon be uplinking their TV signal themselves. "Up until now our TV signal was delivered fiberoptically to the Province uplink in Guangzhou. But we'll soon be uplinking our TV channels from here - we're in the final stages of the installation." They will be using two 9.0-meter antennas to handle this task and as always, one will be the main antenna and the other will serve as the backup.

The actual start date of their own TV channel uplink is not yet set in stone; maybe it'll take place when this issue of TELE-satellite is published.

■ Zhang Bing is “Broadcast & Transmission” engineer at SZMG (Shenzhen TV) and shows us the security camera video monitors for their antenna farm. The other monitors display the incoming SNG signals and transmissions that are being received by one of SZMG’s 20 downlink antennas at this moment.

1

3

1. The satellite signals find their way here: the original signal from the satellite is delivered via fiberoptic cable and converted into the L-band for further processing. SZMG utilizes the most modern technology here.

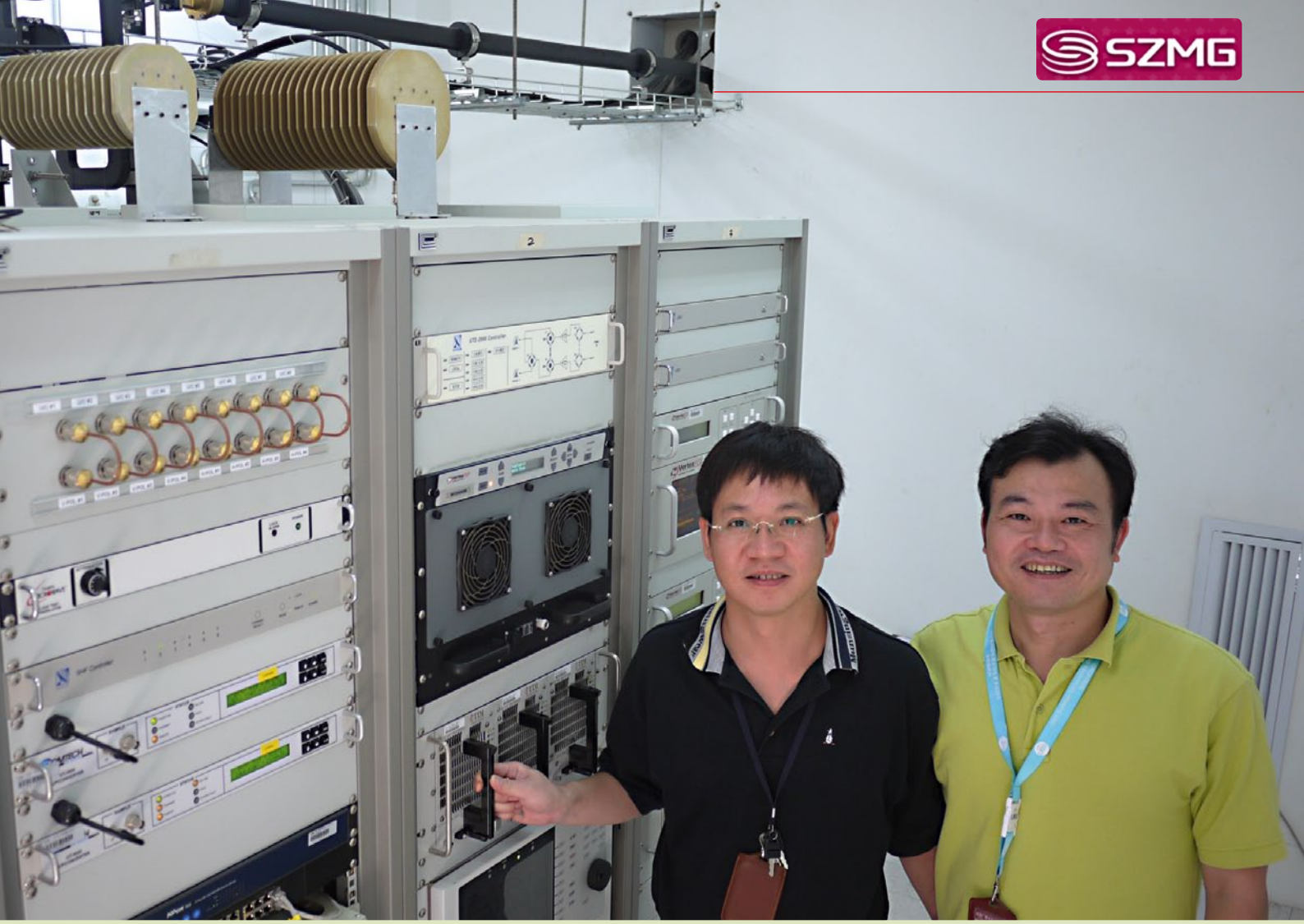
2. Huang Haitao is the Station Manager and leads the small five-man SZMG Ground Station team. He is seen here standing next to the modulators for the uplink of Shenzhen TV that will soon be turned on.

3.In the heart of the satellite uplink station: here is the actual transmitter. Even here everything has a backup. Station Manager Huang Haitao has his hand on the main transmitter: “This one has an output power of 3000W.” The backup transmitter has a 500W power output.

4. The engineering room at SZMG with the modulators.

2

4



Scott's SatelliteGuys

- ***Provides assistance with technical satellite reception questions***
- ***Founded by Scott as a non-profit forum***
- ***All advertising income is reinvested in better technology***
- ***New is the use of the forums through Customer Service employees of digital TV companies***

Scott Gerczkowski's home in Newington outside of Hartford, Connecticut in the USA. Scott operates his satellite forum SatelliteGuys.us from here. On the street side he has two motorized dishes installed; four smaller fixed dishes are mounted on the wall. To the left is a multifocus dish with five LNBs for DirecTV, in the middle is a dish for the DishNetwork eastern arc pointing to 61.5W, 72.7W and 77W plus another antenna for the DishNetwork western arc at 110W and 119W. All the way to the right is another antenna for 110W. This dish is used for automatic scanning that takes place every hour. It can instantly identify when a new channel appears on DishNetwork and posts this information in the forum thread Uplink Report.

How Scott Built up the Largest Satellite Forum in the USA

■Scott Greczkowski with a T-shirt from SatelliteGuys.us in front of his two motorized dishes, on the left a 1.5-meter offset antenna and in the middle a 2.5-meter prime focus dish both of which are currently pointed to 85W.

If in the USA you want to find out more about satellite reception, you go straight to the Internet to the SatelliteGuys.us forum. Numerous threads in this forum provide any and all information not only on the reception of freely receivable satellite signals, but it also provides help for any problems that subscribers to the two satellite PayTV operators in the USA might have. A team of 25 volunteers manage all of the sub forums and also take care of their own specialized subjects. The forum has 175,000 registered users; the occasional users and visitors to the forum make up a multiple of that number.

Founder and organizer of SatelliteGuys is Scott Greczkowski. He lives in Newington, a suburb of Hartford, the capital city of the state of Connecticut in the USA on the American east coast. That's where we paid him a visit since we wanted to get a better understanding of how Scott created the largest satellite forum in the USA. How did he even get started with satellite reception?

"I was an enthusiastic radio listener early on in life", remembers Scott, "When I was young I was always trying to receive radio stations that were further and further away with my AM radio." Scott had his first encounter with satellite reception when he was 13 years old. "In a store that my parents shopped in quite often there was one day a satellite reception system on display." Little Scott was completely fascinated with it and turned the antenna from left to right. He couldn't believe that so many TV channels could be received from so far away.

He had to wait a few years, but by 1991 he was able to acquire his own satellite system. "At 19 years old I moved into my own apartment and managed to convince the landlord to let me erect a 2.5-meter antenna on top of the garage." He paid US$3000 for that system and still remembers his first receiver. "It was a General Instruments model 650, one of the best analog receivers of the time."

A friend of his then started an Internet company. Scott helped him out with that and in 1995 a radio show started in the TechTalkNetwork. It dealt with satellite reception („Friday Night Live with Gary Bourgois" - Gary passed away in 2010) and it was from here that Scott got the idea to record this radio show and encode it as a stream so that he could offer it through his friend's Internet server. "It took three hours to encode one hour of the radio program for the Internet stream." At the same time the company Real Networks developed software that would allow this audio encoding at a much faster rate so that even live transmissions were possible. To test this software, Real Networks contacted a number of Internet service providers including the company from Scott's friend. They found the right guy. Scott immediately put the software into service and carried the radio program live in the Internet. "We had a license for 100 listeners and with our first broadcast we had 80 listeners logged in."

This gave Scott the first sense that the Internet was an interesting medium that he could use to expand his satellite hobby. But the actual breakthrough where Scott would actively use the Internet came a little later. "In 1997 the cable company 'Digital Cable' began their first tests with digital technology and believe it or not selected my area as their test location." Scott was the first private customer that got a digital cable connection. "I sat right down and wrote a report on the operation of the digital TV box that included many

The prime focus antenna is fitted with a C/Ku-band LNB

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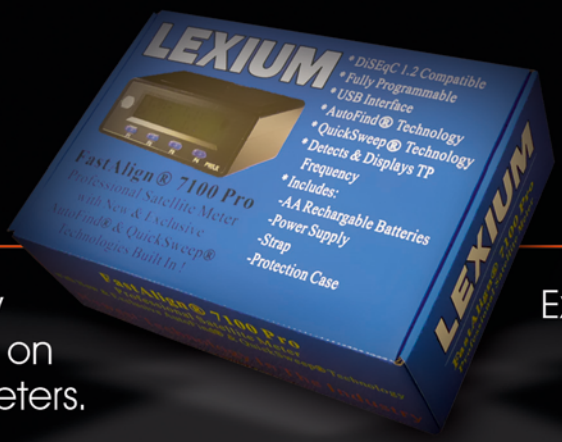

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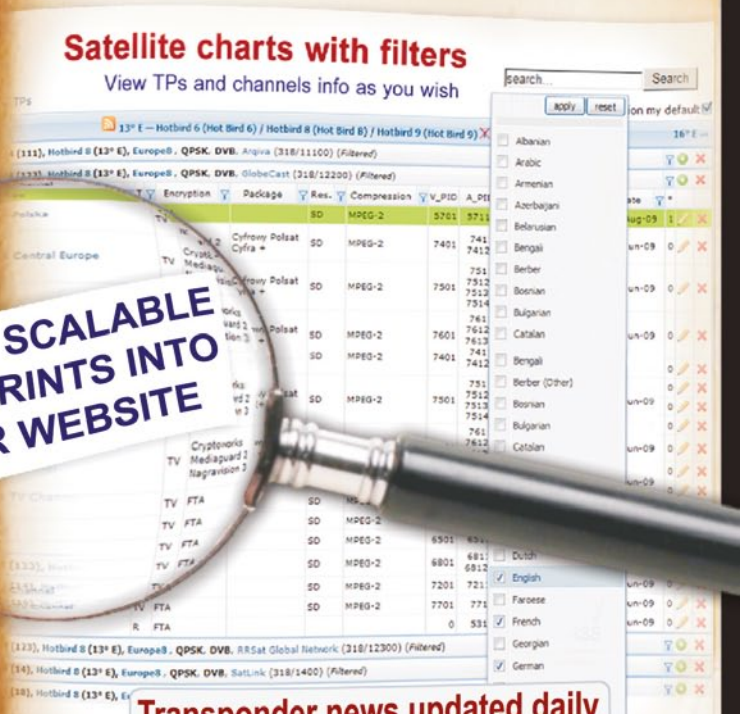

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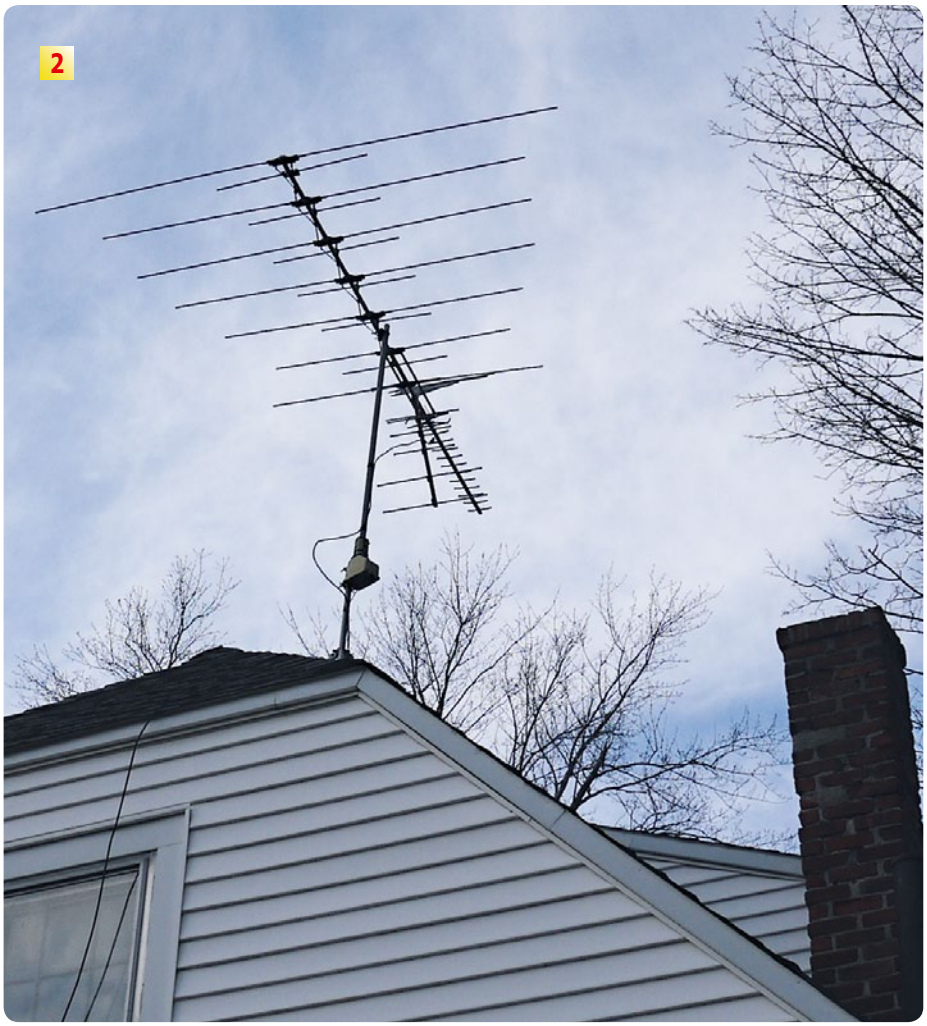
1. How far can his dishes see? Scott pulls his iPhone from his pocket and starts Dishpointer (www.dishpointer.com). The display shows the receivable satellites from his location. "The range covers 50W to 131W."

2. Naturally Scott uses another motorized antenna for terrestrial TV. "Sometimes I can receive the digital TV channels from New York."

3. Who in the USA is the owner of this black Lincoln? Sorry, we won't tell.

pictures." That was his first test report that he from then on continuously kept up to date. He posted this report on the website ttn.nai.net that he was already using for streaming the radio program. He became well-known in the scene practically overnight; even CBS and C-NET contacted him so they could report on his experience with this new digital TV technology. When that cable company expanded their product palette to include Internet service in 1998, Scott was again one of the first customer to get connected This time Scott became active again but for a different reason: "The cable company was unable to deliver what they had promised." Scott founded a Yahoo Group that very quickly had nearly 1000 members; they were all cable customers who were not happy with their Internet service. Scott stood firm and finally at some point the cable company solved the technical problems.



Scott realized that there were many users that had technical problems and that more could be done as a group rather than individually. Scott took this realization and carried it over into satellite reception and in 2000 became a member of the first real satellite forum DBSForum and then later on DBSTalk.

"I began by posting news and rumors

from the satellite scene in the forum", remembers Scott. He became so active in the forum that the operator of the forum eventually started to get uncomfortable. "One day I found that my account was locked", shuddered Scott, "and I was out." That shouldn't have happened to him, not even once. He found a sponsor that provided him with forum software and space on a server - that was the birth of www.SatelliteGuys.us

"It was September 7, 2003 when my own forum went live for the first time!" says Scott and then explains how he came up with that name, "Many small companies use the founder's name as the company name. I wanted to do that too but not so directly. My initials are S and G. I thought about it and wondered what could they stand for? S could only be Satellite and the G?" The answer came to him in a flash: "It's all the members of my forum, it's the Satellite Guys." For a domain Scott chose .us since it's an American forum. "Just recently though I was able to acquire the previously taken .com domain so that now SatelliteGuys can be reached from every important domain."

It has only gotten better since then. Scott pulls up the server statistics on his PC: "In 2004 we had 29 million page views and in 2011 it had jumped to 500 million page views." Since then the curve has gone steeply upwards: "If the trend stays the same, the page views for 2012 will double to one billion."

Scott's forum is viewed mostly in the USA. The server statistics show that 95% of the visitors come from the USA, 4.5% are from Canada with the remainder from the rest of the world. How does Scott finance the costs for such a successful forum? "On SatelliteGuys.us you'll find banner ads, Google ads as well as sponsors", lists Scott (TELE-satellite is one of those sponsors) who then gives us some numbers, "In 2006 we took in about US$10,000 and in 2011 it was roughly US$50,000." Not much is left over from that income: "I use that to finance the server costs, the software licenses and the bandwidth." On top of that there are goodwill actions such as the distribution of T-shirts with the SatelliteGuys.us logo as well as other similar promotions to promote the web site.

Scott emphasizes that he's not running SatelliteGuys.us for the money; he finds that he has a lot of fun providing other satellite viewers that have problems with their satellite system or receivers with a platform to get help. "Numerous forum threads are archived so that you can find help in older forum threads for devices that haven't been available for some time." Scott is proud that his forum can provide answers to even the most exotic problem; at some point, every problem was handled once before. "If you have a technical problem, you can utilize our search function or use Google to find the appropriate forum thread."

In the meantime SatelliteGuys.us has become the first web address for anyone that has a technical problem with their satellite or cable connection. The incredible assortment of tips and tricks that have been collected in the forum have opened up an area that surprisingly is also becoming interesting for commercial providers: "Recently we've become direct partners in customer service for a number of companies", reveals Scott. "DishNetwork works together with us: some of their customer service employees are registered members of my forum and answer questions from other members directly in the forum."

Other companies have noticed SatelliteGuys as a place to better support their customers, Scott offers the companies the resources they need to support their customers at no charge. Besides DISH Network, official support is now offered by Satellite Radio provider Sirius XM and cable television provider Bright House Networks. Scott hopes to one day also get DIRECTV on board as well.

"America is starting to learn that if they need support with their satellite or cable service to come to SatelliteGuys

3

■ Scott works as an IT Manager at a large company in Connecticut. His office can be found on the 29th floor of the 'Goodwin Square Building', the second tallest building in Hartford.

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first, and that is something I am very proud of!", says Scott with a smile.

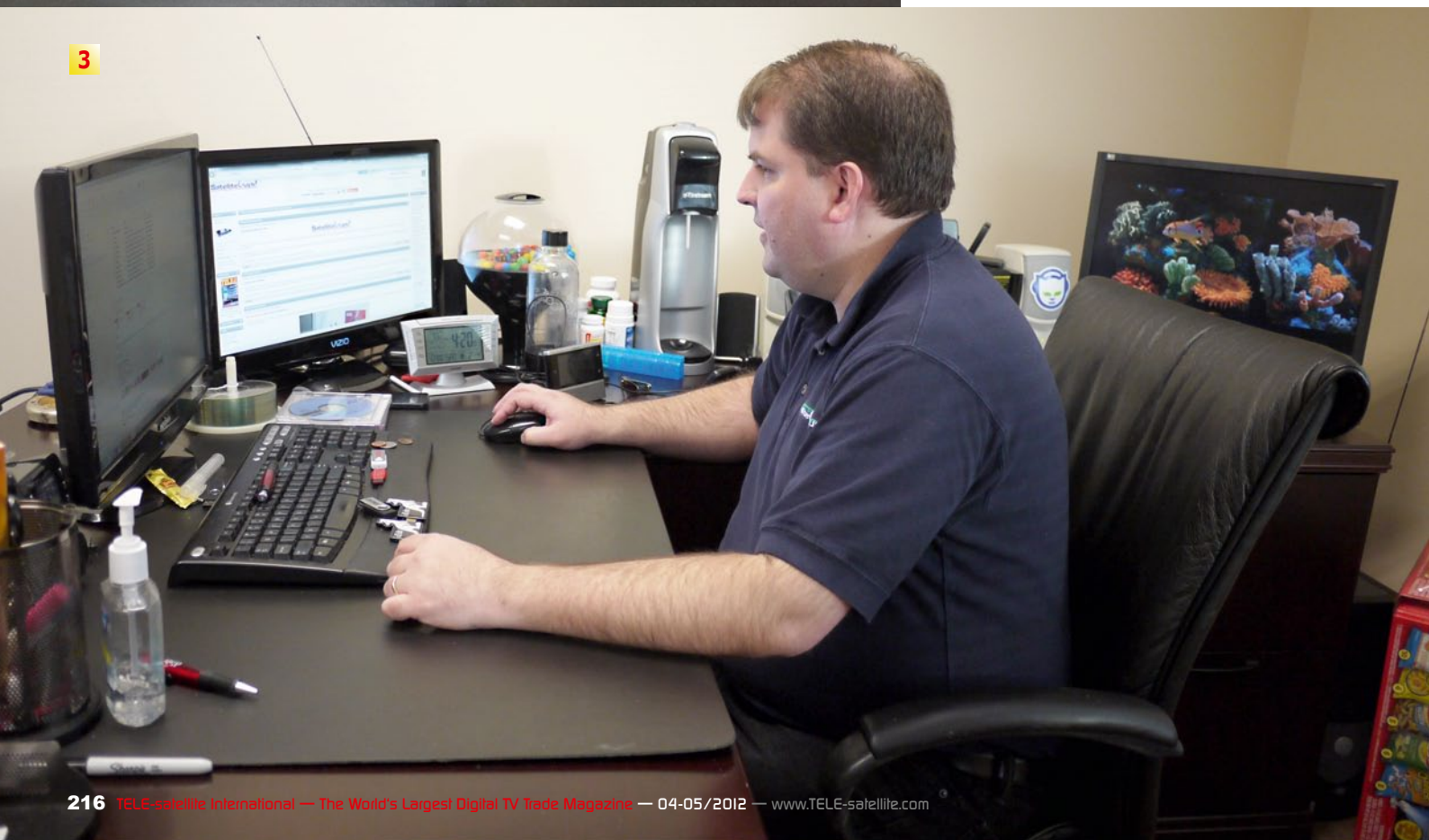
Scott never planned for this to happen although deep down he wanted it: he found an expansion of SatelliteGuys.us that other digital TV companies should stop and think about: instead of operating their own legally liable question and answer forum, their customer service employees could answer questions on an external forum such as SatelliteGuys.us.

Scott's original idea to provide a platform for other satellite enthusiasts to get help with their technical questions is well on its way to becoming self-sufficient and becoming the customer service point for a number of digital TV companies. Scott managed to discover a very interesting perspective of the future making it possible for his forum to become even much larger and more attractive.

1. As the IT Manager, Scott is responsible for his employer's 14 servers.

2. New from Sirius and being tested by Scott: an indoor radio from satellite radio provider Sirius. "The Sirius signal is so strong that you don't need a direct view of the satellite. As long as you're relatively close to the window, the signal strength is good enough for this small antenna." The unit not only can receive the Sirius satellite radio signal, it can also receive Internet radio through a WiFi receiver.

3. Scott in his office. From here he keeps an eye on the performance of the SatelliteGuys.us server



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Emerging Trends & Technologies at CommunicAsia 2012

Victor Wong, Project Director of Communications Events, Singapore Exhibition Services (SES)

Singapore is the well established location of Asia's most established infocomm technology (ICT) and media communications event: the CommunicAsia 2012 exhibition and its sister event, the BroadcastAsia 2012 exhibition, both held from 19 to 22 June 2012. CommunicAsia 2012 is held at the Marina Bay Sands Singapore and BroadcastAsia 2012 at Suntec Singapore.

As the premier global business networking platform and launch pad for copmanies to introduce their newest technoligies and solutions, both CommunicAsia 2012 and BroadcastAsia 2012 will highlight pertinent industry developments and address emerging trends as well as provide enhanced networking opportunities for industry professionals from around the world. The event will present Asia's largest contingent of satellite companies witnessed at any single event. Another event, EnterpriseIT held in conjunction with Com-

municAsia, will showcase innovative applications and end-to-end solutions across the entire value chain and transforms the way companies operate and communicate internally and beyond.

"CommunicAsia and BroadcastAsia today are the only truly international shows in Asia where business professionals across a range of industries come together in one city for one week. Strong support and endorsement from over 20 leading trade associations including Asia-Pacific Broadcasting Union (ABU), Asia-Pacific Satellite Communications Council (APSCC), Asia-Pacific Telecommunity (APT), Singapore Infocomm Technology Federation (SiTF) and others, helps to strengthen the mix of industry-leading exhibitors and visitors from across the globe," says Mr. Victor Wong, Project Director of Communications Events, Singapore Exhibition Services (SES). "We are proud to provide an efficacious launch pad for our exhibitors to showcase the latest and best that technology has to offer. This exclusive platform continues to play a pivotal part in driving the conversation for development within the industry."

Following the success of last year's event, which attracted a total of over 53,000 professional attendees from more than 100 countries, attendees to this year's shows can look forward to a myriad of the newest technologies, products and solutions from 2,000 multinational and small and medium companies. Visitors can avail of opportunities to listen to industry luminaries, network with business leaders and government officials and forge business partnerships.

CommunicAsia2012 will feature breakthrough developments in NextGen Networks and satellite technology, as well as a sneak peek into the latest market-ready devices and mobile apps and solutions and dynamic industry deals set to alter ICT in Asia and beyond. Leading returning exhibitors include Falcon Interactive, FiberHome, Globecast, Inmarsat, Intelsat, Irdeto, Netop Technology, PCCW Global, Prysmian, Rosenberger, ST Electronics, Tektronix and Tata Communications; new participants include Anritsu, Aver Information, Hitachi Critical Facilities Protection and Novelsat.

There will be more than 20 international group pavilions, including representation from Australia, Belgium, Brunei, Canada, China, France, Germany, India, Indonesia, Israel, Korea, Malaysia, Singapore, Taiwan, UK, USA and more. Five Techzones, focusing on 'Fibre' for NextGen Services, Cloud Services and Security, M2M, mCommerce and Telepresence – will feature cutting-

Exhibition halls are always crowded with professional visitors at CommunicAsia

edge products, technologies and solutions, presenting the most relevant and current solutions for businesses and enterprises across the value chain.

The CommunicAsia2012 Summit will offer distinctly titled forums and workshops that address the most compelling issues and challenges for the ICT industry with the spotlight on mobile-driven trends this year. Extended sessions dedicated to mobile-focused topics encompassing m-Commerce, Mobile VAS, and Mobile Security issues will be added to the conference, alongside the latest tracks on Mobile Payments, Mobile Health, Customer Experience Management (CEM), and OTT Business Models.

In conjunction with CommunicAsia2012, EnterpriseIT2012 is expected to take up 40 per cent of exhibition space at Marina Bay Sands, with exhibitors comprising international software and IT systems providers, and companies offering enterprise solutions. These include key companies such as Consistel, CrimsonLogic, Emerson Network Power, Extreme Networks, Mindwave Solutions, NComputing, Planet Technology Corporation, Providence Solutions, SecureAge Technology, Starvision, Stellent Solutions and Terra Systems. In addition, the CommunicAsia2012 Summit sessions will also feature tracks dedicated to enhancing enterprises' capabilities, especially towards mobile technologies and applications such as M2M, mCommerce, Cloud Computing and more.

BroadcastAsia2012 will showcase a global array of the latest technologies, applications, equipment and solutions in Film, Audio and TV with a spotlight on Multi Streaming Technologies, Hybrid Broadcast Broadband TV (HbbTV), Playout Services, Pro-Audio Technology, Over The Top (OTT) Technology, Cloud Broadcasting and Digital Radio. Returning exhibitors at the show include ATG, Blackmagic, Evertz, EVS, Gospell, Grass Valley, Harmonic, Harris, Miranda, Salzbrenner Stagetec, Sennheiser, Snell, Tektronix, VSN and more. The exhibition welcomes some new exhibitors: Envivio, Hitachi Kokusai Linear, Ideal Systems, Nippon Electronics, NTT Electrics, Pliat and Toshiba among others - and locally-based companies Alphatron, AV Lite; Broadcast Professional, Cathay Photo, H Warta, Lemo, and more.

Visitors can look forward to nine international group pavilions and a larger Cinematography/Film/Production Zone on the show floors. Backed by an international panel of speakers and industry veterans, the BroadcastAsia2012 International Conference and Creative Content Production Conferences return this year with a behind-the-scenes look at the latest technologies and techniques panning out in the market. With the growing momentum behind Smart TVs, Cloud Broadcasting, Multi-platform and OTT delivery and the challenges of managing an effective PayTV model as well as digital asset management, the BroadcastAsia2012 International Conference will offer more sessions to address the latest needs and technologies in the broadcasting industry.

In its 3rd successful instalment, the Creative Content Production Conference will return with two days of conference sessions and an add-on day of workshops this year. The conference will comprise a mix of topical issues, case studies and hands-on sessions to address the evolving challenges faced by production professionals from new media and visual effects to editing and IP rights.

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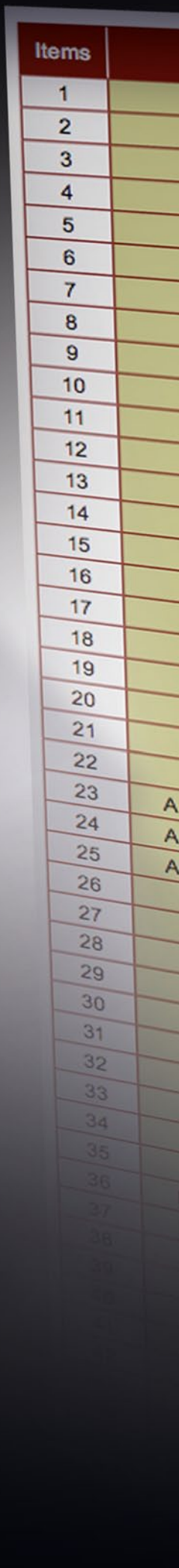

DVB S2

VCM Signal Reception

- *allows more than one stream for each transponder*
- *dynamic change of FEC coding rates*
- *different content can bes assigend to different transmission modes*
- *compatible tuner needs function to determine coding rates*
- *- VCM signals only receivable with compatible tuners*

Satellite	Frequency (MHz)	Symbol Rat (KSps)	Mode
Astra 1G 31.5E	11914 H	27500	SK/VCM
Astra 1G 31.5E	11875H	29999	PSK CCM
Astra 1G 31.5E	11895V	29999	PSK CCM
Astra 1G 31.5E	11973V	29999	APSK CCM
Astra 1G 31.5E	12051V	29999	APSK CCM
Astra 1G 31.5E	12109H	29999	APSK CCM
Astra 1G 31.5E	12187H	29999	8APSK CCM
Astra 1G 31.5E	12262H	3000	32APSK CCM
Astra 1G 31.5E	12284V	29999	16APSK CCM
Astra2 28.2E	12363V	29999	32APSK CCM
Badr/Eurobird 26E	12708 H	5000	ACM
Eutelsat W6 21.6E	11566 H	5625	
Eutelsat W6 21.6E	10964 H	1000	
Eutelsat W6 21.6E	11413 V	185	
Eutelsat W6 21.6E	11327 V	2	
Eutelsat W6 21.6E	11308V	5	
Eutelsat W6 21.6E	11186H	20	
Eutelsat W6 21.6E	12647V	12	
Eutelsat W6 21.6E	11628V	5	
Eutelsat W3 7E	11509V		
Eurobird 4A 4E	11548 H		
mos 2 Middle East 4W	11458 V		
mos 2 Middle East 4W	11746 H		
mos 2 Middle East 4W	12053 H		
Atlantic Bird 1 12.5W	12168 H		
Atlantic Bird 1 12.5W	12528 H		
Atlantic Bird 1 12.5W	12712 V		
Telestar12 15W	12718 H		
Telstar12 15W	10996 H	3	
Telstar12 15W	11495 H	07	
NSS 7 22W	11497 V	50	32APS
NSS 7 22 W	11571 H	5595	
NSS 7 22 W	11574 H	5108	
NSS 7 22 W	10968 H	5108	32APS
Hispasat 1C/1D/1E 30W	11654 H	1033	8PSK-FE
Hispasat 1C/1D/1E 30W	10889 H	3671	8PSK-FEC 3
Hispasat 1C/1D/1E 30W	11789 V	29999	32APSK-FEC 3/4-
Hispasat 1C/1D/1E 30W	11800 V	3750	16APSK-ACM/VCM
Hispasat 1C/1D/1E 30W	11853 V	5236	8PSK – FEC 2/3 – ACM/VCM
Hispasat 1C/1D/1E 30W	11909 V	8947	16APSK – FEC 2/3 -ACM/VCM
Hispasat 1C/1D/1E 30W	11924 V	7199	8PSK – FEC 2/3 – ACM/VCM
Hispasat 1C/1D/1E 30W	12013 V	5667	8PSK – FEC 3/5 – CCM
Hispasat 1C/1D/1E 30W	12151 V	30000	32APSK – FEC 3/4 – ACM
Hispasat 1C/1D/1E 30W	12591 H	3700	QPSK – FEC 2/3 – ACM
Hispasat 1C/1D/1E 30W	11018 V	30000	

How a tuner for VCM operates
- an indepth look into today's most advanced transmission technology

Jacek Pawlowski

The DVB-S2 standard, published in 2003, is a significant step forward from DVB-S. Its most obvious advantage is a better spectral efficiency as compared to DVB-S. Within the same transmission channel you can send up to 30% more data. Its performance is very close to the Shannon limit – only 1 dB below, so in fact one should not expect any further improvement in data rate achievable within a given transmission channel. However, there is another aspect of digital data transmissions – forward error correction or FEC.

Although the actual implementation is very complex, the essence of FEC is simple. Having digital information (e.g. video, audio, Internet data) the encoder divides it into packets or frames and adds extra bits calculated in a special way from the useful digital content. Those extra bits are transmitted together with the "useful" bits. If some of the bits, either the useful ones or the additional ones, are distorted (1 becomes 0 or vice versa), the reception system which "knows" what the relationship between the normal and additional bits should be, can do sophisticated calculations and restore the original form of useful bits.

DVB-S2 introduced new algorithms for FEC: BCH and LDPC. BCH (Bose-Chaudhuri-Hocquenghem) replaced Reed Solomon coding used in DVB-S. LDPC (Low Density Parity Check) replaced Viterbi inner coding. LDPC, a method invented in 1960's by Gallager, became feasible only recently after advances in IC technology had been made. LDPC uses the following inner code rates: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10.

These numbers are quite familiar for satellite fans. The meaning of them is simple – this is the ratio of the useful bits to the sum of useful bits and additional bits added for error correction. As you can deduce, the most effective inner coding rate is 9/10 but at the same time is most vulnerable to interference. Inner coding rate 1/4 is very robust as for one useful bit there are three additional bits for error correction but, of course, the efficiency of the transmission is very poor.

In the old days of DVB-S we had to use one fixed inner coding rate for one transponder. One transponder transmitted only one transport stream. Every TV channel or the other service included in the transport stream was transmitted with the same spectral efficiency and interference robustness because the same inner coding was used for the whole transponder.

DVB-S2 offers more flexibility in this aspect. Except for CCM (Constant Coding and Modulation), we have two more options: VCM (Variable Coding and Modulation) and ACM (Adaptive Coding and Modulation). VCM and ACM are the methods to send more than one transport stream within the same carrier (same transponder). In VCM, we can set different coding rates for different transport streams and in ACM we can even dynamically change the coding rates depending on the feedback information from the reception system.

While ACM is very useful in point to point transmissions where there is only one recipient of the information, VCM can be quite useful for satellite TV transmission for a large audience. The content provider may choose to transmit the very basic package of the SD TV channels with a strong error correction – thus making it receivable also at the edges of the satellite footprint, while the premium HD channels may be transmitted with weaker correction, so that their reception is guaranteed only in the central part of the footprint where most of the subscribers live. To achieve stronger or weaker error correction, the provider chooses both modulation type (e.g.: QPSK or 8PSK) and inner coding rate.

As already described in TELE-satellite (see issue 12-01/2012), there are already transponders transmitting in VCM and ACM format. However, there are still quite few receivers or receiver cards available today that can receive VCM signal. How does the tuner of such a receiver differ from its standard CCM brother? Before we discuss the receiver front end suitable for VCM transmissions, let us focus first on the transmitter part – DVB-S2 modulator. Figure 1 explains the principle of operation of a DVB-S2 modulator with MIS (Multi Input Streams) feature.

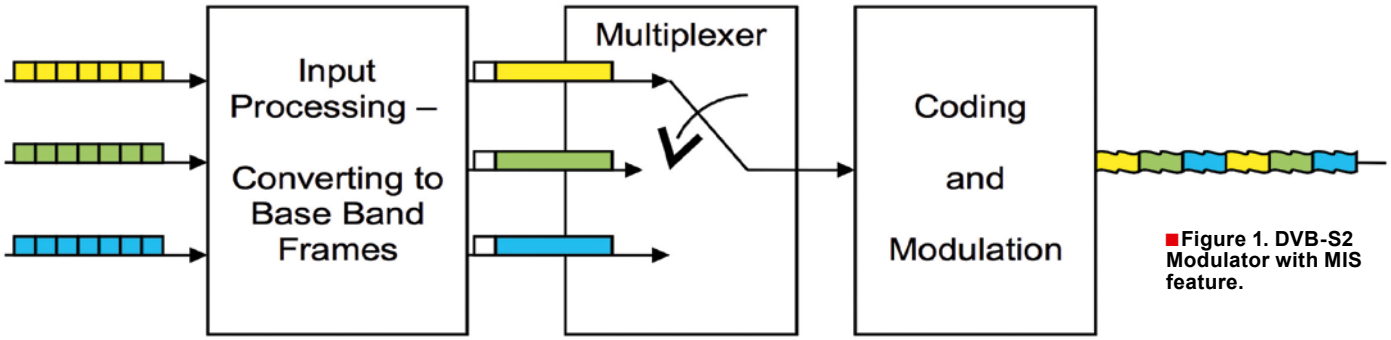

Figure 1. DVB-S2 Modulator with MIS feature.

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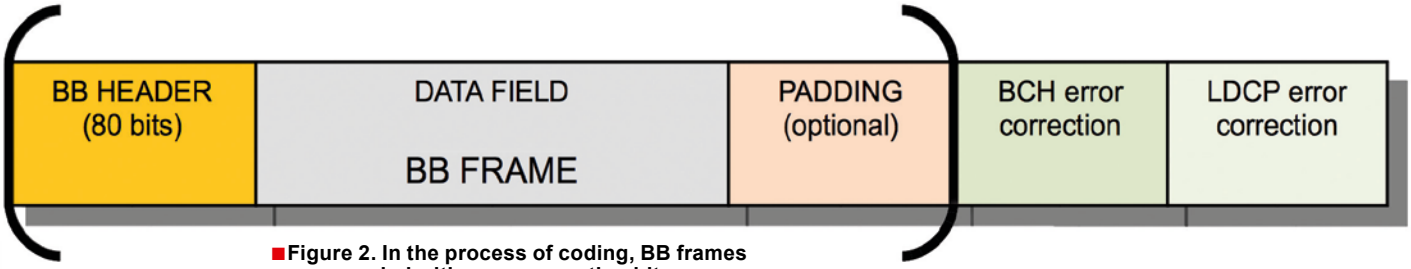


Figure 2. In the process of coding, BB frames are appended with error correction bits.

Three exemplary transport streams (yellow, green and blue) at the input of the modulator consist of rather short transport packets. The TS packets are converted to longer BB (Base Band) frames. They are either 16 or 64 kilobytes long. In fact, there are more operations done in this module (like mode adaptation, stream adaptation) but as they are not so relevant for understanding the principle of operation, there is no need to describe them here. Then, BB frames are time-multiplexed on the same carrier. In the process of coding, BB frames are appended with error correction bits (see Figure 2). Depending on the user settings, LDPC coding rates can be different for different streams. When no data is present, the modulator pads incomplete BB frames or inserts dummy BB frames if needed. Multiplexed BB frames are then interleaved and modulated.

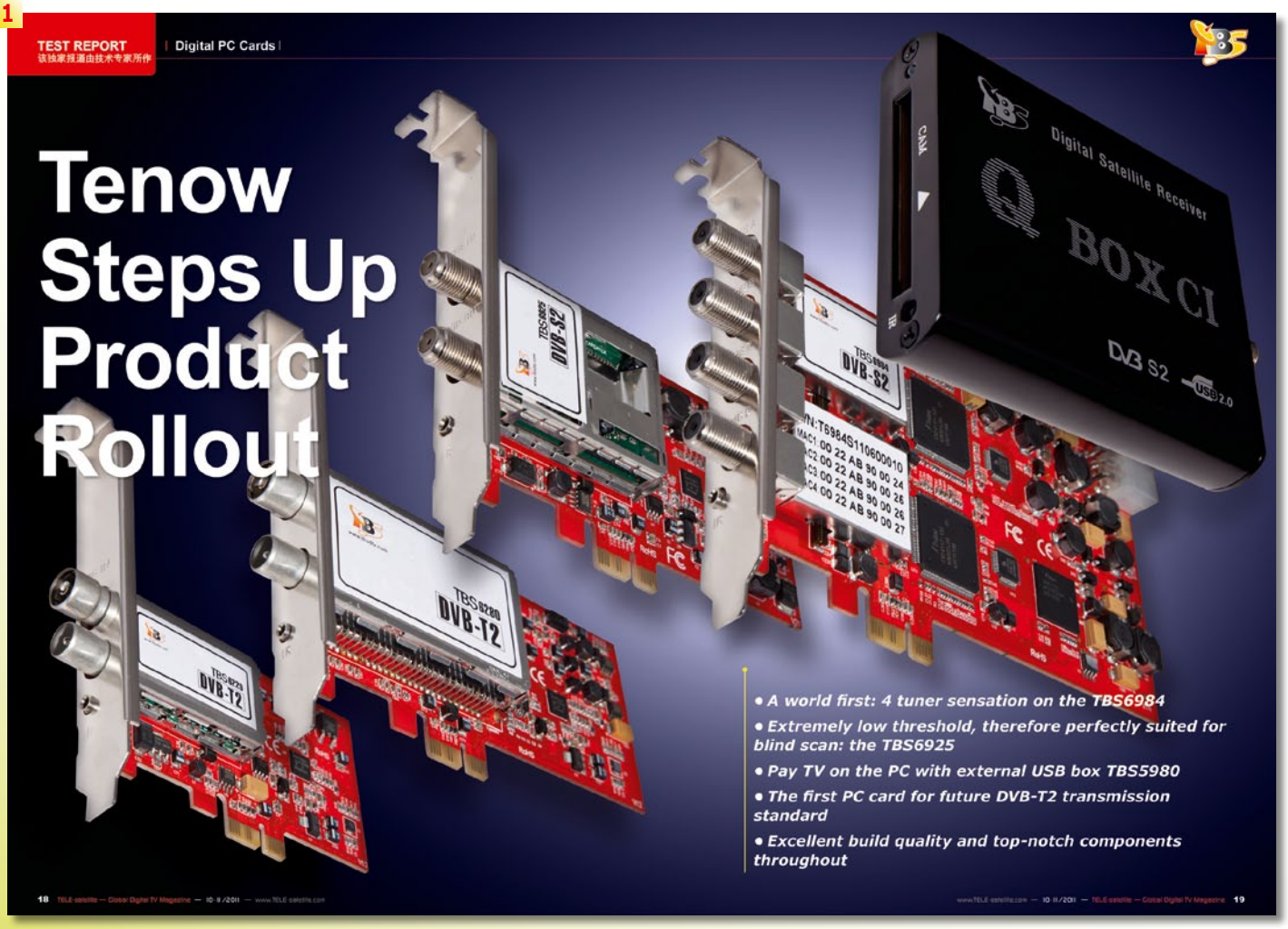
As mentioned earlier, each transport stream (converted to BB frames) can have its own modulation: QPSK, 8PSK, 16APSK or 32APSK and inner coding ratio.

Except for the BB header, DVB-S2 also uses PL (Physical Layer) headers. The PL header is always transmitted using a robust modulation and strong FEC rate. This helps the receiver lock on the signal, as well as it provides the information necessary to appropriately demodulate the remainder of the PL frame. The first thing the receiver does when tuned to a given frequency with a given symbol rate is looking for a PL header.

A block diagram of the reception system is shown in Figure 3. This is in fact a partial and simplified block diagram of a VCM compatible DVB-S2 receiver. Signal from an LNB is converted in the L-Band tuner to a pair of quadrature signals: I and Q, which are then converted to the digital domain in the dual analog-to-digital converter. Such architecture is typical for most of the contemporary RF devices – not only satellite TV receivers.

The DVB-S2 demodulator, after locking and processing the PL header, learns what is inside the signal: how many different transport streams, what modulation they use and what their FEC settings are. At the output of the DVB-S2 demodulator we get BB frames along with additional error correction

1



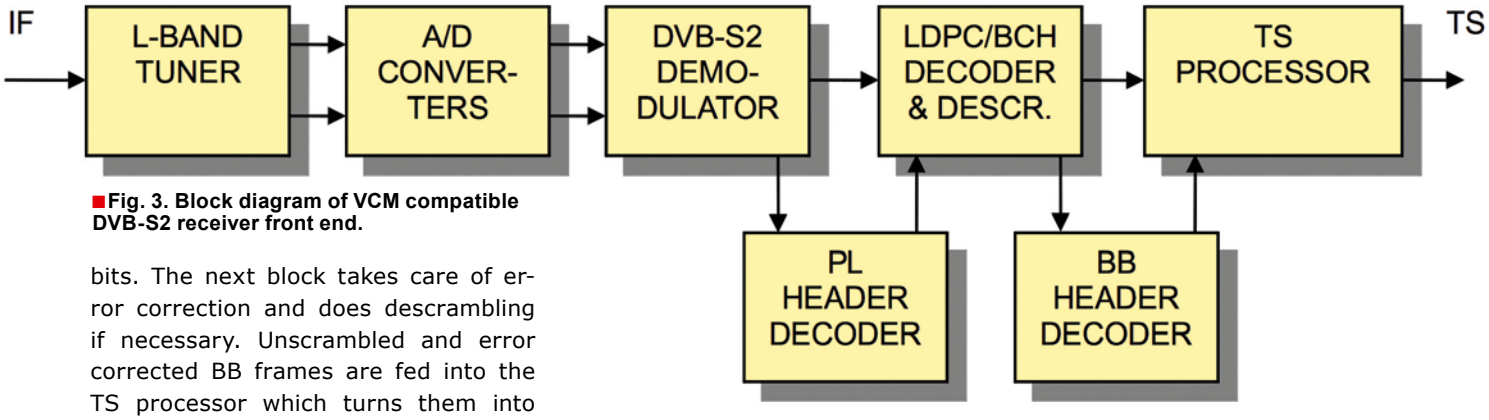


Fig. 3. Block diagram of VCM compatible DVB-S2 receiver front end.

bits. The next block takes care of error correction and does descrambling if necessary. Unscrambled and error corrected BB frames are fed into the TS processor which turns them into familiar transport stream packets. The transport stream is then processed as in any DVB receiver – a desired TV's or radio channel's TS packets are filtered out and converted to a HDMI signal or to analog video and audio in digital-to-analog converters.

As you can see, the changes in hardware architecture are not so fundamental but except for introducing them, also software must be re-written. For example, today's receivers assume that one transponder carries just one transport stream with a given modulation and FEC ratio. New receivers must be able to assign more than one transport stream to one transponder. From the end user's perspective, a VCM DVB-S2 transponder is like a few classical DVB-S2 transponders overlapped one over another on the same frequency.

If you would like to transmit the VCM signal as a couple of ordinary CCM signals, you would need as many classical transponders as many transport streams you use. And because such CCM transponders would have to be separated in frequency spectrum, the total bandwidth occupied by them would be greater than the bandwidth occupied by one VCM transponder. That's the basic advantage of VCM.

The sky seems to be the limit for the excellence in satellite bandwidth utilization.

1. TELE-satellite first introduced MIS transmission technology (based on VCM) in TELE-satellite 10-11/2011 in a testreport about the TBS6925 PC card manufactured by Tenow (http://www.tele-satellite.com/TELE-satellite-1111/eng/tenow.pdf)...

2. ... and then again in a more detailed reception report in TELE-satellite 12-01/2012 (http://www.tele-satellite.com/TELE-satellite-1201/eng/tenow-TBS6925.pdf)

2

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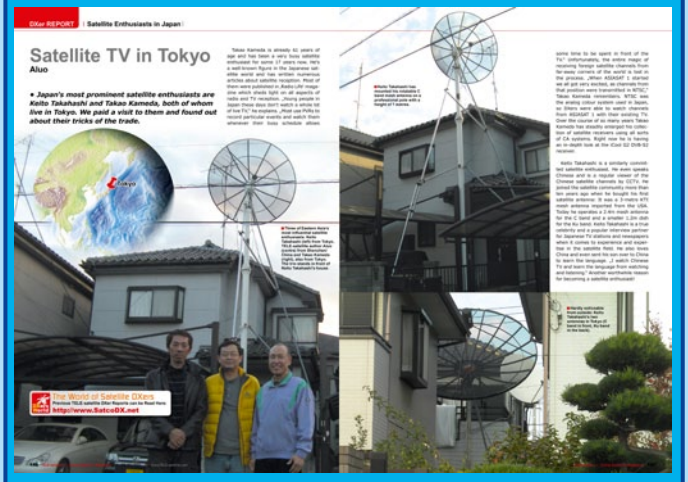

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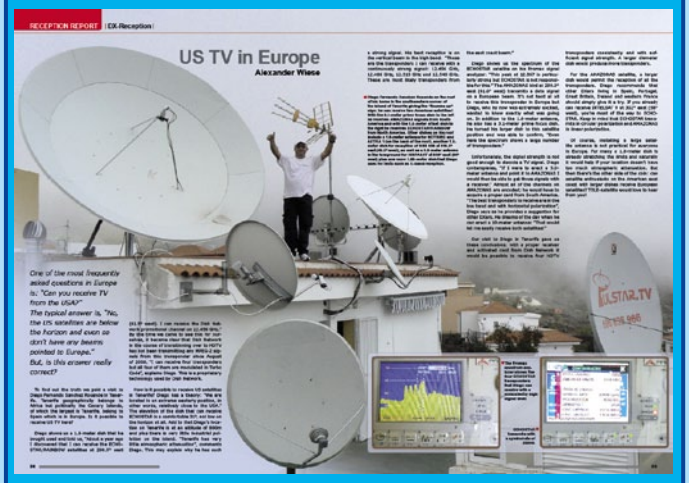

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Tony — Canada

Tony Di Rienzo, Toronto

SATELLITE DX | Portrait |

Tony Di Rienzo

Tony moved his equipment cabinet away from the wall to show us his cabling. He can connect up to six receivers on his antennas. A 4DTV receiver functions as a central power supply for the LNBs and also acts as the positioner for the actuator motor. All additional receivers are connected as slaves via a splitter or DiSEqC switch.

Tony Di Rienzo in his backyard standing next to his 8-meter dish. In front of him is one of his 120cm antennas with 8tab motor.

Tony Di Rienzo should be a familiar name with TELE-satellite readers. In the 03/2006 issue, TELE-satellite reported on his C-band reception experiments using a small dish. That report created quite a stir on the satellite scene. We wanted to know what Tony was up to so

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Leo — Belgium

Leo Stouten, Leuven

SATELLITE DX | Portrait |

Leo Stouten

A satellite DXer in the heart of Europe! In the city of Leuven, home to Europe's oldest university (dating back to the 13th century), which happens to be near Brussels, the "capital" of the European Union, Leo Stouten has his antenna farm erected on a small row of attached houses. He has been retired for quite some time yet at 74 he is at the prime of life. Only recently did he acquire a DRM radio (Digital Radio Mondiale) because he wanted to hear what it sounded like listening to AM digital radio signals.

But his true love has always been satellite reception. It began with him back in 1987 with a 1.2-meter offset dish and Nokia's first analog receiver. He has since stuck with the Nokia name and is today using the Nokia Mediamaster, although for blind scanning he opted for a receiver from Forrecstar. 1996 was the year of the motorized antenna for him: a 1.2-meter Gregorian antenna; an antenna with a second reflector for the LNB. This kind of dish gives the same performance as a standard 1.5-meter antenna. Leo is very proud to say, "I can now receive Nilesat at 7° west, just not with that much bad weather reserve." His motorized setup makes it possible for him to receive all the Ku-band satellites from 70° east to 60° west.

Leo Stouten on his roof next to his 1.2-meter motorized Gregorian antenna.

"I did have some big problems with the motor at first", explains Leo, "This is the fifth motor I've had to install." Fortunately, this last motor has been working perfectly for several years now. Leo is extremely satisfied with his antenna system, the signals from which he observes on his 16:9 TV. "The LNB has a noise figure of 0.2 dB", admits Leo, "I couldn't ask for a better system." Leo, who worked for many years for Philips in their computer department, is very active in Belgium's satellite scene and is well-known by many in the satellite industry. He regularly visits the satellite trade shows ANGA in Cologne and IBC in Amsterdam. You might bump into him there some day!

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Grandfather — South Africa

Ivor Cartmell, Johannesburg

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„Satellite Grandfather"

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BSH — Belgium

Aimé Holvoet, Brussels

SATELLITE DX | Portrait |

Belgian Satellite Hoppers

A bunch of Belgian satellite DXers have found a wonderful name for their club: Belgian Satellite Hoppers. This association was founded in 1999 and since then its membership base has increased to almost 100 very active persons.

One of the most enthusiastic among them is Aimé Holvoet, who started his career in 1991 with a 1.2 m dish. In 1994 he added an antenna with a 3.1 m diameter and in 1996 he installed the object of all his pride: a professional 4m pole was anchored in his garden with a concrete block of three cubic meters and a 3,7 m KTI mesh antenna complete with a

Aimé's antenna is so huge you can hardly fit the LNB head (above) and Aimé head (below) on one picture. On the left side in the background you can see another 1.8 m

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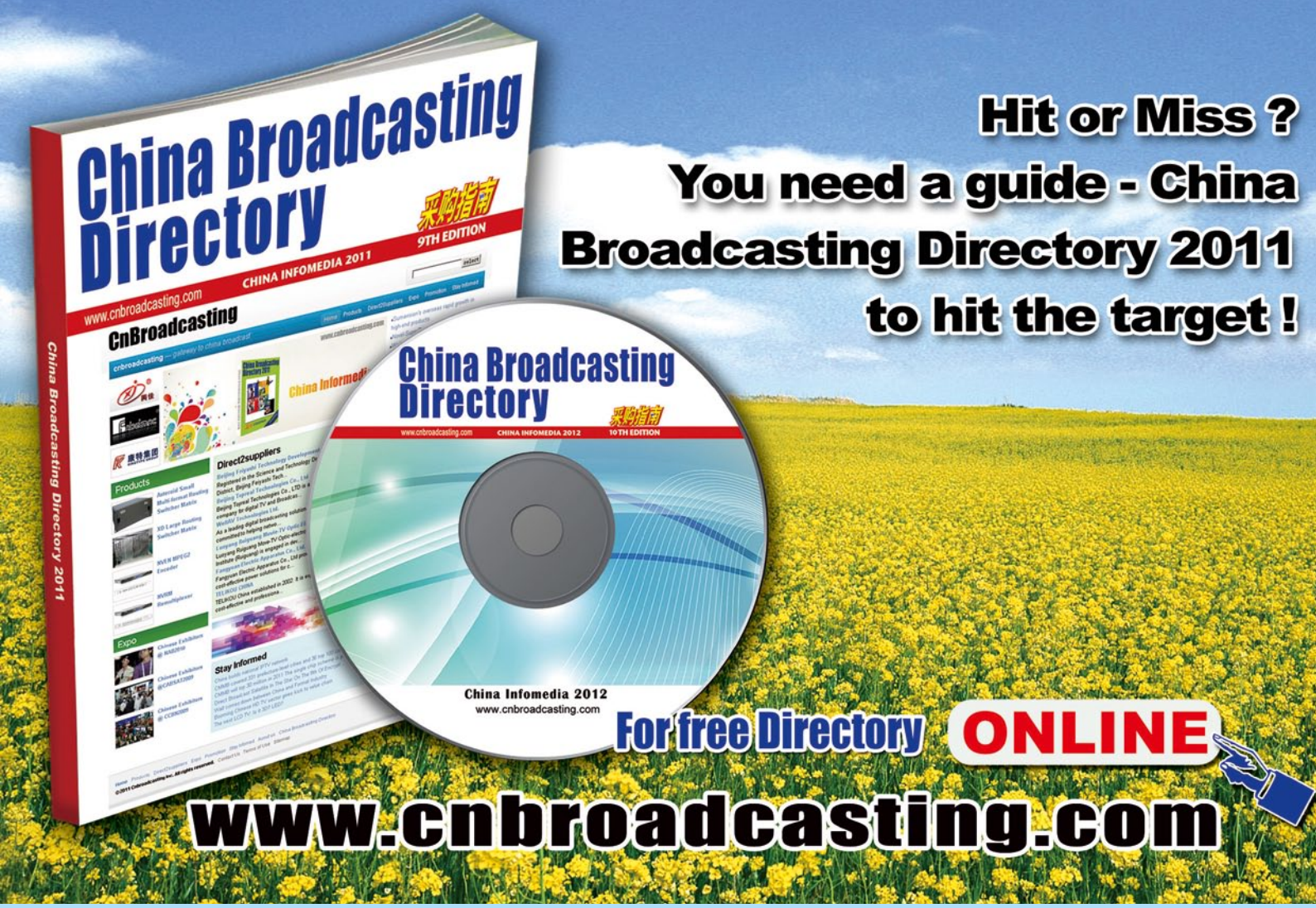

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DVB-S DVB-S2 288°E (72°W) AMC 6
DVB-S 297°E (63°W) ESTRELLA DEL SUR
DVB-S2 299°E (61°W) AMAZONAS
DVB-S DVB-S2 330°E (30°W) HISPASAT
DVB-S 352.5°E (7.5°W) ATLAN
DVB-S2 359.2°E

DIGITAL TV
Transponder Streams around the WORLD

Highlights:

ATSC with HDTV (USA)
ATSC with 1 Single Channel (USA)
ATSC with 2 Audio PIDs for 1 Video (USA)
ATSC with High Null Packets (USA)
ATSC with Wrong TS ID (USA)
ATSC Fully Packed (USA)
ATSC with Channel Name Missing (USA)

DMB-TH with HDTV (China)
DMB-TH with MHEG (Hongkong)
DVB-C in Nagravision 3 (Portugal)
DVB-S with 3D (ASTRA)
DVB-2 with MPEG2 and H.264 mix (PALAPA)
DVB-S in MIS (ATLTANIC BIRD)
DVB-S2 with HDTV (HOTBIRD)
DVB-S2 with 3D (TURKSAT)

DVB-S2 with HDTV (AMAZONAS)
DVB-S2 with 3D (THOR)
DVB-S2 with 1Seg mobile TV (AMC 6)
DVB-T with radio (Netherlands)
DVB-T with MHEG (UK)
DVB-T as retransmission off satellite (Qatar)
DVB-T2 with HDTV (Germany, UK)
ISDB-T with 1Seg mobile TV and HD (Brazil)

ATSC terrestrial

US USA

ATSC **US**

Transportstream ID 751 Recording TELE-satellite
Transmitter Atlanta Channel 19 *Remark* *1 Single Channel*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	16521.84	85.17	WGCL-TV
8182	0x1FF6	?	-	1831.31	9.44	N/A
52	0x0034	AC3 Audio	-	460.87	2.38	WGCL-TV
512	0x0200	AC3 Audio	-	263.35	1.36	N/A
8191	0x1FFF	Null Packets	-	182.61	0.94	N/A
8187	0x1FFB	MGT	-	60.20	0.31	N/A
0	0x0000	PAT	-	15.08	0.08	N/A
48	0x0030	PMT	-	15.04	0.08	WGCL-TV
1	0x0001	CAT	-	15.04	0.08	N/A
4108	0x100C	EIT	-	6.65	0.03	N/A
4620	0x120C	ETT	-	4.46	0.02	N/A
8186	0x1FFA	?	-	1.57	0.01	N/A
4109	0x100D	EIT	-	1.44	0.01	N/A
4111	0x100F	EIT	-	0.96	0.00	N/A
4110	0x100E	EIT	-	0.96	0.00	N/A
4621	0x120D	ETT	-	0.87	0.00	N/A
4125	0x101D	EIT	-	0.66	0.00	N/A
4104	0x1008	EIT	-	0.66	0.00	N/A
4102	0x1006	EIT	-	0.66	0.00	N/A
4101	0x1005	EIT	-	0.66	0.00	N/A
4099	0x1003	EIT	-	0.66	0.00	N/A
4098	0x1002	EIT	-	0.66	0.00	N/A
4124	0x101C	EIT	-	0.52	0.00	N/A
4123	0x101B	EIT	-	0.52	0.00	N/A
4122	0x101A	EIT	-	0.52	0.00	N/A
4117	0x1015	EIT	-	0.52	0.00	N/A
4116	0x1014	EIT	-	0.52	0.00	N/A
4115	0x1013	EIT	-	0.52	0.00	N/A
4114	0x1012	EIT	-	0.52	0.00	N/A
4127	0x101F	EIT	-	0.44	0.00	N/A
4126	0x101E	EIT	-	0.44	0.00	N/A
4107	0x100B	EIT	-	0.44	0.00	N/A
4106	0x100A	EIT	-	0.44	0.00	N/A
4105	0x1009	EIT	-	0.44	0.00	N/A
4103	0x1007	EIT	-	0.44	0.00	N/A
4100	0x1004	EIT	-	0.44	0.00	N/A
4097	0x1001	EIT	-	0.44	0.00	N/A
4096	0x1000	EIT	-	0.44	0.00	N/A
4121	0x1019	EIT	-	0.35	0.00	N/A
4120	0x1018	EIT	-	0.35	0.00	N/A
4119	0x1017	EIT	-	0.35	0.00	N/A
4118	0x1016	EIT	-	0.35	0.00	N/A
4113	0x1011	EIT	-	0.35	0.00	N/A
4112	0x1010	EIT	-	0.35	0.00	N/A
4616	0x1208	ETT	-	0.22	0.00	N/A
4637	0x121D	ETT	-	0.17	0.00	N/A
4634	0x121A	ETT	-	0.17	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only
Duration: 30 Sec, File Size: 83 MB **ts.TELE-satellite.com/ATSC/US/Atlanta-Ch19-1201.ts**
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Duration: 5 Min, File Size: 740 MB **www.transponderstream.com/ATSC/US/Atlanta-Ch19-1201.ts**

ATSC **US**

Transportstream ID 527 Recording TELE-satellite
Transmitter Hartford Channel 20 *Remark* *2 Audio PIDs for 1 Video*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	10878.98	56.05	WCCT-DT
8191	0x1FFF	Null Packets	-	4125.42	21.26	N/A
65	0x0041	MPEG2 Video	-	3524.68	18.16	This-TV
52	0x0034	AC3 Audio	-	395.15	2.04	WCCT-DT
53	0x0035	AC3 Audio	-	197.60	1.02	WCCT-DT
68	0x0044	AC3 Audio	-	197.55	1.02	This-TV
8187	0x1FFB	MGT	-	28.24	0.15	N/A
0	0x0000	PAT	-	16.98	0.09	N/A
4097	0x1001	EIT	-	11.93	0.06	N/A
4096	0x1000	EIT	-	8.95	0.05	N/A
64	0x0040	PMT	-	3.90	0.02	This-TV
48	0x0030	PMT	-	3.85	0.02	WCCT-DT
4609	0x1201	ETT	-	3.70	0.02	N/A
4611	0x1203	ETT	-	3.37	0.02	N/A
4610	0x1202	ETT	-	3.03	0.02	N/A
4608	0x1200	ETT	-	3.03	0.02	N/A
4099	0x1003	EIT	-	1.44	0.01	N/A
4098	0x1002	EIT	-	1.15	0.01	N/A
5120	0x1400	ETT	-	0.14	0.00	N/A

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ATSC **US**

Transportstream ID 515 Recording TELE-satellite
Transmitter Hartford Channel 35 *Remark* *big null packet*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	12228.17	63.00	WVIT-HD
8191	0x1FFF	Null Packets	-	3266.54	16.83	N/A
8182	0x1FF6	?	-	1841.61	9.49	N/A
65	0x0041	MPEG2 Video	-	1091.77	5.63	NBC+
52	0x0034	AC3 Audio	-	395.05	2.04	WVIT-HD
53	0x0035	AC3 Audio	-	197.63	1.02	WVIT-HD
68	0x0044	AC3 Audio	-	197.58	1.02	NBC+
8187	0x1FFB	MGT	-	86.65	0.45	N/A
64	0x0040	PMT	-	25.04	0.13	NBC+
48	0x0030	PMT	-	25.04	0.13	WVIT-HD
0	0x0000	PAT	-	24.98	0.13	N/A
5000	0x1388	EIT	-	10.73	0.06	N/A
5133	0x140D	ETT	-	3.25	0.02	N/A
5005	0x138D	EIT	-	1.95	0.01	N/A
5001	0x1389	EIT	-	1.79	0.01	N/A
5134	0x140E	ETT	-	1.63	0.01	N/A
5131	0x140B	ETT	-	1.30	0.01	N/A
5006	0x138E	EIT	-	1.30	0.01	N/A
5132	0x140C	ETT	-	1.14	0.01	N/A
5130	0x140A	ETT	-	1.14	0.01	N/A
5129	0x1409	ETT	-	0.98	0.01	N/A
5007	0x138F	EIT	-	0.98	0.01	N/A
5128	0x1408	ETT	-	0.87	0.00	N/A
5003	0x138B	EIT	-	0.81	0.00	N/A
5002	0x138A	EIT	-	0.81	0.00	N/A
5004	0x138C	EIT	-	0.54	0.00	N/A

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ATSC **US**

Transportstream ID 1639 Recording TELE-satellite
Transmitter Kansas City Channel 24 *Remark* *one channel with high bitrate*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	18493.27	95.49	KCTV
52	0x0034	AC3 Audio	-	394.20	2.04	KCTV
8191	0x1FFF	Null Packets	-	367.74	1.90	N/A
8187	0x1FFB	MGT	-	31.18	0.16	N/A
48	0x0030	PMT	-	14.97	0.08	KCTV
1	0x0001	CAT	-	14.97	0.08	N/A
0	0x0000	PAT	-	14.97	0.08	N/A
4101	0x1005	EIT	-	7.38	0.04	N/A
4100	0x1004	EIT	-	7.38	0.04	N/A
4357	0x1105	ETT	-	5.74	0.03	N/A
4103	0x1007	EIT	-	5.33	0.03	N/A
4102	0x1006	EIT	-	4.92	0.03	N/A
4358	0x1106	ETT	-	1.44	0.01	N/A
4359	0x1107	ETT	-	0.82	0.00	N/A
4096	0x1000	EIT	-	0.62	0.00	N/A
4353	0x1101	ETT	-	0.41	0.00	N/A
4099	0x1003	EIT	-	0.41	0.00	N/A
4098	0x1002	EIT	-	0.41	0.00	N/A
4097	0x1001	EIT	-	0.41	0.00	N/A
4355	0x1103	ETT	-	0.21	0.00	N/A
4354	0x1102	ETT	-	0.21	0.00	N/A
4352	0x1100	ETT	-	0.21	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only
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ATSC **US**

Transportstream ID 512 Recording TELE-satellite

Transmitter Las Vegas Channel 32 *Remark* *Channel Name Missing*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	9844.94	50.45	N/A
49	0x0031	MPEG2 Video	-	9323.91	47.78	_Service 1
50	0x0032	AC3 Audio	-	236.50	1.21	_Service 1
0	0x0000	PAT	-	40.88	0.21	N/A
8187	0x1FFB	MGT	-	35.75	0.18	N/A
48	0x0030	PMT	-	10.25	0.05	_Service 1
7427	0x1D03	EIT	-	5.13	0.03	N/A
7426	0x1D02	EIT	-	5.13	0.03	N/A
7425	0x1D01	EIT	-	5.13	0.03	N/A
7424	0x1D00	EIT	-	5.13	0.03	N/A

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ATSC **US**

Transportstream ID 1 Recording TELE-satellite

Transmitter Las Vegas Channel 41 *Remark* *VeryHigh Null Packets, Wrong TS ID*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	16403,86	84,49	N/A
113	0x0071	MPEG2 Video	-	2701,65	13,91	K41IO-D
116	0x0074	AC3 Audio	-	263,46	1,36	K41IO-D
8187	0x1FFB	MGT	-	18,80	0,10	N/A
0	0x0000	PAT	-	18,80	0,10	N/A
112	0x0070	PMT	-	4,73	0,02	K41IO-D
4098	0x1002	EIT	-	3,39	0,02	N/A
4099	0x1003	EIT	-	0,57	0,00	N/A
4097	0x1001	EIT	-	0,14	0,00	N/A
4096	0x1000	EIT	-	0,14	0,00	N/A

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ATSC **US**

Transportstream ID 0 Recording TELE-satellite

Transmitter Las Vegas Channel 43 *Remark* *Radio, Wrong TS ID*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	10772,55	55,41	N/A
97	0x0061	MPEG2 Video	-	2556,79	13,15	3ABN-ES
81	0x0051	MPEG2 Video	-	2556,65	13,15	3ABN-DD
49	0x0031	MPEG2 Video	-	2556,65	13,15	K43FO-D
52	0x0034	AC3 Audio	-	197,86	1,02	K43FO-D
100	0x0064	AC3 Audio	-	131,95	0,68	3ABN-ES
84	0x0054	AC3 Audio	-	131,95	0,68	3ABN-DD
116	0x0074	AC3 Audio	-	122,62	0,63	3ABN-RD
148	0x0094	AC3 Audio	-	103,67	0,53	Radio74
132	0x0084	AC3 Audio	-	103,67	0,53	3ABN-RL
8187	0x1FFB	MGT	-	62,12	0,32	N/A
7424	0x1D00	EIT	-	24,63	0,13	N/A
144	0x0090	PMT	-	15,16	0,08	Radio74
128	0x0080	PMT	-	15,16	0,08	3ABN-RL
112	0x0070	PMT	-	15,16	0,08	3ABN-RD
96	0x0060	PMT	-	15,16	0,08	3ABN-ES
80	0x0050	PMT	-	15,16	0,08	3ABN-DD
48	0x0030	PMT	-	15,16	0,08	K43FO-D
0	0x0000	PAT	-	15,16	0,08	N/A
7425	0x1D01	EIT	-	5,41	0,03	N/A
7426	0x1D02	EIT	-	2,44	0,01	N/A
7427	0x1D03	EIT	-	1,89	0,01	N/A
7682	0x1E02	ETT	-	1,62	0,01	N/A
7681	0x1E01	ETT	-	1,62	0,01	N/A
7683	0x1E03	ETT	-	1,35	0,01	N/A
7680	0x1E00	ETT	-	1,35	0,01	N/A
7936	0x1F00	ETT	-	0,14	0,00	N/A

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ATSC **US**

Transportstream ID 1 Recording TELE-satellite

Transmitter Las Vegas Channel 48 *Remark* *Fully Packed*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	2457,59	12,66	KGNGHSN
97	0x0061	MPEG2 Video	-	2367,88	12,20	KGNGRTV
113	0x0071	MPEG2 Video	-	2365,90	12,19	MOVIES+
81	0x0051	MPEG2 Video	-	2320,26	11,95	Bounce
129	0x0081	MPEG2 Video	-	2124,31	10,94	KGNG
257	0x0101	MPEG2 Video	-	2072,13	10,67	SKYLINE
65	0x0041	MPEG2 Video	-	2068,67	10,65	KGNGATV
145	0x0091	MPEG2 Video	-	2037,88	10,50	TVC+
8191	0x1FFF	Null Packets	-	462,59	2,38	N/A
100	0x0064	AC3 Audio	-	134,56	0,69	KGNGRTV
84	0x0054	AC3 Audio	-	134,56	0,69	Bounce
52	0x0034	AC3 Audio	-	134,56	0,69	KGNGHSN
260	0x0104	AC3 Audio	-	134,46	0,69	SKYLINE
148	0x0094	AC3 Audio	-	134,46	0,69	TVC+
132	0x0084	AC3 Audio	-	134,46	0,69	KGNG
116	0x0074	AC3 Audio	-	134,46	0,69	MOVIES+
68	0x0044	AC3 Audio	-	134,46	0,69	KGNGATV
8187	0x1FFB	MGT	-	17,82	0,09	N/A
0	0x0000	PAT	-	15,05	0,08	N/A
256	0x0100	PMT	-	3,76	0,02	SKYLINE
144	0x0090	PMT	-	3,76	0,02	TVC+
128	0x0080	PMT	-	3,76	0,02	KGNG
112	0x0070	PMT	-	3,76	0,02	MOVIES+
96	0x0060	PMT	-	3,76	0,02	KGNGRTV
80	0x0050	PMT	-	3,76	0,02	Bounce
64	0x0040	PMT	-	3,76	0,02	KGNGATV
48	0x0030	PMT	-	3,76	0,02	KGNGHSN

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ATSC **US**

Transportstream ID 2003 Recording TELE-satellite

Transmitter Philadelphia Channel 22 *Remark* *2 Audio PIDs for 1 Video*

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	14022.17	72.18	WNJS-DT
8191	0x1FFF	Null Packets	-	4375.15	22.52	N/A
52	0x0034	AC3 Audio	-	395.39	2.04	WNJS-DT
84	0x0054	AC3 Audio	-	141.24	0.73	AudioVi
56	0x0038	AC3 Audio	-	141.24	0.73	WNJS-DT
149	0x0095	Data	-	90.20	0.46	_Service 101
81	0x0051	PCR	-	43.04	0.22	N/A
8187	0x1FFB	MGT	-	31.29	0.16	N/A
7680	0x1E00	ETT	-	22.20	0.11	N/A
144	0x0090	PMT	-	18.84	0.10	_Service 101
80	0x0050	PMT	-	18.84	0.10	AudioVi
48	0x0030	PMT	-	18.84	0.10	WNJS-DT
0	0x0000	PAT	-	18.84	0.10	N/A
7424	0x1D00	EIT	-	17.42	0.09	N/A
7681	0x1E01	ETT	-	12.45	0.06	N/A
7682	0x1E02	ETT	-	8.77	0.05	N/A
7425	0x1D01	EIT	-	6.97	0.04	N/A
7683	0x1E03	ETT	-	6.58	0.03	N/A
7684	0x1E04	ETT	-	6.13	0.03	N/A
7685	0x1E05	ETT	-	5.42	0.03	N/A
7426	0x1D02	EIT	-	4.06	0.02	N/A
7687	0x1E07	ETT	-	3.87	0.02	N/A
7686	0x1E06	ETT	-	3.87	0.02	N/A
1	0x0001	CAT	-	2.97	0.02	N/A
7427	0x1D03	EIT	-	2.84	0.01	N/A
7429	0x1D05	EIT	-	2.32	0.01	N/A
7428	0x1D04	EIT	-	2.26	0.01	N/A
7430	0x1D06	EIT	-	1.68	0.01	N/A
7431	0x1D07	EIT	-	1.35	0.01	N/A

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Duration: 30 Sec, File Size: 75 MB **ts.TELE-satellite.com/ATSC/US/Philadelphia-Ch22-1201.ts**

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ATSC **US**

TransportStream ID 2015 Recording Ron Roessel

Transmitter New York Channel 63

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
49	0x0031	MPEG2 Video	-	4004.26	20.62	WMBC DT
129	0x0081	MPEG2 Video	-	3003.24	15.47	Azteca
113	0x0071	MPEG2 Video	-	3003.20	15.47	NTDTV
97	0x0061	MPEG2 Video	-	2502.68	12.89	SinoVSN
81	0x0051	MPEG2 Video	-	2002.13	10.31	CGN-TV
65	0x0041	MPEG2 Video	-	2002.13	10.31	MBN
8182	0x1FF6	?	-	921.74	4.75	N/A
8191	0x1FFF	Null Packets	-	780.78	4.02	N/A
52	0x0034	AC3 Audio	-	197.63	1.02	WMBC DT
84	0x0054	AC3 Audio	-	103.54	0.53	CGN-TV
164	0x00A4	AC3 Audio	-	103.50	0.53	WDNJ
148	0x0094	AC3 Audio	-	103.50	0.53	KCBN
132	0x0084	AC3 Audio	-	103.50	0.53	Azteca
116	0x0074	AC3 Audio	-	103.50	0.53	NTDTV
100	0x0064	AC3 Audio	-	103.50	0.53	SinoVSN
68	0x0044	AC3 Audio	-	103.50	0.53	MBN
4110	0x100E	EIT	-	53.12	0.27	N/A
8187	0x1FFB	MGT	-	45.62	0.23	N/A
160	0x00A0	PMT	-	15.08	0.08	WDNJ
112	0x0070	PMT	-	15.08	0.08	NTDTV
96	0x0060	PMT	-	15.08	0.08	SinoVSN
64	0x0040	PMT	-	15.08	0.08	MBN
0	0x0000	PAT	-	15.08	0.08	N/A
144	0x0090	PMT	-	15.04	0.08	KCBN
128	0x0080	PMT	-	15.04	0.08	Azteca
80	0x0050	PMT	-	15.04	0.08	CGN-TV
48	0x0030	PMT	-	15.04	0.08	WMBC DT
1	0x0001	CAT	-	15.04	0.08	N/A
4111	0x100F	EIT	-	7.62	0.04	N/A
4117	0x1015	EIT	-	2.93	0.02	N/A
4112	0x1010	EIT	-	2.93	0.02	N/A
4116	0x1014	EIT	-	2.73	0.01	N/A
4114	0x1012	EIT	-	2.73	0.01	N/A
4113	0x1011	EIT	-	2.73	0.01	N/A
4115	0x1013	EIT	-	2.54	0.01	N/A
8186	0x1FFA	?	-	1.56	0.01	N/A
4623	0x120F	ETT	-	0.20	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 89 MB **ts.TELE-satellite.com/ATSC/US/NewYork-Ch63-1110.ts**

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Duration: 5 Min, File Size: 729 MB **www.transponderstream.com/ATSC/US/NewYork-Ch63-1110.ts**

DMB-TH terrestrial

CN China

DMB TH **CN**

Network Name [none] Recording TELE-satellite

Transmitter Guangzhou Channel 57 *Remark* unqualified descriptor

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
163	0x00A3	MPEG2 Video	-	3079.28	31.92	GZ-M3
512	0x0200	MPEG2 Video	-	2772.28	28.74	_Service 1
161	0x00A1	MPEG2 Video	-	1950.78	20.22	_Service 154
8191	0x1FFF	Null Packets	-	1489.94	15.44	N/A
650	0x028A	MPEG Audio	-	132.56	1.37	_Service 1
85	0x0055	MPEG Audio	-	69.70	0.72	GZ-M3
81	0x0051	MPEG Audio	-	69.70	0.72	_Service 154
0	0x0000	PAT	-	16.73	0.17	N/A
32	0x0020	PMT	-	15.15	0.16	_Service 1
1027	0x0403	PMT	-	15.05	0.16	_Service 154
1026	0x0402	PMT	-	15.05	0.16	GZ-M3
1	0x0001	CAT	-	15.05	0.16	N/A
17	0x0011	SDT	-	2.97	0.03	N/A
16	0x0010	NIT	-	2.97	0.03	N/A
20	0x0014	TOT	-	0.20	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 39 MB **ts.TELE-satellite.com/DMB-TH/CN/Guangzhou-Ch57-1110.ts**

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 372 MB **www.transponderstream.com/DMB-TH/CN/Guangzhou-Ch57-1110.ts**

DMB TH **CN**

Network Name 腻腠腴漏艇陆路垄艇盲脹篓 Recording TELE-satellite

Transmitter Shenzhen Channel 60 *Remark* HD only

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
112	0x0070	H.264 Video	-	11465.37	47.01	CCTV-HD
111	0x006F	H.264 Video	-	10973.21	44.99	CCTV-1 HD
8191	0x1FFF	Null Packets	-	762.57	3.13	N/A
1012	0x03F4	AC3 Audio	-	459.43	1.88	CCTV-HD
1011	0x03F3	AC3 Audio	-	459.43	1.88	CCTV-1 HD
18	0x0012	EIT	-	215.68	0.88	N/A
42	0x002A	PMT	-	15.09	0.06	CCTV-1 HD
43	0x002B	PMT	-	15.04	0.06	CCTV-HD
0	0x0000	PAT	-	15.04	0.06	N/A
17	0x0011	SDT	-	3.97	0.02	N/A
20	0x0014	TOT	-	2.64	0.01	N/A
16	0x0010	NIT	-	1.32	0.01	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 100 MB **ts.TELE-satellite.com/DMB-TH/CN/Shenzhen-Ch60-1110.ts**

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 950 MB **www.transponderstream.com/DMB-TH/CN/Shenzhen-Ch60-1110.ts**

HK HongKong

DMB TH **HK**

Network Name MFN_TVB Recording TELE-satellite

Transmitter HongKong Channel 35 *Remark* MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
851	0x0353	H.264 Video	-	11970.85	55.26	High Definition Jade
821	0x0335	H.264 Video	-	3698.76	17.07	J2
831	0x033F	H.264 Video	-	2983.64	13.77	iNews
8191	0x1FFF	Null Packets	-	866.69	4.00	N/A
1001	0x03E9	MHEG	-	490.60	2.26	J2
853	0x0355	AC3 Audio	-	423.06	1.95	High Definition Jade
852	0x0354	AC3 Audio	-	235.06	1.09	High Definition Jade
18	0x0012	EIT	-	200.74	0.93	N/A
823	0x0337	AC3 Audio	-	197.41	0.91	J2
822	0x0336	AC3 Audio	-	197.41	0.91	J2
832	0x0340	AC3 Audio	-	133.20	0.61	iNews
834	0x0342	AC3 Audio	-	100.73	0.47	iNews
833	0x0341	AC3 Audio	-	100.73	0.47	iNews
850	0x0352	PMT	-	15.04	0.07	High Definition Jade
830	0x033E	PMT	-	15.04	0.07	iNews
820	0x0334	PMT	-	15.04	0.07	J2
0	0x0000	PAT	-	15.04	0.07	N/A
21	0x0015	Network Sync	-	1.49	0.01	N/A
17	0x0011	SDT	-	0.95	0.00	N/A
16	0x0010	NIT	-	0.36	0.00	N/A
20	0x0014	TOT	-	0.18	0.00	N/A
857	0x0359	DVB Subtitles	-	0.05	0.00	High Definition Jade
856	0x0358	DVB Subtitles	-	0.05	0.00	High Definition Jade
855	0x0357	DVB Subtitles	-	0.05	0.00	High Definition Jade
825	0x0339	DVB Subtitles	-	0.05	0.00	J2

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 90 MB **ts.TELE-satellite.com/DMB-TH/HK/HongKong-Ch35-1110.ts**

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Duration: 5 Min, File Size: 844 MB **www.transponderstream.com/DMB-TH/HK/HongKong-Ch30-1110.ts**

DVB-C cable

PT Portugal

DVB C **PT**

Network Name Cabo Porto Recording Vitor Martins Augusto

Transmitter Porto Channel 48

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
6256	0x1870	MPEG2 Video	-	3772.57	9.91	BNT World
6176	0x1820	MPEG2 Video	-	3304.36	8.68	Deutsche Welle
6192	0x1830	MPEG2 Video	-	3283.63	8.63	Inter+
6304	0x18A0	MPEG2 Video	-	3203.01	8.42	Eurosport 2
7562	0x1D8A	MPEG2 Video	-	3151.46	8.28	Aljazeera
6352	0x18D0	MPEG2 Video	-	3000.76	7.89	RAI News
6208	0x1840	MPEG2 Video	-	2823.47	7.42	Phoenix CNE
6240	0x1860	MPEG2 Video	-	2621.93	6.89	RTR-Planeta
6160	0x1810	MPEG2 Video	-	2537.14	6.67	Cubavisión Internacional
6272	0x1880	MPEG2 Video	-	2325.39	6.11	TVR International
6224	0x1850	MPEG2 Video	-	2078.96	5.46	Phoenix Infonews
6288	0x1890	MPEG2 Video	-	1766.40	4.64	Rússia 24
8191	0x1FFF	Null Packets	-	1509.76	3.97	N/A
817	0x0331	PMT	-	297.58	0.78	_Service 4
7563	0x1D8B	MPEG Audio	-	263.44	0.69	Aljazeera
6177	0x1821	MPEG Audio	-	203.87	0.54	Deutsche Welle
18	0x0012	EIT	-	198.70	0.52	N/A
6257	0x1871	MPEG Audio	-	198.66	0.52	BNT World
33	0x0021	Private Sections	-	198.07	0.52	N/A
6353	0x18D1	MPEG Audio	-	196.90	0.52	RAI News
6161	0x1811	MPEG Audio	-	138.06	0.36	Cubavisión Internacional
6193	0x1831	MPEG Audio	-	138.02	0.36	Inter+
6273	0x1881	MPEG Audio	-	132.39	0.35	TVR International
6289	0x1891	MPEG Audio	-	131.63	0.35	Rússia 24
6241	0x1861	MPEG Audio	-	131.63	0.35	RTR-Planeta
6209	0x1841	MPEG Audio	-	131.63	0.35	Phoenix CNE
6305	0x18A1	MPEG Audio	-	101.98	0.27	Eurosport 2
6225	0x1851	MPEG Audio	-	73.24	0.19	Phoenix Infonews
17	0x0011	SDT	-	55.15	0.14	N/A
0	0x0000	PAT	-	37.52	0.10	N/A
1	0x0001	CAT	-	24.74	0.07	N/A
16	0x0010	NIT	-	21.59	0.06	N/A
20	0x0014	TOT	-	2.70	0.01	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

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Duration: 5 Min, File Size: 1425 MB **www.transponderstream.com/DVB-C/PT/Porto-Ch48-1109.ts**

DVB-S satellite

9°E EUROBIRD

DVB S **9°E**

Network Name E.B.9 NMX Recording Thomas Haring

Transmitter EUROBIRD 11.938H

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
4331	0x10EB	MPEG2 Video	$	4105.59	10.79	RAI Africa
1026	0x0402	MPEG2 Video	$	3659.23	9.62	Disney Channel ME
1011	0x03F3	MPEG1 Video	-	2862.23	7.53	CCTV9 DOCUMENTARY
1005	0x03ED	MPEG2 Video	-	2759.03	7.25	NET 25 INTERNATIONAL
1003	0x03EB	MPEG2 Video	-	2327.30	6.12	JSTV
1004	0x03EC	MPEG2 Video	$	2215.43	5.82	TFM Senegal
1221	0x04C5	MPEG2 Video	-	2105.53	5.54	Ayngaran TV
1231	0x04CF	MPEG2 Video	-	1941.20	5.10	Jaya TV
1211	0x04BB	MPEG2 Video	-	1649.68	4.34	Touba Medias
1002	0x03EA	MPEG2 Video	-	1498.68	3.94	PTV
1007	0x03EF	MPEG2 Video	-	1437.95	3.78	YAARL TV
601	0x0259	Data	-	1426.52	3.75	PMI Streaming W3
1001	0x03E9	MPEG2 Video	$	1390.50	3.66	Walf TV
1008	0x03F0	MPEG2 Video	-	1159.79	3.05	KURD1
8191	0x1FFF	Null Packets	-	1027.15	2.70	N/A
1009	0x03F1	MPEG2 Video	-	926.76	2.44	Africa 7
600	0x0258	Data	-	200.91	0.53	PMI File W3
1154	0x0482	MPEG Audio	$	200.65	0.53	RFM
1127	0x0467	MPEG Audio	$	198.55	0.52	Disney Channel ME
1129	0x0469	MPEG Audio	$	198.52	0.52	Disney Channel ME
4332	0x10EC	MPEG Audio	$	196.81	0.52	RAI Africa
1128	0x0468	MPEG Audio	$	196.81	0.52	Disney Channel ME
1126	0x0466	MPEG Audio	$	196.81	0.52	Disney Channel ME
1150	0x047E	MPEG Audio	$	135.88	0.36	Walf 1
1612	0x064C	MPEG Audio	-	135.85	0.36	RFI Music
1611	0x064B	MPEG Audio	-	135.85	0.36	RFI Divers 4
1610	0x064A	MPEG Audio	-	135.85	0.36	RFI Divers 3
1609	0x0649	MPEG Audio	-	135.85	0.36	RFI Hispasat1
1606	0x0646	MPEG Audio	-	135.85	0.36	RFI Divers 2
1604	0x0644	MPEG Audio	-	135.85	0.36	RFI Test
1603	0x0643	MPEG Audio	-	135.85	0.36	RFI Erevan
1601	0x0641	MPEG Audio	-	135.85	0.36	RFI Skopje
1151	0x047F	MPEG Audio	$	135.85	0.36	Walf 2
1608	0x0648	MPEG Audio	-	135.82	0.36	RFI Rmc Amman
1607	0x0647	MPEG Audio	-	135.82	0.36	RFI Divers 7
1602	0x0642	MPEG Audio	-	135.82	0.36	RFI Langues Est
1331	0x0533	MPEG Audio	-	132.39	0.35	Jaya TV
1107	0x0453	MPEG Audio	-	132.39	0.35	YAARL TV
1311	0x051F	MPEG Audio	-	132.36	0.35	Touba Medias
1108	0x0454	MPEG Audio	-	132.36	0.35	KURD1
1105	0x0451	MPEG Audio	-	132.36	0.35	NET 25 INTERNATIONAL
1104	0x0450	MPEG Audio	$	132.36	0.35	TFM Senegal
1102	0x044E	MPEG Audio	-	132.36	0.35	PTV
1101	0x044D	MPEG Audio	$	132.36	0.35	Walf TV
1321	0x0529	MPEG Audio	-	132.33	0.35	Ayngaran TV
1109	0x0455	MPEG Audio	-	132.33	0.35	Africa 7
1103	0x044F	MPEG Audio	-	132.33	0.35	JSTV
1111	0x0457	MPEG Audio	-	131.57	0.35	CCTV9 DOCUMENTARY
1605	0x0645	MPEG Audio	-	69.66	0.18	RFI Divers 1
8190	0x1FFE	PCR	-	44.25	0.12	CCTV9 DOCUMENTARY
1029	0x0405	PCR	-	39.37	0.10	N/A
18	0x0012	EIT	-	25.40	0.07	N/A
8000	0x1F40	ECM/EMM	-	15.83	0.04	RAI Africa
1511	0x05E7	ECM/EMM	-	15.83	0.04	Walf TV
971	0x03CB	ECM/EMM	-	15.83	0.04	TFM Senegal
961	0x03C1	ECM/EMM	-	15.83	0.04	Walf TV
126	0x007E	PMT	-	15.83	0.04	Disney Channel ME
0	0x0000	PAT	-	15.83	0.04	N/A
17	0x0011	SDT	-	15.71	0.04	N/A
1130	0x046A	DVB Subtitles	-	13.73	0.04	Disney Channel ME
500	0x01F4	PMT	-	7.94	0.02	PMI File W3
111	0x006F	PMT	-	7.94	0.02	CCTV9 DOCUMENTARY
102	0x0066	PMT	-	7.94	0.02	PTV
1599	0x063F	PMT	-	7.91	0.02	RFI Test
1592	0x0638	PMT	-	7.91	0.02	RFI Skopje
1591	0x0637	PMT	-	7.91	0.02	RFI Anik
1589	0x0635	PMT	-	7.91	0.02	RFI Barcelona
1588	0x0634	PMT	-	7.91	0.02	RFI Ordispace
1587	0x0633	PMT	-	7.91	0.02	RFI Hispasat2
1586	0x0632	PMT	-	7.91	0.02	RFI Hispasat1
1585	0x0631	PMT	-	7.91	0.02	RFI Rmc Amman
1584	0x0630	PMT	-	7.91	0.02	RFI Orbit
1583	0x062F	PMT	-	7.91	0.02	RFI Austria
1582	0x062E	PMT	-	7.91	0.02	RFI M Orient
1581	0x062D	PMT	-	7.91	0.02	RFI Multilingue
1580	0x062C	PMT	-	7.91	0.02	RFI Ekaterinbourg
1579	0x062B	PMT	-	7.91	0.02	RFI Liban
1578	0x062A	PMT	-	7.91	0.02	RFI Montenegro
1577	0x0629	PMT	-	7.91	0.02	RFI Kosovo
1576	0x0628	PMT	-	7.91	0.02	RFI Albania
1575	0x0627	PMT	-	7.91	0.02	RFI Chisinau
1574	0x0626	PMT	-	7.91	0.02	RFI Ocean Indien
1573	0x0625	PMT	-	7.91	0.02	RFI Erevan
1572	0x0624	PMT	-	7.91	0.02	RFI Russia
1571	0x0623	PMT	-	7.91	0.02	RFI Astra 4
1570	0x0622	PMT	-	7.91	0.02	RFI Bucarest
1569	0x0621	PMT	-	7.91	0.02	RFI Lisbonne
1568	0x0620	PMT	-	7.91	0.02	RFI Sofia
1567	0x061F	PMT	-	7.91	0.02	RFI Bakou
1566	0x061E	PMT	-	7.91	0.02	RFI Tbilissi
1565	0x061D	PMT	-	7.91	0.02	RFI Prague
1564	0x061C	PMT	-	7.91	0.02	RFI Germany
1563	0x061B	PMT	-	7.91	0.02	RFI Americas 5
1562	0x061A	PMT	-	7.91	0.02	RFI Music
1561	0x0619	PMT	-	7.91	0.02	RFI Divers 4
1560	0x0618	PMT	-	7.91	0.02	RFI Divers 3
1559	0x0617	PMT	-	7.91	0.02	RFI Latine
1558	0x0616	PMT	-	7.91	0.02	RFI Rmc Mo
1557	0x0615	PMT	-	7.91	0.02	RFI Divers 7
1556	0x0614	PMT	-	7.91	0.02	RFI Divers 2
1555	0x0613	PMT	-	7.91	0.02	RFI Divers 1
1554	0x0612	PMT	-	7.91	0.02	RFI Afrique
1553	0x0611	PMT	-	7.91	0.02	RFI Langues Div
1552	0x0610	PMT	-	7.91	0.02	RFI Langues Est
1551	0x060F	PMT	-	7.91	0.02	RFI Français
501	0x01F5	PMT	-	7.91	0.02	PMI Streaming W3
151	0x0097	PMT	-	7.91	0.02	Walf 2
150	0x0096	PMT	-	7.91	0.02	Walf 1
123	0x007B	PMT	-	7.91	0.02	Jaya TV
122	0x007A	PMT	-	7.91	0.02	Ayngaran TV
121	0x0079	PMT	-	7.91	0.02	Touba Medias
114	0x0072	PMT	-	7.91	0.02	RFM
109	0x006D	PMT	-	7.91	0.02	Africa 7
108	0x006C	PMT	-	7.91	0.02	KURD1
107	0x006B	PMT	-	7.91	0.02	YAARL TV
105	0x0069	PMT	-	7.91	0.02	NET 25 INTERNATIONAL
104	0x0068	PMT	-	7.91	0.02	TFM Senegal
101	0x0065	PMT	-	7.91	0.02	Walf TV
35	0x0023	PMT	-	7.91	0.02	JSTV
32	0x0020	PMT	-	7.91	0.02	RAI Africa
1	0x0001	CAT	-	7.91	0.02	N/A
1199	0x04AF	ECM/EMM	-	5.09	0.01	Disney Channel ME
1132	0x046C	DVB Subtitles	-	3.00	0.01	Disney Channel ME
1131	0x046B	DVB Subtitles	-	3.00	0.01	Disney Channel ME
16	0x0010	NIT	-	0.64	0.00	N/A
1226	0x04CA	ECM/EMM	-	0.61	0.00	N/A
20	0x0014	TOT	-	0.06	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

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DVB S

9°E

Network Name: Euro TV Recording: Thomas Haring
Transmitter: EUROBIRD 12.092H

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	28231.85	74.21	N/A
4208	0x1070	MPEG2 Video	$	2871.65	7.55	IBERALIA
4144	0x1030	MPEG2 Video	-	2871.63	7.55	PARLAMENTO
4260	0x10A4	MPEG2 Video	-	2814.07	7.40	REAL MADRID TV
4261	0x10A5	MPEG Audio	-	137.98	0.36	REAL MADRID TV
4145	0x1031	MPEG Audio	-	135.86	0.36	PARLAMENTO
4209	0x1071	MPEG Audio	$	125.45	0.33	IBERALIA
4400	0x1130	ECM/EMM	-	98.37	0.26	N/A
4406	0x1136	MPEG Audio	-	73.18	0.19	Musicam 6
4403	0x1133	MPEG Audio	-	73.18	0.19	Musicam 3
4405	0x1135	MPEG Audio	-	73.16	0.19	Musicam 5
4404	0x1134	MPEG Audio	-	73.16	0.19	Musicam 4
4402	0x1132	MPEG Audio	-	73.16	0.19	Musicam 2
4401	0x1131	MPEG Audio	-	73.16	0.19	Musicam 1
17	0x0011	SDT	-	22.61	0.06	N/A
45	0x002D	PMT	-	22.59	0.06	IBERALIA
39	0x0027	PMT	-	22.59	0.06	PARLAMENTO
38	0x0026	PMT	-	22.59	0.06	REAL MADRID TV
37	0x0025	PMT	-	22.59	0.06	Musicam 1
36	0x0024	PMT	-	22.59	0.06	Musicam 2
35	0x0023	PMT	-	22.59	0.06	Musicam 3
34	0x0022	PMT	-	22.59	0.06	Musicam 4
33	0x0021	PMT	-	22.59	0.06	Musicam 5
32	0x0020	PMT	-	22.59	0.06	Musicam 6
16	0x0010	NIT	-	22.59	0.06	N/A
1	0x0001	CAT	-	22.59	0.06	N/A
0	0x0000	PAT	-	22.59	0.06	N/A
194	0x00C2	ECM/EMM	-	16.04	0.04	N/A
514	0x0202	ECM/EMM	-	7.52	0.02	IBERALIA
20	0x0014	TOT	-	0.43	0.00	N/A

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Duration: 30 Sec, File Size: 146 MB **ts.TELE-satellite.com/DVB-S/009/EUROBIRD-12092H-1111.ts**
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Duration: 5 Min, File Size: 1428 MB **www.transponderstream.com/DVB-S/009/EUROBIRD-12092H-1111.ts**

19°E ASTRA

DVB S

19°E

Network Name: ASTRA1 Recording: Thomas Haring
Transmitter: ASTRA 11.023H *Remark*: 3D side-by-side

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	13188.42	38.98	N/A
33	0x0021	H.264 Video	-	8188.04	24.20	ASTRA 3D demo
2091	0x082B	MPEG2 Video	-	6173.50	18.25	ASTRA Caption
2051	0x0803	MPEG2 Video	-	3547.00	10.48	RTS SAT
640	0x0280	MPEG2 Video	-	1430.39	4.23	AB Channel
36	0x0024	Private Data	-	459.99	1.36	ASTRA 3D demo
642	0x0282	Teletext	-	225.71	0.67	AB Channel
2062	0x080E	MPEG Audio	-	138.13	0.41	Radio Beograd
2052	0x0804	MPEG Audio	-	137.98	0.41	RTS SAT
641	0x0281	MPEG Audio	-	131.63	0.39	AB Channel
1701	0x06A5	PCR	-	42.72	0.13	N/A
1301	0x0515	PCR	-	42.72	0.13	N/A
2060	0x080C	PMT	-	18.85	0.06	Radio Beograd
2050	0x0802	PMT	-	18.85	0.06	RTS SAT
1112	0x0458	PMT	-	18.85	0.06	ASTRA Caption
34	0x0022	PMT	-	18.85	0.06	3D Tile Format
32	0x0020	PMT	-	18.85	0.06	ASTRA 3D demo
5220	0x1464	PMT	-	18.77	0.06	AB Channel
1	0x0001	CAT	-	3.77	0.01	N/A
0	0x0000	PAT	-	3.77	0.01	N/A
16	0x0010	NIT	-	2.00	0.01	N/A
17	0x0011	SDT	-	1.77	0.01	N/A
20	0x0014	TOT	-	0.15	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only
Duration: 30 Sec, File Size: 130 MB **ts.TELE-satellite.com/DVB-S/019/ASTRA-11023H-1110.ts**
Transponderstream Technical Service File Download for Clients Only
Duration: 5 Min, File Size: 1272 MB **www.transponderstream.com/DVB-S/019/ASTRA-11023H-1110.ts**

23.5°E ASTRA

DVB S

23.5°E

Network Name: CS Link Recording: Thomas Haring
Transmitter: ASTRA 12.525H

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
166	0x00A6	MPEG2 Video	$	5868.69	15.44	CT 4
165	0x00A5	MPEG2 Video	-	4758.20	12.51	CT 24
162	0x00A2	MPEG2 Video	$	4588.26	12.07	CT 1 JM
161	0x00A1	MPEG2 Video	$	4254.41	11.19	Prima TV
163	0x00A3	MPEG2 Video	$	3900.06	10.26	CT 2
167	0x00A7	MPEG2 Video	-	3271.70	8.61	Noe TV
8191	0x1FFF	Null Packets	-	3179.57	8.36	N/A
18	0x0012	EIT	-	533.59	1.40	N/A
90	0x005A	AC3 Audio	$	460.66	1.21	CT 1
184	0x00B8	MPEG Audio	-	275.78	0.73	CRo D-dur
92	0x005C	MPEG Audio	$	271.61	0.71	CT 2
102	0x0066	MPEG Audio	$	271.59	0.71	CT 4
88	0x0058	MPEG Audio	$	271.59	0.71	CT 1 JM
43	0x002B	Teletext	-	225.64	0.59	CT 2
40	0x0028	Teletext	-	225.64	0.59	CT 1 JM
37	0x0025	Teletext	-	225.64	0.59	Prima TV
180	0x00B4	MPEG Audio	-	208.92	0.55	Proglas
186	0x00BA	MPEG Audio	-	200.57	0.53	Radio Cesko
181	0x00B5	MPEG Audio	-	200.57	0.53	CRo 2+6/CRo 7
179	0x00B3	MPEG Audio	-	200.57	0.53	CRo 3 - Vltava
178	0x00B2	MPEG Audio	-	200.57	0.53	CRo 2 - Praha
187	0x00BB	MPEG Audio	-	200.55	0.53	CRo Radio Wave
185	0x00B9	MPEG Audio	-	200.55	0.53	CRo Leonardo
183	0x00B7	MPEG Audio	-	200.55	0.53	BBC CZ
182	0x00B6	MPEG Audio	-	200.55	0.53	CRo Region
177	0x00B1	MPEG Audio	-	200.55	0.53	CRo 1 - Radiozurnal
100	0x0064	MPEG Audio	-	198.48	0.52	CT 24
93	0x005D	MPEG Audio	$	198.48	0.52	CT 2
91	0x005B	MPEG Audio	-	198.48	0.52	CT 1
89	0x0059	MPEG Audio	$	198.48	0.52	CT 1
84	0x0054	MPEG Audio	$	198.48	0.52	Prima TV
106	0x006A	MPEG Audio	-	198.46	0.52	Noe TV
96	0x0060	MPEG Audio	$	198.46	0.52	CT 2
288	0x0120	ECM/EMM	-	197.84	0.52	N/A
201	0x00C9	ECM/EMM	-	194.46	0.51	N/A
52	0x0034	Teletext	-	150.43	0.40	CT 24
32	0x0020	Teletext	-	150.41	0.40	CT 4
272	0x0110	ECM/EMM	-	140.09	0.37	N/A
85	0x0055	MPEG Audio	$	135.80	0.36	Prima TV
274	0x0112	ECM/EMM	-	124.06	0.33	N/A
273	0x0111	ECM/EMM	-	70.67	0.19	N/A
55	0x0037	Teletext	-	37.60	0.10	Noe TV
16	0x0010	NIT	-	25.10	0.07	N/A
1	0x0001	CAT	-	25.08	0.07	N/A
0	0x0000	PAT	-	25.08	0.07	N/A
17	0x0011	SDT	-	25.05	0.07	N/A
1050	0x041A	PMT	-	24.27	0.06	CRo Radio Wave
1049	0x0419	PMT	-	24.27	0.06	CRo Leonardo
1048	0x0418	PMT	-	24.27	0.06	CRo D-dur
1047	0x0417	PMT	-	24.27	0.06	BBC CZ
1046	0x0416	PMT	-	24.27	0.06	CRo Region
1045	0x0415	PMT	-	24.27	0.06	CRo 2+6/CRo 7
1044	0x0414	PMT	-	24.27	0.06	Proglas
1043	0x0413	PMT	-	24.27	0.06	CRo 3 - Vltava
1042	0x0412	PMT	-	24.27	0.06	CRo 2 - Praha
1041	0x0411	PMT	-	24.27	0.06	CRo 1 - Radiozurnal
1040	0x0410	PMT	-	24.27	0.06	Radio Cesko
1031	0x0407	PMT	-	24.27	0.06	Noe TV
1030	0x0406	PMT	-	24.27	0.06	CT 4
1029	0x0405	PMT	-	24.27	0.06	CT 24
1027	0x0403	PMT	-	24.27	0.06	CT 2
1026	0x0402	PMT	-	24.27	0.06	CT 1
1025	0x0401	PMT	-	24.27	0.06	Prima TV
1028	0x0404	PMT	-	21.49	0.06	CT 1 SM
1024	0x0400	PMT	-	21.49	0.06	CT 1 JM
1795	0x0703	ECM/EMM	-	15.06	0.04	Prima TV
1794	0x0702	ECM/EMM	-	15.06	0.04	CT 2
1793	0x0701	ECM/EMM	-	15.06	0.04	CT 1 JM
1631	0x065F	ECM/EMM	-	15.06	0.04	CT 4
1620	0x0654	ECM/EMM	-	15.06	0.04	CT 2
1619	0x0653	ECM/EMM	-	15.06	0.04	CT 1 JM
1617	0x0651	ECM/EMM	-	15.06	0.04	CT 4
1616	0x0650	ECM/EMM	-	15.06	0.04	Prima TV
1553	0x0611	ECM/EMM	-	15.06	0.04	CT 4
1552	0x0610	ECM/EMM	-	15.06	0.04	CT 2
1551	0x060F	ECM/EMM	-	15.06	0.04	CT 1 JM
1538	0x0602	ECM/EMM	-	15.06	0.04	Prima TV
209	0x00D1	Private Data	-	8.93	0.02	CRo 1 - Radiozurnal
211	0x00D3	Private Data	-	7.70	0.02	CRo 3 - Vltava
41	0x0029	ECM/EMM	-	6.79	0.02	N/A
3847	0x0F07	ECM/EMM	-	5.03	0.01	Prima TV
3846	0x0F06	ECM/EMM	-	5.03	0.01	Prima TV
3845	0x0F05	ECM/EMM	-	5.03	0.01	CT 4
3844	0x0F04	ECM/EMM	-	5.03	0.01	CT 4
3840	0x0F00	ECM/EMM	-	5.03	0.01	CT 1 JM
39	0x0027	ECM/EMM	-	5.03	0.01	Prima TV
38	0x0026	ECM/EMM	-	5.03	0.01	CT 1 JM
34	0x0022	ECM/EMM	-	5.03	0.01	CT 4
3843	0x0F03	ECM/EMM	-	5.01	0.01	CT 2
3842	0x0F02	ECM/EMM	-	5.01	0.01	CT 2
3841	0x0F01	ECM/EMM	-	5.01	0.01	CT 1 JM
36	0x0024	ECM/EMM	-	5.01	0.01	CT 2
212	0x00D4	Private Data	-	4.33	0.01	CRo Region
210	0x00D2	Private Data	-	4.18	0.01	CRo 2 - Praha
20	0x0014	TOT	-	3.03	0.01	N/A
950	0x03B6	Private Sections	-	1.51	0.00	N/A

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108°E TELKOM 1

DVB S

108°E

Network Name Network1 Recording Vincent Witjhun

Transmitter TELKOM 1 3.620H

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
111	0x006F	MPEG2 Video	$	3628.16	9.78	GlobalTV
120	0x0078	MPEG2 Video	$	2637.51	7.11	Goal TV 2
126	0x007E	MPEG2 Video	$	2616.85	7.05	Disney Junior
135	0x0087	MPEG2 Video	$	2400.74	6.47	NG Adventure
117	0x0075	MPEG2 Video	$	2368.70	6.39	AXN Beyond
129	0x0081	MPEG2 Video	$	2305.45	6.22	FOX Channel
138	0x008A	MPEG2 Video	$	2286.72	6.16	Alif TV
102	0x0066	MPEG2 Video	$	2103.35	5.67	Metro TV
96	0x0060	MPEG2 Video	$	1935.93	5.22	RCTI
141	0x008D	MPEG2 Video	$	1858.81	5.01	B Channel
123	0x007B	MPEG2 Video	$	1745.07	4.70	FOXCrime
105	0x0069	MPEG2 Video	$	1671.97	4.51	Indosiar
132	0x0084	MPEG2 Video	$	1656.86	4.47	MGM
108	0x006C	MPEG2 Video	$	1488.05	4.01	ANTV
99	0x0063	MPEG2 Video	$	1398.03	3.77	Bali TV
114	0x0072	MPEG2 Video	$	1336.16	3.60	SCTV
34	0x0022	MPEG Audio	-	181.15	0.49	Trial Radio
32	0x0020	MPEG Audio	$	181.15	0.49	Trial Radio JAK FM
769	0x0301	ECM/EMM	-	141.90	0.38	N/A
18	0x0012	EIT	-	141.76	0.38	N/A
109	0x006D	MPEG Audio	$	136.21	0.37	ANTV
142	0x008E	MPEG Audio	$	135.93	0.37	B Channel
139	0x008B	MPEG Audio	$	135.93	0.37	Alif TV
136	0x0088	MPEG Audio	$	135.93	0.37	NG Adventure
133	0x0085	MPEG Audio	$	135.93	0.37	MGM
130	0x0082	MPEG Audio	$	135.93	0.37	FOX Channel
124	0x007C	MPEG Audio	$	135.93	0.37	FOXCrime
121	0x0079	MPEG Audio	$	135.93	0.37	Goal TV 2
115	0x0073	MPEG Audio	$	135.93	0.37	SCTV
112	0x0070	MPEG Audio	$	135.93	0.37	GlobalTV
106	0x006A	MPEG Audio	$	135.93	0.37	Indosiar
103	0x0067	MPEG Audio	$	135.93	0.37	Metro TV
100	0x0064	MPEG Audio	$	135.93	0.37	Bali TV
97	0x0061	MPEG Audio	$	135.93	0.37	RCTI
127	0x007F	MPEG Audio	$	135.79	0.37	Disney Junior
118	0x0076	MPEG Audio	$	135.79	0.37	AXN Beyond
1024	0x0400	Private Data	-	97.23	0.26	_Service 9990
143	0x008F	PMT	-	30.10	0.08	B Channel
140	0x008C	PMT	-	30.10	0.08	Alif TV
137	0x0089	PMT	-	30.10	0.08	NG Adventure
134	0x0086	PMT	-	30.10	0.08	MGM
131	0x0083	PMT	-	30.10	0.08	FOX Channel
128	0x0080	PMT	-	30.10	0.08	Disney Junior
125	0x007D	PMT	-	30.10	0.08	FOXCrime
122	0x007A	PMT	-	30.10	0.08	Goal TV 2
119	0x0077	PMT	-	30.10	0.08	AXN Beyond
116	0x0074	PMT	-	30.10	0.08	SCTV
113	0x0071	PMT	-	30.10	0.08	GlobalTV
110	0x006E	PMT	-	30.10	0.08	ANTV
107	0x006B	PMT	-	30.10	0.08	Indosiar
104	0x0068	PMT	-	30.10	0.08	Metro TV
101	0x0065	PMT	-	30.10	0.08	Bali TV
98	0x0062	PMT	-	30.10	0.08	RCTI
37	0x0025	PMT	-	30.10	0.08	_Service 9990
35	0x0023	PMT	-	30.10	0.08	Trial Radio
33	0x0021	PMT	-	30.10	0.08	Trial Radio JAK FM
1	0x0001	CAT	-	30.10	0.08	N/A
0	0x0000	PAT	-	30.10	0.08	N/A
17	0x0011	SDT	-	17.34	0.05	N/A
2307	0x0903	ECM/EMM	-	4.99	0.01	Trial Radio JAK FM
1046	0x0416	ECM/EMM	-	4.99	0.01	B Channel
1045	0x0415	ECM/EMM	-	4.99	0.01	Alif TV
1044	0x0414	ECM/EMM	-	4.99	0.01	NG Adventure
1043	0x0413	ECM/EMM	-	4.99	0.01	MGM
1042	0x0412	ECM/EMM	-	4.99	0.01	FOX Channel
1041	0x0411	ECM/EMM	-	4.99	0.01	Disney Junior
1040	0x0410	ECM/EMM	-	4.99	0.01	FOXCrime
1033	0x0409	ECM/EMM	-	4.99	0.01	Goal TV 2
1032	0x0408	ECM/EMM	-	4.99	0.01	AXN Beyond
1031	0x0407	ECM/EMM	-	4.99	0.01	SCTV
1030	0x0406	ECM/EMM	-	4.99	0.01	GlobalTV
1029	0x0405	ECM/EMM	-	4.99	0.01	ANTV
1028	0x0404	ECM/EMM	-	4.99	0.01	Indosiar
1027	0x0403	ECM/EMM	-	4.99	0.01	Metro TV
1026	0x0402	ECM/EMM	-	4.99	0.01	Bali TV
1025	0x0401	ECM/EMM	-	4.99	0.01	RCTI
16	0x0010	NIT	-	3.88	0.01	N/A
20	0x0014	TOT	-	0.14	0.00	N/A

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113°E PALAPA D

DVB S

113°E

Network Name ASIALINK Recording Vincent Witjhun

Transmitter PALAPA D 3.785H

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
308	0x0134	MPEG2 Video	-	6810.44	92.07	ASIALINK
256	0x0100	MPEG Audio	-	272.61	3.69	ASIALINK
257	0x0101	MPEG Audio	-	263.47	3.56	ASIALINK
8190	0x1FFE	PCR	-	39.46	0.53	N/A
32	0x0020	PMT	-	3.74	0.05	ASIALINK
0	0x0000	PAT	-	3.74	0.05	N/A
18	0x0012	EIT	-	1.66	0.02	N/A
17	0x0011	SDT	-	0.83	0.01	N/A
1	0x0001	CAT	-	0.83	0.01	N/A
16	0x0010	NIT	-	0.28	0.00	N/A

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Duration: 30 Sec, File Size: 10 MB **ts.TELE-satellite.com/DVB-S/113/PALAPA-3785H-1109.ts**

DVB S

113°E

Network Name Indosat 01 Recording Vincent Witjhun

Transmitter PALAPA D 4.080H *Remark* MPEG-2 and H.264

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
513	0x0201	MPEG2 Video	-	6136.76	18.47	MetroTV
516	0x0204	MPEG2 Video	-	2688.50	8.09	NHK
519	0x0207	H.264 Video	-	2557.16	7.69	CH10
512	0x0200	MPEG2 Video	-	2412.66	7.26	CH3
515	0x0203	MPEG2 Video	-	2305.19	6.94	Spacetoon
514	0x0202	MPEG2 Video	-	2098.78	6.32	Lejel
2102	0x0836	MPEG2 Video	-	2083.89	6.27	CH 20
1902	0x076E	MPEG2 Video	-	2057.68	6.19	Ch 19
1802	0x070A	MPEG2 Video	-	2053.75	6.18	Ch 18
518	0x0206	MPEG2 Video	-	1760.92	5.30	CH7
517	0x0205	MPEG2 Video	-	1557.64	4.69	CH6
520	0x0208	H.264 Video	-	511.41	1.54	CH11
664	0x0298	MPEG Audio	-	262.63	0.79	MTA FM
1903	0x076F	MPEG Audio	-	262.59	0.79	Ch 19
657	0x0291	MPEG Audio	-	262.59	0.79	CH10
656	0x0290	MPEG Audio	-	262.59	0.79	CH7
654	0x028E	MPEG Audio	-	262.59	0.79	NHK
653	0x028D	MPEG Audio	-	262.59	0.79	Spacetoon
652	0x028C	MPEG Audio	-	262.59	0.79	Lejel
651	0x028B	MPEG Audio	-	262.59	0.79	MetroTV
650	0x028A	MPEG Audio	-	262.59	0.79	CH3
2103	0x0837	MPEG Audio	-	262.54	0.79	CH 20
1803	0x070B	MPEG Audio	-	262.54	0.79	Ch 18
666	0x029A	MPEG Audio	-	262.54	0.79	POP FM
665	0x0299	MPEG Audio	-	262.54	0.79	BBC
658	0x0292	MPEG Audio	-	262.54	0.79	CH11
655	0x028F	MPEG Audio	-	262.54	0.79	CH6
1804	0x070C	MPEG Audio	-	131.67	0.40	Rodja
2001	0x07D1	MPEG Audio	-	66.18	0.20	Reda Crossa
1904	0x0770	MPEG Audio	-	66.18	0.20	Radio 19
8190	0x1FFE	PCR	-	44.28	0.13	N/A
202	0x00CA	PCR	-	39.65	0.12	N/A
2101	0x0835	PCR	-	39.60	0.12	N/A
1901	0x076D	PCR	-	39.60	0.12	N/A
211	0x00D3	PCR	-	39.60	0.12	N/A
210	0x00D2	PCR	-	39.60	0.12	N/A
207	0x00CF	PCR	-	39.60	0.12	N/A
206	0x00CE	PCR	-	39.60	0.12	N/A
205	0x00CD	PCR	-	39.60	0.12	N/A
204	0x00CC	PCR	-	39.60	0.12	N/A
203	0x00CB	PCR	-	39.60	0.12	N/A
201	0x00C9	PCR	-	39.60	0.12	N/A
1801	0x0709	PCR	-	39.55	0.12	N/A
1	0x0001	CAT	-	15.03	0.05	N/A
0	0x0000	PAT	-	15.03	0.05	N/A
107	0x006B	PMT	-	13.25	0.04	CH7
106	0x006A	PMT	-	13.25	0.04	CH6
104	0x0068	PMT	-	13.25	0.04	Spacetoon
103	0x0067	PMT	-	13.25	0.04	CH3
102	0x0066	PMT	-	13.25	0.04	MetroTV
2900	0x0B54	PMT	-	13.20	0.04	Radio 19
2800	0x0AF0	PMT	-	13.20	0.04	Rodja
2100	0x0834	PMT	-	13.20	0.04	CH 20
2000	0x07D0	PMT	-	13.20	0.04	Reda Crossa
1900	0x076C	PMT	-	13.20	0.04	Ch 19
1800	0x0708	PMT	-	13.20	0.04	Ch 18
117	0x0075	PMT	-	13.20	0.04	POP FM
116	0x0074	PMT	-	13.20	0.04	BBC
115	0x0073	PMT	-	13.20	0.04	68H
114	0x0072	PMT	-	13.20	0.04	MTA FM
111	0x006F	PMT	-	13.20	0.04	CH11
110	0x006E	PMT	-	13.20	0.04	CH10
105	0x0069	PMT	-	13.20	0.04	NHK
101	0x0065	PMT	-	13.20	0.04	Lejel
17	0x0011	SDT	-	4.54	0.01	N/A
16	0x0010	NIT	-	0.19	0.00	N/A
20	0x0014	TOT	-	0.05	0.00	N/A

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Duration: 1 Min, File Size: 133 MB **ts.TELE-satellite.com/DVB-S/113/PALAPA-4080H-1110.ts**

247°E (113°W) SATMEX 6

DVB S **247°E** Network Name ADTH Recording Juan Carlos Duarte

Transmitter SATMEX 6 12.080H

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	6192.45	17.45	N/A
322	0x0142	MPEG2 Video	-	3408.32	9.60	BVN-TV
274	0x0112	MPEG2 Video	-	2703.91	7.62	DA-AI
306	0x0132	MPEG2 Video	-	2225.93	6.27	MACTV
273	0x0111	MPEG2 Video	-	1899.26	5.35	HWAZAN
1001	0x03E9	H.264 Video	-	1047.01	2.95	GDTVI
258	0x0102	H.264 Video	$	861.17	2.43	ETNEWS
37	0x0025	H.264 Video	$	765.41	2.16	CCTV-MOV
4216	0x1078	H.264 Video	-	744.43	2.10	CCTV4
3105	0x0C21	H.264 Video	$	742.95	2.09	GDTV
112	0x0070	H.264 Video	$	701.70	1.98	ZHEJIANG
83	0x0053	H.264 Video	$	698.15	1.97	BTV
51	0x0033	H.264 Video	$	684.54	1.93	TVS
74	0x004A	H.264 Video	$	683.84	1.93	CCTV-ENT
57	0x0039	H.264 Video	$	681.95	1.92	JIANGSU
66	0x0042	H.264 Video	$	679.87	1.92	HUNAN
86	0x0056	H.264 Video	$	675.53	1.90	DRGTV
109	0x006D	H.264 Video	$	663.25	1.87	XIAMEN
290	0x0122	H.264 Video	$	659.12	1.86	ETGLB
76	0x004C	H.264 Video	$	640.39	1.80	PSTV
62	0x003E	H.264 Video	$	632.57	1.78	ATV
4194	0x1062	H.264 Video	$	628.59	1.77	PTVN
60	0x003C	H.264 Video	$	627.60	1.77	CYRTV
69	0x0045	H.264 Video	$	562.68	1.59	CCTV-OPR
44	0x002C	H.264 Video	$	560.60	1.58	FUJIAN
71	0x0047	H.264 Video	$	540.73	1.52	CCTV-E
338	0x0152	MPEG Audio	-	165.37	0.47	RNW-2
339	0x0153	MPEG Audio	-	165.34	0.47	RNW-3
337	0x0151	MPEG Audio	-	165.34	0.47	RNW-1
323	0x0143	MPEG Audio	-	136.91	0.39	BVN-TV
307	0x0133	MPEG Audio	-	132.25	0.37	MACTV
4195	0x1063	MPEG Audio	-	125.74	0.35	CCTV4
259	0x0103	MPEG Audio	$	125.56	0.35	ETNEWS
79	0x004F	MPEG Audio	$	125.50	0.35	CCTV-ENT
291	0x0123	MPEG Audio	$	124.48	0.35	ETGLB
275	0x0113	MPEG Audio	-	104.60	0.29	DA-AI
3766	0x0EB6	?	-	101.14	0.29	N/A
33	0x0021	MPEG Audio	-	99.24	0.28	HWAZAN
342	0x0156	MPEG Audio	-	99.21	0.28	RNW-6
341	0x0155	MPEG Audio	-	99.18	0.28	RNW-5
152	0x0098	ECM/EMM	-	92.53	0.26	N/A
1002	0x03EA	AAC Audio	-	89.76	0.25	GDTVI
2018	0x07E2	?	-	75.31	0.21	N/A
2013	0x07DD	?	-	75.31	0.21	N/A
2011	0x07DB	?	-	75.31	0.21	N/A
2007	0x07D7	?	-	75.31	0.21	N/A
2005	0x07D5	?	-	75.31	0.21	N/A
2010	0x07DA	?	-	75.28	0.21	N/A
340	0x0154	MPEG Audio	-	66.12	0.19	RVI-1
68	0x0044	MPEG Audio	$	62.87	0.18	CCTV-OPR
38	0x0026	MPEG Audio	$	62.87	0.18	CCTV-MOV
4100	0x1004	MPEG Audio	$	62.75	0.18	PTVN
113	0x0071	MPEG Audio	$	62.75	0.18	ZHEJIANG
87	0x0057	MPEG Audio	$	62.75	0.18	DRGTV
84	0x0054	MPEG Audio	$	62.75	0.18	BTV
72	0x0048	MPEG Audio	$	62.75	0.18	CCTV-E
67	0x0043	MPEG Audio	$	62.75	0.18	HUNAN
61	0x003D	MPEG Audio	$	62.75	0.18	CYRTV
53	0x0035	MPEG Audio	$	62.75	0.18	TVS
110	0x006E	MPEG Audio	$	62.72	0.18	XIAMEN
77	0x004D	MPEG Audio	$	62.72	0.18	PSTV
63	0x003F	MPEG Audio	$	62.72	0.18	ATV
58	0x003A	MPEG Audio	$	62.69	0.18	JIANGSU
47	0x002F	MPEG Audio	$	62.51	0.18	FUJIAN
3106	0x0C22	AAC Audio	$	61.43	0.17	GDTV
17	0x0011	SDT	-	25.14	0.07	N/A
16	0x0010	NIT	-	25.11	0.07	N/A
1	0x0001	CAT	-	25.11	0.07	N/A
0	0x0000	PAT	-	25.11	0.07	N/A
114	0x0072	PMT	-	24.30	0.07	ZHEJIANG
111	0x006F	PMT	-	24.30	0.07	XIAMEN
102	0x0066	PMT	-	24.30	0.07	GDTV
101	0x0065	PMT	-	24.30	0.07	RNW-6
100	0x0064	PMT	-	24.30	0.07	RNW-5
99	0x0063	PMT	-	24.30	0.07	RVI-1
98	0x0062	PMT	-	24.30	0.07	RNW-3
97	0x0061	PMT	-	24.30	0.07	RNW-2
96	0x0060	PMT	-	24.30	0.07	RNW-1
88	0x0058	PMT	-	24.30	0.07	DRGTV
85	0x0055	PMT	-	24.30	0.07	BTV
82	0x0052	PMT	-	24.30	0.07	CCTV-ENT
81	0x0051	PMT	-	24.30	0.07	PTVN
78	0x004E	PMT	-	24.30	0.07	PSTV
75	0x004B	PMT	-	24.30	0.07	HWAZAN
73	0x0049	PMT	-	24.30	0.07	CCTV-E
70	0x0046	PMT	-	24.30	0.07	HUNAN
65	0x0041	PMT	-	24.30	0.07	CYRTV
64	0x0040	PMT	-	24.30	0.07	ATV
59	0x003B	PMT	-	24.30	0.07	JIANGSU
56	0x0038	PMT	-	24.30	0.07	TVS
54	0x0036	PMT	-	24.30	0.07	BVN-TV
52	0x0034	PMT	-	24.30	0.07	CCTV4
50	0x0032	PMT	-	24.30	0.07	FUJIAN
49	0x0031	PMT	-	24.30	0.07	GDTVI
46	0x002E	PMT	-	24.30	0.07	ETNEWS
40	0x0028	PMT	-	24.30	0.07	CCTV-MOV
39	0x0027	PMT	-	24.30	0.07	DA-AI
36	0x0024	PMT	-	24.30	0.07	CCTV-OPR
35	0x0023	PMT	-	24.30	0.07	MACTV
34	0x0022	PMT	-	24.30	0.07	ETGLB
6144	0x1800	ECM/EMM	-	10.12	0.03	ETNEWS
5640	0x1608	ECM/EMM	-	7.65	0.02	ETGLB
5637	0x1605	ECM/EMM	-	7.65	0.02	CCTV-OPR
5636	0x1604	ECM/EMM	-	7.65	0.02	CCTV-MOV
5635	0x1603	ECM/EMM	-	7.65	0.02	CCTV-ENT
5633	0x1601	ECM/EMM	-	7.65	0.02	BTV
5680	0x1630	ECM/EMM	-	7.62	0.02	XIAMEN
5673	0x1629	ECM/EMM	-	7.62	0.02	ZHEJIANG
5670	0x1626	ECM/EMM	-	7.62	0.02	TVS
5664	0x1620	ECM/EMM	-	7.62	0.02	PTVN
5657	0x1619	ECM/EMM	-	7.62	0.02	PSTV
5655	0x1617	ECM/EMM	-	7.62	0.02	JIANGSU
5654	0x1616	ECM/EMM	-	7.62	0.02	DRGTV
5652	0x1614	ECM/EMM	-	7.62	0.02	HUNAN
5651	0x1613	ECM/EMM	-	7.62	0.02	GDTV
5650	0x1612	ECM/EMM	-	7.62	0.02	FUJIAN
5641	0x1609	ECM/EMM	-	7.62	0.02	ETNEWS
5638	0x1606	ECM/EMM	-	7.62	0.02	CYRTV
5634	0x1602	ECM/EMM	-	7.62	0.02	CCTV-E
5632	0x1600	ECM/EMM	-	7.62	0.02	ATV
6153	0x1809	ECM/EMM	-	5.12	0.01	CCTV-MOV
6152	0x1808	ECM/EMM	-	5.12	0.01	CCTV-ENT
6149	0x1805	ECM/EMM	-	5.12	0.01	BTV
6145	0x1801	ECM/EMM	-	5.12	0.01	ETGLB
6192	0x1830	ECM/EMM	-	5.09	0.01	ZHEJIANG
6185	0x1829	ECM/EMM	-	5.09	0.01	XIAMEN
6184	0x1828	ECM/EMM	-	5.09	0.01	TVS
6176	0x1820	ECM/EMM	-	5.09	0.01	PTVN
6169	0x1819	ECM/EMM	-	5.09	0.01	PSTV
6167	0x1817	ECM/EMM	-	5.09	0.01	JIANGSU
6165	0x1815	ECM/EMM	-	5.09	0.01	HUNAN
6164	0x1814	ECM/EMM	-	5.09	0.01	GDTV
6163	0x1813	ECM/EMM	-	5.09	0.01	FUJIAN
6162	0x1812	ECM/EMM	-	5.09	0.01	DRGTV
6161	0x1811	ECM/EMM	-	5.09	0.01	CYRTV
6160	0x1810	ECM/EMM	-	5.09	0.01	CCTV-OPR
6148	0x1804	ECM/EMM	-	5.09	0.01	ATV
6147	0x1803	ECM/EMM	-	5.09	0.01	CCTV-E
20	0x0014	TOT	-	1.51	0.00	N/A
153	0x0099	ECM/EMM	-	1.35	0.00	N/A

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288°E (72°W) AMC 6

DVB S **288°E** Network Name Site - 1 Recording Juan Carlos Duarte

Transmitter AMC 6 11.546V

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
33	0x0021	MPEG2 Video	-	3043.34	20.64	CN23
99	0x0063	MPEG2 Video	-	3012.40	20.43	SEMSAT
36	0x0024	MPEG2 Video	$	2723.43	18.47	ENC
39	0x0027	MPEG2 Video	$	2206.62	14.96	C7NQ
8191	0x1FFF	Null Packets	-	552.31	3.75	N/A
35	0x0023	MPEG2 Video	-	479.27	3.25	C7
43	0x002B	MPEG Audio	$	208.94	1.42	MEGA
47	0x002F	MPEG Audio	$	208.93	1.42	TKM
45	0x002D	MPEG Audio	$	208.93	1.42	RAD10
42	0x002A	MPEG Audio	$	208.91	1.42	POP
41	0x0029	MPEG Audio	-	208.91	1.42	VALE
32	0x0020	MPEG Audio	-	135.82	0.92	CN23
98	0x0062	MPEG Audio	-	135.80	0.92	SEMSAT
63	0x003F	MPEG Audio	-	135.80	0.92	LA950
58	0x003A	MPEG Audio	-	135.80	0.92	CADECO
49	0x0031	MPEG Audio	-	135.80	0.92	AM630
34	0x0022	MPEG Audio	-	135.80	0.92	C7
53	0x0035	MPEG Audio	$	135.79	0.92	RNAC
38	0x0026	MPEG Audio	$	135.79	0.92	C7NQ
37	0x0025	MPEG Audio	$	135.79	0.92	ENC
51	0x0033	MPEG Audio	-	135.78	0.92	R UNO
17	0x0011	SDT	-	47.56	0.32	N/A
16	0x0010	NIT	-	23.78	0.16	N/A
101	0x0065	PMT	-	13.84	0.09	SEMSAT
61	0x003D	PMT	-	13.81	0.09	C7NQ
1	0x0001	CAT	-	13.79	0.09	N/A
50	0x0032	PMT	-	13.77	0.09	R UNO
103	0x0067	PMT	-	13.76	0.09	RAD10
62	0x003E	PMT	-	13.76	0.09	ENC
60	0x003C	PMT	-	13.76	0.09	C7
0	0x0000	PAT	-	13.76	0.09	N/A
82	0x0052	PMT	-	13.74	0.09	CADECO
48	0x0030	PMT	-	13.74	0.09	AM630
40	0x0028	PMT	-	13.74	0.09	VALE
102	0x0066	PMT	-	13.72	0.09	MEGA
52	0x0034	PMT	-	13.72	0.09	RNAC
44	0x002C	PMT	-	13.72	0.09	CN23
104	0x0068	PMT	-	13.70	0.09	LA950
100	0x0064	PMT	-	13.70	0.09	POP
46	0x002E	PMT	-	13.69	0.09	TKM
64	0x0040	Private PES	-	2.97	0.02	C7
1357	0x054D	ECM/EMM	-	2.40	0.02	C7NQ
1355	0x054B	ECM/EMM	-	2.37	0.02	VALE
1353	0x0549	ECM/EMM	-	2.37	0.02	POP
1346	0x0542	ECM/EMM	-	2.37	0.02	RNAC
1354	0x054A	ECM/EMM	-	2.33	0.02	TKM
1351	0x0547	ECM/EMM	-	2.28	0.02	RAD10
1358	0x054E	ECM/EMM	-	2.25	0.02	ENC
1352	0x0548	ECM/EMM	-	2.21	0.01	MEGA
1280	0x0500	ECM/EMM	-	0.96	0.01	N/A

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Duration: 3 Min, File Size: 218 MB **www.transponderstream.com/DVB-S/288/AMC6-11546V-1111.ts**

297°E (63°W) ESTRELLA DEL SUR

DVB S **297°E**

Network Name ENTEL Recording Juan Carlos Duarte

Transm. ESTRELLA DEL SUR 11.640V

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
305	0x0131	MPEG2 Video	$	5303.59	18.16	03 CANAL 13
273	0x0111	MPEG2 Video	$	5303.59	18.16	01 MEGA
289	0x0121	MPEG2 Video	-	3886.08	13.30	02 TELETRAK
337	0x0151	MPEG2 Video	-	3702.48	12.68	05 CHILEVISION
353	0x0161	MPEG2 Video	$	3371.44	11.54	06 CAMARA DIPUTADOS
321	0x0141	MPEG2 Video	-	2268.00	7.76	04 SENADO TV
369	0x0171	MPEG2 Video	$	1781.57	6.10	07 Business TV
8191	0x1FFF	Null Packets	-	1573.69	5.39	N/A
354	0x0162	MPEG Audio	$	271.74	0.93	06 CAMARA DIPUTADOS
338	0x0152	MPEG Audio	-	271.74	0.93	05 CHILEVISION
306	0x0132	MPEG Audio	$	271.74	0.93	03 CANAL 13
274	0x0112	MPEG Audio	$	271.74	0.93	01 MEGA
385	0x0181	MPEG Audio	-	198.60	0.68	TEST RADIO1
370	0x0172	MPEG Audio	$	135.87	0.47	07 Business TV
322	0x0142	MPEG Audio	-	135.87	0.47	04 SENADO TV
290	0x0122	MPEG Audio	-	135.87	0.47	02 TELETRAK
1281	0x0501	ECM/EMM	-	32.32	0.11	N/A
17	0x0011	SDT	-	22.59	0.08	N/A
389	0x0185	PMT	-	22.56	0.08	TEST RADIO1
373	0x0175	PMT	-	22.56	0.08	07 Business TV
357	0x0165	PMT	-	22.56	0.08	06 CAMARA DIPUTADOS
341	0x0155	PMT	-	22.56	0.08	05 CHILEVISION
325	0x0145	PMT	-	22.56	0.08	04 SENADO TV
309	0x0135	PMT	-	22.56	0.08	03 CANAL 13
293	0x0125	PMT	-	22.56	0.08	02 TELETRAK
277	0x0115	PMT	-	22.56	0.08	01 MEGA
2	0x0002	NIT	-	22.56	0.08	N/A
1	0x0001	CAT	-	22.56	0.08	N/A
0	0x0000	PAT	-	22.56	0.08	N/A
515	0x0203	ECM/EMM	-	5.66	0.02	03 CANAL 13
519	0x0207	ECM/EMM	-	5.63	0.02	07 Business TV
518	0x0206	ECM/EMM	-	5.63	0.02	06 CAMARA DIPUTADOS
513	0x0201	ECM/EMM	-	5.63	0.02	01 MEGA
20	0x0014	TOT	-	0.40	0.00	N/A

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Duration: 3 Min, File Size: 444 MB **www.transponderstream.com/DVB-S/297/ESTRELLA-11640V-1111.ts**

330°E (30°W) HISPASAT

DVB S **330°E**

Network Name Telecaribe, Colombia Recording Juan Carlos Duarte

Transmitter HISPASAT 11.935V

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
101	0x0065	MPEG2 Video	-	3892.72	53.63	TELECARIBE COLOMBIA
103	0x0067	MPEG2 Video	-	2666.68	36.74	ZOOM
102	0x0066	MPEG Audio	-	263.22	3.63	TELECARIBE COLOMBIA
8191	0x1FFF	Null Packets	-	234.66	3.23	N/A
104	0x0068	MPEG Audio	-	132.31	1.82	ZOOM
100	0x0064	PMT	-	15.84	0.22	TELECARIBE COLOMBIA
32	0x0020	PMT	-	15.84	0.22	ZOOM
1	0x0001	CAT	-	15.84	0.22	N/A
0	0x0000	PAT	-	15.84	0.22	N/A
18	0x0012	EIT	-	3.16	0.04	N/A
17	0x0011	SDT	-	1.59	0.02	N/A
16	0x0010	NIT	-	0.31	0.00	N/A
20	0x0014	TOT	-	0.20	0.00	N/A

Transponderstream Technical Service File Download for Clients Only

Duration: 3 Min, File Size: 110 MB **www.transponderstream.com/DVB-S/330/HISPASAT-11935V-1110.ts**

DVB S **330°E**

Network Name TVE, America Recording Juan Carlos Duarte

Transmitter HISPASAT 12.052V

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	9215.00	24.21	N/A
4368	0x1110	MPEG2 Video	$	5585.14	14.67	TVEA1
4384	0x1120	MPEG2 Video	$	4055.85	10.66	24HTVE
1160	0x0488	MPEG2 Video	$	3688.44	9.69	ANTENA3
4416	0x1140	MPEG2 Video	$	3180.82	8.36	TVEA2
4240	0x1090	MPEG2 Video	-	2703.57	7.10	TV3 Cat
4256	0x10A0	MPEG2 Video	-	2703.52	7.10	CANAL VASCO
4208	0x1070	MPEG2 Video	-	2703.52	7.10	TVGA
4209	0x1071	MPEG Audio	-	271.96	0.71	TVGA
36	0x0024	MPEG Audio	-	271.96	0.71	RCLA
46	0x002E	MPEG Audio	-	271.91	0.71	RNE3
45	0x002D	MPEG Audio	-	207.90	0.55	C.R.
44	0x002C	MPEG Audio	-	207.85	0.55	REUS
42	0x002A	MPEG Audio	-	207.85	0.55	C.C.
43	0x002B	MPEG Audio	-	207.80	0.55	EUSK
41	0x0029	MPEG Audio	-	207.80	0.55	RGA
4257	0x10A1	MPEG Audio	-	198.73	0.52	CANAL VASCO
4241	0x1091	MPEG Audio	-	198.68	0.52	TV3 Cat
1120	0x0460	MPEG Audio	-	141.18	0.37	ANTENA3
47	0x002F	MPEG Audio	-	136.01	0.36	REE
4417	0x1141	MPEG Audio	$	135.95	0.36	TVEA2
49	0x0031	MPEG Audio	-	135.95	0.36	RNE5
38	0x0026	MPEG Audio	-	135.95	0.36	SAR7
4385	0x1121	MPEG Audio	$	135.90	0.36	24HTVE
4369	0x1111	MPEG Audio	$	135.90	0.36	TVEA1
35	0x0023	MPEG Audio	-	135.90	0.36	RNE1
68	0x0044	MPEG Audio	-	134.47	0.35	Radio Galicia 2
4386	0x1122	Private Data	$	131.81	0.35	24HTVE
4370	0x1112	Private Data	$	131.81	0.35	TVEA1
4418	0x1142	Private Data	$	131.76	0.35	TVEA2
48	0x0030	PMT	-	83.62	0.22	ANTENA3
1211	0x04BB	MPEG Audio	-	71.02	0.19	NSE Radio
17	0x0011	SDT	-	51.62	0.14	N/A
16	0x0010	NIT	-	30.11	0.08	N/A
1	0x0001	CAT	-	30.11	0.08	N/A
0	0x0000	PAT	-	30.11	0.08	N/A
6001	0x1771	ECM/EMM	-	15.05	0.04	ANTENA3
192	0x00C0	ECM/EMM	-	13.72	0.04	N/A
20	0x0014	TOT	-	10.04	0.03	N/A
4431	0x114F	ECM/EMM	-	6.14	0.02	TVEA2
4399	0x112F	ECM/EMM	-	6.14	0.02	24HTVE
4383	0x111F	ECM/EMM	-	6.14	0.02	TVEA1

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DVB S **330°E**

Network Name n.a. Recording Juan Carlos Duarte

Transmitter HISPASAT 12.170V

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
255	0x00FF	MPEG2 Video	$	3089.68	42.62	SOLO TANGO
257	0x0101	MPEG2 Video	-	2581.48	35.61	CANAL 21
8191	0x1FFF	Null Packets	-	804.71	11.10	N/A
266	0x010A	MPEG Audio	-	135.66	1.87	SIGLO 21
261	0x0105	MPEG Audio	-	135.66	1.87	CADENA 3
258	0x0102	MPEG Audio	-	135.66	1.87	CANAL 21
256	0x0100	MPEG Audio	$	135.62	1.87	SOLO TANGO
267	0x010B	MPEG Audio	-	70.22	0.97	RADIO COOPERATIVA
262	0x0106	MPEG Audio	-	70.22	0.97	RADIO 3 PATAGONICA
601	0x0259	ECM/EMM	-	30.95	0.43	N/A
0	0x0000	PAT	-	13.68	0.19	N/A
100	0x0064	PMT	-	7.71	0.11	SOLO TANGO
18	0x0012	EIT	-	5.44	0.08	N/A
8190	0x1FFE	ECM/EMM	-	4.99	0.07	SOLO TANGO
108	0x006C	PMT	-	4.57	0.06	RADIO COOPERATIVA
107	0x006B	PMT	-	4.57	0.06	SIGLO 21
106	0x006A	PMT	-	4.57	0.06	CADENA 3
104	0x0068	PMT	-	4.57	0.06	RADIO 3 PATAGONICA
101	0x0065	PMT	-	4.57	0.06	CANAL 21
1	0x0001	CAT	-	3.87	0.05	N/A
17	0x0011	SDT	-	0.58	0.01	N/A
20	0x0014	TOT	-	0.33	0.00	N/A

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352.5°E (7.5°W) ATLANTIC BIRD 1

DVB S **352.5°E**

Network Name TIMB4 Recording Thomas Haring
Transmitter ATLANTIC BIRD 1 12.718H *Remark* MIS

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
757	0x02F5	H.264 Video	-	9232.66	41.14	LA7 HD
762	0x02FA	H.264 Video	-	9232.39	41.14	LA7 test 3D
101	0x0065	H.264 Video	-	1801.87	8.03	LA7 test MOSAICO
8191	0x1FFF	Null Packets	-	1158.70	5.16	N/A
763	0x02FB	MPEG Audio	-	394.77	1.76	LA7 test 3D
758	0x02F6	MPEG Audio	-	394.68	1.76	LA7 HD
18	0x0012	EIT	-	39.17	0.17	N/A
104	0x0068	AAC Audio	-	26.64	0.12	LA7 test MOSAICO
102	0x0066	AAC Audio	-	26.64	0.12	LA7 test MOSAICO
105	0x0069	AAC Audio	-	26.55	0.12	LA7 test MOSAICO
103	0x0067	AAC Audio	-	26.55	0.12	LA7 test MOSAICO
1	0x0001	CAT	-	15.13	0.07	N/A
771	0x0303	PMT	-	15.04	0.07	LA7 test MOSAICO
761	0x02F9	PMT	-	15.04	0.07	LA7 test 3D
756	0x02F4	PMT	-	15.04	0.07	LA7 HD
0	0x0000	PAT	-	15.04	0.07	N/A
21	0x0015	Network Sync	-	2.51	0.01	N/A
17	0x0011	SDT	-	1.58	0.01	N/A
16	0x0010	NIT	-	0.28	0.00	N/A
20	0x0014	TOT	-	0.09	0.00	N/A

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DVB S **352.5°E**

Network Name TIMB2 Recording Thomas Haring
Transmitter ATLANTIC BIRD 1 12.718H *Remark* MIS

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
757	0x02F5	H.264 Video	-	8717.97	38.86	LA7 HD
770	0x0302	H.264 Video	-	4112.51	18.33	LA7D HD
766	0x02FE	H.264 Video	-	3089.98	13.77	MTV HD
790	0x0316	MPEG2 Video	-	2567.23	11.44	RTL 102.5 TV
650	0x028A	MPEG2 Video	-	1465.59	6.53	Padre Pio TV
772	0x0304	AC3 Audio	-	423.75	1.89	LA7D HD
759	0x02F7	AC3 Audio	-	423.75	1.89	LA7 HD
768	0x0300	AC3 Audio	-	423.65	1.89	MTV HD
18	0x0012	EIT	-	259.40	1.16	N/A
792	0x0318	MPEG Audio	-	200.78	0.90	RTL 102.5
791	0x0317	MPEG Audio	-	198.71	0.89	RTL 102.5 TV
8191	0x1FFF	Null Packets	-	193.95	0.86	N/A
651	0x028B	MPEG Audio	-	135.94	0.61	Padre Pio TV
7094	0x1BB6	Data	-	35.05	0.16	ROVI
7041	0x1B81	Data	-	23.86	0.11	ROVI
33	0x0021	PMT	-	15.15	0.07	MTV MUSIC HD
1	0x0001	CAT	-	15.15	0.07	N/A
769	0x0301	PMT	-	15.05	0.07	LA7D HD
765	0x02FD	PMT	-	15.05	0.07	MTV HD
756	0x02F4	PMT	-	15.05	0.07	LA7 HD
549	0x0225	PMT	-	15.05	0.07	Padre Pio TV
490	0x01EA	PMT	-	15.05	0.07	RTL 102.5
290	0x0122	PMT	-	15.05	0.07	RTL 102.5 TV
269	0x010D	PMT	-	15.05	0.07	ROVI
0	0x0000	PAT	-	15.05	0.07	N/A
7040	0x1B80	Data	-	4.65	0.02	ROVI
17	0x0011	SDT	-	2.97	0.01	N/A
21	0x0015	Network Sync	-	2.48	0.01	N/A
16	0x0010	NIT	-	0.30	0.00	N/A
20	0x0014	TOT	-	0.20	0.00	N/A

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DVB S **352.5°E**

Network Name TIMB3 Recording Thomas Haring
Transmitter ATLANTIC BIRD 1 12.718H *Remark* MIS

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
6112	0x17E0	MPEG2 Video	-	5023.91	22.39	LA7
6122	0x17EA	MPEG2 Video	-	2874.71	12.81	LA7D
6132	0x17F4	MPEG2 Video	-	2567.58	11.44	MTV MUSIC
6117	0x17E5	MPEG2 Video	-	2465.31	10.99	MTV
1457	0x05B1	MPEG2 Video	-	2362.96	10.53	frisbee
981	0x03D5	MPEG2 Video	-	2362.88	10.53	K2
8191	0x1FFF	Null Packets	-	1262.97	5.63	N/A
2039	0x07F7	MPEG2 Video	-	433.78	1.93	La7ondemand
6133	0x17F5	MPEG Audio	-	394.71	1.76	MTV MUSIC
6118	0x17E6	MPEG Audio	-	394.71	1.76	MTV
6113	0x17E1	MPEG Audio	-	263.61	1.17	LA7
18	0x0012	EIT	-	259.63	1.16	N/A
7011	0x1B63	MHP	-	244.39	1.09	LA7
6120	0x17E8	Teletext	-	188.37	0.84	MTV
6115	0x17E3	Teletext	-	150.71	0.67	LA7
7001	0x1B59	MHP	-	144.31	0.64	LA7
7081	0x1BA9	MHP	-	144.23	0.64	LA7
6123	0x17EB	MPEG Audio	-	132.51	0.59	LA7D
1458	0x05B2	MPEG Audio	-	132.51	0.59	frisbee
982	0x03D6	MPEG Audio	-	132.51	0.59	K2
990	0x03DE	MHP	-	94.15	0.42	CUBOVISION
6111	0x17DF	PMT	-	30.16	0.13	LA7
6160	0x1810	PMT	-	15.08	0.07	MTV
6157	0x180D	PMT	-	15.08	0.07	La7ondemand
6152	0x1808	PMT	-	15.08	0.07	LA7D
6141	0x17FD	PMT	-	15.08	0.07	MTV MUSIC
6131	0x17F3	PMT	-	15.08	0.07	MTV MUSIC
6116	0x17E4	PMT	-	15.08	0.07	MTV
6106	0x17DA	PMT	-	15.08	0.07	CUBOVISION
1551	0x060F	PMT	-	15.08	0.07	PIU' SERVIZI
1546	0x060A	PMT	-	15.08	0.07	PORTALE SERVIZI TELECOM
1541	0x0605	PMT	-	15.08	0.07	MTV MUSIC On Demand
1536	0x0600	PMT	-	15.08	0.07	MTV+ On Demand
1531	0x05FB	PMT	-	15.08	0.07	La7 Servizi On Demand
1526	0x05F6	PMT	-	15.08	0.07	La7D On Demand
1521	0x05F1	PMT	-	15.08	0.07	MTV On Demand
1516	0x05EC	PMT	-	15.08	0.07	MTV News On Demand
1512	0x05E8	PMT	-	15.08	0.07	La7 News On Demand
1461	0x05B5	PMT	-	15.08	0.07	frisbee
0	0x0000	PAT	-	15.08	0.07	N/A
6151	0x1807	PMT	-	15.00	0.07	LA7D
6150	0x1806	PMT	-	15.00	0.07	LA7
1511	0x05E7	PMT	-	15.00	0.07	K2
1	0x0001	CAT	-	15.00	0.07	N/A
590	0x024E	Private Sections	-	6.09	0.03	N/A
7080	0x1BA8	Private Sections	-	6.02	0.03	N/A
7010	0x1B62	Private Sections	-	6.02	0.03	N/A
7000	0x1B58	Private Sections	-	6.02	0.03	N/A
577	0x0241	Private Sections	-	6.02	0.03	N/A
400	0x0190	Private Sections	-	6.02	0.03	N/A
17	0x0011	SDT	-	4.45	0.02	N/A
21	0x0015	Network Sync	-	2.42	0.01	N/A
16	0x0010	NIT	-	0.63	0.00	N/A
20	0x0014	TOT	-	0.23	0.00	N/A

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DVB-S2 satellite

9°E EUROBIRD

DVB S2 **9°E**

Network Name Kabelkiosk Recording Thomas Haring
Transmitter EUROBIRD 11.785H *Remark* cable feed

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	4018.05	7.55	N/A
2273	0x08E1	MPEG2 Video	$	3665.36	6.89	HSE24
2305	0x0901	MPEG2 Video	$	3152.18	5.92	Russia Today
2113	0x0841	MPEG2 Video	$	3140.79	5.90	QVC Plus
2209	0x08A1	MPEG2 Video	$	2990.83	5.62	VIVA
2497	0x09C1	MPEG2 Video	$	2987.57	5.61	CNBC
2337	0x0921	MPEG2 Video	$	2863.09	5.38	Eurosport
2561	0x0A01	MPEG2 Video	$	2779.54	5.22	Das Vierte
2241	0x08C1	MPEG2 Video	$	2720.67	5.11	sixx
2593	0x0A21	MPEG2 Video	$	2675.14	5.03	HSE 24 Extra
2081	0x0821	MPEG2 Video	$	2567.05	4.82	Channel 21 Shop
2465	0x09A1	MPEG2 Video	$	2406.72	4.52	CNN
2369	0x0941	MPEG2 Video	$	2342.50	4.40	1-2-3 TV
2529	0x09E1	MPEG2 Video	$	2233.27	4.20	DMAX
2145	0x0861	MPEG2 Video	$	2147.38	4.03	Nick/Comedy Central
2433	0x0981	MPEG2 Video	$	1809.54	3.40	YAVIDO
2401	0x0961	MPEG2 Video	$	1368.59	2.57	iMusic 1
2104	0x0838	Teletext	$	300.74	0.57	Channel 21 Shop
2232	0x08B8	Teletext	$	296.40	0.56	VIVA
2168	0x0878	Teletext	$	294.46	0.55	Nick/Comedy Central
2552	0x09F8	Teletext	$	263.18	0.49	DMAX
2210	0x08A2	MPEG Audio	$	263.15	0.49	VIVA
2616	0x0A38	Teletext	$	263.15	0.49	HSE 24 Extra
2392	0x0958	Teletext	$	263.15	0.49	1-2-3 TV
2264	0x08D8	Teletext	$	263.15	0.49	sixx
2146	0x0862	MPEG Audio	$	263.15	0.49	Nick/Comedy Central
2520	0x09D8	Teletext	$	225.55	0.42	CNBC
2584	0x0A18	Teletext	$	225.54	0.42	Das Vierte
2050	0x0802	ECM/EMM	-	211.50	0.40	N/A
2498	0x09C2	MPEG Audio	$	203.63	0.38	CNBC
2434	0x0982	MPEG Audio	$	200.50	0.38	YAVIDO
2402	0x0962	MPEG Audio	$	200.50	0.38	iMusic 1
2242	0x08C2	MPEG Audio	$	200.50	0.38	sixx
2594	0x0A22	MPEG Audio	$	200.50	0.38	HSE 24 Extra
2530	0x09E2	MPEG Audio	$	200.50	0.38	DMAX
2274	0x08E2	MPEG Audio	$	200.50	0.38	HSE24
2082	0x0822	MPEG Audio	$	200.50	0.38	Channel 21 Shop
2562	0x0A02	MPEG Audio	$	200.49	0.38	Das Vierte
2370	0x0942	MPEG Audio	$	200.49	0.38	1-2-3 TV
2338	0x0922	MPEG Audio	$	200.49	0.38	Eurosport
2049	0x0801	ECM/EMM	-	193.25	0.36	N/A
2136	0x0858	Teletext	$	187.97	0.35	QVC Plus
2296	0x08F8	Teletext	$	187.97	0.35	HSE24
18	0x0012	EIT	-	148.66	0.28	N/A
2114	0x0842	MPEG Audio	$	137.85	0.26	QVC Plus
2466	0x09A2	MPEG Audio	$	137.84	0.26	CNN
2306	0x0902	MPEG Audio	$	137.84	0.26	Russia Today
5424	0x1530	ECM/EMM	-	21.35	0.04	N/A
2481	0x09B1	ECM/EMM	-	15.17	0.03	CNN
2480	0x09B0	ECM/EMM	-	15.17	0.03	CNN
2449	0x0991	ECM/EMM	-	15.17	0.03	YAVIDO
2448	0x0990	ECM/EMM	-	15.17	0.03	YAVIDO
2353	0x0931	ECM/EMM	-	15.17	0.03	Eurosport
2352	0x0930	ECM/EMM	-	15.17	0.03	Eurosport
2321	0x0911	ECM/EMM	-	15.17	0.03	Russia Today
2320	0x0910	ECM/EMM	-	15.17	0.03	Russia Today
2161	0x0871	ECM/EMM	-	15.17	0.03	Nick/Comedy Central
2160	0x0870	ECM/EMM	-	15.17	0.03	Nick/Comedy Central
2609	0x0A31	ECM/EMM	-	15.16	0.03	HSE 24 Extra
2608	0x0A30	ECM/EMM	-	15.16	0.03	HSE 24 Extra
2577	0x0A11	ECM/EMM	-	15.16	0.03	Das Vierte
2576	0x0A10	ECM/EMM	-	15.16	0.03	Das Vierte
2545	0x09F1	ECM/EMM	-	15.16	0.03	DMAX
2544	0x09F0	ECM/EMM	-	15.16	0.03	DMAX
2513	0x09D1	ECM/EMM	-	15.16	0.03	CNBC
2512	0x09D0	ECM/EMM	-	15.16	0.03	CNBC
2417	0x0971	ECM/EMM	-	15.16	0.03	iMusic 1
2416	0x0970	ECM/EMM	-	15.16	0.03	iMusic 1
2385	0x0951	ECM/EMM	-	15.16	0.03	1-2-3 TV
2384	0x0950	ECM/EMM	-	15.16	0.03	1-2-3 TV
2289	0x08F1	ECM/EMM	-	15.16	0.03	HSE24
2288	0x08F0	ECM/EMM	-	15.16	0.03	HSE24
2257	0x08D1	ECM/EMM	-	15.16	0.03	sixx
2256	0x08D0	ECM/EMM	-	15.16	0.03	sixx
2225	0x08B1	ECM/EMM	-	15.16	0.03	VIVA
2224	0x08B0	ECM/EMM	-	15.16	0.03	VIVA
2129	0x0851	ECM/EMM	-	15.16	0.03	QVC Plus
2128	0x0850	ECM/EMM	-	15.16	0.03	QVC Plus
2097	0x0831	ECM/EMM	-	15.16	0.03	Channel 21 Shop
2096	0x0830	ECM/EMM	-	15.16	0.03	Channel 21 Shop
16	0x0010	NIT	-	12.89	0.02	N/A
17	0x0011	SDT	-	9.02	0.02	N/A
2452	0x0994	ECM/EMM	-	6.16	0.01	YAVIDO
2580	0x0A14	ECM/EMM	-	6.16	0.01	Das Vierte
2579	0x0A13	ECM/EMM	-	6.16	0.01	Das Vierte
2578	0x0A12	ECM/EMM	-	6.16	0.01	Das Vierte
2548	0x09F4	ECM/EMM	-	6.16	0.01	DMAX
2516	0x09D4	ECM/EMM	-	6.16	0.01	CNBC
2484	0x09B4	ECM/EMM	-	6.16	0.01	CNN
2451	0x0993	ECM/EMM	-	6.16	0.01	YAVIDO
2450	0x0992	ECM/EMM	-	6.16	0.01	YAVIDO
2420	0x0974	ECM/EMM	-	6.16	0.01	iMusic 1
2419	0x0973	ECM/EMM	-	6.16	0.01	iMusic 1
2418	0x0972	ECM/EMM	-	6.16	0.01	iMusic 1
2388	0x0954	ECM/EMM	-	6.16	0.01	1-2-3 TV
2387	0x0953	ECM/EMM	-	6.16	0.01	1-2-3 TV
2386	0x0952	ECM/EMM	-	6.16	0.01	1-2-3 TV
2324	0x0914	ECM/EMM	-	6.16	0.01	Russia Today
2323	0x0913	ECM/EMM	-	6.16	0.01	Russia Today
2322	0x0912	ECM/EMM	-	6.16	0.01	Russia Today
2292	0x08F4	ECM/EMM	-	6.16	0.01	HSE24
2260	0x08D4	ECM/EMM	-	6.16	0.01	sixx
2227	0x08B3	ECM/EMM	-	6.16	0.01	VIVA
2226	0x08B2	ECM/EMM	-	6.16	0.01	VIVA
2164	0x0874	ECM/EMM	-	6.16	0.01	Nick/Comedy Central
2163	0x0873	ECM/EMM	-	6.16	0.01	Nick/Comedy Central
2162	0x0872	ECM/EMM	-	6.16	0.01	Nick/Comedy Central
2132	0x0854	ECM/EMM	-	6.16	0.01	QVC Plus
2100	0x0834	ECM/EMM	-	6.16	0.01	Channel 21 Shop
2099	0x0833	ECM/EMM	-	6.16	0.01	Channel 21 Shop
2098	0x0832	ECM/EMM	-	6.16	0.01	Channel 21 Shop
2547	0x09F3	ECM/EMM	-	6.15	0.01	DMAX
2546	0x09F2	ECM/EMM	-	6.15	0.01	DMAX
2515	0x09D3	ECM/EMM	-	6.15	0.01	CNBC
2514	0x09D2	ECM/EMM	-	6.15	0.01	CNBC
2483	0x09B3	ECM/EMM	-	6.15	0.01	CNN
2482	0x09B2	ECM/EMM	-	6.15	0.01	CNN
2291	0x08F3	ECM/EMM	-	6.15	0.01	HSE24
2290	0x08F2	ECM/EMM	-	6.15	0.01	HSE24
2259	0x08D3	ECM/EMM	-	6.15	0.01	sixx
2258	0x08D2	ECM/EMM	-	6.15	0.01	sixx
2228	0x08B4	ECM/EMM	-	6.15	0.01	VIVA
2131	0x0853	ECM/EMM	-	6.15	0.01	QVC Plus
2130	0x0852	ECM/EMM	-	6.15	0.01	QVC Plus
2592	0x0A20	PMT	-	5.02	0.01	HSE 24 Extra
2560	0x0A00	PMT	-	5.02	0.01	Das Vierte
2496	0x09C0	PMT	-	5.02	0.01	CNBC
2432	0x0980	PMT	-	5.02	0.01	YAVIDO
2400	0x0960	PMT	-	5.02	0.01	iMusic 1
2368	0x0940	PMT	-	5.02	0.01	1-2-3 TV
2336	0x0920	PMT	-	5.02	0.01	Eurosport
2304	0x0900	PMT	-	5.02	0.01	Russia Today
2272	0x08E0	PMT	-	5.02	0.01	HSE24
2240	0x08C0	PMT	-	5.02	0.01	sixx
2208	0x08A0	PMT	-	5.02	0.01	VIVA
2144	0x0860	PMT	-	5.02	0.01	Nick/Comedy Central
2112	0x0840	PMT	-	5.02	0.01	QVC Plus
2080	0x0820	PMT	-	5.02	0.01	Channel 21 Shop
0	0x0000	PAT	-	5.02	0.01	N/A
2528	0x09E0	PMT	-	5.01	0.01	DMAX
2464	0x09A0	PMT	-	5.01	0.01	CNN
1	0x0001	CAT	-	3.01	0.01	N/A
100	0x0064	Private Sections	$	1.54	0.00	N/A
5428	0x1534	ECM/EMM	-	1.01	0.00	N/A
5427	0x1533	ECM/EMM	-	1.01	0.00	N/A

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DVB S2 **9°E**

Network Name E.B.9 NMX Recording Thomas Haring
Transmitter EUROBIRD 11.881V *Remark* HDTV

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	9324.02	17.51	N/A
2010	0x07DA	H.264 Video	$	8202.59	15.40	National Geographic HD
2011	0x07DB	H.264 Video	$	8002.47	15.03	FOX HD
2001	0x07D1	H.264 Video	-	7302.32	13.71	FTV HD
2007	0x07D7	H.264 Video	$	6567.28	12.33	MEZZO HD
2002	0x07D2	H.264 Video	$	5414.85	10.17	iConcerts
2006	0x07D6	H.264 Video	$	4501.45	8.45	Duck TV HD
3006	0x0BBE	MPEG Audio	$	397.01	0.75	Duck TV HD
3001	0x0BB9	MPEG Audio	-	397.01	0.75	FTV HD
5011	0x1393	AC3 Audio	$	394.92	0.74	FOX HD
4010	0x0FAA	AC3 Audio	$	394.92	0.74	National Geographic HD
3010	0x0BC2	AC3 Audio	$	394.92	0.74	National Geographic HD
3007	0x0BBF	MPEG Audio	$	266.41	0.50	MEZZO HD
3002	0x0BBA	MPEG Audio	$	266.41	0.50	iConcerts
502	0x01F6	ECM/EMM	-	211.56	0.40	N/A
3011	0x0BC3	MPEG Audio	$	198.51	0.37	FOX HD
4011	0x0FAB	MPEG Audio	$	198.50	0.37	FOX HD
1000	0x03E8	ECM/EMM	-	98.30	0.18	N/A
18	0x0012	EIT	-	85.39	0.16	N/A
501	0x01F5	ECM/EMM	-	78.33	0.15	N/A
4001	0x0FA1	MPEG Audio	-	73.14	0.14	FTV HD
16	0x0010	NIT	-	25.08	0.05	N/A
1	0x0001	CAT	-	25.06	0.05	N/A
0	0x0000	PAT	-	25.06	0.05	N/A
1011	0x03F3	PMT	-	24.26	0.05	FOX HD
1010	0x03F2	PMT	-	24.26	0.05	National Geographic HD
1008	0x03F0	PMT	-	24.26	0.05	Penthouse HD
1007	0x03EF	PMT	-	24.26	0.05	MEZZO HD
1006	0x03EE	PMT	-	24.26	0.05	Duck TV HD
1002	0x03EA	PMT	-	24.26	0.05	iConcerts
1001	0x03E9	PMT	-	24.26	0.05	FTV HD
116	0x0074	ECM/EMM	-	15.10	0.03	MEZZO HD
132	0x0084	ECM/EMM	-	15.09	0.03	MEZZO HD
119	0x0077	ECM/EMM	-	15.09	0.03	National Geographic HD
121	0x0079	ECM/EMM	-	15.07	0.03	National Geographic HD
118	0x0076	ECM/EMM	-	15.07	0.03	FOX HD
117	0x0075	ECM/EMM	-	15.07	0.03	MEZZO HD
112	0x0070	ECM/EMM	-	15.07	0.03	Duck TV HD
108	0x006C	ECM/EMM	-	15.07	0.03	Duck TV HD
131	0x0083	ECM/EMM	-	15.05	0.03	iConcerts
114	0x0072	ECM/EMM	-	15.05	0.03	Penthouse HD
133	0x0085	ECM/EMM	-	15.04	0.03	Penthouse HD
120	0x0078	ECM/EMM	-	15.04	0.03	FOX HD
115	0x0073	ECM/EMM	-	15.04	0.03	Penthouse HD
100	0x0064	ECM/EMM	-	7.57	0.01	MEZZO HD
101	0x0065	ECM/EMM	-	7.55	0.01	MEZZO HD
103	0x0067	ECM/EMM	-	7.53	0.01	iConcerts
102	0x0066	ECM/EMM	-	7.53	0.01	iConcerts
17	0x0011	SDT	-	6.02	0.01	N/A
20	0x0014	TOT	-	0.13	0.00	N/A

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DVB S2 **9°E** Network Name Hello HD Recording Thomas Haring
Transmitter EUROBIRD 12.074V

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
6544	0x1990	H.264 Video	$	6805.74	11.36	Filmbox HD
4400	0x1130	H.264 Video	$	2457.94	4.10	Digisport
4112	0x1010	MPEG2 Video	$	2402.02	4.01	Filmbox Extra
4688	0x1250	H.264 Video	$	2310.46	3.86	History Channel
4464	0x1170	H.264 Video	$	2209.99	3.69	Discovery Channel
4224	0x1080	H.264 Video	$	2171.84	3.62	Sport 1
4368	0x1110	H.264 Video	$	1933.90	3.23	4! Story TV
4496	0x1190	H.264 Video	$	1842.24	3.07	HBO
4656	0x1230	H.264 Video	-	1740.85	2.90	Best of Music
4352	0x1100	H.264 Video	$	1707.02	2.85	Viasat 3
4192	0x1060	H.264 Video	$	1685.68	2.81	Minimax
4672	0x1240	H.264 Video	-	1677.74	2.80	Rock TV
4176	0x1050	H.264 Video	$	1651.39	2.76	HirTV
4432	0x1150	H.264 Video	$	1511.48	2.52	Spektrum
18	0x0012	EIT	-	1501.26	2.50	N/A
4128	0x1020	H.264 Video	-	1480.19	2.47	Music Plus
4144	0x1030	H.264 Video	$	1425.82	2.38	Magyar ATV
4160	0x1040	H.264 Video	$	1418.43	2.37	d1 TV
4640	0x1220	H.264 Video	$	1417.08	2.36	Cinemax
4208	0x1070	H.264 Video	$	1403.50	2.34	RTL Klub
4384	0x1120	H.264 Video	$	1400.89	2.34	Cool
4608	0x1200	H.264 Video	$	1384.34	2.31	HBO2
4624	0x1210	H.264 Video	$	1361.03	2.27	HBO Comedy
4480	0x1180	H.264 Video	$	1318.33	2.20	National Geographic
4704	0x1260	H.264 Video	$	1297.89	2.17	Animal Planet
4240	0x1090	H.264 Video	$	1297.56	2.17	TV2
4416	0x1140	H.264 Video	$	1227.62	2.05	Film+
8191	0x1FFF	Null Packets	-	964.10	1.61	N/A
6546	0x1992	AC3 Audio	$	461.00	0.77	Filmbox HD
6545	0x1991	AC3 Audio	$	460.96	0.77	Filmbox HD
4244	0x1094	Teletext	$	301.08	0.50	TV2
4002	0x0FA2	SSU	-	282.58	0.47	5800CX Update
4001	0x0FA1	SSU	-	282.41	0.47	5800SX Update
4673	0x1241	MPEG Audio	-	271.80	0.45	Rock TV
4657	0x1231	MPEG Audio	-	271.80	0.45	Best of Music
4129	0x1021	MPEG Audio	-	271.76	0.45	Music Plus
4017	0x0FB1	SSU	-	261.87	0.44	BTL-2850ST Update
4212	0x1074	Teletext	$	225.83	0.38	RTL Klub
1521	0x05F1	MPEG Audio	$	209.08	0.35	Lanchid Radio
3001	0x0BB9	?	-	208.95	0.35	N/A
4642	0x1222	MPEG Audio	$	167.24	0.28	Cinemax
4641	0x1221	MPEG Audio	$	167.24	0.28	Cinemax
4626	0x1212	MPEG Audio	$	167.24	0.28	HBO Comedy
4625	0x1211	MPEG Audio	$	167.24	0.28	HBO Comedy
4610	0x1202	MPEG Audio	$	167.24	0.28	HBO2
4609	0x1201	MPEG Audio	$	167.24	0.28	HBO2
4498	0x1192	MPEG Audio	$	167.24	0.28	HBO
4497	0x1191	MPEG Audio	$	167.24	0.28	HBO
4113	0x1011	MPEG Audio	$	167.24	0.28	Filmbox Extra
4689	0x1251	MPEG Audio	$	135.91	0.23	History Channel
4481	0x1181	MPEG Audio	$	135.91	0.23	National Geographic
4401	0x1131	MPEG Audio	$	135.91	0.23	Digisport
4385	0x1121	MPEG Audio	$	135.91	0.23	Cool
4353	0x1101	MPEG Audio	$	135.91	0.23	Viasat 3
4241	0x1091	MPEG Audio	$	135.91	0.23	TV2
4225	0x1081	MPEG Audio	$	135.91	0.23	Sport 1
4209	0x1071	MPEG Audio	$	135.91	0.23	RTL Klub
4161	0x1041	MPEG Audio	$	135.91	0.23	d1 TV
4145	0x1031	MPEG Audio	$	135.91	0.23	Magyar ATV
4705	0x1261	MPEG Audio	$	135.88	0.23	Animal Planet
4465	0x1171	MPEG Audio	$	135.88	0.23	Discovery Channel
4433	0x1151	MPEG Audio	$	135.88	0.23	Spektrum
4417	0x1141	MPEG Audio	$	135.88	0.23	Film+
4369	0x1111	MPEG Audio	$	135.88	0.23	4! Story TV
4193	0x1061	MPEG Audio	$	135.88	0.23	Minimax
4177	0x1051	MPEG Audio	$	135.88	0.23	HirTV
6465	0x1941	AAC Audio	-	122.36	0.20	Jazzradio
4389	0x1125	Private PES	$	37.62	0.06	Cinemax
4245	0x1095	Private PES	$	37.62	0.06	TV2
4213	0x1075	Private PES	$	37.62	0.06	RTL Klub
16	0x0010	NIT	-	25.09	0.04	N/A
1	0x0001	CAT	-	25.09	0.04	N/A
0	0x0000	PAT	-	25.09	0.04	N/A
17	0x0011	SDT	-	25.06	0.04	N/A
6554	0x199A	PMT	-	24.30	0.04	Filmbox HD
4682	0x124A	PMT	-	24.30	0.04	Rock TV
4426	0x114A	PMT	-	24.30	0.04	Film+
4250	0x109A	PMT	-	24.30	0.04	TV2
4218	0x107A	PMT	-	24.30	0.04	RTL Klub
4138	0x102A	PMT	-	24.30	0.04	Music Plus
4122	0x101A	PMT	-	24.30	0.04	Filmbox Extra
1530	0x05FA	PMT	-	24.30	0.04	Lanchid Radio
3037	0x0BDD	Private Data	-	20.58	0.03	Cable PDMS
3011	0x0BC3	Private Data	-	17.97	0.03	Cable PDMS
3010	0x0BC2	Private Data	-	17.97	0.03	Cable PDMS
3027	0x0BD3	Private Data	-	17.81	0.03	Cable PDMS
3009	0x0BC1	Private Data	-	17.81	0.03	Cable PDMS
3008	0x0BC0	Private Data	-	17.81	0.03	Cable PDMS
3004	0x0BBC	Private Data	-	17.81	0.03	Cable PDMS
3016	0x0BC8	Private Data	-	15.56	0.03	Cable PDMS
3005	0x0BBD	Private Data	-	15.56	0.03	Cable PDMS
3031	0x0BD7	Private Data	-	15.30	0.03	Cable PDMS
3030	0x0BD6	Private Data	-	15.17	0.03	Cable PDMS
3029	0x0BD5	Private Data	-	15.17	0.03	Cable PDMS
3028	0x0BD4	Private Data	-	15.17	0.03	Cable PDMS
3026	0x0BD2	Private Data	-	15.17	0.03	Cable PDMS
3024	0x0BD0	Private Data	-	15.17	0.03	Cable PDMS
3021	0x0BCD	Private Data	-	15.17	0.03	Cable PDMS
3019	0x0BCB	Private Data	-	15.17	0.03	Cable PDMS
3017	0x0BC9	Private Data	-	15.17	0.03	Cable PDMS
3015	0x0BC7	Private Data	-	15.17	0.03	Cable PDMS
3014	0x0BC6	Private Data	-	15.17	0.03	Cable PDMS
3013	0x0BC5	Private Data	-	15.17	0.03	Cable PDMS
3003	0x0BBB	Private Data	-	15.17	0.03	Cable PDMS
3002	0x0BBA	Private Data	-	15.17	0.03	Cable PDMS
3175	0x0C67	ECM/EMM	-	15.04	0.03	Filmbox HD
3025	0x0BD1	Private Data	-	15.04	0.03	Cable PDMS
3023	0x0BCF	Private Data	-	15.04	0.03	Cable PDMS
3022	0x0BCE	Private Data	-	15.04	0.03	Cable PDMS
3018	0x0BCA	Private Data	-	15.04	0.03	Cable PDMS
3006	0x0BBE	Private Data	-	15.04	0.03	Cable PDMS
3194	0x0C7A	ECM/EMM	-	15.00	0.03	Magyar ATV
2919	0x0B67	ECM/EMM	-	15.00	0.03	Filmbox HD
3277	0x0CCD	ECM/EMM	-	14.97	0.02	Lanchid Radio
3192	0x0C78	ECM/EMM	-	14.97	0.02	4! Story TV
3191	0x0C77	ECM/EMM	-	14.97	0.02	National Geographic
3190	0x0C76	ECM/EMM	-	14.97	0.02	Spektrum
3189	0x0C75	ECM/EMM	-	14.97	0.02	History Channel
3183	0x0C6F	ECM/EMM	-	14.97	0.02	RTL Klub
3178	0x0C6A	ECM/EMM	-	14.97	0.02	Filmbox Extra
3176	0x0C68	ECM/EMM	-	14.97	0.02	d1 TV
2922	0x0B6A	ECM/EMM	-	14.97	0.02	Filmbox Extra
3184	0x0C70	ECM/EMM	-	14.94	0.02	Music Plus
3177	0x0C69	ECM/EMM	-	14.94	0.02	HBO
3007	0x0BBF	Private Data	-	14.90	0.02	Cable PDMS
3033	0x0BD9	Private Data	-	14.64	0.02	Cable PDMS
3034	0x0BDA	Private Data	-	14.38	0.02	Cable PDMS
3032	0x0BD8	Private Data	-	14.18	0.02	Cable PDMS
3012	0x0BC4	Private Data	-	14.11	0.02	Cable PDMS
4010	0x0FAA	PMT	-	13.58	0.02	5800SX Update
6474	0x194A	PMT	-	13.55	0.02	Jazzradio
4714	0x126A	PMT	-	13.55	0.02	Animal Planet
4698	0x125A	PMT	-	13.55	0.02	History Channel
4666	0x123A	PMT	-	13.55	0.02	Best of Music
4650	0x122A	PMT	-	13.55	0.02	Cinemax
4634	0x121A	PMT	-	13.55	0.02	HBO Comedy
4618	0x120A	PMT	-	13.55	0.02	HBO2
4506	0x119A	PMT	-	13.55	0.02	HBO
4490	0x118A	PMT	-	13.55	0.02	National Geographic
4474	0x117A	PMT	-	13.55	0.02	Discovery Channel
4458	0x116A	PMT	-	13.55	0.02	_Service 6816
4442	0x115A	PMT	-	13.55	0.02	Spektrum
4410	0x113A	PMT	-	13.55	0.02	Digisport
4394	0x112A	PMT	-	13.55	0.02	Cool
4378	0x111A	PMT	-	13.55	0.02	4! Story TV
4362	0x110A	PMT	-	13.55	0.02	Viasat 3
4234	0x108A	PMT	-	13.55	0.02	Sport 1
4202	0x106A	PMT	-	13.55	0.02	Minimax
4186	0x105A	PMT	-	13.55	0.02	HirTV
4170	0x104A	PMT	-	13.55	0.02	d1 TV
4154	0x103A	PMT	-	13.55	0.02	Magyar ATV
4003	0x0FA3	PMT	-	13.55	0.02	5800CX Update
32	0x0020	PMT	-	13.55	0.02	BTL-2850ST Update
2816	0x0B00	ECM/EMM	-	9.43	0.02	N/A
4004	0x0FA4	PMT	-	4.52	0.01	Cable PDMS
2986	0x0BAA	ECM/EMM	-	3.03	0.01	N/A
20	0x0014	TOT	-	1.48	0.00	N/A

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13°E HOTBIRD

DVB S2 **13°E** Network Name EUTELSAT 13 EAST Recording Thomas Haring
Transmitter HOTBIRD 10.971H *Remark* HD tests

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
532	0x0214	H.264 Video	$	10500.60	18.26	TSR1 HD
542	0x021E	H.264 Video	$	10500.55	18.26	TSR2 HD
512	0x0200	H.264 Video	$	10500.55	18.26	SF zwei HD
502	0x01F6	H.264 Video	$	10500.55	18.26	SF 1 HD
8191	0x1FFF	Null Packets	-	9526.50	16.57	N/A
18	0x0012	EIT	-	1060.37	1.84	N/A
535	0x0217	AC3 Audio	$	460.64	0.80	TSR1 HD
515	0x0203	AC3 Audio	$	460.64	0.80	SF zwei HD
505	0x01F9	AC3 Audio	$	460.64	0.80	SF 1 HD
545	0x0221	AC3 Audio	$	460.59	0.80	TSR2 HD
537	0x0219	Teletext	-	263.23	0.46	TSR1 HD
507	0x01FB	Teletext	-	263.23	0.46	SF 1 HD
547	0x0223	Teletext	-	263.18	0.46	TSR2 HD
517	0x0205	Teletext	-	263.18	0.46	SF zwei HD
543	0x021F	MPEG Audio	$	198.50	0.35	TSR2 HD
514	0x0202	MPEG Audio	$	198.50	0.35	SF zwei HD
544	0x0220	MPEG Audio	$	198.45	0.35	TSR2 HD
534	0x0216	MPEG Audio	$	198.45	0.35	TSR1 HD
533	0x0215	MPEG Audio	$	198.45	0.35	TSR1 HD
513	0x0201	MPEG Audio	$	198.45	0.35	SF zwei HD
504	0x01F8	MPEG Audio	$	198.45	0.35	SF 1 HD
503	0x01F7	MPEG Audio	$	198.45	0.35	SF 1 HD
602	0x025A	ECM/EMM	-	99.74	0.17	N/A
604	0x025C	ECM/EMM	-	99.70	0.17	N/A
603	0x025B	ECM/EMM	-	99.70	0.17	N/A
1	0x0001	CAT	-	15.03	0.03	N/A
0	0x0000	PAT	-	15.03	0.03	N/A
541	0x021D	PMT	-	13.61	0.02	TSR2 HD
531	0x0213	PMT	-	13.61	0.02	TSR1 HD
511	0x01FF	PMT	-	13.61	0.02	SF zwei HD
501	0x01F5	PMT	-	13.61	0.02	SF 1 HD
17	0x0011	SDT	-	7.61	0.01	N/A
739	0x02E3	ECM/EMM	-	7.56	0.01	SF 1 HD
729	0x02D9	ECM/EMM	-	7.56	0.01	SF 1 HD
719	0x02CF	ECM/EMM	-	7.56	0.01	SF 1 HD
16	0x0010	NIT	-	4.58	0.01	N/A
20	0x0014	TOT	-	1.46	0.00	N/A

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DVB S2

13°E

Network Name CYFRA+ Recording Thomas Haring
Transmitter HOTBIRD 11.411H *Remark* 3D tests

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
161	0x00A1	H.264 Video	$	11419.29	16.75	CANAL+ GOL HD
166	0x00A6	H.264 Video	$	8748.77	12.83	KUCHNIA+ HD
165	0x00A5	H.264 Video	$	7405.04	10.86	PLANETE+ HD
167	0x00A7	H.264 Video	$	7107.82	10.43	DOMO+ HD
162	0x00A2	H.264 Video	$	6255.24	9.18	C+ WEEKEND HD
163	0x00A3	H.264 Video	$	5582.34	8.19	MINIMINI+ HD
164	0x00A4	H.264 Video	$	4928.63	7.23	teleTOON+ HD
168	0x00A8	H.264 Video	$	4071.44	5.97	ALE KINO+ HD
160	0x00A0	H.264 Video	$	3975.70	5.83	CANAL+ FILM HD
169	0x00A9	H.264 Video	$	3520.78	5.16	CANAL+ 3D test
88	0x0058	AC3 Audio	$	394.90	0.58	C+ WEEKEND HD
113	0x0071	AC3 Audio	$	394.89	0.58	ALE KINO+ HD
84	0x0054	AC3 Audio	$	394.89	0.58	CANAL+ GOL HD
81	0x0051	AC3 Audio	$	394.89	0.58	CANAL+ FILM HD
8191	0x1FFF	Null Packets	-	370.46	0.54	N/A
104	0x0068	AC3 Audio	$	263.27	0.39	KUCHNIA+ HD
100	0x0064	AC3 Audio	$	263.27	0.39	PLANETE+ HD
116	0x0074	AC3 Audio	$	263.26	0.39	CANAL+ 3D test
112	0x0070	AC3 Audio	$	263.26	0.39	ALE KINO+ HD
108	0x006C	AC3 Audio	$	263.26	0.39	DOMO+ HD
80	0x0050	AC3 Audio	$	263.26	0.39	CANAL+ FILM HD
18	0x0012	EIT	-	225.62	0.33	N/A
96	0x0060	AC3 Audio	$	197.45	0.29	teleTOON+ HD
92	0x005C	AC3 Audio	$	197.44	0.29	MINIMINI+ HD
182	0x00B6	ECM/EMM	-	186.35	0.27	N/A
680	0x02A8	?	-	183.85	0.27	N/A
501	0x01F5	Teletext	-	37.59	0.06	CANAL+ FILM HD
2110	0x083E	ECM/EMM	-	22.57	0.03	CANAL+ 3D test
2109	0x083D	ECM/EMM	-	22.57	0.03	ALE KINO+ HD
2108	0x083C	ECM/EMM	-	22.57	0.03	DOMO+ HD
2107	0x083B	ECM/EMM	-	22.57	0.03	KUCHNIA+ HD
2106	0x083A	ECM/EMM	-	22.57	0.03	PLANETE+ HD
2105	0x0839	ECM/EMM	-	22.57	0.03	teleTOON+ HD
2104	0x0838	ECM/EMM	-	22.57	0.03	MINIMINI+ HD
2103	0x0837	ECM/EMM	-	22.57	0.03	C+ WEEKEND HD
2102	0x0836	ECM/EMM	-	22.57	0.03	CANAL+ GOL HD
2101	0x0835	ECM/EMM	-	22.57	0.03	CANAL+ FILM HD
1039	0x040F	PMT	-	22.57	0.03	ALE KINO+ HD
1038	0x040E	PMT	-	22.57	0.03	DOMO+ HD
1037	0x040D	PMT	-	22.57	0.03	KUCHNIA+ HD
1036	0x040C	PMT	-	22.57	0.03	PLANETE+ HD
1035	0x040B	PMT	-	22.57	0.03	teleTOON+ HD
1034	0x040A	PMT	-	22.57	0.03	MINIMINI+ HD
33	0x0021	?	-	22.57	0.03	N/A
32	0x0020	?	-	22.57	0.03	N/A
0	0x0000	PAT	-	20.01	0.03	N/A
183	0x00B7	ECM/EMM	-	17.02	0.02	N/A
1080	0x0438	PMT	-	10.03	0.01	_Service 14280
17	0x0011	SDT	-	10.03	0.01	N/A
16	0x0010	NIT	-	10.03	0.01	N/A
1	0x0001	CAT	-	10.03	0.01	N/A
1010	0x03F2	PMT	-	10.01	0.01	CANAL+ 3D test
1009	0x03F1	PMT	-	10.01	0.01	ALE KINO+ HD
1008	0x03F0	PMT	-	10.01	0.01	DOMO+ HD
1007	0x03EF	PMT	-	10.01	0.01	KUCHNIA+ HD
1006	0x03EE	PMT	-	10.01	0.01	PLANETE+ HD
1005	0x03ED	PMT	-	10.01	0.01	teleTOON+ HD
1004	0x03EC	PMT	-	10.01	0.01	MINIMINI+ HD
1003	0x03EB	PMT	-	10.01	0.01	C+ WEEKEND HD
1002	0x03EA	PMT	-	10.01	0.01	CANAL+ GOL HD
1001	0x03E9	PMT	-	10.01	0.01	CANAL+ FILM HD
184	0x00B8	ECM/EMM	-	8.28	0.01	N/A
721	0x02D1	DVB Subtitles	-	7.60	0.01	CANAL+ FILM HD
729	0x02D9	DVB Subtitles	-	3.69	0.01	ALE KINO+ HD
20	0x0014	TOT	-	0.38	0.00	N/A

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28.2°E ASTRA

DVB S2

28.2°E

Network Name ASTRA Recording TELE-satellite
Transmitter ASTRA 10.847V *Remark* HD

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
5400	0x1518	H.264 Video	-	8459.56	29.58	BBC One HD
2333	0x091D	H.264 Video	$	7986.90	27.93	ITV1 HD
5500	0x157C	H.264 Video	-	5926.60	20.72	BBC HD
2322	0x0912	Private Sections	-	1500.15	5.25	N/A
3847	0x0F07	Data	-	700.23	2.45	BBC HD
2321	0x0911	Private Sections	-	500.16	1.75	N/A
3843	0x0F03	Private Sections	-	312.89	1.09	N/A
96	0x0060	?	-	291.16	1.02	N/A
192	0x00C0	ECM/EMM	-	285.16	1.00	N/A
17	0x0011	SDT	-	274.18	0.96	N/A
5502	0x157E	MPEG Audio	-	263.32	0.92	BBC HD
5402	0x151A	MPEG Audio	-	263.21	0.92	BBC One HD
5501	0x157D	AC3 Audio	-	235.03	0.82	BBC HD
5401	0x1519	AC3 Audio	-	235.03	0.82	BBC One HD
2334	0x091E	AC3 Audio	$	235.03	0.82	ITV1 HD
52	0x0034	?	-	198.48	0.69	N/A
3846	0x0F06	Data	-	117.01	0.41	BBC HD
89	0x0059	?	-	103.54	0.36	N/A
85	0x0055	?	-	51.94	0.18	N/A
3841	0x0F01	Private Sections	-	50.47	0.18	N/A
5506	0x1582	Private Sections	-	50.02	0.17	N/A
5505	0x1581	Private Sections	-	50.02	0.17	N/A
3845	0x0F05	MHEG	-	50.02	0.17	BBC HD
2329	0x0919	Private Sections	-	50.02	0.17	N/A
260	0x0104	PMT	-	41.08	0.14	BBC One HD
259	0x0103	PMT	-	41.08	0.14	6945
258	0x0102	PMT	-	41.08	0.14	BBC HD
3842	0x0F02	Private Sections	-	40.51	0.14	N/A
18	0x0012	EIT	-	39.04	0.14	N/A
5503	0x157F	Teletext	-	37.57	0.13	BBC HD
5403	0x151B	Teletext	-	37.57	0.13	BBC One HD
2335	0x091F	Teletext	-	37.57	0.13	ITV1 HD
5404	0x151C	DVB Subtitles	-	24.90	0.09	BBC One HD
1287	0x0507	ECM/EMM	-	15.05	0.05	ITV1 HD
0	0x0000	PAT	-	13.69	0.05	N/A
288	0x0120	PMT	-	13.58	0.05	ITV1 HD
5504	0x1580	DVB Subtitles	-	9.51	0.03	BBC HD
80	0x0050	?	-	4.98	0.02	N/A
3844	0x0F04	Private Sections	-	2.94	0.01	N/A
3840	0x0F00	Private Sections	-	1.70	0.01	N/A
1	0x0001	CAT	-	1.47	0.01	N/A
5507	0x1583	Private Sections	-	1.36	0.00	N/A
2330	0x091A	Private Sections	-	1.36	0.00	N/A
16	0x0010	NIT	-	1.36	0.00	N/A
20	0x0014	TOT	-	0.11	0.00	N/A

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DVB S2

28.2°E

Network Name ASTRA Recording TELE-satellite
Transmitter ASTRA 12.460H *Remark* 3D

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
513	0x0201	H.264 Video	$	17747.89	41.10	Sky Arts 1 HD
514	0x0202	H.264 Video	$	12610.29	29.20	Sky 3D
512	0x0200	H.264 Video	$	8502.03	19.69	Sky News HD
3080	0x0C08	Private Sections	-	724.90	1.68	N/A
3081	0x0C09	Private Sections	-	500.09	1.16	N/A
661	0x0295	AC3 Audio	$	393.51	0.91	Sky Arts 1 HD
660	0x0294	AC3 Audio	$	393.51	0.91	Sky News HD
662	0x0296	AC3 Audio	$	393.46	0.91	Sky 3D
192	0x00C0	ECM/EMM	-	311.92	0.72	N/A
96	0x0060	?	-	286.93	0.66	N/A
17	0x0011	SDT	-	269.98	0.63	N/A
642	0x0282	MPEG Audio	$	196.76	0.46	Sky 3D
52	0x0034	?	-	189.54	0.44	N/A
2305	0x0901	Private Sections	-	167.34	0.39	N/A
89	0x0059	?	-	89.63	0.21	N/A
85	0x0055	?	-	59.01	0.14	N/A
259	0x0103	PMT	-	42.98	0.10	Sky Arts 1 HD
258	0x0102	PMT	-	42.98	0.10	Sky News HD
2308	0x0904	Teletext	-	37.57	0.09	Sky News HD
18	0x0012	EIT	-	27.23	0.06	N/A
1034	0x040A	Private Sections	-	24.99	0.06	N/A
261	0x0105	PMT	-	21.49	0.05	Sky 3D
0	0x0000	PAT	-	21.49	0.05	N/A
257	0x0101	PMT	-	21.44	0.05	Sky 3D
1033	0x0409	Private Sections	-	17.99	0.04	N/A
1030	0x0406	Private Sections	-	17.77	0.04	N/A
1283	0x0503	ECM/EMM	-	15.09	0.03	Sky 3D
1282	0x0502	ECM/EMM	-	15.09	0.03	Sky Arts 1 HD
1280	0x0500	ECM/EMM	-	15.09	0.03	Sky News HD
1032	0x0408	Private Sections	-	10.94	0.03	N/A
80	0x0050	?	-	7.22	0.02	N/A
1	0x0001	CAT	-	1.53	0.00	N/A
16	0x0010	NIT	-	1.42	0.00	N/A
20	0x0014	TOT	-	0.11	0.00	N/A

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43°E TURKSAT

DVB S2 **43°E**

Network Name TURKSAT | Recording Thomas Haring
Transmitter TURKSAT 12.015H | *Remark* 3D red/cyan

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	25053.62	59.27	N/A
145	0x0091	MPEG2 Video	-	4123.12	9.75	TMB TV
135	0x0087	MPEG2 Video	-	3639.89	8.61	BENGUTURK TV
175	0x00AF	MPEG2 Video	-	2871.66	6.79	3D TEST
155	0x009B	MPEG2 Video	-	2677.05	6.33	KARADENIZTURK
115	0x0073	MPEG2 Video	-	1464.90	3.47	TURKSAT TANITIM
118	0x0076	Teletext	-	301.28	0.71	TURKSAT TANITIM
176	0x00B0	MPEG Audio	-	263.38	0.62	3D TEST
156	0x009C	MPEG Audio	-	262.56	0.62	KARADENIZTURK
146	0x0092	MPEG Audio	-	262.51	0.62	TMB TV
210	0x00D2	SSU	-	248.64	0.59	SUNNY DATA
277	0x0115	SSU	-	224.13	0.53	EAST BEAM S&W UPDATE
136	0x0088	MPEG Audio	-	209.06	0.49	BENGUTURK TV
116	0x0074	MPEG Audio	-	198.75	0.47	TURKSAT TANITIM
297	0x0129	SSU	-	130.94	0.31	ICT OAD 1
287	0x011F	Private PES	-	128.10	0.30	SKYTECH DATA
18	0x0012	EIT	-	30.15	0.07	N/A
170	0x00AA	PMT	-	15.07	0.04	3D TEST
140	0x008C	PMT	-	15.07	0.04	TMB TV
130	0x0082	PMT	-	15.07	0.04	BENGUTURK TV
120	0x0078	PMT	-	15.07	0.04	BASKENT AB TV
1	0x0001	CAT	-	15.07	0.04	N/A
0	0x0000	PAT	-	15.07	0.04	N/A
777	0x0309	PMT	-	15.03	0.04	SUNNY DATA
290	0x0122	PMT	-	15.03	0.04	ICT OAD 1
280	0x0118	PMT	-	15.03	0.04	SKYTECH DATA
270	0x010E	PMT	-	15.03	0.04	EAST BEAM S&W UPDATE
150	0x0096	PMT	-	15.03	0.04	KARADENIZTURK
110	0x006E	PMT	-	15.03	0.04	TURKSAT TANITIM
17	0x0011	SDT	-	3.08	0.01	N/A
16	0x0010	NIT	-	0.34	0.00	N/A
20	0x0014	TOT	-	0.05	0.00	N/A

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288°E (72°W) AMC 6

DVB S2 **288°E**

Network Name Arsat | Recording Juan Carlos Duarte
Transmitter AMC 6 12.020V | *Remark* Mobile TV

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	15195.79	20.87	N/A
1296	0x0510	H.264 Video	$	9519.19	13.07	TV Pública
400	0x0190	H.264 Video	-	3306.41	4.54	Incaa TV
368	0x0170	H.264 Video	-	3306.41	4.54	Paka Paka
352	0x0160	H.264 Video	$	3306.41	4.54	Gol TV
304	0x0130	H.264 Video	-	3306.41	4.54	Encuentro
288	0x0120	H.264 Video	-	3306.41	4.54	Tecnopolis
384	0x0180	H.264 Video	$	3306.34	4.54	TaTeTi
416	0x01A0	H.264 Video	$	2805.68	3.85	Vivra
448	0x01C0	H.264 Video	$	2805.48	3.85	Video Exito
464	0x01D0	H.264 Video	$	2654.89	3.65	G360
496	0x01F0	H.264 Video	$	2654.82	3.65	Construir
320	0x0140	H.264 Video	$	2654.76	3.65	C5N
272	0x0110	H.264 Video	$	2654.76	3.65	CN 23
43	0x002B	H.264 Video	$	2654.62	3.65	Telesur
432	0x01B0	H.264 Video	$	2103.79	2.89	Suri TV
480	0x01E0	H.264 Video	-	2103.72	2.89	Turismo
70	0x0046	H.264 Video	-	293.61	0.40	Encuentro Móvil
49	0x0031	H.264 Video	$	293.34	0.40	CN 23 Móvil
74	0x004A	H.264 Video	$	293.28	0.40	Gol TV Móvil
72	0x0048	H.264 Video	-	293.07	0.40	TV Pública Móvil
18	0x0012	EIT	-	253.84	0.35	N/A
236	0x00EC	PCR	-	100.21	0.14	_Service 4094
235	0x00EB	PCR	-	100.21	0.14	_Service 4093
417	0x01A1	AAC Audio	$	72.26	0.10	Vivra
497	0x01F1	AAC Audio	$	71.72	0.10	Construir
45	0x002D	AAC Audio	$	71.24	0.10	Telesur
482	0x01E2	AAC Audio	-	70.70	0.10	Turismo
466	0x01D2	AAC Audio	$	70.57	0.10	G360
434	0x01B2	AAC Audio	$	70.57	0.10	Suri TV
58	0x003A	AAC Audio	-	70.57	0.10	Incaa TV
55	0x0037	AAC Audio	$	70.57	0.10	Gol TV
56	0x0038	AAC Audio	-	70.50	0.10	Paka Paka
34	0x0022	AAC Audio	-	70.50	0.10	Tecnopolis
450	0x01C2	AAC Audio	$	70.36	0.10	Video Exito
59	0x003B	AAC Audio	$	70.30	0.10	Vivra
53	0x0035	AAC Audio	$	70.30	0.10	C5N
52	0x0034	AAC Audio	$	70.30	0.10	CN 23
40	0x0028	AAC Audio	-	70.30	0.10	Encuentro
54	0x0036	AAC Audio	$	70.16	0.10	Telesur
60	0x003C	AAC Audio	$	70.09	0.10	TV Pública
57	0x0039	AAC Audio	$	69.96	0.10	TaTeTi
498	0x01F2	AAC Audio	$	69.82	0.10	Construir
289	0x0121	AAC Audio	-	69.76	0.10	Tecnopolis
353	0x0161	AAC Audio	$	69.55	0.10	Gol TV
305	0x0131	AAC Audio	-	69.35	0.10	Encuentro
321	0x0141	AAC Audio	$	69.28	0.10	C5N
273	0x0111	AAC Audio	$	69.15	0.09	CN 23
369	0x0171	AAC Audio	-	68.95	0.09	Paka Paka
385	0x0181	AAC Audio	$	68.81	0.09	TaTeTi
1297	0x0511	AAC Audio	$	68.61	0.09	TV Pública
387	0x0183	AAC Audio	$	40.25	0.06	Radio Nacional
355	0x0163	AAC Audio	$	40.11	0.06	Radio 961
339	0x0153	AAC Audio	$	40.04	0.05	Radio 951
307	0x0133	AAC Audio	$	40.04	0.05	Radio 931
51	0x0033	AAC Audio	$	36.74	0.05	Radio 911
433	0x01B1	AAC Audio	$	35.59	0.05	Suri TV
465	0x01D1	AAC Audio	$	35.52	0.05	G360
481	0x01E1	AAC Audio	-	35.39	0.05	Turismo
449	0x01C1	AAC Audio	$	35.39	0.05	Video Exito
403	0x0193	AAC Audio	$	35.32	0.05	Radio 991
401	0x0191	AAC Audio	-	35.32	0.05	Incaa TV
371	0x0173	AAC Audio	$	35.32	0.05	Radio 971
323	0x0143	AAC Audio	$	35.32	0.05	Radio 941
75	0x004B	AAC Audio	$	35.32	0.05	Gol TV Móvil
73	0x0049	AAC Audio	-	35.32	0.05	TV Pública Móvil
71	0x0047	AAC Audio	-	35.32	0.05	Encuentro Móvil
48	0x0030	AAC Audio	$	35.32	0.05	Radio 921
35	0x0023	AAC Audio	$	35.32	0.05	CN 23 Móvil
32	0x0020	AAC Audio	$	35.32	0.05	Radio 910
1	0x0001	CAT	-	25.12	0.03	N/A
0	0x0000	PAT	-	25.05	0.03	N/A
4094	0x0FFE	PMT	-	24.31	0.03	_Service 4094
4093	0x0FFD	PMT	-	24.31	0.03	_Service 4093
2362	0x093A	PMT	-	24.31	0.03	Radio 931
1306	0x051A	PMT	-	24.31	0.03	TV Pública
426	0x01AA	PMT	-	24.31	0.03	Vivra
410	0x019A	PMT	-	24.31	0.03	Incaa TV
394	0x018A	PMT	-	24.31	0.03	TaTeTi
378	0x017A	PMT	-	24.31	0.03	Paka Paka
362	0x016A	PMT	-	24.31	0.03	Gol TV
330	0x014A	PMT	-	24.31	0.03	C5N
314	0x013A	PMT	-	24.31	0.03	Encuentro
298	0x012A	PMT	-	24.31	0.03	Tecnopolis
282	0x011A	PMT	-	24.31	0.03	CN 23
69	0x0045	PMT	-	24.31	0.03	Turismo
67	0x0043	PMT	-	24.31	0.03	Construir
66	0x0042	PMT	-	24.31	0.03	Video Exito
65	0x0041	PMT	-	24.31	0.03	G360
64	0x0040	PMT	-	24.31	0.03	Suri TV
63	0x003F	PMT	-	24.31	0.03	Gol TV Móvil
62	0x003E	PMT	-	24.31	0.03	TV Pública Móvil
61	0x003D	PMT	-	24.31	0.03	Encuentro Móvil
50	0x0032	PMT	-	24.31	0.03	Radio 911
47	0x002F	PMT	-	24.31	0.03	Radio 921
46	0x002E	PMT	-	24.31	0.03	Radio 910
44	0x002C	PMT	-	24.31	0.03	Radio 991
42	0x002A	PMT	-	24.31	0.03	Radio Nacional
41	0x0029	PMT	-	24.31	0.03	Telesur
39	0x0027	PMT	-	24.31	0.03	Radio 971
38	0x0026	PMT	-	24.31	0.03	CN 23 Móvil
37	0x0025	PMT	-	24.31	0.03	Radio 961
36	0x0024	PMT	-	24.31	0.03	Radio 951
33	0x0021	PMT	-	24.31	0.03	Radio 941
17	0x0011	SDT	-	11.07	0.02	N/A
1329	0x0531	ECM/EMM	-	5.06	0.01	Video Exito
1313	0x0521	ECM/EMM	-	5.06	0.01	CN 23 Móvil
1409	0x0581	ECM/EMM	-	5.00	0.01	TV Pública
1376	0x0560	ECM/EMM	-	5.00	0.01	Radio 910
1369	0x0559	ECM/EMM	-	5.00	0.01	Radio 991
1368	0x0558	ECM/EMM	-	5.00	0.01	Radio Nacional
1367	0x0557	ECM/EMM	-	5.00	0.01	Radio 971
1366	0x0556	ECM/EMM	-	5.00	0.01	Radio 961
1365	0x0555	ECM/EMM	-	5.00	0.01	Radio 951
1364	0x0554	ECM/EMM	-	5.00	0.01	Radio 941
1363	0x0553	ECM/EMM	-	5.00	0.01	Radio 931
1362	0x0552	ECM/EMM	-	5.00	0.01	Radio 921
1361	0x0551	ECM/EMM	-	5.00	0.01	Radio 911
1332	0x0534	ECM/EMM	-	5.00	0.01	Construir
1330	0x0532	ECM/EMM	-	5.00	0.01	G360
1328	0x0530	ECM/EMM	-	5.00	0.01	Suri TV
1314	0x0522	ECM/EMM	-	5.00	0.01	Gol TV Móvil
1298	0x0512	ECM/EMM	-	5.00	0.01	Vivra
1288	0x0508	ECM/EMM	-	5.00	0.01	TaTeTi
1286	0x0506	ECM/EMM	-	5.00	0.01	Gol TV
1285	0x0505	ECM/EMM	-	5.00	0.01	Telesur
1284	0x0504	ECM/EMM	-	5.00	0.01	C5N
1281	0x0501	ECM/EMM	-	5.00	0.01	CN 23
16	0x0010	NIT	-	3.98	0.01	N/A
1537	0x0601	ECM/EMM	-	1.69	0.00	N/A
20	0x0014	TOT	-	1.55	0.00	N/A

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299°E AMAZONAS

DVB S2

299°E

Network Name AMZ-2 Recording Juan Carlos Duarte

Transmitter AMAZONAS 10.808H Remark HD

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
7324	0x1C9C	H.264 Video	$	5643.15	9.71	Nat Geo Wild HD
2761	0x0AC9	H.264 Video	$	5643.15	9.71	RCN HD
2753	0x0AC1	H.264 Video	$	5643.15	9.71	Fox - Nat Geo HD
2752	0x0AC0	H.264 Video	$	5643.15	9.71	Discovery Theater HD
2751	0x0ABF	H.264 Video	$	5643.15	9.71	Rush HD
2759	0x0AC7	H.264 Video	$	5642.99	9.71	Fox Sports HD
2755	0x0AC3	H.264 Video	$	5642.99	9.71	MTV LIVE HD
2241	0x08C1	H.264 Video	$	5642.99	9.71	UNIVERSAL CHANNEL HD
2757	0x0AC5	H.264 Video	$	5639.17	9.70	Movie City HD
8191	0x1FFF	Null Packets	-	1987.31	3.42	N/A
287	0x011F	ECM/EMM	-	507.86	0.87	N/A
3753	0x0EA9	AC3 Audio	$	470.54	0.81	Fox - Nat Geo HD
3241	0x0CA9	AC3 Audio	$	470.37	0.81	UNIVERSAL CHANNEL HD
7344	0x1CB0	AC3 Audio	$	423.44	0.73	Nat Geo Wild HD
3757	0x0EAD	AC3 Audio	$	423.44	0.73	Movie City HD
3755	0x0EAB	AC3 Audio	$	423.44	0.73	MTV LIVE HD
3752	0x0EA8	AC3 Audio	$	423.44	0.73	Discovery Theater HD
3751	0x0EA7	AC3 Audio	$	423.27	0.73	Rush HD
3759	0x0EAF	MPEG Audio	$	394.24	0.68	Fox Sports HD
18	0x0012	EIT	-	247.13	0.43	N/A
286	0x011E	ECM/EMM	-	206.16	0.35	N/A
3761	0x0EB1	MPEG Audio	$	198.70	0.34	RCN HD
17	0x0011	SDT	-	148.77	0.26	N/A
288	0x0120	ECM/EMM	-	127.54	0.22	N/A
16	0x0010	NIT	-	20.23	0.03	N/A
7304	0x1C88	PMT	-	15.09	0.03	Nat Geo Wild HD
4759	0x1297	ECM/EMM	-	15.09	0.03	Fox Sports HD
4757	0x1295	ECM/EMM	-	15.09	0.03	Movie City HD
4753	0x1291	ECM/EMM	-	15.09	0.03	Fox - Nat Geo HD
4752	0x1290	ECM/EMM	-	15.09	0.03	Discovery Theater HD
4691	0x1253	ECM/EMM	-	15.09	0.03	Fox Sports HD
4689	0x1251	ECM/EMM	-	15.09	0.03	Movie City HD
4688	0x1250	ECM/EMM	-	15.09	0.03	MTV LIVE HD
4687	0x124F	ECM/EMM	-	15.09	0.03	Fox - Nat Geo HD
4685	0x124D	ECM/EMM	-	15.09	0.03	Rush HD
4345	0x10F9	ECM/EMM	-	15.09	0.03	UNIVERSAL CHANNEL HD
4343	0x10F7	ECM/EMM	-	15.09	0.03	UNIVERSAL CHANNEL HD
1761	0x06E1	PMT	-	15.09	0.03	RCN HD
1759	0x06DF	PMT	-	15.09	0.03	Fox Sports HD
1757	0x06DD	PMT	-	15.09	0.03	Movie City HD
1755	0x06DB	PMT	-	15.09	0.03	MTV LIVE HD
1753	0x06D9	PMT	-	15.09	0.03	Fox - Nat Geo HD
1752	0x06D8	PMT	-	15.09	0.03	Discovery Theater HD
1751	0x06D7	PMT	-	15.09	0.03	Rush HD
1241	0x04D9	PMT	-	15.09	0.03	UNIVERSAL CHANNEL HD
0	0x0000	PAT	-	15.09	0.03	N/A
4761	0x1299	ECM/EMM	-	14.93	0.03	RCN HD
4758	0x1296	ECM/EMM	-	14.93	0.03	Nat Geo Wild HD
4755	0x1293	ECM/EMM	-	14.93	0.03	MTV LIVE HD
4751	0x128F	ECM/EMM	-	14.93	0.03	Rush HD
4692	0x1254	ECM/EMM	-	14.93	0.03	RCN HD
4690	0x1252	ECM/EMM	-	14.93	0.03	Nat Geo Wild HD
4686	0x124E	ECM/EMM	-	14.93	0.03	Discovery Theater HD
1	0x0001	CAT	-	14.76	0.03	N/A
292	0x0124	ECM/EMM	-	1.00	0.00	N/A
291	0x0123	ECM/EMM	-	1.00	0.00	N/A
290	0x0122	ECM/EMM	-	1.00	0.00	N/A
289	0x0121	ECM/EMM	-	1.00	0.00	N/A
20	0x0014	TOT	-	1.00	0.00	N/A

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330°E (30°W) HISPASAT

DVB S2

330°E

Network Name IVG Default Network Recording Juan Carlos Duarte

Transmitter HISPASAT 11.910V Remark H.264

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
102	0x0066	H.264 Video	$	2089.27	16.30	Eventos2
904	0x0388	H.264 Video	$	1417.45	11.06	Rut
901	0x0385	H.264 Video	$	1417.38	11.06	Canal 12
1309	0x051D	H.264 Video	$	1373.95	10.72	Eventos
506	0x01FA	H.264 Video	-	1373.90	10.72	Canal 5
502	0x01F6	H.264 Video	$	1373.88	10.72	Canal 4
1302	0x0516	H.264 Video	-	1373.86	10.72	TVCiudad
8191	0x1FFF	Null Packets	-	798.61	6.23	N/A
908	0x038C	MPEG Audio	-	100.30	0.78	Radio_Cero
1310	0x051E	MPEG Audio	$	100.29	0.78	Eventos
1306	0x051A	MPEG Audio	-	100.29	0.78	Zoe
1303	0x0517	MPEG Audio	-	100.29	0.78	TVCiudad
909	0x038D	MPEG Audio	-	100.29	0.78	Radio_Cero
905	0x0389	MPEG Audio	$	100.29	0.78	Rut
902	0x0386	MPEG Audio	$	100.29	0.78	Canal 12
510	0x01FE	MPEG Audio	-	100.29	0.78	CX20
507	0x01FB	MPEG Audio	-	100.28	0.78	Canal 5
503	0x01F7	MPEG Audio	$	100.28	0.78	Canal 4
103	0x0067	MPEG Audio	$	100.28	0.78	Eventos2
1308	0x051C	PCR	-	42.98	0.34	N/A
1305	0x0519	PCR	-	42.98	0.34	N/A
1301	0x0515	PCR	-	42.98	0.34	N/A
907	0x038B	PCR	-	42.98	0.34	N/A
509	0x01FD	PCR	-	42.98	0.34	N/A
505	0x01F9	PCR	-	42.98	0.34	N/A
501	0x01F5	PCR	-	42.98	0.34	N/A
101	0x0065	PCR	-	42.98	0.34	N/A
18	0x0012	EIT	-	30.08	0.23	N/A
17	0x0011	SDT	-	6.02	0.05	N/A
7510	0x1D56	ECM/EMM	-	5.09	0.04	Eventos2
7509	0x1D55	ECM/EMM	-	5.09	0.04	Eventos2
7502	0x1D4E	ECM/EMM	-	5.09	0.04	Eventos
7500	0x1D4C	ECM/EMM	-	5.09	0.04	Eventos
7508	0x1D54	ECM/EMM	-	5.08	0.04	Rut
7507	0x1D53	ECM/EMM	-	5.08	0.04	Rut
7506	0x1D52	ECM/EMM	-	5.08	0.04	Canal 12
7505	0x1D51	ECM/EMM	-	5.08	0.04	Canal 12
7504	0x1D50	ECM/EMM	-	5.08	0.04	Canal 4
7503	0x1D4F	ECM/EMM	-	5.08	0.04	Canal 4
508	0x01FC	PMT	-	5.02	0.04	CX20
504	0x01F8	PMT	-	5.02	0.04	Canal 5
500	0x01F4	PMT	-	5.02	0.04	Canal 4
1307	0x051B	PMT	-	5.01	0.04	Eventos
1304	0x0518	PMT	-	5.01	0.04	Zoe
1300	0x0514	PMT	-	5.01	0.04	TVCiudad
906	0x038A	PMT	-	5.01	0.04	Radio_Cero
903	0x0387	PMT	-	5.01	0.04	Rut
900	0x0384	PMT	-	5.01	0.04	Canal 12
100	0x0064	PMT	-	5.01	0.04	Eventos2
0	0x0000	PAT	-	5.01	0.04	N/A
7903	0x1EDF	ECM/EMM	-	4.83	0.04	N/A
16	0x0010	NIT	-	3.01	0.02	N/A
1	0x0001	CAT	-	3.01	0.02	N/A
7902	0x1EDE	ECM/EMM	-	0.14	0.00	N/A
20	0x0014	TOT	-	0.10	0.00	N/A

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359°E THOR 5

DVB S2

359°E

Network Name Telenor Recording Thomas Haring

Transmitter THOR 5 11.785H Remark 3D tests encrypted

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
516	0x0204	H.264 Video	$	13846.91	20.65	TV 2 3D
515	0x0203	H.264 Video	$	12305.98	18.35	ESPN America HD
512	0x0200	H.264 Video	$	12038.82	17.95	Nat Geo HD
513	0x0201	H.264 Video	$	11995.69	17.89	Nat Geo Wild HD
514	0x0202	H.264 Video	$	9947.94	14.83	MTV Live HD
8191	0x1FFF	Null Packets	-	3428.83	5.11	N/A
641	0x0281	AC3 Audio	$	462.09	0.69	Nat Geo HD
48	0x0030	ECM/EMM	-	413.14	0.62	N/A
18	0x0012	EIT	-	401.25	0.60	N/A
657	0x0291	AC3 Audio	-	400.75	0.60	TV 2 3D
648	0x0288	AC3 Audio	$	400.75	0.60	MTV Live HD
656	0x0290	MPEG Audio	$	267.17	0.40	TV 2 3D
652	0x028C	MPEG Audio	$	263.20	0.39	ESPN America HD
644	0x0284	MPEG Audio	$	229.99	0.34	Nat Geo Wild HD
640	0x0280	MPEG Audio	$	201.12	0.30	Nat Geo HD
17	0x0011	SDT	-	25.03	0.04	N/A
610	0x0262	DVB Subtitles	-	15.49	0.02	Nat Geo HD
612	0x0264	DVB Subtitles	-	15.24	0.02	Nat Geo HD
272	0x0110	PMT	-	15.12	0.02	MTV Live HD
271	0x010F	PMT	-	15.12	0.02	Nat Geo Wild HD
270	0x010E	PMT	-	15.12	0.02	Nat Geo HD
260	0x0104	PMT	-	15.12	0.02	MTV Live HD
259	0x0103	PMT	-	15.12	0.02	ESPN America HD
258	0x0102	PMT	-	15.12	0.02	ESPN America HD
257	0x0101	PMT	-	15.12	0.02	Nat Geo Wild HD
256	0x0100	PMT	-	15.12	0.02	Nat Geo HD
104	0x0068	ECM/EMM	-	15.12	0.02	TV 2 3D
103	0x0067	ECM/EMM	-	15.12	0.02	ESPN America HD
101	0x0065	ECM/EMM	-	15.12	0.02	Nat Geo Wild HD
96	0x0060	ECM/EMM	-	15.12	0.02	ESPN America HD
87	0x0057	ECM/EMM	-	15.12	0.02	ESPN America HD
85	0x0055	ECM/EMM	-	15.12	0.02	Nat Geo Wild HD
77	0x004D	ECM/EMM	-	15.12	0.02	ESPN America HD
75	0x004B	ECM/EMM	-	15.12	0.02	Nat Geo Wild HD
261	0x0105	PMT	-	14.99	0.02	TV 2 3D
184	0x00B8	ECM/EMM	-	14.99	0.02	Nat Geo HD
174	0x00AE	ECM/EMM	-	14.99	0.02	Nat Geo HD
102	0x0066	ECM/EMM	-	14.99	0.02	MTV Live HD
100	0x0064	ECM/EMM	-	14.99	0.02	Nat Geo HD
1	0x0001	CAT	-	14.99	0.02	N/A
0	0x0000	PAT	-	14.99	0.02	N/A
611	0x0263	DVB Subtitles	-	13.63	0.02	Nat Geo HD
16	0x0010	NIT	-	12.89	0.02	N/A
95	0x005F	ECM/EMM	-	5.08	0.01	Nat Geo Wild HD
94	0x005E	ECM/EMM	-	5.08	0.01	Nat Geo HD
97	0x0061	ECM/EMM	-	4.96	0.01	ESPN America HD
616	0x0268	DVB Subtitles	-	2.97	0.00	Nat Geo Wild HD
615	0x0267	DVB Subtitles	-	2.97	0.00	Nat Geo Wild HD
614	0x0266	DVB Subtitles	-	2.97	0.00	Nat Geo Wild HD
20	0x0014	TOT	-	2.97	0.00	N/A

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DVB-T terrestrial

AT Austria

DVB T **AT**

Network Name ORS DVB-T T2 Recording Thomas Haring
Transmitter Vienna Channel 34 *Remark* Radio

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
1060	0x0424	MPEG2 Video	-	3262.60	19.64	ORF Sport Plus
1064	0x0428	MPEG2 Video	-	3196.39	19.24	ServusTV
1055	0x041F	MPEG2 Video	-	3188.06	19.19	3SAT
1050	0x041A	MPEG2 Video	-	3079.65	18.54	PULS 4
8191	0x1FFF	Null Packets	-	1477.70	8.90	N/A
1052	0x041C	Teletext	-	301.26	1.81	PULS 4
1058	0x0422	Teletext	-	301.18	1.81	3SAT
1068	0x042C	Teletext	-	263.67	1.59	ServusTV
1067	0x042B	MPEG Audio	-	175.78	1.06	ServusTV
1066	0x042A	MPEG Audio	-	175.78	1.06	ServusTV
1051	0x041B	MPEG Audio	-	175.69	1.06	PULS 4
1061	0x0425	MPEG Audio	-	175.61	1.06	ORF Sport Plus
1057	0x0421	MPEG Audio	-	175.61	1.06	3SAT
1056	0x0420	MPEG Audio	-	175.53	1.06	3SAT
1111	0x0457	MPEG Audio	-	138.02	0.83	Radio Maria
18	0x0012	EIT	-	132.66	0.80	N/A
1069	0x042D	Private PES	-	37.68	0.23	ORF Sport Plus
1059	0x0423	Private PES	-	37.68	0.23	3SAT
1169	0x0491	Private PES	-	37.60	0.23	ServusTV
153	0x0099	PMT	-	18.88	0.11	ServusTV
152	0x0098	PMT	-	18.88	0.11	ORF Sport Plus
151	0x0097	PMT	-	18.88	0.11	3SAT
150	0x0096	PMT	-	18.88	0.11	PULS 4
111	0x006F	PMT	-	18.88	0.11	Radio Maria
0	0x0000	PAT	-	3.71	0.02	N/A
21	0x0015	Network Sync	-	2.80	0.02	N/A
17	0x0011	SDT	-	1.98	0.01	N/A
16	0x0010	NIT	-	0.25	0.00	N/A
20	0x0014	TOT	-	0.16	0.00	N/A

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CN China

DVB T **CN**

Network Name SZTVM Recording TELE-satellite
Transmitter Shenzhen Channel 52 *Remark* DVB Tests

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
161	0x00A1	MPEG2 Video	-	2348.05	29.76	SZTVM02
308	0x0134	MPEG2 Video	-	2235.69	28.33	SZTVM01
163	0x00A3	MPEG2 Video	-	1397.22	17.71	SZTVM04
162	0x00A2	MPEG2 Video	-	1309.02	16.59	SZTVM03
84	0x0054	MPEG Audio	-	104.46	1.32	SZTVM02
88	0x0058	MPEG Audio	-	104.43	1.32	SZTVM03
256	0x0100	MPEG Audio	-	104.40	1.32	SZTVM01
92	0x005C	MPEG Audio	-	104.40	1.32	SZTVM04
67	0x0043	PMT	-	22.54	0.29	SZTVM04
66	0x0042	PMT	-	22.54	0.29	SZTVM03
65	0x0041	PMT	-	22.54	0.29	SZTVM02
33	0x0021	PMT	-	22.54	0.29	Data
32	0x0020	PMT	-	22.54	0.29	SZTVM01
17	0x0011	SDT	-	22.54	0.29	N/A
16	0x0010	NIT	-	22.54	0.29	N/A
0	0x0000	PAT	-	22.54	0.29	N/A
21	0x0015	Network Sync	-	2.48	0.03	N/A
20	0x0014	TOT	-	0.34	0.00	N/A

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DE Germany

DVB T **DE**

Network Name ZDF Recording TELE-satellite
Transmitter Munich Channel 35

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
561	0x0231	MPEG2 Video	-	3123.36	24.72	3sat
545	0x0221	MPEG2 Video	-	2819.02	22.31	ZDF
577	0x0241	MPEG2 Video	-	2332.20	18.46	ZDFinfo
593	0x0251	MPEG2 Video	-	2184.34	17.29	neo/KI.KA
18	0x0012	EIT	-	372.19	2.95	N/A
599	0x0257	Teletext	-	263.21	2.08	neo/KI.KA
567	0x0237	Teletext	-	263.21	2.08	3sat
551	0x0227	Teletext	-	263.21	2.08	ZDF
594	0x0252	MPEG Audio	-	201.93	1.60	neo/KI.KA
562	0x0232	MPEG Audio	-	201.93	1.60	3sat
546	0x0222	MPEG Audio	-	201.93	1.60	ZDF
578	0x0242	MPEG Audio	-	135.76	1.07	ZDFinfo
547	0x0223	MPEG Audio	-	101.84	0.81	ZDF
563	0x0233	MPEG Audio	-	101.82	0.81	3sat
1	0x0001	CAT	-	15.84	0.13	N/A
0	0x0000	PAT	-	15.83	0.13	N/A
555	0x022B	Private Sections	-	10.00	0.08	N/A
576	0x0240	PMT	-	5.48	0.04	ZDFinfo
544	0x0220	PMT	-	5.48	0.04	ZDF
592	0x0250	PMT	-	5.46	0.04	neo/KI.KA
560	0x0230	PMT	-	5.46	0.04	3sat
21	0x0015	Network Sync	-	2.46	0.02	N/A
16	0x0010	NIT	-	0.95	0.01	N/A
17	0x0011	SDT	-	0.84	0.01	N/A
20	0x0014	TOT	-	0.22	0.00	N/A

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DVB T **DE**

Network Name MEDIA BROADCAST Recording TELE-satellite
Transmitter Munich Channel 52

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
145	0x0091	MPEG2 Video	-	3990.04	30.76	HSE24
2177	0x0881	MPEG2 Video	-	3263.79	25.16	München TV
465	0x01D1	MPEG2 Video	-	1973.47	15.21	Bibel TV
593	0x0251	MPEG2 Video	-	1662.92	12.82	Channel 21/Euronews
599	0x0257	Teletext	-	300.86	2.32	Channel 21/Euronews
471	0x01D7	Teletext	-	263.25	2.03	Bibel TV
2183	0x0887	Teletext	-	263.23	2.03	München TV
594	0x0252	MPEG Audio	-	203.68	1.57	Channel 21/Euronews
466	0x01D2	MPEG Audio	-	203.68	1.57	Bibel TV
146	0x0092	MPEG Audio	-	198.49	1.53	HSE24
2178	0x0882	MPEG Audio	-	197.96	1.53	München TV
151	0x0097	Teletext	-	188.04	1.45	HSE24
18	0x0012	EIT	-	147.98	1.14	N/A
474	0x01DA	Data	-	51.85	0.40	Bibel TV
0	0x0000	PAT	-	20.04	0.15	N/A
473	0x01D9	Data	-	6.01	0.05	Bibel TV
2176	0x0880	PMT	-	5.47	0.04	München TV
592	0x0250	PMT	-	5.47	0.04	Channel 21/Euronews
464	0x01D0	PMT	-	5.47	0.04	Bibel TV
144	0x0090	PMT	-	5.47	0.04	HSE24
1	0x0001	CAT	-	5.47	0.04	N/A
472	0x01D8	Data	-	4.99	0.04	Bibel TV
21	0x0015	Network Sync	-	2.45	0.02	N/A
17	0x0011	SDT	-	0.84	0.01	N/A
16	0x0010	NIT	-	0.15	0.00	N/A
20	0x0014	TOT	-	0.10	0.00	N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only
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DVB T **DE**

Network Name ARD BAYERN Recording TELE-satellite
Transmitter Munich Channel 54

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
513	0x0201	MPEG2 Video	-	3445.16	27.19	Das Erste
49	0x0031	MPEG2 Video	-	2844.51	22.45	Phoenix
33	0x0021	MPEG2 Video	-	2038.59	16.09	arte
97	0x0061	MPEG2 Video	-	1889.14	14.91	EinsPlus
18	0x0012	EIT	-	305.67	2.41	N/A
516	0x0204	Teletext	-	263.25	2.08	Das Erste
100	0x0064	Teletext	-	263.25	2.08	EinsPlus
52	0x0034	Teletext	-	263.25	2.08	Phoenix
36	0x0024	Teletext	-	263.25	2.08	arte
514	0x0202	MPEG Audio	-	203.71	1.61	Das Erste
98	0x0062	MPEG Audio	-	203.71	1.61	EinsPlus
50	0x0032	MPEG Audio	-	203.71	1.61	Phoenix
35	0x0023	MPEG Audio	-	203.71	1.61	arte
34	0x0022	MPEG Audio	-	203.71	1.61	arte
44	0x002C	Private Sections	-	9.29	0.07	N/A
512	0x0200	PMT	-	8.59	0.07	Das Erste
96	0x0060	PMT	-	8.59	0.07	EinsPlus
48	0x0030	PMT	-	8.59	0.07	Phoenix
32	0x0020	PMT	-	8.59	0.07	arte
524	0x020C	Private Sections	-	7.74	0.06	N/A
108	0x006C	Private Sections	-	6.10	0.05	N/A
0	0x0000	PAT	-	5.47	0.04	N/A
1	0x0001	CAT	-	3.17	0.03	N/A
20	0x0014	TOT	-	3.02	0.02	N/A
21	0x0015	Network Sync	-	2.45	0.02	N/A
60	0x003C	Private Sections	-	1.55	0.01	N/A
16	0x0010	NIT	-	0.95	0.01	N/A
17	0x0011	SDT	-	0.80	0.01	N/A

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DVB T **DE**

Network Name BR Recording TELE-satellite
Transmitter Munich Channel 56

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
561	0x0231	MPEG2 Video	-	3171.05	24.88	BR-alpha
65	0x0041	MPEG2 Video	-	2720.55	21.35	EinsExtra
545	0x0221	MPEG2 Video	-	2370.25	18.60	Bayerisches FS Süd
3601	0x0E11	MPEG2 Video	-	2345.96	18.41	SWR Fernsehen
18	0x0012	EIT	-	299.95	2.35	N/A
3604	0x0E14	Teletext	-	263.17	2.06	SWR Fernsehen
564	0x0234	Teletext	-	263.17	2.06	BR-alpha
548	0x0224	Teletext	-	263.17	2.06	Bayerisches FS Süd
3602	0x0E12	MPEG Audio	-	203.66	1.60	SWR Fernsehen
546	0x0222	MPEG Audio	-	203.66	1.60	Bayerisches FS Süd
562	0x0232	MPEG Audio	-	203.63	1.60	BR-alpha
66	0x0042	MPEG Audio	-	203.63	1.60	EinsExtra
549	0x0225	MPEG Audio	-	133.16	1.04	Bayerisches FS Süd
555	0x022B	Private Data	-	26.98	0.21	Bayerisches FS Süd
560	0x0230	PMT	-	8.61	0.07	BR-alpha
544	0x0220	PMT	-	8.61	0.07	Bayerisches FS Süd
64	0x0040	PMT	-	8.61	0.07	EinsExtra
3600	0x0E10	PMT	-	8.58	0.07	SWR Fernsehen
76	0x004C	Private Sections	-	7.66	0.06	N/A
3612	0x0E1C	Private Sections	-	6.25	0.05	N/A
0	0x0000	PAT	-	5.48	0.04	N/A
1	0x0001	CAT	-	3.15	0.02	N/A
556	0x022C	Private Sections	-	3.12	0.02	N/A
572	0x023C	Private Sections	-	3.06	0.02	N/A
554	0x022A	Private Data	-	3.03	0.02	Bayerisches FS Süd
20	0x0014	TOT	-	3.00	0.02	N/A
21	0x0015	Network Sync	-	2.48	0.02	N/A
17	0x0011	SDT	-	0.86	0.01	N/A
16	0x0010	NIT	-	0.74	0.01	N/A

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HU Hungary

DVB T **IL**

Network Name DTT Hungary Recording TELE-satellite
Transmitter Budapest Channel 38 *Remark* Radio

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
1011	0x03F3	H.264 Video	-	6650.33	29.96	m2 HD
1001	0x03E9	H.264 Video	-	5549.83	25.00	m1 HD
1211	0x04BB	H.264 Video	-	5450.87	24.55	Duna 2 HD
1201	0x04B1	H.264 Video	-	1573.21	7.09	Duna
18	0x0012	EIT	-	521.11	2.35	N/A
1014	0x03F6	AC3 Audio	-	423.03	1.91	m2 HD
1004	0x03EC	AC3 Audio	-	423.03	1.91	m1 HD
1214	0x04BE	AC3 Audio	-	423.00	1.91	Duna 2 HD
1003	0x03EB	Teletext	-	225.63	1.02	m1 HD
1212	0x04BC	MPEG Audio	-	132.33	0.60	Duna 2 HD
1202	0x04B2	MPEG Audio	-	132.30	0.60	Duna
1012	0x03F4	MPEG Audio	-	132.30	0.60	m2 HD
1002	0x03EA	MPEG Audio	-	132.30	0.60	m1 HD
1312	0x0520	AAC Audio	-	102.69	0.46	MR2 Petofi Radio
1322	0x052A	AAC Audio	-	102.64	0.46	MR3 Bartok Radio
1302	0x0516	AAC Audio	-	69.21	0.31	MR1 Kossuth Radio
1	0x0001	CAT	-	15.06	0.07	N/A
1320	0x0528	PMT	-	15.03	0.07	MR3 Bartok Radio
1310	0x051E	PMT	-	15.03	0.07	MR2 Petofi Radio
1300	0x0514	PMT	-	15.03	0.07	MR1 Kossuth Radio
1210	0x04BA	PMT	-	15.03	0.07	Duna 2 HD
1200	0x04B0	PMT	-	15.03	0.07	Duna
1010	0x03F2	PMT	-	15.03	0.07	m2 HD
1000	0x03E8	PMT	-	15.03	0.07	m1 HD
0	0x0000	PAT	-	15.03	0.07	N/A
1700	0x06A4	PMT	-	15.00	0.07	DataService_A
17	0x0011	SDT	-	3.00	0.01	N/A
21	0x0015	Network Sync	-	2.46	0.01	N/A
16	0x0010	NIT	-	0.93	0.00	N/A
20	0x0014	TOT	-	0.28	0.00	N/A

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DVB T IL

Network Name DTT Hungary Recording TELE-satellite
Transmitter Budapest Channel 55 *Remark* encrypted

PID	Hex PID	Stream Type	Encrypted		kbps	%	Service Name
3101	0x0C1D	H.264 Video	$		2741.44	13.19	Sport1
3111	0x0C27	H.264 Video	$		2155.15	10.37	Sport2
3011	0x0BC3	H.264 Video	$		1848.13	8.89	VIASAT3
3081	0x0C09	H.264 Video	$		1840.69	8.85	Spektrum
3071	0x0BFF	H.264 Video	$		1551.18	7.46	Cartoon Network
3091	0x0C13	H.264 Video	$		1432.28	6.89	History
3021	0x0BCD	H.264 Video	$		1342.33	6.46	Prizma TV
3051	0x0BEB	H.264 Video	$		1268.70	6.10	Comedy Central
3001	0x0BB9	H.264 Video	$		1190.26	5.72	PRO4
3061	0x0BF5	H.264 Video	$		1174.81	5.65	Minimax
3031	0x0BD7	H.264 Video	$		1169.10	5.62	Muzsika TV
3041	0x0BE1	H.264 Video	$		910.12	4.38	Universal Channel
18	0x0012	EIT	-		514.37	2.47	N/A
3121	0x0C31	H.264 Video	$		223.99	1.08	Dorcel TV
5000	0x1388	ECM/EMM	-		81.50	0.39	N/A
3094	0x0C16	AAC Audio	$		68.09	0.33	History
3032	0x0BD8	AAC Audio	$		68.00	0.33	Muzsika TV
3002	0x0BBA	AAC Audio	$		68.00	0.33	PRO4
3112	0x0C28	AAC Audio	$	67.94	0.33	Sport2	
3082	0x0C0A	AAC Audio	$	67.94	0.33	Spektrum	
3052	0x0BEC	AAC Audio	$	67.94	0.33	Comedy Central	
3092	0x0C14	AAC Audio	$	67.92	0.33	History	
3042	0x0BE2	AAC Audio	$	67.92	0.33	Universal Channel	
3074	0x0C02	AAC Audio	$	67.83	0.33	Cartoon Network	
3022	0x0BCE	AAC Audio	$	67.83	0.33	Prizma TV	
3062	0x0BF6	AAC Audio	$	67.80	0.33	Minimax	
3012	0x0BC4	AAC Audio	$	67.80	0.33	VIASAT3	
3102	0x0C1E	AAC Audio	$	67.77	0.33	Sport1	
3072	0x0C00	AAC Audio	$	67.74	0.33	Cartoon Network	
3044	0x0BE4	AAC Audio	$	67.71	0.33	Universal Channel	
3122	0x0C32	AAC Audio	$	35.24	0.17	Dorcel TV	
3700	0x0E74	PMT	-	15.05	0.07	DataService_B	
3129	0x0C39	ECM/EMM	-	15.05	0.07	Dorcel TV	
3120	0x0C30	PMT	-	15.05	0.07	Dorcel TV	
3110	0x0C26	PMT	-	15.05	0.07	Sport2	
3100	0x0C1C	PMT	-	15.05	0.07	Sport1	
3090	0x0C12	PMT	-	15.05	0.07	History	
3080	0x0C08	PMT	-	15.05	0.07	Spektrum	
3070	0x0BFE	PMT	-	15.05	0.07	Cartoon Network	
3060	0x0BF4	PMT	-	15.05	0.07	Minimax	
3050	0x0BEA	PMT	-	15.05	0.07	Comedy Central	
3040	0x0BE0	PMT	-	15.05	0.07	Universal Channel	
3030	0x0BD6	PMT	-	15.05	0.07	Muzsika TV	
3020	0x0BCC	PMT	-	15.05	0.07	Prizma TV	
3010	0x0BC2	PMT	-	15.05	0.07	VIASAT3	
3009	0x0BC1	ECM/EMM	-	15.05	0.07	PRO4	
3000	0x0BB8	PMT	-	15.05	0.07	PRO4	
0	0x0000	PAT	-	15.05	0.07	N/A	
3019	0x0BCB	ECM/EMM	-	15.03	0.07	VIASAT3	
1	0x0001	CAT	-	15.03	0.07	N/A	
17	0x0011	SDT	-	4.50	0.02	N/A	
21	0x0015	Network Sync	-	2.45	0.01	N/A	
16	0x0010	NIT	-	0.87	0.00	N/A	
20	0x0014	TOT	-	0.29	0.00	N/A	

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DVB T IL

Network Name DTT Hungary Recording TELE-satellite
Transmitter Budapest Channel 62

PID	Hex PID	Stream Type	Encrypted		kbps	%	Service Name
2131	0x0853	H.264 Video	-		2016.78	9.09	Euronews Teszt
2061	0x080D	H.264 Video	$		1826.25	8.23	Disney Channel
2121	0x0849	H.264 Video	$		1611.13	7.26	Sportklub
2011	0x07DB	H.264 Video	-		1552.19	7.00	TV2
2001	0x07D1	H.264 Video	-		1552.19	7.00	RTL Klub
2021	0x07E5	H.264 Video	$		1393.41	6.28	Cool
2101	0x0835	H.264 Video	$		1375.96	6.20	ATV
2081	0x0821	H.264 Video	$		1212.13	5.46	FEM3
2041	0x07F9	H.264 Video	$		1158.78	5.22	HBO
2031	0x07EF	H.264 Video	$		1092.65	4.93	Film+
2111	0x083F	H.264 Video	$		919.30	4.14	HirTV
2051	0x0803	H.264 Video	$		905.75	4.08	National Geographic
2071	0x0817	H.264 Video	$		804.19	3.63	AXN
18	0x0012	EIT	-		531.62	2.40	N/A
2141	0x085D	H.264 Video	-		530.07	2.39	Info csatorna
2046	0x07FE	AC3 Audio	$		422.53	1.90	HBO
2013	0x07DD	Teletext	-		300.79	1.36	TV2
2003	0x07D3	Teletext	-		225.63	1.02	RTL Klub
2091	0x082B	H.264 Video	$		224.02	1.01	Private Spice
2113	0x0841	Teletext	$		188.02	0.85	HirTV
2103	0x0837	Teletext	$		188.02	0.85	ATV
2043	0x07FB	Teletext	$		112.77	0.51	HBO
2042	0x07FA	AAC Audio	$		101.37	0.46	HBO
2044	0x07FC	AAC Audio	$		101.26	0.46	HBO
5000	0x1388	ECM/EMM	-		83.40	0.38	N/A
2202	0x089A	AAC Audio	-		69.27	0.31	Info csatorna
2102	0x0836	AAC Audio	$	68.10	0.31	ATV	
2122	0x084A	AAC Audio	$	67.99	0.31	Sportklub	
2132	0x0854	AAC Audio	-	67.96	0.31	Euronews Teszt	
2082	0x0822	AAC Audio	$	67.96	0.31	FEM3	
2074	0x081A	AAC Audio	$	67.91	0.31	AXN	
2136	0x0858	AAC Audio	-	67.85	0.31	Euronews Teszt	
2134	0x0856	AAC Audio	-	67.85	0.31	Euronews Teszt	
2112	0x0840	AAC Audio	$	67.85	0.31	HirTV	
2032	0x07F0	AAC Audio	$	67.85	0.31	Film+	
2022	0x07E6	AAC Audio	$	67.85	0.31	Cool	
2012	0x07DC	AAC Audio	-	67.85	0.31	TV2	
2002	0x07D2	AAC Audio	-	67.85	0.31	RTL Klub	
2072	0x0818	AAC Audio	$	67.80	0.31	AXN	
2064	0x0810	AAC Audio	$	67.75	0.31	Disney Channel	
2062	0x080E	AAC Audio	$	67.75	0.31	Disney Channel	
2054	0x0806	AAC Audio	$	67.55	0.30	National Geographic	
2052	0x0804	AAC Audio	$	67.55	0.30	National Geographic	
2092	0x082C	AAC Audio	$	66.11	0.30	Private Spice	
1	0x0001	CAT	-	15.05	0.07	N/A	
2700	0x0A8C	PMT	-	15.03	0.07	DataService_C	
2200	0x0898	PMT	-	15.03	0.07	Neo FM	
2140	0x085C	PMT	-	15.03	0.07	Info csatorna	
2130	0x0852	PMT	-	15.03	0.07	Euronews Teszt	
2129	0x0851	ECM/EMM	-	15.03	0.07	Sportklub	
2120	0x0848	PMT	-	15.03	0.07	Sportklub	
2110	0x083E	PMT	-	15.03	0.07	HirTV	
2109	0x083D	ECM/EMM	-	15.03	0.07	ATV	
2100	0x0834	PMT	-	15.03	0.07	ATV	
2099	0x0833	ECM/EMM	-	15.03	0.07	Private Spice	
2090	0x082A	PMT	-	15.03	0.07	Private Spice	
2089	0x0829	ECM/EMM	-	15.03	0.07	FEM3	
2080	0x0820	PMT	-	15.03	0.07	FEM3	
2079	0x081F	ECM/EMM	-	15.03	0.07	AXN	
2070	0x0816	PMT	-	15.03	0.07	AXN	
2069	0x0815	ECM/EMM	-	15.03	0.07	Disney Channel	
2060	0x080C	PMT	-	15.03	0.07	Disney Channel	
2059	0x080B	ECM/EMM	-	15.03	0.07	National Geographic	
2050	0x0802	PMT	-	15.03	0.07	National Geographic	
2049	0x0801	ECM/EMM	-	15.03	0.07	HBO	
2040	0x07F8	PMT	-	15.03	0.07	HBO	
2039	0x07F7	ECM/EMM	-	15.03	0.07	Film+	
2030	0x07EE	PMT	-	15.03	0.07	Film+	
2029	0x07ED	ECM/EMM	-	15.03	0.07	Cool	
2020	0x07E4	PMT	-	15.03	0.07	Cool	
2010	0x07DA	PMT	-	15.03	0.07	TV2	
2000	0x07D0	PMT	-	15.03	0.07	RTL Klub	
0	0x0000	PAT	-	15.03	0.07	N/A	
2119	0x0847	ECM/EMM	-	15.00	0.07	HirTV	
17	0x0011	SDT	-	6.00	0.03	N/A	
2075	0x081B	DVB Subtitles	$	3.03	0.01	AXN	
21	0x0015	Network Sync	-	2.45	0.01	N/A	
16	0x0010	NIT	-	0.90	0.00	N/A	
20	0x0014	TOT	-	0.33	0.00	N/A	

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IL Israel

DVB T IL

Network Name Harashut Hashnia Recording Benjamin Ganor
Transmitter Eilat Channel 29

PID	Hex PID	Stream Type	Encrypted		kbps	%	Service Name
2561	0x0A01	H.264 Video	-		3044.07	22.93	Ch 1
2657	0x0A61	H.264 Video	-		3039.96	22.89	Ch 33
2625	0x0A41	H.264 Video	-		2889.05	21.76	Ch 10
2593	0x0A21	H.264 Video	-		2295.87	17.29	Ch 2
2689	0x0A81	H.264 Video	-		1062.76	8.00	Ch 99
8191	0x1FFF	Null Packets	-		261.74	1.97	N/A
18	0x0012	EIT	-		160.12	1.21	N/A
2658	0x0A62	AAC Audio	-		53.19	0.40	Ch 33
2594	0x0A22	AAC Audio	-		53.12	0.40	Ch 2
2562	0x0A02	AAC Audio	-		53.09	0.40	Ch 1
2626	0x0A42	AAC Audio	-		53.04	0.40	Ch 10
2690	0x0A82	AAC Audio	-	52.89	0.40	Ch 99	
94	0x005E	PCR	-	45.13	0.34	N/A	
2817	0x0B01	AAC Audio	-	36.66	0.28	R01	
2993	0x0BB1	AAC Audio	-	36.57	0.28	R12	
0	0x0000	PAT	-	30.09	0.23	N/A	
2992	0x0BB0	PMT	-	10.04	0.08	R12	
2816	0x0B00	PMT	-	10.04	0.08	R01	
2688	0x0A80	PMT	-	10.04	0.08	Ch 99	
2624	0x0A40	PMT	-	10.04	0.08	Ch 10	
2592	0x0A20	PMT	-	10.04	0.08	Ch 2	
2560	0x0A00	PMT	-	10.04	0.08	Ch 1	
2656	0x0A60	PMT	-	10.03	0.08	Ch 33	
2608	0x0A30	DVB Subtitles	-	9.23	0.07	Ch 2	
17	0x0011	SDT	-	6.05	0.05	N/A	
2610	0x0A32	DVB Subtitles	-	3.58	0.03	Ch 2	
2609	0x0A31	DVB Subtitles	-	3.58	0.03	Ch 2	
2642	0x0A52	DVB Subtitles	-	3.15	0.02	Ch 10	
2641	0x0A51	DVB Subtitles	-	3.15	0.02	Ch 10	
2640	0x0A50	DVB Subtitles	-	3.15	0.02	Ch 10	
20	0x0014	TOT	-	3.03	0.02	N/A	
16	0x0010	NIT	-	3.03	0.02	N/A	
21	0x0015	Network Sync	-	2.48	0.02	N/A	

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Duration: 5 Min, File Size: 660 MB **www.transponderstream.com/DVB-T/IL/Eilat-Ch29-1110.ts**

NL The Netherlands

DVB T **NL**

Network Name: Digitenne | Recording: TELE-satellite
Transmitter: Amsterdam Channel 27 | Remark: Radio

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
4041	0x0FC9	MPEG2 Video	-	2682.41	22.44	TV Drenthe tijdelijk
4011	0x0FAB	MPEG2 Video	$	2552.21	21.36	Nickelodeon/TeenNick
4031	0x0FBF	MPEG2 Video	$	2484.09	20.79	SLAM!TV
4021	0x0FB5	MPEG2 Video	$	1918.51	16.05	13th Street
4043	0x0FCB	Teletext	-	297.96	2.49	TV Drenthe tijdelijk
4013	0x0FAD	Teletext	$	223.62	1.87	Nickelodeon/TeenNick
4012	0x0FAC	MPEG Audio	$	166.37	1.39	Nickelodeon/TeenNick
4122	0x101A	MPEG Audio	$	166.18	1.39	BBC Radio 2
4032	0x0FC0	MPEG Audio	$	166.11	1.39	SLAM!TV
4022	0x0FB6	MPEG Audio	$	166.11	1.39	13th Street
4142	0x102E	MPEG Audio	$	165.98	1.39	BBC Radio 4
4132	0x1024	MPEG Audio	$	165.91	1.39	BBC Radio 3
4042	0x0FCA	MPEG Audio	-	165.78	1.39	TV Drenthe tijdelijk
4112	0x1010	MPEG Audio	$	165.58	1.39	BBC Radio 1
182	0x00B6	ECM/EMM	-	98.73	0.83	N/A
18	0x0012	EIT	-	83.55	0.70	N/A
20	0x0014	TOT	-	20.01	0.17	N/A
4139	0x102B	ECM/EMM	-	15.17	0.13	BBC Radio 3
4119	0x1017	ECM/EMM	-	15.17	0.13	BBC Radio 1
4039	0x0FC7	ECM/EMM	-	15.17	0.13	SLAM!TV
4029	0x0FBD	ECM/EMM	-	15.17	0.13	13th Street
4019	0x0FB3	ECM/EMM	-	15.17	0.13	Nickelodeon/TeenNick
4149	0x1035	ECM/EMM	-	15.11	0.13	BBC Radio 4
4129	0x1021	ECM/EMM	-	15.11	0.13	BBC Radio 2
4140	0x102C	PMT	-	15.04	0.13	BBC Radio 4
4130	0x1022	PMT	-	15.04	0.13	BBC Radio 3
4120	0x1018	PMT	-	15.04	0.13	BBC Radio 2
4110	0x100E	PMT	-	15.04	0.13	BBC Radio 1
4040	0x0FC8	PMT	-	15.04	0.13	TV Drenthe tijdelijk
4030	0x0FBE	PMT	-	15.04	0.13	SLAM!TV
4020	0x0FB4	PMT	-	15.04	0.13	13th Street
4010	0x0FAA	PMT	-	15.04	0.13	Nickelodeon/TeenNick
1	0x0001	CAT	-	15.04	0.13	N/A
0	0x0000	PAT	-	14.91	0.12	N/A
21	0x0015	Network Sync	-	2.45	0.02	N/A
16	0x0010	NIT	-	1.66	0.01	N/A
17	0x0011	SDT	-	1.46	0.01	N/A

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Duration: 30 Sec, File Size: 32 MB **ts.TELE-satellite.com/DVB-T/NL/Amsterdam-Ch27-1109.ts**

PL Poland

DVB T **PL**

Network Name: TP EmiTel | Recording: Jacek Pawlowski
Transmitter: Poznan Channel 46

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	3521.45	14.15	N/A
802	0x0322	H.264 Video	-	3277.97	13.17	Polsat Sport News
202	0x00CA	H.264 Video	-	2936.74	11.80	TVN
502	0x01F6	H.264 Video	-	2563.76	10.30	TVN Siedem
102	0x0066	H.264 Video	-	2154.60	8.65	Polsat
302	0x012E	H.264 Video	-	2149.47	8.63	TV4
702	0x02BE	H.264 Video	-	1817.12	7.30	TV6
402	0x0192	H.264 Video	-	1563.09	6.28	TV Puls
602	0x025A	H.264 Video	-	819.43	3.29	PULS 2
18	0x0012	EIT	-	571.33	2.30	N/A
204	0x00CC	AC3 Audio	-	459.22	1.84	TVN
504	0x01F8	AC3 Audio	-	393.62	1.58	TVN Siedem
305	0x0131	Teletext	-	225.72	0.91	TV4
205	0x00CD	Teletext	-	225.71	0.91	TVN
105	0x0069	Teletext	-	225.71	0.91	Polsat
505	0x01F9	Teletext	-	225.69	0.91	TVN Siedem
803	0x0323	MPEG Audio	-	196.82	0.79	Polsat Sport News
403	0x0193	MPEG Audio	-	196.82	0.79	TV Puls
303	0x012F	MPEG Audio	-	196.82	0.79	TV4
703	0x02BF	MPEG Audio	-	196.80	0.79	TV6
603	0x025B	MPEG Audio	-	196.80	0.79	PULS 2
503	0x01F7	MPEG Audio	-	196.80	0.79	TVN Siedem
203	0x00CB	MPEG Audio	-	196.80	0.79	TVN
103	0x0067	MPEG Audio	-	196.80	0.79	Polsat
106	0x006A	DVB Subtitles	-	38.60	0.16	Polsat
701	0x02BD	PMT	-	14.95	0.06	TV6
601	0x0259	PMT	-	14.95	0.06	PULS 2
801	0x0321	PMT	-	14.93	0.06	Polsat Sport News
501	0x01F5	PMT	-	14.93	0.06	TVN Siedem
401	0x0191	PMT	-	14.93	0.06	TV Puls
301	0x012D	PMT	-	14.93	0.06	TV4
201	0x00C9	PMT	-	14.93	0.06	TVN
101	0x0065	PMT	-	14.93	0.06	Polsat
0	0x0000	PAT	-	14.93	0.06	N/A
506	0x01FA	DVB Subtitles	-	3.78	0.02	TVN Siedem
206	0x00CE	DVB Subtitles	-	3.78	0.02	TVN
17	0x0011	SDT	-	3.02	0.01	N/A
20	0x0014	TOT	-	3.01	0.01	N/A
21	0x0015	Network Sync	-	2.46	0.01	N/A
16	0x0010	NIT	-	0.19	0.00	N/A

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Duration: 5 Min, File Size: 1130 MB **www.transponderstream.com/DVB-T/PL/Poznan-Ch46-1110.ts**

PT Portugal

DVB T **PT**

Network Name: 1101 | Recording: Vitor Martins Augusto
Transmitter: Porto Channel 56

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
8191	0x1FFF	Null Packets	-	6271.02	31.43	N/A
512	0x0200	H.264 Video	-	4723.41	23.67	RTP 2
256	0x0100	H.264 Video	-	2495.07	12.50	RTP 1
1024	0x0400	H.264 Video	-	2373.95	11.90	TVI
768	0x0300	H.264 Video	-	1935.72	9.70	SIC
3840	0x0F00	H.264 Video	-	501.31	2.51	HD
35	0x0023	Teletext	-	263.93	1.32	TVI
34	0x0022	Teletext	-	226.16	1.13	SIC
18	0x0012	EIT	-	218.33	1.09	N/A
33	0x0021	Teletext	-	188.40	0.94	RTP 2
32	0x0020	Teletext	-	188.40	0.94	RTP 1
513	0x0201	AAC Audio	-	104.14	0.52	RTP 2
1025	0x0401	AAC Audio	-	103.89	0.52	TVI
257	0x0101	AAC Audio	-	103.81	0.52	RTP 1
769	0x0301	AAC Audio	-	103.48	0.52	SIC
0	0x0000	PAT	-	25.07	0.13	N/A
3856	0x0F10	PMT	-	24.32	0.12	HD
1040	0x0410	PMT	-	24.32	0.12	TVI
784	0x0310	PMT	-	24.32	0.12	SIC
528	0x0210	PMT	-	24.32	0.12	RTP 2
272	0x0110	PMT	-	24.32	0.12	RTP 1
20	0x0014	TOT	-	2.64	0.01	N/A
21	0x0015	Network Sync	-	2.47	0.01	N/A
16	0x0010	NIT	-	1.15	0.01	N/A
17	0x0011	SDT	-	0.74	0.00	N/A

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Duration: 1 Min Sec, File Size: 144 MB **ts.TELE-satellite.com/DVB-T/PT/Porto-Ch56-1109.ts**
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Duration: 5 Min, File Size: 750 MB **www.transponderstream.com/DVB-T/PT/Porto-Ch56-1109.ts**

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UK United Kingdom

DVB T **UK**

Network Name London. Recording TELE-satellite
Transmitter London Channel 25 *Remark* MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
630	0x0276	MPEG2 Video	-	3586.24	20.33	301
620	0x026C	MPEG2 Video	-	3166.95	17.96	CBBC Channel
600	0x0258	MPEG2 Video	-	2666.03	15.12	BBC ONE
610	0x0262	MPEG2 Video	-	2414.70	13.69	BBC TWO
640	0x0280	MPEG2 Video	-	2413.18	13.68	BBC NEWS
650	0x028A	MHEG	-	1100.58	6.24	BBC ONE
18	0x0012	EIT	-	364.27	2.07	N/A
621	0x026D	MPEG Audio	-	263.35	1.49	CBBC Channel
611	0x0263	MPEG Audio	-	263.32	1.49	BBC TWO
601	0x0259	MPEG Audio	-	263.27	1.49	BBC ONE
631	0x0277	MPEG Audio	-	198.60	1.13	301
641	0x0281	MPEG Audio	-	198.57	1.13	BBC NEWS
651	0x028B	Data	-	150.10	0.85	BBC ONE
652	0x028C	Data	-	150.08	0.85	BBC ONE
632	0x0278	MPEG Audio	-	132.34	0.75	301
654	0x028E	SSU	-	50.04	0.28	BBC Red Button
605	0x025D	DVB Subtitles	-	35.63	0.20	BBC ONE
643	0x0283	DVB Subtitles	-	35.46	0.20	BBC NEWS
4671	0x123F	PMT	-	15.05	0.09	CBBC Channel
4479	0x117F	PMT	-	15.05	0.09	BBC Red Button
4415	0x113F	PMT	-	15.05	0.09	BBC NEWS
4351	0x10FF	PMT	-	15.05	0.09	BBC THREE
4228	0x1084	PMT	-	15.05	0.09	BBC TWO
4164	0x1044	PMT	-	15.05	0.09	BBC ONE
0	0x0000	PAT	-	15.05	0.09	N/A
7168	0x1C00	PMT	-	15.03	0.09	301
615	0x0267	DVB Subtitles	-	14.22	0.08	BBC TWO
623	0x026F	DVB Subtitles	-	14.09	0.08	CBBC Channel
17	0x0011	SDT	-	4.78	0.03	N/A
1017	0x03F9	MHEG	-	3.01	0.02	301
1014	0x03F6	MHEG	-	3.01	0.02	BBC NEWS
1013	0x03F5	MHEG	-	3.01	0.02	CBBC Channel
1012	0x03F4	MHEG	-	3.01	0.02	BBC THREE
1011	0x03F3	Data	-	3.01	0.02	BBC THREE
1008	0x03F0	MHEG	-	3.01	0.02	BBC TWO
20	0x0014	TOT	-	3.01	0.02	N/A
1021	0x03FD	Data	-	2.98	0.02	CBBC Channel
1005	0x03ED	MHEG	-	2.98	0.02	BBC ONE
629	0x0275	Private Sections	-	1.18	0.01	N/A
619	0x026B	Private Sections	-	1.18	0.01	N/A
609	0x0261	Private Sections	-	1.18	0.01	N/A
16	0x0010	NIT	-	1.18	0.01	N/A

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DVB T **UK**

Network Name London. Recording TELE-satellite
Transmitter London Channel 32 *Remark* MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
521	0x0209	MPEG2 Video	-	2767.19	11.65	Challenge
6273	0x1881	MPEG2 Video	-	2602.78	10.96	bid tv
6689	0x1A21	MPEG2 Video	-	2225.50	9.37	5 USA
5381	0x1505	DVB Subtitles	$	1898.58	8.00	TOPUP Anytime1
6049	0x17A1	MPEG2 Video	-	1886.30	7.94	QVC
6737	0x1A51	MPEG2 Video	$	1812.19	7.63	TOPUP Anytime3
6596	0x19C4	MPEG2 Video	-	1753.07	7.38	5*
6833	0x1AB1	MPEG2 Video	-	1699.69	7.16	CITV
6929	0x1B11	MPEG2 Video	-	1628.73	6.86	QUEST
6881	0x1AE1	MPEG2 Video	-	1470.72	6.19	ITV3
18	0x0012	EIT	-	623.79	2.63	N/A
6361	0x18D9	Data	-	250.07	1.05	Teletext Hols
6056	0x17A8	MHEG	-	249.14	1.05	QVC
7084	0x1BAC	DVB Subtitles	$	135.81	0.57	TOPUP Anytime1
6738	0x1A52	MPEG Audio	$	135.81	0.57	TOPUP Anytime3
6674	0x1A12	MPEG Audio	-	135.81	0.57	5*
6274	0x1882	MPEG Audio	-	135.81	0.57	bid tv
6114	0x17E2	MPEG Audio	-	135.81	0.57	Capital FM
6098	0x17D2	MPEG Audio	-	135.81	0.57	Heart
6082	0x17C2	MPEG Audio	-	135.81	0.57	Absolute Radio
6050	0x17A2	MPEG Audio	-	135.81	0.57	QVC
6930	0x1B12	MPEG Audio	-	135.79	0.57	QUEST
6882	0x1AE2	MPEG Audio	-	135.79	0.57	ITV3
6834	0x1AB2	MPEG Audio	-	135.79	0.57	CITV
6690	0x1A22	MPEG Audio	-	135.79	0.57	5 USA
659	0x0293	MPEG Audio	-	135.79	0.57	Challenge
6883	0x1AE3	MPEG Audio	-	73.13	0.31	ITV3
6835	0x1AB3	MPEG Audio	-	73.13	0.31	CITV
6691	0x1A23	MPEG Audio	-	73.13	0.31	5 USA
6675	0x1A13	MPEG Audio	-	73.11	0.31	5*
669	0x029D	MPEG Audio	-	73.11	0.31	Challenge
6904	0x1AF8	MHEG	-	57.10	0.24	1-2-1 Dating
7089	0x1BB1	Data	-	49.23	0.21	Television X
6354	0x18D2	MPEG Audio	-	41.80	0.18	Teletext Hols
7076	0x1BA4	Audio	-	41.78	0.18	N/A
4147	0x1033	ECM/EMM	-	39.66	0.17	N/A
6522	0x197A	Data	-	34.98	0.15	bid tv
7068	0x1B9C	MHEG	-	33.84	0.14	Home
7081	0x1BA9	Private PES	-	28.99	0.12	TOPUP Anytime2
6908	0x1AFC	MHEG	-	24.95	0.11	MOBILIZER
6521	0x1979	Data	-	24.00	0.10	bid tv
2870	0x0B36	ECM/EMM	-	22.58	0.10	TOPUP Anytime3
2868	0x0B34	ECM/EMM	-	22.58	0.10	TOPUP Anytime1
0	0x0000	PAT	-	15.03	0.06	N/A
6886	0x1AE6	DVB Subtitles	-	14.49	0.06	ITV3
7074	0x1BA2	MHEG	-	10.01	0.04	ESPN
4150	0x1036	ECM/EMM	-	10.01	0.04	N/A
6480	0x1950	MHEG	-	8.31	0.03	Television X
395	0x018B	PMT	-	7.53	0.03	Challenge
392	0x0188	PMT	-	7.53	0.03	Capital FM
391	0x0187	PMT	-	7.53	0.03	Heart
390	0x0186	PMT	-	7.53	0.03	Absolute Radio
388	0x0184	PMT	-	7.53	0.03	ITV2 +1
387	0x0183	PMT	-	7.53	0.03	ADULT Filth
385	0x0181	PMT	-	7.53	0.03	ADULT Section
382	0x017E	PMT	-	7.53	0.03	Gems TV
290	0x0122	PMT	-	7.53	0.03	TOPUP Anytime3
284	0x011C	PMT	-	7.53	0.03	ESPN
279	0x0117	PMT	-	7.53	0.03	5 USA
276	0x0114	PMT	-	7.53	0.03	G.O.L.D.
275	0x0113	PMT	-	7.53	0.03	5*
270	0x010E	PMT	-	7.53	0.03	Home
268	0x010C	PMT	-	7.53	0.03	Teletext Hols
265	0x0109	PMT	-	7.53	0.03	QUEST
264	0x0108	PMT	-	7.53	0.03	1-2-1 Dating
263	0x0107	PMT	-	7.53	0.03	MOBILIZER
260	0x0104	PMT	-	7.53	0.03	CITV
259	0x0103	PMT	-	7.53	0.03	QVC
386	0x0182	PMT	-	7.50	0.03	ADULT Section
381	0x017D	PMT	-	7.50	0.03	ADULT redhotTV
289	0x0121	PMT	-	7.50	0.03	TOPUP Anytime2
288	0x0120	PMT	-	7.50	0.03	TOPUP Anytime1
277	0x0115	PMT	-	7.50	0.03	ITV3
274	0x0112	PMT	-	7.50	0.03	Television X
261	0x0105	PMT	-	7.50	0.03	bid tv
17	0x0011	SDT	-	6.55	0.03	N/A
6640	0x19F0	MHEG	-	4.99	0.02	Gems TV
6609	0x19D1	MHEG	-	4.99	0.02	ADULT Filth
6608	0x19D0	MHEG	-	4.99	0.02	ADULT redhotTV
6544	0x1990	MHEG	-	4.99	0.02	ITV2 +1
6520	0x1978	Data	-	4.99	0.02	bid tv
6456	0x1938	MHEG	-	4.99	0.02	ADULT Section
6120	0x17E8	MHEG	-	4.99	0.02	Capital FM
6104	0x17D8	MHEG	-	4.99	0.02	Heart
6088	0x17C8	MHEG	-	4.99	0.02	Absolute Radio
1	0x0001	CAT	-	4.99	0.02	N/A
6360	0x18D8	MHEG	-	3.02	0.01	Teletext Hols
20	0x0014	TOT	-	3.02	0.01	N/A
16	0x0010	NIT	-	1.17	0.00	N/A
6694	0x1A26	DVB Subtitles	-	0.54	0.00	5 USA
6678	0x1A16	DVB Subtitles	-	0.54	0.00	5*
6838	0x1AB6	DVB Subtitles	-	0.32	0.00	CITV
6934	0x1B16	DVB Subtitles	-	0.29	0.00	QUEST

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Duration: 1 Min, File Size: 174 MB **ts.TELE-satellite.com/DVB-T2/UK/London-Ch32-1107.ts**

DVB T **UK**

Network Name London. Recording TELE-satellite
Transmitter London Channel 34 *Remark* MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
201	0x00C9	MPEG2 Video	-	2282.31	12.71	Pick TV+1
2401	0x0961	MPEG2 Video	-	1956.14	10.89	Gems TV
2111	0x083F	MPEG2 Video	-	1903.22	10.60	Dave ja vu
301	0x012D	MPEG2 Video	-	1891.21	10.53	Pick TV
401	0x0191	MPEG2 Video	-	1761.39	9.81	Dave
101	0x0065	MPEG2 Video	-	1652.49	9.20	Sky News
611	0x0263	MPEG2 Video	-	1649.21	9.18	price-drop tv
501	0x01F5	MPEG2 Video	-	1451.25	8.08	E4+1
2301	0x08FD	MPEG2 Video	-	1374.76	7.65	Create & Craft
18	0x0012	EIT	-	455.47	2.54	N/A
2112	0x0840	MPEG Audio	-	137.94	0.77	Dave ja vu
612	0x0264	MPEG Audio	-	137.94	0.77	price-drop tv
502	0x01F6	MPEG Audio	-	137.94	0.77	E4+1
402	0x0192	MPEG Audio	-	137.94	0.77	Dave
202	0x00CA	MPEG Audio	-	137.94	0.77	Pick TV+1
102	0x0066	MPEG Audio	-	137.94	0.77	Sky News
2402	0x0962	MPEG Audio	-	137.92	0.77	Gems TV
2302	0x08FE	MPEG Audio	-	137.92	0.77	Create & Craft
302	0x012E	MPEG Audio	-	137.92	0.77	Pick TV
1101	0x044D	MPEG Audio	-	69.98	0.39	talkSPORT
103	0x0067	DVB Subtitles	-	27.00	0.15	Sky News
503	0x01F7	DVB Subtitles	-	11.98	0.07	E4+1
204	0x00CC	DVB Subtitles	-	10.06	0.06	Pick TV+1
3013	0x0BC5	MHEG	-	10.01	0.06	Sky News
2113	0x0841	DVB Subtitles	-	9.35	0.05	Dave ja vu
724	0x02D4	PMT	-	7.53	0.04	Create & Craft
723	0x02D3	PMT	-	7.53	0.04	Daystar
722	0x02D2	PMT	-	7.53	0.04	ADULT PARTY
721	0x02D1	PMT	-	7.53	0.04	CNN
719	0x02CF	PMT	-	7.53	0.04	Pick TV+1
715	0x02CB	PMT	-	7.53	0.04	COMMUNITY
711	0x02C7	PMT	-	7.53	0.04	Dave ja vu
707	0x02C3	PMT	-	7.53	0.04	price-drop tv
706	0x02C2	PMT	-	7.53	0.04	talkSPORT
705	0x02C1	PMT	-	7.53	0.04	E4+1
704	0x02C0	PMT	-	7.53	0.04	Dave
703	0x02BF	PMT	-	7.53	0.04	Pick TV
701	0x02BD	PMT	-	7.53	0.04	Sky News
0	0x0000	PAT	-	7.53	0.04	N/A
725	0x02D5	PMT	-	7.51	0.04	Gems TV
720	0x02D0	PMT	-	7.51	0.04	ADULT Blue
716	0x02CC	PMT	-	7.51	0.04	ADULT smileTV3
713	0x02C9	PMT	-	7.51	0.04	Big Deal
710	0x02C6	PMT	-	7.51	0.04	ADULT Babestn2
17	0x0011	SDT	-	5.93	0.03	N/A
2156	0x086C	MHEG	-	5.76	0.03	Daystar
2146	0x0862	MHEG	-	5.76	0.03	ADULT Blue
2126	0x084E	MHEG	-	5.76	0.03	Big Deal
626	0x0272	MHEG	-	5.76	0.03	COMMUNITY
606	0x025E	MHEG	-	5.76	0.03	ADULT smileTV3
426	0x01AA	MHEG	-	5.76	0.03	ADULT Babestn2
2206	0x089E	MHEG	-	5.52	0.03	CNN
416	0x01A0	MHEG	-	5.52	0.03	ADULT PARTY
1102	0x044E	MHEG	-	4.52	0.03	talkSPORT
20	0x0014	TOT	-	3.01	0.02	N/A
16	0x0010	NIT	-	1.29	0.01	N/A
403	0x0193	DVB Subtitles	-	0.58	0.00	Dave

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min, File Size: 138 MB **ts.TELE-satellite.com/DVB-T/UK/London-Ch34-1107.ts**

DVB T

UK

Network Name: South West Recording: Andy Middleton

Transmitter: Plymouth Channel 45

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
401	0x0191	MPEG2 Video	-	4592.51	19.41	CBeebies
201	0x00C9	MPEG2 Video	-	3345.78	14.14	BBC TWO
301	0x012D	MPEG2 Video	-	3293.92	13.92	CBBC Channel
101	0x0065	MPEG2 Video	-	2859.14	12.08	BBC ONE
501	0x01F5	MPEG2 Video	-	1292.64	5.46	BBC NEWS
901	0x0385	MPEG2 Video	-	1191.96	5.04	301
7201	0x1C21	MHEG	-	1051.03	4.44	BBC ONE
601	0x0259	MPEG2 Video	-	966.19	4.08	BBC Parliament
18	0x0012	EIT	-	661.89	2.80	N/A
302	0x012E	MPEG Audio	-	263.49	1.11	CBBC Channel
202	0x00CA	MPEG Audio	-	263.49	1.11	BBC TWO
102	0x0066	MPEG Audio	-	263.49	1.11	BBC ONE
402	0x0192	MPEG Audio	-	263.45	1.11	CBeebies
1302	0x0516	MPEG Audio	-	200.76	0.85	BBC Radio 4
1202	0x04B2	MPEG Audio	-	200.76	0.85	BBC Radio 3
1102	0x044E	MPEG Audio	-	200.72	0.85	BBC Radio 2
1002	0x03EA	MPEG Audio	-	200.72	0.85	BBC Radio 1
951	0x03B7	MPEG Audio	-	198.69	0.84	301
1802	0x070A	MPEG Audio	-	167.28	0.71	BBC R1X
1702	0x06A6	MPEG Audio	-	167.28	0.71	BBC Radio 4 Ex
1602	0x0642	MPEG Audio	-	167.28	0.71	BBC 6 Music
7203	0x1C23	Data	-	150.19	0.63	BBC ONE
7202	0x1C22	Data	-	150.15	0.63	BBC ONE
1902	0x076E	MPEG Audio	-	135.91	0.57	BBC Asian Net.
952	0x03B8	MPEG Audio	-	132.46	0.56	301
602	0x025A	MPEG Audio	-	132.46	0.56	BBC Parliament
502	0x01F6	MPEG Audio	-	132.41	0.56	BBC NEWS
2002	0x07D2	MPEG Audio	-	101.97	0.43	BBC World Sv.
1502	0x05DE	MPEG Audio	-	101.97	0.43	BBC R5SX
1402	0x057A	MPEG Audio	-	101.92	0.43	BBC R5L
7204	0x1C24	Data	-	100.08	0.42	BBC ONE
7205	0x1C25	Data	-	81.06	0.34	BBC ONE
306	0x0132	MPEG Audio	-	69.68	0.29	CBBC Channel
505	0x01F9	DVB Subtitles	-	23.95	0.10	BBC NEWS
2700	0x0A8C	PMT	-	15.06	0.06	BBC Red Button
2000	0x07D0	PMT	-	15.06	0.06	BBC World Sv.
1900	0x076C	PMT	-	15.06	0.06	BBC Asian Net.
1800	0x0708	PMT	-	15.06	0.06	BBC R1X
1700	0x06A4	PMT	-	15.06	0.06	BBC Radio 4 Ex
1500	0x05DC	PMT	-	15.06	0.06	BBC R5SX
1400	0x0578	PMT	-	15.06	0.06	BBC R5L
1300	0x0514	PMT	-	15.06	0.06	BBC Radio 4
1200	0x04B0	PMT	-	15.06	0.06	BBC Radio 3
1100	0x044C	PMT	-	15.06	0.06	BBC Radio 2
1000	0x03E8	PMT	-	15.06	0.06	BBC Radio 1
900	0x0384	PMT	-	15.06	0.06	301
700	0x02BC	PMT	-	15.06	0.06	CBBC Channel
600	0x0258	PMT	-	15.06	0.06	BBC Parliament
300	0x012C	PMT	-	15.06	0.06	BBC THREE
200	0x00C8	PMT	-	15.06	0.06	BBC TWO
100	0x0064	PMT	-	15.06	0.06	BBC ONE
0	0x0000	PAT	-	15.06	0.06	N/A
1600	0x0640	PMT	-	15.01	0.06	BBC 6 Music
800	0x0320	PMT	-	15.01	0.06	CBeebies
500	0x01F4	PMT	-	15.01	0.06	BBC NEWS
400	0x0190	PMT	-	15.01	0.06	BBC FOUR
105	0x0069	DVB Subtitles	-	12.57	0.05	BBC ONE
205	0x00CD	DVB Subtitles	-	11.33	0.05	BBC TWO
405	0x0195	DVB Subtitles	-	10.92	0.05	CBeebies
305	0x0131	DVB Subtitles	-	10.09	0.04	CBBC Channel
17	0x0011	SDT	-	6.91	0.03	N/A
410	0x019A	Data	-	3.04	0.01	BBC FOUR
311	0x0137	MHEG	-	3.04	0.01	BBC THREE
110	0x006E	MHEG	-	3.04	0.01	BBC ONE
20	0x0014	TOT	-	3.04	0.01	N/A
910	0x038E	MHEG	-	2.99	0.01	301
811	0x032B	Data	-	2.99	0.01	CBeebies
810	0x032A	MHEG	-	2.99	0.01	CBeebies
711	0x02C7	Data	-	2.99	0.01	CBBC Channel
710	0x02C6	MHEG	-	2.99	0.01	CBBC Channel
610	0x0262	MHEG	-	2.99	0.01	BBC Parliament
510	0x01FE	MHEG	-	2.99	0.01	BBC NEWS
411	0x019B	MHEG	-	2.99	0.01	BBC FOUR
310	0x0136	Data	-	2.99	0.01	BBC THREE
210	0x00D2	MHEG	-	2.99	0.01	BBC TWO
605	0x025D	DVB Subtitles	-	2.81	0.01	BBC Parliament
450	0x01C2	Private Sections	-	1.20	0.01	N/A
350	0x015E	Private Sections	-	1.20	0.01	N/A
250	0x00FA	Private Sections	-	1.20	0.01	N/A
150	0x0096	Private Sections	-	1.20	0.01	N/A
16	0x0010	NIT	-	1.11	0.00	N/A
2010	0x07DA	MHEG	-	0.51	0.00	BBC World Sv.
1910	0x0776	MHEG	-	0.51	0.00	BBC Asian Net.
1810	0x0712	MHEG	-	0.51	0.00	BBC R1X
1710	0x06AE	MHEG	-	0.51	0.00	BBC Radio 4 Ex
1610	0x064A	MHEG	-	0.51	0.00	BBC 6 Music
1510	0x05E6	MHEG	-	0.51	0.00	BBC R5SX
1410	0x0582	MHEG	-	0.51	0.00	BBC R5L
1310	0x051E	MHEG	-	0.51	0.00	BBC Radio 4
1210	0x04BA	MHEG	-	0.51	0.00	BBC Radio 3
1110	0x0456	MHEG	-	0.51	0.00	BBC Radio 2
1010	0x03F2	MHEG	-	0.51	0.00	BBC Radio 1

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Duration: 5 Min, File Size: 930 MB **www.transponderstream.com/DVB-T/UK/Plymouth-Ch45-1110.ts**

DVB T

UK

Network Name: South West Recording: Andy Middleton

Transmitter: Plymouth Channel 49

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
520	0x0208	MPEG2 Video	-	3711.36	17.22	ITV1
560	0x0230	MPEG2 Video	-	2938.76	13.63	Channel 4
580	0x0244	MPEG2 Video	-	2793.78	12.96	Channel 4+1
540	0x021C	MPEG2 Video	-	1989.43	9.23	Channel 5
590	0x024E	MPEG2 Video	-	1925.85	8.93	More 4
570	0x023A	MPEG2 Video	-	1908.40	8.85	E4
600	0x0258	MPEG2 Video	-	1822.36	8.45	ITV1 +1
530	0x0212	MPEG2 Video	-	1622.99	7.53	ITV2
18	0x0012	EIT	-	496.01	2.30	N/A
581	0x0245	MPEG Audio	-	201.04	0.93	Channel 4+1
571	0x023B	MPEG Audio	-	201.04	0.93	E4
561	0x0231	MPEG Audio	-	201.04	0.93	Channel 4
591	0x024F	MPEG Audio	-	200.95	0.93	More 4
531	0x0213	MPEG Audio	-	199.00	0.92	ITV2
601	0x0259	MPEG Audio	-	198.91	0.92	ITV1 +1
541	0x021D	MPEG Audio	-	198.91	0.92	Channel 5
521	0x0209	MPEG Audio	-	198.81	0.92	ITV1
2362	0x093A	Data	-	94.21	0.44	ITV1
2361	0x0939	Data	-	72.12	0.33	ITV1
602	0x025A	MPEG Audio	-	69.80	0.32	ITV1 +1
542	0x021E	MPEG Audio	-	69.80	0.32	Channel 5
532	0x0214	MPEG Audio	-	69.80	0.32	ITV2
522	0x020A	MPEG Audio	-	69.80	0.32	ITV1
2367	0x093F	Data	-	57.92	0.27	Rabbit
305	0x0131	PMT	-	15.87	0.07	Channel 4+1
290	0x0122	PMT	-	15.87	0.07	ITV1 +1
288	0x0120	PMT	-	15.87	0.07	Gay Rabbit
274	0x0112	PMT	-	15.87	0.07	Rabbit
270	0x010E	PMT	-	15.87	0.07	More 4
1	0x0001	CAT	-	15.87	0.07	N/A
0	0x0000	PAT	-	15.87	0.07	N/A
304	0x0130	PMT	-	15.78	0.07	E4
300	0x012C	PMT	-	15.78	0.07	Channel 4
289	0x0121	PMT	-	15.78	0.07	Channel 5
258	0x0102	PMT	-	15.78	0.07	ITV2
256	0x0100	PMT	-	15.78	0.07	ITV1
573	0x023D	DVB Subtitles	-	10.58	0.05	E4
603	0x025B	DVB Subtitles	-	6.22	0.03	ITV1 +1
17	0x0011	SDT	-	4.18	0.02	N/A
2363	0x093B	MHEG	-	3.06	0.01	Channel 4
2360	0x0938	MHEG	-	3.06	0.01	Gay Rabbit
2169	0x0879	MHEG	-	3.06	0.01	Rabbit
21	0x0015	Network Sync	-	3.06	0.01	N/A
2168	0x0878	MHEG	-	2.97	0.01	ITV1 +1
2167	0x0877	MHEG	-	2.97	0.01	E4
2164	0x0874	MHEG	-	2.97	0.01	Channel 5
2162	0x0872	MHEG	-	2.97	0.01	ITV2
2161	0x0871	MHEG	-	2.97	0.01	ITV1
20	0x0014	TOT	-	2.97	0.01	N/A
523	0x020B	DVB Subtitles	-	2.23	0.01	ITV1
16	0x0010	NIT	-	1.49	0.01	N/A
533	0x0215	DVB Subtitles	-	1.30	0.01	ITV2
543	0x021F	DVB Subtitles	-	0.37	0.00	Channel 5
3004	0x0BBC	Data	-	0.09	0.00	E4

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QA Qatar

DVB T

QA

Network Name: Nilesat101 Recording: TELE-satellite

Transmitter: Doha Channel 25 *Remark* retransmit from satellite

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
1009	0x03F1	MPEG2 Video	-	2845.80	89.92	Qatar1
1010	0x03F2	MPEG Audio	-	263.42	8.32	Qatar1
17	0x0011	SDT	-	23.08	0.73	N/A
108	0x006C	PMT	-	15.05	0.48	Qatar1
0	0x0000	PAT	-	15.05	0.48	N/A
1	0x0001	CAT	-	1.50	0.05	N/A
16	0x0010	NIT	-	0.89	0.03	N/A
20	0x0014	TOT	-	0.11	0.00	N/A

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DVB-T2 terrestrial

AT Austria

DVB T2 **AT**

Network Name ORS
Transmitter Vienna Channel 60
Recording Thomas Haring
Remark MPEG4

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
210	0x00D2	H.264 Video	-	5910.71	24.08	ORF2 HD
220	0x00DC	H.264 Video	-	5159.69	21.02	ServusTV HD
200	0x00C8	H.264 Video	-	4937.20	20.11	ORF1 HD
8191	0x1FFF	Null Packets	-	4732.38	19.28	N/A
223	0x00DF	AC3 Audio	-	460.84	1.88	ServusTV HD
213	0x00D5	AC3 Audio	-	460.79	1.88	ORF2 HD
203	0x00CB	AC3 Audio	-	460.79	1.88	ORF1 HD
18	0x0012	EIT	-	312.67	1.27	N/A
215	0x00D7	Teletext	-	300.96	1.23	ORF2 HD
205	0x00CD	Teletext	-	300.96	1.23	ORF1 HD
202	0x00CA	MPEG Audio	-	167.22	0.68	ORF1 HD
201	0x00C9	MPEG Audio	-	167.22	0.68	ORF1 HD
2130	0x0852	MPEG Audio	-	167.17	0.68	FM4
2110	0x083E	MPEG Audio	-	167.17	0.68	OE1
221	0x00DD	MPEG Audio	-	167.17	0.68	ServusTV HD
212	0x00D4	MPEG Audio	-	167.17	0.68	ORF2 HD
211	0x00D3	MPEG Audio	-	167.17	0.68	ORF2 HD
32	0x0020	AAC Audio	-	71.38	0.29	HITRADIO OE3
2013	0x07DD	PMT	-	30.13	0.12	FM4
2012	0x07DC	PMT	-	30.13	0.12	HITRADIO OE3
2011	0x07DB	PMT	-	30.13	0.12	OE1
2003	0x07D3	PMT	-	30.13	0.12	ServusTV HD
2002	0x07D2	PMT	-	30.13	0.12	ORF2 HD
2001	0x07D1	PMT	-	30.13	0.12	ORF1 HD
0	0x0000	PAT	-	30.13	0.12	N/A
17	0x0011	SDT	-	30.08	0.12	N/A
16	0x0010	NIT	-	30.08	0.12	N/A
33	0x0021	Private Sections	-	0.98	0.00	N/A

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DE Germany

DVB T2 **DE**

Network Name BR T2
Transmitter Munich Channel 50
Recording TELE-satellite

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
737	0x02E1	H.264 Video	-	11775.17	44.90	Das Erste HD
8191	0x1FFF	Null Packets	-	7397.66	28.21	N/A
753	0x02F1	MPEG2 Video	-	2504.57	9.55	Das Erste
721	0x02D1	MPEG2 Video	-	1668.03	6.36	Bayerisches FS Süd
739	0x02E3	AC3 Audio	-	470.09	1.79	Das Erste HD
2172	0x087C	Data	-	400.03	1.53	Das Erste HD
18	0x0012	EIT	-	353.00	1.35	N/A
738	0x02E2	MPEG Audio	-	266.39	1.02	Das Erste HD
756	0x02F4	Teletext	-	263.25	1.00	Das Erste
740	0x02E4	Teletext	-	263.25	1.00	Das Erste HD
724	0x02D4	Teletext	-	263.25	1.00	Bayerisches FS Süd
754	0x02F2	MPEG Audio	-	203.70	0.78	Das Erste
722	0x02D2	MPEG Audio	-	203.70	0.78	Bayerisches FS Süd
725	0x02D5	MPEG Audio	-	133.22	0.51	Bayerisches FS Süd
555	0x022B	Private Data	-	27.01	0.10	Bayerisches FS Süd
6070	0x17B6	Private Sections	-	9.99	0.04	N/A
6031	0x178F	DVB Subtitles	-	3.75	0.01	Das Erste HD
720	0x02D0	PMT	-	3.19	0.01	Bayerisches FS Süd
1	0x0001	CAT	-	3.19	0.01	N/A
0	0x0000	PAT	-	3.19	0.01	N/A
752	0x02F0	PMT	-	3.14	0.01	Das Erste
736	0x02E0	PMT	-	3.14	0.01	Das Erste HD
20	0x0014	TOT	-	3.00	0.01	N/A
17	0x0011	SDT	-	0.80	0.00	N/A
16	0x0010	NIT	-	0.75	0.00	N/A

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UK United Kingdom

DVB T2 **UK**

Network Name Cambs & Beds.
Transmitter London Channel 21
Recording TELE-satellite

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
101	0x0065	H.264 Video	-	11166.93	30.41	BBC HD
6601	0x19C9	H.264 Video	-	9005.26	24.52	BBC One HD
201	0x00C9	H.264 Video	-	7652.08	20.84	ITV1 HD
301	0x012D	H.264 Video	-	7298.90	19.88	Channel 4 HD
102	0x0066	AAC Audio	-	358.66	0.98	BBC HD
18	0x0012	EIT	-	294.15	0.80	N/A
202	0x00CA	AAC Audio	-	157.27	0.43	ITV1 HD
6602	0x19CA	AAC Audio	-	156.01	0.42	BBC One HD
302	0x012E	AAC Audio	-	156.01	0.42	Channel 4 HD
106	0x006A	AAC Audio	-	70.63	0.19	BBC HD
6606	0x19CE	AAC Audio	-	70.58	0.19	BBC One HD
206	0x00CE	AAC Audio	-	70.58	0.19	ITV1 HD
306	0x0132	AAC Audio	-	70.53	0.19	Channel 4 HD
6605	0x19CD	DVB Subtitles	-	49.85	0.14	BBC One HD
205	0x00CD	DVB Subtitles	-	31.26	0.09	ITV1 HD
305	0x0131	DVB Subtitles	-	20.53	0.06	Channel 4 HD
6600	0x19C8	PMT	-	15.05	0.04	BBC One HD
300	0x012C	PMT	-	15.05	0.04	Channel 4 HD
200	0x00C8	PMT	-	15.05	0.04	ITV1 HD
100	0x0064	PMT	-	15.05	0.04	BBC HD
0	0x0000	PAT	-	15.05	0.04	N/A
17	0x0011	SDT	-	4.56	0.01	N/A
105	0x0069	DVB Subtitles	-	3.01	0.01	BBC HD
20	0x0014	TOT	-	3.01	0.01	N/A
16	0x0010	NIT	-	1.60	0.00	N/A
6650	0x19FA	Private Sections	-	1.31	0.00	N/A
150	0x0096	Private Sections	-	1.31	0.00	N/A

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Duration: 30 Sec, File Size: 135 MB **ts.TELE-satellite.com/DVB-T2/UK/London-Ch21-1107.ts**
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Duration: 5 Min, File Size: 945 MB **www.transponderstream.com/DVB-T2/UK/London-Ch21-1107.ts**

DVB T2 **UK**

Network Name: South West
Transmitter: Plymouth Channel 42
Recording: Andy Middleton

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
101	0x0065	H.264 Video	-	13880.81	37.17	BBC HD
201	0x00C9	H.264 Video	-	9917.67	26.56	ITV1 HD
6601	0x19C9	H.264 Video	-	6352.93	17.01	BBC One HD
301	0x012D	H.264 Video	-	5728.66	15.34	Channel 4 HD
18	0x0012	EIT	-	297.85	0.80	N/A
102	0x0066	AAC Audio	-	157.67	0.42	BBC HD
6602	0x19CA	AAC Audio	-	157.55	0.42	BBC One HD
202	0x00CA	AAC Audio	-	154.58	0.41	ITV1 HD
302	0x012E	AAC Audio	-	153.21	0.41	Channel 4 HD
130	0x0082	SSU	-	100.43	0.27	BBC HD
306	0x0132	AAC Audio	-	70.84	0.19	Channel 4 HD
106	0x006A	AAC Audio	-	70.84	0.19	BBC HD
6606	0x19CE	AAC Audio	-	70.72	0.19	BBC One HD
206	0x00CE	AAC Audio	-	70.61	0.19	ITV1 HD
105	0x0069	DVB Subtitles	-	27.99	0.07	BBC HD
6605	0x19CD	DVB Subtitles	-	27.42	0.07	BBC One HD
6600	0x19C8	PMT	-	15.08	0.04	BBC One HD
300	0x012C	PMT	-	15.08	0.04	Channel 4 HD
200	0x00C8	PMT	-	15.08	0.04	ITV1 HD
100	0x0064	PMT	-	15.08	0.04	BBC HD
0	0x0000	PAT	-	15.08	0.04	N/A
205	0x00CD	DVB Subtitles	-	7.20	0.02	ITV1 HD
305	0x0131	DVB Subtitles	-	5.60	0.01	Channel 4 HD
17	0x0011	SDT	-	4.23	0.01	N/A
20	0x0014	TOT	-	2.97	0.01	N/A
16	0x0010	NIT	-	1.60	0.00	N/A
6650	0x19FA	Private Sections	-	1.37	0.00	N/A
150	0x0096	Private Sections	-	1.37	0.00	N/A

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Duration: 30 Sec, File Size: 172 MB **ts.TELE-satellite.com/DVB-T2/UK/Plymouth-Ch42-1109.ts**
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Duration: 5 Min, File Size: 1393 MB **www.transponderstream.com/DVB-T2/UK/Plymouth-Ch42-1109.ts**

ISDB-TB terrestrial

BR Brasil

ISDB-TB **BR**

Network Name: Rede Record
Transmitter: Sao Paulo Channel 20
Recording: TELE-satellite
Remark: 1Seg (Mobile TV), HD

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
273	0x0111	H.264 Video	-	15304.88	83.69	Record HD
8191	0x1FFF	Null Packets	-	1303.08	7.13	N/A
641	0x0281	H.264 Video	-	307.79	1.68	Record 1Seg
3000	0x0BB8	?	-	201.55	1.10	N/A
3106	0x0C22	?	-	200.06	1.09	N/A
3104	0x0C20	?	-	200.06	1.09	N/A
3102	0x0C1E	?	-	200.06	1.09	N/A
276	0x0114	AAC Audio	-	104.10	0.57	Record HD
274	0x0112	AAC Audio	-	104.10	0.57	Record HD
275	0x0113	AAC Audio	-	103.95	0.57	Record HD
643	0x0283	AAC Audio	-	65.84	0.36	Record 1Seg
18	0x0012	EIT	-	60.01	0.33	N/A
768	0x0300	PCR	-	39.51	0.22	N/A
257	0x0101	PMT	-	30.10	0.16	Record HD
908	0x038C	Data	-	20.01	0.11	Record 1Seg
0	0x0000	PAT	-	15.05	0.08	N/A
8136	0x1FC8	PMT	-	7.52	0.04	Record 1Seg
512	0x0200	PCR	-	7.52	0.04	N/A
39	0x0027	?	-	6.02	0.03	N/A
288	0x0120	Private PES	-	1.50	0.01	Record HD
36	0x0024	?	-	1.50	0.01	N/A
16	0x0010	NIT	-	1.50	0.01	N/A
656	0x0290	Private PES	-	1.50	0.01	Record 1Seg
17	0x0011	SDT	-	1.00	0.01	N/A
20	0x0014	TOT	-	0.30	0.00	N/A
508	0x01FC	Private Sections	-	0.15	0.00	N/A

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Duration: 5 Min, File Size: 945 MB **www.transponderstream.com/ISDB-TB/BR/SaoPaulo-Ch19-1108.ts**

ISDB-TB **BR**

Network Name: BAND
Transmitter: Sao Paulo Channel 23
Recording: TELE-satellite
Remark: 1Seg (Mobile TV), HD

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
259	0x0103	H.264 Video	-	10554.91	85.61	BAND HDTV
8191	0x1FFF	Null Packets	-	1071.43	8.69	N/A
273	0x0111	H.264 Video	-	305.29	2.48	BAND 1SEG
256	0x0100	AAC Audio	-	111.87	0.91	BAND HDTV
257	0x0101	AAC Audio	-	105.71	0.86	BAND HDTV
18	0x0012	EIT	-	49.96	0.41	N/A
511	0x01FF	PCR	-	41.65	0.34	N/A
274	0x0112	AAC Audio	-	35.83	0.29	BAND 1SEG
32	0x0020	PMT	-	15.83	0.13	BAND HDTV
0	0x0000	PAT	-	15.82	0.13	N/A
512	0x0200	PCR	-	7.52	0.06	N/A
8136	0x1FC8	PMT	-	3.96	0.03	BAND 1SEG
39	0x0027	?	-	3.00	0.02	N/A
107	0x006B	Private PES	-	2.14	0.02	BAND HDTV
36	0x0024	?	-	1.58	0.01	N/A
16	0x0010	NIT	-	1.58	0.01	N/A
17	0x0011	SDT	-	0.80	0.01	N/A
20	0x0014	TOT	-	0.32	0.00	N/A

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ISDB-TB **BR**

Network Name: Rede TV!
Transmitter: Sao Paulo Channel 29
Recording: TELE-satellite
Remark: 3D (side-by-side)

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
273	0x0111	H.264 Video	-	7102.65	64.56	Rede TV! HD
289	0x0121	H.264 Video	-	2154.51	19.58	Rede TV! 3D
8191	0x1FFF	Null Packets	-	980.45	8.91	N/A
529	0x0211	H.264 Video	-	324.42	2.95	Rede TV! 1Seg
290	0x0122	AAC Audio	-	84.67	0.77	Rede TV! 3D
275	0x0113	AAC Audio	-	80.15	0.73	Rede TV! HD
274	0x0112	AAC Audio	-	79.89	0.73	Rede TV! HD
530	0x0212	AAC Audio	-	66.63	0.61	Rede TV! 1Seg
18	0x0012	EIT	-	28.50	0.26	N/A
512	0x0200	PCR	-	27.57	0.25	N/A
768	0x0300	PCR	-	16.37	0.15	N/A
256	0x0100	PCR	-	16.33	0.15	N/A
258	0x0102	PMT	-	8.94	0.08	Rede TV! 3D
0	0x0000	PAT	-	8.94	0.08	N/A
257	0x0101	PMT	-	8.88	0.08	Rede TV! HD
8136	0x1FC8	PMT	-	3.00	0.03	Rede TV! 1Seg
39	0x0027	?	-	3.00	0.03	N/A
533	0x0215	Private PES	-	1.84	0.02	Rede TV! 1Seg
36	0x0024	?	-	1.48	0.01	N/A
16	0x0010	NIT	-	1.48	0.01	N/A
278	0x0116	Private PES	-	1.07	0.01	Rede TV! HD
17	0x0011	SDT	-	0.74	0.01	N/A
20	0x0014	TOT	-	0.29	0.00	N/A

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ISDB-TB **BR**

Network Name: Rede Vida
Transmitter: Sao Paulo Channel 39
Recording: TELE-satellite
Remark: 1Seg, HD

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
501	0x01F5	H.264 Video	-	9661.50	92.77	Rede Vida HD
500	0x01F4	H.264 Video	-	273.41	2.63	Rede Vida 1Seg
511	0x01FF	AAC Audio	-	133.21	1.28	Rede Vida HD
510	0x01FE	AAC Audio	-	70.60	0.68	Rede Vida 1Seg
513	0x0201	AAC Audio	-	52.93	0.51	Rede Vida HD
18	0x0012	EIT	-	50.06	0.48	N/A
521	0x0209	PCR	-	39.52	0.38	N/A
0	0x0000	PAT	-	37.65	0.36	N/A
8191	0x1FFF	Null Packets	-	35.45	0.34	N/A
520	0x0208	PCR	-	34.63	0.33	N/A
80	0x0050	PMT	-	7.57	0.07	Rede Vida HD
8136	0x1FC8	PMT	-	7.52	0.07	Rede Vida 1Seg
39	0x0027	?	-	2.97	0.03	N/A
531	0x0213	Private PES	-	1.53	0.01	Rede Vida HD
36	0x0024	?	-	1.53	0.01	N/A
530	0x0212	Private PES	-	1.48	0.01	Rede Vida 1Seg
17	0x0011	SDT	-	1.48	0.01	N/A
16	0x0010	NIT	-	1.48	0.01	N/A
20	0x0014	TOT	-	0.34	0.00	N/A

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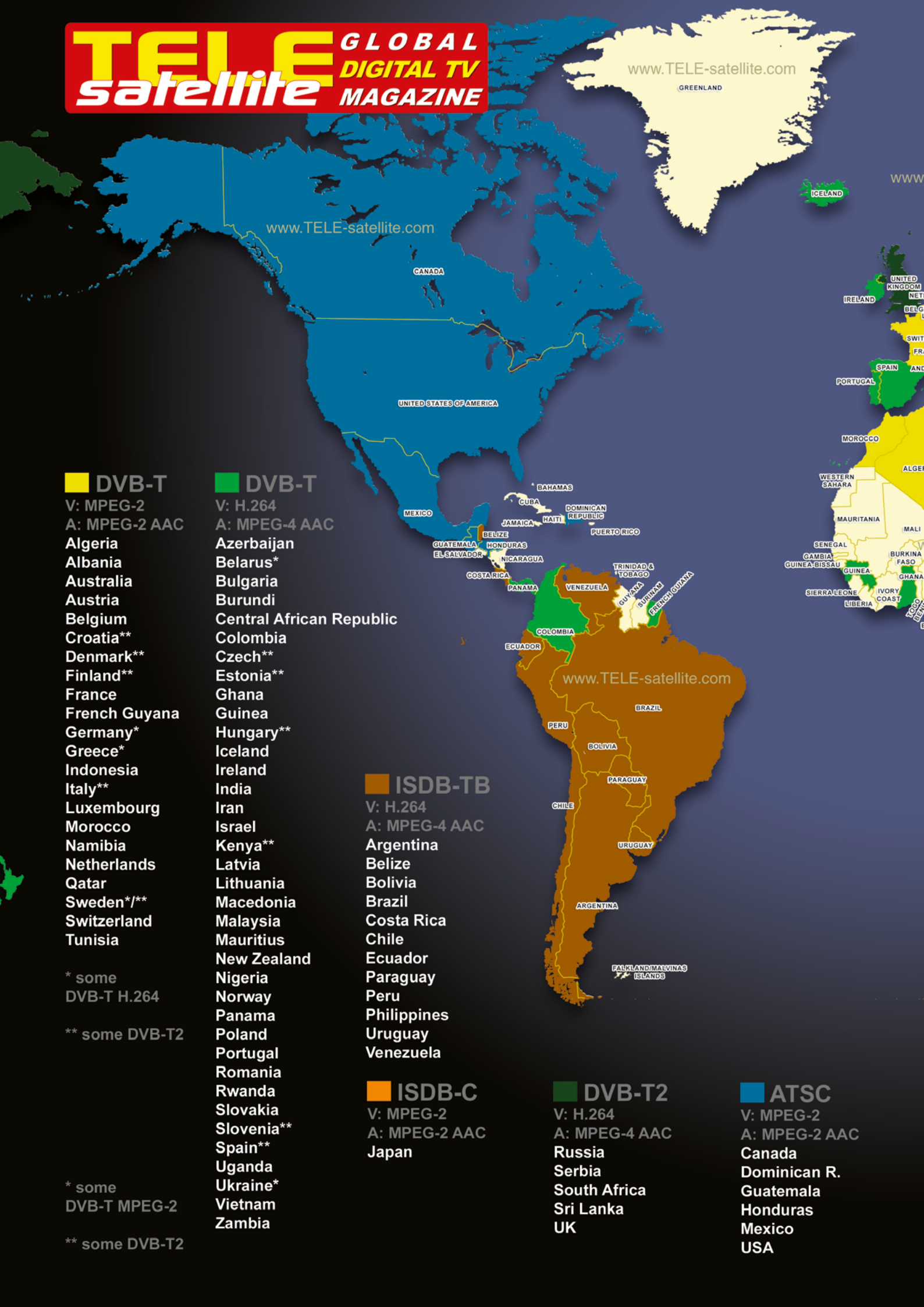

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** some DVB-T2

ISDB-TB
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A: MPEG-4 AAC

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Digital Terrestrial Television of the World

Dominant System per Country

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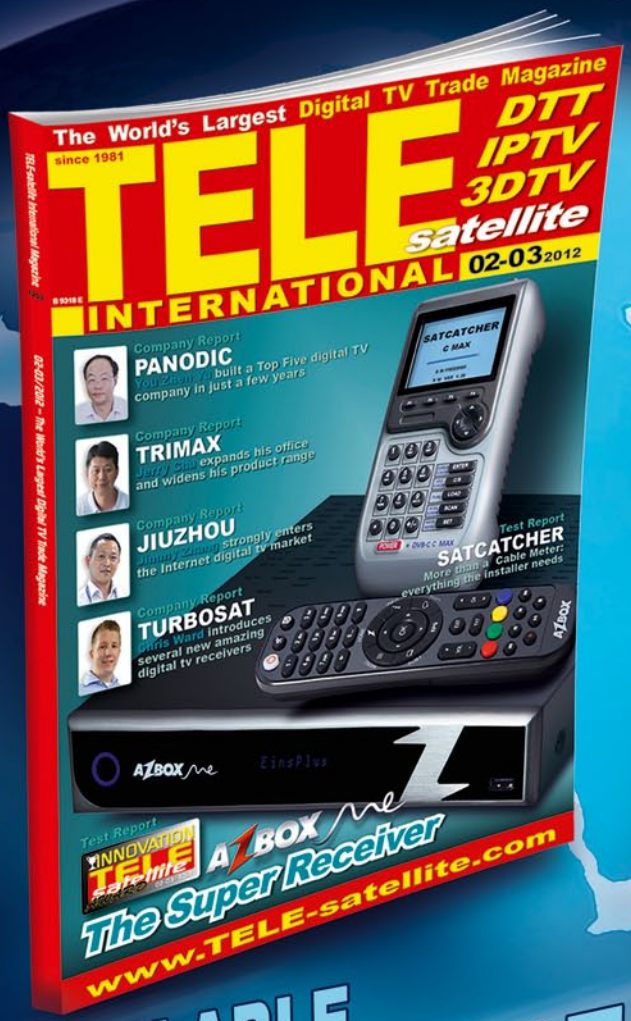

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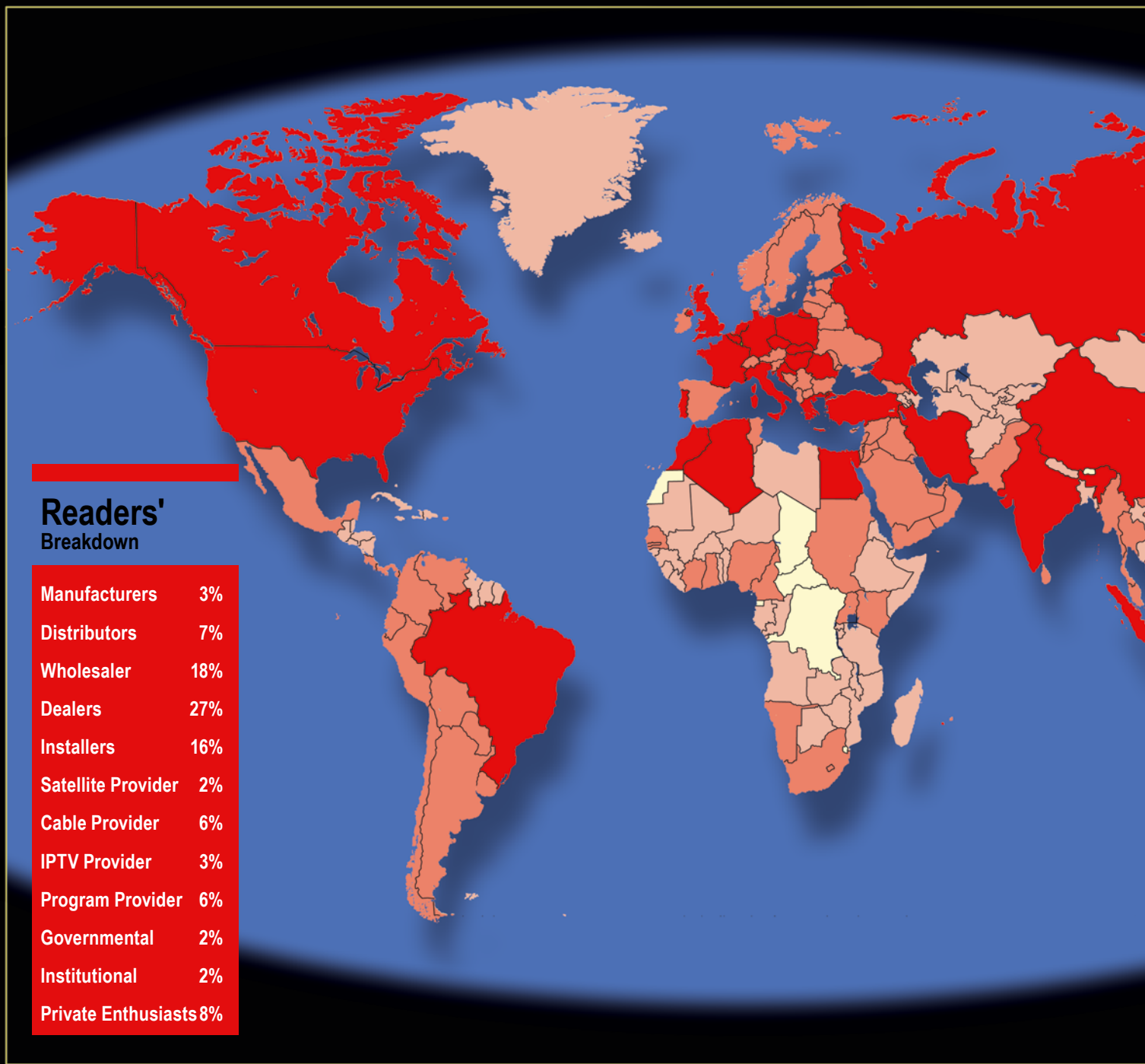

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Macedonia	714
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Panama	585
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Kenya	564
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Oman	483
Aruba	480
Moldova	476
New Zealand	469
Peru	459
Paraguay	445
Albania	420
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Luxembourg	406
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Issue	**TELE-satellite 04-05/2012**	**TELE-satellite 06-07-08/2012**	**TELE-satellite 09-10/2012**
#	1205	1207	1209
Editorial Deadline	3 February 2012	30 March 2012	29 June 2012
Advertisement Deadline	10 February 2012	6 April 2012	6 July 2012
Hardcopies	16 March 2012	11 May 2012	17 August 2012
Online	30 March 2012	1 June 2012	31 August 2012

Digital TV Exhibitions

13 - 16 April 2012
HKTDC Spring
Hongkong, China

16 - 19 April 2012
NAB Show 2012
Essential destination for broadercasting® professionals who share a passion for bringing content to life on any platform
Las Vegas Convention Center, USA
Opening Hours:
16 - 18 April: 9:00am - 6:00pm
19 April: 9:00am - 2:00pm
www.nabshow.com

12 - 14 June 2012
ANGA 2012
Cologne, Germany

19 - 22 June 2012
CommunicAsia 2012
CommunicAsia2012 will feature a comprehensive range of the latest products, technologies and solutions, and offer an enhanced platform for business networking and partnership opportunities.
Basement 2, Levels 1, 4 & 5
Marina Bay Sands, Singapore
Opening Hours:
19 - 21 June: 10:30am - 6:00pm
22 June: 10:30am - 4:00pm
www.communicasia.com

31 July - 2 August 2012
ABTA 2012
São Paulo, Brasil

31 August - 5 September 2012
IFA 2012
Berlin, Germany

7 - 11 September 2012
IBC 2012
RAI Convention Centre, Amsterdam
The Netherlands
Annual event for professionals engaged in the creation, management and delivery of entertainment and news content
Opening Hours:
7 September: 10:30am - 6:00pm
8 - 10 Sept.: 9:30am - 6:00pm
11 September: 10:30am - 4:00pm
www.ibc.org

6 - 9 October 2012
CeBIT Bilisim Eurasia
Istanbul, Turkey

13 - 16 October 2012
HKTDC Autumn
Hongkong, China

24 - 26 October 2012
CAPER 2012
Buenos Aires, Argentina

17 - 19 October 2012
EEBC 2012
Kiev, Ukraine

17 - 19 October 2012
SCTE Cable-Tec 2012
Orlando, USA

3 - 5 November 2012
SCaT India 2012
South Asia's Largest Tradeshow of the Indian Cable & Satellite Television Industry
World Trade Centre, Cuffe Parade, Mumbai, India
www.scatmag.com/scatindia/

8 - 11 January 2013
2013 International CES
Manufacturers, developers and suppliers of consumer technology hardware, content, technology delivery systems and related products and services
Las Vegas Convention Center, Las Vegas Nevada, USA
Opening Hours:
8 January: 10:00am - 6:00pm
9 - 10 Jan.: 9:00am - 6:00pm
11 January: 9:00am - 4:00pm
www.cesweb.org

7 - 9 February 2013
CSTB 2013
Moscow, Russia

19 - 21 March 2013
CABSAT 2013
Premier Broadcast & Satellite Platform in the ME & North Africa
Dubai International Convention and Exhibition Centre, Dubai, UAE
Opening Hours:
19 - 20 March: 10:00am - 6:00pm
21 March: 10:00am - 5:00pm
www.cabsat.com

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