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TELE

DTT
IPTV
3DTV
satellite

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INTERNATIONAL 12-01 2012

Test Report

DEVISER S20

Accurate Measurements
and Easy to Operate



Test Report

GLOBALINVACOM

Ivan Horrocks makes it Easy to Install
a Fibre Optic Satellite System



Test Report

NetUP

Abaylay Ospan Surprises the Professionals
With an Exceptional Card



Test Report

AMIKO

József Zsimán Converts Receiver
into a Full Multimedia Center



Test Report

HORIZON

John McLoone has a Heart for TV
Installers with a New Easy-to-Use Meter



Test Report

JIUZHOU Combo PVR

Satellite, Terrestrial & Internet All in One

International Number 1 Digital TV Trade Magazine

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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-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



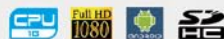
DVB-S FTA SDS-552ANP

- DVB-S FTA Scart stick
- Media playback: OGG/JPEG/BMP/MPGE PS/MPEG4
- 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 IV3001

- CPU: ARM Cortex A9, 1GHz@2500MIPS
- Video Decoding: H.264(1080p/i HP@L4.1), MPEG1/2/4(1080p/i) VC-1(1080p SP/MP/AP), RM/RMVB(720p)
- Audio Decoding: MP1/2/3, WMA, WAV, OGG, AAC, etc
- DVB-C/DVB-T Demodulator, 2 TS Input, 3 Demux
- 2 USB2.0(OTG/Host), Support SD/MMC Card
- OS: Android2.3



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Factory: C/D Block, Zhengchangda Ind. Park, Jian'an Road, Tangwei, Fu Yong, Baoan Dist., Shenzhen, China
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**TELE-satellite
International**
The World's Largest
Digital TV Trade Magazine

since 1981

Alexander Wiese
Publisher

alex@TELE-satellite.com
HQ in Munich, Germany

Dear Readers,

The availability of different signal analyzers is getting larger and larger. In this issue we are introducing three more of these products and as you've seen by reading the test reports, these devices continue to offer more and more functions. This makes the setting up of a digital reception system a lot of fun regardless of whether it's a satellite or terrestrial system.

Why is it that there are more and more signal analyzers available? The answer is actually quite simple: the analyzer market continues to grow and grow and grow. Of course the next logical question is: why is it growing?

There are some obvious reasons such as the cost/performance of the analyzers. This ratio continues to grow: either the price goes down for the performance you get or you get more performance for the price you pay. But whatever the case may be, it's becoming more and more attractive for digital TV friends, even those who don't install such a system very often, to go out and buy a signal analyzer.

But there's another reason: the technology is becoming more sophisticated and complex. "Simple" installations, like those involving only one antenna, one receiver and a single TV, are becoming fewer and fewer. You hardly see this anymore. Today installations typically involve a combination system where, for example, a terrestrial and satellite system would be installed that also would include Internet access. On top of this there would

be multiple outlets available and let's not forget the SmartPhone that would also need to be able to receive TV signals.

And it doesn't stop there. In this issue of TELE-satellite we are reporting on an entirely new transmission method called MIS. There are hardly any receivers available for this new method but this technology has potential and undoubtedly will be expanded upon. And at some point the matching signal analyzers would be needed as well. And of course this guarantees that the signal analyzer market will grow even more. New transmission and reception technologies will follow and the complexities of the reception systems will also increase.

As you can see, the original product group that was relatively small in size has developed because of all these technological improvements into a product that more and more digital TV friends will actually end up using on a regular basis.

Sincerely,

Alexander Wiese

Editor-in-Chief TELE-satellite International



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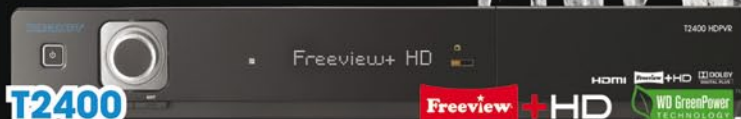
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- 10,000 Channels



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mehr Leistung für den Preis. Auf jeden Fall wird es auch für Digital TV Freunde, die nicht so oft eine Anlage installieren, immer attraktiver, sich ein Messgerät zuzulegen.

Liebe Leser, das Angebot an Messgeräten wird größer und größer. In dieser Ausgabe stellen wir Ihnen wieder einige der neuesten Produkte dieses Genres vor. Und wie man beim Lesen der Testberichte feststellen wird: die Geräte bieten immer mehr Funktionen. Da macht das Einrichten einer digitalen Empfangsanlage, egal ob Satellit oder terrestrisch, richtig Spaß.

Wie kommt es, dass es immer mehr Messgeräte auf dem Markt gibt? Die Antwort ist einfach: der Messgerätemarkt wächst und wächst und wächst. Da stellt sich die Frage, warum er wächst. Es gibt offensichtliche Gründe wie das Preis/Leistungsverhältnis der Messgeräte. Dieses steigt immer mehr: entweder der Preis sinkt für die gebotene Leistung oder man erhält

Aber es gibt noch einen Grund: die Technik wird anspruchsvoller und komplexer. Es gibt immer weniger „einfache“ Installationen, bei denen z.B. nur eine Antenne mit einer Empfangseinheit, z.B. einem Receiver mit TV-Gerät, installiert wird. Dieser Fall tritt kaum noch auf, heute müssen Kombianlagen für terrestrischen Empfang, Satellitenempfang und Internet aufgebaut werden, dazu kommen mehrere Outlets und das Smartphone soll auch noch die TV-Signale empfangen können.

Und dabei geht es ja ständig weiter. In dieser TELE-satellite berichten wir über die sehr neue Übertragungsart MIS. Hierfür gibt es noch kaum Empfangsgeräte, aber diese Technik hat Potential und wird sich



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Alexander Wiese

Ihr Alexander Wiese
Chefredakteur TELE-satellite International

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Alexander Wiese

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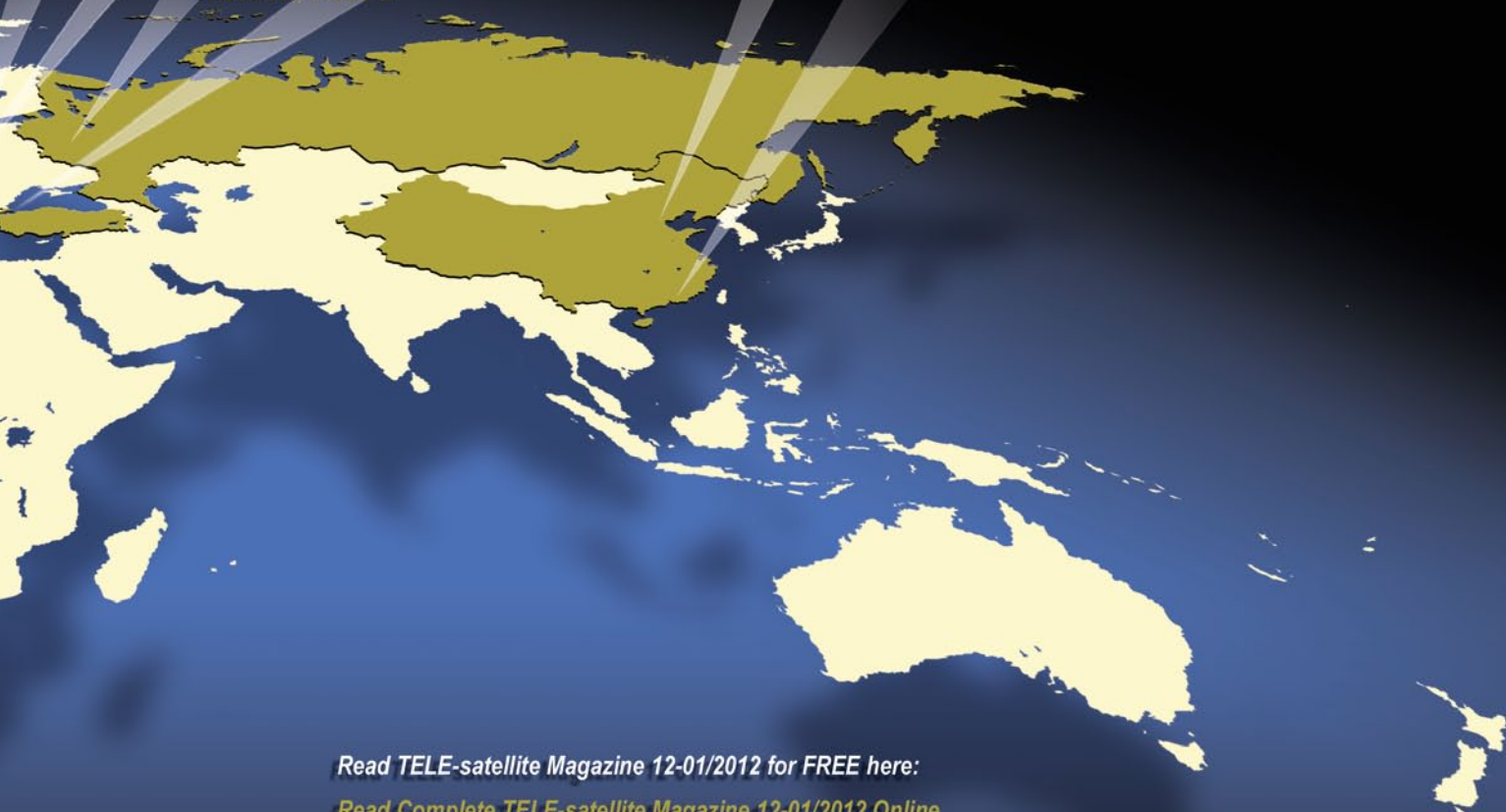
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Company Reports are written by TELE-satellite's editorial staff on location
Test Reports are written by TELE-satellite's engineering staff located at
different strategic reception points around the world



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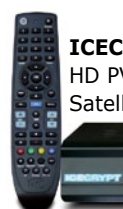
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files in P.C



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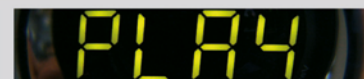
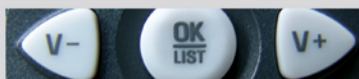
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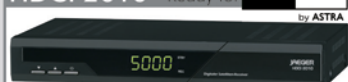
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HDTV-DVB-S Receiver - PVRready

- USB 2.0 host for playback of external hard drive or USB flash drive
- 1 x Common interface slot
- PVRready. Direct recording via USB on external storage media possible
- HDTV & SDTV
- 1 x smart card reader
- Video-resolution 1080p, 1080i, 720p, 576p
- HD+ smart card for 12 months including
- HDMI out with HDCP

HDCI 2010 Ready for



HDTV-DVB-S Receiver - PVRready

- USB 2.0 host for playback of external hard drive or USB flash drive
- 1 x Common interface slot
- HDTV & SDTV
- Video-resolution 1080i, 720p, 576p
- optical signal to the align the antenna
- HDMI out with HDCP
- Disecq 1.2 & USALS

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- CI+ Service Descramble supported

HDTV Receiver Selection

TOPFIELD

SBP-2001 CI+



HDTV DVB-S Receiver

- HDTV PVR ready to external storage devices via USB port
- Output to 576i, 576 p, 720 p, 1080i
- Playback of DivX, DivX HD, MKV and VOB video files *
- Display subtitles (* .srt) media files
- Playback of MP3 files and display JPG files
- Timeshift/puffer with a length of up to 5 hours
- Fast forward and rewind with up to 64 x speed
- 2 CI + shafts modules for pay TV
- Firmware upgrade over USB4

TOPFIELD

CBP-2001 CI+



HDTV DVB-C Receiver

- HDTV PVR ready to external storage devices via USB port
- Output to 576i, 576 p, 720 p, 1080i
- Playback of DivX, DivX HD, MKV and VOB video files *
- Display subtitles (* .srt) media files
- Playback of MP3 files and display JPG files
- Timeshift/puffer with a length of up to 5 hours
- Fast forward and rewind with up to 64 x speed
- 2 CI + shafts modules for pay TV
- Firmware upgrade over USB4

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)
- CI + compatible slot for most CA - modules
- USB port

SRT 7000



HDTV Receiver, USB PVR Ready

- HDTV (1080i) • HDMI (V/A -Output)
- 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

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

Digitas

PRO ACQU



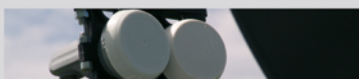
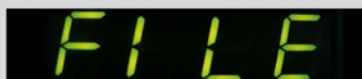
- Measure signallevel from two LNB's at the same time.
- Measured information are displayed on the LCD.
- DiSEqC, 22 kHz, 13/18v and mA readout.
- Generate DiSEqC, 22 kHz and 13/18v to control LNB/switch.
- and much more

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



HDTV & Ethernet connection

smart

VX 10
DVB-S HDTV Receiver



- HbbTV
- PVR-ready
- WIFI compatible
- LAN / Ethernet connection
- FULL HD 1080p
- NAGRA embedded
- USB interface for external storage 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 installation assistant

Big Dishes

PRODELIN
A TriPoint Global Company



2.4M - C & KU-BAND

- Precision compression molded centerfed reflector
- Series 1252 - Az/El Mount
- Series 1253 - Polar mount
- Low transportation cost with three panel reflector
- Individual panels inter-changeable and field replaceable
- Galvanized steel mounts Reader



3.7M - C & KU-BAND

- C-Band Intelsat F1, H4 and GType approved: approval #IA031A00 (without LNA) and #IA031A00 (approved LNA included)
- Intelsat approved LNA kit eliminates costly field testing
- C-Band INSAT & wide-band available
- Precision compression molded four segment offset reflector
- Installation time reduced with improved mount design
- Fully galvanized steel Az/El mount
- Reflector/Feed electrical Anti-Icing available
- Two axis tracking configuration available

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



with optical fiber connection

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 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

Multifeeder holder 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



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

Flat-Dishes

SELSAT



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

SELSAT Flat-Dishes available as:

H30D / H30D2 / H30D4



Slimsat SA Series

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

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



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-USS200-CUO10-8PP

This cascable 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



Jiuzhou Combo PVR DTS6695 for Europe



- *Great for the whole family thanks to Internet access*
- *Smart power supply with external power unit*
- *Sufficient channel memory*
- *Seamless integration of Internet services offered by TV channels*
- *Easy software update*



A single box for DVB-S/S2 and DVB-T reception

Jiuzhou's combo receiver DTS6695 is so new it arrived at the TELE-satellite editorial office in a blank white box devoid of any logo or description.

When we opened the box we were in for another surprise: Well aware of its increasingly prominent position as global supplier of top-notch receivers, Jiuzhou has made a smart move towards being compatible with all sorts of power supplies and mains sockets – the receiver itself comes without a power pack at all, which instead is supplied as an external unit, depending on the destination country. A simple 12V power socket is positioned on the receiver's back panel, and all you need

to do is hook up the external power pack that comes with the box, or you may even use any existing device as long as it provides 12V DC with a minimum of 2.5A. As our test unit came without a power pack, we simply chose the latter option and used one of our existing units – which worked just fine.

They say that first impressions go a long way, and Jiuzhou packs all components

of the DTS6695 into a stylish 26cm case featuring six buttons on the front panel for operation without a remote control. A CI+ compatible card reader is hidden behind a flap, as well as a USB 2.0 interface. A four-digit segment display and an LED indicating the operating mode round off the front panel.

The receiver's front panel comes in black, while the case itself is silver – even though this design state-

ment may not go down well with all potential buyers we found that the colour mix works quite well.

Let's have a look at the back panel now, which is filled to the brim with all connection options you will ever need. Apart from the standard tuner input and loop-through outputs (for DVB-S/S2 and DVB-T) you will of course find a HDMI output for excellent video quality, an electrical S/PDIF



output for mind-blowing surround sound, and a network interface for linking up to a local LAN. Added to that are a total of eight RCA jacks for stereo audio, CVBS and YUV video, and an S-Video socket, scart euroconnector and RS 232 interface. In case you're wondering about the main switch: There is none on the back panel of the DTS6695, because with an external power pack there is no need for one. The remote control that comes with the receiver also leaves a positive impression with its easy-to-use layout and great ergonomics.

When you turn on the receiver for the first time all you will likely see is a 'No channel' message, which

means that you should start out with running a channel scan. To that end all you need to do is press the MENU button to call up the perfectly neat main menu, which is easy to navigate and also pleasing to the eye.

Working yourself through the individual entries you first make sure the receiver cooperates with your LCD or plasma TV, before taking the next step and setting up the receiver to work with your antenna configuration.

1. Main menu of the DTS6695
2. Basic settings of the DTS6695
3. Satellite settings
4. Automatic channel search on several satellites
5. Manual channel search in DVB-T mode



6



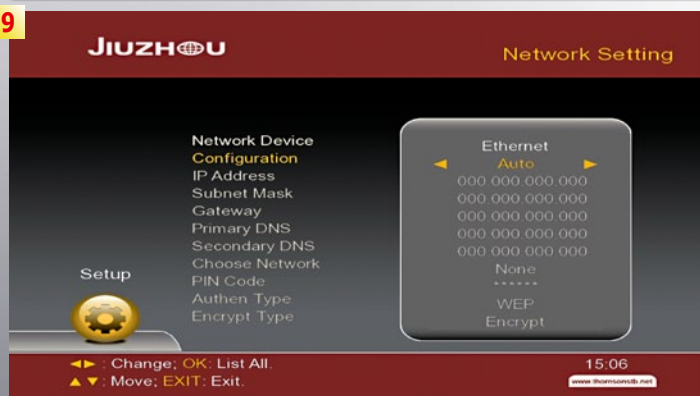
7



8



9



10



Obviously the new Jiuzhou box makes sure users in many countries can 'understand' its on-screen display, and the choice of menu languages goes far beyond the classics such as English, French and German. Speakers of Spanish, Italian, Polish, Russian, Hungarian, Czech, Dutch and Romanian will be happy to learn that 'their' language is available as well. The selection of languages also goes to show that the DTS6695 is geared towards the European market. The list of pre-set countries for DVB-T reception underpins that impression as it only includes European countries.

Using the HDMI output the video signal can be processed in 576p, 720p and 1080i and we cannot praise highly enough a dedicated button on the remote to switch between these settings on the fly, without having to go through a menu.

Now that the DTS6695 has become a perfect match for our TV, we proceed to the next stage and introduce it to our reception equipment high up on the roof. Jiuzhou ships its new box with a list of 64 pre-stored European satellite positions, all of which come with suitably current transponder data. As far as LOF's are concerned, the Jiuzhou receiver offers a range of pre-set oscillator frequencies for the C and Ku bands, as well as a manual option for those out-of-the-ordinary settings.

All DiSEqC protocols are

supported so that the receiver will work with standard multi-feed antennas for up to four LNBs just as well as with multi-focus antennas for up to 16 LNBs and with motorised antennas using either the DiSEqC 1.2 or 1.3 protocols. Big cheers from us for such brilliant DiSEqC implementation!

The channel memory can hold up to 4000 channel entries and in order to fill it up a single touch of a button takes you to the channel search menu. On the left section of the screen there is a list of all available satellites for selection (several entries can be selected at once), while the right-hand section shows various search modes and options such as free-to-air channels only, radio or TV only, network search mode, and so on.

Once you have made all relevant settings the green function key activates the automatic signal search. We selected HOTBIRD 13° East for our test and the Jiuzhou DTS6695 took slightly more than eight minutes to scan the entire frequency range. The DVB-T scan was completed in less than a minute.

If you need to add individual channels at a later stage you should perform a manual search, which is available for both DVB-T and DVB-S/S2. In satellite mode the Jiuzhou box even allows manual PID input. The modulation type is always detected automatically by the receiver. A search on one of the major European satellite platforms may easily yield 1000 or even more channel entries, so organising and managing all those channels is of the essence. Luckily, the channel editor of the DTS6695 is your

6. Automatic channel search via satellite

7. Channel editing and sorting options

8. Several favourites lists are available

9. LAN configuration

10. Web browser – address field

SmartWi wireless Multi Room Solution



New SmartWi ready for Operators

Please let us introduce the new SmartWi. The market leader in wireless multi-room solutions now comes with a range of improved technical features, and we are frankly very proud of the new design. Coming from Denmark it is almost like the fairy tale 'The Ugly Duckling' that turned into a beautiful swan.

The improved qualities make SmartWi the obvious choice of Multiroom Solution for Operators. It is very flexible and may be adopted to the specific preferences of an Operator in terms of technology, design or commercial setup. The final result is increased customer loyalty and a stronger future market presence for the Operator.

Smartwi – The original professional DVB Multiroom Solution since 2004.

Smartwi International A/S

E: info@smartwi.net

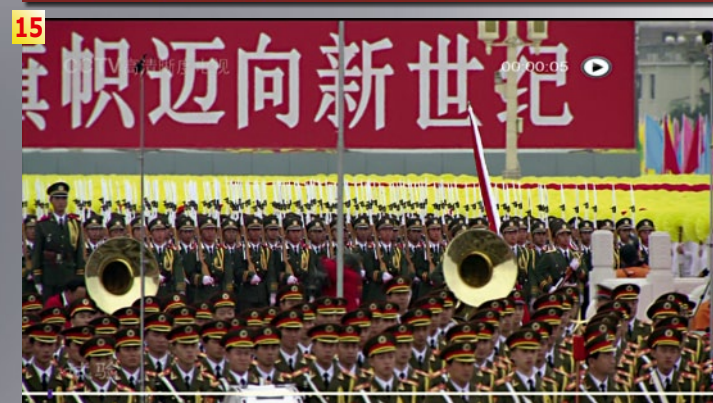
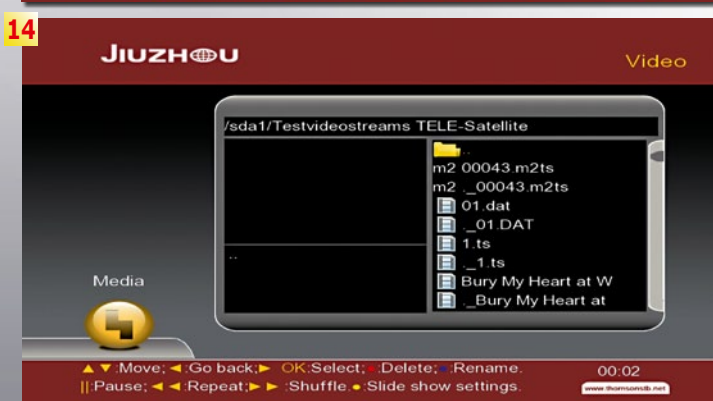
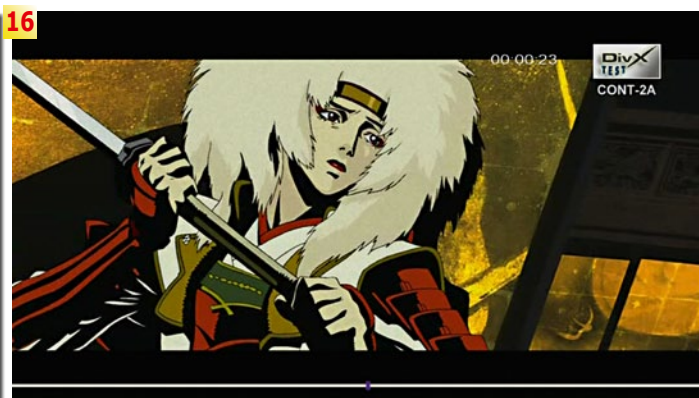
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T: 45 70 26 00 31



smartwi[®]

www.smartwi.net





best friend when it comes to bringing some order to your list. It can be used to delete, move or rename channels, or to perform an automatic channel sorting. Thanks to several favourites lists you (and all the other members of your family with their individual favourites list) will find your favourite channels in next to no time at all.

Now that the Jiuzhou receiver is tailored to your needs and those of your satellite antenna(s) it's finally time to check out how it performs its core task: TV and radio reception. To start with, we should emphasise the DTS6695's video and audio quality, which is nothing short of brilliant and was able to impress everybody in our editorial offices.

Every time a new channel is called up the receiver shows a smartly designed info bar for a few seconds, which displays the name of the current and next event. With the help of the receiver's clearly laid out EPG it is even possible to use it as a seven-day TV guide, as long as individual channels transmit the required data.

Zapping equals fun with the DTS6695, since channels can be grouped into favourites lists and are thus

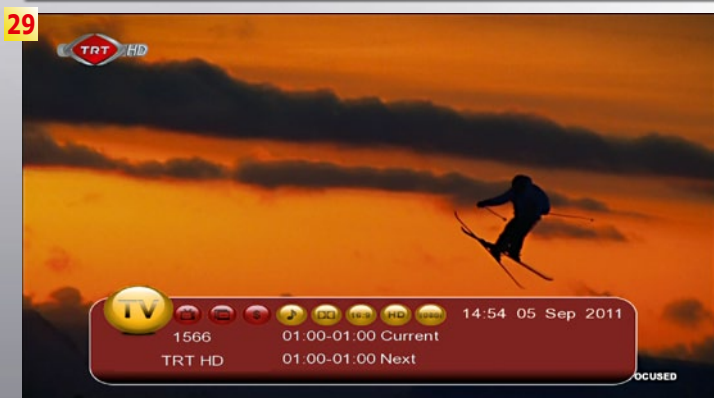
always at your fingertips.

Speaking of zapping: It only takes about one second until the selected channel appears on screen so there's nothing in the way of exploring the wide range of channel offerings. Thanks to the neat info bar we were always kept up to date about current and upcoming events as well.

The comprehensive range of features of the new Jiuzhou receiver is rounded off with an OSD teletext decoder, an audio option to switch between different audio tracks (if provided by the channel) and a subtitle mode. We even discovered a handy little feature of the channel list which allows searching for a specific channel by keying in the first letter(s) of its name. If you need to change between DVB-T and DVB-S/S2 reception there is a dedicated button on the remote and we found that switching worked flawlessly in any event.

When we mentioned the USB interface on the front panel earlier on you might have guessed already that the DTS6695 comes with PVR capability. The USB socket can be used to attach an external storage

11. Software upgrades can be performed via satellite or with a USB stick
12. MP3 playback
13. JPEG picture viewer
14. The DTS6695 is able to play back video files with a variety of formats
15. Playback of a HD video in H.264 format
16. Playback of a HD video in Divx format
17. Channel list with satellite selection
18. TELE-satellite website as displayed on the LCD TV using the DTS6695 browser
19. Info bar with title of current and next event
20. EPG
21. Interactive multimedia services of Bayerischer Rundfunk
22. Extended EPG
23. Interactive multimedia services of Bayerischer Rundfunk
24. Interactive multimedia services of Sat.1
25. Video on demand via Internet



medium, even though this means that the flap on the front panel has to stay open while the USB interface is in use. We tested all PVR functions of the box and could not fault any of them. But then again, we would not expect anything less from Jiuzhou.

These days PVR receivers don't just record and play back events, and the DTS6695 is no exception: It can be your MP3 jukebox, your image viewer and your video player for TS, MPEG and DivX files, to name just a few formats.

If you don't want to stop at DTH satellite reception, you will be interested to find out more about the high quality and low threshold of the satellite tuner used by Jiuzhou.

As you know we like to push all tested models to the limit and in this case we are pleased to state that the DTS6695 passed all tests with flying colours. It accepted and processed weak signals (C/N values starting from just 5 dB) just as well as SCPC signals from approximately 2 MS/s. The only thing that is missing with the Jiuzhou DTS6695 is a blind scan mode.

The Internet has become a driving force in our life, and no matter how we view that development, being online is almost a fact of life these days. Posting on social networks, checking mails and chatting with family and

friends all over the globe are part of our daily routine, so it's only logical that Jiuzhou has made its DTS6695 fully Internet-ready. The receiver comes with an Ethernet interface on the hardware side, and Internet browser on the software side so that users can go online during commercial breaks.

Remember the time when a game of Tetris on a satellite receiver was considered cool? These days you go online rather than play games. Obviously the Jiuzhou box supports all required protocols such as DHCP, for example, and therefore behaves similar to a PC in your local network.

One of the reasons for supplying the DTS6695 with a network interface is the emergence of interactive TV. HbbTV (Hybrid Broadcast Broadband TV) is the name of a service that is already offered in a number of European countries such as Germany (ARD, ZDF, Sat1/Pro7, Vox, QVC, etc.), France and Spain, to name but a few. If a viewer watches an HbbTV channel the receiver will automatically detect this feature, establish an Internet connection and display a message indicating available HbbTV content.

If you then want to switch from the regular channel to corresponding additional information you simply press the red function key in order to call up comprehensive background content which may range from advanced EPG and current news and weather all the way to extensive content libraries or on-demand services. In our view, one of the most useful features is a content library: Many channels offer their programming for on-

26. The DTS6695 can also display current weather information

27. ARD Mediathek (online content library)

28. Teletext

29. HDTV channels via DVB-S2 are processed flawlessly by the DTS6695

30. Channel list restriction to DVB-T reception

HORIZON

For a reliable solution!

Winners of the Queen's Award for international Trade 2007, Horizon Global Electronics is a UK Company established in 2001 specialising in the design and manufacture of hand held test equipment for the digital satellite and TV sector. Our strength lies in being able to find innovative solutions to leading technology issues.

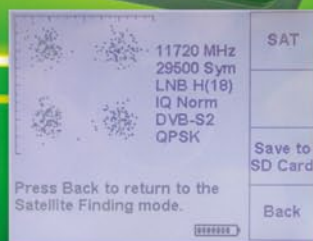
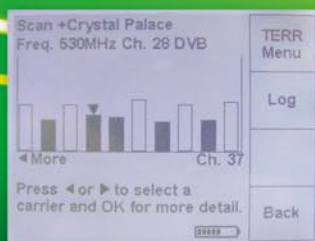
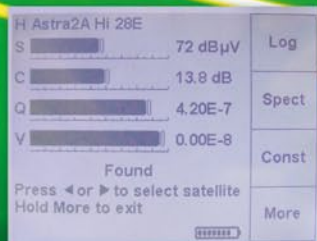
HD-STM

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
- Single replaceable F-Connector input for both Satellite and Terrestrial feeds
- Frequency Range Satellite: 950 to 2150 MHz covering C, Ka and Ku bands. Terrestrial: 46MHz-862MHz VHF 0-12 and UHF 21-69
- Connectivity interaction via USB to PC and SD memory card for cloning from Meter-to-Meter. Logging Reports or onscreen shots, compatible with MS Office
- Enhanced alphanumeric data logging for on-site planning of schedule and locations within a building, including before and after install
- Accurate Satellite Identification, Service list for identification of individual channels
- Multi-function display of Pre and Post BER/MER calculation, Signal Strength, C/N Quality, and Viterbi
- Real-time onscreen spectrum display, or alternative Block Graphic illustration UHF scan of Analogue or Digital transponders. Peak hold feature for comparison
- Easy to use onscreen guidance for navigation of the menus
- Intuitive postcode identification, area or even favourites for transmitter DVB-T recognition
- Fast mode for favourite and typical installations on most used polarities, channels and satellites
- Fully driven DiSEqC motor switch control
- LNB and cable fault testing



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sales@horizonhge.com

www.horizonhge.com



DEALERS AND DISTRIBUTORS WANTED



line viewing on your PC after the actual broadcast date. Using HbbTV, receivers like the DTS6695 can now access these offerings directly on the TV, so you don't need your PC monitor any longer for watching TV. All you need for it to work is an HbbTV compatible receiver like the Jiuzhou DTS6695 and an Internet connection with a bandwidth of at least 2 Mb/s. Of course we tried out the HbbTV feature and found that it works flawlessly. We particularly enjoyed various content libraries and at the same time stayed up to date with the latest news and weather reports.

The new Jiuzhou DTS6695 has left a lasting impression with us and proves yet again that Jiuzhou is one of the most innovative companies in the satellite business. Its latest offspring boasts top-quality workmanship and worked flawlessly throughout our test. In addition, the manufacturer never stops improving the software (which can be updated either with a USB stick or

31. Channel list restriction to favorite lists
32. Channel list restriction to individual satellites
33, 34. SCPC reception via TURKSAT 42° East

via satellite) so that you can expect additional features every now and then.

What's even more important, any potential software bugs can easily be solved as quickly as possible.



Expert Opinion

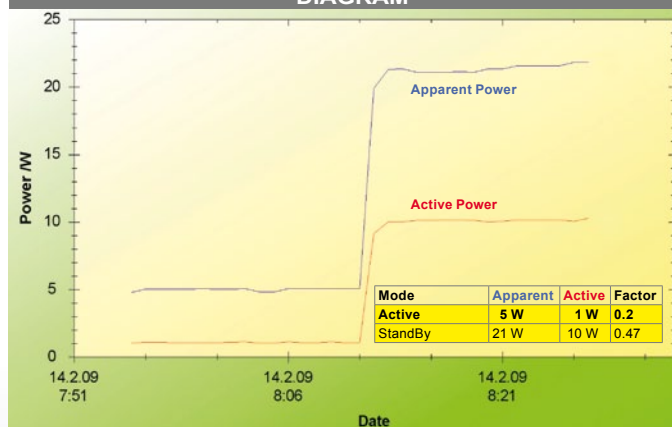
Perfect DVB-S/S2 and DVB-T combo receiver with PVR for the living room. The stable and sophisticated software did not show any sign of weakness during our test. What's more, innovative features such as a web browser and access to interactive multimedia services and online content libraries put this receiver well ahead of the competition.



Thomas Haring
TELE-satellite
Test Center
Austria

We were not able to activate WiFi reception, even though a dedicated menu entry pretended that it should work.

ENERGY DIAGRAM



First 15 minutes: Standby; Second 15 minutes: Active use with channel switching and PVR operation

TECHNICAL DATA

Manufacturer	Jiuzhou (Sichuan Jiuzhou Electric Group Co., Ltd.) 7F, Jiuzhou Electric Building, Southern No. 12 Road Hi-Tech Industrial Park, Nanshan District, Shenzhen Guangdong 518057, China
Tel.	+86-755-26947128
Email	sales8@d-telemedia.com
Model	DTS6695
Input frequency DVB-S / DVB-S2	950-2150 MHz
Input frequency DVB-T	177.5 - 226.5 MHz and 474 - 858 MHz
Symbol rates	2-45 Ms/s (DVB-S) & 2-30 Ms/s (DVB-S2)
SCPC compatible	yes (tested >2 Ms/s)
DiSEqC	1.0, 1.1, 1.2, 1.3
EPG	yes
C/KU band compatible	yes
HDTV support	yes (up to 1080i in MPEG-4 AVC/ H.264)
Input terminal	F-type 75 Ohm
Modulations	QPSK, 8PSK, 16 QAM, 64 QAM
HDMI	yes
YUV, CVBS, Stereo Audio	yes
S-Video	yes
RF-Modulator	no
Ethernet	yes
USB 2.0	yes
RS232	yes
PVR Function	yes
HbbTV	yes
Power supply	12V, 2.5A



TEST REPORT
该报告由技术专家所作

Combo Receiver |

JIUZHOU

Jiuzhou Combo PVR DTS6695 für Europa

- Durch Internetanschluß geeignet für Jung und Alt in der Familie
- Smarte Stromversorgung durch externes Netzteil
- ausreichend großer Speicherplatz
- gelungene Integration mit den Internetdiensten der TV-Programme
- einfache Softwareaktualisierung



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www.TELE-satellite.com/TELE-satellite-1201/deu/jiuzhou.pdf

So neu ist der Combo Receiver DTS6695 von Jiuzhou, dass unser Testgerät in einem einem schlichten, weißen Karton ohne jeden Aufdruck bei uns in der TELE-satellite Redaktion eintraf. Und wir staunten, als wir den Karton öffneten, denn Jiuzhou hat sich aufgrund seiner immer stärker werdenden Rolle als weltweiter Lieferant für hochwertige Empfangsgeräte eines kleinen Kniffes bedient, um leichter auf die unterschiedlichen Versorgungsspannungen und vor allem Elektrostecker reagieren zu können. So haben die Jiuzhou-Ingenieure den Receiver kurzerhand ohne Netzteil geplant und stattdessen eine Buchse mit 12V Anschluss an der Rückseite vorgesehen. Je nach Zielregion, in der der Receiver

dann seinen Dienst versehen soll, wird einfach ein passendes Steckernetzteil beigelegt bzw. kann der Endverbraucher sogar ein Netzteil seiner Wahl verwenden, solange es eine Spannung von 12V Gleichstrom mit mindestens 2.5A ausgibt. Da unserem Testgerät noch kein Netzteil beilag, haben wir von dieser Möglichkeit Gebrauch gemacht und eine Spannungsversorgung aus unserem Redaktion-Shack verwendet.

Jiuzhou hat das Innenleben des DTS6695 in einem formschönen, 26 cm breiten Gehäuse untergebracht, an dessen Vorderseite der Anwender sechs Tasten zur Steuerung des Receivers ohne Fernbedienung vorfindet. Hinter einer Klappe verbergen sich zudem ein integrierter Kartenleser

nach dem CI+ Standard und ein USB 2.0 Anschluss, die neben dem 4-stelligen Segmentdisplay und einer LED zur Anzeige des Betriebszustands das äußere Erscheinungsbild des DTS6695 abrunden. Während die Front des Receivers ganz in schwarz gehalten ist, hat Jiuzhou für das Gehäuse selbst auf silberfarbenes Metall zurückgegriffen. Eine Designstrategie, über die man sicher geteilter Meinung sein kann, uns in der Redaktion gefiel sie jedoch sehr gut.

Vollgestopft mit Anschlüssen präsentiert sich die Rückseite des neuen Jiuzhou Receivers, hier findet der Besitzer neben den obligatorischen Tuner Anschlüssen und Durchschleifausgängen (für DVB-S/2 und DVB-T) natürlich



einen HDMI Ausgang für das perfekte Bild, einen elektrischen S/PDIF Ausgang für den raumfüllenden Digitalton sowie eine Netzwerkbuchse zum Anschluss des Receivers an das lokale LAN. Abgerundet wird der umfangreiche Reigen an Anschlüssen noch durch insgesamt 8 RCA Buchsen für Stereo Audio, CVBS Video sowie YUV, ebenso wie durch eine S-Video Buchse, einen Scart Anschluss und eine RS232 Schnittstelle. Ein Hauptschalter für die elektrische Stromversorgung hat seinen Weg logischerweise nicht

auf die Rückseite des neuen DTS6695 gefunden, er würde bei einem externen Netzteil auch keinen Sinn machen. Die vom Hersteller beigelegte Fernbedienung hat einen guten Eindruck hinterlassen, präsentiert sich sehr übersichtlich und liegt zudem gut in der Hand.

Nach dem ersten Einschalten des Receivers begrüßt den Besitzer die Fehlermeldung „No Channel“ und weist ihn damit darauf hin, dass es erst einmal an der Zeit wäre, einen automatischen Kanalsuchlauf durchzuführen. Nach einem Druck auf die Menü Taste wurden wir durch das grafisch sehr ansprechend gestaltete und aufgeräumte Hauptmenü geführt, in dessen Einträgen wir zu allererst den Receiver an unseren LCD-TV und danach an die Satellitenempfangsanlage anpassen konnten.

Im Rahmen der OSD Anzeige präsentiert sich der DTS6695 als Menüsprachen neben den Klassikern wie Englisch, Französisch und Deutsch noch Spanisch, Italienisch, Polnisch, Russisch, Ungarisch, Tschechisch, Niederländisch und Rumänisch zur Verfügung. Man erkennt also, dass dieser Receiver für den europäischen Markt gebaut und konzipiert wurde. Selbiges gilt auch für die Länderauswahl zum DVB-T Empfang, hier stehen ebenfalls nur europäische Einträge zur Auswahl bereit.

Über den HDMI Ausgang kann der DTS6695 das Videosignal in den Normen 576p, 720p und 1080i ausgeben. Besonders praktisch fanden wir in diesem Zusammenhang eine eigene Taste an der Fernbedienung, mit deren Hilfe diese Einstellung auch im laufenden Betrieb rasch verändert werden kann.

Nachdem der DTS6695 an unsere Grundeinstellungen angepasst wurde, galt es im nächsten Schritt, ihn auch noch mit der Satellitenemp-

fangsanlage am Dach der Redaktion vertraut zu machen. Praktischerweise hat ihn der Hersteller bereits mit einer Liste von 64 europäischen Satelliten vorprogrammiert, deren Transponderdaten relativ aktuell waren. In Puncto Oszillatorfrequenz bietet der neue Jiuzhou Receiver eine Reihe vorprogrammierter Werte für das C- und Ku-Band, auf Wunsch kann die LOF aber auch manuell eingegeben werden.

Ein dickes Lob verdient die Unterstützung sämtlicher DiSEqC Protokolle, so dass der Besitzer den Receiver sowohl an einer gewöhnlichen Multifeed Antenne mit bis zu 4 LNB als auch an einer Multifocus Antenne mit bis zu 16 LNB und einer drehbaren Antenne nach den DiSEqC Standards 1.2 und 1.3 betreiben kann.

Um die maximal 4000 Einträge umfassende Kanalliste des Receivers mit Einträgen zu füllen genügt ein Tastendruck und schon landet der Anwender im automatischen Kanalsuchlaufmenü. Während auf der linken Seite sämtliche verfügbaren Satelliten zur Auswahl bereit stehen (es können auch mehrere Einträge markiert werden), zeigt die rechte Bildhälfte verschiedene Suchlaufoptionen wie z.B. eine Einschränkung auf freie oder verschlüsselte Sender, auf Radio oder TV sowie die Möglichkeit, die Netzwerksuche zu aktivieren oder zu deaktivieren.

Hat der Anwender alle Optionen nach seinen Bedürfnissen gewählt, genügt ein Druck auf die grüne Funktionstaste und der Receiver beginnt mit dem automatischen Suchlauf. Dieser war im Test auf dem HOTBIRD 13° Ost in etwas mehr als 8 Minuten abgeschlossen, während für den DVB-T Suchlauf nur knapp eine Minute notwendig war.

Um einzelne Programme nachträglich hinzuzufügen

steht sowohl im DVB-T als auch DVB-S/S2 Modus der manuelle Suchlauf zur Verfügung, der im Bereich des Satellitenempfangs sogar die manuelle PID Eingabe vorsieht. Das Modulationsverfahren des Transponders wird vom Receiver stets automatisch erkannt.

Nach einem Suchlauf auf einer der großen europäischen DTH Satellitenpositionen können in der Kanalliste rasch über 1000 Einträge vorhanden sein, umso wichtiger ist es, erstmal für Ordnung zu sorgen. Der DTS6695 bietet dazu umfangreiche Bearbeitungsmöglichkeiten an, so können Sender gelöscht, verschoben oder umbenannt werden ebenso wie eine automatische Sortierung unterstützt wird.

Dank mehrerer Favoritenlisten sind die Lieblingssender jederzeit rasch auffindbar, natürlich besteht auch die Möglichkeit für jedes Familienmitglied, auf diese Weise eine eigene Programmtabelle zu erstellen.

Nachdem der Receiver an die persönlichen Bedürfnisse und die verwendete Empfangsanlage angepasst wurde, kann der Besitzer

dazu übergehen, sich dem eigentlichen Zweck des DTS6695 zu widmen - dem Empfang von TV- und Radioprogrammen. In diesem Zusammenhang müssen wir die ausgezeichnete Bild- und Tonqualität des neuen Jiuzhou Receivers erwähnen, die uns im Test absolut überzeugen konnte.

Nach jedem Programmwechsel blendet der Receiver automatisch eine übersichtliche Info-Leiste ein, die den Titel des aktuellen Programms sowie der folgenden Sendung darstellt. Dank des logisch durchdachten EPG bietet der DTS6695 eine praktische TV Zeitschrift für bis zu 7 Tage im voraus - natürlich nur, sofern der Programmanbieter diese Informationen auch überträgt.

Dank eigener Favoritentaste können die Lieblingssender jederzeit rasch angezeigt und aufgerufen werden, so dass das Zappen mit dem DTS6695 richtig Spaß macht. Apropos Zappen: Durch die sehr rasche Umschaltgeschwindigkeit von etwa einer Sekunde hat es uns jede Menge Freude bereitet, durch die Programmvvielfalt zu schalten.

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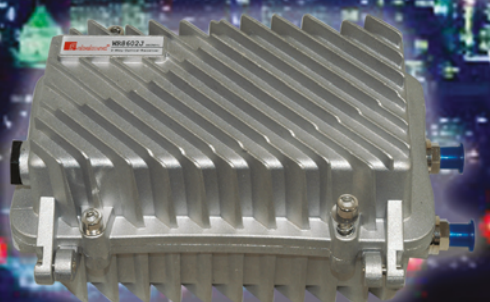
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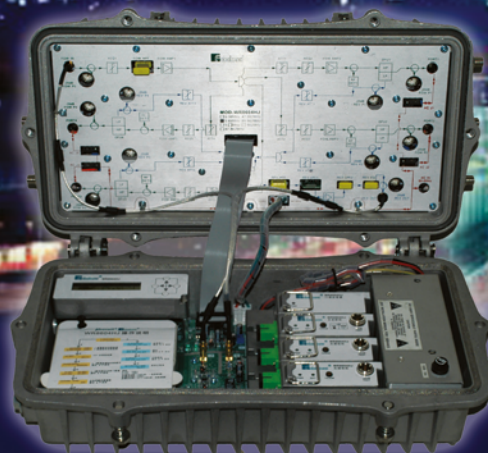
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DEVISER S20 Satellite Meter

■ TELE-satellite Technical Expert Jacek Pawlowski uses the Deviser S20 to align a satellite dish.

- *includes the very useful satellite spectrum view*
- *locks both to very high and very low symbol rates*
- *very easy to operate*
- *very accurate measurement results*
- *usable both for C and Ku band satellites*





A Well Performing Meter Which Even Looks Great



Someone once said: "We buy with our eyes" and that's true. The designers of Deviser's new satellite meter took this advice to their heart and managed to fit their new product into a really great housing. The light blue and gray combination of colors is definitely an eyecatcher. The plastic case of the meter is gray but it is wrapped around with a light blue rubber envelope. Quite an interesting design, but let's have a look now into its performance.

The meter sits nicely in your hand. Its backlit LCD is quite large and readable even outside. Seven buttons are clearly labeled and you can operate them with your thumb without touching neighbouring buttons. Signal input connector is located at the bottom of the case while the 12 V DC power socket and mini USB port are located on the right side of the S20 case.

Deviser included two F barrel connectors, so if the first one is torn off, you simply replace it with the second one. The power supply unit and car charger unit are also in the package. But that is not yet all: you get a detailed hard copy user manual as well as a small CD ROM containing PC software for managing satellites and transponders stored in the S20's memory. And there's even more: the S20 comes with a vanity case that you can attach to your belt and a light blue strap if you prefer to hang the S20 on your neck or shoulder.

Right after power on, S20 enters the signal search mode. There are two bar graph indicators on the screen for signal strength and signal quality, with percentage values showed next to them. Satellite name,

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its longitude, transponder name, polarization as well as the battery status are shown. With the left and right arrow buttons you switch the satellite, and with up and down buttons the transponder. Every satellite has exactly 6 transponders stored in the S20's memory. Once the meter locks to the transponder, you know that your antenna is aimed at the satellite shown at the top of screen.

In an early stage of the antenna alignment process, you do not receive any signal yet. In such situation, the best idea is to use the angle calculator embedded in the S20. When you enter the geographical coordinates of your antenna location and satellite longitude, it will calculate the azimuth, elevation and LNB tilt angles. You should apply those angles to the dish as accurately as you can and then switch the S20 to spectrum view. Now rotate and tilt your dish gently until you see signal peaks on the spectrum.

When in spectrum view, you can change the span (80, 160, 320 MHz and Full band) and you can also move the cursor to the left and right. But that's not all. If you po-

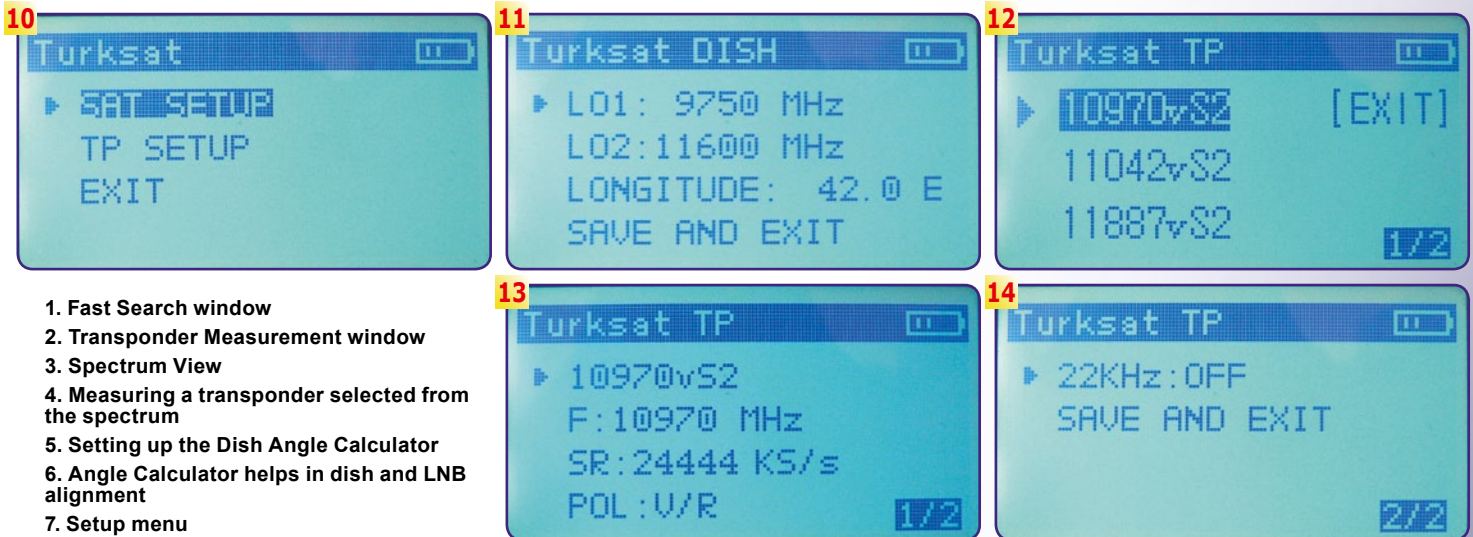
sition the cursor on a transponder and press OK, S20 will measure this transponder. That's a great advantage of this meter.

When you managed to set your dish well enough to produce peaks on the spectrum screen, chances are you have found your satellite but how can you be sure? Well, you simply return to the signal search screen that the S20 shows when powered on. You switch satellites left and right until you find the only one at which S20 locks. Even if this is not the one you wanted to receive, you will know the longitude of the satellite you have just turned your dish at. In this way, you will also know whether to rotate your antenna more to the East or to the West in search of the desired satellite.

Once you are receiving the right satellite, we suggest to switch to the transponder measurement screen, where more parameters are shown. Now observe the SNR reading when adjusting your dish and LNB tilt. Maximize its value. And that's it. Tighten the screws carefully to avoid unintentional shift. Your dish is perfectly aligned.

Antenna alignment with





1. Fast Search window
2. Transponder Measurement window
3. Spectrum View
4. Measuring a transponder selected from the spectrum
5. Setting up the Dish Angle Calculator
6. Angle Calculator helps in dish and LNB alignment
7. Setup menu
8. Battery charge status
9. Satellite list contains up to 16 satellites
10. Satellite and transponder lists are editable
11. Editing satellite parameters
12. Selecting a transponder to select its parameters
13. Transponder parameter edition - screen 1
14. Transponder parameter edition -screen 2

the S20 from Deviser is really an easy task. But how accurate is the meter? We decided to compare it with two signal analyzers of different brands. The S20 measurement results were quite close to the readings of its competitors. The meter had a problem in locking to one DVB-S2 transponder (TP2 in our graphs) but at the same time the other meters were completely unable to lock to the signals the S20 processed without any trouble! These were the transponders of lower symbol rates (around 10 Ms/sec and 2.5 Ms/sec). So, in real life, almost every meter can have a problem with locking to this or that signal. The S20 was quite at par with much more complex and much more expensive meters if we compare the ability to lock and measure different transponders.

Of course, everybody is aware that the S20 can not play the video in full color or audio of a TV channel or take more advanced measurements. But the S20 offers everything you need to set up a dish in a fast and easy way. It is usable both in Ku-Band and C-band as you can freely define values for single and dual frequency local oscillators (LOFs).

What's more, during our tests Deviser released a new software version (1.06B) which now even includes DiSEqC settings. First of all, DiSEqC 1.0 and 1.1 were added in a separate menu item. The content of this menu item is very simple. The first line lets you choose which DiSEqC protocol you need: 1.0 or 1.1. The second line is for choosing the input of a DiSEqC switch. For DiSEqC 1.0 the possibilities are from 1 through 4 and for DiSEqC 1.1 from 1 through 16. The third line lets you send the command to the switch. You could not invent it any simpler. For the majority of reception systems that use a single DiSEqC 1.0 switch or DiSEqC 1.1 switch, the features of Deviser's S20 will be absolutely sufficient.

The software included in the package is a rather basic transponder editor. It allows you to change satellite name and position and to define 6 transponders for every satellite. The number of satellites is limited to 16 what should be sufficient for most installers. If you prefer, you can also edit the parameters directly in the setup menu using the S20 buttons. But of course it is faster and more convenient to do that on your PC.

When installing the PC software we encountered an error. The Deviser installer informed us that one DLL file was missing in our Windows XP system. To successfully finish the installation, we had

to look for the missing file on the Internet, download it and save it in the Windows\system32 folder.

In our test sample, the satellite list along with the corresponding transponder



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Signal Analyzer Manufacturer, China



www.devisertek.com



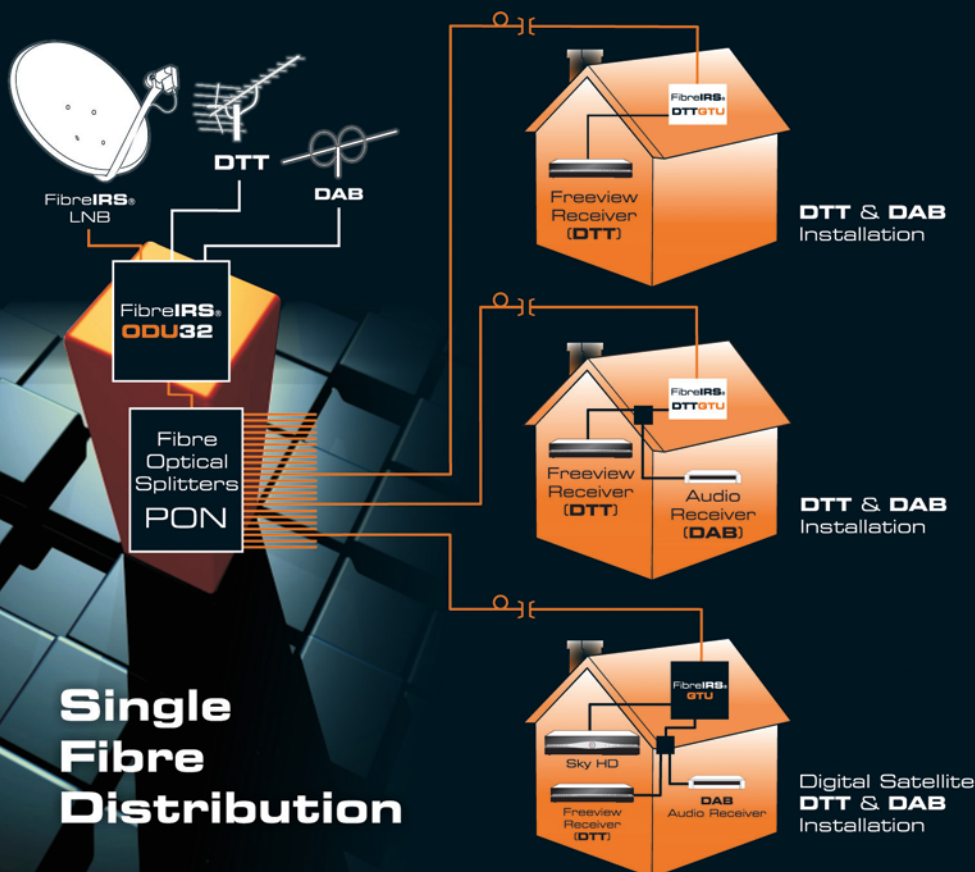
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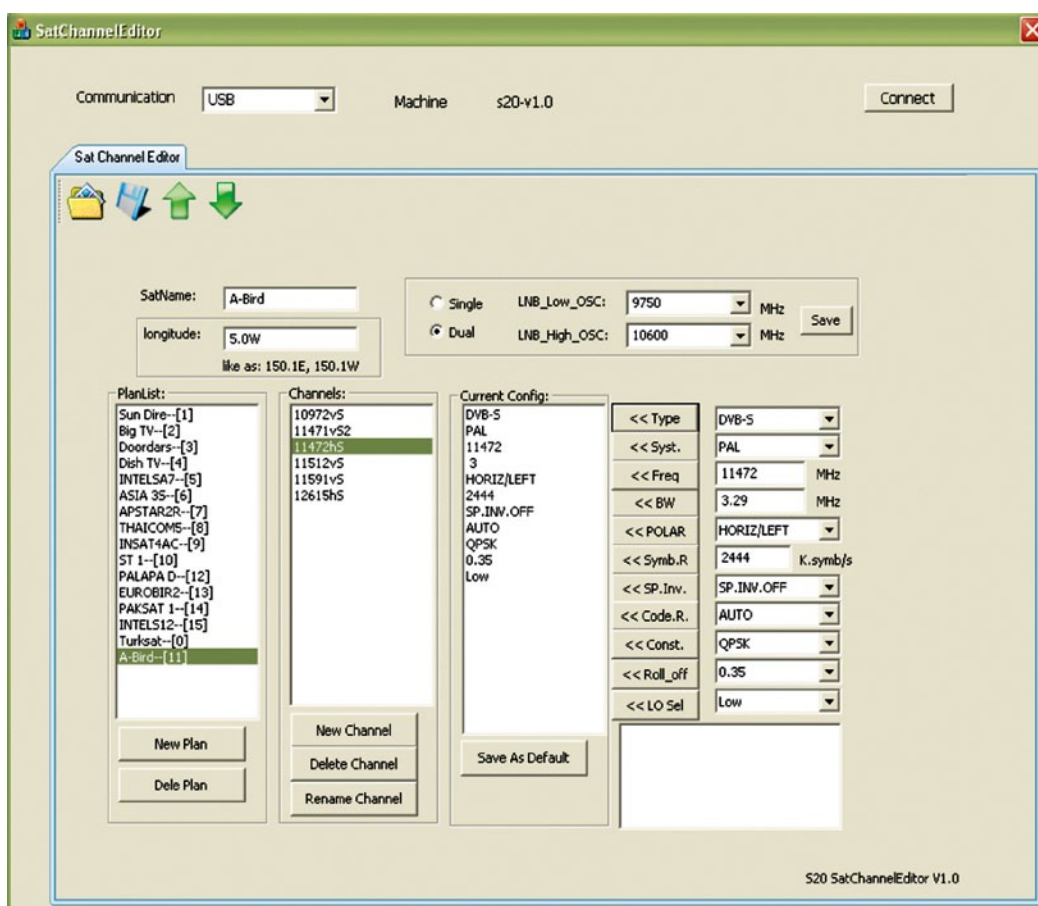
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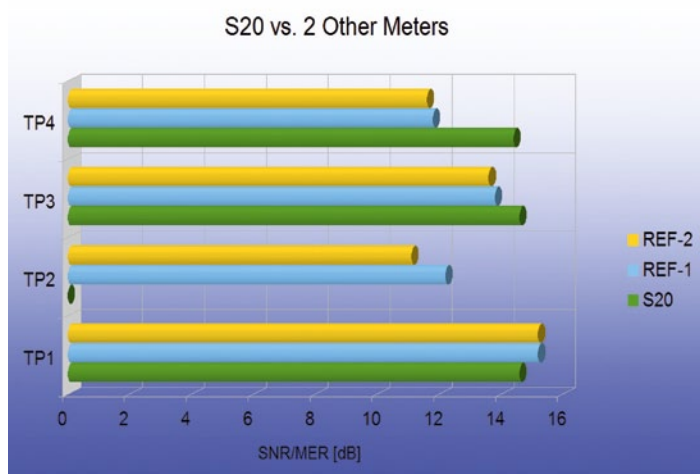
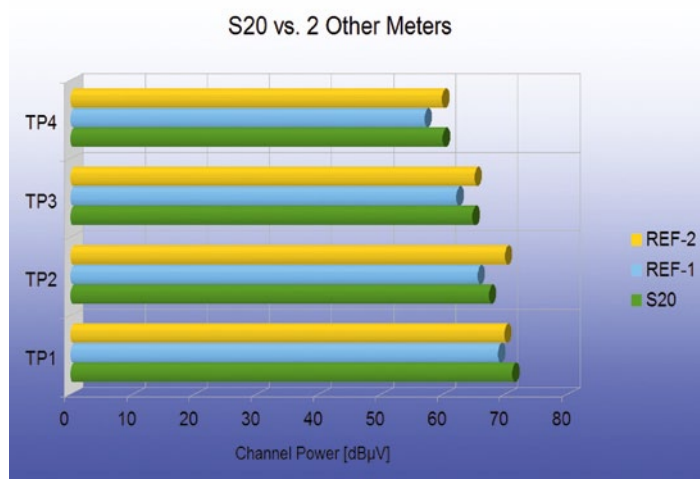
parameters was suitable for Asia rather than Europe. For the purpose of the test, we changed two satellites to European ones. To do that, we needed to refer to a transponder list (www.satbeams.com).

Not every transponder of a given satellite is receivable in your location due to various footprints, so be sure to only put into the S20 transponder list the ones receivable in your area. Actually, Deviser will of course customize the satellite/transponder list once the S20 is sold in different parts of the world.

The S20 is a great little meter ideally suited to fastly install dishes. Once all satellite and transponders are set in its memory, the built-in spectrum greatly helps to identify the satellite. The calculator makes it easy to pre-install the dish into the approximate direction. It's great design makes the S20 a valuable assistant to the dish installer.



■ Satellite Channel Editor

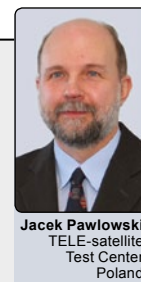


TECHNICAL DATA

Manufacturer	Tianjin Deviser Electronics Instrument Co., Ltd.
Fax	+86-22-27645002
E-mail	overseasbiz@deviser.com.cn
Web page	www.devisertek.com
Model	S20
Function	Satellite antenna meter
Input Frequency	950~2150 MHz
Input Signal Level	30~110 dBμV
Symbol Rate	1~45 Ms/sec
LCD	128 x 64 pixels
LNB max current	400 mA
Power Supply	12 V DC 1.2 A
Operating Time	4 hours when fully charged
Charging Time	5 hours

Expert Opinion

- Very easy operation
- Quite fast and accurate
- Good measurement resolution (0.1 dB for SNR)
- Locks without any problem to high and low symbol rate transponders
- Many accessories



The meter shows BER, instead of VBER

HTS12



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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



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| Satellitenmessgerät |

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DEVISER S20 SAT- Messgerät

- Enthält die sehr nützliche Spektrum-Darstellung
- Rastet auch bei sehr hohen und sehr niedrigen Symbol Raten ein
- Sehr einfach zu bedienen
- Sehr genaue Messergebnisse
- Sowohl im C-Band als auch im Ku-Band anwendbar

TELE-satellite Technical Expert Jacek Pawlowski uses the Deviser S20 to align a satellite dish.

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Jemand sagte einmal: „Wir kaufen mit unseren Augen“ und dies ist wahr. Die Designer des neuen Messgerätes von Deviser haben sich dieser Aussage angenommen und haben es geschafft, ihr neues Produkt in ein wirklich tolles Gehäuse zu integrieren. Die Kombination von hellblauer und grauer Farbe ist ein echter Blickfang. Das Plastikgehäuse ist grau, doch es ist in einer hellblauen Gummiummantelung eingelassen. Ein wirklich interessantes Design, doch schauen wir nun auf seine Funktionalität.

Das Messgerät passt angenehm in die Hand. Der hintergrundbeleuchtete LCD-Bildschirm ist recht groß und auch im Freien gut lesbar. Die sieben Knöpfe mit eindeutiger Beschriftung lassen sich mit dem Daumen

bedienen, ohne dass unabhängig die nebenliegenden Knöpfe betätigt werden. Der HF-Eingangsstecker befindet sich auf der Unterseite, während der 12V DC Stromeingang und ein Mini-USB Port auf der oberen rechten Seite des Gehäuses angebracht sind.

Deviser legt zwei F-Stekadapters bei, so dass der Erste bei Abnutzung einfach durch den Zweiten ersetzt werden kann. Mit in der Verpackung sind ein Netzteil und ein 12V-Kfz-Adapter. Doch dies ist noch nicht alles: Sie bekommen ebenfalls ein detailliertes, gedrucktes Handbuch sowie eine kleine CD mit einer PC Software, die eine Verwaltung der Satelliten- und Transponder-Listen im Speicher des S20 ermöglichen. Und es gibt sogar noch mehr: der S20

kommt außerdem mit einer Softtasche, die am Gurt befestigt werden kann und einer hellblauen Schlaufe, falls Sie es bevorzugen, den S20 am Hals oder an der Schulter zu tragen.

Gleich nach dem Einschalten ist der S20 im Signal-Suchmodus. Mittels zweier Balken wird die Signalstärke und Signalqualität zusammen mit der jeweiligen Prozentangabe angezeigt. Der Name des Satelliten, sein Längengrad, Transponder-Name, Polarisation sowie der Akkuzustand werden ebenfalls dargestellt. Mit der Links- und Rechts-Taste können Sie den Satelliten wechseln, mit der Hoch- und Runter-Taste wechseln Sie den Transponder. Der S20 hat für jeden Satelliten genau 6 Transponder gespeichert. Sobald das Messge-



rät auf einen Transponder einrastet sehen Sie oben im Bildschirm, auf welchen Satelliten die Antenne ausgerichtet ist.

Zu Beginn der Antennen-ausrichtung empfangen Sie noch kein brauchbares Signal. In dieser Situation ist es eine gute Idee, den im S20 integrierten Winkelrechner zu benutzen. Wenn Sie die geografischen Koordinaten der Antennenposition und den Längengrad des Satelliten eingeben, werden Azimut, Elevation und der Neigungswinkel des LNB berechnet. Sie sollten die Antenne mit diesen Werten

so präzise wie möglich ausrichten und anschließend den S20 in die Spektrum-Darstellung schalten. Nun können Sie die Antenne ganz vorsichtig drehen und neigen, bis im Spektrum die Signalspitzen der Transponder sichtbar werden.

Im Spektrum-Modus können Sie die Spanne umschalten (80 MHz, 160 MHz, 320 MHz oder gesamtes Frequenzband) und Sie können den Cursor nach links und rechts bewegen. Doch dies ist noch nicht alles. Wenn Sie den Cursor auf einen Transponder platzieren und die OK Taste betätigen, wird dieser Transponder gemessen. Dies ist ein großer Vorteil dieses Messgerätes.

Sobald Sie die Antenne gut genug ausgerichtet haben, um im Spektrum die Signalspitzen sehen zu können, stehen die Chancen gut, dass Sie den gewünschten Satelliten gefunden haben. Doch wie können Sie sicher sein? Nun, gehen Sie einfach zurück zum Signal-Suchmodus des S20, der beim Einschalten automatisch aktiviert wird. Sie schalten nun mit den Links- und Rechts-Tasten zwischen den verschiedenen Satelliten, bis der S20 sich bei einem einrastet. Selbst wenn es sich nicht um den von Ihnen gewünschten Satelliten handelt, werden Sie den Längengrad des Satelliten erfahren, auf welchem die Antenne aktuell ausgerichtet ist. Auf diese Weise wissen Sie, ob Sie die Antenne weiter nach Osten oder Westen drehen müssen, um den gewünschten Satelliten zu finden.

Wenn Sie endlich den korrekten Satelliten empfangen, empfehlen wir Ihnen auf den Bildschirm der Transponder-Messung umzuschalten. Hier werden weitere Parameter angezeigt. Sie können nun z.B. den SNR Messwert (Signal-Rausch-Verhältnis) ablesen, während Sie die Feinabstimmung der Antenne und des LNB-Neigungswinkel

durchführen. Maximieren Sie diesen Wert. Und das ist schon alles. Ziehen Sie alle Schrauben vorsichtig an, um versehentliche Veränderungen der Ausrichtung der Antenne zu vermeiden.

Die Antennenausrichtung ist mit dem S20 von Deviser wirklich eine einfache Aufgabe. Doch wie genau ist dieses Messgerät? Wir haben uns entschieden, dieses Gerät mit zwei anderen Instrumenten verschiedener Marken zu vergleichen. Die Messergebnisse des S20 entsprechend weitgehend der Messungen der Konkurrenzprodukte. Das Messgerät hatte Probleme, sich auf einem der DVB-S2 Transponder (TP2 in unseren Bildern) einzurasten, doch andererseits waren die anderen Messgeräte absolut unfähig, auf Signale einzurasten, die der S20 problemlos akzeptierte! Hier handelte es sich um Transponder mit niedrigen Symbol Raten (um die 10 Ms/Sek und 2.5 Ms/Sek). Im Grunde bedeutet dies, dass praktisch jedes Messgerät Probleme mit dem einen oder anderen Signal haben kann. Der S20 liegt auf dem Niveau der viel teureren und komplexeren Messgeräte, wenn es um seine Fähigkeit geht, auf verschiedene Transponder einzurasten und diese zu messen.

Natürlich ist es jedem klar, dass der S20 bei einem TV Kanal kein Video in Farbe darstellen kann, kein Audio wiedergibt und auch keine fortgeschrittenen Messungen durchführen kann. Doch der S20 bietet alles, was Sie brauchen, um eine Satelliten-Antenne schnell und einfach auszurichten. Er kann im Ku-Band und im C-Band eingesetzt werden, da Sie die Werte für Single- und Dual-Frequenz der lokalen Oszillatoren (LOF) definieren können.

Weiterhin hat Deviser während unseres Tests eine neue Software-Version veröffentlicht (1.06B), die nun

auch DiSEqC Schaltmöglichkeiten erlaubt. So wurden DiSEqC 1.0 und 1.1 Optionen in einem separaten Menüpunkt hinzu gefügt. Dieser ist einfach zu bedienen. Die erste Zeile erlaubt es Ihnen, das gewünschte DiSEqC-Protokoll zu wählen: 1.0 oder 1.1. Die zweite Zeile dient dazu, den Eingang am DiSEqC-Switch zu wählen. Für DiSEqC-1.0 stehen die Eingänge von 1 bis 4 zur Verfügung, bei DiSEqC-1.1 sind es die Eingänge von 1 bis 16. In der dritten Zeile können Sie den entsprechenden Befehl zum Switch senden. Einfacher kann man diese Funktion nicht gestalten. Für die Mehrheit der Anlagen mit DiSEqC-1.0 oder DiSEqC-1.1 Schaltern ist Devisers S20 absolut ausreichend.

Die im Paket mitgelieferte Software besteht aus einem relativ einfachen Transponder-Editor. Dieser erlaubt es Ihnen, die Namen und Positionen der Satelliten zu ändern und für jeden Satelliten 6 Transponder zu definieren. Die Anzahl der Satelliten ist auf 16 limitiert, was für die meisten Installateure ausreichen sollte. Wenn Sie es bevorzugen, können die-

se Parameter auch direkt im Konfigurationsmenü mit den Tasten des S20 editiert werden. Doch es ist selbstverständlich schneller und angenehmer, dies am PC zu erledigen.

Als wir die Software installierten, trat ein Fehler auf. Die Installationsroutine informierte uns über eine fehlende DLL Datei in unserem Windows XP System. Um die Installation zu Ende zu führen, mussten wir im Internet nach der fehlenden Datei suchen, diese downloaden und sie im Windows\System32 Verzeichnis kopieren.

Unser Testgerät enthielt eine vorprogrammierte Liste mit Satellitenparameter, die für den asiatischen Raum, anstatt dem europäischen Raum ausgelegt war. Für diesen Test mussten wir deshalb zwei Satelliten editieren, damit sie europäischen Satelliten entsprechen. Dazu mussten wir auf eine Transponderliste zugreifen (www.satbeams.com).

Nicht jeder Transponder eines Satelliten ist, wegen den unterschiedlichen Ausleuchtzonen, in einer bestimmten Region zu empfangen.

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Win



Amiko WLK-100 Two-in-One Wireless Keyboard



- *Converts receiver into a fully-functional Multimedia Center*
- *Integration of the receiver into the local network*
 - *Energy efficient power source*
- *Mobile use, such as for camping, due to integration of 3G*

AMIKO

A wireless keyboard with track pad for control of the Amiko Alien and a large software update

Thomas Haring

We here at TELE-satellite really love it when a manufacturer, after introducing one of their products, continues to listen to the customers wishes and suggestions and then actually implements them.

An example of one of these manufacturers is Karmacom from Hungary whose top receiver model Alien SHD-8900 we first introduced to you in the 05-06/2011 issue of TELE-satellite. It's a receiver with the world's first dual boot system. We were quite impressed already with the Alien back then and as the sales figures showed it received high marks not only with TELE-satellite but with end users as well.

But Karmacom wasn't satisfied and continued to work on improving their Amiko Alien receiver. All of this work has resulted in not one but two distinct improvements: first is the WLK-100

TEST REPORT | HDTV Receiver with Two Operating Systems |

Amiko SHD-8900 Alien Linux receiver with dual boot, more than one simultaneous recording and lots more...

• Linux receivers are the way to go these days, and if you look at all the features and options they offer it's not hard to see why. This development pleases us no end at TELE-satellite, as we see huge potential with Linux that is only waiting to be exploited by innovative companies. Karmacom from Hungary is one such company and with its own brand Amiko they are well on the way to waking up the sleeping giant that is Linux. The company's latest flagship receiver SHD-8900 has a very special treat in store: two operating systems in a single box!



AMIKO

But let's not get carried away with Linux at this stage and look at the receiver itself first. Right out of the package we notice how small the box actually is. Measuring merely 22x16x11 cm it will find its place in even the smallest (or most crowded, for that matter), lounge room cabinet or TV rack.

And it creates a rather stylish impression with its buttonless front and the 4-digit segment display that light up in a fiery hue of red. Two LEDs indicate the current operating mode.

Of course, there's more than first meets the eye.

The back panel of the SHD-8900 comes equipped with all connection options you're likely to ever require. Apart from the DVB-S2 antenna input plus loop-through output there is HDMI for digital signal output, a coax digital audio output, three RCA jacks for stereo audio and composite video, a scart eu-

roconnector, a USB 2.0 interface for external storage media, an Ethernet socket as well as a mechanic power switch and an RS-232 connection.

We've tested our share of remote controls, and the Amiko type is right up there with the best. For one thing, this is thanks to its ergonomic shape and logical layout. Added to that are the hugely practical function keys that can be used to access the numerous multimed-

dia features of the receiver such as YouTube, Streamcast Internet radio or Picasa, to name just a few.

The build quality of the SHD-8900 will meet even the most exacting demands and the manual (currently available in Hungarian and English) that is shipped with the receiver is of equally high quality.

Considering the fact that the Amiko SHD-8900 Alien comes with two entirely different operating systems we decided to split this test report into two distinct sections as well. We'll start out with an in-depth look at the default software by the name of Spark, before turning to all the features of Enigma 2 in connection with the latest Amiko offering in section two.

Spark
In case the name Spark rings a bell with some of our readers there's a reason for that: Amiko deliberately chose tried-and-tested technology and software, which



But first things first; let's start with the wireless two-in-one keyboard that turns the Alien into an exceptional multimedia center.

The actual keyboard itself takes up about two thirds

■ The Alien receiver test report from the 05-06/2011 issue of TELE-satellite magazine. The new wireless keyboard turns this receiver into a complete Multimedia Center.

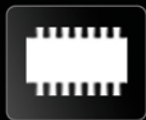
of the space on the WLK-100. Despite the relatively small size of the buttons, the keyboard is quite easy to use. It's laid out in the US American standard and can therefore be used internationally.

The right side of the WLK-100 consists of the track pad, two mouse buttons as well as cross-shaped buttons. We especially liked the fact that the keyboard did not run off of standard batteries; instead it is powered by an internal 3.3V power supply. It is integrat-

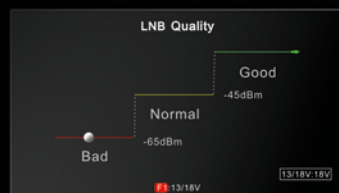
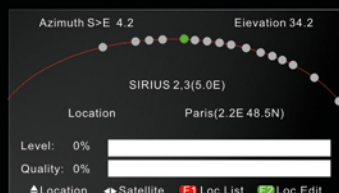


TELE-satellite
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12-01/2012

Amiko WLK-100
Excellent modification: Converts the popular Alien receiver into a fully functional Multimedia Center



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

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Xtra-S

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customers to pay for a feature that they might not have wanted in the first place. Karmacom came up with a far more intelligent solution and included the receiver with the keyboard. But Karmacom wouldn't be Karmacom if they simply placed the 2.4 GHz receiver alongside the keyboard in the shipping box!

When we saw the WLK-

ed into the WLK-100 and is charged through a micro USB port. You can connect it to any available USB port or you can simply use an inexpensive USB charger that you can find in any electronics store.

The WLK-100 is backlit so that it can easily be used in a dark room. And even if the backlight is used regularly, the WLK-100 does



not put a great load on the power supply; in fact, the wireless keyboard can be used all day without having to worry about recharging it. The integrated Standby function is in large part the reason for this. It automatically puts the two-in-one keyboard into an energy

saving mode after a certain amount of inactivity.

The signal transmission to the receiver takes place in the 2.4 GHz range and should therefore not cause any interference with other devices such as wireless headphones and other similar equipment.

At this point you might be asking yourself how the Alien receives the signals from the wireless keyboard - did Karmacom already include a 2.4 GHz receiver in the Alien from the factory? No, they didn't, and it wouldn't have made sense either; it would have forced

100 for the first time here in our test center, we looked all over for the signal receiver but had no luck in finding it; we thought at first that Karmacom might have forgotten to put it in the box.

But that was far from the truth: The USB receiver is extremely small and is really only just a little bit larger than a standard USB plug. It is stored in a small opening in the side of the keyboard and therefore can't be lost. When the WLK-100 is to be used, the USB receiver is simply taken out of its 'garage' and inserted into the USB port of the Alien receiver.

Since the Amiko Alien only operates with a free USB port, effective immediately the software now supports the connection of a USB hub or Y cable so that multiple USB devices can be used at the same time.

To top it all off, the WLK-100 also comes with an integrated laser pointer that can be used, for example, during the course of a presentation. And let's not forget the fact that the WLK-100 can also be used with a Windows XP, Vista or Windows 7 PC or laptop. All you need to do is to connect the signal receiver to a free USB port on the PC or laptop and you're ready to go.

But in order to take advantage of all the new capabilities of the WLK-100, a software update for the receiver was necessary and Karmacom included in this update an assortment of new features.

When we first tested the Amiko Alien (see TELE-satellite issue 05-06/2011), we were already quite impressed with the stability and functionality of the existing software in the receiver. But for Karmacom it

wasn't enough; while working on adapting the Alien to the new WLK-100 two-in-one wireless keyboard, they also decided to include a wide range of new features at the same time.

But in order to enjoy all of these new features, the receiver first has to be updated to the latest software. This can be done either through a direct Internet connection or, as was the case with us, with a USB stick on which the latest version of the software was copied from the Internet. As soon as the USB stick is plugged in and the Update process is accessed from the menu, the receiver recognizes that new software is available and asks the user to confirm the update.

Once the update process is started, the user just needs to sit back and relax since the receiver takes care of this process fully

automatically. After just a few minutes and a restart, the Amiko Alien is once again ready to be used.

The first and most important new feature in the update is the integration of the WLK-100 wireless two-in-one keyboard. The keyboard itself has a specified range of about 10 meters; in our tests it was actually quite a bit more. It really doesn't make any sense to use the keyboard to control the various receiver functions; for this purpose it's better to use the Alien's exceptional remote control. But later on, when you access Karmacom's integrated Opera web browser, that's when the WLK-100 keyboard first comes into play.

We appreciated the fact that Karmacom kept in mind those users that don't have a WLK-100 keyboard and must continue to rely





More on This Manufacturer

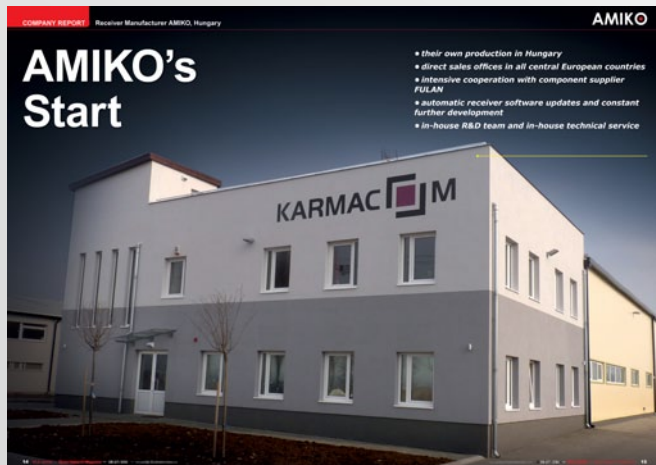
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AMIKO

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on the remote control. The keyboard is not a requirement for the Alien but rather an option. In those cases where the WLK-100 is not used, the Alien includes an OSD virtual keyboard. But in our case, we couldn't wait to start playing with the WLK-100!

The link to the receiver takes place automatically; several blinks of the background illumination confirmed this to us in just a few seconds. The F1 button on the WLK-100 can be used to switch back and forth between the wireless keyboard and the on-screen virtual keyboard. For new-

bies the manufacturer highlights this fact once again with a message on the start page of the web browser.

We actually had quite a bit of fun using the WLK-100 to surf the internet directly on our TV. We even checked a few e-mails and also provided some status updates on Facebook and Twitter.

Although our first look at the WLK-100 suggested to us that the keys were rather small and placed too close to each other, we found that after playing with it for a while that this worry was unfounded. We

were able to press every desired letter confidently and without any problems. Even the sensitivity of the trackball was just right and above all there were no delays. Together with the WLK-100, the Amiko Alien's web browser is comparable to that of a PC or laptop. We were a little disappointed that there were consistent problems with displaying web sites that contained Flash animation but it's not as bad as it sounds. Flash is really a technology that is on its way out and will soon be replaced by HTML5.

The start page of the Opera web browser definitely needs to be mentioned as well. In addition to the Google search field, you'll also find direct links to Facebook, Twitter, Tumblr, Yahoo and Amazon. Security is also a very big subject; the integrated browser in the receiver immediately identifies any web site that has an expired certificate and thereby prevents future Phishing attacks.

For users the Internet is more and more becoming the first source for movies and videos and all of this is completely legal. The

amount of freely available and unrestricted content is continuously on the rise. How nice would it be to be able to watch those downloaded videos directly on your TV instead of on your PC? Who wants to sit in front of a monitor for hours at a time? Karmacom has heard this wish from all of these users and has integrated this capability into the Amiko Alien by providing access to all of the MS Windows network drives. All you need to do is enable access to the desired hard drive or folder, provide the receiver with the name and IP address of the Windows PC as well as enter in the previously set up user name and password. If all the entries are correct, then after only a few seconds the Amiko Alien has incorporated the hard drive or folder into its operating system. A total of six network folders or hard drives can be accessed; the receiver assigns them drive letters from U to Z.

After some brief difficulties (the integrated Windows Firewall had to be convinced that the Amiko Alien was not something dangerous), the connection took place right away. In our tests we were unable to disturb the link even with high-resolution videos with their corresponding high data rate. We really didn't expect anything else from Amiko.

Naturally, the linked hard drives can be used not only for playback but also for recording so that even if there is no available external hard drive, the Amiko's Record function can still be completely used. In this way recordings can be placed directly on a PC so that they can be cropped, edited and burned to a DVD at a later time.

An especially interesting and practical feature is Karmacom's support of

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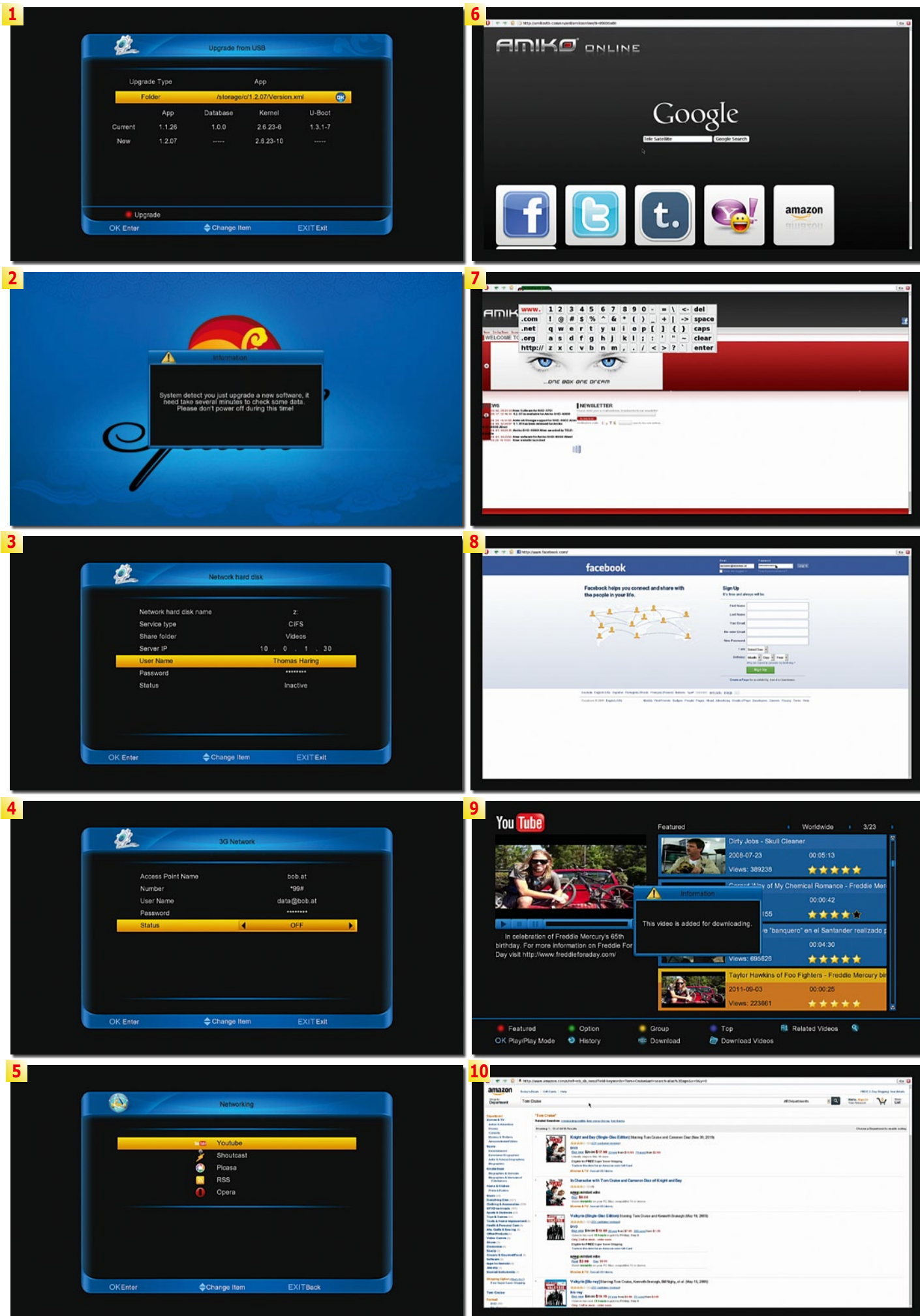
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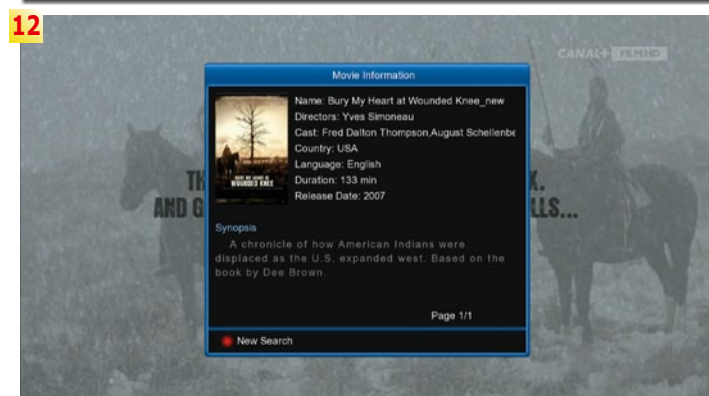
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1. The Amiko Alien's software can be updated either via the Internet or via a USB stick. Before the update process begins, the receiver confirms the version number of the update.

2. After a restart and a quick reorganization of some critical data, the receiver can immediately be put back into service.

3. Access to a Windows shared folder

4. 3G Modem settings

5. The reworked network menu, now also with a web browser

6. The Opera web browser's start page with search field and five links to most-often viewed web sites

7. Despite the wireless two-in-one keyboard, the manufacturer did not eliminate the OSD keyboard.

8. Facebook on the Amiko Alien

9. Access to YouTube videos. With the push of one button the current video is stored on an external storage device

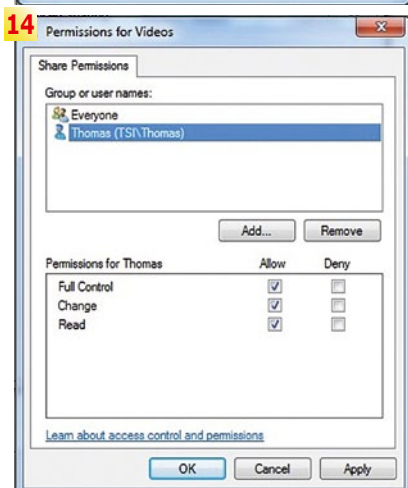
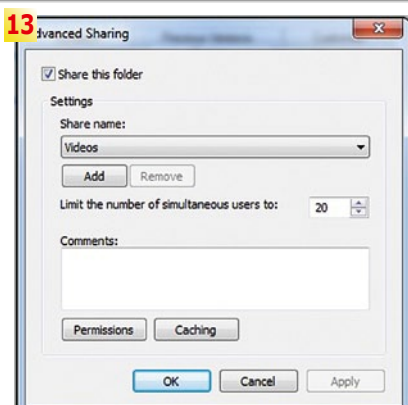
10. Amazon search for a current Tom Cruise movie in the Amiko Alien's web browser

11. Our USB hard drive with some test data for the media player was recognized without any problems.

12. Internet subtitle search. The Amiko Alien provides complete access to the IMDb database

13. A previously enabled Windows folder can easily be linked to the Amiko Alien as a logical drive

14. Security settings during the enabling of a folder under MS Windows



3G modems. At the moment this support is limited to models from the company Huawei, but these are so widely distributed that most users should have no trouble getting their hands on one. According to Karmacom, this function is still in the Beta stage and when we connected our Huawei E5830 we found out why. The receiver correctly recognized the modem although a link to the UMTS network could not be established. Since this is a beta version, we understood that there might still be some glitches; we look forward to the day when our E5830 will also work nicely together with the Amiko Alien. This feature will let you access the Internet for example, on a camping trip, without having to drag along your laptop or tablet PC.

Even the Amiko Alien's YouTube function has been given a facelift and can now store clips on external storage media. You can then quickly transfer them to a PC or other device and archive them or pass them on to others via e-mail or social networking. We found this to be an excellent function that worked perfectly during our tests.

Especially noteworthy are the two additional functions that were added to the media player with this software update. First there's the online subtitle search that can be accessed with the yellow function button during the play back of a movie.

With the data name and the selection of the desired language, the Alien automatically searches the Internet and blends in the subtitle it has found. This feature is not just interesting for the hearing impaired; it can also be used alongside foreign language movies to make it easier for

viewers to follow what is going on.

The second new feature is the fully automatic search of the IMDb movie database allowing the display of a wide variety of additional information on the movie that is currently playing. This includes not only the names of the actors and a brief description of the movie itself, but also where the movie was made, when it was made, the length of the movie plus much more.

For our test we selected a somewhat older movie from 2007 (Bury My Heart At Wounded Knee). The IMDb information was immediately accessed by the Amiko Alien. This is an outstanding feature that we hope other manufacturers will integrate into their receivers. Karmacom, with their Amiko receiver series, is quite a few steps ahead of all the others and there's no doubt that customers are quite satisfied with the products from the Hungarian company.

With the WLK-100 two-in-one keyboard, Karmacom offers a very practical improvement to the Amiko Alien receiver. Thanks to the perfect integration into the software, the keyboard's setup is actually fun and greatly simplifies the use of the receiver's Internet features. The keyboard itself is highlighted by its exceptional workmanship, the comfortable operation of its buttons and the sensitivity of the track pad.

All in all, it's an exceptional expansion of the Amiko Alien that is topped off by a wide-reaching software update that includes access to network drives, 3G modem support, the recording of YouTube videos as well as the additional features in the media player.

UPDATE REPORT
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Multimedia Receiver |

AMIKO



Amiko WLK-100 2-in-1 Wireless Keyboard



- erweitert Receiver zu einem vollwertigen Multimedia Center
- Integration des Receivers in das lokale Netzwerk
- energieeffizienter Akkubetrieb
- durch Integration von 3G wird die Anlage mobil, z.B. für Camping

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Uns von der TELE-satellite freut es ganz besonders, wenn Hersteller nach dem Verkaufsstart eines Produktes weiterhin ein offenes Ohr für die Wünsche und Anregungen ihrer Kunden haben und diese auch in die Tat umsetzen. Ein Beispiel für genau solch einen Hersteller ist die Firma Karmacom aus Ungarn, deren Top-Receiver SHD-8900 Alien wir Ihnen in TELE-satellite 05-06/2011 vorgestellt hatten - einem Gerät mit der Weltneuheit Dual-Boot. Bereits damals waren wir vom Alien begeistert und wie die Verkaufszahlen belegen, konnte der Receiver nicht nur bei der TELE-satellite sondern auch bei unzähligen Endverbrauchern zu Hause voll punkten.

Doch damit hat man sich

bei Karmacom nicht zufrieden gegeben und hat fleißig an der Weiterentwicklung und Verbesserung des Amiko Alien gearbeitet. Das Ergebnis dieser Bemühungen liegt uns nun in zweierlei Hinsicht vor: einerseits als drahtlose Tastatur mit Trackpad in Form des WLK-100 2-in-1 Keyboard, andererseits als großes Softwareupdate (Versionsnummer 1.2.07), mit dem Karmacom dem Amiko Alien eine Vielzahl neuer Features spendiert hat. Aber alles der Reihe nach, beginnen wir erstmal mit dem 2-in-1 Wireless Keyboard, mit dem aus dem Receiver ein hervorragend zu steuerndes Multimedia Center wird.

Zwei Drittel des WLK-100 nimmt die trotz relativ kleiner Tasten sehr gut zu be-

dienende Tastatur ein. Sie entspricht dem US-amerikanischen Standard und ist daher international einsetzbar. Der rechte Bereich des WLK-100 ist dem Trackpad, zwei Maustasten sowie einem Tastenkreuz vorbehalten. Besonders gut gefallen hat uns, dass das Keyboard nicht auf Batterien sondern einen integrierten 3.3V Akku zur Stromversorgung zurückgreift. Dieser ist fest im WLK-100 integriert und wird über einen Micro-USB Anschluss aufgeladen. Dafür kann jeder beliebige USB Port verwendet werden oder man greift auf eines der unzähligen USB Ladegeräte zurück, die mittlerweile nahezu überall im Handel für wenig Geld erhältlich sind.

Da das WLK-100 trotz aktiver Hintergrundbe-



leuchtung der Tasten, die das Verwenden des Keyboard im Dunkeln übrigens zur wahren Freude werden lässt, sehr sparsam im Stromverbrauch ist, sind lange Akkulaufzeiten garantiert, so dass das WLK-100 dem Endverbraucher tagelang ohne Aufladen zur Verfügung steht. Grund dafür ist eine integrierte, automatische Stand-by Funktion, die das 2-in-1 Keyboard nach längerer Inaktivität automatisch in den Energiesparmodus versetzt.

Die Signalübertragung zum Receiver erfolgt im 2.4 GHz Bereich, so dass kei-

ne Gefahr von Störungen (z.B. bei Funkkopfhörern und ähnlichem Equipment) besteht. Vielleicht fragen Sie sich jetzt, wie denn der Receiver das Signal der Tastatur überhaupt empfangen kann, hat Karmacom dem Amiko vielleicht schon ab Werk einen 2.4 GHz Empfänger spendiert? Nein, hat die Firma nicht und es wäre auch nicht zielführend, denn so müssten auch jene Kunden, die die Tastatur gar nicht verwenden möchten, für diese zusätzliche Ausstattung bezahlen. Karmacom hat eine viel intelligentere Lösung gewählt und den Empfänger der Tastatur direkt beigelegt. Doch Karmacom wäre nicht Karmacom, wenn der 2.4 GHz Empfänger einfach so im Karton neben der Tastatur stecken würde!

Als wir das WLK-100 zum ersten Mal in der Redaktion sahen, da suchten wir verzweifelt den Signalempfänger und meinten schon, dass der wohl vergessen wurde, doch weit gefehlt: Der Empfänger ist extrem klein, misst nur etwas mehr als ein gewöhnlicher USB Stecker und wurde in einem eigenen Fach an der Seite der Tastatur untergebracht. So kann er nicht verloren gehen und hat stets einen fixen Aufbewahrungsort. Soll nun das WLK-100 in Betrieb gehen, so entnimmt man diesen USB-Empfänger aus seiner „Garage“ und stöpselt ihn an den USB Port des Receivers an. Da der Amiko Alien jedoch nur über einen freien USB Anschluss verfügt, unterstützt die Software des Receivers ab sofort auch den Anschluss eines USB Hub oder Y-Kabel, so dass mehrere USB Geräte gleichzeitig verwendet werden können.

Abgerundet wird der Funktionsumfang des WLK-100 noch durch einen integrierten Laser-Pointer, der z.B. im Rahmen einer Präsentation wertvolle Dienste leisten kann. Nicht uner-

wähnt soll bleiben, dass das WLK-100 auch in Verbindung mit jedem Windows XP, Vista oder Windows 7 PC bzw. Laptop verwendet werden kann. Hierfür genügt es wiederum, den Signalempfänger mit einem freien USB Port des Rechners zu verbinden und schon kann es losgehen.

Um aber die neuen Möglichkeiten des WLK-100 voll ausnutzen zu können, bedurfte es auch einer Erweiterung der Software, im Zuge derer Karmacom dem Receiver gleich eine Reihe zusätzlicher neuer Features spendiert hat.

Schon bei unserem ersten Praxistest des Amiko Alien (siehe TELE-satellite 05-06/2011) waren wir von der stabilen, ausgereiften und im Funktionsumfang bestechenden Software des Receivers begeistert. Doch Karmacom lies es sich nicht nehmen und hat im Zuge der Anpassung des Alien an das neue WLK-100 2-in-1 Wireless Keyboard auch gleich eine Reihe anderer Features integriert. Um aber in deren Genuss kommen zu können, muss die Software des Receivers erst auf den neuesten Stand gebracht werden. Dies geschieht entweder direkt via Internetverbindung oder, so wie in unserem Fall, mittels eines USB Stick, auf den man die zuvor von der Website des Herstellers geladene Software kopiert. Sofort nach dem Verbinden des USB Stick und dem Aufrufen des zum Update vorgesehenen Menüpunktes erkennt der Receiver die neue Software und fordert den Benutzer zum Bestätigen des Update auf. Der Aktualisierungsvorgang selbst geschieht vollautomatisch und ohne jedes Zutun des Anwenders. Wenigen Minuten und einen Neustart später ist der Amiko Alien dann auch schon wieder voll einsatzbereit.

Erstes und wichtigstes neues Features des Update ist die Integration des

WLK-100 2-in-1 Keyboard. Dieses hat übrigens eine Reichweite von bis zu 10m, im Test war es sogar ein ganzes Stück weiter. Zum Steuern der verschiedenen Receiverfunktionen macht die Tastatur natürlich wenig Sinn, hier ist weiterhin die ausgezeichnete Fernbedienung des Alien erste Wahl, doch spätestens beim Aufrufen des nun von Karmacom in den Receiver integrierten Opera Web-Browser schlägt die Stunde des WLK-100.

Sehr gut gefallen hat uns, dass der Hersteller dabei auch an jene Anwender gedacht hat, die kein WLK-100 ihr Eigen nennen und daher weiterhin auf die Fernbedienung angewiesen sind. So ist nämlich die Tastatur lediglich eine Option, während ein OSD Keyboard zur Steuerung mit der Fernbedienung weiterhin zur Verfügung steht. In unserem Fall aber konnten wir es gar nicht erwarten die neue 2-in-1 Tastatur in Betrieb zu nehmen. Die Verbindung zum Receiver wird dabei vollautomatisch aufgebaut, ein mehrmaliges kurzes Blinken der Hintergrundbeleuchtung bestä-

tigte uns dies innerhalb weniger Sekunden. Mit Hilfe der F1 Taste am WLK-100 kann nun zwischen Wireless Keyboard und OSD Tastatur gewechselt werden. Für alle Neueinsteiger weist der Hersteller auf diese Tatsache übrigens mit einer eigenen Einblendung auf der Startseite des Web-Browsers nochmals extra hin.

Im Praxistest hat es uns jede Menge Spaß bereitet, mit Hilfe des WLK-100 direkt am Fernsehgerät im Internet zu surfen, Emails zu lesen oder sogar ein paar Meldungen über Facebook oder Twitter zu verschicken. Obwohl wir beim Anblick des 2-in-1 Keyboard erst den Eindruck hatten, dass die Tasten doch ziemlich klein und eng nebeneinander angeordnet sind, erwies sich diese Sorge im Test als unbegründet. Sicher und problemlos trafen wir jeden gewünschten Buchstaben und auch das Trackpad entpuppte sich als angenehm berührungsempfindlich und vor allem verzögerungsfrei. In Verbindung mit dem WLK-100 steht der Web-Browser des Amiko Alien also einem PC oder Laptop in nichts mehr nach.

Download this report in **English**



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



MEGASAT

Brillantes Fernsehen

Brillant TV Product Highlights

Dome antennas



Campingman
Campingman Portable Twin / AutoSkew

The antenna will find automatically within 30 seconds the desired satellite. By pressing a button, the antenna is directed automatically to the satellite and thus enables the best possible satellite reception in a parked station wagon trailers or mobile homes. The antenna is an elegant plastic cover provide maximum protection against physical damage. Nuisances and disassembly at the site is deleted.



Shipman
Seaman 37
Seaman 45
Seaman 60

The antenna will find automatically within 30 seconds the desired satellite and also save automatically the position of a moving vehicle. It is therefore ideal for use on boats, yachts, trucks and buses suitable. Live satellite television is therefore guaranteed with a moving ship or bus.



40mm / 0,1dB low noise

LNBS Diavolo

Megasat Single LNB Diavolo
Megasat Twin LNB Diavolo
Megasat Quad LNB Diavolo
Megasat Quattro LNB Diavolo
Megasat Octo LNB Diavolo



40mm / 0,1dB low noise

LNBS Monoblock Diavolo

Megasat Monoblock Single LNB Diavolo
Megasat Monoblock Twin LNB Diavolo
Megasat Monoblock Quad LNB Diavolo



40mm / 70dB gain

LNBS High Gain

Megasat High Gain Single LNB
Megasat High Gain Twin LNB



23mm / 0,1dB low noise

LNBS Multifeed

Megasat Multifeed Single LNB
Megasat Multifeed Twin LNB
Megasat Multifeed Quad LNB



from 4 in / 1 out up to
17 in / 16 out



Multi switches

Megasat Multischalter 5/8*
Megasat Multischalter 5/16
Megasat Multischalter 9/8
Megasat Multischalter 9/16
Megasat Multischalter 17/8
Megasat Multischalter 17/16
Megasat DiSeq Switch 4/1



Dishes

60cm - white / steel
80cm - white / steel
100cm - white / steel
110cm - white / steel
120cm - white / steel



Selfsat

Satellite antenna with integrated
Single- Twin- or Quad LNB

Selfsat H300
Selfsat H3002*
Selfsat H3004

Simple installation!

Set-Top-Boxes



Linux Software

Megasat HD 950

HDTV Receiver / alphanumeric display / 1 CI slot (common interface) / Conax card reader / 1x Scart output / 4x USB 2.0 (PVR ready) / Support USB WIFI dongle / Output: 576i, 576p, 720p, 1080i



Megasat HD 800

HDTV Receiver / alphanumeric display / 1 CI slot (common interface) / 2x Scart output / USB 2.0 (PVR ready) / output: 576i, 576p, 720p, 1080i / LAN interface / Conax card reader



PRICE-PERFORMANCE WINNER

Megasat HD 550 CI

HDTV Receiver / 7-segment display / 1 CI slot (common interface) / 2x Scart output / USB 2.0 (PVR ready) / Output: 576i, 576p, 720p, 1080i



Megasat 4100 Combo

SDTV Receiver / 7-segment display / 2x Scart output / Sat- and terrestrial input / USB 2.0 (PVR ready) / Conax card reader

Equipment



wall bracket WH 25 - aluminium / TÜV / 25cm distance
wall bracket WH 35 - aluminium / TÜV / 35cm distance
wall bracket WH 45 - aluminium / TÜV / 45cm distance
wall bracket WH 25 - steel / TÜV / 25cm distance
wall bracket WH 35 - steel / TÜV / 35cm distance
wall bracket WH 45 - steel / TÜV / 45cm distance



for 2, 3 or 4 LNBs

Multifeedholder

Coax cable



Megasat Coaxialcable 90dB 100m
Megasat Coaxialcable 120dB 100m
Megasat Coaxialcable Quadshield 120 100m
Megasat Coaxialcable fullcopper 100dB 100m
Megasat Coaxialcable fullcopper 128dB 100m

F-Connector



F-Connector 4,5mm
F-Connector 7mm
F-Connector 7,5mm

MEGASAT

a **b2c** brand
electronic

Test of the NetUP Dual DVB-T/C-CI

- *Suitable for setting up professional IPTV servers*
- *Also ideally suitable for Linux based multimedia centers*
- *Designed with longevity in mind with its modern components*
- *Compact design with two DVB-T/C tuners and two CI slots*





A Professional card for professional applications under Linux



The NetUP Dual DVB-T/C-CI is being offered as a professional DVB-C and DVB-T PCI-e adapter and is being primarily marketed for use in IPTV servers. When the adapter arrived at our TELE-satellite test labs in an unremarkable package, we were a little concerned at first when we opened the package and couldn't find any trace of a user manual or quick start guide; not even a driver CD could be found!

As it turns out, if you pay a visit to the manufacturer's web site you'll find a brief overview of how to install this adapter under Linux. It is necessary to recompile the kernel in a NetUP modified kernel version 3.0.0-rc7. Prepared software has to be put together by the customers themselves. The card is tested with tzap and czap.

It's obvious that we're not dealing with a consumer product here but rather a professional product. Linux experience is required so

that the card can even be recognized by the operating system.

The manufacturer wasn't neglectful in including a written description, it's just a simple consequence of the brand new hardware components that are used. The chips are very new and boast high power in a small space: A DVB-C or DVB-T signal can be placed on either of the two tuners. There are also two CI slots. The internal components consist of a Conexant CX23885 that can handle two MPEG transport streams and works with an integrated Sigma-Delta ADCs with 4:2 MUX.

There's also an extremely energy efficient STM STV0367 ultra compact combination DVB-T/C single chip receiver on board. This comes with 6, 7 or 8 Mhz bandwidth as well as QPSK, 16 QAM and 64 QAM modulations. 16, 32, 64, 128 and 256 constellations are supported in DVB-C mode.

The tuners are Xceive XC5000 Silicon tuners that don't need any kind of metallic shielding thus making them easier to incorporate onto the circuit board. These tuners support all the TV standards and have exceptional sensitivity even with weaker signals.

For the CI slots an Altera FPGA is available. This chip is a programmable processor and by that we mean the software based arrangement of the function structure. This makes it theoretically possible to modify the CI interface to work with new developments.

After the installation of the hardware in the PC, a Linux distribution must then be installed. For our case we selected an up to date Ubuntu Distribution since it can be installed rather quickly and not necessarily because of the popularity of this Linux distribution with its good support.

Once Linux has been installed, the Kernel, the central component of any Unix operating system, must be recompiled so that it can then recognize the NetUP card. Since the components on the card are still quite new, current Linux distributions with v2.6 won't recognize it.

NetUP provides some help as can be seen in Figure 1. However this newly installed Ubuntu Linux won't take you all the way to the end since, for example, GIT has not yet been installed. Because of this we went ahead as described in Figure 2. Once you have accessed "make menuconfig", three options need to be activated. These are described on the NetUP website although in our tests there were only slight differences. Figures 3, 4 and 5 show exactly what needs to be changed.

The line "export CONCURRENCY_LEVEL=3" works better with a multi-core

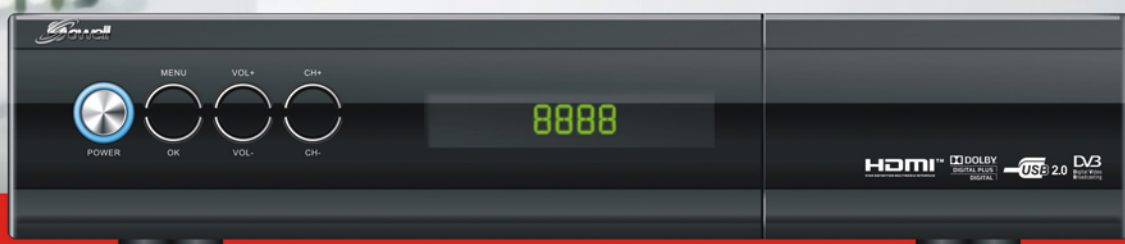
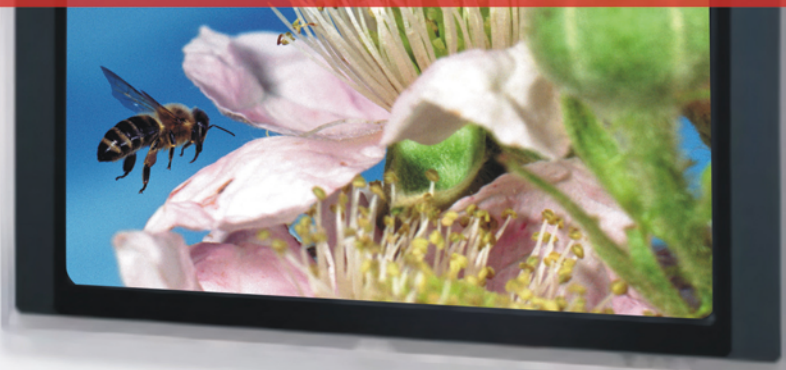


NXP8735 Linux HD DVB-S2+T COMBO



DVB Series

- ▶ Digital Satellite Receiver
- ▶ Digital Terrestrial Receiver
- ▶ Digital Cable Receiver
- ▶ HD/SD COMBO Receiver



Features

- Fully MPEG-2/MPEG-4(H.264/VC-1) and DVB-S/DVB-S2/DVB-T Compliant
- Multi-media Function (Playback TS, MKV, AVI, DivX, XviD, VOB, RMVB, RM etc.)
- Linux OS Embedded with Powerful compatibility
- Recording & Playback with External Storage Devices(e-SATA / USB2.0 / HDD)
- Support HDMI output (up to 1080i)
- USB Hub
- USB WiFi
- Support Youtube
- VFTP Download
- BT Download



- Support SMB
- Ethernet Embedded
- Conax CAS7.0 Embedded
- Common Interface Plus (CI+)
- Plug-in tuner design
- Low-power Consumption

Cost-down Mstar7816 HD DVB-S2



- Fully MPEG-2/MPEG-4(H.264/VC-1) and DVB-S/DVB-S2 Compliant
- PVR function supported, recording TV and playback media files with external storage devices (USB stick / USB HDD)
- Advanced Time-shift function with external HDD/USB Stick
- Supporting pictures with JPEG, BMP, PNG, zoom function supported
- Supporting music files with WMA, MP3, AAC

- (.wma, .mp3, m4a)
- Supporting movie files with MPEG1/MPEG2/MPEG4/H264/VC-1/Motion JPEG (.flv / .rm / .rmvb / .avi / .mpg / .dat / .vob / .div / .mov / .mkv / .mjpeg / .ts / .trp)
- Games included
- The OTA (Over-The-Air) upgrade supported(optional)
- Software upgrade by USB2.0 interface

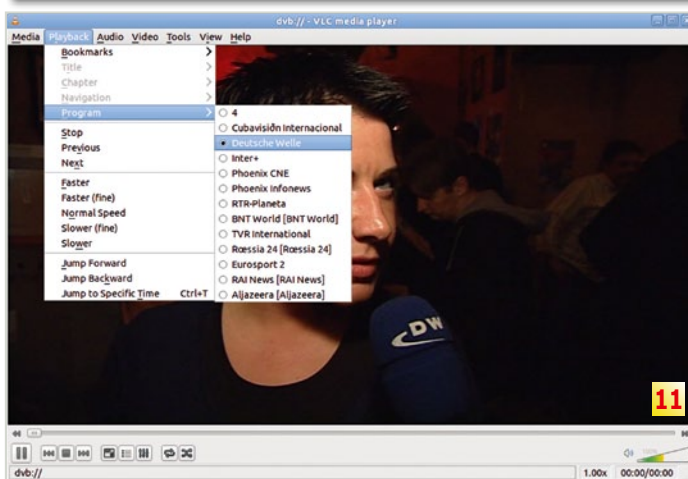
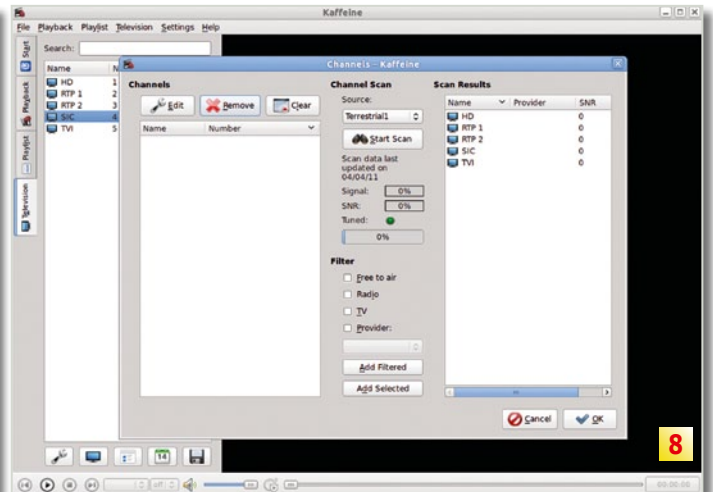
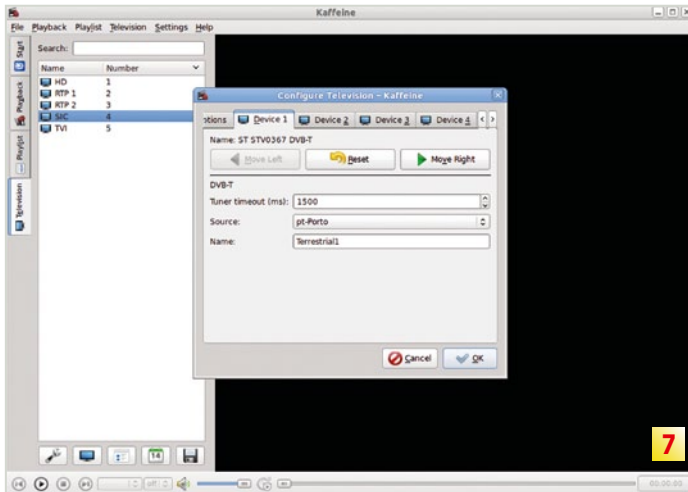
Low-cost MSD7818 HD DVB-T



- Fully DVB-T/MPEG-2/MPEG-4/H.264 Compliant
- PVR Recording (Viewing one channel and Recording another channel Simultaneously)
- Recording TV and Playback JPEG/MP3 with External Storage Devices (USB2.0 / HDD)

- Multi-media Function (Playback TS, MKV, AVI, DivX, XviD, VOB, RMVB, RM etc.)
- Advanced Time-shift function
- Format Resolution: 1080i, 720p, 576p

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"nano .kde/share/apps/kaffeine/scanfile.dvb"

As a second test you should start "dmseg" in a shell and check to see if the NetUP card was successfully initialized and that its firmware is running. If you don't have any patience, you can start "w_scan -f t -c XX" where XX is the country code, for example, DE for Germany. With the "-ft" option you can start a DVB-T scan. The "-fc" option starts a DVB-C scan.

Since this data is already predefined, there's usually nothing that needs to be changed. If the desired transponder group is nevertheless still not there, it can easily be added since the structure of the data is for the most part self-explanatory.

The last step involves starting Kaffeine and setting up the recognized DVB adapters. Four devices should have been found: Adapter0/Frontend0 (DVB-T), Adapter0/Frontend1 (DVB-C), Adapter1/Frontend0 (DVB-T) and Adapter1/Frontend1 (DVB-C). Keep in mind that Adapter0 corresponds to the "F" connector next to the CI slot! Otherwise you might be wondering why no channels were found...

When both of the scans have found channels, you can breath easy; the most difficult hurdles are behind you.

Since with Ubuntu's Software Manager its easy to select and install "Kaffeine", the first tests with this TV software have been completed. This doesn't need any special explanation: you should set up the transponder list in such a way that it contains predefined transponders from your region. You can enter, for example, the following into a shell:

Once a scan has been completed, the channels that were found have to be carried over. Now you can

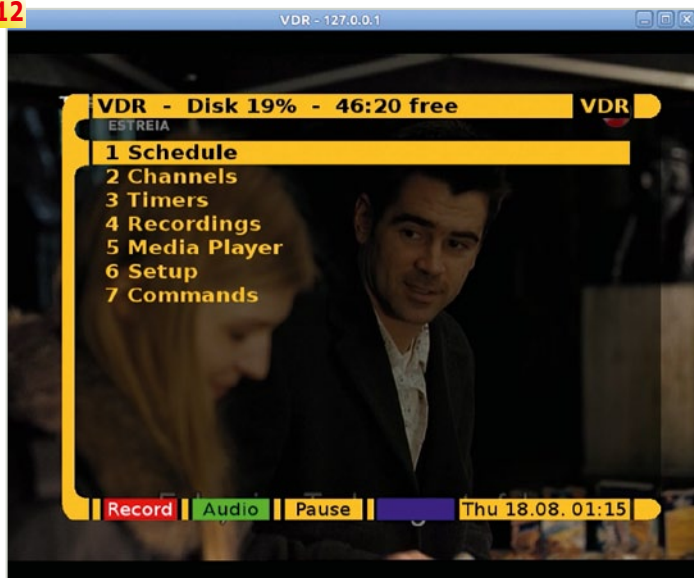
7. Kaffeine found four devices: DVB-T Nr.1, DVB-C 1 Nr.1, DVB-T Nr.2 and DVB-C Nr.2. An individual transponder list can be set up for each device for the channel scan

8. Results of a DVB-T scan in Portugal. Unfortunately, only five channels are being transmitted on a transponder

9. Kaffeine being used as TV software - display of a DVB-T channel

10. More channels are now available after a DVB-C scan

11. VLC can also be used as TV software - here we see a channel list of a DVB-C transponder

12


comfortably watch TV with Kaffee. This software comes with all of the typical functions you'd expect such as time shifting or recording.

If you want to get into it a little deeper, simply install VDR. This ultimate TV software - VDR stands for Video Disc Recorder - gives you everything your heart could possibly desire in the form of plug-ins. Experienced Linux users can construct themselves a multimedia center that would be far better than

anything else available on the market!

And this is exactly where the NetUP card shines: in the smallest possible space it provides two independent DVB-T/C adapters and two CI slots. In this way a multimedia center with living room compatible boxes can be created: small size and low energy usage are critical features here.

The installation and configuration of VDR will not be described here; there are far too many features and it would burst out the sides of this test report. Those who are interested should find out more about yaVDR. This involves a completed distribution in which VDR is already preinstalled with all the important plug-ins and, as a bonus, also includes XBMC. Naturally the Kernel must also be recompiled here.

The NetUP Dual DVB-T/C-CI is specifically meant for professional applications; it has enhanced the IPTV product palette of this manufacturer. In the 10-11/2011 issue of TELE-satellite the NetUP DVB-IP Gateway 4x was tested and in the 02-03/2011 issue the NetUP sister card Dual DVB-S2-CI was introduced.

These two PCI-e cards, the NetUP Dual DVB-T/C-CI and the NetUP Dual DVB-S2-CI were designed to be installed into IPTV servers. With that in mind, two of

13

14

new dvbtp broadcast enabled

```
setup dvbtp input "dvb-t://"
setup dvbtp option dvb-adapter=1
setup dvbtp option dvb-frequency=754000000
setup dvbtp option dvb-bandwidth=8
setup dvbtp option dvb-fec=9
setup dvbtp option dvb-transmission=8
setup dvbtp option dvb-guard=4
setup dvbtp option dvb-hierarchy=-1
setup dvbtp option programs=1101,1102,1103,1104
setup dvbtp option ts-es-id-pid
```

```
setup dvbtp output #duplicate{dst=http{mux=ts,dst=0.0.0.0:8080/stream1.ts},select="program=1101",dst=http
{mux=ts,dst=0.0.0.0:8080/stream2.ts},select="program=1102",dst=http
{mux=ts,dst=0.0.0.0:8080/stream3.ts},select="program=1103",dst=http{mux=ts,dst=0.0.0.0:8080/stream4.ts},select="program=1104"}
control dvbtp play
```

12. The NetUP card was also incorporated into a VDR system without any problems. The advantage here: while one adapter is responsible for displaying pictures, the second adapter keeps the channel list current in the background

13. A test PC receives four streams in parallel from the IPTV server that is equipped with a NetUP Dual DVB-T/C-CI

14. Example of how VLC can operate as a streaming server

GOOSAT

Serve the World Inspire the Future

Multimedia HDTV CI Plus PVR

DVB-S2



Model: **S4-1HD**

- Fully compliant with DVB-S and DVB-S2 (MPEG 2/ MPEG 4 / H.264)
- Common Interface Plus (CI+) available
- Optional smart card slot for embedded CA support
- Full HD output in 720p, 1080i, 1080p
- Up to two USB 2.0 available for software update and PVR
- Build-in 10/100M Ethernet MAC
- Multimedia functions: plays back files in MKV, AVI, MP4, TS, MPG, JPG, MP3 and etc.
- Timeshift supported with external hard drive disc
- CEC (Consumer Electronic Control) and Unicable supported
- Parental control, teletext and subtitle supported

- Multilingual Menu OSD supported
- Extension to ISDB-T, DVB-T, DVB-C HD Optional
- CE & RoHS, LPC, EuP, FCC Compliant



Real Panel

Satellite/Terrestrial/Cable Meter



Online Sat-finder

LED TV | 3D TV Google TV



Display
Size
• 26"
• 32"
• 42"

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these cards can be installed in a standard 1U rack. With a corresponding network connection and software the customer's requirements can be solved at an attractive price.

A server can be equipped with two of these cards thus providing four complete transponders to the network. These can then be received by IPTV receivers. Hotels could then build up an inexpensive bouquet of channels out of DVB-T and DVB-C transponders that could then be made available to individual rooms. Ideal is the fact that encrypted transponders can easily be decrypted with just one SmartCard and then re-streamed further down the line. This makes it simple to make encrypted DVB-T/C channels available in the IPTV stream.

We thought it would be interesting to set up an IPTV streaming server in our test labs which would then be used to drive a number of PCs that would act as IPTV

clients in an attempt to simulate a network load. We wanted to see how difficult it would be to set up an IPTV server with NetUP cards.

We installed the well-known VideoLAN VLC software on the server and the clients. This involves an open-source project that is available for a variety of platforms. The advantage of this solution is the ease in which our needs could be implemented. Configuration data must be set up for the server. We chose the http-protocol since it can be directly used without any excessive network configuration so that PCs with various IP addresses can access the server; that's what a Unicast solution is all about: a stream is made available for each client in the network.

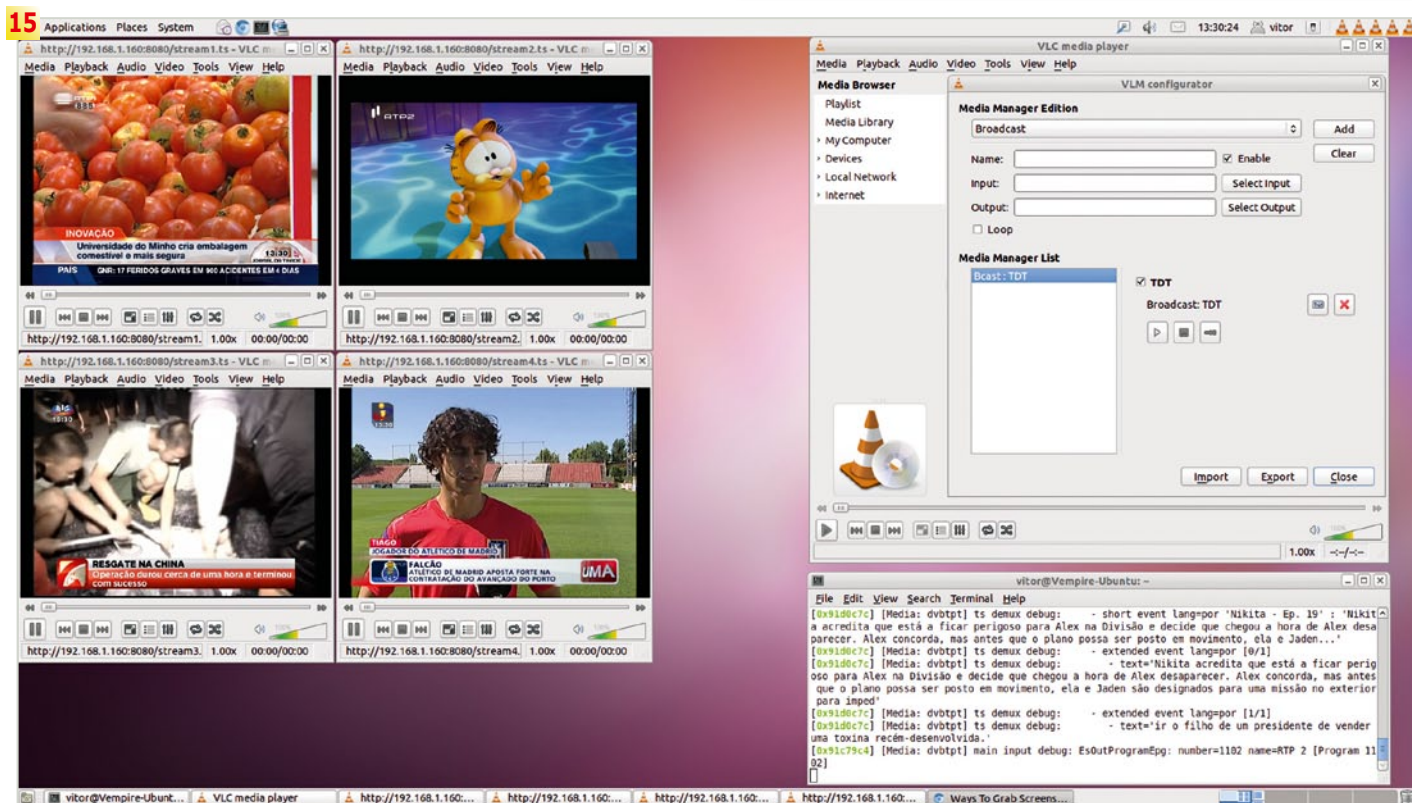
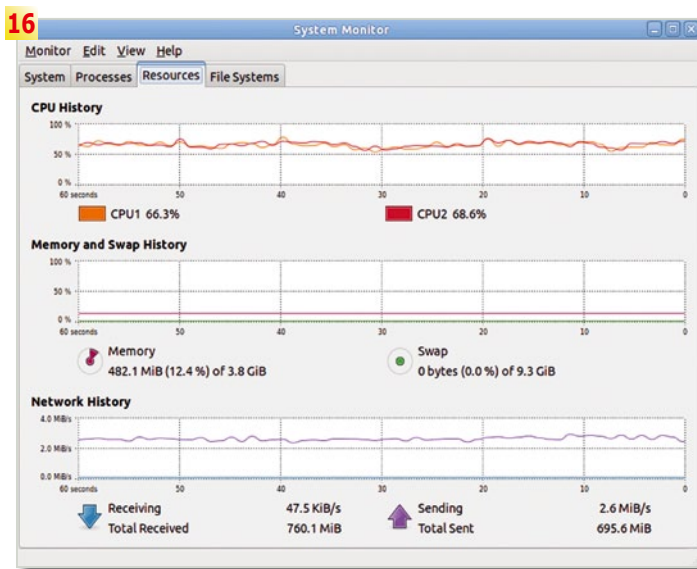
In the configuration data each channel must have a row added that identifies what channel is to be made available on what stream. The VLC clients have to choose network streaming

as the source and `http://iptv-address:port/stream` must be entered where "iptv-address" is the IP address of the server, "port" is the port identified in the configuration data and "stream" is the corresponding stream for each channel. Our example data can be seen in Figure 15.

To test this set up we opened four VLC windows and streamed four streams parallel to each other as you can see in Figure 16. On

three additional computers we opened four VLC windows with various channels on each of them. A total of 16 channels were streamed in parallel. The feared network bottleneck never happened. Instead an Asus EeePC turned out to be too slow to play back four MPEG4 channels at the same time. A look at the network load showed that there were still enormous reserves available as can be seen in Figure 17.

Our network was a 100



Real professionals naturally don't even use VLC as streaming software, instead

they use specialized streaming programs for the command lines. This has the advantage of being able to operate the IPTV server without a monitor; Secure-Shell (ssh) is used for access instead. An example of just such an IPTV streaming software is MumuDVB.

16. Network load with 16 parallel streamed channels in MPEG-4 format

18. Simultaneous presentation of the MumuDVB IPTV stream; a real studio feeling comes over you!

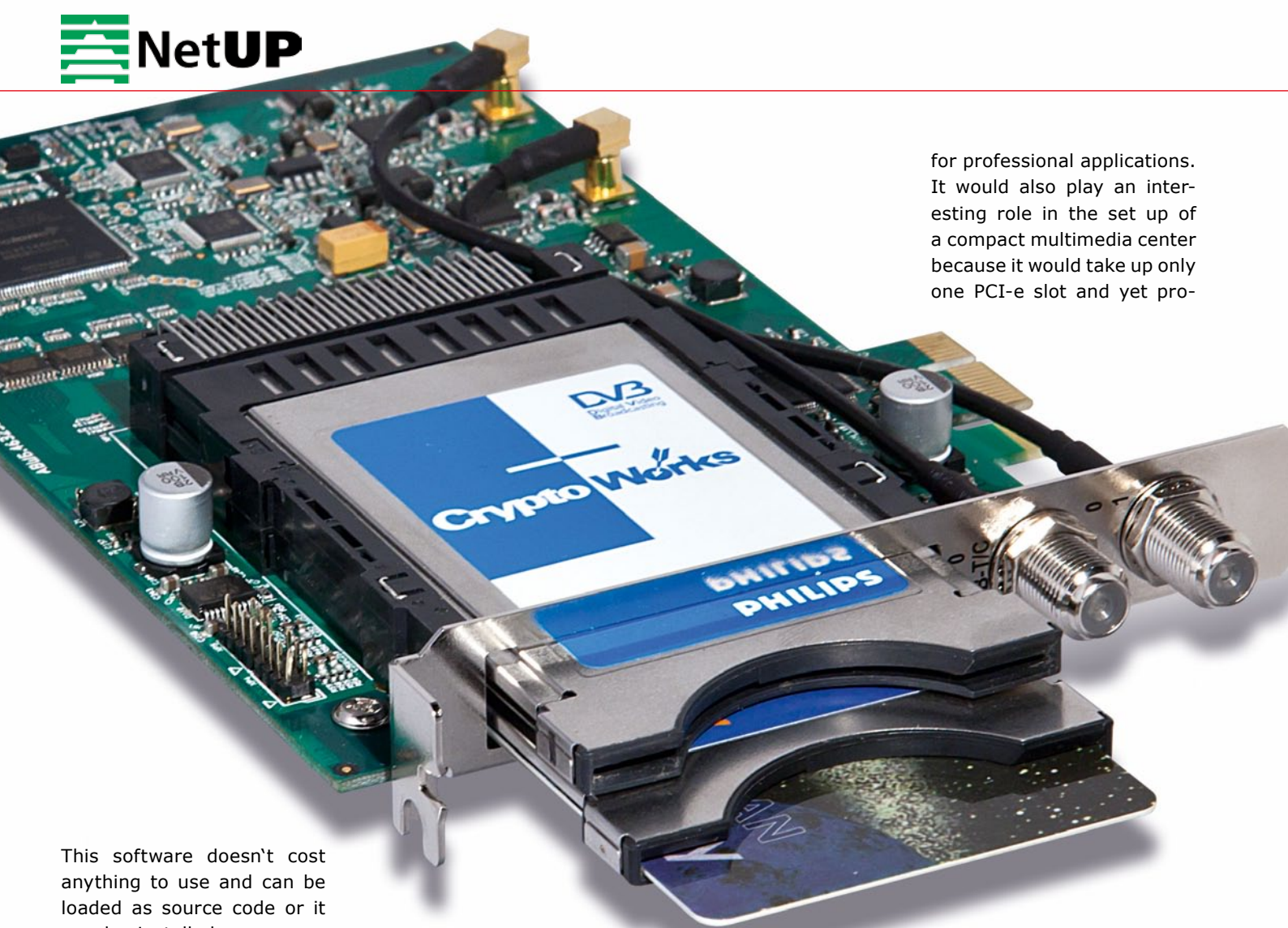
www.TELE-satellite.com/TELE-satellite-1101/eng/netup.pdf

```

17 vitor@Vempire-Ubuntu: ~
File Edit View Search Terminal Help
Diffusion 12 channels
Channel number : 0, ip : 239.100.2.0:1234, name : "Cubavisión Internacional"
  pids : 817 6160 6161
Channel number : 1, ip : 239.100.2.1:1234, name : "Deutsche Welle"
  pids : 817 6176 6177
Channel number : 2, ip : 239.100.2.2:1234, name : "Inter+"
  pids : 817 6192 6193
Channel number : 3, ip : 239.100.2.3:1234, name : "Phoenix CNE"
  pids : 817 6208 6209
Channel number : 4, ip : 239.100.2.4:1234, name : "Phoenix Infonews"
  pids : 817 6224 6225
Channel number : 5, ip : 239.100.2.5:1234, name : "RTR-Planeta"
  pids : 817 6240 6241
Channel number : 6, ip : 239.100.2.6:1234, name : "BNT World"
  pids : 817 6257 6256
Channel number : 7, ip : 239.100.2.7:1234, name : "TVR Internacional"
  pids : 817 6272 6273
Channel number : 8, ip : 239.100.2.8:1234, name : "Rússia 24"
  pids : 817 6288 6289
Channel number : 9, ip : 239.100.2.9:1234, name : "Eurosport 2"
  pids : 817 6304 6305
Channel number : 10, ip : 239.100.2.10:1234, name : "RAI News"
  pids : 817 6352 6353
Channel number : 11, ip : 239.100.2.11:1234, name : "Aljazeera"
  pids : 817 7563 7562
DETAIL : Average packets in the buffer 1
DETAIL : Average packets in the buffer 1
DETAIL : Average packets in the buffer 1
DETAIL : Average packets in the buffer 1

vitor@Vempire-Ubuntu: ~
File Edit View Search Terminal Help
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr b851 | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr b851 | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal fb01 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
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status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr b851 | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
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status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr b851 | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr ca3c | ber 00000003 | unc 0000000b | FE HAS LOCK
status 10 | signal eb92 | snr b851 | ber 00000003 | unc 0000000b | FE HAS LOCK

```

for professional applications. It would also play an interesting role in the set up of a compact multimedia center because it would take up only one PCI-e slot and yet pro-

This software doesn't cost anything to use and can be loaded as source code or it can be installed as a complete package for most Linux distributions. Aside from that, Multicast, not Unicast, is used to provide the IPTV stream to large networks. In this case the entire IPTV stream is available in the network and each client is able to access this stream. In order for this to work, the network infrastructure must include routers that can handle Multicasting.

In order to test an actual professional configuration with Multicasting, we took an entire DVB-C transponder and streamed it into our network with our own home-made IPTV server with the IPTV protocol "RTP". This had a real "broadcasting feeling" to it! We were able to open all 12 channels at the same time on our PC. One thing though, our switch gave us some problems; as it turns out, it wasn't really compatible with Multicasting. If you really want to be

able to stream entire bouquets with an IPTV server via Multicasting, make sure you use compatible routers and switches. To really test the limits of the NetUP Dual DVB-T/C-CI, we decided to stream a DVB-T transponder at the same time. The card did not even blink when we did this; it functioned perfectly as you might expect from a professional product.

The NetUP Dual DVB-T/C-CI is a professional card perfectly suited for use in IPTV servers. Because of the ability to use two of these cards in a server, the operator can stream up to two DVB-T and two DVB-C transponders. Naturally, you could also combine the NetUP Dual DVB-T/C-CI with a NetUP Dual DVB-S2-CI card. The advantage to building your own IPTV server is that you can customize it to the needs of your customers. A server like this can also of-

fer additional services such as video-on-demand as well as function as a DHCP server and Internet gateway. This type of flexibility is rare with broadcasting equipment.

Traditional installers should set themselves apart with this IPTV technology since it has been more and more playing a key role when it comes to community-based systems, multi-family homes and hotels. A single cable can provide IPTV, Internet and VoIP telephone.

This card is not only meant

vide two individual adapters that would support not only DVB-T and DVB-C, but perhaps also Mini-ITX motherboards as well. These come with one PCI-e slot, if any at all; up until now they weren't a very popular choice to use. This all changes with the NetUP card. Throughout our entire test in which we put the card through its paces, there were no stability or heat problems. It's clear that this card was designed for long-term use.

We were very impressed with the capabilities of the NetUP Dual DVB-T/C-CI!

Expert Opinion

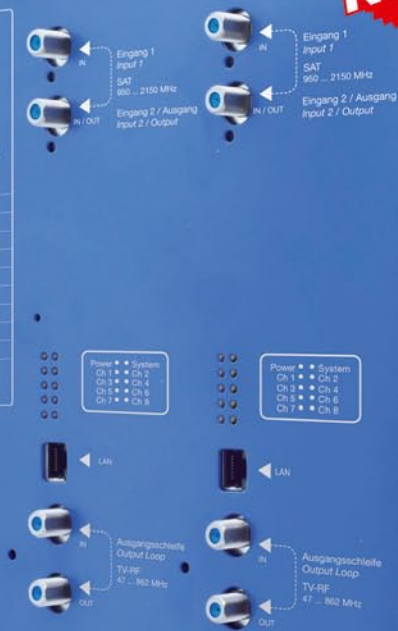
Two independent tuners
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CI-Interface

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TEST REPORT
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| Professionelle PC-Karte |

NetUP

Praxistest der NetUP Dual DVB-T/C CI



- Geeignet für den Aufbau professioneller IPTV-Server
- Auch für Linux basierte Multimedia-Center bestens geeignet
- Mit modernsten Komponenten bestückt und damit für den Dauereinsatz konzipiert
- Kompakte Bauform bietet 2 DVB-T/C Tuner und 2 CI-Schächte

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Die NetUP Dual DVB-T/C-CI wird als professioneller DVB-T und DVB-C PCI-e Adapter angeboten und wird in erster Linie für den Einsatz in IPTV-Servern vermarktet. Als der Adapter in einem unscheinbaren Karton das TELE-satellite-Testlabor erreichte, waren wir erst etwas erschreckt, denn im Karton war keine Spur von einem Handbuch, einer Kurzbeschreibung oder gar einer Treiber-CD!

Ein Besuch auf die Webseite des Herstellers enthielt jedoch eine kurze Zusammenfassung, wie man diesen Adapter unter Linux installiert. Dazu ist es erforderlich, den Kernel neu zu kompilieren und zwar in einer von NetUP modifizierten Kernel-Version 3.0.0-rc7. Fertige Software muss sich der Kunde selber zu-

sammenstellen, es wird mit tzap und czap lediglich beschrieben, wie man die Karte testet.

Damit steht schon mal fest, dass es sich nicht um ein Consumer-Produkt, sondern um ein professionelles Produkt handelt. Linux-Kenntnisse sind notwendig, damit die Karte vom Betriebssystem überhaupt erkannt wird. Dies ist jedoch nicht einer Vernachlässigung des Herstellers zuzuschreiben, sondern einfach die Konsequenz einer brandneuen Hardwarebestückung.

Die verwendeten Chips sind sehr neu und bieten Höchstleistung auf kleinstem Raum: An zwei separaten Tunern kann wahlweise ein DVB-T oder ein DVB-C Signal anliegen. Dazu gibt es noch zwei CI-Schächte.

Bei den verwendeten Komponenten handelt es sich um den Conexant CX23885, der mit zwei MPEG Transport Streams umgehen kann, und über einen integrierten Sigma-Delta Audio ADCs mit 4:2 MUX verfügt.

Weiterhin ist mit dem STM STV0367 ein ultrakompakter kombinierter DVB-T/C Einchip-Empfänger mit niedrigem Energieverbrauch an Board. Dieser bietet für DVB-T 6, 7 und 8 MHz Bandbreite sowie QPSK, 16 QAM und 64 QAM Modulationen. Im DVB-C Modus werden 16, 32, 64, 128 und 256 Konstellationen unterstützt.

Bei den beiden Tunern handelt es sich um Xceive XC5000 Silicon Tuner, die keine metallische Abschirmung benötigen und daher leichter auf der Platine zu



integrieren sind. Diese Tuner unterstützen alle TV Normen und haben eine ausgezeichnete Sensibilität, auch bei schwachen Signalen.

Für die CI-Schächte steht ein Altera FPGA zur Verfügung. Bei diesem Chip handelt es sich um einen programmierbaren Prozessor, wobei mit Programmierung die Software-mäßige Auslegung der Funktionsstruktur gemeint ist. Dadurch ist es theoretisch möglich, jederzeit das CI-Interface an neue Entwicklungen anzupassen.

Nach dem Einbau der

Hardware in den PC muss eine Linux-Distribution installiert werden. Wir wählten hierzu eine aktuelle Ubuntu Distribution, da diese recht zügig installiert werden kann und nicht zuletzt wegen der großen Beliebtheit dieser Linux-Distribution mit gutem Support glänzt.

Nachdem Linux installiert ist, muss der Kernel, zentraler Bestandteil eines jeden Unix Betriebssystems, neu kompiliert werden, damit dieser die NetUP Karte erkennt. Da die auf der Karte verbauten Komponenten noch sehr neu sind, erkennen aktuelle Linux-Distributionen mit v2.6 Kernel diese nicht.

NetUP bietet hierzu die im Bild 1 dargestellte Hilfestellung. Bei einem frisch installierten Ubuntu Linux kommt man mit dieser Befehlsreihe aber nicht zum Ziel, da z.B. GIT noch gar nicht installiert sind. Wir sind daher wie im Bild 2 beschrieben vorgegangen.

Nachdem man in den oben gelisteten Schritten `make menuconfig` aufgerufen hat, gilt es drei Optionen zu aktivieren. Diese sind auf der NetUP Webseite beschrieben, im Test erschienen jedoch leicht abweichende Bezeichnungen. Die Bilder 3, 4 und 5 zeigen, was genau geändert werden muss.

Die Zeile `export CONCURRENCY_LEVEL=3` nutzt einen Multi-Core Prozessor besser aus, in dem 2 Kerne zur Kompilierung genutzt werden. Die Regel ist: `CONCURRENCY_LEVEL=Anzahl der zu nutzenden Kerne + 1`.

Nach einem Neustart sollte GRUB nun ein Booten in den neu kompilierten Kernel ermöglichen. Treten hier Fehler auf, sollte man erst mal versuchen, einen offiziellen Kernel zu kompilieren und zu installieren. So lassen sich eventuelle Probleme leichter diagnostizieren. Oftmals kommt es gerade bei nVidia Grafikkarten zu Problemen. Tritt die-

ser Fall auf, sollte man erst die aktuellen nVidia Treiber installieren und dann erst versuchen, den Kernel zu kompilieren.

Nach dem ersten Neustart schaut man am besten sofort in `/dev/dvb` und prüft, ob die beiden `adapter0` und `adapter1` vorhanden sind. In unserem IPTV-Server gesellte sich noch eine DVB-S Karte dazu, so dass wir `adapter0`, `adapter1` und `adapter2` vorfinden.

Als zweiten Test, sollte man unbedingt `dmesg` in einer Shell eingeben und prüfen, ob die NetUP-Karte erfolgreich initialisiert wurde und dass dessen Firmware aufgespielt worden ist. Wer nun ungeduldig ist, kann schon mal ein `w_scan -f t -c XX` eingeben, wobei `XX` die Landeskenntung darstellt, z.B. DE für Deutschland. Mit der `-f t` Option startet man einen DVB-T Suchlauf. Die Option `-f c` startet entsprechend einen DVB-C Suchlauf.

Wenn bei beiden Suchläufen Kanäle gefunden wurden, dann kann man aufatmen, denn die schwierigste Hürde ist schon vorbei.

Da man unter Ubuntu's Software-Manager leicht Kaffee wählen und installieren kann, haben wir die ersten Tests mit dieser TV Software durchgeführt. Dies bedarf keiner besonderen Erklärung; man sollte nur die Transponderliste so anpassen, dass für die eigene Region auch vordefinierte Transponder in dieser Liste enthalten sind. Dazu gibt man zum Beispiel folgendes in einer Shell ein: `nano .kde/share/apps/kaffeine/scanfile.dvb`

Da diese Datei schon vordefiniert ist, muss meist nichts geändert werden. Wenn die gewünschte Transponder-Gruppe doch nicht existiert, kann diese leicht eingefügt werden, denn die Struktur der Datei ist weitgehend selbsterklärend.

Anschließend startet man

Kaffee und konfiguriert die gefundenen DVB-Adapter. Es sollten insgesamt 4 Devices gefunden werden: `Adapter0/Frontend0` (DVB-T), `Adapter0/Frontend1` (DVB-C) `Adapter1/Frontend0` (DVB-T) und `Adapter1/Frontend1` (DVB-C). Wichtig ist zu beachten, dass `Adapter0` dem F-Stecker neben dem CI-Schacht entspricht! Sonst wundert man sich, dass ein Suchlauf keine Kanäle findet...

Ist der Suchlauf abgeschlossen, gilt es die gefundenen Kanäle zu übernehmen. Nun kann man mit Kaffee gemütlich TV gucken. Diese Software bietet die gängigen Funktionen, wie z.B. Timeshift oder Aufnahme. Wer jedoch tiefer einsteigen will installiert sich VDR. Diese ultimative TV Software – VDR steht für Video Disk Rekorder – bietet über Plugins alles was das Herz begehrt! Erfahrene Linux Anwender können sich ein Multimedia Center aufbauen, der jedes auf dem Markt erhältliche Produkt in Funktionen überbietet!

Gerade hier punktet die NetUP Karte, da sie auf geringstem Raum zwei unabhängige DVB-T/C Adapter

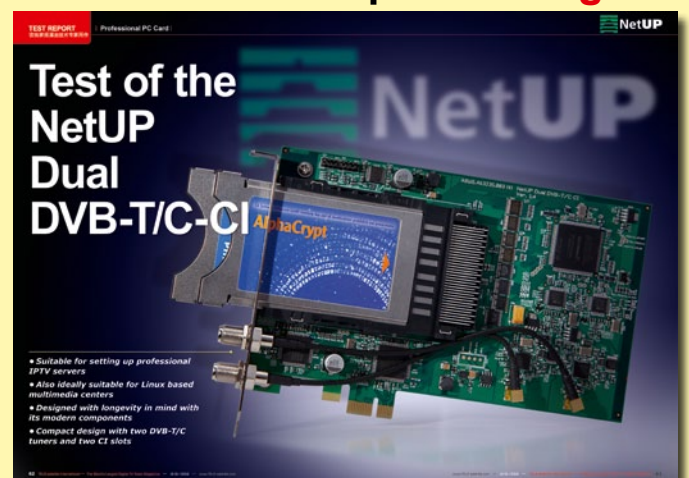
und zwei CI-Schächte bietet. Somit kann ein Multimedia Center mit Wohnzimmer-kompatiblen Gehäuse aufgebaut werden: geringe Größe und Stromverbrauch sind hier wichtige Kriterien.

Die Installation und Konfiguration von VDR wird hier nicht beschrieben, es gibt zu viele Optionen und es würde den Rahmen des Testberichts sprengen.

Interessierte sollten sich auf jeden Fall über yaVDR informieren. Hier handelt es sich um eine fertige Distribution, in der VDR schon mit den wichtigsten Plugins vorinstalliert ist und als besonderen Bonus gleich auch noch XBMC mitbringt. Natürlich muss auch hier erst ein Mal der Kernel neu kompiliert werden.

Die NetUP Dual DVB-T/C-CI dient jedoch hauptsächlich für professionelle Anwendungen und gliedert sich in die Produktpalette für IPTV Anwendungen dieses Herstellers ein. In der TELE-satellite 10-11/2011 wurde schon der NetUP DVB-IP Gateway 4x getestet und in der TELE-satellite 02-03/2011 wurde die Schwesterkarte NetUP Dual DVB-S2-CI Karte vorgestellt.

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Horizon HD-STM

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- *very accurate readings and fast reaction to signal changes*



Tune Your TV Antenna

A Satellite and Terrestrial Meter with a Very Practical and Intuitive User Interface

This new signal analyzer is bigger than the other Horizon meters we have tested in TELE-satellite. No wonder, the HD-STM can measure not only satellite DVB-S/S2 signals but also DVB-T and even the old analog TV and FM radio signals. The green case color gives this meter a somewhat military look, but fortunately its case is made of ABS plastic, not metal, and a fully machined Aluminum front panel. Its weight is also quite "civilian". Definitely, you will not strain your neck when working with the HD-STM at 2kg.

The meter sports 10 but-

tons: except for the navigation arrows and an OK button in the middle of them, there is an ON/OFF button and four "soft" buttons located near the LCD. Their function depends on the current menu and is always displayed on the screen. The last element on the front panel is the signal input connector. Along with the meter itself, Horizon provided us with a short piece of coaxial cable with F connectors on both ends, then an F-to-IEC adapter and finally 2 pieces of 10 dB signal attenuators for the 5-1000 MHz range. The latter ones come in very handy when measur-

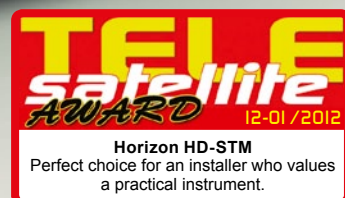
ing the output of a terrestrial antenna amplifier.

The Horizon HD-STM is also equipped with a car lighter type DC charger, a mains cord with the proper plug for your region and an USB cable. As with every other Horizon meter, you do not need any external power supply unit but connect the mains cord directly to the meter. This is very practical as it saves the hassle with a separate power supply unit, all these items can be stored in the padded case supplied.

When you look at the HD-STM from the right side you will notice: a slot for a SD

card, the USB port and a DC power supply input to be used with the car charger. The SD card is to be used to log the measurements results.

Horizon provides the User Manual in an electronic form – a file in PDF format on the included CD-ROM. We browsed through it and noticed that it is very detailed and written in a simple style illustrated with a huge number of screen-shots. However, for the purpose of this test, we decided not to study it in detail but start using HD-STM right away. In this way, we wanted to check if the user interface was intuitive



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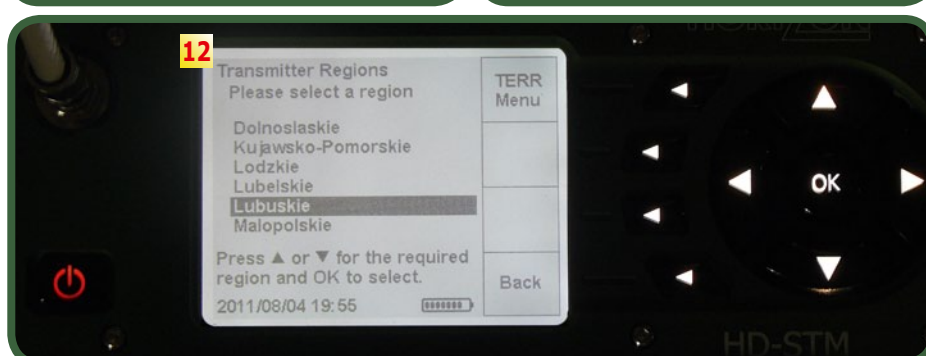
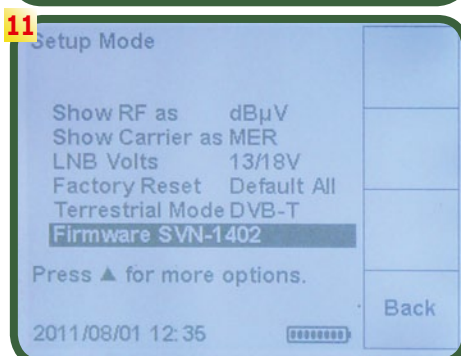
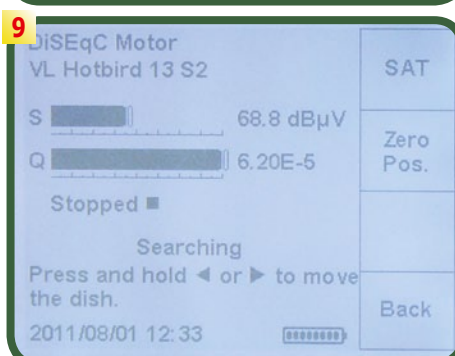
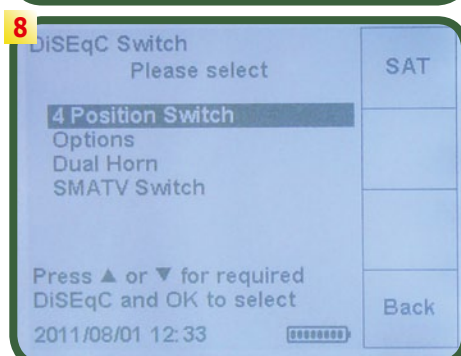
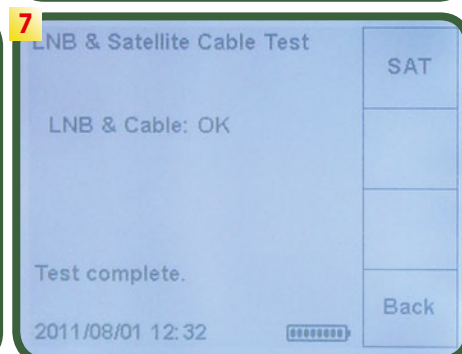
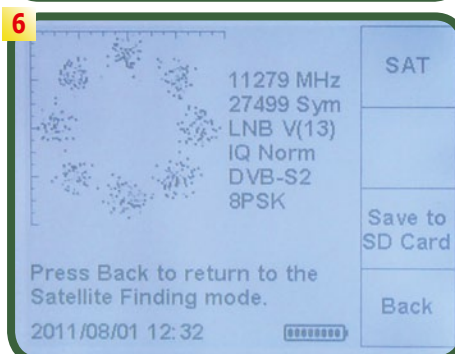
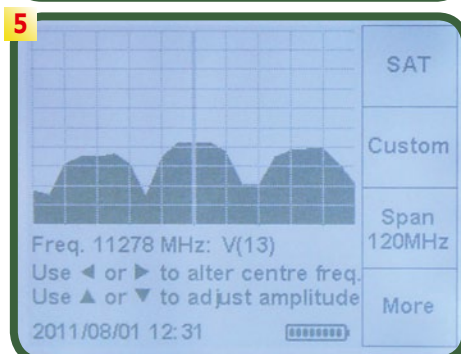
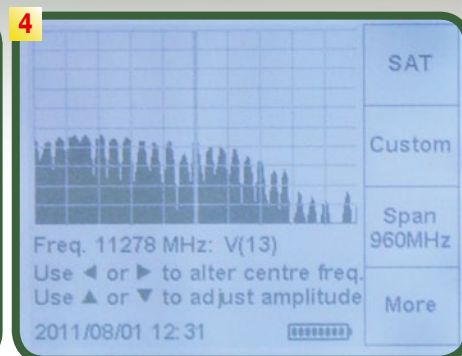
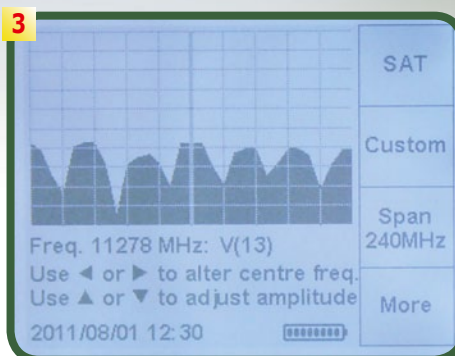
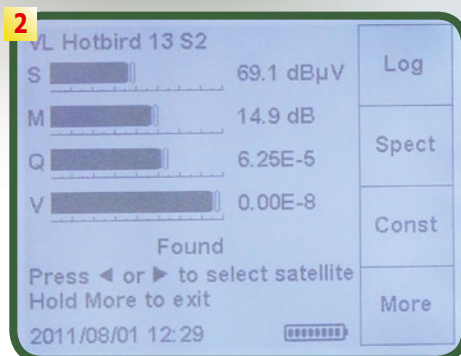
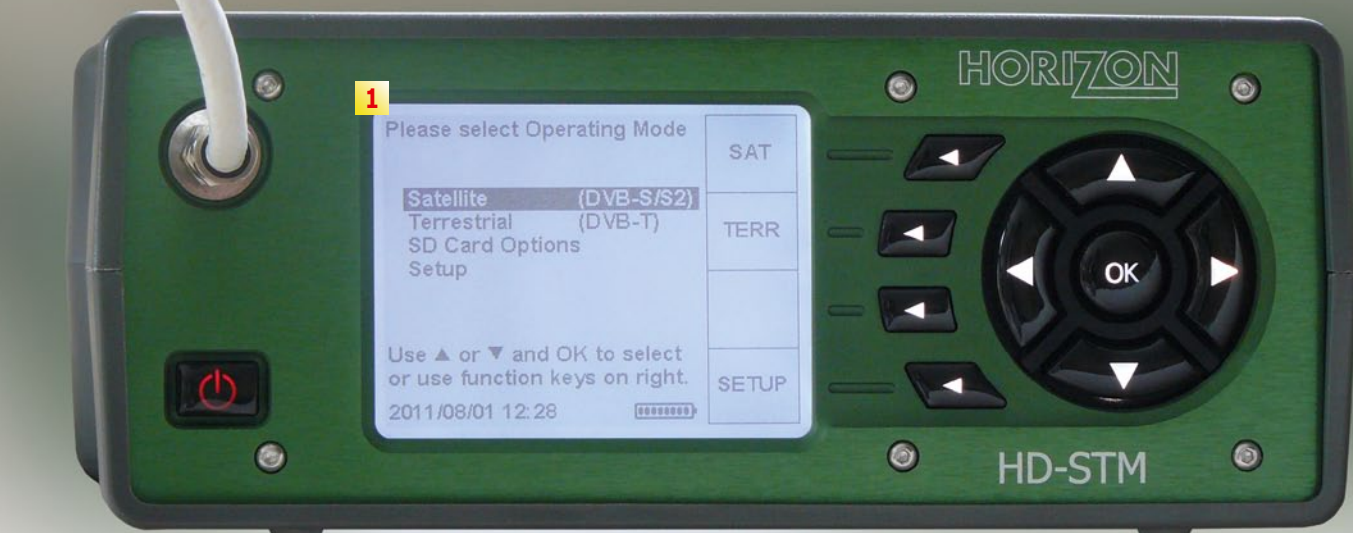
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and self explanatory. Right after the welcome screen, you have three menu items: SAT – to measure a satellite signal, TERR – to measure a terrestrial signal and SETUP – to configure the basic settings of the meter. Pressing a soft key (a button near the screen) you make your selection. The very first screen in satellite mode is already a measurement mode. At the top of the screen, you can see the name of the satellite and a signal strength measurement result in two forms: bar graph and numerical. With the left and right arrows, you change the satellite until the HD-STM is able to lock to the signal and shows its parameters: channel power, modulation error ratio (MER) or carrier to noise (C/N), channel bit error rate and post-Viterbi bit error rate. You can also select a desired satellite from the list which is displayed after you press the LIST soft key.

For each receivable satellite, HD-STM has at least one transponder stored in its internal memory. In this way, when the meter locks to the transponder, HD-STM "knows" the satellite name. If

the factory preprogrammed transponder settings are not enough for you, you can add your own custom transponders. The possibility to manually add more transponder data when needed, without turning to a PC but directly from within the meter menu, is an important asset of the HD-STM. Simpler meters often do not allow this option.

If your antenna is not yet set to receive a signal, Horizon's HD-STM can help you too. Simply switch it to spectrum mode and turn and tilt your dish until you see peaks of signals in the spectrum. Span of the shown spectrum is adjustable in the following steps: 60, 120, 240, 480, 960, 1200 MHz. Once you maximized the peaks in the spectrum view, you return to the previously described measurement screen and by switching the satellite name you identify to which satellite you have just directed your dish. If this is not the desired one, knowing what satellite you are receiving now gives you a good hint what to do with your dish: turn it eastwards or westwards.

Once your antenna is looking at the right satellite, you

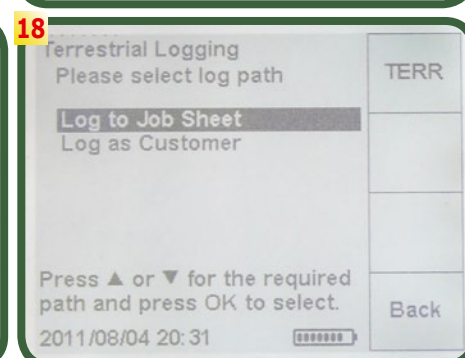
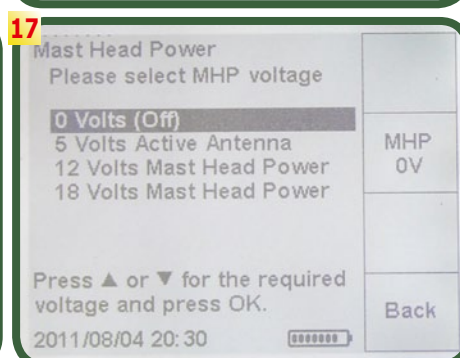
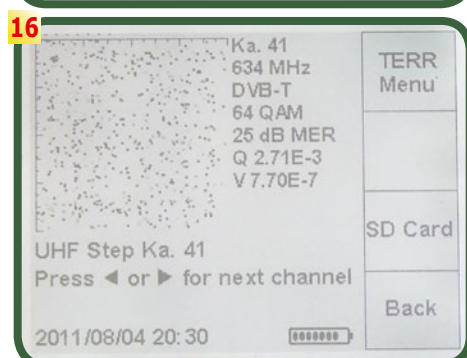
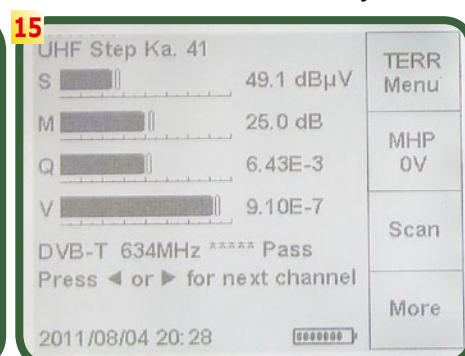
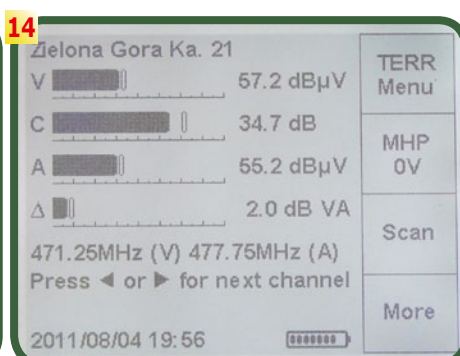
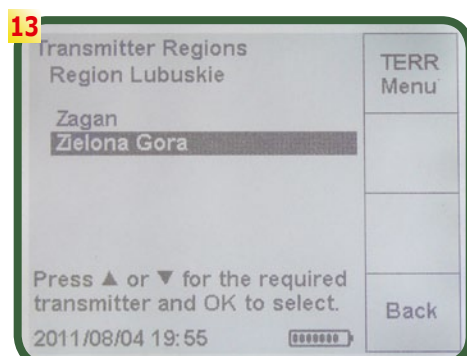
delicately tilt it and slightly turn it left or right to maximize all the readings which the HD-STM is presenting. Meter sensitivity and resolution is exactly as they should be. HD-STM measures channel power with 0.1 dBμV and MER and C/N with 0.1 dB resolution.

The HD-STM can be used not only in simple installation with a direct connection to an LNB. The meter is compatible with DiSEqC switches and DiSEqC motors. Thanks to that, you can check if your customer has a problem with a DiSEqC device or perhaps everything is OK with the switches and a motor but the receiver itself does not generate the right DiSEqC commands. The HD-STM can also detect an open circuit and short circuit in the cable connecting it to the LNB. This is also a helpful function. Operating the functions described above is quite simple thanks to the very logical menu structure.

The HD-STM can also show the constellation diagram for both QPSK and 8PSK. Having a little experience, you can judge how noisy the signal is just by looking at the graphs.

When we switched the HD-STM to the terrestrial mode, it surprised us by asking in which region of Poland we live and even in the vicinity of which city. That's because the test sample Horizon provided us with had been customized for Poland. Should it be bought in some other country, it would be customized with the settings suitable for that region. This is quite helpful as you do not have to memorize the channel numbers or frequencies

1. Main menu
2. Satellite finder
3. Spectrum view
4. Span increased to 960 MHz
5. Span decreased to 120 MHz
6. Constellation view (DVB-S2)
7. LNB and cable test result
8. DiSEqC switch submenu
9. DiSEqC motor submenu
10. SD card management screen
11. Setup menu
12. Selecting a region in Poland for terrestrial TV
13. Selecting a city in the region
14. Analog terrestrial channel measurement
15. Digital terrestrial channel (DVB-T) measurement
16. Constellation of a terrestrial signal
17. Setting up power supply for terrestrial antenna amplifiers
18. Logging measurement results in the memory



of the DVB-T multiplexes in different regions. However, nothing prevents the HD-STM to show the whole spectrum, channel after channel, if you so require.

But that's not all. It is Horizon's policy to make various settings for their meters available on their web page. You just download the most recent settings dedicated to our region and install them in the meter's internal memory. To do this, you just need to install a simple software that is delivered on the included CD-ROM. Not only terrestrial but also satellite data is updated in this way.

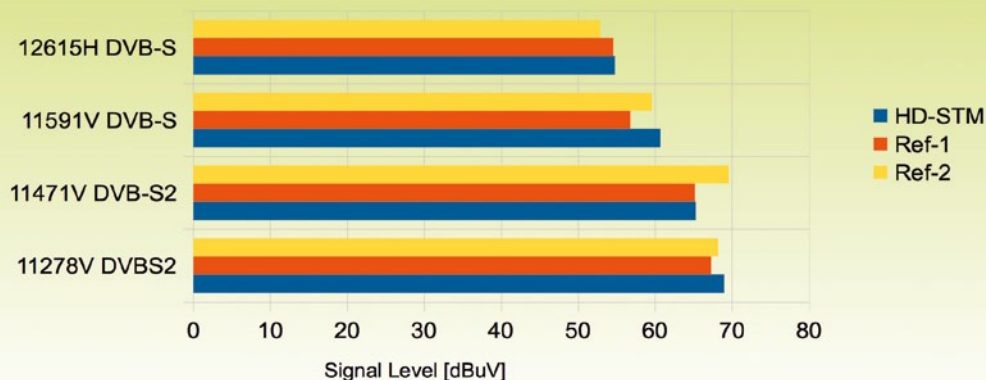
The HD-STM can measure both analog and digital terrestrial signals. It can even show constellation diagram for DVB-T. Moreover, you can configure the meter to provide DC voltage for powering mast amplifier. You have a choice of 5, 12 or 18 V DC.

The SETUP menu has quite a number of items. Except for typical settings like: the units of channel power (dBμV, dBm or dBmV) or LCD parameters, you can also choose whether to measure MER or C/N for digital satellite signals. We prefer MER as this measurement is less dependent on meter type and brand. Choice of menu language is presently limited to English and French but this is rather not a big problem as most users all over the world are quite familiar with the English terms related to measurement technique.

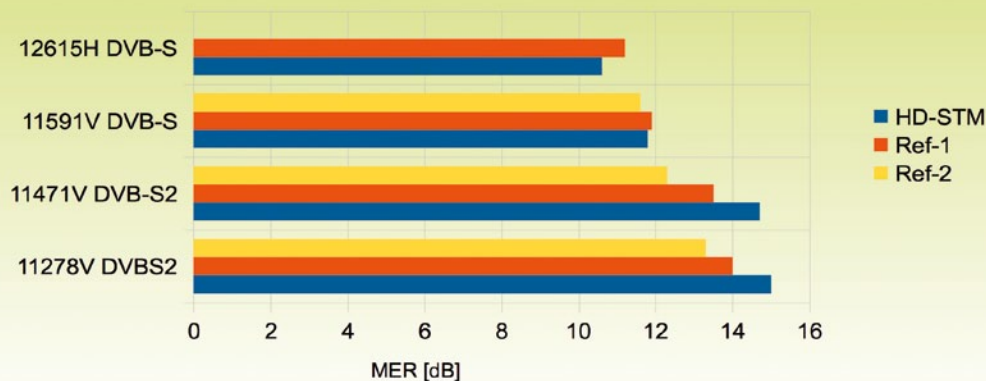
Your measurement results, no matter satellite or terrestrial, can be stored on a SD card as well as downloaded to a PC. Horizon provides the necessary PC software on the included CD ROM. This is applicable not only to the values. You can also capture screens of spectrum or constellation displays.

Summarizing the user interface, we are happy to state

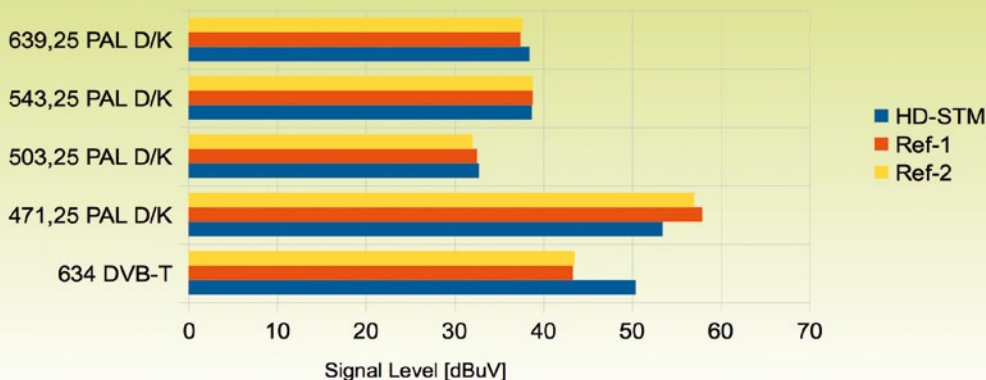
HD-STM vs. Other Signal Analyzers Satellite Signals



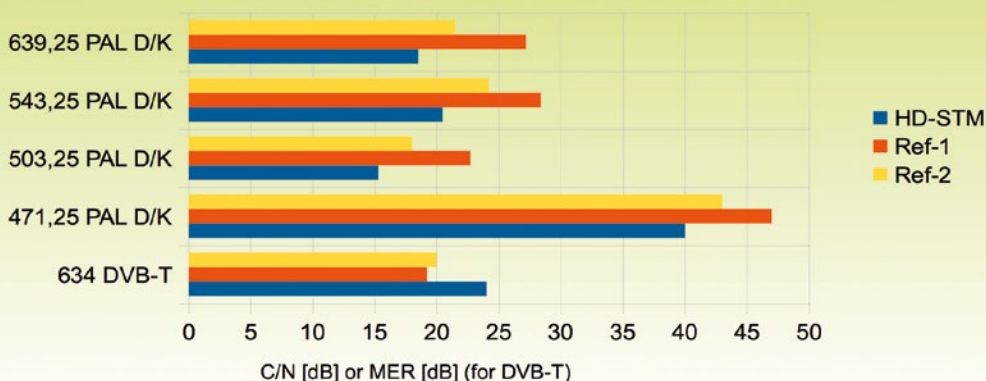
HD-STM vs. Other Signal Analyzers Satellite Signal



HD-STM vs. Other Signal Analyzers Terrestrial Signals



HD-STM vs. Other Signal Analyzers Terrestrial Signals



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that everybody who has just basic orientation in TV signal measurements will practically not need the user manual. Perhaps, you may want to refer to the manual when creating additional transponder entries or to learn how the logging process works but even in these cases most users can do fine without the manual. The HD-STM firmware is really very intuitive. Our test would not be complete if we did not compare the Horizon instrument with analyzers of other brands. We selected two quite complex and expensive meters as our references. We checked the difference in satellite and terrestrial measurements. Two satellites were the sources of signal: HOTBIRD on 13° East (DVB-S2 11278 V transponder) and Atlantic Bird 3 on 5° West (one DVB-S2 and

two DVB-S transponders). In terrestrial mode we had one DVB-T carrier and 4 analog carriers available in our location. See the charts in this report. HD-STM performed quite well – its readings were very close to the results shown by the other two meters. In one case, our reference # 2 was unable to lock to the signal (DVB-S 12615H 9180 ks/sec from Atlantic Bird) and it measured only channel power but not MER. But HD-STM had no problem with this signal. Good job!

The HD-STM is not a fully fledged signal analyzer but it has most of the features and functions a satellite and terrestrial reception system installers may need. Horizon's policy with this meter clearly was: to include all "must have" features and to forget all the "nice to have".



More on This Manufacturer

Read TELE-satellite's Company Report:

HORIZON

Signal Analyzer Manufacturer, UK



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Company Report: Signal Analyzer Manufacturer HORIZON, Great Britain

- Manufactured 325,000 analyzers in their first 10 years
- Expanding into the High End Range
- Provides the right products for the worldwide cable TV market with their DVB-C signal analyzers
- ODM expansion with strong distribution partners
- High technical know-how through the nearby university

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In this way, HD-STM has everything that is really relevant for the installer to do the job fast and easy. Of course, it can not play video and audio of the channel or tell you the bit rate of video or audio, but how many installers are eager to pay for such functions?

Workmanship of the Horizon HD-STM is perfect and it is equipped with a high capacity polymer battery. Its satellite and terrestrial performance leaves nothing to be desired. This is a perfect choice for an installer who values a practical instrument.

TECHNICAL

DATA

Manufacturer	Horizon Global Electronics Ltd.
Fax	+44-1279-417025
E-mail	sales@horizonhge.com
Web page	www.horizonhge.com
Model	HD-STM
Function	Satellite and terrestrial antenna meter
SATELLITE:	
RF Input range	950 – 2150MHz 40dBμV to 110dBμV
LNB Supply Voltages	13V Vertical 18V Horizontal (21V SCR)
LNB Short Circuit Protection	750mA maximum current limiter
Transponder memory	4000 definitions
Modulation supported	DVB QPSK, DSS, DVB QPSK, 8PSK
Satellite Bands	C, Ku and Ka
Input dynamic range	-70dBm to 0dBm
Symbol rate	1Msps – 45Msps
TERRESTRIAL:	
Channel bandwidth	Up to 8 MHz
Frequency range	49MHz (VHF) to 861MHz (UHF)
Input levels	-92dBm to -20dBm
Analogue measurements	Video and Audio levels

Expert Opinion

Very intuitive user interface
 Fast reaction to signal change
 Good sensitivity and measurement resolution
 Customized to your country - no useless transponder data to hack through
 Data logging



Non-compliant with DVB-T2



Jacek Pawlowski
 TELE-satellite
 Test Center
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USB 2.0 SLOT



For external HDD
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High Definition
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1 x SMARTCARD-READER



1 x COMMON INTERFACE

*** FULL HD ***



FEATURES:

- CI+ Slot
- USB 2.0 slot for playback of external hard drive or USB flash drive
- PVRready. Direct recording via USB on external storage media possible
- HDTV & SDTV
- 5000 Program presets
- EPG (7 days in advance)
- 8 x multifunction timer
- Multilingual screen menu
- Software update via SatellitAstra 19.2 ° East
- Optical signal to the align the antenna
- Radio reception with background display
- DiSEqC 1.2
- Video-resolution 1080p, 1080i, 720p, 576p
- Format switching 4: 3 / 16: 9Letterbox
- Environmentally friendly: low standby power consumption



JAEGER® HD+ 2011



USB 2.0 SLOT



For external HDD
or USB-Stick

HDMI



High Definition
Multimedia Connection

1 x SMARTCARD-READER



FEATURES:

- USB 2.0 slot for playback of external hard drive or USB flash drive
- PVRready. Direct recording via USB on external storage media possible
- HDTV & SDTV
- 1 x smart card reader
- EPG (7 days in advance)
- Video-resolution 1080p, 1080i, 720p, 576p
- optical signal to the align the antenna
- 5000 Program presets
- Multilingual screen menu
- HDMI out with HDCP
- Radio reception with background display

JAEGER® HDCI 2010



USB 2.0 HOST



For external HDD
or USB-Stick

HDMI



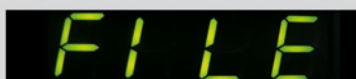
High Definition
Multimedia Connection

1 x COMMON INTERFACE



FEATURES:

- 1 x Common interface slot
- HDTV & SDTV
- Video-resolution 1080i, 720p, 576p
- USB 2.0 host for playback of external hard drive or USB flash drive
- Easy find software (works only in conjunction with easy find LNB)
- 5000 Program presets
- HDMI out with HDCP



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Horizon HD-STM

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- Liefert alle notwendigen Informationen, die ein Installateur benötigt
- Sehr genaue Messwerte und rasche Anpassung bei Signal-Änderungen

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Dieser neue Signal Analyzer ist größer als die anderen Horizon-Geräte, die wir bisher für TELE-satellite getestet hatten. Das ist nicht verwunderlich, denn der HD-STM kann nicht nur DVB-S/S2 Signale, sondern auch DVB-T und sogar die alten analog TV- und Radio-Signale messen. Das grüne Gehäuse gibt dem Gerät ein etwas militärisches Aussehen, aber glücklicherweise besteht es nicht aus Metall, sondern aus ABS-Kunststoff mit einer Frontplatte ganz aus Aluminium. Das Gewicht hält sich dadurch in Grenzen, man muss sich nicht den Hals verrenken, wenn man mit dem 2-kg-schweren HD-STM arbeitet.

Das Gerät hat 10 Tasten: Neben den vier Pfeiltasten und dem OK-Knopf in deren Mitte, gibt es noch einen

ON/OFF-Schalter und neben dem LCD sind vier "Soft"-Tasten angeordnet. Deren Funktion hängt vom gegenwärtigen Menü ab und wird stets am Bildschirm angezeigt.

Das letzte Element auf der Frontplatte ist der Anschluss für den Signaleingang. Zusammen mit dem Messgerät lieferte Horizon ein kurzes Stück Koaxialkabel mit F-Steckern an beiden Enden, dann einen Adapter F zu IEC und schließlich zwei 10 dB-Signal-Abschwächer für den Bereich 5 - 1000 MHz. Die letzteren sind sehr praktisch, wenn man den Ausgang eines terrestrischen Antennen-Verstärkers ausmisst.

Der Horizon ist auch ausgestattet mit einem DC-Lader zum Anschluss im Auto, einem Netzkabel mit

dem regionalen Anschluss-Stecker und einem USB-Kabel. Wie bei jedem Horizon-Messgerät wird kein externes Netzteil benötigt, sondern man steckt lediglich das Netzkabel an. Das ist praktisch, weil es den Aufwand mit einer separaten Stromversorgung spart. Alles zusammen passt in die mitgelieferte gepolsterte Tasche.

Betrachtet man den HD-STM von rechts, dann erkennt man: Einen Slot für eine SD-Speicherkarte, den USB-Anschluss und eine DC-Buchse für den Anschluss zum Zigarettenanzünder im Auto. Die SD-Karte ist vorgesehen, um die Messdaten zu speichern.

Horizon liefert das User Manual in elektronischer Form - als PDF-Dokument auf der mitgelieferten CD-



ROM. Wir haben es durchgeblättert und stellten fest, dass es sehr detailliert und leicht lesbar gehalten ist, bebildert mit einer Vielzahl von Bildschirmfotos. Allerdings wollten wir es bei diesem Test nicht im Detail studieren, sondern begannen mit dem HD-STM sofort zu arbeiten. Damit wollten wir feststellen, inwieweit das User Interface intuitiv und selbsterklärend ist.

Gleich nach dem Begrüßungsbild sieht man drei Menüpunkte: SAT - zur Messung eines Satellitensignals, TERR - zur Messung eines terrestrischen Signals und

SETUP - um die Grundeinstellung des Messgerätes zu konfigurieren. Drückt man eine der Tasten neben dem Bildschirm kommt man weiter. Der allererste Bildschirm im Sat-Modus zeigt bereits ein Messergebnis. Im oberen Teil des Bildes sieht man den Namen des Satelliten und seine Signalstärke auf zwei Arten, als Balken und numerisch. Mit der rechten und linken Pfeiltaste wechselt man den Satelliten, bis HD-STM auf ein Signal einrastet und dessen Parameter zeigt: Kanalstärke, Modulation-Fehlerrate (MER) oder Rauschabstand (C/N), Kanal-Fehlerrate und Post-Viterbi-Fehlerrate. Man kann auch den gewünschten Satelliten aus einer Liste auswählen, die man mit der Taste LIST aufruft.

Für jeden empfangbaren Satelliten hat HD-STM mindestens einen Transponder intern gespeichert. Auf diese Weise erkennt HD-STM den Satelliten, auf den das Gerät eingestellt wurde. Reichen die Einstellungen des vorprogrammierten Transponder nicht aus, kann man eigene Transponderdaten einsetzen. Die Möglichkeit, nach Bedarf und ohne einen PC zu benötigen mehr Transponderdaten eintragen zu können, ist ein wichtiger Vorzug von HD-STM. Einfachere Messgeräte erlauben solche Einträge nicht.

Ist die Antenne noch nicht auf ein Signal ausgerichtet, kann Horizon's HD-STM auch helfen. Man schaltet einfach auf Spektrum-Anzeige und dreht und neigt die Antenne, bis im Spektrum Signalspitzen erscheinen. Die Schrittweite der Spektrumanzeige ist in folgenden Schritten einstellbar: 60, 120, 240, 480, 960, 1200 MHz. Sobald die Peaks der Spektrumanzeige ihr Maximum erreicht haben, kehrt man zu der oben beschriebenen Messung zurück und sucht in der Satelliten-Liste, bis der Satellit

identifiziert ist, auf den die Antenne zeigt. Ist es nicht der erwünschte, dann hilft das Wissen, welches der gefundene Satellit ist, wie man die Schüssel weiterdrehen muss, ostwärts oder westwärts.

Sobald die Antenne auf den richtigen Satelliten ausgerichtet ist, neigt man sie vorsichtig auf und ab und dreht sie leicht nach links oder rechts, um das Maximum der von HD-STM angezeigten Messgrößen zu erreichen. Empfindlichkeit und Auflösung ist genau so, wie sie sein sollten. HD-STM misst die Kanalstärke mit 0.1 dBµV und MER und C/N mit einer Auflösung von 0.1 dB.

Der HD-STM kann nicht nur bei einfachen Installationen mit einer Direktverbindung zum LNB eingesetzt werden. Das Gerät ist kompatibel zu einem DiSEqC-Switch und DiSEqC-Motor. Dank dessen kann man beim Kunden überprüfen, ob ein Problem mit dem DiSEqC-System besteht, ob alles mit dem Switch und dem Motor OK ist, oder ob gar der Receiver nicht die richtigen DiSEqC-Befehle generiert. Der HD-STM kann sogar feststellen, ob in der Kabelverbindung zum LNB eine Unterbrechung oder ein Kurzschluss besteht. Auch dies ist sehr hilfreich. Die oben beschriebenen Operationen sind ganz einfach durchführbar, da die Menüstruktur sehr logisch aufgebaut ist.

Der HD-STM kann auch das Konstellations - Diagramm sowohl für QPSK und 8PSK zeigen. Mit etwas Erfahrung kann man an der Darstellung beurteilen, wie verrauscht das Signal ist.

Als wir den HD-STM auf terrestrischen Empfang schalteten, überraschte uns die Abfrage, in welcher Region Polens wir wohnen und sogar bei welcher Stadt. Das war, weil Horizon das Testgerät für uns für Polen vorbereitet hatte. Würde

man das Gerät in einem anderen Land kaufen, wäre es mit den Einstellungen vorbereitet, die zur Region passen. Das ist recht hilfreich, denn dadurch muss man in unterschiedlichen Regionen keine Kanalnummern oder -Frequenzen des DVB-T Multiplex eintragen. Trotzdem hindert den HD-STM nichts, auf Wunsch das ganze Spektrum Kanal für Kanal anzuzeigen.

Aber das ist nicht alles. Es ist Horizon's Politik, die verschiedenen Einstellungen ihrer Messgeräte auf der Homepage zu liefern. Man kann die aktuellen Daten, die für die eigene Region gelten herunter laden und in den internen Speicher des Gerätes laden. Dazu braucht man nur eine einfache Software zu installieren, die sich auf der mitgelieferten CD-ROM befindet. Auf diese Weise kann man nicht nur terrestrische, sondern auch Satelliten-Daten auf den neuesten Stand bringen.

Der HD-STM kann nicht nur analoge und digitale terrestrische Signale messen. Er kann sogar das Konstellations - Diagramm von DVB-T anzeigen. Außerdem kann man das Gerät auch

konfigurieren, um einen Antennenverstärker mit Gleichspannung zu versorgen. Man kann wählen zwischen 5, 12 oder 18 V DC.

Das SETUP-Menü hat eine ganze Reihe von Einträgen. Nicht nur die Einheiten der Kanalstärke (dBµV, dBm oder dBmV) oder LCD-Parameter kann man wählen, sondern auch ob man bei digitalen Satelliten-Signalen MER oder C/N messen will. Wir bevorzugen MER, da dessen Messung vom Geräte-Typ und -Hersteller unabhängiger ist. Die Auswahl der Menüsprache ist derzeit noch auf Englisch und Französisch begrenzt, aber dies ist kein großes Problem, denn die meisten Nutzer auf der ganzen Welt sind mit den englischen Begriffen der Messtechnik vertraut.

Die erzielten Messwerte, ob von Satelliten oder terrestrisch, können auf einer SD-Karte gespeichert oder zu einem PC übertragen werden. Die dafür benötigte Software liefert Horizon auf der beigelegten CD-ROM. Das betrifft nicht nur Messwerte. Man kann auch Abbilder vom Spektrum oder der Konfiguration-Anzeige speichern.

Download this report in English

Horizon HD-STM

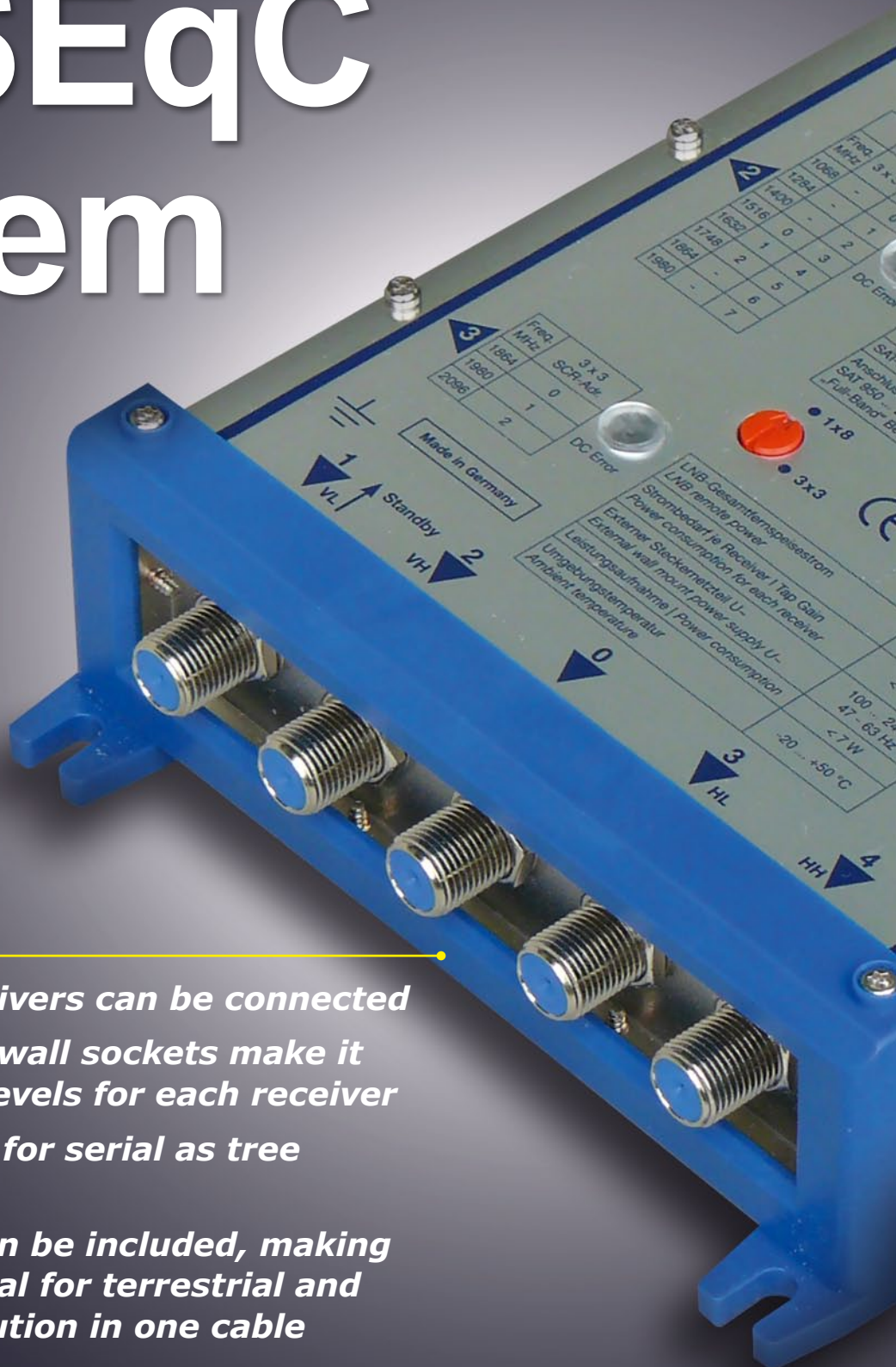
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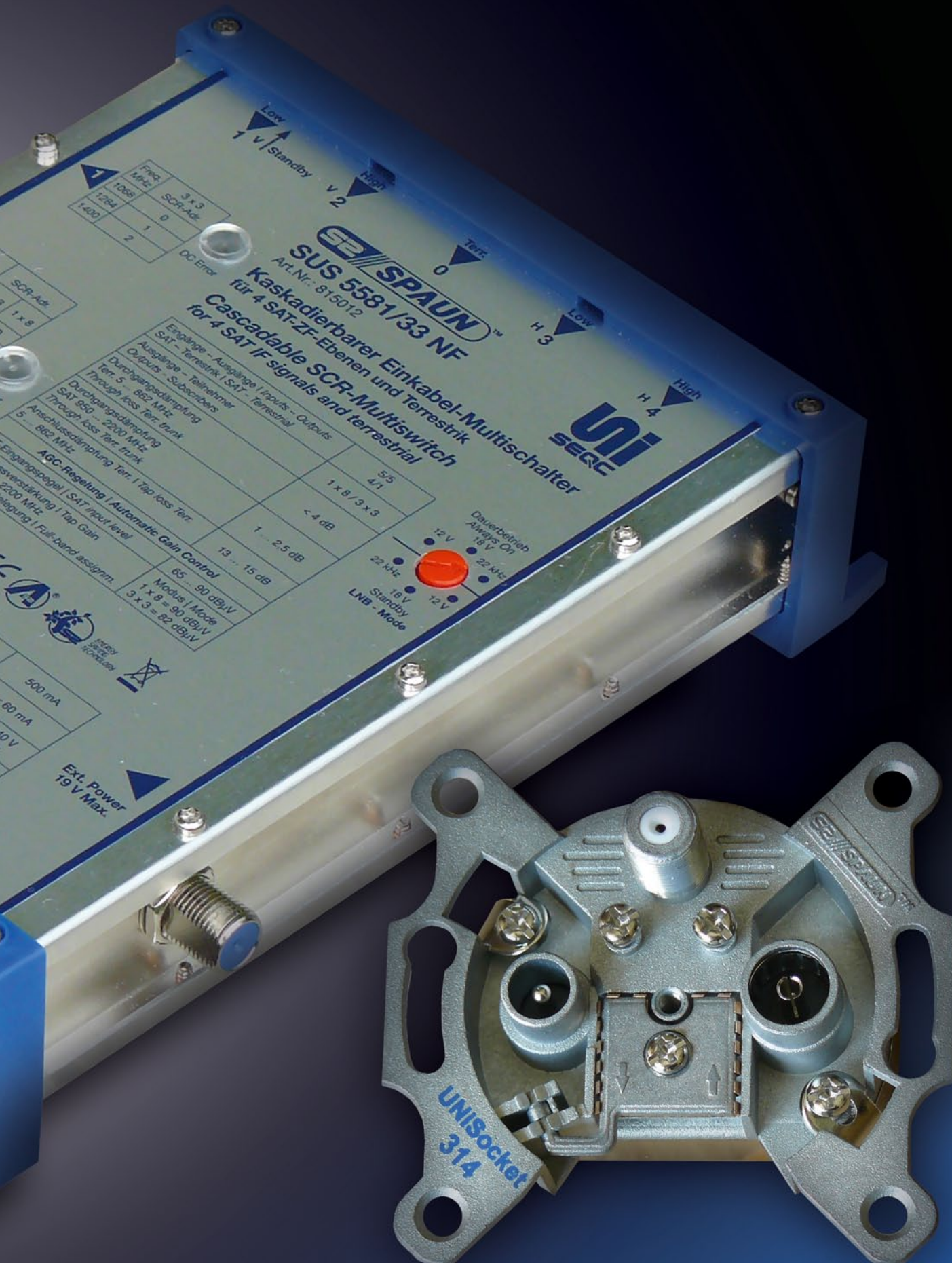
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SPAUN's UNiSEqC System



- up to 9 satellite receivers can be connected
- differently specified wall sockets make it easy to adjust signal levels for each receiver
- systems allows both for serial as tree installations
- terrestrial signals can be included, making system very economical for terrestrial and satellite signal distribution in one cable



SPAUN SUS 5581/33 NF

A very Easy-to-Install Satellite TV Signal Distribution

Satellite TV is so easily accessible today that more and more often you have not just one receiver in the living room but two or more of them located in different rooms of your apartment or house. Today's higher class PVR receivers have usually two satellite tuners and to take full advantage of this feature, you should connect two independent coax cables to them. How many of us were so clever 10 years ago or earlier to foresee the need for that many cables?

To solve this kind of problems as well as to keep the cabling as simple as possible, a solution called SCR can be used. SCR stands

for Satellite-Channel-Router and this is a European industry standard for distributing satellite signals over a single coax cable - CENELEC EN50494.

SPAUN use their own trademark UNiSEqC to mark their products dedicated for this solution. We asked SPAUN to send us samples of their UNiSEqC products so that we could test them and inform our readers what they should expect when applying them.

As usually, SPAUN had been very responsive and we received their products very soon. It was the SUS 5581/33 NF cascable SCR Multiswitch and a number

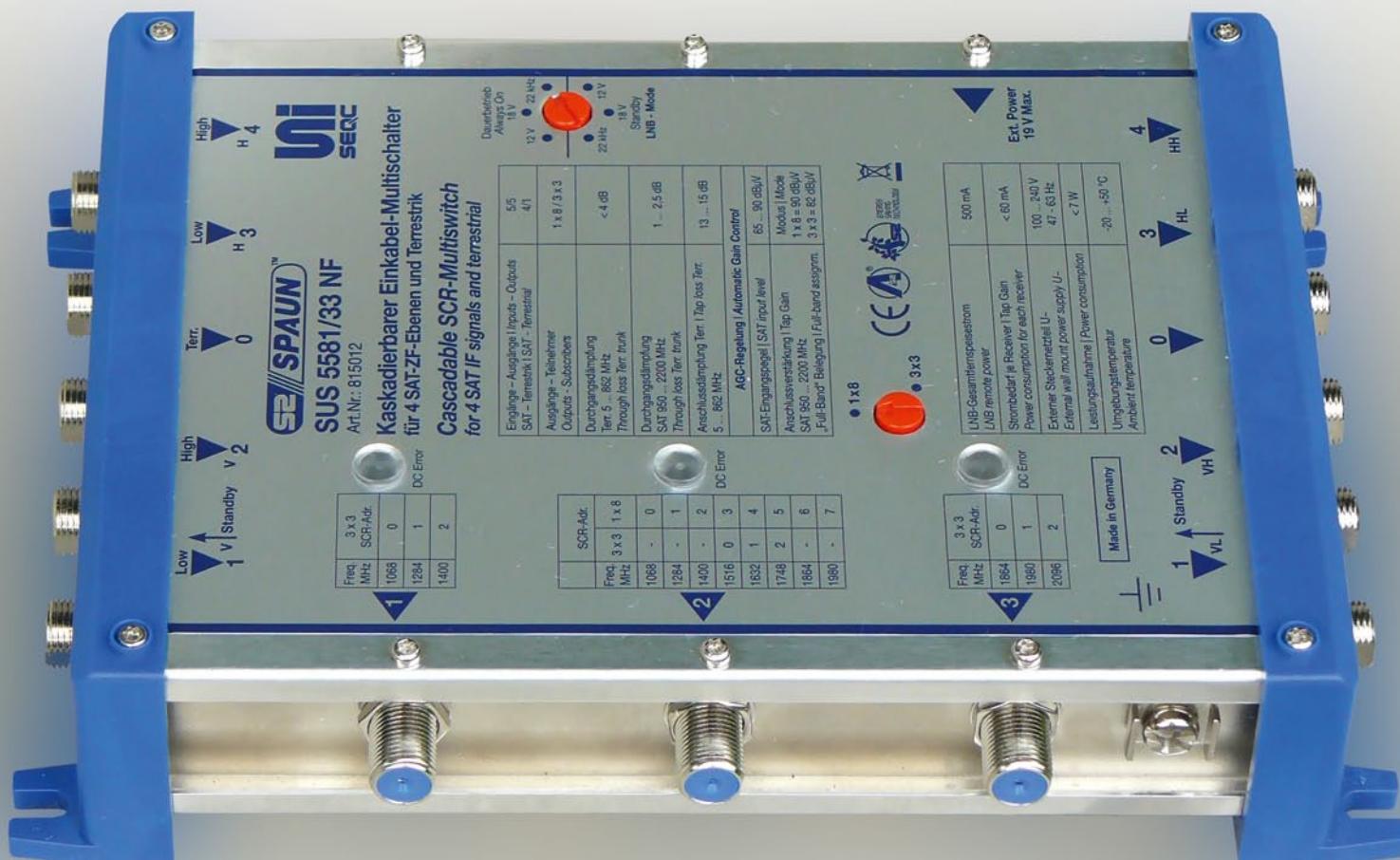
of wall sockets dedicated for the system. The sockets were of three different types: UNiSocket 310, 314 and 318.

Let us first describe the heart of the system – SCR multiswitch. SUS 5581/33 NF accepts either LNB Quattro or LNB Quad signals plus a signal from a terrestrial antenna. You can configure the multiswitch to generate a SCR signal either on one output or on three outputs. If you choose one output, you use only one coax cable on which you can hook up as many as eight UNiSockets. The system with three outputs lets you connect up to three sockets on each of



the three coax cables. So, in the first configuration you can connect 8 independent receivers and in the second configuration – 9 receivers.

You must though keep in mind that all receivers used in this system must be compatible with SCR technology. If SCR is not clearly stated in the receiver specification, check if EN 50494 standard is mentioned or a term "unicable" (another trademark for a SCR solution). If you can put your hands on the receiver in question,



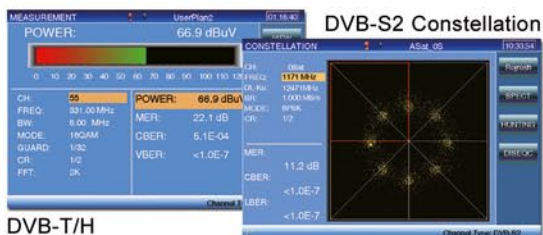
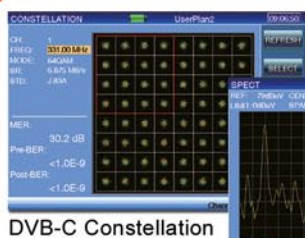
S20 ✓ Satellite Finder

- C, Ku, Ka or L band
- SNR and BER
- Spectrum function
- Signal level and quality display together
- 128×64 dot matrix LCD with back-lighted
- Large lithium battery capacity, over 4 hours working time
- Software upgrade and parameter set via USB interface



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- Digital /Analog and Satellite TV analysis with 5~2150MHz bandwidth
- Fast spectrum analysis
- DSP Technology to support different Video decoding: MPEG-2, MPEG-4 and H.264
- Support SD&HD
- CAM module (Conditional Access) for encrypted channels
- TS-ASI input and output
- IPTV analysis option
- HDMI, LAN and USB interface
- Easy to use
- High resolution 7" TFT LCD
- L240×H170×D100, light weight.
- working time >4 hours (battery)



enter its installation menu and check if you can set its LNB to "SCR" "UNISEqC" or "Unicable" type. The menu should also offer you the possibility to program the SCR frequencies or to detect them automatically.

During the system configuration, we need to assign a unique SCR frequency to each receiver. Two receivers can not operate on the same frequency. When using SUS 5581/33 NF in one output configuration, the available frequencies are: 1068, 1284, 1400, 1516, 1632, 1748, 1864 and 1980 MHz. The best idea is to assign the lowest frequency (1068 MHz) to the receiver which is the last one on the cable and thus must overcome the highest cable attenuation. Cable attenuation increases with frequency, so to make "life easier" for the last receiver, we should keep its operating frequency as low

as possible. Of course the last but one receiver should work on 1284 MHz and so on. The very first one should operate on 1980 MHz.

If a three cable installation makes more sense in your particular location, the following frequencies are available: 1068, 1284 and 1400 MHz on output no. 1, 1516, 1632 and 1748 MHz on output no. 2 and 1864, 1980 and 2096 MHz on output no. 3. Of course, the laws of physics do not change when you use this configuration, so use output no. 3 for the shortest cable and output no. 1 for the longest cable. And, as explained above, the further is the receiver from the SCR multiswitch the lower should be its operating frequency.

All these frequencies are not only listed in the well written and detailed user guide but also on the top cover of the SUS 5581/33

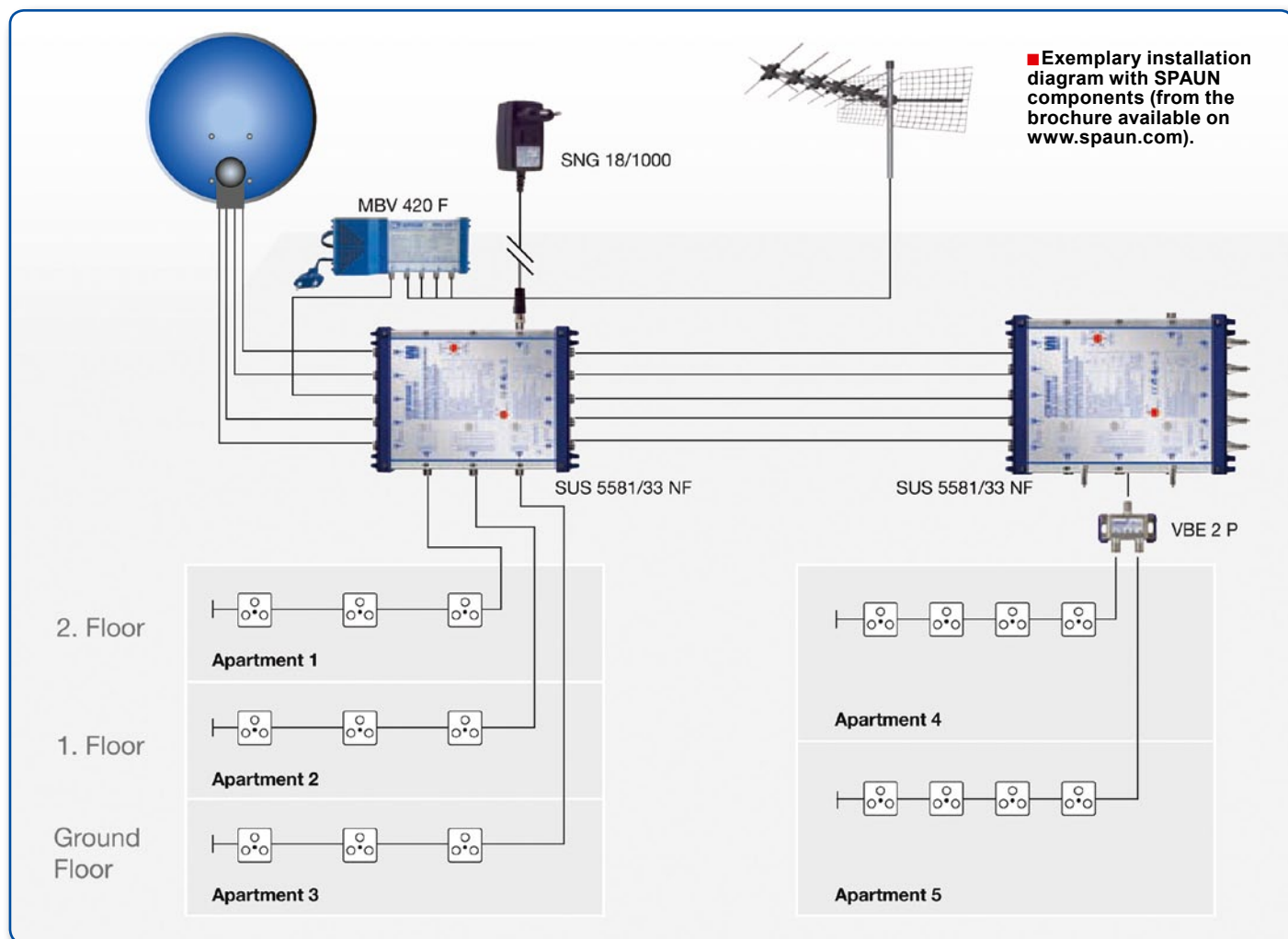
NF. Like all other SPAUN multiswitches, also this unit is perfectly finished off and its labels could not be more self-explanatory. You can see it for yourselves in the pictures presented alongside this report.

The SCR multiswitch is cascadable what means that you can connect another SUS 5581/33 NF to the trunk outputs and increase the number of the receivers in the installation. Of course, each receiver (or receiver tuner) will be fully independent and capable of receiving any channel from the satellite your antenna, equipped with a Quad or Quattro LNB, is aimed at. While one multiswitch should be a sufficient solution for a family house, you may need to cascade a few multiswitches to serve a multistory building.

Speaking of the distribution system configuration, it is worth mentioning that

you are not limited to either 1x8 or 3x3 configurations. For example, if you split the single output to two lines, you can get the configuration 2x4. You only need to remember that the splitter must support the IF frequency range (950-2150 MHz) and have a DC pass. This is clearly explained in the user guide.

An important thing you should remember is that the input signal from Quad or Quattro type LNB should be rather high (65~90 dBμV). This is not a problem if you are going to receive a strong European satellite like ASTRA 1 on 19.2° and you have enough room to install 90 cm dish, but if this is a weaker satellite, you should think of either a bigger dish (what is always advisable for a "collective" reception) or an additional amplifier between LNB and SCR multiswitch input.



A valuable feature of the SUS 5581/33 NF is its versatility in powering it up. SPAUN supplies a wall mount power supply unit but if this is not practical in your installation, you can power the multiswitch via its terrestrial trunkline. By the way, the included power supply unit have a convenient plug adapters what combined with its high input voltage range (100-240, V 50/60 Hz) makes it truly worldwide. There are also 5 pieces of 75 ohm terminators included in the package. You attach them to the trunk outputs if they are not used for cascading.

Although the UNISockets are much simpler products than the SCR multiswitch, their performance also counts in the whole system. We got three socket types. Although they look identical except for the type number printed on them, they differ in the insertion and tap losses. UNISocket 310 has the lowest tap loss – only 10 dB, but its insertion loss is the highest from the three models – 3 dB. You'd better choose this model for the most distant socket from the SCR switch. Model 318 has the highest tap loss – 18 dB but the lowest insertion loss – only 1.5 dB. This model should be considered for the sockets located close to the SCR multiswitch. UNISocket 314 is an interim model with moderate tap loss – 14 dB and insertion loss – 2 dB. All those parameters are the typical values and according to the product specifications, you should be ready to accept +/- 2 dB tolerance of the tap loss for every model.

We started our tests with measuring the sockets. The results were very satisfactory for the insertion loss – all three models had lower average loss than specified. Model 310 had the average insertion loss 2.49 dB, model 314 – 1.99 dB and model 318 – 1.66 dB. The loss variation was small in the whole IF frequency range (950-

2150 MHz). We can say that the sockets were 0.5 dB better than specified.

When we took the measurements of the tap loss, the average results were still in the specifications: 11.96 dB for 310, 15.85 dB for 314 and 17.98 dB for 318. but slightly higher than typical value.

We built a test distribution system then. A high output power quad LNB was driving our SUS 5581/33 NF. Later, we switched to a Quattro LNB and everything worked equally good. The SCR multiswitch was configured for one output. We connected a quite long cable (over 30 meters) to its output. The first UNISocket 318 was connected to the cable end and after this socket we connected the other seven ones: 2 x 318, 3 x 314 and 2 x 310. Between the sockets we connected cables of various lengths: from 30 cm to 6 meters. The whole system from the SCR multiswitch to the last socket measured about 50-55 meters.

A cable of such length attenuates the signal by about 15 dB and usually does not pose a problem for a normal satellite reception in which an LNB is routed directly to a receiver. However, in our case, every socket installed on the cable added its attenuation (insertion loss). The SCR multiswitch has automatic gain control that regulates its output signal to about 90 dBμV output if only the input signal from the Quad or Quattro LNB is in the range 65-90 dBμV. The above table presents the signal levels we achieved at each of the sockets.

We were quite anxious when we connected our receiver. Would it be able to lock to the signal? We used a modern Icecrypt STC6000 HDPVR. The receiver was locking to the signal and showing channel video without any problem, no matter to which socket we connected it and which SCR frequency we chose. Its

1

LNB - DiSEqC

Remote supply : On

LO1 frequency : 9750.000 MHz

LO2 frequency : 1068.000 MHz

LO selection : 1

Polar select : 1

(Committed) : 1

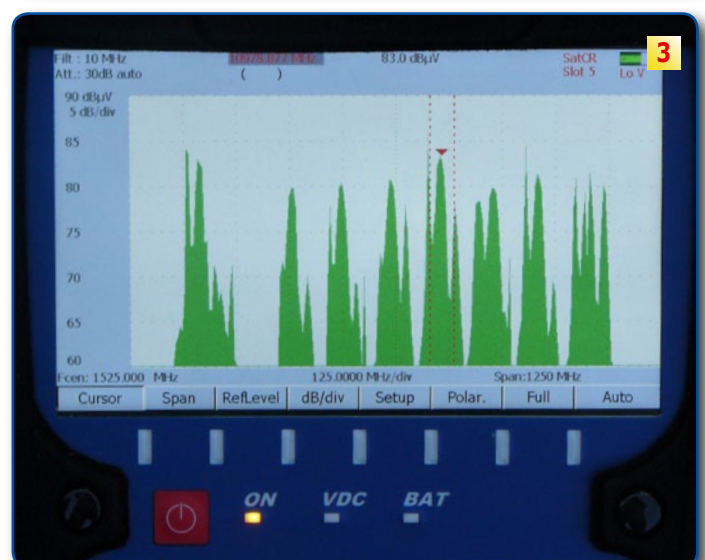
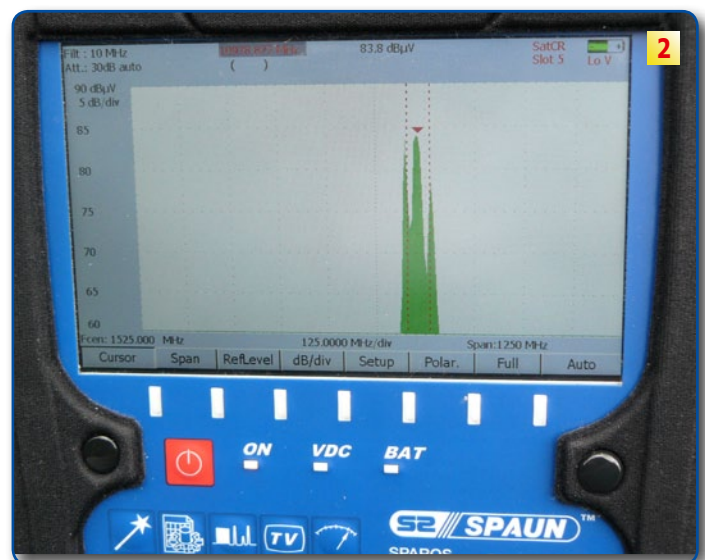
Uncommitted : 1

Positioner : 1

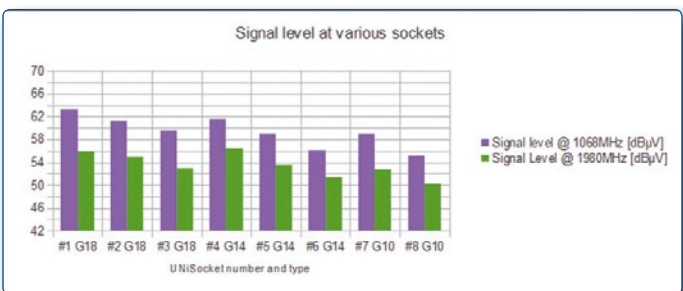
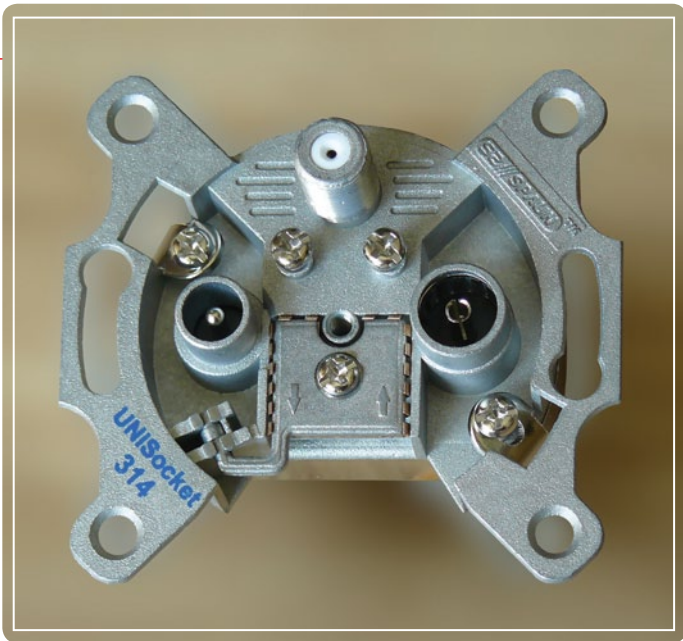
SLOT FREQUENCIES

Slot 1	1068	MHz
Slot 2	1284	MHz
Slot 3	1400	MHz
Slot 4	1516	MHz
Slot 5	1632	MHz
Slot 6	1748	MHz
Slot 7	1864	MHz
Slot 8	1980	MHz

SatCR : Yes Slot 5 Pos A



1. SPAROS Signal Analyzer detected correctly all eight SCR frequencies when connected to SUS 558133 NF SCR Multiswitch.
2. The lowest SCR frequency (1068 MHz) activated – measured directly at the output of SUS 558133 NF SCR Multiswitch.
3. All but one SCR frequencies activated on the output number 2 of SUS 558133 NF SCR Multiswitch in the single cable mode.



signal strength was at 90% and signal quality at 80%. Not bad, not bad at all, if you take into account that the signal was attenuated by a long cable and the sockets.

However, in real life, you do not always have the most modern receivers well prepared for the SCR system. Therefore, we decided to check how an old receiver would perform. We took a 5 years old receiver with SCR feature. At that time it was quite a novelty. We were full of doubts if it will be able to lock to the signal when connected to the last socket but to our surprise, it had no problem at all, neither at the lowest frequency (1068 MHz) nor at the highest (1980 MHz).

But what you should do if your cable installation is longer than that in our test setup (about 55 meters)? The solution is quite simple. Use an inline satellite signal amplifier. When we connected the SPAUN SVN 231 F amplifier, it boosted the signal by 30 dB. Signal level measured at the last G10 socket at 1980 MHz rose from 50.2 dBµV to 80.6 dBµV. With such amplifier you can add

another 100 meters of coaxial cable and have in total over 150 meters! And mind that with a single amplifier you boost the signal for all eight receivers!

When we switched the SUS 5581/33 NF to 3x3 mode, its output signal is regulated to about 80 dBµV. We checked output no. 3 in the similar setup. This output generates the highest frequencies and thus is most sensitive to cable losses. Total cable length was about 45 meters and we used G18, G14 and G10. Signal level measured at their outputs was respectively: 52.7, 54.2 and 56.5 dBµV and of course our receivers had absolutely no problem in locking to the signal.

But this was not the end of our test. SPAUN claims in their user guide that "By internal electronics of the device, the use of special protection sockets (with shut-down on reception of non-standard DiSEqC commands to EN 50494) is not necessary." Such statement is nothing but a challenge for a dedicated tester.

So, apart from the EN 50494 compatible receivers, we connected a classi-

cal receiver to the single cable system built with SPAUN components and operated it in such a way to make it send various DiSEqC commands (1.0, 1.1 and 1.2). We were changing reception system configuration in the receiver menu and then zapping channels.

And indeed, in line with SPAUN's promise, nothing could disturb the operation of UniSEqC compatible receivers. They continued to deliver undistorted video and audio. We know, however, that not every SCR system offered on the market has so advanced routers as SPAUN. So the SPAUN UniSEqC offers the additional advantage of being foolproof against users connecting regular receivers or badly configured receivers - SPAUN's system simply ignores these commands and keeps working perfectly.

The UniSEqC system, once configured, works reliably without any maintenance. After a power shortage, the receivers boot and send commands to the SCR multi-switch to activate "their" frequencies. Everything starts to work again.

We are sure that this is the simplest and cheapest solution to make an existing installation suitable for twin tuner receivers with only one cable entering every room. The system is also attractive for new installation as the complexity of cabling is significantly reduced. You can easily combine classical multiswitches and the UniSEqC system. Several wiring examples are provided in the user guide. The only precondition is: you must use SCR compatible receivers. Fortunately, more and more new receivers are equipped with this feature.

Expert Opinion

Very good workmanship of the SUS 5581/33 NF and the UNISockets.

Simple installation and trouble free operation. SCR switch cascable not only with identical products but also with classical multi-switches.

Possibility to power the switch via the terrestrial trunkline.

Low insertion loss of the UNISockets



None

TECHNICAL DATA

Manufacturer	SPAUN electronic GmbH & Co. KG, Germany
Web	www.spaun.com
E-mail	contact@spaun.com
Phone	+49 (0)7731 - 8673-0
Fax	+49 (0)7731 - 8673-17
Model	SUS 5581/33 NF
Function	SCR Multiswitch compatible with EN50494
Inputs	4 satellite (LNB Quattro or Quad)+ 1 terrestrial
Tap outputs	1 or 3 (switchable: 1x8 or 3x3)
Trunk outputs	5
Through loss	1~2.5 dB for IF and <4 dB for terrestrial signal
Terrestrial tap loss	13~15 dB
SAT input signal	65~90 dBµV
SAT tap output	90 dBµV for 1 x 8 output 82 dBµV for 3 x 3 outputs
LNB remote current	500 mA
Power consumption	< 7 W
Ambient temperature	-20~+50° C



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Satelliten Verteil System |

S2 SPAUNTM

SPAUNs UNiSEqC System



- bis zu 9 Satelliten-Receiver anschließbar
- unterschiedlich spezifizierte Antennensteckdosen ermöglichen es, den Pegel für jeden Receiver abzugleichen
- das System ermöglicht Installationen sowohl seriell wie auch in Baumstruktur
- terrestrische Signale können integriert werden, sodaß das System sehr ökonomisch Satelliten- und terrestrische Signale über ein einziges Kabel verteilen kann

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Heutzutage lässt sich das Satelliten-Fernsehen so einfach installieren, dass man nicht mehr nur einen Receiver im Wohnzimmer hat, sondern auch noch zwei oder mehrere in verschiedenen Räumen der Wohnung oder des Hauses. Die hochwertigen PVR-Receiver haben heute normalerweise zwei Tuner und um diese Eigenschaft voll nutzen zu können, müsste man sie mit zwei Koaxialkabeln verbinden. Wer konnte vor 10 Jahren oder noch früher schon voraussehen, dass so viele Kabel nötig werden?

Um dieses Problem zu lösen und die Verkabelung so einfach wie möglich zu halten, kann man als Lösung SCR einsetzen. SCR bedeutet Satellite-Channel-Router und ist europäischer Industriestandard, um Satelliten-

signale über ein einziges Koaxialkabel zu übertragen - CENELEC EN50494.

SPAUN verwendet die eigene Handelsbezeichnung UNiSEqC, um ihre Produkte für diese Lösung zu kennzeichnen. Wir bitten SPAUN um Muster ihrer UNiSEqC-Produkte, um sie zu testen und um unsere Leser informieren zu können, was sie bei deren Einsatz erwarten können.

Wie üblich war SPAUN sehr entgegenkommend und wir erhielten ihre Produkte sehr rasch. Es war der SUS 5581/33 NF kaskadierbare Multischalter und mehrere Antennensteckdosen, die an dieses System angepasst sind. Es gibt drei unterschiedliche Dosentypen: UNiSocket 310, 314 und 318.

Lassen Sie uns zuerst den

Kern des Systems beschreiben - den SCR Multischalter. Der SUS 5581/33 NF akzeptiert sowohl Signale von Quattro- oder Quad-LNBs wie auch Signale von einer terrestrischen Antenne. Der Multischalter lässt sich so konfigurieren, dass ein SCR-Signal an einem oder an drei Ausgängen abgegeben wird. Wählt man nur einen Ausgang und schließt ein Koaxialkabel an, dann lassen sich daran bis zu acht UNiSockets nacheinander anschließen. Beim System mit drei Ausgängen lassen sich an jedem der davon abgehenden drei Koaxialkabel jeweils bis zu drei Dosen anschließen. So kann man in der ersten Konfiguration 8 unabhängige Receiver anschließen - in der zweiten Konfiguration sogar 9 Receiver.

Dabei muss man beden-



ken, dass alle in dem System angeschlossenen Receiver zur SCR-Technologie kompatibel sein müssen. Ist SCR in der Receiver-Spezifikation nicht ausdrücklich erwähnt, dann muss man prüfen, ob der EN 50494 Standard oder "Unicable" (eine andere Handelsbezeichnung für SCR) erwähnt werden.

Kann man den Receiver einschalten und direkt überprüfen, geht man ins Installationsmenü und prüft, ob sich der LNB auf "SCR", "UNiSEqC" oder "Unicable" einstellen lässt. Das Menü sollte auch die Möglichkeit aufzeigen, die SCR-Frequen-

zen zu programmieren oder automatisch erkennen zu lassen.

Bei der System-Konfiguration müssen wir jedem Receiver eine eigene Frequenz zuordnen. Zwei Receiver können nicht auf der gleichen Frequenz arbeiten. Beim Einsatz von SUS 5581/33 NF sind bei der Konfiguration für einen Ausgang folgende Frequenzen verfügbar: 1068, 1284, 1400, 1516, 1632, 1748, 1864 und 1980 MHz. Am besten ist es, die niedrigste Frequenz (1068) demjenigen Receiver zuzuordnen, der am Ende des Kabels liegt und so mit der höchsten Kabeldämpfung auskommen muss. Die Kabeldämpfung nimmt mit zunehmender Frequenz zu, weshalb die Arbeitsfrequenz für den letzten Receiver so niedrig wie möglich sein sollte, um ihm "das Leben leichter zu machen". Dementsprechend sollte der vorletzte Receiver mit 1284 MHz arbeiten, usw. Der erste Receiver sollte danach mit 1980 MHz arbeiten.

Ist an einem speziellen Standort die Drei-Kabel-Lösung sinnvoller, sind folgende Frequenzen verfügbar: 1068, 1284 und 1400 MHz an Ausgang 1 - 1516, 1632 und 1748 an Ausgang 2 - und 1864, 1980 und 2096 an Ausgang 3. Natürlich ändern sich die physikalischen Gesetze dabei nicht, deshalb sollte man am Ausgang 3 das kürzeste Kabel nutzen und am Ausgang 1 das längste. Und, wie oben erklärt, je weiter der Receiver vom SCR Multischalter entfernt ist, umso niedriger sollte seine Arbeitsfrequenz sein.

Alle diese Frequenzen sind nicht nur in der gut und detailliert verfassten Bedienungsanleitung aufgelistet, sie befinden sich auch auf der Oberseite des SUS 5581/33 NF. Wie alle anderen SPAUN-Multischalter ist auch dieses Gerät perfekt ausgeführt und die aufgedruckten Texte könnten nicht besser selbst erklärend sein. Dies kann man auf den Bildern dieses

Berichtes deutlich sehen. Der SCR Multischalter ist kaskadierbar. Das bedeutet, dass man über die Stammausgänge einen weiteren SUS 5581/33 NF anschließen und so die Anzahl der Receiver in der Installation vermehren kann. Natürlich sind alle Receiver (oder Receiver-Tuner) voneinander unabhängig und können jeden beliebigen Kanal empfangen, der vom Quad- oder Quattro-LNB der Satelliten-Antenne geliefert wird. Während für ein Familienhaus ein Multischalter ausreichend ist, dürfte es für größere Wohneinheiten nötig sein, mehrere Multischalter zu einer Kaskade zusammen zu schalten.

Bei der Betrachtung des Verteilersystems ist es wichtig festzustellen, dass man weder auf die 1x8 noch auch die 3x3 Konfiguration eingeschränkt wird. Beispielsweise erhält man eine 2x4 Konfiguration, wenn man den einfachen Ausgang auf zwei Leitungen verteilt. Die einzige Einschränkung dabei ist, dass der Verteiler im ZF-Frequenzbereich (950-2150 MHz) liegt und für Gleichspannung durchgängig ist. Dies ist in der Bedienungsanleitung deutlich beschrieben.

Besonders wichtig ist es, zu berücksichtigen, dass der Pegel des Eingangssignals vom Quad- oder Quattro-LNB genügend hoch sein muss (65 bis 90 dBµV). Das ist kein Problem, wenn man einen starken Satelliten wie Astra 1 auf 19 °Ost empfangen will und genügend Platz für den Einbau einer 90-cm-Schüssel hat, aber wenn es ein schwächerer Satellit ist, sollte man eine größere Schüssel vorsehen (was bei Gemeinschafts-Anlagen immer sinnvoll ist) oder einen zusätzlichen Verstärker zwischen dem LNB und dem SCR Multischalter einsetzen.

Eine wertvolle Eigenschaft des SUS 5581/33 NF ist seine variable Stromversorgung. SPAUN liefert sowohl ein Netzteil, das an der Wand befestigt werden kann, aber

wenn das unpraktisch zu installieren geht, lässt sich der Multischalter über seine terrestrische Kabelverbindung versorgen. Nebenbei bemerkt, das mitgelieferte Netzteil besitzt praktische Anschluss-Stecker und ist mit seinem großen Netzspannungsbereich (100-240 V, 50/60 Hz) weltweit einsetzbar. In der Gerätelieferung eingeschlossen sind auch fünf 75 Ohm Abschlusswiderstände. Sie werden an den Stammausgängen des Multischalters angeschlossen, wenn sie für keine Kaskade benötigt werden.

Obwohl die UNISockets wesentlich einfachere Produkte sind als der SCR-Multischalter, sind sie so hochwertig wie das ganze System. Wir bekamen drei verschiedene Steckdosen. Obwohl sie bis auf die Typ-Nummer gleich aussehen unterscheiden sie sich in der Anschluss- und der Durchgangsdämpfung.

UNISocket 310 hat die niedrigste Anschlussdämpfung mit nur 10 dB, aber die Durchgangsdämpfung ist mit 3dB die höchste der drei Modelle. Dieses Modell sollte man für die größte Entfernung vom SCR-Schalter wählen. Modell 318 hat mit 18 dB

die größte Anschlussdämpfung, aber die geringste Durchgangsdämpfung - nur 1.5 dB. Dieses Modell sollte man als Steckdose wählen, die dem SCR Multischalter am nächsten ist. UNISocket 314 hat mittlere Daten, eine Anschlussdämpfung mit 14 dB und eine Durchgangsdämpfung mit 2 dB. Alle diese Werte sind typische Größen und entsprechen der Produkt-Spezifikation, allerdings muss man berücksichtigen, dass bei allen Modellen für die Anschlussdämpfung eine Toleranz von +/- 2 dB gilt.

Wir begannen mit unseren Messungen an den Steckdosen. Die Ergebnisse waren bei der Durchgangsdämpfung äußerst zufriedenstellend - alle drei Modelle hatten niedrigere Mittelwerte als spezifiziert war. Modell 310 hatte mit 2.49 dB die niedrigsten Mittelwerte der Durchgangsdämpfung, bei Modell 314 waren es 1.99 dB und bei Modell 318 waren es 1.66 dB. Die Variationsbreite der Dämpfung war im gesamten ZF-Frequenzbereich (950-2150 MHz) sehr schmal. Wir können sagen, dass die Steckdosen 0.5 dB besser waren als spezifiziert.

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SPAUN's UNISEqC System

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- different specified wall sockets make it easy to adjust signal levels for each receiver
- systems allows both for serial as tree installations
- terrestrial signals can be included, making system very economical for terrestrial and satellite signal distribution in one cable

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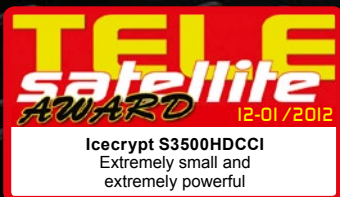
Icecrypt S3500HDCCI



ICECRYPT

- *extremely tiny but fully equipped Linux receiver*
- *includes a sophisticated blindscan mode*
- *less than 1 second for FTA channel zapping*
- *can be upgraded with lots of useful applications*
- *uses a very powerful chipset*





Ferrari Engine in a Mini Morris

You could easily pass by and do not pay any attention to this unpretentious small box. Actually it is that small that you could put two S3500HDCCI receivers side by side on a single page of this TELE-satellite magazine. Placing it near a 50 inch flat panel TV creates an amusing impression. It is like putting a mouse near an elephant. However, the possibilities of this "mouse" are astonishing!

Its front panel is very ascetic – just three buttons and a single status LED shining either in red or green. However, as soon as you look at the rear panel you start thinking that perhaps your very first impression is quite wrong. PCMCIA connector for CA modules, card reader slot, USB for external memory or hard disk, Ethernet for connection to the Internet, HDMI and optical S/PDIF ports are not necessarily the things you expect to find in a simple small box.

You might be a little bit surprised that there is neither a SCART connector nor three color RCA outputs with CVBS video and stereo audio but closer examination reveals that there is a mini jack connector between HDMI and S/PDIF ports. Having suitable A/V cable (mini jack to 3xRCA) you can easily route analog video and audio to your old TV-set or VHS recorder if you still have one. Additionally, there are: 12 V DC power input connector, RS-232C port and a connector for an optional infra red receiver if you want to hide the S3500HDCCI but still be able to control it with its remote control. Of course, a plug type power supply unit is also included.

A look at the remote control units leaves no doubt - S3500HDCCI is equipped with PVR functions and even some trick modes normally associated with much bigger receivers. The remote sits

nicely in hand though its rubber keyboard is rather typical for not so expensive models.

But this is not the end of the surprises. When you connect the S3500HDCCI to your TV set and see its full color on-screen graphics and when you experience the speed of operation you can not believe that it all comes from this tiny box. And that's not all. It is a Linux based receiver! It means a possibility to install many interesting plugins and add-ons available on the Internet for this kind of receivers. S3500HDCCI is like a top class receiver without some not-so-necessary features. But the power of its processor, capacity of internal memory or Internet related functions are the same as in top class receivers. Even blindscan channel search is available! Can you believe it?

OK, but let's start from the beginning. This Icecrypt receiver right after the first

power up asks you to select the OSD language. The choice is pretty wide: English, French, German, Dutch, Greek, Spanish, Arabic, Italian, Portuguese, Turkish, Russian, Polish, Czech, Swedish, Suomi, Danish, Norwegian, Slovenian, Slovak, Macedonian, Romanian, Serbian, Hungarian and Thai. The next installation step is the selection of local time zone and turning on or off light saving time.

When you are through with these basic settings, S3500HDCCI takes you to the service search menu. Before the search, you have to select the right satellite and check the configuration of your antenna system. The Icecrypt box is compatible with all DiSEqC protocols (1.0, 1.1 and 1.2). We checked during our test the operation with 1x4 and 1x8 switches as well as a DiSEqC motor. Everything worked perfectly. You can use any type of LNB with





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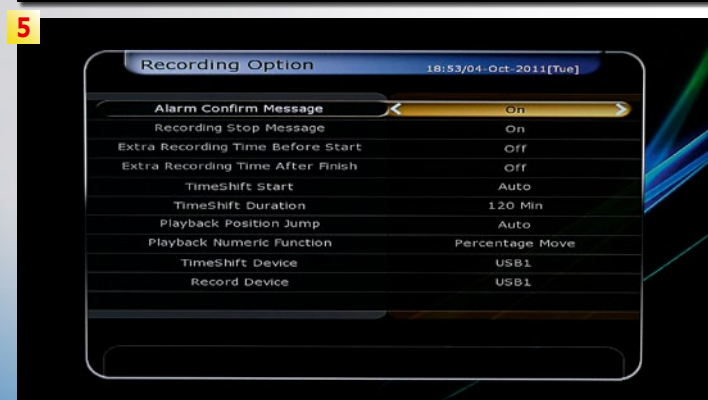
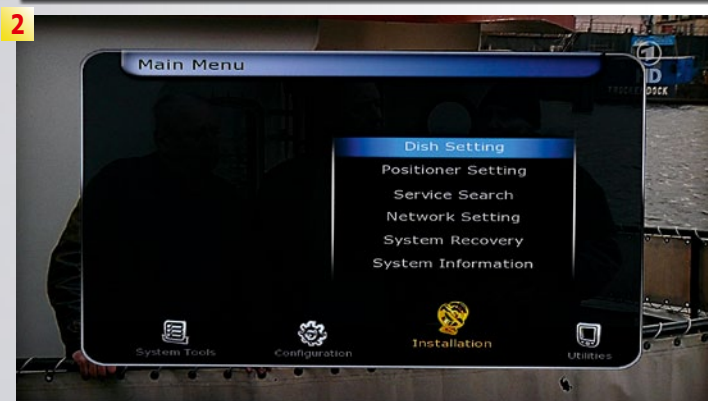
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the receiver: single, universal or unicable. Of course, all LOFs are supported.

There are no fewer but five channel search modes: Automatic, Manual, Advanced, Fast and Blindscan. Automatic scan is a most common search mode based on the factory preprogrammed satellite and transponder data. There are 162 satellites available from all over the world! In the unlikely event that the satellite you are looking for is not on the list, you can add it manually as there are four user defined positions added at the bottom of the list. The Manual search mode let you choose a specific transponder to search. The Advanced mode is similar to Manual but you can define audio, video PIDs and detect in this way normally hidden channels. The Fast mode is a search dedicated for a particular satellite provider. Presently S3500HDCCI has two possibilities here: Canal Digitaal and TV Vlaanderen.

The most exciting mode is naturally the blindscan. The receiver scans the frequency band and tries to detect transponders without referring to any preprogrammed transponders data. In this way, it can discover also the brand new transponders that did not operate when the manufacturer was releasing the firmware and created satellite and transponder data for S3500HDCCI. There is no need to scan always the entire band in both polarizations. The receiver allows you to specify narrower frequency range and choose polarization.

The Automatic search of ASTRA satellite on 19.2° East took 3 minutes and 45 seconds with the network option

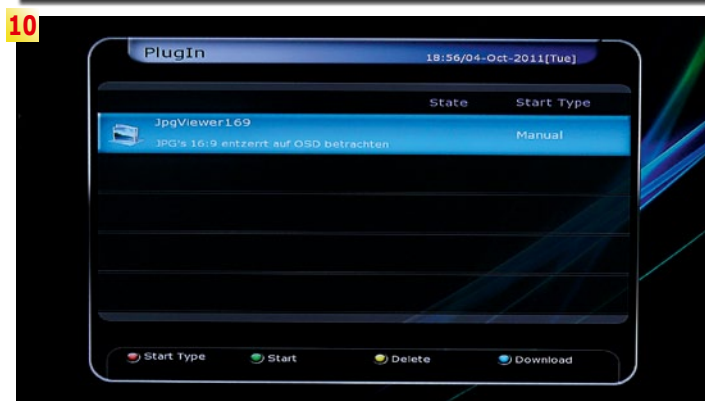
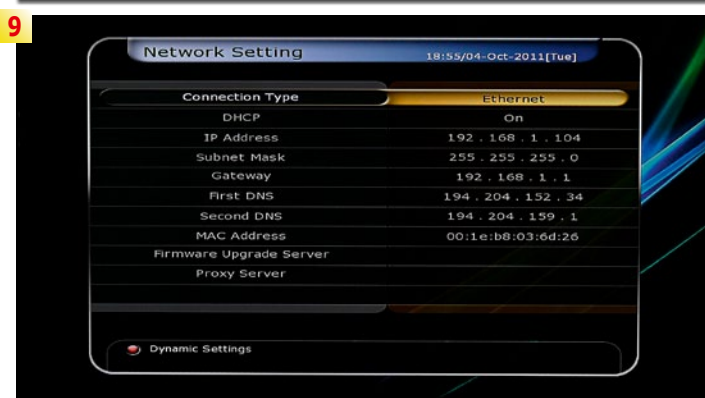
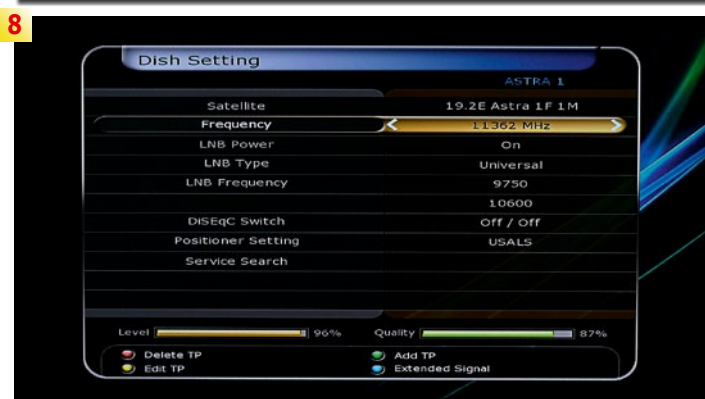
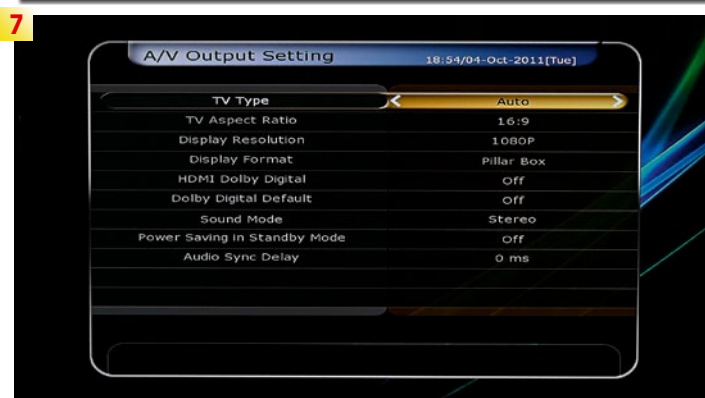
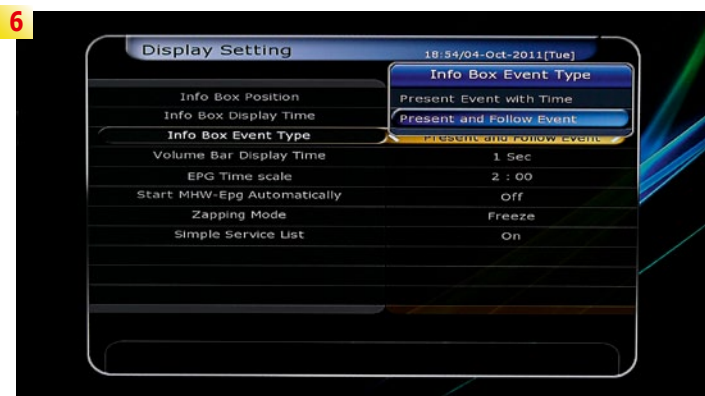
turned off. The S3500HDCCI found 894 TV services and 221 radio services. When we turned the Network option on, the channel search time increased to 6 minutes and 20 seconds but the box was able to find 21 additional TV services. The scan ended up with 915 TV and 221 radio channels.

After testing the Automatic search mode, we did the reset to factory defaults and started the Blindscan. We set the receiver to scan the whole band and both polarizations. We were prepared for quite a long wait but to our great surprise, S3500HDCCI was through after merely 10 minutes and 15 seconds. It announced it had found 918 TV and 221 radio channels. The results are impressive. Icecrypt box did a really good job!

We searched a number of other satellites using our DiSEqC motorized dish as well as DiSEqC switches: 1x4 and 1x8. Everything worked perfectly. Occasionally, S3500HDCCI halted during a channel search and we had to restart the scan. However, this did not cause any loss of previously stored channels.

Channel zapping is fast and pleasant in S3500HDCCI: less than one second for the FTA channels and a little longer for the scrambled channels what is natural as descrambling takes extra time. An information box that appears right after a channel change is clearly designed and apart from the typical data, it can show you something extra. If set so in the Display menu, the information box shows you not only the title and start and end times of the present event but also the title and start and end times of the following event. It might at first sound as a negligible improvement but after a very short time of using it, you feel so comfortable with

1. Configuration menu
2. Installation menu
3. Storage Manager
4. Service List Manager
5. Recording Options



this feature that you do not ever want to switch back to traditional an information box with only present event shown. Other satellite receivers offer you a possibility to see the future event after pressing right arrow. But if you love channel zapping, the Icecrypt solution saves you time and increases the pleasure of playing with your receiver.

Another improvement is the ability to set the audio volume as normal, increased or decreased for every channel independently. Every satellite fan will appreciate this feature. Thanks to that you can zap channels more comfortably without any fear that suddenly you will wake up the whole house by entering a channel with unnaturally high audio level. Once you pinpoint such channel, you set its audio to be 30% down and every next time you visit the channel its audio is somewhat muted. It also works the other way - if you find a channel with too low audio, you can set it individually to be played 30% louder.

The pleasure of operating the S3500HDCCI is additionally increased due to trick modes it offers: picture in picture and mosaic picture. Picture in picture lets you easily choose a channel to monitor in an inset, interchange the main and the monitored channel or show them in equal size side by side. And everything with just a single button press. The mosaic shows you 12 frozen screenshots of 12 different channels (assuming there are 12 or more on the current transponder) and one channel active in the middle.

6. Info box can be set to show present and following events

7. A/V Output Settings

8. Dish Settings

9. Network Settings

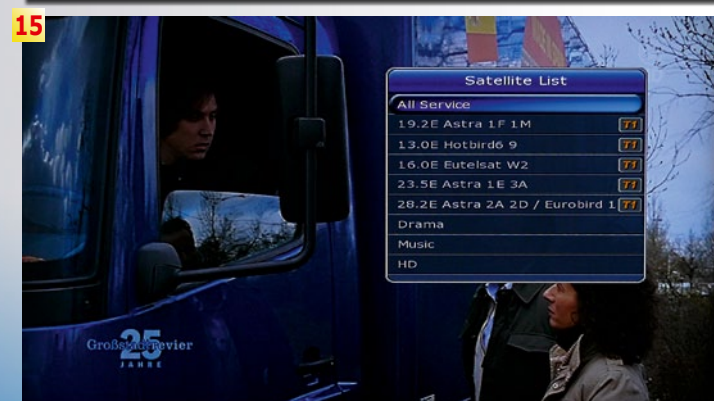
10. We installed the free JpgViewer plugin downloaded from the Internet

With the arrow buttons you navigate among the screenshots deciding which channel you want to see live.

An interesting solution - not so popular in other receivers - is regarding channels from a single satellite like one of the favorite lists. For example, you can have the favorite lists: Drama, Sports, News, but also Astra 19.2° E and Hotbird 13° E. Thank to this, you do not need to have an extra button on the remote called SAT or something like that. We like this approach and recommend the other manufacturers to adopt this idea.

EPG works in two modes: grid mode and list mode. The grid mode is a table in which a channel name is shown in the first column while the channel events are shown as rectangles in the same line, to the right of the channel name. The length of the rectangle is proportional to the event duration. The list mode shows the event titles of the present channel listed one below the other. While the grid mode is more convenient when making decisions what to watch on which channel right now or in the near future, the list mode is quicker when you want to find a favorite event in the more distant future. EPG S3500HDCCI allows you not only to mark an event for automatic recording but also to set a reminder. If you do so, three minutes before the start of the chosen event, you will see a message telling you that in three minutes your receiver will tune to the other channel to present you the event.

All channel edition functions that you may ever need are there. You can delete, move, or copy a channel to one of many favorite lists and so on. And also here you have a feeling that the user interface has been thought



over profoundly. There are no unnecessary button presses required. If you want to move or delete a bigger number of channels, it does not take you that long as in the other receiver models. Excellent job!

Not only during channel edition but also in normal viewing, when you invoke the channel list with the OK button, you have plenty of possibilities to sort channels and search for specific channel or provider names. At the beginning, it may look a little bit confusing – that many options you have. Fortunately, everything is so logical that you master handling your receiver in a short time. And because the S3500HDCCI is exceptionally fast, running even more complex functions that require a lot of navigation over menu structure is as immediate as simple functions in other receivers.

Speaking about the menu, as soon as you enter it, you realize how configurable your S3500HDCCI is. The list of things is very long – you can get a good feeling on what you can do with this receiver by looking at the screenshots we did for you. Even such small things like the timeout of the volume adjustment bar graph can be adjusted. Satellite fans will be delighted having that many possibilities at their fingertips.

And as we are at the customization, we would like to remind you that the Icecrypt receiver is Linux based. This means that you are able to install plugins and add-ons developed for this and similar receivers. Not every plugin developed for Linux based

receiver will work on every model so some experimenting may be necessary. Among the most exciting possibilities is the web browser. We installed a viewer for JPG files. That's because on our TV-set, the S3500HDCCI tended to display 4:3 JPG photos stretched unnaturally to a 16:9 aspect ratio. To get correct proportions, we had to degrade video resolution to 576p. The plugin solved the problem for high video resolutions. All our photos are shown correctly now. That's a small example how useful a plugin can be. Where to find plugins? The most convenient way is to start with the Internet forums dedicated to Icecrypt receivers and then explore the forums for other Linux based receivers. As we noted, some plugins originally developed and tested for the other receiver brands will also work when installed on S3500HDCCI.

Many plugins require connection to Internet. Achieving this with the S3500HDCCI is simple: you only need a router supporting DHCP. Everything goes automatically. However, if you wish, you can configure your connection manually. But this is not all. The receiver can connect with a Wi-Fi network via an external USB device. It is somewhat slower than a cable connection but if you do not have a PC network available in your living room – that can be the only option. Consult the user manual for compatible USB devices.

Iccrypt box has a USB port as well as all required buttons on its remote control, so it must be ready for PVR operation. And indeed, not only regular recording and time-shift functions are provided. You can record as many as three channels at the same time while watching two others (using PIP function for example). Of

11. Free TV+ lets you choose from YouTube and Earth Touch services

12. Searching Queen clips on YouTube

13. Service List

14. Searching specific service on the list

15. Satellites are regarded as a kind of a favorite list



► DVB-S2 MPEG-4 HD/SD Receiver:

- Fully DVB-S/DVB-S2 MPEG-4 HD compliant
- Support customized OSD language
- PVR, time shift
- CA optional with Topreal embedded, silicon security
- Fully support to 7 days EPG
- 2* USB 2.0 port: PVR function, MP3 & JPEG playback & software transfer
- Record one channel & watch another at the same time
- Support subtitle, teletext
- HDMI out with HDCP
- Other models available(DVB-C/S/T, MPEG-2/MPEG-4, HD/SD)

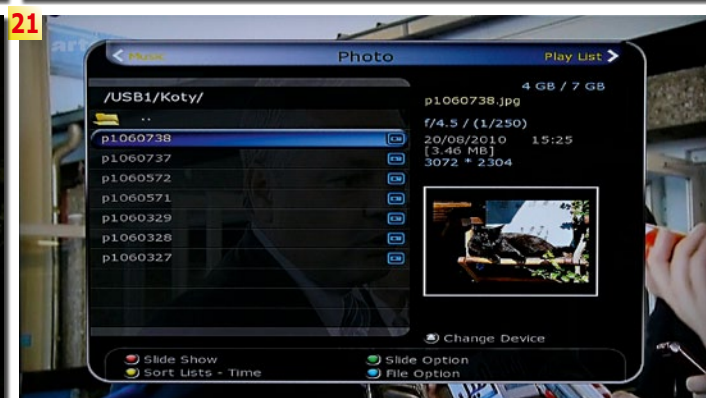
► Topreal CAS+SMS(Billing System):

- | | |
|--------------------------------|----------------------------------|
| • Subscriber Management System | • Advance/Silicon Safety |
| • Supporting simulcrypt | • Entitlement management |
| • IPPV(Impulse Pay per View) | • IPPT(Impulse Pay per Time) |
| • Fingerprint | • Mail/Announcement/Notification |
| • Paired function | • Regional Control |
| • Parent Control | • Card or Embedded CA available |



Beijing Topreal Technologies Co.,Ltd is a professional designer and manufacturer of digital TV head-end system. We have developed products with our own brand,which cover from DVB-S receiver,encoder(MPEG-4 HD/SD encoder,MPEG-2 SD encoder),multiplexer,scrambler,modulator to Set-top-box.

We also offer value-add products like subtitle insertion system,EPG,STB advertisement service system,browser,channel tracing table.All the products fully comply with DVB standard.



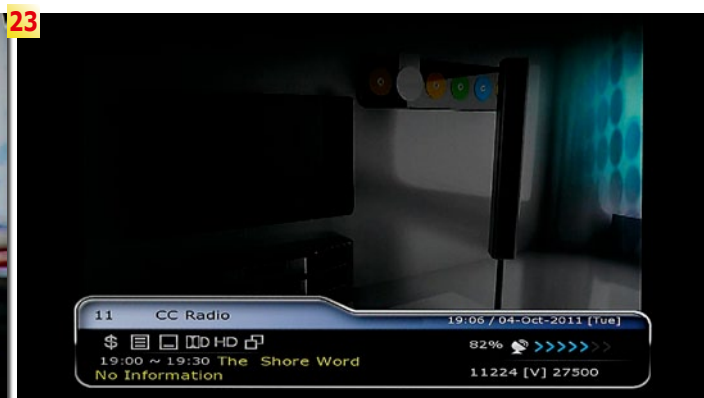
course, one can take full advantage of such great performance having not one but two tuners. If you think you might be needing concurrent recording and watching channels from different transponders, you should think of another Icecrypt model – the two tuner STC6000HD PVR that we presented recently in TELE-satellite 10-11/2011.

Actually, when we turned on the small S3500HDCCI, we had the impression of a déjà vu. The OSD looked pretty much the same as in STC6000HD PVR. OK, we said to ourselves, that's a reasonable approach to re-use thousands of lines of software code for the next product. But will this software work fast enough in this small box, presumably with

simpler and cheaper chipset? And as you already know, it worked as fast as in its bigger brother. Evidently, the chipset is not any simpler and cheaper. That's why we titled our report as we did. You take a seat in a small Mini Morris, press the pedal and you get flattened by acceleration produced by its engine. Evidently, this is not what you expect from a small and apparently lower performance product. S3500HDCCI by no means can be named low performance. On the contrary, this is the top class product stripped from the second tuner, VFD display and a few interfaces that did not fit on a small rear panel. But the speed and power are unchanged.

Even the remote controls





are interchangeable between the two models. For some people who would love to have not one but more Icecrypt receivers in their A/V cabinet this may be a problem. But for a vast majority of users, this problem is only theoretical.

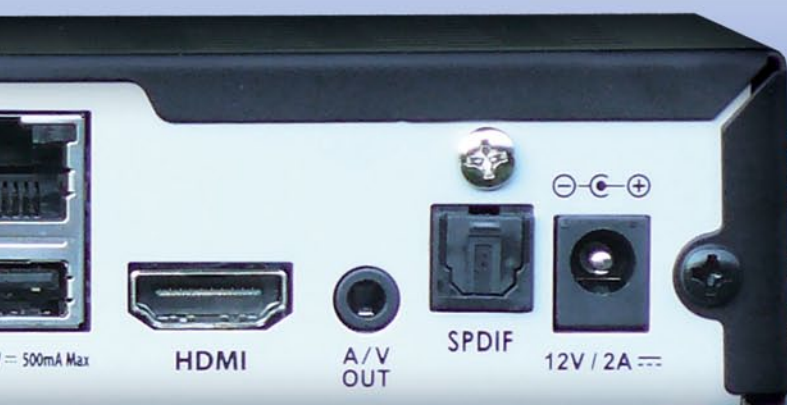
All the reception tests we did proved that S3500HDCCI has a very sensitive tuner and can deal with very weak signals as well as signals with small and high symbol rates. Sometimes when you switch to a low symbol rate channel, like 2000 kbps, you have to wait longer before you can watch it. It is not one second but 3-4 seconds before the receiver locks to the signal. This happens also in other receiver brands as most of the receivers are optimized for higher symbol rates.

Except for a small problem with the aspect ratio of photographs when watched in high resolution settings, we did not encounter any problems when dealing with multimedia. MP3 files as well as AVI and MPG files were played back correctly, not to mention of course the playback of recordings done with the receiver. It is very con-

- 16. EPG – grid mode
- 17. PIP mode works perfect for HD channels
- 18. Mosaic View
- 19. Simple Service List
- 20. Selecting soundtrack
- 21. Picture viewer
- 22. A recorded file is about to be played
- 23. Radio channel

venient to connect an external USB HDD and keep there all your multimedia files.

Before we end this report, we would like to mention one important feature of the box. This is the power saving mode. Normally, when this mode is not activated, the receiver consumes about 10 Watts in normal operation and 5 Watts in standby. Switching from standby to operate takes only 4 seconds. But when you activate in the menu the option called "Power saving", the power consumed in standby drops almost to zero (well below 1 Watt). The receiver consumes almost no electric energy. Naturally, it has to take longer to wake up from such a deep standby. And this is 35 seconds. It is up to the user, but we think that many of them will choose to be eco-friendly and turn this option on.



Expert Opinion

Extremely powerful and fast HD PVR receiver matching the top class models.
Almost endless configuration options but still very user friendly.
1080p video output.
All DiSEqC protocols
Very good video and audio quality
Small power consumption and extremely eco-friendly power saving mode



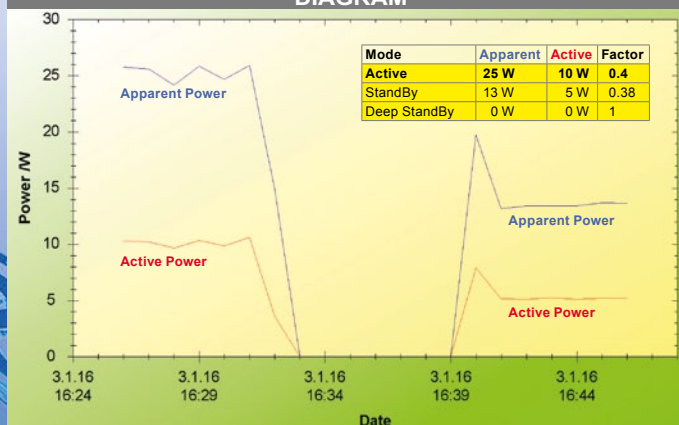
Jacek Pawlowski
TELE-satellite
Test Center
Poland

It can halt occasionally during channel scans and you have to restart the scan then.

TECHNICAL DATA

Manufacturer	Icecrypt, Great Britain
Fax	01795 427 666
E-mail	info@icecrypt.com
Web page	www.icecrypt.com
Model	S3500HDCCI
Function	HD PVR enabled satellite receiver
Input Signal Standards	DVB-S / DVB-S2, MPEG2 and MPEG4
Input Frequency	950 ~ 2150 MHz
Symbol Rates	2-67.5 Ms/sec for DVB-S and 2-52.5 Ms/sec for DVB-S2
DiSEqC	1.0, 1.1, 1.2
Audio	AC-3 Dolby Digital and MPEG 1 Layer 1,2 and 3
Video	From 480i through 1080p
Number of Channels Stored	10.000
Power Supply	AC 100 ~ 240 V 50/60 Hz
Power Consumption	12 V/2A plug adapter: 24 W max (10W in our tests)
Dimensions	220 x 35 x 145 mm

ENERGY DIAGRAM



First 10 minutes: operate mode, next 5 minutes: standby mode (power saving ON), last 5 minutes: standby mode (power saving OFF).

TEST REPORT
该报告由技术专家所作

Miniatur HDTV Satelliten Receiver |

ICECRYPT

Icecrypt S3500HDCCI

- Extrem kleiner, aber voll ausgestatteter Linux-Receiver
- Enthält einen hochentwickelten Blindscan Modus
- FTA Senderwechsel in weniger als 1 Sekunde
- Lässt sich mit vielen nützlichen Applikationen erweitern
- Verwendet einen äußerst mächtigen Chipsatz



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Man könnte diese ungewöhnliche kleine Box leicht übersehen. Sie ist tatsächlich so klein, dass man zwei S3500HDCCI Receiver auf einer Seite dieses TELE-satellite Magazins nebeneinander unterbringen kann. Stellt man sie neben einen 50-Zoll-Flachbildfernseher, ist es ein amüsanter Gegensatz. Es sieht aus wie eine Maus neben einem Elefanten. Die Fähigkeiten dieser "Maus" sind aber erstaunlich!

Die Frontplatte ist sehr asketisch.- sie zeigt nur drei Tasten und eine Status-LED, die entweder rot oder grün leuchtet. Betrachtet man aber die Rückseite, dann glaubt man langsam, dass der erste Eindruck ganz falsch war. Ein PCMCIA-Anschluss für CI-Module, ein Kartenleser-Slot, USB

für einen externen Speicher oder eine Festplatte, Ethernet-Verbindung ins Internet, Anschlüsse für HDMI und optische S/PDIF erwartet man nicht unbedingt in einer simplen kleinen Box.

Etwas überrascht stellt man fest, dass weder SCART-Anschluss, noch die drei Farb-RCA mit CVBS Video und Stereo-Audio vorhanden sind. Beim näheren Betrachten findet man aber zwischen den Anschlüssen für HDMI und S/PDIF eine Mini-Jack Buchse. Mit einem geeigneten A/V-Verbindungskabel (Mini Jack zu 3xRCA) ist es möglich, analoges Video und Audio für einen älteren Fernseher oder VHS-Recorder (so man noch hat) herauszuführen. Zusätzlich gibt es: 12 VDC Anschlussbuchse, RS-232 Buchse und einen Anschluss

für einen optionalen Infrarot-Empfänger, falls man den S3500HDCCI verdecken aber trotzdem mit der Fernbedienung steuern möchte.

Ein Blick auf die Fernbedienung lässt keinen Zweifel aufkommen - der S3500HDCCI ist mit PVR-Funktionen ausgestattet und enthält sogar trickreiche Funktionen, die sonst nur größere Receiver haben. Die Fernbedienung liegt gut in der Hand, obwohl ihre Hartgummi-Tastatur eher typisch ist für Modelle, die nicht so hochwertig sind.

Aber das ist nicht das Ende der Überraschungen. Schließt man den S3500HDCCI am Fernseher an und sieht die farbige Bildschirmgrafik und erlebt wie schnell er arbeitet, dann kann man nicht glauben, dass dies aus



der winzigen Box kommt.

Und das ist nicht alles. Es ist ein Linux-basierter Receiver! Das bedeutet, dass man viele interessante Plug-ins und Add-ons einladen kann, die für diesen Receiver-Typus im Internet zu finden sind.

Der S3500HDCCI ist wie ein Spitzengerät, ohne das einige unwichtige Eigenschaften weggelassen wurden. Aber die Prozessorleistung, die interne Speichergröße oder die Internet-Funktionen sind die gleichen wie bei einem Spitzengerät. Sogar die Blindscan-Sendersuche ist

vorhanden! Sie glauben es nicht? OK, lassen Sie uns anfangen. Der Icecrypt-Receiver fordert gleich nach dem ersten Einschalten auf, die OSD-Sprache auszuwählen. Die Auswahl ist recht groß: Englisch, Französisch, Deutsch, Holländisch, Griechisch, Spanisch, Arabisch, Italienisch, Portugiesisch, Türkisch, Russisch, Polnisch, Tschechisch, Schwedisch, Suomi, Dänisch, Norwegisch, Slowenisch, Slowakisch, Mazedonisch, Rumänisch, Serbisch, Ungarisch und Thai. Der nächste Schritt ist, die lokale Zeitzone auszuwählen und die Sommerzeit an- oder abzuschalten.

Hat man diesen Einstellungen erledigt, führt einen das S3500HDCCCI-Menü in das Menü Sendersuche. Vor einer Suche muss man den richtigen Satelliten auswählen und die Konfiguration des Antennensystems überprüfen. Die Icecrypt-Box ist kompatibel zu allen DiSEqC-Protokollen (1.0, 1.1 und 1.2). Wir prüften in unserem Test die Funktion zusammen mit 1x4 und 1x8 Schaltern sowie mit einem DiSEqC-Motor. Alles funktioniert perfekt. Man kann für den Receiver jeden Typ von LNB verwenden: Single, universal oder unicable. Natürlich werden all LOFs unterstützt.

Es gibt nicht weniger als fünf Sendersuch-Modi: Automatic, Manual, Advanced, Fast und Blindscan. Automatic Search ist am gebräuchlichsten und vom Hersteller für die vorprogrammierten Satelliten- und Transponder-Daten vorgesehen. Es sind 162 weltweite Satelliten vorhanden! Für den unwahrscheinlichen Fall, dass der betrachtete Satellit in der Liste fehlt, kann man ihn anfügen, da am Ende der Liste vier zusätzlich Positionen (User defined) vorgesehen sind. Manual Search erlaubt einen einzelnen Transponder für die Suche auszuwählen. Advanced Mode ist ähnlich wie

Manual Search, man kann aber zusätzlich Audio- und Video-PIDs eintragen und so normalerweise versteckten Sender entdecken. Der Fast Mode beschränkt seine Suche auf einen bestimmten Satelliten-Provider. Gegenwärtig gibt es hier zwei Möglichkeiten: Canal Digital und TV Vlanderen.

Der spannendste Modus ist natürlich Blindscan. Der Receiver sucht das Frequenzband ab und versucht Transponder zu finden, ohne vorprogrammierte Transponderdaten zu verwenden. Auf diese Weise werden brandneue Transponder gefunden, die noch nicht existierten, als der Hersteller die Firmware des S3500HDCCCI mit Satelliten- und Transponder-Daten zusammenstellte. Man muss nicht immer das ganze Frequenzband in beiden Polarisierungen absuchen lassen. Der Receiver erlaubt eine Einschränkung des Frequenzbereichs und die Auswahl einer Polarisation.

Die automatische Suche des Astra-Satelliten 19.2 ° Ost benötigte ohne Netzwerk-Option 3 Minuten und 45 Sekunden. Der S3500HDCCCI fand 894 TV-Dienste und 221 Radio-Dienste. Als wir die Netzwerk-Option zu schalteten, erhöhte sich die Zeit auf 6 Minuten und 20 Sekunden, aber die Box konnte 21 zusätzliche TV-Dienste finden. Die Suche schloss mit 915 TV- und 221 Radio-Diensten ab.

Nach dem Test des Automatic Search setzten wir den Receiver auf Factory Default zurück und starteten den BlindScan. Wir ließen den Receiver das ganze Band und beide Polarisierungen absuchen. Wir erwarteten dass er nun lange suchen würde, aber der S3500HDCCCI war zu unserer großen Überraschung nach 10 Minuten und 15 Sekunden fertig. Er meldete 918 TV- und 221 Radio-Sender. Die Ergebnisse sind beeindruckend. Die Icecrypt

Box arbeitete wirklich hervorragend! Wir suchten mehrere andere Satelliten ab und benutzten dazu sowohl unsere Schlüssel mit DiSEqC-Motorantrieb wie auch DiSEqC-Schalter 1x4 und 1x8. Alles funktionierte perfekt. Gelegentlich brach der S3500HDCCCI die Suche ab und wir mussten die Suche neu starten. Das verursachte jedoch keinen Datenverlust bei zuvor gespeicherten Sendern.

Senderwechsel ist beim S3500HDCCCI schnell und angenehm: Weniger als eine Sekunde bei FTA-Sendern und etwas länger bei Verschlüsselten, was natürlich ist, denn Entschlüsseln benötigt zusätzliche Zeit. Gleich nach dem Senderwechsel erscheint eine gut aufgebaute Informations-Box, die außer den typischen Daten noch Zusätzliches zeigt. Falls es im Display-Menü aktiviert wurde, zeigt sie nicht nur den Titel und Start- und Endzeit des laufenden Programms, sondern auch den Titel, Start- und Endzeit des nachfolgenden Programms. Es könnte anfangs als ein unnötiger Zusatz erscheinen, aber nach kürzester Zeit fanden wir

diese Eigenschaft so angenehm, dass wir auf sie nicht mehr verzichten wollten. Andere Satelliten-Receiver bieten die Möglichkeit, mit einem Druck auf den rechten Pfeil das nachfolgende Programm anzuzeigen. Aber wenn man gern zappt, spart einem die Icecrypt-Lösung viel Zeit und macht das Spielen mit dem Receiver vergnüglicher.

Eine weitere Verbesserung ist die Fähigkeit, die Lautstärke für jeden Sender individuell auf Normal, Leise oder Laut festzulegen. Jeder Satelliten-Fan dürfte diese Eigenschaft begrüßen. Dank dieser Eigenschaft zappt man angenehmer, denn man braucht nicht mehr zu befürchten, dass beim Senderwechsel das ganze Haus von plötzlich lautem Audio geweckt wird. Wenn man einen Sender wählt, lässt sich seine Einstellung der Lautstärke um 30 % erniedrigen, die bei jedem neuen Aufruf die Lautstärke leiser stellt. Das funktioniert auch in der anderen Richtung - findet man einen Sender, der zu leise ist, kann man ihn individuell so einstellen, dass er 30 % lauter aufgerufen wird.

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Lexium FastAlign 7100 Pro Digital Satellite Meter



**Professional
Technology**

- *DiSEqC 1.0, 1.1 and 1.2 compatible*
- *Fully programmable*
- *AutoFind and QuickSweep technologies*
- *USB Interface*



Lexium's New Satellite Meter Powerhouse

WS International is a company that was founded back in April of 2001. They are a global wholesale distributor of FTA satellite receivers and related satellite equipment (LNBS, satellite meters, antennas, motors, etc.). They have offices in Marietta, Georgia (outside of Atlanta) and Pacoima, California (near Los Angeles) and distribute their products around the world. WS International markets their satellite receivers and satellite meters under their own Lexium brand name. The

Lexium product line has had quite a bit of success over the past several years and WS International is always working to add new and better products to their product line.

In keeping with that philosophy, WS International has recently introduced a new digital satellite meter to their line of Lexium products. The new FastAlign 7100 Pro professional satellite meter boasts the latest technology in the industry and is highlighted by the new AutoFind and QuickSweep features.

Naturally, we were very interested in finding out more about this new meter. WS International was kind enough to send us a sample so that we could take a closer look at the new FastAlign 7100 Pro and find out exactly what it has to offer.

The Lexium FastAlign 7100 Pro comes packaged in a bright blue colored box. When you open the box it's easy to see that great care was taken in protecting the signal meter in the package. The meter as well as the accessories are

each surrounded individually by Styrofoam to provide the ultimate protection. Even the eight Ni-HM 2700 mAh rechargeable batteries are in their own Styrofoam compartment. The package includes the FastAlign 7100 Pro signal meter as well as a 16 VDC power supply, the eight rechargeable batteries, a blue colored carrying case, a handy shoulder strap and a 34-page English language user manual. 240V AC chargers in addition to spare AA rechargeable batteries and

■ TELE-satellite author Ron Roessel using the FastAlign 7100 Pro Digital Satellite Meter to adjust his BUD after hurricane Irene passed through his location. The FastAlign's features made this an easy and fast task.



spare 110V AC chargers are available for purchase from WS International or their local distributor in Europe & Africa.

The signal meter itself can easily be held in one hand and is 149x97x60mm in size. It comes in a black housing and sports a 23x97mm LCD display on the front panel. A set of four blue-colored function buttons along with a single status LED can also be found on the front panel. There's also a small speaker on the left side of the front panel. On the rear panel you'll find the LNB "F" input connector along with a looped-through output connector. There you'll also

find the 16 VDC input jack as well as a USB interface.

Before doing anything else, the rechargeable batteries need to be installed into the 7100 Pro signal meter. The battery compartment is located on top of the meter and is accessed by opening the top cover. All eight rechargeable batteries supplied with the meter need to be installed. The inside of the battery compartment is clearly marked to help prevent the batteries from being installed incorrectly. The manufacturer recommends charging the batteries for at least five hours before using the signal

meter for the first time. The meter weighs in at about 1 Lb 7 oz (645g) with the batteries installed. When the power supply is plugged in to the signal meter, not only does the status LED illuminate red, but progress of the charge is also shown on the LCD display. There's a timer to indicate how long the meter has been charging and there's also an indicator to show the voltage level of the batteries. When we plugged in the power supply, the timer started at 00:00 and the voltage level was at 10.5V. Although the manufacturer recommended an initial charge time of five hours, we let the signal meter charge overnight. At the end of the charging cycle, the LED turned off and the display showed the message

"Charged Stop". This is a very interesting feature that let's you keep an eye on the progress of a charging cycle.

Now that the meter is fully charged, we can start putting it through its paces. Turning the meter on is a simple matter of holding down the F4 function button for about two seconds. The very first screen to appear asks you to decide whether or not you want the backlight for the LCD display turned on. Simply push the F1 button for "Day" (backlight off) or the F2 button for "Night" (backlight on). If you don't make a choice within ten seconds, the meter automatically turns itself off.

There are four menus built into the meter: Additional Functions, Manual Search, Auto Search and Motor 1.2. The left and right arrow buttons (F2 and F3) can be used to move between the different menus. The "OK" button

CHARGED T.11:31
BATTERY V.11.1V

■ Keeping track of the charging cycle



■ The satellite meter is fully recharged, the LED turned off and the display showed the message "Charged Stop".



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sun Yao1023@gmail.com



(F1) is then used to select the desired menu that you want to work with.

We decided to start with the Additional Functions menu. From this menu you can choose to edit the parameters of the satellites stored in the meter's memory or modify the settings of the

meter. The FastAlign 7100 Pro comes preloaded from the factory with only 27 satellites that include many of the more popular American satellites as well as a few Asian satellites. However, soon regionalized lists will be available from the manufacturer's website www.LEXIUM-DVB.com covering

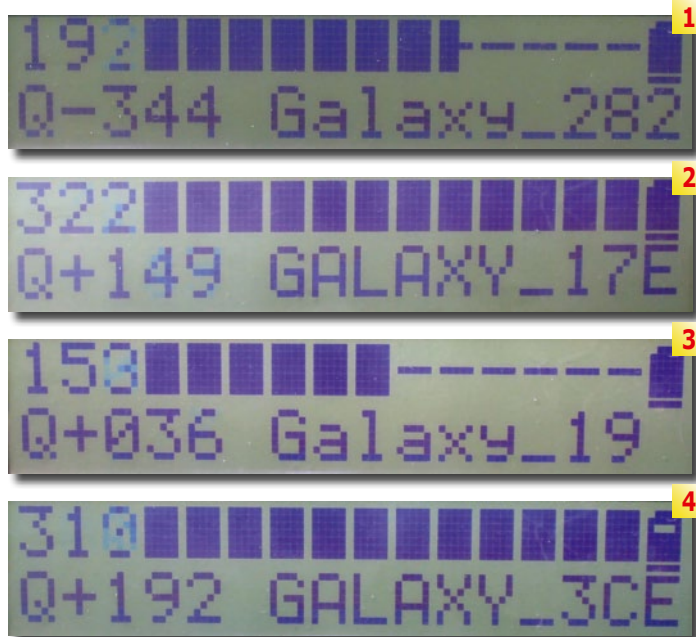
the popular satellites in Europe, Asia, Middle East and Africa.

If the satellite you want to align your antenna to is not in the list, you simply need to edit one of the existing entries using the front panel function buttons to add the satellite you need. This is done in the

Editor menu inside the Additional Functions menu. Once you are in the Editor menu, you can among other things change the satellite name, edit transponder data, select the correct LNB LOF frequency (OFF, Universal, 10750, 5150, 5750, 10600, 9750 and 11300), set up any necessary DiSEqC protocols (1.0 and 1.1 can be set up here; there's a separate menu section for setting up DiSEqC 1.2), enter in the orbital position of the satellite as well as turn the Auto Search feature on or off.

The USB port on the back of the meter lets you link the meter with a laptop or a PC. This link will allow you to perform these editing functions on your laptop or PC with loader software available from the manufacturer at www.LEXIUM-DVB.com or www.wsidigital.com. The software allows





1. While searching for GALAXY 17, the meter first found GALAXY 28. We continued moving the antenna until...
2. ...the meter locked onto the GALAXY 17 satellite at 89W
3. Confirmation that our 90cm antenna was still pointed to GALAXY at 97W.
4. The Lexium FastAlign 7100 Pro satellite meter helped us find GALAXY 3C in no time at all.

the user to change and/or update all parameters including DiSEqC port settings, LO frequencies, transponder names, and parameters.

The AutoFind technology that is built into the FastAlign 7100 Pro satellite meter is an automatic satellite recognition technology that recognizes the satellite that your antenna is pointing to and then displays the name of that satellite on the meter's LCD display from the preprogrammed list of satellites stored in the meter's memory. Directly above the name of the satellite is also a signal quality bar graph that can be used to fine tune the antenna for best possible signal.

The timing of this test report couldn't have been any better. Hurricane Irene passed through our test center here on Long Island, New York just a few days ago. She brought with her quite a bit of wind that resulted in many of our dish antennas being blown out of alignment. This proved to be the perfect opportunity to put the meter through its

paces. The worst hit antenna was our 3.0-meter C-band mesh dish. The strong winds created such a great amount of torque that the entire antenna assembly spun around on top of the mast. So much for the mounting bolts that were supposed to keep the antenna in place. This seemed like a good place to start.

Once the dish was placed back into a position that was close to what it was before the storm, we connected the Lexium FastAlign 7100 Pro to the C-band LNB. The C-band antenna was pointed to GALAXY 17 at 91W before Irene greeted us so the goal was to realign the antenna to that satellite. But before we tried to find GALAXY 17 with the Lexium meter, we first had to program this satellite as well as a few of the surrounding satellites into the satellite meter since these were not preprogrammed in the meter. As mentioned before, some of the preprogrammed satellites stored in memory were Asian satellites so we decided to reprogram some of these

entries with the American satellites that we needed. Since we wanted to find GALAXY 17, we programmed this satellite as well as the two surrounding satellites GALAXY 28 at 89W and GALAXY 25 at 93W.

Now that the Lexium meter has the correct satellite information, it was time to realign our C-band dish. We turned the satellite meter on and selected DAY mode since the sun was shining brightly outside and we therefore didn't need any backlighting on the LCD display. We then used to left/right arrow buttons (F2/F3) to find the Auto Search screen and pressed the OK button (F1) to start the Auto Search. The FastAlign 7100 Pro was now actively searching for satellite signals.

The C-band dish was slowly rotated on its mast while keeping an eye on the satellite meter. It didn't take long for the meter to lock onto a signal; the green "signal lock" LED on the front panel illuminated and it instantly identified the satellite as GALAXY 28. Since we wanted to align to GALAXY 17, we knew that we had to rotate the antenna just a little more to the right (west) in order to find GALAXY 17. And, sure enough, a few seconds later the green "signal lock" LED on the front panel illuminated once again and the Lexium meter reported that we had found GALAXY 17. As mentioned before, the display shows not only the satellite name but also a signal quality bar graph making it a snap to fine tune the antenna. After adjusting the antenna for the best possible signal, all the mounting hardware was retightened and in just a few minutes our C-band antenna was back in service. The Lexium FastAlign 7100 Pro satellite meter not only identified the correct satellite by name, it also told us if we were on a different satellite by also identifying it by name. We therefore knew

exactly which way to turn the antenna to find the target satellite. There were no guessing games involved.

The Lexium meter's Quick Sweep technology allows the meter to react to satellite signals very quickly. There is no lag time from when the satellite signal reaches your dish antenna to when it is displayed on the meter. This allows you to move your dish at a faster rate across the satellite arc without having to worry about overshooting the target satellite. The quick response of the meter will prevent you from missing the satellite you want to receive.

But we weren't finished. Our test center also has a smaller 90cm Ku-band antenna pointed to GALAXY 19 at 97W that fortunately wasn't affected by Hurricane Irene. Nevertheless, we wanted to "make sure" that everything was still OK with this antenna. First of all, we used the Lexium meter to confirm that this was the case. The green "signal lock" LED popped on and the meter showed that indeed our 90cm antenna was still pointed to GALAXY 19 and that Hurricane Irene's wrath did not bother it at all. But we wanted to go a step further and see how long it would take for us to find the GALAXY 3C satellite at 95W. Both satellites were already preprogrammed in the meter so we had to do nothing more than connect the meter to the LNB and start moving the dish. The mounting screws were loosened on the antenna and the realignment began. The dish was moved slowly east and within just a few seconds the Lexium meter chimed in letting us know we had found GALAXY 3C. It really doesn't get any easier than that.

The Lexium meter's user manual specifies that the meter can be used for about four hours on fully charged batteries. In our tests we were able to use the 7100 Pro for the en-

tire duration of our tests without having to recharge the batteries. Of course, if you plan on using the signal meter to drive a DiSEqC 1.2 motor, you can expect the operational time of your meter to be somewhat less because of the extra load created by an antenna motor. Since these are AA rechargeable batteries, you can always carry around a spare set of conventional AA batteries just in case the rechargeable ones die and there's no opportunity to recharge them in between jobs.

In this way, you can continue to work and not have to worry about the meter dying in the middle of an alignment.

Other niceties include a user-settable timer that will shut the meter off after a certain amount of inactivity. It's a nice feature that helps save your batteries in case you should forget to turn the meter off after a job. The Lexium meter can also be used in Manual Search mode. In this mode the meter will only identify the selected satellite but it will lock onto the desired

satellite just as quickly as in Auto Search mode. And let's not forget DiSEqC 1.2 mode. In this mode the meter can be used to drive any DiSEqC 1.2 compatible antenna motor and will allow you to easily align a motor driven antenna.

Overall, we were quite impressed by the capabilities of the Lexium FastAlign 7100 Pro satellite meter. It performed as advertised by identifying satellites by name as the antenna was swept across the satellite arc. This automatic identification of

satellites makes antenna installations quick and painless; the installer will know exactly which way to move a dish if the meter names a satellite other than the target satellite.

The FastAlign 7100 Pro takes a lot of the guesswork out of satellite antenna installations. What more could you ask for?

Customers interested in this product can contact WS International via www.wsi-digital.com to request contact information for local distributors in their region.

Using the Lexium FastAlign 7100 Pro in Europe

Thomas Haring



1. The FastAlign 7100 Pro mastered the reception of the ABS satellite at 75° east; other signal analyzers were not up to the task.

2. The analyzer also had no trouble with the HELLASAT bird at 39° east, one of the 27 satellite positions preprogrammed in the original version of the FastAlign 7100 Pro.

The way the Lexium FastAlign 7100 Pro is delivered from the factory, it's clear that it's focus is on North America. But since Lexium is planning to market this product in other regions of the world, we thought it

would be a good idea to send our test sample to the TELE-satellite test center in Austria so that its functionality can also be checked out in Europe.

The preprogrammed satellite and transponder list in the Lexium signal meter does not include any of the popular DTH satellites in Europe such as AS-

TRA 19.2° east or HOTBIRD 13.0° east, although there are some less popular satellites in the list. These include HELLAS SAT at 39° east, EXPRESS AM22 at 53° east, BONUM1 at 56° east, INTELSAT 904 at 60° east as well as ABS1 at 75°.

Before we began to add some other more standard European satellite positions, we first wanted to test the capabilities of the FastAlign 7100 Pro with the existing data.

The ABS1 satellite at 75° east is fairly weak and more difficult to receive in Europe and the FEC of 7/8 (seven of the eight data bits are information bits with only one bit an error correction bit) that nearly every transponder has presents quite a challenge. Quite a few other signal analyzers "overlook" this satellite during antenna alignment since the tuner more often than not can't read and process the weaker, error-prone signal fast

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MODEL :BK5-01**

KU-BAND

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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:

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3. Digital Ready
4. High Gain Output
5. Easy Installation
6. Waterproof



**KU-BAND SINGLE
MODEL: BK-101B**



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**C-BAND TWIN
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**C-BAND ONE CABLE SOLUTION
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**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**



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**MULTISWITCH 2x6
MODEL: BMS-26**



**MULTISWITCH 2x8
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enough. Before you know it, you've turned the antenna past the ABS1 satellite at 75° east.

But that's not the case with the Lexium FastAlign 7100 Pro! We started slowly turning our antenna from 60° east and after only a few seconds the green LED on the front panel of the Lexium meter lit up announcing that we had found the ABS1 bird at 75° east! The Lexium also had no trouble locking on to the EXPRESS AM22 at 53° east; it recognized this satellite instantly and fully automatically.

But we weren't finished; the meter now had to prove itself on the popular DTH satellites ASTRA 19.2° east, HOTBIRD 13° east as well as ASTRA2 28.2° east. Since these satellites were not preprogrammed into the meter by the manufacturer (the European version of the FastAlign 7100 Pro would undoubtedly include these satellites), we had to manually program them into the Lexium. This task was actually accomplished quickly and easily thanks to its simple and logical operation; the four front-panel function buttons also helped.

In just about two minutes the Lexium meter became

an indispensable aid for European users. We were now able to quickly align our multi-focus antenna precisely and effortlessly to the ASTRA 19.2° east, ASTRA2 28.2° east and HOTBIRD 13° east satellites.

Expert Opinion

The Lexium FastAlign 7100 Pro satellite meter is an excellent dish antenna installation tool. It's a handheld device that instantly identifies the name of a satellite that the antenna is pointing to and also displays a signal quality bar graph for quick and easy antenna fine tuning adjustments. It runs for hours on a single charge and can be used day or night thanks to its backlit display.



Ron Roessel
TELE-satellite
Test Center
USA

It has room for only 27 preprogrammed satellites. If you want to enter a new satellite, you must edit an existing satellite memory location. There's also no car charger included in the package.



We here in the TELE-satellite test center in Austria actually enjoyed checking out the Lexium FastAlign

7100 Pro and we can't wait to see the European version of this signal meter.

TECHNICAL DATA

TECHNICAL DATA	
Distributor (North America)	WS International, Atlanta, Georgia and Los Angeles, California, USA
Home Page	www.wsidigital.com or www.LEXIUM-DVB.com
e-mail	sales@wsidigital.com
Product	FastAlign 7100 Pro Digital Satellite Meter
Frequency Range	950 to 2150 MHz
Signal Level	-65dBm to -25dBm
DiSEqC Compatible	yes, 1.0, 1.1 and 1.2
LNB Supply	13/18V, 500mA max
LNB Switch Control	22 KHz
Demodulator	QPSK
Signal Input	"F" type with looped-through output
USB Interface	yes
Power Source	Eight 1.2VDC 2700mAh NiMH rechargeable batteries
Battery Charger	120V/60Hz input; 16VDC/750mA output
Dimensions	149x97x60mm
Weight	0.645Kg (1 Lb 7 Oz)

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TEST REPORT
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| Satellitenmessgerät |

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Lexium FastAlign 7100 Pro Digital Satelliten Messgerät

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- AutoFind und QuickSweep Technologie
- USB-Schnittstelle

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Das Unternehmen WS International wurde im April 2001 gegründet. Es handelt sich um einen globalen Großhändler für FTA Sat-Receiver und Sat-Zubehör (LNB, Sat-Messgeräte, Antennen, Motoren, usw.). Die Firma hat Büros in Marietta, Georgia (außerhalb von Atlanta) und Pacoima, Kalifornien (in der Nähe von Los Angeles) und vertreibt ihre Produkte in der ganzen Welt.

WS International vermarktet seine Satelliten-Receiver und Sat-Messgeräte unter dem eigenen Markennamen Lexium. Die Lexium Produktlinie hatte in den vergangenen Jahren ziemlich viel Erfolg und deshalb ist WS International stets bemüht, neue und bessere Produkte in diese Produktpalette hinzuzufügen.

In diesem Sinne hat WS International kürzlich ein neues digitales Satellitenmessgerät der Lexium Produktlinie vorgestellt. Das neu eingeführte professionelle Satellitenmessgerät FastAlign 7100 Pro enthält die neueste verfügbare Technologie und beeindruckt durch die neuen AutoFind und QuickSweep Funktionen.

Natürlich waren wir sehr daran interessiert, mehr über dieses neue Messgerät herauszufinden. WS International war so freundlich uns ein Testgerät zur Verfügung zu stellen, so dass wir einen genaueren Blick auf den neuen FastAlign 7100 Pro werfen konnten, um zu testen was es zu bieten hat.

Das Lexium FastAlign 7100 Pro kommt in einer hellblauen Verpackung.

Wenn man diese öffnet, bemerkt man sofort, dass das Messgerät mit großer Sorgfalt geschützt wurde.

Das Messgerät und das Zubehör sind jeweils einzeln durch Styropor umgeben, um den ultimativen Schutz zu bieten. Auch die acht NiHM 2700 mAh Akkus sind in einem jeweils eigenen Styropor-Fach eingebettet.

Die Verpackung beinhaltet das FastAlign 7100 Pro Messgerät sowie eine 16 VDC Spannungsversorgung, acht Akkus, eine blaue Tragetasche, einen handlichen Schultergurt und eine 34-seitige Bedienungsanleitung in englischer Sprache.

Ein 240V AC Ladegerät und zusätzliche AA-Akkus sind zum Kauf bei WS International oder dessen lokalen Distributoren in Europa und Afrika erhältlich.



Das Satellitenmessgerät kann problemlos in einer Hand gehalten werden und ist 149x97x60mm groß. Es kommt in einem schwarzen Gehäuse und bietet auf der Vorderseite ein 23x97mm großes LCD-Display. Vier blaue Funktionstasten sowie eine Status-LED sind ebenfalls auf der Vorderseite zu finden.

Es gibt auch einen kleinen Lautsprecher auf der linken Vorderseite. Auf der Rückseite befindet sich der "F"-Stecker für den LNB Eingang zusammen mit einem Loop-Through Ausgang. Dort ist auch der 16 VDC-Eingang

sowie eine USB-Schnittstelle vorhanden.

Bevor das Gerät in Betrieb genommen werden kann, müssen die Akkus im 7100-Pro installiert werden. Das Batteriefach befindet sich auf der Oberseite des Messgerätes und wird durch das Öffnen der oberen Abdeckung zugänglich gemacht.

Alle acht mit dem Messgerät gelieferten Akkus im AA-Format müssen installiert werden. Die Innenseite des Batteriefachs ist eindeutig markiert, um zu verhindern, dass die Akkus versehentlich falsch herum installiert werden. Der Hersteller empfiehlt es, die Akkus mindestens 5 Stunden zu laden, bevor das Messgerät das erste Mal benutzt wird.

Das Messgerät wiegt mit installierten Akkus ca. 645g. Wenn die Stromversorgung am Messgerät angeschlossen ist, leuchtet nicht nur die Status-LED rot, der Ladevorgang wird auch auf dem LCD-Display angezeigt. Ein Zeitzähler zeigt an, wie lange das Gerät geladen wurde und die Spannung der Akkus wird ebenfalls angezeigt.

Als wir die Stromversorgung angeschlossen haben, begann der Zeitzähler bei 00:00 Uhr und die Spannung lag bei 10.5V. Obwohl der Hersteller eine Ladezeit von fünf Stunden empfiehlt, haben wir das Messgerät einfach über Nacht aufladen lassen. Am Ende des Ladezyklus hat sich die LED ausgeschaltet und auf dem LCD-Bildschirm stand die Meldung "Stop Charged".

Dies ist ein sehr interessantes Feature, das es dem Anwender ermöglicht, den Fortschritt eines Ladevorgangs im Auge zu halten.

Nachdem das Messgerät nun voll aufgeladen war, konnten wir damit beginnen, es auf Herz und Nieren zu testen. Das Einschalten des Messgerätes ist einfach, es muss lediglich die Funktionstaste F4-Taste für etwa zwei Sekunden gedrückt gehalten werden.

Der erste Bildschirm fragt den Anwender ob die Hintergrundbeleuchtung der LCD-Anzeige eingeschaltet werden soll. Drücken Sie einfach die F1-Taste für "Day" (Hintergrundbeleuchtung aus) oder die F2-Taste für "Night" (Hintergrundbeleuchtung an). Wenn Sie innerhalb von 10 Sekunden keine Wahl tätigen, schaltet sich das Gerät automatisch ab.

Es stehen nun vier Menüs zur Verfügung: Zusätzliche Funktionen, manuelle Suche, automatische Suche und Motor 1.2. Mit der linken und rechten Pfeiltaste (F2 und F3) kann zwischen den verschiedenen Menüs gewählt werden. Die "OK"-Taste (F1) bestätigt die Wahl. Wir beschlossen, mit dem Menü der zusätzlichen Funktionen zu starten.

In diesem Menü können die im Messgerät gespeicherten Satellitenparameter editiert oder die Konfigurationen des Messgerätes angepasst werden.

Der FastAlign 7100 Pro wird ab Werk mit nur 27 Satelliten vorinstalliert, bei denen es sich um die beliebtesten amerikanischen Satelliten sowie einige asiatische Satelliten handelt. Es werden jedoch in Kürze regionale Satelliten-Listen auf der Website des Herstellers (www.LEXIUM-DVB.com) zur Verfügung gestellt, die jeweils die beliebtesten Satelliten in Europa, Asien, Naher Osten und Afrika beinhalten.

Wenn der Satellit, auf den Sie Ihre Antenne auszurichten möchten, nicht in derer Liste vorhanden ist, müssen Sie einfach einen Satelliten aus der vorhandenen Liste mit Hilfe der Funktionstasten bearbeiten. Dazu muss das Editor-Menü innerhalb des Menüs der Zusatzfunktionen aufgerufen werden. Sobald Sie im Editor-Menü sind, können Sie unter anderem den Namen des Satelliten ändern, Transponder Daten bearbeiten, die richtige LNB LOF-Frequenz (OFF, Uni-

versal, 10750, 5150, 5750, 10600, 9750 und 11300) wählen, eventuell notwendige DiSEqC-Protokolle konfigurieren (hier kann DiSEqC 1.0 und 1.1 gewählt werden; für die Konfiguration von DiSEqC 1.2 gibt es ein separates Menü), die Orbitalposition des Satelliten eingeben, sowie wie die automatische Suche ein- oder ausschalten. Der USB-Anschluss auf der Rückseite des Geräts erlaubt es Ihnen, das Messgerät mit einem Laptop oder PC zu verbinden. Diese Verbindung ermöglicht es, diese Einstellungen auf dem Laptop oder PC mit Hilfe einer Loader-Software durchzuführen, die auf der Webseite des Hersteller (www.LEXIUM-DVB.com oder www.wsidigital.com) zur Verfügung steht.

Diese Software ermöglicht es dem Benutzer, alle Parameter einschließlich DiSEqC-Port-Einstellungen, LOF-Frequenzen und Transponder-Namen zu editieren oder zu aktualisieren.

Bei der im FastAlign 7100 Pro implementierten Auto-Find Technologie, handelt es sich um eine Funktion zur automatischen Erkennung der Satelliten. Der Satellit,

auf den Ihre Antenne ausgerichtet ist, wird aus der vorprogrammierten Liste der Satelliten erkannt und sein Name auf dem LCD-Bildschirm dargestellt.

Direkt über den Namen des Satelliten wird auch ein Balkendiagramm dargestellt, das die Signal Qualität anzeigt. Diese kann für eine Feinabstimmung der Antenne genutzt werden, um die bestmögliche Signalqualität zu erzielen.

Der Zeitpunkt dieses Testberichtes hätte nicht besser sein können. Hurrikane Irene fegte einige Tage zuvor durch unser Test-Center auf Long Island, New York. Der starke Wind verstellte viele unserer Satelliten-Antennen. Dies erwies sich als die perfekte Gelegenheit, um das Messgerät auf Herz und Nieren zu testen.

Die am stärksten betroffene Antenne war unsere 3,0-Meter C-Band Mesh-Antenne. Die starken Winde erzeugten ein so großes Drehmoment, das sich die gesamte Antennenanlage um den Mast gedreht hat. So viel zu den Befestigungsschrauben, die eigentlich die Antenne sicher in Position halten sollten.

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Global InvaCom: Installation Accessories for Optical LNBS



Optical Installation – the Easy Way

In 2008 TELE-satellite ran an exclusive report on fibre optic LNBs made by GlobalInvacom (TELE-satellite 04-05/2008). In the meantime this new technology has turned into a serious alternative to traditional satellite reception systems using coax cables. Even more, fibre optic distribution technology will eventually become the new standard, once the first

receivers with an optical signal input will come to market. Until then, a converter will have to be used to transform optical signals back to electrical signals for compatibility with conventional receivers.

Yet, the benefits of fibre optic technology are too huge to ignore even today, so that many professional

installers are already making use of GlobalInvacom technology.

In order to assist those – and also less experienced amateur users – GlobalInvacom has launched some very useful installation accessories that will add even more shine to its optical product line-up. After all, most installers and private

all that is required for coax cables, optical signal distribution places much higher demands on installers. But before we go into greater detail let's first look at the technical background of an optical LNB and its advantages: A conventional LNB receives satellite signals which are reflected from the antenna's focal point, then converts those signals into a lower frequency range and transmits the converted signal right to the receiver via a coax cable. Since the frequency range a coax cable can carry is quite limited in bandwidth (ranging only from 950 MHz to 2150 MHz),

global invacom
completing the picture

FibreROD

■ The FibreROD consist of 6 flexible rods (of varying flex), 2 x FC/PC adaptor and 1 x wire pulling sock. They are designed to assist the installer with pre and un-terminated fibre cable routing.



two 'tricks' have to be used in order to transmit the entire frequency spectrum of a satellite over a single signal line. One of those 'tricks' is signal polarization, which can be either horizontal or vertical. Based on the control voltage sent from the receiver via the coax cable to the LNB, either vertical (13 V

users lack appropriate tools to professionally work with optical technology. While a few F-plugs and some insulation aids (a sharpened knife will do just as nicely) is

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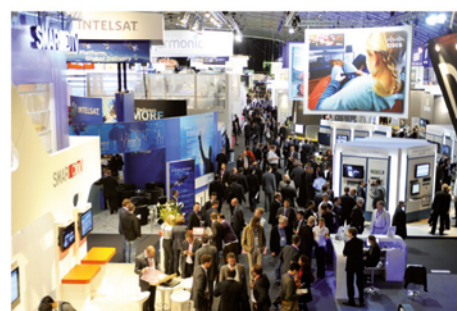


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control voltage) or horizontal (18 V control voltage) signals are transmitted. The second 'trick' can be achieved with the help of a 22 kHz control signal which is used to switch between low band and high band frequencies. For a typical direct-to-home satellite the low band ranges from 10.7 GHz to 11.75 GHz, while the high band covers 11.8 GHz to 12.75 GHz. If the receiver-generated 22 kHz control signal is detected by the LNB it transmits the high band frequencies through the coax cable to the receiver, and if no 22 kHz signal is sent, the low band frequencies arrive at the box.

In summary, it becomes quite obvious that a coax cable is only able to take care of one scenario at a time (vertical or horizontal low band, vertical or horizontal high band). For simple reception setups with only a single user these restrictions do not matter at all. Things only get messy as soon as several receivers use a single coax line for receiving satellite television. What happens if, for example, re-

ceiver 1 requests a horizontal high band signal from the LNB, while at the same time receiver 2 requires a vertical low band signal? In a first-come, first-serve scenario receiver 2 would have to do with the range receiver 1 has requested, if all that is available is a single line to the LNB. This would be an absolute no-go in everyday use so that other routes have to be chosen for unlimited reception by all users in a multi-user system.

The method of choice so far has been to use LNBs with up to four outputs, each of which can offer any band and polarisation requested by up to four separate receivers. If the number of receivers hooked up to an antenna exceeds that number, multi-switches need to be installed which receive all four reception bands/levels via separate coax cables and then distribute the signals to any number of receivers, with each user having full access to all channels. Unfortunately, what we just called 'any number of receivers' in the previous sentence is in

actual fact a somewhat limited affair. Signal distribution with multi-switches via coax cables is subject to considerable signal attenuation. While this generally has only negligible effects in smaller set-ups of up to 10 outputs, it can pose serious problems if that number increases to 30, 40 or even more.

Now this is where the optical LNB from GlobalInvacom comes into play. A stacker that is built into the LNB distributes all four reception levels (vertical low and high bands, horizontal low and high bands) on different frequency ranges between 1 GHz and 5 GHz. After that, the RF signal is converted into a digital signal which is then transmitted by laser via a fibre optic cable. On the receiving end of the line a GTU (gateway termination unit) converter box receives the digital signal and re-converts it into a conventional satellite signal that will be accepted by all satellite receivers.

The GTUs are available as Quatro or Quad models, with the Quad versions de-

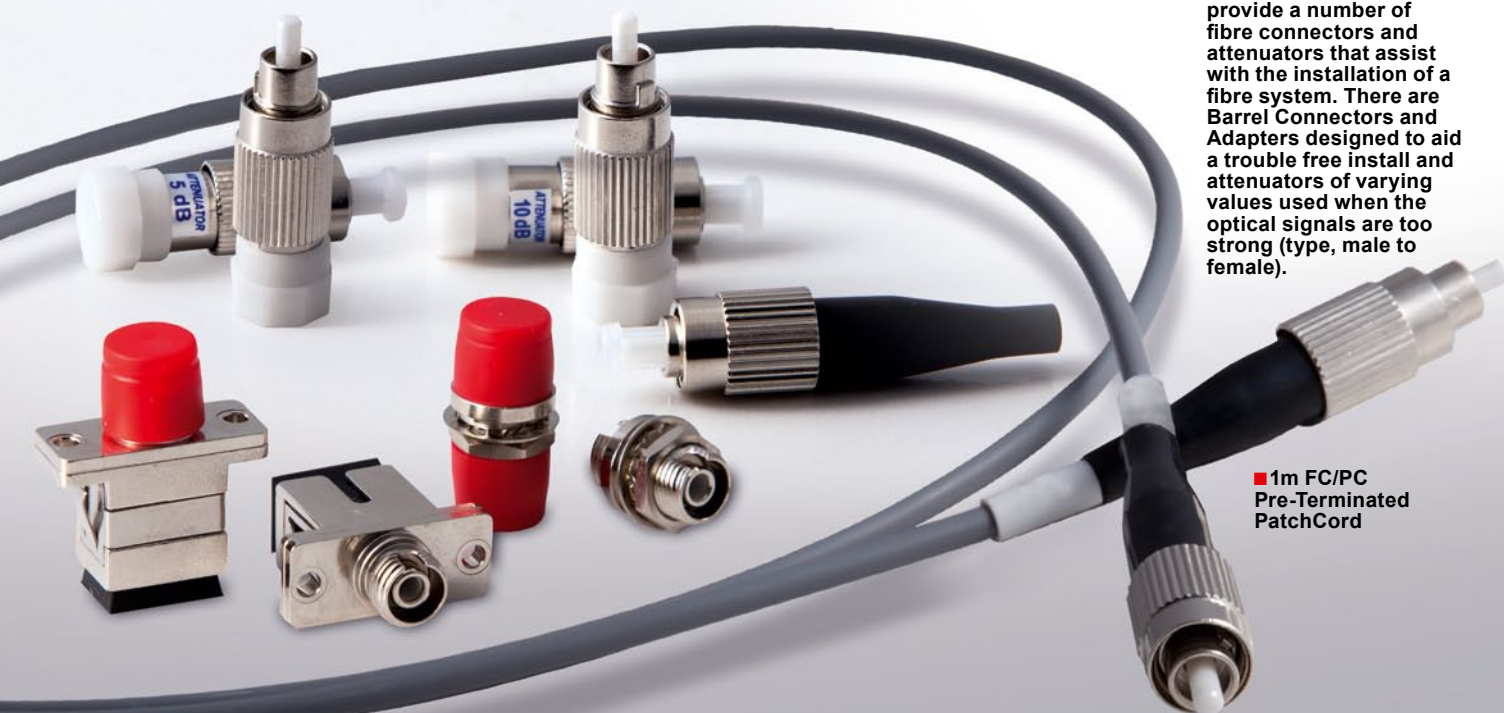
signed for direct connection of receivers, and the Quatro model for feeding an existing multi-switch distribution system, as it provides each reception level through a dedicated output.

So what's the big deal? No big deal at all: A single 3 mm fibre optic cable is enough to distribute the entire frequency range of a satellite to any number (and this time we really mean it!) of receivers, with no need for a 22 kHz signal for switching between the low and high bands. The beam of light travelling through fibre optic cables carries all frequencies at the same time, so that each receiver within the distribution network is absolutely independent in its selection of channels.

Even if you need to provide satellite television to entire apartment buildings or estates GlobalInvacom has the perfect solution: A single fibre optic cable is led from the LNB to a central distribution point where the initial light beam is split into several new light beams,

■ GlobalInvacom provide a number of fibre connectors and attenuators that assist with the installation of a fibre system. There are Barrel Connectors and Adapters designed to aid a trouble free install and attenuators of varying values used when the optical signals are too strong (type, male to female).

■ 1m FC/PC Pre-Terminated PatchCord





■ The Fibre X400 Microscope is designed to assist with a trouble free fibre installation. A high powered lens and white LED, for cable illumination, allows the user to identify scratches and contamination quickly and easily avoiding costly time wasting.

which are transmitted to individual levels of a building, for example. There the light beams are split once more until each apartment receives a dedicated beam. Even within each apartment it's possible to hook up as many receivers as you like, since each beam of light carries the satellite's entire frequency spectrum at any given time.

Contrary to coax-based distribution it is perfectly feasible with GlobalInvacom's optical technology to use a twin-tuner PVR in the living room, a receiver in your child's room and a box in the master bedroom at the same time, without any restriction or interference whatsoever. Try the same with coax cables and you'd need four separate lines from the multi-switch to your apartment alone.

The potential of this new optical distribution technology is clear to see for everyone. Not only does it take an awful lot of effort and trouble off any professional installer's shoulder, it also offers new possibilities to private users. What's more, a fibre optic cable is capable of transmitting much more than the entire frequency spectrum of a satellite. Terrestrial TV and radio can be fed into the system without much ado and if you want to provide high-speed Internet access throughout your home or set up a network connection between various devices then you can use the same fibre optic cable for those purposes as well.

It's no wonder then that GlobalInvacom was able to convince the professional satellite world in a breeze with its optical LNB tech-

nology, and with the newly launched installation accessories the company will make installation and maintenance even easier.

Connecting plugs, terminating plugs and attenuators

Compared with coax cables it takes a lot more effort to attach plugs to a fibre optic cable and in most cases it makes sense to obtain pre-assembled cables which are available from GlobalInvacom in various lengths.

If you need to connect two or more of these pre-assembled cables there are easy-to-use connecting plugs which will create almost any desired cable length. After all, it's in anybody's interest to buy only the exact cable length that is required in order to avoid valuable surplus material.

Even though signal attenuation does not play a role in most fibre optic distribution systems, it may still require attention in large-scale projects with a very complex distribution layout. If you need attenuation of signals transmitted via fibre optic cables GlobalInvacom offers intermediate plugs with fibre optic connection for signal attenuations of 5 dB or 10 dB at the termination point.

In addition, GlobalInvacom's product range also features terminating plugs that are attached either to a presently unused signal output in an optical distribution network or directly to an unused fibre optic cable which is correctly terminated this way.

GI Microscope Fibre X400

A microscope for optical



signal distribution? What the heck is that for, you may ask yourself. As a matter of fact, fibre optic cables are perfectly protected from outside damage and dirt thanks to sturdy metal and plastic mantling. But what about plugs? They are the weakest link of the chain and flawless signal transmission can only be guar-

anteed if they are kept totally free from dust, dirt and even minor damage.

With the Fibre X400 microscope GlobalInvacom has come up with just the right installation aid to make sure small scratches and almost invisible damage can be spotted before they may cause failures once the dis-

tribution network is fully up and running.

We put the X400 to the test and found that it does a wonderful job. It does show even the smallest deficiency and when we had a look at the fibre optic cable we installed some three years ago for our first optical LNB test report, we were surprised that a signal can make it from the LNB to our receiver at all – considering the sad state of the plug surface.

What the X400 actually revealed was a connecting plug covered all over with dirt and dust, giving us a desperately needed wake-up call to do some thorough cleaning every once in a while. Speaking of which, GlobalInvacom has the perfect aid for keeping your optical network neat and tidy:

Cleaning material

As mentioned just before, dust and dirt can kill even the most state-of-the-art fibre optic connection, so absolute cleanliness is a must when setting up an optical distribution system. It's the cabling between satellite antenna and converter box near the receiver that requires most attention, as it frequently runs through an attic, terrace, backyard or cable duct and therefore is most prone to collecting unwanted dirt and dust particles.

GlobalInvacom's product range includes a number of cleaning aids to combat unwanted contamination: One of them is an easy-to-use cleaning pen filled with a cleaning agent. Together with specially developed cleaning wipes it constitutes the perfect cleaning system for fibre optic connections.

This is how it works: A 2 cm patch of the cleaning wipe is moistened with the cleaning pen. Next, the fibre optic plug is slowly moved in a 90 degree angle from the moistened patch of the wipe to a dry area. This procedure is repeated until the Fibre X400 microscope shows a spotlessly clean surface. When cleaning the connection it is paramount to use any patch on the wipe one time only to make sure previously removed dust is not transferred back to the fibre optic surface again.

Another helpful product is a set of foam swabs for cleaning connections and contact points. These swabs

■ When installing a fibre system it is imperative that the end-face of every fibre cable is spotless. The FibreCLEANING Kit comprises of Wipes, a cleaning fluid pen and a pot of swabs which provide the complete cleaning solution.



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come with a lintless top part and are a very handy cleaning aid during the installation process. Our editorial team tried out those swabs and was able to achieve spotless connections and optimum signal transmission conditions in next to no time.

Cable feeding aids

When I saw GlobalInvacom's cable pipes and various cable feeding aids for the first time my initial thought was that I had gone to seventh heaven. When we first installed a fibre optic system in our test lab some four years ago that was a rather troubling affair and required considerable time and effort. I can more than vaguely remember that we used all sorts of DIY tools and equipment in order to squeeze cables and plugs into narrow pipes and ducts.

Thanks to GlobalInvacom those troubles have become a thing of the past, if the company's wonderful tools are used. We're talking about a set of six plastic sticks that come in three different diameters. Depending on the depth and diameter of the wall outlet two or more sticks can be combined, with the optical plug being attached to one end. Thanks to its robust metal end piece plugs can easily be screwed onto the stick(s) and, in addition, are perfectly protected from dust and dirt. The plastic used for the sticks is flexible enough not to break



apart too easily, while at the same time offering sufficient strength to push away small obstacles when feeding a cable through pipes or cable ducts. Two adapter plugs for connecting the fibre optic cable to the plastic stick round off the cable feeding aids on offer from GlobalInvacom.

Fibre Fault Locator

Picture this: All the cabling is done, the installation of an optical distribution system is completed, and it turns out a flawed connection or damaged cable prevents you from bringing all your efforts to fruition. If you find yourself in such a situation and have to find the proverbial needle in a haystack, you can either go mad or use professional equipment.

GlobalInvacom offers just that with its Fibre Fault Locator. What looks like an oversize pen at first glance turns out to be a godsend that swiftly can take you out

of trouble. Hidden behind a small protective hood is a connection for a fibre optic cable. At the touch of a button on the top side of the 1.5V battery-powered device it emits a clearly visible light beam in the 650 nm range that can travel a distance of up to 10 km. Now all you have to do is check all cables and, in particular, all connection pieces for this red light beam until you identify the problem. If no outside damage is visible the fibre optic cable can be removed from any connecting plug and checked for the light. If it's not there, the previously checked cable must be the culprit. When tested for accuracy and usefulness in our

test lab we found that the red light is easily identifiable even in direct sunlight. In dark cable ducts and on the attic it is bright enough not to be missed anyway.

Conclusion

We at TELE-satellite had a great time testing the new installation materials from GlobalInvacom. We believe they are one more step in the right direction and will further boost optical technology for DTH satellite reception. With the recently launched installation and cleaning tools GlobalInvacom now offers a complete package for professional installers and ambitious private users alike.

TECHNICAL DATA

Manufacturer	Global Invacom Ltd, Winterdale Manor, Southminster Road, Althorne, Essex CM3 6BX, United Kingdom
Products	Fibre Optic Installation Materials
Phone	+44-1621-743 440
Fax	+44-1621-743 676
Email	sales@globalinvacom.com
Web	www.globalinvacom.com



■ The GI FibreMDU Visible Light Source is designed to assist the installer during installation in finding faults within the optical cable, after fitting connectors. It does this by beaming a low powered red laser light through the fibre cable to show where there may be leakage or damaged areas.

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Fiberoptisches Installationsmaterial



Global Invacom: Installations- zubehör für das optische LNB



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Exklusiv hatte TELE-satellite im Jahr 2008 über die fiberoptischen LNB der Firma GlobalInvacom berichtet (TELE-satellite 04-05/2008). Mittlerweile hat sich die neue Technik zum ernstzunehmenden Konkurrenten jeder bisher üblichen Satellitenempfangsanlage mit Koaxialverkabelung entwickelt. Die fiberoptische Verteiltechnik wird zum Standard werden – spätestens dann, wenn die ersten Receiver mit optischem Signaleingang auf den Markt kommen, denn noch wird zur Rückumwandlung des optischen LNB-Signals ein Konverter zum Anschluß der Satellitenreceiver benötigt.

Die Vorteile der fiberoptischen Technik sind jedoch so groß, dass schon

jetzt vor allem professionelle Monteure die neue Technik von GlobalInvacom einsetzen. Um diesen und auch den weniger geübten Monteuren und Privatanwendern die Installation der neuen Technik zu erleichtern, hat GlobalInvacom sein Sortiment um höchst nützliche Installationshilfen erweitert. Denn den den meisten Monteuren und Privatanwendern fehlt es an den geeigneten Werkzeugen, um mit der Lichtleitertechnik professionell umgehen zu können. Während beim guten alten Koaxialkabel ein paar F-Stecker und eine Abisolierhilfe (zur Not tut es auch ein scharfes Messer) ausreichend waren, stellt die optische Signalübertragung deutlich höhere Anforderun-

gen. Doch bevor wir darauf eingehen, zuvor noch eine Zusammenfassung der technischen Hintergründe des optischen LNB und seiner Vorteile:

Ein herkömmliches LNB empfängt die im Brennpunkt der Antenne fokussierten Satellitensignale, konvertiert sie in einen tieferen Frequenzbereich und überträgt sie danach via Koaxialkabel direkt zum Tuner des Receivers. Da der über Koaxialkabel übertragbare Frequenzbereich relativ eingeschränkt ist (er liegt nur zwischen 950 MHz bis 2150 MHz) musste man sich zweier Kniffe bedienen, um das gesamte Frequenzspektrum eines Satelliten über eine Signalleitung übertragen zu können. Einer davon ist



die Polarisation der Signale, die entweder horizontal oder vertikal erfolgen kann. Über die durch die Koaxialleitung vom Receiver zum LNB übertragene Steuerungsspannung von 13V oder 18V überträgt das LNB entweder vertikal polarisierte (13V) oder horizontal polarisierte (18V) Signale. Der zweite Kniff wird mit Hilfe des 22 kHz Steuersignals zum Umschalten zwischen Low-Band und High-Band realisiert. Das Low-Band deckt den Frequenzbereich eines DTH Satelliten zwischen 10.7 GHz und 11.75

GHz ab, während das High-Band 11.8 GHz bis 12.75 GHz umfasst. Erkennt das LNB also das vom Receiver gesendete 22 kHz Steuersignal, so schickt es das obere Frequenzband durch das Koaxialkabel zum Tuner, ist das Signal nicht vorhanden, wird das untere Frequenzband übertragen. Zusammenfassend stellen wir also fest, dass über ein Koaxialkabel immer nur eines der vier verfügbaren Szenarien (vertikales bzw. horizontales Low-Band und vertikales bzw. horizontales High-Band) übertragen werden kann.

Für eine einfache Satellitenempfangsanlage mit nur einem Teilnehmer hat dies keine weiteren Konsequenzen, doch sobald mehrere Teilnehmer über eine Leitung gemeinsam Satelliten-TV empfangen möchten, treten die ersten Probleme auf. Wenn ein Teilnehmer vom LNB z.B. das horizontale High-Band anfordert, so wären auch alle anderen Teilnehmer gezwungen, sofern sie an dieselbe Signalleitung angeschlossen sind, genau diesen Frequenzbereich zu empfangen. In der Praxis ist es daher sinnlos, an so eine Verkabelung auch nur zu denken, keiner der Teilnehmer hätte Freude am Empfang.

Bisher wurde diese Problematik dadurch gelöst, dass LNBs mit bis zu 4 getrennten Ausgängen verwendet wurden, die an allen Anschlüssen jeweils das vom Receiver angeforderte Band bzw. die richtige Polarisation ausgeben können. Sind mehr als 4 getrennte Anschlüsse von Nöten, so kamen Multischalter zum Einsatz. Diese erhalten vom LNB über vier separate Leitungen alle Empfangsebenen und verteilen sie an beliebig viele Teilnehmer, je nachdem welche Empfangsebene vom Receiver angefordert wird. Leider ist der Begriff 'beliebig' in

diesem Zusammenhang relativ, denn die gesamte Signalverteilung über Koaxialkabel bzw. Multischalter unterliegt einer nicht zu unterschätzenden Signaldämpfung, die im Bereich von 4 bis 10 Anschlüssen noch relativ vernachlässigbar ist, bei 20, 30 oder gar 40 Anschlüssen aber zum ernsthaften Problem werden kann.

Genau hier setzt das optische LNB von GlobalInvacom an. Ein im LNB befindlicher Stacker verteilt alle vier Empfangsebenen (vertikales Low- & High-Band sowie horizontales Low- & High-Band) auf verschiedene Frequenzbereiche zwischen 1 GHz und 5 GHz. Danach erfolgt eine Umwandlung des RF-Signals in ein digitales Signal, das dann schließlich von einem Laser über die fiberoptische Leitung übertragen wird. Am anderen Ende der Leitung wird der Lichtstrahl von einer Konverterbox namens GTU (Gateway Termination Unit) entgegengenommen und wiederum in ein für jeden gewöhnlichen Satellitenreceiver verständliches Signal umgewandelt. Diese GTUs sind als Quatro oder Quad Ausführung erhältlich. Während die Quad Version direkt mit dem Receiver verbunden wird, dient die Quatro Version zur Integration in eine bestehende Multischalterverteilung und liefert über ihre vier Ausgänge jeweils eine der vier Empfangsebenen.

Für den Endverbraucher bedeutet das in der Praxis, dass über ein einziges, ca. 3mm dünnes fiberoptisches Lichtleiterkabel der gesamte Frequenzbereich eines Satelliten übertragen werden kann, ohne dass dazu eine Steuerspannung oder ein 22 kHz Signal zum Umschalten zwischen den vier Empfangsebenen notwendig sind. Da dessen Lichtstrahl das gesamte Frequenzspektrum eines

Satelliten beinhaltet, können beliebig viele Receiver über diese eine Leitung vollkommen getrennt voneinander versorgt werden. Auch wenn z.B. ganze Wohnblocks mit Satellitensignalen versorgt werden sollen, bietet GlobalInvacom's LNB neue Möglichkeiten: So ist es mit dem optischen LNB nur noch notwendig, eine einzige fiberoptische Leitung vom LNB zu einem zentralen Verteilerpunkt zu verlegen. Der Lichtleiter wird dann in mehrere Lichtleiter aufgesplittet und einfach in jedes Stockwerk weitergeführt. Dort wird erneut gesplittet, bis schließlich eine Leitung in jeder Wohnung landet. Daran kann der Endverbraucher dann nicht nur einen sondern beliebig viele Receiver anschließen, da im Gegensatz zum Koaxialkabel das gesamte Frequenzspektrum des gewünschten Satelliten anliegt. So kann so z.B. ein TwinTuner PVR im Wohnzimmer, ein Receiver im Kinderzimmer und ein Receiver im Schlafzimmer gleichzeitig und unabhängig voneinander ihren Dienst versehen. Mit einer herkömmlichen koaxialen

Verkabelung müssten alleine dafür pro Wohnung bereits vier Leitungen vom Multischalter verlegt werden. Deutlich erkennt man also, dass enormes Potential in dieser neuen Technik steckt. Sie vereinfacht und vergünstigt die Installation von größeren Satellitenempfangsanlagen massiv, aber auch für den Einzelanwender ergeben sich neue Möglichkeiten.

Dazu kommt noch, dass ein Lichtwellenleiter mit dem gesamten Spektrum eines Satelliten noch lange nicht ausgelastet ist, es besteht zusätzlich ausreichend Platz für den terrestrischen TV- und Radioempfang oder andere Einsatzmöglichkeiten wie z.B. Hochgeschwindigkeitszugänge ins Internet oder für den Aufbau einer Netzwerkverbindung zwischen verschiedenen Geräten innerhalb einer Wohnung oder eines Hauses.

Kein Wunder also, dass GlobalInvacom die Fachwelt mit dem optischen LNB bereits überzeugt hat und mit dem neuen Installationszubehör erleichtert die Firma nun auch noch die Installations- und Wartungsarbeit.

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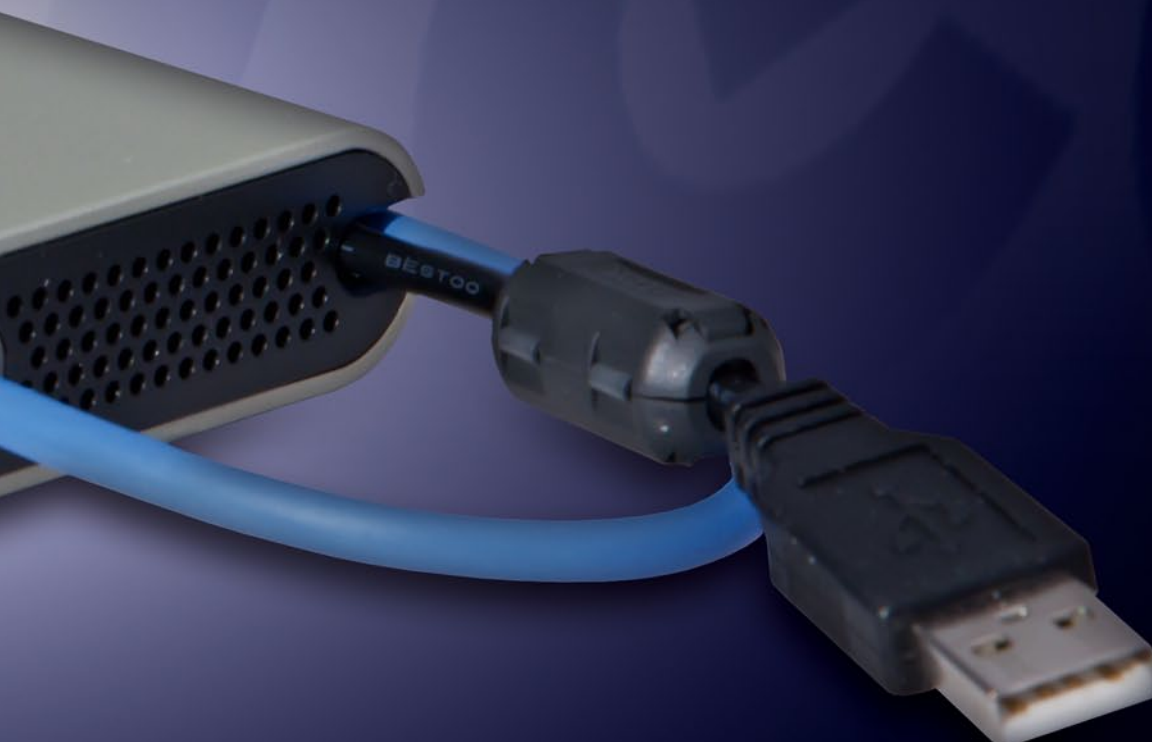
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The Gold Modulator

One Modulator for Every Terrestrial Digital TV Standard

Digital TV has a number of different standards. Most of the terrestrial receivers that we have introduced to you here in the pages of TELE-satellite receive signals in the DVB standard, for example, DVB-T (most often used for TV transmissions in standard definition) and the newer DVB-T2 (mostly used for high resolution signals). For those receivers used with cable TV networks, it's mostly DVB-C while receivers in the ISDB-T standard are used in South America.

TELE-satellite test reporters can be found all over the world and therefore have direct access to their corresponding signal standards. But the same can't be said for receiver manufacturers: a receiver production line simply can't be moved from one location to another for the purpose of receiving live TV signals in other standards.

Obviously, it would be far better to bring the necessary signals to the manu-

facturer. DekTec, a company located in Holland, has developed a multi-standard modulator just for this type of application. It's ideally suited to test terrestrial receivers in different TV standards and to take these digital TV signals and make them available in the VHF/UHF range.

All of the DekTec's modulator hardware is enclosed in an unremarkable, silver-gray aluminum box that is 123 x 62 x 22mm in size. It comes with a single USB 2.0 connector as well as the RF signal output on both ends of the box.

If you're all scratching your heads now trying to figure out where the input signal comes from and how the box gets its power, DekTec has found a rather interesting solution: the DekTec DTU-215 is designed to be used with any standard PC and thus gets its power from the PC via the USB 2.0 interface.

The little modulator box doesn't place too much of a demand on the PC: an Intel Pentium III processor with 1 GB of memory is enough for almost all of the modulator's functions; in the case of DVB-T2, a more powerful processor would be needed, for example, an Intel Core 2 Duo.

All of the required drivers and the necessary software are supplied by DekTec on a USB stick. This USB stick not only contains the software for the DTU-215, but it also has DekTec's entire software palette. This means the user has to search through all the files on the USB stick to find the matching software for the DTU-215.

Overall, the workmanship and packaging of the modulator left us with a very good impression; clearly, this is a high-end product for use by professionals.

We referred to the instal-

lation manual included by the manufacturer regarding the integration of the required drivers in the operating system (Windows XP/2003/Vista/2008 and Windows 7 are supported). This all functioned very easily with a double-click on the installation assistant. The Stream Player Software, the modulator's actual control center, was just as quickly installed and set up only after we found it hidden behind a DTC-300 labelled folder on the included USB stick.

Once all of the software needs were taken care of, we connected the modulator to our PC via the USB 2.0 port. Windows instantly recognized the new hardware and set it up in just a few seconds.

Before we can start testing this modulator, a few basic settings have to be taken care of first. This includes the modulation mode as well as the desired output frequency. The modulations are listed in Table 1.

The user can select an output frequency between 47 and 1000 MHz in the VHF and UHF bands with a bandwidth from 2.7 to 8 MHz. The modulators signal output level for QAM is between -46 and -15 dBm; with OFDM it lies between -49 and -18 dBm. The modulator draws roughly 500mA at 5V; this can be obtained from a USB 2.0 interface so





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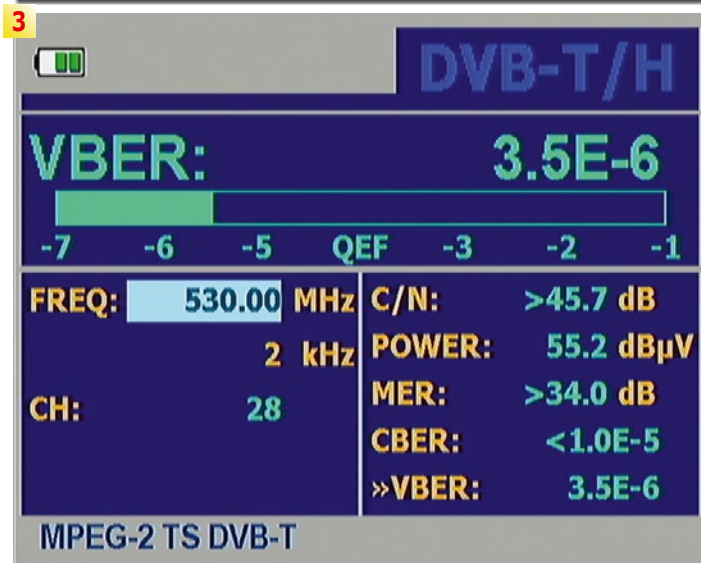
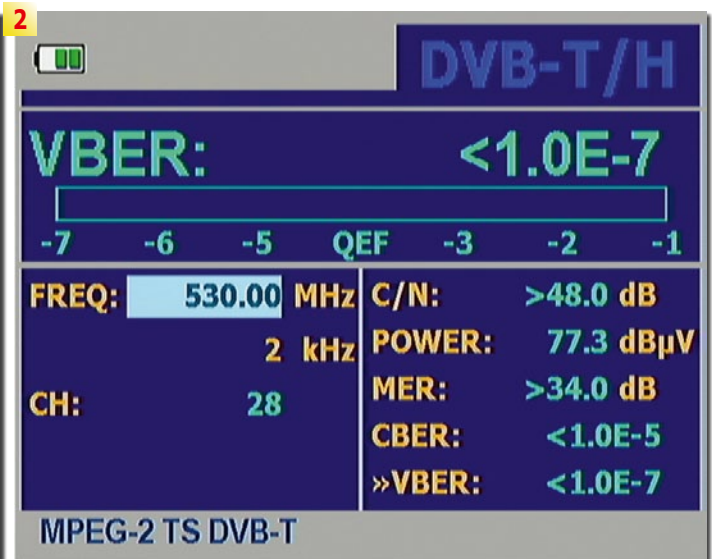


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that an external power supply is not necessary.

All of the popular transport streams can be used. Since the box modulates the stream 1:1 and passes it on to the attached receiver, raw MPEG, AVI or even DivX content is not suitable. The DTU-215 does not modify the stream, rather, it passes it along with all its information in the preselected

modulation mode (for example, MPEG-2 or MPEG-4). The more complete the stream is, the better the result at the modulator's RF output.

How do you recognize a complete stream and where do you get it from? You should direct yourself to a stream from a satellite operator that is known for its proper streams (Tip: larger

worldwide satellite operators are more likely to deal with correct streams than are smaller national operators).

In addition to a complete PMT, you should look for numerous other features of the individual channels in the stream of the transponder such as EPG, Subtitle, teletext, multiple audio tracks or even encryption.

To record such a stream you can use a standard DVB-S/S2 card for a PC (you can find suitable cards in this issue of TELE-satellite on the overview pages of the award winning HDTV PC card).

This PC card communicates with the PC through the PCI-e port so that there won't be any problems recording large data rates like





those from a DVB-S2 transponder with multiple HD channels.

Streams stored in this manner find their way 1:1 in the Stream Player Software which are then completely read and modulated into the desired output data stream.

In the software's main window the user is pre-

sented with three large text fields that contain information on the transponder stream, which channels it contains, the PIDs that are in use and the data rate that was used to send it.

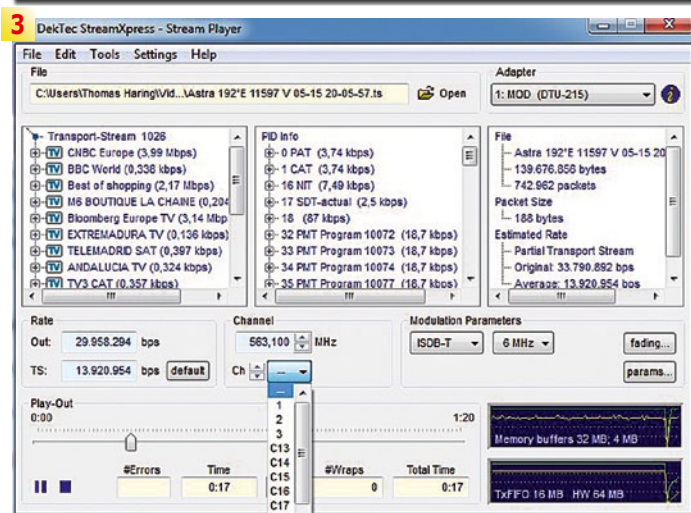
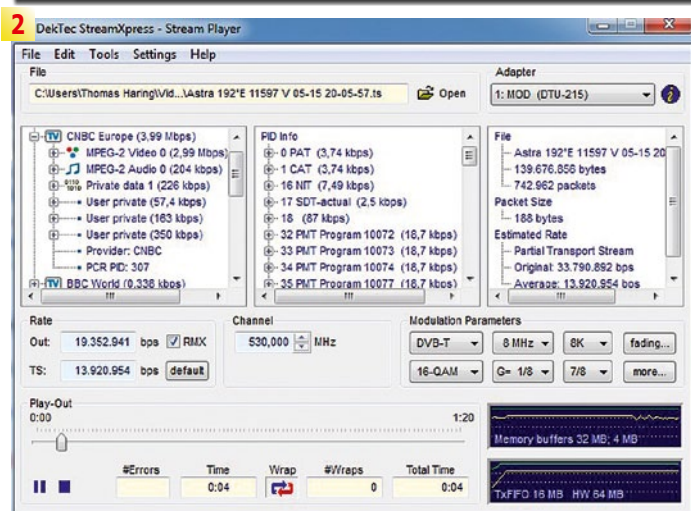
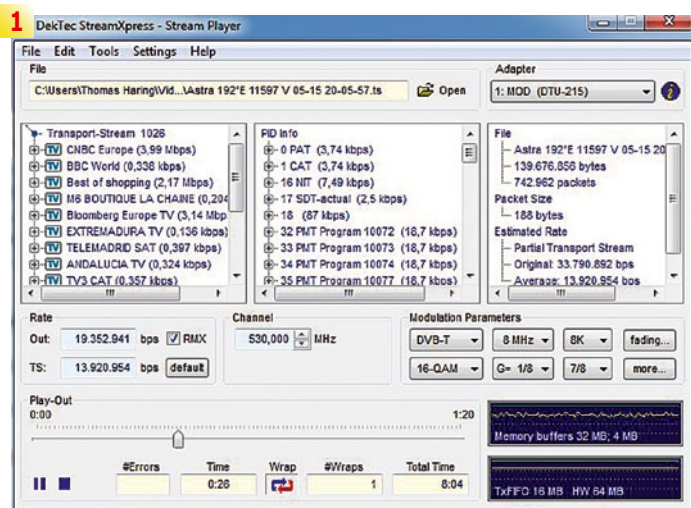
Since the DekTec DTU-215 cannot receive a live input signal and instead relies on a stream that is already available, the Stream Player

1. The DekTec DTU-215 modulates a DVB-T signal from an original transponder stream via satellite
2. Signal measurement without artificially introduced errors
3. Signal measurement with artificially introduced errors through the modulator
4. The signal curve in the spectrum with high output level
5. The signal curve in the spectrum with low output signal
6. Signal measurement with artificially introduced errors through the modulator
7. Through the introduction of data containing errors, the display on our analyzer was significantly distorted
8. Clean image without any modulator introduced error bits

Norm	SD	HD	Main Usage Areas	Transmission	Receiver
DVB-T	yes	no	Europe, Parts of Asia and Africa, Australia	Terrestrial	STB
DVB-T2	yes	yes	Parts of Europe and Africa	Terrestrial	STB
DVB-H	yes	no	Parts of Europe and Asia	Terrestrial	Smartphone*
DVB-C	yes	yes	Europe	Cable	STB
DVB-C2	yes	yes	Parts of Europe	Cable	STB
QAM	yes	no	Europe	Cable, MVDS	STB
ISDB-TB	yes	yes	South America	Terrestrial	STB
ATSC	yes	yes	North America	Terrestrial	STB
DMB-TH	yes	yes	China	Terrestrial	STB
CMMB	yes	no	China	Terrestrial	Smartphone*

Table 1: The most important modulation standards supported by the DTU-215 Gold Edition

(*Note: If you are connecting to a SmartPhone without an antenna input jack, an external transmitter would be necessary)

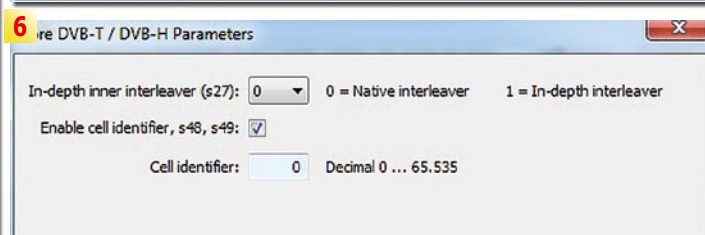
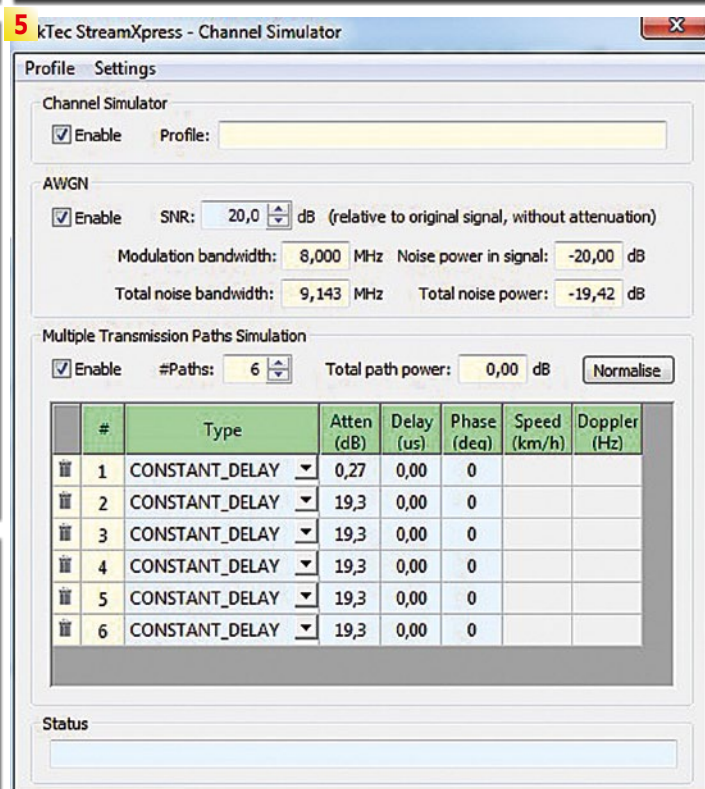
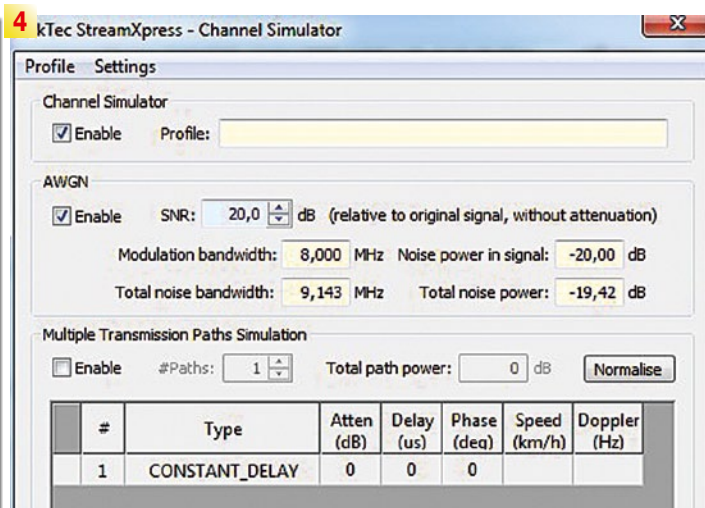


Software can play it back in an endless line; even individual portions of the stream can be replayed.

As a professional unit, the DTU-215 can also modify the transport stream in ways that a user with normal TV reception would never want: it can artificially introduce errors. In this way the Stream Player

Software can simulate the loss of data packets, bit errors as well as entire byte errors in amounts and frequencies that are user-selectable.

This is an outstanding feature in that it allows you to thoroughly test the input sensitivity and error correction capability of a receiver.



The DTU-215 also lets you adjust the signal level between -46 and -15 dBm with QAM and between -49 and -18 dBm with OFDM. By looking at the screenshots that came with this test report, you can clearly see how the signal curve changes in the spectrum of our signal analyzer.

Even the simulation of a

1. The Stream Player's main window
2. Detailed information can be displayed for every PID in the transponder stream
3. Frequency selection in ISDB-T Mode
4. Using the Channel Simulator function an AWGN signal can be created; even the transmission of the signal can be simulated over multiple stations
5. Through a total of six stations the signal can be individually adjusted for attenuation and delay
6. Various additional options in DVB-T/H mode

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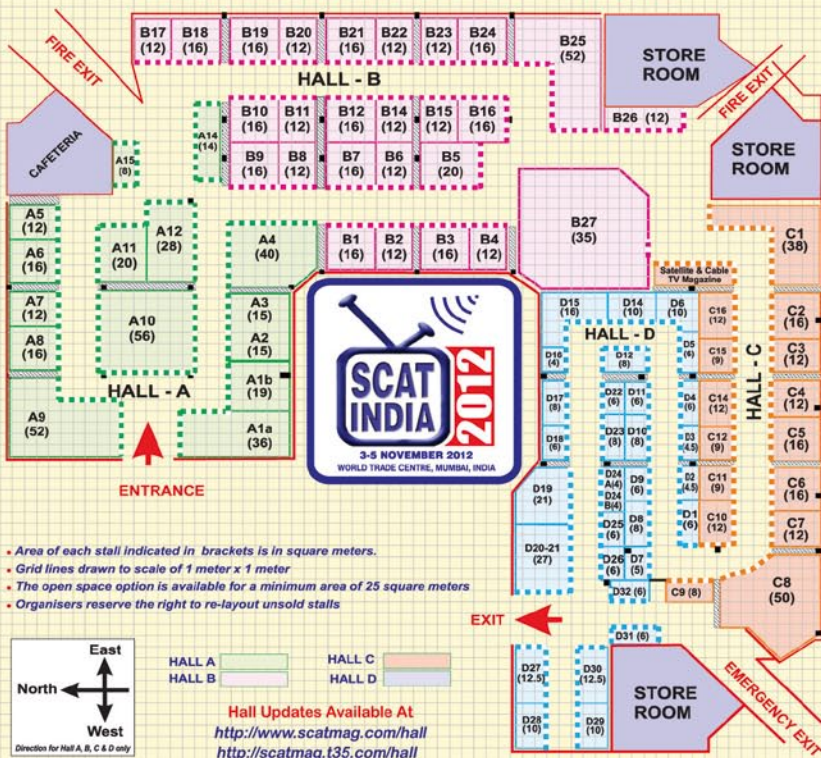
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- ◆ Indian CATV Growing 8% Annually
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- ◆ Follows European Standards: DVB, PAL B/G & 240 VAC
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- ◆ Large Market For DTH SMATV Distribution Systems
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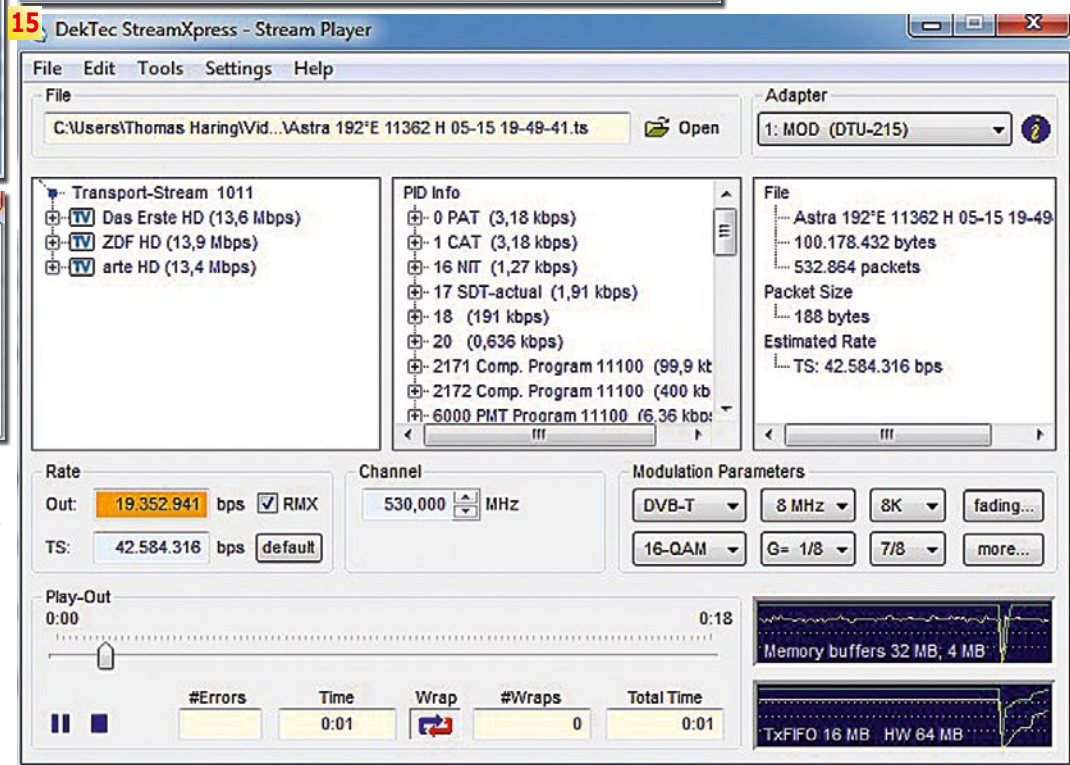
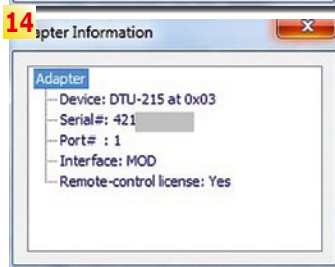
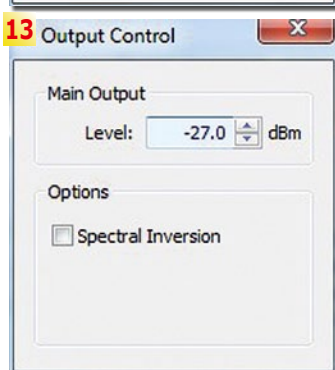
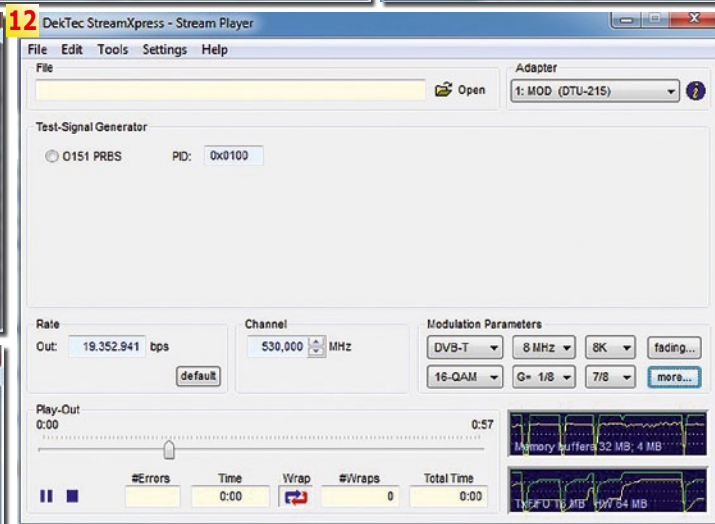
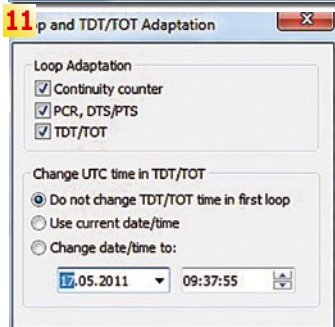
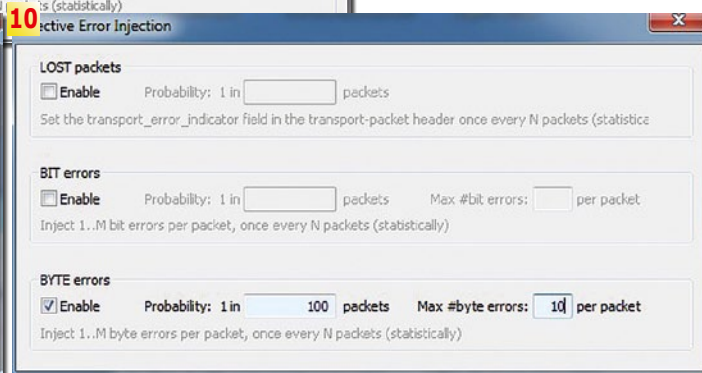
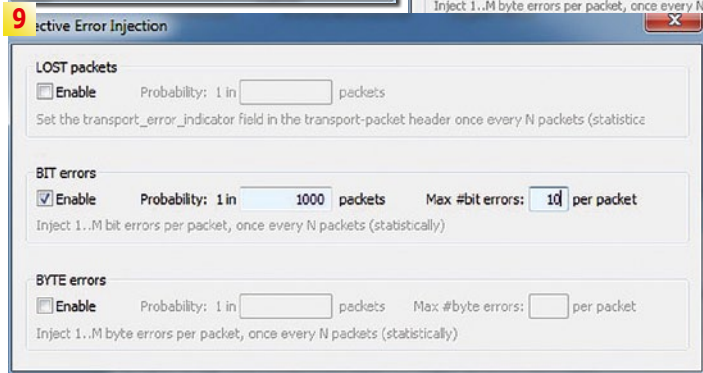
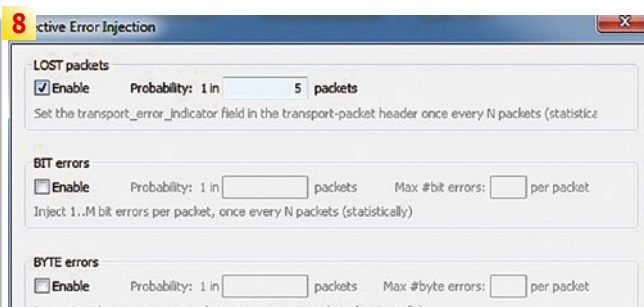
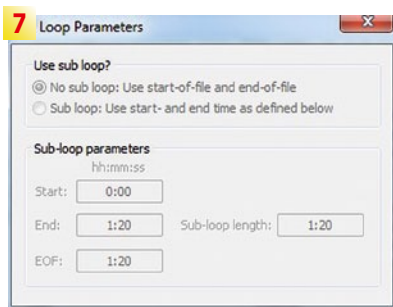
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7. Individual portions of the data stream can easily be marked for playback

8. The modulator can introduce missing data packets into the output data stream

9. The modulator can introduce bit errors into the output data stream

10. The modulator can introduce byte errors into the output data stream

11. In Loop mode you can customize the time information in the data stream

12. In addition to a transponder stream, a test signal can also be generated, if desired, in any of the supported modulation standards

13. Customizing the output level

14. Information on the hardware in use

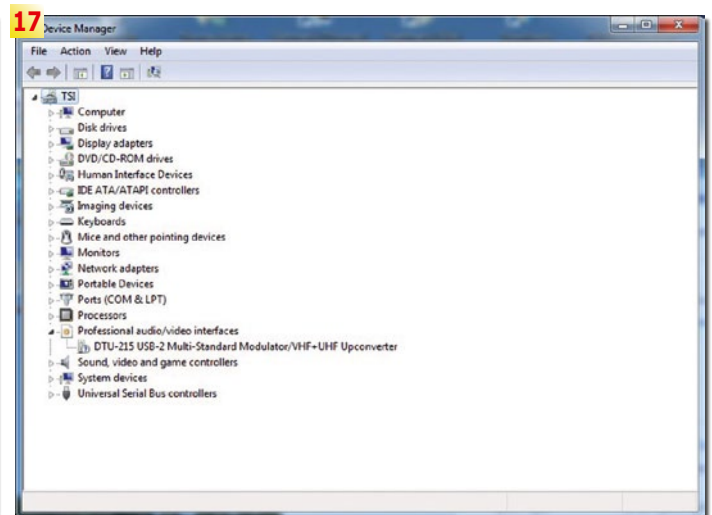
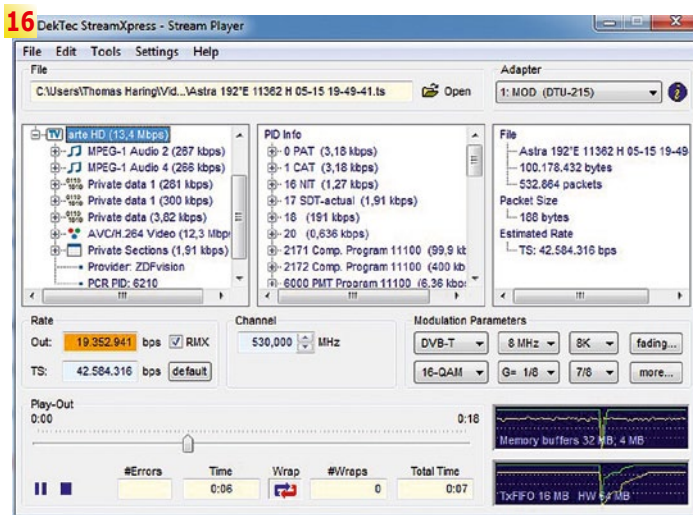
15. Even modulation of HD content is possible without any problems

16. Detailed information on an HD channel

17. Thanks to Plug&Play, the DTU-215 is easily recognized in the Windows Device Manager

complex signal distribution and transmission system is possible with the DTU-215. You can use the box to introduce signal attenuation (in dB) at multiple transmission points as well as transmission delays (in μ s).

You can even generate



a test signal in any of the modulation standards as well as an AWGN (Additive White Gaussian Noise) signal. If you introduce this AWGN signal to the actual signal and manipulate its amplitude according to a Gauss curve, you can model what would happen to the original signal if it should get disturbed by white noise.

During our tests we were quite surprised at the high efficiency of the modulator and the relatively small load it placed on the PC. We were able to modulate a transport stream with five TV channels and multiple radio channels along with all of the additional services and display them on a TV via DVB-T.

It became interesting though when we tried to take an HDTV transport stream with a total of three HD channels and modulate it in DVB-T2. It was easy to see that the USB 2.0 port was at the limits of its capabilities. But if you reduce the number of HD channels in the transport stream, it can be processed without any problems.

The DekTec DTU-215 is available from the manufacturer in two versions: While the DTU-215 Gold Edition can handle every possible modulation including future versions and can simulate a complex signal distribution network plus generate an AWGN signal, these options are not available in the

DTU-215 SP nor are some of the modulations (ISDB-T, CMMB, DTMB).

If you have sufficient programming experience, you can develop your own software with the help of the C++ API available for download from the manufacturer that would access the attached hardware through

the DekTec drivers.

This would seem to be a good time to point out that DekTec offers not only Windows drivers but Linux drivers as well although the matching modulator control software is not yet available for Linux; the user must develop it themselves using the C++ API.

Expert Opinion

The DekTec DTU-215 is a professional signal modulator for nearly every digital modulation standard via satellite, terrestrial or cable. Thanks to the multifaceted Stream Player Software, it makes an exceptional test instrument and can also be used for demonstration purposes.



Thomas Haring
TELE-satellite
Test Center
Austria

No information is provided on which of the many drivers stored on the included USB stick are actually for use with the modulator

TECHNICAL

DATA

Manufacturer	DekTec Digital Video B.V., Van Riebeeckweg 43A, 1212 EH Hilversum, The Netherlands
Email sales	info@dektec.com
Internet	www.dektec.com
Model	DTU-215 Gold Edition
Function	USB 2.0 digital VHF/UHF Modulator
Frequency range	47 ... 1000 MHz (+/- 1ppm)
Bandwidth	2.7 ... 8 MHz
Modulations	ATSC VSB, ADTB-T/DTMB, CMMB, DVB-C, DVB-C2, DVB-T/DVB-H, DVB-T2, ISDB-T, QAM
MER (OFDM)	> 42dB
RF Connector	75 Ohm (F)
Return loss	15dB (47 ... 862 MHz)
Level (QAM)	-46 ... -15dBm (+/- 2 dB)
Level (OFDM)	-49 ... -18dBm (+/- 2 dB)
Amplitude Step Size	0.5dB
Adjacent Channel	-54dB (QAM), -52dB (OFDM)
Phase Noise	< -95dBc @ 10kHz
Spectral Purity	> 50dB (47 ... 1000MHz)
USB Port	USB 2.0
Power (through USB 2.0)	5V, 500mA
Dimensions	123 x 62 x 22 mm



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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	• / •



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Manufacturer	Iccrypt
Website	www.iccrypt.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	— / •



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ICECRYPT



Manufacturer	Iccrypt
Website	www.iccrypt.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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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	— / —



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SKYWORTH



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	• / •



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Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	DVB-S2, DVB-S, DVB-T, PVR Digital Receiver
DVB-S2/LAN	• / •
Channel Memory	4000
PVR	•
S-Video/HDMI	• / •
Scart/Digital Audio	— / •



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Manufacturer	Inpax
Website	www.inpax.com
Function	HDTV Satellite Receiver with PVR
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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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	• / •



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Manufacturer	AB-COM
Website	www.abcomeu.com
Function	HDTV Linux Receiver with single tuner and USB for PVR
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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AB IPBOX



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



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FULAN



Manufacturer	AB-COM
Website	www.abcomeu.com
Function	Twin DVBS2 Multimedia Receiver
DVBS2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Manufacturer	Jaeger / Doebis
Website	www.doebis.de
Function	Digital HDTV DVBS2 Receiver with Smart Card reader for HD+
DVBS2/LAN	• / —
Channel Memory	5000
DiSEqC	1.0 / 1.2
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Manufacturer	AZBox
Website	www.azbox.com
Function	Digital HDTV Receiver with DVB-S2 and ISDB-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	• / •



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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	• / •



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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	• / •



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Manufacturer	AB-COM
Website	www.abcomeu.com
Function	Digital Linux-based HDTV PVR Receiver
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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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



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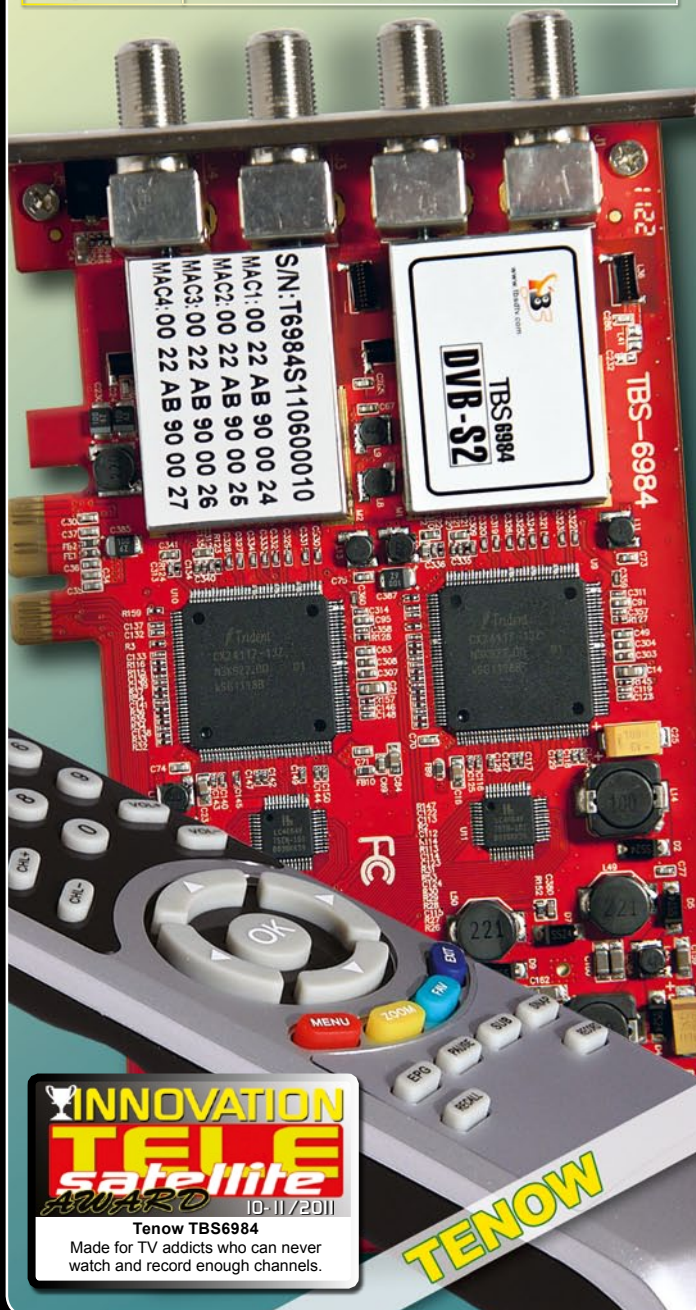
NETUP



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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



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



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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



Tenow TBS6925

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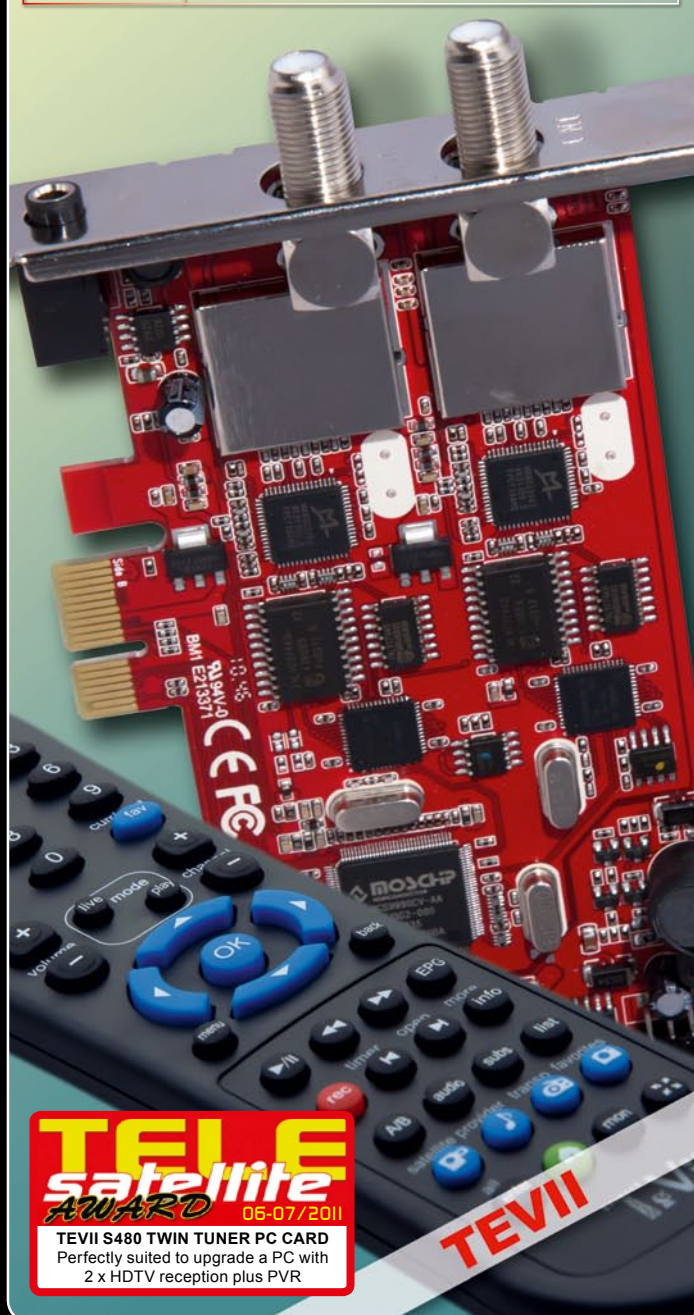
Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	DVB-T / DVB-T2 PCI-E card with 2 Tuners
Channel Memory	unlimited
Channel Bandwidth	6,7,8 MHz
FFT mode	1K, 2K, 4K, 8K, 16K, 32K
Center IF Frequency	3 ~ 5 MHz



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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

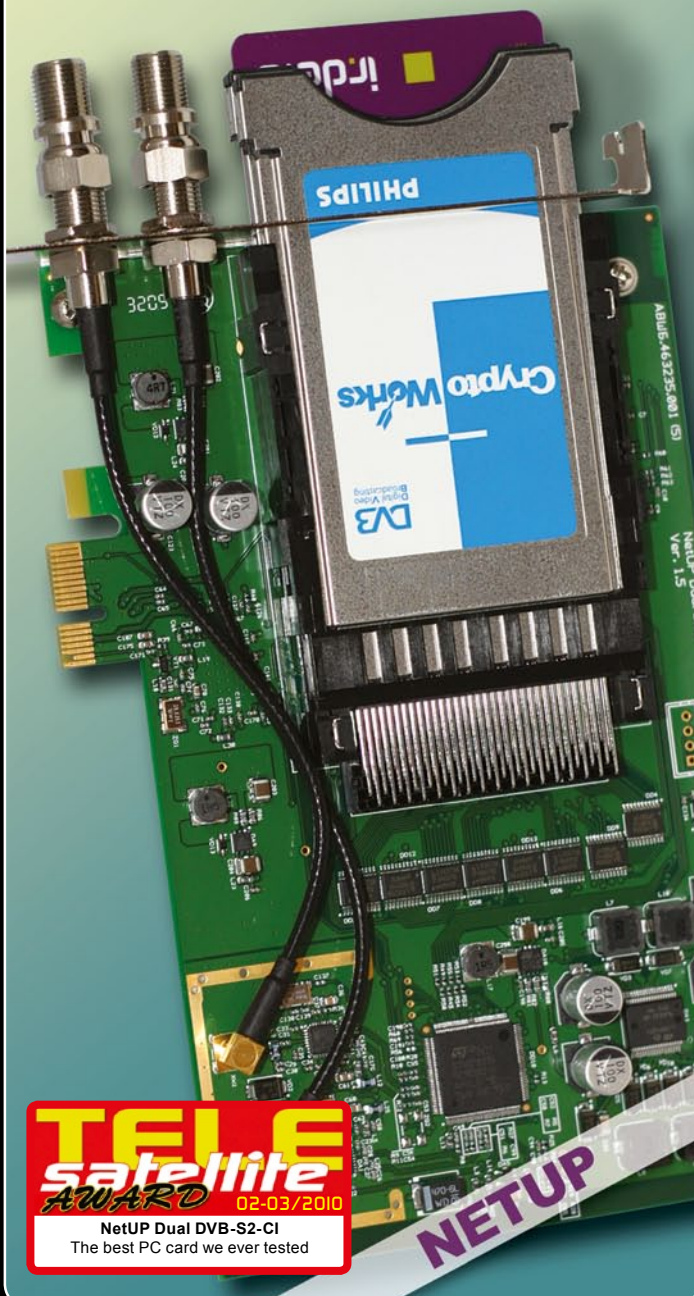




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www.TELE-satellite.info/10/03/netup
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Manufacturer	NetUP
Website	www.netup.tv
Function	Two Tuners DVB-S2 PCIe card
Channel Memory	unlimited
Satellite Memory	—
Symbol Rates	1 to 47 Ms/sec (QPSK), 1 to 31.5 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2



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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



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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



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Horizon HD-STM
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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



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satellite
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Excellent
Dish Installation Tool

LEXIUM



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



Deviser S20 Satellite Meter
Ideally suited to fastly install dishes



DEVISER



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 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 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 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 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 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 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	120x64 3.5" LCD color display



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SATCATCHER



TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/10/07/horizon
Direct Contact to Sales Manager

Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	DVB-C and analog cable TV meter
Frequency Range	51-858 MHz
Video Output	—
Built-in Monitor	LCD display



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HORIZON



TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/10/05/8dtek
Direct Contact to Sales Manager

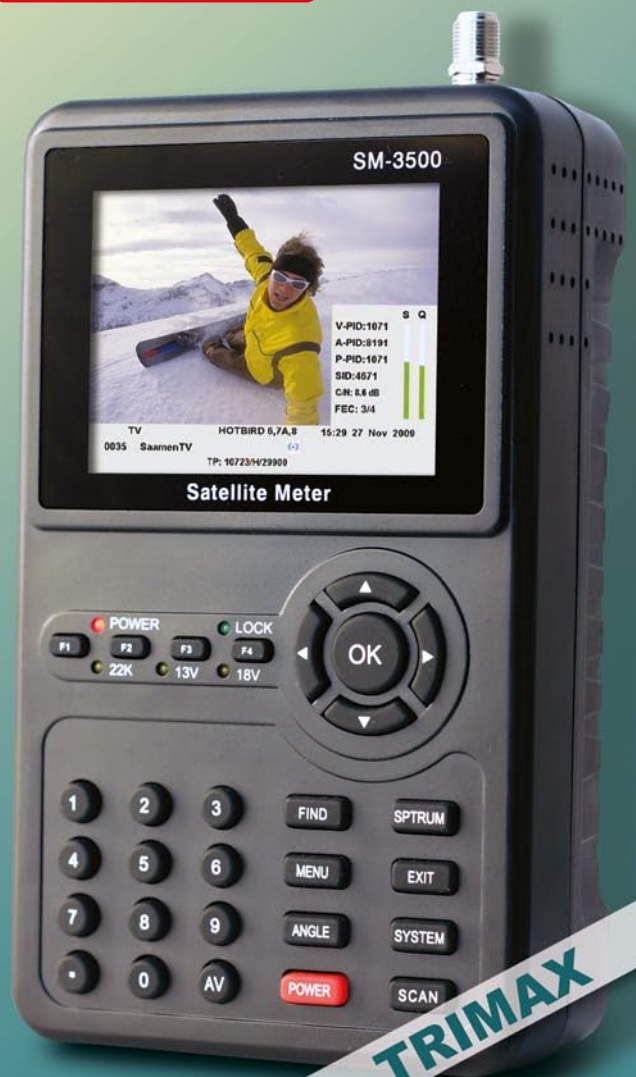
Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	DVB Signal Meter with tv monitor for DVB-S and DVB-T
Frequency Range	950~2150 MHz (satellite) and UHF/VHF (terrestrial)
Video In/Output	RCA/RCA
Built-in Monitor	3.5" LCD color display



TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/10/03/trimax
Direct Contact to Sales Manager

Manufacturer	Trimax Technology
Website	www.trimaxtec.com
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 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



NANOSAT



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



OPTISCAN



TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/09/11/satcatcher
Direct Contact to Sales Manager

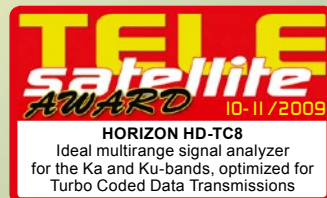
Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Fully-fledged Signal Meter with TV display
Frequency Range	930~2150 MHz
Video Output	RCA Composite
Built-in Monitor	120x64 3.5" LCD color display



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



INPA on the Path to Globalization

- *Their own receiver brand INPAX*
- *Receivers in all the critical reception standards*
- *Their own production of receivers and multiswitches*
- *Strong presence in the Middle East and Africa*
- *Focused on market driven product features*

■ INPA's administration is located in this building on the Kemeraltı Street near Taksim Place in the Karaköy suburb. The production of the INPAX brand name of products is located outside of Istanbul.

From Multiswitches to Digital Receivers

INPA Conquers the Global Market with Their Own Brand Name



Two brothers founded INPA in 2001. Ugur Kaki is the older brother and oversees their worldwide expansion from the INPA office in Shenzhen, China. His younger brother Nurullah Kaki keeps track of business in the local Turkish market from the company's headquarters in Istanbul. There, in Istanbul's Karaköy quarter, known throughout the country as the central location where companies manufacture technical products, we met up with Nurullah Kaki.

In INPA's super modern office, he explains to us the origination of the name INPA: "It's a form of an abbreviation of the Turkish term 'International Pazarlama', which essentially means international marketing." When he was asked what brand name should be used for the

international market, the two brothers simply added an "X" to the end of the company name; and just like that, the brand name INPAX was born.

"Back in 2001 we started by importing multiswitches from China", remembers Nurullah Kaki from the company's early days that he and his brother plus three employees put a lot of work into. "We were a wholesaler for these multiswitches and sold these products to dealers in Turkey." Sales in their first year weren't bad for a newly founded company: "It was around US\$ 500,000."

LNBS and splitters came later on and in 2006 the young company attempted expansion abroad. At first it was the neighboring countries such as Greece

but France and Germany were also initial export markets for INPA. It all became really interesting in 2007 when the first "homemade" satellite receiver was introduced. "It was the X-2007 FTA of which we managed to sell 40,000 pieces in the first year." This box found great appeal in the Middle Eastern countries.

In the meantime, INPA developed 14 different receiver models for satellite reception and another eight models for terrestrial reception. "In 2011 production increased to 400,000 and for 2012 we are expecting a further increase to about 550,000 units", predicts Nurullah Kaki.

Just like with every other receiver

■ Nurullah Kaki is Ugur Kaki's younger brother. They are both owner/operators of INPA Elektronik with their own INPAX brand name. Nurullah Kaki is here in his modern office showing us the test report of the INPAX X-9100 receiver that appeared in the 06-07/2011 issue of TELE-satellite.



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manufacturer, there's also a noticeable move at INPA in the direction of HD: "In 2011 only 30% of our receivers were for DVB-S2 but for 2012 this ratio will increase to 50%", he is certain. This increased ratio has already found its way to their terrestrial receivers: "For 2011 half of our production is already geared towards DVB-T2 for HD reception while the other half is still for DVB-T (SD reception)."

Another trend is just as easily recognizable: "In 2011 our terrestrial receivers only made up about 15% of our total production but for 2012 this will increase to about 25%." One reason for this is that INPA recently began producing ISDB-T receivers for the Latin American terrestrial market. This begs the question, what is the geographical dis-

■ A small selection of the wide variety of INPAX brand name products: the company began with multiswitches but today it's digital TV receivers that are the main product. Even satellite dishes are available but only as a spin-off product. The company is also big in LNBs "In 2011 we sold roughly 600,000 LNBs, mostly the single LNB version."



tribution of their customers? "Roughly 25% of our production is delivered domestically here in Turkey; the remaining 75% is exported." A large portion of their shipments go to Iran and Iraq followed by countries like Greece, but at a decreasing rate because of the financial crisis. Another portion goes to the remaining European countries. "About 15% of our sales find their way to countries in Africa like Morocco and Algeria in North Africa as well as to Ghana, Gabon and Mauritius."

Success has not been limited to digital receivers; it has also found its way to INPA's new multiswitch sector. "In 2011 we sold roughly 40,000 multiswitches", explains Nurullah Kaki as he looks at INPA's sales statistics. "30% of them stay here in Turkey while another 30% go to Syria and other Near Eastern countries such as Iran and Iraq but also Tunisia." The fact that INPA has quite a presence in a country like Syria has to do with the local government wanting to put an end to the prolific growth of satellite dishes there and pressuring apartment building owners to install community reception systems. It's also an excellent reason for local installers to install INPA multiswitches.

In connection with this, we found out another interesting fact: "We also offer Headend components." INPA can boast of a number of prestigious installations: "Our Headend systems are used in the Hilton Hotel Istanbul, the Crowne Plaza Hotels in Istanbul and Ankara, in the Radisson and Holiday Inn hotels in Istanbul as well as the Medicana Hospital in Istanbul." But that's not all: "We even have an INPAX Headend installed in the President of Azerbaijan's private house!" INPA has already sold 70 of these costly Headend systems.

The company started with three employees in their founding year 2001; INPA now has 25 employees: "Our sales team consists of four employees, our technical department has three engineers, plus there are two employees in the warehouse and in logistics, another two in administration as well as 15 at our production facility outside of Istanbul." In 2009 INPA moved into the offices on Kemeralti Street but the move there was a short one: "Before that we had our offices right here directly across the street", grins Nurullah Kaki.

■ Headend components are a high-end product from INPA



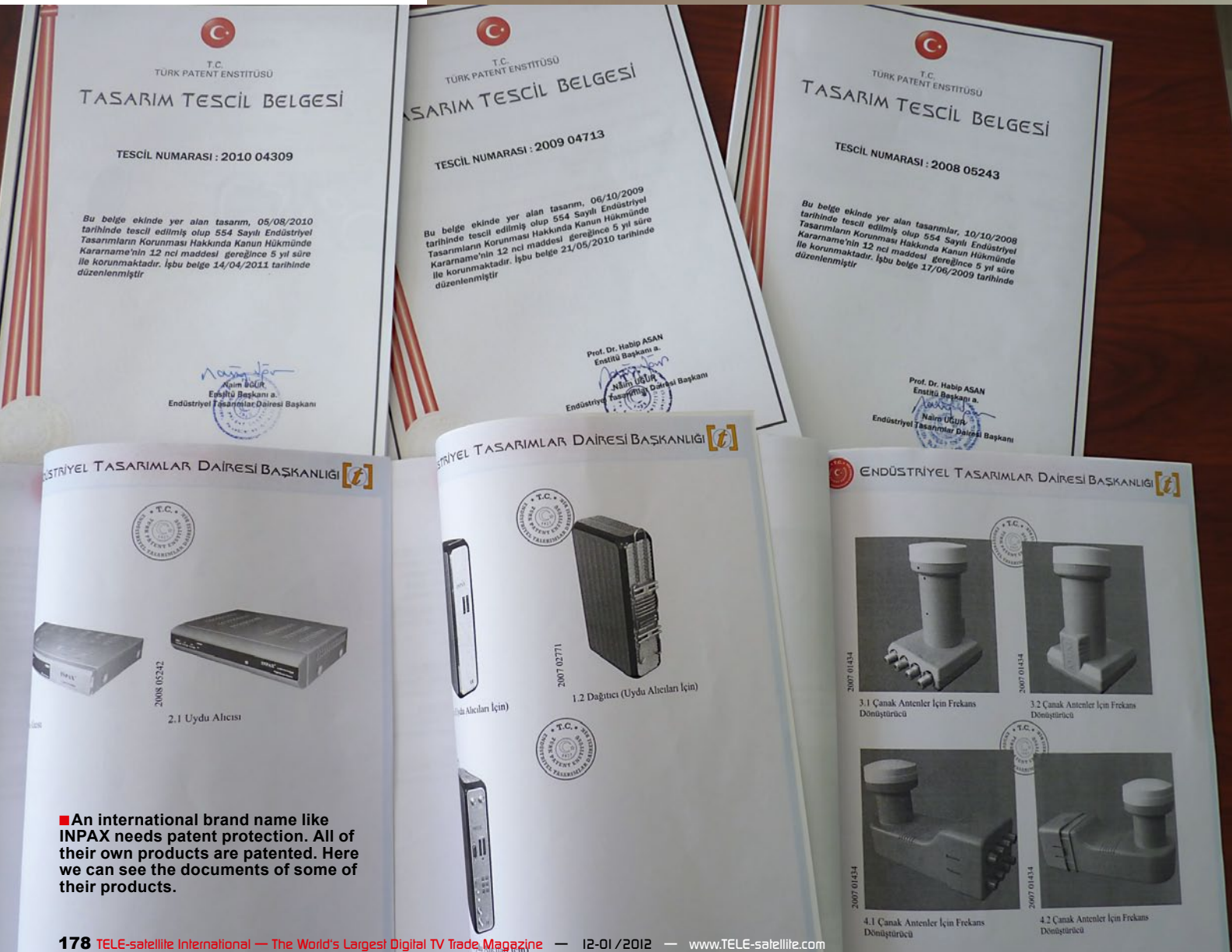
The company's sales have grown enormously: "In 2011 we reached US\$10 million in sales and for 2012 we expect an increase to US\$12 million." He can explain this optimism with new products: "In addition to the ISDB-T receiver that will be available on the market, we will soon be starting with other DVB-T2 models with additional features. We are planning on 3D receivers in 2012 as well as the start of a satellite finder." Even the multiswitch product line will be enhanced with an economy version.

With all of these measures and new products, INPA is looking to consistently increase sales as well as better serve the international market. "We want to become a globally recognized brand name", says Nurullah Kaki.

INPA is already international and has the necessary products available. From here he can only go up.



■ This DVB-S receiver was the start of success for the company as a receiver manufacturer in 2007 for the brand name INPAX. The box sold very quickly and found many takers especially in the Middle East.



■ An international brand name like INPAX needs patent protection. All of their own products are patented. Here we can see the documents of some of their products.



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INPAX[®]

UNITED TECHNOLOGIES OF INPAX



1

1. INPA receptionist Eda Eso greets visitors and answers the telephone.

2. Repairs are handled by Technical Customer Support employee Serdar Isk.

3. A look in the warehouse. Logistics Manager Ferdi Sen keeps everything organized and makes sure that the customer gets the right receiver.

2





INPA

Receiver and Multiswitch Manufacturer, Turkey

www.inpax.com.tr



Company Details

Engineers in Research & Development | Total Number of Employees

0 25 50

Average Turnover (Previous, This, Next Year Estimates)

0 10 20 Mio €

Production Certificates

DVB

Production Categories

own brand INPAX

Main Products

Manufacture of Satellite Receiver, Multiswitch, Headend,

Wholesale of LNB, Dishes, Cable



■ View of the Bosphorus from the roof of the INPA building. This lively city is a great vacation spot. Of course, you could also build up a large global company like INPA.



How P-SAT Wins New Customers



■ Since November 2010 wholesaler and retailer P-SAT Kft has been leasing this 330 square meter building in northern Budapest; the 150 square meter warehouse in the background also belongs to P-SAT. The company also operates a very popular Internet digital TV community as well as a web shop under the name SAT.HU. The company has six employees.



- *Has its own customer magazine*
- *Created supermarket style store*
- *Planning start of own branded TV services*
- *Operates one of the most well-known web communities in Hungary*

Active and full of ideas: A successful climb



Anyone, whether it's a manufacturer or a dealer, who has something to sell has the same problem: how do you win new customers? What good is the best product if no one knows about it? What use are all those sensational offers if no one is aware of them? How do you make your potential customers notice your products? Every successful manufacturer and every successful dealer managed to find their own solution. A wholesaler that came up with an especially interesting solution

to this problem is P-SAT in Hungary. The founder and operator of this company, Tibor Posta, gave us some insight into how he solved the problem of winning new customers.

But first we wanted to learn more about Posta's Company P-SAT. Obviously, the "P" in P-SAT stands for his name Posta. "The company P-SAT Kft was founded in 2002", explains Tibor Posta. Before that time he was an antenna installer. "In 1991 I started out

erecting TV antennas", he remembers, "This was at the same time when Hungary started their second TV channel via UHF." His first customer was his parents. And then it happened as it usually does: friends and relatives would call and Tibor Posta ended up with more and more work to do. Back then he lived in eastern Hungary and

■ Tibor Posta is founder and majority owner of P-SAT. Anything and everything an antenna installer would need, including fiber optic LNBs from GlobalInvacom, can be found in his shop.



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■ Receptionist Lilla Nagy greets everyone in a friendly manner



one day he realized that the antennas and cable plus whatever else he needed could be acquired less expensively at wholesalers in Budapest. The breakthrough came when he began reselling these cheaper components to antenna installers where he lived.

In 2002 he decided to immerse himself completely in this new job as a dealer and founded P-SAT as a Limited company (Kft in Hungarian). Since he purchased his antenna components as before from wholesalers in Budapest, he opened a small office there in 2003: "It was only 20 square meters in size", says Tibor Posta, "and had a secretary."

But then, of course, the next logical step came: why buy your components from other wholesalers when you can buy them directly from the manufacturers? P-SAT converted into a wholesaler that ultimately became so strong that Tibor Posta brought two additional partners into his company that are also involved in the satellite field in Hungary. "The two partners have a 49% stake in the company; with 51% share I hold the majority stake", he re-

veals regarding the ownership stake in P-SAT.

Parallel to all of these activities, Tibor Posta also took command of the Internet: "In 1996 I started my web-site and in 1999 a web shop was added to it. In 2000 I started sat.hu", comments Tibor Posta. The latter is today one of the most well-known digital TV web communities in Hungary. This takes us to the subject of marketing and the winning of customers. To become known, Tibor Posta from the beginning on has relied on the media. "I write quite a few articles myself", he says, "and especially in the beginning I sent many articles to local newspapers." That's how his small company became bigger and bigger: "At some point there was a local satellite magazine in which I regularly placed ads. I even put ads in Hungarian TV programming magazines."

So far so good, but times had changed. "That Hungarian satellite magazine doesn't exist anymore and there is no longer any source of specialized information for the local market outside of the Internet", he con-

tinued. His solution? Publish his own customer magazine. "That started in 2009: the first three issues were published for our professional customers under the name sat.hu", he remembers. "As I was preparing the fourth issue, the idea came to me to change the target group of my magazine from dealers to end-users." And so, in October of 2010 the first issue of "Tévésről Egyszerűen Magazin" (Simple TV Reception Magazine) appeared. It consisted of 32 pages that explained in layman's terms the technology behind TV reception. The magazine is put together professionally and naturally has product write-ups from only those manufacturers that are part of P-SAT's program.

"We print 5000 issues and ship the magazine to end-users as well as to our roughly 200 professional customers, that is, small dealers and installers." The magazine is free for end-users; dealers pay a small fee to cover some of the expenses. "In return, they can put their own stamp on the back; this brings customers directly to them", he adds. But that's not all: "In 2011 we began offering our website as a fran-

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chise." This means that dealers and installers can use their own websites to link directly to P-SAT's web shop. Ten of their largest dealer customers have already done that; Tibor Posta is convinced another 15 will soon be on board after which 25 of the top dealers will be linked to the sat.hu web shop. "If an end-user finds something interesting in the magazine, he can order it online through each of our dealer partners and it always ends up in our web shop."

Tibor Posta would like to publish two or three issues of his magazine each year and hopes that this will further increase his exposure and thereby bring in even more new customers for his digital TV products. Naturally the costs of publishing your own magazine have to be put up against the hoped-for success but as Tibor Posta puts it, "How else are we supposed to reach the end users with useful digital TV reception information?"

It's a bold move to start your own customer magazine. In a small country such as Hungary (roughly 10 million inhabitants) in which local trade magazines already face difficulties because





2

1. Multi LNB reception is standard at P-SAT. For every make of dish that P-SAT sells, they have a matching Multi LNB mount. A metal shop under contract to P-SAT manufactures the mounts for all the different dish variants. "Reception of ASTRA at 19.2 east, HOTBIRD at 13 east, EUTELSAT at 9 east and AMOS at 4 west are the most popular here in Hungary", says Tibor Posta as he holds a multi LNB mount up to the camera. The advantage of such a prefabricated solution is that the customer or installer only needs to swap out the original mount for the multi LNB mount, align the antenna to the satellite in the dish's focal point and there you have it, all the other satellites are correctly aligned automatically. The elevation is also displayed on the mount. Multi satellite reception has never been easier!

2. Contrary to nearly every other specialized store, Tibor Posta specifically chose the supermarket type system in which the customers can freely look around and touch any product they might be interested in. All of the products are, like in the real TESCO supermarket located diagonally across the street, nicely organized and labeled with little cards that also show the price. "We've already had customers walk in and find a product that they had no idea we even carried. Yet these products have always been in our price lists!" That is the small but significant difference: give the customers an opportunity to look at and touch the products themselves and the decision to buy anything becomes that much easier than first looking it up in a catalog or a product list that they might not have even known existed in the first place. But Tibor Posta is aware of the drawbacks of having such an open supermarket type of store: "We naturally have cameras installed everywhere." He then adds, "Roughly 25% of our customers are end users; the remainder are professional dealers and installers."



1. Should there be a problem with a receiver, Technical Manager Mátyás Nagy quickly takes care of the repairs.

2. Warehouse Manager Csanád Posta keeps everything organized in the warehouse. Yes, before you ask, he is owner Tibor Posta's son.

the number of readers are simply too low, the start of your own customer magazine is an interesting alternative. "10% of our profits go to marketing", explains Tibor Posta, "and it just so happens that our magazine is part of that marketing."

He's not only active in local marketing; he actually has some far reaching plans and ideas: "Content is missing here in Hungary. I've been giving a lot of thought to starting a TV channel." P-SAT could possibly start its own P-TV channel via IPTV or satellite as early as 2012. "I'm currently in negotiations with a number of TV rights owners", reveals Tibor Posta. He has managed to go from nothing to an ever-increasingly successful company thanks to his non-stop diligence. One thing is for sure, Tibor Posta is never short of ideas!





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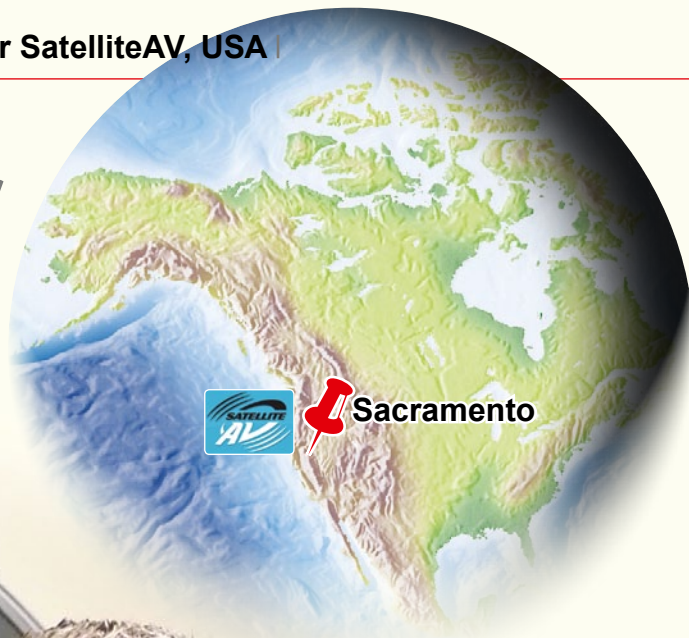


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■ SatelliteAV along with their partner company PowerON can be found in a section of Roseville's enormous industrial park near Sacramento, California in the USA. You can see the tip of a C-band dish mounted on the roof. There are 10 different C and Ku band antennas installed on the roof ranging in size from 45cm to 3m covering the entire arc from 58W to 166E.

Success with Your Hobby – Plus a Little Luck



GEOSATpro

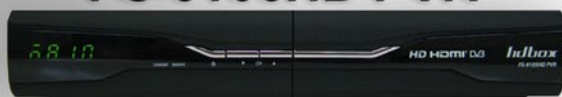
■ Brian Gohl is Founder and President of SatelliteAV. The company distributes the GLORYSTAR system and as a wholesaler manufactures and distributes the GEOSATpro brand name.



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- 3 Digit LED Display
- Software Limit Protection

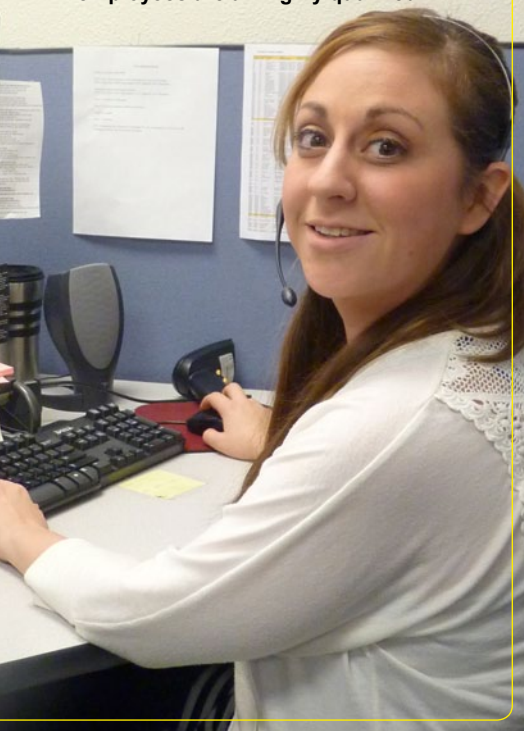
EZ-2200



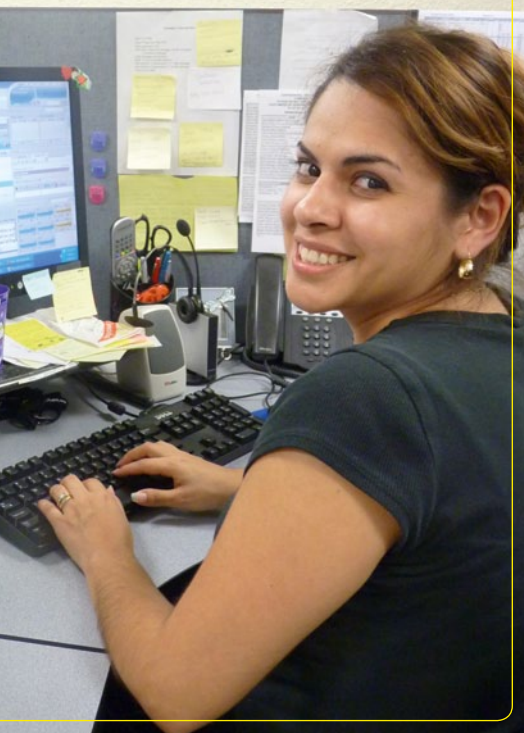
MOTECK
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actuator, control, polar mount, cable

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■ **Megan Paradise is the Call Center Team Leader. She coordinates the incoming telephone calls from customers with her seven employees. "We also all have a technical background and can therefore answer any technical questions", says Megan Paradise pointing out that these employees are all highly qualified.**



■ **Bonnie Marroquin coordinates the cooperation with broadcasters and assigns each of them their own telephone number. She explains, "At the moment we operate 85 toll-free numbers and receive on average 200 telephone calls every day."**

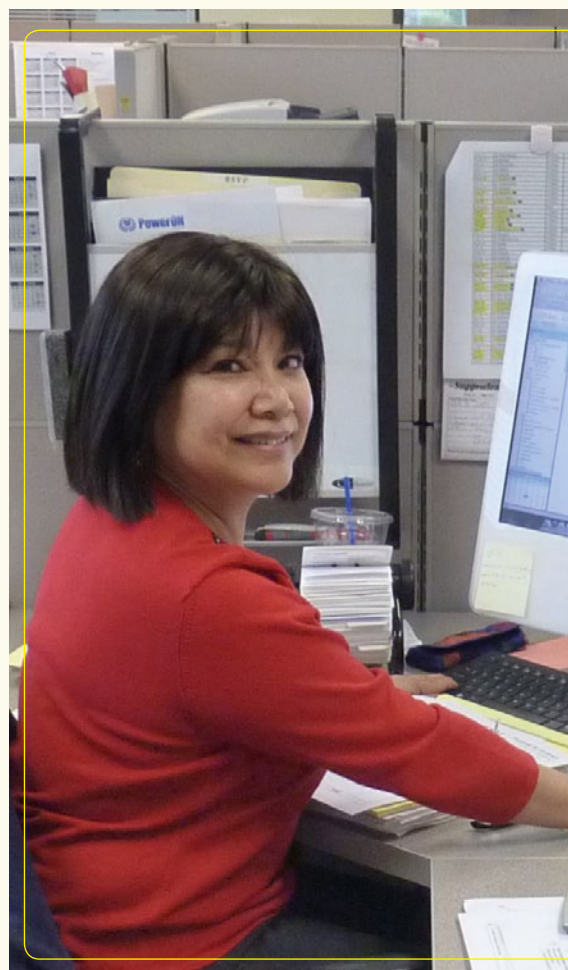


The best career you could possibly have is one in which you turn your hobby into your occupation and you're actually excited to go to work every day. Or, as Brian Gohl puts it, "On the weekend I can't wait for the start of work Monday morning."

Brian Gohl took his hobby – the playing around and experimenting with satellite components – and turned it into the successful company SatelliteAV. But the path to this success was not exactly a straight line, in fact the initial spark was actually a catastrophe: "I was struck by a bolt of lightning that put me in the hospital for three months and since then I've had a pacemaker", explains Brian Gohl coolly regarding his worst experience.

Brian Gohl started his career with a company that offered data transmissions via satellite. That was 1984 in Fort Lauderdale, Florida and the technology behind this was still in its infant stages. Back then only large companies could afford satellite transmissions. Brian Gohl was responsible for the send and receive sections. One day a technician called in sick and Brian Gohl was asked to swap out an amplifier at a reception station. At that very moment, as he unscrewed the component, a lightning bolt struck the station sending him several meters across the floor. He went to the hospital and had a pacemaker implanted. Unfortunately, this meant he could no longer work at his job since the powerful transmissions from satellite stations could disrupt his pacemaker.

Brian Gohl changed jobs but stayed close to the technology: he became a cameraman and worked for several years in TV production. His first satellite TV system he had already installed by his father back in 1983. In 1989 he felt the time was right and moved to Oregon and for the first time had enough space to erect his own satellite system: "It was a three-meter C-band dish that I expanded to include the Ku-band in 1992", remembers Brian Gohl. As fate would have it, his mother came to him one day with a problem. At that time she lived in Washington State but in a valley far away from everything. She was so far away that she couldn't receive any TV signals. Brian Gohl installed a 1.8-meter satellite antenna so that she could receive 3ABN, a Christian oriented channel. His mother was so thrilled that she told the story all over town. That's how Brian Gohl began installing more satellite systems on the weekends.



■ **The driving force of the operation is Office Manager Janine Mullinix. She concerns herself with the smooth flow of the office.**

As the demand for his satellite installation work continued to increase a decision had to be made between TV production and satellites. The love of the satellite hobby won out and in 2001 he founded Satellite AV. "In the first several years I sold and installed more than 300 complete systems a year", says Brian Gohl as he looks back at the beginning.

The leap from a one-man operation to a real company came at an Easter family reunion. One of his relatives, Brent Kelley, operated the company PowerON (www.poweron.com) with an interesting business concept: They purchase used electronics (mostly higher valued PCs, laptops, monitors and Smartphones) refurbish them and then resell them either directly or through middlemen. Some devices such as Smartphones are disassembled and usable components such as the flash memory and the screen are picked out of the pieces. At that Easter meeting the idea to combine the expertise of PowerON with Brian Gohl's satellite firm was discussed.



Sure enough, Brian Gohl packed his things and moved to Sacramento in northern California. Satellite AV took over a portion of the PowerON warehouse and offices with new partner, Brent Kelley as CEO and a short time later brought on Kevin Hardy, CFO. PowerON had something that SatelliteAV was missing: enormous technical expertise and an expansive Call Center infrastructure.

Now SatelliteAV entered a new business sector: the company began offering satellite reception systems for Christian channels under the name GLORYSTAR. The reality is that all of the different Christian channel operators don't want to or are unable to devote staffing and resources to support the distribution, installation and technical support of FTA systems, but on the other hand are dependent on their future customers successfully setting up and then maintaining a satellite reception system.

Brian Gohl explains the procedure like this: "The Christian channels advertise using every possible local media outlet. These ads direct potential customers to call a specific telephone number to order a satellite system so that these people can watch their TV channel." Since GLORYSTAR offers this service to nearly every Christian TV provider, all of these telephone calls, regardless of what number is actually dialed by the end-users, end up in SatelliteAV's Call Center. "Depending on the programming operator, our employees answer using that providers name", explains Brian Gohl.

At this point Brian Gohl's hobby activities come fully into play: the customers that want to receive these TV channels get not just a typical satellite receiver system that you can buy almost anywhere, but rather a special system specifically designed for Christian TV channels. "We offer a special satellite receiver that can be operated in two different modes", explains Brian Gohl, "either in normal mode like any other receiver or you activate the GLORYSTAR programming. In this second mode, the menu is greatly simplified since the Christian channels and transponders are already preprogrammed. The customer really can't do anything wrong."

■ **Nothing functions without bookkeeping. Senior Accountant Hope Lothrop organizes all of the invoices and keeps an eye out on all company expenditures.**



The GEOSATpro receiver was the first FTA product in the USA to introduce automatic receiver programming via satellite. All GEOSATpro receivers are kept up-to-date via two satellite streams: one stream is used to keep the firmware updated while the second stream keeps the channel programming current. "When we started with this system in 2006, we coordinated with 18 channels from 10 different Christian providers. In 2011 it's grown to 67 channels from 45 providers", explains Brian Gohl.

SatelliteAV's success is actually greater if you analyze the situation in the USA a little closer. For satellite viewers in North America there are only three areas where they can watch free TV: the first would be foreign language channels for all the different ethnic groups. For English-language viewers that is irrelevant; all that remains for them are

the religious oriented channels that don't encrypt their programming. The third group of freely receivable channels would be feed transmissions although this is more for satellite enthusiasts who have a motorized antenna as well as some necessary patience. As a satellite enthusiast himself, Brian Gohl is in the process of developing something for that segment, but more on that later.

In just a few years Brian Gohl, with his GLORYSTAR system and the know-how and organizational expertise of his partner PowerON, has won over a very important group of FTA viewers in North America. "We are working with a partner in Canada and in Mexico our branch office there is run by Jonathan McCallie", comments Brian Gohl on the activities of these groups. Jonathan McCallie came up with the name GLORY-

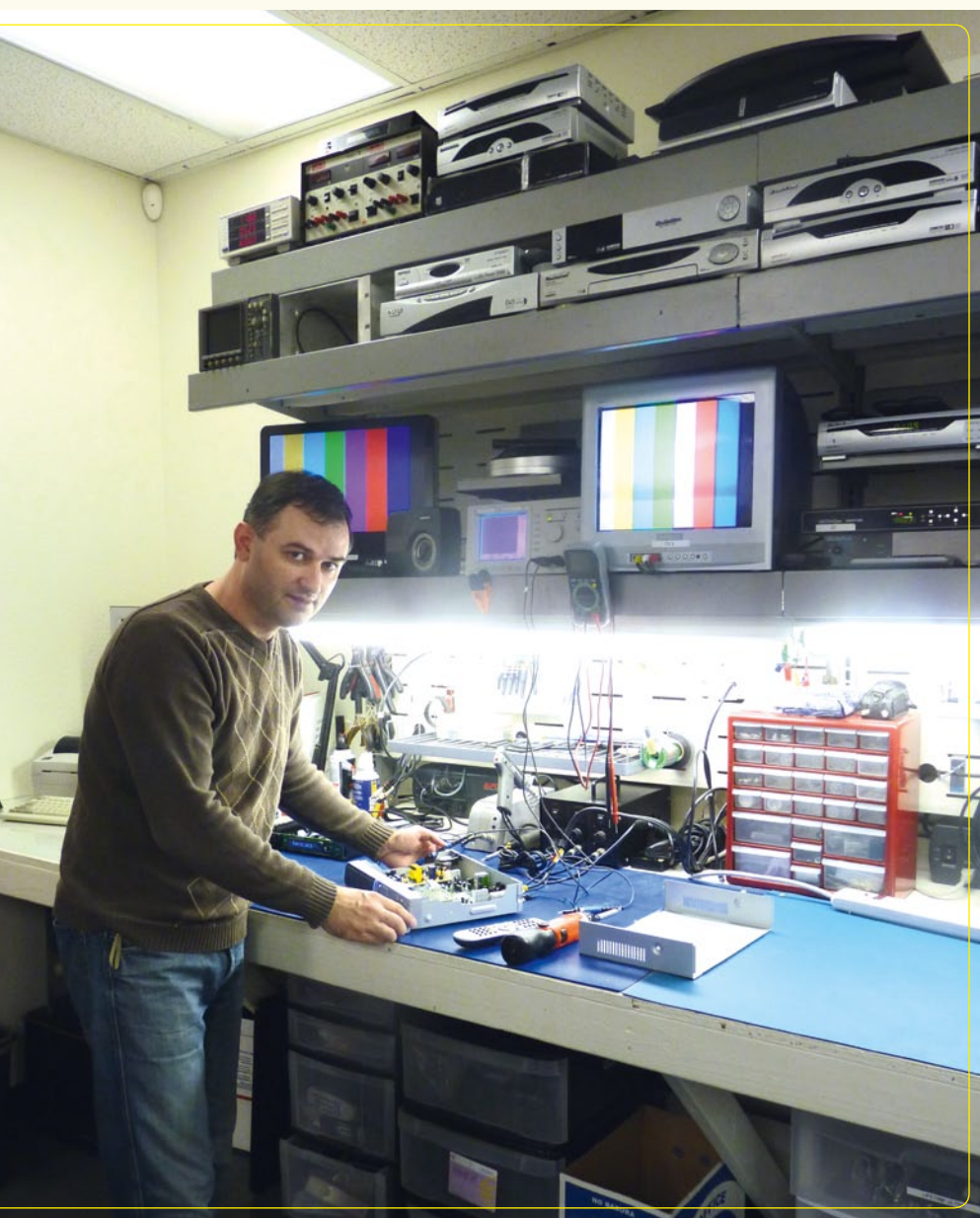
STAR. "Today we have 15 employees that work for GLORYSTAR as well as two employees in Mexico", comments Brian Gohl.

How successful is GLORYSTAR in the sales of their satellite systems? "In 2005 we sold roughly 5,500 complete systems. That number increased to 10,000 in 2011 and for 2012 we're expecting a further increase of 15%", reveals Brian Gohl and then continues, "SatelliteAV, as a manufacturer and wholesaler, sold an additional 1000 complete systems, 5000 receivers and 20,000 LNBs through their reseller network in 2005. Those numbers remained relatively constant over the years and for 2012 we're expecting an increase."

Let's turn away from GLORYSTAR's activities and have a look at what wholesaler and manufacturer SatelliteAV has to offer: "In 2005 we founded a new brandname, GEOSATpro, under which we offer C-band, Ku-band and C/Ku-band LNBs, installation kits and satellite dishes ranging in size from 90cm to 2.4 meters." In 2007 SatelliteAV expanded its receiver production. "In 2007 we introduced the first PVR SD receiver to the North American market that in 2009 was expanded to include automatic programming via satellite. This was also a first for the North American market", reports Brian Gohl proudly on his company's innovations.

Other innovative creations from Brian Gohl, the satellite enthusiast that consistently works on new ideas, include a mast insert with built-in bubble level, a Ku-band LNB bracket for two LNBs offset by 4° that is so flexible that it can be used anywhere in the USA plus an especially interesting highlight: "We offer the world's smallest LNB!" explains Brian Gohl referring to the 40mm narrow LNB that is the same size as the LNB bracket thus allowing two of these LNBs to be mounted right next to each other. "They are not only extremely small, but also extremely sensitive across the entire frequency spectrum", comments Brian Gohl.

With this LNB he has locked himself into a small but nice market segment. "These LNBs are ideally matched to our 90cm dish; the built-in feed of the LNB



■ Customer reported problems can be dealt with here as can the testing of new software versions. Technical Manager Eugene Zaikin is seen here testing the correct function of a receiver.



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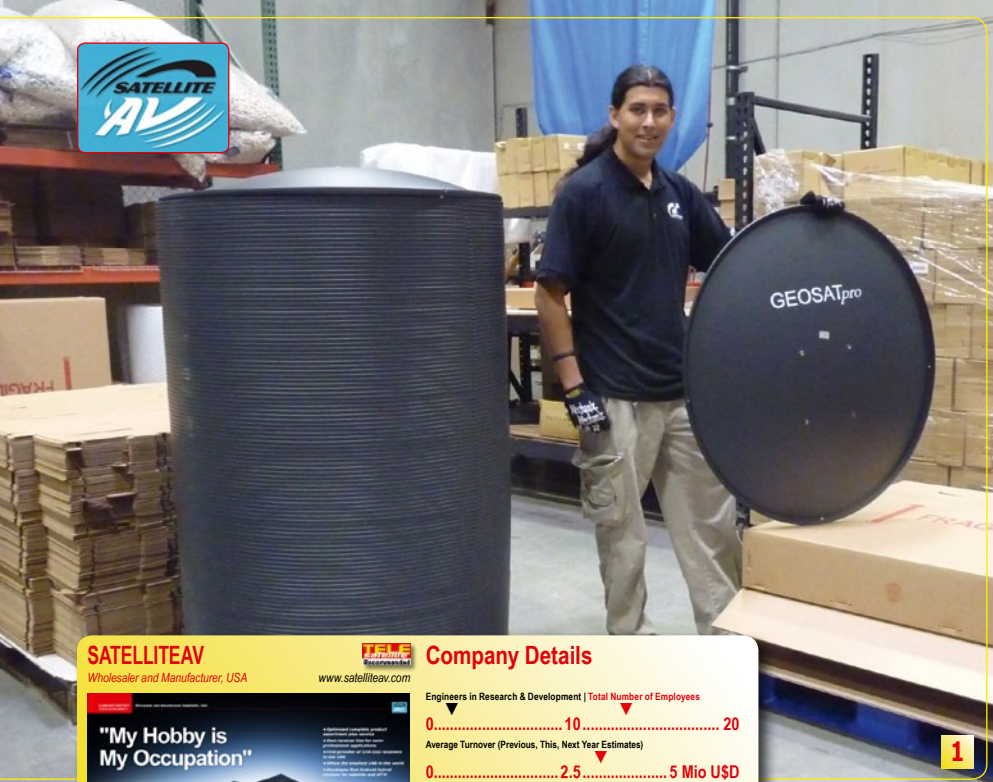
VSAT Antenna System
DTH Antenna System
Fly Away, Movable Antenna



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Tel: 886-3-3611393 Fax: 886-3-3615877





SATELLITEAV

Wholesaler and Manufacturer, USA

TELE-satellite
www.satealliteav.com

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 USD

"My Hobby is
My Occupation"



www.TELE-satellite.com/TELE-satellite-1100/satelliteav.pdf

Production Certificates

DVB

Production Categories

own brands GEOSATpro, GLORYSTAR

Main Products

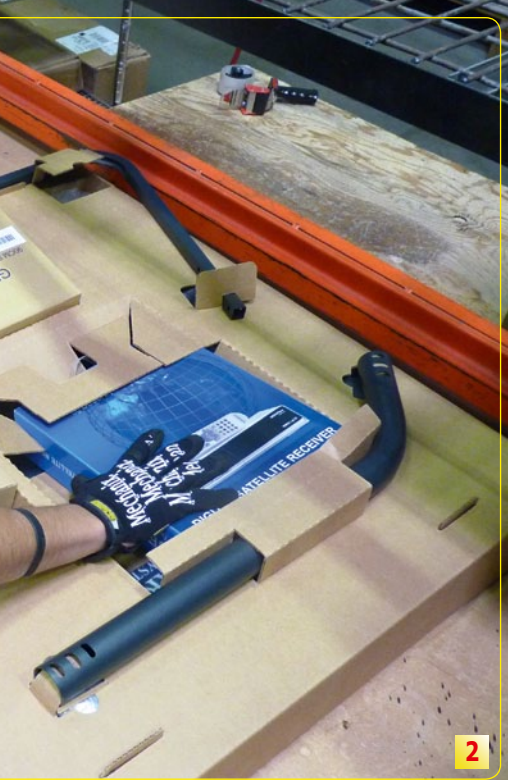
Complete Satellite Systems GLORYSTAR, accessories, LNBS,
19" satellite receivers



was specifically designed without the traditional external scalars and thereby optimally illuminates our dish."

Brian Gohl's love for detail and his self-proclamation as a satellite enthusiast has brought about another product series: semi-professional satellite receivers for 19-inch racks. They can each receive only one channel that is not only very stable but with audio and video outputs that professionals demand such as symmetrical audio jacks. His heart for the third group of freely receivable channels, the feed hunters that we mentioned earlier, will be happy with Brian Gohl's latest development for his line of rack mounted receivers: "Our newest rack model will come with not only an ASI output but also a USB port for PVR and an HDMI output. Above all, we also offer MPEG 4:2:2 with this rack model for feed reception as well as Blind Scan and an extremely wide range of symbolrates from less than 1.0 Ms/sec all the way up to 45.000 Ms/sec." Brian Gohl saved the best for last: "This rack model will sell for less than US\$ 500.00."

Yet, Brian Gohl still hasn't reached his creative limit: "We are currently in the process of developing an Android based hybrid box that will be set up for HDTV reception via satellite and IPTV." Brian Gohl believes that Internet TV is the future for the long term and he is very enthusiastic about the Android operating system. "There are so many applications already available for this operating system and because of this it will be the leader." The fact that Android has not prevailed as of yet lies up until now, according to Brian, with the slow processor speeds. "With new chips



2



3



5

and the new Android 2.3 version there's no longer anything standing in the way of their use in receivers", Brian Gohl is convinced.

Brian Gohl started off with a small company but turned it into a large firm with a wide assortment of services. With his new product creativity he's able to look into the future and expand his operation to customers outside of North America. SatelliteAV is on the road to becoming a global player.

1. Satellites Receivers as far as the eye can see: palette after palette in SatelliteAV's large warehouse.
2. This is how a dish with all of its mounting hardware is packed. "I need roughly 1:30 minutes to pack a dish with all of its components", explains Armando Roczco. 1200 of these complete systems are currently being shipped every month.
3. Brian Gohl thought of everything when he put together the dish antenna package. In addition to the necessary parts that come with each package, such as prefabricated coax cable, you'll also find things like a compass and grounding clips. He even thought of including a sealing kit for the cable connections. Also included is a customized printout of azimuth and elevation values (left side of picture) based on the customer's zip code or postal code.
4. Armando Aorozco works in the warehouse and is also responsible for packaging the dish antennas; all of the dish components are delivered to SatelliteAV separately. "It's more cost effective than having the manufacturer in Asia package them completely and ship them", says SatelliteAV Founder Brian Gohl.
5. Shipping Manager Ruphi Khangura keeps an eye on things in the warehouse. He not only oversees and organizes shipping within the USA but also incoming shipments from production facilities in Asia. "One palette contains 138 90cm dishes", he says.

Innovative Products from SatelliteAV

1. A Brian Gohl invention: an antenna mount with fully adjustable mast leveling on all axis plus built-in spirit level. "If the bubble is directly in the middle, the mast is perfectly vertical", comments Brian Gohl regarding his invention that is flexible up to 30° in every direction. The antenna mount can therefore be installed on uneven or slightly angled surfaces.

2. The smallest LNB in the world! At 40mm they are the same size as the mounting bracket and can therefore be mounted right next to each other as can be seen here in a Brian Gohl designed mount for two satellites with a 4° offset (installed on a 90cm dish). The multi-satellite rotating LNB clamp is designed in such a way that LNBs can be independently positioned as much as necessary in order to optimize each LNB for the antenna's focal point for each satellite. The LNBs to the left are narrow but normal in length while the LNB to the upper right is shorter and thus the smallest consumer Ku band LNB in the world. A universal version of this LNB is currently sold in several European Markets and is available for OEM production.

3. Although normally very hard to get, at SatelliteAV they are part of the standard product line: Ku-band LNBs for prime focus dishes. They would be used, for example, with an existing C-band dish that is being converted to Ku-band use. Normal Ku-band LNBs are designed for offset dishes and are therefore not meant for prime focus antennas.

4. Semi-professional 19-inch rack mounted satellite receivers are supplied by SatelliteAV under the brand name GEOSATpro. They come with audio and video outputs desired by professionals but are far less expensive than professional rack mounted receivers.



Breaking NEWS!

LEXIUM FastAlign® 7100Pro

Professional Satellite Meter with AutoFind® & QuickSweep® Technology

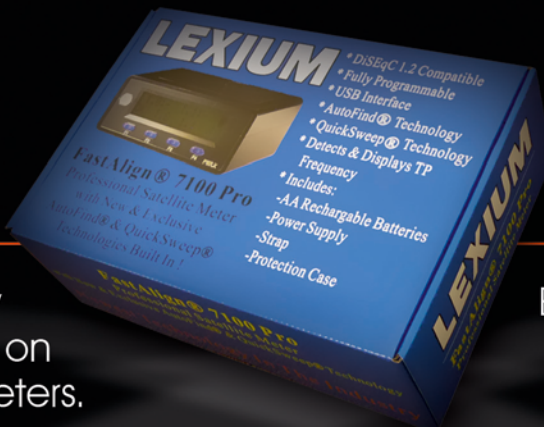
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- *HDMI / CVBS / YPbPr / SPDIF
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S480

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S471

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S464

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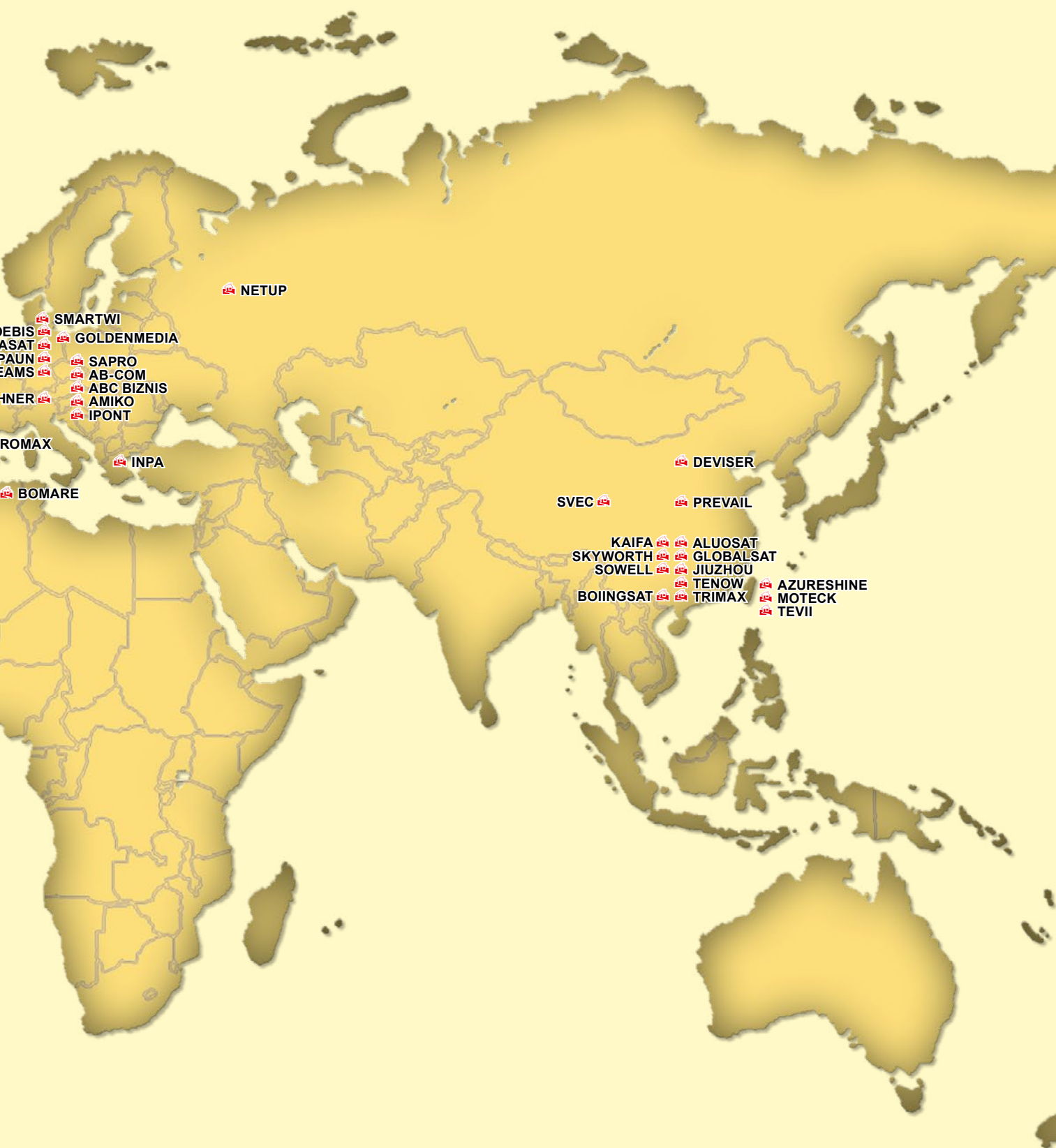
S660

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Satellite Receiver Manufacturer, Slovakia



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AB-COM

Satellite Receiver Manufacturer, Slovakia



www.abcomeu.com



www.TELE-satellite.com/TELE-satellite-1111/eng/abcom.pdf
www.TELE-satellite.com/TELE-satellite-1009/eng/abipbox.pdf

ALUOSAT

Satellite Consultant, China



www.aluosat.com



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

APPLIED INSTRUMENTS

Signal Analyzer Manufacturer, USA



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



www.azbox.com

COMPANY REPORT | Satellite Receiver Manufacturer AZBOX, Portugal

AZBOX's Quick Ascent
Alexander Wiese

AZBOX, founded in 2005, really came out running right from the gate. The truth is, it's actually better than that since AZBOX has only been a manufacturer of satellite receivers since 2007. For 2007 they report sales of 300,000 HD receivers. We wanted to get a better understanding of the success story so we decided to make our way to northern Portugal in Braga's industrial zone in the Monjolo district. One kilometer further north and we would be in Spain.

Page 100 shows the company's CEO, who had just left his office in the Monjolo district. He is the founder of the company and has been working in the industry for 15 years. He is a very experienced manager and has a lot of knowledge about the industry. He is also a very friendly person and is always willing to help others. He is a very successful manager and has a lot of experience in the industry. He is also a very friendly person and is always willing to help others. He is a very successful manager and has a lot of experience in the industry. He is also a very friendly person and is always willing to help others.

AZURESHINE

Professional Dish Manufacturer, Taiwan



www.azureshine.com.tw

COMPANY REPORT | Satellite Dish Manufacturer Azure Shine

Dishes in Focus
Alexander Wiese

Azure Shine is a professional dish manufacturer in Taiwan. They have been in the industry for 15 years and have a lot of experience in the industry. They are a very successful company and have a lot of experience in the industry. They are also a very friendly person and is always willing to help others. They are a very successful company and have a lot of experience in the industry. They are also a very friendly person and is always willing to help others.

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

BOINGSAT

LNB Manufacturer, China



www.boingsat.com

COMPANY REPORT | LNB Manufacturer Boingsat, China

Boingsat's Numerous Production Facilities

Boingsat is a LNB manufacturer in China. They have been in the industry for 15 years and have a lot of experience in the industry. They are a very successful company and have a lot of experience in the industry. They are also a very friendly person and is always willing to help others. They are a very successful company and have a lot of experience in the industry. They are also a very friendly person and is always willing to help others.

www.TELE-satellite.com/TELE-satellite-1105/eng/boingsat.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.bomarecompany.com

COMPANY REPORT | TV-Sets and Receiver Manufacturer Bomare, Algeria

Bomare: a new OEM Manufacturer

Bomare is a TV and receiver manufacturer in Algeria. They have been in the industry for 15 years and have a lot of experience in the industry. They are a very successful company and have a lot of experience in the industry. They are also a very friendly person and is always willing to help others. They are a very successful company and have a lot of experience in the industry. They are also a very friendly person and is always willing to help others.

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

Company Details

Engineers in Research & Development | Total Number of Employees

0 75 150

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio €

Production Certificates

RoHS, DVB

Production Categories

OEM, ODM

Main Products

LCD and Plasma TV-Sets with integrated DVB-Tuner, Satellite Receiver for DVB-S/S2, DVB-T, Home Theatre Systems

BYA

Dish and Receiver Manufacturer, Algeria

[illegible]

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

Company Details

Engineers in Research & Development | Total Number of Employees

Average Turnover (Previous, This, Next Year Estimates)

0.....5.....10 Mio €uro

Production Certificates

RoHS, DVB

Production Categories

OEM. ODM

Main Products

Satellite Dishes with Full and Perforated Metal (60, 105 and 120cm), **TV-Sets** with CRT, LCD (32 and 40 inch) or Plasma (42 and 50 inch), **Satellite Receiver** for **DVB-S/S2**

DEVISER

Signal Analyzer Manufacturer, China



www.devisertek.com

COMPANY REPORT
SIGNAL ANALYZER MANUFACTURER DEVISER, CHINA

New on the Scene: DEVISER

- Starting off with two satellite signal analyzers
- Over 20 years experience as a signal analyzer manufacturer
- Fabrication soon to be in a new building
- Their own R&D Team with highly qualified engineers
- Operates with all of the corresponding quality standards

DEVISER's founder and President
Mr. Wang, China, 2008

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

Company Details

Engineers in Research & Development | Total Number of Employees

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

[illegible]

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

DOEBIS

Satellite Wholesaler, Germany



www.doebis.de

COMPANY REPORT | Satellite Wholesaler DOEBIS, Germany

DOEBIS is Expanding

Exactly three years ago TELE-satellite published a report on DOEBIS, a satellite wholesaler in Germany. We thought it was a good time to ask DOEBIS how they withstood the all-around crisis. We received a rather surprising answer: "We're expanding!" says Rainer Weikert, Operations Manager at DOEBIS. "The company used the economic crisis that took hold in 2008 and instead of scaling back they opted for a counter strategy: they used the opportunity to invest and primarily expanded their sales force."

DOEBIS is expanding its sales force. Rainer Weikert, Operations Manager at DOEBIS, is shown at his desk. The company's headquarters are located in Frankfurt, Germany.

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

HORIZON

Signal Analyzer Manufacturer, UK



www.horizonhge.com

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



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

HUBER+SUHNER

Fibre Optic Cables and Distribution, Switzerland www.hubersuhner.com



Company Details

Engineers in Research & Development | Total Number of Employees

0 2500 5000

Average Turnover (Previous, This, Next Year Estimates)

0 500 1000 Mio SFr

Production Certificates

ISO 9001, ISO 14001, IRIS, RoHS, REACH

Production Categories

own brand CLIK!

Main Products

Connectivity solutions for Radio Frequency, Low Frequency and Fiber Optic applications. Fibre optic distribution systems for professional and home use.



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

INPA

Receiver and Multiswitch Manufacturer, Turkey

www.inpax.com.tr



Company Details

Engineers in Research & Development | Total Number of Employees

0 25 50

Average Turnover (Previous, This, Next Year Estimates)

0 10 20 Mio €uro

Production Certificates

DVB

Production Categories

own brand INPAX

Main Products

Manufacture of Satellite Receiver, Multiswitch, Headend, Wholesale of LNB, Dishes, Cable



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

IPONT

3D Software Solutions



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

JIUZHOU

Receiver Manufacturer, China



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.b2c-electronic.de



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

Company Details

Engineers in Research & Development | Total Number of Employees

0 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 5 10 Mio €

Production Certificates

DVB

Production Categories

own brand MEGASAT

Main Products

Satellite Receiver for DVB-S/S2, LNB with normal size and extremely small size, dishes, multiswitches, Mobile Satellite Systems with automatized two axis motors (CampingSat)



Operator Market Qualified

MFC

Satellite Filter Manufacturer, USA



www.microwavefilter.com

COMPANY REPORT Satellite Filter Manufacturer, USA

Microwave Filter Company

High Quality Specialized Filters Made in USA

Satellite systems receive not only the TV, radio and data channels that you actually want, but also unwanted signals that may cause interference. How do you get rid of these interfering signals? MFC, a manufacturing pioneer of satellite filters based in the USA, produces a variety of filters that eliminate such interference.

TELE-satellite Works

TELE-satellite Works is a leading manufacturer of satellite filters. The company has a long history of providing high-quality filters for satellite systems. The filters are made in the USA and are known for their reliability and performance. The company has a wide range of products, including low-noise amplifiers, filters, and antennas. The filters are used in a variety of applications, including satellite TV, radio, and data systems. The company has a strong reputation for its products and services, and is a leading manufacturer in the industry.

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

MOTEC

Antenna Motor Manufacturer, Taiwan



www.motek.com

COMPANY REPORT Antenna Motor Manufacturer MOTEC

MOTEC's Motor Professionals

MOTEC is a leading manufacturer of motor professionals. The company has a long history of providing high-quality motor professionals for satellite systems. The motor professionals are made in Taiwan and are known for their reliability and performance. The company has a wide range of products, including low-noise amplifiers, filters, and antennas. The motor professionals are used in a variety of applications, including satellite TV, radio, and data systems. The company has a strong reputation for its products and services, and is a leading manufacturer in the industry.

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

NETUP

IPTV Software and Hardware Producer, Russia



COMPANY REPORT IPTV Software and Hardware Producer NETUP, Russia

Young, Yet With Extensive Know-how: NetUP from Moscow

Alexander Wiese

Isn't 'young' and 'know-how' a contradiction in terms? In many cases it is, but if we're talking about know-how in the making, the two terms go together very nicely. 'Young' in such a case is an asset, as it means there's no obligation to depend on past developments. So where can we find a perfect example for 'young' meets 'know-how'? If we're talking about digital technology Russia springs to mind. And if we support our assumption with the fact that Moscow State University is ranked right among all the top-notch universities in the world when it comes to digital technology teaching and research, then Russia seems to be spot on!

TELE-satellite Works

TELE-satellite Works is a leading manufacturer of IPTV software and hardware. The company has a long history of providing high-quality IPTV software and hardware for satellite systems. The software and hardware are made in Russia and are known for their reliability and performance. The company has a wide range of products, including low-noise amplifiers, filters, and antennas. The software and hardware are used in a variety of applications, including satellite TV, radio, and data systems. The company has a strong reputation for its products and services, and is a leading manufacturer in the industry.

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

PREVAIL

Fiber Optic and CATV Manufacturer, China



www.prevail-catv.com

COMPANY REPORT Fiber Optic and CATV Manufacturer Prevail, China

Prevail's Perfect Organization

It is hard to find the perfect organization in a world of imperfect organizations. It is even harder to find the perfect organization in a world of imperfect organizations. Prevail's Perfect Organization is a leading manufacturer of fiber optic and CATV equipment. The company has a long history of providing high-quality fiber optic and CATV equipment for satellite systems. The equipment is made in China and is known for its reliability and performance. The company has a wide range of products, including low-noise amplifiers, filters, and antennas. The equipment is used in a variety of applications, including satellite TV, radio, and data systems. The company has a strong reputation for its products and services, and is a leading manufacturer in the industry.

TELE-satellite Works

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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 €

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

Accessory Manufacturer, Spain

COMPANY REPORT | Digital Powerhouse PROMAX, Spain

PROMAX

The Four Divisions of PROMAX

TELE-satellite readers have known about PROMAX's **rebuilds, widely used satellite signal analyzers**, for many years now. They are recognizable by their characteristic yellow color. But PROMAX has much more to offer: their products range from those that you already know to signal processing products all the way to end-user signal distribution components.

PROMAX covers so much that we wanted to take a closer look at what they're all about so off we went to one of the most lively tourist cities - Barcelona. Up until 1982, PROMAX called downtown Barcelona home, but then they moved out to Despeñadise de Lladre, a suburb that is nearly unreachable with the L2 Metro Line.

TELE-SATellite World

Product	Price
TELE-SAT 1000	1000
TELE-SAT 2000	2000
TELE-SAT 3000	3000
TELE-SAT 4000	4000
TELE-SAT 5000	5000
TELE-SAT 6000	6000
TELE-SAT 7000	7000
TELE-SAT 8000	8000
TELE-SAT 9000	9000
TELE-SAT 10000	10000
TELE-SAT 11000	11000
TELE-SAT 12000	12000
TELE-SAT 13000	13000
TELE-SAT 14000	14000
TELE-SAT 15000	15000
TELE-SAT 16000	16000
TELE-SAT 17000	17000
TELE-SAT 18000	18000
TELE-SAT 19000	19000
TELE-SAT 20000	20000
TELE-SAT 21000	21000
TELE-SAT 22000	22000
TELE-SAT 23000	23000
TELE-SAT 24000	24000
TELE-SAT 25000	25000
TELE-SAT 26000	26000
TELE-SAT 27000	27000
TELE-SAT 28000	28000
TELE-SAT 29000	29000
TELE-SAT 30000	30000
TELE-SAT 31000	31000
TELE-SAT 32000	32000
TELE-SAT 33000	33000
TELE-SAT 34000	34000
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TELE-SAT 38000	38000
TELE-SAT 39000	39000
TELE-SAT 40000	40000
TELE-SAT 41000	41000
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TELE-SAT 44000	44000
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TELE-SAT 47000	47000
TELE-SAT 48000	48000
TELE-SAT 49000	49000
TELE-SAT 50000	50000
TELE-SAT 51000	51000
TELE-SAT 52000	52000
TELE-SAT 53000	53000
TELE-SAT 54000	54000
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TELE-SAT 69000	69000
TELE-SAT 70000	70000
TELE-SAT 71000	71000
TELE-SAT 72000	72000
TELE-SAT 73000	73000
TELE-SAT 74000	74000
TELE-SAT 75000	75000
TELE-SAT 76000	76000
TELE-SAT 77000	77000
TELE-SAT 78000	78000
TELE-SAT 79000	79000
TELE-SAT 80000	80000
TELE-SAT 81000	81000
TELE-SAT 82000	82000
TELE-SAT 83000	83000
TELE-SAT 84000	84000
TELE-SAT 85000	85000
TELE-SAT 86000	86000
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TELE-SAT 89000	89000
TELE-SAT 90000	90000
TELE-SAT 91000	91000
TELE-SAT 92000	92000
TELE-SAT 93000	93000
TELE-SAT 94000	94000
TELE-SAT 95000	95000
TELE-SAT 96000	96000
TELE-SAT 97000	97000
TELE-SAT 98000	98000
TELE-SAT 99000	99000
TELE-SAT 100000	100000

TELE-SATellite World

TELE-SAT 1000 1000
TELE-SAT 2000 2000
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TELE-SAT 6000 6000
TELE-SAT 7000 7000
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www.TELE-satellite.com/TELE-satellite-0909/eng/promax.pdf

SAPRO

Manufacturer and Wholesaler, Czech Republic



www.sapro.cz

Company Details

Engineers in Research & Development | Total Number of Employees

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

COMPANY REPORT
SAPRO

Manufacturer and Wholesaler SAPRO, Czech Republic

SAPRO
is
Expanding

- Covers every price segment with its four brand names
- Starting expansion to surrounding countries
- In-house design and production (assembly-line)
- Produces 200,000 receivers per year

As a manufacturer of mobile communications equipment, SAPRO has been active in the market for more than 20 years. The company's products are sold in more than 30 countries. SAPRO is a member of the SAPRO Group, which is a part of the SAPRO Group of Companies. The company is a leading manufacturer of mobile communications equipment in the Czech Republic. SAPRO is a member of the SAPRO Group, which is a part of the SAPRO Group of Companies. The company is a leading manufacturer of mobile communications equipment in the Czech Republic.

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www.sapro.cz

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

SATBEAMS

Software Programming, Belgium



www.satbeams.com

[illegible]

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

SATELLITEAV

Wholesaler and Manufacturer, USA



www.TELE-satellite.com/TELE-satellite-1109/eng/satelliteav.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 USD

Production Certificates

DVB

Production Categories

own brands GEOSATpro, GLORYSTAR

Main Products

Complete Satellite Systems GLORYSTAR, accessories, LNBs, 19" satellite receivers

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

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

SPAUN POWER

Power Supply Manufacturer, Germany



www.spaun.com

COMPANY REPORT | Power Supply Unit Manufacturer

Power Supply Units Made by SPAUN – guaranteed!

Every multi-switch and every amplifier comes with one, and of course every receiver has one, too: a power supply unit which is required to connect the device to the mains. It has become such an everyday component of virtually any electronic device that we have stopped thinking about how it actually works. SPAUN, on the other hand, has given it a great deal of thought and has arrived at a remarkable conclusion. Kevin Spaun is the managing director of SPAUN, one of the most renowned quality manufacturers of multi-switches and other accessories for satellite signal distribution. He tells us what it's all about.

In the professional sector of electronic equipment, the power supply unit is a critical component. The distribution of power supply units has been a constant challenge for SPAUN for many years. The company's focus is on the production of high-quality and reliable power supply units for the professional sector. The company's products are used in a wide range of applications, from satellite receivers to multi-switches. The company's products are known for their reliability and high quality. The company's products are used in a wide range of applications, from satellite receivers to multi-switches. The company's products are known for their reliability and high quality.

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

SPAUN

High Quality Accessory Manufacturer, Germany



www.spaun.com

COMPANY REPORT | High Quality Accessory Manufacturer

Spaun at 40 years

Moving into the new decade with many new products

Alexander Wiese

With 40 years, SPAUN is a well-known name in the satellite industry. The company has a long history of producing high-quality satellite accessories. The company's products are used in a wide range of applications, from satellite receivers to multi-switches. The company's products are known for their reliability and high quality. The company's products are used in a wide range of applications, from satellite receivers to multi-switches. The company's products are known for their reliability and high quality.

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

SMARTWI

Wireless Card Reader Producer, Denmark



www.smartwi.net

COMPANY REPORT | Wireless Card Reader Producer SmartWi

SmartWi to Conquer Provider Market

Readers of this magazine have been familiar with wireless card reader manufacturer SmartWi for years. In TELE-satellite issue 06/2007 we published the first report on this Danish company which has come up with a genuine idea: How about transferring data from a pay TV provider's subscription card to a second card in the same household? All of a sudden your viewing pleasure can be extended from the living room all the way to the bedroom, or any other room at your place. Pay TV whenever you like – and a smart idea like that deserves a proper name too: smart Wi, or SmartWi in short.

SmartWi is a Danish company that has been successful in the wireless card reader market. The company's products are used in a wide range of applications, from pay TV to other services. The company's products are known for their reliability and high quality. The company's products are used in a wide range of applications, from pay TV to other services. The company's products are known for their reliability and high quality.

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

COMPANY REPORT | Professional Dish Manufacturer SVEC, China

SVEC Dishes from Chengdu/Sichuan

Alexander Wiese

The Sichuan province is well known outside of China for its spicy cuisine. A natural favorite is the "Hot Pot", in one pot with two separated sections – a very spicy soup and a mild soup are heated up into which chopsticks are used to pick up different types of food for a few minutes. This could be done with pieces of meat or vegetables. Along with that you drink sweetened long tea. Hot Pot is a very popular dish in the province of Sichuan. SVEC is a professional dish manufacturer in Chengdu, Sichuan. The company's products are used in a wide range of applications, from satellite receivers to multi-switches. The company's products are known for their reliability and high quality. The company's products are used in a wide range of applications, from satellite receivers to multi-switches. The company's products are known for their reliability and high quality.

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

TENOW

PC Card Manufacturer, China



www.tenower.com

COMPANY REPORT | PC Card Manufacturer Tenow, China

Innovative PC Cards from China

One company that is fully concentrated on the development of their products is the young firm Tenow from Shenzhen, China. PC cards are manufactured although the actual production process is outsourced allowing Tenow to focus their efforts on Development and Marketing. Also interesting to note about Tenow: the company is run by four partners and all four of them work together as a team to further expand their young company. Tenow is in the process of setting up a new office in Shenzhen's expensive High-Tech Park. When we paid them a visit, we went to their old office located directly next to the Shenzhen Metro Station on route 1.

Tenow is a young company that has been successful in the PC card market. The company's products are used in a wide range of applications, from pay TV to other services. The company's products are known for their reliability and high quality. The company's products are used in a wide range of applications, from pay TV to other services. The company's products are known for their reliability and high quality.

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 €

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

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

COMPANY REPORT PC Card & Receiver Manufacturer Tevii, Taiwan

Tevii Tapping Into New Markets



Tevii - while being young of age - has already worked up a solid reputation for its PC cards and USB boxes and is now in the process of launching a new range for new markets. Matthew Lee is the founder of Tevii and the company's top-selling sales director. He reveals some future plans in a meeting we had with him in March, one of a number of global distributors he recently visited.

It's not until meeting the founder and his team that you realise the company is not just a small-scale operation. In 2008, Tevii was awarded an ISO 9001 certification, a major milestone in its growth. The company's success is due to its focus on quality and innovation. Tevii's products are designed to be easy to use and reliable, which has helped it gain a strong reputation in the market.

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Matthew Lee, founder of Tevii, is a man of many talents. He is not only a successful businessman but also a skilled engineer. His passion for technology and innovation has led him to create a company that is at the forefront of digital TV technology.

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

TRIMAX

Signal Analyzer Manufacturer, China



www.trimaxtec.com

Company Details

Engineers in Research & Development | Total Number of Employees

0 25 50

Average Turnover (Previous, This, Next Year Estimates)

0 1 2 Mio US\$

Production Certificates

RoHS, FCC, DVB

Main Products

Signal Analyzer with built-in Monitor for DVB-S/S2, DVB-T and DVB-C

COMPANY REPORT Digital TV Manufacturer Trimax, China

New Products from Trimax

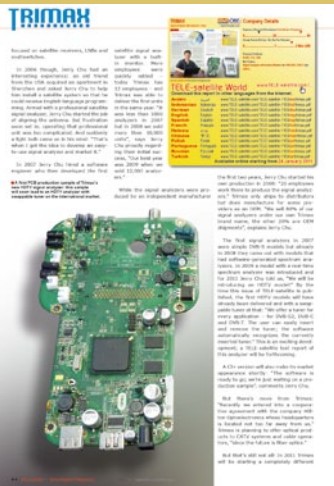
- New from Trimax: HDV Signal Analyzer with HDV Monitor
- Expansion into New Business Sectors such as Fiber Optics
- Manufacturing on Their Own Since 2008

Trimax's reputation in the digital TV market has grown steadily over the years. The company's focus on innovation and quality has led to a wide range of products that are highly regarded by customers.

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

TURBOSAT

Wholesaler and Manufacturer, UK



www.turbosat.com

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

COMPANY REPORT Wholesaler and Manufacturer TURBOSAT, Great Britain

„Small and Valuable“

- own receiver line ICECRYPT
- 50% of sales outside Great Britain
- Focus on receivers, CAM, SmartCards and LNBs
- 80,000 receivers a year
- produces Dolly Buster TV programming via HOTBIRD



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



Tellement bien, Tellement Bya Good Television, Bya Television

BYA electronic offers a wide variety of audio-visual leisure products:

Travel
beyond time
and space
with us!



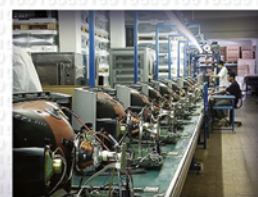
- Receivers and accessories
- Receivers Aston

- Overhead projectors
- Home Cinema Package



- Plasma TV Sets
- TV sets
- LCD TV Sets
- DVD player

- Stereo Hi-Fis
- Miscellaneous
- Mobile Phones
- Electroménager



www.bya-electronic.com

BYA ELECTRONIC / Lots 46-47 Activity area of Ain El Bia / BP 393 Arzew / Oran, Algeria

Tel: +213 40 20 30 61 & +213 40 20 30 62 / Fax: +213 40 20 30 55 / email: contact@bya-electronic.com

WS INTERNATIONAL

Wholesaler and Manufacturer, USA



www.wsdigital.com

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 USD

Production Certificates

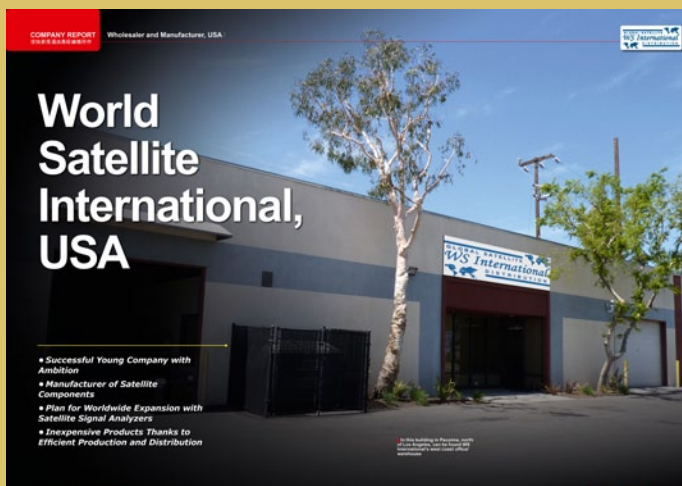
DVB

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



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



Operator Market Qualified



Zero Tape – Full HD

■ This is what 4.6 m look like. We're talking about the diameter of one of CBC's uplink antennas in the new Cologne Broadcasting Center.

- *all programming content stored as files*
- *huge file-based electronic archive*
- *global content distribution*
- *production and international playout of live coverage of German Bundesliga soccer matches*
- *fully equipped for HDTV*

The new Cologne Broadcasting Center in Germany



CBC has recently launched one of the most modern broadcasting centers worldwide. It goes without saying that such a major project was not put into operation over night, but rather was a step-by-step process spanning several months. "In mid-2010 the first production units were able to move to the new center," we learn from Achim Pauly, head of Communication & Marketing at CBC.

Today, all companies and networks of German media enterprise RTL Deutschland operate from the new CBC, which is located in premises directly on the banks of the Rhine river. What formerly used to be exhibition halls has turned into a top-notch and one of the leading media and broadcasting centers in the world, even though you'd be hard pressed to notice that right away, with historic facades meticulously preserved.

Within the RTL media group CBC is in charge of production, post-production, technology, IT and content distribution. CBC

■ **Achim Pauly is the head of Communication & Marketing at CBC. Here he is seen right at the heart of CBC, overlooking the inner courtyard of the former exhibition halls on the Rhine river.**



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See the Video

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DishPointer is the world's No.1 satellite dish pointing site, offering custom built tools for mobile devices or websites to businesses. For more information, visit www.dishpointer.com.

This app uses the iPhones GPS, motion sensor and compass to calculate all the satellite positions and overlays them on the camera. At a glance you will see where to point the dish and any obstacles blocking the line of sight.



References



www.dishpointer.com
info@dishpointer.com

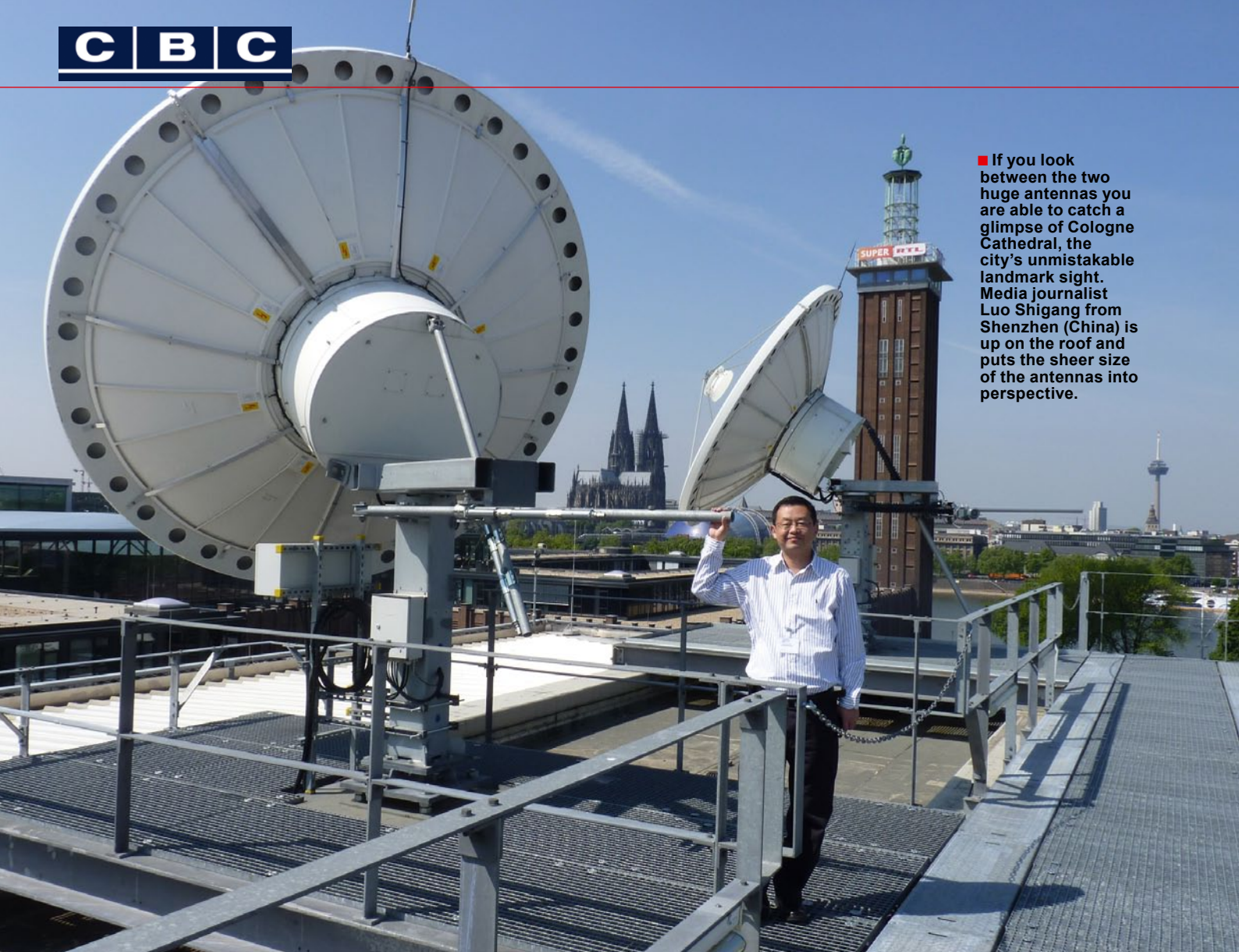
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■ If you look between the two huge antennas you are able to catch a glimpse of Cologne Cathedral, the city's unmistakable landmark sight. Media journalist Luo Shigang from Shenzhen (China) is up on the roof and puts the sheer size of the antennas into perspective.

■ All signals from RTL media group are beamed to the satellites from this spot. These uplink antennas are located at CBC in Cologne right on the banks of the Rhine river.



was responsible for planning and implementing all structures and processes of the new broadcasting center in relation to production, broadcasting and IT, and now runs the operations.

RTL media group is a leading media corporation whose portfolio consists of fully-owned free TV channels RTL Television, VOX and n-tv, as well as shareholdings in RTL II and SUPER RTL and pay TV channels RTL Crime, Passion and RTL Living.

Mido Fayad heads the broadcasting department and has some in-depth information: "Here in Cologne our broadcasting engineers and technicians look after the RTL, VOX and Super RTL networks for Germany, Austria and Switzerland, as well as the special interest channels RTL Crime, RTL Living and Passion. In addition, we distribute the n-tv news channel from here. Our second location in Munich/Grünwald takes care of RTL II for Germany, Austria and Switzerland."

CBC is also the broadcasting center of choice for a number of content providers outside the RTL media group, such as Channel 21, for example, whose program is also distributed via CBC.

Not only is CBC in charge of the technical aspects of broadcasting and play-out, but has turned into an full-service provider. According to Fayad, "the new broadcasting center features four fully-fledged studios, a range of sets for TV productions, as well as in excess of 70 post-production units. We also produce German Bundesliga live coverage for distribution outside Germany. On behalf of Sportcast we offer complete match coverage and produce highlight segments in foreign languages." CBC is live on air on all 34 match days of the year and distributes Bundesliga broadcasts to more than 180 countries around the globe.

Project manager Wilfried Klinke steps in to add that all technology used is fully HDTV compatible. "RTL, VOX and RTL

II are offering their channels in HDTV at this point," says Klinke. Naturally, each network or channel decides independently whether or not to offer HDTV. "We even have experience with 3D productions," Wilfried Klinke hastens to add, providing further proof of CBC's technical capabilities.

Originally, CBC was an offspring of the technical department of the VOX channel, which in its early days was positioned as in infotainment channel within the RTL media group and thus was equipped with state-of-the-art production and broadcasting equipment right from the start. CBC employees Wilfried Klinke and Mido Fayad have been with the business from those early days. When the VOX technical department became CBC in 1994 they were two specialists among 50. These days CBC has a staff of 500, 40 of which are in charge of broadcasting, which at CBC is called distribution. A much larger share of employees is needed for contribution, which basically means content production.

One of the high points at CBC is its electronic archive. "All broadcasts of RTL media group channels are saved in file format," Mido Fayad explains while leading us to a high-security area of the building which houses the so-called 'Contentbank', a term CBC uses for its enormous file-based archiving system. 9 petabyte of storage capacity are required to hold more than 160,000 hours of content. Burnt onto CDs and stapled one on top of the other you would end up with a 16 km high pile of CDs; and that's without jewel cases!

Looking at this impressive electronic archive a question that comes to mind is availability of stored content from




1

2

the early days of RTL channels. "We did have digital recordings", explains project manager Wilfried Klinke, "but back then they were stored on video tapes. Those tapes had been archived in an area covering more than 2,000 square meters and using complex air-conditioning systems. In the course of several months we converted that data into files and fed them into our electronic archive." Achim Pauly adds that "at CBC we have a totally tape-less workflow, with all processes being file-based."

CBC has extended its tape-less workflow even beyond its own premises by setting up a network linking major German cities, London and New York for exchanging content contributions. This network is based on a fibre-optic backbone and can be used to hook up studios live on air via video-over-IP. For live coverage from places with no local studios CBC runs a fleet of SNG vehicles.

Susanne Jumpelt, head of Broadcasting Sales & Marketing, has all the details: "Our SNG vehicles are located in Berlin, Munich and Moscow, as well as two in Cologne. This strategic positioning allows quick access to almost all places in Germany and Europe."

If you look up to the roof of the multi-storey car park next to the CBC premises an impressive antenna farm soars high into the sky. Of a total of 37 antennas a whopping five feature diameters of 4.6 m and are all used for signal uplink. Mido Fayad, head of the broadcasting department, explains that "four of these giants are in permanent use, with three antennas pointing to ASTRA 19.2E and one to EUTELSAT 9E. The fifth 4.6 m antenna serves as back-up."

So what happens if a heavy down-pour moves through Cologne and reliable signal uplink may be compromised due to the weather? Will all channels of RTL media group go blank for satellite viewers? "No way, because the weather is under constant observation here at CBC and as soon as a thunderstorm approaches we immediately switch the uplink from Cologne to our outlet in Grünwald near Munich. Their antennas take over all uplink tasks within a matter of split seconds.

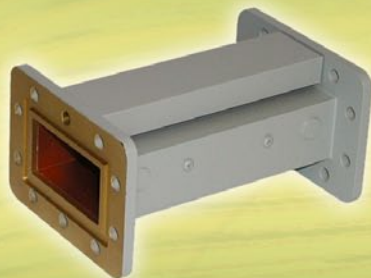
1. Project manager Wilfried Klinke in the antenna operating room. He reveals that he's been a loyal TELE-satellite reader from day one in 1981.

2. One of the workstations in the main switching room. This is where satellite antennas are controlled using CBC's in-house PilotSat software.



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■ 13 broadcast playouts in Cologne and the Network Operation Center. 60 distribution channels are monitored and controlled in this NOC.

[Photo: CBC/Dirk Schwarz]




1

1. Maicel Pancke is one of the broadcasting engineers in the NOC.

2. Susanne Jumpelt (centre) is the head of Broadcasting Sales & Marketing. Apart from Teleport services she offers CBC's SNG vehicles on the market, whose transmissions are then received and distributed via the main switching room.

Viewers will hardly notice anything other than possibly some interference for tenths of a second, during which satellite receivers need to re-sync. This way we are able to achieve extremely high reliability and 99.999% signal uplink to the satellite." The summer

months are particularly prone to frequent thunderstorms which result in numerous uplink shifts between Munich and Cologne. "We have noticed in recent years that severe weather events are increasing," Mido Fayad notes.

Yet, broadcasting reliability does not


2



stop there. Four diesel generators with an output of 2.5 MW each can take over power supply at CBC in case a power failure in the public grid occurs. "Our emergency power supply is designed to provide enough energy to keep all technical installations up and running," emphasises Wilfried Klinke. "And it can run endlessly, provided the tanks keep getting topped up with diesel fuel."

Even though to date this contingency plan never had to be activated it just goes to show how diligently CBC makes sure nothing can stop the production and distribution of content.

Only the latest technology is good enough for CBC – everything runs without tape and this is an ideal base for exploiting alternative distribution channels (such as IPTV, video-on-demand or mobile applications) as well. Even 3D is not out of the question for CBC, since all technical components do not only support full HD but are also 3D compatible.

The future has already arrived at CBC.

3. This is what the CBC 'Contentbank' looks like. Behind a glass panel there are rows of stapled data carriers. Mido Fayad, head of the broadcasting department, and his colleagues look after this huge content archive.

4. Meet Jürgen Lieder: He manages the main switching room and what he loves most is to coordinate the global playoff of German Bundesliga soccer matches. Here he can be seen preparing the broadcasts of the upcoming match day.



Waterfall Diagrams for 8dtek Satellite Meters




```

400 Step 1
For As Color = MyBMP.GetPixel(x, y)
    If R > 150 Then ' And MyColor.G > 200 And MyColor.B > 200
        5 - (y - 30) / 370 * 200
    End If
End For

```

```

q = q2
New Pen(colormap(q))
Line(mypen, x, z, x + 1, z)

```

```

resolution under Setup - Set Video Format, before pressing START!", MsgBoxStyle.Information, "Wrong Resolution!")
End As System.Object, ByVal e As System.EventArgs) Handles Button3.Click

```

- **Detection of weak signals**
- **Identification of all active satellites**
- **Allows for highly precise antenna alignment**
- **Long-term measurements for reliable feed detection**
- **Ideal upgrade for 8dtek satellite meters**



Unconventional thinking turns 8dtek satellite meters into genuinely professional tools – without costing a penny!

Vitor Martins Augusto

Satellite meters and satellite finders are used to professionally align satellite antennas and to identify flaws in an existing setup. True satellite enthusiasts, however, also have additional purposes for meters: Satellite DXers are permanently on the hunt for weak or rare signals, while feed hunters are on the lookout for undocumented transmissions (feeds).

Both target groups prefer satellite meters with spectrum analyzers, because with the help of a satellite spectrum it becomes possible to spot a satellite long before a satellite receiver is capable of locking a signal. In addition, a spectrum display helps to identify and analyze transponders. It is even possible to find out whether new transponders have become active at short notice, which in many cases hints at new feeds. Real-time spectrums are the display of choice for those satellite enthusiasts, as they have a refresh rate of way less than one second.

Hence it's no surprise that in recent

months a number of new satellite meters with spectrum analyzer have been launched. These analyzers are designed to display the current signal situation – but what do you do if you need to monitor a specific signal for a certain length of time? This may be necessary when you rotate a motorised antenna, for manually aligning an antenna or for performing a long-term measurement.

In ham radio circles a so-called waterfall diagram is used for exactly those purposes: It shows the spectrum over a period of time using the three parameters of frequency, signal level and time. This would actually require a three-dimensional diagram, something that can only be achieved with great effort. In order to display all required information without having to do 3D calculations, one parameter (signal level in our case) is colour-coded.

So in a waterfall diagram the x-axis refers to frequency and the y-axis shows time as well as – in a gradual colour scheme – signal level. A waterfall

diagram is drawn up line by line from top to bottom, with each line describing a full spectrum. Actually, this is how the name was derived: Like in a waterfall, information flows from top to bottom.

We wanted to provide proof that a waterfall diagram can actually work for satellite meters as well and to that end we used three different 8dtek satellite meters: Xtra-S, Gifted and Desired (please refer to TELE-satellite issues 06-07/2011 and 08-09/2011 for test reports about these devices). They are absolute exceptions in their price segment as all of them offer a functional spectrum analyzer.

It's rather striking to discover that the manufacturer decided to focus on either speed or display resolution: While the 8dtek Xtra-S boasts a real-time spectrum display – albeit at low resolution – the Gifted and Desired models impress with high-resolution displays at the cost of display build-up time.

All three models feature a video out-

■ Image 1: The three satellite meters Desired, Xtra-S and Gifted from manufacturer 8dtek were at our disposal for experimenting.





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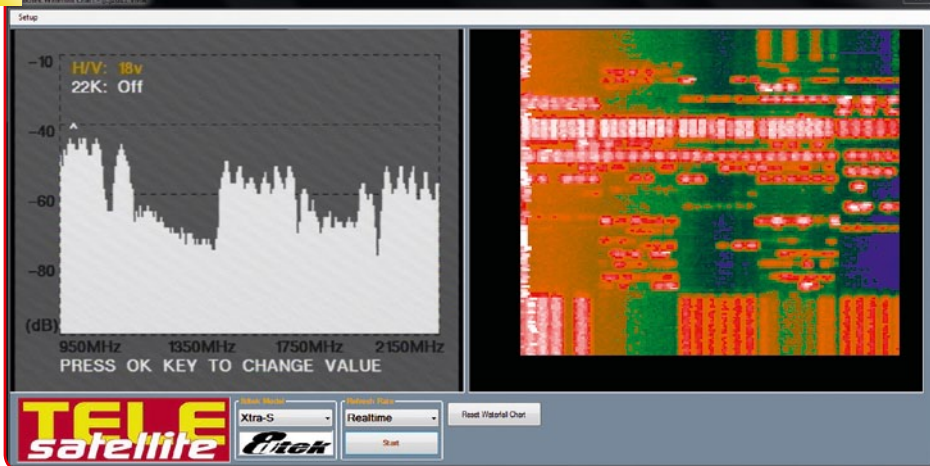
2



put which creates a composite video signal of the spectrum display.

We took advantage of that option to save the video signal on our PC with the help of a video card, and to extract spectrum measurements using image processing software in order to further work with the data.

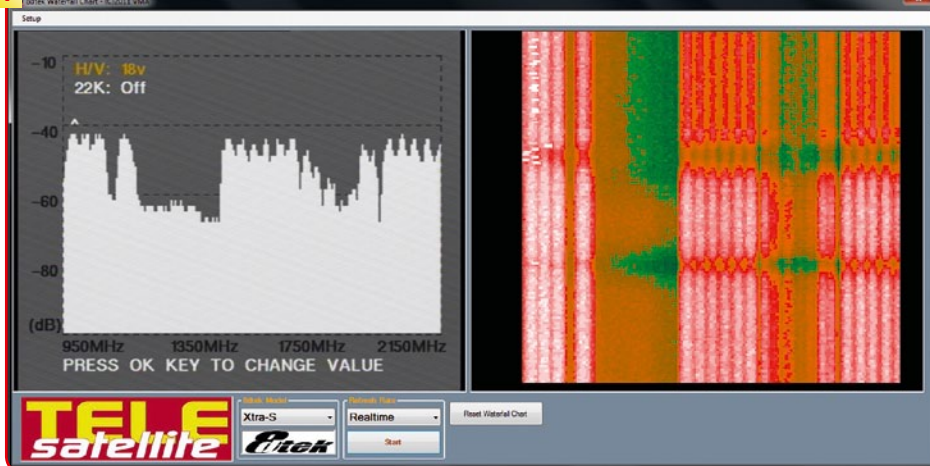
3



All you need for this is a so-called video grabber, which is an adapter that digitises the analog video signal and creates a file for further software processing. In theory, any TV card or USB adapter should do – USB adapters are frequently available in a bundle with video editors to digitise VHS tapes. You may even want to look for the 'EasyCap' adapter on eBay, which we were able to obtain from Hong Kong for about EUR 5.00 including postage (see image 2).

For our experiment we proceeded with programming software that converts, analyses and extracts the spectrum using a video grabber, so that data can be displayed as a waterfall diagram. TELE-satellite readers can download the software free of charge (www.TELE-satellite.com/waterfall-for-8dtek.zip) so that users of any of the three 8dtek meters can add waterfall capability to their devices.

4



Waterfall diagrams can be hugely useful: After a short adjustment period we discovered a number of scenarios in which waterfalls diagrams can be put to fruitful use. Have a look at image 3, for example, to find out how our motorised antenna moves from HIPASAT 30.0W to INTELSAT12 45.0E. The waterfall diagram shows all passed satellites, which is an easy way of checking whether all positions are already stored in the satellite receiver.

5

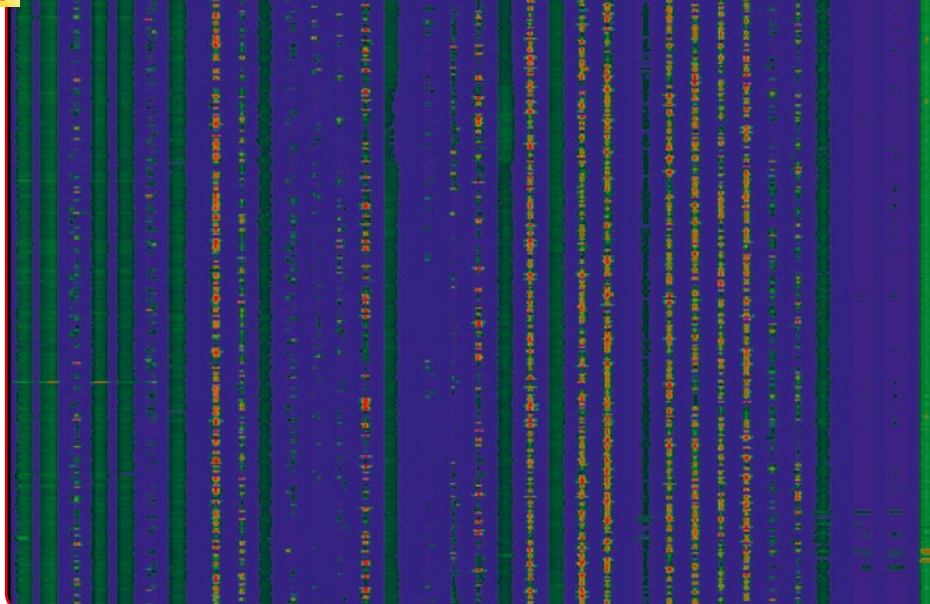
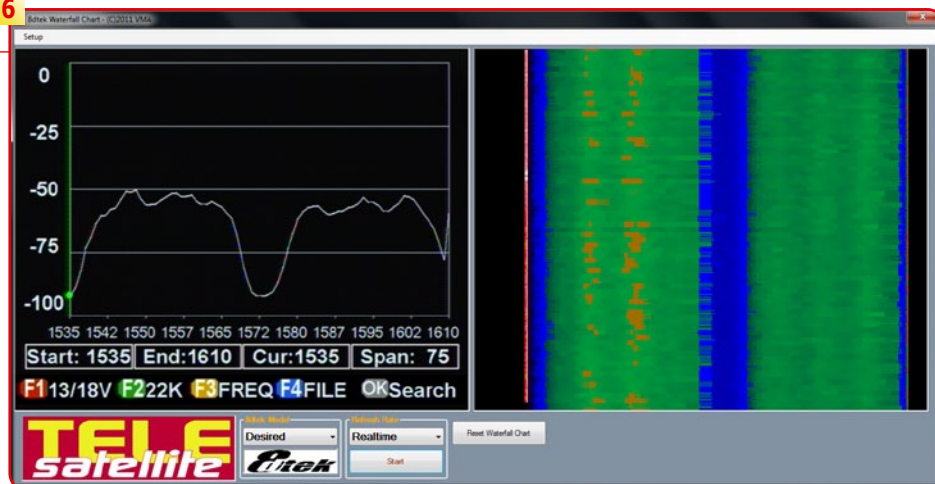


Image 4 shows a rather different application for a waterfall diagram. In this scenario the antenna alignment (HIPASAT 30.0W in our case) is optimised. While a conventional spectrum display can be used to perfectly align an antenna using the peak level feature, a waterfall diagram can achieve the same result with much less hassle.

Seen from top to bottom the weak red colours show somewhat mediocre reception quality of HIPASAT. When the antenna is moved slightly towards the East the signal becomes weaker, which is why the antenna is then rotated in the opposite direction with the signal becoming stronger, reaching its peak level and decreasing again. All



of the waterfall diagram corresponds to a spectrum measurement after ten minutes each. This allows documenting the entire frequency range of a satellite over a period of 24 hours. The individual colours indicate any signal deviation across the entire spectrum.

Looking at the Xtra-S, Gifted and Desired satellite meters by manufacturer 8dtek from many different perspectives our respect and admiration for those neat devices was growing all the time. It's hard to believe how many features and functions can be packed into such small meters. Battery life also never failed to impress: Three to four hours

Image 2: This EasyCAP video grabber was bought on eBay for approximately 5 EUR.

Image 3: The waterfall diagram shows changes during rotation of a motorised antenna from 30.0W to 45.0E. All satellites between these two stop positions are clearly indicated.

Image 4: Fine-tuning of the antenna alignment towards HISPASAT 30.0W.

Image 5: Long-term measurement of ASTRA 19.2E using the Desired satellite meter. This is where the device's high-resolution display comes to the fore.

Image 6: Long-term monitoring of two transponders.

Image 7: Set-up with small motorised antenna. Due to lack of DiSEqC 1.2 support of the Xtra-S it was rotated using the button on the motor itself.

this is shown with a time element and since it is always possible to compare any current value with preceding values finding the perfect alignment becomes child's play. In the lower image segment you can easily see for yourself how strong the signal is with perfect antenna alignment.

For real-time measurement the 8dtek Xtra-S turned out to be a perfect companion. The spectrum builds up very quickly on this meter, which is a huge benefit. Unfortunately, however, the display resolution is rather low, as can be seen on images 3 and 4. 8dtek went for higher resolutions with their Gifted and Desired models, although at reduced speed. This is why those two

models cannot be used for creating waterfall diagrams to document antenna alignment and rotation. For long-term measurement, on the other hand, they are perfect. Such measurements are primarily performed to find out if or why a signal has occasional errors.

Image 6 presents the result of a long-term measurement focusing on two transponders on HISPASAT. No errors can be seen on this measurement, since only a period of one minute was analysed. With our software it is of course possible to vastly extend that period – all you need to do is select a time between one second and ten minutes instead of real-time. If you select ten minutes, for example, every line



of continuous use was the rule rather than the exception.

Have we raised your interest? Simply go to www.TELE-satellite.com/waterfall-for-8dtek.zip to download our software from the TELE-satellite server. Of course you also need an 8dtek satellite meter as well as a TV card or USB video grabber.

Once the software is set up you first need to select your video source (im-

age 8). In the window that pops up you choose your TV card or the video grabber. Please bear in mind that many laptop computers will also list the built-in camera here.

Next, you select the video format (image 9). Depending on the TV card or video grabber various options may be available; the only thing you need to make sure is to select 720x576 pixels (full PAL resolution). The software does not support any other resolution! Some

video grabbers may not be set up for PAL by default, but for NTSC or SECAM instead – in such cases you need to run the software that comes with your video grabber and change to PAL video mode. Finally, you select your 8dtek model (image 10) and press START to initiate the waterfall diagram. Due to implementation of the video function you need to press STOP if you want to copy the image using PRTSC.

Happy experimenting!

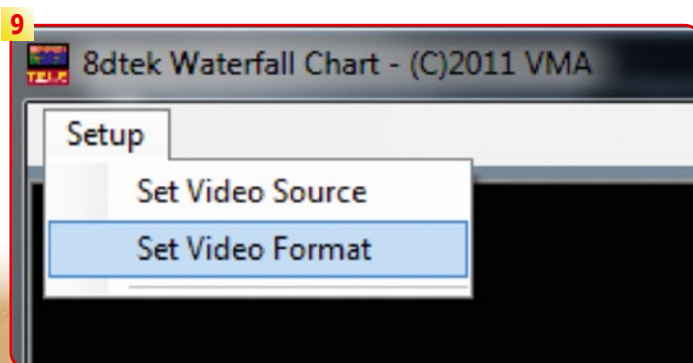
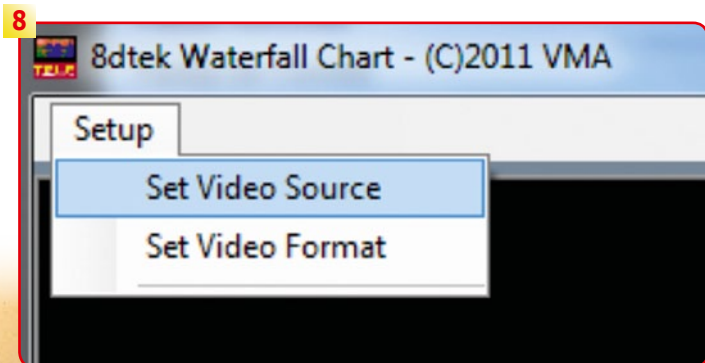


Image 8: Selecting video source.

Image 9: Selecting video format.

Image 10: Selecting 8dtek model.

Image 11: Second test set-up, this time using a netbook and the Desired. Long-term measurement tests were carried out with this equipment.

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Tenow Steps Up Product Rollout

■ In the 10-11/2011 issue of TELE-satellite we introduced a number of new PC cards from Tenow including the professional TBS6925 card. This card is also capable of receiving MIS satellite transmissions.

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DVB-S2 MIS Reception with VCM/ACM

Thomas Haring

With the change from DVB-S to DVB-S2, a more efficient method was created that permits more channels to be carried over one and the same transponder. This increase in efficiency is due in large part to the significant improvement in error correction so that fewer error correction bits need to be transmitted. From a mathematical point of view the increase in efficiency compared to DVB-S is roughly 30%, a value that in reality isn't quite reached, but it is definitely showing potential.

There are a variety of ways that programming can be transmitted. With DVB-S and for the moment also with DVB-S2, it's mostly CCM (Constant Coding and Modulation) that is used. In this process the programming organizer selects a fixed error correction and modulation process with which every receiver within a satellite's footprint can receive a usable signal with a reasonable amount of effort. If the programming organizer wants to also be able to reach as many viewers as possible at the edge of a satellite's footprint, he chooses an all around correction process so that these users can also obtain an acceptable signal. If the provider is looking to reach only those viewers in the heart of the footprint, he'd choose a less costly error correction.

The operator has to make some decisions. But how? It would be much more efficient and the operator could avoid having to make these technical decisions if the signal was transmitted in exactly the same way that it would be needed by the receiver.

This is precisely the strategy behind VCM (Variable Coding and Modulation) as well as ACM (Adaptive Coding and Modulation): the entire bandwidth of a transponder is split into multiple segments and through the use of various modulations and error correction processes, these bandwidth segments would be filled with different programming content corresponding to the available bandwidth. For receivers in the heart of the satellite's footprint, a very small error correction and high-

EIRP (dBW)	Modulation / Error Correction	Data Rate	Zone	Amount of Bandwidth	Resulting Bandwidth
53	16-ASP 2/3	~ 35 MB/s	1	20%	~ 7 Mbps
52	8-PSK 3/4	~ 30 MB/s	2	20%	~ 6 Mbps
51	8-PSK 2/3	~ 26 MB/s	3	20%	~ 5 Mbps
50	QPSK 8/9	~ 23 MB/s	4	20%	~ 4.5 Mbps
49	QPSK 4/5	~ 21 MB/s	5 + further	20%	~ 4.2 Mbps
Total:					~ 27 Mbps

■ Thanks to VCM technology, multiple transponder streams with different parameters can be made available on a single transponder

ly efficient modulation process could be used so that a relatively high data rate could be achieved. At the same time, the lower the signal level along the edge of the footprint, the better the error correction and more reliable modulation that could be used.

This all takes place within one transponder, that is, one and the same transponder transmits through VCM different modulation and error correction processes! We're referring in this case here to MIS (Multi Input Streams). With MIS a satellite receiver can receive multiple transponder streams from one transponder that are transmitted completely independent from each other with differing modulations and error correction. The idea behind all of this is that depending on the reception location, not every transponder stream from a transponder can be received. The end user can only receive signals that are strong enough at his location. This means that the receiver would automatically measure the signal and use these values to determine which transponder streams it could process and use.

A VCM target area could look something like this: in the heart of the satellite's footprint the available TV channels would be receivable in HD or 3D while on the outer edge of the footprint these channels would only be available in SD; all of this would occur over one single transponder. The TV viewers in the center of the footprint would profit from the higher data transmission rates while the viewers on the footprint's edge could still receive the signal with smaller antennas thanks to the more complex error correction and the

more reliable modulation that would be used, it just wouldn't be HD or 3D. It's important to note that no return channel from the receiver is necessary with VCM while ACM is geared more towards studio transmissions (feeds) since here the reception quality of the return channel has to be taken into consideration and the modulation and error correction are matched from the transmitting end.

This transmission technology is so new that VCM or ACM transponders cannot be received by most DVB-S2 receivers. Once more PayTV providers have switched over to this new VCM method or have begun some intensive testing, we can assume that more and more receivers will support this clever system that optimizes a satellite's bandwidth use. There's already an exciting opportunity to receive this new transmission technology: the PC card manufacturer Tenow has already integrated this technology in its professional PC card TBS6925. An initial test report on the TBS6925 was presented in the 10-11/2011 edition of TELE-satellite. Now we can actually take a closer look at the MIS capabilities of this PC card.

If you try to look for ACM/VCM transponders in your favorite Internet satellite list, you won't have much luck. Most providers of this kind of information have not included this data in their lists simply because there's hardly any reception hardware available that can receive these transponders. So the first you would do is to search for ACM/VCM transponder using blindscan tools such as CrazyScan and TBS Blindscan - you may check this forum for

Items	Satellite	Frequency (MHz)	Symbol Rate (KSps)	Mode
1	Astra 1G 31.5E	11914 H	27500	8PSK/VCM
2	Astra 1G 31.5E	11875H	29999	32APSK CCM
3	Astra 1G 31.5E	11895V	29999	32APSK CCM
4	Astra 1G 31.5E	11973V	29999	32APSK CCM
5	Astra 1G 31.5E	12051V	29999	32APSK CCM
6	Astra 1G 31.5E	12109H	29999	32APSK CCM
7	Astra 1G 31.5E	12187H	29999	16APSK CCM
8	Astra 1G 31.5E	12262H	3000	32APSK CCM
9	Astra 1G 31.5E	12284V	29999	16APSK CCM
10	Astra 1G 31.5E	12363V	29999	32APSK CCM
11	Astra2 28.2E	12708 H	5000	ACM
12	Badr/Eurobird 26E	11566 H	5625	ACM
13	Eutelsat W6 21.6E	10964 H	1000	16APSK
14	Eutelsat W6 21.6E	11413 V	18500	ACM-FEC 8/9
15	Eutelsat W6 21.6E	11327 V	22075	16APSK ACM/VCM
16	Eutelsat W6 21.6E	11308V	5623	16APSK ACM
17	Eutelsat W6 21.6E	11186H	2000	QPSK ACM
18	Eutelsat W6 21.6E	12647V	1283	QPSK ACM
19	Eutelsat W6 21.6E	11628V	5000	QPSK ACM
20	Eutelsat W6 21.6E	11509V	1644	8PSK ACM
21	Eutelsat W3 7E	11548 H	7200	32APSK-FEC 3/4 ACM/VCM
22	Eurobird 4A 4E	11458 V	7570	
23	Amos 2 Middle East 4W	11746 H	27500	16APSK-CCM
24	Amos 2 Middle East 4W	12053 H	27500	16APSK-CCM
25	Amos 2 Middle East 4W	12168 H	27500	16APSK-CCM
26	Atlantic Bird 1 12.5W	12528 H	1250	32APSK-CCM
27	Atlantic Bird 1 12.5W	12712 V	1863	32APSK-CCM
28	Atlantic Bird 1 12.5W	12718 H	36513	ACM
29	Telestar12 15W	10996 H	5307	32APSK-FEC 3/4 ACM/VCM
30	Telstar12 15W	11495 H	5750	16APSK
31	Telstar12 15W	11497 V	5595	32APSK
32	NSS 7 22W	11571 H	5108	32APSK-ACM/VCM
33	NSS 7 22 W	11574 H	5108	8PSK-FEC 3/4-ACM/VCM
34	NSS 7 22 W	10968 H	1033	8PSK-FEC 3/4-ACM/VCM
35	NSS 7 22 W	11654 H	3671	32APSK-FEC 3/4-ACM/VCM
36	Hispasat 1C/1D/1E 30W	10889 H	29999	16APSK-ACM/VCM
37	Hispasat 1C/1D/1E 30W	11789 V	3750	8PSK – FEC 2/3 – ACM/VCM
38	Hispasat 1C/1D/1E 30W	11800 V	5236	16APSK – FEC 2/3 – ACM/VCM
39	Hispasat 1C/1D/1E 30W	11853 V	8947	8PSK – FEC 2/3 – ACM/VCM
40	Hispasat 1C/1D/1E 30W	11909 V	7199	8PSK – FEC 3/5 – CCM
41	Hispasat 1C/1D/1E 30W	11924 V	5667	32APSK – FEC 3/4 – ACM/VCM
42	Hispasat 1C/1D/1E 30W	12013 V	30000	QPSK – FEC 3/4 – ACM/VCM
43	Hispasat 1C/1D/1E 30W	12151 V	3700	QPSK – FEC5/6 – ACM/VCM
44	Hispasat 1C/1D/1E 30W	12591 H	30000	ACM/VCM?
45	Telstar 11N 37.5W	11019 V	8229	32APSK
46	Telstar 11N 37.5W	11065 V	2060	?
47	Telstar 11N 37.5 W	11499 H	2316	16APSK-ACM/CCM
48	Telstar 11N 37.5W	11507 H	2640	ACM
49	Telstar 11N 37.5 W	11646 H	3846	8PSK-ACM/VCM
50	Telstar 11N 37.5 W	12349 H	2316	16APSK-ACM/CCM
51	Telstar 11N 37.5 W	12496 H	3846	8PSK-ACM/CCM
52	Telstar 11N 37.5W	12549 H	1034	32APSK
53	Intelsat 14 45W	11523 H	9800	ACM
54	Intelsat 805 55.5W	4162 H	7200	8PSK – FEC 3/5 – ACM/VCM
55	AMC 6 72W	11628 H	15166	16APSK – FEC 4/5 – ACM/VCM
56	AMC 6 72W	11644 H	10425	QPSK – FEC: 3/4 – ACM/VCM
57	AMC 6 72W	11674 H	11500	8PSK – FEC: 3/4 – ACM/VCM
58	AMC 2 79W	11792 V	1000	32APSK
59	Galaxy 28 89.0W	11760 H	30000	8APSK/ACM/VCM
60	SES-1 101W	3996 V	15120	2/3 FEC VCM
61	Galaxy 13 127W	11720 H	20330	32APSK

■ Currently active MIS Satellite Transponders

more background information: <http://www.tbsdtv.com/forum/viewtopic.php?f=25&t=447>

Once you know transponders available with your reception setup, you have to start the TBS6925 TS recorder. This program, that we also introduced to you in the 10-11/2011 issue of TELE-satellite, can be used as an aid in selecting the desired transport streams. After entering the parameters of the MIS transponder (frequency, polarization and symbol rate), you then simply need to click on the „Lock TP“ button after which the software reads the desired transponder.

In the lower most lines of Tools, one or more numbers appear in the field „Input Stream Identify“ that highlight the available transponder streams in the transponder. Here you simply make a choice and click on one of the entries. You can now stop the TBS6925 TS recorder and start any of the popular TBS6925 compatible TV viewers. For our tests we opted to use DVBCViewer. Simply start a scan on the frequency of the MIS transponder, the software will then read in the available channels and store them. With that you've read in the first of multiple transponder streams on that transponder. Now you would repeat these steps as often as necessary until all the streams in the „Input Stream Identify“ field have been selected and read in. You'll be amazed! With each newly selected stream the TV software will recognize an entirely new set of channels, all on the same frequency!

For our tests we used the 12718 MHz transponder on ATLANTIC BIRD 1 at 12.5° west on which are four fully independent transponder streams that each carry their own set of programming. The bandwidth is enough for 11 channels in SD resolution or up to three in HD or 3D. Naturally, all of the typical features, such as EPG or language selection, are available with MIS reception. The only difference with CCM is the number of available transponder streams per transponder.

The abbreviation MIS is something we'll all have to start getting used to seeing more often. Gradually, more and more programming providers will begin taking advantage of this new technology and once this happens the need for compatible satellite receivers will naturally grow.

Thomas Haring

				352.5°E				Network Name				TIMB4				Recording				Thomas Haring				
PID Hex PID Stream Type Encrypted kbps % Service Name				Transmitter ATLANTIC BIRD 1 12.718H				Remark				MIS												
757	0x02F5	H.264 Video	-	9322.66	41.14	LA7 HD	18	0x0012	EIT	-	39.17	0.17	N/A	761	0x02F9	PMT	-	15.04	0.07	LA7 test 3D				
762	0x02FA	H.264 Video	-	9322.39	41.14	LA7 test 3D	104	0x0068	AAC Audio	-	26.64	0.12	LA7 test MOSAICO	756	0x02F4	PMT	-	15.04	0.07	LA7 HD				
101	0x0065	H.264 Video	-	1801.87	8.03	LA7 test MOSAICO	102	0x0066	AAC Audio	-	26.64	0.12	LA7 test MOSAICO	0	0x0000	PAT	-	15.04	0.07	N/A				
8191	0x1FFF	Null Packets	-	1158.70	5.16	N/A	105	0x0069	AAC Audio	-	26.55	0.12	LA7 test MOSAICO	21	0x0015	Network Sync	-	2.51	0.01	N/A				
763	0x02FB	MPEG Audio	-	394.77	1.76	LA7 test 3D	103	0x0067	AAC Audio	-	26.55	0.12	LA7 test MOSAICO	17	0x0011	SDT	-	1.58	0.01	N/A				
758	0x02F6	MPEG Audio	-	394.68	1.76	LA7 HD	1	0x0001	CAT	-	15.13	0.07	N/A	16	0x0010	NIT	-	0.28	0.00	N/A				
							771	0x0303	PMT	-	15.04	0.07	LA7 test MOSAICO	20	0x0014	TOT	-	0.09	0.00	N/A				

DVBS

352.5°E

Network Name

TIMB2

Recording

Thomas Haring

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	Transmitter	ATLANTIC BIRD 1 12.718H	Remark	MIS
757	0x02F5	H.264 Video	-	8717.97	38.86	LA7 HD	8191 0x1FFF Null Packets	N/A	
770	0x0302	H.264 Video	-	4112.51	18.33	LA7D HD	651 0x028B MPEG Audio	-	135.94 0.61 Padre Pio TV
766	0x02FE	H.264 Video	-	3089.98	13.77	MTV HD	7094 0x1BB6 Data	-	35.05 0.16 ROVI
790	0x0316	MPEG2 Video	-	2567.23	11.44	RTL 102.5 TV	7041 0x1B81 Data	-	23.86 0.11 ROVI
650	0x028A	MPEG2 Video	-	1465.59	6.53	Padre Pio TV	33 0x0021 PMT	-	15.15 0.07 MTV MUSIC HD
772	0x0304	AC3 Audio	-	423.75	1.89	LA7D HD	1 0x0001 CAT	-	15.15 0.07 N/A
759	0x02F7	AC3 Audio	-	423.75	1.89	LA7 HD	769 0x0301 PMT	-	15.05 0.07 LA7D HD
768	0x0300	AC3 Audio	-	423.65	1.89	MTV HD	765 0x02FD PMT	-	15.05 0.07 MTV HD
18	0x0012	EIT	-	259.40	1.16	N/A	756 0x02F4 PMT	-	15.05 0.07 LA7 HD
792	0x0318	MPEG Audio	-	200.78	0.90	RTL 102.5	549 0x0225 PMT	-	15.05 0.07 Padre Pio TV

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www.transponderstream.com/DVB-S/352/ATLANTICBIRD-12718H-11102.ts

DVBS

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	Transmitter	ATLANTIC BIRD 1 12.718H	Remark	MIS			
6112	0x17E0	MPEG2 Video	-	5023.91	22.39	LA7	1458 0x05B2 MPEG Audio	-	132.51 0.59 frisbee	1512 0x05E8 PMT	-	15.08 0.07 La7 News On Demand
6122	0x17EA	MPEG2 Video	-	2874.71	12.81	LA7D	982 0x03D6 MPEG Audio	-	132.51 0.59 K2	1461 0x05B5 PMT	-	15.08 0.07 frisbee
6132	0x17F4	MPEG2 Video	-	2567.58	11.44	MTV MUSIC	990 0x03DE MHP	-	94.15 0.42 CUBOVISION	0 0x0000 PAT	-	15.08 0.07 N/A
6117	0x17E5	MPEG2 Video	-	2465.31	10.99	MTV	6111 0x17DF PMT	-	30.16 0.13 LA7	6151 0x1807 PMT	-	15.00 0.07 LA7D
1457	0x05B1	MPEG2 Video	-	2362.96	10.53	frisbee	6160 0x1810 PMT	-	15.08 0.07 MTV	6150 0x1806 PMT	-	15.00 0.07 LA7
981	0x03D5	MPEG2 Video	-	2362.88	10.53	K2	6157 0x180D PMT	-	15.08 0.07 La7ondemand	1511 0x05E7 PMT	-	15.00 0.07 K2
8191	0x1FFF	Null Packets	-	1262.97	5.63	N/A	6152 0x1808 PMT	-	15.08 0.07 LA7D	1 0x0001 CAT	-	15.00 0.07 N/A
2039	0x07F7	MPEG2 Video	-	433.78	1.93	La7ondemand	6141 0x17FD PMT	-	15.08 0.07 MTV MUSIC	590 0x024E Private Sections	-	6.09 0.03 N/A
6133	0x17F5	MPEG Audio	-	394.71	1.76	MTV MUSIC	6131 0x17F3 PMT	-	15.08 0.07 MTV MUSIC	7080 0x1BA8 Private Sections	-	6.02 0.03 N/A
6118	0x17E6	MPEG Audio	-	394.71	1.76	MTV	6116 0x17E4 PMT	-	15.08 0.07 MTV	7010 0x1B62 Private Sections	-	6.02 0.03 N/A
6113	0x17E1	MPEG Audio	-	263.61	1.17	LA7	6106 0x17DA PMT	-	15.08 0.07 CUBOVISION	7000 0x1B58 Private Sections	-	6.02 0.03 N/A
18	0x0012	EIT	-	259.63	1.16	N/A	1551 0x060F PMT	-	15.08 0.07 PIU* SERVIZI	577 0x0241 Private Sections	-	6.02 0.03 N/A
7011	0x1B63	MHP	-	244.39	1.09	LA7	1546 0x060A PMT	-	15.08 0.07 PORTALE SERVIZI TELECOM	400 0x0190 Private Sections	-	6.02 0.03 N/A
6120	0x17E8	Teletext	-	188.37	0.84	MTV	1541 0x0605 PMT	-	15.08 0.07 MTV MUSIC On Demand	17 0x0011 SDT	-	4.45 0.02 N/A
6115	0x17E3	Teletext	-	150.71	0.67	LA7	1536 0x0600 PMT	-	15.08 0.07 MTV+ On Demand	21 0x0015 Network Sync	-	2.42 0.01 N/A
7001	0x1B59	MHP	-	144.31	0.64	LA7	1531 0x05FB PMT	-	15.08 0.07 La7 Servizi On Demand	16 0x0010 NIT	-	0.63 0.00 N/A
7081	0x1BA9	MHP	-	144.23	0.64	LA7	1526 0x05F6 PMT	-	15.08 0.07 La7D On Demand	20 0x0014 TOT	-	0.23 0.00 N/A
6123	0x17EB	MPEG Audio	-	132.51	0.59	LA7D	1521 0x05F1 PMT	-	15.08 0.07 MTV On Demand			
							1516 0x05EC PMT	-	15.08 0.07 MTV News On Demand			

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www.transponderstream.com/DVB-S/352/ATLANTICBIRD-12718H-11103.ts

1 TBS6925 TS Recorder

2 Channellist

3 TV Viewer

4 TV Viewer

5 Scan channels

1. To identify MIS (Multiple Input Stream) transmissions, you enter in the reception parameters in the TBS Recorder program. This program is included with the Tenow TBS6925 PC card. The Input Stream Identifiers recognized by the software are listed in the lower-most drop-down menu.

2. The channels that were found can be viewed in a TV Viewer such as DVBViewer; for example, LA7 on ATLANTIC BIRD 1 at 12.5° west.

3,4. The TBS6925 can receive the channels that were found.

5. The Tenow software's scan function finds the corresponding channels.

Benni's BSD



- 
- The background of the page is a photograph showing several large satellite dishes. One dish is prominently featured in the foreground, angled towards the right. Another dish is visible in the upper left corner. The dishes are set against a backdrop of lush green trees and a clear blue sky with some light clouds. The lighting suggests it's daytime.
- ***Operates Brazil's largest digital TV website***
 - ***Engaged in the further education of digital TV antenna installers***
 - ***Planning his own IPTV channel all about digital technology***
 - ***Living his dream with his own worldwide radio station***

Always Active When it Has to Do with Digital TV

■ Marcus Bernardini, aka Benni, in his garden. In the background is his 5.0-meter antenna as well as his 1.5-meter dish. Benni is the operator of the www.portalbsd.com.br website that focuses on satellite interests in Brazil.



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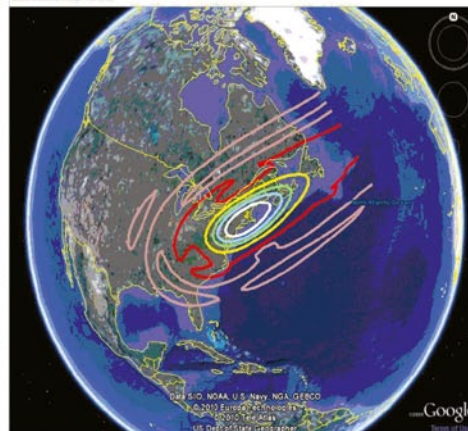
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■ Benni installed antennas on this tower for the reception of terrestrial channels. The offset antenna provides him wireless Internet.

What does a radio announcer do when his hobby is digital technology? Exactly, he creates a digital TV website, starts his own radio channel and is seriously thinking about starting his own IPTV channel all about digital technology. At least these are the areas in which Marcus Bernardini (you can just call him 'Benni') is very active. It turns out that his website www.portalbsd.com.br is the largest source of information for satellite enthusiasts in Brazil and because of this we decided to find out more about it.

'Benni' lives in the city of Jundiaí which is located 58 km out of the capital São Paulo in southeastern Brazil. But



there's more to his home than just the satellite dishes on the outside; he also has an entire room in his house that is a fully functional audio studio. From here he operates his own Internet radio station that can be heard around the world at www.radiobsd.com.br and is also transmitted via satellite on via some Brazilian cable networks. Since he was a radio announcer for many years, he is quite familiar with jingles and announcing so that his program comes across as being very professional.

But his radio station is just a hobby for him. "I love this music and with my own radio station I have fulfilled my dream. But it's not financially profit-

able", admits Benni. He worked for many years as an announcer at the local radio station; he produced jungles and read off ads on the air. He earned good money and founded his own production company with some partners. In 2010, however, he burned himself out and decided to turn his life around. He handed over control of his company to his partners and only occasionally jumps in as a spokesman. As he sees it, his main job now is to promote his website www.portalbsd.com.br.

"In the year 2000 I became really interested in satellite reception", remembers Benni. "Back then I already had a satellite system with a 2.85-me-

ter diameter dish that I used to receive popular Brazilian TV channels." The changeover from plain TV viewer to TV hobbyist came when he read a report covering digitalization and at the same time stumbled on a group of satellite enthusiasts that called themselves "Brasilsat Digital" and is still active today as an Internet discussion group. "I learned quite a lot from them and became very fascinated with satellite reception." Benni realized that, "back then there were no websites that gave you information on satellites, TV channels and reception equipment for Brazil."

That led to the start of his own website. "In the meantime we have grown dramatically. There are 15,000 members in our forum; our information databases are constantly being kept up to date by roughly 10 helping hands." An important component of his website is the answers provided to technical questions. "Our members answer technical questions quickly and as detailed as possible", says Benni referring to the users of his website.

Over the years Benni has built up some good contacts with Brazilian satellite dealers. "Many of these companies have banner ads with us and this gives us the means to continue to expand our website." Benni has a dream to start his own IPTV channel that would deal with the subject of digital technology. "We have already produced the first set of videos, for example, marking the occasion of digital TV trade shows here in Sao Paulo." If you visit the website www.portalbsd.com.br you can view the videos. "Our work places great emphasis on providing digital technology information to installers and we are planning a 'Distance Learning' series. The most important elements of digital TV technology would be presented in short videos."

Benni has a lot of plans. His activities always revolve around the subject of digital TV. He gets closer to his goal with every passing day: "This will be the headquarters for audio and video technology information." It's an ambitious goal and Benni is always a step closer to it with the help of his friends.

■ Benni in his control room. From here he runs his BSD website "Brasil Sat Digital" with his direct collaborators Danilo (Webmaster), Valdecir, Crispim, André, Gilson and Richard. More than 10 indirect collaborators update daily the technical data.





■ Benni can be seen here in his element. He is an announcer by trade and has been operating his own 24-hour Internet radio station BSD from his home since 2008. It can be heard around the world at www.radiobsd.com.br





DIGITAL TV

Transponder Streams around the WORLD

(0.8°W) THOR 5

DVB-S2 13°E HOTBIRD

DVB-S 19°E ASTRA

DVB-S2 42°E TURKSAT

DVB-S 108°E TELKOM 1

DVB-S 113°E PALAPA D



**PT****Network Name****Cabo Porto****Recording****Vitor Martins Augusto****Transmitter****Porto Channel 54****Remark****Nagravision 3**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	Porto Channel 54	Recording	Remark	Vitor Martins Augusto
5184	0x1440	MPEG2 Video	\$	5827.72	15.32	TVI	8144 0x1FD0 Private Sections	- 200.03 0.53 N/A	6760 0x1A68 Data	- 100.02 0.26 Canal de Teste	
7968	0x1F20	MPEG2 Video	\$	4930.85	12.97	SIC Notícias	8096 0x1FA0 Private Sections	- 200.01 0.53 N/A	119 0x0077 ECM/EMM	- 92.30 0.24 N/A	
5168	0x1430	MPEG2 Video	\$	3740.60	9.84	SIC	5185 0x1441 MPEG Audio	\$ 198.53 0.52 TVI	17 0x0011 SDT	- 56.40 0.15 N/A	
7210	0x1C2A	MPEG2 Video	\$	3603.73	9.48	RTP Informação	5233 0x1471 MPEG Audio	\$ 198.51 0.52 Canal Panda	217 0x00D9 ?	- 56.30 0.15 N/A	
5152	0x1420	MPEG2 Video	\$	3562.78	9.37	RTP 2	5169 0x1431 MPEG Audio	\$ 198.51 0.52 SIC	0 0x0000 PAT	- 37.51 0.10 N/A	
8191	0x1FFF	Null Packets	-	3027.04	7.96	N/A	5153 0x1421 MPEG Audio	\$ 198.51 0.52 RTP 2	1 0x0001 CAT	- 24.70 0.06 N/A	
5136	0x1410	MPEG2 Video	\$	2988.99	7.86	RTP 1	5137 0x1411 MPEG Audio	\$ 198.51 0.52 RTP 1	16 0x0010 NIT	- 21.76 0.06 N/A	
5232	0x1470	MPEG2 Video	\$	2266.82	5.96	Canal Panda	7969 0x1F21 MPEG Audio	\$ 198.48 0.52 SIC Notícias	1193 0x04A9 ECM/EMM	- 15.05 0.04 Panda Biggs	
7648	0x1DE0	MPEG2 Video	\$	2087.22	5.49	Panda Biggs	7649 0x1DE1 MPEG Audio	\$ 198.48 0.52 Panda Biggs	1166 0x048E ECM/EMM	- 15.05 0.04 RTP Informação	
18	0x0012	EIT	-	696.07	1.83	N/A	7211 0x1C2B MPEG Audio	\$ 198.48 0.52 RTP Informação	1017 0x03F9 ECM/EMM	- 15.05 0.04 SIC Notícias	
6743	0x1A57	?	-	350.08	0.92	N/A	33 0x0021 Private Sections	- 198.18 0.52 N/A	1006 0x03EE ECM/EMM	- 15.05 0.04 Canal Panda	
6772	0x1A74	Data	-	300.07	0.79	DSMCC - IPPV	5280 0x14A0 MPEG2 Video	- 195.96 0.52 Canal de Teste	1003 0x03EB ECM/EMM	- 15.05 0.04 TVI	
817	0x0331	PMT	-	297.25	0.78	Canal de Teste	5138 0x1412 Teletext	- 188.10 0.49 RTP 1	1002 0x03EA ECM/EMM	- 15.05 0.04 SIC	
5186	0x1442	Teletext	-	263.26	0.69	TVI	6776 0x1A78 Data	- 170.04 0.45 DSMCC - RADIOS	1001 0x03E9 ECM/EMM	- 15.05 0.04 RTP 2	
5170	0x1432	Teletext	-	225.63	0.59	SIC	8162 0x1FE2 Private Sections	- 150.02 0.39 N/A	1000 0x03E8 ECM/EMM	- 15.05 0.04 RTP 1	
8160	0x1FE0	Private Sections	-	200.03	0.53	N/A	8128 0x1FC0 Private Sections	- 150.02 0.39 N/A	216 0x00D8 ?	- 8.38 0.02 N/A	
							8176 0x1FF0 Private Sections	- 100.02 0.26 N/A	20 0x0014 TOT	- 2.74 0.01 N/A	

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DVB-S

satellite

19°E**ASTRA****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	Transmitter	ASTRA 11.023H	Recording	Remark	Thomas Haring
8191	0x1FFF	Null Packets	-	13188.42	38.98	N/A	2062 0x080E MPEG Audio	- 138.13 0.41 Radio Beograd	34 0x0022 PMT	- 18.85 0.06 3D Tile Format	
33	0x0021	H.264 Video	-	8188.04	24.20	ASTRA 3D demo	2052 0x0804 MPEG Audio	- 137.98 0.41 RTS SAT	32 0x0020 PMT	- 18.85 0.06 ASTRA 3D demo	
2091	0x082B	MPEG2 Video	-	6173.50	18.25	ASTRA Caption	641 0x0281 MPEG Audio	- 131.63 0.39 AB Channel	5220 0x1464 PMT	- 18.77 0.06 AB Channel	
2051	0x0803	MPEG2 Video	-	3547.00	10.48	RTS SAT	1701 0x06A5 PCR	- 42.72 0.13 N/A	1 0x0001 CAT	- 3.77 0.01 N/A	
640	0x0280	MPEG2 Video	-	1430.39	4.23	AB Channel	1301 0x0515 PCR	- 42.72 0.13 N/A	0 0x0000 PAT	- 3.77 0.01 N/A	
36	0x0024	Private Data	-	459.99	1.36	ASTRA 3D demo	2060 0x080C PMT	- 18.85 0.06 Radio Beograd	16 0x0010 NIT	- 2.00 0.01 N/A	
642	0x0282	Teletext	-	225.71	0.67	AB Channel	2050 0x0802 PMT	- 18.85 0.06 RTS SAT	17 0x0011 SDT	- 1.77 0.01 N/A	
							1112 0x0458 PMT	- 18.85 0.06 ASTRA Caption	20 0x0014 TOT	- 0.15 0.00 N/A	

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PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	TELKOM 1 4.084H	Recording	Remark	Vincent Witjhun
33	0x0021	MPEG2 Video	-	7324.15	94.76	Trans TV 1	0 0x0000 PAT	- 3.76 0,05N/A	17 0x0011 SDT	- 0.81 0,01N/A	
36	0x0024	MPEG Audio	-	394,26	5,10	Trans TV 1	32 0x0020 PMT	- 3,62 0,05Trans TV 1	1 0x0001 CAT	- 0.81 0,01N/A	
							18 0x0012 EIT	- 1,61 0,02N/A	16 0x0010 NIT	- 0,13 0,00N/A	

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PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	TELKOM 1 4.097H	Recording	Remark	Vincent Witjhun
308	0x0134	MPEG2 Video	-	3423,84	84,72	JTV-REK	8190 0x1FFE PCR	- 38,23 0,95N/A	17 0x0011 SDT	- 7,55 0,19N/A	
257	0x0101	MPEG Audio	-	263,16	6,51	JTV-REK	32 0x0020 PMT	- 7,55 0,19JTV-REK	16 0x0010 NIT	- 7,55 0,19N/A	
256	0x0100	MPEG Audio	-	263,16	6,51	JTV-REK	20 0x0014 TOT	- 7,55 0,19N/A	1 0x0001 CAT	- 7,55 0,19N/A	
							18 0x0012 EIT	- 7,55 0,19N/A	0 0x0000 PAT	- 7,55 0,19N/A	

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113°E
PALAPA D

113°E
Network Name
ASIALINK
Recording
Vincent Witjhun

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	ASIALINK	Recording	Vincent Witjhun
308	0x0134	MPEG2 Video	-	6810.44	92.07	ASIALINK	8190 0x1FFE PCR	- 39.46 0.53 N/A	17 0x0011 SDT	- 0.83 0.01 N/A
256	0x0100	MPEG Audio	-	272.61	3.69	ASIALINK	32 0x0020 PMT	- 3.74 0.05 ASIALINK	1 0x0001 CAT	- 0.83 0.01 N/A
257	0x0101	MPEG Audio	-	263.47	3.56	ASIALINK	0 0x0000 PAT	- 3.74 0.05 N/A	16 0x0010 NIT	- 0.28 0.00 N/A
							18 0x0012 EIT	- 1.66 0.02 N/A		

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113°E
Network Name
Indosat 01
Recording
Vincent Witjhun

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	Indosat 01	Recording	Vincent Witjhun
513	0x0201	MPEG2 Video	-	6136.76	18.47	MetroTV	1803 0x070B MPEG Audio	- 262.54 0.79 Ch 18	107 0x006B PMT	- 13.25 0.04 CH7
516	0x0204	MPEG2 Video	-	2688.50	8.09	NHK	666 0x029A MPEG Audio	- 262.54 0.79 POP FM	106 0x006A PMT	- 13.25 0.04 CH6
519	0x0207	H.264 Video	-	2557.16	7.69	CH10	665 0x0299 MPEG Audio	- 262.54 0.79 BBC	104 0x0068 PMT	- 13.25 0.04 Spacetoon
512	0x0200	MPEG2 Video	-	2412.66	7.26	CH3	658 0x0292 MPEG Audio	- 262.54 0.79 CH11	103 0x0067 PMT	- 13.25 0.04 CH3
515	0x0203	MPEG2 Video	-	2305.19	6.94	Spacetoon	655 0x028F MPEG Audio	- 262.54 0.79 CH6	102 0x0066 PMT	- 13.25 0.04 MetroTV
514	0x0202	MPEG2 Video	-	2098.78	6.32	Lejel	1804 0x070C MPEG Audio	- 131.67 0.40 Rodja	2900 0x0B54 PMT	- 13.20 0.04 Radio 19
2102	0x0836	MPEG2 Video	-	2083.89	6.27	CH 20	2001 0x07D1 MPEG Audio	- 66.18 0.20 Reda Crossa	2800 0x0AF0 PMT	- 13.20 0.04 Rodja
1902	0x076E	MPEG2 Video	-	2057.68	6.19	Ch 19	1904 0x0770 MPEG Audio	- 66.18 0.20 Radio 19	2100 0x0834 PMT	- 13.20 0.04 CH 20
1802	0x070A	MPEG2 Video	-	2053.75	6.18	Ch 18	8190 0x1FFE PCR	- 44.28 0.13 N/A	2000 0x07D0 PMT	- 13.20 0.04 Reda Crossa
518	0x0206	MPEG2 Video	-	1760.92	5.30	CH7	202 0x00CA PCR	- 39.65 0.12 N/A	1900 0x076C PMT	- 13.20 0.04 Ch 19
517	0x0205	MPEG2 Video	-	1557.64	4.69	CH6	2101 0x0835 PCR	- 39.60 0.12 N/A	1800 0x0708 PMT	- 13.20 0.04 Ch 18
520	0x0208	H.264 Video	-	511.41	1.54	CH11	1901 0x076D PCR	- 39.60 0.12 N/A	117 0x0075 PMT	- 13.20 0.04 POP FM
664	0x0298	MPEG Audio	-	262.63	0.79	MTA FM	211 0x00D3 PCR	- 39.60 0.12 N/A	116 0x0074 PMT	- 13.20 0.04 BBC
1903	0x076F	MPEG Audio	-	262.59	0.79	Ch 19	210 0x00D2 PCR	- 39.60 0.12 N/A	115 0x0073 PMT	- 13.20 0.04 68H
657	0x0291	MPEG Audio	-	262.59	0.79	CH10	207 0x00CF PCR	- 39.60 0.12 N/A	114 0x0072 PMT	- 13.20 0.04 MTA FM
656	0x0290	MPEG Audio	-	262.59	0.79	CH7	206 0x00CE PCR	- 39.60 0.12 N/A	111 0x006F PMT	- 13.20 0.04 CH11
654	0x028E	MPEG Audio	-	262.59	0.79	NHK	205 0x00CD PCR	- 39.60 0.12 N/A	110 0x006E PMT	- 13.20 0.04 CH10
653	0x028D	MPEG Audio	-	262.59	0.79	Spacetoon	204 0x00CC PCR	- 39.60 0.12 N/A	105 0x0069 PMT	- 13.20 0.04 NHK
652	0x028C	MPEG Audio	-	262.59	0.79	Lejel	203 0x00CB PCR	- 39.60 0.12 N/A	101 0x0065 PMT	- 13.20 0.04 Lejel
651	0x028B	MPEG Audio	-	262.59	0.79	MetroTV	201 0x00C9 PCR	- 39.60 0.12 N/A	17 0x0011 SDT	- 4.54 0.01 N/A
650	0x028A	MPEG Audio	-	262.59	0.79	CH3	1801 0x0709 PCR	- 39.55 0.12 N/A	16 0x0010 NIT	- 0.19 0.00 N/A
2103	0x0837	MPEG Audio	-	262.54	0.79	CH 20	1 0x0001 CAT	- 15.03 0.05 N/A	20 0x0014 TOT	- 0.05 0.00 N/A
							0 0x0000 PAT	- 15.03 0.05 N/A		

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352.5°E
ATLANTIC BIRD 1

352.5°E
Network Name
TIMB4
Recording
Thomas Haring

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	ATLANTIC BIRD 1 12.718H	Remark	MIS
757	0x02F5	H.264 Video	-	9232.66	41.14	LA7 HD	18 0x0012 EIT	- 39.17 0.17 N/A	761 0x02F9 PMT	- 15.04 0.07 LA7 test 3D
762	0x02FA	H.264 Video	-	9232.39	41.14	LA7 test 3D	104 0x0068 AAC Audio	- 26.64 0.12 LA7 test MOSAICO	756 0x02F4 PMT	- 15.04 0.07 LA7 HD
101	0x0065	H.264 Video	-	1801.87	8.03	LA7 test MOSAICO	102 0x0066 AAC Audio	- 26.64 0.12 LA7 test MOSAICO	0 0x0000 PAT	- 15.04 0.07 N/A
8191	0x1FFF	Null Packets	-	1158.70	5.16	N/A	105 0x0069 AAC Audio	- 26.55 0.12 LA7 test MOSAICO	21 0x0015 Network Sync	- 2.51 0.01 N/A
763	0x02FB	MPEG Audio	-	394.77	1.76	LA7 test 3D	103 0x0067 AAC Audio	- 26.55 0.12 LA7 test MOSAICO	17 0x0011 SDT	- 1.58 0.01 N/A
758	0x02F6	MPEG Audio	-	394.68	1.76	LA7 HD	1 0x0001 CAT	- 15.13 0.07 N/A	16 0x0010 NIT	- 0.28 0.00 N/A
							771 0x0303 PMT	- 15.04 0.07 LA7 test MOSAICO	20 0x0014 TOT	- 0.09 0.00 N/A

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352.5°E
Network Name
TIMB2
Recording
Thomas Haring

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	ATLANTIC BIRD 1 12.718H	Remark	MIS
757	0x02F5	H.264 Video	-	8717.97	38.86	LA7 HD	791 0x0317 MPEG Audio	- 198.71 0.89 RTL 102.5 TV	490 0x01EA PMT	- 15.05 0.07 RTL 102.5
770	0x0302	H.264 Video	-	4112.51	18.33	LA7D HD	8191 0x1FFF Null Packets	- 193.95 0.86 N/A	290 0x0122 PMT	- 15.05 0.07 RTL 102.5 TV
766	0x02FE	H.264 Video	-	3089.98	13.77	MTV HD	651 0x028B MPEG Audio	- 135.94 0.61 Padre Pio TV	269 0x010D PMT	- 15.05 0.07 ROVI
790	0x0316	MPEG2 Video	-	2567.23	11.44	RTL 102.5 TV	7094 0x1BB6 Data	- 35.05 0.16 ROVI	0 0x0000 PAT	- 15.05 0.07 N/A
650	0x028A	MPEG2 Video	-	1465.59	6.53	Padre Pio TV	7041 0x1B81 Data	- 23.86 0.11 ROVI	7040 0x1B80 Data	- 4.65 0.02 ROVI
772	0x0304	AC3 Audio	-	423.75	1.89	LA7D HD	33 0x0021 PMT	- 15.15 0.07 MTV MUSIC HD	17 0x0011 SDT	- 2.97 0.01 N/A
759	0x02F7	AC3 Audio	-	423.75	1.89	LA7 HD	1 0x0001 CAT	- 15.15 0.07 N/A	21 0x0015 Network Sync	- 2.48 0.01 N/A
768	0x0300	AC3 Audio	-	423.65	1.89	MTV HD	769 0x0301 PMT	- 15.05 0.07 LA7D HD	16 0x0010 NIT	- 0.30 0.00 N/A
18	0x0012	EIT	-	259.40	1.16	N/A	765 0x02FD PMT	- 15.05 0.07 MTV HD	20 0x0014 TOT	- 0.20 0.00 N/A
792	0x0318	MPEG Audio	-	200.78	0.90	RTL 102.5	756 0x02F4 PMT	- 15.05 0.07 LA7 HD		
							549 0x0225 PMT	- 15.05 0.07 Padre Pio TV		

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359°E

THOR 5

DVB-S2

359°E

Network Name

Telenor

Recording

Thomas Haring

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	Transmitter	THOR 5 11.785H	Remark	3D tests encrypted
516	0x0204	H.264 Video	\$ 13846.91	20.65	TV 2 3D	610 0x0262 DVB Subtitles	- 15.49 0.02	Nat Geo HD	75 0x004B ECM/EMM - 15.12 0.02 Nat Geo Wild HD
515	0x0203	H.264 Video	\$ 12305.98	18.35	ESPN America HD	612 0x0264 DVB Subtitles	- 15.24 0.02	Nat Geo HD	261 0x0105 PMT - 14.99 0.02 TV 2 3D
512	0x0200	H.264 Video	\$ 12038.82	17.95	Nat Geo HD	272 0x0110 PMT	- 15.12 0.02	MTV Live HD	184 0x00B8 ECM/EMM - 14.99 0.02 Nat Geo HD
513	0x0201	H.264 Video	\$ 11995.69	17.89	Nat Geo Wild HD	271 0x010F PMT	- 15.12 0.02	Nat Geo Wild HD	174 0x00AE ECM/EMM - 14.99 0.02 Nat Geo HD
514	0x0202	H.264 Video	\$ 9947.94	14.83	MTV Live HD	270 0x010E PMT	- 15.12 0.02	Nat Geo HD	102 0x0066 ECM/EMM - 14.99 0.02 MTV Live HD
8191	0x1FFF	Null Packets	- 3428.83	5.11	N/A	260 0x0104 PMT	- 15.12 0.02	MTV Live HD	100 0x0064 ECM/EMM - 14.99 0.02 Nat Geo HD
641	0x0281	AC3 Audio	\$ 462.09	0.69	Nat Geo HD	259 0x0103 PMT	- 15.12 0.02	ESPN America HD	1 0x0001 CAT - 14.99 0.02 N/A
48	0x0030	ECM/EMM	- 413.14	0.62	N/A	258 0x0102 PMT	- 15.12 0.02	ESPN America HD	0 0x0000 PAT - 14.99 0.02 N/A
18	0x0012	EIT	- 401.25	0.60	N/A	257 0x0101 PMT	- 15.12 0.02	Nat Geo Wild HD	611 0x0263 DVB Subtitles - 13.63 0.02 Nat Geo HD
657	0x0291	AC3 Audio	- 400.75	0.60	TV 2 3D	256 0x0100 PMT	- 15.12 0.02	Nat Geo HD	16 0x0010 NIT - 12.89 0.02 N/A
648	0x0288	AC3 Audio	\$ 400.75	0.60	MTV Live HD	104 0x0068 ECM/EMM	- 15.12 0.02	TV 2 3D	95 0x005F ECM/EMM - 5.08 0.01 Nat Geo Wild HD
656	0x0290	MPEG Audio	\$ 267.17	0.40	TV 2 3D	103 0x0067 ECM/EMM	- 15.12 0.02	ESPN America HD	94 0x005E ECM/EMM - 5.08 0.01 Nat Geo HD
652	0x028C	MPEG Audio	\$ 263.20	0.39	ESPN America HD	101 0x0065 ECM/EMM	- 15.12 0.02	Nat Geo Wild HD	97 0x0061 ECM/EMM - 4.96 0.01 ESPN America HD
644	0x0284	MPEG Audio	\$ 229.99	0.34	Nat Geo Wild HD	96 0x0060 ECM/EMM	- 15.12 0.02	ESPN America HD	616 0x0268 DVB Subtitles - 2.97 0.00 Nat Geo Wild HD
640	0x0280	MPEG Audio	\$ 201.12	0.30	Nat Geo HD	87 0x0057 ECM/EMM	- 15.12 0.02	ESPN America HD	615 0x0267 DVB Subtitles - 2.97 0.00 Nat Geo Wild HD
17	0x0011	SDT	- 25.03	0.04	N/A	85 0x0055 ECM/EMM	- 15.12 0.02	Nat Geo Wild HD	614 0x0266 DVB Subtitles - 2.97 0.00 Nat Geo Wild HD
						77 0x004D ECM/EMM	- 15.12 0.02	ESPN America 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 WN

Recording

Thomas Haring

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	Transmitter	Vienna Channel 24	Remark	3D tests encrypted
1020	0x03FC	MPEG2 Video	- 4736.71	31.72	ORF2 W	1015 0x03F7 Teletext	- 300.82 2.01	ORF1	103 0x0067 PMT - 18.82 0.13 ORF2 N
1010	0x03F2	MPEG2 Video	- 3687.03	24.69	ORF1	1041 0x0411 MPEG Audio	- 175.56 1.18	ATV	102 0x0066 PMT - 18.82 0.13 ORF2 W
1040	0x0410	MPEG2 Video	- 2891.25	19.36	ATV	1021 0x03FD MPEG Audio	- 175.51 1.18	ORF2 W	101 0x0065 PMT - 18.82 0.13 ORF1
8191	0x1FFF	Null Packets	- 898.46	6.02	N/A	1011 0x03F3 MPEG Audio	- 175.51 1.18	ORF1	1 0x0001 CAT - 3.76 0.03 N/A
1013	0x03F5	AC3 Audio	- 460.59	3.08	ORF1	18 0x0012 EIT	- 167.95 1.12	N/A	0 0x0000 PAT - 3.76 0.03 N/A
1023	0x03FF	AC3 Audio	- 460.45	3.08	ORF2 W	1014 0x03F6 Private PES	- 37.65 0.25	ORF1	17 0x0011 SDT - 2.85 0.02 N/A
1025	0x0401	Teletext	- 300.87	2.01	ORF2 W	1046 0x0416 Private PES	- 37.60 0.25	ATV	21 0x0015 Network Sync - 2.47 0.02 N/A
1045	0x0415	Teletext	- 300.82	2.01	ATV	1024 0x0400 Private PES	- 37.60 0.25	ORF2 W	16 0x0010 NIT - 0.19 0.00 N/A
						104 0x0068 PMT	- 18.82 0.13	ATV	20 0x0014 TOT - 0.10 0.00 N/A

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DVB-T

AT

Network Name

ORS DVB-T T2

Recording

Thomas Haring

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name	Transmitter	Vienna Channel 34	Remark	3D tests encrypted
1060	0x0424	MPEG2 Video	- 3262.60	19.64	ORF Sport Plus	1066 0x042A MPEG Audio	- 175.78 1.06	ServusTV	153 0x0099 PMT - 18.88 0.11 ServusTV
1064	0x0428	MPEG2 Video	- 3196.39	19.24	ServusTV	1051 0x041B MPEG Audio	- 175.69 1.06	PULS 4	152 0x0098 PMT - 18.88 0.11 ORF Sport Plus
1055	0x041F	MPEG2 Video	- 3188.06	19.19	3SAT	1061 0x0425 MPEG Audio	- 175.61 1.06	ORF Sport Plus	151 0x0097 PMT - 18.88 0.11 3SAT
1050	0x041A	MPEG2 Video	- 3079.65	18.54	PULS 4	1057 0x0421 MPEG Audio	- 175.61 1.06	3SAT	150 0x0096 PMT - 18.88 0.11 PULS 4
8191	0x1FFF	Null Packets	- 1477.70	8.90	N/A	1056 0x0420 MPEG Audio	- 175.53 1.06	3SAT	111 0x006F PMT - 18.88 0.11 Radio Maria
1052	0x041C	Teletext	- 301.26	1.81	PULS 4	1111 0x0457 MPEG Audio	- 138.02 0.83	Radio Maria	0 0x0000 PAT - 3.71 0.02 N/A
1058	0x0422	Teletext	- 301.18	1.81	3SAT	18 0x0012 EIT	- 132.66 0.80	N/A	21 0x0015 Network Sync - 2.80 0.02 N/A
1068	0x042C	Teletext	- 263.67	1.59	ServusTV	1069 0x042D Private PES	- 37.68 0.23	ORF Sport Plus	17 0x0011 SDT - 1.98 0.01 N/A
1067	0x042B	MPEG Audio	- 175.78	1.06	ServusTV	1059 0x0423 Private PES	- 37.68 0.23	3SAT	16 0x0010 NIT - 0.25 0.00 N/A
						1169 0x0491 Private PES	- 37.60 0.23	ServusTV	20 0x0014 TOT - 0.16 0.00 N/A

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www.transponderstream.com/DVB-T/AT/Vienna-Ch34-1109.ts

CN

Network Name			SZTVM			Recording			TELE-satellite				
Transmitter			Shenzhen Channel 52			Remark			DVB Tests				
256	0x0100	MPEG Audio	-	104.40	1.32	SZTVM01	17	0x0011	SDT	-	22.54	0.29	N/A
92	0x005C	MPEG Audio	-	104.40	1.32	SZTVM04	16	0x0010	NIT	-	22.54	0.29	N/A
67	0x0043	PMT	-	22.54	0.29	SZTVM04	0	0x0000	PAT	-	22.54	0.29	N/A
66	0x0042	PMT	-	22.54	0.29	SZTVM03	21	0x0015	Network Sync	-	2.48	0.03	N/A
65	0x0041	PMT	-	22.54	0.29	SZTVM02	20	0x0014	TOT	-	0.34	0.00	N/A
33	0x0021	PMT	-	22.54	0.29	Data							
32	0x0020	PMT	-	22.54	0.29	SZTVM01							

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec. File Size: 31 MB

ts.TELE-satellite.com/DVB-T/CN/Shenzhen-Ch52-1110.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min. File Size: 301 MB

www.transponderstream.com/DVB-T/CN/Shenzhen-Ch52-1110.ts

DE

Germany

DE

Network Name		ZDF					Recording		TELE-satellite				
Transmitter		Munich Channel 35											
594	0x0252	MPEG Audio	-	201.93	1.60	neo/KI.KA	576	0x0240	PMT	-	5.48	0.04	ZDFinfo
562	0x0232	MPEG Audio	-	201.93	1.60	3sat	544	0x0220	PMT	-	5.48	0.04	ZDF
546	0x0222	MPEG Audio	-	201.93	1.60	ZDF	592	0x0250	PMT	-	5.46	0.04	neo/KI.KA
578	0x0242	MPEG Audio	-	135.76	1.07	ZDFinfo	560	0x0230	PMT	-	5.46	0.04	3sat
547	0x0223	MPEG Audio	-	101.84	0.81	ZDF	21	0x0015	Network Sync	-	2.46	0.02	N/A
563	0x0233	MPEG Audio	-	101.82	0.81	3sat	16	0x0010	NIT	-	0.95	0.01	N/A
1	0x0001	CAT	-	15.84	0.13	N/A	17	0x0011	SDT	-	0.84	0.01	N/A
0	0x0000	PAT	-	15.83	0.13	N/A	20	0x0014	TOT	-	0.22	0.00	N/A
555	0x022B	Private Sections	-	10.00	0.08	N/A							

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min, File Size: 99 MB

ts.TELE-satellite.com/DVB-T/DE/Munich-Ch35-1109.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min. File Size: 483 MB

www.transponderstream.com/DVB-T/DE/Munich-Ch35-1109.ts

DE

Network Name		MEDIA BROADCAST				Recording				TELE-satellite			
Transmitter		Munich Channel 48											
18	0x0012	EIT	-	260.26	1.98	N/A	0	0x0000	PAT	-	5.46	0.04	N/A
162	0x00A2	MPEG Audio	-	198.46	1.51	kabel eins	312	0x0138	Private Sections	-	5.01	0.04	N/A
386	0x0182	MPEG Audio	-	198.43	1.51	SAT.1	168	0x00A8	Private Sections	-	5.01	0.04	N/A
306	0x0132	MPEG Audio	-	198.43	1.51	ProSieben	1	0x0001	CAT	-	3.16	0.02	N/A
226	0x00E2	MPEG Audio	-	198.43	1.51	N24	21	0x0015	Network Sync	-	2.47	0.02	N/A
384	0x0180	PMT	-	5.46	0.04	SAT.1	20	0x0014	TOT	-	0.95	0.01	N/A
304	0x0130	PMT	-	5.46	0.04	ProSieben	17	0x0011	SDT	-	0.80	0.01	N/A
224	0x00E0	PMT	-	5.46	0.04	N24	16	0x0010	NIT	-	0.17	0.00	N/A
160	0x00A0	PMT	-	5.46	0.04	kabel eins							

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min. File Size: 68 MB

ts.TELE-satellite.com/DVB-T/DE/Munich-Ch48-1109.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min. File Size: 501 MB

www.transponderstream.com/DVB-T/DE/Munich-Ch48-1109.ts

DF

Network Name		ARD BAYERN				Recording				TELE-satellite			
Transmitter		Munich Channel 54											
514	0x0202	MPEG Audio	-	203.71	1.61	Das Erste	524	0x020C	Private Sections	-	7.74	0.06	N/A
98	0x0062	MPEG Audio	-	203.71	1.61	EinsPlus	108	0x006C	Private Sections	-	6.10	0.05	N/A
50	0x0032	MPEG Audio	-	203.71	1.61	Phoenix	0	0x0000	PAT	-	5.47	0.04	N/A
35	0x0023	MPEG Audio	-	203.71	1.61	arte	1	0x0001	CAT	-	3.17	0.03	N/A
34	0x0022	MPEG Audio	-	203.71	1.61	arte	20	0x0014	TOT	-	3.02	0.02	N/A
44	0x002C	Private Sections	-	9.29	0.07	N/A	21	0x0015	Network Sync	-	2.45	0.02	N/A
512	0x0200	PMT	-	8.59	0.07	Das Erste	60	0x003C	Private Sections	-	1.55	0.01	N/A
96	0x0060	PMT	-	8.59	0.07	EinsPlus	16	0x0010	NIT	-	0.95	0.01	N/A
48	0x0030	PMT	-	8.59	0.07	Phoenix	17	0x0011	SDT	-	0.80	0.01	N/A
32	0x0020	PMT	-	8.59	0.07	arte							

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 30 Sec, File Size: 55 MB

ts.TELE-satellite.com/DVB-T/DE/Munich-Ch54-1109.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min. File Size: 484 MB

www.transponderstream.com/DVB-T/DE/Munich-Ch54-1109.ts


DE
Network Name
BR Recording
TELE-satellite

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	Munich Channel 56	BR	Recording	TELE-satellite
561	0x0231	MPEG2 Video	-	3171.05	24.88	BR-alpha	546	0x0222 MPEG Audio - 203.66 1.60	Bayerisches FS Süd	3612	0x0E1C Private Sections - 6.25 0.05 N/A
65	0x0041	MPEG2 Video	-	2720.55	21.35	EinsExtra	562	0x0232 MPEG Audio - 203.63 1.60	BR-alpha	0	0x0000 PAT - 5.48 0.04 N/A
545	0x0221	MPEG2 Video	-	2370.25	18.60	Bayerisches FS Süd	66	0x0042 MPEG Audio - 203.63 1.60	EinsExtra	1	0x0001 CAT - 3.15 0.02 N/A
3601	0x0E11	MPEG2 Video	-	2345.96	18.41	SWR Fernsehen	549	0x0225 MPEG Audio - 133.16 1.04	Bayerisches FS Süd	556	0x022C Private Sections - 3.12 0.02 N/A
18	0x0012	EIT	-	299.95	2.35	N/A	555	0x022B Private Data - 26.98 0.21	Bayerisches FS Süd	572	0x023C Private Sections - 3.06 0.02 N/A
3604	0x0E14	Teletext	-	263.17	2.06	SWR Fernsehen	560	0x0230 PMT - 8.61 0.07	BR-alpha	554	0x022A Private Data - 3.03 0.02 Bayerisches FS Süd
564	0x0234	Teletext	-	263.17	2.06	BR-alpha	544	0x0220 PMT - 8.61 0.07	Bayerisches FS Süd	20	0x0014 TOT - 3.00 0.02 N/A
548	0x0224	Teletext	-	263.17	2.06	Bayerisches FS Süd	64	0x0040 PMT - 8.61 0.07	EinsExtra	21	0x0015 Network Sync - 2.48 0.02 N/A
3602	0x0E12	MPEG Audio	-	203.66	1.60	SWR Fernsehen	3600	0x0E10 PMT - 8.58 0.07	SWR Fernsehen	17	0x0011 SDT - 0.86 0.01 N/A
							76	0x004C Private Sections - 7.66 0.06	N/A	16	0x0010 NIT - 0.74 0.01 N/A

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only
Duration: 30 Sec, File Size: 55 MB
ts.TELE-satellite.com/DVB-T/DE/Munich-Ch56-1109.ts
Transponderstream Technical Service File Download for Clients Only
Duration: 5 Min, File Size: 489 MB
www.transponderstream.com/DVB-T/DE/Munich-Ch56-1109.ts
IL
Israel

IL
Network Name
Harashut Hashnia
Recording
Benjamin Ganor

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	Eilat Channel 29	Harashut Hashnia	Recording	Benjamin Ganor
2561	0x0A01	H.264 Video	-	3044.07	22.93	Ch 1	2690	0x0A82 AAC Audio - 52.89 0.40	Ch 99	2608	0x0A30 DVB Subtitles - 9.23 0.07 Ch 2
2657	0x0A61	H.264 Video	-	3039.96	22.89	Ch 33	94	0x005E PCR - 45.13 0.34	N/A	17	0x0011 SDT - 6.05 0.05 N/A
2625	0x0A41	H.264 Video	-	2889.05	21.76	Ch 10	2817	0x0B01 AAC Audio - 36.66 0.28	R01	2610	0x0A32 DVB Subtitles - 3.58 0.03 Ch 2
2593	0x0A21	H.264 Video	-	2295.87	17.29	Ch 2	2993	0x0BB1 AAC Audio - 36.57 0.28	R12	2609	0x0A31 DVB Subtitles - 3.58 0.03 Ch 2
2689	0x0A81	H.264 Video	-	1062.76	8.00	Ch 99	0	0x0000 PAT - 30.09 0.23	N/A	2642	0x0A52 DVB Subtitles - 3.15 0.02 Ch 10
8191	0x1FFF	Null Packets	-	261.74	1.97	N/A	2992	0x0BB0 PMT - 10.04 0.08	R12	2641	0x0A51 DVB Subtitles - 3.15 0.02 Ch 10
18	0x0012	EIT	-	160.12	1.21	N/A	2816	0x0B00 PMT - 10.04 0.08	R01	2640	0x0A50 DVB Subtitles - 3.15 0.02 Ch 10
2658	0x0A62	AAC Audio	-	53.19	0.40	Ch 33	2688	0x0A80 PMT - 10.04 0.08	Ch 99	20	0x0014 TOT - 3.03 0.02 N/A
2594	0x0A22	AAC Audio	-	53.12	0.40	Ch 2	2624	0x0A40 PMT - 10.04 0.08	Ch 10	16	0x0010 NIT - 3.03 0.02 N/A
2562	0x0A02	AAC Audio	-	53.09	0.40	Ch 1	2592	0x0A20 PMT - 10.04 0.08	Ch 2	21	0x0015 Network Sync - 2.48 0.02 N/A
2626	0x0A42	AAC Audio	-	53.04	0.40	Ch 10	2560	0x0A00 PMT - 10.04 0.08	Ch 1		
							2656	0x0A60 PMT - 10.03 0.08	Ch 33		

Transponderstream Technical Service File Download for Clients Only
Duration: 5 Min, File Size: 660 MB
www.transponderstream.com/DVB-T/IL/Eilat-Ch29-1110.ts
NL
The Netherlands

NL
Network Name
Digitenne
Recording
TELE-satellite

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	Amsterdam Channel 27	Digitenne	Remark	TELE-satellite Radio
4041	0x0FC9	MPEG2 Video	-	2682.41	22.44	TV Drenthe tijdelijk	4042	0x0FCA MPEG Audio - 165.78 1.39	TV Drenthe tijdelijk	4130	0x1022 PMT - 15.04 0.13 BBC Radio 3
4011	0x0FAB	MPEG2 Video	\$	2552.21	21.36	Nickelodeon/TeenNick	4112	0x1010 MPEG Audio - 165.58 1.39	BBC Radio 1	4120	0x1018 PMT - 15.04 0.13 BBC Radio 2
4031	0x0FBF	MPEG2 Video	\$	2484.09	20.79	SLAM!TV	182	0x00B6 ECM/EMM - 98.73 0.83	N/A	4110	0x100E PMT - 15.04 0.13 BBC Radio 1
4021	0x0FB5	MPEG2 Video	\$	1918.51	16.05	13th Street	18	0x0012 EIT - 83.55 0.70	N/A	4040	0x0FC8 PMT - 15.04 0.13 TV Drenthe tijdelijk
4043	0x0FCB	Teletext	-	297.96	2.49	TV Drenthe tijdelijk	20	0x0014 TOT - 20.01 0.17	N/A	4030	0x0FBE PMT - 15.04 0.13 SLAM!TV
4013	0x0FAD	Teletext	\$	223.62	1.87	Nickelodeon/TeenNick	4139	0x102B ECM/EMM - 15.17 0.13	BBC Radio 3	4020	0x0FB4 PMT - 15.04 0.13 13th Street
4012	0x0FAC	MPEG Audio	\$	166.37	1.39	Nickelodeon/TeenNick	4119	0x1017 ECM/EMM - 15.17 0.13	BBC Radio 1	4010	0x0FAA PMT - 15.04 0.13 Nickelodeon/TeenNick
4122	0x101A	MPEG Audio	\$	166.18	1.39	BBC Radio 2	4039	0x0FC7 ECM/EMM - 15.17 0.13	SLAM!TV	1	0x0001 CAT - 15.04 0.13 N/A
4032	0x0FC0	MPEG Audio	\$	166.11	1.39	SLAM!TV	4029	0x0FBD ECM/EMM - 15.17 0.13	13th Street	0	0x0000 PAT - 14.91 0.12 N/A
4022	0x0FB6	MPEG Audio	\$	166.11	1.39	13th Street	4019	0x0FB3 ECM/EMM - 15.17 0.13	Nickelodeon/TeenNick	21	0x0015 Network Sync - 2.45 0.02 N/A
4142	0x102E	MPEG Audio	\$	165.98	1.39	BBC Radio 4	4149	0x1035 ECM/EMM - 15.11 0.13	BBC Radio 4	16	0x0010 NIT - 1.66 0.01 N/A
4132	0x1024	MPEG Audio	\$	165.91	1.39	BBC Radio 3	4129	0x1021 ECM/EMM - 15.11 0.13	BBC Radio 2	17	0x0011 SDT - 1.46 0.01 N/A
							4140	0x102C PMT - 15.04 0.13	BBC Radio 4		

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only
Duration: 30 Sec, File Size: 32 MB
ts.TELE-satellite.com/DVB-T/NL/Amsterdam-Ch27-1109.ts

PL**Poland****PL****Network Name****TP EmiTel****Recording****Jacek Pawlowski**

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

Transmitter	Poznan Channel 46
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

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Minute, File Size: 366 MB

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Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 1130 MB

www.transponderstream.com/DVB-T/PL/Poznan-Ch46-1110.ts

PT**Portugal****PT****Network Name****1101****Recording****Vitor Martins Augusto**

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

Transmitter	Porto Channel 56
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

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min Sec, File Size: 144 MB

ts.TELE-satellite.com/DVB-T/PT/Porto-Ch56-1109.ts

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 750 MB

www.transponderstream.com/DVB-T/PT/Porto-Ch56-1109.ts

UK**United Kingdom****UK****Network Name****London.****Recording****TELE-satellite**

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

Transmitter	London Channel 25
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

Remark	MHEG
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

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only

Duration: 1 Min, File Size: 129 MB

ts.TELE-satellite.com/DVB-T/UK/London-Ch25-1107.ts


UK
Network Name
London.
Recording
TELE-satellite
Transmitter
London Channel 29
Remark
MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	London Channel 29	Remark	TELE-satellite
601	0x0259	MPEG2 Video	-	2076.92	11.59	ITV4	1601 0x0641 MPEG Audio	-	69.98 0.39	Premier Radio
201	0x00C9	MPEG2 Video	-	2055.00	11.46	VIVA	105 0x0069 MHEG	-	47.64 0.27	4Music
101	0x0065	MPEG2 Video	-	2023.19	11.29	4Music	3022 0x0BCE Data	-	15.44 0.09	Channel Zero
2101	0x0835	MPEG2 Video	-	1988.94	11.10	Russia Today	3021 0x0BCD Data	-	12.38 0.07	Channel Zero
301	0x012D	MPEG2 Video	-	1769.96	9.87	Yesterday	2346 0x092A MHEG	-	10.18 0.06	ADULT Babestn
701	0x02BD	MPEG2 Video	-	1746.56	9.74	Film4	303 0x012F DVB Subtitles	-	9.17 0.05	Yesterday
2391	0x0957	MPEG2 Video	-	1653.11	9.22	QVC Beauty	103 0x0067 DVB Subtitles	-	8.51 0.05	4Music
501	0x01F5	MPEG2 Video	-	1556.10	8.68	Ideal World	2376 0x0948 MHEG	-	7.77 0.04	Al Jazeera Eng
18	0x0012	EIT	-	428.38	2.39	N/A	1042 0x0412 PMT	-	7.55 0.04	QVC Beauty
3010	0x0BC2	MHEG	-	208.33	1.16	Sky Text	1030 0x0406 PMT	-	7.55 0.04	Smash Hits!
702	0x02BE	MPEG Audio	-	137.96	0.77	Film4	1017 0x03F9 PMT	-	7.55 0.04	ADULT smileTV2
2392	0x0958	MPEG Audio	-	137.94	0.77	QVC Beauty	1041 0x0411 PMT	-	7.52 0.04	Channel Zero
2102	0x0836	MPEG Audio	-	137.94	0.77	Russia Today	1040 0x0410 PMT	-	7.52 0.04	Premier Radio
602	0x025A	MPEG Audio	-	137.94	0.77	ITV4	1039 0x040F PMT	-	7.52 0.04	Sky Text
502	0x01F6	MPEG Audio	-	137.94	0.77	Ideal World	1037 0x040D PMT	-	7.52 0.04	ITV4
302	0x012E	MPEG Audio	-	137.94	0.77	Yesterday	1035 0x040B PMT	-	7.52 0.04	Rocks & Co 1
202	0x00CA	MPEG Audio	-	137.94	0.77	VIVA	1033 0x0409 PMT	-	7.52 0.04	Al Jazeera Eng
102	0x0066	MPEG Audio	-	137.94	0.77	4Music	1032 0x0408 PMT	-	7.52 0.04	ADULT Section
1901	0x076D	MPEG Audio	-	135.86	0.76	Q	1029 0x0405 PMT	-	7.52 0.04	Q
1801	0x0709	MPEG Audio	-	135.86	0.76	Magic	1028 0x0404 PMT	-	7.52 0.04	Magic
1101	0x044D	MPEG Audio	-	135.86	0.76	Kiss	1027 0x0403 PMT	-	7.52 0.04	The Hits Radio
1201	0x04B1	MPEG Audio	-	94.07	0.52	heat	1024 0x0400 PMT	-	7.52 0.04	SMOOTH RADIO
1501	0x05DD	MPEG Audio	-	94.04	0.52	Smash Hits!	1023 0x03FF PMT	-	7.52 0.04	Kerrang!
1701	0x06A5	MPEG Audio	-	94.02	0.52	The Hits Radio	1022 0x03FE PMT	-	7.52 0.04	heat
1301	0x0515	MPEG Audio	-	94.02	0.52	Kerrang!	1021 0x03FD PMT	-	7.52 0.04	Kiss
1401	0x0579	MPEG Audio	-	70.00	0.39	SMOOTH RADIO	1018 0x03FA PMT	-	7.52 0.04	ADULT Section
							1016 0x03F8 PMT	-	7.52 0.04	Russia Today
										1008 0x03F0 PMT - 7.52 0.04 Film4
										1005 0x03ED PMT - 7.52 0.04 Ideal World
										1003 0x03EB PMT - 7.52 0.04 Yesterday
										1002 0x03EA PMT - 7.52 0.04 VIVA
										1001 0x03E9 PMT - 7.52 0.04 4Music
										0 0x0000 PAT - 7.52 0.04 N/A
										1036 0x040C PMT - 6.88 0.04 ADULT Babestn
										17 0x0011 SDT - 6.51 0.04 N/A
										2336 0x0920 MHEG - 5.77 0.03 Rocks & Co 1
										1802 0x070A MHEG - 5.77 0.03 Magic
										1602 0x0642 MHEG - 5.77 0.03 Premier Radio
										1402 0x057A MHEG - 5.77 0.03 SMOOTH RADIO
										1202 0x04B2 MHEG - 5.77 0.03 heat
										1102 0x044E MHEG - 5.77 0.03 Kiss
										516 0x0204 MHEG - 5.77 0.03 ADULT smileTV2
										603 0x025B DVB Subtitles - 5.40 0.03 ITV4
										2116 0x0844 MHEG - 5.01 0.03 ADULT Section
										1902 0x076E MHEG - 5.01 0.03 Q
										1702 0x06A6 MHEG - 5.01 0.03 The Hits Radio
										1302 0x0516 MHEG - 5.01 0.03 Kerrang!
										1502 0x05DE MHEG - 4.51 0.03 Smash Hits!
										3012 0x0BC4 Data - 3.01 0.02 Sky Text
										20 0x0014 TOT - 3.01 0.02 N/A
										3020 0x0BCC Data - 1.18 0.01 Channel Zero
										16 0x0010 NIT - 1.18 0.01 N/A
										3023 0x0BCF Data - 0.20 0.00 Channel Zero

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only
Duration: 1 Min, File Size: 130 MB
ts.TELE-satellite.com/DVB-T/UK/London-Ch29-1107.ts

UK
Network Name
London.
Recording
TELE-satellite
Transmitter
London Channel 28
Remark
MHEG

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	Transmitter	London Channel 28	Remark	TELE-satellite
204	0x00CC	MPEG2 Video	\$	4725.64	27.88	Sky Sports 2	305 0x0131 Data	-	81.00 0.48	303
201	0x00C9	MPEG2 Video	-	2958.53	17.45	CBeebies	4147 0x1033 ECM/EMM	-	48.81 0.29	N/A
202	0x00CA	MPEG2 Video	\$	2187.05	12.90	Sky Sports 1	1203 0x04B3 ECM/EMM	-	15.04 0.09	Sky Sports 2
205	0x00CD	MPEG2 Video	-	1229.36	7.25	BBC Parliament	1202 0x04B2 ECM/EMM	-	15.04 0.09	Sky Sports 2
301	0x012D	Data	-	949.95	5.60	303	1201 0x04B1 ECM/EMM	-	15.04 0.09	Sky Sports 2
203	0x00CB	MPEG2 Video	-	891.57	5.26	_Service 19456	1103 0x044F ECM/EMM	-	15.04 0.09	Sky Sports 1
18	0x0012	EIT	-	426.65	2.52	N/A	1102 0x044E ECM/EMM	-	15.04 0.09	Sky Sports 1
401	0x0191	MPEG Audio	-	263.17	1.55	CBeebies	1101 0x044D ECM/EMM	-	15.04 0.09	Sky Sports 1
439	0x01B7	MPEG Audio	-	200.55	1.18	BBC Radio 4	601 0x0259 DVB Subtitles	-	14.01 0.08	CBeebies
438	0x01B6	MPEG Audio	-	200.53	1.18	BBC Radio 3	4150 0x1036 ECM/EMM	-	9.99 0.06	N/A
437	0x01B5	MPEG Audio	-	200.53	1.18	BBC Radio 2	715 0x02CB PMT	-	7.93 0.05	BBC Radio 1
436	0x01B4	MPEG Audio	-	200.53	1.18	BBC Radio 1	711 0x02C7 PMT	-	7.93 0.05	Sky Sports 2
407	0x0197	MPEG Audio	-	198.41	1.17	_Service 19456	703 0x02BF PMT	-	7.93 0.05	CBeebies
434	0x01B2	MPEG Audio	-	167.10	0.99	BBC R1X	701 0x02BD PMT	-	7.93 0.05	Sky Sports 1
432	0x01B0	MPEG Audio	-	167.10	0.99	BBC 6 Music	0 0x0000 PAT	-	7.93 0.05	N/A
433	0x01B1	MPEG Audio	-	167.08	0.99	BBC Radio 4 Ex	719 0x02CF PMT	-	7.90 0.05	BBC World Sv.
303	0x012F	Data	-	149.99	0.88	303	718 0x02CE PMT	-	7.90 0.05	BBC Radio 4
302	0x012E	Data	-	149.97	0.88	303	717 0x02CD PMT	-	7.90 0.05	BBC Radio 3
435	0x01B3	MPEG Audio	-	135.79	0.80	BBC Asian Net.	716 0x02CC PMT	-	7.90 0.05	BBC Radio 2
421	0x01A5	MPEG Audio	-	132.30	0.78	BBC Parliament	714 0x02CA PMT	-	7.90 0.05	BBC Parliament
411	0x019B	MPEG Audio	\$	132.30	0.78	Sky Sports 2	712 0x02C8 PMT	-	7.90 0.05	303
408	0x0198	MPEG Audio	-	132.30	0.78	_Service 19456	710 0x02C6 PMT	-	7.90 0.05	_Service 19456
403	0x0193	MPEG Audio	\$	132.30	0.78	Sky Sports 1	709 0x02C5 PMT	-	7.90 0.05	BBC Asian Net.
440	0x01B8	MPEG Audio	-	101.83	0.60	BBC World Sv.	708 0x02C4 PMT	-	7.90 0.05	BBC R1X
431	0x01AF	MPEG Audio	-	101.83	0.60	BBC R5SX	707 0x02C3 PMT	-	7.90 0.05	BBC Radio 4 Ex
430	0x01AE	MPEG Audio	-	101.83	0.60	BBC R5L	706 0x02C2 PMT	-	7.90 0.05	BBC 6 Music
304	0x0130	Data	-	100.00	0.59	303	705 0x02C1 PMT	-	7.90 0.05	BBC R5SX
							704 0x02C0 PMT	-	7.90 0.05	BBC R5L
										702 0x02BE PMT - 7.90 0.05 BBC FOUR
										1 0x0001 CAT - 7.14 0.04 N/A
										17 0x0011 SDT - 6.01 0.04 N/A
										605 0x025D DVB Subtitles - 3.00 0.02 BBC Parliament
										603 0x025B DVB Subtitles - 3.00 0.02 Sky Sports 2
										602 0x025A DVB Subtitles - 3.00 0.02 Sky Sports 1
										330 0x014A MHEG - 3.00 0.02 BBC Parliament
										312 0x0138 MHEG - 3.00 0.02 303
										309 0x0135 Data - 3.00 0.02 CBeebies
										308 0x0134 MHEG - 3.00 0.02 CBeebies
										307 0x0133 MHEG - 3.00 0.02 BBC FOUR
										306 0x0132 Data - 3.00 0.02 BBC FOUR
										20 0x0014 TOT - 3.00 0.02 N/A
										314 0x013A MHEG - 2.98 0.02 _Service 19456
										209 0x00D1 Private Sections - 1.18 0.01 N/A
										16 0x0010 NIT - 1.18 0.01 N/A
										334 0x014E MHEG - 0.52 0.00 BBC Radio 3
										333 0x014D MHEG - 0.52 0.00 BBC Radio 2
										322 0x0142 MHEG - 0.52 0.00 BBC 6 Music
										321 0x0141 MHEG - 0.52 0.00 BBC Asian Net.
										336 0x0150 MHEG - 0.49 0.00 BBC World Sv.
										335 0x014F MHEG - 0.49 0.00 BBC Radio 4
										332 0x014C MHEG - 0.49 0.00 BBC Radio 1
										324 0x0144 MHEG - 0.49 0.00 BBC Radio 4 Ex
										323 0x0143 MHEG - 0.49 0.00 BBC R1X
										320 0x0140 MHEG - 0.49 0.00 BBC R5SX
										319 0x013F MHEG - 0.49 0.00 BBC R5L

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only
Duration: 1 Min, File Size: 123 MB
ts.TELE-satellite.com/DVB-T/UK/London-Ch29-1107.ts

**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

TELE-satellite Technical Service File Download for TELE-satellite Cooperation Partners Only**Duration: 1 Min, File Size: 174 MB****ts.TELE-satellite.com/DVB-T/UK/London-Ch32-1107.ts****UK****Network Name****London.****Recording****TELE-satellite****Transmitter****London Channel 67****Remark****MHEG**

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name
2401	0x0961	MPEG2 Video	\$	3246.36	13.71	Sky Sports 1
2501	0x09C5	MPEG2 Video	\$	2796.63	11.81	Sky Sports 2
601	0x0259	MPEG2 Video	-	2375.20	10.03	ITV4
701	0x028D	MPEG2 Video	-	1947.39	8.22	Film4
2101	0x0835	MPEG2 Video	-	1820.30	7.68	Russia Today
101	0x0065	MPEG2 Video	-	1753.24	7.40	4Music
301	0x012D	MPEG2 Video	-	1700.80	7.18	Yesterday
501	0x01F5	MPEG2 Video	-	1659.45	7.01	Ideal World
2391	0x0957	MPEG2 Video	-	1600.37	6.76	QVC Beauty
201	0x00C9	MPEG2 Video	-	1477.78	6.24	VIVA
18	0x0012	EIT	-	465.92	1.97	N/A
2502	0x09C6	MPEG Audio	\$	137.41	0.58	Sky Sports 2
2102	0x0836	MPEG Audio	-	137.41	0.58	Russia Today
602	0x025A	MPEG Audio	-	137.34	0.58	ITV4
202	0x00CA	MPEG Audio	-	137.31	0.58	VIVA
502	0x01F6	MPEG Audio	-	137.29	0.58	Ideal World
302	0x012E	MPEG Audio	-	137.29	0.58	Yesterday
102	0x0066	MPEG Audio	-	137.26	0.58	4Music
2392	0x0958	MPEG Audio	-	137.12	0.58	QVC Beauty
702	0x028E	MPEG Audio	-	137.12	0.58	Film4
2402	0x096D	MPEG Audio	\$	137.09	0.58	Sky Sports 1
1901	0x076D	MPEG Audio	-	135.25	0.57	Q
1801	0x0709	MPEG Audio	-	135.20	0.57	Magic
1101	0x044D	MPEG Audio	-	135.08	0.57	Kiss
1201	0x04B1	MPEG Audio	-	93.65	0.40	heat
1301	0x0515	MPEG Audio	-	93.60	0.40	Kerrang!
1701	0x06A5	MPEG Audio	-	93.50	0.39	The Hits Radio
1501	0x05DD	MPEG Audio	-	93.47	0.39	Smash Hits!
1401	0x0579	MPEG Audio	-	69.71	0.29	SMOOTH RADIO
1601	0x0641	MPEG Audio	-	69.66	0.29	Premier Radio

105	0x0069	MHEG	-	47.38	0.20	4Music
5000	0x1388	ECM/EMM	-	46.52	0.20	N/A
3022	0x0BCE	Data	-	15.41	0.07	Channel Zero
2527	0x09DF	ECM/EMM	-	15.14	0.06	Sky Sports 2
2517	0x09D5	ECM/EMM	-	15.11	0.06	Sky Sports 2
2507	0x09CB	ECM/EMM	-	15.11	0.06	Sky Sports 2
2427	0x097B	ECM/EMM	-	15.06	0.06	Sky Sports 1
2417	0x0971	ECM/EMM	-	15.06	0.06	Sky Sports 1
2407	0x0967	ECM/EMM	-	15.06	0.06	Sky Sports 1
2503	0x09C7	DVB Subtitles	-	14.45	0.06	Sky Sports 2
3021	0x0BCD	Data	-	12.95	0.05	Channel Zero
2346	0x092A	MHEG	-	10.10	0.04	ADULT Babestn
603	0x025B	DVB Subtitles	-	10.03	0.04	ITV4
2376	0x0948	MHEG	-	7.74	0.03	Al Jazeera Eng
1023	0x03FF	PMT	-	7.52	0.03	Kerrang!
1042	0x0412	PMT	-	7.49	0.03	QVC Beauty
1041	0x0411	PMT	-	7.49	0.03	Channel Zero
1040	0x0410	PMT	-	7.49	0.03	Premier Radio
1037	0x040D	PMT	-	7.49	0.03	ITV4
1035	0x040B	PMT	-	7.49	0.03	Rocks & Co 1
1032	0x0408	PMT	-	7.49	0.03	ADULT Section
1030	0x0406	PMT	-	7.49	0.03	Smash Hits!
1029	0x0405	PMT	-	7.49	0.03	Q
1028	0x0404	PMT	-	7.49	0.03	Magic
1027	0x0403	PMT	-	7.49	0.03	The Hits Radio
1022	0x03FE	PMT	-	7.49	0.03	heat
1018	0x03FA	PMT	-	7.49	0.03	ADULT Section
1017	0x03F9	PMT	-	7.49	0.03	ADULT smileTV2
1016	0x03F8	PMT	-	7.49	0.03	Russia Today
1011	0x03F3	PMT	-	7.49	0.03	Sky Sports 2
1008	0x03F0	PMT	-	7.49	0.03	Film4

1005	0x03ED	PMT	-	7.49	0.03	Ideal World
1003	0x03EB	PMT	-	7.49	0.03	Yesterday
1001	0x03E9	PMT	-	7.49	0.03	4Music
0	0x0000	PAT	-	7.49	0.03	N/A
1024	0x0400	PMT	-	7.47	0.03	SMOOTH RADIO
1010	0x03F2	PMT	-	7.47	0.03	Sky Sports 1
1033	0x0409	PMT	-	7.45	0.03	Al Jazeera Eng
1021	0x03FD	PMT	-	7.45	0.03	Kiss
1002	0x03EA	PMT	-	7.45	0.03	VIVA
17	0x0011	SDT	-	6.93	0.03	N/A
1036	0x040C	PMT	-	6.83	0.03	ADULT Babestn
2403	0x0963	DVB Subtitles	-	6.76	0.03	Sky Sports 1
203	0x00CB	DVB Subtitles	-	6.19	0.03	VIVA
2336	0x0920	MHEG	-	5.75	0.02	Rocks & Co 1
1802	0x070A	MHEG	-	5.73	0.02	Magic
1602	0x0642	MHEG	-	5.73	0.02	Premier Radio
1102	0x044E	MHEG	-	5.73	0.02	Kiss
1202	0x04B2	MHEG	-	5.70	0.02	heat
1402	0x057A	MHEG	-	5.68	0.02	SMOOTH RADIO
516	0x0204	MHEG	-	5.68	0.02	ADULT smileTV2
1902	0x076E	MHEG	-	4.99	0.02	Q
1702	0x06A6	MHEG	-	4.99	0.02	The Hits Radio
1	0x0001	CAT	-	4.96	0.02	N/A
2116	0x0844	MHEG	-	4.94	0.02	ADULT Section
1302	0x0516	MHEG	-	4.94	0.02	Kerrang!
6502	0x1966	MHEG	-	4.52	0.02	Smash Hits!
20	0x0014	TOT	-	3.00	0.01	N/A
16	0x0010	NIT	-	1.33	0.01	N/A
3020	0x0BCC	Data	-	1.23	0.01	Channel Zero
303	0x012F	DVB Subtitles	-	0.54	0.00	Yesterday
3023	0x0BCF	Data	-	0.20	0.00	Channel Zero

DVB-T2

terrestrial

AT

Austria



AT

Network Name

ORS

Recording

Thomas Haring

Transmitter

Vienna Channel 60

Remark

MPEG4

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	205	0x00CD	Teletext	-	300.96	1.23	ORF1 HD	2012	0x07DC	PMT	-	30.13	0.12	HITRADIO OE3
210	0x00D2	H.264 Video	-	5910.71	24.08	ORF2 HD	202	0x00CA	MPEG Audio	-	167.22	0.68	ORF1 HD	2011	0x07DB	PMT	-	30.13	0.12	OE1
220	0x00DC	H.264 Video	-	5159.69	21.02	ServusTV HD	201	0x00C9	MPEG Audio	-	167.22	0.68	ORF1 HD	2003	0x07D3	PMT	-	30.13	0.12	ServusTV HD
200	0x00C8	H.264 Video	-	4937.20	20.11	ORF1 HD	2130	0x0852	MPEG Audio	-	167.17	0.68	FM4	2002	0x07D2	PMT	-	30.13	0.12	ORF2 HD
8191	0x1FFF	Null Packets	-	4732.38	19.28	N/A	2110	0x083E	MPEG Audio	-	167.17	0.68	OE1	2001	0x07D1	PMT	-	30.13	0.12	ORF1 HD
223	0x00DF	AC3 Audio	-	460.84	1.88	ServusTV HD	221	0x00DD	MPEG Audio	-	167.17	0.68	ServusTV HD	0	0x0000	PAT	-	30.13	0.12	N/A
213	0x00D5	AC3 Audio	-	460.79	1.88	ORF2 HD	212	0x00D4	MPEG Audio	-	167.17	0.68	ORF2 HD	17	0x0011	SDT	-	30.08	0.12	N/A
203	0x00CB	AC3 Audio	-	460.79	1.88	ORF1 HD	211	0x00D3	MPEG Audio	-	167.17	0.68	ORF2 HD	16	0x0010	NIT	-	30.08	0.12	N/A
18	0x0012	EIT	-	312.67	1.27	N/A	32	0x0020	AAC Audio	-	71.38	0.29	HITRADIO OE3	33	0x0021	Private Sections	-	0.98	0.00	N/A
215	0x00D7	Teletext	-	300.96	1.23	ORF2 HD	2013	0x07DD	PMT	-	30.13	0.12	FM4							

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Duration: 30 Sec, File Size: 93 MB

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DE

Germany



DE

Network Name

BR T2

Recording

TELE-satellite

Transmitter

Munich Channel 50

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	756	0x02F4	Teletext	-	263.25	1.00	Das Erste	720	0x02D0	PMT	-	3.19	0.01	Bayerisches FS Süd
737	0x02E1	H.264 Video	-	11775.17	44.90	Das Erste HD	740	0x02E4	Teletext	-	263.25	1.00	Das Erste HD	1	0x0001	CAT	-	3.19	0.01	N/A
8191	0x1FFF	Null Packets	-	7397.66	28.21	N/A	724	0x02D4	Teletext	-	263.25	1.00	Bayerisches FS Süd	0	0x0000	PAT	-	3.19	0.01	N/A
753	0x02F1	MPEG2 Video	-	2504.57	9.55	Das Erste	754	0x02F2	MPEG Audio	-	203.70	0.78	Das Erste	752	0x02F0	PMT	-	3.14	0.01	Das Erste
721	0x02D1	MPEG2 Video	-	1668.03	6.36	Bayerisches FS Süd	722	0x02D2	MPEG Audio	-	203.70	0.78	Bayerisches FS Süd	736	0x02E0	PMT	-	3.14	0.01	Das Erste HD
739	0x02E3	AC3 Audio	-	470.09	1.79	Das Erste HD	725	0x02D5	MPEG Audio	-	133.22	0.51	Bayerisches FS Süd	20	0x0014	TOT	-	3.00	0.01	N/A
2172	0x087C	Data	-	400.03	1.53	Das Erste HD	555	0x022B	Private Data	-	27.01	0.10	Bayerisches FS Süd	17	0x0011	SDT	-	0.80	0.00	N/A
18	0x0012	EIT	-	353.00	1.35	N/A	6070	0x17B6	Private Sections	-	9.99	0.04	N/A	16	0x0010	NIT	-	0.75	0.00	N/A
738	0x02E2	MPEG Audio	-	266.39	1.02	Das Erste HD	6031	0x178F	DVB Subtitles	-	3.75	0.01	Das Erste HD							

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UK

United Kingdom



UK

Network Name

Cambs & Beds.

Recording

TELE-satellite

Transmitter

London Channel 21

Remark

MHEG, MPEG4

PID	Hex PID	Stream Type	Encrypted	kbps	%	Service Name	106	0x006A	AAC Audio	-	70.63	0.19	BBC HD	100	0x0064	PMT	-	15.05	0.04	BBC HD
101	0x0065	H.264 Video	-	11166.93	30.41	BBC HD	6606	0x19CE	AAC Audio	-	70.58	0.19	BBC One HD	0	0x0000	PAT	-	15.05	0.04	N/A
6601	0x19C9	H.264 Video	-	9005.26	24.52	BBC One HD	206	0x00CE	AAC Audio	-	70.58	0.19	ITV1 HD	17	0x0011	SDT	-	4.56	0.01	N/A
201	0x00C9	H.264 Video	-	7652.08	20.84	ITV1 HD	306	0x0132	AAC Audio	-	70.53	0.19	Channel 4 HD	105	0x0069	DVB Subtitles	-	3.01	0.01	BBC HD
301	0x012D	H.264 Video	-	7298.90	19.88	Channel 4 HD	6605	0x19CD	DVB Subtitles	-	49.85	0.14	BBC One HD	20	0x0014	TOT	-	3.01	0.01	N/A
102	0x0066	AAC Audio	-	358.66	0.98	BBC HD	205	0x00CD	DVB Subtitles	-	31.26	0.09	ITV1 HD	16	0x0010	NIT	-	1.60	0.00	N/A
18	0x0012	EIT	-	294.15	0.80	N/A	305	0x0131	DVB Subtitles	-	20.53	0.06	Channel 4 HD	6650	0x19FA	Private Sections	-	1.31	0.00	N/A
202	0x00CA	AAC Audio	-	157.27	0.43	ITV1 HD	6600	0x19C8	PMT	-	15.05	0.04	BBC One HD	150	0x0096	Private Sections	-	1.31	0.00	N/A
6602	0x19CA	AAC Audio	-	156.01	0.42	BBC One HD	300	0x012C	PMT	-	15.05	0.04	Channel 4 HD							
302	0x012E	AAC Audio	-	156.01	0.42	Channel 4 HD	200	0x00C8	PMT	-	15.05	0.04	ITV1 HD							

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BR

Brasil

ISDB-T_B

BR

Network Name

Rede Record

Recording

TELE-satellite

Transmitter

Sao Paulo Channel 20

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

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 945 MB

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BR

Network Name

BAND

Recording

TELE-satellite

Transmitter

Sao Paulo Channel 23

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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Duration: 5 Min, File Size: 502 MB

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BR

Network Name

Rede TV!

Recording

TELE-satellite

Transmitter

Sao Paulo Channel 29

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

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 602 MB

www.transponderstream.com/ISDB-TB/BR/SaoPaulo-Ch28-1108.tsISDB-T_B

BR

Network Name

Rede Vida

Recording

TELE-satellite

Transmitter

Sao Paulo Channel 39

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

Transponderstream Technical Service File Download for Clients Only

Duration: 5 Min, File Size: 418 MB

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BR

Network Name

TV Aparecida

Recording

TELE-satellite

Transmitter

Sao Paulo Channel 41

Remark

1Seg, HD

PID	Hex PID	Stream Type	Encrypted kbps	%	Service Name
101	0x0065	H.264 Video	- 10251.25	83.04	TV Aparecida HD
8191	0x1FFF	Null Packets	- 1532.18	12.41	N/A
1001	0x03E9	H.264 Video	- 268.73	2.18	TV Aparecida 1SEG
1002	0x03EA	AAC Audio	- 70.73	0.57	TV Aparecida
1SEG					

102	0x0066	AAC Audio	- 66.83	0.54	TV Aparecida HD
100	0x0064	PCR	- 60.18	0.49	N/A
1000	0x03E8	PCR	- 34.61	0.28	N/A
8136	0x1FC8	PMT	- 18.81	0.15	TV Aparecida 1SEG
99	0x0063	PMT	- 18.81	0.15	TV Aparecida HD
0	0x0000	PAT	- 18.81	0.15	N/A

1	0x0001	CAT	- 1.88	0.02	N/A
17	0x0011	SDT	- 0.95	0.01	N/A
20	0x0014	TOT	- 0.29	0.00	N/A
16	0x0010	NIT	- 0.20	0.00	N/A
36	0x0024	?	- 0.09	0.00	N/A

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DVB-T MPEG-4

** some DVB-T2

* some
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** some DVB-T2

DVB-T

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Lebanon	920
Jordan	915
Colombia	855
Venezuela	810
Lithuania	805
Syria	780
Macedonia	685
Cyprus	675
Panama	650
Yemen	645
Japan	630
Aruba	625
Kenya	625
Kuwait	595
Qatar	570
Puerto Rico	555
Moldova	530
Peru	525
Oman	500
New Zealand	495
Ghana	455
Paraguay	430
Hong Kong	395
Libya	395
Luxembourg	390
Mauritius	390
Taiwan	380
Senegal	380
Vietnam	375
Latvia	370
Ecuador	370
Estonia	355
Albania	350
Côte d'Ivoire	335
Slovenia	330
Georgia	315
Uruguay	295
Bahrain	295
Dominican Republic	275
Singapore	270
Uganda	260
Bolivia	245
Montenegro	225
Bangladesh	225
Myanmar [Burma]	210
Belarus	205
Barbados	200
Cameroon	195

Top 106 to 180 Countries < 195 Readers

Niger
Gambia
Netherlands Antilles
Maldives
Kazakhstan
Malta
Ethiopia
Palestinian Territories
Trinidad and Tobago
Namibia
Costa Rica
Zambia
Iceland
Brunei
Suriname
Afghanistan
Madagascar
Mali
Guatemala
Zimbabwe
Tanzania
Seychelles
Nepal
Azerbaijan
Guadeloupe
Armenia
Mauritania
French Guiana
French Polynesia
New Caledonia
Malawi
Honduras
Burkina Faso
Djibouti
Botswana
Cambodia
Angola
Réunion
Martinique
Haiti
Rwanda
Mozambique
Comoros
Togo
Guyana
Jamaica
Benin
Congo [DRC]
Tajikistan
El Salvador
Isle of Man
Gabon
Bermuda
Fiji
Timor-Leste
Greenland
Uzbekistan
U.S. Virgin Islands
Turkmenistan
Turks and Caicos Islands
Monaco
Nicaragua
Macau
Mongolia
Papua New Guinea
Cuba
Liberia
Belize
Jersey
Somalia
Guinea-Bissau
British Virgin Islands
Andorra
Dominica

Source:

Google Analytics
as of 08-09/2011

TELE-satellite Deadlines

Issue	TELE-satellite 12-01/2012	TELE-satellite 02-03/2012	TELE-satellite 04-05/2012
#	1201	1203	1205
Editorial Deadline	30 September 2011	2 December 2011	3 February 2012
Advertisement Deadline	7 October 2011	9 December 2011	10 February 2012
Hardcopies	18 November 2011	13 January 2012	16 March 2012
Online	2 December 2011	3 February 2012	30 March 2012

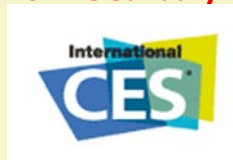
Digital TV Exhibitions

15 - 17 November 2011

SCTE Cable-Tec 2011

Atlanta, USA

10 - 13 January 2012



2012 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

www.cesweb.org

7 - 9 February 2012



CSTB 2012

Telecom operators, internet-providers, cable operators, TV broadcasters, content providers

International Exhibition Center

„Crocus Expo“, Moscow, Russia

www.cstb.ru

28 February - 1 March 2012



CABSAT 2012

Premier Broadcast & Satellite Platform in the ME & North Africa

Dubai International Convention and Exhibition Centre, Dubai, UAE

www.cabsat.com

6 - 10 March 2012

CeBIT 2012

MesseGelände Hannover, Germany

12 - 14 March 2012

Satellite2012

Washington, USA

21 - 23 March 2012



CCBN 2012

China Content Broadcasting Network Exhibition - largest broadcasting technology and equipment expo in the Asia-Pacific region

Beijing International Exhibition Center, Beijing, China

www.ccbn.tv

21 - 23 March 2012

Convergence India 2012

New Delhi, India

13 - 16 April 2012

HKTDC Spring

Hongkong, China



14 - 19 April 2012

NAB Show 2012

Essential destination for broadcasting® professionals who share a passion for bringing content to life on any platform

Las Vegas Convention Center, USA

www.nabshow.com

12 - 16 June 2012

ANGA 2012

Cologne, Germany

19 - 22 June 2012



CommunicAsia 2012

23rd International Communications and Information Technology Exhibition & Conference

Basement 2, Marina Bay Sands,

Singapore

www.communicasia.com

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

www.ibc.org

October 2012

CeBIT Bilisim Eurasia

Istanbul, Turkey

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/

October 2012

HKTDC Autumn

Hongkong, China

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