The World's Largest Digital TV Trade Publication
since 1981

# TELE audiovision

Satellite
OTT
Smart TV
IP/WebTV
Streaming

Read by 350000 PROFESSIONALS Worldwide

B 9318 E

INTERNATIONAL 07-08 2013

Company Report
## FORCETECH
Ren Nan's global market expansion with the latest P2P Internet technology

Company Report
## DEVISER
Zhong Changgan moves into a new, much larger company headquarters

Company Report
## TIANDITONG
Bang Xian Peng enters the global satellite dish market with highly automated production

Company Report
## DEXIN
Sun Yu exports professional tv head-end equipment to the world

Test Report
## Tiviar α+
All the digital TV you can watch: Triple Tuner plus Internet

TELE audiovision AWARD 07-08/2013

Test Report
## MOI
Streaming Box

# FIRST of The New Receiver Generation

PANODIC

Digital World,Simple Life

# Over a decade of experience in digital set top boxes

*we have models for worldwide market*

CI Slot

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

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

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

## DVB-S FTA SDS-552ANP

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

## DVB-T2 HDT-129N

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

## OTT Android TV Box IV3118

- Online Live TV and VOD easily
- Local media through USB or micro SD card, even HDD.
- Applications like Youtube/Facebook/Skype/Netflix
- Applications for contents and services from customized servers
- Applications (diverse like games) from Play Store or other Android markets
- Quick accesses to websites by powerful browser
- Multi-language OSD, support 1080p full HD video decoding
- Compatible with MJPEG, MPEG-1, MPEG-2, MEPG-4 SP, MEPG-4 ASP, MEPG-4 AVC (H.264), DIVX, H.264, WMV9, VC-1, RMVB, WebM, MP3, WMA, OGG, AAC, APE.
- CPU: ARM Dual Core Cortex A9 1.5GHz
- 1GB DDRIII SDRAM
- 4GB NAND FLASH
- Andriod 4.2 OS
- 802.11 b/g/n (Built-in WiFi module)
- RJ45 ethernet jack (Internet connection compatible PPPOE ADSL )
- HDMI/AV/Coaxial output
- External dual USB2.0 ports
- Micro SD card slot
- 2.4GHz wireless airmouse/keyboard (optional)

## DVB-C HD MPEG-4/H.264 With CA STB PCH208-B1

- CA Interface: NDS, Verimatrix, Nova Super TV, etc.
- Video Decode:
  SD Formats: MPEG-2 MP@ML;
  MPEG-4 Part 10 MP@ Level 3.0
  HD Formats: MPEG-2 MP@ML and MP@HL;
  MPEG-4 Part 10 MP@ Level 3.0/4.0 and HP@Level 3.0/4.0"
- Audio Decode: Two channel MPEG-1 layers I/II/III (ISO/IEC 11172-3); Two channel MPEG-2 (ISO/IEC 13818-3); Dolby Digital AC-3; MPEG-4 AAC
- Mail: 1 Alert Setting: on/off the alert message. 2 View message
- AVM Setting audience view measurement On/Off in secure engineer menu.
- Pairing STB and smartcard pairing Channel List view the channels
- Audio setting: Multiple audio language selection
- OTA Over the air software download
- Tuner Type DVB-C Range (32-1002MHz)
- SDRAM Memory 256MBytes DDR3
- Flash Memory 4MByte SPI Flash + 128MByte NAND
- NVRAM(EEPROM) Emulated on NNOR Flash
- Video out composite: CVBS X 1 HDMI1.4a
- Audio output: Stereo Audio R/L X 1, S/PDIF
- Front panel LED: Red/Green
- External adapter: DC 12V 1A


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www.panodic.com

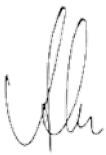
# Dear Readers,

*It isn't often that we have the opportunity to introduce a new receiver generation. After many years the time has come again: the first real streaming box is here. The interesting thing with this box is that you can no longer directly connect a TV to this receiver; the TV channels (and also, of course, radio channels) are just being streamed. Therefore, this new method opens up an entirely new market segment that fits right in with our time: the TV channels that are received by the receiver can be streamed to your own Smartphones and Tablets and it's those types of "TVs" are being used by more and more viewers. But your regular TV can also receive these channels as long as it can be connected to your local network.*

*So, streaming boxes are fulfilling the precise requirements that are demanded from today's viewers. People today don't want to be restricted to watching their favorite programs on a stationary TV in the living room, kitchen or bedroom, they want to be able to watch on mobile devices like the new Smartphones with their large high-resolution screens or on tablets that would allow you to watch TV at any position.*

*An interesting consequence of this new generation of streaming boxes is the impact on TVs. For many years we here at TELE-audiovision were also in doubt as to whether digital receivers would be incorporated into TVs over the long term. With these new streaming boxes, the picture is now totally different: now it's TVs with built-in receivers that have no future. Soon all you'll need is just one streaming box and as many wired or wireless monitors as you want connected to the local network. The streaming box would be installed in a central location and connected to all the available digital reception methods (roof antenna, satellite dish, cable TV, Internet) and that would be it. Every monitor in the network would then have access to the content received by the streaming box.*

*Now we can't wait to see more streaming boxes and are looking forward to see how quickly this new receiver generation will prevail. The digital TV market continues to be exciting!*



***Alexander Wiese***
*Editor-in-Chief TELE-audiovision International*

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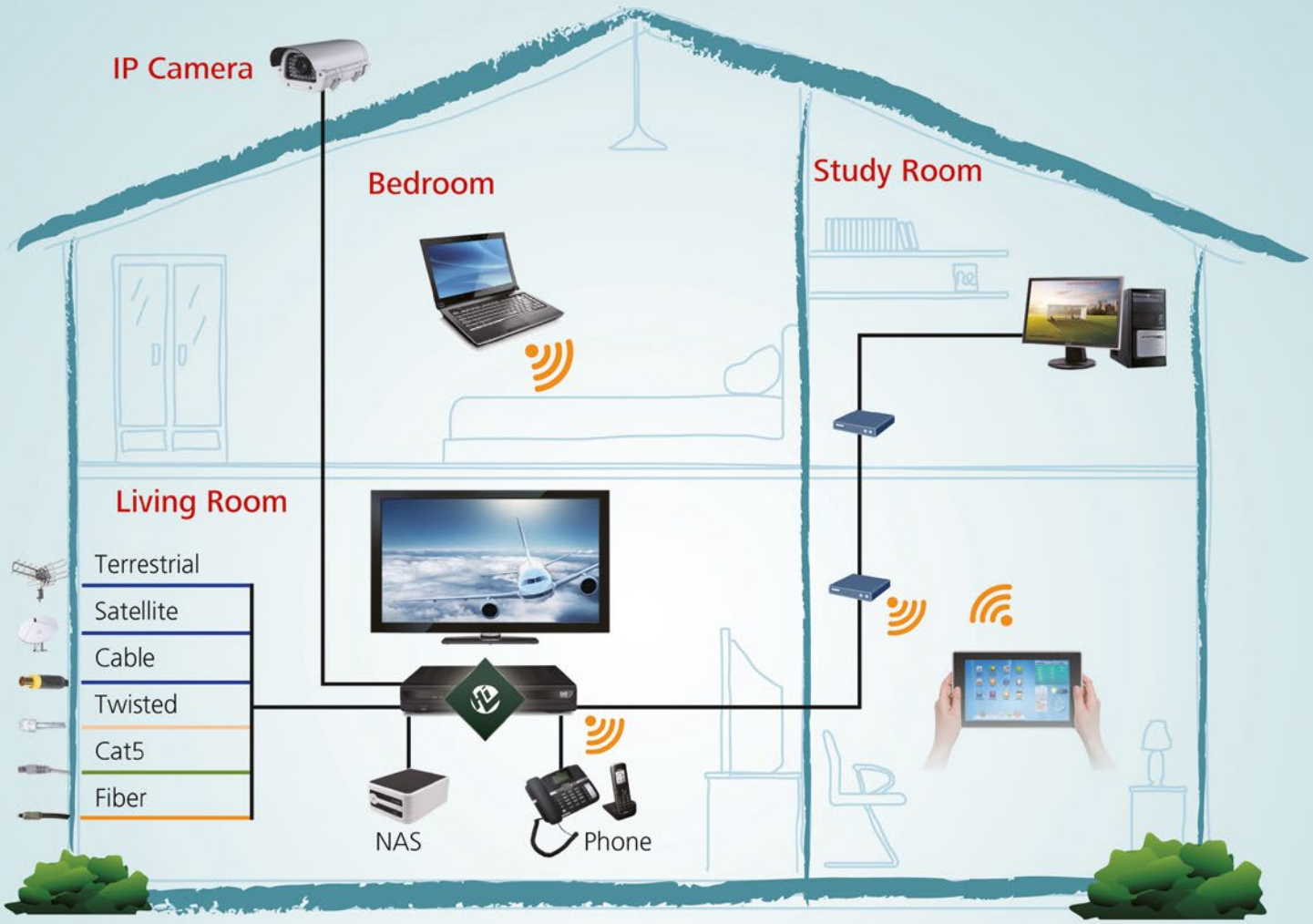
TELE-satellite was established in 1981 and today is the oldest, largest and most-read digital tv trade magazine in the world. TELE-satellite is seen by more than 350,000 digital tv professionals around the world and is available both in printed form and online.
**www.TELE-audiovision.com**

# Hisilicon

## Home network SoCs and Solutions




### Hisilicon STB SoC Key Features

- High performance ARM Cortex A9 CPU
- Integrated with DVB-C or DVB-S/S2 Demodulator
- Hardware decoder supporting Full HD H.264/MPEG2/MPEG4/AVS/Real/VC-1/FLV/VP6/VP8
- Hardware encoder supporting H.264 SVGA
- High performance 2D and 3D engine
- Advanced security features
- Dual Ethernet, Dual USB 2.0, HDMI 1.4

### Solution Features

- Low cost HD-STB solution with 3DTV
- Quick Boot-up, Low Power Consumption
- 3D Games, 3D UI
- Linux/Android 4.0
- Full-service PVR
- Video phone, VOIP
- DVB, IPTV, OTT, Hybrid STB
- Cloud computing, Thin Client solutions

Contact:
+86-755-28780808
Market_D@hisilicon.com
http://www.hisilicon.com

HISILICON

# Discover Your Smart Life

**Smart & handy** TV controller

## α+ Full HD **Triple-tuner Hybrid** Smart STB

Web Application (Online TV, Web Browsing, Weather forecast, and more)
Simultaneously Recording of 3 Services and Watch 2 others(PIP)

- Twin DVB-S2 and One DVB-T/C/T2 Complinat
- Recording & Playback with internal SATA , external eSATA and USB 2.0 Devices
- Event Recording by EPG
- 4X USB 2.0 Host ports (MP3 Player & JPEG Viewer)
- 10/100/1000 Base Tx Ethernet port
- Support Internal 2.5 inch HDD (Optional)
- Blind scan
- Multi-LNB Controlled by DiSEqC Control Version 1.0, 1.1, 1.2 and USALS
- Multi-Satellite Search
- User friendly stylish icon menu
- Dual HD PIP(Picture in Picture)

HbbTV SYNC Player+ CI+ Linux EMBEDDED UNICABLE

sales@tiviar.com / www.tiviar.com

# BREAKING NEWS!

## Stay Tuned for Live Reports

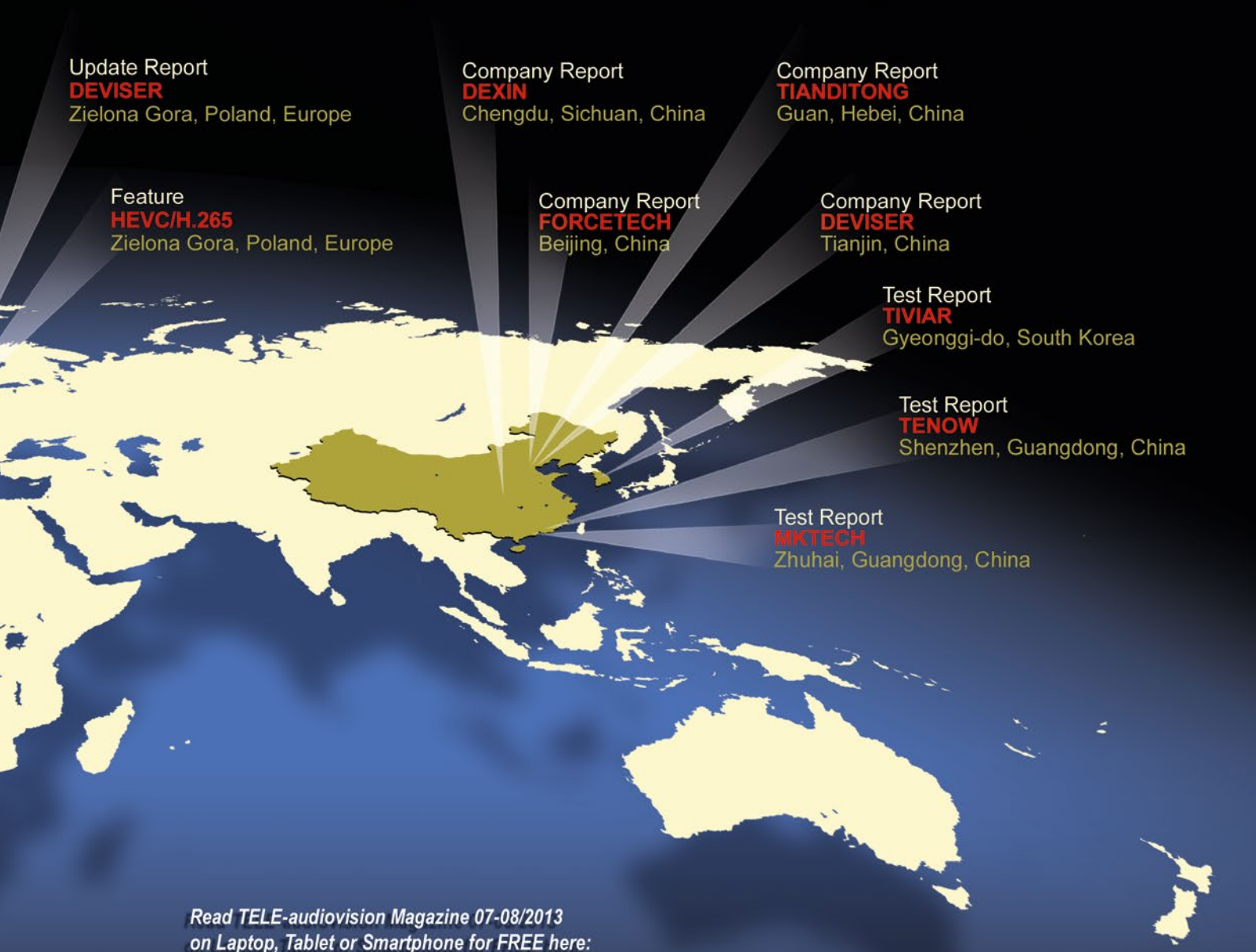
## In This TELE-audiovision Iss

**07-08/2013**

The World's Largest Digital TV Trade Magazine since 1981
TELE audiovision INTERNATIONAL
Satellite
Smart TV
IP/WebTV
Streaming

All Reports in TELE-audiovision are Original and Exclusive!

# from Around the World!
# sue We Report Directly From

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

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CHANGHONG

Professional in STB

# CREATING EASY LIFE

## Smart Center Box

- Android 2.2, 1080P HD
- Multi-screen interaction
- Content sharing with Pad, phone, STB
- Multi-media player
- 3D somatic games
- HTML 5 browser
- IP camera
- Smart remote control
- Changhong APP store

## Products & Technologies

- DVB-C/T/S/C2/T2/S2, ISDB-T, IPTV
- Conax/Nagra/Irdeto/NDS
- MHEG-5/Opentv/NDS Core/MHP
- Android/OS21/Linux/μ_iTron
- OTT/HBBTV/CATCH UP TV/UNICABLE

## Company Profile

Established in 1998, Sichuan Changhong Network Technologies Co.,Ltd is now one of the largest professional STB suppliers in China. With the experienced R&D team and qualified project management, Changhong Network provides the consumers with leading products and technical solutions...

NAGRA KUDELSKI GROUP irdeto conax NDS

MHEG-5 opentv NDS Core mhp

**SICHUAN CHANGHONG NETWORK TECHNOLOGIES CO.,LTD**

ADD:35,East Mianxing Road,High-tech Park,Mianyang,Sichuan,China

Tel:0086-816-2410305 Fax:0086-816-2417040 Zipcode:621000

Http://www.changhong-network.com

E-mail:stbinfo@changhong.com

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# HSM1

## Specifiction:

System: Basic on Android 4.0 ICS
OSD: 3D Graphical User Interface(Support OpenGL ES2.0)
DVBS/DVBS2 Demodulator
Mpeg2,Mpeg4(H.264) decoder ,fully DVBS&DVBS2 compliant
Storage 8000 TV and Radio programs
Video codec: H.264(MPEG4-AVC, VC-1), MPEG2, DviX3/4/5/6,Xvid
Audio codec: MP3, AAC, OGG, MPEG, MPEG Audio, Dolby AC-3
Container : MP4, AVI, MKV, FLV, MPEG TS
DLNA 1.5 compliant
Networking-WIFI AP,Ethernet

## Feature:

Multi-Screen shifting (DLNA and AIRPLAY Alike)
OTT (Over the top)
Android Market
Web Browser
Twitter, Facebook,YouTube...
Motion sensing games
Powerful Media
OTA(over the air )
2.4G wireless interface
Support 3D and 3D convert 2D function

## HS1J

- Video decode: MPEG2 SD, MPEG2 HD, H.264/AVC SD, H.264/AVC HD,MP4
- Interface: Single CIplus, SCART,dual USB2.0,LNB ,HDMI,RCA, Digital Audio, Ethernet
- Video Resolution: 480i/p, 576i/p, 720i/p, 1080i/p
- Function : Manual/Auto search, Edit Channel, EPG, Subtitle,TXT, PVR , RSS, Weather Forecast ,Youtube ,Game,32 FAV group, Media player;
- Language:English, French, German, Italian, Spanish, Portuguese, Russian, Turkish, Arabic, Polish etc

## HS1C

- Pluggable tuner,support S2+S2/S2+T2/S2+C tuner
- Video decode:MPEG2 HD/SD H.264/AVC HD/SD
  Output interface:Single CI plus,,dual USB2.0, HDMI,SPDIF,YPbPr/SCART
  Features:
- youtube,google map,picasa,Weather Forecast, RSS,Fastscan search,PVR
- Support WIFI

## HTAB

- Video decode :MPEG2 SD, MPEG2 HD, H.264/AVC SD, H.264/AVC HD
- Output Interface : HDMI ,SPDIF, USB,SCART
- Video Resolution : Full HD 1080P, 1080i
- DVB Function : Manual search, Edit Channel, EPG, Subtitle, TXT, PVR,Meadia player

## HTJ4

SD MPEG-2/HD H.264 & fully DVB-T compliant,

- Output Interface: HDMI,Scart ,SPDIF
- Video Resolution : Full HD 1080P,
- Function : Manual search, Edit Channel, EPG,
- Subtitle, TXT, PVR
  Wifi(option):RSS Reader, Weather Forecast ,maps,
- Picasa,Google ,Youtube ,Youporn,Vimeo,etc

Skyworth Digital

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# > 350 000

# Professional Readers W

本杂志全球有35万多读者

## America

## Europe

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**>28000 Readers**

USA
Canada
Mexico

**South America**
**>42000 Readers**

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Argentina
Chile
Venezuela
Colombia
Peru

**West Europe**
**>107000 Readers**

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France
NL
Portugal
Belgium
Spain
CH
Austria
Sweden
Norway
Ireland
Denmark

**MENA**
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Egypt
KSA
Tunesia

**East Europe**
**>60000 Readers**

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Czech
Greece

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## Global Digital TV Trade Magazine

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GLOBAL DIGITAL TV MAGAZINE

# Worldwide

## Top 25 Countries > 3200 Readers

| COUNTRY | Readers # |
|---|---|
| Brazil | 31,706 |
| Germany | 27,403 |
| USA | 22,574 |
| Italy | 14,261 |
| China | 12,808 |
| UK | 12,585 |
| Iran | 12,359 |
| France | 11,663 |
| Indonesia | 10,190 |
| Turkey | 10,000 |
| Netherlands | 9,530 |
| Algeria | 9,471 |
| Romania | 8,243 |
| Portugal | 6,666 |
| Russia | 6,155 |
| Belgium | 5,956 |
| Morocco | 5,753 |
| Spain | 5,589 |
| Hungary | 5,477 |
| Poland | 5,411 |
| India | 4,821 |
| Egypt | 4,751 |
| Bulgaria | 4,563 |
| Czech | 4,200 |
| Greece | 4,194 |
| Canada | 4,036 |
| Ukraine | 3,757 |
| Saudi Arabia | 3,661 |
| Slovakia | 3,260 |

## Readers' Breakdown

| | |
|---|---|
| Manufacturers | 4% |
| Distributors | 9% |
| Wholesaler | 18% |
| Dealers | 27% |
| Installers | 12% |
| Satellite Provider | 2% |
| Cable Provider | 8% |
| IPTV Provider | 5% |
| Program Provider | 6% |
| Governmental | 2% |
| Institutional | 2% |
| Private Enthusiasts | 5% |

## Top 25 to 105 Countries > 130 - 3200 Readers

| COUNTRY | Readers # |
|---|---|
| Argentina | 3,120 |
| Switzerland | 3,100 |
| Chile | 2,943 |
| Tunisia | 2,904 |
| Pakistan | 2,774 |
| Austria | 2,766 |
| Croatia | 2,713 |
| Iraq | 2,355 |
| Malaysia | 2,347 |
| Sweden | 2,344 |
| Australia | 2,107 |
| Israel | 2,069 |
| Venezuela | 2,052 |
| Norway | 2,043 |
| Serbia | 1,945 |
| UAE | 1,580 |
| Ireland | 1,561 |
| Colombia | 1,531 |
| South Africa | 1,510 |
| Mexico | 1,476 |
| Denmark | 1,390 |
| Thailand | 1,298 |
| Finland | 1,137 |
| Philippines | 1,058 |
| Libya | 977 |
| Sri Lanka | 975 |
| Slovenia | 934 |
| Jordan | 900 |
| Peru | 864 |
| Yemen | 842 |
| Nigeria | 831 |
| Lithuania | 829 |
| Lebanon | 814 |
| South Korea | 759 |
| Bosnia and Herzegovina | 749 |
| Syria | 740 |
| Macedonia | 726 |
| Ecuador | 698 |
| Sudan | 685 |
| Japan | 644 |
| Uruguay | 622 |
| Kenya | 587 |
| Bolivia | 571 |
| Kuwait | 565 |
| Puerto Rico | 562 |
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|---|---|
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| Mauritania | 98 |
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| New Caledonia | 90 |
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| Guyana | 63 |
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| Tajikistan | 40 |
| Nepal | 39 |
| Gabon | 36 |
| Comoros | 36 |
| Turkmenistan | 35 |
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| Dominica | 27 |
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| Palau | 25 |
| Mongolia | 23 |
| Fiji | 19 |
| Bahamas | 17 |
| Laos | 17 |
| Burundi | 16 |
| Timor-Leste | 15 |
| Somalia | 14 |
| Congo Republic | 13 |
| Belize | 12 |
| Guinea | 12 |
| Saint Vincent and Grenadines | 11 |
| Anguilla | 10 |
| Guernsey | 10 |
| Papua New Guinea | 10 |
| British Virgin Islands | 10 |
| Isle of Man | 9 |
| Jersey | 9 |
| Andorra | 8 |
| Turks and Caicos Islands | 8 |
| Central African Republic | 7 |
| Curaçao | 7 |
| Eritrea | 7 |
| Swaziland | 7 |

Source:
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# INNOVATION
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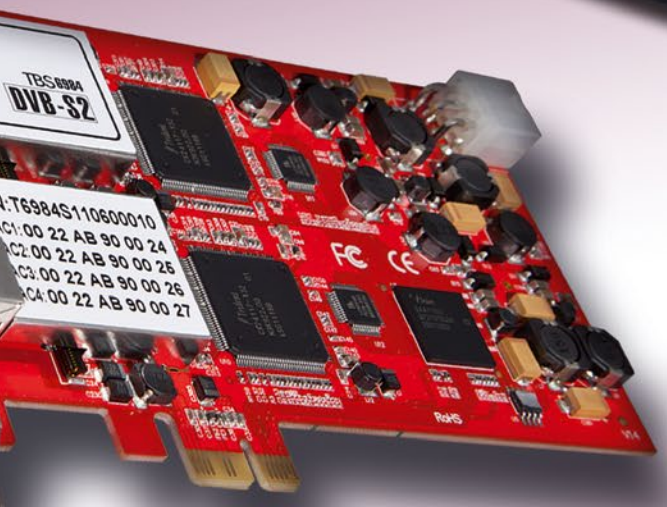
INNOVATION TELE audiovision AWARD MAGAZINE



INNOVATION TELE audiovision AWARD 07-08/2013

**TBS Streaming Box MOI**
Offers a double-shot of innovation for the future of TV with its channel streaming and separation of hardware and software

www.TELE-audiovision.com/13/07/tenow

INNOVATION TELE audiovision AWARD 11-12/2012

**JIUZHOU DTP2100**
Cutting-edge receiver thanks to Android operating system

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# TBS Streaming Box MOI

- *2 unique features:*
- *new concept of splitting software and hardware*
- *new concept of delivering tv signals by streaming them*
- *uses third-party software*
- *uses the Xbox Mediacenter software to receive TV streams*

# A Satellite Receiver With an Entirely New Approach

At first glance the black-colored metal box MOI from Tenow doesn't look all that remarkable and certainly doesn't resemble a satellite receiver. On the front side there are a total of three LEDs; two of them signal a lock on one of the two tuners while the third indicates the receiver's status.

Right along side them are two CI slots that are capable of accepting all the standard modules for PayTV reception.

Don't bother looking for a display or additional buttons to control the box; you won't find them. Even the rear panel is rather sparsely equipped: there's a USB 2.0 interface, a micro SD card reader, an RS-232 interface as well as a LAN port. Notably missing are HDMI, Scart and RCA outputs! How are you supposed to be able to watch TV with this kind of setup?

The secret of the Streaming Box lies with its name: the word „streaming" should be taken literally. It's a receiver that doesn't send video and audio directly to a TV but instead streams it via a network for reception on a PC, laptop or other mobile device (such as a tablet, Smartphone, etc.). In this way Tenow is using paths that are totally different from that of a classical satellite receiver. Tenow separates the hardware from the software that in an ordinary satellite receiver would form a single unit.

Customers would be provided the hardware from Tenow (the MOI Box) while the software would come from existing open source projects available from the Internet that would, of course, already be pre-installed. This gives Tenow the huge advantage of being able to focus all of their design efforts on the matching hardware, which already happens to be their specialty, while the software can be further developed by everyone thanks to the open source concept. It also benefits enormously from strong online communities with their many dedicated members.

On the hardware side, Tenow gave the Streaming Box MOI some kick. It comes with a 1.0 GHz Cortex TM-A8 processor along with 512 MB DDR2 RAM and 256 MB SLC NAND Flash memory. The box also operates, as you might expect, under the

VIP Card
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INNOVATION TELE audiovision AWARD 07-08/2013
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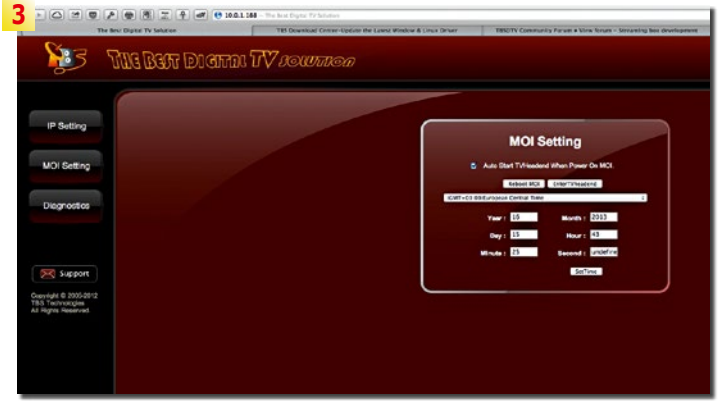


Linux operating system. The two built-in tuners support DVB-S2 in both the QPSK and 8PSK modulations making the box perfect for HDTV reception via satellite.

And it's on this hardware framework that the pre-installed TBS software builds on. It includes a simple TBS-designed web interface with which the configuration of the network interface and the date/time is taken care of. In the background the freely available TVHeadend software is doing its job. It was only thanks to this that the Streaming Box MOI could even become a DVB-S2 satellite receiver.

The box comes delivered from Tenow with a preset IP address. Once this IP address is entered into a web browser with the box connected to a network, you'll then have access to the web server installed in the box allowing you to modify the IP data as necessary. You can set the box to automatically receive the IP address from a router via DHCP or you can select the IP address manually.

We recommend the latter; it makes the future configuration and setup of the box easier. Once the Streaming Box MOI is working with an

# IPTV Software + IPTV Hardware

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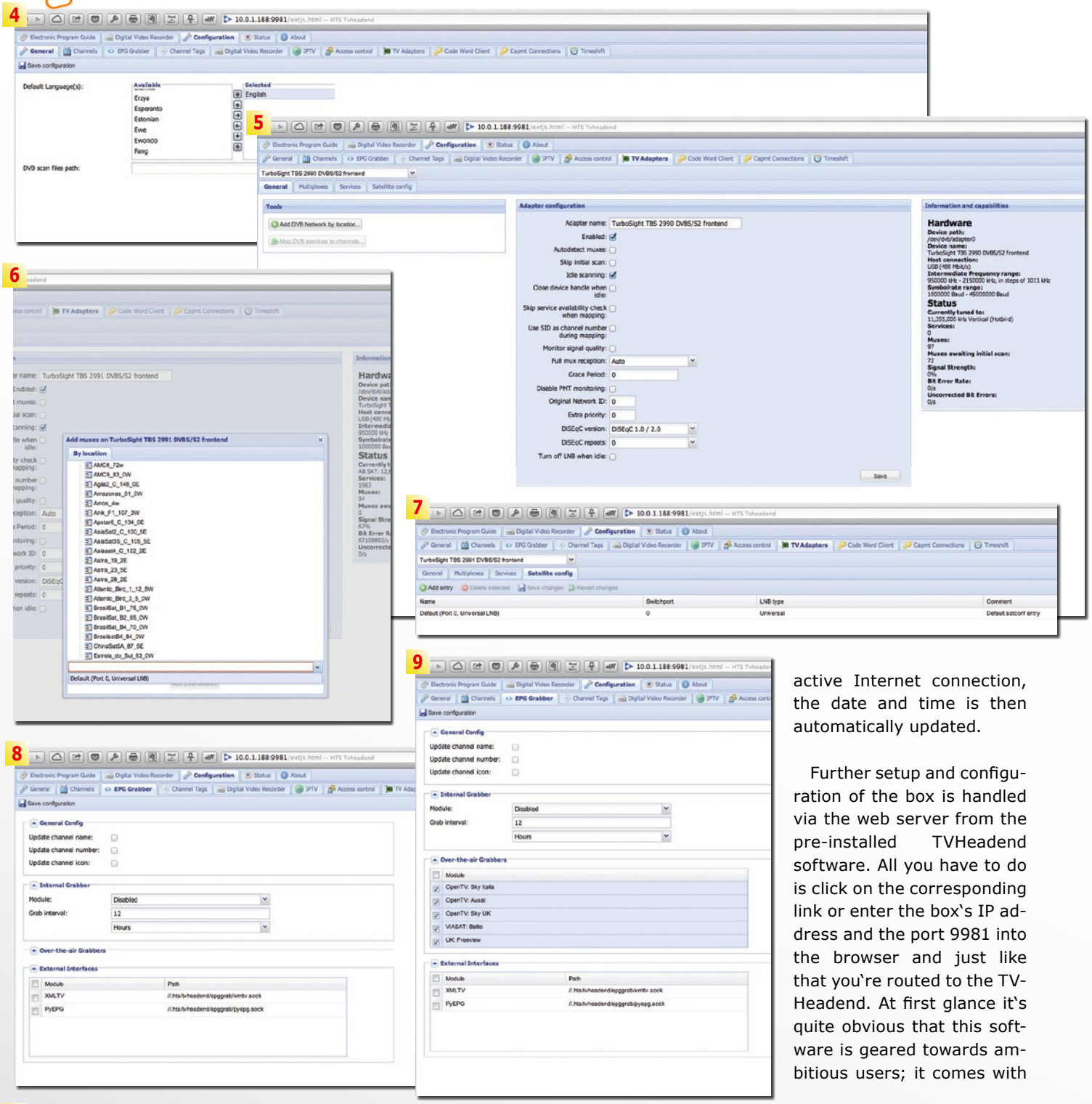

active Internet connection, the date and time is then automatically updated.

Further setup and configuration of the box is handled via the web server from the pre-installed TVHeadend software. All you have to do is click on the corresponding link or enter the box's IP address and the port 9981 into the browser and just like that you're routed to the TVHeadend. At first glance it's quite obvious that this software is geared towards ambitious users; it comes with

**1. The Streaming Box Moi's web interface for setting up the IP address and the date/time**

**2. The IP address can be selected manually or transferred automatically via DHCP**

**3. Time settings**

**4. The TVHeadend Software's web interface**

**5. The two DVB-S2 tuners can be configured completely independent from each other**

**6. The preprogrammed satellite/transponder list is missing a few critical entries**

**7. DiSEqC and LOF settings**

**8. The EPG Grabber reads the EPG data of all the stored channels so that it's instantly available**

**9. Even non-DVB conforming EPG data such as from Sky or Freeview UK is supported**

**10. The DVR configuration can be customized, including the recording path**

**11. Timeshift is also available**

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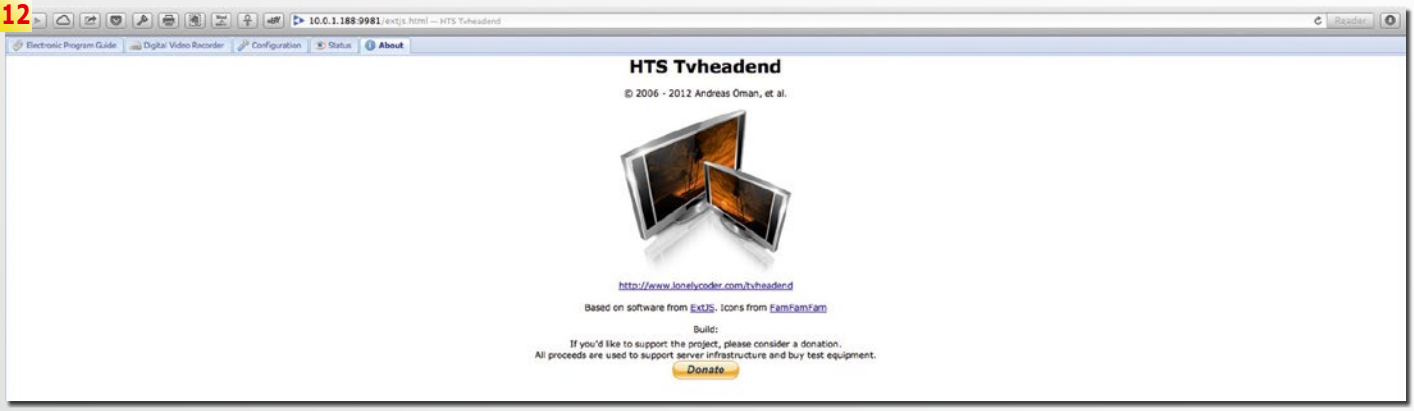
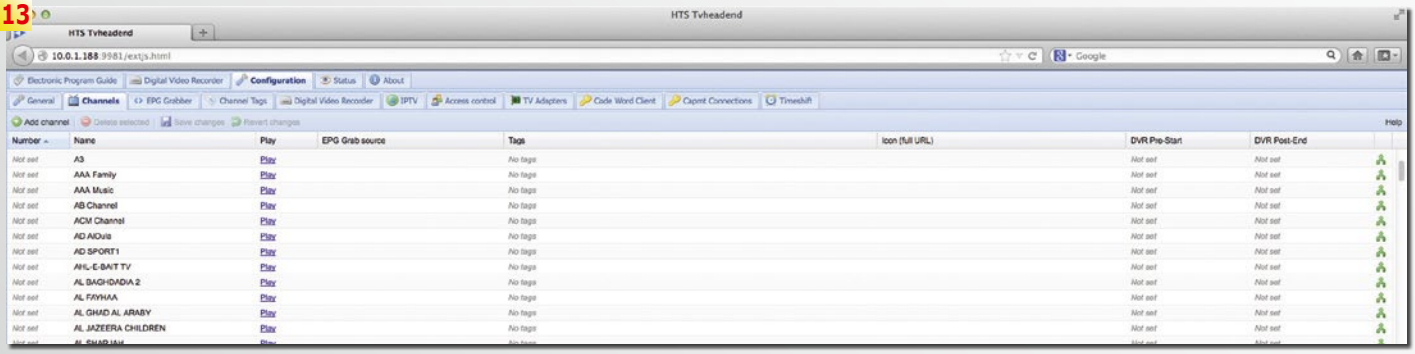
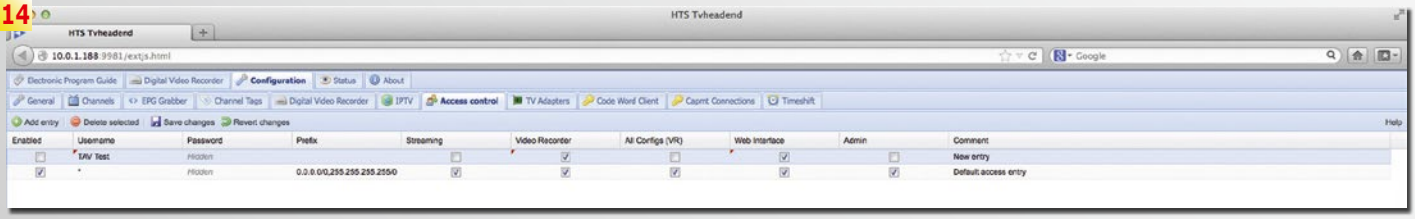

HTS Tvheadend
© 2006 - 2012 Andreas Öman, et al.
http://www.lonelycoder.com/tvheadend
Based on software from ExtJS. Icons from FamFamFam
Build:
If you'd like to support the project, please consider a donation.
All proceeds are used to support server infrastructure and buy test equipment.
Donate

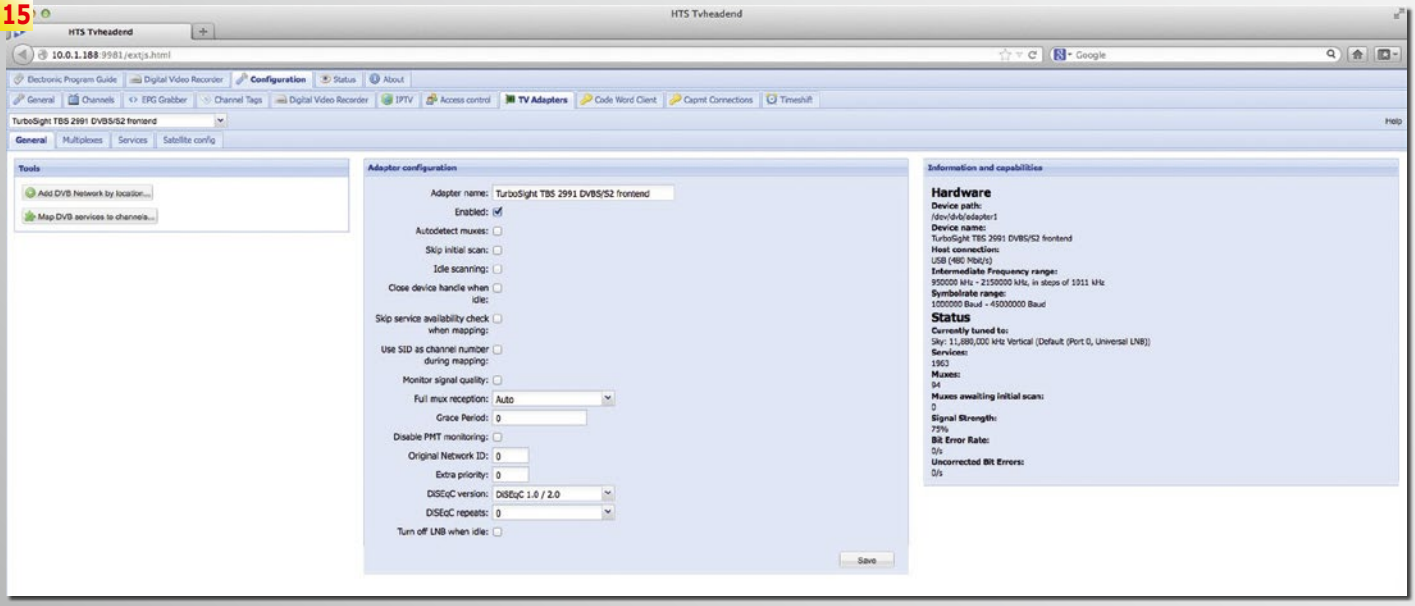
13


HTS Tvheadend
Number
Name
Play
EPG Grab source
Tags
Icon (full URL)
DVR Pre-Start
DVR Post-End
A3
AAA Family
AAA Music
AB Channel
ACM Channel
AD AlOula
AD SPORT1
AHL-E-BAIT TV
AL BAGHDADIA 2
AL FAYHAA
AL GHAD AL ARABY
AL JAZEERA CHILDREN

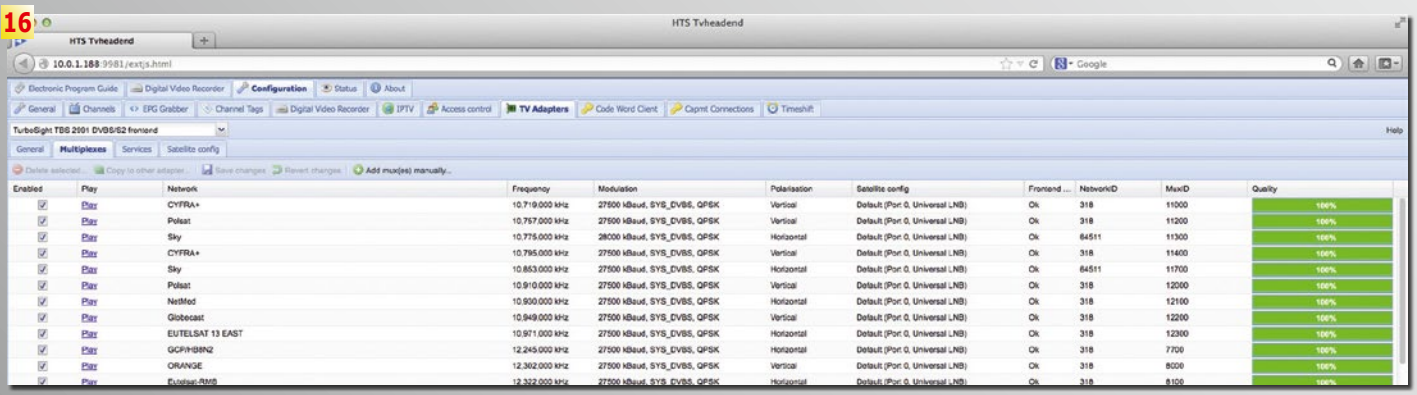
14

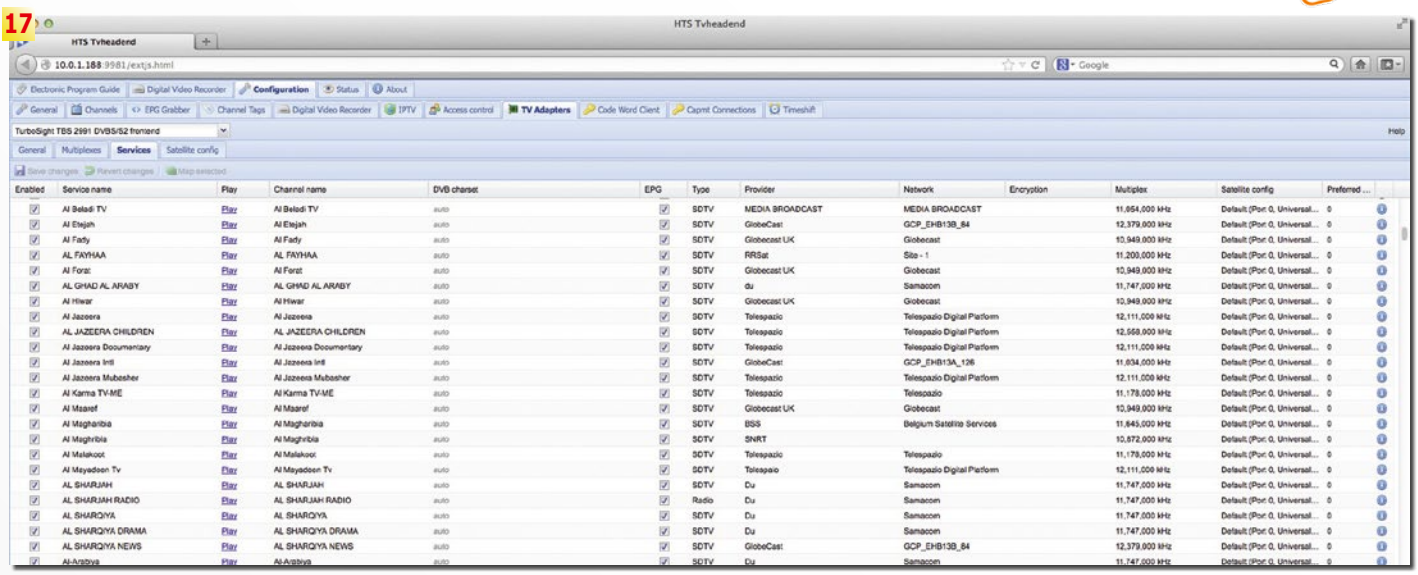

HTS Tvheadend
Enabled
Username
Password
Prefix
Streaming
Video Recorder
AI Configs (VR)
Web Interface
Admin
Comment
TMV Test
New entry
Default access entry

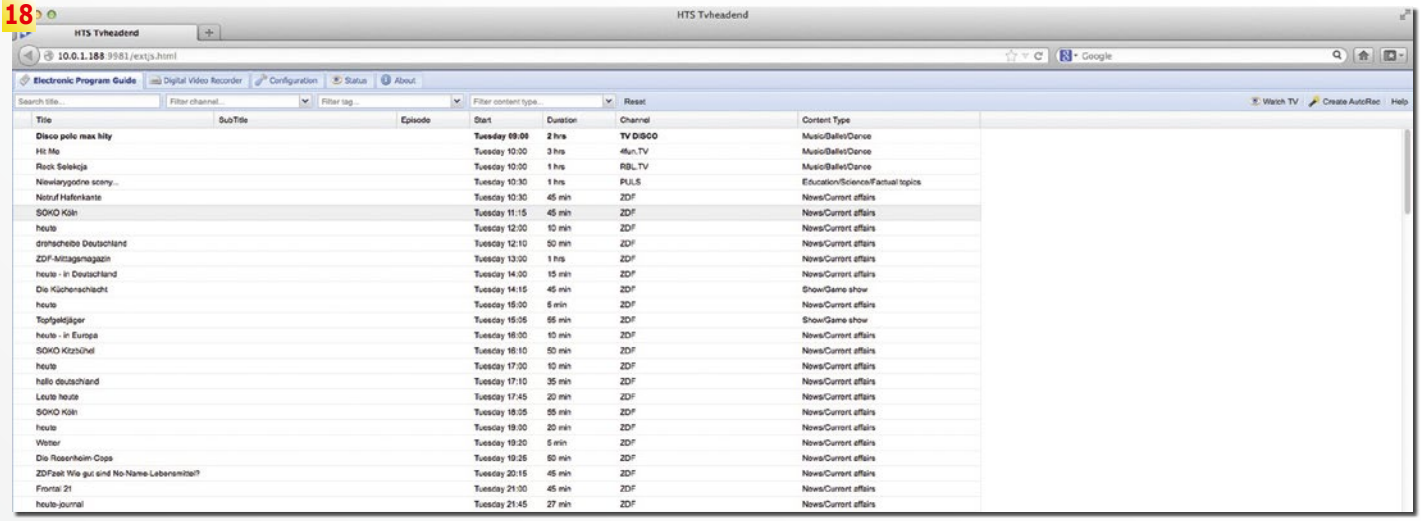
15

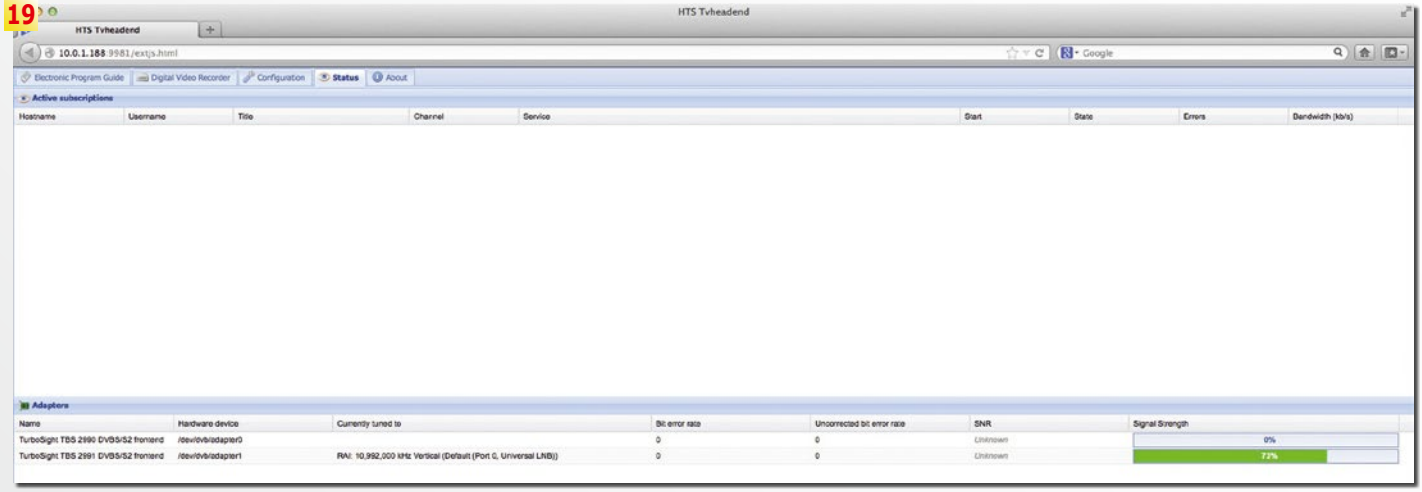

HTS Tvheadend
TurboSight TBS 2991 DVBS/S2 frontend
Tools
Add DVB Network by location...
Map DVB services to channels...
Adapter configuration
Adapter name: TurboSight TBS 2991 DVBS/S2 frontend
Enabled:
Autodetect muxes:
Skip initial scan:
Idle scanning:
Close device handle when idle:
Skip service availability check when mapping:
Use SID as channel number during mapping:
Monitor signal quality:
Full mux reception: Auto
Grace Period: 0
Disable PMT monitoring:
Original Network ID: 0
Extra priority: 0
DiSEqC version: DiSEqC 1.0 / 2.0
DiSEqC repeats: 0
Turn off LNB when idle:
Save
Information and capabilities
Hardware
Device path:
/dev/dvb/adapter1
Device name:
TurboSight TBS 2991 DVBS/S2 frontend
Host connection:
USB (480 Mbit/s)
Intermediate Frequency range:
950000 kHz - 2150000 kHz, in steps of 1011 kHz
Symbolrate range:
1000000 Baud - 45000000 Baud
Status
Currently tuned to:
Sky: 11,880,000 kHz Vertical (Default (Port 0, Universal LNB))
Services:
1963
Muxes:
94
Muxes awaiting initial scan:
0
Signal Strength:
75%
Bit Error Rate:
0/s
Uncorrected Bit Errors:
0/s

16


HTS Tvheadend
TurboSight TBS 2991 DVBS/S2 frontend
Enabled
Play
Network
Frequency
Modulation
Polarisation
Satellite config
Frontend ...
NetworkID
MuxID
Quality
CYFRA+
Polsat
Sky
CYFRA+
Sky
Polsat
NetMed
Globecast
EUTELSAT 13 EAST
GCF/HBBN2
ORANGE



**12. The TVHeadend Software doesn't come from Tenow and is financed by donations**

**13. The TVHeadend Software's full channel list**

**14. User management with individual user rights assignment**

**15. The DiSEqC Protocols 1.0 and 1.1 are supported**

**16. The list of all stored transponders makes it easy to search for channels**

**17. Here the TVHeadend Software shows all the channels that were found; only when they are marked with the option "map selected" will they actually end up in the channel list**

**18. EPG overview directly in the TVHeadend Software's web interface**

**19. Status display: Tuner 1 is currently not locked while Tuner 2 is receiving HOTBIRD at 13° east**

**20. The Xbox Mediacenter takes over control of the TVHeadend software and becomes an interface between the Streaming Box MOI and the user**

a rich assortment of settings capabilities and a diverse menu structure.

The TVHeadend is totally controlled via the web interface and has a completely new and unique operating concept that certainly has some advantages. Before the software can even begin to do its job, the correct parameters for satellite reception must first be defined in the basic settings menu. Since the Streaming Box MOI works with two separate tuners, this task must be done for each of the two individual tuners. Unfortunately, the lack of a looped-through output for at least Tuner #1 means that the box must operate with two independent satellite signal cables since a loop through from Tuner #1 to Tuner #2 is not possible.

There is a satellite list that tells the Streaming Box MOI what can be received with this equipment, although, the information it contains is not all that up to date. Critical entries such as the BADR satellites at 26° east are missing. According to the manufacturer, the DiSEqC protocols 1.0 and 1.1 are supported but there didn't seem to be any plans to include motor control. Configuring the LNB parameters such as the LOF was rather difficult. In the end though it could be done so that even C-band signals could be received.

As soon as new entries were added to the TVHeadend software's transponder list, the software started an automatic channel scan. This task is handled in the background so that the second tuner can be used for simultaneous TV reception or recording. And it's here that the Streaming Box MOI is a step ahead of an ordinary satellite receiver: since the channel scan takes place in the background, the time needed for this scan is really not all that relevant and shouldn't be bothersome at all even though our test scan of HOTBIRD at 13° east needed a full 15 minutes to complete. After the TVHeadend software has read in all of the channels of a satellite, they don't automatically get added to the channel list. They would only be added when the user marks all of the desired channels and manually transfers them to the channel list.

**21. Control of the TVHeadend Software via the Xbox Mediacenter is realized through an Add-on**

**22. To link the two programs, simply enter the Streaming Box MOI's IP address into the Xbox Mediacenter; the rest takes care of itself automatically**

**23. The Xbox Mediacenter's EPG. The necessary data comes from the TVHeadend Software**

**24. After the TVHeadend Add-on is activated, the menu heading "Live TV" appears in the Xbox Mediacenter**

**25. The Xbox Mediacenter's channel list**

**26. Timer entries can be entered via the EPG or manually**

**27. After a channel change, the video is always shown in a minimized window. The channel list is removed with the push of a button thus making room for full-screen mode**

**28. EPG data, if available, is also shown directly in the channel list**

**29. What's currently being shown by the various channels in the list?**

**30. PVR recordings are stored directly in the Streaming Box MOI and are accessible from all devices**

**31. The main menu can be blended in on top of the currently running program**

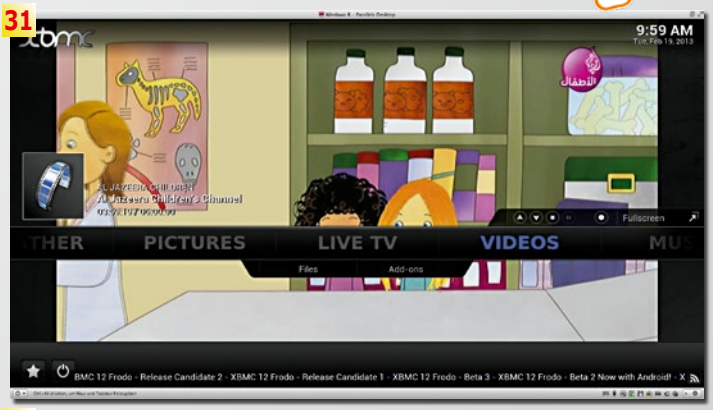
**32. An Info box on the lower right side provides the user with continuous information and status updates**

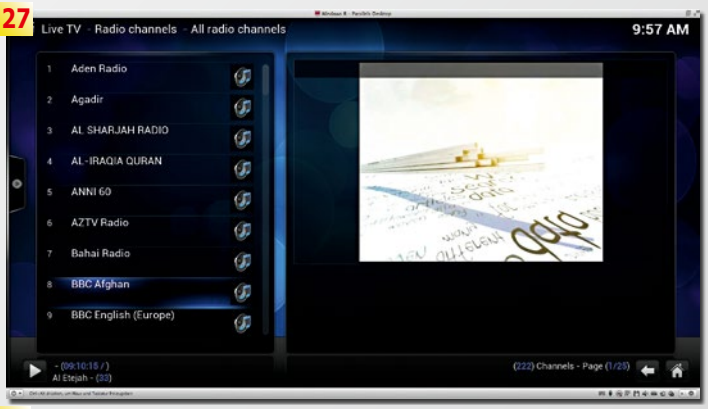
**33. The Xbox Mediacenter can directly shut down the PC or laptop or place it in standby**

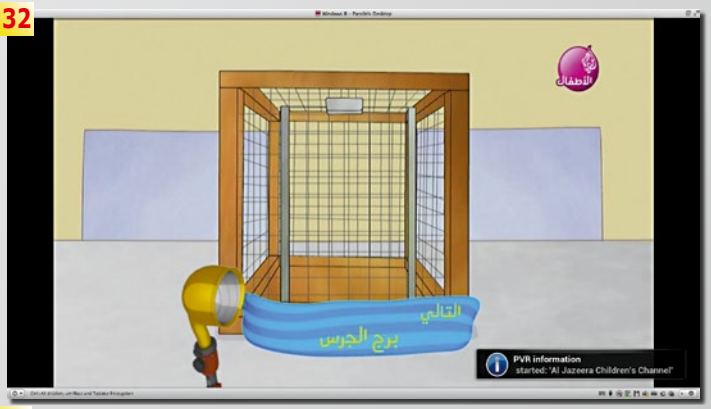
**34. HD channels can also be transferred between the Streaming Center MOI and the Xbox Mediacenter via the network**

**35. As expected with HD, picture quality is excellent**

26
recordings
9:56 AM
Confluence
View Options
TV channels
Radio channels
EPG: Timeline
Recordings
Timer
Search
Playing
Fullscreen
Title
Scheduled Time
Status
Add timer...
TAV Test
02/21/2013 from 4:15 AM to 6:10 AM
Enabled
Next timer on Thu, Feb 21, 2013 at 04:15
(2) Timer - Page (1/1)


31
9:59 AM
PICTURES
LIVE TV
VIDEOS
Files
Add-ons
Fullscreen


27
Live TV - Radio channels - All radio channels
9:57 AM
1 Aden Radio
2 Agadir
3 AL SHARJAH RADIO
4 AL-IRAQIA QURAN
5 ANNI 60
6 AZTV Radio
7 Bahai Radio
8 BBC Afghan
9 BBC English (Europe)
(222) Channels - Page (1/25)


32
PVR information
started: 'Al Jazeera Children's Channel'

28
Live TV - TV channels - All TV channels
9:57 AM
41 Al Jazeera Documentary
42 Al Jazeera Intl
Al Jazeera International
43 Al Jazeera Mubasher
Aljazeera Mubasher
44 Al Karma TV-ME
45 Al Maaref
46 Al Magharibia
47 Al Maghribia
Al Maghribia
48 Al Malakoot
49 Al Mayadeen Tv
Al Jazeera International
L'edizione in lingua inglese del primo canale all News del Medio Oriente.
Next: Al Jazeera International
(630) Channels - Page (5/70)

33
10:00 AM
Exit
Power off System
Custom shutdown timer
Suspend
Hibernate
Reboot

29
9:58 AM
Confluence
View Options
TV channels
Radio channels
EPG: Now
Recordings
Timer
Search
Playing
Fullscreen
Channel
Title
Status
Marec
2 M Monde
Abu Dhabi
Al Jazeera Children's Channel
Al Jazeera International
Aljazeera Mubasher
Al Maghribia
Al Iraqia Tv
Antichita' Chiossone
Arirang TV
ARTE
Baraem

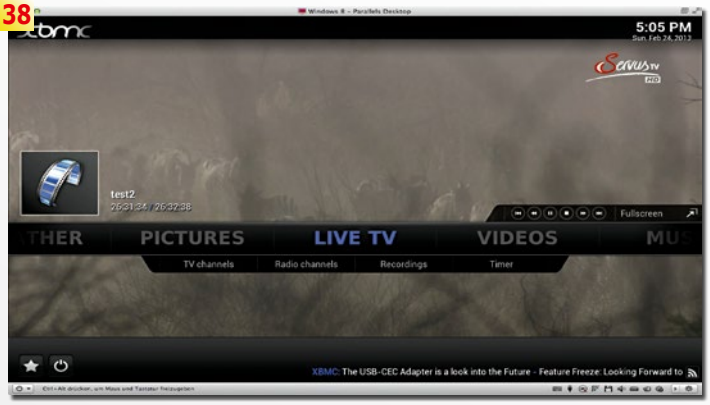
34
TV channels - All TV channels
1 ORF1 HD
2 ORF2 HD
3 PVoD
4 ServusTV HD Deutschland
5 ServusTV HD Oesterreich
6 SGL_1007
Manchmal versehen wir die Tiere
(6) Channels - Page (1/1)

30
Live TV - TV recordings
10:00 AM
Al Jazeera Children's Channel
02/19/2013 6:00 AM
Al Jazeera Children's Channel
Al Jazeera Childrens Channel is a Pan Arabic edutainment channel.
(1) Recordings - Page (1/1)

35

36

37




38

39

40

This concept offers the great advantage of creating a channel list where truly all of the channels in the list are channels that will actually be watched and when needed are quickly available to the user. Even editing or modifying the channel list via the practical web interface is a joy. With just a few mouse clicks channels can be added, deleted, moved or renamed.

We also want to highlight practical functions such as the automatic EPG download. Here, at specific times, the software will download the latest EPG data for every channel in the channel list as long as there's no active recording taking place and the Streaming Box MOI is not in use. In this way the EPG data will be available at a later time without any delay during normal everyday use. We also liked that the TVHeadend software can also receive IPTV content; a test with a local UPD stream worked perfectly.

We would also like to highlight the complex user management in which individual channels and functions for one or more users can easily be activated or deactivated. Then there's PVR features that in addition to all of the classic functions also include fast-forward and rewind plus programming new recordings using the EPG data with a practical keyword search.

But let's get to the Streaming Box MOI's highlight. How does it receive a stream?

**36. OSD Teletext Decoder**

**37. Video settings directly in the Xbox Mediacenter**

**38. Playback of a previously recorded HD program**

**39. Editing a timer entry**

**40. The channel list can be edited either via the TVHeadend's web interface or directly in the Xbox Mediacenter**

For this purpose Tenow recommends the Xbox Mediacenter. This is GPL software (General Public License) that is available for MS Windows, Apple Mac OS X, Linux, iOS, Android, Raspberry Pi as well as Apple TV.

The Xbox Mediacenter is conceived as a classic media center that, in addition to the ability to play back audio and video files, also supports Live TV reception via the TVHeadend software. Before using this function for the first time, it must be activated in the Xbox Mediacenter's basic settings. The Streaming Box MOI's instruction manual is a great help here. Once activated, the Main Menu heading „Live TV" instantly appears providing access to all the available TV and radio channels via TVHeadend.

The communication between the Xbox Mediacenter and the TVHeadend software now takes place fully automatically; without any interaction by the user. This togetherness provides the user all the features that he'd expect from an ordinary satellite receiver, such as, an EPG display in various formats, an Info bar with data on the current program as well as typical PVR functions.

We were especially impressed with the exceptionally fast channel switching time of just under one second. We tested the Xbox Mediacenter on both a Windows PC and a Macbook using Apple's own OS X operating system. We were quite happy with the results in both cases.

The Xbox Mediacenter displays the same user interface regardless of which operating system is running

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Signal was locked。
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**DVB-T Spectrum:**
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**WS-6932**
HD Satellite Finder Meter

SATLINK

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in the background. The picture quality of the TVHeadend received stream was in both cases exceptional. The quality of the picture on an HDMI-connected 42" LCD TV via a Macbook was indistinguishable with that from an ordinary satellite receiver. The Xbox Mediacenter can be controlled through a keyboard and mouse as well as through a remote control.

All in all, we were very impressed with the Xbox Mediacenter in conjunction with the Streaming Box MOI. We enjoyed playing with it. One thing though: using the Xbox Mediacenter on iOS devices or Apple TV is only possible with the help of Jailbreak - a deep-reaching modification of the operating system.

Apple does not officially offer the necessary Apps in their App Store. It's somewhat easier for owners of Android Smartphones or Tablets. The Xbox Mediacenter is also not downloadable from the Google Play Store but at least you can manually install it without having to play around in the mobile device's operating system.

If you don't want to access the Xbox Mediacenter via PC or Mac, you can also receive the individual streams via the VLC Mediaplayer (download from www.videolan.org). But since doing it this way is not as comfortable - each channel change must first be activated via the TVHeadend web interface - this method will be the exception rather than the rule.

Because of the Streaming Box MOI's open software structure, it will be up to the user when to update the individual software components. To make it easier for beginners, Tenow offers updates to their software packages via their website at regular intervals. This will update all of the involved software components automatically. The update itself takes place via a Micro SD card on which the user uploads two files from Tenow's website via the Internet. After inserting the card in the card reader and restarting the Streaming Box MOI, the update process runs automatically. For advanced users there's always the capability to supervise the process using a terminal program and the serial interface and display the associated status messages. The serial interface can also be used to directly have influence on the box's Linux operating system.

For us here at TELE-audiovision this test was exciting for two reasons: the first was the innovative idea to stream the channels and the second was the equally innovative idea to completely separate hardware and software. We are very interested to know how end users will react to this innovative double concept.

**41. Favorites groups can be easily set up in the Xbox Mediacenter**

**42. IPTV Streams via UPD protocol can be integrated in the TVHeadend**

**43. Playback of a local IPTV stream here in our test center**

**44. The box's Linux operating system can be directly accessed via the serial interface**

**45. While a software update is being processed, the box provides corresponding status messages via the serial interface**

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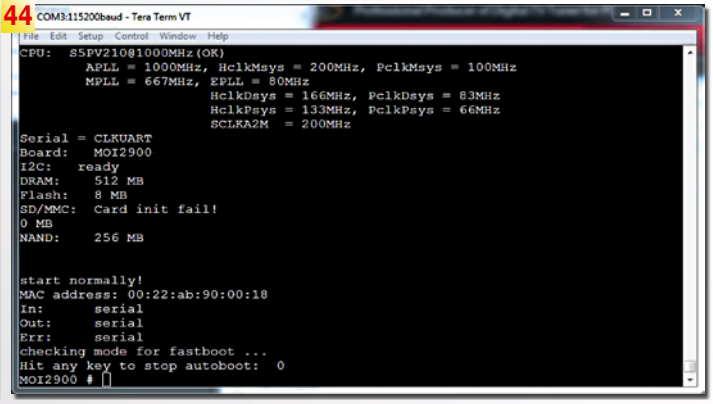


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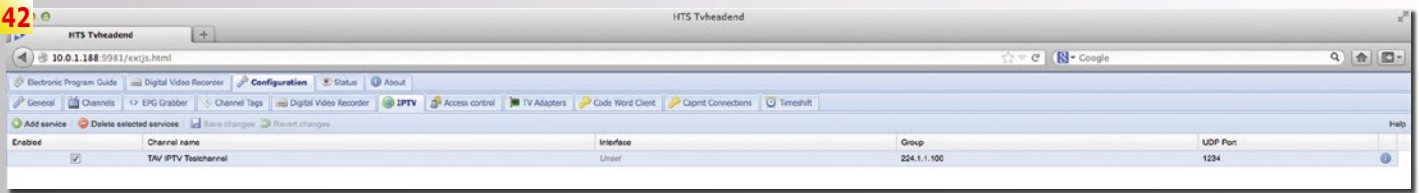


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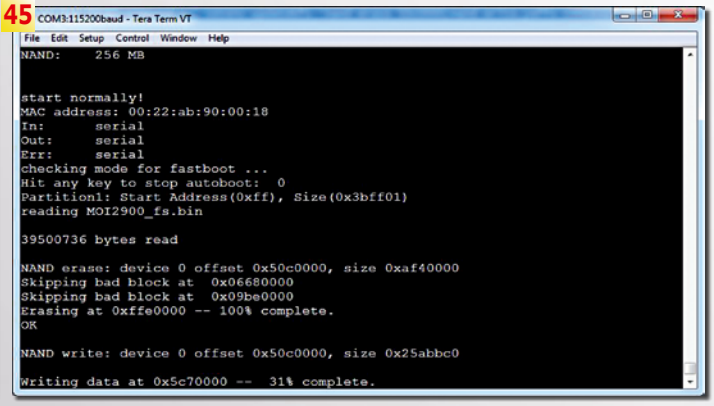


## EXPERT
### OPINION

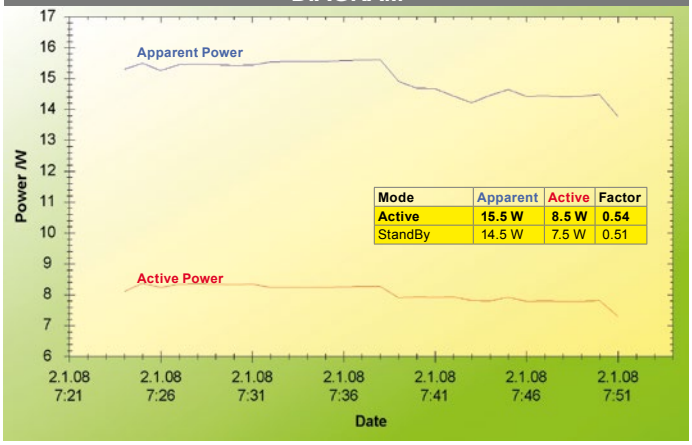
**+** **Through the separation of hardware and software, Tenow with the hardware is able to focus on the company's specialty while the software can be developed and promoted by dedicated private people.**

**−** **The Streaming Box MOI's installed software stills has a few bugs in some places in connection with the hardware. But considering that the hardware and software development are totally separated from each other, this is understandable and over time, with the increasing popularity of the Streaming Box MOI, this will continue to improve.**

## TECHNICAL
### DATA

| | |
|---|---|
| **Manufacturer** | TBS Tenow International Ltd. |
| **Contact** | sales@tbsdtv.com |
| **Internet** | www.tbsdtv.com |
| **Model** | TBS Streaming Box MOI |
| **Function** | DVB S2 compatible Twin Tuner Streamingbox |
| **Input frequency** | 950 - 2150 MHz |
| **Input symbol rate** | 1 - 45 Ms/s |
| **DiSEqC** | 1.0, 1.1 |
| **HDMI** | no |
| **Digital Audio out** | no |
| **USB 2.0** | yes |
| **Micro SD Slot** | yes |
| **CI Slot** | yes (2x) |
| **Card Reader** | no |
| **Stereo Audio, CVBS** | no |
| **Ethernet** | yes |
| **RS232** | yes |
| **0/12V** | no |
| **EPG** | yes |
| **HDTV** | yes |
| **PVR** | yes |
| **WebTV** | yes |
| **Compatible reception units** | PC with Windows/Linux, Mac OS X, Apple TV<br>iOS smartphone/tablet, Android smartphone/tablet |
| **Dimensions** | 19 x 12.5 x 3 cm |
| **Power Supply** | 12V DC (85-265 VAC 50/60 Hz) |

## ENERGY
### DIAGRAM




**Energy: First 15 minutes active operation; second 15 minutes Standby**

## MORE ABOUT THIS COMPANY
### www.TELE-audiovision.com/11/03/tenow

# Tiviar α+

Tiviar Alpha Plus
Triple Tuner PVR
TELE-audiovision
THE WORLD'S LARGEST DIGITAL TV TRADE MAGAZINE
RECOMMENDED PRODUCT BY
Thomas Haring
Test Center
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VIP
CARD
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Eurosport HD

Triviar®
Discover your smart life!

α+

- *full integration into media network*
- *compatible with all digital TV norms*
- *capable of recording three events simultaneously*
- *can be used with motorised satellite dishes*
- *excellent blind scan mode for satellite TV*

# A triple TV tuner PVR that will set your heart on fire

They say that you should never judge a book by its cover, but we also know from experience that good looks ignite a desire to find out more. The same is true for receivers and the first impression they create. When the new α+ from Tiviar arrived at our test lab we were immediately struck by its stylish packaging, and when we opened the box and took out the receiver the look on our faces only seemed to suggest one word: WOW!

Tiviar ships its latest receiver model complete with a remote control, HDMI cable, power cord, loop cable for connecting the two DVB-S2 tuners as well as a USB dongle. The one thing that is missing is a comprehensive manual, but a concise quick start guide is available which features the manufacturer's website from which you can download the full-scale manual. To make matters even easier there is also a QR code printed right on the quick start guide so that you only need your smartphone or tablet to scan the QR code and a few moments later the manual is available for you to explore.

The front panel of the α+ comes without visible buttons and the only elements that catch your eye are a brilliant 12-digit VFD display and a status indicator which at the same time serves as the standby button and consists of a stylised and backlit palm leaf. A flap on the right side of the front panel hides two CI slots which are fully CI+ compatible, as well as two card readers, a USB port and two buttons for switching channels.

The back panel is another feast for the eye. Being a triple tuner PVR receiver, the α+ sports two satellite IF inputs (one of which with loop-through output), as well as a combined DVB-T2/DVB-C signal input. But that's only the beginning: You'll find an HDMI output, an optical audio output, a total of six RCA jacks for YUV, stereo audio and CVBS video, a euroscart socket, an RS232 connection and an RJ-45 network interface. Three USB 2.0 ports and an e-SATA socket are also available on the back panel for connecting exter-

# Android IPTV AML8726

## Full High Definition Android IPTV +DVB-S2 OTT STB

### Processor
- ARM Cortex-A9 CPU uni-core,1GHz frequency
- ARM Mali-400 GPU processor, for 3D Graphics processing
- One MediaCPU and Two MediaDSPs for AV decoding
- Full 1080P HD video decoding
- 3D Video Support
- Power Control Processor

### Memory&Flash
- 1GB(32bit) DDR3 Memory
- 4MB SPI Nor Flash
- 4GB Nand Flash internal

### Network
- WiFi IEEE 802.11 b/g/n
- 10/100Mbps Fast Ethernet
- 3G USB Dongle

### DVB Frontend(Optional)
- DVB-S2 Supported
- Customized for other STB application

### Other
- HDMI 1.4a
- 2 Host USB Ports
- OS Android4.0 or Later
- Multi languages supported
- Support USB Keyboard&Mouse, Wireless Keyboard&Mouse&RCU

### Applications
- Video Movie Player(*.mkv,*.wmv,*.mpg, *.mpeg, *.dat, *.avi, *.mov, *.iso, *.mp4, *.rm etc.)
- Music Player(MP3, AAC, WMA, RM, LFAC, Ogg etc.)
- Picture viewer (JPG, JPEG, BMP, GIF, PNG etc.)
- Web Browser (HTML5 supported)
- Online VOD application
- Customized application market
- Customized applications
- Online video search
- 3D Game

## HD1512 DVB-S2

- IPTV
- USB Adapter
- 3G Support
- WIFI Support
- Movie Online
- Smartphone Remote
- RSS News
- Dailymotion
- DVB-S2 Tuner
- HDMI1.3, FULL-HD 1080P supported
- PVR (Personal Video Record)
- HD Media Player
- Picture Player
- Music Player
- File Manager
- Firmware Upgrade via USB
- EBOOK
- ISO
- Youtube, Weather, Google map, N32 game
- Built-in LAN
- With CA
- Recording & Playback with External Storage Devices(USB2.0 / HDD)
- 2 USB

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α+

nal storage media and/or the Wi-Fi dongle. Speaking of storage, it is possible to install a 2.5-inch SATA hard-disk right inside the receiver and Tiviar even supplies all required cables and mounting components with its new receiver – that's what we call user-friendly. The back panel features are rounded off with a mechanical power switch.

The remote control that comes with this receiver is of remarkably high quality and the choice of materials makes for an extremely pleasant look and feel. Contrary to most remotes we have tested so far, the surface is completely level with no raised buttons, which adds to the overall appeal of the remote control. All buttons are clearly labelled, easy to reach and positioned right where you would look for them by intuition. Last but by no means least there is the Wi-Fi dongle that is also part of the set and which can be attached to one of the USB ports to hook up the receiver to your local Wi-Fi network at home. It is fully compatible with the 802.11 b/g standards and should therefore be capable of working with any Wi-Fi infrastructure you may have.

User-friendliness shows in many different ways, and the installation wizard of the α+ is one of them. In a smoothly designed set-up routine your new Tiviar receiver asks you for basic settings such as language, IP address, time zone and available reception modes. Once that is accomplished the wizard will initiate a channel search (since this receiver does not come with a pre-stored channel list), after which it turns into standard operating mode and shows the first available channel.

Pressing the MENU button will bring you right to the truly smart main menu, which consists of two sections. The first is a single-line bar on the bottom of the screen which features five entries that can be selected and edited freely. Five entries are not enough? Simply press the UP button on the remote control to show twelve additional entries. This should keep most users satisfied. The user interface of the main menu is based on the app concept for smartphones. Each menu entry can be positioned freely and apart from all the basic items like music, video, photos or settings there are menu entries for directly accessing timer events, the channel list editor or the EPG. In short, the minimised main menu offers five quick access items for speedy operation, while all other menu entries can be found in the extended menu, which of course can also be fully customised to meet all end user requirements.

Our fingers are itching now to turn all this theory into practice, but for the sake of completeness we have to take a closer look at all options offered by the settings menu first. This menu section is clearly structured and lets you adjust virtually all details in order to meet your very demands. Since this receiver comes with a number of connection options for external storage media it is possible to determine one medium for PVR recording and another one for timeshift buffering, for example. The fact that the α+ supports the NTFS file system deserves

**1. Language selection of installation wizard**

**2. IP settings**

**3. The installation wizard includes an optional signal search for all three reception modes**

**4. Satellite settings**

**5. Settings menu**

**6. Managing storage media**

**7. Both the channel list and all individual settings can be saved onto an external USB storage medium**

**8. Channel list editor**

**9. Popular channels can easily be moved into one of the favourites lists**

**10. Antenna settings**

**11. Language settings**

**12. AV settings**

**13. Comprehensive list of pre-stored satellites**

**14. The second DVB-S2 tuner can be fed with an independent antenna signal or with the looped-through signal from tuner 1**

**15. Convenient editing of the transponder list**

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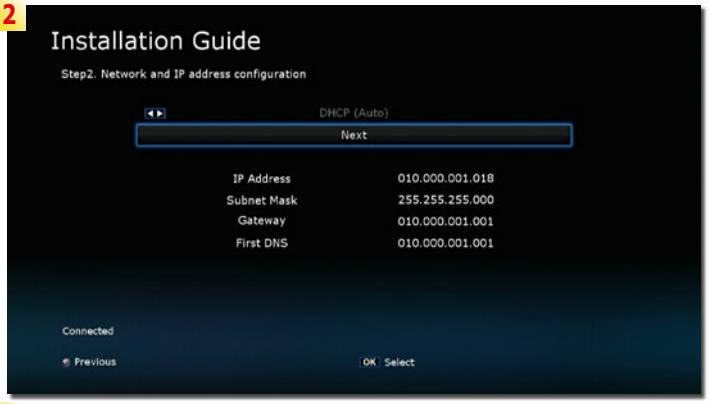


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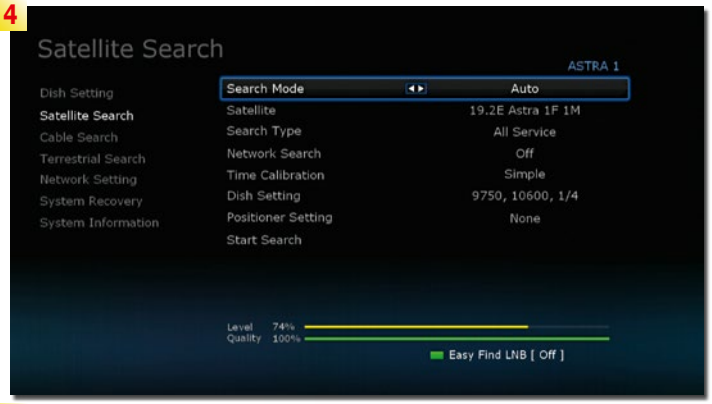


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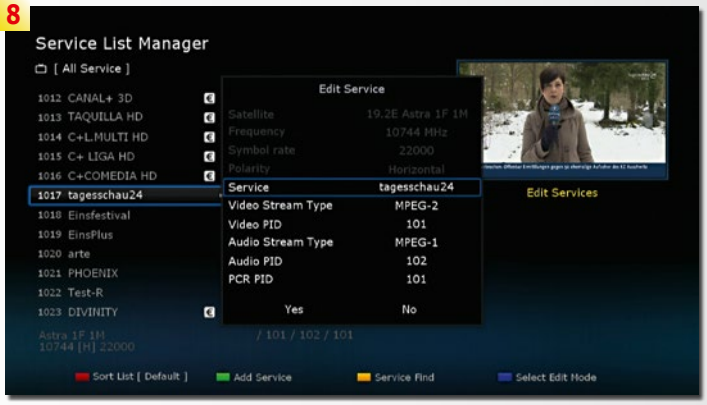


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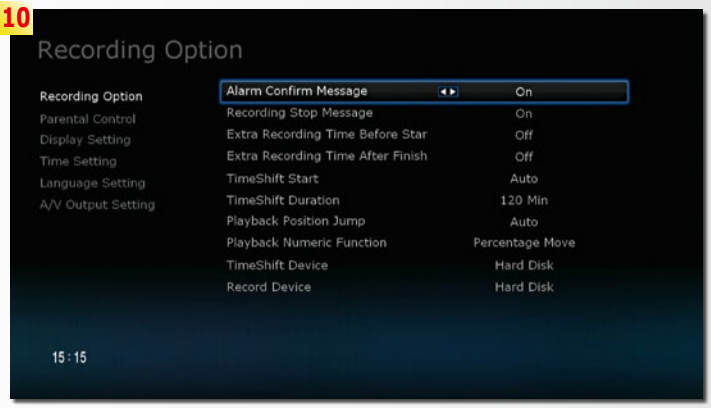


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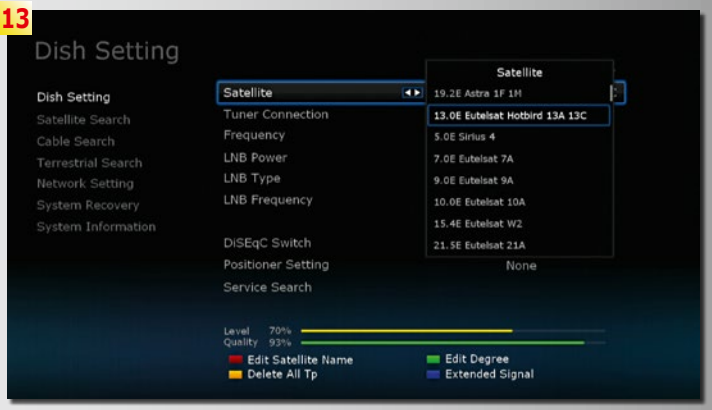


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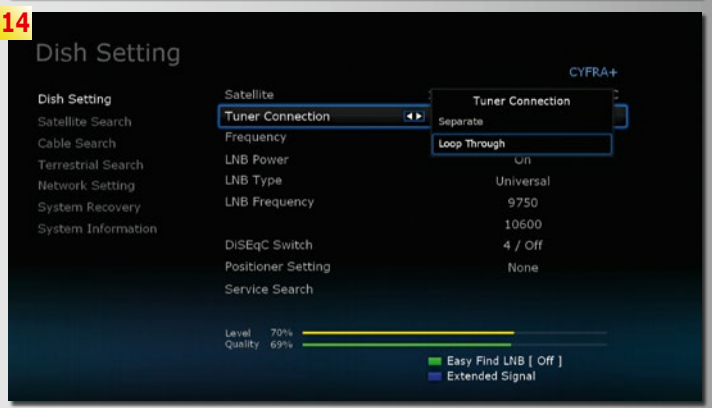


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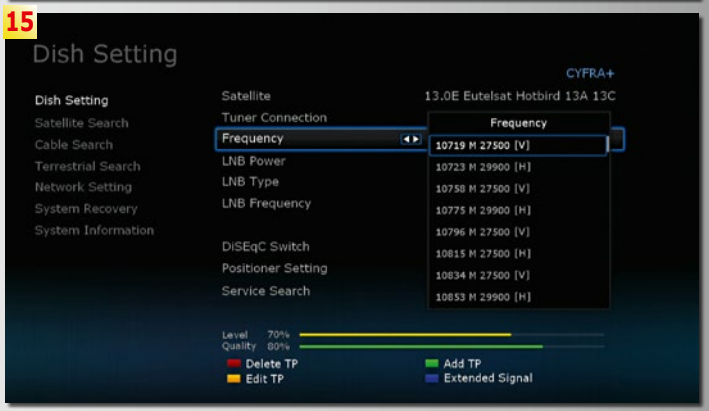

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**16. SCR LNBs (Unicable) compatibility**
**17. DiSEqC protocols 1.0 and 1.1 are supported**
**18. The receiver can be used to control a DiSEqC 1.2 motor**
**19. Putting in the position for controlling a DiSEqC 1.3 motor**
**20. Status of the currently received signal (signal level and signal quality)**
**21. Manual search**
**22. Blind scan search**
**23. Advanced search**
**24. Provider selection in fast scan mode**

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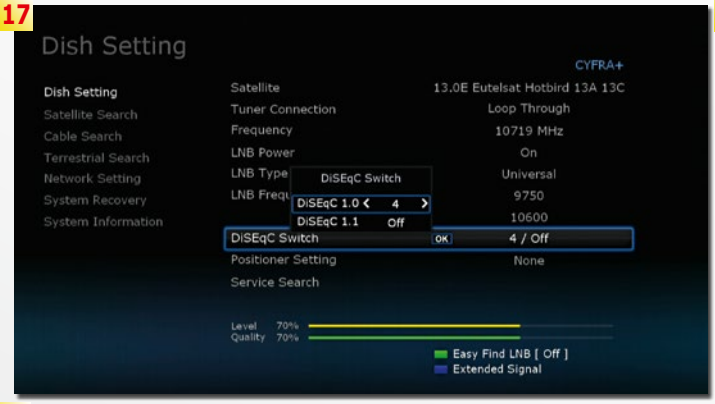


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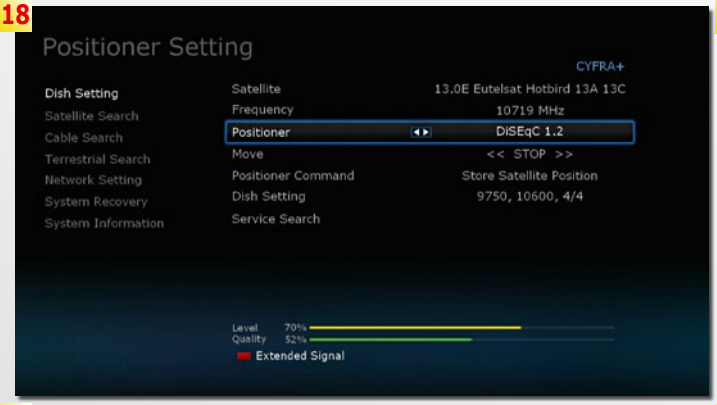


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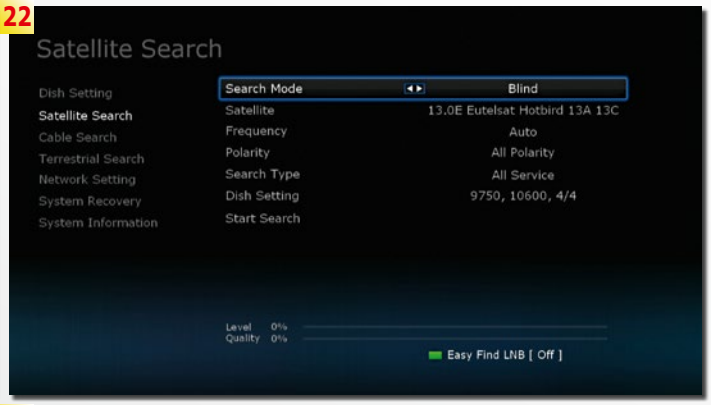


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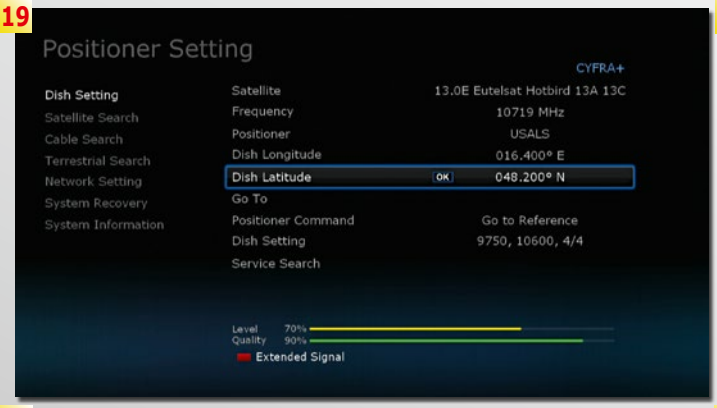


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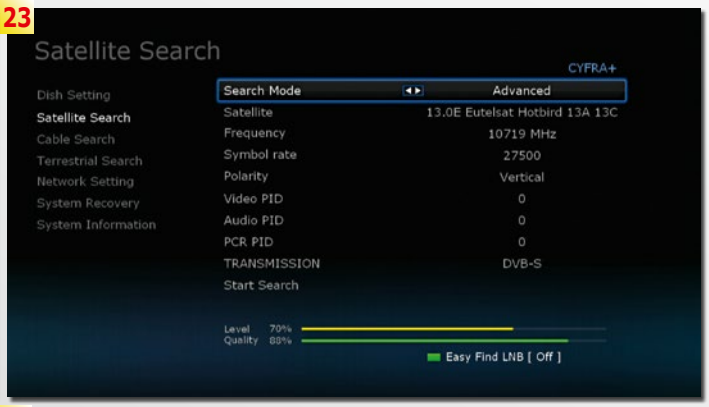


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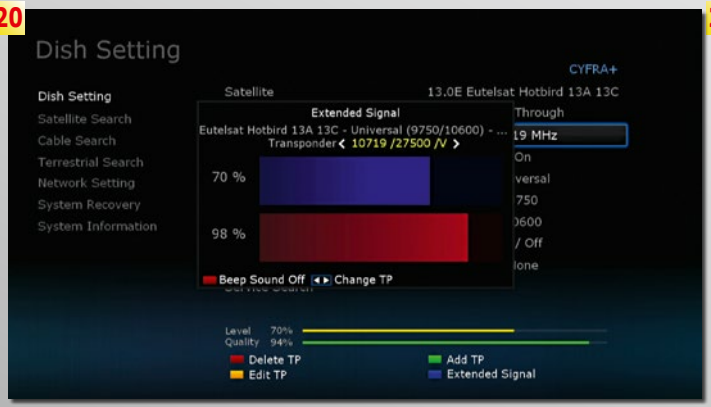


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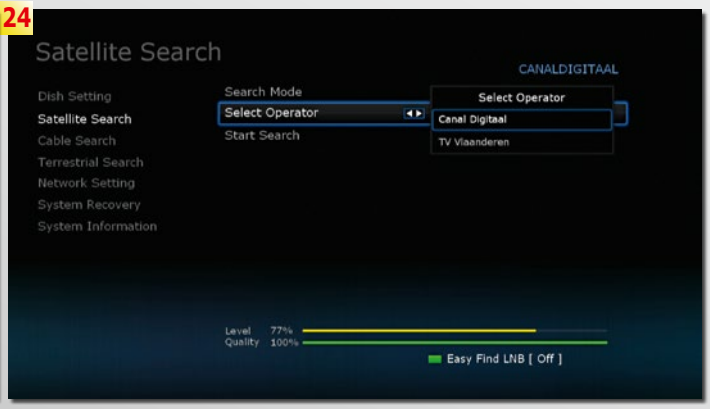

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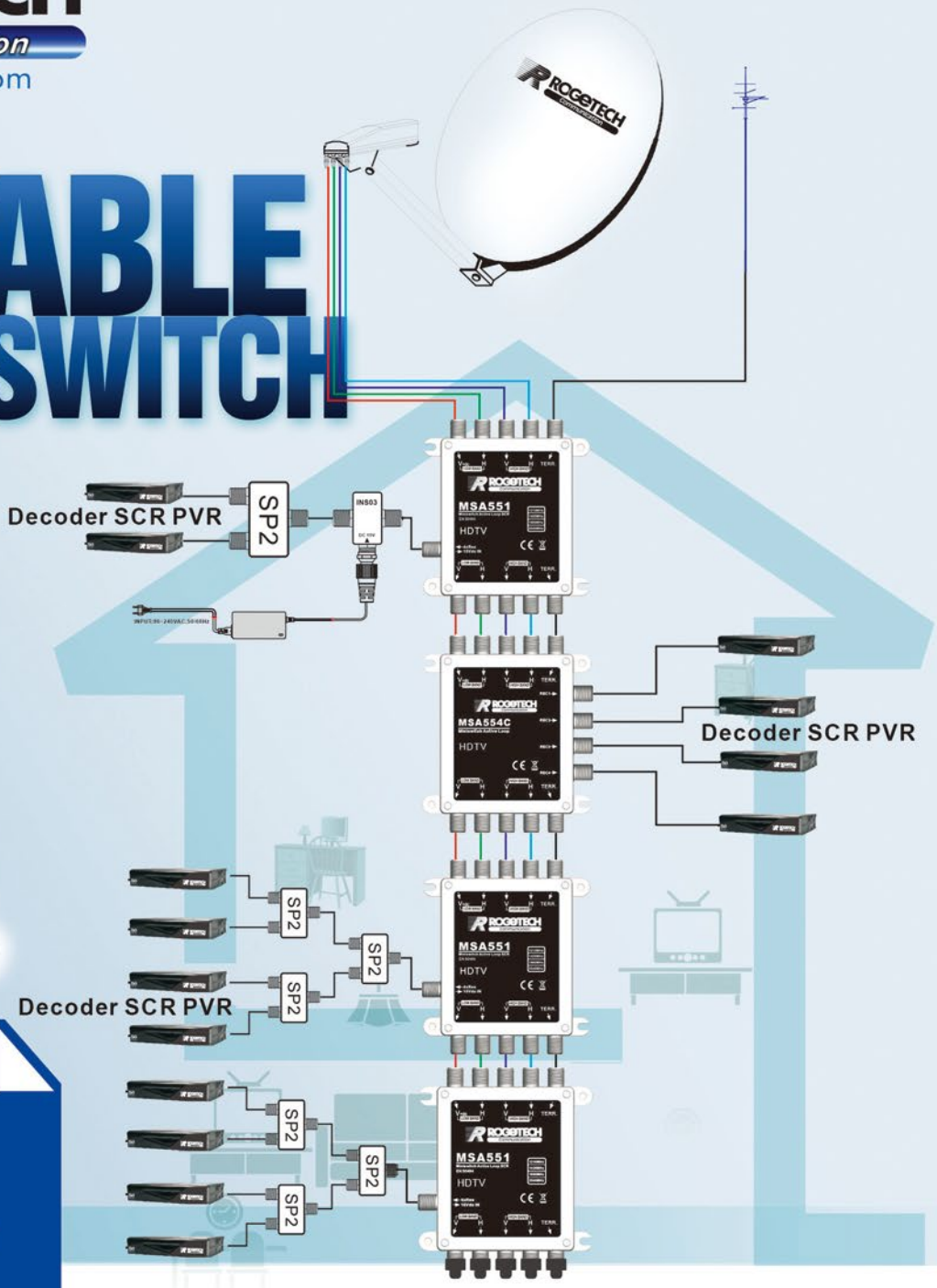

## KEY FEATURES:

- Low power consumption
- It can operate in ALC/AGC or fix gain mode.
- Providing single cable capability suited for DVR and multiple STB applications.
- Input frequency range 950 – 2150 MHz
- Output frequency range 950 – 2150 MHz
- Low Phase Noise for 8PSK modulation
- High isolation ensures superior cross channel rejection
- Fully integrated LO, PLL, and loop components

UNICABLE

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*Tel: 0086-573-86193966*
*Fax: 0086-573-86161828*
*E-Mail:sales@rogetech.com*

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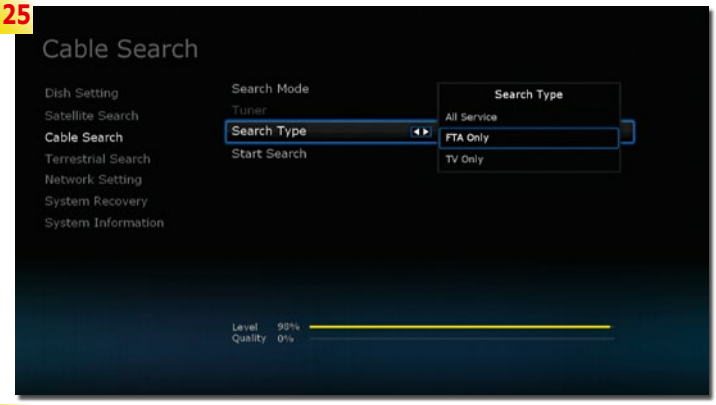


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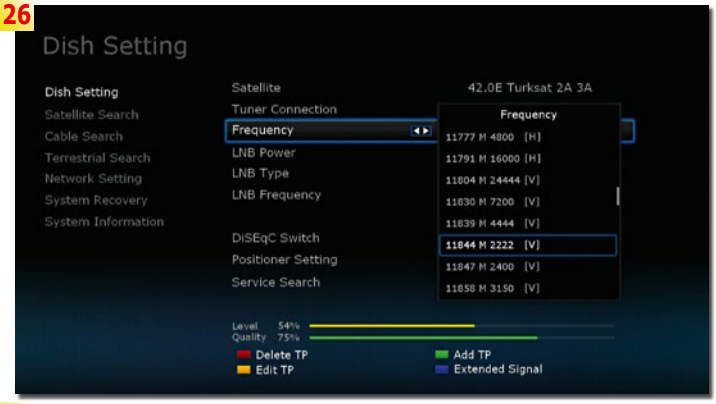


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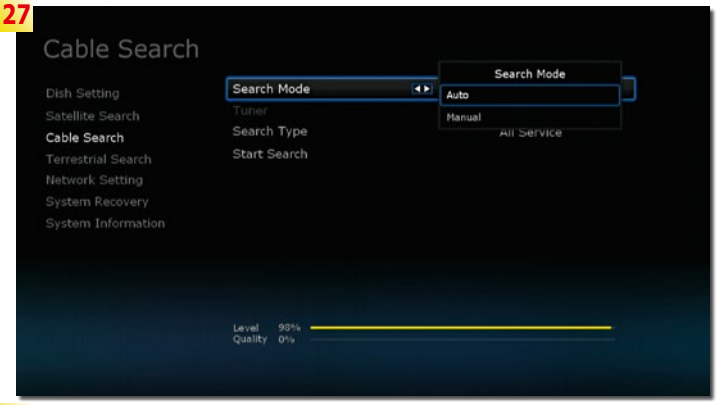


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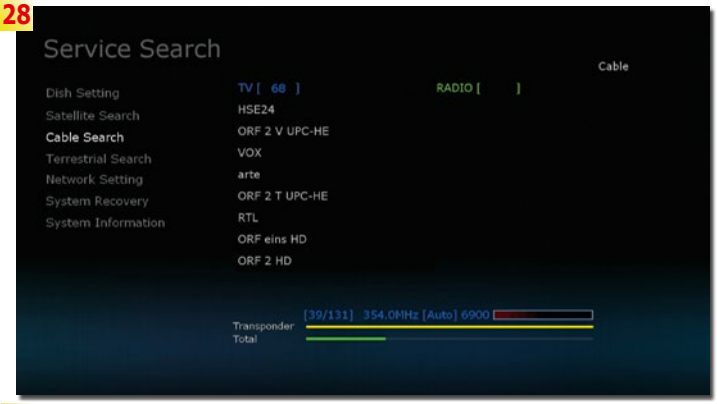


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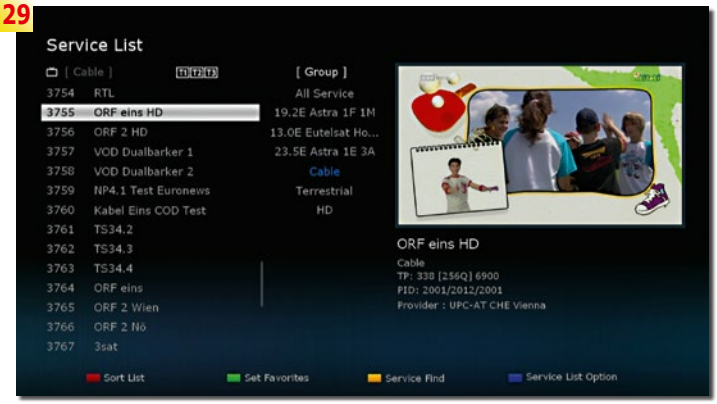



special praise, since it makes sure each recording can be saved as a single file without size restrictions. If you decide to create a DVD with your recordings at a later time, this will prove incredibly helpful.

The new Tiviar box can provide an output signal with one of the following HDMI resolutions: 576i, 576p, 720p, 1080i or 1080p. Hidden behind the AV settings you will discover a menu item that influences the standby behaviour of the α+. If you select the energy saving mode here the receiver will take a full 34 seconds to power up after standby, but your patience will be rewarded with less than one Watt of energy consumption while in standby mode.

In DVB-S2 mode the receiver comes with a prestored satellite and transponder list featuring the specifics of 94 European and Asian satellites in total, which offers a good starting point for exploring the skies. Any gaps can easily be filled with a blind scan.

It took us only a few moments to find proof that Tiviar has put in a lot of effort and development resources into designing its α+. So it's only natural that all DiSEqC protocols (1.0, 1.1, 1.2, 1.3) are fully implemented, LOF values can be set manually, if need be, and SCR LNBs will work smoothly with this receiver as well. The transponder and satellite editor deserves special mention in our opinion, as it allows adding, editing or deleting entries with above-average ease of use.

But how do you fill your channel list in the first place? Auto, Manual, Blind, Advanced and Fast are the search modes that are available by default. As far as blind scan is concerned, it can be restricted to either the high or low band or to one of the two polarisations. Regular readers know that we never take a manufacturer's word for anything, and this is why the α+ has to proof its worth in everyday practical use as well. The standard (auto) search in HOTBIRD 13° East took six minutes and arrived at 1495 TV channels and 370 radio stations. If you invest slightly more time and choose blind scan instead, you will be rewarded with 1550 TV channels and 372 radio stations after 13 minutes and a half minutes.

With such a huge offering from a single orbital position alone it's great to know that up to 10,000 entries can be added to the overall channel list. Once it is (partly) filled the comprehensive editing features of the α+ come in very handy. You can delete, move, rename, PIN-lock or skip-mark individual entries to you heart's content. What's more, a single touch of a button adds channels to one of the favourites lists so that you don't end up searching for your favourite channel later on. We did appreciate the fact that the channel list as well as all initial settings can be saved onto an external storage medium and are always available as back-up at a later stage, if required.

Let's look at terrestrial and/or cable TV now. A full signal scan across the entire frequency band as well as a

**25. A search can be restricted to FTA channels if no CI modules or smartcards are used**

**26. Flawless reception of SCPC signals**

**27. An automatic or manual search can be performed in DVB-C mode**

**28. DVB-C search**

**29. ORF1 HD from a local cable provider**

**30. +5V current can be provided for an external antenna in DVB-T2 mode**

**31. DVB-T2 search**

**32. The α+ can act as media server and provide multimedia content to other devices in the same network**

**33. DVB-T2 reception**

**34. The appearance of the channel list can be customised**

**35. Two card readers and two CI slots are available for pay TV**

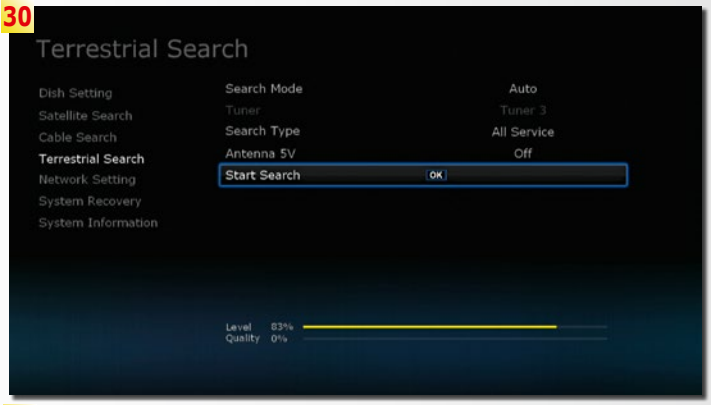
**36. Tiviar α+ channel list**

**37. Search for a particular channel using the on-screen keyboard**

**38. FreeTV+ with the 15 Apps, which are available with the latest software release; at a later stage these will be extended to 200 Apps**

**39. YouTube with the Tiviar α+**

30

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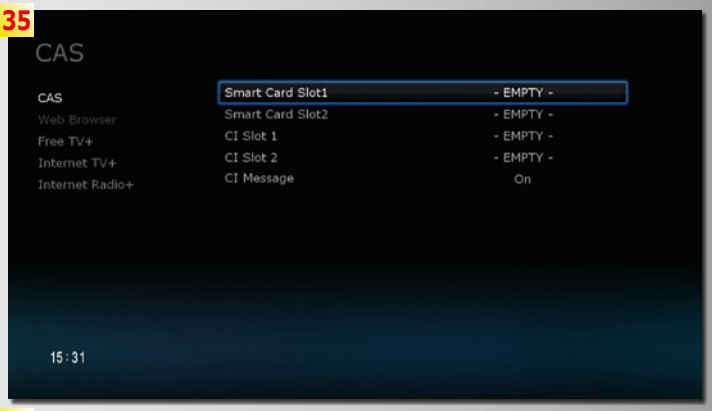


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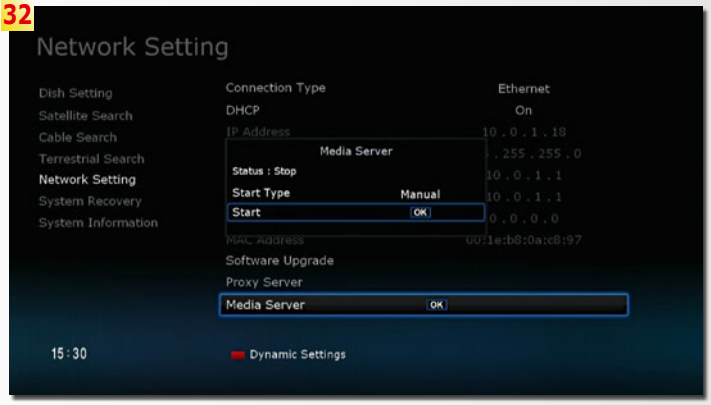


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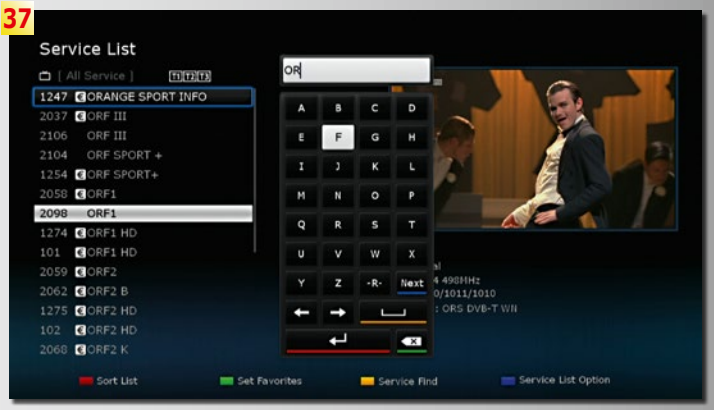


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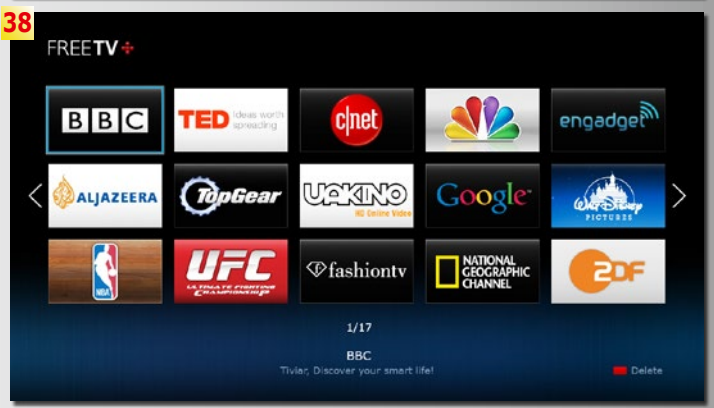


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manual search option for a single frequency are available in DVB-T2 and DVB-C mode. If required, a +5V current on the centre wire of the coax cable can be created in DVB-T2 mode in order to supply power to an external signal amplifier.

The OSD design of the α+ is not just elegant, innovative and logical, it also makes for a remarkable user experience. Smart details allow an extremely smooth flow of information – just think of the following features: The channel list is not superimposed over the currently watched program, but fills the entire screen with the current channel shown in a small window. Channels can be sorted according to alphabet, reception mode, tuner, CAS system or provider or can be searched by name with the help of an on-screen keyboard. With hundreds or even thousands of channels finding their way into the channel list those helpful features provide valuable help.

We have already dealt with the minimised/extended menu structure of the main menu, and the same concept is used for the info bar as well. Every time a new channel is selected the only information that is shown is the title of the current event. Pressing the RIGHT button on the remote calls up the next event as well. The electronic program guide (EPG) is in line with the excellent overall concept and design of the α+ and lists the program schedule for up to seven channels at the same time or upcoming events of a single channel. The Media Highway (MHW) EPG system used by the Canal+ group is implemented as well and one of the striking features of the α+ is its search function within the EPG. This way, you're always sure to find your favourite shows and you can even opt to create a repeat timer for recording daily or weekly events. Simply select the event you want to record and the PVR system will take care of all the rest.

The new Tiviar PVR receiver is capable of handling three recordings simultaneously and we can only commend the manufacturer for not saving on processing power. Switching from one channel to the next takes approximately one second, which is a good result and will certainly please those couch potatoes out there no end. The remote control comes with several direct access buttons in order to quickly call up specific settings or functions such as language selection, bookmarks, teletext and the like. PiP (picture-in-picture) is available, too, and while this is a feature most receivers boast, this particular model

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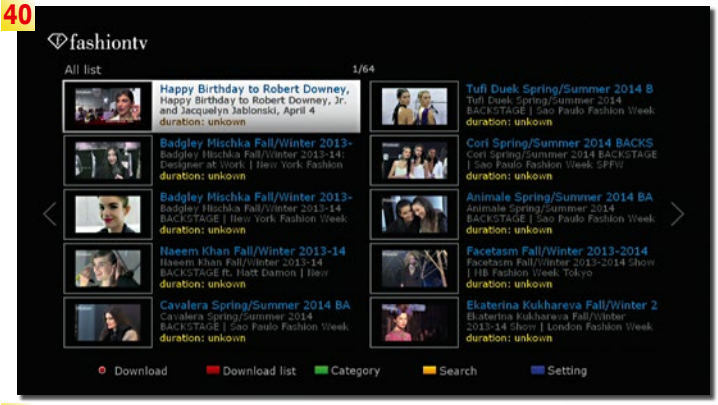


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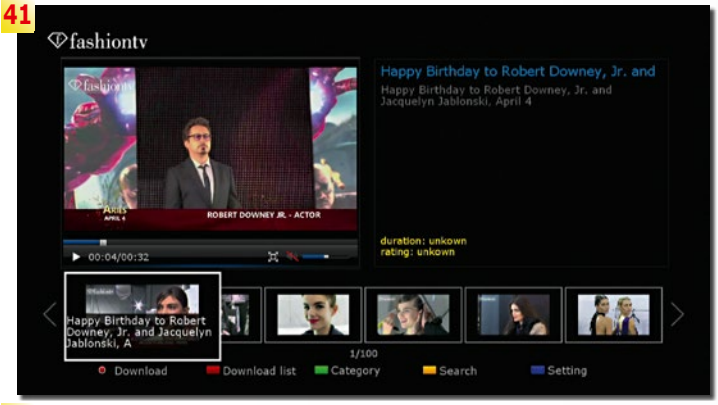


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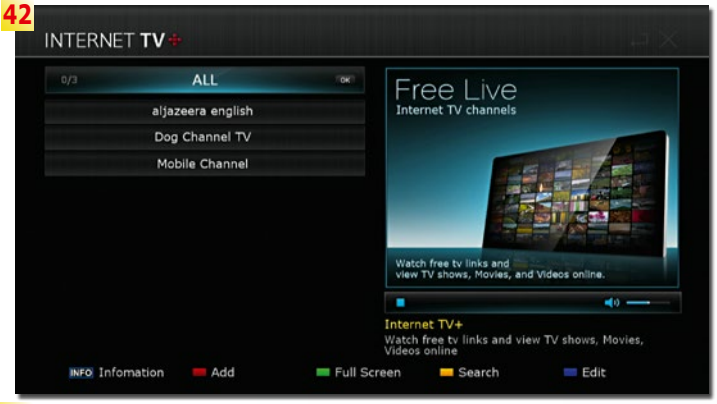


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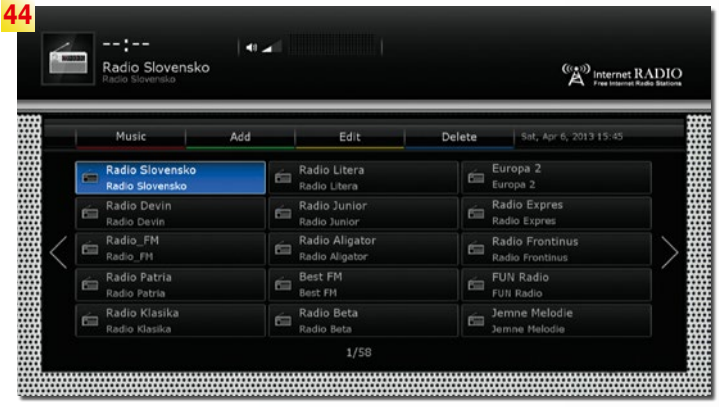



**40, 41. Fashion TV with the Tiviar α+**

**42. Internet TV (unfortunately with only three default channels at this stage)**

**43. New Internet TV channels can easily be added manually**

**44. A total of 58 Internet radio stations are pre-stored**

**45. New Internet radio stations can be added manually**

**46. Thanks to DLNA the α+ is able play back multimedia content from other devices in the local network**

**47. Network settings**

**48. Satellite search**

**49. Channel list editor**

**50. Popular channels can easily be moved into one of the favourites lists**

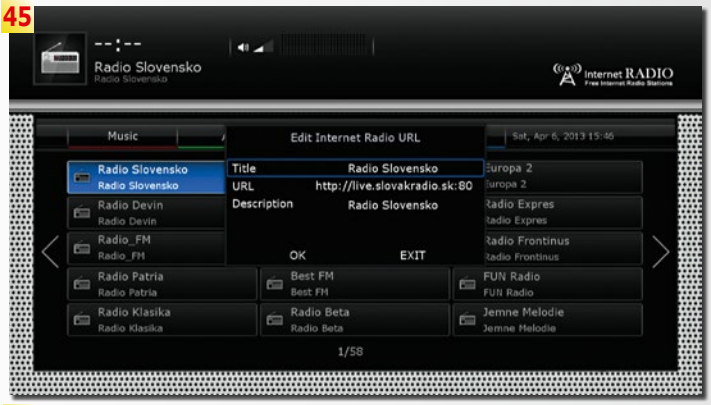
**51. Info bar in minimised view**

**52. Info bar in extended view**

**53. EPG for up to seven channels**

**54. EPG of a single channel**

45

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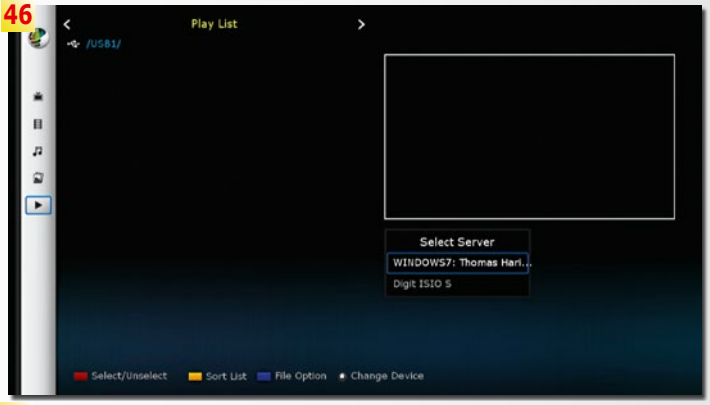


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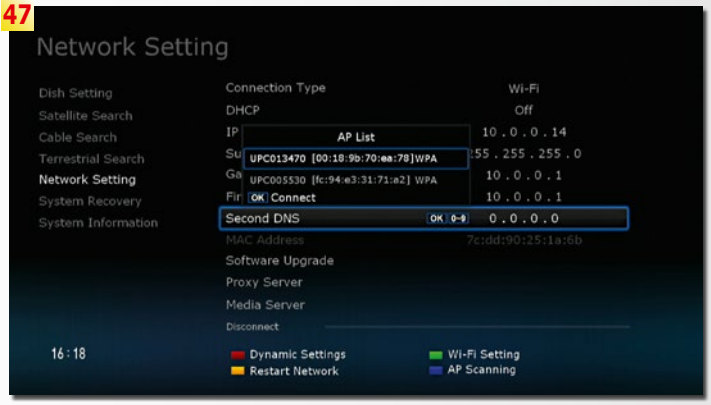


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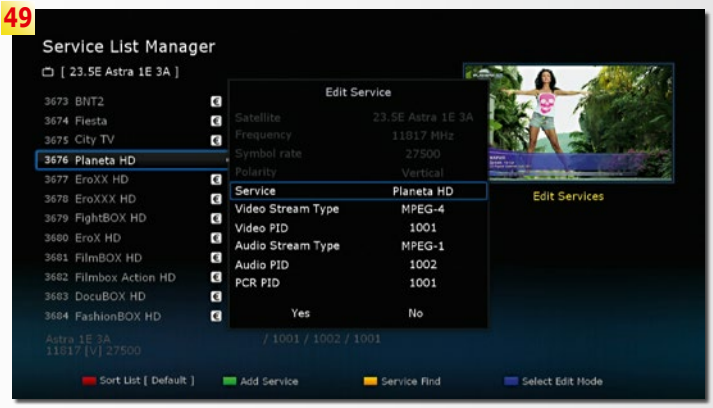


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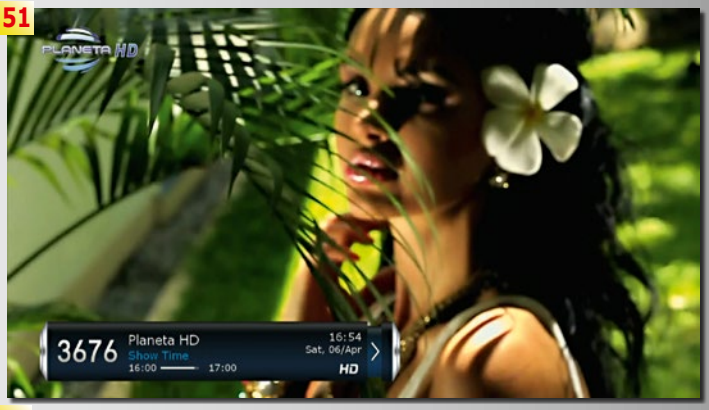


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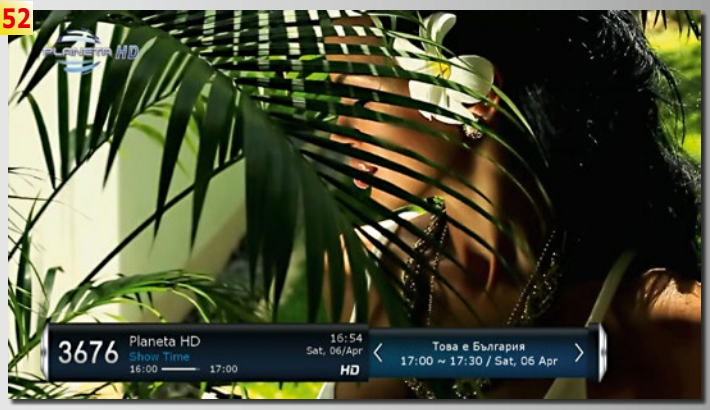


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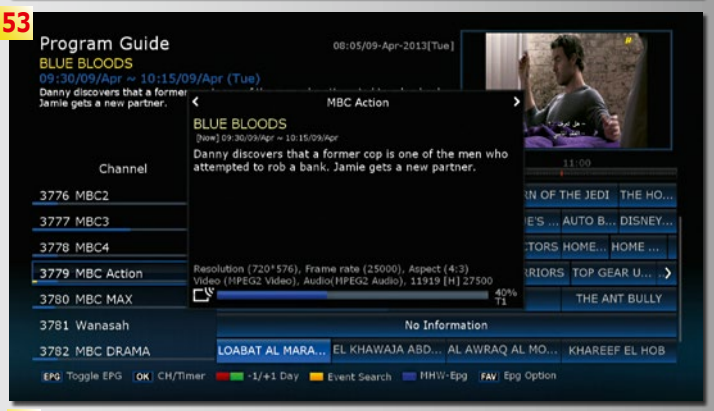


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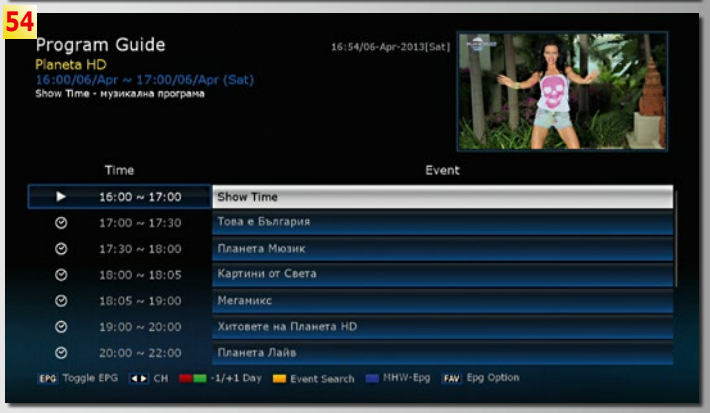
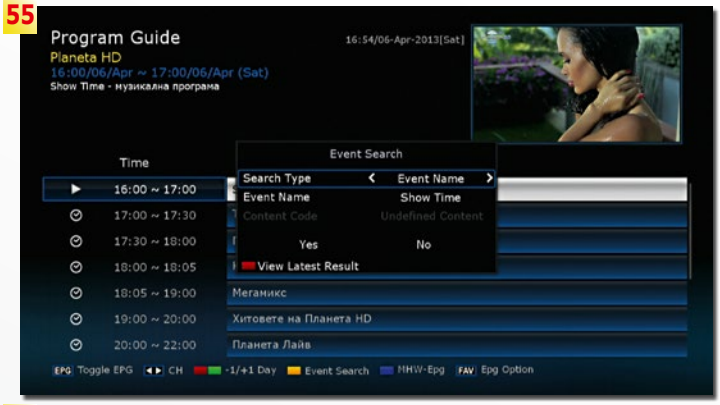
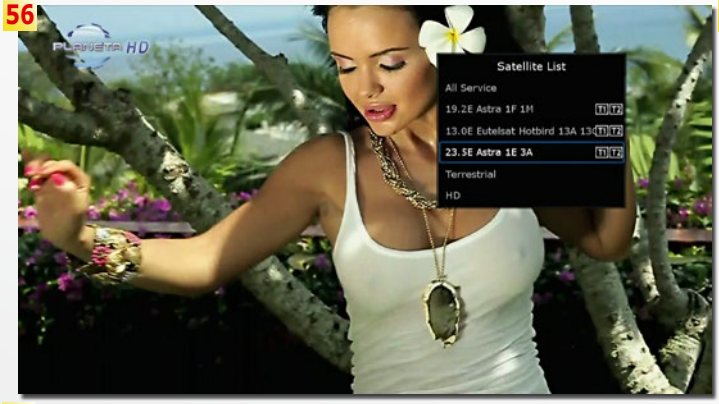
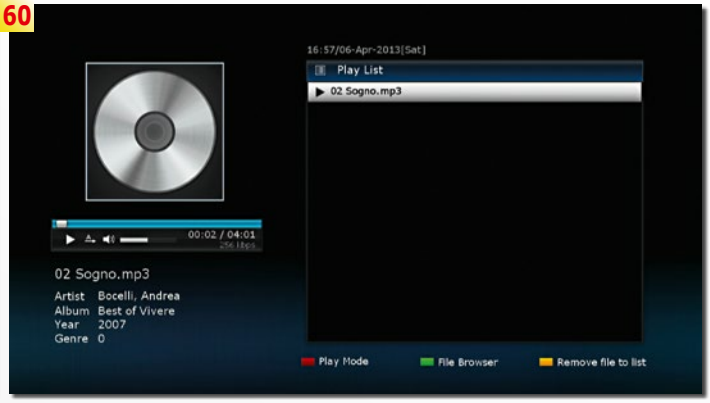
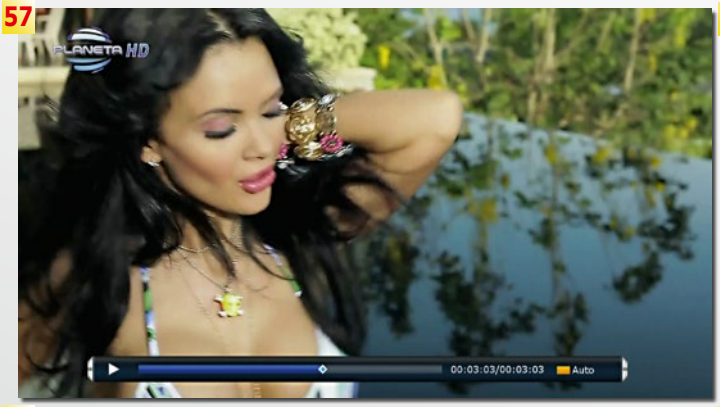


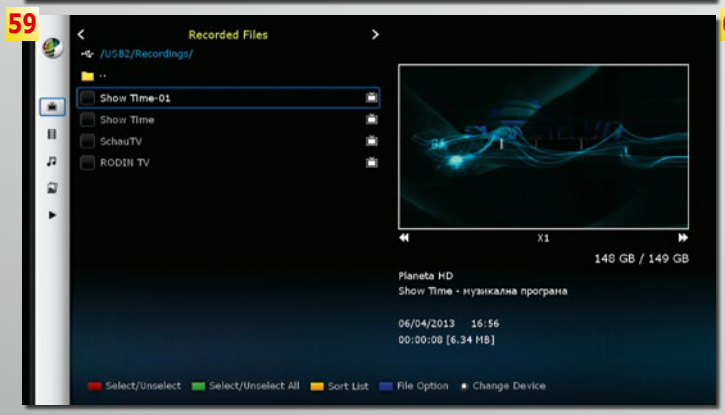



55. EPG search
56. A dedicated function on the remote control is available for directly changing the currently received satellite
57. Timeshift function
58. Audio selection
59. List of all previous recordings
60. MP3 playback
61. WMV playback
62. MPEG playback
63. MP4 HD playback





# HORIZON

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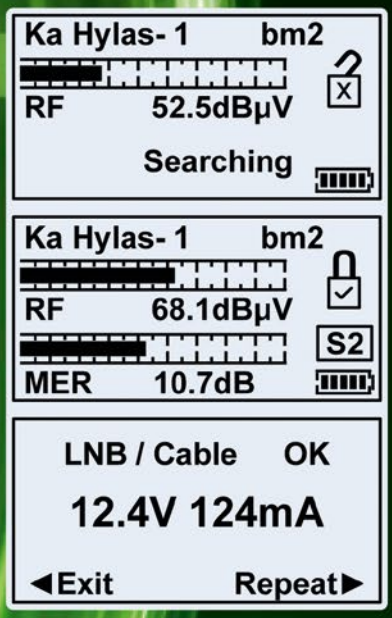
# Introducing the new HD-S2A!

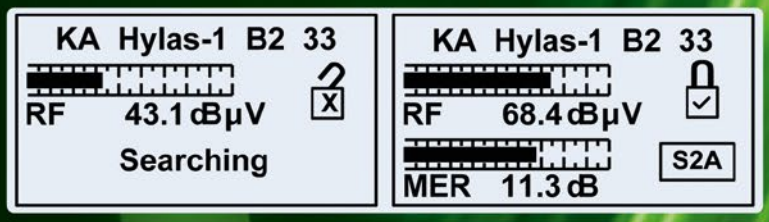



The HD-S2 satellite meter features all the functions you will need to perform DVB-S and DVB-S2 satellite installations.

The HD-S2A developed for Avanti Broadband features tone functions for Hughes Ka-Band ODU polarisation selection.

# The cost effective Nano S2A

The Nano-S2A satellite meter is the ideal cost effective solution for Hylas-1 and Hylas-2 VSAT installations. The Nano-S2A features tone generation for Hughes ODU polarisation control along with a lock state indicator that supports DVB-S2 advanced modulation schemes. The signal level and quality indicators make this the easiest meter to use ever. One button does it all. The Nano-S2A can be receiver or battery powered.



Phone:
+44 (0)1279 417 005

Email:
sales@horizonhge.com

www.horizonhge.com

with its three tuners really offers some added value. The PiP feature can be set at two different modes (one channel in the background and a second one in a small window, two different channels side by side in small windows).

The satellite tuner turned out to be of very good quality and flawlessly processed SCPC transponders from TURKSAT 42° East, which have a very low bandwidth, as well as weak signals from ASTRA 2D 28.2° East at our test location. The same holds true for the DVB-T2 tuner selected by Tiviar, which did not falter when fed with a weak signal from our small indoor antenna. Obviously, we also checked out the receiver's credentials with signals from a local cable provider and – needless to say – the α+ easily detected all available DVB-C channels.

Let's dig a little deeper into the various multimedia and network features of the α+ now. For starters, basic functions like audio and video playback as well as image viewing are implemented neatly, with the following file formats being accepted: MP3, WMV, MPG, MP4 (TV), DivX and AVI as well as JPG and BMP. On the audio front WAV, OGG and MP3 are implemented. Multimedia files cannot only be played back from a locally attached storage medium, but can also be requested from any network source.

Thanks to full DLNA (Digital Living Network Alliance) support the α+ will automatically identify all available AV sources in the local network and will happily play them back. For our test we used both a Windows7 PC and a digital television receiver as available sources, and the Tiviar was able to play back all music and video files from those two devices. Then again, we wouldn't have expected anything less.

We should note at this stage that the α+ cannot only access files from other devices in the network, but can also provide its own files to compatible third-party devices. This means the receiver acts as a Digital Media Player (DMP), but also as a Digital Media Server (DMS).

The Internet is gaining ever more importance in combination with TV reception, and Tiviar has certainly taken into account this development when designing the α+ PVR receiver. FreeTV+ and Internet TV are the two platforms that provide multimedia content via the Internet to owners of this Tiviar receiver. FreeTV+ is based on the app concept we know from smartphone and tablet operating systems and allows creating customised access option to services such as YouTube and Fashion TV. Soon 200 apps will be available here.

The same is currently true for the Internet TV platform. While the concept looks promising and should eventually provide a substantial collection of channels streaming their program via the Internet, the status quo leaves some room for improvement, as the only channels that are available by default are: Al Jazeera, Dog Channel TV and the Mobile Channel. A simple touch of a button will update this list from the Tiviar servers, even though we were not offered new entries during our test. This is not to worry, however, since individual services can easily be added by simply manually putting in the corresponding streaming address. It's the same story with radio streams, which sported 58 entries from a number of different countries by default. This number may of course have changed in the meantime, since Tiviar is constantly updating its range of services in the background and might have increased the number of stations and channels available since the time of this test. Updates can easily be downloaded from the Internet to

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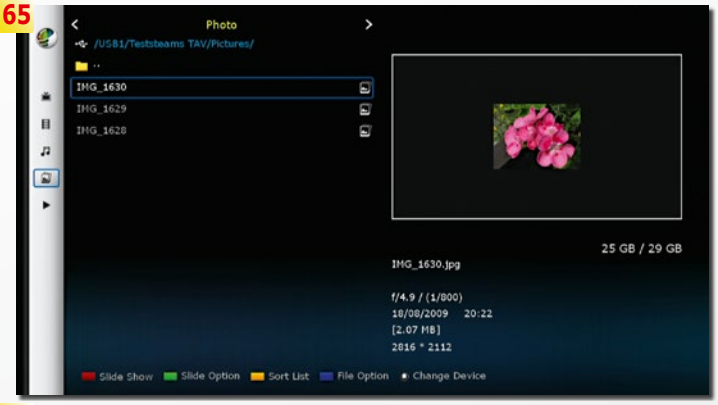


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**64. DivX playback**

**65. Image viewer**

**66. Minimised menu bar of the Tiviar α+**

**67. Extended menu bar of the Tiviar α+**

**68. Calendar**

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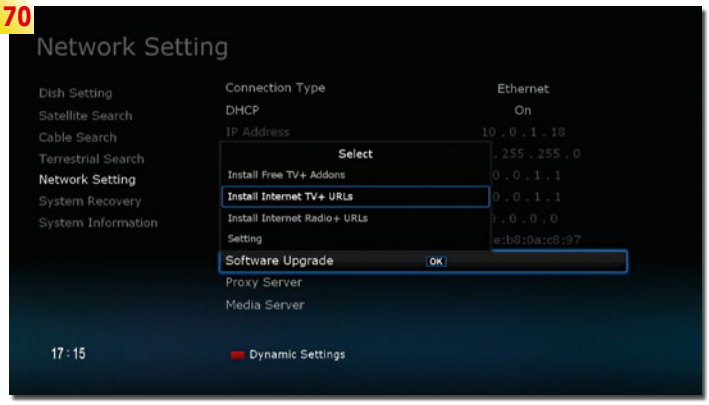
α+



the α+, or users can decide to use their PC for downloads and a USB memory stick for updating the receiver.

An OTA function for this is called "FTA Downloading": Pushing the "Download" button in main menu gives several choices as "latest Version of SW", "FreeTV+ contents", "Channel data" and so on.

Another new feature, which was not yet available at the time of our test, is "Air TiVi+". This is a very unique and powerful function that allows streaming to an iPad or iPhone. This app is available from the Apple App store; an Android version is also available.

We've been waiting for truly smart integration of all digital reception modes in a single device for a long time, and the α+ from Tiviar clearly proves that it's a recipe for success. A lot of brainpower has gone into designing all features and functions and into creating a smart-looking and easy-to-use graphic interface. All we can say is: mission accomplished!

**69. Weather forecast**
**70. Software update via the Internet**
**71. PIP mode**

α+

## EXPERT
### OPINION

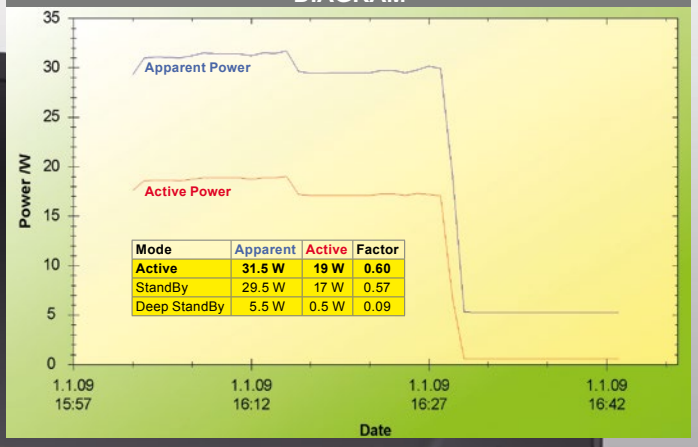
**+**
- intuitive smartphone-like user experience
- EPG search
- very fast blind scan
- many options for adding a harddisk
- extremely low power consumption in standby mode

**−**
- None

## TECHNICAL
### DATA

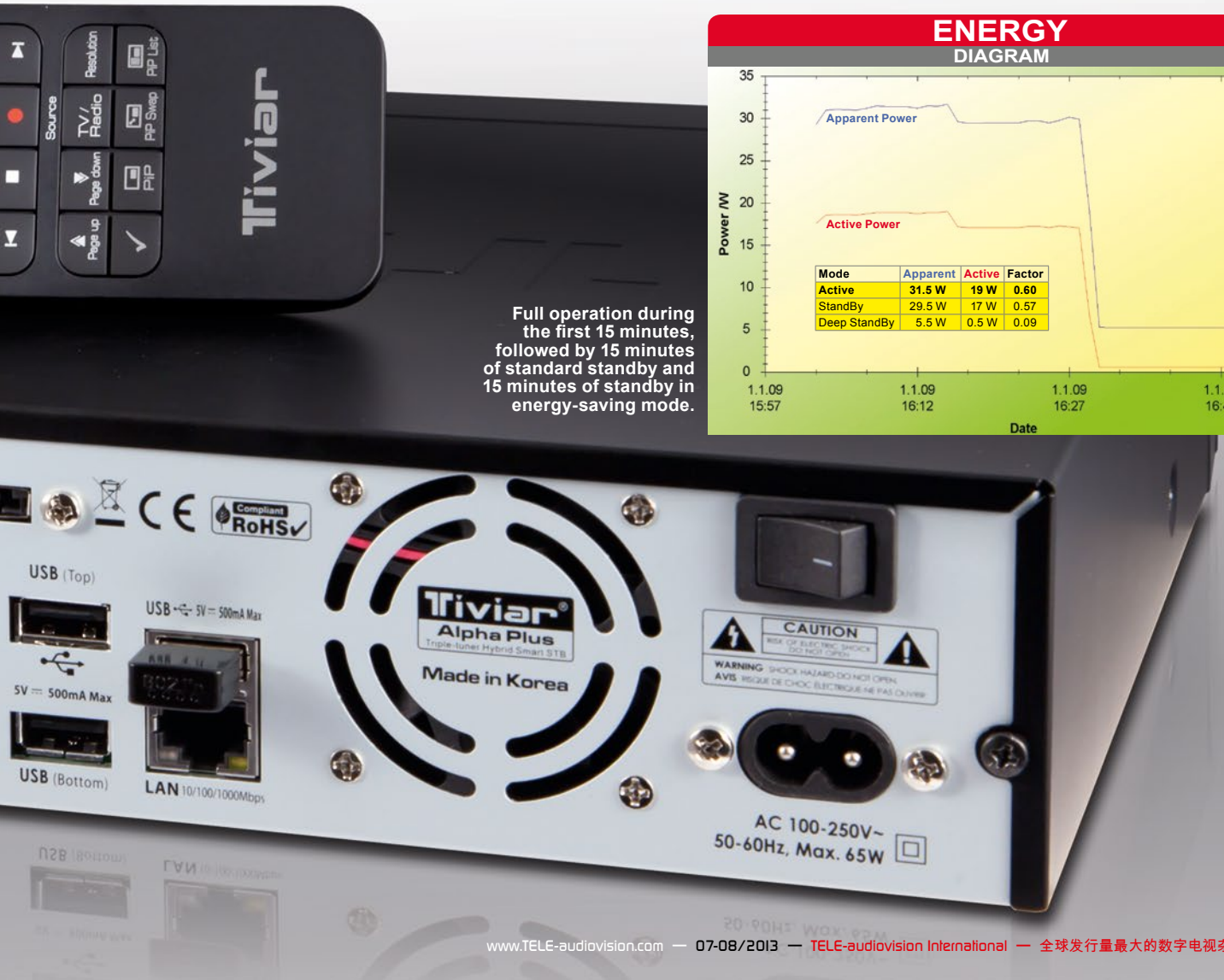
| | |
|---|---|
| **Manufacturer** | Fortis, #4F Fortis Bldg., 106-3 Imae-dong, Bundang-gu Seongnam-si, Gyeonggi-do, South Korea |
| **Contact** | sales@tiviar.com |
| **Tel.** | +82-31-709-1407 |
| **Fax** | +82-31-709-0266 |
| **Internet** | www.tiviar.com |
| **Model** | α+ |
| **Function** | DVB S2 / DVB T2 / DVB C Triple PVR Receiver |
| **DiSEqC** | 1.0, 1.1, 1.2, 1.3 |
| **HDMI** | yes |
| **Digital Audio out** | yes (optical) |
| **Stereo Audio, CVBS** | yes (3x RCA) |
| **YUV** | yes (3x RCA) |
| **USB 2.0** | yes (4x) |
| **e-SATA** | yes |
| **Internal SATA** | yes |
| **CI Slot** | yes (2x) |
| **CI+** | yes |
| **Card Reader** | yes (2x) |
| **Ethernet** | yes |
| **WiFi** | yes (via external USB Dongle) |
| **RS232** | yes |
| **0/12V** | no |
| **EPG** | yes |
| **HDTV** | yes |
| **PVR** | yes |
| **WebTV** | yes |
| **OSD languages** | English, French, German, Dutch, Greek, Spanish, Farsi, Italian |
| **Dimensions** | 34 x 24.5 x 6 cm |
| **Weight** | 2.26 kg |
| **Power Supply** | 100 - 250 VAC, 50/60 Hz |

## ENERGY
### DIAGRAM




| Mode | Apparent | Active | Factor |
|---|---|---|---|
| **Active** | **31.5 W** | **19 W** | **0.60** |
| StandBy | 29.5 W | 17 W | 0.57 |
| Deep StandBy | 5.5 W | 0.5 W | 0.09 |

**Full operation during the first 15 minutes, followed by 15 minutes of standard standby and 15 minutes of standby in energy-saving mode.**



# MKTechHD Scart Stick

- *Provides SD via Scart and HD via HDMI*
- *Extremely fast tuner with Blindscan function*
- *Exceptionally fast channel switching times*
- *Internet services accessible through an Ethernet connection*
- *Shipped with a very up-to-date satellite list*

DVB
Digital Video Broadcasting
12V
POWER
MUTE
MENU
FAV
EXIT
Vol
CH+
CH-
Ok
AUDIO
PAUSE
ZOOM
INFO
Recall
Find
EPG
Mode
F1
F2
F3
F4
USB
MKTechHD
Scart Satellite Receiver
RECOMMENDED
PRODUCT BY
TELE-audiovision
THE WORLD'S LARGEST DIGITAL TV TRADE MAGAZINE
VIP
CARD
Thomas Haring
Test Center
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TELE audiovision
www.TELE-audiovision.com

# A Scart Receiver in the HD Age

When the new MKTechHD Scart Stick arrived in our test center, we looked at it and said „not bad". When we took a closer look at it, we realized that MKTech has marketed a sleek combination of proven design with modern technology.

The receiver is merely 14 x 8 x 3 cm in size; it comes with a Scart connector that can be adjusted in any direction making it easy to hide behind any TV. The Scart jack holds it firmly in place.

For HDTV, MKTech naturally also included an HDMI output. Additionally, there's also a tuner input, an RJ-45 network jack, a USB 2.0 port, a coaxial S/PDIF output as well as a power jack for the 12V power supply.

An external IR receiver for remote control signals can be plugged in to the jack next to the RS-232 interface. The array of connections is topped off by an internal card reader that, surprisingly, also lets you use this receiver with PayTV services.

The power supply included by the manufacturer is rated for 100 - 240V 50/60Hz and therefore allows this receiver to be used anywhere in the world. The included remote control sits very comfortably in your hand thanks in part to the slip-resistant surface on the back.

The buttons have a good feel to them and are arranged in an organized fashion although the PVR buttons located near the bottom are rather small making them a little harder to work with. Nevertheless, the workmanship of this new MKTech receiver left us with an overall very good impression.

The HD Scart Stick does not come with an installation assistant but it does ask you to select the desired OSD language when it's turned on for the first time.

Before we match the receiver to the antenna on our roof, we first want to select the proper video output signal for our TV. The Scart connection can provide both the CVBS and RGB modes whereby the RGB output has a direct influence on the

# *Intelsat / GVF Type Approved*

## Ka-Band Antenna System

## VSAT Antenna System

## DTH Antenna System

http://www.azureshine.com.tw

AZURE✦SHINE

**AZURE SHINE INTERNATIONAL INC.**

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E-mail: azure.shine@azureshine.com.tw
TEL：886 3-3611393 / FAX：886 3-3615877

compliant RoHS

HDMI output. Once activated, the only available output signal in RGB is in 576i.

Once the Scart output is switched to CVBS, the user can then choose between 576i, 576p, 720p, 1080i 50 Hz as well as 1080p (24, 25 and 50 Hz).

We appreciated the HD Scart Stick's preprogrammed satellite and transponder list as well as the vast settings capabilities that we found in the installation menu. It's rare for a receiver to show up here in our test lab with such up-to-date preprogrammed data; a total of 54 satellite entries are available. Thanks to the support of all the DiSEqC protocols (1.0, 1.1, 1.2 and 1.3), the HD Scart Stick can be used with a standard multifeed antenna, a multifocus system as well as with a motorized antenna. MKTech even thought about SCR single-cable solutions as well as a manually selectable LOF so that even unusual oscillator frequencies are supported.

To fill up the channel list there are multiple search modes available, namely, single satellite, multi-satellite, Blindscan, transponder and multi-transponder. This lets you scan single or multiple satellites/transponders in a single breath.

We really liked the HD Scart Stick's Blindscan function; the manufacturer definitely put some effort in here. In the first step the Blindscan function searches the currently selected satellite for any and all active transponders and compares those that are found to the entries in the preprogrammed transponder list.

In our test scan of HOTBIRD 13° east all of the current entries were confirmed in just 84 seconds. Even a new transponder were found.

In the next step, the Blindscan function performs a standard scan of all the preprogrammed transponders. And it does this in a blindingly fast 3 minutes and 50 seconds! In that short time it found 1512 TV and 529 radio channels on HOTBIRD 13° east.

From a timing point of view, the difference between the Blindscan and a normal scan was those 84 seconds needed to check the transponder list. Because of the new transponder that was

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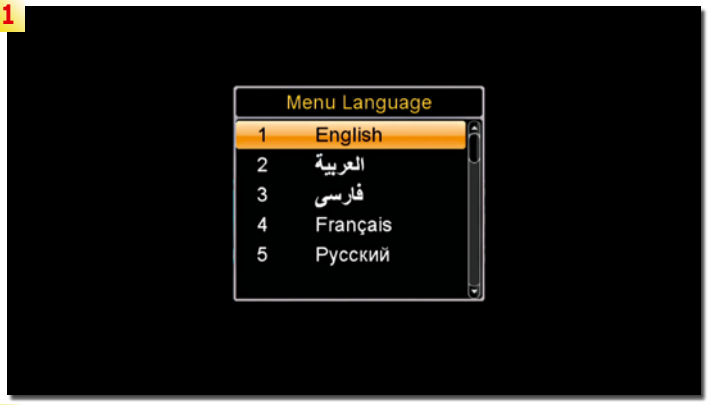


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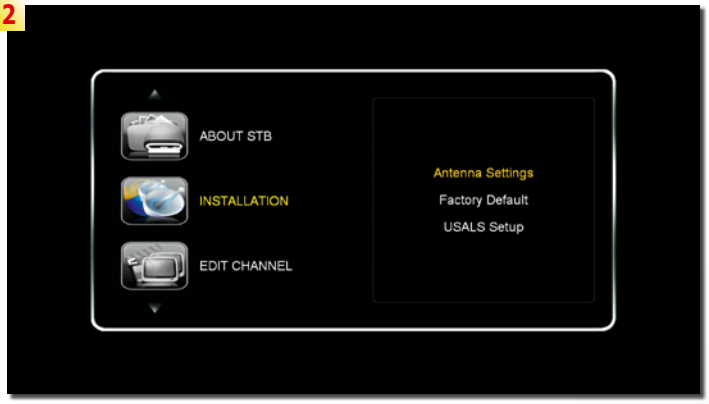

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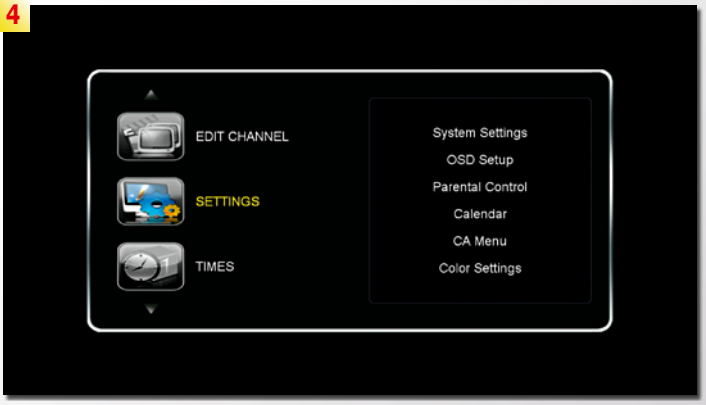


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found during the Blindscan, a total of 1518 TV channels and 534 radio stations were found instead.

If you want to put limits on the number of entries in the channel list right from the beginning, you have a choice of search modes: All, FTA, HD, SD, TV, Radio, FTA TV and FTA Radio. We especially liked the HD search mode; it only searches for high quality channels and thus prevents the channel list from being stuffed with large numbers of SD channels.

The HD Scart Stick's satellite and transponder entries can easily be edited. We appreciated the fact that the receiver doesn't pester the user by asking what modulation method is being used. Instead, it automatically rec-

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8

9

1. Turning on the receiver for the first time takes you to the language selection
2. Installation menu
3. Channel list editing
4. System settings
5. Time settings
6. Additional features of the HD Scart Stick
7. A channel scan of NILESAT 7° west
8. The preprogrammed satellite list is extensive and up-to-date
9. Even SCR single-cable solutions are supported

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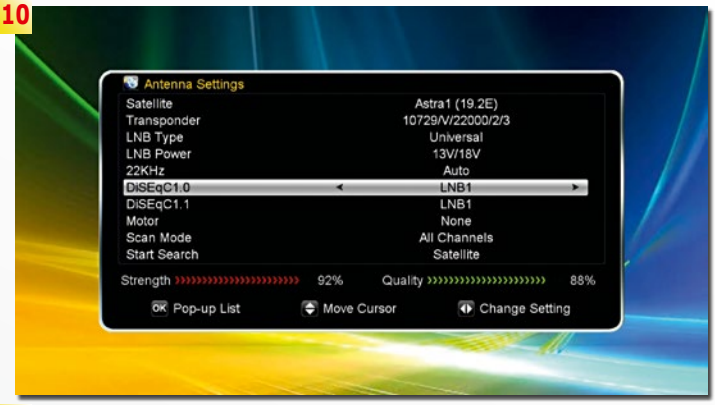


**10. The HD Scart Stick supports the DiSEqC Protocols 1.0 and 1.1**

**11. The channel scan can, for example, be limited to HD channels only**

**12. Country selection to simplify coordinate entry with USALS**

**13. The modulation of a transponder is automatically recognized**

**14. The satellite list can be sorted a number of ways by the user**

**15. Channel list editor**

**16. Favorites lists**

**17. Time settings**

**18. Timer entries can be repeated as often as necessary**

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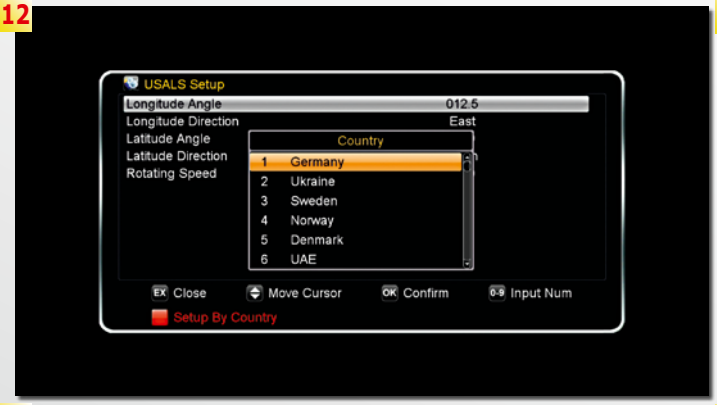


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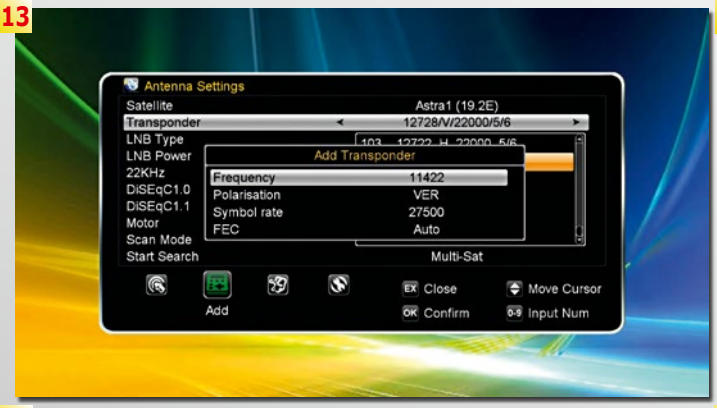


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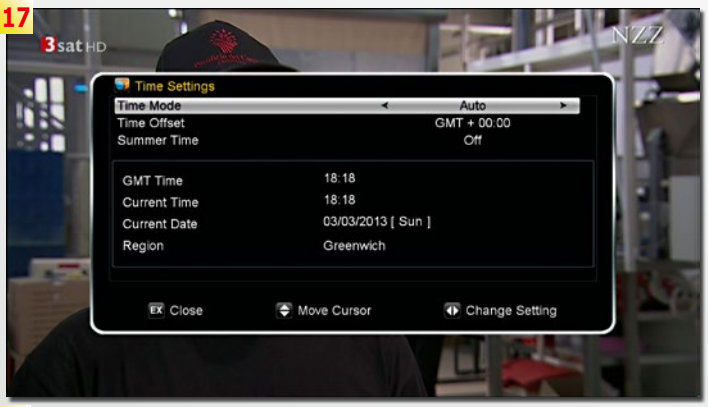


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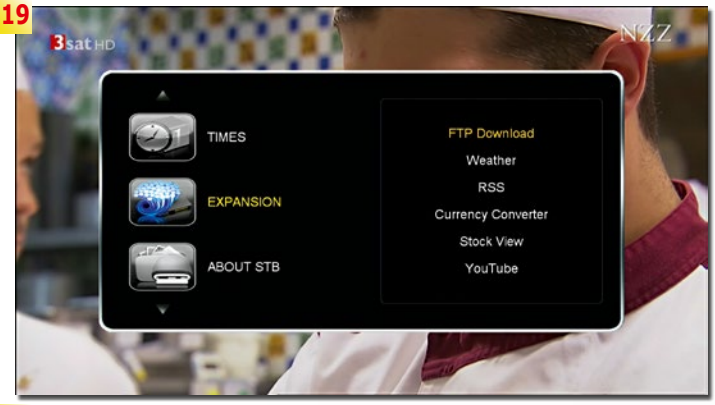


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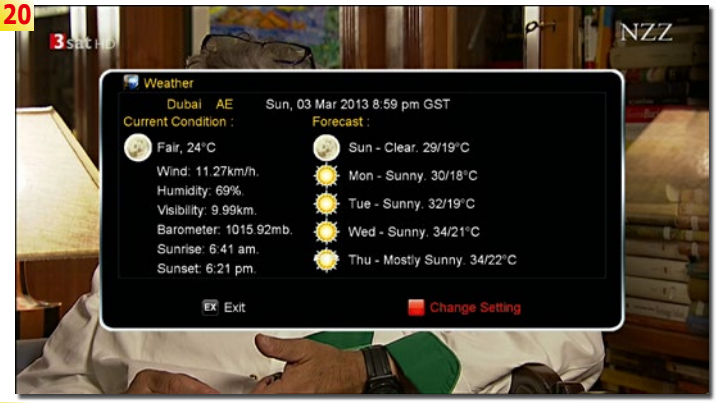


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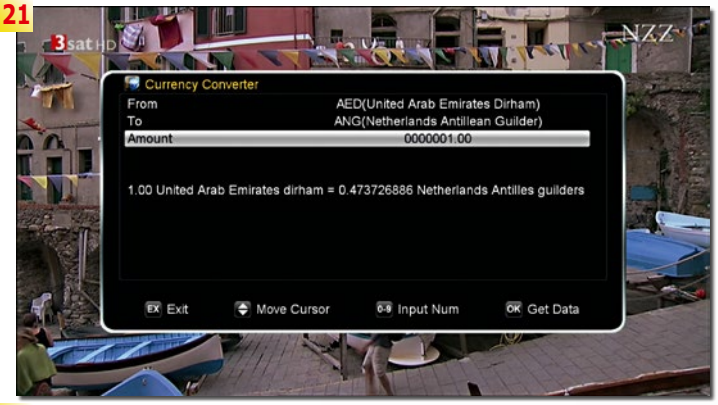


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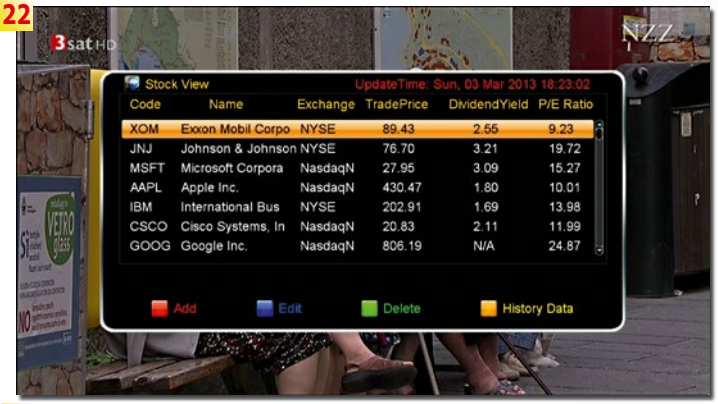


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ognizes these parameters.

All in all, we found the MK-TechHD Scart Stick's OSD to be very well organized and easy to use. The EPG overview covers the programming information for up to five channels as well as the upcoming information for the next program. Unfortunately, it's not a full-screen display and this takes away from the overall content that is displayed.

The ability to program timer entries directly from the EPG makes up for this. Here you'll find features such as setting daily or weekly recordings.

During our tests we found the dedicated Favorites and Satellite list buttons on the remote control to be especially user-friendly as was the ability to select the out-

**19. The HD Scart Stick provides a variety of additional features thanks to the network port**
**20. Weather forecast**
**21. Currency exchange calculator**
**22. Display of stock prices**
**23. The YouTube App is graphically simple yet clearly designed**
**24. Search results on YouTube**
**25. AVI video playback**
**26. DivX video playback**
**27. M2TS video playback**
**28. MP4 video playback**
**29. MP3 Player**
**30. Photo viewer**
**31. Photo viewer**
**32. The Info bar shows the title of the current and upcoming program**
**33. Favorites list display**

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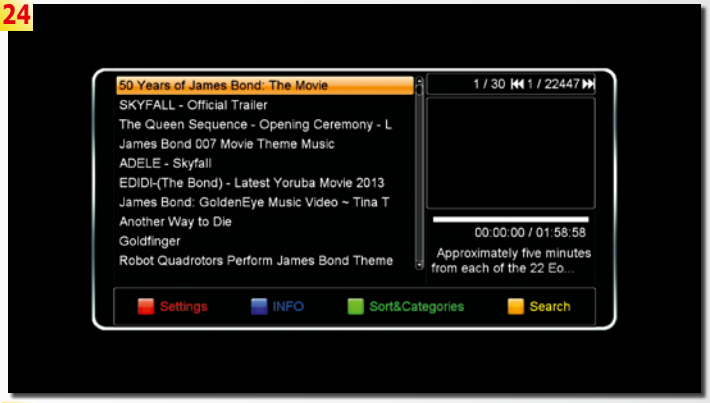


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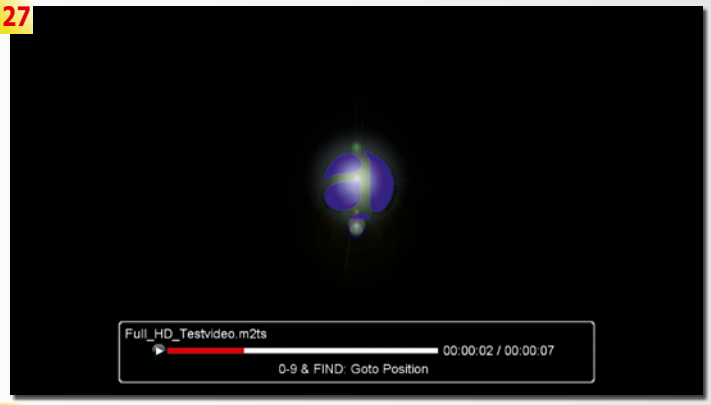


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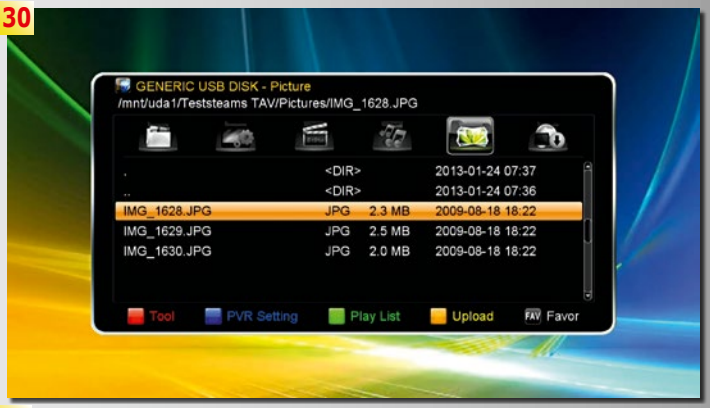


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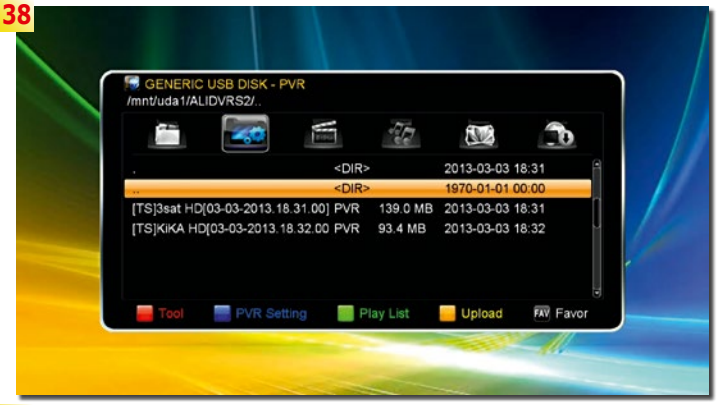


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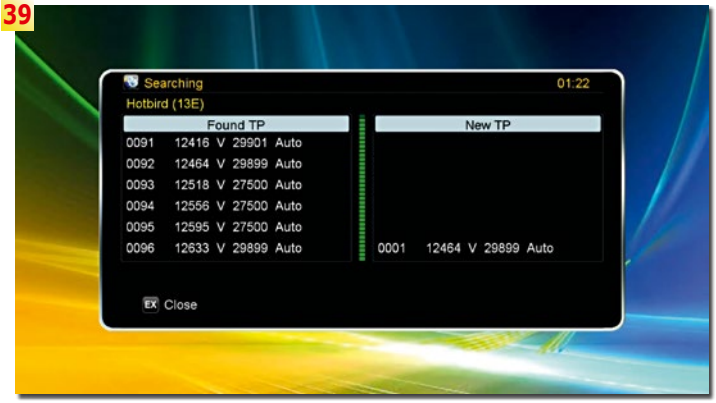


**34. Language selection**

**35. The user can use the OSD keyboard to search for one or more channels**

**36. During an active recording, channels that can't be received are removed from the channel list**

**37. Two channels can be recorded at the same time**

**38. Display of previously recorded programs**

**39. A satellite's transponder list is checked for new entries in Blindscan mode**

put signal resolution and the capability to select various display modes in the 4:3 and 16:9 formats.

We really appreciated the extremely fast channel switching times of less than one second. And let's not forget the PVR features: we could easily record two HD channels at the same time while a third channel could be watched live.

All of the channels that could not be received while a recording was taking place were conveniently removed from the channel list. The Timer function is also ready to go to work; when activated it stores the currently viewed program in one of the very large freely selectable caches.

After the tuner was able to prove itself during channel scans, we wanted to see how it would perform with weaker and narrow-band signals.

# Highlights

www.spaun.com Quality made in Germany

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

- 8 / 16 x DVB-S(2) (QPSK/8PSK) into DVB-C (QAM)
- For the reception of 60/120 TV programs SD/HD and 30/60 Radio programs
- Compact dimensions and high energy efficiency
- LNB control with 14/18 V + 22 kHz or DiSEqC
- Configuration via LAN/IP
- Complete processing of the transport streams possible
- All 8 / 16 output channels can be placed individually in the spectrum
- Two individual input ports

***SAT-HD-ANALYZER***
*SPAROS SAT HD*

- High quality and bright display (4.3 inch)
- MPEG4-display and measuring
- SCR single cable switching commands according to EN 50494
- DiSEqC control
- Spectrum analysis
- Robust, impact-resistant housing
- Splash-resistant keypad

***Optical Transmitter***
*SOTx 1310607 NF*

- Frequency range of 47 ... 2200 MHz
- Laser output power: +6 dBm
- Quattro- and QUAD-LNB support

***Optical Receiver***
*SORx 1310607 NF and SORx 1310607/1 NF*

- 4-way / 1-way receiver in a compact housing
- Remote powerable through one coaxial output


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Email: contact@spaun.com · www.spaun.com

40. Channel list sorting capabilities

41. The user can use the OSD keyboard to search for one or more channels

42. The video format can be selected using a dedicated button on the remote control

43. The video resolution can be selected using a dedicated button on the remote control

44. The Info bar shows the title of the current and upcoming program

45, 46. EPG

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

48. SCPC with low symbolrates are not a problem for the HD Scart Stick's tuner

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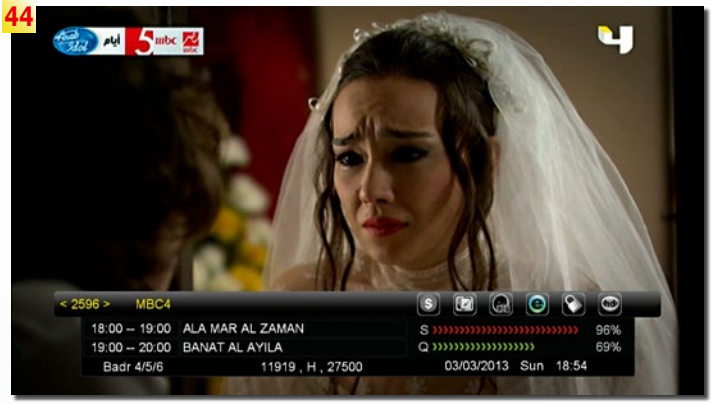


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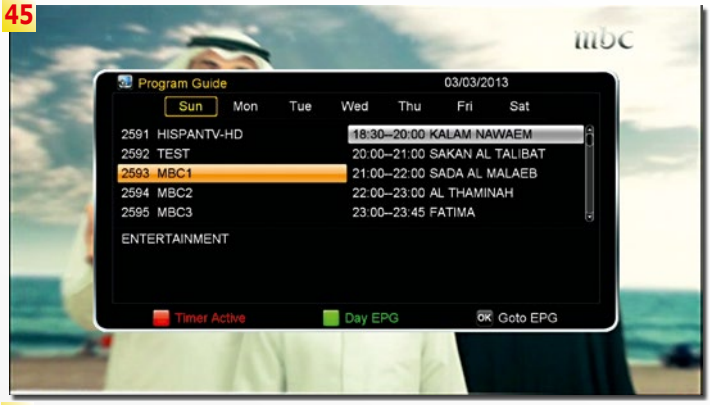


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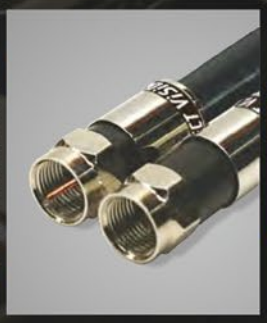

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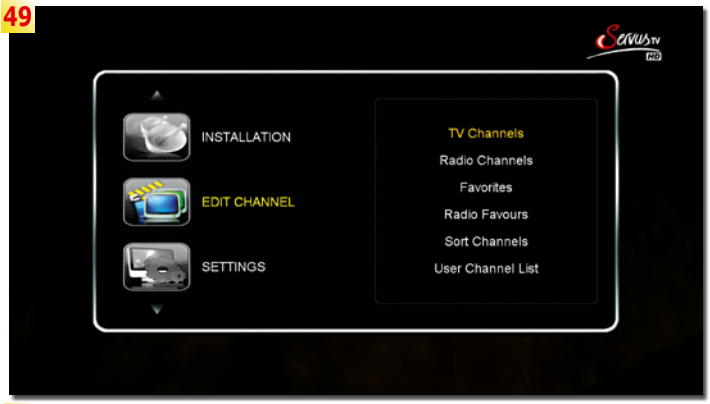


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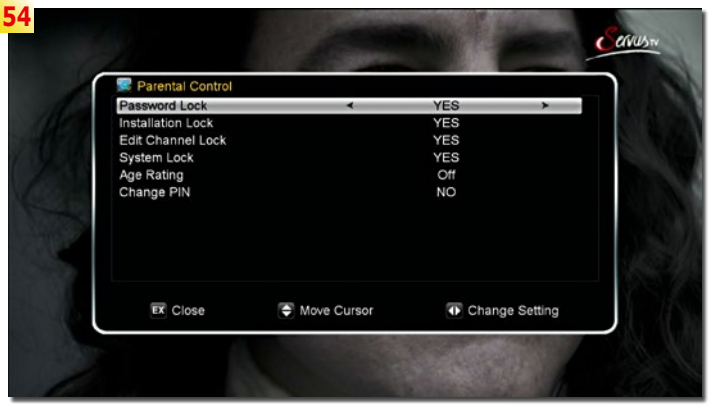



**49. Channel list editing**
**50. The channel list can be automatically sorted a number of ways**
**51. Once the channel list has been set up the way you want, it can be stored in case of emergency**
**52. Language settings**
**53. OSD settings**
**54. Child protection settings**

In both cases there were no problems; it was able to process a weak signal on ASTRA2D 28.2° east that just barely broke the threshold level here in our test center as well as a narrow-band SCPC signal on EUTELSAT 36° east.

On top of all this, the MKTechHD Scart Stick is packed with a variety of additional practical features. Thanks to the Ethernet port the user can access weather data, stock prices, RSS feeds or an FTP server. There's also a currency conversion calculator available. Naturally, we also put the HD Scart Stick's multimedia functions to the test. We were able to play back video clips in the DivX, MOV, AVI, MPEG, Flash, M4P, TS and WMV formats without any problems.

Unfortunately, audio playback was limited to MP3 files; M4A, WMA and AAC were not recognized. The integrated photo viewer lets you easily display BMP and JPEG images on your TV at home.

In addition to storing recordings and providing access to multimedia content, the USB port can also be used to update the receiver's software. The manufacturer provides updates via their web site at regular intervals.

Overall, we really liked the HD Scart Stick from MKTech. They've demonstrated with this new product that the days of Scart receivers won't go away any time soon.

## EXPERT
### OPINION

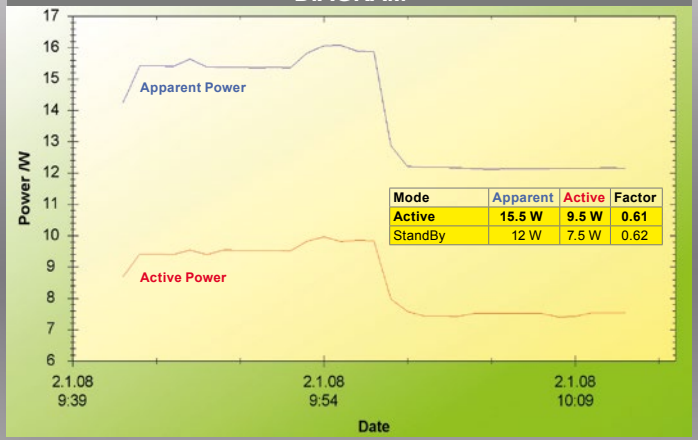
**+ The HD Scart Stick stands out with its extremely powerful tuner that can be perfectly controlled with the receiver's software. It provides for exceptional results and comes with an easy and clearly structured user interface as well as a very thoughtful and good implementation of all the expected features.**

**− None**

## TECHNICAL
### DATA

| | |
|---|---|
| **Manufacturer** | Gotech International Technology Co., Ltd. |
| **Adress** | 66 Yongda Road, Hongqi, ZhuHai 519045, Jinwan, CHINA |
| **Contact** | www.gotechcn.com/Enquiry.asp |
| **Internet** | www.gotechcn.com |
| **Model** | HD Scart Stick |
| **Function** | DVB S2 Satellite Receiver |
| **Input frequency** | 950 - 2150 MHz |
| **Input symbol rate** | 2 - 45 Ms/s |
| **DiSEqC** | 1.0, 1.1, 1.2, 1.3 |
| **HDMI** | yes |
| **Digital Audio out** | yes (coaxial) |
| **USB 2.0** | yes |
| **CI Slot** | no |
| **Card Reader** | yes |
| **Stereo Audio, CVBS** | no |
| **Scart** | yes |
| **Ethernet** | yes |
| **RS232** | yes |
| **0/12V** | no |
| **EPG** | yes |
| **HDTV** | yes |
| **PVR** | yes |
| **WebTV** | no |
| **Dimensions** | 14 x 8 x 3 cm |
| **Weight** | 170g |
| **Power Supply** | 100 - 240V AC 50/60 Hz |

## ENERGY
### DIAGRAM




**Energy: The first 15 minutes active operation; the second 15 minutes Standby**

# SPAUN SUS 21 F Single Cable Router

- *uses two fixed frequencies to transmit the desired satellite transponder*
- *eliminates the need for a second satellite cable*
- *even improves channel zapping times*
- *excellent technical parameters allow for long cables*
- *also usable for terrestrial signals*

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Frequenz
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1076 MHz
1
1178 MHz
SAT-Eingangspegel
SAT input level
65 ... 95 dBµV
Anschlussdämpfung
Tap loss
Terr. 5 ... 862 MHz
2 dB
AGC-Regelung
Automatic Gain Control
SAT-Ausgangspegel
SAT output level
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# How to Feed a Twin Tuner PVR With Only One Coax Cable

Modern twin tuner receivers with PVR functionality require two coax cables from a multiple LNB or from a multiswitch to achieve full functionality - one cable for each tuner. By full functionality, we mean recording a channel from one transponder while watching another one from a different transponder. However, quite often our indoor installation is prepared just for a single tuner receiver: only one coax cable enters a room. So, do we have to ruin our walls and ceilings laying additional cables to enjoy the full functionality of our brand new receiver? Not necessarily!

You have another very convenient option if only your receiver supports the EN 50494 single cable protocol. Fortunately, more and more receivers do. For single cable installation, you just need is a single cable router (SCR). The simplest form of an SCR is a two inputs device. It accepts two signals from a TWIN LNB and converts them in such a way that both signals coexist in the output to which a coax cable is connected. Of course, the output signal differs dramatically from the input signals. There are only two DVB-S/S2 carriers on the SCR output at fixed frequencies, each carrying only one transponder signal at a time. On the other end of the coax cable (in the room) there are either two single tuner receivers or two tuners of a PVR connected in series one after another. The connection to the tuners is done with the help of subscriber sockets (for example SPAUN UNiSocket).

One carrier is exclusively assigned to one tuner only. Each tuner sends a special EN 50949 command to the SCR telling it which satellite transponder it should tune to and repeat its signal on the output carrier. The receiver tuner is then tuned to this carrier rather than to the transponder it wants to receive.

Now comes SPAUN. They just introduced a device called SUS 21 F, which is just such a simple 2 input SCR as described above. As always with SPAUN products, the SCR workmanship leaves nothing to be desired. SUS 21 F has very clear blue ink descriptions on the top cover not only explaining the function of every connector but also providing basic parameters of the unit. The jack connectors accept female F-connectors and are 20 mm apart form one another. Such distance make it a perfect match for SPAUN multiswitches. If you use one, you can directly snap SUS 21 F onto the switch. If you want to connect it to the outputs of a TWIN LNB, you can use two short coax cables.

Even without referring to the manual, we can learn the frequencies of the two carriers (1076 MHz and 1178 MHz), the required input signal level (65...95 dBµV) as well as the output level that is automatically regulated to 82 dBµV. The allowable input level is wide and thanks to that it is suitable to all sorts of LNBs as well as multiswitches. On the other hand, the output is quite high allowing you to use quite long cables what we actually did in our test described below.

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SPAUN SUS 21 F
A clever way to add a second satellite signal to a PVR receiver
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- Fantastic experience of web browsing
- Supports LAN, 3G wireless and USB wifi
- PVR ready enhanced by auto-Timeshift function
- Real PIP function supported (2 HD channels or 4 SD channels playing at the same time)
- DLNA supported
- HBBTV available for European market

## S5-55HD *Enigma2 iBox plus eCOS*

- DVB-S/S2 HD MPEG-4/H.264 Full HD Box
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- Abundant Plug-ins available for users: DVD Player, Google Map, RSS Reader, Weather forecast, Webcam Viewer, YouTube Player and etc.
- Supports OSD/Skin DIY
- IPTV

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- DVB-S2, DVB-T2/T and DVB-C signal meter in one
- High performance spectrum analyzer to display the signal strength of all transponders
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- Constellation analyzer
- Screenshot Function (Capturing): screens with data can be in BMP format on a USB-stick
- Super ECO system management for power saving, auto-standby function supported
- Multi-lingual OSD menu supported
- Weight: 480 grams
- Dimensions: (W*H*D) 105*170*45 mm

MKTECH
Gotech International Technology Co., Ltd
Headquarters: 66 Yongda Road, Hongqi, Jinwan District, Zhuhai 519045 P.R.China
Tel: 0086-756-6801 600 Fax: 0086-756-6801 798 E-mail: info@goosat.com

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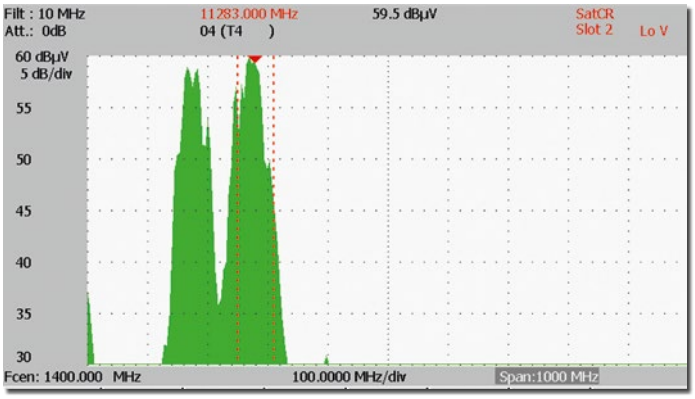



The description reveals also additional functions of the SUS 21 F: possibility to include terrestrial signal in one of the satellite input and possibility to power it from an external optional power supply unit. Normally, the SCR is powered by the receivers connected to its output and no optional PSU is needed at all.

The SUS 21 F has one multicolor LED indicator showing device status and error conditions. If the supply voltage from a receiver is too low or too high, you will know it. You will also be notified if a short circuit is detected in the output cable.

We used our 85 cm offset dish for Ku-Band with a Twin LNB aimed at EUTELSAT16A on 16° East. Because this satellite had low and high symbol rate transponders, we were able to push the SUS 21 F to the limit. To make the test even harder, we used a 50 meter long coaxial cable (about 13 dB attenuation) and a flat cable window coupler (another 2 dB attenuation). We started our test with observing the output signal of the SCR on the spectrum analyzer screen. It looked perfect. Except for the modulated carriers on 1076 MHz and 1178 MHz there was nothing else. Carrier to noise ratio was in excess of 30 dB!

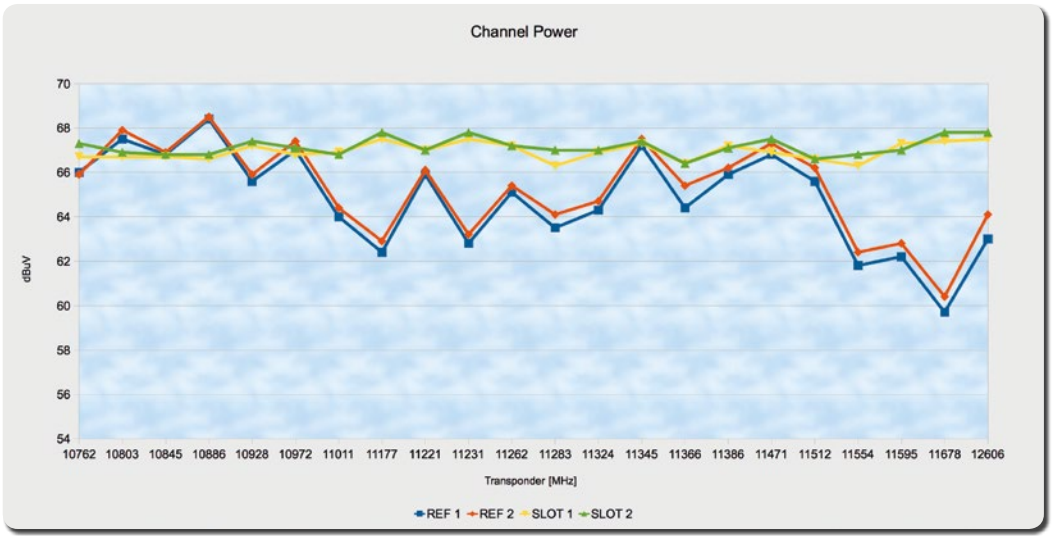
After such successful beginning, we decided to first measure the signals routed directly from the Twin LNB (we marked them as REF 1 and REF2) and then connect the SUS 21 F to the LNB and measure the signals available at its output (Slot 1 and Slot 2) on 1076 MHz and 1178 MHz. As expected, the channel power (signal strength) varied significantly when the signal was taken directly from the LNB and was almost constant for every transponder when single cable router was used. The Automatic Gain Control circuit of SUS 21 F did its job very well indeed.

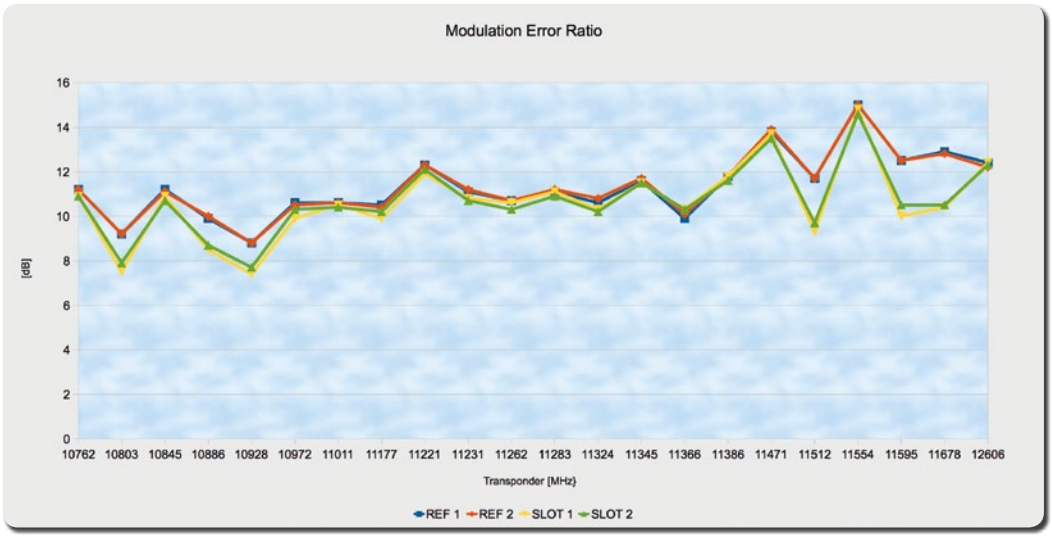
The second important parameter, Modulation Error Ratio, that we used in our comparison is directly correlated to signal quality. The greater the MER, the better signal quality and greater margin for poor weather conditions. Taking into account that the SUS 21 F has to convert the signal from its "normal" position in L-band either to 1076 MHz or to 1178 MHz, we expected that we would notice a significant degradation of MER because every conversion always introduces additional noise. But, no! For the majority of transponders there was no difference at all. Only for the DVB-S2 transponders broadcasting with the highest symbol rate (30 Ms/sec) we observed slightly worse performance. For the most popular 27.5 Ms/sec transponders, the MER was unaffected.

On the other extreme, at the lowest symbol rates (2.5 Ms/sec), the SUS 21 F performed brilliantly. We noticed no difference in MER between LNB output and single cable router output.

The test would not be complete if we did not try to connect a real receiver and zap channels. Every transponder and every channel that our receiver was able to process when connected to a regular LNB was also available in the single cable network even though we used a subscriber socket introducing extra 14 dB attenuation. Transponders with very low and very high symbol rates (2.5 through 30 Ms/sec) were available without any problem.

It is worth knowing that channel zapping speed can be affected in a single cable network because when you change a channel from one transponder to another, a lo-



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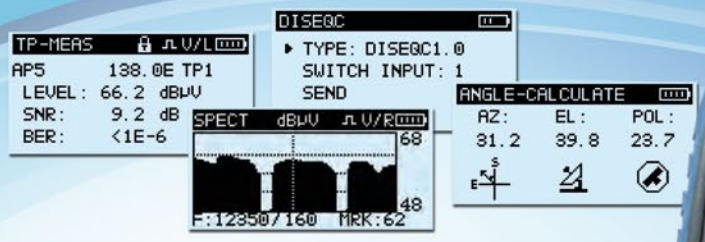


# S30✓ Satellite Meter

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

# S7000✓ TV Analyzer

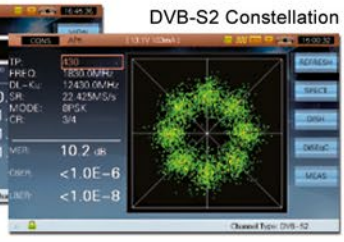
QAM Constellation

Spectrum

TR101 290 Three level Monitoring

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

DVB-T Signal


DVB-S2 Constellation

**Deviser Electronics Instrument Co., Ltd**
No 8, Haitai Chuangxin 3 Road, Hi-Tech Industrial Development Area, Tianjin 300384, China
Tel: +86-22-27682088, 27645003, ext 803 ▪ Fax: +86-22-27645002
Http://www.devisertek.com ▪ E-mail: overseasbiz@deviser.com.cn

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cal oscillator in the SCR has to tune to another frequency. But at the same time this means the local oscillator in the tuner of your receiver does not have to change frequency at all, as it is fixed to receive 1076 MHz or 1178 MHz for all the time. As it turned out, in our test channel zapping was even faster when we used the SUS 21 F than zapping without it. We did not measure it because the difference was a split second but we trust our impression. The local oscillator of SUS 21 F was tuning faster then the local oscillator in our receiver. A tip to our chouch potatoes: if you want to speed up your zapping speed consider using the SUS 21 F as a way to bypass frequency changes of the internal oscillator of your receiver.

Finally, we also checked the terrestrial signal routing (FM, DVB-T, CATV). Signal from a terrestrial antenna can be combined with one of the two satellite signals entering SUS 21 F and then be passed through the same single cable and feed the antenna input of your TV-set. SPAUN promises only a 2 dB tap loss for the terrestrial signal. We measured the loss at 634 and 666 MHz and it was even better: just 1 dB. And by the way: the reception of the terrestrial signal is also possible when the satellite tuners are switched off.

We had fun experimenting with the SPAUN SUS 21 F. It didn't affect performance at all and even improved channel zapping. A clever way to feed twin receiver with PVR without having to install a second cable.

## EXPERT OPINION

**+ Very simple installation**
**Strong and very well regulated output power**
**Perfectly clean output spectrum**
**Fast channel zapping**
**Very low terrestrial tap loss**

**– Hardly noticeable small degradation in noise performance for very high symbol rate transponders (30 Ms/sec)**

## TECHNICAL DATA

| | |
|---|---|
| **Manufacturer** | SPAUN electronic GmbH & Co. KG, Germany |
| **Web** | www.spaun.com |
| **E-mail** | contact@spaun.com |
| **Phone** | +49-7731-8673-0 |
| **Fax** | +49-7731-8673-17 |
| **Model** | SUS 21 F |
| **Function** | SCR Multiswitch compatible with EN 50494 |
| **No. of inputs** | 2 satellite (Twin LNB)+ 1 terrestrial |
| **No. of tap outputs** | 1 |
| **Terrestrial tap loss** | 2 dB for terrestrial signal |
| **SAT input signal** | 65~90 dBµV |
| **Tap output power** | 82 dBµV |
| **SCR frequencies** | 1076 MHz and 1178 MHz |
| **Current** | 130 mA max. LNB current |
| **Ambient temperature** | -20~+50° C |

## MORE ABOUT THIS COMPANY

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

# FibreIRS®

## The **New** Generation
## Fibre Integrated Reception System

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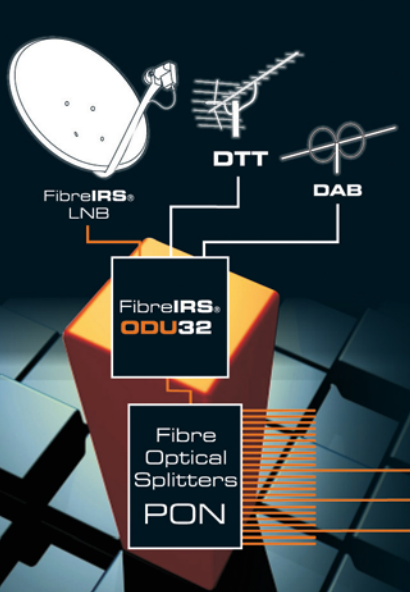
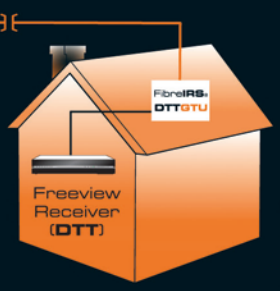
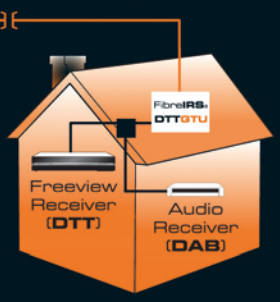
**Satellite IF, DTT and DAB over a Single Fibre Optic Network.**

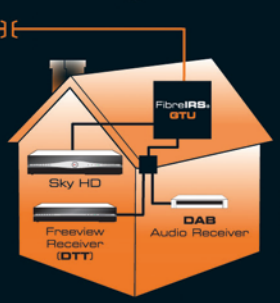



**DTT & DAB** Installation




**DTT & DAB** Installation




Digital Satellite **DTT & DAB** Installation

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

*Compared with existing Fibre Systems*

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completing the picture

# HUMAX Gold

HUMAX
UNIVERSAL 6" MONOBLOCK LNB
HUMAX
Universal Quad LNB
sky vision LNB 112, 143 & 212
Low Noise LNBs
RECOMMENDED PRODUCT BY
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SKY VISION SATELLITENTECHNIK

# LNB Series by sky vision

- *high output good for long cablings*
- *low noise compensates for rain loss or fringe dish sizes*
- *excellent workmanship*
- *the Monoblock LNB beat our own reference LNB*

# Extremely Good and High Powered

TELE-audiovision Test Editor Jacek Pawlowski tests the new LNB series by HUMAX, distribued by sky vision from Germany

sky vision recently extended its range of satellite products with high quality LNBs made by HUMAX. We wanted to know: are these LNBs really as good as claimed by sky vision? No better way to find out than putting them to a real life test.

sky vision offers all LNB variants: LNB with 1, 2 or 4 outputs up to multiswitch variants with 4 and even 8 outputs. Additionally you'll find SCR One-Cable LNB and even Monoblock LNB with 3° and 6° (the latter mostly used for the popular European satellites ASTRA and HOTBIRD), available not only with 1 or 2 outputs (Twin) but even with 4. We picked 3 variants out of this huge collection for our test: a single, quad and a 6° monoblock universal, all for Ku-Band. Each version is available either in a carton box package or in a blister. If a model is packed in a blister, it has the suffix B added after its model number. For example: LNB 113 is a single LNB packed in a carton box and LNB 113B is exactly the same product but packed in a blister. All products are sold with a confident 5 year guarantee and - we like that!

Workmanship of all products leaves nothing to be desired, all plastic parts of the enclosures are perfectly matched and even the F connectors are gold plated. The single LNBs and monoblock LNBs are shipped with rubber

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Tested & Recommended Product by
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07-08/2013
sky vision HUMAX Gold
LNB 112, LNB 143 & LNB 212
Extremely Good and
High Powered
www.TELE-audiovision.com/13/07/skyvision

| Transponder | Standard & SR |
|---|---|
| 10762 HL | DVB S 27500 |
| 10845 HL | DVB S 27500 |
| 10928 HL | DVB S2 30000 |
| 10972 VL | DVB S 27500 |
| 11010 VL | DVB S 27500 |
| 11045 HL | DVB S 10555 |
| 11054 HL | DVB S 2894 |
| 11131 VL | DVB S 14815 |
| 11177 VL | DVB S 27500 |
| 11220 HL | DVB S 30000 |
| 11231 VL | DVB S 30000 |
| 11283 VL | DVB S 27500 |
| 11324 VL | DVB S 30000 |
| 11345 HL | DVB S 27500 |
| 11366 VL | DVB S 30000 |
| 11386 HL | DVB S 30000 |
| 11470 HL | DVB S 30000 |
| 11470 VL | DVB S 29950 |
| 11512 HL | DVB S2 30000 |
| 11553 HL | DVB S 30000 |
| 11595 HL | DVB S2 30000 |
| 11678 HL | DVB S2 30000 |
| 12508 VH | DVB S 2532 |
| 12593 VH | DVB S 2500 |
| 12596 VH | DVB S 2848 |
| 12600 VH | DVB S 2500 |
| 12605 HH | DVB S 27500 |
| 12633 VH | DVB S 4883 |
| 12656 VH | DVB S 4883 |
| 12676 HH | DVB S 2800 |
| 12736 VH | DVB S 3703 |

covers to protect the cable-to-LNB connection against rainand moisture. The bottom part of the quad version is protractile to ensure a similar level of rain protection for all four outputs. Finally, there are small scales on the top surface of the LNBs what help the installer in setting up the proper LNB tilt.

Before starting the measurements we had to choose to which satellite turn our 85 cm offset dish. We thought we make it really hard for these LNBs to see what happens when we go to the limit. For our test we selected the EUTELSAT16A on 16° East. Why? Because this satellite has very strong neighbors: ASTRA on 19.2° East and HOTBIRD on 13° East. Moreover, EUTELSAT16A has not only high symbol rate transponders but also weaker transponders with low symbol rates. The lowest SR was 2500 ks/sec. The table lists all the transponders we used for testing the single and quad LNBs.

As a reference LNB we decided for a very good low noise LNB of another manufacturer. Only the best products on the market can match its performance and now we were curious if HUMAX really was able to get close to it.

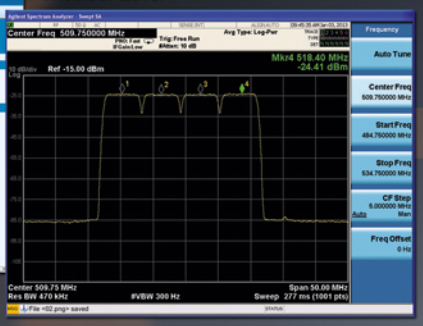
We started our test with the single and quad LNBs of HUMAX: model numbers LNB 113 and LNB 142. We came to our first surprise: all HUMAX LNBs beat our reference in signal strength. The quad version model LNB 142 even stood out by length: it performed even 5 dB better than our reference unit! That's something important to consider, especially when you use long cables or antenna switches that attenuate the signal.

We proceeded to measure signal quality. As usually, for this we used the Modulation Error Ratio (MER) parameter as our metrics.

The results here were not so obvious. Using sports terminology, we would say that the HUMAX LNBs tied with our reference. For some transponders our reference LNB was slightly better, for some other transponders models LNB 113 or LNB 142 were the winners. One sample of the LNB 142 (marked brown in our table) performed not so well for 12596VH and 12600VH low symbol rate transponders (2848 and 2500 ks/sec respectively). However, another sample of the same LNB 142 model was better than our reference for

WEB NMS Interface
4HDMI to 4ATSC MPEG2 MPEG4 HD

Shoulder Level



Input Channels

## MPEG2/MPEG4 HD Encoder Modulator

- Turn MPEG2/MPEG4 HD Video signals into a real digital RF
- 4*HDMI input; 1*HDMI or 2*HDMI optional

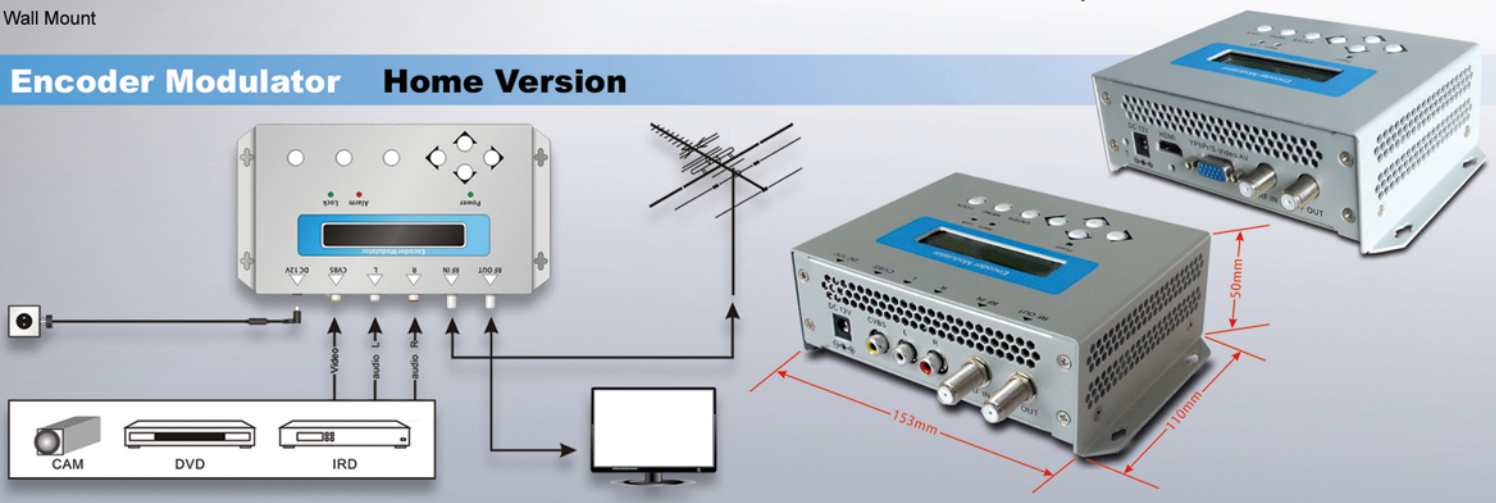
Rack

Wall Mount

## Key Features

- 1080P/1080I/720P Full HD resolution
- MPEG2 HD & MPEG4 AVC/H.264 HD video encoding
- MPEG-1 Layer II, (MPEG-2 AAC, MPEG-4 AAC available) audio encoding
- 1*DVB-C/ATSC/ISDB/DVB-T, 2*DVB-C/ATSC/ISDB/DVB-T, 4*DVB-C/ATSC quality RF out optional
- ASI in/out with remux; MPTS or 4*SPTS IP out
- RF mixed in/RF mixed out
- Frequency range: 30~960MHz
- Programmable video/audio/PCR PID
- Programmable channel name and logical channel number insertion
- Excellent modulation quality MER≥42dB
- LCD display, remote control and web NMS management
- Best quality and Breakthrough price

## Encoder Modulator Home Version

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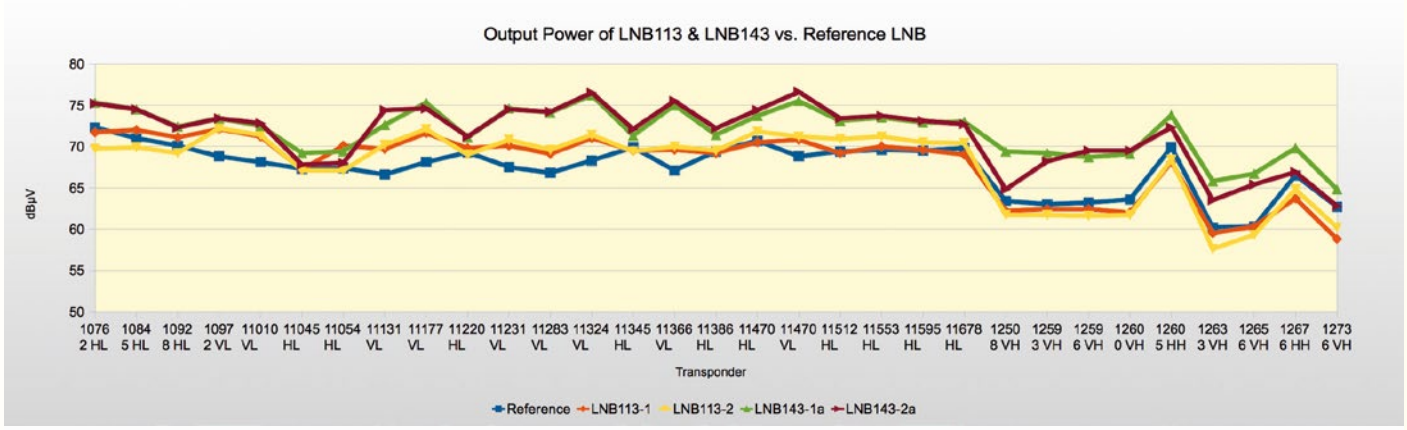
http://www.dsdvb.com/english ▪ E-mail: sunyu@dsdvb.com

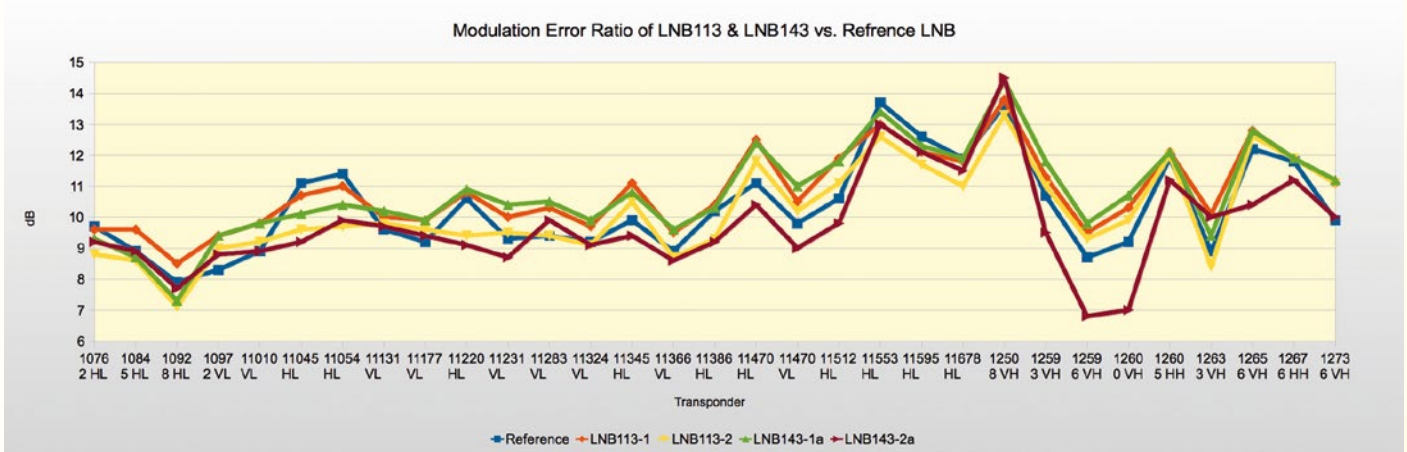
the same signal. That's why we tend to asses HUMAX LNBs as equally good as our reference in noise performance.

To get a complete picture, we measured all four outputs of one of the quad devices (LNB 142) to see if it matters from which output you take the signal. The graphs below clearly show that all four outputs are identical in performance as it should be with high class LNBs.

After measuring the single and quad versions we moved on to the 6° monoblock version model LNB 212. We did almost the same measurements. We installed the monoblock on our 85cm offset dish and measured the signal coming from the central feedhorn located in the dish's focus. Then, we changed the mounting of the monoblock so that the other feedhorn was now in the center and repeated the measurements. Since we had two samples of the monoblock LNBs we got four curves on the graphs – for every single feedhorn. As you can see on the graphs, signal strength of the LNB 212 was superb over our reference. At least 2 dB stronger and in some cases even 6 dB stronger!

We continued with MER measurements and to our surprise, this time HUMAX was not just at par with our

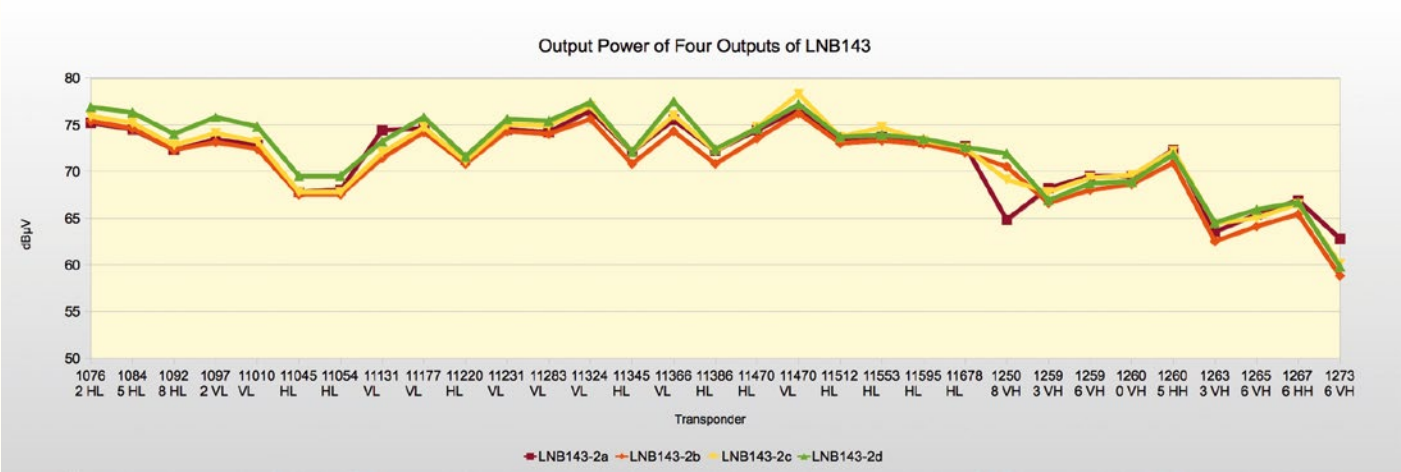


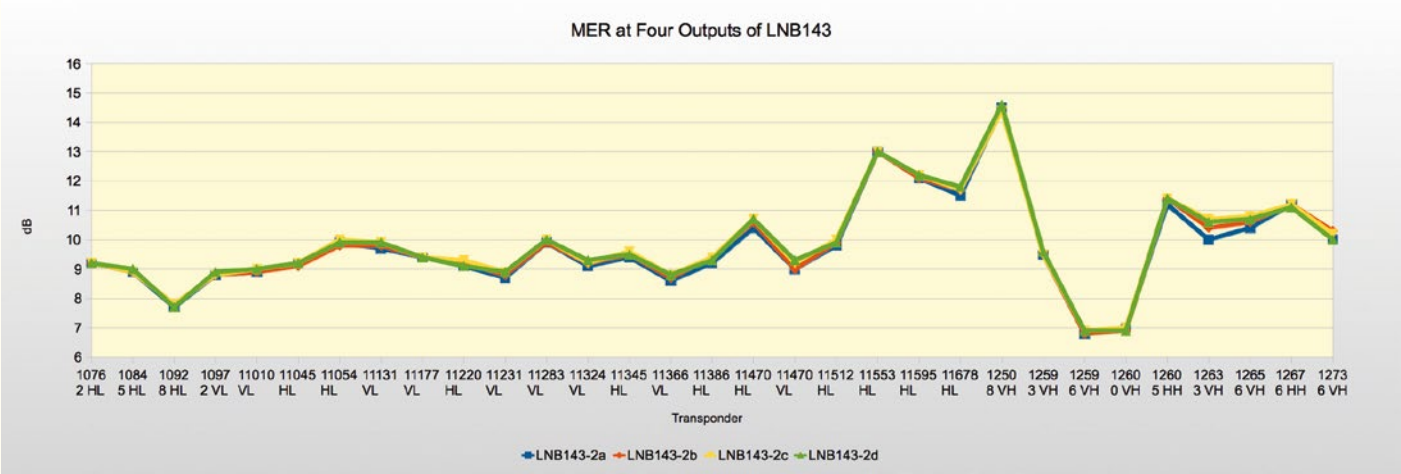



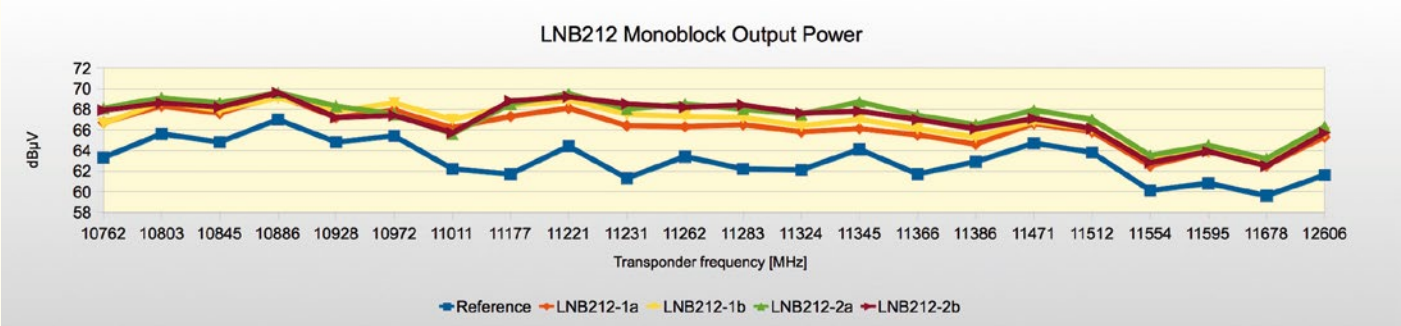
reference but slightly better!

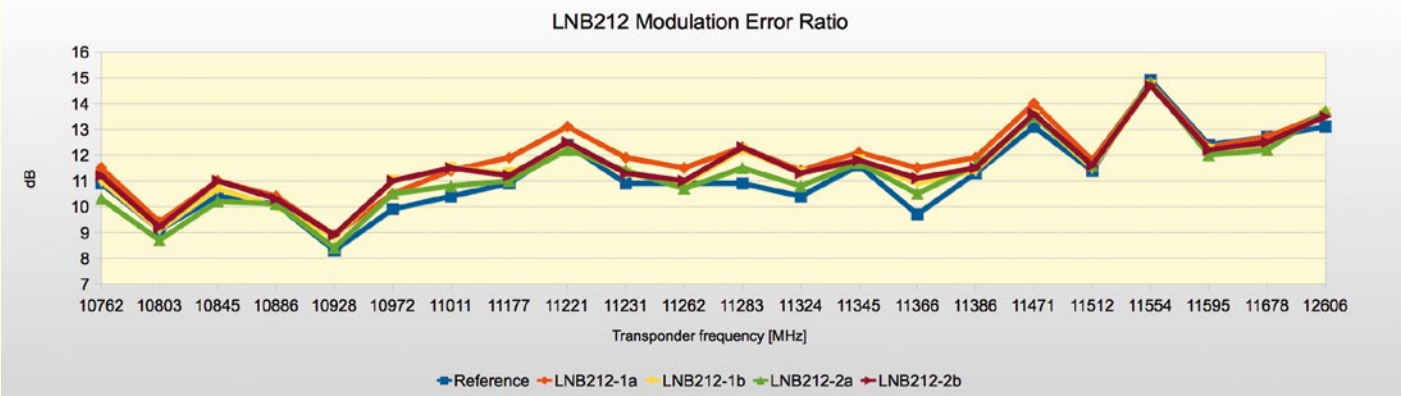
We were surprised because every monoblock has an additional DiSEqC switch built in. That's why we expected signal quality to be slightly worse than that of a single or quad LNB. However, our measurements revealed that model LNB 212 was really exceeding our expectations. Not only offered it a significantly stronger signal at its output but at the same time it was even slightly better in signal quality than our reference single LNB of another manufacturer. Well done, HUMAX!

The test of a monoblock would not be complete if we had not tried it with a regular receiver. We again intentionally wanted our test to be difficult to pass. So instead of using a classical pair of European satellites: ASTRA on 19.2° East and HOTBIRD



on 13° East, we left the dish as it was – aimed at EUTELSAT 16A on 16° East – and mounted the LNB 212 so that it could also receive an off-center signal of EUTELSAT 10A on 10°. We cross checked all the transponders from 16° and 10° with our multi LNB toroidal antenna (there, all satellites are received with their own LNB). We weren't really surprised to find out that the Monoblock had no problem at all to receive exactly the same number of transponders as our multi LNB reference dish. Each and every transponder ws equally well received with the LNB 212 Monoblock mounted on our 85 cm dish.

But this is not all. In fact, our receiver was additionally able to receive transponders from EUTELSAT 9A on 9° - from a satellite that is not 6° but 7° away from EUTELSAT 16A. Mounted this way, one monoblock on a single dish performed very well in receiving signals from 3 satellites: EUTELSAT 16A, EUTELSAT 10A and EUTELSAT 9A.

To sum it up, the test results were very good and surpassed even our own reference LNB. sky vision did a extremely well work in the research and development with the HUMAX Gold LNB Series. Using them, the satellite installer will be sure to use the best available LNBs.

## EXPERT OPINION

**+ High output power and very good noise performance – especially for the monoblock version (LNB 212)**
**Lightweight**
**Very good workmanship**

**– Only very basic technical specification are available**

## TECHNICAL DATA

| | |
|---|---|
| **Manufacturer** | sky Vision Satellitenempfangstechnik GmbH |
| | Dorfstr. 3 - 8, 38179 Schwülper, Germany |
| **Internet** | www.sky-vision.de |
| **E-mail** | www.sky-vision.de/shop,kontakt_anfrage |
| **Telephone** | +49-(0)5303-9300-0 |
| **Fax** | +49-(0)5303-9300-25 |
| **Models** | LNB 112, LNB 143 and LNB 212 |
| **Function** | LNB 112 - universal single LNB for Ku-Band<br>LNB 143 - universal quad LNB for Ku-Band<br>LNB 212 - universal 6° monoblock LNB for Ku-Band |
| **I/P Frequency Range** | 10.7 GHz ~ 12.75 GHz |
| **O/P Frequency Range** | 950 MHz ~ 2150 MHz |
| **L.O. Frequencies** | 9.75 and 10.6 GHz |
| **Noise Figure** | 0.1 dB |

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Tsinghwa GT-278
Rock solid receiver with
excellent responsiveness

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# Tsinghwa GT-278

DTMB

## The Best DTMB Receiver for High Definition

- Very fast switching
- Very fast OSD display
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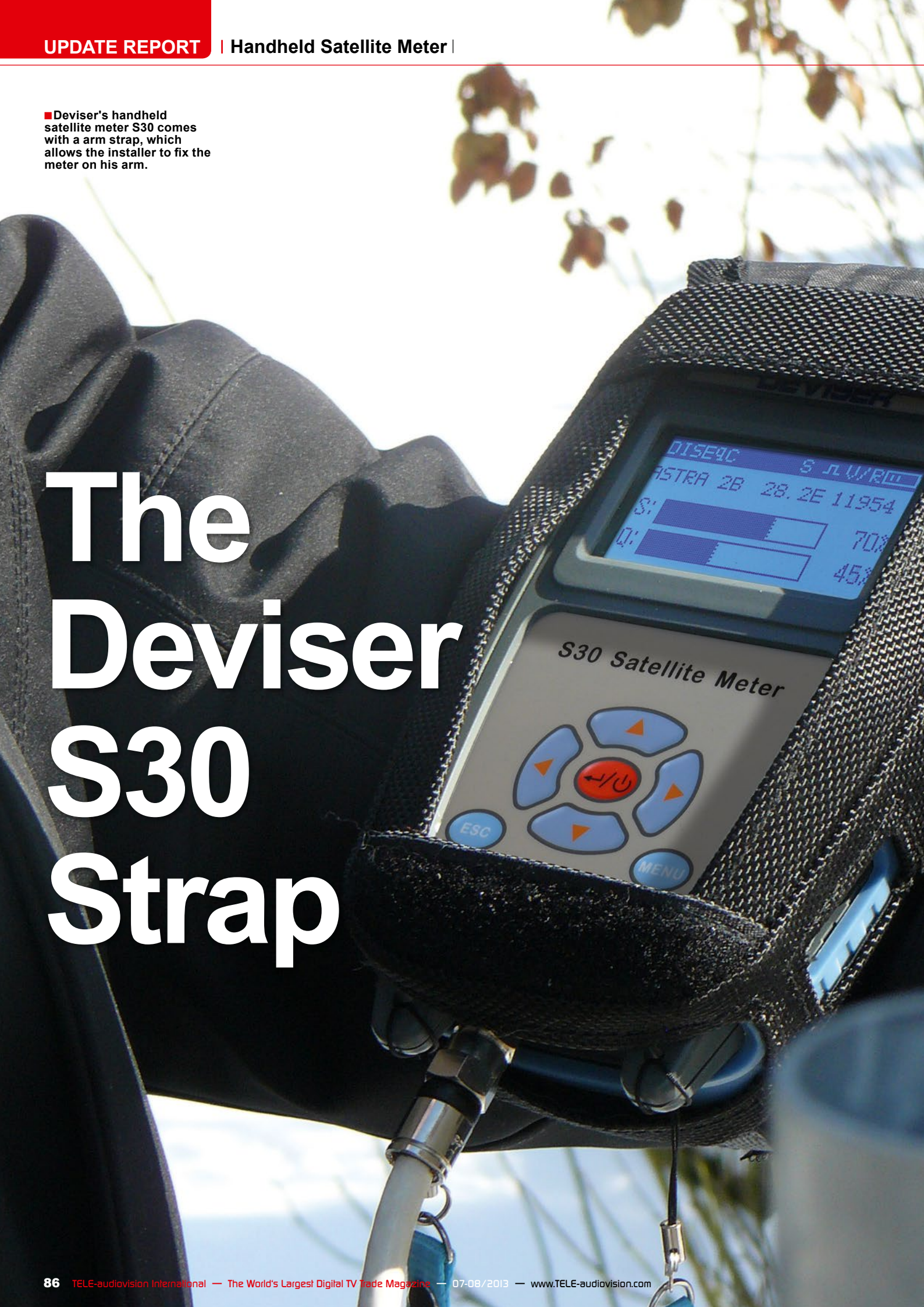
- Supported standards: DTMB
- 换台快捷
- OSD显示和响应迅速
- 支持PVR刻录
- 强大的多媒体功能

USB HDMI HDTV

# 地面数字电视在深圳和香港是免费播出

Deviser's handheld satellite meter S30 comes with a arm strap, which allows the installer to fix the meter on his arm.

# The Deviser S30 Strap



**The full test report about the S30 handheld meter has been published in previous issue TELE-audiovision 05-06/2013 and can be read online here:**

www.TELE-audiovision.com/13/05/deviser

It's the small things that matter. Signal analyzer manufacturer Deviser added a small but powerful accessory to its successfull handheld satellite meter S30: a unique arm strap allowing the dish installer to fix the little meter to his arm. This makes it so more convenient to move the dish up and down, left and right, and being continuously able to monitor the S30's reading. This feature comes in especially handy in the last moment when the installer tightens the screws: he can monitor both the screws as the meter at same time and adjust the dish all the while it gets fastened. A perfect way to fine-tune to the last degree a dish.

A little arm strap gives so much of additional convenience. Deviser has proven that indeed its the small things that matter.

# S3700CHD

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# BOXEE

- ***Unusual design***
- ***Easy login through your own Facebook account***
- ***Hardly used 16:10 and 21:9 picture formats available***
- ***Fully compatible with Dolby Digital systems***
- ***Multitude of Apps provide access to an endless selection of content***

# An Unusually Designed Streaming Box

When you see it for the first time you'll quickly recognize that the Streaming Player Boxee is not your typical everyday product, instead its exterior leaves behind a lasting impression with every user. It measures 11.5 x 11.5 cm with a maximum height of just about 13cm. Maximum, because the Boxee is constructed in such a way that from the front it has no symmetrical edges and doesn't have any familiar geometrical pattern.

If you didn't know any better, you'd think that this was the work of a bunch of kids. Nevertheless, the design of the Boxee is quite striking and is the focal point of any TV setup.

The manufacturer incorporated an SD/MMC card reader on the side of the Boxee; we found this rather practical in that this location doesn't interfere with the front view and yet is still easy to reach.

The rear panel is very nicely equipped and comes with every conceivable input and output. This includes an RJ-45 network port, an HDMI output, an optical digital audio output, a composite audio output in the form of RCA jacks, two USB ports as well as a jack to connect the external 12V power supply.

We were impressed with the workmanship of the receiver and considering its size, it's weight of 720g (1.6Lbs) is quite imposing.

Contrary to other streaming players, its size and weight prevent you from slipping this box into your pocket and taking it to other locations.

One button on the top of the box turns the box on and off whereby momentarily pressing this button turns the receiver on and holding down this button a little longer turns it off. The included remote control is divided into a top side and an underside. While the top side only has seven buttons, the underside has a complete keyboard with a total of 38 buttons. Now,

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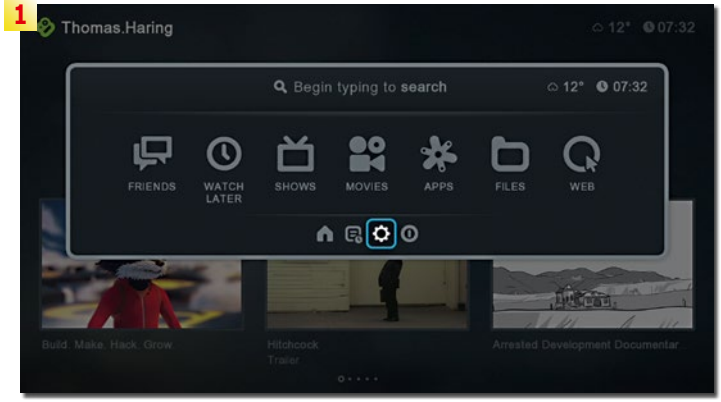


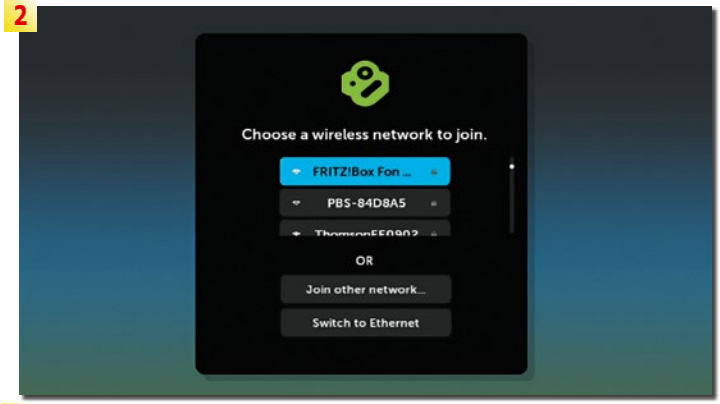


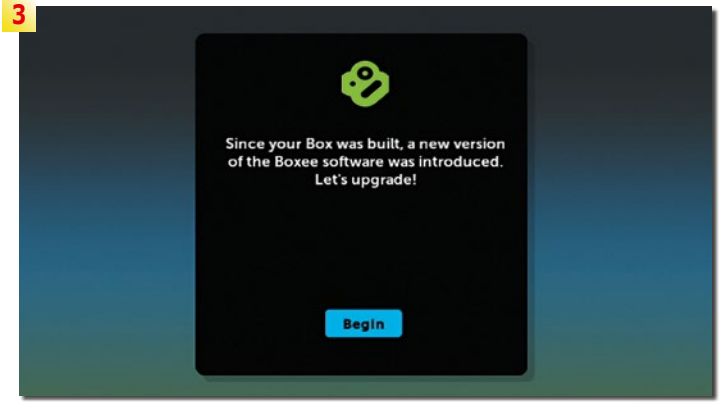

if you're thinking right now that you might be accidentally pressing the buttons on the underside quite often, you would be mistaken; thanks to the remote control's slightly curved shape, this turned out, to our great surprise, not to be the case.

While the box is running, the Boxee logo with lettering appears on the front side of the box thus making it look very classy. Its illumination is dimmed through the black plastic glass so that it is not overpowering. Overall, a very positive initial impression.

Before using the receiver for the first time, the user needs to connect it to the home network/Internet; the box can't do much until this task is taken care of first. Since the Boxee supports WiFi it immediately starts searching for a wireless network. If needed the Boxee can also be switched into wired Ethernet mode.

Thanks to manual SSID entry, the box can also be connected to hidden WiFi networks and its full support of all the standard encryption systems (WEP, WPA, WPA2) takes care of the necessary security.

We definitely liked the next step, namely the required software update. Within two minutes the update via our broadband DSL link was taken care of and after a quick restart, the new software was ready to be used.

Depending on the TV being used and the type of signal connection, it may be necessary to adjust the image signal output and orientation to match the existing hardware. For this purpose the Boxee automatically activates an assistant that helps to match the output video to the existing TV or projector.

In the next step the Boxee asks you to set up a user account or, if you already have an account, to log in. We liked the idea that in addition to the classic method of registering using a user name, password and e-mail address, you can also use your own Facebook account for registration.

After a quick push of a button on the remote control and entering in your Facebook user data via the integrated keyboard, the box is personalized and ready to use.

Doing it this way also saves a little time in the next and second-to-last setup steps. The Boxee only asks you for Facebook, Twitter and Tumblr user data as long as you have an account with these services. This will let you not only use these Boxee functions by yourself, but also with all of your social networking friends.

As a final installation step, the box asks you if you want

**1. Boxee's Main menu**
**2. WiFi networks are automatically recognized**
**3. The automatic software update guarantees that you always have the latest software installed in the Boxee**
**4. The video signal output can be perfectly matched to your TV**
**5. You either set up a new user account or use your Facebook account**
**6. Weather forecast**
**7. Adjusting the output resolution**
**8. Several picture resolution and Overscan options are available**
**9. OSD keyboard fonts can easily be added**
**10. During the sorting of music files and videos, articles can be ignored if desired**
**11. The Boxee can handle nearly all the available network protocols**
**12. A variety of settings for the optical digital audio output**
**13. Boxee's Main menu**
**14. Network settings**
**15. Watch Later function**

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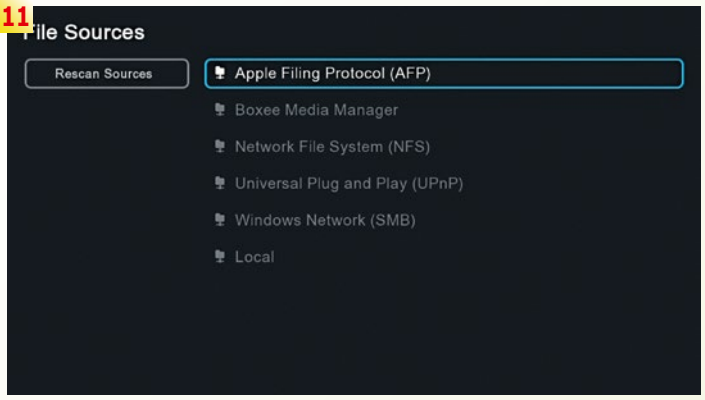


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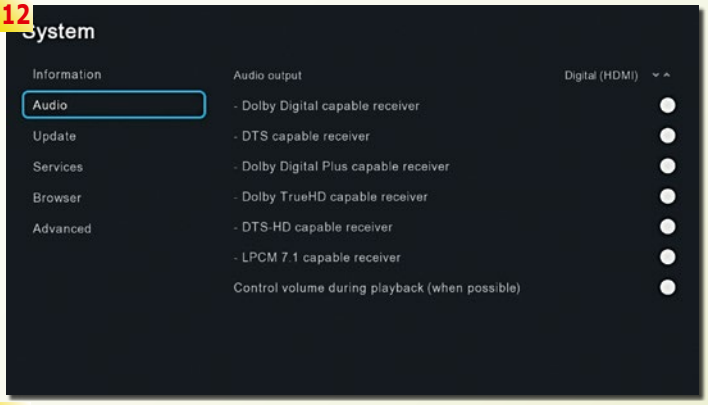


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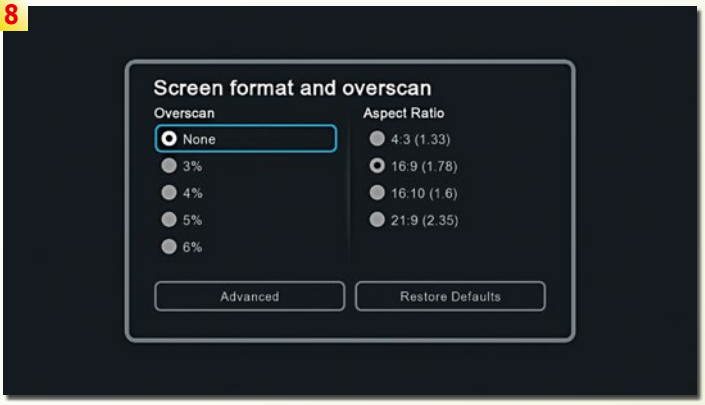


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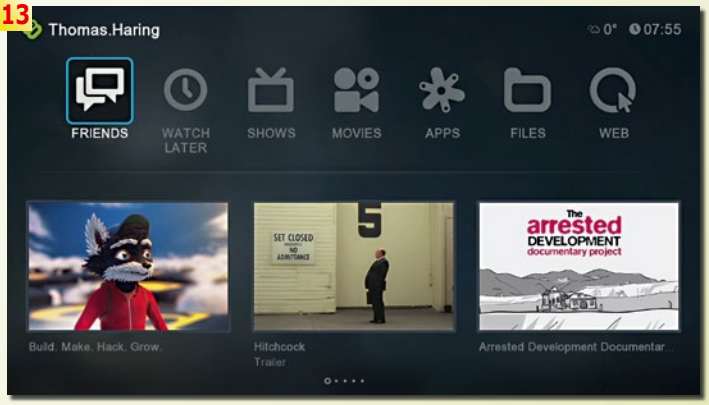


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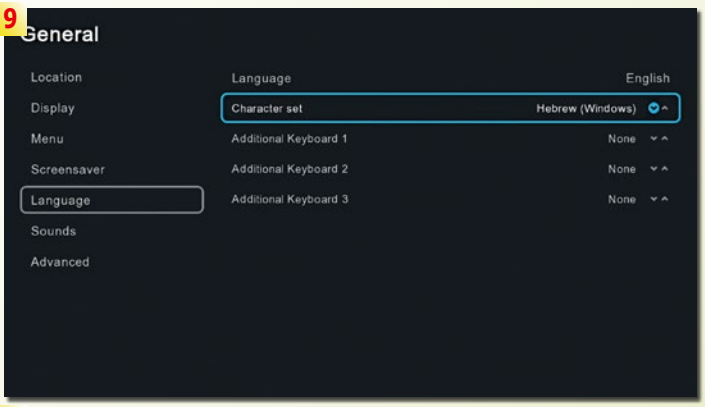


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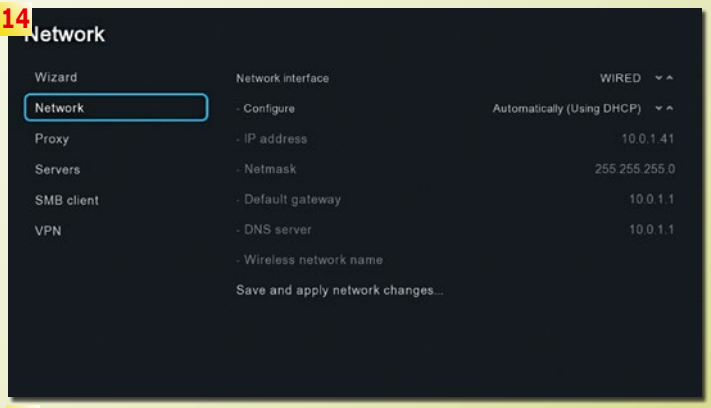


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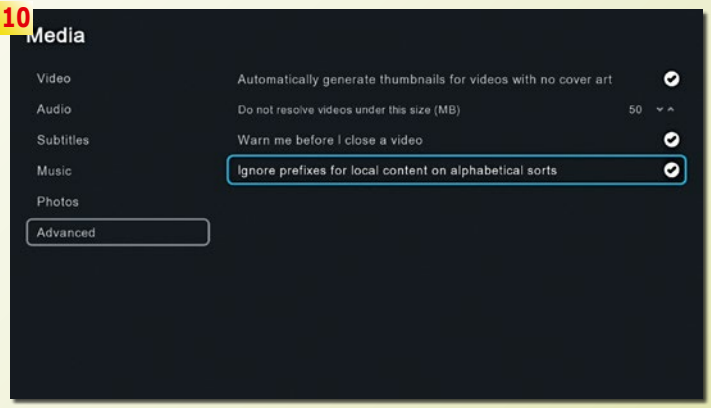


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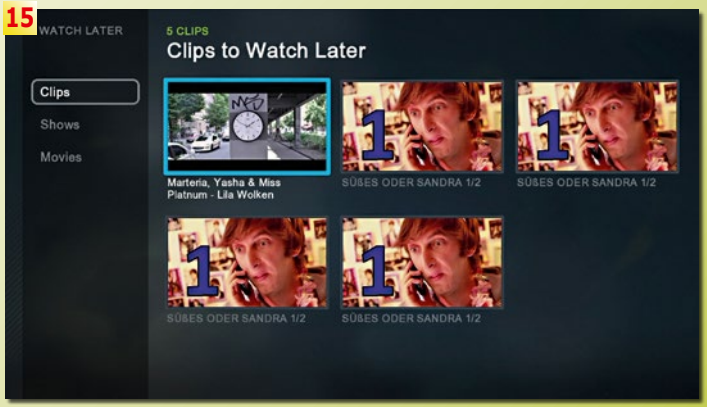

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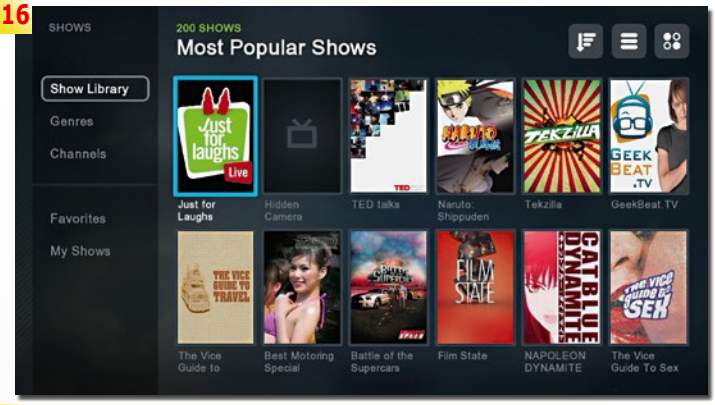


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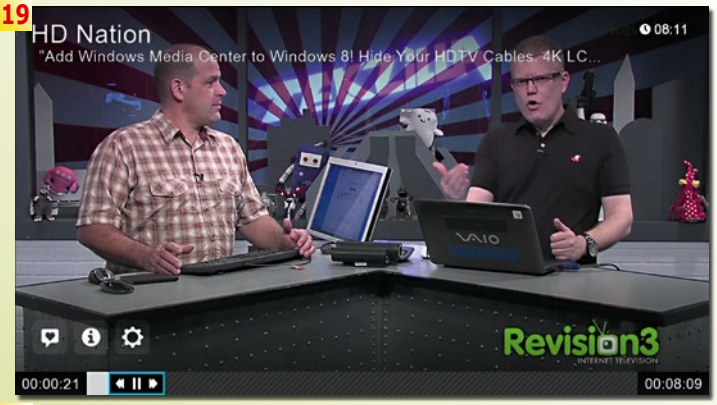


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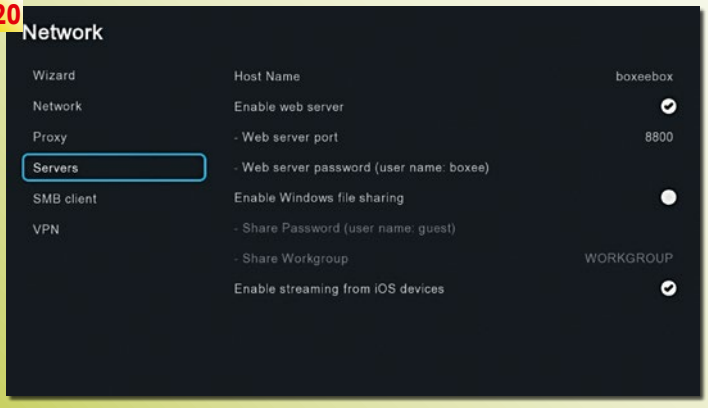


to playback content from the Internet or local content. We didn't quite understand this since the Boxee will recognize this on its own anyway after a certain amount of time and, secondly, before actually using the box you won't know ahead of time what you're going to be watching. Besides, you can also change your preferences at any time.

From what we can tell, this is an unnecessary question; this setting can be changed anytime and there's naturally, in addition to the selection „Content from the Internet" also the option „All Local Multimedia Content" available.

The Boxee's main menu presents a list of all of the box's main functions (Friends, Watch Later, Shows, Movies, Apps, Files and Web) as well as notifications of multimedia content that the box automatically searched for and recommends to us. At the very top the box blends in the current local temperature and time.

Before we occupy ourselves with all of the capabilities of this box, it pays to take one more look in the Settings menu. It's divided into six sections (General, Media, File Sources, Network, Parents Control, System) and is logically laid out.

In the submenu General you can adjust settings such as output resolution, desired OSD language or menu appearance. The Boxee supports the resolutions 480p, 576p, 720p, 1080i 50 Hz and 1080i 60 Hz. Unfortunately, you won't find 1080p.

The picture formats 4:3, 16:9, 16:10 and 21:9 are available as is an Overscan (an image view that is larger than originally intended by the resolution) of up to 6%.

So, why does the Boxee offer four different picture formats? Most modern TVs are 16:9 models and if you should still have an older TV it would be in 4:3 format. But there are some newer 16:10 models out there as well as 21:9 monitors. 21:9 monitors are especially meant for playing back theatrical movies in their original format but with the disadvantage that 16:9 broadcasts would now be shown with black bands. In the end though, it doesn't matter what TV you have, the Boxee will be able to adapt to the correct format.

Thanks to a wide selection of OSD languages (English, Spanish, German, French, Italian, Swedish, Danish, Dutch, Russian, Turkish, Farsi, Portuguese, Norwegian, Finnish, Czech and Polish), it should be possible for anyone to find an appropriate choice. We also appreciated that the Boxee also provides choices for international OSD keyboards, such as, Thai, Hebrew, Cyrillic, Greek or Chinese traditional.

When the box is used to receive radio channels or to play back music, a functional screen saver would be a nice thing to have.

The Boxee has three different variants (Slideshow, Black and Dim) available. In Slideshow mode single folders and the pictures they

**16. The vast library of current shows**

**17. Detailed programming descriptions provide information on content**

**18. Sorting the shows by provider**

**19. Picture quality is excellent and leaves nothing to be desired even on large big-screen TVs**

**20. Thanks to AirPlay compatibility the Boxee can also be fed with multimedia content from iPhones and iPads**

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contain can easily be selected.

The submenu Media lets the user select the primary audio for videos and also customize the subtitle display (size, language and color). The manufacturer even thought about a small detail, one that always irritated us in other devices: the listing of articles with the alphabetical sorting of music files or videos. This has earned high praise from us and provides for the user a nicely organized media list.

It gets more exciting in the File Sources menu. Here the local sources are set up that will dictate from where the box will access multimedia content. Choices include AFP (Apple Filing Protocol), the Boxee Media Manager, NFS (Network File System), UPnP (Universal Plug and Play), SMB (Windows Network) and Local.

Regardless of whether you make available your multimedia content on your MS Windows PC (SMB), have your content running on a Linux PC (NFS), utilize for example a UPnP compatible satellite receiver that makes available all of your recorded content, or if you want to be able to access your content on a MAC machine (AFP), the Boxee offers the corresponding transfer protocols for all of these applications.

We had no problems in our tests setting up network connections using all of these standards. At the same time we were also able to select how often the Boxee should look for content and what kind (music, video or pictures) it should be. If you want to have absolutely nothing to do with network protocols, you can download for free the Boxee Media Manager from the manufacturer's website. In this user-friendly PC or MAC tool you simply select all of the directories with the desired content, such as music, videos or pictures, and before you know it they are all accessible on the Boxee.

The Network settings are also quite extensive. In addition to the usual suspects, like DHCP, manual IP entry as well as the various WiFi options, the Boxee also has settings for Proxy server and VPN. These two options make it possible to bypass IP blocks.

A quick search in the Internet reveals a wide assortment of mostly paid servers for this purpose and thanks

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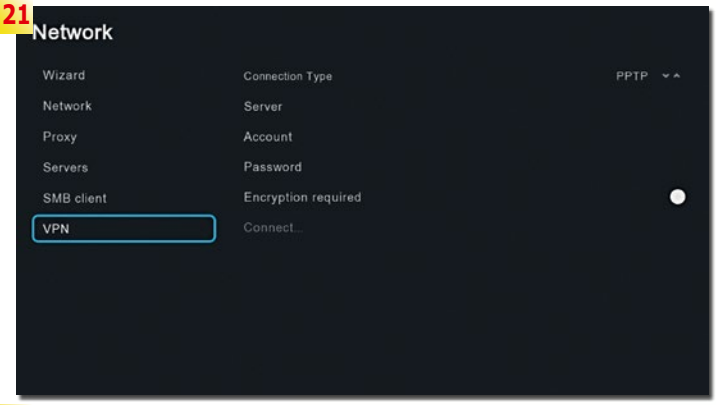


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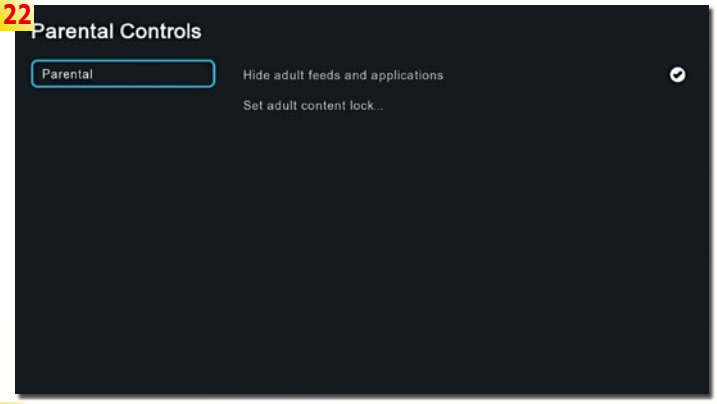


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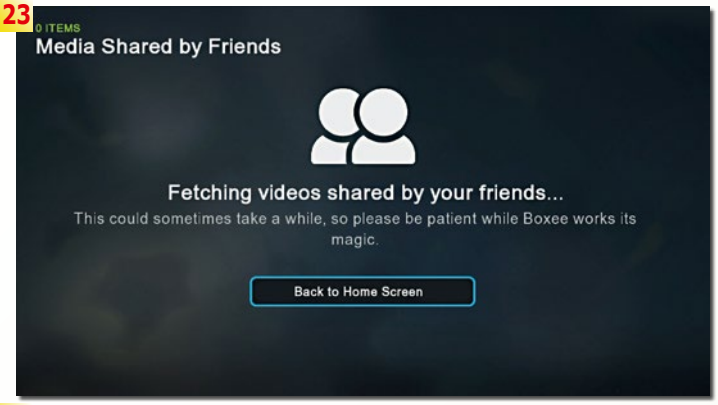


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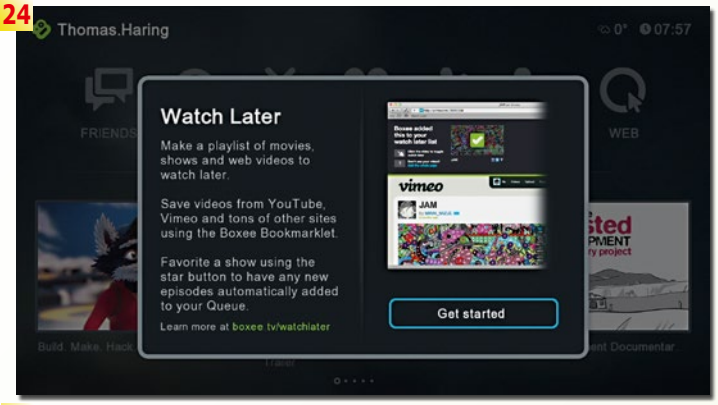


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**21. Setting up VPN connections is also supported**

**22. Thanks to the integrated parental controls, inappropriate content for children can be hidden from view with the push of one button on the remote control**

**23. Thanks to access to social networks, the Boxee automatically searches in the background for videos that were uploaded to the network by my friends**

**24. The Watch Later function makes it easy to watch video clips on a TV that were previously marked on an iPad or Smartphone**

**25. The web browser worked perfectly in our tests and thanks to the keyboard on the back of the remote control, it makes for a real alternative to a PC or Smartphone**

**26. Entering a web address**

**27. The web browser lets you post status updates easily to Facebook, Twitter or Tumblr**

**28. The web browsers Favorites function**

**29. AirPlay playback of an HD video from an iPad via the Boxee**

**30. Thanks to the Watch Later Bookmarklet, video clips from YouTube, Vimeo, etc. can easily be sent to the Boxee**

**31. App overview of the Boxee. The inappropriate content is staring you right in the face on the very first page**

**32. CBS8 News from Los Angeles**

**33. Delicious recipes invite you to try them out yourself**

**34. The recipes are presented as entertaining video clips**

**35. M4A music playback**

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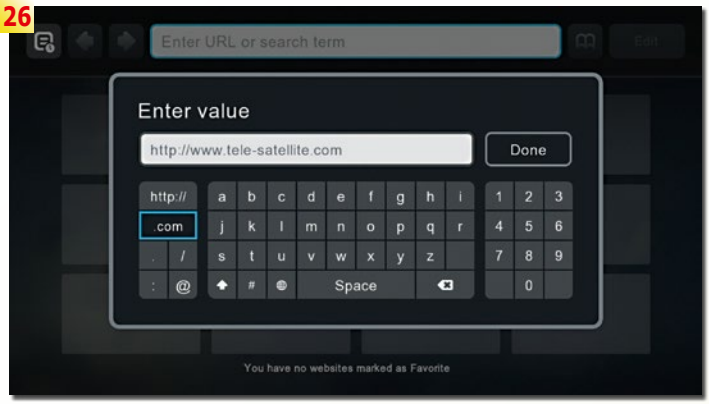


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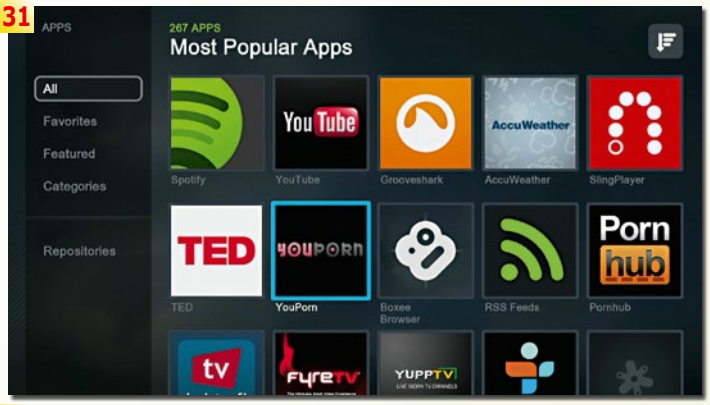


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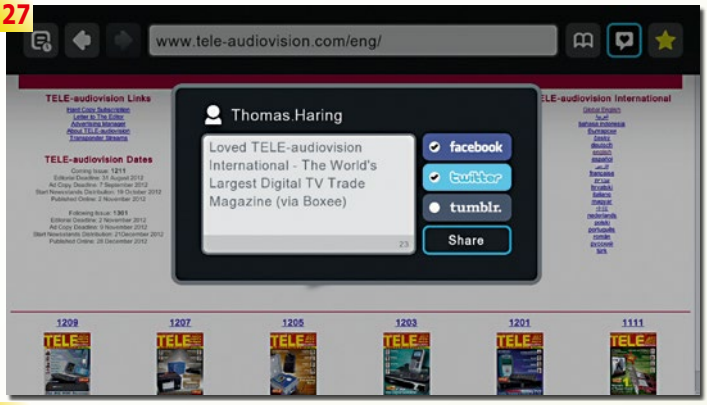


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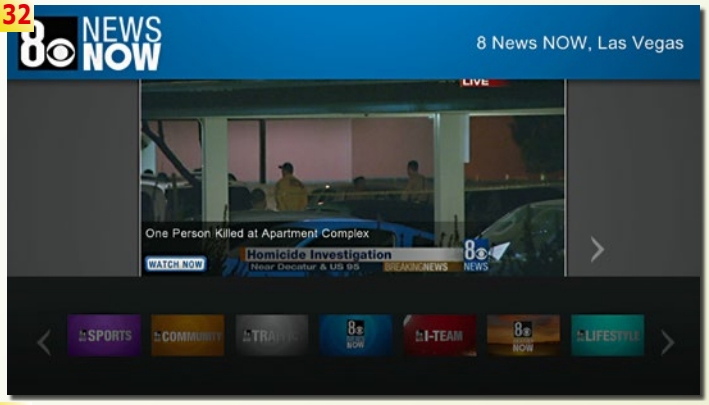


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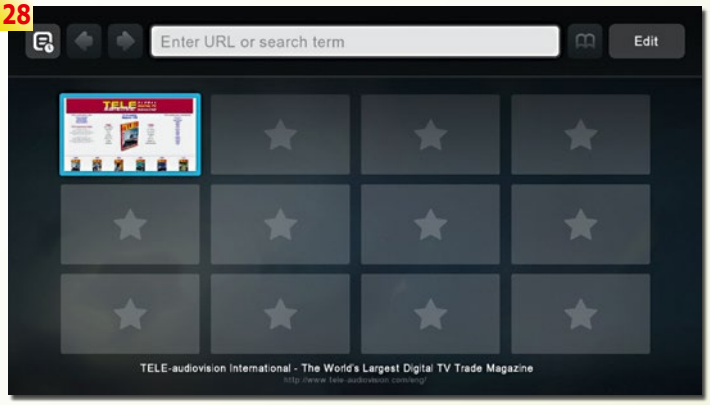


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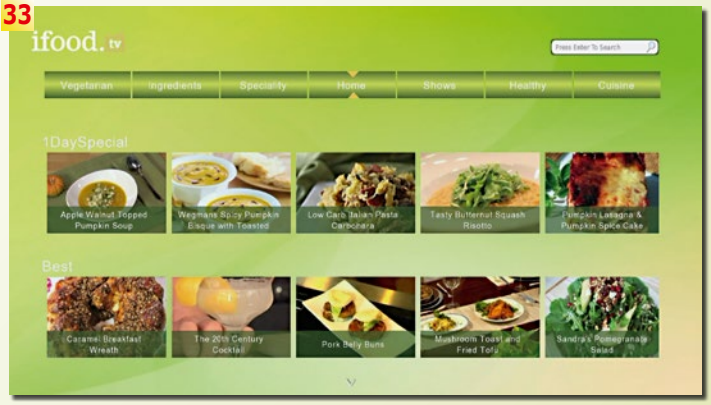


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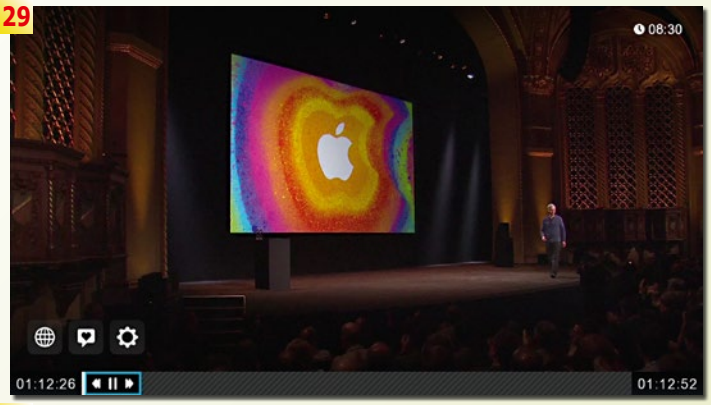


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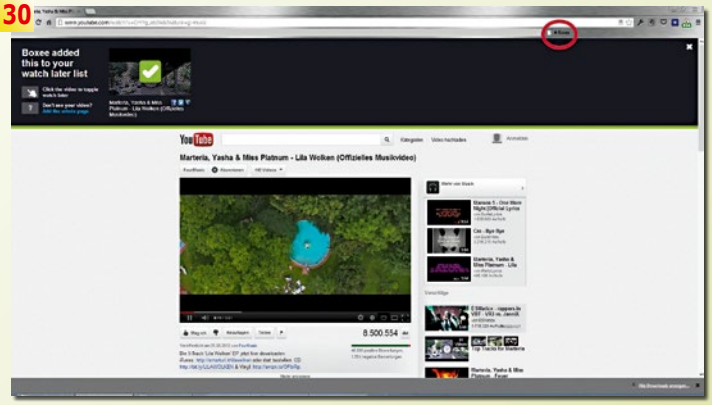


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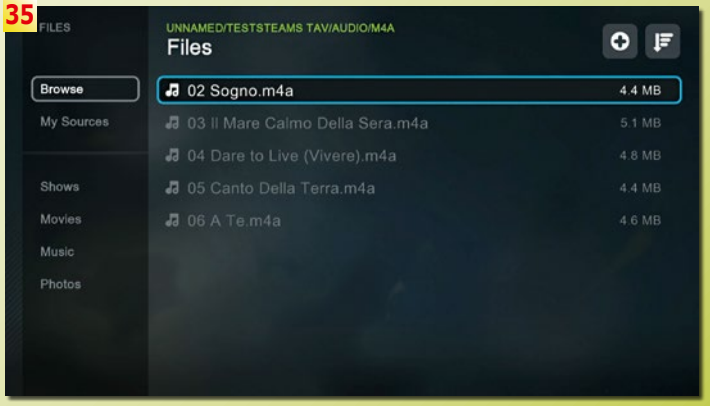
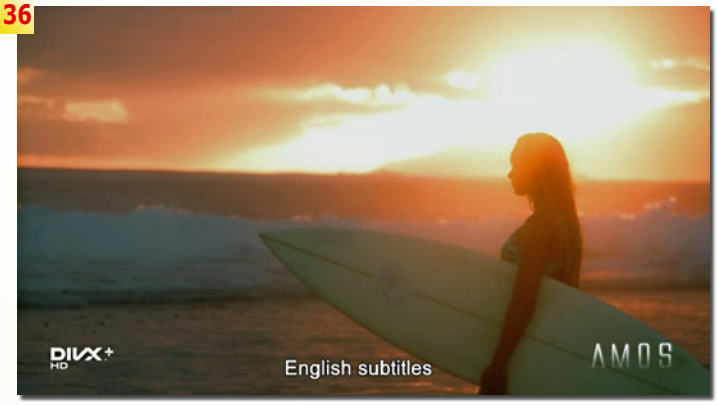
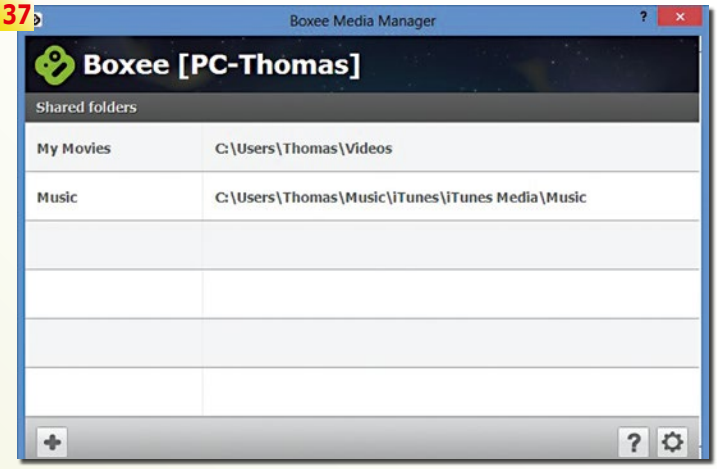
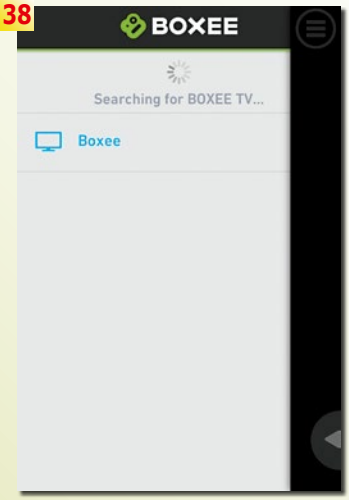
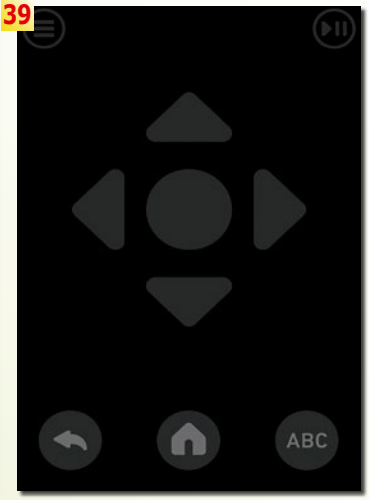




**36. DivX HD Video**
**37. Boxee Remote App for the iPhone**
**38. Boxee Remote App's control buttons for the iPhone**
**39. Boxee Media Manager - it doesn't get easier than this**
**40. AirPlay playback of an HD video from an iPhone via the Boxee**

to the Boxee support of classic proxy servers up to and including complex VPN connections, these can easily be used.

The heading „ Enable Streaming from iOS devices“ in the Network settings really caught our attention and before we take up this subject a little later in this report, we can say this: yes, the Boxee is AirPlay compatible and can therefore be supplied with multimedia content wirelessly from an iPhone or iPad.

The Parental Controls menu can be used to block inappropriate content from the kids and as we demonstrated in our tests this is an absolutely necessary and useful feature. If it's not turned on, a variety of content will appear in the Main menu that truly would not be suitable for kids.

Last but not least there's the System submenu. From here the software can be updated, a number of browser settings can be adjusted (such as, deleting cookies, activating or deactivating pop ups) and the digital signal output can be matched (Dolby Digital, DTS, Dolby Digital Plus, Dolby TrueHD, DTS-HD, LPCM 7.1) to a digital stereo system if it is connected to the Boxee.

After all the basic settings have been taken care of and the box has been customized the way we like, the Main menu finally appears with all of its different functions.

The first thing to pop into our eyes is the „Friends“ heading. With this feature the box gathers all of the multimedia content that was uploaded by all of your social media friends. This process takes about one minute.

In the meantime it's nice to know that you can do others things during this time since the box takes care of this task in the background.

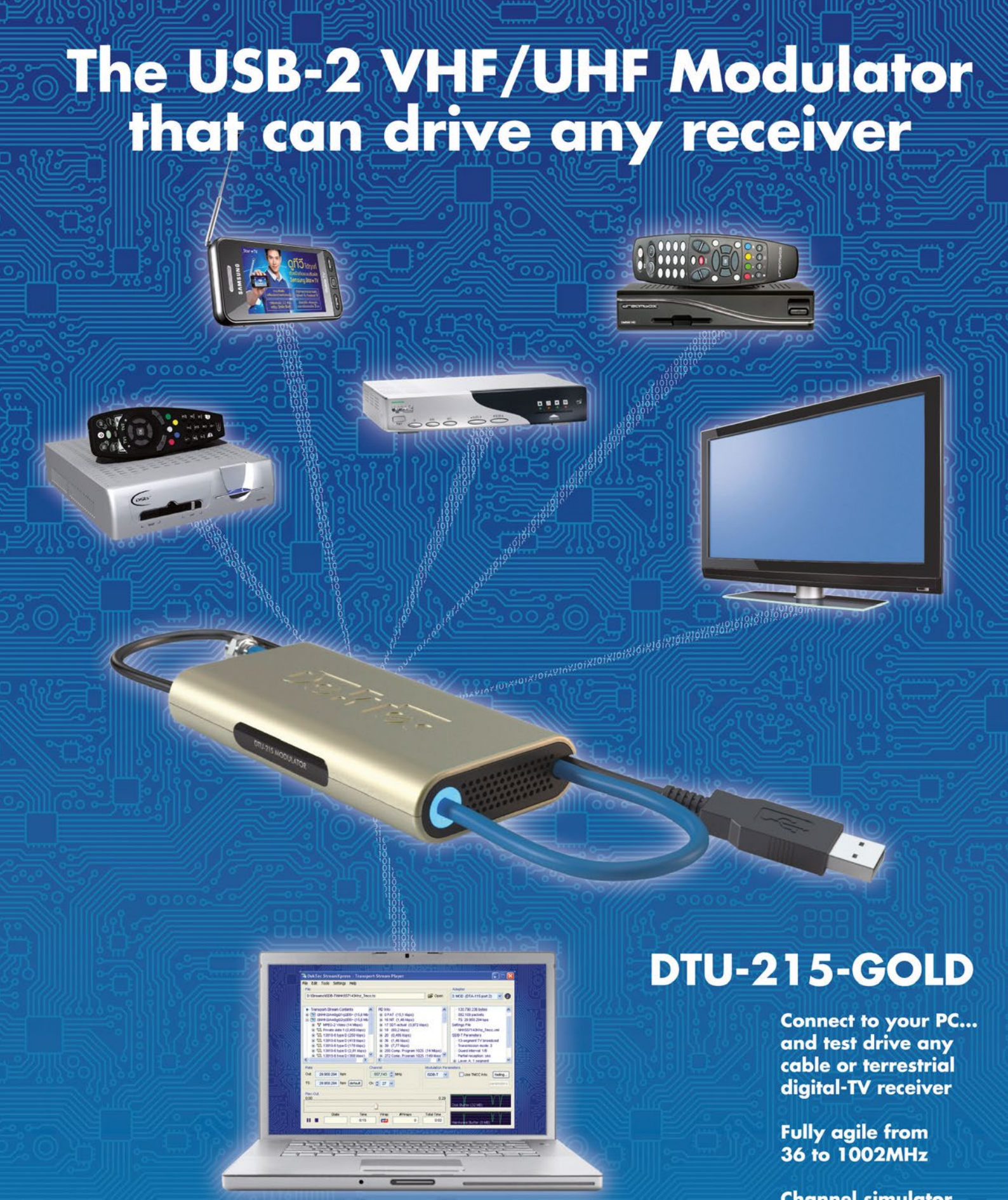
Second in the list is the heading „Watch Later“ and this highlights a problem that we are all very familiar with: suppose that you're surfing the Internet and you come across a great video on YouTube, Vimeo or some other service. Instead of watching that clip on your PC's monitor, wouldn't you rather watch it on your big HD TV?

Up until now you had to identify the name of the clip, find it again using a compatible media box and only then could you play it back on your normal TV. But with the Boxee it's not like that; thanks to the Watch Later function you can create a small Bookmarklet for your browser (a small Java macro in the form of a bookmark). This will let you transfer a clip that is currently active on your PC to the Boxee's Watch Later list so that they are then instantly available to you from the box.

This feature works very well together with nearly all web browsers and operating systems and functioned exceptionally well in our tests. The communication between the PC and the Boxee was handled by a server from the manufacturer and during our tests it was always readily accessible and performed its functions without any problems. It didn't take long for this Watch List Bookmarklet to become the most widely used entry in our web browser's Favorites list.

The next heading is Shows. Here numerous shows will be listed from all different categories like Action, Adventure, Comedy, Family, Documentaries, Talk Shows,

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






## DTU-215-GOLD

**Connect to your PC... and test drive any cable or terrestrial digital-TV receiver**

**Fully agile from 36 to 1002MHz**

**Channel simulator included**

DekTec's USB modulator DTU-215-GOLD is an option-packed compact modulator that can cope with any cable or terrestrial modulation standard used throughout the world, including DVB-T2, DVB-C2 and ISDB-T. The modulator comes with streamer software that can run on a PC or laptop. The RF output of the modulator can be connected directly to the antenna input of a digital-TV receiver. As it is powered from the USB-2 bus, no external power adapter is required. This modulator is the ideal tool for demonstrations, research and development and to test drive setup boxes and decoders. For more information visit our website where you also will find our local resellers worldwide.

DekTec
www.dektec.com

etc. The content comes from various providers such as Crunchyroll, Engadget, Revision 3, TED or TVO whereby most of the content originates from Crunchyroll and Revision 3.

The quality varies greatly by provider but from some of them (e.g. Revision 3) it's top notch thanks to HD resolution. In addition to free offerings, there's also paid providers available thus making classic television series such as Southpark, Lost, The Simpsons or The Office available.

The heading Movies is presented graphically the same as Shows and provides access to MUBI and OpenFilm. MUBI is an Internet service that is geared toward those movie lovers whose interests lie beyond the classic Hollywood blockbusters. There's seemingly an endless amount of professionally produced content that is divided into dozens of categories. We were totally amazed at all the different MUBI content that was available.

With the OpenFilm platform the Boxee has access to an equally large archive of movies and clips from up and coming filmmakers. Here directors have the ability to present their work to the general public and make themselves known. Also divided into numerous categories, the interested user can discover one or more top movies that might be more enjoyable than some of the new Hollywood blockbusters.

For those within the USA the services Netflix and Vudu are available. For a subscription fee, users have access to whatever's currently available on TV or in the movie theaters. Hollywood blockbusters, current TV series and the latest productions from the biggest movie studios are directly available through the Boxee at any time. Unfortunately this service is not free and due to international regulations cannot be viewed outside of the USA.

There's a wide variety of possibilities hidden behind the heading Apps. From here Apps for all the different services such as YouTube, Vimeo, Weather, News, etc. can be downloaded. Not only that, there's the RSS Feeder, Apps for Revision 3, MLB, Slingbox, etc. that can be selected. If you're interested in foreign-language TV channels, you can also get your fill with content like CBS8 Los Angeles. There's even Apps for hundreds of delicious recipes available. And the best part? The recipes are presented not just in plain text form but also as video clips making the decision to cook that much easier.

You might recall at the beginning of this report we mentioned that the App section also contains an assortment of inappropriate content for the kids from providers, such as, YouPorn, PornHub, or Porn Banana whereby a sorting of all the available Apps based on user preferences reveals quite a few more similar Apps on the first results page.

To put it plain

and simple, the number of available Apps for the Boxee is nearly unlimited and thus offers something for every user. Thanks to the practical App store, the user can download these small programs to the Boxee with the push of just one button on the remote control. During our tests it took us quite some time to go through the extensive App store to get an idea of all the interesting Apps that are available. The list of Apps is truly wide-reaching.

And yet with all of this Internet content available, the Boxee can also play back local multimedia content via the network, a USB connection or a memory card. As mentioned before, all of the standard transfer protocols are available for network access. The following file formats are supported: Audio: MP3, MP4, WAV, OGG, DTS; Video: MKV, FLV, MTS,MT2S, TS, AVI, DivX MPEG4, XVid MPEG4, MOV, MP4-2 and WMV-9; Pictures: JPG, PNG, GIF, BMP and TIFF. In our tests the playback of audio and video files via network and/or memory card worked perfectly. Even the display of pictures on the big-screen plasma TV in our test center was quite enjoyable.

Naturally, we also wanted to take a closer look at the Boxee's AirPlay function. As soon as the Boxee was connected to the local network, the iPhone and iPad became possible playback sources. One button-push is all that's needed and just like that the HD video on the iPad can now be seen in full-screen mode on the TV. It also functions just as perfectly for all forms of music and Podcasts. And while we're talking about the iPhone and iPad, the Boxee Remote App for all iOS devices can be used to operate and control the Boxee comfortably from your Smartphone although the capabilities of the virtual remote control are somewhat limited and therefore isn't really that much of an added benefit compared to the real remote control.

To round it all off, the Boxee is enhanced even more by the integration of a fully functional Internet browser that can be found under the heading Web. In addition to the capability to save to your Favorites, it makes for an excellent alternative to a PC-based or Smartphone-based web browser thanks to the practical keyboard on the underside of the remote control. In our tests it had no trouble handling any of the websites we surfed to; it could even handle Flash content without any difficulties.

Social networks, videos from the Internet, IPTV, movies, series, music, radio and of course the Web, it all comes merged together very nicely in the Streaming Player Boxee and is available to the user using just one single remote control. Thanks to the many different network communications capabilities, multimedia content from other devices can be played back through the Boxee.

## EXPERT
### OPINION

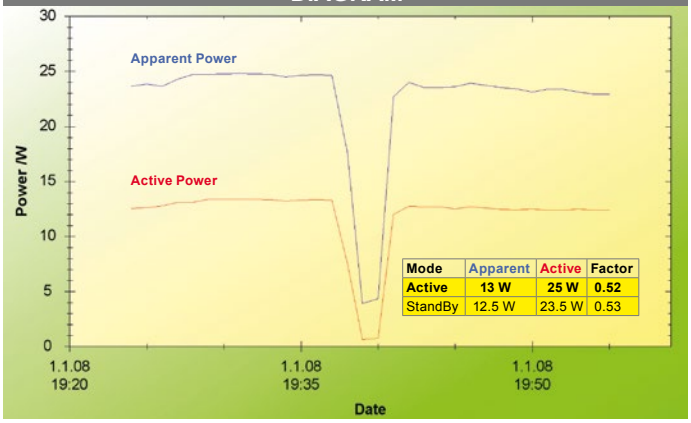
**+** **Excellent manufacturing quality and extravagant design**

**The number of available movies, series, music, radio stations, Apps and IPTV is unbelievably large**

**In addition to Standby mode, the Boxee can also be turned off completely lowering its power usage to less than 1.0 Watt**

**–** **None**

## ENERGY
### DIAGRAM




**Initial 15 minutes active operation, then two minutes completely turned off and then 15 minutes in Standby**

# AWARD WINNING 21 DIGITAL RECEIVERS OF 21ST CENTURY

## 这些是获得最高奖的产品

| | |
|---|---|
| Manufacturer | TBS Tenow |
| Website | www.tbsdtv.com |
| Function | DVB S2 compatible Twin Tuner Streamingbox |
| DiSEqC | 1.0 / 1.1 |
| DVB S2/LAN | • / • |
| PVR | • |
| S-Video/HDMI | — / — |
| Scart/Digital Audio | — / — |

INNOVATION TELE audiovision AWARD 07-08/2013

**TBS Streaming Box MOI**
Program offers streaming and isolation of hardware and software, a double innovative concept for the future of TV

TELE-audiovision International Magazine

# Business Voucher

www.TELE-audiovision.com/13/07/tenow

*Read TELE-audiovision Test Report*

Energy Efficiency Rating eco friendly 0.54 Power factor tested by TELE-audiovision

TENOW

| | |
|---|---|
| Manufacturer | Gotech |
| Website | www.gotechcn.com |
| Function | DVB S2 Satellite Receiver |
| DVB S2/LAN | • / • |
| Channel Memory | unlimited |
| DiSEqC | 1.0 / 1.1 / 1.2 / 1.3 |
| S-Video/HDMI | — / • |
| Scart/Digital Audio | • / • |

TELE audiovision AWARD 07-08/2013

**MKTechHD**
Fully featured Mini Scart Receiver with HDTV via HDMI

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/13/07/mktech

*Read TELE-audiovision Test Report*

Energy Efficiency Rating eco friendly 0.61 Power factor tested by TELE-audiovision

MKTECH

| Manufacturer | Fortis |
|---|---|
| Website | www.tiviar.com |
| Function | DVB S2 / DVB T2 / DVB C Triple PVR Receiver |
| DVB S2/LAN | • / • |
| Channel Memory | 10000 |
| DiSEqC | 1.0 / 1.1 / 1.2 / 1.3 |
| S-Video/HDMI | — / • |
| Scart/Digital Audio | • / • |

TELE audiovision AWARD 07-08/2013

**Tiviar Alpha Plus**
Best dissolved integration for reception of all digital TV signals

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/13/07/tiviar

*Read TELE-audiovision Test Report*

| Manufacturer | Amiko |
|---|---|
| Website | www.amikostb.com |
| Function | DVB S / DVB S2 & DVB T / DVB T2 / DVB C Comboo PVR Receiver with two user defineable Tunerslots |
| DVB S2/LAN | • / • |
| Channel Memory | unlimited |
| DiSEqC | 1.0 / 1.1 / 1.2 / 1.3 |
| S-Video/HDMI | — / • |
| Scart/Digital Audio | • / • |

TELE audiovision AWARD 05-06/2013

**Amiko HD8840**
At long last: A receiver that can handle all types of DVB and even comes with full PVR functionality

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/13/05/amiko

*Read TELE-audiovision Test Report*

Manufacturer | Changhong
Website | www.changhong.com
Function | DVB-C Receiver, Mediaplayer, Android Apps
DVB-S2/LAN | — / •
PVR | •
S-Video/HDMI | — / •
Scart/Digital Audio | — / •
TELE audiovision AWARD 05-06/2013
Changhong Smartcenter
Very successful hybrid receiver for digital TV
TELE-audiovision International Magazine
Business Voucher
www.TELE-audiovision.com/13/05/changhong
Read TELE-audiovision Test Report
CHANGHONG
RB78A
eco friendly 0.55 power factor
Energy Efficiency Rating
tested by TELE-audiovision
CHANGHONG iho
SmartCente
CHANGHONG

Manufacturer | Panodic
Website | www.panodic.com
Function | DVB-T / DVB-T2 Receiver
DVB-T2/LAN | • / —
PVR | •
S-Video/HDMI | — / •
Scart/Digital Audio | • / —
TELE audiovision AWARD 03-04/2013
Panodic HDT-275C
Great receiver for the new HDTV era in digital terrestrial TV in future-proof DVB-T2
TELE-audiovision International Magazine
Business Voucher
www.TELE-audiovision.com/13/03/panodic
Read TELE-audiovision Test Report
STANDBY INFO SUBTITLE MUTE
MENU CH+ EXIT
VOL- OK VOL+
RECORD CH- EPG
BACK
MEDIA USB TV/RADIO AUDIO
TTX TIMER FAV RES
eco friendly 0.53 power factor
Energy Efficiency Rating
tested by TELE-audiovision
HDT-275C
0302
PCMCIA CARD
STANDBY/ON MENU VOL- VOL+ CH- CH+
CAUTION
RF IN RF OUT
CVBS R L
HDMI
USB
COAXIAL
TVO
PANODIC

| | |
|---|---|
| Manufacturer | Tsinghwa |
| Function | DTMB Receiver |
| LAN | — |
| PVR | • |
| S-Video/HDMI | — / • |
| Scart/Digital Audio | — / • |

TELE audiovision AWARD 03-04/2013

**Tsinghwa GT-278**
Rock-solid receiver with excellent speed reaction time

TELE-audiovision International Magazine

## Business Voucher

www.TELE-audiovision.com/13/03/tsinghwa

*Read TELE-audiovision Test Report*

| | |
|---|---|
| Manufacturer | Skyworth |
| Website | www.skyworthdigital.com |
| Function | DVB T / DVB T2 HDTV Receiver |
| DVB T2/LAN | • / — |
| PVR | • |
| S-Video/HDMI | — / • |
| Scart/Digital Audio | — / — |

TELE audiovision AWARD 01-02/2013

**Skyworth HTA6**
A rock-solid receiver for HDTV over the terrestrial antenna

TELE-audiovision International Magazine

## Expert Opinion

www.TELE-audiovision.com/13/01/skyworth

*Read TELE-audiovision Test Report*

TRACK
1 2 3
4 5 6
7 8 9
DEL 0 INPUT
MENU BACK
OK
VOL
HOME
SEARCH
CH
LANG
F1 F2 F3 F4
JIUZHOU
Manufacturer Jiuzhou
Website www.jiuzhou.com.cn
Function DVB T & Android STB
DVB S2/LAN — / •
PVR •
S-Video/HDMI — / •
Scart/Digital Audio — / •
TELE-audiovision International Magazine
Business Voucher
www.TELE-audiovision.com/12/11/jiuzhou
Read TELE-audiovision Test Report
INNOVATION
TELE audiovision AWARD
11-12/2012
Jiuzhou DTP2100
Cutting-edge receiver thanks to Android operating system
JIUZHOU DTP2100
LOCK NET RUN STANDBY
IR
RF IN
VIDEO-L-R
HDMI
ETHERNET
S/PDIF
USB
USB
Energy Efficiency Rating
eco friendly
0.55
power factor
tested by TELE-audiovision
JIUZHOU

STANDBY
INFO
SUBTITLE
MUTE
PLAY/PAUSE
STOP
MENU
CH+
EPG
VOL-
OK
VOL+
RECORD
TIMESHIFT
CH-
EXIT
BACK
MEDIA
TEXT
TV/RADIO
AUDIO
FILE
TIMER
ASPECT
RES
GOTO
REPEAT
SLOW
BOOKMARK
Manufacturer Panodic
Website www.panodic.com
Function DVB S / DVB S2 Receiver
DVB S2/LAN • / —
DiSEqC 1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI — / •
Scart/Digital Audio • / —
TELE-audiovision International Magazine
Business Voucher
www.TELE-audiovision.com/12/11/panodic
Read TELE-audiovision Test Report
TELE audiovision AWARD
11-12/2012
Panodic HDS275
Best designed mini-receiver for the best HD reception
HDS275
0302
PCMCIA CARD
STANDBY/ON
MENU
VOL-
VOL+
CH-
CH+
Mascom spol.s.r.o., Czech republic
www.mascom.cz
LOOP OUT
DisH IN
CVBS
R
L
HDMI
USB
COAXIAL
SCART
Energy Efficiency Rating
eco friendly
0.58
power factor
tested by TELE-audiovision
PANODIC

| | |
|---|---|
| Manufacturer | AZBox |
| Website | www.azbox.com |
| Function | HDTV DVB S/DVB S2 Miniature HDTV Linux Receiver with Multimedia Features |
| DVB S2/LAN | • / • |
| Channel Memory | unlimited |
| DiSEqC | 1.0 / 1.1 / 1.2 / 1.3 / USALS |
| S-Video/HDMI | — / • |
| Scart/Digital Audio | — / • |

TELE-audiovision International Magazine

## Expert Opinion

www.TELE-audiovision.com/12/09/azbox-mini-me

*Read TELE-audiovision Test Report*

TELE audiovision AWARD 09-10/2012

**AZBox mini ME**
Excellent mini-receiver with Network features - ideal for a home network

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

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

TELE-audiovision International Magazine

## Expert Opinion

www.TELE-audiovision.com/12/07/panodic

*Read TELE-audiovision Test Report*

TELE audiovision AWARD 06-07-08/2012

**Panodic HDT-127A DVB-T**
Well-equipped DVB-T Mini-Receiver

Energy Efficiency Rating eco friendly 0.63 power factor tested by TELE-audiovision

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

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/05/panodic

*Read TELE-audiovision Test Report*

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

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/03/azbox-me

*Read TELE-audiovision Test Report*

# The Best Way to Partner with TELE-audiovision Magazine

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Reliability 可靠
Continuity 持续
Accountability 担当

# Trust

信任

Magazine started in 1981 and is by now the world's largest in digital tv trade

杂志开始于1981年，现在是世界上最大的数字电视行业

The only way to survive in the oversupply world that exists today is to offer more to your customers than what other manufacturers offer. And this philosophy should not be limited to just the products that you produce, but in everything else that is involved in the making of those products. And the end result? The customers will recognize the long-term advantage of ONLY purchasing YOUR products. They will know that your company will still exist next week, next month, next year. These days products require frequent updates. In the continuously developing digital world, firmware and software need to be regularly upgraded to add new features and to improve on existing features.

在这个供过于求的世界上，供应商唯一的生存之道就是提供其他竞争对手所没有东西。这不仅是产品本身，还有一个简单产品背后实力的展现。这意味着您的客户将知道：在这个瞬息万变的电子世界里，他的供应商将日复一日，年复一年的为他提供专业的人性化服务；精准的硬软件调试；实时的新功能升级。

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# CHINA

AluoConsulting 阿罗顾问
Export Digital TV Products from China

**LUO SHIGANG**
President

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Fax: +49-89-92185023
Email: luo.shigang@Aluo-Consulting.de
Website: www.Aluo-Consulting.de

# LOOKING FOR A SET TOP BOX MANUFACTURER?

Contact AluoConsulting
luo.shigang@Aluo-Consulting.de

We help you find the manufacturer in China that matches your needs and requirements

Contact us with your specifications and we do the rest

## AluoConsulting 阿罗顾问

Export Digital TV Products from China

Main Office: Munich  Branch Offices: Beijing - Shenzhen - Shanghai - Chengdu - Hongkong - Taipei

# AWARD WINNING 21 SIGNAL ANALYZERS OF 21ST CENTURY

## 这些是获得最高奖的产品

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/13/05/deviser

*Read TELE-audiovision Test Report*

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

TELE audiovision AWARD 05-06/2013

**DEVISER S30**
Highly accurate handheld meter optimized for the satellite dish installer

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/13/03/horizon

*Read TELE-audiovision Test Report*

| | |
|---|---|
| **Manufacturer** | Horizon Global Electronics |
| **Website** | www.horizonhge.com |
| **Function** | Digital Satellite Meter for DVB S and DVB S2 Signals |
| **Frequency Range** | 950 ~ 2150 MHz |
| **Video Output** | — |
| **Built-in Monitor** | LCD display |

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/13/01/kws

*Read TELE-audiovision Test Report*

| | |
|---|---|
| **Manufacturer** | KWS-Electronic |
| **Website** | www.kws-electronic.de |
| **Function** | Handheld Signal Analyzer with Spectrum for DVB S, DVB S2 |
| **Frequency Range** | 910 ~ 2150 MHz |
| **Video Output** | yes |
| **Built-in Monitor** | 5,7" Color-TFT, VGA Resolution |

TELE audiovision AWARD 01-02/2013

**KWS VAROS 109**
Extremely high-quality meter for everyday use by satellite installers

KWS ELECTRONIC

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/11/satlink

*Read TELE-audiovision Test Report*

| | |
|---|---|
| **Manufacturer** | Fujian Baotong |
| **Website** | www.sat-link.com.cn |
| **Function** | Digital Meter & Receiver for DVB S and DVB T Signals |
| **Frequency Range** | 47 ~ 862 MHz & 950 ~ 2150 MHz |
| **Video Output** | yes |
| **Built-in Monitor** | 4.3 inch display |

TELE audiovision AWARD 11-12/2012

**Satlink WS-6936**
Very easy to use signal meter which also serves as receiver.

SATLINK

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/11/horizon

*Read TELE-audiovision Test Report*

| | |
|---|---|
| **Manufacturer** | Horizon Global Electronics |
| **Website** | www.horizonhge.com |
| **Function** | Digital Meter for Analogue, DVB T and DVB T2 Signals |
| **Frequency Range** | 48 ~ 862 MHz |
| **Video Output** | — |
| **Built-in Monitor** | LCD display |

TELE audiovision AWARD 11-12/2012

**HORIZON HD-T2**
One of the world's first DVB-T2 signal analyzers with exceptional data

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/11/deviser

*Read TELE-audiovision Test Report*

| | |
|---|---|
| **Manufacturer** | Tianjin Deviser Electronics Instrument |
| **Website** | www.devisertek.com |
| **Function** | Optical Power Meter |
| **Frequency Range** | -43 dBm ~ +25 dBm |
| **Video Output** | — |
| **Built-in Monitor** | LCD display |

TELE audiovision AWARD 11-12/2012

**DEVISER AE 120**
**Optical Power Meter**
Extremely simle to use but at same time very accurate

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/09/deviser

*Read TELE-audiovision Test Report*

| | |
|---|---|
| **Manufacturer** | Tianjin Deviser Electronics Instrument |
| **Website** | www.devisertek.com |
| **Function** | Professional Meter for DVB-T, DVB-C and CATV (analog TV) |
| **Frequency Range** | 5 ~ 1000 MHz |
| **Video Output** | — |
| **Built-in Monitor** | 320 × 240 TFT display |

TELE audiovision AWARD 09-10/2012

**DEVISER DS2400T**
This is by far the best handheld measuring instrument for DVB-T, DVB-C and CATV I have come across. Deviser has done an excellent job!

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/05/spaun

*Read TELE-audiovision Test Report*

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

TELE audiovision AWARD 04-05/2012

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

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/03/satcatcher

*Read TELE-audiovision Test Report*

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

TELE audiovision AWARD 02-03/2012

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

TELE-audiovision International Magazine

# Expert Opinion

www.TELE-audiovision.com/12/01/horizon

*Read TELE-audiovision Test Report*

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

# AWARD WINNING 21ST CENTURY IPTV/WebTV RECEIVERS OF

## 这些是获得最高奖的产品

| | |
|---|---|
| Manufacturer | D-Link |
| Website | www.dlink.com |
| Function | Internet Streaming Box |
| WIFI/LAN | • / • |
| Internal Storage | no |
| HDTV | yes (up to 1080p) |
| CVBS/HDMI | — / • |
| USB/SD Card | • / • |

TELE-audiovision International Magazine

## Expert Opinion

www.TELE-audiovision.com/13/07/boxee

*Read TELE-audiovision Test Report*

| | |
|---|---|
| Manufacturer | Netgear |
| Website | www.netgear.com |
| Function | Streaming Player |
| WIFI/LAN | • / • |
| Internal Storage | no |
| HDTV | yes (up to 1080p) |
| CVBS/HDMI | — / • |
| USB/SD Card | — / — |

TELE-audiovision International Magazine

## Expert Opinion

www.TELE-audiovision.com/13/05/netgear

*Read TELE-audiovision Test Report*

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

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

TELE-audiovision International Magazine
**Expert Opinion**
www.TELE-audiovision.com/13/05/azbox-me
*Read TELE-audiovision Test Report*

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

| | |
|---|---|
| Manufacturer | Roku |
| Website | www.roku.com |
| Function | Streaming Player |
| WIFI/LAN | • / — |
| Internal Storage | no |
| HDTV | yes (up to 1080p) |
| CVBS/HDMI | • / • |
| USB/SD Card | — / • |

TELE-audiovision International Magazine
**Expert Opinion**
www.TELE-audiovision.com/13/03/roku
*Read TELE-audiovision Test Report*

Manufacturer | LookeeTV
Website | www.lookeetv.com
Function | Multimedia Player for local media and Internet
WIFI/LAN | • / •
Internal Storage | yes, 1.14 GB
HDTV | yes (up to 720p)
CVBS/HDMI | • / •
USB/SD Card | • / •
TELE-audiovision International Magazine
Expert Opinion
www.TELE-audiovision.com/12/11/lookee
Read TELE-audiovision Test Report
Energy Efficiency Rating
eco friendly
0.54
power factor
tested by TELE-audiovision
LOOKEETV

Manufacturer | AZBox
Website | www.azbox.com
Function | HDTV DVB-S/DVB-S2 Miniature HDTV Linux Receiver with Multimedia Features
DVB-S2/LAN | • / •
Channel Memory | unlimited
DiSEqC | 1.0 / 1.1 / 1.2 / 1.3 / USALS
S-Video/HDMI | — / •
Scart/Digital Audio | — / •
TELE audiovision AWARD 09-10/2012
AZBox mini ME
Excellent mini-receiver with Network features - ideal for a home network
TELE-audiovision International Magazine
Expert Opinion
www.TELE-audiovision.com/12/09/azbox-mini-me
Read TELE-audiovision Test Report
Energy Efficiency Rating
eco friendly
0.57
power factor
tested by TELE-audiovision
AZBOX

| Manufacturer | Logitech |
|---|---|
| Website | www.logitech.com |
| Function | IPTV Receiver |

TELE-audiovision International Magazine

**Expert Opinion**

www.TELE-audiovision.com/12/03/googletv

*Read TELE-audiovision Test Report*

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

TELE audiovision AWARD 12-01/2011

JIUZHOU DTP8300
IPTV Receiver Equipped with Top-Notch Technology

TELE-audiovision International Magazine

**Expert Opinion**

www.TELE-audiovision.com/11/01/jiuzhou

*Read TELE-audiovision Test Report*

# CHINA

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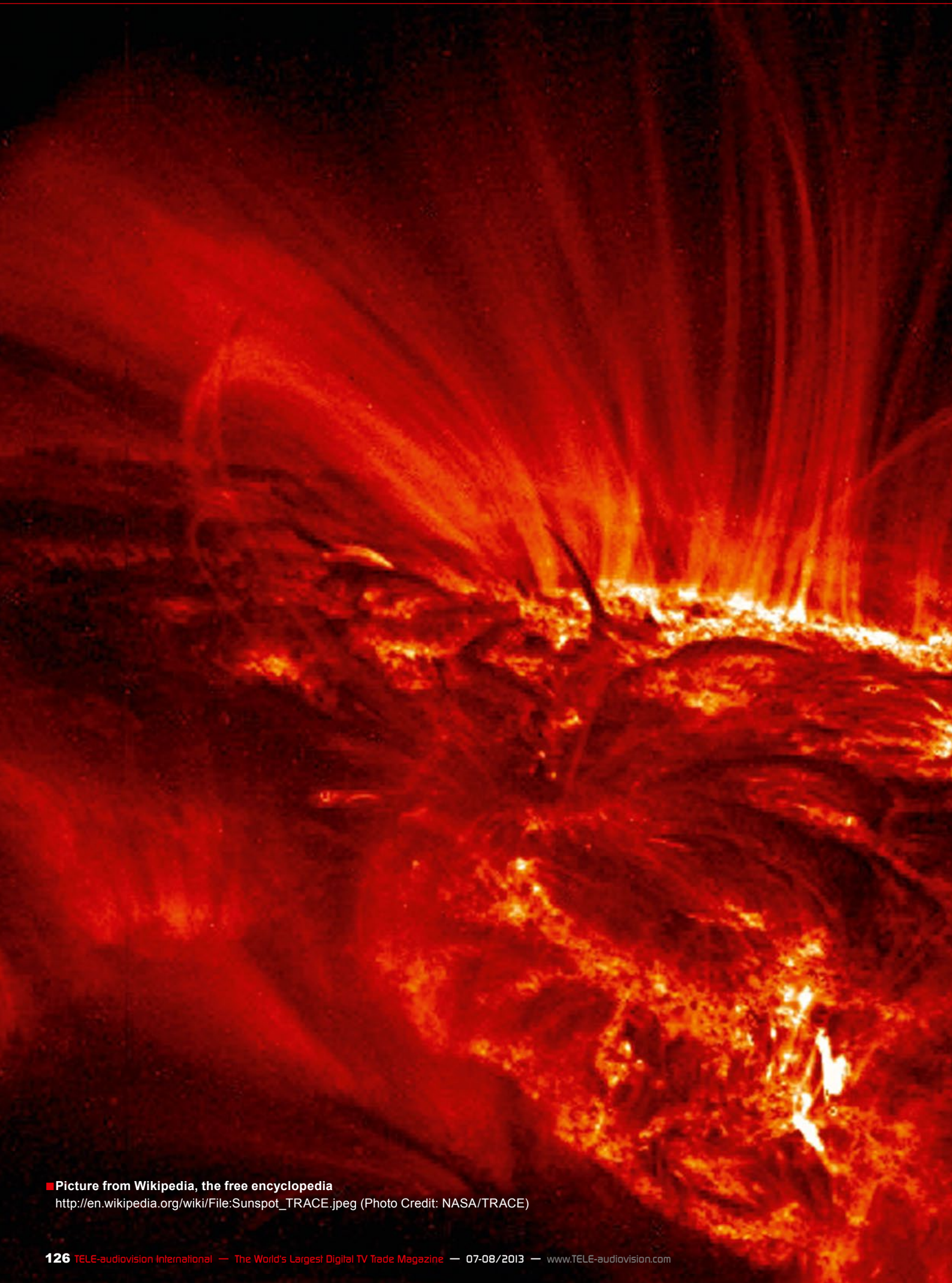


**Picture from Wikipedia, the free encyclopedia**
http://en.wikipedia.org/wiki/File:Sunspot_TRACE.jpeg (Photo Credit: NASA/TRACE)

# The New HEVC/H.265 Standard

- *reduced bandwidth by 50%*
- *can be used also for very small screens*
- *divides the video in 64x64 pixel blocks*
- *requires advanced processors in the receiver*

# Designed for Ultra High Definition TV

**Jacek Pawlowski**

Every 9-11 years we observe a step forward in digital video technology. Compare the dates of the main standard publications:

- 1992: VCD, CDi
- 1994: MPEG-2 (H.262) and DVD-Video
- 2004: MPEG-4 (H.264), Blu-ray Disc, Internet streaming, mobile video
- 2013: HEVC (H.265) - the expected new standard for ultra high definition video

The interesting thing is that this corresponds more or less to the 11 years long solar cycle. Every 11 years, the number of sunspots reach a maximum - see picture 1.

Is it possible that the smart guys working on digital video standardization are influenced by this natural phenomenon? Perhaps a high number of sunspots turns them up so much that they simply have to reduce the tension and publish a new standard? We will come back to that at the end of this article.

The new standard is self-explained by its name – HEVC means High Efficiency Video Coding. HVEC is claimed to be about 50% more efficient than MPEG-4/H.264. Let's compare what bit rates are needed for today's SD channel, HD channel and a future Ultra HD channel depending on video compression method: MPEG-2, MPEG-4 and HEVC. We put the figures in table 1.

Please note that by a UHD channel we mean a video resolution of 3,840 x 2,160 pixels in a progressive mode (2160p). So, it is even a bigger improvement than HD had over SD (760p/1080i vs. 480i/576i).

As everybody can see, the improvement in data compression is tremendous. In fact, when work on HEVC started this was the main objective: to achieve about 50% improvement in coding efficiency without sacrificing video quality perceived by humans. And here we come to a very vital question: does HEVC really guarantee a video quality comparable with today's HD?

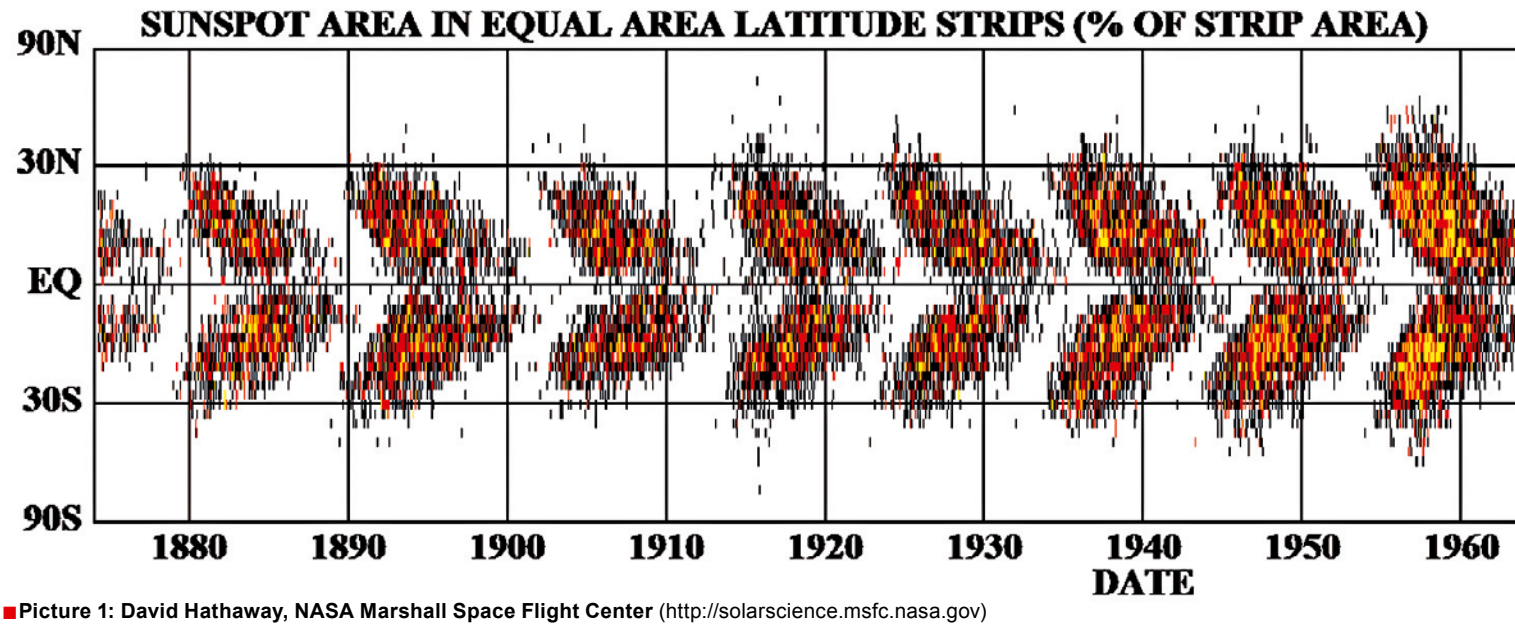
The first tests have been already carried out. Most of them dealt with HD material and indeed proved that HVEC did pretty well in comparison to MPEG-4. The final conclusion was that the average bit rate reduction for HEVC compared to H.264/MPEG-4 AVC was 49.3%. So very, very close to the initial target.

But what about UHD? Has anybody tested the HEVC performance for higher resolutions than today's HDTV? Yes, they have. One of the most rigorous tests was carried out by the researchers from the Ecole Polytechnique Federale de Lausanne in Lausanne, Switzerland. They used a large ultra high resolution LCD monitor (56" Sony Trimaster SRM-L560) and prepared 3 different bit streams with different content: Road Traffic, People On the Street and Sintel2 (computer animation). Eeach video stream was compressed with: MPEG-4 codec and HVEC codec. The test result was: HVEC significantly outperforms MPEG-4. Moreover, it is possible to achieve a 50-75% reduction in bit rate if HVEC is used instead of MPEG-4.

New standard will inevitably entail a lot of turmoil

| | MPEG-2 (H.262) | MPEG-4 (H.264) | HVEC (H.265) |
|---|---|---|---|
| **SD (480i/576i)** | 2.5-3.5 Mbps | 1.5-2.5 Mbps | 0.8-1.5 Mbps |
| **HD (1080i)** | 12-18 Mbps | 6-9 Mbps | 3-4.5 Mbps |
| **UHD (2160p)** | | 12-18 Mbps | 6-9 Mbps |

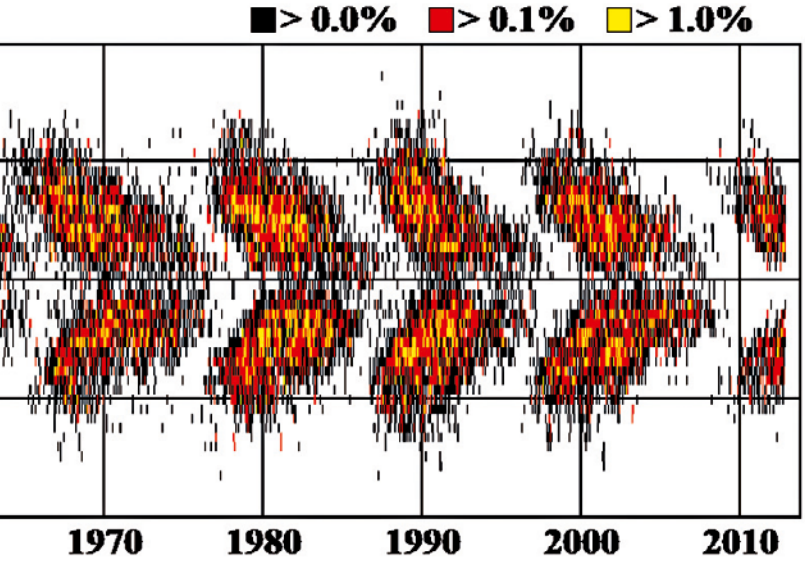
**Table 1: Comparing Standard Definition, High Definition and Ultra High Definition Characteristics**




**Picture 1: David Hathaway, NASA Marshall Space Flight Center** (http://solarscience.msfc.nasa.gov)

■TELE-audiovision's editor Jacek Pawlowski enjoys the help of his personal assistant while working on this report.

not only in the digital TV industry. It will also affect the Internet world. Most likely it will marginalize the VP8 codec that Google realized for royalty-free use. It will also affect mobile devices. Despite the fact that HVEC is specified to resolutions as high as 8,192 × 4,320 pixels, it has a lot of much lower modes of operation (the professionals call them profiles). For example, the lowest Profile 1 is specified for a resolution of 128×96 @ 33.7 frames per second and just 128 kbps bit rate. The profiles go up to Profile 6.2 which is suitable for the highest resolutions and the highest bit rates. Once HVEC is widely accepted, we will find it everywhere: from very simple cheap devices with very small screens up to the largest flat screen monitors and TVs. Should HEVC be useful only for very high resolutions, one could be skeptical about its quick implementation in real world products. But because it offers a 50% bit rate reduction which means also a 50% bandwidth reduction, one can be certain it will not be long when most of the new equipment will be HEVC compatible.




How was it possible that HVEC is so much better than MPEG-4 which up to now we all used to regard as state of the art technology? And why did the scientists and engineers not invent HVEC ten years ago when they came up with MPEG-4?

The answer is: 10 years ago the available processors and memories were too weak and too small to make this technology feasible. To reduce the required bit rate by half, an HVEC receiver has to be equipped with a fast multi-core processor and large and fast memories. An HEVC decoder has to process the signal in a number of tasks in parallel. This is possible because in the HEVC concept, the video frames are divided into multiple tiles and each tile is then processed in parallel. Moreover, HVEC breaks video frames not into 16x16 pixel blocks like it was in H.264, but into blocks of 64x64 pixels. One can easily imagine that the power of the receiver processor must be correspondingly greater to process bigger blocks.

We said that HEVC is possible today due to great advances in technology. Let's compare what was available at the time digital video standards were and will be published:

- 1992: IC technology > 1 micron, memory >50$/MB, processor 500 MHz
- 2003: IC technology < 0.1 micron, memory <50$/GB, processor ~3 GHz single-core
- 2013: IC technology 14 nm, memory <5$/GB, processor ~3 GHz multi-core

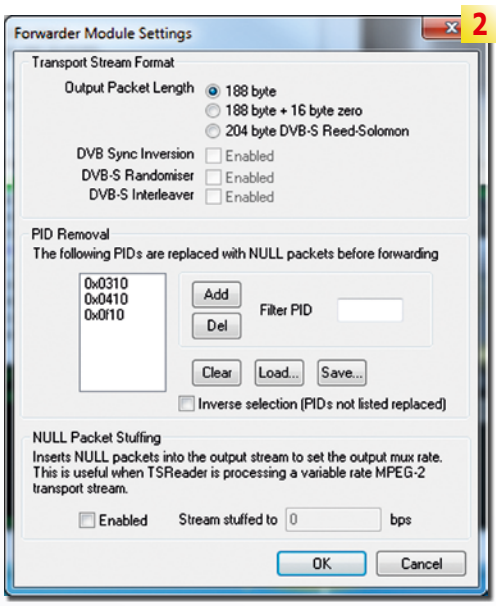
So, were the authors of digital video standards influenced by the solar cycle or rather by advances in technology? I think the answer is now clear. And is the HEVC/H.265 the end of the road or they will invent and standardize yet another more efficient compression standard in the future? Ask me in 11 years.

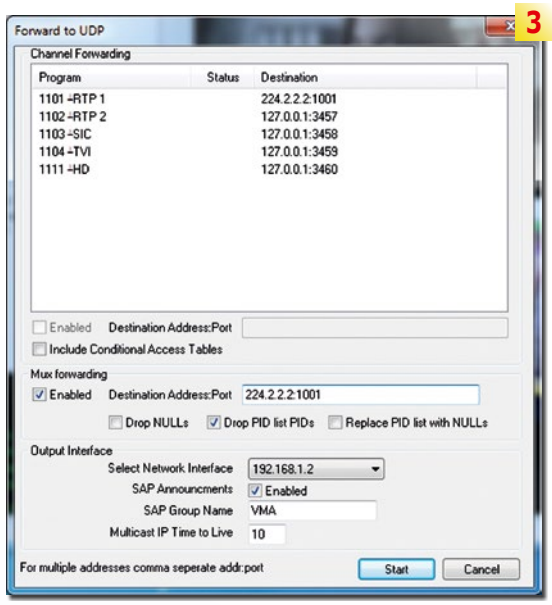
# TV From a Network Part 2

- ***Structure of a Transport Stream***
- ***Multiple TV channels can be placed in a transport stream using a Multiplexer***
- ***TS Reader offers a multiplex function***
- ***Certain Linux receivers operate via a streaming function***
- ***Only high-speed WLANs are suitable for IPTV***

NIT
Channel 1 Video
Channel 1 Audio 1
Channel 1 Audio 2
Channel 1 Videotext
Channel 3 Video
Channel 3 Audio 1
Channel 3 Videotext
EPG
NIT
De-Multiplexer
Channel 1 Videotext
Channel 1 Audio 2
Channel 1 Audio 1
Channel 1 Video
Channel 2 Videotext
Channel 2 Audio 2
Channel 2 Audio 1
Channel 2 Video
Channel 3 Videotext
Channel 3 Audio 1
Channel 3 Video
EPG
EPG
NIT
NIT
Channel 1 Video
Channel 1 Audio 1
Channel 1 Audio 2
Channel 1 Videotext
Channel 3 Video
Channel 3 Audio 1
Channel 3 Videotext
Channel 1 Video
Channel 1 Audio 1
Channel 1 Audio 2

*Vitor Martins Augusto*




Vitor Martins Augusto

With digital TV transmissions each frequency represents one transponder. Multiple TV channels can be found on a single transponder, the number of TV channels depends on the picture quality of each individual channel.

If quite a few channels are to fit on a transponder, then the picture resolution would be reduced while at the same time the compression rate would increase. The result would be a TV channel with a narrower bandwidth and a corresponding reduction in picture quality.

Thanks to the new HDTV formats that, for example, are used by DVB-S2, DVB-C2 or DVB-T2, higher bandwidths per channel are now possible and in turn larger compressions can be obtained with these MPEG4 methods compared to MPEG2 that is mostly used by DVB-S, DVB-C and DVB-T.

In each case it involves a continuous data stream that basically consists of only ones and zeros. How can such a data stream transport various audio and video carriers together with NIT, EPG, Videotext such that all these channels are available simultaneously at the same time?

It's very simple: the data of each channel is placed in small packets and incorporated into the transport stream one behind the other in very short time intervals.

If you want to watch a specific channel on the transponder, the receiver would have to capture the matching data packets for that channel, put them back together and then display the resulting data stream.

Two technical terms that are quite often used in this scenario are:

**Multiplexer**:

The device responsible for creating the transport stream. Various incoming data streams are converted into small data packets and inserted back to back into the transport stream.

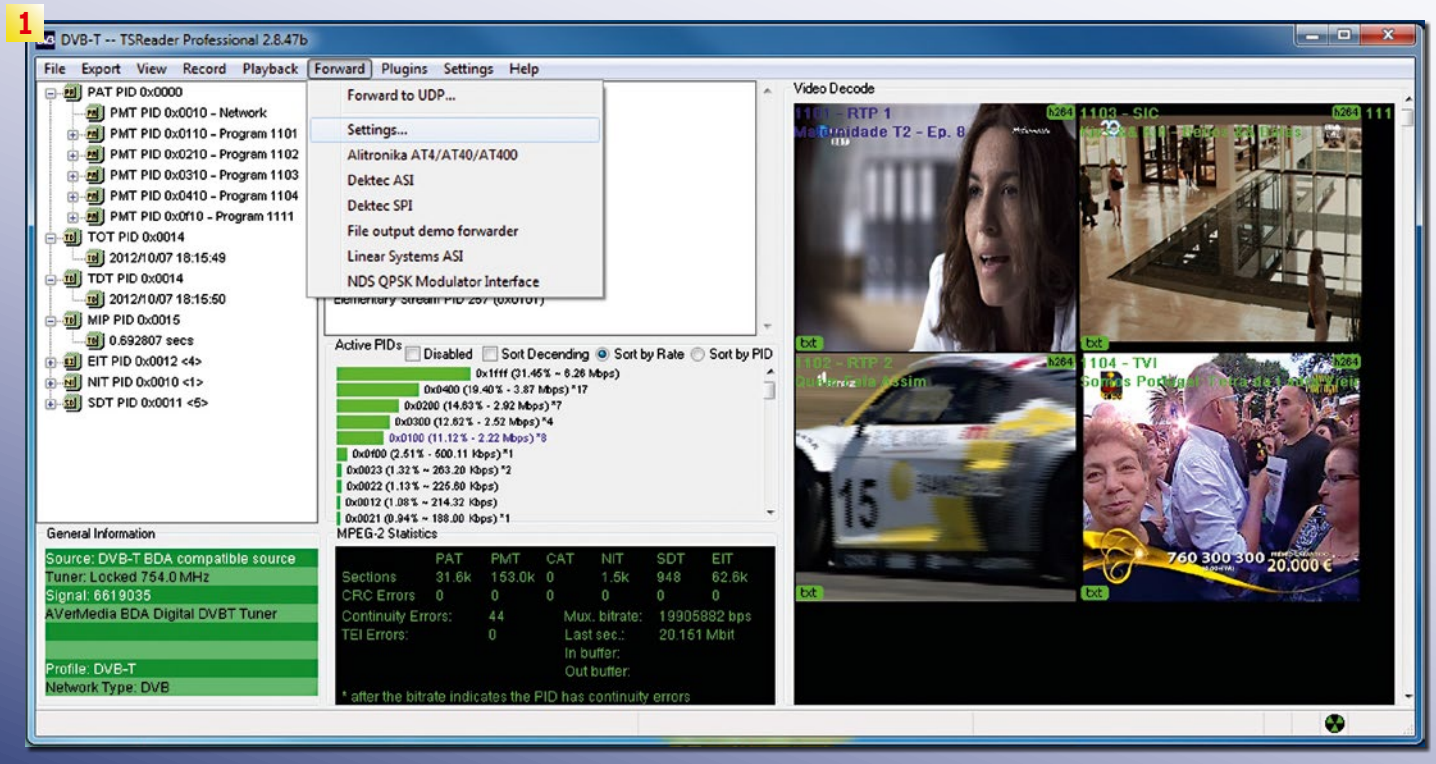
**De-multiplexer**:

The device that extracts the individual streams from the transport stream and

**1. To the right TS Reader Pro shows the complete content of a transponder stream together with each of the PIDs. The streaming parameters can be defined in the Settings menu.**

**2. PIDs that are to be filtered out of the transport stream can be entered in the "PID Removal" field**

**3. In the upper field the individual channels can be streamed via various IP/Ports**



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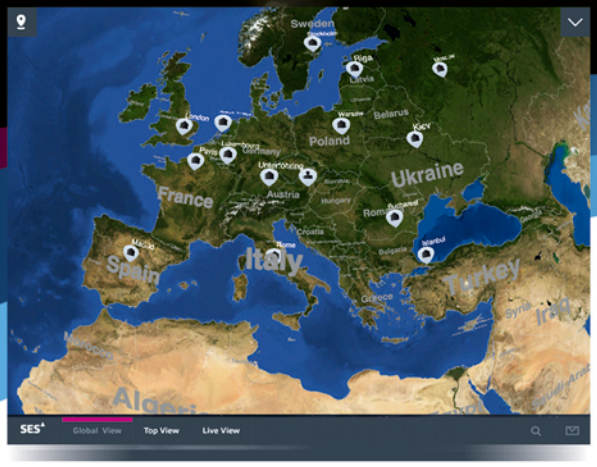

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**(Niclas Friese Greene,** Senior Vice President of Marketing and Corporate Communications, **SES)**


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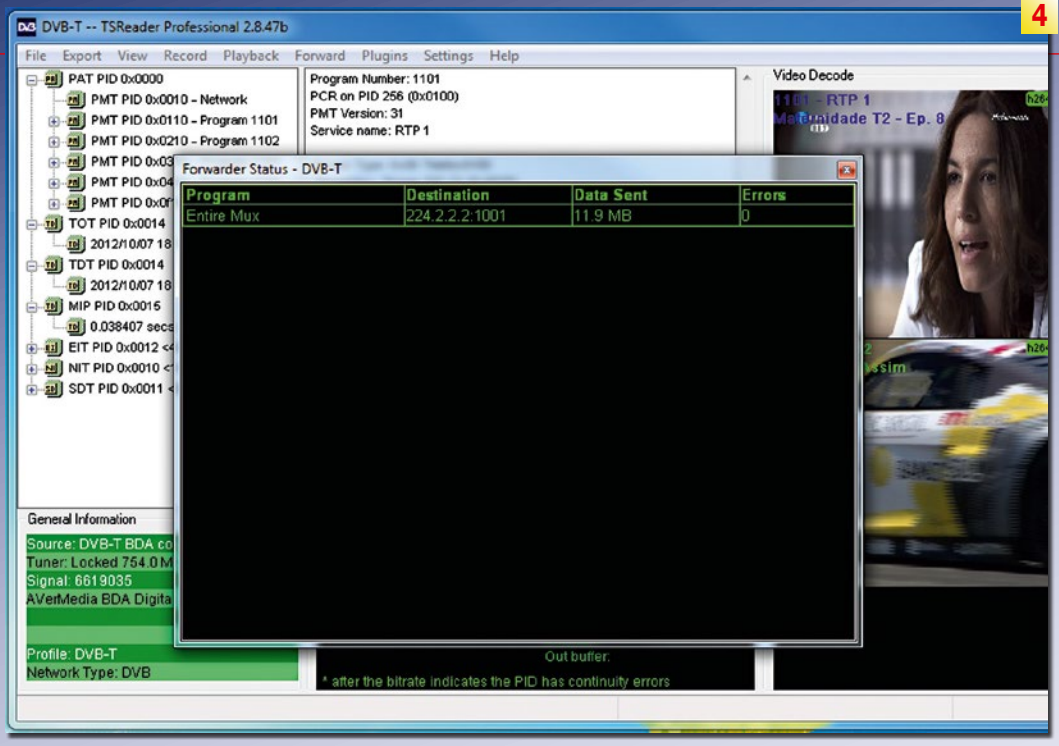



4

combines them into individual TV channels.

If you want to build your own IPTV network, then it would be a good idea to have a de-multiplexer and multiplexer available, otherwise you'd have to insert the received transponder completely into the network. This isn't always desired since a transponder often carries unwanted channels that would take up valuable bandwidth in the network. It would be far more elegant to remove these unwanted channels.

In the 01-02/2013 issue of TELE-audiovision we tested, for example, the Desing NDS3975. This professional receiver comes with a complete multiplexer that lets the user not only filter out any unwanted channels from the transponder received by the built-in tuner, this receiver can read in an additional transponder via the ASI interface and, on top of that, can also receive an IPTV stream. The channels coming into the NDS3975 can then be thrown together in the Multiplexer Menu.

Professional solutions consist of these kinds of dedicated devices that were conceived for long-term continuous operation.

The beloved TS Reader program shows that it can also be done less expensively.

Using a normal PC and the TS Reader Pro version, transport streams can be multiplexed under Windows quite thoroughly.

After TS Reader has been successfully started and is receiving the desired transponder from a tuner, it can then be streamed into a network. Before the entire stream is inserted into the network, you should first go to the "Settings" option under the "Forward" menu. Here in the "PID Removal" section you can enter in the PIDs that should not be part of the stream. In our case it's the PIDs 0x0310, 0x0410 and 0x0f10: we only want to stream RTP-1 and RTP-2 in our network.

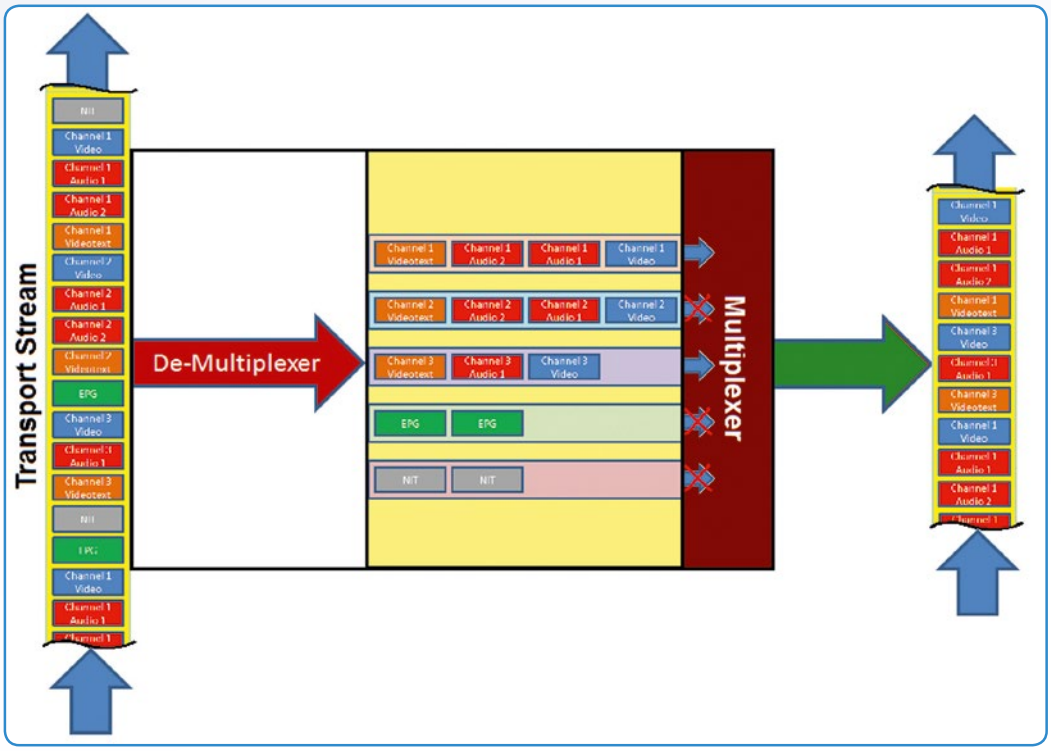
The PIDs can be read in TS Reader's main window on the right side. Keep in mind that the PIDs are entered in hexadecimal format!

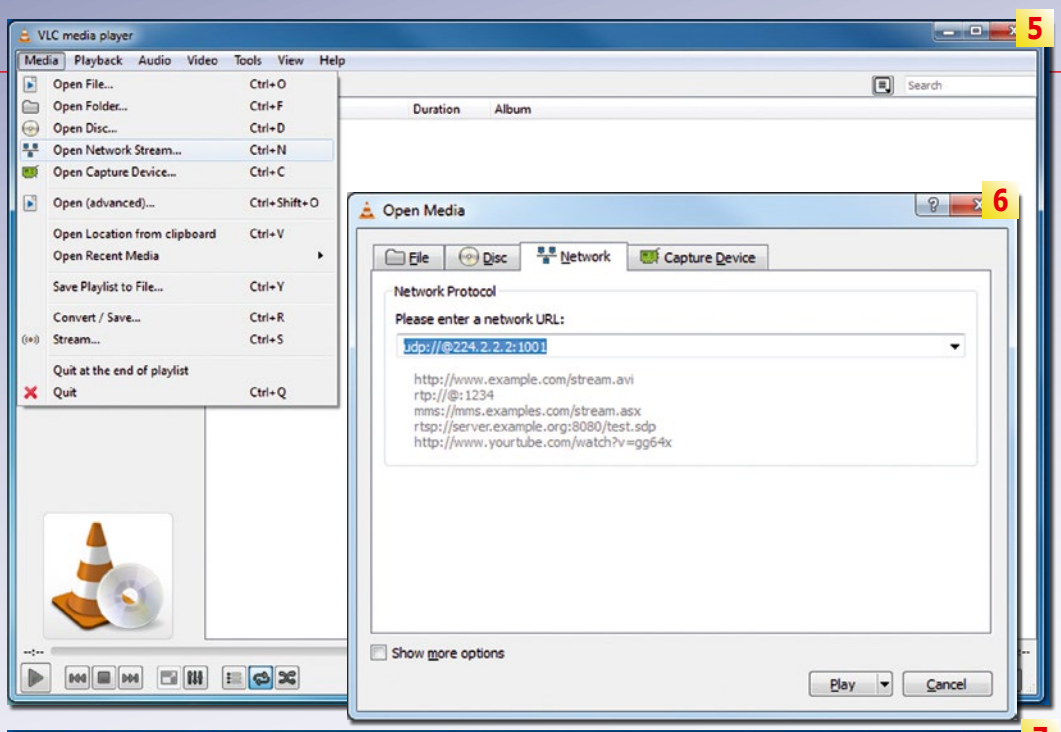
Streaming can now be started. To do this go to the "Forward to UDP" option in the "Forward" menu. The first section lets you stream each individual channel separately whereby a separate port channel must be entered for each channel.

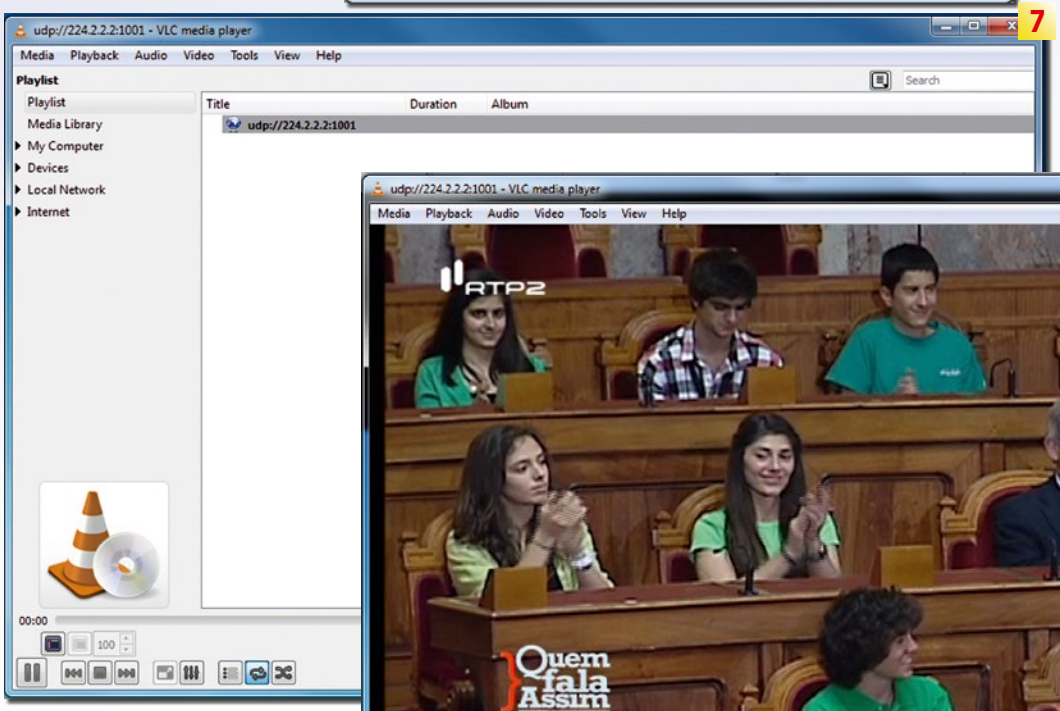
This streaming method is simpler but it comes with a very big disadvantage: every time the user changes channels, a new IP and port number must be entered. It's not the very best way of doing things.

It would be better to use the second section "Mux Forwarding". If an IP address is used from the multicasting pool (224.0.0.0 to 239.255.255.255), then the stream automatically becomes available as UDB multicasting in the entire network to every user; they need to enter the IP and port number, for example, in VLC.

TS Reader Pro displays the stream and the inserted amount of data in a black screen. You'll quickly see why you should never stream to the Internet without having a flat-rate data plan.









**4. In a second window TS Reader Pro shows the status of the streams and especially interesting is the display showing the amount of data being inserted into the network.**

**5. The stream can now be received by any computer or IPTV receiver. We're using the VLC software on the computer. "Open Network Stream…" is opened under Media.**

**6. Now "UDP://@224.2.2.2:1001" must be entered; the IP and Port number naturally have to match what was entered into TS Reader Pro.**

**7. VLC now starts the reception of the stream and if everything works as it should, you'll see the Play button change over to a Pause button (lower left).**

**8. After 1-2 seconds a picture appears.**

To receive the stream, open up the VLC application on another PC. Obviously, this computer has to be connected to the same network. Under "Media" in the menu, "Open Network Stream…" should be selected and in the window that appears, "UDP://@224.2.2.2:1001" should be entered.

If you chose a different IP and/or port number, then of course you'd have to enter in those values. VLC will then start and you'll be able to surf between all of the streamed channels.

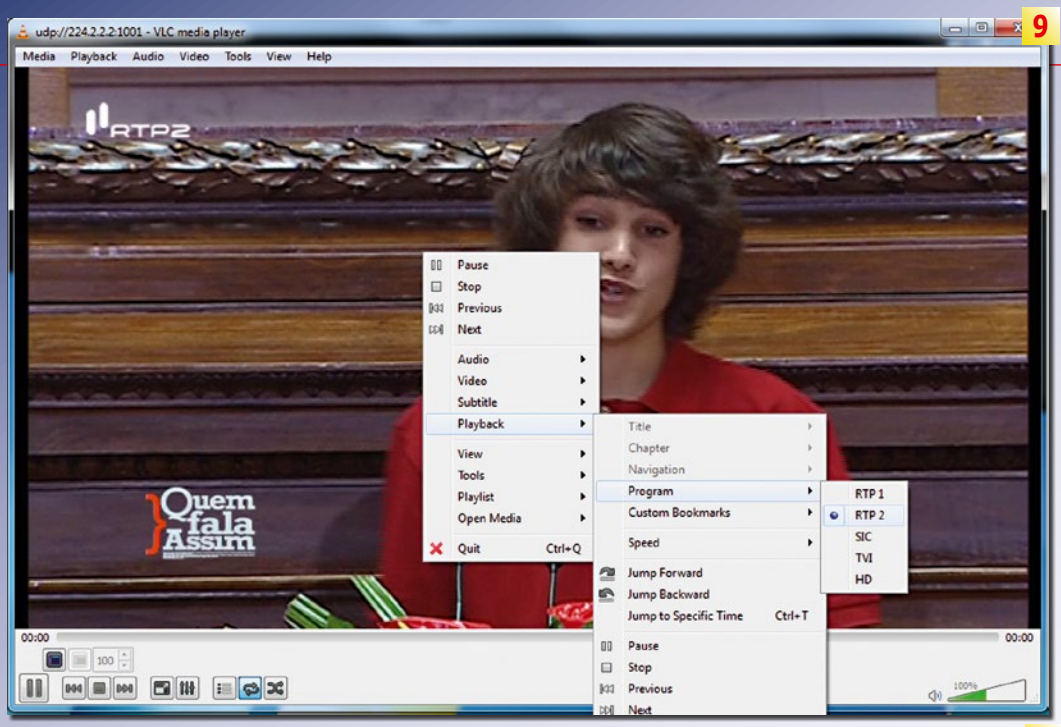
If it doesn't work, check the usual suspects: Firewall, Antivirus, Network. In our test center we had a completely different problem. VLC could not receive any UDP multicast via the network even though TS Reader Pro was able to as a receiver.

Thanks to our signal analyzers we were able to confirm that the stream itself was OK; even our PC was correctly configured.

So what was wrong? After a few hours the culprit was identified: Oracle's Open Source Software VirtualBox, with which we tested virtual operating systems, installed a virtual network card that VLC apparently gave preference to. Since the stream would be coming from the real network card, the screen remained black. Deactivating the virtual network card from VirtualBox helped with the problem. You just have to find the problem first…

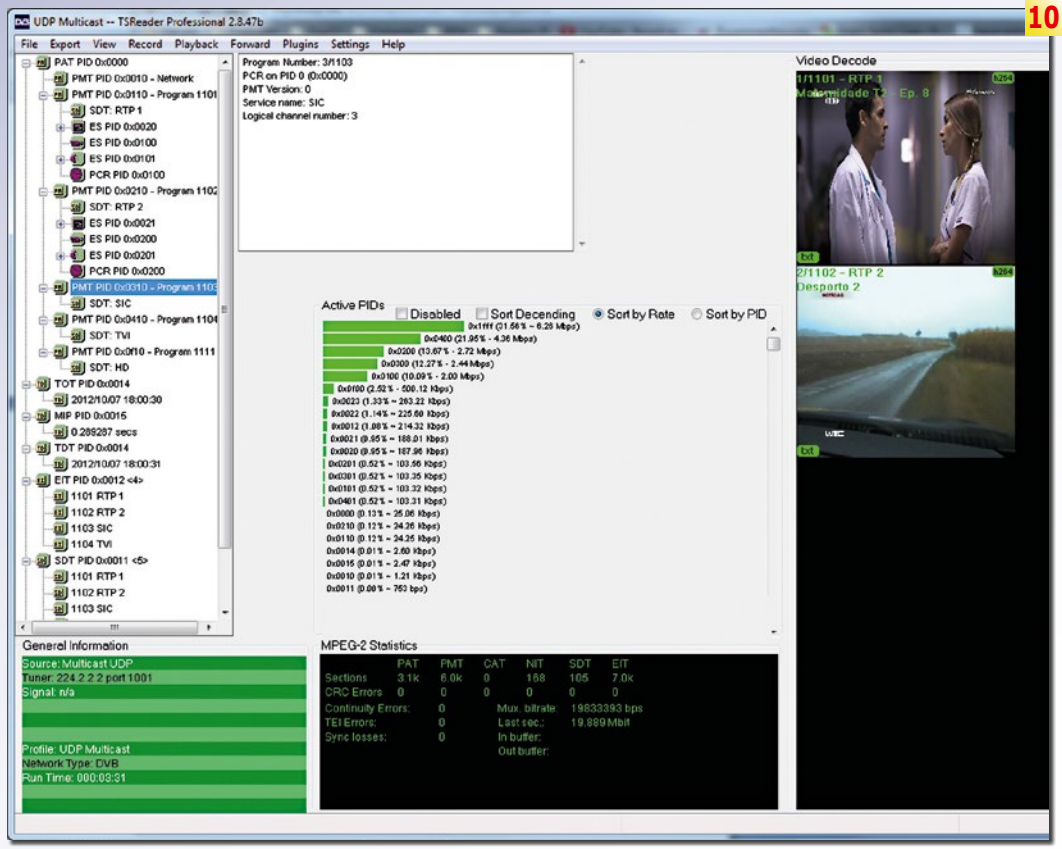
Another inexpensive solution to implement IPTV in private homes would be to make a Linux receiver such as the AZBox ME or AZBox Mini ME available to every user.

Instead of having one of these receivers in every room and running the necessary cable for each of them, place the receivers in a server cabinet and connect them to a Quadro LNB via a multiswitch. Each user would be given the IP address for




9

**9. Under "Playback-Program" you can use the right mouse button to switch between the injected channels. But there's a little error that has appeared. TS Reader Pro did manage to filter the SIC, TVI and HD channels (they no longer are available) but since the PID with the transponder 1:1 was streamed into the network, these channels still appear by mistake. With a real multiplexer such as the Dexing NDS3975, this wouldn't have happened.**




10

**10. On the second computer we analyzed the IPTV stream with TS Reader Pro as the client. It's easy to recognize: only two channels are available yet in the PID table to the left the EIT and SDT PIDs near the bottom still show all of the channels.**

their receiver allowing them to take part in watching unrestricted TV via a browser and VLC.

And it wouldn't matter what room the user would happen to be in at the time.

At first glance this solution seems somewhat absurd; we actually tried it and after only a short time we got used to the idea and liked the freedom of watching TV on a laptop anywhere in the house.

It gets even more interesting when you consider that WLAN can be used for IPTV data transmissions. If you decide to utilize this technology, you should definitely upgrade to the latest WLAN technology to make sure you have sufficient bandwidth available.

Since the labels of all of the different WLAN generations don't really reveal all that much, we put together the table at bottom.

If you consider that an HDTV channel has a transfer rate of12MBit/s, then there's absolutely no doubt that for IPTV applications you should upgrade to the newest 802.11ac standard.

The maximum transfer rates shown in the table are gross values. In normal everyday use you should expect the actual values to be half of that; that's why we feel that the older WLAN 802.11x standards would simply be too slow – pixilation and intermittent video would be the result.

The more we play around with IPTV, the more excited we get about its possibilities. And it's not just the fact that you no longer have to deal with running cables all over the house, it's much more about its flexibility: you can go anywhere in your home and still continue to watch that show or movie.

It even boasts new possibilities such as creating your own channel, streaming movies and much more.

| WLAN Standard | Maximum Transfer Rate | Bandwidth | Frequency Range |
|---|---|---|---|
| 802.11 | 2Mbit/s | 20MHz | 2.4GHz |
| 802.11a | 54Mbit/s | 20MHz | 5GHz |
| 802.11b | 11Mbit/s | 20MHz | 2.4GHz |
| 802.11g | 54Mbit/s | 20MHz | 2.4GHz |
| 802.11n | 72.2Mbit/s – 150Mbit/s | 20MHz – 40 MHz | 2.4GHz + 5GHz |
| 802.11ac | 87.6MBit/s – 866.7Mbit/s | 20MHz – 160MHz | 5GHz |

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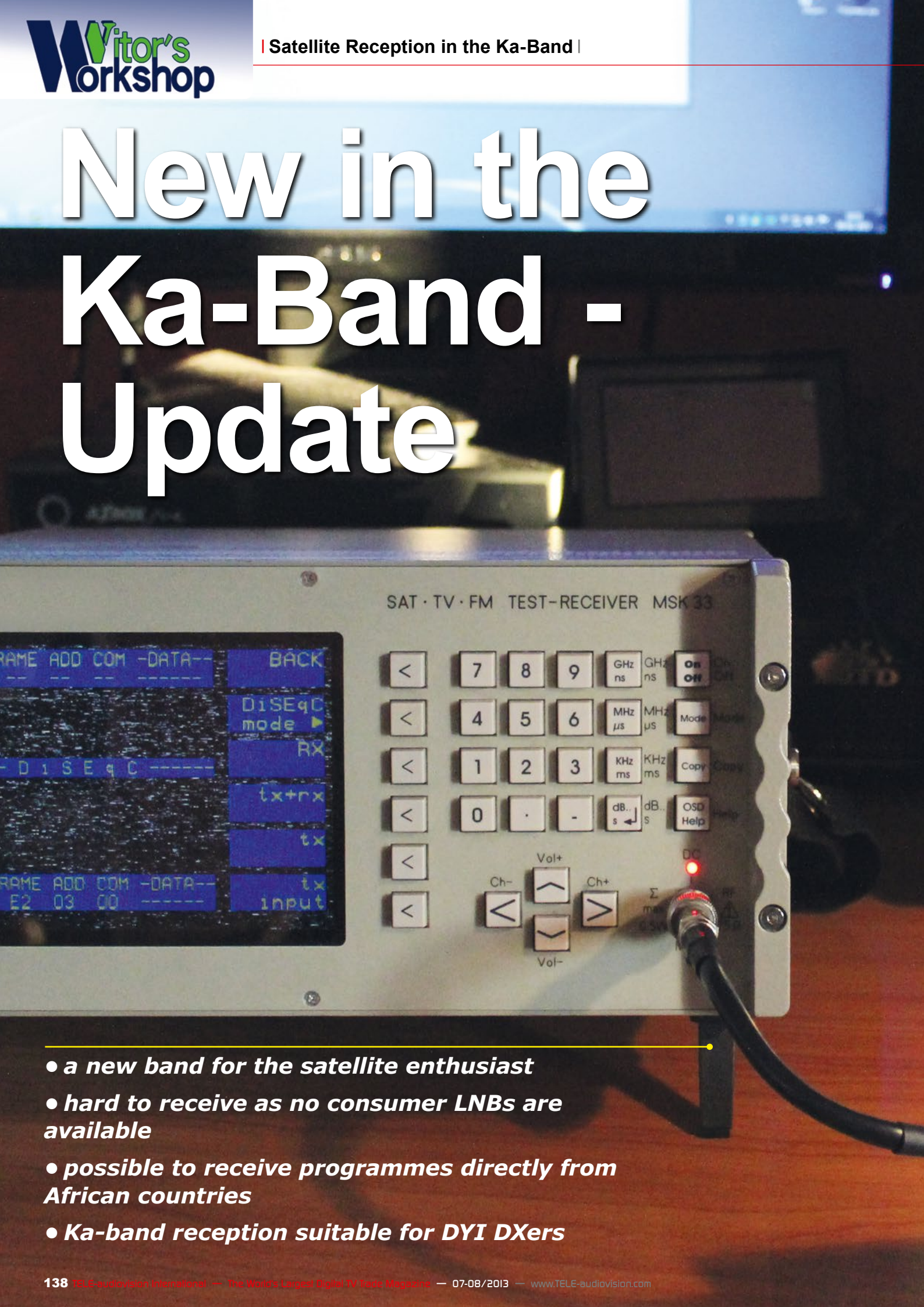
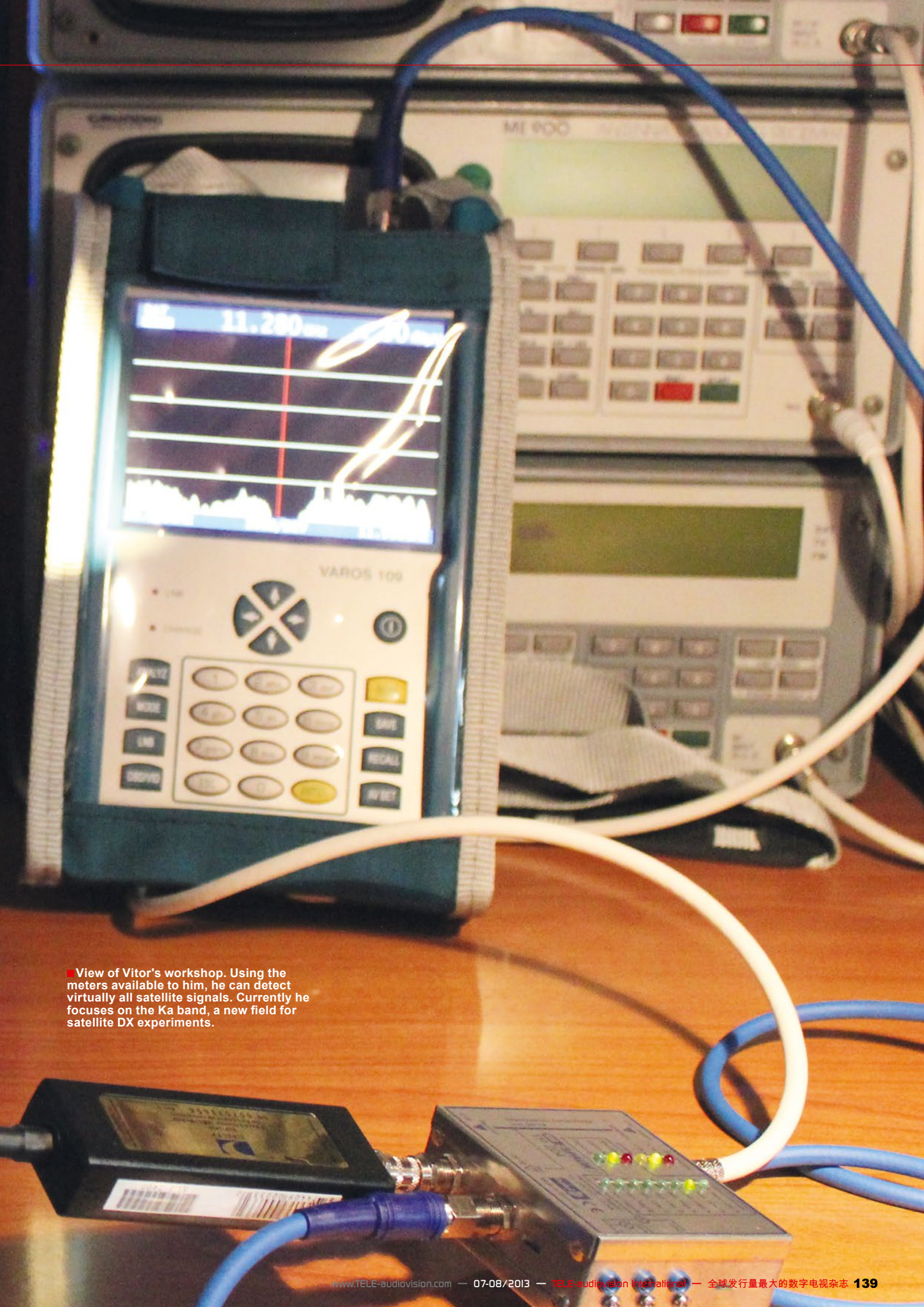
# New in the Ka-Band - Update




- *a new band for the satellite enthusiast*
- *hard to receive as no consumer LNBs are available*
- *possible to receive programmes directly from African countries*
- *Ka-band reception suitable for DYI DXers*




View of Vitor's workshop. Using the meters available to him, he can detect virtually all satellite signals. Currently he focuses on the Ka band, a new field for satellite DX experiments.

# The Same Spectrum – Again and Again

Vitor Martins Augusto

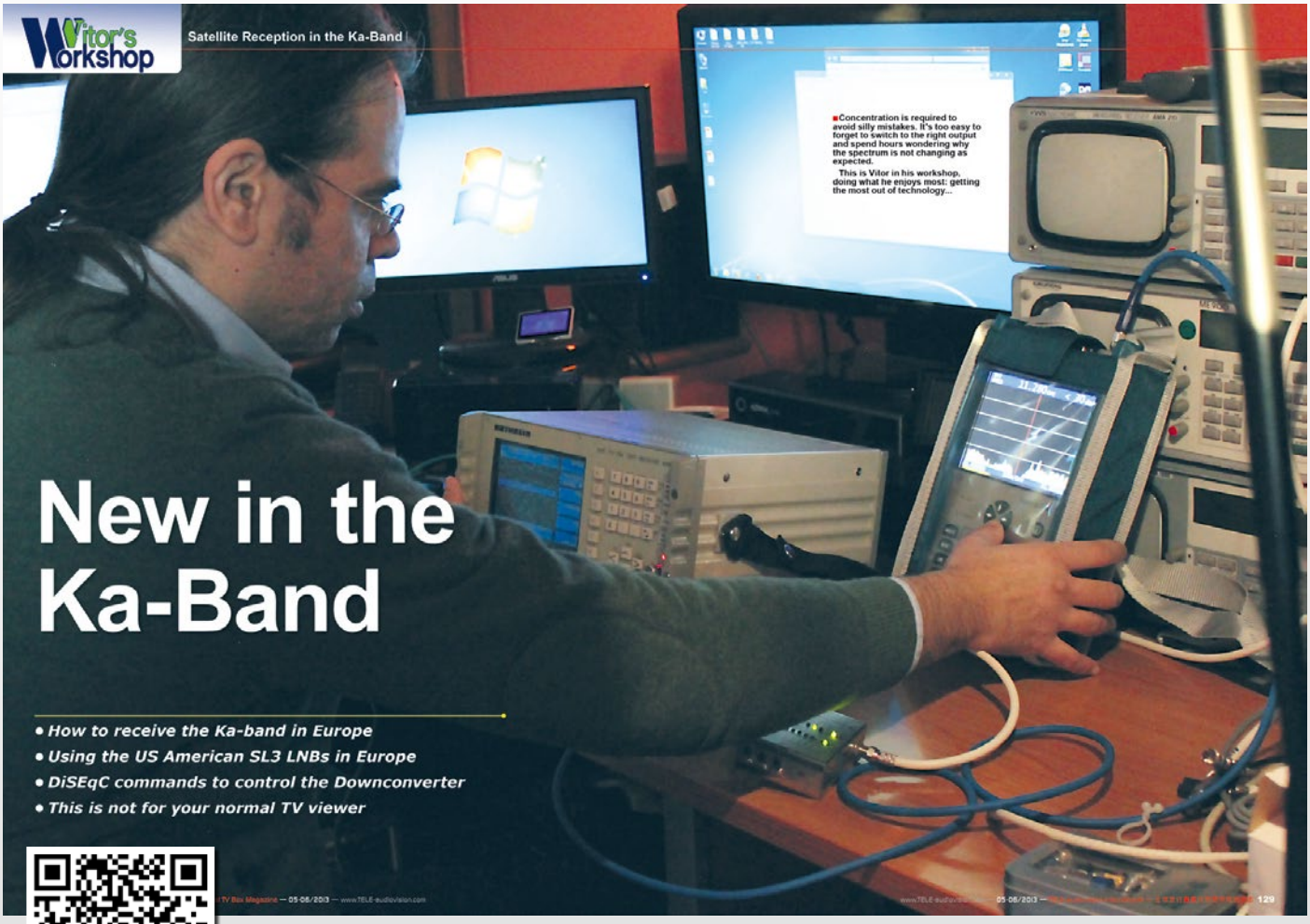
**Did you notice? In the previous issue 05-06/2013 of TELE-audiovision the layout of the Ka band article on pages 138 and 139 turned out a bit different than expected. It always showed the same spectrum of Hellas Sat 2 in the Ku and Ka bands, rather than an individual spectrum for each satellite between 39.0°E and 30.0°W.**

We're terribly sorry about that and have prepared the correct pictures in this issue. This time, each satellite comes with the spectrum of the current Ku band and Ka band (in the 19.7 to 20.2 frequency range). There's currently only one consumer LNB available to receive that particular frequency range, namely the Inverto White Ka.

Just have a look for yourself and in case you're wondering: Yes, this is actually what you get, or more appropriately, what you don't get – apart from the TooWay Internet service and a single transponder on Hotbird 13.0°E (which we could not use either) there's absolutely nothing in the 19.7 to 20.2 GHz range. Zero, nada, rien. When you look at Europe as a whole, this LNB will only be of use in Ireland, where you can receive Soarsat. This provider, however, uses a spot beam which means you're left in the dark outside Ireland, even with large antennas.

We also mentioned the DirecTV SL3 LNB in our original article. Of course we tried that LNB as well, but found nothing in the 18.3 to 18.8 GHz range. This LNB's feed is only compatible with circular signals, while satellites beaming their signals to European users transmit linear signals. What's more, the SL3 feeds don't simply contain a dielectric which can be replaced. Rather, the feeds are cast and cannot be replaced so exchanged. I'm currently trying to disassemble the entire LNB and then use a standard linear feed from a Ku band LNB. Should this attempt eventually bear fruit I will definitely report on it with a special article. So let's keep our fingers crossed!

As far as the Ka band is concerned we have received first reports of success




**In the previous issue 05-06/2013 of TELE-satellite we ran a report about initial attempts at receiving TV signals in the Ka band. This is where the mix-up happened. This time, however, all the spectrums are shown as planned. The original report can be accessed with the following link:**
http://www.tele-audiovision.com/TELE-audiovision-1305/eng/vitorsworkshop.pdf

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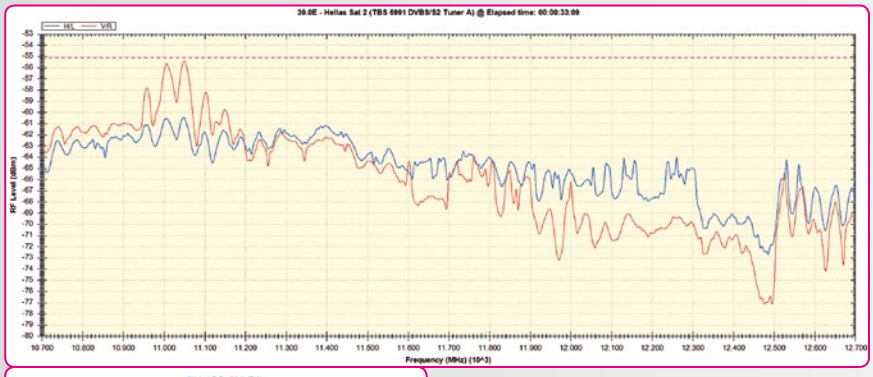
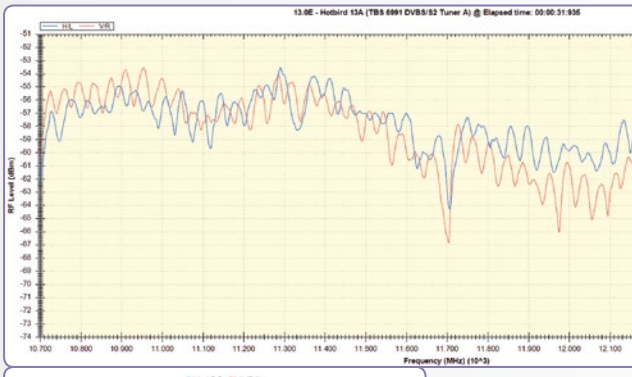
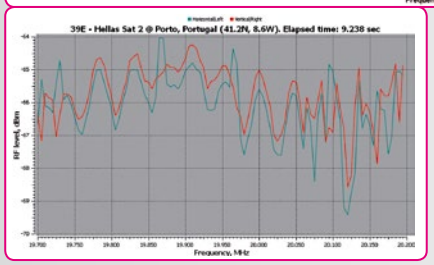
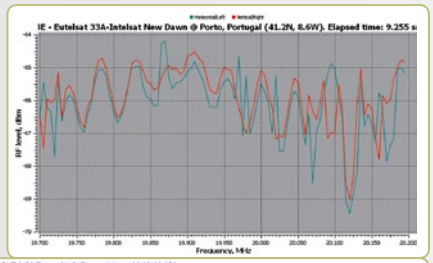
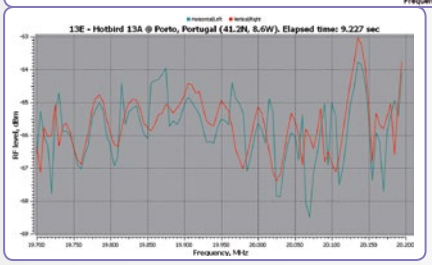
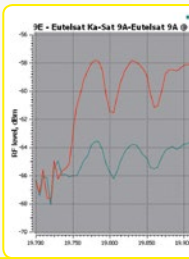

39.0E - Hellas Sat 2 (TBS 6991 DVBS/S2 Tuner A) @ Elapsed time: 00:00:33:08
H/L
V/R
RF Level (dBm)
Frequency (MHz) (10^3)

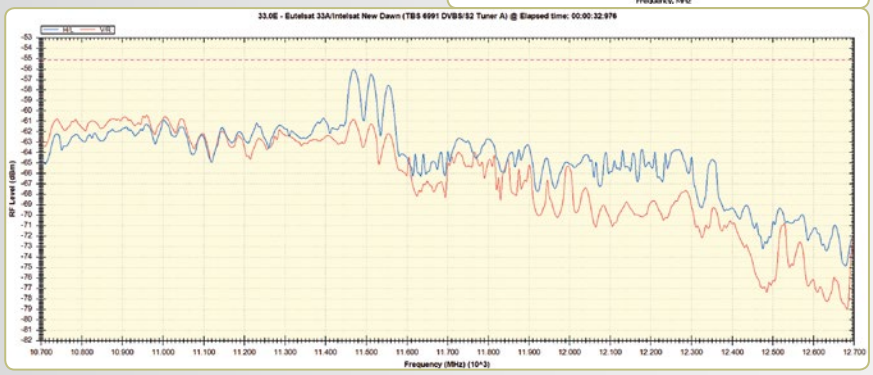

13.0E - Hotbird 13A (TBS 6991 DVBS/S2 Tuner A) @ Elapsed time: 00:00:31:936
H/L
V/R
RF Level (dBm)
Frequency (MHz) (10^3)

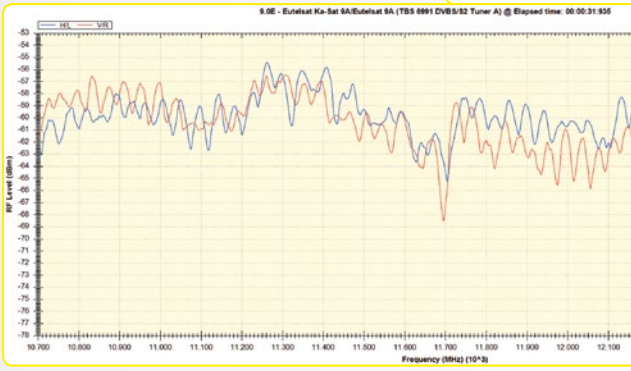

39E - Hellas Sat 2 @ Porto, Portugal (41.2N, 8.6W). Elapsed time: 9.238 sec
RF level, dBm
Frequency, MHz

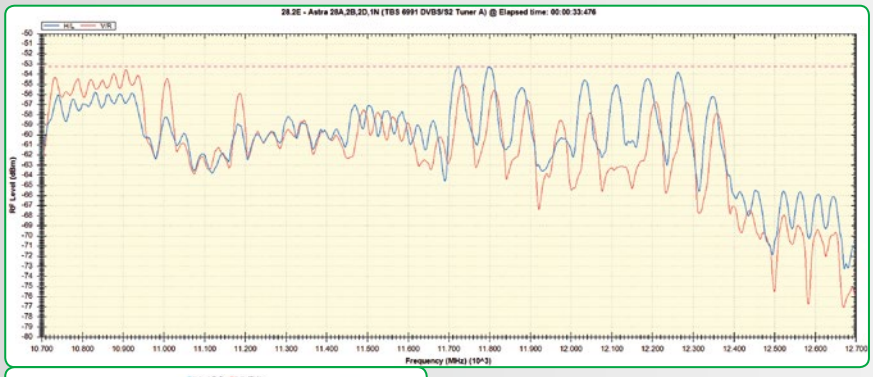

1E - Eutelsat 33A-Intelsat New Dawn @ Porto, Portugal (41.2N, 8.6W). Elapsed time: 9.255 s
RF level, dBm
Frequency, MHz

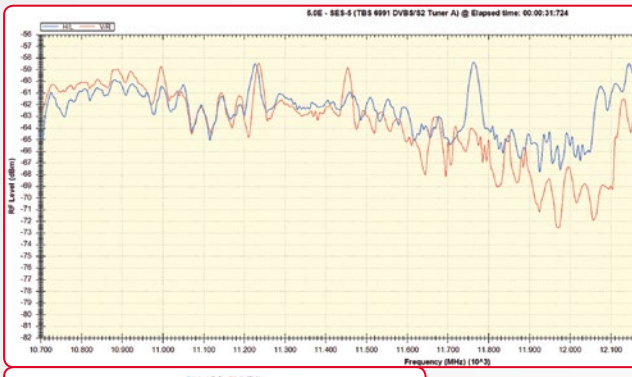

13E - Hotbird 13A @ Porto, Portugal (41.2N, 8.6W). Elapsed time: 9.227 sec
RF level, dBm
Frequency, MHz

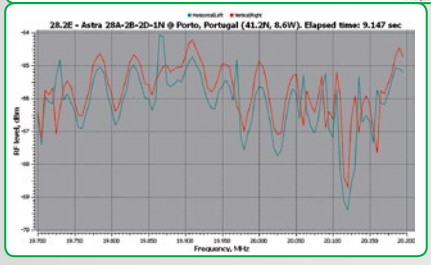

9E - Eutelsat Ka-Sat 9A-Eutelsat 9A @
RF level, dBm

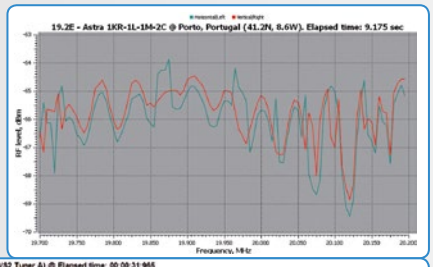

33.0E - Eutelsat 33A/Intelsat New Dawn (TBS 6991 DVBS/S2 Tuner A) @ Elapsed time: 00:00:32:976
H/L
V/R
RF Level (dBm)
Frequency (MHz) (10^3)

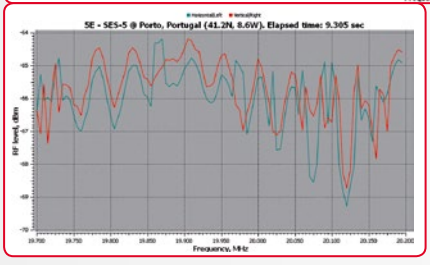

9.0E - Eutelsat Ka-Sat 9A/Eutelsat 9A (TBS 6991 DVBS/S2 Tuner A) @ Elapsed time: 00:00:31:936
H/L
V/R
RF Level (dBm)
Frequency (MHz) (10^3)

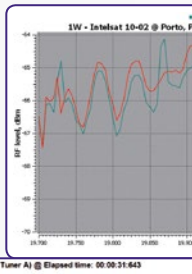

28.2E - Astra 28A,2B,2D,1N (TBS 6991 DVBS/S2 Tuner A) @ Elapsed time: 00:00:33:476
H/L
V/R
RF Level (dBm)
Frequency (MHz) (10^3)

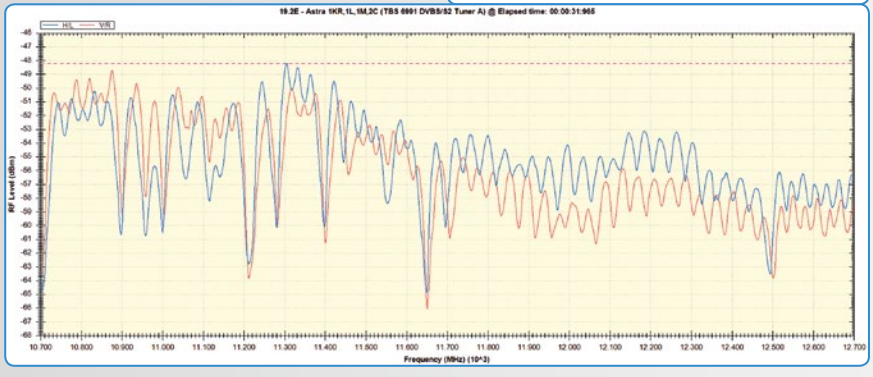

5.0E - SES-5 (TBS 6991 DVBS/S2 Tuner A) @ Elapsed time: 00:00:31:724
H/L
V/R
RF Level (dBm)
Frequency (MHz) (10^3)

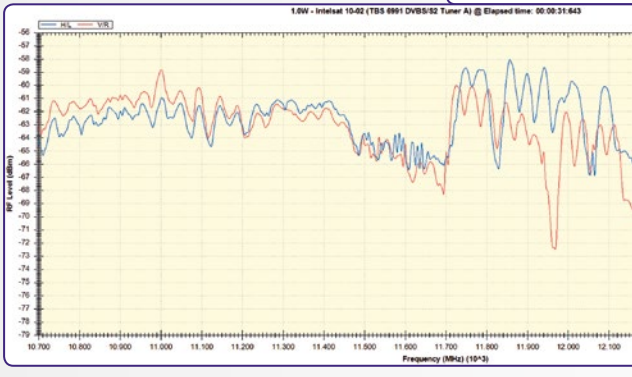

28.2E - Astra 28A-2B-2D-1N @ Porto, Portugal (41.2N, 8.6W). Elapsed time: 9.147 sec
RF level, dBm
Frequency, MHz


19.2E - Astra 1KR-1L-1M-2C @ Porto, Portugal (41.2N, 8.6W). Elapsed time: 9.175 sec
RF level, dBm
Frequency, MHz


5E - SES-5 @ Porto, Portugal (41.2N, 8.6W). Elapsed time: 9.305 sec
RF level, dBm
Frequency, MHz


1W - Intelsat 10-02 @ Porto,
RF level, dBm


19.2E - Astra 1KR,1L,1M,2C (TBS 6991 DVBS/S2 Tuner A) @ Elapsed time: 00:00:31:965
H/L
V/R
RF Level (dBm)
Frequency (MHz) (10^3)


1.0W - Intelsat 10-02 (TBS 6991 DVBS/S2 Tuner A) @ Elapsed time: 00:00:31:643
H/L
V/R
RF Level (dBm)
Frequency (MHz) (10^3)

from the new group of Ka band satellite DXers who have succeeded in receiving signals from Ka band transponders in the 21.2 to 22.2 GHz range from Eutelsat 7A (7.0°E) and Eutelsat 16A (16.0°E) in Central Europe. Direct feeds from African providers can be received from those transponders. What makes matters even more interesting: Those transmissions are free to air, which is great news for people from Africa living in Europe. Channels from Angola, Senegal and Congo are available this way, among others.

Unfortunately, however, it's not all gold:

1) Symbol rates are consistently low, in the 1000 to 2150 range. This means that some receivers may not be able to actually process those signals. This is one of the reasons why we always look at receiver behaviour with low symbol rates in TELE-audiovision test reports.

2) Ka band LNBs for the 21.2 to 22.2 GHz range are currently very hard to get. They are only produced in small numbers for professional applications, which means you might have to accept long delivery times.

One thing is for sure: The Ka band is becoming an ever more interesting reception range and creates a new playground for satellite DXers who are through with everything the C and Ku bands have to offer.

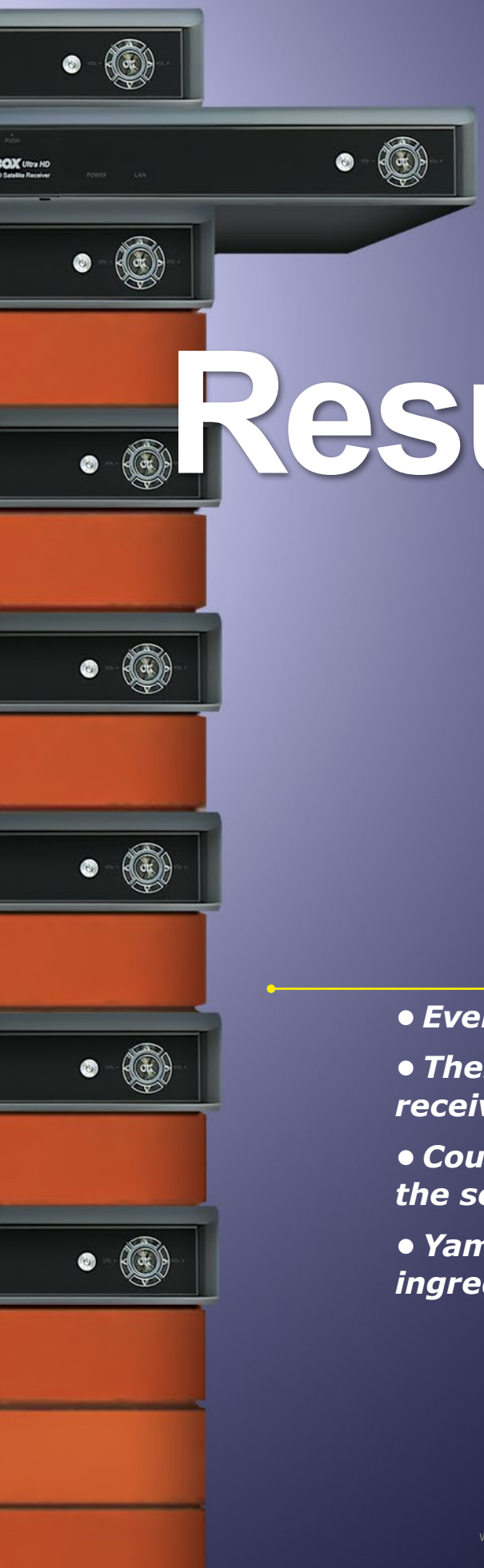
## Comparison Ku (10.7-12.7GHz) vs Ka (19.7-20.2GHz)

**Each pair shows the respective satellite in the Ku-Band (10.7 GHz – 12.7 GHz) and in the Ka-Band (19.7 GHz to 20.2 GHz). Notice that a valid signal requires an RF level above approximately -59 dBm.**

**Eutelsat 9A at 9.0E contains 4 transponders in the Ka-Band, which belong to the TooWay satellite based internet service.**

**Using the KWS VAROS 109 it was possible to see a Ka-Band transponder on Hotbird at 13.0E. I received some feedback with a satellite modem, but since I have no valid subscription, I could not further test the reception.**

AZBOX Ultra HD
HD Satellite Receiver



# AZBox Ultra HD Resurrection

- *Even "dead" receivers can be recovered*
- *There are often multiple ways to resurrect a receiver*
- *Courage and effort are worth it to update the software of an old receiver*
- *Yamon and JTAG are two essential ingredients for receiver revival*

# How to Turn a Brick Back into a Receiver

Vitor Martins Augusto

TEST REPORT | HDTV Satellite and IPTV Receiver

AZBox Ultra HD
A Small Elegant HDTV Receiver

The series of HDTV boxes from AZBox has a new addition to the family: the small AZBox Ultra HD that just like its big brother, the AZBox Premium HD Plus (see our test report in TELE-satellite issue 04-05/2010), is also shipped from the factory in an elegant package. Upon opening the package, you'll find that there are two separate boxes. One of the boxes contains the receiver while the other box has the external power supply and the remote control.

■ In TELE-audiovision 08-09/2010 we presented the AZBox Ultra HD. In our current report we describe how to recover a "dead" AZBox Ultra HD.
http://www.TELE-audiovision.com/TELE-satellite-1009/eng/azbox.pdf

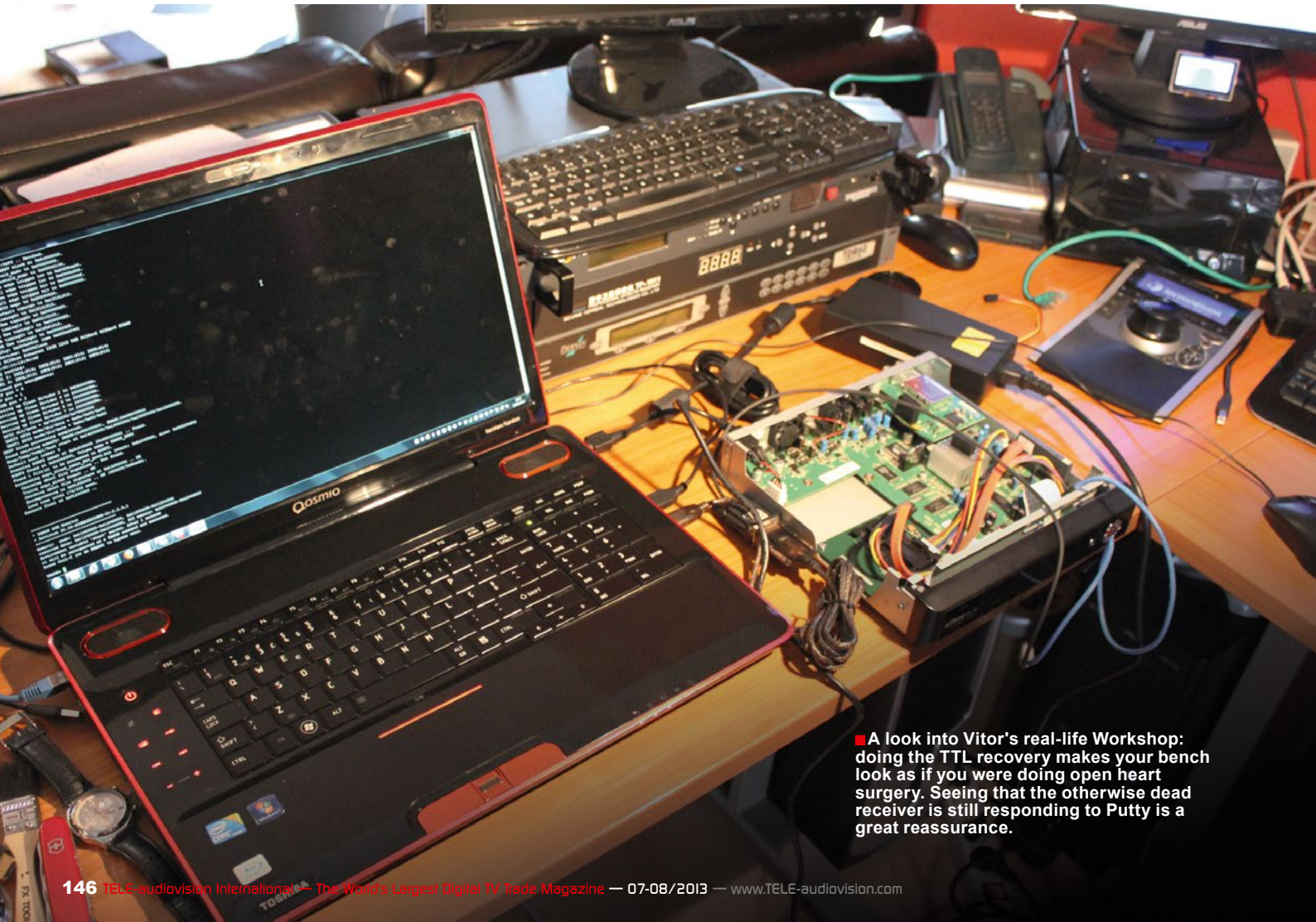
**A brick. That's what a receiver is called that can't be resurrected. It's dead and can only be used as a paperweight.**

**That's exactly what happened to my AZBox Ultra HD. I was experimenting with it and wanted to upload the latest E2 firmware to it.**

**As usual I didn't read the software uploading instructions and, just like that, my AZBox Ultra HD became a brick; nothing worked anymore.**

**So, what did I do? Bury it in my garden or try to figure out what went wrong?**

**You guessed it, I opted for the latter choice.**




■ A look into Vitor's real-life Workshop: doing the TTL recovery makes your bench look as if you were doing open heart surgery. Seeing that the otherwise dead receiver is still responding to Putty is a great reassurance.

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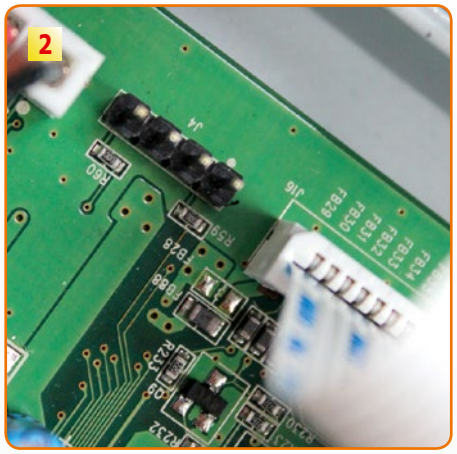


The older AZBox receivers, including my Ultra HD, utilize an internal serial interface. You can use it to hook into the Bootloader and reflash the firmware. But it's not as easy as it sounds; the internal serial interface operates at TTL levels (3.3 volts) as opposed to the 12 volts of an RS232 interface.

If you would use a null modem cable to directly connect this internal serial interface to the COM port of a PC, a hardware problem would result.

In a case like this you'd need a TTL adapter, something you could find very inexpensively on eBay for around 2 Euros. It has to do with a USB TTL adapter that would be automatically recognized by a PC as a COM port. This adapter uses the well-known Prolific 2303 chip that is used in most USB RS232 adapters. The one difference is that in this case MAX232 comes into play here for the level conversion.

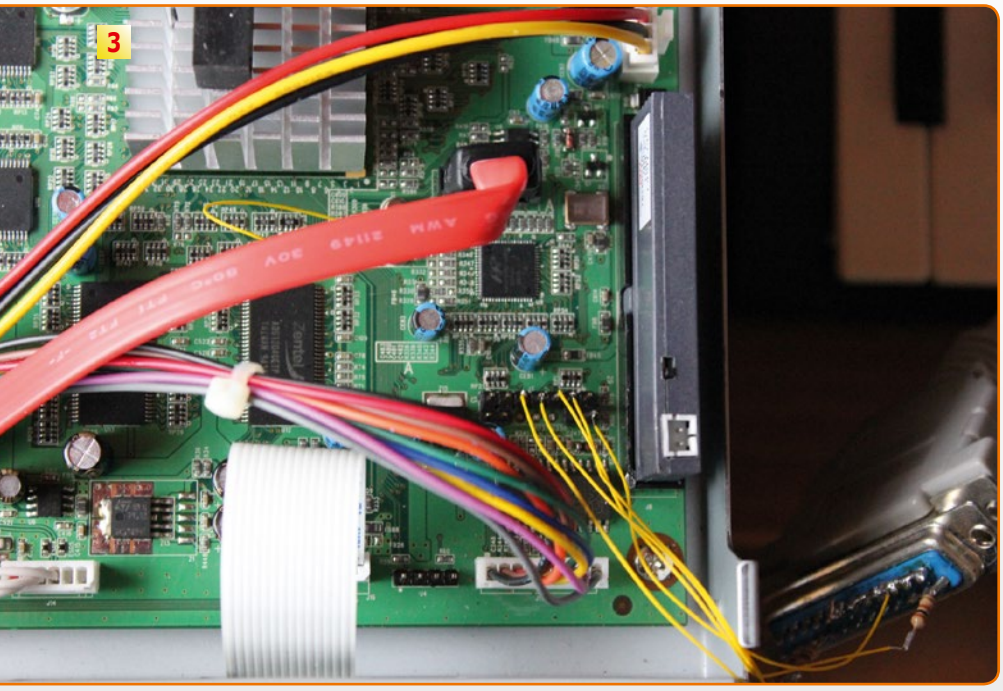
But I opted for another solution: I used an old Nokia DLR-2L data cable. Since I wasn't using this cable anymore, I simply cut off the Nokia connector. Using an oscilloscope I figured out that the red wire was RX, the green wire was TX and the black wire as expected was ground.

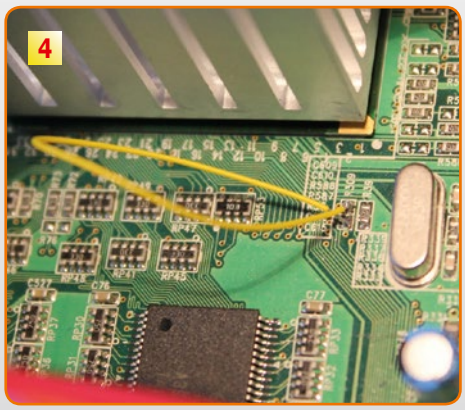
An old CD-ROM audio cable for computers provided a suitable connector for the AZBox; the corresponding wires just had to be connected together.

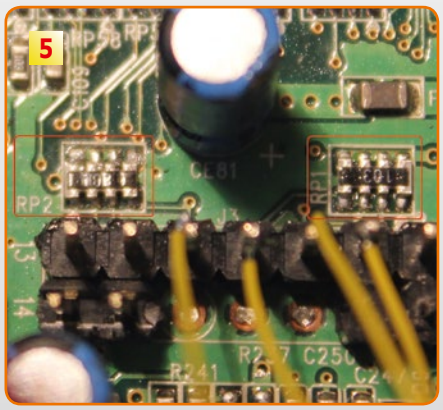
After an initial test, I realized I made a mistake that almost everyone else makes when it comes to serial transmissions: TX and RX naturally have to have a criss-cross connection. Once that was taken care of, it then worked as expected.

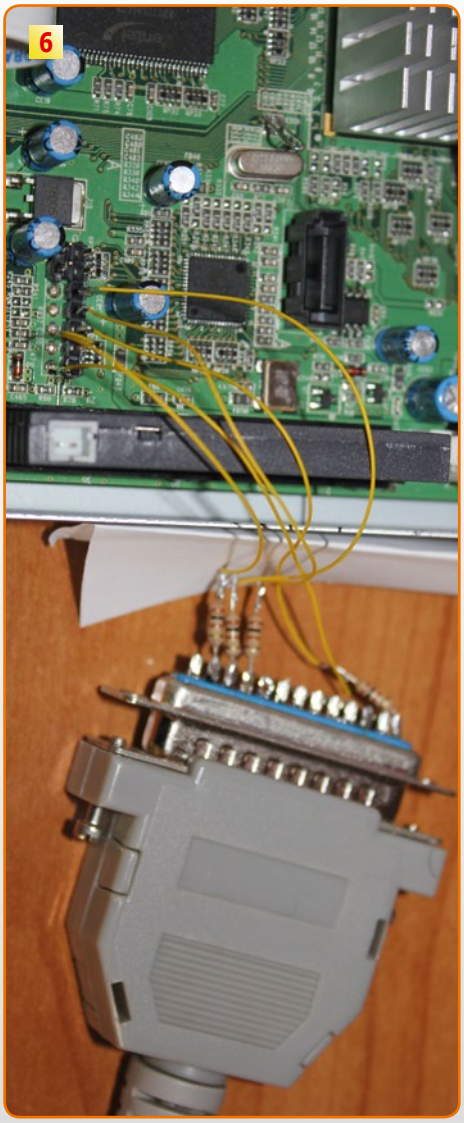
Using Putty, a very well-known freeware terminal program, I was able to access the AZBox Bootloader. It announced that the firmware was invalid. This Bootloader is called YAMON (Yet Another MONitor) and is far more comprehensive than standard Bootloaders of older receivers. It lets you, among other things, read the RAM memory or send it to the PC.

Aside from that, you can also delete, read and program the Flash memory. Finally, it's also possible to start the









1. The Nokia DLR-2L cable features a TTL to RS232 converter and can be used to connect the COM-Port of a PC with a TTL interface. If your computer does not have a COM-port anymore, you can just use a RS232 to USB converter. Bear in mind that neither the Nokia-cable, nor the RS232 to USB converter cross the TX and RX lines: you will need to cross them yourself. Pay special attention to just use TX, RX and GND. The second pin on the AZBox PCB is not to be used. Doing so can quickly fry the circuit on the AZBox and then you are definitely locked out of any TTL restoration.

2. See the white dot on the PCB, close to the 4 TTL pins? It marks the pin #1. On the different AZBox receivers the pins have always the same function:

**Pin 1 – TX**

**Pin 2 – VCC** (Warning: do not use this pin!)

**Pin 3 – GND**

**Pin 4 – RX**

3. When everything else fails, JTAG is your last resort before having to flash the chip externally. But before being able to do so it is convenient to solder some pins on the JTAG port, because the manufacturer left those out.

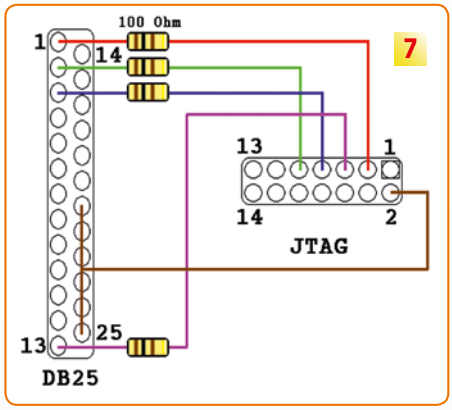
4. In order to prevent accidental writing to the flash chip a jumper exists. If not closed, the JTAG cannot write to the flash chip. This means that a jumper needs to be soldered. Because the two pins are really small, I just soldered a small wire. Later on, instead of de-soldering it, I cut the wires open, obtaining two small and fragile pins, which can be closed without further soldering.

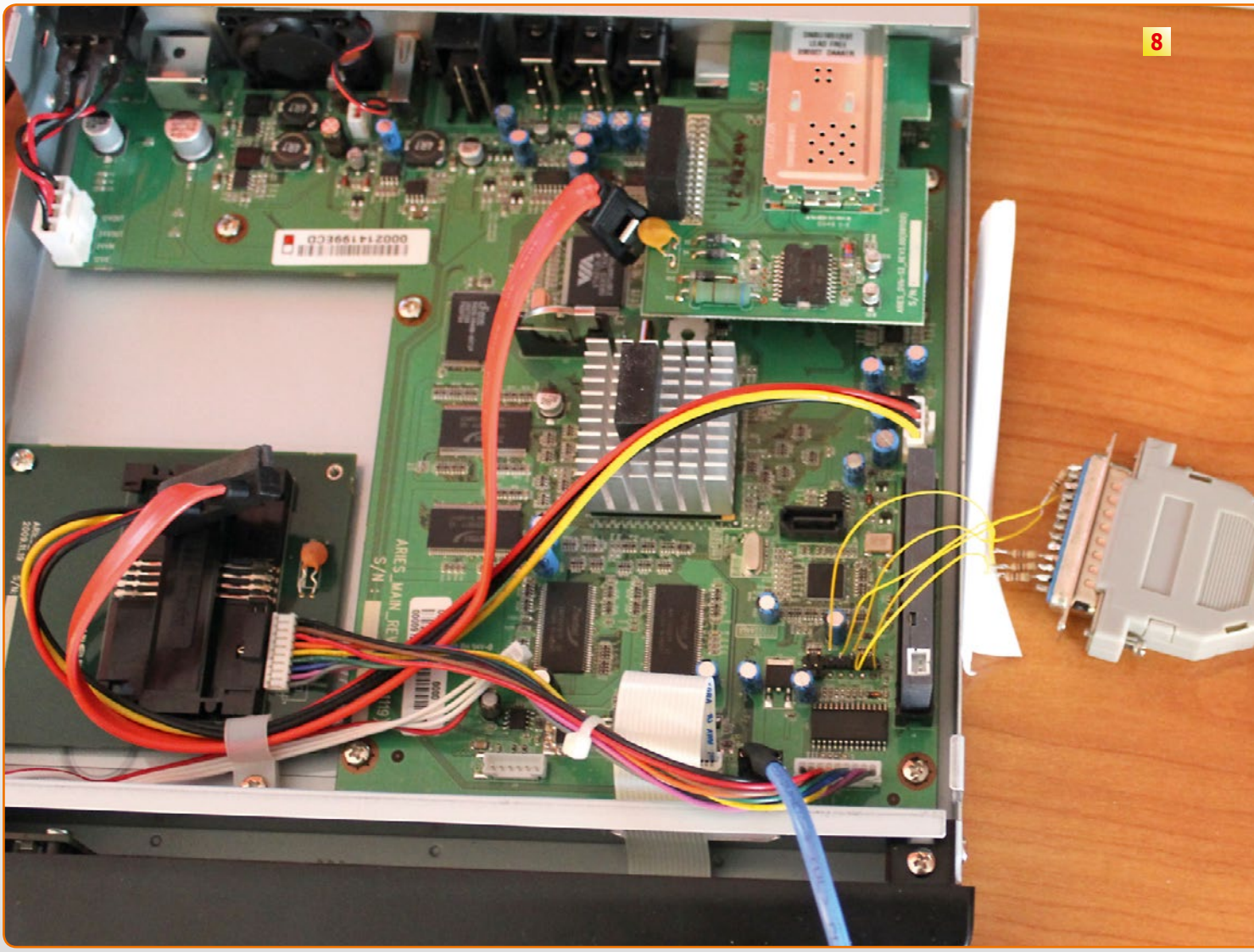
5. This is the most difficult part of the JTAG retrofitting, as you do need proper equipment. I used a hot air soldering station to obtain two 103 resistors from an old motherboard. Using the same hot air station, I soldered these two miniscule resistors to the AZBox PCB, close to the JTAG port.

6. The parallel JTAG adapter used in this process consists of soldering a total of four 100 Ohm resistors to a male DB25 connector. These are soldered each to pin 2, pin 3, pin 4 and pin 13. Finally, pins 20 to 25 have to be shunted. From each resistor and from the shunted pins, connect wires, as short as possible, to the pins of the JTAG port on the AZBox PCB. Connect the wires like in diagram right.

7. Connect the wires according to this drawing

8. If TTL recovery seemed like open heart surgery, JTAG flashing is equivalent to brain surgery. Extra care has to be taken to avoid that any wire touches the receiver on the wrong spot. To prevent that the casing of the open DB25 connector touches the receiver, I used a bit of paper. Put something heavy on the parallel port cable, to prevent the cable from accidentally moving, which could make the thin wires go off. The receiver has to be turned on during the JTAG process, so beware that there is live current on the open receiver. However, AZBox receivers normally use an external power supply, so you should not get hurt, even if you touch the receiver. This is not the case on receivers with build-in power supply. In these cases you have to be extra careful and advise other people in the house to not get near the receiver.



execution of programs at any RAM address.

The procedure is always to interrupt the startup of YAMON with CTRL-C. Now the network interface is configured and activated. Finally, a TFTP server is started on the computer with which you can load an recovery image into RAM.

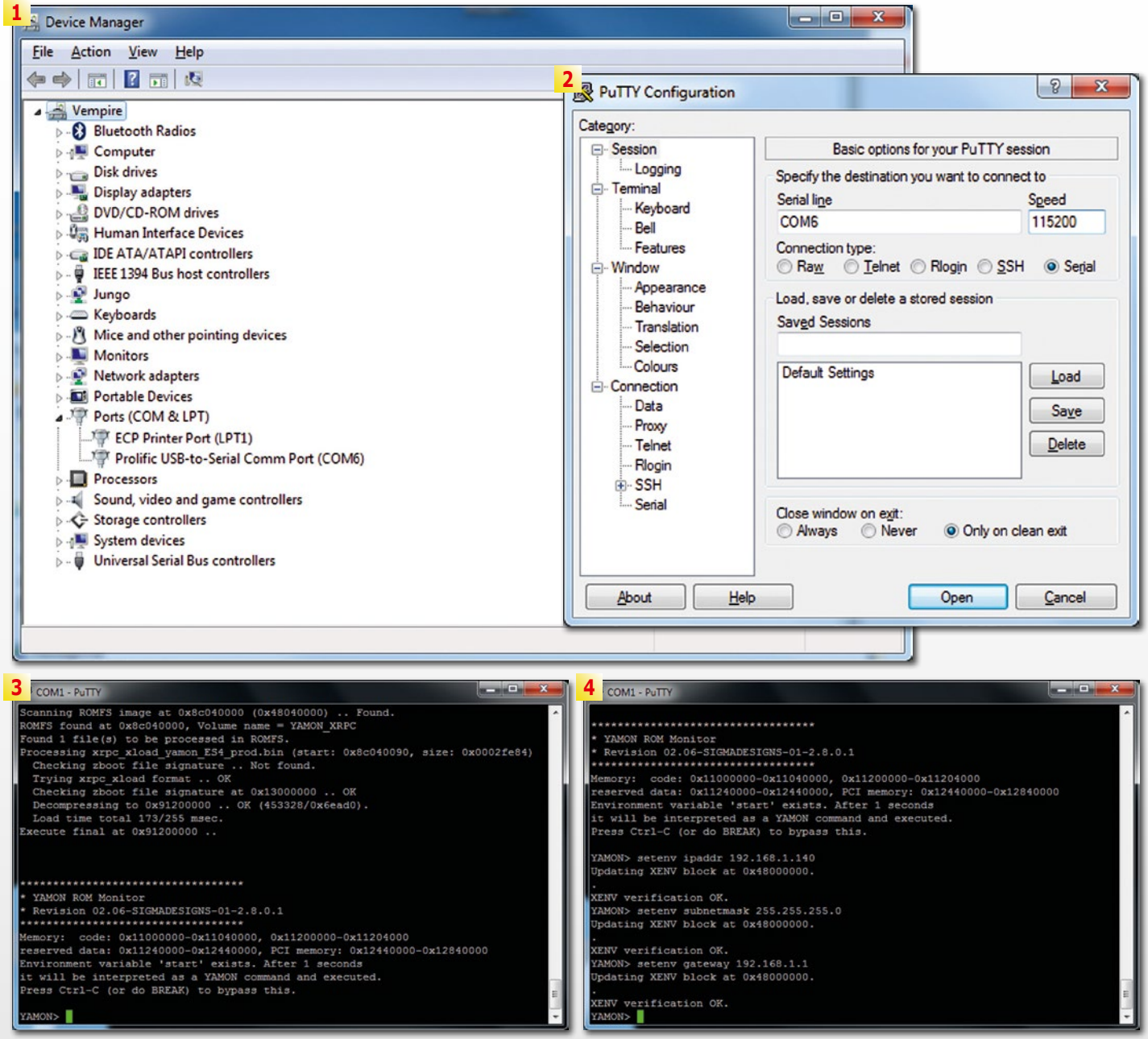
You start with this and the receiver boots in a minimized Linux operating system. Next you copy, as you would normally, an recovery image together with the update program to /tmp. The rights of the program must be changed so that it can be executed.

When you start „update" using the name of the recovery image, the receiver is reflashed after which the desired firmware can be flashed normally via USB and AZUp.

No sooner said than done; I was successful in the first attempt: my AZBox Ultra HD started up like I initially wanted with the current E2 OpenRSI firmware.

Yes it was nice, but I still wasn't satisfied. I felt that the recovery procedure was far too complicated. There had to be a simpler way. I mean, if you already have the YAMON Bootloader, it should be possible to use it to directly burn the Flash.

So, I tried to do exactly that. My plan: load the recovery image into the RAM, delete the Flash and then reflash




## Putty

**1. Before starting Putty you need to figure out which COM-port was assigned to the USB adapter. The easiest way to do so is to open the device manager and check on the Ports (COM & LPT) section, what the port attributed to the Prolific USB-to-Serial is.**

**2. Open Putty and configure the session to use the Serial port. Configure it to match the port number and set the Speed to 115200 baud (bits per second). Then click the Open button to start the session. Finally, you can turn on the receiver.**

**3. If the boot loader has not been whipped you should be greeted by YAMON. You can stop the boot procedure of the receiver with CTRL-C, but if the kernel is corrupt or erased YAMON will stop anyway.**

**4. The next step is to setup the network. You need three commands:**

**- "setenv ipaddr 192.168.xxx.yyy" will set the receiver's IP address. Replace xxx and yyy with suitable values for your network. Remember that xxx must be a unique value.**

**- "setenv subnetmask 255.255.255.0" will set the receiver's subnet mask, which usually is 255.255.255.0.**

**- "setenv gateway 192.168.xxx.zzz" will set the gateway. This is normally the IP address of your router.**

**If these three steps have been correctly done you can initialize the network with "net init" and start it with "net up".**

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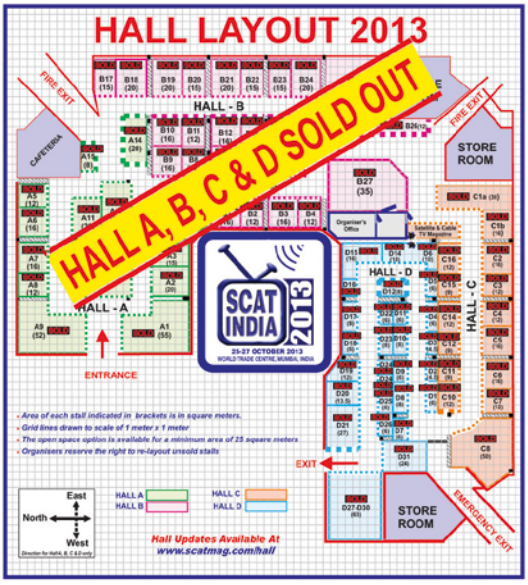
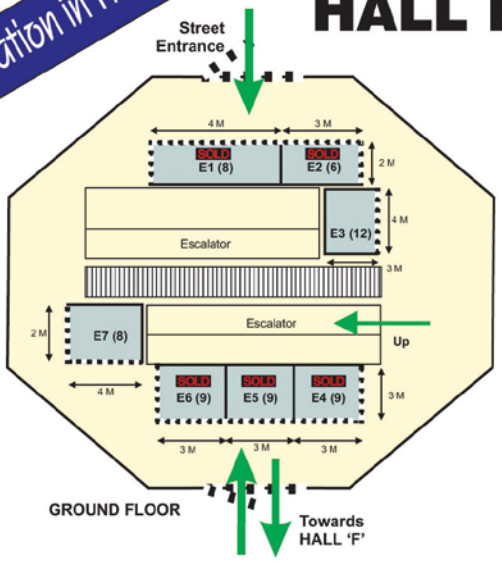
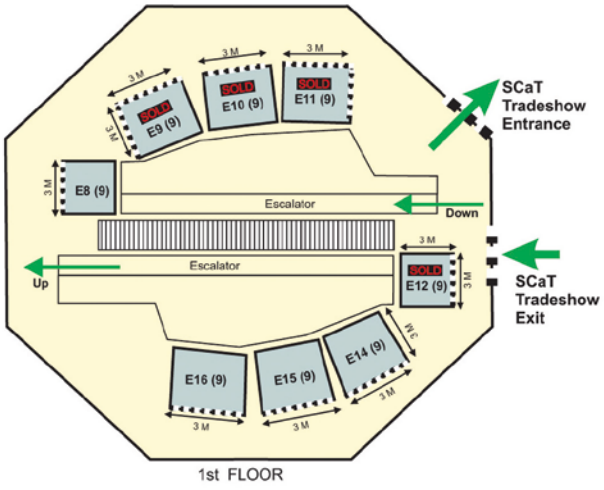



Registration in Hall F

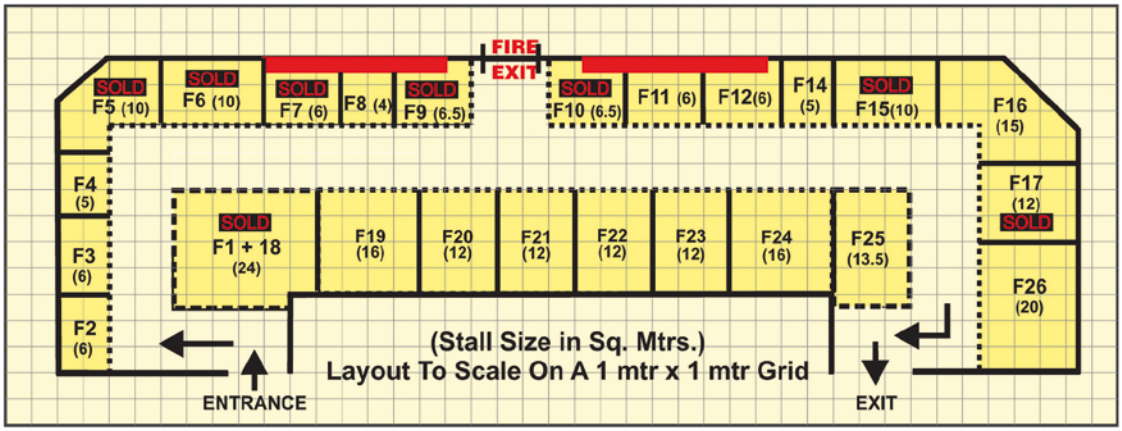
## HALL E - CRUSH HALL




## *Stalls Available In Halls E & F ... RUSH*

## HALL F - TOWER BLOCK

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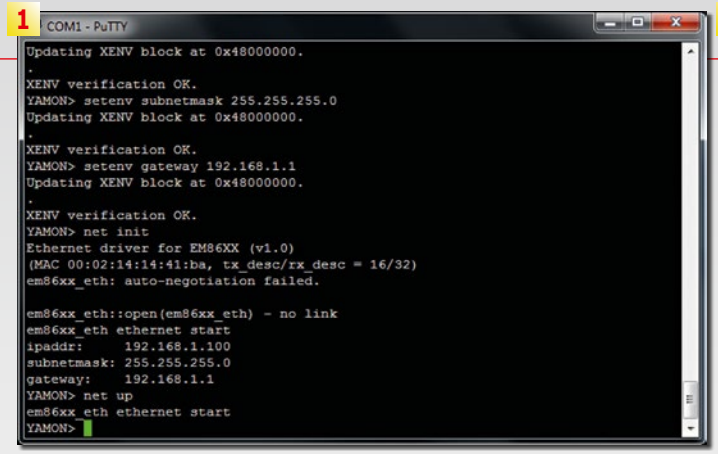
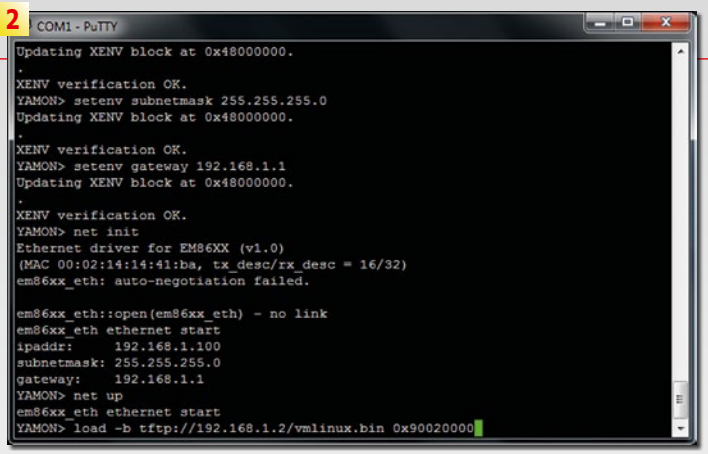
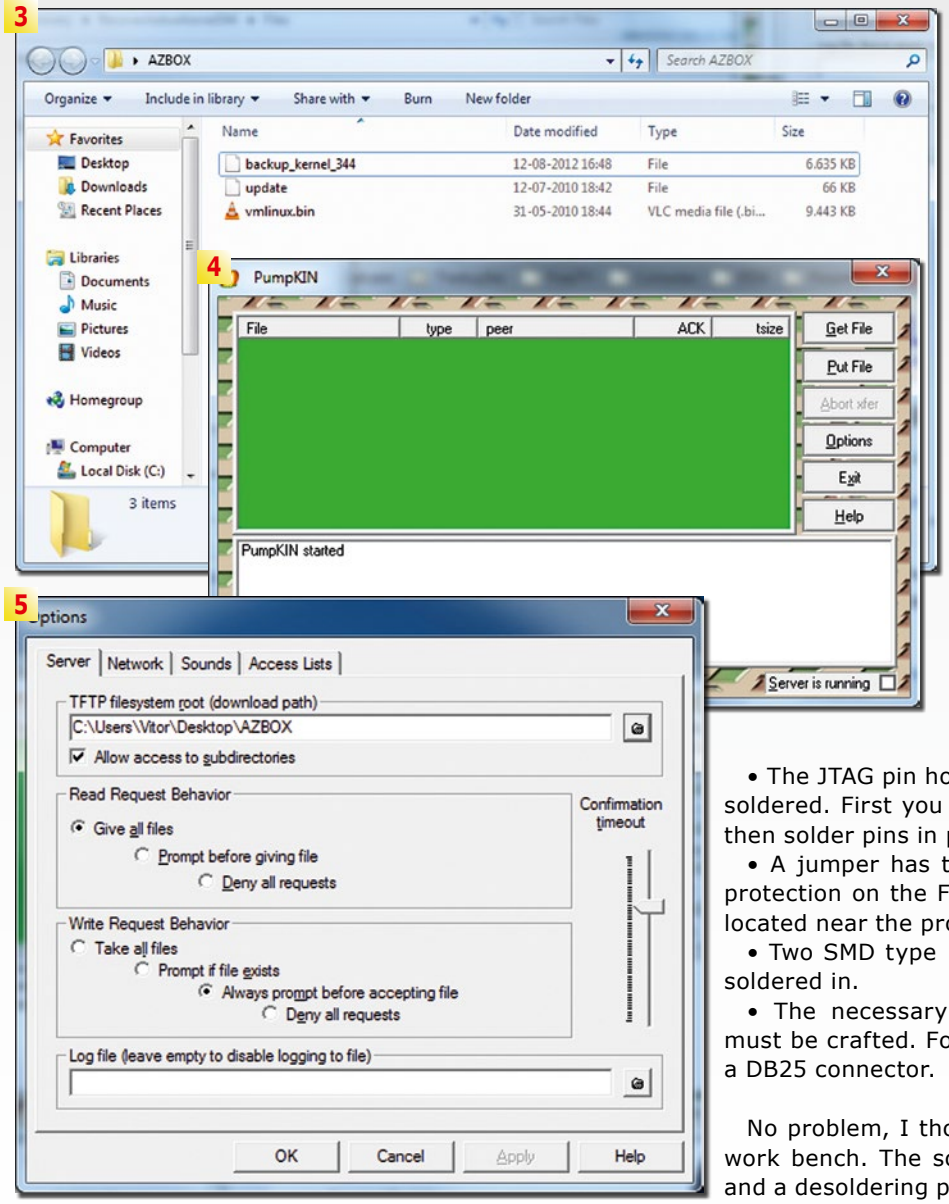






using the image in the RAM.

This would somewhat simplify the recovery procedure.

First test: Image loaded into RAM, Flash deleted. But when I tried to flash the RAM with the image, YAMON refused to cooperate. At this point it wasn't clear why this happened. It didn't matter, I thought.

So, I restarted the receiver and performed the above described procedure again. Yeah, right! In the heat of the moment I managed to delete the ENTIRE Flash memory including the Bootloader. So, it looked like my receiver would be a paperweight after all. Then again…

What about JTAG? I wrote about incorporating a JTAG interface back in the 10-11/2011 issue of TELE-audiovision. Would it work with that? It didn't take me long to figure out everything that would need to be done:

- The JTAG pin holes are not occupied and need to be unsoldered. First you have to remove the existing solder and then solder pins in place.
- A jumper has to be added that deactivates the write-protection on the Flash memory. It involves bridging R309 located near the processor.
- Two SMD type 103 resistors (quad version) need to be soldered in.
- The necessary JTAG interface with the parallel port must be crafted. Four 100K resistors are needed as well as a DB25 connector.

No problem, I thought, so I immediately sat down at my work bench. The solder is removed using a soldering iron and a desoldering pump. There's a little trick to clearing out

## TTL Recovery

**1. To do the recovery, you need to enter YAMON as described before and then it is essential to configure and start the network adapter of the AZBox.**

**2. Now we want to load the recovery image called "vmlinux.bin" contained in the recovery archives. Do not press enter, yet!**

**3. You need to copy the required files to a folder, first.**

**4. Now it is time to start PumpKIN, the freeware TFTP server.**

**5. Configure the path to the folder were you placed the recovery files for your AZBox.**

**6. Now you can press ENTER on the Putty window and hopefully the "vmlinux.bin" file will be loaded into the RAM of the AZBox.**

**7. Type the "go" command inside the Putty window to start the recovery Linux from RAM. The usual start-up messages appear…**

**8. …and only a short while later, you will be prompted for the AZBOX login. Use "root" for login and you may or may not have to enter the password, which will be "azbox".**

**9. If everything went well, you are now logged in.**

**10. Change to the "/tmp" folder with "cd /tmp".**

**11. And then confirm your network configuration with the command "ifconfig". It is good to have the rooter configured as a DHCP server, which automatically provides the network configuration.**

**12. Use your favourite FTP client (we like the free FileZilla) and transfer the backup kernel and the "update" file to "/tmp" of your AZBox. Use the IP address obtained in the last step and don't forget to specify the password, if required.**

6

```
COM1 - PuTTY
subnetmask: 255.255.255.0
gateway:    192.168.1.1
YAMON> net up
em86xx_eth ethernet start
YAMON> load -b tftp://192.168.1.2/vmlinux.bin 0x90020000
About to load tftp://192.168.1.2/vmlinux.bin
Press Ctrl-C to break
re-configuring ..

em86xx_eth::open(em86xx_eth) - Full-duplex mode
em86xx_eth::open(em86xx_eth) - 100 Mbit/s
em86xx_eth ethernet start
link up
.....
.....
.....
.....
.....

Start = 0x90020000, range = (0x90020000,0x9095880f), format = BINARY
Length = 0x938810 (9668624)
Checksum = 0x2254194d

YAMON>
```

7

```
COM1 - PuTTY
YAMON> go
em86xx_eth ethernet stop
Linux version 2.6.22.19-19-the_ripper (root@debian) (gcc version 4.3.2 (Debian 4
.3.2-1.1) ) #185 PREEMPT Mon May 31 16:44:40 CEST 2010
Configured for SMP863x (revision ES6+/RevA+), detected SMP8634 (revision ES9/Rev
C).
Detected CPU/System/DSP Frequencies: 300.37/200.25/300.37MHz
SMP86xx Enabled Devices under Linux/XENV 0x48000000 = 0x00021ace
 BM/IDE PCIHost Ethernet I2CM I2CS USB PCIDev2 PCIDev3 SCARD
Valid MEMCFG found at 0x10000fc0.
CPU revision is: 00019069
Determined physical RAM map:
 memory: 06be0000 @ 10020000 (usable)
User-defined physical RAM map:
 memory: 06ae0000 @ 10020000 (usable)
Wasting 2098176 bytes for tracking 65568 unused pages
Initrd not found or empty - disabling initrd
On node 0 totalpages: 92928
  DMA zone: 726 pages used for memmap
  DMA zone: 0 pages reserved
  DMA zone: 92202 pages, LIFO batch:31
  Normal zone: 0 pages used for memmap
Built 1 zonelists.  Total pages: 92202
Kernel command line: mem=107m console=ttyS0,115200
```

8

```
COM1 - PuTTY
deleting routers
route: SIOCDELRT: No such process
adding dns 192.168.1.1
===> Starting services...
[TD210] INITIALIZED END
[TD210] SLEEP MODE OFF
HDD Detected
Micom Project ARIES
Fail to Receive ACK ae
===> [1] telnetd starting...
===> [2] mounting DOM ...
kjournald starting.  Commit interval 5 seconds
EXT3-fs warning: checktime reached, running e2fsck is recommended
EXT3 FS on hda1, internal journal
EXT3-fs: recovery complete.
EXT3-fs: mounted filesystem with ordered data mode.
mount: mounting /dev/hda2 on /PLUGINS failed: Invalid argument
mount: mounting /dev/hda3 on /DISK2 failed: Invalid argument
mount: mounting /dev/hda4 on /Download failed: No such device or address
insmod: can't read '/MMP/modules/2.6.22/llad.ko': No such file or directory
insmod: can't read '/MMP/modules/2.6.22/em8xxx.ko': No such file or directory
===> Starting vsftpd...

AZBOX login:
```

9

```
COM6 - PuTTY
===> Starting services...
[TD210] INITIALIZED END
[TD210] SLEEP MODE OFF
HDD Detected
Micom Project ARIES
Fail to Receive ACK ae
===> [1] telnetd starting...
===> [2] mounting DOM ...
kjournald starting.  Commit interval 5 seconds
EXT3-fs warning: checktime reached, running e2fsck is recommended
EXT3 FS on hda1, internal journal
EXT3-fs: recovery complete.
EXT3-fs: mounted filesystem with ordered data mode.
mount: mounting /dev/hda2 on /PLUGINS failed: Invalid argument
mount: mounting /dev/hda3 on /DISK2 failed: Invalid argument
mount: mounting /dev/hda4 on /Download failed: No such device or address
insmod: can't read '/MMP/modules/2.6.22/llad.ko': No such file or directory
insmod: can't read '/MMP/modules/2.6.22/em8xxx.ko': No such file or directory
===> Starting vsftpd...

AZBOX login: root
Password:
login[698]: root login on 'ttyS0'
AZBOX[~]$
```

10

```
COM6 - PuTTY
[TD210] INITIALIZED END
[TD210] SLEEP MODE OFF
HDD Detected
Micom Project ARIES
Fail to Receive ACK ae
===> [1] telnetd starting...
===> [2] mounting DOM ...
kjournald starting.  Commit interval 5 seconds
EXT3-fs warning: checktime reached, running e2fsck is recommended
EXT3 FS on hda1, internal journal
EXT3-fs: recovery complete.
EXT3-fs: mounted filesystem with ordered data mode.
mount: mounting /dev/hda2 on /PLUGINS failed: Invalid argument
mount: mounting /dev/hda3 on /DISK2 failed: Invalid argument
mount: mounting /dev/hda4 on /Download failed: No such device or address
insmod: can't read '/MMP/modules/2.6.22/llad.ko': No such file or directory
insmod: can't read '/MMP/modules/2.6.22/em8xxx.ko': No such file or directory
===> Starting vsftpd...

AZBOX login: root
Password:
login[698]: root login on 'ttyS0'
AZBOX[~]$ cd /tmp
AZBOX[tmp]$
```

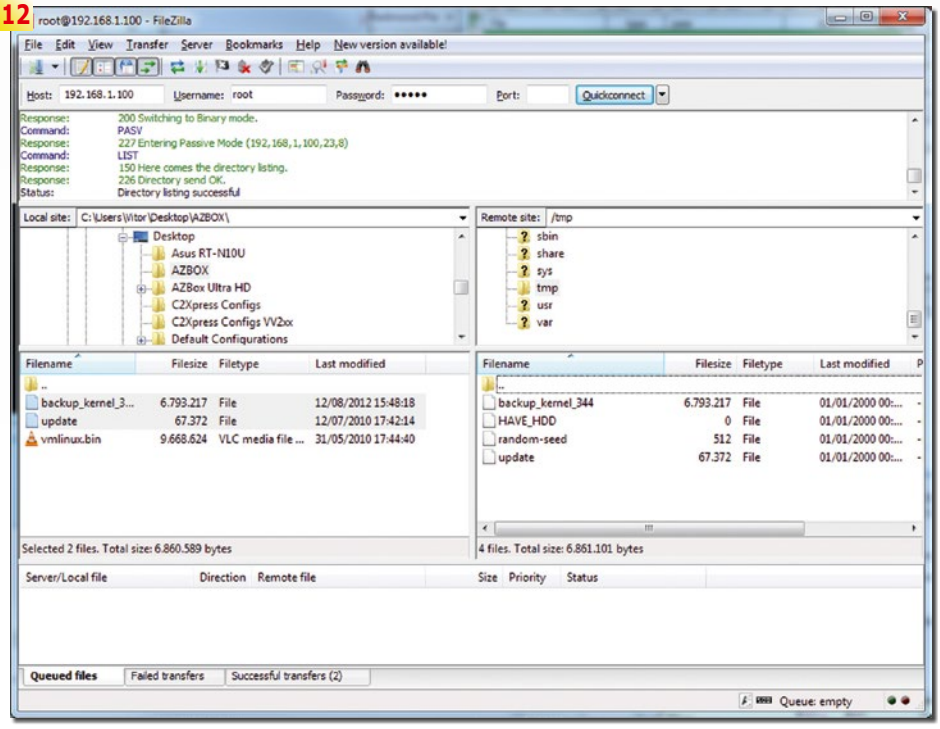
11

```
COM6 - PuTTY
AZBOX[tmp]$ ifconfig
eth0      Link encap:Ethernet  HWaddr 00:02:14:14:41:BA
          inet addr:192.168.1.100  Bcast:192.168.1.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:105 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:9368 (9.1 KiB)  TX bytes:1222 (1.1 KiB)
          Interrupt:46

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

AZBOX[tmp]$
```

12



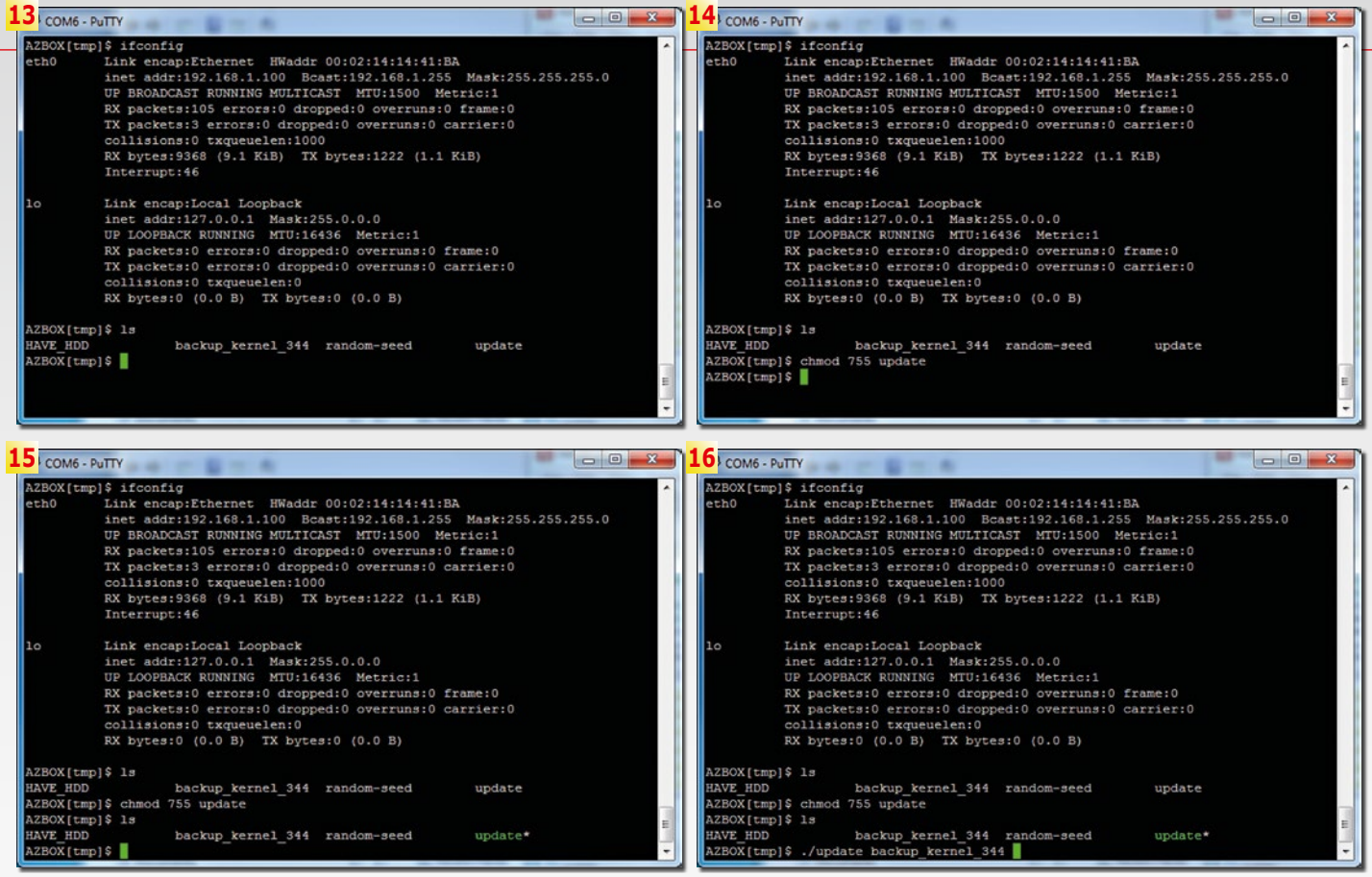

the hole: first you have to add solder.

Because of the larger amount of solder, it remains in a liquid state a little longer when heat is removed so that the pump is able to suck the solder out. If there's only a little solder, it will solidify before the pump has a chance to suck it out.

Soldering in the pins was easy. For the jumper I used a thin bendable wire. You need only the solder already on the circuit board to attach the jumper wire.

Lastly, the resistors. Where on Earth am I going to get these from? Here it pays not to throw out old motherboards. The required resistors can usually be found on those kinds of circuit boards; all you have to do is unsolder them. But you won't get far using a normal soldering iron.

You'd be far better off using a hot air soldering station. They're really not that expensive and will quickly pay




## TTL Recovery

**13. In the Putty window, confirm you received the files with the "ls" command. Notice that the "update" file is listed in grey. This means that it cannot be executed!**

**14. Use the "chmod 755 update" command to change the privileges, so that "update" can be executed.**

**15. Repeat the "ls" command: "update" is now listed in green, meaning that it can be executed.**

**16. Execute the command "./update backup_kernel_344" to flash the backup kernel into the flash. This will take a few minutes and the receiver will then restart automatically. It may be necessary to turn the receiver off and on again. It will boot with a kernel that can be upgraded using the normal procedure with a USB pen and AZUp. Congratulations! The receiver is alive again.**

for themselves when used to unsolder chips or small SMA components. You can get a good model starting at around 150 Euros.

In just a few seconds I unsoldered two matching resistors labeled 103 from an old motherboard using a hot-air soldering iron and soldered them to the AZBox circuit board. It's nice that this little resistor is sucked correctly onto the contacts thanks to the surface tension of the solder.

It's not easy to check this with the naked eye. It's actually easier than it looks.

The JTAG interface was finished in a few minutes; I could now get started. Using the OpenSource OpenOCD software the Flash process is run. But I soon became disillusioned: the Flash process is slow. Not slow in the normal sense, but snail slow.

According to my calculations the complete 8MB flash process would take eight weeks to complete! So I decided to have a look at the firmware file with a hex editor.

It's easy to recognize on the „straight" hexadecimal address if a new memory location starts. You have to think of the Flash memory like a diskette on which different files are stored.

In between the files up until the next „straight" memory address there's always a free space that is filled with either &H00 or &HFF.

Since the kernel is also housed in the Flash and I already had a file like this on my PC, I could quickly figure out where to find it in the Flash. It definitely pays to snoop around in a Flash file; the OpenSource Hex editor „Frhed" is perfect for this.

My investigation found that the 8192 KB is divided is follows:

- &H000000-&H0040000
  - First Bootloader
- &H004000-&H0080000
  - YAMON
- &H008000-&H0700000
  - Linux Kernel
- &H070000-&H07FFFFF
  - First File System

It should be good enough to only write the first &H80000 bytes instead of the complete &H800000. This flash process should be completed in just one night.

Therefore, I copied the first &H80000 bytes into a new file using the Hex editor and then flashed it using OpenOCD.

Sure enough, the next morning I was able to start my receiver as far as YAMON. Next I transferred the recovery image again into RAM via TFTP.

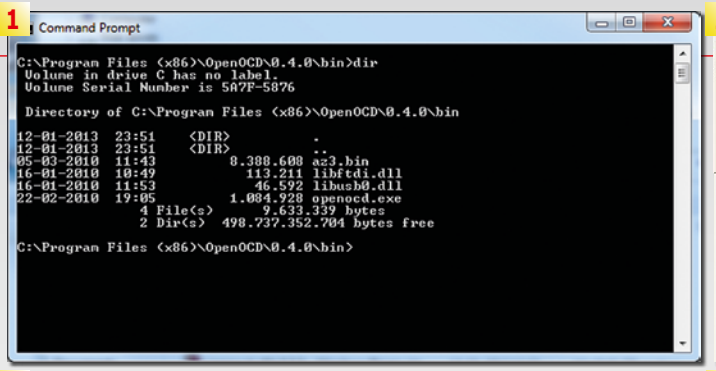
To make sure I didn't once again lose both the Bootloader and YAMON, I used the Hex editor to delete the first &H80000 bytes and then flashed the remaining file starting at memory location &H008000. This process only needed a few minutes.

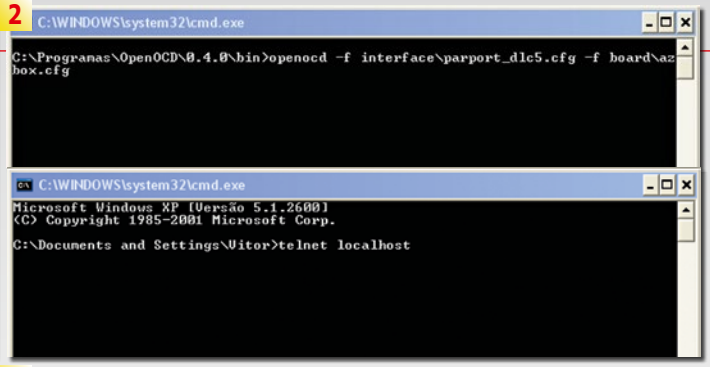
Now look at that: the receiver start up again and I was able to quite normally upload the firmware using AZUp. The receiver was successfully raised from the dead.

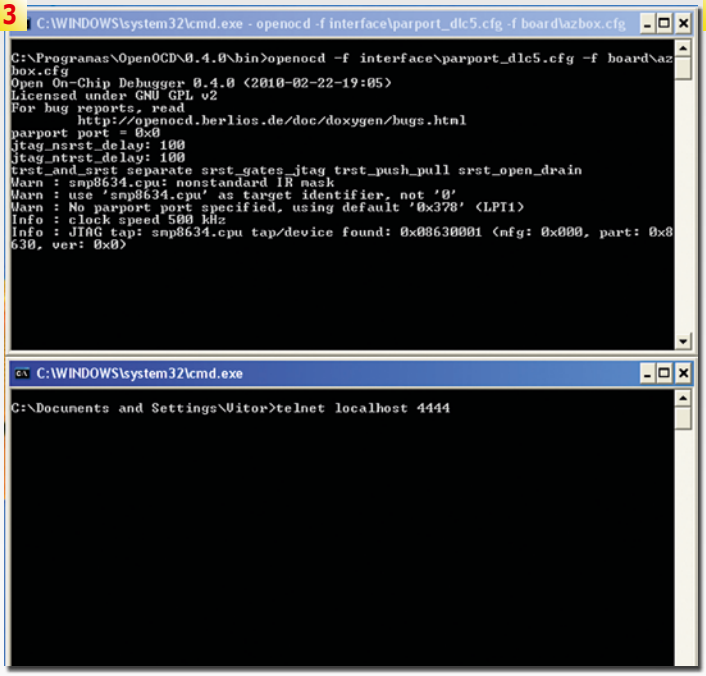
And there you have it: with the help of a TTL adapter and the availability of YAMON, you can directly write a kernel to every AZBox.

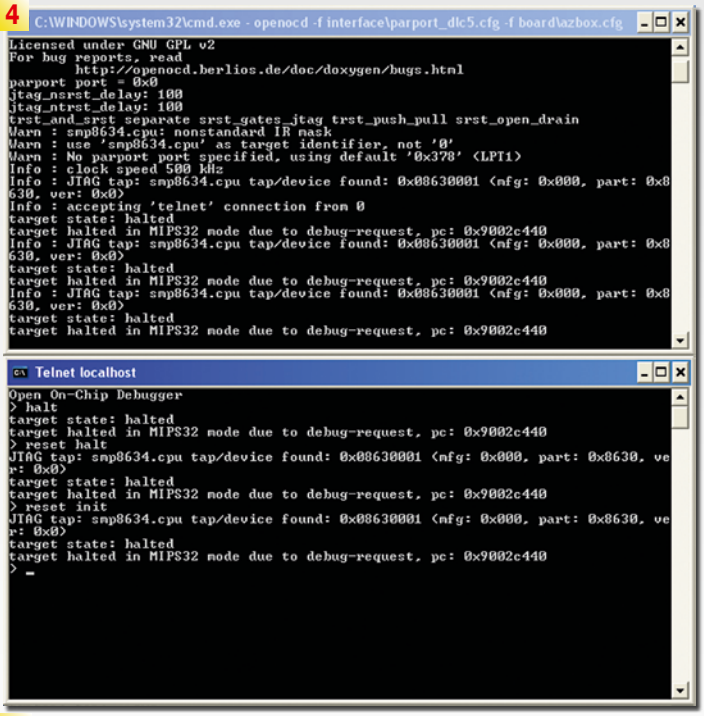
You won't ever have to use a dead AZBox as a brick when building a new house because you can simply bring it back to life!

This AZBox Ultra HD receiver has really grown on me; after a few sleepless nights, some soldering and incorporating a JTAG interface, I am now much more intimately familiar with the inside of this box than with any other receiver.




## JTAG

1. If you can't enter YAMON, because the flash has been completely wiped off then you must use the JTAG route to recover your AZBox. Download OpenOCD and copy the AZBox configurations to the correct folders. Google for "azbox jtag" and you should easily find the required files with instructions. You need a copy of the flash contents (a file with exactly 8MB), usually found with the name "az3_nor_flash.rar". You then need to copy "azbox.cfg" to the "board" folder in the OpenOCD installation tree and "smp8634.cfg" to the "target" folder. Now open two DOS shells, using WINDOWS-R. Enter "cmd" in the pop-up window. In both windows, go into the installation folder of OpenOCD and then in the "bin" subfolder.

2, 3. Arrange both windows vertically, so you can monitor both. In the upper window, enter the command "openocd –f interface\parport_dlc5.cfg –f board\azbox.cfg". Naturally you must have the AZBox turned on and the JTAG-interface connected. Type "telnet localhost 444" in the lower window, but wait until OpenOCD starts successfully in the upper window.

4. Press ENTER in the lower window. Now you can issue commands in the lower window and see the responses in both windows. Start with the following commands:

- halt
- reset halt
- reset init

5. If everything went well so far, you can continue with these commands:

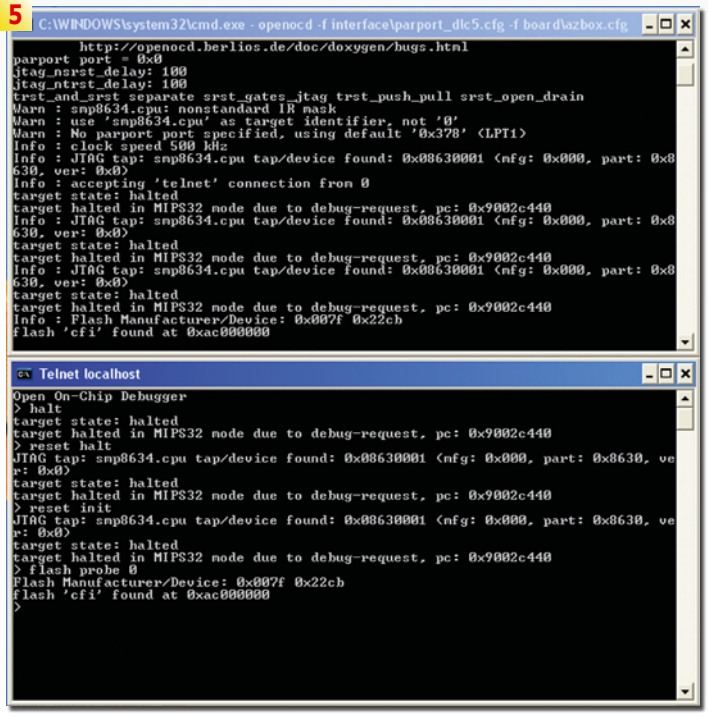
- flash probe 0
- flash erase_sector 0 0 63
- flash write_image az3.bin 0 bin
- flash write_bank 0 az3.bin 0x0

This will now take literally ages. The window will show the progress:

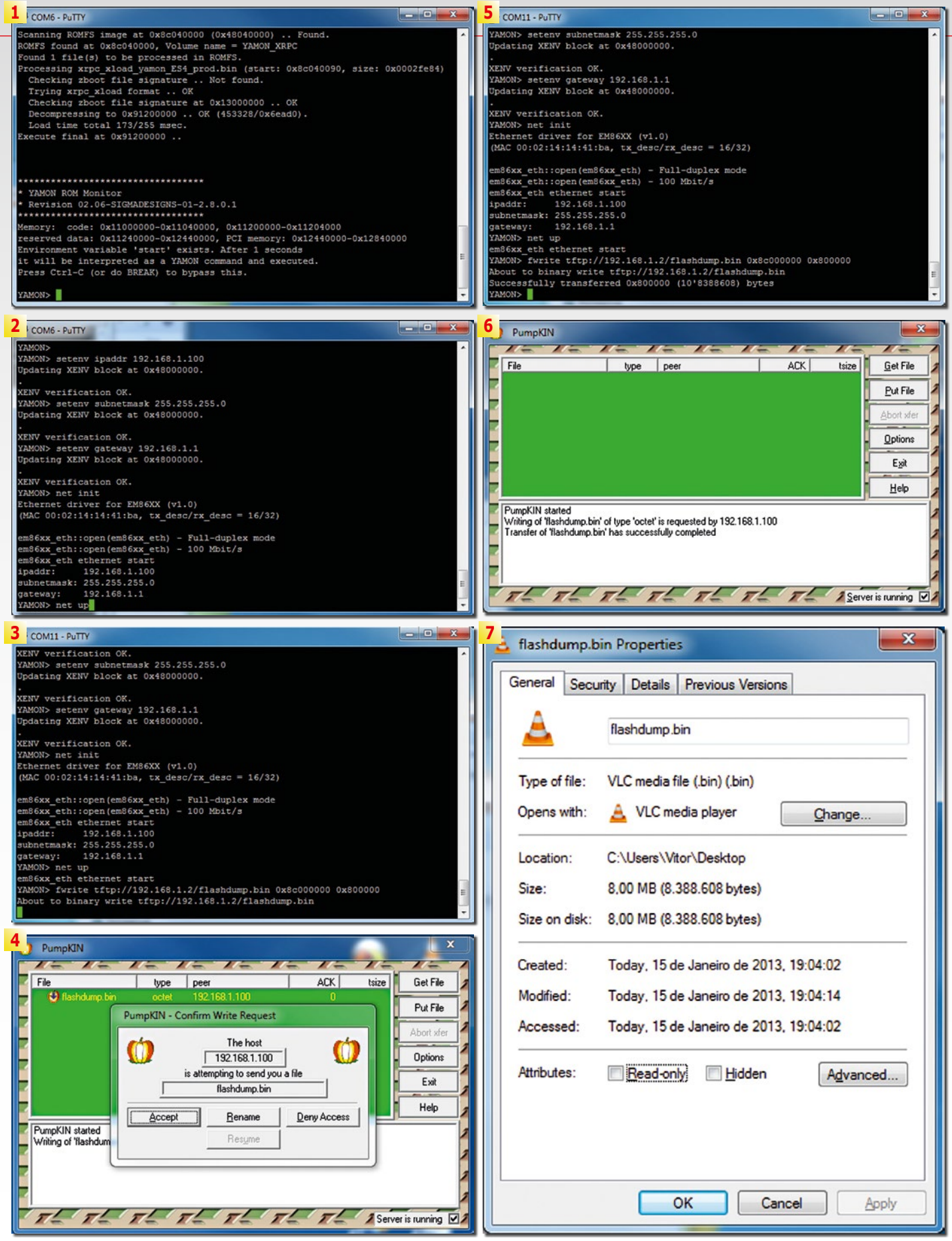
Programming at ac000000, count 00800000 bytes remaining

Programming at ac000100, count 007fff00 bytes remaining

Programming at ac000200, count 007ffe00 bytes remaining




However, you do not have to wait until the whole flash is programmed. That would take almost two weeks, at least on my computers. I tried two different ones and the results were the same. All you need to do is just to flash the first &H80000 bytes, which contain the first boot loader and the YAMON ROM monitor. This means that you can simply turn off the receiver as soon as the message "Programming at ac080000, count 0077FFFF bytes remaining" appears. Once this happens and all went well, you should be able to start YAMON again. You then are back in business, as you can repeat the regular TTL flashing process. But still, I found a better way of doing it… Read on!




## Flash Dump with Yamon

**1. The first thing you should always do with any of your receivers is to dump the flash, in case things go wrong. Start YAMON using the TTL interface and by pressing CTRL-C as prompted.**

**2. Configure and start the network and don't forget to start PumpKIN.**

**3. Use the "fwrite" command of YAMON to dump the flash into a file.**

**4. PumpKIN asks if we really want to receive the file. Yes we do!**

**5. YAMON states the flash contents have been successfully transferred.**

**6. And so does PumpKIN.**

**7. Right click on the dumped file and confirm that the file size is exactly 8MB (8.388.608 bytes). If so, you have a good backup copy of your flash.**

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# SAVE THE DATE

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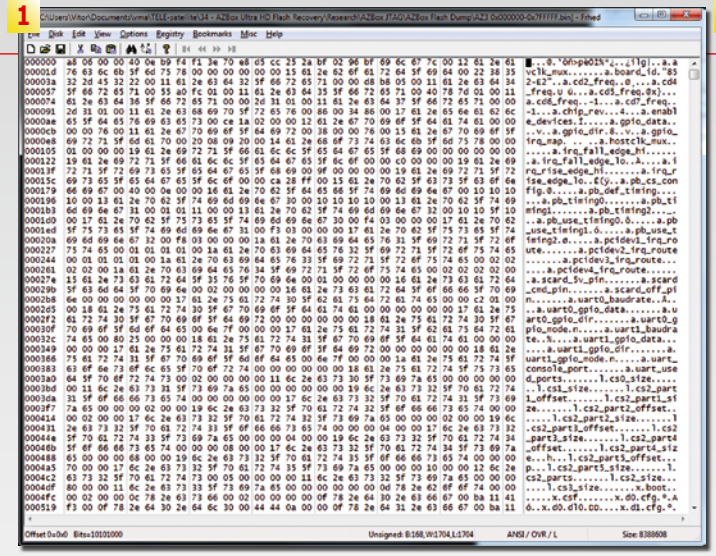

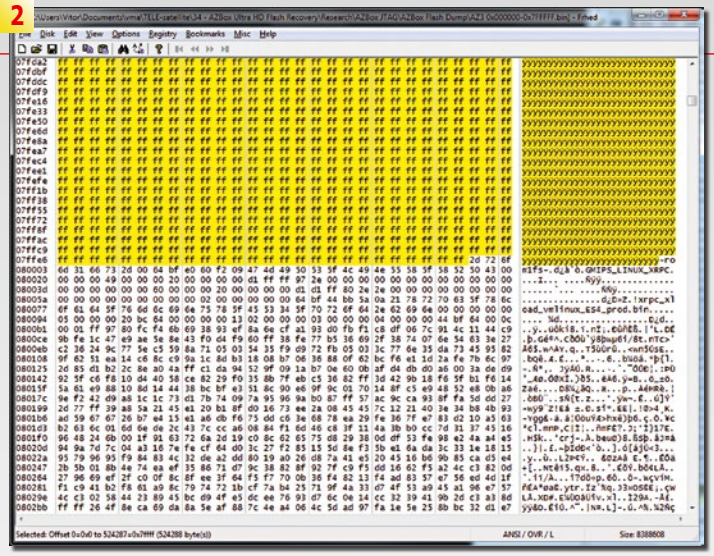

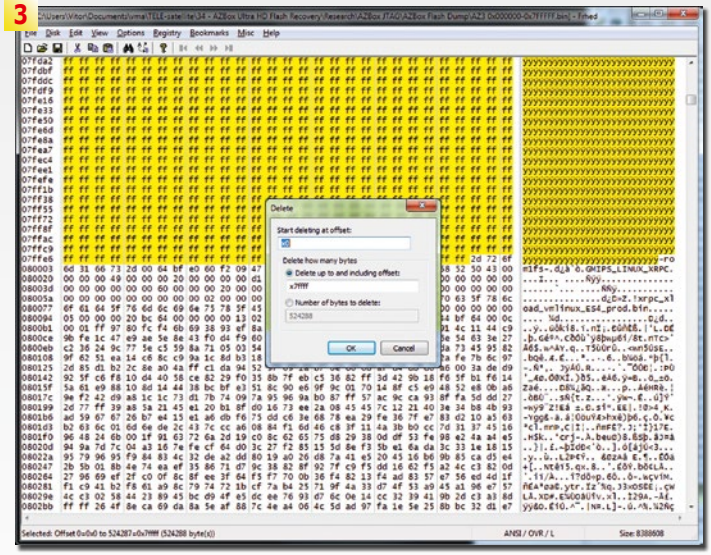

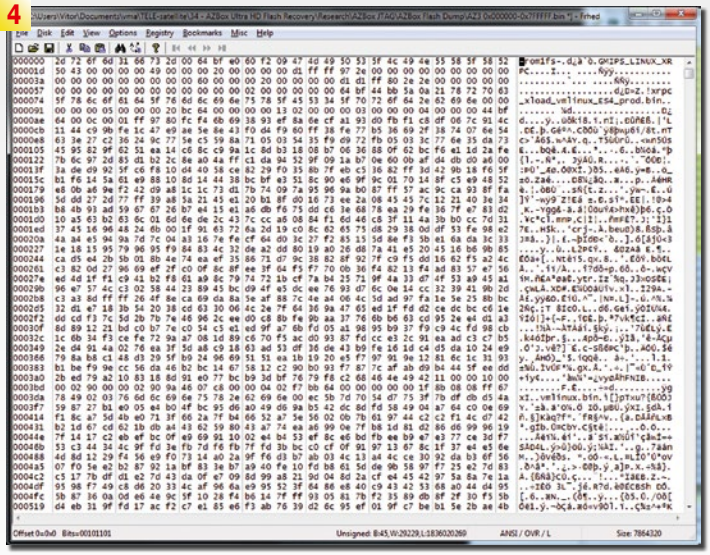

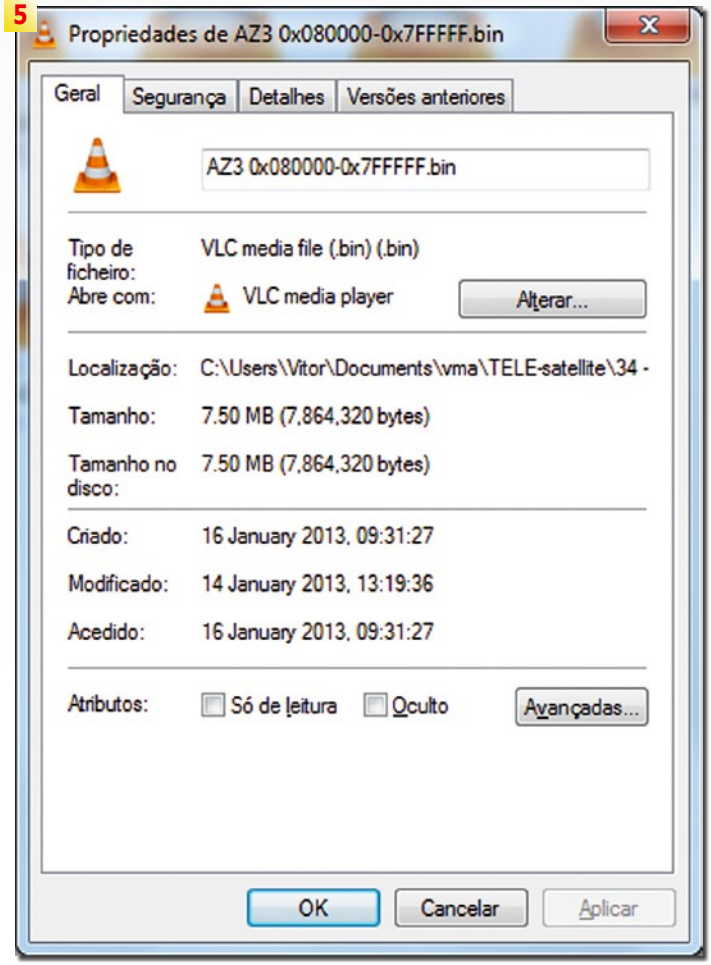


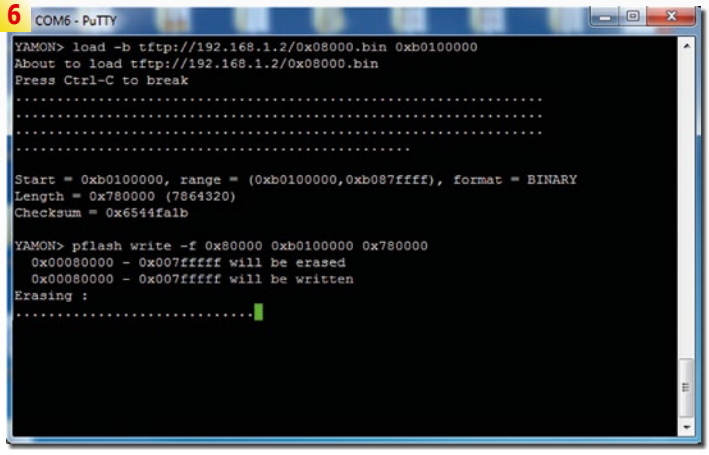


## Flashing in Yamon

1. The dumped flash file contains both boot loaders in the first &H80000 bytes. Use your favourite HEX-editor to delete these bytes. I use the free software Frhed for this.

2. Select the first byte and then shift-select the byte on position 0x7ffff. Notice that the next bytes show "-rom1fs-" which is the label of the kernel!

3. Press the DEL-key to delete the selected bytes. Confirm that you are deleting x0 to x7ffff.

4. Save the resulting bytes into a new file.

5. You will obtain a new file with exactly 7.864.320 bytes. It contains the complete flash image except the two boot loaders.

6. This file can be written directly from within YAMON to the flash chip using the "pflash" command. Make sure that the file is loaded into &Hb0100000 and its size is &H780000. This makes the recovery process much faster, as you do not have to start Linux from RAM and then transfer files using FTP.

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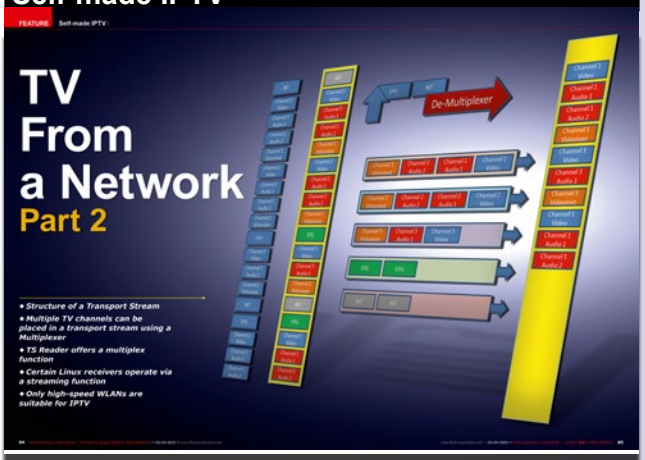


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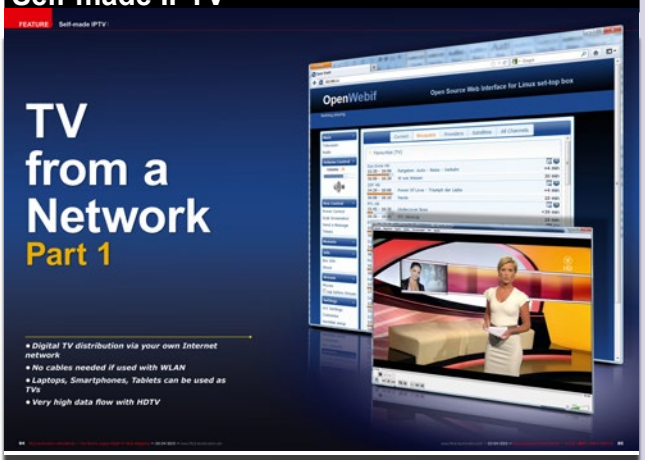


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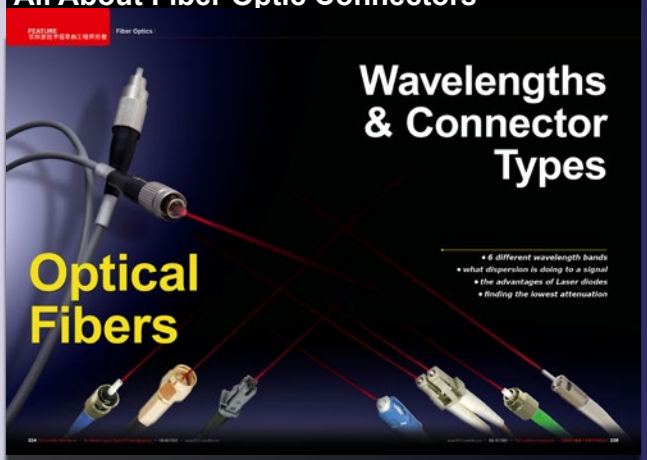


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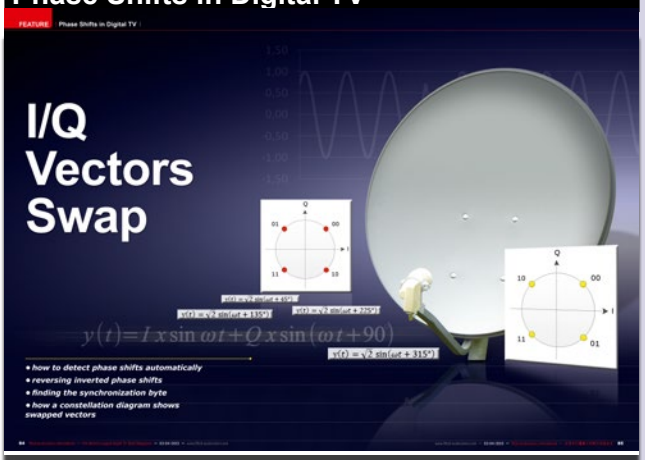


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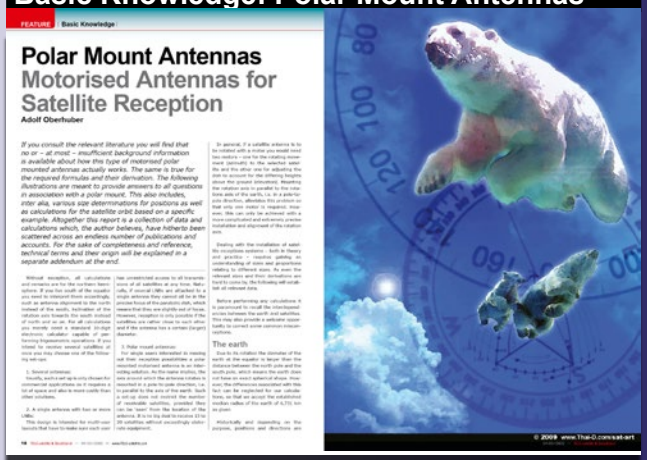


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## DVB-S2: Hide the SD inside the HD

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## How a Silicon Tuner Works

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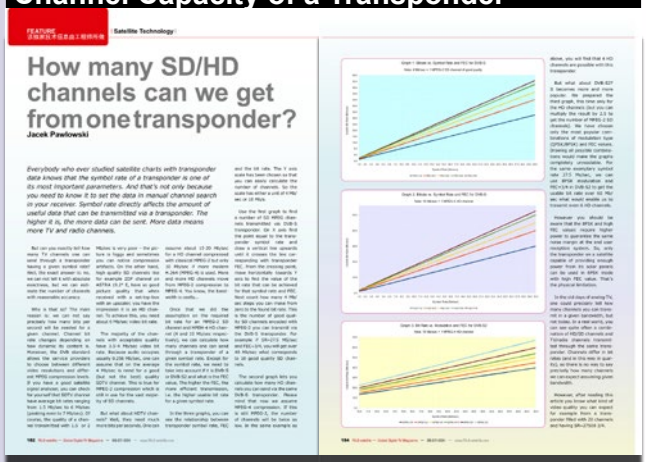


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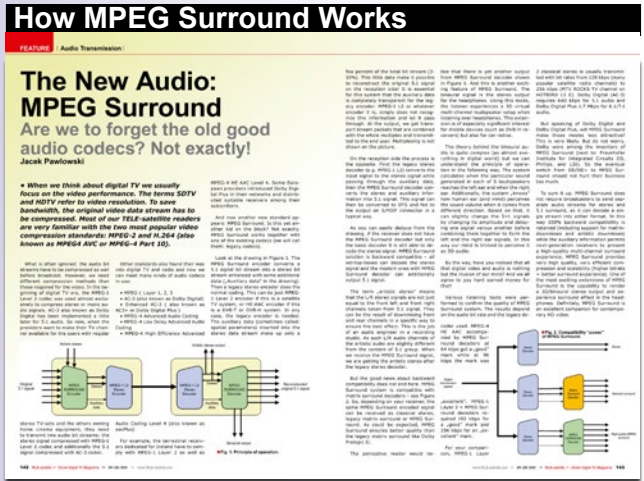


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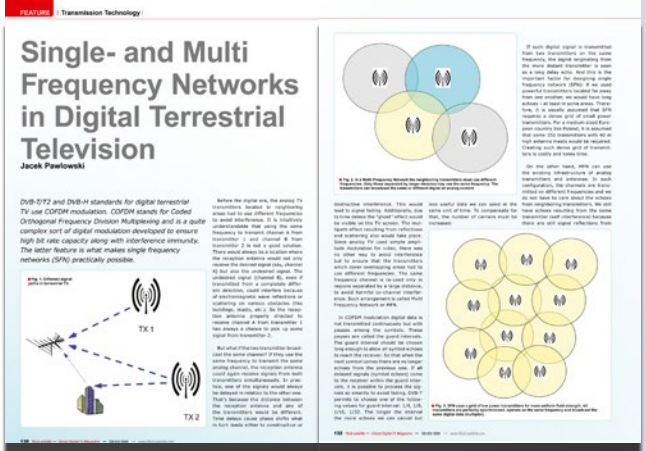


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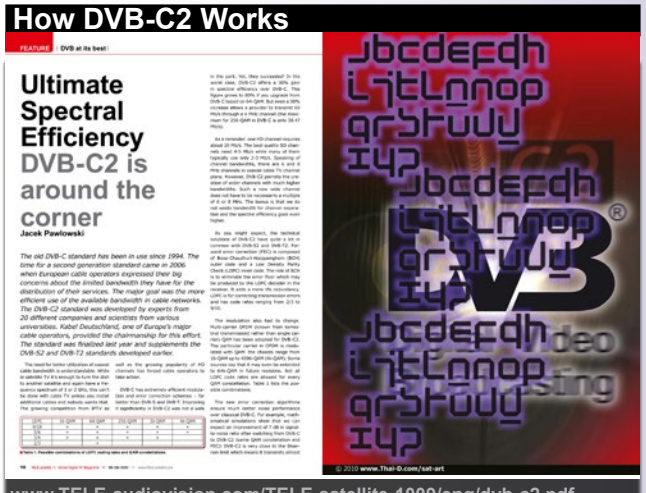


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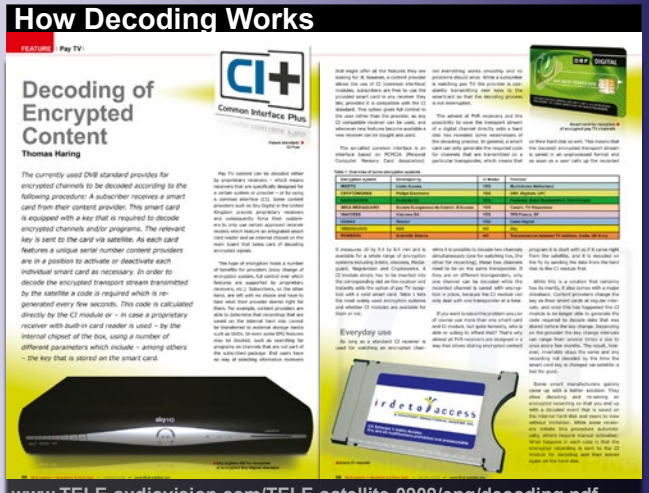


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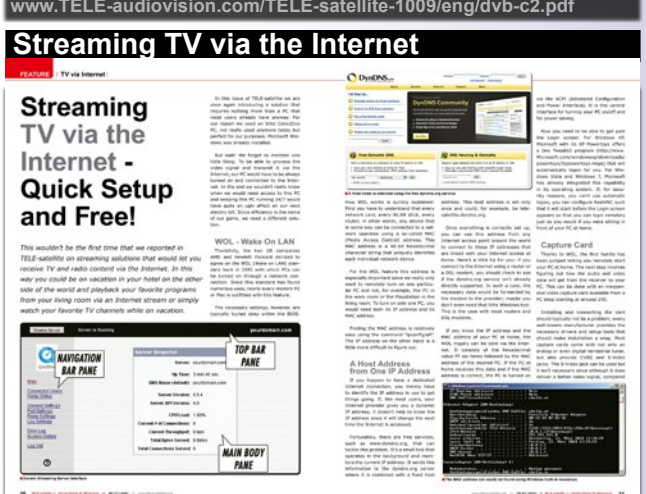


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## How ABS-S Works

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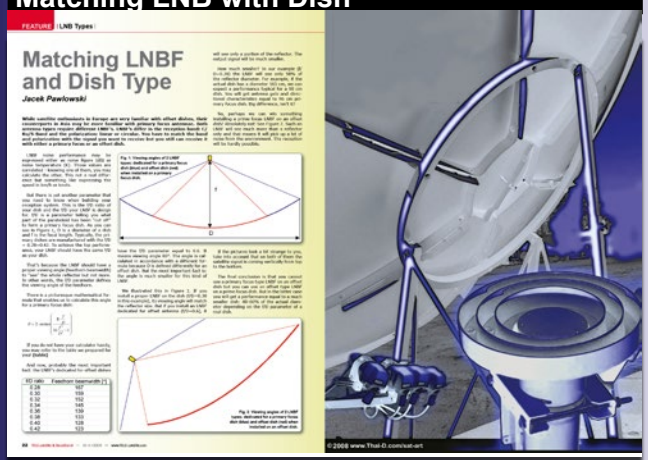
## Matching LNB with Dish

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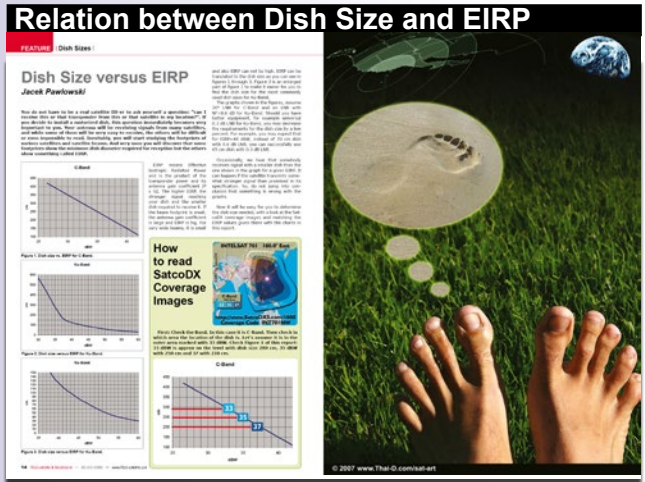
## Relation between Dish Size and EIRP

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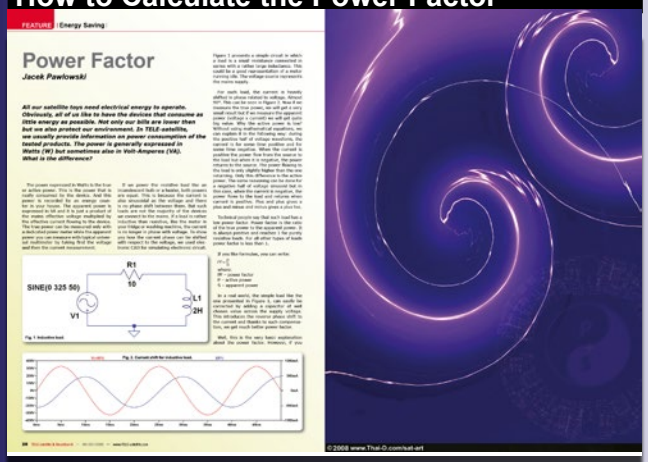


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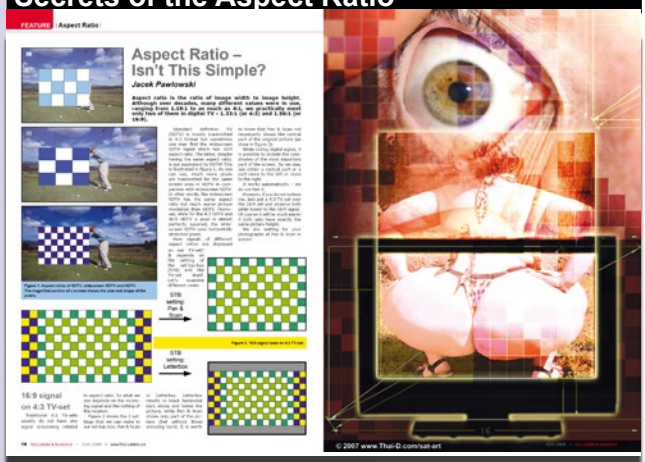


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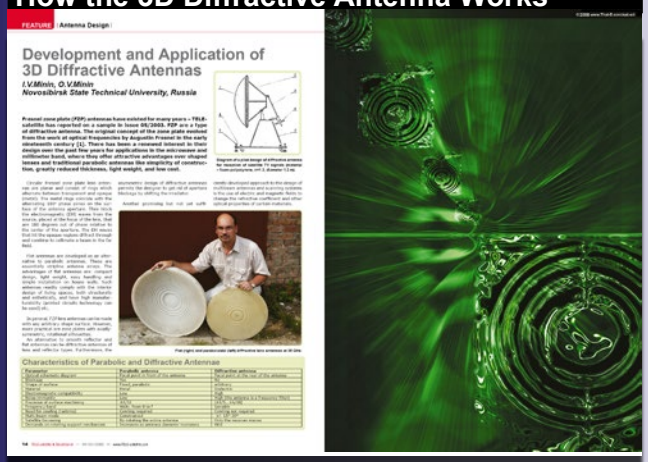


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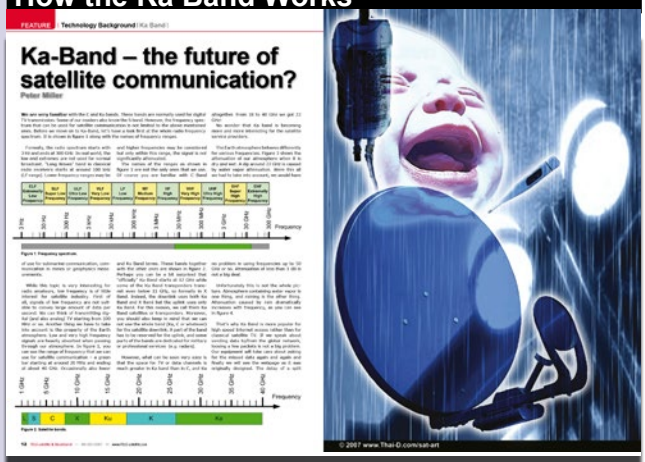


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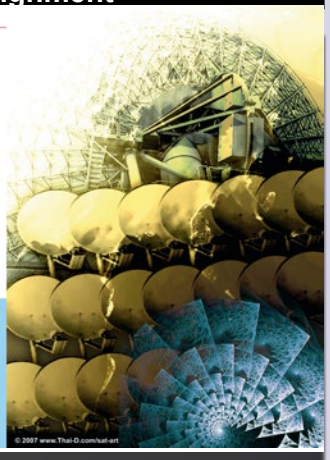

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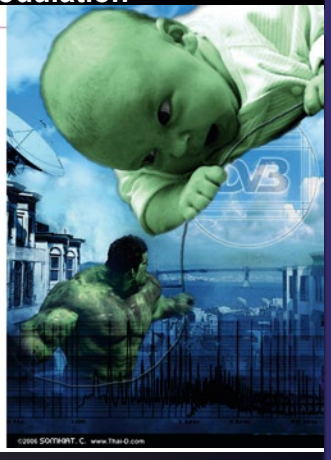

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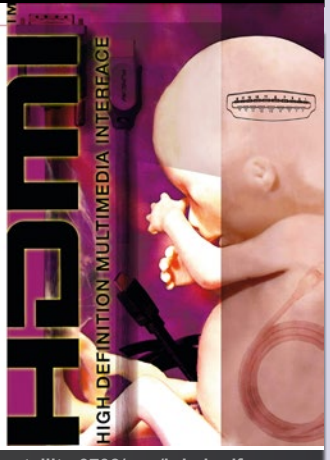
## The Secrets of HDMI



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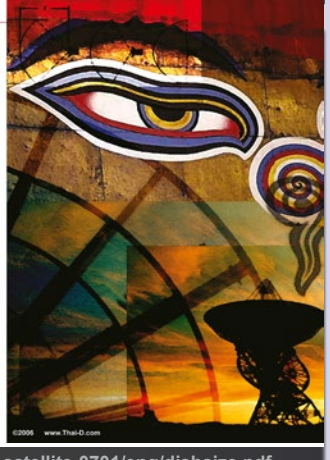
## The Relation of Dish Size and EIRP



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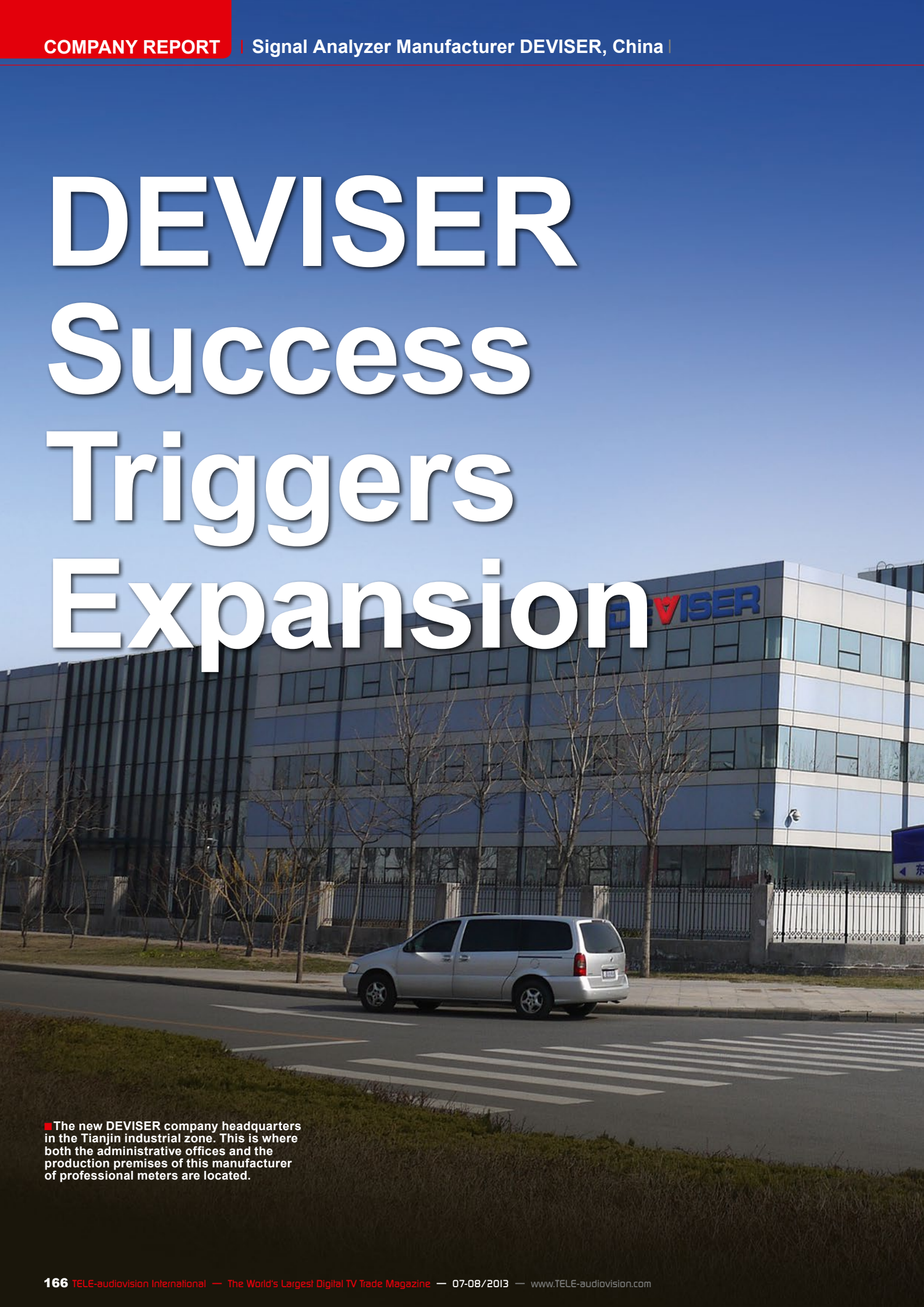
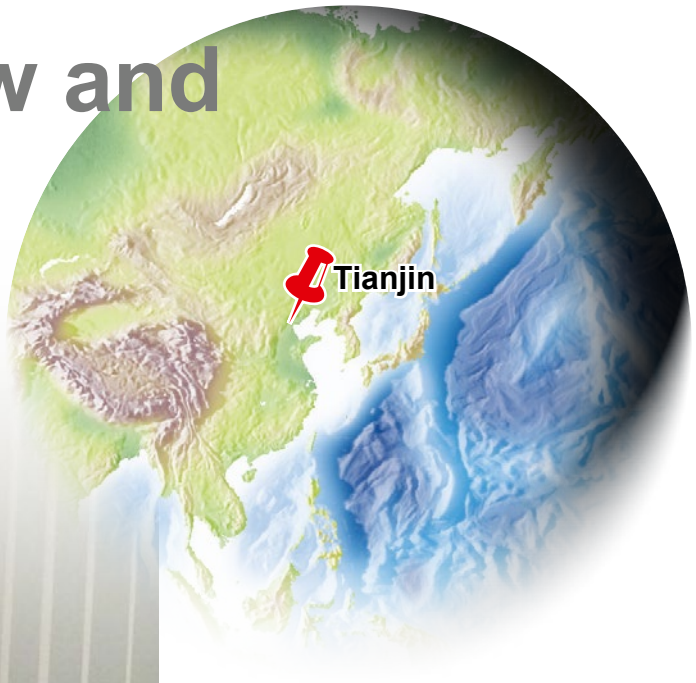



The new DEVISER company headquarters in the Tianjin industrial zone. This is where both the administrative offices and the production premises of this manufacturer of professional meters are located.

- ***new company headquarters streamlines production and administration at a single site***
- ***expansion of a dedicated repair and logistics centre in and for Europe***
- ***strong growth in export markets***
- ***state-of-the-art test benches for EMS and overvoltage protection***

# DEVISER with new and modern company headquarters



■ Zhong Changgan is founder and President of DEVISER. He established the company in 1990.

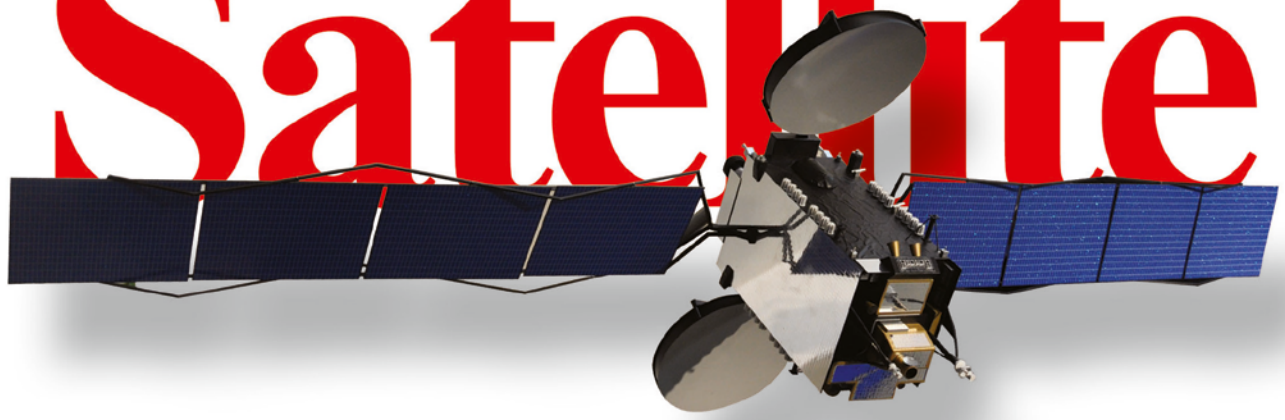
In July of 2012 DEVISER moved into its new and spacious company headquarters in the industrial zone of Tianjin, a port city in Eastern China not far from Beijing. DEVISER has been a manufacturer of signal meters since 1990 and has worked up a substantial base of loyal customers. The reason is obvious: DEVISER pays special attention to quality and reliability over a long service life for all of its products.

During the first years of operation only Chinese customers were able to benefit from that strategy, as products manufactured and sold by DEVISER were only available in China at first. Signal meters for cable TV were the major sellers at the time, and have stayed right on top up to this day. "65% of our signal meters are designed for cable TV," according to Jason Wu, who heads the International Sales team and whom we already met two years ago during our fist visit to DEVISER.

At that time DEVISER's production premises and offices were spread over a number of different premises in Tianjin, but lasting success called for bundling all departments under a single roof. The shiny new and huge headquarters are ready to tackle continued growth, and Jason Wu gives us some details about the driving forces behind that goal: "We expect substantial increases in the meter segment for fibre-optic cables as well as for the telecommunications business." The satellite meter line of business can also look forward to healthy growth, while DEVISER does not envisage significant potential for cable signal meters any longer.

One of the reasons for new and large company headquarters was increas-

# China Satellite



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**In TELE-audiovision issue 06-07/2011 we introduced DEVISER for the first time.**
**Click on the following link to read the full story:**
www.TELE-audiovision.com/TELE-satellite-1107/eng/deviser.pdf

**1. Liu Lian Jun is the Managing Director of DEVISER and is in charge of the entire production business.**

**2. The driveway leading to the main building of the DEVISER company headquarters.**

**3. View from the roof of the DEVISER company headquarters towards the production buildings. The houses of the city of Tianjin can be seen in the background.**

ing export success. Founded almost 25 years ago to supply meters to the Chinese market, DEVISER has long since become a global player. "By now most of our products are sold outside China," explains Jason Wu and also has some export figures in store for us: "40% go to the USA, 25% stay in Southeast Asia, 20% are shipped to Europe and 15% are sold in India." For the US market DEVISER sells its products under the brand name of a local cooperation partner, while the company has devised an entirely different strategy for Europe: "We are currently in the process of establishing a repair and logistics centre in Mechelen, close to Brussels (Belgium) in cooperation with Technetix." This way DEVISER customers will not only receive new products considerably faster, they will also benefit from shorter turnaround times for repairs.

Not that DEVISER expects any increase in repair work! Au contraire: "We recent-

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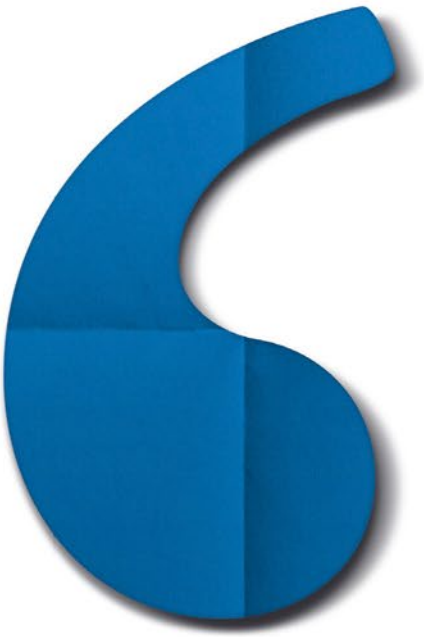
1. Visitors are greeted by this very friendly receptionist.

2. Customers purchasing a DEVISER product will be served by one of the ambitious members of the Overseas Sales team. Each of them is in charge of a specific region. John Wu (upper row, left) is responsible for the Indian market, Jason Wu (centre) is the team leader and can be met at many international fairs and exhibitions. He is in charge of Europe. Aaron Liu (right) looks after Asian customers, Vicky Han (lower row, left) after the Americas and Africa and Simon Liu (right) serves customers in the CIS region as well as in the countries of Oceania. Sally Chen (centre) makes sure deliveries to all corners of the globe run smoothly and reliably.

2



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**1. View across the DEVISER showroom. This is where the latest devices are showcased.**

**2.Satellite signals are provided to DEVISER through this antenna. Here an employee can be seen attaching a new cable for a meter test.**

ly doubled the warranty period for all of our products to cover 24 months," Jason Wu proudly states. This goes to show that the European repair and logistics centre is not being set up predominantly for dealing with repairs, but to offer even better service to DEVISER's professional customers.

Meters made by DEVISER are a particularly interesting proposition for quality-conscious customers and the company's Sales team under Jason Wu can be seen at numerous international fairs and exhibition to get in direct touch with those potential customers. No matter whether it's CCBN, CABSAT, ANGA CSTB, SCat or a range of other events for the cable TV and fibre-optic industry, chances are you can speak in person to a DEVISER representative. Thanks to its top-notch product range and with its new headquarters DEVISER is in a perfect position to further expand in the high-quality segment of the global meter market

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www.satemaga.co.jp

## Meter Production

1. Production Manager Li Hong Xiao. Together with a staff of 30 he is responsible for the production of satellite meter models S7000, DS6300 and DS2500. “Four of my staff are exclusively in charge of quality assurance.”

2. Who does what? The Production Manager himself draws up the roster. This way, each employee knows exactly what to do when.

3. A chipset is added to a DS2002 meter.

4. The tuner is next.

5. It’s all in the details: A female production worker checks the calibration of an S7000 meter.

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6. A DS6300 is readied for quality assurance.

7. Adjustment of a DS2500 meter.

8. Final inspection of an S7000 meter.

9. Debugging meters of the S30 series. This production worker checks all functions of the device before its final release.

1

## Function Tests

1. The batteries are checked at this stage. Devices are charged and discharged for twelve hours with a total of three cycles.

2. S7000 meters have to run this battery test as well: They are charged for four hours and then discharged for five hours.

3. The so-called aging room: Depending on the specific model, the final devices are put through simulated permanent use. Seen here is an example of the S7000 range.

4. Spectrum and network analyzers also have to pass the aging room.

5. Final inspection: A frequency response test is performed after the aging test.

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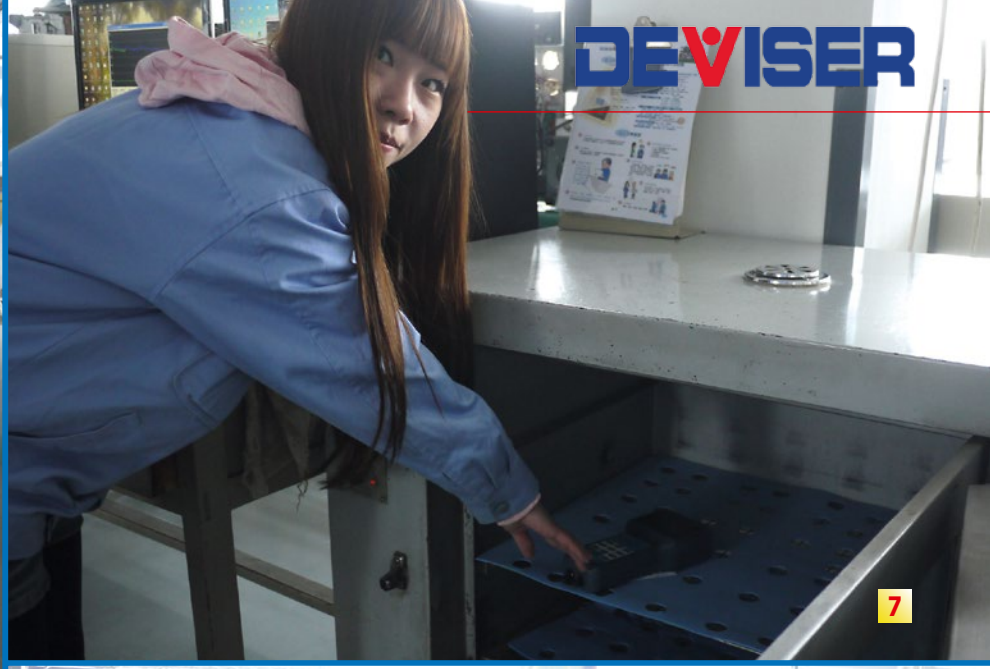

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## Endurance Tests

**6. How does a meter perform in extreme cold or heat? To find out, they are put in a cold chamber for two hours. Once they are cooled down to -10°C they have to undergo a measurement test cycle.**

**7. This employee places DEVISER products in the heat chamber, where they are heated up to 50°C for two hours.**

**8. After both the cold chamber and the heat chamber meters must survive a ten-minute frequency response test without showing any malfunctions. Shown here are DS2400Q meters put to that strenuous test.**

5

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# Production of Commercial Meters

1

1. Production Manager Li Yunsheng is in charge of spectrum and network analyzers. His staff of 20 manufactures meters for the telecommunications industry.

2. First, the mechanical assembly of the analyzers takes place.

3. Circuit boards are installed.

4. This is where exact measurements are performed to check the accuracy of the meters.

5. Spectrum and network analyzers are very different in size from satellite meters. Here you can see a 120m roll of 7/8-inch cable for testing broadcasting technology meters.

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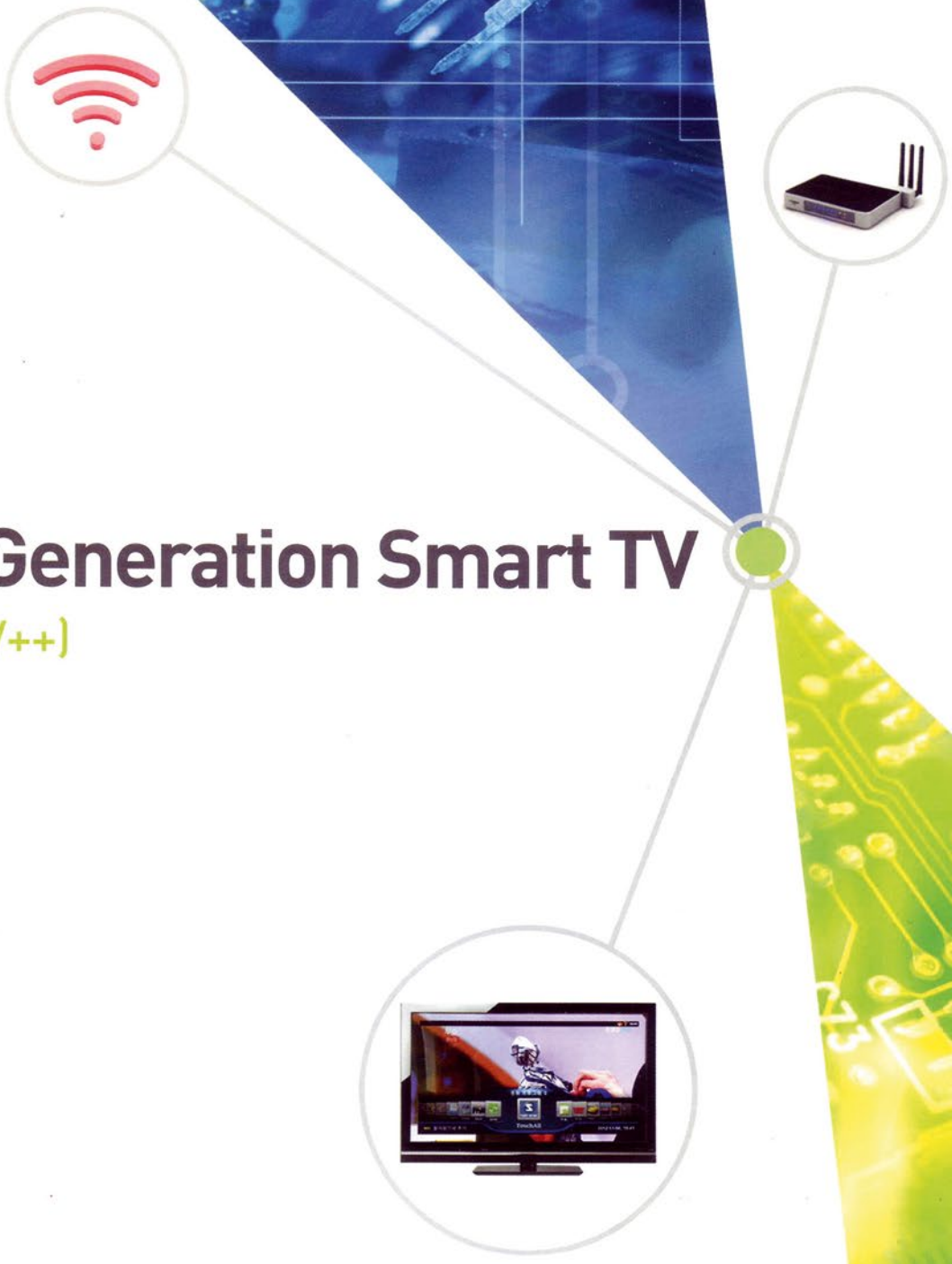

# Next Generation Smart TV

## (Smart TV++)

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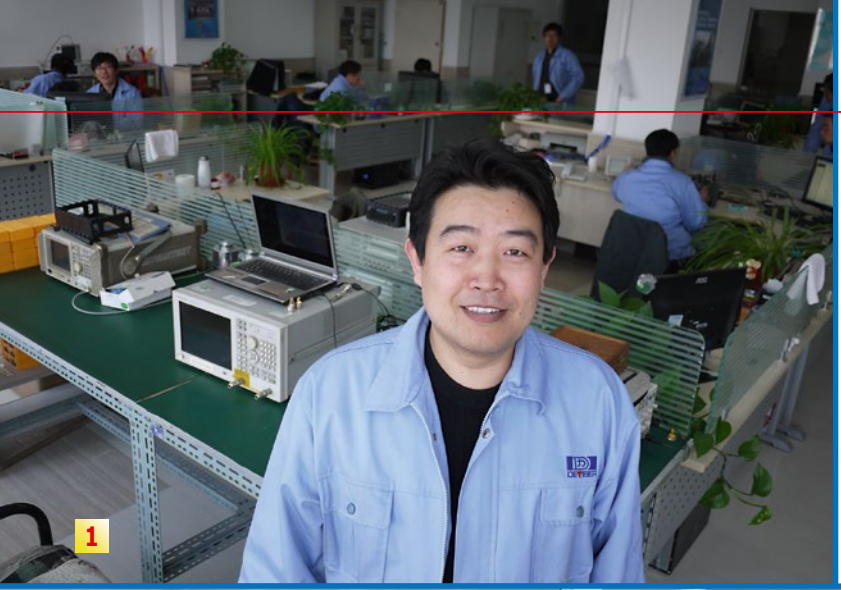

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## Research & Development

1. Chief Engineer Cao Yuliang is the chief officer of all Research & Development teams at DEVISER. His immediate position is R&D head for spectrum and network analyzers.

2. Kanson Kong is R&D manager for satellite reception. 7 out of 18 engineers in his department are in charge of further developing the S7000, while three work on the S30.

3. These two deserve all the praise for the S30. Wang Zhi-ying (left) and Zhang Bin (right) are the project managers responsible for the S30 handheld satellite meter, which we introduced in TELE-audiovision 06-07/2013.

4. Yuan Jing Tao (left) and Wang Ren Ping (right) proudly show us the S7000 professional satellite meter. The two are the project managers for this particular DEVISER device.

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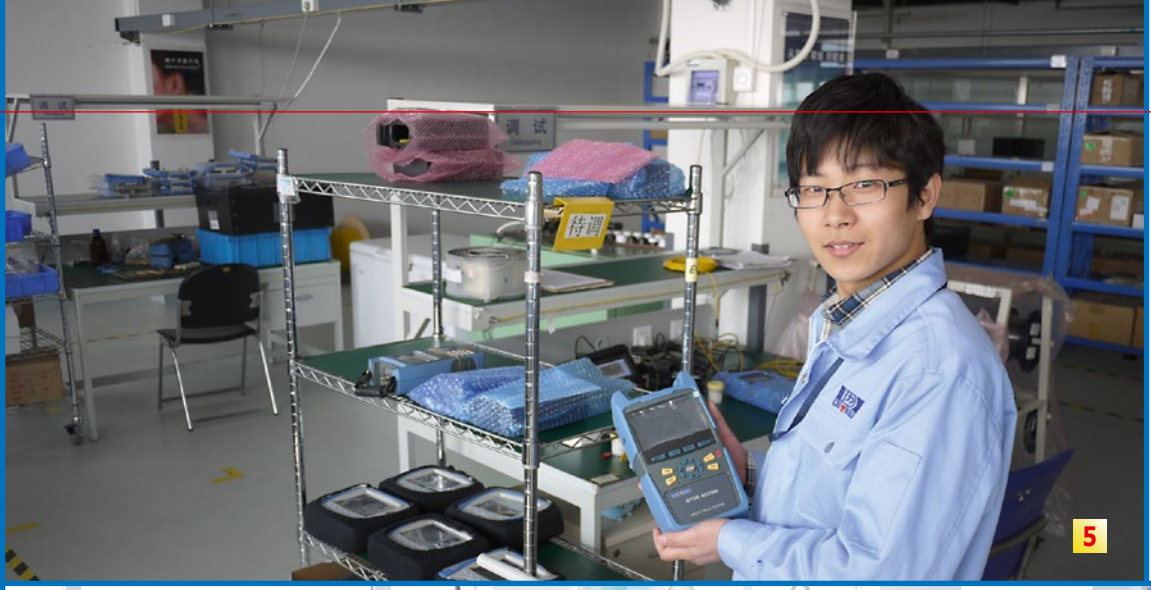
## Fibre-optic Meters

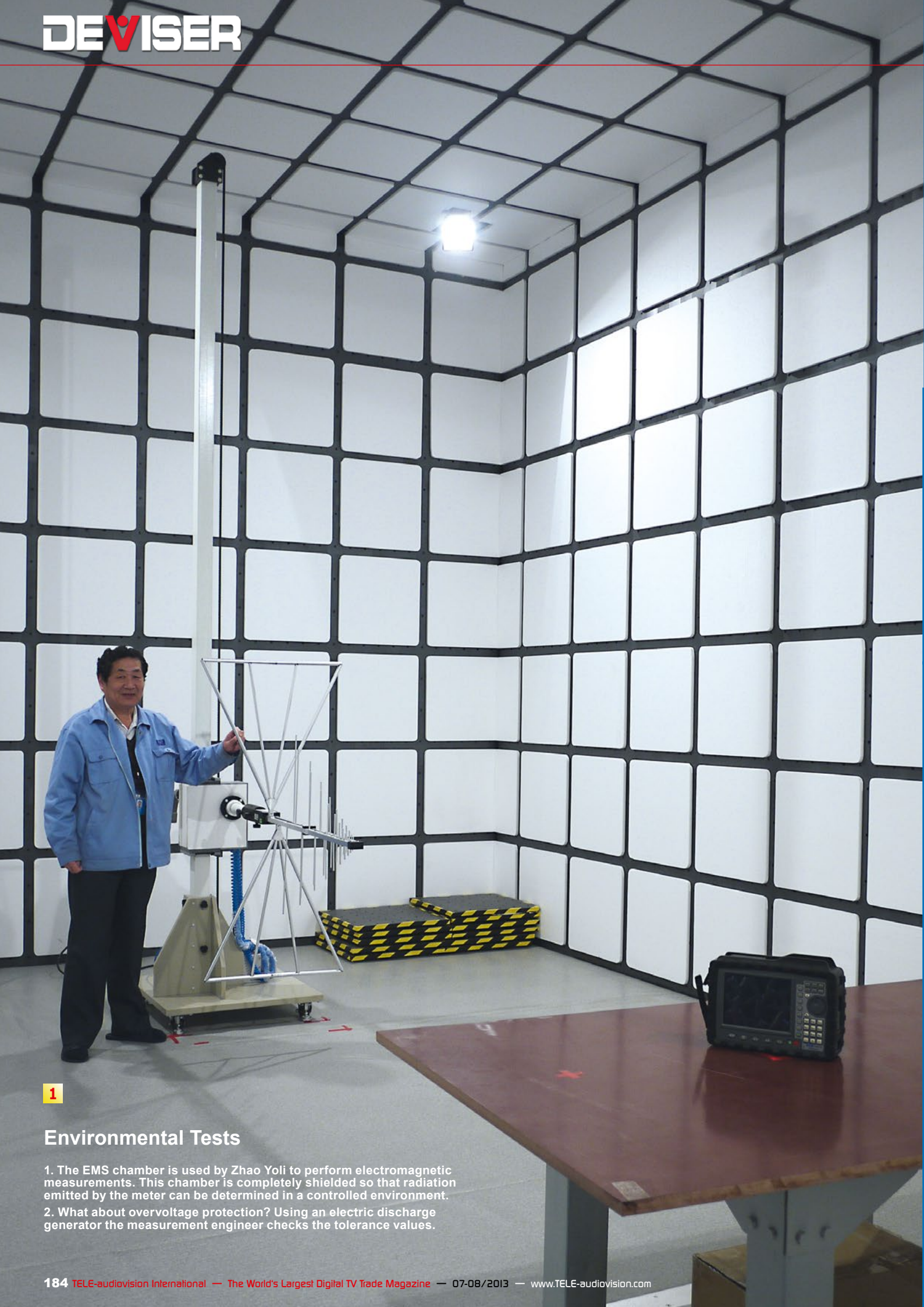



5. Li Jian is the Product Manager of the AE2300 meter for fibre-optic signals.

6. View of the fibre-optic meter department at DEVISER.

7. Examination of the circuit board of a fibre-optic meter.

8. Debugging the circuit board of the AE2300 model.



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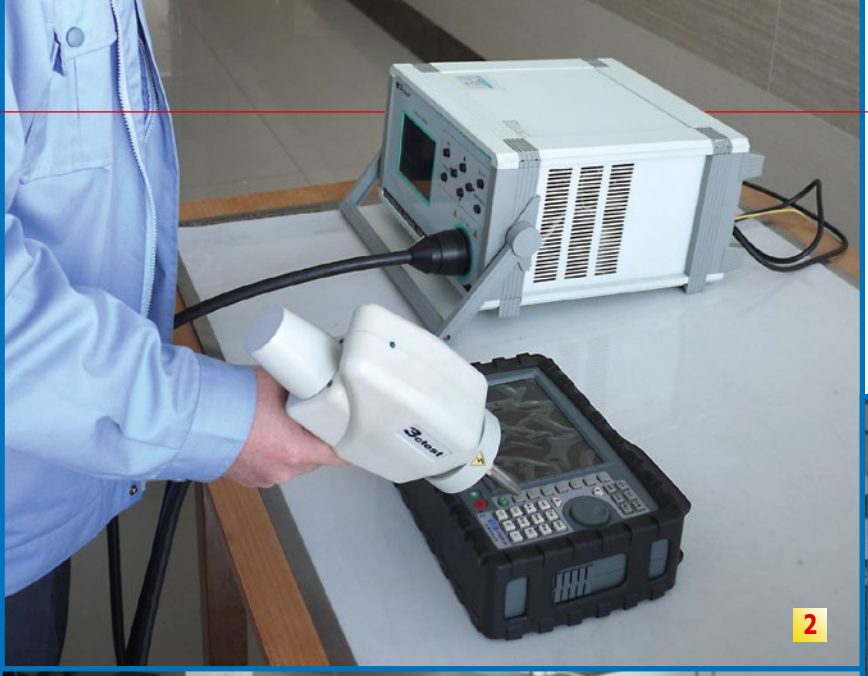
## Environmental Tests

1. The EMS chamber is used by Zhao Yoli to perform electromagnetic measurements. This chamber is completely shielded so that radiation emitted by the meter can be determined in a controlled environment.

2. What about overvoltage protection? Using an electric discharge generator the measurement engineer checks the tolerance values.




## Shipping

**3. Packaging the meters. One of the employees shows a cardboard package on this picture.**

**4. An employee of the shipping departments shelves a DS2100 QAM analyser. Soon, those devices will be shipped to customers.**

## Repair

**5. In case a device malfunctions and has to be returned for repair, it will be sent to the Service & Repair department, where a staff of nine will look for and solve the problem.**

**6. Yue Tian Hong is one of the engineers at the repair department. Together with a colleague she has a close look at the circuit board of a malfunctioning device.**

# IPTV Systems by Forcetech

**Forcetech is based in the ZhongGuanCun software park in northwestern Beijing. 40 software engineers and ten sales experts work at this site. An additional R&D office is located in Chengdu, where the local university offers a top-notch engineering degree program. Forcetech operates one more office in Shenzhen, since it sources OEM hardware such as encorders and set-top boxes from there.**

- *offering technically mature and fully-fledged IPTV solutions*
- *large Chinese movie provider as showcase customer and shareholder*
- *small-scale IPTV systems can be realised on a tight budget*
- *excellent video quality thanks to P2P technology*

# Hello World!

■M1905 is the name of the online portal operated by CCTV-6. Not only does CCTV-6 use Forcetech software for its online movie service, it also has a shareholding in Forcetech.

IPTV is steadily gaining popularity, as it gives small and even tiny content providers a platform for offering their services on a truly global scale. The question that arises is: Where can you turn to for a fully-fledged IPTV solution? Force-tech is a company that has the answer. It offers everything you require in terms of software for managing an IPTV offering as well as hardware such as IPTV boxes for clients. Forcetech is based in northern Beijing, and we visited the company to find out what it's made of.

The Chinese capital Beijing is home to countless software businesses, and a number of well-known companies have chosen the northwestern part of the metropolis, close to the Xierqu station of metro line 13 as a place to do business. Baidu (the Chinese counterpart of Google) has its huge headquarters right around the corner, and a bustling location like that is just the right place for an innovative company like Forcetech. Lan Haidong is in charge of marketing at Forcetech and gives us a brief company overview. "Forcetech CEO Mr. Arojoy Wei founded Forcetech in the year 2004. He had studies computer technology at university and has always

■A friendly welcome by the Forcetech receptionist.

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shown persistent interest in streaming systems."

Together with his staff of eight, six of which were software engineers at the time, Forcetech CEO Mr. Arojoy Wei designed streaming software for commercial applications during the initial phase of his company. State-run institutions such as schools and universities as well as industrial enterprises ranked among his first customers. Forcetech software was implemented on the websites of those customers for streaming video content. Lan Haidong gives the example of "lectures at schools and universities" that could be accessed online for viewing at home.

At the time, all streaming software was based on so-called multicast technology, which means every client received his or her stream directly from a central content server. Things changed in 2008, when Forcetech launched a P2P (peer-to-peer) version of its software. What was different from then on? With P2P all connected streaming clients at the same time function as active multipliers and forward the received signal to additional clients. Lan Haidong: "P2P improves the quality of the received signal, above all." Signals need not be fed from a central server any longer, but can be received

■ **Lan Haidong is the Marketing Manager at Forcetech. The official name of the company is Force Innovation Technology Co., Ltd. as can be seen in the background.**

■ **The Forcetech Sales team with TELE-audiovision editor-in-chief Alexander Wiese: (from left to right) Sales Manager Ren Nan, Sun Wenya, Marketing Manager Lan Haidong, Wang Qinghua, Dong Peng and Guo Tianwei.**

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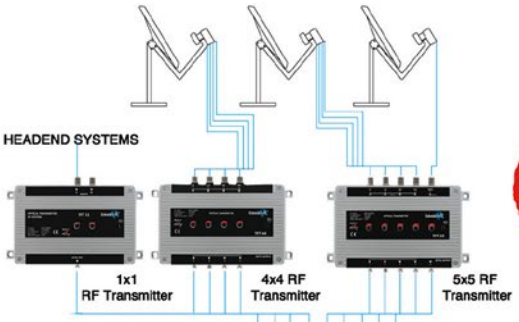
# Fiber Optic Systems

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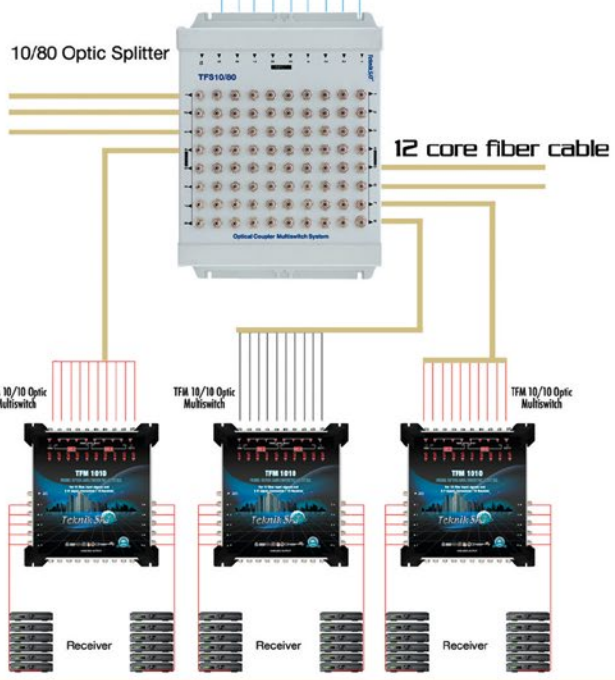

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from another client close-by.

In its first years of existence, Forcetech was a strictly Chinese company, which means that only customers within China were able to order from Forcetech. The year 2011 saw a major change in that strategy, mainly thanks to the advent of CCTV-6 as a major shareholder. CCTV-6 is a movie channel that is available all across China and which created its own Internet offspring by the name of M1905 (www.m1905.com). Hundreds of movies can be accessed through that portal, some of which are available even before their screening date on TV. This, of course, presented an ideal opportunity for Forcetech to prove its streaming software's worth. Lan Haidong has some impressive facts for us: "M1905 has two million subscribers and an average of 400.000 prime time viewers that simultaneously access movies from M1905. At those peak times the required bit rate is in excess of 100 GB per second."

Lan Haidong adds even more interesting details: "Each server is capable of taking care of up to 1000 clients, which means that for M1905 we adjusted our streaming software to handle more than 400 serves simultaneously." With China being such a huge country, servers are spread out all over the nation in so-called data centers. "We have some 50 data centers in the whole of China." This way each single client can be guaranteed the best possible video quality.

Thanks to new shareholder CCTV-6 Forcetech could finally cast an eye on the international market as well. "Our software product has currently reached an extremely sophisticated level and with M1905 we have a brilliant showcase for our solution, which lends prove to our claim that we can easily deal with a huge number of clients." Within only a short time Forcetech was able to significantly increase overseas sales. "Today we generate 40% of our total turnover outside China." Recalling the initial phase of overseas business, Lan Haidong remembers that the first overseas orders came from Spain and Thailand and adds that Thailand, in particular, has shown a strong demand for Forcetech IPTV software ever since.

What is it that Forcetech can actually provide? "We offer an end-to-end solution for IPTV, and by that we mean streaming software, software for monitoring the stream, management software for subscriber administration, encoders for feeding video signals into the system and of course IPTV boxes at the clients' end." The other question is the one about money. Once again, Lan Haidong has all the details: "A mini system for approximately 100 subscribers will set you back USD 20.000 at most, plus 15 to 20% of that amount per year for service und software updates. If you need to accommodate 1000 subscribers you're looking at one-off costs of around USD 75.000."

Who wouldn't want to set up their own IPTV system with competitive prices like that? As a matter of fact, TELE-audiovision will test a Forcetech IPTV solution first hand and you'll be able to read what we think of the system in one of the upcoming issues. Forcetech has definitely tapped into a lucrative market segment and major IPTV operator M1905 clearly underpins the level of excellence Forcetech's software has reached.

**1. Meet Peng Dong. He is one of the software engineers and works on optimising the user interface of Forcetech software.**

**2. Liu Ming is the Development Manager for Android systems.**

**3. Wang Yong is the Development Manager for Linux systems.**

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# Digital TV Head-end Equipment Manufacturer DEXIN

■DEXIN's new production facility that the company moved in to at the end of 2012. It's located in the Wuhou high-tech zone of Chengdu.

- *Established in 1994 in Chengdu*
- *Specializes in professional tv head-end equipment*
- *50% of their production is exported*
- *Intense quality controls*
- *Very large R&D team*

# TV Head-end Products for Professional TV Distribution

DEXIN is a manufacturer of professional tv head-ends. These types of devices are often specially made according to customer requirements and since each application would have to be optimally configured DEXIN employes a large number of engineers in their R&D department.

DEXIN moved into their new production building at the end of 2012. Before that the company was located for years in downtown Chengdu. But they outgrew that site and General Manager Sun Yu decided it was time to move to a completely new building. Sun Yu is not only General Manger; he's also a part owner of DEXIN. He explains to us: "My two brothers are also part owners but they don't take part in the company's daily activities. "

It wasn't always like that. "The company was founded in 1994 under the name DESAI." Back then analog modulators and transmitters were manufactured for the local market in China. In those days Sun Yu's parents were part

Sun Yu is DEXIN's General Manager. Just like all the other employees, he also wears a jacket with the company's logo.

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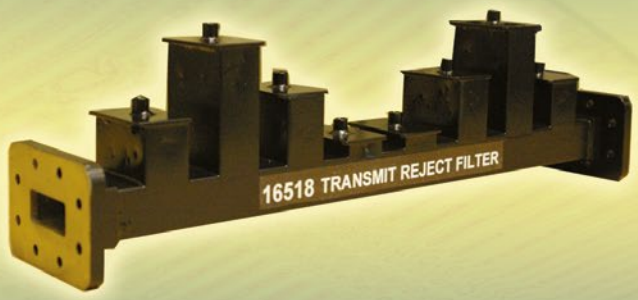


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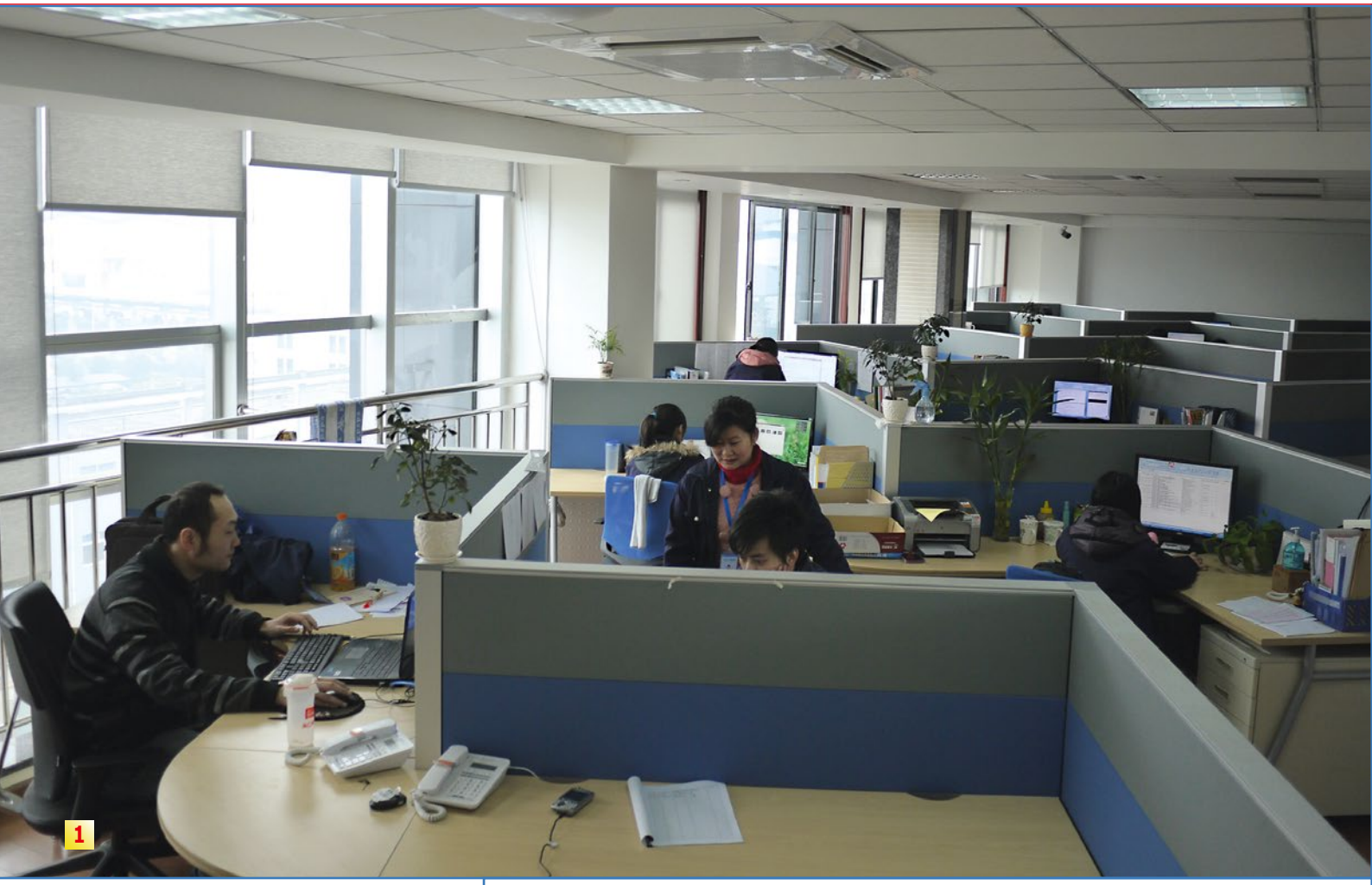

# Sales Team

**1. The expansive Sales Team office is new and modernly equipped**

**2. Tina Feng is responsible for Sales Europe and Africa**

**3. Ronnie Pan works with customers in the Middle East, Pakistan and India**

**4. Jason Zhao speaks Russian and is obviously responsible for the CIS countries**

**5. Emilio speaks Spanish and deals with customers in South America**

**6. Fancy Wang is responsible for customers in South Africa**

owners of DESAI. "In 2005 the ownership changed and my family became the majority holder and since then I've been General Manager."

With this change the company started to go in a different direction: "We began focusing more on exports." Currently, domestic sales make up only 50% of their business; the remaining 50% of their products are exported. "We not only changed our sales territories, we also switched over our product palette primarily to digital TV."

Analog components are still being produced but only for the domestic market and also as replacement parts. Where does DEXIN export their products to? "We have many deliveries to

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# Product Testing

1. 200 racks can be found in the burn-in room and each of these racks can hold up to 30 devices. All of DEXIN's products have to undergo a burn-in test. They are fully connected and have to function correctly for 30 uninterrupted days. Only then can they be shipped to customers.

2. Shaoshang Liang is responsible for product testing. He manages the 30 employees that take the finished products and install and connect them in the racks. After a successful 30-day test, they are then prepared for shipment.

3. An employee is connecting a DEXIN modulator for a burn-in test.

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## Production

**3. A look in the production area. The different modulator, encoder and IRD components are produced and assembled here**

**4. The finished products are prepared for shipping**

Eastern and Western Europe, North and South America and also many Asian countries."

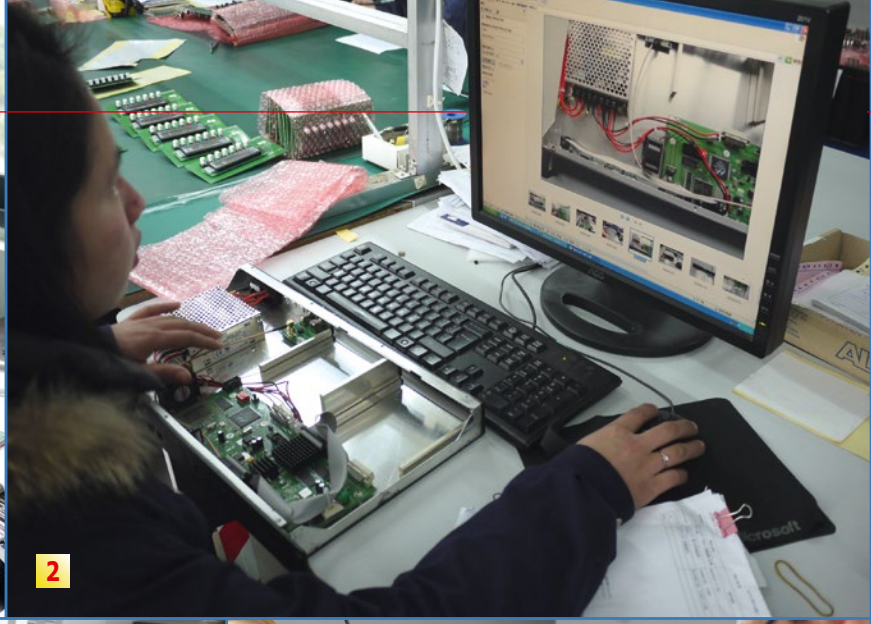
Their success shows that Sun Yu made the right choice with the company's realignment: "In 2012 we achieved sales of 120 million RMB (14 million Euros) and for 2013 we're expecting an increase to 150 million RMB (18 million Euros)."

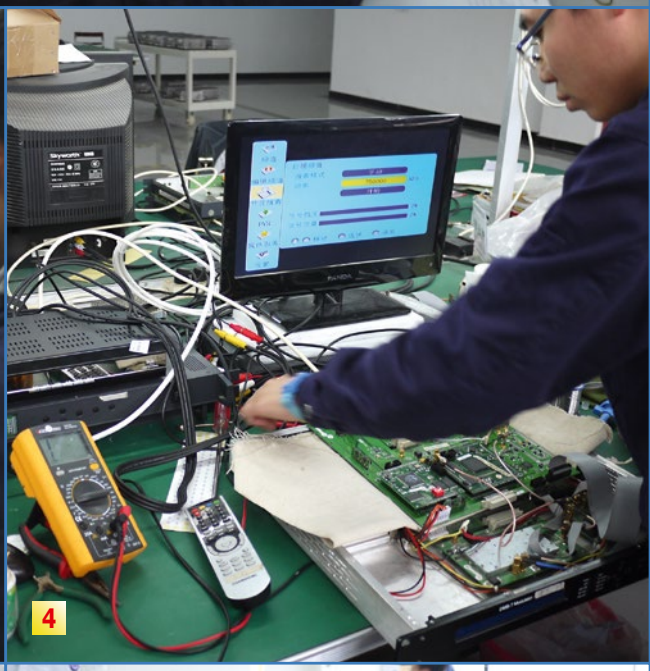
Outside of their main headquarters in Chengdu in central China, DEXIN also has offices in Xinjiang in northwestern China and in the capital city of Beijing. "We also have an office in New Delhi in India", adds Sun Yu.

DEXIN's largest product group is the Encoder-modulators. "They make up 60% of our exports and are our best sellers." Aside from that, DEXIN also delivers many individual components such as encoders, modulators and IRDs that are all designed for installation in 19" racks.

There are 12 employees in the Sales team that take care of worldwide sales. DEXIN has a total of about 190 employees of which 60 of them are R&D engineers.

DEXIN can be found at many international trade shows; Sun Yu wants to further increase their exports. Thanks to the highly qualified employees on their R&D team and in their actual production, that should be no problem.





# Quality Control

1. Xiufang Zhou is the Production Quality Manager. She's in charge of the 14 inspectors that check all the component groups and finished products.

2. Optical Inspection: an employee uses photos to verify the correct cabling of a just-completed modulator.

3. A completed component is checked for proper operation

4. Functional testing of a completed modulator. An employee connects the device onto different pieces of test equipment and records the results

5. Functionality is tested using a real signal

6. A component is checked with an oscilloscope

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# Component Stock Room

**1. Yinghua Xiang manages the component stock room with 15 employees. All the components that will later be used in production are stored here including screws of all different sizes such as those he's holding in his hand**

**2. The front panels of all the DEXIN products can be found in the stock room**

**3. DEXIN uses high-quality test equipment for quality control. This is an AGILENT signal analyzer**

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# Research & Development

1. R&D Manager Jerry Lee (center) discusses with employees new details of a DEXIN product
2. A look in the large R&D office. 60 engineers can be found here working on new DEXIN products
3. An engineer works on a board design on a PC
4. A new chip is incorporated into a new DEXIN product

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■Cloud Yang is Customer Service Manager. Ten employees are standing at his side and handle all of the customer's questions ranging from the proper setup of a DEXIN product to troubleshooting a failure

# Test Laboratory

5. Victory for Zhengiang Zhang: his 30 employees produce and test the sample product that was designed by the R&D team

6. New! A modulator with WiFi. This employee is testing the functions of the new product. The TV monitor to the left is fitted with a WiFi dongle and can receive the wireless TV signal. The iPad to the right of the employee does the same thing.

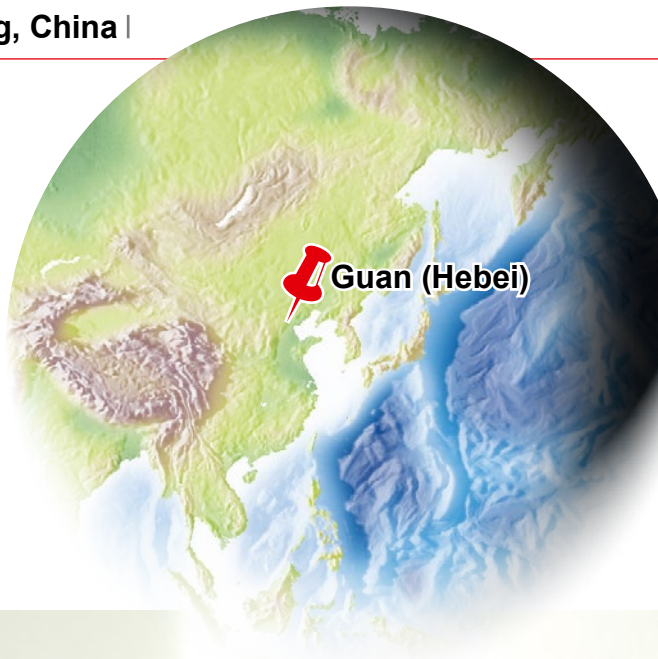
7. Close up of the new DEXIN WiFi modulator

# Quality Antennas for the Global Market

**Is this the command centre of a large satellite dish manufacturer? Yes indeed, on the 5th floor of the Newton office building in Beijing's south we can find the administration staff and the Sales team of the dish manufacturer Tianditong. The production premises, however, are located in Guan, in the Chinese province of Hebei. A total of 180 workers are employed at the Guan premises, with another 100 production workers based at an additional production site in the province of Hunan.**

- ***uses state-of-the-art production machinery***
- ***fully automatic quality control during the production process***
- ***volume production of dish sizes from 45 to 180 cm***
- ***ready for production of large quantities at short notice***
- ***environmentally-friendly production according to international standards***

# Ultra-modern production equipment for conquering the world market




There was a time when a huge number of hard-working employees manufactured large quantities of all sorts of products. For most successful companies, this has long become a thing of the past, and Chinese satellite dish and antenna manufacturer Tianditong is a perfect example of that development. Almost every step of the production is completed by highly efficient machines, and even the few components that still require manual work will be assembled by automatic equipment in the foreseeable future. All this results in roughly three million antennas being manufactured by less than 300 employees. Impressive numbers – and reason enough for us to pay a visit to that company.

Our first port of call is a small office right in Beijing. As little as 20 employees work at this site, with six members of staff making up the Sales team for

■ Thumbs up for General Manager Bang Xian Peng. He and his brother Bang Xing Peng are the founders of Tianditong.

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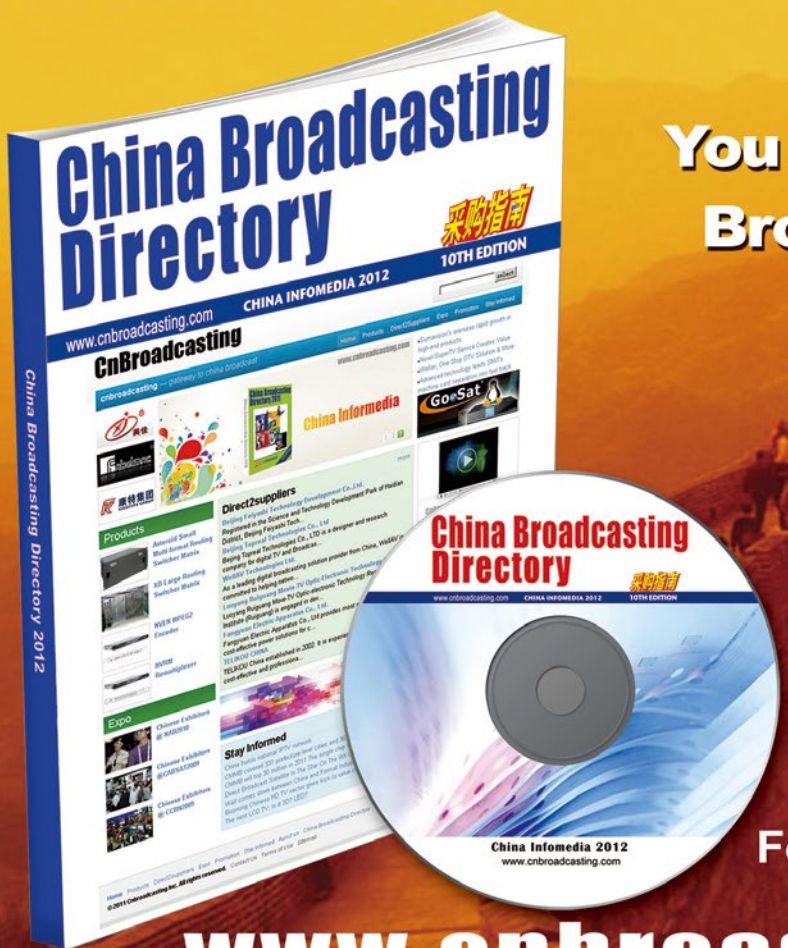


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the local Chinese market. General Manager Bang Xian Peng walks down memory lane with us: "My brother Bang Xing Peng and I founded Tianditong in the year 2004." Both had been employed by state-run dish manufacturer China Zhen Hua before, a company that sells most of its products to government agencies and the Chinese military.

Tianditong also exploits the state-controlled market and produces large satellite dishes and earth stations, which are installed at Chinese embassies abroad, for example. "We also manufactured all nine-meter dishes that ZTE set up in Afghanistan to build the local communications network." Earth stations from Tianditong can also be encountered in countries such as Congo, Mali, Chad, Nigeria, Gabon and Pakistan. The two major network operators Huawei and ZTE rely on dishes made by Tianditong. "Our technology is fully compatible with systems used by Cisco, Newtek, Harris and Philips," explains General Manager Gan Xian Peng and gives us some insight into the professional market. In the course of an average year, Tianditong delivers some 150 of those large-scale satellite systems.

Yet, this segment is just one aspect of the entire product range on offer. Antennas for satellite TV reception make up a significantly larger share of overall business. Tianditong has invested heavily in that field and has installed ultra-modern equipment using the latest technology. As a consequence, production is fully automatic for the most part, and we are allowed to take a close look at one of two Tianditong's state-of-the-art premises. One factory is located at the Loudi economic development Zone in the Hunan Province. We visit the one in Guan, which is some 50 km from Beijing. Just after the urban sprawl of China's capital comes to an end, here in Guan in the province of Hebei Tianditong has built several huge production halls. "These three production buildings provide floor space totalling 12,000 square meters," Xiang's brother Bang Xing Peng explains. He is in charge of the entire production business in Guan and adds "this year construction will begin for an additional production hall adding another 12,000 square meters as well as an administrative building featuring 8,000 square meters on three levels." General Manager Bang Xian Peng notes: "This is an ideal location for doing business. We are close enough to the metropolis of Beijing while at the same time not far from the port of Tianjin, which we could use to ship our satellite antennas to all corners of the globe."

We are afforded a first-hand look at all the top-notch machinery spread out across the three production halls. The fully automatic spray-painting system draws most of our attention. Built by Swiss company ITW Gema it is at the heart of the new Tianditong facilities and conforms to the strictest environmental standards currently in place. "All process water is recycled and any paint residue is re-used," Production Manager Bang Xing Peng proudly states. Even though smog is still a constant companion in the Beijing region, Tianditong shows a way out of this dilemma with its clean production process that gives full consideration to the environment.

Yet, this is only one argument Tianditong has going for itself. Equally important is the extraordinary quality that can be achieved thanks to the company's ultra-modern equipment. Not only are almost all production steps completed automatically, they are also constantly monitored. Need an example? Right after a satellite dish is pressed into shape its exact measurements are thoroughly checked, and right after the paint job a fully automatic quality check takes place. "We only use the best paint material available," Production Manager Bang Xing Peng reveals. "All our paint is sourced from an American company which has its local production close by."

All consumer antennas are produced at the Guan site. The range starts with

45 cm offset antennas and goes all the way up to 1.8 m PFA segment dishes. Tianditong produces three product categories: ground satellite antennas, shipborne antennas and car antennas.

"In the past we only offered our antennas to the local Chinese market," General Manager Bang Xian Peng gives some strategic information. "This new production facility, however, will allow us to supply our products on a global scale." There's no doubt about it: Tianditong dishes come with top quality and with the company's increased production capacity bulk buyers outside China can look forward to very sweet deals.

Even cold numbers prove that the two brothers are spot on with their company strategy: "In 2010 we were able to generate sales totalling 80 million RMB (roughly 12 million USD), in 2011 this figure had increased to 100 million RMB (roughly 16 million USD) and in 2012 to 200 million RMB (roughly 32 million USD)." Naturally, we wanted to find out the target for 2013 as well, and – as expected – the answer turned out to be just as optimistic: "300 million RMB," which equates to roughly 50 million USD. Those are giant leaps for a company that will celebrate its 10th anniversary in 2014.

In the course of only a few years, the two brothers have succeeded in establishing an impressive company that is in the process of embarking on a global sales drive. "By the way, we are also hugely interested in built-to-order business," Bang Xian Peng hastens to add, "and we can easily and quickly adapt our machines to the requirements of volume customers."

In a nutshell, Tianditong has everything at its hands for continued growth: state-of-the-art technical equipment, a convenient location for serving export markets, and extensive experience in the field of satellite dish production. The sky is the limit on the way up to the top.

**1. The receptionist gives all visitors to Tianditong a very friendly welcome.**

**2. Meet Leo Kang. He is the head of the Tianditong Sales team.**

**3. The Sales team at Tianditong is responsible for smooth order processing for Chinese customers. Up until now the Chinese market has been the only market for the company. This is set to change, and the Sales team will soon be enlarged to be ready for handling enquiries and orders from overseas as well.**

2

1. Brothers Bang Xian Peng (left) and Bang Xing Peng (right) are the founders of satellite dish manufacturer Tianditong.

2. Meet Bang Xing Peng. He is the Production Manager, while brother and co-founder Bang Xian Peng acts as General Manager and is in charge of overall company strategy, marketing and sales.

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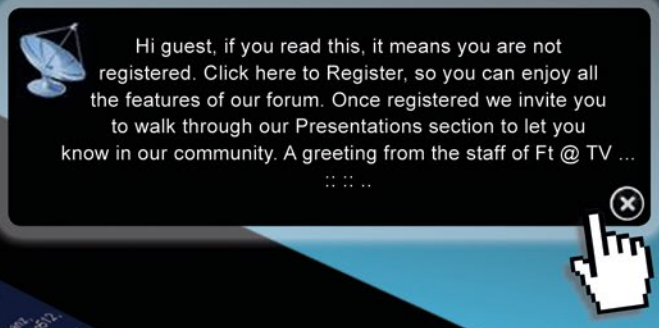


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1. One of the new Tianditong production halls in the Guan industrial park, in the Chinese province of Hebei south of Beijing. There are two more Tianditong halls at the same site.
2. View of the second and third hall. Two more halls will soon enlarge the overall Tianditong production space in Guan.
3. Cardboard boxes with finished satellite antennas of varying sizes are stacked up in the warehouse.

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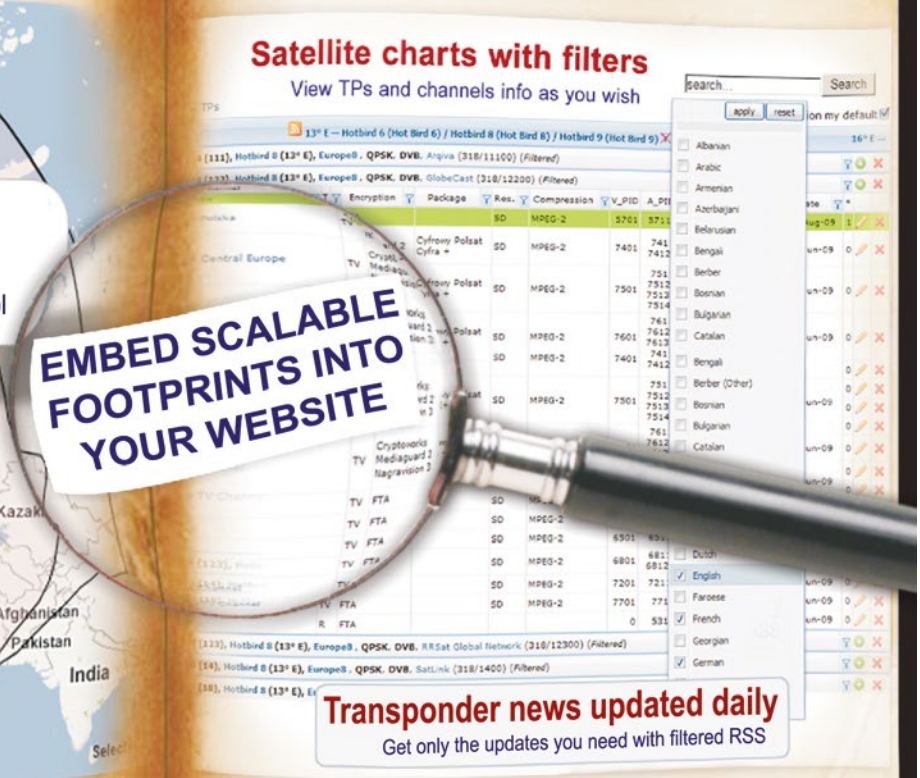


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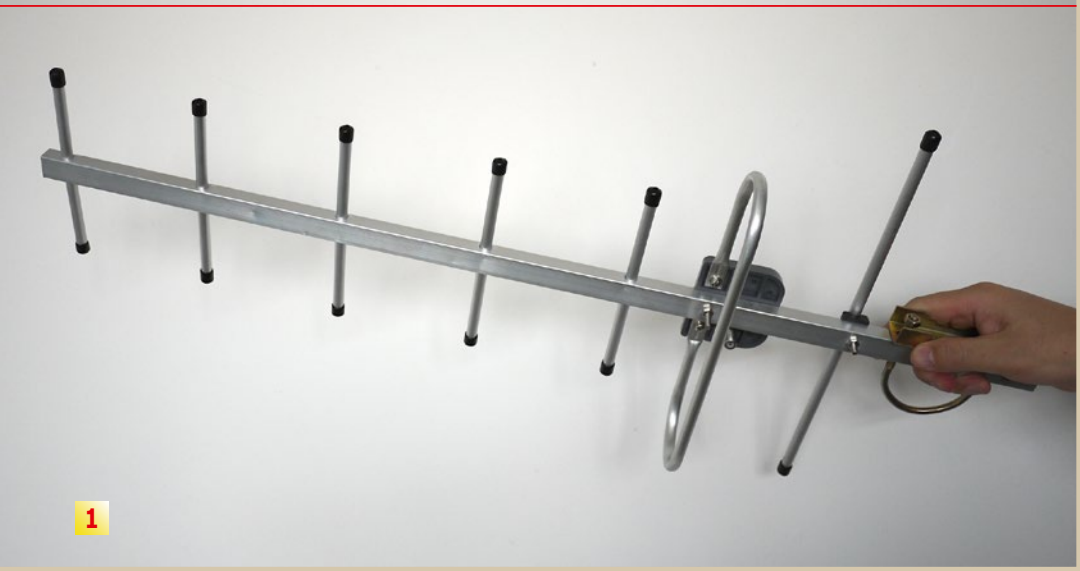

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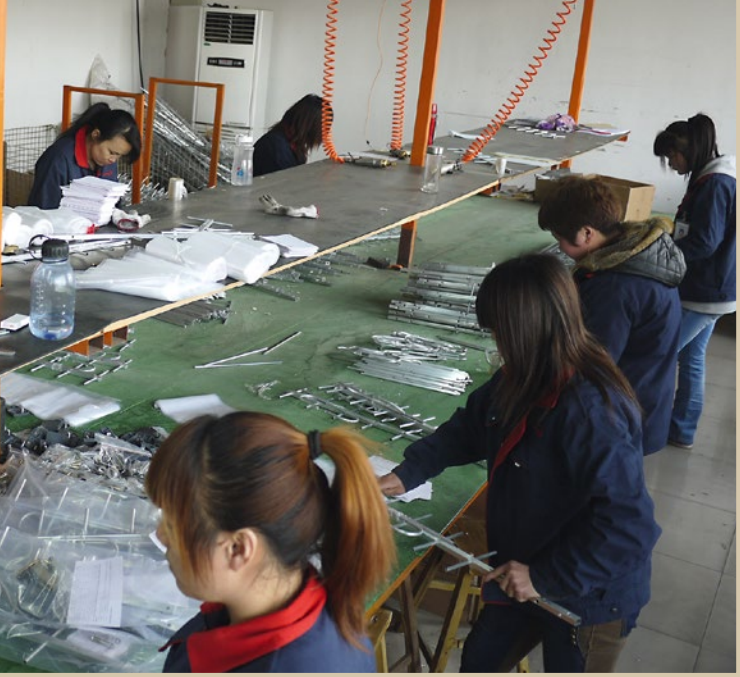


## Antenna Production

1. Tianditong does not only produce satellite dishes, but also terrestrial antennas. Seen here is a small model for UHF reception.
2. Assembly of Yagi elements.
3. Pre-assembly of mounting elements.
4. Employees package the small UHF antenna.
5. This is how the small antenna is shipped to customers.
6. Done: Each box contains 50 small UHF antennas.
7. Everything OK? Engineer Bi Dong Tian is a member of the technicians' team and checks one of the small UHF antennas.
8. In charge of the technicians' team: Chief Engineer Qin Ling Jiao is 70 years of age and thus has the most experience in antenna technology.
9. Chief Engineer Qin Ling Jiao in the high frequency test lab. This room is 14 meters long and 7 meters wide. Antennas are tested under an ideal environment in order to define parameters for the technical specifications, for example.

## Production Hall

1. Let's begin: This roll with 0.5 mm sheet metal weighs six tonnes. 3,500 dishes with a diameter of 45 cm are pressed from this metal every single day.

2. The rolled-up sheet metal is led to the press, which automatically presses the antennas in the correct shape and size. This press is currently configured for 45 cm satellite antennas.

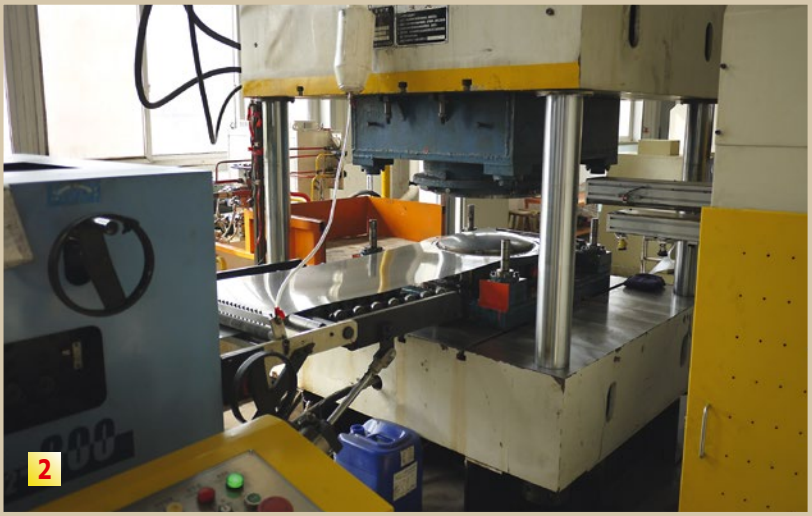
3. This is how the sheet metal looks after pressing: As you can see all antennas are delicately cut.

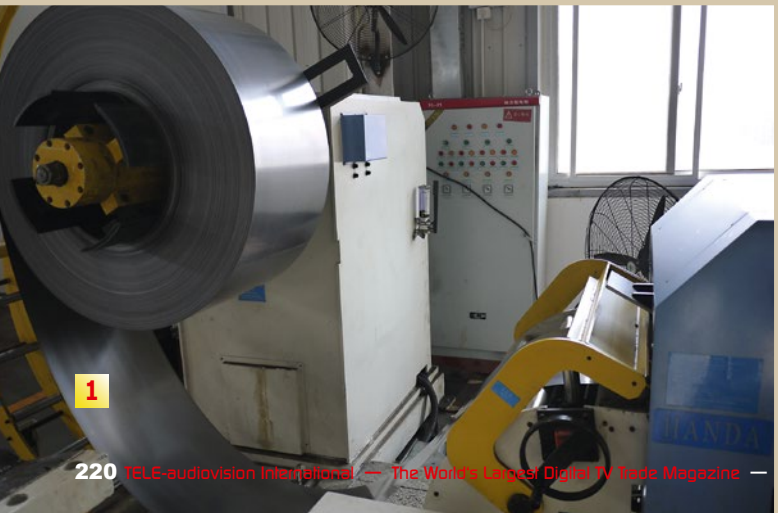
4. Fully automatic quality assurance is next.

5.Then, the mounting holes are pinched out.

6. And once again the result is quality-checked fully automatically.

7. And that's it: The finished raw dishes are piled up automatically.





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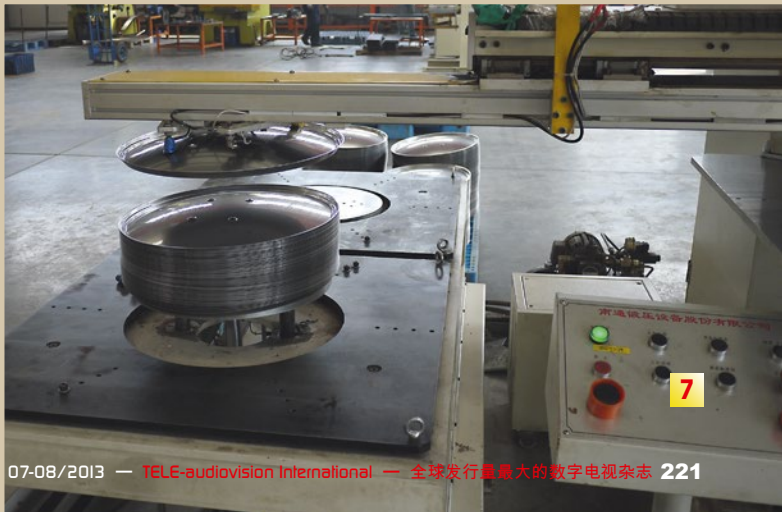
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## Clamps and Holder Production

1. Mounting clamps are produced at truly breath-taking speeds: The sheet metal is continuously fed from the roll.
2. This machine cuts out several formed parts simultaneously: 45 clamps per minute!
3. Larger clamps are still cut manually.
4. Long pipes turn into antenna poles and LNB holders.
5. The end of the strapped pole is positioned into the bolt by this worker. This way the correct length is automatically defined and the holders are cut with equal length.
6. Some jobs still require manual work: Bending the straps for the LNB holder.

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## Dish Finishing

1. This huge hall houses the conveyor system for finishing dishes and components such as clamps and holders. The conveyor belt is 450 m long and takes 90 minutes for a full cycle, which translates into an average speed of eight meters per minute. The painting and cleaning system is 42 m long.

2. Huge oven for heating up the cleaning water.

3. Hot water control system. Used water is recycled to avoid environmental damage altogether.

4. Hot water system for recirculating the cleansing water.

5. Antenna holders are currently run through the system. They are cleaned with hot water and prepared for spray-painting.

6.Satellite dishes coming out of the hot water cleansing line.

7. Cleaned dishes en route to the spray-painting facility. Residue water still drops to the ground after hot water cleaning. This does not happen in an uncontrolled way, however: An indentation on the floor along the conveyor belt collects that water so that it can be processed in the water reprocessing plant.

6

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8. An employee controlling the reprocessing plant.

9. Fully automatic spray-painting facility. This robot evenly sprays paint onto dishes, clamps or any other mounting equipment dangling from the conveyor belt

10. The paint distribution system automatically feeds the right colours to the airbrushes.

11. Oven with 200°C airflow for drying the components after spray-painting. The oven is designed with a closed circuit airflow to prevent damage to the environment.

12. Done: The dishes are first sprayed with corrosion-proof paint and then dried. Now they leave the conveyor belt and are stacked onto palettes. They are finally ready for shipment to distributors and retailers.

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- Intense quality controls

## Forcetech, China - IPTV Solution Provider

www.TELE-audiovision.com/**TELE-audiovision-1307**/eng/forcetech.pdf

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TELE audiovision Recommended
QM Qualified

**Sales**
Ren Nan

**Marketing**
Lan Haidong

- offering technically mature and fully-fledged IPTV solutions
- large Chinese movie provider as showcase customer and shareholder
- small-scale IPTV systems can be realised on a tight budget
- excellent video quality thanks to P2P technology

## Tianditong, China - Antennas

www.TELE-audiovision.com/**TELE-audiovision-1307**/eng/tianditong.pdf

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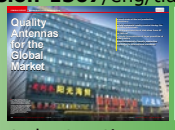
QM Qualified

**GM**
Bang Xian Peng

**Production Manager**
Bang Xing Peng




- uses state-of-the-art production machinery
- fully automatic quality control during the production process
- volume production of dish sizes from 45 to 180 cm
- ready for production of large quantities at short notice
- environmentally-friendly production according to international standards

## ELDTEC, Brasil - Dish, Antennas and Cables

www.TELE-audiovision.com/**TELE-audiovision-1305**/eng/eldtec.pdf

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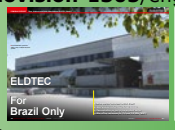
**Sales Manager**
Jefferson Cruz




- Large market coverage within Brazil
- OEM production for other brand names
- Concentration on just a few product series
- Also offers antennas for 2.4 and 5.8 GHz (WiFi)

## LIANXING, China - Satellite Dishes

www.TELE-audiovision.com/**TELE-audiovision-1305**/eng/lianxing.pdf

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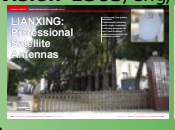
**Product Manager**
Wen Liang Yuan

**Sales Manager**
Liao Wen Fei




- using only top-quality materials
- individually checking each single component
- offering antennas for the C and Ku bands
- very successful on the Japanese market

## Jiuzhou, China - Android Receivers

www.TELE-audiovision.com/**TELE-audiovision-1303**/eng/jiuzhou.pdf

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QM Qualified

**Product Manager**
Yongjun Zhang

- Develops receivers with complex features
- Installation of Apps on a limited basis
- Android system requires higher quality components that results in higher costs
- Android is well-suited for private users but only limited for cable network operators

## Sat-Link, China - Signal Analyzers

www.TELE-audiovision.com/**TELE-audiovision-1303**/eng/sat-link.pdf

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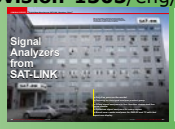
**GM**
Qing Zhang Lin

**Project**
GuiHuang Huang

**Sales**
Nancy

**R&D**
Han Guang Rong




- Only five years on the market
- Focusing on the signal analyzer product group
- Offers signal analyzers in four function classes and four price classes
- Optimizes signal analyzers for every region
- Brand new: combo analyzers for DVB-S2 and T2 with fast spectrum display

## Tecsys, Brazil - Professional Equipment

www.TELE-audiovision.com/**TELE-audiovision-1303**/eng/tecsys.pdf

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**CEO**
Jose Marcos Freire Martins

**COO**
Jorge Alberto Ganuza

**Production**
Adilson da Silva

- Very good operational organization
- Concentration on professional satellite reception products
- In-house development department
- IRD is their success product

## Cosmosat, Argentina - Satellite Dishes

www.TELE-audiovision.com/**TELE-audiovision-1301**/eng/cosmosat.pdf

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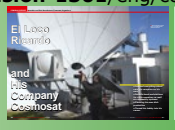
**Owner**
Ricardo




- Learned everything about satellite reception on his own
- Installs head end stations for cable operators as well as community systems
- Planning his own dish production
- Turned his hobby into his career

## Horizon, UK - Signal Analyzers

www.TELE-audiovision.com/**TELE-audiovision-1301**/eng/horizon.pdf

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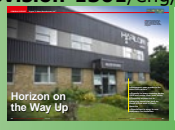
**CEO**
Paul Pickering

**Technical Director**
Paul Hardcastle

**Technical Manager**
Rob Sydee




- Numerous new products for new DVB sectors
- Exports to every country as an OEM and under their own name
- Focusing expansion to emerging countries such as South Africa and in South America
- Specializes in easy to use analyzers for installers

## Satson, Belgium - HDMI

www.TELE-audiovision.com/**TELE-audiovision-1301**/eng/satson.pdf

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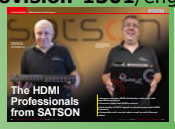
**CEO**
Stefaan Cornelis

**Technical Manager**
Didier Debey




- Conquers the new HDMI distribution niche with their specialized products
- Conceives their own HDMI products
- Distribution of HDTV signals in private homes with HDMI Extenders
- Compatible with coaxial cable as well as with Ethernet cables

## Antiference, UK - Antenna and HDMI

www.TELE-audiovision.com/**TELE-satellite-1211**/eng/antiference.pdf

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**MD**
Trevor Paintain

**Sales**
Arnold Boeijen

- Manufacturing TV antennas since 1937
- Provides all the components needed for TV reception
- Expanding into HDMI distribution, as well as wireless solutions
- Expanding distribution network to the European market
- Offers their own products as OEM and private label

## USATel, Brazil - Distributor

www.TELE-audiovision.com/**TELE-satellite-1211**/eng/usatel.pdf

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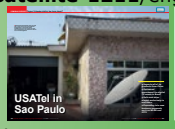
**MD**
Jose Manuel Pereira

**CFO**
Allam Almughrabin




- Imports all of its products from China
- Optimized assortment for digital TV needs in Brazil
- Sells and ships almost exclusively to end users
- Expanding into new business segments such as WLAN and IPTV

## DMS International, USA - Distributor

www.TELE-audiovision.com/**TELE-satellite-1209**/eng/dms-international.pdf

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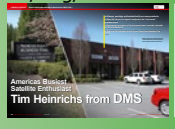
**CEO**
Tim Heinrichs

**President**
Vicky Heinrichs




- Always working enthusiastically on new products
- Special focus on signal analyzers for the semi-professional
- Enormous growth of the international market outside of North America
- Innovative expansion of signal analyzer models for 2012

## Topsignal, China - Satellite Dishes

www.TELE-audiovision.com/**TELE-satellite-1209**/eng/topsignal.pdf

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**Chairman**
Zongbao King

**GM**
Chaofeng Ge

**Sales**
James You

- OEM delivering exclusively to Wholesalers
- Specializes in large production quantities
- Produces millions of satellite dishes and LNBs
- Majority of shipments go to South America
- Expanding product palette to include high-quality LNBs and VSAT

## DVBCN, China - Internet News and Job Forum

www.TELE-audiovision.com/**TELE-satellite-1207**/eng/dvbcn.com.pdf

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**Owner**
Anna Xie

**Chief Editor**
Victor Ho

- Known by every digital TV company in China
- Provides all information regarding digital TV
- Expanding in the areas of recruitment and software development
- Focusing in future technologies such as OTT and IPTV
- Working on international expansion

## SVEC, China - Satellite Dishes

www.TELE-audiovision.com/**TELE-satellite-1207**/eng/svec.pdf

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**CEO**
Wang Duo

**Sales**
Becky

- Large investment in Quality Assurance
- Expanding VSAT and Ka-Band production
- Opening a new fully automatic satellite dish production line
- Focusing on top-of-the-line Quality dishes

## TSReader, USA - Analyzer Software

www.TELE-audiovision.com/**TELE-satellite-1207**/eng/tsreader-rod-hewitt.pdf

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**Owner**
Rod Hewitt

- Wrote one of the most successful stream reader programs
- Developed a technical solution to archive TV channels for 'Internet Archive'
- Working on IPTV application programs
- Planning on a program for OCR recognition of BBC's EPG data

## Hypex, UK - Distributor

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/hypex-icecrypt-uk.pdf

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**MD**
Neal

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

## Ricks Satellite, USA - Distributor

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/ricks-satellite-azbox.pdf

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**Owner**
Rick Caylor

**Owner**
Rick Caylor

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

## StelliteGuys, USA - Internet Forum

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/satelliteguys.us.pdf

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**Owner**
Scott Greczkowski

- Provides assistance with technical satellite reception questions
- Founded by Scott as a non-profit forum
- All advertising income is reinvested in better technology
- New is the use of the forums through Customer Service employees of digital TV companies

## Sowell, China - IPTV Receivers

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/sowell-iptv.pdf

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**GM**
Eagle Chain

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

## Wadt, Brazil - Headends

www.TELE-audiovision.com/**TELE-satellite-1205**/eng/wadt-brazil.pdf

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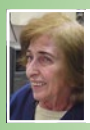
**Owner**
Neide Wadt

**Technical Director**
Joao Wadt

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

## Jiuzhou, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1203**/jiuzhou-ott.pdf

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**Vice Marketing**
Jimmy Zhang

**Vice GM**
Richard

- Developes Digital TV receivers optimized for OTT
- Dedicated OTT development team
- Market for OTT in Europe and North America
- Upgrade of older digital receivers possible with a software upgrade

## Panodic, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1203**/panodic.pdf

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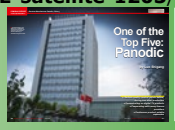
**Founder**
You Zhen Yu

**Founder**
Huang Wei

**CEO**
Xu Hai Bin

**Marketing Manager**
Alan Yu




- Multiple quality control points before, during and after production
- Concentrating on digital TV products
- Cooperating with many license providers
- Continuous product palette expansion

## Sortec, Slovakia - Distributors

www.TELE-audiovision.com/**TELE-satellite-1203**/sortec.pdf

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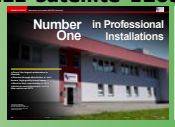
**Founder**
Ladislav Šmárik

**GM**
Pavol Macko

**Sales**
Alexander Záhončík

**Sales**
Pavol Lukáč




- One of the largest wholesalers in Slovakia
- Success through distribution of well-known, high-quality brand names
- Move to their own building in 2012
- Active in new technologies such as fiber optics and IPTV

## Turbosat, UK - Receivers

www.TELE-audiovision.com/**TELE-satellite-1203**/turbosat-icecrypt.pdf

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**Sales**
Chris Ward

**Technical Director**
Ray Gargiulo

- 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

## BSD, Brazil - Internet Forum

www.TELE-audiovision.com/**TELE-satellite-1201**/bsd.pdf

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**Owner**
Marcus Bernardini

- 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

## P-Sat, Hungary - Distributor

www.TELE-audiovision.com/**TELE-satellite-1201**/p-sat.pdf

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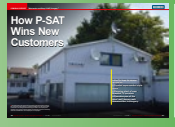
**Owner**
Tibor Posta




- 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

## SatalliteAV, USA - Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1201**/satelliteav.pdf

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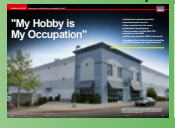
**President**
Brian Gohl




- Optimized complete product assortment plus service
- Own receiver line for semi-professional applications
- First provider of OTA-SSU FTA receivers in the USA
- Offers the smallest LNB in the world
- Develops first Android hybrid satellite and IPTV receiver for North America

## AB-COM, Slovakia - Receivers

www.TELE-audiovision.com/**TELE-satellite-1111**/abcom.pdf

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**Founder**
Juraj Masaryk

**Marketing Manager**
Michal Grezo

**Sales**
Pavol Blaho

- Particularly successful in Central Europe
- Products for different applications such as 3D and pay TV
- Focus on cost-efficient product range
- Products optimised for individual applications

## Applied Instruments, USA - Signal Analyzers

www.TELE-audiovision.com/**TELE-satellite-1111**/appliedinstruments.pdf

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**GM**
Tom Haywood

**Engineering**
Jeff Haas

**Sales**
Scott Haywood

- The power of this company is its robust signal analyzers
- Company plans worldwide expansion with its internationally compatible analyzers
- Special test signal generators for receiver manufacturers
- Special attention to ergonomic operation
- Technical customer service an important highlight of the company

## Huber+Suhner, Switzerland - Fibre Optics

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

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**Product Manager**
Patrick Zaina

**Marketing Manager**
Othmar Fuchs

- One of the leading fiber optic companies in the world
- New CLIK! System for easy installation
- New market segment that will make coaxial cable distribution systems obsolete
- Now available: economical alternative with distribution systems starting with eight users

## iPONT, Hungary - 3DTV

www.TELE-audiovision.com/**TELE-satellite-1109**/ipont.pdf

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**CEO**
Zoltan Korcsok

**CTO**
Andor Pasztor

- iPONT's softwarevsolution converts 3D for use with auto-stereoscopic monitors
- 3D enjoyment without annoying glasses
- Potential for receiver manufacturers to expand their STB's to include 3D
- Compatible with the variety of manufacturer auto-stereoscopic monitor solutions

## Megasat, Germany - Receiver and Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1109**/megasat.pdf

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**GM**
Sven Melzer

- 80% of distributed products come from in-house MEGASAT brand
- full range of satellite components
- special focus on self-aligning camping antennas
- distribution to the whole of Europe

## Sapro, Czech - Receiver and Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1109**/sapro.pdf

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**Owner**
Lubomír Proboszcz

**Sales**
Petr Zwrtek

**Sales**
Jana Proboszczová

- Covers every price segment with its four brand names
- Starting expansion to surrounding countries
- In-house design and production (assembly line)
- Produces 100,000 receivers per year

## WSInternational, USA - Receiver and Wholesaler

www.TELE-audiovision.com/**TELE-satellite-1109**/wsinternational.pdf

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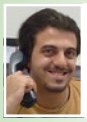
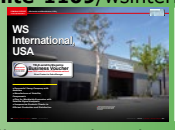
**Owner**
Robby Dosetareh



**Sales**
Joseph Bassala




- Successful Young Company with Ambition
- Manufacturer of Satellite Components
- Plan for Worldwide Expansion with Satellite Signal Analyzers
- Inexpensive Products Thanks to Efficient Production and Distribution

## BYA, Algeria - Dishes and Receiver

www.TELE-audiovision.com/**TELE-satellite-1107**/bya.pdf

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**GM**
Slimane Ait Yala

## Boiingsat, China - LNB

www.TELE-audiovision.com/**TELE-satellite-1105**/boiingsat.pdf

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**GM**
Haowen Chiang

**Co-Owner**
Yunnjye Qin

**Sales**
Jason Chiang

- Three Production Locations in Zhuhai/ China
- Large Sales Expansion in South America
- In the Works: LNB with Two Feed Rings

## Bomare, Algeria - Receiver

www.TELE-audiovision.com/**TELE-satellite-1105**/bomare.pdf

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**Technical Manager**
Tewfik Lamrani

## Prevail, China - Fibre Optics and CATV

www.TELE-audiovision.com/**TELE-satellite-1105**/prevail.pdf

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**Sales**
Necy-xu

**Sales**
Helen

**Production Manager**
Ren Guorui

- Substantially Increased Sales for 2011 Thanks to Rising Exports
- Additional Factory Soon to be in Operation
- Increased Number of Employees
- Four New SMT Machines in Operation
- Very Active R&D Team

## Jiuzhou, China - IPTV Boxes

www.TELE-audiovision.com/**TELE-satellite-1103**/jiuzhou.pdf

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Shop
Serv

**Sales**
Huang Wei

**Vice Marketing**
Jimmy Zhang

- IPTV box production may reach 1 million units in 2011
- Jiuzhou starts HbbTV boxes for Europe
- Big retailers about to launch into IPTV box sales
- Jiuzhou to attend all major exhibitions in 2011, 10 in all

## Sowell, China - Receivers

www.TELE-audiovision.com/**TELE-satellite-1103**/sowell.pdf

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Whol
Shop
☑ Serv

**GM**
Eagle Chain

**Software**
Sun Guanghua

**Software**
Peng Yi

- Founded by 5 Partners
- ISDB-T and DVB-T2 Receiver in 2011
- Overseas Offices in the Plan
- User Friendliness is Company Philosophy

## Tenow, China - PC Cards

www.TELE-audiovision.com/**TELE-satellite-1103**/tenow.pdf

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**Founder**
Richard Zhang

**Founder**
Bob Liu

**Founder**
Eric Deng

**Founder**
James Liu

## NetUP, Russia - IPTV

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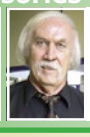

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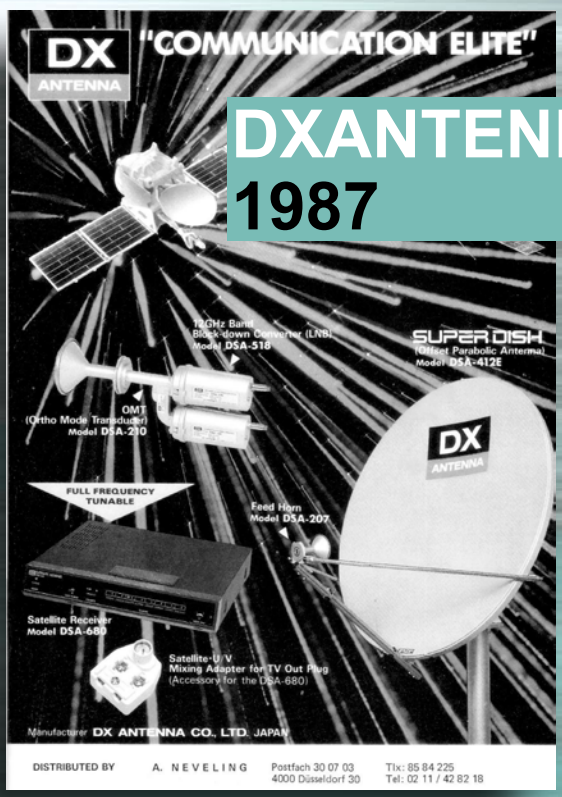
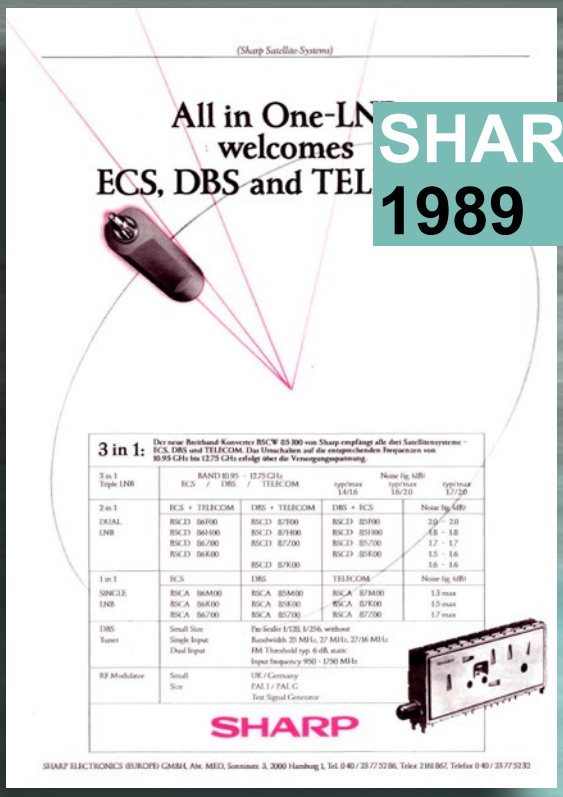
## These Companies Started Their International




**DXANTENNA**
**1987**

**ASTRA**
**1987**

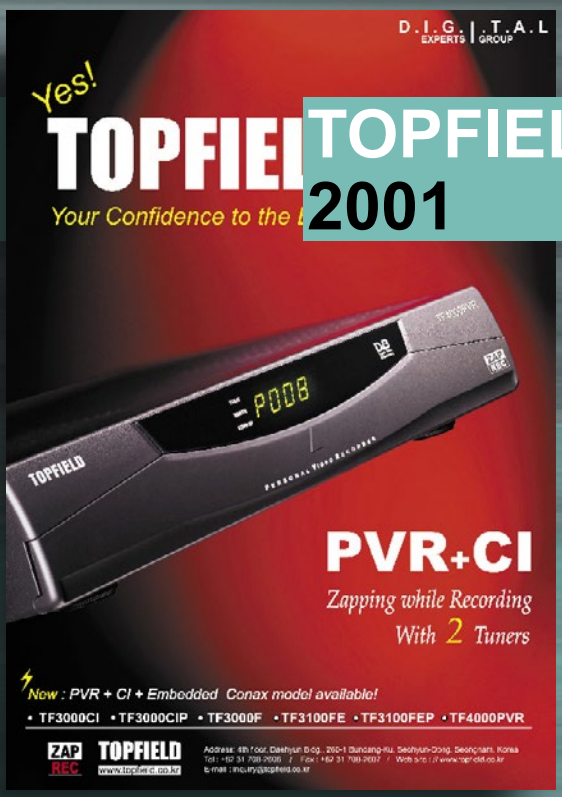
**MASPRO**
**1988**



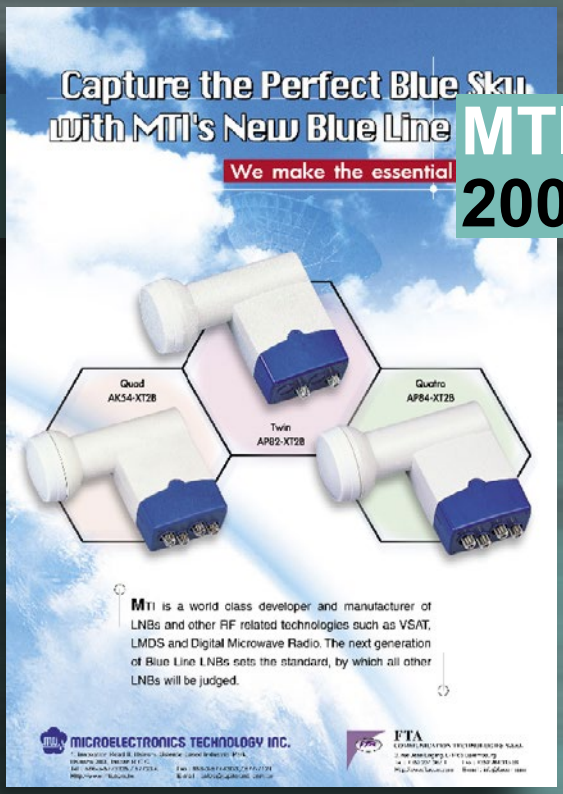

**SHARP**
**1989**

# Made Them Big!

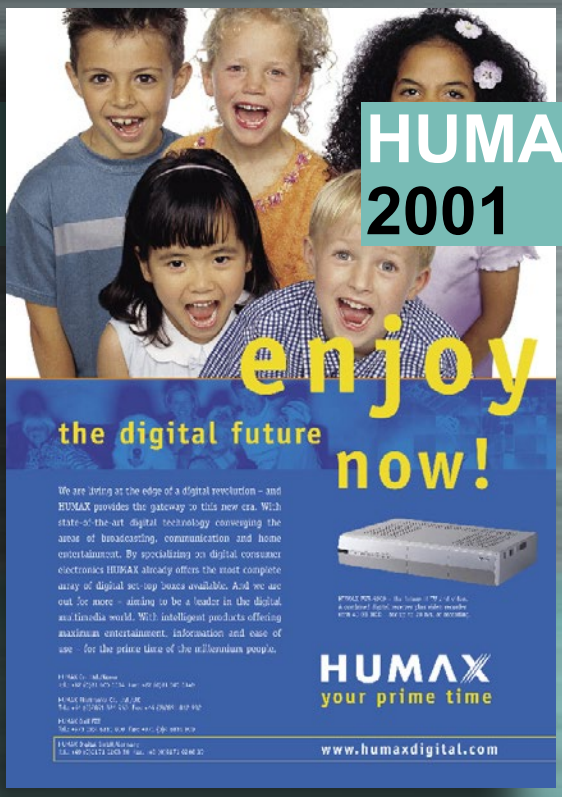
## Success with TELE-audiovision Magazine




TOPFIELD 2001




MTI 2001

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## These Companies Started Their International

**NDS 2002**

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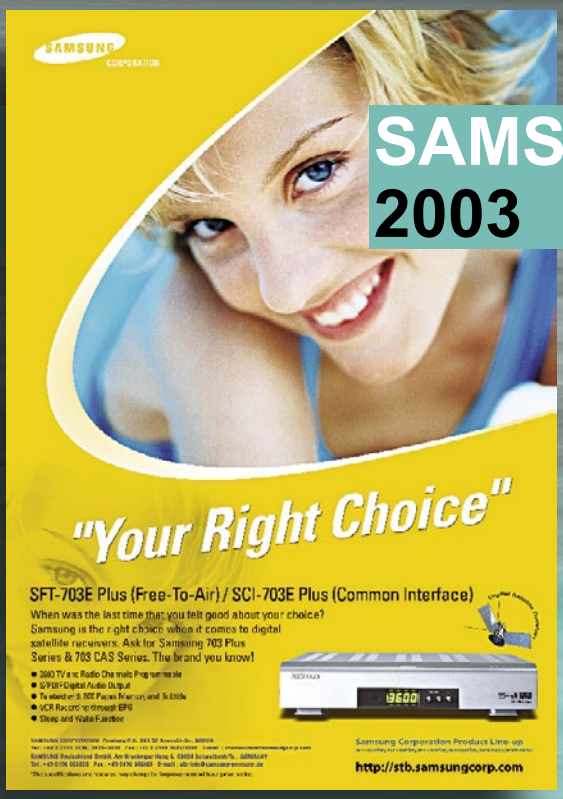


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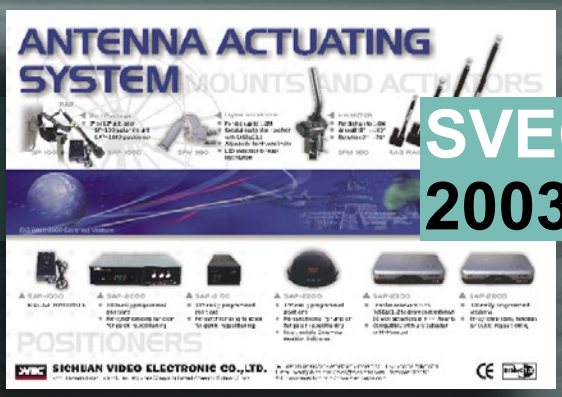
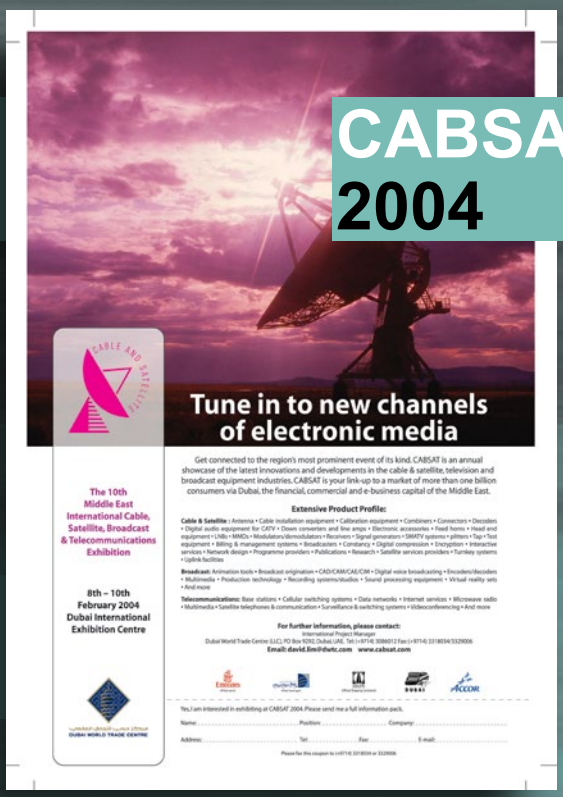



SVEC
2003

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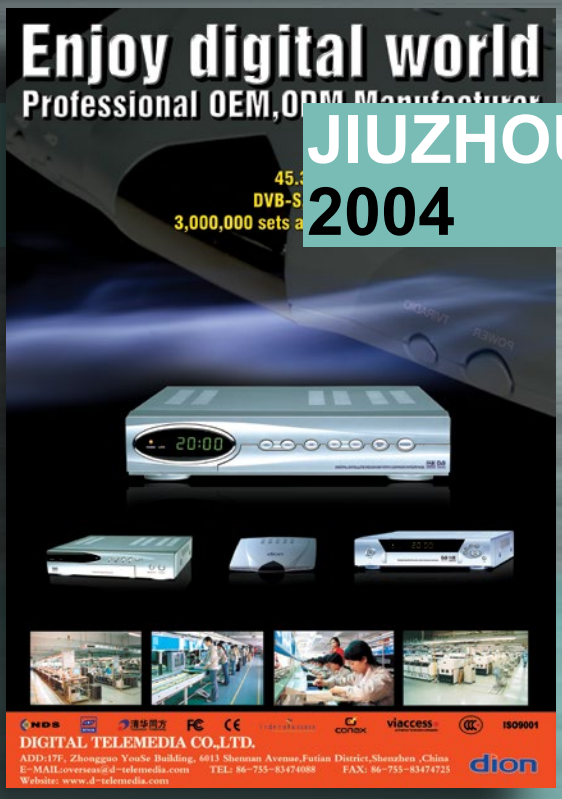
2004

JONSA
2004



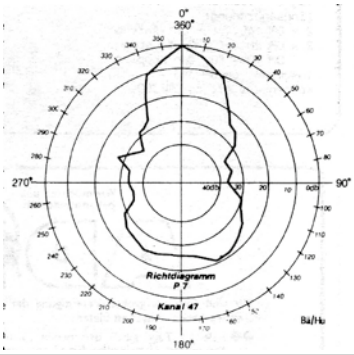

JIUZHOU
2004

CHANGHONG
2006

# 30 Years Ago

**UHF Antenna in unique design**

This antenna for the UHF band caught our eyes due to its unique design, resembling a parabol dish. It consists of a reflector made and a smaller sub reflector behind the reception dipol in the focal point. Our test revelaed that the design works exceptionally good in higher frequencies, starting from about channel 55 up. For channels below 55 other Yagi designs match performance of the parabolic UHF antenna.




Antennen

## Antennentest
# SUPER UHF-ANTENNE

### Testbericht über die UHF-Parabolantenne "P7" von ELMEFA

Die originelle Form dieser Band-IV/V Antenne war der Grund zum Test dieses "Exoten". Vor etwa zwei Jahren ist eine ähnliche Antenne eines anderen Herstellers mit vernichtendem Resultat getestet worden - sie entsprach einer 23-Element Vormastantenne. Die jetzt getestete Antenne P7 erbrachte ein ganz anderes Ergebnis. Der Test wurde unter realen Verhältnissen durchgeführt, d.h. die Antenne befand sich auf dem Dach und nicht im Labor am Kunststoffmast.

#### AUFBAU UND FUNKTION

Als UHF-Antennen sind gewöhnlich nur Yagi- oder Gitterantennen bekannt. Die getestete Antenne P7 dagegen arbeitet nach dem Prinzip einer Parabolantenne, die die ankommende Empfangsenergie mit dem Parabolreflektor auffängt und gebündelt zum Brennpunkt hin konzentriert. Mit Gigahertzfrequenzen verglichen ist der UHF-Bereich noch relativ langwellig (Wellenlängen von ca 35 bis 65cm). Deshalb braucht der Reflektor in diesem Bereich nicht in sich geschlossen zu sein, es genügt, ihn mit entsprechend der Parabolfunktion gebogenen Stäben nachzubilden. Ein Reflektordurchmesser von zwei Meter ist an der Grenze dessen, was im Band IV/V noch Gewinn verspricht.

Im Nullpunkt des Reflektors (in der Mitte) ist der Boom herausgeführt, auf dem im Brennpunkt der Empfangsdipol fixiert ist. Ein 6-Element Subreflektor wirft evtl streuende Energie auf den Dipol zurück.

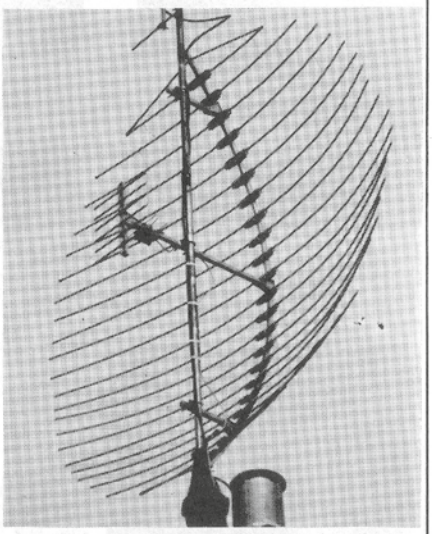
Die Antenne besteht außer den snap-in Federn und den Befestigungsschellen aus Aluminium. Alle Elemente sind oberflächenbehandelt, also korrisionsgeschützt und goldfarben gehalten. Von der Aufmachung her macht die Antenne einen soliden Eindruck.

#### MONTAGE

Nach Öffnen der Verpackung liegen drei Teile zum Zusammenbau bereit: Die beiden vormontierten und zusammengeklappten Parabol-Hälften und der Boom mit Subreflektor. Dazu kommen noch zwei kleine Tüten mit Halterungen und Befestigungsmaterial. Als Werkzeug wären empfehlenswert ein Schraubenzieher 5mm, Kombizange und Gabelschlüssel 11mm.

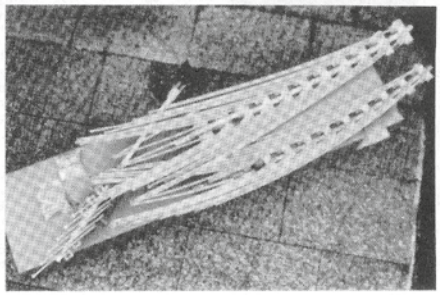
Die Parabolstäbe werden umgeklappt und durch starke snap-in Federn in ihrer Position gehalten (siehe Foto). Nach den ersten beiden Elementen hat man es dann auch fein heraus, die Elemente einschnappen zu lassen, ohne gleichzeitig die Finger einzuklemmen.

Ist die erste Reflektorhälfte zusammengebaut, so werden die Elemente mit Alu-Schlaufen miteinander verbunden, um gleiche Abstände zu erhalten. Dieses Verbinden ist seht zeitintensiv, da jede der Schlaufen mit der Kombizange etwas aufgebogen werden muß, um durch das Aufstecken nicht die Schutzschicht der Elemente zu verletzen. Gemessen an den aufwendigen snap-in Federn könnte der Hersteller an den Schlaufen noch etwas Entwicklungsarbeit leisten. Die vermutlich preisgünstigste Lösung werden eben



Fotos: Die UHF-Parabolantenne 'P7' an Mast: Test unter realen Bedingungen. Unten im Bild noch zu erkennen der Rotor.

Foto unten: Die 'P7' nach dem Auspacken. Lieferzustand.



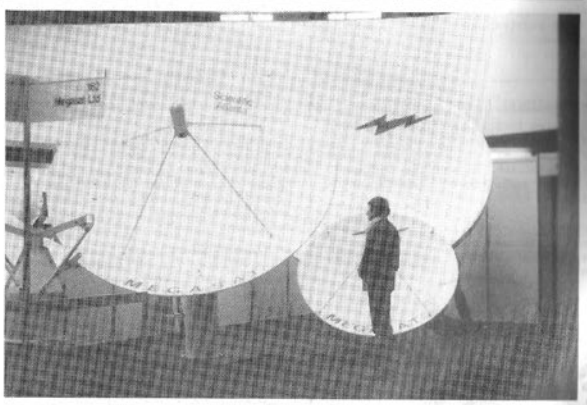
# Ausstellungsbericht "CABLE 83"

## Satellitenshow in London

Ursprünglich hätte diese Ausstellung erst Anfang Juli stattfinden sollen. So hatte TAV es auch angekündigt (s.TAV-12, S.11) und TAV-Satelliten-Redakteur Rainer Bärmann hatte schon den Flug nach London gebucht. Kurzfristig konnten wir alles umwerfen: Die Show fand nun schon im Mai statt - zu kurz für Rainer Bärmann, aber noch rechtzeitig, um Dave Lauder, Herausgeber des "DX-TV-Group-Newsletter" (s.TAV-13, S.43) zu bitten, für TAV diese wichtige Satelliten-Show zu besuchen. Hier sein Bericht:

von Dave Lauder, BSc

Die Veranstalter der "Cable 83" erklärten ihre Ausstellung zu "Europas ersten großen Kabel-TV Ausstellung". Tatsächlich aber bestand "Cable 83" aus zwei Shows: Die andere war die "London Satellite Television and Cable TV Show", die ja ursprünglich erst im Juli hätte stattfinden sollen.



Satelliten-Empfangsspiegel der Firma Megasat

online

International Exhibition on satellite and cable TV

Exhibition Guide

10 - 12 May 1983 Wembley Conference Centre London

Viele der ausgestellten Geräte waren nur für Kabel-TV-Gesellschaften und Sendeanstalten interessant. Dennoch gab es auch viel zu sehen für uns am anderen Ende, auf der Empfängerseite. Auf fast allen Ständen waren Sat-TV- Empfangsstellen zu bewundern, die meisten von ihnen übertrugen live das sowjetische TV-Programm vom Gorizont-Satelliten. Die Preise derartiger Empfangsanlagen sind ständig gefallen und die Firma Megasat bot eine komplette 4-GHz-Empfangsanlage einschließlich 1,5m Spiegel und Elektronik für 1250.- Englische Pfund an (ca DM 5000.-). Allerdings - um das russische TV-Programm richtig genießen zu können wären neben einem SECAM-Farbempfänger noch die Kenntnis des Russischen notwendig...

Hauptsächlich wendete sich die Ausstellung and Händler, Bastler und Amateurkonstrukteure wurden in geringem Maße angesprochen. Einige der Aussteller konnten noch nicht einmal Einzelpreise aus ihren Systemen nennen. Die Firma Microwave dagegen bot 4-GHz LNAs (Low Noise Amplifier (rauscharme Verstärker) und kombinierte LNA/downconverter vom US-Hersteller Dexcel Inc. an. Obwohl sich die Preise im Bereich um 300 Englischen Pfund bewegen, sind viele Bastler an diesen Bauteilen interessiert wegen der Schwierigkeiten, selbst Schaltungen für diesen Frequenzbereich aufzubauen.

Ein mögliches Problem für jeden Gorizont Zuschauer ist die allmähliche Veränderung der Umlaufbahn des Satelliten. Unweigerlich wird der Zeitpunkt kommen, daß der Empfangsspiegel automatisch nachgestellt werden muß bzw der Spiegel zweimal täglich nachjustiert werden muß. Es ist nicht klar, ob die Sowjets die Umlaufbahn korrigieren werden; der Satellite ist ja lediglich eine im Grunde interne link-Verbindung zwischen den verschiedenen Sendern in der UdSSR.

Trotz des wohl 1985 zu erwartenden Starts des europäischen Satelliten-Direkt-Fernsehens im 12-GHz-Bereich, gab es auf der Ausstellung überraschend wenig Empfangsstellen zu sehen. Einige der ausgestellten Parabolspiegel waren zwar auch für den 12-GHz-Bereich vorgesehen, aber mit zum größten Teil erheblichen Oberflächen-Fehlern bei Frequenzen über 4 GHz.

Im 12-GHz-Bereich fehlt es ganz offensichtlich an europäischen Elektronikherstellern. Die Japaner haben auch hier die Führung übernommen, wohl

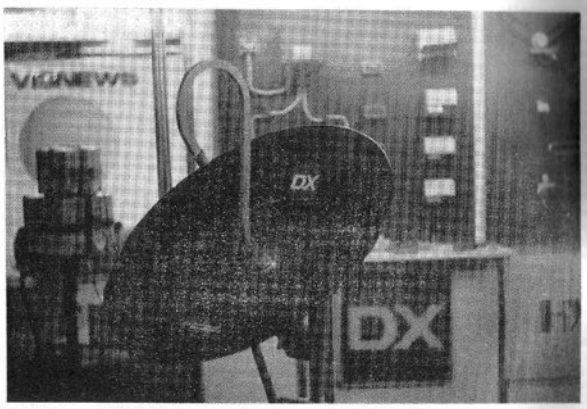


weil nur dort schon ein 12-GHz-TV-Satellit arbeitete.

Die technische Abteilung der BBC war ebenfalls auf der Show anwesend und verteilte Informationsprospekte über C-MAC (s.TAV-13,S.9). Die Techniker der IBA dagegen ließen sich nicht blicken, umso erstaunlicher als ja die IBA C-MAC entwickelt hatte.

Was das Kabelfernsehen betraf so gab es auf der Ausstellung alles diesbezügliche zu sehen, meist waren es US-Produkte. Es gab Maschinen zu sehen, die Kabelschächte ausheben und selbst eine, mit der das Kabel in Abwasserkanälen verlegt werden kann! Schaubilder hochentwickelter Kabeltechnik zeigten Sternschalter-einheiten und Glasfasertechniken daneben noch Simulationen der verschiedenen Zusatzmöglichkeiten interaktiver Kabeltechnik.

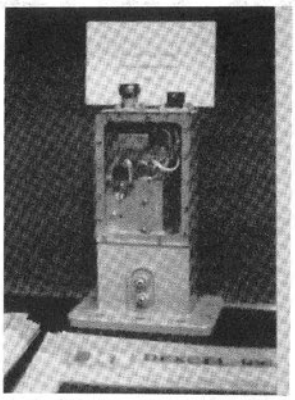
Man fragt sich bei all diesen Vorführungen immer wieder, wie groß eigentlich die Zahl der Zuschauer sein wird, die bereit sind, die hohen Kosten sowohl einer Satelliten-Empfangsanlage wie des Anschlusses an eine Kabel-TV-Anlage zu zahlen. Eine größere Zuschauerzahl wird das Angebot erst dann attraktiv finden, wenn die angebotenen Programme das rechtfertigen - und entsprechende Programme wird es erst geben, wenn es genügend Zuschauer gibt. Die notwendige Technik jedenfalls wurde auf der "Cable 83" gezeigt.

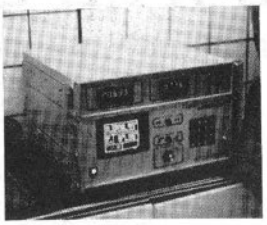



Parabolspiegel für 12 GHz der Firma 'DX-Antenna Company'



# CABLE 83

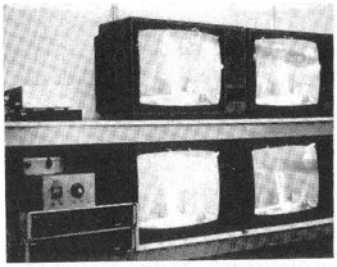




SATELLITEN TV IN LONDON

Oben links: Rauscharmer Down-converter der Firma Dexcel; Oben rechts: Steuereinheit für fernsteuerbaren Empfangsspiegel. Dateneingabe über Tastatur. Hersteller Andrew; Unten links: Bildschirm-Wand mit Übertragung des TSS-Programms vom Satelliten Gorizont. Links im Vordergrund ein Oak/Orion Discrambler; Rechts unten: Stand der 'Satellite TV Company' mit einem Modell des ECS-Satelliten.

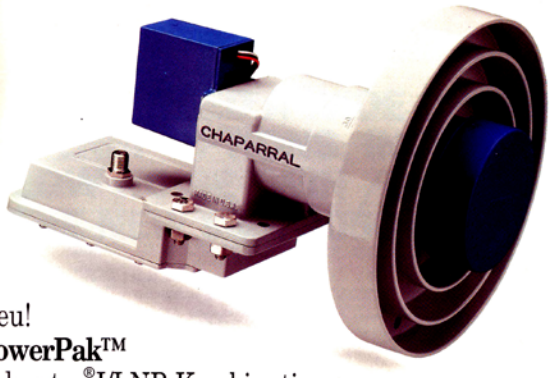
Alle Fotos: D-Lauder



# 20 Years Ago

**Testinge the new MASPRO ST-7 and ST-8, distributed in Europe by C.Itoh. Both models offer the user 128 pre programmed channels. Both boxes also offer two satellite IF inputs.**

# Perfect Match

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—**Mark Long**, author of the *World Satellite Almanac & World Satellite Annual.*
—**Jeffrey Keating**, co-author of the *World of Satellite TV & The Inclined Orbit Satellite Tracking Guidebook.*

For a complete brochure on the **1993 Home Satellite TV Asia Conference**, contact:

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- **Asian manufacturers' roundtable discussion.**
- **Overview of Asian Satellite Encryption Systems.**
- **Satellites for Asia: The Next Generation.**
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- **The Installation: How to Maximize Satellite System Performance.**

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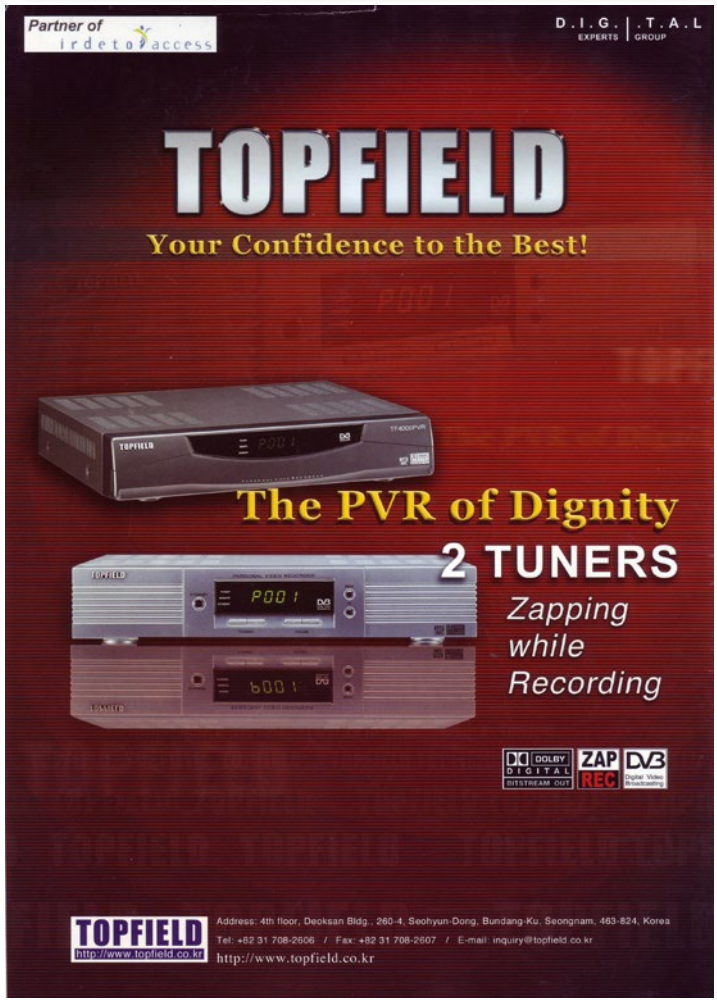
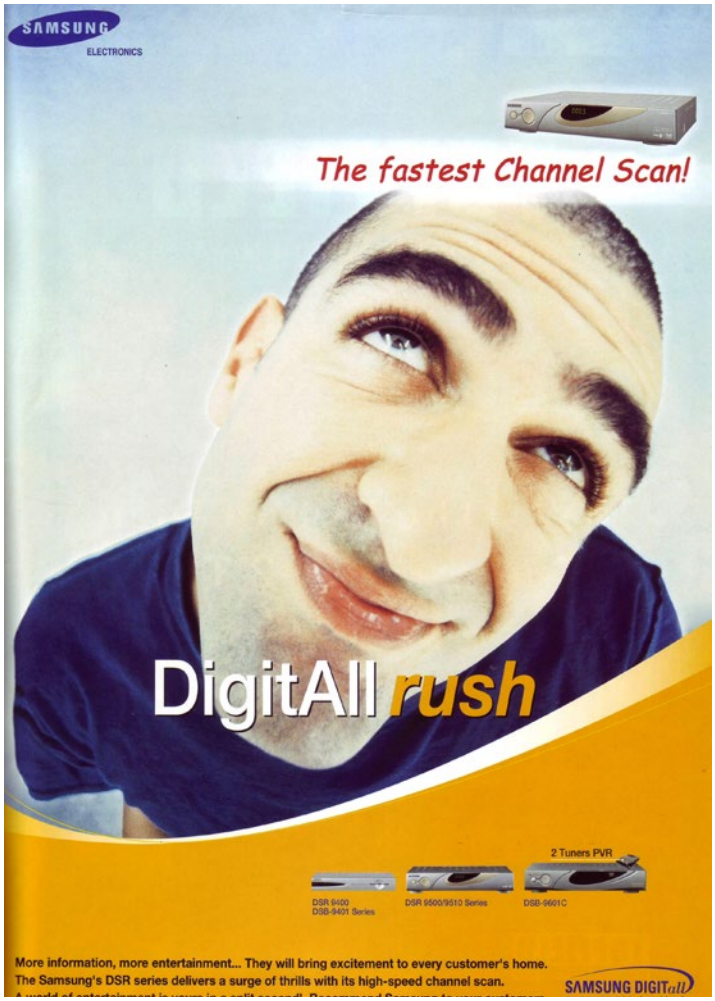
The satellite antenna farm of Dane Fatouros in Canberra and his reception shack



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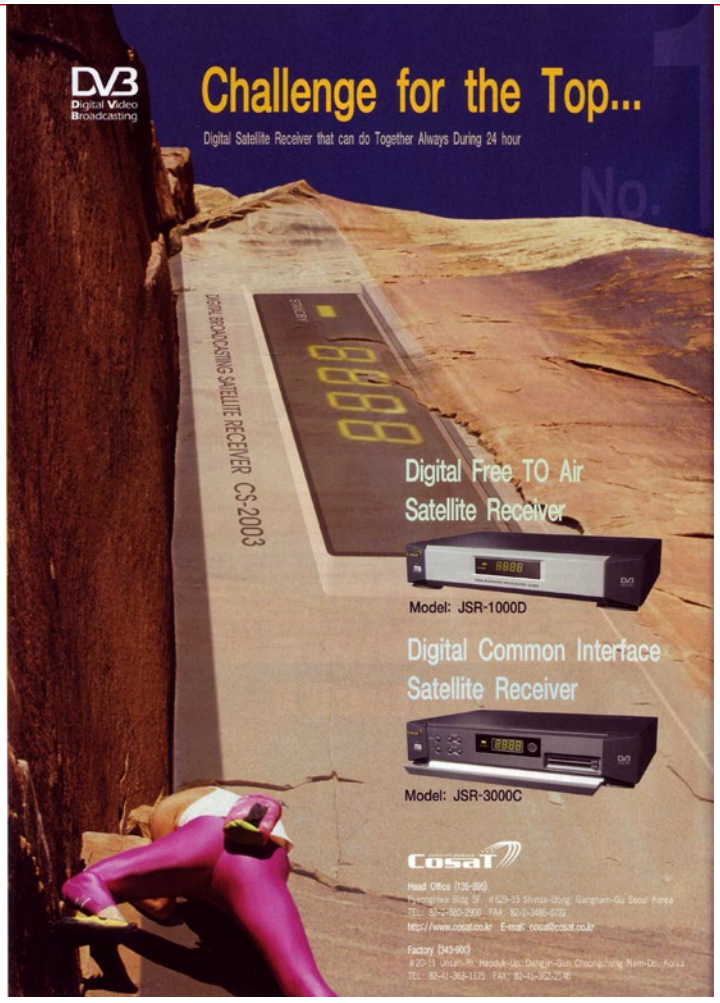
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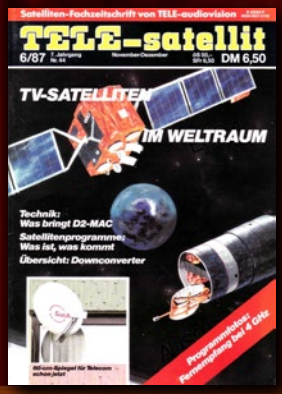


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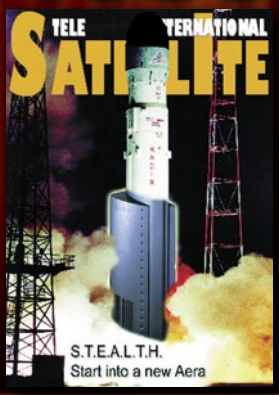


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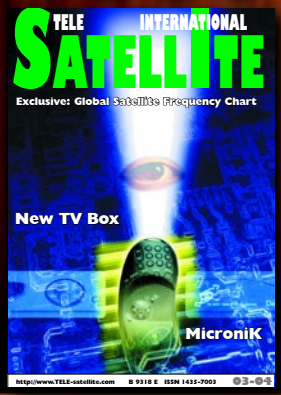


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Edited by
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## EUROPE

### DIGITURK AND EUTELSAT LAUNCH 4K DEMO CHANNEL

Turkish pay-TV platform Digitürk has launched a dedicated demonstration 4K channel in partnership with Eutelsat Communications. The first broadcasts in Turkey took place in April at Digitürk's headquarters in Beşiktaş, using content transmitted via the Eutelsat 7A satellite.

### RTVE, EBU TRIAL UHDTV VIA DTT

Spanish public broadcaster RTVE, the EBU, Abertis Telecom, Sony, Sapec, La Salle, and The Technical University of Madrid in February implemented the first UHDTV-1 standard broadcast over a DVB-T2 network. The event took place at the Mobile World Congress in Barcelona. The trial used the 3840×2160 pixel resolution known as UHD-1, which offers four times the resolution of current HDTV services.

### ERICSSON CONDUCTS UHDTV DEMO DURING EBU SEMINAR

Ericsson conducted a UHDTV demonstration at the EBU Production Technology Seminar in Geneva during March. The demo focused on interoperability using the Ericsson technology to receive an off-air feed of a 4:2:0 file-based system and receive and decode as 4K UHDTV. Ericsson also demonstrated a MPEG-4 AVC 4:2:2 10 bit precision 4K UHDTV system capable of 4Kp50 transmission. The platform comprised Ericsson's market AVP 2000 contribution encoders and RX8200 advanced modular receivers.

### SES, HARMONIC AND BROADCOM IN ULTRA HD DEMO

Satellite operator SES has teamed up with video compression specialist Harmonic and chipset vendor Broadcom to deliver HEVC-based Ultra HD signals from the 19.2° East satellite position. The demo took place at the SES Industry Days event in Luxembourg using Harmonic's ProMedia Xpress and a HEVC decoder reference-design system based on Broadcom's BCM7445 device for receiving HEVC encoded Ultra-HD television transmission. The signal was broadcast in DVB-S2 using a data rate of 20Mbps. According to SES, this was the first live demonstration of a full 3840×2160 pixel Ultra HD picture in HEVC.

### NHK SHOWCASES 8K AT CANNES FILM FESTIVAL

Japanese public broadcaster NHK held a public screening of content in its Super Hi-Vision (8K) format in May at the Cannes Film Festival. The highlight was the first 8K narrative film, the comedy short "Beauties À La Carte." The 8K format has 7,680 by 4,320 pixels — four times the resolution of 4K and 16 times that of current HD and features 22.2 multichannel sound.

### RAI TESTING 4K IN VALLE D'AOSTA

Italian public broadcaster RAI is testing in Valle d'Aosta the latest technology for the transmission of programs in HD and 3D. Second generation DVB-T2 tests are underway with different types of content for fixed and mobile reception 3D and HD, both 2K and 4K, encoded with the new HEVC (High Efficiency Video Coding) standard and 5.1 multichannel audio. Two transmitters in SFN are being used on UHF channel 53 (Aosta-Gerdaz and St. Vincent-Salirod).

## NORTH AMERICA

### ERICSSON PRESENTS COMPRESSION PLATFORM AT NAB 2013

Ericsson presented the AVP 4000 compression platform at NAB 2013, held April 8-11, powered by the in-house developed programmable video processing chip. The AVP4000 offers high performance and broad capability on a single platform across all applications, from SD to HD, 1080p50/60, 3DTV and Ultra High Definition TV (UHDTV) and all codecs including MPEG-2, MPEG-4 AVE and JPEG2000, with 4:2:0 and 4:2:2, 8-bit and 10-bit all supported.

### NHK CONDUCTS 8K DEMO AT NAB

Japanese broadcaster NHK demonstrated at the NAB in April the real-time, over-the-air transmission and reception of 8K, which is 16 times the resolution of HDTV. The demo featured the latest version of NHK's Super Hi-Vision system, which supports 8K video and 22.2-multichannel sound. The broadcast was of an 8K recorded program compressed in H.264 (MPEG4) and transmitted using two UHF television channels. NHK plans to record its "Super Hi-Vision" 8K coverage of the figure skating and opening ceremony of the 2014 Winter Olympics and to begin domestic 8K satellite tests to coincide with the 2016 Summer Olympics. It aims to launch an 8K broadcast service in Japan by 2020.

### 3NET INVESTS IN UHDTV PROGRAMMING

US 3D network 3net has announced it is working, along with production unit 3net Studios, on the development of three new 4K natural and history programs - National Park Adventures, Metropolis and Made by Man. The network is expanding a faster than anticipated rollout of 4K. 3net is a joint venture of IMAX, Sony, and Discovery Communications.

### GOLF CHANNEL DEPLOYS 4K ULTRA HD MIRA SERVER

The first 4K Ultra HD Mira Production Server from Abekas has been deployed by Golf Channel. The server feeds two separate panoramic video walls in the Arnold Palmer Studio at their facility in Orlando, Florida. The signature look of the "Morning Drive" program is accomplished by linking twenty 90-inch and ten 52-inch monitors to create golf course morning vistas. The video wall is fed by a 4K Ultra HD Mira Production Server to make viewers feel like the "Morning Drive" is broadcasting from just inside the picture windows of their local clubhouse.

## SOUTH AMERICA

### TV GLOBO, NHK TEST 8K AT RIO CARNIVAL

The Rio de Janeiro Carnival this year was shot in UHDTV (8K) by Japan's NHK and Brazil's TV Globo. A special programme with behind the scenes footage was aired in Japan during the first half of this year.

### FIFA AND SONY TO TEST 4K DURING CONFEDERATIONS CUP

Sony and FIFA have announced that they will test 4K during the FIFA Confederations Cup in June in Brazil, using a 4K mobile production unit supplied by UK-based production company Telegenic. The trial will test the process involved in shooting and delivering live 4K programming. The content itself will not be screened for the public, as the test is aimed at examining the technical and creative aspects of using the technology. Sony and FIFA have been eyeing the 2014 FIFA World Cup in Brazil for 4K broadcasting.

### TBS SHOOTS WORLD HERITAGE SITES IN 4K

Japanese broadcaster TBS Inc. is using the 4K format to shoot World Heritage sites in Egypt, Italy and other places. In June, the TV station started broadcasting these images once a month on The Sekai Isan (World Heritage Sites), a weekly Sunday program. Last November, classic Kyoto cityscapes were recorded in the format and the images were aired after being converted to the current high-definition system.
ASIA

### NTT DOCOMO LICENSES HEVC DECODING SOFTWARE

Japanese mobile operator NTT Docomo started licensing software for decoding HEVC, which allows playback of full HD on smartphones. For playback on PCs the software enables real-time decoding of UHDTV (4K).

## WORLD

### ULTRA HD TV SHIPMENTS TO REACH 4 MILLION UNITS IN 2013

Estimated global shipments of Ultra HD TV panels in 2013 have been upward adjusted from 2.3-2.6 million units originally to 3.5-4 million units, according to industry sources. Innolux alone is aiming to ship between 2-3 million Ultra HD TV panels and is likely to account for 60-70% of global shipments of the technology in 2013. AUO has been shipping 55- and 65-inch Ultra HD TV panels to customers such as Sony and Toshiba, and CSOT has been focusing on production of 55-inch units for customers such as TCL.

### LG CONDUCTS ULTRA HD DEMO AT MWC

LG conducted a demonstration of its Wireless Ultra High Definition (Ultra HD) transmission technology at the Mobile World Congress in Barcelona. Users were able to experience smartphone content in real time, via Wi-Fi connections. Multimedia content was automatically adjusted to match the receiving TV's screen resolution.

### SAMSUNG PRESENTS FIRST 85-INCH UHD TV SET

Samsung has presented the LED TV UHD S9, the first 85-inch ultra High Definition TV (UHD) TV set. Users can interact and control the TV via the enhanced Smart Interaction: navigation among the five new screens - TV programming, VOD, app, personal and social content. The exclusive function S-Recommendation proposes suggestions on content to watch. The S9 features four times higher resolution to a normal Full HD screen, converting HD and Full HD video into UHD. It also features 120 W speakers.

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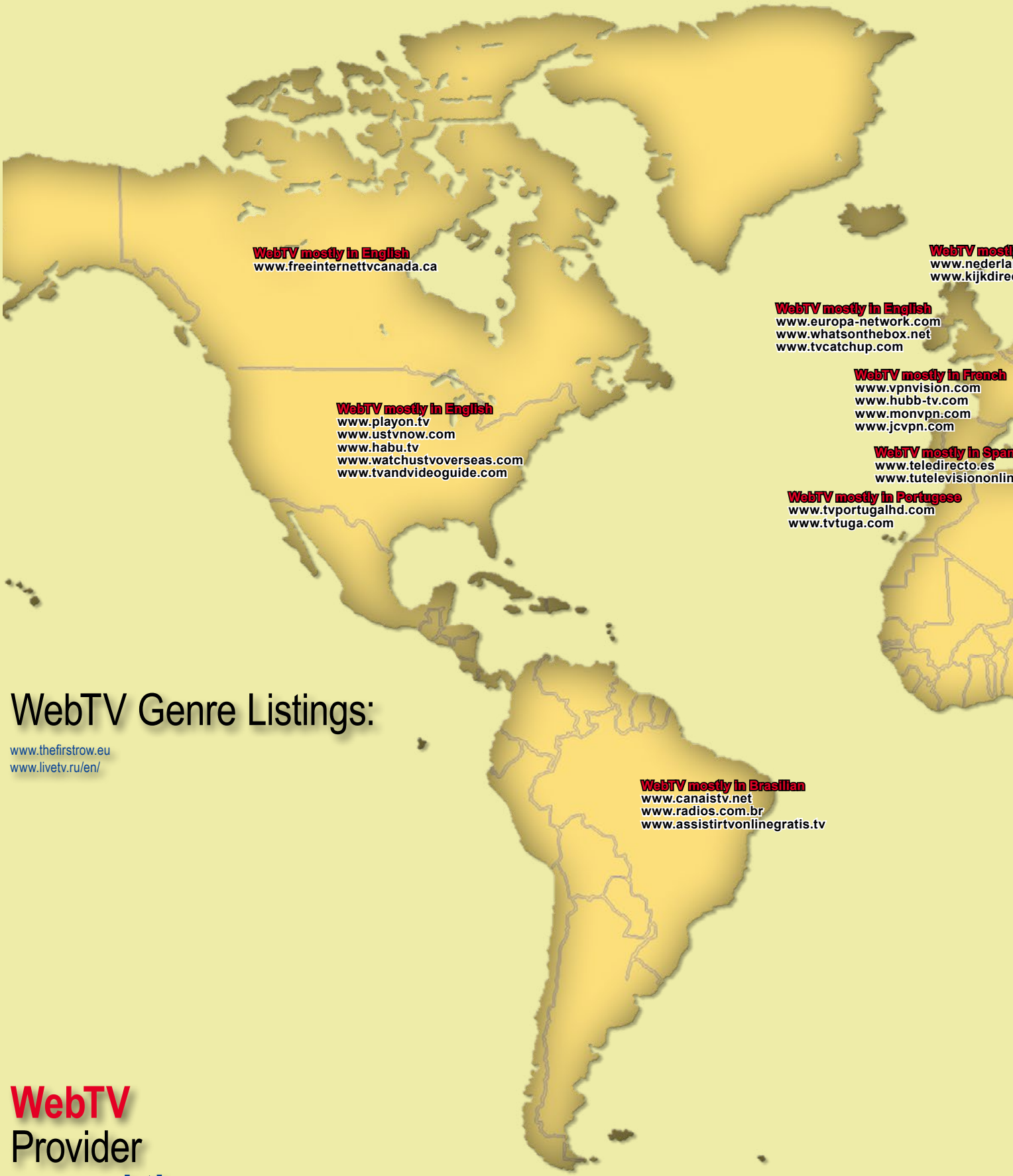
JAPAN BROADCASTING CORPORATION

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## DVB-T2
V: H.264
A: MPEG-4 AAC

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Botswana
Bulgaria
Colombia
Croatia
Denmark
Finland
Ghana
Indonesia
Kazakhstan
Kenya
Kyrgystan
Madagascar
Malaysia
Mongolia
Mozambique
Myanmar
Namibia
Nigeria
Romania
Russia
Serbia
Singapore
Slovakia
South Africa
Sri Lanka
Swaziland
Tanzania
Thailand
Turkey
Uganda
UK
Uzbekistan
Vietnam
Zambia
Zimbabwe

## DVB-T
V: H.264
A: MPEG-4 AAC

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Belarus
Burundi
Central Africa
Czech
Estonia
Guinea
Hungary
Iceland
Ireland
India
Iran
Israel
Latvia
Lithuania
Macedonia
Mauritius
New Zealand
Norway
Panama
Poland
Portugal
Rwanda
Slovenia
Spain
Uganda
Ukraine

## ATSC
V: MPEG-2
A: AC-3

Canada
Dominican R.
Guatemala
Honduras
Mexico
South Korea
USA

## DVB-T
V: MPEG-2
A: MPEG-1 Level 2

Algeria
Albania
Australia
France
French Guyana
Germany
Greece
Italy
Luxembourg
Morocco
Netherlands
Qatar
Sweden
Switzerland
Tunisia

## ISDB-TB
V: H.264
A: MPEG-4 AAC

Argentina
Belize
Bolivia
Brazil
Costa Rica
Chile
Ecuador
Paraguay
Peru
Philippines
Uruguay
Venezuela

## ISDB
V: MPEG-2
A: MPEG-2 AAC

Japan

## DTMB
V: H.264
A: MPEG-4 AAC

China*
HongKong

* some
V: MPEG2

# Digital Terrestrial Television of the World

**Dominant System per Country**

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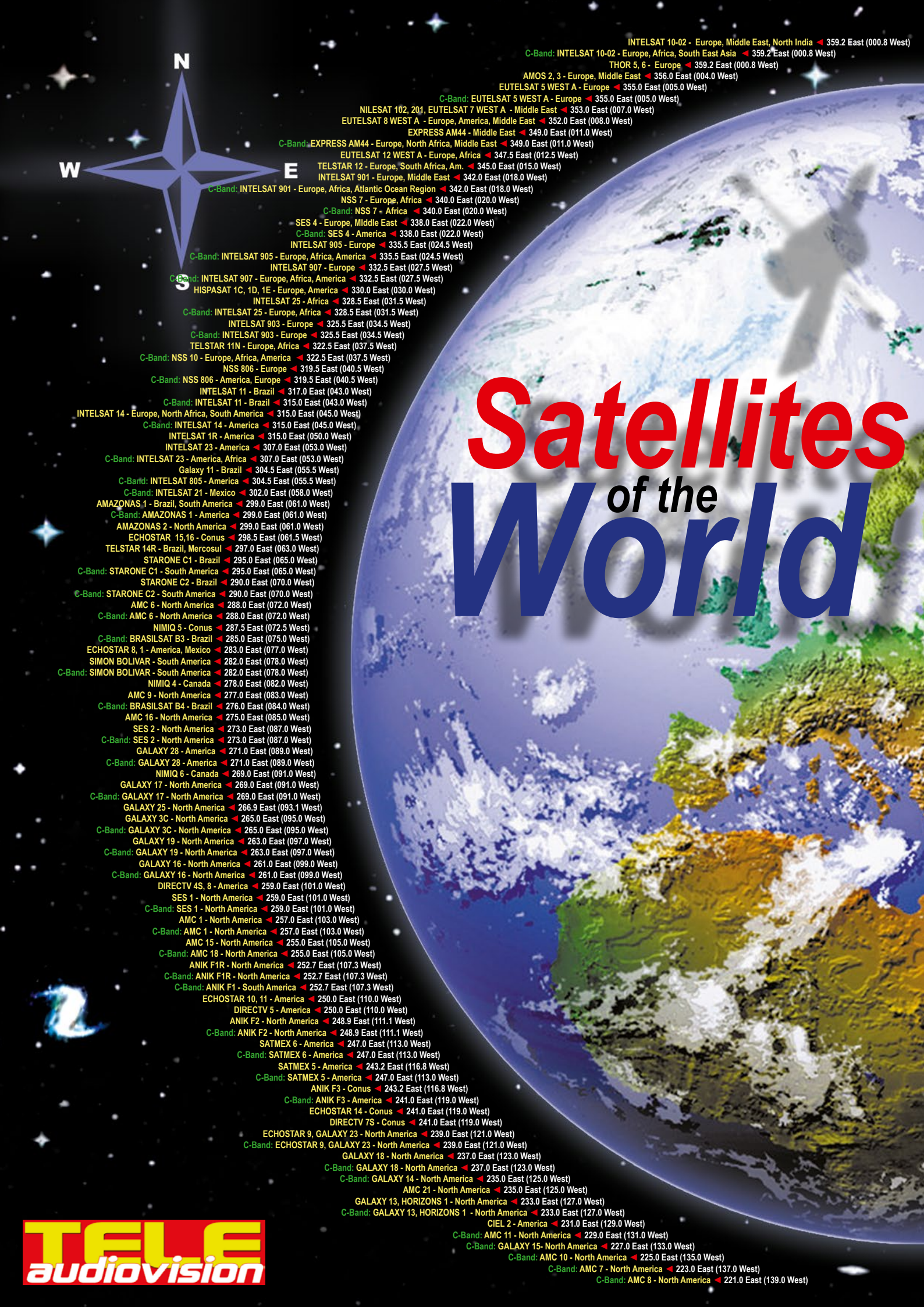


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C-Band: INTELSAT 10-02 - Europe, Africa, South East Asia ◄ 359.2 East (000.8 West)
THOR 5, 6 - Europe ◄ 359.2 East (000.8 West)
AMOS 2, 3 - Europe, Middle East ◄ 356.0 East (004.0 West)
EUTELSAT 5 WEST A - Europe ◄ 355.0 East (005.0 West)
C-Band: EUTELSAT 5 WEST A - Europe ◄ 355.0 East (005.0 West)
NILESAT 102, 201, EUTELSAT 7 WEST A - Middle East ◄ 353.0 East (007.0 West)
EUTELSAT 8 WEST A - Europe, America, Middle East ◄ 352.0 East (008.0 West)
EXPRESS AM44 - Middle East ◄ 349.0 East (011.0 West)
C-Band: EXPRESS AM44 - Europe, North Africa, Middle East ◄ 349.0 East (011.0 West)
EUTELSAT 12 WEST A - Europe, Africa ◄ 347.5 East (012.5 West)
TELSTAR 12 - Europe, South Africa, Am. ◄ 345.0 East (015.0 West)
INTELSAT 901 - Europe, Middle East ◄ 342.0 East (018.0 West)
C-Band: INTELSAT 901 - Europe, Africa, Atlantic Ocean Region ◄ 342.0 East (018.0 West)
NSS 7 - Europe, Africa ◄ 340.0 East (020.0 West)
C-Band: NSS 7 - Africa ◄ 340.0 East (020.0 West)
SES 4 - Europe, Middle East ◄ 338.0 East (022.0 West)
C-Band: SES 4 - America ◄ 338.0 East (022.0 West)
INTELSAT 905 - Europe ◄ 335.5 East (024.5 West)
C-Band: INTELSAT 905 - Europe, Africa, America ◄ 335.5 East (024.5 West)
INTELSAT 907 - Europe ◄ 332.5 East (027.5 West)
C-Band: INTELSAT 907 - Europe, Africa, America ◄ 332.5 East (027.5 West)
HISPASAT 1C, 1D, 1E - Europe, America ◄ 330.0 East (030.0 West)
INTELSAT 25 - Africa ◄ 328.5 East (031.5 West)
C-Band: INTELSAT 25 - Europe, Africa ◄ 328.5 East (031.5 West)
INTELSAT 903 - Europe ◄ 325.5 East (034.5 West)
C-Band: INTELSAT 903 - Europe ◄ 325.5 East (034.5 West)
TELSTAR 11N - Europe, Africa ◄ 322.5 East (037.5 West)
C-Band: NSS 10 - Europe, Africa, America ◄ 322.5 East (037.5 West)
NSS 806 - Europe ◄ 319.5 East (040.5 West)
C-Band: NSS 806 - America, Europe ◄ 319.5 East (040.5 West)
INTELSAT 11 - Brazil ◄ 317.0 East (043.0 West)
C-Band: INTELSAT 11 - Brazil ◄ 315.0 East (043.0 West)
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C-Band: INTELSAT 14 - America ◄ 315.0 East (045.0 West)
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INTELSAT 23 - America ◄ 307.0 East (053.0 West)
C-Band: INTELSAT 23 - America, Africa ◄ 307.0 East (053.0 West)
Galaxy 11 - Brazil ◄ 304.5 East (055.5 West)
C-Band: INTELSAT 805 - America ◄ 304.5 East (055.5 West)
C-Band: INTELSAT 21 - Mexico ◄ 302.0 East (058.0 West)
AMAZONAS 1 - Brazil, South America ◄ 299.0 East (061.0 West)
C-Band: AMAZONAS 1 - America ◄ 299.0 East (061.0 West)
AMAZONAS 2 - North America ◄ 299.0 East (061.0 West)
ECHOSTAR 15,16 - Conus ◄ 298.5 East (061.5 West)
TELSTAR 14R - Brazil, Mercosul ◄ 297.0 East (063.0 West)
STARONE C1 - Brazil ◄ 295.0 East (065.0 West)
C-Band: STARONE C1 - South America ◄ 295.0 East (065.0 West)
STARONE C2 - Brazil ◄ 290.0 East (070.0 West)
C-Band: STARONE C2 - South America ◄ 290.0 East (070.0 West)
AMC 6 - North America ◄ 288.0 East (072.0 West)
C-Band: AMC 6 - North America ◄ 288.0 East (072.0 West)
NIMIQ 5 - Conus ◄ 287.5 East (072.5 West)
C-Band: BRASILSAT B3 - Brazil ◄ 285.0 East (075.0 West)
ECHOSTAR 8, 1 - America, Mexico ◄ 283.0 East (077.0 West)
SIMON BOLIVAR - South America ◄ 282.0 East (078.0 West)
C-Band: SIMON BOLIVAR - South America ◄ 282.0 East (078.0 West)
NIMIQ 4 - Canada ◄ 278.0 East (082.0 West)
AMC 9 - North America ◄ 277.0 East (083.0 West)
C-Band: BRASILSAT B4 - Brazil ◄ 276.0 East (084.0 West)
AMC 16 - North America ◄ 275.0 East (085.0 West)
SES 2 - North America ◄ 273.0 East (087.0 West)
C-Band: SES 2 - North America ◄ 273.0 East (087.0 West)
GALAXY 28 - America ◄ 271.0 East (089.0 West)
C-Band: GALAXY 28 - America ◄ 271.0 East (089.0 West)
NIMIQ 6 - Canada ◄ 269.0 East (091.0 West)
GALAXY 17 - North America ◄ 269.0 East (091.0 West)
C-Band: GALAXY 17 - North America ◄ 269.0 East (091.0 West)
GALAXY 25 - North America ◄ 266.9 East (093.1 West)
GALAXY 3C - North America ◄ 265.0 East (095.0 West)
C-Band: GALAXY 3C - North America ◄ 265.0 East (095.0 West)
GALAXY 19 - North America ◄ 263.0 East (097.0 West)
C-Band: GALAXY 19 - North America ◄ 263.0 East (097.0 West)
GALAXY 16 - North America ◄ 261.0 East (099.0 West)
C-Band: GALAXY 16 - North America ◄ 261.0 East (099.0 West)
DIRECTV 4S, 8 - America ◄ 259.0 East (101.0 West)
SES 1 - North America ◄ 259.0 East (101.0 West)
C-Band: SES 1 - North America ◄ 259.0 East (101.0 West)
AMC 1 - North America ◄ 257.0 East (103.0 West)
C-Band: AMC 1 - North America ◄ 257.0 East (103.0 West)
AMC 15 - North America ◄ 255.0 East (105.0 West)
C-Band: AMC 18 - North America ◄ 255.0 East (105.0 West)
ANIK F1R - North America ◄ 252.7 East (107.3 West)
C-Band: ANIK F1R - North America ◄ 252.7 East (107.3 West)
C-Band: ANIK F1 - South America ◄ 252.7 East (107.3 West)
ECHOSTAR 10, 11 - America ◄ 250.0 East (110.0 West)
DIRECTV 5 - America ◄ 250.0 East (110.0 West)
ANIK F2 - North America ◄ 248.9 East (111.1 West)
C-Band: ANIK F2 - North America ◄ 248.9 East (111.1 West)
SATMEX 6 - America ◄ 247.0 East (113.0 West)
C-Band: SATMEX 6 - America ◄ 247.0 East (113.0 West)
SATMEX 5 - America ◄ 243.2 East (116.8 West)
C-Band: SATMEX 5 - America ◄ 247.0 East (113.0 West)
ANIK F3 - Conus ◄ 243.2 East (116.8 West)
C-Band: ANIK F3 - America ◄ 241.0 East (119.0 West)
ECHOSTAR 14 - Conus ◄ 241.0 East (119.0 West)
DIRECTV 7S - Conus ◄ 241.0 East (119.0 West)
ECHOSTAR 9, GALAXY 23 - North America ◄ 239.0 East (121.0 West)
C-Band: ECHOSTAR 9, GALAXY 23 - North America ◄ 239.0 East (121.0 West)
GALAXY 18 - North America ◄ 237.0 East (123.0 West)
C-Band: GALAXY 18 - North America ◄ 237.0 East (123.0 West)
C-Band: GALAXY 14 - North America ◄ 235.0 East (125.0 West)
AMC 21 - North America ◄ 235.0 East (125.0 West)
GALAXY 13, HORIZONS 1 - North America ◄ 233.0 East (127.0 West)
C-Band: GALAXY 13, HORIZONS 1 - North America ◄ 233.0 East (127.0 West)
CIEL 2 - America ◄ 231.0 East (129.0 West)
C-Band: AMC 11 - North America ◄ 229.0 East (131.0 West)
C-Band: GALAXY 15- North America ◄ 227.0 East (133.0 West)
C-Band: AMC 10 - North America ◄ 225.0 East (135.0 West)
C-Band: AMC 7 - North America ◄ 223.0 East (137.0 West)
C-Band: AMC 8 - North America ◄ 221.0 East (139.0 West)

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| *Issue* | **TELE-audiovision 07-08/2013** | **TELE-audiovision 09-10/2013** | **TELE-audiovision 11-12/2013** | **TELE-audiovision 01-02/2014** |
|---|---|---|---|---|
| *#* | 1307 | 1309 | 1311 | 1401 |
| *Editorial Deadline* | 3 May 2013 | 28 June 2013 | 30 August 2013 | 1 November 2013 |
| **Advertisement Deadline** 广告截止日期 | **10 May 2013** | **5 July 2013** | **6 September** | **6 November 2013** |
| *Hardcopies* | 21 June 2013 | 16 August 2013 | 18 October 2013 | 20 December 2013 |
| *Online* | 5 July 2013 | 30 August 2013 | 1 November 2013 | 3 January 2014 |

# Digital TV Exhibitions

**2 - 3 July 2013**
**VSAT Latin America**
São Paulo, Brasil
**latinamerica.vsatevent.com**

**6 - 9 August 2013**
**ABTA 2013**
São Paulo, Brasil

**6 - 11 September 2013**
**IFA 2013**
*The Global Innovations Show*
Messe Berlin, Messedamm 22, Berlin, Germany
*Opening Hours:*
6 - 11 September: 10am - 6pm
**www.ifa-berlin.com**

**13 - 17 September 2013**
**IBC 2013**
*For professionals engaged in the creation, management and delivery of entertainment and news content*
RAI Convention Centre, Amsterdam, The Netherlands
*Opening Hours:*
13 September: 10:30am - 6:00pm
14 - 16 Sept.: 9:30am - 6:00pm
17 September: 10:30am - 4:00pm
**www.ibc.org**

**18 - 20 September 2013**
**VSAT 2013**
Grand Hotel Krasnapolsky, Amsterdam, The Netherlands
**www.vsatevent.com**

**13 - 16 October 2013**
**HKTDC Autumn**
Hongkong, China

**24 - 27 October 2013**
**CeBIT Bilisim Eurasia**
Istanbul, Turkey

**25 - 27 October 2013**
**SCaT India 2013**
*South Asia's Largest Tradeshow of the Indian Cable & Satellite Television Industry*
World Trade Centre, Cuffe Parade, Mumbai, India
*Opening Hours:*
25 October: 11:30am - 6:30pm
26-27 October: 10:30am - 6:30pm
**www.scatmag.com/scatindia/**

**13 - 15 November 2013**
**InterBEE**
*International Broadcast Equipment Exhibition*
Tokyo, Japan
**www.inter-bee.com**

**19 - 22 November 2013**
**ITU Telecom World**
*Conversation that Matters*
IMPACT, 99 Popular Road, Banmai Subdistrict, Pakkred District, Nonthaburi 11120, Thailand
**world2013.itu.int**

**3 - 4 December 2013**
**Satellite Mobility 2013**
London, UK
**mobility.vsatevent.com**

**7 - 10 January 2014**
**2014 International CES**
*Manufacturers, developers and suppliers of consumer technology hardware, content, technology delivery systems and related products and services*
Las Vegas Convention Center, Las Vegas, Nevada, USA
*Opening Hours:*
7 January: 10:00am - 6:00pm
8 - 9 Jan.: 9:00am - 6:00pm
10 January: 9:00am - 4:00pm
**www.cesweb.org**

**21 - 23 January 2014**
**Convergence India 2014**
New Delhi, India

**February 2014**
**CSTB 2014**
*Key professional media event covering all the cutting-edge formats and trends of TV and telecommunication*
IEC "Crocus Expo", Pavilion 1 Moscow, Russia
**www.cstb.ru**

**March 2014**
**DVB World**

**11 - 13 March 2014**
**CABSAT 2014**
*Premier Broadcast & Satellite Platform in the ME & North Africa*

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