

TELE

**DTT
IPTV
3DTV
satellite**

Company Report

BT Madley Communications Center

UK's Big Uplink Station is
Back in **Global Business**



APPLIED INSTRUMENTS

Tom Haywood
Celebrates 25 Years
in Business



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HORIZON

John McLoone
Proudly Announces 125 000
Meters in Exactly 10 Years



Company Report

HUBER+SUHNER

Patrick Zaina
Invents the Future with
New Fiber Optic Products



Company Report

AB-COM

Juraj Masaryk
Conquers the Market with
New Receivers



TELE-satellite
30
Years
of
Digital TV
Business
Reporting



Test Report

World's **1st**: 4 Tuner Card

TENOW Packs 4 DVB-S2
Tuners Into One PC Card



Over a decade of experience in digital set top boxes

we have models for worldwide market



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

HDS-275SCI

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



DVB-S FTA SDS-552ANP

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



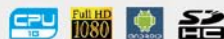
DVB-S FTA SDS-552ANP

- DVB-S FTA Scart stick
- Media playback: OGG/JPEG/BMP/MPGE PS/MPEG4
- Up to 5000 channels



HD IP Set Top Box IV210

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



Android IP Set Top Box IV3001

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



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High Tech Office: 12/F, Greentech Building, Keji.C. Road 3rd Hi-Tech Industrial Park, Nanshan District, Shenzhen, P.R.China
Factory: C/D Block, Zhengchangda Ind. Park, Jian'an Road, Tangwei, Fu Yong, Baoan Dist., Shenzhen, China
 Tel: +86-755-8659 0230 Fax: +86-755-8659 0225 Email: market@micoelectric.com

Panodic Electric (Hong Kong) Limited

Headquarter: Unit 1703A, 17/F, Nanyang Plaza, 57 Hung To Road, Kwun Tong, Kowloon, Hong Kong
 Tel: +852 2951 4538 Fax: +852 2951 4738 Email: market@micoelectric.com
www.panodic.com



Dear Readers,

In this issue of TELE-satellite we were able to bestow the TELE-satellite Innovation Award upon a product that, just like all the previous Innovation Awards, has more meaning to it than just a new product with outstanding features.

This time it has to do with a PC card with four tuners. Some readers might be thinking at this point, "I can still only watch one TV channel." A second tuner would be nice to have so that a second channel could be recorded (PVR function), but why a third or a fourth tuner?

But the manufacturer of this PC card recognized something that only becomes evident after taking a second look. In a world overflowing with thousands of TV channels the result can only be that the hardware also be able to receive more than one channel. The argument that you can only watch one channel at a time is an argument from the last century. In a world with so many TV channels that can be received today, they are consumed in parallel and multitasked.

The word "consumed" has some true meaning here; if you find yourself sitting in front of your TV set dedicated to watching a single TV channel, you're not consuming, you're just "watching TV". But if in one corner you have a news program running on a TV monitor and music playing in another corner while at the same time you're keeping tabs on your favorite soap opera in another spot, you are consuming the glut of channels. On the fourth tuner of the PC card you have your Internet-via-satellite connection and there you have it, all four of the tuners are occupied.

In this overabundance that we live in today, the hardware

itself must also keep up with this trend and offer the user a similar fill, just like the software. It must go in the "unending" direction and can't have any limits.

Just how many TV channels someone watches at the same time is a decision that should be made by the consumer. When the number of available channels goes in the direction of "unending", then the TV viewer should be able to watch as many channels as he wants one right after the other and also in parallel at the same time.

The TELE-satellite Innovation Award for this product is recognition for this manufacturer who has recognized that the hardware can't sit still and must keep up with the ever-expanding software world.

Alexander Wiese
TELE-satellite Editor-in-Chief



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Editor-in-Chief Alexander Wiese, alex@TELE-satellite.com

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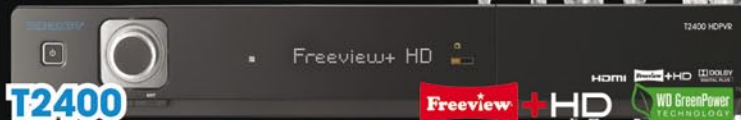
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- Series Recording & Recommendation
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T5000

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- Picture in graphics (PIG) support
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Liebe Leser, in dieser TELE-satellite konnten wir den TELE-satellite Innovation Award an ein Produkt vergeben, das - wie bei allen früheren Innovation Awards - mehr bedeutet, als nur ein neues Produkt mit besonders herausstechenden Features. Es handelt sich um eine PC-Karte mit 4 Tunern. Das wird manche unserer Leser vielleicht zu der Bemerkung hinreissen lassen: „Ich kann doch sowieso immer nur 1 TV-Programm sehen.“ Ein zweiter Tuner wäre zwar noch gut, um ein zweites Programm aufzuzeichnen (PVR-Funktion), aber wozu denn noch einen dritten oder vierten Tuner?

Aber der Hersteller dieser PC-Karte hat etwas erkannt, was sich erst auf den zweiten Blick erschließt. In einer Welt des totalen Überflusses mit mehreren Tausend TV-Programmen kann die Konsequenz nur sein, dass auch die Hardware

mehr als nur ein TV-Programm empfängt. Denn das Argument, dass man nur 1 TV-Programm zum jeweiligen Zeitpunkt sehen kann, ist ein Argument des letzten Jahrhunderts. In einer Welt mit derart vielen Programmen, wie wir sie heute empfangen können, werden diese natürlich auch parallel und im Multitasking konsumiert. Hier hat das Wort „konsumieren“ seine wirklich Bedeutung, denn wer sich ehrfurchtsvoll vor seinen TV-Bildschirm setzt und hingebungsvoll ein einziges Programm ansieht, der konsumiert eben nicht, der „sieht fern“. Wer aber in einer Ecke seines TV-Monitors ein Newsprogramm laufen läßt, in einer anderen Ecke einen Musiksender und im dritten Flecken eine Soap verfolgt, der „konsumiert“ die Überfülle an Programmen. Über den vierten Tuner seiner PC-Karte läuft derweil der Internet-via-Satellite Anschluß, und schon sind alle 4 Tuner belegt. Im Überfluß, in dem wir heute leben, muss auch die Hardware dem entsprechen und muß dem Benutzer eine ähnliche Fülle bieten, wie die Software. Muß also



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Der TELE-satellite Innovations Award für dieses Produkt ist eine Anerkennung für diesen Hersteller, der erkannt hat, dass die Hardware nicht zurückbleiben kann in einer sich unendlich ausweitenden Softwarewelt.

Ihr Alexander Wiese
TELE-satellite Chefredakteur

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TELE-satellite Chefredakteur

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Test Report
ICECRYPT
London, UK, Europe

Company Report
BT MADLEY
Madley, UK, Europe

Company Report
HORIZON
London, UK, Europe

Company Report
HUBER+SUHNER
Herisau, Switzerland, Europe

Test Report
MEGASAT
Niederlauer, Germany, Europe

Test Report
SKYWORTH
Santiago, Chile, South America

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Zielona Gora, Poland, Europe

Company Report

AB 3DBox

Topolcany, Slovakia, Europe

Country Report

HONGKONG

Hongkong, China

Company Report

SATRO

Bratislava, Slovakia, Europe

DXer Report

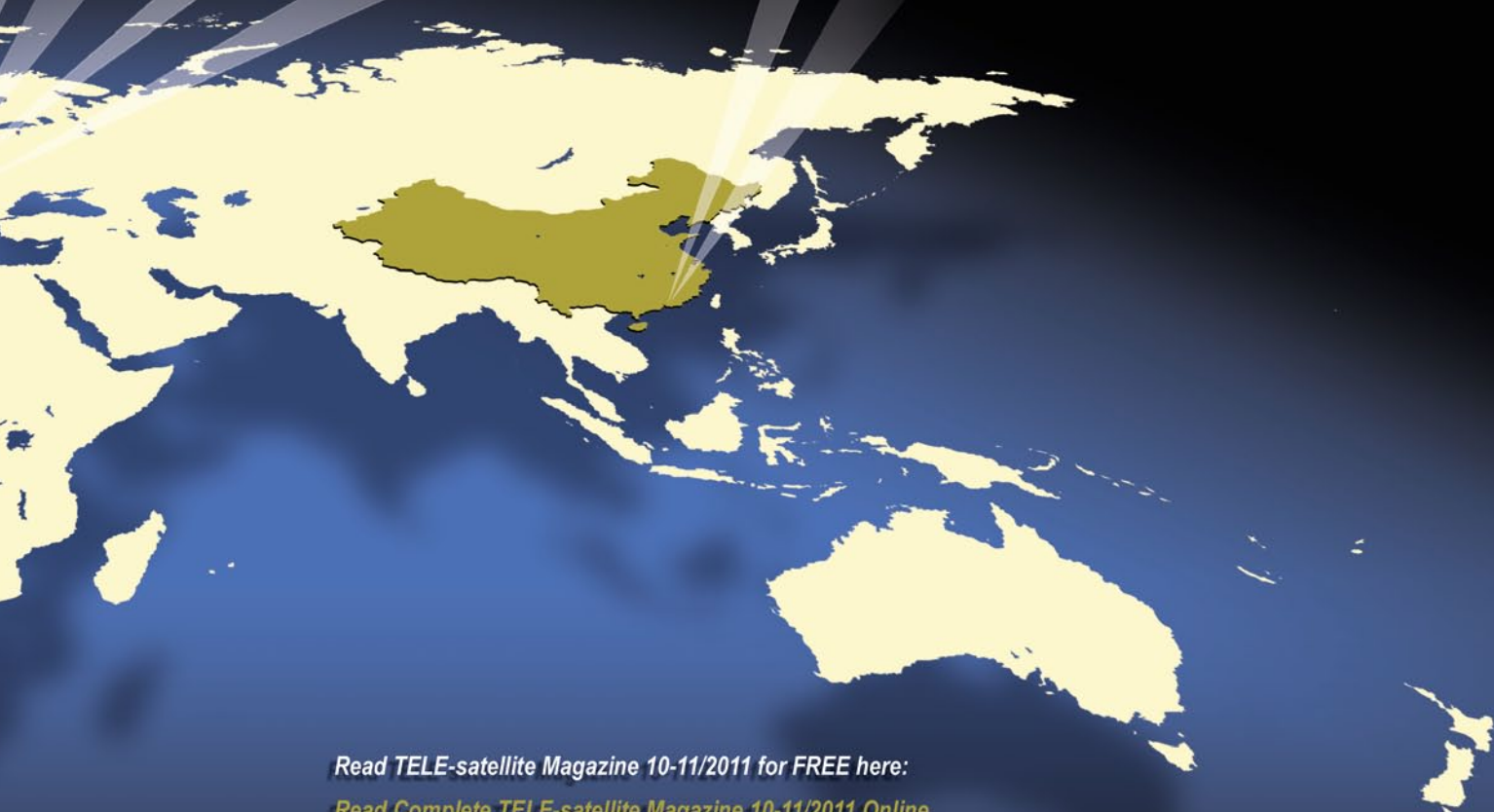
DX BOZOTH

Debrecen, Hungary, Europe

Test Report

TENOW

Shenzhen, Guangdong, China



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Test Reports are written by TELE-satellite's engineering staff located at
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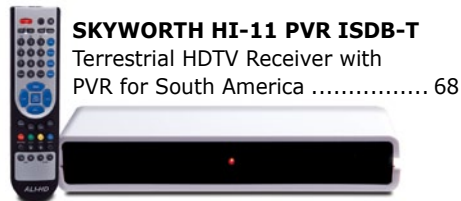
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...and watch, record High Definition Television



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Time Shift



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transmission system with excellent results
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makes sense today



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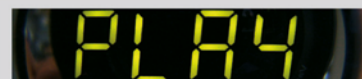
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- 1 x Common interface slot
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- HDTV & SDTV
- 1 x smart card reader
- EPG (7 days in advance)
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- optical signal to the align the antenna
- HDMI out with HDCP

USB 2.0 HOST HDMI 1 x SMARTCARD-READER 1 x COMMON INTERFACE



*** FULL HD ***

JAEGER

HD+ 2011



HDTV-DVB-S Receiver - PVRready

- USB 2.0 host for playback of external hard drive or USB flash drive
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HDCI 2010



HDTV-DVB-S Receiver - PVRready

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

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SRP-2401 CI+

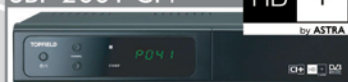


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- 2 tuners
- SCPC and MCPC receivable from C/Ku-band satellites
- 10,000 Services TV (7,000) & Radio (3,000) programmable
- Favorite Service list editing
- 32-bit Color On-Screen Display (OSD)
- Firmware Update by Over-The-Air or USB-Stick
- S/PDIF for digital audio or
- Dolby AC-3 bitstream output
- Recoding capacity: Determined by USB-External HDD capacity
- Full Picture in Graphic (PIG) function
- Capable of time-shifting & single recoding
- MP3 (MPEG-1 Layer 3) decoding
- NTFS Read/ Write supported
- CI+ Service Descramble supported

HDTV Receiver Selection

TOPFIELD

SBP-2001 CI+



HDTV DVB-S Receiver

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

TOPFIELD

CBP-2001 CI+



HDTV DVB-C Receiver

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

STRONG

DIGITAL TV

SRT 7805 HD+



HDTV Receiver, USB PVR Ready

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

SRT 7300 CI+



HDTV Receiver, USB PVR Ready

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

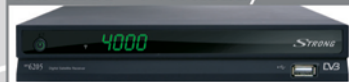
SRT 7000



HDTV Receiver, USB PVR Ready

- HDTV (1080i) • HDMI (V/A -Output)
- USB 2.0 port

SRT 6205 - PVR Ready



USB recording capability

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

New measurements on stock

Premium

Satlook ICE



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

Mid Range

Satlook LITE



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

Cost Effective

Digitas PRO ACQU



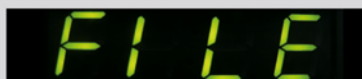
- Measure signallevel from two LNB's at the same time.
- Measured information are displayed on the LCD.
- DiSEqC, 22 kHz, 13/18v and mA readout.
- Generate DiSEqC, 22 kHz and 13/18v to control LNB/switch.
- and much more

Consumer

AirBeeper



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



HDTV & Ethernet connection

smart

VX 10
DVB-S HDTV Receiver

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

HDTV Receiver

VANTAGE

VT-1 Full HD PVR



DVB-S Twin FULL HDTV Receiver

- Two DVB-S2 tuner
- 4:3, 16:9, HDTV 720p, HDTV 1080p
- Video MPEG ISO 2/4, MPEG-4 HD / H.264
- 2x USB
- HDMI
- 2 CI and 2 Smart card Reader
- Time shift supported

Big Dishes

PRODELIN
A TriPoint Global Company



240 RXO

NEW



370 RXO

2.4M - C & KU-BAND

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

3.7M - C & KU-BAND

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

Dishes

CIBERTINI TRIAX PRODELIN



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

Big dishes directly from our warehouse!

- NEW**
- 160 cm
- 180 cm
- 240 cm
- 300 cm
- 370 cm

Optical fibre LNB

INVACOM

Innovation in Communications

Fibre LNB / Fibre Flange LNB



with optical fiber connection

AVAILABLE ACCESSORIES:

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

1x2, 1x4 or 1x8 optical fibre coupler

Optical cable from 1,0 meter up to 200 meters

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

Full LNB range INVACOM available as:

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

Parts

Multifeed holder for 2, 3, or 4 LNB



Wallmounts

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

- F-Connector - 7 mm
- F-Connector - 7 mm water resistant
- F-Connector - 4 mm and more

Remotesystems

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



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

Flat-Dishes

SELSAT



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

SELSAT Flat-Dishes available as:

H30D / H30D2 / H30D4



STRONG Slimsat SA Series



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

Slimsat Flat-Dishes available as:

SA 61 / SA 62 / SA 64

LNBs

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

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

Inverto



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

All available as:

- Single Universal
- Twin Universal
- Quattro Universal
- Quad Universal

Full LNB range INVERTO available from stock

Motors

Aktuatoren/ Actuators

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



H-H Mounts

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

Multiswitches/ DiSeqC-Switches



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

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

SPAUN Full range

Balcony mounting parts



- 25 cm distance - Steel
- 50 cm distance - Steel

120 cm length - Ø 6 cm

ALSO AVAILABLE:

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

Unicable solution

Inverto
digital-labs

IDLP-USS200-CUO10-8PP

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



Tenow Steps Up Product Rollout



TELE-satellite Magazine
Business Voucher

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

Direct Contact to Sales Manager



- **A world first: 4 tuner sensation on the TBS6984**
- **Extremely low threshold, therefore perfectly suited for blind scan: the TBS6925**
- **Pay TV on the PC with external USB box TBS5980**
- **The first PC card for future DVB-T2 transmission standard**
- **Excellent build quality and top-notch components throughout**

PC cards for all digital transmission standards DVB-S/S2 and DVB-T/T2 for every PC from Tenow

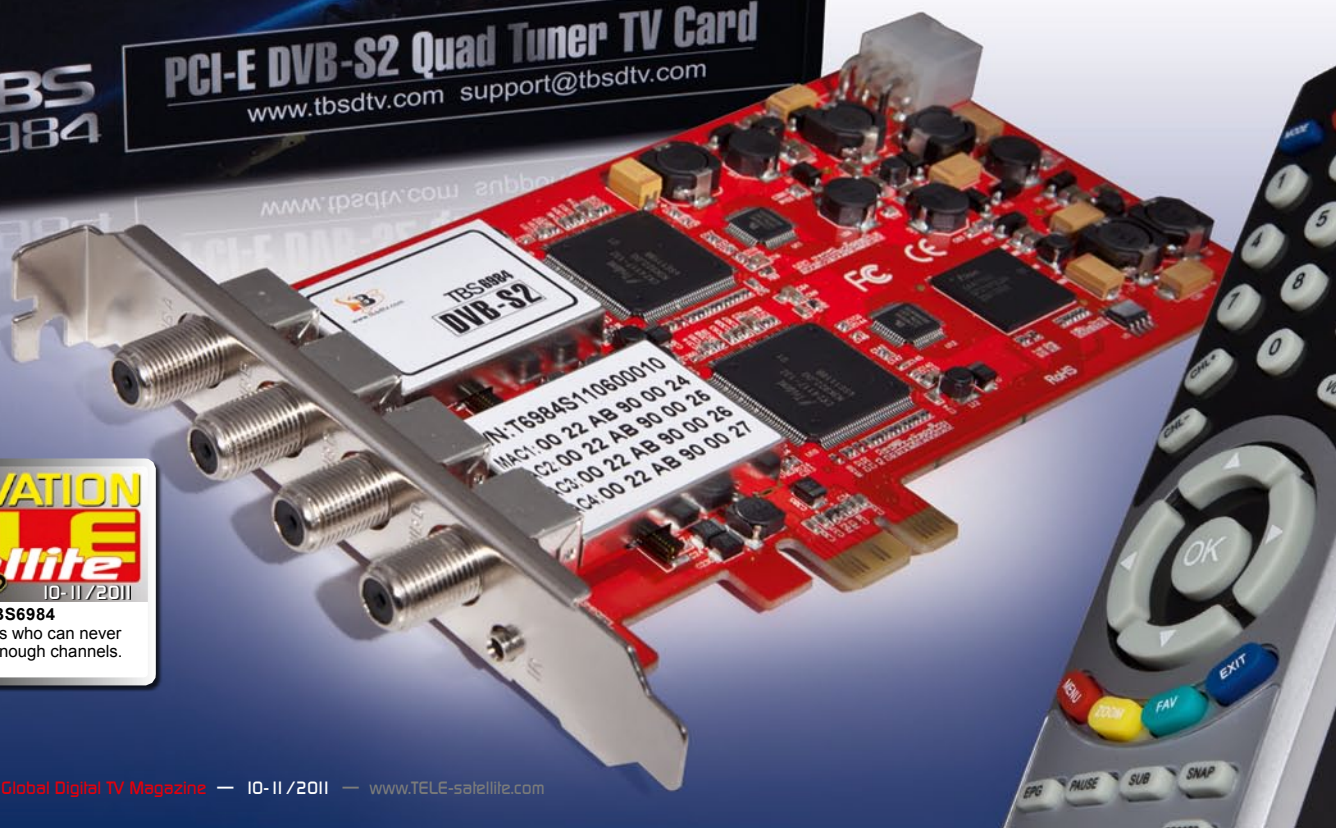
The name Tenow should be ringing a bell with many TELE-satellite readers, because in issue 02-03/2011 we ran a company presentation of

this promising PC card manufacturer. The company has recently developed a total of five new PC cards, each of which comes with rather

unique features. For DVB-S/S2 we're talking about the TBS6925, TBS6984 and TBS5980, while for DVB-T/T2 Tenow has the TBS6220

and TBS6280 in store. No matter which product we look at first, all boast excellent workmanship and stylish packaging. Apart from the TBS5980 – which is an external USB box – all other cards are built to PCI-E (express) slot specifications, which is for a reason: This up-to-date interface is the only one that supports transmission rates of up to 250 MB/s, a level that is required to meet Tenow's exacting demands in order to fully exploit all product features.

We do appreciate, on the other hand, that hardware requirements at the user's end are not stretched to the limits at all, so that the Tenow PC cards and the USB box will happily work with somewhat older systems as well. To be precise, DVB-S and DVB-T reception in standard definition require a Pentium III processor with 1 GHz CPU, 256 MB RAM and a graphics cards with a minimum of 16 MB RAM. Even HDTV reception via DVB-S/S2 and DVB-T/T2 does not demand the world: A Pentium IV CPU with 3 GHz or higher, a minimum of 1 GHz RAM and a graphics card with upwards of 64 MB RAM will do the job nicely. To sum

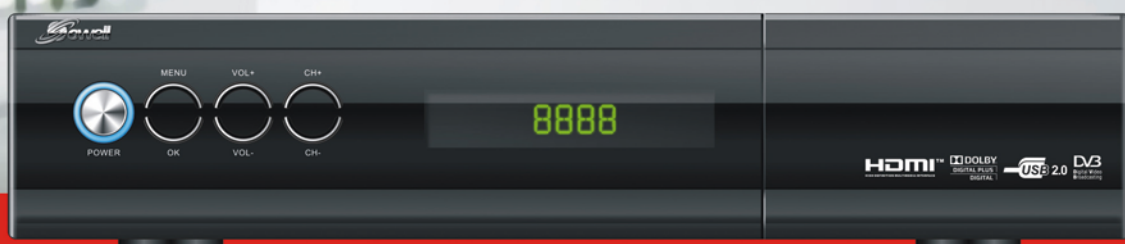
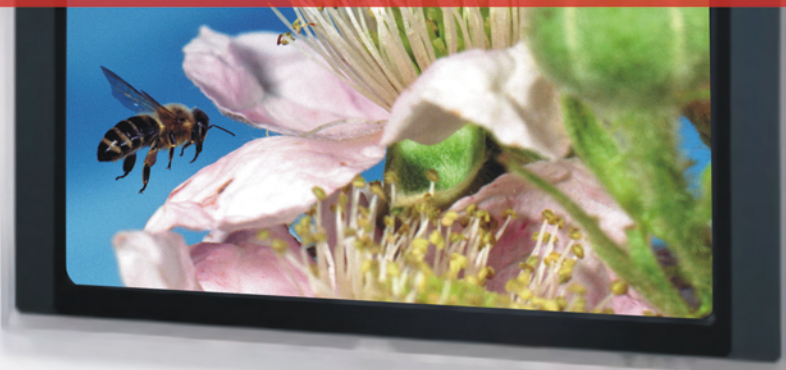


NXP8735 Linux HD DVB-S2+T COMBO



DVB Series

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



Features

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



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

Cost-down Mstar7816 HD DVB-S2



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

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

Low-cost MSD7818 HD DVB-T



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

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

More on This Manufacturer

Read TELE-satellite's Company Report:

TENOW

PC Card Manufacturer, China



www.tenower.com



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

up, many less than brand new PCs can be used for TV reception with Tenow products. As far as software is concerned you need either MS Windows (2000/XP/Vista/7) or Linux. Each product comes with a user-friendly and conveniently shaped remote control which sits nicely in your hand and will be a great asset for all couch potatoes out there. The IR receiver is built into the casing of the USB box, while all internal PCI-E cards come with an external IR receiver which can easily be hooked into a dedicated socket on the slot panel. All items come with a printed manual that deserves special mention thanks to all the useful information it provides. Together with the installation guide it should answer all questions that can possibly arise in terms of installing and using Tenow products.

TBS6984 – 4 tuners for DVB-S/S2 reception with a single card

Most of us will remember a time – not so long ago, actually – when recording and time-shift viewing of a broadcast stream was nothing short of a sensation.

These days, however, we expect these features to come as standard and it's not such a big deal any longer to even record two streams simultaneously while watching a third channel.

Tenow decided to go an extra mile and now offers the TBS6984 which boasts four tuners as an absolute world first. After all, innovative features and new standards are what Tenow is made of. The four low-threshold tuners support DVB-S and DVB-S2 with QPSK and 8PSK modulations. In QPSK mode they can process symbol rates from 1 to 45 MS/s, while in 8PSK mode the range extends from 2 to 36 MS/s. Naturally, we put these specs to a stringent test and can happily reveal that in the real world the TBS6984 lives up to its promises. It goes without saying that all four tuners cover the essential frequency band from 925 to 2175 MHz and the input threshold measurement yielded identical results for all four tuners.

So what is that raving about four tuners all about? The TBS6984 allows you to watch a channel live while at the same time recording up

to three different channels from different transponders in the background. In this day and age of hundreds or even thousands of available channels we could hardly ask for more. Alternatively, only three out of the four tuners can be assigned for TV reception, with tuner number 4 being set apart for Internet-via-satellite, if required. As a matter of fact, this is a feature that can be used with all other Tenow products as well.

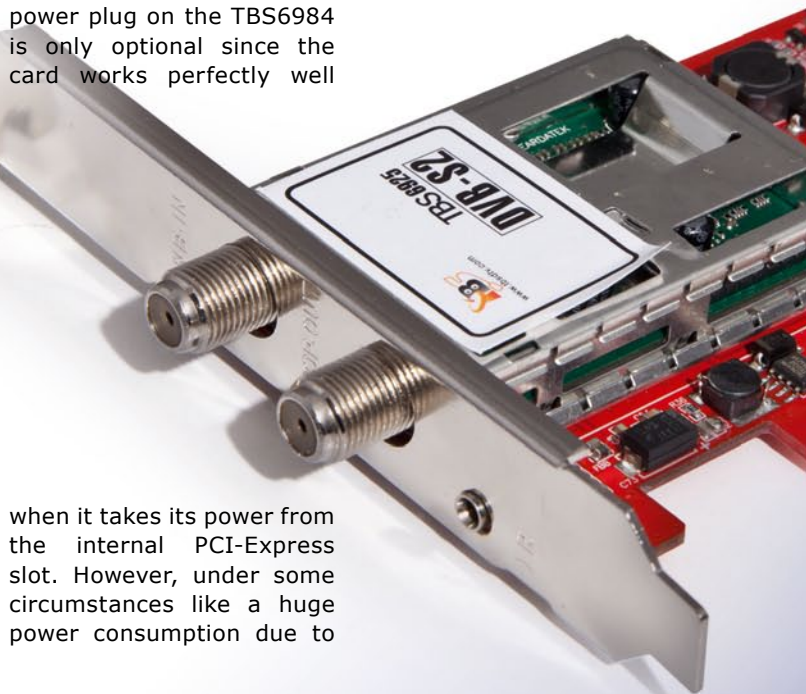
We loved the TBS6984 during our test – there is simply no way we had anticipated how much fun it can be to process four different satellite signals at the same time. Using our up-to-date Intel Core 2 Duo processor we could not detect any flaws or delays, but even when we took out an older Pentium IV system from our office rumpus we were surprised to find that it also did not leave anything to be desired when paired with the Tenow card. To be fair, it did struggle with simultaneous recordings of different channels and with HDTV reception, but we never expected it to be up to those tasks anyway. It should be noted that the TBS6984 offers the option to get its power from the PC's power supply unit. An adapter cable is provided with the card. However, this power plug on the TBS6984 is only optional since the card works perfectly well

controlling a DiSEqC motor or with some motherboards, where the PCI-Express slots does not provide sufficient power or where it introduces too much noise, then a separate power cable could help. That's why TBS provided this extra power supply plug for the TBS6984.

When fed with SCPC signals and rather weak signals from ASTRA 2D 28.8° East and Nilesat 7° West the TBS6984 also performed up to standard.

TBS6925 – a PCI-E card for professionals and technical enthusiasts

If you think four tuners is a little over the top you may want to opt for the TBS6925. This PC card has only one tuner, yet impresses with a number of other features. With professionals or tech-savvy users in mind it does not only support DVB-S/S2 with the QPS and 8PSK modulations, but also DVB-S2 with 16PSK and 32APSK. Added to that is multi-input-stream (MIS) reception of VCM and ACM transponders (read more about this very interesting reception standard in one of the coming issues of TELE-satellite) as well as an option to save the generic stream of a tran-



when it takes its power from the internal PCI-Express slot. However, under some circumstances like a huge power consumption due to

sponder on your PC's hard disk, up to a data transfer rate of 190 Mbit/s.

If SCPC is what you're after, this is the right card for you too. After all, Tenow went at great lengths to come up with just the right tuner for the TBS6925 to support symbol rates all the way from 0.2 to 45 MS/s in both the QPSK and 8PSK modes. A full-range spectrum like that for both modulations is almost unique in itself. You can imagine that we gave our best to check and verify the manufacturer's specification down to the very last detail during

our test. Indeed, we were able to receive an MIS transponder from ATLANTIC BIRD1 at 12.5° West (11495H), as well as SCPC signals with an extremely low symbol rate (less than 1 MS/s) which posed no problem at all to the Tenow TBS6925. As if all that was not enough, this particular card comes with an efficient blind scan mode which was able to detect even unusual symbol rates both in DVB-S and DVB-S2 during our test. Applications like that really show a tuner's worth, and together with a very low threshold we were genuinely impressed to receive

flawless video from a signal with a C/N of only 4.5 dB. All things considered, the concept of the TBS6925 is such that Tenow decided not to package several tuners or a number of consumer market-driven features in this card, but rather launch a tool for pros and tech-savvy users who now have a PCI-E card at their disposal which allows them to tap into the more extreme and out-of-the-ordinary realms of TV,

radio and data reception via satellite.

TBS5980 – an external USB 2.0 box with CI slot

No matter how capable and rich in features all PCI-E cards made by Tenow are, they invariably require a free PCI-E slot in the PC. In addition, due to size restrictions of PC cards most of them have no CI slot for



TELE satellite AWARD
10-11/2011

Tenow TBS6925

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

TELE satellite AWARD
10-11/2011

Tenow TBS5980

Brings pay TV onto your computer screen.



TELE-satellite
AWARD
10-11/2011

Tenow TBS6220 + TBS6280
Fit for the future thanks to impeccable
DVB-T/T2 implementation.



pay TV reception. Here too, Tenow has a solution: the USB box TBS5980 measures only 10.5 x 8.5 x 2 cm and comes fully equipped with a blind scan tuner, all control electronics and a CE slot on the front panel.

The low-threshold DVB-S/S2 tuner worked smoothly with QPSK and 8PSK modulations in our test, and it supports symbol rates from 1 to 45 Ms/s in both modes. Never fall for a manufacturer's sale pitch, we thought, and put the USB box to the test. Lesson learned: Tenow can be trusted, as the TBS5980 was able to even show weak signals that hovered just around the tuner's threshold level with only few errors.

Tenow's box is compatible with the USB 2.0 interface, which means it had to be designed as a single tuner version due to bandwidth limitations. We would love to see extended versions with two or even more tuners in future with the much faster

USB 3.0 standard. The majority of users have USB 3.0 available even today, so an upgraded box should be able to use those resources. Even though the box has to live with the present USB 2.0 limitations, however, HDTV reception is possible with the external box from Tenow.

We tested pay TV reception as well and found that the CI slot of the TBS5980 worked just as expected with both a Viaccess CI module and corresponding smart card in its IrDeto sibling. In a clever design move Tenow uses the spare space on the front panel to position the IR receiver so that no external receiver is required for the USB box – as opposed to the PCI-E cards.

TBS6280 & TBS6220 – DVB-T/T2 reception with one or two tuners

The TBS6280 and TBS6220 are twin (6280)

and single (6220) PCI-E cards for DVB-T/T2 reception. From the outside they both look identical, as terrestrial TV reception does not require LNB power supply and the input signal can be forwarded from tuner 1 to tuner 2 if more than one is packed into the card. This is also why only one antenna socket is required, even for the twin tuner model TBS6280. Speaking of the antenna socket, Tenow ships its DVB-T/T2 cards with a rod antenna which in our test demonstrated surprisingly good reception capabilities.

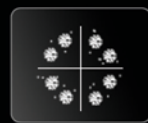
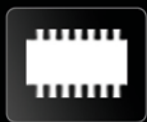
Both cards can be used for the VHF and UHF ranges and are able to receive DVB-T/T2 transponders with QPSK, 16QAM, 64QAM and 256QAM modulations. Apart from reception bandwidths of 6, 7 or 8 MHz the 1K, 2K, 4K, 8K, 16K and 32K FFT modes are available so that both cards cover the entire DVB-T/T2 reception spectrum.

While the TBS6280 with

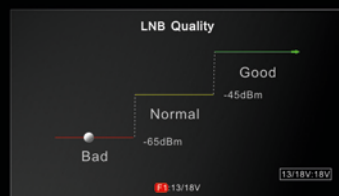
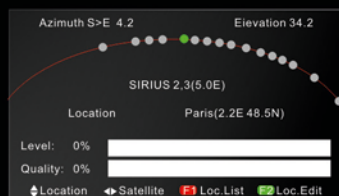
its second tuner can be used to record one channel while watching another one, the single version TBS6220 has to do without that feature.

Our test revealed that DVB-T/T2 reception was flawless with both models, and even a signal which was modulated by us and corrupted with a substantial amount of errors was corrected and displayed according to specifications. The tuners left a very positive impression throughout, and one that was reinforced when fed with real-world signals as well.

By the way, Tenow enters uncharted territory with its implementation of DVB-T2. Most PC cards available so far are only compatible with DVB-T and we honour the achievement of Tenow to take that additional step once again. Once terrestrial HDTV via DVB-T2 gains momentum, Tenow will be already there waiting with the right product.



DVB S2



Installation Meter & Full Measurement for DVB-S2

Real-Time and Multi-Analyzing Spectrum

Constellation Chart

LNB Test MDU & Unicable

BER, S/N(MER),FEC Measurement

Auto Search,Blind Search,NIT Search,Manual Search

Satellite Name & Degree Auto Detective & Display

Auto DiSEqC1.0/DiSEqC1.1/DiSEqC1.2,USALS

Local satellites list showing automatically

Easy upgrading by Ethernet & USB & RS232 Port

Satellite List Editable by Editor via PC

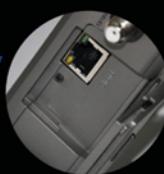
Li-ion Battery(2350mAH), last 6 hours, Fast Charge(2 to 3 hours)

Accessories: Adaptor,Car Charger,upgrading cable,AV cable,

Water-Proof Bag,Compass,User Manual

Size:162x100x42(mm) Weight: 0.45kg

Tiny But Mighty



Size:162mmx100mmx42mm

Xtra-S

Minisat-plus S2/NIT/DSS

Minisat-basic S2/NIT



Worldwide Dealers Are Welcome, And Your Sales Territory Will Be Well-Cared

Milestone DTV Device Creator

TECHNICAL DATA

Manufacturer	Tenow International Ltd Unit C-8A Shennan Garden Building High-Tech Park Shenzhen, CHINA
Phone	+86-755-26501345 or 26501201
Email	sales@tbsdtv.com
Website	www.tbsdtv.com
Function	PCI-E card / USB 2.0 Box for SDTV and HDTV with PVR functions and different amount of tuners, compatible with Windows and Linux operating systems

TBS6984

Input Frequency	925-2175 MHz
Amount of Tuners	4
Product Type	PCI-E card
Input level	-69 ~ -23 dBm
Symbol rates QPSK	1-45 Ms/s
Symbol rates 8PSK	2-36 Ms/s
SCPC compatible	yes (tested >2 Ms/s)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x
C/KU band compatible	yes
CI slot	no
DVB-S2 QPSK/8PSK	yes
DVB-S2 16 APSK	no
DVB-S2 32 APSK	no
MIS compatible	no
ACM/VCM compatible	no
Generic Stream capture	no
BlindScan	no

TBS6925

Input Frequency	925-2175 MHz
Amount of Tuners	1
Product Type	PCI-E card
Input level	-69 ~ -23 dBm
Symbol rates QPSK	0.2-45 Ms/s
Symbol rates 8PSK	0.2-45 Ms/s
SCPC compatible	yes (tested >0.9 Ms/s)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x
C/KU band compatible	yes
CI slot	no
DVB-S2 QPSK/8PSK	yes
DVB-S2 16 APSK	yes
DVB-S2 32 APSK	yes
MIS compatible	yes
ACM/VCM compatible	yes
Generic Stream capture	yes
BlindScan	yes

TBS5980

Input Frequency	925-2175 MHz
Amount of Tuners	1
Product Type	USB 2.0 Box
Input level	-69 ~ -23 dBm
Symbol rates QPSK	1-45 Ms/s
Symbol rates 8PSK	1-45 Ms/s
SCPC compatible	yes (tested >1 Ms/s)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x
C/KU band compatible	yes
CI slot	yes
DVB-S2 QPSK/8PSK	yes
DVB-S2 16 APSK	no
DVB-S2 32 APSK	no
MIS compatible	no
ACM/VCM compatible	no
Generic Stream capture	no
BlindScan	yes

TBS6220

Input Frequency	VHF & UHF Band
Amount of Tuners	1
Product Type	PCI-E card
Channel Bandwidth	6,7,8 MHz
FFT mode	1K, 2K, 4K, 8K, 16K, 32K
Center IF Frequency	3 ~ 5 MHz
RF-Input Impedance	75 Ohm
RF-Output Impedance	75 Ohm
CI slot	no
QPSK, 16QAM, 64QAM, 256QAM	yes

TBS6280

Input Frequency	VHF & UHF Band
Amount of Tuners	2
Product Type	PCI-E card
Channel Bandwidth	6,7,8 MHz
FFT mode	1K, 2K, 4K, 8K, 16K, 32K
Center IF Frequency	3 ~ 5 MHz
RF-Input Impedance	75 Ohm
RF-Output Impedance	75 Ohm
CI slot	no
QPSK, 16QAM, 64QAM, 256QAM	yes

Expert Opinion

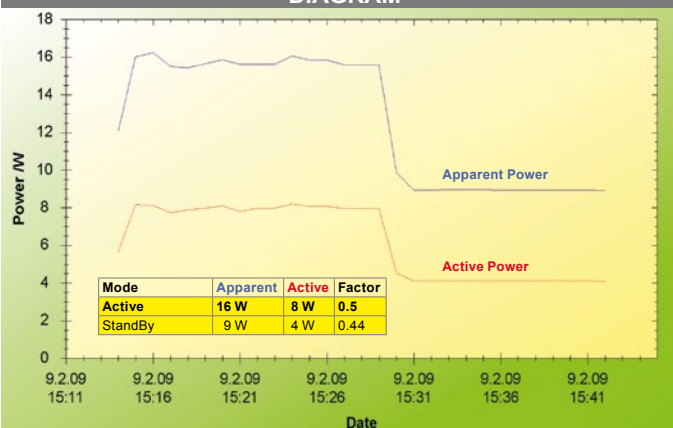
No matter which Tenow product we look at, each single one is characterised by excellent build-quality and top-notch components. In our tests we always try painstakingly hard to find any shortcomings of the products we test: this time we failed. Tenow passed the test with flying colour and deserves our salutes.



Thomas Haring
TELE-satellite
Test Center
Austria

None

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TEST REPORT
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Digital PC Cards



Die TENOW Offensive



- Weltneuheit: sensationelle 4 Tuner auf der TBS6984
- extrem empfangsempfindlich und bestens für Blindscan geeignet ist die TBS6925
- Pay-TV auch am PC mit der externen USB-Box TBS5980
- erstmals für PCs eine Karte für die Zukunftsnorm DVB-T2
- hervorragende Verarbeitung aller Produkte mit hochwertigen Bauteilen

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TELE-satellite Lesern ist der PC-Kartenhersteller Tenow bereits bestens bekannt. In TELE-satellite Ausgabe 02-03/2011 haben wir die Firma vorgestellt. Nun hat das Unternehmen gleich fünf neue PC Karten entwickelt, die jede für sich einige Besonderheiten aufweisen. Konkret handelt es sich im Bereich DVB-S/S2 um die Modelle TBS6925, TBS6984 sowie TBS5980 und im Bereich DVB-T/T2 um die Modelle TBS6220 und TBS6280.

Bei allen Produkten sticht als erstes die exzellente Verarbeitung und ansprechende Verpackung ins Auge. Abgesehen von der TBS5980 als externe USB-Box, sind die übrigen 4 Karten alle für den PCI-E (Express) Slot gebaut und das hat auch seinen guten Grund: Nur diese zeitge-

mäße Schnittstelle ermöglicht Übertragungsraten von mindestens 250 MB/s und ist somit in der Lage, den hohen Anforderungen zu genügen, die Tenow an die Funktionsvielfalt seiner Produkte stellt. Besonders gefreut hat uns in diesem Zusammenhang auch, dass die Hardwarevoraussetzungen beim Endverbraucher trotzdem relativ gering ausgefallen sind und sich die Tenow PCI-E Karten bzw. die USB Box auch mit nicht ganz taufrischer Hardware zufrieden geben. Konkret ist für den DVB-S bzw. DVB-T Empfang in SD ein Pentium III Rechner mit 1GHz CPU, 256 MB Arbeitsspeicher sowie einer Grafikkarte mit mindestens 16 MB RAM notwendig. Auch der DVB-S/S2 bzw. DVB-T/T2 Empfang in HDTV ist mit relativ bescheidener Hard-

wareausstattung möglich; so begnügen sich alle Modelle mit einer Pentium IV CPU ab 3 GHz, mindestens 1GB Arbeitsspeicher und einer Grafikkarte, der 64 MB RAM zur Verfügung stehen. Insgesamt also durchaus bescheidene Anforderungen, die viele ältere PCs noch erfüllen. Betriebssystemseitig werden MS Windows (2000/XP/Vista und Windows 7) sowie Linux unterstützt. Allen Produkten liegt eine übersichtlich beschriftete und wohlgeformte Fernbedienung bei. Diese schmiegt sich angenehm in die Handfläche ein und erlaubt das komfortable Bedienen aller Funktionen auch vom Sofa aus. Während die externe USB-Box TBS5980 den Infrarotempfänger im Gehäuse integriert hat liegt den internen PCI-E Karten ein



kleiner Infrarotempfänger bei, der einfach in die dafür vorgesehene Buchse am Slotblech eingesteckt wird. Gut gefallen hat uns auch das beigelegte Handbuch inkl. Einbauanleitung. Es gibt übersichtlich Antwort auf alle Fragen, die im Zusammenhang mit der Installation und Bedienung der Tenow Produkte entstehen könnten.

**TBS6984 -
4 Tuner für den
DVB-S/2 Empfang
auf einer Karte**

Während noch vor wenigen Jahren die Aufnahme und zeitversetzte Wiedergabe eines TV-Programms eine Sensation war, so hat sich der Endverbraucher heute längst daran gewöhnt, auch zwei Programme gleichzeitig aufnehmen zu können, während ein Drittes live gesehen wird. Aber für Tenow war das nicht genug: mit innovativen Features setzt das Unternehmen neue Standards und bietet auf der TBS6984 als Weltneuheit gleich vier Tuner. Die sensiblen Tuner der TBS6984 unterstützen den DVB-S und DVB-S2 Empfang in den Modulationen QPSK und 8PSK. Im QPSK Betrieb können Symbolraten von 1-45 Ms/s sowie im 8PSK Modus Symbolraten von 2-36 Ms/s verarbeitet werden, wovon wir uns im Zuge unseres Praxistests auch gleich überzeugen konnten. Natürlich decken alle vier Tuner den erforderlichen Frequenzbereich von 925 MHz bis 2175 MHz ab. Eine Eingangsempfindlichkeitsmessung aller vier Tuner lieferte exakt identische Ergebnisse.

Was bedeuten nun vier Tuner? Mit der TBS6984 kann man einen Sender live sehen, während im Hintergrund drei weitere Programme von unterschiedlichen Transpondern oder Satelliten aufgezeichnet werden können. Genau die richtige Karte, um in der heutigen Überfülle an Programmen keine wichtige Sendung mehr zu verpassen. Aber nicht nur 4 TV-Programme können gleichzeitig empfangen werden, der Benutzer kann sich auf 3 TV-Programme beschränken und den 4. Tuner stattdessen für Internet-via-Satellite nutzen. Diese Funktion wird übrigens auch von allen anderen Tenow Produkten unterstützt.

Im Praxistest hat uns die TBS6984 begeistert, es macht einfach richtig Spaß, vier verschiedene Satelliten-

signale gleichzeitig verarbeiten zu können. Unser relativ aktueller Intel Core 2 Duo Rechner erledigte alle an ihn gestellten Aufgaben in Zusammenarbeit mit der TBS6984 problemlos, aber auch ein älterer Pentium IV Rechner, den wir aus den Tiefen des Redaktionsfundus ausgruben, arbeitete zu unserer Zufriedenheit. Fairerweise müssen wir an dieser Stelle allerdings erwähnen, dass er beim HDTV Empfang und der gleichzeitigen Aufnahme von weiteren Sendungen an die Grenzen seiner Leistungsfähigkeit stieß und kaum noch vernünftig zu bedienen war.

Die TBS6984 bietet sogar ein eigenes Adapterkabel zum Anschluß an das Netzteil des PCs. Die Karte funktioniert problemlos über die Stromversorgung des PCIe-Slots, wenn jedoch ein DiSeQC-Motor betrieben wird oder bei älteren PCs der PCIe-Slot nicht genügend Energie liefert, kann die Karte über das Adapterkabel separat versorgt werden.

Auch beim SCPC Empfang als auch beim Verarbeiten von relativ schwachen Signalen über den ASTRA 2D 28.2° Ost bzw. NILESAT 7° West erfüllte die TBS6984 alle Anforderungen.

TBS6925 - eine PCI-E Karte für Profis und Technikfreaks

Wem 4 Tuner zu viele sind, der kann stattdessen die TBS6925 wählen. Diese verfügt über nur einen einzigen Tuner, glänzt dafür aber mit einer Reihe anderer Features. Diese Karte richtet sich an professionelle bzw. technikbegeisterte Anwender. Im Gegensatz zu den anderen Tenow Produkten unterstützt die TBS6925 nämlich nicht nur den Empfang via DVB-S/S2 in den Modulationen QPS und 8PSK, sondern in DVB-S2 auch 16PSK und 32APSK.

Hinzu kommt der MIS (Multi Input Stream) Empfang von VCM und ACM Transpondern (über diese interessante Empfangsart berichten wir in einer späteren TELE-satellite Ausgabe) sowie die Möglichkeit, den gesamten Inhalt eines Transponders auf der Festplatte des Rechners abzulegen und zwar bis zu einem Datenübertragungsvolumen von 190 Mbit/s.

Auch im Bereich SCPC Empfang hat Tenow besondere Sorgfalt bei der Auswahl des richtigen Tuners walten lassen, so dass die TBS6925 sowohl im QPSK als auch im 8PSK Modus Symbolraten von 0.2 bis 45 Ms/s unterstützt. Dieses breite Spektrum ist nahezu einzigartig. Umso mehr hat es uns natürlich Spaß gemacht, diese Features im Praxistest genauer unter die Lupe zu nehmen. So konnten wir z.B. einen MIS Transponder auf dem ATLANTIC BIRD1 12.5° West (11495H) empfangen ebenso wie ein SCPC Test mit sehr geringer Symbolrate (unter 1 Ms/s) der TBS6925 keinerlei Probleme bereiten konnte. Abgerundet wird all das noch durch eine zügig arbeitende

Blindscanfunktion, die im Praxistest auch ausgefallene Symbolraten im DVB-S bzw. DVB-S2 Modus fand. Hier konnte der hochwertige Tuner seine Stärke voll ausspielen und uns so richtig begeistern. Besonders glänzte er auch mit extremer Eingangsempfindlichkeit, so dass wir bereits ein Signal mit einem C/N von nur knapp 4.5 dB störungsfrei angezeigt bekamen.

Insgesamt lässt sich das Konzept der TBS6925 so zusammenfassen, dass Tenow auf mehrere Tuner und andere massenmarktaugliche Features verzichtet hat, dafür aber dem Profi und Technikfreak eine PCI-E Karte an die Hand gibt, mit der er die Extrembereiche des TV-, Radio- und Datenempfangs via Satellit voll ausreizen kann.

TBS5980 - eine externe USB 2.0 Box mit CI Slot

So leistungsfähig die PCI-E Versionen der Tenow Karten auch sind, allesamt benötigen sie natürlich einen freien PCI-E Slot im Rechner. Ein weiterer Nachteil von internen PCI-E

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Software for Tenow PC cards

Here's how to get the best out of Tenow Cards

Hardware is only as good as the software that goes with it. That's why Tenow includes a CD with each of its products on which can be found a variety of programs that we want to take a closer look at here.

Windows Media Center

The Tenow engineers have recognized for some time that it isn't always necessary to reinvent the wheel and that it often makes sense to simply use an already available structure. And it's exactly just such an already available structure that has been worked very closely with: the Windows Media Center.

The Windows Media Center operating system manufacturer Microsoft's integrated components (starting with Windows Vista, depending on the version) are what makes it possible to operate and control TV and radio PC expansion cards.

Of course, with this kind of universal solution, it's not possible for the manufacturer to incorporate special features and customer requests; for this reason the Windows Media Center is very easy to use and integrated into the operating system.

Before you can use Tenow products with the Windows Media Center, it first has to be matched to the specific requirements of the hardware. In our case it means a channel scan in DVB-T/T2 and DVB-S/S2 modes as well as the correct setup of reception parameters for use with our satellite antenna.

For this purpose, Windows Media Center offers a step-by-step installation assistant that works with a sample collection of preprogrammed information. This includes not only the satellite list already in the software but also a prefabricated channel list that the Windows Media Center can download automatically from the Internet after entering in your local postal code and current location. Before we can get down to business with setting up the hardware, the Windows Media Center displays all the recognized devices and thereby makes it possible to activate or deactivate individual components.

In the case of Tenow's TBS6984 Quad Tuner card this would be an especially practical feature if not all four of the tuners have signals coming into them. The unused tuners can very easily be deactivated thus avoiding any problems with the distribution of any recordings over the receiver sections of the card.

For those owners of satellite systems with more than one LNB, the Windows Media Center offers only a rudimentary support of the DiSEqC protocol: version 1.0 with up to four freely selectable

LNB's was integrated by Microsoft.

Based on the location, the preprogrammed satellite list in the next step contains an assortment of entries that include relatively up-to-date transponder data. Before the Windows Media Center is ready to use, you need only to perform a scan in order to fill the channel list with entries. For this task there's an automatic channel scan for an entire satellite entry as well as a manual transponder scan.

The automatic channel scan, for example, on HOT-BIRD at 13° east required a total of 5 minutes and 30 seconds after which nearly every available channel made its way to the channel list.

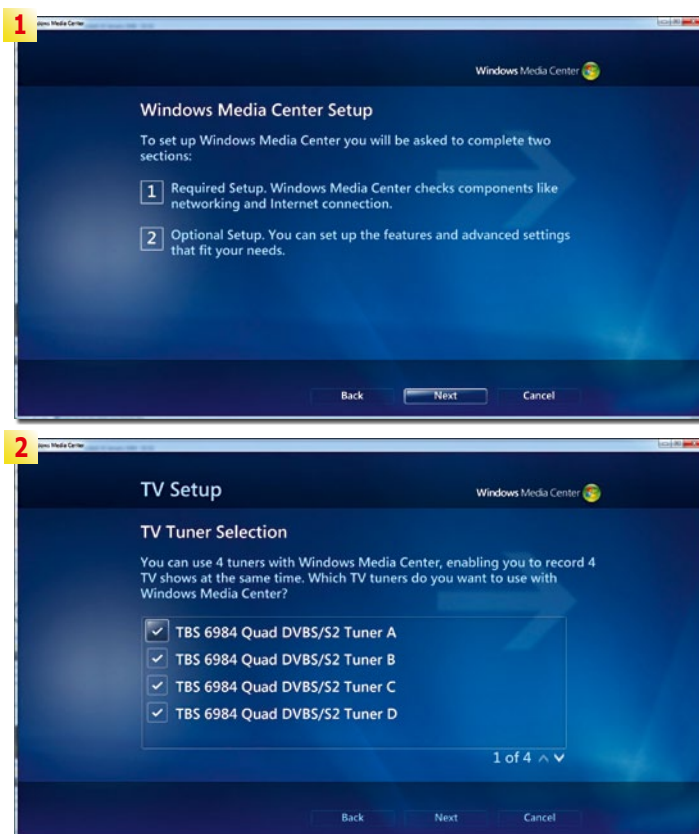
In addition to satellite re-

ception, the Windows Media Center can also receive TV and radio via DVB-T/T2 with the only difference compared to satellite reception being the scanning interface. A test scan of the entire UHF/VHF bands was completed in just about four minutes and identified all of the currently available DVB-T/T2 transponders.

After all of the basic settings have been taken care of, it just takes a few mouse clicks to switch over to TV reception mode which appears to be quite good.

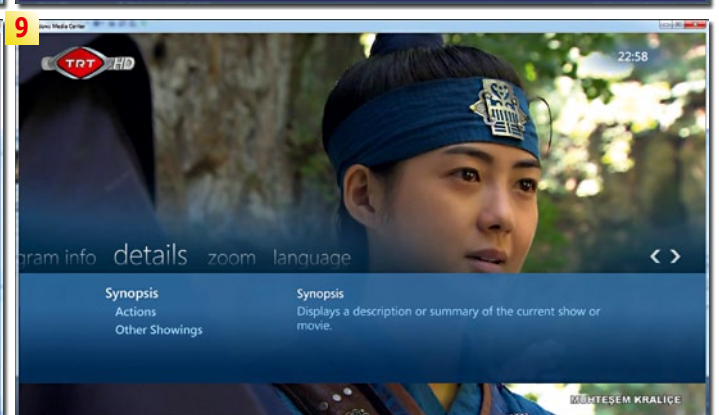
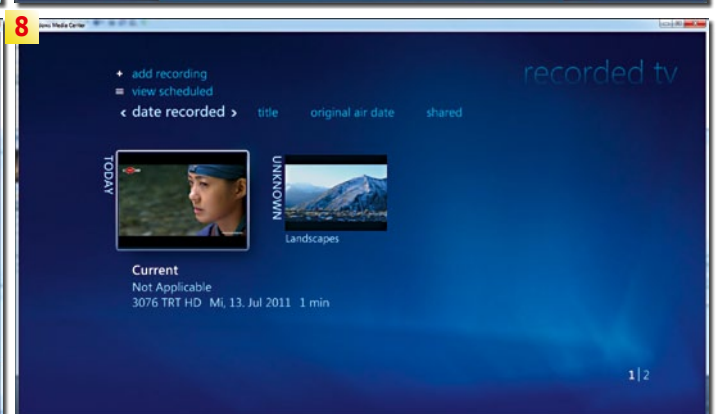
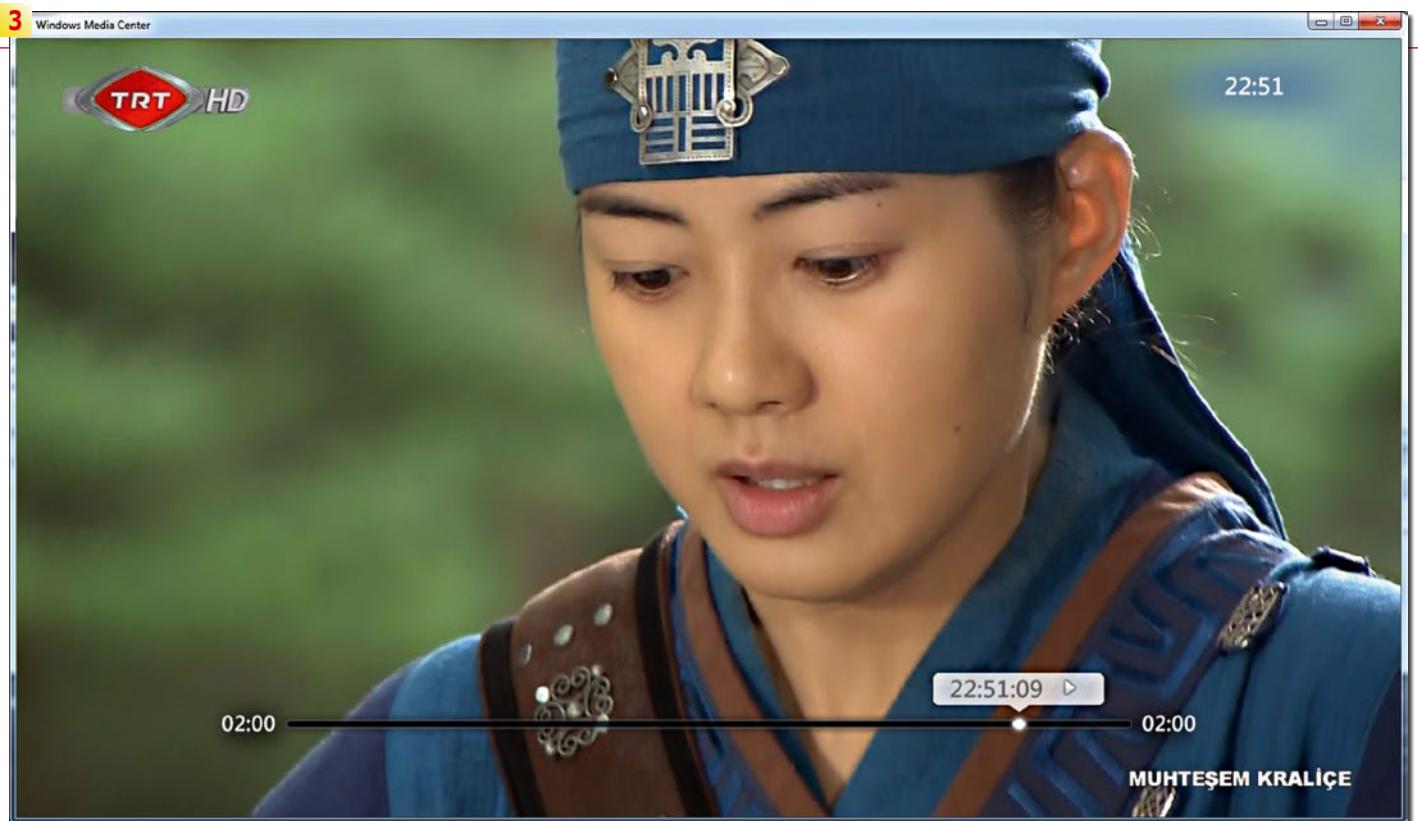
Thanks to the Internet connection, the Windows Media Center not only integrated all of the channels found during the scan into the channel list, but it also sorted them based on location. It places all of the user's local channels at the top of the list and therefore makes them immediately accessible.

In our case it was the encrypted Austrian ORF channels that are transmitted via satellite. Well, this situation gave us the perfect opportunity to test the CI slot in the TBS5980 USB Box and see if it works with the Windows Media Center. No sooner did we insert the module in the



1. Windows Media Center setup
2. All four tuners in the TBS6984 PCI-e card are correctly recognized in the Windows Media Center
3. HDTV channel with the Windows Media Center
4. EPG is downloaded via the Internet
5. Automatic Channel Scan

6. Manual Channel Scan
7. Expanded EPG information can be displayed for every channel
8. The visually appealing list of previously recorded programs
9. The Info bar provides the user with detailed information on the current status and channel





slot and we were able to enjoy ORF in HD quality.

When switching between channels, the software blends in an Info bar that provides additional information on the current program.

At this point we have to highlight another outstanding feature of the Windows Media Center: for the important local channels there's not only the EPG data available via satellite, the software connects automatically to the Internet and downloads editorially prepared programming information.

This has the huge advantage of making all the EPG data for various channels immediately available. All of this information can then be

displayed for multiple channels in an easy to follow grid.

For those Tenow products that have more than one tuner, the Windows Media Center is also the best software to use in these cases. If, for example, you're using the TBS6984 card with four tuners or the TBS6280 card with two tuners, you don't have to worry about selecting the proper tuner; this task is handled by the software automatically for you. All you have to do is manually start one or more recordings or program them via the timer and then continue to watch live TV.

The distribution of recording and live TV playback is handled automatically by the software in the background

so that the user never has to worry about it. It was especially enjoyable to play with the TBS6984 Quad Tuner card; it was absolutely no problem recording three programs in the background while watching a fourth live TV channel all at the same time. And it didn't matter at all if it involved SD or HD channels.

To round it all off, the functionality of the Windows Media Center is further expanded two ways: on the one hand it has all of the functions you'd expect to find in

a good digital/PVR receiver such as timer recordings, language selection, subtitles and a nicely organized display function for previously recorded programming.

On the other hand it's also possible to playback your entire collection of music and pictures through the Windows Media Center. Since the Windows Media Center can also be controlled by the remote control that Tenow includes in the package, you can sit back and enjoy watching TV from your favorite easy chair in the living room.

Expert Opinion

- + Perfect PC integration
- + Automatic EPG update via the Internet
- + Very easy to program

TBSViewer

If for some reason you can't or don't want to use the Windows Media Center, Tenow has a fully featured free TBS Viewer that you can use as an alternative. The software was designed with ease-of-use in mind and comes with all of the necessary features. Yet there's no feeling of the software being overloaded and it's very easy to use.

Just like the Windows Media Center, the TBSViewer can also be used for both DVB-S/S2 and DVB-T/T2 reception. In satellite reception mode the software shines with its 199 preprogrammed European, Asian and American satellites that for the most part come with reasonably current transponder data.

The TBSViewer's channel scan menu is highlighted by its practical and easy operation. After selecting the desired satellite from the preprogrammed list, you can either mark a single transponder to be scanned or you can enter a start and stop frequency after which the software will search all the preprogrammed transponders that fall within the selected frequency range.

If you want to scan an

entire satellite, you simply enter the start and stop frequency values based on those already in the software. It's also just as easy to perform a scan across a specific frequency range.

Since most of Tenow's products don't have a CI slot, the channel scan can naturally be limited to freely available channels and thanks to the practical update function, the channel list can be updated at any time without having to worry about the software overwriting any existing data.

In satellite mode the TBSViewer was quite impressive with its wide range of LOF (freely customizable) and DiSEqC settings capabilities; many different protocols are supported. You can therefore use a multi-feed antenna or a motorized dish without any problems. Our automatic channel scan of HOTBIRD at 13° east was completed by the TBSViewer in just a little over five minutes; this is comparable to the Windows Media Center.

In DVB-T/T2 mode there are preprogrammed frequency lists for various regions, in particular several states in Germany, Hong Kong, the UK, France as well as Hungary. These preprogrammed frequencies are

available but they don't have to be used. A scan of the DVB-T/T2 VHF/UHF bands in Europe was completed in 4 minutes and 50 seconds and found all of the available signals at our test location.

Once all of the basic settings have been taken care of, you are taken to the Reception Tools main window. At first glance it looks rather Spartan and only displays a few PVR function symbols, EPG controls as well as an overview of available recordings near the bottom of the display.

At first you won't find a channel list but it does appear if you move the mouse to the upper right corner of the display. It's actually a practical solution in that it makes quite a bit of space available in the channel window and yet is still easy to use. The channel list itself is very well organized and can be sorted a number of ways such as by satellite or by provider. Thanks to the practical search function, every channel is easy to find.

After changing channels

each time, a detailed Info bar appears with information on the current program within which can also be found EPG data. But unlike the Windows Media Center, the TBSViewer has to rely on any EPG data that happens to be sent by the provider; you first have to switch to the desired channel so that the TBSViewer can read and process the data. Once this is done, the information is displayed in a very organized fashion up to seven days in advance.

Thanks to the timer function, you won't miss the conclusion of your favorite program and since the recordings are saved in transponder stream format, you can easily create a DVD using any of the many freeware or shareware tools that are readily available.

Our overall positive impression of the TBSViewer was further enhanced by the practical picture-in-picture function that let's you pass the time during those long commercial breaks as well as by the functional teletext decoder.

Expert Opinion

- + Comfortable channel scan
- + Extensive LOF settings capabilities
- + Channel list invisible during normal operation

DVBDream

In addition to the TBSViewer, Tenow has also included a version of DVBDream on the CD that comes with its new products. Unlike the Windows Media Center and the TBSViewer, this software jumps right to the most important settings when it's started for the first time. This includes selecting the correct hardware that the DVBDream can automatically recognize thanks to the BDA compatible Tenow drivers. The next step involves adapting the software to the reception system to be used.

And this is where the DVBDream shines: not only through its individual LOF settings capabilities, but also through its DiSEqC 1.0, 1.1, 1.2 and 1.3 (USALS) support and its extensive 134 European, American and Asian satellite list. After that the user can take care of a few

other basic settings like selecting the desired recording format (MPEG or transponder stream) as well as activating the support for a future CI slot. Lastly comes the channel scan.

A scan of ASTRA at 19.2° east was finished in a little more than ten minutes; it's not the best scanning time in the world but it did correctly identify and process every available signal.

The DVBDream's main window is divided in such a way that the channel list is on the left side with a control bar located at the top that provides access to various functions as well as a large window for the TV playback. In general, the DVBDream comes with a multitude of settings capabilities and features; you can tell right away that this software through its simple and logical operation is an excellent tool

not only for the beginner but also for the professional.

The foundation for all of this is a perfectly functioning core of basic features such as EPG display, PVR, Timer recordings, language selection and subtitle display while for the professional there's a wide assortment of additional integrated features. For example, there's the ability to stream TV and radio channels directly via LAN as well as the Internet making it possible to start your own streaming service. There's also a bit rate viewer that provides precise data on the usage rate and the data transmission volume of a transponder. The Demultiplexer statistic displays the PIDs of the current channel

as well as the amount of data transmitted by the channel. In this way, for example, the channel scan speed can be influenced in that the manufacturer-determined time to read the PIDs can be changed and the TimeShift and streaming parameters can be individually set up via a network.

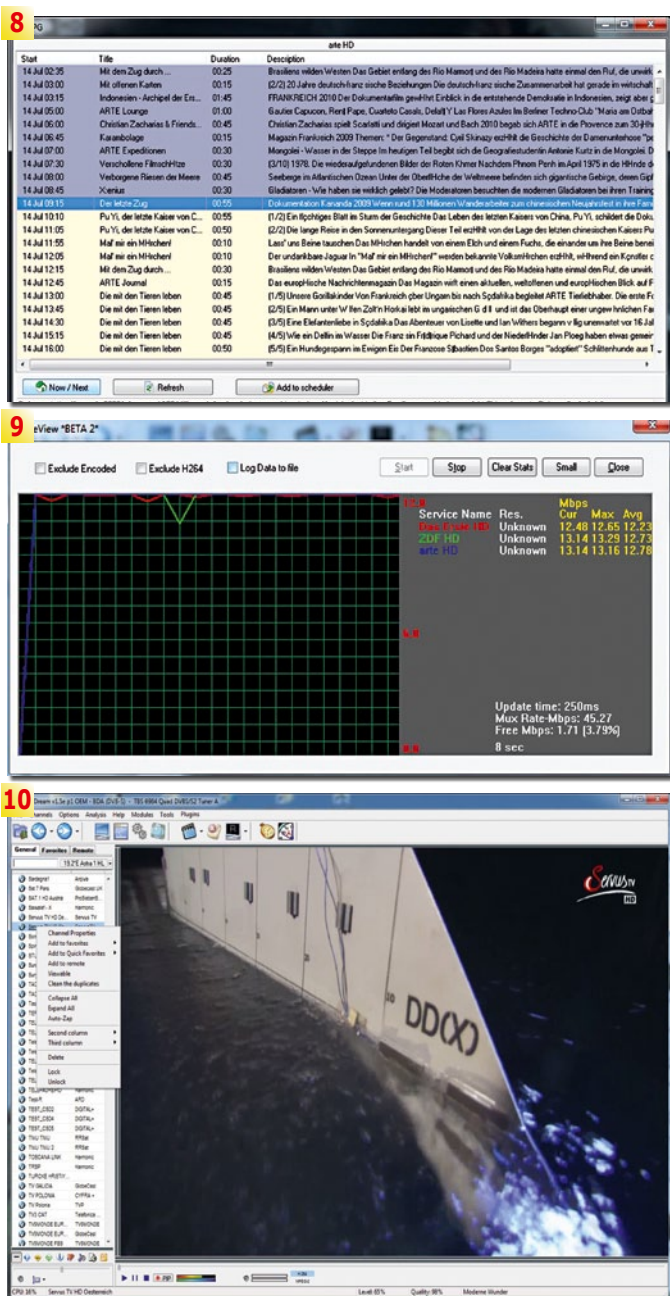
Our overall positive impression of the DVBDream was further enhanced by the ability to place the channel window in full-screen mode or keep it reduced to its own TV window. In this way you can continue to work on your PC while keeping an eye on the TV window at the same time; an ideal solution if you want to watch, for example, a live sporting event.

Expert Opinion

- + Full of features especially for the professional
- + Internet streaming possible
- + Can also record in transponder stream

The image displays seven numbered screenshots of the DVBDream software interface:

- 1. Satellite Settings:** Shows LNB Type (KuLinear (Universal)), Lof-1 (9750000), Lof-Sw (11700000), and Lof-2 (10600000).
- 2. DiSEqC Settings:** Shows DiSEqC Switch Type (v1.0 or v2.0) and a list of ports (Port 1, Port 2, Port 3, Port 4).
- 3. Video Settings:** Shows Video Codec (Elecard 3.x), Audio Codec (Microsoft MPEG2 (W7)), Video Renderer (Video Mixing Renderer 7), Audio Renderer (Default DirectSound Device), H.264 Codec (ArcSoft), AC3 Codec (Elecard), and AAC Codec (Null (No Audio)).
- 4. Scanning:** Shows a list of channels being scanned, including MULTIPLEX 2 (TV), MULTIPLEX 3 (TV), TAQUILLA X (TV), TAQUILLA Y (TV), MULTIPLEX 4 (TV), CARTOON NET (TV), MULTIPLEX 1 (TV), BOOMERANG (TV), TAQUILLA XY (TV), MULTIPLEX 1 (TV), TAQUILLA 4 (TV), TAQUILLA 3 (TV), TAQUILLA 2 (TV), and TAQUILLA 1 (TV).
- 5. Preferences:** Shows various settings including Channel List, Performance, Other, Scan, Timeshift, LAN Streaming, Integration, Record, TS Records, Plug-in Interface, Theme, Update, and Localization.
- 6. Preferences:** Shows UDP TS settings, including Client (127.0.0.1), Port (1234), Buffer size (18 kb), and a checkbox for PAT Override (selected channel only).
- 7. Channel Properties:** Shows General Info, Transponder, Audio, and EPG Pids settings.



- | | |
|--|--|
| 4. Automatic channel scan | modified |
| 5. DVBDream comes with a wide variety of settings capabilities | 8. EPG |
| 6. LAN Streaming | 9. Bitrate Viewer |
| 7. Each channel entry can be individually adapted and | 10. Multitude of settings capabilities within the channel list are available |

TBS6925
TS Recorder

Tenow has another delicacy for the professional TBS6925 card: the TS Recorder is also included on the CD.

The TBS6925 is the only card in our tests that can store the entire transponder stream, including all of the available data, on a PC's hard drive.

This is exactly where the TS Recorder comes into play.

After entering in the required parameters (frequency, polarization, LOF, symbol rate and DiSEqC), it tries to read the desired transponder.

If it's successful, the user will be able to see additional technical parameters such as modulation and stream type. Now all you need to do is push the Record button and the TBS Recorder begins storing all of the received data on the hard drive.

Since we are dealing with a relatively large amount of

TBS-VHID

TBS-VHID is Tenow's own tool used to integrate the included infrared remote control. It contains pre-configured profiles for the Windows Media Center, TBSViewer, DVBDream as well as ProgDVB and gives you the ability to control every function from the comfort of your easy chair.

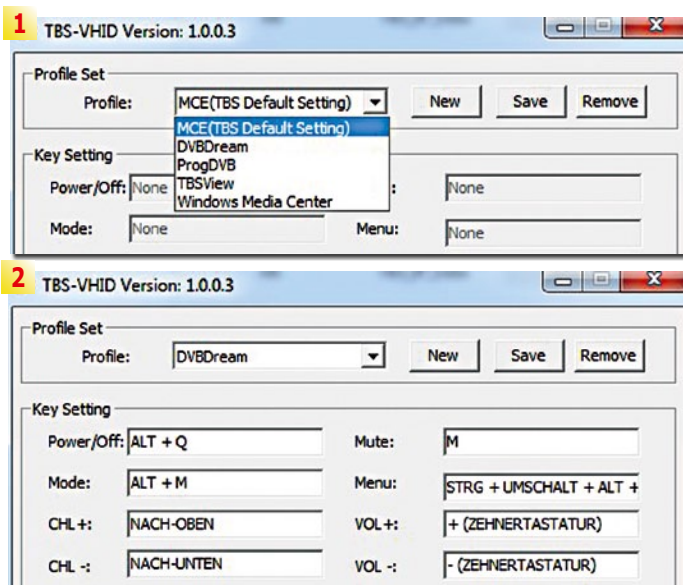
The interface between the remote control and the various software tools works in such a way that the received remote control signals are converted into keyboard shortcut commands which are then used to control the

various software tools. Because of this clever method, this program is compatible with nearly every reception tool and if there are special settings that haven't been preprogrammed, this can easily be taken care of. You can also modify the operation of individual buttons with just a few mouse clicks.

For the user this all means that the TBS-VHID Tool can not only control nearly every reception program via remote control, it can also directly influence the operation of the remote control's buttons.

Expert Opinion

- + Preprogrammed for all of Tenow's supported software
- + Additional settings can be entered manually
- + Operation of remote control can be modified



1. The TBS-VHID Tool for the reception of remote control commands is compatible with a large number of different programs
2. The buttons can be individually programmed

data of about 30MB/sec, it might not be a bad idea to use the manufacturer determined limits (time duration or maximum data recording size) otherwise the remaining free space on the hard drive could drop to zero in a heartbeat.

We also liked the fact that Tenow included a complete motor control in the TBS Recorder; it's a tool that professionals undoubtedly will use to receive satellites other than those all-too-popular DTH positions.

Expert Opinion

- + Ability to record the originally transmitted signal
- + Integrated motor control
- + Ideal for professional applications

TBS-IPdata

If you're not fortunate enough to live in an area that has DSL or fiber-optics available, you'll almost certainly have Internet access via satellite by subscribing to an ISP, as this would often be the only high-speed solution. The included TBS-IPdata program is the perfect tool for this situation.

It comes with an elaborate list of preprogrammed satellites and transponders from providers that offer these services from around the world. Of course, these parameters can be also be ma-

nually entered. We were also happy to see that the DiSE-qC protocols 1.0, 1.2 and 1.3 (USALS) are supported.

The necessary drivers for the network interface are installed during the normal installation process for the specific card or USB box and are therefore immediately available to the operating system.

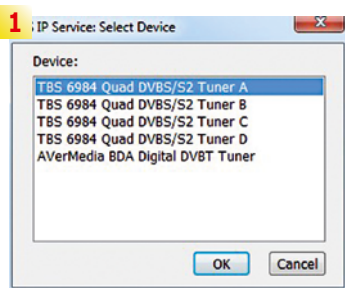
It took us just a few mouse clicks to set up an Internet connection and put it to use.

We were especially surprised at how well Internet via satellite worked with the

TBS6984 Quad Tuner card; in just a few short steps we had Internet via satellite set up on one tuner while the other three tuners were used for TV reception.

Expert Opinion

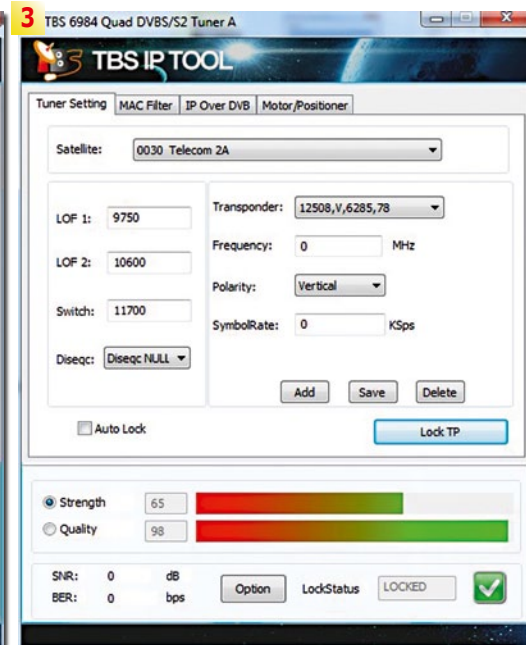
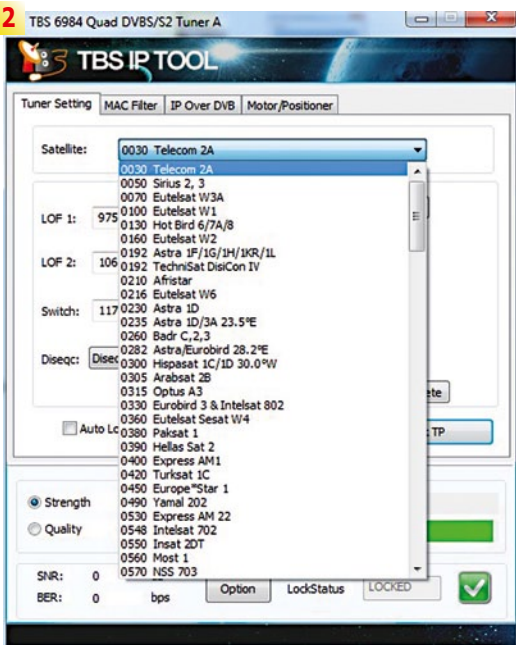
- + Preprogrammed ISP data
- + Extensive preprogrammed satellite list
- + Also compatible with multiple tuner cards



1. One of the recognized tuners on the reception cards has to be selected for use with the TBS IP Tools

2. The TBS IP Tools' extensive satellite list

3. A valid transponder was found; Internet via satellite can now begin!



TBS BlindScan

One of the more interesting features that Tenow has integrated only in its single tuner DVB-S/S2 cards (TBS6925, TBS6921 and TBS5980) is an exceptional Blind Scan function.

The manufacturer did not build it into the TBSViewer software; instead it is available in the form of the TBS Blind Scan tool. This little program provides a total of three preprogrammed LOF values (for the Ku-band linear and circular and also for the C-band) and if desired let's you enter LOFs manually. DiSEqC 1.0 is supported but unfortunately not the 1.1, 1.2 and 1.3 (USALS) protocols.

When starting the Blind

Scan function the user has to enter the desired frequency range and the polarization as well as whether the 22 kHz signal should be activated or not.

Our test scan of ASTRA 4A at 4.8° east was completed in just over seven minutes and found every vertical high-band transponder

regardless whether it was DVB-S or DVB-S2. Even those with unusual symbol rates (like 5778 or 8680 ks/sec) were recognized and

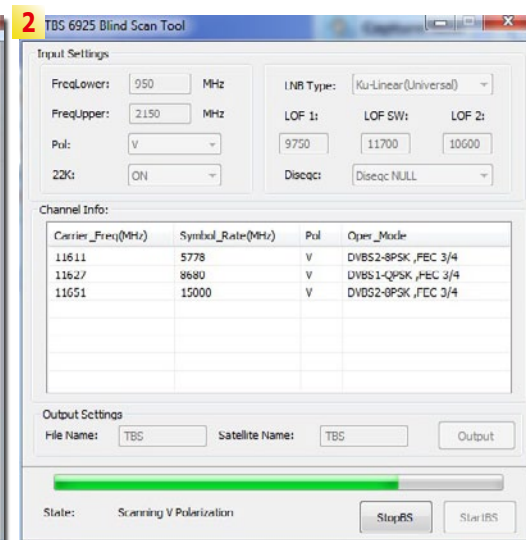
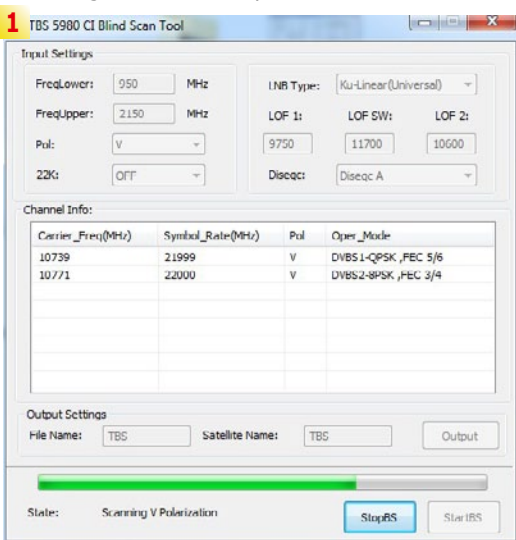
processed. The results can be stored in a data file which makes it available for further processing or for import into other programs.

Expert Opinion

- + Compatible with every LOF value
- + Also recognized unusual symbol rates
- + Ideal for finding new channels

1. The TBS5980 supports Blind Scan and can even recognize unusual DVB-S2 symbol rates without any problems.

2. The TBS6925 professional card is in the process of performing a Blind Scan on ASTAR 4A at 4.8° east



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
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- MPEG4-display and measuring
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- Spectrum analysis
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- Splash-resistant keypad



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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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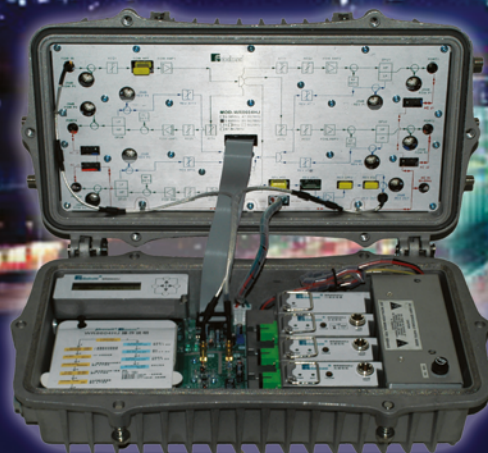
WR8602RJ OPTICAL AGC RECEIVER



WR8604JL 4 OUTPUT OPTICAL RECEIVER



WR8602J 2 OUTPUT OPTICAL RECEIVER



WR8604HJ FIBER OPTIC NODE



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WDE-4420 ENCODER

WDE-4220 MPEG-2/4 ENCODER

WDM-4140 MULTIPLEXER

WDQ-3204 QAM MODULATOR

WDE-H2220 HD ENCODER

WDT-1204 TS RECEIVER

4 OUTPUT RETURN OPTICAL RECEIVER

WR8602JDS ROOM OPTICAL RECEIVER

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WR8602RJL ROOM OPTICAL RECEIVER

1550nm INTERNAL MODULATION OPTICAL TRANSMITTER

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1310nm EXTERNAL MODULATION OPTICAL TRANSMITTER

ERBIUM DOPED FIBER AMPLIFIER



CATV OPTICAL FIBER COMMUNICATION SYSTEM PLATFORM WOS-3000

Jiuzhou JTU31 Universal Twin LNB

- *performed very well in output power measurements*
- *gives better results than announce in product specifications*
- *especially well suited for the modern two tuner PVR receivers*
- *output power measurements better than our reference LNB*
- *light weight makes LNB suitable for multifeed installations*

 **JIUZHOU**



TELE-satellite Magazine
Business Voucher

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

Direct Contact to Sales Manager

Two in One

A great Choice For Use with Twin Tuner PVR Receivers

This is not the first time at TELE-satellite that we test LNBs from Jiuzhou: in TELE-satellite 10-11/2010 we tested their Monoblock LNBF and in TELE-satellite 06-07/2009 their Multifeed LNB. What we always liked in Jiuzhou is the fact that this company does not over specify their products. As a true professional manufacturer, Jiuzhou quite modestly informed us that the noise figure of the JTU31 was 0.6 dB. It may look inferior to the competition who claim usually something like 0.2-0.3 dB but is that really so? You can not tell until you test the product.

The Jiuzhou JTU31 KU band LNB is quite light so it should not pose any problems even in multifeed installations. Because it is a twin LNB, it comes with 2 rubber covers for F connectors. At the bottom side of the case, the JTU31 has three small holes for letting out water that might condense inside. We measured that JTU31 consumes only 140 mA during normal operation.

As usually, we used HOT-BIRD on 13° East as our source of test signals because this satellite has a lot of transponders spread from end to end of the Ku band frequency range. From a

practical point of view, two parameters are of most interest to the user: how strong is the signal at the output of the device and how good it is. In technical terms, the first is related to LNB output power expressed usually in dBμV (rarely in dBm) and the second to MER (Modulation Error Ratio) expressed in dB. To put it in simple terms, MER is a measure of the signal to noise ratio.

If a LNB has a high output power, it is well suited for long cable installations or an installation with passive splitters that attenuate signal. If a LNB produces a signal of high MER, the reception system has a big margin for bad weather conditions or even a margin for slight misalignment of a dish.

In the beginning of the test, we installed our reference single LNB on a 90 cm offset dish. Then, we mounted two JTU31 samples one after another on

the same dish and we measured each of the two outputs of those twin LNBs. We named the tested units T1 and T2 (because they were Twin models) and their outputs as "a" and "b". You can see the results for the reference LNB (REF) and JTU31s (T1a, T1b, T2a and T2b) on the attached graphs. Measuring two samples of same LNB helps us to determine that all LNBs of this series are within the same range. If we would only test one sample LNB, we would not be sure if the other LNBs of this series would give same results. So testing two samples gives us a good average for this LNB series.



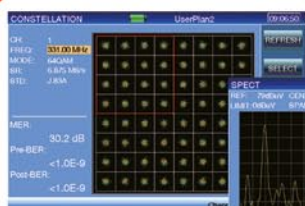
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- Signal level and quality display together
- 128×64 dot matrix LCD with back-lighted
- Large lithium battery capacity, over 4 hours working time
- Software upgrade and parameter set via USB interface



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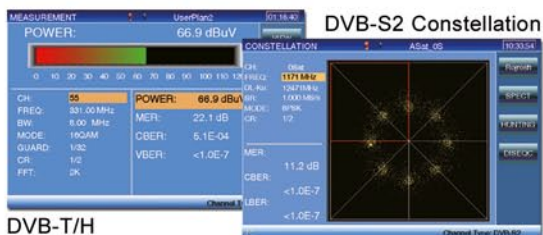
DVB-C Constellation



Spectrum



TV Monitor



DVB-T/H

Deviser Electronics Instrument Co., Ltd

No.40 Yibin Road, Nankai District, Tianjin 300113, China

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Http://www.devisertek.com ■ E-mail: overseasbiz@deviser.com.cn

■ **Testing the Twin LNB JTU31:** we mounted one after the other our reference LNB and each of the two sample Twin LNBs JTU31 in a 90cm Offset dish and measured the results with a professional satellite meter.

More on This Manufacturer

Read TELE-satellite's Company Report:

JIUZHOU

Receiver Manufacturer, China



www.jiuzhou.com.cn



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The two JTU31s performed very well in output power measurements – especially for vertical polarization. They were better than our reference LNB by 4 dB on the average. 4 dB difference is the equivalent of about 12 meters of coaxial cable.

When we checked out the MER results, the JTU31 looked quite good as well. It was practically as good as our reference single LNB. For some transponders slightly better for the others – slightly worse. But the difference was really very small, practically negligible – only 0.5 dB.

We checked the technical specifications and the in-house test results of the manufacturer, that Jiuzhou shared with us and we must

say that these LNBs are really good. Local oscillator initial frequency accuracy was better than 0.1 MHz and its drift from -30° C to +60° C was only 0.4 MHz for low band and 1.5 MHz for high band. Intermodulation products specified as -45 dBm were in fact -55 dBm and -60 dBm for the two samples we tested, so their product in reality is better than Jiuzhou's official technical specifications – it is always a hallmark of a professional manufacturer to deliver better performing products than announced.

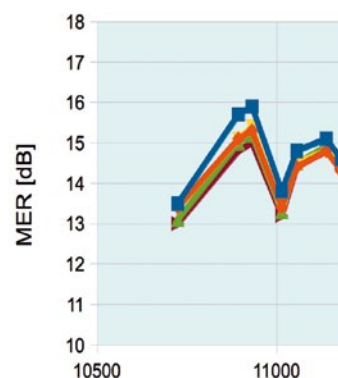
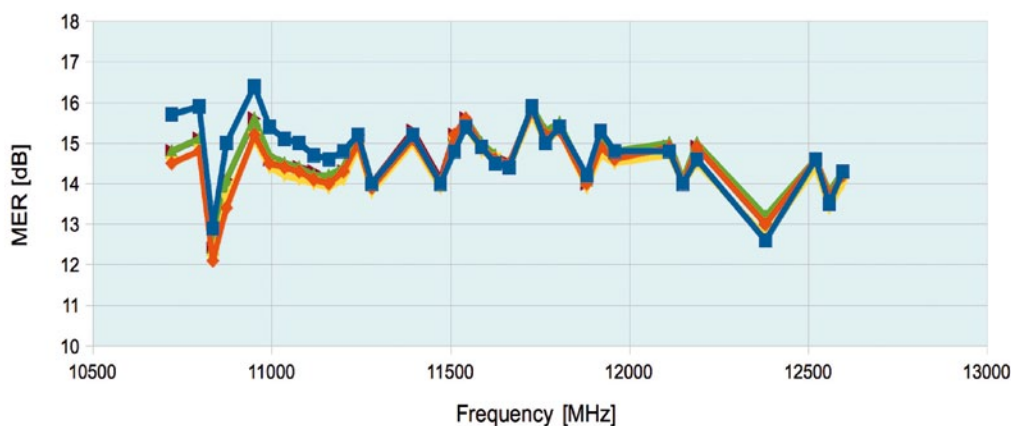
There are LNBs on the market that beat our reference LNB in MER readings. However, the JTU31 Twin LNBs were practically equal to our reference and our

opinion about them is very positive. A regular satellite TV viewer will be absolutely happy with the performance of these LNBs, especially nowadays with the widespread use of twin receiver: of course, these twin LNB models are especially well suited for the modern two tuner PVR receivers.

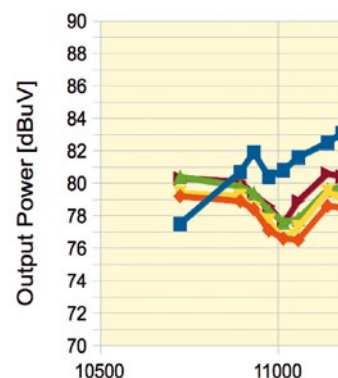
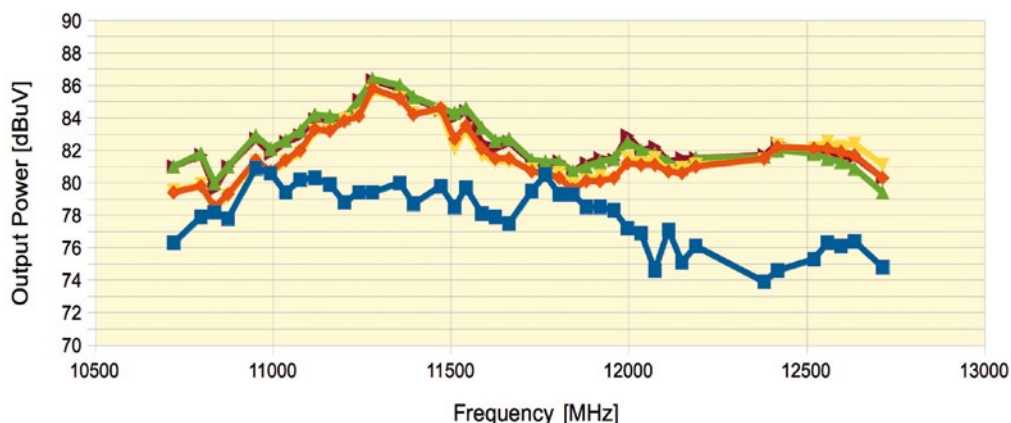
As an additional advice we suggest LNB buyers not to pay too much attention to the noise figures. The overall performance of an LNB depends not only on the internal noise floor but also on the intermodulation performance and phase noise of their local oscillators. Only a real life test like this TELE-satellite test can truly reveal the effective performance of a new product.



**Jiuzhou JTU31 Twin LNBs
Vertical Polarization**

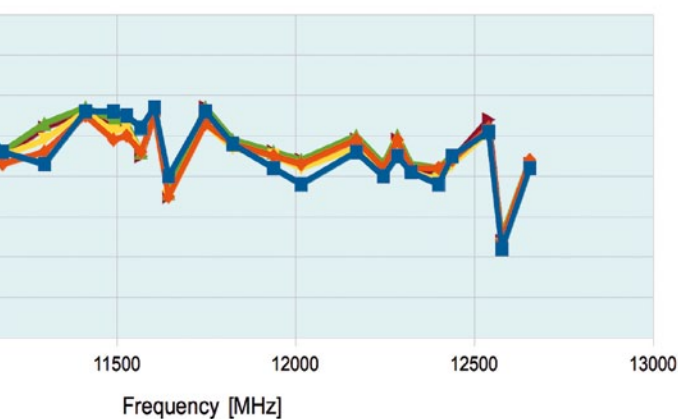


**Jiuzhou JTU31 Twin LNBs
Vertical Polarization**

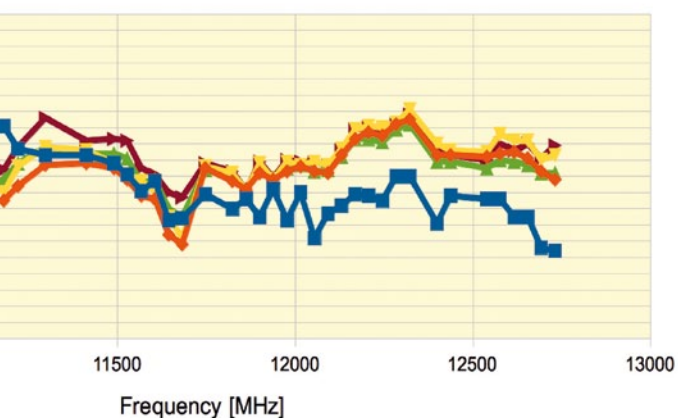




**Jiuzhou JTU31 Twin LNBS
Horizontal Polarization**



**Jiuzhou JTU31 Twin LNBS
Horizontal Polarization**



TECHNICAL DATA

Manufacturer	Sichuan Jiuzhou Electric Group Co. Ltd, China
Internet	www.jiuzhou.com.cn
E-mail	lewisliu@skytrack.cn
Telephone	+86-755-26947264 +86-755-26947236
Fax	+86-755-26947266 +86-755-26715408
Model	JTU31
Function	Universal Twin LNB for Ku-Band
I/P Frequency Range	10.7 GHz ~ 12.75 GHz
O/P Frequency Range	950 MHz ~ 2150 MHz
L.O. Initial Accuracy	± 1.0 MHz (@ 25° C)
L.O. Temperature Drift	± 2.0 MHz (-30 ~ + 60° C)
L.O. Phase Noise	-60dBc/Hz @ 1 kHz offset(Max.)
L.O. Phase Noise	-80dBc/Hz @ 10 kHz offset(Max.)
L.O. Phase Noise	-100dBc/Hz @ 100 kHz offset(Max.)
L.O. Spurious	-55 dBm (Max.)
Noise Figure	1.0 dB (Typ.) @ 25° C
Conversion Gain	55 dB (Min.)
Gain Variation	8 dB (Max.)
Gain Flatness	±0.5 dB/27MHz
Intermodulation	-45 dBm (Max.)
Isolation	20 dB (Min.)
Image Rejection	40 dB (Min.)
P1dB	0 dBm (Min.)
Output VSWR	2.5:1 (Max.)
DC Current consumption	200 mA (Max.)
Polarization Switching Voltage	V:11.5~14V, H:16~19V
Band Switching	Low:0 kHz, High:22 ± 4kHz
Water Proof Test	+60°C water for 5 minutes

Expert Opinion

High output power and good noise performance matching 0.2-0.3 dB LNBS
 Very good intermodulation performance
 Very small LO drift
 Lightweight
 Good workmanship

None.



TEST REPORT
该报告由技术专家所作

Twin LNB |

Jiuzhou JTU31 Universal Twin LNB

- sehr gute Messwerte der Ausgangsleistung
- zeigt bessere Ergebnisse als in den Produkt-Spezifikationen angegeben
- besonders angepasst an die modernen Doppel-Tuner PVR-Receiver
- Ausgangsleistung besser als unser Referenz-LNB
- geringes Gewicht eignet den LNB für Multifeed-Installationen




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Dies ist nicht das erste Mal, dass wir LNBs von Jiuzhou testen: In TELE-satellite 10-11/2010 testeten wir ihren Monoblock LNB und in TELE-satellite 06-07/2009 ihren Multifeed LNB. Was wir bei Jiuzhou immer mochten, war die Tatsache, dass sie ihre Produkte nicht überspezifizieren. Als ein echter professioneller Hersteller gab uns Jiuzhou zurückhaltend an, dass die Rauschzahl ihres JTU31 bei 0.6 dB liegt. Das mag geringer erscheinen, als

bei anderen Herstellern, die normalerweise etwa 0.2 bis 0.3 dB angeben, aber ist das wirklich der Fall? Das kann man erst beurteilen, wenn man das Produkt getestet hat.

Der Jiuzhou JTU31 Ku-Band LNB ist recht leicht, um beim Einbau sogar von Multifeed-Installationen keinerlei Probleme zu bereiten. Da es ein Twin LNB ist, kommt er mit zwei Gummi-Abdeckungen für die zwei F-Anschlüsse. Auf der Unterseite hat das Gehäuse des JTU31 drei klei-

ne Bohrungen, um eventuelles Kondenswasser ablaufen zu lassen. Wir maßen, dass der JTU31 während des Normalbetriebes lediglich 140 mA verbraucht.

Wie gewöhnlich wählten wir HOTBIRD auf 13 ° Ost als Testsignal-Quelle, weil dieser Satellit eine Vielzahl von Transpondern besitzt, die im ganzen Frequenzbereich des Ku-Bands verteilt sind. Aus praktischer Sicht sind für den Nutzer zwei Parameter am interessantesten: Wie stark



ist das Signal am Ausgang des Gerätes und wie gut ist es. Technisch ausgedrückt ist ersteres von der Ausgangsleistung abhängig, die normalerweise in dBµV (seltener in dBm) angegeben wird, das zweite hängt vom MER (Modulation Error Ratio) ab, was in dB gemessen wird. In einfachen Worten ausgedrückt ist MER das Maß

für den Signal-Rausch-Abstand.

Ein LNB mit hoher Ausgangsleistung eignet sich besonders für lange Kabel-Installationen oder für Installationen mit passiven Verteilern, die das Signal abschwächen. Wenn ein LNB ein Signal mit hohem MER liefert, hat das System eine große Schlecht-Wetter- Reserve und toleriert eine schlecht ausgerichtete Schüssel eher.

Zu Beginn des Tests installierten wir unsere Referenz, ein Single LNB an einer 90-cm-Offset Schüssel. Danach bauten wir zwei JTU31 nacheinander an der gleichen Schüssel ein und maßen an jedem der zwei Ausgänge dieser Twin-LNBs. Wir bezeichneten die getesteten Einheiten mit T1 und T2 (weil es Twin-Modelle waren) und ihre Ausgänge mit "a" und "b". Die Ergebnisse für den Referenz-LNB (REF) und die JTUs (T1a, T1b, T2a, T2b) kann man den beigefügten Abbildungen entnehmen. Das Messen von zwei Mustern des gleichen LNB hilft uns abzuschätzen, ob alle LNBs dieser Serie im gleichen Bereich liegen. Würden wir nur ein Exemplar des LNB testen, könnten wir nicht sicher

sein, ob alle anderen LNBs dieser Serie die gleichen Ergebnisse zeigen. Somit haben wir mit dem Testen zweier Muster einen guten Durchschnittswert für die ganze Serie.

Die beiden JTU31 lieferten bei der Ausgangsleistung sehr gute Werte - besonders für vertikale Polarisation. Sie waren um durchschnittlich 4 dB besser als unser Referenz-LNB. Dieser Unterschied von 4 dB entspricht etwa einer Länge von 12 m Koaxialkabel.

Bei der Messung der MER-Werte sah der JTU31 auch gut aus. Er war praktisch genauso gut, wie unser Referenz-Single LNB. Bei einigen Transpondern etwas besser - bei anderen etwas schlechter. Aber der Unterschied war wirklich gering, praktisch vernachlässigbar - lediglich 0.5 dB.

Wir prüften die technischen Spezifikationen und die haus-eigenen Prüfergebnisse des Herstellers und wir müssen sagen, dass diese LNBs wirklich gut sind. Anfangs war die Frequenzstabilität des Local Oscillators besser als 0.1 MHz und die Abweichung im Bereich -30°C und +60°C betrug 0.4 MHz für das Low Band

und 1.5 MHz für das High Band. Die Kreuzmodulation war mit -45 dBm spezifiziert, tatsächlich aber bei den beiden Mustern, die wir testeten bei -55 dBm und -60 dBm. Das Produkt ist somit in Wirklichkeit besser, als die technische Spezifikation von Jiuzhou. Es ist stets ein Qualitätssiegel, wenn ein professioneller Hersteller bessere Qualität liefert als angegeben.

Es gibt LNBs auf dem Markt, die bessere MER-Werte liefern als unser Referenz-LNB. Die Twin-LNBs waren unserer Referenz jedoch praktisch gleichwertig und unsere Meinung ist sehr positiv. Ein normaler Fernsehzuschauer wird mit der Leistung dieser LNBs voll zufrieden

sein, besonders heutzutage, wo die Twin Receiver weit verbreitet sind: Diese Twin LNBs sind genau das, was die modernen PVR Receiver mit zwei Tunern brauchen.

Darüber hinaus möchten wir dem Käufer eines LNB raten, Angaben über Rauschzahlen nicht allzu sehr zu bewerten. Die Leistungsfähigkeit eines LNB hängt nicht nur vom internen Rauschpegel ab, sondern auch von der Kreuzmodulations-Festigkeit und dem Phasen-Rauschen seines Local Oscillators ab. Nur ein Praxistest wie dieser TELE-satellite Test kann die effektive Leistung eines neuen Produkts richtig herausfinden.

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Brillantes Fernsehen

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Dome antennas



Campingman
Campingman Portable Twin / AutoSkew

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



Shipman
Seaman 37
Seaman 45
Seaman 60

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



40mm / 0,1dB low noise

LNBS Diavolo

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



40mm / 0,1dB low noise

LNBS Monoblock Diavolo

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



40mm / 70dB gain

LNBS High Gain

Megasat High Gain Single LNB
Megasat High Gain Twin LNB



23mm / 0,1dB low noise

LNBS Multifeed

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

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



Multi switches

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



Dishes

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



Selfsat

Satellite antenna with integrated
Single- Twin- or Quad LNB

Selfsat H300
Selfsat H3002*
Selfsat H3004

Simple installation!

Set-Top-Boxes



Linux Software

Megasat HD 950

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



Megasat HD 800

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



PRICE-PERFORMANCE WINNER

Megasat HD 550 CI

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



Megasat 4100 Combo

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

Equipment



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



for 2, 3 or 4 LNBs

Multifeedholder

Coax cable



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

F-Connector



F-Connector 4,5mm

F-Connector 7mm

F-Connector 7,5mm

MEGASAT

a **b2c** brand
electronic

Icecrypt STC6000HD PVR



- *Superbly designed and manufactured remote control*
- *Very fast Blind Scan*
- *Many useful features*
- *Well thought-out EPG and channel handling*
- *Very large channel memory makes the box well suited for motorized dishes*

ICECRYPT



TELE-satellite Magazine
Business Voucher

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

Direct Contact to Sales Manager





An Aristocrat among Double Tuner Boxes

You can tell right from the start that this Linux based receiver is a top class model. Even the cooling slots on the top cover are arranged in a nice pattern - not just in a simple grid. This initial impression is confirmed again and again as you familiarize yourself with this receiver.

And it's not just the look and feel of the box and its remote control, but also the style of its on-screen-graphics. However, behind all of this elegance must be exceptional performance, otherwise, what's the point?

The buyer of a luxury car automatically expects that its external appearance and internal comfort will be complemented by a powerful engine. But what about the STC6000HD PVR? We examined this receiver very closely for our TELE-satellite read-

ers. Let's start with the box. Its front panel is equipped with a large 12 character bluish white dot matrix vacuum fluorescent display. It's not all that bright so won't distract you when watching TV in a dark room.

The VFD shows the channel name, menu name or time. There are only five buttons on the front panel: channel up/down, volume up/down and standby. It would seem that their purpose is more to quickly check if the box is operational than for anything else.

As is typical, the right hand side of the front panel is actually a drop-down flap behind which you'll find two universal smart card readers, two Common Interface connectors for CA modules and one USB port. This is just the first one of three

such ports - the other two are located on the rear panel.

The rear panel has everything you might expect. There are two tuner inputs with corresponding looped-through outputs, HDMI and S/PDIF digital video and audio outputs, all sorts of analog outputs (composite/RGB/YPbPr video and stereo audio) as well as a number of data ports: two rear USB ports, an e-SATA port for an external HDD, an RS-232 interface and an Ethernet jack for a local area network.

The sample that we received for testing came with a DVB-S2 tuner and a DVB-C tuner. However, any combination of DVB-S2, DVB-C, DVB-T or DVB-T2 is possible. You can order a version of the STC6000HD PVR that suits your needs.

The remote control is rather large but that makes it very easy to operate. The labels are very legible. Surprisingly, the remote control does not come with a standard rubber keyboard. Each button has its own micro-switch beneath a cap. Every microswitch generates a very distinctive clicking sound and has a very crisp feel to it. Its operation is very reliable.

Every push of a button is registered by the receiver and you don't have to worry about how fast you push a series of buttons; the box reacts instantly to your actions.

This is due not only to the design of the remote control unit but also to the high power of the microprocessor unit and the amount of memory installed in



HORIZON

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Combo



DVB-Terrestrial



DVB-Satellite



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MADE IN THE UK

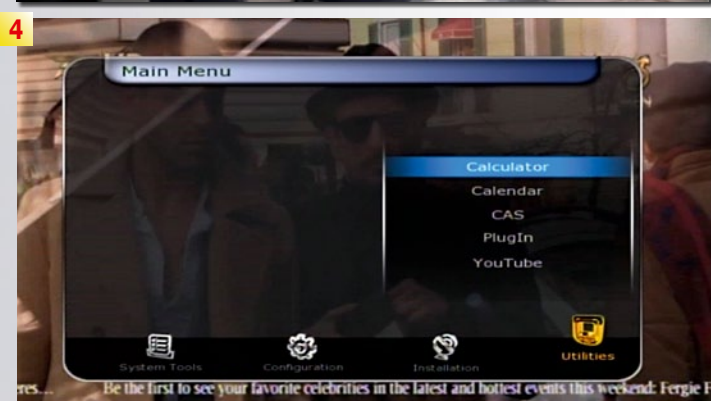
www.horizonhge.com

Phone: +44 (0) 1279 417005 Email: sales@horizonhge.com

Web: www.horizonhge.com

Dealers and Distributors wanted





the STC6000HD PVR. The STC6000HD PVR's User Manual is very well written and very well organized. The explanations of the receiver's functions and features are detailed and precise although the screenshots are a little bit too small and are hard to read without a magnifying glass.

On a few occasions when we wanted to refer to the user manual, we found what we were looking for very quickly beginning with the index (located at the very beginning of the manual) and then jumping to the right page. It's a well structured user manual.

The OSD is in full color and high resolution - exactly as it should be for such a high class model. When turning on the receiver for the first time, the STC6000HD PVR asks you to select a language. The receiver comes with an extensive choice of OSD languages: English, French, German, Dutch, Greek, Spanish, Arabic, Italian, Portuguese, Turkish, Russian, Polish, Czech, Swedish, Finnish, Danish, Norwegian, Slovak, Slovenian, Macedonian, Romanian, Serbian and Hungarian. The same languages are available for the first preferred audio, the second preferred audio, the first preferred subtitle language, the second preferred subtitle language and the preferred teletext language.

We noticed that the choice of OSD language has an impact on the program name description in the channel info box. For example, when you watch a Russian channel, the program name can be displayed with strange

fonts. But as soon as you switch the OSD language to Russian, the program name is displayed properly using the Cyrillic alphabet.

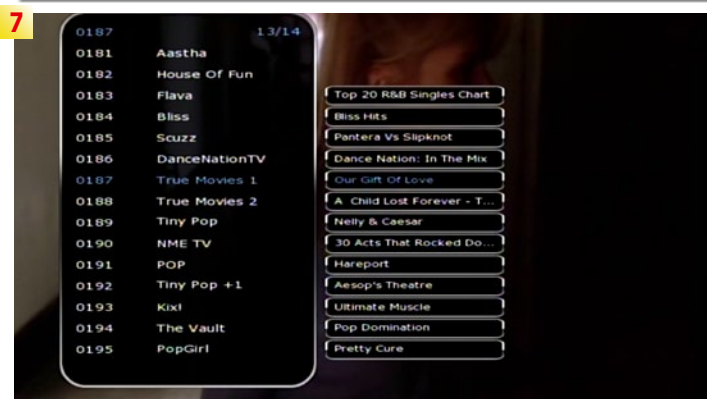
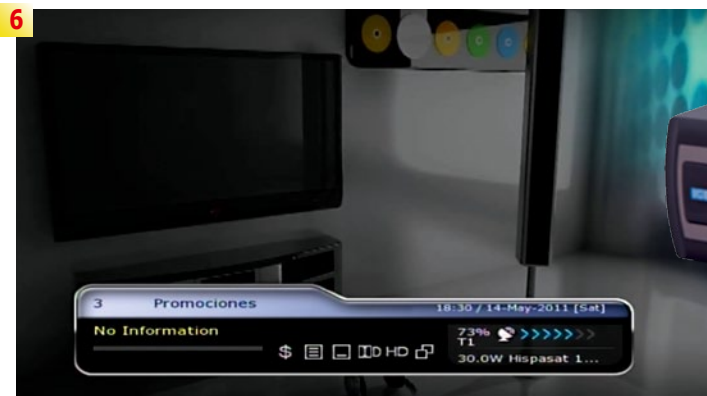
The next step is setting your time zone. Daylight Savings Time is also supported. The STC6000HD PVR can be set up to behave like an alarm clock. It can automatically turn on and display a selected channel at the preset time of day. This is an interesting option for a total TV addict for whom starting a day with a favorite TV channel in the morning is an absolute must. A sleep timer can also be configured here.

After finishing these "administrative" tasks, it was time for more interesting steps - setting up an antenna system and searching for channels. When you enter the antenna setup menu, you can immediately see that all DiSEqC protocols are supported (1.0, 1.1 and 1.2) along with USALS (which is also sometimes referred to as DiSEqC 1.3).

The LOF's of the LNB are selected in two steps. You first define whether it is a single band, universal or SCR model and then you choose the right LOF frequency. The LOF cannot be entered manually but the drop down menu offers you a long list to choose from: 5150, 9750, 1000, 10050, 10300, 10600, 10750, 11200, 11250, 11300 and 11475 for single LOFs and 9750/10600 and 9750/10750 for universal LNBs. If you opt for an SCR LNB, you do not have a choice of LOFs.

In our model, the channel search was divided into two submenus: Satellite Search and Cable Search. Satellite Search offered as many as five different search modes: automatic, manual, blind, advanced and fast scan. More advanced readers

1. System Tools menu
2. Configuration menu
3. Installation menu
4. Utilities menu
5. Info bar with extended information displayed



would know that the automatic search is based on the transponder data for every satellite preprogrammed into memory by the manufacturer. The manual mode allows you to search only one transponder that you select from the list for a given satellite.

The advanced mode lets you not only select a specific transponder but also specify video, audio and PCR PID's of the channel you want to find and process. Blind Scan is still something fairly new to satellite TV but is quite common to terrestrial TV sets. The box scans the frequency spectrum and when it detects a transponder, it tries to recognize its parameters. Generally, Blind Scan mode is still not completely reliable in satellite boxes because the transponder's parameters can vary quite a bit and there are no fixed channel plans.

The last option - Fast Scan - was a kind of puzzle to us. After playing with the box for a while, we realized that this mode is used to search for channels of specific satellite TV providers. Our box had two such providers pre-programmed: Canal Digital and TV Vlaanderen. If you happen to be a subscriber to one of them, it will provide you with a convenient speedy channel search.

The satellite list of the STC6000HD PVR contains no fewer than 162 satellites from all over the world. That's a huge number but there was one satellite missing: Express AM4 at 11.0° west. So we used one of the four "spare" satellites in the list (called User 01 through User 04) and edited it.

Next it was time to check the receiver's channel scanning speed. As usual, we selected HOTBIRD at 13° east as our test satellite. The STC6000HD PVR came with 99 transponders stored in its pre-programmed memory for this satellite. The automatic channel scan with network search turned off took 7 minutes and 22 seconds. 1274 TV and 383 radio channels (FTA and scrambled) altogether were found.

We reset the box and restarted the automatic scan with network search turned on. Naturally, the scan lasted longer - 10 minutes and 5 seconds. The number of channels found increased to 1454 TV and 384 radio channels.

After another factory reset, we started the Blind Scan. The result was very good indeed: 8 minutes and 30 seconds and 1477 TV channels and 409 radio channels.

It looks as though the future belongs to Blind Scan. It does not take much longer than an automatic scan but it consistently manages to find more channels even when compared with a network search. The STC6000HD PVR lets you limit the blind

6. Information box of a radio channel
7. Simple channel list shows also current programs
8. Channel list
9. EPG in a classical grid mode
10. Detailed EPG of a single channel

11



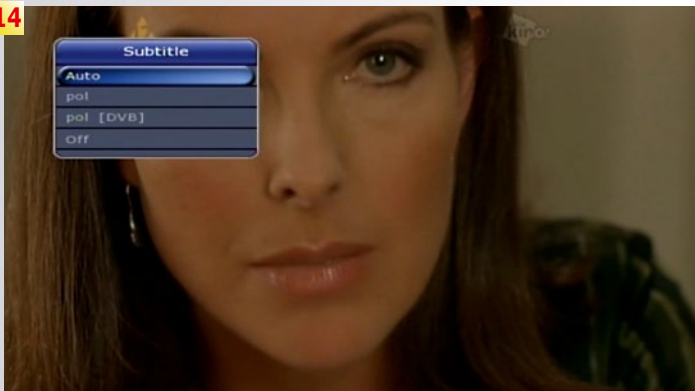
12



13



14



15



scan to one polarization only or to FTA only or TV only. If you are the happy owner of the STC6000HD PVR and have the nature of a true DXer, you should opt for the Blind Scan rather than any of the other channel search modes. Only in this way can you find channels that the others modes will be completely unaware of.

After a successful search of the HOTBIRD transponders, we decided to test its USALS operation and force the box to search 25 satellites from 30° west to 45° east. The process ended up with about 1700 TV and 1300 radio FTA channels. The STC6000HD PVR's memory was only 30% occupied as its capacity is 10,000 TV and radio channels. The box had absolutely no problem receiving SCPC channels and easily dealt with weak transponders. Obviously, the tuner in the STC6000HD PVR is quite good.

After being that successful with satellite channels, we moved on to cable channels. We used our cable head-end equipment to generate a package of DVB-C channels. We tried all QAM modes from QAM-16 to QAM-256. The STC6000HD PVR had no trouble locking on and processing these channels. We checked the reception of very weak signals and very

strong signals (yes, this can sometimes happen in cable networks). The receiver performed very well and was able to process signals even well outside its specifications.

For example, the STC6000HD PVR was able to process cable signals as strong as +47 dBmV even though the specifications only promise a range from -15 dBmV to +25 dBmV. To scan the entire frequency band, the box needed 7 minutes and 30 seconds. During our tests, we noticed that the receiver can recognize a change in QAM mode on-the-fly and process the signals without the need to rescan the band. That is unexpectedly nice feature.

Before finishing the installation process, it is a good idea to check the A/V settings and see if they are optimized for your TV set. Except for typical settings like picture aspect ratio, we can also set the HDMI output resolution up to 1080p here. Not too many receivers can do that. Most of them can only produce 1080i so this is another plus for the STC6000HD PVR.

Note that if the resolution is set greater than 576i, there is no video output on the SCART or RCA analog outputs; there's only a message informing you that the resolution is set too high for this output. Although there are receivers available that can produce downscaled 576i video on the SCART/RCA outputs while generating an HD picture on the

11. Mosaic view

12. Picture-in-picture – basic mode

13. Picture-in-picture – side by side mode

14. Selecting the language of channel subtitles

15. Language settings

HTS12



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

HS14



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

HS15



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

HTJ1



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

HT21 (Mini Receiver)



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

HD DVB-S/S2 HSJ1



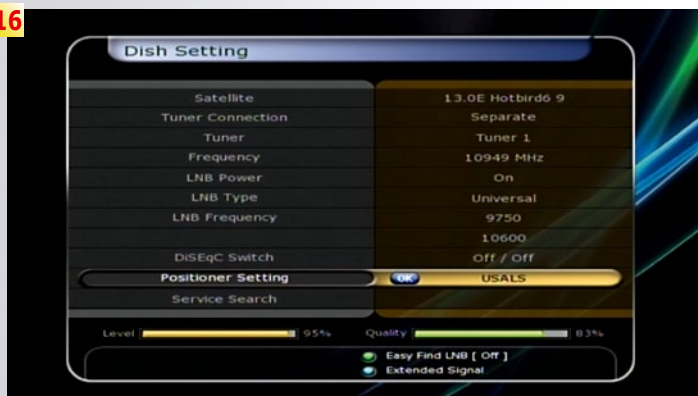
Conax CAS(optional), MP4, 1080p, PVR, Timeshift

Skyworth

More than 30,000,000 families are enjoying wonderful and smooth
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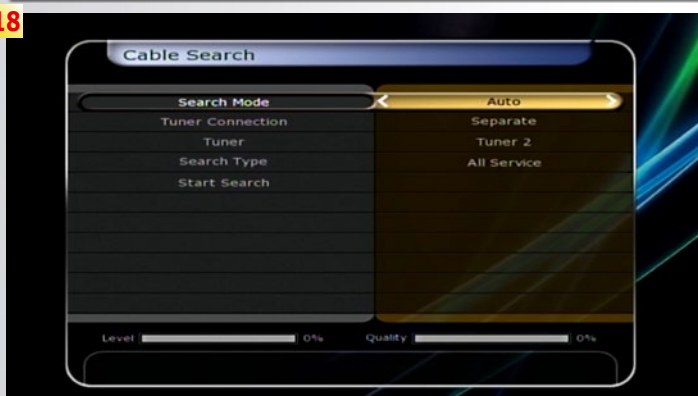
16



17



18



19



HDMI output, Icecrypt has chosen not to do that. Normally, it's not a problem for the user. It doesn't happen too often where you need to watch HD content on an HDMI output and still need a downscaled video version at the same time.

Right after the channel scan, the box shows you the first FTA channel. This is a small but nice feature: if the first channel in the list happens to be a scrambled one, you are not presented with a black screen but instead are taken to the first FTA channel. Channel surfing is a pleasure. Switching between MCPC FTA channels takes slightly over one second. When you switch to a really low symbol rate channel like DIYALA 11071 [H] SR=2099 on Atlantic Bird 2 at 8° west, it takes about three seconds. Similarly, when you switch to a scrambled channel it also takes longer – around 2-3 seconds.

You can watch scrambled channels because the STC6000HD PVR has two slots for smart cards and two CI connectors for CA modules. During our tests, the receiver worked very well with a SECA Nagravision card as well as with a VIACCESS card. Of course, it's always a good idea to consult the receiver vendor to make sure that it will work with a specific PayTV system you are subscribed to.

There are two channel list versions. One is accessible

in the classic way by pressing the OK button. The other, a simplified one, is accessed by pressing the up or down arrow buttons. The simplified version shows just the channel names in the left column and the corresponding current program names in the right column. In this way you can very quickly scan "what's on TV" at that moment.

The regular version provides much more information about the channels, satellites and favorite lists. You can not only sort channels in different ways (by name, transponder, CAS, provider and tuner) and filter them by satellite or favorite group but also find a channel by entering the first letters of its name.

You can also assign channels to a selected favorite list. The receiver initially comes with ten favorites lists with preset names: Drama, News, Music, etc. However, you can rename them as desired and even add additional lists.

More channel related operations are possible after entering the Service List Manager. In this submenu, you can do all the tricks you've come to expect: deleting, moving, renaming, locking or skipping a channel. What we would like to emphasize is the ease of use of this manager. Everything is optimized. There are very few receivers out there that let you delete unnecessary

20



channels from a long list as fast and conveniently as the STC6000HD PVR.

Also moving channels is smartly organized – you do not deal with each channel separately but mark a group of channels and then highlight a position where the entire group should end up. Everything works very fast – evidently the power of the receiver's main processor and the amount of RAM contribute to this. Overall, managing channels in the STC6000HD PVR is exceptionally well done.

The Electronic Program Guide is accessed with the EPG button. There are two modes: grid mode which shows a multichannel view along a timeline and single channel mode. Everything works really fast and navigating the programming schedule is pure pleasure. As expected, you can mark programs for recording directly in the EPG.

In such a classy receiver, even the RECALL function is not a basic one. So when you press the RECALL button, a list of previously watched channels is displayed. You can either press the RECALL button again to choose the very last channel or use the up/down arrow buttons to select another one and press OK.

There are two standby modes available in the STC6000HD PVR. In deep standby mode the box is almost completely off con-

suming less than 1 W of power. We measured 0.8 W. However, switching back to operate mode takes over 40 seconds. If this is too long for you, you can choose the shallow standby mode in which switching back to operate mode takes only 4 seconds. The penalty is the energy consumption. The receiver consumes 15 W in shallow standby and is only slightly less than what is consumed in operate mode (20 W).

The STC6000HD PVR allows you to record more than one channel at a time. The exact number depends on the data transfer rate of the connected memory device. The STC6000HD PVR has a special test function in its menu. When started, it measures the performance of a USB stick or external HDD and displays what you can expect.

We checked a contemporary 8 GB USB stick connected to one of the receiver's USB ports. The receiver informed us that we can either record two HD channels at the same time or record one HD channel while using the time shift feature. These are excellent results that everyone should be satisfied with!

Based on these results, we attempted two HD recordings simultaneously. The quality of the recordings when played back left nothing to be desired. The video and audio were per-

fect and no MPEG artifacts were visible or audible. The STC6000HD PVR not only stored the audio/video of the channel but also the alternative soundtracks and program description as presented in the EPG. And that's not all. It also recorded subtitles.

You can't edit the recordings directly with the STC6000HD PVR – you have to use your PC for this purpose. However, you can set bookmarks at any point in the recording so that you can jump to it when watching it again. This is probably the simplest way of getting rid of the commercial breaks that might be inserted in a recorded movie.

The recordings are stored as files with a TS extension. If you use a suitable PC application, you can convert this to a file that can be used to burn a DVD.

Time shifting worked equally well in our tests. This function may be set to work either manually – the box starts recording when the Pause button is pressed, or automatically – the box records A/V all the time from the moment we switch to another channel. The timer

16. Dish Settings menu
17. Configuring channel search
18. Cable channel search settings are simpler to set than the satellite ones
19. Channel manager
20. Teletext
21. YouTube browser with search panel activated
22. List of installed plugins



buffer for automatic recording can be set, for example, to 120 minutes.

The STC6000HD PVR lets you not only play back previously recorded content but also multimedia files stored on your disk like: MP3, JPG, MPG or DivX AVI.

The STC6000HD PVR has so many functions and features that it's difficult to list them all. But we'll try anyway. One nice feature is PIP (picture-in-picture). You can watch two channels simultaneously.

The main one fills the entire screen while the other is muted and shown in a small

insert. You can choose the second channel you want to see from a drop down menu. Of course, if your version of the STC6000HD PVR has only one DVB-S2 tuner, you are limited to the same transponder and cable channels. You can also watch two channels in equal size side by side.

Another nice feature is the multi-picture display (or mosaic display). You can watch nine or twelve channels arranged in a mosaic and you can navigate between them. One channel is live, the rest

are shown as frozen frames.

When you surf between channels you often encounter some channels that are very loud or others that are very quiet. Icecrypt has a remedy for that. You can individually set each channel audio level to be played normally, increased by 30% or reduced by 30%. It's a really helpful feature.

You can configure the STC6000HD PVR to automatically add some time before and/or after each re-

cording. If you want to record something important it might not be a bad idea to use this function because schedules may not always be completely accurate.

If you have access to the Internet, you can connect the STC6000HD PVR to your LAN. It's compatible with DHCP routers so in most cases you won't need to configure anything. Once connected you can watch video



clips on YouTube (a regular menu option in the receiver) or even surf any other pages if you use a plug-in called WebZeal. The WebZeal plug-in is a web browser and was pre-installed by the manufacturer.

Since this is a Linux based receiver, additional software can be installed in the STC6000HD. This could be software downloaded from the Icecrypt home page - for example a new version of WebZeal - or it could be plug-ins developed by independent programmers.

We expect that more and

more interesting plug-ins will eventually become available for the STC6000HD PVR and as an owner of this receiver you'll have a lot of fun trying them out.

Last but not least, we want to highlight the ability to save your channel lists and other settings to the attached storage devices. It's an excellent feature that will let you quickly restore all your channel and favorites lists after upgrading your software.

Overall, the STC6000HD PVR is not only very elegant and classy but also extremely convenient and fast. It will satisfy not only regular family users but also demanding DX-ers and satellite enthusiasts.



Expert Opinion

Very fast and pleasant operation due to a powerful processor and amount of RAM
Flexible design allowing various DVB tuner combinations
Compatible with Linux plug-ins
Numerous data interfaces
Elegant hardware and stylish OSD



Software occasionally hangs up (though you can always restart the box with the standby button)
Small bug for owners of motorized dishes: Blind Scan function does not drive a USALS motor

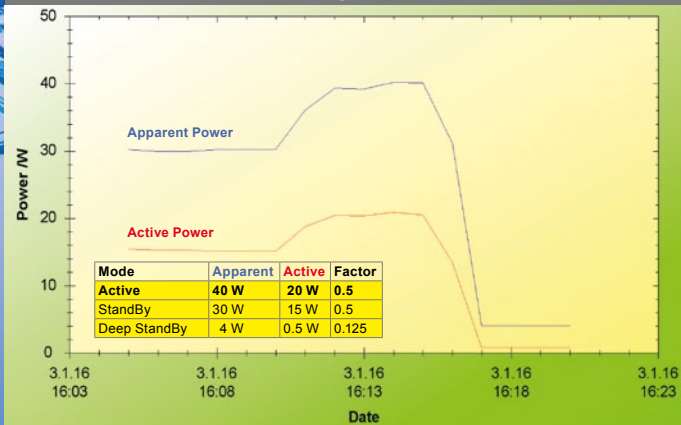
TECHNICAL

DATA

Manufacturer	Icecrypt, Sittingbourne, United Kingdom
Webpage	www.icecrypt.com
Email	info@icecrypt.com
Fax	+44-1795 427 666
Model	STC6000HD PVR
Function	Two tuner HD receiver with Linux OS
Choice of tuners	DVB-S2, DVB-C, DVB-T or DVB-T2
Input range of DVB-S2 tuner	950-2150 MHz, -65 to -25 dBm
Input range of DVB-C tuner	50 MHz ~ 1 GHz, QAM 16 ~ QAM 256, 1Ms/sec ~ 7 Ms/sec, -15 dBmV ~ 25 dBmV
Input range of DVB-T and DVB-T2 tuners	VHF III: 174~230 MHz UHF IV: 470~606 MHz UHF V: 606~862 MHz
DiSEqC	1.0, 1.1, 1.2
USALS	yes
HDMI output	1
SCART	2
Analog A/V outputs	6 x RCA
Component video output	yes
S-Video output	yes
UHF modulator	no
0/12V connector	no
Digital audio output	optical S/PDIF
EPG	yes
C/Ku-Band compatible	yes
SCPC compatible	yes
PVR function	yes
USB 2.0 ports	3 x
Ethernet	yes
E-SATA	yes
Main processor	STi chipset
Memory	Flash ROM 64 Mbytes, SDRAM 256 Mbytes, EEPROM 256 Bytes
Power supply	AC 100 ~ 250 V 50/60 Hz
Power consumption	55 W max. (1 W max. in deep standby mode)
Dimensions	340 x 60 x 230 mm
Weight	2 kg
Operating temperature	0° ~ +45° C

ENERGY

DIAGRAM



5 minutes - shallow standby mode, next 5 minutes - operational mode with playing back a recording from an external USB HD, last 5 minutes - deep standby mode

TEST REPORT
该设备由技术专家所作

HDTV Combo Receiver |

ICECRYPT

Icecrypt STC6000HD PVR

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- Hervorragendes Fernbedienungskonzept
- Sehr schneller Blind Scan
- Viele nützliche Funktionen
- Gut durchdachte EPG und Kanalverwaltung
- Sehr großer Kanalspeicher eignet die Box besonders für motorisierte Schüsseln

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Man sieht es auf den ersten Blick, dass dieser Linux-basierte Receiver ein Spitzengerät ist. Sogar die Lüftungsschlitze an der Gehäuse-Oberseite sind hübsch angeordnet - sind nicht nur ein einfaches Gitternetz. Dieser erste Eindruck wiederholt sich immer wieder, je vertrauter man mit dem Receiver wird.

Aber es ist nicht nur das Aussehen der Box und seiner Fernbedienung, sondern auch der Stil seiner Bildschirm-Grafik. Nun, hinter dieser Eleganz muss aber auch hervorragende Funktionalität sein, sonst lohnt sie sich nicht!

Der Käufer eines Luxusautos erwartet entsprechend seinem Äußeren und seinem Innenkomfort auch einen starken Motor. Aber wie ist das beim

STC6000HD PVR? Wir prüften den Receiver für unsere TELE-satellite Leser sehr gründlich.

Beginnend mit dem Gehäuse: Die Anzeige auf der Vorderseite besteht aus einer 12-stelligen bläulich-weißen Punktmatrix in Vakuum-Fluoreszenz-Technik (VFD). Sie ist nicht zu hell und stört nicht, wenn man in einem verdunkelten Raum fernsieht.

Das VFD zeigt den Kanalnamen, die Menübezeichnung oder die Zeit. Auf der Vorderseite befinden sich lediglich fünf Tasten: Kanal auf und ab, Lautstärke lauter und leiser, und Stand-By. Sie taugen wohl mehr für eine rasche Überprüfung, ob die Box arbeitet.

Wie üblich befindet sich auf der rechten Seite der Vorderseite eine Klappe,

hinter der sich zwei Universal-Kartenleser, zwei Common Interface (CI)-Anschlüsse für CA Module sowie eine von drei USB-Buchsen - die beiden anderen befinden sich auf der Rückseite.

Die Rückseite enthält alles, was man sich wünscht. Zwei Tuner-Eingänge mit entsprechendem Durchschleif-Ausgang, HDMI und S/PDIF, digitale Video- und Audio-Ausgänge, alle Arten von analogen Ausgängen (Composite, RGB/YPbPr Video und Stereo Audio) und auch mehrere Datenports: Zwei rückwärtige USB-Buchsen, eine eSATA-Buchse für eine externe Festplatte (HDD), einen RS-232 Anschluss und eine Ethernet-Buchse zur Verbindung mit einem lokalen Netzwerk.



Das Mustergerät, das wir für unsere Tests bekamen, war mit einem DVB-S2 und einem DVB-C Tuner bestückt. Jedoch gibt es die Möglichkeit, Tuner für DVB-S2, DCB-C, DVB-T oder DVB-T2 beliebig zu kombinieren. Den STC6000HD PVR kann man in jeder benötigten Version kaufen.

Die Fernbedienung ist ziemlich groß, wodurch sie aber sehr einfach zu bedienen geht. Die Aufschriften sind gut lesbar. Überraschenderweise kommt die Fernbedienung nicht mit Standard-Gummitasten. Jede Taste hat unter der

Abdeckung einen eigenen Mikroschalter. Jeder Mikroschalter erzeugt dadurch ein eigenes Klicken und man spürt einen besonders deutlichen Knacks. Das ist eine sehr verlässliche Wirkungsweise. Jeder Knopfdruck wird vom Receiver sofort registriert und man muss nichts befürchten, wenn man rasch mehrere Tasten nacheinander drückt - die Box reagiert auf jede Aktion sofort. Das liegt jedoch nicht nur an der Funktionsweise der Fernbedienung sondern auch an der hohen Leistung des Mikroprozessors und des Speichers, die im STV6000HD PVR eingebaut sind.

Die Bedienungsanleitung des STC6000HD PVR ist gut geschrieben und gut aufgebaut. Die Erklärungen der Funktionen und Eigenschaften des Receivers sind detailliert und genau, allerdings sind die Bildschirmfotos etwas zu klein und können ohne Vergrößerung kaum gelesen werden.

Bei den wenigen Fällen, wo wir im Manual nachschlagen wollten, fanden wir uns im Inhaltsverzeichnis (ganz vorne im Manual) schnell zurecht und sprangen danach an die richtige Seite. Das Manual ist gut strukturiert.

Das OSD ist in vollen Farben und in hoher Auflösung - genauso wie es bei einem solchen Spitzengerät sein muss. Nach dem ersten Einschalten wird man von STC6000HD PVR aufgefordert, die Sprache zu wählen. Der Receiver bietet eine riesige Auswahl von OSD-Sprachen: Englisch, Französisch, Deutsch, Holländisch, Griechisch, Spanisch, Arabisch, Italienisch, Portugiesisch, Türkisch, Russisch, Polnisch, Tschechisch, Schwedisch, Finnisch, Dänisch, Norwegisch, Slowakisch, Slowenisch, Mazedonisch, Rumänisch, Serbisch und Ungarisch. Die gleichen Sprachen können gewählt werden für die ers-

te bevorzugte Audio-Sprache, die zweite bevorzugte Audiosprache, die erste bevorzugte Untertitel-Sprache und die bevorzugte Textsprache.

Wir stellten fest, dass die Wahl der OSD Sprache auch die Darstellung des Programm-Namens beeinflusst. Beispielsweise wird beim Betrachten eines russischen Kanals der Programmname mit seltsamen Zeichen geschrieben. Aber sobald man die OSD-Sprache auf Russisch umschaltet, wird der Programmname richtig mit Buchstaben des kyrillischen Alphabets dargestellt.

Im nächsten Schritt wird die Zeitzone festgelegt. Sommerzeit wird auch berücksichtigt. Der STC6000HD PVR kann auch als Wecker eingerichtet werden. Er kann automatisch einschalten und einen bestimmten Kanal zu einer festgesetzten Zeit zeigen. Diese Möglichkeit ist für einen Fernseh Freak interessant, der seinen Tag morgens unbedingt mit seinem Lieblingssender beginnen muss. Hier kann auch ein Sleep Timer konfiguriert werden. Nach dem Abschluss dieser "administrativen" Aufgaben war es Zeit für die interessanteren Dinge - die Einrichtung des Antennensystems und die Kanalsuche. Geht man ins Antennenmenü, sieht man sofort, dass alle DiSEqC-Protokolle unterstützt werden (DiSEqC 1.0, 1.1 und 1.2), ebenso wie USALS (das manchmal als DiSEqC 1.3 bezeichnet wird).

Die LOFs des LNB werden in zwei Schritten festgelegt. Zuerst wird definiert, ob es Single Band ist, ob es ein Universal oder SCR (Unicable)-LNB ist. Danach wählt man die geeignete LOF. Die LOF kann nicht manuell eingetragen werden, aber das Auswahlmenü bietet eine lange Liste, aus der ausgewählt wird: 5150, 9750, 1000, 10050, 10300,

10600, 10750, 11200, 11250, 11300 und 11475 für Single LOFs und 9750/10600 sowie 9750/10750 für Universal-LNBs.

Bei unserem Modell teilte sich die Kanalsuche in zwei Untermenüs auf: Satellitensuche und Kabelsuche. Die Satellitensuche bot fünf verschiedene Suchmodi: Automatik, Manuell, Blind, Advanced und Fast Scan. Erfahrenere Leser wissen vermutlich, dass die Automatische Suche mit dem vom Hersteller im Speicher vorprogrammierten Transponderdaten startet. Manuelle Suche erlaubt, jeweils einen Transponder abzusuchen, den man aus den Transponderdaten des ausgewählten Satelliten nimmt.

Der Advanced Modus ermöglicht, nicht nur einen bestimmten Transponder zu wählen, sondern man kann auch die PIDs für Video, Audio und PCR eines Kanals eintragen, den man finden und eintragen möchte. Blind Scan ist noch ziemlich neu im Satelliten-TV, aber ist üblich bei terrestrischen TV Geräten. Die Box sucht das Frequenzspektrum ab und wenn sie einen Transponder gefunden hat, versucht

sie, die Parameter auszumessen. Blind Scan in Satellitenreceivern ist jedoch nicht ganz zuverlässig, weil die Parameter der Transponder etwas variieren können und feste Kanalraster fehlen.

Die letzte Option - Fast Scan - war uns anfangs ein Rätsel. Aber nach einigem Experimentieren fanden wir heraus, dass dieser Modus dazu dient, die Kanäle eines spezifischen Providers zu suchen. Unsere Box hatte zwei solche Provider eingeplant: Canal Digital und TV Vlaanderen. Die angenehme schnelle Suche genießen Sie dann, wenn Sie dort ein Abonnement abgeschlossen haben.

Die Satellitenliste des STC6000HD PVR enthält nicht weniger als 162 weltweite Satelliten. Das ist eine enorme Anzahl, aber einen Satelliten vermissten wir: Express AM4 auf 11.0° West. Deshalb nahmen wir von der Liste einen der vier "Spare" Satelliten (die mit User 01 bis User 04 bezeichnet sind) und editierten sie.

Als nächstes kam die Überprüfung der Kanalsuchgeschwindigkeit des Receivers.

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Skyworth HI-11 PVR ISDB-T





- *Easy operation with all the important features*
- *Enormous channel memory for storage of numerous ISDB-T channels*
- *Manual channel scan even finds weak channels*
- *5V output for electronic room antennas*
- *All available transponders preprogrammed*



The HD Box

SDTV and HDTV reception via ISDB-T

When you see the Skyworth HI-11 PVR for the first time, you see a box that was designed with simplicity in mind. It's not unnecessarily fancy or flamboyant and there are no flaps or buttons that stick out.

Skyworth designed this set-top-box in such a way that it would be as inconspicuous as possible and yet perform its duties effortlessly and in an uncomplicated manner. The HI-11 PVR doesn't even have a display; there's just a single red LED that indicates Standby mode. The

rear panel on the other hand is nicely equipped. In addition to the ISDB-T antenna input and looped-through "F" outputs, there's also 6 RCA jacks for stereo audio, composite video and YUV. Last but not least, you'll also find an HDMI output as well as a USB 2.0 interface. There's no main power switch.

The included remote control left us with a very good impression. All of the buttons are relatively large and clearly labeled. Thanks to the plastic coating, your fingers will glide across the buttons

but won't slip off them when the buttons are pressed.

All in all, we were very impressed with the workmanship of the HI-11 PVR despite the fact that the box looked rather bare due to the lack of a display. Immediately after turning on the box for the first time, the user is greeted by the Installation Assistant.

The first thing it asks is to select the correct installation location (Argentina, Brazil, Chile, Paraguay and Uruguay) as well as the on-screen display (OSD) language (English, French, German, Italian, Spanish,

Portuguese, Russian, Turkish, Polish and Farsi). As you can see, even if you're a foreigner living in South America, there's a good chance the Skyworth receiver will support your native tongue.

Oddly enough, despite all the settings that are possible at this point, the user cannot select the resolution of the output signal here; this can only be done at the end of the installation in the main menu. But when you get to that point you can choose between 16:9 and 4:3 or set it to automatically switch between the two modes.

Once the basic settings have been taken care of, the



receiver automatically starts a channel scan of the entire frequency spectrum with the press of the OK button. It completed this scan in just 90 seconds and found all the available regional ISDB-T channels.

Although not as many channels are available via ISDB-T as there are via satellite, it still pays to have a look in the HI-11 PVR's settings menu after the channel scan so that you can organize the channel list (maximum 1000 entries) to your personal tastes.

Skyworth has integrated all of the necessary options very nicely into the receiver. Thanks to the as many as eight group oriented Favorites lists, each family member can store their favorite channels individually for fast recall at a later time.

We also appreciated the fact that the manufacturer didn't forget about a manual frequency scan; there's always the possibility that the antenna may not have

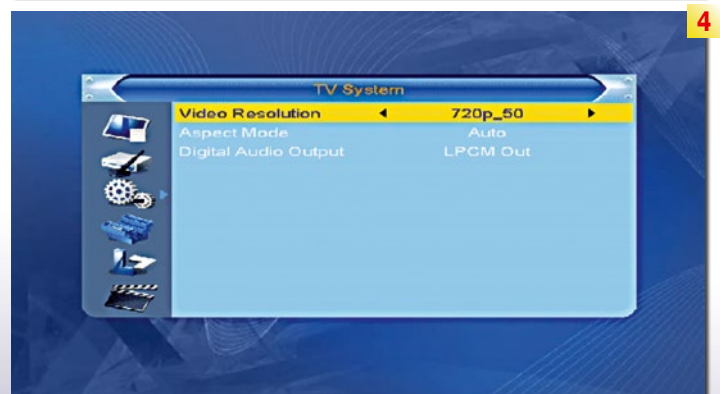
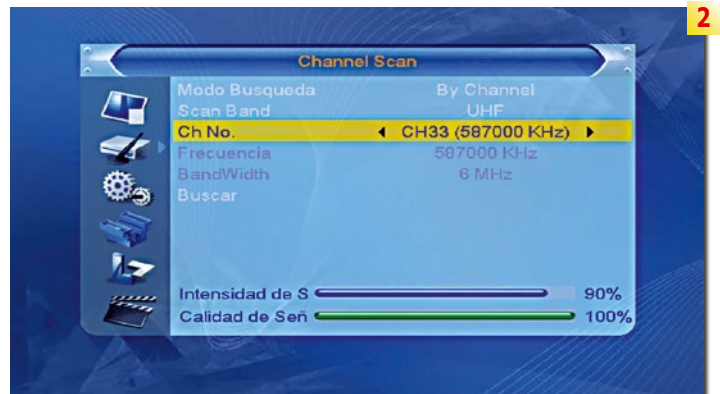
been perfectly aligned when the first channel scan was performed. With the help of the signal strength and signal quality displays in the manual scan menu, this can quickly be corrected. There's even a separate menu section with a level display just for adjusting the antenna.

With the channel scan the user can choose the desired frequency band (UHF or VHF) as well as the channel number. The manufacturer put some thought into the receiver here as well; less experienced users don't have to worry about the painstaking task of entering in the correct frequency; it can easily be selected from a nicely compiled list.

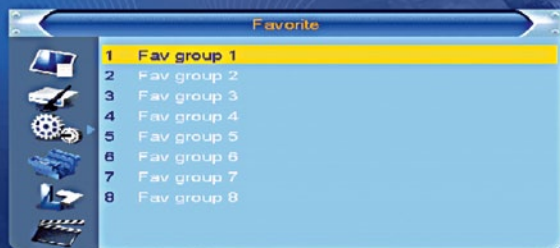
Skyworth even thought of those users that own smaller ISDB-T antennas with active signal amplification; +5V is supplied to the amplifier directly through the coaxial cable linking the antenna and the receiver.

And just like the DVB-T standard, the ISDB-T standard also includes additional information in the transmission such as the date and time. Naturally, the HI-11 PVR can access this extra information. Depending on the

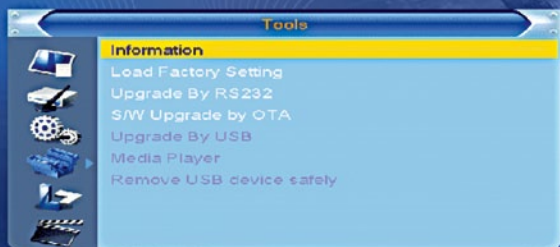
1. Automatic channel scan
2. Manual scan
3. Language settings
4. The receiver supports all of the critical video output resolutions
5. Time setting via the ISDB-T signal



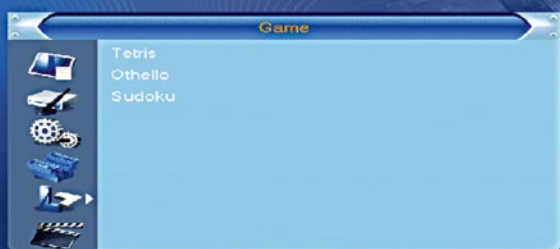
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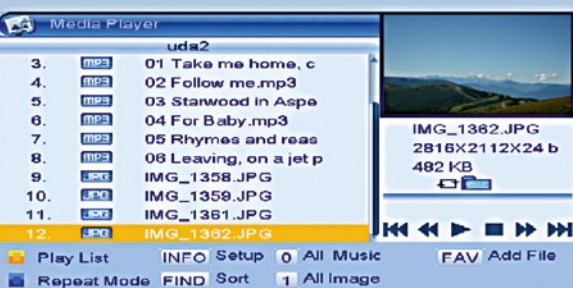
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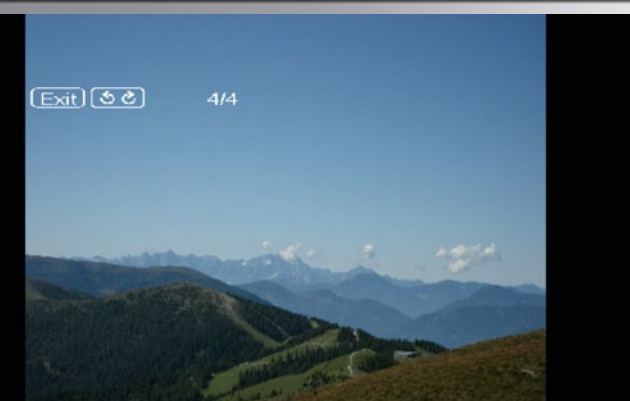
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9



10



region, the time difference from GMT can be individually programmed; even daylight savings time (summer time) can be activated or deactivated with the push of just one button.

To round things off, it's even possible to adjust the on-screen display to your personal tastes. You can adjust the OSD transparency between 0 and 40% so that if a menu page or some other blended-in function is activated, the current TV program remains visible in the background.

The Skyworth receiver can deliver the video signal to the output in a variety of formats and resolutions: PAL-M, PAL-N, 480i, 480p, 576i, 576p, 720p 50 Hz, 720p 60 Hz, 1080i 50 Hz and 1080i 60 Hz are available.

After all of the settings have been taken care of, you can exit the menu and the receiver will switch over to the first receivable channel. An Info bar appears along the bottom edge of the screen that reveals the channel name but, of course, only if the provider makes this data available. And again, just like with DVB-T, in ISDB-T you can also access a complete digital programming guide with the HI-11 PVR up to seven days in advance; the data appears after pushing the EPG button.

Since this receiver includes a PVR function, it makes it a lot of fun to mark your favorite programs for recording.

The days of muddling through the programming of a video recorder and setting up your receiver in advance are over.

If a channel has more than one audio track, the HI-11 PVR can switch between them by simply pushing the yellow function button; even teletext can be effortlessly activated and displayed.

Despite the limited availability of programming via ISDB-T, the search function within the channel list is worth mentioning. With its help, every available channel can be easily located and accessed by pushing a single button on the remote control and entering the first letters of the channel name.

After our detailed test, we noticed that a dedicated button on the remote control to switch the video output resolution was missing; ideally, this is a feature that every receiver should have.

The video and audio quality of the Skyworth HI-11 PVR was quite convincing during our tests. It can handle SD signals as well as HD signals without any difficulties and can quickly switch between channels at a speed of just over one second. Even the Skyworth manufactured tuner performed admirably and can even acceptably display weaker ISDB-T signals with the help of error correction.

Thanks to the USB 2.0 interface, the new Skyworth receiver does more than just receive signals; it can record programs on external storage media such as a hard drive, USB stick or an SD card.

And that important tel-

- 6. Eight separate Favorites lists are available
- 7. Info bar display
- 8. The manufacturer also integrated three video games
- 9. Media player with M3 playback and picture gallery
- 10. Picture display

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ephone call won't get in the way of your TV enjoyment; the Time Shift function lets you pause the program your watching, handle the telephone call and then continue watching that program without missing a beat.

Since it's only MPEG-2 signal coding that comes into play with ISDB-T, the external storage media can easily be linked to a PC and before you know it, the data can be transferred to a DVD. Naturally, the receiver can also format the external storage device in either NTFS or FAT; that's one less step that has to be performed through the PC.

Slowly but surely it's becoming standard for decent PVR receivers to also provide the ability to playback MP3 music or JPEG pictures from an external storage device.

The HI-11 PVR doesn't disappoint here either: it can handle the job given to it without any problems and without errors. It can therefore be used as a true blue MP3 jukebox and can also be used to show off your latest vacation pictures to family and friends.

To top it all off, the receiver also comes with three integrated video games: Tetris, Othello and Sudoku. The receiver's firmware can also be updated via a USB stick. The option to upgrade the firmware via an RS-232 interface exists in the software but the lack of an actual RS-232 port would make that task rather difficult.

In all likelihood, this menu option was left over from a firmware version that was originally meant for another device. The same is true for the Conax card reader listed in the Information menu that in reality doesn't exist.

The Skyworth HI-11 PVR is a solid, reliable ISDB-T receiver that can easily handle both SDTV and HDTV signals. It can be customized to the individual demands of the user and comes packaged in a decent yet unremarkable housing.

Thanks to the PVR function, the user can take the big step into the age of digital recording and with the Time Shift function lets you interrupt your favorite TV or radio program without missing a thing.

Expert Opinion



Juan Carlos Duarte
TELE-satellite
Test Center
Chile

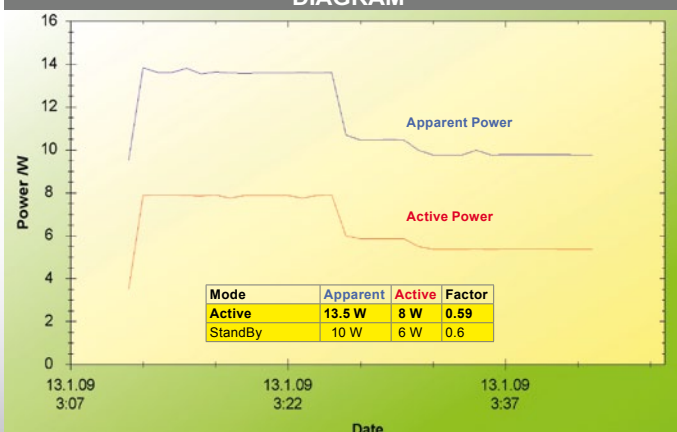
High Channel Memory Capacity
Fast Channel Switching Time
Very Easy to Use
USB Interface for PVR

The firmware refers in some cases to features that are not actually available in the receiver itself

TECHNICAL DATA

Manufacturer	Skyworth Overseas Ltd, Unit 1601-4 Westland Centre, 20 Westland Road, Quarry Bay, Hong Kong
Email sales	sales@skyworth.com
Internet	www.skyworth.com.hk
Model	HI-11 PVR
Function:	ISDB-T Receiver with PVR function
Channel memory	1000
Frequency lists	Preprogrammed for UHF and VHF band
EPG	yes
HDTV support	yes (up to 1080i in MPEG-2)
Input frequency	UHF (473-887 MHz) VHF (177 bis 213 MHz)

ENERGY DIAGRAM



First 15 minutes: Active operation with recording and playback plus live TV; Second 15 minutes: Standby



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Terrestrial HDTV Receiver for South America

Skyworth

Skyworth HI-11 PVR ISDB-T



- einfachste Bedienung mit allen wichtigen Features
- großzügige Kanalspeicher für den Empfang vieler ISDB-T Programme
- manueller Suchlauf findet auch schwache Sender
- 5V Ausgang für elektronische Zimmerantennen
- alle verfügbaren Transponder vorprogrammiert

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Bereits auf den ersten Blick besticht der Skyworth HI-11 PVR durch sein schlichtes Design. Nichts ist hier unnötig verschnörkelt oder verziert und es gibt auch keine Klappen oder Tasten, die dem Betrachter ins Auge springen würden. Skyworth hat diese Set-top-Box so konzipiert, dass sie im Hintergrund möglichst unauffällig, dafür aber problemlos und unkompliziert, ihren Dienst versieht. Selbst ein Display fehlt dem HI-11 PVR, lediglich eine rote LED signalisiert den StandBy Modus.

Dafür besticht jedoch die Rückseite mit guter Ausstattung, denn neben dem ISDB-T Antennenein- und Durchschleifausgang, die übrigens beide in Form einer F-Buchse ausgeführt sind, finden sich insgesamt

6 RCA Buchsen für Stereo Audio, Composite Video sowie YUV. Abgerundet wird der Reigen der Anschlüsse noch durch einen HDMI Ausgang sowie einen USB 2.0 Eingang. Einen mechanischen Netzschalter gibt es nicht.

Die beigelegte Fernbedienung hinterlässt einen guten Eindruck. Alle Tasten sind angenehm groß ausgefallen und übersichtlich beschriftet. Dank deren griffiger Kunststoffbeschichtung gleiten die Finger angenehm über die Fernbedienung, rutschen beim Drücken einer Taste aber nicht ab.

Insgesamt hinterlässt die Verarbeitungsqualität des Skyworth HI-11 PVR einen guten Eindruck bei uns, wenngleich das Gehäuse durch das fehlende Display

schon sehr spartanisch ausgefallen ist.

Sofort nach dem ersten Einschalten des Receivers wird der Besitzer vom Installationsassistenten begrüßt. Dieser bittet um Angabe des gewünschten Einsatzortes (zur Auswahl stehen Argentinien, Brasilien, Chile, Paraguay und Uruguay), sowie der zu verwendenden OSD Sprache (Englisch, Französisch, Deutsch, Italienisch, Spanisch, Portugiesisch, Russisch, Türkisch, Polnisch und Farsi). Sie sehen also schon: Selbst als in Südamerika lebender Ausländer haben sie ziemlich gute Chancen, dass der neue Skyworth Receiver auch Ihre Muttersprache unterstützt.

Kurioserweise kann der Anwender trotz entspre-



chender Auswahlmöglichkeit an dieser Stelle die Auflösung des Ausgabesignals nicht verändern, dies ist erst nach Ende der Installation im Hauptmenü möglich. Dafür besteht jedoch noch die Möglichkeit, zwischen 16:9 und 4:3 Darstellung bzw. automatischer Umschaltung zwischen den beiden Modi zu wählen.

Sind diese Grundeinstellungen erstmal vorgenommen, beginnt der Receiver nach einem Druck auf die OK Taste sofort mit einem automatischen Kanalsuchlauf über das gesamte Frequenzband. Dieser war

nach knapp 90 Sekunden abgeschlossen und fand alle regional verfügbaren ISDB-T Programme.

Obwohl über ISDB-T natürlich bei weitem nicht so viele Sender verfügbar sind wie über Satellit empfiehlt es sich trotzdem, nach dem Kanalsuchlauf einen Blick in das Einstellungsmenü des HI-11 PVR zu werfen und die maximal 1000 Einträge umfassende Kanalliste den persönlichen Bedürfnissen anzupassen.

Der neue Skyworth Receiver stellt alle dazu notwendigen Optionen gut integriert und sehr übersichtlich bereit. Dank der bis zu acht Gruppen umfassenden Favoritenliste kann so z.B. jedes Familienmitglied seine Lieblingssender individuell positionieren und diese später im täglichen Betrieb rasch und einfach aufrufen. Gut gefallen hat uns auch, dass der Hersteller den manuellen Frequenzsuchlauf nicht vergessen hat, schließlich kann es gerade bei schwächeren Signalen durchaus passieren, dass die Antenne während des automatischen Suchlaufs im Zuge der Erstinstallation noch nicht optimal positioniert war. Mit Hilfe der Anzeige von Signalstärke und Signalqualität im manuellen Suchlaufmenü lässt sich dies jedoch rasch nachholen, es steht sogar ein eigener Menüpunkt mit Pegelanzeige nur zum Justieren der Antenne bereit.

Beim Suchlauf hat der Anwender die Wahl zwischen dem gewünschten Frequenzband (UHF oder VHF) sowie der jeweiligen Kanalnummer. Auch hier hat der Hersteller mitgedacht und erspart den technisch nicht so versierten Usern dank der vorprogrammierten Liste das mühsame Eintippen der korrekten Frequenz, diese wird einfach aus der übersichtlichen Zusammenstellung ausgewählt.

Auch an die Besitzer von

kleineren ISDB-T Antennen mit aktiver Signalverstärkung hat Skyworth gedacht und ermöglicht deren Spannungsversorgung mit +5V direkt über das zur Verbindung zwischen Antenne und Receiver verwendete Koaxialkabel.

Ebenso wie der DVB-T Standard sieht auch ISDB-T das Mitübertragen von weiteren Informationen wie z.B. Datum und Uhrzeit vor und selbstverständlich macht Skyworth von diesen Möglichkeiten Gebrauch. Je nach Region kann die Zeitverschiebung zu GMT individuell programmiert werden, selbst die Sommerzeit ist mit nur einem Tastendruck aktiviert oder deaktiviert. Abgerundet wird der Reigen der verfügbaren Einstellungen noch durch die Möglichkeit, das OSD an die eigenen Bedürfnisse anzupassen. So lässt sich eine Transparenz zwischen 0 und 40% aktivieren, so dass selbst während man ein Menü oder eine andere Einblendung aktiviert hat, das aktuelle TV-Programm im Hintergrund weiterhin sichtbar bleibt.

Das Videosignal kann der neue Skyworth Receiver in einer Reihe verschiedener Formate und Auflösungen ausgeben, konkret stehen PAL_M, PAL_N, 480i, 480p, 576i, 576p, 720p 50 Hz, 720p 60 Hz, 1080i 50 Hz und 1080i 60 Hz zur Verfügung.

Nachdem alle Einstellungen korrekt vorgenommen wurden, verlässt man das Hauptmenü und der Receiver schaltet auf den ersten verfügbaren ISDB-T Sender. Eine Info-Leiste im unteren Bildschirmbereich offenbart sogleich den Namen des aktuellen Programms, sofern der Anbieter diese Information mitsendet. Ebenso wie DVB-T sieht auch ISDB-T eine komplette, digitale Programmzeitschrift für bis zu 7 Tage im Voraus vor, die der neue Skyworth Receiver selbstverständlich unter-

stützt und nach einem kurzen Druck auf die EPG Taste auch bereitwillig darstellt.

Da es sich bei diesem Receiver um ein Modell mit PVR Funktionen handelt, macht es natürlich besondere Freude, die Lieblingssendungen direkt zur Aufnahme zu markieren, vorbei sind die Zeiten in denen mühsam sowohl Receiver als auch Videorekorder dafür vorbereitet werden mussten.

Sollte ein Programmanbieter mehrere Tonspuren senden, so bietet der Skyworth HI-11 PVR selbstverständlich die Möglichkeit zwischen diesen mit Hilfe der gelben Funktionstaste zu wechseln, auch Teletext kann problemlos aktiviert und dargestellt werden.

Obwohl die Programmauswahl via ISDB-T im Vergleich zum Satellitenempfang eher bescheiden ist, hat sich die Suchfunktion innerhalb der Kanalliste trotzdem bewährt. Dank ihrer Hilfe kann jedes verfügbare Programm mittels eigener Taste an der Fernbedienung und anhand der Eingabe seiner Anfangsbuchstaben ganz leicht gefunden und aufgerufen werden.

Ebenso wenig wie diese Funktion möchten wir nach unserem ausführlichen Praxistest auch das Umschalten der Videoausgangsauflösung über eine eigene Taste an der Fernbedienung missen, ein Feature über das wirklich jeder Receiver verfügen sollte.

Im Test konnten sowohl die Bild- als auch Tonqualität des Skyworth HI-11 PVR überzeugen. Die Set-top-Box kommt problemlos mit Signalen in SD als auch natürlich HD zurecht und punktet zudem mit einer raschen Programmumschaltgeschwindigkeit von gerade mal etwas mehr als einer Sekunde. Auch der von Skyworth verbaute Tuner leistete gute Dienste und stellte dank Fehlerkorrektur selbst sehr schwache ISDB-T Signale noch akzeptabel dar.

Dank der vorhandenen USB 2.0 Buchse beschränkt sich der neue Skyworth Receiver nicht nur darauf, ISDB-T Programme zu empfangen, sondern er bietet auch die Möglichkeit, diese auf ein externes Speichermedium wie z.B. eine Festplatte, einen USB Stick oder eine SD Karte abzuspeichern.

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MEGASAT LNBS Extremely Small and Extremely Well



- *very small size*
- *perfectly suited for multi-LNB dishes*
- *extremely light weighted*
- *powerful output*
- *excellent noise figures*



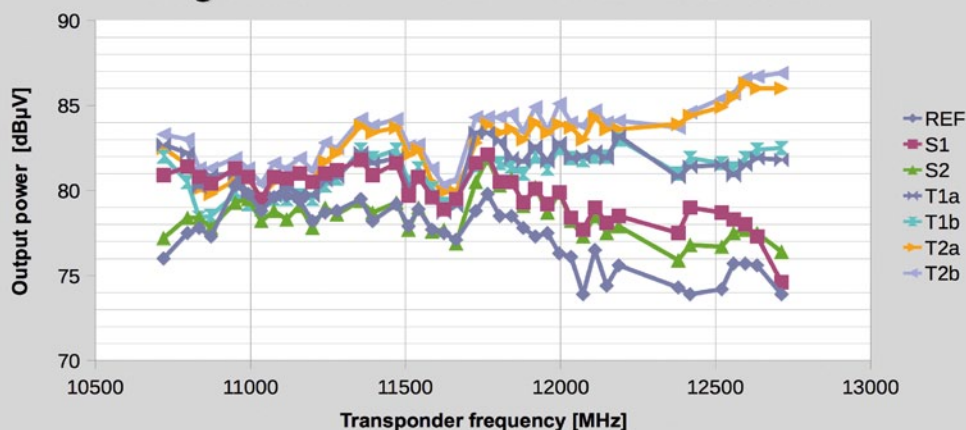
Small and Well

Can You Believe

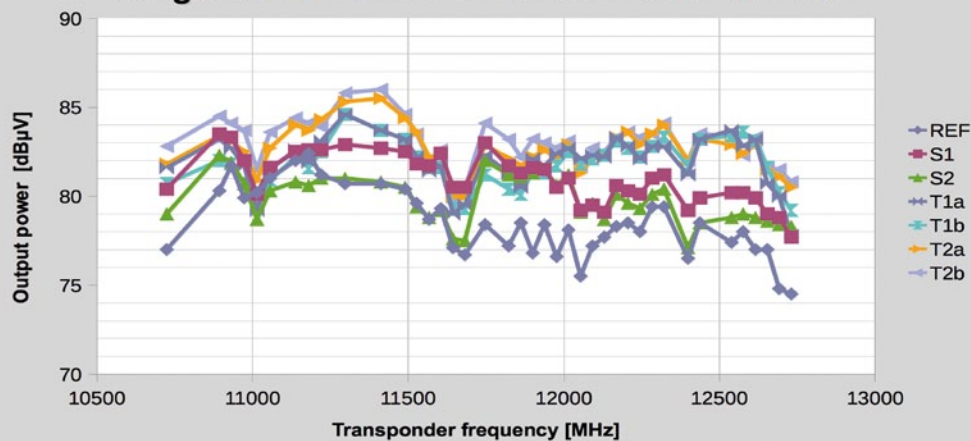
MEGASAT's Specifications?

In today's market reality, the noise figure has become THE parameter for evaluating LNB performance. If you do not mark your LNB at least NF=0.3 dB, you will hardly sell any. So most of the manufacturers mark their products as 0.3 dB or 0.2 dB. From time to time, we can spot a product marked 0.1 dB. Can we assume that a product marked 0.1 dB will perform better than 0.2 dB, and 0.2 dB will beat 0.3 dB?

Single and Twin LNB's - Vertical Polarization



Single and Twin LNB's - Horizontal Polarization



Well, not really. Nothing else but the real test in which we compare the new product against a very good competitor can reveal the truth. So frankly saying, when we saw the 0.1 dB Megasat Multifeed LNB's, we were somewhat skeptical.

The more so as these were not the well matured regular LNB's but the narrow profile devices suitable for multifeed systems for closely spaced satellites. Designed for 23 mm diameter holders,

**DESCRIPTION: KU SUPER MINI SINGLE
MODEL :BK5-01**

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Features:

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



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

C-BAND

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



KU-BAND QUAD
MODEL: BK-401



KU-BAND OCTO
MODEL: BK-801



KU BAND DUAL SINGLE
MODEL: BKM-01



C-BAND TWIN
MODEL: BCM-12B



C-BAND QUAD
MODEL: BCM-14



C-BAND ONE CABLE SOLUTION
MODEL: BCS-11



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



C+KU-BAND
MODEL: BCK-13



DiSEqC 2x1
MODEL: BDS-23



DiSEqC 4x1
MODEL: BDS-43



DiSEqC 4x1
MODEL: BDS-45



DiSEqC 8x1
MODEL: BDS-81



DiSEqC 4x1
MODEL: BDS-46



DiSEqC 4x1
MODEL: BDS-47



MULTISWITCH 2x4
MODEL: BMS-24



MULTISWITCH 2x6
MODEL: BMS-26



MULTISWITCH 2x8
MODEL: BMS-28



MULTISWITCH 4x4
MODEL: BMS-44



MULTISWITCH 4x6
MODEL: BMS-46



MULTISWITCH 4x8
MODEL: BMS-48



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Angela
INFORMATION

Marketing Manager : Jason

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Sales Executive : Angela

Mobile: +86-13823078066 MSN: Wheatfield_wu@hotmail.com E-mail: Angela@boiingsat-holding.com

Marketing Tel: +86-756-8919959 Fax: +86-756-8699312

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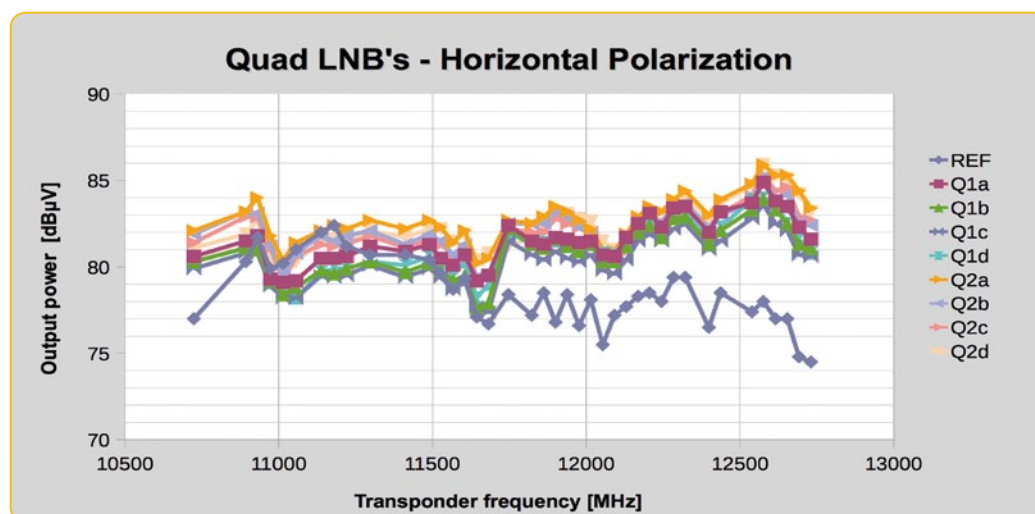
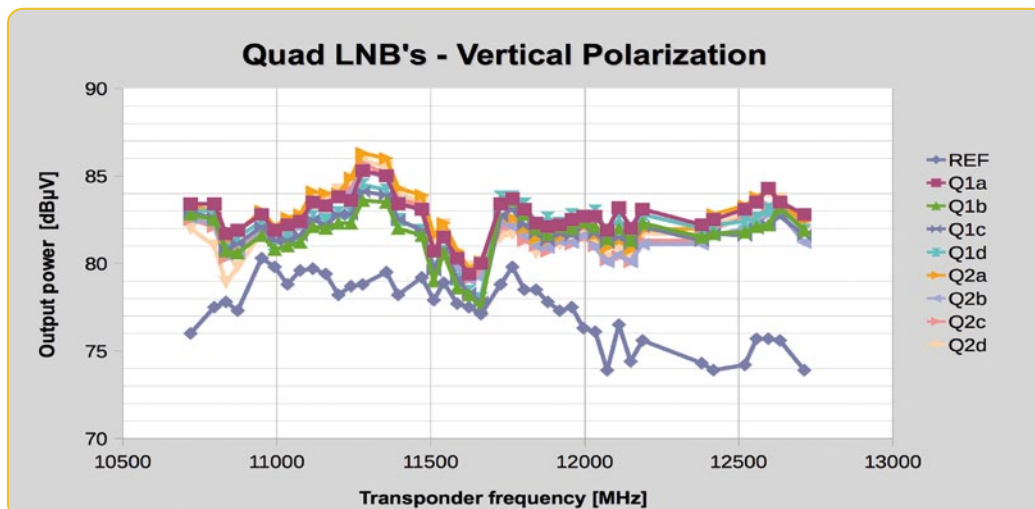
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each unit has also an additional ring adapter for classical 40 mm holders. So, nothing prevents mounting them on the regular offset dishes. Another striking characteristics is their low weight. The quad model is probably half the weight of the typical quad LNB. Their workmanship leaves absolutely nothing to be desired.

So, the first impression was really great. But what about this 0.1 dB noise figure? Can the new LNB's really match the matured classical designs? Or is this just "creative marketing"? There was no other way but to compare the samples with a known LNB of very good quality that we keep in our lab as reference. Our reference has superior noise performance and quite large output power. We com-



pared it to a number of other brands and selected it to be our reference device for all new LNB's. Will the narrow profile lightweight Megasat Multifeed LNB's get close to it?

We installed the samples on a 85 cm offset dish with classical 40 mm holder. The included adapters made this operation simple. Once again we appreciated the low weight of the devices. This makes the whole an-

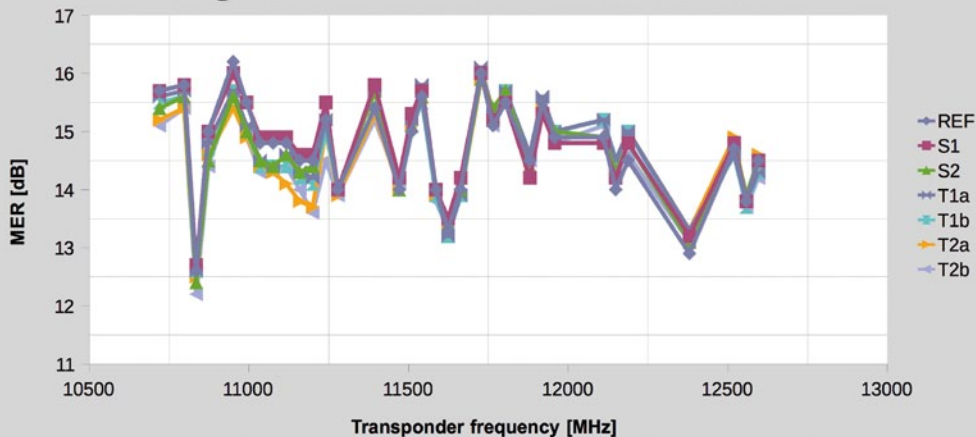
tenna more stable and resistant to strong winds. For our tests we used two samples of each type: single, twin and quad. So, a lot of LNBs, a lot of measurements and a lot of data to process. However, in this way, TELE-satellite readers get very objective results. In the attached charts we marked the results of our reference LNB as "REF". Megasat Multifeed Single LNBs were marked as S1 and S2, twin versions as

T1 and T2 and quad versions as Q1 and Q2. The individual outputs of twin LNB's were designated with letters a and b, while for quad versions with letters a, b, c and d.

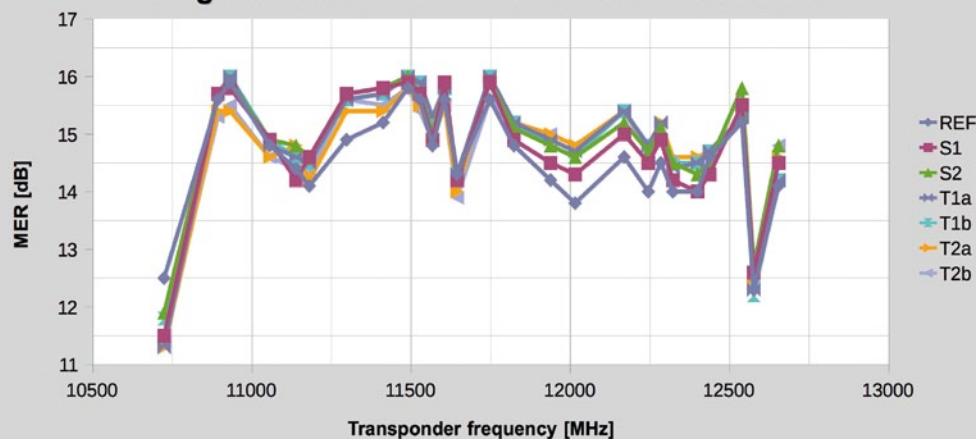
When we measure output power (signal strength at the LNB output), we usually do not publish detailed charts but only asses whether it is strong enough for long cables or you should rather keep the cables short in your installation. However, this time the results were so shocking to us that we decided to present all output power charts. You can see in the charts that for practically every satellite transponder, Megasat's LNBs produced stronger signal than our reference. One could expect that the quad LNB would not be as good as single or twins but no – it was even better!



Single and Twin LNB's - Vertical Polarization



Single and Twin LNB's - Horizontal Polarization



That's something we really did not expect. Megasat's LNBs are well suited for long cable installation and their output is high enough to compensate potential signal losses in DiSEqC switches and multiswitches connected to their outputs.

And what about signal quality? The most conven-

ient parameter for assessing quality of the signal produced by an LNB is modulation error ratio (MER). The parameter is related to the signal versus the noise ratio. For a typical signal (27.5 Ms/sec) 6-7 dB is the reception threshold. The better the LNB the higher MER of its output signal. As you can

see in the charts all Megasat Multifeed LNBs performed

really very well. All of them matched our reference LNB and even for some transponders of horizontal polarization they were slightly better (by 0.5 dB). That's really impressive! This means that not only they have low noise figure but they are also quite resistive to cross modulation.

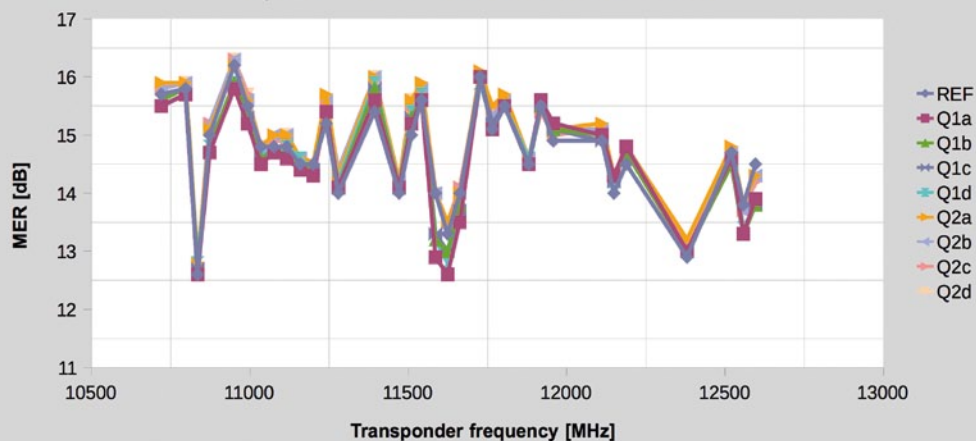
According to our measurements, power consumption of Megasat family is quite low: 70 mA for single, 162 mA for twin and 147 mA for quad LNB.

This is a real pleasure for a test editor to get samples that are so superior in all their parameters. We can do nothing but heartily recommend all Megasat Multifeed LNBs not only for the common TV viewers but also for the enthusiastic satellite DXers. They have excellent electrical parameters, they are narrow profiled, suitable for 23 mm & 40 mm holders and very light. You can put a lot of them on a single dish without any fear of overloading mechanically your antenna.

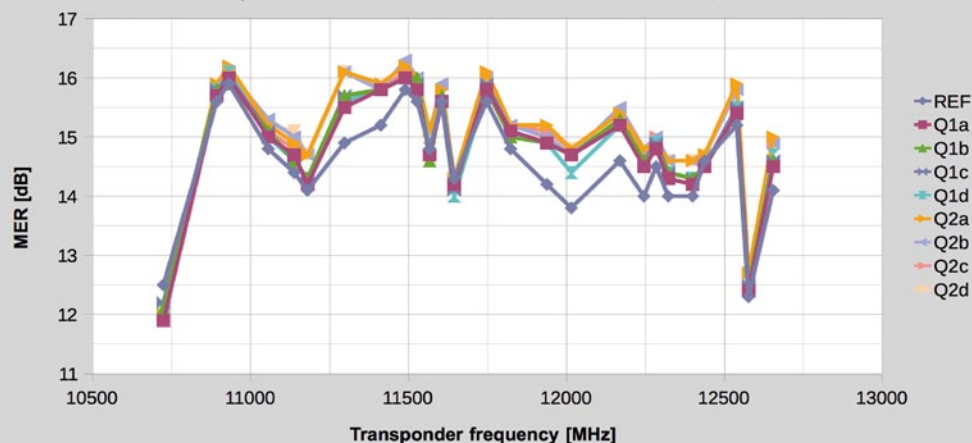




Quad LNB's - Vertical Polarization



Quad LNB's - Horizontal Polarization



TECHNICAL

DATA

Manufacturer	MEGASAT, B2C-electronic GmbH, Niederlauer, Germany
Internet	www.megasat.tv
E-mail	info@b2c-electronic.de
Telephone	+49-9771-63 567-100
Fax	+49-9771-63 567-109
Model	Meagast Multifeed
Function	Universal Ku-Band Single, Twin and Quad LNB for linear polarization
Input Frequency	10.7 GHz – 12 GHz
Output Frequency	950 MHz – 2150 MHz
Noise Figure	0.1 dB

Expert Opinion

Excellent electrical parameters – low noise and high output signal level
 Lightweight and narrow profile
 Suitable for 23 mm and 40 mm holders
 Very good workmanship.
 Especially recommended for multifeed systems to receive closely spaced satellites (like 2°)



None.



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| Ku Band LNB |

MEGASAT

MEGASAT LNBs Extrem klein und extrem gut



- sehr geringe Größe
- perfekt gebaut für Multi-LNB Schüsseln
- extrem leicht
- leistungsstarker Ausgang
- exzellente Rauschzahl

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In der heutigen Marktstrategie wurde die Rauschzahl DER Parameter zur Beurteilung eines LNB. Wenn ein LNB nicht mindestens ein $NF = 0.3$ dB aufweist, ist es kaum zu verkaufen. So weisen die meisten Hersteller ihre Produkte mit 0.3 dB oder 0.2 dB aus. Gelegentlich können wir ein Produkt finden, das nur 0.1 dB aufweist. Können wir aber sicher sein, dass ein Produkt mit der Angabe 0.1 dB besser ist als eines mit 0.2 dB, und schlägt eines mit 0.2 dB eines mit 0.3 dB?

Nun, das stimmt nicht wirklich. Das kann nur ein wirklicher Test belegen, bei dem wir das neue Produkt mit einem sehr guten anderen Produkt vergleichen. Offen gesagt wir waren skeptisch, als wir die 0.1 dB Megasat Multifeed LNBs sahen. Umso mehr als diese nicht wie erprobte normale LNBs aussahen, sondern nur schmale Einheiten waren, passend zu Multifeed Systemen mit dicht beieinander liegenden Satelliten. Sie sind für eine Halterung mit 23 mm Durchmesser gebaut,

können aber mit einem zusätzlichen Ringadapter auch an klassische 40 mm Halterungen angepasst werden. Deshalb gibt es auch kein Problem, sie an einer normalen Offset-Schüssel anzubringen. Ihr niedriges Gewicht ist eine weitere beachtliche Eigenschaft. Das Quad-Modell ist etwa halb so schwer wie ein übliches Quad LNB. Die Verarbeitung lässt nichts zu wünschen übrig.

So war denn auch der erste Eindruck wirklich großartig. Aber wie ist es mit



dieser 0.1 dB Rauschzahl? Schlagen die neuen LNBs die erprobten klassischen Konzepte? Oder ist es nur ein Verkaufsargument? Es ging nicht anders, um die Muster zu beurteilen, mussten wir sie mit erprobten hochqualitativen LNBs vergleichen, die wir in unserem Labor als Referenz benutzen. Unsere Referenz hat ein hervorragendes Rauschverhalten und eine

sehr hohe Ausgangsleistung. Wir hatten sie aus einer Vielzahl anderer Fabrikate ausgewählt, damit wir eine Referenz für alle neue LNBs bekamen. Würden diese schmalbrüstigen und leichtgewichtigen Megaset LNBs an sie heran kommen?

Wir installierten die Muster an einer 85-cm-Schüssel mit klassischer 40-mm-Halterung. Die mitgelieferten Adapter machten es einfach. Erneut zeigte sich dabei, wie vorteilhaft das geringe Gewicht der Geräte ist. Die ganze Antenne wird stabiler und widerstandsfähiger bei starken Winden.

Für unsere Tests nahmen wir zwei Stück von jedem Typ: Single, Twin und Quad.. Das waren viele LNBs, es gab viele Messungen und viele Messdaten zu verarbeiten. Aber nur so bekommen die Leser von TELE-satellite objektive Ergebnisse. In den Abbildungen bezeichneten wir die Referenz-LNBs mit REF, Megasat Multifeed Single LNBs sind mit S1 und S2 bezeichnet, Twin-Versionen sind T1 und T2 und Quad-Versionen Q1 und Q2. Die beiden Ausgänge der Twin LNBs sind mit den Buchstaben a und b, die vier Ausgänge der Quad-Versionen mit den Buchstaben a, b, c und d

bezeichnet. Wenn wir die Ausgangsleistung (Signalstärke am LNB-Ausgang) messen, veröffentlichen wir normalerweise keine detaillierten Tabellen, schätzen nur ab, ob sie für lange Zuleitungen ausreicht oder ob man besser bei den Installation die Verbindungen kurz halten sollte. Diesmal überraschten uns die Ergebnisse so sehr, dass wir uns entschlossen, alle Leistungskurven darzustellen. In diesen Abbildungen können Sie sehen, dass für praktisch jeden Satelliten-Transponder die Megasat LNBs stärkere Signale als unsere Referenzen lieferten. Nun könnte man erwarten, dass der Quad-LNB nicht so gut sein könnte wie ein Single oder Twin - er war aber sogar besser!

Das hatten wir wirklich nicht erwartet, die Megaset LNBs sind bestens geeignet für lange Kabel-Installationen und ihre Ausgangsspannung ist hoch genug, um Verluste der Signalpegel auszugleichen, die in angeschalteten DiSEqC- und Multiswitch-Schaltern entstehen.

Wie ist es mit der Signalqualität? Die einfachste Messgröße, um die Signalqualität eines LNB zu beurteilen ist MER, die Modulations-Fehlerrate.

Diesen Parameter erhält man aus dem Signal-/Rauschverhältnis. Für ein typisches Signal (27.5 Ms/sec) liegt die Schwelle bei 6 bis 7 dB. Je besser der LNB, umso höher ist die MER des Ausgangssignals. Wie man den Kurven entnehmen kann, erfüllen das alle Megasat Multifeed LNBs sehr gut. Jeder einzelne war unserem Referenz LNB gleichwertig und für einige Transponder mit horizontaler Polarisierung sogar leicht überlegen (0.5 dB). Das ist wirklich beeindruckend! Das bedeutet, dass sie nicht nur eine niedrige Rauschzahl haben, sondern auch gegenüber Kreuzmodulation recht resistent sind.

Aus unseren Messungen ergibt sich, dass der Stromverbrauch der Me-

gasat-Familie sehr niedrig ist:

70 mA beim Single-, 162 mA beim Twin- und 147 mA beim Quad-LNB.

Dem Tester macht es das reinste Vergnügen, Geräte in die Finger zu bekommen, die solch hervorragende Parametern zeigen. Wir können nicht mehr tun, als die Megaset Multifeed LNBs herzlich weiter zu empfehlen, nicht nur den einfachen Fernsehern, sondern den Fernseh-Enthusiasten und DX-ern. Sie haben hervorragende elektrische Werte, sie sind schmal gebaut, passen in 23 mm und 40 mm Halterungen und sind sehr leicht. Man kann viele davon an einer Schüssel anbringen ohne fürchten zu müssen, die Antenne mechanisch zu überlasten.

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



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AMINO



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)



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JIUZHOU



Manufacturer	NetUP
Website	www.netup.tv
Function	IPTV Gateway for DVB Signals
Stream Protocol	UDP
Menu Standards	NetUP Middleware
WLAN	—



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NETUP

Manufacturer	AZBox
Website	www.azbox.com
Function	HDTV DVB-S2 and IPTV receiver with various Multimedia&Internet Features
Stream Protocol	UDP
Menu Standards	html
WLAN	—



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85774 Munich-Ufg, GERMANY

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



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ICECRYPT



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



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SKYWORTH



Manufacturer	Icecrypt
Website	www.icecrypt.com
Function	Digital Satellite Receiver with PVR ready
DVB S2/LAN	• / •
Channel Memory	5000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3 (USALS)
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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



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



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INPAX



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

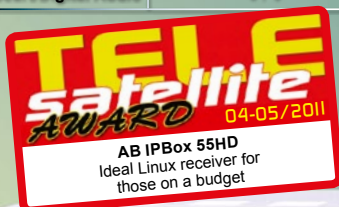
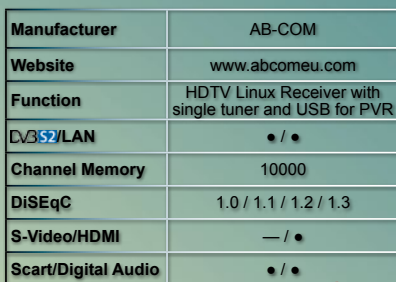


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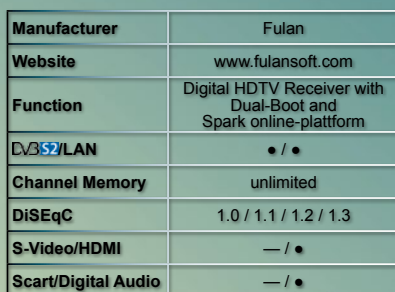


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Manufacturer	AB-COM
Website	www.abcomeu.com
Function	Twin DVBS2 Multimedia Receiver
DVBS2/LAN	● / ●
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / ●
Scart/Digital Audio	● / ●



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



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



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AZBOX



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



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JIUZHOU





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



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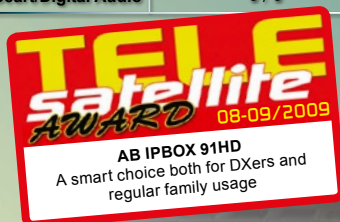
www.TELE-satellite.info/10/05/azbox
Direct Contact to Sales Manager



AZBOX



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



TELE-satellite Magazine Business Voucher

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



AB IPBOX

AWARD WINNING

21 **HDTV**
PC CARDS OF
21ST CENTURY

这些是获得最高奖的产品





TELE-satellite Magazine Business Voucher

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

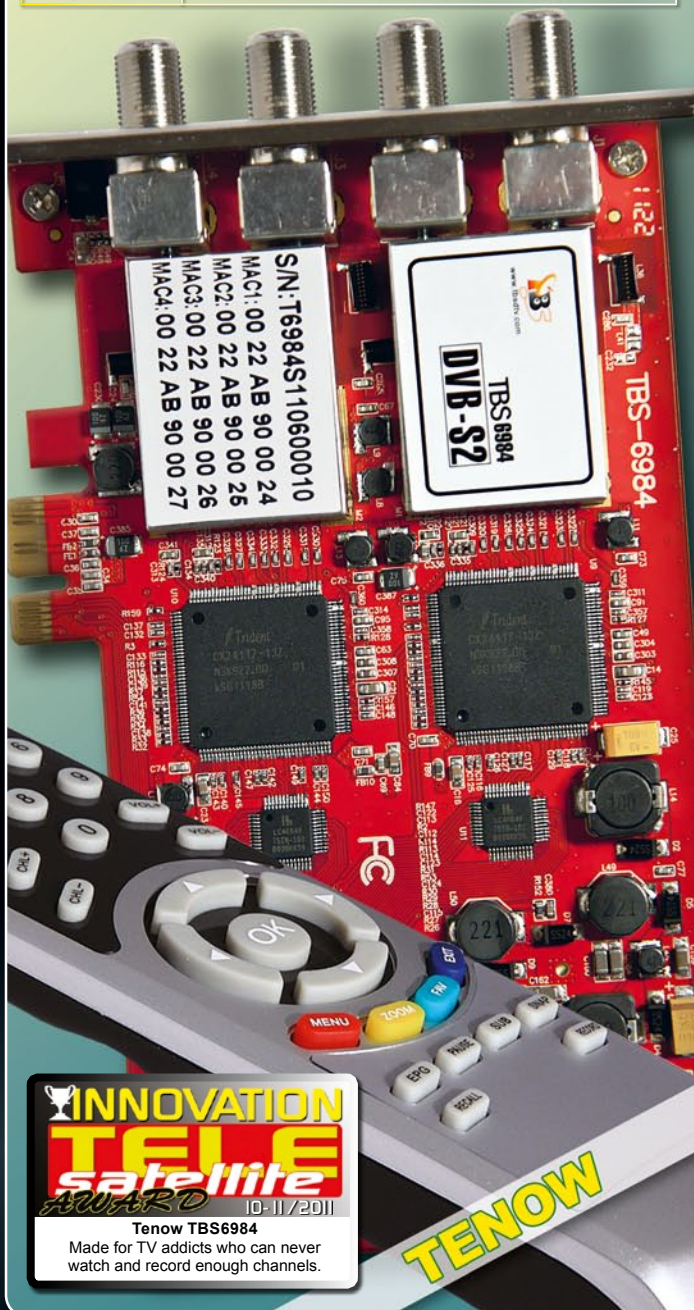
Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	DVB-S2 PCI-E card with 4 tuners compatible with Windows and Linux operating systems
Channel Memory	unlimited
Satellite Memory	unlimited
Symbol Rates	1-45 Ms/sec (QPSK), 2-36 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x



TELE-satellite Magazine Business Voucher

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

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



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



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



TELE-satellite Magazine Business Voucher

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

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



TELE
satellite
AWARD 10-11/2011

Tenow TBS6280
Fit for the future thanks to impeccable
DVB-T/T2 implementation.

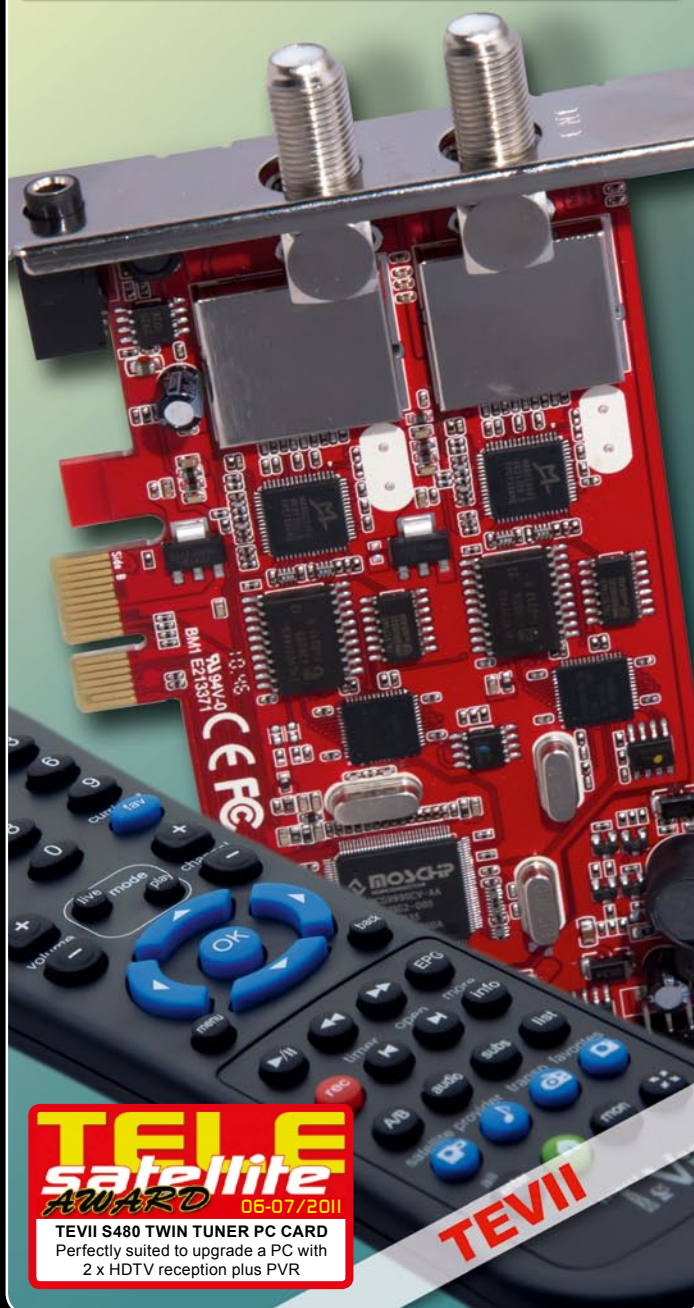
TENOW



TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/11/07/tevii
Direct Contact to Sales Manager

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



TELE
satellite
AWARD 06-07/2011

TEVii S480 TWIN TUNER PC CARD
Perfectly suited to upgrade a PC with
2 x HDTV reception plus PVR

TEVii



TELE-satellite Magazine Business Voucher

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

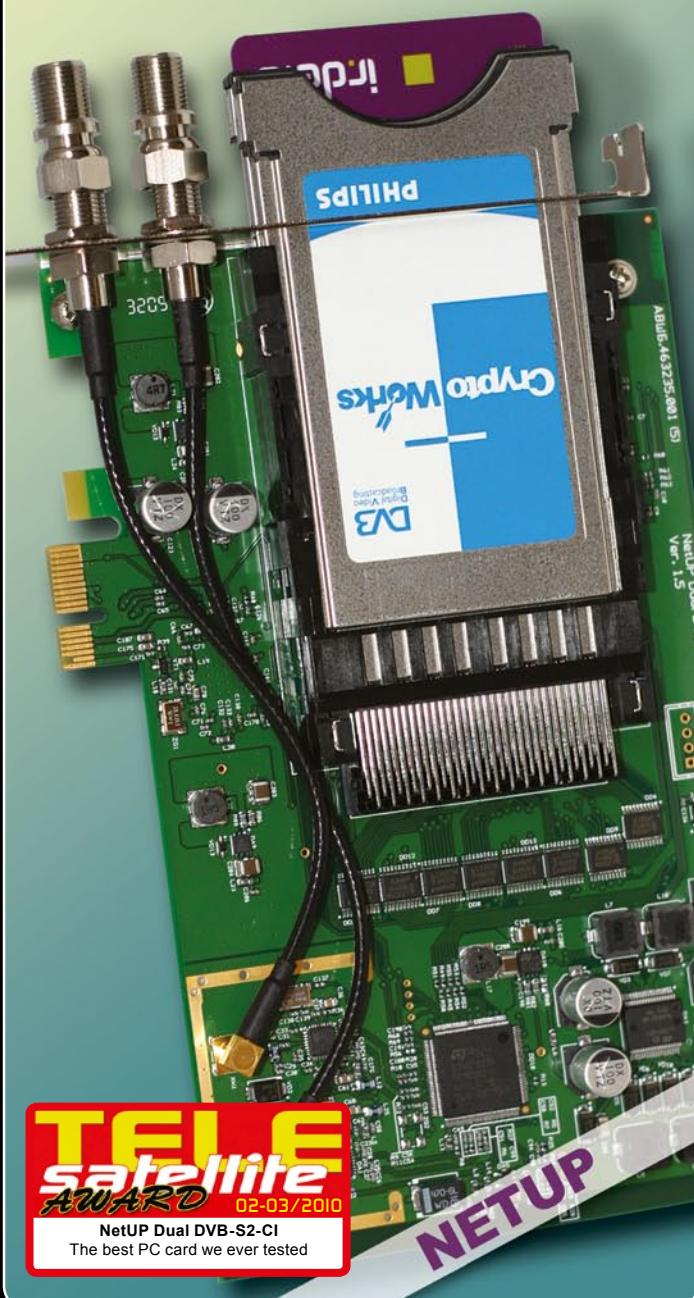
Manufacturer	NetUP
Website	www.netup.tv
Function	Two Tuners DVB-S2 PCIe card
Channel Memory	unlimited
Satellite Memory	—
Symbol Rates	1 to 47 Ms/sec (QPSK), 1 to 31.5 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2



TELE-satellite Magazine Business Voucher

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

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



AWARD WINNING

**SIGNAL
ANALYZERS OF
21ST CENTURY**

这些是获得最高奖的产品





TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/11/09/8dtek
Direct Contact to Sales Manager

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



TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/11/07/8dtek
Direct Contact to Sales Manager

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





TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/11/07/satcatcher
Direct Contact to Sales Manager

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



TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/10/11/horizon
Direct Contact to Sales Manager

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





TELE-satellite Magazine Business Voucher

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

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



TELE-satellite Magazine Business Voucher

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

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





TELE-satellite Magazine Business Voucher

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

Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Signal Meter for DVB-T, analogue TV, digital DAB radio, analogue FM radio
Frequency Range	46-870 MHz
Video Output	—
Built-in Monitor	120x64 3.5" LCD color display



SATCATCHER



TELE-satellite Magazine Business Voucher

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

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



HORIZON



TELE-satellite Magazine Business Voucher

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

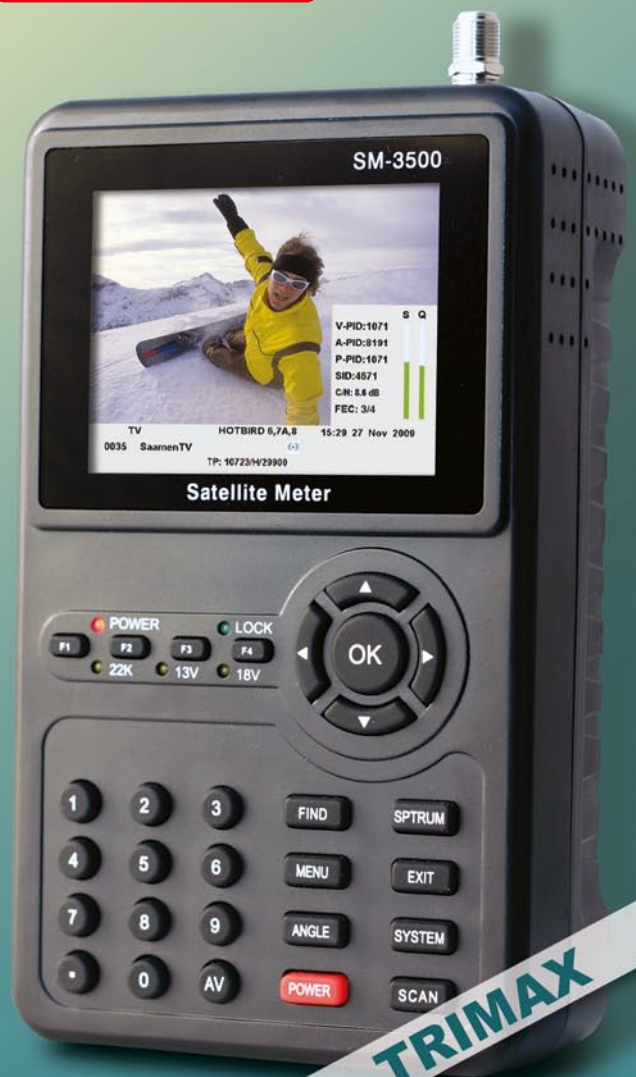
Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	DVB Signal Meter with tv monitor for DVB-S and DVB-T
Frequency Range	950~2150 MHz (satellite) and UHF/VHF (terrestrial)
Video In/Output	RCA/RCA
Built-in Monitor	3.5" LCD color display



TELE-satellite Magazine Business Voucher

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

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





TELE-satellite Magazine Business Voucher

www.TELE-satellite.info/10/01/horizon
Direct Contact to Sales Manager

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



NANOSAT



TELE-satellite Magazine Business Voucher

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

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



OPTISCAN



TELE-satellite Magazine Business Voucher

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

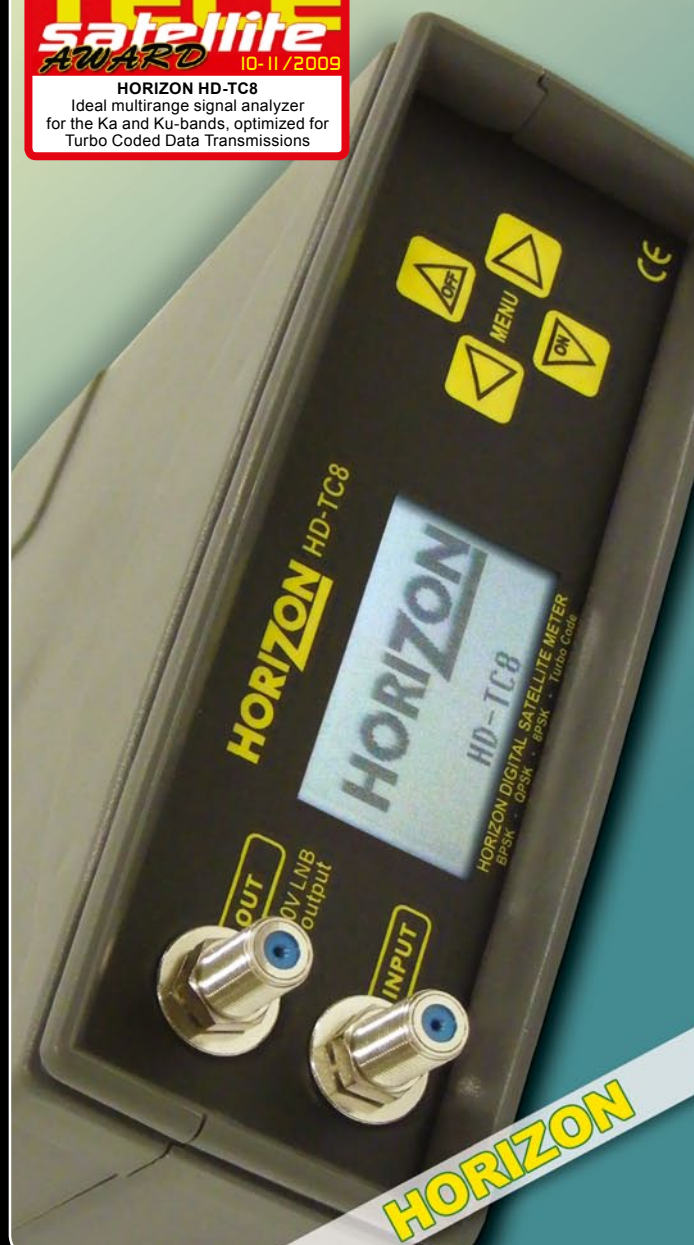
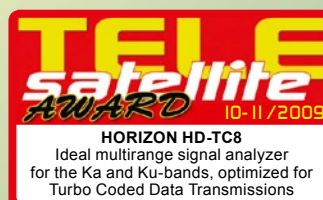
Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Fully-fledged Signal Meter with TV display
Frequency Range	930~2150 MHz
Video Output	RCA Composite
Built-in Monitor	120x64 3.5" LCD color display



TELE-satellite Magazine Business Voucher

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

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



■ Company premises of receiver manufacturer AB-COM in Topolcany, Slovakia. The company has cooperation agreements with TV manufacturer LG and pay TV provider Skylink, which is why their logos also appear prominently on the roof of the building. AB-COM generates 30% of its turnover in the local markets of Slovakia and the Czech Republic, with the remaining 70% share coming from other European markets.

AB-COM: Innovation Guaranteed

torizovaný
tribútor LG

skylink

Máte už digitál?

elitnou technikou

ab-com
www.abcom.sk

- *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*

Conquering the market with new receivers



Slovakian receiver manufacturer AB-COM has found its firm place in the Central European market within an impressively short time. Based in the little-known town of Topolcany, some 100 km east of the Slovakian capital Bratislava, the company was founded

by Juraj Masaryk in the year 2002. In the beginning the business acted as a wholesaler for satellite components and it was only in the year 2010 that AB-COM Europe was established as an independent receiver manufacturer. AB-COM as a wholesaler continues to prosper

alongside and is the official distributor of all AB-COM Europe products in the company's home markets of Slovakia and the Czech Republic.

Company founder Juraj Masaryk tells us how AB-COM products are supplied to



ab-com

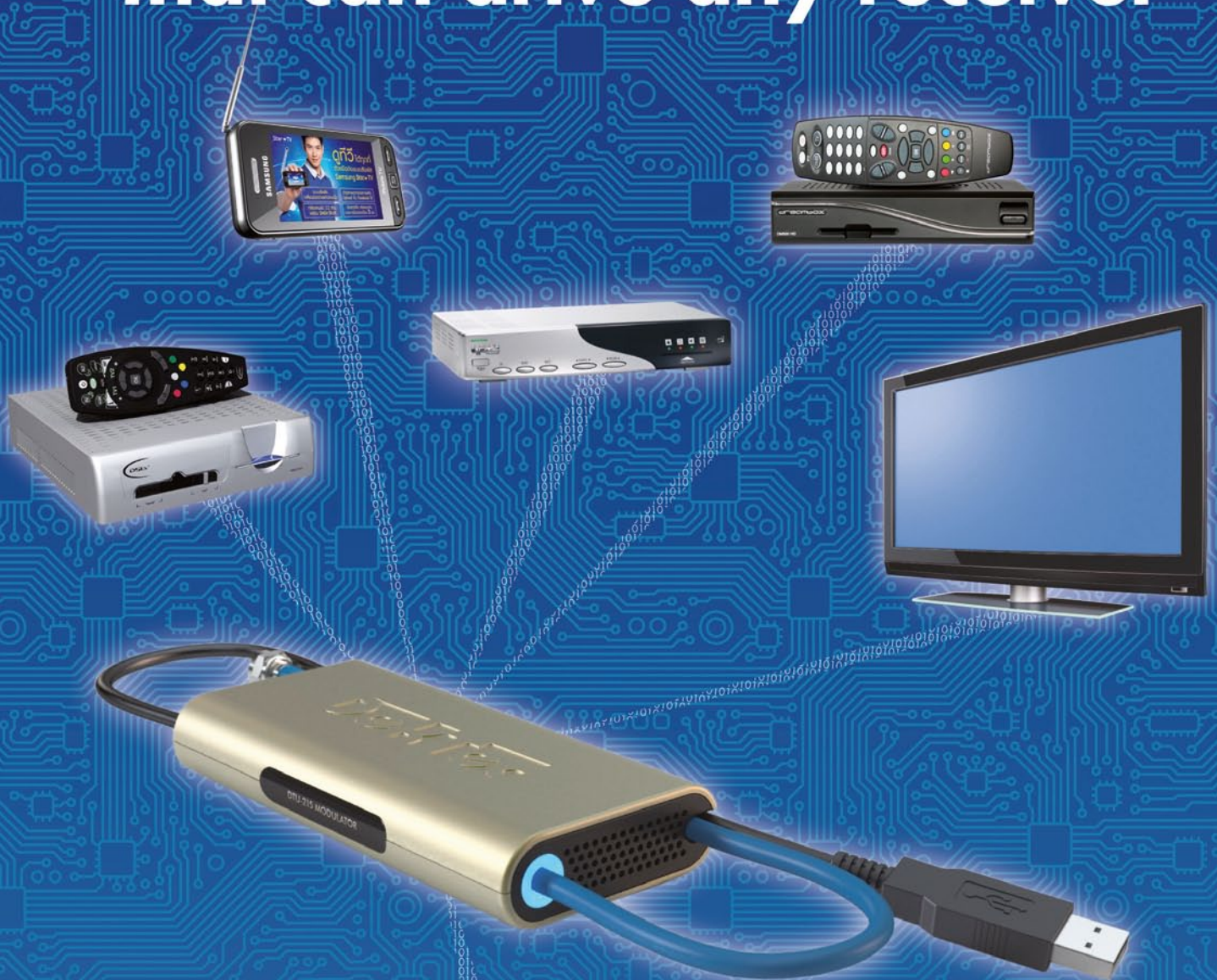
3D Convert

1. 2DHD → 3D → 3DTV - Polarized
 2. 2DHD → 3D → 3DTV - Active
 3. 2DHD → 3D → 2DTV - Red Cyan
 PK
 Glucocenters

4. 2DHD → 3D → 2DTV - Red Cyan

■ Juraj Masaryk is founder and Managing Director of AB-COM. Here he is seen explaining all the features of the 3D converter that is built into the AB 3D boxes.

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



other markets in Europe: "In the Ukraine we have our own affiliate by the name of AB-COM Ukraine and in many European countries local wholesalers have taken over distribution of AB-COM products." He continues by letting us know that "our products are directly available in neighbouring countries Poland, Hungary and Austria. In addition there is indirect distribution in Hungary, Romania and Bulgaria, where we have a dedicated wholesale partner. In the Baltic states, Finland, Sweden, the Netherlands, Spain, Italy and Greece local distribution of AB-COM products takes place through

regional wholesale channels." Only few dark spots are left on the European map, and Juraj Masaryk emphasises that "we are very open for wholesalers in countries where AB-COM is not yet present." Interested parties are more than welcome to get in touch with him.

The effort could well be worth one's while since AB-COM has an attractive product portfolio in store. For each product range or product segment AB-COM has launched dedicated brands, the names of which already imply what the products are about. "Receivers with

the AB IPBox brand are already widely known," Juraj explains. "These are HD receivers based on Linux." For terrestrial reception AB-COM offers the AB TereBox series with DVB-T receivers for both MPEG-2 and MPEG-4. "In the first quarter of 2012 we will also launch our

■ The 600 sqm warehouse is filled to the brim with components and finished products. Two warehouse staff members are kept busy shelving newly delivered items and preparing finished products for dispatch to wholesale customers. "The warehouse is filled with items worth almost one million euro," Juraj Masaryk explains and draws our attention to the huge amount of cardboard boxes. This way AB-COM can make sure each customer order is fulfilled in the best possible way.



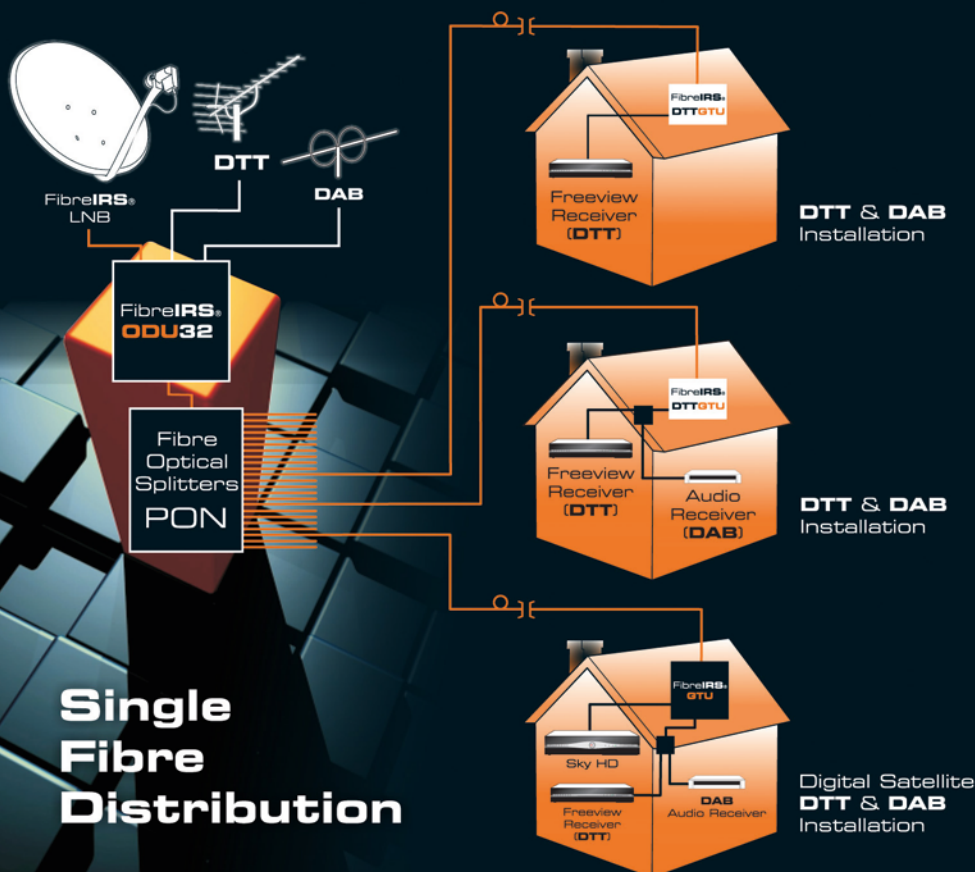


■ View to the Assembly line: an employee puts the recently assembled receivers in their gift boxes.



The New Generation Fibre Integrated Reception System

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



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

*Compared with existing Fibre Systems

**Single
Fibre
Distribution**



first DVB-T2 receiver," he hints at some interesting plans for the future. The only question that still begs an answer is in which countries DVB-T2 will actually be launched. As a matter of fact, nobody knows at this stage because every country will decide independently whether and how to introduce DVB-T2, and these decisions are not always easy to understand.

The LinkBox series features another range of receivers: "Here we are talking about boxes we produce for Czech pay TV provider Skylink, which uses the Irdeto encryption system." These receivers are particularly inexpensive, Juraj says and adds "we'd be ready to offer this box to other content providers using Irdeto as well." If you need further proof for AB-COM's orientation towards future

consumer applications you need not look further than to the brand new AB 3DBox receiver line which features HD receivers with integrated 3D TV converter. The newly developed 3D boxes are scheduled to hit the market in the first quarter of 2012. In the previous issue of TELE-satellite we presented the stand-alone 3D converter, whose software will also be used in the AB 3DBox receivers.

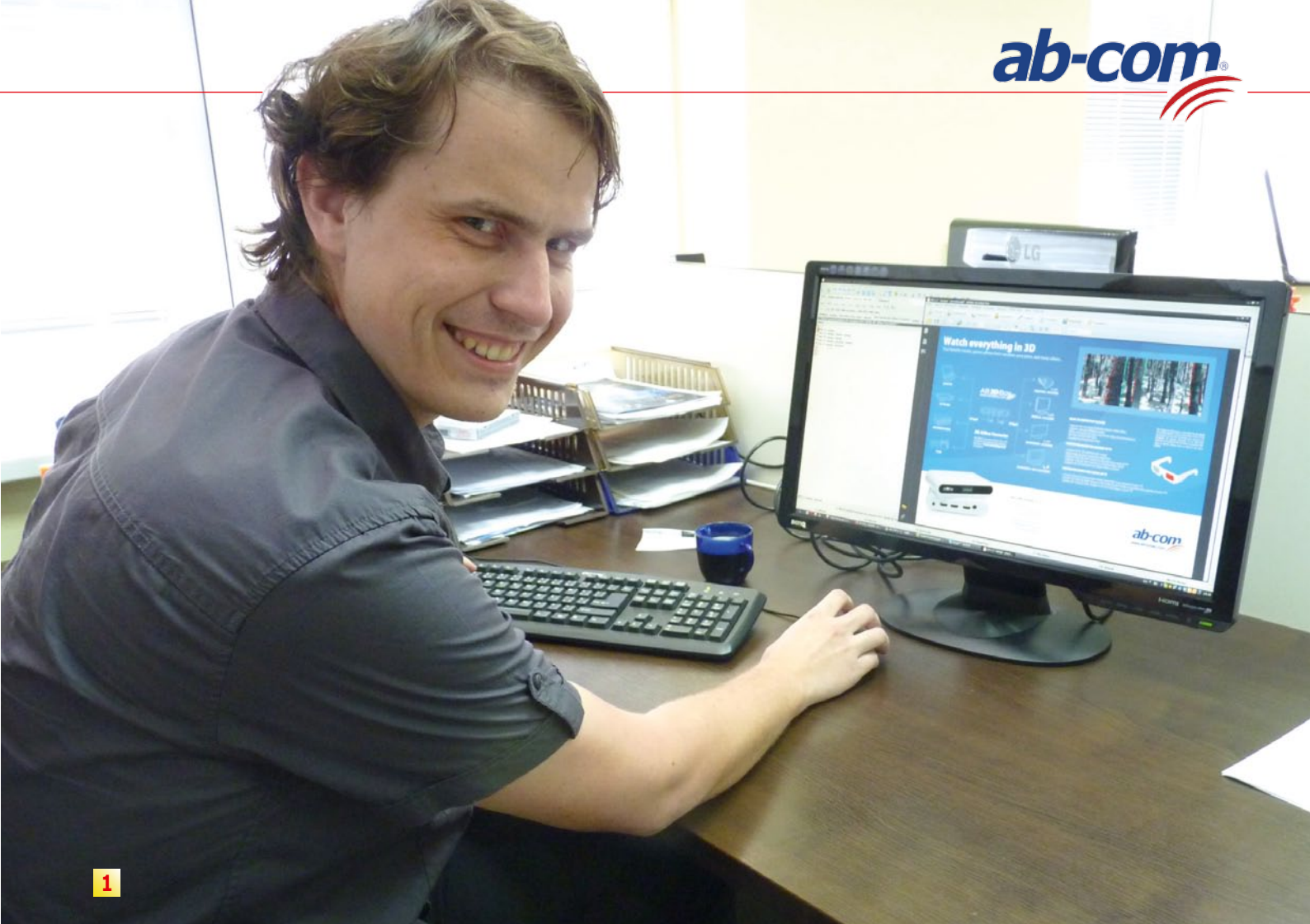
The recently introduced AB-COM CryptoBox receiver line from AB-COM has a very special treat in store: As extremely good-value receivers targeted towards the pay TV market, all receivers from this line include CA and a CI module. The truly special feature, however, is a USB interface which can be used to connect a WiFi dongle, Juraj Masaryk explains. He knows that fully cabled Ether-

net networks are gradually disappearing and that almost every household these days has set up a WiFi network. So why not add WiFi capability to satellite receivers? "These boxes are based on the Ali 3606 chipset which is particularly fast," Juraj adds.

Thanks to all these achievements AB-COM Europe has taken only two years to become a significant player that is actively tapping into various product segments. For Juraj Masaryk, innovation is the key to success and a cornerstone for a successful expansion path. Even the company name has turned out to be wisely chosen: The acronym AB appears on all new brand names whenever a new products series is launched. This way AB-COM is able to grow and prosper for a long time to come!

■ Michal Krajcik's passion is all about photography. It should be, as he is the head of design and looks after the website of AB-COM.





1. Meet Marketing Manager Michal Grezo. What's that on his screen? It's the advertisement of the AB 3DBox as it appeared in TELE-satellite.

2. Pavol Blaho is Sales Manager

2





Sales Managers Slovakia

1. Daniel Lukacovic and...
2. ... Pavol Grznar and ...
3. ... Juraj Babula take care of customers in Slovakia.



ADDITION TO THE JAEGER® - FAMILY ...

JAEGER® HD+ 2011 CI+

Best in test in the SATVISION issue 166



ENVIRONMENTALLY FRIENDLY
STANDBY-POWER CONSUMPTION < 1 WATT
ENERGY-SAVING WITH INTEGRATED
POWER SWITCH

PVR Ready -Direct recording via USB on
external storage media possible!

FULL HD!

1080 P, 1080i, 720 P, 576 P

USB 2.0 SLOT



For external HDD
or USB-Stick

HDMI



High Definition
Multimedia Connection

1 x SMARTCARD-READER



1 x COMMON INTERFACE

*** FULL HD ***



FEATURES:

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



JAEGER® HD+ 2011



USB 2.0 SLOT



For external HDD
or USB-Stick

HDMI



High Definition
Multimedia Connection

1 x SMARTCARD-READER



FEATURES:

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

JAEGER® HDCI 2010



USB 2.0 HOST



For external HDD
or USB-Stick

HDMI



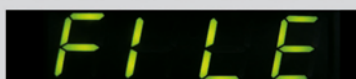
High Definition
Multimedia Connection

1 x COMMON INTERFACE



FEATURES:

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





1



2

Technical Service

1. Customers requiring technical assistance turn to Peter Valo.
2. In case of problems Service Manager Martin Durinsky handles all requests and coordinates the repair process.
3. Hardware problems? No problem for Hardware Engineer Daniel Herda who will open the box, address any malfunction and put everything together again.



25 Years Applied Instruments



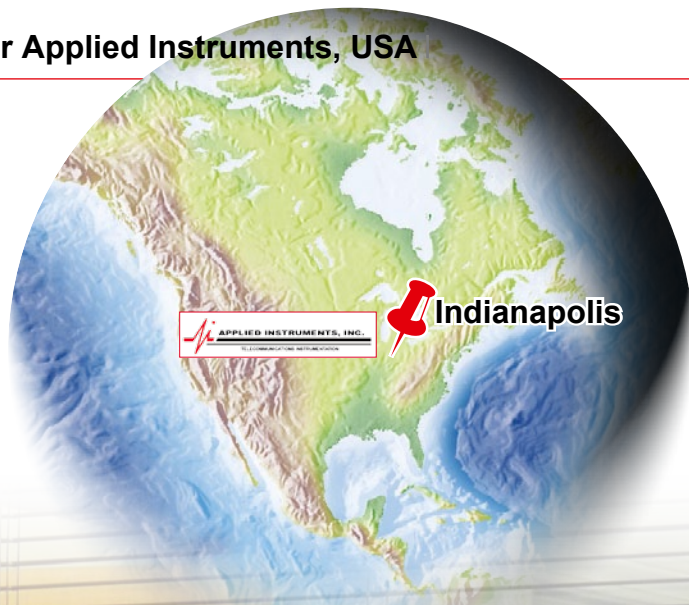
■ Applied Instruments leases two suites in this industrial complex from which digital TV signal analyzers are produced.

- ***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***



Robust Signal Analyzers Made in USA

■ General Manager Tom Haywood in the showroom with a selection of products from Applied Instruments. He owns 50% of the company while his partner Jeff Haas, Director of Engineering, owns the other 50%.



GOOSAT

Serve the World Inspire the Future

Multimedia HDTV CI Plus PVR

DVB-S2



Model: **S4-1HD**

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

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



Real Panel

Satellite/Terrestrial/Cable Meter



Online Sat-finder

LED TV | 3D TV Google TV



Display Size
• 26"
• 32"
• 42"

GlobalSat
International Technology Ltd.

Headquarters: F/17, China Youse Building, 6013 Shennan Avenue Futian Dist., Shenzhen 518040 P.R. China
Tel: 0086-755-8321-4789 | Fax: 0086-755-8322-2107 | E-mail: info@goosat.com | www.goosat.com

You can meet us in the following trade fairs every year:



■ Jeff Haas is Director of Engineering and prefers to work at this shack. He is co-owner of Applied Instruments.



A small family business has managed to become one of the most well-known names in the North American cable and satellite TV signal analyzer market. It's the perfect reason for us to go and pay Applied Instruments in Indianapolis, Indiana, USA, a visit only to find out that the company is expanding into the international market with its products that are Made in USA.

Who's behind Applied Instruments? It really is a family-owned business. It was founded exactly 25 years ago in 1986 by Doyle Haywood, the father of the current General Manager Tom Haywood. His son Scott Haywood also works for the company as a sales manager.

When we look back at when it all started, we find out that there's even more history behind the company's founder Doyle Haywood: he founded a company back in 1973 that produced signal analyzers for cable TV. In 1979 he sold that company to a large corporation. But when he came up with the idea to develop clean reliable test signal generators for CATV, he quickly founded a new company: Applied Instruments. His

son Tom Haywood explains to us where the name came from: "We apply a solution to every problem and provide the instruments just for that purpose – Applied Instruments."

The new company originally began with three employees, one of whom was David Poelstra, a research engineer that worked together with Doyle Haywood in the first company. In 1990 they released their first successful product to the market – a cable TV signal analyzer that not only was easy to use but was also affordable. Over the years other analyzers appeared. "In order to test long cable lengths, we produced a Return Path Test Set", remembers General Manager Tom Haywood, "It consisted of a CW Test Signal Generator that was attached to one end of the long cable and a receiver at the other end. In this way we could check the quality of the cable."

In 1994 MMDS (Multichannel Multipoint Distribution Service), also known as wireless cable, gained widespread use primarily in rural areas and Applied Instruments was there providing the appropriate signal analyzers.

From here the path to satellite signal analyzers was not a long one. "In 1998 we introduced the first satellite signal analyzer from the 'Buddy' series", comments Tom Haywood.

The Sat Buddy quickly became known and loved by North American satellite installers and over the years was consistently improved and fitted with new features. Scott Haywood, Tom Haywood's son and third generation in the company, is a sales manager at Applied Instruments and tells us about the newest Buddy version: "It's the Super Buddy 29 and in addition to letting you measure satellite TV signals, it can also be used to install the Wildblue Internet-via-satellite service. These LNBs require 29 volts that the Super Buddy 29 can supply, hence the '29' in the model name."

Tom Haywood, the current General Manager, is actually a construction engineer but always enjoyed lending a hand at the company. In 1996 he decided to work exclusively for his father's company: "The creation of solutions and the ergonomic products have always fascinated me", he reveals, "It's

■ A motorized C-band dish on the wall as well as numerous other dishes on the roof are all used by Applied Instruments to develop and test their signal analyzers.

APPLIED INSTRUMENTS
Signal Analyzer Manufacturer, USA
www.appliedin.com

25 Years Applied Instruments

www.TELE-satellite.com/TELE-satellite-1189/eng/applied.pdf

Company Details

Engineers in Research & Development | Total Number of Employees
0 25 50

Average Turnover (Previous, This, Next Year Estimates)
0 10 20 Mio USD

Production Certificates
DVB

Production Categories
own brand

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

not all that much different from being a building designer who must also be creative and a problem solver."

When his mother, the wife of founder Doyle Haywood, began to have health issues, his father decided to leave the company and sell 50% ownership of the company to Tom Haywood. The other 50% was sold to Jeff Haas. Both are enthusiastic with the opportunity to further expand Applied Instruments.

But the company doesn't only manufacture signal analyzers that are used at the receiving end. An especially interesting highlight is the Noise Power Ratio testing product that manufacturers of amplifiers, optical transmitters and receivers, and other active devices can use to test the operating range of their products. It consists of a noise generator that sends its signal to the receiver to be tested and a corresponding signal analyzer that measures the output signal from the tested receiver.

"Our NS-3 Broadband Noise Generator is often used by receiver manufacturers and satellite service providers to simulate rain fade and conduct carrier

to noise testing", comments Tom Haywood.

General Manager Tom Haywood explains to us their product palette: "80% of our sales are made up of reception signal analyzers, 10% are test generators with the remaining 10% made up of complete systems consisting of signal generators and signal analyzers." And as far as sales figures go, he tells us, "For the past several years sales have been stable at about US\$ 5.5 million but for 2012 we are expecting roughly a 10% increase."

Where will this increase come from? Sales Manager Scott Haywood has a few answers for us: "We are currently developing a signal analyzer for DVB-S2 that will become available in the fourth quarter of 2011. We are also working on terrestrial signal analyzers for ATSC and QAM that will appear in the first quarter of 2012."

Applied Instruments is looking at satellite signal analyzers as their way of expanding into the export market. "Up until now, 95% of our products have been shipped to North America, that is

USA and Canada, with only the remaining 5% being shipped abroad to countries like Switzerland, Sweden, Great Britain, Belgium as well as Australia", comments Scott Haywood.

But this is what will change in the company's 25th year of operation: "We are actively looking for competent distributors in Europe, The Middle East and Asia." It is critical for Applied Instruments to find technically competent partners: "Our products are not throw-away products; they are solidly built and can be repaired if the need were to ever arise." Technical customer service is actually quite important when dealing with products like signal analyzers; professional installers use signal analyzers on a daily basis and can thereby document a proper installation. Reliability and help with technical problems are excellent reasons why an installer would want to choose a quality product from a manufacturer that he knows will support him later on.

"We produce everything ourselves", comments General Manager Tom Haywood referring to his nine production employees, "Our R&D team consists of



1. Sales Manager Scott Haywood enjoys reading TELE-satellite. "I'm especially interested in the satellite DXer reports", reveals Scott, "It shows the enthusiasm they have for their hobby." It's an enthusiasm that Scott shares and that can be readily seen in the company's signal analyzers.

2. Diana greets visitors at the reception desk.

3. Camille Edmonds keeps track of finances and organizes the books.

seven engineers, the repair team is made up of five engineers and our technical customer service has four engineers." On top of that are three employees in administration as well as two sales managers so that a total of 30 employees make up Applied Instruments all of which work in an 11,000 Sq-foot office/production facility located in an industrial zone southeast of Indianapolis.

After 25 successful years, Applied Instruments is ready to plow into the international market. The enthusiasm of the engineers and the requirements that customers have for their signal analyzers provides this company with an excellent chance to grow in the world market over the next 25 years with their robust signal analyzers.



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- | | |
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| • Parent Control | • Card or Embedded CA available |



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

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

1



1. One of Applied Instruments' most successful products: the Super Buddy, a satellite signal analyzer that is especially popular in the North American market.

2. The Noise Signal Generator NS-3 is another successful product from Applied Instruments used by satellite receiver manufacturers.

3. Another Applied Instruments success story: the Noise Signal Generator NS-1 is used by installers to check the condition of coaxial cable. It is handy and easy to use.

4. Marketed only to real professionals, this Noise Power Ratio Test Instrument costs around US\$15,000 and is commonly used in a production environment by manufacturers of amplifiers and optical transmitters and receivers.

2



3



4



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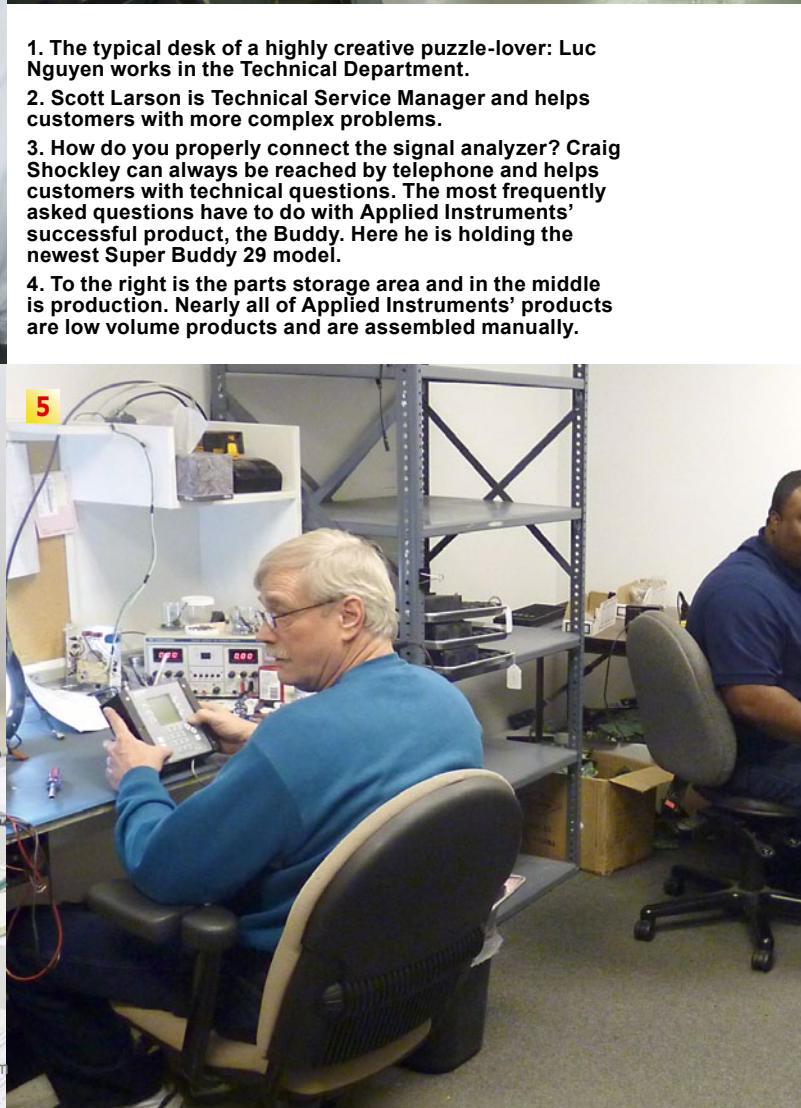
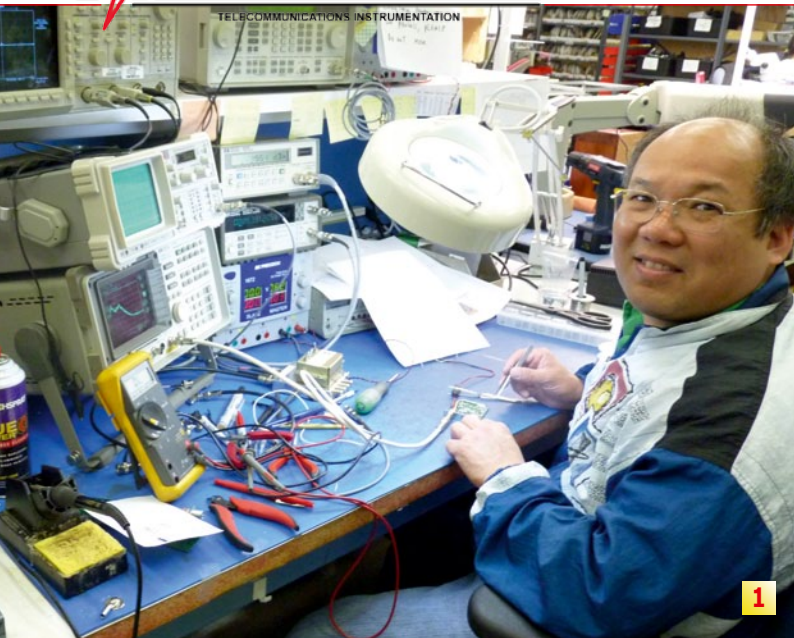
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1. The typical desk of a highly creative puzzle-lover: Luc Nguyen works in the Technical Department.

2. Scott Larson is Technical Service Manager and helps customers with more complex problems.

3. How do you properly connect the signal analyzer? Craig Shockley can always be reached by telephone and helps customers with technical questions. The most frequently asked questions have to do with Applied Instruments' successful product, the Buddy. Here he is holding the newest Super Buddy 29 model.

4. To the right is the parts storage area and in the middle is production. Nearly all of Applied Instruments' products are low volume products and are assembled manually.



5. If there's a problem with one of their products, the repair team jumps into action: Jeff Milner (left), Oren Williams (center) and Ryan Ramsey (right) quickly solve any problems.

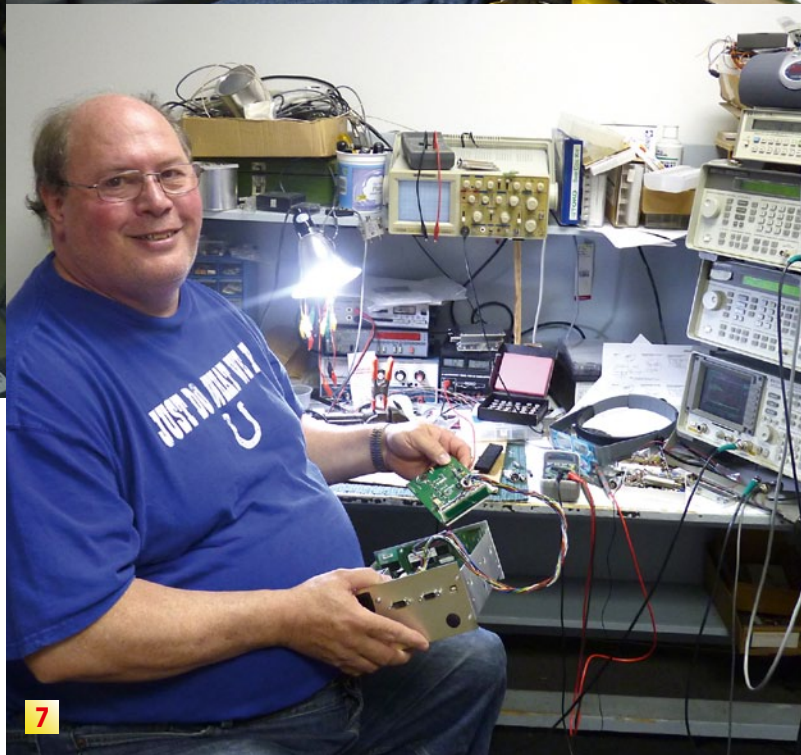
6. Dave Clodfelter is one of the production technicians. He is seen here assembling a CATV Return Path test set.

7. For RF Engineer Russ Phillips there's nothing better than to be deeply immersed in the technology. His work station is fully loaded with test instruments which he uses to constantly improve Applied Instruments' products.

8. The hardware is one thing, but a customer has to be able to operate it. Robin Ross is responsible for the software; he fine tunes each operational step to make it as easy as possible for the customer to use.



6



7



8

■ Smack in the middle of the Swiss Alps: that's where HUBER+SUHNER can be found in Herisau in northeastern Switzerland

Fiber Optics at HUBER+SUHNER



TELE-satellite Magazine **Business Voucher**

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

Direct Contact to Sales Manager



- *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*



**From Satellite
Dish Directly
into Your Home
With Fiber
Optics**



■ To the left is the original founding building of the company SUHNER back in 1869. To the right is the new reception building of the merged worldwide company HUBER+SUHNER.

It's amazing! A company that has been in existence for more than 100 years is jumping into the new fiber optic distribution market with a new innovative "CLIK!" plug system. Maybe that's exactly the reason why such an old company like this would want to conquer a new technological field: how else would HUBER+SUHNER have gotten so old if they hadn't always developed brand new technologies? We took a look around one of their company locations in Herisau in northeastern Switzerland to get a better idea of what this new "CLIK!" technology is all about.

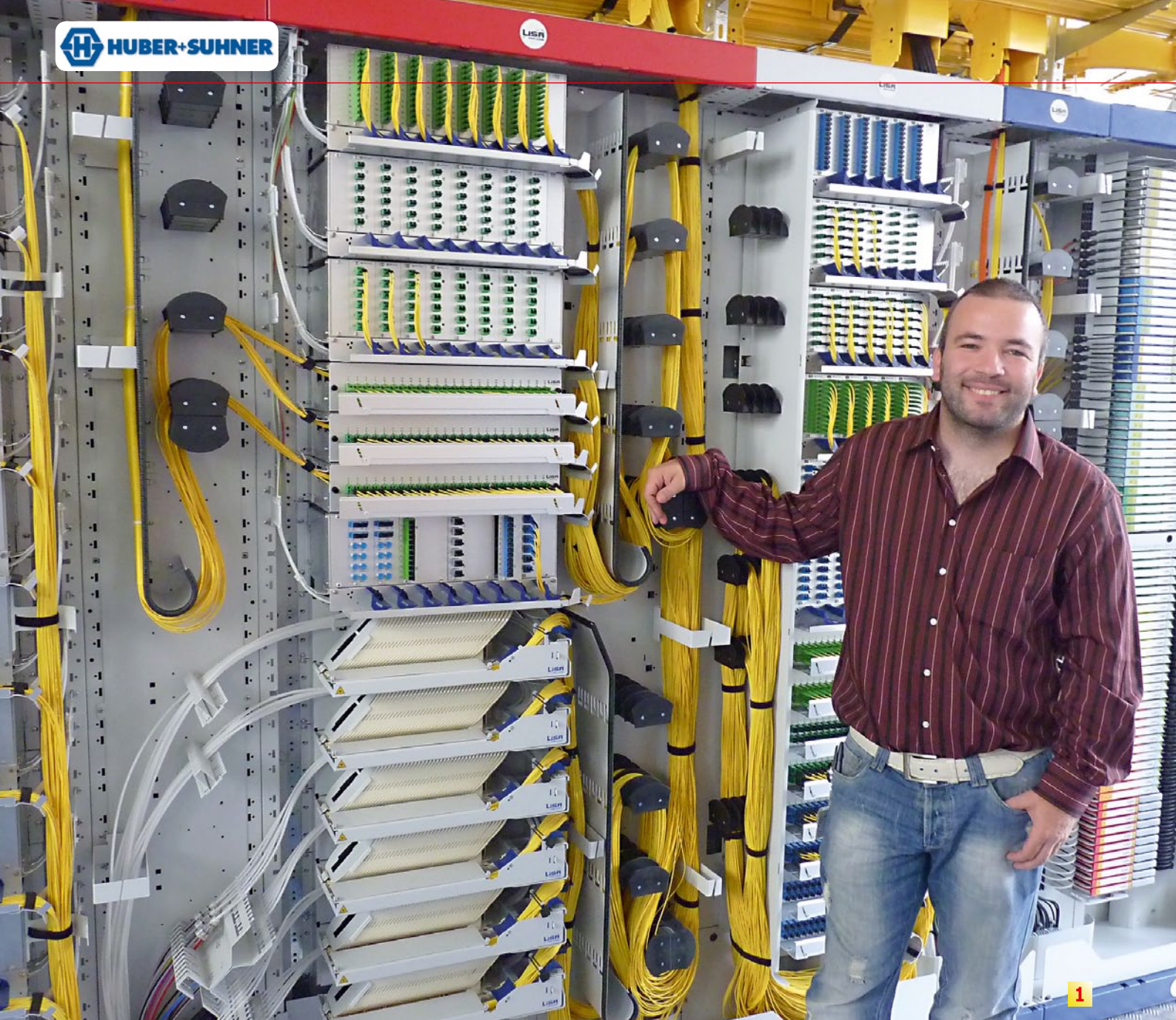
Over 100 years ago there were two companies that were founded and

both of them were involved in insulating the new electric cable at that time: the companies SUHNER in Herisau and HUBER in Pfäffikon, both in northeastern Switzerland. Towards the end of the nineteenth century, this area was known for its textile industry and as electricity made its way into the region, more and more electrical wiring was needed. The copper wire was insulated with cloth and then dipped in Gutta Percha, a natural form of rubber. Sure enough, HUBER was the first company in the region in 1894 to install electric lights.

The foundation was now laid to not only incorporate the latest technology in their production, but to use it

themselves. The two companies were competitors up until 1969 when they merged together under the combined name of HUBER+SUHNER. Since then the company has been well-known as a provider of professional connection solutions for the large telecommunications, transport and industrial companies around the world. This business segment makes up about 30% of their sales.

Since HUBER+SUHNER's emphasis is cable technology, the remaining business segments are divided into mass produced cable (40%), distribution technology (30%) and lastly standard products, that is, prefabricated cable in all lengths and types that can be or-



1. Patrick Zaina is Product Manager for fiber optic connectors. Here we see him in front of a professional distribution cabinet consisting primarily of fiber optic splitters. The "CLIK!" system is a compact version for the distribution of satellite signals in smaller apartments.

2. Jürgen Silbereisen is one of the five "CLIK!" system design engineers. Here we see him programming an online calculator that installers can use to determine exactly what "CLIK!" systems components they would need for a specific distribution system. "The online calculator lets the installer plan for an optimal system. After entering in all the parameters, the software produces a list of components along with signal level calculations at every endpoint." You can find the calculator at www.clikulator.com

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■ Marketing Manager Othmar Fuchs presents us with a "CLIK!" system brochure here in the main lobby.



HUBER+SUHNER

Fibre Optic Cables and Distribution, Switzerland www.hubersuhner.com



www.TELE-satellite.com TELE-satellite-1111@hubersuhner.pdf



Company Details

Engineers in Research & Development | Total Number of Employees
 0 2500 5000
 Average Turnover (Previous, This, Next Year Estimates)
 0 500 1000 Mio SFr

Production Certificates
 ISO 9001, ISO 14001, IRIS, RoHS, REACH
 Production Categories
 own brand **CLIK!**
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dered by catalog. The company reaches roughly 800 million Swiss Francs yearly in sales with their 4500 employees. 950 of them work in the main facility in Herisau.

One division that is focused on the applications of fiber optic technology was founded in 2009. Patrick Zaina is the Product Manager of this division and he tells us more about the new "CLIK!" system that makes it easy to link fiber optic cables together: "Five design engineers worked on the "CLIK!" system from 2009 to 2010 so that we are now able to introduce it to the world." The system in a very easy way divides the signal from a fiber optic LNB nearly loss-free using matching splitters and delivers it to multiple end users. "A highlight of our system is the sophistication of our plug system", explains Patrick Zaina, "we designed it in such a way that the plugs are only negligibly larger than the cable itself making it very easy to pull these cables through an existing conduit or even just place them under a carpet."

Many installers are reluctant to work with fiber optic cables because the small glass fibers inside the fiber optic cable are extremely sensitive. "There are two problems: dirt and damage. Both of these problems were elegantly solved." The problem with dirt was solved very easily: a cap on the plug prevents any dirt from getting to the plug during the installation and is only removed when the cable is plugged in to the distributor.

The second problem involving breakage of the glass fiber was solved by HUBER + SUHNER in an even more elegant fashion: "The glass fiber is wrapped with a Kevlar coat that is generally unbreakable but at the same time is just as flexible as a normal coaxial cable." For the installer this means that this new technology makes installing fiber optic cable even less problematic than coaxial cable. "Initial feedback from installers shows that the installation of fiber optic cable is almost twice as fast as standard coaxial cable." These first installers are convinced users of this new technology. "We've calculated that a home distribution system with eight users of our "CLIK!" system costs about the same as a typical coax cable installation."

This calculation doesn't even take into account the fact that the installation of fiber optic cable all the way

Fiber Optic Cable Production





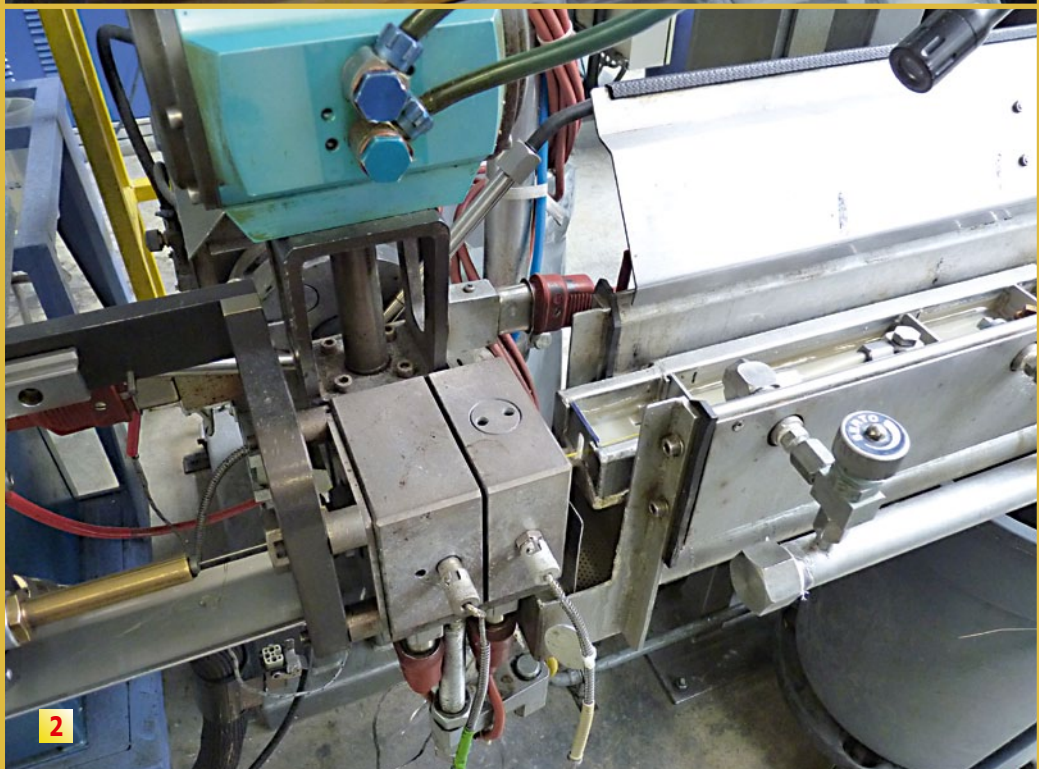
■ HUBER+SUHRNER's production area in Herisau in northeastern Switzerland. All the different variations of fiber optic cable are manufactured here, from very thin cables for installation in the home to multi-cables for distribution systems up to extremely resilient cables for outdoor use such as with mobile telephone companies.

to the end user is absolutely future-proof; the ever increasing data rates are already exceeding the capacity of coax cable distribution systems. "So far more than 100 "CLIK!" systems have been installed mostly in Italy, here in Switzerland and also in Austria and Germany", Patrick Zaina lists for us. "Our prefabricated "CLIK!" cables start at around 10 Euros for a five-meter length. The longest length is 100 meters and costs around 60 Euros. The "CLIK!" distribution boxes cost under 70 Euros and for a four-way splitter the cost is under 110 Euros." These prices are extremely low considering this is a signal distribution system with essentially no signal attenuation. In order to be compatible with fiber optic systems that have FC connectors, HUBER+SUHNER also has the matching adapter cables.

In taking a look at the future, Patrick Zaina states a harsh but simple truth: "If you don't work with fiber optic technology today, you'll be out of business tomorrow." And that's exactly how it is! As an installer, if you stick with laying coaxial cable forever and ever, you'll wake up one morning and notice that the world has passed you by.

"At the moment our system is made up of four-way and two-way splitters, each with different distribution requirements, that are used based on cable lengths and connectors", explains Patrick Zaina regarding the "CLIK!" system product palette. "By the end of 2012 we will also be adding three-way and five-way splitters; we are also working on wall sockets." The latter project caught our ears since at the moment there are no receivers that come with fiber optic cable inputs. But HUBER+SUHNER is planning for the day when these kinds of receivers will be available. Then you'll simply connect your receiver to the fiber optic wall socket. Then there will be no more coax cable at all! Today you still need coax cable to connect the receiver to the fiber optic converter box.

"Right now we are focusing on the European market", reveals Marketing Manager Othmar Fuchs, "But we already have interest from Asia and South America." Even in these locations, they are looking to convert to the new era of fiber optic signal distribution. The age-old company HUBER+SUHNER is once again at the forefront in developing the newest technologies and bringing it to the market.



1. The originating material: One of these rolls contains roughly 14km of glass fiber without any sheathing; it's the pure glass fiber with only a thin protective cover.
2. The heart of the system: left, at a rate of about 100 meters per minute, the glass fiber goes in one side and comes out the other with its first "coat".



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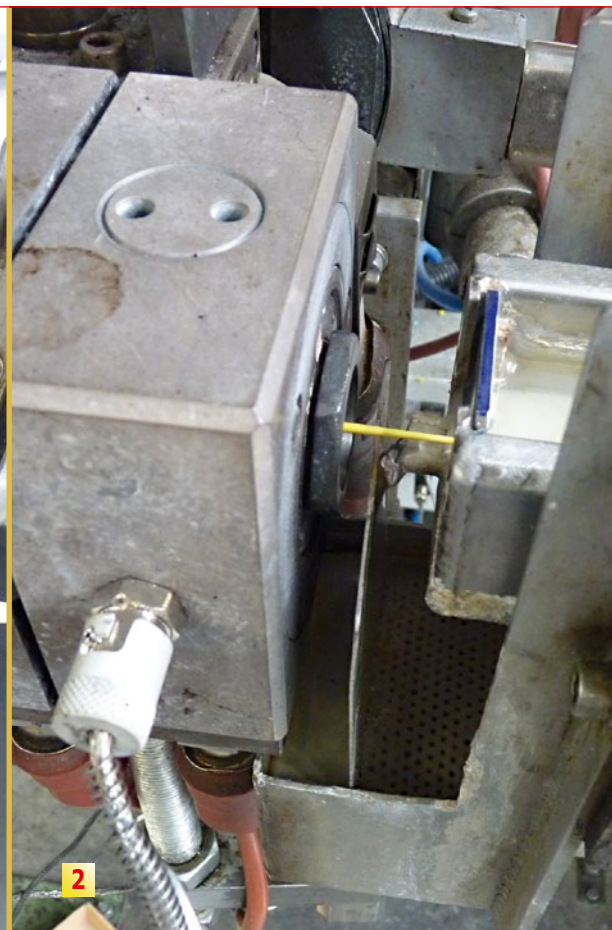
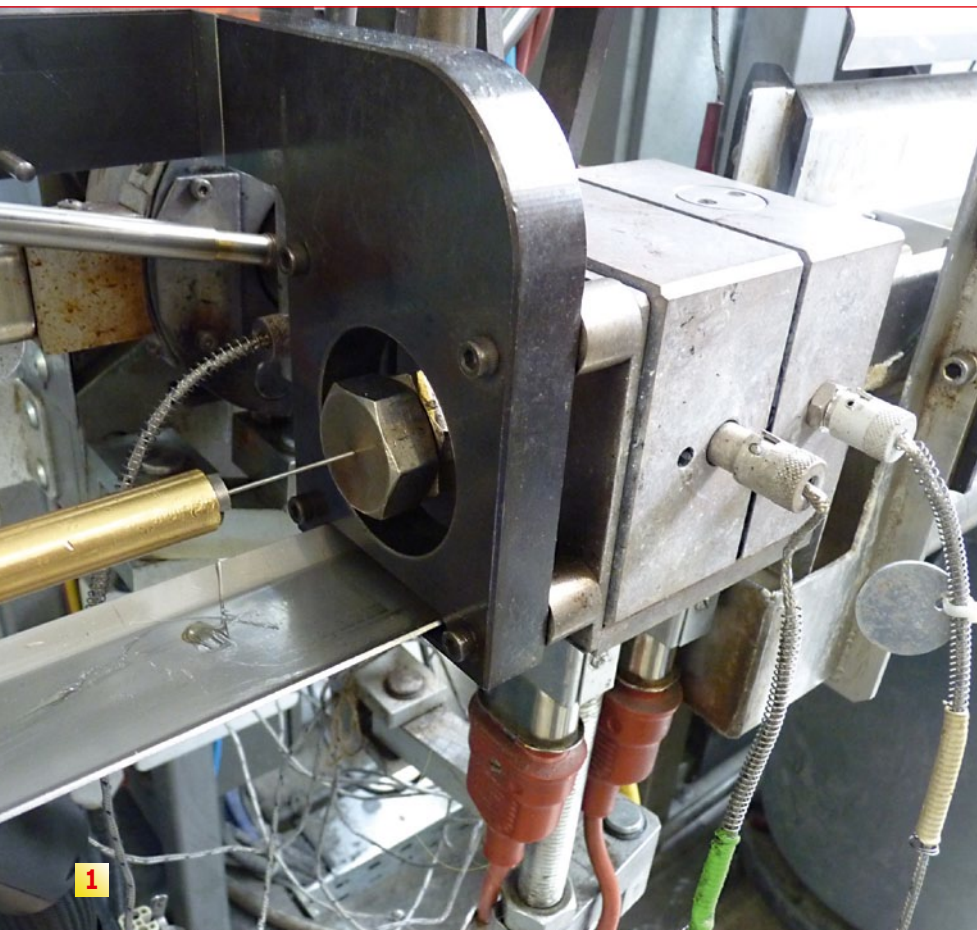


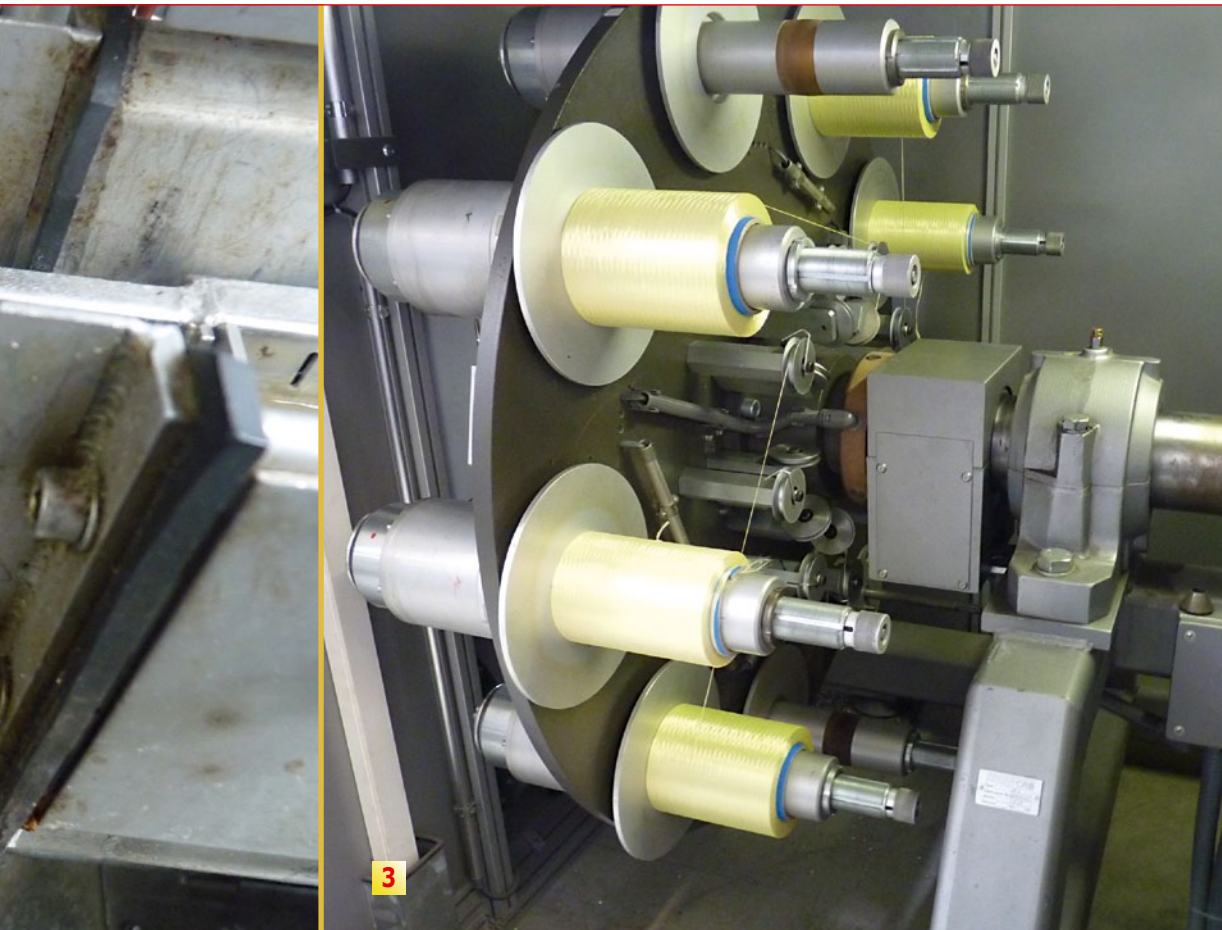
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1. Closeup: it goes in here....
2. ...and comes out here.
3. To improve adhesion, the just manufactured fiber optic cable is covered with a Kevlar thread.
4. After mounting the plugs, the connection end is finely polished. The end surface is polished in this rotational polisher for 1-2 minutes.
5. The polished connector is placed under a microscope so that the surface of the connection end can be inspected.
6. Finished! The prefabricated "CLIK!" fiber optic cable is piled up in the storeroom. They come in various sizes. Here we see a box with 10-meter cables.



Happy Birthday HORIZON!

- 
- ***Manufactured 125,000 analyzers in their first 10 years***
 - ***Expanding into the High End Range***
 - ***Provides the right products for the worldwide cable TV market with their DVB-C signal analyzers***
 - ***OEM expansion with strong distribution partners***
 - ***High technical know-how through the nearby university***

■ HORIZON's headquarters can be found in the 'Allen House' in Harlow not far from Cambridge. 9 employees work here of which four are in the R&D team and two are in sales. The actual signal analyzer production facility is located in western England and has roughly 100 employees.



10 Years of Success in the International Signal Analyzer Market

HORIZON was founded in 2001 by the existing CEO Mr Paul Pickering and in 2011 are celebrating their 10-year anniversary. You'll find their headquarters in Harlow, a small town in Essex, not too far from Cambridge with it's world famous university. Choosing a location in close proximity to Cambridge University did not happen by accident. Managing Director John McLoone explains, "Quite often we pass some of our technical work on to the universities." That's a smart move since Cambridge University has put out more Nobel prize recipients than any other university in the world.

The care in the management of the company stands out in other segments of the company's operation, for example in the decision as an OEM to provide their own products to other distribution partners as well as selling the Horizon brand. John McLoone has clear priorities here: "If there are countries with well-established distributors, we'll cooperate with them. If that's not the case, we'll sell our products there ourselves." After 10 successful years you'll find HORIZON signal analyzers in larger countries not under the HORIZON brand name but rather under the name of the corresponding distributor. "Roughly 50% of our sales are achieved

■ A display cabinet with a selection of HORIZON products.



through our distribution partners", says John McLoone as he points out that HORIZON has a very clear strategy.

HORIZON grew in the first 10 years thanks to their satellite signal analyzers. Analyzers for terrestrial reception came later on. As a birthday present, HORIZON has started an entirely new product line: "We're starting with DVB-C signal analyzers!"

Naturally, some deeper thought went into this decision: everyone's talking about the shutting down of analog terrestrial and satellite signals. But much larger cable TV markets exist in many countries: "Many cable operators are just finding out that they have to digitalize their systems otherwise their customers will migrate to alternative providers."

It's a perfect opportunity to provide this segment with matching signal analyzers. "We're especially strong when it comes to price-

HORIZON
Signal Analyzer Manufacturer, UK
www.horizonhge.com

Happy Birthday HORIZON!

Company Details

Engineers in Research & Development | Total Number of Employees
0.....50.....100

Average Turnover (Previous, This, Next Year Estimates)
0.....2.5.....5 Mio GB£

Production Certificates
RoHS

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own brand and OEM

Main Products
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■ Managing Director John McLoone with unit number 125,000 that was produced in their tenth anniversary year. This is a one-of-a-kind piece that was gold plated. The awards on the wall were awarded to HORIZON in 2007 by the Queen of England for being "One of the Top Export Companies in the Country". HORIZON is expecting for its tenth anniversary year 2011 sales of 2.5 million GBP and is optimistic that 2012 will bring with it an increase of 15%.

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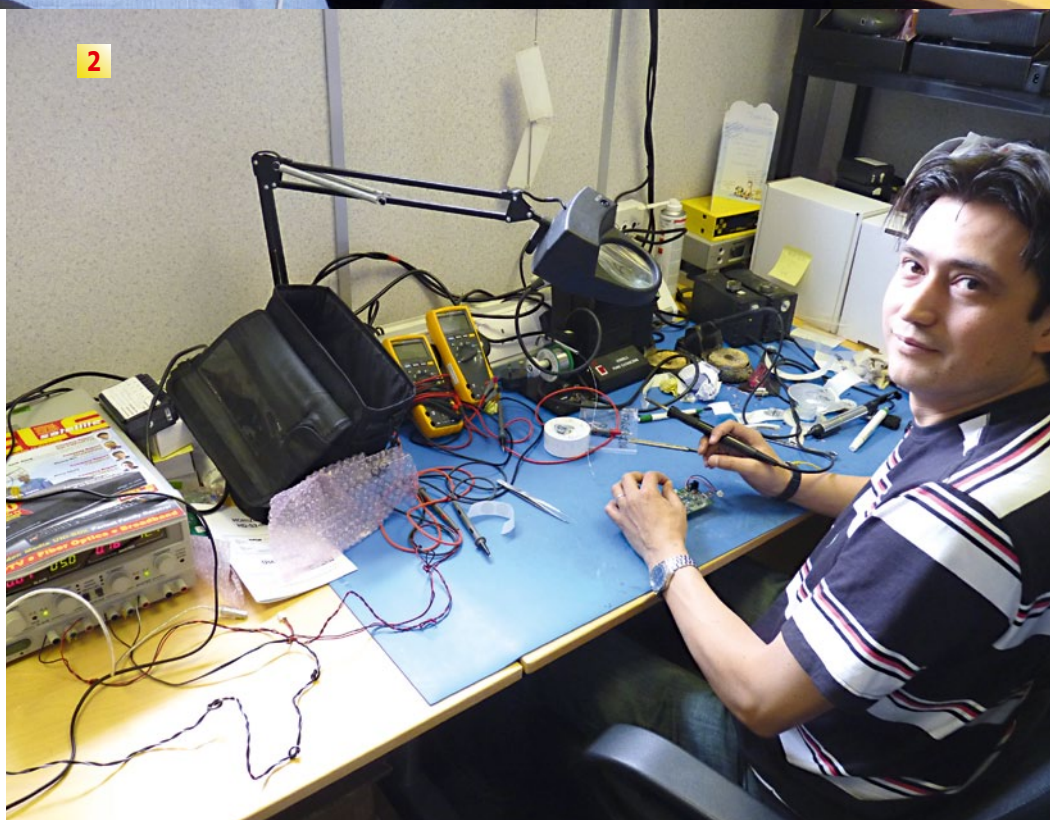


1

sensitive signal analyzers", explains John McLoone regarding the company's strategy: "For specialized cable installers there are high-quality signal analyzers from other manufacturers, but for those installers that perform installations on a daily basis, a quality cost effective signal analyzer hasn't been available up until now."

A look at HORIZON's signal analyzer product portfolio confirms that they are all mid-range products that are price conscious and easy to use. "In 2010 we already offered our first generation of DVB-C signal analyzers to several chosen markets on a testing basis", explains John McLoone, "for example, in the Dutch, Canadian, USA and Indian markets." These DVB-C analyzers were so successful that now the second improved series is coming to the market. "These DVB-C analyzers with the model name HD-CM can be used anywhere in the world where cable networks are installed in DVB-C." Managing Director John McLoone is more than euphoric over this new product: "We're expecting that this signal analyzer will soon reach 30% of our sales!"

The new DVB-C segment will be complimented by many new satellite and terrestrial products. Paul Hardcastle is



2

1. Technical Director is Paul Hardcastle. On his wall is an ambitious timetable that he constantly works on. Currently he's working on a test sample of the new DVB-C cable signal analyzer HD-CM. HORIZON is expecting this model to really take off since more and more cable operators are switching over to DVB-C.

2. Hardware designer Ivan Valbuena is part of the R&D team and is always at work finding more ways to improve HORIZON's signal analyzers. He was, for example, involved in upgrading the HD-S2 model with ACM so that it can be used with Avanti's Internet-via-satellite service.



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Technical Director and he's working off of an ambitious timetable. "We're currently preparing our newest HD-TM2 model; it's an analyzer for DVB-T2. In the first quarter of 2012 an analyzer for DVB-C+, the HD-CM+, will follow. In the second quarter the HD-ST2 combo analyzer for DVB-S2 and DVB-T2 will make its appearance."

This signal analyzer, in the HORIZON tradition, will bring with it something new: it will be HORIZON's first analyzer with a color display. "We'll also have a DVB-S2 version of the Nano." How strong DVB-S2 is can be seen in another number: "In 2010 our DVB-S2 model HD-S2 made up about 25% of all our satellite analyzer sales." That all completely changed in 2011: now 75% of all satellite signal analyzers are DVB-S2 models. Demand for DVB-S has started its decline.

HORIZON has actually given themselves a very nice birthday present: at the end of 2012 HORIZON will be stepping into the high-end signal analyzer market with their new model HD-STCM2, a combo unit with common interface for DVB-S2, DVB-T2 and DVB-C. And best of all: "It will come with a spectrum analyzer and live TV."

After 10 years of mid-range signal analyzers, HORIZON is fully committed to jumping into an entirely new product segment. It is by far the best birthday present that HORIZON could have possibly received.



1. If an analyzer should ever have a problem, Trevor Salter is there to help: he is the Service and Repair Manager and has every necessary spare part close at hand.

2. Who answers the phone when you call? It's Gill Baker who also takes care of HORIZON's administration.



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The Optimist and the Pessimist



● *There are two professionals in Hong Kong in the satellite sector that have contrary expectations as far as the future is concerned. One of them is Berry K. M. Ng and is involved primarily with satellite reception on the boats and yachts of Hong Kong's rich and famous. The other is Ken Wong; he's a real satellite enthusiast who managed to turn his hobby into his job in which he sets up satellite systems in Hong Kong. We met up with both of them at the annual Hong Kong International Boat Show in Club Marina Cove in Sai Kung, one of the suburbs where Hong Kongites take a break from all the money they earned and dine at one of the many seafood restaurants if they don't happen to be on their yachts cruising up and down the coast.*

■ Berry K. M. Ng sells and installs satellite TV systems for yachts. At a stand at a boat show he presents his systems.



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The latter you can almost take as gospel; Berry Ng, who installs satellite dishes on these yachts, explains, "Most of them use the 3G mobile network for their Internet connection." From this we can conclude that these yachts don't stray very far away from the coastline.

But it's a different picture when it comes to TV reception on yachts. "There is very limited terrestrial programming available and this isn't very attractive to yacht owners", comments Berry Ng, "we install three-axe dish antenna systems that automatically align to a satellite." TELE-satellite has already had several test reports on such systems that automatically adjust to the motion of a ship bouncing through the waves and follows a satellite on its own using the three axes.

"In our region the satellites the customers want to receive are CHINASAT 9 at 92.2E, ASIASAT 4 at 122E and TELSTAR 18 at 138E", says Berry Ng, "CHINASAT carries numerous channels in Chinese while TELSTAR 18 carries the channels from Hong Kong Cable. But for our customers ASIASAT 4 is the

■ Berry Ng shows us one of his own installation solutions: he installed two reception systems on a mast on the "Supermom" yacht. "We came up with an aesthetically pleasing construction for a yacht", says Berry Ng. Because of this he's become very popular with yacht owners and their agents alike. The installation of a system should blend in nicely with the rest of the yacht.



■ Hong Kong International Boat Show in Club Marina Cove in Sai Kung



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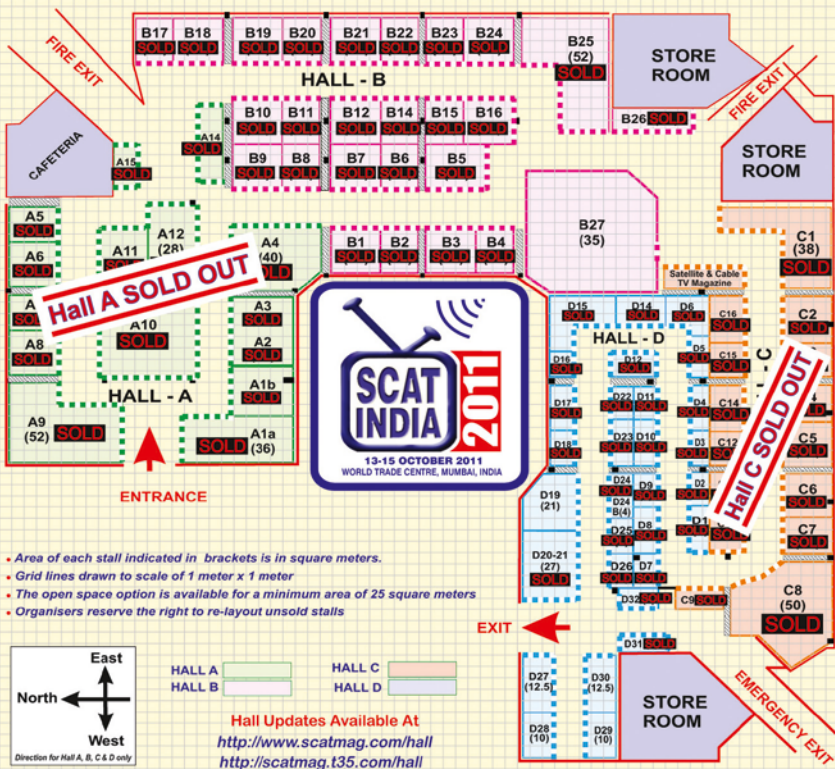
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reveals Berry Ng and then he continues, "The tendency however is upwards; for the upcoming year we're expecting a 10 to 20% increase in the number of satellite TV reception systems sold." Berry Ng believes this because of the growing market in Mainland China: "More and more customers from China are discovering yachts and want them equipped for TV reception." While the market in Hong Kong is stagnant, the growth increase will come from China!

Ken Wong, however, has a different outlook for the future. He discovered satellite reception in the year 2000. "Back then I worked for a company that sold computer cable", remembers Ken Wong, "One day the company added satellite systems to their menu and allowed me to test one of those systems so that I could present it at a local trade show later on."

With a 60cm dish pointed to 86.5E, Ken Wong began his satellite enthusiast career. "I taught myself everything", says self-made technician Ken Wong, "it wasn't long before I began installing additional satellite systems." Not long after that he became self-sufficient. "In 2003, together with my partner Tim Wong, I founded the company A&C Technology, Ltd." And what do those two letters stand for? "A stands for Agressiveness and C stands for Considerate."

most popular since it carries the package from the Taiwanese provider Dish-HD with its many HD English-language channels." Anyone who can afford a yacht will also want an HDTV monitor on board and, of course, will want to receive the corresponding programming.

The major portion of Berry Ng's business involves the electronics of a ship. "We sell roughly 20 TV systems a year",

■ Ken Wong has been installing satellite systems in Hong Kong for the past ten years and is a satellite enthusiast himself.

The best year for this small, young company was 2004: "Back then we sold and installed roughly 100 systems." Those booming days are over. Sales numbers dropped regularly and by 2010 it was only about 35 systems a year. Ken Wong has a reason: "Satellite reception in Hong Kong is not illegal but nevertheless, the people don't seem to be interested in it." In other words, the people in Hong Kong are far more interested in making money than they are in having a large selection of TV channels. "Many of them work late into the night and don't feel like watching satellite TV - if they even know what that is."

Ken Wong knows exactly what satellite reception means. He's probably the only one in all of Hong Kong that has an actual satellite dish farm. "I live on one of those small islands that can only be reached by ferry. On the far side of the island there's a large piece of land on which I can erect my antennas." A lot of thought went into his dish farm. He has three 3-meter dishes installed on this property: "one mesh antenna with a motor, another mesh dish fixed on CHINASAT 6B at 125E as well as a prime focus antenna pointed to the Japanese BS series of satellites at 110E." Aside from that, there's also a 1.2-meter antenna to receive THAICOM at 87.5E and a smaller 75cm dish that he uses to receive the local Hong Kong cable package on SINOSAT I at 134E.

Ken Wong doesn't believe that satellite reception has much of a chance anymore in Hong Kong. "DishHD from Taiwan would have to promote themselves here since the people would like to watch HDTV", believes Ken Wong, but that won't happen because DishHD's target market is Taiwan and not Hong Kong or Mainland China.

Ken Wong fears that he is slowly becoming a foreigner in Hong Kong and that he is one of the last satellite enthusiasts here. High speed Internet connections will drive the local people to IPTV. Ken Wong doesn't see a future for satellite reception here in Hong Kong. On the other hand, Berry Ng sees increased demand for satellite TV reception on yachts.



1. This is one of Ken Wong's 3-meter antennas with a motor on one of Kong Kong's islands.

2. Ken Wong's other 3-meter antennas are fixed dishes. The antennas are located on a piece of land on one of Kong Kong's islands.

Customer Service at Cable TV Provider SATRO

■ Customers can find SATRO's Customer Center in this building in central Bratislava.

- *Special offer for using multiple TVs*
- *Utilizes Hybrid Fiber Networks*
- *Has 10-15% of the Slovakian market*
- *50% of new customers opt for Multiroom with SmartWi*



"Half of our new customers choose the Multiroom solution"

■ Martin Kopca is cable operator SATRO's Executive Director. Thanks to SmartWi's card sharing system, his company can offer Multiroom solutions to its customers.



Back in the old days when TV signals were still transmitted in analog mode, cable TV customers could simply use splitters to connect multiple TVs. For example, in addition to the main TV in the living room, they could add another TV in the bedroom or a third in the kid's room.

With the advent of digital technology, this simple solution was no longer possible. If a cable customer wants to add a second TV, the logic with almost every cable TV provider was that they should take out a second cable TV subscription. Some cable operators offer a discount for adding additional TVs. But there's a problem with this: what if the customer doesn't use this second discounted subscription himself and instead passes it on to someone else so that they can split the savings between them?

For this reason, many cable TV providers don't even offer a discounted subscription rate for a second or third connection. So when one cable TV provider states that half of their new customers opt for a Multiroom solution – for reception on multiple TVs – then this statement was so puzzling and unusual that TELE-satellite decided to find out the reason for this. Why at one cable operator would half of the customers want



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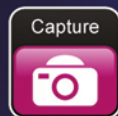
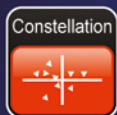
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■ Marek Michalik is responsible for SATRO's marketing. Here he's showing us SATRO's new logo.

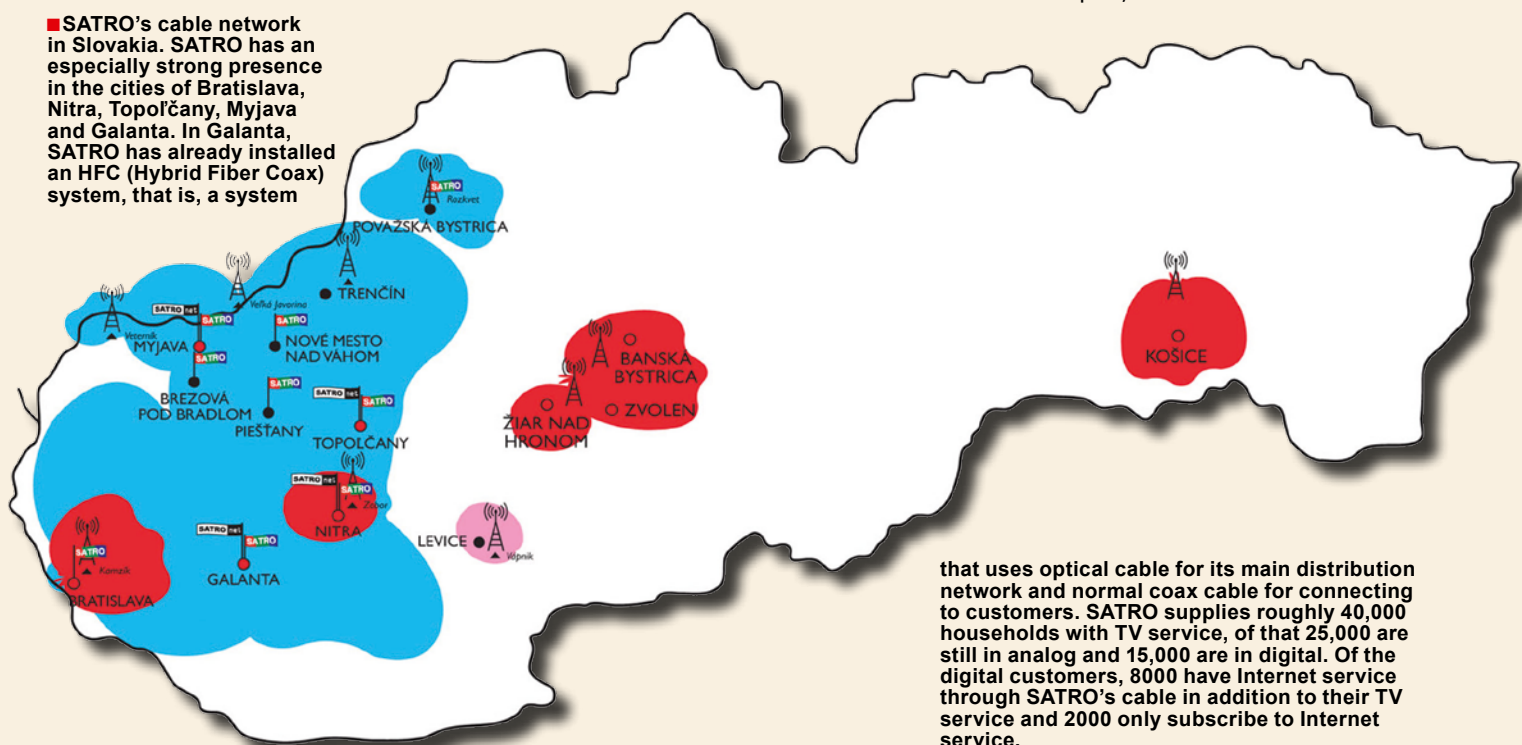


something that isn't even available with most of the other cable operators? What is this one cable TV provider doing differently than all the other cable operators in the world?

In an industrial zone in Bratislava right next to Highway D2 towards

Brno and across from the Galéria Shopping Center can be found cable TV operator SATRO's administration building. Martin Kopca, SATRO's Executive Director, works here and he's a very enthusiastic engineer. The statement that half of SATRO's new customers choose the Multiroom solution comes from him; it allows customers to watch SATRO's cable TV programming individually on up to four TVs. "Of course, you could connect up to eight TVs with our Multiroom system", reveals Martin Kopca, "but if someone wants

■ SATRO's cable network in Slovakia. SATRO has an especially strong presence in the cities of Bratislava, Nitra, Topoľčany, Myjava and Galanta. In Galanta, SATRO has already installed an HFC (Hybrid Fiber Coax) system, that is, a system



that uses optical cable for its main distribution network and normal coax cable for connecting to customers. SATRO supplies roughly 40,000 households with TV service, of that 25,000 are still in analog and 15,000 are in digital. Of the digital customers, 8000 have Internet service through SATRO's cable in addition to their TV service and 2000 only subscribe to Internet service.

to connect more than four TVs, red flags go up by us." The reason is not so much that SATRO fears a customer is doing something they shouldn't be doing (that is to say, letting next door neighbors connect to his cable TV service), but rather if there are so many rooms in an apartment or house, the SATRO Multiroom solution might not be able to do its job. "Our technicians will check it out on location and if the situation is understandable, we simply install more than one Multiroom solution."

Now we want to know what this Multiroom solution is all about. "It's very simple: we use SmartWi's card sharing system; it's the ideal solution for us!" says Martin Kopca and then explains, "The SmartWi system is based on the transmission of card information in the 860 MHz range. This frequency range can be freely used as long as the power output doesn't exceed a certain limit."

The effect is that the output signal is strong enough to reach multiple receivers in a normal apartment but too weak to be used by anyone in a neighboring apartment. "The SmartWi system guarantees that not one of our cable customers can pass our signal along to a friend or relative or simply resell it", says Martin Kopca explaining that they chose this system because only legitimate customers can actually use the card signal.

How did SATRO even figure out that SmartWi was the 100% solution to their problem? Let's find out more about SATRO. "SATRO was founded by Frantisek Kaduch who still today holds an 85% share in the company. The remaining 15% share is owned by his son and successor", explains Marek Michalik, responsible for SATRO's marketing.

When Slovakia was still a communist country, Frantisek Kaduch was working for state-run television in the transmission technology section. He took care of the broadcaster network and back then had the privilege

of exporting his expertise. "For many years our founder was busy setting up TV transmission networks in African countries", remembers Marek Michalik regarding the company's history.

In 1986, still in those communist days, Slovakian state television began making plans to distribute the increasing number of available TV channels to apartment houses via cable TV systems. Frantisek Kaduch was occupied with this subject and, thanks to his foreign experience, recognized the enormous potential that existed here for the future. His chance came in 1989 when communism died in Slovakia: he became self-employed and installed the first cable networks (SMATV – Small Mas-

ter Antenna TV) in various apartment buildings. The newly founded company expanded very quickly; in 1992 it became a real firm that Frantisek Kaduch named SATRO (an abbreviation of Satelitny Rozvod or Satellite Network). It all became very serious in this same year: the city of Bratislava gave out exclusive licenses for specific sections of the city; SATRO acquired the license for the Devinska Nova Ves district. SATRO was given the rights to install cable TV systems in the homes in this district. After three years, all 6000 homes in this district had been wired by SATRO.

There's an even more important reason why cable TV was so well received: the people finally wanted

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Available online starting from 1 April 2011

■ In TELE-satellite's 04-05/2011 issue can be found our test report on SmartWi's card sharing system. The report can be read online here:



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

www.TELE-satellite.com — 10-11/2011 — TELE-satellite — Global Digital TV Magazine 173

■ This is Bratislava's TV tower that was erected in 1975. At the foot of the tower is a restaurant. The tower is located at the edge of Bratislava on the Kamzík hill that is 435.5 meters above sea level. The tower itself is 200 meters high with all the transmitter electronics located at the 170-meter level. Other providers besides SATRO use this tower to transmit their services which include local terrestrial TV programming and mobile telephone services.

to embrace their freedom and watch all those new satellite TV channels. "Above all it was the private TV channels from Germany that were back then a strong argument for the people to want cable TV", explains Martin Kopca from the past. But this reason has largely fallen to the wayside thanks to the increasingly large number of local TV channels that have appeared in their own national language.

Back then SATRO was obviously not the only company that installed and operated cable

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References



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TV. SATRO reached a market share of 10-15% in the year 2000 and it's still about the same today."

The market has stabilized but it has certainly not come to a halt. "We're always upgrading our system", explains Martin Kopca who as an avid engineer plays an important role in the further development of SATRO's implemented technologies. "In the beginning, everything, of course, was analog", he says, "Back then we were able to carry 30 to 40 TV channels." Since the laying of cable only made sense economically within the city, a new technology came into use in 1998: MMDS. SATRO transmitted signals that could be received by customers outside of the city with a terrestrial dish antenna. "We were only licensed to use the MMDS frequencies up until 2011. The system will be turned off because the fre-

quencies are reserved country-wide for other services", he explains, "LTE will be taking over these frequencies."

So, SATRO inaugurated the MVDS system in 2009. This system operates in the 11.7 to 12.3 GHz range – yes, this is precisely within the Ku-band. "The advantage is the larger bandwidth. We divided this range into two bands; this resulted in 38 streaming 8 MHz channels", details Martin Kopca, "for each stream we can provide 10-12 SD channels for our customers." He gives us a surprising explanation for the use of QAM64: "This modulation doesn't offer error correction but transmitter and receiver are in line of sight of each other anyway and not relatively far apart either. The big advantage with QAM64 is that with it we can completely cover the transponder stream of a satellite. One DVB-S satellite channel at 38 Mbit/s corresponds to exactly one QAM64 channel."

Looking at it from a strategic point

of view, the implementation of MVDS has another significant advantage: "We use it to offer high-speed Internet!" For this service the cable customer gets a reception system with a transceiver – a two-way system. "We offer real symmetry here, in other words, upload and download speeds are identical with us." For the Internet SATRO sees long-term interest for those customers outside of the city, beyond the reach of the hard-wired cable network. "Cable distribution within the city is optimal", explains Martin Kopca, "but in the areas surrounding the city where installing cable is not economically practical, MVDS technology is the perfect solution."

After seeing what the future holds, it's time to get back to the Multiroom solution. "When we switched over to digital technology, many of our older customers were hesitant; we couldn't offer them a solution on how to connect two or more TVs", says Martin Kopca. He took a look at the various solutions that were available. "One manufacturer, for example, offered

■ When the weather is nice Rudolf Pobis enjoys the exclusive view you get from Bratislava's tower. The Danube is in the background.



■ Our visit to the tower came at just the right time: a new directional transmitter antenna was being installed.





■ These are modulators for SATRO's MVDS system in the TV tower. Broadcast Technician Rudolf Pobis regularly keeps an eye on the settings.

He explains to us, "We transmit with three segment antennas at about 50W each. This provides reliable reception to a range of about 25 km in the direction of each segment antenna." This is enough to reliably cover the city of Bratislava.



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■ A look down from the TV tower: the two uplink dishes for Slovakian DTH provider Skylink are seen in the forest clearing. They are a strong competitor to SATRO's TV programming packages.

a receiver with two tuners but on the one hand the box would get too hot during operation while on the other there were problems with remotely controlling the box or connecting to TVs in other rooms."

He squashed every idea until he stumbled on to the SmartWi card sharing system. "All of a sudden we had the solution to all of our problems!" says Martin Kopca who today is still thrilled since SmartWi has everything that the other solutions didn't have. It is manufacturer-independent for the boxes that are used ("We use chip-pairing", explains Martin Kopca) and guarantees at the same time that the reception cards

can only be used inside the home of the cable customer. Since the original card is not manipulated by SmartWi, as might be with other solutions, all of the concerns that hackers might be able to penetrate the system fade away. Martin Kopca can't figure out why other cable system operators haven't also implemented this system. "Demand is enormous because today's customers have more than one TV and they want to be able to watch all of their TV channels on every TV."

When SATRO switched over to digital technology, many of their existing customers were hesitant to make the change from analog to digital.

"Back then we didn't have a Multiroom solution and many customers were reluctant to switch over to digital. They insisted on sticking with an analog signal." Since SATRO began offering their Multiroom solution, that reluctance completely changed: "Every other customer opts for the Multiroom solution", says Martin Kopca with a smile on his face. SATRO makes it very easy for a customer to decide on the Multiroom solution. "Our basic package costs 39 Euros a month and to add a Multiroom system – a SmartWi box and the second programming package – it costs just 2 Euros more a month, 1 Euro for the SmartWi box and 1 Euro for the programming package."

Is there anything to criticize with the SmartWi system? Martin Kopca



moving the SmartWi box also didn't help", reveals Martin Kopca from experience, "But SmartWi found a remedy: the new generation of SmartWi now at the start scans five different frequencies and selects the one frequency that has no interference."

This trick also eliminates those rare cases where there were still sources of interference. "We are very satisfied with SmartWi since its software is always being optimized and consistently improved", says Martin Kopca and then continues, "even in those cases where the SmartWi's output power is too low (and can't be increased), SmartWi has found a solution that they are working on."

We will then be able to offer this system to those customers with larger homes or multi-story homes."

As you have just seen, the SmartWi card sharing system, that TELE-satellite has already written about as a system for private end-users, can do much more: it provides cable TV operators with the perfect opportunity to satisfy a customer's need to connect more than one TV. Cable TV provider SATRO clearly recognized this option and has implemented this system to the satisfaction of many of its customers. The fact that half of their new customers opt for this system, is an indisputable argument in favor of the SmartWi system.

can only shake his head: "The system is perfect and 95% of the time there are no limitations with the installation." SmartWi reaches its limits when the customer's apartment or house is too large. "Its range is limited since we simply aren't allowed to transmit any stronger in the 860 MHz range." Then there are those cases where other transmitters in the home can create interference. "Quite often it's a DECT telephone or a customer's WiFi router that can create interference." Martin Kopca suggests that in these cases to try and move the SmartWi box to a different location. "In most cases, this solves the problem very simply."

The first generation of SmartWi was restricted to operating on one specific frequency. "In certain cases



■ This is an example of a transceiver unit for SATRO's Internet Service

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COMPANY REPORT | Satellite Distributor SMART INNOVATIONS, The Netherlands

The AZBox Champions from Holland

It really helps to not only have a good product but to also have a very ambitious sales team. A perfect example of this is the company Smart Innovations in northeastern Holland. The three owners of the company are very much involved with its operation and have helped make the AZBox receivers one of the top selling brands not only in The Netherlands but also in Belgium and Luxembourg. For these three countries, Smart Innovations has taken over distribution of the AZBox.



The AZBox receiver is a compact, black, rectangular device with a silver front panel. It features a small LCD screen and several buttons. A black remote control is shown next to it. The background of the advertisement shows a row of houses in a residential area.

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

DISHPOINTER

Software Programming, UK

SATELLITE SOFTWARE | Dish Alignment

DishPointer.com

Dishpointer

The first of the most critical questions in satellite software is: how do you align a dish? Dishpointer is the answer. It is a software program that helps you align your dish accurately. It is available for Windows and Mac. The software is easy to use and provides a step-by-step guide to aligning your dish. It also includes a database of satellite positions and frequencies. The software is available for purchase on the Dishpointer website.



The Dishpointer software interface shows a map of the United Kingdom with a satellite dish icon indicating the location of the user. The interface is user-friendly and includes various settings and options for dish alignment.

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

SATBEAMS

Software Programming, Belgium

SOFTWARE REPORT | Satellite Footprints

Satbeams A Website for Professionals

Alexander Derjagin has set some lofty goals for himself. He is the founder and operator of the satbeams.com website. The main purpose of which is to reach the professionals. That's a rather ambitious goal as he wanted to find out from him personally how he intends to reach it. He met up with him in Brussels, Belgium, the city he calls home.



Alexander Derjagin is a man with short dark hair, wearing a light blue shirt. He is sitting at a desk with a laptop and a satellite dish. The background shows a modern office environment.

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

OPERATOR MARKET Qualified

Classification for Best Digital TV Companies

Operator Market Qualified

The logo for Operator Market Qualified is a large, stylized 'OM' in blue and red, with the word 'Qualified' in black below it.

Attributes of Qualified Company:

- High Production Volume
- Quality Controlled
- Customized Product Case
- Customized Product Software
- Aftersale Service

GLOBALINVACOM

Fibre Optic Products, UK

PRODUCT NEWS | Fibre Optic Products

GlobalInvacom Expands Product Palette

The British company GlobalInvacom has expanded its optical LDM product palette. The company has introduced a new range of optical LDM products, which are designed for use in a variety of applications. The products are available in a range of sizes and configurations. The company also offers a range of optical LDM products for use in a variety of applications. The products are available in a range of sizes and configurations.



The image shows several optical LDM products from GlobalInvacom. These include various types of optical fibers, connectors, and other components. The products are arranged in a grid-like fashion.

www.TELE-satellite.com/TELE-satellite-1009/eng/globalinvacom.pdf
www.TELE-satellite.com/TELE-satellite-1005/eng/globalinvacom.pdf
www.TELE-satellite.com/TELE-satellite-0909/eng/globalinvacom.pdf
www.TELE-satellite.com/TELE-satellite-0805/eng/globalinvacom.pdf

TELE-satellite Recommended

OM Qualified

www.globalinvacom.com

SEATEL

Maritime 3-Axis Dish Manufacture, UK

COMPANY REPORT | Maritime 3-Axis Dish Manufacture

Sea-Tel Alexander Wise

Alexander Wise is the founder and operator of Sea-Tel. He is a man with short dark hair, wearing a white shirt. He is standing in front of a large satellite dish. The background shows a modern office environment.



The image shows Alexander Wise standing next to a large satellite dish. The dish is mounted on a 3-axis system, which allows it to rotate in multiple directions. The background shows a modern office environment.

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

BEST DIGITAL TV COMPANIES in N EUROPE



MEGASAT

Wholesaler and Manufacturer, Germany

www.b2c-electronic.de



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

Company Details

Engineers in Research & Development | Total Number of Employees

0 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 5 10 Mio €

Production Certificates

DVB

Production Categories

own brand **MEGASAT**

Main Products

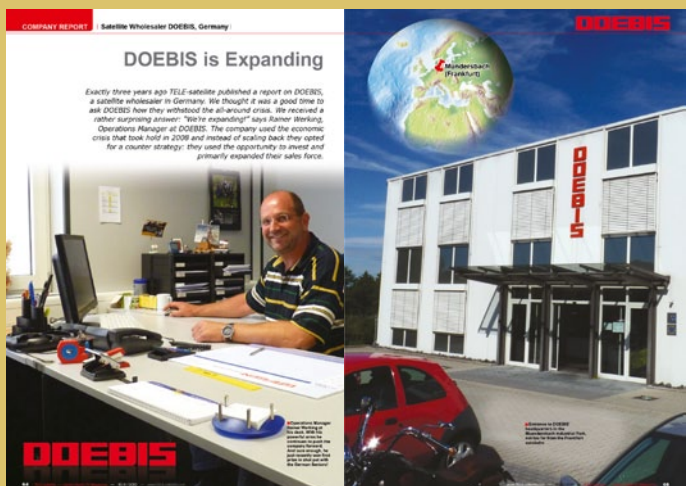
Satellite Receiver for DVB-S/S2, LNB with normal size and extremely small size, dishes, multiswitches, Mobile Satellite Systems with automatized two axis motors (CampingSat)

DOEBIS

Satellite Wholesaler, Germany



www.doebis.de



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

SPAUN POWER

Power Supply Manufacturer, Germany

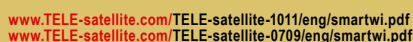


www.spaun.com



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

www.smartwi.net



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

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

www.TELE-satellite.com/TELE-satellite-0805/eng/qtsat.pdf

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

www.TELE-satellite.com/TELE-satellite-0901/eng/smart.pdf



BEST DIGITAL TV COMPANIES in S/E EUROPE

SAPRO

Manufacturer and Wholesaler, Czech Republic



www.sapro.cz



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

Company Details

Engineers in Research & Development | Total Number of Employees

0 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 2.5 5 Mio €uro

Production Certificates

DVB

Production Categories

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

Main Products

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

AMIKO

Receiver Manufacturer, Hungary



www.amikostb.com



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

Company Details

Engineers in Research & Development | Total Number of Employees

0 50 100

Average Turnover (Previous, This, Next Year Estimates)

0 10 20 Mio €uro

Production Certificates

ISO, RoHS, DVB

Production Categories

own brands AMIKO, SYNAPS - cooperation with FULAN

Main Products

Receiver for DVB-S/S2, DVB-T/MPEG-4, DVB-C, award winning product Dual Boot Linux receiver for DVB-S/S2 and DVB-T

www.TELE-satellite.com/TELE-satellite-1111/eng/abcom.pdf
www.TELE-satellite.com/TELE-satellite-1009/eng/abipbox.pdf

[illegible]

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

www.TELE-satellite.com/TELE-satellite-0909/enq/promax.pdf

TELE
satellite
Recommended

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

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



BEST DIGITAL TV COMPANIES in MIDDLE EAST

ATLANTA

Satellite Wholesaler, UAE



www.TELE-satellite.com/TELE-satellite-1007/eng/atlanta.pdf

ECHOLINK

Satellite Wholesaler, UAE



www.TELE-satellite.com/TELE-satellite-1007/eng/echolink.pdf

COMINTOUCH

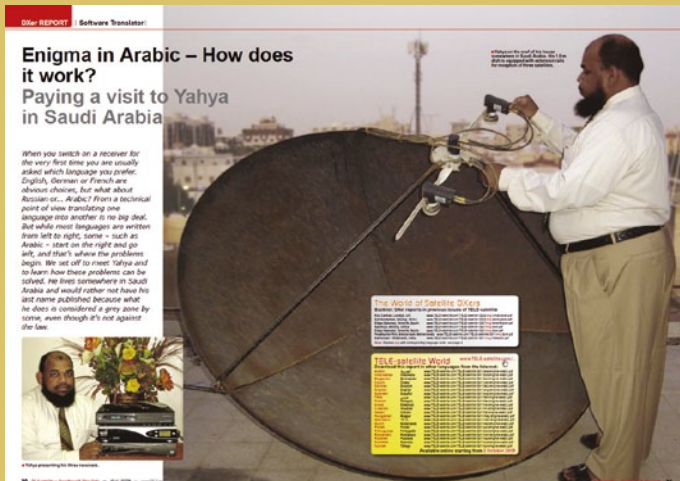
Satellite Wholesaler, UAE



www.TELE-satellite.com/TELE-satellite-1007/eng/comintouch.pdf

YAHYA

Software Programming, KSA



www.TELE-satellite.com/TELE-satellite-0911/eng/vahya.pdf



BEST DIGITAL TV COMPANIES in MAGHREB

BYA

Dish and Receiver Manufacturer, Algeria

www.bya-electronic.com

COMPANY REPORT Dish and Receiver Manufacturer BYA, Algeria

Perforated Dishes from Algeria
Alexander Weiss

With a new series of satellite dishes made out of perforated metal, Algerian manufacturer BYA Electronic wants to start an export offensive. Are there reasons to expect success in the strongly contested satellite dish market? It won't be easy for BYA, but there are several reasons which would make one optimistic: Slimane Ali Yala, founder of BYA, gives us the reasons for this optimism.

TELE-satellite World

BYA ELECTRONIC

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

Company Details

Engineers in Research & Development | Total Number of Employees

0 75 150

Average Turnover (Previous, This, Next Year Estimates)

0 5 10 Mio €

Production Certificates

RoHS, DVB

Production Categories

OEM, ODM

Main Products

Satellite Dishes with Full and Perforated Metal (60, 105 and 120cm), **TV-Sets** with CRT, LCD (32 and 40 inch) or Plasma (42 and 50 inch), **Satellite Receiver** for DVB-S/S2

BOMARE

TV and Receiver Manufacturer, Algeria

www.bomarecompany.com

COMPANY REPORT TV-Sets and Receiver Manufacturer Bomare, Algeria

Bomare: a new OEM Manufacturer

In 2005 the European Union entered into an agreement with the Democratic People's Republic of Algeria to support economic cooperation between the two. This agreement provides an interesting opportunity for satellite receiver manufacturers and, in the case of the Algerian company Bomare, also for TV manufacturers. Actually, Bomare produces both products. For 2011 Bomare has decided to take their products and service capabilities to the European market. We paid a visit to Bomare's production facility in Birtoula, about 20km from Algiers, and had a look around.

Stream

BOMARE

TELE-satellite World

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

Company Details

Engineers in Research & Development | Total Number of Employees

0 75 150

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio €

Production Certificates

RoHS, DVB

Production Categories

OEM, ODM

Main Products

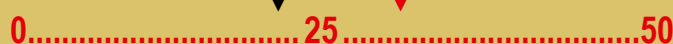
LCD and Plasma TV-Sets with integrated DVB-Tuner, **Satellite Receiver** for DVB-S/S2, DVB-T, Home Theatre Systems



PC Card & Receiver Manufacturer. Taiwan



Engineers in Research & Development | Total Number of Employees



Average Turnover (Previous, This, Next Year Estimates)



Production Certificates

RoHS

Production Categories

OEM, ODM

Main Products

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

Professional Dish Manufacturer, Taiwan



Antenna Motor Manufacturer, Taiwan



COMPANY REPORT | Satellite Dish Manufacturer Azura Shines



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

COMPANY REPORT | Antenna Motor Manufacturer MOTECH |



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

High-End Receiver Manufacturer, Korea

COMPANY REPORT | High-End Receiver Manufacturer: Korea

TOPFIELD

Premium Brand Topfield

Alexander Wiess

Topfield has been an established player in the high-end satellite receiver market for many years. The new THS super box will further strengthen Topfield's foothold in the so-quality market. THS-satellite started to learn more about the company's future strategy and spoke with Dong Hyun Suk of the Topfield marketing team.

Marketing Manager Dong Hyun Suk
 Topfield Electronics Co., Ltd.
 Seoul, Republic of Korea

TOPFIELD

THS (Total Home System) is a satellite TV system that provides a complete solution for high-end satellite TV reception. It includes a set-top box, a receiver, and a remote control. The system is designed to provide the best possible picture and sound quality. It is also easy to install and use. THS is a great choice for anyone who wants to enjoy high-quality satellite TV.

THS-satellite receiver

Model	Price	Features
THS-1000	100,000 KRW	Full HD, 1000MHz, 1000MHz
THS-2000	200,000 KRW	Full HD, 2000MHz, 2000MHz
THS-3000	300,000 KRW	Full HD, 3000MHz, 3000MHz
THS-4000	400,000 KRW	Full HD, 4000MHz, 4000MHz
THS-5000	500,000 KRW	Full HD, 5000MHz, 5000MHz
THS-6000	600,000 KRW	Full HD, 6000MHz, 6000MHz
THS-7000	700,000 KRW	Full HD, 7000MHz, 7000MHz
THS-8000	800,000 KRW	Full HD, 8000MHz, 8000MHz
THS-9000	900,000 KRW	Full HD, 9000MHz, 9000MHz
THS-10000	1,000,000 KRW	Full HD, 10000MHz, 10000MHz

www.TELE-satellite.com/TELE-satellite-0905/eng/topfield.pdf
www.TELE-satellite.com/TELE-satellite-0801/eng/topfield.pdf

Dish Manufacturer, Thailand

COMPANY REPORT | **Infosat** | Double Antenna Manufacturer 'INFOSAT', Thailand

Innovation Out of Thailand

Uthairat Pichai and Pichai Uthairat, INFOSAT's lead and second in charge.

Even a long-standing product such as a C-band antenna still has room for improvements. A few months ago, INFOSAT in Thailand introduced a 1.5-meter single-armantenna® antenna to the market. The result was immediate success! The driving force behind this new product is Uthairat Pichai, founder and owner of the company INFOSAT. He is not new to the project of TELE-satellite; he previously reported on Aircell and his new 'Star' in TELE-satellite issues 42-43/2007 and 49-51/2008.

★ A new antenna model. Antenna located in Thailand.

74 | **September** | *Infosat* | www.infosat.com

www.TELE-satellite.com/TELE-satellite-0907/eng/infosat.pdf
www.TELE-satellite.com/TELE-satellite-0803/eng/infosat.pdf
www.TELE-satellite.com/TELE-satellite-0705/eng/infosat.pdf

High Quality Receiver Manufacturer, Korea

[illegible]

www.TELE-satellite.com/TELE-satellite-0903/eng/arion.pdf
www.TELE-satellite.com/TELE-satellite-0801/eng/arion.pdf
www.TELE-satellite.com/TELE-satellite-0701/eng/arion.pdf

Dish Manufacturer, Indonesia

[illegible]

www.TELE-satellite.com/TELE-satellite-0805/eng/subursemesta.pdf

OPERATOR MARKET Qualified

Classification for Best Digital TV Companies



Attributes of Qualified Company:

- High Production Volume ■ Quality Controlled
- Customized Product Case ■ Customized Product Software
- Aftersale Service

MTI

LNB Manufacturer, Taiwan

[illegible]

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



BEST DIGITAL TV COMPANIES in CHINA

DEVISER

Signal Analyzer Manufacturer, China



www.devisertek.com



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

Company Details

Engineers in Research & Development | Total Number of Employees

0 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio US\$

Production Certificates

RoHS, CE, UL, ISO 10012, ISO 90001

Production Categories

OEM, own brand

Main Products

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

PREVAIL

Fiber Optic and CATV Manufacturer, China



www.prevail-catv.com



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

Company Details

Engineers in Research & Development | Total Number of Employees

0 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio €uro

Production Certificates

RoHS

Production Categories

OEM

Main Products

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

LNB Manufacturer, China



www.boiingsat.com

Company Details

Engineers in Research & Development | Total Number of Employees



Average Turnover (Previous, This, Next Year Estimates)



Production Certificates

RoHS in preparation

Main Products

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



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

TENOW

PC Card Manufacturer. China



www.tenower.com

Company Details

Engineers in Research & Development | Total Number of Employees



Average Turnover (Previous, This, Next Year Estimates)



Production Certificates

RoHS, DVB

Main Products

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



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

GLOBALSAT

Receiver Mass Manufacturer. China



www.globalsatdyb.com

Company Details

Engineers in Research & Development | Total Number of Employees



Average Turnover (Previous, This, Next Year Estimates)

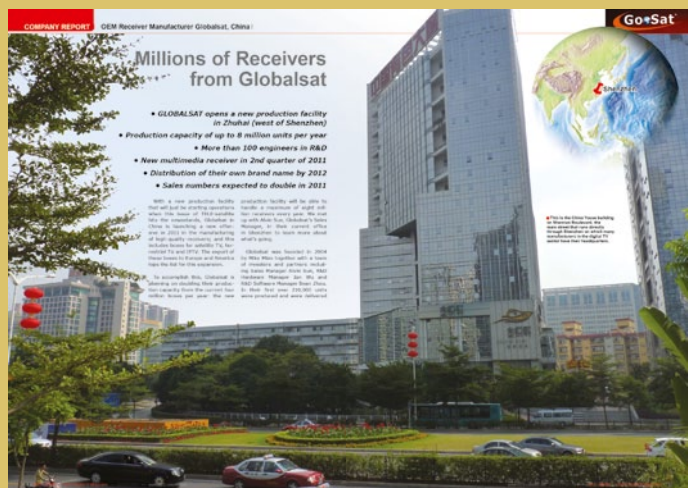


Production Certificates

RoHS, FCC, UL, CE, DVB, ISO

Main Products

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



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

JIUZHOU

Receiver Manufacturer, China



www.jiuzhou.com.cn

COMPANY REPORT | CITI at Jiuzhou, China

Terrestrial Receivers at Jiuzhou

Our readers are very familiar with Jiuzhou - have a look at TELE-satellite issue 02-05/2007. In 2009 Jiuzhou celebrated their 50th birthday and moved into their new Jiuzhou Electric Building. See TELE-satellite issue 02-03/2009. In September 2009, when the Shenzhen Metro Line 1 was extended, Jiuzhou became close to a Metro station. It's a five minute walk to the station which has a next and fitting name: "TV Tech Park".



TELE-satellite World - From the Internet

www.TELE-satellite.com/TELE-satellite-1003/eng/jiuzhou.pdf
www.TELE-satellite.com/TELE-satellite-0903/eng/jiuzhou.pdf
www.TELE-satellite.com/TELE-satellite-0803/eng/jiuzhou.pdf
www.TELE-satellite.com/TELE-satellite-0703/eng/jiuzhou.pdf

CHANGHONG

Receiver and TV Manufacturer, China

COMPANY REPORT | Receiver and TV Manufacturer CHANGHONG, China

Large-scale Quality and Innovation Made by CHANGHONG

CHANGHONG is one of the largest volume manufacturers of receivers with headquarters in Nanjing in the Jiangsu province of south-eastern China. Some 130 km from the provincial capital of Chengdu, not only do millions of satellite and terrestrial receivers leave the production premises every year, but also an equal number of flat-screen TVs, so that the company ranks among the most important digital corporations in the world.



TELE-satellite World - From the Internet

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

SVEC

Professional Dish Manufacturer, China



www.svec.com.cn

COMPANY REPORT | Professional Dish Manufacturer SVEC, China

SVEC Dishes from Chengdu/Sichuan

Alexander Wiese

The Sichuan province is well known outside of China for its spicy cuisine. A national favorite is the "Hot Pot" - in one pot with two separated sections a very spicy soup and a mild soup are heated up into which chopsticks are used to dip in different types of food for a few minutes. This could be fairly safe pieces of meat or vegetables. Along with that you drink sweetened strong tea. But what has to do with the province of the Hot Pot, the company SVEC in Sichuan's capital city of Chengdu, a city with eight million inhabitants in southwestern China. As you eat spicy meals, SVEC is looking for new challenges adding to their production of satellite dishes: they want to play a much bigger role in the world market with high quality products.



TELE-satellite World - From the Internet

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

BOXSAM

Receiver Manufacturer, China

COMPANY REPORT | Digital TV Receiver Manufacturer BOXSAM, China

Receivers made by BOXSAM

BOXSAM can easily be considered an up-start company as it was founded only in 2002 with a seed capital of 10 million USD. Starting out with CATV products BOXSAM expanded its business to cover satellite receivers and some other interesting products as well in 2004. We paid a visit to this company to learn about their way of doing business.



TELE-satellite World - From the Internet

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

ALUOSAT

Satellite Consultant, China

www.aluosat.com

COMPANY REPORT | Satellite Consultant, China

Aluo-sat Knows Everybody!

Somewhere active in the satellite field in China can hardly get around meeting Luo Shi Gang owner of Aluo-sat. Not only because he's been distributing TELE-satellite in China for many years, but also because he is a high-profile figure in many other satellite areas as well. Since China is entering the CDTI age in 2009 now it is a good time for visiting Luo Shi Gang and his office in Shenzhen.



TELE-satellite World - From the Internet

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

YINHE

High Volume Receiver Manufacturer, China

COMPANY REPORT | High Volume Digital TV Receiver Manufacturer YINHE, China

Organized for the Future Receiver Manufacturer YINHE Presents Their Factory

Alexander Wiese

Chinese high volume manufacturer YINHE is one of the top five producers in China. Although this company is well known within China, it is only the traders that recognize the name YINHE outside the country since abroad it is only an OEM. In other words, the YINHE designed boxes (Original Design) are marketed by other companies, primarily dealers and programming operators, under their own brand name. YINHE remains a just this manufacturer (since 2006) and for the time being it will stay that way. There are no plans for YINHE to dive into the export market with their own brand name. What does it look like inside one of these high volume manufacturing plants? TELE-satellite wanted to find out.



TELE-satellite World - From the Internet

www.TELE-satellite.com/TELE-satellite-1007/eng/yinhe.pdf



Operator Market Qualified



BEST DIGITAL TV COMPANIES in AMERICA

APPLIED INSTRUMENTS

Signal Analyzer Manufacturer, USA



www.appliedin.com



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

Company Details

Engineers in Research & Development | Total Number of Employees

0 25 50

Average Turnover (Previous, This, Next Year Estimates)

0 10 20 Mio USD

Production Certificates

DVB

Production Categories

own brand

Main Products

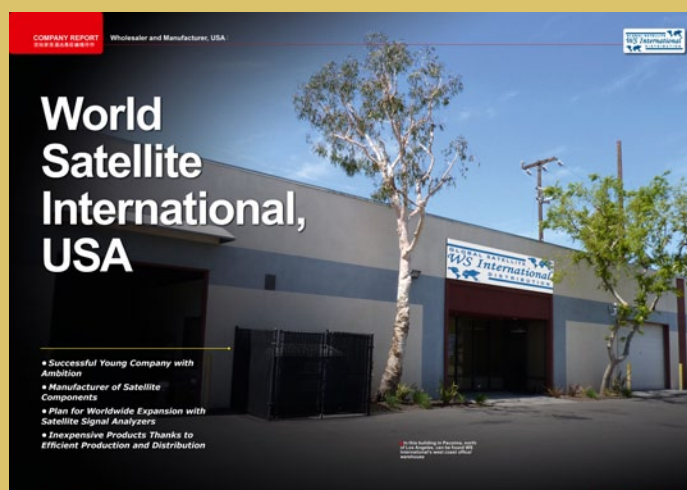
Cable TV Signal Analyzers, Satellite TV Analyzers, Noise Signal Generators, Noise Power Ratio Test Instrument

WS INTERNATIONAL

Wholesaler and Manufacturer, USA



www.wsidigital.com



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

Company Details

Engineers in Research & Development | Total Number of Employees

0 10 20

Average Turnover (Previous, This, Next Year Estimates)

0 2.5 5 Mio USD

Production Certificates

DVB

Production Categories

own brands LEXIUM

Main Products

Receiver for DVB-S, dishes 75cm up to 4.5m, LNB and LNB holders for KU and C band, DiSEqC switches, signal analyzers

Satellite Dealer, USA

**The Southwestern-most
Satellite Dealer in the USA**

Are you located in the extreme southwestern corner of the USA? If you take one more step you will fall into the Pacific ocean? Well, if you happen to be there and have the need for a satellite dealer, TEL-satellite can recommend one for you: QUALITY SATELLITES in San Diego. Located not far from the Mexican border, they have been offering a large selection of FTA receivers since 2007.

QUALITY SATELLITE

[illegible]

www.TELE-satellite.com/TELE-satellite-1005/eng/qualitysatellite.pdf

Satellite Filter Manufacturer, USA

www.microwavefilter.com

Microwave Filter Company
High Quality Specialized Filters
Made in USA

Satellite systems receive not only the TV, radio and data channels that you actually want, but also unwanted signals that may cause interference. How do you get rid of these interfering signals? MFC, a manufacturing pioneer of satellite filters based in the USA, produces a variety of filters that eliminate such interference.



²²The company was founded in 1981, he is currently New York, manages Candy, he says, H&M's Senior Marketing executive and to some extent, the heart and soul of the company. Having been with H&M for 15 years now, she readily offers some company history. "Glen Sussich, the founder of H&M, actually started the business in groups, producing them for another retail store. In 1973, we moved to our current location."

TELE-50: the World's Top 50 TV Shows

Below the title, there are two columns of text. The left column lists the names of the TV shows, and the right column lists the networks. The shows are ranked from 1 to 50.

1. *ER* (NBC)
 2. *Friends* (NBC)
 3. *Seinfeld* (NBC)
 4. *The Simpsons* (Fox)
 5. *24* (Fox)
 6. *The X-Files* (Fox)
 7. *Law & Order: SVU* (NBC)
 8. *Survivor* (CBS)
 9. *The Contender* (CBS)
 10. *The Bill Engvall Show* (CBS)
 11. *The Bill Engvall Show* (CBS)
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 49. *The Bill Engvall Show* (CBS)
 50. *The Bill Engvall Show* (CBS)



■ Scott Pappert, Director of Human Resources, manages Sprint's network of diverse, multicultural sales representatives who consistently seek out new opportunities for the company.



■ Eric Lopez is one of the engineering technicians. He can configure their design models to construct components directly on the lathe or in other off-the-shelf shops for military and so on. (3 hours)

[illegible]

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

Satellite Dealer. USA

JT is COWMIX

Satellite reception has been linked with Pay-TV for many years in the USA. But this has slowly been changing. Free-to-air (FTA) reception is becoming more and more popular. The USA is a land of immigrants and since many providers from around the world send their programmes to the USA for free, it makes sense that to many want to be able to watch TV in their mother-tongue or perhaps even their grandmother-tongue. Why should you pay a monthly fee to watch English-language programming when you can watch channels in their original language?

At the Cowmix store in Phoenix, Arizona

At the beginning of the year, we set out to build a small, successful independent on-line business. We wanted to be a part of the exciting new world of e-commerce, but we didn't want to be a part of the "dot-com" hype. We wanted to be a part of the real world of e-commerce.

So we started with a small, simple idea: we wanted to sell books. We wanted to sell books that were interesting, that were well-written, and that were well-reviewed. We wanted to sell books that were worth the time and money of our customers. We wanted to sell books that were worth the time and money of our customers.

And so we started Cowmix. We started with a small, simple idea: we wanted to sell books. We wanted to sell books that were interesting, that were well-written, and that were well-reviewed. We wanted to sell books that were worth the time and money of our customers. We wanted to sell books that were worth the time and money of our customers.

COWMIX
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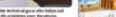
www.TELE-satellite.com/TELE-satellite-1003/eng/cowmix.pdf

Satellite Dealer. USA

Into the Satellite Future at High Speed

The US satellite equipment dealer Redcom, a family owned small business, is moving forward at high speed. Recently, growth in product lines and management is under review for some time. Redcom, the sales office will be in the state of Texas in 2010 and will be moving the company to Texas where no actual financial engineering, after graduating, he worked for General Motors and General Electric and spent some time in the US. He is now looking for a job in the US. He is looking for a job in the US. He is looking for a job in the US.

at the moment, I have calls for other countries during the holidays.



Ms. Shaw is the technical guru who helps out customers in a language she doesn't speak, but easily able to communicate with foreigners in their native languages including English, Spanish, Thai, Chinese and Persian as to the meaning of course, Americanized.

The largest portion of their sales, roughly 50%, involves takeouts. The remaining 50% goes to walk-ins. 90% of their orders are made online via their website, says Shaw.

[illegible]

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

Maritime 3-Axis Dish Manufacturer. USA

SeaTel's Five-Satellite Antenna

[illegible]

Photo: © iStockphoto.com/Chris Wedel

www.TELE-satellite.com/TELE-satellite-0911/eng/seatel.pdf
www.TELE-satellite.com/TELE-satellite-0901/eng/seatel.pdf

Satellite Dealer, Canada

Satellite Business in Winnipeg, Manitoba

21st Century Entertainment Inc., Winnipeg

21st Century Entertainment, which also operates the famous "Pulp" brand offices, is looking for sales and marketing professionals to add to its sales and marketing staff. In addition to full-time and part-time sales and marketing positions, the company is also seeking individuals to represent the company in various markets. The company is currently seeking individuals to represent the company in various markets. The company is currently seeking individuals to represent the company in various markets.

21st Century Entertainment Inc., Winnipeg

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the average producer in 1977 would have received \$1.00 for each bushel of soybeans, while the 1980 average is \$1.25, says a spokesman in the US on farm income and credit. "The 1980 crop is the best in 10 years," he says. "The 1981 crop is expected to be even better." The 1980 crop is the best in 10 years, says a spokesman in the US on farm income and credit. "The 1980 crop is expected to be even better." The 1980 crop is the best in 10 years, says a spokesman in the US on farm income and credit. "The 1980 crop is expected to be even better."

Weather's current special offer for the city of Houston will get a 40-40-40 deal along with a fast setup. LMS will not charge any fee.

There is an LMS with a 1/2" tape record. The book called the LMS are usually rented through the bookstore here in North America. For this purpose, you can also find the book on Amazon.com and the LMS. The use of an LMS with the correct type of hardware is preferred but not having either the cable connected from the weather.

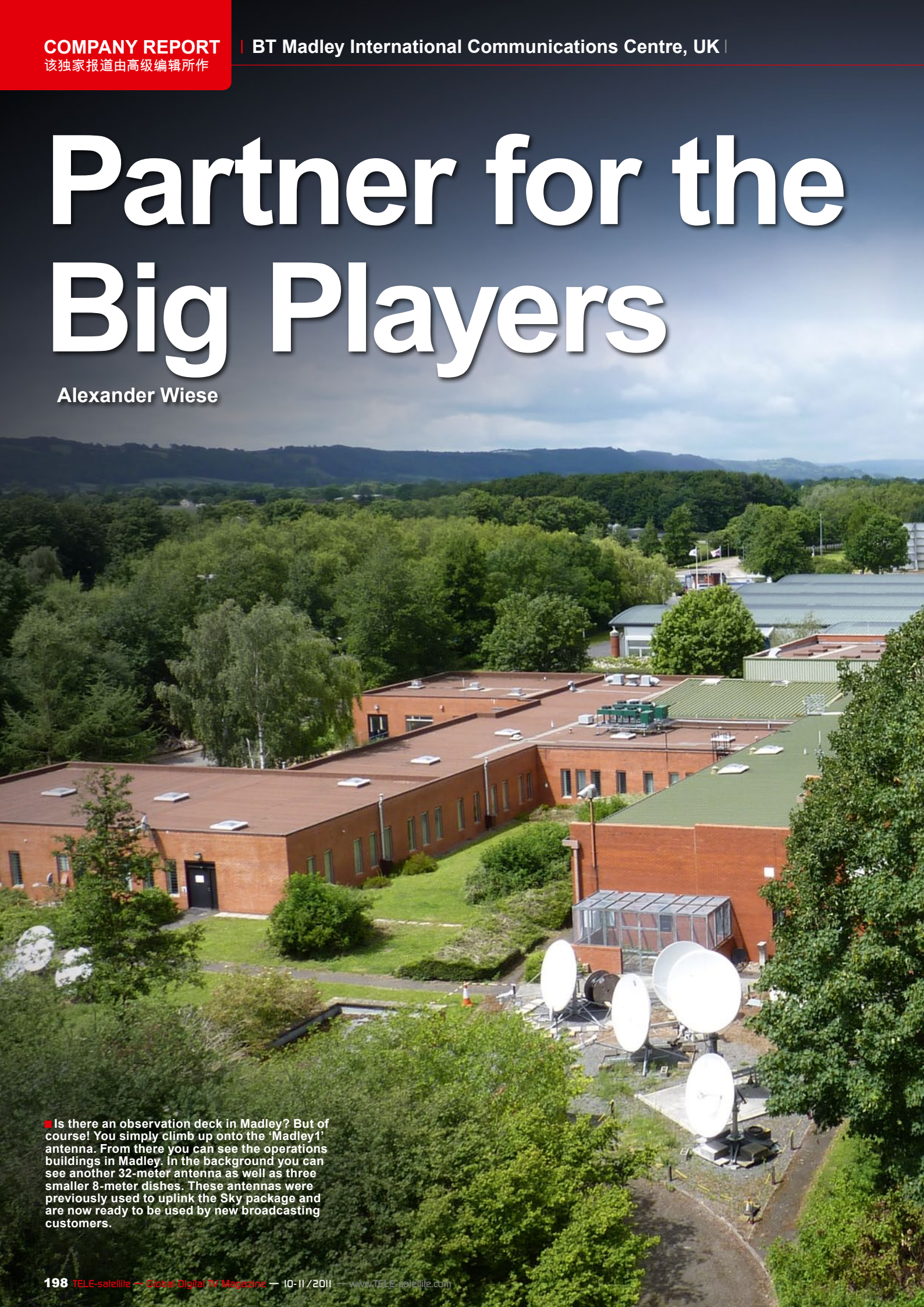
Weather Pulse is a free weekly e-newsletter distributed worldwide supplying

[illegible]

www.TELE-satellite.com/TELE-satellite-0705/eng/satman.pdf

Partner for the Big Players

Alexander Wiese



■ Is there an observation deck in Madley? But of course! You simply climb up onto the 'Madley1' antenna. From there you can see the operations buildings in Madley. In the background you can see another 32-meter antenna as well as three smaller 8-meter dishes. These antennas were previously used to uplink the Sky package and are now ready to be used by new broadcasting customers.

- *Operates 65 dishes in southwestern Great Britain*
- *Recently began offering uplink services for programming providers*
- *Equipped for HD and 3D program processing*
- *International optical links in all directions*
- *Highly motivated technical specialists*



BT's Earth Station Opens Up to Large Broadcasters



The worldwide company British Telecommunications Plc – (BT) has opened its enormous earth station in the small English town of Madley with its 65 satellite dishes to international broadcasters. They can use BT's latest technology to process their TV or ra-

dio programs and transmit them via the uplink station in Madley. Oldtimers in the satellite industry will be quick to tell you that broadcasters have been able to use the satellite dishes at Madley for quite some time now.

Sure enough, the station in Madley,

■ **Station Manager Nick Wood** shows us the just-installed upconverter in 'Madley1'. They are ready for those customers who want to use the modern technology at Madley and broadcast their programming from here. "The incoming signals in the 70 MHz range are modulated to 6 GHz." (That's the uplink frequency for the C-band)



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■ How large is 32 meters? Station Manager Nick Wood is standing in front of 'Madley1', the first dish erected at the Madley earth station. The transmission electronics inside the dish building are currently being upgraded and prepared for use by international broadcasters. Nick Wood enjoys taking time to read TELE-satellite magazine.

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located somewhere between Birmingham and Bristol, has been in operation since 1978. Back then it supported the much older earth station in Goonhilly (in far southwestern Great Britain), which was built in 1962.

The first dish that was erected in Madley was 32 meters in diameter and is still in operation today. Sure enough, it's currently being upgraded with a new digital transmitter.

Up until 2008 the Madley earth station was very active with TV and radio uplinks. Station Operator Nick Wood can tell us more: "Back then we made the start of Sky Television possible. That was February 5, 1989."

In 2008 a reorganization took place

and the broadcast division was "put into storage". It was agreed that BT would stay out of the satellite broadcast business for three years.

In 2011, these three years are now over and BT can once again begin offering these services. "During these three years we were very active in upgrading all of our technology", explains Nick Wood. He manages 100 earth station employees almost all of which have a technical background.

And there's plenty for them to do. David Woodhouse is the Station Operations Manager and gives us a long list of all the satellite dishes installed at Madley:

"Our three largest antennas have

a diameter of 32 meters", begins David Woodhouse, "we use them in the C-band, for example, to uplink the English Premier League to Asian programming providers." The Madley earth station can receive satellites and uplink to them all the way from 66E to 304E.

"From Madley we can reach so many satellites that we could theoretically transmit one channel in such a way that it could be received across two thirds of the world", comments the Satcom Operations Manager regarding the enormous range a TV programming provider could have through Madley.

But there's more: if a programming



■ Emma Tennant is a Senior Media Relations Manager in the BT Press Office, Group Communications. Over the large expanse of the Madley earth station, she takes note of the most important events for placement in a Madley chronicle. The last chronicle was published in 2008 to celebrate the 30th year of the earth station.

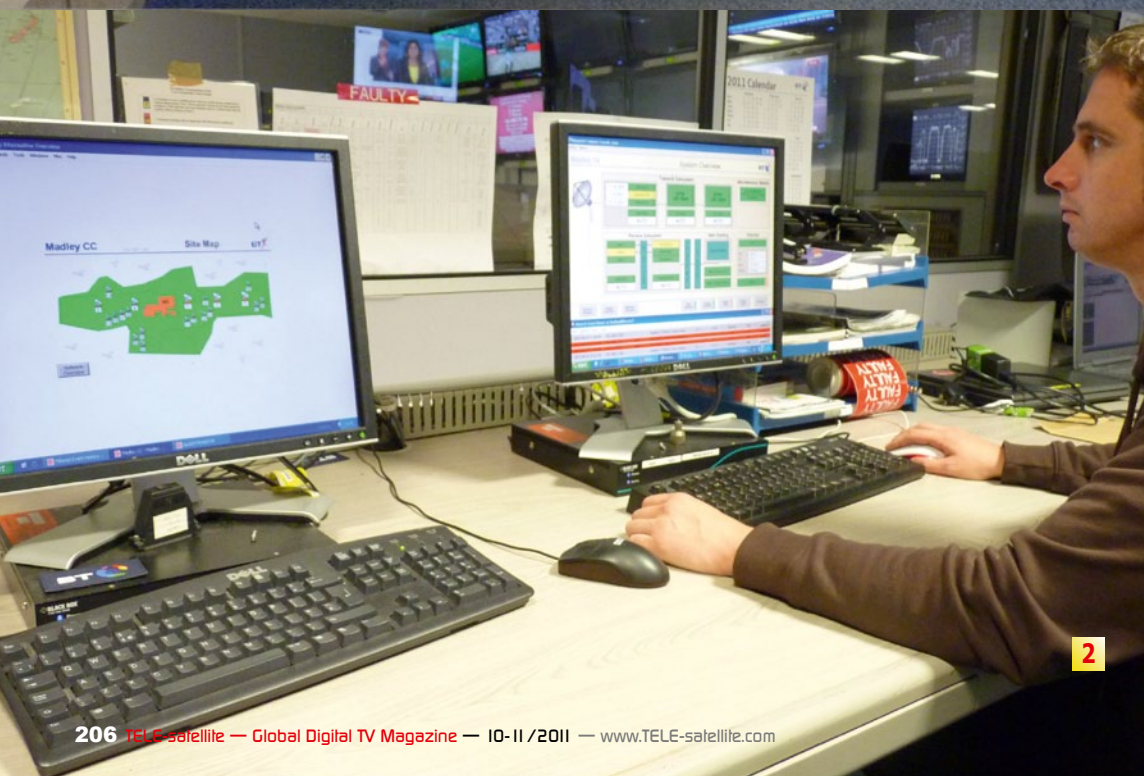
operator actually does want to reach the entire world, BT also operates another earth station in Sao Paulo, Brazil. "We are best linked to the American continent by an optical sea cable."

In addition to the two huge 32-meter dishes, Madley also operates two 18-meter dishes. "These are used in the Ku-band primarily for sporting events."

Just a little smaller are the two 16-meter antennas for the C-band and two smaller 13-meter dishes that are also used in the C-band. "We use the 13-meter dishes, for example, to broadcast the BBC World Service for Africa", we learn from David Woodhouse, "and we use the smaller 8-me-



1



2

1. In the Network Operations Center: Mal Furber (left) from the TV Operations team and David Woodhouse (right), Satcom Operations Manager. From here you can keep an eye on all of the uplinks.

2. Control Operations Technician Richard Harris can control all the BT Madley International Communications Centre dishes from here. "We wrote some portions of the control software ourselves", says Richard Harris proudly. He uses this software to watch over the function of each and every satellite dish at Madley. The monitor on the left displays a simplified representation of all the antennas in the security zone while the monitor to the right allows direct access to each individual antenna.

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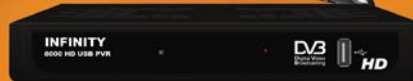
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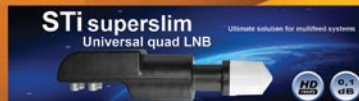


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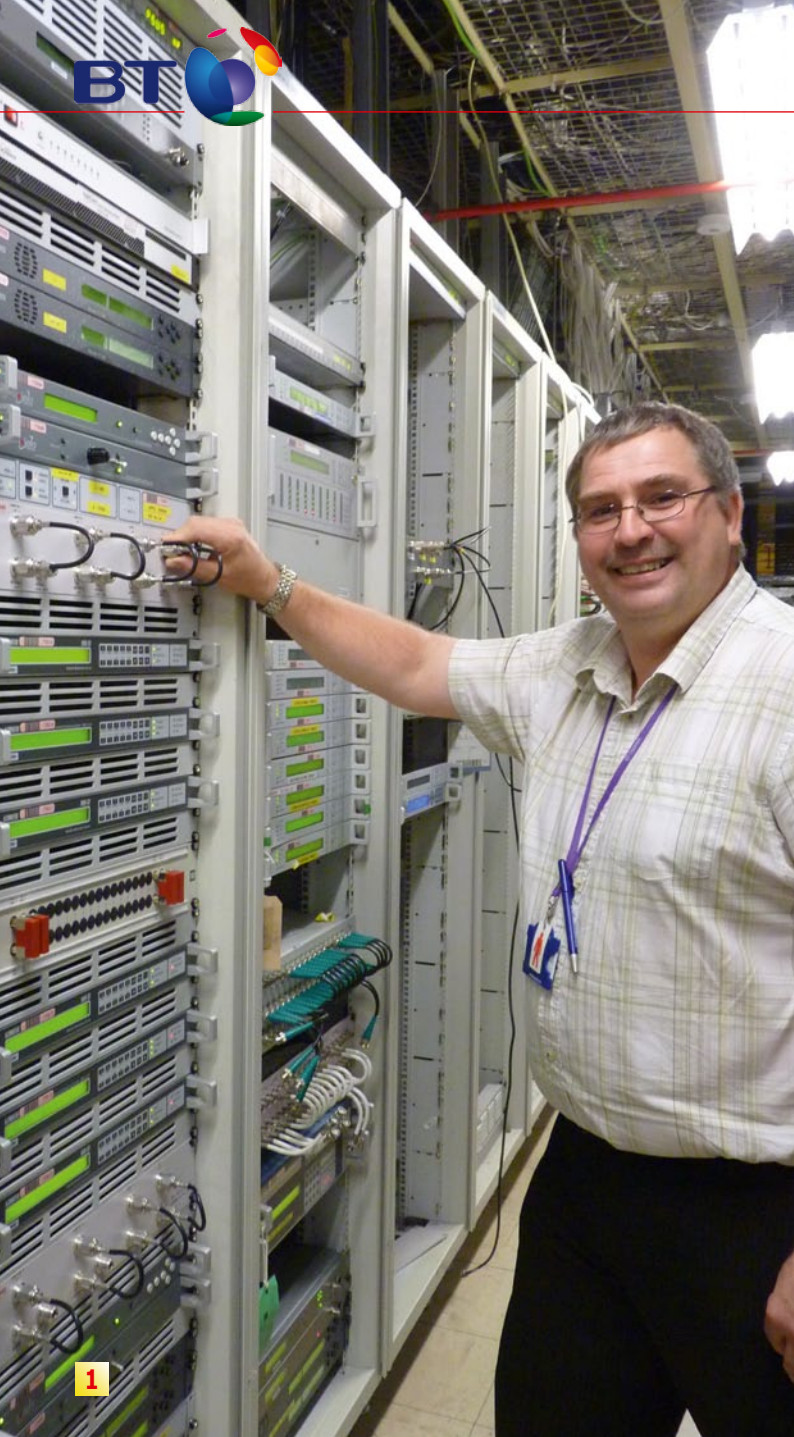


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1



2

ter antennas to transmit the BBC World Service to the Americas via IN-TELSAT 805."

Madley has another ten 8-meter dishes. In total there are 65 antennas that include smaller dishes that are used for reception only as well as numerous other dishes of all sizes that are used for testing or monitoring purposes.

Now that BT is once again allowed to take part in TV programming satellite transmissions, Madley can already boast their first success: "We are getting everything ready to receive the Arabic channels from BADR4 and re-transmit them", reveals Station Manager Nick Wood.

What makes BT's Madley earth station so attractive to providers? "Madley is linked by highly diverse optical cable networks with the BT Tower in

London and other key locations in America and our other customers."

Clearly, BT is a worldwide networked company that can offer large broadcasters the ideal infrastructure to cover all the different applications that a broadcaster might need.

"Our highly qualified technical employees are another argument in favor of BT", continues Nick Wood and then elaborates, "Here in Madley we have an emergency response team on standby that can immediately get underway should there ever be an emergency."

Nick Wood explains exactly what this means: "When the Tsunami struck in 2004, our emergency response team from Madley was quickly onsite rebuilding the communications infrastructure."

An emergency response like this can

1. One of the most well-known of the international broadcasters is the BBC World Service. Satcom Operations Manager David Woodhouse proudly shows us the cabinet of modulators that prepare the BBC World Service for the satellite uplink.

2. Just installed: this is one of currently 14 HD modulators that are ready to be used by international broadcasting customers. "We can also use the HD modulators to modulate 3D channels", explains David Woodhouse, "We use the same modulators for HD and 3D."

only be undertaken by a company that truly has the necessary experienced personnel available. "A similar situation occurred in 2005 with the earthquake in Kashmir and a more joyful event was the marriage of Prince William and Kate."

The BT employees in Madley are highly motivated and are ready for anything that comes their way.

Breaking NEWS!

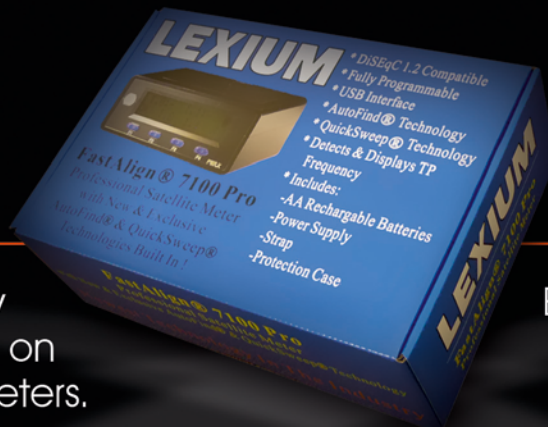
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For those broadcasters with ambitions of HD and 3D, the Madley earth station would seem to be the ideal solution to process their channels and retransmit them.

Senior Media Relations Manager Emma Tennant reveals to us who these broadcasting customers should contact: "That would be Client Manager Harry Formosa; he can be reached at harry.formosa@bt.com"

1. What happens when there's a power outage? Within 45 seconds this operations center for four diesel emergency power generators jumps into action. "We have enough diesel for eight days of operation." Just like everything else in Madley, there are two of those emergency power generator stations.

2. These are four of a total of eight emergency diesel generators. They may be quiet now, but will start up immediately in an emergency. Nick Wood: "All eight of these generators provide 7.5 MW of power; currently we only need about 4.5 MW." This means that Madley has plenty of room for expansion to handle many new broadcasting customers. If you take a closer look you'll see a face painted on the side of the motor: it's an inside joke because the motor casing resembles a very well-known character in children's books here in Great Britain: Thomas The Tank Engine.

3. BT is prepared for every eventuality. This can be seen in this emergency response vehicle. If there's a catastrophe, no matter where in the world, the Madley employees go and repair the communications systems and also install emergency communications systems if necessary. This demonstrates the extensive know-how of Madley's technical employees.



2



3

COMPANY REPORT
该报告由英国广播公司制作

BTs Internationales Kommunikationszentrum in Madley, England



Partner für die Big Player

Alexander Wiese

- betreibt 65 Spiegel im Südwesten Großbritanniens
- bietet seit kurzem Uplink-Service für Programmbetreiber an
- ausgerüstet für HD und 3D Programmaufbereitung
- internationale optische Verbindungen in alle Richtungen
- bestens motivierte Technikspezialisten



• Gibt es eine Aussichtsplattform in Madley?
Aber ja doch, man sieht einfach auf die
Antenne "Madley 1". Von dort hat man diese
Aussicht auf die technischen Gebäude in
Madley. Im Hintergrund sieht man eine weitere
32m Antenne sowie drei kleinere 8m Spiegel.
Diese wurden früher für den Uplink der Sky-
Programme genutzt und stehen nun bereit für
neue Broadcastkunden.

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www.TELE-satellite.com/TELE-satellite-1111/deu/btstation.pdf

Das weltweit operierende Unternehmen British Telecommunications Plc (BT) öffnet seine riesige Erdfunkstelle im englischen Madley mit ihren 65 Satellitenspiegeln den internationalen Broadcastern. Diese können die top-aktuelle Technik von BT nutzen, um ihre TV- oder Radioprogramme aufzubereiten und über die Uplink-Station in Madley auszustrahlen. Oldtimer der Satellitenbranche werden einwenden, dass Broadcaster schon seit langem die Satellitenspiegel in Madley nutzen konnten.

Tatsächlich wurde die Sta-

tion in Madley (ein kleiner Ort irgendwo zwischen Birmingham und Bristol) bereits 1978 eröffnet. Sie diente damals als Unterstützung für die weitaus ältere Earth Station in Goonhilly (im äußersten Südwesten Großbritanniens), die bereits 1962 errichtet wurde. Der erste in Madley installierte Spiegel ist 32m groß und ist heute noch in Betrieb. Tatsächlich wird er gerade mit einem neuen Digital-Transmitter ausgerüstet. Bis 2008 war die Earth Station in Madley sehr aktiv im Bereich TV- und Radio-Uplink. Stations-

leiter Nick Wood weiß mehr darüber: „Wir ermöglichten damals den Start von Sky Television. Das war am 5. Februar 1989.“

In 2008 erfolgte eine Reorganisation und die Broadcast Division wurde ausgelagert. Es wurde vereinbart, dass sich BT 3 Jahre lang aus dem Satelliten Broadcast Business fernhält. Diese 3 Jahre sind in 2011 vorbei und BT kann wieder diesen Service anbieten. „Wir haben die drei Jahre Stillstand sehr aktiv genutzt und unsere technischen Einrichtungen erneuert,“ erfahren



wir von Nick Wood. Er managt die 100 Mitarbeiter der Earth Station, die fast alle im technischen Bereich tätig sind. Und da gibt es genug zu tun. David Woodhouse ist der Satcom Operations Manager und er gibt uns eine lange Liste von Satellitenspiegeln, die in Madley installiert sind:

„Unsere drei größten Spiegel haben einen Durchmesser von 32m,“ startet David

Woodhouse seine Auflistung, „wir benutzen sie im C-Band z.B. für den Uplink der englischen Premiere League zu den asiatischen Programmbetreibern.“ Der Winkel, in dem in Madley Satelliten empfangen werden können und zu denen hochgestrahlt werden kann, startet bei 66E und endet am anderen Ende bei 304E. „Damit können wir hier von Madley aus so viele Satelliten erreichen, dass wir theoretisch ein Programm so ausstrahlen können, das es in Zweidrittel der Erde empfangen werden kann,“ veranschaulicht uns der Satcom Operations Manager die enorme Reichweite, die ein TV-Programmbetreiber von hier aus erreichen kann. Dabei ist das nicht das Ende: will ein Programmbetreiber tatsächlich die ganze Welt erreichen, so verfügt BT noch über eine eigene Earth Station in Sao Paulo in Brasilien. „Gerade mit dem amerikanischen Kontinent sind wir über optische Seekabel bestens vernetzt.“

Neben den 32m Riesenspiegel verfügt Madley über zwei 18m Spiegel. „Diese sind für das Ku-Band ausgebaut und werden von uns vorwiegend für Sportübertragungen genutzt.“ Etwas kleiner sind die beiden 16m Spiegel für das C-Band und zwei weitere 13m Spiegel, die ebenfalls für das C-Band ausgelegt sind. „Über den

13m Spiegel strahlen wir z.B. den BBC Worldservice für Afrika aus,“ erfahren wir von David Woodhouse, „und über die kleineren 8m Spiegel strahlen wir im Ku-Band über den INTELSAT 805 den BBC Worldservice nach Amerika aus.“ In Madley finden sich darüberhinaus noch 10 Spiegel mit 8m Durchmesser. Insgesamt sind es 65 Spiegel, darunter dann allerdings auch kleinere Spiegel, die nur für den Empfang genutzt werden, und eine Vielzahl von Spiegeln aller Art, die für Testzwecke oder für das Monitoring eingesetzt werden.

Nachdem BT wieder frei ist, im Bereich Satellitenprogrammausstrahlung tätig zu werden, kann Madley schon einen ersten Erfolg vorweisen: „Wir bereiten gerade die Technik vor, um arabische Programme des BADR4 zu empfangen und re-ausstrahlen,“ verrät uns Station Manager Nick Wood. Was macht BT mit seiner Earth Station Madley so attraktiv für Programmbetreiber? „Wir sind mit unserem Programmcen-ter in London im BT Tower mit einer sehr großen Bandbreite über ein optische Kabelnetzwerk verbunden sowie mit anderen Knotenpunkten in Amerika und bei unseren Kunden.“ Hier wird deutlich, dass BT ein weltweit vernetztes Unternehmen ist, das gerade

für die großen Programmbetreiber die ideale Infrastruktur anbieten kann, um alle Varianten abdecken zu können, die ein internationaler Programmbetreiber benötigt.

„Ein weiteres Argument für BT sind unsere exzellenten technischen Mitarbeiter,“ fährt Nick Wood fort und kann dies auch gleich beweisen: „Wir verfügen hier in Madley über eine technische Einsatzgruppe, die sofort ausrücken kann, wenn ein Notfall auftritt.“ Nick Wood erläutert, was das in der Praxis bedeutet: „Als in 2004 der Tsunami wütete, war unsere Einsatzgruppe hier aus Madley in kürzester Zeit in den betroffenen Gebieten unterwegs und hat die Kommunikationsinfrastruktur wieder aufgebaut.“ Solche Notfalleinsätze kann nur ein

Unternehmen leisten, das tatsächlich das notwendige Fachpersonal zur Verfügung hat. „Ein weiterer ähnlicher Einsatz kam 2005 beim Erdbeben in Kashmir und ein erfreulicherer Einsatz war kürzlich bei der Hochzeit von Prinz William mit Kate.“

Die BT-Mitarbeiter in Madley sind hochmotiviert und stehen für neue Aufgaben bereit. Vor allem für Programmbetreiber mit Ambitionen im HD und 3D-Bereich erscheint die Earth Station in Madley eine ideale Lösung zu sein, ihre Programme aufzubereiten und auszustrahlen. Senior Media Relations Manager Emma Tennant verrät uns noch, an wen sich Programmkunden wenden können: „Das ist Client Manager Harry Formosa unter der Email harry.formosa@bt.com“

Download this report in **English**

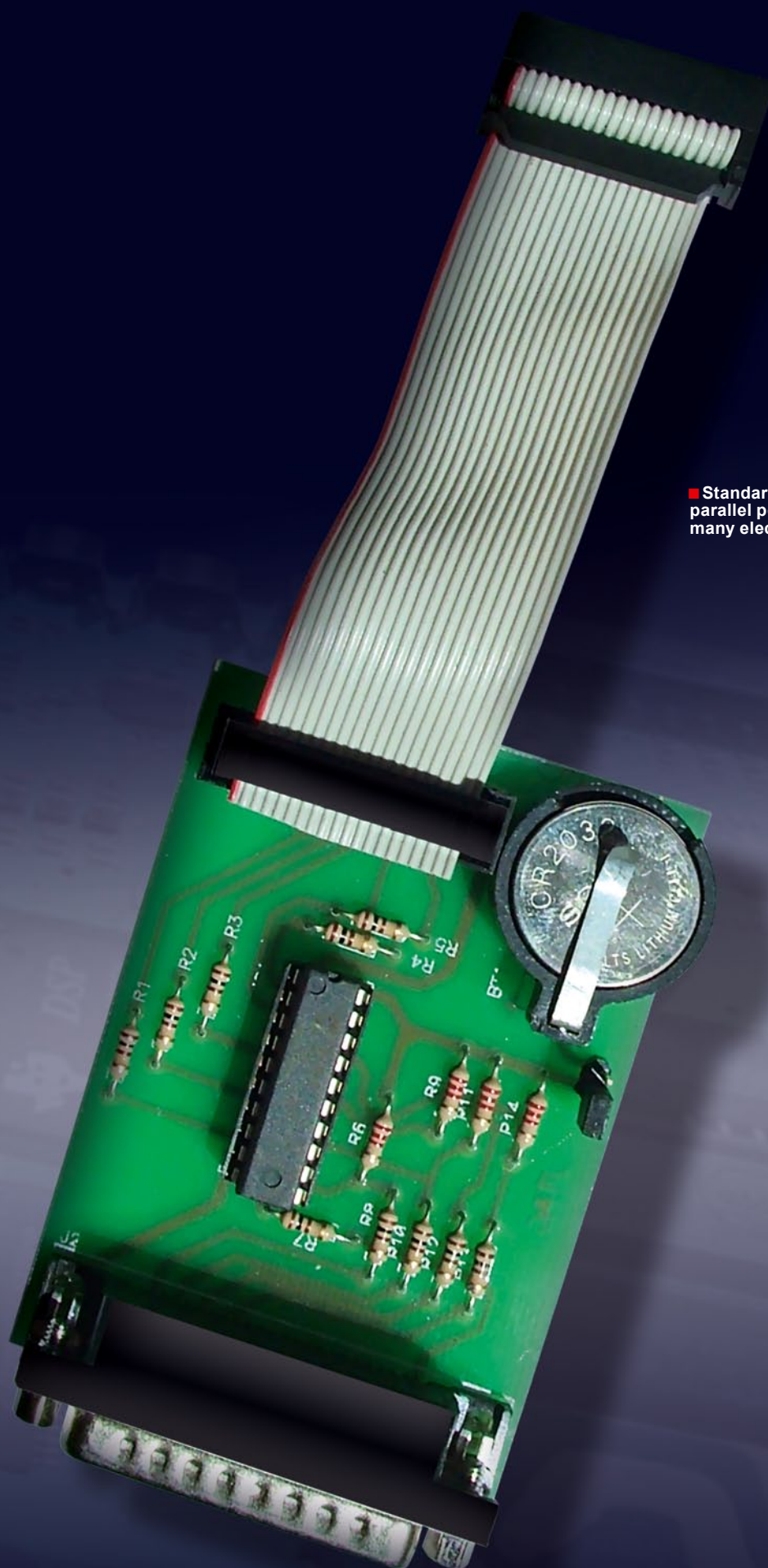


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■ Standard JTAG interface for a parallel port. It can be ordered from many electronic shops.

The Solution for a Faulty Firmware Update

Vitor Martins Augusto

For those of you who update satellite receiver software on a more regular basis, you will almost certainly recognize these two aggravating problems: uploading the wrong software or a version that is incompatible as well as the unexpected power failure during an update. If either of these problems show their face, the result is almost always a "dead" receiver or as it's also called, a "brick" - good for nothing.

But wait, there might still be one last chance to upload the software if the receiver comes with a JTAG interface. But first things first. What actually happens when you turn on a receiver? When the receiver is turned on, the processor

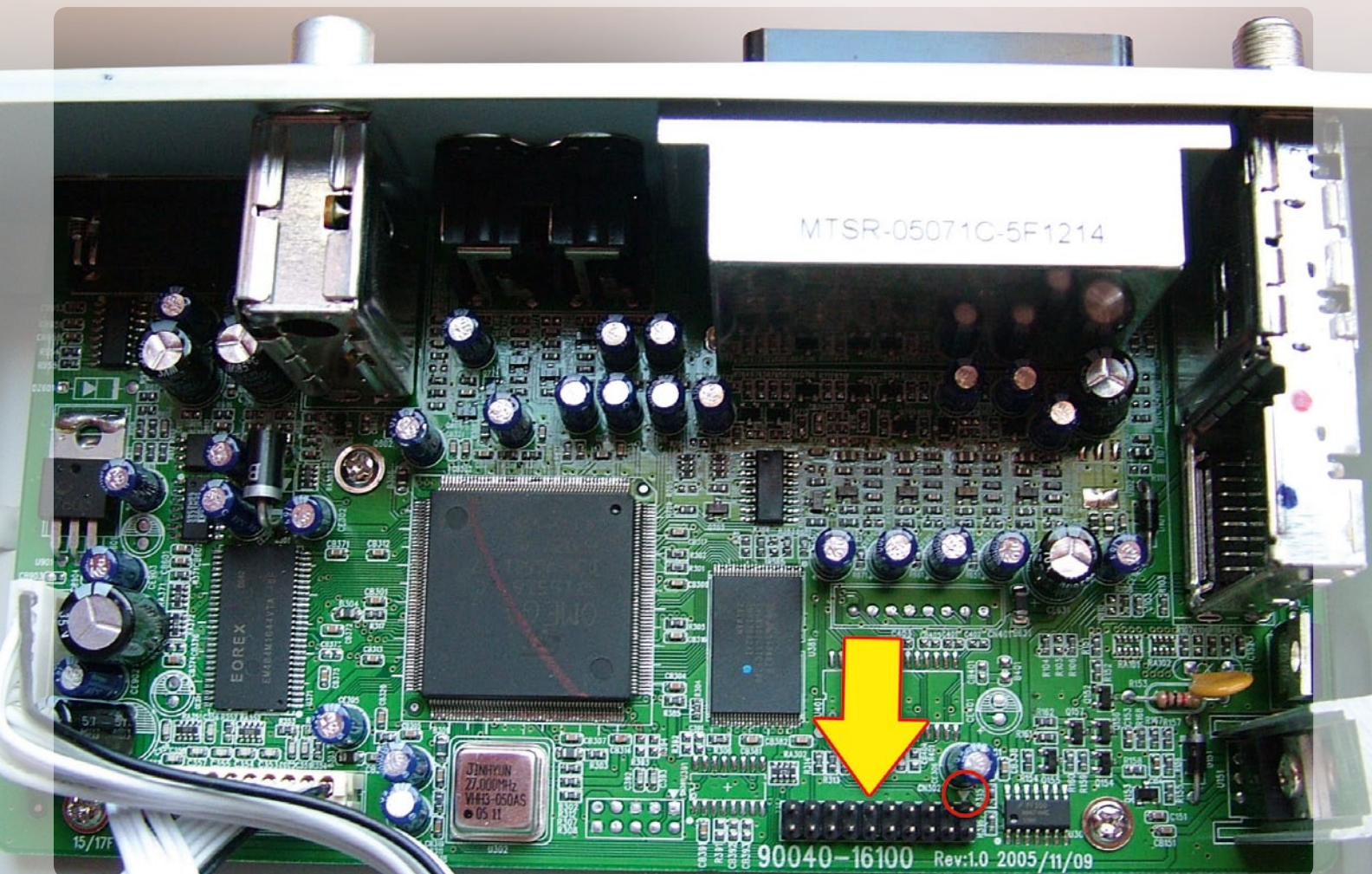
starts a program called the "Bootloader". The "Bootloader's" job is to determine at the start if a firmware update should be undertaken. If that's not the case, it would then copy the contents of the flash memory into RAM and will start the firmware from there. This process of copying the Flash to RAM and at the same time uncompressing it is responsible for the time delay that occurs during a receiver power up.

The "Bootloader" program can be found in the flash memory at a specific address (usually the last 64KB, starting at &H7FFFE000). If no program can be found at this address or the wrong one happens to be there, the processor

won't be able to start the receiver and it instantly turns into a brick. Nothing works anymore.

There are two different situations here: if the "Bootloader" is still intact but the firmware itself is missing or corrupt, it won't be able to start the receiver, however, since the "Bootloader" is also responsible for firmware updates, the user can still upload the correct firmware through the "Bootloader". But it's much worse if the "Bootloader" itself is missing. You won't be able to do anything at all. Many manufacturers offer updated firmware that doesn't involve replacing the "Bootloader" in order to prevent problems like this. If the

■ The inside of a standard receiver. The arrow points to the JTAG connector while the circle highlights a white triangle that indicates pin #1 on the JTAG connector. The JTAG interface is plugged in such that the red line on the cable is on the same side as the triangle.





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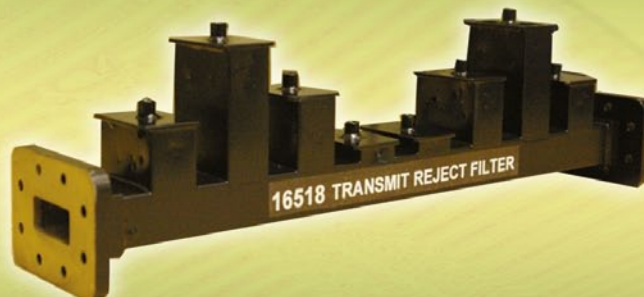
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"Bootloader" is defective, the receiver can no longer be started. On the whole, it would probably be better to include a new installation of the "Bootloader" program with every new firmware update.

If the receiver displays "8888" or nothing at all, then the firmware update has failed. If the receiver can no longer perform an update via the serial interface, then it's safe to say that the "Bootloader" has been deleted and nothing will work anymore.

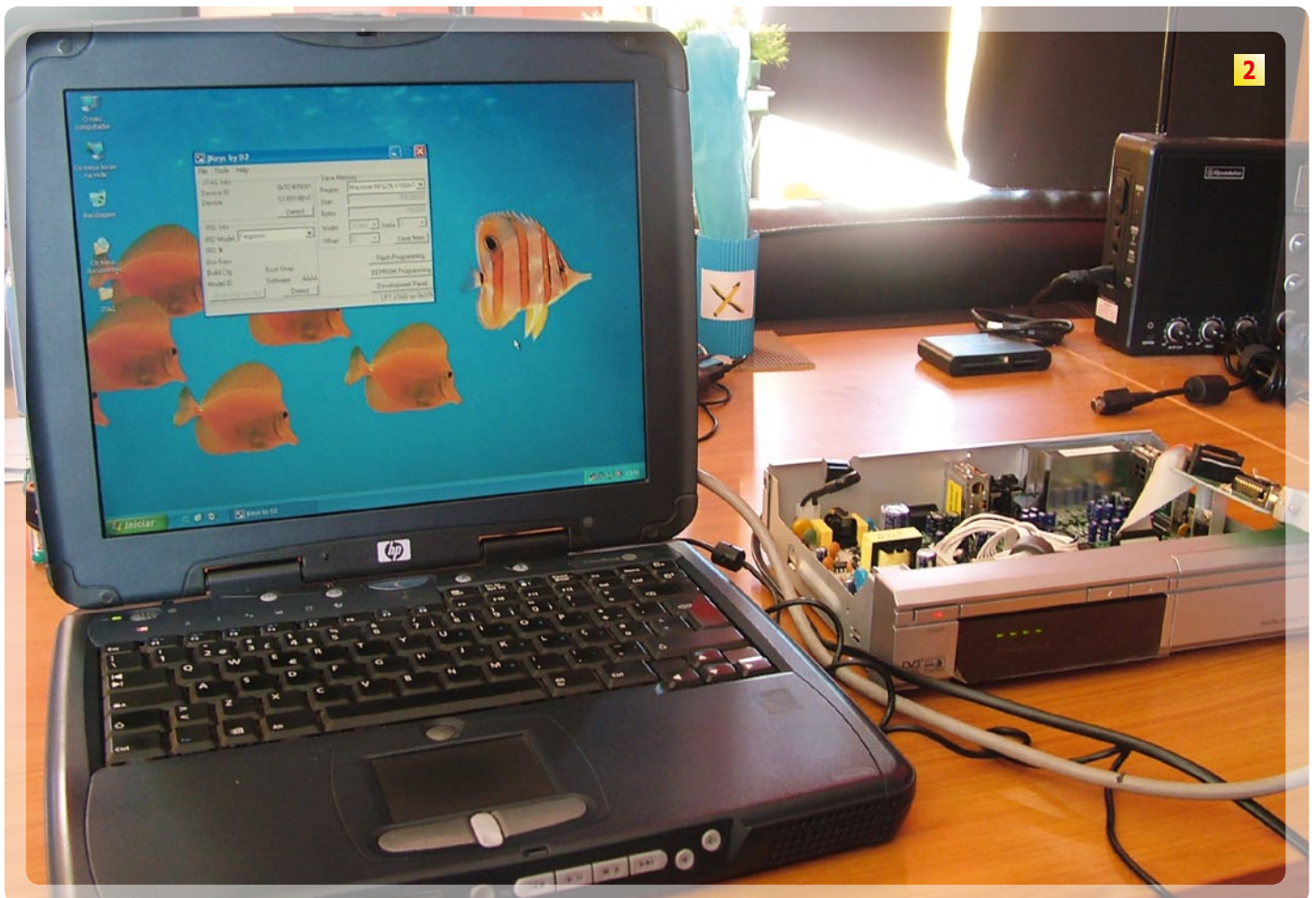
Experienced users enjoy the idea of uploading the firmware from another

receiver, for example, because the hardware is identical. Many budget receivers are based on the same hardware; the manufacturer simply matches the firmware to the receiver. It could therefore be quite interesting to try out the firmware from another manufacturer. In this case though you almost always have to update the "Bootloader" software. It's easy to mistakenly upload the wrong firmware and at the same time the wrong "Bootloader".

If the receiver can no longer start up because of the lack of the correct firmware and "Bootloader", then there are only two ways to repair the re-

ceiver. Either you unsolder the Flash chips, reprogram them externally and then resolder them in place with all of this requiring professional equipment to remove, reprogram and reinstall the chips, or, with a little bit of luck, you'll find a JTAG interface on the main circuit board. The JTAG interface provides an indirect way to access the Flash chips via the processor. When the box is turned on, the processor is placed into a specific mode so that you can read, delete and reprogram the Flash chips.

For this to work you'd need a JTAG interface along with the corresponding software. Fortunately, it's fairly easy





to fabricate a JTAG interface so that it can be inexpensively purchased in many electronic shops. If you can't find a JTAG interface in your local store, you can build one yourself. All you need is a few resistors and a standard 74HC244N building block. You'll find schematic diagrams in the Internet for every capable receiver that can be programmed via JTAG.

The JTAG protocol consists of six lines:

- TRST • TDO • TDI
- TCK • TMS • GND

Quite often manufacturers use a standard plug with 20 pins. If this isn't the case, it becomes necessary to determine the correct pin layout. Normally, the correct JTAG pin layout for specific receivers can be found by performing a Google search when you're not dealing with a standard 20-pin connector.

The JTAG interface is connected to your PC via the parallel port. But first you have to check and see if such a PC still exists in your house. Your best bet would be to use an older laptop with Windows XP. A laptop like this would also be perfect to use for uploading new receiver firmware via the serial

interface and should therefore be an integral part of your toolkit. Windows Vista and Windows 7, especially the 64-bit versions, often have problems with the tools for firmware uploads.

Many receivers are based on processors manufactured by STi. This is the case with most budget receivers. And just for this family of processors there's an excellent freeware program: jKeys. This tool functions perfectly with the JTAG interface on the parallel port and through a current database automatically recognizes most of the STi processors in common receivers. Most of the time, however, jKeys cannot recognize the receiver's Flash chip. There are far too many different Flash chips out there and every manufacturer uses their own set of chips; you'd have to be able to read the name of the manufacturer and the model of the chip and then find the corresponding datasheet in the Internet.

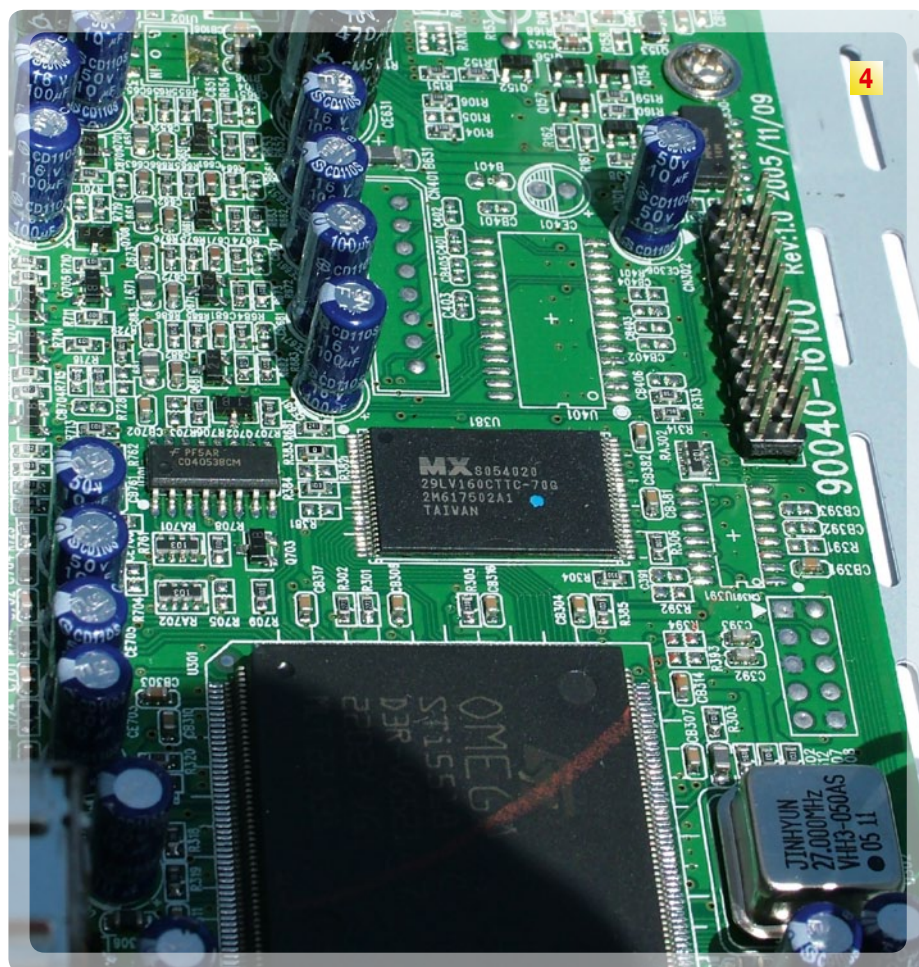
For our example we'll use a standard receiver. The built-in Flash chip is the model MX 29LV160CTTC. A search on Google yields numerous websites that provide the necessary datasheet. Why is it so easy to find this? It has to do

1. The rear panel of an older laptop: parallel ports and serial interfaces were standard back then and are needed for the JTAG interface. Don't throw away or give away those old laptops! They can serve as excellent repair tools!

2. Our workstation for our JTAG firmware work.

3. If the receiver only displays "8888" or nothing at all, then the firmware upload has failed. If the receiver doesn't talk anymore regarding a firmware update through the serial port, it's safe to say that the "Boot-loader" was also deleted.

4. A look inside our defective sample receiver: here you can see the STi chip to the lower left (an STi 5518BVC) as well as the MX 29LV160CTTC-70G Flash chip and the JTAG connector. These components are always located close to each other since the connections between them have to be kept short because of the high frequencies being used.



Update via jKeys



with electronics wholesalers that provide datasheets for every component so that prospective buyers can choose the correct component for their needs. That's just perfect for us!

From these datasheets we can get all the relevant information regarding the makeup of the chip. We are interested in the following information:

- Size of the chip, in this case 2MB
- Construction of the memory banks
- If any write-protection needs to be bypassed before deleting and writing on the chip

This information is entered into the jKeys Definitions Data. In jKeys Definitions we search for the group with these Flash definitions and carry in the data structure of the Flash chips. Now we can actually start jKeys. As a precaution, you should download the contents of the Flash memory. It's a task that would only make sense with a functioning receiver. We'll hold on to this image dump just in case a future firmware upgrade isn't completed successfully.

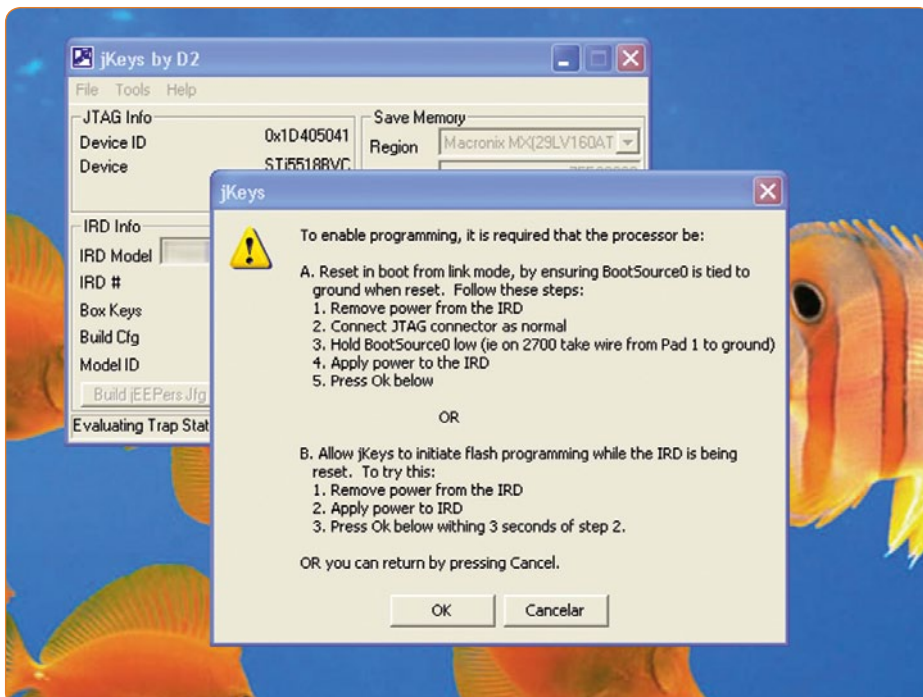
If that does happen though, you can then reload your backup image. For this purpose we would need to use the jKeys Flash menu to which a receiver reset would be necessary. Perform these steps in order: turn the receiver off, turn it back on and at the same time press the jKeys OK button. If everything is OK, the programming menu will be displayed.

Let's assume that nothing works anymore. The first step is to delete the entire Flash. This process sets all the bits in the Flash memory to "1". The programming function can only set a bit from "1" to "0", not the other way around. This would explain why an interrupted firmware update always leads to a defective receiver: the "Bootloader" is located in the last 64KB and is deleted before the Flash process! Lastly, you select the desired firmware data and program the Flash chip. Many STi based receivers link the Flash chip to an address range of &H7FE00000 to &H7FFFFFFF; this corresponds to pre-

1. jKeys has in this case recognized the receiver with its Flash chip since the corresponding definitions are already in the database.

2. Reading the entire Flash chip (address &H7FE00000 to &H7FFFFFFF). It's always a good idea to make a backup of the firmware with new receivers.

3. To activate the deleting and programming mode of the Flash chip, the receiver must briefly be turned off and then back on.



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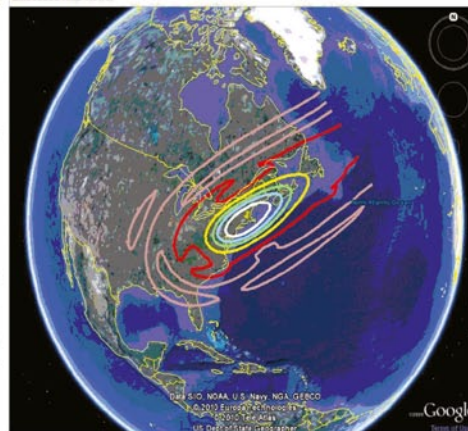
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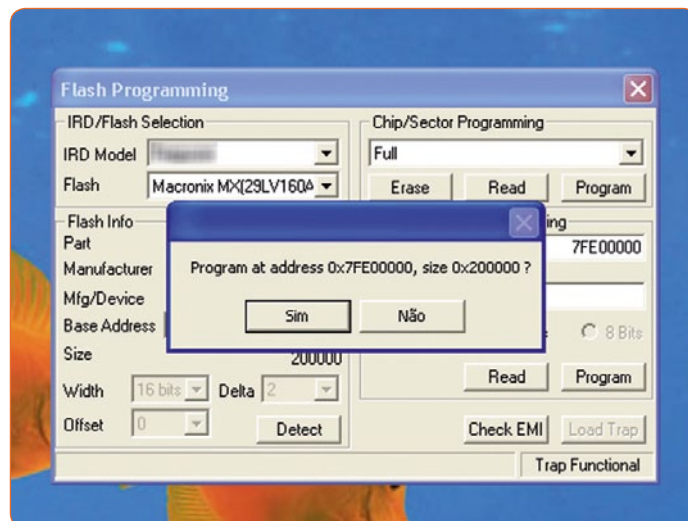
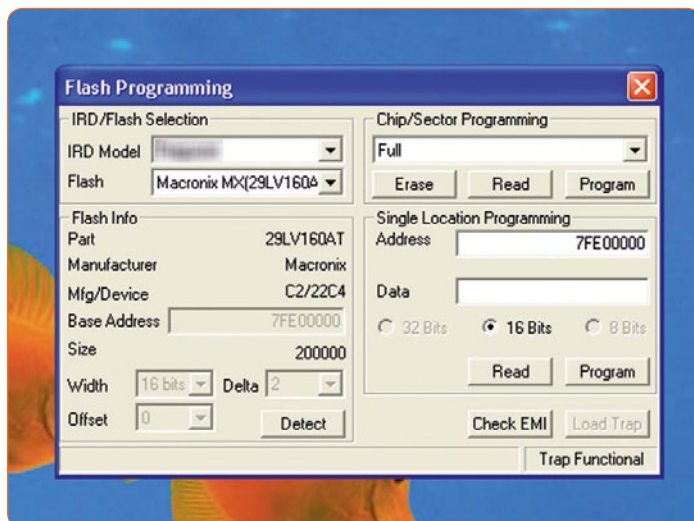
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cisely 2MB. Once the programming process has been completed, you simply turn the receiver off, remove the JTAG interface and then turn the receiver back on. The newly uploaded software should then automatically start.

To make sure that the receiver was correctly programmed and won't crash because of some faulty configuration, it is recommended that the original firmware be loaded via the serial interface. The process described here works with nearly every STi processor based receiver.

But what do you do if you have a receiver that doesn't come with an STi processor? It still pays to look into it further: many manufacturers use a JTAG interface on the main circuit board and offer either officially or unofficially JTAG software for their receiver. A quick search via Google will reveal the necessary pin layout for the JTAG interface as well as the corresponding programming software. This will allow you to program various Linux receiver models through JTAG.

Another problem is that many users don't have a backup of the firmware that they can use to reload onto a receiver via JTAG. Even here there are possibilities:

- 1) You can extract the firmware from a second functional receiver.
- 2) You can search the Internet to see if someone else has exactly the firmware that you need.
- 3) You can extract the firmware from a manufacturer's firmware update.

With the last option you should note that a firmware update often includes a so-called "header", in other words, a specific number of bytes that describe

the firmware and are not programmed onto the Flash chip. In a case like this, you would need to open the firmware in a Hex editor and delete the extra bytes that don't belong to the firmware. This actually sounds harder to do than it really is.

First of all, the firmware must be exactly the same size as the capacity of the Flash chip. If it's 2MB (2048 KB) in size, then the firmware must be exactly the same size. Therefore, you simply cut out the corresponding bytes right at the start. Sometimes only the "Bootloader" is made available. This would have to be loaded at the end of the Flash chip's memory space, typically at &HFFFE000. This involves the last 64KB and the data containing the "Bootloader" must have exactly this size. If you're only loading the "Bootloader" program, the receiver still won't work, but at least you'll be able to upload the firmware through normal channels.

Modern, more sophisticated receivers quite often don't come with a JTAG connector. In order to handle any firmware upgrades, a slightly different concept is used: the receiver operates using two "Bootloaders". The "First Stage Bootloader" checks to see if any firmware needs to be uploaded. If that's not the case, a "Second Stage Bootloader" is run that then starts up the existing firmware. The advantage to this method is that the "First Stage Bootloader" is never overwritten; this would allow the user to reload the firmware in any situation.

Manufacturers of proprietary receivers for PayTV providers do things quite differently. Here there's not only no JTAG connector (it's been omitted on purpose), there are also no circuit board tracks available from the pro-

4. If the deleting and programming mode of the Flash chip has been successfully activated, this menu will appear.

5. Security question before starting the Flash chip writing process.

cessor on the main board where a user could attach a JTAG connector. On top of that, the Flash chip is made inaccessible by a special type of glue. All of this is designed to prevent a hacker from gaining access to the contents of the Flash chip which would contain critical encryption data.

If you tried working with JTAG just once before, it won't seem so difficult the next time. The big advantage is that once you know how to do it, you can easily return a receiver to its original condition through JTAG should something ever go wrong.

Smaller specialized digital TV companies would certainly be able to bring many receivers back to life since there are many end users out there that will manage to make a mistake uploading firmware. Digital receivers aren't the only devices that utilize the JTAG protocol; in fact, you'll find it in almost any device that uses a processor and a flash chip. This would make it possible to save even Smartphones and other devices after a failed firmware update.

But let's not forget that safety is paramount! Be careful when working inside an exposed receiver! Keep in mind that receivers come with an integrated 220V power supply (110V in some parts of the world)! Take every safety precaution! One false move could place the JTAG interface in contact with a power supply component; this could lead to serious damage to the receiver and potential electric shock to the user. Make sure the JTAG interface is securely in place before turning the receiver on.

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- *Produced all mechanical pieces by himself*

■ Laszlo Toth (DX Bozoth) in front of his 4.65-meter dish antenna. His property is located in the small town of Püspökladány in eastern Hungary. The next largest city is Debrecen.



■ A look at Laszlo Toth's (DX Bozoth) parade of dishes in his own private garden.



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Laszlo Toth aka DX Bozoth

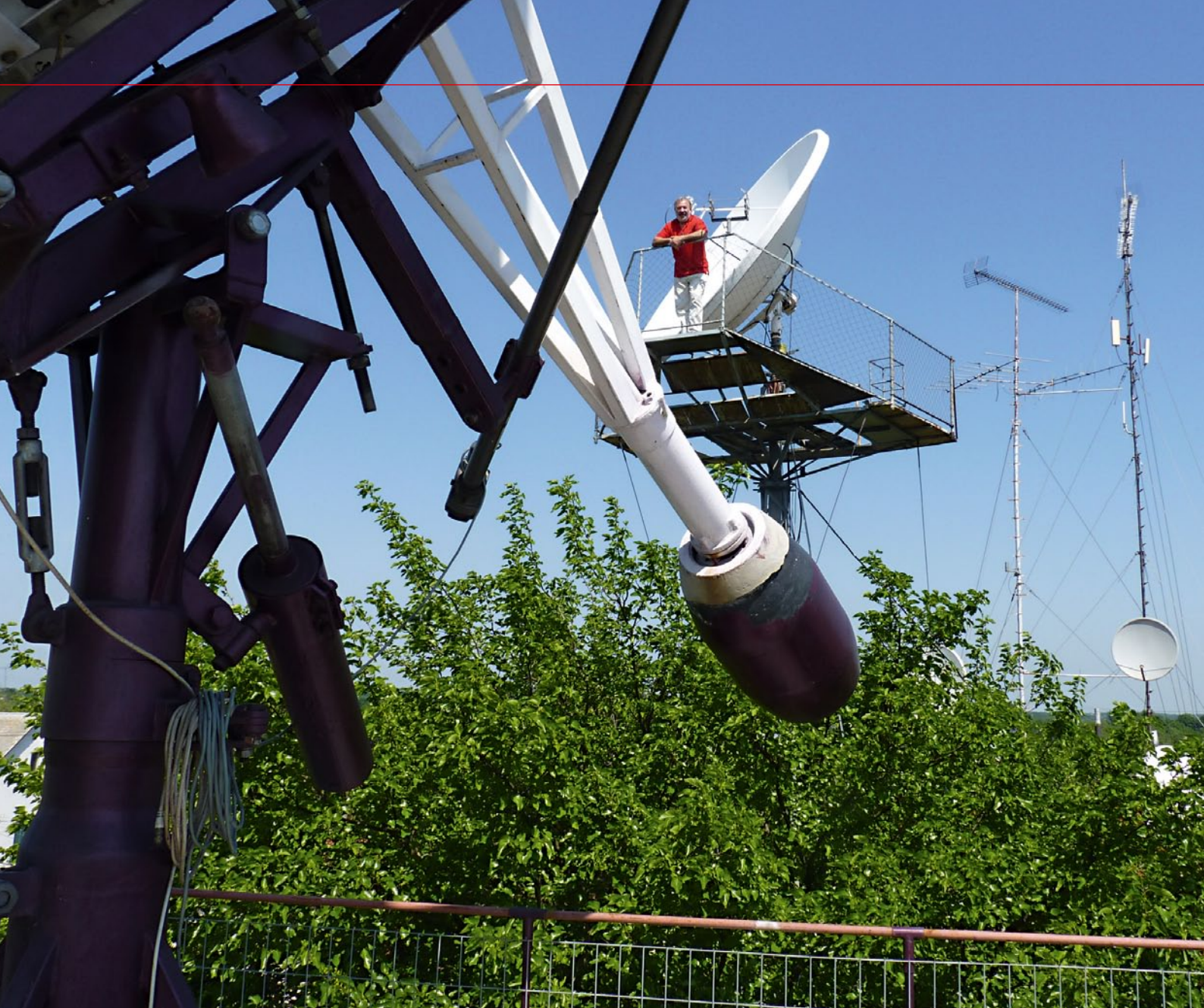
The year was 1974; that's when Laszlo Toth turned on his TV and saw an Italian TV channel. This experience infected him: the closest Italian city was more than 900 km away so this was by no means normal TV reception, but rather it was long-distance reception. This occurs under certain weather conditions and Laszlo Toth found this to be so exciting that he turned this into a hobby. He worked for the Hungarian railroad in their metal shop; this gave him two advantages: he had experience working with metal but, far more important, as a railroad employee he was able to ride the trains for free.

He took advantage of all this by acquiring a log periodic antenna that covered the entire frequency range as well as the necessary parts for a lattice mast. In 1976 he managed to erect a 33-meter high mast. Two months later though, a strong thunderstorm rolled through that tipped over his wonderful mast. That temporarily spoiled his interest in his hobby. In 1996 something new appeared: satellite TV. He acquired a used satellite dish that someone else had built themselves: "It was a 130cm dish", remembers Laszlo about his very first dish antenna.

Just like with TV DXing, Laszlo couldn't hold back here either: in



■ The large 4.65-meter antenna is moved manually by Laszlo to other satellites. He marked these other positions here. The antenna is currently pointed to THAICOM at 78.5 east as he is showing us here with his finger.



1998 came a 3.6-meter antenna that he mounted to a stable mast on his house. But for him it still wasn't enough: "A friend gave me his used 3.7-meter Andrew dish." But where to put it? For Laszlo there was only one answer: he had to erect a tower. Once again he put his metal fabrication skills to work and took advantage of his free train pass. "I built this 16-meter tower", explains Laszlo proudly as he points out the lattice tower that has since been surrounded by trees and can only be seen fully from a distance.

Did that satisfy his enthusiasm? Not a chance. In 2007 he became active once again. This time he constructed a much wider tower on which he mounted a 5-meter antenna. The tower is 9 meters high and was not as stable as he had hoped it would be. A friend suggested that he use support rods that increased its stability but then was only good enough when the wind wasn't blowing.

There are two points that are very important when it comes to installing large dishes like this: the wind load produced by such a large dish and the extremely heavy weight of such a professional antenna. "We couldn't put all the segments of this 4.6-meter antenna together on the ground; it could only be done directly on the mast", admits Laszlo. The reason: "The fully assembled antenna would have been far too heavy to lift up into place." He would have had to rent a crane. But since the antenna was mounted directly on the mast, the exact parabolic shape of the antenna could not be maintained. In the end, the 5-meter dish did not fulfill his expectations as much as he had hoped.

He was much happier with another dish that he this time mounted directly on the ground: "This is a 4.65-meter antenna that I have a lot of fun DXing with." But the disadvantage of a ground installation is, of course, the surrounding trees and houses that

■ From his 9-meter high tower that carries his 5-meter dish, we can see his very first 16-meter high tower on which there's a 3.7-meter antenna with a rotor. In the background to the right are the masts on his house with his terrestrial antennas.

limit the antenna's visual range. All those trees on his property are causing him all kinds of problems. "But I can't bring myself to shorten the trees", explains Laszlo. He prefers instead to build higher towers and masts.

Laszlo, who is known in satellite Internet forums by the name DX Bozoth, especially enjoys extreme reception. "I can receive the Spot 1 and S2 beams here on EXPRESS 3-3 at 96.5 east in the Ku-band", lists Laszlo, "For this location, it's only a few degrees above the horizon." Another true long-distance reception feat is MEASAT 3-3A at 91.5 east in the Ku-band and NSS6 at 95.0 east with its Ku India beam. "I can also receive PAKSAT at 38.0 east in the C-band

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■ How do you switch back and forth between a C-band LNB and Ku-band LNB without any signal loss? For Laszlo the answer is quite simple: He uses a motor to move the correct LNB into the antenna's focal point. Here he is showing us his ingenious design: the LNB frame is moved on a rail to the antenna's center by a motor. Laszlo can control everything from a shack in his house. But it wasn't always like this: the rack on the right carried a receiver and a TV monitor only a few years ago. Laszlo used this to take care of settings directly at the antennas.





and the Israel beam from AMOS at 4 west in the Ku-band”, says Laszlo proudly about the capabilities of his system.

There’s quite a few more dishes on his property, including a 4.6-meter antenna and a 5.0-meter dish. There’s even a number of smaller antennas that Laszlo uses for testing purposes. He experiments quit a bit with feeds and LNBs and always wants to find out if there’s more that he can receive. His garage was long ago converted to a workshop in which he has his own lathe that he uses to make many of the mechanical dish mounting components. Since all of the dishes he has were acquired in used condition, they often came without any mount or LNB rods. But these are only minor issues for Laszlo; he just builds everything he needs himself. He really can’t do much with polar mounts anyway: “Its turning range is not large enough. I can receive here from 96.5 east to 55.0 west; most mounts can’t do that.”

Laszlo Toth found a hobby that fits in perfectly with his capabilities and experience. He’s convinced that his neighbors think he’s crazy, but that doesn’t bother him at all. His hobby is more important to him than what other people think. He’s living out his DXer dream!



■ **DX Bozoth** (which means Bozoth “thicket” and refers to his beard that was much thicker in his younger days) controls all of his dishes and motors from his shack. Here he is moving a dish to AMOS for the reception of the METV music channel on the Israel beam. This cannot be received in Hungary with smaller antennas.



1



1. One of Laszlo's self-made polar mounts. The segments of a 4.6-meter dish and a 5.0-meter antenna can be seen in the background leaning on a wall that marks the boundary to his neighbors property; he plans to put them together soon.

2. Laszlo uses this lathe in his workshop to fabricate all the necessary mechanical parts that he needs.

2



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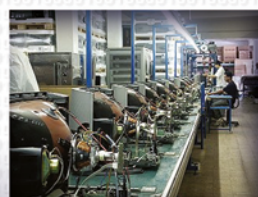


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■ Is that him? Yes, despite being 65 years old, Laszlo has no problems climbing on the mast on the roof of his house to fine-tune a UHF antenna on the top of the mast. Obviously, Laszlo has no fear of heights!

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Austria
Belgium
Croatia**
Denmark**
Finland**
France
French Guyana
Germany*
Greece*
Indonesia
Ireland
Italy**
Luxembourg
Morocco
Namibia
Netherlands
Sweden*/**
Switzerland
Tunisia

* some
DVB-T MPEG-4

** some DVB-T2

* some
DVB-T MPEG-2

** some DVB-T2

DVB-T

MPEG-4

Azerbaijan
Belarus*
Bulgaria
Burundi
Central African Republic
Colombia
Czech**
Estonia**
Ghana
Guinea
Hungary**
Iceland
India
Iran
Israel
Kenya**
Latvia
Lithuania
Macedonia
Malaysia
Mauritius
New Zealand
Nigeria
Norway
Panama
Poland
Portugal
Romania
Russia
Rwanda
Serbia**
Slovakia
Slovenia**
Spain**
Uganda
Ukraine*
Vietnam
Zambia

ISDB-TB

Argentina
Belize
Bolivia
Brazil
Costa Rica
Chile
Ecuador
Paraguay
Peru
Philippines
Uruguay
Venezuela

ISDB-T

Japan

DVB-T2

MPEG-4
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Sri Lanka
UK

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TELE-satellite Deadlines

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Editorial Deadline	5 August 2011	30 September 2011	2 December 2011
Advertisement Deadline	12 August 2011	7 October 2011	9 December 2011
Hardcopies	16 September 2011	18 November 2011	13 January 2012
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