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TELE satellite

#216 GLOBAL DIGITAL TV MAGAZINE 04-05/2010

Test Report
AZBOX PREMIUM HD+
First Satellite Receiver with 1080p Full HD Video Output

Satellite Reception
SATFINDER
New: Intelligent Mechanical Satellite Finder

Test Report
SKYWORTH
Amazing Miniature Scart Receivers

Test Report
GLOBAL INVACOM
Glimpse of the Future: Fibre Optic LNB for the Big Dish

Technomate TM-7100 HD
The First Triple Tuner High-Definition PVR

INNOVATION TELE satellite AWARD 04-05/2010

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Professional in STB

What Satellite Receiver DO YOU WANT

- ☑ HD
- ☑ DVB-S2
- ☑ PVR
- ☑ CAS
- ☑ H.264/MPEG4
- ☑ opentv

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GERMANY/EUROPA UNION

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Published in 22 Languages by
TELE-satellite Medien GmbH
Aschheimer Weg 19
85774 Unterfoehring
GERMANY/EUROPA UNION

Design
Németi Barna Attila

Advertising
www.TELE-satellite.com/ads/

Printer
Litografia Rosés
08850 Gavà
SPAIN/EUROPA UNION

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ISSN 1435-7003

TELE-satellite was established in 1981 and today is the oldest, largest and most-read digital tv trade magazine in the world. TELE-satellite is seen by more than 250,000 digital tv professionals around the world and is available both in printed form and online. TELE-satellite is published worldwide in 22 language editions.

www.TELE-satellite.com

Dear Readers,

If you want to know what the future of the satellite receiver product group looks like, you should take a few minutes and think about why we gave the TELE-satellite Innovations Award to the first triple tuner receiver. In this issue of TELE-satellite we are introducing two excellent new receivers, one of which is loaded with many interesting features and is also the first receiver that delivers the entire high-definition bandwidth. Shouldn't this receiver have been given the Innovations Award? Why did we decide to give the award to another receiver that doesn't come with as many features "except" for a third tuner?

But it's this third tuner that shows what the actual job of a receiver really is. This simple idea of adding a third tuner makes it very clear what the first and foremost job of a receiver is and what direction the further development of receivers will take. It's not about stuffing a receiver with numerous impressive features and trying to make it mimic a PC. The simplest laptop would be much easier to use than a receiver and its remote control.

A PC is used to interact with different media while a receiver is the perfect device for passive use. Passive simply means watching TV on your couch with a bag of potato chips and a bottle of beer within reach. But above all passive media use is all about using just one finger - your thumb - to switch channels. The perfect remote control would have only two buttons: the P+ button to switch channels up and the P1 button to start from the beginning again with the first channel. Is there such a thing as a two-button satellite receiver remote control? Of course not, in fact, the general opinion is the more buttons on a remote control, the better.

The third tuner of our Innovations Award receiver shows what's really needed: a box that simply receives channels. The viewer doesn't care where the channels come from whether it be via satellite or terrestrially, or via Internet or mobile transmission. As a radio fan I have always asked myself why it's possible with my satellite receiver to receive every satellite radio station but not one FM or Internet radio channel. Why do receivers only have one tuner for just one frequency range? Why not for every frequency range or transmission mode?

It's for this reason that the triple-tuner receiver introduced in this issue of TELE-satellite was given our Innovations Award: this box with its third tuner highlights the potential that the receiver industry has in front of it that hasn't been tapped as of yet. This potential is defined as the move away from single technology boxes to receivers that completely cover a variety of ranges. Twin tuners have been around for some time already, but these units misjudge this potential: for the PVR function you need two tuners anyway, one for the currently running program and the other for recording. Combi receivers for satellite and terrestrial reception have also been around for some time but full PVR capabilities are missing here as well.

In this respect, the triple-tuner receiver can only be the beginning: viewers want to be able to record terrestrial channels as well. But it shouldn't stop at Quattro receivers either. At some point I also expect to see IPTV and mobile TV from one central receiver plus the integration of FM radio, DAB, HD stereo and Internet radio. The future of the receiver is that of a command central for all of the different distribution technologies.

I'm waiting now not only for five, six or eight tuner receivers. No, I'm also waiting for a receiver with two independent video outputs, one for my HDTV flat screen TV and the other for my smaller monitor. I'd also like to see a Toggle button on the remote control to swap the programs on the two TVs with each other. My couch would then be my command center and that is the future of the receiver! My choice of tuner for any range and my choice of TV, and all of it through one receiver.

Alexander Wiese
Editor-in-Chief TELE-satellite

Technomate

The First Triple Tuner High-Definition PVR

TM-7100 HD TRIPLE TUNER PVR

2x Satellite HD Tuners & 1x Terrestrial Tuner

- Triple Tuner High-Definition PVR
- Supports up to 1TB S-ATA 3.5" & 2.5" HDD
- Easily remove HDD via HDD Bay on side of TM-7100 HD

HDD Bay on Side of PVR:

- 2x USB 2.0 Ports: PVR function, MP3 & JPEG Playback & Software Transfer
- Record:
  - 1 Channel from each Tuner & Playback a Recorded File at the same time
  - 3 HD Satellite Channels at the same time (2 have to be on same TP)
- 2x Smart Card Readers & 2x Common Interface (CI)
- Ethernet Communication Port, RF Modulator & Blind Search

TM-6800 Super+

Satellite HD

TM-6900 HD COMBO Super+

Satellite HD & Terrestrial

- Record 2 Channels at the same time (on same tp) & playback a recorded file at the same time
- Record 1 Satellite & 1 Terrestrial Channel & Playback a Recorded File at the same time (TM-6900)
- 2x USB 2.0 Ports (Front + Rear)
- RF Modulator
- eSATA & Blind Search
- Ethernet Communication Port

Linux Open Source Running Enigma

TM-500 / TM-600

- Unlimited Channel Memory
- Ethernet Communication Port
- 2x Scart Outputs
- RF Modulator
- Smart Card Reader
- Super Sensitive Tuner
- Internal Power Supply

TM-500

TM-600 Extras

- 3x USB 2.0 PVR (Front, Internal & Rear)
- Record/Playback Scrambled & Free-To-Air (FTA) Channels by USB
- USB 2.0 for Software Download & MP3 Playback
- Component Output (YPbPr)

TM-600

Linux Inside

Technomate

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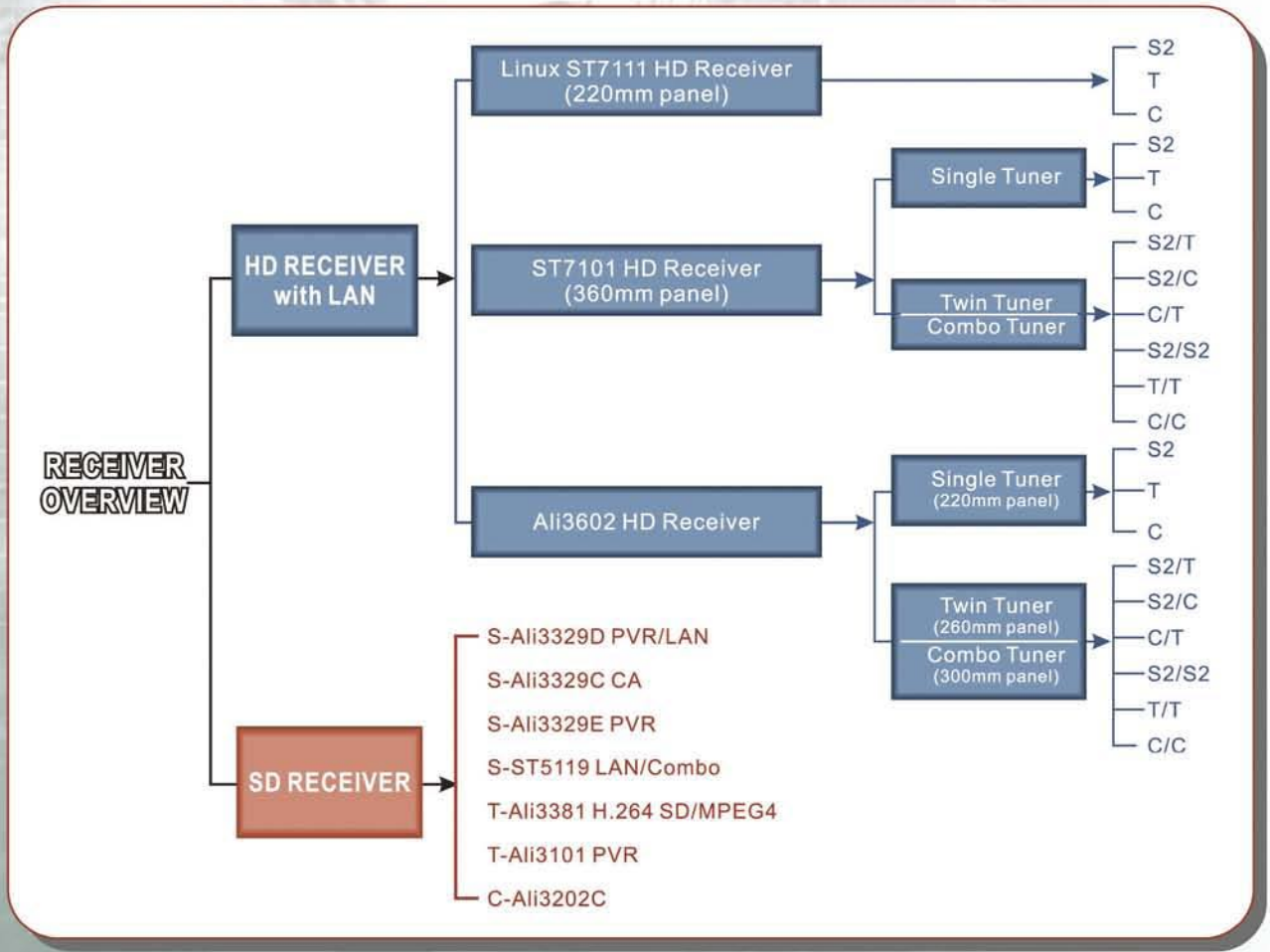
ONE BOX ONE DREAM-LINUX BOX



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Skyworth

OUTSTANDING STB HARDWARE

MANUFACTURER FROM CHINA

S1B FTA

- Built in Ali 3329C single chip processor
- MPEG-2 digital&fully DVB-S compliant
- Single scart+RCA+SPDIF
- 4000 channels TV and Radio programmable
- Fully support to 7 days Electronic Program Guide(EPG)

S1K LAN PORT

- MPEG-2 digital & fully DVB-S compliant
- 4000 channels TV and Radio programmable
- 32 different favorite groups selection
- Fully support to 7 days Electronic Program Guide(EPG)
- PVR function

S21 DVB-S STICKER

- 4000 channels TV and Radio programmable
- Channel list can be sorted by alphabetic A-Z
- PVR function
- Video zoon function with 1/2/4/6/7/12/16 ratio
- Various channel editing function(favorite,move, lock,rename and sort)

S1Y SUPER LOW COST WITH SCART

- ALI 3328F chipset
- MPEG-2 digital & fully DVB-S compliant
- 1800 channels TV and Radio programmable
- 1 different favorite groups selection
- Various channel editing function (favorite, add and delete)

T2D CHEERTEK LPC

- Cheertek CT216T chipset
- MPEG-2 digital & fully DVB-T compliant
- 1000 channels TV and Radio programmable
- Fully support to 7 days Electronic Program
- Guide(EPG)
- Various channel editing functions
- (favorite, move, lock, rename and sort)

T2B DVB-T STICKER LPC

- MPEG-2 digital & fully DVB-T compliant
- 1000 channels TV and Radio programmable
- 8 different favorite groups selection
- Fully support to 7 days Electronic Program Guide(EPG)
- Parental control for channels

T19 DOUBLE TURNER

- ALI M3101D chipset
- MPEG-2 digital & fully DVB-T compliant
- 1000 channels TV and Radio programmable
- 8 different favorite groups selection
- Fully support to 7 days Electronic Program Guide(EPG)

SHENZHEN SKYWORTH DIGITAL TECHNOLOGY CO., LTD.
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WE ARE DISTRIBUTOR OF TOPFIELD STRONG DIGITAL TV VANTAGE

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ALPS GIBERTINI ALLVISION Inverto digital-labs SPAUN Stab

TOPFIELD

Topfield Media Solution

SRP-2100

Features available at launch

- Fully compliant with DVB-S2.
  - * High profile level 4.1 H.264/AVC streams @ 30fps
  - * High or main profile level 3.1 H.264/AVC streams @ 60fps
  - * HD MPEG2 4:2:0 streams @ 30fps
  - * SD MPEG2 4:2:0 streams @ 60fps
- Supports DiSEqC 1.0, 1.1, 1.2 and USALS protocols for dish control.

Experience the future of digital receiver

- Stores up to 7,000 TV services and 3,000 radio services.
- Displays picture-in-picture with two HD services.
- Supports time-shift up to 5 hours at maximum.
- Records two services simultaneously while displaying another service.
- Able to record directly to both an external hard drive and a built-in hard drive (USB/eSATA).
- Playing recorded programmes at up to 64 times speed at maximum.
- Enables you to sort out any undesirable parts such as commercials during the programme.
- Supporting video files of DivX 3.11, 4.1 and 5.x.
- Displays JPEG image files.
- Featuring a double-player game 'BATTLE TANK'.
- Plays media contents of YouTube.
- Firmware updates available : over-the-air, with a USB memory stick, and from the Topfield's firmware server via Internet.

PVR Playing recorded programmes at up to 64 times speed at maximum

GAME Featuring a double-player game „Battle Tank"

UCC Playing media contents of YouTube

DivX Supporting video files of DivX 3.11, 4.1 and 5.x

TOPFIELD

NEW

TF 7750 HDPVR

HDTV-DVB-S Receiver, Twin Tuner, available in black or silver

- Two HD tuner for two simultaneous HD recordings
- Receive DVB-S/DVB-S2 standard, MPEG - 2, MPEG - 4 and H. 264
- Front USB to connect of an external storage medium
- Time shift supported
- Output in 576i, 576 p, 720 p, 1080i
- 2 Common interface
- 5000 Program presets
- Fast changeover times (1 sec)
- Alphanumeric display

TOPFIELD

TF 5050CI HDMI

- Fully DVB-S compliant
- 2 Common Interface
- 5000 TV & radio services programmable
- 256 colors On-Screen Display (OSD)
- Service & Favorite service list editable
- Electronic Program Guide (EPG) supported
- Exciting games embedded
- Firmware upgrade by Over-The-Air
- HDMI output

Measuring Instruments

emitor MEGALOOK

MEGALOOK helps professional users to do exact adjustments and maintenance of satellite dishes and of cable TV and terrestrial networks.

- Input frequency: 2-900 MHz and 920-2150 MHz
- 4.5" B/W Monitor for PAL/NTSC
- Lots of memory positions for spectrum pictures
- RS232 for PC-connection
- Built in, rechargeable battery.
- Only 7.5kg complete with carrying case

ALSO AVAILABLE:
Combolook, Digital Satlook NIT
Satlook Micro +, Satlook Mark IV

DIGIAIR pro

The meter to use for easy Digital terrestrial installations. Very sensitive, easy to maximize weak and strong signals.

- Handy spectrum-analyzer for frequency 45-862MHz
- Presents full range and expanded spectrum
- Ready for Mpeg2 and Mpeg4 signals
- Signal level readout in dBuV, BER
- Digital-signals present BER and S/N-ratio
- High resolution back-lighted LCD display
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DIGISAT PRO ACCU

Measuring instrument for dish-properties. Check two LNBs at the same time. With DiSEqC tester.

AISO AVAILABLE:
- Digisat
- Digisat+
- Digisat Pro
- Digisat Multi

Satlook Micro HD

Now with DVB-S2 support!

- Measure DVB-S and DVB-S2 signals
- Spectrum-analyzer with zoom function
- EasyFind satellite identification for faster installations
- Super bright 3" LCD display
- Very sensitive, easy to maximize weak and strong signals
- Digital BER, QPSK (DVB-S), 8PSK (DVB-S2) and S/N-ratio
- Readout NIT -gives Satellite ID and TV/Radio-channel info
- X-pol. function for optimize LNB skew
- DiSEqC according to level 1.0, 1.1 and 1.2
- LNB voltage 13/18V, 22KHz tone switch
- Stores up to 99 memory positions
- RS232 for PC-connection (up/download)
- Built in, rechargeable battery

Satlook NIT Color

- DVB satellite-receiver 920-2150MHz
- Spectrum-analyzer with expanded spectrum
- 5" 16:9 LCD color display
- DVB-S (Free to Air) and Analog TV-picture
- Digital BER, QPSK and S/N-ratio
- DiSEqC according to level 1.0, 1.1 and 1.2
- KU- and C-band (normal/inverted video)

JAEGER

NEW

HDCI 2010

HDTV - DVB-S Receiver

- 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
- Radio reception with background display
- Standby power consumption < 1 Watt

HD+ and CI+

New HD+ and CI+ Products available

HD + by ASTRA

NEW

CI+ Common Interface Plus

STRONG

DIGITAL TV

SRT 6205 - PVR Ready

USB recording capability

- Digital Satellite Receiver
- UHF Modulator to connect the receiver to TV
- Display showing channel number
- 2 Common Interface slots
- USB port: for playing music files and viewing photos, play back of TV programmes recorded by the receiver

SRT 5246 Hybrid

Satellite + Terrestrial FTA

- For all digital Free-To-Air TV and Radio programmes via terrestrial antenna and satellite
- Audio- and Video in DVD quality
- Mosaic function: 4 or 9 TV channels in overview

Balcony mounting parts

ALSO AVAILABLE:
- Balcony stand 100 cm Aluminium
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- Balcony holder L-form 25 cm
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D-56271 Mündersbach

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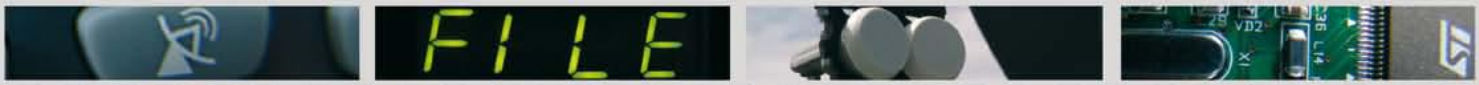


HDTV Receiver Selection

VANTAGE HD 8000 S — NEW

DVB-S HDTV Twin PVR
- Two DVB-S2 tuner
- Ethernet Port(Just HD7100 Series)
- Fully DVB-S / DVB-S2 (H.264) HD compliant
- USB 2.0 supported
- HDMI
- 2 CI and 2 Smart card Reader

TOPFIELD SBP 2000 — NEW

DVB-S HDTV - Receiver
- fully compliant with DVB-S and DVB-S2.
- Two common interface slots
- records programmes into an external hard drive
- Supports time-shift up to 5 hours at maximum
- Can play video files in DivX, MPG, MP4, VOB, MKV and FLV format

TOPFIELD TF-7700 HCCI

HDTV - Receiver for cable reception
- Supports MPEG-2, MPEG-4, H.264 and fully DVB compliant
- 2 Common Interfaces
- USB 2.0 supported for fast PC interface
- VFD Display for service information

Multiswitches/ DiSEqC-Switches

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

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

S2 SPAUN™ Full range

Multifocus Dish

emme esse ANTENNA SYSTEM — Clarkelign

Professional multisattelite system

- Suitable for M-ML dishes ø 85/100/115cm
- Mount with Skew adjustment of the dish for a perfect alignment of the received satellites
- Multi-feed-holder designed for an easy pointing

An innovate system to reiceive the signal from various satellites at the same time, using one fixed mount, high gain, offset dish. When there is a big difference between longitude of the receiving dish and that of the transmitting satellite, the pointing of the dish leads to another "disalignment" between the antenna axis and the Clarke belt. This system, by the rotation of the parallel dish, allows axis realignment, assuring a stronger signal.

Optical fibre LNB

INVACOM — Innovation in Communications

Fibre LNB

with optical fiber connection

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

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

Full LNB range INVACOM available as:
SNH-031, TWH-031, QTH-031, QDH-031, SNF-031, TWF-031, QTF-031 and QDF-031

Parts

Multifeedholder for 2, 3, or 4 LNB

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

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

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

BIGLink

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

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

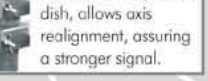
All available as:
- Single Universal
- Twin Universal
- Quattro Universal
- Quad Universal

Full LNB range INVERTO available from stock

Motors

Aktuatoren/ Actuators

Mini Actuators – 6", 8", 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

Dishes

GIBERTINI — TRIAX — emme esse MULTIMEDIA SYSTEM

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
160 cm	White

Big Dishes directly from our warehouse!

SDI	SDI	1,50 m
SDI	SDI	1,80 m
Irte	Irte	2,00 m
Irte	Irte	2,40 m

Flat-Dishes

SELFSAT H10D / H10D2

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

SELFSAT Flat-Dishes also available as:

H21D / H21D2 / H21D4

MAXIMUM Flat-1

- Receives alle programs broadcasted by european satellites
- 2 LNB (twin) output for 2 set-top-boxes plugged
- 60/70 cm equivalency

Unicable solution

Inverto digital-labs

IDLP UST110-CUO10-8PP

Unicable-Standard one cable solution.
Cascadable multiswitch for up to 16 users.

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Dolby Digital Plus Sound Format

Jacek Pawlowski

The race for better and better compression methods seems to have no end. Once we start to feel comfortable with the terms DVB-S, DVB-T, MPEG-2, we learn that now DVB-S2, DVB-T2 and MPEG-4 (H.264/AVC) rule the world. And now familiar Dolby Digital turns into something else. In 2005, the newer and better format had been standardized both by DVB and ATSC. The new format is called Enhanced AC-3 (E-AC-3) or Dolby Digital Plus (marketing name). In June 2009, the first terrestrial multiplex has started to transmit its audio exclusively in Dolby Digital Plus format. This is French TNT HD multiplex R5 with the following HDTV channels: TF1 HD, France 2 HD, and M6 HD.

Dolby Digital Plus is a new coding technology allowing to save at least 33% (and up to 50%) of the bandwidth used for regular Dolby Digital. This leads to either lower cost of transmission or give the operator extra bandwidth for HD video. Typical AC-3 bitrates are: 128~192 kbps for stereo and 384~448 kbps for 5.1 channel content. Classical MPEG stereo can occupy 160~256 kbps. Dolby Digital Plus requires only 96 kbps for stereo and 224 kbps for 5.1 content. This relationship is presented in Figure 1.

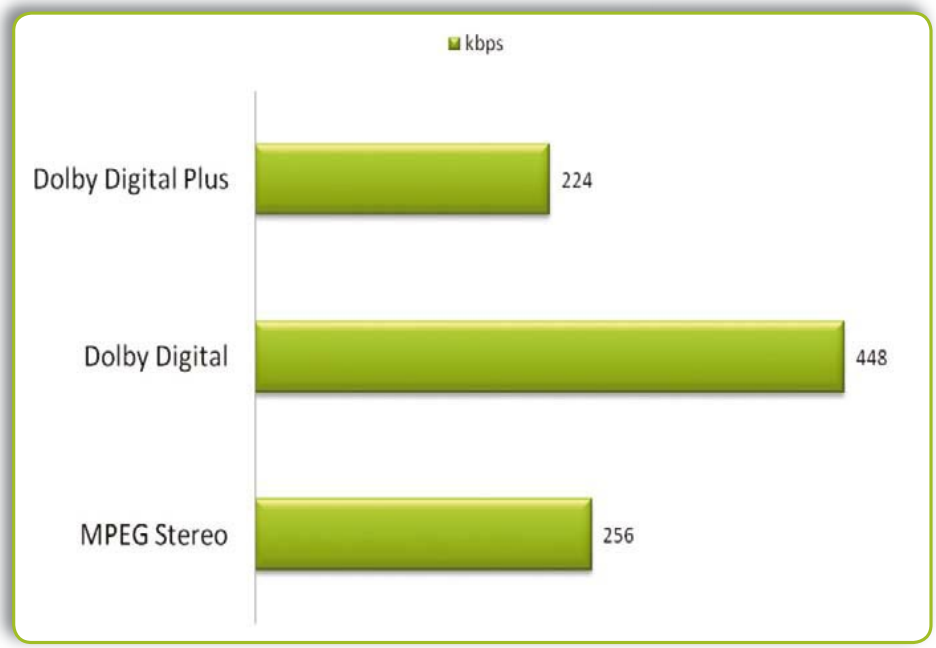

Fig. 1. Bitrate required for top quality MPEG stereo, Dolby Digital (5.1 channels) and Dolby Digital Plus (5.1 channels).

You do not have to be an expert to notice that in place of a traditional MPEG stereo, you can have 5.1 channels in the same bandwidth if only you use DD+ coding.

But does better compression ratio compromise audio quality? By no means! DD+ codec is based on the original Dolby Digital codec but it has several improvements aimed at reduction of the pre-noise artifacts before sharp transients, maintenance of phase relationships between channels, as well as bit allocation and quantization algorithm. As a result, when DD+ signal is output from the set-top-box, its quality is better than that of classical DD despite the lower bandwidth required for transmission.

Compatibility

Transmissions in Dolby Digital Plus require a set-top-box (or "a receiver" as we call it in TELE-satellite reports) to be equipped with a DD+ decoder, otherwise you will hear nothing. French viewers of TNT HD multiplex R5 must use new DD+ compatible set-top-boxes.

But what about the output? Do you need to upgrade to the latest A/V receiver? No, not necessarily. If you have one which is DD+ compliant, that's great. You should connect it to the set-top-box

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preferably with HDMI 1.3 cable. In such setup, you achieve the best possible signal quality.

But if you have just Dolby Digital surround sound decoder, you simply use S/PDIF cable for connecting both devices – see figure 2. In the set-top-box, DD+ stream is repackaged to DD bitstream and output on S/PDIF connector. Its bitrate is equal to 640 kbps. It means that you get better sound than standard Dolby Digital broadcast audio, which is limited to 448 kbps.

Popularity and possible extensions

Dolby Digital Plus has been adopted for Blu-ray Disc specification as an option and in 2007 it has been added to the IPTV specification. No surprise as the bandwidth in the Internet TV is as important as in all other forms of digital TV.

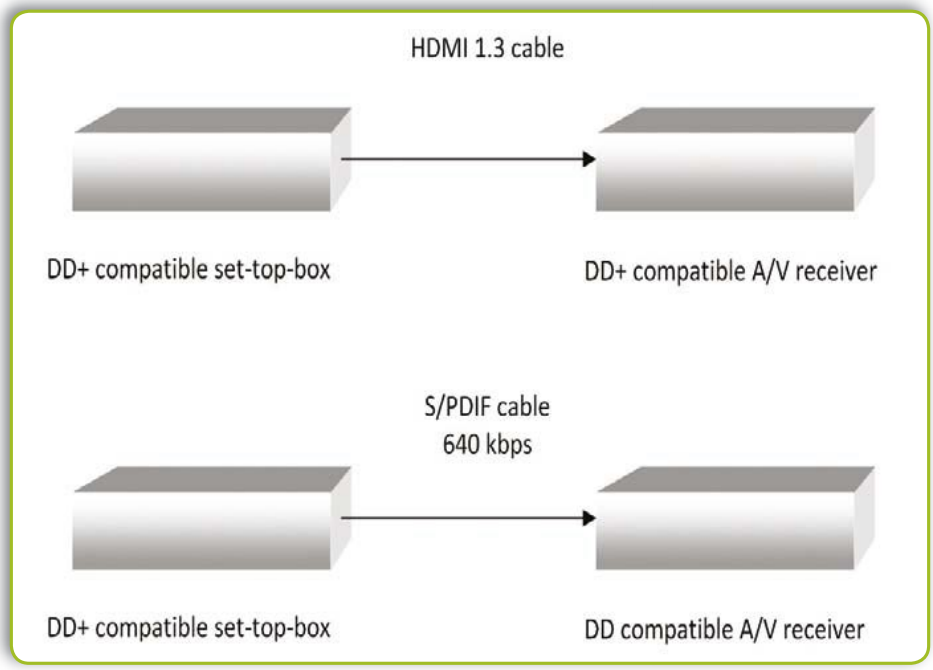

Fig 2. Connecting DD+ and DD compatible A/V receivers to the set-top-box.

The highlights of this format do not end in better compression ratio and superior sound quality compared to the original DD. The format is extendable. More than 5.1 channels are possible. Although Dolby Digital Plus for Blu-ray Disc is limited to 7.1 channels, generally it is expandable to 13.1 audio channels in the future, while retaining compatibility with all Dolby Digital Plus players and decoders. At maximum number of channels, the total bitrate required in the transmission channel need to go up to 4.7 Mbps. The HDMI output peak bitrate can reach 6.144 Mbps then.

So far 7.1 A/V receivers are rare, but this is the future of top class audio. Will they be used only in Blu-ray Discs or also in digital TV? It is hard to say today. Presently, the main reason to introduce Dolby Digital Plus in digital TV is the need to save the bandwidth. But who knows, maybe in a year or two, the premium movie or music channels will start 7.1 channel transmission?

DD+ Specifications

Coded bitrate: 0.032 to 6.144 Mbit/s

Audio Channels: 1.0 to 13.1 (i.e. from mono to 13 full range channels and a low frequency effects channel)

Sample rate: 32, 44.1 or 48 kHz

Bit depth: up to 24 bits per channel.

The full set of technical specifications for E-AC-3 is published in Annex E of ATSC A/52B[2], as well as in ETSI TS 102 366 V1.2.1 (2008-08).

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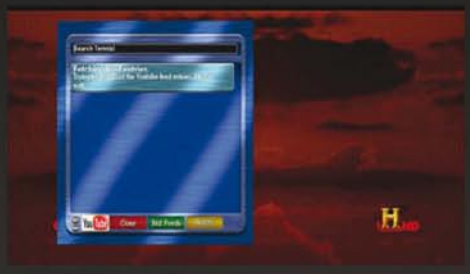

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Technomate TM-7100 HD

A great box, but what's the difference?

Designed in Britain, the Technomate TM-7100 HD is a satellite PVR with a big difference. Able to receive and record both DVB-S and DVB-S2, high definition broadcasts with two smart card slots and space for two CAMs, this box could receive just about any digital satellite channel you can throw at it. All great, but what's the difference? The third tuner is the key: on top of all this it enables the 7100 to receive DVB-T digital terrestrial broadcasts!

From the first look out of the box, it's clear the 7100 is a true heavyweight contender. Our review model has a sleek black case (it's also available in silver) and weighs in at 3.5kg – there's a lot of electronics to pack into the case. The remote looks the part too with a matching glossy black finish. The number of buttons looks daunting at first, but they're logically laid out and soon become easy to remember.

The back of the receiver comes jammed with a full range of connectors to cover just about any situation. There's HDMI and component video for high definition, two SCARTs through to the old-tech composite video and a UHF RF modulator. It's good to see that these latter two are still included – even though their picture quality is much poorer, they still have their uses even in the 21st century. Dolby Digital Plus surround sound is available via the digital S/PDIF

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connector and two RCA cinch ports are present for stereo audio. There is also a USB port at the back and another under the front panel, RS232 for software upgrades, and an Ethernet LAN port. The latter one is something of a mystery, as there are setup options for it in the receiver menus, but no mention in the manual of what use it can be given.

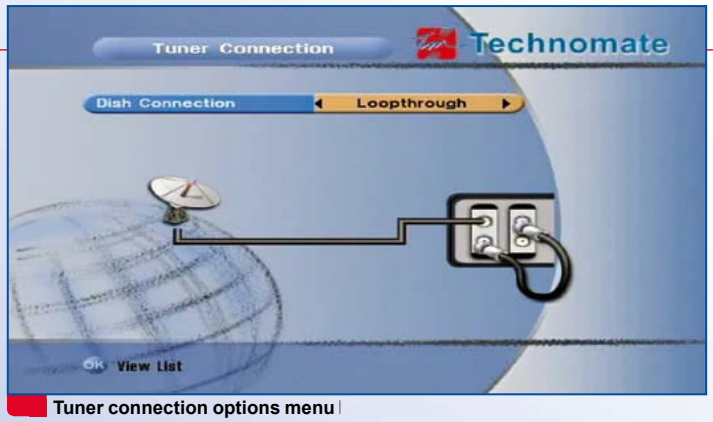
Installation

So when we first get the receiver out of the box, how many of us can't say we just want to get it plugged in and working as soon as we can? Who really reads all the way through the manual first? For us impatient people, the first few pages of the manual contain an Easy Installation Guide. Several common configurations are listed, from a fixed dish to a USALS motorised system or even a monoblock LNB. The receiver comes pre-programmed with 25 satellites and 1500 default channels, so getting a picture on-screen can be as simple as plugging in, selecting your language and the satellite your dish is pointing at.

It's best though to do things properly, and the easy to follow setup menus give plenty of options for the dish connection. The most basic setup is to use a single LNB connected to tuner 1, and loop it though to tuner 2. More flexible recording and playback options can be had from using a twin LNB to feed both inputs. Alternatively, two independent dishes could be used on each tuner. Add DiSEqC options to all this and you have a very flexible system that should cater for almost everyone's needs.

Scanning satellites for all the channels out there is often a tedious process, but the 7100 has a clever auto navigation function to make it a bit less painful. Once we have our list of receivable satellites set up with all their associated DiSEqC and LNB options, we can head off to the auto navigation menu, select which ones we want to scan and away it goes, scanning each one in turn. It's a far cry from the old days where we had to go to each satellite in turn, scan for channels, drink some coffee, wait forever, go to the next satellite, scan for channels, get caffeine overload, and so on for the rest of the day.

Scanning can be restricted to just free channels if you aren't going to be receiving anything that is scrambled, or to just TV channels if you're not interested in listening



Tuner connection options menu

Blind scan in progress

Terrestrial scan menu

Terrestrial scan in progress

Channel list

to radio. Scanning speed is good – a full scan of Astra 2 takes just under 6.5 minutes to find 117 transponders. A network scan can be used to get all the transponder data and pick up additional ones not already present in the receiver's memory but this nearly trebles the time taken. There's a quicker option for the viewer who needs to find everything … blind scan! Once just for enthusiasts, the blind scan can now work fast enough to be a viable alternative to scanning the pre-programmed list of transponders.

Over the same satellite, the blind scan takes 10 minutes 20 seconds. Not too big a difference over a well-populated satellite, and quicker than the network scan along with the reassurance that everything you can receive is really there. Again, we can restrict the search to only free channels, and additionally set a frequency band to be scanned for those satellites that don't use the whole spectrum. Auto navigation is even available here too making the blind scan a true alternative to the traditional method. With blind scanning becoming fast enough to rival pre-programmed transponders, how long will it be until this becomes the standard way to scan a satellite?

While we're still setting up, it's a good time to look at the third tuner in the box. I had been concerned that my first experience of satellite and terrestrial in the same machine might be reminiscent of the early days of digital satellite, when it sometimes felt like we had two almost unconnected analogue and digital receivers in the same box. But here the implementation is reassuringly simple. There's a separate terrestrial scan in the installation menu which gives us the usual choices – scan all UHF channels or a single one.

At my location we have a whole two transponders to receive so it's quicker to scan them individually. Or if you are as lazy as me, input the first and use the network scan, just like on satellite, to pick up the other. Later in the year when we are given a third transponder to play with, it would save me even more button pressing! Of course, if you don't have your local channel numbers to hand, a scan over the whole UHF spectrum takes just 2.5 minutes.

Once scanned into the receiver, the terrestrial channels appear in the channel list alongside their satellite counterparts. The list can be limited to a specific satellite using the SAT key, and here the terrestrial channels appear as if they were on a satellite of their own – simple. The list can also be sorted into A-Z order or filtered by the first letter of the channel name. Navigation around the list isn't quite the most user-friendly experience it could be, but it gets easier with experience.

Everyday use

Dealing with hundreds of channels off multiple satellites makes a favourites list invaluable, and the 7100 has sixteen sets of favourites to use. The groups come pre-named as high-definition, sports, movies etc., but these can be renamed as required. Pressing the FAV button while watching TV brings up a channel list filtered by the last-used favourites list. This filter setting remains and is used by both the channel list and the

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EPG until changed again later – just how it should be.

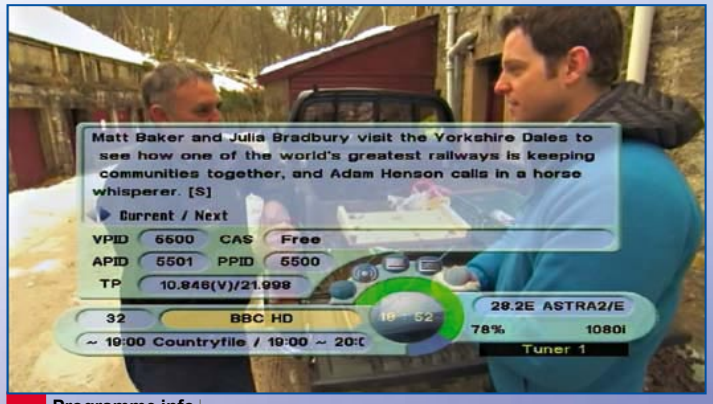
The EPG is clear and easy to use. I found using the favourites system the best way to navigate the channels but we can also view channels by individual satellite as with the channel list – including just the terrestrial channels. The EPG for satellite channels is as always limited to the now and next shows, but for terrestrial a full seven days can be seen. From here future shows can be added into the timer for viewing or recording. After selection here they are available in the 32-event timer screen, accessible from the EPG.

With three tuners to record from, some serious recording weaponry is needed. Our review machine was supplied with an internal 500GB hard drive. The manual gives clear instructions and pictures showing how to install or upgrade the internal drive, which can go up to an enormous 1 terabyte in size . Now surely even I couldn't run out of space with that much at my disposal, although I do like a challenge. If I ever did achieve that, there's no need to panic: the receiver can be set to record to a USB drive and recordings can be archived there also.

All three tuners can be recorded at the same time, and there's usually no slowdown in the receiver's operation while this is happening. I've successfully recorded from all three at once, including an HD channel, and watched an HD recording at the same time.

There's sometimes a little bit of a jump when a recording starts, but apart from that it's very smooth. When recording has used up all the available tuner capacity, an alternative channel can be still viewed from a transponder already in use. Helpfully, the channel list and EPG show channels unavailable for this reason in grey – selecting one gives the

EPG



Programme info

Recorded programmes list

Recorded file editing

8dtek™

tiny but mighty

COMBO-JET

SAT-JET

SIZE:129mmx101mmx35mm

Xtra-S / T

SIZE:129mmx101mmx35mm

Minisat-plus S2 / NIT / DSS

SIZE:107mmx85mmx26mm

Minisat-basic S2 / NIT

SIZE:107mmx85mmx26mm

- Installation Meter & Full Measurement Device for DVB-S & DVB-T
- Input Frequency : 950~2150 MHz [DVB-S] & 46~868MHz [DVB-T]
- Input Impedance : 75 Ω, Input Level -65~-25dBm
- BER, S/N (MER), FEC Measurement, [DVB-S]
- BER, S/N (MER), CON, GUA, MOD Measurement [DVB-T]
- Auto Search, Blind Search, NIT Search, Manual Search [DVB-S]
- TP Scan, Auto Full Frequency Scan [DVB-T]
- DiSEqC1.0/1.1/1.2, USALS Supported [DVB-S]
- 13V/18V, 22K [DVB-S] & 5V/12V/18V/24V output support [DVB-T]
- Real Time & Multi Analyzing Spectrum for both DVB-S & DVB-T
- Dish Antenna Angle Calculator [DVB-S]
- Multi-Language OSD: English, German, French, Spanish, Italian, Swedish, Russian, Arabic, etc.
- Global Satellite List [DVB-S], Global UHF & VHF Frequency List Selection [DVB-T]
- LED & Audio Indication for Signal Lock
- Satellite Name & Degree Auto Detect & Display [DVB-S]
- Multi-Channel (8) Simultaneous Measurement [DVB-T]
- Satellite List Editable by Editor via PC
- 3.5 Inch High Definition TFT LCD Screen
- RCA AV-IN Function for STB, Camera, etc
- RCA AV-OUT for External Display, TV, etc.
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option to stop the conflicting recording or abort the channel-change. Similarly, in the EPG menu a polite message asks you to remove a show from the timer if you want to record one that conflicts.

Time shifting is available too. This can be achieved manually by pressing the pause button, or can be set to automatic with a buffer of between ten minutes and a huge two hours. Overall the recording system seems to work very well, I did however seem to cause a few problems when removing scheduled recordings to make way for another, the show that was eventually recorded had the name of the one that was removed. A little confusing, but at least the edit function allows recordings to be renamed.

Whilst the receiver isn't able to do the type of "series link" that can be found on proprietary systems like the Sky Plus, once an event has been put into the timer from the EPG it can have its frequency changed from a once-only recording to weekly, daily or Monday to Friday. The recording functions are rounded off with a basic editing function. Portions of a recording such as commercials can easily be chopped out, which is great to use before archiving the recording onto disk.

Extra Features

The 7100 has some more useful features up its sleeve. Possibly most important in the energy-conscious times we now live in, is a power saving standby mode. When chosen, it turns off the SCART and RF modulator loops and the front display. As you can see from the power consumption graph, this makes a dramatic difference with power consumption in standby going down to just 0.01 amps.

There's also an MP3 player that can play files direct from a USB device, or copied onto the main hard drive from the disk menu. It's well designed, and looks something like the Winamp player on a PC. There's also a JPG picture viewer and the familiar Snake, Tetris and Sokoban games. The games menu also includes a calculator, just in case you need to do some armchair hex-to-dec conversions!

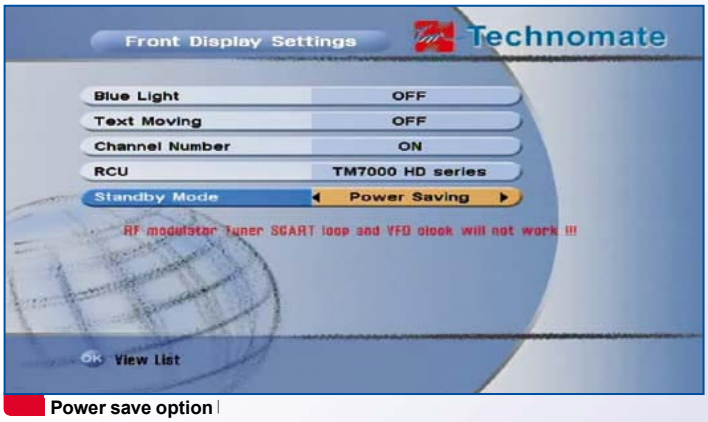
Menu language choices are good – in addition to the major western-European languages, Arabic, Persian, Turkish, Romanian and Czech can also be chosen. Subtitles are also available, via both DVB and teletext – the latter available both through the receiver itself or passed through to the TV's text decoder.

Summary

Overall, this is a great receiver. The addition of DVB-T adds much to the receiver's reception flexibility, what a pity it isn't a worldwide standard so those in the Americas can't take advantage too. It also won't receive DVB-T2, which could render future terrestrial broadcasts out of its reach.

But apart from this, the wide range of connection options, access to huge amounts of hard drive space, the ability to record three broadcasts at once, and an opportunity to save precious electricity make this a great choice of receiver. I found some of the menus a little hard to navigate at first - a little polishing here could

MP3 player



Power save option

help, and the manual is just a little too basic after the initial set up pages. But a little experience helps a lot – a day or two of experimenting teaches you all you need to know.

The sensitive tuner and speedy blind scan might also give it a good home in the enthusiast's set-up – the auto navigation makes it great for a little unattended feed-hunting. Video and audio quality are as good as we've come to expect from an HD receiver with a digital sound output. The biggest problem now is harder to get around. Technomate don't yet make an accompanying machine to expand the number of hours in a day: all this TV, all this hard drive space to fill, until such a device appears I think I'll need to miss a lot of sleep to keep up with it all.

Expert Opinion

Andy Middleton
TELE-satellite
Test Center
UK

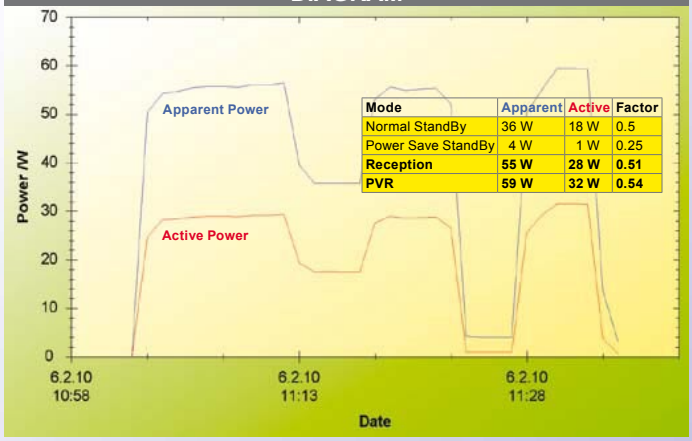
+

Two satellite tuners, one digital terrestrial tuner, great connectivity, large hard drive and USB support, power saving standby mode

-

Occasional instances of confusion in the recording system, some menus harder than necessary to navigate, basic manual

ENERGY
DIAGRAM



Mode	Apparent	Active	Factor
Normal StandBy	36 W	18 W	0.5
Power Save StandBy	4 W	1 W	0.25
Reception	**55 W**	**28 W**	**0.51**
PVR	**59 W**	**32 W**	**0.54**

Standby twice: first time normal standby mode, second time with power save option turned on

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SCPC compatible	Yes
USALS	Yes
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Scart connectors	2
Symbol rates	DVB-S: 2000-45000
DVB-S2	10000-30000 (QPSK & 8PSK)
Terrestrial range	170-230 & 470-862Mhz
Carrier modes	2K & 8K hierarchical/non-hierarchical
MPEG2 modes	MPEG-2, MPEG-4, H.264
Audio outputs	2 (left & right)
Video outputs	Composite, Component, HDMI, RF modulator
Resolutions	1080i, 720p, 576i, 570p
UHF output	Yes
0/12 volt output	No
Digital audio output	S/PDIF
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Power supply	100-250V AC, 50/60Hz

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- High output level
- Push Pull Technology

Optical Transmitter SOTx1310607 NF

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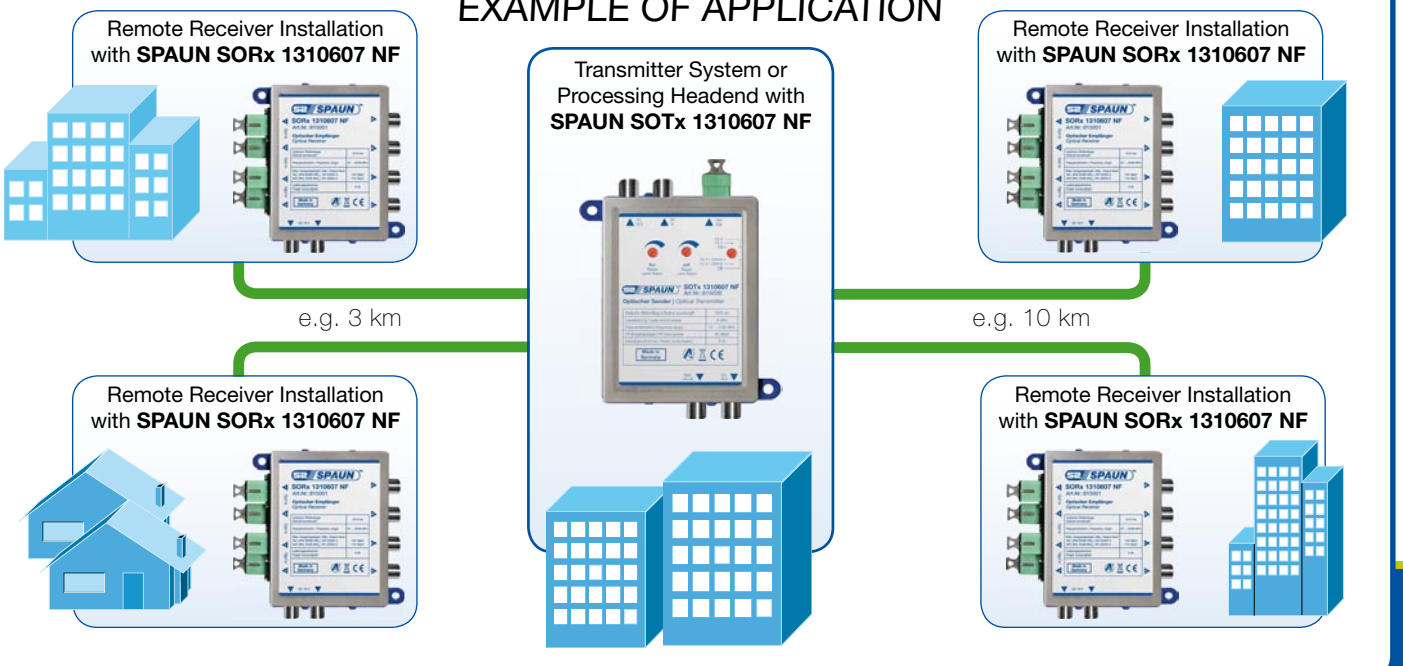

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8dtek TSM-8800

Digital Signal Analyzer for DVB-S and DVB-T Signals Solid Design and Fully Featured!

Since the beginning of the satellite age there was always this one problem for the die-hard satellite hobbyist: the necessary hardware to properly align his own antenna, that is, a satellite signal analyzer was always ridiculously expensive. When the transition to digital transmissions began, it finally became possible to offer signal analyzers with professional features at much lower prices.

Since that time, TELE-satellite has regularly presented these kinds of analyzers as long as they met our quality and functionality requirements.

One such candidate, that without a doubt fulfills both of our demands, is the TSM-8800 from 8dtek. 8dtek from Hongkong was founded in 2008 and specializes in sophisticated, highly technical solutions. The TSM-8800 is a perfect example of that.

When we opened up the box, it was obvious that 8dtek did not skimp on quality nor on any of the included accessories. Absolutely solid and sturdy; there's no other way to describe it. The electronics were placed in a solid, brushed aluminum chassis.

The analyzer itself sits nicely in your hand and is protected from falls and other environmental concerns. The manufacturer also surrounded the analyzer in a rubber jacket with openings for connectors on the underside as well as the upper and lower edges. This rubber jacket prevents the analyzer from slipping on almost any surface. Because of its relatively heavy weight, it sits solidly in place and thus makes it all the more easier to use.

The front panel sports a 3.5-inch LCD display. It's very easy to read and produces very little glare even with direct sunlight. Six LEDs are located just below the display and indicate the current operational mode of the analyzer. At one glance you can identify the current polarization level as well as the current band (high or low) and whether or not the analyzer has locked on to a signal.

8dtek incorporated an infrared receiver right in the middle of the row of LEDs. Wait a minute… an infrared receiver for a signal analyzer? Actually, it's not a bad idea! The signal analyzer can be placed in a safe spot in view of the installer and while the antenna or LNB is being adjusted, the signal analyzer can be operated using the credit-card sized remote control. For one thing, this helps to prevent the installer from accidentally dropping the analyzer to the ground while trying to adjust the antenna plus it's simply much easier this way to control all the functions of the analyzer using a mini remote

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Indonesian	Indonesia	www.TELE-satellite.com/TELE-satellite-1005/bid/8dtek.pdf
Bulgarian	Български	www.TELE-satellite.com/TELE-satellite-1005/bul/8dtek.pdf
Czech	Česky	www.TELE-satellite.com/TELE-satellite-1005/ces/8dtek.pdf
German	Deutsch	www.TELE-satellite.com/TELE-satellite-1005/deu/8dtek.pdf
English	English	www.TELE-satellite.com/TELE-satellite-1005/eng/8dtek.pdf
Spanish	Español	www.TELE-satellite.com/TELE-satellite-1005/esp/8dtek.pdf
Farsi	فارسي	www.TELE-satellite.com/TELE-satellite-1005/far/8dtek.pdf
French	Français	www.TELE-satellite.com/TELE-satellite-1005/fra/8dtek.pdf
Hebrew	עברית	www.TELE-satellite.com/TELE-satellite-1005/heb/8dtek.pdf
Greek	Ελληνικά	www.TELE-satellite.com/TELE-satellite-1005/hel/8dtek.pdf
Croatian	Hrvatski	www.TELE-satellite.com/TELE-satellite-1005/hrv/8dtek.pdf
Italian	Italiano	www.TELE-satellite.com/TELE-satellite-1005/ita/8dtek.pdf
Hungarian	Magyar	www.TELE-satellite.com/TELE-satellite-1005/mag/8dtek.pdf
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Romanian	Românesc	www.TELE-satellite.com/TELE-satellite-1005/rom/8dtek.pdf
Russian	Русский	www.TELE-satellite.com/TELE-satellite-1005/rus/8dtek.pdf
Swedish	Svenska	www.TELE-satellite.com/TELE-satellite-1005/sve/8dtek.pdf
Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-1005/tur/8dtek.pdf

Available online starting from 2 April 2010

control. And should you ever need both hands for whatever reason, the remote control can be easily slipped into your pocket.

The signal analyzer itself comes with 15 function buttons, a cross-shaped button as well as a set of buttons labeled 0 to 9. All of these buttons except for the two on/off buttons can also be found on the remote control making it possible to completely control the TSM-8800 from a distance.

The TSM-8800 also comes with every possible connector you could ever need. In addition to the satellite IF input and the integrated speaker, you will find RCA A/V outputs and A/V inputs on the underside of the unit.

Connection to a PC can be done through the USB interface and the included USB/serial adapter. This will let you not only upload new operating software but also let you edit the various settings and parameters directly on the PC. The only drawback is that the interface cable comes with a USB connector on one end to link with the analyzer while the other end for the PC has a serial connector, something you might not find anymore on every new PC or laptop.

The wide assortment of accessories includes a matching plug-in power supply, a car power adapter, an A/V cable, a useful carrying case that also helps to protect the unit plus a key chain with integrated compass. As you can see, 8dtek really thought of everything that an installer might need to set up a satellite antenna.

A printed user manual was not included in our test analyzer; it was provided by the manufacturer in PDF format in English, German, French and Spanish. A printed manual will though be provided with regular shipments.

Up until now, we haven't seen a signal analyzer with such easy-to-follow on-screen graphics and with functions so good and easy to use that anyone that has some idea of what's going on can use this analyzer without having to refer to a user manual. Our compliments to the software programmers.

The integrated lithium-ion battery lets you use the analyzer continuously for four hours when fully charged. This should be enough to set up and align even the most complicated motorized antenna without having to worry about the battery dying.

To put it all together, it's safe to say that 8dtek has not only developed one of the highest quality signal analyzers that we have ever had the opportunity to test but also from a handling and OSD point of view it certainly ranks as one of the best we have ever seen.

Everyday Use

After turning on the analyzer for the first time, the TSM-8800 immediately jumps to the Main Menu. There is no Installation Assistant and it's not even necessary. The submenu "System" lets you take care of all the necessary analyzer settings.

The first would be to select the desired OSD language; you can choose from English, Russian, Dutch, French, Greek, Turkish, German, Czech, Spanish, Italian and Polish.

You can also select where the analyzer will be used;

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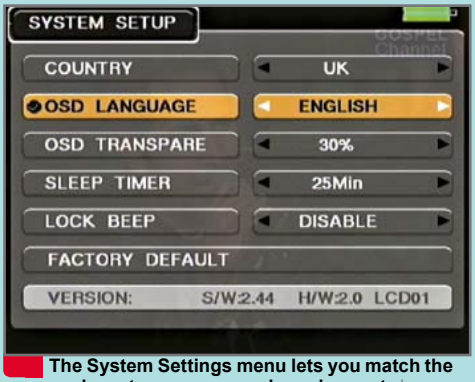
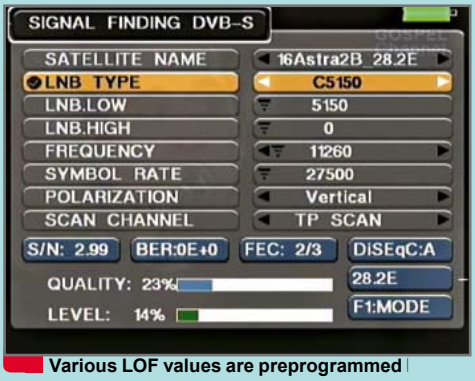
8dtek Logo

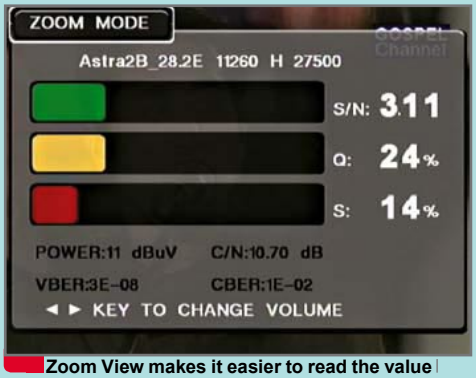
The TSM-88008 Main Menu



The System Settings menu lets you match the analyzer to your personal requirements

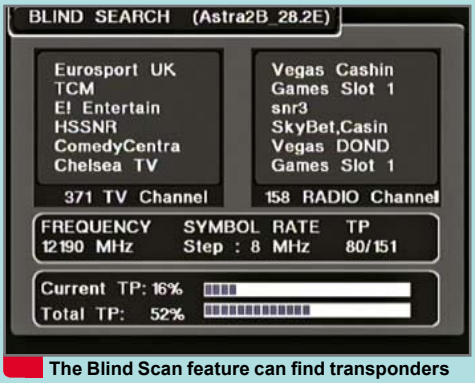


Various LOF values are preprogrammed

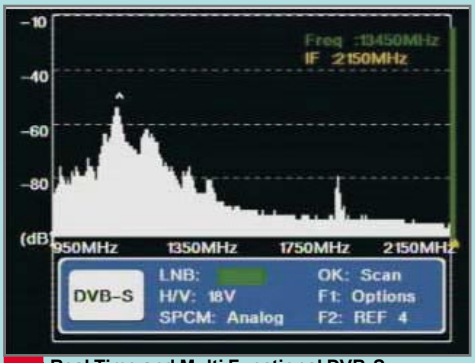


Zoom View makes it easier to read the value

The preprogrammed satellite list comes with 61 entries



The Blind Scan feature can find transponders that are not already in the preprogrammed list

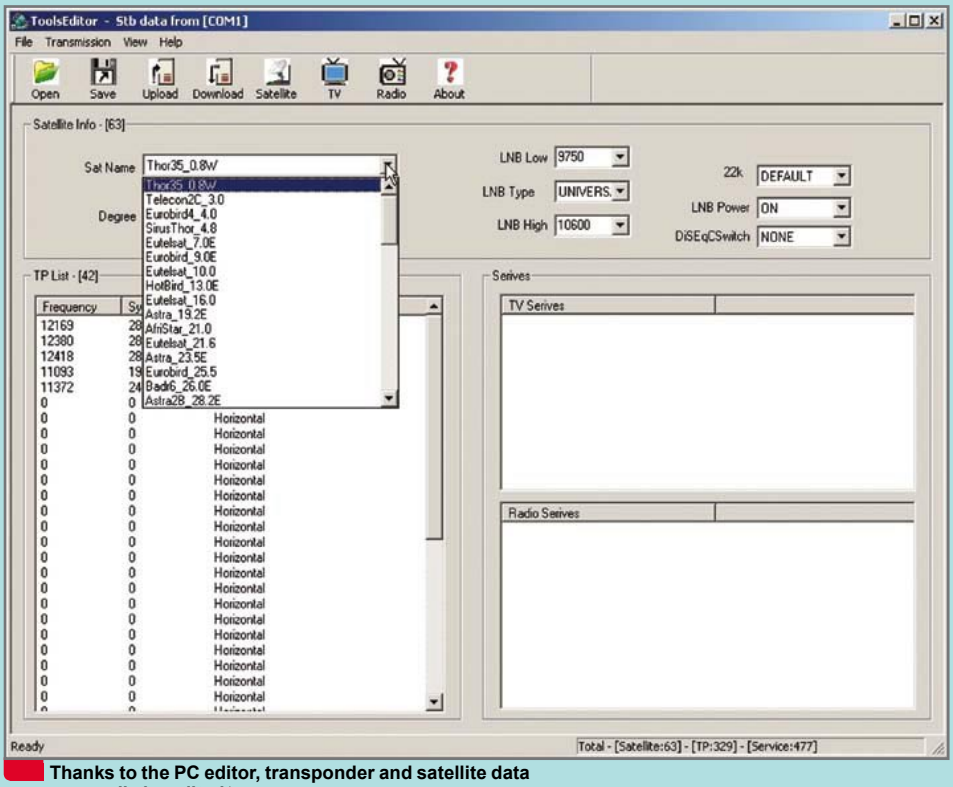


Real Time and Multi Functional DVB-S Spectrum

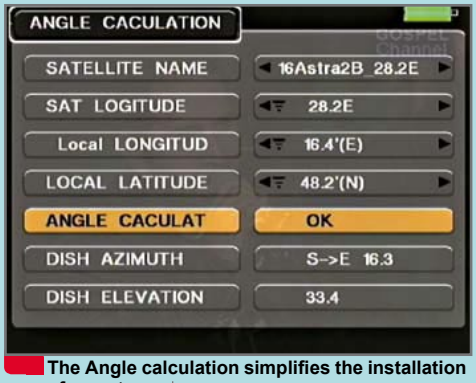
NIT Mode Spectrum lets you identify the satellite clearly

USALS Settings

DiSEqC 1.0, 1.1, 1.2 and 1.3 (USALS) are supported



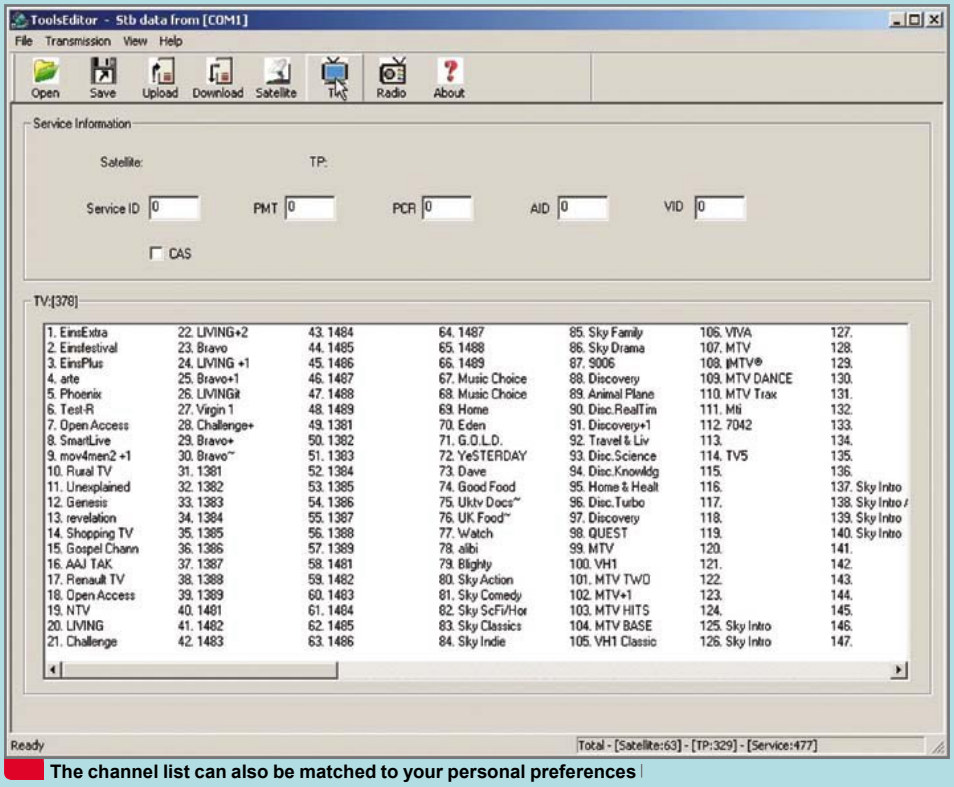
Thanks to the PC editor, transponder and satellite data can easily be edited



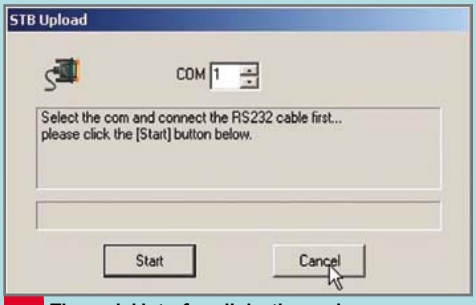
The Angle calculation simplifies the installation of an antenna

All identified and unencrypted channels can be viewed on the display

The channel list contains all the TV and radio channels that were found



The channel list can also be matched to your personal preferences



The serial interface links the analyzer with a PC

here you can choose from England, France, Spain, Italy or Germany. Additional countries and languages are being worked on and will be made available with a future software update.

An audible signal tone can also be activated here and the analyzer can be set to automatically shut off after a user-settable time period.

The OSD also comes with a timeout feature that is user-settable. And of course, if it's necessary, the analyzer can be easily returned to its factory settings thus giving us an overall very positive impression of this analyzer's many different settings capabilities.

Since we are dealing with a Combi unit, the TSM-8800 comes with two different operational modes: DVB-S and DVB-T. We decided to start our tests in DVB-S mode; we'll get to DVB-T a little later.

DVB-S

After determining that this analyzer is really easy to use and self-explanatory, we decided to jump right into the deep end of the pool and align our three-meter antenna located in Vienna, Austria to ASTRA 2D.

Our British readers are probably scratching their heads right now considering that we're using a three-meter antenna but here in Austria an antenna this size is absolutely necessary for the stable reception of ASTRA 2D since we're already quite a distance outside of this satellite's footprint.

Regardless of how big or small the antenna actually is, it is essential to first figure out the correct satellite parameters, that is, azimuth and elevation.

Normally, you'd have to find some sort of table with this information or find it online using a number of different Internet sites, but

All DVB-T channels can be searched

Multi Channel Search for DVB-T lets you view 8 channels Signal Quality simultaneously

Active frequencies can easily be recognized in the spectrum analyzer display

none of this is necessary with the TSM-8800. The analyzer comes with its own Angle Calculation submenu that takes care of this work for you. To perform this calculation properly, you need to know the exact geographical position of the antenna as well as what satellite you want to align to.

The geographical coordinates can easily be found via the Internet, for example, through Google Maps, Google Earth or Wikipedia. GPS navigation devices will also give you your local coordinates.

Once the local latitude and longitude have been entered, the next step involves selecting the desired satellite. Now the user for the first time gets to see the preprogrammed satellite list stored in the analyzer and it is quite a list. 61 satellites with up-to-date transponder data are stored in memory.

This makes working with the analyzer fun and with the push of just one button the azimuth and elevation data needed to adjust the antenna have been calculated for you.

As soon as these values have been transferred to the antenna, the analyzer is switched over to DVB-S mode and the desired satellite is selected. The TSM-8800 assumes that it will be a Ku-band satellite using a universal LNB. If this is not the case, the necessary parameters can be edited in the Scan menu.

A number of LOF frequencies for the Ku-band and C-band are already preprogrammed but if needed the user can enter LOF values manually for those older LNBs with unusual LOFs.

For every stored satellite entry there are multiple preprogrammed transponder entries available making it easy to activate and test them. Of course, if you want to, you can enter the required frequency manually which then automatically becomes part of the transponder list for the current satellite. Additional parameters such as low or high band as well as the LNB supply voltage which determines the polarization can be handled via the corresponding menu entries, via the function buttons on the analyzer or via the remote control. At the bottom of the screen are a pair if bar graphs that show the current signal strength and signal quality.

With the help of one of the function buttons you can switch to a rough measurement of the antenna on an expanded display that shows noise offset, signal quality and signal level optically in bar graph form and also numerically. Additionally, there are also numerical values for VBER, CBER, the C/N as well as the channel power.

An acoustical signal output is available so that you can adjust the antenna without having to look at the analyzer.

For our setup, we quickly adjusted the antenna to the correct angle and then began moving the dish in the direction of ASTRA 2D at 28.2° east. With such a large antenna, the signal level would naturally be relatively high and in no time at all the LOCK LED on the analyzer indicated a signal had been found.

In Zoom mode we roughly aligned the antenna to ASTRA 2 but we already knew that the signals from the other ASTRA 2 satellites would be quite strong using a three-meter antenna and that receiving the signals from the ASTRA 2D bird would be the cream of the crop.

So we switched over to normal scan mode and modified the preprogrammed fre-

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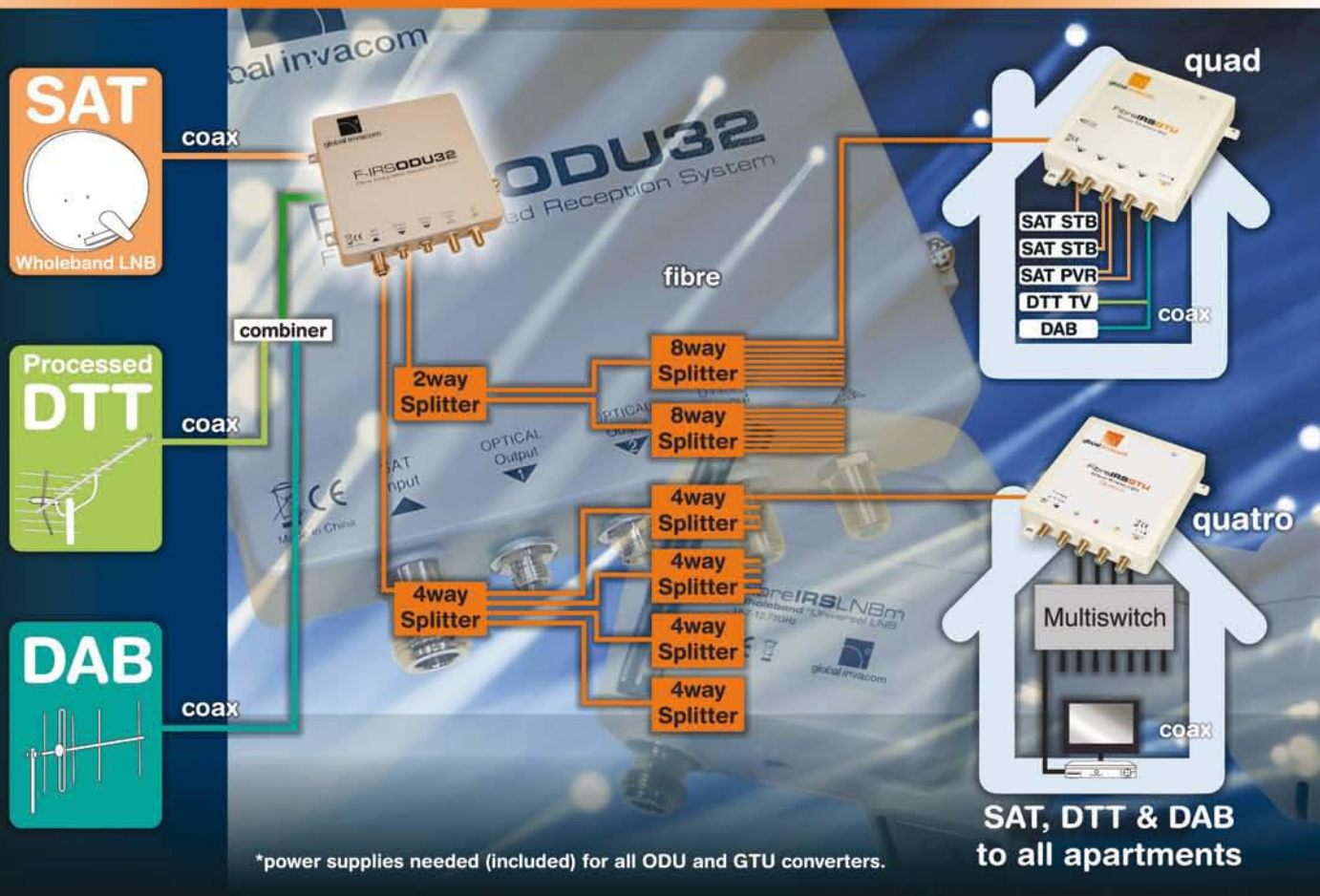

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quency to one from ASTRA 2D. With the aid of the zoomed-in view, we began adjusting the antenna again. The goal was to achieve the highest signal quality while keeping the CBER to a minimum.

Thanks to the screen-filling signal level display and the nearly instantaneous measurement response of the analyzer, we were able to do this easily and without any problems. Once the antenna was properly aligned we knew that we were pointing to ASTRA 2 but it would also be very practical to be able to display the received signals on the analyzer's monitor.

With the TSM-8800 this isn't a problem at all, a variety of scan modes are available including TP scan, TP-NIT, satellite scan and Blind Scan at 8 MHz intervals and also at 12 MHz intervals. Yes, believe it or not, this signal analyzer comes with a Blind Scan mode that even worked perfectly in our tests!

It scans the 950 to 2150 MHz frequency range in steps of either 8 or 12 MHz. It does take time to complete a scan (in our test a scan in 8 MHz steps on ASTRA 2 took 11 minutes) but it finds everything for you including some unknown transponders.

If you don't need to use Blind Scan, 8dtek incorporated a very fast transponder scan that looks at the currently selected transponder.

It is also possible to perform an NIT transponder scan so that other transponders belonging to the same provider can be found as well.

The satellite scan looks at all the preprogrammed transponders for the selected satellite. But since there are only a few transponders stored for each satellite, this scan is not nearly as complete compared to a standard satellite receiver.

When dealing with more complex or motorized system installations, it is especially critical that the signal analyzer used be able to communicate with every possible DiSEqC component. The TSM-8800 can handle this without any problems; it comes integrated with DiSEqC 1.0 for up to four satellites, DiSEqC 1.1 for up to 16 satellites as well as DiSEqC 1.2 and 1.3 (USALS) for motorized systems.

Aligning a USALS motorized system with the 8dtek analyzer is actually fun. After entering in your local geographical position the antenna can be moved to every desired satellite position. This makes it easy to identify an antenna that is not properly aligned or one with a mast that isn't perfectly vertical letting you correct the problem with very little effort.

To round it all off, the TSM-8800 comes with a very clever channel list editor that lets you easily move, rename or delete any of the channels in the list. The channel list can therefore always be kept in an organized fashion. For the installer, the TSM-8800 couldn't be better; he can store the most popular satellite positions and channels so that they can easily be shown to a customer.

Another very practical feature is the integrated spectrum analyzer. It has the advantage of not only graphically displaying the entire frequency spectrum but it also makes it easy to align the antenna to a specific satellite or to look for a certain transponder.

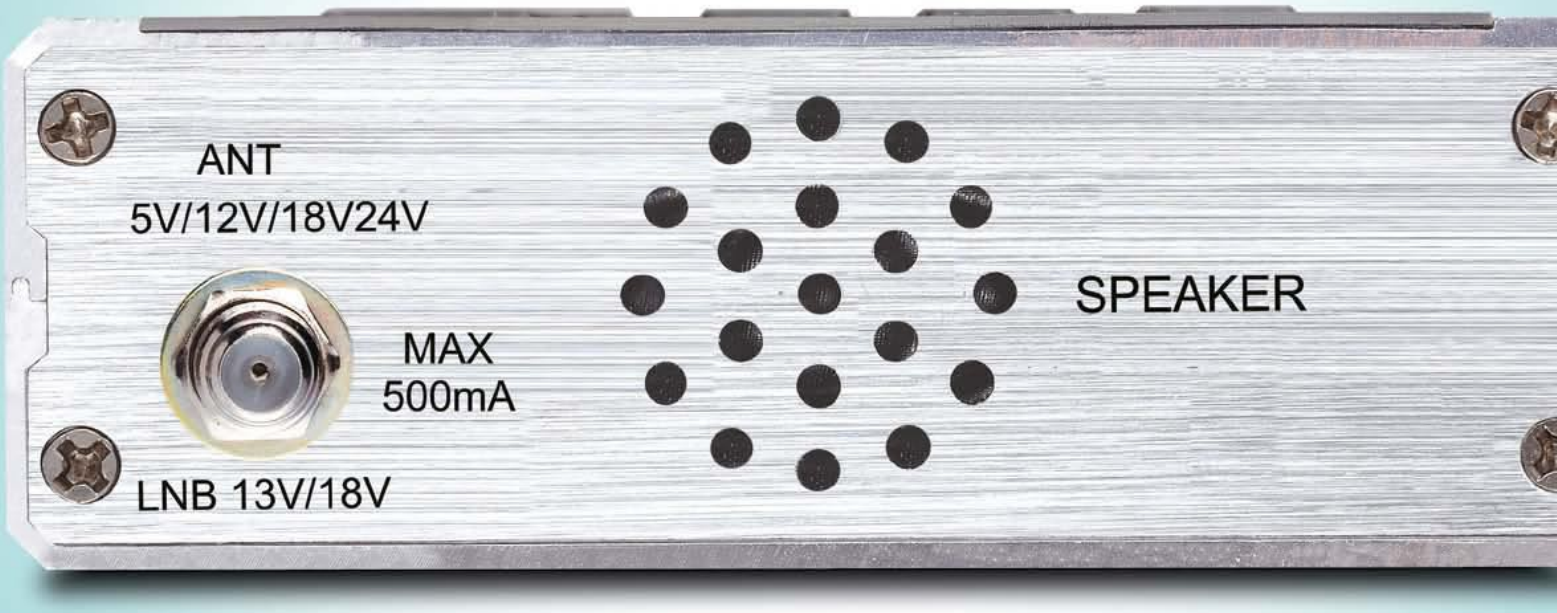
If you regularly install satellite systems, it won't take long for you to look at the spectrum image of a satellite and be able to tell which satellite it is. But if you haven't quite mastered the spectrum images just yet, the TSM-8800 can identify the satellite you're currently pointed to using the NIT data from a valid transponder.

The spectrum analyzer can also highlight the peak that was reached by a particular signal; it displays a small symbol to indicate how high the most recent signal peak was. This feature lets you use the spectrum analyzer as a way to initially fine tune the antenna assembly.

The TSM-8800 can display the entire frequency spectrum or you can zoom in on a specific section and then use a cursor to mark each signal peak so that it can be directly read in to the analyzer.

It's becoming clear that the TSM-8800 would not only be a useful tool for installers but it would also be very interesting for DXers and feedhunters. With just one look an experienced feed hunter would be able to recognize which feed frequencies are currently active and with the push of just one button the desired transponders would be identified followed by a full-screen display of the feed on the analyzer.

As soon as an active transponder has been identified, the new 8dtek analyzer immediately blends in additional information such as noise offset, C/N, various signal quality values as well as the orbital position of the current satellite.



To document all the work that has been done, the spectrum image on the analyzer can be stored and later recalled if needed.

DVB-T

The signal scanning and processing with DVB-T is similar to DVB-S although the reception parameters for DVB-T are less plus DVB-T uses a different frequency range. The desired DVB-T frequency can be entered manually or it can selected from the preprogrammed list.

The TSM-8800 can also supply the necessary power for an external signal amplifier directly through the coax cable the parameters of which can be edited in the channel scan menu. As soon as a signal is found, the display shows the signal quality and signal level bar graphs just like in DVB-S mode.

A channel scan can be performed on a specific transponder or it can be done on the entire frequency spectrum. Naturally DVB-T mode also comes with a zoom view with expanded signal bar graphs as well as the display of S/N and BER in numerical form.

The analyzer also provides information on the FEC and modulation mode that is being used. A very practical feature is the ability to show the signal levels from up to eight different frequencies at the same time. This makes it easy to adjust the antenna so that the highest possible signal level can be reached on all of the frequencies; it's an especially important feature when dealing with multiple frequencies from different broadcasters using one antenna.

And just like in DVB-S mode, DVB-T signals can be identified and viewed on the analyzer's screen.

Another amazing bonus feature is that TSM-8800 can indicate MPEG4 SD and HD channels, although it is not able to display those channels yet.

Finally, we wanted to check out the three RCA jacks on the underside of the analyzer a little more closely.

While the A/V jacks displayed video that was helpful to us for this test report, the end user would probably not use them all too much since even with the remote control, the analyzer is not a comfortable DVB receiver.

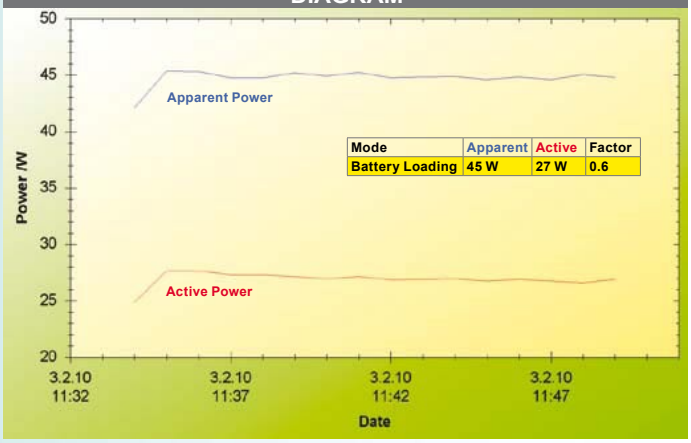
On the other hand, the video input is very practical; it can be used for example while installing larger, motorized antennas that are moved using 36-volt actuators. The video from the required positioner can be attached here. You can also use this input to display any other CVBS signal on the analyzer.

Thanks to the integrated interface to a PC, the analyzer's software can easily be updated and since 8dtek is constantly working on improving their products, they would consistently use this function in order to add more features to their products.

The transponder and satellite lists can also be edited on a PC and in our tests this turned out to be no problem at all using an MS Windows PC. Unfortunately you need a serial interface for this to work, something you might not find on newer PCs or laptops.

Overall though we were quite thrilled with the TSM-8800. We can't wait to see what technological advances will come but one thing about digital TV reception and its accessories is very clear: the competition will definitely have their hands full!

ENERGY DIAGRAM



Expert Opinion

Thomas Haring
TELE-satellite
Test Center
Austria

\+

The TSM-8800 is a handy and reliable analyzer for digital DVB-S and DVB-T signals. It is controlled by a very logical and user-friendly constructed on-screen display and is shipped from the factory with very up-to-date preprogrammed data.

Thanks to the many different settings capabilities and features, it is easy to adjust any antenna system.

The spectrum analyzer mode makes it easy to find active frequencies and is perfect for DXers and feedhunters. The assortment of accessories as well as the excellent user manual clearly show that the manufacturer always keeps the customer in mind.

\-

The interface to a PC should be via USB

TECHNICAL DATA

Distributor	8dtek Technology, Hongkong
Email	sales@8dtek.com
Website	www.8dtek.com
Model	TSM-8800
Function	DVB Signal Meter with tv monitor for DVB-S and DVB-T
Display	3.5" LCD color display
Frequency range	950~2150 MHz (DVB-S) and UHF/VHF (DVB-T)
Level range	-65 dBm ~ -25 dBm (DVB-S) and -78 ~ -20 dBm (DVB-T)
LNB power supply	13/18V, max. 500 mA
Symbol rate	2~45 Ms/s
DiSEqC	Yes (1.0, 1.1, 1.2 and 1.3 (USALS))
Spectral Inversion	Auto conversion
Video format	720x576 (PAL), 720x480 (NTSC) & SECAM
Supply voltage	13.3V
Supply voltage charger	90-240V
Li-oN battery	2200 mA
Supplied items	Protective case, user guide, mains charging unit, car charger, PC connection cable, A/V cable
Dimension	10.2 x 18 x 3.4 cm
Net weight	0.72kg

AzBox Premium HD Plus

True HDTV and Infinite Features

We could hardly wait for the new Opensat AzBox Premium HD Plus to arrive. After all, it's the first satellite receiver with 1080p full HD video output. We noticed right away that the manufacturer had chosen a sturdy yet very elegant packaging design, and our eyes grew even bigger when we opened the box to first discover a rather large external power pack. As a matter of fact, Opensat really had taken the step of separating receiver and power pack, which actually is a smart move considering the fact that modern receivers generate a huge a amount of heat, a substantial part of which comes from the power pack.

TELE satellite AWARD 04-05/2010
AZBOX PREMIUM HD PLUS
Excellent video quality
with full Internet access

So with the AzBox Premium HD Plus Opensat has done something which is so simple and yet so smart that you

Internet browser

At last a receiver that doesn't have to be almost completely disassembled simply to add a hard disk. That's what we call smart design.

Added to that is a very stylish front panel that will blend into any living room environment. It's only the buttons on the upper side that take some time to be comfortable with, and depending on where and how the box is positioned they might even be a bit hard to reach.

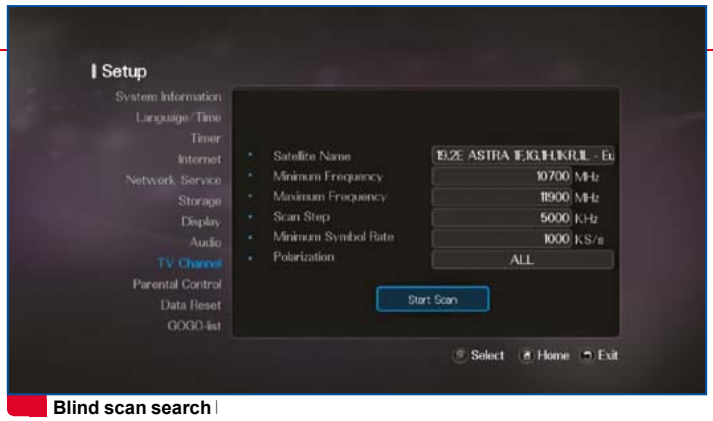
Bang in the middle of the front panel a very easy to read VF display is located just below three LEDs which indicate the current operating mode. To the left there are cross-shaped buttons for navigating in menus and lists and together with the previously mentioned buttons on the upper side they allow operating the receiver when the remote control is misplaced or – heaven forbid! – the batteries have run empty.

Hidden behind a flap on the left section of the front panel two CI slots can take in all standard modules. There is

really ask yourself why other manufacturers have not come up with it before. Nonetheless, Opensat has equipped the AzBox Premium HD Plus with a small fan to be on the safe side. While doing a great job it would help if it created a little less background humming, especially with a major heat source being separated from the main unit. But this is a truly minor nuisance rather than something which might potentially reduce your viewing pleasure.

Looking at the AzBox for the very first time two issues will strike you: First, five screws are easily identifiable on the upper side of the casing, and secondly, four buttons are located not on the front panel but on the front part of the upper side.

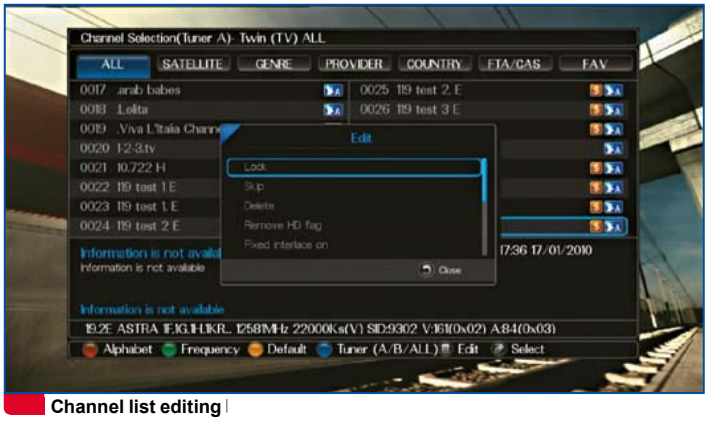
The raison d'être of the five screws becomes clear very quickly: Unscrew them and you see a slot for integrating any 3.5-inch S-ATA hard disk.



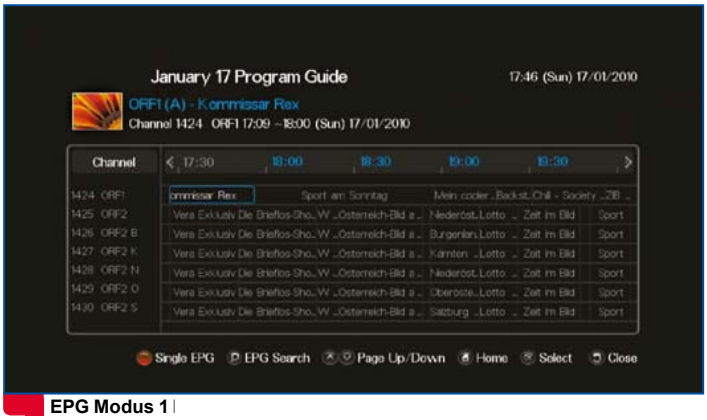
Blind scan search

AzBox Premium HD Plus channel list

Display settings



Channel list editing



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Spanish	**Español**	www.TELE-satellite.com/TELE-satellite-1005/**esp**/azbox.pdf
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Available online starting from 2 April 2010

also a built-in card reader as well as a USB interface for hooking up external storage media.

Turning the receiver around the back panel leaves nothing to be desired either. Apart from the two sets of must-have satellite IF inputs and loop-through outputs there is HDMI, 6 RCS jacks for YUV, CVBS and analog audio, scart, network interface, USB, optical digital audio out and even a socket for attaching a 0/12 V switch. DXers will love this last feature, particularly as many manufacturers have done away with it completely.

A mechanical power switch rounds off an already perfect first impression.

The AzBox Premium HD Plus comes with an ergonomically shaped remote control that might overwhelm users with all its buttons at first sight. But once you get the knack of it and have become familiar with the enormous range of features this box offers, you'll slowly fall in love with your remote and wouldn't trade it for anything in the world. It does come with a universal mode so that you'll be able to control your TV set with the same unit, making room for more useful items on the coffee table.

Both the receiver itself and the remote control boast a high level of workmanship and it clearly shows that Opensat has decided to use only state-of-the-art components, an impression that is reinforced with every touch of a button. Unfortunately, our test unit arrived without a printed manual, but this was readily available for downloading from the Opensat website.

Installation

Turn on the box for the first time and it will welcome you with the installation menu on your TV screen. Here you start out with setting your personal preferences, beginning with your preferred language.

The AzBox Premium HD Plus is a truly international fellow with Portuguese, Dutch, Czech, Russian, Spanish, Polish, Serbian, Hungarian, Greek, Bulgarian, Italian, Slovakian and Turkish being available next to regulars such as English, French or German. Similarly, audio language and subtitle language can be chosen so that the receiver automatically selects your preferred tongue if provided.

The internal clock of the receiver can either be set manually or using data sent via satellite. A number of different display formats are available, which goes to prove that Opensat has looked at every aspect down to the very last detail.

We were particularly interested in the networking capabilities of the AzBox Premium HD Plus, as this receiver comes with a competent web browser, RSS reader and You-

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- Easy upload & download new satellite file list
- Data Logger with USB port
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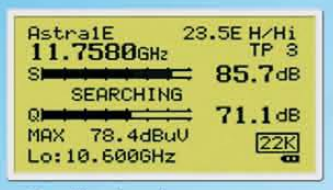
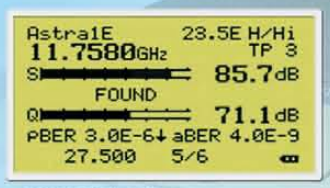
- Peak level detection : CODE, LEVEL, OFF
- DiSEqC 1.0/1.1/1.2(Rotator) supporting
- Easy portable & lightweight type
- Li-Poly Battery (**7.4V 3800mA**)

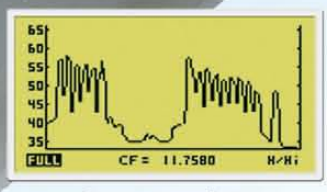


Satellite signal measurement
(Analog / Digital)



MER(SNR), BER measurement
(Analog / Digital)

I/Q Constellation Diagram
(QPSK / 8PSK)



Spectrum analyzer
(with Rotator control)

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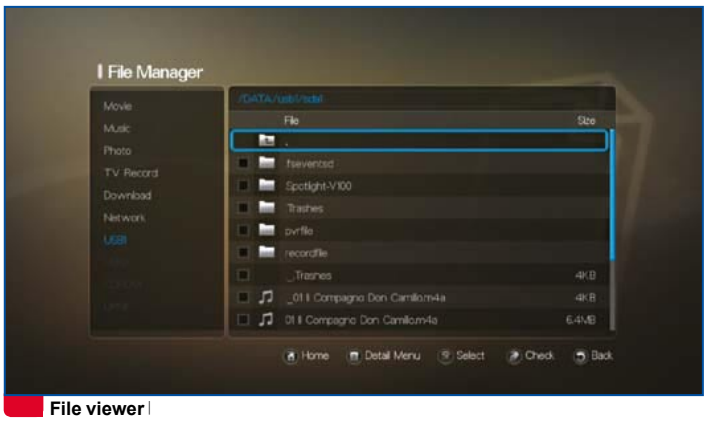
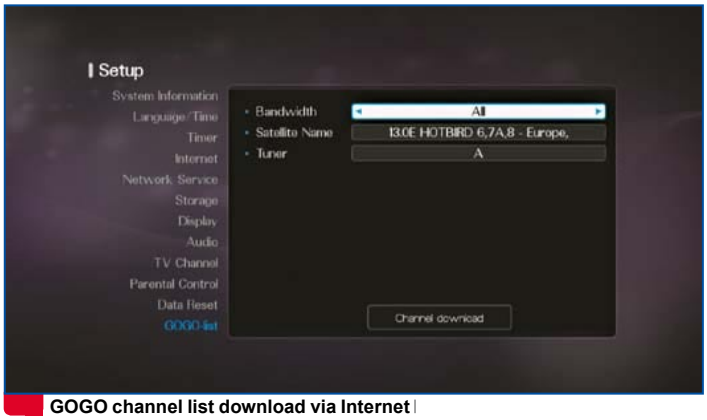
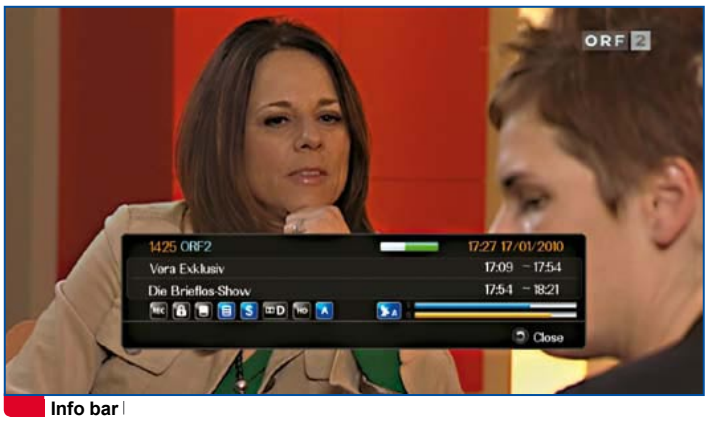
EPG Modus 2



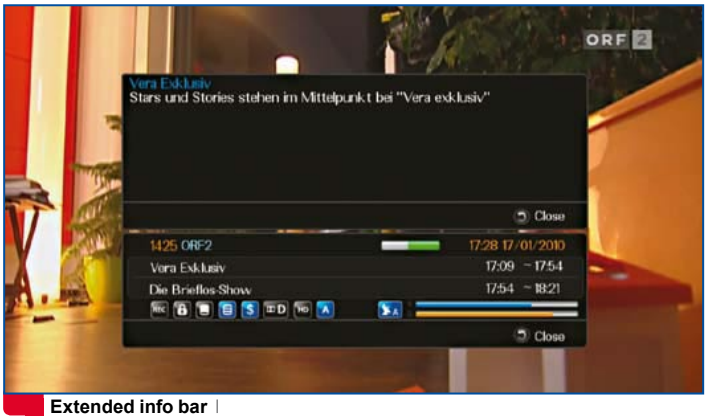
File viewer



GOGO channel list download via Internet



Info bar



Extended info bar

Tube player. For adding the box to an existing network you can always use the good old RJ45 socket, but you might leave out all the cabling and go for WLAN, which is supported thanks to the built-in WiFi module. During setup the box will detect all available WLAN base stations and will hook up to the desired network once the correct password is entered.

It goes without saying that DHCP assignment of all required network parameters is supported, but you may always go manual and enter all details yourself. The WEP and WPA2 protocols make sure your data stay where they belong and are only yours to see.

In contrast to a number of competing network-ready receivers the AzBox Premium HD Plus cannot only access content supplied on the local network or the Internet, but can be set up to become a fully-featured server for all other networked devices. You may want to turn it into an FTP server, file server or Telnet server, and the receiver is even able to handle dynamic DNS so that it becomes possible to access it from anywhere in the world over the Internet. System settings also include a feature to format all storage media in order to make room for new recordings, if need be.

The AzBox Premium HD Plus is a master of video output options. Next to composite and component video various HDMI resolutions can be selected, ranging from 576i all the way up to 1080p (full high-def), which is an absolute first for a digital satellite receiver. We should also mention the fact that audio options are just as versatile, with PCM or RAW being available next to Dolby Digital, for example.

From the installation menu we proceed to the 'TV channel' sub menu for adjusting the receiver to our local antenna and distribution equipment. The test unit we received came with two DVB-S2 tuners, but according to Opensat DVB-C and DVB-T will also be available shortly.

What's best, any combination of tuners can be paired or easily exchanged to suit individual needs. With two satellite tuners three different modes can be selected: Twin, Loop Through and Separated. With Twin the software assumes that two identical signal inputs are led to the two IF sockets. Loop Through means that only one signal input is available which is led to IF 1 and then looped through to IF 2.

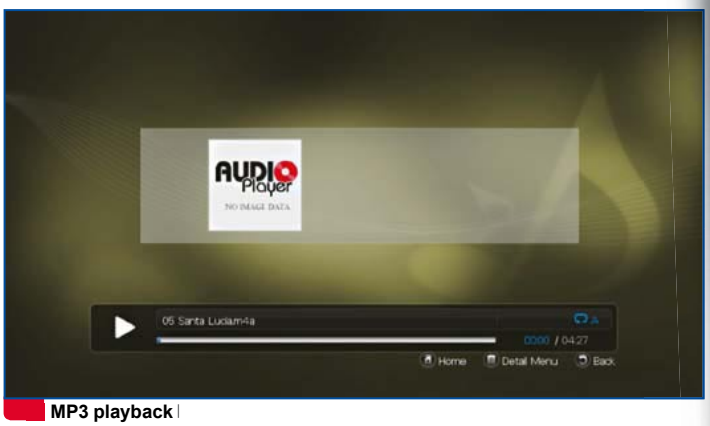
Using the Separated mode two cables from two different sources can used, so that tuner 1 is fed signals from a DiSEqC setup for several satellite, for example, while tuner 2 gets signals from a single LNB permanently aligned towards a different satellite. The pre-stored satellite list includes data from a total of 182 European, Asian and American satellites, which means virtually all of you should be able to find 'your' birds.

We truly loved that fact that many satellites are not only separated according to C band and Ku band, but also according to footprint. EUTELSAT W2 at 16° East, for example, shows up twice – once with parameters of transponders that can be received in Europe, and the second time with all African transponders. Thumbs up from us for this extremely helpful approach. If only other manufacturers would also go to such lengths when compiling their satellite and transponder lists!

LNB settings

Main menu

Manual channel search



MP3 playback

Picture viewer

If you have more than one LNB to address there's the DiSEqC 1.0 and 1.1 protocols for using up to 16 LNBs as well as various SCR settings. A wide range of LOFs for the C or Ku bands comes pre-stored, but there's always the option of manually selecting any out-of-the-ordinary parameters. You will hardly find an LNB the AzBox Premium HD Plus is not perfectly happy with.

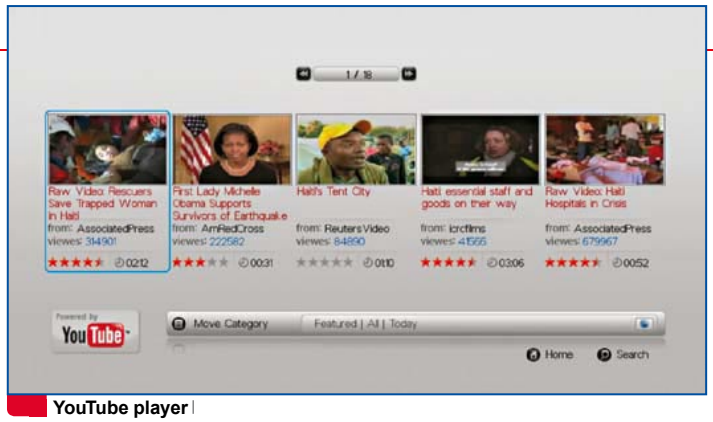
If you own a motorised antenna you will have been waiting to hear that not only DiSEqC 1.2 but also DiSEqC 1.3 (USALS) is implemented, so that this receiver will be a brilliant match for each and any DiSEqC motor. So now that all parameters and satellite entries have been matched with local requirements it's time to search for channels. To that end the AzBox offers four different search modes.

In any mode you can select one or more satellites which are then scanned for TV, radio, FTA or encrypted channels. We tested the box for a complete search on HOTBIRD 13° East, which only took slightly more than five minutes for a total of 1288 TV channels and 426 radio channels.

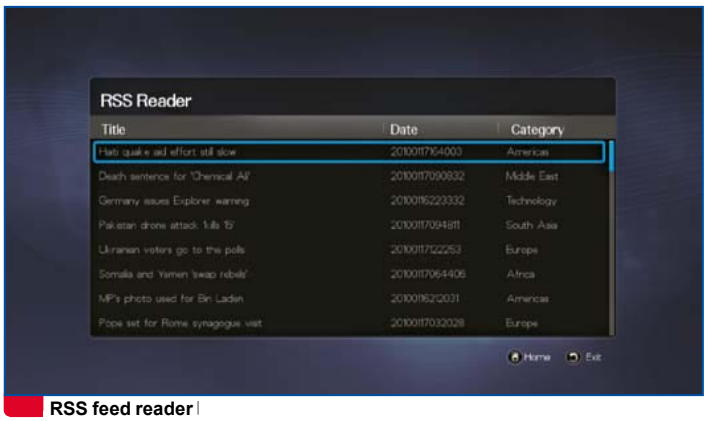
Transponder search works just the same way, with the only difference being transponders rather than satellites that are selected for a search. Thanks to the comprehensive and well-designed transponder databank this really is fun!

Pros will mostly go for the extended search, which provides access to a whole bunch of search criteria, with PID search being one of them. There are signal strength and signal quality bars on the upper section of the screen to clearly show right away whether or not transmissions are available on any selected transponder.

Feed hunters and DXers listen up now! The AzBox Premium HD Plus has a blind scan feature built in as well. All you need to do is enter the start and end frequencies, polarisation and step size and let the receiver scan the full range within for any active transponders, regardless of pre-stored lists. Using a blind scan search you really can be sure of adding all available



YouTube player



RSS feed reader

Software update via Internet

Satellite search

Settings

transponders to the internal memory.

The flip side is that such a search naturally takes its time, and for the same satellite as before (HOTBIRD 13° East) it now took 13 minutes. On the other hand, we ended up with 1416 TV channels and 431 radio stations and at the same time updated the pre-stored transponder list in a most hassle-free way.

Speaking of updating the channel list: Opensat has come up with an innovative feature for its AzBox Premium HD Plus – the so-called GOGO list. It can look up pre-assembled and regularly revised channel lists from the Internet and install these in the receiver.

Gone are the times when owners of motorised dishes had to perform a channel search on each satellite to slowly fill their channels list. These days you simply press a button and the AzBox Premium HD Plus will take care of this in next to now time. Wouldn't you too rather watch satellite TV than watch your receiver search for new channels?

Everyday use

After leaving the installation menu the next thing that pops up on screen is the main menu, which again is divided into 11 sub-section: TV, YouTube, Plug-ins, Films, Music, Photos, File Manager, FTP, RSS, Browser and Settings.

Just by looking through all items it becomes clear that the AzBox is so much more than your average digital satellite receiver. Home Multimedia Centre would be a more appropriate designation. Still, let's focus on good old TV reception for the moment, so this is the menu item we select.

The receiver switches to the first channel on the list. Pressing the OK button calls up the comprehensive channel list which – next to the channel name – also displays EPG information if supplied by the provider. This way you can check instantly which events are transmitted on the individual channels, without having to zap through all channels. It's difficult to imagine a more comprehensive yet at the same time easy-to-navigate channel list design.

You can sort entries according to satellite, genre, provider, country, FTA/CAS or you can create your own favourites lists. This way each desired channel can be found in a breeze, even though the box can store up to 15000 individual channels.

If you press the MENU button a new windows comes up allowing you to edit each channel list entry without having to go through a dedicated menu. Channels can be deleted, moved, renamed, added to a favourites list or genre, country or provider. The corresponding satellite name is also inserted for each entry, which is a great feature for channels that are transmitted on more than one satellite, especially if you you're in alphabetical sorting mode.

Thanks to the integrated TimeShift feature the current event can be paused at any time, only to be continued from that very point at a later stage. You'll never miss a scene any more whenever the phone rings during a movie or news report.

We were particularly impressed with the fantastic video quality of the AzBox. While it is true that – unfortunately – 1080p transmissions via satellite are not (yet?) available, the internal

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1080p upscaler does a wonderful job. Zapping between channels is fast, with slightly less than a second even when switching from an SD to a HD channel.

Not that we had doubted it, but as always we also tested SCPC reception with low data rates and as expected this new Opensat receiver delivered flawless results with a symbol rate of just over 2500 ks/s. Weak signals from NILESAT 7° West came in nicely too, even though their C/N was close to the tuner's threshold level.

Multimedia

While the AzBox is not on equal footing with a standard PC, it is nonetheless strong competition in several fields, as its built-in multimedia and Internet features make for welcome distraction during commercial breaks.

With the integrated YouTube player you can easily access this popular video portal anytime you wish. The fact that a lot of content is available in high-def already is an added bonus for the YouTube player's full-screen presentation mode.

The AzBox belongs to the group of receivers with a dedicated plug-in interface that can be used to expand the feature range of the digital receiver. The sky's the limit for resourceful software developers and the best thing about the AzBox is its direct download from the Internet. This does away with the need for looking around for plug-ins on the Internet first and then transferring them to the receiver for installation.

With a simple touch of button on the remote control you choose any plug-in you'd like to add and that's about it. Judging from past developments we can expect some great stuff from the AzBox online community.

With ever more Internet bandwidth becoming available to more and more users, videos can be downloaded just as easily as music and pictures these days. While this is a great thing it's not much fun watching a blockbuster movie on a PC or laptop display. The AzBox enters centre stage once again as it is capable of playing back almost everything you throw at it through its two USB interfaces.

So all you have to do is save a film on an external storage medium using your PC, hook up the external hard disk or memory stick to the AzBox and turn on your TV to watch. The following formats are recognised and played back: XVID (SD and HD), DIVX, MPEG1 and MPEG2, MPEG4.2:, WMV9 and H.264 in all its different varieties.

Prefer music to movies? The AzBox is the box for you too, as it can play back MPEG Audio MP1,2,3 and MPA, as well as AAC, M4A, WAV, WMA, FLACC and OGG files. This makes CDs a thing of the past.

Internet

Opensat has equipped all aspects of software updating and channel list editing with Internet features in its new AzBox. No more over-the-air loading of new software for hours – top-notch receivers like the AzBox Premium HD Plus have a radically different approach: FTP downloads from the Internet.

Apart from a huge benefit und time saving for users this allows manufacturers to react to any problems more quickly and provide software updates for any glitches that might become apparent during every day use.

True enthusiasts may even try several software versions for beta tests to provide valuable feedback to the manufacturer's software development department. It's only logical that Opensat has taken the continuous merging of satellite receiver and Internet one step further and ships its new flagship product with a competent Internet browser. If you cannot find anything you like on TV you don't have to fall back on some more or less useful built-in games to kill time, but may rather access a news site on the Internet, look for tomorrow's weather or even check your mail.

We found the Internet browser to be working very well in our test. It takes some time to get used to navigating with a remote control rather than a mouse or touchpad, but once you internalise this new concept it doesn't pose any problem and quickly turns into fun.

In an increasingly networked world more and more people expect to be fed with instant news on topics that suit their interest. A virtually endless number of RSS feeds meets that demand and Opensat decided to add an RSS reader to its new AzBox as well. It can be used to conveniently display the latest news items provided through a user-defined set of RSS lists.

Just imagine – from now on you cannot only watch the morning news on your favourite channel before leaving for work, you also get all the latest information in all your areas of internet served up right to your TV screen, before you have even turned on your PC!

Last, but by no means least, the AzBox Premium HD Plus comes with its own FTP client which can be used to load data directly to the receiver's hard disk from any FTP server in the world. This is particularly handy for transferring films, as there is no need any longer to route transfers via your PC first.

To sum up, the AzBox Premium HD Plus truly impressed us in any possible way. It is a true leap forward in home multimedia and opens a window to the future of satellite receivers. Despite the enormous range of features Opensat has made a point of designing a user interface with an eye on usability. Never did it cause confusion and all capabilities of this new receiver were ready at our fingertips at any time.

Expert Opinion

Thomas Haring
TELE-satellite
Test Center
Austria

+

The AzBox Premium HD Plus is a receiver filled right to the brim with interesting features. At the same time the manufacturer has not forgot what the box was designed for: satellite reception.

Despite its impressive list of functions the AzBox Premium HD Plus is still easy to use and thus suitable for the whole family.

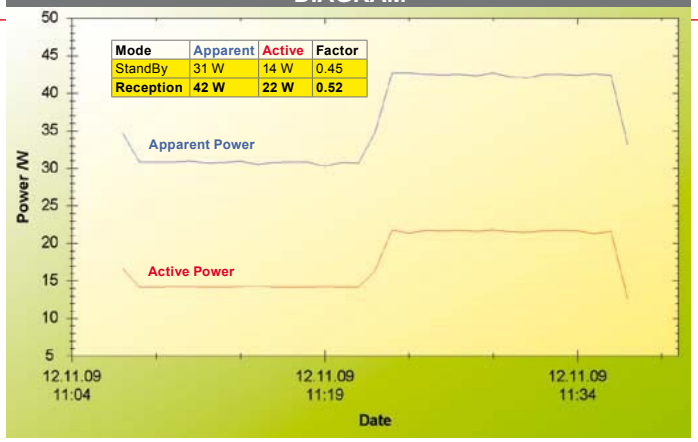
1080p video output is a true first in satellite receivers and we can only hope that content providers will offer that resolution via satellite sometime soon.

With its AzBox Opensat has designed a great package deal offering TV reception, multimedia and Internet.

-

Every once in a while some minor software flaws became evident. The EPG, for instance, caused the system to freeze occasionally. We have learned from the manufacturer, however, that they are working hard on perfecting the software so that we can assume these problems will be a thing of the past soon.

DIAGRAM



First 15 minutes: Standby. Second 15 minutes: During the first minute the receiver powers up, followed by 14 minutes of active use including switching channels, recording, playing back, etc.

TECHNICAL DATA

Manufacturer	Opensat, Edificio OPENSAT, Lagoa C.P 4950-283 Mazedo, MNÇ Portugal
Fax	+351 251 652 966
E-Mail	info@azbox.com
Model	AzBox Premium HD Plus
Function	Digital HDTV DVB-S2 receiver with various Multimedia & Internet Features
Channel Memory	15000
Symbolrate	2-45 Ms/sec.
SCPC Compatible	yes
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
USALS	yes
HDMI Output	yes
Scart Connector	1
Audio/Video Outputs	6x RCA
Component Video Output	yes
S-Video Output	no
UHF Modulator	no
0/12 Volt Connector	yes
Digital Audio Output	yes
EPG	yes
C/Ku-Band compatible	yes
PVR-Function	yes
USB 2.0 Connector	yes
Ethernet	yes
E-SATA	no
Dimensions	340/243/66 mm
Weight	2.65kg (without hdd)

Skyworth DVB-S and DVB-T Scart Receiver with PVR Function

Small but Beautiful!

Who hasn't seen this before? Flat screen TV, DVD player, game console and stereo system - they all want to have their own spot in your wall unit or TV cabinet but it's already bursting at the seams and finding a spot for another device is next to impossible. Wouldn't it nice if you could make one or two devices disappear yet still be able to keep their functions?

The engineers at Skyworth have also been thinking about this for some time and have developed a DVB-S and DVB-T receiver that isn't much bigger than a deck of cards. The receivers utilize an integrated Scart connector and therefore can be plugged directly into the back of a TV into a corresponding connector. In this way you don't use any valuable space in the cabinet and also manage to avoid adding any more cables.

While the manufacturer opted for a white cabinet for the DVB-T model, the DVB-S model comes in black. The DVB-S model comes with an F-type input connector whereas the DVB-T model was fitted with a European-style RF connector. Unlike the DVB-T model, the DVB-S model does not come with a looped-through signal output.

As small as these receivers are, it's obvious that there's no room for a built-in power supply. Instead the manufacturer includes a 12-volt external power supply in both receiver packages.

There's also no doubt that the infrared signal from the included remote control would

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Sea Tel's logo has changed with the addition of Cobham's name, but Sea Tel's superior products and service remain the same. Along with the new logo and the recently released 2406 60cm antenna, Sea Tel is pleased to announce a smaller, lighter 60 cm Tx/Rx antenna system, the USAT 24, an Ultra Small Aperture Terminal. Plus the new ST14 TV-at-Sea antenna features an advanced pedestal assembly, made of durable nylon polyamide injection molding used on aircraft antennas. Tests reveal 1.3 dB more signal than competitors.
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Russian	Русский	www.TELE-satellite.com/TELE-satellite-1005/rus/skyworth.pdf
Swedish	Svenska	www.TELE-satellite.com/TELE-satellite-1005/sve/skyworth.pdf
Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-1005/tur/skyworth.pdf

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never find its way to the back of the TV. Naturally the manufacturer thought of this too by including an external IR receiver in the package. This IR receiver is placed in a convenient location and takes the incoming infrared signals and passes them via a cable to the receiver. To top it all off, a USB interface was included so that external storage device can be connected; a PVR function is also available in both units.

In general, we were very satisfied with the quality of the receivers. Even the remote control sits nicely in your hand although some of the buttons are rather small and you have to be a little careful not to accidentally press two buttons at the same time with your finger.

Our two test receivers did not come with user manuals but considering that operating these receivers was mostly self-explanatory and that they didn't come with an overly-complicated range of functions, the user manuals weren't really missed. Since both of these receivers operated mostly from the same menu structure and came with the same basic functions, we opted to present both of them in one test report. Any differences between the two will be highlighted here.

Installation

Since both of these receivers don't use an installation assistant, „No Signal" is displayed the first time the receiver is turned on as there are no preprogrammed channels stored in memory. The circular main menu icon near the bottom of the TV screen takes you to five different submenu points (TV, Radio, Multimedia, Game and Setup) after pressing the menu button.

The Setup menu lets you match both receivers to the reception system in use as well as to the TV. The OSD can be displayed in English, French, German, Portuguese, Spanish, Italian, Dutch, Danish, Swedish, Finnish, Russian and Turkish. These same languages are also available for audio and subtitles. The internal clock can be set automatically through the DVB data stream or it can be set manually if needed. Both receivers are PAL and NTSC compatible and are able to recognize the color standard of the incoming signal automatically.

The Scart output provides the output signal of both units in CVBS; through the setup menu, RGB and S-Video outputs are also available. YUV outputs for connection to a projection TV system or HDMI outputs for use with a high-definition plasma or LCD TV are unfortunately not available.

The receiver you end up using, DVB-S or DVB-T, depends on what kind of incoming signal you have. We want to start with the DVB-S model. A list of 43 European and Asian satellites have been preprogrammed into the box.

The list may be up to date but it is unfortunately not quite complete. For example, ABS1 at 75° east or INTELSAT 3R at 43° west are not to be found even though satellites further east and west are in the list. The parameters of each satellite such as LOF, switching voltage or 22 kHz signal can be individually set up. The LOF can also be manually entered so that every type of LNB can be supported.

The manufacturer did a fine job setting up the DiSEqC menu. It is graphically very easy to read and clearly displays the switching setup so that it's easy to understand even for beginners.

In addition to tone burst for use with two satellites, DiSEqC 1.0 for use with up to four satellites and the motor control protocols DiSEqC 1.2 and 1.3 (USALS) are also supported.

The next step after all the LNB parameters are taken care of would be to fill up the channel list. Three scanning modes are available for this task: Standard, NIT and BlindScan.

In standard mode, the receiver scans only the transponders that have been preprogrammed into it. In NIT mode the receiver also takes a look at the NIT data found during a standard scan. In BlindScan mode the receiver scans all the frequencies and polarizations without the need of a preprogrammed transponder list.

Since there is no CI slot in either receiver, the scan can be limited to free channels only. It is also possible to scan every satellite that has been activated. This is a very prac-

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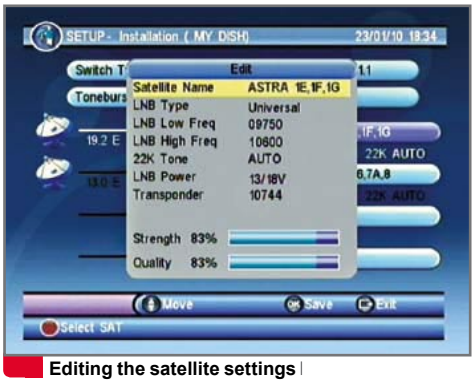
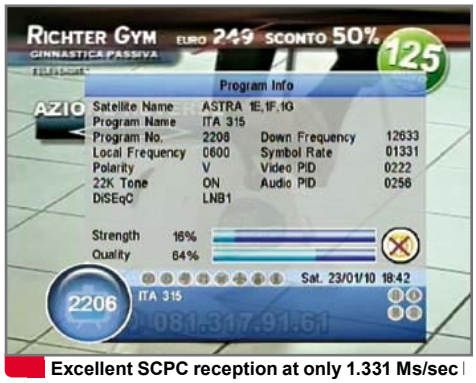
Main menu

Matching the receiver to the TV

Setup menu



Editing the satellite settings



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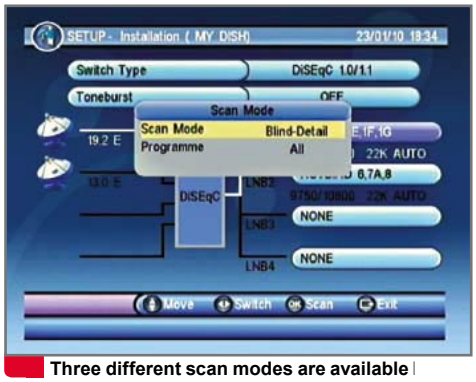
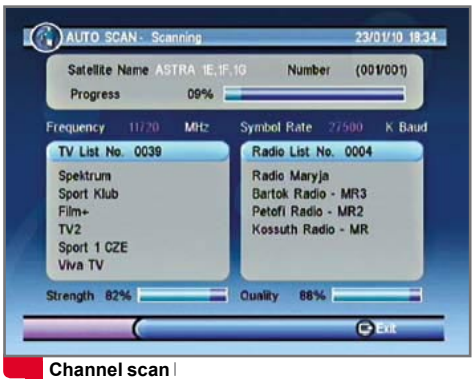
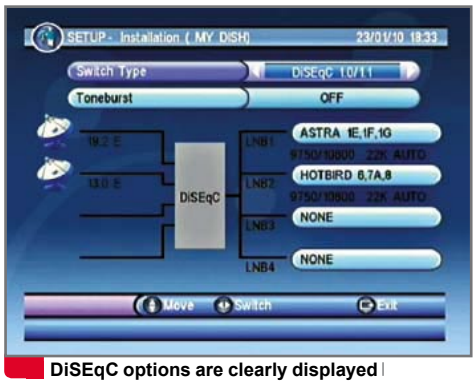


Three different scan modes are available

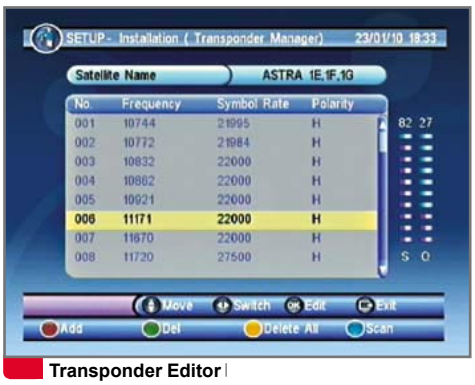


Channel scan

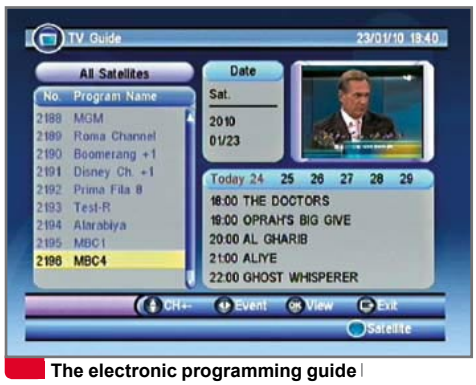
DVB-S Channel List



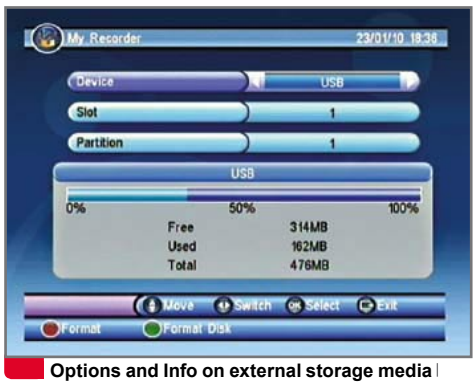
DiSEqC options are clearly displayed



Transponder Editor



The electronic programming guide



Options and Info on external storage media

All channel list editing options are presented in an easy-to-understand menu

DiSEqC motorized systems are also supported

Reception of circular polarized channels on EUTELSATW4 at 36° east

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tical feature especially when a DiSEqC motorized system is being used. The standard scan finishes its task relatively quickly and needs only about six minutes to process all the transponders on the HOTBIRD satellite at 13° east.

In BlindScan mode 14 minutes was needed but the extra time allowed 1299 TV and 455 radio channels to be found. Compared to the 1223 TV and 414 radio channels found during the standard scan, it's a significant difference.

Thanks to an easy-to-understand transponder editor, many of the entries in the pre-programmed list can be modified. There's also a manual scan for individual transponders that can be accessed via the editor. Unfortunately, there was no way to enter PID's in manually and thus no way to receive channels with incorrect or incomplete NIT data.

DVB-T Receiver

The DVB-T model comes with an automatic and manual channel scan. The automatic scan quickly goes through the entire frequency spectrum looking for active frequencies. In manual mode, the user can enter the frequency manually.

Everyday Use

After the channel scan on both receivers is completed, a push of the OK button exit's the main menu at which point the receiver switches to the first receivable channel.

An Info bar at the bottom of the screen displays information on the current and upcoming program as long as this data is made available by the provider.

As expected, a second push of the Info button displays more detailed programming information on the currently running program. With a third push of the Info button the Skyworth receivers display a variety of technical parameters such as frequency, symbol rate or PIDs.

Pushing the Guide button opens up the electronic program guide (EPG) giving the user programming information for the next several days.

The EPG display was nicely organized by Skyworth although it would have been nice if more than five lines of EPG data were shown. As it is though you might have to scroll through several pages of data before you find the channel information you want.

Since both receivers come with a USB interface so that external storage media can be connected, they naturally both have the capability to set up recordings directly from the EPG. It's even possible to set up recordings on a daily, weekly or monthly basis.

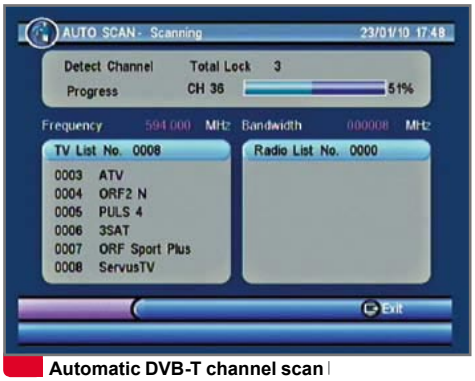
Pushing the OK button brings up the channel list; this list is also displayed in a nicely organized fashion. If desired, the channel list can be limited to single satellites or to favorites.

While scrolling through the channel list we found it a little annoying that the receivers would automatically switch over to the currently highlighted channel in the list.

The channel list can be set up to your personal tastes via the main menu. Channels can be moved to a Favorites list, or with the push of one button can be repositioned in the list, deleted, renamed or blended out. You can also sort the entire channel list automatically and lock out individual channels with a PIN code. And of course all of this is also true for all the stored radio channels. The DVB-S model performed quite well in our SCPC test on a test transponder with a symbol rate of 1.331 Ms/sec.

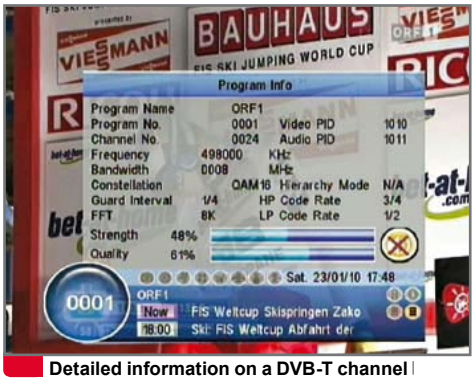
There were also no problems with the reception of weaker transponders such as the circular polarized Russian channels on EUTELSAT W4 at 36° east.

We were also impressed with the tuner in the DVB-T model; it provided interference-free reception even while using a skimpy indoor antenna.



Automatic DVB-T channel scan

Editing the DVB-T Channel List



Detailed information on a DVB-T channel

Music Player, picture viewer and video player are available

Previously recorded programs

Practical picture viewer

Multimedia and PVR

Thanks to the USB interface on both receivers it is possible to connect external storage media and thereby activate the PVR function in both units. Thereafter it's easy to record or playback programs.

A Time Shift function is also provided so that a telephone call can no longer interfere with your evening programming schedule. Unfortunately it's not possible to watch a previously recorded program while another one is being recorded nor can you watch a live program while another is being recorded even if the live channel is on the same transponder or on the same frequency.

Today we expect that almost every PVR compatible receiver is capable of functioning as an music or a picture viewer. Skyworth is no exception and included both of these functions in both of their receivers.

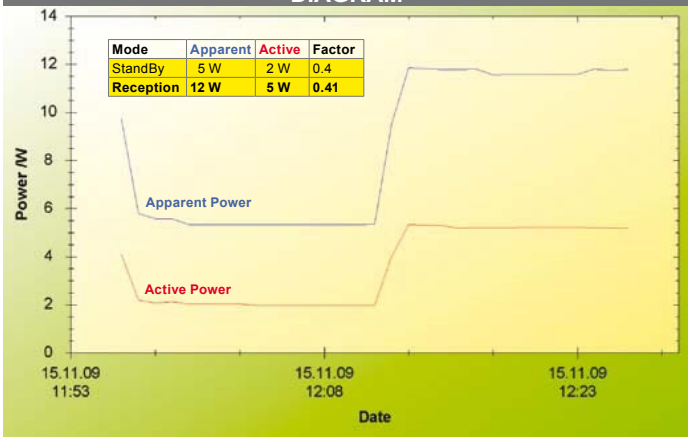
Thanks to the small size of both of these receivers, there are other possibilities such as when using a USB stick: both receivers are not only perfect for camping trips where they could be used as a PVR receiver or a music player, but you could also take your receiver and USB stick when you visit friends or relatives to show them your latest vacation pictures on their TV. All you have to do is plug the receiver into a spare Scart jack and you're ready to go.

To round it all off, both of these mini-receivers also come with an integrated video game, a calendar and a calculator.

Just as practical is the ability to upload new software via a USB stick or a USB hard drive; you just need to download it first from the manufacturer's website.

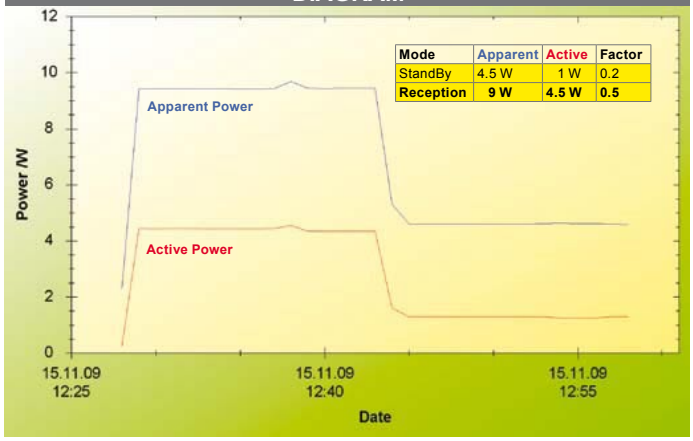
Finally a note to our energy diagram: the power consumption of the DVB-T model already achieves the "eco-design requirements for simple set-top boxes standard" as required by the Commission Regulation (EC) No. 107/2009 of 4th February 2009. Recently Skyworth introduced another of these miniature sticker receivers supporting this standard. Both DVB-T and DVB-S models also support the "Auto StandBy" software function, which is required by the above standard. It means the box switches to StandBy when no customer control signal has been received in last 3 hours.

ENERGY DVB-S
DIAGRAM



The first 15 minutes standby, then channel surfing and intensive PVR use

ENERGY DVB-T
DIAGRAM



The first 15 minutes active use including PVR operation, the second 15 minutes standby.

Expert Opinion

Thomas Haring
TELE-satellite Test Center Austria

\+

Both receivers are compatible for daily use and are very family friendly. Thanks to their extremely small size they virtually disappear behind your TV but still manage to provide all the necessary features and control everything via a nicely organized OSD.

The problem-free software also left us with a very positive impression.

\-

While recording a program, it is not possible to watch a live program or playback a previously recorded program at the same time.

TECHNICAL DATA

Manufacturer	Skyworth, 13-16/F, Block A, SKYWORTH BUILDING, Gaoxing Ave 1.S, Nanshan District, Shenzhen 518057, China
Email	Sales@skyworth.com
Internet	www.skyworthdigital.com
Tel	+86-0755-26010018
Fax	+86-0755-26010028
Model	Mini Box for DVB-T: DVBTM0001 Mini Box for DVB-S: DVBSM0001
Function	Miniature SCART Receiver with PVR Function
Channel Memory	4000
Symbolrate	1.3-45 Ms/sec
DiSEqC	1.0, 1.2, 1.3 (USALS)
USALS	yes
22 kHz	yes
HDMI Output	no
SCART	1
Color	PAL and NTSC
Video Output	CVBS
RGB Output	yes
S-Video	yes
HDMI	no
Audio Output	yes
RS232	yes
UHF-Modulator	no
Power	12 V
Dimensions	84.6 x 53.5 x 25.2mm

Optical LNB with a Flange
Now for Really Large Antennas!

Thomas Haring

The Global Invacom LNB first made its appearance in the summer of 2009. Without a doubt, it's a product that has the potential to revolutionize direct satellite reception. But what exactly is an optical LNB? For all of our readers who haven't been following the development of this new product, we'd like to provide you with a short overview.

First, let's refresh our memories on how a standard LNB (Low Noise Block Converter) works: the LNB receives the satellite signals that have been focused to it by the satellite dish and converts them to a lower frequency range so that they can be carried by a coaxial cable to the receiver's tuner. Since this converted frequency range is limited to 950 to 2150 MHz, two things must be done in order to receive the entire satellite frequency spectrum.

First there's the polarization of the signal. It could be linear (horizontal or vertical) or circular (left circular or right circular). We will be discussing linear polarization here although most of it is also valid for circular polarization.

A control voltage of 13V or 18V is carried through the coax cable to the LNB to select which polarization to receive (13V for vertical and 18V for horizontal). Secondly, there's a 22 KHz control signal, also carried via the coax cable to, for example,

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a universal LNB, that switches between low and high band. The low band covers the frequency range from 10.7 to 11.75 GHz while the high band covers the 11.8 to 12.75 GHz range.

If the LNB receives the 22 KHz signal from the receiver, the LNB switches to high band and sends that frequency range to the receiver. If the LNB doesn't see that control signal, the low band signal is sent instead.

One thing is clear, only one of the four possibilities (vertical or horizontal low band or vertical or horizontal high band) can be carried over the coaxial cable at any one time.

For a single reception system with only one end user this is not a problem at all. But if more than one user want to receive satellite signals independently at the same time from one antenna, that's when the first problems begin to surface.

If one person is watching a vertical low band TV channel, all the other users would be limited to watching a channel from the same polarization/band assuming of course they are all connected to the same satellite cable. In reality though, such a set up would make absolutely no sense; none of the users would be happy with that.

Up until now, this problem was solved by using LNBs with up to eight individual outputs; each output supplied the necessary polarization/band for each attached receiver. If more than eight outputs were needed, that's when multiswitches were used. Four independent cables from an LNB would be connected to a multiswitch which would then distribute all four polarization/bands to as many users as needed.

Unfortunately, "as many as needed" isn't entirely true. Using coax cable and distributing the signal via multiple multiswitches leads to something you really can't ignore: signal attenuation. The signal attenuation when dealing with 8 or 10 connections is essentially negligible but if 20, 30 or 40 connections are needed, then it becomes a real problem.

This is where the optical LNB comes in. A built-in stacker in the LNB takes the four different polarization/band combinations and converts them to different frequency ranges between 1 and 5 GHz. The RF signal is then converted to a digital signal and then, using the built-in laser, finally carried from the LNB via a fibre optic cable.

A GTU (Gateway Terminal Unit) converter box connected at the other end of the fibre optic cable reconverts the digital signal into one that can be recognized by a standard satellite receiver. These GTUs are available in Twin, Quattro or Quad models.

While the Twin and Quattro versions (two versus four outputs) are connected directly to a satellite receiver, the Quad version delivers each of the four polarization/band combinations to the Quad's four outputs and is used with an existing multiswitch distribution system.

This means that one fibre optic cable can be used to carry the entire frequency spectrum of a satellite. One single 3mm thick fibre optic cable from the LNB is all that's needed. Since this light beam carries the entire frequency spectrum of a satellite, it's possible to connect as many receivers as you need and operate them independently from each other.

Even if, for example, entire apartment buildings need to be supplied with satellite signals, Global Invacom's new LNB brings with it never before thought of possibilities. All you need to do is route one fibre optic cable from the LNB to a central distribution point. It is then split into multiple fibre optic cables and routed to each floor of the apartment building. From there it is split again so that each apartment on each floor is supplied with its own fibre optic cable.

From here the end user can not only connect just one receiver, but he could, for example, easily connect a Twin Tuner PVR in the living room, another receiver in the kids room and yet another box in the bedroom.

If a standard coaxial cable distribution system were used, then each apartment would need to be supplied with four cables from the multiswitch. As you can see, there is enormous potential with this new technology. It greatly simplifies and lowers the expense of installing larger satellite reception systems; there's even new possibilities for individual users.

Up until now, Global Invacom only offered an optical LNB model with an integrated feed for offset antennas. We already put this model through a number of tests and were very happy with the results.

But this model comes with a limitation: this LNB can only be used with offset antennas and that means the size of the dish won't be any larger than about 1.8 meters. Thanks to ever more powerful satellites, this

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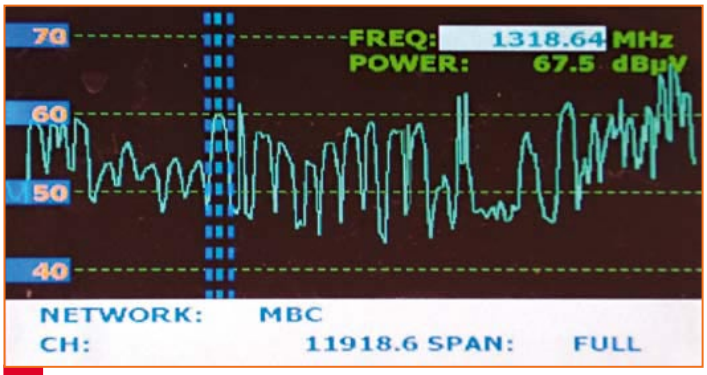
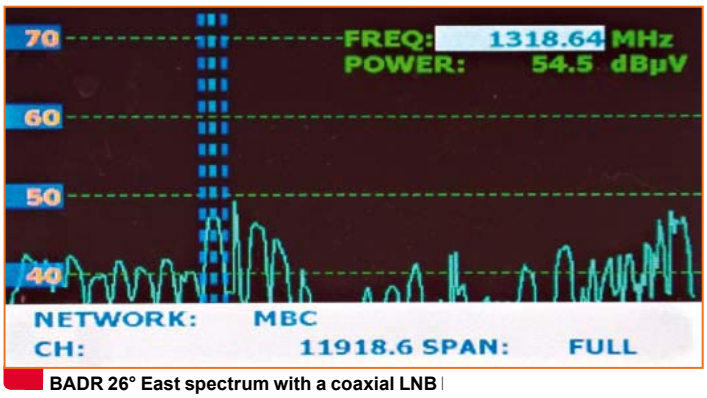
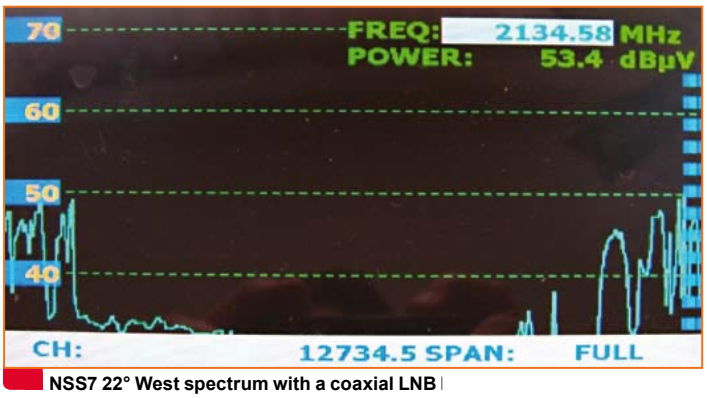


BADR 26° East spectrum with the Invacom LNB

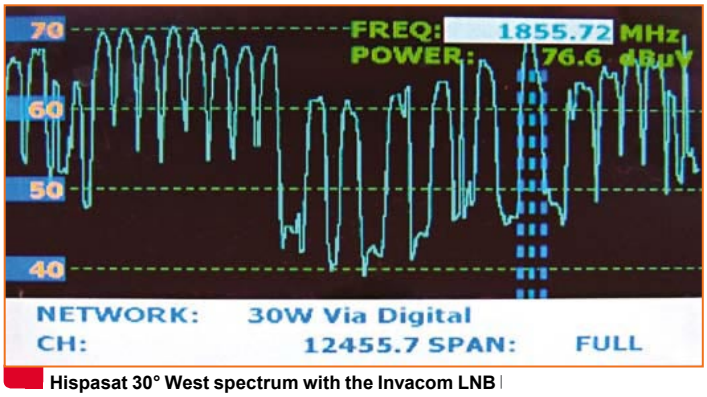
NSS7 22° West spectrum with the Invacom LNB



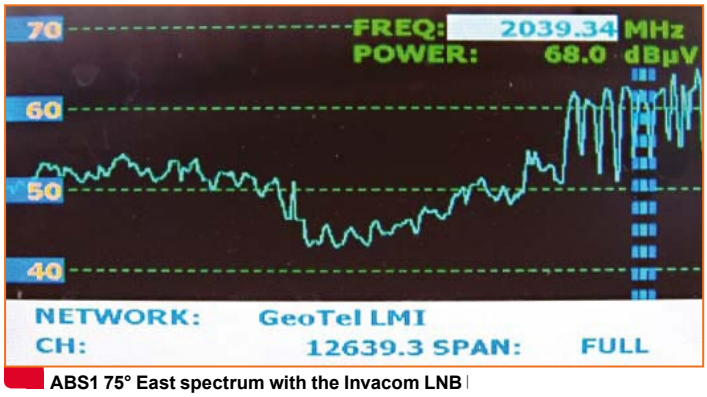
BADR 26° East spectrum with a coaxial LNB



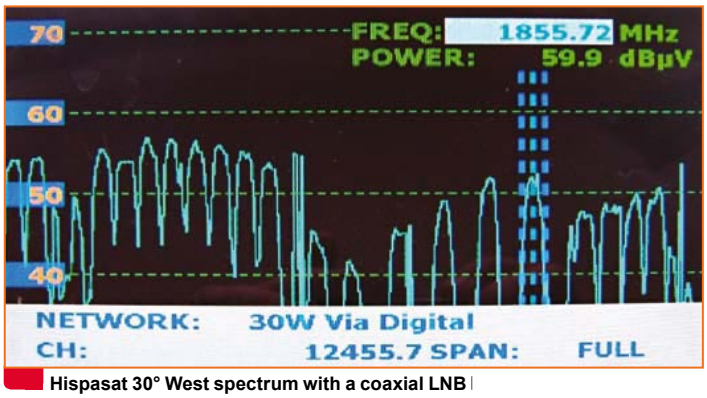
NSS7 22° West spectrum with a coaxial LNB



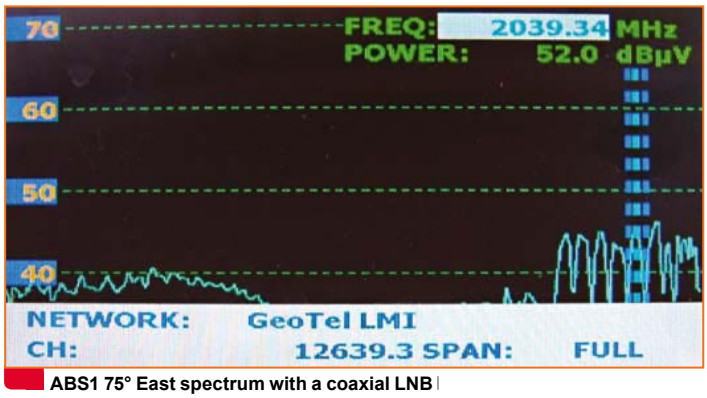
Hispasat 30° West spectrum with the Invacom LNB



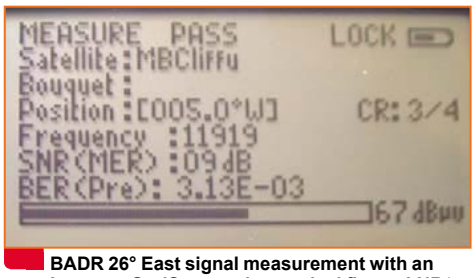
ABS1 75° East spectrum with the Invacom LNB



Hispasat 30° West spectrum with a coaxial LNB

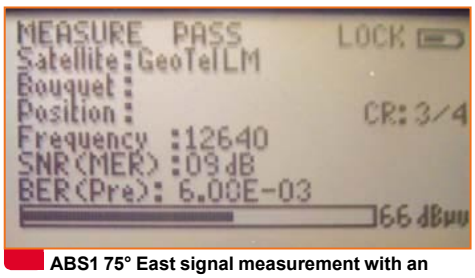


ABS1 75° East spectrum with a coaxial LNB



BADR 26° East signal measurement with an Invacom OptiScan and an optical flange LNB

NSS7 22° West signal measurement with an Invacom OptiScan and an optical flange LNB



ABS1 75° East signal measurement with an Invacom OptiScan and an optical flange LNB

antenna size is typically more than enough for normal satellite reception, but not when you want to supply several hundred apartments.

In such a case reception must be perfect even in the strongest rain storm and this is only possible when there is sufficient bad weather reserve. This means using large diameter antennas; professionals typically use prime focus antennas for this purpose.

By the time you read this, Global Invacom will have introduced an LNB specifically designed for use with prime focus antennas: an LNB with a C120 flange. We've been given the opportunity to test a sample LNB; it looks almost identical to the offset version except that there's no feed assembly.

The feed is permanently mounted to the antenna so that the LNB merely needs to be attached via the eight holes on the front side using the four screws included in the package. A matching washer is of course included.

Since no power can be supplied to the LNB through a fibre optic cable, the manufacturer included an external power supply that is connected to the LNB via an "F" connector. In this way it's possible to use the coax cable from an existing satellite system to supply power to the LNB without having to run a new dedicated power line.

A rubber grommet for weather protection as well as a female-to-female "F" connector also comes in the flange LNB package.

Installation

We quickly mounted the flange LNB on a three-meter IRTE antenna and routed the necessary cable. We used the coax cable that was already in place to supply power to the LNB while we ran a fibre optic cable from the LNB to our test center. Thanks to prefabricated cable lengths of 10, 30 and 50 meters and the ease in connecting these cables, this task was taken care of rather quickly.

Compared to coax cable that isn't all that sensitive to dirt, fibre optic cable needs to be kept clean. The problem isn't the cable itself; the outer jacket of the cable is metallic letting you bend and twist the cable as needed. It's the connectors on either end of the cable where you have to pay special attention to cleanliness. Global Invacom can supply a special cleaning cloth that can be used to prepare the connector ends before being attached to the LNB or the converter box.

On the receiving end, we quickly connected the fibre optic cable from the LNB to a four-output GTU converter box which was used to connect to a signal analyzer as well as a positioner box that would move the antenna.

We started testing the LNB after briefly adjusting the position of the antenna; initial results were surprising. We were expecting the results to be better than with a standard LNB but the differences were clearly recognizable.

It wasn't only that the optical LNB was more sensitive than the 0.3 dB flange LNB with coaxial output, there was no appreciable signal loss along the 80 meters of fibre optic cable between the LNB and the receiver. This could be seen on our signal analyzer with its higher signal level and its significantly better MER.

It didn't matter what satellite position we moved the antenna to nor how many receivers we connected to the GTU at the same time; reception results were very good and remained constant across the entire frequency range.

The varying signal attenuation you would see in lengthy coax cable because of the different frequency ranges in use is a problem that doesn't exist in fibre optic cable. You therefore get lossless signal transmission from the LNB to the converter box. This is a perfect solution for smaller or larger cable TV service providers who ideally want the best possible signal to reach their head end stations.

The flange version naturally comes with all of the other advantages that the offset version has; all four signal levels can be transported at the same time by one cable. Because of this lack of attenuation, the signal can be split as many times as necessary. Each and every output receives the maximum signal level and can operate completely independently from all of the others.

You can also run fibre optic cables for extremely long lengths without having to worry about any signal loss. It can be routed through any existing conduit or duct and thanks to its negligible signal loss is ideal for use over very long distances (in our case it was 80 meters from the antenna to our signal analyzer).

Compared to coax cable, it provides a significant improvement in signal quality that when dealing with very weak signals could make the difference between reception success or failure. Distances of several kilometers could be covered without any significant signal attenuation. Global Invacom has already tested this in the field. Another plus is the lower material costs (fibre optic cable at roughly 1.25€/m, a two-output converter box for about 25-30€, a four-output box for 60-70€ and a GTU converter for 200€) compared to expensive multiswitches.

Global Invacom has complemented their optical LNB assortment with the introduction of the flange LNB. This new technology can now be used on antennas larger than 1.8 meters making the optical LNB more attractive to the professional market.

Eventually you will see new receivers on the market that can handle the fibre optic cable directly without the need of a converter box. Not only would this eliminate the need of an extra component, but you would then have nearly lossless signal transmission and limitless signal distribution from the LNB all the way to the receiver.

Signal Measurements:

Optical Flange LNB:

Satellite	Transponder	Level	MER
BADR 26° East	11919 H	67.4 dBµV	9.6 dB
HISPASAT 30° West	12458 V	76.4 dBµV	13.1 dB
NSS7 20° West	12735 H	72.8 dBµV	12.1 dB
ABS1 75° East	12640 V	68.0 dBµV	8.7 dB

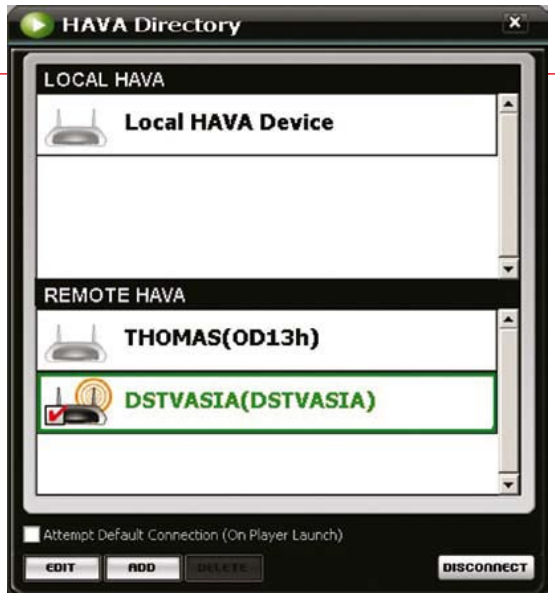
Coaxial Flange LNB:

Satellite	Transponder	Level	MER
BADR 26° East	11919 H	54.4 dBµV	6.5 dB
HISPASAT 30° West	12458 V	59.6 dBµV	12.7 dB
NSS7 20° West	12735 H	53.3 dBµV	10.6 dB
ABS1 75° East	12640 V	52.0 dBµV	7.4 dB

Hava Platinum HD TV Via the Internet

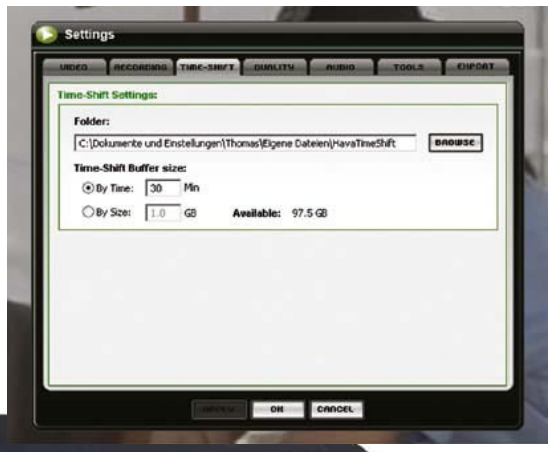
Thomas Haring

High speed Internet access in nearly every household? That was unheard of just a few years ago but today it's standard. In addition to fast web surfing and downloading large amounts of data, the DSL age also offers access to high-quality multimedia content. With that in mind, TV reception via the Internet has become an interesting alternative. We learned how that all takes place professionally from Jim Edstein who previously reported on this in the 06-07/2007 issue of TELE-satellite.
Back then Jim used a Slingbox to carry TV programming via the Internet. Now he has switched over to a new technology: the Hava Platinum HD Box. He has specialized himself with this box and through his company TaiwanSatellite.tv provides several hundred customers around the world, from Asia to South America, with TV signals via the Internet.



Selecting the desired Hava Box

Recorder settings



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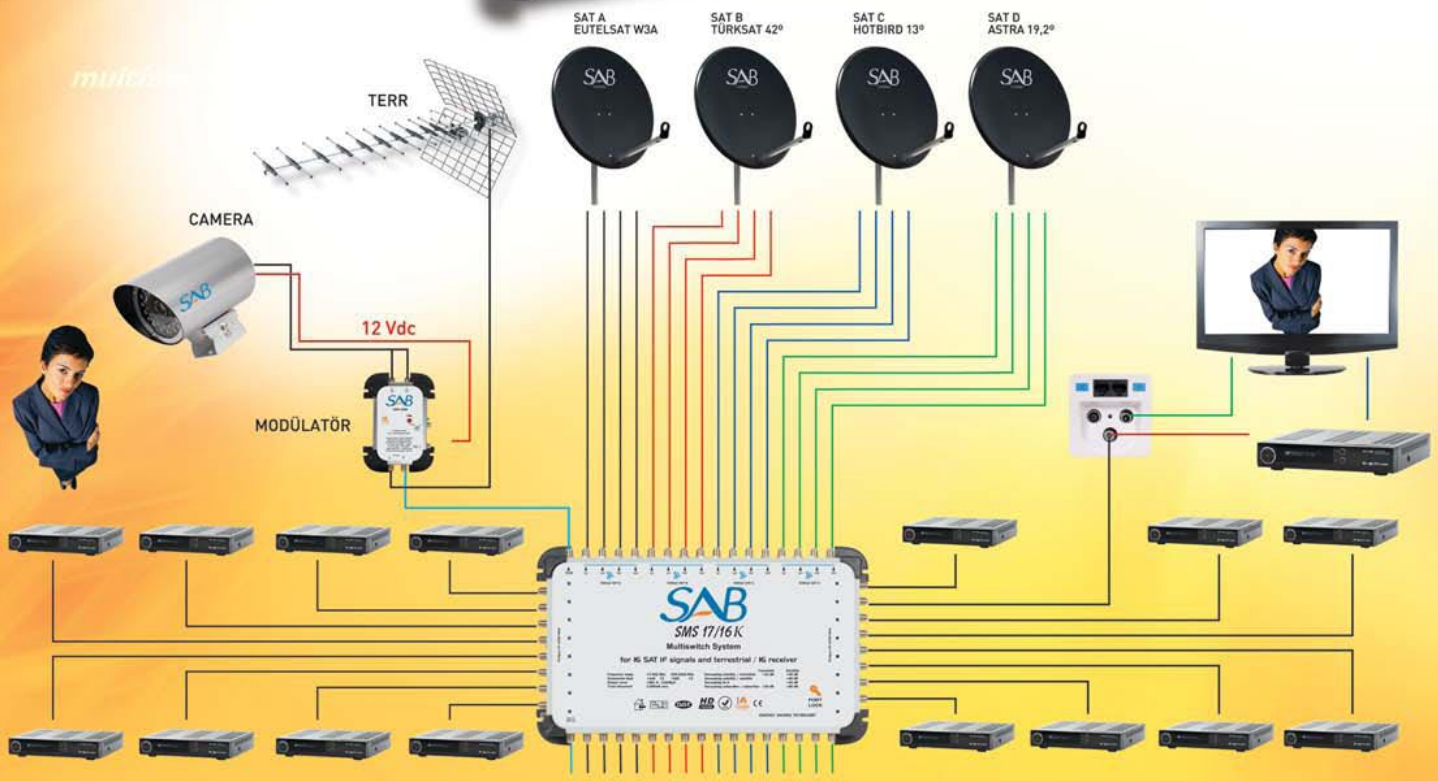

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Virtual Remote Control

„It's actually quite simple", says Jim, „With my company I offer two different possibilities: first, there are those customers that want to receive channels that I can receive for them using my antennas here in Taiwan. By using multiple large C-band and Ku-band antennas I can cover a large number of satellites and programming providers for these customers. This helps save the added cost of installing an antenna at the customers location. He simply turns his PC or laptop on and can then tune into the channels he wants to watch; they are received by us here and then transmitted to him via the Internet. We also serve quite a few customers in countries like China where there are a lot of restrictions when it comes to installing satellite antennas; this type of TV reception makes for a viable alternative."

The second option is for those customers that want to receive TV programming but which cannot be received by Jim's own antennas. „In this case", explains Jim, „we offer these customers the Hava Platinum HD Box that they would then take to family or friends back home. The family or friends would receive the desired programming and use the Hava Box to transmit this programming to the recipient."

Thanks to a very practical remote maintenance function Jim can set up, control and maintain all of the boxes sold by him around the world. The customer receives a completely installed product and can from this point on receive all of his favorite channels from home anywhere in the world. Of course a high speed Internet connection would be needed.

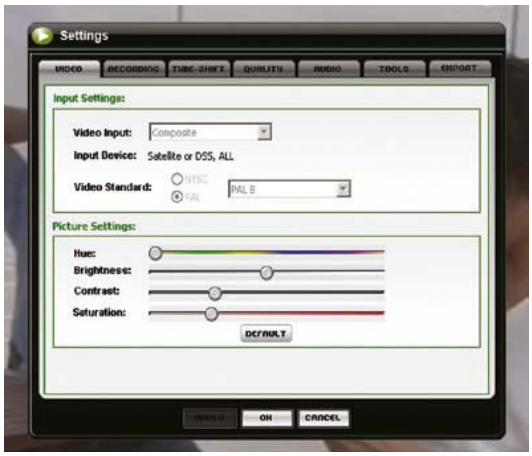
Naturally, we wanted to see this for ourselves and test it! Jim gave us access to his network and off we went: we were able to receive Japanese, Asian and American channels here in Europe. Specifically, the Thai Truevisions Package, DSTV Multichoice Africa in C-Band, Australia Network and Comcast HD from the USA. Yes, you read correctly, even high-resolution content can be received via the Internet using the Hava Platinum HD Box.

Everyday Use

The Platinum HD Box made by the American manufacturer Hava is about as large as a typical satellite receiver and comes in a flat black cabinet. Status LED's on the front panel indicate the box's current operational mode. The rear panel sports A/V connectors for CVBS, S-Video and component signals plus connections for linking to a local network or the Internet and a connection for an IR transmitter to control the external receiver.

The data transmission rate is user settable

Various Hava Box settings



Video settings

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■ A Comcast TV channel displayed by the Hava PC-Player

■ Recorded content can be burned to a DVD

Installation and setting up the box is child's play; just connect the cables and make sure that an Internet connection is available in the local network. The inside of the box consists of a ViXS Xcode 2105 Chip that with its help and variable bit rate and frame rate matching, you can achieve optimal streaming results.

But what is most critical for picture quality is the upload speed. While many companies offer a mere 400 kb/s, Jim explains to us that for him it has to be a minimum of 1 Mb/s.

In that way you can achieve a transmission quality so good that the user sitting in front of a PC or laptop forgets that he's not watching TV from an antenna, not via satellite, not via cable, but instead via the Internet.

Depending on his customer's requirements, Jim offers connection speeds of up to 10 Mb/s; his experience however suggests that 2.5 Mb/s is the ideal compromise. These high upload speeds for several hundred customers are made possible by the direct fiber optic link between his data center and the Internet.

For our tests Jim set up a 2.5 Mb/s upload speed in his data center while we installed the PC player on out test PC. This is the software needed at the receiving end so that the stream can be received from the HD Box on any MS Windows PC.

The hardware requirements for this software are not all that large: a minimum 1.2 GHz Intel Pentium processor as well as 512 MB of memory for Windows XP or 1 GB for Windows Vista are needed. In addition, Windows MCE (Media Center Edition) is also supported. Together with the Windows Media Center it is possible to use this to receive the stream. Once the software has been installed, a new tuner appears in the Windows Media Center that allows you to directly access it through this program. Setting up the connection through the PC Player is handled very quickly and mostly for one simple reason: unlike other streaming solutions, the end user just needs to know the name and password of the box to be used. The end user doesn't have to worry about any of the technical parameters such as IP address, ports or setting up firewall access since the box is operated via Hava's own central server.

■ Kanalwechsel über Mobiltelefon

This means that when the box with the name XYZ is turned on, it creates a connection with the Hava server which then assigns an IP address (xxx.xxx.xxx.xxx) to the XYZ box at which point the box is ready to be used. The end user simply needs to enter the name of the box in the PC player software. The software then acquires the IP address from the Hava server and sets up a direct connection.

Thanks to this ingenious idea of using their own server for every Hava box around the world, setting up a connection is easy and can be accomplished in just a few seconds even for beginners.

Shortly after entering all the necessary data and then pressing the „Connect" button, we were watching Australian TV in our test center. Despite the fact that the incoming content was in SD quality, we were quite surprised with the transmission quality of the Hava box.

We quickly connected our test PC with our 50-inch plasma TV in our test center and discovered that even with this larger screen the picture quality was still very good. Now we could understand why Jim mentioned to us early on that he has numerous customers that use large projectors to display programming on a

■ The receiver can be completely controlled thanks to the virtual remote control

■ Comcast's virtual remote control

wall and are still happy with the picture quality.

The Hava PC Player itself is a very simply structured program that comes with all necessary features. What stands out is the virtual remote control. It can control the receiver, whose signal is transmitted via the Hava Platinum HD Box, through the Internet as if you were holding the remote control in your own hand.

It functioned surprisingly well in our tests allowing us to surf between Japanese, Taiwanese and Australian TV channels. Additional features such as EPG, language selection, etc., were all available and could be activated and controlled via the Internet. Because of the coding of the transmitted stream, there is a slight delay when sending commands from the virtual remote control, but it's not very dramatic and after a short while you'll get used to it.

Thanks to the integrated Time Shift function, the currently running program can be paused and then restarted at a later time. At the same time, interesting scenes can easily be replayed. But best of all, the integrated recording function lets you store the incoming stream on the hard drive of your PC or laptop; even timer entries can be set up! The software displays the stored recordings in an easy-to-read list and if desired the clips can be burned directly to a DVD.

Even though we were already enthusiastic with the Hava Platinum Box, Jim promised us that there was still more to come. He then sent us the signal from the American provider Comcast and that in HD no less! Once the stream appeared in our test center a few seconds later, we all stood there with our mouths open. We really didn't think that TV signals could be carried via the Internet in this quality. Naturally, the signal couldn't be compared with a Blu-Ray player but it still made quite an impression on us on our 50-inch plasma TV; it was hard to believe that we were looking at a TV picture streaming from the Internet.

When Jim switched over to the Comcast signal, the image of the virtual remote control also changed so that we were now looking at the remote control of the Comcast receiver with which we were able to control all of its functions. Despite the incoming high-resolution signal, the load placed on our somewhat older PC was minimal allowing us to receive the signal perfectly synchronized and without any interference. We enjoyed watching an NFL football game live in our test center in HD quality.

We jokingly suggested to Jim that it would be extremely practical to be able to receive the stream from the Hava Platinum HD Box on a mobile telephone. This would make it possible to enjoy your favorite TV programs away from home or in your car.

Jim had an answer for this right away: he provided us with a link to the Apple iTunes store where Hava already has an App in place that lets you do exactly that! For just a few dollars it gives you access to the stream of any desired Hava Box and also, as we quickly found out in a short test, in top-notch quality. In addition to the Apple iPhone, the player is also available for other platforms such as Nokia and Windows Mobile.

Now it was time to turn things around and convert our test center into a broadcasting station. We quickly connected

■ Receiver settings can also be taken care via the Internet

the Hava Platinum HD Box to our LAN and attached the component signals from a satellite receiver.

The Hava Box can process signals in PAL and NTSC and can handle HDTV resolutions of 1080, 720 and 480. At the moment these are limited to NTSC; for PAL only the 576 resolution is available. Hava is feverishly working on a new model that will also be able to handle high resolution content in PAL.

This means that for our tests we have to limit ourselves to SD programming. Nevertheless, we were ready to get started and our man in our distant New York test center was very happy with the idea of watching German TV. We started the receiver, activated the Hava Box and sent an e-mail to our colleague in New York with all the necessary access data that we previously set up in our box using the Hava Configuration Wizard. The connection was created in just a few seconds and not long after that we received the enthusiastic reply from New York: a top-quality signal is being received!

It's not surprising, our high-speed Internet connection permitted transmission speeds of nearly 4 Mbit/s; this is similar to satellite data transmission speeds. The receiver that we used was unfortunately not in the lengthy preprogrammed list but Jim suggested that it was not a problem at all. Hava is very helpful here and can quickly provide the necessary IR codes in those cases when a receiver isn't in the list.

It turns out that the Hava Box can not only stream via the Internet but also in a local network. Of course we wanted to also take a closer look at this function. While our colleague in New York was busy watching German TV, we used a laptop with WLAN to distribute the signal locally. We were able to do that without any interference or video dropouts! Up to five users can access the stream from the Hava Box at the same time.

Because of the large bandwidth the connection via the Internet is limited to only one user but locally a higher data rate can be used compared to the Internet. This leads to other possibilities for the Hava Box such as transmitting a security camera signal to multiple PC's in the same building or also via the Internet. Thanks to the Time Shift and Recording functions, these signals can be recorded and archived.

With this concept, Jim has been able to convince larger companies such as casinos that they can easily record and archive their security camera signals using one or more Hava Boxes.

Jim has used this technology to greatly expand his business and for that we congratulate him!

■ German TV via an Internet stream in a bar in Taiwan

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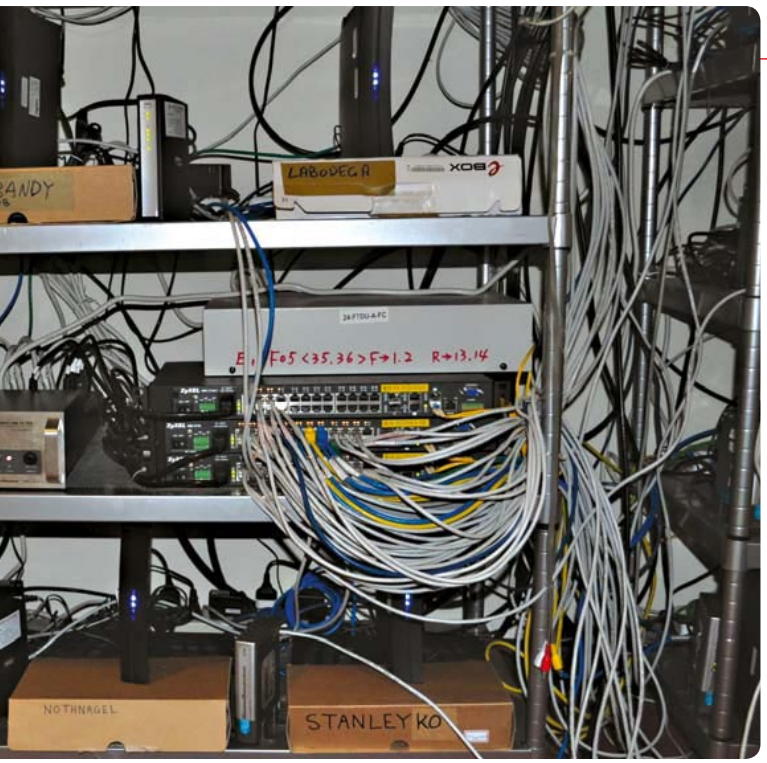
■ **Multiple PC's operate in addition to the Hava Boxes**

■ **A portion of the antennas on Jim's roof in Taiwan**



Jim's processing center with a portion of his operational Hava Boxes ■

■ C-band as well as Ku-band can be received

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Bulgarian	Български	www.TELE-satellite.com/TELE-satellite-1005/bul/technomate.pdf
Czech	Česky	www.TELE-satellite.com/TELE-satellite-1005/ces/technomate.pdf
German	Deutsch	www.TELE-satellite.com/TELE-satellite-1005/deu/technomate.pdf
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Hungarian	Magyar	www.TELE-satellite.com/TELE-satellite-1005/mag/technomate.pdf
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Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-1005/tur/technomate.pdf

TECHNOMATE

Manufacturer	Opensat
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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Swedish	Svenska	www.TELE-satellite.com/TELE-satellite-1005/sve/azbox.pdf
Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-1005/tur/azbox.pdf

AZBOX

Manufacturer	Skyworth
Website	www.skyworthdigital.com
Function	Miniature SCART Receiver with PVR Function
DVB-S2/LAN	— / —
Channel Memory	4000
DiSEqC	1.0 / 1.2 / 1.3
S-Video/HDMI	— / —
Scart/Digital Audio	• / —

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Manufacturer	NanoXX
Website	www.nanoxx.info
Function	HDTV DVB-S2 receiver with various Multimedia Features
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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Russian	Русский	www.TELE-satellite.com/TELE-satellite-1001/rus/nanoxx.pdf
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Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-1001/tur/nanoxx.pdf

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

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Swedish	Svenska	www.TELE-satellite.com/TELE-satellite-0909/**sve**/abcom.pdf
Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-0909/**tur**/abcom.pdf

Manufacturer	AB-COM
Website	www.abipbox.com
Function	Digital Linux-based HDTV PVR receiver for DVB-S, DVB-S2, DVB-C and DVB-T
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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Mandarin	中文	www.TELE-satellite.com/TELE-satellite-0905/**man**/abipbox.pdf
Dutch	Nederlands	www.TELE-satellite.com/TELE-satellite-0905/**ned**/abipbox.pdf
Polish	Polski	www.TELE-satellite.com/TELE-satellite-0905/**pol**/abipbox.pdf
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Swedish	Svenska	www.TELE-satellite.com/TELE-satellite-0905/**sve**/abipbox.pdf
Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-0905/**tur**/abipbox.pdf

Manufacturer	ABC BIZNIS
Website	www.opensat.info
Function	Digital DVB-S CI-PVR Receiver
DVB-S2/LAN	— / —
Channel Memory	4000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / —
Scart/Digital Audio	• / •

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Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-0905/tur/opensat.pdf

Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	Digital PVR Satellite Receiver for SDTV/HDTV
DVB-S2/LAN	• / —
Channel Memory	5000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

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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 Output	—
Built-in Monitor	3.5" LCD color display

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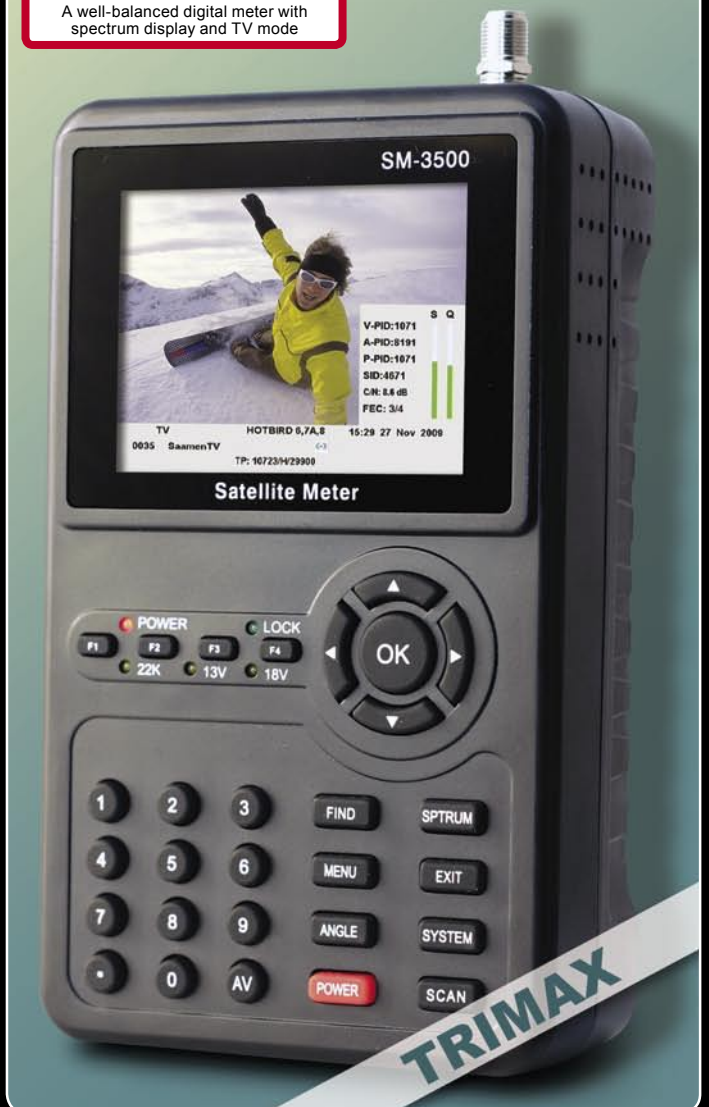
Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-1003/tur/trimax.pdf

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 AWARD 02-03/2010

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



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Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-1001/tur/nanosat.pdf

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

TELE satellite AWARD 12-01/2010

HORIZON NANOSAT
Ideal for the speedy alignment of satellite antennas

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

TELE satellite AWARD 12-01/2010

GLOBAL INVACOM OPTISCAN
Future-proof satellite signal analyzer for optical and coaxial LNBs

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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 AWARD 10-11/2009

SATCATCHER DIGIPRO EXCEL-TV MK3
Easy and self-explanatory – a device for laymen and pros alike

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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

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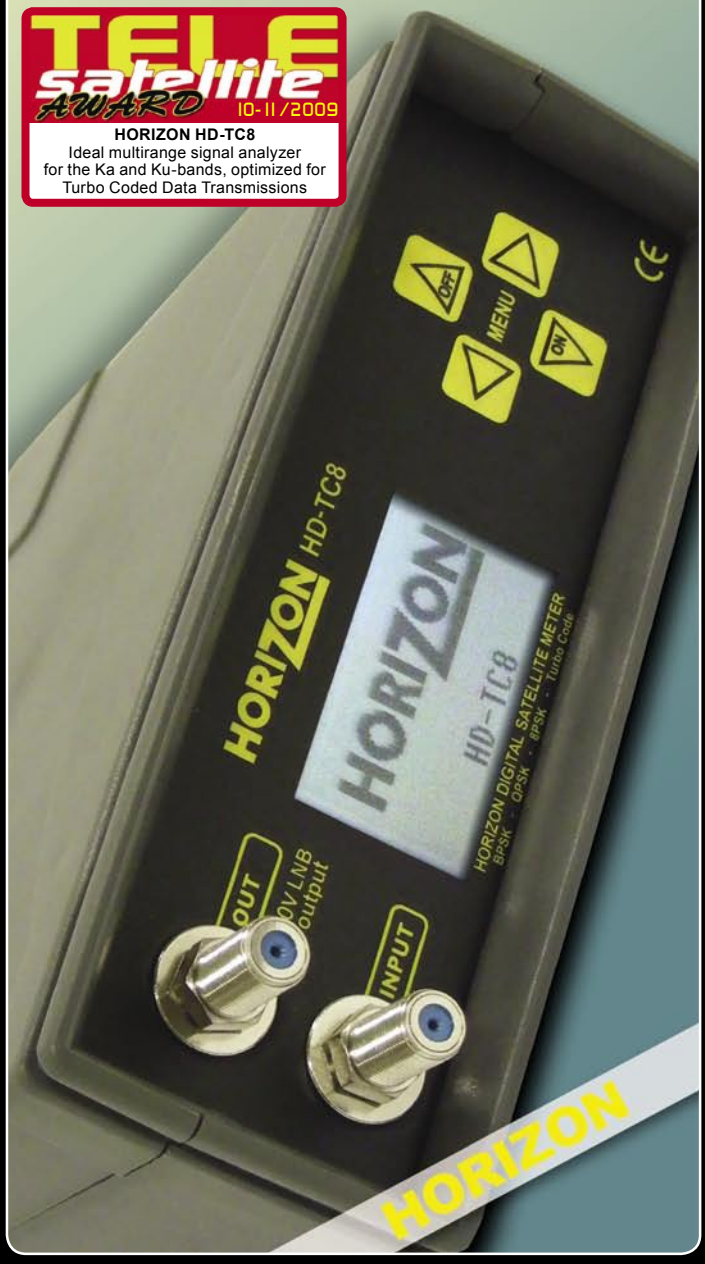
HORIZON HD-TC8
Ideal multirange signal analyzer for the Ka and Ku-bands, optimized for Turbo Coded Data Transmissions



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Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-0909/**tur**/spaun.pdf

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

TELE satellite AWARD 08-09/2009

SPAUN SPAROS 609
Extremely versatile and easy-to-use state of the art TV signal analyzer

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Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Small signal meter with TV display
Frequency Range	930~2150 MHz
Video Output	—
Built-in Monitor	3.5“ LCD color display

TELE satellite AWARD 08-09/2008

SATCATCHER DIGIPRO EXCEL-TV
Easy to use, extremely accurate and with a brilliant display

Energy Efficiency Rating eco friendly 0.56 power factor tested by TELE-satellite

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Manufacturer	PROMAX Electronica
Website	www.promax.es
Function	Universal Satellite Signal Meter and Analyzer
Frequency Range	5~1000 MHz (terrestrial) and 950~2150 MHz (satellite)
Video Output	Scart connector
Built-in Monitor	Transflective TFT 6.5 “

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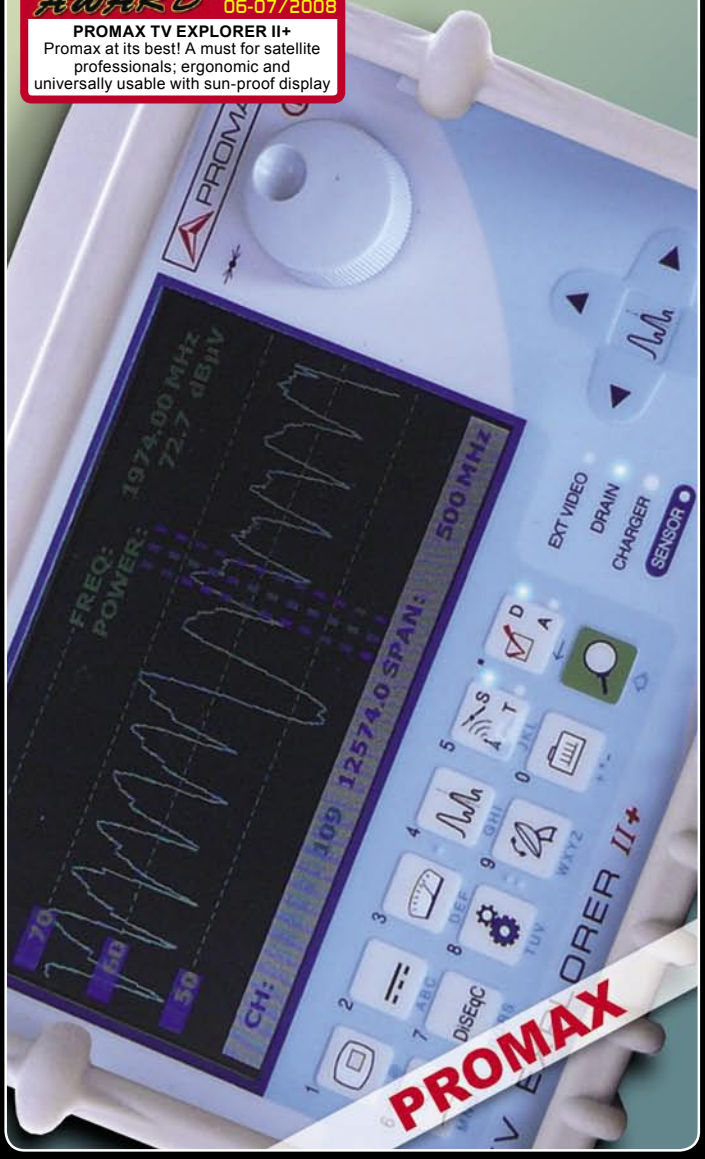
PROMAX TV EXPLORER II+
Promax at its best! A must for satellite professionals; ergonomic and universally usable with sun-proof display



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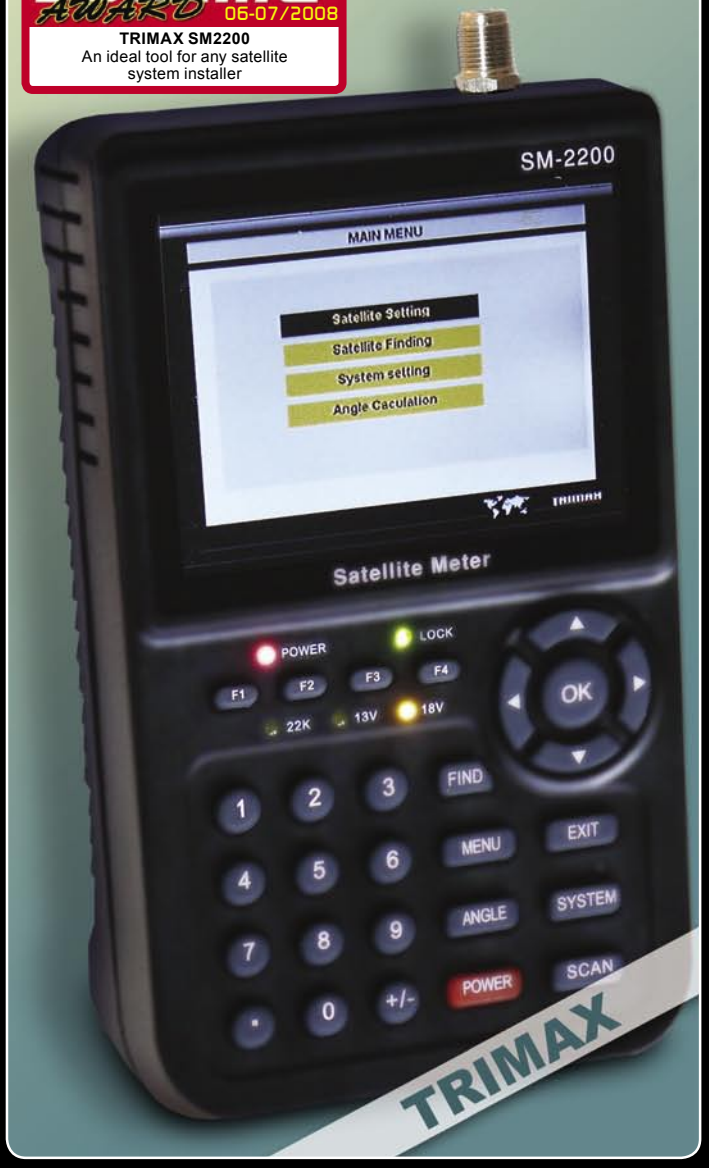
Manufacturer	Trimax Technology
Website	www.trimaxtec.com
Function	Hand-held Satellite Signal Meter
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	3.5” TFT LCD TV screen

TELE satellite AWARD 06-07/2008

TRIMAX SM2200
An ideal tool for any satellite system installer



Global Invacom goes Fibre DTT

Alexander Wiese

The British company Global Invacom is best known to TELE-satellite readers as the inventor and manufacturer of the sensational fibre optic LNB system (see TELE-satellite issues 04-05/2008 and 08-09/2009). With an optical system distances are no longer a factor since the attenuation in a fibre optic cable is next to nothing. It's an absolutely great system except for one thing: these days people want not just satellite TV but digital terrestrial TV channels as well. Up until now, that meant once again that you needed two separate cables routed to the TV; one for satellite signals and the other for terrestrial digital TV signals.

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■ **Global Invacom has two locations in London: here we see their head office in Althorne (Essex).**

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Ivan Horrocks, Global Invacom's Director of Sales and Marketing, is showing us the new F-IRS LNB (Fibre Integrated Reception System): the new LNB utilizes a coaxial N output instead of an optical output. This output supplies the 0.95 to 5.45 GHz frequency range to a 1.5-meter long coax cable which connects to the F-IRS ODU32 (Outdoor Unit). Global Invacom opted to use N-type connectors on this coax cable. "These connectors are perfect for use with this high frequency range and above all are excellent watertight connectors", explains Ivan Horrocks the reason why standard "F" connectors weren't used.

David Fugeman, Sales and Marketing Director, is seen here showing us the new F-IRS GTU converter box: it is installed by the end-user who would then connect a maximum of four satellite receivers as well as one DTT receiver. "We've integrated two new features", explains David Fugeman, "one LED indicates if there's an optical signal, the second LED shows if power is connected."

That was yesterday! Today one single optical cable is enough to transport both satellite and terrestrial signals. Global Invacom has expanded their system to include DTT signals as well. Ivan Horrocks, Director Sales and Marketing, explains to us how this works: "We took the satellite signal carried in the optical cable and combined it with the DTT signal; now both signal formats can be carried on one optical cable."

For this purpose, Global Invacom developed a new system that will be marketed under the nickname "Wholeband", or more officially, F-IRS (Fibre - Integrated Reception System). But first we want to take a quick look again at how Global Invacom's optical system works: the optical LNB (universal LNB) takes the four satellite frequency ranges, that is, the upper and lower bands in both horizontal and vertical polarizations, and "stacks" them on top of each other so that all four bands are carried over the optical cable in one frequency range. Each of these four bands covers 1000 MHz and if you place them one on top of the other you get a bandwidth of 4000 MHz.

So much for the satellite range. How do you include the DTT range? Very simple: Convert the Digital Terrestrial Transmissions using another laser at a different frequency then combine the two together.

In order to do that, Global Invacom had to modify their LNB system: the optical LNB already has the laser built into it so that the optical cable can be connected directly to the LNB. To include terrestrial signals, Global Invacom could have added a second connector on the LNB for the terrestrial antenna along with the necessary electronics. "This would have been theoretically possible", says Ivan Horrocks, "but it really doesn't make any sense since the LNB would have become too heavy and bulky. Not to mention it would have created problems for installers in that

a second cable attached to the LNB would've had to be used."

The solution is to route the converted 0.95 - 5.45 GHz satellite signal via a high frequency coaxial cable - Global Invacom selected a standard 1.5-meter long cable for this purpose - to a newly designed outdoor unit: the F-IRS ODU32.

On this weather-proof box that can be installed directly on the antenna mast or on the mounting wall, all of the cables are connected: the coax cable from the optical LNB, the cable from the terrestrial antenna (via a digital processor) and the 12-volt power line.

The F-IRS ODU32 provides two optical outputs that when using it's maximum split capacity each ODU output can be connected to a maximum of 32 F-IRS GTU converters. Four satellite receivers as well as a DTT receiver can be connected to each of the (Quad) converters so that this system can supply a total of 256 satellite receivers and 64 DTT receivers.

But the engineers at Global Invacom didn't stop there: they developed an active four-way splitter that can be connected to the LNB coaxial cable output so that this coaxial cable signal with its stacked frequency bands can then be connected to four ODUs instead of just one. This quadruples the number of possible connections; in other words, now a maximum of a whopping 1024 satellite receivers and 256 DTT receivers can be connected to a single F-IRS LNB + one terrestrial antenna. If you need to be able to supply a large number of homes or if you have to cover very long distances, you can now carry both TV modes, satellite and DTT, in this optical system.

Global Invacom plans to introduce this new system in 2010 at ANGA in Cologne. If you can't make it to this trade show, you'll have another opportunity in Singapore at CommunicAsia as well as in Amsterdam at the IBC. Or you can simply wait until we put this system to the test and report on it in one of our upcoming issues of TELE-satellite.

After so many new things have come out of Global Invacom, we had a chat with Sales and Marketing Director David Fugeman. We asked him how this optical system got its start.

David thought back for a moment: "Sales in large numbers actually began back in July 2009. By the end of the year, that is, within the first six months, we achieved fibre optic product sales of roughly 2.5 million Euros. For 2010 we are expecting an increase for the entire year to 8 million Euros."

Ivan Horrocks adds that most of the LNB systems were sold and placed into service in Europe and The Middle East. He estimates that in these two regions 60% of all the previously sold systems are in use.

At the moment, this system only comes with a universal LNB for offset antennas. This may explain why this system is not as popular yet in other regions. But this is about to change. By the time this issue of TELE-satellite is published, the optical system will also come with a flange-LNB (C120). A preliminary report on this system can be found in this issue of TELE-satellite.

This new system will give Global Invacom access to the professional large community service providers that are more likely to use prime-focus antennas for their systems rather than offset antennas. Further down the line Global Invacom considers plans for C-band LNBs and also LNBs with non-standard oscillator frequencies (such as for Australia). "Our engineers are working on all of these solutions", confirms Ivan Horrocks, "but at the moment we don't know when they'll become available."

Interesting is the sales ratio of optical LNBs versus the necessary F-IRS GTU converters that transform the optical signal back into a satellite receiver signal. "In the first six months that ratio was 6 to 1: for every six converters there was one LNB shipped", comments David Fugeman, "We can see now that this ratio will change dramatically: by the end of 2010, we expect it to be 15 converters for each LNB."

The explanation for this came from Ivan Horrocks: "In the early stages, installers were testing the system and purchased only one converter and one LNB. As the technicians became more and more familiar with this system, smaller reception systems started to be fitted with the optical LNB system. In 2010 when many of our customers have gotten to know the optical system much better, they will expand their installations to include larger community-oriented systems." The larger a community's system is, the more F-IRS

Samantha Bransgrove, Marketing and Communication at Global Invacom, is seen here showing us one of the first F-IRS ODU32 prototypes. The coaxial cable from the F-IRS LNB is plugged in here along with the cable from the terrestrial antenna; the two optical outputs supply the combined satellite TV and DTT signals.

GTU converters that would be needed; the satellite dish however, just like with smaller reception systems, only needs the one LNB.

Global Invacom, with their self-developed fibre optic reception and distribution technology, has opened up their own brand new market. In this way Global Invacom has not just limited themselves to their own LNB and converter products but also is a supplier of the necessary accessories such as optical cables and splitters. Ivan Horrocks makes an interesting point: "Since we see ourselves offering an optical cable service for our customers, we are able to pass on our low purchase prices to our customers." To put it simply, this means if you buy optical cables and splitters from a specialized provider, you can expect to pay more! "Above all though we provide a guarantee that our cables will work perfectly with our system", comments David Fugeman.

It's an excellent marketing strategy; if you can offer a complete product group and that at inexpensive prices, it won't take long for you to become a market leader!

In the end-user's premises these converters are installed: at top the Quad version for direct connection of 4 satellite receivers and 1 DTT receiver. At bottom the Quattro version to connect f.i. to a multiswitch system, in order to supply the signal to more than 4 satellite receivers.

The complete Outdoor installation kit with the new FIRS LNB and the standard cable exactly 1.5 meters in length with „N" connectors on both ends to provide an optimal connection between the F-IRS LNB and the F-IRS ODU32. Longer cable lengths are not recommended since the signal attenuation in the upper frequency ranges (up to 5.45 GHz) is much too high. Global Invacom has matched its system precisely to this specific cable.

■ **Schematic diagram of Global Invacom's new system: in the top picture the satellite signal together with the terrestrial signal is distributed via 32+4 4way optical splitters and two 2way splitters to provide a total of 64 optical outputs. An F-IRS GTU converter box can be connected to each of these outputs allowing each end user to connect up to four satellite receivers and one DTT receiver. In this way a maximum of 256 satellite receivers and 64 DTT receivers can be supplied. If that's not enough, you would then split the converted satellite signal so that four distribution systems could be connected thereby allowing a total of 1024 satellite receivers and 256 DTT receivers to be put into service.**

global invacom
completing the picture

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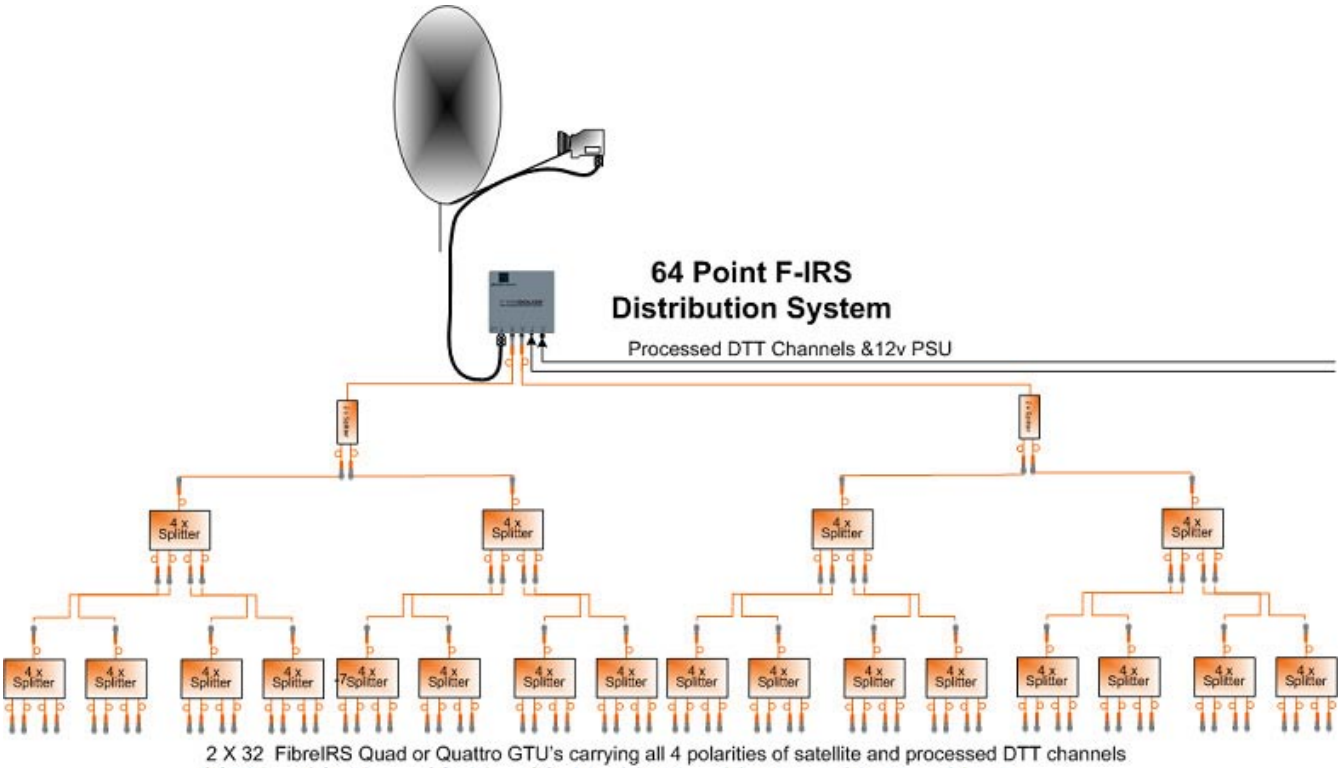

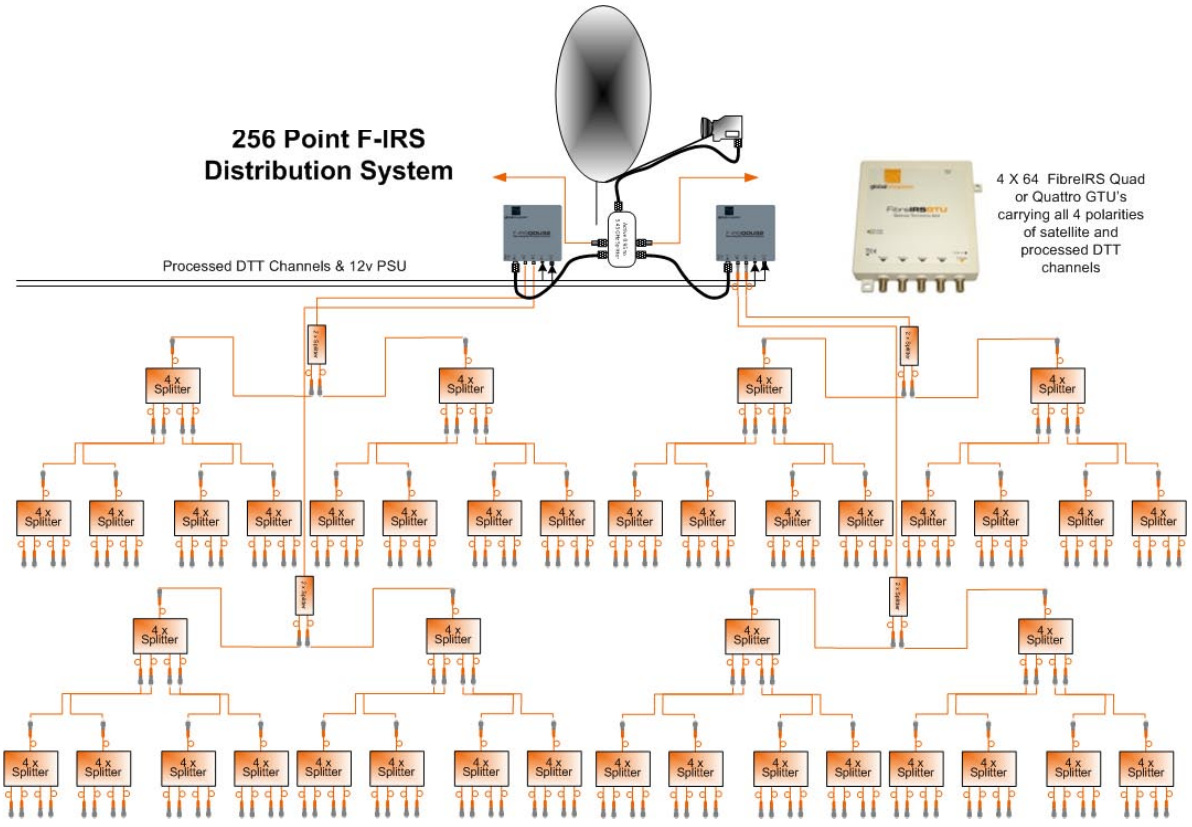

The Southwestern-most Satellite Dealer in the USA

Are you located in the extreme southwestern corner of the USA? If you take one more step will you fall into the Pacific ocean? Well, if you happen to be there and have the need for a satellite dealer, TELE-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.

■ In San Diego's La Mesa suburb you will find QUALITY SATELLITES in a small industrial complex. Sean was not allowed to erect a satellite dish as an advertising tool: "The landlord prohibited me from doing that." Even in the USA there are limits on what you can do.

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■ Sean Falvey in front of his SonicView receiver display case. He takes in continuous phone calls from customers while reading TELE-satellite.

QUALITY SATELLITE

Sean Falvey is the manager and he has been involved with satellite TV since 1994: back then his father acquired a DishTV system. But he became only really active when a family member started a satellite business.

Sean, who originally studied electronics, saw this as an interesting future for him and thus started his own business in 2007. In the first year he sold 2500 receivers. In 2008 sales jumped to 7000 receivers and then 10000 boxes in 2009. In 2010 he expects sales of 14000 receivers. QUALITY SATELLITES sells all of the popular receiver brands but "SonicView receivers are our best sellers", says Sean, "They make up roughly 60% of our sales." According to Sean, Viewsat receivers account for about 30% of their sales with the remaining 10% made up of all the other brands.

And what about HD? Sean thought about it for a moment and then comments, "In 2007 only 1% of the receivers we sold were HD models, in 2008 it was 4% and 2009 it was 10%."

Sean is expecting a sharp increase to 30% in 2010. And where do his customers come from? "Most of our receivers are sold domestically in the USA and of that half of them here in California", explains Sean as he peeks at his customer list, "7% are shipped to Canada and 3% go to Mexico."

In addition to receivers, QUALITY SATELLITES also sells dish antennas and other necessary components. Sean runs his business with two employees: "one employee works in the stockroom and in shipping while the other is at the telephone", explains Sean. But don't be surprised if the ever-increasing sales figures lead to the need for more employees at QUALITY SATELLITES.

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ORSAT in Chengdu

If you live in Chengdu, the capital of the southwestern Chinese province of Sichuan, and are looking for a satellite receiver there's only one place to go: the Huangmiao electronics market. Several thousand electronics dealers and shops gather there for business. And if you need large quantities of satellite equipment, Huangmiao electronics market is your place too, because that's also where wholesale dealers set up camp. One of them is Chengdu ORSAT Telecommunications Co., Ltd.

■ Li Xiaorong is the boss of ORSAT – here she welcomes us in front of the company signboard.

The Huangmiao electronics market is made up of an endless maze of buildings. Most of them used to be apartments which have been converted into offices, warehouses and shops one after the other. While shops are located on the ground floor, offices and warehouses use up most of the upper storeys.

We enter one of the countless buildings and climb up to the fifth floor. Even though the building is equipped with an elevator, it is mainly used for transporting packages up and down. Li Xiaorong welcomes us in her single-room office. She's the wife of Zhong Renjun, the company' s boss who is away on business today. Li Xiaorong tells us about what ORSAT has on offer: „We mainly sell complete sets which include a 45-cm dish, LNB and an ABS-S receiver." These sets are used to receive CHINASTAR which broadcasts 46 FTA channels. „40% of sales are made up of the 45-cm dish, while 20% of our clients specifically ask for the 35-cm dish," Li Xiaorong reveals some business details.

Wang Quanhong, one of the company's employees, proceeds to show us something special: a flat antenna with a diameter of only 25 cm. „5% of our customers go for this flat antenna made by the company Zhou Yi" Li Xiaorong explains and adds „we sell this set based on the flat antenna for 380 RMB (approximately 38 EUR)." Does ORSAT also have on offer larger dishes? „You

■ One of the typical blocks of buildings at the Huangmiao electronics market. Apartments used to be where today offices and warehouses fill up storey after storey. Shops are located on the ground floor, while satellite wholesaler ORSAT has its offices on the fifth floor of this building. You can look it up on the Internet at www.cdorsat.com

bet," company technician Chen Guo smiles. „Pick your model from our range – after all, around 35% of our customers ask for larger dishes, which have diameters of 60, 100 or 120 cm."

Finally, we'd like to know what type of customers decide on ORSAT as their preferred business partner. Office employee Wang Quanhong answers that 80% of customers are companies and professionals and 20% are private end users. ORSAT has a workforce of 15 employees. The company owner and his wife, one office employee and a technician take care of administration. 11 installers work on-site to deliver and install systems at the clients' premises or apartments. A total of 300 to 400 sets are sold by ORSAT on a monthly basis.

Technician Chen Guo shows ORSAT's top-selling receiver: a model made by Yinhe for Chinese ABS-S signals.

This small 25-cm flat antenna is one of ORSAT's signature sets, which comes complete with receiver and cable.

EESHOP.nl

Not far from downtown Amsterdam you'll find the eeshop.nl satellite store. If you follow the Rozengracht from the main place Dam past all of the tourist shops you'll eventually end up in front of a store loaded with satellite components in their front display window with the eeshop.nl company name right above it. A clever idea: to name his business the same as its web address. Who came up with this idea?

eeshop.nl's store in central Amsterdam. Antonio can communicate with his customers in a number of languages: naturally Dutch, but also English, Spanish, German, Italian and his native language Macedonian (Serbian and Croatian). GSO in Dutch means Community Systems.

That would be Antonio Gorgievski, born in Macedonia, but calling Amsterdam his home since 1991. How did he end up running a satellite shop?

He told us how it all started: "It was in 1995 when I started playing with an Amstrad 80cm dish to receive among other things D2-MAC channels", remembers Antonio while sipping at a can of cola. He became a real satellite enthusiast and word of this spread quickly among his friends and acquaintances. The story has a familiar theme: he would erect satellite systems after work and on

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weekends, alongside his regular job as a Cable Installation Supervisor with the local cable provider UPC.

Back then he bought his satellite components from eeshop, founded by someone named Eddie in 1978 as a dealer in TV components.

Eddie was the first to sell satellite antennas in Amsterdam. But as time wore on, Eddie was slowly loosing the drive to continue running his business. As one of his regular customers, Antonio naturally could sense this and realized that this was his chance of a lifetime: "I took over Eddie's business in 2004", explained Antonio still smiling at his decision back then to make his hobby his business.

His first year turned out to be quite good: "I sold between 500 and 600 systems", remembers Antonio. Since then, his best year was 2007 where he sold nearly 1000 systems.

We wanted to know what his best selling products are and were surprised to learn that almost half of his sales are for the Multytenne from TechniSat, a small 45cm multifeed antenna. "Another 40% of sales are for the 64/78cm Multifeed Antenna from Triax with the remaining 5% being single satellite dishes."

Fortunately, Holland finds itself ideally located geographically: the three ASTRA positions 19.2, 23.5 and 28.2 east, that are actually optimized for Great Britain, can be received equally as well in The Netherlands as can the HOTBIRD satellite at 13 east. And since most of the Dutch people grow up learning English as a second language, they also enjoy watching British TV channels.

As you would expect, 90% of eeshop.nl's customers are from Holland. The rest are expatriates from every corner of Europe that buy antennas from him to receive their favorite programs from home.

What does the HDTV situation look like? We wanted to know: "In 2008 40% of sales were for HD receivers and in 2009 it reached 90%", reveals Antonio.

He only sells quality products, "30% of the receivers I sell are from Topfield", he explains about his customers preferences. "Lately, the sale and installation of larger community distribution systems has picked up", comments Antonio, "This should become a large part of the business in the future."

We wish him great success in the future!

Antonio Gorgievski is the sole proprietor of eeshop.nl and a regular reader of TELE-satellite: "I use TELE-satellite to get acquainted with everything new in the satellite scene", he says. The Discovery Channel HD can be seen on the large flat-screen TV and the receiver models he has available are in the display case.

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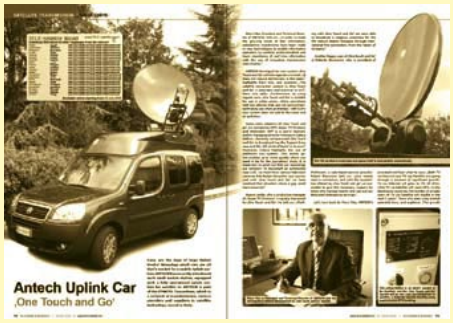

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www.TELE-satellite.com/TELE-satellite-0705/eng/euro1080.pdf

FORTEC STAR

Receiver Manufacturer, Canada

www.TELE-satellite.com/TELE-satellite-0705/eng/fortecstar.pdf

INFOSAT

Recommended

Satellite Dish Manufacturer, Thailand

www.TELE-satellite.com/TELE-satellite-0907/eng/infosat.pdf

MFC

Recommended

Satellite Filter Manufacturer, USA

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

GLOBAL INVACOM

Recommended

LNB and Accessory Manufacturer, UK

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

JIUZHOU

Recommended

Satellite Receiver Manufacturer, China

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

MOTECK

Recommended

Antenna Motor Manufacturer, Taiwan

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

GT-SAT INTERNATIONAL

LNB Distributor, Luxembourg

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

KAIFA

Recommended

Satellite Receiver Manufacturer, China

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

MTI

LNB Manufacturer, Taiwan

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

HORIZON

Recommended

Manufacturer of Measuring Instruments, UK

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

MAX COMMUNICATION

Satellite Wholesaler, Germany

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PROMAX

Recommended

Digital Powerhouse, Spain

www.TELE-satellite.com/TELE-satellite-0909/eng/promax.pdf

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SAMMEG SATELLITE

Satellite Wholesaler, South Africa

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Wireless Card Reader Producer, Denmark

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The ASTRA Fan

Cahit Nuri Or lives in the city of Adapazari, roughly 150 Km east of Istanbul. He loves music and collects CD's and LP's. But watching and listening to live music channels is what he loves to do most of all. Unfortunately, he lives in an area that is not all that ideal for such a hobby: he can't receive all that many music channels. But wait…what about satellites? Most of the music channels can be found on ASTRA at 19.2 east and most of them are in exceptional quality.

■ Cahit installed his monster dish in his garden

If you look at the footprint for the ASTRA satellite, it would seem that Cahit won't have much luck receiving this satellite in Turkey. But then again…

Cahit explains to us: "I bought my first satellite dish in 1990. It had a diameter of 1.5 meters. I used a Drake ESR 3240 E analog satellite receiver along with a Gardiner 0.8 dB LNB."

He couldn't receive ASTRA with this set up so he upgraded his system a year later:"I bought a 3-meter antenna." Finally, he was able to receive three TV channels from ASTRA but "only at night", comments Cahit,

Cahit Nuri Or from Turkey on the platform of his enormous 5.2-meter dish. With it he can receive ASTRA 1 at 19.2 east in Turkey

■ **A look at the dish from behind. Cahit regularly inspects the installation.**

"and the signals broke up often or were below the noise threshold."

In 1992 Cahit had enough with experimentation: he decided to buy a 5.2-meter solid aluminum dish, with no segments. The best of the best. The antenna weighed in at half a ton!

How would you install such a monster dish and where would you put it? Cahit explains, "We constructed a 70x70cm concrete mast that was four meters high with an iron platform at the top." Five tons of cement, sand and iron rods were used in the construction. Cahit calculated what all of this cost him: "The dish itself cost roughly 11,000 Euros, shipping by truck was 700 Euros, construction of the concrete mast came to about 2750 Euros and renting the crane to lift the dish in place was another 150 Euros." This makes the total 14,600 Euros just for the reception of one satellite.

It turns out though that it was all worth it. Cahit explains: "Now I could receive five analog TV channels: RTL, SAT1, 3sat, Pro7 and Eurosport." Cahit was still using that Drake receiver because it had an adjustable threshold. The LNB in the meantime he swapped for a 0.5 dB model.

The next big step came in the year 2000. Cahit once again swapped his LNB for a 0.3 dB model from Invacom and acquired an ECHOSTAR AD 3600 IP receiver. This receiver could receive digital signals as well as analog ones. Unfortunately, this receiver bit the dust a few years later. He replaced it with a Topfield TF 5000 CI. "Now I can receive every transponder from ASTRA at 19.2 east!" He explains further: "With my old

The World of Satellite DXers

Backlist: DXer reports in previous issues of TELE-satellite

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1.5-meter antenna I can receive 645 TV channels from ASTRA 2 at 28.2 east and with my 5.2-meter dish I can receive 1125 TV channels from ASTRA 1 at 19.2 east."

For Cahit the enormous financial expense for his monster dish was definitely worth it: he can receive all the channels he wants in top notch quality.

■ One of the footprints from ASTRA 1 at 19.2 east. Reception in Turkey is not possible unless of course you use a monster dish like the one Cahit has.

■ Cahit in his music room. He used information from TELE-satellite to set up his receiver.

■ Cahit in his shack: as you can see, the satellite receivers and audio components are nicely organized. He explains: "All the walls have been soundproofed." He laid out a grand total of nearly 30,000 Euros for the technical equipment in his house.

22.04.1992

Installation of a 5.2-meter dish in 1992

The antenna was delivered by truck

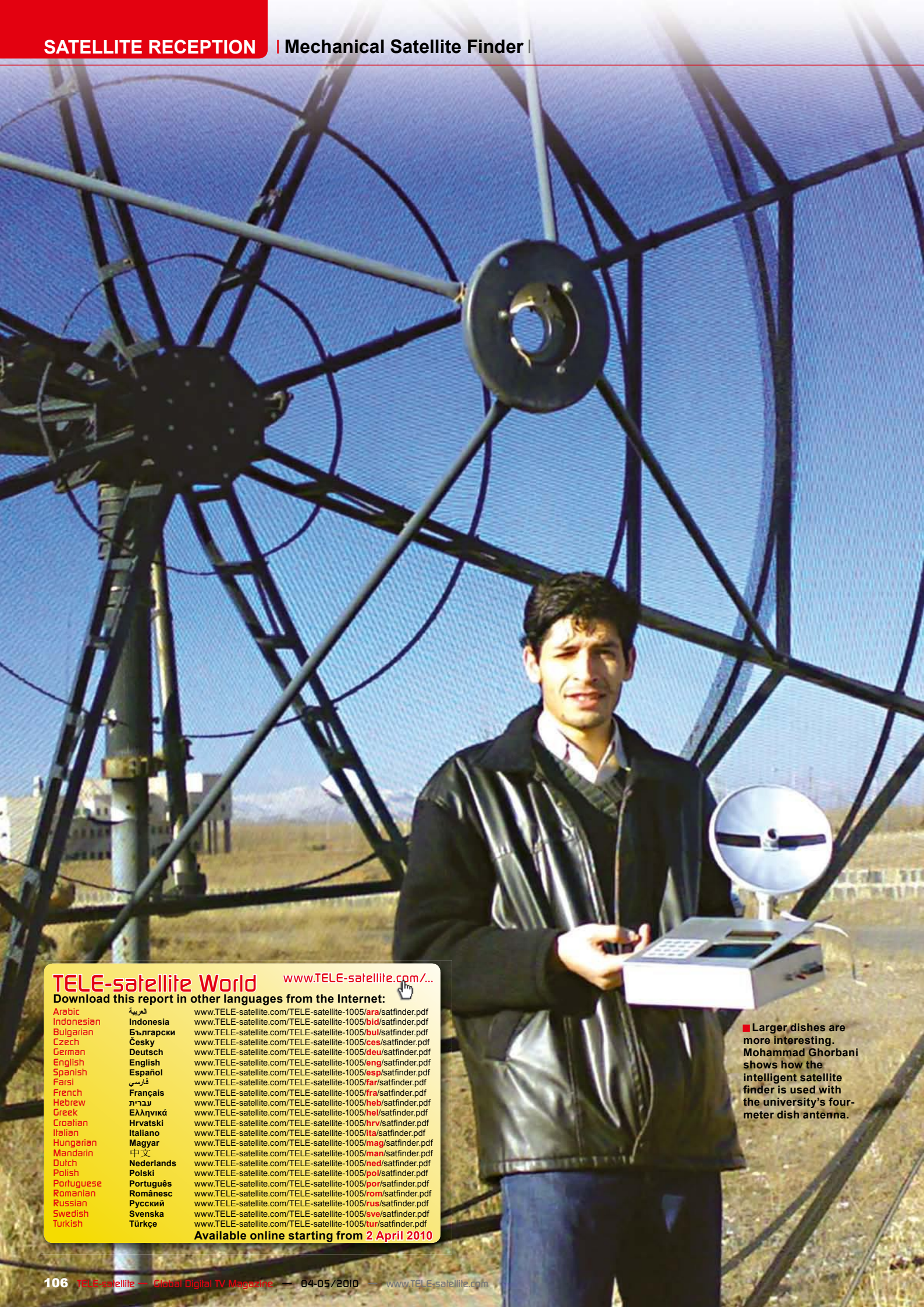
The crane is being prepared

The mounting frame is being prepared

The crane lifts the dish in place

Finished! The dish is mounted

The small 1.5-meter dish in the foreground is used by Cahit to receive ASTRA 2 at 28.2 east



■ Larger dishes are more interesting. Mohammad Ghorbani shows how the intelligent satellite finder is used with the university's four-meter dish antenna.

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Intelligent Dish Alignment

Ameneh has come up with a very interesting satellite finder: she calls the discovery that she created together with her colleague Mohammad, "The Intelligent Finder of Multi Media Satellites". The unit is made from a microprocessor with a display and a movable small dish. The idea is that the small dish is used as a way to show how the larger actual dish should be aligned.

Ameneh explains to us how it works: "You put the intelligent satellite finder in the spot where the real dish antenna is supposed to go. You select the desired satellite you want to receive on the display." The ten strongest transponders of that satellite are stored in the intelligent satellite finders' microprocessor and are visible on the display.

Now it gets interesting; Ameneh explains what happens next: "Now you enter in your local position either by selecting a city on the display or by entering in your geographical coordinates." The unit then shows the strongest usable transponders and best of all the small dish on the intelligent satellite finder with the help of two servo motors starts to move to the exact position that the real dish needs to be. "The small dish acts as a guide as to how the real dish needs to be installed and aligned", adds Ameneh about the real purpose of the intelligent satellite finder.

Ameneh and her colleague Mohammad have come up with a very interesting

Ameneh Garschi is co-developer of the intelligent satellite finder. We see her here on the roof of an apartment house in the city of Zanjin northwest of Tehran.

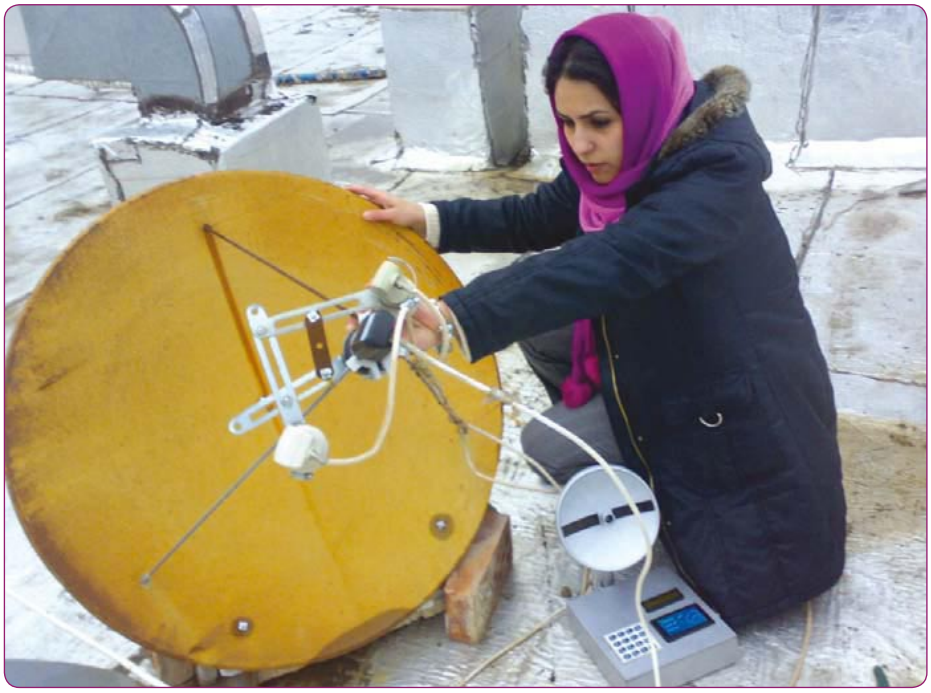
concept. Only recently, TELE-satellite reported on an iPhone application from dishpointer: it provides a list in the iPhone display of where all the satellites can be found but this information doesn't take the installer, the one who actually has to set up the antenna, all the way to the finish line. When aligning a dish, the azimuth and elevation data is what's really important. This is where the intelligent satellite finder can really be helpful in providing alignment data for an antenna.

Naturally, the intelligent satellite finder needs to be properly aligned as well. Ameneh explains, "If you want to install a satellite dish, you first need to align precisely to north. You hold a compass exactly to north until the needle no longer moves. Our intelligent satellite finder uses sealed IC's so that they don't influence the compass."

An especially nice feature of the intelligent satellite finder is the display of skew data for the LNB. "Two LCD's indicate the placement of the LNB", explains Ameneh, " since the skew for every satellite is different from one location to the next; some satellites even use their own skew." Ameneh is convinced that the intelligent satellite finder solves a unique problem - it indicates the exact skew and you merely need to adjust the LNB on the real dish exactly as indicated.

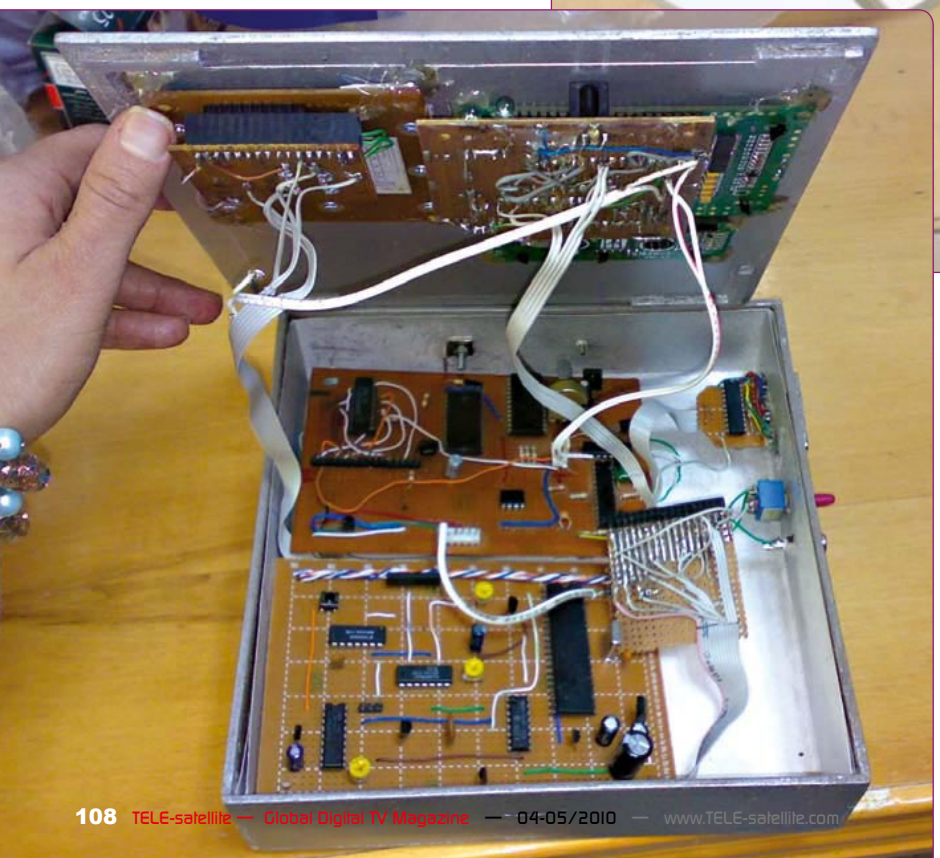
Ameneh and Mohammad are students at a university in northern Iran and developed the intelligent satellite finder as part of a student project.

They are both now looking for investors to help them market their new product. Ameneh, who speaks perfect English and has taken on the communications role of the team, says, "We are really interested in producing the intelligent satellite finder here in Iran and then also exporting it. Maybe this TELE-satellite report will help us find a foreign manufacturer."



■ **This is how the intelligent satellite finder is used: it shows the position of the satellites that are to be received and the real antenna is simply placed parallel to it.**

■ **Fine-tuning of the LNB skew can also be handled by the intelligent satellite finder: the exact skew is shown in the display.**



■ **A look inside the laboratory beta unit.**

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Professional high-density satellite reception card

Overview

The NetUP Dual DVB-S2-CI is a professional PCI-e satellite reception card designed for high-density appliances such as DVB-IP gateways, home theaters, satellite Internet systems, etc. In contrast to standard DVB-S cards NetUP's Dual DVB-S2-CI provides fourfold density – two DVB-S/S2 receivers and two Common Interfaces (CI) occupy only one PCI-e slot. The high density allows saving space on installation and using the card for satellite signal reception in confined environments. For example, a standard 1U rack-mount server with two PCI-e slots can receive and fully decode 4 satellite transponders, such as NetUP's IPTV Combine 4x.

Components Used

- Conexant CX23885;
- dual demodulator STM STV0900;
- tuner STM STV6110A;
- dual LNB STM LNBH24;
- SMARDTV CIMaX Sp2.

Features

- two DVB-S/S2 inputs - simultaneous reception of two DVB-S/S2 transponders;
- two CI slots - independent descrambling of two transponders;
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- PCE-e x1;
- DiSEqC 2.x;
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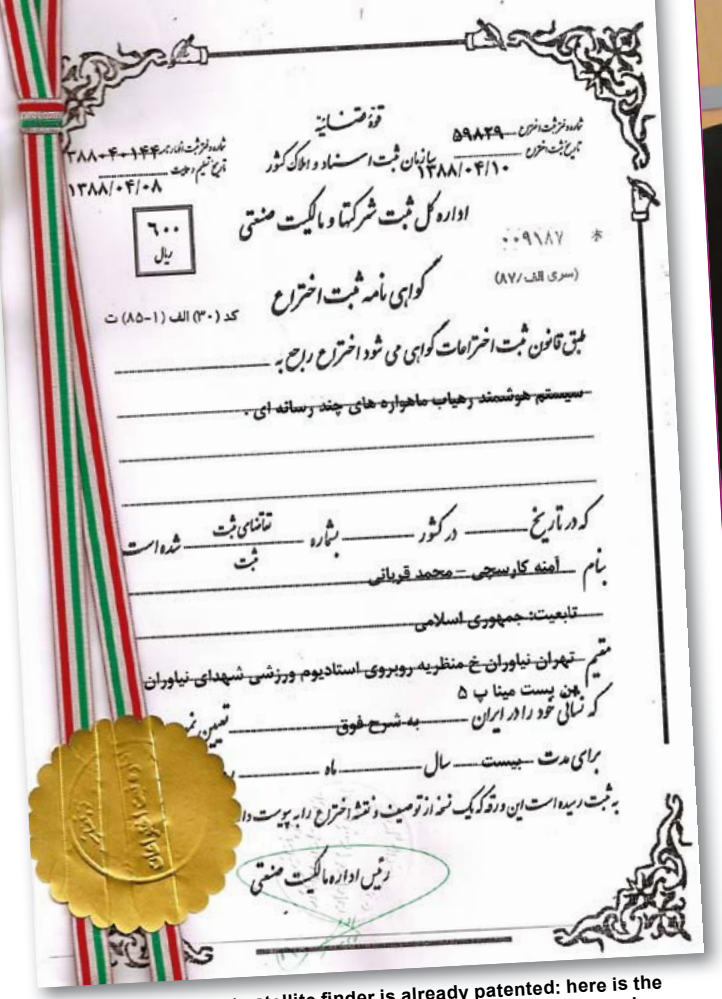

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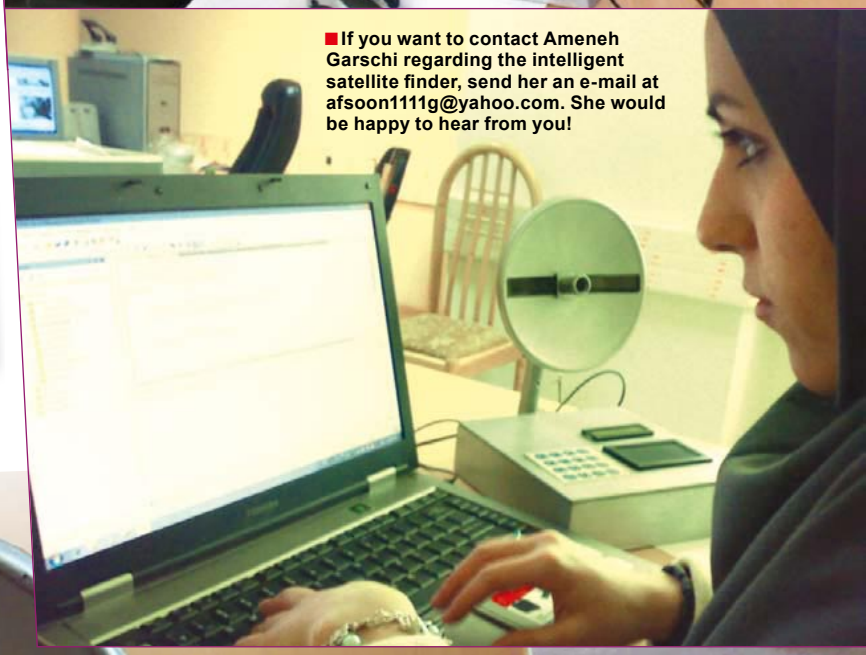
■ The intelligent satellite finder is already patented: here is the certificate of the Iranian "Administration of Incorporate and Industrial Possession"

■ Mohammad Ghorbani, co-developer of the intelligent satellite finder, seen here programming the IC.



■ If you want to contact Ameneh Garschi regarding the intelligent satellite finder, send her an e-mail at afsoon1111g@yahoo.com. She would be happy to hear from you!

■ Intelligent satellite finder beta unit built by Ameneh Garschi and Mohammad Ghorbani.

■ The display of the intelligent satellite finder showing the strongest transponders along with the LNB skew.

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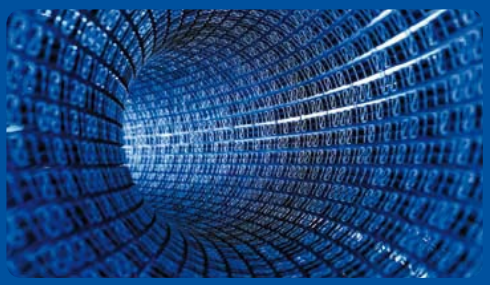

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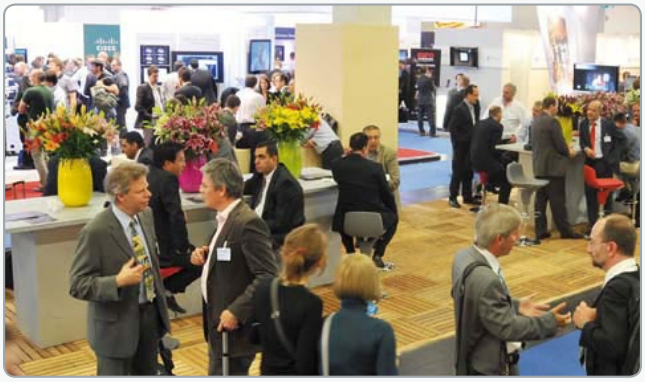

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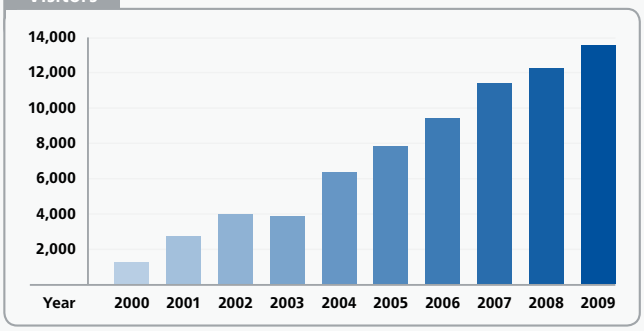

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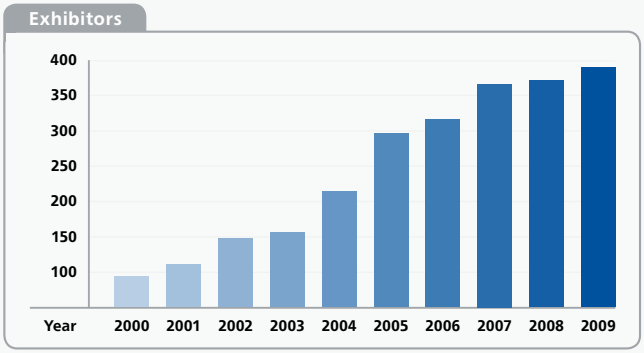

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2.45 - 4.00 p.m. | Technology Panel — **Room B**

Deployment of EuroDOCSIS 3.0 – Reports from the Field [1)]

Presenter: Peter Percosan, Chief Technology Officer, Cable Europe Labs

EuroDOCSIS 3.0 on the Certification Wave – Services and Benefits
Wim de Ketelaere, CTO, Excentis

Challenges in Channel Bonding – Lessons Learnt
Marc Sumner, Vice President of Marketing and Business Development, Casa Systems

Advanced Physical Layer in Down and Upstream
N. N.

Quality Parameters for Passive Components in HFC Networks
Rick Haube, Vice President Marketing, PPC

Wednesday, 5 May 2010

10.00 - 11.30 a.m. | Broadband Summit — **Room A**

Cable, Fibre and LTE – Who will win the Broadband Battle?

Presenter: Julian Clover, Editorial Director, Broadband TV News
Keynote: Manuel Kohnstamm, Managing Director Public Policy & Communications, Liberty Global and President, Cable Europe

Niels Breining
CEO, YouSee A/S

Joe Cozzolino
Senior Vice President, Home & Networks Mobility, Motorola Inc.

Nick Fielibert
CTO Cable, Digital Media and IPTV Business Service Provider European Markets, Cisco Systems

Naveed Kashif
Vice President Digital Media & Advertising, Alcatel-Lucent

Manuel Kohnstamm
Managing Director Public Policy & Communications, Liberty Global and President, Cable Europe

Christopher J. Lammers
Executive Vice President & COO, Cable Labs

Harald Rösch
CEO, Kabel Baden-Württemberg GmbH & Co. KG

Evening Event | Rheinterrassen

4 May 2010 6.00 p.m. | ANGA Cable Night
reservation in advance

Wednesday, 5 May 2010

1.00 - 2.15 p.m. | Technology Panel — **Room B**

Migration from HFC to Next-Gen Fibre [2)]

Presenter: Dr. Roger Blakeway, President, SCTE Europe

Modern Concepts for Fibre Based Next Generation HFC Networks (Pros and Cons)
Dr. Tim Gyselings, Research Manager Fixed Access Bell Labs, Alcatel-Lucent

Future Optical Node Architectures
Maciej Muzalewski, Business Development Director, VECTOR sp. z.o.o

Implementation Plans & Strategies
Rui Castro, Director Operations, ZON Multimédia

4.15 - 5.30 p.m. | Technology Panel — **Room B**

CI Plus – More than Conditional Access only?

Presenter: Dr. Ralf Heublein, Managing Director, Mediapool Content Services GmbH

Putting the "Plus" in CI Plus: Cloud-Based Solutions that enhance Interactivity on Networks Next-Generation iDTVs and existing STB
Ronald Brockmann, Managing Director Europe, ActiveVideo Networks

Addressable Advertising & Delivery Technologies: Additional Revenue Potential for TV Operators
Philippe Stransky, Chief Architect, Nagravision SA

Intergration of CI Plus in Cable Platforms
Christoph Schaaf, Director New Technologies, Kabel Deutschland GmbH

Thursday, 6 May 2010

10.00 - 11.15 a.m. | Technology Panel — **Room B**

Fibre – Handling the Increasing Capacity

Presenter: Prof. Dipl.-Ing. Hansjörg Pätz, Managing Director, VIVICON GmbH

HFC Network – What's the next Step?
Boris Brun, Senior Manager of Cable Solutions and Strategy, Harmonic, Inc.

RFPON (RFoG and PON) – Enabling Cable's 'All IP' Future?
Luis Yu, Senior Product Manager, Aurora Networks

Content Monitoring – The Key to Measuring Quality and Ensuring Subscriber Satisfaction
Dan Donnelly, SVP Global Sales & Marketing, Mixed Signals Inc.

11.30 a.m. - 12.45 p.m. | Technology Panel — **Room B**

Field Report – Video over DOCSIS

Presenter: Gerhard Greiner, Managing Director, Infonova GmbH

DOCSIS 3.0 – The Way to IP Video for Cable Operators
Heinrich E. Haase, Sales Business Development Manager, Cisco Systems

V-DOC, first Trial, first Results
Istvan Maradi, CTO, Magyar Telekom

Multi Services Gateway – New Routes to the Consumer
Jörg Parczen, Key Account Manager IPTV & IP-Systeme, Kathrein-Werke KG

2.30 - 3.45 p.m. | Technology Panel — **Room B**

Triple Play Services directly to the Customer

Presenter: Carsten Engelke, Director Technology, ANGA Association of German Cable Operators

Advanced RS-DVR Monetization through Integrated Advertising
Jobst Mühlbach, VP On Demand Solutions EMEA, ARRIS

Residential Gateways – Delivering the Multi Service Digital Home
Eran Rom, CEO, Jungo Ltd.

MoCA: The Standard for Home Entertainment and Connectivity?
Tom Lookabaugh, CTO, Entropic Communications

In cooperation with: 1) Cable Europe Labs 2) ReDesign

German Panels

With English simultaneous translation

Tuesday, 4 May 2010

10.00 - 10.30 a.m. | Opening — Room A

Welcome Addresses

Thomas Braun
President, ANGA Association of German Cable Operators

Hans-Joachim Otto MdB
Parliamentary State Secretary, Federal Ministry of Economics and Technology

10.30 - 12.00 a.m. | Strategy Summit — Room A

Cable, Satellite and IPTV: Competing Digital Platforms

Presenter: Frank Thomsen, Editor-in-chief, stern.de

Dr. Andreas Bereczky
Director Production, ZDF

Thomas Braun
President, ANGA Association of German Cable Operators

Dr. Marcus Englert
Executive Board New Media and Diversification, ProSiebenSat.1 Group

Lutz Freitag
President, GdW

Dr. Adrian v. Hammerstein
Chief Executive Officer, Kabel Deutschland GmbH

Werner Hanf
Chief Executive Officer, NetCologne GmbH

Christian P. Illek
Group Executive Management T-Home, Marketing, Deutsche Telekom AG

Ferdinand Kayser
President and CEO, SES ASTRA S.A.

Dr. Herbert Leifker
Chief Commercial Officer, Unitymedia Group

Martina Rutenbeck
Managing Director, Eutelsat visAvision GmbH

1.00 - 2.15 p.m. | Strategy Panel — Room A

Broadband Politics: Internet for Everybody – and via every Pipe?

Presenter: Dr. Karl-Heinz Neumann, General Manager and Director, WIK Wissenschaftliches Institut für Infrastruktur und Kommunikationsdienste GmbH

Jürgen Grützner
Managing Director, VATM e.V.

Dr. Iris Henseler-Unger
Vice President, Federal Network Agency for Electricity, Gas, Telecommunication, Post and Railway

Martin Herkommer
Head of Press and Public Relations, Kabel Baden-Württemberg GmbH & Co. KG

DI Thomas Hintze
Chief Executive Officer, UPC Austria GmbH

Dr. Isabel Tilly
Regulation Strategy and Law, Vodafone D2 GmbH

Tuesday, 4 May 2010

1.00 - 2.15 p.m. | Technology Panel — Room B

Digital Headends enhancing Network Performance

Presenter: Richard Pohl, Managing Director, RFC Radio-Fernseh- und Computertechnik GmbH

Optical Satellite Reception Systems: Ready to Go!
Joachim Knör, Vice President Commercial Development, Networks & Distributors, ASTRA Deutschland GmbH

Ultra flexible Platform for Applications in CATV Headends
Ralf Schmitz, Chief Technology Officer, ASTRO Strobel Kommunikationssysteme GmbH

Multiplexing System for Digital Data Streams in Multimedia Applications
Dr. Piero Kirchner, Managing Director Technology, Blankom Antennentechnik GmbH

IP based Signal Processing in CATV Headends
Frank Fuhrmann, Techninal Sales Support / Project Manager International, GSS Grundig SAT Systems GmbH

2.45 - 4.00 p.m. | Strategy Panel — Room A

Switch-Off, Simulcast and HD – Where is the High Road to Digitization?

Presenter: Werner Lauff, Management Consultant and Publicist

Dr. Christoph Clément
General Counsel / Member of the Managing Board, Kabel Deutschland GmbH

Prof. Dr. Carl-Eugen Eberle
General Counsel, ZDF

Dr. Hans Hege
Director, State Media Authority Berlin-Brandenburg / Chairman of Regulatory Affairs Commission (ZAK)

Dr. Tobias Schmid
Head of Department Media Politics, Media Group RTL Germany

4.15 - 5.30 p.m. | Technology Panel — Room B

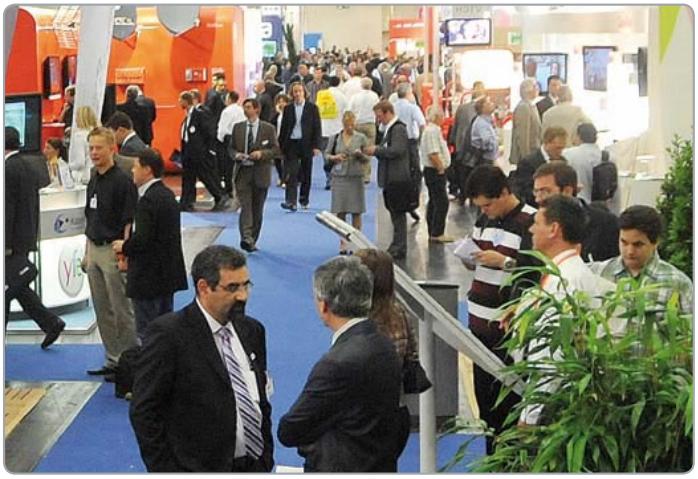
HDTV – Best Practice from the Market Partners

Presenter: Dr. Norbert Thöry, Managing Director, Cable & Media Consult

Best Practice from ZDF to introduce HDTV Services
Thomas Urban, Manager Modernization Broadcast Infrastructure, ZDF

Infrastructure Upgrade for HDTV
Reinhard Sauer, General Manager Tele Columbus Service & Technik GmbH, Tele Columbus

HD+, A Model for an open Platform in horizontal Environment
Alexander Sacher, Vice President Receiver Technology, ASTRA Platform Services GmbH



German Panels

With English simultaneous translation

Wednesday, 5 May 2010

1.00 - 2.15 p.m. | Strategy Panel — **Room A**

Copyright and Licensing Law for Digital TV and IPTV

Presenter: Dr. Peter Charissé, Managing Director, ANGA Association of German Cable Operators

Dr. Tobias Frevert
Attorney, Partner, Noerr LLP

Dr. Eric Heitzer
Member of the Managing Board, HanseNet Alice

Michael Krause
Legal Department, WDR

Simin Lange
Head of Distribution, ProSiebenSat.1 Media AG

Prof. Dr. Wolfgang Spoerr
Partner, Hengeler Mueller Rechtsanwälte

2.45 - 4.00 p.m. | Strategy Panel — **Room A**

Cable TV and IPTV: Hybrid Devices, Encryption and Interoperability [1)]

Presenter: Jürgen Sewczyk, JS Consult / Member of the Board, Deutsche TV-Plattform e.V.

Volker Blume
Technical Product Manager Television, Philips GmbH

Lorenz Glatz
Chief Technology Officer, Kabel Deutschland GmbH

Yves Padrines
NDS France Vice President, Business Development & General Manager NDS GmbH

Andre Prahl
Member of the Managing Board, CBC GmbH / Head of Programme Distribution, Media Group RTL Germany

Gerhard Schaas
Chairman, Deutsche TV-Plattform e.V. / Member of the Bord, Loewe AG

Herbert Tillmann
Director Production and Engineering, Bayerischer Rundfunk

2.45 - 4.00 p.m. | Technology Panel — **Room B**

Fibre to the Home – The Way to the Rollout

Presenter: Hans-Georg Grosse-Boes, Senior Technical Sales Manager, ADC Krone

Coax and Twisted Pair – Decision for FTTH Solutions
Bernd Thielk, Managing Director, willy.tel

The continuous Way from HFC to FTTx
Thomas Eibeck, Managing Director, Primacom

Kabel BW – Best Practise in the FTTB Field Trail
Daniel Chemnitz, Head of Design & Optimisation, Kabel Baden-Württemberg GmbH & Co. KG

Thursday, 6 May 2010

10.00 - 11.15 a.m. | Strategy Panel — **Room A**

Pay TV: Seeking New Subscriptions – Where is the Growth Potential?

Presenter: Dr. Dorothea von Wichert-Nick, Principal, Solon Management Consulting GmbH & Co. KG

Hannes Heyelmann
Managing Director, Turner Broadcasting System Deutschland GmbH

Mirjam Laux
Head of Pay TV und Business Development, SevenSenses GmbH

Ingo Schuchert
Managing Director, Deutsche Netzmarketing GmbH

Wolfram Winter
Senior Vice President Distribution Development, Sky Deutschland AG

Klaus Wolf
Head of Department Product Management TV & Content, Kabel Baden-Württemberg GmbH & Co. KG

11.30 a.m. - 12.45 p.m. | Strategy Panel — **Room A**

HD, 3D and VoD – Platform Concepts in Competition

Presenter: Dr. Klaus Goldhammer, Managing Director, Goldmedia GmbH Media Consulting & Research

Nicole Agudo Berbel
Director Affiliate Sales and Business Development, Discovery Networks Deutschland

Wolfgang Elsäßer
Managing Director, ASTRA Deutschland GmbH

Dr. Herbert Leifker
Chief Commercial Officer, Unitymedia Group

Dietmar Schickel
Chief Commercial Officer, Tele Columbus Gruppe

Guido Schwarzfeld
Head of Department Broadband Communications, NetCologne GmbH

1.00 - 2.15 p.m. | Strategy Panel — **Room A**

Housing Industry and B2B: How does Cable manage to remain the ideal Pipe?

Presenter: Dr. Claus Wedemeier, Head of Division Multimedia and IT, Statistics and Research, GdW

Andreas Coupette
Managing Director, Marienfeld MultiMedia GmbH

Jürgen Magull
Head of Business Region Hamburg, EWE TEL GmbH

Markus Stoll
Managing Director, Versatel Telekabel GmbH

Theo Weirich
Managing Director, wilhelm.tel GmbH

2.30 - 3.45 p.m. | Technology Panel — **Room B**

Craft: Preparing CATV Networks for Multimedia Applications

Presenter: Jürgen R. Grobbin, Managing Director, Idee Medien Ltd.

Equipotential Bonding for Cable Networks
Prof. Dieter Schwarzenau, Science Manager, dibkom

Practical Measurement Equipment for Multimedia Services
Helmut Schenk, Managing Director, KWS-Electronic

The Planning und Documentation of CATV Networks
Andreas Wilharm, Technical Officer, ANGA Comptence Center

In cooperation with: 1) Deutsche TV-Plattform

Information

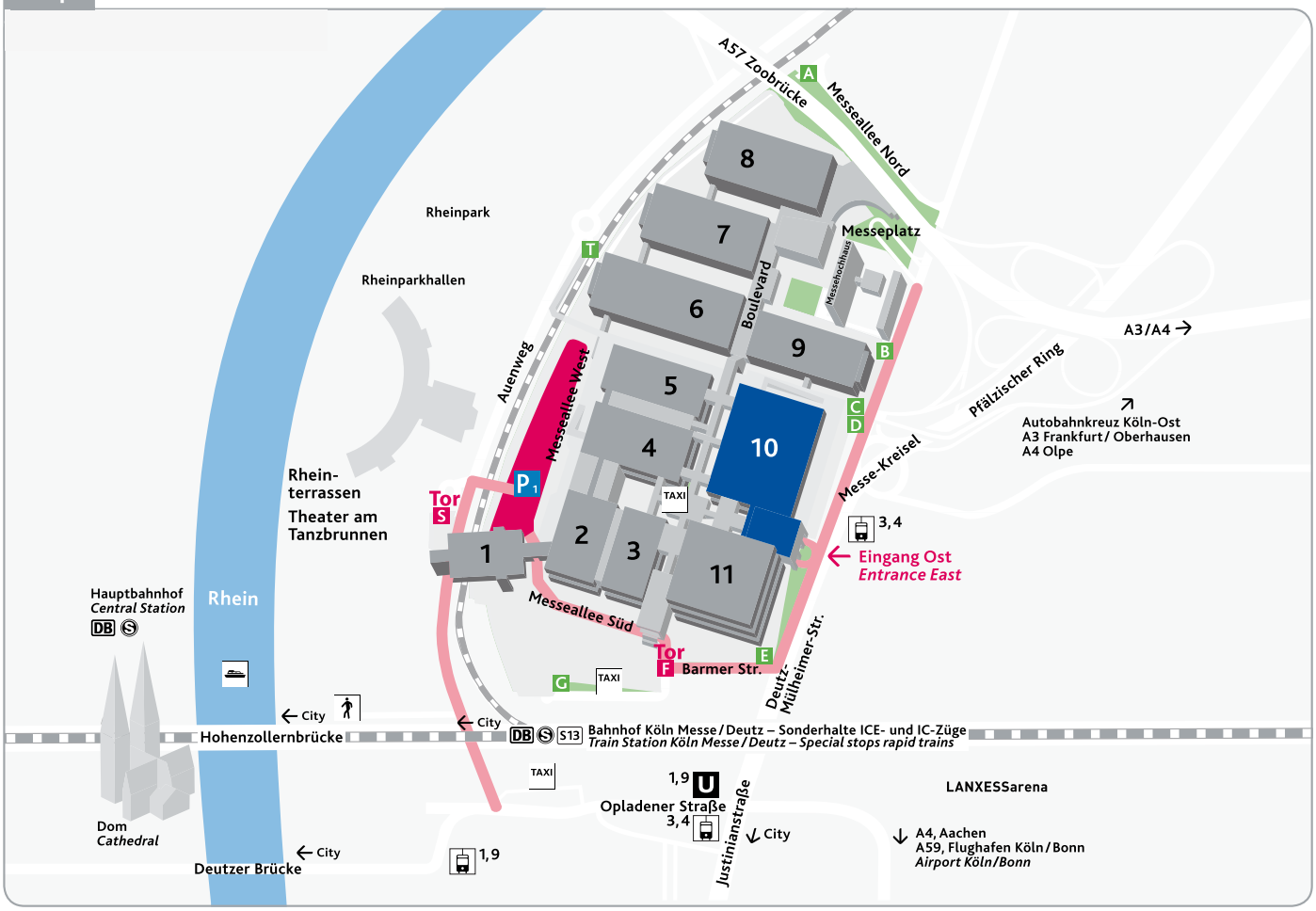
Location

Koelnmesse, Hall 10 and Congress Center East
Deutz-Mülheimer Strasse · 50679 Cologne · Germany

Opening hours

- **Tuesday, 4 May 2010:** 9.00 a.m.-6.00 p.m.
- **Wednesday, 5 May 2010:** 9.00 a.m.-6.00 p.m.
- **Thursday, 6 May 2010:** 9.00 a.m.-4.00 p.m.

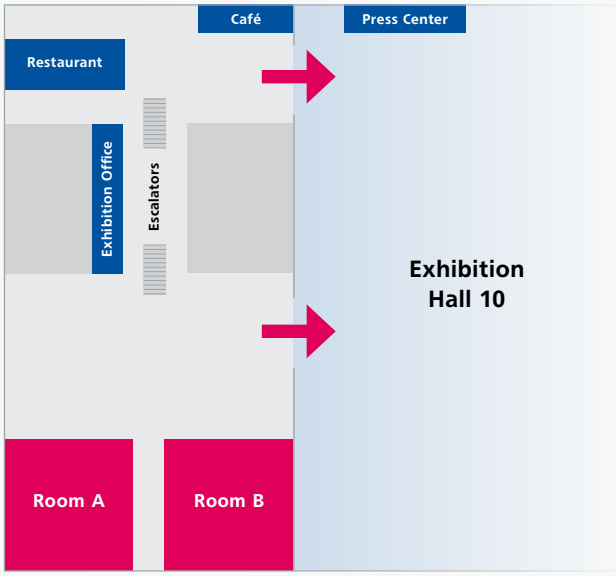
Map



How to get there

- **From Cologne/Bonn Airport:** You can reach the fair grounds in approx. 15 minutes either by tram line S13 (to station "Köln Messe/Deutz") or by taxi.
- **From Cologne Central Station:** Tram No 18 (Direction "Bonn Hbf") to stop "Poststrasse", change into No 4 (Direction "Schlebusch") or No 3 (Direction "Thielenbruch") to stop "Koelnmesse".
- **By Car:** Follow the green signs "Koelnmesse" to Entrance East/ Hall 10.
- **By Public Transport:** Tram No 3 or No 4 to stop "Koelnmesse".

Hall plan



Contact/Organizer

ANGA Services GmbH
Nibelungenweg 2 · 50996 Köln · Germany
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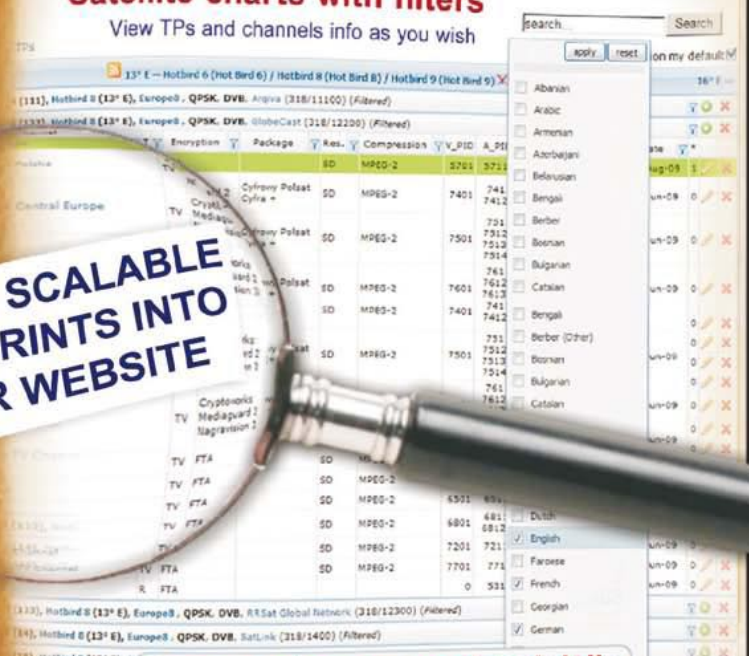

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Edited by
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EUROPE

FINLAND

DNA SELECTS ENENSYS FOR DVB-T2 TRIAL

DNA Oy, who has been awarded for the 2 Finish VHF DVB-T2 licenses in June 2009, has selected Enensys to fulfill their first DVB-T2 trial in Lathi. In this project, Enensys provides the DVB-T2 Gateway and the DVB-T2 modulator. In this trial, Enensys partner's Mediatrade compiled the necessary consortium of experts and vendors, and fulfilled the whole project reliably. DNA trial allows terrestrial transmission of Finnish channels in HD format over Lahti using DVBT2 technology.

FRANCE

TF1 ACQUISITION OF DTT CHANNELS CLEARED

French broadcaster TF1 said competition authorities cleared its €192 million purchase of DTT channels from Groupe AB with conditions. The deal, in which TF1 will buy all of NT1 and double its stake in TMC to 80%, was approved subject to "undertakings as to future conduct in order to address competition problems". TF1 said it was now waiting for the French CSA audio-visual authority to give its ruling on the deal.

IRELAND

RTE TO TEST RECEIVERS FOR DTT SERVICE

Public broadcaster RTÉ has appointed TV services company Teracom to test receivers for its DTT service Saorview. It will be a free public service giving viewers access to RTÉ 1, RTÉ 2, TV3, TG4 and several other channels. A commercial operator will also operate on DTT. The Eircom-backed OneVision consortium was awarded the commercial DTT contract in May 2009.

LATVIA

LNT AND TV5 TO SWITCH TO DIGITAL TECHNOLOGY

Commercial TV channels LNT and TV5 will switch to digital technology this year, while TV3 will continue analogue free-of-charge broadcasting at least until the end of 2010. TV5 digital broadcasting will be available free-to-air in the Riga area, while in the rest of Latvia it will be a pay-TV channel.

POLAND

COMMERCIAL BROADCASTERS WANT SECOND MULTIPLEX

Commercial broadcasters, TVN, Polsat, TV4 and TV Plus, have requested from the Office of Electronic Communications (UKE) the change of frequencies reserved for them for the purpose of DTT broadcasting. Initially, the commercial broadcasters were to use the first multiplex and share it with public broadcaster TVP, but an agreement turned out impossible. The National Broadcasting Council (KRRiTV) wants TVP, the public broadcaster, to transmit three of its stations on the first multiplex and seven stations on the third multiplex. However, due to a lack of agreement concerning the multiplexes between the UKE and the KRRiTV, the process of switching to digital terrestrial has been delayed.

PORTUGAL

OVER 247.000 DTT TV SETS SOLD IN PORTUGAL IN 2009

According to market research firm GfK, between January and November 2009 in Portugal were purchased 247.000 DVB-T MPEG-4 compatible TV sets for the reception of Portuguese DTT broadcasts, which initiated transmissions in 2009. The price has certainly been a factor in the acquisition of such equipment, since the average fell from €1490 in 2008 to €640 in 2009.

SPAIN

MORE THAN 6.5 MILLION SPANISH WATCH DTT

More than 6.5 million Spaniards watch TV exclusively via digital terrestrial, without combining with other platforms, such as cable or satellite. According to Spain's Ministry of Industry, Commerce and Tourism, the audience share of DTT is around 53.4%, while the analogue signal gathers a share of 24.9%. The remaining 21.7% corresponds to cable TV, satellite and ADSL. In total, DTT reaches 85.4% of Spanish households.

UNITED KINGDOM

BBC, ARQIYA RECEIVE GO-AHEAD TO SELL MULTIPLEX CAPACITY

Media regulator Ofcom has given the green light to the BBC and platform infrastructure company Arqiva to jointly sell multiplex capacity, enabling two new additional national TV channels to be broadcast over DTT. During the digital switchover, unused capacity on the BBC's multiplex B used to broadcast HDTV services becomes free, while certain new capacity on Arqiva's multiplexes C and D are becoming available due to technical upgrades.

LATIN AMERICA

BRAZIL

RULES EASED FOR MOBILE PHONES WITH DIGITAL TV

The Brazilian government has made more flexible the requirement, by the national electronics industry, to make phones capable of receiving the Brazilian digital TV channels. According to the ministerial decree 224, published on 29 December 2009 in the Official Gazette, manufacturers are dispensed of meeting requirements to meet production targets of mobile phones with TV from 1 January 2010 to 31 December 2011. In addition, manufacturers have the whole of 2012 to reach a percentage of 3 percent of devices with digital TV reception. From 2013, this percentage will be 5 percent.

COLOMBIA

COLOMBIA LAUNCHES DTT BROADCASTS

Colombia launched the first transmissions in DTT in February. The three public channels using the new digital signal are Canal Uno, Señal Colombia and Canal Institucional, and the signal will for now only be available to some houses in Bogota. Although the introduction of digital terrestrial television is still in its early stages, the coming months will see a growth in the coverage and reception of the digital signal.

MEXICO

AZTECA RECEIVES APPROVAL FOR HI-TV DTT PLATFORM

TV Azteca has received approval from national telecommunications regulator Cofetel for its free-to-air DTT platform, Hi-TV. Azteca has already began selling the digital boxes in major outlets. Costing around US$150, the receivers allow viewers to watch 20 TV channels including Azteca's channels 7 and 13, Televisa's 2, 5 and 9 and the over-the-air channels in each market, as well as Azteca's specialised sports, reality and movie channels.

PERU

SALES OF DIGITAL TV SETS START IN PERU

Stores in Peru started selling digital TV compatible TV sets in February, equipped with technology for the ISDB-T standard. The first models are from LG Electronics, while Sony will have their digital-enabled Bravia TV sets ready for the Peruvian market in April. In addition, mobile operator América Móviles (Claro) has started selling mobile devices with the technology "One Seg" that allows to watch digital TV.

ASIA & PACIFIC

AUSTRALIA

AUSTRALIA TO BOOST DIGITAL TV FOR RURAL AREAS

The Australian Federal Government has announced measures which will give all Australians access to 16 free-to-air DTT channels. The Government says it will pay for and build a digital satellite broadcast service for regional viewers. It has also reached an agreement with broadcasters to upgrade more than 100 regional analogue facilities.

AZERBAIJAN

AZERBAIJAN TO COMPLETE ANALOGUE SWITCH-OFF IN 2012

Azerbaijan will switch to DTT three years ahead of time, in 2012, according to the country's Communications Minister, Ali Abbasov. Trial broadcast of digital TV initiated in 2009 in Baku and Absheron.

BRUNEI

ICAREUS DELIVERS ITV SOLUTIONS TO RTB

Icareus has delivered a range of interactive TV solutions to Bruneian national broadcaster, Radio Television Brunei (RTB). The broadcaster - which operates five digital TV channels, RTB 1 and RTB 2 (simulcast), RTB 3 (HD), RTB 4 (international) and RTB 5, as well as five radio networks - is using the solutions to power MHP-based interactive TV services.

CHINA

DIGITAL TV PENETRATION RATE INCREASES BY 40%

The digital TV penetration rate has grown more than 40% since the end of 2008, according to the Hong Kong Special Administrative Region (HKSAR). According to data from December 2009, about 46.5% of local families, or 1.06 million households, receive DTT services. Two domestic free TV channels, Asia Television (ATV) and Television Broadcasts (TVB), are expanding their digital TV coverage in phases. Coverage had been extended to 85% of the population by the end of 2009, and will cover all of Hong Kong by 2012.

INDIA

DD, AIR TO COMPLETE DIGITAL TRANSITION IN 2007

The complete digitalisation of broadcasting services of Doordarshan, All India Radio and cable services is planned for 2017, according to Information and Broadcasting Minister, Ambika Soni. The

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Ministry is also seriously considering a mobile TV policy. If the proposal is cleared by Cabinet, an auction process is expected to be initiated for spectrum allocation for mobile TV service providers. Each successful bidder would be entitled to 8 MHz of spectrum or frequency bandwidth.

JAPAN

JAPAN ADOPTS ISDB-TMM FOR MULTIMEDIA BROADCASTING

ISDB-TMM has been adopted in Japan as one of the standards for nationwide mobile multimedia broadcasting, due to be deployed after 24 July 2011. ISDB-TMM technology is said to be highly compatible with ISDB-T, which is the standard for the Japanese DTT broadcasting that was deployed in 2003. Nationwide broadcasting is scheduled to use 207.5-222MHz, while VHF band 90-108MHz will be used for regional broadcasting. Also adopted for nationwide broadcasting is MediaFLO while ISDB-TSB has been chosen for regional broadcasting.

THE PHILLIPINES

DTT DEADLINE PUSHED BACK TO 2015 IN PHILLIPINES

The Commission on Information and Communications Technology (CICT) plans to push back the deadline for the switchover from analogue to digital broadcasting to 2015 pending the selection of a platform. The government is studying two options to be used for the digital TV technology – Japan's ISDB-T and Europe's DVB-T. The National Telecommunications Commission, the agency closely working with CICT for the selection of the digital TV platform, said Japan had offered a low cost set top box (US$ 12) that is cheaper than the European standard (US$ 13-14). The government has no plans to give subsidies on the set-top boxes.

AFRICA

GHANA

GHANA SETS 2012 TARGET FOR DIGITAL SWITCHOVER

Ghana has set a 2012 deadline to complete the switch from analogue to digital broadcasting services ahead of an international deadline of 17 June 2015. A 24-man National Migration Technical Committee to ensure that Ghana achieves the target has been set up in Accra with a mandate to make policy recommendations to situate the transition from analogue to digital broadcasting. The Government is to adopt a phased analogue switch-off process starting with all regional capitals in December 2012.

KENYA

KENYA STARTS DIGITAL TV MIGRATION

Kenya has begun migrating to the DVB-T digital TV standard ahead of the June 2012 deadline. According to the Communication Commission of Kenya (CCK), no more television broadcasting licences will be issued until the country migrates fully to digital technology. The liberalisation of Kenya's media industry has seen a growth in the number of broadcaster but the industry regulator has been unable to meet the demand of frequencies. One analogue frequency is able to accommodate 10 - 12 channels in Mpeg4 format on the digital platform. To run on the digital platform, broadcasters will be required to pay a monthly fee of KSh300,000 to Signet.

LESOTHO

LESOTHO PLANS TO MIGRATE FROM ANALOGUE TO DIGITAL TV

Lesotho Communications, Science and Technology Minister, Mothejoa Metsing, has said that his country had joined the rest of the world in making a landmark decision to migrate terrestrial TV from analogue to digital broadcasting by June 2015. He said it was necessary to coordinate the migration processes before 2015, as per regional and global plans, because any broadcaster transmitting in analogue that could be found to be interfering after 2015 would be shut down without any hesitation.

SOUTH AFRICA

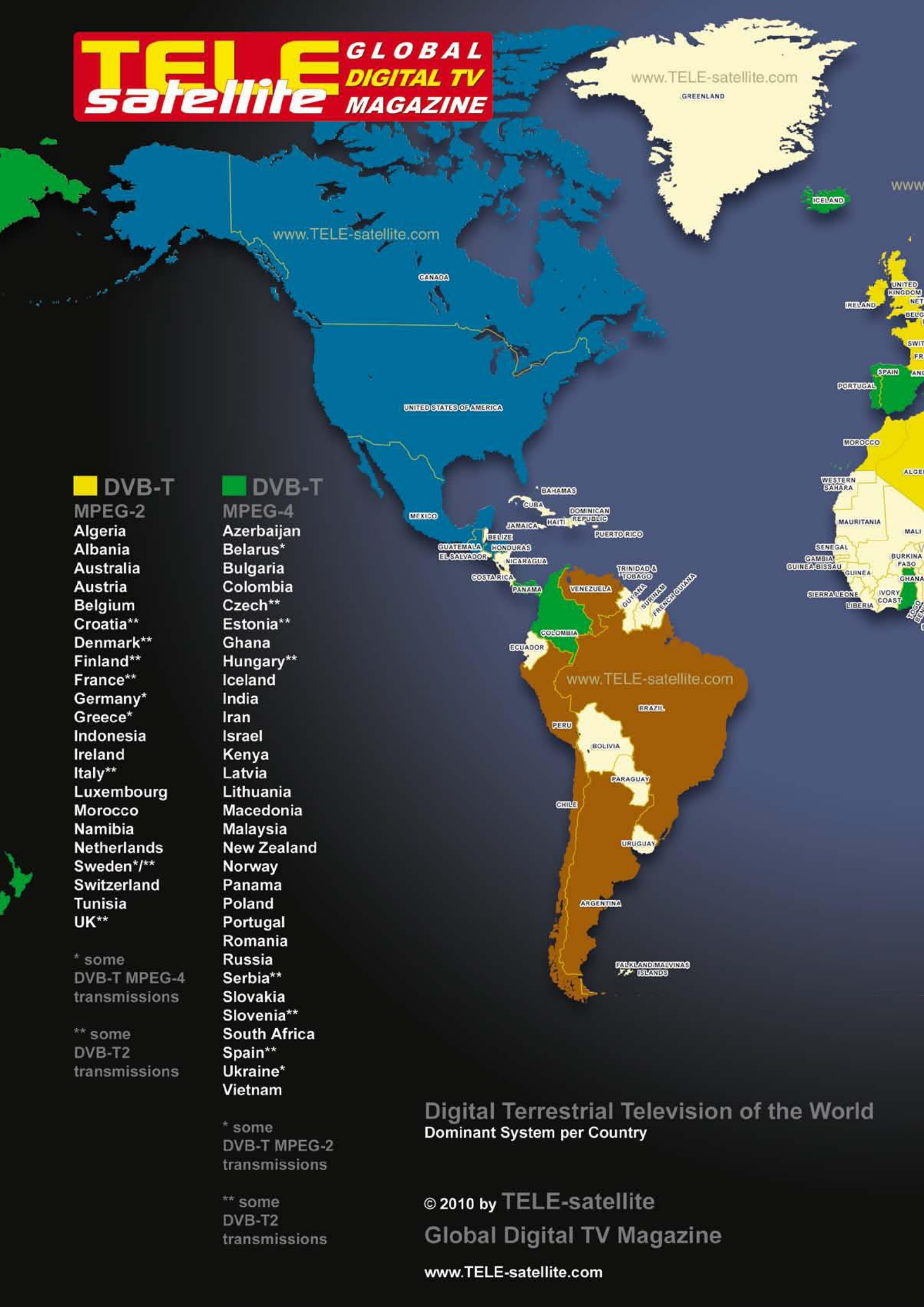
SALES OF DIGITAL BOXES TO START IN FIRST QUARTER

The set-top boxes that South Africans will need for watching television when local broadcasting goes digital, will only be available at stores throughout the country in the first quarter of 2010. The switchover from analogue to digital terrestrial TV is scheduled to be completed by the end of 2011. The Government has budgeted R2.45 billion for this changeover and this includes subsidies for the supply of STBs to qualifying analogue television set owners. Government sources state that the retail price of STBs is estimated at around R700, but the prices are likely to fall as consumer take-up increases. There is expected to be a subsidisation of five million of the poorest households who receive a 70% subsidy of the retail price, excluding installation.

TUNISIA

TUNISIAN TV TO SWITCH TO DIGITAL FROM MARCH 2010

With the arrival of DTT, analogue TV will gradually disappear from Tunisia's television landscape as March 2010. 90% of Tunisia's territory will be covered by DTT by 2010 which is slowly but surely gaining momentum throughout the country. The establishment of DTT will cover all of the country by 2014. DTT will start with a package of some 8 to 12 channels.



DVB-T MPEG-2

Algeria
Albania
Australia
Austria
Belgium
Croatia**
Denmark**
Finland**
France**
Germany*
Greece*
Indonesia
Ireland
Italy**
Luxembourg
Morocco
Namibia
Netherlands
Sweden*/**
Switzerland
Tunisia
UK**

* some DVB-T MPEG-4 transmissions

** some DVB-T2 transmissions

DVB-T MPEG-4

Azerbaijan
Belarus*
Bulgaria
Colombia
Czech**
Estonia**
Ghana
Hungary**
Iceland
India
Iran
Israel
Kenya
Latvia
Lithuania
Macedonia
Malaysia
New Zealand
Norway
Panama
Poland
Portugal
Romania
Russia
Serbia**
Slovakia
Slovenia**
South Africa
Spain**
Ukraine*
Vietnam

* some DVB-T MPEG-2 transmissions

** some DVB-T2 transmissions

Digital Terrestrial Television of the World

Dominant System per Country

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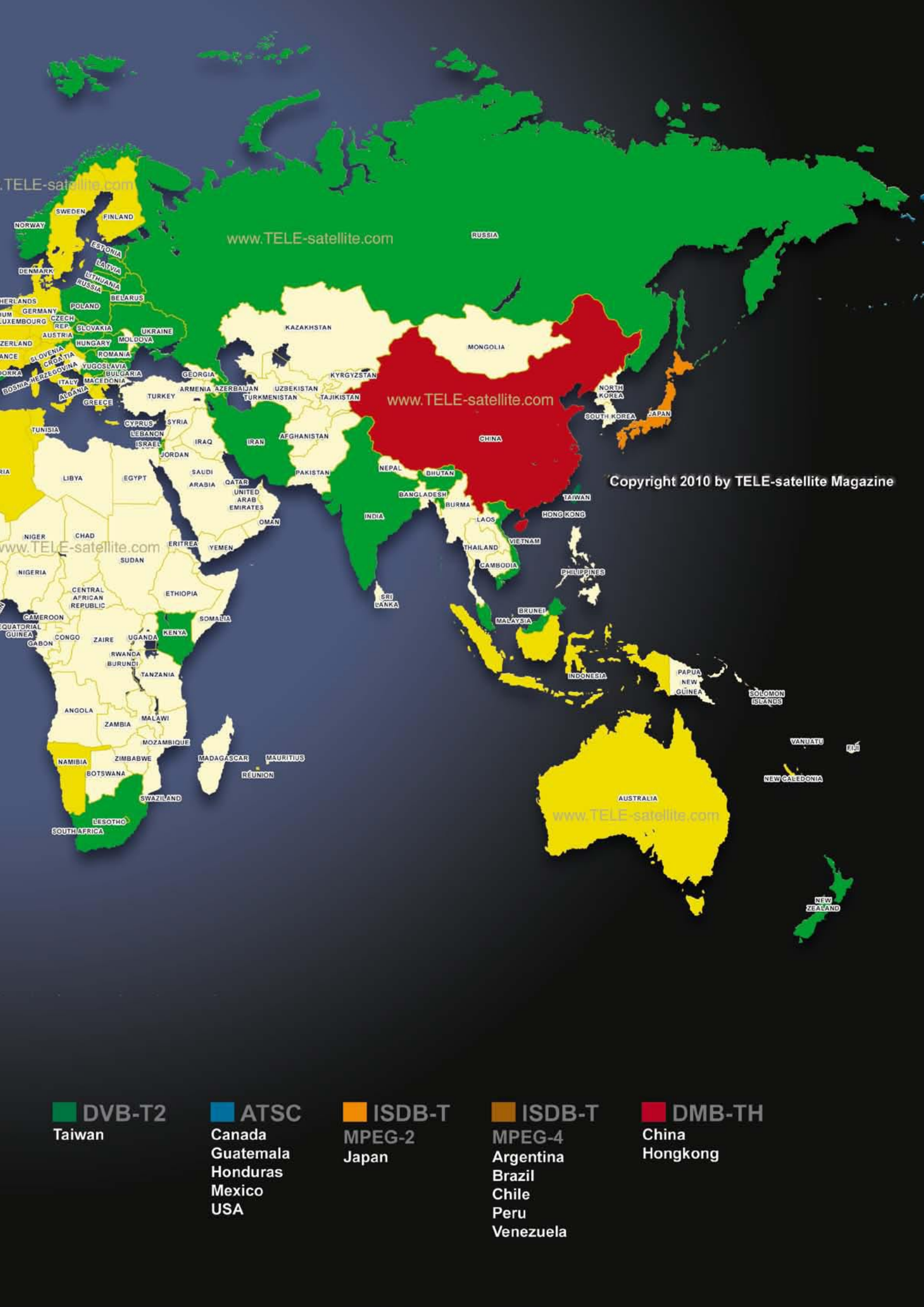
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Edited by
Branislav Pekic

EUROPE

WORLD CUP TESTING GROUND FOR 3G

The 2010 World Cup in South Africa will be the first significant testing ground for the spread of 3-D TV in Europe, according to Giuliano Berretta, president of Eutelsat. The event will run June 11-July 11 and the biggest hurdle, according to his words, is the cost of 3D ready TV sets, which cost some €2000. Berretta anticipated that new devices will appear on the market that will allow for 3D TV signals to be received by new generation digital decoders directly into active 3-D glasses.

DENMARK

TV3+HD LAUNCHES ON VIASAT

TV3+HD, the high-definition version of the Danish free-TV channel TV3+, has launched on Viasat's pay-TV platform in Denmark. The channel is available for Viasat's satellite TV customers with an HD subscription and will also be distributed by third-party IPTV and cable networks. Major sports events to be shown on the channel include the Danish national football league, UEFA Champions League and NFL.

GERMANY

WDR AIRS SPORTS IN HDTV

German broadcaster WDR in Cologne in February began broadcasting major sports programming in HDTV. Spearheaded by the Sportsschau Bundesliga German premier league football coverage, the whole production process will be handled in HD using Quantel Enterprise sQ server-based production technology.

HANSENET LAUNCHES HD CHANNELS

HanseNet has started offering high-definition channels on its IPTV service Alice homeTV for the first time, enabling customers to watch the Olympics Winter Games being held in Vancouver in HD. The new high-definition channels are from public broadcasters ARD and ZDF, and from German-French cultural channel ARTE, and are being offered at no additional cost. Customers will need the HD Media Receiver, which is offered without a hard disk at no charge if they sign up for a 24-month subscription, or which can be purchased for €99.90.

NETHERLANDS

CANALDIGITAAL EXPANDS HDTV CAPACITY

SES Astra has signed a long-term agreement with M7 Group for two additional transponders at 23.5 degrees East. The newly contracted capacity will be used for the further extension of the HDTV line-up of CanalDigitaal, M7 Group's DTH platform for the Dutch market. The Luxembourg-based M7 Group provides DTH-services in the Netherlands, Belgium and Luxembourg using the brand names CanalDigitaal, TV Vlaanderen and TéléSAT. CanalDigitaal will launch a broad range of new HD channels, including HD channels from the Dutch public broadcaster NPO, and commercial broadcasters RTL and SBS.

UNITED KINGDOM

BSKYB INTRODUCES 3D TO UK

BSkyB has aired the world's first live sports event in 3D on its Sky Sports channel. The Premier League match between Arsenal and Manchester United was only a taster ahead of BSkyB's dedicated channel launch in April. Initially, the service will concentrate on sports and be available only in pubs and clubs. A domestic mixed-genre offer, including movies, is due to launch later this year on the Sky HD channel.

VIRGIN MEDIA ADDS EUROSPORT HD, DISCOVERY HD

Cable operator Virgin Media is airing Eurosport HD and Discovery HD, a first of several high-definition channels to be added over coming months. From April, Virgin customers with a XL TV package subscription will have access to the sports channel, which will simulcast programs aired on the regular Eurosport channel. Virgin subscribers can currently receive the following HD channels: BBC HD, 4HD, ESPN HD, Nat Geo HD, MTVNHD, FX HD and Living HD.

FREEVIEW PREPARES HD SERVICE

DTT platform Freeview launched its high-definition in March, initially with only three channels — BBC HD, ITV1 and Channel 4 — with the possibility of a fourth HD channel, Five, launching later in the year. To receive the HD channels, viewers only need to buy a Freeview HD box, costing around GBP 130.

NORTH AMERICA

CANADA

SHAW DIRECT ADDS V IN HD

Shaw Direct customers now have even more French programming to choose from with the addition of the V network in High Definition. V HD features additional French programming for Shaw Direct customers and is the tenth new HD channel added by Shaw Direct in the last year. V HD builds on Shaw Direct's extensive Francophone line-up, including five V channels in Standard Definition.

FREEHD RECEIVES GREEN LIGHT FOR LAUNCH

The Canadian Radio-television and Telecommunications Commission (CRTC), Canada's TV watchdog, approved with strings a license for FreeHD Canada to offer around 100 local TV channels in HD for free and a further 150 Canadian and foreign cable and pay channels, also in HD. The regulator said, pending the resolution of certain issues surrounding Canada's digital transition, FreeHD Canada will be required to operate like other local satellite TV services, including Bell ExpressVu.

UNITED STATES

DISCOVERY, ESPN TO LAUNCH 3D CHANNELS

Two new dedicated 3D television channels are set to launch in the US, with ESPN to introduce its offering in 2010, and Discovery teaming up with Sony and Imax for a joint-venture network in 2011. The first broadcast by ESPN 3D will be the opening 2010 FIFA World Cup match on June 11. The channel will show a minimum of 85 live 3D events during its first year, including up to 25 World Cup matches. Other 3D events will include Summer X Games, college basketball and college football.

TWO THIRDS OF AMERICANS OWN HDTV SETS

A new study from ORC, an Infogroup company has revealed that nearly two-thirds (62%) now have an HDTV in their home, and another 12% are looking to purchase one within the next two years. This brings the potential market penetration to nearly three out of four households. Sony has emerged as the HDTV brand most synonymous with high quality (43% cited this brand on an unaided basis); trailed by Samsung (11%); Panasonic (5%); Vizio (4%); Phillips and LG (3%); Toshiba, RCA and Sharp (2%); and Magnavox, Mitsubishi, JVC and Zenith (1%).

ECHOSTAR VIP-TV DELIVERS HD CHANNELS TO BTC

EchoStar Satellite Services is delivering its ViP-TV video transport service to BTC Broadband, a provider of whole home telecommunications services in Oklahoma. BTC will receive transport of up to 49 HDTV channels to its IPTV head end. BTC Broadband's IPTV solution integrates ViP-TV streams into the fs|cdn IPTV middleware solution from Conklin-Intracom. EchoStar's ViP-TV transport service offers a suite of IPTV services that includes approximately 300 popular, broadcast-quality TV and music channels in IP H.264 format.

FOX TO LAUNCH FOOTBALL CHANNEL IN HD

Fox has launched the Fox Soccer Plus channel in High-Definition on March 1. Fox already has the Fox Soccer Channel, which is expected to switch to high-definition soon. Fox Soccer Plus will air action from the European Champions League, England's Premier League, the English Football Association Cup and the Italian Serie A.

COMCAST TO TERMINATE 40 CHANNELS IN ANALOGUE

Comcast plans to stop providing more than 40 cable channels in analogue format by year's end, including ESPN and MTV, a change that will allow the cable giant to add high-definition content. Subscribers to Comcast's extended basic cable tier and above will need a digital set-top box to view the channels that are being switched to all-digital signals. Customers who want to watch those channels on more than one television will have to install digital adapters on each additional set. Comcast will provide a set-top box and two adapters free of charge.

ASIA & PACIFIC

ORBIT SHOWTIME NETWORK LAUNCHES HDTV

Orbit Showtime Network has launched eight new channels in February, three of which in HDTV. OSN Movies HD, Discovery HD and Nat Geo Wild HD are the latest additions to the existing line-up of HDTV channels.

AUSTRALIA

ABC TO USE HDTV SLOT FOR NEWS CHANNEL

The ABC's single HD channel will be used for its new 24-hour news service even though the broadcaster admits it is not the best way to showcase the new technology. The broadcaster has one HD channel and three SD channels. At present its high-definition channel shows the same content as its main channel, ABC1, but when the news service begins this year it will take over the HD channel. Some 50% of homes will be able to receive the channel from day one.

JAPAN

JUPITER LAUNCHES FIRST 3D TV SERVICE

Cable operator Jupiter Telecommunications will launch 3D broadcasts in April, according to company sources. The 3D services will be on-demand, featuring movies, sports, music and other programming, both foreign and domestic. The Sky Perfectv DTH platform is also reportedly planning to start 3D services this summer.

DishPointer AR

See where to point your dish, live on the iPhone screen!

The revolutionary DishPointer Augmented Reality app is now available on the app store. Just point your iPhone anywhere towards the sky and see all the satellites lined up on the live video screen.

See the Video

See DishPointer AR in action on YouTube!

This app uses the iPhones GPS, motion sensor and compass to calculate all the satellite positions and overlays them on the camera. At a glance you will see where to point the dish and any obstacles blocking the line of sight.

DishPointer is the world's No.1 satellite dish pointing site, offering custom built tools for mobile devices or websites to businesses. For more information, visit www.dishpointer.com.

References

CANAL DIGITAAL SATELLIET · TV VLAANDEREN DIGITAAL · INNOVATION SATELLITE & BROADBAND AWARD · MAXDIGITAL · TELE SATELLITE & BROADBAND

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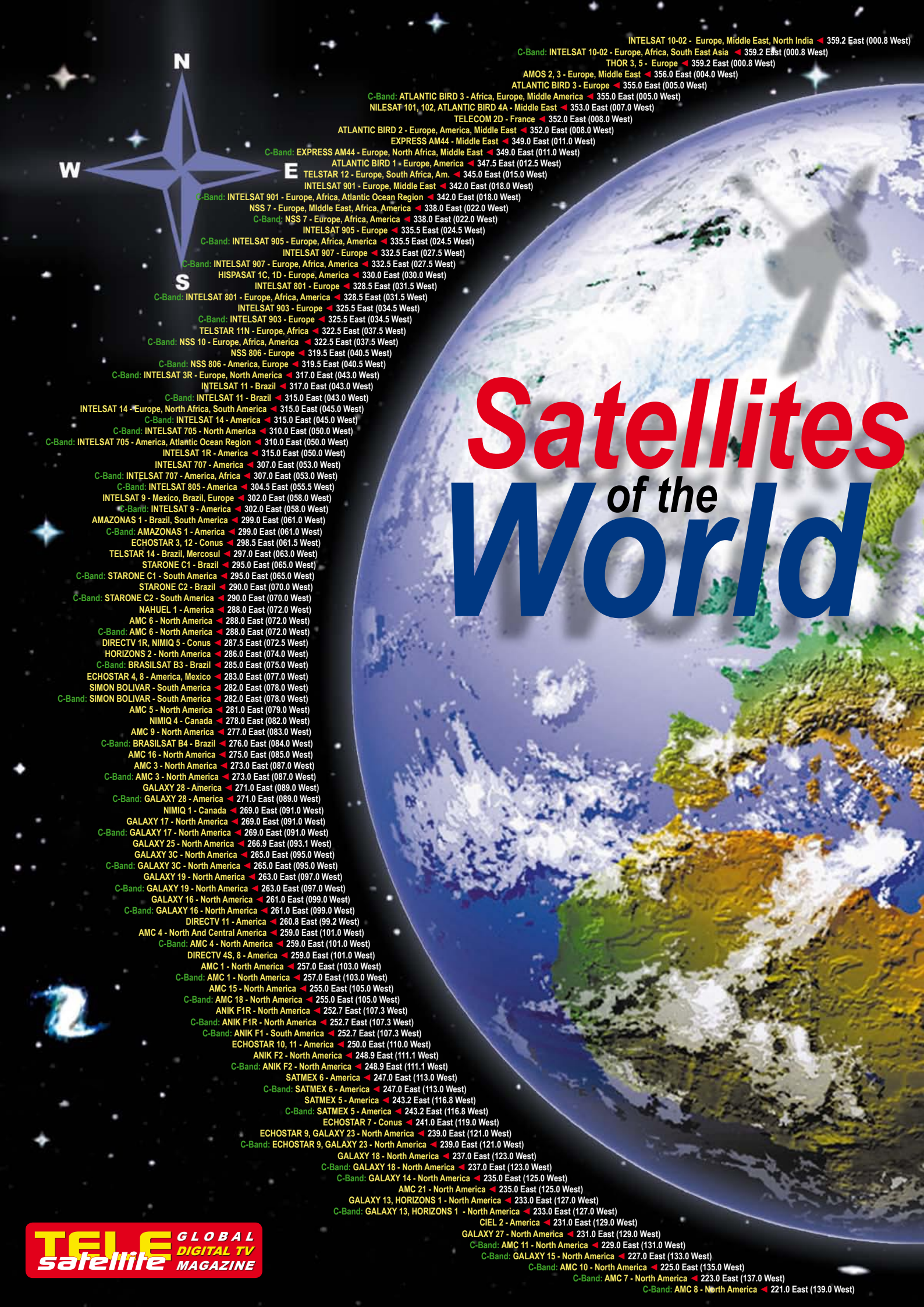

INTELSAT 10-02 - Europe, Middle East, North India ◄ 359.2 East (000.8 West)
C-Band: INTELSAT 10-02 - Europe, Africa, South East Asia ◄ 359.2 East (000.8 West)
THOR 3, 5 - Europe ◄ 359.2 East (000.8 West)
AMOS 2, 3 - Europe, Middle East ◄ 356.0 East (004.0 West)
ATLANTIC BIRD 3 - Europe ◄ 355.0 East (005.0 West)
C-Band: ATLANTIC BIRD 3 - Africa, Europe, Middle America ◄ 355.0 East (005.0 West)
NILESAT 101, 102, ATLANTIC BIRD 4A - Middle East ◄ 353.0 East (007.0 West)
TELECOM 2D - France ◄ 352.0 East (008.0 West)
ATLANTIC BIRD 2 - Europe, America, Middle East ◄ 352.0 East (008.0 West)
EXPRESS AM44 - Middle East ◄ 349.0 East (011.0 West)
C-Band: EXPRESS AM44 - Europe, North Africa, Middle East ◄ 349.0 East (011.0 West)
ATLANTIC BIRD 1 - Europe, America ◄ 347.5 East (012.5 West)
TELSTAR 12 - Europe, South Africa, Am. ◄ 345.0 East (015.0 West)
INTELSAT 901 - Europe, Middle East ◄ 342.0 East (018.0 West)
C-Band: INTELSAT 901 - Europe, Africa, Atlantic Ocean Region ◄ 342.0 East (018.0 West)
NSS 7 - Europe, Middle East, Africa, America ◄ 338.0 East (022.0 West)
C-Band: NSS 7 - Europe, Africa, America ◄ 338.0 East (022.0 West)
INTELSAT 905 - Europe ◄ 335.5 East (024.5 West)
C-Band: INTELSAT 905 - Europe, Africa, America ◄ 335.5 East (024.5 West)
INTELSAT 907 - Europe ◄ 332.5 East (027.5 West)
C-Band: INTELSAT 907 - Europe, Africa, America ◄ 332.5 East (027.5 West)
HISPASAT 1C, 1D - Europe, America ◄ 330.0 East (030.0 West)
INTELSAT 801 - Europe ◄ 328.5 East (031.5 West)
C-Band: INTELSAT 801 - Europe, Africa, America ◄ 328.5 East (031.5 West)
INTELSAT 903 - Europe ◄ 325.5 East (034.5 West)
C-Band: INTELSAT 903 - Europe ◄ 325.5 East (034.5 West)
TELSTAR 11N - Europe, Africa ◄ 322.5 East (037.5 West)
C-Band: NSS 10 - Europe, Africa, America ◄ 322.5 East (037.5 West)
NSS 806 - Europe ◄ 319.5 East (040.5 West)
C-Band: NSS 806 - America, Europe ◄ 319.5 East (040.5 West)
C-Band: INTELSAT 3R - Europe, North America ◄ 317.0 East (043.0 West)
INTELSAT 11 - Brazil ◄ 317.0 East (043.0 West)
C-Band: INTELSAT 11 - Brazil ◄ 315.0 East (043.0 West)
INTELSAT 14 - Europe, North Africa, South America ◄ 315.0 East (045.0 West)
C-Band: INTELSAT 14 - America ◄ 315.0 East (045.0 West)
C-Band: INTELSAT 705 - North America ◄ 310.0 East (050.0 West)
C-Band: INTELSAT 705 - America, Atlantic Ocean Region ◄ 310.0 East (050.0 West)
INTELSAT 1R - America ◄ 315.0 East (050.0 West)
INTELSAT 707 - America ◄ 307.0 East (053.0 West)
C-Band: INTELSAT 707 - America, Africa ◄ 307.0 East (053.0 West)
C-Band: INTELSAT 805 - America ◄ 304.5 East (055.5 West)
INTELSAT 9 - Mexico, Brazil, Europe ◄ 302.0 East (058.0 West)
C-Band: INTELSAT 9 - America ◄ 302.0 East (058.0 West)
AMAZONAS 1 - Brazil, South America ◄ 299.0 East (061.0 West)
C-Band: AMAZONAS 1 - America ◄ 299.0 East (061.0 West)
ECHOSTAR 3, 12 - Conus ◄ 298.5 East (061.5 West)
TELSTAR 14 - Brazil, Mercosul ◄ 297.0 East (063.0 West)
STARONE C1 - Brazil ◄ 295.0 East (065.0 West)
C-Band: STARONE C1 - South America ◄ 295.0 East (065.0 West)
STARONE C2 - Brazil ◄ 290.0 East (070.0 West)
C-Band: STARONE C2 - South America ◄ 290.0 East (070.0 West)
NAHUEL 1 - America ◄ 288.0 East (072.0 West)
AMC 6 - North America ◄ 288.0 East (072.0 West)
C-Band: AMC 6 - North America ◄ 288.0 East (072.0 West)
DIRECTV 1R, NIMIQ 5 - Conus ◄ 287.5 East (072.5 West)
HORIZONS 2 - North America ◄ 286.0 East (074.0 West)
C-Band: BRASILSAT B3 - Brazil ◄ 285.0 East (075.0 West)
ECHOSTAR 4, 8 - America, Mexico ◄ 283.0 East (077.0 West)
SIMON BOLIVAR - South America ◄ 282.0 East (078.0 West)
C-Band: SIMON BOLIVAR - South America ◄ 282.0 East (078.0 West)
AMC 5 - North America ◄ 281.0 East (079.0 West)
NIMIQ 4 - Canada ◄ 278.0 East (082.0 West)
AMC 9 - North America ◄ 277.0 East (083.0 West)
C-Band: BRASILSAT B4 - Brazil ◄ 276.0 East (084.0 West)
AMC 16 - North America ◄ 275.0 East (085.0 West)
AMC 3 - North America ◄ 273.0 East (087.0 West)
C-Band: AMC 3 - North America ◄ 273.0 East (087.0 West)
GALAXY 28 - America ◄ 271.0 East (089.0 West)
C-Band: GALAXY 28 - America ◄ 271.0 East (089.0 West)
NIMIQ 1 - Canada ◄ 269.0 East (091.0 West)
GALAXY 17 - North America ◄ 269.0 East (091.0 West)
C-Band: GALAXY 17 - North America ◄ 269.0 East (091.0 West)
GALAXY 25 - North America ◄ 266.9 East (093.1 West)
GALAXY 3C - North America ◄ 265.0 East (095.0 West)
C-Band: GALAXY 3C - North America ◄ 265.0 East (095.0 West)
GALAXY 19 - North America ◄ 263.0 East (097.0 West)
C-Band: GALAXY 19 - North America ◄ 263.0 East (097.0 West)
GALAXY 16 - North America ◄ 261.0 East (099.0 West)
C-Band: GALAXY 16 - North America ◄ 261.0 East (099.0 West)
DIRECTV 11 - America ◄ 260.8 East (99.2 West)
AMC 4 - North And Central America ◄ 259.0 East (101.0 West)
C-Band: AMC 4 - North America ◄ 259.0 East (101.0 West)
DIRECTV 4S, 8 - America ◄ 259.0 East (101.0 West)
AMC 1 - North America ◄ 257.0 East (103.0 West)
C-Band: AMC 1 - North America ◄ 257.0 East (103.0 West)
AMC 15 - North America ◄ 255.0 East (105.0 West)
C-Band: AMC 18 - North America ◄ 255.0 East (105.0 West)
ANIK F1R - North America ◄ 252.7 East (107.3 West)
C-Band: ANIK F1R - North America ◄ 252.7 East (107.3 West)
C-Band: ANIK F1 - South America ◄ 252.7 East (107.3 West)
ECHOSTAR 10, 11 - America ◄ 250.0 East (110.0 West)
ANIK F2 - North America ◄ 248.9 East (111.1 West)
C-Band: ANIK F2 - North America ◄ 248.9 East (111.1 West)
SATMEX 6 - America ◄ 247.0 East (113.0 West)
C-Band: SATMEX 6 - America ◄ 247.0 East (113.0 West)
SATMEX 5 - America ◄ 243.2 East (116.8 West)
C-Band: SATMEX 5 - America ◄ 243.2 East (116.8 West)
ECHOSTAR 7 - Conus ◄ 241.0 East (119.0 West)
ECHOSTAR 9, GALAXY 23 - North America ◄ 239.0 East (121.0 West)
C-Band: ECHOSTAR 9, GALAXY 23 - North America ◄ 239.0 East (121.0 West)
GALAXY 18 - North America ◄ 237.0 East (123.0 West)
C-Band: GALAXY 18 - North America ◄ 237.0 East (123.0 West)
C-Band: GALAXY 14 - North America ◄ 235.0 East (125.0 West)
AMC 21 - North America ◄ 235.0 East (125.0 West)
GALAXY 13, HORIZONS 1 - North America ◄ 233.0 East (127.0 West)
C-Band: GALAXY 13, HORIZONS 1 - North America ◄ 233.0 East (127.0 West)
CIEL 2 - America ◄ 231.0 East (129.0 West)
GALAXY 27 - North America ◄ 231.0 East (129.0 West)
C-Band: AMC 11 - North America ◄ 229.0 East (131.0 West)
C-Band: GALAXY 15 - North America ◄ 227.0 East (133.0 West)
C-Band: AMC 10 - North America ◄ 225.0 East (135.0 West)
C-Band: AMC 7 - North America ◄ 223.0 East (137.0 West)
C-Band: AMC 8 - North America ◄ 221.0 East (139.0 West)

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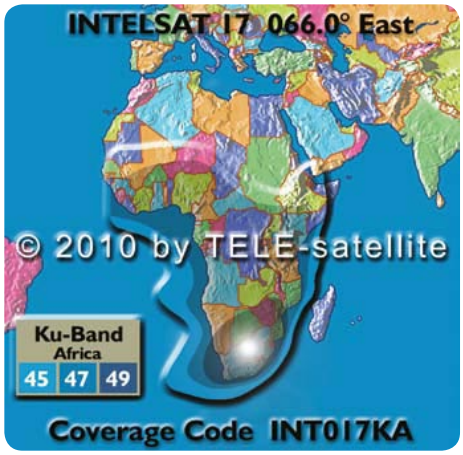
New Satellites

to be launched soon

Edited by
Aleksandar Medic

INTELSAT 17

This Space Systems/ Loral satellite based on its very popular 1300 platform will replace INTELSAT 702, located at 66° East. INTELSAT 17 will carry 28 linear and circular polarization C-band and 46 linear polarization Ku-band (36 MHz equivalent) transponders. This satellite's Ku-band transponders will serve customers in Europe, Middle East, Africa and Russia, while its C-band transponders will cover Asia, Africa, Europe and the Middle East. The satellite will be launched on the Sea Launch platform and it will have an operational life of 15 years.



RASCOM QAF 1R

RASCOM, Regional African Satellite Communication Organization has launched world's first pan-African satellite, RASCOM QAF 1, in 2007. New RASCOM QAF 1R satellite will replace it on its 2.8° East orbital position. Although RASCOM QAF 1 was supposed to have an operational life of 15 years, its lifespan has been drastically shortened due to a helium leak that forced the operator to use the main part of its propellant reserves in order to bring it to its orbital position. Just like its predecessor, RASCOM QAF 1R is based on the Thales Spacebus 4000 B3 platform. This satellite with multiple spot beams will be launched using Ariane 5 vehicle from the Kourou Space Centre in French Guyana. This 12 Ku-band and 8 C-band transponders satellite will ensure adequate continuity of direct television and Internet access services. RASCOM QAF 1R will have a launch mass of 3.2 tons and provide 6.4 kW of power during its 15 years of service.

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  The Must-Attend Global Event for Content Professionals
  Las Vegas Convention Center, Las Vegas, Nevada, USA
  www.nabshow.com

- **13 - 14 April 2010: SatCom 2010 Africa**
  Investment and Development for Operators, Government and Investors
  Sandton Convention Center, Johannesburg, South Africa
  www.satcomafrica.com

- **4 - 6 May 2010: ANGA Cable 2010**
  Trade Fair for Cable, Broadband and Satellite
  Koeln Messe, Cologne, Germany
  www.angacable.com

- **15 - 18 June 2010: CommunicAsia 2010**
  The 21st International Communications and Information Technology Exhibition & Conference
  Singapore Expo, Singapore
  www.communicasia.com

- **22 - 24 June 2010: SatCom 2010 Russia & CIS**
  Investment and development for operators, developers, government and investors
  Kiev, Ukraine
  www.terrapinn.com/2010/satcomrus/

- **6 - 10 October 2010: Broadcast Cable & Satellite eurasia**
  14th International Trade Fair and Conference for Satellite Communication, Broadcasting and TV Content
  Tüyap Fuar ve Kongre Merkezi, E-5 Karayolu, Gürpınar Kavşağı 34522 - Büyükçekmece, İstanbul, Türkiye
  www.cebit-bcs.com

- **20 - 22 October 2010: EEBC**
  Telecom & Broadcasting
  Exhibition centre "KyivExpoPlaza", Kiev, Ukraine
  www.eebc.net.ua

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Editorial Deadlines, Magazine Publishing Dates

Number	Issue	Deadline	Hardcopies	Available Online
#217	06-07/2010	2 April 2010	14 May 2010	28 May 2010
#218	08-09/2010	4 June 2010	16 July 2010	30 July 2010
#219	10-11/2010	6 August 2010	17 September 2010	1 October 2010
#220	12-01/2011	8 October 2010	19 November 2010	3 December 2010
#221	02-03/2011	3 December 2010	14 January 2011	28 January 2011

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