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**Test Report**  
**TOPFIELD**  
**TMS SRP-2100**  
 First of its Kind:  
 Satellite + Internet in One



# TOPFIELD



# TMS SRP-2100



## Multimedia HDTV Twin Tuner PVR with DivX playback

### PVR



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

### Multimedia



Playing media contents of YouTube.

### DivX



Supporting video files of DivX, MPG, MP4, VOB, MKV and FLV

### GAME



Featuring on-line game 'BATTLE TANK'.

- Able to transfer media files among network users.
- Providing Yahoo Flickr and Google Weather.







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# Technomate

The New!

## TM-5000 Super Series

with USB PVR for Recording



### Introducing the New TM-5000 USB Super Series...

- ✓ 10,000 Channel Memory
- ✓ Component Output (YPbPr)
- ✓ Super Sensitive Tuner
- ✓ Very Fast Blind Search
- ✓ Based on 2008 What Satellite Magazine's Best Enthusiast Receiver

### USB Features:

- ✓ Record/Playback Scrambled & Free-To-Air (FTA) Channels by USB 2.0
- ✓ Pause Live TV by Timeshift via USB 2.0
- ✓ Forward/Rewind Recordings
- ✓ USB 2.0 for Software Download/Upload, MP3 & JPEG Playback
- ✓ Rear Mounted USB 2.0     ✓ Silver or Black

### Based on the HIGHEST Rated Satellite Receiver...ever! (92%)

The TM-5200 D USB reviewed by What Satellite Magazine (Jan 2008)

**TM-5200 D USB**  
*super*

Free-To-Air Satellite Receiver

**TM-5300 D+ USB**  
*super*

with Built-in Smart Card Reader

**TM-5400 CI+ USB**  
*super*

with Card Reader + Common Interface

**TM-5600 CI USB**  
*super*

with Common Interface

## High-Definition Satellite & Terrestrial Receiver

### TM-6900 HD COMBO Super



- ✓ Based on the Award Winning TM-6900 HD COMBO
- ✓ 2x USB 2.0 Ports (Front + Rear)
- ✓ Very Fast & Detailed Hardware Blind Search
- ✓ RF Modulator
- ✓ eSATA
- ✓ Ethernet Communication Port

- 10,000 Channels • Record Scrambled & FTA Channels by USB • Timeshift
- MP3 & JPEG Playback & Data/Software Transfer by USB 2.0 • 1080i, 720p, 576p & 576i
- MPEG-2, MPEG-4 & H.264 • Built-in Upscaler to Improve Standard Picture Quality
- 1 Smart Card Reader & 2 Common Interface (CI) • VFD Display • Silver or Black



### 3500 HDMI PVR

Smart Card reader • HDMI output • VFD display • USB PVR ready - recording & playing using external HDD or USB • software upgrade via USB 2.0 • Timeshift function • PIP • available in silver and black



### 3000 CPCI PVR

Smart Card reader • 1x CI slot • USB PVR ready - recording & playing using external HDD or USB • software upgrade via USB 2.0 • Timeshift function • PIP • available in silver and black



### 3500CI HDMI PVR

Smart Card reader • 1x CI slot • HDMI output • VFD display • USB PVR ready - recording & playing using external HDD or USB • software upgrade via USB 2.0 • Timeshift function • PIP • available in silver and black



### 3000 CR PVR

Smart Card reader • USB PVR ready - recording & playing using external HDD or USB • software upgrade via USB 2.0 • Timeshift function • PIP • available in silver and black



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# Dear Readers



*In this issue of TELE-satellite we are introducing to you the first, and nearly perfect, multimedia receiver. It's a satellite receiver with a built-in interface to Internet TV. It certainly looks like this is the future since the viewer really doesn't care from where he gets his TV shows.*

*What's interesting about all of this is that this future came about because of satellite receivers. Stand-alone boxes that can only receive Internet TV will also be available; in fact, we will present just such a box in the next issue of TELE-satellite.*

*But in general, the trend will be for satellite receivers to handle most of the Internet TV reception. If you take the idea of satellite reception and put it aside for a moment and take a closer look at the basic function of a receiver, it is nothing more than a box that can receive TV channels. For a "normal" TV viewer, a receiver is just a way to magically display all of these wonderful channels on a TV monitor.*

*"Magically" is actually quite appropriate; decades ago when TV was just getting started, a TV was referred to as a "magic box". Today, a TV in most cases is nothing more than a monitor with the satellite receiver having become the "magic box".*

*Soon it will be a multimedia receiver; a satellite receiver with an Internet connection.*

*Satellite and Internet are slowly becoming one; both of these technologies offer unlimited programming possibilities without any restrictions. Even more important: it provides freedom from censorship that you might otherwise see with a cable company for example, or freedom from government restrictions that might come with terrestrial TV.*

*The media's future has always existed in the unlimited world of freedom and both satellite reception and the Internet are part of this; now they're coming together in the form of multimedia receivers.*

*By the way, two years ago TELE-satellite was given a new name: "TELE-satellite & Broadband". Now you know why.*

**Alexander Wiese**

*P.S.: My favorite radio station of the month, as in the previous issue of TELE-satellite, is from Bulgaria: "Veronika" on 12.169H (THOR 359° east) with endless Balkan pop.*

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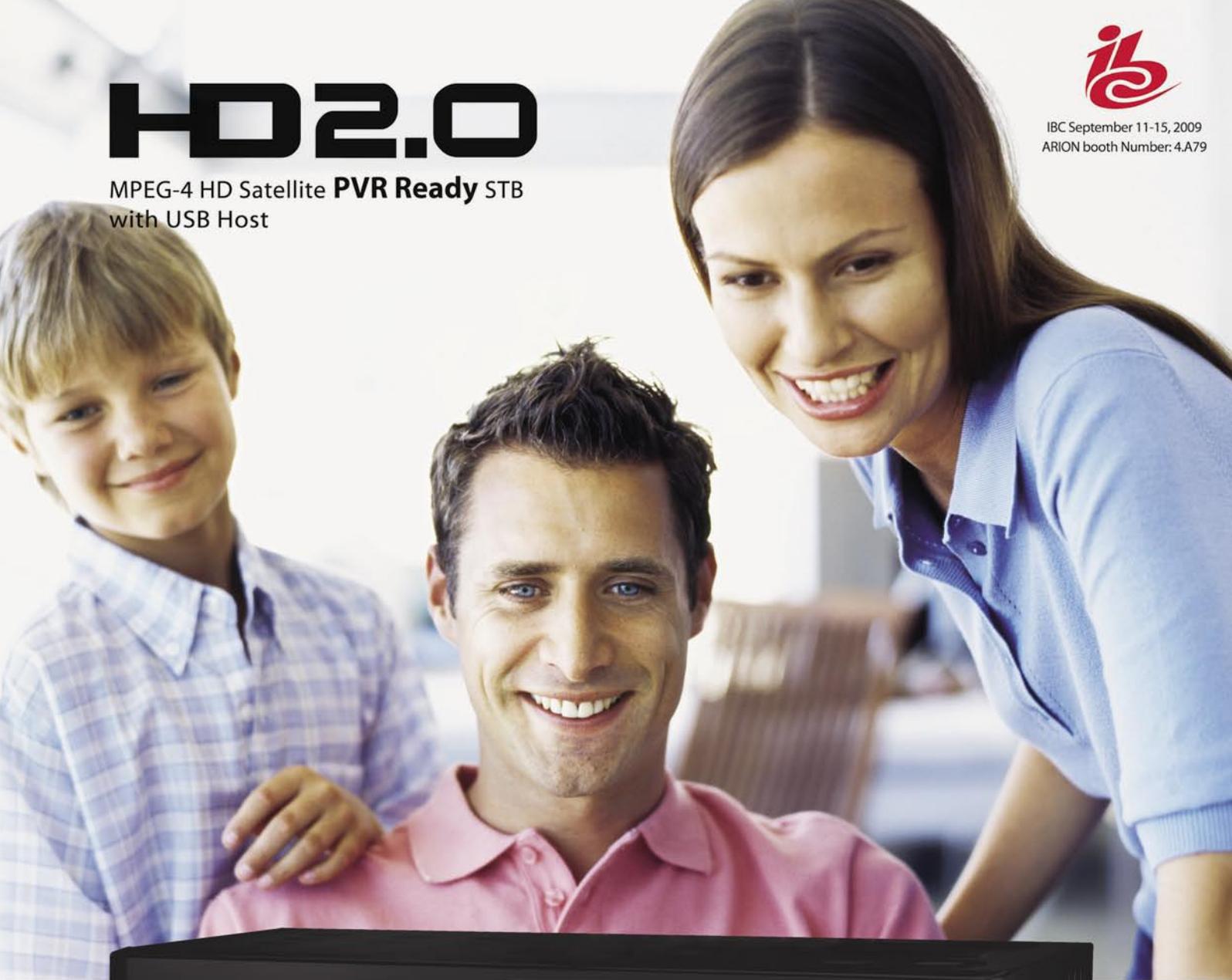
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IBC September 11-15, 2009  
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# HD2.0

MPEG-4 HD Satellite **PVR Ready** STB  
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- \* SD MPEG2 4:2:0 streams @ 60fps
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**PVR**  
Playing recorded programmes 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

### 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.

#### Features will be available by firmware updates

- Enables you to record the video from an external device such as a digital camera.
- Enables you to chat with other users via Internet.
- Enables you to enjoy the double-player game with other users via Internet.
- Enables you to transfer media files between the PVR and your computer with embedded web & FTP servers.
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- Satlook Micro +
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#### ALSO AVAILABLE:

#### Upgrade-KIT for Satlook Micro

You need a PC with internet-access in order to be able to upgrade Your old Micro with the new G2 version.

Satlook Micro G2 upgrade contains:

- CD with software
- New G2 carrying-case
- Owners manual

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- 5" 16:9 LCD color display
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- Digital BER, QPSK and S/N-ratio
- DiSEqC according to level 1.0, 1.1 and 1.2
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#### DVB-T Receiver

- HDMI outputport, 576p, 720p, 1080i
- Fully DVB-T compliant
- 2000 service TV & Radio programmable

#### TF 6000 FE

#### Digital satellite Receiver

- MPEG-2 Digital and fully DVB compliant
- DiSEqC 1.0, 1.1, 1.2 and USALS (DiSEqC 1.3)
- 5000 services (TV and Radio) programmable

### PCMCIA-Modules

- CONAX
- IRDETO
- VIACCESS
- ASTON / SECA
- CRYPTOWORKS
- CRYPTOWORKS (Arena)
- PREMIERE



- ALPHACRYPT Light
- ALPHACRYPT Classic
- ALPHACRYPT TC
- VIACCESS MPEG 2+4
- CONAX MPEG 2+4

### Boca **NEW**

#### DSL 250 / DSL 250-T



#### Digital satellite / terrestrial Receiver

- Multi-functional timer
- Electronic Program Guide (EPG): Up to 7/16 days in advance (channel dependent)
- Timer function linked with EPG
- Power switch/ 2 watt standby mode
- Multi-picture function

#### DSL 350 1CI



#### Digital satellite Receiver

- 1 x common interface
- DiSEqC 1.2 control system
- Digital audio output (coaxial)
- 4500 programme storage locations

#### DSL 500 PVRready



#### Digital satellite Receiver PVR-ready

- 1 x common interface
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- Multi-picture function

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**HDTV Receiver Selection**

**TOPFIELD**

TF-7700 HD PVR



HDTV digital satellite Receiver with personal video recorder

- Fully DVB-S / DVB-S2 (H.264) HD compliant
- With 2 tuners
- Time shift supported
- USB memory supported

**TOPFIELD**

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HDTV for satellite and 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

**Boca**

**NEW**

HD 200 CI PVR



HDTV digital satellite Receiver PVR-ready

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- YuV component output

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- SG 107 – up to 1,10 m
- SG 2100 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

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- INVACOM
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- Twin Universal
- Quattro Universal
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- Monoblock Single Universal
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- C Band
- Circular and many more

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

All available as:

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- 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



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- TWH-031
- QTH-031
- QDH-031
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- TWF-031
- QTF-031
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High-Line-Series



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• 0,2 dB

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**MAXIMUM**

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- LNB holder for 5 LNBs, 48°
- Turnable mounting bracket for optimized reception
- Steel with polyester coating

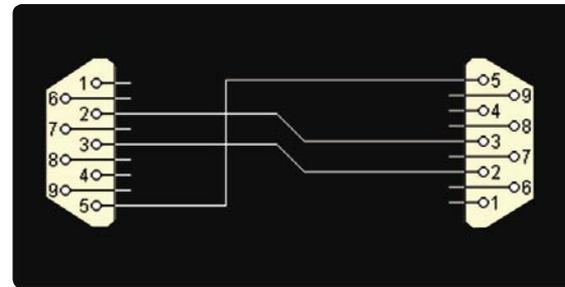
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# Data Exchange Between PC and Digital Satellite Receiver

Thomas Haring

*Strictly speaking, a digital receiver is nothing else than a PC in miniature. While it does, of course, prioritise different tasks and serves an entirely different purpose using different components and user interfaces, it nonetheless comes equipped with a central processing unit, various types of memory and a connection for signal output to a connected device. So what makes more sense than establishing a digital connection between a satellite receiver and a PC for exchanging data, putting out signals on additional devices and controlling the receiver via remote access? To achieve just this, three connection types have been established in the course of time, and this report will introduce you to all of them.*



■ Pin configuration of a 3-strand null modem cable to the PC

as no surprise that the data transfer rate of serial interfaces is very low and does hardly exceed 0.8 Mb/s.

So as far as speed is concerned, this interface is a thing of the past, even though most PCs boast at least one serial interface even up to this day. Receiver manufactures had joined this bandwagon and began to equip their receivers with a serial interface as well.

Another reason for this development was that the chipsets available at the time when digital satellite television was introduced were hardly capable of supporting other connection types. And if we take into account that PVRs at that time were in experimental stages only, to say the least, and that data exchange only involved channel lists and software, then the transfer speed to be reached with a serial connection was sufficient at the time.

So-called null modem cables are required for a serial connection, and they consist of either 3 or 9 strands. The 3-strand type is not capable of performing handshakes, while the 9-strand type supports this.

A handshake in this case means that hardware controls the data flow and thus makes sure data can flow uninterrupted. For simply reading and writing channel lists or for updating the receiver's software a 3-strand null modem cable will do, as the software will emulate flow control in these applications.

Null modem cables are available in PC stores or can even be DIY-ed using rather simple tools (see plugging diagram). Please do make sure, however, that the terminal plug always has nine pins, even if only three of them are wired. Any major electronics shop should have



■ Null modem cable for connecting a receiver to the PC



■ Serial interface of a digital receiver

## Serial Interface

Right from the beginning of personal computers – and that is to say a long time before the advent of the digital satellite age – PCs started to feature serial interfaces which allowed users to connect and control peripherals such as a computer mouse, or to establish a connection to the outside world with the help of a modem. Given the fact that this was introduced many years ago it comes



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LNB LO Frequency  
LNB Noise Figure  
LNB Conversion Gain  
LNB Output

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10.7-12.75 Ghz  
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Dual Circular  
34 dBi(at 12.4 Ghz)  
<-30dB  
4.5 degree  
All LO  
0.5 dB(Max)  
60~65 dB  
1 output(standard)/  
2/4 outputs(optional)

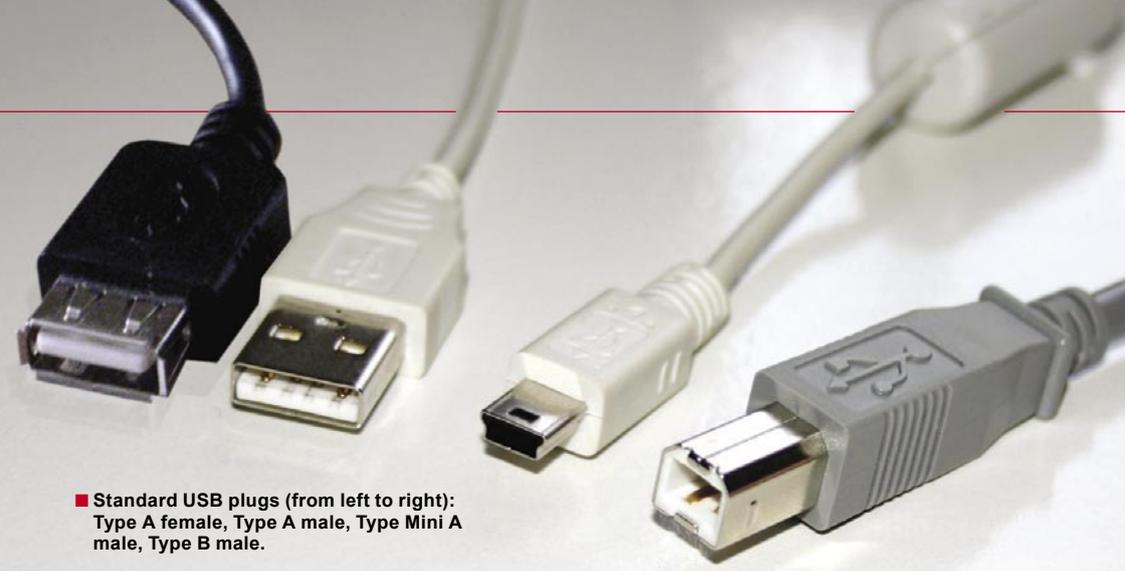
### TRUSAT600

63cm X 63cm  
10.7-12.75 Ghz  
Dual Linear or  
Dual Circular  
37 dBi(at 12.2 Ghz)  
<-30dB  
2.7 degree  
Same as left  
Same as left  
Same as left  
Same as left

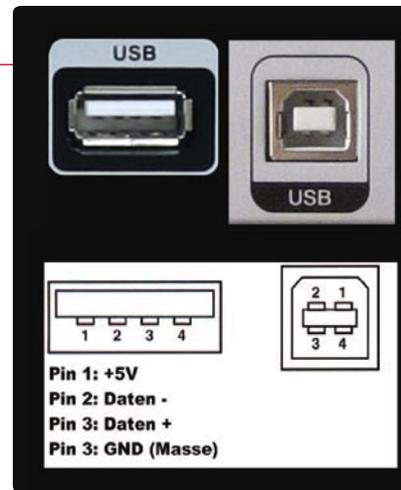


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■ Standard USB plugs (from left to right): Type A female, Type A male, Type Mini A male, Type B male.



■ PIN configuration of USB plug

the necessary cables and plugs in their range.

## USB Interface

A universal serial bus interface is a bit-serial bus, which means that individual bits of a data packet are transmitted one after the other. Data is transmitted symmetrically via two twisted wires, one of which transmits the data signal and the other the corresponding inverted signal. The signal receiver creates the differential voltage of both signals, which means that the voltage level difference between the 0 and 1 levels is twice the usual value so that outside interference is largely eliminated. This in turn improves transmission reliability, suppresses common mode interference and at the same time increases electromagnetic compatibility. Two additional wires provide power to connected devices.

A USB connection can achieve significantly higher transfer rates than a serial connection. USB 1.0 and USB 1.1 are rated at a maximum of 12 Mbit/s, and USB 2.0 supports up to 480 Mbit/s. While this figure looks impressive on paper, we do have to take into account that the limited processing capability of most receivers means that this transfer rate will not be used to the fullest.

Yet, even if 480 Mbit/s are out of reach, USB 2.0 nonetheless was the first con-

nection that allowed transferring large amounts of data in a reasonably short period of time.

There is a difference between USB host connections and USB client connections. USB host means that the receiver becomes the master device which can access data on an external hard disk or a memory card of a digital camera, for example. USB client, on the other hand, means that connection is established between a PC and the digital receiver and the receiver's internal hard disk pops up on the PC as a removable storage medium. This in turn allows exchanging, moving or copying data between both devices in an easy way.

You can easily spot the difference between these two types by looking at the USB plugs. A USB host plug (type A) is flat, while a USB client plug (type B) is rectangular. In most cases, devices with a built-in hard disk feature a client connection so that data can easily be transferred to the PC, while receivers without hard disk generally sport a host connection so that the receiver is able to access external hard disks.

As far as cable lengths are concerned, a USB 2.0 connection can reach up to five metres without requiring signal amplification. If your individual situation requires still longer cables you have to

look for dedicated extension cables, or you may want to connect several standard 5-metre USB cables by means of active USB hubs. These hubs amplify the transmitted signal and at the same time allow connecting several additional USB devices to the PC.

Please note, however, that only PCs are capable of addressing more than one external USB hard disk at the same time. Satellite receivers are not designed to support this.

These days a USB connection has become the most popular data exchange set-up in the digital satellite field both for connecting a PVR receiver to the PC as well as for giving users the option of using external storage media instead of or in addition to integrated hard disks. This allows working with several different hard disks (not at the same time, though!) so that whenever a hard disk is filled to the brim with recordings you can simply connect another disk rather than having to delete data.

Add to that the fact that modern 2.5-inch external disks do not require a separate power supply and are hardly bigger than a pack of cigarettes and it becomes clear why USB storage media have gained so much popularity in recent times. So next time you're out and about camping, simply bring along your movie



■ USB host interface of the TF7700HSCI for connecting external storage media

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archive and you're all set to save any rainy day.

## Network Connection

By far the most versatile connection type between a PC and a digital satellite receiver is an Ethernet connection. What has been the norm in the PC world virtually for decades has also entered the digital PVR realm some years back.

An Ethernet connection can either be wired or wireless and can bridge large distances. While serial and USB connections are limited to a few metres, Ethernet networks can easily extend over hundreds of metres. On the other hand, the significant advantages of a network connection come at a price – in other words: a considerable amount of planning and configuration is required to make an Ethernet connection work.

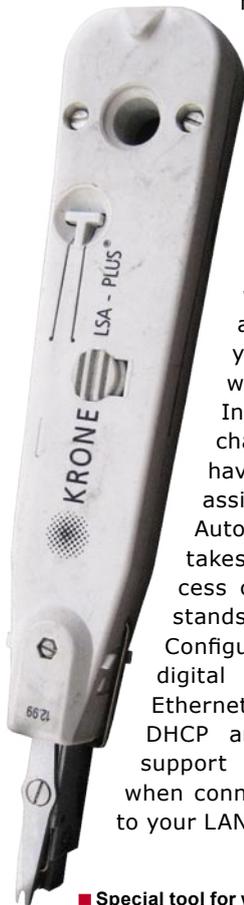
So-called twisted pair cables are required for Ethernet networks, with eight individual strands being twisted into four pairs, hence the name. Using pairs of two strands each minimises outside interference. This type of cable can easily be laid out by everybody, fitted with RJ45 plugs or connected from one plug socket to the next. Using plug sockets may turn out to be a wise decision, particularly if you need to cover larger distances, as the cables can be hidden in cable conduits and the devices that are connected to the network only require short cables from the device's Ethernet interface to the wall socket, which makes for a very neat set-up. Special tools are needed to attach an RJ45 plug to a twisted pair cable and to wire a socket appropriately (see picture).

Your local PC or electronics store should be able to provide you with such a tool. Thanks to colour-coding, correct wiring doesn't require a degree in electronics, and if you're going about it carefully there is hardly any risk that something might go wrong.

In contrast to USB or serial connections, which invariably require a direct point-to-point connection between two

devices, an Ethernet network allows several devices access all other devices in the network at the same time. For digital satellite receivers this implies that you can actually access your digital PVR in the living room while sitting in front of your PC in the study, while at the very same time your kid's PC is also connected to the satellite receiver. There's no way a USB or serial connection would ever be able to provide these network capabilities.

With many different devices being connected to a single network it is obviously necessary to be able to differentiate between each client. To this end, each device in the network is allocated a dedicated designation, the so-called IP address. An IP address always consists of four number blocks, with each block being a number from 0 to 255. This way, each device has a unique identification, and in order to become a fully functional network client, your digital satellite receiver also has to be assigned an individual IP address. If you are using a DSL modem or a router in your network, IP addresses will be assigned automatically and you don't have to worry about a thing. In all other cases, chances are you'll have to manually assign an IP address. Automatic assignment takes place via a process called DHCP, which stands for Dynamic Host Configuration Protocol. All digital receivers with an Ethernet interface support DHCP and therefore fully support genuine Plug&Play when connecting the receiver to your LAN at home.



■ Special tool for wiring plug sockets

Let's look at manual IP address assignment as well, for a moment. You need to bear in mind that IP addresses are used both in your local network at home as well as on the Internet, which is the reason why certain blocks of IP addresses are reserved for different purposes.

Generally, the address range from 192.168.0.0 to 192.168.255.255 is used for private home networks, with most DSL modems and routers already being preset to use this range. For your receiver you may then use 192.168.0.1 and for the PC 192.168.0.2, for example.

Some of you may be wondering now how several devices can be connected to each other, even though each device only features a single Ethernet interface. Well, that's when routers or DSL modems with integrated router come into play. They are equipped with 4, 8, 16 or even more connection interfaces for different devices and distribute the signal to correct addressee.

Next to a wired Ethernet connection, recent times have also seen more and more wireless (so-called WLAN) networks being set-up at home. South Korean manufacturer Topfield was one of the first companies in the satellite receiver industry to make some of their products WLAN ready. The single biggest advantage of using WLAN is the fact that no cabling whatsoever is required between satellite receiver and PC.

The single biggest drawback is the fact that wireless signals can travel only so far and in buildings made of reinforced concrete, for example, signals have a hard time penetrating walls. Brick or wooden buildings, on the other hand, are very WLAN friendly and in many cases allow using a WLAN network even across several floors.

In a WLAN network, the assignment of IP addresses happens the same way as in a wired network, with the added step that in most cases an access key is required to make sure the wireless net-



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

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- Pre and Post BER can be displayed with their actual values (setup option)
- Toggle to display Post BER and Carrier to Noise (dB)

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- Symbol rates 2Msymb to 45Msymb
- Frequency range 950 to 2150MHz
- Input impedance 75 Ohms
- LNB Pass / Fail test function
- LNB short circuit protection
- Satellite cable integrity test
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■ Network interface of a digital receiver

work is protected from unwanted guests.

As you can see, a network connection offers the most versatile features and options when it comes to hooking up satellite receiver and PC.

We started out by saying that modern satellite receivers basically are no-frills PCs, and this is also why services and applications we have come to know and appreciate from the PC and Internet worlds may work just as well with your digital satellite receiver – provided that the manufacturer decided to support these. For instance, from a technical point of view it would be perfectly possible to access your receiver at home via FTP (File Transfer Protocol) from the PC or the Internet in order to exchange data, or to use a web server on any internet browser to create a timer entry on the PVR, check its status or even switch channels – no matter whether you're in the next room or on the other side of the world.

In addition, an Ethernet connection provides sufficient bandwidth for carrying multimedia contents in real-time so that it is possible to watch the channel that is set on the receiver in the living room also on the PC monitor in the study. For the first time, this also allows contents that cannot be displayed on a standard TV (such as MPEG 4:2:2 transmissions, for example) to be sent to a PC with corresponding software and to be watched on the PC monitor without any loss of quality.

One thing that deserves special emphasis in any network configuration is security. In a wired setting there is virtually zero threat, as long as we're dealing with a closed network that has no access to the Internet or to external devices, because only your own devices in your own house or apartment will be able to access the network. As soon as there is access to the Internet, any person in the world with an Internet connection will be able to gain access to your devices – at least in theory and with no protection in place. Naturally, an intruder must know your IP address which you are using to access the Internet, but even this can be found out easily with corresponding software – some even free of charge – which the more dubious Internet users are usually quick to discover.



■ Twisted pair cable for Ethernet connection

To protect your privacy, any satellite receiver with network capability has mechanisms in place to protect access with a user name and password. Make sure you actually use these mechanisms and please also make sure your password meets certain security criteria. Some passwords can be hacked in minutes by criminals who use tools to try out different combinations of characters and numbers or who even use dictionaries for trying out an endless number of different words. So there's really no point in choosing "receiver" or "1234" as your personal password. The best bet is a variation of upper case and lower case characters, sprinkled with special characters and numbers. A ten-digit password offers millions of combinations that cannot easily be discovered, not even with state-of-the-art software. It's your receiver and your data, so you'd better make sure it stays that way as well.

To help you memorise your password we recommend basing it on a feely selected word, such as "TeleSatellite" and then add to it a number or date you can easily remember, such as your date of birth, for example. Add to that one or two special characters and you'll arrive at a password that will give a headache to anyone trying to hack it. Your password could be TeleSatellite(150370) or – to make it even more complex – T(e1|5e0S3a7t0e)llite.

To memorise this particular password it's enough to remember the initial word as well as the position of the birth date and of the special characters. In addition, you should always activate the firewall setting of your DSL modem or router so that there is a check on external access to your network. After all, there is no such thing as too much security.

For WLAN networks there is also the issue of the wireless signal potentially travelling way beyond the confinement of your house or apartment, which

means the signal can be picked up by neighbours, passing cars or pedestrians close to your place. This makes it all the more important to encrypt the transmission between PC and receiver so that no unauthorised person gets a chance of intercepting your personal data traffic.

All WLAN capable satellite receivers we know of support at least the WEP (Wired Equivalent Privacy) protocol that can be used to encrypt the entire communications process. So for a digital receiver



■ Wall socket with clearly visible colour-coded markings

even being able to establish a connection to the WLAN base station it is mandatory to define a password at the station (using either text or hexadecimal code) and also enter that very same password on the receiver or any other host wanting to use the network. These days, however, WEP has significant loopholes and can be hacked quite easily if one uses the right tools, so we would urge receiver manufacturers to also implement the more recent WPA (WiFi Protected Access) encryption in their WLAN receiver models. Market leader Topfield has pressed ahead and added WPA protection in a recent software update.

As with other connection methods, the transfer rates in Ethernet networks also largely depend on the receiver's processing power, so in a real world scenario you will soon find out that the theoretical maximum rate of 12.5 Mb/s is hardly ever reached.

No matter which connection type you're currently using, the future will have more innovations in store, both for USB and Ethernet set-ups. Transfer rates will no doubt increase, and networks will be able to extend across ever increasing distances. USB 3.0 is virtually around the corner and will definitely also be used for digital satellite receivers. So let's keep our eyes open and let's look forward to what manufacturers will offer next!



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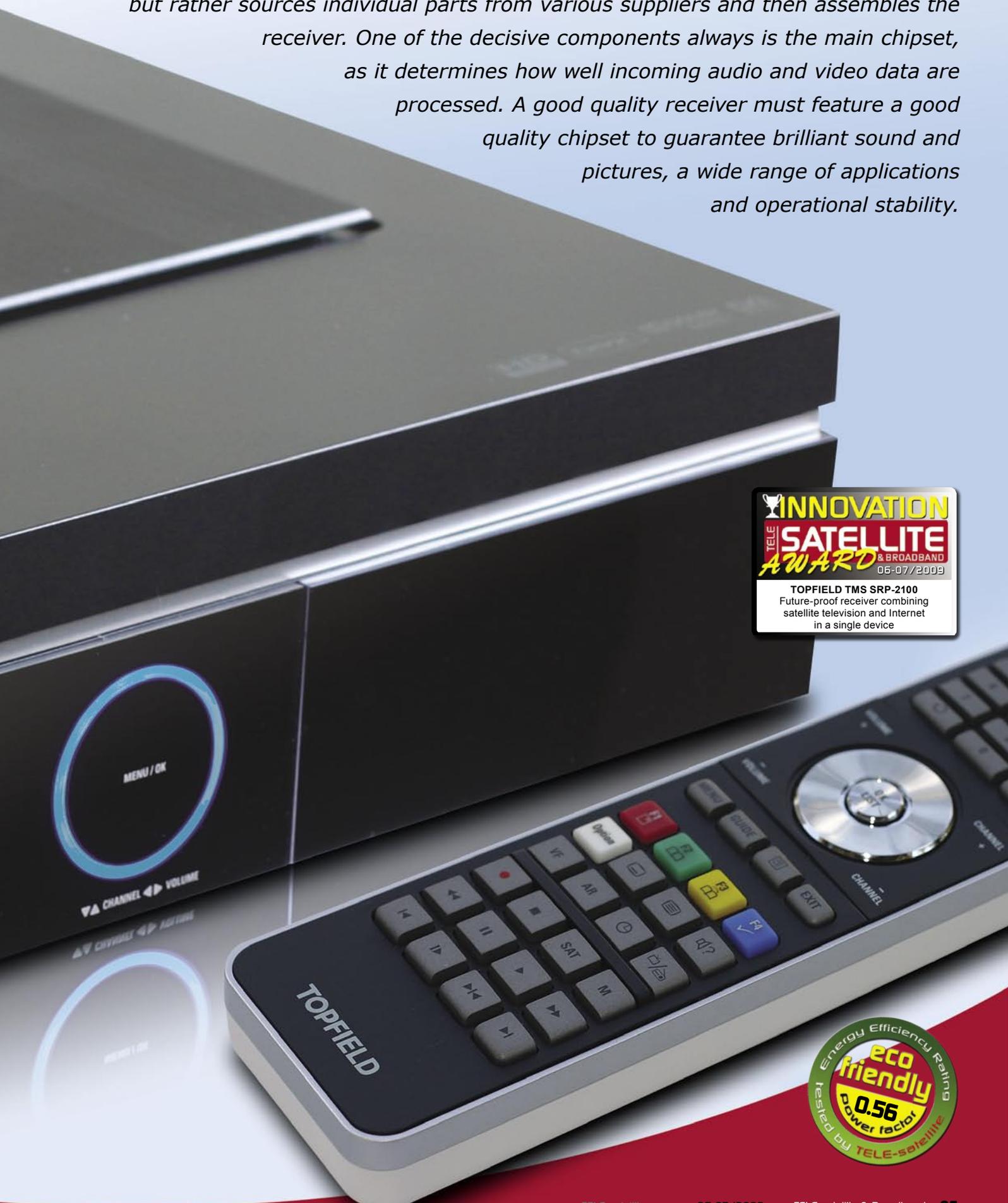
# Topfield TMS SRP-2100

## High-end All-rounder



**TOPFIELD®**

*Each receiver box we buy prominently features a brand name on its front. In actual fact, however, no manufacturer develops and produces all components in-house, but rather sources individual parts from various suppliers and then assembles the receiver. One of the decisive components always is the main chipset, as it determines how well incoming audio and video data are processed. A good quality receiver must feature a good quality chipset to guarantee brilliant sound and pictures, a wide range of applications and operational stability.*



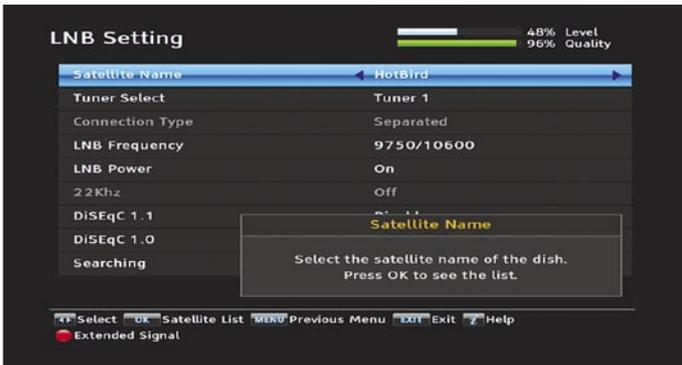
**INNOVATION**  
**TELE SATELLITE**  
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 06-07/2009

**TOPFIELD TMS SRP-2100**  
 Future-proof receiver combining satellite television and Internet in a single device

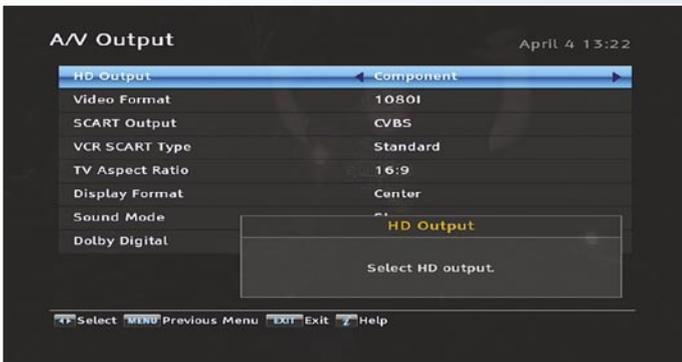
Energy Efficiency Rating  
**eco friendly**  
 0.56  
 power factor  
 tested by TELE-satellite



Main menu |



LNB settings |



Video Output Options |



SCPC Search |



SCPC Reception |

Slightly over a year ago we witnessed the large-scale transition from SDTV to HDTV using DVB-S2/H.264. This of course required a totally new chipset to make sure high-definition signals can be processed next to conventional standard definition offerings.

We all know that new technology often brings with it new problems and new bugs that take some time to be resolved. The first DVB-S2/H.264 chipsets were no different and more or less any manufacturer of HDTV receivers experienced some kind of teething problems. The more features a brand tried to pack into their innovative HD boxes, the more prone to glitches they actually were.

In the meantime, however, chip manufacturers have had some time to look at the problems and figure out how to solve them, so that the Topfield TMS SRP-2100 now is one of the first receivers using the latest and improved DVB-S2/H.264 chipset.

Topfield of South Korea calls itself the "Leader of Multimedia Home", and it is exactly that claim which the company wants to prove right with its new product. Many months ago, a team of Topfield engineers went about designing this next-generation HD receiver. What was clear right from the very start was that the Internet would be playing a significant role next to conventional satellite TV reception. Speaking of which, it is no coincidence that TELE-satellite opted to add "broadband" to its title, because we too expect that in future it will make no difference to consumers where TV and radio content comes from. Satellite, cable, terrestrial and broadband Internet will all be equally purposeful sources of multimedia content and one day we will not even bother to think about where TV content comes from.

The engineers at Topfield also streamlined this anti-

ciation into their new TMS receiver and therefore made sure it does not only come with two DVB-S2 compatible tuners, but also with a fully functional network interface as one of its key features.

Topfield decided that new technology on the inside also requires a new appearance on the outside. Forever gone are more or less hidden buttons on the front panel – the future lies in a touch-sensitive control panel which does away with obtrusive buttons altogether. The TMS (which, incidentally, stands for Total Media Solutions) is some three centimetres higher than comparable satellite receivers, but thanks to its stylish front panel design this does not make it look bold at all. After all, there is only one single button positioned right above the perfectly readable VFD display: the one to turn the box on and off.

All other control segments are located next to it in a perfect circle, and they are activated simply by touching the front panel, which is a very smart concept. When the receiver is switched on these segments are surrounded by a shiny blue LED ring, which we found a tick too bright in a dark viewing environment. Being able to dim or deactivate this LED would be greatly appreciated.

A flap on the right side of the front panel hides two CI slots which can take in any standard conditional access module for pay TV reception (such as Viaccess, Cryptoworks, Nagravision, Alphacrypt etc.), as well as two USB ports for connecting external hard disks or other storage media such as digital cameras and the like.

The back panel proves its worth as well, as it comes with the mandatory HDMI socket, two scart euroconnectors, six RCA sockets for YUV, CVBS and stereo audio, a USB port, an E-SATA slot, a network interface, a coax and a digital audio output and of course the two DVB-S2 compatible

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tuners complete with loop-through outputs. To broaden our smile even further, Topfield also added a mechanical mains switch on the back panel.

Contrary to most Topfield receivers in the past the new TMS comes with a small fan to provide cooling for the hard disk and the power unit. In the pilot receiver we had available for testing the fan produced a rather disturbing high-pitch noise. Topfield has assured us, however, that a more silent fan and an improved power unit will be used for serial production. The remote control that is shipped with the TMS sits nicely in your hand and sports an easy-to-use layout design. All keys are clearly labelled and provide enough feedback when pressed.

If only the quality of the TMS remote would equal that of the TF7700HDPVR we'd feel like we were in heaven. As this, unfortunately, is not the case we have to say that while the remote is good enough to use, it does not equal the top-notch design and feel of the receiver it is meant to control.

On a friendlier note, we loved the fact that you can also control your TV, DVD player and amplifier with the very same remote. The user's manual includes a comprehensive list of codes for various manufacturer so that the remote can be configured to work with your existing living room equipment. When tested by us, this feature worked truly flawlessly.

In addition, Topfield decided to ship a fully-fledged wireless keyboard with its TMS, even though it currently can only be used for the integrated Battle Tank video game. Plans are in the pipeline, though, to add an Internet browser to the receiver's operating system in future, for which the keyboard will be extremely handy. If the wireless keyboard is used a small dongle has to be attached to one of the available USB ports of the receiver so that signals can actually be transmitted from the keyboard to the box.

This impressive list of features is rounded off with an included HDMI cable and an extremely useful user's

manual – something we have come to expect and appreciate from Topfield in the past. It provides detailed information on all features of the receiver, has a brilliant layout and included illustrations and pictures where required.

## Everyday use

When Topfield advised us some weeks ago that the new TMS would be sent to us for testing, we could hardly wait for the day it would arrive at our test lab. When that day had finally come, we were even quicker than usual to set up the receiver to our reception system and to connect it to our plasma TV in the test lab. When switched on for the first time the receiver wants to know the preferred language for the OSD, with the following options being available: English, French, German, Dutch, Italian and Spanish.

Even though the receiver came with a comprehensive channel list that was obviously geared towards the German-speaking market, the next step in the initial setup process was a channel search. The TMS comes with an up-to-

date list of 150 European and Asian satellite positions for KU and C band transmissions. The transponder database turned out to be just as current.

As far as antenna settings are concerned the TMS seems to be happy with anything that is thrown at it. All DiSEqC protocols (1.0, 1.1, 1.2 and 1.3) are supported which means that a simple single antenna is just as fine as a multi-focus antenna with up to 16 LNBs or an antenna with a DiSEqC motor. A number of generally used LOFs are pre-set and in case you own a more exotic LNB you may even set the required LOF manually.

In order to make full use of twin tuner PVR both tuners should be fed with a separate line from the antenna so that two recordings (even from two different satellites) can be made simultaneously while playing back a third event.

In case there is only one line available the loop-through output of tuner 1 can be connected to the input of tuner 2, which means that not all channels are available on tuner 2.



A channel search was performed quite swiftly and only took about eight minutes for HOTBIRD 13° East with its more than 100 transponders. But then again, we would have expected nothing less from Topfield. Naturally, any search can be restricted to FTA or encrypted channels only, and channels that are not pre-stored on the transponder list can easily be found using the network search mode.

For professionals among you Topfield has even thought of implementing manual PID input. The only feature genuine DXers will miss is blind scan, which is not available with the TMS.

The TMS's tuner had a pleasant surprise in store for us: Not only did he lock SCPC signals from TURKSAT 42° East effortlessly, it also left a great impression when we tried to receive signals from transponders that only come in very weakly at our location (such as the ones from NILESAT 7° West or ASTRA2D 28.2° East, for example). When we repeated the test under lab conditions the excellent recep-

tion quality of the tuner was confirmed. A C/N value of a little over 4 dB was enough for a stable and error-free picture on our plasma TV.

It's the same old story whenever a new satellite receiver arrives at home: Hundreds or even thousands of channels are found with the channel search, and then the gruesome job starts of bringing some order into this huge mess. In our case, far more than 2000 TV channels and countless radio stations filled the overall list, but thankfully Topfield has a reputation of taking the horror out of channel list editing and the TMS is no exception.

Its channel memory accepts up to 7000 TV channels and up to 3000 radio stations and can be edited to your heart's content. Apart from an automatic basic structuring it allows manually moving, deleting, renaming or PIN-locking individual entries.

Just as easily, you can move channels you watch on a regular basis to a favourites list, which itself can be sub-divided into up to 30 categories. This

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way you can build up genre-related personal lists, create a dedicated HDTV list or each member of your family can use a customised list all for him/herself.

Before we exit the main menu – which, incidentally, is conveniently divided into five categories – it makes sense to have a look at system settings and to adjust some parameters, if need be. Like other digital satellite receivers, the TMS can be set to automatically sync local time via satellite. What sounds like a great idea also has its drawback, as some channels transmit erroneous time signals and cause a wrong time to be set in the receiver. To counter this problem, the TMS allows

limiting this feature to certain pre-defined transponders or channels, which may even be encrypted channels. This is a very handsome feature that we have been waiting for forever and a day.

Via HDMI the TMS can provide either 576i, 576p, 720p, or 1080i, or you may choose the automatic mode which selects the most suitable resolution based on the received signal. We particularly liked the Video Format key on the remote control to quickly change resolutions.

The scart euroconnector delivers CVBS, S-Video or RGB signals, and users can pre-define how 4:3 material will be presented on a 16:9 screen



# TOPFIELD®



Manual channel search |



EPG mode 1 |



Extended EPG information |



Various OSD settings |



150 pre-stored satellite positions are available |

(Pan & Scan or original format with black bars to both sides). Even though hardly anyone will use it these days, it is even possible to set signal output at 4:3 for older TV sets.

As the name suggests the recording and playback settings allow defining the receiver's behaviour during recording and playing back. The time shift buffer has been extended to cover up to 300 minutes now, up from the 120 minutes that had been available in the past. In addition you can have the receiver add a pre-set number of minutes before and after each timer recording to make sure not to miss a thing in case a channel does not stick precisely to its schedule.

If external storage media are connected through the USB or E-SATA ports they can be nominated as the default storage medium. So if you would like to use a USB disk rather than the internal 500 GB hard disk you can easily set up the box to address this external disk.

Another first is that it is possible to continue playback from where it was stopped before. Up until now a separate TAP (in-house plug-in from Topfield) had been required to use this feature. Also, various fast forward and rewind speeds are available and users can define how the receiver is to deal with encrypted recordings. Either they are decrypted right away by creating a copy or the user activates this procedure manually.

The front display of the TMS can be customised in a number of ways, for instance using different display modes or adjusting display brightness for standby and on. We would be even happier if the same was true for the blue LED ring on the front panel as well.

If you intend to connect the receiver to the outside world the Topfield TMS does not only have the USB and E-SATA ports at your disposal, but

also a fully-fledged network interface which can be set up in a dedicated menu area. It allows users to assign an IP address manually or automatically by a DHCP server that is integrated in the network. In case automatic assignment is available the TMS will receive all required parameters automatically and will be ready to go within seconds.

A web server and an FTP server are also integrated in the receiver and both of them can be activated or deactivated individually. Obviously, the TMS offers access protection through user ID and password.

Once the initial configuration is finished all you have to do is press the Exit key on the remote to prompt the receiver to exit the main menu. It immediately switches to the first available channel on the list and inserts a small info bar on the bottom of the screen. It includes information on the currently showing event, a progress bar to show how far into the event you are, as well as details regarding the active tuner, satellite and transponder.

Additional icons provide information on available services such as teletext, subtitles, additional audio tracks, or whether you are currently watching an encrypted or multifeed channel.

All this is rounded off with two bars indicating signal strength and signal quality. Beware of these values, however, as we have found that they might not be 100% accurate, especially when it comes to weak signals.

If you press the Info key the receiver will display additional content information on the current event, if provided by the channel.

The EPG pops up by pressing the Guide key and Topfield has yet again managed to develop a very user-friendly layout. Information for up to

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seven days in advance can be accessed, provided this information is transmitted by the channel.

Two display modes are available: The first shows a grid with seven channels at a time for a time period of approximately three hours, the second mode also consists of a grid layout, but this time featuring five channels with a time period of approximately four hours.

While you're using the EPG the Info key brings up detailed information on the selected event, which can be marked to create a timer entry for a recording or reminder.

It could not be easier to create a timer entry – yet of course there is always the option left to create a manual entry as well if you do not want to be restricted to scheduled-defined begin and end times.

Set entries can be repeated daily, weekly, each workday or each weekend, so you're really left with all imaginable automatic recording options.

In our test the receiver also reliably identified and advised of any timer conflicts involving overlapping recordings, even if they overlapped a couple of minutes only.

In good Topfield tradition the OK button calls up the channel list, which sports a convenient design and offers a whole range of sorting options. If desired the receiver can even display provider details for each channel, and the touch of a button brings you right to favourite list view.

We particularly liked the channel search feature which shows all channels whose name starts with a given character (press once: all channels starting with A; press twice: all channels starting with B; and so on).

With potentially thousands of channels on the list this feature brings you to what you're looking for really fast.

Zapping is fun with the TMS, it doesn't take longer than one second to switch between SDTV channels, and approximately two seconds before a HDTV channel appears on the TV.

When testing a receiver we often zap up and down the list like there is no tomorrow, yet the TMS did never answer with any major video or audio faults. In general, we truly loved the video and audio quality provided by this receiver, which was excellent for both SD and HD signals.

Thanks to the built-in 500 GB hard disk you will soon col-

lect a lot of recorded events. To help you keep track of what you have recorded it is possible to freely create folders into which you can move recorded events. Each recording comes complete with a preview picture and detailed information on length and size of the recording. In case you're wondering: 500 GB of hard disk are good for roughly 250 hours of viewing.

The files system used by Topfield is JFS, even though a number of other formats (such as FAT32, NTFS or EXT2/3, for example) can be read as well. Only JFS and EXT2/3 can be written, however, which you should keep in mind when trying to edit recordings on your PC.

The perfect overall impression of the TMS is rounded off by flawless selection of audio tracks, perfect insertion of subtitles, NVOD support and integrated teletext decoder. If you belong to the impatient kind and prefer to watch other channels during commercial breaks you will probably love PiP (picture-in-picture), which even works with two HD channels!

We should not forget to mention a feature called automatic system restore which works like that: With the touch of a button you can save the current receiver status, which can be restored at any later stage, if something goes berserk with your settings. The restore file can be saved both in the internal memory and on external storage media, so you are always on the safe side.

Topfield never stops improving its products, and that is why new software is made available for download from time to time. Updates can be made via satellite, network or via a USB memory stick.

## Network Interface

As mentioned above Topfield believes the future will see a merging of different reception

avenues. TV and radio content will still be provided via satellite, cable, or terrestrial broadcasting, but will be complemented to a considerable extent by the Internet.

This is why the network interface of the TMS has received special attention right from the start. Not only does it allow controlling the receiver via the Internet or a local network thanks to the integrated web server, you can also access the receiver's hard disk from anywhere in the world with the help of FTP.

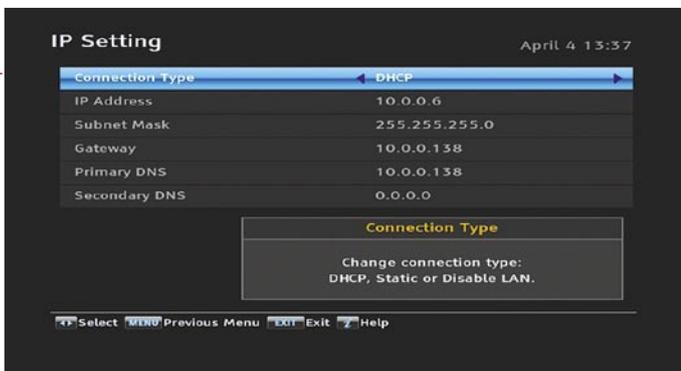
Data are transmitted in high speed so that nice theory can be put into impressive practice, and a whole new world of using a satellite receiver is opened up. Just imagine – a new movie premieres on TV while you're on holiday and with all the helter-skelter right before departure you forget to set the timer for a recording.

Not a problem: If you have access to the Internet at your holiday destination you can remotely create a timer entry, check if all existing entries are correct and verify whether recordings have actually been made. And as if that's not enough, you may even use FTP to transmit TV or radio content from your home right to your holiday destination.

The 'Entertainment' menu item is a first step by Topfield towards blurring borders between receiver, network and Internet. For instance, you may use the TMS to look for videos on YouTube and watch them on your flat screen in the living room. Naturally we gave this feature a try and as it turned out it worked flawlessly.

The TMS is just as versatile as the YouTube web portal and even displays a list of most watched or top rated videos. Alternatively you may watch photos on Flickr or share them with friends, and if you want to find out the weather for the day the TMS features a dedicated menu item for that as well,

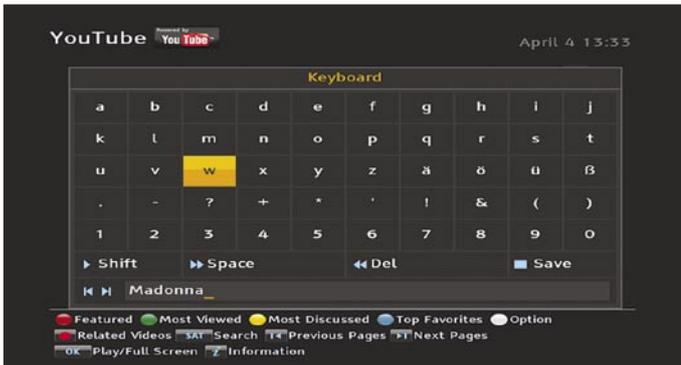




Network settings provided via DHCP |



Weather forecast |



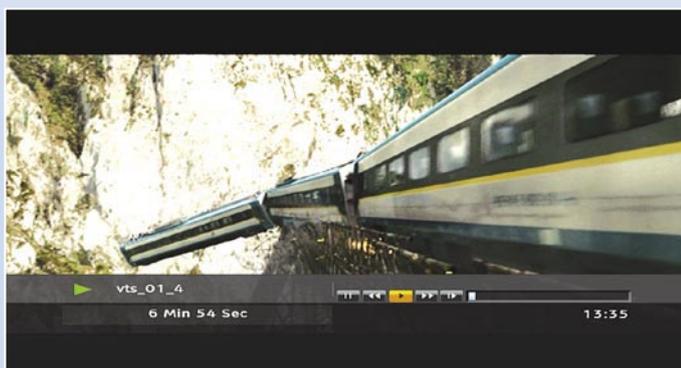
YouTube video search |



Battle Tank video game |



Most watched YouTube videos |



DivX playback |



MP3 jukebox |

providing a forecast for almost any location worldwide.

In addition, the TMS can of course be used as an MP3 jukebox or a picture viewer with individual or slide show viewing. If you have downloaded DivX movies from the Internet you may even watch these with the Topfield TMS.

The Battle Tank video game adds icing to the multimedia cake and can be played alone at home, or with friends on the network.

## TAPs

Topfield was the first manufacturer to create a platform for resourceful hobby developers to implement new features in the receiver's software. The name of the game is TAP and stands for Topfield Application Protocol. Users may use TAP applications to customise their boxes even further and to add new functions.

Topfield began to integrate TAP many years ago and so it comes as no surprise that TAP is a defining feature of the TMS software as well. While TAP applications written for older Topfield receivers currently will not work on the

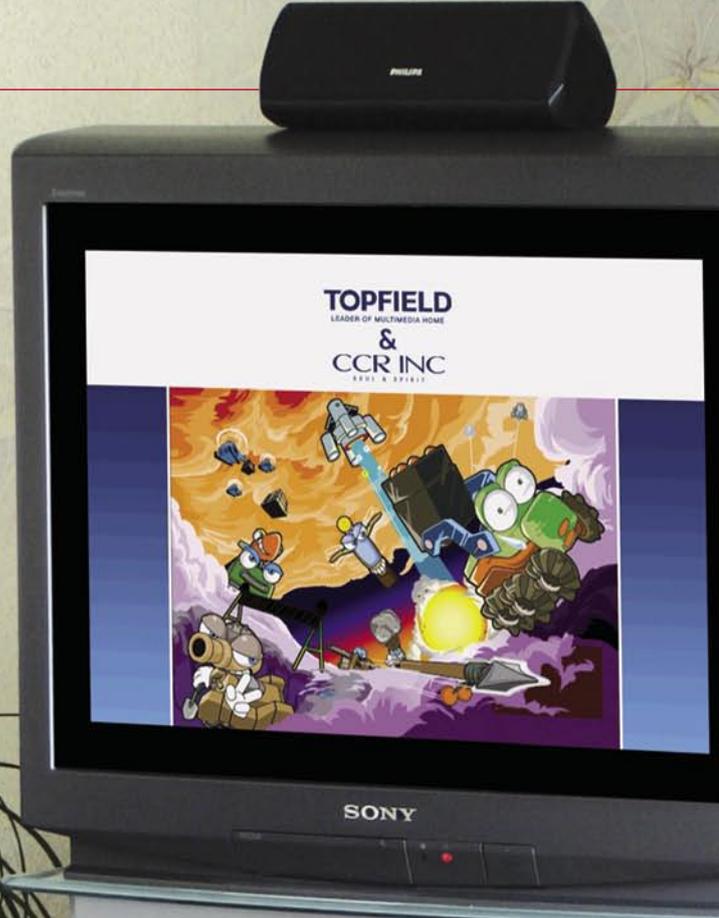
TMS the manufacturer has stated that the interface per se hardly changed so that it will be not too difficult to recompile existing TAP applications so that they will become compatible with the TMS within a short period of time.

With its TMS Topfield is among the first receiver manufacturers to enter uncharted territory by making the Internet an integral part of its product. Naturally, the quality of many YouTube videos is way below that of satellite transmissions, but change happens and YouTube is investing heavily in new compression technology so that a number of videos are already available in high-definition.

The impression we had of these was very good and sooner or later the end user will no longer think about where TV content comes from, as long as it arrives on the screen in good quality.

One thing is for sure: Topfield will be at the forefront of this new development!

Life's really hard for a TELE-satellite test lab editor: Thomas in Vienna playing the Battle Tank network video game included with the TMS for this test report with TELE-satellite's Graphic Editor Barna in Budapest (big picture)



# TOPFIELD

## LATEST PRODUCTS AT THE ANGA CABLE 2009

### TV Signal Analyser

SPAUN electronic presents an ideal measuring instrument for installers and electricians with the compact, light and first of all easy to handle SPAROS 609. The SPAROS 609 is suitable for DVB-T/H, DVB-C, DVB-S, DVB-S2 (HDTV) as well as for analogue signals and is equipped with a very fast and precise spectrum indication for the signal analysis.

Similar analogue terrestrial and FTA MPEG2 programs can be watched and evaluated on the very well readable LCD colour screen with a diagonal of 17.7 cm in 16:9 widescreen display format. Further information about SPAROS 609 are available in the brochure **SPAROS 609**.



### 13 Input Cascadable System

Particularly in multi-dwelling projects rises the need for SAT IF distribution systems for several satellite orbit positions. With this new cascadable multiswitches SPAUN electronic offers for the first time a cascadable SAT multiswitch system for 3 satellite systems with 12 SAT IF levels and terrestrial input signals. The power launch amplifier SBK 131309 NF has a high gain for the SAT-IF trunk lines. This multiswitch is terrestrial passive and return path compatible. It is possible to supply 18 V / 250 mA remote power supply for the feed-in of multiband and / or CATV amplifiers.

Cascadable multiswitches for 8, 12 or 16 subscriber outputs are available. For the first time the cascadable multiswitches are offered in an active (with signal gain at the subscribers output) or however in a passive version with appropriate signal absorption. Of course the power launch amplifier has an integrated energy-saving power supply and supports besides the SPAUN typical standby function. Further information are available in the brochure **13 Input Cascadable System**.

SBK 131309 NF, SMK 13089 FA, SMK 13089 F, SMK 13129 FA, SMK 13129 F, SMK 13169 FA, SMK 13169 F

### The new Light-Class

Up to 16 subscribers can be supplied with that new SPAUN Light-Class. Those compact multiswitches have 4 SAT-IF-inputs for Quattro LNBs and one passive terrestrial input, which is also useable for DVB-T. A high signal level at the subscriber outputs optimizes the receipt even with longer cable runs.

An integrated energy-saving switching power supply ensures low operating costs. The Light-Class is offered with a particularly attractive cost-performance ratio with 8, 12 or 16 subscriber outputs. Further information are available in the brochure **Light-Class**.

SMS 5807 NF, SMS 51207 NF, SMS 51607 NF



### SPAUN Mini

The SPAUN Mini series covers two cascadable multiswitches for 4 SAT IF levels, as well as a SAT power launch amplifier which can be used also as line amplifier. All devices have small dimensions in the format of a cigarette packet. As no power connection is needed for the multiswitches, this series is particularly well adequate for floor distribution. If necessary the amplifier SBK 4415 NF can be integrated into the system.



The supply of the amplifier is made by a wall power supply. Further information are available in the brochure **SPAUN Mini**.

SBK 4415 NF, SMS 4447 F, SMS 4447/8 F

### CATV Amplifier

At ANGA Cable 2009 our proven product program is extended by the CATV Amplifier HNV 32/65 DPE with digital level adjuster and equalizer, which is developed according to KDG guidelines. By the use of switching power supplies „Made by SPAUN“ the energy efficiency and longevity could be improved again. Further information are available in the brochure **CATV Amplifier**.



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# Expert opinion



The Topfield TMS SRP-2100 is truly a next-generation receiver. For the first time it merges satellite television and Internet access and thus creates a totally new viewing experience with hitherto unknown features. The operating concept is smart and the OSD sports a very user-friendly interface. Two simultaneous recordings can be made while watching a recorded event. All this makes the TMS the ideal companion for the whole family as well as newbies or even experienced DXers.



Thomas Haring  
TELE-satellite  
Test Center  
Austria



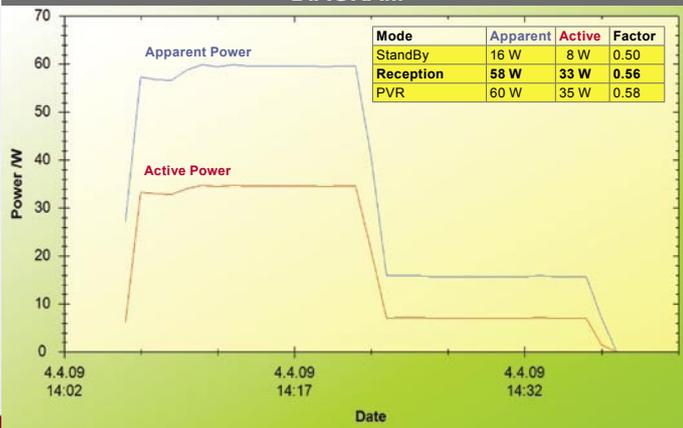
The cooling fan of our pilot receiver was rather noisy, but the manufacturer meanwhile assured that a more silent fan and an improved power unit will be used for serial production. The quality of the remote control could be higher.

## TECHNIC

### DATA

Manufacturer	Topfield, Seongnam/Korea
Fax	+82-31-7082607
E-Mail	inquiry@topfield.co.kr
Model	TMS SRP-2100
Function	Digital HDTV DVB-S2 Receiver with Various Multimedia Features
Channel Memory	10000
Symbolrate	1-45 Ms/sec.
SCPC Compatible	yes (> 2000 Ms/s)
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
USALS	yes
HDMI Output	yes
Scart Connector	2
Audio/Video Outputs	6x RCA
Component Video Output	yes
S-Video Output	yes
UHF Modulator	no
0/12 Volt Connector	no
Digital Audio Output	yes
EPG	yes
C/Ku-Band compatible	yes
PVR-Function	yes
USB 2.0 Connector	yes
Ethernet	yes
E-SATA	yes
Max. hdd size	1TB
Dimensions	340/82/258mm
Weight	3.8kg

## ENERGY DIAGRAM



First 15 minutes: In the first minute the receiver is powered up, followed by 14 minutes of active operation with channel switching, recording, playing back, etc. Second 15 minutes: Standby



Topfield TMS channel list |



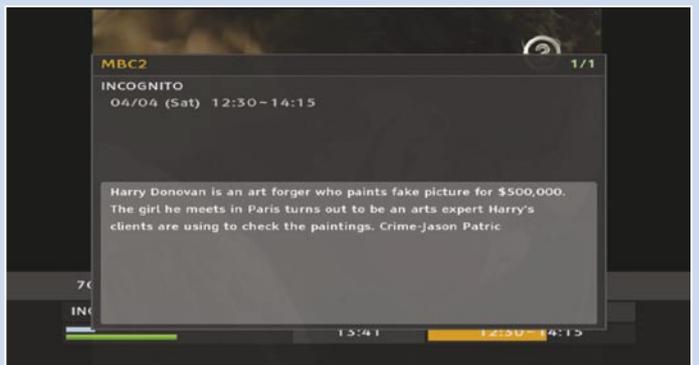
Channel list editing |



Channel list options |



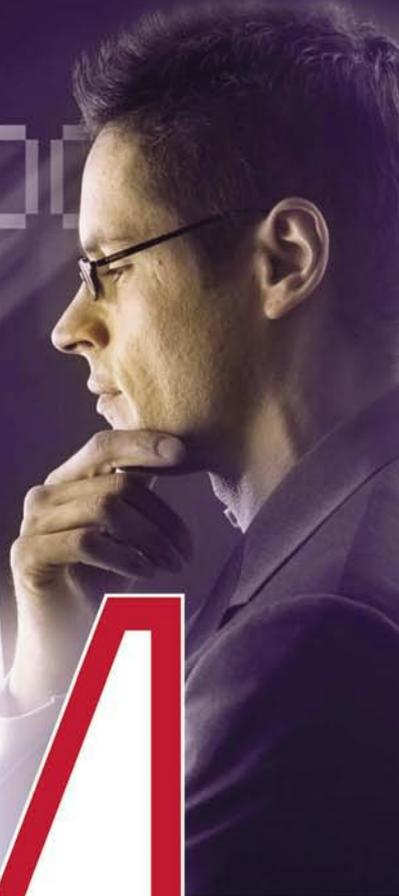
Info bar |



Extended info bar |

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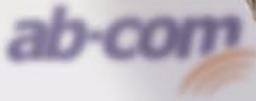
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# P140 of Pasat Anteny Prime Focus Dish for Ku-Band

*When it was delivered, I did not know what it was. A huge wooden box weighting 96 kg that occupied half of my garage. After checking the papers it came out that indeed it was a parcel for the TELE-satellite test center. Only then, I recalled that a while before Alex had notified me about an antenna for test from the Bulgarian company Pasat Anteny. I asked myself: if the package was so massive and solid, would the antenna be equally strong and robust? This was one of the questions the test was supposed to answer!*



■ The feedhorn is included in the antenna kit



## TELE-satellite World

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■ Antenna has been delivered in a very solid wooden box



■ Antenna consists of not too many parts...



■ ... so assembling it is really simple

I needed a hammer and a crowbar to open the box and take the antenna components out of it. Every part of the kit was very carefully wrapped up with protective foil. There was no chance for the smallest scratch due to transportation. I really liked that. Only professional equipment is packed with such attention. When everything was unpacked, I noticed that there are only few components. Good - it should be simple to assemble it.

And indeed. Despite the fact that there was no detailed instruction but only one drawing showing an assembled antenna, the assembly was so straightforward that everybody could do that in no time. Everything fitted perfectly so it was nothing but fun.

I was slightly surprised when I discovered that the antenna had been designed for a mast of 70 mm diameter. More common dimension is 60 mm (and of course 40 mm for small dishes). After checking that the bolts fixing the antenna to the mast are long enough, I decided not to build the new test mast but use my existing test setup with a 60 mm mast. However, for a permanent installation, I recommend using a mast of the proper diameter - 70 mm.

When the dish was put on the mast and all the nuts and bolts were tightened, I noticed with satisfaction that the antenna is really solid and robust. That's very important especially for an antenna of this size. Its viewing angle is so small that even a small backlash can severely affect the reception.

The time came to install an LNB. The antenna is equipped with a feedhorn for Ku-Band. The feedhorn is optimized for this type of PFA antenna, a regular LNBF for Offset dishes would not give good results when mounted on a Prime Focus Dish.

The feedhorn is meant for LNBFs with a flange, which unfortunately was not available in my shack at time of test. What I had in my drawer was an LNBF for Ku-Band already equipped with a PFA feedhorn (NF=0.3dB). It was too thick and did not fit to the original holder. I had to put aside the original feedhorn and its holder and use another holder matching the LNBF. Finally, I was ready to take measurements.

I aimed the antenna at more or less proper direction and immediately I saw the signal on my signal analyzer. The signal analyzer identified satellite position as 28.2 ° East (Astra satellite). I played for a while and every time I got a very good quality signal. For example, MER = 17.4 dB and even more!

But how about receiving weak satellites? I studied carefully the footprints of different satellites on SatcoDX webpage and realized that living in Poland is a very good thing for a satellite fan but not necessarily when you have to test a big dish. Most of the beams aimed at this or that part of Europe also cover the center of the continent with very strong power. 90 cm is quite enough to receive most of the satellites and beams. There are only a few regional beams that do not cover my location but

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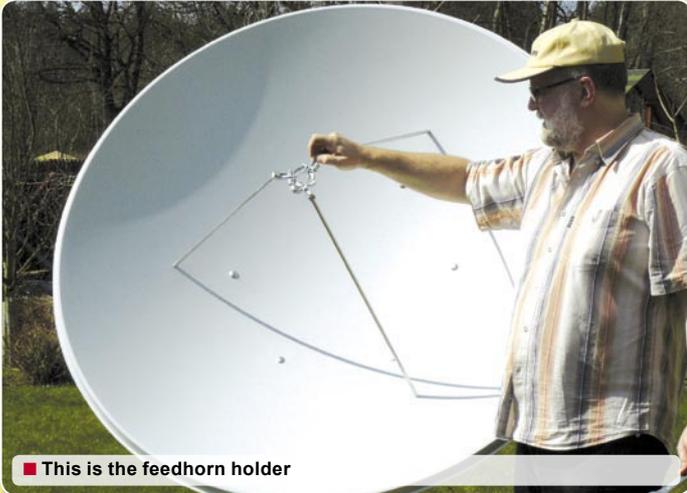
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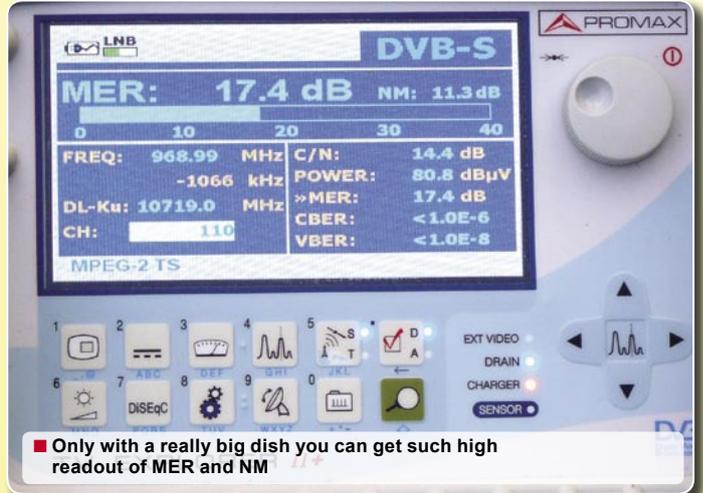
■ Last bolts to be tighten are those fixing the antenna to the mast



■ We used an LNB we had in the drawer, so the original feedhorn and its support were not needed



■ This is the feedhorn holder



■ Only with a really big dish you can get such high readout of MER and NM



■ Aimed at HOTBIRD 13E



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in such cases, 140 cm is far too small to receive them.

The only practical candidate for the reception sensitivity test was the beam EXPA22K2 of EXPRESS AM22 satellite (53° East). Its footprint looked as if I should be able to receive it with a 150-190 cm antenna (signal strength >40 dBW), yet I hoped I could get something with the P140. Should it be 42-43 dBW, the antenna could even be able to lock to the signal.

When I was trying to aim PASAT 140 at this satellite, I realized that its elevation adjustment bolt is too short for that bird. I needed to set the elevation 21.4 ° but it was out of range of the dish. The antenna elevation with our test dish could be set from approximately 25° to 70°. The simplest thing I could do was setting antenna elevation to the lowest possible position and additionally tilting the mast by a few degrees.

After I did it, I noticed the spectrum of EXPRESS AM22 signal on my signal analyzer. C/N readout was at the level 8 dB. Unfortunately, it was slightly below the reception threshold. One decibel more or so and I could enjoy seeing something.

Bad luck. I was wondering how should I assess the performance of this dish? Finally, I decided to use much stronger satellite (HOTBIRD at 13° East), measure signal quality and compare it to signal quality from a 0.6 m dish and a 0.9 m dish. The dishes were equipped with different LNBF's but all of them were of quite good quality (NF = 0.3~0.4 dB).

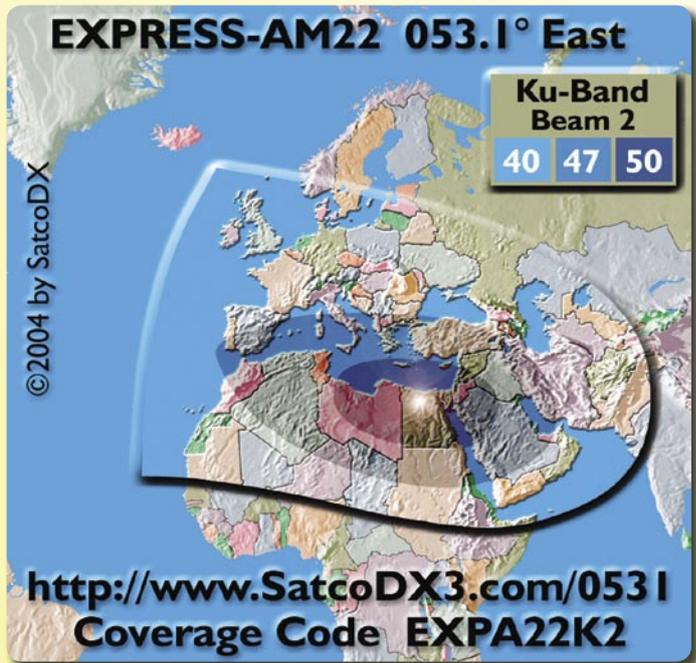
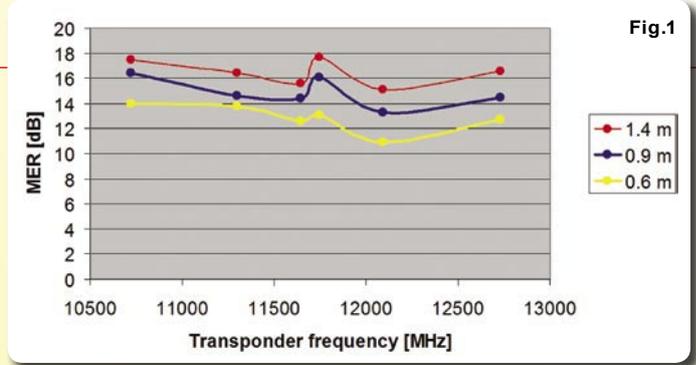
As I expected, the quality of the signal was significantly better. Its MER value was better by 1-2 dB for 0.9 meter dish and 3-4 dB for 0.6 meter dish. Perhaps some of our readers will be surprised but the signal level I got from P140 and prime focus LNBF was not higher than that from smaller dishes. In digital TV, it is much more important to have a big signal to noise ratio rather than the absolute signal level. To achieve this, one must have a big antenna. (Fig.1)

Based on these comparison measurements, I can state that P140 is indeed an antenna of high gain. It means that the curvature of the surface is correct and the signal is focused in the point where the feedhorn is mounted. The dish is very solid so if you only put it on a strong enough mast, it will last for years and years.

Its elevation setting range (25-70°) is more suitable for the countries located closer to the equator than for my location in Poland (52° North) but of course it depends on the satellite you want to receive. Pasat will deliver dishes with other settings ranges, if you specify your needs.

If you decide to purchase one of these robust and easy to install dishes, remember about the mast of 70 mm diameter and a suitable flange LNB for Ku-Band that can be attached to the feedhorn with 4 screws.

The Pasat dish is perfectly suitable for professional installations, and for private users when they want a real stable signal.



■ This footprint hardly reaches our test center, but Pasat dish was able to get some signals.

### Expert Opinion

**+**  
Very solid and robust dish. Everything fits perfectly. It is packed very carefully. Workmanship leaves nothing to be desired.

**-**  
none



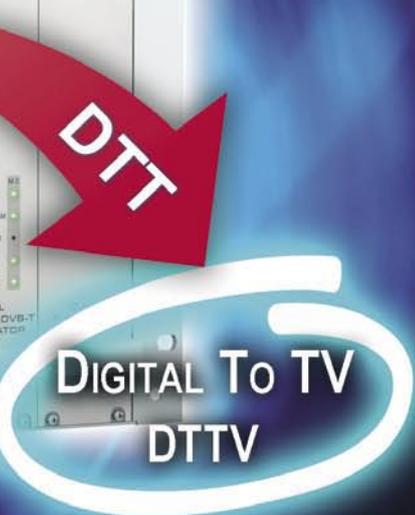
TECHNIC DATA	
Manufacturer	Pasat Anteny, Bulgaria
Telephone	+359 350 6 3911, +359 350 6 6311
Fax	+359 350 6 4011
Website	www.sat.bg
Email	sales@pasat.bg
Function	Prime focus aluminum dish for Ku-Band
Model	P 140
Diameter	140 cm
Focus	50 cm
F/D	0.375
Gain @ 11.350 GHz	42.2 dB
Gain @ 12.125 GHz	42.8 dB
Gain @ 12.626 GHz	43.5 dB
Noise temperature (at elevation 42°)	47 K
Opening angle (-3dB)	<1.25°
Thickness	1.2 mm
Reflector mass	6 kg
Supporting hardware mass	5.2 kg



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# MOTECK SG-2500

## State-of-the-art Technology for New H-H Polar Mount Motor

H-H motors for rotating antennas with a diameter of up to 120 cm from horizon to horizon – as the name implies – have been on the market for roughly ten years now. They allow reception of all satellites that are available at the respective location. The basic design of these motors has remained largely unchanged in these ten years, which can be taken as an indication that it is pretty perfect already. MOTECK's new motor does demonstrate, however, that there is always room for improvement.



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German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/deu/moteck.pdf">www.TELE-satellite.com/TELE-satellite-0907/deu/moteck.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/eng/moteck.pdf">www.TELE-satellite.com/TELE-satellite-0907/eng/moteck.pdf</a>
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Available online starting from 29 May 2009

The differences to its predecessor are hard to spot when unpacking the unit, but as soon as you start assembling the motor it's evident that SG-2500 is made of high-grade materials: Rust-proof mounting elements and a stainless die-cast case guarantee a high degree of weatherproofness. An easy to read adjustment scale and exact markings for aligning the antenna in a southerly (northerly) direction allow easy and at the same time precise alignment of motor and antenna.

**The SG-2500 works flawlessly under all DiSEqC protocols.**

To operate the antenna under DiSEqC 1.0 to 1.1 MOTECK supplies either the V-Box II or the DIGIBOX, which requires



**DiSEqC**  
**H-H M**



the rotation angle as Goto-X values. The exact rotation angle can be calculated using the GAAPS routine which is available from MOTTECK for download at [www.motteck.com](http://www.motteck.com), or from [www.gaaps.com](http://www.gaaps.com). Alternatively, you may also choose to use our own USPOS software, which is also very easy to use ([www.TELE-satellite.com/Uspos.exe](http://www.TELE-satellite.com/Uspos.exe)).

Under DiSEqC 1.2, automatic positioning does not require any additional device. However, operating the motor under 1.2 reveals a weakness of the DiSEqC protocol if the internal memory of the motor is used. The memory used by MOTTECK – and other manufacturers are no different – has capacity for up to 60 satellite positions but is unreliable since all entries are deleted whenever the motor is reset. This means all stored satellite positions are lost.

But this is not the only problem with the memory. Its first 26 positions consist of pre-set parameters which – unfortunately – cannot be used in practice. Apart from the fact that these values are calculated for the zero meridian they can also not be used because receivers do not take into account a motor's position number, but invariably write satellite data in ascending order.

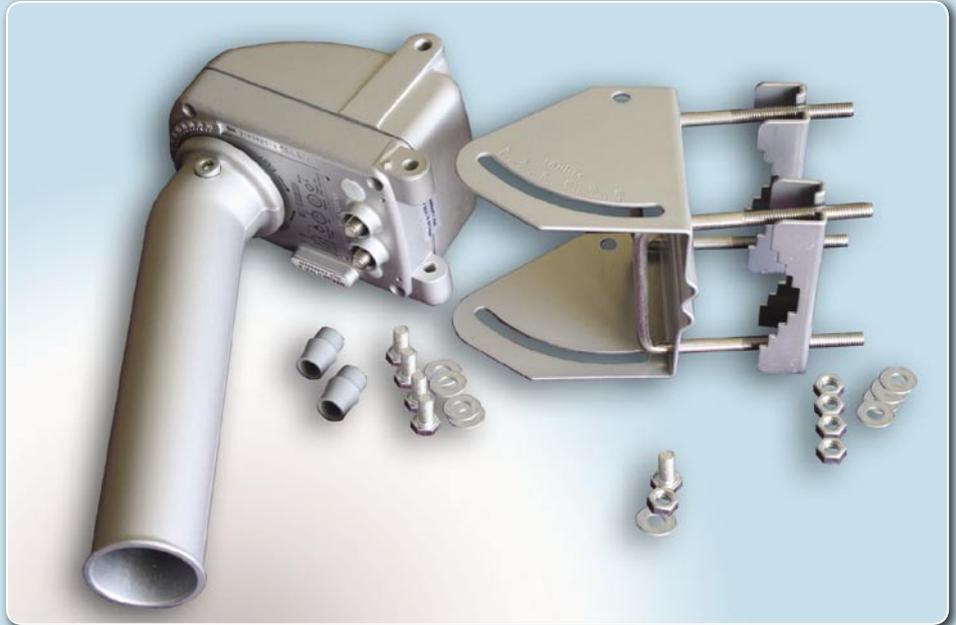
For a safe and stable storage of position data you should therefore rely on the receiver rather than the motor. This is the only way to reliably control the motor with the direct DiSEqC 1.2 control command, Goto-X. Some DiSEqC 1.2 receivers even feature a dedicated Goto-X menu. Still, receivers with integrated DiSEqC 1.3 or USALS work best. They automatically calculate the azimuth rotation angle, store it and transmit it together with the Goto-X command. Of course the SG-2500 is perfectly capable of understanding the Goto-X command and therefore is a brilliant match for these receivers.

### Attaching the motor to the antenna system is easy

The MOTTECK SG-2500 can be assembled quickly with the help of a 13 mm wrench. Just as easily it can be adjusted to the local latitude. The SG-2500 can be attached to masts with a diameter between 35 and 65 mm. To guarantee a stable setup, however, it should not be less than 50 mm. This is also the diameter selected by MOTTECK for the rotor.

Once the mast is mounted in a precisely horizontal position, we have to find the exact southern (northern) direction and mark it on the mast with a felt pen. The motor – which by default comes in the zero position – can then be attached

and roughly aligned. The manual comes in English and provides useful directions for assembly and alignment. It also lists the corresponding scaling value of the antenna elevation for the local latitude. Alternatively, this calculation can easily



Individual components before assembly



Rotation angle scale of the motor



Latitude adjustment on the motor



Motor attached to the mast





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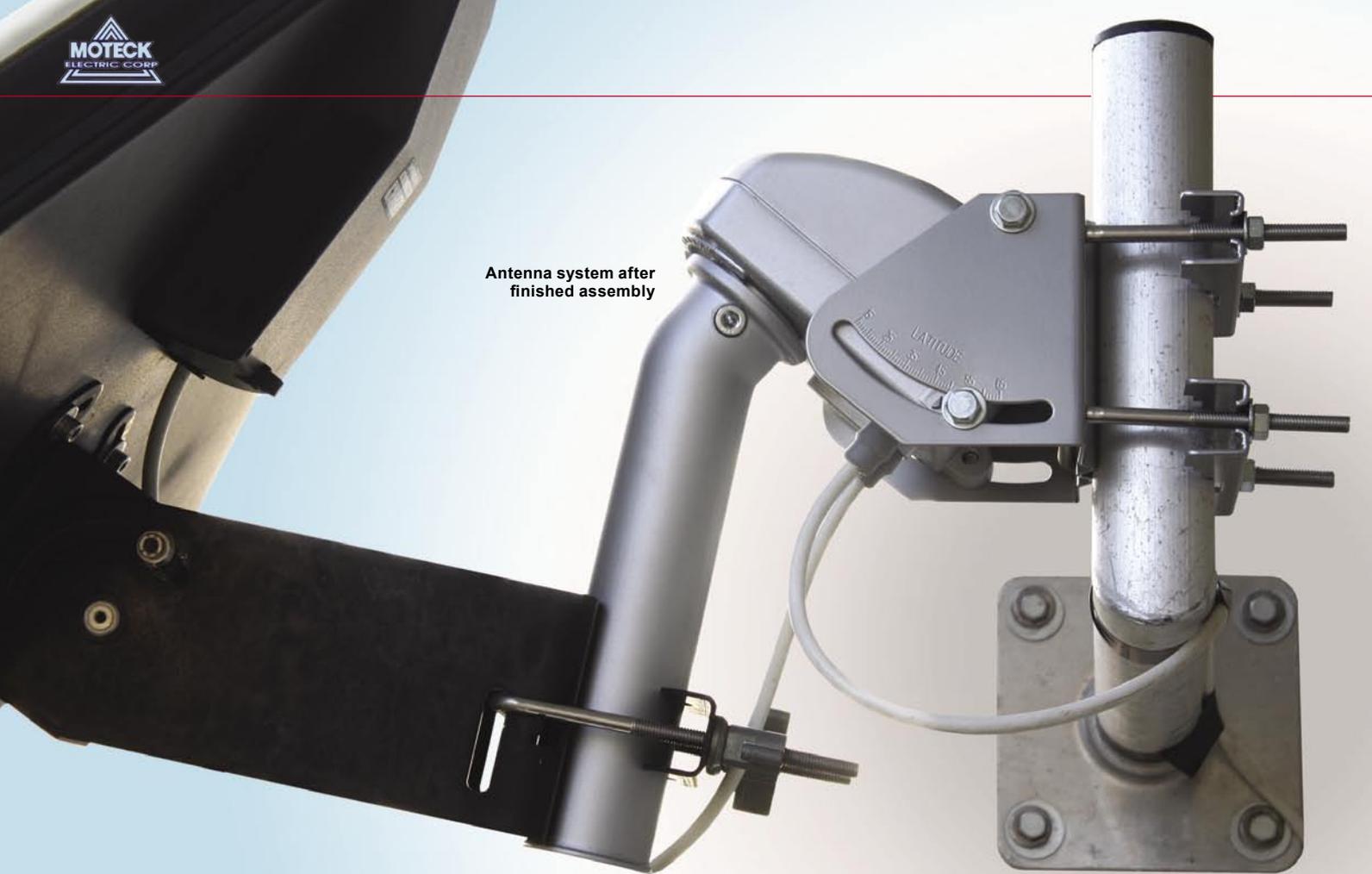
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Antenna system after finished assembly

the same time the signal strength of weak transponders close to the reception threshold could be improved.

The new MOTTECK SG-2500 motor works reliably and silently. Its new tolerance-free drive systems allows precise separation of satellite positions and consequently maximises reception quality. Using a DiSEqC 1.3 receiver the system can be operated fully automatically.



Connection panel on the motor

## Expert opinion

+

Optimum corrosion protection, Extremely low-noise operation, Precise positioning without alignment tolerance, Suitable for both the northern and southern hemispheres

-

Manual only available in English  
Built-in position memory out of date



Heinz Koppitz  
TELE-satellite  
Test Center  
Germany

## What does USALS mean, and what is GAAPS?

**Both terms designate calculation methods for automatic positioning of satellite antennas. The position of each satellite is given as the angle between the zero meridian and the orbital position. This angle value is geocentric, however, meaning that it is calculated with the centre of the earth as pivot point.**

**For the horizon system of the actual location – which differs for each location – this angle value has to be re-calculated in order to receive the actual alignment direction for a given satellite.**

**Italian actuator manufacturer Stab was the first to suggest integrating this complex re-calculation of geographic coordinates in receivers and coined the term USALS, which stands for Universal Satellite Automatic Location System.**

**MOTTECK chose the abbreviation GAAPS for its re-calculation formula, which stands for Global Automatic Antenna Positioning System.**

**The re-calculation of coordinates is not, however, an additional feature implemented at motor level, as the motor receives its control data with the regular Goto-X commands of the DiSEqC 1.2 protocol. Therefore, the re-calculation is performed by the receiver.**

**Yet, even if the routine for automatic positioning is implemented in receivers, they may not always carry the registered USALS logo. Very often it is necessary to consult the manual to find out whether or not they provide this feature.**

**Some receivers – and motors, for that matter – simply state "compatible with DiSEqC 1.3" or "compatible with Goto-X".**



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# Jiuzhou Skytrack JSU33

## LNBF for multifeed systems

*If you ask a satellite fan what is most important when choosing the right LNBF for the Ku-Band reception system, you will most probably hear that this is the conversion gain and the noise figure. The first should be as high as possible and the second on the contrary: the lower the better. Most likely, all our readers know that high conversion gain means that the LNBF output signal level is high and thanks to that long coaxial cables and signal splitters/switches may be used without a fear that the signal will get too weak for reception.*



TELE-satellite Test Editor Jacek Pawlowski ■  
mounts the new Skytrack LNB from Jiuzhou to a regular offset dish pointing to HOTBIRD at 13°E. The JSU33 LNB is surprisingly small and lightweight



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Transponder	Pol.	Freq.
Tr-1	V	10719
Tr-2	H	10723
Tr-3	V	11240
Tr-4	H	11296
Tr-5	H	11642
Tr-6	V	11662
Tr-7	V	11727
Tr-8	H	11747
Tr-9	H	12092
Tr-10	V	12111
Tr-11	V	12713
Tr-12	H	12731

**Table 1. Transponders used as test signals.**

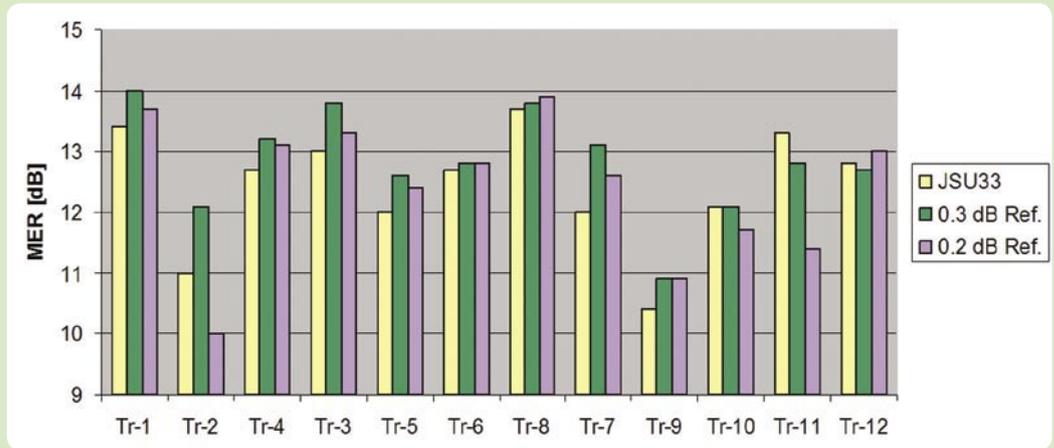
The low noise figure should ensure good signal to noise ratio at the output of LNBF, or more properly for digital transmissions: carrier-to-noise ratio. Low C/N is needed to ensure the reception of weaker transponders. It also provides high margin for bad weather conditions. Unfortunately, the noise performance of the real device is not that easy to predict. Except for the noise figure, there are other parameters that influence the carrier-to-noise ratio.

These parameters are: the phase noise of the local oscillator of an LNBF and its spurious content, reverse polarization isolation, level of intermodulation, image rejection. So, the only practical way to assess the LNBF is to apply it on a real antenna and make it receive real world signals. The presence of neighboring transponders makes life harder for an LNBF and degrades carrier-to-noise performance.

In a test like that, we compare the actual performance of LNBF under test with other LNBF's available on the market. That's what we did also when testing the LNBF of Jiuzhou: Skytrack JSU33. Its noise figure is specified as 0.6 dB. We compared it with 2 other contemporary LNBF's: one with NF specified as 0.3 dB and the other with NF=0.2 dB.

For the purpose of our test, we selected twelve transponders on HOTBIRD satellite (13° East). Their parameters are listed in table 1. As you can see, there are 3 transponders for every sub-band (upper/lower) and every polarization. In this way, we check the performance for both LOF's: 9750 and 10600 MHz, both polarizations: vertical and horizontal and for the beginning, middle and end of a sub-band.

Figure 1 shows the noise performance of the devices. MER is a modulation error ratio – a


**Fig. 1. MER for twelve different transponders of HOTBIRD satellite (13° East).**

parameter strongly related to C/N and telling us how many bit errors are detected in the incoming signal. Do we need to add that those errors are caused by noise? The better noise performance of an LNBF, the higher MER values.

While for 8 lower frequency transponders, the noise performance of the JSU33 was worse than the reference

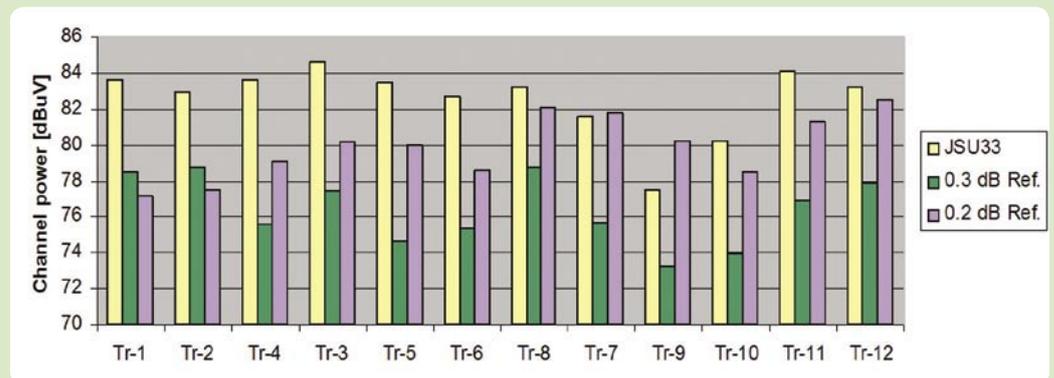
explained earlier that the noise figure itself is not the only parameter one must take into account and only the real life test can reveal everything!

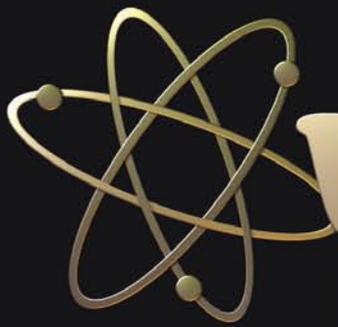
And what about the other parameter? It is presented in figure 2. And here the situation is the opposite: it is JSU33 that beat all the rest. For 11 out of 12 transpond-

ers, the output power was bigger than the competitors. It is especially true for the 0.3 dB which was the winner in noise performance.

What conclusions you can

draw out of those results? Skytrack JSU33's strong point is its high output power. So it can be a preferred choice for multi-satellite reception when we use multiswitches and long cable to distribute the signal to many receivers. The other advantage of this LNBF for multifeed system is its lower profile and weight (ca. 100 g) when compared with other typical devices.


**Figure 2. Output power of the LNBF's.**



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## Expert Opinion

+

Lightweight, low profile LNB very suitable for multifeed installations. High output power is another advantage in this application. Good workmanship.



Jacek Pawlowski  
TELE-satellite  
Test Center  
Poland

-

It will not be a choice for a DX-er.

### TECHNIC DATA

<b>Manufacturer</b>	Shenzhen Xiangcheng Electric Technology Co., Ltd.
<b>Internet</b>	www.skytrack.cn/www.jiuzhou.com.cn
<b>E-mail</b>	jerrychu@skytrack.cn / hxymar@jiuzhou.com.cn
<b>Telephone</b>	+86 755 26715445/26947236
<b>Fax</b>	+86 755 26947266/26715408
<b>Model</b>	JSU33
<b>Function</b>	Universal Ku-Band Single LNB
<b>Input Frequency</b>	10.7 GHz – 12 GHz
<b>Output Frequency</b>	950 MHz – 2150 MHz
<b>LOF Initial Accuracy</b>	1 MHz @ 25°C
<b>LOF Thermal Drift</b>	2 MHz (-30 ~ +60°C)
<b>Noise Figure</b>	0.6 dB max. @ 25°C
<b>Conversion gain</b>	60 dB min.
<b>DC Current consumption</b>	120 mA max.



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Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/far/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/far/topfield.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/fra/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/fra/topfield.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/hel/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/hel/topfield.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/hrv/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/hrv/topfield.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/ita/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/ita/topfield.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/mag/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/mag/topfield.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/man/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/man/topfield.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/ned/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/ned/topfield.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/pol/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/pol/topfield.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/por/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/por/topfield.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/rom/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/rom/topfield.pdf</a>
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Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/tur/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/tur/topfield.pdf</a>



**TOPFIELD**



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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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/bid/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/bid/abipbox.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/bul/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/bul/abipbox.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/ces/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/ces/abipbox.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/deu/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/deu/abipbox.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/eng/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/eng/abipbox.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/esp/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/esp/abipbox.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/far/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/far/abipbox.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/fra/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/fra/abipbox.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/hel/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/hel/abipbox.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/hrv/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/hrv/abipbox.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/ita/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/ita/abipbox.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/mag/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/mag/abipbox.pdf</a>
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Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/pol/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/pol/abipbox.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/por/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/por/abipbox.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/rom/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/rom/abipbox.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/rus/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/rus/abipbox.pdf</a>
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**AB-COM**

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	• / •

**TELE SATELLITE AWARD & BROADBAND**  
04-05/2009

**OPENSAT 3000CRCI PVR**  
Fully-fledged PVR receiver with excellent build quality that is easy to use

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| Croatian   | Hrvatski   | <a href="http://www.TELE-satellite.com/TELE-satellite-0905/hrv/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0905/hrv/opensat.pdf</a> |
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| Hungarian  | Magyar     | <a href="http://www.TELE-satellite.com/TELE-satellite-0905/mag/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0905/mag/opensat.pdf</a> |
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| Dutch      | Nederlands | <a href="http://www.TELE-satellite.com/TELE-satellite-0905/ned/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0905/ned/opensat.pdf</a> |
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| Russian    | Русский    | <a href="http://www.TELE-satellite.com/TELE-satellite-0905/rus/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0905/rus/opensat.pdf</a> |
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| Turkish    | Türkçe     | <a href="http://www.TELE-satellite.com/TELE-satellite-0905/tur/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0905/tur/opensat.pdf</a> |



**OPENSAT**

Manufacturer	Topfield
Website	www.topfield.co.kr
Function	HDTV PVR Satellite Receiver with Scaler
DVB-S2/LAN	• / •
Channel Memory	5000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	• / •
Scart/Digital Audio	• / •

**TELE SATELLITE AWARD & BROADBAND**  
02-03/2009

**TOPFIELD TF6000PVR ES**  
Easy to use family oriented receiver with built-in upscaler – ideal for use on LCD or plasma TVs

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| Indonesian | Indonesia  | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/bid/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/bid/topfield.pdf</a> |
| Bulgarian  | Български  | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/bul/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/bul/topfield.pdf</a> |
| Czech      | Česky      | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/ces/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/ces/topfield.pdf</a> |
| German     | Deutsch    | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/deu/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/deu/topfield.pdf</a> |
| English    | English    | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/eng/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/eng/topfield.pdf</a> |
| Spanish    | Español    | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/esp/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/esp/topfield.pdf</a> |
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| French     | Français   | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/fra/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/fra/topfield.pdf</a> |
| Greek      | Ελληνικά   | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/hel/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/hel/topfield.pdf</a> |
| Croatian   | Hrvatski   | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/hrv/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/hrv/topfield.pdf</a> |
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| Hungarian  | Magyar     | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/mag/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/mag/topfield.pdf</a> |
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| Dutch      | Nederlands | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/ned/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/ned/topfield.pdf</a> |
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| Portuguese | Português  | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/por/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/por/topfield.pdf</a> |
| Russian    | Русский    | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/rus/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/rus/topfield.pdf</a> |
| Swedish    | Svenska    | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/sve/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/sve/topfield.pdf</a> |
| Turkish    | Türkçe     | <a href="http://www.TELE-satellite.com/TELE-satellite-0903/tur/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0903/tur/topfield.pdf</a> |



**TOPFIELD**



Manufacturer	Dizipia
Website	www.dizipia.com
Function	HDTV Satellite Receiver with Scaler
DVB-S2/LAN	● / ●
Channel Memory	!
DiSEqC	1.0 / 1.2 / 1.3
S-Video/HDMI	— / ●
Scart/Digital Audio	● / ●

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02-03/2009

**DIZIPiA DS4H-9160**  
A competent receiver with lots of connection options and powerful capabilities

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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/bid/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/bid/dizipia.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/bul/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/bul/dizipia.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/ces/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/ces/dizipia.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/deu/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/deu/dizipia.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/eng/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/eng/dizipia.pdf</a>
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Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/far/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/far/dizipia.pdf</a>
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Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/ita/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/ita/dizipia.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/mag/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/mag/dizipia.pdf</a>
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Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/por/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/por/dizipia.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/rus/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/rus/dizipia.pdf</a>
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MADE IN KOREA



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	● / ●

**TELE SATELLITE AWARD & BROADBAND**  
12-01/2009

**JIUZHOU DTS6600**  
A brilliant blend of ease of use and great functions

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Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/esp/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/esp/jiuzhou.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/far/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/far/jiuzhou.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/fra/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/fra/jiuzhou.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/hel/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/hel/jiuzhou.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/hrv/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/hrv/jiuzhou.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/ita/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/ita/jiuzhou.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/mag/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/mag/jiuzhou.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/man/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/man/jiuzhou.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/ned/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/ned/jiuzhou.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/pol/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/pol/jiuzhou.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/por/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/por/jiuzhou.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/rom/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/rom/jiuzhou.pdf</a>
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**JIUZHOU**



Manufacturer	ABC BIZNIS
Website	www.opensat.info
Function	HDTV Satellite Receiver with Two CI Slots
DVB-S2/LAN	• / —
Channel Memory	!
DiSEqC	1.2
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/bid/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/bid/opensat.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/bul/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/bul/opensat.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/ces/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/ces/opensat.pdf</a>
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English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/eng/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/eng/opensat.pdf</a>
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Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/far/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/far/opensat.pdf</a>
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Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/man/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/man/opensat.pdf</a>
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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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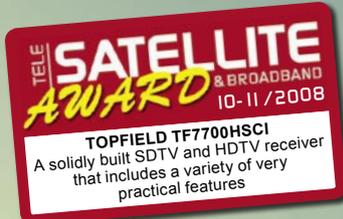
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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/bid/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/bid/abcom.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/bul/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/bul/abcom.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/ces/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/ces/abcom.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/deu/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/deu/abcom.pdf</a>
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Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/esp/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/esp/abcom.pdf</a>
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Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/hrv/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/hrv/abcom.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/ita/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/ita/abcom.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/mag/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/mag/abcom.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/man/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/man/abcom.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/ned/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/ned/abcom.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/pol/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/pol/abcom.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/por/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/por/abcom.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/rom/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/rom/abcom.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/rus/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/rus/abcom.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/sve/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/sve/abcom.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/tur/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/tur/abcom.pdf</a>





Manufacturer	Topfield
Website	www.topfield.co.kr
Function	HDTV PVR Satellite Receiver
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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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/bid/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/bid/topfield.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/bul/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/bul/topfield.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ces/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/ces/topfield.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/deu/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/deu/topfield.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/eng/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/eng/topfield.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/esp/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/esp/topfield.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/far/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/far/topfield.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/fra/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/fra/topfield.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/hel/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/hel/topfield.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/hrv/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/hrv/topfield.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ita/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/ita/topfield.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/mag/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/mag/topfield.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/man/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/man/topfield.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ned/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/ned/topfield.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/pol/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/pol/topfield.pdf</a>
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Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/rom/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/rom/topfield.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/rus/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/rus/topfield.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/sve/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/sve/topfield.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/tur/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/tur/topfield.pdf</a>



Manufacturer	Sonicview
Website	www.sonicviewusa.com
Function	Digital Satellite PVR Receiver With Two Tuners
DVB-S2/LAN	— / —
Channel Memory	6000
DiSEqC	1.0 / 1.1 / 1.2
S-Video/HDMI	• / —
Scart/Digital Audio	— / •



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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/bid/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/bid/sonicview.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/bul/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/bul/sonicview.pdf</a>
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English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/eng/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/eng/sonicview.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/esp/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/esp/sonicview.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/far/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/far/sonicview.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/fra/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/fra/sonicview.pdf</a>
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Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ita/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/ita/sonicview.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/mag/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/mag/sonicview.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/man/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/man/sonicview.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ned/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/ned/sonicview.pdf</a>
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Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/por/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/por/sonicview.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/rom/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/rom/sonicview.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/rus/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/rus/sonicview.pdf</a>
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Manufacturer	PT. Subur Semesta
Website	www.subsmt.com
Function	Digital Satellite Receiver for Motorized Dishes
DVB-S2/LAN	— / —
Channel Memory	4000
DiSEqC	1.2
S-Video/HDMI	— / —
Scart/Digital Audio	— / —

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Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/esp/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/esp/venus.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/far/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/far/venus.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/fra/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/fra/venus.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/hel/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/hel/venus.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/hrv/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/hrv/venus.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ita/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/ita/venus.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/mag/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/mag/venus.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/man/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/man/venus.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ned/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/ned/venus.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/pol/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/pol/venus.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/por/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/por/venus.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/rom/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/rom/venus.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/rus/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/rus/venus.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/sve/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/sve/venus.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/tur/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/tur/venus.pdf</a>



**VENUS**

Manufacturer	AB-COM
Website	www.abipbox.com
Function	HDTV PVR 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	• / •

**TELE SATELLITE AWARD & BROADBAND**  
**08-09/2008**  
**ABCOM IPBOX 9000 HD PLUS**  
 A huge range of connection options make this box a true all-rounder – yet it remains easy to use as a family receiver.

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Indonesia	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/bid/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/bid/abcom.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/bul/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/bul/abcom.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/ces/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/ces/abcom.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/deu/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/deu/abcom.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/eng/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/eng/abcom.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/esp/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/esp/abcom.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/far/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/far/abcom.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/fra/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/fra/abcom.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/hel/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/hel/abcom.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/hrv/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/hrv/abcom.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/ita/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/ita/abcom.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/mag/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/mag/abcom.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/man/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/man/abcom.pdf</a>
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Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/rom/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/rom/abcom.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/rus/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/rus/abcom.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/sve/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/sve/abcom.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/tur/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/tur/abcom.pdf</a>



**AB-COM**



Manufacturer	Arion
Website	www.arion.co.kr
Function	Digital Satellite PVR Receiver with Built-in Scaler
DVB-S2/LAN	• / —
Channel Memory	8000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	• / •
Scart/Digital Audio	• / •



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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/bid/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/bid/arion.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/bul/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/bul/arion.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/ces/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/ces/arion.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/deu/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/deu/arion.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/eng/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/eng/arion.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/esp/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/esp/arion.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/far/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/far/arion.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/fra/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/fra/arion.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/hel/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/hel/arion.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/hrv/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/hrv/arion.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/ita/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/ita/arion.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/mag/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/mag/arion.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/man/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/man/arion.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/ned/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/ned/arion.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/pol/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/pol/arion.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/por/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/por/arion.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/rom/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/rom/arion.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/rus/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/rus/arion.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/sve/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/sve/arion.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/tur/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/tur/arion.pdf</a>



**ARION**



Manufacturer	NanoXX
Website	www.nanoxx.info
Function	Digital 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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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/bid/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/bid/nanoxx.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/bul/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/bul/nanoxx.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ces/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/ces/nanoxx.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/deu/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/deu/nanoxx.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/eng/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/eng/nanoxx.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/esp/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/esp/nanoxx.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/far/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/far/nanoxx.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/fra/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/fra/nanoxx.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/hel/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/hel/nanoxx.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/hrv/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/hrv/nanoxx.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ita/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/ita/nanoxx.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/mag/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/mag/nanoxx.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/man/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/man/nanoxx.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ned/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/ned/nanoxx.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/pol/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/pol/nanoxx.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/por/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/por/nanoxx.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/rom/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/rom/nanoxx.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/rus/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/rus/nanoxx.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/sve/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/sve/nanoxx.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/tur/nanoxx.pdf">www.TELE-satellite.com/TELE-satellite-0805/tur/nanoxx.pdf</a>



**NANOXX**



Manufacturer	Topfield
Website	www.topfield.co.kr
Function	DVB-S, DVB-S2 HDTV Receiver with Irdeto CA
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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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/bid/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/bid/topfield.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/bul/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/bul/topfield.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ces/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/ces/topfield.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/deu/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/deu/topfield.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/eng/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/eng/topfield.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/esp/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/esp/topfield.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/far/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/far/topfield.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/fra/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/fra/topfield.pdf</a>
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Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/hrv/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/hrv/topfield.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ita/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/ita/topfield.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/mag/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/mag/topfield.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/man/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/man/topfield.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ned/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/ned/topfield.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/pol/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/pol/topfield.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/por/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/por/topfield.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/rom/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/rom/topfield.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/rus/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/rus/topfield.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/sve/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/sve/topfield.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/tur/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/tur/topfield.pdf</a>



**TOPFIELD**



Manufacturer	ABC Biznis
Website	www.opensat.info
Function	DVB-S/S2 MPEG2/4 HD Receiver with Single Tuner
DVB-S2/LAN	• / —
Channel Memory	4000
DiSEqC	1.0 / 1.2
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/bid/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/bid/opensat.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/bul/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/bul/opensat.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ces/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/ces/opensat.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/deu/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/deu/opensat.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/eng/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/eng/opensat.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/esp/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/esp/opensat.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/far/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/far/opensat.pdf</a>
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Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/hel/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/hel/opensat.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/hrv/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/hrv/opensat.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ita/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/ita/opensat.pdf</a>
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Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/ned/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/ned/opensat.pdf</a>
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**OPENSAT**



Manufacturer	Topfield
Website	www.topfield.co.kr
Function	Digital DVB-S, DVB-S2 HD-PVR Receiver with Ethernet Connection
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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**TOPFIELD TF7700 HDPVR**  
Fully capable twin receiver with proven HDTV technology and outstanding picture quality.

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| Indonesian | Indonesia  | <a href="http://www.TELE-satellite.com/TELE-satellite-0803/bid/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/bid/topfield.pdf</a> |
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**TOPFIELD**



Manufacturer	AB-COM
Website	www.abcom.sk
Function	Linux-based Receiver for Terrestrial, Cable and Satellite DVB Reception
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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02-03/2008

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**AB-COM**



Manufacturer	Arion
Website	www.arion.co.kr
Function	HDTV Satellite Receiver with CI Slot
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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**ARION AF-4000HDCI**  
A receiver that will make any newbie happy as well as please any pro with its endless possibilities

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| English    | English    | <a href="http://www.TELE-satellite.com/TELE-satellite-0801/eng/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/eng/arionHDCI.pdf</a> |
| Spanish    | Español    | <a href="http://www.TELE-satellite.com/TELE-satellite-0801/esp/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/esp/arionHDCI.pdf</a> |
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| Polish     | Polski     | <a href="http://www.TELE-satellite.com/TELE-satellite-0801/pol/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/pol/arionHDCI.pdf</a> |
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**ARION**

Manufacturer	Infosat
Website	www.infosats.com
Function	MPEG2 FTA receiver with Blind Scan
DVB-S2/LAN	— / —
Channel Memory	1000
DiSEqC	1.0 / 1.2
S-Video/HDMI	— / —
Scart/Digital Audio	— / —

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12-01 / 2008

**INFOSAT ZIMPLE BOX 3**  
Fast and easy to use receiver for FTA reception with a very sensitive tuner

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**INFOSAT**

Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	Professional Digital Satellite Receiver with 2 CI Slots
DVB-S2/LAN	- / -
Channel Memory	!
DiSEqC	-
S-Video/HDMI	- / -
Scart/Digital Audio	- / -

Main Menu  
 >>Channel Search  
Digital Video Broadcasting

P:84% Q:58% playing  
 >>1.Pgm1  
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**JIUZHOU**

Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	Digital Satellite Receiver FTA
DVB-S2/LAN	- / -
Channel Memory	4800
DiSEqC	1.0 / 1.2
S-Video/HDMI	• / -
Scart/Digital Audio	• / •



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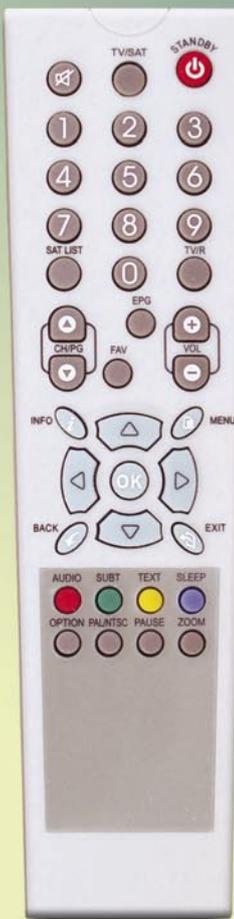
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# Innovation Out of Thailand



■ Niran Tangpiroontham (left), INFOSAT's Chief, and Alexander Wiese (right), TELE-satellite's Editor-in-Chief, in front of INFOSAT's head office in Nontaburi, a suburb northwest of Bangkok.

*Even a long-standing product such as a C-band antenna still has room for improvements. A few months ago, INFOSAT in Thailand introduced a 1.5-meter single-segment antenna to the market. The result was immediate success! The driving force behind this new product is Niran Tangpiroontham, founder and owner of the company INFOSAT. He is not new to the pages of TELE-satellite: we previously reported on Niran and his new ideas in TELE-satellite issues 02-03/2007 and 02-03/2008.*

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■ This picture appeared in the 02-03/2008 issue of TELE-satellite...



■ ...and this picture is from the same spot in March 2009; where an open field was only a few months ago, today stands a new factory.

■ Don't climb on the antennas! This warning is not meant for the new single-segment dish.

Niran demonstrates that the new antennas are actually quite sturdy. "Installers love this new dish", he proudly comments about his newest product, "They no longer have to spend time screwing multiple segmented antennas together, the installation work is finished quicker and the new antennas are quite robust."



■ The first assembly step for the INFOSAT single-segment dish: the antenna framework is welded together on a ring table. The worker in the foreground is mounting the support plate in the center.



■ Another INFOSAT innovation: Niran shows us a prototype C/Ku-band multi-room LNBF to be fed into multiswitches. The C-band LNB is fitted with an output for horizontal and vertical polarizations while the Ku-band LNB only has a vertically polarized output. It would be used in the domestic market in Thailand for reception of THAICOM at 87.5° east in C-band and NSS 6 at 95° east in Ku-band. "The engineers are working on fitting the Ku-band LNB with both polarizations but the technical requirements are quite high", explains Niran as to why these Combi LNBFs can only receive one polarization in the Ku-band.

The most recent TELE-satellite INFO-SAT article in early 2008 included among other things a picture of a vacant field. That was then. Today there's a new manufacturing facility in this field: "That is the INFOSAT Factory Number 2" explains Niran proudly. He gestures to the construction workers who are putting in the finishing touches: "By the time this issue is printed, the factory will be fully operational." Factory Number 1 is at its limits: just a few weeks ago the manufacture of the previously mentioned single-segment dishes had begun.

"Factory Number 1 is 2400 Sq-m in size; factory number 2 is 2500 Sq-m", explains Niran. While the first factory is owned by INFOSAT, the second one was rented. "This saves on costs which I have used to invest in new machines", reveals Niran regarding his plans. He was able to acquire two additional punching machines for a total of five that are used to punch the required holes in the 0.5mm thick aluminum rolls for the mesh antenna segments.

By far the largest investment would have to be the spray painting system: he uses this to spray paint the antenna struts and segments exactly the way he wants. "All of these new machines required an investment of over US\$ 400,000", comments Niran. Factory number 1 focuses

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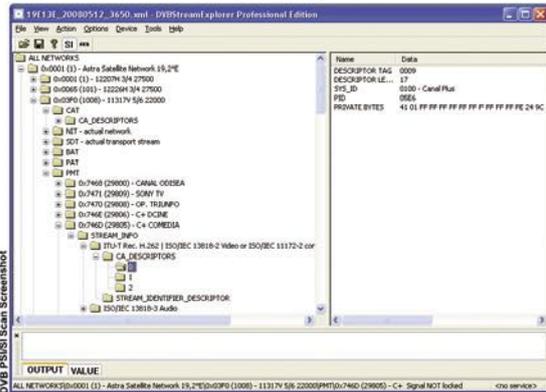
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### DVB Service Viewer

- View DVB service information of collected PSI/SI data.
- Organize service view by satellite position, network ID, provider and alphabetic.
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### ATSC PSI/PSIP Scanning

- Scanning of PSI/PSIP information as defined in tables defined in ISO13818-1 and A/65C.
- Parsing of SST, MGT, TVCT, CVCT, RRT, EIT, ETT, DCCT and DCCSCT tables, including most descriptors.

### DVB DSMCC scanning

- Scanning of DVB DSMCC data- and object carousel's as defined in ISO13818-6 and EN 301 192.
- DSMCC is used for distribution of i.e. MHP applications.
- Parsing of DSMCC sections.
- View information about DSMCC data-carousels.
- View information about DSMCC object-carousels.
- Saving of DSMCC data- and object carousels files. Object carousels are saved with original directory/file structure.

### DVB MPE scanning

- Scanning of DVB MultiProtocol Encapsulation (MPE) as defined in ISO13818-6 and EN 301 192.
- Scan for active MAC addresses on MUX.
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### Real-time Transport Stream Monitor

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■ The mesh segments are screwed into the antenna frame – the INFOSAT 1.5-meter single-segment dish is finished.



■ Off to shipping: three antennas are packaged together. Niran is seen here holding one of these packages. A maximum of 20 of these packages fit on a pallet which in most cases is the minimum quantity for an international order.

on production and assembly of the dish antennas while factory number 2 is used for painting the finished antennas, packing them and preparing them for shipping.

All of this financial investment makes you stop for a moment and think: did Thailand somehow escape the current worldwide economic crisis? "No, not all", replies Niran, "it began last September with a steady decrease in the number of purchase contracts." At first Niran didn't have any answers. His employees began to get nervous. Then Niran came up with the solution: "The prices for aluminum and steel, the two most important raw materials used in manufacturing dishes, had fallen, and starting January 1, 2009 I reduced the INFOSAT antenna prices by 10%." No sooner were these new prices made public, the orders started coming in. "Now we very often find ourselves working seven days a week in order to handle all of these orders", explains Niran with a smile on his face. He is quite satisfied with his price-reduction action. The available stock of unsold antennas that up until the end of 2008 filled the factory floor has since been completely depleted. "Today, an antenna is sold as soon as it is produced; dealers have to wait for their orders to be shipped!" The first factory was capable of producing a maximum of 10,000 dishes a month. With the start up of the second factory, capacity has increased to 15,000.

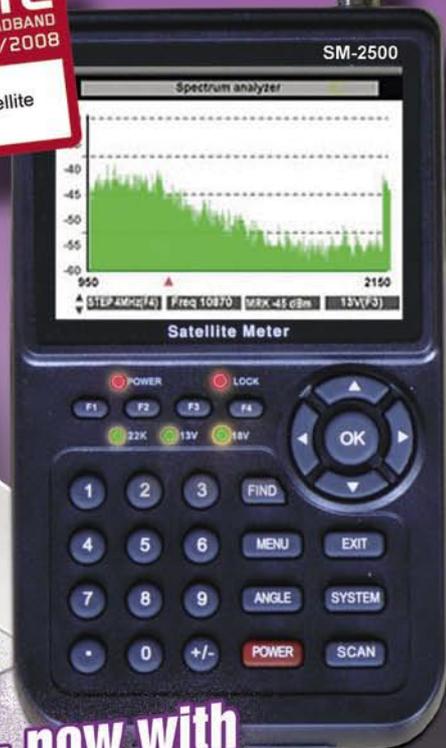
Niran concedes that the economic crisis also has its advantages. Prices for raw materials aren't the only thing that have come down, payroll demands have also fell silent. "70% of our employees are loyal; 30% however wouldn't hesitate to move to another company even if they were offered only a 1% increase in pay." Employee loyalty is an important aspect for a company with 60 factory workers and 30 in administrative positions.

At lunch in the Chao Praya River Restaurant, directly next to the new factory and only 20 km from downtown Bangkok, Niran explained his plans for the future: "The most popular receiver sold in Thailand is the ZIMPLE Box 4 at over 30,000 receivers per month." Up until now, he has been acquiring these receivers, manufactured to his specifications, from China. But he pays 20% import duty and

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■ Pink antennas? Who would buy something like that? Jiraporn Tangpiroontham, Niran's better half and antenna production manager explains, "5% of our antennas are sold in pink. The buyers are women who seem to prefer that color." Most of the dishes that are sold however, roughly 60%, are not colored primarily because it is the least expensive version. 35% are ordered in black. Other colors offered by INFOSAT are only available by special order.



■ Currently, the ZIMPLE 4 Box receiver is still produced in China according to INFOSAT's specifications. Before delivery to customers, INFOSAT's own H20 software along with updated transponder data is uploaded into the receivers.



■ INFOSAT's new, second factory, that will have been put in service with the publication of this issue of TELE-satellite.



■ The shipping department: here the daily dealer deliveries are prepared.

the receivers are marked 'Made in China'. If he were to import the individual pieces SKD (Semi Knocked Down), import duty would be only 10% and the receivers could then be stamped 'Made in Thailand'. "Some countries prefer 'Made in Thailand'", ponders Niran regarding the inviting idea of making receivers himself. At the same time he is thinking about the additional expenses that would be directly connected with this idea. Niran is wrestling with the prospect of whether or not he should jump on board the receiver manufacturing bandwagon or remain on the more comfortable path of importing completed receiver boxes. Officially, Niran has not yet made up his mind. But wait...if you take a look inside the new factory you'll see that a spot has been reserved for a receiver assembly line...

Somehow, Niran would like to reach his ambitious goal. Even though 2009 has been officially categorized as a recession year, he has set quite a goal for himself: "In 2008, INFOSAT realized US\$ 10 million in sales, for 2009 I am expecting a 20% increase!" His chances for reaching this goal are actually quite good!



■ Workers are seen here busy with the installation of a new spray painting system that will be fully operational by the time this issue of TELE-satellite hits the newsstands.

# The New DXer: HDTV

*TELE-satellite regularly reports on satellite DXer's. Up until now, this category covered all those who play around with satellite reception as a hobby. Now there exists a new category: the HDTV DXer! They are only interested in HDTV channels in DVB-S2, and nothing else. We met up with one of the first of these specialized HDTV DXer's oddly enough in Beijing – or maybe that's the reason why. Private satellite reception is not allowed in China except in flat-land areas and the concentration on HDTV is therefore twice as uncommon.*



■ Purchased only two days ago: the new 2.4-meter antenna that Applesat plans to set up in the next couple of days. The 1.0-meter dish is fixed in place and is pointed to ASIASAT.



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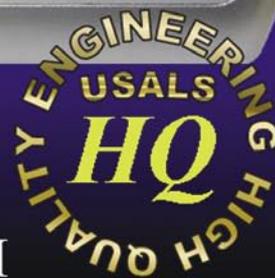
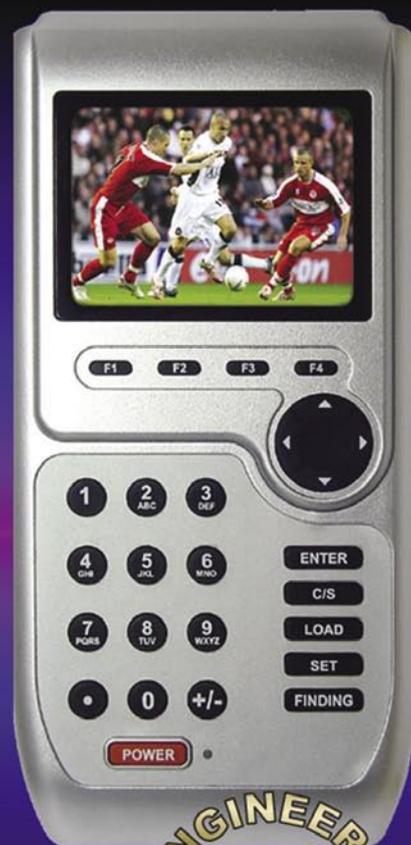
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■ Applesat's 60cm antenna with three LNBs receives TELSTAR 18 at 138° east, AGILA at 146° east and APSTAR 6 at 134° east.

This HDTV DXer adopted the nickname "Applesat". He explained why: "At 15 I started getting interested in satellite reception. Back then China was still quite isolated and the reception of foreign programming opened up a new world for me. Back then I thought that the Earth was like an apple with satellites flying around it."

His parents didn't really like his new hobby, but Applesat didn't worry about it too much and started with a 1.5-meter dish for ASIAsat 1 reception. That was 1992. Three years later he expanded his system with a 2.1-meter dish for APSTAR 1.

In January 2009 he moved into his own apartment in a new building in northern Beijing. He chose this particular apart-



■ Applesat has hidden his antennas very nicely in this modern apartment building: invisible from the ground, they are located on the balcony of his apartment on the ninth floor.



■ This feedhorn is specially designed for offset antennas and is recognizable by its conical feedhorn. "Normal prime focus antenna (PFA) feeds would have too much signal loss", explains Applesat.

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■ By the south-facing window in the living room Applesat set up a small offset antenna that he is aligning with a Trimax meter. "I do this mostly in the evenings", says Applesat, "this is my manual motorized antenna."



ment for a reason: it is on the ninth floor directly under the roof. For the most part this protected him from any curious glances. "You can only install dishes legally out in open land areas for CHINASTAR reception with channels in ABS-S", explains Applesat, "but private reception in the city is not allowed."

There are exceptions though for those apartment buildings in which foreigners are allowed to reside and then only in those apartments in which these foreigners live. The Beijing-born Applesat cannot use this as an excuse, so for this reason he doesn't want to draw any attention to himself. "I love HDTV", says Applesat, "and that's why I am willing to take some risks." His dream is to one day have his own piece of land near the Great Wall of China so that he can erect a real satellite antenna farm. "But current laws don't allow city residents like me to own any land outside of the city."

Until that day comes, he keeps in touch with like-minded people. He exchanges new HDTV channel information through his own Internet forum [www.hdtvstar.cn](http://www.hdtvstar.cn); he acquires new transponder frequencies from [www.cnsat.net](http://www.cnsat.net).

How does someone like Applesat get ahold of satellite products in Beijing? While you can find shops with satellite equipment in provincial cities, you won't find anything in Beijing. "I buy much of my equipment through Internet auction sites", reveals Applesat, "Using the word 'satellite' is really not allowed so you have to use other similar terms to find products like that."

Applesat knows how to get around all the obstacles to expand his hobby. His rack already contains five satellite receivers plus he also has a 32" HDTV flat-screen TV. "I'd really like to turn my hobby into my job", explains Applesat, "and eventually that will happen." The energy that Applesat puts into his hobby makes that a certainty.

■ Applesat in front of his shack with five receivers, one for terrestrial HDTV signals in DMB-TH, a DVB-S2 receiver, two DVB-S receivers with modules and a DVB-S FTA receiver. "My favorite channels are Luxe.TV on ASIASAT 2, Fashion TV, Voom, National Geographic, History Channel, AXN and ASN from MEASAT", explains Applesat, "The new HD channels from Korean provider Skylife recently started on KOREASAT 3 on 11.900L and 11.938L."

# ECHOSTAR in Tenerife

*In TELE-satellite issue 12-01/2009 we reported on how Diego Fernando Sanchez Rosende is trying to receive out of footprint satellite signals. He manages to catch several North American satellites with only a 1.8 m offset dish.*

However, there is no cause for delight in receiving these signals, as almost all of them are encrypted. But then Diego discovered CBS-21 on ECHOSTAR 6A at 72.5° West, on the vertical polarisation of 12.224 GHz and found out that it is being transmitted in the clear. "I can receive this channel with high definition in DVB-S2 quite reliably." Meanwhile, even more channels have joined CBS-21 and so Diego can watch US television in Europe on the island of Tenerife.

Looking at his spectrum analyzer he compiled the following list of transponders which he is able to receive:

**DIRECTV 1R - ECHOSTAR 6 at 72,5° WEST (DIRECTV USA - DISH NETWORK USA)**

- 12.224, R, 20000, 5/6
- 12.239, L, 20000, 5/6
- 12.282, R, 20000, 5/6
- 12.340, L, 20000, 5/6

**ECHOSTAR 4 - ECHOSTAR 8 at 77,0° WEST (DISH NETWORK MEXICO)**

- 12.239, L, 20000, 5/6

Apart from these two satellites Diego also receives signals from ECHOSTAR at 61.5° West and AMAZONAS at 61° West, but with a lower signal strength that is insufficient for producing a clear image on screen.

Once again, Diego's example clearly shows that satellite signals can also be received way out of footprint. It's always worth giving it a try, much more so if an appropriately sized antenna is available together with unrestricted view and – ideally – a location at high altitude: the higher the location, the lower signal interference from terrestrial transmissions. Diego lives up on a mountain, whose backside blocks all signals travelling from the north. In addition, the almost complete lack of environmental pollution makes for a clear view to North American satellites and thus creates a situation that might be quite unique in Europe.

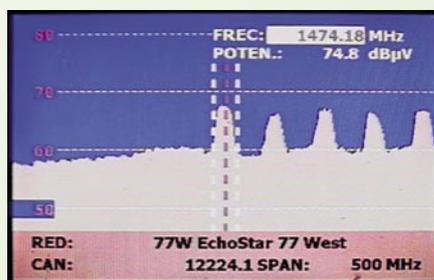
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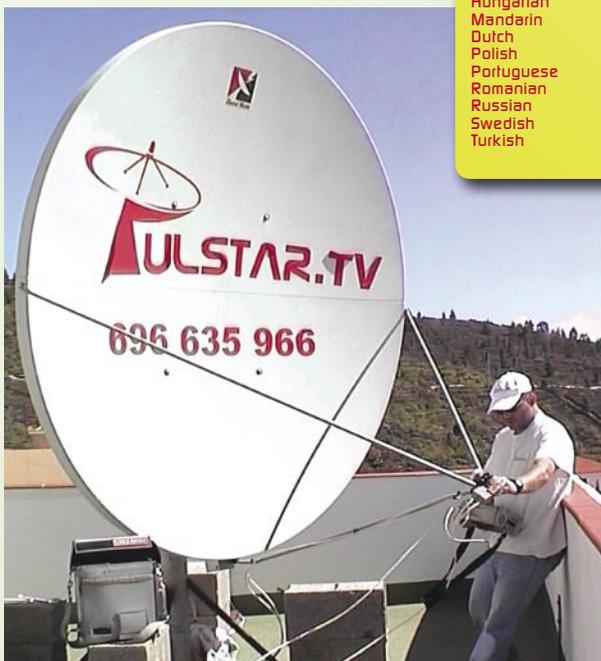
■ Receiving a free-to-air US channel in Europe: CBS-21 is transmitted in the clear from ECHOSTAR 6A and received in Tenerife/Spain by Diego's 1.8 m antenna.



■ Diego's satellite meter shows the NIT table of one of the transponders of ECHOSTAR 6A he is receiving



■ Spectrum display of ECHOSTAR 6A in Tenerife.



■ The low elevation required for receiving american satellites strikes right away. As Diego's location is high up in the mountains he is able to maintain reception even with such low elevation.

■ Diego fine-tunes his 1.8 m offset dish which he uses to receive american satellites in Tenerife.



■ The footprint is far from reaching Europe – or so the theory goes. In the real world, reception is very well possible in the western fringes of Europe.

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| Romanian   | Românesc   | <a href="http://www.TELE-satellite.com/TELE-satellite-0907/rom/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/rom/tenerifedxer.pdf</a> |
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| Swedish    | Svenska    | <a href="http://www.TELE-satellite.com/TELE-satellite-0907/sve/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/sve/tenerifedxer.pdf</a> |
| Turkish    | Türkçe     | <a href="http://www.TELE-satellite.com/TELE-satellite-0907/tur/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/tur/tenerifedxer.pdf</a> |

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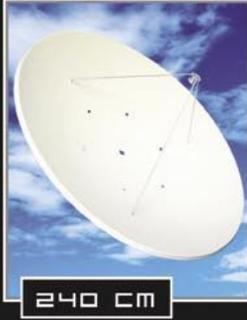
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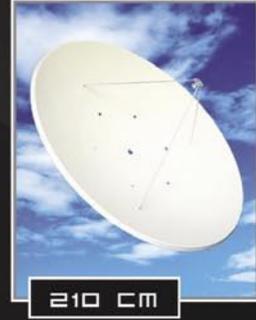
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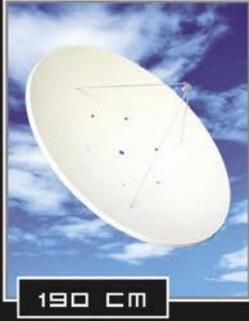
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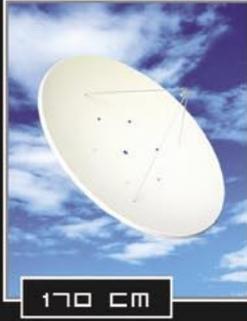
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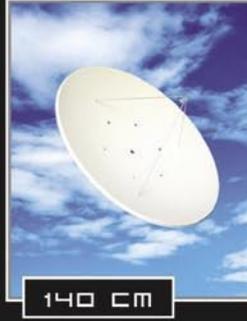
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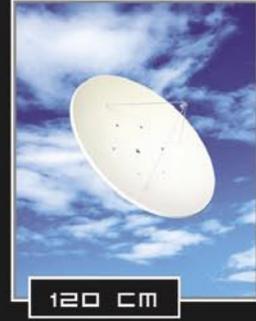
190 CM



170 CM



140 CM



120 CM



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# New Satellites



Ariane 5 ECA lifts off from the ELA-3 launch zone at Europe's Spaceport in French Guiana

(Photo: ESA)

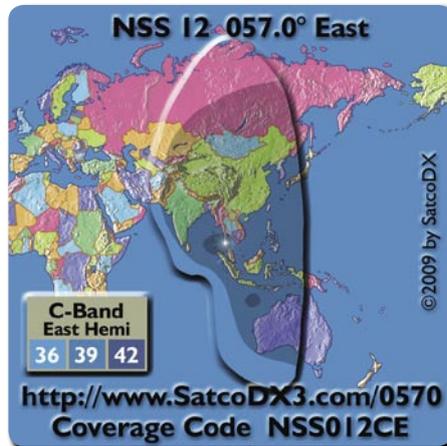


Edited by  
**Aleksandar Medic**

**NSS 12**  
July-September 2009

This state-of-the-art satellite is manufactured by Space Systems/Loral and will be located on 57° East over the Indian Ocean Region and will have 48 DTH Ku-band and 40 C-band (36 MHz equivalent) transponders with a lifespan of more than 15 years. NSS 12 will feature elaborate beam interconnectivity and C-/Ku-band cross-strapping. It will replace the NSS-703 satellite and will be used to enable communications services including VSAT Internet and GSM backhaul

services for telecommunications providers, broadcasters, corporations and governments in Europe, Africa, the Middle East, India and other parts of Asia.



**AMAZONAS 2**

September 2009

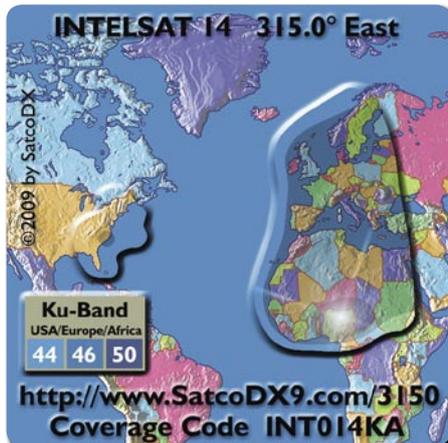
Amazonas 2 satellite, ordered by HISPASAT in 2007 and constructed by EADS-ASTRIUM, has 54 Ku- and 10 C-band transponders and an operational life of 15 years. After the launch from the Kourou space center in French Guiana by Ariane 5 rocket, it will be co-positioned with Amazonas 1 satellite on 299° East (61° West) and it will cover both North and South America since it has dedicated Ku-band beams for both continents and an American C band beam. This Eurostar-3000 based communication satellite will double HISPASAT's capacity in the Americas and provide a wide range of services including direct-to-home television. HISPASAT's new satellite will weigh 5.5 tons and use a solar panel of 39 meters providing over 14 kW of power. Total investment for this satellite is over 200 million euros.



**INTELSAT 14**

August-September 2009

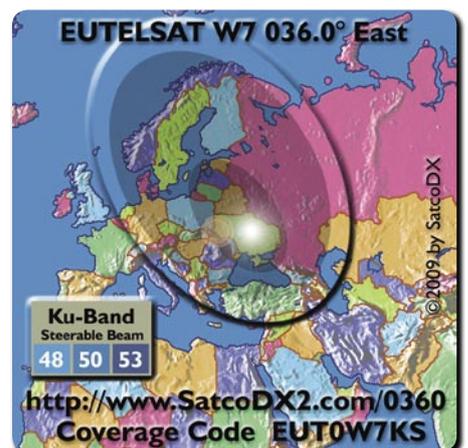
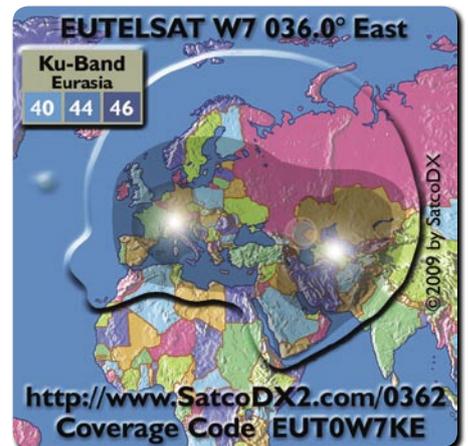
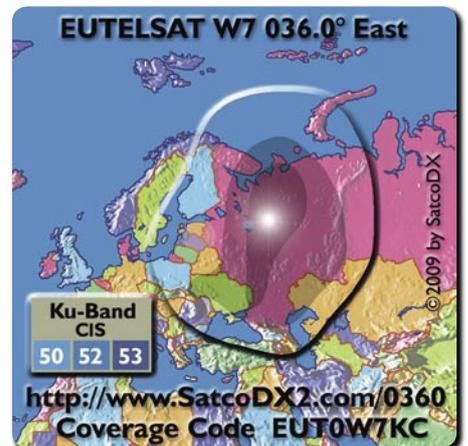
This satellite has been manufactured by Space Systems/Loral. It will be carried into space by Atlas V rocket and positioned on 315° East (45° West). With its 40 C- and 22 Ku-band transponders it will cover Europe, Africa and the Americas. INTELSAT 14 has a lifetime of 15 years and will replace INTELSAT 1R satellite. Defense's Internet Router In Space (IRIS) payload, which represents the next generation of space-based communications, since it will be able to merge communications received on various frequency bands and transmit them to multiple users based on data instructions embedded in the uplink, thus enabling U.S. and allied military forces with diverse satellite equipment to seamlessly communicate over the Internet from the most remote regions of the world. IP networking software for the router is provided by Cisco Systems.



**EUTELSAT W7**

July-September 2009

EUTELSAT W7 will occupy EUTELSAT's 36° East location, replacing EUTELSAT SESAT. This 70 Ku-band transponder satellite, built by Alcatel Alenia Space, will be launched by Zenit sea launch vehicle. 24 transponders will be assigned to DTH services on the fixed Russian/Ukrainian beam, 12 transponders will operate on the steerable beam focused on the Ukraine, while 27 transponders will be available for broadband services. The introduction of EUTELSAT W7 will almost triple EUTELSAT's capacity over Russia, the Ukraine and the CIS, making 36° East one of the hottest orbital positions. A widebeam coverage over Eurasia will be particularly suited to TV feeds, public/corporate telephony and data services, while the Central Asian beam will be targeted at the oil and gas sector for voice and data services using DVB-RCS applications with 90/120cm antennas. W7 weighs 5.6 tons, it has 12 kW payload power and a lifespan of 15 years.





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Edited by  
**Branislav Pekic**

**EUROPE**

**EUROPE**

**EUTELSAT HOT BIRD 9 ENTERS INTO SERVICE**

Eutelsat Communications has announced the full entry into commercial service of its Hot Bird 9 satellite at 13 degrees East. Built by EADS Astrium and launched on 20 December 2008 by Arianespace, Eutelsat's new high-capacity broadcast satellite has a projected in-orbit life of more than 15 years. With the entry into service of Hot Bird 9, co-positioned with Eutelsat's Hot Bird 6 and Hot Bird 8 satellites, Hot Bird 7A can now be redeployed to 9 degrees East. Rebranded Eurobird 9A, the satellite will assume all broadcasts currently carried by the 20 transponders on Eurobird 9 and introduce 18 additional transponders at the 9 degrees East neighbourhood, which has seen the number of channels more than double in one year to almost 150. Released from this position, Eurobird 9 will continue its useful life in orbit at another location. Hot Bird 9 has a payload of up to 64 Ku-band transponders.

**EUTELSAT HOT BIRD 10 SUCCESSFULLY LAUNCHED**

Eutelsat Communications' Hot Bird 10 satellite was successfully launched on February 12 by an Ariane 5 ECA rocket from the European spaceport in Kourou, French Guiana. The EADS-Astrium built satellite will be deployed at the 13 degrees East orbital position, providing coverage of Europe, North Africa and the Middle East. It will have a lifetime in orbit of 15 years and is equipped with 64 Ku-band transponders in the frequency band 10.7-12.75 GHz. Prior to joining 13 degrees East HOT BIRD 10 will consequently be deployed to 7 degrees West to expand capacity at this key neighbourhood for broadcasting in the Middle East.

**SES MOVES ASTRA 2C TEMPORARILY TO 31.5 DEGREES EAST**

SES Astra has moved the Astra 2C satellite from 28.2 degrees East to the orbital position 31.5 degrees East to take over the mission of Astra 5A which is no longer in service. It will remain approximately there for one year. Meanwhile, the services transmitted via 28.2 degrees East will continue to be broadcast from the other satellites co-located at this orbital position. Astra 2C will be able to operate 24 BSS transponders at 31.5 degrees East, thereby continuing the commercialization of this orbital position. After the launch of Astra 3B in the fourth quarter of 2009 and its subsequent deployment, another in-orbit satellite will be moved to 31.5 degrees East, permitting the return of Astra 2C to 28.2 degrees East and to enhance capacity at this orbital position.

**SES BOOSTS 23.5 DEGREES EAST ORBITAL POSITION**

SES Astra has moved its Astra 1G satellite from 19.2 degrees East to 23.5 degrees East, where it joined Astra 3A and Astra 1E to serve Central Europe, the Benelux countries and German cable networks, as well as offering the high-speed broadband service Astra2Connect. The move follows the successful deployment of SES Astra's new satellite Astra 1M which replaces Astra 1G at 19.2 degrees East. Astra 1G adds 19 transponders to 23.5 degrees East increasing the number of available transponders on this orbital position to 56. By the end of the year,

the orbital position at 23.5 degrees East will be further strengthened by the launch of Astra 3B.

**THALES ALENIA SPACE COMMISSIONED FOR W3C SATELLITE**

Eutelsat Communications has announced that Thales Alenia Space has been commissioned to build the W3C satellite. Eutelsat will select the launcher for the satellite separately at a later stage. The rapid order of W3C follows Eutelsat's decision taken in January 2009 not to integrate the W2M satellite into its fleet following a major anomaly which occurred during its transfer from the location used for in-orbit tests to its operating position at 16 degrees East where its mission was to replace well in advance Eutelsat's W2 satellite. Scheduled for launch in third quarter 2011 and equipped with 56 transponders, W3C will be co-positioning with Eutelsat's W3A satellite will expand capacity at 7 degrees East from 44 to 70 transponders.

**EUTELSAT W2A IN ORBIT**

The W2A satellite of Eutelsat Communications was successfully lofted into orbit on April 3 by a Proton Breeze M rocket supplied by ILS. Designed to replace Eutelsat's W1 satellite, W2A's payload of up to 46 Ku-band and 10 C-band transponders will almost triple capacity at one of the Group's most established neighbourhoods. Up to 46 Ku-band transponders, depending on operations, will be connected to a wide footprint of Europe, the Middle East and North Africa, and a second beam over southern Africa and Indian Ocean islands. Ten C-band transponders will provide coverage of Africa, extending east to central Asia and west to Latin America. Services in the S-band will enable Solaris Mobile to deploy mobile video broadcasting applications across Europe for a host of mobile devices including phones, PDAs, iPods, games consoles and laptops. The S-band will also be able to support the deployment of mobile interactive applications of particular benefit for the transport and automotive sectors.

**SATELLITE OPERATORS TO GET S-BAND RADIO RIGHTS**

Two European satellite companies are expected to be awarded in April the rights to part of the radiofrequency spectrum that could be used to create new Europe-wide mobile phone services. Inmarsat and Solaris Mobile, a joint venture between SES Astra and Eutelsat, are expected to be given 18-year rights to S-band radio spectrum in 27 countries across Europe, according to a report in the Financial Times. Two other companies - ICO Global Communications and TerreStar - were also in the running. The European Commission has opted to pool the S-band licences from all its member states, and award them in one block.

**BULGARIA**

**VESTITEL SELECTS ORCA IPTV SOLUTION**

Bulgarian triple-play operator, Vestitel BG, has selected Orca Interactive to supply their RiGHTv IPTV middleware platform to underpin their new model based IPTV service. The IPTV middleware will be deployed to replace the existing solution that is powering Vestitel's current IPTV service and will be the basis for their Partnership model - to which multiple Bulgarian operators have signed up - that will go live at the end of April 2009.

**CROATIA**

**T-HT TOPS 150.000 SUBSCRIBERS FOR IPTV SERVICE**

T-Hrvatski Telekom (T-HT), owned by Deutsche Telekom, has passed 150.000 subscribers for its IPTV service MAXtv, as well as commercially launching HD services on the platform in April. The basic HD service comprises the channels National

Geographic Channel HD, Eurosport HD, History HD, Voom HD, Luxe TV HD, Melody Zen HD and German music channel Anixe HD. Subscriptions to the HD service are available for HRK 49 (EUR 6.60) per month to users who sign up for 12 months.

**CZECH REPUBLIC**

**TELEFONICA O2 ENDS 2008 WITH 115.000 IPTV SUBSCRIBERS**

Telefónica O2 ended 2008 with 115.000 subscribers for its IPTV service O2 TV, compared to 108.061 at the end of last September. O2 TV offers up to 80 linear channels, with premium offerings provided by HBO and Cinemax, as well as delivering a VOD service, which has on-demand content deals with a number of Hollywood studios.

**FRANCE**

**ORANGE WITH 1.7 MILLION IPTV SUBSCRIBERS**

Orange reported a 66% growth in pay-TV customers across its IPTV and satellite platforms in Europe last year, rising from 1.2 million at the end of 2007 to 2.1 million by the end of 2008. The France Telecom-backed company had 1.9 million subscribers in France, out of which with 201.000 subscribing to the DTH service and around 1.7 million to the IPTV service. Domestic VOD downloads more than doubled, rising from 5.1 million in 2007 to 12.1 million in 2008. Furthermore, the recently-launched Orange sport channel and Orange cinema series channels had 130.000 subscribers by the end of 2008.

**GERMANY**

**FIVE MILLION IPTV SUBSCRIBERS EXPECTED BY 2013**

Consulting company Detecon International expects that Germany will cross the threshold of 5 million IPTV subscribers by 2013. The prediction is based on current analyses of subscriber figures for the largest German and foreign IPTV providers. One reason given for the predicted growth is that German IPTV providers have readjusted their business models by adding integrated and flexible products and emphasising more strongly the features of IPTV which set the service apart from traditional broadcasting and Web-to-peer or peer-to-peer TV programming, which is also Internet-based.

**DT REDUCES IPTV PRICES BY 10 PER CENT**

Deutsche Telekom has cut the subscription fees for its IPTV service T-Home Entertain by up to 10%, as part of an initiative to reach 1 million triple-play subscribers by the end of this year. The Comfort, Comfort Plus and Premium packages have each seen their monthly rates cut by around €5 per month, with the cheapest package now starting at €44.95 per month, and the new prices will apply to all new contracts. The price cut comes as DT revealed that it is aiming to pass 1 million IPTV customers by the end of this year.

**GREECE**

**OTE LAUNCHES IPTV SERVICE**

OTE has commercially launched its IPTV service, conn-x TV, which is initially available to customers in the major urban areas of Attica (including Athens), Thessaloniki, Patras, Larissa and Iraklion (on the island of Crete).

**IRELAND**

**MAGNET SELECTS IPTV MIDDLEWARE FROM DREAMPARK**

Dreampark, one of the leading IPTV middleware providers on the European market, announced its first customer in Ireland as Irish IPTV and

ISP provider Magnet Networks has upgraded their existing middle-ware solution to Dreampark's Dreamgallery, further strengthening the company's position as the leading IPTV middleware provider in Europe.

**ITALY**

**TELECOM ITALIA ADDS MEDIASET PREMIUM CONTENT**

Telecom Italia has reached an agreement with Italian private broadcaster Mediaset to bring Mediaset Premium content to Alice Home TV. Telecom Italia's IPTV platform will feature new cinema and TV movies, TV serials, cartoons and TV premieres, as well as more Italian football content. Alice Home TV subscribers can now access Premium Bouquet package channels such as Joi, Mya, Steel, Cartoon Network, Hiro, and a 24-hour channel with live coverage of the current Italian Big Brother series. In addition, the Premium Calcio package offers live football coverage of all Serie A TIM matches, as well as top UEFA Champions League matches.

**LATVIA**

**IPTV SUBSCRIBERS QUADRUPLE IN 2008**

Lattelecom reported a fourfold increase in subscribers to its IPTV service Lattelecom TV during 2008 and also recently secured the rights to operate an MPEG4-based DTT service in the country. Although it has not revealed subscriber figures for its IPTV service, launched in April 2007, the company also reports that income from interactive TV services increased by 517% in 2008. Lattelecom recently started expanding its new FTTx-based "Future Network", which will deliver Internet speeds of up to 100 Mbps, with customers in Zolitūde (a suburb of Riga, the capital of Latvia) already receiving these speeds. In the future, Internet speeds will be increased to 10 Gbps, and the new network is to be expanded to the neighbourhood of Ķengarags (another suburb of Riga), and then to other parts of the capital and across other major cities in Latvia. The operator aims to offer DTT services on a commercial basis and throughout Latvia from this autumn.

**POLAND**

**DIALOG TELECOM SELECTS SCOPUS VIDEO SOLUTION**

Dialog Telecom has launched its new IPTV service using a video distribution network based on a video networking solutions from Scopus Video Networks. At the core of Dialog's new IPTV video distribution network is the Scopus Eldorado NMS (Network Management System), which offers redundancy and a centralised view of the network to simplify troubleshooting and help the operator's engineers maintain consistent, high-quality transmissions for 24 channels. Scopus IRD-2900 series integrated receiver decoders receive satellite video feeds carrying Polish and international content, while the company's UE-9000 encoders provide local content encoding for distribution of the video to viewers' homes over IP.

**PORTUGAL**

**PORTUGAL TELECOM WITH 312.000 IPTV SUBSCRIBERS**

Portugal Telecom added 110.000 new customers to its IPTV service Meo in the fourth quarter of 2008 to reach 312.000 by year-end. The success of its TV offer can be seen in the decelerating loss of its fixed-line subscribers and in the growth of customers for its flat fee broadband services, with around 50% of new IPTV subscribers in 2008 being entirely new customers for Portugal Telecom. Furthermore, the operator reports a 42.9% penetration rate for its IPTV service within its ADSL customer base as a whole. Portugal Telecom also reports that VOD has proved to be a key asset, with 45% of Meo customers paying to access the VOD library in 2008, watching an average of 2.8 movies per month.

**RUSSIA**

**COMSTAR UTS LAUNCHES IPTV IN MOSCOW**

Comstar UTS has launched IPTV services in Moscow via its subsidiary Moscow City Telephone System (MGTS). The new dual-play broadband internet and IPTV service is being offered under the name Internet+TV and offers up to 80 channels plus VOD, radio and interactive services such as karaoke-on-demand.

**SCANDINAVIA**

**TELIASONERA WITH 477.000 IPTV SUBSCRIBERS IN NORDIC REGION**

TeliaSonera arrived to 477.000 IPTV subscribers across all markets at the end of 2008, having added 99.000 customers during the year. The operator reached 324.000 IPTV subscribers in Sweden at year-end 2008, adding 20.000 during the 12 month period, with an estimated

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70% of its Swedish IPTV subscribers being paid customers. Lithuanian subsidiary TEO adding 49,000 subscribers last year to reach 67,000 by December 2008, while its Estonian subsidiary Elion finished 2008 with 75,000 IPTV customers.

**SLOVENIA**

**TELEKOM SLOVENIJE SELECTS VERIMATRIX SOLUTION**

Telekom Slovenije has selected the Verimatrix Video Content Authority System (VCAS) for IPTV to protect VOD and live broadcast premium content. The operator's IPTV service, known as SiOL TV with 80,000 subscribers, currently maintains the majority market share in Slovenia according to the Agency for Post and Electronic Communications (APEK). Telekom Slovenije's subsidiary, Planet9, is responsible for the creation and support of new platforms for mobile, Web and IPTV media, as well as the production of content.

**SPAIN**

**TELEFONICA TOPS 2.2 MILLION SUBSCRIBERS**

Telefónica ended 2008 with 2.2 million pay-TV subscribers across all platforms and markets, adding 519,000 customers during the year. The subscriber base of the IPTV service Imagenio increased 19.8% year-on-year to reach 612,494.

**HISPASAT TESTING 3D TV**

Spanish satellite operator Hispasat has launched 3D TV trials, through a project known as "3D Live". The project allows companies to study the

way that 3D TV is broadcast though the satellite network, and the problems associated with the transmission and compression of 3D images by different formats, such as IPTV and satellite. The Spanish Ministry of Industry, Tourism and Commerce is co-financing the 3D TV project.

**SWEDEN**

**TELIA TEAMS UP WITH CANAL+ FOR LIVE FOOTBALL**

Telia has partnered with Canal + to offer its IPTV subscribers the possibility to watch all matches of the highest Swedish football league Allsvenska. Telia Digital TV customers can watch all matches live or access the match library with their remote control if they subscribe to the Canal + Season Ticket service. The service costs SEK 199 a month and offers access to five live football channels.

**SWITZERLAND**

**SWISSCOM LAUNCH FIBRE-OPTIC OFFER IN ZURICH**

In April, Swisscom launched a trial offering for the new high-speed access to the fibre-optic network. The bundled offerings allow simultaneous use of up to three HDTV channels, high speed internet with transmission speeds of up to 50 Mbps (downstream) and 10 Mbps (upstream) and telephone services. The trial offerings will initially be available to customers in Zurich whose homes have already been connected to the fibre-optic network. The offerings will also be available in other cities in 2009, including in French-speaking Switzerland. An initial commercial offering is

expected at the beginning of 2010 at the latest. Swisscom has seen the number of subscribers to its IPTV service Bluewin TV double in 2008, rising from 59,000 to 118,000 during the 12-month period.

**TURKEY**

**TURK TELECOM SELECTS ENVIVIO FOR IPTV PROJECT**

Turk Telekom is to use Envivio's 4Caster C4 SD and 4Caster HD30 HD MPEG-4 AVC encoders and the 4Manager NMS, to deliver standard and high definition channels for its new IPTV service. Envivio's 4Caster HD30 delivers high quality, high definition encoded content at less than half the bit rates required by MPEG-2. The company's Convergence Series architecture allows MPEG-2 content downlinked from satellite to be delivered to the compression system directly over a local IP network..

**UNITED KINGDOM**

**BT VISION SURPASSES 398,000 SUBSCRIBERS**

BT passed 398,000 subscribers for its IPTV service BT Vision in the fourth quarter of 2008, up from 340,000 subscribers at the end of the previous quarter, and saw an increasing number of its new customers subscribing to one or more of its on-demand programming packages, according to the company.

**CHANNEL 4, FIVE BID FOR HD DTT CAPACITY**

Channel 4 and Five have both submitted proposals to UK regulator Ofcom for the UK's final DTT terrestrial high-definition slot of the Freeview platform. Channel 4 is proposing using the slot for an HD ver-

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sion of its Film4 channel, which would broadcast 17 hours a day, ceding four hours a day to S4C, which would broadcast a children's TV block in English and Welsh. Five, meanwhile, is proposing simulcasting of its existing terrestrial channel between 18:00 and 23:00, while from 05.00 to 17.00 it would offer an HD service "supplied by another broadcaster."

#### BSKYB AIRS KEANE CONCERT IN HD

BSkyB became the first UK broadcaster to air a live concert in 3D during April. The live performance by rock act Keane was transmitted using BSKyB's satellite network and existing Sky Plus HD set-top boxes. A specially invited audience watched the transmission on a 46-inch HD screen at London's Abbey Road studios next door to the live gig.

### NORTH AMERICA

#### LATENS AND MINERVA EXTENDS IPTV PARTNERSHIP

Latens and Minerva Networks have renewed and extended their partnership to provide IPTV solutions in the Americas. To date, both companies have been highly successful in offering their joint solution combining Latens conditional access and Minerva's middleware to operators in North and South America. The renewal of this agreement provides continued and new business growth for both companies. Under the terms of the partnership, Latens and Minerva will also collaborate on further integrations with market leading set-top box and VOD vendors to ensure operators have the best options for their IPTV network.

### CANADA

#### MTS LAUNCHES HDTV SERVICE IN WINNIPEG

MTS Allstream has launched MTS HDTV, the next generation of HDTV, PVR, improved guide features and other TV advancements to residents in Winnipeg. MTS is the first company in Canada to launch a digital TV service that includes combined technology from Alcatel-Lucent and the Microsoft Mediaroom IPTV software platform. Along with an extensive line-up of over 250 digital TV and music channels and features like VOD, the new services include 30 HDTV channels, with more channels to come in 2009.

### UNITED STATES

#### UNIVISION AND AT&T REACH IPTV DEAL

Univision Communications and AT&T have signed a multi-year content agreement as part of the AT&T U-verseSM TV channel line-up. The agreement includes continued carriage of Univision's owned and operated broadcast stations; affiliated stations owned and operated by Entravision Communications Corporation, Equity Media Holdings Corporation, Calipatria Broadcasting Company, and JKB Associates; and distribution of the cable network, Galavisiyn, and the network feeds for Univision and TeleFutura.

#### AT&T OFFERS 100 HD CHANNELS

AT&T is now offering at least 100 HDTV channels in every market it offers its IPTV service U-verse, having recently expanded its line-up with HD channels from Disney-ABC-ESPN Television, including ABC Family HD, Disney Channel HD, Disney XD HD, ESPNNews HD and ESPNU HD. AT&T U-verse has two HD subscription options - the U450 programming package costs US\$ 10 per month, while the HD Premium Package offers even more HD channels for an extra US\$ 5 per month. Most packages include the HD-ready Total Home DVR, which enables users to record HD programmes on a single DVR and stream them to any connected TV.

#### VERIZON OFFERS 110 HD CHANNELS IN CALIFORNIA

Verizon has added 18 new channels to market areas in California including several new HD channels, bringing the total to 110 HD channels. In comparison, DirecTV provides 104 HD channels. The channel counts do not take into consideration HD VOD, of which both companies offer a substantial amount of HD titles in their libraries.

#### TIME WARNER REACHES 100 HD CHANNELS IN NYC

Time Warner Cable has arrived to 100 HD channels in their New York City market areas. The company now offers 65 HD channels in its standard high-definition package, and 35 HD channels in its premium HD line-up.

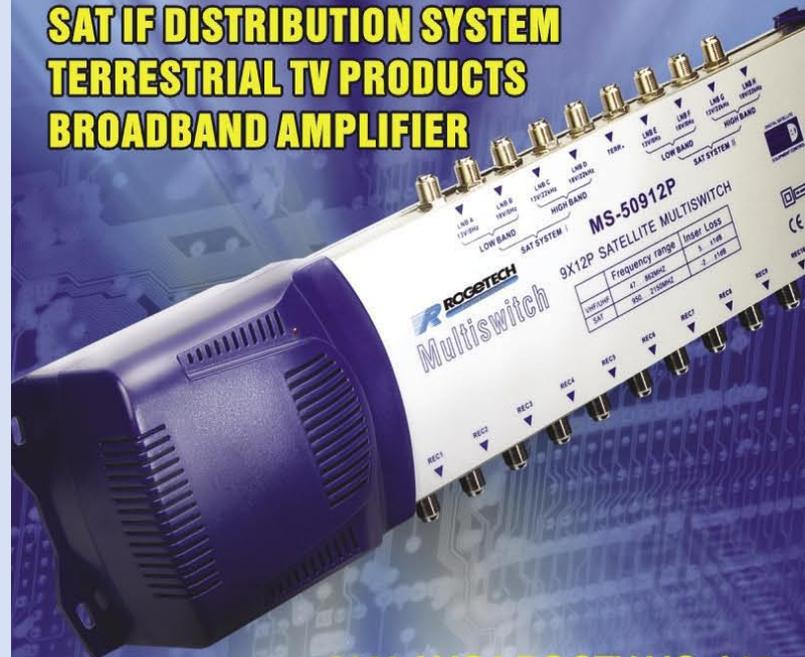
#### NRTC AND NTCA OFFER MORE THAN 80 HDTV CHANNELS

The National Rural Telecommunications Cooperative (NRTC) and the National Telecommunications Cooperative Association (NTCA) have announced that telecom operators now have the opportunity to deliver more than 80 HD channels. Recently, NRTC has more than

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doubled its HD offering and has created programming packages that enable rural operators to derive incremental revenue. The HD offering includes premium services like HBO and Starz; the entire ESPN HD line-up; and services from Disney, Discovery Communications, Lifetime Networks, Smithsonian and the Tennis Channel.

**LIBERTY TO INVEST US\$ 530 MILLION IN SIRIUS XM RADIO**

Liberty Media Corp has announced it will invest US\$ 530 million in Sirius XM Radio, fending off a rival bid from EchoStar. Liberty Media, owner of DirecTV, will receive a 40 percent stake in Sirius XM and seats on its board of directors in exchange for helping the satellite radio firm avoid bankruptcy. Liberty Media and EchoStar had been locked in a battle for Sirius XM. Sirius XM offers hundreds of channels of music, sports, news, talk, entertainment, traffic and weather.

**ECHOSTAR LAUNCHES CONVERSION PROGRAM FOR IPTV SERVICES**

EchoStar Satellite Services has announced the company's IP-Prime Conversion Program, designed to provide continued delivery of video transport services for operator IP head end facilities across the United States. Commercial transport provider IP-Prime has previously announced it will discontinue its video transport service to head end facilities by July 31. EchoStar's ViP-TV transport service delivers a secure, MPEG-4 encoded IP stream of approximately 250 channels of popular, broadcast quality TV channels from a satellite located at 85 degrees West.

**SATELLITE EXPORT RULES DAMAGING INDUSTRY**

Satellite export control rules are hampering U.S. national security and economic interests, and must be updated to protect the U.S. space industrial base, AIA President and CEO Marion Blakey said in April in written testimony before the House Foreign Affairs Terrorism, Nonproliferation and Trade Subcommittee. U.S. market share for commercial satellites dropped from 73 per cent to 27 per cent after legislation passed in 1998 to control commercial satellites as military items.

**LATIN AMERICA**

**BRAZIL**

**TELEFONICA LAUNCHES NEW IPTV SERVICE**

Telefonica Brasil has launched an IPTV service dubbed xTreme which is initially available in the 26 districts of Sao Paulo. A basic package costing BRL 240 (USD 105) includes an 8 Mbps internet connection and 80 TV channels, while the most expensive service costs BRL 337 for a 30 Mbps connection and 120 TV channels.

**DOMINICAN REPUBLIC**

**CODETEL, ALCATEL-LUCENT TO LAUNCH IPTV SERVICE**

Compania Dominicana de Telefonos (Codetel) has launched a nationwide IPTV offering, providing subscribers with TV, VOD and other multimedia content services. Enhanced features include picture

in picture, karaoke entertainment and digital video recording. The new IPTV service is supported by Alcatel-Lucent's end-to-end IPTV solution, including the Microsoft Mediaroom IPTV and multimedia software platform. The service complements Code-tel's existing voice and broadband Internet access service, enabling the operator to offer one of the first complete triple-play packages in the Caribbean.

**ASIA**

**AZERBAIJAN**

**AZERBAIJAN TENDERS SATELLITE SYSTEM**

The Ministry of Communications & Information Technologies of Azerbaijan is holding a closed tender procedure for development of a national satellite. According to Communications Minister, Ali Abbasov, the tender already involves five companies from Russia, USA and France. Azerbaijan plans to put into operation its first satellite in 2010 and the second one in 2011. The satellite project is said to be worth some US100-170 million.

**CHINA**

**SHENZHEN TO BUILD 4-5 SATELLITES A YEAR**

Shenzhen Aerospace Spacesat is building a new establishment in Shenzhen which, once completed, will develop six to eight types of satellites and produce four to five satellites every year. The satellites will be used for global navigation, telecommunications, remote sensing and space exploration. The



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**Coverage Code GXY019KB**

Galaxy 19 Ku-Band (formerly Galaxy 25, Telstar 5 and IA 5)  
Transponder: 23  
Polarity: Vertical (V)  
Frequency: 12.115 MHz  
Symbol Rate: 22.425  
FEC: 3/4  
Audio PID 1794 E



enterprise was jointly founded by China Spacesat, Harbin Institute of Technology and Shenzhen Aerospace Science and Technology Research Institute.

## INDIA

### ACT LAUNCHES IPTV SERVICE IN BANGALORE

ACT Television has launched its IPTV services in Bangalore making it the first service provider to offer such services in the state. The company technology partners for the initiative include Cisco, Verismo, Vermatrix, MRO-Tek, Scopus, Oracle and E&Y. The company is targeting a subscriber base of around 1 lakh for its IPTV services in Bangalore in the next 18-24 months. Its VOD service has a movie library of around 4,500 movies.

### SUN DIRECT LAUNCHES HDTV SERVICE

DTH provider Sun Direct has launched a HD service in India. Sun Direct, an 80:20 JV between the Maran family and Malaysia's Astro Group, has signed up over 3 million subscribers in March 2009 to reach the 3.1 million mark. The service launched with two channels, one each for Tamil movies and Telugu movies - at a cost of Rs 10,000 per subscription, before expanding to an 8-channel service. Korea's Samsung is providing the HD set-top boxes.

## INDONESIA

### TELKOM PREPARES NETWORK FOR IPTV

Telekomunikasi Indonesia (Telkom) is setting aside IDR 1.5 trillion (US\$ 127.94 million) to develop its fixed-line network in preparation for the launch of IPTV services this year, according to local media reports. According to Telkom CEO, Rinaldi Firmansyah, the allocated funds do not include the development of content for the new IPTV service, which will cost an estimated US\$ 10-15 million. The service will be initially launched in six big Indonesian cities, including Jakarta, Bandung and Surabaya.

## IRAQ

### KALIMAT TELECOM TEAMS UP WITH PCCW FOR IPTV

Kalimat Telecom has signed a US\$ 25 million agreement with Hong Kong-based operator PCCW to form a 50/50 joint venture for the launch of IPTV and mobile TV services in Iraq and Kuwait, according to local media reports. Under the agreement, Kalimat will provide the network and carrier services, while PCCW will run the operations and provide the content. The service is expected to offer a wide choice of channels, VOD and music-on-demand to Kalimat Telecom subscribers, and will go live in the fourth quarter of this year or early 2010, according to Wilson Varghese, CEO of Kalimat Telecom.

## MALAYSIA

### TELEKOM MALAYSIA TO LAUNCH IPTV IN Q4 2009

Telekom Malaysia is planning to launch commercial IPTV services in the fourth quarter of this year under the name Hypp.TV, following successful trials delivered to 10,000 homes in the country, according to daily "The Star". Under the trials, Hypp.TV is available in some parts of the country for MYR 10 (US\$ 2.81) per month. Telekom Malaysia is currently in the process of building itself a High-Speed Broadband, which will receive investments of MYR 11.3 billion. According to Jeremy Kung, Vice President of Telekom Malaysia, 30 channels will be offered on the Hypp.TV platform and the plan is to increase that to about 50 by year-end.

## SINGAPORE

### SINGAPORE WITH 12 HD CHANNELS

Singapore has adopted high-definition television within a short span of three years, with viewers already having a choice of 12 channels featuring content ranging from sports to documentaries to movies. This HD fare is offered across three platforms: free-to-air broadcaster MediaCorp, cable TV operator StarHub and the IPTV service of SingTel's mioTV.

## SOUTH KOREA

### SK BROADBAND SELECTS ALCATEL-LUCENT FOR IPTV SERVICE

SK broadband (formerly known as Hanaro Telecom) has selected Alcatel-Lucent to supply and maintain its IP service routing solution to support the operator's real time IPTV service. Alcatel-Lucent's IP/MPLS technology will enable SKbroadband to deliver advanced broadband services including real time IPTV services, HDTV, VOD, VoIP and high-speed Internet access, all with superior service quality.

## TAIWAN

### CHUNGHWA TELECOM WITH 676,000 IPTV SUBSCRIBERS

Chunghwa Telecom had 676,000 subscribers to its IPTV service Multimedia-on-Demand (MOD) by the end of 2008, up 71.4% from one year previously. Chunghwa Telecom has recently indicated that it is preparing to launch a new version of its Multimedia-on-Demand service, for which it has selected content management solutions from Harmonic, a new user interface from UK firm ANT, and optical network components from Ericsson and Alcatel-Lucent.

## THAILAND

### THAICOM TO RENT SPACE ON FOREIGN SATELLITE

Thaicom has permission to lease a foreign satellite's transponder capacity, provided it pays the same concession fees, Thai Information and Communications Technology Minister Ranongruk Suwanchawee decided. Thaicom has been operating the Thaicom 1, 2 and 5 broadcasting satellites as well as the iPSTAR broadband satellite. With the lifespan for Thaicom 1 ending in several months, the company has been gradually moving its customers to Thaicom 5. And with Thaicom 2 due to expire next year, the company plans to charter a foreign satellite's transponder capacity.

## UNITED ARAB EMIRATES

### E-VISION LAUNCHES HDTV SERVICE

Etisalat pay TV division E-Vision has launched the UAE's first full HDTV service. The service initially broadcasts UAE premier league football matches produced in conjunction with Abu Dhabi Media Company's Live outside broadcast production division. E-Vision also announced the launch of a PVR functionality for its new HD set top box. The STB will enable viewers to record up to 200 hours of content to be viewed on-demand.

## AFRICA

### EGYPT

### NILESAT AND EUTELSAT TO DEVELOP 7 DEGREES WEST

Nilesat and Eutelsat Communications have signed a new strategic agreement to pursue the develop-

ment of the 7 degrees West orbital position which is used by both companies for satellite broadcasting across the Middle East; the Gulf countries and North Africa. This new phase of collaboration between Nilesat and Eutelsat follows the recent successful launch of Eutelsat's Hot Bird 10 satellite that will first be commercialised at 7 degrees West under the name Atlantic Bird 4A. The collaboration between both operators will move into a third phase with the deployment in mid-2010 of the Nilesat 201 satellite procured by Nilesat. This will be followed in 2011 by the arrival of Atlantic Bird 4R.

## NIGERIA

### CHINA TO REPLACE FAILED SATELLITE

China Great Wall Industries Corporation, the firm that constructed Nigeria's first communication satellite, Nigcomsat1, plans to replace the failed satellite built at the cost of US\$ 200 million, according to local daily "The Day". According to the managing director of Nigerian Communications Satellite (NigComsat), Ahmed Rufai, the replacement will be at no cost to the Nigerian government. He added that the Chinese firm was responsible for management of the failed satellite when it crashed out of its orbit in November 2008, it was obliged to replace the facility. The replacement Nigcomstar-1R will be launched from Sichuan province in south-western China in the fourth quarter of 2011, according to Yin Liming, president of China Great Wall Industry Corp.

## WORLD

### HDTV IN 66 MILLION HOMES BY END OF 2009

A new research from Informa Media and Telecoms forecasts 214 million HD homes, 17% of TV households globally, by 2013. At the end of 2008, about 4% of global TV homes actively watched HD, but this is predicted to increase to 5.5%, or 66 million homes, by year's end. About 157 million households worldwide are expected to have HD-enabled sets by the end of 2009, bringing global penetration to 10% of TV households. Asia Pacific territories are currently the biggest market, with 7.4 million active HD homes, due to grow to 54 million by 2013. Europe, the Middle East and Africa are forecast to grow from 200,000 homes in 2008 to 11.6 million homes by 2013. In North America, growth is set to more than treble from 30 million in 2008 to 96 million in five years.

### TELSTAR 11N BEGINS COMMERCIAL SERVICE

Telesat has begun commercial service on its state-of-the-art Telstar 11N satellite. Telstar 11N is located at 37.5 degrees West and utilizes 39 high powered Ku-band transponders to support a wide range of video and data applications in North America, Europe and Africa and across the Atlantic Ocean. Telstar 11N is the first satellite to provide Ku-band coverage of the Atlantic Ocean from the Arctic Circle to the equator.

### IPTV SUBSCRIBERS REACH 21.7 MILLION IN 2008

There were 21.7 million subscribers to IPTV services worldwide at the end of 2008, an increase of 63% compared with the end of 2007, according to research conducted by analysts Point Topic. Western Europe remains the largest single region for IPTV, and France is by far the largest market, representing over half of Western Europe's 10.2 million subscribers. For its part, Informa Telecoms & Media claims that the number of IPTV subscribers reached 19.9 million.

# Exhibition Preview

- **25 - 27 May 2009: MECOM 2009**  
Middle East Communications Exhibition, Forum, TV  
Abu Dhabi National Exhibition Centre, Abu Dhabi, UAE  
[www.mecomexpo.com](http://www.mecomexpo.com)



- **26 - 28 May 2009: ANGACABLE 2009**  
Tradefair for Cable, Broadband and Satellite  
Koelnmesse, Cologne, Germany  
[www.angacable.com](http://www.angacable.com)



- **16 - 19 June 2009: CommunicAsia 2009**  
20th International Communications and Information  
Technology Exhibition & Conference  
Singapore Expo, 1 Expo Drive, Singapore 486150  
[www.communicasia.com](http://www.communicasia.com)



- **26 - 28 August 2009: SET 2009**  
18th Broadcast & Cable International Fair  
Centro de Exposições, Rod. dos Imigrantes  
04329-900 São Paulo (SP), Brasil  
[www.broadcastcable.com.br](http://www.broadcastcable.com.br)



- **11 - 15 September 2009: IBC 2009**  
Latest technology and foremost business ideas in  
broadcasting and media  
RAI, Amsterdam, The Netherlands  
[www.ibc.org](http://www.ibc.org)

- **6 - 11 October 2009: CeBIT Eurasia**  
ICT Trade Show  
Tüyap Fuar ve Kongre Merkezi  
E5 Karayolu, Gürpınar Kavşağı, 34522 Büyükçekmece  
İstanbul, Turkey  
[www.cebitbilisim.com](http://www.cebitbilisim.com)



- **7 - 9 October 2009: SCaT India**  
Tradeshaw Of The Indian Cable & Satellite Television Industry  
World Trade Center, Cuffe Parade, Mumbai, India  
[www.scatmag.com/scatindia/](http://www.scatmag.com/scatindia/)



- **21 - 23 October 2009: EEBC 2009**  
7th Eastern Europe Exhibition and Conference in  
Telecommunications and Broadcasting  
Exhibition Centre "KyivExpoPlaza", Kiev, Ukraine  
[www.eebc.net.ua](http://www.eebc.net.ua)



## TELE-satellite Deadlines

Editorial Deadlines, Magazine Publishing Dates

Number	Issue	Deadline	Hardcopies	Available Online
#212	08/2009	5 June 2009	17 July 2009	31 July 2009
#213	10/2009	7 August 2009	18 September 2009	2 October 2009
#214	12/2009	2 October 2009	13 November 2009	18 December 2009
#215	02/2010	4 December 2009	15 January 2010	29 January 2010
#216	08/2010	2 April 2010	14 May 2010	28 May 2010

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Satellite operators  
Receiver manufacturers  
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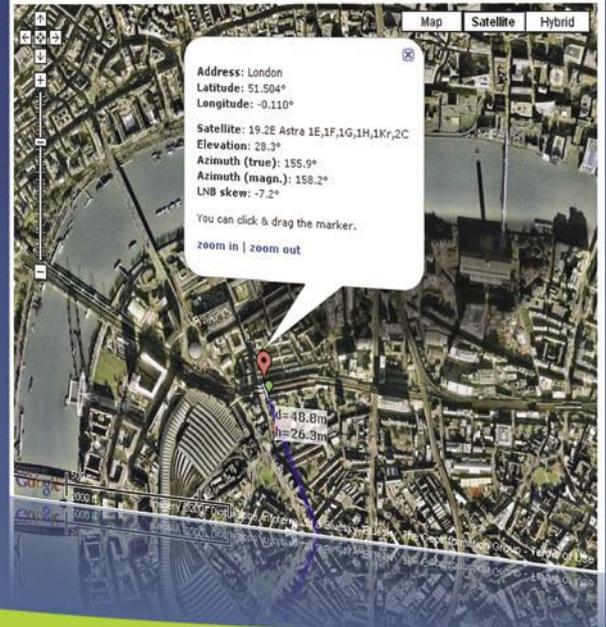
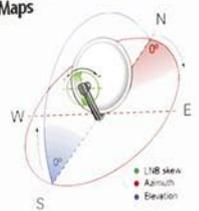
International location: e.g. streetname, postcode, geocode:

London

Popular Satellites:

28.2E Astra 2A-8-D  
13.0E Hotbird 6,7A,8  
19.2E Astra 1E,1F,1G,1H,1Kr,2C  
42.0E Turksat 1C, 2A  
16.0E Eutelsat W2  
26.0E Badr-2,3,4/Eurobird 2  
5.0E Sirius 2,3  
5.0W Atlantic Bird 3  
7.0W Nilesat 101,102, Atlantic Bird 4  
1.0W Intelsat 10-02

All Satellites & Multi-LNB Setups: 19.2E Astra 1E,1F,1G,1H,1Kr,2C



## References



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**INT VA-F12** 60° Ost  
**EUT I-F1** 13° Ost  
**EUT I-F4** 10° Ost  
**EUT I-F5** 7° Ost  
**INT V-F2** 1° West  
**INT V-F6** 18.5° West  
**INT VA-F11** 27.5° West  
**PAS F1** 45° West

Satellite	Position	TV Programs	Radio Programs
ASTRA 1A	16° Ost	Start 1989, Sky News, Sky Channel, Sky Movies, TV 3, Eurosport, Lifestyle, Screensport	
INT VA-F12	60° Ost	3 SAT, West 3, Tele 5, BR 3, Eins Plus, Eureka TV	Radio Media, Deutschlandfunk
EUT I-F1	13° Ost	Teletclub, 3 SAT, FilmNet*, SAT 1, Super Channel, TV 5, World Net, RTL plus, Sky Channel	
EUT I-F4	10° Ost	RAI UNO, RAI DUE, TVE 1, TRT 1 (1989), TRT 2 (1989)	
EUT I-F5	7° Ost		
INT V-F2	1° West	Eurovision*, World Net, Eurosport (1989), Norpas, Infotilm	
INT V-F6	18.5° West	Canale 5, Telespazio, Telespazio	
INT VA-F11	27.5° West	MTV, Children's Channel, Premiere*, Kindernet, Lifestyle, Screen Sport, CNN, BBC 1/2*	
PAS F1	45° West		

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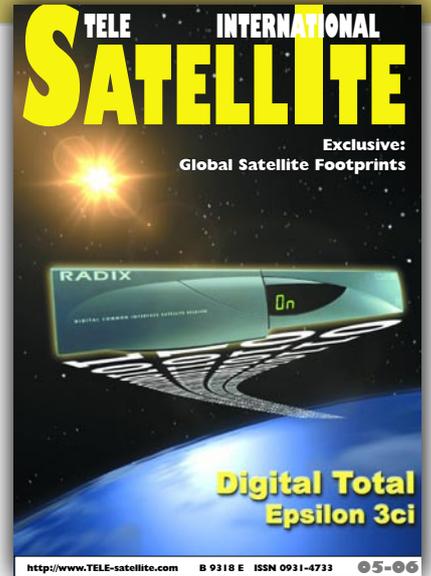
Edited by  
**Alexander Wiese**

**Praxis PalmSat 9500**

Around the world there are still countries where it is not allowed to operate a satellite receiver and/or dish. And it is not unthinkable that in such countries you can expect a visit from the authorities to have a look at your living room. The usual satellite receivers are then easily found. But also in our modernised world, landlords or local authorities often don't accept satellite dishes for several reasons. In our next issue we will report on the CubSat dish, a small and almost invisible dish that could be used in all these cases. Another market for smaller equipment is the group of people who own a recreational vehicle. The smaller the receiver, the better.

# 10 Years Ago

Travel into the Past  
**TELE-satellite Magazine**  
**Issue 05-06/1999**



For whatever reason you might want a small satellite receiver, the new PalmSat 9500 from Praxis will do a perfect job. It comes in the size only four cigarette packs. Small, but with a lot of analogue power inside. With these small dimensions we may call it a miracle how Praxis managed to put so many connections on such a small area. A small display on the front shows the current channel ID. And although it is small, it is still very good readable. This PalmSat 9500 can store up to 400 analogue channels. Praxis even found some place for the three emergency operation buttons. A foil on the front has a print on what the box is. So if you remove it, nobody can tell immediately what the box is and what it does. The small dimensions made it impossible to use Scart connectors, so there are only phono connectors for video and audio (still in stereo, of course.) Two LNB inputs are present; one for C-band and the other for Ku-band. For use with the C-band even a servo-polariser terminal can be found at the back of this box. Another terminal supplies 0/12 Volt for an external switch. Of course, universal LNBS are supplied with the usual 14/18-Volt to switch polarity. Even an RF-output is built in. It is software adjustable and converts the satellite signal to be



received with older TV sets on any channel in the UHF band alongside the existing terrestrial signals. With so much universal power, it should also be able to operate all around the world. Therefore, Praxis designed it to do its job with any current between 60 and 260 VAC (50/60Hz). A first look at the remote control may give the impression it is very big. But with so much functionality it is impossible to make it smaller. Special buttons are available for a wide variety of menus, but also for the Low-threshold extension (no kidding, this tiny box has got one, and even in 32 steps), help and setting the on-screen display language.

**AMSTRAD SRD 4101**

Recent new products from Amstrad included analogue receivers only. Still, the need for a digital box in their product range was very high. However, the big issue for Amstrad was whether it should be a free-to-air receiver or whether it should feature Common Access slots as well? With the introduction of the new SRD4101, they have decided for FTA. The result is a box offering unlimited access to all free channels on the digital television highway. The Amstrad SRD 4101 comes in a sturdy metal housing; a box to which you can connect and de-connect without the box moving all around. It

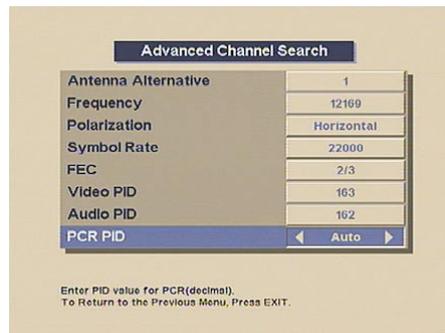
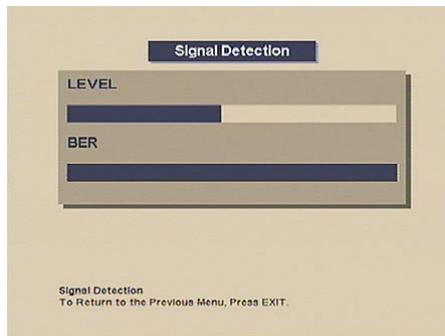




doesn't develop much heat and can easily be placed under an existing heap of equipment. The metal housing also protects it from any interference from the outside. On the front, we found the emergency operation buttons, which not only allow changing channels but also switching between radio to TV. At the back, two Scart connectors, phono audio out jacks and an additional phono video output take care of the connections to the outside world. An 'older' analogue receiver can be connected to the LNB output, so there is no need to install a 12V switch. Of course, you can also connect an ADR receiver to this output. A terrestrial antenna signal can be connected as well, which indicates there's also a built-in RF modulator. It is software-controlled and can be set to any channel on the UHF band. Of course, the SRD 4101 features a 12V-control signal, which can supply a current of up to 50mA, which is a little poor. The RS232 serial interface can be used to connect the box to a PC for uploading settings and new firmware. It supports up to 19.2kBd. The remote control features 22 buttons and a numeric keypad. It is a somewhat universal version, since there are buttons without any functionality such as the TXT button. Of course, the SRD 4101 features teletext, but this is sent to the TV set, so have to use your TV's remote for access. In daily use, you will only use about six buttons of the remote control. Most important for users that are new to digital satellite TV reception is the receiver's initial installation. What do you have to do? Well, this receiver gives you a wide variety of options when you first start it up, like the language on-screen display. Here you can choose from French, Italian, Spanish, Dutch, Swedish, English and German. This also goes for the subtitles and audio carriers. After that, you have to set the Scart connectors and select the screen format (4:3/16:9). Up to eight dishes can be programmed. The SRD 4101 also supports DiSEqC so you can control a DiSEqC-capable motorised dish. All common LOFs are supported, including 5.150 GHz for C-band reception. Aligning your dish is made easier with the built-in measuring tools. They not only indicate the signal strength but the bit error rate (BER) as well. Finding new channels and storing them is a doddle. You can perform a network search for which you only have to enter a start frequency. But you can also search for a single signal, even SCPC. Whenever you feel like entering the PIDs, you can do so in the advanced mode, although the box is perfectly capable of finding the right PID codes itself. Finally you can also have an auto install performed. This may overwrite existing data in the box, but on the other hand there is nothing you need to do. Although it may seem like a lot to do before you can enjoy the show, in fact it is only a few minutes' work. Even without the manual it only took us no longer to catch the first signals in both Ku-band and C-band and on different satellites. It was remarkable how fast this box reacts to every command. In

programming but also in daily use this receiver is a really speedy. Switching channels is performed almost immediately, and the channel information is displayed at the bottom of the screen almost right away. EPG programming information is immediately available, if supplied by the programme provider. We tested both MCPC and SCPC signals, but couldn't find any problem with either. PowerVu was a little bit more difficult for the SRD 4101. But then again, PowerVu is not DVB compliant. Signal rates from 2.5Mb/s and above are of no problem to this Amstrad box. So we tested the C-band—no problem at all, and digital feeds on various satellites could be received as well. The receiver found all the channels on the Astra satellite system in about 5 minutes, which is remarkably fast, compared to the 23 minutes some other boxes need.

The software never crashed and appeared to be very stable even under heavy-use conditions. Another nice feature is called Skip. It will omit all encrypted channels. This will save you time (otherwise needed for browsing through unwanted scrambled channels,) and besides the receiver's memory will have more room for the channels you really want. To us, the Amstrad SRD 4101 appeared as a true and dedicated FTA receiver, operating very fast and reliably. Although Amstrad specifies 1,000 channels as maximum capacity, in practice we found that this figure was somewhat less. This is not too important because of the Skip option for scrambled channels. The manual can be easily put away, since operating this box is really child's play. Using the television's teletext decoder instead of building one in the Amstrad is a very clever solution since this means a much better and clearer teletext display. A thorough and sturdy box, not only physical, but in operation as well. FSM 204 SAT-TV Spektrum-Analyzer A level meter and a spectrum analyzer are two of the costlier pieces of equipment that can easily drain an installer's budget. Therefore it is a logical consequence that only instruments are accepted that both serve well in the lab and up on the roof. These units must not only feature a built-in monitor and a rechargeable battery pack, but also a robust chassis that protects the sensitive electronic equipment. After all, the conditions up on a customer's roof can hardly be described as ideal for expensive equipment. Installers looking for a one-4-all unit also expect the analyzer to handle the whole frequency band which ranges from 40 to 850 MHz for terrestrial signals and from 950 to 2150 MHz for the satellite signals. Only if these demands are satisfied an installer will be able to set-up and check a client's antenna system which is used for FM, terrestrial TV and satellite signals. German company Doebis has recently introduced its JAEGER FSM204 portable level meter and spectrum analyzer which is offered at a competitive price and may even be bought by individual satellite enthusiasts and not only by professional installers. With a weight of 8.5 kg the FSM204 is not exactly a light-weight, but if one takes into account that the unit comes with a built-in monitor and a battery back that guarantees two hours of uninterrupted power supply the weight is somewhat acceptable. The terrestrial frequency range extends from 45 to 862 MHz and the IF range for satellite signals goes from 950 to 2150 MHz. The FSM204 is primarily used for the evaluation of analog satellite signals. We did some preliminary tests on a purely digital satellite (like the two DFS of Deutsche Telekom) and were able to meter the signal strength of digital bouquets, if the peaks on the spectrum analyzer are metered. However, it is not possible to determine the quality of digital signals. After all, comparable units for digital signals are twice as expensive.

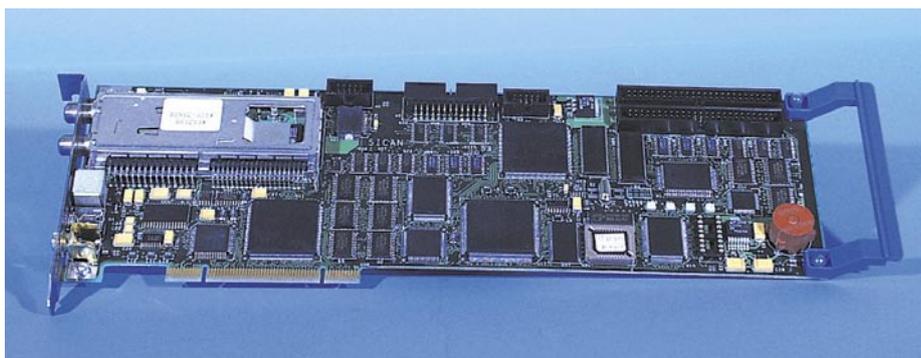


### RO.VE.R. SDA-5 Digisky

Although it comes with a very long name, this new measuring tool is one of the smallest professional analyzers we have seen so far. It has been designed for measuring analogue and digital signals. It is light-weighted, only 1.3kg, and is very small. It comes in a yellow carrying case, which also has room for adapters and other accessories. A shoulder strap makes it easy to carry. A first look at this device will show you that it must be easy to operate. It doesn't feature many buttons, which most of the times are hard to reach. No just a few buttons, seven to be precise, will do the trick. And that is just what you need when you are high up on the roof, in combination with a two-line LC display (16 characters each.) The SDA-5 from Digisky is designed for measuring satellite signals only, and can therefore only handle signals between 950 and 2150MHz. This way you won't pay for things you don't need. For terrestrial signals, RO.VE.R offers the TDA-4, which looks the same. For analogue signals, the measuring takes place in dBµV or dBm together with a C/N figure. Additionally, you can test external devices like LNBS and multiswitches. If problems with cross-polarisation occur, in most cases this is caused by miss-configuration caused by not using proper measuring equipment. Use the SDA-5 to reach a perfect offset for your LNB. For analogue channels, a quick glimpse of the screen will do a lot. But for digital signals this is impossible. There is only one way to measure the quality of digital signals: facts and numbers. Good measuring with good measuring equipment is the answer. A simple signal strength measuring tool won't help. It is the very strength that doesn't say much about the digital quality of it. For digital signals, the quality is measured in BER (Bit Error Rate), before and after Viterbi. You will need a tool like the SDA-5 from Digisky for real professional installations and measuring. A perfect BER depends on the size of the dish, LNB and cable lengths and quality of the multiswitches in between. This Digisky will continuously show this figure.

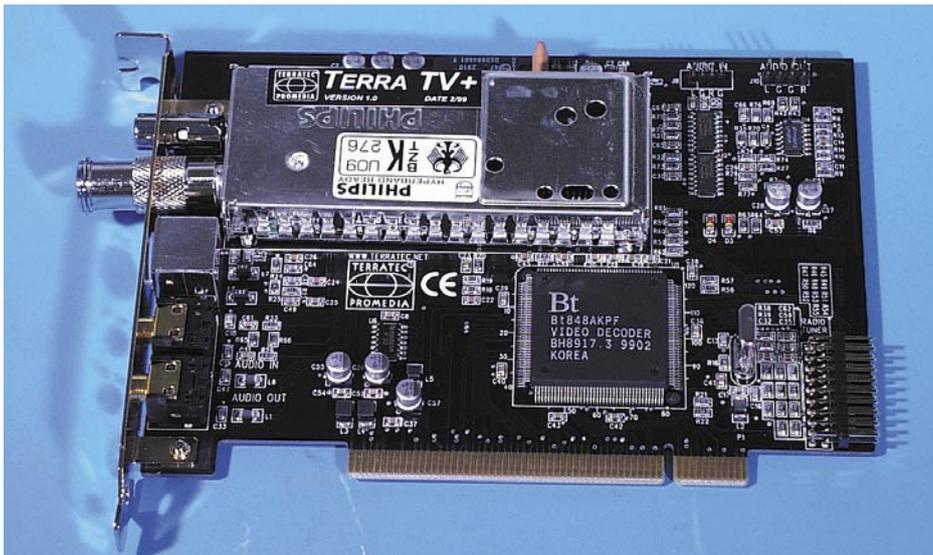
### DVBeam IP Card

Teleworking has been some kind of utopia for many years. Geographically separated offices only could communicate using expensive data lines, using low data rates and being only suitable for slow traffic. For larger files good old snail mail was just the answer. And although video conferences has been around for many years now, most of the time it is based on ISDN lines, with a maximum of 128Kb (at double rate.) For data-intensive requirements, such as for instance an advertising agency wanting to show their latest commercial, it is far too slow. And another problem is the absolute lack of compatibility between the different platforms around. The introduction of MPEG2 meant a full globally compatible digital platform for transferring satellite television and radio. But the DVB standard can also integrate packages of business information. This way it created a cost-effective way to have permanent on-line connections to all branch offices. Not only data, but with video and audio as well. Now it is possible to show that new commercial without visible or audible quality loss. For training purposes, you can think of the possibilities regarding remote education. You can cut the cost for travelling and hotels, and organising training by satellite is done much faster and easier. Back channels are of course possible although they still use landlines. In future, this will be also done via satellite; offering higher speeds and a full interactive solution.



Nowadays, Internet connections are a must for every company. Transferring data between two branch offices using an ISDN connection to the Internet, will take a lot of time when larger files are involved. For instance, a 120Mb file will take up to several hours to transfer. Using a satellite connection this can be reduced to 36 minutes. Almost all satellite operators offer the same platform, but there is still a big need on PC hard/software. Enter the DVBeam IP-Card from Sican. It integrates all we have discussed so far: Business-TV, Internet on satellite, satellite radio and TV (MPEG2, European DVB). You can use it as a simple MPEG-2 receiver, but it can do much more than just that: it can turn your PC into a real multimedia terminal.

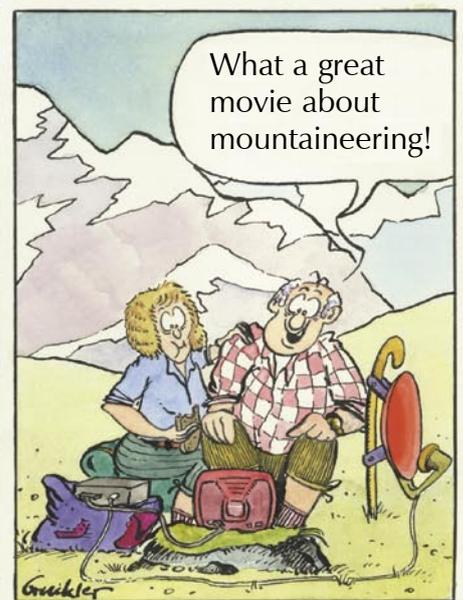
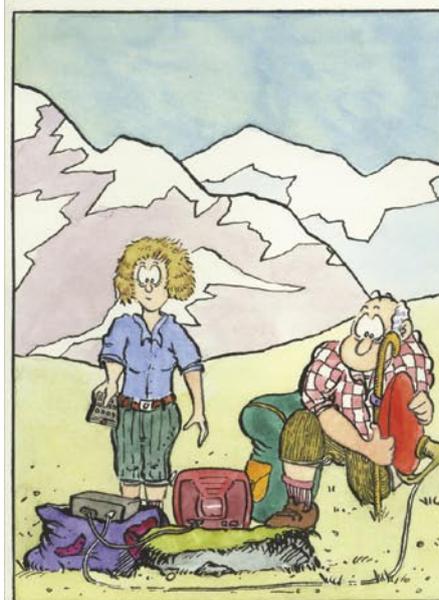
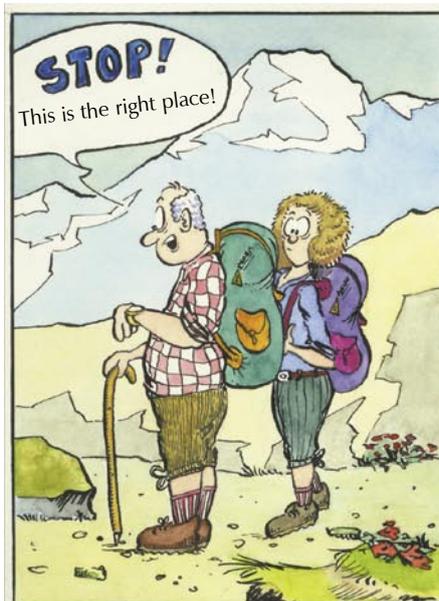
At TSI, we recently received a pre-production sample. Although we expected a lot of trouble installing this test board, we were really surprised by the ease of installation. As long as you use Windows NT4, Windows 95 or Windows 98 there is no real problem. For Windows NT4 you need to do the installation yourself, on Windows 95 and 98 the system will recognise the card and install all drivers and software needed. The minimum system requirement is a PC with at least 90MHz. But Sican suggest a better performance with at least a 166MHz, and this is true. The same goes for the minimum memory requirements: 16Mb, but in practice just ensure that your system has at least 32Mb of RAM installed. The VGA card should be of the SVGA type and should use DirectX.



(e.g. Western Europe), so that the card knows which TV systems to use (in our case PAL B, D, G, H and I). That's about all the setting up that's needed. No matter if you use the card for your big screen home cinema or your 14-inch PC monitor (while working with other application), the video quality is very good and there are no distortions, not even in full-screen mode. Up to 64 channels can be previewed in small windows, so it's the ideal tool for the notorious zapper. Thanks to the composite and Y/C input jacks external signals can be displayed, a freeze frame can be created or screen shots can be stored on the hard disk. Furthermore, the Ulead Video Studio 3.0 software is included, which allows you to professionally work with your images, cut your own movies and create whole video sequences with text or graphics. So in essence, you get a professional video machine in addition to the TV card. Dubbing and a range of 100 digital video effects are also included. The software alone is worth every cent of the retail price of approximately EUR115.

### Terra TV+ PCI Stereo TV Card

The PC card for TV reception introduced here supports only terrestrial signals. However, we were so delighted with both the features and the quality of the card that the most urgent question was "why is there no similar card for satellite reception?" The answer is that a satellite receiver card is in the making, but the exact schedule of introduction is not available yet. So this report can also be seen as preview of good things to come. With the Terra TV+ card usability is not an empty promise: even the system requirements are extremely consumer friendly. With a 90-MHz PC all features can be used and expensive upgrading is unnecessary. Windows 95 or 98 are a must, plus—of course—a PCI 2.2 card slot. A free interrupt should also be available, but unless your PC is really crammed with extras, this should pose no problem. (While PCI cards in theory are able to share interrupts, this may not always be the case with up-to-date graphics cards, so it's advisable to have a spare interrupt available.) The software comes on CD ROM, so a CD ROM drive is also necessary for installation, and in order to enjoy stereo sound active loudspeakers should be connected to the sound card. For the graphics display a standard PCI or AGP VGA video card will do as long it supports Direct Draw and video overlay. As a matter of fact most video cards will work with the Terra TV+ card, and the user's manual includes a comprehensive list of compatible cards. From ATI (Mach3/Rage) and Hercules to Dynamite 128 and Voodoo Rush, all major video cards will operate flawlessly with the Terra TV+ card. After the card is installed your Windows PC will automatically detect the new hardware and start the installation procedure from the included CD ROM. In case the automatic installation does not work owing to system conflicts, the user's manual features a detailed step-by-step guide to manual installation. In case DirectX is not installed, the CD ROM has all the necessary drivers. The card is connecting to the outside world through quite a few sockets. A standard antenna plug is used for the signal input from a terrestrial antenna or cable network. In case the input comes from a VCR or camera, there's a phono jack which serves as video input. An additional jack for Y/C signals is included so that the excellent quality of this signal can actually make it right onto the screen. External audio signals can be fed in; the sound can either be output to a pair of active loudspeakers or to the PC's sound card (a connection cable is included.) Similar to a satellite receiver, the card needs to know which channels are available, so it starts an extremely quick automatic tuning process. Since the Terra TV+ card can be used in all corners of the world you first have to choose the region



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