

# SATELITA

## & BROADBAND

B 9318 E

06-07  
2009

Przegląd firm

**INFOSAT**

Fabryka różowych anten

Raport DX-owy

**PEKIN**Sekret  
entuzjasty  
HDTV

Raport z testów

**JIUZHOU**Świetne nowe LNB  
dla anten z zezem

Raport z testów

**TOPFIELD****TMS SRP-2100**Pierwszy w swoim rodzaju:  
Satelita + Internet w jednym**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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# Drodzy Czytelnicy



W tym wydaniu TELE-satellity przedstawiamy wam pierwszy, niemal doskonały odbiornik multimedialny. Jest to odbiornik satelitarny z wbudowanym interfejsem do internetowej TV. Wygląda na to, że to właśnie będzie nasza przyszłość. Wszak normalnego widza wcale nie interesuje skąd pobiera sygnał oglądany na ekranie telewizora.

Interesujące jest, że aby takie rozwiązanie się pojawiło musiała najpierw zaistnieć telewizja satelitarna. Pudełka do odbioru wyłącznie telewizji internetowej także stają się dostępne. Taki właśnie odbiornik przedstawimy już w następnym wydaniu TELE-satellity.

Generalnie jednak, trend, jaki się pojawia to wzbogacanie odbiornika satelitarnego o możliwość odbioru telewizji internetowej. Jeśli na moment zapomnimy skąd właściwie przychodzi do nas sygnał telewizji satelitarnej, to nasz odbiornik stanie się po prostu skrzynką mogącą odbierać kanały telewizyjne. Dla „normalnego” telewizza odbiornik jest sposobem na magiczne wyświetlanie wielu cudownych kanałów TV na ekranie ich telewizora.

„Magicznie” jest tu właściwym słowem. Dziesiątki lat temu, kiedy telewizja dopiero startowała, sam telewizor był uważany za magiczną

skrzynkę. Dzisiaj telewizor jest najczęściej tylko monitorem, zaś odbiornik satelitarny stał się „magiczną skrzynką”. Wkrótce tak będziemy mówić o odbiorniku multimedialnym – odbiorniku satelitarnym potrafiącym odbierać także Internet.

Satelita i Internet powoli stają się jednym. Obie technologie oferują dostęp do ogromnej liczby programów praktycznie bez żadnych ograniczeń. Co ważniejsze, wszystko jest tu wolne od cenzury, jaka czasami może zdarzać się w sieciach kablowych, czy też od restrykcji rządowych, jakie mogą być nakładane na telewizję naziemną.

Przyszłość mediów rysuje mi się w nieskrępowanym świecie odbioru satelitarnego i internetowego. Już teraz widzimy jak oba te światy zблиżają się do siebie pod postacią odbiornika multimedialnego.

Przy okazji, dwa lata temu TELE-satelita otrzymał nową nazwę: „Tele-satelita & Broadband”. Teraz już wiecie, dlaczego.

**Alexander Wiese**

P.S.: Moją ulubioną stacją miesiąca jest, jak w poprzednim wydaniu, stacja z Bułgarii: „Veronika” na 12169H (THOR 359° E) grająca nieustannie bułgarski pop.

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IBC September 11-15, 2009  
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MPEG-4 HD Satellite **PVR Ready** STB  
with USB Host



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Playing recorded programmes up to 64 times speed at maximum



**GAME**  
Featuring a double-player game „Battle Tank“



**UCC**  
Playing media contents of YouTube



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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.
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- 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.
- Supports MediaHighway EPG
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- Super bright 3" LCD display
- Digital BER, QPSK and S/N-ratio
- Readout NIT -gives Satellite ID and TV/Radio-channel info
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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
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- Owners manual

#### Satlook NIT Color

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#### TOPFIELD TF 6500T HDMI

- 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

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- 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**
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  - DiSEqC 1.2 control system
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HDTV digital satellite Receiver with personal video recorder

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- With 2 tuners
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- USB memory supported

**TOPFIELD**

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HDTV for satellite and cable reception

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- USB 2.0 supported for fast PC interface
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**Boca**

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HDTV digital satellite Receiver PVR-ready

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- alphanumeric display
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- SG 2100 A DiSEqC 1.2 – up to 1,00 m
- Stab HH100 DiSEqC 1.2 – up to 1,00 m
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- 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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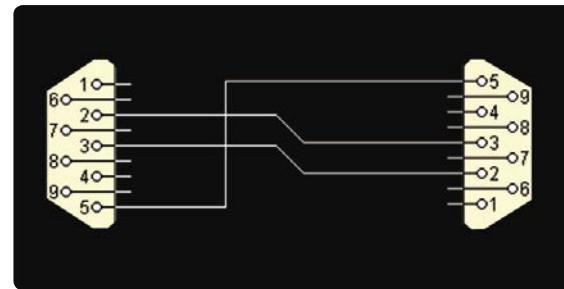
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# Data Exchange Between PC and Digital Satellite Receiver

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 manufacturers 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

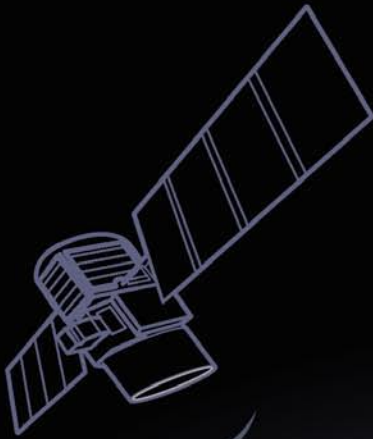


■ Serial interface of a digital receiver

## 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 Conversion Gain  
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Dual Circular  
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4.5 degree  
All LO  
0.5 dB(Max)  
60~65 dB  
1 output(standard)/  
2/4 outputs(optional)

### TRUSAT600

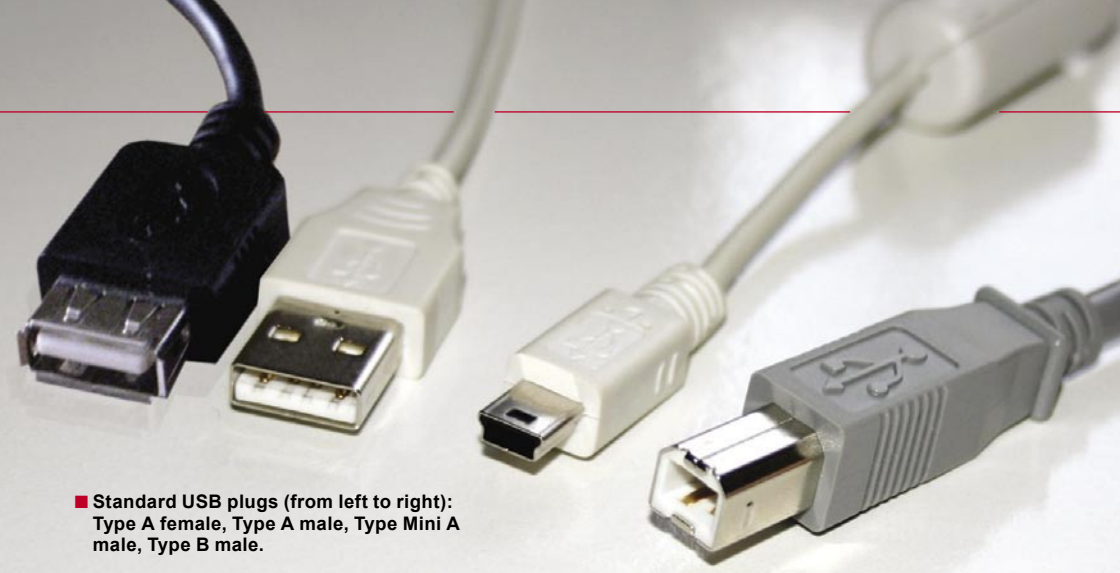
63cm X 63cm  
10.7-12.75 Ghz  
Dual Linear or  
Dual Circular  
37 dBi(at 12.2 Ghz)  
<-30dB  
2.7 degree  
Same as left  
Same as left  
Same as left  
Same as left



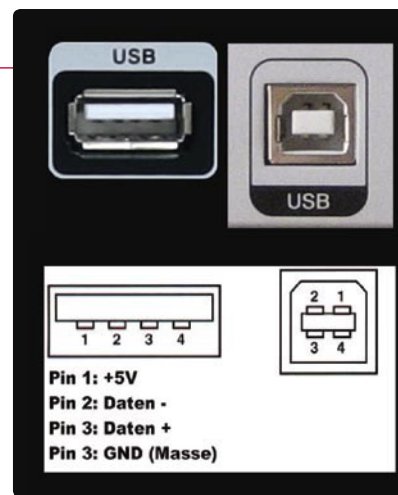
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■ Standard USB plugs (from left to right): Type A female, Type A male, Type Mini A male, Type B male.



■ 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.

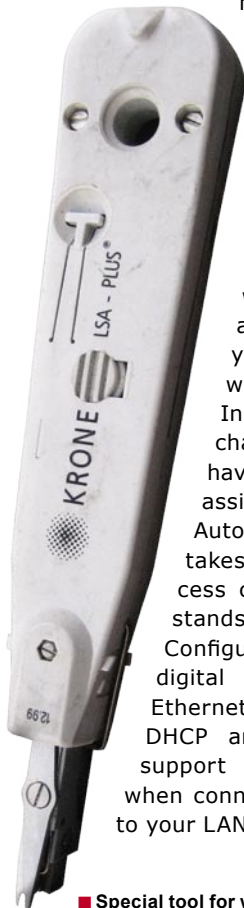
So-called twisted pair cables are required for Ethernet networks, with eight individual strands being twisted into four pairs, hence the name. Using pairs of two strands each minimises outside interference. This type of cable can easily be laid out by everybody, fitted with RJ45 plugs or connected from 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)

- DiSEqC switch commands (available from sub menu)
- Symbol rates 2Msymb to 45Msymb
- Frequency range 950 to 2150MHz
- Input impedance 75 Ohms
- LNB Pass / Fail test function
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- 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

## Wszechstronna klasa wyższa



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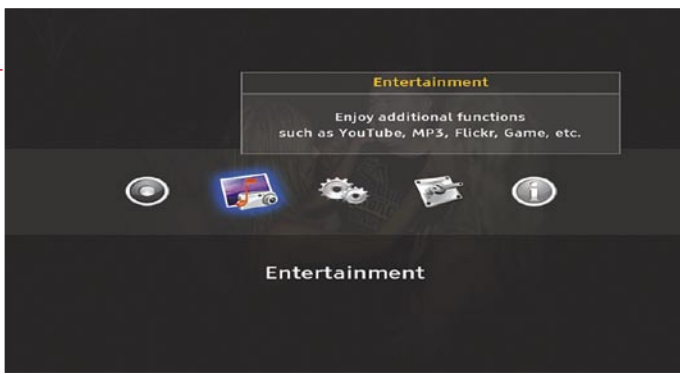


*Każdy odbiornik, który kupujemy ma wyraźnie wyróżnioną markę na płycie przedniej. W rzeczywistości jednak, żaden z producentów nie rozwija i nie wytwarza wszystkiego sam. Zamiast tego nabywa szereg komponentów od różnych poddostawców i składa z nich odbiornik. Jednym z najbardziej krytycznych elementów odbiornika jest zestaw układów scalonych (chipset).*

*To on decyduje o tym jak dobrze będzie przetwarzany strumień danych z wizją i fonią.*

*Odbiornik wysokiej klasy musi mieć chipset wysokiej klasy. Tylko to gwarantuje krystaliczną fonię i wizję, szeroki zakres funkcji i stabilną pracę.*

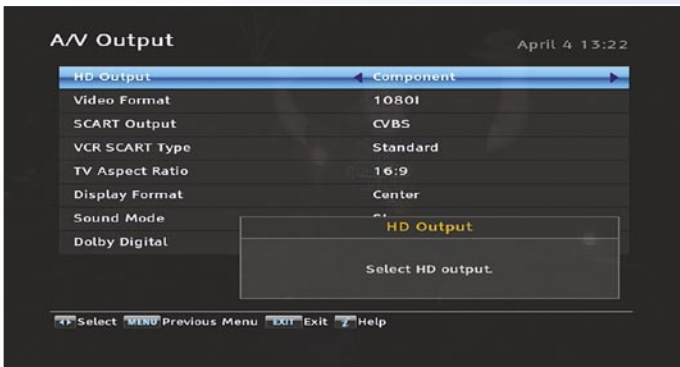




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Nieco ponad rok temu byliśmy świadkami przejścia na wielką skalę od SDTV do HDTV z wykorzystaniem DVB-S2/H.264. To rzecz jasna wymagało całkiem nowego chipsetu, aby zapewnić przetwarzanie sygnału wysokiej rozdzielczości równie dobre jak sygnału standardowego.

Wszyscy wiemy, że nowe technologie często niosą ze sobą nowe problemy i nowe błędy, których rozwiązanie wymaga czasu. Nowe chipsety DVB-S2/H.264 nie były tu wyjątkiem i praktycznie wszyscy producenci odbiorników HDTV doświadczyli związanych z tym problemów. Im więcej funkcji markowi producenci pragnęli zmieścić w swoich innowacyjnych skrzynkach HDTV, tym bardziej produkty ich stawały się podatne na wpadki.

Tymczasem producenci chipsetów zyskali na czasie i mogli rozwiązać problemy wieku dziecięcego. Topfield TMS SRP-2100 jest jednym z pierwszych odbiorników stosujących nowszy, ulepszony chipset DVB-S2/H.264. Południowokoreański Topfield lubi nazywać się „Liderem multi-medium domowych”. Ten tytuł uzasadnić ma właśnie najnowszy ich produkt. Zespół inżynierów Topfielda przystąpił do pracy nad tym odbiornikiem HD nowej generacji wiele miesięcy temu.

Od samego początku wiadomo było, że istotną rolę obok konwencjonalnego odbioru satelitarnej TV odgrywać będzie Internet. Skoro o tym mowa, to i TELE-satelita zdecydował się dodać do swojej nazwy słowo „broadband”. My także uważamy, że w przyszłości, dla widza będzie obojętne skąd dociera sygnał telewizyjny albo radiowy do jego odbiornika. Satelita, kable, transmisje naziemne czy Internet będą tak samo uprzywilejowanymi źródłami treści programowych, a pewnego dnia przestaniemy się w ogóle zastanawiać skąd dochodzi do nas sygnał.

Inżynierowie z Topfielda,

myśleli podobnie wyposażając swój najnowszy odbiornik nie tylko w głowicę kompatybilną z DVB-S2, ale także w pełni funkcjonalny interfejs sieciowy.

Topfield uznał, że nowa technologia wewnątrz wymaga też zmian na zewnątrz. Z płyty czołowej zniknęły mniej lub bardziej rzucające się w oczy guziki, a zastąpił je czuły na dotyk panel kontrolny.

TMS (co znaczy Total Media Solutions) jest jakieś 3 centymetry wyższy niż podobne odbiorniki satelitarne, ale dzięki swojej eleganckiej płycie czołowej nie wpływa to negatywnie na jego wygląd. Jest na niej tylko jeden pojedynczy guzik spójrzonowany tuż nad doskonale czytelnym wyświetlaczem VFD. Służy on do włączania i wyłączania odbiornika.

Pozostałe elementy kontrolne umieszczono obok w idealnym kole. Aktywuje się je poprzez dotyk określonego miejsca. To sprytne rozwiązanie.

Po włączeniu odbiornika, elementy kontrolne otocza świecący na niebiesko pierścień LED. Jak dla nas jest on nieco zbyt jasny, zwłaszcza podczas oglądania telewizji w ciemnym pomieszczeniu. Byłoby świetnie gdyby dało się przyciemniać lub wyłączać to podświetlenie.

Klapka po prawej strony płyty czołowej zakrywa dwa złącza CI, do których można włożyć dowolny moduł dostępu warunkowego do odbioru płatnej telewizji (takie jak Viaccess, Cryptoworks, Nagravision, Alphacrypt itd.), a także dwa porty USB do podłączania zewnętrznych dysków twardych lub innych urządzeń pamięciowych, np. kamer cyfrowych.

Panel tylny jest w równym stopniu wart uwagi. Oczywiście zawiera niezbędny interfejs HDMI, dwa eurozłącza, sześć gniazd RCA z wyjściami YUV, CVBS i fonią stereo, port USB, gniazdo E-SATA, interfejs sieciowy, elektryczny i optyczny interfejs fonii cyfrowej i rzecz jasna tunery kompatybilne z DVB-S2 wraz z przelotkami



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sygnału IF. Aby nasze szczęście było pełne, Topfield nie zapominał zabudować tu sprężonego wyłącznika zasilania.

W przeciwieństwie do poprzednich odbiorników Topfielda nowy TMS wyposażony został w niewielki wentylator do chłodzenia dysku twardego i zasilacza. W prototypowym odbiorniku, jaki otrzymaliśmy do testów, wentylator wydawał wysoki, raczej nieprzyjemny dźwięk. Topfield zapewnił nas, że w produktach seryjnych zastosowane będą cichsze wentylatory i ulepszone zasilacze.

Pilot zdalnego sterowania dostarczany wraz z TMS dobrze leży w dłoni i charakteryzuje się dobrym rozkładem klawiszy. Wszystkie opisy są czytelne i dają wyraźne odczucie naciśnięcia.

Gdyby tylko jakość pilota TMS dorównywała jakości modelu z TF7700HDPVR byłibyśmy w siódmym niebie. Niestety aż tak dobrze nie jest. Pilot jest przyzwoity, ale nie aż tak znakomity, aby w pełni dorównać szczytowej klasie odbiornika, do sterowania którego jest

przeznaczony. Z kolei na plus należy zaliczyć fakt, że ten sam pilot nadaje się do sterowania telewizora, odtwarzacza DVD czy wzmacniacza. Instrukcja obsługi zawiera obszerną listę kodów do sprzętu różnych producentów. Wystarczy znaleźć tam sprzęt, jakim dysponujemy. W czasie naszych testów sprawdziliśmy, że ta funkcja pilota działa bezbłędnie.

Dodatkowo Topfield zdecydował się dołączać do swojego odbiornika w pełni funkcjonalną bezprzewodową klawiaturę, mimo że w chwili testów była ona w stanie obsługiwać tylko wbudowaną grę video - Battle Tank. W planach jest dodanie przeglądarki internetowej, a do tego zastosowania klawiatura bardzo się przyda. Kiedy używamy klawiatury bezprzewodowej, do jednego z portów USB odbiornika musimy dołączyć mały moduł odbiorczy. Dzięki temu sygnał będzie mógł docierać z klawiatury do odbiornika.

To nie wszystko, co otrzymujemy w zestawie. Topfield hojnie dodał jeszcze kabel HDMI i niezwykle udaną instrukcję obsługi - coś, czego

się po Topfieldzie spodziewamy i za co bardzo cenimy tę firmę. Szczegółowo wyjaśniona ona wszystkie funkcje odbiornika, ma znakomity rozkład treści, zawiera ilustrację i rysunki wszędzie tam, gdzie to potrzebne.

## Użytkowanie

Po tym jak Topfield zawiadomił nas kilka tygodni wcześniej o tym, że wysyła do na odbiornik do testów, nie mogliśmy się doczekać dnia, kiedy wreszcie dotrze on do naszego laboratorium testowego. Kiedy w końcu nadszedł ten dzień, szybciej niż zwykle rozpakowaliśmy go, podłączyli do naszego systemu antenowego i plazmowego telewizora.

Po pierwszym załączeniu odbiornik pyta o preferowany język grafiki ekranowej i proponuje do wyboru: angielski, francuski, niemiecki, holenderski, włoski i hiszpański.

Mimo, że odbiornik fabrycznie wyposażony jest w obszerną listę kanałów, ewidentnie przygotowaną z myślą o niemieckojęzycznym widzu, kolejnym krokiem instalacji jest wyszukiwanie kanałów.

TMS wyposażony jest w aktualną listę 150 europejskich i azjatyckich pozycji satelitarnych na pasma Ku i C. Również lista transponderów jest całkiem aktualna.

Jeśli chodzi o ustawienia antenowe, TMS wydaje się akceptować wszystko, co tylko zechcemy do niego podłączyć. Wspiera on wszystkie protokoły DiSEqC (1.0, 1.1, 1.2 i 1.3), co znaczy, że możemy dołączyć równie dobrze pojedynczą antenę, jak i system złożony z 16 konwerterów albo antenę z obrotnicą DiSEqC. Wszystkie popularne kombinacje LOF są dostępne na liście wyboru, a bardziej nietypowe można wprowadzić ręcznie.

Aby w pełni wykorzystać PVR z dwoma tunerami, warto do niego podłączyć anteny dwoma niezależnymi kablami. Wtedy można będzie dokonywać równocześnie nawet dwóch nagrań (nawet z różnych satelitów), a odtwarzać jakiś wcześniej nagrany film. Jeśli dostępny jest tylko jeden kabel, wyjście tunera 1 podłączamy do wejścia tunera 2, co znaczy, że nie wszystkie kanały dostępne są na tunerze 2.





Wyszukiwanie kanałów przeszło całkiem gładko i zajęło niecałe osiem minut dla satelitów HOTBIRD 13° E z ponad 100 transponderami. Ale tak dobrego wyniku można było się po Topfieldzie spodziewać. Naturalnie wyszukiwanie można ograniczyć do kanałów FTA albo kodowanych, zaś kanały nie znajdujące się na fabrycznej liście transponderów da się znaleźć przez załączenie wyszukiwania wg sieci.

Nasi profesjonalni czytelnicy z pewnością docenią fakt, że Topfield umożliwił ręczne wpisywanie wartości PID. Jedyną rzeczą jakiej może brakować prawdziwym DX-manom, jest wyszukiwanie transponderów. Takiej funkcji TMS nie ma.

Tuner TMS-a miło nas zaskoczył. Nie tylko uchwycił sygnał SCPC z TURKSATA 42° E, ale także dał sobie radę z transponderami, których sygnał w naszej lokalizacji był bardzo słaby (w rodzaju NILESAT 7° W czy ASTRA 2D 28,2° E). Kiedy ponowiliśmy test w warunkach laboratoryjnych, znakomita czułość odbiornika została potwierdzona. C/N lekko ponad 4 dB wystarczył odbiornikowi,

aby wyświetlić bezbłędny obraz na naszym plazmowym telewizorze.

Zawsze kiedy instalujemy w domu nowy odbiornik mamy tę samą historię. Odbiornik znajduje setki, a nawet tysiące kanałów, a potem czeka nas żmudny obowiązek uporządkowania ich. W naszym przypadku, na liście kanałów znaleźliśmy ponad 2000 kanałów TV i ogromną liczbę kanałów radiowych. Na szczęście Topfield cieszy się dobrą reputacją, jeśli idzie o ułatwienia tego przykrego zadania. Odbiornik TMS nie jest tu wyjątkiem.

Pamięć kanałów ma pojemność 7000 wpisów dla TV i 3000 dla radiowych. Można ją edytować niemal na każdy sposób, jaki można sobie zamarzyć. Oprócz automatycznego nadawania struktury, odbiornik pozwala na ręczne przesuwanie, kasowanie, przemianowywanie czy blokowanie PIN-em dowolnego kanału.

Równie łatwo możemy często oglądane kanały przesunąć do list ulubionych. Listy można z kolei podzielić nawet na 30 róż-

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nych kategorii. W taki sposób możemy stworzyć sobie listy kanałów podzielone tematycznie, listę kanałów HDTV, albo indywidualne listy dla poszczególnych członków rodziny.

Zanim wyjdziemy z głównego menu, które nawiasem mówiąc podzielone jest na pięć głównych kategorii, warto rzucić okiem na ustawienia systemowe i w razie potrzeby niektóre z nich poprawić. Tak jak inne odbiorniki satelitarne, również TMS można ustawić na synchronizację czasu z satelity. Brzmi to jak znakomity pomysł, ma on jednak pewne minusy. Niektóre kanały transmitują błędny czas, co powoduje pokazywanie złego czasu przez odbiornik. Aby zapobiec tego typu problemom, TMS

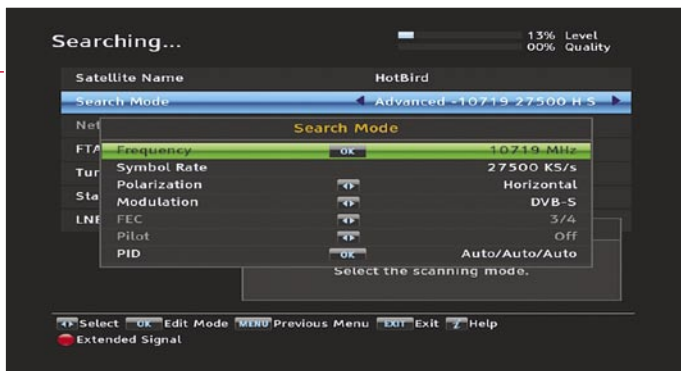
pozwała nam zawęzić działanie tej synchronizacji do pewnych zdefiniowanych transponderów czy kanałów, a mogą to nawet być kanały kodowane. To bardzo użyteczne rozwiązanie, na które czekaliśmy od lat.

Na wyjściu HDMI TMS może wystawiać obraz o rozdzielczości 576i, 576p, 720p lub 1080i, a możemy także ustawić tryb automatyczny, który sam wybierze najlepszą rozdzielczość na podstawie odbieranego sygnału. Szczególnie spodobał się nam guzik pilota Video Format, pozwalający szybko zmieniać rozdzielczość.

Eurozłącza dostarczają sygnału wizji w formacie CVBS, S-Video lub RGB, a użytkownik ustala jak obraz o proporcjach



# TOPFIELD®



Ręczne wyszukiwanie kanałów



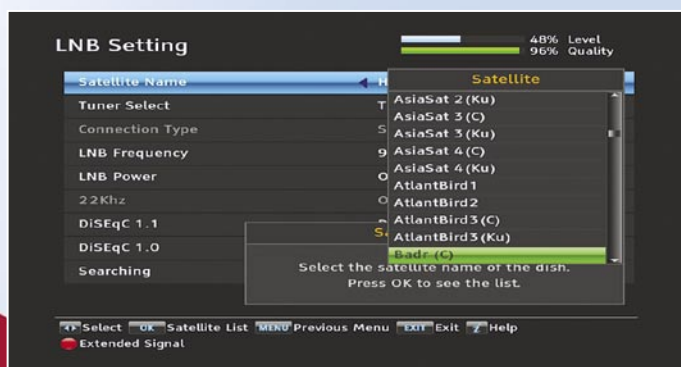
EPG, tryb pierwszy



Rozszerzona informacja EPG



Różne ustawienia OSD



Dostępnych jest 150 pozycji satelitarnych

4:3 ma być wyświetlany na ekranie 16:9 (Pan & Scan albo format oryginalny z czarnymi pasami po bokach). Choć dzisiaj potrzebne już to jest coraz rzadziej, możemy także ustawić wyjście w formacie 4:3.

Jak sugeruje nazwa, menu ustawień odtwarzania i nagrywania służy do określania jak ma się zachowywać odbiornik podczas tych dwóch trybów pracy. Bufor przesuwania w czasie powiększenia został do 300 minut ze 120 minut jakie mieliśmy w przeszłości. Ponadto możemy nakazać odbiornikowi dodać określoną liczbę minut przed i po każdym nagraniu zaprogramowanym w programatorze nagrań tak, aby mieć pewność, że niczego nie stracimy, jeśli dany kanał nada program z lekkim przesunięciem w czasie.

Jeśli przez port USB albo E-SATA dołączymy zewnętrzną pamięć, można ją będzie ustawić jako domyślne urządzenie pamięciowe. Zatem jeśli wolimy korzystać z zewnętrznej pamięci USB, a nie z wewnętrznej dysku 500 GB, możemy tak nakazać odbiornikowi.

Kolejnym ulepszeniem jest możliwość kontynuowania odtwarzania dokładnie od tego momentu gdzie go przerwaliśmy. Poprzednio był do tego potrzebny specjalny TAP (fabryczna wtyczka programowa Topfielda). Ponadto pojawiły się różne prędkości przewijania w przód i w tył. Ponadto użytkownik może zdecydować jak odbiornik ma obsługiwać kodowane nagrania. Albo od razu się odbiornik dekoduje automatycznie, albo użytkownik ręcznie uruchamia proces dekodowania.

Panel przedni można ustawić według indywidualnych upodobań. Na przykład możemy ustawić inną jasność dla trybów oczekiwania i pracy. Bylibyśmy jeszcze bardziej szczęśliwi gdyby dotyczyło to także jasności niebieskiego pierścienia LED na płycie przedniej.

Do podłączenia TMS-a z

zewnętrznym światem mamy nie tylko porty USB i E-SATA, ale także w pełni funkcjonalny interfejs sieciowy, który ustawić można w dedykowanym menu. Adres IP można przypisać na stałe albo pozwolić na automatyczne przypisanie przez serwer DHCP pracujący w sieci. W przypadku przypisania automatycznego, TMS otrzyma wszystkie niezbędne informacje automatycznie i będzie gotowy do pracy już po kilku sekundach.

Odbiornik ma wbudowany serwer Web i FTP, a każdy z nich można aktywować i dezaktywować indywidualnie. Oczywiście TMS oferuje zabezpieczenie dostępu przez ID użytkownika i hasło.

Po ukończeniu wstępnej konfiguracji wszystko, co trzeba zrobić to nacisnąć klawisz Exit, a odbiornik opuści menu ekranowe. Od razu przełączy się na pierwszy dostępny na liście kanał i wstawi niewielką belkę informacyjną u dołu ekranu. Zawiera ona informacje dotyczące bieżącej audycji, wskaźnik postępu czasu tej audycji, oraz detale aktywnego tunera: satelitę i transponder.

Dodatkowe ikonki informują o dostępnych usługach taki jak: telegazeta, podpisy, dodatkowe ścieżki fonii, czy status kodowania.

Do tego wszystkiego dołączą dwa wskaźniki paskowe siły i jakości sygnału. Zwróćmy na nie uwagę, według nas nie można im ufać w 100 procentach, zwłaszcza przy bardzo słabych sygnałach.

Po naciśnięciu guzika Info odbiornik wyświetla dodatkową informację kontekstową na temat bieżącej audycji, o ile tylko takowa nadawana jest w kanale.

EPG wyskakuje po naciśnięciu klawisza Guide i również w tym odbiorniku udało się Topfieldowi stworzyć przyjazny interfejs użytkownika. Mamy dostęp do informacji na siedem dni naprzód, o ile tylko nadawca ją umieści.



# Something new is happening at Sea Tel®



**NEW! USAT24.**  
Ultra-small 60cm  
broadband.

**NEW! 2406.**  
Commercial quality  
60cm broadband.

**NEW! ST14.**  
New design.  
Better performance.

## Same company. Advanced technology. Strengthened by Cobham.

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

Sea Tel... new look, new products, and a strong commitment to keep you connected at sea.



**Sea Tel**  
**COBHAM**



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Sea Tel, Inc.: +1-925-798-7979  
Sea Tel Europe: +44 2380 671155  
[www.cobham.com/seatel](http://www.cobham.com/seatel)

Do wyboru mamy dwa tryby wyświetlania: pierwszy pokazuje siatkę z siedmioma kanałami i mniej więcej trzygodzinną osią czasu, drugi to też układ siatki, ale z pięcioma kanałami i widocznym oknem na cztery godziny.

Podczas korzystania z EPG guzik Info wywołuje szczegółową informację dotyczącą wybranej właśnie audycji. Można ją oczywiście zaznaczyć jako zdarzenia w programatorze nagrań, a wtedy będzie automatycznie nagrane, albo wyskoczy nam okienko przypomnienia.

Trudno o łatwiejsze gene-

rowanie pozycji w programatorze nagrań, choć oczywiście możemy to zrobić również całkowicie „na piechotę”, jeśli nie chcemy zależeć od czasów początku i końca audycji, ale wybrać jakieś inne.

Zaprogramowane wpisy można następnie przestawić na cykliczne: codziennie, co tydzień, w dni robocze, w dni weekendu. Mamy więc tu wszystkie potrzebne kombinacje. W czasie naszego testu odbiornik niezawodnie identyfikował i powiadamiał o wszelkich konfliktach czasowych w nachodzących na siebie nagraniach nawet, jeśli były to pojedyncze minuty.

Tradycyjnie, klawisz OK wywołuje na ekran listę kanałów, którą zaprojektowano z dbałością o wygodę użytkownika i która oferuje cały szereg opcji sortowania. Jeśli taka nasza wola, odbiornik może przy każdym kanale wyświetlać nazwę operatora satelitarne, a jedno naciśnięcie guzika przełącza nas do listy kanałów ulubionych.

Bardzo spodobała nam się funkcja filtrowania kanałów zaczynających się na daną literę. Jedno naciśnięcie: wszystkie kanały zaczynające się na A, drugie naciśnięcie: wszystkie kanały zaczynające się na B itd.

Przy tysiącach kanałów na liście, funkcja ta rzeczywiście przyspiesza wyszukanie tego, na czym nam zależy.

Surfowanie po kanałach jest w TMS bardzo przyjemne. Wystarczy jedna sekunda na przełączenie się między kanałami SDTV, i około dwóch sekund zanim na ekranie telewizora pokaże się kanał HDTV.

Podczas testów często surfujemy po kanałach w górę i w dół niemal bez końca. TMS ani razu nie sprawił nam jakiś większych problemów z wizją czy fonią. Ogólnie wizja i fonia tego odbiornika była najwyższej jakości – zarówno dla sygnałów SD jak i HD.

Dzięki wbudowanemu dyskowemu 500 GB nasz kolekcja nagrań może być naprawdę imponująca. Aby usprawnić panowanie nad dużą liczbą nagrań, Topfield umożliwia nam tworzenie folderów, do których możemy przesuwając nasze nagrania. Każde nagranie ma obrazek podglądu i dokładną informację o czasie trwania i zajmowanej pamięci. Gdybyście nie wiedzieli, dysk 500 GB wystarcza na około 250 godzin nagrań.

Systemem plików używanym przez Topfielda jest JFS, choć i inne formaty są czytane (FAT32, NTFS czy EXT2/3). Zapisywać jednak można tylko w JFS albo EXT2/3, o czym powinniśmy pamiętać zanim zaczniemy próbować edytować nagrania z poziomu PC.

Ogólnie znakomita ocena odbiornika TMS, wzmocniona jest jeszcze przez świetnie rozwiązany wybór ścieżek dźwiękowych, doskonałe wstawianie podpisów, wsparcie dla NVOD i zintegrowaną telegazetę. Jeśli z natury jesteśmy niecierpliwi i zawsze chcemy zobaczyć, co leci na innym kanale w trakcie przerwy na reklamę, spodoba nam się funkcja PiP (Picture-in-picture). Działa nawet na dwóch kanałach HD!

Nie możemy nie wspomnieć o cesze, która nazywa się automatyczne odtwarzanie ustawień systemowych. Działa to następująco: wciśnięciem guzika zapisujemy obecne ustawienia, które później wywołujemy z powrotem jeśli zdarzy nam się tak namieszać w ustawieniach, że sami już nie wiemy jak z tego wybrnąć. Plik z ustawieniami można zapisywać albo na wbudowanym dysku, albo na dołączanej pamięci zewnętrznej. Jesteśmy więc zawsze zabezpieczeni.

Topfield nigdy nie przestaje udoskonalać swoich produktów. Dlatego od czasu do czasu do ściągnięcia jest nowa wersja oprogramowania. Aktualizację można wykonać przez download z satelity, z sieci lub z pen drive'a.

## Interfejs sieciowy

Jak już wspomnieliśmy, Topfield wierzy, że przyszłość należy do połączonych mediów transmisji danych. Telewizja i radio ciągle będą rozpowszechniane przez satelitę, kabel, transmisje naziemne, ale uzupełniane będą w coraz większym stopniu przez treści pobierane z Internetu.

Dlatego interfejsowi sieciowemu tego odbiornika od razu poświęciliśmy dużo uwagi. Nie tylko pozwala on kontrolować odbiornik przez Internet czy sieć lokalną dzięki serwerowi Web, ale także możemy korzystać z jego dysku twardego z dowolnego miejsca na świecie dzięki serwerowi FTP.

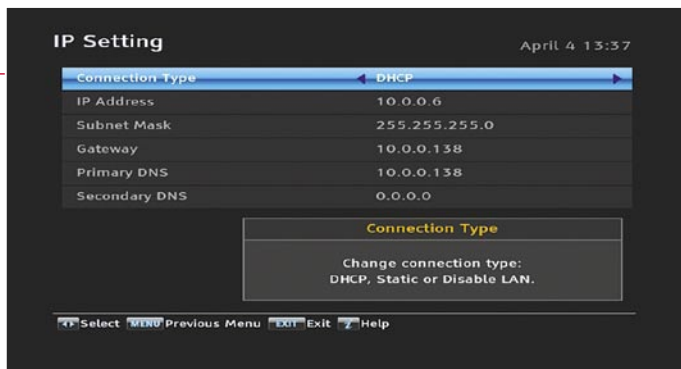
Dane transmitowane są z dużą prędkością, dzięki czemu ta kusząca teoria sprawdza się w praktyce i staje przed nami otworem całe spektrum nowych możliwości. Wystarczy sobie tylko wyobrazić – premiera nowego filmu, kiedy właśnie jesteśmy na wyjeździe, a w gorączce przedwyjazdowej zapomnieliśmy zaprogramować automatyczne nagrywanie.

Nie ma problemu! Jeśli mamy dostęp do Internetu możemy zaprogramować to nagranie zdalnie, sprawdzić czy ustawienia są prawidłowe, a potem sprawdzić czy nagranie faktycznie doszło do skutku. A jeśli tego mało, możemy skorzystać z serwera FTP aby przesyłać sygnał TV albo radiowy z domu do miejsca gdzie właśnie się znajdujemy.

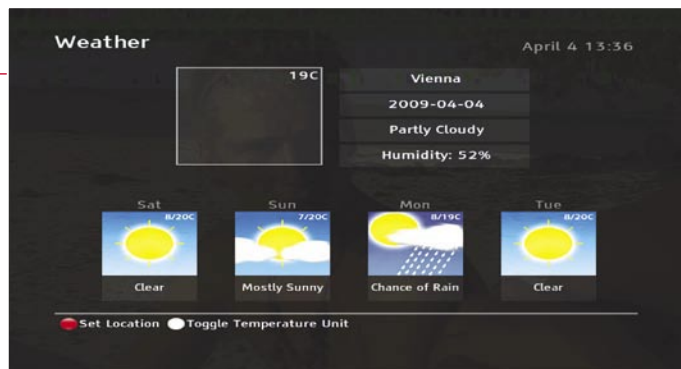
Menu Entertainment to pierwszy krok Topfielda w kierunku zacierania granic między odbiornikiem, siecią, a Internetem. Przykładowo, możemy wykorzystywać TMS do oglądania filmów z YouTube na ekranie telewizora w pokoju dziennym. Naturalnie musieliśmy spróbować. Zadziałało bez pudła! TMS jest tak uniwersalny jak portal YouTube i nawet pokazuje nam listy najczęściej oglądanych lub najwyższej ocenionych nagrań. Jeśli to nas nie bawi, to



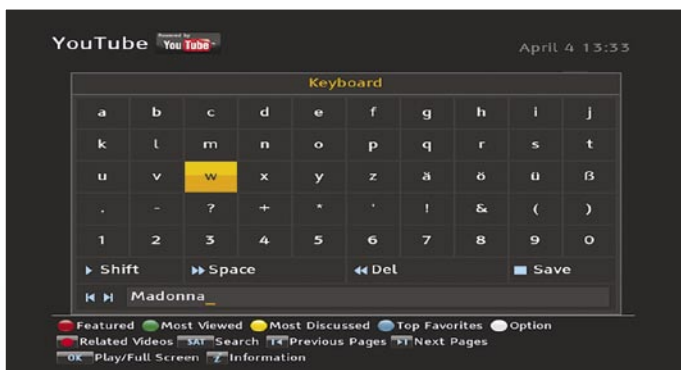




Ustawienia sieciowe zarządzane przez DHCP |



Prognoza pogody |



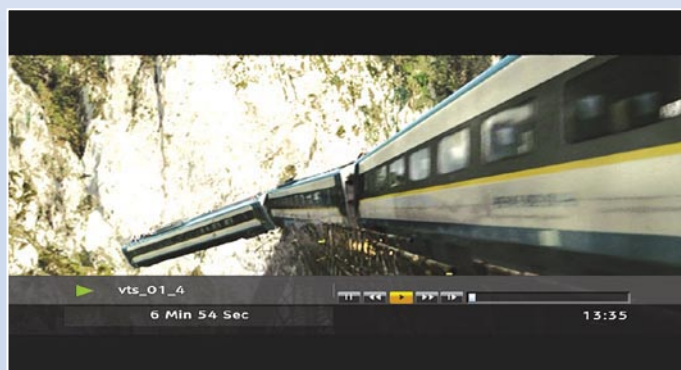
Wyszukiwanie nagrań na YouTube |



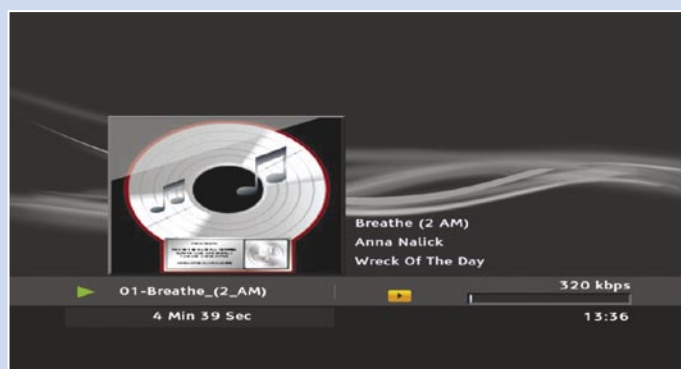
Gra wideo Battle Tank |



Najczęściej oglądane filmy na YouTube |



Odtwarzanie filmu DivX |



Odtwarzacz MP3 |

możemy oglądać fotografie na Flickr, albo pokazywać nasze przyjaciółom. Jeżeli chcemy sprawdzić pogodę na dzisiaj, TMS ma do tego celu specjalne menu. Można tu znaleźć prognozę dla praktycznie każdego miejsca w świecie.

Ponadto TMS może oczywiście być wykorzystywany jako odtwarzacz MP3, lub przeglądarka zdjęć ze zmienianiem ręcznym albo pokazem slajdów. Nawet ściągnięte z Internetu filmy DivX można oglądać przy pomocy Topfielda TMS.

Gra video okrasza ten bogaty zestaw funkcji. Można w nią grać albo samemu w domu, albo wraz z przyjaciółmi przez Internet.

## TAP

Topfield jako pierwszy producent stworzył platformę dla programistów amatorów w oparciu mogą tworzyć dodatkowe funkcjonalności odbiornika. Zabawa nazywa się TAP i oznacza Topfield Application Protocol. Użytkownicy mogą korzystać z aplikacji TAP aby bardziej dopasować odbiornik do indywidualnych życzeń.

Topfield wprowadził TAP wiele lat temu, więc dzisiaj nie budzi zaskoczenia fakt, że

i w najnowszym odbiorniku o niej nie zapomniano. Choć w tej chwili aplikacje napisane dla starszych odbiorników nie zadziałają na TMS, producent wyjaśnia, że sam interfejs zmienił się nieznacznie, więc przekompilowanie aplikacji na nowy odbiornik nie powinno być trudne. Spodziewamy się, że w krótkim czasie pojawi się znaczna ilość aplikacji działających na tym odbiorniku.

Topfield ze swoim TMS jest wśród pierwszych producentów wkraczających na niezdobyte terytorium Internetu. Naturalnie jakość wielu filmów na YouTube pozostawia wiele do życzenia i jest znacznie poniżej jakości sygnału satelitarnego, ale sam YouTube również się zmienia. Stopniowo pojawia się tam coraz więcej nagrań w wysokiej rozdzielczości.

Te już prezentują się bardzo dobrze i prędzej czy później, użytkownik przestanie sobie uświadamiać skąd jego odbiornik pobiera sygnał TV. Wystarczy, że będzie go widział w dobrej jakości na ekranie telewizora.

Jedna rzecz jest pewna: Topfield jest w awangardzie multimedialnego postępu!

# TOPFIELD®



Życie redaktora testów TELE-satellite jest ciężkie: Thomas w Wiedniu gra w sieci w grę Battle Tank z Redaktorem Graficznym TELE-satellite, Barną w Budapeszcie (dużo zdjęć).



# 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**.



Please visit SPAUN at the

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Brochures can be found at [www.spaun.com](http://www.spaun.com)

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## Zdaniem eksperta

+

TMS SRP-2100 Topfielda jest w pełni odbiornikiem nowej generacji. Po raz pierwszy łączy on telewizję satelitarną i dostęp do Internetu tworząc nową jakość oglądania TV. Koncepcja działania odbiornika jest dobrze przemyślana, a OSD jest przyjazne. Podczas oglądania jednej audycji możemy w tle nagrywać dwie inne rzeczy. To wszystko czyni odbiornik TMS idealnym kompanem dla całej rodziny, zarówno dla początkujących jak i dla DX-manów.



Thomas Haring  
TELE-satellite  
Test Center  
Austria

-

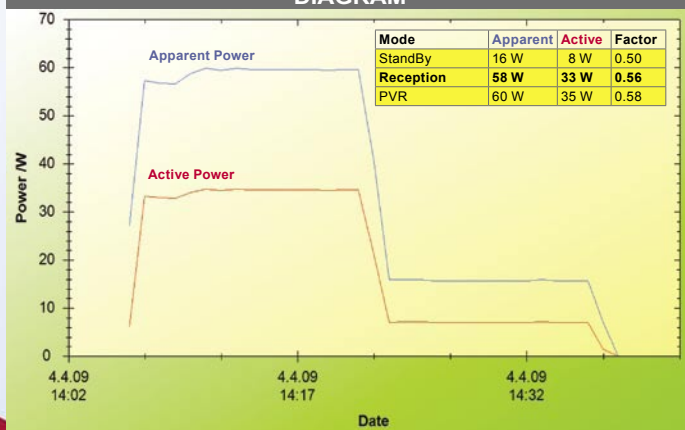
Wentylator w testowanym odbiorniku był raczej hałaśliwy. Producent obiecuje, że wprowadzi jego cichszą wersję i udoskonali zasilacz. Jakość pilota mogłaby być lepsza.

## 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



Pierwsze 15 minut – praca: odbiornik jest załączony i obsługiwany aktywnie przez 14 minut z przełączaniem kanałów, nagrywaniem, odtwarzaniem itd. Kolejne 15 minut – tryb oczekiwania.



Lista kanałów TMS Topfielda



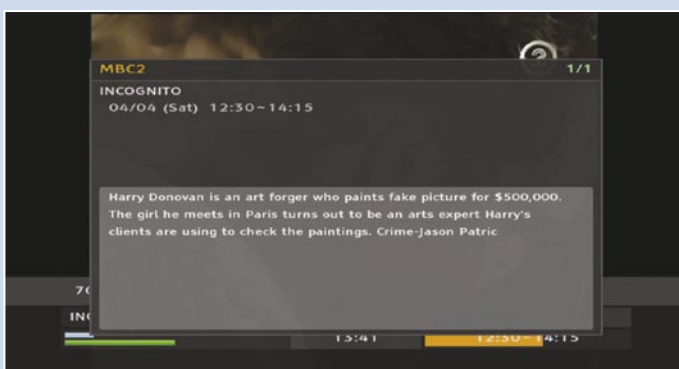
Edycja listy kanałów



Opcje listy kanałów



Belka informacyjna



Rozszerzona belka informacyjna



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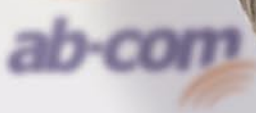
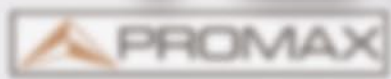


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# P140 Pasat Anteny Czasza paraboliczna na pasmo Ku

*Kiedy ją dostarczono nie wiedziałem, co to takiego. Ogromne drewniane pudło ważące 96 kg i zajmujące połowę garażu. Po sprawdzeniu papierów okazało się, że rzeczywiście była to paczka do centrum testów TELE-satelite. Wówczas przypomniałem sobie, że jakiś czas temu Alex informował mnie o antenie do testów z bułgarskiej firmy Pasat Anteny. Musiałem zadać sobie pytanie: skoro opakowanie jest tak masywne i solidne, to czy i antena będzie równie mocna i trwała? To było jedno z pytań, na które odpowiedzieć miał mój test!*



■ W zestawie antenowym jest falowód





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■ Antenę dostarczono w bardzo solidnej drewnianej skrzyni



■ Antena nie składa się ze zbyt wielu części...



■ ... więc jej montaż jest naprawdę prosty.

Potrzebowałem młotka i łożu, aby dostać się do wnętrza pudła i wyciągnąć części anteny. Każda część zestawu była pieczołowicie owinięta w folię ochronną. Podczas transportu nie mogło powstać nawet najmniejsze zadrapanie. To mi się naprawdę podobało. Z taką starannością pakuje się tylko profesjonalny sprzęt. Po wyjściu wszystkiego przekonałem się, że mam do czynienia z zaledwie kilkoma komponentami. Świetnie – montaż powinien być prosty.

I rzeczywiście. Pomimo, że nie było szczegółowej instrukcji montażu, a tylko jeden rysunek pokazujący zmontowaną antenę, montaż był tak oczywisty, że każdy poradziłby sobie natychmiast. Wszystko pasowało idealnie. To była czysta przyjemność.

Zdziwiłem się lekko, kiedy przekonałem się, że antena jest przeznaczona na maszt o średnicy 70 mm. Częściej spotykanym rozmiarem jest 60 mm (nie wspominając o 40 mm dla małych anten). Po sprawdzeniu, że śruby mocujące antenę do masztu są dostatecznie długie, postanowiłem nie budować nowego masztu do testów, ale skorzystać z posiadanego zestawu z masztem 60 mm. Jednak przy docelowej instalacji lepszy będzie maszt o właściwej średnicy – 70 mm.

Po zamontowaniu anteny na maszcie i dociągnięciu wszystkich śrub i nakrętek, z satysfakcją stwierdziłem, że antena jest naprawdę solidna i trwała. To bardzo ważne zwłaszcza dla anteny o tej wielkości. Jej kąt widzenia jest tak mały, że nawet mały luz może istotnie zakłócić poprawny odbiór.

Przyszedł czas na zainstalowanie LNB. Antena wyposażona jest w falowód na pasmo

Ku. Falowód jest zoptymalizowany do tego typu anteny parabolicznej. Typowy konwerter dla anteny podświetlanej zamontowany na antenie ogniska pierwotnego (PFA) nie da dobrych rezultatów.

Falowód jest przystosowany do konwerterów z kryzą. Niestety nie miałem takiego pod ręką w momencie wykonywania testu. Miałem za to LNBF na pasmo Ku do anteny PFA już połączone z falowodem (NF = 0,3 dB). Mój konwerter okazał się za gruby i nie pasował do oryginalnego uchwytu. Musiałem odłożyć na bok oryginalny falowód i jego uchwyt i zastosować inny uchwyt pasujący do LNBF. W końcu byłem gotów do pomiarów.

Skierowałem antenę w mniej więcej właściwym kierunku i natychmiast zobaczyłem sygnał na swoim analizatorze sygnału. Miernik zidentyfikował pozycję satelitarną 28,2° E (satelita Astra). Pobawiłem się przez chwilę w przestawianie anteny na różne satelity i zawsze uzyskiwałem sygnał o bardzo wysokiej jakości. Na przykład MER = 17,4 dB, a nawet więcej!

Ale co z odbiorem słabego satelity? Uważnie przestudiowałem mapki pokrycia różnych satelitów na stronie SatcoDX i zdałem sobie sprawę, że mieszkanie w Polsce to bardzo dobra rzecz dla miłośnika telewizji satelitarnej, ale niekoniecznie wtedy, kiedy musisz przetestować dużą antenę. Większość wiązek skierowanych na tę czy inną część Europy pokrywa centrum kontynentu dużą mocą. 90 cm w zupełności wystarczy do odbioru większości satelitów i wiązek. Jest tylko kilka regionalnych wiązek nie pokrywających mojej lokalizacji, ale w ich przypadku 140 cm to o



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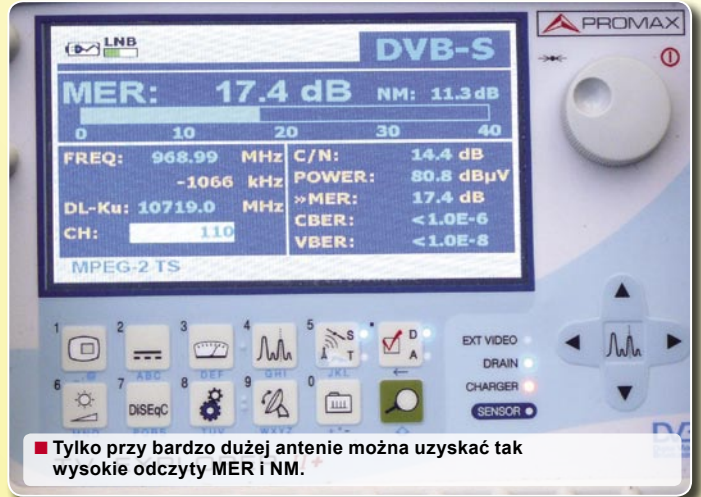
■ Ostatnie śruby do dociągnięcia to te mocujące do masztu.



■ Skorzystaliśmy z LNBf jakiego mieliśmy w szufladzie, oryginalny falowód i jego uchwyt nie były potrzebne.



■ To jest uchwyt falowodu.



■ Tylko przy bardzo dużej antenie można uzyskać tak wysokie odczyty MER i NM.



■ Skierowana na HOTBIRDA 13° E.





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wiele za mało, aby próbować odbioru.

Jedynym praktycznym kandydatem na test czułości odbioru była wiązka EXPA-22K2 satelity EXPRESS AM22 (53° E). Jego mapka pokrycia sugerowała, że powinienem być w stanie uzyskać odbiór z anteną 150-190 cm (siła sygnału >40 dBW), jednak miałem nadzieję, że może mi coś wyjdzie z P140. Gdyby to było 42-42 dBW, antena powinna umożliwić nawet uchwycenie transpondera.

Podczas próby ustawienia anteny PASAT 140 na tego satelitę zdałem sobie sprawę, że jej śruba nastawcza elewacji jest za krótka dla tej pozycji satelitarnej. Potrzebowałem ustawić elewację 21,4°, a to było poza zakresem nastaw anteny. Zakres ustawień testowanej anteny wynosił od około 25° do 70°. Najprostsze, co mogłem zrobić, to zostawić antenę na najniższej możliwej elewacji i dodatkowo pochylić maszt o te kilka stopni.

Jak tylko to zrobiłem, na moim analizatorze sygnału pojawiło się widmo EXPRESS AM22. Odczyt C/N był na poziomie 8 dB. Niestety było to troszkę poniżej progu odbioru. Jakiś jeden decybel więcej, a mógłbym coś odebrać.

Co za pech. Zastanawiałem się jak ocenić osiągi tej anteny? W końcu postanowiłem skorzystać ze znacznie silniejszego sygnału satelity HOTBIRD (13° E), zmierzyć jakość sygnału i porównać ją do jakości sygnału z czaszy 0,6 m i 0,9 m. Czasze były wyposażone w różne konwertery, ale wszystkie one były przyzwoitej jakości (NF = 0,3~0,4 dB).

Tak jak się spodziewałem,

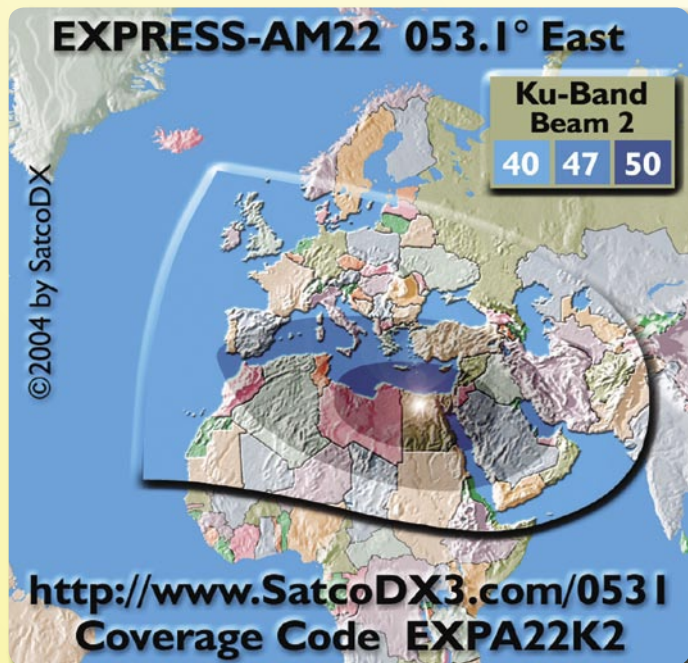
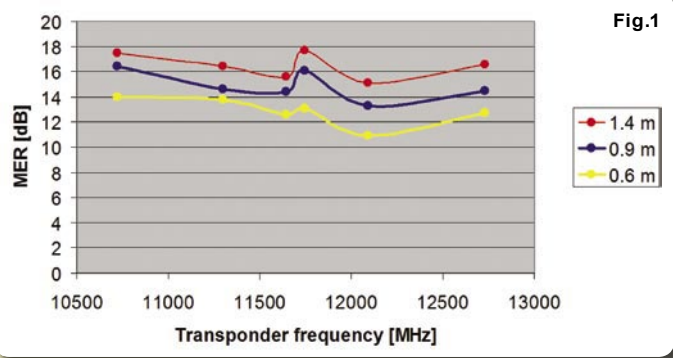
jakość sygnału była znacznie lepsza. Wartość MER była wyższa o 1-2 dB w stosunku do czaszy 0,9m i 3-4 dB w stosunku do anteny 0,6 m. Może zdziwi to niektórych z naszych czytelników, ale poziom sygnału otrzymywanego z P140 i konwertera w ognisku pierwotnym nie był wyższy niż ten z mniejszych czasz. W cyfrowej TV o wiele ważniejsze jest mieć duży stosunek sygnału do szumu niż bezwzględny poziom sygnału. Aby to uzyskać trzeba stosować duże anteny. (Rys. 1).

W oparciu o te pomiary porównawcze mogę stwierdzić, że P140 jest rzeczywiście anteną o dużym zysku. Znaczący to, że krzywizna jej powierzchni jest prawidłowa, a sygnał zogniskowany jest w miejscu zamontowania falowodu. Czasza jest bardzo solidna, zatem jeśli tylko zamontujemy ją na wytrzymałym, trwałym maszcie będzie nam służyć przez długie lata.

Jej zakres nastaw elewacji (25-70°) jest odpowiedniejszy dla krajów leżących bliżej równika niż dla lokalizacji w Polsce (52° N), ale oczywiście zależy, jakiego satelitę chcemy odbierać. Pasat może dostarczyć czasze z innym zakresem nastaw, jeśli wyspecyfikujecie swoje wymagania.

Jeśli zdecydujecie się kupić jedną z tych solidnych i prostych w montażu anten, pamiętajcie o maszcie o średnicy 70 mm i odpowiednim LNB z kryzą na pasmo Ku, które będzie można dokręcić do falowodu przy pomocy 4 wkrętów.

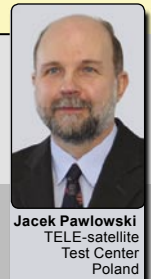
Czasza Pasat doskonale nadaje się dla profesjonalnych użytkowników, ale także dla użytkowników prywatnych, którym zależy na szczególnie stabilnym sygnale.



Rys. 1. Mapka ledwie pokrywa nasze centrum testowe, ale przy pomocy czaszy Pasat udało się uzyskać pewien sygnał

## Zdaniem eksperta

**+**  
Bardzo solidna i trwała czasza. Wszystko pasuje idealnie. Niezwykle starannie zapakowana. Wykończenie nie pozostawia nic do życzenia.



**-**  
Brak

## 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

## Najlepsza technologia w nowej w nowej obrotnicy typu H-H

Obrotnice H-H stosowane do obracania anten o średnicy do 120 cm od horyzontu do horyzontu – jak sama nazwa sugeruje – są na rynku już od około dziesięciu lat. Pozwalają na odbiór wszystkich satelitów osiągalnych w danej lokalizacji. Podstawowa konstrukcja obrotnicy pozostaje wciąż niezmienna, co pozwalałoby wysnuć wniosek, że jest ona praktycznie doskonała. A jednak nowa obrotnica MOTECK dowiodła, że wszędzie jest okazja do usprawnień.



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Po rozpakowaniu trudno jest zauważyć jakieś różnice w porównaniu ze starszą wersją, ale jak tylko zaczyna się obrotnicę montować, od razu widać, że SG-2500 wykonano z materiałów najwyższej klasy. Elementy mechaniczne są odporne na korozję, a obudowa w formie odlewu gwarantuje wysoki stopień szczelności. Dobrze czytelna podziałka nastawy i wyraźny znacznik pozwalają łatwo i precyzyjnie ustawić antenę z obrotnicą na kierunek południowy (północny).

### SG-2500 pracuje bezbłędnie przy każdym protokole DiSEqC

Aby sterować anteną przy pomocy DiSEqC 1.0 albo 1.1 MOTECK dostarcza V-Box II lub DIGIBOX, którym trzeba podać kąt obrotu i wartość Goto-X. Dokładny kąt obrotu można obliczyć

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przy pomocy programu GAAPS, który dostępny jest na stronie MOTTECKA ([www.motteck.com](http://www.motteck.com)), albo na stronie [www.gaaps.com.tp](http://www.gaaps.com.tp). Możecie także skorzystać z naszego kalkulatora USPOS, który jest niezwykle prosty w obsłudze ([www.TELE-satellite.com/Uspos.exe](http://www.TELE-satellite.com/Uspos.exe)).

Jeżeli jednak korzystamy z DiSEqC 1.2 nie będzie nam potrzebne żadne dodatkowe urządzenie. Sterowanie obrotnicą przy pomocy protokołu 1.2 ma jednak pewne niedogodności jeśli wykorzystuje się pamięć wewnętrzną obrotnicy. Pamięć wbudowana w obrotnicę MOTTECKA, tak samo jak w produktach konkurencyjnych, ma pojemność 60 pozycji satelitarnych. Korzystanie z niej nie jest jednak bezpieczne gdyż ulega ona skasowaniu w momencie zerowania (resetu) obrotnicy. Tracimy wówczas wszystkie zapamiętane tam współrzędne.

To nie jest jedyny problem z pamięcią. Jej pierwsze 26 pozycji ma fabrycznie wpisane wartości, które w praktyce są bezużyteczne. Oprócz tego, że są to wartości wyliczone dla południka zerowego, to jeszcze odbiorniki wcale nie biorą pod uwagę numeru pozycji obrotnicy, ale zapisują satelity w rosnącym porządku.

Dla bezpiecznego i trwałego przechowywania współrzędnych pozycji należy polegać na odbiorniku, a nie na pamięci obrotnicy. To jedyny sposób, aby niezawodnie sterować obrotnicą przy pomocy komendy Goto-X w protokole DiSEqC 1.2. Niektóre odbiorniki z DiSEqC 1.2 mają nawet specjalne menu Goto-X. Najpewniej jednak pracują te odbiorniki, które mają DiSEqC 1.3 albo USALS. Automatycznie obliczają one azymut, zapamiętują go i przesyłają wraz z komendą GotoX. Oczywiście SG-2500 doskonale rozumie komendę Goto-X i znakomicie nadaje się do współpracy z takimi odbiornikami.

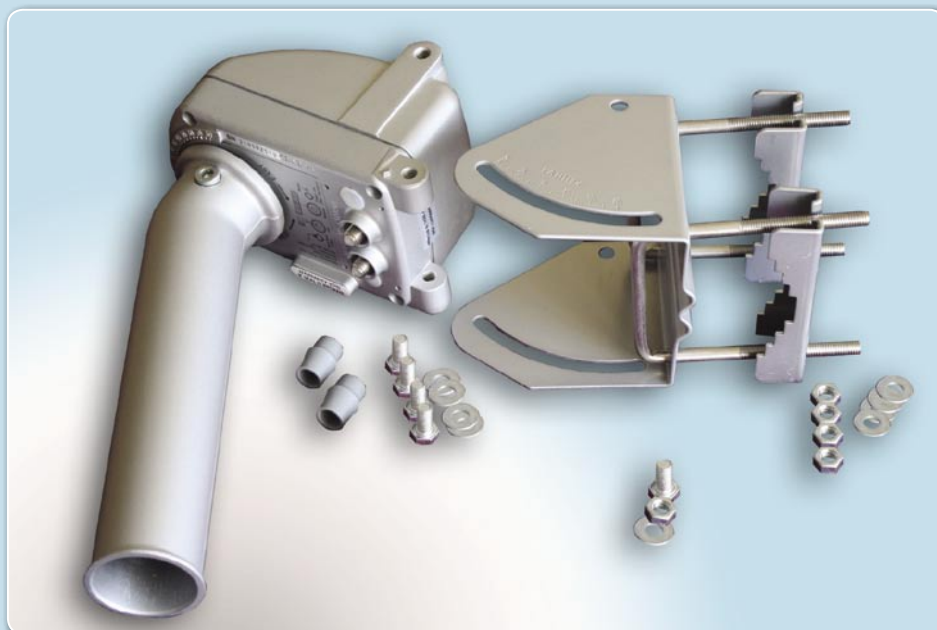
## Dołączanie obrotnicy do anteny jest proste

MOTTECK SG-2500 daje się łatwo zamontować przy pomocy klucza 13 mm. Równie prosto nastawia się lokalną szerokość geograficzną. SG-2500 można przykręcać do masztów o średnicach od 35 do 65 mm. Aby uzyskać wysoką stabilność, zaleca się stosować co najmniej 50 mm. Taką samą średnicę zastosował MOTTECK dla rotora.

Po umocowaniu masztu idealnie w pionie, musimy ustalić dokładny kierunek południowy (północny) i zaznaczyć go na maszcie pisakiem. Obrotnica, która jest fabrycznie ustawiona na zero, może być wówczas przykręcona i

wstępnie ustawiona we właściwym kierunku.

Instrukcja obsługi napisana jest po angielsku. Zawiera pożyteczne wskazówki dotyczące montażu i ustawie-



Poszczególne elementy przed montażem



Skala kąta obrotu obrotnicy



Nastawa szerokości geograficznej



Obrotnica przymocowana do masztu

nia. Podaje także odpowiednie wartości nastaw elewacji dla lokalnej szerokości geograficznej. Alternatywnie, takie obliczenia można wykonać samemu przy pomocy kalkulatora z funkcjami trygonometrycznymi:

**Wartość na podziałce = szerokość geograficzna -  $60^\circ + \arctan((\cos(B-G) - 0,151) / \sin(BG))$**

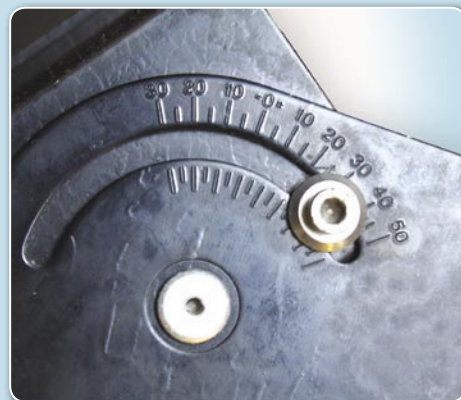
Jak tylko antena (do 120 cm średnicy, albo płaska) ustawimy na tę wartość, gotowi jesteśmy do przykręcenia jej do rotora. Wykorzystując rowek prowadzący rotora, czasę ustawia się dokładnie na południe (północ).

W większości przypadków nie uzyskamy natychmiastowego odbioru. Po pierwsze obrotnicę trzeba obrócić na wybranego satelitę, albo ręcznie, albo przy pomocy odbiornika. Zazwyczaj jednak odbiornik zlokalizowany jest w innym miejscu i trudno go wykorzystać. Może tu pomóc niedrogi miernik satelitarny podłączony do kabla antenowego. Taki miernik może nam się przydać również i później, jeśli na przykład silny wiatr przestawi naszą antenę. Wskaźnik miernika satelitarnego pokaże nam, kiedy osiągnęliśmy maksimum sygnału. Dla ustawienia pochylenia w korzystamy z podziałki elewacji, dla ustawienia azymutu obracamy antenę na rotorze.

### Metalowy napęd pracuje cicho i precyzyjnie



Zaznaczenie potrzebne do skierowania obrotnicy na południe



Wartość elewacji ustawiona na antenie



Rowek prowadzący na rotorze dla prawidłowego zorientowania anteny na południe

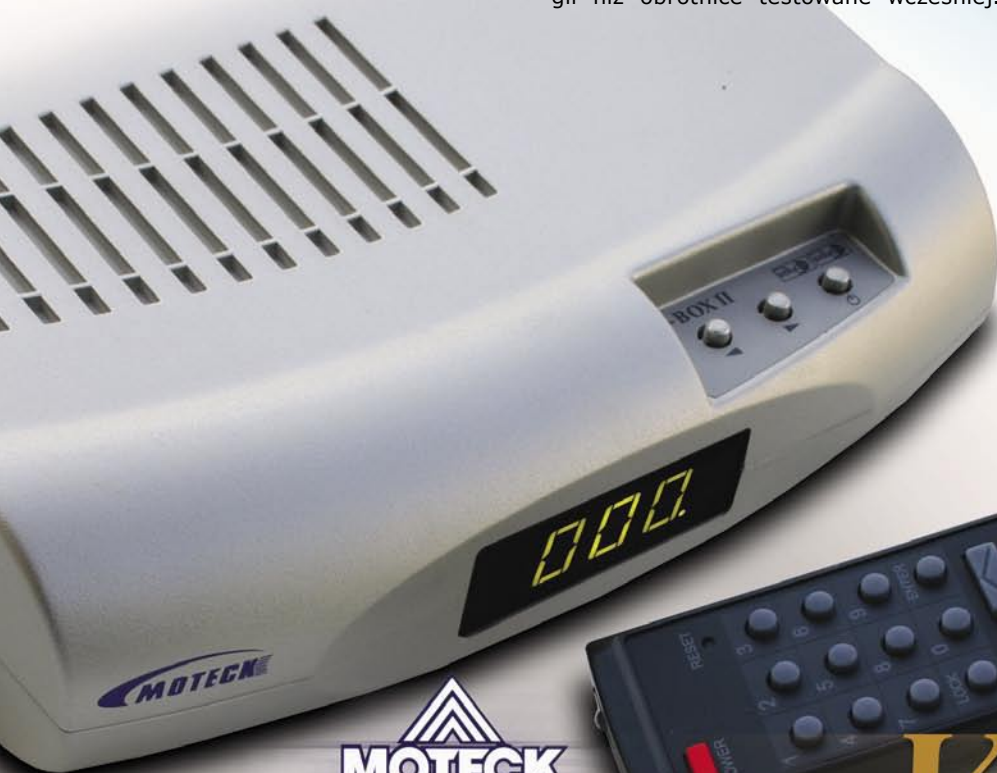


Ustawianie anteny według rowka prowadzącego

Innowacyjny napęd metalowy zastosowany w SG-2500 jest bardzo interesujący. Nasze testy pokazały, że nowy napęd rzeczywiście pracuje ciszej w całym zakresie ruchu od  $75^\circ E$  do  $75^\circ W$ , a jednocześnie nie pobiera więcej energii niż obrotnice testowane wcześniej.

Dzięki temu antena jest niesłyszalna dla naszych sąsiadów. Jeśli do tego zastosujemy nie budzącą zainteresowania płaską antenę, to nie damy nikomu żadnego pretekstu do narzekań ze względu na hałas czy wygląd.

Testy wykazały ponadto, że wyeliminowana została inna słabość napędów spotykanych do tej pory. Dzięki opatentowanemu rozwiązaniu, błąd nastawy wału napędowego został praktycznie wyeliminowany. Oznacza to, że antena będzie doskonale nakierowana na każdego satelitę bez względu na to skąd rozpocznie się jej obrót. Nawet satelity odległe zaledwie o trzy stopnie dają się teraz niezawodnie odseparować. Potwierdziły to nasze badania. Wyszukiwanie transponderów



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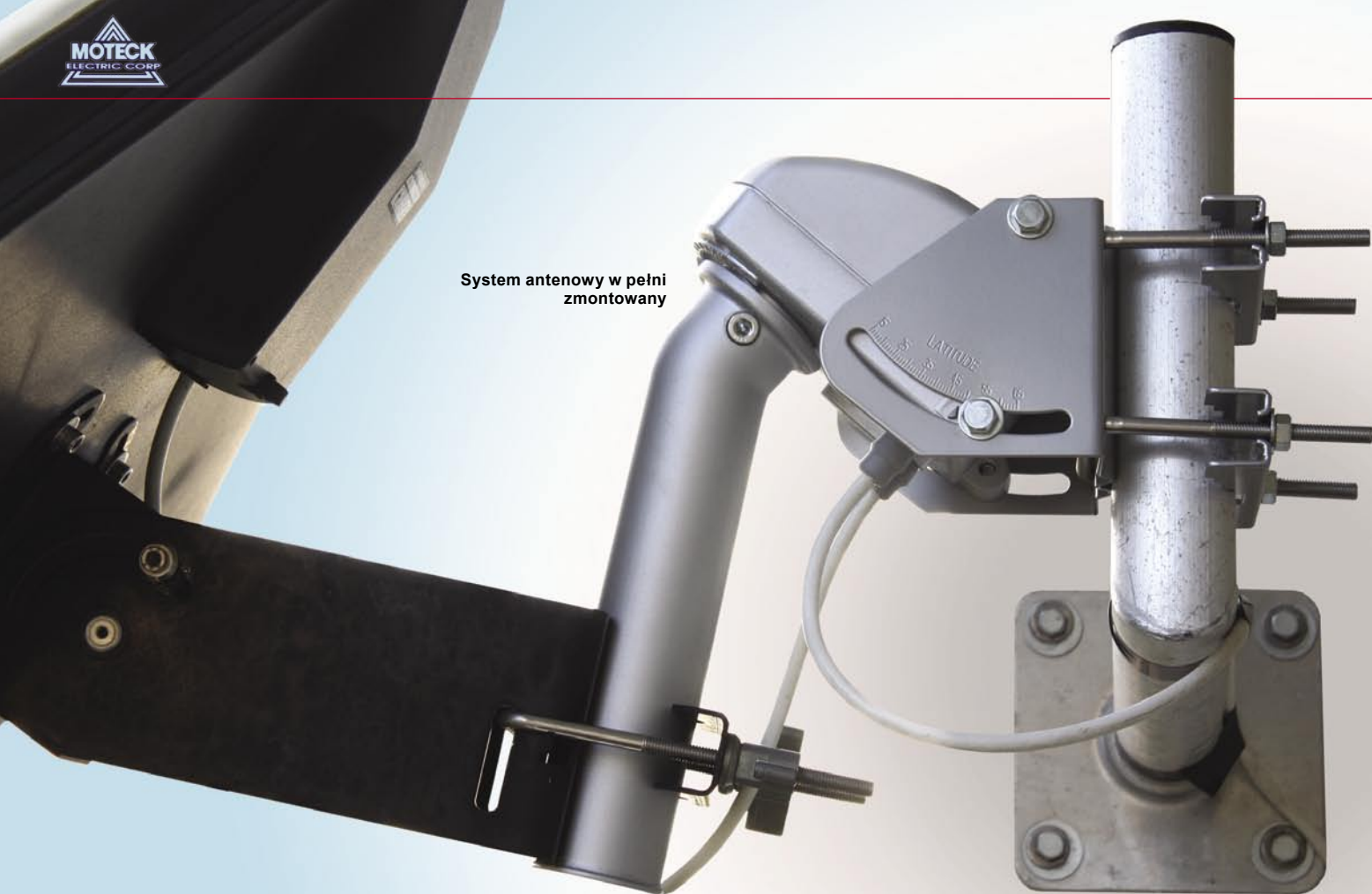


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System antenowy w pełni zmontowany



nie wykryło żadnego transpondera z satelity sąsiada. Równocześnie poprawił się sygnał ze słabych transponderów.

Nowa obrotnica MOTTECK SG-2500 pracuje niezawodnie i cicho. Jej nowy system zapewniający brak błędów obrotu wałka napędowego umożliwia precyzyjną separację pozycji satelitarnych i w konsekwencji maksymalizuje jakość odbioru. Przy połączeniu z odbiornikiem wyposażonym w DiSEqC 1.3, system działa w pełni automatycznie.



Panel połączeniowy obrotnicy

## Zdaniem eksperta

+

Optymalna ochrona antykorozyjna, ekstremalnie niski poziom hałasu, precyzyjne pozycjonowanie bez błędów, nadaje się zarówno na półkulę północną jak i południową.

-

Instrukcja obsługi tylko po angielsku, fabryczna pamięć pozycji nieaktualna.



Heinz Koppitz  
TELE-satellite  
Test Center  
Germany

## Co znaczy USALLS, a co GAAPS?

**Oba terminy związane są z metodami obliczeń dla automatycznego pozycjonowania anten satelitarnych. Pozycja każdego satelity jest podawana jako kąt między południkiem zerowym, a pozycją orbitalną. Jest to kąt geocentryczny, czyli obliczany względem środka ziemi.**

**Dla systemu horyzontalnego w rzeczywistej lokalizacji, specyficznej dla naszego miejsca zamieszkania, musimy przeliczyć ten kąt, aby uzyskać kąt dla danego satelity.**

**Włoski producent obrotnic Stab jako pierwszy zaproponował wbudowanie w odbiornik przeliczenia kąta dla wprowadzonej pozycji geograficznej. System ten został nazwany USALS, Universal Satellite Automatic Location System.**

**MOTTECK dla swojego systemu wybrał nazwę GAAPS, co oznacza Global Automatic Antenna Positioning System.**

**To przeliczanie koordynat geograficznych nie jest wbudowane w samą obrotnicę. Dostaje ona sygnał sterujący (komenda Goto-X) z odbiornika pracującego zgodnie z protokołem DiSEqC 1.2. Przeliczanie jest zadaniem odbiornika.**

**Zwróćmy jednak uwagę, że jeśli nawet takie przeliczanie jest zaimplementowane w odbiorniku, to wcale nie musi on nosić zastrzeżonego znaku USALS. Często trzeba sprawdzić w instrukcji obsługi czy cecha ta jest dostępna.**

**Niektóre odbiorniki i obrotnice, mogą być tylko oznakowane jako „kompatybilny z DiSEqC 1.3” lub „kompatybilny z Goto-X”.**

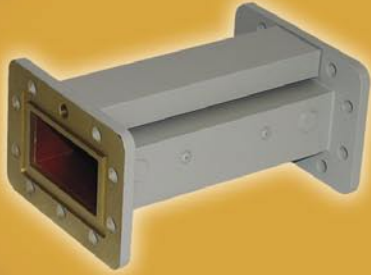




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# Jiuzhou Skytrack JSU33

## LNBF do systemów wielokonwerterowych

*Jeśli zapytamy fana satelitarnego, co jest najważniejsze przy wyborze konwertera do odbioru w paśmie Ku, usłyszymy prawdopodobnie, że wzmocnienie przemiany i liczba szumowa. To pierwsze powinno być jak największe, natomiast liczba szumowa – odwrotnie, im mniejsza, tym lepsza. Pewnie większość naszych czytelników wie, że duże wzmocnienie przemiany oznacza, że sygnał wyjściowy z LNBF jest wysoki i dzięki temu możemy zastosować długie kable antenowe, rozdzielacze mocy i przełączniki sygnału bez obawy, że sygnał osłabi się tak bardzo, że stanie się bezużyteczny.*



Redaktor ds. Testów TELE-satelity Jacek Pawłowski montuje nowe LNBF Skytrack z Jiuzhou na typowej antenie podświetlanej skierowanej na satelitę HOTBIRD (13° E). JSU33 jest zaskakująco małe i lekkie.







Arabic	العربية	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/ara/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/ara/jiuzhou.pdf</a>
Indonesia	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/bid/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/bid/jiuzhou.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/bul/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/bul/jiuzhou.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/ces/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/ces/jiuzhou.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/deu/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/deu/jiuzhou.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/eng/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/eng/jiuzhou.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/esp/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/esp/jiuzhou.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/far/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/far/jiuzhou.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/tra/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/tra/jiuzhou.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/hel/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/hel/jiuzhou.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/hrv/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/hrv/jiuzhou.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/ita/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/ita/jiuzhou.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/mag/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/mag/jiuzhou.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/man/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/man/jiuzhou.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/med/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/med/jiuzhou.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/pol/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/pol/jiuzhou.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/por/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/por/jiuzhou.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/rom/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/rom/jiuzhou.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/rus/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/rus/jiuzhou.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/sve/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/sve/jiuzhou.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/tur/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0907/tur/jiuzhou.pdf</a>

 Available online starting from **29 May 2009**

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

**Tabl. 1. Transpondery wykorzystane jako sygnał testowy**

Mała liczba szumowa zapewne dobry stosunek sygnału do szumu na wyjściu konwertera, lub bardziej poprawnie przy transmisjach cyfrowych: stosunek nośnej do szumu (C/N). Niski C/N potrzebny nam jest aby odbierać słabsze transpondery. Zapewnia również wysoki margines odbioru na złe warunki pogodowe. Niestety przewidzenie osiągnięć szumowych rzeczywistego urządzenia nie jest takie proste. Oprócz liczby szumowej są jeszcze inne parametry wpływające na stosunek nośna-szum.

Tymi parametrami są: szum fazowy lokalnego oscylatora LNBF i zawartość w jego sygnale niepożądanych składników, izolacja przeciwnej polaryzacji, poziom intermodulacji czy tłumienie sygnałów lustrzanych. Jedyną praktyczną metodą oceny LNBF jest poddanie konwertera próbie odbioru rzeczywistych sygnałów. Obecność sąsiednich transponderów utrudnia „życie” LNBF i pogarsza jego stosunek nośnej do szumu.

W takich testach porównujemy osiągi badanego konwertera z innymi dostępnymi na rynku. To samo zrobiliśmy w przypadku LNBF Jiuzhou – Skytrack JSU33. Jego liczba szumowa deklarowana jest jako 0,6 dB. Porównaliśmy go z dwoma innymi współczesnymi konwerterami: jednym z NF specyfikowanym jako 0,3 dB i drugim z NF = 0,2dB.

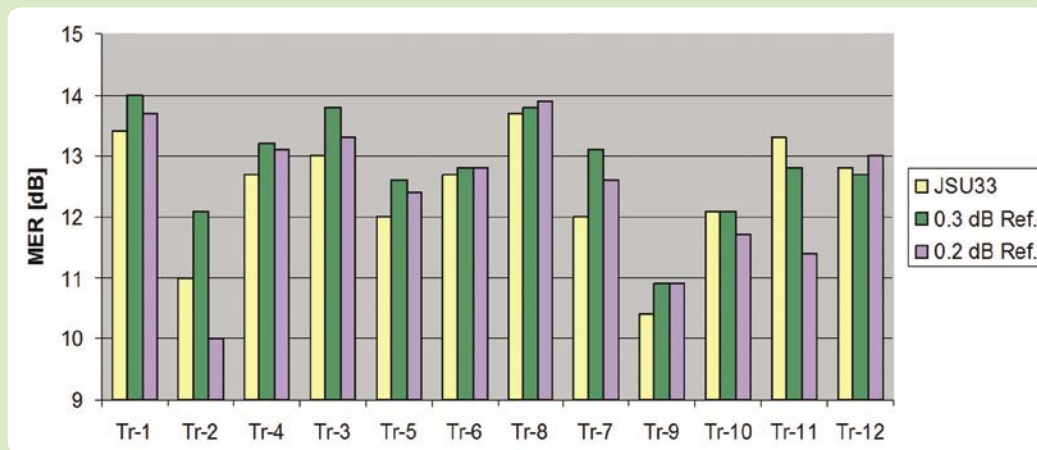
Do naszego testu wybraliśmy 12 transponderów z satelity HOTBIRD (13° E). Ich parametry podajemy w tablicy 1. Jak widać mamy tu po 3 transpondery na każde podpasmo (wyższe i niższe) i na każdą polaryzację. W ten sposób sprawdzamy osiągi dla obu częstotliwości LOF: 9750 i 10600 MHz, obu polaryzacji: pionowej i poziomej, na początku, w środku i na końcu podpasma.

Rysunek 1 przedstawia osiągi szumowe konwerterów. MER to stosunek błędów modulacji – parametr silnie

czterech pobił on co najmniej jednego z rywali, a raz nawet obu (Tr-11). I tak, macie rację, konwerter 0,2 dB wcale nie wypadł lepiej niż LNBF 0,3 dB! Oto dlaczego, jak tłumaczyliśmy wcześniej, nie

Zwłaszcza dotyczy to konwertera 0,3 dB, który wygrał w osiągnięciach szumowych.

Jakie wnioski można wyciągnąć z tych wyników? Silną stroną Skytrack


**Rys. 1. MER dla dwunastu różnych transponderów z satelity HOTBIRD (13° E).**

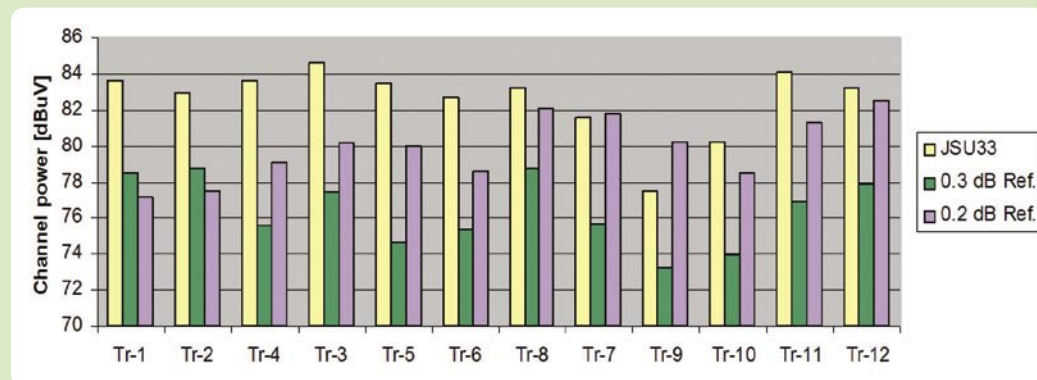
związany ze stosunkiem C/N i mówiący nam jak wiele błędów pojawia się w sygnale wyjściowym. Czy musimy dodawać, że te błędy wynikają z szumu? Im lepsze parametry szumowe konwertera, tym wyższy wynik MER.

O ile dla 8 transponderów o niższych częstotliwościach, osiągi szumowe JSU33 były gorsze niż pozostałych urządzeń, to dla pozostałych

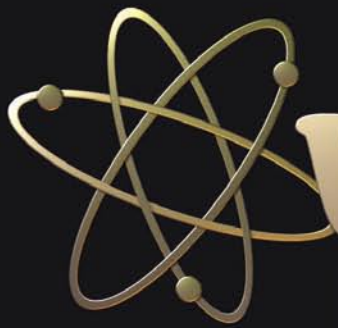
naależy kierować się wyłącznie parametrem liczby szumowej. Tylko prawdziwy test potrafi wykazać, który konwerter radzi sobie najlepiej!

A co z drugim parametrem? Przedstawiamy go na rysunku 2. Tu sytuacja jest odwrotna – to JSU 33 bije obu konkurentów. Dla 11 z 12 transponderów jego poziom sygnału wyjściowego był większy niż u konkurencji.

JSU33 jest jego duży poziom sygnału na wyjściu. Taki konwerter wybiorą ci, którzy planują odbiór wielokonwerterowy z użyciem multiprzełączników i długich kabli rozprowadzających sygnał do wielu odbiorników. Inną zaletą tego konwertera w systemach multifeed jest jego niewielki przekrój i waga (ok. 100 g) w porównaniu do innych typowych urządzeń.


**Rys. 2. Moc wyjściowa konwerterów.**





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INDONESIA



## Zdaniem eksperta

+

Lekki LNBF o małym przekroju, świetnie nadający się do instalacji wielokonwertorowych. Jego duży sygnał wyjściowy to kolejna zaleta w tego typu instalacji. Dobre wykończenie.



Jacek Pawłowski  
TELE-satellite  
Test Center  
Poland

-

Nie będzie to wybór DX-mana.

### 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 / hxyamar@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.





## Intelsat / GVF Type Approved

- Original designer of patented rolled edge reflector
- Production capacity  
( $\geq 1$  Million units per month)
- High performance
- Highly accurate reflector surface ( $RMS \leq 0.1mm$ )
- State of art test equipments and facilities

**VSAT Antenna System**  
**DTH Antenna System**  
**Fly Away, Movable Antenna**



### AZURE SHINE INTERNATIONAL INC.

No. 1000, Gwang Fu Road, Pa Teh City, Taoyuan, 33455, Taiwan R.O.C.  
[Http://www.azureshine.com.tw/](http://www.azureshine.com.tw/) E-mail: [azure.shine@azureshine.com.tw](mailto:azure.shine@azureshine.com.tw)  
 Tel: 886-3-3611393 Fax: 886-3-3615877



## TEHNIC B

B-dul 16 Decembrie Nr. 41  
 Timisoara, Romania  
 tel: 0040 356 006000  
 fax: 0040 356 006003  
 mail: [tehnich@rdstm.ro](mailto:tehnich@rdstm.ro)  
 web: [www.tehnicb.ro](http://www.tehnicb.ro)



OFFSET SATELLITE ANTENNA, STEEL  
 60 / 70 / 80 / 90 cm



DIGILINE SINGLE LNB



THB-SAT TWIN LNB



WALLMOUNT SPD 21 cm



WALLMOUNT SPL 38 cm



INTELSAT-HOTBIRD  
 DOUBLE LNB HOLDER



DISEQC 2/1 SWITCH



TELEMANN 1600  
 DIGITAL SATELLITE METER



THB-SAT RG-6U COAX CABLE  
 ROLL 100m or 300m



F-CONNECTOR (100 Pcs)

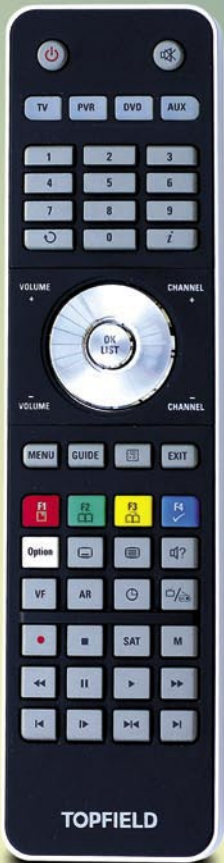
The products can be branded. In case of larger order the products will be delivered free of charge.



# AWARD WINNING

**SATELLITE  
PRODUCTS OF  
21<sup>ST</sup> CENTURY**





Manufacturer	Topfield
Website	www.topfield.co.kr
Function	Digital HDTV DVB-S2 Receiver with Various Multimedia Features
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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[www.TELE-satellite.com/...](http://www.TELE-satellite.com/)

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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/bid/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/bid/topfield.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/bul/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/bul/topfield.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/ces/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/ces/topfield.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/deu/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/deu/topfield.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/eng/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/eng/topfield.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/esp/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/esp/topfield.pdf</a>
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>
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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>
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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>
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Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/rus/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/rus/topfield.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/sve/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0907/sve/topfield.pdf</a>
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>
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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>
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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>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/man/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/man/abipbox.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/ned/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/ned/abipbox.pdf</a>
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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>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0905/sve/abipbox.pdf">www.TELE-satellite.com/TELE-satellite-0905/sve/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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| 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

**TELE-satellite World**

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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> |
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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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| 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	● / ●

**TELE SATELLITE AWARD & BROADBAND**  
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>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/esp/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/esp/dizipia.pdf</a>
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>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/fra/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/fra/dizipia.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/hel/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/hel/dizipia.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/hrv/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/hrv/dizipia.pdf</a>
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>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/man/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/man/dizipia.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/ned/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/ned/dizipia.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/pol/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/pol/dizipia.pdf</a>
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>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/sve/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/sve/dizipia.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0903/tur/dizipia.pdf">www.TELE-satellite.com/TELE-satellite-0903/tur/dizipia.pdf</a>



**DIZIPiA**  
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	● / ●

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12-01/2009

**JIUZHOU DTS6600**  
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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/bid/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/bid/jiuzhou.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/bul/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/bul/jiuzhou.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/ces/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/ces/jiuzhou.pdf</a>
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English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/eng/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0901/eng/jiuzhou.pdf</a>
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>
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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>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/deu/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/deu/opensat.pdf</a>
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>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/esp/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/esp/opensat.pdf</a>
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>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/fra/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/fra/opensat.pdf</a>
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Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/hrv/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/hrv/opensat.pdf</a>
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Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/mag/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/mag/opensat.pdf</a>
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Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/pol/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/pol/opensat.pdf</a>
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Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/rom/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/rom/opensat.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/rus/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/rus/opensat.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/sve/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/sve/opensat.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/tur/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0901/tur/opensat.pdf</a>



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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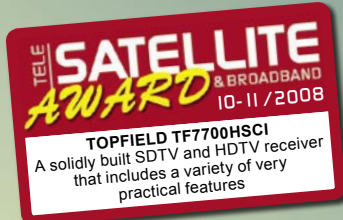
Arabic	العربية	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/ara/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/ara/abcom.pdf</a>
Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/bid/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/bid/abcom.pdf</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>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/eng/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/eng/abcom.pdf</a>
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>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/far/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/far/abcom.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/fra/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/fra/abcom.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0901/hel/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0901/hel/abcom.pdf</a>
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>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/por/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0811/por/topfield.pdf</a>
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>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ces/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/ces/sonicview.pdf</a>
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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>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/hel/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/hel/sonicview.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/hrv/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/hrv/sonicview.pdf</a>
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>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/pol/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/pol/sonicview.pdf</a>
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>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/sve/sonicview.pdf">www.TELE-satellite.com/TELE-satellite-0811/sve/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	— / —

**TELE SATELLITE AWARD & BROADBAND**  
**10-11/2008**  
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 Easy to use receiver for big motorized dishes at an economic price

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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/bid/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/bid/venus.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/bul/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/bul/venus.pdf</a>
Czech	Česky	<a href="http://www.TELE-satellite.com/TELE-satellite-0811/ces/venus.pdf">www.TELE-satellite.com/TELE-satellite-0811/ces/venus.pdf</a>
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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>
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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>
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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>
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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>
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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>
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**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>
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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>
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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>
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Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0809/pol/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0809/pol/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>
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**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	• / •

**TELE SATELLITE AWARD & BROADBAND**  
06-07/2008

**ARION AF9400PVR HDMI**  
A solid and easy to use receiver that with its Scaler can present satellite channels in excellent quality.

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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>
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**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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04-05/2008

**NANOXX 9500HD**  
Small enclosure, superbly crisp picture, extremely fast channel search, and connection for HDD

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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>
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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>
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**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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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>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/hel/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0805/hel/topfield.pdf</a>
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>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/mag/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/mag/opensat.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/man/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/man/opensat.pdf</a>
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>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/pol/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/pol/opensat.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/por/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/por/opensat.pdf</a>
Romanian	Românesc	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/rom/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/rom/opensat.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/rus/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/rus/opensat.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/sve/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/sve/opensat.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0805/tur/opensat.pdf">www.TELE-satellite.com/TELE-satellite-0805/tur/opensat.pdf</a>



**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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02-03/2008

**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>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/bul/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/bul/topfield.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/deu/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/deu/topfield.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/eng/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/eng/topfield.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/esp/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/esp/topfield.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/far/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/far/topfield.pdf</a>
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Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/hel/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/hel/topfield.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/hrv/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/hrv/topfield.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/ita/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/ita/topfield.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/mag/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/mag/topfield.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/man/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/man/topfield.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/ned/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/ned/topfield.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/pol/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/pol/topfield.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/por/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/por/topfield.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/rus/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/rus/topfield.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/sve/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/sve/topfield.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/tur/topfield.pdf">www.TELE-satellite.com/TELE-satellite-0803/tur/topfield.pdf</a>



**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

**AB IPBOX 350PRIME PVR**  
A Linux-based Receiver as Powerful as Never Before

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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/bid/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/bid/abcom.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/bul/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/bul/abcom.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/deu/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/deu/abcom.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/eng/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/eng/abcom.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/esp/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/esp/abcom.pdf</a>
Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/far/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/far/abcom.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/fra/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/fra/abcom.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/hel/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/hel/abcom.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/hrv/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/hrv/abcom.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/ita/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/ita/abcom.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/mag/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/mag/abcom.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/man/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/man/abcom.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/ned/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/ned/abcom.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/pol/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/pol/abcom.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/por/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/por/abcom.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/rus/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/rus/abcom.pdf</a>
Swedish	Svenska	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/sve/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/sve/abcom.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0803/tur/abcom.pdf">www.TELE-satellite.com/TELE-satellite-0803/tur/abcom.pdf</a>



**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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12-01 / 2008

**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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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/bid/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/bid/arionHDCI.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/bul/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/bul/arionHDCI.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/deu/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/deu/arionHDCI.pdf</a>
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>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/fra/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/fra/arionHDCI.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/hel/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/hel/arionHDCI.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/hrv/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/hrv/arionHDCI.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/ita/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/ita/arionHDCI.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/mag/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/mag/arionHDCI.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/man/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/man/arionHDCI.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/ned/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/ned/arionHDCI.pdf</a>
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>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/rus/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/rus/arionHDCI.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/tur/arionHDCI.pdf">www.TELE-satellite.com/TELE-satellite-0801/tur/arionHDCI.pdf</a>



**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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Indonesian	Indonesia	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/bid/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/bid/zimple.pdf</a>
Bulgarian	Български	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/bul/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/bul/zimple.pdf</a>
German	Deutsch	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/deu/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/deu/zimple.pdf</a>
English	English	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/eng/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/eng/zimple.pdf</a>
Spanish	Español	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/esp/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/esp/zimple.pdf</a>
French	Français	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/fra/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/fra/zimple.pdf</a>
Greek	Ελληνικά	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/hel/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/hel/zimple.pdf</a>
Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/hrv/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/hrv/zimple.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/ita/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/ita/zimple.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/mag/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/mag/zimple.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/man/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/man/zimple.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/ned/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/ned/zimple.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/pol/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/pol/zimple.pdf</a>
Russian	Русский	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/rus/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/rus/zimple.pdf</a>
Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0801/tur/zimple.pdf">www.TELE-satellite.com/TELE-satellite-0801/tur/zimple.pdf</a>



**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  
 Digital Video Broadcasting

P:93% Q:25% playing  
 >>12.The Voice  
 Digital Video Broadcasting

**TELE SATELLITE AWARD & BROADBAND**  
 10-11/2007  
**JIUZHOU DVS-2018BS**  
 Very Stable, Solid Receiver for Professional Use

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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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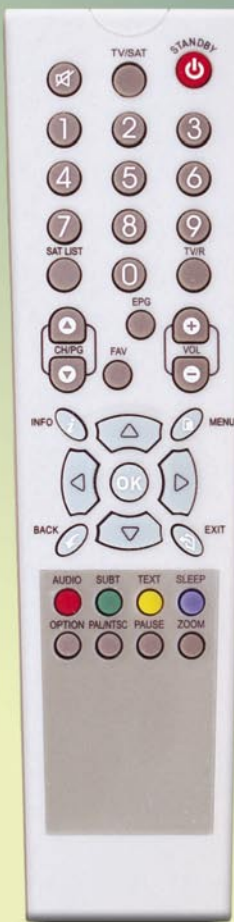
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**JIUZHOU**





Manufacturer	ABC Biznis
Website	www.opensat.info
Function	Fast satellite receiver with two CI slots
DVB-S2/LAN	- / -
Channel Memory	6000
DiSEqC	1.0 / 1.2
S-Video/HDMI	- / -
Scart/Digital Audio	• / -

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**OPENSAT**



Manufacturer	AB-COM
Website	www.abcom.sk
Function	Digital Linux-based PVR satellite 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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# Innowacja z Tajlandii



■ Niran Tangpiroontham (po lewej), szef INFOSATA, oraz Alexander Wiese (po prawej), Redaktor Naczelny TELE-satellite, przed kwaterą główną INFOSATA w Nontaburi, na północnych przedmieściach Bangkoku.

Nawet w produkcji od dawna znanym, takim jak antena na pasmo C, można wprowadzić ulepszenie. Kilka miesięcy temu INFOSAT z Tajlandii zaprezentował po raz pierwszy swoją 1,5 metrową antenę jednoelementową. Sukces rynkowy okazał się natychmiastowy! Siłą napędową nowego produktu jest Niran Tangpiroontham, założyciel i właściciel firmy INFOSAT. Przedsiębiorca ten pojawiał się już na stronach TELE-satellite. Opisywaliśmy Nirana i jego nowe pomysły w dwóch wydaniach TELE-satellite: 02-03/2007 i 02-03/2008.

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02-03/2008 TELE-satelite...



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tym samym miejscu w marcu 2009.  
Tu gdzie jeszcze kilka miesięcy temu  
było pole, dziś stoi nowa fabryka.



■ Nie chodzić po antenach! To ostrzeżenie nie dotyczy nowej, jednoelementowej anteny. Niran demonstruje jak solidna jest nowa antena. „Instalatorzy uwielbiają tę nową czaszę”, z dumą opisuje nową czaszę. Już nie muszą poświęcać czas na skręcanie poszczególnych segmentów. Szybciej kończą pracę, a nowa antena jest bardzo trwała.



■ Kolejna innowacja INFOSATA: Niran pokazuje prototyp wielowyciowego LNB na pasmo C/Ku przeznaczonego do podłączenia do multiprzelącznika. Konwerter na pasmo C wyposażony jest w wyjście polaryzacji poziomej i pionowej, natomiast na pasmo Ku LNB ma tylko wyjście polaryzacji pionowej. Będzie wykorzystywana na rynku krajowym w Tajlandii do odbioru THAICOM na 87,5° Ew paśmie C i NSS 6 na 95° Ew paśmie Ku. „Inżynierowie pracują nad zbudowaniem konwertera na pasmo Ku na obie polaryzacje, ale muszą przezwyciężyć spore problemy techniczne”, Niran wyjaśnia dlaczego jego kombinowany konwerter potrafi w paśmie Ku odbierać tylko polaryzację pionową.

Ostatnie artykuł w TELE-satelicie poświęcony INFOSATOWI na początku 2008 roku zawierał między innymi fotografię pustego pola. Tak było wtedy. Dziś na tym polu stoi nowa hala produkcyjna: „To Fabryka nr 2 INFOSATA” wyjaśnia dumny Niran. Wskazuje na robotników budowlanych wykańczających budynek: „Zanim wyjdzie to wydanie TELE-satelity fabryka będzie już produkować.” Fabryka nr 1 jest u kresu swoich zdolności produkcyjnych. Kilka tygodni temu rozpoczęto tam produkcję wspomnianej anteny jednoelementowej.

„Fabryka nr 1 ma 2400 m2, Fabryka nr 2 – 2500 m2”, tłumaczy Niran. Pierwszy zakład jest własnością INFOSAT, druga fabryka jest wynajmowana. „To pozwoliło zaoszczędzić środki na niezbędne inwestycje w maszyny”, Niran ujawnia nam swoje decyzje. Nabył dwie dodatkowe wyciarki i teraz w sumie pięć maszyn wykonuje otwory w zwojach aluminium o grubości 0,5 mm, z których wykonuje się segmenty anten siatkowych.

Zdecydowanie największą inwestycją musiała być lakiernia. Służy ona do malowania elementów anteny. „Te wszystkie nowe maszyny wymagały inwestycji o wartości ponad 400 000 \$” mówi Niran. Fabryka nr 1 zorientowana jest na produkcję i montaż czasz ante-

■ Pierwszy etap produkcji jednoelementowej anteny INFOSATA: ramę anteny łączy się przy pomocy spawania na okrągłym stole. Robotnik na pierwszym planie montuje płytę wsporczą w centralnej części ramy.





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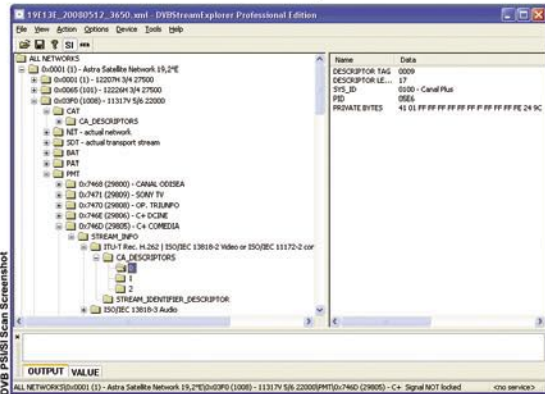
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- ✓ TeleText Analyzer
- ✓ DVB MPE scanning
- ✓ Service Player
- ✓ Real-time Transport Stream Monitor
- ✓ Saving of collected information as text/CSV
- ✓ Supports most BDA compatible devices and specific non-BDA devices\*



### DVB PSI/SI Scanning

- Scanning of PSI/SI information as defined in ISO13818-1 and EN 300 468.
- Parsing of PAT, CAT, BAT, NIT, SDT, EIT, TDT, TOT, RST, AIT (MHP), PMT and INT tables, including most descriptors.
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### ATSC PSI/PSIP Scanning

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- Parsing of SST, MGT, TVCT, CVCT, RRT, EIT, ETT, DCCT and DCCSCT tables, including most descriptors.

### DVB DSMCC scanning

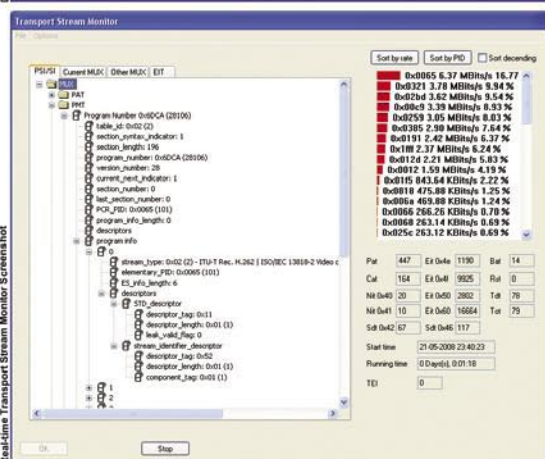
- Scanning of DVB DSMCC data- and object carousel's as defined in ISO13818-6 and EN 301 192.
- DSMCC is used for distribution of i.e. MHP applications.
- Parsing of DSMCC sections.
- View information about DSMCC data-carousels.
- View information about DSMCC object-carousels.
- Saving of DSMCC data- 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.
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- Scan for active IPV4, IPV6, TCP and UDP endpoints.

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■ Segmenty siatkowe przykręcane są do ramy antenowej – 1,5 metrowa jednosegmentowa czasza INFOSAT jest gotowa.



■ W oczekiwaniu na wysyłkę - anteny spakowane są po trzy sztuki. Na zdjęciu Niran podtrzymuje jeden taki zestaw. Na palecie mieści się do dwudziestu zestawów. Generalnie jedna paleta to minimalne zamówienie zagraniczne.

nowych, natomiast drugi zakład lakieruje gotowe anteny, pakuje je i przygotowuje do wysyłki.

Słyszając o tak wysokich inwestycjach w ostatnim okresie, nie sposób nie zacząć zastanawiać się czy Tajlandię jakimś cudem ominął światowy kryzys ekonomiczny? „Nie, wcale nie”, odpowiada Niran, „zaczął się we wrześniu ubiegłego roku stopniowym zmniejszaniem się kontraktów handlowych.” Początkowo Niran nie wiedział co robić. Jego pracownicy zaczęli się robić nerwowi. Wtedy Niran wpadł na właściwe rozwiązanie: ceny na aluminium i stal, dwa główne surowce potrzebne do produkcji anteny spadły, więc poczynając od stycznia 2009 obniżyłem cenę anten INFOSATA o 10%.” Jak tylko ogłoszono nowe ceny, zamówienia zaczęły znów napływać. „Dziś często musimy pracować siedem dni w tygodniu, aby zrealizować wszystkie zamówienia”, z uśmiechem na ustach wyjaśnia Niran. Jest bardzo zadowolony ze swojej decyzji obniżenia ceny. Zapasy magazynowe niesprzedanych anten,apełniające fabrykę pod koniec 2008 roku zniknęły całkowicie. „Dzisiaj antena jest sprzedawana jak tylko ją wyprodukujemy; dilerzy muszą czekać na realizację swoich zamówień!” Pierwsza fabryka była w stanie produkować do 10 000 czasz na miesiąc. Po uruchomieniu drugiej fabryki, zdolności produkcyjne wzrosną do 15 000.

Niran przyznaje, że światowy kryzys ma także swoje dobre strony. Nie tylko spadły ceny na surowce, również naciski na zwiększanie płac znacznie osłabły. „70% moich pracowników jest lojalnych, jednak pozostałe 30% bez wahania przeszłoby do innej firmy, jeśli tylko otrzymaliby 1% podwyżki pensji.” Lojalność pracowników to ważny aspekt w firmie liczącej 60 robotników i 30 pracowników administracji.

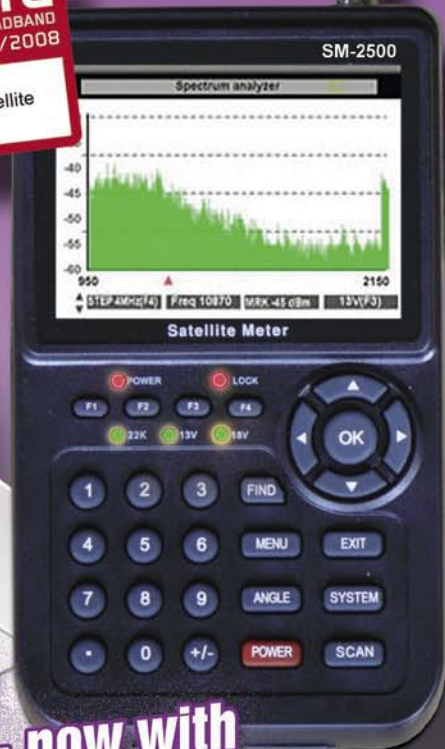
Podczas lunchu w restauracji Chao Praya River, tuż przy fabryce i zaledwie 20 km od centrum Bangkoku, Niran ujawnia swoje plany na przyszłość: „Najpopularniejszym odbiornikiem sprzedawanym w Tajlandii jest ZIMPLE Box 4, którego miesięcznie sprzedaje się 30 000 sztuk”. Do tej pory wykonywane one były według jego wymagań w Chinach. Jednak trzeba w takiej sytuacji płacić 20% cło importowe, a odbiornik



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■ **Różowa antena? Kto kupi coś takiego? Jiraporn Tangpiroontham, lepsza połowa Nirana i menadżer produkcji, wyjaśnia, „5% naszych anten sprzedawanych jest w tym kolorze. Kupującymi są kobiety, które najwyraźniej lubią ten kolor.” Jednak większość sprzedawanych czasz, tj. około 60% jest niepomalowanych, ponieważ to jest najtańsza wersja anteny. 35% z nich zamawianych jest w kolorze czarnym. Inne kolory oferowane przez INFOSAT są dostępne tylko na specjalne zamówienie.**



■ **Obecnie odbiornik ZIMPLE 4 Box jest ciągle produkowany w Chinach według specyfikacji określonej przez INFOSAT. Przed sprzedażą, ładowane jest własne oprogramowanie H20 INFOSATA oraz najświeższe dane transponderów.**



■ **Nowa druga fabryka INFOSATA, która rozpocznie działanie wraz z publikacją tego numeru TELE-satelite.**





■ Oddział Wysyłek – tutaj codziennie odprawia się przesyłki do dilerów.

ma napis „Made in China”. Jeśli importowałyby je w modułach SKD (Semi Knocked Down), cło importowe wyniosłoby tylko 10%, a odbiorniki mogłyby być ostemplowane jako „Made in Thailand”. Niektóre kraje wolą „Made in Thailand”, tłumaczy Niran uzasadniając swój pomysł na składania odbiorników w Tajlandii. Równocześnie rozważa wszystkie dodatkowe koszty, jakie to rozwiązanie pociąga za sobą. Niran bije się z myślami czy powinien zabrać się do pociągu pod nazwą wytwarzanie odbiorników, czy pozostać w bardziej komfortowej strefie sprowadzania ich gotowych z Chin. Oficjalnie Niran nie zdecydował się jeszcze. Ale zaraz, zaraz... Jeśli przyjrzeć się bliżej nowej fabryce, to jest tam przecież obszar zarezerwowany na linię montażową odbiorników.

Niran stawia sobie ambitne cele. Mimo, że rok 2009 oficjalnie kategoryzuje się jako rok recesji, on stawia sobie trudny cel” „W roku 2008 INFOSAT osiągnął obrót 10 milionów dolarów, w roku 2009 oczekuję 20 procentowego wzrostu!” Uważamy, że naprawdę ma spore szanse na osiągnięcie takiego wyniku!



■ Robotnicy zajęci są instalacją nowej komory lakierniczej. Ona także będzie już w pełni uruchomiona, kiedy to wydanie TELE-satellity dotrze do kiosków.



# Nowy typ DX- mana: HDTV- owiec

*TELE-satelita regularnie przedstawia DX-manów. Jak dotąd, w kategorii tej mieścili się ci wszyscy, dla których konikiem był odbiór satelitarny. Teraz zaczyna się pojawiać nowa grupa: DX-man HDTV! To ci, których interesują wyłącznie kanały HDTV w DVB-S2 i nic poniżej tego poziomu. Jednego z pierwszych specjalizujących się w odbiorze HDTV spotkaliśmy, co dziwne, w Pekinie - a może właśnie, dlatego że w Pekinie? Prywatny odbiór HDTV nie jest w Chinach dozwolony z wyjątkiem terenów niezabudowanych, zatem zawężenie się do HDTV jest podwójnie nietypowe.*



■ Kupiona zaledwie dwa dni temu: 2.4 metrowa antena, którą Applesat zamierza zainstalować w najbliższych dniach. Jednometrowa czasza jest ustawiona na stałe i skierowana jest na ASIASAT.

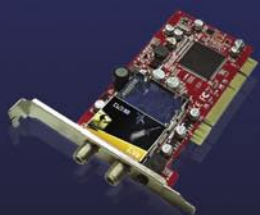




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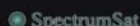
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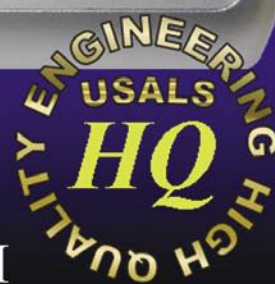
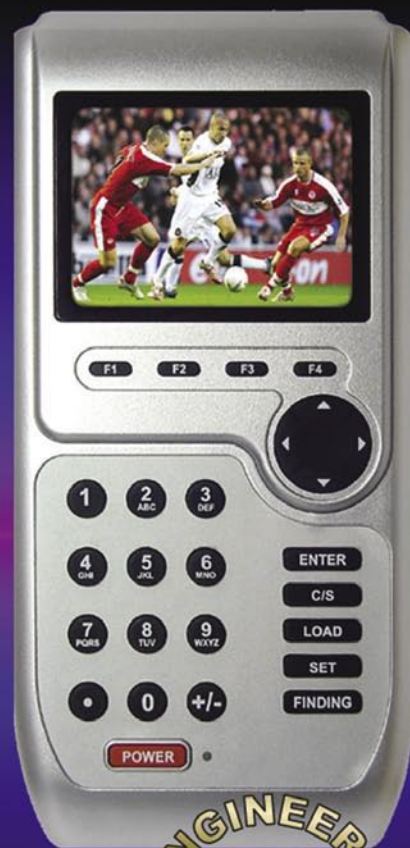
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■ 60-centymetrowa antena Applesata z trzema LNB odbiera TELSTARA 18 na 138° E, AGILE na 146° E i APSTARA 6 na 134° E.

Ten DX-man HDTV przyjął pseudonim „Applesat”. Wyjaśnia nam dlaczego: „W wieku 15 lat zacząłem interesować się odbiorem satelitarnym. W owych czasach Chiny były jeszcze bardzo izolowane, więc odbiór zagranicznych programów stworzył przede mną zupełnie nowy świat. Wtedy wyobrażałem sobie, że Ziemia jest jak jabłko, wokół którego krążą satelity.”

Jego rodzicom nie podobało się nowe hobby syna, ale Applesat specjalnie się tym nie przejmował. Zaczął z 1,5 metrową anteną nastawioną na odbiór ASIASATA 1. Był rok 1992. Trzy lata później rozbudował swój system o czaszę 2,1 metra do odbioru APSTARA 1.

W styczniu 2009 przeprowadził się do własnego mieszkania w północnym Pekin-



■ Applesat sprytnie schował swoje anteny na dachu nowoczesnego budynku. Z ziemi są niewidoczne. Znajdują się na balkonie jego mieszkania na dziewiątym piętrze.



■ Falowód jest specjalnie zaprojektowany do anteny podświetlanej, co można poznać po jego stożkowym kształcie. „Normalny falowód do anteny parabolicznej (PFA) traciłby za dużo sygnału”, wyjaśnia Applesat.

## TELE-satellite World

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■ Przez okno wychodzące na południe w pokoju dziennym, Applesat również odbiera satelity. Tu ustawia ją przy pomocy miernika Trimax. „Robię to głównie wieczorami”, mówi, „to moja ręczna antena obrotowa.”

nie. Wybrał właśnie to mieszkanie z jednego powodu: mieściło się na 9 piętrze tuż pod dachem. To pozwala uchronić się od wścibskich spojrzeń. „Legalnie wolno instalować czasy tylko w terenach niezabudowanych i tylko do odbioru CHINA-STAR z kanałami w ABS-S”, wyjaśnia Applesat, „prywatny odbiór w miastach jest niedozwolony.”

Wyjątkami są te budynki, w których zamieszkują obcokrajowcy i dotyczy to tylko tych mieszkań, w których obcokrajowcy mieszkają. Urodzony w Pekinie Applesat nie może wykorzystać tego jako wymówki i dlatego stara się nie przyciągać do siebie uwagi. „Kocham HDTV”, mówi Applesat, „i dlatego gotów jestem trochę zaryzykować.” Jego marzeniem jest mieć pewnego dnia własny kawałek ziemi gdzieś przy wielkim murze, gdzie mógłby zbudować farmę antenową. „Obecne przepisy nie pozwalają jednak mieszkańcom miast, takim jak ja, posiadać jakąkolwiek ziemię poza miastem.”

Zanim nadejdą lepsze czasy, utrzymuje więź z podobnymi sobie ludźmi. Wymienia informacje o nowych kanałach HDTV na własnym forum internetowym [www.hdtvstar.cn](http://www.hdtvstar.cn). Nowe częstotliwości transponderów wyszukuje na [www.cnsat.net](http://www.cnsat.net). Jak ktoś taki jak Applesat zdobywa produkty satelitarne w Pekinie? O ile w prowincjonalnych miejscowościach można jeszcze znaleźć sklepy ze sprzętem satelitarnym, o tyle w samym Pekinie nie ma ich jak na lekarstwo. „Sporo sprzętu kupuję na aukcjach internetowych”, wyjawia Applesat, „Posługiwanie się słowem 'satelitarny' nie jest dozwolone, więc trzeba je zastępować innymi podobnymi wyrażeniami, aby znaleźć produkty.”

Applesat radzi sobie ze wszystkimi problemami i kontynuuje swoje hobby. Na półkach ma aż pięć odbiorników i 32-calowy płaski telewizor. „Chętnie przekształciłbym swoje hobby w pracę zawodową”, wyjaśnia Applesat, „i w końcu tak się stanie.” Energia jaką Applesat wkłada w swoje hobby czyni to rzeczą pewną.

■ Applesat przed swoją szafką ze sprzętem: pięć odbiorników, jeden dla naziemnych sygnałów HDTV w DMB-TH, odbiornik DVB-S2, dwa odbiorniki DVB-S z modułami i jeden DVB-S FTA. „Moimi ulubionymi kanałami są Luxe TV na ASIASAT 2, Fashion TV, Voom, National Geographic, History Channel, AXN i ASN z MEASAT”, wyjaśnia Applesat, „Ostatnio wystartowały nowe kanały HDTV koreańskiego operatora Skylife na satelicie KOREASAT 3 na 11,900L i 11,938L.”





# ECHOSTART na Teneryfie

*W wydaniu 12-01/2009 TELE-satellity opisywaliśmy jak Diego Fernando Sanchez Rosende próbuje odbierać sygnały satelitarne spoza obrysu map pokrycia. Udawało mu się złapać kilka północnoamerykańskich satelitów na zaledwie 1,8 metrowej antenie podświetlanej.*

Nie miał jednak z tego wiele pożytku ponieważ niemal wszystkie kanały były kodowane. Wtedy Diego odkrył CBS-21 na ECHOSTARZE 6A na 72,5° W, na częstotliwości 12,224 GHz z pionową polaryzacją. Kanał nie był kodowany. „Odbieram ten kanał wysokiej rozdzielczości w DVB-S2 bardzo pewnie”. Tymczasem pojawiły się następne kanały obok CBS-21 i Diego może wreszcie oglądać telewizję amerykańską w Europie, na wyspie Teneryfa.

Dzięki swojemu analizatorowi widma, stworzył listę transponderów jakie jest w stanie odbierać:

**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

Oprócz tych dwóch satelitów, Diego odbiera również sygnał z ECHOSTARA na 61.5° W ale z mniejszym poziomem, co nie pozwala wytworzyć czystego obrazu na ekranie.

Po raz kolejny przykład Diego pokazuje, że możliwy jest odbiór poza mapą pokrycia. Zawsze warto spróbować, szczególnie jeśli do dyspozycji mamy antenę odpowiedniej wielkości i nieograniczoną widoczność. Idealnie też jest mieszkać na wyżynie. Im wyżej tym mniej zakłóceń od transmisji naziemnych. Diego mieszka na wzgórzu, którego zbocza blokują sygnały napływające z północy. Dodatkowo brak jakichkolwiek zanieczyszczeń środowiska stwarza niczym niezakłócony widok w kierunku satelitów amerykańskich. To wyjątkowa sytuacja jak na Europę.

TELE-satelita zawsze z radością dowiadyje się o odbiorze „niemożliwych” satelitów. Jeśli i Ty jesteś wśród tych niewielu, którym udaje się ta sztuka – odbierasz sygnał, którego nie powinieneś być w stanie złapać w swojej lokalizacji – skontaktuj się z nami na [www.TELE-satellite.com/letter/](http://www.TELE-satellite.com/letter/)



■ Odbiór niekodowanego kanału z USA; CBS-21 transmitowany jest jako FTA z ECHOSTARA 6A, a odbierany jest przez Diego na Teneryfie w Hiszpanii, na antenie 1,8 metra.



■ Miernik satelitarny Diego pokazuje tablicę NIT jednego z transponderów na własnie odbieranym ECHOSTARZE 6A.



■ Widmo satelity ECHOSTAR 6A na Teneryfie

**TELE-satellite World** [www.TELE-satellite.com/...](http://www.TELE-satellite.com/...)

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Croatian	Hrvatski	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/hrv/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/hrv/tenerifedxer.pdf</a>
Italian	Italiano	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/ita/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/ita/tenerifedxer.pdf</a>
Hungarian	Magyar	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/mag/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/mag/tenerifedxer.pdf</a>
Mandarin	中文	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/man/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/man/tenerifedxer.pdf</a>
Dutch	Nederlands	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/ned/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/ned/tenerifedxer.pdf</a>
Polish	Polski	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/pol/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/pol/tenerifedxer.pdf</a>
Portuguese	Português	<a href="http://www.TELE-satellite.com/TELE-satellite-0907/por/tenerifedxer.pdf">www.TELE-satellite.com/TELE-satellite-0907/por/tenerifedxer.pdf</a>
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■ W oczy rzuca się niska elewacja właściwa dla odbioru amerykańskich satelitów. Ponieważ Diego mieszka wysoko w górach, daje radę utrzymać odbiór nawet przy tak małych elewacjach.

■ Diego dopieszcza ustawienia swojej 1,8 metrowej anteny podświetlanej, której używa do odbioru amerykańskich satelitów na Teneryfie.



■ Mapa pokrycia kończy się daleko od Europy – przynajmniej tak mówi teoria. W rzeczywistości odbiór jest całkiem możliwy na zachodnich obrzeżach Europy.



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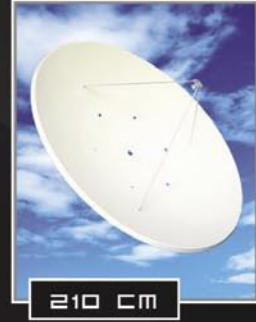
250 CM



240 CM



220 CM



210 CM



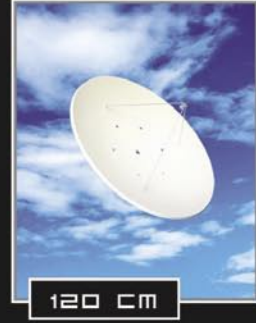
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# New Satellites



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

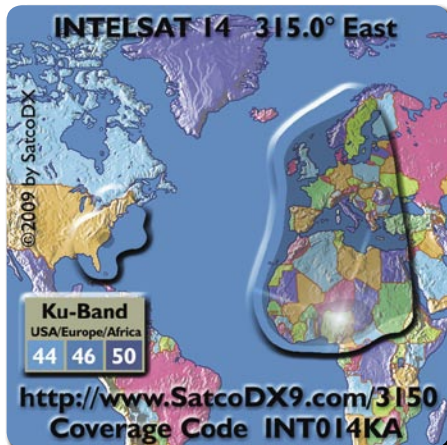
Amazonas 2 satellite, ordered by HISPASAT in 2007 and constructed by EADS-ASTRIUM, has 54 Ku- and 10 C-band transponders and an operational life of 15 years. After the launch from the Kourou space center in French Guiana by Ariane 5 rocket, it will be co-positioned with Amazonas 1 satellite on 299° East (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

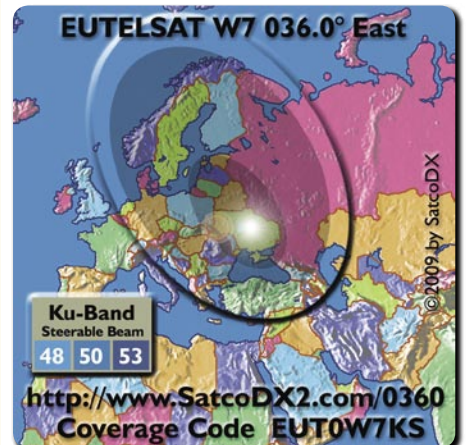
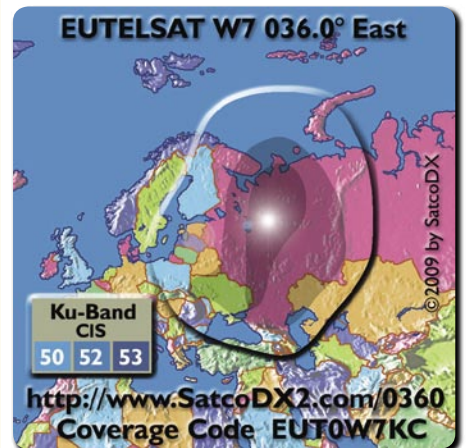
This satellite has been manufactured by Space Systems/Loral. It will be carried into space by Atlas V rocket and positioned on 315° East (45° West). With its 40 C- and 22 Ku-band transponders it will cover Europe, Africa and the Americas. INTELSAT 14 has a lifetime of 15 years and will replace INTELSAT 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.

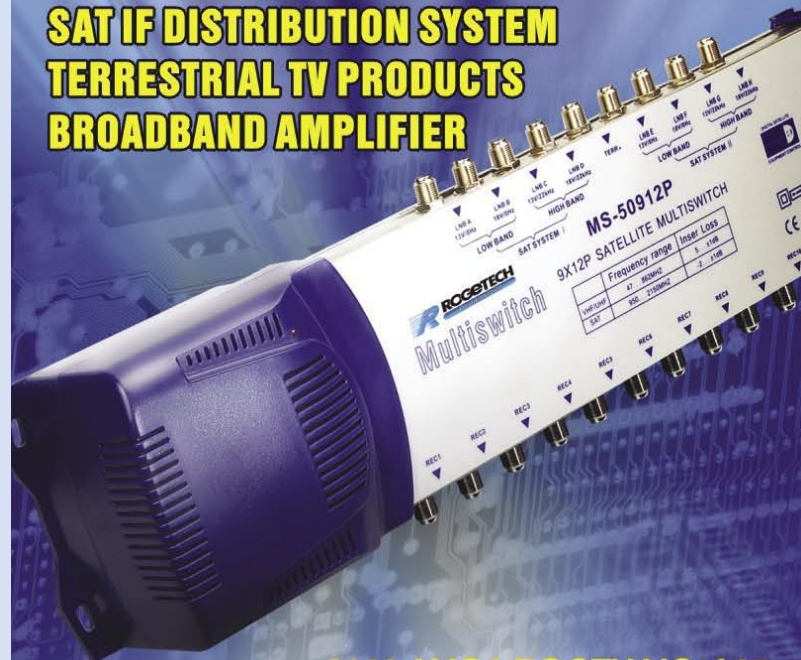
**NRTC AND NTCA OFFER MORE THAN 80 HDTV CHANNELS**

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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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



# DishPointer.com

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TV stations & program providers  
Online shops & distributors  
Satellite operators  
Receiver manufacturers  
Professional installers  
and many more...

## Satellite Dish Pointer / Alignment Calculator with Google Maps

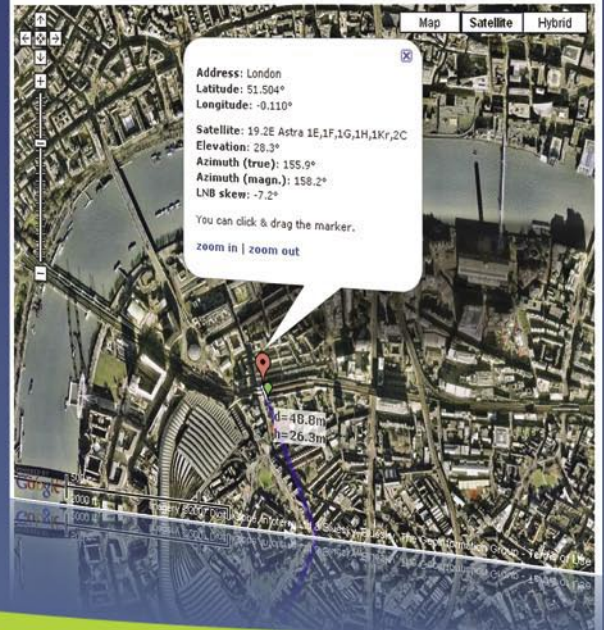
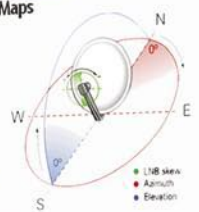
International location: e.g. streetname, postcode, geocode:

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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[www.dishpointer.com](http://www.dishpointer.com)  
[info@dishpointer.com](mailto:info@dishpointer.com)

# PSA-5

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Edited by  
Alexander Wiese

# 20 Years Ago

Travel into the Past  
TELE-satellite Magazine  
Issue 09/1988



**Breakfast with America.**

**Grundig Satellite-TV-Receiver für jeden Fernseher.**

Die neue Weltanschauung. Früherklingen Sie in Zukunft mit den Late-News aus New York. Der Grundig Satellite-TV-Receiver STR 201 Plus holt Ihnen die neuesten Informationen und Signale der neuen Welt von den Satelliten erst-Hinmal direkt im Wohnzimmer. Wenn Amerika schlafen geht, erfahren Sie schon das Aktuelle für den Tag. Ein Vorsprung, den Ihnen der STR 201 Plus mühelos verschafft. Er empfängt alle Programme, die von den Satelliten ECS 1, Intelsat V, Telecom 1, als MIRA 3P auch Astra (ECS), abgestrahlt werden. Und künftig auch viele Programme der Satelliten, die noch starten werden. Bei aller Vielseitigkeit ist er extrem leicht zu bedienen und auf jeder Fernsehgeräts-entfernung schließt. Mit dem Grundig STR 201 Plus haben Sie die Welt auf Ihrem Bildschirm zu Gast. Schauen Sie sich die kürzeste Verbindung in die neue Welt doch mal in Ihrem Fachgeschicht an. Nehmen Sie uns beim Wort. Ideen muß man haben.

**GRUNDIG**

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**Anfrage und Verfügbarkeit:**

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Chaparral ist ein Produkt von...

**DER BEGINN EINES NEUEN ZEITALTERS: ECHOSTAR SR-5500**

Die revolutionäre Technologie des EchoStar SR-5500 läßt Sie ein neues Zeitalter im europäischen Satelliten-Fernsehen erleben. Über die neuartige, bedienungsfreundliche Fernbedienung haben Sie Zugriff zu den verschiedensten Extras, wie:

- 100 Video-Programme
- On-Screen-Graphics
- Kindersicherung
- Timer für Videorecorder
- 50 Audio-Programme
- Audio-Steckfeld
- Stereo
- Automatische Lautstärkeregelung auf stärkstes Signal

Der EchoStar SR-5500 erfüllt nicht nur alle technischen Wünsche der Gegenwart, sondern ist bereits ganz auf die Anforderungen der Zukunft eingestellt.

Willkommen im neuen Zeitalter!

**SkySat**  
Satellite Systems

**ECHOSPHERE INTERNATIONAL**

## Satelliten-Technik

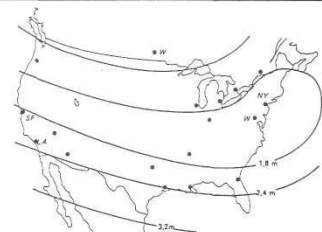
### Transpondermarkt

#### Deutsche Programme mit PAS 1 nach Amerika

Mehrere Millionen Deutschstämmige und deutschsprachige Amerikaner können über den Satelliten PAS 1 ohne weiteren Umweg direkt erreicht werden. Bislang gibt es in den USA nur stundenweise P-Programme in deutscher Sprache.

PAS 1 bietet für den Zuschauer Raum der USA sowohl Transponder m 4 wie im 12 GHz Band an. Während für die Kanäle im 4 GHz Band Empfangsspiegel mit durchschnittlich 3 Meter notwendig sind, genügen für die Kanäle im 12 GHz Band Spiegel mit 1,2 Meter Durchmesser. Durch die kürzlich erfolgte Einigung zwischen INTEL-SAT, Bundespost und PanAmSat kann der Up-Link zum Satelliten 3rekt aus der BRD erfolgen.

Für die USA stehen die folgenden Sendefrequenzen zur Verfügung: 11.740, 11.820 und 11.900 GHz (Amerikanisches Ku-Band).



Ausleuchtzone von PAS 1 für die USA im 11 GHz Band

### Satelliten Markt

#### EchoStar SR-5500 Receiver

Neu im Vertrieb von Werbeck, Düsseldorf, ist der Receiver/Positioner EchoStar 5500. Das Gerät bietet 100 Programmplätze, On-Screen-Graphics, Kindersicherung und einen Timer für Videorecorder. Im Tonbereich bietet der Receiver einen Audio-Schaltlauf und die Möglichkeit, 50 Audioprogramme abzuspeichern. Das Gerät ist stereotauglich.

Alle europäischen Satelliten und Programme sind vom Werk aus vorprogrammiert. Bei Eingabe des gewünschten Senders wird automatisch der richtige Satellit angesteuert.

Der EchoStar 5500 ergänzt die Reihe der Satelliten-Receiver dieses Herstellers. Weitere bekannte Geräte sind der EchoStar 4500 und der SR 1000 E. Daneben bietet Echosphere International, die Mutterfirma, Downconverter, Feed, Kabel, Spiegel und die beim Satellitenempfang benötigten Kleinteile an.



Der neue Receiver/Positioner EchoStar 5500 von Echosphere International im Vertrieb von Werbeck, Düsseldorf

#### Grundig mit preiswertem Receiver

Als neue Alternative zum bekannten Satelliten-Receiver STR 201 plus (Referenzempfänger der TELE-satellit-Redaktion) bietet Grundig einen neuen Satelliten-TV-Receiver, den STR 20, in Mono mit hohem Ausstattungscomfort an.

Der STR 20 ist ein Satelliten-Empfangsgerät, das über Euro-AV, DIN-AV oder auch über das HF-Kabel wie ein Videorecorder an jedes vorhandene TV-Gerät angeschlossen werden kann. Der Receiver arbeitet mit einem modernen PLL-Abstimm-System (49 Programme, 100 Kanäle) und Infrarot-Fernbedienung. Die Besitzer eines Grundig Farbfernsehgerätes können den STR 20 mit ihrer Fernbedienung steuern. Zusätzlich ist dem STR 20 eine separate Fernbedienung beigelegt.

#### ASTRA auf der Audio-Video

Buchstäblich umlagert war der ASTRA-Stand auf der Düsseldorfer Audio-Video. Der Stand erwies sich wegen der vielen an den Preisrätselfen teilnehmenden Besucher als viel zu klein. Zu gewinnen waren ASTRA-kompatible Satellitenempfangsanlagen, Bauteile und viele Kombiabisos von TELE-satellit und TVI.



Der für den besucherandrang zu kleine ASTRA-Stand auf der Audio-Video in Düsseldorf

#### LNB/Feed-Kombi von Chaparral

Für den europäischen Markt entwickelte Chaparral, San Jose (Kalifornien) eine Downconverter-Feed-Kombination. Als Downconverter verwendet Chaparral ausschließlich HEMT-Modelle, deren Rauschzahlen zwischen 1,3 und 1,5 dB je nach Kundenwunsch differieren. HEMT-Konverter (High Electron Mobility Transistor) stellen die jüngste Entwicklung im Konverterbau dar, sie ermöglichen extrem niedrige Rauschzahlen.



Hier kommen die Satellitensignale zuerst an: im Feed mit Polarrotor und gleich anschließendem HEMT-Downconverter in einer neuen Kombination von Chaparral



# Europas Satelliten

# im 11 GHz Bereich

**ASTRA 1A** 16° Ost  
**INT VA-F12** 60° Ost  
**EUT I-F1** 13° Ost  
**EUT I-F4** 10° Ost  
**EUT I-F5** 7° Ost  
**EUT I-F2** 1° West  
**INT V-F2** 1° West  
**INT V-F6** 18.5° West  
**INT VA-F11** 27.5° West  
**PAS F1** 45° West

TV		Radio	
Nr.	Programm	Nr.	Programm
3 SAT	West 3		
	Tele 5		
	BR 3		
	Eins Plus		
	Eureka TV		
	Radio Media		
	Deutschlandfunk		
	Sky Radio		

TV		Radio	
Nr.	Programm	Nr.	Programm
Start 1989	Sky News		
	Sky Channel		
	Sky Movies		
	TV 3		
	Eurosport		
	Lifestyle		
	Screensport		

TV		Radio	
Nr.	Programm	Nr.	Programm
	Teclub		
	3 SAT		
	FilmNet *		
	SAT 1		
	Super Channel		
	TV 5		
	World Net		
	RTL plus		
	Sky Channel		

TV		Radio	
Nr.	Programm	Nr.	Programm
	RAI UNO		
	RAI DUE		
	TVE 1		
	TRT 1 (1989)		
	TRT 2 (1989)		

TV		Radio	
Nr.	Programm	Nr.	Programm
	Eurovision*		
	World Net		
	Eurosport (1989)		

TV		Radio	
Nr.	Programm	Nr.	Programm
	Norpas		
	Infotilm		

TV		Radio	
Nr.	Programm	Nr.	Programm
	Canale 5		
	Telespazio		
	Telespazio		
	Telespazio		

TV		Radio	
Nr.	Programm	Nr.	Programm
	MTV		
	Children's Channel		
	Premiere*		
	Kindernet		
	Lifestyle		
	Screen Sport		
	CNN		
	BBC 1/2*		

TV		Radio	
Nr.	Programm	Nr.	Programm
	Starsat		
	BBC World-service		
	BBC For. Service		
	Radio Tien		
	Cable One		
	Sky Radio		
	Radio Lux.		

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Hinweis:  
 Notieren Sie in der freien Spalte "Nr." die individuelle Kanalnummer Ihres Satelliten-  
 Receivers. Notieren Sie in dem Feld "Position-Nr." oberhalb jeder Spalte die in-  
 dividuelle Position-Nummer Ihrer Drehlageneinstellung.

## So finden Sie Ihre Programme aus dem All

**NEU** **DECODER**  
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4.) FILMNET / PREMIERE / BBC  
 Automatische Umschaltung mit UHF-Modulator alles in einem Gerät

TransStart Europe B.V. ist Hersteller von Decodern für Satellitenempfangsanlagen. Da wir über das richtige Know-how und qualifizierte technische Mitarbeiter verfügen, sind wir in der Lage, ein einwandfreies Produkt auf den Markt zu bringen. Der Beweis: unser neuester, verbesserter FilmNet-Decoder, der sowohl mit als auch ohne Modulator lieferbar ist.

Wir fertigen nur Decoder für FilmNet, BBC, Premiere, Channel 10, die sich nicht für den Empfang über Kabelnetze eignen. Unsere Marketingstrategie richtet sich darauf, qualitativ hochwertige Decoder zu einem niedrigen Preis auf den Markt zu bringen. Unsere Fernsehsatelliten-Händler ziehen daraus ihren Nutzen, denn die Anschaffung von Anlagen für TV-Satelliten wird für den Endabnehmer immer erschwinglicher.

Die Digital-Decoder geben ein perfektes Bild und einen perfekten Empfang (über Videotext (Auswahl der Sprache über Untertitel). Auf Änderungen des Signaleingangs stellt unser Decoder automatisch ein. Sie brauchen die EPROMs daher nicht zur erneuten Programmierung zurückzuschicken und auch andere lästige Handlungen entfallen. Eine kleine Änderung des Signals ist allen deswegen schon unentbehrlich, weil in einem solchen Fall etwa 250.000 getestete Kabelnetzen-Decoder umgetauscht werden müssen. Einen kostengünstigen Decoder braucht man sich daher bestimmt nicht anzuschaffen.

Darüber verkaufen wir unsere Decoder bereits in acht europäischen Ländern. Diesen enormen Anstieg verdanken wir Qualität, niedrigen Preisen und einem guten Kundendienst.

Der Beweis: unserer Decoder ist nicht in jedem europäischen Land gestattet.

Wir verkaufen keine Satellitenanlagen.

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 MIT 16 PROGRAMMEN

**DER MARKT:**  
 15 Millionen deutsche Haushalte empfangen keine privaten Fernsehprogramme. Ein Großteil kann auch zukünftig nicht per Kabel oder terrestrisch empfangt werden. Der ASTRA-Direkt-empfang von 16 Kanälen schafft diese Versorgungslücke.

**DAS MARKETING:**  
 ASTRA unterstützt gezielt die Erschließung des neuen Marktes mit einem Mehrkanalprogramm für Industrie und Handel. Ziel: höhere Umsatzen durch neue kleine Einzelhandels- und Satellitenkäufer zu erschwinglichen Preisen.

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<http://magazine.TELE-satellite.com/vintage/TELE-satellite-8809-deu.pdf>





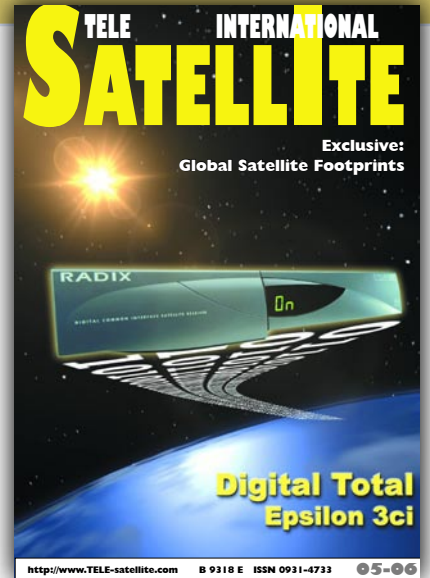
Edited by  
**Alexander Wiese**

**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



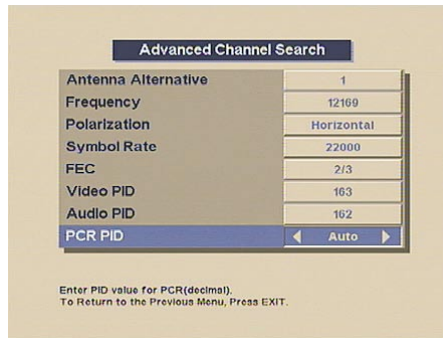
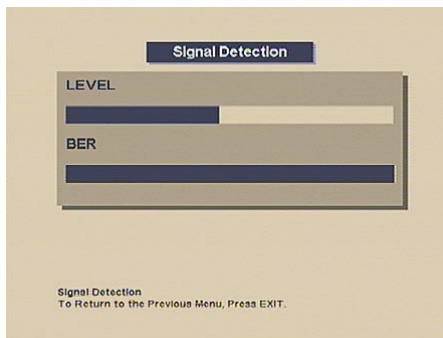
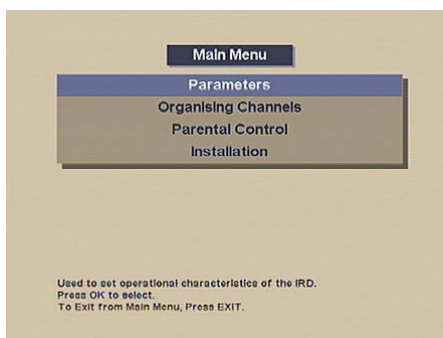




doesn't develop much heat and can easily be placed under an existing heap of equipment. The metal housing also protects it from any interference from the outside. On the front, we found the emergency operation buttons, which not only allow changing channels but also switching between radio to TV. At 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.



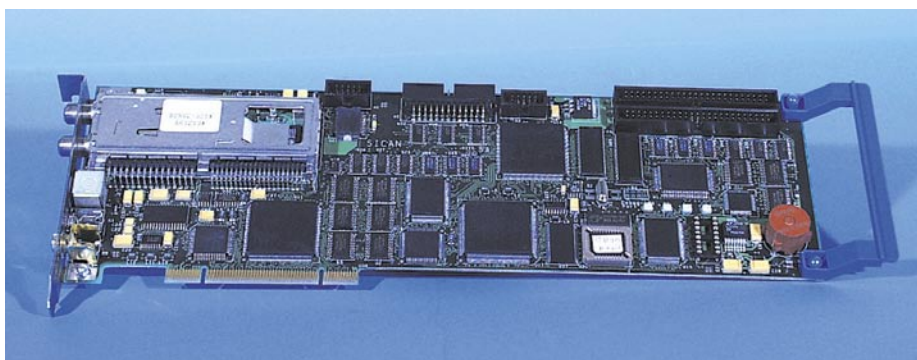


### RO.VE.R. SDA-5 Digisky

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

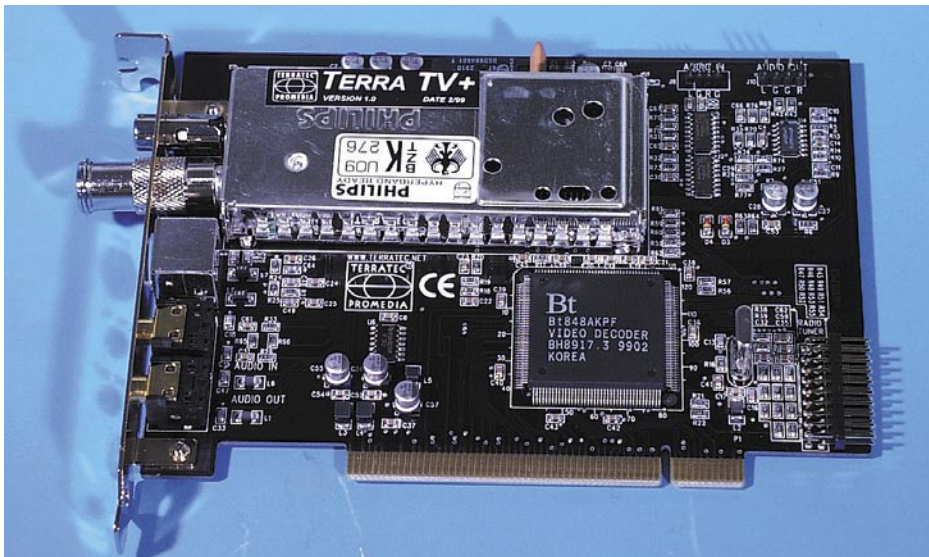
Teleworking has been some kind of utopia for many years. Geographically separated offices only could communicate using expensive data lines, using low data rates and being only suitable for slow traffic. For larger files good old snail mail was just the answer. And although video conferences has been 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.

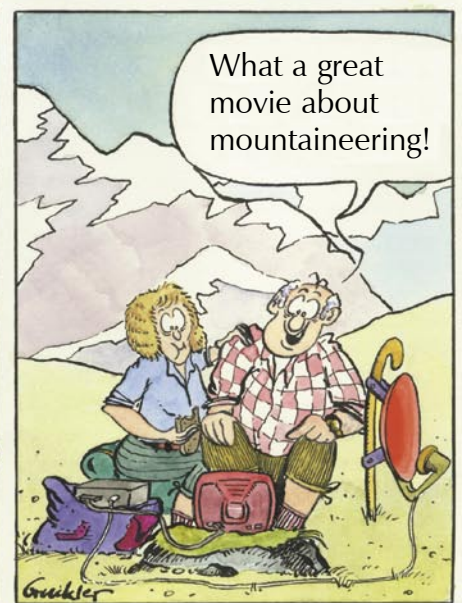




(e.g. Western Europe), so that the card knows which TV systems to use (in our case PAL B, D, G, H and I). That's about all the setting up that's needed. No matter if you use the card for your big screen home cinema or your 14-inch PC monitor (while working with other application), the video quality is 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 no 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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