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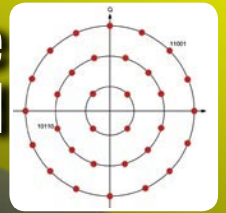
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alex@TELE-satellite.com

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alex@TELE-satellite.com
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CITY Advertising
Monika Szabo
monika@TELE-satellite.com
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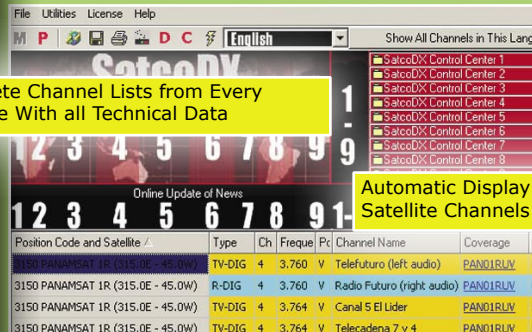
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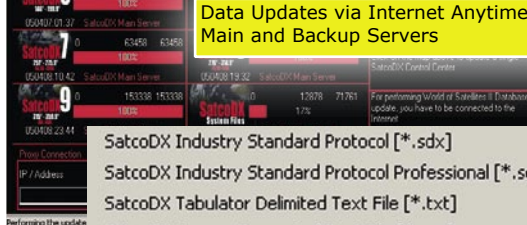
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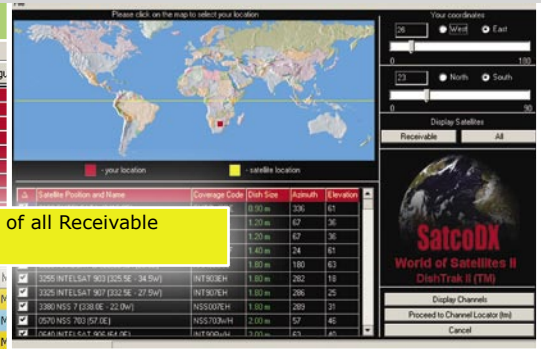
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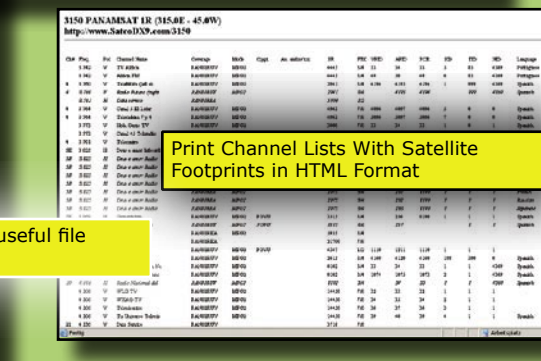
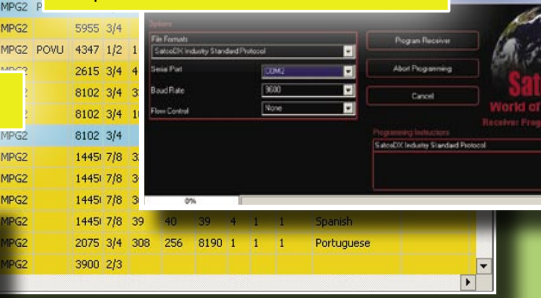
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Dear Readers



Up until recently, I had believed that HDTV technology was nothing more than an expansion of existing technology. Transmissions in 16:9 format have been around for some time and can be viewed equally with a standard 4:3 format TV as with a wide screen TV. In other words, 16:9 transmissions are backwards-compatible with 4:3 transmissions. And so I thought that with HDTV the picture not only becomes wider but also the number of lines in the picture doubles.

I received the first shock a few years ago when TELE-satellite introduced the first HDTV satellite receiver: it was a standard MPEG-2 signal although a standard receiver could not display a picture. Then for some time nothing happened. Finally, in our last issue, TELE-satellite reported that a new compression method, namely MPEG-4 (aka H-264), was being introduced as was a new modulation method going by the name of DVB-S2.

And as if this were not enough, we have learned that HDTV transmissions will in part operate with FEC values that have never been heard of before: namely 9/10 and 8/9. These are values that I never knew existed. Take a look in the menu of your satellite receiver or in the software application of your satellite PC card: not only won't you find an FEC of 9/10 or 8/9, you can't even set it up manually.

These new FEC values have come as a complete surprise for us as well as SatcoDX – their software does not recognize them. When the software was originally developed, it was assumed that only the known FEC values would ever be used. There were never any indications that there would ever be additional FEC values. Naturally, the SatcoDX programmers are quite busy right now rewriting the code so that these new values can be displayed. What a mess!

It would appear that we will be getting a completely new HDTV transmission standard in every possible parameter. It seems to me to be rather all of a sudden. And it also seems to me to be a standard developed

by engineers. If politics had been involved in any way, this HDTV standard would be backwards-compatible. This is how it was with the development of color TV: the old black and white TV's could easily handle the new color TV signals. It was also like that with the advent of stereo audio: mono systems could play back stereo transmissions. Only with the appearance of digital technology did backwards-compatibility no longer work.

And now with HDTV we once again have to deal with new technology that is not in any way backwards-compatible. This can be seen as good as well as bad depending on your point of view. At the very least, it is good that HDTV is getting the most out of this new technology; there are hardly any compromises. What's not so good is that consumers now have to buy all new equipment – from a new HDTV television to a new HDTV satellite receiver.

Hmm, come to think of it, as much as this makes manufacturers happy, it also makes us as a trade magazine happy: we will have plenty of work ahead of us testing these new units so that you, the reader, will be able to make informed decisions on what to buy. With that in mind, long live this brand new technology!

Sincerely,
Alexander Wiese

P.S.: My favorite radio station of the month is "The Voice" on THOR 2,3 (359.2E), 11.293 GHz, 24500, A-PID 654. Except for the morning hours, when there is too much talk, this station rocks the remainder of the day – it will definitely keep you awake!

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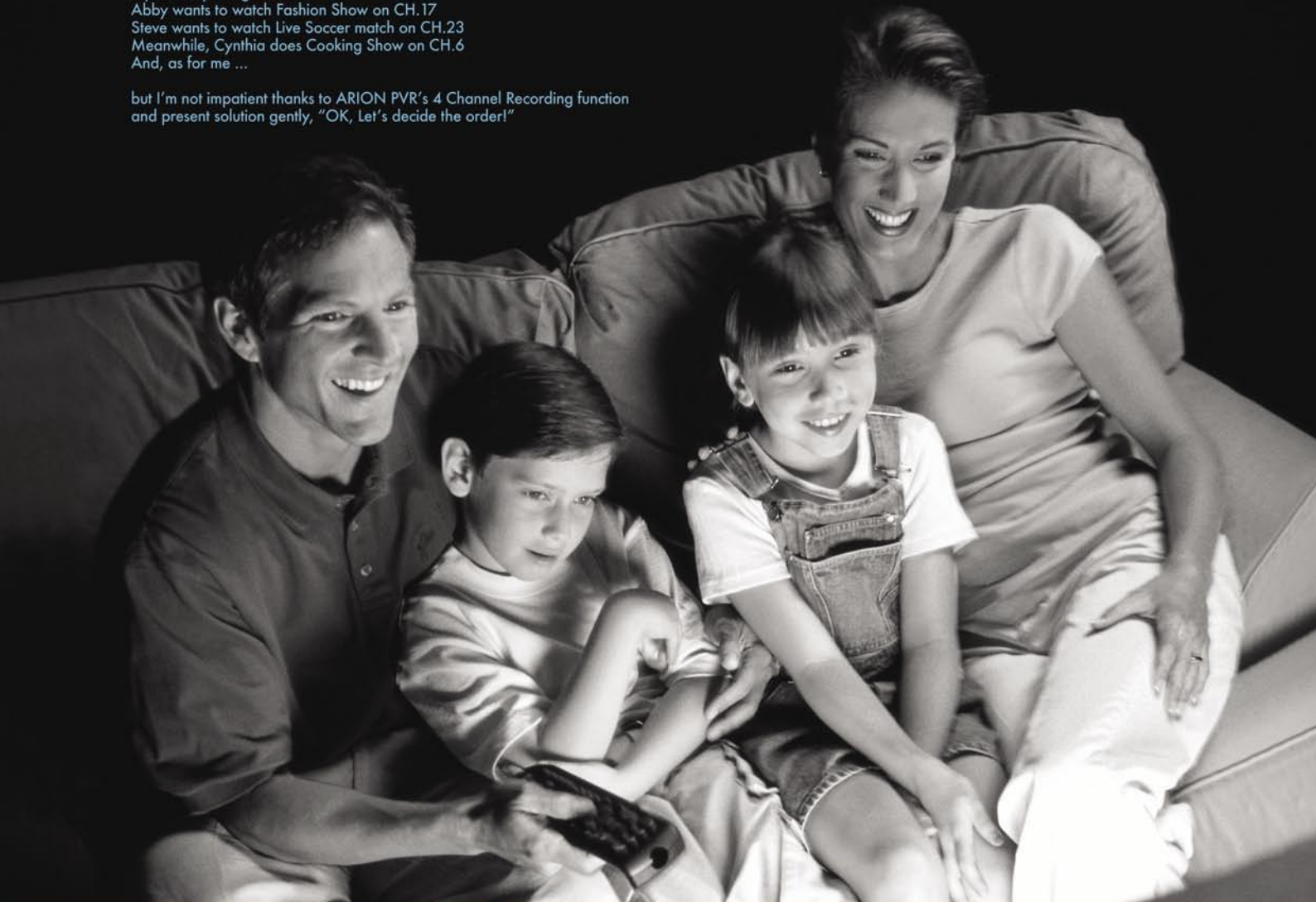
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Thank You, ARION!

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Steve wants to watch Live Soccer match on CH.23
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Basic Satellite Antenna Settings – Part 2

Heinz Koppitz

In the first part of this series (issue No. 191) we talked about the alignment of the antenna to a satellite. Here we want to complement the first part with an especially simple and above-all precise procedure. Our program FXPOS, which you can download from our website, was developed just for this purpose.

This program takes the place of the more complicated tables and curves that were needed to align an antenna to one or more satellites (mono or multifeed LNB's). In order to fully utilize its precise calculation accuracy, it would be best to get your local geographical coordinates from a GPS receiver. Maps would also be OK as long as longitude and latitude data is shown broken down into 0.2° steps.

You can download the program here:

<http://www.tele-satellite.com/fxpos.exe>

After starting the program, the valid azimuth and elevation settings for Astra 1 at 19.2° east in Munich are shown. Of course, these settings can be determined for any satellite from any location on Earth in the following manner:

- Simply entering in a "1" allows you to change the satellite position. It must be entered in decimal form with a decimal point whereby west positions must be preceded with a minus sign (for example: 97.0° west would be entered as -97.0).

- Entering a "2" lets you change your loca-

tion. Longitude and latitude values must also be entered in decimal form (with decimal point). In this case west and southern values must be preceded by a minus sign.

- "3" exits the program.

The calculated values for azimuth and elevation are so precise that it should result in immediate optimal reception and no antenna fine-tuning would normally be necessary. Of course, the mechanical settings on the mast can't be adjusted so precisely. With that in mind, we suggest the following installation procedure:

- Install the mast in a perfect vertical position using a level.

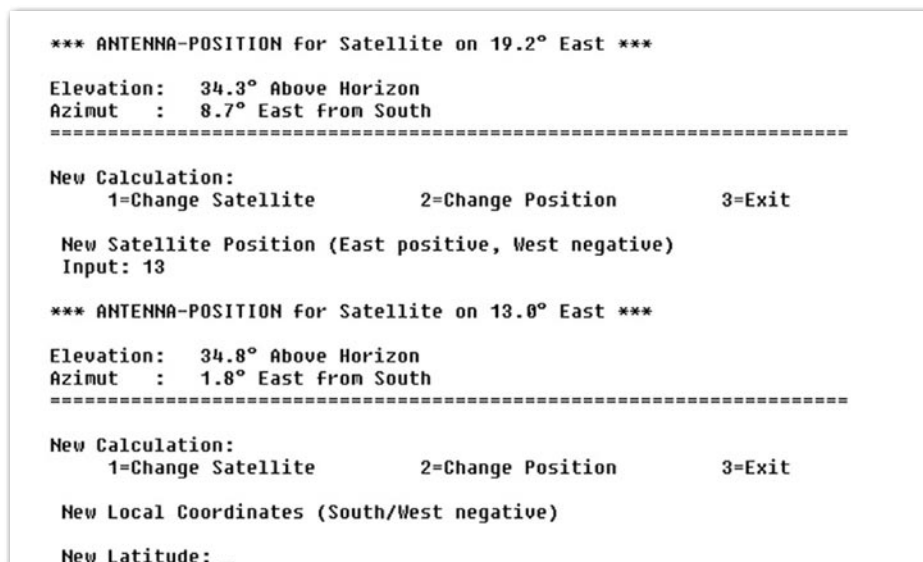
- Adjust the dish for the correct elevation using the scale on the antenna.

- Align the antenna to the south (to the north in the southern hemisphere). After that, a compass is good enough.

- Select an active channel on your receiver.

- Turn the antenna slowly on the mast to the calculated azimuth value. Keep an eye on the receiver's signal quality display.

- If necessary, adjust the elevation of the antenna for maximum signal quality.



It's this easy: after starting the program, the default settings are displayed. Use "1" to change satellites and "2" to change your position. The picture shows the default results for 19.2° east. After switching to 13.0° east, the new values are shown. Next, a new latitude position is entered.

Reference: Updated Satellite Names

With the ever-changing satellite fleet, older satellites are constantly being replaced by newer ones. Our SatcoDX charts already have the new satellite names.

In many receivers, though, it is necessary to look for transponder lists under old satellite names. This table shows some of the more important name changes.

Position	Previous Name	Current Name
42° E	Türksat 1C	Eurasiasat
28.5° E	Eutelsat 2F4 Telecom	Eurobird
23.5° E	Kopernikus 3	Astra 3A
16° E	Eutelsat F3	Eutelsat W2
10° E	Eutelsat F2	Eutelsat W1
7° E	Eutelsat F4	Eutelsat W3
5° W	Telecom 2B	Atlantic Bird 3
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FEC equal to 9/10 or 8/9 – what is this?

Peter Miller

Since some time, we have been reading news reports about strange satellite transmissions with FEC equal to 9/10 or 8/9. What is the advantage of using such “non-standard” FEC? Is this just a nasty trick of the satellite providers to make us, the TV viewers, buy new boxes?

Well, the FEC values 9/10 or 8/9 may be regarded as non-standard only if we speak about the classical satellite transmissions (DVB-S). However, they are perfectly standard if we take into account the new norm - the so-called DVB-S2. The acronym stands for Digital Video Broadcasting Satellite version 2. DVB is the organization that standardizes digital TV transmissions. Not only satellite TV but also cable and terrestrial TV (DVB-C and DVB-T).

The big advantage of the new standard is its greater efficiency. To put it simply, using the same transponder, one can transmit up to 30% more bits. And this is a practical, achievable figure. That’s why the satellite providers who want to transmit HDTV are very interested in this norm. The high definition TV signal, even if compressed with modern MPEG-4 method, still requires more data to be sent than the classical digital TV signal coded with MPEG-2.

Perhaps some of you have heard or read the term QPSK. QPSK is a type of modulation in which the phase of a sinusoidal waveform is changed in accordance with incoming pairs of bits. 00, 01, 10 and 11 cause different changes in phase shift of the waveform. It is very convenient to show this principle in the constellation diagram as in figure 1.

If the pair of bits is equal to 00, than the QPSK modulator will change the phase of the output signal by 45° with respect to the reference waveform. If the following 2 bits are equal to 10, the phase shift will be 135° and so on. The amplitude of the sinusoid will be unchanged

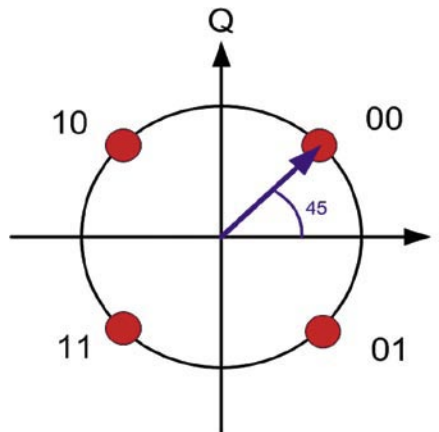


Figure 1. QPSK constellation diagram.

for any bit pair (the length of the vector is constant in the diagram). Such modulation is used by the classical DVB-S and is one of the possible modulation for DVB-S2. The other option in DVB-S2 are: 8PSK, 16APSK and 32 APSK. Their constellation diagrams are shown in figures 2, 3 and 4 respectively.

8PSK has also constant amplitude but more allowable values for phase shifts (8 instead of 4). Every phase shift is assigned to a unique 3 successive bits (not a pair as in QPSK). We say that a symbol consists of three bits in this modulation.

16APSK and 32APSK, except for the phase shifts, use 2 or 3 amplitude levels respectively. The symbol consists of 4 bits for 16APSK and 5 bits for 32APSK. We showed only bit values for 2 random symbols in the figures to make them more readable.

Generally, the more the dots on the diagram,

the more efficient modulation. However, if this were that simple, everybody would use only 32APSK. So where is the hatch? The hatch is the sensitivity to interference. The higher the efficiency, the lower the immunity to noise. QPSK is of course the most robust modulation.

Fortunately, DVB-S2 norm specifies not only the modulation types but also the new error correction schemes that can be used. They greatly contribute to the increased efficiency of the new standard. And here, we finally meet the new values for the code rates (FEC). They can range from 1/4 up to 9/10. Namely the allowed values are: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10. Among the values, you can see the old familiar ones but also the “strange” ones like 9/10.

So, the satellite providers are not playing any tricks on you. They are just introducing the new technology. To receive such signals, you must have a very modern receiver capable of demodulating DVB-S2 signals. Of course, the receiver will also receive the classical DVB-S broadcasts. More often than not, such receiver will also be able to decode the MPEG-4 besides the classical MPEG-2 data streams and will be compatible with HDTV signals.

Sat.1 HD already transmits in DVB-S2 and MPEG-4. Big providers are either keeping abreast or making their last minute preparations. The receiver manufacturers like Pace, Humax or Philips promise that before the 2006 Soccer World Cup, they will deliver enough boxes to fulfill the market demand. Do we have to say that the sports transmissions are to be in HDTV standard? In this way, this big sports event helps inducing new technology in Europe.

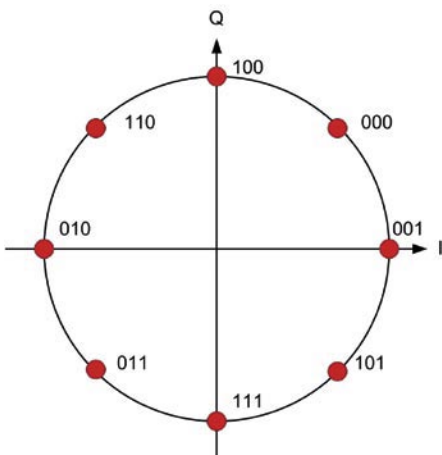


Figure 2. 8PSK constellation diagram.

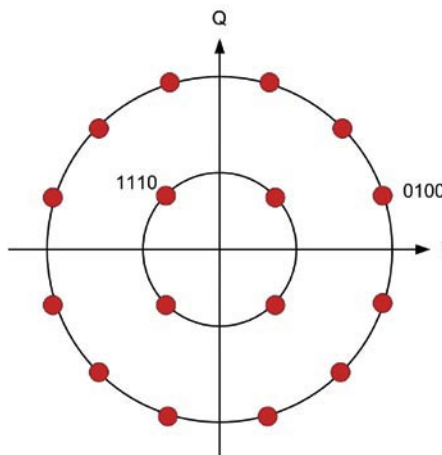


Figure 3. 16APSK constellation diagram.

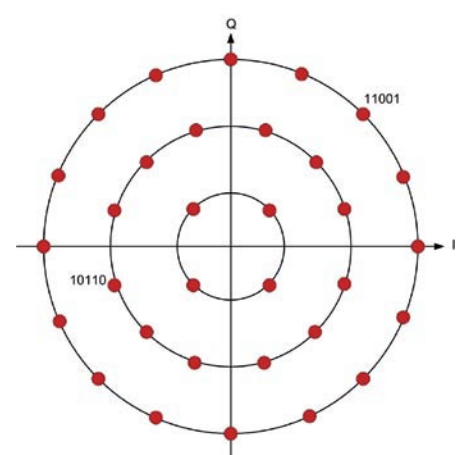


Figure 4. 32APSK constellation diagram



DVB
Digital Video
Broadcasting


HD
ready

Topfield TF6000PVR

The Future is Wireless

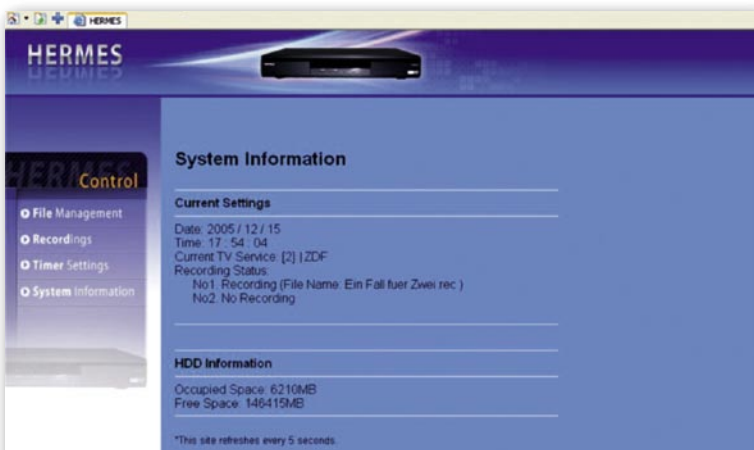
At first glance you can only tell by looking at the front panel that we are dealing with the TF6000PVR since this new box is almost identical in appearance to the popular TF5000 Masterpiece that we

introduced two issues ago. Topfield decided to stick with the elegant design of their original Masterpiece; a design that allows this box to easily blend in with any TV entertainment system.

titude of DiSEqC protocols such as DiSEqC 1.0, 1.1, 1.2 and 1.3 (USALS). Multiple parameters can be set individually for both tuners and for each satellite. In our tests, for example, we were able to set up a multifeed antenna on tuner #1 while a DiSEqC motor was operated on tuner #2. Once the receiver has been properly set up for the existing antenna system, the next logical step would be the automatic channel scan. Our test scan of an 80-transponder satellite was completed in just over five minutes.

A Network scan yielded an additional 23 channels but also required an extra 90 seconds

field did not include an Installation Assistant in their software. This takes the user directly to the main menu the first time the receiver is turned on. Thanks to the logically designed OSD, the user should have no trouble getting used to the menu structure. Basic receiver settings are handled in the System Settings menu. In addition to CVBS and RGB, S-video and YUV are also available. This should make owners of flat screen TV's and projection systems especially



The front panel sports a set of five buttons for control of the receiver without a remote control. A large, easy-to-read VFD display is in the center while a pair of CI slots that can accept a variety of conditional access modules can be found hidden behind a flap on the right side. All of the typical encryption modes - Irdeto, Seca Mediaguard, Viaccess, Nagravision, Conax, Cryptoworks, etc. - are thereby supported.

In contrast, it is the rear panel of this box that has been changed. In addition to the expected connections such as the IF input and looped-through outputs for both tuners, the three RCA jacks for video and stereo audio outputs, the S-Video output, the USB 2.0 connection, the RS-232 interface and the digital audio output, you will also find another set of three RCA jacks for YUV outputs as well as a connection for a WLAN antenna. And this takes us right to this receiver's newest fea-

ture: Topfield is one of the first manufacturers to recognize that although the USB interface is perfect for transferring recordings back and forth between the receiver and PC, how many of you really have your PC sitting next to your TV in the living room? Topfield understood this and opted to include WLAN in the TF6000PVR. To make room for this feature, Topfield eliminated the RF modulator.

The workmanship of this receiver is - as expected from Topfield - very good. Even the included remote control is logically designed and sits comfortably in your hand. The included user manual comes with detailed descriptions of the receiver's functions. Even the more-complicated WLAN setup should be no problem for beginners.

Everyday Use

Contrary to many other receiver manufacturers, Top-

happy. The automatic switching between PAL and NTSC signals - just like with all the other Topfield models - is also handled by the TF6000PVR without any problems. The receiver comes from the factory loaded with numerous European and Asian satellites although the list is unfortunately not all that up to date and there are some satellites that are missing entirely.

The Topfield supports a mul-

to be completed. As with all of the previous models, there was only enough room provided to store 5000 TV and radio channels. Considering all of the features and capabilities of this box, we feel that this is not quite enough. The channel switching speed is, as expected from Topfield, excellent. Less than one second was needed for the audio and video of the new channel to be properly presented. Up to two programs can

TEST RESULT SATELLITE INTERNATIONAL TELE	Features	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
	Channel Memory	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Channel Scan Speed	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Channel Switching Speed	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Video Quality	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
	Audio Quality	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
	Tuner Sensitivity	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

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The new HD-Vision 32 with 81 cm visible LCD image is HDready and disposes of an integrated multi-function tuner for all digital and analogue transmission modes by means of which it is even possible to mix the programme positions of analogue and digital programmes. For pay TV and pay radio it has a Common Interface and a Smartcard reader. A multitude of connection options such as 2x HDMI and USB 2.0 as well as free-of-charge value-added services, for example the consumer-friendly EPG "SiehFern INFO", AutoInstall, the ISIPRO programme-list manager and the automatic software update turn the HD-Vision 32 into a real all-rounder.

TechniSat **DigiCorder S2**



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 Fax: +352 710 707 959

be recorded at the same time via the two tuners while a third program can be viewed live or played back from the hard drive. Our test unit was delivered to us with an extremely quiet 160 GB hard drive; larger hard drives are of course available as an option.

The OSD and the general operation of the receiver are a direct 1:1 copy of the Topfield Masterpiece – a smart decision in our opinion since this concept had already proven itself in previous tests.

Recording functions and Timer settings are easy to follow. Up to 64 entries can be made into the receiver and should more than two recordings be inadvertently set up for the same time, the receiver will warn you of this oversight. If you don't want to miss any of your daily soaps or other favorite TV series, you should take great pleasure in the daily and weekly timer functions. To round out this perfect picture, the receiver also comes with an integrated teletext decoder as well as a truly well-thought-out and easy to follow menu structure.

As with any receiver that we test, the TF6000PVR also had to prove its reception capabilities. Our SCPC test transponders on Pas12 at 45° east with a symbolrate of 1.325 Ms/sec. and on NSS7 at 22° west with 1.020 Ms/sec. were recognized, processed and displayed without any problems. The receiver also had no difficulties mastering weaker signals. Tests on BBC from Astra 2D in Munich and also from Arabsat 2D in Vienna were successful. Unfortunately, the signal strength and signal quality displays appeared to occasionally show inaccurate values.

WLAN

Thanks to the detailed user



unnoticed in the background, the longer transfer times are really not all that bothersome in that

the receiver can continue to be used without any restrictions.

manual, it should take no time to set up this receiver with a WLAN router or with Access Point. Various standards such as ETSI, FCC or MKK are supported as are transmission rates from 1 to 54 Mbps. If necessary, the WEP protocol can be used for reliable encryption.

With all the settings taken care of, the user can access the receiver via a Web interface as well as through FTP. The so-called "Hermes" web interface makes it possible to control the more important functions of the TF6000PVR via your favorite web browser from practically anywhere in the world (whether it's your own work room or an Internet café while on vacation). In addition to critical status information such as remaining hard drive space, it is possible to program and activate recordings directly via Hermes. Even the upload or download of recordings or MP3 files is possible.

Alone the transferring of data back and forth suggests the use of the integrated FTP program. It allows you to easily copy data to and from the TF6000PVR although the transfer rate at 350 to 500 kb/sec isn't all that fast. Hopefully Topfield will consider some improvement here. Since a download runs for the most part

TECHNIC DATA



Manufacturer	Topfield, Seongnam, Korea
Fax	+82-31-778-0802
E-mail	inquiry@topfield.co.kr
Model	TF6000PVR
Function	Digital Satellite Receiver with PVR and WLAN
Channel Memory	5000
Symbolrate	1-45 Ms/sec.
SCPC Compatible	•
USALS	•
DiSEqC	1.0/1.1/1.2/1.3
Scart Connectors	2
Video/Audio Outputs	3 x RCA plus 3 x RCA YUV
UHF Modulator	–
0/12-Volt Output	–
Digital Audio Output	•
WLAN	•
EPG	•
C/Ku-band Compatible	•
Power Supply	90-250 VAC, 50/60Hz
SatcoDX Compatible	–



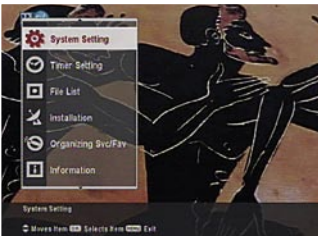
Hermes (Timer) |



Time Setup |



Satellite Scan |



Main Menu |



Info Bar |



EPG |

Expert conclusion



Thomas Haring
TELE-satellite
Test Center
Austria

Topfield is once again one of the first manufacturers to take a giant step towards the future with their TF6000PVR. Thanks to the WLAN interface, this receiver can easily be connected and controlled from any PC. The TF5000PVR made for a perfect foundation for this receiver.

The WLAN transfer rate is not all that impressive as yet. The manufacturer should make some improvements here.



Interstar DVB-T/S 8300CI Premium **Digitaler Terrestrischer- & Satelliten-Receiver**

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- / 2 Common Interface slots
- / Dolby-Digital-Ausgang (optisch)
- / Multipicture-Funktion
- / Picture-in-Picture
- / 6.000 TV- und Radioprogramm-Speicherplätze



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Telefon: +49 7183 305 94-0 · Telefax: +49 7183 305 94-20
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Eycos S30.12CI

Elegant Little Brother

After the test report of the Eycos S50.12PVR appeared in the last issue of TELE-satellite magazine, we received numerous positive comments on this receiver. At the same time we also received many requests to test that receiver's

little brother, the S30.12CI. Naturally, what the reader wants, the reader gets (well, most of the time anyway...). We contacted Satforce and they were kind enough to send us the latest box from Eycos.

If first impressions mean anything, then the S30.12CI is a winner: without question, it is by far the most elegant receiver that we have ever tested. Even this receiver's bigger brother does not measure up. Based on the motto "less is sometimes more", Eycos has hidden all of the buttons and card slots behind a large flap that covers the entire front panel. Through the dark, yet still see-through plastic panel, the receiver's segmented display can still easily

output, you will also find a pair of Scart connectors, four RCA jacks for video, analog audio plus digital audio outputs, an RF modulator, a main power switch and of course an RS-232 serial interface for uploading new receiver software or channel lists.

The included remote control is also elegant and ergonomically shaped. It sits nicely in your hand and the buttons are all clearly labeled and easy to read. Thanks to the extremely detailed

become comfortable with this box. The OSD, available in English, German, French, Italian, Russian, Farsi, Spanish, Dutch, Turkish, Greek, Hungarian, Swedish, Romanian, Slovenian and Portuguese, is divided into five sections: Satellite Setup, Channel Scan, Channel and System Editing and Accessories (including calendar and video games).

from that, hidden deep in one of the sub menus, satellites and transponders can be manually added. The receiver is both C-band and Ku-band compatible and in addition to the numerous preprogrammed LOF values, the user can also manually enter LOF values that are not preprogrammed such as those for the S-band.

After matching the receiver to our antenna, it's time to take a closer look at all the different settings possibilities in the Setup menu. Next to basic settings such as clock adjustment and video output selection (RGB or CVBS - S-video and YUV are unfortunately not available), you can also select the desired color standard (PAL, NTSC or AUTO) as well as activate some optical effects (fade in/fade out after a channel change, etc.).

The unusually fast chan-



SATELLITE INTERNATIONAL TELE	TEST RESULT	Features	
		Channel Memory	
		Channel Scan Speed	
		Channel Switching Speed	
		Video Quality	
		Audio Quality	
		Tuner Sensitivity	

be seen. With the front panel flap open, the two CI slots (for all CA modules including Irdeto, Nagravision/Betacrypt, Seca Mediaguard, Viaccess, Conax etc.) as well as the eight buttons for full receiver operation even without the remote control can be seen.

user manual written in both English and German, the user should easily become familiar with this receiver without spending too many hours studying the manual.

Everyday Use

Thankfully, Eycos did not change the menu structure in the S30.12CI. This should allow even total beginners to quickly

The S30.12CI supports all of the DiSEqC protocols (1.0, 1.1, 1.2, 1.3 or USALS) and can therefore be used with almost any antenna configuration starting from a simple fixed antenna to a multifeed system using up to 16 LNB's all the way to a DiSEqC 1.3 motorized system. The receiver comes preprogrammed with 55 satellites; this list can easily be updated via the manufacturer's web site. Aside

nel scan speed caught us by surprise. A scan of 80 transponders was completed by the S30.12CI in just about three minutes with no network scan. With the network scan activated it was more like 4.5 minutes but in return an additional 328 TV and radio channels were found. The receiver can also perform a manual transponder scan (with or without network scan) as well as an expanded scan with



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Website: www.d-telemedia.com





PID entry for the more seasoned users. The rather large channel memory is also something worth noting: up to 8000 channels can be stored without any problems. There are quite a few other manufacturers that should take note of this and perhaps consider something similar.

Thanks to multifeed reception, a scan of two or more satellite positions could easily result in 1500 to 2000 channels being added to the receiver's memory. It would probably be a good idea not to waste any time organizing all of these channels. Unfortunately, the Eycos does not offer too many sorting possibilities other than sorting alphabetically or by FTA/CAS in the channel list. Channels can, however, easily be renamed, moved or deleted. The more popular channels can be transferred into Favorites lists so that they can be quickly recalled at a later time with just the push of a button.

It has generally become standard in any receiver for the channel list to be accessed with the OK button on the remote control. This is also true for the S30.12CI. A push of the Info button displays expanded channel information while the signal strength and quality bar graphs are first visible in the expanded Info menu.

If you can do without the optical effects such as fade in/fade out with each channel change, channel switching is actually quite fast at less than one second. Shortly after switching to another channel, the EPG with

its daily and weekly programming data is available. As with most of the other software functions, Eycos kept the software very much the same as with its bigger brother; software that we were also very happy with in the previous issue of TELE-satellite.

Even on the hardware side Eycos was thinking of quality and, contrary to many other manufacturers, included a very sensitive tuner that can handle even weak signals with low FEC rates without any difficulties. Various tests on weak satellites such as Arabsat 2D or the horizontal transponders of Nilesat or Astra 2D always came back with positive results.

We were a little disappointed with the SCPC capability of the S30.12CI. The manufacturer specifies 2-45 Ms/sec. in the user manual and this turns out to be quite accurate in that the test transponder on Pas12 at 45° east at with 1.320 Ms/sec. or the 1.028 Ms/sec. signal on NSS7 at 22° west could not be handled by this receiver. Only symbolrates starting at 2.0 Ms/sec. could be processed by the S30.12CI.

On the other hand, we were pleased with this receiver's lack of interference with cordless telephones (assuming of course that high quality cables are used); something that occurs quite often with other receivers according to our readers.

Our overall good impression of this receiver was made even better thanks to the integrated

8-event timer function, the good functioning teletext decoder and the extra integrated accessories such as the calendar, calculator and three video games.

Eycos makes available a channel list editor for your PC free of charge on its web site (www.eycos.de). Despite all of its capabilities, this editor is actually quite easy to use. A software update via satellite is not available (not yet anyway) but thanks

to the practical update tools, this is easily done via the PC.

Eycos took great pains to make sure that the software was designed with simplicity and detail in mind. We did not come across any software problems during our tests. We also took a closer look at the various OSD languages available in this receiver and the overall impression on the presentation of these languages was generally positive.

TECHNIC DATA



Manufacturer	Eycos Multimedia Systems No.756, 189-1, Kumi-dong Bundang-ku, Seongnam 463-810, Korea
Distributor Europa	Satforce Kommunikationstechnik GmbH
Tel.	+49 (0)86 54 773 851
Fax	+49 (0)86 54 773 852
E-Mail	info@satforce.com
Model	S30.12CI
Function	Digital Satellite Receiver with CI Slots
Channel Memory	8000
Satellites	75
Symbolrate	2-45 Ms/sec.
SCPC Compatible	•
USALS	•
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
Scart Connectors	2
Audio/Video Outputs	3 x RCA
UHF Output	•
0/12-Volt Output	-
Digital Audio Output	•
EPG	•
C/Ku-band Compatible	•
SatcoDX Compatible	-
Power Supply	100-240 VAC, 50/60 Hz
Power Consumption	max. 30W

Expert conclusion



If you can do without twin tuners and a PVR, the S30.12CI would be a very good choice for you. The receiver functions very reliably and is very easy to use. The user manual is very detailed and can help in almost any situation. The receiver would be an ideal and above all a very optically pleasing addition to any living room.



Thomas Haring
TELE-satellite
Test Center
Austria



Unfortunately, the Eycos S50.12PVR and the S30.12CI both function using the same remote control signals.



Main Menu (ex. Farsi) |



Channel Scan |



SCPC |



EPG |



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Common Interface



DVB-S3000CI



DVB-S3800CI

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DVB-T8300



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DVB-2800TC

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TEL: +86-816-2416105 2410305

FAX: +86-816-2416135

E-mail: wlg.s.dvb@changhong.com

ARION 9400 PV2R

His and Hers One Receiver, Two TVs !



Analogue satellite receivers have been obsolete for quite some time now and been gradually replaced by digital boxes as more and more satellite channels have switched over to this new standard. However, the evolution goes on. It seems that

nowadays the trend is to integrate a hard drive into these digital boxes, which allows the user to record and enjoy his favourite programmes at a later time without having to mess around with numerous cassettes.

The next step in this evolution has been the integration of a second tuner. Since hard disks have become larger and cheaper you can now record several channels simultaneously.

since it is supposed to be used in a different room, out of sight of the receiver.

Arion was among these manufacturers who offered the possibility to record up to four programmes at the same time with their previous model, the 9300 PVR (see our test in TELE-satellite 08-09/2005). They took this progress one step further with a new creation: the Arion 9400 PV2R. This box not only has a built-in HDD and two tuners but a separate and independent output for a second TV set!

The ARION 9400 PV2R has a very pleasant front panel, aesthetically separated into two parts by a horizontal silver coloured band. The upper half hides the vacuum fluorescent display (VFD) that comes alive when the receiver is plugged in and displays, depending on the activated mode, the actual time in standby, the channel's name in full text while watching or the menu item while in programming mode.

Our test labs received this latest model as a prototype and had the opportunity to examine it in detail. Several surprises are waiting for you as you open the package. The receiver itself of course, which is a full sized silver coloured box (37 x 27 x 6 cm) and the remote controls. Our parcel contained two equal sized units, but the user manual mentions the existence of three, the third being a "backup" with limited functions. The list goes on with a complete set of connecting cables (Scart, RCA-AV, a loop-through for the second tuner, USB) and a fancy looking little device with a small whip antenna reminding us of "Sputnik". Arion's Sputnik is just a simple RF receiver for the second remote control that operates on radio frequency signals,

The entire lower half of the front panel is a flap that, when opened, reveals the double CI slot, a set of seven buttons on the right for channel up/down and menu operations, and a lonely larger sized standby/on button to the left of the slot. The separating band in the middle of the front panel contains two quite clever LEDs at each end. In standby, both are red. As the receiver is powered on, they change to green during normal operation. Each time a command is received from the remote control, they give feedback by lighting up in orange.

S/PDIF for digital audio, an S-VHS output, an RS/232 interface for software updates, a USB interface to exchange recorded files with a PC and a modulator in/out. For the most part, these connections can be found on most modern receivers. On top of all this you will see another set of three A/V RCA's to be linked to a second TV set in a separate room either by a relatively long cable or, as we did for our tests, by using an A/V transmitter. A small earphone jack serves to connect the "Sputnik". There's even a main power switch.

The back panel of the ARION 9400 PV2R is packed with various connectors: two tuner inputs with their looped through outputs, a set of RCA jacks and 2 Scart connectors for audio/video outputs, a programmable 0/12 volt RCA jack for an antenna switch, an optical

The two large remote controls look identical except for the small marking at the bottom: 1 or 2. Number 1 is the remote to be used in the room where the receiver is located, while number 2 is a radio frequency remote to be placed in your second TV room. Its signals will then be received by "Sputnik"

and command the receiver just in the same way as number 1 - or almost the same way since the user has the ability to restrict certain functions of number 2 in the related menu page. These remote controls have a very trendy design; long body, shiny black face, and chrome coloured buttons. Unfortunately these buttons, most of them having a second (shift) function, are tiny and it is difficult to distinguish all of the numerous special functions.

The ARION 9400 PV2R can be used with a wide variety of antenna configurations, and could vary from one single LNB (with a loop to the second tuner), or a motorized dish (DiSeqC 1.2 or USALS), up to the configuration offering the most simultaneous recording/watching options using two separate LNB's. This of course requires two cables running into your TV room. Once you have decided on which antenna configuration you will use for this receiver, you can move on to the initial setup. For our tests, we opted for the two-LNB alternative.

When you power up the receiver for the first time, as with most

TEST RESULT SATELLITE INTERNATIONAL <small>TELE</small>	Features	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
	Channel Memory	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Channel Scan Speed	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Channel Switching Speed	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Video Quality	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Audio Quality	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Tuner Sensitivity	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>



other receivers, you will be invited to select the audio language, the language for the subtitles, time zone etc. Next comes the antenna setting and the various search options (automatic, manual, advanced). The channel scan time is extremely fast and the list soon fills up with plenty of channels. At this point, the user is asked to confirm and save this list. Surprisingly, this saving procedure takes quite some time. These newly acquired channels can then be sorted into Favourites lists, which can be freely named; the same is true for the channels, thanks to a virtual keyboard that can be called up on the screen.

The list of transponders and satellites seems to need some updating since, for example, we could not find the not-so-new satellite HellasSat. It is possible though to add new satellites through the appropriate menu page, but we could not find out how, if at all possible, to assign the orbital position of the satellite for use with a USALS motor.

Everyday Use

Basically, the ARION 9400 PV2R behaves like any other high end digital receiver. The two tuners and HDD combination in this receiver already make it somehow special, since in the antenna setup we chose for our tests, we were able to record up to 4 channels on 2 different transponders. What is unique is the ability to watch any of the available channels on two different TV sets in two different rooms! On top of this, each of the viewers can change channels, program a recording or watch a pre-recorded broadcast. The same is true for radio stations of course. You can even have a look at what the other user is presently watching. This feature could be very useful if this second TV were in

the kid's room. The main user can then block certain channels from being accessed by the second TV set. A small pictogram of a TV set with the number 1 or 2 identifies which screens broadcast you are actually seeing.

The EPG is very well organized. Pushing the EPG button displays programming information of the active channel along with a window showing the name of the program and the satellite's name with its frequency. More technical information can be obtained by pushing the Info button. A PIP (picture-in-picture) function is available as well and thus you can follow another programme and call it up to the main screen should it become interesting.

The built-in hard disk in our receiver was a Seagate 160 GB. It offers plenty of space for recording and is very quiet. The only audible noise was that of a "cooling fan" - the sound was not very disturbing, but regretfully it was a continuous noise. Even when the box is in standby, the HD seems to continue running. Hopefully the manufacturer will take a closer look at this.

The receiver gives you the option to edit recorded content, that is, specific segments, such as commercials, can be deleted. Thanks to the USB interface, you can upload your favourite MP3 songs and have them ready to be played back through the audio system connected to the receiver. A list of all these songs will appear on the TV screen where you can again pick out the ones you like

Expert conclusion

Two CI slots, all possible connections, a generous hard disk, two tuners and the two separate TV outputs make this receiver an excellent entertainment option for the whole family and can still provide some excitement to a more experienced user.



Yanis Patalidis
TELE-satellite
Test Center
France

Navigating through the EPG and the programming of a recording might take some getting used to. The remote controls are elegant in appearance but are difficult to handle because of the small buttons.



best and perhaps let them play in a loop.

The user manual seems to be of an outstanding quality. We say, "seems", since there was no manual provided with the prototype as it was not yet available. However, the PDF file we received explains in great detail along with numerous photos and screenshots all the features of this receiver on 78 (!) pages just for the English version. The overall workmanship of the unit leaves a good impres-

sion of solidity. A calendar and a calculator - to figure out if it is time to buy or sell your shares - plus three games round out the whole picture of this box.

By the way, if you happen to own one of those weather stations with outdoor temperature sensors, don't be surprised if these outside readings disappear from the display. Blame "Sputnik" for it; its radio frequencies probably interfere with your station.

TECHNIC DATA



Manufacturer	ARION Technology Inc, Seo-Geon Building 4F, Gwan-Yang Dong, Dong-An Gu, Anyang City, Gyeong-Gi Do, 431-808 Republic of Korea
Fax	+82-31-421-2510
Email	info@arion.co.kr
Internet	www.arion.co.kr
Model	ARION 9400 PV2R
Function	Digital FTA + CI 2 PCMCIA twin tuner satellite receiver and PVR
Channel Memory	8000
Symbol Rate	2 -45 Ms/sec
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
USALS	•
0/12 Volt Output	•
Digital Audio Output	S/PDIF (optical)
Scart Connectors	2
Video/Audio Output	3 x RCA + second TV
Colour System	PAL D/K, B/G, I
S-VHS Output	•
Modulator	•
SCPC Compatible	•
EPG	•
Teletext	• (OSD und VBI)
Power Supply	90 -240 VAC 50/60 Hz
Power Consumption	50 W max.



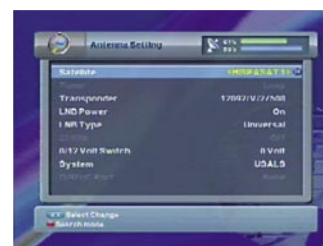
Extended info |



Weather stations |



System setup |



Antenna setting |

Maspro DT330

HDTV - For Japan Only

The Maspro DT330 is a combined satellite and terrestrial tuner for Japan's ISDB-format digital TV services. Because it's tied to these systems and

cannot be used with other services, such as DVB or MPEG2-based satellite broadcasting, the tuner requires very little set-up.



On the satellite-side the only set up that is required is connection to an antenna. The receiver automatically searches for channels and within a few seconds it is working. For terrestrial broadcasting users need select their nearest major city from a list and hit search. The receiver then scans for available channels and automatically adds them to the memory.

The channels in memory are automatically divided into four main categories based on the broadcasting platform: TR for terrestrial channels, BS for DBS satellite channels and CS1 and CS2 for non-DBS satellite channels.

A button press is needed to switch between the different platforms and you can't mix channels from different platforms together so, for example, if you are watching BS satellite channels the up/down buttons will cycle you through those but you'll have to press the platform button to watch any CS1 channels.

It's how must tuners in Japan work but it's annoying nonetheless. The tuner automatically switches between standard and high-definition and 4:3 and 16:9 aspect ratio output depending on the program being viewed. There are three video outputs for hooking up to a monitor:

a standard RCA video output, S-video output and a Japanese D4 connector, which supports an analog HDTV output. This can be switched between 525-i, 720-p and 1125-i to suit the monitor.

The on-screen display and electronic program guide are basic but easy to use. It's a shame that engineers couldn't have designed an HD program guide to make use of the higher resolution of some TVs to list more programs. As it is, users with HDTV sets see the same guide as standard definition TV owners.

The receiver has a sensitive tuner. This isn't so important for satellite broadcasts because Japan's DBS service delivers a powerful signal, but the terrestrial tuner managed to produce a picture from a low-powered local channel that was almost free of block noise. A reference TV, which also has a built-in digital tuner, can't produce a stable picture on the channel in question.

One thing missing from the receiver is an Ethernet socket for connection to a broadband Internet connection. That means

it can't access any interactive TV functions that rely on an Internet connection. There is a telephone

socket for some functions, such as registration for pay TV and interactive voting.

Annoyances include the receiver defaulting to the main audio of a bilingual program each time it is switched off. For Japanese speakers this isn't perhaps too much of a problem but English speakers, who will typically listen to the English-language secondary audio, will have to switch to this audio channel each time the receiver is turned on.

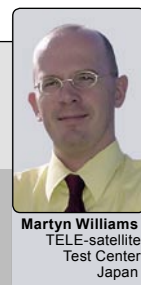
Conclusion

The receiver is one of the cheapest currently available that supports terrestrial and satellite HDTV services. There is little difference between most of the tuners so this makes the Maspro DT330 an excellent choice as a primary or secondary tuner.

Expert conclusion

+
Very easy to install with a very sensitive tuner.

-
Usability could be improved.



Martyn Williams
TELE-satellite
Test Center
Japan

TECHNIC DATA



Vendor	Maspro Denkoh Corp.
Address	Asada, Nissin, Aichi, 470-0194, Japan
Phone	+81-52-802-2211
Fax	+81-52-802-2200
Email	boekim@maspro.co.jp
Internet	www.maspro.co.jp
Model	DT330
Function	Digital terrestrial, BS satellite, CS satellite receiver
Channel memory	4,000 channels
Input	Terrestrial: 70-990MHz Satellite: 1032-2071MHz
Video output	RCA x2, S-Video x2, D4 HDTV x1
Audio output	RCA x2
Power supply	AC100 volts 50/60Hz
Size	60mm x 275mm x 270mm
Weight	2.3 kgs



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SatcoDX Satellite Chart

New Satellite Channels Since Last Issue of TELE-satellite International Magazine
 Compiled by the Worldwide SatcoDX Monitoring Stations, exclusively for TELE-satellite International Magazine

SatcoDX Monitoring Stations:

- China: HaoJun
- Croatia: Mario Hren
- Egypt: Saleh Al-Wehaimod
- France: Sylvain Oscul
- Germany: Heinz Koppitz
- Germany: Alexander Wiese
- India: P. SriVatsa
- Indonesia: Vincent Witjahun
- Japan: Keito Takahashi
- South Africa: Herman Ellis
- UK: Andy Middleton
- USA: Ron Roessel



Write your own SatcoDX CD-ROM "World of Satellites" by following the instructions on page 3 in this issue of TELE-satellite International Magazine.

The complete SatcoDX Global Satellite Chart "World of Satellites" with technical data of all satellite transponders worldwide is exclusively available to TELE-satellite International Magazine readers. The software can be downloaded from the Internet and activated by the Activation Code as printed on page 3 in this issue of TELE-satellite International Magazine. The Technical Data of all satellites worldwide are constantly monitored by SatcoDX Monitoring Stations around the world.

Explanation CRYPT

- BCNV** Betacrypt/Nagravision
- BCRT** Betacrypt
- BISS** BISS
- COCN** Conax/Cryptoworks/Nagravision
- COCR** Conax/Cryptoworks
- COMG** Conax/Mediaguard
- CONV** Conax/Nagravision
- CONX** Conax
- CRYW** Cryptoworks
- CWVA** Cryptoworks/Viaccess
- DMV_** DMV
- DRMC** DreamCrypt
- IRCV** Irdeto/Cryptoworks
- IRDT** Irdeto
- IRKF** Irdeto/KeyFly

- IRMG** Irdeto/Mediaguard
- IRNV** Irdeto/Nagravision
- IRVG** Irdeto/Videoguard
- MCV_** Mediaguard/Cryptoworks/Viaccess
- MCVI** Mediaguard/Cryptoworks/Viaccess/Irdeto
- MDS_** MDS
- MGCW** Mediaguard/Cryptoworks
- MGIV** Mediaguard/Irdeto/Videoguard
- MGDR** Mediaguard
- MGVC** Mediaguard/Videoguard/Cryptoworks
- MGVG** Mediaguard/Videoguard
- MGVI** Mediaguard/Viaccess/Irdeto
- NAVJ** Nagravision
- NTL2** NTL 2000
- POVU** PowerVu

- PVU+** PowerVu+
- RAS_** RAS
- SKYC** Skycrypt
- TASC** Tadiran Scopos
- TVCM** TV/COM
- VC2+** VC2+
- VCIR** Viaccess/Irdeto
- VCON** Viaccess/Conax
- VGRD** Videoguard
- VIC_** Viaccess/Irdeto/Cryptoworks
- VICS** Viaccess
- VIMG** Viaccess/Mediaguard
- VINA** Viaccess/Nagravision
- VIVG** Viaccess/Videoguard
- WGNR** Wegener

Typ.Freq.Pol.Channel Name Crypt SR FEC.Video Audio PCR Language: [GHz] PID PID PID

Typ.Freq.Pol.	Channel Name	Crypt	SR	FEC	Video	Audio	PCR	Language:
[GHz]					PID	PID	PID	
5.0 East SIRIUS 2,3								
T 11.721 H	CASTOR BROADCAST		3	33	34	33		
T 11.740 H	RTV 21		3	257	258	257		Dutch
T 11.740 H	RTV		3	513	514	513		Albanian
T 11.804 H	SVT2 Nordnytt		3					
T 11.804 H	SVT2 Vasterbotten		3					
T 11.804 H	SVT2 Mittnytt		3					
T 11.804 H	SVT2 Gavledala		3					
T 11.804 H	SVT2 Varmlandsnytt		3					
T 11.804 H	SVT2 Tvarnsnytt		3					
T 11.804 H	SVT2 ABC		3					
T 11.804 H	SVT2 Ostnytt		3					
T 11.804 H	SVT2 Vastnytt		3					
T 11.804 H	SVT2 Smalandsnytt		3					
T 11.804 H	SVT2 Sydnytt		3					
T 11.804 H	SVT2 REG		3					
T 11.804 H	24 Nordnytt		3					
T 11.804 H	24 Vasterbottensn		3					
T 11.804 H	24 Mittnytt		3					
T 11.804 H	24 Gavledala		3					
T 11.804 H	24 Varmlandsnytt		3					
T 11.804 H	24 Tvarnsnytt		3					
T 11.804 H	24 ABC		3					
T 11.804 H	24 Ostnytt		3					
T 11.804 H	24 Vastnytt		3					
T 11.804 H	24 Smalandsnytt		3					
T 11.804 H	24 Sydnytt		3					
T 11.804 H	24 REG		3					
T 11.843 H	Lithuanian TV1	VIVG	3	6256	6257	6256		Latvian
T 11.938 V	RTR Planeta	VGRD	3	3601	3602	3601		Russian
T 11.938 V	TCM/Cartoon EE	VGRD	3	3611	3612	3611		English
T 11.938 V	TCM/Cartoon EE	VGRD	3	3611	3613	3611		Russian
T 11.938 V	Quiz Nation	VGRD	3	3621	3622	3621		Original
R 11.938 V	Club/Dance	VGRD	3	3215	3215			Original
R 11.938 V	Golden Oldies	VGRD	3	3217	3217			Original
R 11.938 V	Jazz	VGRD	3	3219	3219			Original
R 11.938 V	Bandit Rock	VGRD	3	3221	3221			Original
R 11.938 V	Classic	VGRD	3	3223	3223			Original
R 11.938 V	Disco	VGRD	3	3225	3225			Original
R 11.938 V	Lugna Favoriter	VGRD	3	3227	3227			Original
R 11.938 V	Soul R&B	VGRD	3	3229	3229			Original
R 11.938 V	Svenska Favoriter	VGRD	3	3231	3231			Original
R 11.938 V	Super 80's	VGRD	3	3233	3233			Original
T 11.958 H	TVCI		3	50	51	50		Russian
T 11.958 H	TV Center		3	80	81	80		Russian
T 11.958 H	TV3 Estonia	VGRD	3	6331	6332	6331		Estonian
T 11.958 H	TV3 Lithuania	VGRD	3	6341	6342	6341		Lithuanian
T 11.958 H	Tango TV	VGRD	3	6351	6352	6351		
T 11.958 H	Lithuanian TV1 R	VGRD	3	6371	6372	6371		Lithuanian
T 11.958 H	LTV1	VGRD	3	6391	6392	6391		Lithuanian
T 11.977 V	3+ Latvia		3					
T 11.977 V	TV3 Latvia		3					
T 11.977 V	3+ Estonia		3					
T 11.977 V	Lithuanian TV1		3					
T 11.977 V	Tango TV		3					
T 11.977 V	TV3 Lithuania		3					
T 11.977 V	LTV1		3					
T 11.977 V	TV3 Estonia		3					
T 11.996 H	SvSp		3	4031	4032			Swedish
T 11.996 H	SportN	VGRD	3	4061	4062	4061		Norwegian
T 12.034 H	Toon Disney	VGRD	3	3191	3192	3191		Swedish
T 12.034 H	Toon Disney	VGRD	3	3191	3193	3191		Norwegian
T 12.034 H	Toon Disney	VGRD	3	3191	3194	3191		Danish
T 12.034 H	Toon Disney	VGRD	3	3191	3195	3191		Finnish
T 12.034 H	Toon Disney	VGRD	3	3191	3196	3191		Finnish
T 12.150 H	Antena 4	VCON	3	501	502	501		Romanian
R 12.150 H	Romantic FM		3	2503	2501			Romanian

Typ.Freq.Pol.Channel Name Crypt SR FEC.Video Audio PCR Language: [GHz] PID PID PID

Typ.Freq.Pol.	Channel Name	Crypt	SR	FEC	Video	Audio	PCR	Language:
[GHz]					PID	PID	PID	
R 12.150 H	Minisat		3	3303	3301			Romanian
R 12.150 H	InfoPro		3	2502	2501			Romanian
T 12.226 H	Enc1p12	POVU	3	25540	7	1210	1200	1210
T 12.303 H	Quiz Nation		3	25547	7	1460	1420	1460
R 12.303 H	Premier Radio		3	25547	7	1322	1322	English
T 12.338 H	Cinemax	VCON	3	2101	2102	2101		Romanian
T 12.338 H	HBO	VCON	3	2500	3	6102	6101	Romanian
R 12.380 H	Line		3	271	231			
T 12.449 H	SerRep		3	11230	7	1160	1120	1160
T 12.465 H	BTV		3	10787	7	308	256	50
T 12.465 H	TTVI		3	10787	7	410	420	70
T 12.465 H	VTK		3	10787	7	440	450	4440
R 12.465 H	Radio Bravo		3	10787	7	4542	4148	Bulgarian
T 12.465 H	eurotic ASTRA		3	10787	7	460	470	511
T 12.628 V	SVT2 Nordnytt		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Vasterbotten		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Mittnytt		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Gavledala		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Varmlandsnytt		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Tvarnsnytt		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 ABC		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Ostnytt		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Vastnytt		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Smalandsnytt		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 Sydnytt		3	3400	3	2411	2412	2411
T 12.628 V	SVT2 REG		3	3400	3	2411	2412	2411
T 12.628 V	24 Nordnytt		3	3400	3	2561	2562	2561
T 12.628 V	24 Vasterbottensn		3	3400	3	2561	2562	2561
T 12.628 V	24 Mittnytt		3	3400	3	2561	2562	2561
T 12.628 V	24 Gavledala		3	3400	3	2561	2562	2561
T 12.628 V	24 Varmlandsnytt		3	3400	3	2561	2562	2561
T 12.628 V	24 Tvarnsnytt		3	3400	3	2561	2562	2561
T 12.628 V	24 ABC		3	3400	3	2561	2562	2561
T 12.628 V	24 Ostnytt		3	3400	3	2561	2562	2561
T 12.628 V	24 Vastnytt		3	3400	3	2561	2562	2561
T 12.628 V	24 Smalandsnytt		3	3400	3	2561	2562	2561
T 12.628 V	24 Sydnytt		3	3400	3	2561	2562	2561
T 12.628 V	24 REG		3	3400	3	2561	2562	2561
T 12.628 V	PRO TV		3	3400	3			
T 12.628 V	Acasa TV		3	3400	3			
T 12.628 V	CORAL - SIRIUS		3	3400	3			
T 12.628 V	ALT VC 20		3	3400	3			
T 12.628 V	CORAL BIDS		3	3400	3			
T 12.628 V	ALT VC 22		3	3400	3			
T 12.634 H	TV1000 Balkan FSS	VGRD	3	14463	3	6421	6422	6421
T 12.634 H	SVT 1		3	14463	3			
T 12.634 H	SVT 2		3	14463	3			
T 12.634 H	H 24		3	14463	3			
T 12.634 H	Barnkanalen		3	14463	3			
T 12.634 H	SVT Extra		3	14463	3			
T 12.634 H	Kanal 10		3	14463	3			
T 12.634 H	HE!		3	14463	3			
T 12.634 H	GOD Channel		3	14463	3			
T 12.671 H	TVN Chile Nordic		3	2847	2			
T 12.671 H	Sirius Channel		3	2847	2			
T 12.671 H	SportN		3	2847	2			
T 12.671 H	H SvSp		3	2847	2			
T 12.671 H	H Jetix/Travel		3	2847	2			
T 12.675 V	Viasat 3		3	5062	3	6401	6402	6401
T 12.675 V	SVT2 Nordnytt		3	5062	3	2411	2412	2411
T								

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Europe Branch office : Wiesenstrasse 5, D-65843 Sulzbach, Germany / Tel: +49-(0)6196-88286-11 / Fax: +49-(0)6196-88286-29 / E-mail: europe@globalteq.com

Typ	Freq [GHz]	Pol	Channel Name	Crypt	SR	FEC	Video PID	Audio PID	PCR PID	Language
T	11.678	H	Sky Turk	30000 3			2140	2240	2140	Turkish
T	11.162	H	ADJARA TV	2170 3			4194	4195	4194	
T	11.178	H	Bedadi Satellite	2532 3			308	256	8190	Arabic
13.0 East HOTBIRD 1,2,3,4,6										
T	10.723	H	Al Jazeera Sport 1	VCIR	29900 3		1002	1202	1002	Arabic
T	10.723	H	Al Jazeera Sport 2	VCIR	29900 3		1008	1308	1008	Arabic
T	10.758	V	TPS Cinecomedy	VICS	27500 3		820	830	820	French
T	10.758	V	TPS Cineclub	VICS	27500 3		920	930	920	French
T	10.758	V	BBC PRIME	VICS	27500 3		1020	1030	1020	English
R	10.758	V	France Vivace		27500 3		3532	3532		French
T	10.796	V	Paris Premiere	VIMG	27500 3		720	730	720	French
T	10.796	V	Paris Premiere	VIMG	27500 3		720	731	720	English
T	10.796	V	SIC International	VICS	27500 3		1220	1230	1220	Portugu
R	10.796	V	Radio FG		27500 3		3336	3336		French
T	10.853	H	Tamasha TV		27500 3		34	32	33	Farsi
T	10.873	V	France 5	VICS	27500 3		820	830	820	French
R	10.873	V	Hifi West		27500 3		3334	3334		French
T	10.911	V	LCI	VICS	27500 3		820	830	820	French
T	10.911	V	BANDIAGARA		27500 3		4026	4036	4026	
R	10.911	V	Radio Coutoisie		27500 3		3335	3335		French
T	10.931	H	Lost - Marathon	IRD	27500 3		516	690	8190	Greek
T	10.931	H	Supersport Extra 2	IRD	27500 3		520	730	8190	
T	10.971	H	MRTV-3		27500 3		264	520	264	
T	10.971	H	Russia Today		27500 3		276	532	276	English
T	10.971	H	Suryosyat		27500 3		290		290	
T	11.013	H	Gospel Channel		27500 3		258	514	258	English
T	11.013	H	Conto TV		27500 3		273	529	273	Italian

Typ	Freq [GHz]	Pol	Channel Name	Crypt	SR	FEC	Video PID	Audio PID	PCR PID	Language
T	11.200	V	D'Anna Sat	27500 5			913	914	913	Italian
T	11.200	V	Venevision	27500 5			922	923	922	Spanish
T	11.200	V	TV Chile	27500 5			924	925	924	Spanish
T	11.200	V	TeleModena	27500 5			4865	4866	4865	Italian
R	11.200	V	Radio For Peace		27500 5		365	924		
T	11.220	V	H AnC11	VGRD	27500 2		2595	2596	2595	Italian
R	11.242	V	Radio SvetPLUS		27500 3		131	131		Serbian
R	11.242	V	TREF Radio		27500 3		132	132		Serbian
R	11.242	V	Peiratriki Ekklesia		27500 3		744	900		Greek
R	11.242	V	Radio Lane		27500 3		136	136		Serbian
R	11.242	V	Kiss Boom		27500 3		138	138		
R	11.242	V	Radio Srna		27500 3		140	140		Bosnian
T	11.242	V	ESP2 Romanian		27500 3		2825	2850	2825	
T	11.283	V	VH1	MGCW	27500 3		165	100	165	Original
T	11.304	H	AII TV		27500 3		320	321	320	Italian
T	11.304	H	Sat 2000		27500 3		330	331	330	Italian
T	11.304	H	Rete Oro		27500 3		350	351	350	
T	11.304	H	Lazio Channel		27500 3		360	361	8190	
T	11.388	H	R4 DTT		27500 2					
T	11.388	H	24ore.tv		27500 2					
T	11.388	H	Class News		27500 2					
T	11.388	H	Coming Soon		27500 2					
T	11.388	H	BBC World		27500 2					
T	11.388	H	Boing		27500 2					
T	11.388	H	Mediaset Premium 1		27500 2					
T	11.388	H	Mediaset Premium 2		27500 2					
T	11.388	H	Mediaset Premium 3		27500 2					

Typ	Freq [GHz]	Pol	Channel Name	Crypt	SR	FEC	Video PID	Audio PID	PCR PID	Language
T	11.727	V	Speed Page	27500 3			2861	2862	2860	
T	11.746	H	Cee-1 TV	27500 3			2861	2862	2860	Tamil
T	11.785	V	PEN TV	27500 3			1361	1362	1361	Farsi
T	11.785	H	Omid e Iran	27500 3			1411	1412	1411	Farsi
T	11.785	H	Ilaam-e-Jam Intern	27500 3			1424	1425	1424	Farsi
T	11.785	H	Iran TV	27500 3			1431	1432	1431	Farsi
T	11.785	H	Didar TV	27500 3			1451	1452	1451	Farsi
T	11.785	H	TVE Internacional	27500 3			3521	3522	3521	Spanish
T	11.785	H	TVE Internacional	27500 3			3553	3554	3553	Spanish
T	11.785	H	Canal 24 Horas	27500 3			3569	3570	3569	Spanish
T	11.823	H	Supersport Extra 1	IRD	27500 3		519	720	8190	
T	11.881	V	Rock TV		27500 3					
T	11.881	V	Discovery Sci		27500 3					
T	11.881	V	Eurosport		27500 3					
T	11.881	V	EurosportNews		27500 3					
T	11.881	V	Discovery Civil		27500 3					
T	11.881	V	Discovery Travel		27500 3					
T	11.881	V	Videotalia		27500 3					
T	11.881	V	Fox News		27500 3					
T	11.881	V	Eurosport 2		27500 3					
T	11.900	H	Canale 132	VGRD	27500 3		163	412	163	Italian
T	11.938	H	EI Entertainment	IRD	27500 3		519	720	519	English
T	11.938	H	Chasse & Peche	IRD	27500 3		520	730	136	Greek
T	11.958	V	SKY Sport 1	VGRD	27500 3		160	400	2305	Italian
T	11.958	V	SKY Sport 1	VGRD	27500 3		160	401	2305	English
T	11.958	V	SKY Sport 2	VGRD	27500 3		161	404	2305	Italian
T	11.958	V	SKY Sport 2	VGRD	27500 3		161	405	2305	English



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ANGA Services GmbH
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Germany

Phone: +49 (0)228/96 21 890

Fax: +49 (0)228/96 21 895

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T	11.013	H	Calabria Channel	27500 3			274	530	274	Italian
T	11.013	H	RTVI	VCON	27500 3		275	531	275	Russian
T	11.013	H	RTVI Nasha Kino	VCON	27500 3		278	534	278	Russian
T	11.013	H	RTVI Detsky Mir/T	VCON	27500 3		280	536	280	Russian
T	11.013	H	TVP Erotyka		27500 3		290	546	290	Polish
T	11.013	H	H 69TV		27500 3		293	549	293	Original
T	11.013	H	Mobila TV		27500 3		296	552	296	
T	11.013	H	RTVI-M	VICS	27500 3		601	602	601	Russian
R	11.013	H	Suton Radio		27500 3		580	274		Serbian
R	11.013	H	Radio Capri		27500 3		581	274		Italian
R	11.013	H	Blank audio chann		27500 3		584	259		
R	11.013	H	Radio Ritam		27500 3		566	258		
T	11.054	H	Das Vierte		27500 5		550	551	550	German
T	11.075	V	VH1 Polska	CRYW	27500 3		163	92	163	Polish
T	11.075	V	Viva Polska		27500 3		164	96	164	Polish
T	11.131	V	BBC Prime	VICS	5632 3		256	257	128	English
T	11.137	H	Motors TV	VICS	27500 3		521	681	521	German
T	11.137	H	Motors TV	VICS	27500 3		521	701	521	Greek
T	11.159	V	TVS FBS		27500 3					
T	11.159	V	TVS Europe		27500 3					
T	11.159	V	Roma Uno		27500 3					
T	11.159	V	ANN		27500 3					
T	11.159	V	Kurdistan TV		27500 3					
T	11.159	V	Telegenova Sat2		27500 3					
T	11.159	V	RTB		27500 3					
T	11.200	V	EB1 (Entertainment)		27500 5		373	374	373	
T	11.200	V	Varese Sat		27500 5		907	908	907	Italian

T	11.388	H	Mediaset Premium 4		27500 2					
T	11.531	V	Planet Italia		27500 3		205	206	205	Italian
T	11.531	V	Jolly Sat		27500 3		230	231	230	Italian
T	11.531	V	Canale 50		27500 3		523	524	523	Italian
T	11.531	V	Telesur		27500 3		525	526	525	Spanish
R	11.531	V	Radio Dija		27500 3		292			
T	11.531	V	Telemobardia		27500 3		202	203	202	
T	11.531	V	Komala TV		27500 3		207	208	207	
T	11.566	H	Smile of a Child		27500 3		8008	8108	8008	English
T	11.585	V	Holidays in Greec		27500 3		1403	1494	2316	Greek
T	11.585	V	Holidays in Greec		27500 3		1403	1495	2316	English
T	11.585	V	Holidays in Greec		27500 3		1403	1496	2316	German
T	11.585	V	Holidays in Greec		27500 3		1403	1497	2316	French
T	11.585	V	NRJ 12	NAGV	27500 3		1491	1492	1491	French
T	11.585	V	NRJ 12 (AC3)	NAGV	27500 3		1491	1493	1491	French
T	11.585	V	TV Globo	NAGV	27500 3		1523	1524	1523	Portugu
R	11.585	V	Studio Company Ra		27500 3		1625	1625		Croatian
R	11.585	V	Rire et Chansons		27500 3		1622	168		French
R	11.585	V	Nostalgie		27500 3		1623	168		French
R	11.585	V	NRJ France		27500 3		1612	168		French
R	11.585	V	Cherie FM		27500 3		1624	168		French
T	11.604	H	Tamasha		27500 5		1056	1057	1056	
T	11.604	H	Iran Music		27500 5		1065	1066	1065	Farsi
T	11.604	H	Salaam TV		27500 5		1070	1071	1070	Farsi</

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SatcoDX NEW Satellite Channels 04/2006

Typ	Freq	Pol	Channel Name	Crypt	SR	FEC	Video	Audio	PCR	Language
[GHz]							PID	PID	PID	
T	12.149	V	Cinquestelle		27500	3	240	241	240	Italian
T	12.149	V	TV Pika		27500	3	245	246	245	Sloveni
R	12.149	V	R.BuonConsiglio		27500	3	263	263		Italian
R	12.149	V	Radio Cuore Due		27500	3	265	265		Italian
R	12.149	V	RIN Digital		27500	3	265	265		Italian
R	12.149	V	Play Radio		27500	3	266	266		Italian
T	12.188	V	MTV Polska	NAGV	27500	3	833	834	833	Polish
R	12.207	H	KITT Radio		27500	3	2099	3590		Serbian
R	12.226	V	Sawa Levant Radio		27500	3	4820	4820		
R	12.226	V	Sawa Iraq Radio 3		27500	3	4822	4822		
R	12.226	V	Sawa Egypt Radio		27500	3	4830	4830		
R	12.226	V	Sawa Gulf Radio 3		27500	3	4832	4832		
R	12.226	V	Sawa N. Africa Ra		27500	3	4920	4920		
R	12.226	V	Sawa Sudan Radio		27500	3	4922	4922		
R	12.226	V	Farda Radio 306		27500	3	4930	4930		
R	12.226	V	Sawa Lebanon Radi		27500	3	4932	4932		
T	12.245	H	TTN - Tamil TV Ne	VICS	27500	3	124	134	124	Tamil
T	12.245	H	I Tele	VICS	27500	3	222	223	222	French
T	12.265	V	Venevision		27500	3	110	120	110	Spanish
T	12.265	V	TV Chile		27500	3	210	220	210	Spanish
T	12.265	V	Red Panamericana		27500	3	310	320	310	Spanish
T	12.265	V	TV Colombia		27500	3	410	420	410	
R	12.285	H	Radio ZET		27500	3	770			Polish
R	12.285	H	Radio ZET		27500	3	770			Polish
R	12.285	H	RMF MAXXX		27500	3	777	777		
R	12.285	H	RMF MAXXX		27500	3	777	777		
T	12.303	V	Blu Line TV		27500	3	242	243	242	Italian
T	12.303	V	Transex		27500	3	245	246	245	Italian
T	12.303	V	Sexy Channel	VICS	27500	3	500	510	500	
T	12.360	H	ESREZ		27500	3	512	4112	512	
T	12.380	V	Sat 7		27500	3	3023	3033	8190	Arabic
R	12.380	V	Trans World Radio		27500	3	3530	3530		Multitl
T	12.380	V	SAT 7		27500	3	3123	3133	8190	
T	12.380	V	SKY Calcio 10		27500	3	3024	3034	3024	
T	12.380	V	SKY Calcio 11		27500	3	3533	3533		
T	12.380	V	SKY Calcio 12		27500	3	321	321		
T	12.380	V	SKY Calcio 13		27500	3				
T	12.380	V	SKY Sport 16.9		27500	3	3026	3036	3026	
T	12.380	V	SKY Sport Extra		27500	3	3538	3538		
T	12.380	V	NTV HAVAT SAT		27500	3	3023	3033	8190	
R	12.380	V	RNW-1		27500	3	3543	3543		
R	12.380	V	RNW-2		27500	3	3545	3545		
T	12.380	V	SEXY CHANNEL		27500	3	3546	3546		
T	12.380	V	S24 TV		27500	3	3547	3547		
T	12.380	V	BIO TV		27500	3	3531	3531		
T	12.380	V	NAPOLIINT.		27500	3	3530	3530		
T	12.380	V	EXPER.		27500	3	3532	3532		
T	12.380	V	TRANSEX		27500	3				
T	12.418	V	Raisat Extra	VGRD	27500	3	160	400	8190	Italian
T	12.418	V	Raisat Premium	VGRD	27500	3	161	404	8190	Italian
T	12.418	V	Raisat Cineworld	VGRD	27500	3	162	408	8190	Italian
T	12.418	V	Raisat Cineworld	VGRD	27500	3	162	409	8190	English
T	12.418	V	Raisat Ragazzi	VGRD	27500	3	163	412	8190	Italian
T	12.418	V	Raisat Gambero	VGRD	27500	3	164	416	8190	Italian
T	12.418	V	SKY Cinema 2	VGRD	27500	3	166	424	166	Italian
T	12.418	V	SKY Cinema 2	VGRD	27500	3	166	425	166	English
T	12.418	V	SKY Classics	VGRD	27500	3	167	428	8190	Italian
T	12.418	V	SKY Classics	VGRD	27500	3	167	429	8190	English
T	12.418	V	SKY 16.9	VGRD	27500	3	168	432	168	Italian
T	12.418	V	SKY 16.9	VGRD	27500	3	168	433	168	English
T	12.418	V	Sportitalia		27500	3	169	438	169	Italian
R	12.437	H	IRIB Internationala		27500	3	98	163	Farsi	
R	12.437	H	IRIB Internationala		27500	3	98	163	Farsi	
R	12.476	H	ARY Digital	IRDIT	27500	3	650	651	650	Georgian
R	12.476	H	B4U Movies	IRDIT	27500	3	656	657	656	Hindi
R	12.476	H	ROJ TV	IRDIT	27500	3	701	702	701	Kurdish
R	12.476	H	Mezopotamia TV	IRDIT	27500	3	711	712	711	Kurdish
R	12.476	H	Alpha ETC Punjabi	IRDIT	27500	3	801	802	801	Punjabi
R	12.476	H	Zee TV (UK)	IRDIT	27500	3	910	911	910	Hindi
R	12.476	H	Zee Cinema (UK)	IRDIT	27500	3	915	916	915	Hindi
R	12.476	H	Denge Mezopotamia		27500	3	703	703	Kurdish	
T	12.540	H	A3		27500	3	4440	4441	4440	Arabic
R	12.540	H	Chaîne 1		27500	3	4443	4443	Arabic	
R	12.540	H	Chaîne 2		27500	3	4445	4445	Arabic	
R	12.540	H	Chaîne 3		27500	3	4447	4447	Arabic	
T	12.540	H	Monaco Info		27500	3	5124	5125	5124	
T	12.558	V	CNES TV Sat		27500	3	6143	6142	6143	
T	12.597	V	JSTV 2	CRYW	27500	3	2011	2013	2011	Japanese
T	12.597	V	JSTV 2	CRYW	27500	3	2011	2014	2011	English
T	12.654	H	Al Mustakillah TV		27500	3	4160	4120	4160	Arabic
R	12.654	H	Palestine R1		27500	3	1989	1020	Arabic	
T	12.654	H	Prima Fila 17		27500	3	1160	1120	1160	
T	12.654	H	Prima Fila 18		27500	3	1260	1220	1260	
T	12.654	H	Prima Fila 19		27500	3	1360	1320	1360	
T	12.654	H	Prima Fila 11		27500	3	1560	1520	1560	
T	12.654	H	Prima Fila 12		27500	3	1660	1620	1660	
T	12.654	H	Prima Fila 13		27500	3	1760	1720	1760	
T	12.654	H	Prima Fila 14		27500	3	1860	1820	1860	
T	12.654	H	Prima Fila 15		27500	3	1960	1920	1960	
T	12.654	H	Prima Fila 16		27500	3	2020	2060	2020	
T	12.731	H	SKY Meteo24		27500	3				
T	12.731	H	SNAI Sat		27500	3				
T	12.731	H	Anc1003		27500	3				
T	12.731	H	Anc1004		27500	3				
T	12.731	H	Anc1005		27500	3				
T	12.731	H	SKY Focus		27500	3				
T	12.731	H	SKY TG 24		27500	3				

Typ	Freq	Pol	Channel Name	Crypt	SR	FEC	Video	Audio	PCR	Language
[GHz]							PID	PID	PID	
T	11.606	V	Animal Planet PP	CRYW	14600	7	511	785	511	Original
T	11.618	H	Star AC 5		29950	3	2002	2003	2002	
T	11.680	V	Channel 1		3060	7	33	34	41	Bangla
T	12.557	H	RTL MIDI D320 A		11264	1	308	256	8190	
T	12.557	H	RTL MIDI D320 B		11264	1	308	256	8190	
T	12.557	V	Program 2		2156	3	512	768	512	Serbian
T	12.557	V	Program 3		2156	3				
T	12.557	V	Program 4		2156	3				
T	12.557	V	SatTV		2156	3	512	768	512	
T	12.557	V	Program 5		2156	3				
T	12.557	V	Program 6		2156	3				
T	12.557	V	Program 7		2156	3				
T	12.557	V	Program 8		2156	3				
T	12.557	V	W2 D9 enc6		2156	3				
T	12.568	H	RTL DSNB D219		2892	3				
T	12.568	H	PORTUGAL008		2892	3				
T	12.568	H	S36172		2892	3				
T	12.602	H	SIC INTERNACIONAL		15000	5				
T	12.602	H	RTL DSNB D219		15000	5				
T	12.602	H	S36172		15000	5				
T	12.650	H	UNIRE1 - GRIGIO	POVU	15000	2	110	100	110	Italian
T	12.650	H	UNIRE2 - VERDE	POVU	15000	2	210	200	210	Italian
T	12.650	H	UNIRE2 VERDE	POVU	15000	2	210	200	210	Italian
T	12.650	H	SNAI SAT/UNIRE SAT	POVU	15000	2	410	400	410	Italian
T	12.650	H	Cinquestelle		15000	2	510	500	510	Italian
T	12.650	H	UNIRE1 - IPPICHE		15000	2	110	100	110	
T	12.650	H	UNIRE1 - SPORTIV		15000	2				
T	12.725	V	Armenia TV		3416	2	3585	3601	3	



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SatcoDX NEW Satellite Channels 04/2006

Typ	Freq	Pol	Channel Name	Crypt	SR	FEC	Video	Audio	PCR	Language	
[GHz]							PID	PID	PID		
R	10.818	V	BBC 7				22000 5				
R	10.818	V	BBC R n Gael				22000 5				
T	10.862	H	Playhouse Disney				22000 5	2318 2335	2305	English	
T	10.862	H	ABC1	VGRD			22000 5	2321 2322	2305	English	
T	11.739	V	BBC 1 W Mids				27500 2				
T	11.739	V	BBC 1 N West				27500 2				
T	11.739	V	BBC 1 Yrks&Lin				27500 2				
T	11.739	V	BBC 1 Yorks				27500 2				
T	11.739	V	BBC 1 E Mids				27500 2				
T	11.739	V	BBC 1 East (E)				27500 2				
T	11.739	V	ETV5				27500 2				
T	11.739	V	DAYSTAR				27500 2	8061 8062	8061		
T	11.739	V	TV4				27500 2	8091 8092	8091		
R	11.739	V	TT				27500 2	8151	8071		
T	11.739	V	Viasat Xtra 1				27500 2		8001		
T	11.739	V	Viasat Xtra 2				27500 2		8011		
T	11.739	V	Viasat Xtra 3				27500 2		8021		
T	11.739	V	Viasat Xtra 4				27500 2		8031		
T	11.739	V	TV-Shop 24/7				27500 2				
T	11.739	V	K75 NSAB				27500 2				
T	11.758	H	BBC 1 W Mids				27500 2				
T	11.758	H	BBC 1 N West				27500 2				
T	11.758	H	BBC 1 Yrks&Lin				27500 2				
T	11.758	H	BBC 1 Yorks				27500 2				
T	11.758	H	BBC 1 E Mids				27500 2				
T	11.758	H	BBC 1 East (E)				27500 2				
T	11.758	H	ETV5				27500 2				
T	11.758	H	NOVY KANAL				27500 2	6101 6102	6101		
T	11.758	H	NET				27500 2	6111 6112	6118		
T	11.758	H	GLAS				27500 2	6131 6132	6131		
T	11.758	H	TRK UKRAINA				27500 2	6161 6162	6161		
T	11.758	H	RADA				27500 2	6171 6172	6171		
T	11.758	H	RADIO ERA				27500 2	6188	6118		
R	11.758	H	Love Radio				27500 2	6163	6161		
T	11.758	H	Channel 5 (Ukrain)				27500 2	6191 6192	6191		
T	11.934	V	Sky Customer Chan	VGRD			27500 2	5164	8190	English	
T	11.934	V	Cartoon/TCM EE				27500 2	3611 3612	3611		
T	11.934	V	RTR Planeta				27500 2	3601 3602	3601		
T	11.934	V	Quiz Nation				27500 2	3621 3622	3621		
R	11.934	V	Club/Dance				27500 2	3715 3716	3715		
R	11.934	V	Golden Oldies				27500 2	3717	3717		
R	11.934	V	Jazz				27500 2	3719 3719			
R	11.934	V	Bandit Rock				27500 2	3721 3721			
R	11.934	V	Classic				27500 2	3723 3723			
R	11.934	V	Disco				27500 2	3725 3725			
R	11.934	V	Lugna Favoriter				27500 2	3727 3727			
R	11.934	V	Soul R&B				27500 2	3729 3729			
R	11.934	V	Svenska Favoriter				27500 2	3731 3731			
R	11.934	V	Super 80's				27500 2	3733 3733			
T	11.973	V	SET Max	VGRD			27500 2	2328 2329	2304	Hindi	
T	11.973	V	Viasat Sport 1				27500 2	2101 2102	2101		
T	11.973	V	MTV SE				27500 2	2151 2152	2151		
T	11.973	V	BBC World				27500 2	2121 2122	2121		
T	11.973	V	TV1000 East				27500 2	2171 2172	2171		
T	11.973	V	Hallmark				27500 2	2141 2142	2141		
R	11.973	V	P4 Norge				27500 2	2235	2235		
T	11.973	V	TV4 Fakta				27500 2	2181 2182	2181		
T	11.973	V	TV3+				27500 2	2131 2132	2131		
T	11.973	V	ZTV Norway				27500 2	2161 2162	2161		
T	11.973	V	Nickelodeon				27500 2	2111 2112	2111		
T	11.992	H	UKTV Bright Ideas	VGRD			27500 2	2347 2348	2347	English	
T	11.992	H	UKTV G2+				27500 2	2311 2314	2311		
T	11.992	H	TVN Chile Nordic				27500 2	4001 4002	4001		
T	11.992	H	Sirius Channel				27500 2	4111 4112	4111		
T	11.992	H	SportN				27500 2	4061 4062	4061		
T	11.992	H	SvSp				27500 2	4031 4032	4031		
T	11.992	H	Jetix/Travel				27500 2	4081 4082	4081		
T	12.032	H	Reality TV				27500 2	3171 3172	3171		
T	12.032	H	Disney Channel				27500 2	3181 3182	3181		
T	12.032	H	TV1000 Plus One				27500 2	3101 3102	3101		
T	12.032	H	TV1000 Family				27500 2	3111 3112	3111		
T	12.032	H	TV1000 Nordic				27500 2	3121 3122	3121		
T	12.032	H	TV1000 Classic				27500 2	3131 3132	3131		
T	12.032	H	Toon Disney				27500 2	3191 3192	3191		
T	12.032	H	VH1				27500 2	3161 3162	3161		
T	12.051	V	Travel Channel				27500 2	2311 2317	2311	English	
T	12.051	V	Thomson TV				27500 2	2318 2320	2318	English	
R	12.051	V	Rix FM				27500 2	1213	1213		
R	12.051	V	Bandit 106.3				27500 2	1211	1211		
T	12.070	H	ENTER-FILM				27500 2	6511 6512	6511		
T	12.070	H	INTER+				27500 2	6521 6522	6521		
T	12.070	H	ENTER				27500 2	6531 6532	6531		
T	12.109	H	FX	VGRD			27500 2	512	640	8190	English
T	12.109	H	Sky Sports 3	VGRD			27500 2	513	641	8190	English
T	12.109	H	Sky Sports 1	VGRD			27500 2	515	643	8190	English
T	12.109	H	Sky Sports 2	VGRD			27500 2	516	644	8190	English
T	12.109	H	Cartoon Network+	VGRD			27500 2	518	646	8190	English
T	12.109	H	Romantica 1				27500 2	133	135	133	
T	12.109	H	Global 1				27500 2	288	289	288	
T	12.109	H	841				27500 2	800	801	800	
T	12.109	H	CUSTOMER NETWORKS				27500 2	1056	1057	1056	
T	12.109	H	Virgin Radio AM				27500 2	1215	1215		
T	12.109	H	TEAMtalk CH3				27500 2	1216	1216		
T	12.109	H	Romantica 2				27500 2	311	312	311	
T	12.109	H	PG				27500 2	331	332	331	
T	12.109	H	PB				27500 2	351	352	351	
T	12.109	H	ST				27500 2	321	322	321	
T	12.109	H	Paddy Power 1				27500 2	4113	4097		
T	12.109	H	IRN				27500 2	4369	4369		
T	12.109	H	ESPN Europe				27500 2	520	1120	520	
T	12.109	H	TeleSports				27500 2	1001	1002	1001	
T	12.109	H	HSBC Live				27500 2	1015	1015		
T	12.109	H	Global 2				27500 2	1018	1019	1018	
T	12.109	H	Immedia 1				27500 2	1020	2309		
T	12.109	H	Immedia 2				27500 2	1021	2309		
T	12.129	V	7308				27500 2	2304	2306	2304	
T	12.148	H	Max Info				27500 2	2501	2502	2501	
R	12.148	H	Minisat				27500 2	3303	3301		
R	12.148	H	InfoPro				27500 2	2502	2501		
T	12.188	H	TCM	VGRD			27500 2	516	664	8190	English
T	12.246	V	Euro1080 HD-5				27500 2	311	312	311	
T	12.266	H	Sky Venue	VGRD			27500 2	514	662	8190	English
T	12.266	H	TVCI				27500 2	601	602	601	
T	12.284	V	Sky One	VGRD			27500 2	513	641	8190	English
T	12.284	V	Sky Movies 10	VGRD			27500 2	514	642	8190	English
T	12.304	H	Sky Movies 3	VGRD			27500 2	518	666	8190	English
T	12.344	H	Sky Movies 10HD	VGRD			2000 3				
T	12.402	V	Life TV				27500 2	2310 2311	2310	English	
T	12.402	V	TV Warehouse Sele				27500 2	2321 2322	2321	English	
T	12.402	V	Reality TV				27500 2	2312 2313	2312	English	
T	12.402	V	Reality TV				27500 2	2313 2314	2313	English	
T	12.402	V	TV Shop				27500 2	2314 2315	2314	English	
T	12.402	V	Myphone-TV				27500 2	2316 2317	2316	English	
T	12.402	V	Gems.tv				27500 2	2319 2320	2319	English	
T	12.402	V	Record TV				27500 2	2344 2345	2344	Portugu	
T	12.402	V	TV Warehouse				27500 2	2323 2324	2323	English	
T	12.402	V	eeZee TV				27500 2	2325 2326	2325	English	
T	12.402	V	YES				27500 2	2327 2328	2327	English	
T	12.402	V	Game Network				27500 2	2341 2342	2341	English	

Typ	Freq	Pol	Channel Name	Crypt	SR	FEC	Video	Audio	PCR	Language
[GHz]							PID	PID	PID	
T	12.402	V	Vector 24/7				27500 2	2352 2353	2352	English
R	12.402	V	UCB Europe				27500 2	2305 2305	2305	English
R	12.402	V	UCB Inspiration				27500 2	2306 2306	2306	English
R	12.402	V	UCB Bible				27500 2	2307 2307	2307	English
R	12.402	V	UCB Talk				27500 2	2308 2308	2308	English
R	12.402	V	Apni Awaz				27500 2	2309 2309	2309	Multi
R	12.402	V	Classic FM				27500 2	2346 2346	2346	Multi
R	12.402	V	The Mix				27500 2	2347 2347	2347	English
R	12.402	V	Chill				27500 2	2348 2348	2348	English
R	12.402	V	Panjab Radio				27500 2	2329 2329	2329	Punjabi
R	12.402	V	AKASH Radio				27500 2	2331 2331	2331	English
R	12.402	V	Sukh Sagar Radio				27500 2	2332 2332	2332	Punjabi
R	12.402	V	EWTN Radio				27500 2	2333 2333	2333	English
R	12.402</									

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SR-X650CI



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TV EXPLORER

TERRESTRIAL TV

SATELLITE TV

CABLE TV

MPEG DECODER

DVB-C

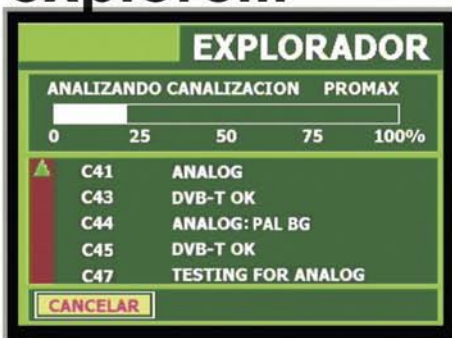
DVB-S

DVB-T



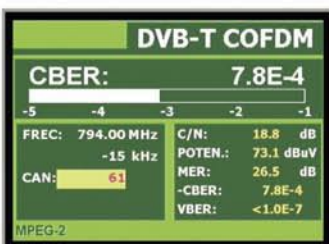
explore...

identify...



... all channels in the band!

... signals automatically!



Shows all measurements simultaneously



Shows picture, service list, PID's,...



Direct adjusting of spectrum, without menus

TechniSat TechniCAM CX / CW Conax & Cryptoworks for Everyone

Today, even the diehard DXer's can't get away from the more common encryption technologies. As a result, the terms Cryptoworks and Conax - next to the increasing number of video codecs - are finding their way more and more into DXer's conversations.

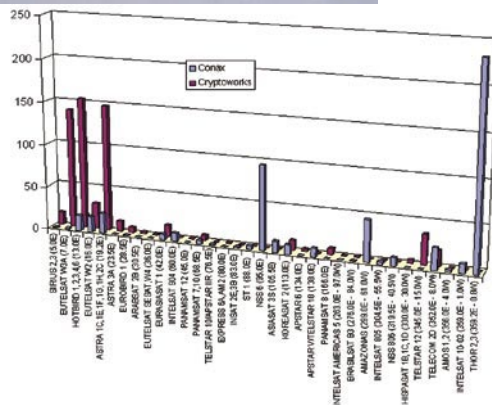
So that this knowledge isn't restricted to just theory, two new products from Technisat are now available for the true satellite freaks under the name "TechniCAM": the CX module for Conax and the CW module for Cryptoworks.

there is an inexpensive package available that provides 17 different audio channels without a contract. "Radioropa Hoerbuch", an addicting channel, and six MTV music channels complete the package.

We tested the TechniCAM CX therefore with the Techniradio SmartCard. The CAM software version 26.1.5.0.6 functioned effortlessly. Channel switching

Conax

Conax is widely used in cable networks in Central and Eastern Europe. Via satellite, you would see Conax used in Chile (Zap Package on Amazonas at 61.5° west), India (Dish TV India package on NSS6 at 95° east) and Scandinavia (1° west) - see illustration. This RSA-based encryption technique offers a number of different payment variations: from the classic PayTV via Pay-per-View and Pay-by-Impulse to return-channel technologies such as IPTV, this technique still offers enough potential. With CMORE HD Film, the first Conax encrypted HDTV channel has appeared on 1° west. The TechniCAM CX is even interesting in German-speaking regions, where - together with the SmartCard from Techniradio - on Astra



Expert conclusion

+ The TechniCAM CX and CW are both well-rounded CA modules. Another plus: the 24-month manufacturer's guarantee

- Cryptoworks is not widely used outside of Europe.



speeds were quite brisk despite the CAM access.

Cryptoworks

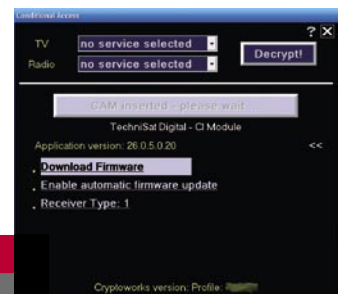
Cryptoworks has a completely different distribution as can be seen on the same illustration. As you can see, Cryptoworks is used primarily in Europe (Viacom music channels, easy.tv, JSTV, UPC Direct, Canal Digitaal, ORF, Kabel Deutschland and many more). Oddly enough there are a handful of channels that use this technology in Korea (Sky Cast on Koreasat at 113° east) and New Zealand (Viacom/Nickelodeon on Pas 8 at 16° east). Cryptoworks is also used in Turkey, the Middle East and Malaysia.

Most of the attributes for Conax are also naturally associated with Cryptoworks. Here too a number of payment models are

supported. We tested the TechniCAM CW with a standard easy.tv SmartCard. The CAM in the software version 26.0.5.0.20 functioned perfectly.

Conclusion

Both of the TechniCAM modules (CX and CW) were quite convincing; nicely packaged and with a guarantee card, you have the comfortable feeling that you made the right choice when you purchased these modules. The 24-month manufacturer's guarantee is the icing on the cake. Along the way we discovered during our tests that the Techniradio package is a real delicacy: no contract requirements and reasonable rates makes for a good pay radio deal for your money.



TECHNIC DATA

Manufacturer	TechniSat Digital GmbH, 54550 Daun/Germany
Tel.	+352 710 707 900
Fax	+352 710 707 959
E-Mail	international@technisat.com
Model	TechniCAM CX (Conax), resp. TechniCAM CW (Cryptoworks)
Function	CA

DVB-Shop Technotrend S1500 Budget, plus CI DVB-S for Win MCE2005

PC-DVB-S solutions for Windows Media Center Edition (Windows MCE 2005) are a rare treat. The TT 1500 Budget – which is distributed by DVB-Shop – is one of these very few cards. In combination with a CI slot which serves as an

We tested the PCI card with an optional CI slot and the remote control system. The whole package arrived at the test lab complete with the latest driver CD-Rom (version 2.19). The necessary infrared eye which is plugged into the slot sheet of the PCI card and a flat-type cable for connecting the CI slot to the actual DVB-S card are all that is additionally required for the installation.

The image to the right clearly shows that Technotrend focuses on owners of mini PCs in the living room (so-called barebones) as its prime target group. On these barebone PCs the number of card slots is usually very limited, so any alternative solution which avoids using a second card (CI slot) is extremely welcome. As a matter of fact this is also why we were able to misuse the slot which is originally intended for the AGP slot card as the actual CI slot with our test system.

The 'Digital TV – TT Budget' software that comes with the system was tested in its premium version in a previous report and so we will not go into any detail here regarding the software. We should like to mention, however, that the TT S1500 Budget also comes with a

data application, thus allowing surfing the net via satellite.

Plug & DX

Configuring the card for this default application is as easy as expected: screw in the card, install the driver, install the DVB TV application – and you're done!

Using the TT S1500 Budget according to the supplier's main sales argument requires a bit more time and patience. Or let us put it in plain English: the configuration for Windows MCE 2005 needs some getting used to. DVB-Shop customers have a head start here because the constantly updated DVB-Shop forum is a very helpful resource loaded with numerous references to drivers and documentations.

With this wealth of information at our fingertips we were able to replace the standard PCI drivers with Microsoft-specific drivers in a matter of a few minutes. The easy to read manual is an absolute necessity and does not only explain each step of the installation, but also shows how the DVB-S card works with Windows MCE 2005: by using the DVB-T interface. Virtual DVB-T channels are mapped onto satellite transponders – what sounds conspicuous at first turns out not to matter at all in the daily routine with a Media Center PC.

In the end the MCE 2005 scans all alleged DVB-T channels without a whinge and as a result detects all satellite channels

additional PCI plug-in card this new offering from DVB-Shop has the potential of becoming a truly happy-go-lucky solution for satellite reception using a Windows MCE 2005 PC.

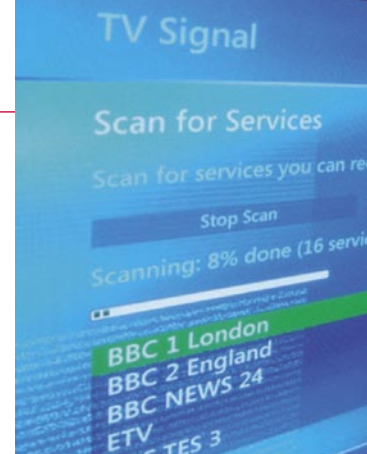
we wanted to receive. A complete scan on Eurobird/Astra 2 lasted 17 minutes. Switching between channels within Windows MCE 2005 is surprisingly swift.

CI slot

The CAM-specific extension of the TT S1500 Budget for Windows MCE 2005 consists of two

slightly dated CA module. Please note, however, that you have to perform the security rollup 2 before the CAM functions of the additional card will work under Windows MCE 2005.

We also recommend having a look at the file with the name 'MultiDecode.txt' which is located in the sub-directory 'MCE_Tools' of the application directory of TechnoTrend. Here you can link and/or define transport stream IDs and service IDs, allowing you to decode up to eight data streams automatically (or



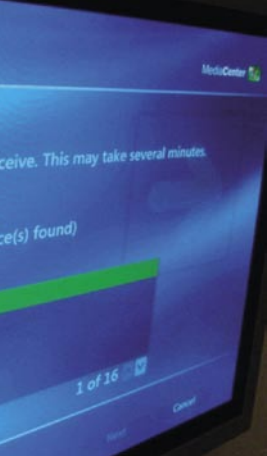
applications: the 'Background Add-In' runs in the background – as the name suggest – and initialises the CAM when launching Media Center. The 'On Demand Add-in' can be used to start a dialog application revealing details about the CI slot and/or the used module or smartcard and in particular offers decoding services.

During our test the decoding device worked flawlessly with a

rather: simultaneously). The file can be viewed in any text editor (e.g. Notepad) and comes with a few examples.

BDA drivers

The Broadcast Driver Architecture (BDA) is a frame architecture interconnecting various components and topologies for television reception (digital and analog). This also includes the definition of control applications



which are required for networking, de-multiplexer and IP data transfer for all current digital TV standards like ATSC and DVB. BDA was developed because not the mere video transmission as such could cause potential copyright problems, but rather the recording of material on high-power media (such as hard disks) using a TV/PC platform. It would indeed be easy to use PCs with Windows MCE 2005 as a forum for distributing movies and TV series through peer-to-peer file sharing.

With anticipatory obedience Microsoft intends to use Protected BDA in order to prevent such a development. In addition to that, this move also holds some advantages: BDA offers a standardised architecture for developers, which ultimately will deliver more stable applications for TV reception to customers. In actual fact, however, a PC running Windows MCE 2005 has to be fed with security updates at least as frequently as any other Microsoft application. In terms of user-friendliness, on the other hand, Microsoft MCE 2005 clearly has the cutting edge at the moment.

Eco MCE

Most users will be troubled with the hardware requirements for Windows MCE 2005. After all, Technotrend offers its own BDA application by the name of 'TT

Above (from left to right): The TT S1500 scanning Astra 2; connections in the slot sheet: coax and IR socket, space-saving barebone installation of the CI slot through removal of the green PCI flap (also see picture on the right).

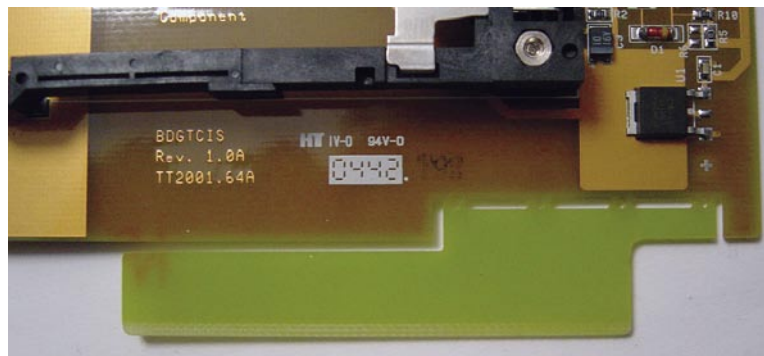
Media-Center', which we briefly tested in its version 1.0.6. It features timeshift viewing, recording, EPG, etc. – similar to the features of Windows MCE 2005. The bottom line is that this alternative software has enough features to allow for daily use as a TV reception system. Testing additional media software such as HTPC, for example, would go far beyond the scope of this test report.

Conclusion

Watching TV with the TT S1500 Budget and Windows MCE 2005 is fun. But bear in mind: Windows Media Center Edition limits the card (and consequently the user) to an extent that will satisfy only ingenious couch potatoes.

For the DXers among us the default software from DVB-Shop (resp. Technotrend) will be the first choice for scanning the skies above us with the TT S1500 Budget.

However: especially all users of Windows MCE 2005 will see their system significantly enhanced by the TT S1500 Budget. This

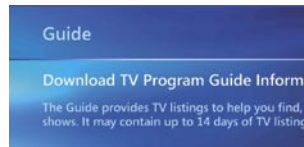
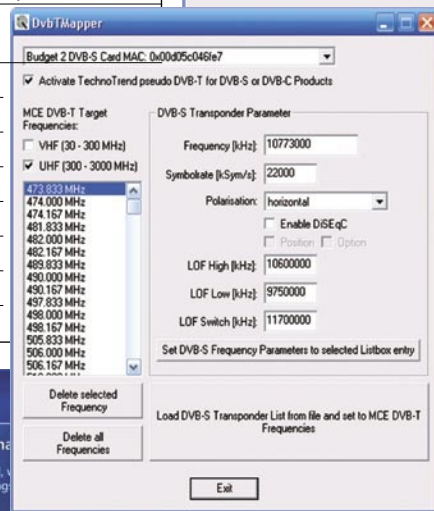


product offers features such as DiSEqC 1.0, a CI slot) which were not planned

and intended by Microsoft in the first place. We can look forward to what Technotrend (resp. DVB-Shop) will introduce next.

TECHNIC DATA

Distributor	DVB Shop
Internet	www.dvbshop.net
Model	TT S1500 Budget, plus CI
Function	Digital satellite tuner PCI card
System requirements	Windows 98SE/ME/2000/XP, 500 MHz PIII or above, 128 MB RAM or above, VGA card with at least 16 MB memory
IF range	950 – 2150 Mhz
Symbol rates	2 – 45 Ms/s
SCPC compatible	•
C band compatible	•
DiSEqC	1.0
IP multicast	•
Teletext	•
EPG	•
Memory	unlimited



Expert conclusion



For users planning to add satellite reception to their Windows Media Center 2005 there is virtually no way around this robust and easy to handle card which will be a big plus also on standard PCs without Windows MCE.



Reto Jeger
TELE-satellite
Test Center
Switzerland

The TT S1500 Budget still needs some smoothing with regards to BDA drivers and requires research in online forums and a thorough read of the manual.



SPAUN SMS 17089 NF Multiswitch

True plug-and-play device

When you install a multiswitch, it is often necessary to add additional amplifiers. That's because every switch introduces loss of at least a couple of decibels. However, there are devices

that integrate in one case both: amplifiers and the multiswitch. One of such devices is SMS 17089 NF of German manufacturer SPAUN Electronic.

slightly better for some frequencies. The above measurements were done for 3 receiver outputs. Additionally we meas-



When you take a closer look at the switch, it becomes evident that the built-in amplifiers are just one of the nice features it offers. Although, basically the multiswitch is dedicated to cooperate with 4 Quatro LNB's (16 inputs in total), you may also use here twin LNB's or even regular universal LNB's. All you have to do is to set the remote power switch (on the top cover) to proper position. Moreover, you can also set SMS 17089 NF to cut off the power of unused LNB's to preserve energy. For example, if all viewers watch the channels from satellite A, the LNB's for satellites B, C and D can be switched off. A multicolored LED signals the status of the switch as well as the DC error state. The unit automatically switches off when it detects a short-circuit. SMS 17089 NF is controlled by DiSEqC commands (starting from DiSEqC 1.0).

SMS 17089 NF has 8 receiver outputs, what is a pretty high number. If this is still too few for you, there are 16 trunkline outputs to which you can connect another cascading multiswitch:

Code	Freq.	Pol.	Code	Freq.	Pol.
s1	10719	V	s7	10722	H
s2	11280	V	s8	11224	H
s3	11662	V	s9	11642	H
s4	11727	V	s10	11681	H
s5	12111	V	s11	12092	H
s6	12713	V	s12	12735	H

Table 1. Test signals.

SMK 17089 F, SMK 17129 F or SMK 17169 F and get additional 8, 12 or even 16 receiver outputs respectively. Unfortunately, the cascading devices are still in preparation, so we were not able to test them in cooperation with the basic model.

A look at the parameters reveals other interesting features. The signal at the receiver outputs is more or less at the same level as the signal incoming from LNB's (-3...+4 dB). Thanks to that, you do not need to care about any additional amplifiers. Just connect the LNB's and get the correct signal at the receiver outputs. Also, the trunk output gain is chosen wisely (+16...+20 dB). It means that after connecting a cascading multiswitch (SMK 17xxx F), you will get on its outputs strong enough signals without

any additional amplifiers. SMS/SMK family is really a plug-and-play solution!

Of course, we had to check if the promised values are really delivered. The first test was to verify the signal level at the receiver outputs and trunkline outputs for the different input frequency. **Table 1** shows the frequency and polarization of the signal we used for taking measurements.

Figure 1 shows the results. As you can see, the signal at the receiver output is almost exactly as specified (i.e.: -3...+4 dB). Also the trunkline output is as promised (+16...20 dB) – even

ured all 8 outputs for one input frequency. The results are presented in **figure 2**. The spread of 2 dB is a quite acceptable value. In practice, it means that there is no significant difference to which output you connect your receiver. On all outputs, the signal strength and quality should be almost the same.

To be sure that the multiswitch does not introduce too much of its own noise to the signal, we took signal-to-noise measurements before and after the SMS 17089 NF. **Table 2** shows the results.

Although there is some deterioration of the signal, it is defi-

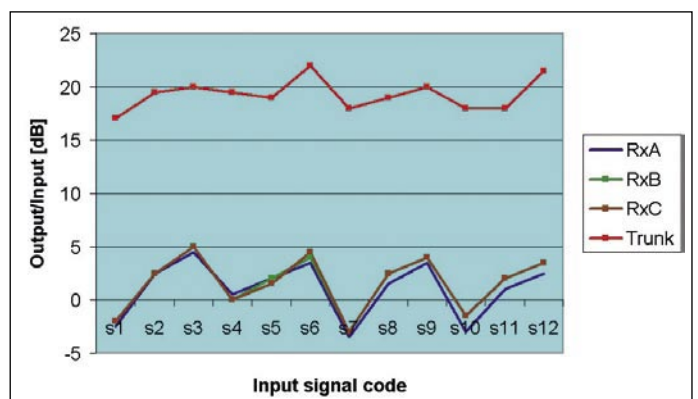


Figure 1. Trunkline Gain and Tap Gain.

Edon, your **RIGHT** choice for moving satellite antenna.



- Key components like motor, screw, die-casting and plastic - ejection all made in house by ourselves.
- Anti-rust Epoxy powder coated steel tube. Corrosion resistant clamp.
- Waterproof by rubber seals on steel tube & water drain holes - on the bottom.
- Reed switch sensor.
- Compact shipping package.

Technology From Germany



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OFFICE :
6F, No.57, Bitan Road, Shindian 23153 TAIPEI, TAIWAN
Website: www.edon.com.tw
E-mail: service@edon.com.tw
TEL: +886-2-2211-1130
FAX: +886-2-2211-5218 Skype: EdonTaipei

FACTORY :
No.11, Zone 1, Qiaotou Park, Eastern Industrial Park, Dongguan, Guangdong, CHINA
TEL: +86-769-356-0852
FAX: +86 769-356 1395

Agent
Golden Interstar GmbH
Stuttgarter, Strabe 36, D-73635, Rudersberg, Germany
TEL: +49 (0) 7183/3 05 94-0
FAX: +49(0) 7183/3 05 94-20
E-mail: info@golden-interstar.com
Website: www.golden-interstar.com

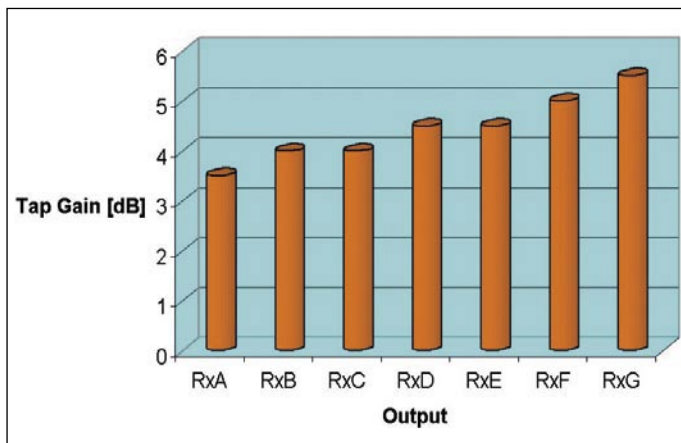



Figure 2.

nately not too much. We must remember that the signal is already amplified thanks to the built-in amplifiers and we do not have to add any additional devices (read: sources of noise). Of course, when dealing with multiswitches, it is always a good idea to use one size larger dish than you would normally use for a simple LNB + receiver configuration.

Expert conclusion

+

SMS 17089 NF is very easy to install – it does not require any additional amplifiers. Its technical parameters meet or even slightly exceed the specification.

-

None



Peter Miller
TELE-satellite
Test Center
Poland



TECHNIC DATA

	MER	BER x 10 exp -3
Input	9,9	0,7
RxA	8,9	1,8
RxB	8,9	2,1
RxC	8,9	2
Trunk	8,7	3

Table 2.

Manufacturer	SPAUN Electronic, Byk-Gulden-Str. 22, D-78224 Singen, Germany
Internet	http://www.spaun.de
E-mail	info@spaun.de
Phone	+49-7731-86730
Fax	+49-7731-64202
Model	SMS 17089 NF
Description	Multiswitch with embedded power supply
Inputs	16 satellite + 1 terrestrial
Receiver outputs	8
Cascade outputs	16+1
Input frequency	950-2200 MHz (Sat.) and 5-862 MHz (Terr.)
IF tap gain	-3...+4 dB
IF input attenuation adjustment range	0 ... 10dB
IF pass-through gain	+16...+20 dB
Terrestrial tap loss	20...23 dB
Terrestrial pass-through loss	5 dB
Isolation between satellite inputs	> 30 dB
Isolation between satellite and terrestrial inputs	> 32 dB
Current drawn from receiver	25 mA
Remote power supply	1200 mA per LNB (300 mA per jack)
Power supply	100-240 V / 50-60 Hz 54W max
Operating temperature range	-20... + 50° C/dry indoor use

Chess Edition II LNB's of Max Communication

0.2dB LNB's – are they different from 0.3 dB devices?

What is the reason to change your existing LNB? Does the new TV standard (HDTV) require this? Or perhaps the new compression method (MPEG-4) is the reason? What about DVB-S2? No, no, and no. None of these things requires you to change the LNB. You can enjoy watching HDTV compressed with MPEG-4 and modulated in accordance with DVB-S2 on the same existing device. Only your receiver must be replaced with its most modern successor.



So what makes LNB manufacturers think that people will replace their old LNB with new devices? Except for the hardware malfunctions, there is only one reason – new devices have lower noise figure. Every electronic device except for the function it is designed to do, introduces extra noise to the signal.

One cannot produce absolutely noiseless amplifier or frequency converter. The new LNB's

are much better with respect to noise than the older devices. If you have read our previous test reports concerning 0.3dB LNB's, you already know that there is a significant difference between 0.8 dB and 0.3 dB devices. But can we notice any difference between 0.3 dB and 0.2 dB?

When Max Communication sup-

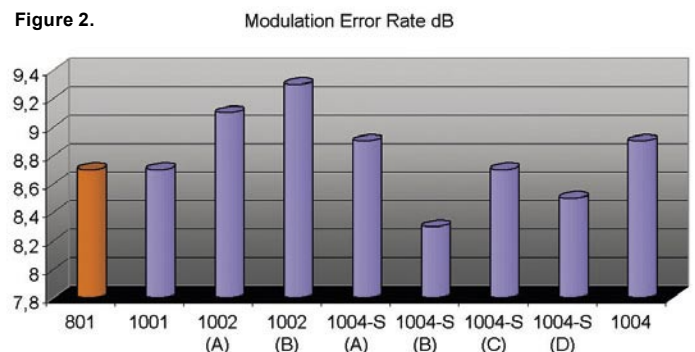
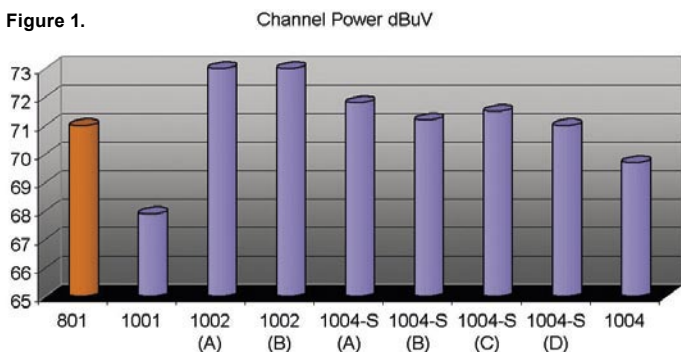
plied us with their new Chess Edition II LNB's, we were very anxious. We got a complete set: single, twin, quatro and quad devices (models 1001, 1002, 1004 and 1004-S). Previously we tested their 0.3 dB LNB's (Platinum Edition models). They performed quite well, and the difference between them and 0.8 dB unit was very distinctive.

So this time, we took the Platinum Edition Model 801 (single, NF=0.3 dB) as the benchmark. We used the transponder 11.766

GHz, SR 27500, 3/4, Horizontal from Sirius 5° E as a test signal. Figure 1 presents the signal strength produced by different LNB's at their outputs. The first column corresponds to the benchmark device. Generally, the higher - the better. Although the channel power is not the most crucial parameter.

Time to show the noise related measurement results. Figure 2 shows, the so called MER (Modulation Error Rate). The higher it is, the bigger separation between the signal and noise.

As you can see, the best was twin LNB (model 1002). The single LNB was practically identical to the benchmark and 2 out-



Wireless SmartWi.net

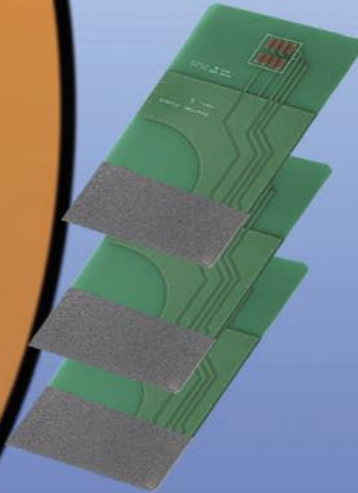
Residential Cardsplitter

SmartWi is a wireless card splitter solution which can be used in household with more than one set top box.



Wireless SmartWi works on most common set top box for Satellite, Cable and Terrestrial systems

SmartWi split your subscription card and make it possible to watch differed programs on each set top box with only one subscriptions card.



Wireless SmartWi come standard with
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1 Power adaptor for Smartwi master.



Contact information
<http://www.smartwi.net>
E-Mail : info@smartwi.net

SmartWi Denmark
Distribution Center
Phone + 45 702 600 31

puts from the new quad device were even worse than the benchmark. Except for the MER, we also measured the CBER (Channel Bit Error Rate). It is a number which tells us how often an erroneous bit appears in a data stream due to noise. For example, if CBER is equal to 1×10^{-3} , it means that on average, one false bit happens every 1,000 true bits. The lower the value the better. Figure 3 shows the measurement results of the CBER.

As expected, the LNB that had the best MER, had also the lowest CBER. The same applies to the worst one. As you can see, some of the new models were slightly better than the benchmark but

some were somewhat poorer. However, we can say that statistically, the 0.2 dB LNB's were slightly better than the 0.3 dB benchmark.

The problem with the commercial LNB's is that their noise performance is specified as "typical" value. While this is very convenient for the marketing people, it is a nightmare for the engineers who are supposed to answer simple question: "Will I see a difference if I replace 0.3 dB with a 0.2 dB LNB?". The honest answer is: sometimes yes, sometimes not. Depending how lucky you are and what actual noise figure you will get, and of course what the actual noise figure of your

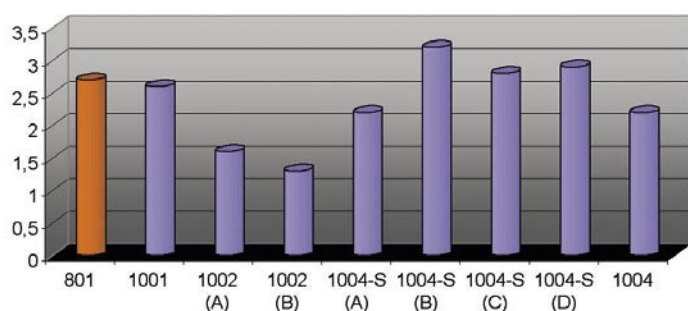
existing LNB is. Certainly, you should keep in mind that the difference will not be striking.

But if you want to get the utmost out of your system, it is worth to give it a chance.

TECHNIC

DATA	
Manufatcurer/Distributor	Max Communication GmbH Siemensstr. 53-55, 25462 Rellingen Germany
E-mail	info@max-communication.de
Telephone	+49 4101 6060-0
Fax	+49 4101 6060-999
Models	1001 (single) 1002 (twin) 1004 (quatro) 1004-S (quad)
Description	Universal LNBF's for Offset Dishes
Noise Figure	0.2 dB (typical)
LOF	9.750 and 10.600 GHz

Figure 3. Channel Bit Error Rate x 10 E-3



Expert conclusion

The workmanship of Chess Edition II LNB's of Max Communication leaves nothing to be desired. The slide-down protector (to protect F connectors) is a quite practical feature. Our tests have shown that statistically, 0.2 dB LNB's are better than 0.3 dB models.



Peter Miller
TELE-satellite
Test Center
Poland

Due to the nature of commercial LNB production, the real noise figures will vary a bit around the 0.2 dB figure for each individual LNB

Advanced Digital TV & Sat Level Meter Prolink-4C Premium

Extremely versatile portable instrument

Surprise is the first impression when you encounter this meter for the first time. It seems simply unbelievable that its designers managed

to pack so many functions and features into such small and lightweight case. It measures only 294 x 106 x 274 mm and weights 5 kg.

Few years ago, much simpler instruments were significantly bigger, heavier and more expensive. They could measure only satellite TV signals and were equipped with monochromatic displays. Prolink-4C Premium of Promax Electronica can measure satellite, cable and terrestrial signals - both analog and digital. It is suitable not only for the analysis of every possible SDTV signal but also for DAB and FM radio. It can process WiFi signals, NICAM audio, RDS as well as Teletext. It has LCD color display of good resolution that can show not only the measurements results and frequency spectrum but also the video of a TV channel.

Older meters could only show you the analog TV video, this one can additionally show video of digital channels. This is true not only for the FTA channels but also for the scrambled channels - if only a proper CAM module with a valid smart card is inserted in the Prolink's Common Interface slot.

Except for the built-in display, video is available on a Scart connector. Nothing prevents connecting a regular TV-set to the instrument to see video in full resolution. In this way, you can use Prolink-4C Premium as an

analog or digital TV receiver. Of course, the meter has also a loudspeaker to output audio when in TV mode.

Prolink-4C Premium can output the received transport stream in parallel format (SPI), so if you have the appropriate MPEG-2 PC card, you can save the data for further analysis. It is also possible to input MPEG-2 transport stream to the meter through another 25-pin connector. RS-232 interface can be used to control the instrument from a PC, transfer measurement results to PC or making printouts on the external serial port printer.

As you can see on the photographs, the meter's case is robust as you should expect for a portable instrument, but at the same time it is elegant. Its carrying bag is very practical.

Except for the carrying bag, you get a mains power supply and a car lighter charger to charge meter's internal accumulator, as well as several adapters for different connector types.

User manual is written in Spanish, English and French. It is well designed and very extensive (120 pages). Included screenshots help the reader to understand a large number of functions and features offered by

the meter. Information is cross referenced, so it is really easy to find the explanation you need at the moment. The appendix provides TV channel frequency charts for different standards as well as the short form satellite charts for Astra, Astra 2 and Hotbird satellites.

The basic functions are available directly from a front panel keyboard. After pressing the tuning knob, you get access to the rest of them. The knob is used to move the marker (when in spectrum analyzer view), scroll the list of functions and accept the selection (by pressing it). There are 2 keys in the keyboard that can be programmed for functions you need most often - quite convenient feature.

When compared with the other similar instruments, user interface is easier to remember and more intuitive. One small annoying thing is that you are returned from the menu to the measurement mode each time you accept a single setting. For example, when you want to change a band, a frequency span and a reference level before taking actual measurements, you have to enter the menu 3 times.

But how can you use this meter in satellite TV setups? Prolink-4C

Premium will be very helpful in a dish align process. If your dishes are perfectly aligned but you still have a reception problem, this meter will allow you to determine if it is caused by the poor LNB performance, excessive losses or interference introduced into the signal distribution network (cables, switches, amplifiers, attenuators).

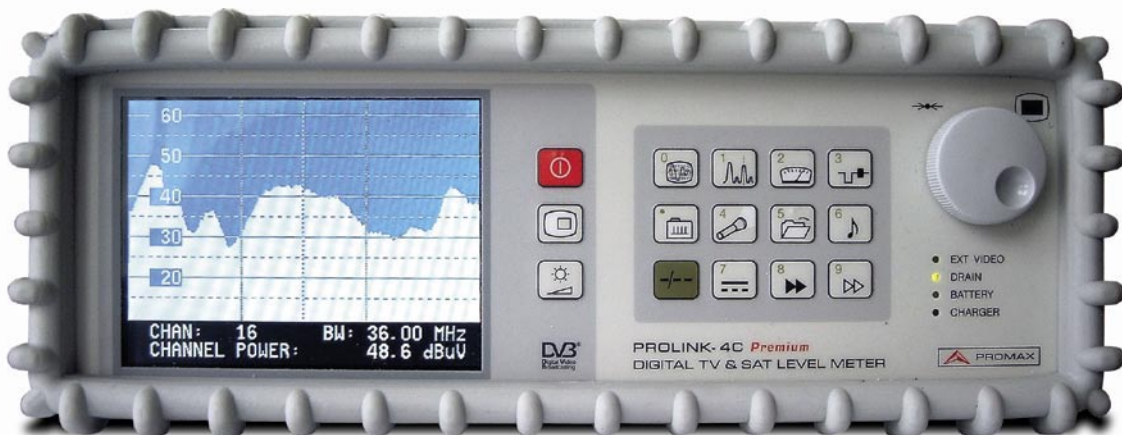
It is easy to measure the sensitivity of a receiver. You can also evaluate UHF signal output in your set-top-box. If you distribute such signal throughout your family house, Prolink-4C Premium can also be used to examine what is coming to TV-sets inputs in different rooms.

We started our tests with a check how fast the meter reacts during dish alignment. To tell you the truth, we think that even in a high resolution mode the instrument could be used for the purpose.

However, there are 2 more suitable modes: Fast and Antenna Alignment. They are less precise but faster. Antenna Alignment mode does not display the numerical values and is even faster than the Fast mode. If you cannot watch the display when directing your dish, you can switch on the Prolink's audible level indicator and judge the signal level by the pitch of sound.

Another feature - DVB channel identifier - is very helpful during initial stages of dish alignment. It displays a network provider for a digital transponder. Thanks to this, it is easy to identify to what particular satellite you have pointed your dish.

When in spectral analyzer view, you can move the marker line with dial knob and read the frequency and level values at the bottom of the screen. When you switch Prolink to the double marker mode, you will addition-



ally see the frequency difference and level difference expressed in dB. After entering the menu (by pressing the dial knob) you can change meter settings. Signal level can be expressed in dBm, dBμV or dBmV depending on your preferences. Meter's frequency span for the satellite band can be switched in the following sequence: Full-500-200-100-50-32-16-8-4 MHz. You can change the scale maximum value from 10 dBμV to 130 dBμV as well as scale resolution per division (10-5-2 dB/div).

Meter's own noise floor is about 15 dBμV. This is pretty good parameter because the regular satellite TV signals are normally in the 50-60 dBμV range. In other words, meter's own noise will not affect the C/N measurements. Level measurement accuracy is 1.5 dB for the satellite band (950 - 2150 MHz) what is also a very good result.

What parameters can Prolink-4C Premium actually measure? You name it, you have it. Practically everything you can think of. Signal level, channel power, carrier to noise ratio (C/N) in automatic and manual mode (when a user determines the reference noise level), bit error rate (BER) before and after MPEG-2 error correction, modulation error rate (MER) and a number of wrong packets received in a period of time.

Prolink can display even such "exotic" things like digital video resolution or current video bit rate. By the way, we were surprised when we saw how many digital channels are broadcast from Hotbird satellites with decreased resolution. No wonder, that you can find more than 1000 channels on that satellite position.

Some parameters like: signal level, channel power, channel number or frequency can be measured directly in the spectrum analyzer view. The others - after setting a marker on the signal of interest and switching to the measurement mode.

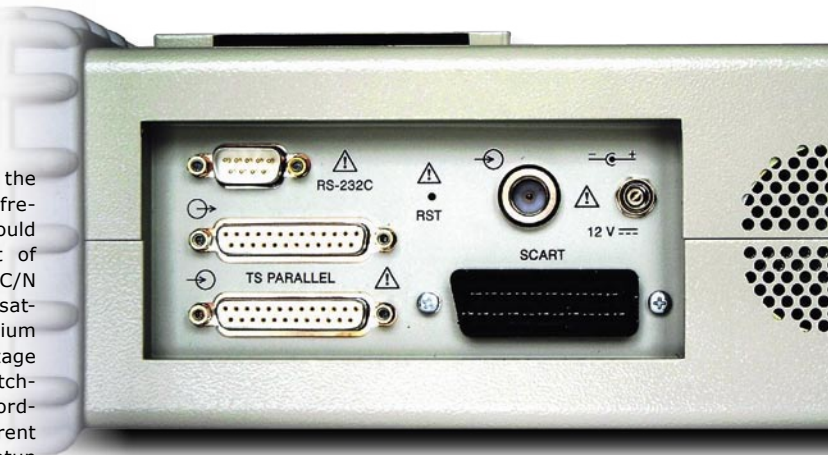
We found that in all modes, the results are updated quite frequently. For example, we could immediately see the impact of LNB's tilt adjustment on the C/N ratio. When measuring the satellite signal, Prolink-4C Premium generates the supply voltage (13, 15 or 18 V) and the switching frequency 22 KHz in accordance with your settings. Current consumed by your antenna setup (LNB, switches etc.) is measured and displayed. And that's not all. It can generate DiSEqC commands, so you can test the complete setup.

Manufacturer specifies that the meter is DiSEqC 1.2 compatible. As we checked it has no problem to control the DiSEqC 1.0 and even so called "simple DiSEqC" or "tone burst" switches. The meter can detect a short-circuit. In such state, it displays appropriate message until you remove the fault. However this works when you are in TV mode or in the menu. We did not see the message when the meter was in spectrum analyzer mode.

Although the spectrum analyzer is not designed for that purpose, the feed hunter can easily use Prolink-4C Premium to quickly detect the presence or absence of the feed transmissions on a given satellite. At first look you can tell if there is something live or not. After identifying the frequency in spectrum analyzer, you can initiate a channel search for the single transponder in your regular receiver. Nothing can be faster - blind scan receivers can not match spectrum analyzer.

Watching TV is not the most intended meter's application but it is possible. We checked that for analog and digital channels. We also confirmed that a CAM module inserted in CI slot makes PayTV reception possible. It can be very important for the installer that he can demonstrate to the customer that everything is working - including the scrambled channels reception.

Satellite TV measurements make up for, maybe, 30% of



meters functionality. You can use it for terrestrial or cable TV measurements. Except for the satellite dish, almost always, you have the terrestrial TV antenna. Sometimes, when you have to receive TV signals from various directions with many antennae, the terrestrial antenna system is more complicated than the satellite one. We successfully used Prolink-4C Premium to measure the performance of antenna filters and amplifiers. The meter also did very well in analog cable TV measurements.

When you complement the meter with a noise generator, for example the NG-281 from Promax, you will get a fantastic measurement setup for testing frequency response of filters, amplifiers or other devices. On the figures accompanying this

report, you can see how the passband ripple or the rolloff of a filter can be measured. Prolink-4C Premium is an invaluable test instrument not only for the installer of various TV equipment, it is also very useful for an equipment distributor. If you have it, you can objectively compare similar products from different manufacturers or deal with customer complaints.

RS-232 interface can be used either to connect the meter to a PC or to a serial printer. With a PC, you can control the instrument and transfer the measurements. Promax Electronica offers optional software for this purpose. A serial printer may be used to print spectral views or numerical values. The manufacturer also offers a suitable model of such printer.

TECHNIC DATA

Manufacturer	Promax Electronica, S.A., Barcelona, Spain, http://www.promax.es
E-mail	promax@promax.es
Phone	+034 93 260 20 02
Fax	+034 93 338 11 26
Model	Prolink-4C Premium
Description	Advanced Digital TV & SAT Level Meter
Frequency	Band 1: 5 - 862 MHz Band 2: 950 - 2150 MHz
Measurement range	Terr.: + FM Band: 20 - 120 dBμV Sat.: 30 - 120 dBμV
Accuracy	1.5 dB
Monitor	5" TFT color
Color system	PAL, SECAM, NTSC
TV Standard	M, N, B, G, I, D, K and L
Synchronization 50/60 Hz	Automatic selection according to system
QPSK Symbol Rate	2 - 45 Msps
Accumulator	Li-Ion 7.2 V, 13 Ah 2 hours of autonomy operation 4 hours charging time
Operating temperature	5 - 40 °C

Expert conclusion

+

Prolink-4C Premium is an extremely versatile meter - like a whole laboratory. It is really portable - small and light. It can measure satellite, cable or terrestrial TV signals of any standard used all over the world. Its good accuracy and low noise level allows you to take credible measurements.

-

During our tests we observed that there was no short-circuit error message when the meter was in spectrum analyzer view and we intentionally shorted the input cable.



Peter Miller
TELE-satellite
Test Center
Poland



Measuring filter rolloff |



Measuring pass band ripple |

HDTV in North America

Ron Roessel

HDTV programming has been available in North America for several years now and the number of available HDTV channels is constantly on the increase. But where are all these channels and how easy is it to actually receive them?

While flipping through the pages of TELE-satellite magazine over the past year, you might have read or heard that HDTV might be expanding at a faster pace here in North America than other parts of the world. "Great" you say! So the next day you decide to start looking for HDTV satellite receivers only to discover that they are very few and far between. Most satellite equipment dealers don't even carry such a receiver.

But with all the HDTV programming supposedly available, how can this be? The answer is very simple: 95% of all HDTV programming is only available as PayTV. There are a few exceptions which we will talk about a little later but for the most part if you want HDTV programming via satellite your only options are the satellite PayTV services DishNetwork, DirectTV, Bell ExpressVu or Star Choice. Up until very recently, VOOOM was another option. They provided high-definition-only programming but the company went belly up last year. Many cable TV providers also offer HDTV programming and in many cases HDTV programming is also transmitted terrestrially.

Now, if you went into your local electronics

superstore, you'd find a wide variety of HDTV and HDTV-ready TV's to choose from. There is a clear difference between the two types of TV's. An HDTV television already comes with a built-in HDTV tuner so all you need to do is hook up your terrestrial antenna and you're ready to go. An HDTV-ready TV does not have its own HDTV tuner.

Many over-the-air channels in larger metropolitan areas transmit an HDTV signal along with their standard TV signal. All you need to receive the HDTV signal is a TV that comes with an HDTV tuner. These signals are typically available for free and in many cases come from the provider in Dolby Digital 5.1. These same channels are usually also available via your local cable TV system. Unfortunately, a

TV with a built-in HDTV tuner would not be good enough. You can expect your cable TV provider to require the use of a special HDTV decoder box that is usually only available from them. You would also need to be an existing subscriber to a standard TV service before you can get the HD version of that channel and the access to HD channels might also involve extra monthly charges.

And then, of course, there's satellite TV. As mentioned before, most of the HDTV services available via satellite can only be received through the big satellite PayTV providers. And here again you'd need an HD satellite receiver. While there certainly are pluses with an HD satellite TV system (you can take it with you when you go on vacation with your RV), you are limited to using only the receivers offered by the satellite TV provider. You can't go to your local satellite dealer, buy an HD receiver (if he even has one) with all the bells and whistles that you like, plug it in to your satellite dish and expect it to work. You can only use the equipment offered by the providers.



Screenshot From a PBS HD Satellite Transmission

But what about free-to-air HDTV? What options do you have? Unfortunately, not very many. There's an HD channel on Galaxy 11, PBS has an HDTV channel on AMC3, there's another HD channel on Galaxy 10R and there are a few more on Galaxy 13. As you can clearly see, the free-to-air choices are very limited. Of course, you can also count on HD feeds popping up here and there, and there are also quite a few Digicipher HD channels available but for one thing they are almost all encrypted and for another they are not DVB/MPEG-2 signals.

What this all means is simply this: if you want to watch your favorite sports channels in HD or if you want to experience movies on HBO or Showtime in HD, you will have to pay for it and you will have to use the receivers supplied by the providers. Yes, there are some free-to-air HD channels available from North American satellites but for now the selection is very limited. Hopefully this will change as time goes by.

VIP622™ DVR



A dishnetwork HD receiver, only available to dishnetwork subscribers





HDTV in Italy

Alberto Boselli

HDTV in Italy is many things: there is a HD Forum Italia, there is a HD Council, during the last Sat Expo exhibition in autumn 2005 there have been a HD Expo area. There are a lot of experts talking at these conferences and explaining all the benefits of HDTV compared to the old SDTV: not only better quality for the end viewer, but also new contents, new jobs, new business models. Later this year there will be the "HD Expo Forum Tour" with meetings in four major Italian cities to promote HDTV among professionals of the broadcasting business.

There is also the "HD-Ready" label, that more and more models of flat TV panel (plasma and LCD) proudly show just because they can show video at either 720p or 1080i (but, very often, not both of them) and come with a DVI or HDMI input.

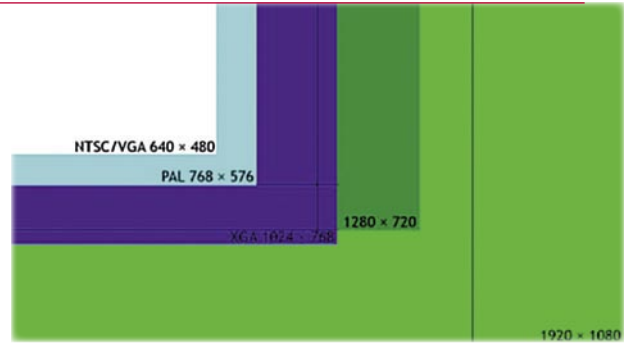
There is only one thing missing: HDTV itself. Yes, of course all the European HDTV satellite channels can be received in Italy as well, but there isn't a single regular HD channel from Italy. Unlike the DTT (Digital Terrestrial Television), where lots of resources have been invested both by private and public broadcasters and the purchase of DVB-T receivers

has been and still is funded by the government in view of the analog switch-off, there are no official plans for HDTV adoption. Any decision is pending waiting for EBU to choose the common European HDTV standard.

A recent newsletter by a leading HD equipment manufacturer said the Italian State Broadcaster RAI, "always in the lead when it comes to using new technologies", recently



A first HDTV test channel of Italian RAI has started at EUTELSAT W3A



Standard vs. High Definition Resolutions

moved their first step towards HDTV with the purchase of a set of HD equipment to start capturing some fiction series in HD. No clue about if, how and when they will be also broadcasted in HD, but a RAI HD test channel has just started on Eutelsat W3A at 7° East (in MPEG-2 format).

Fortunately, better news for enthusiasts come from Pay-TV operators: there are more and more rumors that Sky Italia will broadcast Football World Cup 2006 and Wimbledon Tennis Championship in HD format using the MPEG-4 compression (H.264/AVC). According to these rumors, later this year (autumn) regular Cinema, Sports and Documentary channels will be available too. In the meanwhile, also Sky Italia has started their own test HD channel on Hot Bird.

After the tons of words that have been told about HDTV so far, let's hope this time something concrete is really going to happen in Italy too.



Sky's forthcoming HD PVR

HD in the UK

Andy Middleton



Sky's HD Logo

Satellite viewers are still waiting patiently for HDTV to arrive. Promotion of the Sky HD service is slowly growing after Sky first announced the service on their website. Potential customers have been able to pre-register their interest in the service since August 2005, and while firm information is still hard to find, the service is rumoured to be launching in April 2006.

The biggest unanswered question so far is how much the equipment and subscription will cost. Subscribers will require a new receiver for the MPEG4 service, which will be similar in functionality to the current Sky Plus PVR by including hard drive recording and two tuners.

HD-ready televisions are now widely available. The lack of transmissions to receive on them means that in some shops in the UK we could see the almost surreal sight of France's Canal+ HD promo from Astra 1 being used to demonstrate them.

Sky have recently begun testing using DVB-S2 on three transponders on Astra 2 on 11.798H, 12.324V and 12.344H, all with symbol rate 29000 and FEC 3/4. The channels contained there are also being slowly added to the EPG on existing Sky Digiboxes. The channels cannot be received on standard digiboxes, but a message encourages the viewer to call Sky for more information on how to receive it.

HD versions of Sky's premium channels will spearhead the launch of the Sky HD service, with HD versions of Sky Sports, Box Office,



HD channels listed on the Sky EPG

Sky One, Sky Movies 9 and 10. Also planning to launch in HD are Discovery Channel, National Geographic, Artsworld and MTV.

Sports coverage has always been used to market Sky's new services and HD will be no exception. Sky has already demonstrated their Premiership football coverage in HD to select members of the media, and they also promise cricket and rugby coverage in HD complete with Dolby 5.1 audio.

Over at the BBC the situation is less clear. Some HD tests for the BBC were seen on Eurobird (28.5E) last year. Although not officially announced, it is expected that this summer's football World Cup will be available to viewers in HD from the BBC, perhaps via both Sky HD and cable. The BBC is also planning HD tests via digital terrestrial, but the bandwidth available for HD services on DTT will be very limited until the UK's analogue TV is switched off, which is scheduled to be completed in 2012.



HDTV in Germany

Thomas Haring

While other parts of the world have been experimenting with high-resolution television for decades, and HDTV via cable, satellite and terrestrial distribution has become a fact of everyday life in many countries, the pace in Germany has been a lot slower and over here quantity still seems to attract more attention than quality.

A first step out of the television Stone Age with its 576 visible vertical and 720 horizontal lines in combination with 50 Hz flickering towards HDTV was made on 1 January 2004. Like in the rest of Europe, viewers in Germany were theoretically able to receive the new HDTV channel Euro1080 (which has been joined by two more channels in the meantime, the new names being HD1, HD2 and HD5).

This quantum leap, however, suffered from the same major drawback that characterises many new technological advancements: only a handful of viewers were actually able to watch the new HDTV channel, because there was a severe lack of suitable receivers. This event was followed by a prolonged period of subdued interest for high-resolution TV on the consumers' part, especially because the content of Euro1080 consisted mainly of endless repetitions of commercial trailers and short features. Even the managers of major broadcasting corporations soon realised that this was not the way to go to successfully achieve a breakthrough of this new technology.

All this time however, the technological development continued and before most people noticed a new standard had been established. So digital HDTV transmissions



Euro 1080

based on the old MPEG-2 standard were slowly being phased out to give way to the new DVB-S2 standard, which was ready for take-off.

Aside from its hugely improved compression capability resulting in a more economical use of transponder capacity a new and improved error correction system was implemented for DVB-S2 as well (the 9/10 FEC typical for DVB-S2 clearly shows this) which makes for an even more efficient use of costly transmission bandwidth.

The latest milestone in German HDTV history was the launch of dedicated HDTV channels by free-to-air networks Pro7 and Sat1, as well as by the pay-TV provider Premiere. The average viewer, however, has hardly noticed

that, because – you guessed it – there were not enough compatible receivers around and all first generation HDTV receivers had been rendered useless with the advent of the DVB-S2 standard.

But even though the conversion process towards HDTV is progressing very slowly at the moment, all industry experts agree that German viewers will only be convinced to switch if and when football, their favourite sport, is transmitted in crystal-clear HDTV quality. That's why it is only natural that both the manufacturers and the providers hope the 2006 Football World Championships in Germany will provide the boost that's so desperately needed for HDTV to succeed in Germany.

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CCTV HDTV in China

高清影视 Lou Jun



Ads for HDTV-Ready monitors and TV's can be found today in every newspaper and magazine in China. These ads promise the reception of all HDTV standards: compatible units with plasma or LCD screens for the "720P" norm (this stands for progressive scan with 1280 x 720 pixels, or one line after the other) or the "1080i" norm (this stands for interlaced scan with 1920 x 1080 pixels, or every other line first and then the remaining lines on the second pass). Of course, HDTV transmissions have been around for some time already in Japan and South Korea and with a larger dish these channels can be received in some parts of China.

The first HDTV PayTV channel in China is CCTV-HD (www.tv.cn) and it uses three different encryption techniques: Irdeto, NDS and Novel TongFang. This channel can be received all across China via Asiasat 4 at 122° east on

4.060 GHz, H, 27500 Ms/sec. CCTV-HD began test transmissions on September 1, 2005 and has been providing regular programming since January 1, 2006. Broadcasting for 18 hours a day, this channel provides a variety of programming ranging from movies and regular shows to cultural programs. Additional HDTV channels are planned for the future that include a movie channel and a sports channel. The sports channel is expected to begin transmitting at the start of the 2006 World Cup Soccer tournament.

There are two ways to receive CCTV-HD in China. The monthly charge for this channel is RMB 120, or about 12 Euros (US\$15). If you are connected to a cable network, you would need a DVB-C HDTV receiver to get this channel. You can of course use this box to get other channels as long as they are offered by the cable service.

Without a cable service, you would need a DVB-S HDTV receiver together with a C-band antenna. You would then be able to get this channel plus the 19 other channels offered by CDM (China DTV Media).

The state-run CCTV organization is very active regarding HDTV. They are working closely with manufacturers such as Panasonic, Hitachi and Hisense. Many local TV stations are planning HDTV content in the future.



This footprint of Asiasat 4 shows where CCTV-HD, the first HDTV channel in China, can be received.



CCTV-HD smartcard for Novel TongFang encryption for a DVB-S receiver.



CCTV-HD Novel TongFang SmartCard for use in a DVB-C receiver.



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HDTV in Japan

Martyn Williams

HDTV in Japan has its roots in a decision made in 1964 by NHK (Nippon Hoso Kyokai), the public broadcaster, to start looking for a new TV system to replace NTSC. At the time digital TV was far from feasible so engineers worked and developed an analog HDTV system.

The system was called MUSE and supported a 1125-line interlaced signal and NHK promoted it under the brand-name "Hi-Vision."

Production of HDTV programs began in 1981 and in 1984 NHK covered the opening of the Los Angeles Olympics in HDTV. Trial broadcasts via satellite began for an hour each day in 1989 and in 1991 NHK and a consortium of private broadcasters and other companies launched regular Hi-Vision programming via satellite.

The system attracted thousands of viewers but compatible TV sets were big, expensive and the programming was limited so its success was limited. However, it did provide NHK with a head-start on most other broadcasters and for many years NHK cameras were the only ones providing HDTV images of major sporting events like the Olympics and World Cup.

HDTV started expanding rapidly in 2000 when Japan began digital DBS broadcasting. Seven HDTV channels began broadcasting including one from NHK, five free-to-air commercial channels and one pay-TV movie channel.

The second big boost came at the end of 2004 when terrestrial digital TV began. Unlike some other countries Japanese viewers didn't get any extra channels because broadcasters used the extra transmission space to broadcast HDTV rather than cram more standard definition TV.

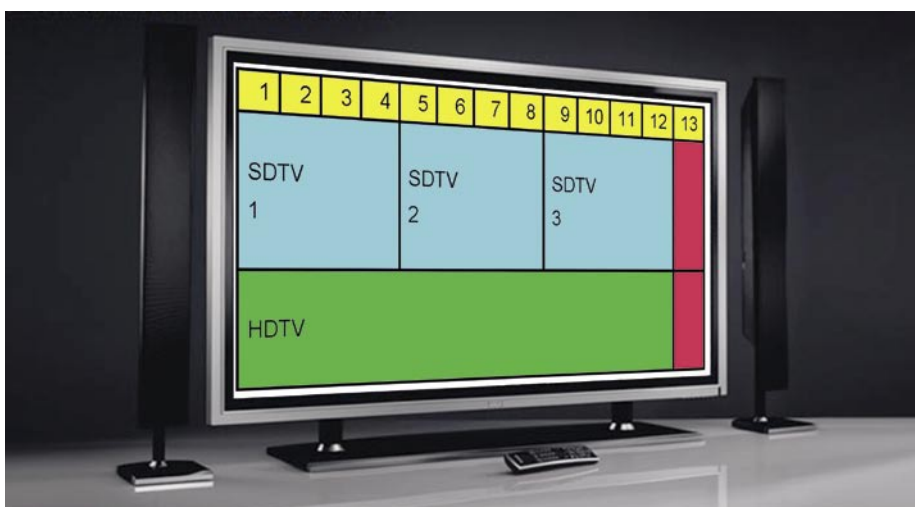
The result is that in most households there are now 6 terrestrial and 6 satellite free-to-air HDTV services.

Japan uses a domestically-developed digital TV system called ISDB (Integrated Services Digital Broadcasting) that divides each transmission channel into 13 segments. [table on screen]

For HDTV broadcasts 12 of the segments are used for a single channel while for stand-

included in almost all new high-definition TV sets so the number of people watching the services is rising rapidly.

In December 2005 the number of households watching digital HDTV satellite services hit 10 million and at about the same time the number of households receiving the newer terrestrial digital TV service hit 1 million. Analog DBS broadcasting will end in 2006 and that will clear the way for three new satellite HDTV channels to launch.



ard definition broadcasting it's typically split into three groups of 4 segments for three different channels.

The 13th segment is sometimes used to transmit an MPEG4-encoded stream of the same program. On satellite programs this provides a low-quality back-up should bad weather mean the main program cannot be received. On terrestrial digital TV it's for reception by cell phones.

Tuners for the ISDB-based services are now

So, what's available? NHK's early start in HDTV broadcasting means that almost every program the channel puts out on its main terrestrial channel is now in HDTV and its satellite channel is also full of high-definition programming. Even sports and news coverage is often in HD.

On the commercial networks, both on terrestrial and satellite, it's been a slower start to HDTV but now most prime-time programming including dramas, quiz shows, movies and news is all broadcast in high-definition.

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Transponder 15	11.966	NHK BS-Hi
Jsat 110, 110 degrees East		
Transponder 2	12.291	Star Channel HV (Pay TV)
Transponder 8	12.411	EP55



Ron Roessel
[USA]

answers
your questions

Satellite Signals

I have a Coolsat 4000 Pro FTA receiver with a 24-inch Ku band antenna. Can I get Brazilian TV PAMPA on Telstar 12 at 15.0°W Ku band satellite, TV CIDADE from Brazil on Amazonas at 61.0°W Ku band satellite and REDE TV from Brazil on Hispasat 1D at 30.0°W? My home is in Miami (Latitude: 26.1N / Longitude: 80.1W).



A 24-inch antenna is probably too small. You would be much better off with a 90-100cm dish for these satellites. TV CIDADE on Amazonas is a C-band signal and cannot be received with a Ku-band dish. You would need a much larger dish to get this channel (10-12 feet in diameter).

Satellite Receiver Tuning

What are the steps to set up a satellite receiver after it is receiving a carrier from a satellite? I have a Samsonic Technology ProSat P-5600 Model IRD2102S with no source to obtain new software to upgrade by PC. Thank you. I enjoy TELE-satellite International very much and am learning.

You are mostly correct in what you wrote. Simply add transponders, perform a channel scan and you should be ready to go. You really only need to know the frequency, polarity and symbolrate. All of the other parameters are automatically found by the receiver during the channel scan. If a

channel has no sound, it could mean that there is no audio carrier although this is unlikely. It is more likely that the audio is in AC3 digital format and can therefore only be decoded by a digital stereo receiver with a digital audio input. This of course also means that your satellite receiver would need a digital audio output.

Hotbird Channels with the Powervu Receiver

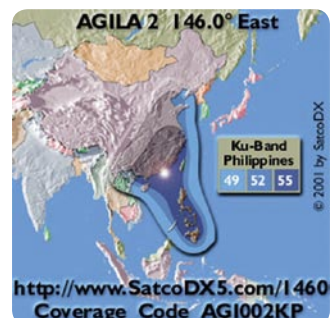
Could you help me set up my Powervu satellite receiver (AFN) to get the Hotbird channels?

As long as it is free-to-air signals that you want to get on Hotbird, you should have no trouble using your PowerVu receiver for this. As far as setting up your receiver, you would first need to point your dish at Hotbird and then program the receiver with the frequencies from Hotbird that you want to get. This will probably involve first adding the Hotbird satellite to the receiver's satellite list if it isn't already there. The LOF for this satellite must be the LOF of your existing LNB. Next you would need to add the transponders for the Hotbird satellite as well as the symbolrate for each of these signals. Once this has been completed, you would perform a channel scan after which you should have all the channels from the transponders you entered.

Agila 2

I'm a newbie to FTA and still learning new stuff from this new hobby. What I really want to know or find out is, is it possible to receive channels from the following satellite: Agila 2 at 146.0°E, from Central California? Thanks.

If you happened to live in Hawaii, then I could say yes, you can receive the Agila satellite. But since you are in California, the answer is unfortunately no. The Agila satellite does not have any beams that reach California. It also appears that this satellite is below the horizon from where you are so it wouldn't matter anyway even if a beam were pointed in your direction. A satellite below the horizon cannot be received no matter what.



Sylvain Oscul
[France]

answers
your questions

R.F.I in Madagascar?

I'm going to Madagascar for a few months and I wish to be able to follow the French radio stations (Radio France, primarily). I've heard about the possibility of getting RFI by a satellite radio receiver, but my researches to acquire a unit have been unfruitful. Is this solution the only one and the most appropriate? Where to find this satellite radio receiver?



Indeed, you have the possibility of continuing to receive the programs of RFI from Madagascar by using a Worldspace Satellite radio receiver (details & subscription available on www.worldspace.fr); the signal is transmitted from AFRISTAR 3 at 21 East in L Band.

However, the programs of RFI are also available in FM modulation on the whole Malgache territory: 92.00, 96.00 or 98.00 MHz, depending of the localities (more details on www.RFI.fr).

JSTV in Montreal?

I am going to live in Montreal and I would wish, as in France, to receive JSTV, the Japanese channel. On which satellite do I have to install my dish?

JSTV, which is transmitted on HOTBIRD 6 at 13East, is based in London and transmits mostly NHK programmes; it does not transmit to North America. But you will be able to receive the programs of NHK World on the PANAMSAT 9 satellite at 58West in C band (4.040 H) by using of an antenna of approximately 2.50 meters (8 feet).

RTI (Ivory coast) in London?

I would like to know if I can receive the RTI (Ivory Coast) on INTELSAT 903 (34.5°West) from London.



No, as you can see on the INTELSAT 903 SatcoDX footprint, the RTI programmes are not available in Europe, even with big dish

Troubles in the reception of Prima TV (INTELSAT at 62East)

I have problems with the reception of the Prima TV channel on Intelsat 902. I have a 80 cm (30") dish and a universal LNB.

You do not specify which type of problem; we suppose that you have difficulties to lock the signal. For our part, we've not noted any change in the power of the signal for this channel. So check if your antenna has not moved, and if not, increase the diameter of the antenna and/or change the LNB for a more sensitive model (0.2 dB for example), according to your location, the signal is nearly 50 dB, this mean you should easily receive the signal with an 80 cm dish.

RTS1 in Montreal:

I'd like to know if it's possible to get INTELSAT 801 in Montreal in order to have the programmes of RTS1. According to research which I made, some said, that is possible, but I need the the experts' opinion before the purchase of equipment.

Indeed, in theory this satellite is visible from Montreal but in practice, RTS 1 does not transmit to North America, so it's not possible to claim to receive this satellite from Montreal. Only the "Global" beam is lockable, but RTS1 and ORTM are on the East beam.





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Saleh Al-Wehaimod
[Egypt]

answers
your questions

ARABSAT in India

I am an Arabic student studying in Bona, India. I want to know the frequencies that I can receive from Arabsat.



You can receive frequencies from Arabsat 2D in the range of 10900-11700 and 12500-12750. However, Arabsat will replace this satellite by the new Arabsat 4A in few months, which probably will not cover most parts of India.

Is Almajd encrypted?

I am planning to buy a dish to receive Arabsat 2B in order to view Almajd Children and Almajd Documentary channels. Some people told me that the channels are encrypted; others told me, that they are clear. I want to know if they are clear or encrypted.



Almajd Children and Documentary channels currently broadcast on both clear transmission and in Cryptoworks. Almajd was supposed to encrypt both channels last year, but they postponed that until further notice. Therefore, both channels can be viewed FTA on Arabsat 2B, 12661 V 27500 3/4.

More LNB with NILESAT

I live in Cairo, Egypt. I have a 1.80 m dish fixed at NileSat. Without positioner, I want to install another LNB to receive Hotbird or Hispasat, using the

same dish even with medium signal, to combine them later using a DiSEqC switch. I want to keep NileSat-LNB in the dish-center as much as possible, so rain showers will not reduce the signal too much.

You can adjust your dish to receive Hispasat by trying to put your LNB on the right side, while you're facing your dish; however, you will be only receiving 2 or 3 frequencies from Hispasat 1D, which have strong signals, such as 11557 V. On the other hand, you can make the same thing for Hotbird, by trying to put the LNB on the left side, while you are facing the dish. Again, you will not be able to receive the low signals from that satellite. Usually a motorized dish is the best solution to receive the most satellites you want.

Where's TV7?

I used to get TV7 Tunisia on Nilesat. Now my receiver gives me an error and when I re-scan the channel, I get the same error.

TV7 Tunisia has stopped recently broadcasting from Nilesat, no reasons were given. However, it still can be viewed on Arabsat 3A, Hotbird, Astra, and Eutelsat W2.

Irak on satellite

I could not find the Iraqi Channel Al Nahrain on Nilesat or Arabsat. How can I find it?



Al Nahrain channel is only broadcasting on Eutelsat W6, 21.5 East. It was expected to broadcast on Nilesat and Arabsat like other Iraqi channels, but until now the channel remains only on Eutelsat W6.



Andy Middleton
[UK]

answers
your questions

Polsat subscriptions in the UK

Can I subscribe to Polsat Sport from the UK?

I don't think it's possible to order a subscription and the required dedicated card from Polsat directly unless you are resident in Poland, although buying it if you happen to be there and then bringing it to the UK has been reported as being possible. However there are a number of sites offering the receiver and subscription. Typing "Polsat subscription in UK" into the Google search engine (www.google.co.uk) will bring you a number of UK companies with varying prices. But check the legality of doing this and what guarantee you'll get that the card will work for the required length of time.

Venture Skylighter spares?

I have a Venture Skylighter 18" actuator and I need a drive belt for it. Can you please give a contact address for the manufacturer?

The Skylighter is manufactured by the Venture Manufacturing Company. Their address is: 3636 Dayton Park Drive, Dayton, OH 45414, USA. Telephone +1 937 233-8792, and on the internet they can be found at www.venturemfgco.com.

Sports channels in the desert

I work in the Libyan desert. What sports channels are available? I am Welsh - so obviously a keen rugby fan. When I was in Azerbaijan we watched two South African sports channels, which showed rugby, cricket and football - any chance of receiving these, or do you have any other suggestions, besides relocating?

With a large enough dish you should be able to receive channels from Hotbird (13 degrees East) in Ku band - from here there are some unscrambled options such as Dubai Sport and RAI Sport Sat, plus many more that are in encrypted packages. Your exact location may be relevant though as the official footprint edge is through the centre of Libya. The South African channels you received in Azerbaijan were likely to be in the C band from Panamsat 10 (68.5E). These would also be available in Libya thanks to the wider beam offered by C band, and a dish of around the same that you used there would be needed. Assuming they were South Africa's Super Sport channels, a subscription would also be needed, see www.dstvafrica.com. Also on the same

satellite and band are the India and Pakistan versions of Ten Sports, again encrypted. There are several other options, for example Arabsat and Nilesat - a good thing to do would be to use the SatcoDX CD to search for receivable channels from your location, which will show you the full range of channels available.

Dutch TV in Wales

I live in Wales and want to receive Dutch TV, what need I? I have already Sky receiver and a dish.

Unfortunately there are no Dutch channels at the moment at 28 east where Sky's service is transmitted from. You'd need a second dish pointed at Astra 1 (19.2 east). Thankfully this satellite you'd use if you were in the Netherlands also covers the UK, so with the relevant subscription you'd receive the same service as you would if you were a resident there.

One Sky card, two receivers

I subscribe to Sky in the UK and I have taken my box abroad and I use the system there. I have purchased another Box so instead of transporting my original box back and forth from Slovakia to the UK all I need to do is take the card from one box to another. I have since found that this is not possible as the card must match the box. Is there a way around this problem to enable the card to be used in separate boxes?

Unfortunately not - Sky don't want you to use your card in another box although you pay them to receive the channels, even if you were living in two different locations inside the UK. Some of the non-premium channels will work, but for such things as sports and movies, the only option is sadly to transport the receiver along with the card.

Recording & viewing different Sky channels

I have Sky TV and a DVD recorder. Is there any way in which I can record a sat program whilst watching another? The recorder tunes the terrestrial channels, but sees the output of the digibox as one channel, and therefore one can only record the satellite TV program which has been selected and watched.

With a standard Sky digibox, it's not possible - you can only tune to one channel at a time as you have found. The most practical solution is to use the Sky Plus receiver, which allows one channel to be recorded onto the inbuilt hard drive, while another is watched - or you can record two at once if you watch one of them. I've recently started using one along with a DVD recorder and I can recommend it, it makes recording and archiving to DVD much easier.



Thomas Haring
[Austria]

answers
your questions

ESPN in Germany

I'm a huge fan of American Sports like Baseball and Ice Hockey. Unfortunately, there are not so much channels available in Europe, showing that kind of program. While surfing through the satellite charts in the World of Satellites software, I found an interesting transponder entry on Telstar 12 15° west. It says, that ESPN is broadcasting their program on 12524V to Europe. A friend of mine told me, that he was able to watch ESPN in a hotel in Munich, so it seems that there must be a way to open these encrypted channels on Telstar 12.

ESPN really does transmit their programs to Europe, but the transmissions



are only intended for other broadcasting stations and to decrypt them, you'll need a special receiver with separate activation for every unit. From my experience I can tell you, that it's a waste of time to contact ESPN and ask them for a proper receiver, they won't allow you to watch their program. However, there are a few alternatives that might be interesting for you: The Pay TV channel NASN (North American Sports Network) www.nasn.com can be received either via Satellite on the Sky Digital Network or in Germany via the cable network of Kabel Deutschland. The Arabic PayTV Provider Orbit www.orbit.net offers a wide range of American sports on their own channel Orbit ESPN and very often they also transmit sport events directly from the original ESPN. The last and cheapest way to satisfy your desire for American Sports would be feed reception. To receive feeds of your favourite sport events, you will need a moveable satellite antenna, which can reach orbital



positions like 12.5° west, 15° west or 18° west. There are a lot of Feedhunters on the internet, that share their new found feed informations with others for free.

Strange FEC

While surfing through the transponder lists of www.satcodx.com, I found a transponder on Astra1 19.2° east with the strange FEC of 9/10. As far as I know, only 1/2, 2/3, 3/4, 5/6 and 7/8 are valid parameters. Is there a mistake on your website or is it a new error correction system? I tried to get a lock on that transponder, but my receiver was not able to find a signal.

No, there is no mistake in our satellite charts, it's really an improved error correction system which uses this very low ratio of 9 to 10. It's currently just being used for HDTV transmissions, according to the new DVB2 standard. Of course your old receiver is not able to lock on to these new transponders, a completely new chip (to decode DVB2 HDTV transmission in MPEG4) and a new tuner is required. Currently only the manufacturers Humax and Pace are able to deliver proper hardware, and of course you can use these new receivers also for „old“ DVB transmissions in MPEG-2.

C-Band reception with small antennas

I've read your great article about c-band reception with small offset dishes in Canada and tried to do it myself here in Europe. However, I was not very successful, I was just able to receive one program from one satellite with my 90cm offset dish. Do you think that my antenna is too small or is something else wrong?

We are planning an in-depth look at this matter for one of the next issues of TELE-satellite magazine and we will tell you exactly what is possible and what dish size is at minimum required. Concerning your special situation, 90cm is of course the lowest limit. Furthermore, a proper feed horn and LNB plus a special mounting adapter are required to correctly adjust the antenna. Don't forget to align it first in KU-Band and afterwards install the C-Band LNB.

TF5000CIP

In issue 12/01 of TELE-satellite magazine you presented the TF5000CIP. Unfortunately, none of the dealers I contacted could offer me that receiver. May I buy the TF5000CI instead, and what are the differences anyway between the two receivers?

The TF5000CIP has the same functions as the TF5000CI, but additionally it offers plugs to control a 36V motor and a polarizer for use with motorized rotary dishes. If you do not operate a rotary dish, you should choose the TF5000CI, if not, then the TF5000CIP. In Germany, you may ask the Topfield distributors Satforce www.satforce.at and Sky Vision www.sky-vision.de where to buy that receiver.



Alberto Boselli
[Italy]

answers
your questions

Satellite Signal Speed

I'd like to know if there is a way to speed up the satellite signal as it was received from a terrestrial channel. When I watch football via satellite, I hear my neighbours shouting loudly before I can see the goal on my TV! Does it exist a device to accelerate the satellite signal and how much does it cost?

I'm afraid the only solution is to buy a satellite receiver for your neighbours too! Video and audio from the stadium travel a lot before reaching your TV set: first, they have to be transmitted as a feed signal to the broadcaster production center and most often this means a two-way trip from earth to a satellite placed at 36.000 Km above the equator. Since we are talking of digital channels, then they are compressed, muxed together with other channels and very probably encrypted; this process takes some time too because the MPEG-2 encoder examines frames back and forth to achieve the better compression and the whole stream has to be optimized and protected against transmission errors. The next step is once again a space trip from the broadcaster teleport to a satellite and back down to your satellite antenna. Here, your digital satellite receiver has to correct errors in the received data, to decode the MPEG-2 stream, synchronize it with audio and finally, if everything is fine, it delivers the analog signal to your TV set.

American Channels, part 2

How could I receive Brazilians TV channels here in Italy?

In the previous issue of TELE-satellite we explained that there is no way to get in Europe channels broadcasted to America. Only channels meant for Europe (originated from Latin America too) can actually be received in Europe. However, in our previous answer, we forgot to mention that the satellite NSS 806 at 40.5° West has several C-band channels from Argentina, Brazil, Venezuela that can be received in Europe. The required dish size varies from 2.50 m up to 3.00 m or above depending on the region. Using the SatcoDX "World of Satellite" software, you can calculate



the exact size for your location. (thanks to Stephan Sprenger who reminded this possibility too).

New satellite channel?

Don't be afraid, it's just a curiosity: what should I do to broadcast via satellite? Thank you.

First of all you should decide what is the coverage you want, that is which countries and/or continents you would like to reach. Of course this choice depends on many elements, for example what kind of target you have (general audience, niche viewers or programs reserved to company branches in the world). Then, you should search the SatcoDX Global Satellite Chart to find which satellites meet your requirements. At last, you should contact the operators (Eutelsat, SES Astra, etc.) of the selected satellites to have all technical details and, of course, a quotation.

A different approach could be to get in touch with a provider of satellite services having a suitable capacity for the required target. These companies usually don't have their own satellites, but offer end to end services (uplink, transport and downlink) relying on a set of already leased transponders on many different satellites worldwide.

Strange Number

I own an instrument useful to detect the correct alignment of the satellite dish, but I cannot align it with Sirius 2. How can I do? Should I know some data? What is the meaning of the number in degrees after the satellite name?



That number is the most important information about a satellite and it's the only one you actually need to align your dish. It's called the orbital position of the satellite and represents its longitude. So, "Sirius 2 5° East" means that the satellite called Sirius 2 is perpendicular to the equator at a longitude of 5° East. Of course, since the Earth rotates, also the satellite have to move very fast to be "geostationary", that is to appear as it was motionless always in the same point of the sky.

Now let's see how the orbital position helps us to find Sirius 2: if you live in Lyon, France, you simply have to turn your dish to South, because 5° East is also the longitude of this beautiful city. In general, correct azimuth (East-West rotation) and elevation of your dish depend on the longitude and the latitude of your location on the Earth and can be easily computed using the DishTrak feature of the SatcoDX "World of Satellite" software.

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