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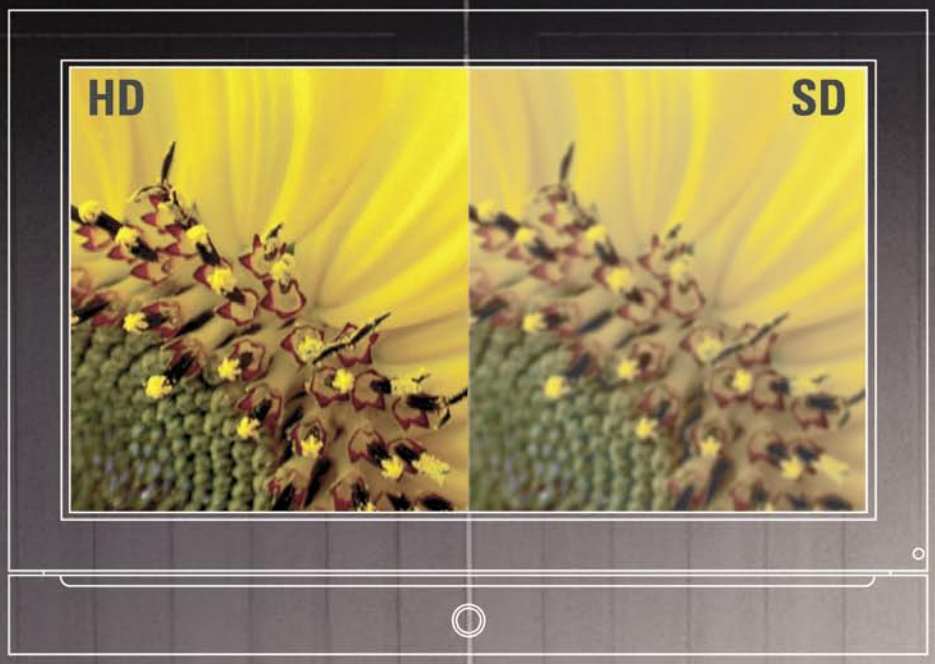

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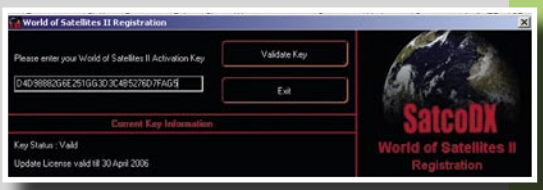

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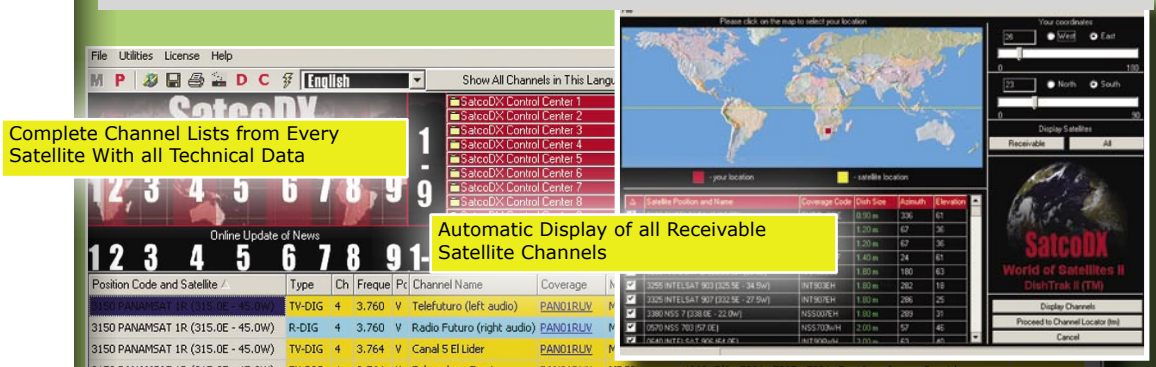

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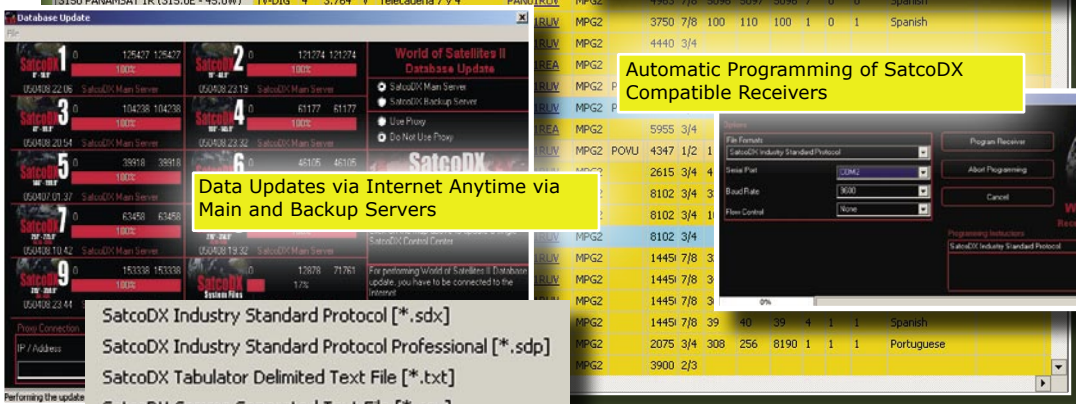

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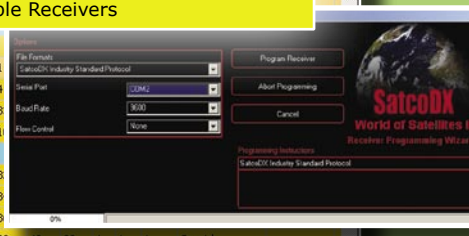

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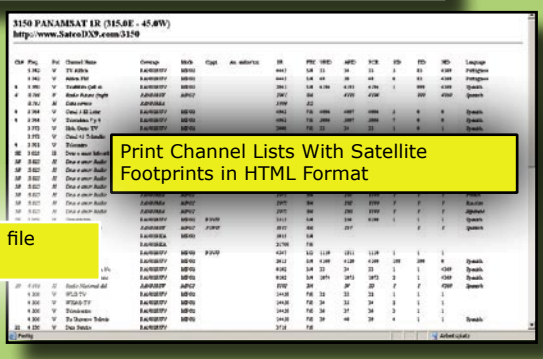

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Dear Readers

The HDTV receiver we present in the issue has become my personal favourite for the moment. The secret is its integrated scaler which upgrades standard television signals to simulate HDTV. We're of course only talking about a technical trick here which can never really be considered as a replacement for native HDTV, but this is not my point. What really matters is that we are able to use an expensive HDTV screen to the last available pixel. A combination of HDTV screen and HDTV receiver only really starts to pay off if both components can show their advantages with all channels.

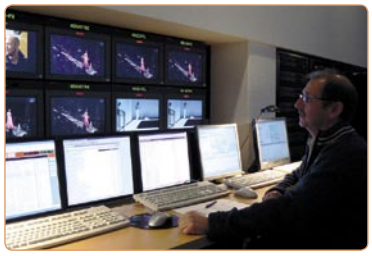
At least that's the way I see it: if you buy a top-notch flatscreen TV and an expensive HDTV receiver then these gadgets should by used to the max – not only if one of the rare genuine HDTV channels can be received, but all of the time.

Of course, any HDTV screen will create missing pixels on its own without a scaler in order to fill the whole screen, but it simply doubles existing lines, while a scaler has an intelligent way of 'inventing' missing lines. The previous issue of TELE-satellite reported on how a video scaler actually works.

An HDTV receiver with an integrated scaler can give you the impression of watching high-resolution television all the time, even though true HDTV programs are still quite rare these days.

Yours,
Alexander Wiese

PS: My favourite radio station this month is Juize FM (ASTRA 19.2° East, 12.574 H, 22,000, Audio 229), which plays non-stop hip-hop.



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Why do receivers have two LNB jacks?

Heinz Koppitz

In and out: which cable goes into which socket – and why? With this particular receiver the cable from the LNB goes into the IF INPUT, while a second receiver can be connected using the LOOP output. The TV picture created by the receiver can be transmitted to the TV via the TO TV jack, and the terrestrial antenna is hooked up to the ANT. IN jack.

State-of-the-art technology can do really much. Sometimes even too much, and that's when it sometimes gets out of hand. Which basic features does a receiver really need, and which features are nothing more than nice add-on features?

Let's have a look at the antenna connection, which links the receiver to the LNB. There is one global type of connection, the so-called F-type socket. The cable originating from the satellite antenna is equipped with an F-type connector which is screwed onto the socket. If you have ever tried to connect an F-type connector yourself and almost broke a finger along the way, you'll forever remember what kind of connector this is.

So why does a receiver need two LNB jacks? Well, one is the antenna input of course and in most cases it is labelled LNB IN or IF INPUT. But then there's the second jack with a similar name, like LNB OUT or IF OUTPUT. Only rarely does it carry the more appropriate name LOOP.

If you have a reception system consisting of only one receiver you can safely ignore the second jack, and the same is true if you own a twin receiver. The only purpose of the LOOP jack is to connect a second receiver to the existing equipment. In such a setup the first receiver remains physically connected to the LNB through its LNB IN jack. The LNB IN jack of the second receiver is then connected to the LOOP jack of the first receiver. If a scart connection between the two receivers is also established (using the VCR scart on the first box) both receivers can be mutually operated: while one receiver is in standby mode, the other takes care of controlling the frequency, transponder and polarisation of the LNB.

A setup like this might be more convenient than it first appears to be. In Europe there are still some analog transponders in use so that it can make sense to connect an analog receiver to the digital receiver. Radio enthusiasts might use this possibility to connect an ADR receiver to the main digital receiver. It may also make sense to set up a kind of cascade with two or any number of additional receivers, in which each box has its specific purpose such as TV or radio reception, or the reception of free-to-air or encrypted programs. The LOOP output even allows to install and try out a new receiver before replacing the existing receiver.

Just to make sure no mix-ups can occur we should briefly also mention two other jacks which have nothing to do with the LNB connection. They can only be found on receivers with an integrated UHF modulator which transmits the video and audio signal to the TV set on a specified UHF channel. These days, all new TV sets feature a dedicated video input for improved picture quality, however, and that's why many new receivers come without a modulator.

If available, jacks labelled TO TV signify the output to the TV, which also carries all signals that are added from a terrestrial antenna that is connected to the ANT IN jack. As these are also F-type jacks in North America, as opposed to the coax connections used in Europe, this sometimes gives rise to confusion.

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Antenna Underperformance Due to Misalignment

Peter Miller

All our readers will be aware that the greater the dish they use, the higher the signal gain they get. It is also common knowledge that bigger dishes have narrower radiation patterns. Probably you heard the term "beamwidth" which is expressed in degrees and tells us how wide antenna beam is when antenna power gain drops by half (i.e. by 3 dB).

However, it is not common to see the exact characteristics of the real antenna. Although the antennae can differ significantly in their sidelobes, the center peak of their characteristics follows the well known rules and is quite similar for the dishes of the same size. Therefore it is not that difficult to plot the characteristics of a satellite dish within a few degree around its major axis. If you want to do that for a Ku-Band offset dish, all you should know is what the antenna gain and beamwidth are, at what frequency they have been specified for. For example, for the 80 cm offset dish you can have: 37 dBi and 2.6° @ 11.7 GHz.

If the beam width is not specified, the approximate formula to find it is:

$$\alpha = 75...80 \cdot \frac{\lambda}{D}$$

where:

α - beam width [°]

λ - wavelength [m]

D – dish diameter [m]

Naturally, wavelength can be calculated as light velocity divided by frequency.

For example for 11.7 GHz:

$$\lambda = \frac{300{,}000{,}000}{11{,}700{,}000{,}000} = 0.0256 \text{ m}$$

and if $D = 0.55$ m

$$\alpha = 77 \cdot \frac{0.0256}{0.55} = 3.6^{\circ}$$

Now, if you want to plot characteristics not for the frequency specified by the dish manufacturer, but the one you choose, you have to recalculate both the gain and the beamwidth. It is not difficult. If we know the gain G_1 and beam width α_1 for λ_1, G_2 and α_2 for λ_2 can be found as:

$$G_2 = G_1 + 20 \cdot \log\left(\frac{\lambda_1}{\lambda_2}\right)$$

$$\alpha_2 = \frac{\lambda_2}{\lambda_1} \cdot \alpha_1$$

OK, now when we know the antenna gain G for optimum alignment and its beam width α for the frequency (i.e. wavelength) we are interested in, we can plot the change of antenna gain when due to misalignment. The formula for that is:

$$G(\theta) = G - 12 \cdot \left(\frac{\theta}{\alpha}\right)^2$$

where:

θ - misalignment in degrees (0° means ideal alignment)

Figures 1 through 3 show plots for the dishes of various sizes of the same manufacturer. Figure 4 shows how we can find the beam width on the graph.

If you spend a minute to study these graphs, you can notice a few interesting things. Antenna gain increases with frequency. Beam width decreases with frequency. Alignment is more critical for larger dishes and higher frequencies. 1.1 meter dish if misaligned only by 1.2° is not better than well aligned 0.55 m dish in terms of antenna gain. The only advantage it still has is better attenuation of neighboring satellites. 0.55 m dish has really small attenuation of a signal coming 3° off the center – only 8 dB!. Better do not use it if you have a neighbor 3° east or west of your bird.

We can continue this comparison: 1.1 meter dish mispointed by 0.7° is not better than 0.9 m dish. 0.7° means that the edge of the antenna has moved only by 0.6 cm. If we want to be really close to maximum, we have to adjust it within maybe 0.3 cm or so. Can you feel now how solid the antenna support must be? And what about the motor for a dish of that size?

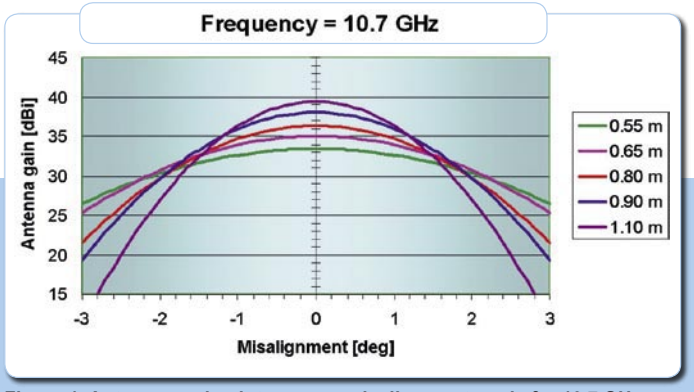


Figure 1. Antennae gain plots versus misalignment angle for 10.7 GHz.

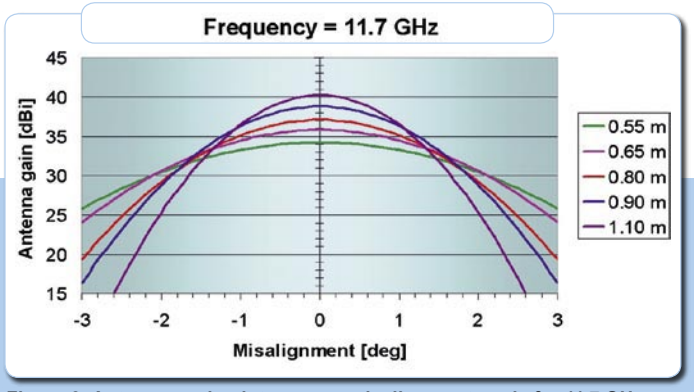


Figure 2. Antennae gain plots versus misalignment angle for 11.7 GHz.

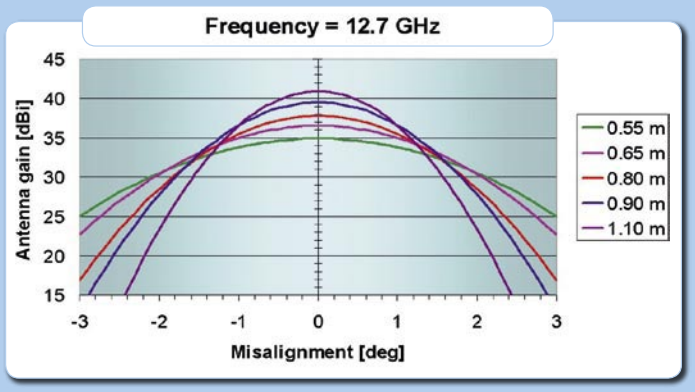


Figure 3. Antennae gain plots versus misalignment angle for 12.7 GHz.

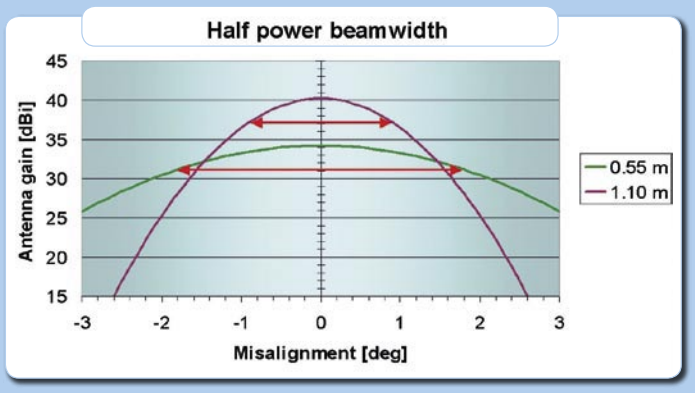
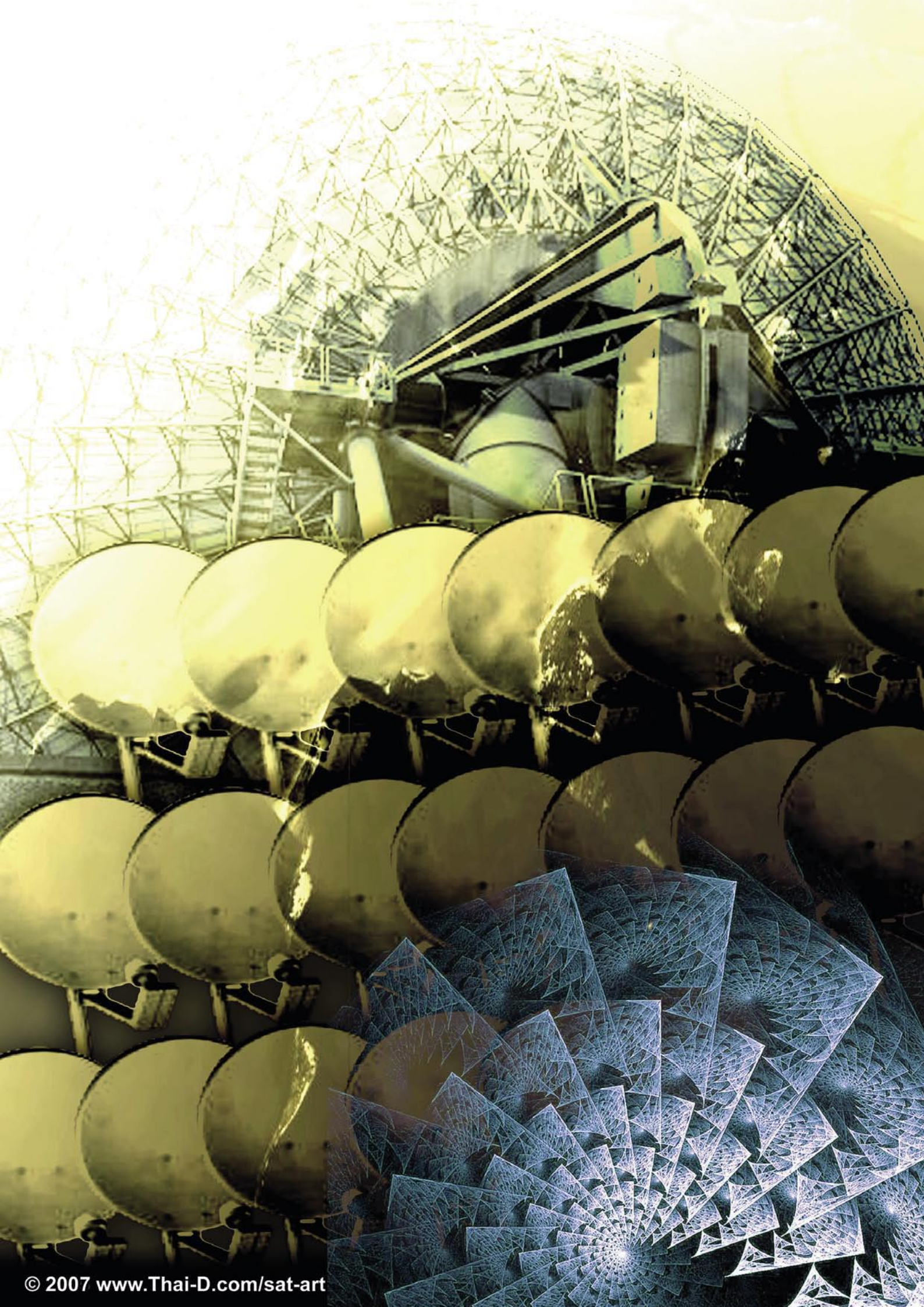


Figure 4. Beam width for the biggest and the smallest antenna at 11.7 GHz.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ARION AF-8000HDCI

HDTV CI Receiver

The first thing that strikes your eyes when you see the front panel of AF-8000HDCI is its very nice LCD display. The display shows not only numbers but also text. We can see the number and name of the channel we are tuned to or the title of the menu we are in. Of course, in standby mode, it shows the present time. Letters and figures are composed from white dots, while the background is blue. While its readability from a distance leaves something to be desired, it can be really helpful when you need to control or program your receiver without RCU. Using seven buttons located beneath the display, you can do quite a number of operations. The buttons are: Menu, OK, Exit, Channel up/down, Volume up/down. Channel and volume buttons serve as arrows when in a menu tree.

Next to the button, the infrared light detector and 2 status LED's are placed. Two CI slots are hidden behind a sliding door. Finally, in the left part of the front panel, we can see the round standby button. It has a nice red LED in the center that is lit when in standby mode.

The rear panel is equipped with IF input and output, HDMI interface for HD Ready TV-sets, RS-232 interface for upgrading receiver software and YPbPr output for those who can not use HDMI. Users who plan to buy a HD monitor but have not got it yet, can use analog SDTV outputs: CVBS on RCA or CVBS/RGB on SCART. Classical audio equipment can be connected either via RCA stereo audio output or via optical S/PDIF output (selectable format: Dolby Digital or PCM). ARION did not forget about the power switch – a useful control when software hangs up or we get lost in a strange submenu and are not sure what to do.

Remote control unit is well-shaped and has a good feel when you press a button. Frankly saying, we would make SAT, EPG and TV/RADIO buttons more distinctive but this is purely subjective opinion that may vary from user to user.

Installation

Since this is a HD TV receiver, it is by default prepared for a 16:9 HD TV-set. If you use it with a 4:3 SD TV-set connected to SCART, you may have some fun before you change the settings for the output device and see the stable picture. The options for video output should make everybody happy. On the HDMI output, we can get: PAL/NTSC 480i/576p/720p/1080i 50/60Hz. More on that later.

The installation itself goes smoothly and the first step is the selection of languages. We have the possibility to set the language of OSD, preferred audio, subtitles and teletext including the second preferred choice. For example you can set your native language as the first audio choice and English as the second one. The second one will be automatically selected only if your native soundtrack is not transmitted. Of course, if none of them is broadcast, the receiver will play the first available audio.

For the audio/subtitles/teletext, we have the following possibilities: English, Spanish, French, German, Italian, Portuguese, Arabic, Turkish, Russian, Dutch, Swedish and Greek. The choice for the OSD language is even wider. Except for the mentioned above, we additionally have the following languages: Spanish, Danish, Finnish, Polish, Slovak, Hungarian, Czech, Slovenian, Romanian. This choice is quite good as compared to the other models and manufacturers.

After setting languages, we move to antenna settings. It is really nice to see here all DiSEqC versions available from 1.0 to 1.3 (USALS). 60 satellites from all over the world are pre-programmed and there is possibility to add 10 more. This is a big number! Transponder data are not quite up-to-date but we may edit them manually. It would be great if we could load a ready list (e.g. from SatcoDX) via a serial interface.

We have three modes for channel search: automatic (with network scan on or off), manual and advanced (when you provide video and audio PID's manually). You can set either FTA or ALL channels. This may be an important decision since we have only 4000 entries in the channel memory available. It is not too much if one has a motorized dish or multifeed system. Some channels may be marked as scrambled being FTA for part of the day. So, if you are an user who must have all possible channels on the list, choose the ALL mode and network scan ON. After searching each satellite, edit its channels getting rid of those you can not descramble in any circumstances. Such approach will make it possible not to exceed the 4000 limit even if you live in such part of Europe where a lot of satellite beams are readable.

In the ALL mode with the network scan set to ON, it took AF-8000HDCI 13 minutes to scan Hotbird (13° East). It is not very impressive but acceptable. Different kinds of HDTV channels were found and processed without any problem. This includes DVB-S, DVB-S2 in QPSK and 8PSK, MPEG-4 and MPEG-2. ARION box handles SCPC from 1 Ms/sec and its tuner is quite sensitive. Everything that we expected to receive in the test location with a 85 cm motorized dish was in fact achievable.

Channel edit functions (delete, rename, move, lock and place in favorite) are quite efficient and comfortable. Of course, it would not harm if ARION provide in the future a PC based channel editor. Dealing with thousands of channels with a RCU is not something we want to do very often.

Everyday use

The first thing you do right after the installation is channel zap-

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ping. AF-8000HDCI does change channels within 2 seconds. Evidently, new MPEG-4 processors and DVB-S/S2 tuners are not that mature as the traditional DVB-S MPEG-2 chipsets. Nevertheless, it is not that slow that you can get irritated. Simply, those of us who are already addicted to channels zapping may perceive this HDTV ARION box as slower than our previous SDTV device.

However, the most important thing for the owner of a HDTV receiver is the video quality the box provides. And this is where we have to nothing but praise ARION. Not only HDTV channels are displayed perfectly but also the traditional channels can be output as 576p, 720p or 1080i. The secret here is the built-in scaler (see report in previous issue of TELE-satellite to learn what a scaler does). This feature converts like magic any regular standard definition SD channel into a high definition HDTV channel - at least it does look like a HDTV channel on your HDTV monitor.

We watched SD channels scaled up to 1080i with a great pleasure. The final effect was much better than supplying the HD TV-set with a standard signal (for example via SCART or RCA) and allowing it to expand it. The processor of AF-8000HDCI does it much, much better. So if you have a HD Ready TV-set with HDMI interface, using AF-8000HDCI will not only enable you to view HD channels but also significantly improve the video of your old favorite SD channels.

All CAM's that we inserted into CI slots worked flawlessly. If you currently use a CA module, it should be no problem whatsoever to move it to ARION receiver. In this way, you can get access to more HD channels since they are usually scrambled.

Extensive EPG guides are not very popular on FTA channels available in Europe. More often than not, satellite providers limit the broadcast data to the current and next events only, or even do not send program information at all. However those channels that broadcast full EPG data were processed by AF-8000HDCI without any problem. EPG can work in 2 modes: either showing detailed program guide for one channel or shortened guides for a number of channels at once.

Except for the EPG, the current program description is also presented in the information bar. As usually, more information is available after pressing the Info button for the second and for the third time. Infobar timeout, as well as the transparency of the whole OSD can be adjusted in OSD Settings menu.

AF-8000HDCI generates subtitles and teletext in both ways: as VBI and OSD. You can choose what suits you better. If your TV-set does not have a TV TXT decoder, you can use OSD mode. If it has such a decoder and your language is not in the receiver language list for teletext, you better use VBI mode and the decoder in a TV-set.

When exploring the menu system, we discovered among the others: setting TV aspect (4:3 and 16:9), setting screen adjusting mode (Letter Box and Pan Scan), setting time generation either as a local system of from the data stream (as an offset form GMT) and 8 event timer. It also has 2 small utilities: a calendar and a calculator. Having a closer look at the RCU, we found a sleep timer and a pause button (quite regular in PVR's but not always present in receivers without a hard drive).

Generally, the control of AF-8000HDCI is very straightforward. Its menus are logically composed in a tree structure and everything is where you expect it to be. Menu screens have video insets as well as hints prompting us which button does what. So the user's manual is hardly ever needed. However, if you decide to skim it, you will see that it is also well arranged and not too lengthy.

ARION box can exchange software between receivers. Normal software upgrade is possible via serial interface. We expect that in the future, it will also be available via satellite.

TECHNIC DATA

Manufacturer	ARION Technology Inc., Korea, www.arion.co.kr
Fax	+82-31-361-3099
E-mail	info@arion.co.kr
Model	AF-8000HDCI
Function	HDTV digital satellite receiver
Modulation	DVB-S and DVB-S2: QPSK, 8PSK
Decoding	MPEG-2 and MPEG-4
Channel memory	4000
Symbol rate	DVB-S: 1-45 Ms/sec, DVB-S2: 10-30 Ms/sec
SCPC compatible	yes
DiSEqC	1.0/1.1/1.2/1.3
USALS	yes
HDMI	yes
SCART connectors	2
Analog audio/video outputs	3 x RCA
Component outputs (YPbPr)	3 x RCA
S-Video output	no
UHF modulator	no
0/12 V control output	no
Digital audio output	yes (optical)
EPG	yes
C/Ku band compatibility	yes
Power supply	AC 90-250 V 50/60 Hz, 45 W max.

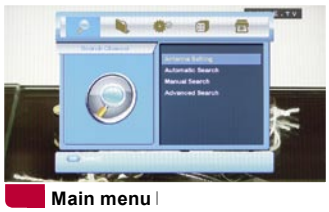
Antenna setting

Video output format

EPG

Info bar

Channel list



Main menu

Expert conclusion

Peter Miller
TELE-satellite
Test Center
Poland

+

AF-8000HDCI is a really good family receiver. It handles all kinds of HDTV signals very well. Its excellent video scaler makes watching SD channels a brand new experience. Some features like all DiSEqC protocols or advanced channel search place it in the upper segment of the class and may even make it a choice for an advanced satellite enthusiast.

-

As typical for the very new products, there are a few small things that can be improved. For example, when you press a button on the RCU a bit too long, you can get a double or even triple action due to too sensitive self-repeating feature. The firmware in our sample box ARIA1000S8000HDCI is the very first release. It should only be a matter of weeks for ARION to make these small inconveniences gone forever.

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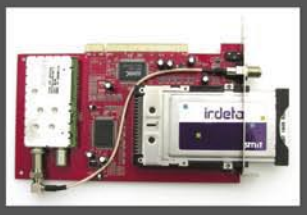

DVB-C

DVB-S

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Topfield TF6000PVRE

The first Topfield with a LAN interface

If you have ever tried to transfer a recording from a PVR to a PC you most likely had to use a USB 2.0 connection. Unfortunately there are limits to the transmission capacity and above all to the maximum cable length with this type of connection, so it is not the method of choice for all users – particularly, if the PVR and the PC are located in different rooms. Some months ago South Korean manufacturer Topfield offered a solution by introducing the TF6000PVR, the first PVR equipped with WLAN. TELE-satellite presented this receiver with a test report in issue no. 192.

Now there is the same model with an Ethernet interface, hence the suffix E in the model description. On the outside, the new receiver looks just like the TF6000PVR and the TF5000 PVR Masterpiece, because Topfield has opted for the same elegant case. The front panel comes with a VFD display which includes the channel number, channel name, receiver status and an indicator showing the number of recordings.

The box comes with an 80 GB hard disk, which allows for 40 to 50 hours of stored material. The hard disk is so silent you hardly notice it's on. On the back panel we find all our usual suspects, which include two LNB inputs with looped-through outputs, three RCA sockets for stereo audio and video, an S-Video socket and a component output as well as an optical audio output, an RS-232 interface and a USB 2.0 interface.

Major functions like standby, audio volume and channel switching can be controlled with the help of five buttons on the front panel, and the usual two CI slots are located behind a flap. The CI slots accept all conventional modules like Irdeto, Seca, Nagravision, Cryptoworks, Viaccess, etc. The remote control that comes with the settop box is of top quality and features cleverly laid out and clearly labelled buttons. The included Topfield manual gives detailed explanations regarding all functions of the box and guides you through all the settings that can be configured. A whole chapter is dedicated to configuring a network router in connection with the TF6000PVRE.

Everyday use

If you're not happy with the English on-screen menu all you need to do is choose another language. The available options are German, French, Italian, Spanish, Arabic, Farsi, Turkish, Danish, Swedish, Norwegian, Dutch, Polish and Finnish. This Topfield receiver supports DiSEqC protocols 1.0, 1.1, 1.2 and 1.3 (USALS) which means it can be used with a simple multifeed antenna just as well as with a DiSEqC rotating dish or a Wavefrontier antenna with 16 LNBs.

Unfortunately the pre-stored satellite and transponder lists are not fully up-to-date so, if required, some entries will have to be configured manually. The TF6000PVRE is fit for the C and Ku bands and even exotic LNBs need not worry you thanks to the possibility of manual LOF configuration.

Thanks to using two fully independent tuners it was possible in our test to combine two totally different antenna setups. Tuner 1 was connected to a DiSEqC motor while tuner 2 allowed quick channel zapping as it was connected to the 14 receivable satellites on our Wavefrontier antenna. Once the initial setup is completed we turn to filling up the channel memory, which is a little on the low side with capacity for only 5000 channels.

Then again, the extremely quick channel search made up for this limitation – with an 80-transponder satellite it took only three minutes with activated network scan. Of course you're free to select a manual search, if you so desire, and for the die-hards among you there is even a manual PID input available.

The receiver's system settings allow various types of video output, including CVBS, RGB, S-Video and YUV for PAL or NTSC. In this menu, you can also adjust the automatic configuration of the integrated real-time clock which keeps the correct time even after a power failure. As there are some providers which transmit an incorrect time signal over satellite, it is possible to block out individual transponders by limiting the automatic clock adjustment to certain pre-defined transponders.

We have come to expect a fantastic channel switching speed from Topfield and this receiver makes no exception: less than a second after selecting a new channel both audio and video are perfectly in sync. Thanks to the two individual tuners two events can be recorded at the same time while a third live or recorded event can be watched. The on-screen menu and the user interface have been taken over from the Topfield Masterpiece and TF6000PVR, which – according to our opinion – was a good and wise move because this way Topfield guarantees consistency and uses an OSD that has proven its worth again and again in earlier tests.

Like all receivers we test the TF6000PVRE had to demonstrate its reception skills under less-than-perfect conditions. Unfortunately, it was not able to lock into our SCPC test transponder on EUTELSAT SEASAT 36° East with a symbol rate of just 1 Ms/s. It takes some 2 Ms/s for the box to lock into a signal successfully and to process it flawlessly. Very weak signals are less of a challenge for

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the TF6000PVRE as it passed tests with BBC on Astra2D in Munich and EUROBIRD2 in Vienna. What we did not like, however, was the fact that the signal and quality meter delivers unreliable values at times.

The perfect overall picture of this receiver is rounded off with the built-in teletext decoder and the user interface which is thought through to even the smallest detail. The TF6000PVRE can also take over as an MP3 jukebox, playing songs that have been transferred onto its hard disk using either the Ethernet or USB interface. MP3 files are played back without a glitch and there is even the option of creating personalised playlists.

Thanks to the so-called TAP (Topfield Application Program) interface Topfield is the first manufacturer to allow a truly innovative feature on its receivers: TAP is an open programming interface which amateur or professional software designers can use to develop their own little applications which can be run on the receiver.

So far, there are dozens of tools for various fields of application and ranging from the permanent display of the time on the front panel and changes to the display all the way to creating an automatic bookmark whenever the playback of a recorded event is stopped. Of course professional programmers have come into the picture by now as well, resulting in alternative program guides being available which include managing the archive of recordings and many other little gadgets that address specific features of the PVR and make using the TF6000PVR even easier.

On the Topfield website www.i-topfield.com the company offers the free Vega software for editing the channel list on a PC. All channel list data are read out and transferred to a PC via the RS-232 or USB interface, are then conveniently edited on the PC and later transferred back to the receiver's own channel memory. If you want to copy recordings from the receiver's hard disk to a PC using the USB 2.0 interface you can use the Altair file manager.

As Topfield places great emphasis on continually improving its receiver software there are three ways of updating the software: using the RS-232 interface, using a USB connection or conveniently via satellite.

Network interface

The single most innovative feature of the TF6000PVRE is its Ethernet interface. The receiver supports the DHCP protocol which means the TF6000PVRE can automatically obtain an IP address from a router or can manually be assigned a permanent IP address by a user. The box comes with an integrated web server and an FTP server, both of which allow accessing the box from a local area network or even from the Internet. Using an example configuration the Topfield manual explains in detail which settings have to be selected so that remote access can easily be established.

On a PC that is connected to the Internet all you have to do is key in the receiver's IP address in the browser's address field and immediately the receiver's webpage will appear on screen. This is the Topfield webpage some might know from the TF6000PVR. Apart from deleting and renaming recordings on the receiver's hard disk it is also possible to copy recordings from the receiver to the PC. In addition, timer entries can be added, edited or deleted and recordings can be started or stopped. A status display shows the current operating mode of the TF6000PVRE.

The integrated FTP server allows easy access to the recordings that are saved on the receiver's hard disk. Either anonymous access can be selected to only download files, or personalised access to download and upload files like MP3 songs, for instance. For personalised and password-protected access a user has to be defined on the receiver who is granted rights to read and write on the hard disk.

In general we were impressed with the network features of the TF6000PVRE, just as with the TF6000PVR in the previous test. The transfer speed of the Ethernet interface comes up to 1 Mb/s under normal conditions.

This even allows a unique feature of this Topfield: you can play and watch files in the receiver directly via the PC!

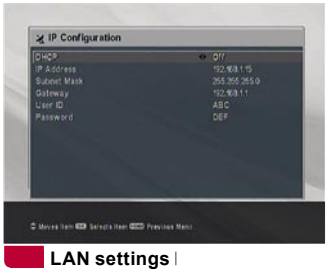
TECHNIC DATA

Manufacturer	Topfield, Seongnam, Korea
Fax	+82-31-778-0801
E-mail	inquiry@topfield.co.kr
Model	TF6000PVRE
Function	Digital DVB-S PVR receiver with Ethernet interface
Channel memory	5000
Symbol rate	2-45 Ms/sec.
SCPC compatible	yes (> 2 Ms/s)
USALS	yes
DiSEqC	1.0, 1.1, 1.2, 1.3
Scart euroconnectors	2
Audio/video outputs	3 x RCA + 3 x RCA YUV
UHF modulator	no
S-Video	yes
Component output	yes
0/12 V connection	no
Digital audio output	yes
LAN	yes
EPG	yes
C/Ku band compatible	yes
Power supply	90-250 VAC, 50/60 Hz

Main menu

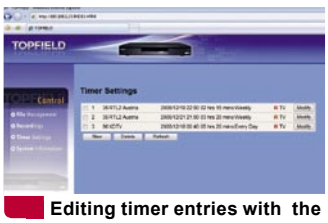
SCPC reception

EPG



LAN settings

Access the TF6000PVRE via the Internet using the receiver's webpage



Editing timer entries with the receiver's webpage

Expert conclusion

Thomas Haring
TELE-satellite Test Center Austria

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Thanks to its tried-and-tested concept the TF6000PVRE is a technically mature and very reliable PVR receiver for the whole family. With the appropriate cabling the Ethernet interface can be used to access the receiver from other rooms in the house or even from the Internet, if a new timer entry needs to be created during a holiday, for example. Another example is to play and watch files directly from receiver.

The workmanship and the overall impression are immaculate, as we have come to expect from Topfield.

\-

none

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GT-LST40 Universal Single Straight Feed LNBF 40mm
GT-PFS40 Universal Single Prime Focus LNBF 40mm
GT-T40 / GT-T23 Universal Twin LNBF 40mm/23mm
GT-QT40 / GT-QT23 Universal Quattro LNBF 40mm/23mm
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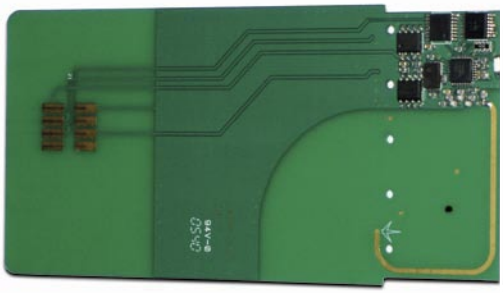
Here are the specialists for satellite IF distribution today

Wireless SmartWi

Pay TV reception all over the house

Picture this: you have one pay TV subscription but several TV sets spread all across the house. In the past there were three ways to distribute pay TV to more then one TV: you either had to lay a dedicated cable to each TV set and this way set up your own private cable network, or you had to use small radio transmitters which distribute the channel to all rooms, or you simply added any number of subscriptions to make sure everybody in your family can watch the pay channel they want. However, options 1 and 2 mean that the same channel has to be watched by everyone in the house, and option 3 is only available for those willing to spend money on several subscriptions month by month.

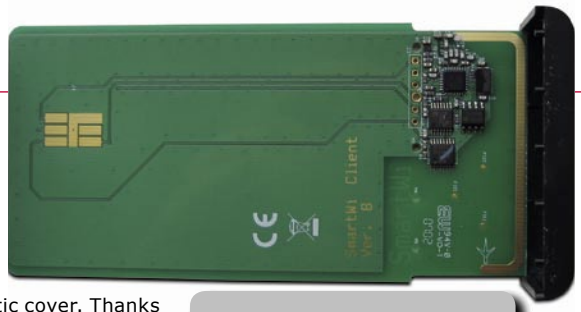


The old SmartWi card had an antenna which partially radiated into the receiver and thus could cause interference with some receiver models.

Danish company SmartWi has looked at this dilemma and has come up with a simple yet ingenious solution to this problem. The pay TV smartcard is inserted into an external card reader which at the same time is a radio transmitter. Special cards with a reception antenna are then inserted into the slots of all receivers in the house. If somebody selects an encrypted pay TV channel on their individual receiver the required key is requested by the receiver from the original smartcard in the external reader. The reader then transmits the valid key back to the reception card in the receiver and the requested channel is shown on the TV. Sounds complicated? Maybe, but it works perfectly in a matter of milliseconds.

This system does not only work with one or two cards, but with a total of seven different reception cards, four of which can be active at the same time. Compliance with the ISO 7816 standard is guaranteed and the manufacturer says an indoor distribution range of at least 15 m can be achieved. There is no indication regarding outdoor range, but we assume 150 m or even more should be possible.

TELE-satellite presented this clever solution some time ago, but SmartWi has not rested on its laurels in the meantime and has been working to further improve the system. Even back then both the manufacturer and TELE-satellite received overwhelmingly positive feedback from our readers, and the new version 8 offers an improved transmitter/reception unit on the cards, a PCB antenna and an additional protection of the sensitive electronics with a black plastic cover. Thanks to the new antenna, interference is now almost a thing of the past because no more radiation can enter the receiver.



A close-up with the cover removed shows the antenna: the U-shaped conductor on the right side which uses the whole length of the card in the new version 8

The outward appearance of the control unit has remained unchanged. On the inside, however, a lot has been amended. Firstly, the unit is now USB 2.0 compatible, and secondly, the transmission and reception capabilities have been vastly improved. Like for the previous model the power supply comes from the PC's USB interface, yet an additional external power pack is also included.

In direct comparison, the new and improved model features very sturdy reception cards which have lost their delicate touch that gave rise to some concern in the first version, and the overall workmanship gives a very positive impression. The manufacturer offers a whole range of software on its website at www.smartwi.net, ranging from a firmware update for the control unit or the appropriate PC applications to the download of the instruction manual. There is even a dedicated support forum for users and a support technician of SmartWi is available for expert advice.

Everyday use

Before the SmartWi box is ready to use it has to be equipped with the necessary firmware. On its website the manufacturer offers two different types which support the Irdeto, Viaccess, Conax, Cryptoworks, Nagravision and Seca Mediaguard encryption systems. The control unit is the size of a pack of cigarettes and features the USB interface for establishing a connection with the PC, as well as the plug for the external power pack, a status LED and of course the core of the system, the card reader. The SmartWi box can be installed and configured in the usual Plug&Play way, which makes it rather easy to install the required driver and to open the programming tool.

The software update only takes some seconds and the next step is the personalisation of the individual reception cards, which is one of the most crucial steps in the process because otherwise everybody within the range of the control unit would have access to pay TV channels – at least in theory, assuming all those unauthorised users have the same technical equipment. SmartWi without personalised cards is much the same as an unprotected WLAN network. To personalise the system, each card is briefly inserted so that both ends can exchange a unique identification code. The other benefit of this process is that two different SmartWi systems do not interfere with each other.

In case the encryption system and/or the individual receivers require the correct ATR code to be available directly on the card, this code can be read out from the original card by the control unit and then transmitted to all active reception cards. In order to set this up the original card has to be briefly inserted into the control unit, followed by all reception cards. The box takes care of the rest. For our practical test we used the smartcard of a German pay TV provider in connection with an Alphacrypt CI, a Cryptoworks card of Austrian public broadcaster ORF and a Viaccess erotics smartcard with

The power pack, the control unit and three SmartWi cards (only one shown) are included in the package

a Viaccess CI.. The control unit detected all three original cards flawlessly and within moments all available pay TV channels could be individually selected and watched on all receivers within the SmartWi system, all this with only one smartcard for each pay TV provider.

In our test setup, all receivers were located in the same room, which is a rather unrealistic scenario in the real world. So we went out and set up the whole system in the house of one of our editorial staff. We tested the SmartWi system in different spots in the house from the basement hobby room to the children's room in the loft and were impressed with the results. Thanks to the control unit which was placed in the living room we were able to supply pay TV all over the house. The 15 m range given by the manufacturer is a safe estimate on the lower side of the maximum distance between control unit and reception cards, and even reinforced concrete walls could not stop the radio waves.

According to the manufacturer up to four reception cards can be used simultaneously. While we cannot confirm this claim as only three cards came with our test unit, we can nonetheless testify that these three cards work perfectly when used at the same time. Our test also confirmed that the system is compatible with all current CI modules. While internal card readers are also supported in general, there is slightly less perfection with these when compared to CI modules.

The SmartWi website offers a small tool for ambitious users and experts, which shows information regarding the currently used pay TV smartcard and the complete transmission/reception system. This way possible problems can be detected and solved at an early stage. In addition there is another free application available which can be used to perform a timing test. Generally, the internal card reader of a receiver or the CI module needs to access the smartcard every ten seconds in order to be able to present a selected pay TV channel error-free. Calculating the keys in the CI module according to the information received via satellite may take up to two seconds. If several reception cards are in use at the same time it becomes obvious that the system may sooner or later reach its limits. This is all the more risky if a digital receiver requests the keys every four seconds, for example, instead of the usual ten seconds. The timing tool is used to exactly measure these request times and depending on the receivers' requirements, it can be established whether indeed up to four reception cards can be used simultaneously or whether two cards are the maximum. If you still use the maximum number of cards in such a scenario, all four receivers may show decoding errors.

TECHNIC DATA

Manufacturer	SmartWi, Denmark
Fax	+45 86406622
E-mail	http://www.smartwi.net/contactus.html
Model	Wireless SmartWi, version 8
Function	Card splitter with wireless radio transmission
Radio frequency	ISO 7816 Standard
Range	Inside >15m, outside n.a.
Maximum number of reception cards	7 (4 of which active)
Maximum number of simultaneously available channels	4
Power supply	Master max. 100mA, clients max. 50mA
Firmware upgrade possible	yes
Dimension	90x57x23mm

Expert conclusion

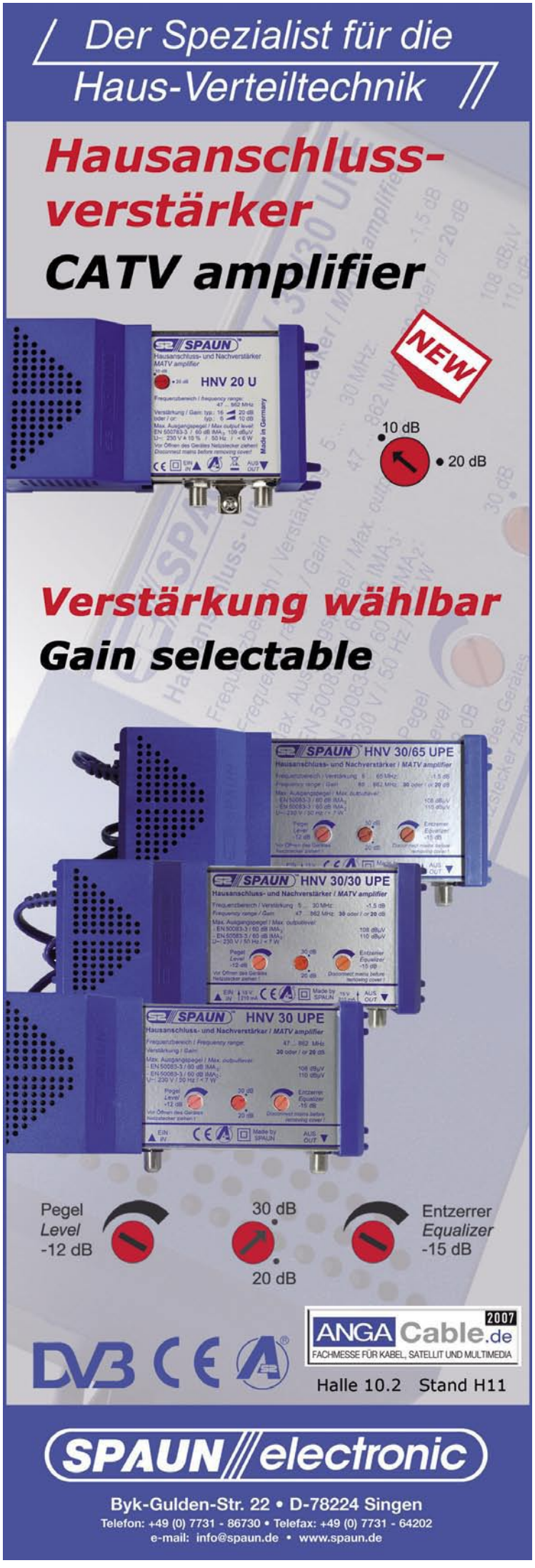
Thomas Haring
TELE-satellite
Test Center
Austria

+

The radio connection between the card reader and the reception cards works flawlessly even over larger distances. This means that a connection between the control unit and several receives can easily be established in single-family house. Thanks to the personalisation of each card unauthorised access from outside is efficiently blocked. The workmanship of both the card reader and the reception cards is very good.

-

Some receivers with an integrated card reader sometimes experience problems with the reception cards. A software update should easily be able to solve this problem, however.



Containers Full of Dishes

Alexander Wiese

Jiraporn Tangpiroontham is the President of dish antenna manufacturer INFOSAT

INFOSAT in Bangkok, Thailand, has only been in existence since July 2006. Surprisingly enough, the primary reason that this company was founded was because of the World Cup soccer tournament: everyone in Thailand wanted to set up a dish but there were simply no more to be had. "We produce as many as 5000 dishes every month", explains Jiraporn Tangpiroontham, "and if necessary we can push that to 8000." Jiraporn is the president of the company and also happens to be the wife of Niran Tangpiroontham, manager of INFOSAT Intertrade, one of the largest satellite wholesalers in Thailand.

INFOSAT manufacturers wire mesh antennas that range in size from 1.6 to 3.1 meters in diameter. The parts for each dish are produced from the supplied raw materials in their manufacturing facility and are then prepared for shipping. "We have four pickup trucks and two heavy transport trucks that we use to deliver the antennas to our customers and to our overseas shippers for export", explains Jiraporn.

80 of the 3.1-meter antennas can fit into a 20-foot container. That same size container can also pack in as many as 200 of their 1.6-meter dishes. "You can get a container of large dishes for US$ 11,200 while a container of the smaller antennas will set you back only US$ 7000", says Jiraporn as she starts her sales pitch. This means that a single 3.1-meter dish costs about US$ 140 and a 1.6-meter antenna runs only US$ 35. "These prices are FOB Bangkok. Those that purchase in these quantities we refer to as Mega Dealers", comments Jiraporn. A General Dealer can purchase antennas in smaller quantities starting with 10 but then of course the price goes up.

90% of their customers prefer to have their dish in black. Jiraporn is not too happy with this: "if we didn't have to paint them, they would be 10% cheaper and the natural aluminum is much more resistant." Jiraporn has 30 employees working for her. A rather large loudspeaker fills the entire facility with music and once every year all the employees are invited to a three-day excursion. "We are like a large family", comments Jiraporn proudly. The employees work from Monday to Saturday for eight hours each day.

Jiraporn is considering expanding their product exports. "We are looking for wholesalers all around the world, wherever large dishes are used", she says and then adds, "and that would be everywhere, wouldn't it?"

INFOSAT's manufacturing facility in Bangkok. The blue entrance door is normally closed and is constantly protected by a security guard.

One of INFOSAT's pickup trucks. Boxes of coaxial cable can be seen in the foreground.

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From Wire Mesh to Container: How a Wire Mesh Dish is Produced

1: From the three-meter long aluminum rods, the segments are cut to size and then pressed into the proper shape using the machine in the background.

2: Quality Control: the curved segments are tested for precision.

3: The curved segments are placed on a form and then welded together.

4: The wire mesh arrives precut in rectangular shapes and is placed on a metallic form of a panel and then cut to size. The result is the triangular shape of the panel.

5: The wire mesh panels are placed alongside each other and then screwed together.

6: Here the mounts are assembled. The customer must decide if the antennas should have a fixed-type mount or a mount to accommodate an antenna motor. Only the smallest 1.6-meter antenna can be fitted with a combination mount.

7: The rods for the polar mount holder are cut to size.

8: Multiple panel segments are packed together according to size. The shipping cartons are custom cut to size on site.

9: The end result: all of the materials are manufactured, packaged and ready for the container for deliver around the world.

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Satellite Business in Winnipeg, Manitoba

In one of Winnipeg's industrial zones you will find one of 21st Century Entertainment's branch offices.

21st Century Entertainment Inc, Winnipeg

21st Century Entertainment, which calls Vancouver its home, is made up of four branch offices. In addition to loudspeakers and other home entertainment products, this company is also one of Canada's satellite wholesalers. One of these branch offices can be found in Winnipeg and covers the Canadian provinces of Manitoba, Saskatchewan and Ontario. Heather Pullen, manager of the Winnipeg branch office, explains, "I took over here back in June of 2006." The most sought after product is their 60 cm dish antenna for reception of the satellite positions at 91° west (269° east), 110° west (250° east) and 119° west (241° east), of which they sell about 50 per month. Also popular is the 90 cm dish while the 100 and 120 cm antennas are used primarily for motorized systems for which Heather offers the customers a Moteck motor.

"Our best selling receiver is the Coolsat followed closely by the Mercury box from Fortecstar," explains Heather about her business. An interesting portion of her business are 4DTV receivers of which she sells about 15 per month – and that at a retail price of about CAN$ 1000.00! Those who buy this receiver usually are owners of older C-band antennas. With this box they can now receive all the 4DTV digital C-band signals.

Heather's current special offer: for only CAN$ 29.99 you get a 60 cm dish along with a dual output LNB with rectangular mount.

In Winnipeg there are three similar satellite wholesalers. 21st Century only sells to retail dealers and not to end users. "50% of our customers come directly to our offices while the remaining have their products delivered to them", comments Heather. We asked her about the sale of HDTV receivers: "At the beginning it was 2-3 boxes a month; today we are at 15 per month."

Here is an LNB with a "D" type mount. The coax cables from the LNBs are typically routed through the feedarm here in North America. For this purpose there are two different mounts: rectangular and "D". The use of an LNB with the correct type of feedarm or multifeed holder will help protect the cable connections from the weather.

Heather Pullen in her nicely organized stockroom loaded with everything from "F" connectors to DiSEqC switches; everything an installer would need.

Satman, Winnipeg

Jerry Fisher is a newcomer in the satellite industry but at the same time he has many years of experience in the world of satellite reception. After retiring in 2006, he started his new business together with his long-time friend Frank Apperley. Jerry erected his very first satellite system back in 1981. He worked for 30 years for Nestlé in their technical branch but he was already using his free time back then to install satellite systems for some extra money. "Today I work with three sub con-

Jerry in his home office on the outskirts of Winnipeg. He has placed quite a bit of emphasis on his website (www.satmancanada.com) with which he describes all the technical possibilities to future customers. "Many of my customers are young with PC experience." He was quite happy to find Jamil Ahsan, a PC pro who helped professionalize his website.

tractors", explains Jerry, "they construct the antenna systems for me." When he started his business a year ago, he was installing 10-15 systems every month. One year later it has become 30 per month. But it is components, not the sale of complete antenna systems that makes up the majority of his sales. 80% of his sales he attributes to the Viewsat receiver for which his customers pay around CAN$ 200.00. Second in line would be satellite dishes. "75% of our dish sales are for the 60 cm dish. The 90 cm antenna makes up 15% of our dish sales with the 100 cm dish taking up the rear." The larger antennas are used in motorized systems.

We asked Jerry where he came up with the name Satman. "For quite some time I contributed to the Canadian edition of the satellite programming guide Onsat. They used to produce a satellite radio show that dealt with the topic of satellite reception. It was while doing this that I came up with the nickname Satman." Onsat ceased operations in 1993.

Jerry seems quite optimistic with the development of HDTV and made an interesting observation: "Many people bought themselves an HDTV monitor for Christmas last year to view the HDTV channels available via cable. But they were disappointed with the poor picture quality supplied by the cable systems." While looking for a different HDTV source so that they could take full advantage of their HDTV monitor, they discovered satellite TV. Jerry sees this as an opportunity to convert the unhappy cable customers to satellite customers. He sees a very optimistic future: "HDTV will soon become big business!"

At 60 years old, Jerry is only just getting started. He is standing here in his yard in front of his 3.6-meter dish. He only just replaced the wire mesh in this dish last year. He has a C/Ku-band feed/LNB assembly installed with an actuator from the American firm VonWeise in St. Louis. His favorite satellites are SatMex 5, G3, AMC1 and Galaxy 4. The 100 cm antenna with motor he has on the roof of his house he uses to receive the satellites from 148° west (212° east) to 55.5° west (304.5° east). Two adjacent 80 cm antennas with dual LNBs are used to receive the standard definition Bell ExpressVu channels on 91° west (269° east) and the high definition channels on 82° west (278° east).

Even when there's bright sunshine, it is still bitterly cold in Winnipeg. Here John Wallace shows off one of his homemade multi-LNB solutions.

Antique Car Restorer John, Stonewall

John Wallace has been repairing cars for 20 years. When he has extra time, he searches for real rarities. A farmer may have forgotten that years ago he placed his non-running old clunker in some back field. This is how John stumbled across an old 1949 Chrysler complete with its original interior. He restores these cars in his shop and can then easily resell these in Toronto.

But his love for building things also includes satellite reception. "The extreme climate here in Canada requires specific building materials", explains John. Not too long ago the extreme temperatures damaged his plastic LNB holders. "The plastic piece simply cracked." He sketched on paper exactly how manufacturers make LNB holders resistant to arctic temperatures: "A simple hose clamp made out of metal did the trick." Obviously, any suggestions that this type of solution could interfere with the overall design are not valid to him.

But he has also tinkered with multifeed solutions; he constructed a holder from materials in his workshop with which multiple LNBs can be attached. John, who comes from an engineering family, comments, "Finding solutions is fun for me!"

A 1949 Chrysler is waiting to be restored by John.

TELE-satellite Receiver Guide

Satellite DVB Receivers	Channel Memory	Symbolrate DVB-S DVB-S2	SCPC Compatible	DiSEqC	USALS Compatible	NTSC/PAL	Modulator Output	Looped-Through IF	SatcoDX Compatible	Power Supply	HDMI	Digital Audio Output	Audio/Video Output	Scart Output	S-VHS Output	Volt 0/12 Output	Positioner	Mechanical Polarizer	Hard Disk (Built-in)	Serial Interface	CI Slots	Embedded CA	TSI Magazine
	TV Radio	*Ms/sec*								*Volt Hertz*			*RCA*		*S-VHS*	*0/12 V*			*GB*				*Issue*
	ARION AF-8000HDCI																						
	4000	1-45 10-30	yes	1.0, 1.1, 1.2, 1.3	yes	PAL D/K, B/G, I	no	yes	no	**90-250V** 50/60Hz 45W max	yes	yes (optical)	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	no	#198 2007
	ARION 9400 PV2R																						
	8000	2-45	yes	1.0, 1.1, 1.2, 1.3	yes	PAL D/K, B/G, I	yes, UHF	yes	no	**90-240V** 50/60Hz	no	yes	yes	yes, 2	yes	yes	no	no	yes	yes, RS-232	yes, 2	no	#192 2006
	ARION AF-9300PVR																						
	8000	2-45	yes	1.0, 1.1, 1.2	yes	NTSC/ PAL	yes, UHF	yes	no	**100-240V** 50/60Hz	no	yes (optical)	yes	yes, 2	yes	yes	no	no	yes	yes, RS-232	yes	no	#188 2005
	BEETEL SD98																						
	5000	2-40	yes	1.0, 1.1, 1.2	yes	NTSC/ PAL	yes	yes	no	**80-300V**	no	yes (S/PDIF)	yes	no	no	yes	no	no	no	no	no	no	#193 2006
	BEL 5518																						
	2000	2-40	yes	1.0, 1.1, 1.2	no	PAL	yes	yes	no	**90-270V**	no	no	yes	no	no	no	no	no	no	no	no	no	#191 2006
	BOTECH CA 9000 FTA/CI																						
	4900	2-45	yes	1.2	yes	yes	yes, UHF	yes	no	**90-260 VAC** 50/60Hz	no	yes	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	no	#189 2005
	DGSTATION Relook 400S																						
	10000	2-40	yes	1.0, 1.1, 1.2, 1.3	yes	PAL D/K, B/G, I	yes	yes	yes	**90-240V** 50/60Hz	no	yes (optical)	yes	yes, 2	no	no	no	no	yes	yes, RS-232	yes, 2	yes	#191 2006
	DSN-GR 7400 CI EXPLORER																						
	5000 TV 1600 Radio	2-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL/ SECAM	yes	yes	no	**95-250V** 50/60Hz	no	yes (optical)	yes	yes, 2	no	yes	no	no	no	yes, RS-232	yes, 2	no	#188 2005
	EYCOS S55.12 PVRH																						
	8000	2-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	yes, UHF	yes	no	**100-240 VAC** 50/60Hz	yes	yes (S/PDIF)	yes	yes, 2	yes	yes	no	no	yes	yes, RS-232	yes, 2	yes, Conax	#197 2007
	EYCOS S30.12 CI																						
	8000	2-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	yes	yes	no	**100-240 VAC**	no	yes	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	no	#192 2006
	EYCOS S50.12 PVR																						
	8000	1-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	yes	yes	no	**90-250 VAC**	no	yes (optical)	yes	yes, 2	no	no	no	no	yes	yes, RS-232	yes	no	#191 2006
	EYCOS S10.02F																						
	4000	2-45	yes	1.0, 1.1, 1.2	yes	NTSC/ PAL	no	yes	no	**90-250 VAC**	no	yes (optical)	yes	yes, 2	no	no	no	no	no	yes, RS-232	no	no	#189 2005
	FORTEC STAR MERCURY II																						
	6000	2-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	yes, VHF	yes	no	**100-120 VAC** 60Hz	no	yes (S/PDIF)	yes	no	yes	no	no	no	no	yes, RS-232	no	no	#195 2006
	FORTEC STAR FSIR-5400 NA																						
	4800	2-45	yes	1.0, 1.2	yes	NTSC/ PAL	yes	yes	no	**90-240V** 50/60Hz	no	yes (optical)	yes	no	yes	no	no	no	no	yes, RS-232	no	yes, Irdeto	#190 2005
	GLOBAL TEQ 6000PVR																						
	10000	1-45	yes	1.0, 1.2	yes	NTSC/ PAL	yes	yes	no	**90-250V** 50/60Hz	no	yes (optical)	yes	yes, 2	yes	no	no	no	yes	yes, RS-232	yes	no	#190 2005
	GENERAL SATELLITE FTA-7001S																						
	5000	2-45	yes	1.0, 1.2	no	PAL/ SECAM	yes	yes	no	**190-250V** 50/60Hz	no	yes	no	yes, 1	yes	no	no	no	no	yes, RS-232	no	no	#189 2005
	GOLDEN INTERSTAR 9000 CI PVR Premium																						
	9000	1-45	yes	1.0, 1.1, 1.2	yes	NTSC/ PAL	yes	yes	no	**100-250 VAC**	no	yes (optical)	yes	yes, 2	yes	no	no	no	yes	yes, RS-232	yes, 2	yes, 2	#190 2005
	GOLDEN INTERSTAR DVB-T/S 8300 CI Premium																						
	6000	1-45	yes	1.0, 1.1, 1.2	yes	NTSC/ PAL	yes	yes	no	**100-250 VAC**	no	yes (optical)	yes	yes, 2	no	yes	no	no	no	yes, RS-232	yes, 2	yes, 2	#189 2005
	HUMAX PR-HD1000																						
	5000	1-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	no	yes	no	**90-250 VAC**	no	yes (optical)	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	yes	#193 2006
	KATHREIN UFS 821																						
	4000	2-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	no	yes	yes	**100-240 VAC**	no	yes (optical)	yes	yes, 2	yes	no	no	no	yes	yes, RS-232	yes, 2	no	#191 2006

Satellite DVB Receivers

	Channel Memory	Symbolrate DVB-S DVB-S2	SCPC Compatible	DiSEqC	USALS Compatible	NTSC/PAL	Modulator Output	Looped-Through IF	SatcoDX Compatible	Power Supply	HDMI	Digital Audio Output	Audio/Video Output	Scart Output	S-VHS Output	Volt 0/12 Output	Positioner	Mechanical Polarizer	Hard Disk (Built-in)	Serial Interface	CI Slots	Embedded CA	TSI Magazine
	TV Radio	*Ms/sec*								*Volt Hertz*			*RCA*		*S-VHS*	*0/12 V*			*GB*				*Issue*
MATRIX Planet	3200	2-45	yes	1.0, 1.2	no	NTSC/ PAL	yes RF	yes	no	**90-240 VAC**	no	no	yes	no	no	no	no	no	no	yes, RS-232	no	no	#196 2007
MATRIX Java	1000	2-45	yes	1.0	no	NTSC/ PAL	yes RF	yes	no	**80-270 VAC**	no	no	yes	no	yes	no	no	no	no	yes, RS-232	no	no	#194 2006
NEOTION 601 DVR	5000	2-45	yes	1.0, 1.2	no	NTSC/ PAL	no	yes	no	**90-250V** 50/60Hz	no	yes	yes	yes, 2	no	no	no	no	yes, external	yes, RS-232	no	yes	#188 2005
PANSAT 6000HXC	10000	1-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	yes, UHF	yes	no	**90-250V** 50/60Hz	no	yes (S/PDIF)	yes	no	yes	yes	no	no	yes	yes, RS-232	yes, 2	no	#193 2006
PANSAT 3500S	5000	1-45	yes	1.0, 1.2	yes	NTSC/ PAL	yes, UHF	yes	no	**90-250V** 50/60Hz	no	yes (optical)	yes	no	yes	yes	no	yes	no	yes, RS-232	no	yes, Conax	#190 2005
PIXX Event	10000	1-45	yes	1.0, 1.2	yes	NTSC/ PAL	yes, UHF	yes	no	**90-250V** 50/60Hz	no	yes (optical)	yes	yes, 2	yes	yes	no	no	yes	yes, RS-232	yes, 2	no	#190 2005
QUALI-TV QS 1080IRCI for HDTV and MPEG 4:2:2	unknown	2-40	yes	1.0, 1.2	no	NTSC/ PAL	no	yes	no	**100-240V** 50/60Hz	no	yes	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	yes, Irdeto	#187 2005
STAR SAT SR-X1400D	6500	1-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	yes	yes	no	**100-250 VAC** 50/60Hz	no	no	yes	yes, 2	no	yes	no	no	no	yes, RS-232	no	no	#193 2006
STAR SAT SR-X2500CUCI	4000	2-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	yes	yes	yes	**90-250 VAC** 50/60Hz	no	no	yes	yes, 2	no	yes	no	no	no	yes, RS-232	yes, 2	yes, uni-versal	#191 2006
STAR SAT SR-X3500CUCI Ultra	6000	2-45	yes	1.0, 1.2	no	NTSC/ PAL	yes	yes	yes	**90-250 VAC** 50/60Hz	no	no	yes	yes, 2	yes	yes	no	no	no	yes, RS-232	yes, 2	yes, uni-versal	#189 2005
TECHNISAT Digit 4S	5000	1-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	no	no	no	**180-250 VAC** 50Hz	no	yes (optical & coax)	yes	yes, 2	no	no	no	no	no	no	no	no	#194 2006
TECHNISAT Digit MF4-S CC	5000	1-45	yes	1.2	no	NTSC/ PAL	no	no	no	**230VAC** 50Hz	no	yes (optical & coax)	yes	yes, 2	no	no	no	no	no	no	yes	Conax, Crypto-works	#193 2006
TECHNOMATE TM-7755 2VA 2CI	5000	2-45	yes	1.0, 1.2	yes	PAL/ NTSC/ SECAM	yes	yes	no	**90-240 VAC** 50/60Hz	no	yes (optical)	yes	yes, 2	yes (via scart)	no	no	no	no	yes, RS-232	yes, 2	yes, Viac-cess	#189 2005
TOPFIELD TF6000PVRE	5000	2-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	no	yes	no	**90-250 VAC** 50/60Hz	no	yes (S/PDIF)	yes	yes, 2	yes	no	no	no	yes	yes, RS-232	yes, 2	no	#198 2007
TOPFIELD TF7700HSCI	5000	2-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	no	yes	no	**90-250 VAC** 50/60Hz	yes	yes (S/PDIF)	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	no	#197 2007
TOPFIELD TF7700HSCI	5000	1-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	no	yes	no	**90-250 VAC** 50/60Hz	no	yes (S/PDIF)	yes	yes, 2	no	no	no	no	yes	yes, RS-232	yes, 2	no	#196 2007
TOPFIELD TF6000PVR	5000	1-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	no	yes	no	**90-250V** 50/60Hz	no	yes (optical)	yes	yes, 2	yes	no	no	no	yes	yes, RS-232	yes, 2	no	#192 2006
TOPFIELD TF5000CIP	5000	1-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	yes	yes	no	**90-250V** 50/60Hz	no	yes (optical)	yes	yes, 2	yes	no	yes	no	no	yes, RS-232	yes, 2	no	#190 2005
TOPFIELD TF5000PVR Masterpiece	5000	1-45	yes	1.0, 1.1, 1.2, 1.3	yes	NTSC/ PAL	yes, UHF	yes	no	**90-250V** 50/60Hz	no	yes (optical)	yes	yes, 2	yes	no	no	no	yes	yes, RS-232	yes, 2	no	#188 2005
VANTAGE VT-X121SCI	4000	1-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	yes, UHF	yes	no	**90-250V** 50/60Hz	no	yes (S/PDIF)	yes	yes, 2	no	no	no	no	no	yes, RS-232	yes, 2	yes, Conax	#193 2006
VANTAGE VT-X111SCX	4000	2-45	yes	1.0, 1.2, 1.3	yes	NTSC/ PAL	yes, UHF	yes	yes	**90-250V** 50/60Hz	no	no	yes	yes, 2	no	no	no	no	no	yes, RS-232	no	yes, Conax	#191 2006

Ambitions in Hamburg

Entrance to max communication's new building. The offices are to the left with the warehouse to the right.

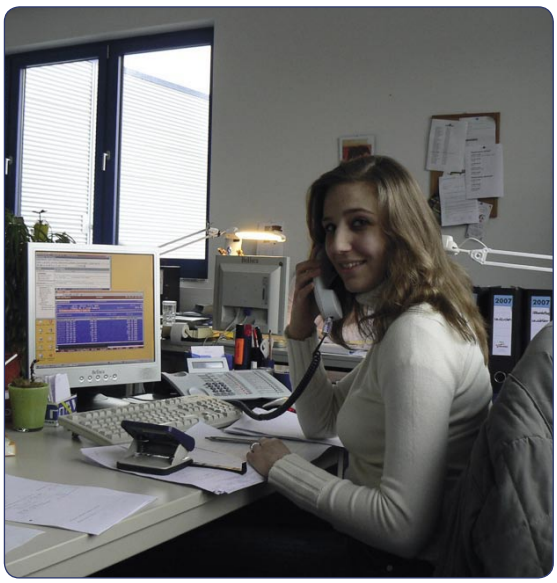
The people in Hamburg are well-known for their levelheaded and conservative way of thinking. This attitude could actually hide their ambitious side from view. This can also be easily seen in the company max communication. As a satellite wholesaler, they are very well known but there is a lot more going behind their front doors!

max communication was founded by Thomas Guhlich in 1990. His brother had been operating a successful computer wholesaling business and this gave Thomas the incentive to start his own satellite wholesale business. He

The two owners of max communication: Managing Director Dirk Wittenborg (left) and founder and Technical Director Thomas Guhlich (right).

Product Manager Frank Zimnik has reason to smile. He prophesizes that "In 2008 HDTV will take off: the Olympics and the European Football championships will take care of that. Naturally, max communication's Chess brand name will also have an HDTV receiver, perhaps even by the fall of this year."

Jens Kortekamp, Director Key Accounts (foreground) with Jörn Dreyer, Manager Key Account.



Callers to max communication will be greeted by the friendly voice of Sonja Scherdin.

traveled with a small truck to Italy and purchased satellite antennas there.

This small beginning with only a few employees has since grown at such a tempo that in 2004 it was necessary to expand the control of the company. Thomas Guhlich searched for a strategic partner and found Dirk Wittenborg, formerly connected with banking and consulting. In April 2006 he took over 50% of max communication. Since then Thomas Guhlich has been handling all affairs related to purchasing, logistics and warehousing while Dirk Wittenborg has been concerning himself with the financial, sales and strategic side of the business.

max communication serves satellite dealers. Jens Kortekamp, Director Key Accounts, came up with the slogan: "One face to the customer". This simply means that dealers really don't need any other suppliers since max communication would be able to deliver everything they need for their daily operation from standard products such as dishes, LNBs and receivers to smaller items such as antenna mast brackets and coax cable. Jens Kortekamp explains: "Today many dealers tend not to build up their own stock since this would require capital and also because existing stock has the potential to become outdated rather quickly." The Just-in-Time principle has also found its way to retail satellite dealers and this means that these dealers have to rely on immediate deliveries from wholesalers such as max communication without having to stock every product in large numbers themselves.

To help guarantee this, max communication moved to a new building in November 2006. In addition to the 1000 square-meter office space, plenty of room for even further expansion, the warehouse is 3000 square-meters large and is located in Rellingen's industrial park, northwest of Hamburg, next to the A23 autobahn. Marketing Manager Michael Sierakowitz explains: "Today 36 employees work for max communication, this includes 10 employees in sales, four in technical service as well as the Product Manager and Director Key Account."

Now the hidden ambitions will finally come to the surface. What exactly does a Director Key Accounts do? Jens Kortekamp tells us more: "At the moment, 70% of max communication's sales are domestic while 30% are exported to Europe. But we want to change that." His job is to build up relationships with wholesalers in European countries. "max communication has a unique way of working with other dealers. Constant quality as well as responsive service and price guarantees are extremely important." max communication sees an opportunity here to apply their experiences to other countires and to export their promise of quality. "There are no European-wide satellite wholesalers, only those that are national", explains Jens Kortekamp. Currently there is a gap in this marketplace that max communication wants to close.

Are there any other gaps? We posed this question to Frank Zimnik, product manager with many years of experience in the satellite industry. "max communication has built up their own brand names: Chess as a dealer brand name and Platinum as a budget and price-aggressive name", comments Frank Zimnik, "but there's more. We also offer high-end names such as Topfield for PVR's, plus we are also an official partner with ALPS for LNBs and Vantage for receivers." Where will all of this go? "As a European-wide dealer we would offer products based on region and/or country, such as, a receiver with Conax for the Scandinavian market or a CI unit for the Greek market." max communication has arranged with the manufacturers, most of which from China, to handle the adaptation of the units to their destination countries enabling them to deliver region-specific products.

The ultimate goal to deliver to destinations throughout Europe was underscored by Dirk Wittenborg, who told us, "In order to accomplish our expansion, we began to update our entire IT infrastructure after our move last November. Our plan is to launch our fully integrated business software project in March of this year. Our new shop system goes online in the third quarter of 2007: orders can be received and processed directly from the customers and starting with the fourth quarter the language modules will become active, first for English and French with other languages to follow."

A look at the warehouse: pallets of satellite products

By the time you read this, max communication will already have another building block activated to support European-wide distribution: the linking with Coface so that customers can be offered various purchase financing options. This means that customers can be billed for the products they order as long as they have a positive credit history.

These many different plans are surprisingly ambitious for a company that already sees itself as one of the three largest satellite wholesalers in Germany and may soon be the first true European-wide wholesaler. Good luck!

The service technicians are always busy answering customer service questions by phone or repairing defective receivers or multiswitches. From the left: Saim Taskiran, Rainer Flemming and Manfred Schmidt.

Mobile stock is automatically moved in order to make more room. Warehouse manager Hüseyin Kök with one of their satellite dishes.

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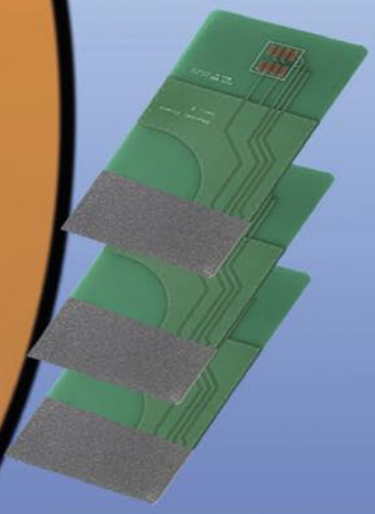

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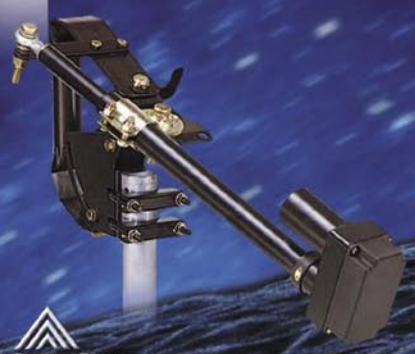

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1080 Lines

Alexander Wiese

▲ The main entrance of the Euro1080 Building is modern and enhanced with sculptures. On the right side a restaurant is being added to be used for TV recordings (talkshows, etc.). The offices are located in the front side of the building while the TV studios can be found in the rear. An additional building contains even more studios plus the staging area for Alfacam's 29 transmission trucks.

The picture resolution associated with high definition TV was incorporated into the Euro1080 name: HDTV is made up of 1080 lines of resolution. Euro1080 started its programming services back on January 1, 2004. The idea back then was to demonstrate to everyone that it was possible to technically create high quality TV with only minimal expense.

▲ Technical Director Jacques Schepers in front of Euro1080's playout. The upper row of monitors display the signal of the HD1 channel in MPEG-2 via Astra 23.5° east. The middle row shows the HD1 signal in MPEG-4 via Eutelsat at 7° east while the monitor to the right displays the Re transmission of HD1 via Sirius, the signal for which is transmitted via Astra to an earth station in Stockholm that then beams it to Sirius. The bottom row of monitors displays the reception of HD1 in MPEG-4 via Astra at 23.5° east, the middle monitor the HD2 channel via Eutelsat at 7° east and the right-side monitor the EXQI channel on Astra at 23.5° east.

Corporate Affairs & Media Relations Manager Yves Panneels ▶

The idea came into being largely due to the company Alfacam that has since 2001 recorded and archived HDTV-quality programming. "We have already archived several thousand hours worth of material", explains Technical Director Jacques Schepers proudly, "our hard drives now measure into the terabytes."

Alfacam was founded in 1985 and is a tv facilities provider especially for outdoor events such as sports or concerts. "We estimate that we have one of the largest pools of HD recording equipment at our disposal", comments Yves Panneels, "Alfacam was and still is the leader in HDTV technology." Shareholders in Alfacam include roughly 75% owned by the founder Gabriel Fehervari and his wife. The remaining shares are held by the venture capitalist firm "Flemish Regional Investment Company". Both of them have a similar stake in Euro1080 that was founded towards the end of 2003.

A single HDTV channel was started with less than 10 employees. Today there are 42 employees putting together the HD1 channel along with an offshoot channel, HD1-NL, for the Dutch market as well as the EXQI culture channel for the Flemish section of Belgium. There's also the HD5 channel with select special programs such as those for presentation in theaters or B2B programming. The HD2 channel with some HDTV programming is slowly being phased out since there is really no need for it anymore. "We are in the process of transitioning to a programming provider", explains Yves Panneels. Euro1080 sees the sale of HDTV programs to package providers as

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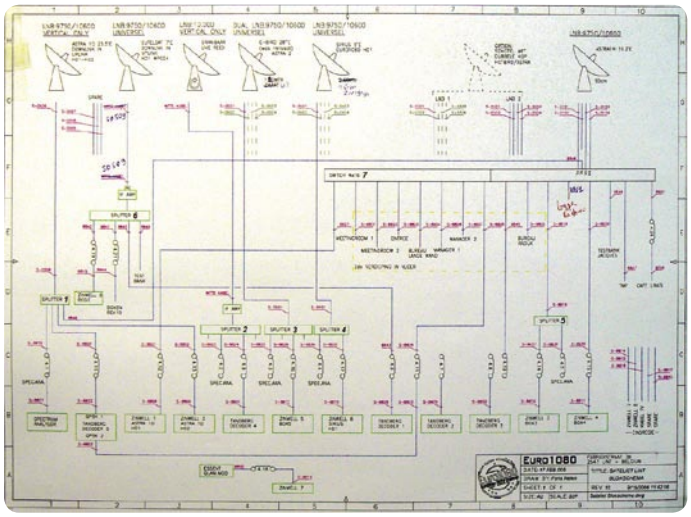
The playouts runs automatically: the computers operate on one programming section after the other. The monitor to the right shows the old MPEG-2 system from EVS while the monitor to the left operates in MPEG-4 with a system from the manufacturer Grass Valley.

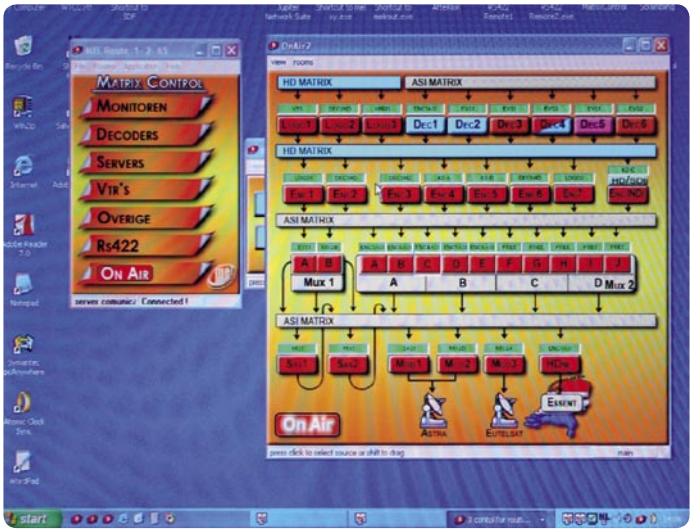
Technical Director Jacques Schepers demonstrates the heart of the playout: signals can be routed to the two Astra transponders, the Eutelsat transponder or into the cable network with the click of a mouse.

part of its future by offering them language-specific programs. "We recently hired two Network Managers for our HD1 and EXQI channels. Their job will be to make these channels more attractive and also to adapt the program offer to different Euopean markets", reveals Yves Panneels as he provides a look into the future.

The current programs are transmitted in an automatic 24-hour rotation. MPEG-2 will be in use only up until the end of 2007 at which point it will come to an end. "Instead of only two MPEG-2 channels, we can put five MPEG-4 channels on the same transponder", explains Jacques



Euro1080 antenna block diagram with the send and receive antennas.



Close-up of the Matrix Control with which all uplink signals can be controlled.

Schepers, "In MPEG-4 we can transmit at 8.8 Mbit/s in 8PSK and DVB-S2. In MPEG-2 we would need 16 Mbit/s to achieve the same quality."

What else should we expect from Euro1080? "We are also in the process of converting the audio to AC3 and we will soon be able to expand the EPG to 14 days," comments Jacques Schepers. Adds Yves Panneels, "This would enable us to make longer-term programming information available to the public." This would be an important step in making the Euro1080 channels more attractive!

Programs are processed here in MPEG-4 and routed to Uplink.

The transmission signal is controlled with the help of standard HDTV receivers such as from Humax.

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From Dealer to Producer

Alexander Wiese

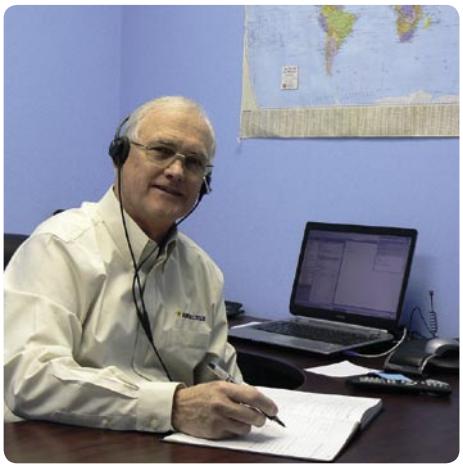
Fortec Star was started as a commercial enterprise. But soon this was just not enough: they began a cooperative effort with a Korean manufacturer and marketed a receiver under their own brand name. Office space was leased in Toronto in September 2001. They started with four employees and are now at six. Their headquarters is actually in the city of Mississauga but it is a suburb of Toronto and is located right next to Toronto's Pearson International Airport.

Why Toronto? "It could have been anywhere in North America", explains David McGrath, Fortec Star's Canadian-born General Manager. "When our president wanted to open an office, he simply flew to Toronto. He came to like the city and decided to start Fortec Star here."

But this arbitrary choice turned out to be quite advantageous. A good portion of their sales happens to be in Toronto. "The FTA product market in North America is divided into three niche markets", explains David McGrath of the local situation. It has mostly to do with the ethnic market, that is, the freely available foreign-language programming for immigrants. In Canada, these customers are for the most part concentrated in Toronto, Montreal and Vancouver. In the USA they are located mostly in California, a state with as many inhabitants as all of Canada, as well as Florida, Texas and New York. Roughly 65% of their sales are associated with products for the reception of foreign-language channels.

Unit 8 is the section of this long commercial building at 2780 Skymark Avenue that runs parallel to the main Eglinton Avenue East and that contains Fortec Star's offices. The warehouse is located in a different complex by a service provider.

General Manager David McGrath points out the location of their distributors on a map of the USA.



Don McEwen, North American Sales Manager, is the contact person for the distributors and is also the organizer for their visits to the SBE trade shows in Atlanta and Reno in 2007.

"We work with only about 30 distributors", comments David as he describes their business model, "These distributors then sell to local dealers and installers." David gave us some more insight: "When we started in 2001 in North America, there were only about 75 FTA channels that could be received. Now it is more like 275 channels in the Ku-band."

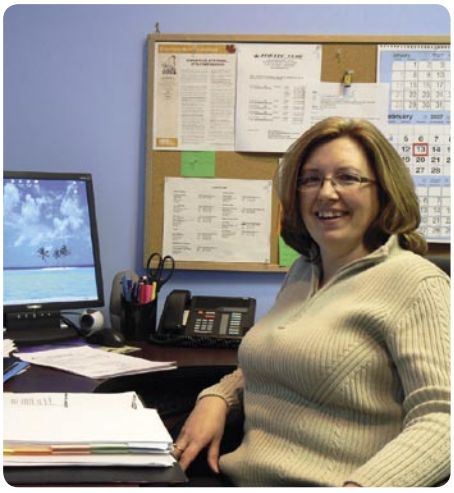
Another very important source of business are the religious channels that make up about 25% of their sales. "For the Glorystar network, we offer the Mercury II satellite receiver model with these channels already preprogrammed into it."

There's even a third business source, namely receivers for special applications such as for satellite reception in aircraft, or cable network reception and, last but certainly not least, the satellite hobbyist market.

Don McEwen, North American Sales Manager, provides some insight from his point of view: "65% of our sales are of the Mercury II receiver." This model comes with an NEC chipset and has been available since April 2006, shortly after the introduction of the Lifetime Classic receiver (Thomson chipset) in February of 2006. The distribution of Fortec Star's first and highly successful blind-scan Lifetime Ultra receiver, first introduced in 2002, was stopped towards the end of 2006.

In addition to receivers, Fortec Star also offers a line of LNB products as well as the complete family of STAB motors.

What should we expect from Fortec Star in the future? David McGrath lets us in on something new: "Fortec Star has a an interest in



Fortec Star does not deliver any products COD. Masie Gillingham keeps an eye on the accounts receivable and closely watches the accounts payable.

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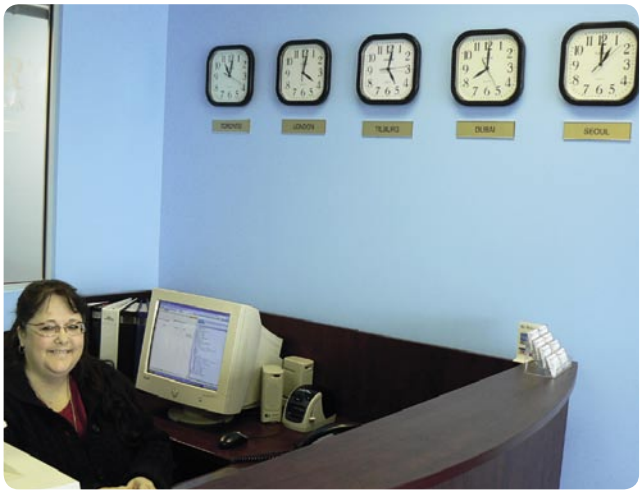
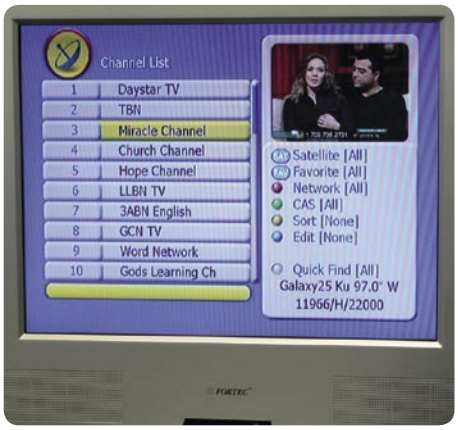
an R&D firm in Korea." This will make it easier for this company to develop region-specific products. "In the summer of 2007 a new FTA box will be released; a less expensive version of the Mercury II. In the fall there will be a receiver with embedded CI and shortly after that we will have an HD receiver – first a satellite version followed by a combo box with terrestrial reception."

Wow! Fortec Star sure has a lot of new products coming down the pipe! This will certainly add to the leadership position they currently have.

Fortec Star's satellite dishes are on the roof and hardly visible. The two dishes to the left are 90 cm models, one of which is operated with a STAB HH90 motor and the other with a STAB HH120 motor.
The center dish is fitted with a monoblock and aligned with the 97° and 101° west positions while the upper 65 cm dish is installed with a STAB HH100 motor.
To the right is another 65 cm dish with STAB HH 100 motor as well as another dish for the reception of the Canadian Bell ExpressVu service on 91° and 82° west.
The UHF antenna is for reception of the five HD channels from the CN tower plus the 10 HD channels transmitted from Buffalo, New York on the opposite side of Lake Ontario.

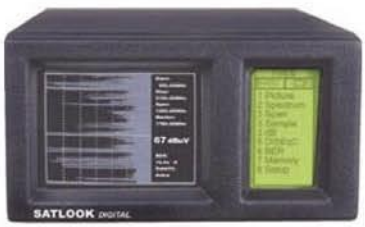


Office administrator and telephone receptionist is Shirley Mosher. She also handles the customs documentation for product exports to the USA. The clocks on the wall show the time at other Fortec Star locations.



The menu of a Glorystar preprogrammed receiver. The channel list is preset to the religious channels that this provider has under contract.

HOT New Product



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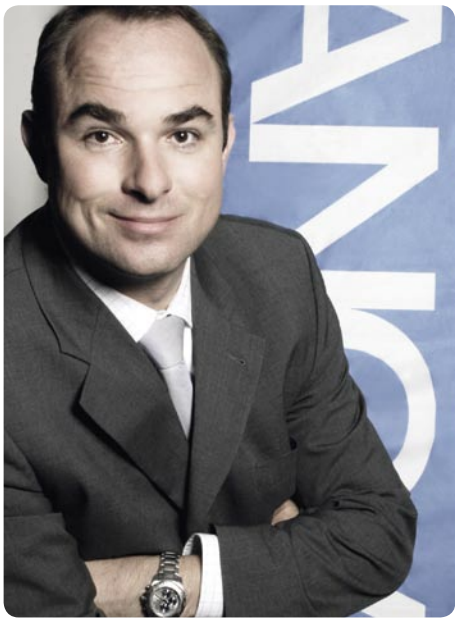
ANGA Cable

Alexander Wiese

ANGA is headquartered in Endenich, a suburb in the western part of Bonn, close to the A565 motorway access point. This modern office is the base for the diverse ANGA activities.

From 22 to 24 May 2007 the Cologne Fair centre will host the ANGA exhibition for the ninth time. Close to 3,000 exhibitors have announced their participation and the "net exhibition area will increase to more than 9,000 sqm for the very first time," states Peter Charissé, managing director of the Cologne exhibition. More than 9,000 visitors from 64 countries were counted at last year's ANGA exhibition, and similar numbers are expected for 2007 as well.

The first ANFA exhibition was held in 1998 and the original aim was to organise a fair that is focused on cable technology. In the meantime satellite technology has been added as well.



Peter Charissé is the managing director of the ANGA exhibition organising company

Lots of visitor traffic at last year's ANGA exhibition – 2007 will show a similar picture.

ANGA is an association of 120 companies of the German cable industry and was founded in 1974, which was at a time when cable distribution technology meant nothing more than distributing a small number of channels to a limited user base. The number of channels on offer has vastly increased since then and consequently the distribution technology has become much more sophisticated as well. Eventually, a dedicated affiliate company was founded to organise the ANGA Cable exhibition.

"Minimum size of a booth is 12 sqm", explains Claudia Schmidt, Marketing Manager and organizing the exhibition on behalf of ANGA Services GmbH. The most cost-efficient way to participate is to book a strip booth, which costs 2,800 EUR with the smallest size.

"ANGA is an exhibition for the specialised trade," according to Claudia Schmidt, "which means private individuals may not visit the event." This way exhibitors can have expert discussions without having to spend time answering beginners' questions.

The so-called Triple Play will be at the centre of attention at this year's ANGA exhibition, and by that we mean the bundling of Internet, radio & TV and telephony into a single technology. Next Generation Networks, DOCSIS 3.0 and IP-TV are some of the keywords in this new field.

Presentations and panel discussions will be held simultaneously with the exhibition, a strategy summit will discuss encryption matters and a technology summit will look at the various transmission modes and their respective benefits and disadvantages.

All this makes the ANGA exhibition not only a platform for existing technologies, but also a forum for future outlooks. Decision makers cannot afford to miss this event!

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SBE 2007

For many years there hasn't been a trade show in North America dedicated only to satellite products. In 2005 Lee Gilliland was named Show Director of Satellite Expo 2005 followed the following year by Satellite Expo 2006. The success of the first two shows promoted the organization of two shows for 2007, Atlanta in April and Reno in October.

Why these two locations? Atlanta is easily reachable by those living on the east coast while Reno is a short trip for the west coast residents.

The overall theme of these two shows have been expanded by adding broadband exhibitors. These exhibitors primarily cover Internet TV as well as those from fiber optic, WiFi, VoIP and Network component disciplines.

"Looking back at the future," is the slogan for the show explains Gilliland. He also alluded to the many satellite technology pioneers that will be taking part in an extravagant dinner. The first satellite trade show in the USA took place in Oklahoma City back in 1979. Of those 500 attendees from that first show, all of them true pioneers, some will take part in this dinner that will take place at the Airport Hilton Hotel and will be catered by four-star chefs.

The show will open with close to 100 exhibitors presenting their products and service in this show at the Georgia International Convention Center.

The Satellite and Broadband Expo (SBE) has become one of the most important trade shows for the satellite market in North America.

Lee Gilliland is the show director for SBE 2007.

At the 2006 trade show, some of the reception dishes were erected at the airport.

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Sat & Sound, in Brussels

The advantage of having a business in a small city: plenty of parking for delivery trucks and customers directly in front of their shop in Halle, Belgium.

Stefaan Cornelis in front of his demonstration TV showing the reception of Discovery HD with a brand new Topfield TF7700HSCI that TELE-satellite introduced in the previous issue.

Which Topfield model should it be? Stefaan has every model in stock.

What does a hotel entrepreneur do when his hobby happens to be satellite reception? Simple: he becomes a satellite dealer! Stefaan Cornelis, who started tinkering with his satellite reception hobby back in 1992, came to a decision together with his friend from school Didier Debey in 2000 to work for themselves. With his electrical engineering background, Didier handles all of the technical aspects of the business while Stefaan takes care of the administrative end.

As a wholesaler, Sat & Sound sells primarily to retail dealers. In the beginning, they made several brand name products available. Today however, Sat & Sound focuses their efforts on the Topfield name for satellite receivers and SmartWi for card sharing products. "We are very satisfied with the support we receive from Topfield", explains Stefaan, "should there be any software problems, Topfield reacts immediately." His best selling products are the Topfield model 5000CI Plus and the 5510 PVR receiver. "These two models make up about 60% of our sales", reveals Stefaan, "An additional 10% can be attributed to the SmartWi line."

Stefaan has great expectations for the fall of 2007: "By that time there should be many new HDTV channels, not only for Belgium, but also for France." He believes the new European "hot-spot" satellite position to be Astra at 23.5° east. Stefaan is so optimistic that he and his partner are exploring the idea of renting a larger warehouse. "The French-speaking portion of Belgium starts only a short distance away from here. Rental rates are less there", comments Stefaan with his views of the local situation. He is fluent in Flemish (Dutch), French and English.

There are about seven satellite wholesalers in Belgium, one of which is very large. The other six, to which Sat & Sound belongs, are all about the same size. Perhaps the upcoming HDTV business might change this relationship for Sat & Sound. Stefaan and his partner are certainly trying to make this happen!

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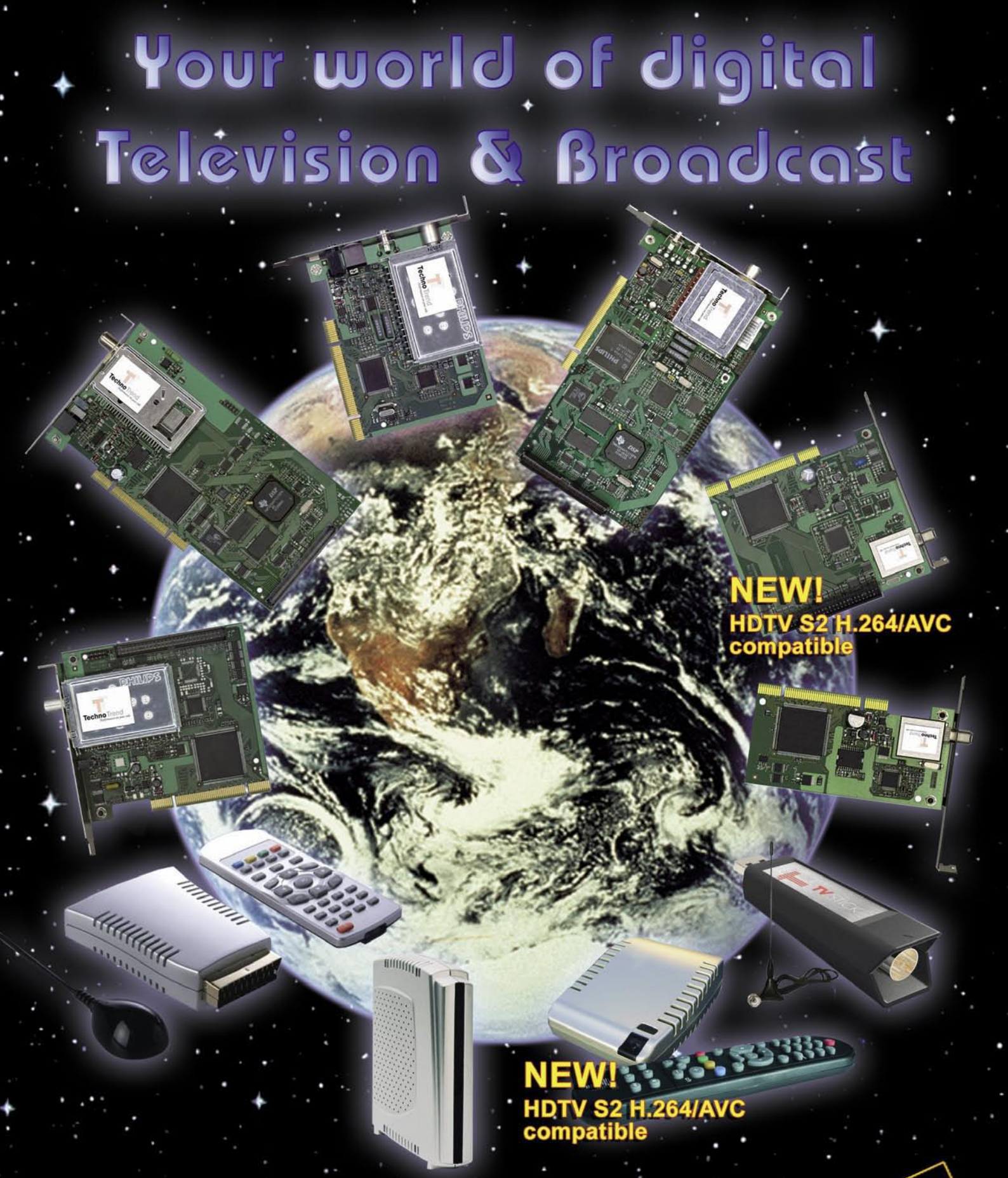

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Belgian Satellite Hoppers

A bunch of Belgian satellite DXers have found a wonderful name for their club: Belgian Satellite Hoppers. This association was founded in 1999 and since then its membership base has increased to almost 100 very active persons.

One of the most enthusiastic among them is Aimé Holvoet, who started his career in 1991 with a 1.2 m dish. In 1994 he added an antenna with a 3.1 m diameter and in 1998 he installed the object of all his pride: a professional 4m pole was anchored in his garden with a concrete block of three cubic meters and a 3,7 m KTI mesh antenna complete with a

Aimé has a receiver for every purpose: for the C-band he uses an Echostar LT8700 (analog reception), and for the digital channels there is a ClarkTech and a Nokia 9500. He can receive satellites between 75° East and 58° West. We did the maths: it's 52 satellites altogether.

Dirk Van Honacker in front of his Philips flat TV. "Currently the best HDTV channels are offered by Sky in Great Britain."

Aimé's antenna is so huge you can hardly fit the LNB head (above) and Aimés head (below) on one picture. On the left side in the background you can see another 1.8 m rotating dish for the Ku-band.

Dirk Van Honacker in a forest of dishes. Only eight of his 24 antennas can be seen on this shot.

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professional motor was then installed in top of it all. "I paid some 5,000 EUR for this construction," sighs Aimé and is still impressed by the courage he brought up at the time to invest this amount of money just for a hobby. "But I use this equipment every single day. I check the frequency charts on the Internet every day and look for myself if I can find any new signals or channels. Whenever I detect something the BSH member are the first I contact via e-mail or telephone."

In the last couple of years Aimé has become quite an expert when it comes to climbing up his pole. "It was only this January that a big storm has dislocated the motor and I had to get up there to readjust it," he tells with much excitement.

The club members meet every other month to share their satellite experiences. These days HDTV is in the centre of attention and the Belgian hoppers debate about which receiver is the safest bet to buy. Mind you, though, not all the club members share the same enthusiasm and equipment as Aimé, with most of them being happy with an 80 cm multifeed dish.

Dirk Van Honacker is the president of the BSH club, and he's long past an age at which a couple of antennas were fair enough. No less than 24 dishes are spread all over his garden, and in the meantime Dirk has begun to make satellite reception his profession. What started out in 1995 as a hobby has turned into a business and Dirk is now the owner of a shop called Harelsat in the small town of Harelbeke near Gent.

His company mainly sells reception packages for the newly established Flemish satellite provider TV-Vlaanderen, which make up some 70% of his total sales. The remaining percentage comes from multifeed antennas and no-name products. He even supplies large quantities to Belgian discount stores which in turn offer them as specially discounted satellite packages.

The BSH club has also organised some fairs in the past, with the most recent one drawing more than 10 exhibitors – including satellite and cable operators – and 500 visitors in 2006. Another fair is scheduled for May 2007, this time offering enough space for 20 exhibitors. All this shows that Belgium may be a small market, but is very active in the satellite scene.

The small Harelsat shop – open Tuesday to Saturday from 9 am to 7 pm and offering complete satellite packages.

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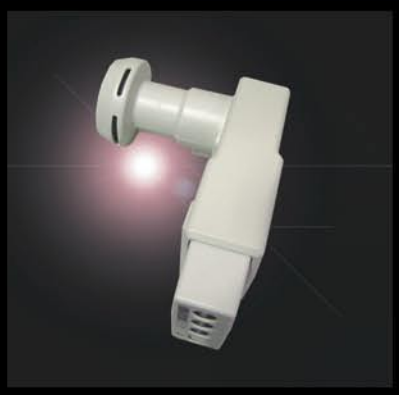

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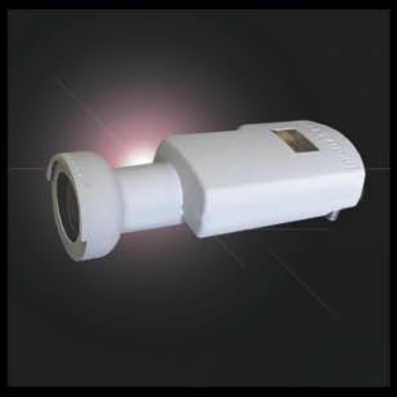

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Leo Stouten

A satellite DXer in the heart of Europe! In the city of Leuven, home to Europe's oldest university (dating back to the 13th century), which happens to be near Brussels, the "capital" of the European Union, Leo Stouten has his antenna farm erected on a small row of attached houses. He has been retired for quite some time yet at 74 he is at the prime of life. Only recently did he acquire a DRM radio (Digital Radio Mondiale) because he wanted to hear what it sounded like listening to AM digital radio signals.

But his true love has always been satellite reception. It began with him back in 1987 with a 1.2-meter offset dish and Nokia's first analog receiver. He has since stuck with the Nokia name and is today using the Nokia Mediamaster, although for blind scanning he opted for a receiver from FortecStar. 1996 was the year of the motorized antenna for him: a 1.2-meter Gregorian antenna; an antenna with a second reflector for the LNB. This kind of dish gives the same performance as a standard 1.5-meter antenna. Leo is very proud to say, "I can now receive Nilesat at 7° west, just not with that much bad weather reserve." His motorized setup makes it possible for him to receive all the Ku-band satellites from 70° east to 60° west.

Leo Stouten on his roof next to his 1.2-meter motorized Gregorian antenna.

"I did have some big problems with the motor at first", explains Leo, "This is the fifth motor I've had to install." Fortunately, this last motor has been working perfectly for several years now. Leo is extremely satisfied with his antenna system, the signals from which he observes on his 16:9 TV. "The LNB has a noise figure of 0.2 dB", admits Leo, "I couldn't ask for a better system." Leo, who worked for many years for Philips in their computer department, is very active in Belgium's satellite scene and is well-known by many in the satellite industry. He regularly visits the satellite trade shows ANGA in Cologne and IBC in Amsterdam. You might bump into him there some day!

The 1.2-meter motorized antenna is hidden behind the branches to the upper left. Another multifeed antenna is mounted on the outside wall and is used for reception of standard channels. Leo Stouten is standing in his garden.

At work DXing. Here he is checking up on channels on Nilesat at 7° west.

A true DXer: Leo can't pass up the opportunity to test a DRM radio.

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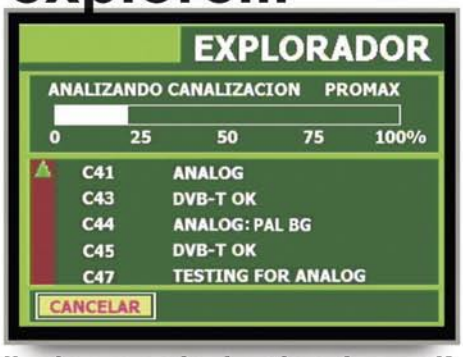
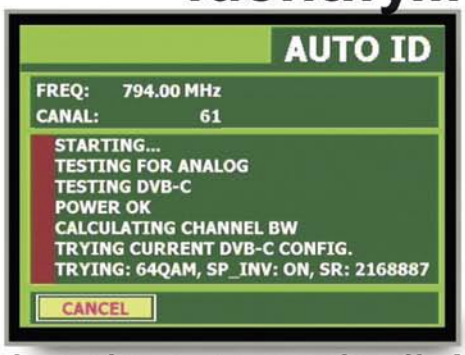
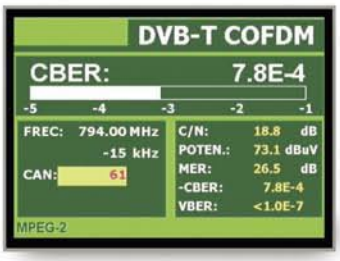


... all channels in the band!

identify...



... signals automatically!



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Exhibition Preview

- **18 - 21 April: SBE 2007**
  Satellite & Broadband Expo
  Georgia International Convention Center, Atlanta, Georgia, USA
  www.sbeshow.com

- **18 - 20 May 2007: Beurs Vlaanderen Digitaal**
  Digital television via satellite exhibition
  Cultureel centrum t'Spoor, Eilandsstraat 6, 8530 Harelbeke, Belgium
  www.beursvlaanderen-digitaal.be

- **22 -24 May 2007: ANGA Cable**
  Trade Fair for Cable, Satellite & Multimedia
  Koeln Messe, Cologne, Germany
  www.angacable.de

- **19 - 22 June 2007: CommunicAsia**
  International Communications and Information Technology Exhibition & Conference
  Singapore Expo, 1 Expo Drive Singapore 486150
  www.communicasia.com

- **7 - 11 September 2007: IBC**
  The World of Content Creation Management Delivery
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- **4 - 6 October 2007: SatExpo 2007**
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  www.satexpo.it

- **10 -13 October 2007: SBE 2007 West**
  Satellite & Broadband Expo
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