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satellite**

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Company Report

BYA

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Company Report

AMIKO

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Company Report

DEVISER

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Test Report

TEVII

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of
Digital TV
Business
Reporting

Test Report

SatCatcher

Signal analyzer with **1GB** of memory



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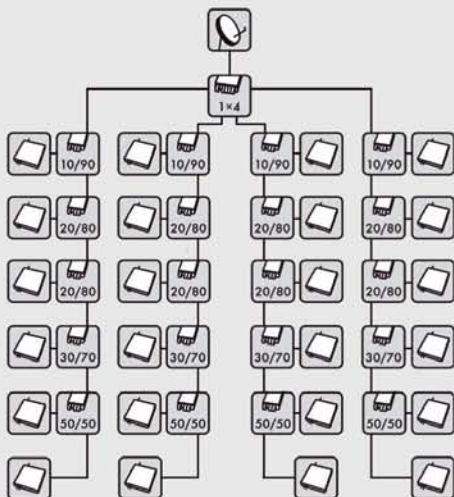
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TELE-satellite
Global Digital TV Magazine
Published worldwide since 1981 in
all major languages

Alexander Wiese
Publisher

alex@TELE-satellite.com
HQ in Munich, Germany

Dear Readers,

Once again we are introducing satellite signal analyzers in this issue of TELE-satellite. Each device is wonderfully designed and full of features that we wouldn't have thought possible just a few years ago. Nevertheless, they are compact and affordable. Why is the signal analyzer market taking off like this all of a sudden? Obviously there's a demand for these analyzers otherwise so many of them wouldn't be available.

Another reason is that today it's possible to manufacture signal analyzers in smaller numbers for a niche market like satellite installers. And wouldn't you know, this niche market mushroomed into an exceptionally large market since today almost every satellite TV viewer has their own signal analyzer. If you can provide an attractive product at an attractive price to a niche segment, it will eventually transform into a market.

Are there additional niches in the signal analyzer market or has it gone as far as it can? I personally would like to use a signal analyzer that in addition to showing me all the satellite channel frequencies, terrestrial digital transponders and cable specific parameters would also show me the WLAN frequencies. The latter is already available and TELE-satellite has already reported on this. But what about mobile telephone frequencies? When will a signal analyzer be able to measure the receivable frequency range, what the field strength is and how high the data transfer rate could be?

More and more people don't even use a hard-wired telephone anymore; they prefer instead to use their mobile telephones. Up until now, IPTV was meant to be used with fixed DSL connections,

but for me it doesn't look like this will be the future considering the consistently increasing number of people who are watching TV via tablet and i-pad computers. I believe that at some point Internet TV will be receivable via mobile frequencies and I don't mean mobile TV like DVB-H, rather IPTV or WebTV via mobile Internet links. That the technology to transmit TV channels is continuously expanding to include different paths, it's becoming clear that a universal TV signal analyzer that truly covers every possible range would be a new market segment. For those who sell and install reception systems for customers, the signal analyzer is the tool used to identify what can and cannot be received at a customer site.

The signal analyzer market is not by any means exhausted, rather, it expands automatically whenever a new frequency range is used to transmit TV channels. If you want to keep up to speed on what's going on, you'll need a corresponding signal analyzer.

Sincerely,

Alexander Wiese
TELE-satellite Editor-in-Chief



TELE satellite

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Liebe Leser, wieder stellen wir Ihnen in dieser TELE-satellite Ausgabe Satelliten Messgeräte vor. Jedes Gerät für sich eine wunderbare Entwicklung und voller Features, die noch vor ein paar Jahren undenkbar schienen, jedenfalls in dieser kompakten Fülle und das zu einem erschwinglichen Preis. Wie kommt es, dass es gerade auf dem Messgerätemarkt regelrecht boomt? Eine Nachfrage nach den Messgeräten besteht ja, sonst würden nicht so viele Geräte entwickelt und angeboten werden.

Ein anderer Grund ist, dass es heutzutage auch schon bei relativ geringen Stückzahlen möglich ist, sehr spezielle Produkte wie Messgeräte für eine bestimmte Nische wie Satelliteninstallateure herzustellen. Und siehe da, aus einem ursprünglichen Nischenmarkt entwickelt sich ein richtig großer Markt, denn heute hat ja schon fast jeder Satellitenzuschauer ein eigenes Messgerät. Gibt es attraktive Produk-

te zu einem attraktiven Preis für eine Nische, dann wird daraus ein Markt.

Gibt es noch weitere Nischen im Messgerätemarkt oder ist das Thema langsam ausgereizt? Was ich persönlich gerne benutzen würde, ist ein Messgerät, das mir neben all den Frequenzen für den Empfang der Satellitenprogramme, der terrestrischen Digitaltransponder und der kabelspezifischen Parameter auch die WLAN-Frequenzen anzeigt - letzteres gibt es übrigens schon und TELE-satellite hatte darüber bereits berichtet. Aber was ist mit den Mobilfunkfrequenzen? Wann kann ich mit einem Messgerät selbst messen, welche Frequenzbereiche empfangbar sind, mit welcher Feldstärke und wie hoch die mögliche Datenrate sein wird?

Denn immer mehr Menschen verfügen gar nicht mehr über einen telefonischen Festanschluß, sondern benutzen nur noch ihre Mobilfunkgeräte. Bislang ist IPTV vor allem für feste DSL Anschlüsse ausgelegt, aber es sieht für mich nicht danach aus, als ob dies wirklich die Zukunft in einer Welt ist, in der die Menschen anfangen, über Tablet und Pad-Computer TV zu sehen. Für mich sieht es eher danach aus, dass das Internet-TV über die mobilen Frequenzen empfangen werden wird und ich meine nicht mo-



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Da sich alle diese Techniken, um TV-Programme auszusenden, immer mehr verwischen und über verschiedene Wege verbreitet werden, ist ein universelles TV-Messgerät für wirklich ALLE Bereiche eine neue Marktlücke. Für diejenigen, die den Endkunden die Empfangsgeräte verkauft und installiert, sind Messgeräte das Arbeitswerkzeug, um überhaupt feststellen zu können, was beim jeweiligen Kunden möglich ist und was nicht.

Der Markt für Messgeräte ist noch lange nicht ausgeschöpft und erweitert sich schon deshalb automatisch immer weiter, weil immer mehr Frequenzbereiche hinzukommen, die für die Ausstrahlung von TV-Programmen genutzt werden. Wer hier den Überblick behalten will, braucht die passenden Messgeräte.

Das meint

Ihr Alexander Wiese
TELE-satellite
Chefredakteur

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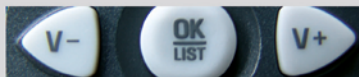


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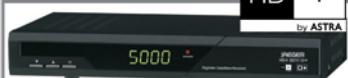
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- HDTV & SDTV
- 1 x smart card reader
- EPG (7 days in advance)
- Video-resolution 1080p, 1080i, 720p, 576p
- optical signal to the align the antenna
- HDMI out with HDCP

USB 2.0 HOST HDMI 1 x SMARTCARD-READER 1 x COMMON INTERFACE



*** FULL HD ***

JAEGER

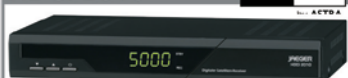
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HDTV-DVB-S Receiver - PVRready

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- PVRready. Direct recording via USB on external storage media possible
- HDTV & SDTV
- 1 x smart card reader
- Video-resolution 1080p, 1080i, 720p, 576p
- optical signal to the align the antenna
- HDMI out with HDCP

HDCI 2010 HD +



HDTV-DVB-S Receiver - PVRready

- USB 2.0 host for playback of external hard drive or USB flash drive
- 1 x Common interface slot
- HDTV & SDTV
- Video-resolution 1080i, 720p, 576p
- optical signal to the align the antenna
- HDMI out with HDCP
- Disecq 1.2 & USALS

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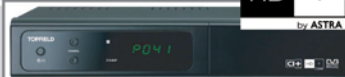


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- Dolby AC-3 bitstream output
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- CI+ Service Descramble supported

HDTV Receiver Selection

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SBP-2001 CI+ HD +

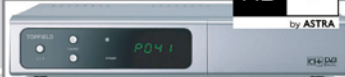


HDTV DVB-S Receiver

- HDTV PVR ready to external storage devices via USB port
- Output to 576i, 576 p, 720 p, 1080i
- Playback of DivX, DivX HD, MKV and VOB video files *
- Display subtitles (* .srt) media files
- Playback of MP3 files and display JPG files
- Timeshift/puffer with a length of up to 5 hours
- Fast forward and rewind with up to 64 x speed
- 2 CI + shafts modules for pay TV
- Firmware upgrade over USB4

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CBP-2001 CI+ HD +



HDTV DVB-C Receiver

- HDTV PVR ready to external storage devices via USB port
- Output to 576i, 576 p, 720 p, 1080i
- Playback of DivX, DivX HD, MKV and VOB video files *
- Display subtitles (* .srt) media files
- Playback of MP3 files and display JPG files
- Timeshift/puffer with a length of up to 5 hours
- Fast forward and rewind with up to 64 x speed
- 2 CI + shafts modules for pay TV
- Firmware upgrade over USB4

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- HD + compatible (HD+ smart card for 12 months including

SRT 7300 CI+



HDTV Receiver, USB PVR Ready

- HDTV (1080i)
- CI + compatible slot for most CA - modules
- USB port

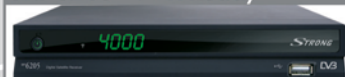
SRT 7000



HDTV Receiver, USB PVR Ready

- HDTV (1080i) • HDMI (V/A -Output)
- USB 2.0 port

SRT 6205 - PVR Ready



USB recording capability

- UHF Modulator to connect the receiver to TV
- 2 Common Interface slots
- USB port

New measurements on stock

Premium

Satlook
ICE



- DVB satellite-receiver 920-2150MHz
- Spectrum-analyzer with expanded spectrum
- DVB-S (Free to Air) and Analog TV-picture
- Digital readout of BER and SNR.
- Super bright 5" 16:9 TFT-LCD color display and much more

Mid Range

Satlook
LITE



- Very handy and easy to use Satellite-TVmeter.
- "EasyFind"-satellite identification
- Very sensitive
- Digital BER and S/N-ratio and much more

Cost Effective

Digitas
PRO ACCU



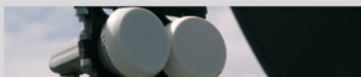
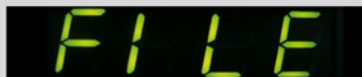
- Measure signallevel from two LNB's at the same time.
- Measured information are displayed on the LCD.
- DiSEqC, 22 kHz, 13/18v and mA readout.
- Generate DiSEqC, 22 kHz and 13/18v to control LNB/switch.
- and much more

Consumer

AirBeeper



- Very small and handy meter for installation of DVB-T antennas.
- Extremely easy to use, no buttons or knobs.
- Pitch-tone indication in the earphone and much more



HDTV & Ethernet connection

smart
VX 10
DVB-S HDTV Receiver

NEW

- HbbTV
- PVR-ready
- WIFI compatible
- LAN / Ethernet connection
- FULL HD 1080p
- NAGRA embedded
- USB interface for external storage devices
- e-SATA interface
- Unicable ready

HDTV Receiver

VANTAGE
VT-1 Full HD PVR

DVB-S Twin FULL HDTV Receiver

- Two DVB-S2 tuner
- 4:3, 16:9, HDTV 720p, HDTV 1080p
- Video MPEG ISO 2/4, MPEG-4 HD / H.264
- 2x USB
- HDMI
- 2 CI and 2 Smart card Reader
- Time shift supported

Big Dishes

PRODELIN
A TriPoint Global Company

240 RXO **NEW** 370 RXO

3.7M - C & KU-BAND

- C-Band Intelsat F1, H4 and GType approved: approval #IA031A00 (without LNA) and #IA031A00 (approved LNA included)
- Intelsat approved LNA kit eliminates costly field testing
- C-Band INSAT & wide-band available
- Precision compression molded four segment offset reflector
- Installation time reduced with improved mount design
- Fully galvanized steel Az/El mount
- Reflector/Feed electrical Anti-Icing available
- Two axis tracking configuration available

2.4M - C & KU-BAND

- Precision compression molded centered reflector
- Series 1252 - Az/El Mount
- Series 1253 - Polar mount
- Low transportation cost with three panel reflector
- Individual panels inter-changeable and field replaceable
- Galvanized steel mounts Reader

Dishes

CHERTINI TRIAX PRODELIN

40 cm - White
70 cm - White, Black, Red
90 cm - White, Black, Red
100 cm - White, Black, Red
120 cm - White
130 cm - White, Black

Big dishes directly from our warehouse!

NEW

- 160 cm
- 180 cm
- 240 cm
- 300 cm
- 370 cm

Optical fibre LNB

INVACOM
Innovation in Communications

Fibre LNB / Fibre Flange LNB

AVAILABLE ACCESSORIES:

- Optical 2, 4 or 8 way MDU can imitate a twin, quad or quattro LNB, and you can have up to 32 MDUs from one Fibre Optic LNB
- 1x2, 1x4 or 1x8 optical fibre coupler
- Optical cable from 1,0 meter up to 200 meters

The Fibre Optic LNB can feed the whole Ku-band to up to 32 end-points.
Full LNB range INVACOM available as:
SNH-031, TWH-031, QTH-031, QDH-031, SNF-031, TWF-031, QTF-031 and QDF-031

Parts

Multifeeder for 2, 3, or 4 LNB

Wallmounts

- 15 cm distance - Aluminium
- 25 cm distance - Aluminium
- 35 cm distance - Aluminium
- 45 cm distance - Aluminium
- 55 cm distance - Aluminium
- 35 cm distance - Steel
- 45 cm distance - Steel
- 50 cm distance - Steel
- 70 cm distance - Steel

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

Remotesystems

- AV-Linker - Videosender for remote control
- Remote Blaster
- Zapline 2 and more

BIG Link

Koaxialcable

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

Flat-Dishes

SELSAT

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

SELSAT Flat-Dishes available as:

H30D / H30D2 / H30D4

STRONG Slimsat SA Series

- Satellite antenna with integrated Single- Twin- or Quad LNB
- Simple: Installation within a few minutes

Slimsat Flat-Dishes available as:

SA 61 / SA 62 / SA 64

LNBs

- MTI
- BEST
- INVACOM
- ALPS
- INVERTO
- MAXIMUM
- TITANIUM, etc.

- Single Universal
- Twin Universal
- Quattro Universal
- Quad Universal
- Octo LNB
- Monoblock Single Universal
- Monoblock Twin Universal
- Monoblock Quad
- C Band
- Circular
- and many more

Inverto

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

All available as:

- Single Universal
- Twin Universal
- Quattro Universal
- Quad Universal

Full LNB range INVERTO available from stock

Motors

Aktuatoren/ Actuators

- Mini Actuators - 6", 10", 12"
- Regular Actuators - 12", 18", 24"
- Heavy Actuators - 24", 36"

H-H Mounts

- SG 99 / SG 99 II - up to 1,00 m
- SG 107 - up to 1,10 m
- SG 2500 A DiSEqC 1.2 - up to 1,00 m
- Stab HH100 DiSEqC 1.2 - up to 1,00 m
- Stab HH120 DiSEqC 1.2 - up to 1,20 m

Multiswitches/ DiSEqC-Switches

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

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

sa SPAUN Full range

Balcony mounting parts

25 cm distance - Steel
50 cm distance - Steel

120 cm length - Ø 6 cm

ALSO AVAILABLE:

- Balcony stand 100 cm Aluminium
- Balcony stand 100 cm Steel
- Balcony stand "Holland"
- Balcony holder L-form 25 cm
- Balcony holder L-form 50 cm

Unicable solution

Inverto
digital-labs

IDLP-USS200-CU010-8PP

This cascable Unicable switch is the smallest form factor Unicable switch enabling the reception of 2 satellites and installations with up to 8 satellite receivers over a single cable. In addition to its eight User Bands Unicable output, the multiswitch also features two legacy outputs, a terrestrial antenna input and is powered by an external power supply

Inpax X-9100 Linux PVR



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- *impossible not to like this little box*
- *very fast boot time thanks to a smaller Linux version*
- *runs very stable - we were not able to crash it*
- *includes large on-screen satellite meter*
- *sophisticated blindscan*



Turkish Delight

A high-definition Linux-based PVR promising a number of interesting features, all housed in a tiny case. Can it be possible?

Hailing from Istanbul, Turkey, the X-9100 PVR from INPAX is quite a surprise. The little black box measures just 26cm across, 19cm deep and 4cm high and comes in a stylish shiny black case with a minimalist appearance. There are just three buttons on the front panel: Standby, channel up and channel down. An LED

display displays the current channel number, or the clock in standby.

A flap on the right-hand side conceals a USB port and a single smart card slot which seems to be able to read a variety of cards – it even accepted my Sky Digital card and allowed me to view all my subscription

channels except those that are tied to an individual receiver. This was quite a surprise. The card slot is the only conditional access option: there is nowhere to add a CAM.

At the back, the antenna input and loop-through serve the single tuner. Video options are limited to HDMI,

Scart or composite video, whilst there are stereo audio outputs plus S/PDIF. For connection to the outside world there's an Ethernet LAN port and an RS232 port.

A cold start of the receiver doesn't take as long as might be expected from a Linux-based receiver, taking around 45 seconds from



flicking the switch for a picture to appear on screen. This is one of the surprises that come from the X-9100 utilising a much smaller, embedded version of Linux than the more complex versions we've seen in the past.

Those who might be daunted at the prospect of setting up a Linux receiver need not worry too much. The options and menu system are no more complicated than those of a standard receiver. USALS is supported to enable easy setup of a DiSEqC motor, with the added bonus of some major cities already being programmed into the receiver's memory.

A wide range of LNB settings are included, and as the receiver is of Turkish origin, special settings for DIGITURK are even included. If none of them suit your system the LNB's frequencies can also be specified manually. DiSEqC is supported from version 1.0 to 1.3 to ensure that just about any motor or switching setup will be supported.

71 satellites from around

the planet are pre-programmed into the receiver and these can be edited and deleted as required. New satellites can be added as required by simply specifying the orbital position. If you are setting your own dish up, you'll be pleased to see the inclusion of a large on-screen signal meter function to help you find a good signal.

Scanning satellites is fast compared to some other Linux-based receivers. For viewers of Canal Digitaal, TV Vlaanderen or UPC Direct on ASTRA 1, a special fast scan function is available. For the rest of us, a standard scan zips across the satellite spectrum in good time. A scan across Astra 2 took four minutes to scan the 90 stored frequencies.

A very welcome addition is a blind scan option, so that any frequencies not already held in the transponder list can be found. This works a little differently than others we've seen in the past. First, the entire frequency spectrum is scanned, adding any newly-found frequencies to the stored transponder list. After this, the regular scan kicks in, scanning the new frequencies alongside those previously stored. This adds some time to the scanning process, 2,5 minutes were taken to find and add an extra eight transponders to the list, then another 4:15 to scan them all. The blind scan isn't ideal for feed-hunting however, as there is no ability to scan a portion of the frequency band.

Channels are accessed from a channel list similar to those on most other receivers. The left and right buttons are used to filter the list between FTA-only, HD and encrypted channels, plus of course there is the option to

display everything. The red button can be used to filter the list further by limiting the satellites shown in the list. An A-Z function is also available, which filters the list by the first letter of the channel name, but doesn't sort it further than this – so Azerbaijan TV would still appear ahead of Aastha TV if this was their order in the default list – this I found just a little confusing. Dedicated page up and down buttons on the remote help to speed navigation of this and other lists around the menus.

The remote itself is a standard, generic feeling model, not helped by the occasional occurrence of the pressed button repeating your previous action rather than the one you were expecting. Another rather strange quirk is that the order of the coloured function buttons is different from the normal red-green-yellow-blue sequence. I didn't even know that this order has been burned into my brain from the use and testing of so many receivers over the years, but I proved that it is by pressing blue when I thought I was pressing green several times.

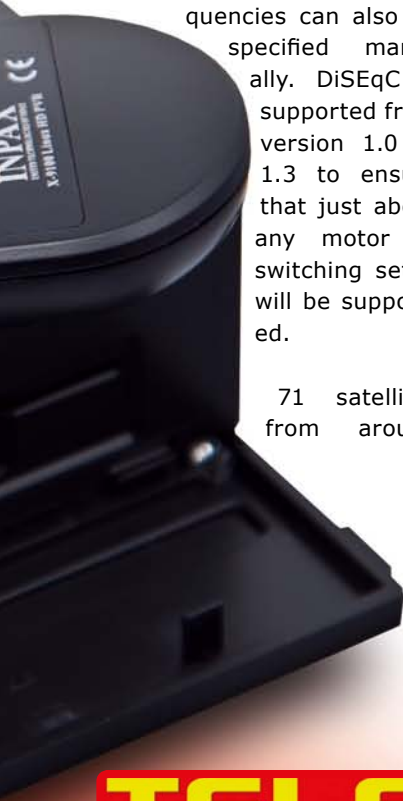
The remote is kept simple, and there are no buttons for selecting the correct aspect ratio, or screen resolution, but these options can be found inside the receiver's settings menus. Most important options are found here, including to select between RGB or CVBS from the Scart port. To access the latter option select HDMI mode 5761 and push volume buttons up or down

to toggle between RGB and CVBS.

There is one special feature in the menus where Inpax must however be congratulated. An option exists to store the sound volume setting for each channel individually. This is the perfect answer to that all-too-common situation of changing channel from an overly quiet one to one of those that has the sound cranked up so loud that your neighbours will be banging on the wall within no time. Of course, if only audio levels could be regulated to avoid this situation, such a function wouldn't be needed. But that is unlikely to happen anytime soon and very likely never, so in the meantime: thank you Inpax for thinking of this.

The channel editing functions are limited to deletion, moving, and renaming. The sometimes important ability to edit PIDs is missing, for example. There are eight preset favourites lists. Their names are quite strange, with the first few letters missing. But it's easy to correct this by simply adding a new favorite and giving it whatever name you want. The yellow button in the FAV menu will create a new favorite list.

There is no room inside the tiny case for a hard drive, recordings have to be made onto a USB device plugged into the front socket. Recordings can be started directly from the remote's record button or from a timer event that can be set manually or from the EPG. The 9100's EPG is quite usable, and



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can be switched between a one and seven-day version. It's a bit strange though in that the grid display only fills a quarter of the screen, so it's not the easiest to quickly see what is scheduled more than an hour or two into the future.

The event timer is also of a standard type, with some repeating options including Monday to Friday and weekends only. The receiver can be set to either record or just switch to the selected



channel at the desired time, and there's also a choice to switch off after the recording has finished. While a recording is in progress, the channel list is restricted only to channels on the transponder being received so there's no chance of lost recordings or receiver meltdown.

It's worth noting at this point that the manual warns that while the theoretical hard drive size limit is four partitions totalling 2 terabytes (which I think even I may have trouble filling up), it is not recommended to use partitions greater than 120 gigabytes.

1. Blind scan
2. Channel list
3. EPG
4. Favourites editing
5. File browser
6. FTP client
7. Multi picture-in-picture
8. Recorded programme playback

Recording and playback works very well, with no

990 CR HD PVR Spark LX High Definition



ENIGMA 2



CYNEXTRA GMBH
Stuttgarter Str. 36
D-73635 Rudersberg
Phone: +49 (0) 7183 / 30 777-0
Fax: +49 (0) 7183 / 30 777-20
info@cynextra.com

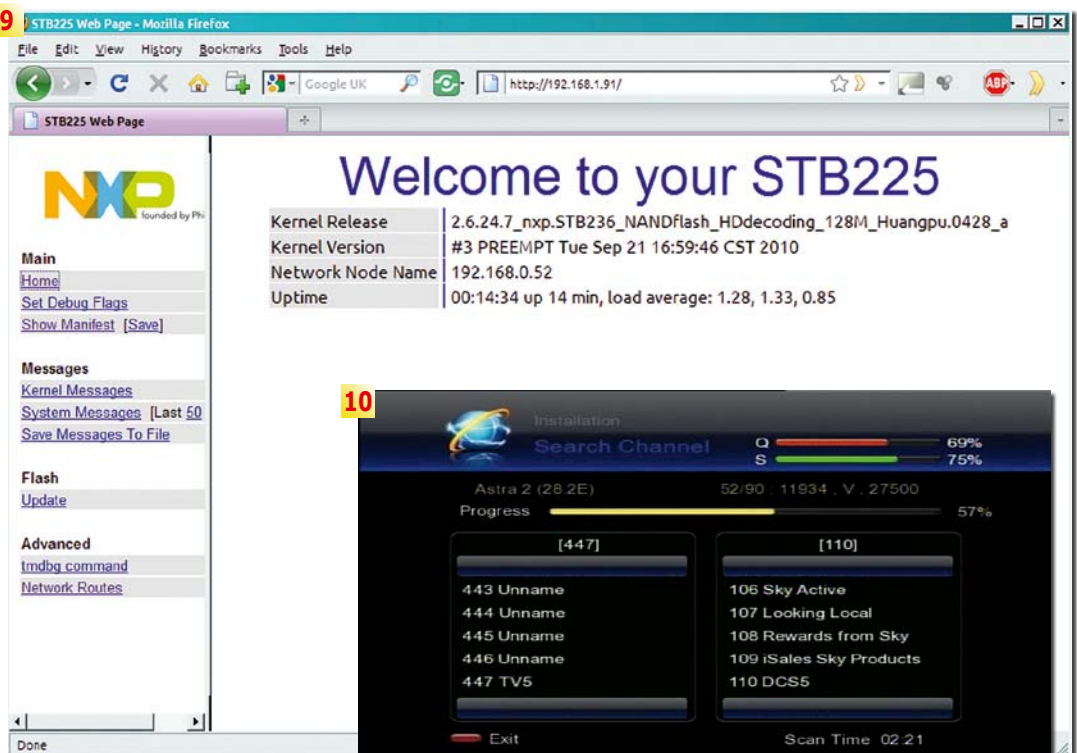
WWW.GOLDEN-MEDIA.NET

problems noted – even when recording HD channels to a USB stick. My experience with Linux receivers has been mixed in the past. I remember too well some important timer recordings that never even started because the receiver had crashed hours earlier, still displaying its equivalent of the Windows hourglass and a frozen picture of the last-received channel. Despite my best efforts to confuse and confound the little box, I wasn't able to crash it at all, even when recording.

As recordings are stored on a USB device, it's easy to access them on a PC. Another "well done" goes to Inpax here – the settings menu gives a choice of recording format between .MPG and .TS files, a welcome extra choice that could be very useful to those who wish to edit or archive their recordings onto DVD or convert them into other formats.

Despite the ease of connection to the outside world via Ethernet, it isn't possible to access recordings by FTP, so disconnecting the USB device and walking it to a computer is the only way to access them. There is an FTP client available, but this works in one direction only to copy media to the USB for playback. It is also possible to connect to an SMB (Samba) share in the same one-way manner.

The variety of file formats that can be replayed is impressive, and most of the sample files I tried played without any trouble. The list includes AVI, MPG, VOB, FLV, MP4, MKB, 3GP and ASF which covers most bases. It's nice to see that channel lists saved in the SatcoDX .SDX format may also be imported from the file menu.



9. The embedded Linux's web interface

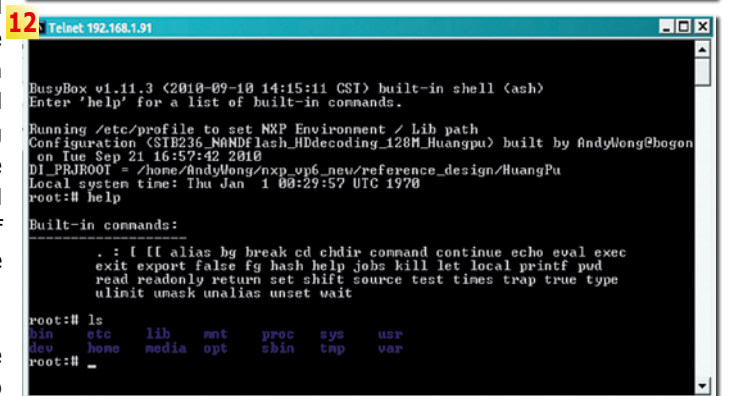
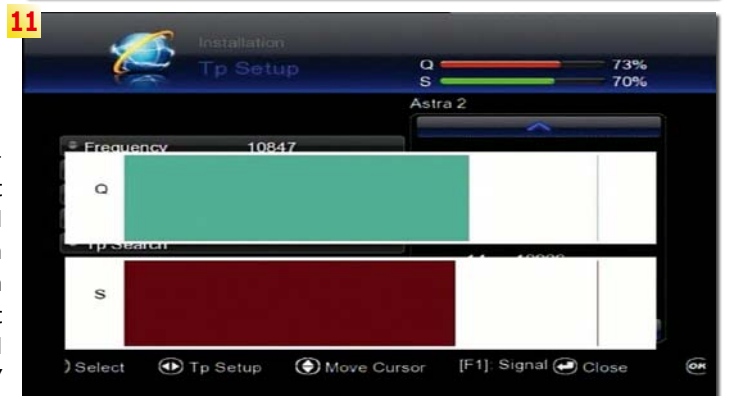
10. Satellite scan

11. Signal meter

12. Telnet into the receiver

Also included is an internet radio player. When it works, it is really quite good and kept a connection from my location in England to an Australian channel overnight without any problems. I did get several "server busy" messages, but when I did get through I received some good quality audio, with some stations accompanied by artist names and song titles. Scrolling through the huge station lists is a real pain though as each page of the list is retrieved from the internet when requested.

After a long time in the alphabetical list I gave up while still on the letter A, but at least there's a favourites list here too. This will be invaluable when I want to return to the esoteric mix of stations I have already found, from 247 Polka Heaven ("The World's Polka Network") to Amateur Repeater W6NUT. I wonder if even the radio hams in California would imagine they



were being overheard on a satellite receiver across the world via the internet? And will I ever get to the end of the list, to find out if New York's Z100 is available?

Dragging myself away from the hypnotic rhythm of the polka to the next menu entry brings us a Youtube

player. This also works very well, and where the video quality is good enough, is perfectly watchable on a TV. A number of presets give access to the most popular videos of the moment plus comedy, music, news, sports and so on. A search is also available which opens up the entire weird and wild

SATCATCHER DIGIPRO ST COMBO

UNICABLE

QUALITY ENGINEERING
HQ
HIGH

USALS

PERFECT MOTOR SETUP

ASDTM

ACTIVE SATELLITE DATA



DVB - T TEST
DVB - S TEST
FM TEST
DAB TEST
UNICABLE
CAMERA TEST
22KHZ TEST
VOLTAGE TEST
NIT ID FUNCTION
USALS
ASD

PORTABLE DEVICE
VERY LIGHTWEIGHT
1GB MASSIVE MEMORY
HIGH BUILD QUALITY
UNIQUE FUNCTIONS
WORLD COMPATABLE
EXCELENT SERVICE
SUPERB VALUE
CALIBRATED READINGS
FULL EDIT BY HAND

NOTE: WE PRODUCE TRUE DVB METER PRODUCTS WHICH ARE DESIGNED AND DEVELOPED AS PROFESSIONAL METERS. WE DO NOT MANUFACTURE MINI STB RECEIVERS WITH AN ADDED LCD SCREEN !! ALL OF OUR PRODUCTS HAVE FULL EUROPEAN WARRANTEE WITH SPARE PARTS AVAILABLE AND ARE ALL FULLY LISNCED .

OTHER MODELS AVAILABLE:
DVB-S EXCEL-TV MK4
DVB-S2 DIGIPRO IIIS HD
DVB-T DIGIPRO T MAX
DVB-S/C DIGIPRO SC COMBO
DVB-C DIGIPRO C MAX
DVB-S 1GB EXCEL-TV MK4 NIT

VISIT OUR WEBSITE FOR FULL SPECIFICATION AND ORDER DETAILS: WWW.SATCATCHER.COM
ALL PRODUCTS ARE AVAILABLE FROM YOUR LOCAL DISTRIBUTOR IN YOUR OWN LANGUAGE !

world of Youtube onto your TV. It is a nice addition to have and the video plays back a lot smoother than it does on my ageing over-loaded PC.

The final menu entry in the set of internet applications is not mentioned in the manual: "Extra Movies". I'm sure most of us would say "yes please" to some extra movies, but this menu is password protected; here we explain to all of you how to access it:

Enter IP settings in setup menu, press green button which closes DHCP and instead asks for DNS1. Enter 208.67.222.222 and save by pushing red button. Then DNS2 pops up, enter same IP 208.67.222.222 again and save with red button. Now the receiver needs to be restarted by switching power off and on. Go again to "Extra Movies" and now type in 9-8-7-6 for password. Voila, it works.

It's possible to use telnet to get into the receiver, and this reveals a command prompt from the BusyBox system, as utilised by the Amazon Kindle and many other devices. BusyBox gives access to some basic Linux commands, which on their own are probably of little or no use to the everyday user but we can at least be nosy and see what is contained on the internal memory. Similarly, connecting with a web browser gives an interface to the embedded Linux operating system with plenty of debugging information.

There's not really anything of use there either, but Linux fans could find the information interesting. Whether or not it may be possible to add to the software inside the machine to enable more functionality is not clear and there are no clues from the receiver or its manual.

The X-9100 is a different Linux-based receiver than most we've seen in the past. For some, this could be a disappointment as it feels more like a conventional receiver in use than those running larger Linux distributions such as Enigma2. This however makes it more

appealing to those who want to watch TV with less hassle or the threat of things not working as smoothly as they could. Connecting to the internet is as easy as plugging in an Ethernet cable if you have DHCP available on your router, and the bonus additions of the Youtube and internet radio players are genuinely useful. If the internet radio interface could be made a little better it would on its own be a perfect, easy way to access thousands of stations in good quality.

What is most pleasing though is the receiver's re-

liability. My fear of losing recordings from previous Linux receiver experiences is almost gone. Whilst testing the receiver for this review it has not let me down at all, and that is what most people want and need: a receiver that does all it says it will, and doesn't crash at the most important moments. There are a few small quirks and criticisms as I have mentioned already, most of which may be addressed in future software updates. It's impossible not to like this little black box and be impressed by the full range of functions it contains. Overall



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Expert Opinion

+
Audio settings can be stored for each channel individually.

Accepts very large harddrives via USB.

Software runs extremely stable.

PVR allows storing in .TS format.

Impressive list of file formats for playback.



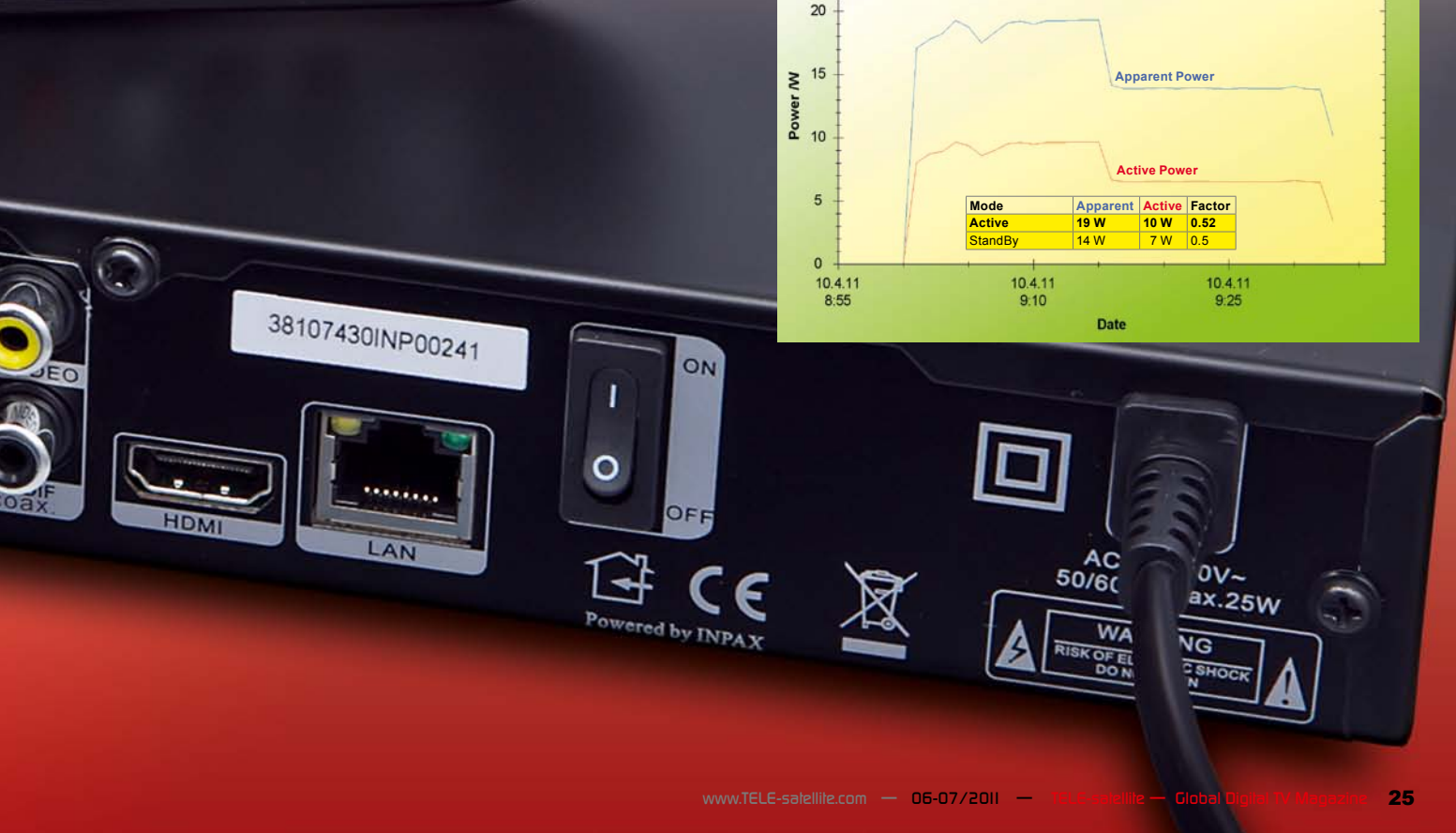
Andy Middleton
TELE-satellite
Test Center
UK

-
Alphabetical channel listing only sorts by first letter.
Color coding of remote not to standard.

this is a competent, good-looking little machine that does its job very well.

Now, you must excuse me – it is time to wrap up this report so that I can watch some more funny ani-

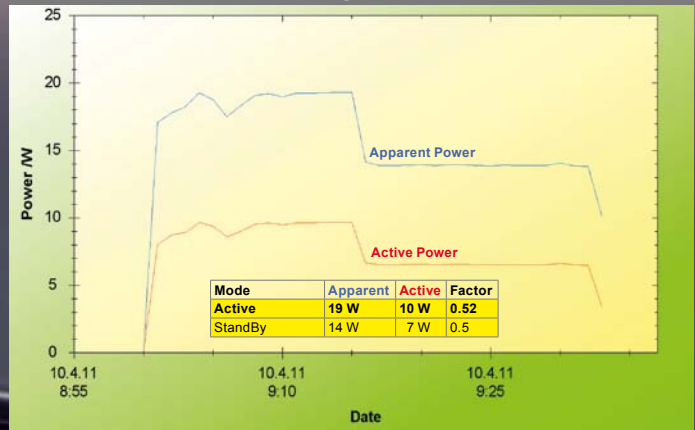
mals on Youtube, listen to some more polka, and, oh! I almost forgot that I could even find some time away from these distractions to watch some good old-fashioned HD TV on my new little friend too!



TECHNICAL DATA

Distributor	INPA ELEKTRONİK SAN. VE TİC.LTD.ŞTİ. Kemeraltı Str. Şefkat Business No: 1-3 Floor:4 Karaköy, İstanbul, Turkey
Tel.	+90 212 293 63 12 +90 212 293 63 13
Fax	+90 212 293 63 18
Website	http://www.inpax.com
Email	info@inpax.com.tr / inpax@inpax.com.tr
Model	X-9100 Linux HD PVR
Function	HDTV Satellite Receiver with PVR
SCPC compatible	Yes
USALS	Yes
DiSEqC	1.0/1.1/1.2/1.3
Scart connectors	1
Symbol rates	DVB-S QPSK – 2000 to 45000 DVB-S2 QPSK – 2000 to 45000 DVB-S2 8PSK – 2000 to 45000
MPEG modes	MPEG-1, MPEG-2, MPEG-4, H.264, MP@ML
Audio outputs	2 (left & right)
Video outputs	Composite, HDMI
Resolutions	480p, 480i, 576p, 576i, 720p, 1080i at 50Hz, 720p & 1080i at 60Hz, 1080p at 30Hz
UHF output	No
0/12 volt output	No
Digital audio output	S/PDIF
EPG	Yes
C/Ku-band compatible	Yes
Power supply	100-240V AC, 50/60Hz
Common interface	2 None
Card slots	1 universal

ENERGY DIAGRAM



TEST REPORT
该报告由技术专家所作

HDTV Linux Receiver |

INPAX

Inpax X-9100 Linux PVR

- unmöglich, diese kleine Box zu lieben
- sehr schnelles Booten dank einer schlanken Linux-Version
- läuft äußerst stabil, es war unmöglich, einen Absturz zu erleben
- große Satelliten-Pegelanzeige am Bildschirm
- ausgeklügelter Blindscan

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16 TELE-satellite — Global Digital TV Magazine — 06-07/2011 — www.TELE-satellite.com

www.TELE-satellite.com — 06-07/2011 — TELE-satellite — Global Digital TV Magazine 17

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Er stammt aus Istanbul in der Türkei, der X-9100 PVR von INPAX, und ist eine große Überraschung. Der kleine Kasten misst nur 26 cm in der Breite, ist 19 cm tief und 4 cm hoch und kommt in einem stilvollen glänzenden schwarzen Behälter, der viel kleiner erscheint. Am Frontpanel gibt es nur drei Bedientknöpfe: Standby, Channel up und Channel down. Eine LED-Anzeige zeigt die Channel-Nummer, im Standby die Uhrzeit. Eine Klappe an der rechten Seite verbirgt einen USB-Anschluss und einen einzigen Smart Card Schlitz, der anscheinend eine Vielzahl von Karten lesen kann - er akzeptierte sogar meine Sky Digital Karte. Das war überraschend. Dieser Card Slot ist aber die einzige Weg für Conditional Access:

Man kann keinen CAM einsetzen.

Auf der Rückseite dienen der Antennen- und Antennen-Loopthrough Ausgang zum Anschluss des einzigen Tuners. Video-Anschlüsse sind auf HDMI, SCART oder Composite-Video beschränkt, Audio hat Stereo-Ausgänge und optischen S/PDIF-Ausgang. Für externen Netzanschluss gibt es Ethernet LAN und einen RS-232 Stecker.

Ein Kaltstart des Receivers braucht nicht so lange, wie man es von einem Linux-basierten Receiver erwartet, nur 45 Sekunden dauert es vom Einschalten, bis ein Bild erschien. Dies ist eine der Überraschungen, die der X-9100 bietet, weil er eine schlankere Linux-Version benutzt als die komplexeren Versionen, die

wir in der Vergangenheit kennen lernten. Diejenigen, die am Einsatz eines Linux-Receivers zweifelten, müssen nicht viel fürchten. Options- und Menü-System sind nicht komplizierter als bei Standard-Receivern. USALS ist konzipiert, um den Setup eines DiSEqC-Motors einfach zu gestalten, wobei als Bonus schon einige größere Städte im Speicher des Receivers gespeichert sind.

Ein großer Bereich von LNB-Einstellungen sind voreingestellt und da der Receiver türkischen Ursprungs ist, sind auch die besonderen DIGITURK-Werte enthalten. Wenn davon keiner zu Ihrem System passt, können Sie die LNB-Frequenzen manuell spezifizieren. DiSEqC wird unterstützt von Version 1.0



bis 1.3 womit sichergestellt ist, dass jeder Motor und jede Umschaltmatrix unterstützt wird.

71 Satelliten aus dem Erdumlauf sind im Receiver vorprogrammiert und diese können nach Bedarf editiert oder gelöscht werden. Neue Satelliten können nach Bedarf eingefügt werden, einfach indem man ihren Orbit-Position einträgt. Wenn Sie ihre Schüssel selbst justieren, werden Sie sehen, wie hilfreich die Großanzeige auf dem Bildschirm ist, um ein gutes Signal zu finden.

Das Scannen von Satel-

liten ist schnell, vergleicht man mit anderen Linux-basierten Receivern. Wer Canal Digitaal, TV Vlaanderen or UPC Direct auf ASTRA 1 nutzt, für den gibt es eine spezielle schnelle Scan-Funktion. Für uns restliche läuft der Standard-Scan durch das Satelliten-Spektrum in guter Zeit durch. Ein Scan bei ASTRA 2 benötigte vier Minuten, um 90 eingespeicherte Frequenzen auszuwählen.

Ein willkommener Zusatz ist die Blindscan-Option, mit der jede Frequenz gefunden wird, auch wenn sie noch nicht in der Transponderliste steht. Sie unterscheidet sich etwas von anderen, die wir in der Vergangenheit fanden. Zuerst wird das ganze Frequenzspektrum abgesucht und neu gefundene Frequenzen der vorhandenen Transponderliste angefügt. Danach startet erst der normale Scan, der die neuen Frequenzen gemeinsam mit den früher gespeicherten absucht. Das verlängert den Scanvorgang, wobei es 2,5 Minuten dauerte, um zusätzliche acht Transponder zu finden und 4:15 Minuten, um alle abzuscannen. Der Blindscan ist jedoch nicht geeignet für Eilige, denn es gibt keine Möglichkeit, die Suche auf einen Teilbereich zu beschränken.

Die Sender wählt man aus einer Liste ähnlich wie bei anderen Receivern. Mit dem linken und rechten Knopf wählt man den Filter aus, um FTA-only, HD und Encrypted festzulegen, natürlich kann man auch alles suchen lassen. Den roten Knopf kann man zur Auswahl des Satelliten aus der erscheinenden Satellitenliste verwenden. Es gibt auch eine A-Z Funktion, die nach dem Anfangsbuchstaben des Senders sortiert, aber nur nach diesem - Aserbaijan TV würde immer noch vor Aastha TV stehen, wenn sie in der Default-Liste in dieser Reihenfolge waren - das fand ich etwas verwirrend. Die auf der Fernbedienung zugeordneten Page up und Page down Tasten vereinfachen und beschleunigen diese Navigation und andere Menüpunkt-Listen.

Die Fernbedienung selbst ist Standard, ein gewöhnliches Modell, das nicht die Funktion unterstützt, durch eine versehentlich gedrückte Taste mit wiederholtem Drücken wieder rückgängig zu machen. Eine andere seltsame Sache ist die Reihenfolge der Farbtasten, die vom normalen Rot-Grün-Gelb-Blau abweicht. Ich hatte gar nicht gewusst, wie sich diese Reihenfolge in meinem Kopf

eingespeichert hat, weil ich schon jahrelang Receiver benütze und teste, aber es zeigte sich mehrfach, dass ich Blau drückte und dachte, ich drücke Grün.

Die Fernbedienung ist einfach gehalten, es gibt keine Tasten, um das Bildformat oder die Bildschirm-Auflösung zu ändern, diese Einstellungen findet man im Einstellmenü des Receivers. Man findet hier die wichtigsten Optionen, so auch die Umstellung des Scart-Anschlusses von RGB auf CVBS. Um diese zu erreichen, drückt man die HDMI mode 576i Taste und drückt die Lautstärke Auf oder Ab Taste, um zwischen den Modi zu wechseln.

Für eine Besonderheit des Einstell-Menüs muss man Inpax beglückwünschen. Es gibt die Möglichkeit, die Lautstärke jedes einzelnen Senders individuell festzulegen. Das ist die perfekte Lösung der allzu oft vorkommenden Situation, dass beim Senderwechsel der Ton so laut wird, dass der Nachbar sofort an die Wand klopft. Wenn man diese Situationen nur mit der Regelung der Lautstärke beheben könnte, so wäre diese Funktion natürlich unnötig. Aber es ist unwahrscheinlich, dass es häufig geschieht, es ist eher selten, trotzdem zunächst: Dank

an Inpax, dass daran gedacht wurde.

Die Editierfunktion für Sender beschränkt sich auf Löschen, Bewegen und Umbenennen. Beispielsweise fehlt die manchmal wichtige Möglichkeit, die PID zu editieren. Es gibt acht vorgegebene Favoritenlisten. Ihre Bezeichnungen sind ziemlich seltsam, denn ihre Anfangsbuchstaben fehlen. Aber es ist leicht, das zu korrigieren: man kreiert einfach eine neue Favoritenliste durch Druck auf die gelbe Taste und benennt sie entsprechend.

In dem kleinen Gehäuse ist kein Platz für eine Festplatte, Aufnahmen muss man mit einem an der vorderen USB-Buchse angeschlossenen Speichergerät machen. Die Aufnahmen können mit der Aufnahme-taste an der Fernbedienung direkt oder über einen manuell oder über den EPG gesteuerten Timer gestartet werden.

Der EPG des 9100 ist gut zu bedienen, kann zwischen der Tages- und Wochenansicht umgeschaltet werden. Es ist etwas unbequem, weil die angezeigte Tabelle nur ein Drittel des Bildschirms füllt, weshalb es nicht einfach ist, rasch zu erkennen, was in mehr als ein oder zwei Stunden sein wird.

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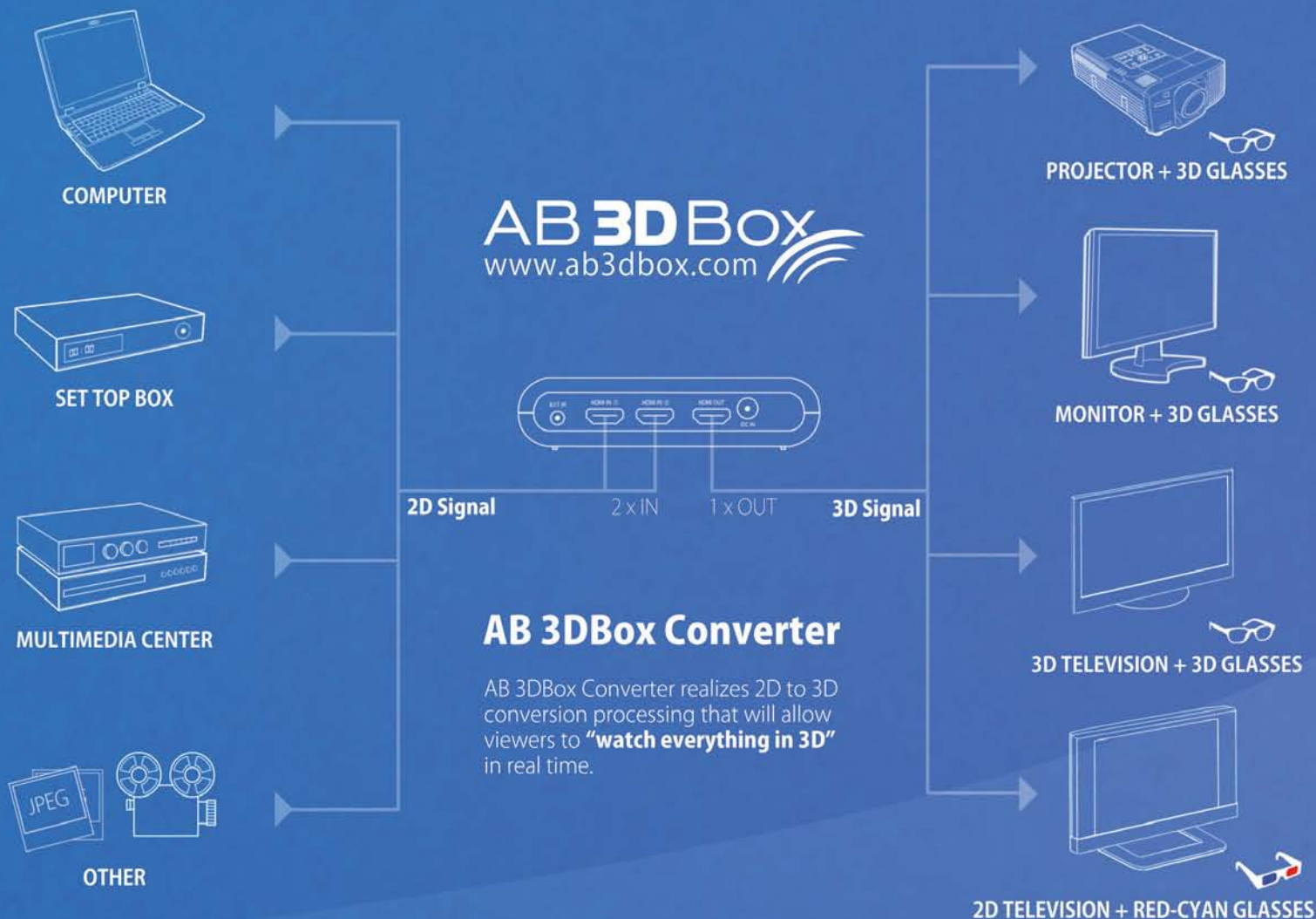
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- convert 3D "Side by Side" image to 3D stereoscopic image using Red-Cyan glasses on your TV
- convert 3D "Side by Side" image to 2D normal image on your TV



The image on this page is converted by Anaglyph 3D method which is one of the basic forms of 3D conversion. To see the 3D image you need to use Anaglyph 3D glasses (referred to as Red-Cyan glasses). The quality of the 3D effect is based on the type of glasses being used as well as the print quality.

8dtek DSM Gifted



- *measures all tv signals in DVB-S, DVB-S2 and even the old analog transmissions*
 - *big surprise in such small meter: DiSEqC is included and can even turn a motorized dish*
 - *an A/V output gives excellent pictures on a laptop or monitor*
 - *the meter can stay connected all times because of a loopthrough to connect a second receiver*
 - *a basic spectrum analyzer and BER readings are features mostly found with high-end meters*
-





The Gifted Meter

Something More Than a Simple Satellite Finder

Its interesting external design attracts attention. Who said that meters must look dull? The bottom panel of DSM Gifted is slightly convex what makes the box look intriguing. Two displays: a color graphic LCD and a classical 2-digit 7-segment LED one - this is also something unusual. A quite practical protective bag with a Velcro strip that you can put around your wrist, enables you to carry the meter like a wrist watch. Definitely, 8D Technology demonstrated with 8dtek DSM Gifted that they are innovative guys.

What you can notice at first sight is a simple membrane keyboard made up of just 12 buttons. It promises simple operation and, as you

will learn after reading this report, this promise is really fulfilled. LED indicators signal meter status. Two F connectors located on the opposite sides are: the LNB input and the looped-through output for a satellite receiver. Not many meters are equipped with such a looped output and sometimes we really missed this feature when testing competitor products.

Closer examination reveals that on both sides of the meter there are flaps covering additional connectors. We have a USB port for backing up meter's settings, as well as for loading the meter with firmware updates. There is a power supply socket that accepts either a cable from a wall socket power supply or

a car lighter charger – both are included in the set. And, rather unexpectedly, there is an A/V output with composite video and mono audio output. It has an additional function – it can act as an RS-232 serial interface. Quite unusual, but do not worry – suitable A/V and RS-232 cables are also included.

There are provisions for the other inputs/outputs (Ethernet and HDMI) under the flap on the opposite side of DSM Gifted. However, they are not installed in this meter model. We will soon publish a report covering another, more advanced, DSM model which is equipped with the Ethernet port. Keep reading TELE-satellite! Anyway, it is impressive how many inter-

faces have been embedded in such a tiny box. The on/off switch mounted on the top side of the box ends the list of meter controls.

DSM Gifted, right after switching it on, takes you to the Main menu. The menu consists of 6 items: Sat Find, DiSEqC, Local Sat, Spectrum, Angle and Settings. There is only one menu level so the navigation is pretty simple. Menu, OK and the arrow buttons let you do all the main settings. Occasionally, you use function buttons F1-F4. Their function depends on the selected menu items and is always described at the bottom of the screen. SPCM and SAT are the shortcut buttons that take you directly to the frequency



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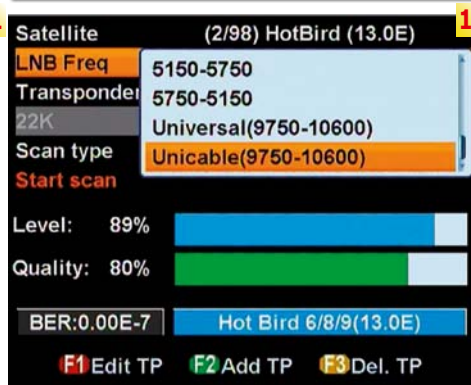
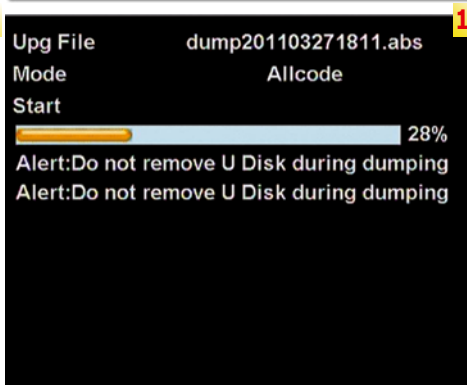
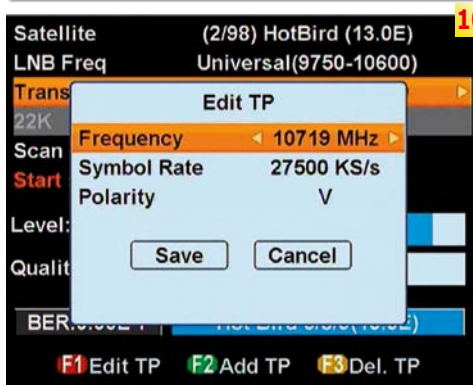
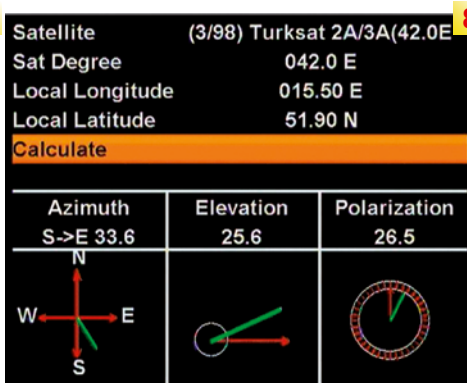




spectrum view and local satellites view

Sat Find is probably the most important menu item accessible from the main menu. Here, you can set: the satellite, LNB frequencies, transponder, scan type. In the same screen, you get the measurement results: signal level and signal quality expressed in percentages and bit error rate. The signal quality percentage reading is repeated on the two digit LED display. This is a great idea because the figures on the LCD screen are rather small and hard to read from a distance. When turning the dish, you can also refer to the bar graphs showing signal strength and quality.

At the bottom of the screen, there are 3 help tips on what the function buttons can do when in this menu item. The red F1 button is used to edit a transponder, the green F2 button to add new transponder and the yellow F3 to delete the present transponder. This is a quite useful feature because in different regions of the



1. Main menu
2. Finding satellite signal
3. DiSEqC settings
4. Editing localizations used in Local Sat menu item
5. Visualization of the satellites available in a selected location (Clarke Belt)
6. Frequency spectrum view
7. System settings
8. Antenna angles calculation result
9. Selecting location for the Clarke Belt visualization
10. Transponders can be edited, deleted or added
11. The firmware and all settings can be dumped to USB memory
12. Small part of the available LOF's

world various transponders of the same satellite are receivable. So, it is impossible to create a common list of transponders for, say, Spain and Russia. If some of the ten transponders assigned to every satellite in the original list prepared by 8D Technology are not receivable in your area, simply delete them and add the other ones. Alternatively, edit them by changing their frequency, symbol rate and polarization.

Now let's start the fun: how does DSM Gifted perform in real life? We started



with measuring signal quality. It turns out, that DSM Gifted, like in a typical satellite receiver, the quality result does not change in 1 % steps but with 6 or 7 % step. If we take into account that the results lower than 53% are practically below the reception threshold, we are left with 8 levels: 53%, 60%, 66%, 73%, 80%, 86%, 93% and 99%. So to find an ideal maximum when turning a dish or skewing an LNB in its holder, you have to find the limits where the reading drops down by 6-7% and then set the dish/LNB somewhere in between.

DSM Gifted allows you as well to check BER. However, like with all other meters

too, the BER readings are unstable, which is how it is with digital transmissions and their ever changing contents. But DSM Gifted goes one step further: you can also measure MER. This is the best measurement one can have (modulation error ratio). MER is stable and can be measured with 0.1 dB resolution. Our test sample was not yet equipped with MER readings, but 8D Technology are planning to enhance DSM Gifted with MER measurements in one of their next firmware upgrades.

See the chart in Figure 1 to see how the percentage reading of our test sample was correlated with MER and Loss Margin results meas-

ured with an expensive professional meter.

From the practical point of view of a satellite installer: the percentage readings, in the form they are implemented now in DSM Gifted,

enable you to direct 60-90 cm dishes for popular satellites in a simple way and with acceptable precision. We would not recommend DSM Gifted with the present firmware for dishes 120 cm or larger. And if you are fight-

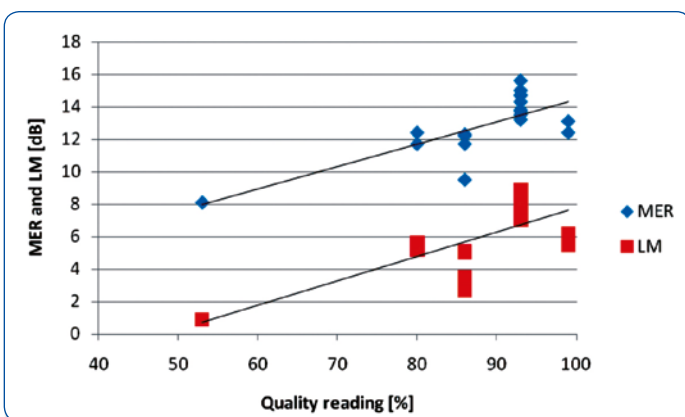
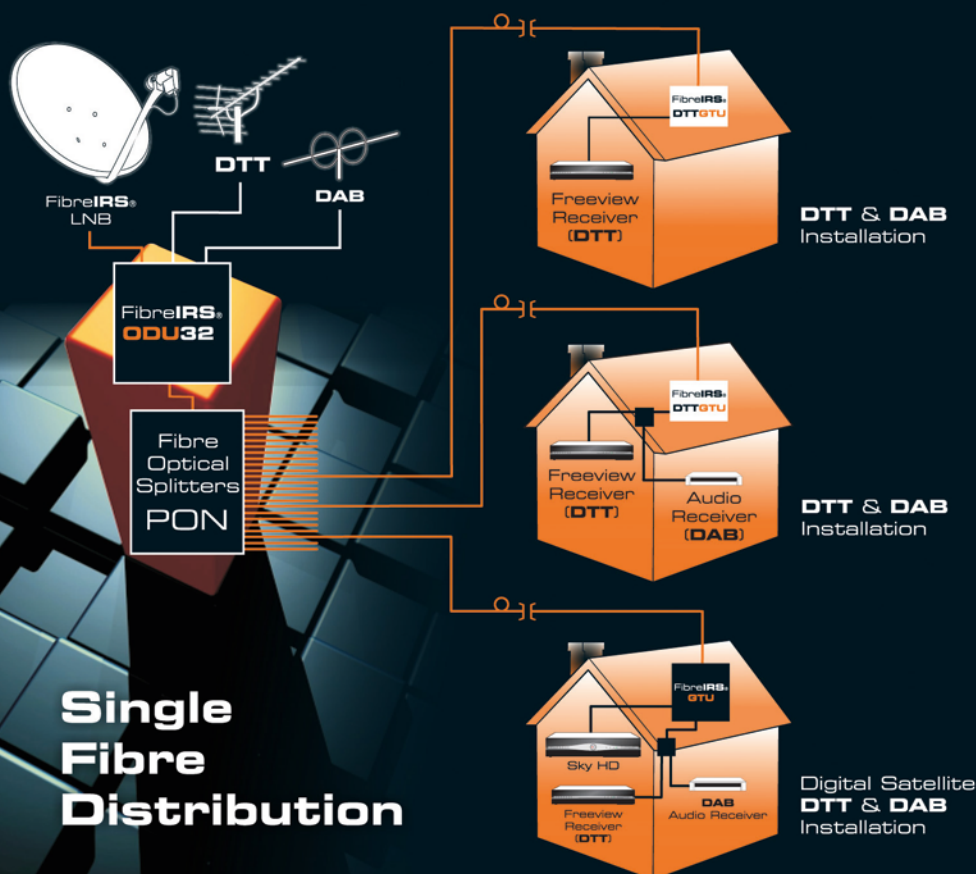


Fig. 1. The trend lines "translate" DSM Gifted signal quality readings to MER and LM results. Actual results of 18 transponders from different satellites are shown with blue and red markers.



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*Compared with existing Fibre Systems

ing for a split decibel in order to work a weak transponder (like true satellite enthusiasts often do) this meter can only be used for the initial setup.

On the other hand, 8D Technology can really be proud of the number of frequencies they offer in the Sat Find menu item. Here is the impressive list of local oscillator frequencies (LOF's) you can select in DSM Gifted: 5150, 5750, 5950, 9750, 10000, 10050, 10450, 10600, 10700, 10750, 11250, 11300, 5150-5750, 5750-5150, Universal (9750-10600) and SCR (9750-10600).

The second menu item is DiSEqC. We were impressed that 8D Technology equipped DSM Gifted with DiSEqC 1.0, 1.1 as well as 1.2 and USALS. There is even DiSEqC auto detection function! During our whole test, USALS was operating without any problems. We turned our dish quite a number of times during this test powering the motor from this tiny meter. That's what every installer will really appreciate.

However, when the battery finally got discharged, the meter went off without any warning. There is no battery charge status in the settings menu or elsewhere. The manufacturer promised to add this feature in one of the next firmware upgrades.

Local Sat menu items presents a picture showing you

what satellites are located in which position on the Clarke belt as seen from your location. The test meter was prepared for Germany and in its memory had a number of German towns. After selecting the closest town to your current location, you can jump from satellite to satellite with left/right arrow buttons and see their elevation and azimuth values. If necessary, you can edit locations and change them to be more suitable to your own needs.

Another menu items - the spectrum analyzer - is something one does not expect in such a small meter like DSM Gifted. However, this is not a fully fledged analyzer. First of all, it is rather slow. Evidently the processor is not powerful enough for that function. As a result, you cannot use it when coarsely adjusting your dish to monitor if your antenna starts picking up a signal. Secondly, there is only full span. Zooming in to a specific frequency is not possible. You can not click on a transponder selected on the spectrum to identify its parameters. The real use of this spectrum view is a quick recognition which satellite you are currently tuned in - for professional installers who do installations frequently, do remember how each satellite's spectrum should look like.

The Angle menu item is somewhat similar to the Local Sat but more data is

available. You select the satellite, enter your coordinates and, except for the correct elevation and azimuth, you additionally get the proper LNB tilt angle. The last one is needed for the reception of transponders with linear polarization. The more the satellite is away from the south direction in your location, the more tilt you need to apply to the LNB in its holder.

The very last menu is called the System. Here you set several meter parameters as well as start the software upgrade and backup on a USB memory stick. We actually did one software upgrade and it went very fast. This is a very convenient way of upgrading the device.

If you have taken a look at the screen-shots accompa-

nying this report, you probably ask yourself how these photos were made. Actually, these are not the screen-shots of the LCD meter taken with a photo camera but the pictures captured on the meter's A/V output. There is a cable with RCA connector you can connect to the laptop with TV tuner and get a large high quality meter display. Perhaps this is not a very practical feature in field measurements but if you take the measurements indoors, it is quite an interesting option.

DSM Gifted is an easy-to-use and cleverly designed satellite finder with several unexpected features usually found in more expensive meters. With the present firmware, it is good for medium size dish installations.

Expert Opinion

+

Measures DVB-S, DVB-S2 and analog signals. Support for DiSEqC 1.0/1.1 and SCR. Suitable for turning motorized dishes (DiSEqC 1.2 and USALS). Quality readings duplicated on an easy to read LED display. Very good picture quality on A/V output. Signal output to connect a receiver.



- **Signal quality readings not precise enough for larger dishes and DX setups.**

**No battery status indicator (available in future firmware)
No MER measurement (available in future firmware)**

TECHNICAL DATA

Manufacturer	8D Technology Ltd., Hong Kong
Webpage	www.8dtek.com
Email	8dtek@8dtek.com
Fax	+852 3965 3222
Model	DSM Gifted
Description	Satellite Meter for Antenna Alignment
C/Ku Band	Yes
SCR	Yes
DiSEqC	1.0 - 1.3 (USALS)
Quantities measured	Signal Level [%], Signal Quality [%], BER
Inputs	L-Band (950-2150 MHz), DVB-S/S2 and analog signal
Outputs	L-Band (looped through), A/V (composite + mono)
Data ports	USB, RS-232
Power Supply	100-240 V 50/60Hz
Dimensions	140 x 100 x 40 mm (ca. 5.5 x 4 x 1.5")

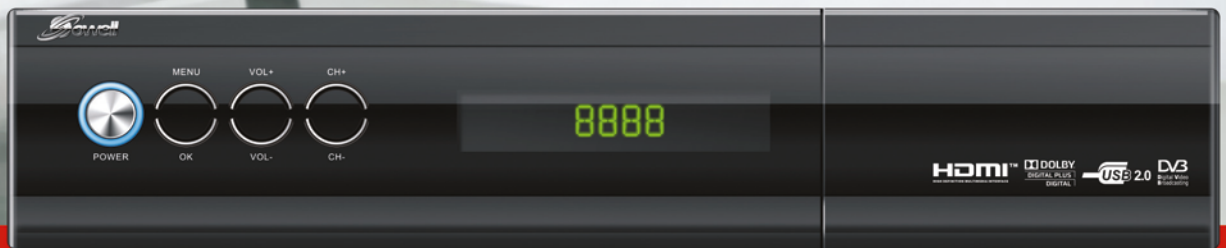


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- Supporting music files with WMA, MP3, AAC (wma, mp3, m4a)
- Supporting movie files with MPEG1, MPEG2, MPEG4, H264, Motion JPEG (avi, mpg, dat, vob, div, mov, mkv, mjpeg, ts, trp)
- Capable to playing picture and music at the same time
- Advanced Time-shift function
- Software upgrade by USB2.0 interface

8dtek DSM Gifted



- misst alle TV-Signale in DVB-S, DVB-S2 sowie die alten Analog-Aussendungen
- überraschend in einem so kleinen Meter: auch DiSEqC ist integriert und kann sogar einen Drehmotor steuern
- ein A/V-Ausgang gibt exzellente Bilder aus an Laptop oder Monitor
- das Meßgerät besitzt einen IF-Loopthrough und kann daher mit einem zweiten Receiver verbunden bleiben
- Eigenschaften wie Spektrum Analyzer und Anzeige der Bit Error Rate (BER) werden sonst nur bei hochwertigen Messgeräten gefunden

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Sein interessantes Erscheinungsbild ist bemerkenswert. Wer sagt, dass Messgeräte primitiv aussehen müssen? Die Unterseite des DSM Gifted ist leicht gebogen und macht es interessant anzusehen. Zwei Anzeigen, ein farbiges Grafik-LCD und ein klassisches zweistelliges 7-Segment LED - dies ist auch etwas ungewöhnlich. Die praktische Schutztasche hat einen Tragriemen, den man ums Handgelenk nehmen kann und ermöglicht, das Meter wie eine Taschenuhr zu tragen. 8D Technology zeigt damit, dass sie innovative Burschen sind.

Was man zuerst sieht, ist ein einfaches Membran-Keyboad mit nur 12 Tasten. Das verspricht eine einfache Bedienung und wie Sie nach dem Lesen dieses

Berichts erkennen werden, wird dies auch voll erfüllt. Das LED zeigt den Status der Messung. Zwei F-Anschlüsse, die sich auf der Gegenseite befinden sind: LNB-Anschluss und ein Loopthrough-Ausgang für einen Receiver-Anschluss. Letzteren gibt es nicht bei vielen Geräten, wir vermissten ihn manchmal bei Konkurrenz-Produkten.

Die genauere Untersuchung verriet, dass auf beiden Seiten des Meters noch weitere Anschlüsse unter Klappen verborgen sind. Hier ist ein USB-Anschluss, um Meter-Einstellungen zu speichern, aber auch um Firmware-Updates des Meters einzuladen. Eine Buchse dient zur Stromversorgung entweder vom externen Netzteil oder über einen Anschluss zum Ziga-

retten-Anzünder im Auto - beide sind im Lieferumfang enthalten.

Und, ziemlich unerwartet, gibt es einen A/V-Ausgang mit Composite Video und Audio-Anschluss (mono). Er besitzt zudem eine weitere Funktion - sie funktioniert wie eine serielle RS-232 Schnittstelle. Ziemlich ungewohnt, aber keine Sorge, die dafür erforderlichen A/V- und RS-232 Kabel werden mitgeliefert.

Unter der Klappe auf der Gegenseite sind weitere Ein- und Ausgänge (Ethernet und HDMI). Leider sind sie in dem gegenwärtigen Muster noch funktionslos. Wir werden jedoch in Kürze über ein ergänztes DSM Gifted Modell berichten, das mit einem Ethernet -Anschluss arbeitet. Lesen Sie weiterhin TELE-satellite!



Jedenfalls ist es jetzt schon beeindruckend, wie viele Funktionen ein solch kleines Gerät enthält. Der Ein-Aus-Schalter auf der Oberseite der Box beendet die Auflistung der Kontrollen.

Nach dem Einschalten zeigt DSM Gifted das Haupt-Menü. Das Menü besteht aus 6 Funktionen: SatFind, DiSEqC, LocalSat, Spectrum, Angle und Settings. Es gibt nur eine Menü-Ebene, so dass die Einstellungen recht einfach werden. Die hauptsächlichen Einstellungen sind mit Menu, OK, und den Pfeil-Tasten getan. Gelegentlich braucht man

noch die Tasten F1-F4. Ihre Funktion hängt vom gewählten Menüpunkt ab und wird auf der Unterseite des Bildschirms erklärt. SPCM und SAT sind Shortcuts, die direkt zum Frequenzspektrum und zum LocalSat-View führen.

SatFind ist wohl der wichtigste Menüpunkt, den man vom Hauptmenü aus erreicht. Hier trägt man den Satelliten, die LNB Frequenzen, Transponder und dessen Scantyp ein. Auf dem gleichen Bildschirm erhält man die Resultate: Signalstärke und Signalqualität werden in Prozenten und mit der Fehlerrate angezeigt. Gleichzeitig wird der Prozentwert der Signalqualität auf dem zweistelligen LED Display angezeigt. Das ist eine gute Idee, denn die Anzeige am LCD-Schirm ist ziemlich klein und aus der Entfernung schwer abzulesen. Wenn man die Schüssel dreht kann man sich auch nach der Balkenanzeige von Signalstärke und Signalqualität richten.

An der Unterseite des Bildschirms sieht man drei Erklärungen für die Funktion der Tasten in diesem Menüpunkt. Die rote Taste F1 dient, um einen Transponder zu editieren, mit der grünen Taste F2 gibt man einen neuen Transponder ein, die gelbe Taste F3 löscht

den gegenwärtigen Transponder. Dies ist eine hilfreiche Funktion, denn vom gleichen Satelliten sind in unterschiedlichen Regionen verschiedene Transponder empfangbar. So ist es beispielsweise unmöglich, für Spanien und Russland eine gemeinsame Transponderliste zu erzeugen. Wenn einige der zehn Transponder, die 8D Technology für jeden Satelliten vorgesehen hat, nicht empfangen werden, so kann man sie löschen und andere eintragen. Alternativ kann man ihre Frequenz, Symbolrate und Polarisation abändern.

Nun zur Praxis: wie funktioniert das Ganze mit DSM Gifted? Wir beginnen mit der Messung der Signalqualität. Es zeigt sich, dass bei DSM Gifted wie bei einem typischen Satelliten-Receiver das Ergebnis sich nicht in 1%-Schritten sondern in 6 oder 7%-Sprüngen ändert. Bedenkt man, dass ein Ergebnis unter 53% unter der Empfangsschwelle liegt, bleiben 8 Pegel übrig: 53%, 60%, 66%, 73%, 80%, 93% und 99%. Um das ideale Empfangsmaximum beim Drehen der Schüssel oder Verdrehen des LNB zu finden, muss man daher die Grenzwerte finden, wo die Messung um 6-7% abfällt und dann die Schüssel und den LNB in den Mittenbereich

reich einstellen. DSM Gifted ermöglicht, auch BER zu prüfen. Doch wie bei allen anderen Metern auch sind die BER-Messungen unstabil, was eben bei digitalen Sendungen und ihrem ständig wechselnden Inhalt vorkommt. GSM Gifted geht daher einen anderen Weg. Die besten Messergebnisse erreicht man mit MER Modulation Error Ratio (MER). Dieser ist stabil und kann mit 0,1 dB Auflösung gemessen werden. Allerdings war unser Testexemplar mit MER noch nicht ausgestattet, aber 8D Technology plant, die MER Messung in einem ihrer nächsten Firmware-Updates einzuarbeiten. Sehen Sie in Figur 1, wie die prozentualen Werte unseres Testmusters mit den Messungen von MER und Loss Margins eines professionellen Messgerätes übereinstimmen.

Aus der praktischen Sicht eines Satelliten-Installateurs: Die Prozentwerte, wie sie bei DSM Gifted verarbeitet werden, ermöglichen es, 60-90cm Schüsseln der populären Satelliten auf einfache Weise und mit akzeptabler Genauigkeit einzurichten. Wir empfehlen DSM Gifted mit der gegenwärtigen Firmware nicht für Schüsseln über 120 cm. Und wer niedrige Dezibel erkennen will, um

leistungsschwache Transponder zu finden (wie es echte Satelliten-Enthusiasten oft tun), der kann dieses Gerät nur für die Anfangsorientierung verwenden.

Andererseits liefert 8D Technology im SatFind Menü eine stolze Anzahl von Frequenzen. Die Liste der lokalen Oszillatorfrequenzen (LOFs), die man bei DSM Gifted auswählen kann ist eindrucksvoll:

5150, 5750, 5950, 9750, 10000, 10050, 10450, 10600, 10700, 10750, 11250, 11300, 5150-5750, 5750-5150, Universal (9750-10600) und SCR (9750-10600).

Der zweite Menüpunkt ist DiSEqC. Wir sind beeindruckt, dass 8T Technology den DSM Gifted mit DiSEqC 1.0, 1.1 aber auch 1.2 und USALS ausstattete. Sogar eine DiSEqC Autowahl ist vorhanden! Die USALS-Funktion arbeitete während unseres ganzen Tests völlig problemlos. Wir ließen den Drehmotor unserer Schüssel während des Tests mehrfach von diesem kleinen Messgerät drehen. Das ist, was ein Praktiker wirklich braucht.

Allerdings schaltete sich das Meter ohne Vorwarnung ab, wenn die Batterie entladen war. Eine Batterieanzeige fehlt im Einstellmenü oder anderswo.

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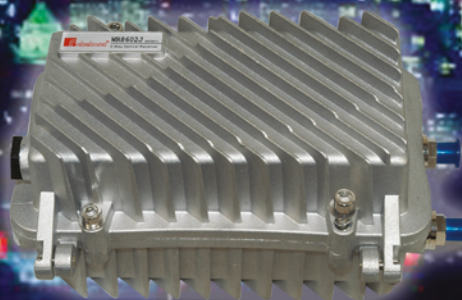
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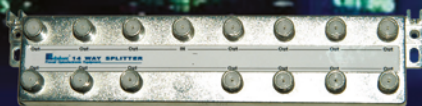
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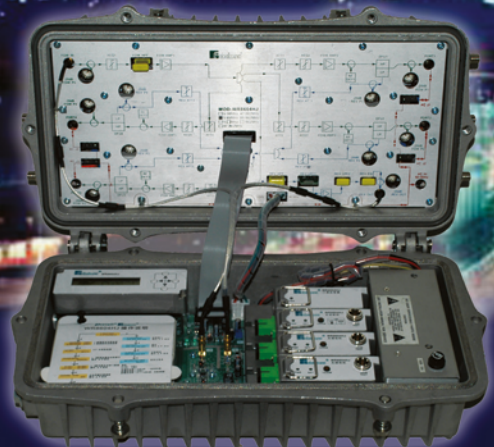
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WR8602RJL ROOM OPTICAL RECEIVER

1550nm INTERNAL MODULATION OPTICAL TRANSMITTER

1550nm EXTERNAL MODULATION OPTICAL TRANSMITTER

1310nm EXTERNAL MODULATION OPTICAL TRANSMITTER

ERBIUM DOPED FIBER AMPLIFIER

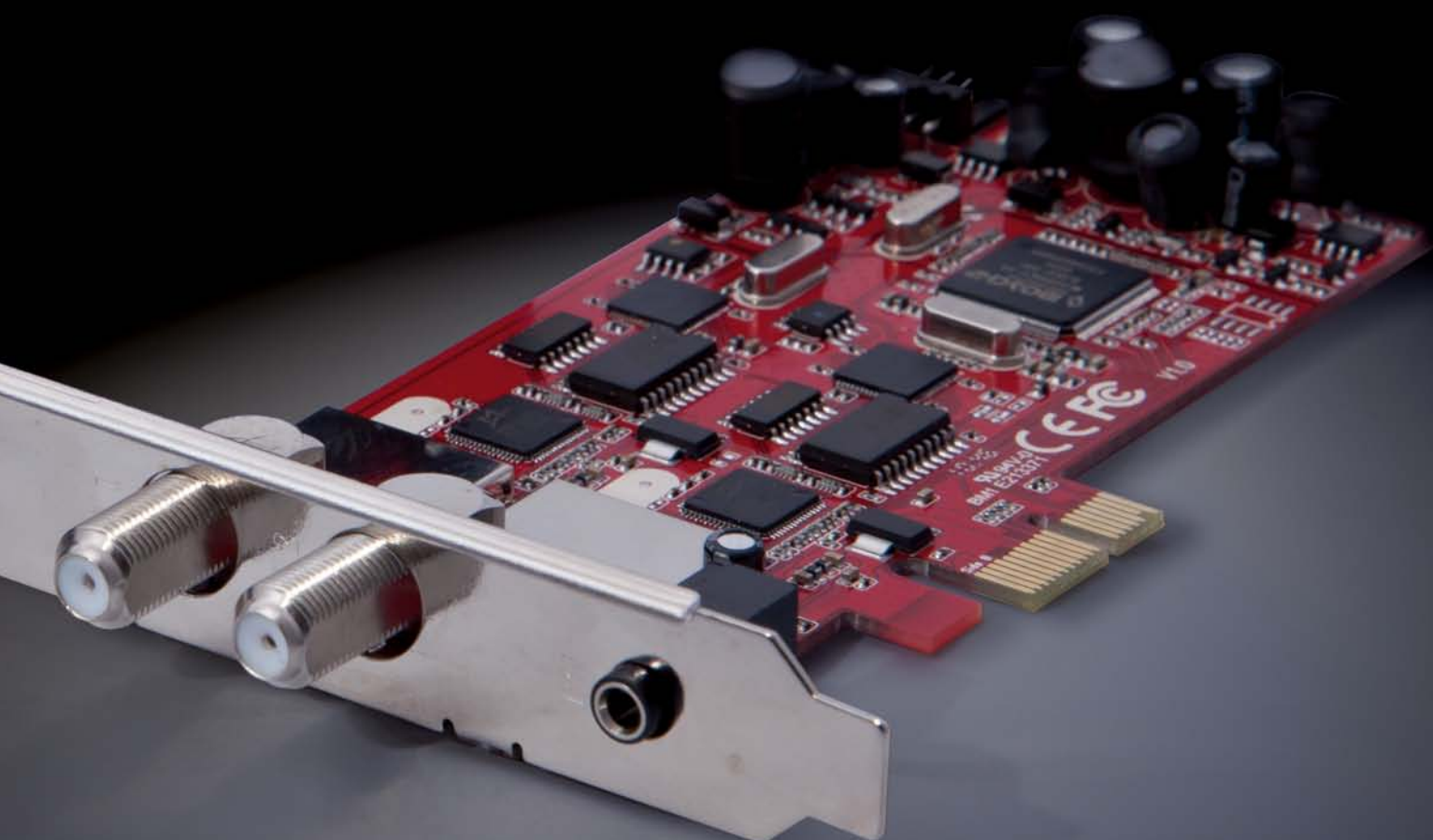


CATV OPTICAL FIBER COMMUNICATION SYSTEM PLATFORM WOS-3000

TeVii S480 with 2 x DVB-S2

- *Two Separate HDTV Tuners*
 - *Includes perfectly matching software for TV and Data*
 - *Fits nicely with PC hardware*
 - *Upgrades PC to a fully functional HDTV PVR*
 - *Plug & Play for Windows and drivers for Linux*
-

TVii





Twin-Tuner HDTV PVR Card for a PC

The S480 is a PCI Express (PCI-e) expansion card for a PC. The use of the PCI-e slot is absolutely necessary because the data transfer rate of a standard PCI slot might not be good enough for the reception of high resolution TV content.

Contrary to the TeVii S470 model that we tested in the 08-09/2009 issue of TELE-satellite, the S480 operates with two fully functional DVB-S/S2 tuners that can both be used at the same time independently from each other. You could actually look at it as if there

were two separate DVB-S/S2 cards installed in the PC except that the entire hardware for both cards is on one circuit board so that only one slot is occupied in the PC.

In addition to the card itself, the package also comes with an installation guide in English and German, a CD with drivers and software as well as a remote control and an infrared receiver. A detailed user manual is available on the CD in PDF format. The installation guide unfortunately doesn't go into any details on the S480.

On the other hand,

we liked the remote control; it helps to convert the PC into a fully functional DVB-S/S2 TV receiver. It sits comfortably in your hand, is properly labeled and comes with buttons that are easy to reach and easy on your fingers.

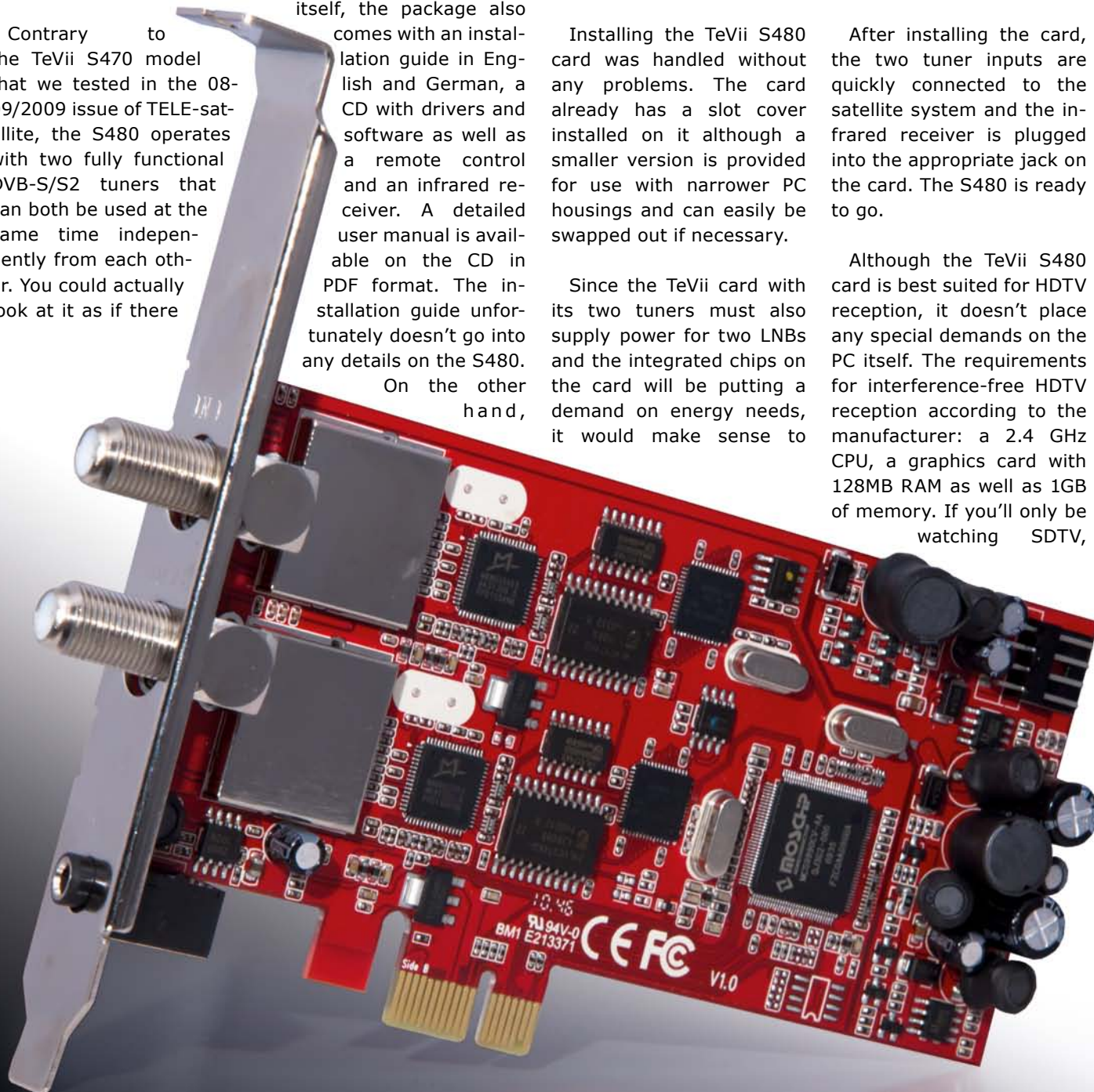
Installing the TeVii S480 card was handled without any problems. The card already has a slot cover installed on it although a smaller version is provided for use with narrower PC housings and can easily be swapped out if necessary.

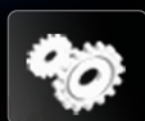
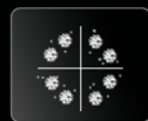
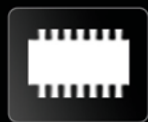
Since the TeVii card with its two tuners must also supply power for two LNBS and the integrated chips on the card will be putting a demand on energy needs, it would make sense to

connect a matching output from the PC power supply to the TeVii card. This will guarantee that the card will have enough power available to it to do its job; the PCI-e bus alone is not able to handle these power demands.

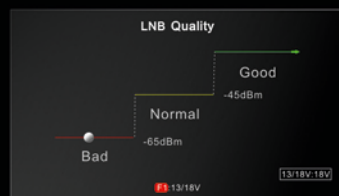
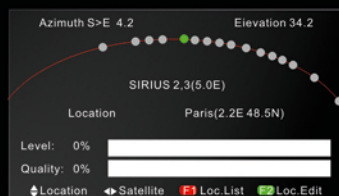
After installing the card, the two tuner inputs are quickly connected to the satellite system and the infrared receiver is plugged into the appropriate jack on the card. The S480 is ready to go.

Although the TeVii S480 card is best suited for HDTV reception, it doesn't place any special demands on the PC itself. The requirements for interference-free HDTV reception according to the manufacturer: a 2.4 GHz CPU, a graphics card with 128MB RAM as well as 1GB of memory. If you'll only be watching SDTV,





DVB S2



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Constellation Chart

LNB Test MDU & Unicable

BER, S/N(MER),FEC Measurement

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Size:162x100x42(mm) Weight: 0.45kg

Tiny But Mighty



Xtra-S

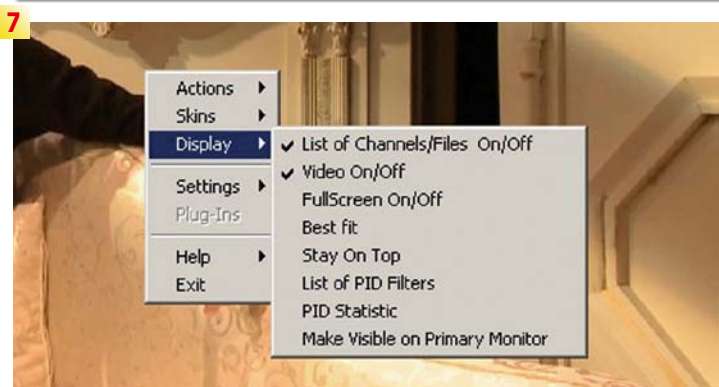
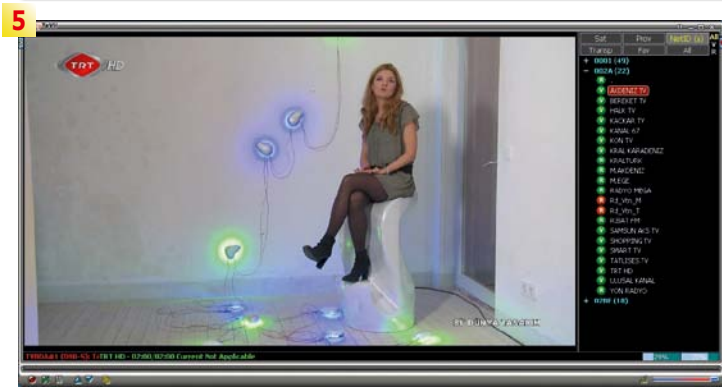
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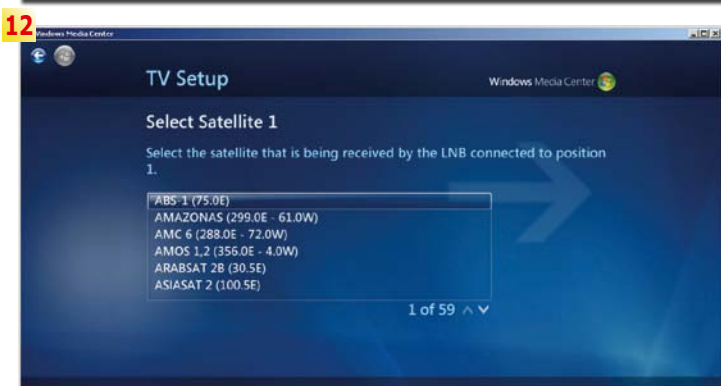
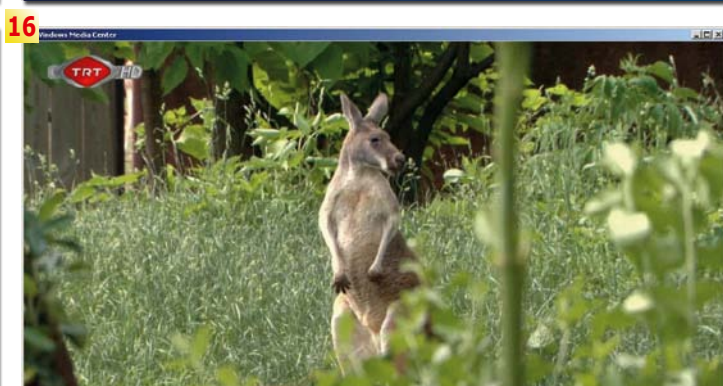
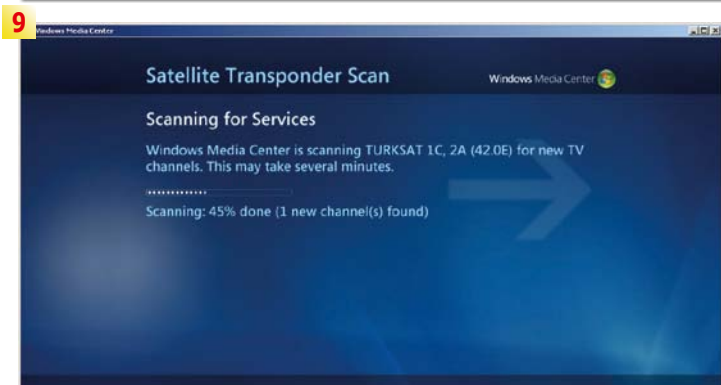
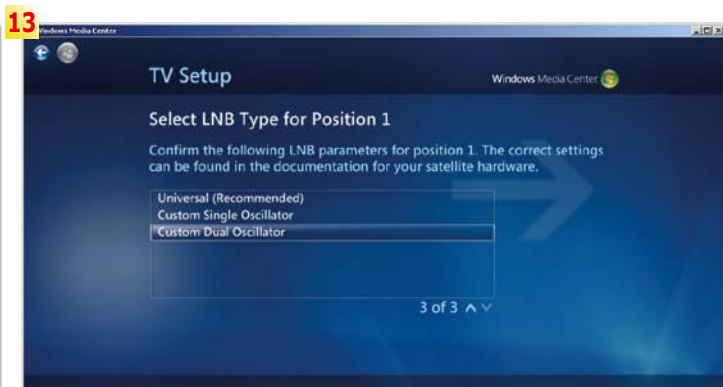
1. Channel list sorted by transponder
2. Settings menu
3. Editing channel characteristics
4. EPG display at the bottom edge of the channel window
5. Channel list sorted by network ID
6. The various control capabilities of the MyTeVii software. Note: the Plug-Ins link is not activae because in our test setup we hadn't installed any plug-ins
7. The various display modes of the MyTeVii software
8. Transponder scan in Windows Media Center
9. Channel scan
10. New channels were found
11. Settings menu
12. The preprogrammed satellite list
13. LNB Settings
14. The Windows Media Center is ready to receive via the TeVii S480
15. + 16. TRT HD on TURKSAT 42° east

you can use a PC with a 2 GHz PC and only 256MB RAM. In either case though, the graphics card that is used must support DirectX version 9.0C or higher. Of course, when it comes to the hardware you end up using, the newer and more capable the hardware, the better.

The manufacturer included 32-bit and 64-bit drivers for all MS Windows versions (Windows XP, Vista and Windows 7) on the CD; there are also drivers for Linux. The CD also con-

tains the MyTeVii software which is the control central for all of the cards functions as well as TeViiData software for reception of Internet via Satellite. The entire package is rounded off with a demo version of the well-known ProgDVB.

The installation of the drivers and the MyTeVii software occurred problem-free and ran fully automatically. That's what Plug&Play is all about; you don't even have to restart the PC after installing the drivers. The installa-



tion assistant presents two separate MyTeVii icons on the PC's desktop with one labeled LNB1 and the other LNB2. Nope, it's not a software bug. Instead, TeVii has made it possible to open two MyTeVii windows at the same time and fully independent of each other.

reason that numerous settings and reception parameters can be set up for each tuner input separate and independent of each other including all the necessary settings steps for LNB1 and LNB2.

After starting the MyTeVii software for the first time, And of course it stands to an empty channel list is dis-



played. Of course, this list should be filled as quickly as possible, wouldn't you say? The manufacturer included

a preprogrammed list of 178 European, Asian and American satellites along with corresponding tran-

sponder data. It was nice to see that the data was actually quite up to date so that the most recently started HDTV channels could easily be found. There were also plenty of preprogrammed LOF frequencies available to cover the C-band and Ku-band but they could also be individually customized (including the switching point for the upper and lower frequency bands) to your specific requirements.

DiSEqC motor, the positions stored in memory can be individually accessed and set up with appropriate satellite entries. Our overall positive impression was strengthened by the ability to also use this card with SCR applications.

The ability to edit satellite and transponder data directly in the Channel Scan menu is especially practical. You can add new transponders or satellites or modify existing data. The channel scan functions are also logical, well thought out and easy to use. For example, you can scan a single transponder from a satellite, multiple transponders or all of the transponder entries. The FEC is recognized by both tuners automatically.

The MyTeVii software also plays very nicely with all of the common DiSEqC protocols thus letting you use the card with just a single LNB, with a DiSEqC 1.0 system with up to four LNBs as well as a more complicated DiSEqC1.1 system with up to 16 LNBs. If you're using a

We were very impressed with the two TeVii tuners; not only do they re-

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TeVii Tapping Into New Markets

TeVii - while being young of age - has already worked up a solid reputation for its PC cards and USB boxes and is now in the process of launching a new range for new markets. Matthew Cox is the founder of TeVii and the company's top-selling sales director. He reveals some future plans in a meeting we had with him in March, one of a number of global interviews for recently visited.

In March, Matthew Cox, founder of TeVii, was in a bit of a hurry. He was on his way to a meeting in the UK to discuss the company's future plans. He was also on his way to a meeting in the UK to discuss the company's future plans. He was also on his way to a meeting in the UK to discuss the company's future plans.

Matthew Cox is the founder of TeVii and the company's top-selling sales director. He reveals some future plans in a meeting we had with him in March, one of a number of global interviews for recently visited.

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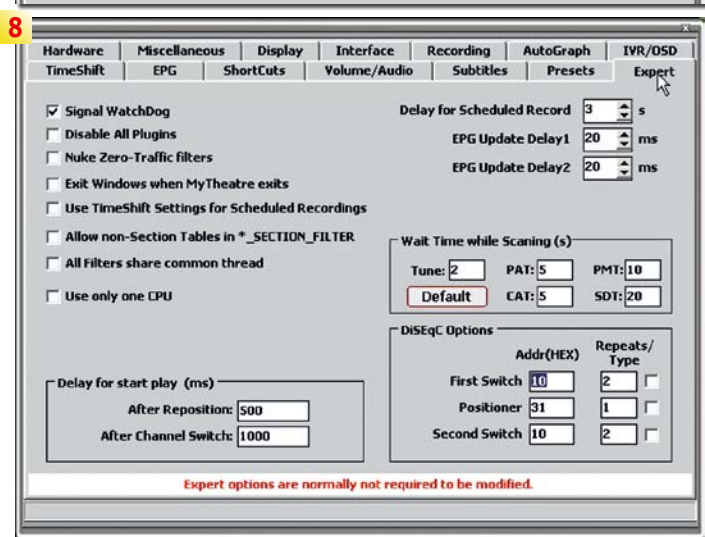
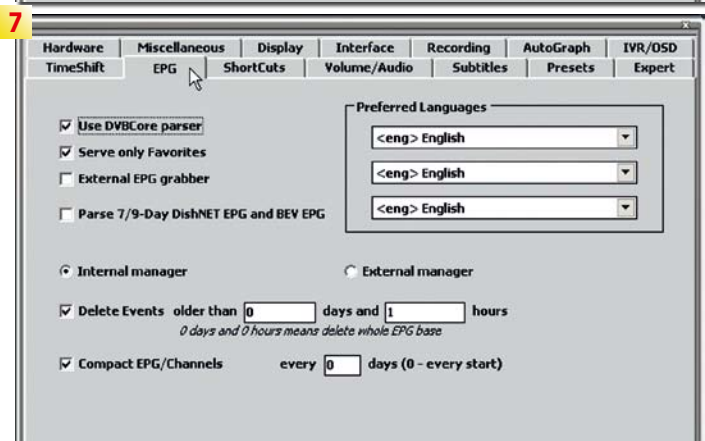
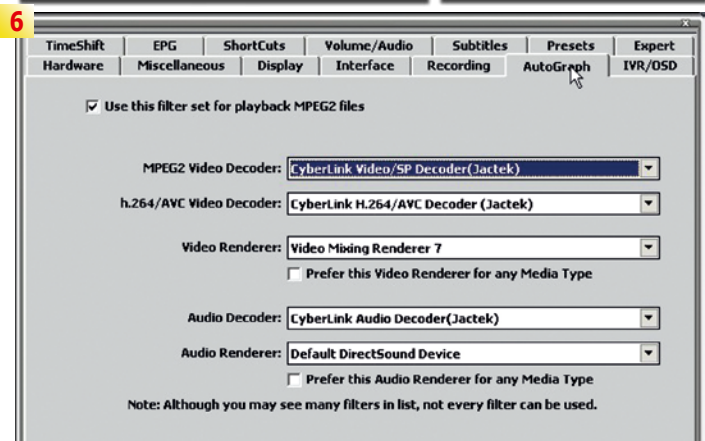
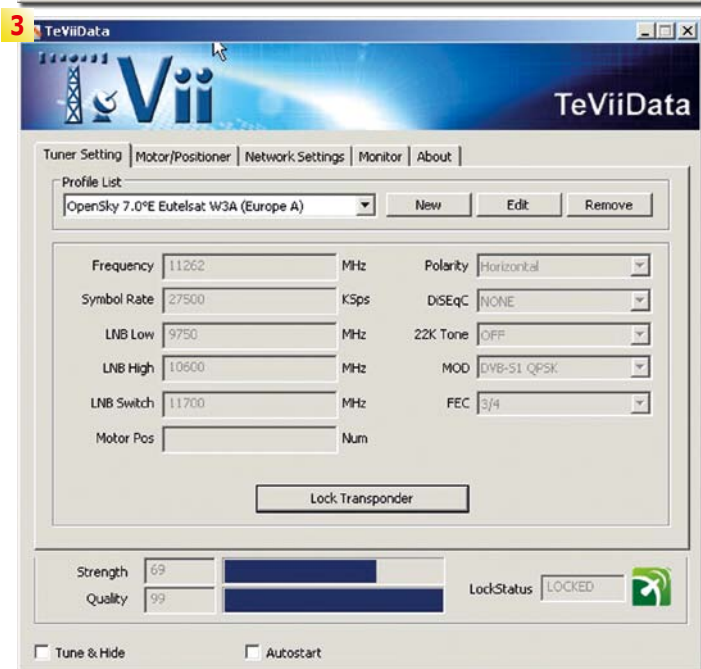
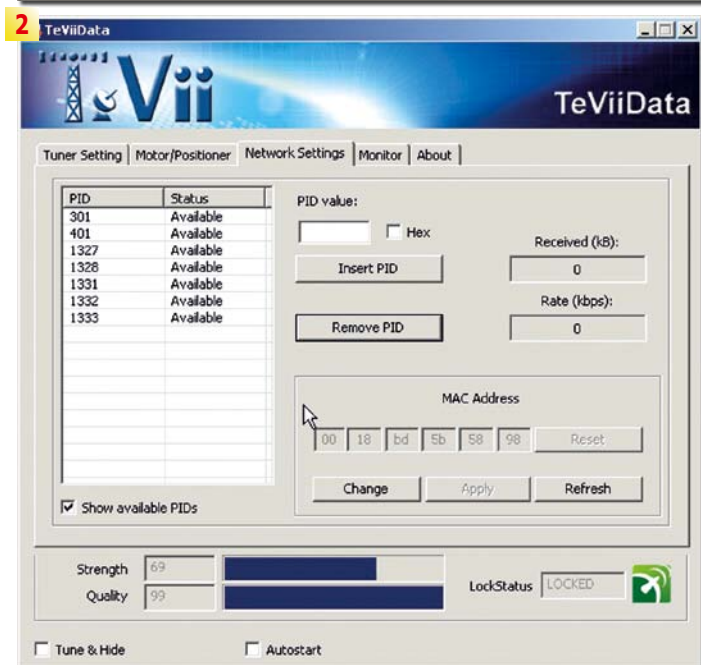
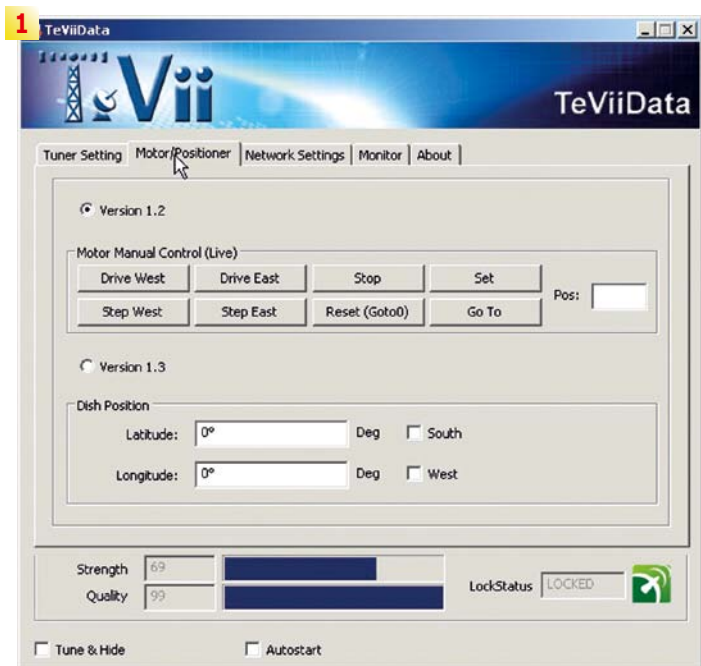
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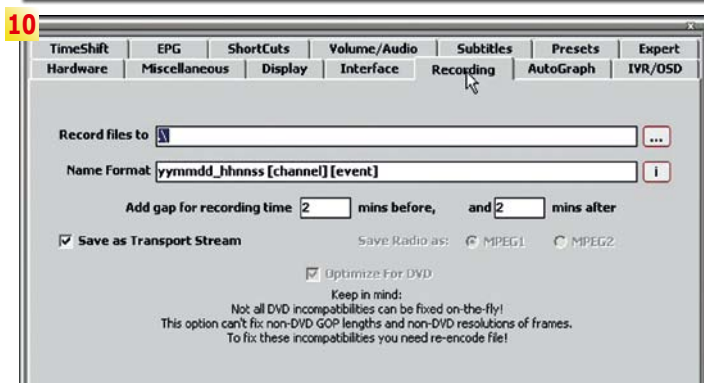
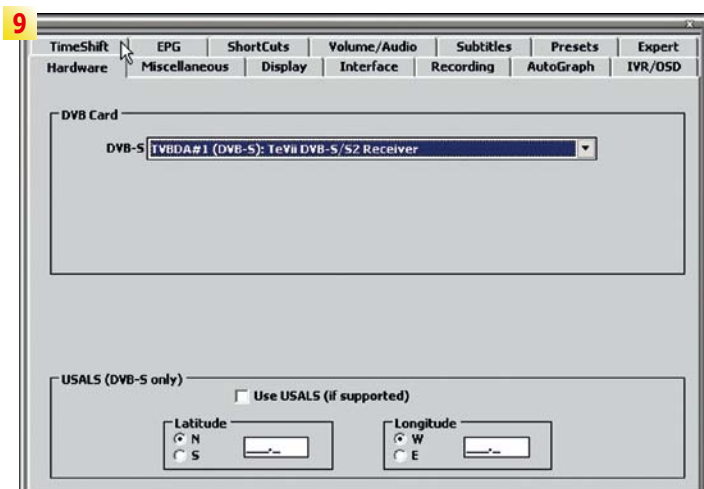




quire very little energy and thereby radiate very little heat, but they also operate on the so-called LNB Off feature. This feature turns off power to the LNB as long

as the tuner on the card is not accessed.

In the end the two tuners handled all of the tasks effortlessly including SCPC



1. The TeViiData software can also work with DiSeqC 1.2 and 1.3 (USALS)
2. TeViiData automatically recognizes the available PIDs of the selected transponder
3. TeViiData for reception of Internet via Satellite
4. Data rate of the TeViiData identified PIDs
5. DiSeqC Settings
6. The matching codec can be selected for each incoming signal
7. EPG Settings
8. Expert MyTeVii software settings
9. Hardware selection and USALS settings
10. Recording settings
11. The extensive preprogrammed MyTeVii satellite and transponder list
12. SCPC reception with the TeVii S480
13. SCPC reception with the TeVii S480

reception and automatic channel scans. In our SCPC test the card was able to process a 2.0 Ms/sec transponder on TURKSAT at 42° east without any problems.

The TeVii S480 card also showed its capabilities during an automatic channel scan of the HOTBIRD satellites at 13° east; this job was completed in just a little over six minutes whereby, thanks to the up-to-date transponders, nearly every receivable channel was identified.

To complete the tuner

test, we naturally had to check how well the tuners performed with weaker signals. For this we turned our antenna to EXPRESS AM1 at 40° east where not only are the individual transponders on this satellite already difficult to receive with a 120cm dish but this satellite finds itself in an inclined orbit making stable reception over longer time periods even more difficult. The TeVii S480 mastered this task and provided us with good reception.

Since the S480 card is DVB-S/S2 compatible, it can demodulate QPSK and

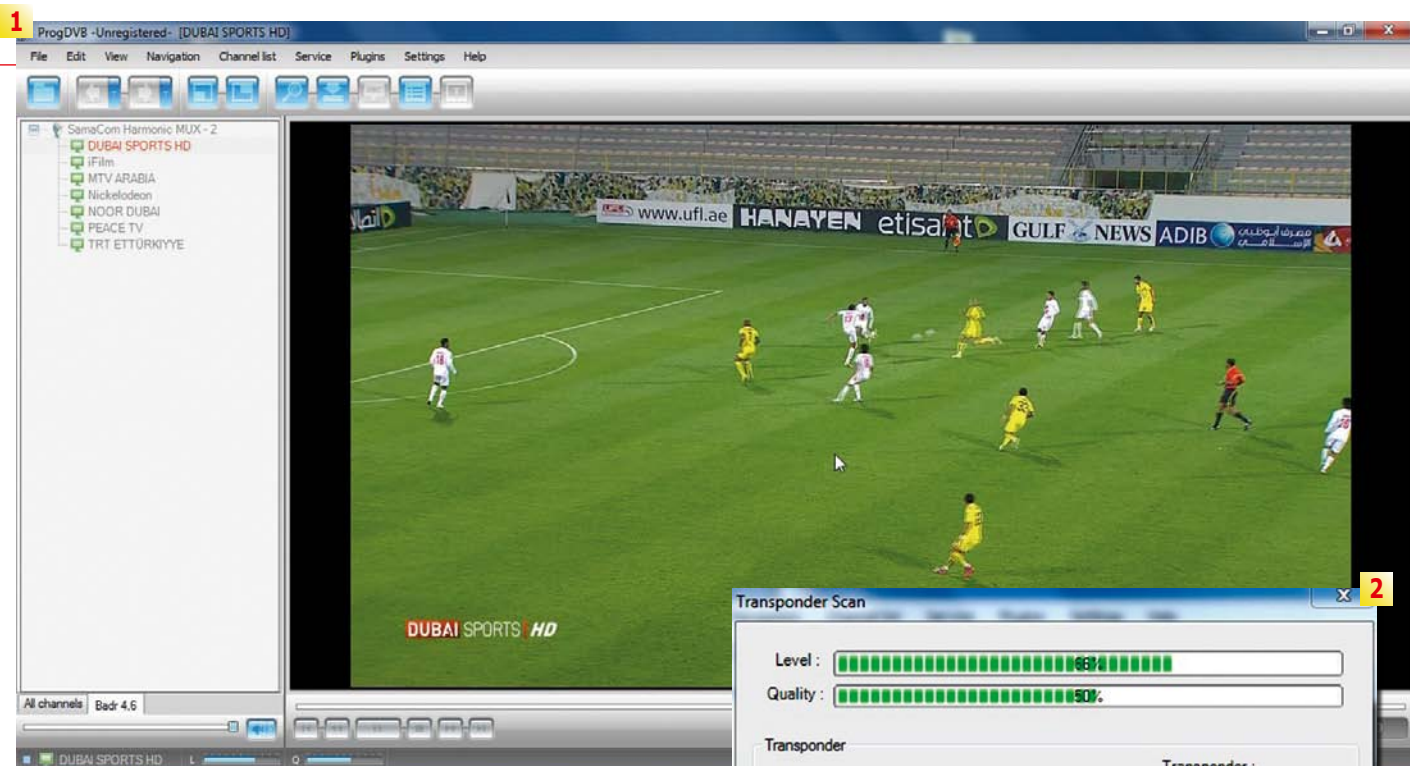
BPSK in DVB-S and QPSK and 8PSK in DVB-S2.

Once the channel list is filled with entries it would not be a bad idea to have a quick look again at the vast array of basic settings. Every imaginable parameter can be set to the user's requirements and this is where the S480 as a PC expansion card stands out compared to a set top box: if older hardware is being used or if the processor isn't the fastest in the world, the demand on the processor or graphics card can be turned back – for example, the Time Shift function can be turned off. Keyboard shortcuts can also be set up for every possible function.

Codecs for audio, video and HD are individually selectable. One codec each is

for the processing of audio and video content so that the choice of codec has a direct influence on the displayed picture from the card. If, for example, you're using a graphics card with hardware support for HDTV reception, you can achieve a lower demand on the processor by using the codec recommended by the graphics card manufacturer instead of the standard codec in the MyTeVii software. The S480 has all the necessary settings capabilities for this purpose.

The main window of the MyTeVii software is nicely set up and organized. While the right side of the window is reserved for the channel list, the entire left side of the window is for the display of the TV signal. At the lower edge of the window



the software blends in all of the information on the currently selected channel (of course, as long as this data is made available).

The channel list itself can be sorted and grouped a variety of ways so that, for example, channels can be grouped by package, transponder or satellite. Naturally Favorites lists can be loaded with all of your favorite channels. Unwanted channels in the list can be made to disappear with just one mouse click while adult-oriented channels can be blocked from view by the kids with a PIN code. Especially practical is that all of this work takes place in the MyTeVii software main window; all of the changes are thereby immediately visible.

The TeVii EPG was also designed with clarity in mind; the programs for the next seven days including detailed programming information are presented in an organized fashion, again, as long as this data is made available by the provider.

Of course, timer entries can be made directly from the EPG and as you would

expect from a top product like this, the software can take a PC out of standby mode in order to record a program. The same is true in reverse: while setting up the timer entries, the user can select whether to keep the PC running or place it in standby mode after recordings are finished. In this way, the PC doesn't need to stay powered up all day just to record a single program.

The S480's channel switching time between two channels on different transponders is 2-3 seconds; for a PC solution this is actually quite fast. Thanks to the two tuners, a second channel can be viewed in a second window while a recording is playing in the first window. Internet via satellite reception is also possible on one tuner while the other is used for TV reception.

During playback you can switch between different audio tracks as well as access any available subtitles with just a single mouse click. HDTV can be displayed at a resolution up to 1080i; recordings can be made in MPEG as well as TS (transponder stream) for-

1. Dubai Sports HD via ProgDVB
2. Transponder scan of BADR 26° east in ProgDVB

mat and can therefore be further processed by all the different editing programs such as DVR Studio and converted into a DVD. The MyTeVii software OSD can communicate with the user in English, French, German, Arabic, Chinese, Finnish, Italian, Polish, Russian, Spanish and Swedish. The Skin feature also proved to be quite interesting. It can be used to adjust the appearance of the software with just a few mouse clicks to match the taste of the user. The package comes with two skins but more can be downloaded from the Internet.

Thanks to the included remote control, the MyTeVii software can be controlled

from the comfort of your couch; information such as the EPG is blended into the OSD display in full-screen format on top of the current program. In this way the TeVii card in conjunction with a PC easily takes the place of the TV and also the set top box.

The TeVii S480 is quite good in terms of its hardware, but one thing is clear: if both tuners are active particularly in HDTV mode, the demand on the processor increases. So for our tests we used an Intel Core 2 Duo PC with 2GB of memory and a relatively new ATI graphics card in order to measure the processor load. The values we measured were for the most part lower than



Factory address:
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we expected to see with a twin-tuner PC card in HDTV mode. Only when we accessed two HDTV channels at the same time did our system get pushed to the limits. It became impossible to do any other worthwhile work with the PC. We do have to say though that the presentation of the HDTV channels was free-flowing without any interference.

The lesson here is clear: performance of the TeVii S480 (actually of every PC card) highly depends whether the PC's video card supports hardware acceleration of video decoding and of course, if acceleration is turned on. Further the actual resolution of a HDTV channel has to be considered (actually only a few channels transmit with the full 1920x1080p) and lastly the video compression and its ratio. In another test with a Intel Core 2 with 2.6 GHz, hardware accelerated video card and supporting decoder, the loading was 2-5% on a maximum level HDTV signal with 1920x1080p. In the end it all comes down to the hardware you use in your PC.

The TeVii S480 does not have any CI slots or integrated card reader. You might think this makes it impossible to receive any encrypted channels. But there is a fall back onto Emus and Cardsharing. Through the integrated plug-in interface the necessary software for PayTV reception can be activated. In our tests the TeVii S480 worked very well although the second tuner caused a few issues and could not be accessed at the same time.

Things looked better with the Windows Media Center.

It comes included starting with the Windows Vista operating system and the TeVii card is fully compatible with it.

The Windows Media Center can fully communicate with the TeVii S480 but it doesn't come with as many settings capabilities as the MyTeVii software. During our tests it performed as expected. It handled a channel scan in over 11 minutes and found only a fraction of the channels compared to the MyTeVii software.

Obviously this is a universal solution and unlike MyTeVii it was not designed just for the S480. We were happy to see that the Windows Media Center was able to handle the simultaneous recording and playback of two channels (even HD) via the two tuners. Unlike MyTeVii though, we were not able to display two HD channels at the same time but, even so, the second tuner was available for recording. Additionally, the TeVii remote control is compatible with the Windows Media Center which of course means you can still control everything from your comfy couch. In addition to ProgDVB and the Windows Media Center, there are other programs that can be used with the S480 for TV reception. Our table shows the links to these programs.

Following TV reception, we also wanted to check out Internet reception. TeVii included the necessary software for the S480: TeViiData. Just like with MyTeVii, TeViiData also comes with a very up-to-date list of Internet-via-Satellite providers. In most cases all you have to do is select

an entry from the list and, assuming you already have service with that provider, you can quickly get started. In our tests the TeViiData software functioned without any problems and provided us Internet access via EUTELSAT W3A at 7° east.

The TeVii S480 PCI-e card has proved itself in many ways during our tests: it is one of the first PC cards to operate with two fully functional tuners that can be simultaneously used with TeVii's own software. Thanks to the cards modern construction, it radiates very little heat; this will make

users happy in that the PC's cooling system doesn't need to run at high capacity and thus won't make as much noise.

The MyTeVii software successfully demonstrated its capabilities during our tests although alternative software such as ProgDVB or Windows Media Center can be used instead if necessary. The quality of the audio and video playback was exceptional. We should also mention that for DXers MPEG 4:2:2 content can also be displayed with the matching codec from Elecard.

Expert Opinion



Two independent tuners
Limited hardware requirements
Low heat output
Compatible with alternative software

No CI interface



Thomas Haring
TELE-satellite
Test Center
Austria

TECHNICAL

DATA

Manufacturer	TeVii Technology Ltd. Taiwan
Email sales	patricia@teyii.com
Email support	peterson@teyii.com
Model	S480
Function	PCI-e card for TV & Radio reception on the PC in SDTV and HDTV with two separate Tuners
Channel memory	unlimied
Satellites	178 preprogrammed - added by user: unlimited
Symbol rates	2-45 Ms/s
SCPC compatible	yes (tested >2 Ms/s)
USALS	yes
DiSEqC	1.0, 1.1, 1.2, 1.3
EPG	yes
C/KU band compatible	yes
HDTV support	yes (up to 1080i in MPEG-4 AVC/ H.264)
Input frequency	950-2150 MHz
Input terminal	F-type 75 Ohm
Modulations	DVB-S: QPSK, BPSK DVB-S2: QPSK, 8PSK

Table:

Alternative Software for the TeVii S480

ProgDVB	www.progdvb.com
DVBViewer	www.dvbviewer.com
DVBDream	www.dvbdream.org
WatchTVPro	www.watchtvpro-experience.de

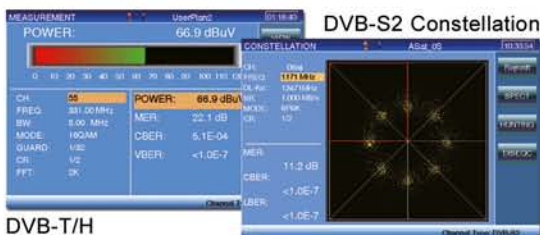
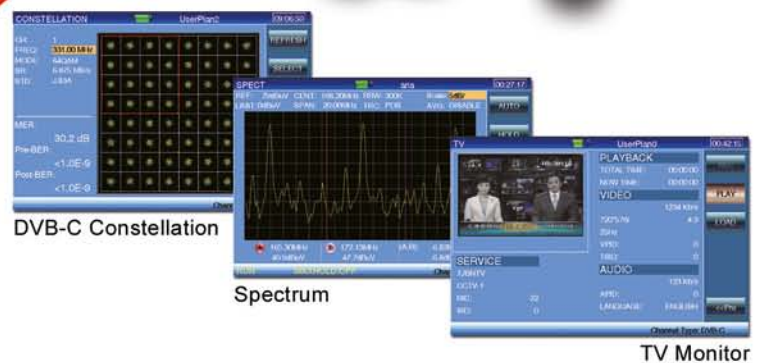
S20 ✓ Satellite Finder

- C, Ku, Ka or L band
- SNR and BER
- Spectrum function
- Signal level and quality display together
- 128×64 dot matrix LCD with back-lighted
- Large lithium battery capacity, over 4 hours working time
- Software upgrade and parameter set via USB interface



S7000 ✓ TV Analyzer

- DVB-C, 8VSB(J.83A/B/C/D), DVB-T/H, DVB-S/S2
- Digital /Analog and Satellite TV analysis with 5~2150MHz bandwidth
- Fast spectrum analysis
- DSP Technology to support different Video decoding: MPEG-2, MPEG-4 and H.264
- Support SD&HD
- CAM module (Conditional Access) for encrypted channels
- TS-ASI input and output
- IPTV analysis option
- HDMI, LAN and USB interface
- Easy to use
- High resolution 7" TFT LCD
- L240×H170×D100, light weight.
- working time >4 hours (battery)



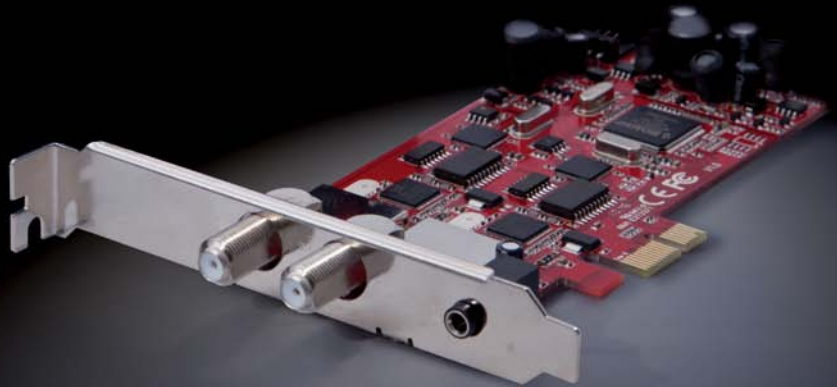
TEST REPORT
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Twin Tuner PC Karte |

TeVii S480 mit 2 x DVB-S2



- zwei getrennte HDTV Tuner
- perfekt angepasste Software für TV und Data mitgeliefert
- mustergültige Anpassung an die PC Hardware
- einfaches Upgrade des PC zum vollgültigen HDTV PVR
- Plug & Play für Windows und Treiber für Linux



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Bei der S480 handelt es sich um eine PCI-Express (PCI-e) Erweiterungskarte für den PC, wobei die Verwendung des PCI-e Slots unbedingt erforderlich ist, da die Datenübertragungsrate eines gewöhnlichen PCI Steckplatzes für den Empfang hochauflösender TV-Inhalte sehr knapp dimensioniert wäre.

Im Gegensatz zum bereits von uns getesteten Vorgängermodell, der TeVii S470 (siehe TELE-satellite 08-09/2009), verfügt die TeVii S480 über zwei vollwertige DVB-S/S2 Tuner, die gleichzeitig und unabhängig voneinander verwendet werden können. Im Prinzip kann man es sich so vorstellen, als wären zwei getrennte DVB-S/S2 Empfangskarten im PC verbaut, nur mit dem Unterschied, dass die

gesamte Hardware beider Karte auf einer Platine untergebracht ist und daher kein zweiter Steckplatz im Rechner belegt wird.

Neben der Karte selbst enthält der Lieferumfang auch noch eine Installationsanleitung in deutscher und englischer Sprache, eine CD mit Treibern und Software sowie eine Fernbedienung und den dazu passenden Infrarotempfänger. Ein ausführliches Handbuch liegt in Form eines PDF auf der beigelegten CD vor. Die Installationsanleitung geht leider nicht auf die spezifischen Details der S480 ein. Gut gefallen hat uns hingegen die Fernbedienung, mit deren Hilfe der PC zum vollwertigen Fernsehgerät mit DVB-S/S2 Empfang wird. Sie liegt angenehm in der Hand, weist eine über-

sichtliche Beschriftung auf und verwöhnt die Finger des Endverbrauchers mit ihrem angenehmen Druckpunkt.

Der Einbau der TeVii S480 ging im Test problemlos von der Hand, neben dem bereits montierten, großen Slotblech liegt auch eine kleinere Ausführung für besonders schmale PC Gehäuse bei, diese kann bei Bedarf ganz einfach gewechselt werden. Da die TeVii Karte mit ihren zwei Tunern natürlich auch zwei LNBs mit Spannung versorgen muss und zudem die auf der Platine integrierten Chips nach Energie lechzen, empfiehlt es sich, die Stromversorgungsbuchse der S480 mit dem passenden Ausgang des PC-Netzteils zu verbinden. Nur so ist garantiert, dass der Karte auch ausreichend Spannung



zur Verfügung steht, die ihr der PCI-e Bus alleine nicht bieten könnte. Nach dem Einbau werden noch rasch die beiden Tuner-Eingänge der Karte mit der Satellitenempfangsanlage verbunden ebenso wie die Steckverbindung zum externen Infrarotempfänger hergestellt wird und schon ist die S480 voll einsatzbereit.

Obwohl die TeVii S480 bestens für den HDTV Empfang geeignet ist, stellt sie doch keine besonders hohen Anforderungen an den verwendeten PC. So sind laut Hersteller eine 2.4 GHz CPU, eine Grafikkarte mit 128MB

RAM sowie 1GB Arbeitsspeicher für den störungsfreien HDTV Empfang ausreichend dimensioniert, wer sich auf SDTV beschränkt kann sogar einen älteren PC mit 2 GHz CPU und nur 256MB RAM verwenden. In jedem Fall aber muss die eingesetzte Grafikkarte DirectX Version 9.0C oder höher unterstützen. Selbstverständlich gilt aber in Puncto verwendeter Hardware wie immer die Devise: Je aktueller und leistungsstärker desto besser.

Auf der beiliegenden CD liefert der Hersteller 32- bzw. 64-Bit Treiber für alle MS-Windows Versionen (Windows XP, Vista und Windows 7) mit, zusätzlich stehen Treiber für Linux zur Verfügung. Des Weiteren enthält die CD die MyTeVii Software, die Steuerzentrale zur Bedienung aller Funktionen der Karte sowie TeViiData zum Empfang von Internet via Satellit. Abgerundet wird das Gesamtpaket durch eine Demoversion der bekannten PC-Empfangslösung ProgDVB.

Die Installation der Treiber sowie der MyTeVii Software gestaltete sich im Praxistest problemlos und lief vollautomatisch ab. So stellt man sich Plug&Play vor, selbst auf den obligatorischen Neustart nach der Treiberinstallation

kann man verzichten. Der Installationsassistent erstellt auf dem Desktop zwei getrennte Verknüpfungen zur MyTeVii Software, die jeweils mit dem Zusatz LNB1 bzw. LNB2 versehen sind. Sie merken also schon: TeVii hat nicht gekleckert sondern geklotzt und ermöglicht das gleichzeitige und voneinander völlig getrennte Aufrufen von zwei MyTeVii Fenstern. Auf diese Weise können sämtliche Einstellungen und Empfangsparameter für jeden Tunereingang separat und unabhängig festgelegt werden, weshalb sämtliche im Folgenden genannten Einrichtungsschritte jeweils für LNB1 und LNB2 vorgenommen werden können bzw. müssen.

Nach dem ersten Start der MyTeVii Software empfängt den Benutzer erstmal eine leere Kanalliste, was läge also näher, als diese so rasch wie möglich mit Inhalten zu füllen? Dazu hat der Hersteller eine Liste mit 178 europäischen, asiatischen und amerikanischen Satelliten inklusive deren Transponderdaten vorprogrammiert. Erfreulicherweise sind die Daten sehr aktuell, so dass auch erst kürzlich aufgeschaltete HDTV Sender gefunden werden. Bezüglich der LO-Frequenzen stehen eine Reihe von vorprogrammier-

ten Werten für das C- bzw. Ku-Band zur Auswahl bereit, diese können aber auch inkl. dem Umschaltpunkt zwischen oberem und unterem Frequenzband individuell eingegeben werden. DiSEqC-seitig spielt die MyTeVii Software ebenfalls alle Stücke und unterstützt sämtliche verfügbaren DiSEqC Protokolle. Somit können Sie die TeVii Karte mit nur einem LNB, an einer DiSEqC 1.0 Empfangsanlage mit bis zu 4 LNBs, oder aber auch mit einer komplizierteren DiSEqC 1.1 Schaltung mit bis zu 16 empfangbaren Satelliten verwenden. Kommt ein DiSEqC Motor zum Einsatz, so können die in dessen Speicher abgelegten Positionen einzeln aufgerufen und einem Satelliteneintrag zugeordnet werden.

Abgerundet wird unser positiver Eindruck noch von der Möglichkeit, die Karte auch mit SCR Lösungen verwenden zu können.

Sehr praktisch und übersichtlich gestaltet ist die Möglichkeit, die Satelliten- und Transponderdaten direkt im Suchlaufmenü zu bearbeiten. So lassen sich neue Transponder bzw. Satelliten hinzufügen oder bestehende Einträge verändern.

Auch die Kanalsuchlauf-funktion ist logisch, durchdacht und anwenderfreund-

lich aufgebaut. So können ein einzelner, mehrere oder alle Transpondereinträge eines Satelliten zum Suchlauf gewählt werden, die FEC erkennen die beiden Tuner dabei stets automatisch. Generell haben uns die von TeVii verbauten Tuner des Herstellers Montage begeistert. Nicht nur benötigen sie sehr wenig Energie und produzieren dementsprechend geringe Mengen an Abwärme, sondern sie verfügen auch über das sogenannte LNB-Off Feature. Dabei wird die Spannungsversorgung zum LNB deaktiviert, solange keine Anwendung auf die Tuner der Karte zugreift. Schlussendlich gaben sich die beiden Tuner auch beim SCPC Empfang bzw. beim automatischen Kanalsuchlauf keine Blöße und erledigten alle an sie gestellten Aufgaben. Im SCPC Test war der Empfang eines Transponders mit einer Symbolrate von knapp über 2 Ms/s am TURKSAT 42° Ost möglich, ebenso wie sich die TeVii S480 beim automatischen Kanalsuchlauf auf den HOTBIRD Satelliten 13° Ost von ihrer starken Seite zeigen konnte, immerhin war die Aufgabe in gerade mal 6:20 Minuten erledigt, wobei dank der aktuellen Transponderdatenbank praktisch alle verfügbaren Sender entdeckt wurden.

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SatCatcher Digipro ST Combo

- *1GB memory for up to 300,000 satellite and transponder entries*
 - *Compatible with DVB-S, DVB-T, analog FM and DAB*
 - *Precise analysis of DiSEqC commands*
 - *An A/V jack and external monitor convert the signal analyzer into a receiver*
-



Analyzer with Huge Memory



The availability of affordable signal analyzers has grown significantly over the past few years. There's a feature that is especially critical to users but up until now it hasn't really been watched closely by manufacturers: and that is an up-to-date and extensive database of satellite and transponder data. And simply because of the nearly endless list of TV, radio and Internet services available via satellite, antenna or cable, the desire to have all of this information is completely understandable. Clearly it's not enough anymore for a European antenna installer to focus only on those all too familiar ASTRA 19.2° east and HOTBIRD 13° east satellites. The same can be said for an installer in Thailand; he would have no chance to survive if he limits his expertise to just the THAICOM bird at 78.5° east.

The signal analyzer that we're introducing here, the SatCatcher Digipro ST Combo, is not only aimed at ambitious private end users, but also and especially at professionals. And if you



The first signal analyzer with 1GB of memory for up to 300,000 satellite and transponder data entries!

want to have any chance of survival in today's market, you have to be able to quickly and precisely react to your customer's wishes. Included in this is the need to be able to align to every possible receivable satellite as efficiently as possible at the installation site. In order for the installer to be able to do this he needs to be equipped with some basic tools and this is the crucial point: What use is the best and most expensive signal analyzer to an installer if a customer wants him to add another satellite to his reception system but the signal analyzer doesn't have the current transponder data stored in its memory preventing the installer from aligning the antenna?

The British company SatCatcher has shown us more than once in the past that its products are up to date technologically and full of innovative ideas. With the Digipro ST Combo, that hasn't changed.

When compared to previous models, not much has changed on the outside. At 240 x 105 x 75mm and weighing just 1.4kg including battery and protective cover, the Digipro ST Combo sits quite comfortably in your hand. Its weight is evenly distributed so that it doesn't want to tip over to one side. The 3.5 inch display with its 128x64 resolu-

tion is very easy to read and is large enough to optimally display all the necessary information.

The integrated 4000mAh rechargeable battery by VARTA provides the Digipro ST Combo with four hours of energy. A complete charging cycle takes just about as long. The manufacturer added an assortment of accessories that include the 9.6V power supply as well as a car charging station so that the installer can recharge the analyzer while on the way to the next customer. A moisture resistant jacket is also provided to help protect the analyzer from dirt and the elements. The included carrying case lets you work with two free hands.

A flip-open sun shade also makes it easier to read the LCD display in bright sunshine. To top it all off, the Digipro ST Combo comes with a USB cable for connection to a PC and an A/V cable for the video input/output connection. The user manual is not in printed form; instead it's in PDF format and can be found on the included CD. The Digipro ST Combo along with all of its accessories can be packed in a sturdy aluminum case for easy transport. It would also serve to protect the contents should the case be dropped.

You can't help but notice

the easy-to-read 3.5-inch LCD color display on the front panel. Four function buttons can be found underneath the display; the labeling for these buttons is displayed near the bottom of the screen. Just to the right are four more buttons in the shape of a cross that are used to work through the menus.

Underneath that is a numerical keypad made up of 12 buttons as well as an additional five function buttons off to the right. All of the buttons are legibly labeled making it very easy to operate the Digipro ST Combo. On the top of the analyzer the manufacturer placed a combination tuner input for satellite and terrestrial reception as well as an additional tuner connection for testing. The input/output jack for audio/video signals can also be found there. The SatCatcher Digipro that was sent to us for testing is for satellite and terrestrial signals (ST). There is also an SC version available for satellite and cable signals. The USB interface and the power supply input can be found on the bottom of the analyzer.

This newest product from SatCatcher was manufactured with quality in mind and to be honest we didn't expect any less from this company. Even the rechargeable battery, which in pre-

vious versions was permanently installed in the unit and could not be removed by the end user, is now inside its own battery compartment and can be replaced by end user. All units shipped after 1st April 2011 include this feature.

SatCatcher have made the unit even more versatile for those busy installers, who are not only focusing on tv installations, but also on video surveillance aka security installations: the newest SatCatcher not only captures DVB-S and DVB-T but also comes with an video input to use with standard cameras. SatCatcher has even added an active 12V output from the IF input port, so installers can also power a camera while making an install. To this end, the newest units shipped do now also include a 'F type to power jack' cables (Our test sample was not yet equipped with this feature).

As mentioned before, it is absolutely essential for the professional installer to have up-to-date satellite and transponder data always at his fingertips. Even an end-user would be thrilled to have this data readily available on his signal analyzer. Before we check out the technical signal measurement details of the Digipro ST Combo, we want to introduce you to

two of the most important features of this analyzer. The first would be its 1GB of cache memory followed by a function to process and display NIT (network information table) data.

The 1GB cache memory is the direct result of SatCatcher putting their heads together to decide the easiest way to port all of the worldwide available satellite and transponder data to the signal analyzer. For this it was necessary to incorporate two different types of memory: work memory and main memory. The main memory is 1GB in size and can be loaded with data directly from a PC. It has room for roughly 300,000 satellite and transponder entries. As soon as a USB connection is established between the analyzer and a PC, the analyzer is recognized by MS

Windows as a removable external storage device and therefore doesn't need any drivers or special software. Naturally, the user would need an up-to-date file in ASD format which is provided either directly from the manufacturer or from an authorized distributor. To update the satellite and transponder data, you simply would need to download the latest ASD file from the Internet and copy it to the removable external storage device.

The SatCatcher engineers quickly recognized that it would be a big mistake to simply replace the entire database in the analyzer; undoubtedly there are quite a few end users that saved their own data in the analyzer - this data would be lost if the entire database were replaced. To prevent this,

the engineers came up with an ingeniously simple solution: The analyzer's main menu comes with an entry that allows you to transfer individual data (satellite, transponder or provider) from its main memory to its work memory so that it is available for use by the signal analyzer.

While the main memory contains all of the worldwide satellite and transponder data regardless of whether the end-user needs it or not, the work menu contains only those entries that the end-user actually needs. This not only makes it easier to access the data that is needed, but it also allows a complete database update at any time without having to worry about overwriting any individual entries. It is also possible to transfer the entries in the

work memory back to the main memory so that they can be transferred back to the PC for printing or transfer to a different SatCatcher analyzer.

After turning the analyzer on, the display on the Digipro ST Combo presents the main menu with four selections. These four choices identify the four basic functions of this analyzer: a signal measurement in terrestrial mode, a signal measurement in satellite mode, various DiSEqC, power and cabling tests as well as a menu selection for AV input/output. At the bottom of the screen can also be found a red "Menu" button that is activated using the F3 button. Pushing this button takes the user to the previously mentioned channel list update possibilities via an ASD file.

In terrestrial mode the analyzer can process analog and digital signals within the frequency range 46 to 870 MHz in several different ways: a single frequency can be selected so that its parameters can be displayed. These parameters include signal level in dB μ V, the video carrier frequency, the audio carrier frequency as well as the C/N in dB. With digital signals the MER (Modulation Error Ratio), CBER (Channel Bit Error Rate) and VBER (Viterbi Bit Error Rate) would also be shown.

In addition to all of these numerical values the analyzer can also graphical display the audio and video signal levels in a separate column. This mode can be used to fine-tune an antenna that has already been roughly aligned to where it



Compact Headend 8 / 16 x DVB-S(2) into QAM BluBox 8 and BluBox 16

- 8 / 16 x DVB-S(2) (QPSK/8PSK) into DVB-C (QAM)
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SAT-HD-ANALYZER

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- MPEG4-display and measuring
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- Robust, impact-resistant housing
- Splash-resistant keypad



Optical Transmitter

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- Frequency range of 47 ... 2200 MHz
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Optical Receiver

SORx 1310607 NF and SORx 1310607/1 NF

- 4-way / 1-way receiver in a compact housing
- Remote powerable through one coaxial output

needs to be. For this purpose there's a spectrum analyzer display. It can be used to view the incoming signal in various widths that include full-screen, 500, 200, 100, 50, 32, 16 and 8 MHz. When we tested this with a UHF antenna, the Digipro ST Combo reacted very quickly to changes in the antenna position and displayed this graphically. With the help of the spectrum analyzer display, it is very easy to identify a starting position for the antenna after which it can be fine-tuned.

If you want to take a closer look at a signal peak, you simply need to press the "Test" function button to tell the Digipro ST Combo to begin looking for a valid DVB-T carrier or an analog signal. If you enter a frequency directly or opt to enter in a channel number, a push of

the "Enter" button brings up a detailed display of the frequency parameters. With DVB-T signals you can "read" the NIT and display any of the channels that are found on the analyzer's monitor. Since the analyzer doesn't come with any built-in CI slot or card reader, this feature only works with free-to-air (FTA) signals.

The various search modes are complimented by an automatic channel scan that will check all the frequencies for usable signals and then displays the results graphically. This is essentially an expansion of the spectrum analyzer mode. The SatCatcher signal analyzer can not only handle TV signals, it can also work with FM radio and DAB radio signals; corresponding menu selections are available for these modes.

Thanks to all the different possible settings, the user can match the Digipro ST Combo to his personal requirements. He can therefore, for example, display the measured signal in dBµV, dBmV or dBm as well as set a minimum level for signal processing or program the analyzer to shut itself off after a certain time.

We especially liked that SatCatcher took the new ASD feature - the preconfigured database of worldwide satellite and transponder entries - and also adopted it for terrestrial mode. Of course, in this mode everything revolves around frequencies in the UHF and VHF band and not with satellites and its corresponding transponders. But, without a doubt, it can also be practical to have access to

a preprogrammed list of all the frequencies and what they are occupied with. The available channel plan can be displayed, activated and edited via an entry in the main menu. The basic setup included a preconfigured list for Great Britain as well as an overall collection of frequencies used in Europe. If the analyzer is to be used in other parts of the world, the ASD feature lets you effortlessly download the current lists from the manufacturer's website or from a distributor which can then be transferred from a PC to the analyzer.

The analyzer's satellite mode is basically the same in structure as the terrestrial mode. This transparent operation helps to make the user's work much easier and for that it deserves high praise. To be able to use all of the analyzer's wide range of features, it pays to have a look at the Settings menu and set up some of the basic parameters. Included in that would of course be the current geographical position.

With that information, the Digipro ST Combo can automatically calculate azimuth and elevation for every desired satellite as well as the polarization angle and the satellite position for DiSEqC 1.3 (USALS). These results are displayed not only in plain numbers but also graphically. In our tests this functioned quite well and can be used to get a fairly good idea of the position of a satellite. From there you can access the spectrum analyzer mode for further antenna alignment.

The spectrum analyzer display is very quick to re-





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3. Windows XP/Vista/7 Compatible;
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AltDVB, Skynet, TSreader supported.
4. Linux driver for all kernels; MythTV,
VDR, XBMC supported.



PCIe DVB-S2 TV Tuner Card (TBS 6921)

1. DVB-S2/S Transponders Receiving.
2. Transponders blind scan.
3. Low profile size.



PCIe DVB-S2 TV Tuner Card (TBS 6925)

1. CCM, VCM, ACM and Multi Input Stream mode supported.
2. 8PSK/QPSK/16APSK/32APSK mode.



PCIe DVB-S2 Dual Tuner Card (TBS 6981)

1. Dual DVB-S2/S Receiving.
2. Windows 7 Media Center, Linux driver supported.
3. Low profile size.



PCIe DVB-S2 Dual Tuner Dual CI Card (TBS 6992)

1. Dual DVB-S2/S Tuner.
2. Dual CI supported.
3. Transponders blind scan.



USB DVB-C Stick

1. DVB-C Frequencies Receiving.
2. 16, 32, 64, 128 and 256 QAM supported.
3. USB 2.0 interface.



USB DVB-C CI BOX

1. DVB-C Frequencies Receiving.
2. 16, 32, 64, 128 and 256 QAM supported.
3. CI supported.
4. USB 2.0 interface.



PCIe DVB-T2 TV Tuner Card (TBS6220)

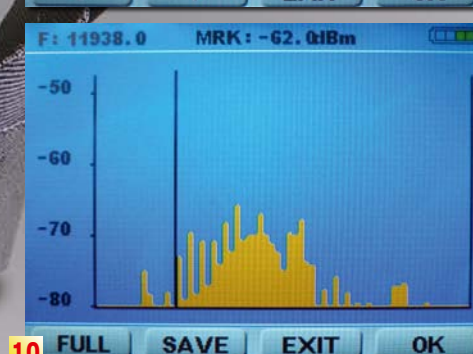
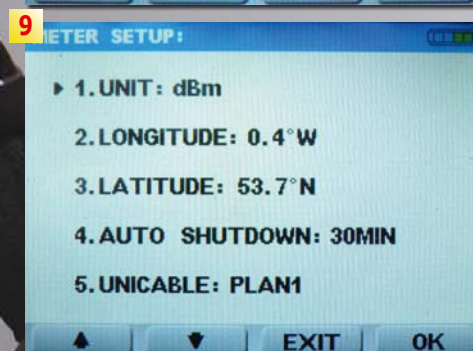
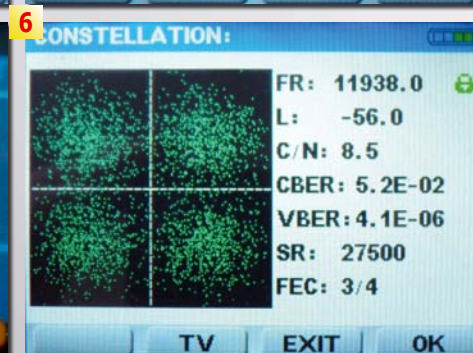
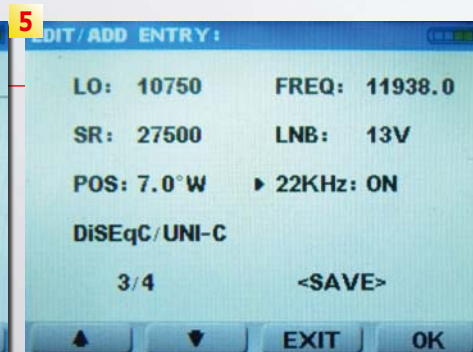
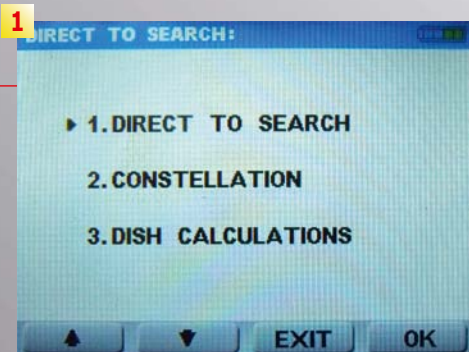
1. Windows7 Media Center supported.
2. Freeview HD supported.
3. Low profile size.



PCIe DVB-T2 Dual Tuner Card (TBS6280)

1. Windows 7 Media Center supported.
2. Freeview HD supported.
3. low profile size.





11 SP100 MRK: -62.0dBm

SP100 SAVE EXIT OK

12 SELECT TEST TYPE

SELECT AND ENTER OR KEY NUMBER

- 1. TERRESTRIAL DVB-T
- 2. SATELLITE DVB-S
- 3. DISEQC/ VOLTAGE/ CABLE
- 4. VIDEO/ AUDIO/ CAMERA

MENU ENTER

13 MAX: -27 SCALE: 10dB/ DIV dBm

MIN: -87 FREQ: 278.56MHz -90.4dBm

CH: BW: FULL VIEWING LEVEL

CH BW TEST EXIT

14 MAX: -27 SCALE: 10dB/ DIV dBm

TEST...

STARTING

SEARCHING CARRIER

TESTING FOR DVB-T

MIN: F1: F2: CANCEL Bm

CH: BW: FULL VIEWING LEVEL

CH BW TEST EXIT

15 DIGITAL DIGI

57 % CH: 24 dBm P

TYPE: QAM16

FREQ: 498.00MHz

-38.4

MER: 30.8 CN: >38.5

CBER: <1.0E-5

VBER: <1.0E-7

LEVEL

COFDM TV EXIT

16 BIT INFO:

NO	NAME	TYPE
001	ORF1	V
002	ORF2 W	V
003	ATV	V
004	ORF2 N	V

EXIT TV

17 CAN STARTMEASURE CH 31... dBm

MIN: -77 VIDEO: 471.25MHz -96.7dBm

CH 21 AUDIO: 479.25MHz -96.6dBm

STOP TEST SPEC EXIT

18 FM TEST

24 % dBm

FREQ: 99.90MHz

-77.8

LEVEL

PLAY VOL EXIT

19 SELECT LOGGING OPTION

- 1. MAKE NEW DATA LOG
- 2. VIEW DATA LOGS
- 3. DELETE LOGS

EXIT OK

20 PLAN

- 1. EURO
- 2. UK UHF
- 3. NULL...
- 4. NULL...
- 5. NULL...

EXIT OK

21 ACTIVE SATELLITE DATA:

ENTER SATELLITE POSITION TO VIEW

ASD. USE +/- KEY TO CHANGE E/W

68.5E

NEXT PRESS F4 TO VIEW THE ACTIVE SATELLITE DATA LIST

EXIT OK

22 ACTIVE SATELLITE DATA

SCROLL UP/DOWN

INFO: 68.5E Intelsat 10

FREQ	POL	S/RATE	PACKAGE
4189.0	V	12210	NewDelhi
4189.0	V	12210	NewDelhi
12522.0	H	26657	MyTV
12522.0	H	26657	MyTV

SELECT FREQUENCY TO ADD TO PLAN

ADD EXIT

23 MASTER MEMORY

SELECT FUNCTION AND PRESS OK

- 1. SET POWER ON DEFAULTS
- 2. LOAD PLAN INTO WORKING MEMORY
- 3. EXPORT DATA LOGS OR SAT PLAN
- 4. SET VOLUME DEFAULTS
- 5. VIEW UNICABLE PLANS

EXIT OK

24 END PLAN

SELECT TYPE OF PLAN TO SEND TO WORKING MEMORY

- 1. TERRESTRIAL PLANS
- 2. SATELLITE PLAN
- 3. ACTIVE SATELLITE DATA

PRESS OK TO TRANSFER PLAN

EXIT OK

1. In satellite mode it is possible to measure individual transponders, display their constellation diagrams and calculate azimuth and elevation values for each existing satellite entry.

2. As soon as an active transponder is detected the Digipro ST Combo immediately displays all relevant parameters.

3. NIT read-out of a transponder and information on available channels.

4. Displaying a TV channel.

5. Editing a transponder entry.

6. Constellation diagram.

7. Main menu in satellite mode.

8. All currently stored satellite entries.

9. Various basic settings.

10. Spectrum display in satellite mode.

11. Spectrum display with 100 MHz increments.

12. The SatCatcher Digipro ST Combo offers four operating modes.

13. Spectrum display in terrestrial mode.

14. Looking for an active DVB-T frequency.

15. As soon as a DVB-T signal is detected the Digipro ST Combo immediately measures all relevant parameters.

16. NIT read-out of a DVB-T frequency.

17. Automatic channel search across the entire terrestrial frequency range.

18. FM radio.

19. Thanks to the convenient log feature measurements can be stored in the Digipro ST Combo's internal memory.

20. Terrestrial frequency plans.

21. Adding a new satellite to the memory using the ASD database.

22. Not only does the ASD database include transponder entries but corresponding provider information as well.

23. Menu items for using ASD features.

24. Menu items for using ASD features.

act to signal changes. This makes it very easy to adjust the antenna and identify a signal peak. If you want to take a closer look at a particular frequency in the spectrum, it would be a good idea to reduce the frequency span of the display for which preprogrammed values of 50, 100, 200 and 500 MHz are available as is a full frequency span. The cursor buttons can be used to select any desired frequency in the display. A push of the "Enter" button reveals its exact signal level and C/N (carrier-to-noise ratio). And just like in terrestrial mode, a variety of settings such as spectrum analyzer frequency span or desired voltage at the tuner connection can be handled via the numerical keypad. Thanks to its precise and easy-to-read labeling, it won't take long before you can no longer do without this feature.

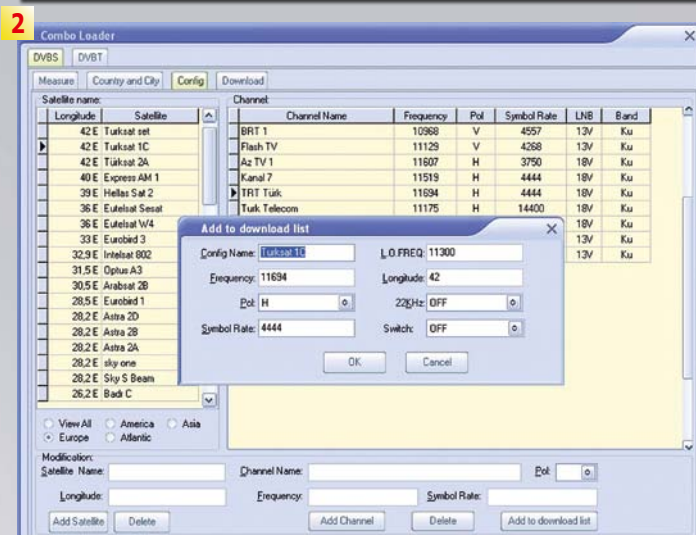
With professional installers it may often be necessary to provide proof of a job well done. For this purpose the Log function can be used to store the measured values during an antenna alignment which can later be made available on a PC. You can also take a screenshot of the spectrum analyzer display and store it in the analyzer.

Once an antenna has been positioned using the spectrum analyzer display or the angle calculations such that a satellite is being received, the push of one button on a signal peak is all that's needed to place the analyzer in transponder mode where you can then view the signal strength and signal quality graphi-

cally plus you can also see signal level, CBER, VBER and C/N numerically. At this point the antenna can be optimally aligned to the desired satellite thanks to the precise and speedy reaction to signal level changes. If the analyzer recognizes a valid frequency, the NIT of the transponder can be "read" and the TV or radio signal can be viewed on the screen. Of course, this is only true for digital signals. Using the NIT, the analyzer calculates the position of the current satellite; in our tests this feature functioned quite well and above all correctly. Problems only occur when providers don't use accurate NIT information as was the case in our tests with a feed signal at 7° west which resulted in incorrect satellite position data.

All of these signal measurement capabilities are topped off by constellation diagrams in both DVB-S and DVB-T modes. If any details of a frequency should change, you simply need to press the "Edit" button so that multiple parameters can quickly be edited. Aside from the classical settings such as the LOF, polarization voltage and the 22 kHz signal, you can also customize DiSEqC 1.0 for up to four satellites, 1.1 for up to eight satellites as well as DiSEqC 1.3 (USALS) for motorized systems. Even SCR Unicable solutions are supported and can be activated directly in the Settings menu.

In all, the Digipro ST Combo is delivered with the satellite and transponder data for European satellites from 42° east to 30° west. The user can edit them or expand them on the ana-



1. Calculating azimuth and elevation

2. The ASD database on the PC: satellite and transponder data can be added and changed

lyzer's display. But what do you do if you want to work with ABS1 at 75° east? No problem; this is where the ASD list once again comes into play. You simply access the ASD manager in the menu. The Digipro ST Combo will then ask you what satellite you want to activate. There is no list displayed; if the entire list of worldwide satellites were displayed, it would all be somewhat unorganized. Instead, you simply enter in the geographical position of the satellite and select east or west by pressing the +/- button.

When you press the OK button, the analyzer will immediately recognize that you're interested in the 75° east position and that it involves the ABS1 satel-

lite. The analyzer will then display the available transponder frequencies along with the corresponding providers using these frequencies. Now all you need to do is to search for the desired entry in the list and transfer it to the work memory using the F3 button. You then get a detailed display of the data and if necessary you can add DiSEqC commands or select a matching LOF for the C-band, Ku-band, etc., after which you'd press the "Save" button to store it all in the analyzer's memory so that it can easily be recalled at a later time.

Since we already have the ABS1 satellite at 75° east stored in the analyzer's memory, it seemed only logical to turn one of our antennas to that satellite.

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+
plugin
support

- Conax Embedded Card Reader
- High Speed USB2.0 Connection
- Coaxial S/PDIF Output
- Ethernet Connection
- SCART & 3 RCA Output
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SatCatcher's Digipro ST Combo sturdy aluminum case comes with many useful items: fold away sun visor, software CD, user guide, mains charging unit, USB connection cable, car charger and A/V cable

ABS1 is typically rather difficult to receive here in western Europe. With the help of the azimuth and elevation calculator in the Digipro ST Combo, we quickly determined the necessary angles for the antenna and began to adjust it in that direction.

Thanks to its spectrum analyzer mode, we were quickly able to identify several signal peaks and with the help of the transponder mode it was easy to optimally align the antenna.

And the \$64,000 question: is there room for im-

provement in the antenna alignment? No, even if you used a signal analyzer from another manufacturer costing several thousand dollars, it would not have helped to increase the signal level at the antenna! The SatCatcher Digipro ST

Combo clearly did the job! And during all of these tests we were also able to determine that the analyzer's built-in tuner was actually quite sensitive; it was able to process signals starting with a C/N of 3.5dB.

Correctly "read" tran-

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- Blind Scan/Fast Scan/Unicable support • Background recording&playback while recording function

sponders are one thing; a live TV picture on the monitor is another thing entirely. The Digipro ST Combo can not only use the NIT data of a transponder to identify the satellite's position, but it can also use it to display a variety of freely receivable TV and radio channels. Even though the monitor is only 3.5 inches in diameter, the TV picture is easy to see and therefore can be used to confirm to the customer that they are receiving those channels that they actually want. Thanks to the A/V output on the analyzer, it can easily be connected directly to a TV and be converted to a satellite or DVB-T receiver itself. This A/V jack can also be used to display an external video signal on the analyzer's monitor so that, for example, a motorized antenna with a 36V actuator can be aligned. The video signal from the positioner/receiver can in this way be displayed on the analyzer's monitor.

Thanks to the second signal input on the top of the analyzer, you can not only check out the signals from the LNB, but also the polarization control voltage from the receiver to the LNB, the high/low band 22 kHz control signal as well as any DiSEqC commands that are sent. This is an especially practical way to find and fix any problems that might pop up with longer and more complex cable runs. Particularly useful was the analysis of DiSEqC commands sent by the receiver; this made it possible to easily identify and correct a problem with a multiswitch or correct an issue with the cabling.

The Digipro ST Combo can be connected to a PC as a removable storage device without the need for any specific drivers. Thanks to the included PC software, it is possible to not only calculate the necessary angles for each desired satellite using an extensive table of different locations on a PC (of course latitude and longitude coordinates can also be directly entered), but the ASD data for terrestrial and satellite mode can also be expanded and edited. Once all of the changes have been completed, the user can save the data and then transfer it to the analyzer by simply dragging and dropping the data to the analyzer.

We were very impressed with the SatCatcher Digipro ST Combo during our tests. Thanks to the logical construction of the software, installation was a piece of cake. It comes with a large variety of features and is all topped off with the ASD database. Its high-quality workmanship leaves nothing to be desired.



Expert Opinion



+

1 GB Working Memory
Extremely Fast Spectrum Analyzer
Display of NIT data
Built-in Azimuth and Elevation Calculator
Lightweight
Long-life Rechargeable Battery

-
DVB-S2 Transponders are not recognized

TECHNICAL DATA

Manufacturer	SatCatcher, Unit 7 Salvesen Way, Hull, East Yorkshire, UK HU3 4UQ, United Kingdom
Tel	+44 - 148 222 15 77
Email	sales@satcatcher.com
Website	www.satcatcher.com
Model	Digipro ST Combo
Function	Signal meter for digital signals in DVB-S, DVB-T and DAB. Analogue signals in FM radio.
Frequency range satellite	950~2150 MHz
Input Level	-65 dBm to -25 dBm
Frequency range terrestrial	46~870 MHz
Input Level	40 dBµV to 110 dBµV
Input resistance	75 Ohm
DiSEqC	Yes (1.0, 1.1, 1.3)
SCR Unicable	Yes
Power supply	Up to 4 hours without recharge
Display	120 x 64 3.5" LCD color display
Supplied items	Fold away sun visor, Software CD, User guide, Mains charging Unit, A/V cable, Car charger, USB Connection cable
Dimension	240 x 105 x 75mm
Weight	1.4kg
Charge Power	10.5V
Battery Voltage	8.4V
Working temperature	0 to 40°C
Storage temperature	-10 to 40°C

Definitions:

MER: „Modulation Error Ratio“ is a bit error calculation for digital signals. The higher the value, the more error-free the received signal is. Values over 25dB are acceptable although a good CBER, VBER and a correspondingly high C/N is also important.

VBER: „Viterbi Bit Error Rate“ is the number of faulty bits within a digital signal after mathematical Viterbi error correction. The higher the number after the „E“, the better the signal.

CBER: „Channel Bit Error Rate“ is the number of faulty bits in a digital signal before mathematical Viterbi error correction. The higher the number after the „E“, the better the signal. The CBER gives you an idea of how good or bad the signal received at the LNB really is.

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- Big-sized and old-fashioned design
- Expensive service charges
- Complex installation
- Take more space
- Easy to get rusty
- Wind susceptible



- Compact size
- Low wind load
- Discreet and fashionable design
- Easy installation (pre-assembled)
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Satellite Multiswitch



RF Modulator



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Digital Indoor TV Antenna



Digital Outdoor TV Antenna

TEST REPORT
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| Combo Meßgerät für DVB-S und DVB-T |

SATCATCHER

SatCatcher Digipro ST Combo

- 1GB Speicher für bis zu 300.000 Satelliten- und Transpondereinträge
- geeignet für DVB-S, DVB-T, analog FM, DAB
- genaue Analyse der DiSEqC-Befehle
- eine A/V-Buchse und ein externer Monitor machen das Meßgerät zum Receiver



Download this report in German

www.TELE-satellite.com/TELE-satellite-1107/deu/satcatcher.pdf

Das Angebot an preislich erschwinglichen Messgeräten ist in den letzten Jahren erheblich gewachsen. Ein Features eines Messgerätes, das den Anwendern besonders wichtig ist, wurde von den Herstellern bislang eher nicht beachtet: Eine möglichst aktuelle und umfangreiche Datenbank mit Satelliten- und Transpondereinträgen.

Aufgrund der mittlerweile nahezu unendlichen Vielfalt an TV-, Radio- und Internetdiensten via Satellit, Antenne oder Kabel ist dieser Wunsch nur allzu verständlich, genügt es doch für einen europäischen Antennen-Monteur schon lange nicht mehr, nur Satellitenantennen auf die prominenten TV-Satelliten wie ASTRA 19.2° Ost oder HOTBIRD 13° Ost ausrichten zu kön-

nen, ebenso wie ein Installateur in Thailand kaum noch eine Chance zu überleben hat, wenn sich sein Wissen auf die Montage einer THAI-COM 78.5° Ost Anlage beschränkt.

Das Messgerät, das wir hier vorstellen, das SatCatcher Digipro ST Combo, richtet sich nicht nur an ambitionierte Privatanwender sondern auch und besonders an professionelle Fachkräfte und wer heute am Markt überhaupt noch eine Chance haben möchte, der muss rasch und zielsicher auf die Wünsche seiner Kunden reagieren können. Dazu gehört es, alle am Montagestandort verfügbaren Satelliten sofort und ohne großen Aufwand einrichten zu können.

Damit der professionelle Monteur dazu in der Lage ist

bedarf es einer entsprechenden technischen Grundausstattung und genau hier liegt der Knackpunkt: Was nützt dem Profi das beste und teuerste Messgerät, wenn er nicht sofort auf den Wunsch des Kunden, einen weiteren Satelliten zur bestellten Empfangsanlage hinzuzufügen, reagieren kann, da das Messgerät dessen aktuelle Transponderdaten nicht gespeichert hat und ein Ausrichten der Antenne daher nicht möglich ist?

Die britische Firma SatCatcher hat uns bereits in der Vergangenheit mehrfach bewiesen, dass ihre Produkte stets am neuesten Stand der Technik und voll mit innovativen Ideen sind. Nicht anders verhielt es sich beim Digipro ST Combo, dem neuesten Messgerät von SatCatcher. Rein äu-



berlich hat sich im Vergleich zu den Vorgängermodellen nicht viel verändert, SatCatcher ist dem bewährten Design seiner Produkte treu geblieben. Mit seinen 240 x 105 x 75mm und dem geringen Gewicht von nur 1.4kg inkl. Akku und Schutzhülle liegt das Digipro ST Combo außerordentlich gut in der Hand. Auch die besonders wichtige, gleichmäßige Gewichtsverteilung ist dem Hersteller sehr gut gelungen, das Messgerät kippt zu keiner Seite.

Das 3.5 Zoll Display mit einer Auflösung von 128x64 Punkten ist sehr gut zu le-

sen und verfügt über die genau richtige Größe, um alle notwendigen Informationen optimal anzeigen zu können.

Der integrierte 4000mAh starke Akku von VARTA versorgt das Digipro ST Combo im Dauerbetrieb ganze 4 Stunden mit Energie, ein kompletter Ladezyklus benötigt in etwa dieselbe Zeit. Das vom Hersteller mitgelieferte Zubehör ist gewohnt umfangreich und enthält neben dem obligatorischen 9.6V DC Netzteil auch noch eine passende Ladestation für den Pkw, so dass der professionelle Monteur auf der Fahrt zum nächsten Kunden für eine Auffrischung der Akkukapazität sorgen kann.

Ebenso gehört eine waserabweisende Stofftasche zum Schutz des Messgeräts vor Feuchtigkeit und Schmutz zum Lieferumfang wie ein praktischer Tragriemen, der das Arbeiten mit zwei freien Händen ermöglicht.

Eine aufsteckbare Sonnenschutzklappe bietet die notwendige Abschirmung, um auch bei hellem Sonnenlicht das LCD Display des Digipro ST Combo noch gut ablesen zu können. Abgerundet wird der Reigen des wirklich umfangreichen Zubehörs durch ein USB Kabel zur Verbindung mit dem PC sowie einem speziellen A/V Kabel für den Videoeingang

bzw. Videoausgang.

Das zum Gerät gehörende Handbuch liegt nicht in gedruckter Form sondern als PDF Datei auf CD bei. Um alle Bestandteile sicher und bequem transportieren zu können, findet das gesamte Zubehör inkl. dem Digipro ST Combo in einem stabilen Alu-Koffer Unterschlupf. Dieser sollte auch einen Sturz aus größerer Höhe relativ unbeschadet überstehen können.

Am Messgerät selbst sticht sofort das sehr gut lesbare, 3.5 Zoll große Farb-LCD Display ins Auge, darunter finden sich vier Funktionstasten, deren Belegung sich jeweils durch die aktuelle Einblendung im untersten Displaybereich ergibt. Ein Tastenkreuz zum Durchforschen der Menüeinträge findet sich gleich rechts daneben. Etwas unterhalb springen ein Zahlenblock mit insgesamt 12 Tasten sowie im rechten Bereich fünf weitere Funktionstasten ins Auge.

Die Beschriftung des gesamten Eingabebereichs des SatCatcher Digipro ST Combo ist vorbildlich und ermöglicht eine komfortable und intuitive Steuerung. An der Oberkante des Messgeräts hat der Hersteller den kombinierten Tunereingang für den terrestrischen und Satelliten-Empfang sowie gleich daneben einen zu-

sätzlichen Tuneranschluss zum Durchführen diverser Tests, untergebracht. Auch die Buchse für die Ein- und Ausgabe von A/V Signalen hat dort ihren Platz gefunden.

Das SatCatcher Digipro ST Combo ist übrigens nicht nur in der von uns getesteten Version für Satellit und Terrestrik (ST) verfügbar, sondern auch in einer Version für Satellit und Kabel (SC). An der Unterseite des Messgerät runden der USB Anschluss sowie die Buchse für das Netzteil die Anschlussmöglichkeiten ab.

Die Verarbeitungsqualität des neuesten SatCatcher Produkts hat uns begeistert, etwas anderes hätten wir von dieser Firma aber auch nicht erwartet.

Selbst die aufladbare Batterie, die in bisherigen Versionen fest im Gerät installiert war und vom Benutzer nicht ausgewechselt werden konnte, ist nun in einem eigenen Batteriefach untergebracht und kann vom Benutzer gewechselt werden. Alle Geräte, die nach dem 1. April 2011 versandt wurden, enthalten dieses Feature.

SatCatcher haben ihr Gerät übrigens noch nutzbarer gemacht für diejenigen Installateure, die sich nicht nur auf TV Installationen konzentrieren, sondern die auch Video Überwachung

bzw Sicherheitskameras installieren: der neueste SatCatcher empfängt nicht nur DVB-S und DVB-T, sondern enthält auch einen Video Eingang für Standardkameras. SatCatcher hat dazu sogar einen aktiven 12V Ausgang vom ZF Eingang ergänzt, so dass die Monteure auch die Kameras mit Spannung versorgen können. Die neuesten Geräteeinheiten enthalten daher ein ‚F mit Stromanschluß‘ Kabel (Unser Testmodell war mit diesem Feature noch nicht ausgerüstet).

Wir haben es bereits erwähnt: Für den professionellen Monteur ist es heute unumgänglich, jederzeit aktuellste Satelliten- und Transponderdaten zur Verfügung zu haben und auch der engagierte Privatanwender grinst vor Freude, wenn sein Messgerät ihn prompt mit diesen wichtigen Informationen versorgen kann. Bevor wir daher auf die technischen Details der Signalmessung des Digipro ST Combo eingehen, stellen wir Ihnen die zwei wichtigsten Zusatzfeatures des neuen Messgerätes von SatCatcher vor: Zum einen wäre dies ein 1GB großer Zwischenspeicher sowie eine Funktion zum Verarbeiten und Auslesen von NIT (Network Information Table) Informationen.

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Available online starting from 3 June 2011

Build your DVB-C cable headend converting DVB-S to DVB-C with Topreal

Jacek Pawlowski

DVB-C is a worldwide standard that describes digital cable TV. In most cases, the DVB-C signal that arrives at the wall outlet of cable subscriber's homes is of satellite or terrestrial origin - that is DVB-S or DVB-T respectively. Let's focus on DVB-S. Is the signal what is transmitted as DVB-C on the cable the same signal that is received at the headend's satellite dish?

Well, if we take into account the digital content: video bit stream, audio bit stream and data stream - the signals are almost identical. There are small changes in the data transmitted along with video and audio (for example there are no longer transponder frequencies but rather carrier frequencies) but the real difference lies in the frequency and modulation used. To convert DVB-S to DVB-C one needs a professional DVB-S receiver and a DVB-C QAM modulator. If you want to manipulate the content of the multiplex, you additionally need a re-multiplexer.

One of the manufacturers of such professional units is Topreal from China; they pro-

vided us with the basics for a cable headend: a satellite receiver, a modulator and a re-multiplexer. All three Topreal units are designed to fit standard 19" racks or cabinets. As you can see on the pictures, these units are not fitted with neither RCA nor SCART connectors. Such professional devices use either F or BNC connectors because these have well defined 50 Ohm impedance matching the characteristic impedance of coax cables.

TP-1010 DVB-S Receiver

The satellite receiver was a little surprise for us at the beginning. We expected that the keypad will be rather lim-

ited - this is typical for professional units which are set once and left unattended for long periods of time. But even this was not present, rather just a mere 4-digit 7 segment LED display, not even alphanumeric one. How is the user supposed to set the unit?

A look at the rear panel revealed the way. Except for the LNB input and looped output (RF-IN, RF-OUT), doubled transport stream outputs (ASI_OUT), there were video and audio outputs resembling the ones we know from regular consumer receivers. The difference was only the connector type - BNC sockets were used in TP-1010. But that's not all, there was even a S-Video output. So, maybe

one can just connect a regular TV-set to see the menu and set the unit?

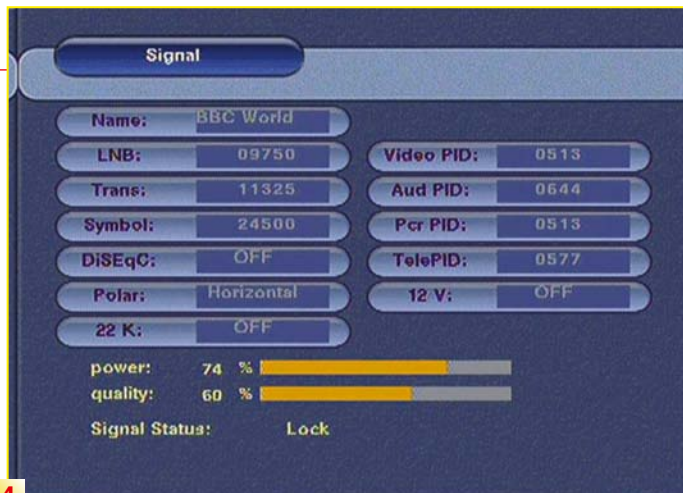
Yes, that was the way. The On-Screen Display we saw on our portable tv was very similar to the OSD which is used with regular satellite receivers. The significant difference was that all the receiver settings (including the numerical ones like frequency) were possible with just 6 buttons: four arrows, MENU and OK.

The receiver was not especially fast in accepting our key presses but this is not a very important feature for this kind of unit. As we already mentioned - you configure it once and then do nothing. The funniest thing we discovered was the game menu. It seems that the firmware for this receiver was not designed from scratch but rather adopted from the consumer receiver. Nothing wrong with this if the unit performs well.

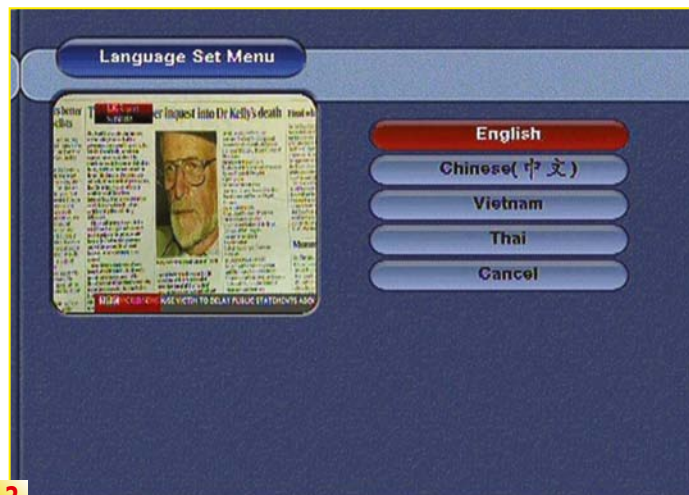




1



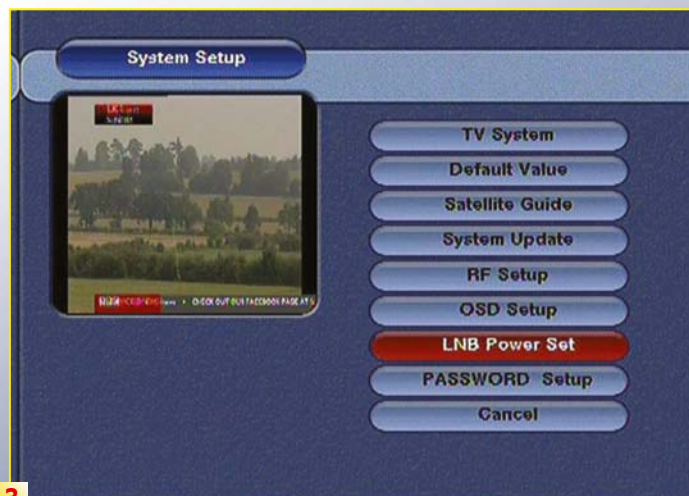
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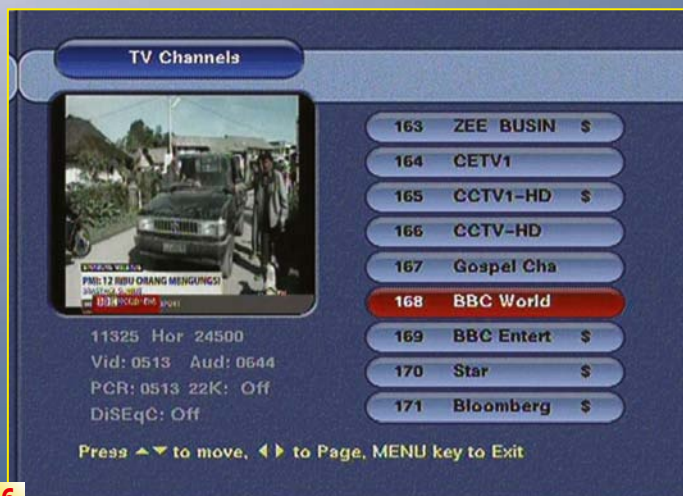
2



5



3



6



1. Main menu of TP-1010 DVB-S Receiver
2. TP-1010 Language menu
3. TP-1010 System Setup
4. Setting up the reception of a THOR 5/6 transponder
5. Info bar after switching the channel in TP-1010
6. TP-1010 Channel list

We set the TP-1010 to receive a transponder from THOR 5/6 satellite at 0.8° West (11325H, 24500). Everything worked perfectly and within a second or so the video was on. We checked what happens when we switch the power off and on again. Video and audio were back after 2-3 seconds. That's what one expects from a professional receiver – in case of a power blackout the receiver recovers quickly and "gracefully" as soon as the power is back on.

Then, we decided to test the reception of low bit rate weak signals. TP-1010 could not lock to the very weak signals from EUTELSAT W6 on 21.6° East nor EUTELSAT W7 on 36° East. Their bit rate was from approximately 1.5 through 2.5 Ms/s. But to be fair, we must mention that our satellite analyzer was equally unable to lock to those weak signals either. Only the very modern high class receiver that we use for satellite DX-ing could lock and process these signals. In regular applications, TP-1010 will be used rather to process high bit rate strong signals from the popular satellites. After all, this is not a product aimed at the DX-er market.

The TP-1010 can cooperate with any type of LNB because you enter the LOF manually. You enter only one value as this receiver is supposed to lock to only one selected transponder. For example it can be 9750 MHz (the lower LOF of a universal LNB). Also the voltage corresponding to the polarization and the presence of 22 kHz that switches oscillators in the universal LNB must be set manually by the user.

We subjected the receiver to another tough test. We attenuated the input signal down to the receiver's sensitivity threshold and left it for 2 hours. In this way we simulated prolonged bad weather conditions. In such circumstances, the receiver must process a lot of erroneous data. This is extremely important for the professional receiver to be able to survive such situations without software crash. And TP-1010 did survive! As soon as we increased the level, it would produce crisply clear video and audio.

Our general impression of TP-1010 is that it has all the basic functions a professional receiver must have. Lack

of alphanumeric display is a small hindrance as you need a TV-set to configure the unit. Yet you should take into account that normally you configure this unit once and it stays unchanged for months or even years.

TP-1600 QAM Modulator

With this unit there was no surprise. The TP-1600 QAM modulator has a 2-line alphanumeric LCD display with backlit. This is very typical for head end equipment. Except for the LCD, there are six buttons and eight status LED's. The rear panel is quite ascetic – transport stream input, DVB-C signal output, LAN interface and ON/OFF power switch.

However, Topreal also offers more enhanced versions. If you wish, instead of transport stream ASI input, they can embed a DVB-S, DVB-T or DVB-C tuner with corresponding input signal connector. However, in its basic version, TP-1600 takes the transport stream supplied from a professional receiver or an encoder and modulates it onto a carrier. All QAM modes are available (16/32/64/128/256 QAM) in accordance with ITU-T J.83 Annex A.

We decided to set it up without referring to the operating manual and everything went smoothly. User interface was really simple and straightforward – everybody who understands the parameters of QAM modulation will set the unit in no time. You just enter the carrier frequency, QAM mode and symbol rate.

We checked the unit in the same way as the receiver to find out if it can recover after a power cut. As expected everything went OK. After about 30 seconds we noticed the signal again. Neither the receiver nor the modulator required any action from the user to resume operation.

But what about the strength and quality of the output signal? The channel power can be set from 107 through to 120 dBμV. We measured it for the settings of 120 dBμV and our meter showed us 119 dBμV. Very good accuracy of the settings.

Signal quality was nothing but perfect. We did the measurement for 64



1. Carrier frequency set to 474 MHz in TP-1600 QAM Modulator
2. TP-1600 output was set to 120 dBμV; our meter measures almost exactly the same
3. TP-1600 output signal has very high Modulation Error Ratio and noise margin as high as 11 dB for 64 QAM
4. Constellation diagram of DVB-C 64 QAM signal also shows its splendid signal-to-noise performance
5. TP-1600 set to the most demanding 256 QAM modulation mode; as expected, noise margin is lower than for 64 QAM but MER is as good as it was before
6. Constellation diagram for the 256 QAM mode is even more picturesque than the one for 64 QAM

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QAM and 256 QAM. Lower QAM modes are rather not used due to low bandwidth efficiency and 256 QAM is the highest possible mode according to the standard. Both measurements showed absolutely perfect carrier to noise performance. Of course the noise margin was lower for 256 QAM but this is simply physics and with every modulator we would get exactly the same outcome. The constellation diagrams confirmed what our MER and C/N measurements told us before about the signal. It was extremely clean almost no noise at all.

We observed for a longer period the BBC World channel received with TP-1010 from THOR 5/6 on 0.8° West and remodulated to QAM with TP-1600. We did not notice any single glitch. Everything was working flawlessly. Also the "bad weather" test (see the receiver chapter) lasting for 2 hours did not make the modulator software crash. It

channels from a selected transponder. In most cases, you would prefer to compose your multiplex with channels originating from different transponders or even different sources (satellite, terrestrial, A/V players and alike). For that purpose you need a multiplexer. By the way, the correct name would be re-multiplexer rather than multiplexer. In fact, Topreal uses the word re-multiplexer in their user manual, only on the unit itself one can read "multiplexer". In the course of this report, we will stick to its proper name: TP-1200 Re-multiplexer.

TP-1200 accepts up to 8 transport stream inputs and lets the users select whatever they want from the input data and compose one output transport stream. For example, we can connect eight TP-1010 receivers to the re-multiplexer, each tuned to a different transponder/satellite. Then, we can pick one or more programs (TV or radio

all the bits are sent serially rather than in parallel. The serial interface is prevailing in today's world as it uses simple coax cables fitted with BNC connectors.

When we combine content from different transport streams, we also need to update the data tables that are included in the transport stream. These tables describe the content of the stream. TP-1600 can produce or update the following tables: Program Association Table (PAT), Program Map Table (PMT), Service Description Table (SDT) and Network Information Table (NIT).

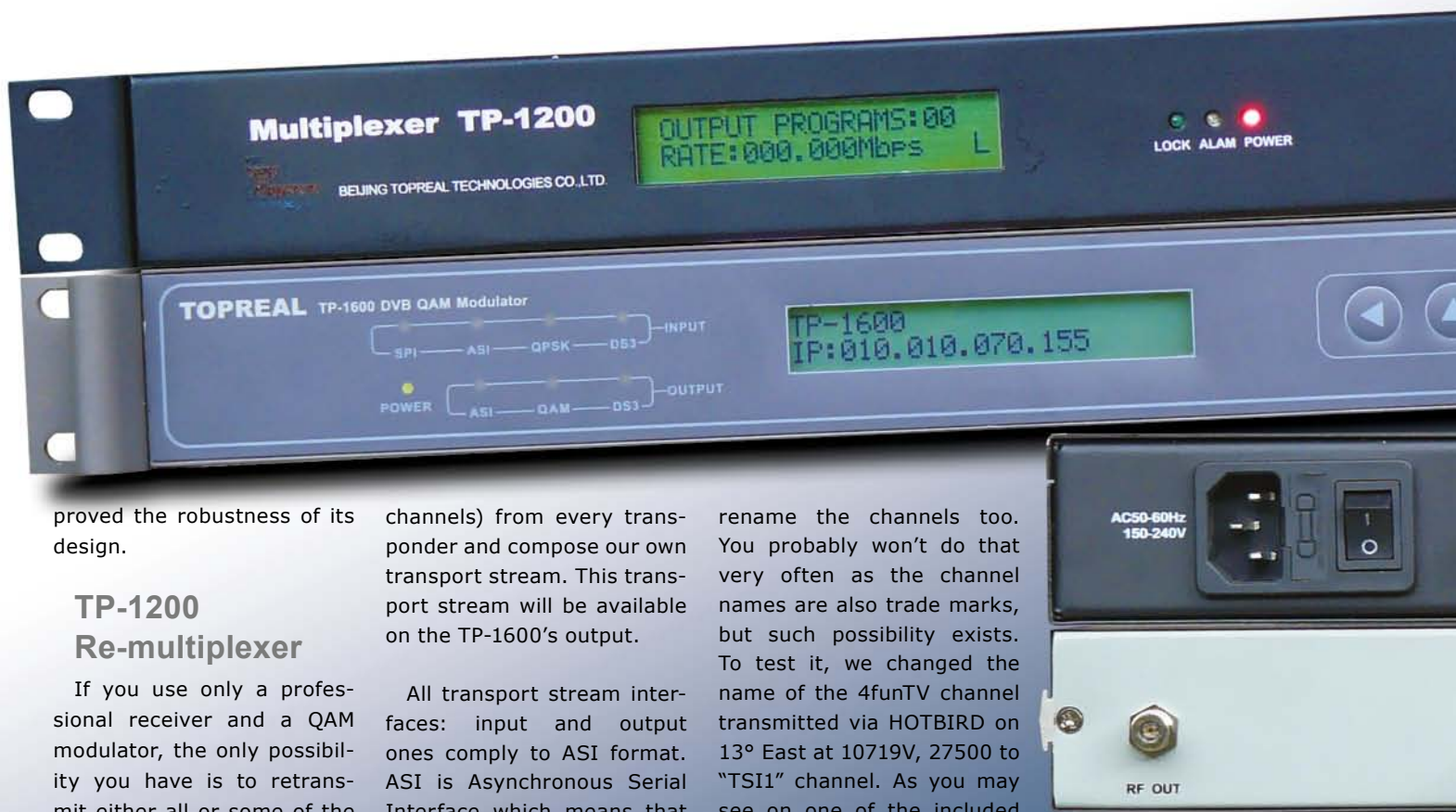
Of course, we can also change the PID's – for example the video or audio PID of a channel. Such PID re-mapping may be necessary if we have a conflict – the same PID's are used by channels in different input transport streams.

TP-1200 allows you to

photos, such channel name is displayed when the DVB-C signal is processed by our signal analyzer.

The menu structure of TP-1200 is much more complex as compared to TP-1010 or TP-1600 but this is obvious. Moreover, you need to know quite something about the transport streams, tables and the process of multiplexing. We did not have the software to do the settings from a PC via LAN connection. Definitely, this would be a much more convenient way of setting up 8 inputs and 1 output of TP-1200.

A little annoying feature that we would suggest to change is the keyboard lock. Upon powering up, the keyboard is locked and you need to press left arrow, right arrow and left arrow again to unlock it. That's still OK but if you hesitate a few seconds when doing a setting in the menu, the firmware will lock the keyboard again. You



proved the robustness of its design.

TP-1200 Re-multiplexer

If you use only a professional receiver and a QAM modulator, the only possibility you have is to retransmit either all or some of the

channels) from every transponder and compose our own transport stream. This transport stream will be available on the TP-1600's output.

All transport stream interfaces: input and output ones comply to ASI format. ASI is Asynchronous Serial Interface which means that

rename the channels too. You probably won't do that very often as the channel names are also trade marks, but such possibility exists. To test it, we changed the name of the 4funTV channel transmitted via HOTBIRD on 13° East at 10719V, 27500 to "TS11" channel. As you may see on one of the included

have to repeat everything from the very beginning. If you are very familiar with the re-multiplexer you can do all the settings fast enough but for the first-time user this is somewhat irritating.

Similarly to the two previous units, TP-1200 remembered all the settings after power failure and restored everything without any human interaction.

Conclusion

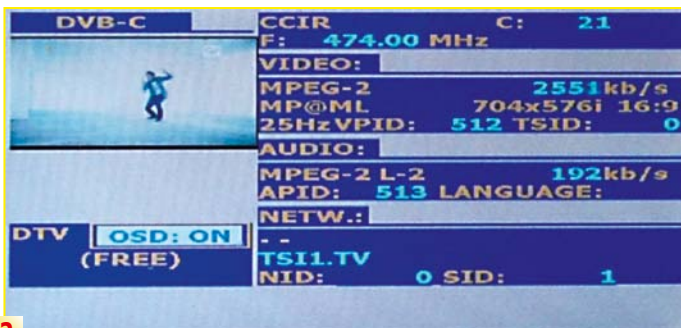
Although one can imagine more functions for the cable head end (like scrambling the content or VOD), the three components described above are the most fundamental devices you will consider when collecting the equipment for a cable head end. It is evident that they were designed as separate units rather than as a family, as they do not match in external design nor menu structure. However, for the professional user, the uniform style and

ease of use are probably not the most important parameters. The performance and the price must be right. All units passed the tests we ran without any single problem. The trio was handling power failures gracefully and did not hang up even when the incoming signal was full of errors. That's something that really counts in the head end equipment.

Performance of the QAM modulator was very good indeed. Perhaps, the sensitivity of the receiver could be improved a little.

1. BBC World channel originally transmitted via the THOR 5/6 satellite on 0.8° West received by TP-1010 and re-modulated to DVB-C 64 QAM by TP-1600

2. 4funTV from HOTBIRD 13°East received by TP-1010 Receiver, renamed to "TS11" channel with TP-1200 Multiplexer and modulated with TP-1600 QAM Modulator



TECHNICAL

DATA

Manufacturer	Beijing Topreal Technologies Co.,LTD., Beijing
Phone	+8610-64398830 +8610-64390960
Fax	+8610-64390769
Web page	www.topreal.com.cn
Email	sales@tengrui.com.cn / dengnj@tengrui.com.cn
TP-1010 DVB-S Receiver	
Input	DVB-S, 950-2150 MHz looped through
Digital output	2 x DVB transport stream (same signal on 2 connectors in ASI format)
Analog outputs	CVBS, Left/Right audio, S-Video
Power supply	90-250 VAC 50/60 Hz
TP-1200 Re-multiplexer	
Inputs	8 x DVB transport stream (ASI)
Input bit rate (every stream)	50 Mbps max.
Input packet length	188/204 bytes recognized automatically
Output	2 x DVB transport stream (same signal on 2 connectors in ASI format)
Output bit rate	2~108 Mbps
Output packet length	188 or 204 bytes (dummy Reed Solomon)
Power supply	90-250 VAC, 50 Hz, 25 W
TP-1600 QAM Modulator	
Input	DVB transport stream (ASI)
Output frequency	48~862 MHz
Modulation	16/32/64/128/256 QAM
Symbol rate	2~7 Msps
Power channel	107~120 dBμV
Power supply	90~260 VAC, 50/60 Hz, 30 W



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Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	IPTV Set-Top-Box
Stream Protocol	UDP
Menu Standards	HTML4, Javascript 1.5, Java Virtual Machine
WLAN	• (via USB stick)



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Manufacturer	NetUP
Website	www.netup.tv
Function	IPTV Gateway for DVB Signals
Stream Protocol	UDP
Menu Standards	NetUP Middleware
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Manufacturer	AZBox
Website	www.azbox.com
Function	HDTV DVB-S2 and IPTV receiver with various Multimedia&Internet Features
Stream Protocol	UDP
Menu Standards	html
WLAN	—



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Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
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Manufacturer	Amiko
Website	www.amikostb.com
Function	Digital HDTV DVB-S2 including dual boot
DVB-S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Manufacturer	AB-COM
Website	www.abcomeu.com
Function	HDTV Linux Receiver with single tuner and USB for PVR
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Manufacturer	Skyworth
Website	www.skyworth.com.hk
Function	Combo Receiver for DVB-S2 and DVB-T
DVB-S2/LAN	• / •
Channel Memory	6000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Manufacturer	Fulan
Website	www.fulansoft.com
Function	Digital HDTV Receiver with Dual-Boot and Spark online-plattform
DVB-S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	— / •

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Excellently designed operating software with built-in customer service

INNOVATION TELE-satellite AWARD 04-05/2011

eco friendly
Energy Efficiency Rating
0.55 power factor
Tested by TELE-satellite

FULAN



Manufacturer	Golden Media
Website	www.golden-media.net
Function	Digital HDTV Dual Tuner PVR Receiver with Blindscan
DVB-S2/LAN	• / •
Channel Memory	8000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •

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Golden Media UNI-BOX 9080 CRCI HD PVR COMBO PLUS
Perfect family receiver but also a top choice for the satellite DXer thanks to its high-speed BlindScan function

TELE-satellite AWARD 02-03/2011

eco friendly
Energy Efficiency Rating
0.55 power factor
Tested by TELE-satellite

GOLDEN MEDIA



Manufacturer	AB-COM
Website	www.abcomeu.com
Function	Twin DVB-S2 Multimedia Receiver
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Manufacturer	Jaeger / Doebis
Website	www.doebis.de
Function	Digital HDTV DVB-S2 Receiver with Smart Card reader for HD+
DVB-S2/LAN	• / —
Channel Memory	5000
DiSEqC	1.0 / 1.2
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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JAEGER



Manufacturer	AZBox
Website	www.azbox.com
Function	Digital HDTV Receiver with DVB-S2 and ISDB-T Tuners and various Multimedia & Internet Features
DVB-S2/LAN	• / •
Channel Memory	15000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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AZBOX



Manufacturer	ABC BIZNIS
Website	www.opensat.info
Function	Digital HD Receiver with PVR via USB
DVB-S2/LAN	• / •
Channel Memory	8000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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OPENSAT





Manufacturer	Jiuzhou
Website	www.jiuzhou.com.cn
Function	Digital PVR DVBT Receiver
DVBT/LAN	— / —
Channel Memory	1000
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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Manufacturer	AZBOX
Website	www.azbox.com
Function	HDTV DVBS2 receiver with various Multimedia & Internet Features
DVBS2/LAN	• / •
Channel Memory	15000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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



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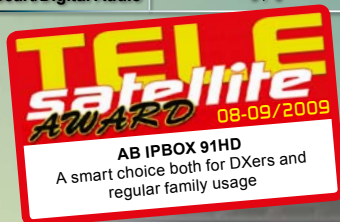
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Manufacturer	AB-COM
Website	www.abcomeu.com
Function	Digital Linux-based HDTV PVR Receiver
DVB-S2/LAN	• / •
Channel Memory	10000
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



AB IPBOX 91HD
A smart choice both for DXers and regular family usage



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Manufacturer	TeVii Technology
Website	www.tevii.com
Function	PCI-E card for TV & Radio reception on the PC in SDTV and HDTV with two separate Tuners
Channel Memory	unlimited
Satellite Memory	178 preprogrammed - added by user: unlimited
Symbol Rates	2-45 Ms/sec
DiSEqC	1.0, 1.1, 1.2, 1.3

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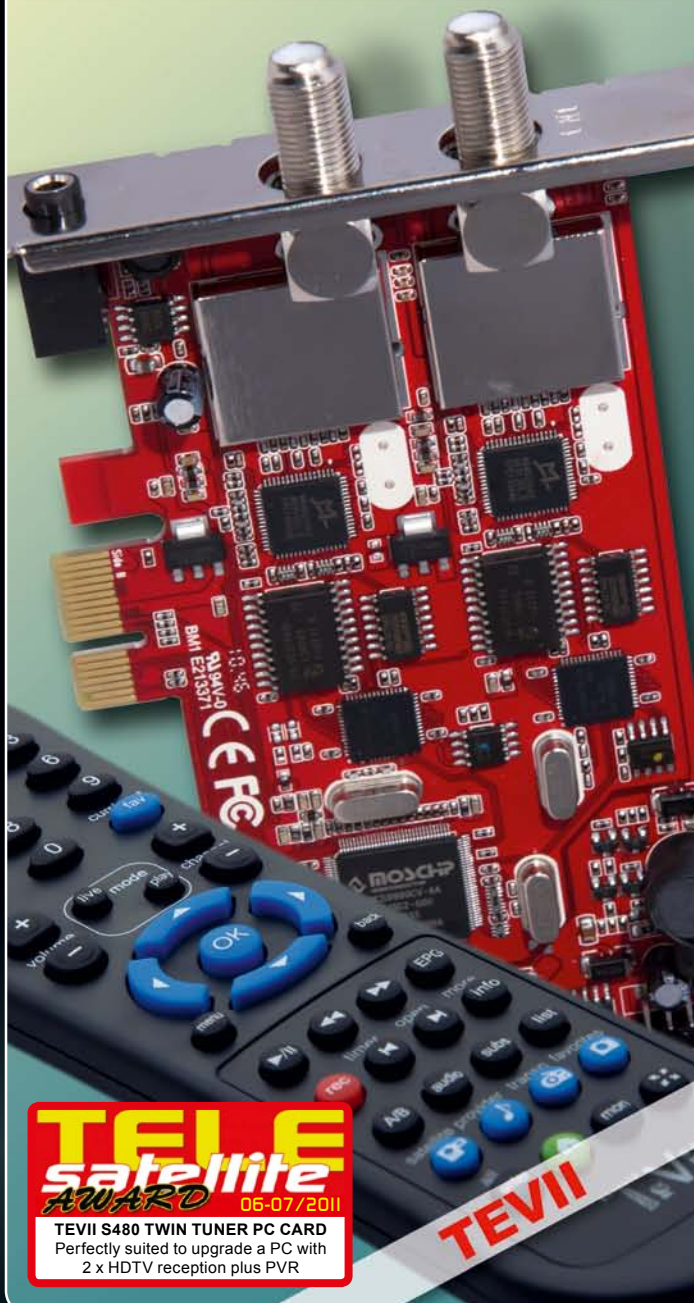


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Manufacturer	Tenow International
Website	www.tbsdtv.com
Function	PCI-E card for SDTV and HDTV with two separate tuners and PVR
Channel Memory	unlimited
Satellite Memory	176
Symbol Rates	1-45 Ms/sec (QPSK), 10-31 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2



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Perfectly suited to upgrade a PC with 2 x HDTV reception plus PVR



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12-01/2011
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Manufacturer	NetUP
Website	www.netup.tv
Function	Two Tuners DVB-S2 PCIe card
Channel Memory	unlimited
Satellite Memory	—
Symbol Rates	1 to 47 Ms/sec (QPSK), 1 to 31.5 Ms/sec (8PSK)
DiSEqC	1.0, 1.1, 1.2



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Manufacturer	TeVii Technology
Website	www.tevii.com
Function	PCI-E card for TV reception on the PC in SDTV and HDTV
Channel Memory	unlimited
Satellite Memory	177
Symbol Rates	2-45 Ms/sec
DiSEqC	1.0, 1.1, 1.2, 1.3



CHINA



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Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	Satellite Meter for Antenna Alignment
Frequency Range	L-Band (950-2150 MHz), DVB-S/S2 and analog signal
Video Output	Composite
Built-in Monitor	Color graphic LCD



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Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Signal meter for digital signals in DVB-S, DVB-T and DAB. Analogue signals in FM radio.
Frequency Range	46-870 MHz
Video Output	Composite
Built-in Monitor	120 x 64 3.5" LCD color display

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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Antenna Alignment Meter
Frequency Range	950-2150 MHz
Video Output	—
Built-in Monitor	LCD display



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



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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital and analog terrestrial TV meter with spectrum analyzer and USB data output
Frequency Range	49~861 MHz
Video Output	—
Built-in Monitor	LCD display



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French	Français	.../fra/satcatcher.pdf	Turkish	Türkçe	.../tur/satcatcher.pdf

Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Signal Meter for DVB-T, analogue TV, digital DAB radio, analogue FM radio
Frequency Range	46-870 MHz
Video Output	—
Built-in Monitor	120x64 3.5" LCD color display

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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	DVB-C and analog cable TV meter
Frequency Range	51-858 MHz
Video Output	—
Built-in Monitor	LCD display



SATCATCHER DIGIPRO T MAX
Easy to use signal meter that doesn't stop at DVB-T. Everything you want from a signal meter



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Manufacturer	8dtek Technology
Website	www.8dtek.com
Function	DVB Signal Meter with tv monitor for DVB-S and DVB-T
Frequency Range	950~2150 MHz (satellite) and UHF/VHF (terrestrial)
Video In/Output	RCA/RCA
Built-in Monitor	3.5" LCD color display



8DTEK

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Manufacturer	Trimax Technology
Website	www.trimaxtec.com
Function	Satellite Meter with TV and Spectrum
Frequency Range	930~2150 MHz
Video Output	RCA Composite
Built-in Monitor	3.5" LCD color display



TRIMAX

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

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



HORIZON NANOSAT
Ideal for the speedy alignment of
satellite antennas



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Future-proof satellite signal analyzer
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OPTISCAN

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Manufacturer	SatCatcher
Website	www.satcatcher.com
Function	Fully-fledged Signal Meter with TV display
Frequency Range	930~2150 MHz
Video Output	RCA Composite
Built-in Monitor	120x64 3.5" LCD color display



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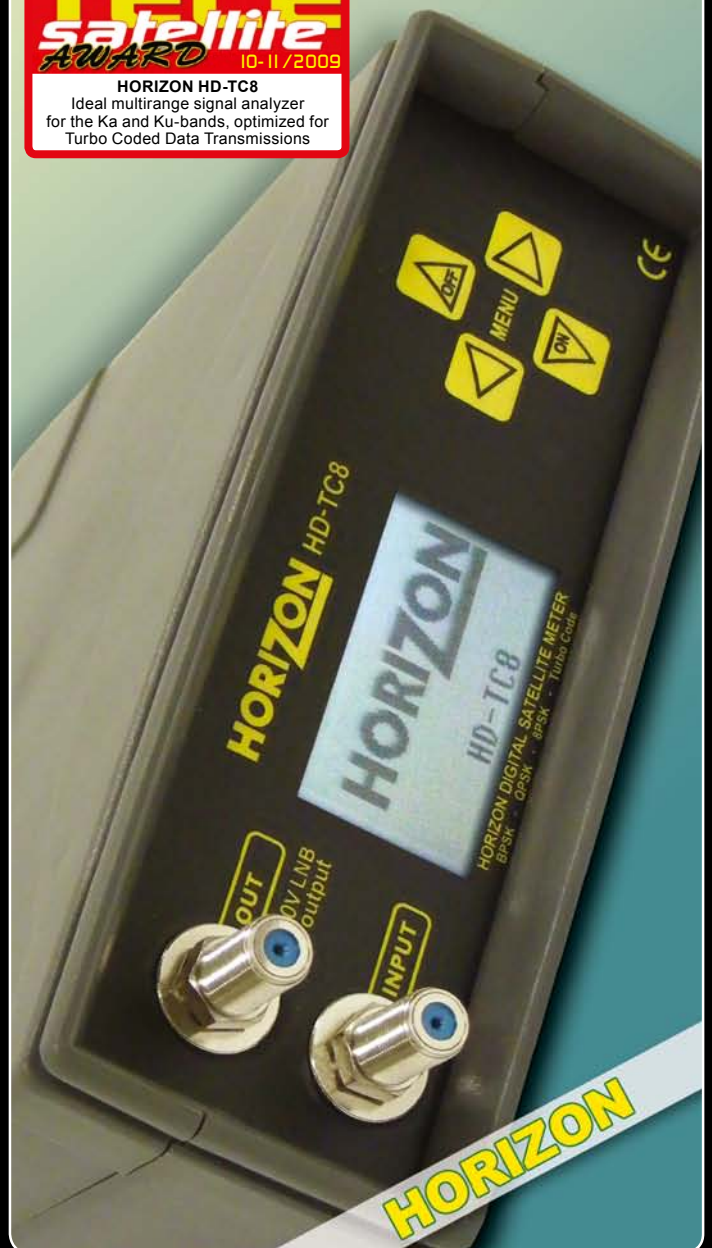
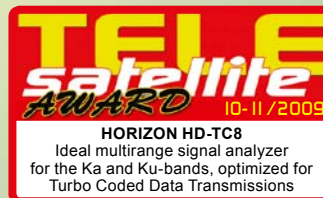


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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Satellite Meter optimized for Ka-Band
Frequency Range	950~2150 MHz
Video Output	—
Built-in Monitor	LCD display



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■ DEVISER's fiber optic R&D and manufacturing can be found in this building in Tianjin.



New on the Scene: DEVISER

- *Starting off with two satellite signal analyzers*
- *Over 20 years experience as a signal analyzer manufacturer*
- *Fabrication soon to be in a new building*
- *Their own R&D Team with highly qualified engineers*
- *Operates with all of the corresponding quality standards*

■ DEVISER's founder and President is Zhong Changgan. He started the company back in 1990.

DEVISER compliments its cable, telecommu- nications and fiber optic signal analyzer program with satellite technology



In October 2010, DEVISER began developing their first satellite signal analyzers. The result of this effort can already be found on store shelves: the basic S20 model for DVB-S satellite signal measurements. In July 2011 the follow-up model with a DVB-S2 tuner will appear and by October 2011 DEVISER is planning on a high-end S7000 model.

How does a company like DEVISER end up producing satellite signal analyzers? TELE-satellite paid a visit to the company in Tianjin, a large seaport located on the Chinese east coast.

The high-speed train traveled at 330 km/h and brought us from the brand new Beijing South train station to the equally brand new Tianjin train station. Tianjin is a city with more than 10 million inhabitants and is home to many different industrial companies.

Surprisingly, DEVISER is one of the oldest firms in Tianjin. It was founded under the name DELY back in 1990 by Zhong Changgan, an aircraft engineer. He explains to us: "Back then the first cable TV networks were being built up but there were no signal analyzers available." Zhong Changgan recognized this opportunity and

founded China's first manufacturer of cable TV analyzers. This product group still makes up most of their sales today. "80% of our signal analyzers are for cable TV", lists founder and President Zhong Changgan, "while 10% are for fiber optic cable and 5% are for telecommunications." The remaining 5% are expected to be made up of the newly started satellite signal analyzers.

Sales Director Overseas Markets Jason Wu explains to us where DEVISER delivers its products: "50% are shipped to the USA, 15% each goes to Europe and India with the remaining



■ DEVISER's new office and production represented by this architects model. In October 2011 DEVISER will move all departments currently housed in different locations throughout Tianjin, into this new building



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X-9100 Linux HD PVR

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Technical Specifications

MPEG Decoding
Transport Stream & Profile Level MPEG-4/H.264,
MPEG-2 MP@ML, MP@HL,
MPEG-4/AVC
Aspect Ratio 4:3 / 16:9
Output NTSC / PAL
Video Format 576i, 576p, 720p, 1080i

TUNER

Input frequency: 950MHz to 2150MHz
Input impedance: 75 ohms
Input level: -65dBm to -25dBm
Input socket: F type connector
LNB Power & Polarization: Horizontal: +18V;
Vertical: +13V;
Current: Max. 500mA; Short circuit protection
Band switch: 22KHz, DiSEqC

DEMODULATOR

Waveform: QPSK S2
Symbol rate: 2-45MS/s
Outer decoder: RS (204,188,8)
Code rate: 1/2,2/3,3/4,5/6,7/8

MAIN SYSTEM

CPU NXP8735 350Mhz
Flash Memory 64 Mbytes
SDram Memory 128 Mbytes

CONNECTION OUTPUT

TV SCART TV Video output (CVBS, RGB)
HDMI HD Video/Audio
Ethernet RJ45
A/V RCA CVBS
Digital Audio S/PDIF Digital Audio output RCA and
Fiber Optical

GENERAL

Supply voltage: 100-240VAC 50/60Hz
Power consumption: 20watts max.
Standby Power 3watts max.
Operation temperature: +5° to +40°
Storage temperature: -20° to +70°

Key Features

Based on NXP 8735E chipset
Ethernet function: YOUTUBE; INTERNET RADIO;
Linux Based !!!
Multi CAS Reader
1 Record 1 to watch in the same TP.
Full Media Player to support .AVI, .MKV, .MP4, .VOB, .MPG, .FLV, .wmv etc...
USB 2.0 PVR -- Record and play HDTV content
Real Timeshift -- do not miss any exciting moments.
Update software through USB interface.
Low Power --- 3 Watts
Support USB stick and Hard Drive Disk
Support WIFI dongle

Features

DVB-S/DVB-S2 Satellite Compliant (MPEG-II/ MPEG-IV/ H.264)
DiSEqC 1.0, 1.1, 1.2 & 1.3 (USALS) Compatible
SCPC & MCPC Receivable from C/Ku Band Satellites LNB Supported:
Variable Aspect Ratio (4:3,16:9) with Pan Vector or Letter Box
Output Resolution: 576p & 576i, 720p & 1080i
CAS reader
8 Favorite Group and Parent Lock Function
4 Kinds of Sort Function for Channels
On-screen Display with True full Color(32 bits) Resolution
Teletext and Subtitle Supported (OSD & VBI)
Blind Scan
7 days EPG (Electronic Program Guide) for On-Screen Channel Information
1 Scart, (RGB, CVBS)
Multi Language Menu
Supported FTP Download S/W, Channel List, Message and other additional
information.
OTA Download
Supported Unicable
8 favorite group and parental lock supported.
PIG-Small screen picture and zoom in function.
Supported setting timer, you can add up 8 timer event at most.
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 0.....250.....500
 Average Turnover (Previous, This, Next Year Estimates)
 0.....12.5.....25 Mio US\$

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 RoHS, CE, UL, ISO 10012, ISO 9001
 Production Categories
 OEM, own brand
 Main Products
 Signal Analyzers for Cable, Terrestrial, Telecommunications,
 Fiber Optic and Satellite, Spektrum Analyzers, Vector Network
 Analyzers, Broadcasting Measurement Instruments, QAM Meters

■ A friendly greeting awaits you at DEVISER's entrance. The company operates domestically under the name DELY Electronics Instruments. The brand name DEVISER is only used for exports. Some of the many certificates DEVISER has accumulated over the years are hanging here on the wall. Included in that assortment are internationally recognized certifications for ISO 90001 (Quality Management) and ISO 10012 (Quality Measurement Standards). In addition, DEVISER is also CE, ROHS and UL certified as well as many others.

20% finding their way to South Korea and other Southeast Asian countries." According to Jason Wu, "We only use the name DEVISER for our exports."

Who actually uses DEVISER's products? Jason Wu gives an overview of their customers: "It is primarily professional cable operators that need to set up and maintain large cable networks. You need professional signal analyzers for that." Of course this brings up the question as to why DEVISER began producing satellite signal analyzers. "Not too long ago we expanded into fiber optic cable", comments Jason Wu, "the only thing missing was satellite reception."

Considering that DEVISER has more than 20 years experience in this market, it should come as no surprise that of their 260 employees, 85 of them are engineers. Divided into four different R&D teams, these highly qualified engineers are constantly working

on improvements to their analyzers and on new product features as well as new product development such as the brand new satellite signal analyzers.

The success of these engineers can be seen in the production and sales numbers. "In our first year 1990 we produced roughly 100 units", remembers DEVISER founder Zhong Changgan, "in 2010 we reached sales of 30,000 units." This resulted in sales of about US\$ 20 million for 2010. "For 2011 we are expecting an increase in sales of 20%", says Sales Director Overseas Markets Jason Wu.

He bases this in part due to the new satellite signal analyzer sector: "We're expecting, for example, that the new S20 satellite signal analyzer will net us sales of about 15,000 units for the next three years and from the high-end S7000 model about 500 units per year."

Jason Wu already knows who wants to buy these analyzers: "We already have quite a few preorders. One customer in South America has placed an order for one thousand units and our distributors in Europe and India are in the process of forwarding orders to us." The confidence in the experience and expertise of the DEVISER engineers is so high that units are being sold before they are even manufactured. Even so, DEVISER is naturally open to additional buyers. "Distributors who have contact with satellite installers and local cable operators should send me an e-mail", suggests Jason Wu who is responsible for product exports.

If you want to meet Jason Wu in person, you can find him and DEVISER's Chief Engineer Cao Yuliang at a number of different trade shows such as CABSAT (Dubai), CCBN (Beijing), SCaT (Mumbai), Cable Tec (Atlanta), KCTA (Daegu) and many others. And if you want to know more about how their satellite signal analyzers work, you merely have to wait for the next issues of TELE-satellite: we will be presenting test reports of DEVISER's new analyzers in upcoming issues.



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- PVR, time shift
- CA optional with Topreal embedded, silicon security
- Fully support to 7 days EPG
- 2* USB 2.0 port: PVR function, MP3 & JPEG playback & software transfer
- Record one channel & watch another at the same time
- Support subtitle, teletext
- HDMI out with HDCP
- Other models available(DVB-C/S/T, MPEG-2/MPEG-4, HD/SD)

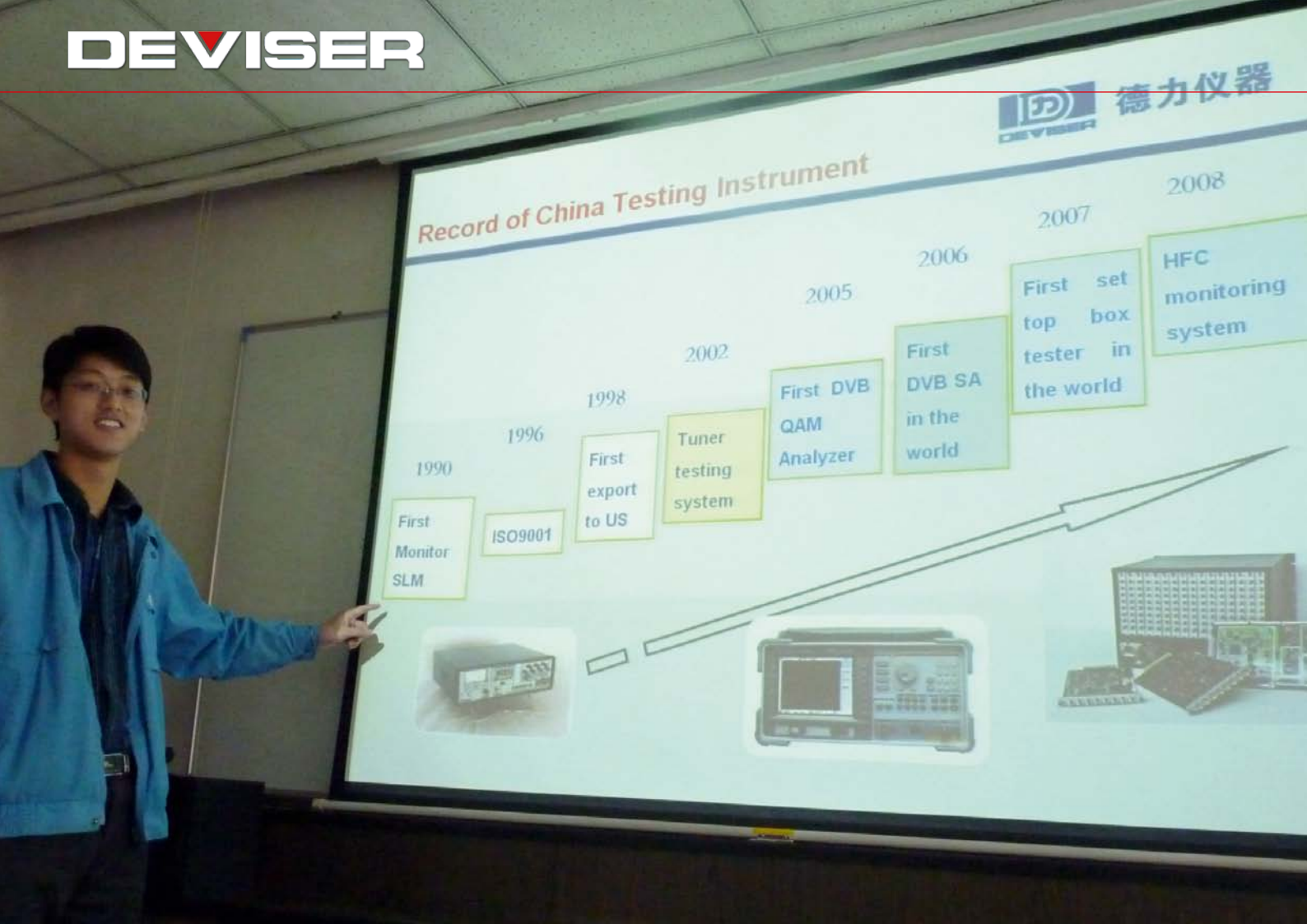
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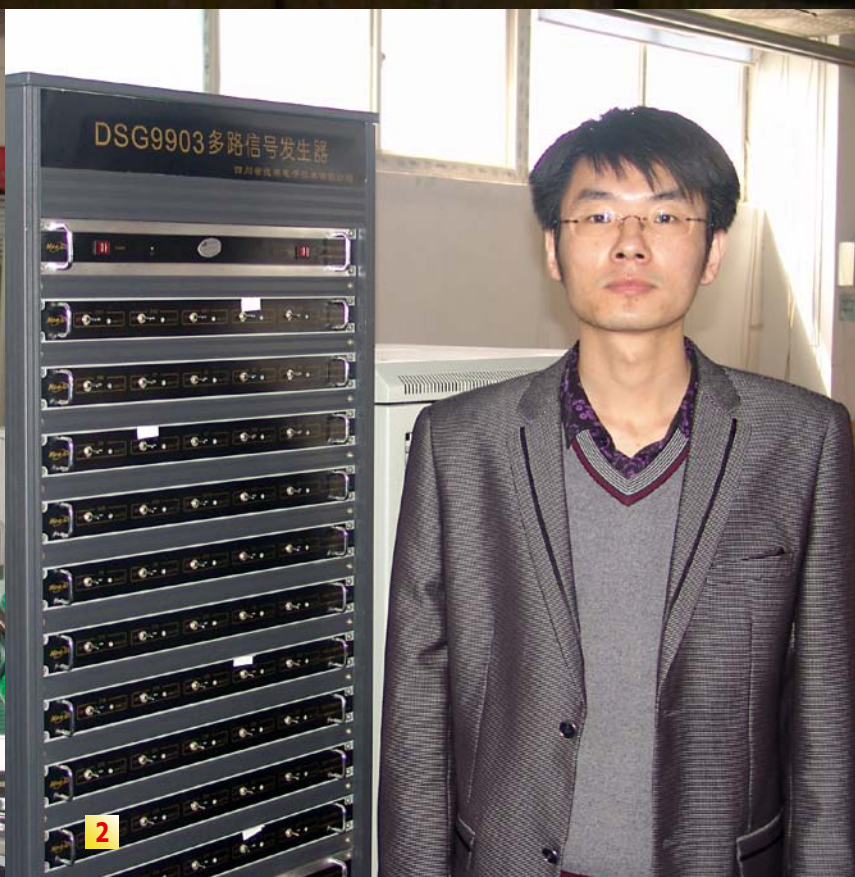


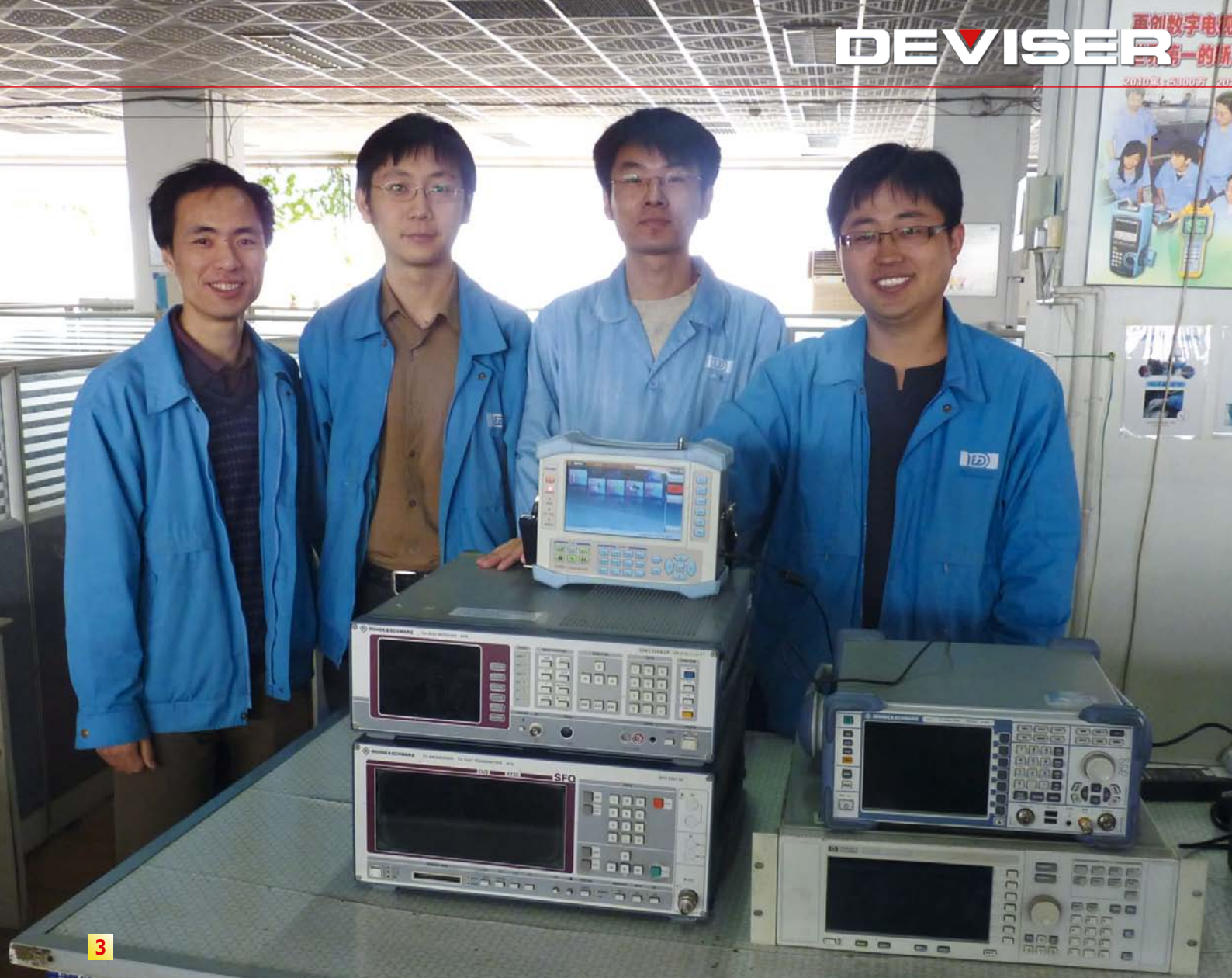
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We also offer value-add products like subtitle insertion system,EPG,STB advertisement service system,browser,channel tracing table.All the products fully comply with DVB standard.



■ Sales Director Overseas Markets Jason Wu highlights some of DEVISER's especially interesting product developments. In 2007 the company introduced a signal analyzer for receiver manufacturers. This product would be used during the production of a receiver and provides various signals that can be used to test the receiver at different stages of production.





3



4

R&D Team

1. Chief Engineer is Cao Yuliang. He coordinates the four R&D teams and is a contact person for customers at trade shows. He can provide the answers when customers have special requests or when they would like new features incorporated into the signal analyzers. He says, "DEVISER has invested over US\$ 1.5 million into the most modern technology to further develop new signal analyzers." The success of this strategy can be seen in the 30 patents that the DEVISER team has already received.
2. Division Manager for satellite and cable is Kong Xiangsen. He is standing here next to a modulator cabinet used to provide signals for analyzer testing.
3. The engineers proudly present one of the first samples of the new high-end S7000 satellite signal analyzer. To the far left is Chief Engineer Wang Zhiying and to the far right is Chief Software Engineer Wang Renping.
4. A signal analyzer also needs a housing. Anjinhao is the case designer at DEVISER and developed the housing for the new S7000 signal analyzer; on his desk are samples of other DEVISER signal analyzer types.

Sales Team



1



2



3

1. Jason Wu enjoys reading TELE-satellite. He is in charge of the Overseas Sales Team that is made up of four employees. He travels often and can be found at many trade shows at the DEVISER stand.
2. Customers in Asia contact Aaron.
3. Vicky Han is the contact for customers in North America.

Production

4. Production Manager is Li Hong Xiao. He oversees the 100 employee strong production staff and distributes work loads among his workers. We see him here next to a signal generator that is used when a production series is complete to calibrate and test for proper function of the units.

5. A look in the stock room entrance. Employees here watch over the many components needed for the production of many different signal analyzer models.

6. A section of the production area. The signal analyzers are produced in small assembly lines and test stations.



4



5



6



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- PVRready. Direct recording via USB on external storage media possible
- HDTV & SDTV
- 1 x smart card reader
- EPG (7 days in advance)
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- optical signal to the align the antenna
- 5000 Program presets
- Multilingual screen menu
- HDMI out with HDCP
- Radio reception with background display

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FEATURES:

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- Easy find software (works only in conjunction with easy find LNB)
- 5000 Program presets
- HDMI out with HDCP





7



8

Production

7. The SMT machine. Components are automatically put in place here.

8. Testing takes place after production. The AOI (Automatic Optical Inspector) performs a visual inspection automatically.

9. Many tasks have to be handled manually. Tuners are being assembled here.

10. Signal analyzer covers are completed here.

11. Here an employee is testing the signal analyzer.

12. One of the many test stations where completed signal analyzers are tested for proper operation.

13. Before the housing sections are put together, an employee performs a complete test of a signal analyzer.

14. The signal analyzer is complete but does it work correctly? In Final Test various parameters are checked with high-quality signal generators to calibrate the analyzer.

15. Completed units are fitted with batteries and charged here for 36 hours.



9



10



11



12



13



14



15



16

Quality Control

16. One unit is pulled from each production run and put through a series of special tests. Every possible parameter is checked and compared to desired values. This guarantees consistent quality in DEVISER's signal analyzers.

17. Highly professional cable signal analyzers valued at several thousand dollars are also manufactured by DEVISER and, just like all the other units, undergo an aging test. The analyzers must remain within all tolerance limits throughout the aging test during which a variety of measurement tests are performed to verify that tolerance limits are not exceeded.

All of DEVISER's analyzers have an operational life span of over 10,000 hours.



17



18

Quality Control

18. DEVISER analyzers in an age test with broadband monitors. Various signals are periodically applied in order to test the analyzer's measurement of these signals.

19. DEVISER analyzers are not only used at room temperature. For this reason, every unit must undergo an environmental test. The analyzers must perform correctly in temperatures up to 50°C. This employee is performing an environmental test using multiple signal generators.

20. Because of the many different signal analyzer models manufactured by DEVISER, a large number of signal generators are also needed. A selection of these generators are available in this room where production samples are tested.

21. Spectrum analyzers are tested in another room. Various spectrums are generated that the DEVISER signal analyzer must display correctly.

22. If a DEVISER analyzer should happen to fail after many years of service, After Sales Manager Yue Tianhong is the right person to talk to. With her six repair technicians, she can bring every DEVISER signal analyzer back to life.



19



20



21



22

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COMPANY REPORT
DEVISER's Fiber Optic R&D and Manufacturing Building

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DEVISER

Neu auf dem Markt: DEVISER

- Start mit zwei Satelliten Messgeräten
- über 20 Jahre Erfahrung als Messgerätehersteller
- konzentriert Fabrikation bald in neuem Gebäude
- eigene R&D Teams mit hochqualifizierten Ingenieuren
- verfügt über alle einschlägigen Qualitätssiegel

Gründer und Präsident von DEVISER ist Zhong Changgan. Er startete das Unternehmen 1990.

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Im Oktober 2010 hatte der Messgerätehersteller DEVISER begonnen, seine ersten Satelliten Messgeräte zu entwickeln. Das Ergebnis dieser Anstrengungen gelangt derzeit in den Handel: das Basismodell S20 für Messungen von DVB-S Signalen. Im Juli 2011 soll das Nachfolgemodell mit einem Tuner für DVB-S2 folgen und für den Oktober 2011 hat DEVISER das High-End Satelliten Messgerät S7000 angekündigt. Wie kommt ein Unternehmen wie DEVISER dazu, neue Satelliten Messgeräte zu

entwickeln? TELE-satellite besuchte die Firma in Tianjin, einer großen Hafenstadt an der chinesischen Ostküste.

Der Schnellzug bringt uns mit 330 km/h vom nagelneuen Bahnhof Beijing South zum ebenso nagelneuen Bahnhof in Tianjin, einer Stadt, die mit mehr als 10 Millionen Einwohnern Standort für viele Industrieunternehmen ist. Überraschenderweise ist DEVISER eines der ältesten Unternehmen in Tianjin. Ge-gründet wurde DEVISER unter dem Namen DELY

bereits 1990 und zwar von Zhong Changgan, einem Flugzeug Ingenieur. Er erzählt uns: „Damals wurden in China die ersten Kabel-TV-Netze aufgebaut, aber es gab keine passenden Messgeräte.“ Zhong Changgan erkannte die Chance und gründete Chinas erste Fabrikation für Kabel-TV-Messgeräte. Diese Produktgruppe macht auch heute noch den größten Anteil der gesamten Produktion aus. „80% unserer Messgeräte betreffen Kabel-TV,“ listet DEVISER Gründer und Präsident



Zhong Changgan auf, „10% betreffen Messgeräte für optische Kabel und 5% Messgeräte für die Telekommunikation.“ Die übrigen 5% gelten dem erwarteten Anteil des neu gestarteten Bereichs der Messgeräte im Satellitenbereich.

Vom Sales Director Overseas Market Jason Wu erfahren wir, wohin DEVISER seine Produkte liefert. „30% unserer Pro-

dukte gehen in den Export," sagt Jason Wu und listet auf: „50% liefern wir in die USA; jeweils 15% nach Europa und nach Indien und die restlichen 20% teilen sich auf Korea und weitere Länder Südostasiens auf.“ Jason Wu macht uns auf noch etwas aufmerksam: „Wir benutzen den Markennamen DEVISER nur für den Export.“ Wer genau benötigt eigentlich die Geräte von DEVISER? Jason Wu gibt einen Überblick über die Kunden: „Es sind vor allem die professionellen Kabelbetreiber, die große Netze aufbauen und pflegen. Dafür werden professionelle Messgeräte benötigt.“ Diese Erläuterung liefert nebenbei auch die Begründung, warum DEVISER nun damit begonnen hat, Satelliten-Messgeräte in die Produktion mit aufzunehmen. „Vor einiger Zeit haben wir bereits den Bereich optische Kabel aufgenommen," er-

läutert Jason Wu, „jetzt fehlte noch der Bereich Satellitenempfang.“

Da DEVISER mit mehr als 20 Jahren Erfahrung auf dem Markt ist, überrascht es nicht, dass von den 260 Mitarbeitern des Unternehmens alleine 85 eine Qualifikation als Ingenieur haben. Aufgeteilt in vier R&D Teams arbeiten diese hochqualifizierten Mitarbeiter ständig an Verbesserungen der Messgeräte und an neuen Erweiterungen und Ergänzungen - und an neuen Produktgruppen wie den brandneuen Satelliten Messgeräten. Dass die Ingenieure sehr erfolgreich dabei sind zeigt sich an den Produktions- und Verkaufszahlen. „Im ersten Jahr 1990 produzierten wir etwa 100 Geräte," erinnert sich DEVISER Gründer Zhong Changgan, „im Jahre 2010 waren es bereits 30000 Geräte.“ Das ergab für 2010 einen Umsatz von etwa

20 Millionen US-Dollar. „Für 2011 erwarten wir eine Umsatzsteigerung von 20%“, ergänzt Sales Director Overseas Sales Jason Wu und begründet dies mit einem Hinweis auf die neue Sparte der Satellitenmessgeräte: „Wir erwarten z.B. vom neuen Satellitenmessgerät S20 in den nächsten 3 Jahren einen Absatz von 15000 Geräten und vom High-End Messgerät S700 gehen wir von 500 Geräten pro Jahr aus.“

Jason Wu weiss auch schon, wer diese Geräte abnehmen wird: „Uns liegen bereits viele Vorbestellungen vor. Ein Kunde in Südamerika hat bereits Tausende Geräte bestellt und unsere Distributoren in Europa und Indien sind dabei, uns ihre Bestellungen zu übermitteln.“ So groß ist das Vertrauen in die Erfahrung und Expertise der DEVISER Ingenieure, dass die Geräte schon verkauft sind,

bevor die Produktion startet. Trotzdem ist DEVISER natürlich offen für weitere Abnehmer. „Distributoren mit Kontakt zu den Satelliten-Installateuren und den lokalen Kabelbetreibern sollten mir eine Email senden," meint Jason Wu, in dessen Zuständigkeit der Export der Geräte fällt.

Wer Jason Wu persönlich treffen will, kann ihn und DEVISER's Chief Engineer Cao Yuliang auf vielen der einschlägigen Messen wie CABSAT (Dubai), CCBN (Beijing), SCaT (Mumbai), Cable Tec (Atlanta), KCTA (Daegu) und vielen weiteren treffen. Und wer genaueres über die Funktion der Satelliten Messgeräte wissen will, der kann auf die weiteren TELE-satellite Ausgaben warten: die TELE-satellite Testredakteure bereiten die Tests der neuen DEVISER Geräte für die kommenden Ausgaben vor.

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AMIKO's Start



- *their own production in Hungary*
- *direct sales offices in all central European countries*
- *intensive cooperation with component supplier FULAN*
- *automatic receiver software updates and constant further development*
- *in-house R&D team and in-house technical service*



How a New Receiver Brand Comes Into Being

In the last issue of TELE-satellite we introduced the first Dual Boot receiver from AMIKO: the user can choose which operating software to use in his receiver. This is a remarkable innovation in that it separates the hardware (the receiver itself) from the software (used to operate the receiver).

But there's more: Spark was put into service for the first time with any receiver. This not only provides for automatic receiver updates but it also allows the manufacturer to directly communicate with the end user. The applications for this new technology appear to be numerous; it's really not known as yet how far reaching this can be.

But who's behind AMIKO? In a newly developed industrial zone northeast of

Hungary's capital Budapest, AMIKO has its home. It consists of an administration building and an attached warehouse. AMIKO ships its receivers from here to countries in central Europe. AMIKO moved into this brand new building only at the end of 2010; before that AMIKO was located in downtown Budapest.

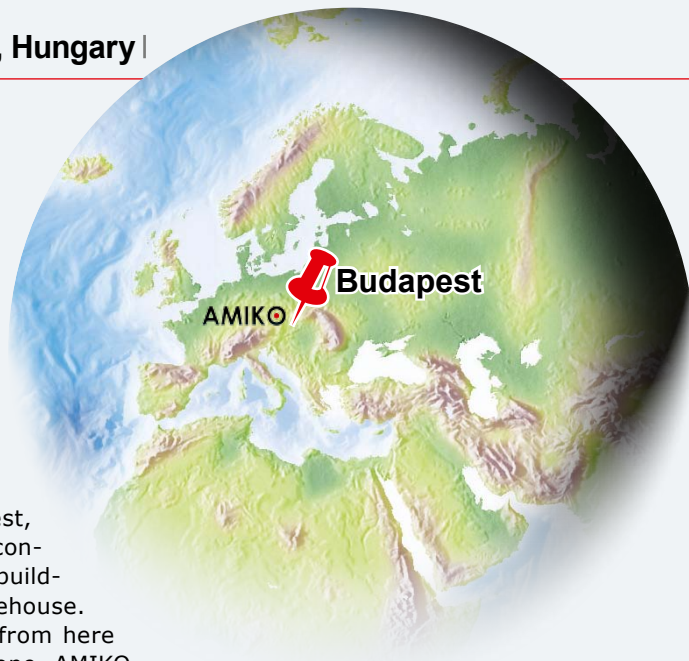
AMIKO's founders have known each other for quite some time: "We met back in 1995", remembers Financial Manager Zsolt Harangi. They were both involved in the satellite industry with different companies. "Back then it was all still analog technology", recalls József Zsimán. Then the digital age began and at some point the two of them felt the time was right to take things into their own hands.

"We started with four employees", explains József Zsimán. Today there are 14 employees in their Budapest office. Their sales have expanded

to include customers in neighboring countries where you'll also find the remainder of AMIKO's employees: 17 in the Czech sales office, eight in Romania, four in Serbia as well as six more in local sales offices in Hungary. And let's not forget the employees in the receiver production line. Since production is not continuous, the number of employees varies between 20 and 40.

When the business first started, the two partners focused on being a satellite wholesaler. They distributed digital receivers from a variety of manufacturers as well as everything else an installer needs: LNBs, dishes, multi-switches and cable. This business still makes up a part of their sales today. "In 2010 50% of our sales were whole-

■ The building in the foreground contains the offices for sales, administration, R&D and service. Their products are shipped from the attached warehouse. The company is ISO certified by TÜV.



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sale with the other 50% consisting of our own receiver brands", explains Financial Manager Zsolt Harangi.

For 2011 though the picture looks quite different: "We expect for the current year that our receiver brands will make up 70% of our sales while our wholesale business will drop to 30%", comments Zsolt Harangi.

The AMIKO brand name is very new.

József Zsimán explains, "In 2010 we founded two brand names: AMIKO for retail and SYNAPS for operators." SYNAPS offers DVB-C and DVB-T receivers for cable and other programming providers. AMIKO is a brand name for the retail market. "We are working very close together with FULAN in China. They provide us with most of our receiver components", explains Marketing Manager József Zsimán. The receivers are assembled on a production

line in Budapest. "We have achieved excellent quality in our production", he continues, "The components from FULAN are already of the highest quality and our own quality assurance team checks it all once again."

Even more important with having your own production line and your own receiver brand is having the customer rely on you. In their many years of experience the two owners have seen

1



it all before: suppliers shifted their production elsewhere and customers would contact the dealer and complain why they can't get any spare parts or service anymore. "This can't happen with our products", comments József Zsimán, "We have a fully stocked spare parts warehouse from which we can deliver any possible component for every receiver to our customers. We'll be able to do this for years to come." If you control your own production line, you can make statements like that. But this was only one of the reasons why AMIKO decided to produce their own products.

By sheer coincidence, József Zsimán received a telephone call at that very moment in our interview: the AMIKO technicians found a software bug in the newest version and immediately forwarded this information to the component provider FULAN in China. It's 2PM in Budapest and within minutes an answer came from China: "We're working on it." József Zsimán looks up from his mobile telephone: "This is exactly what makes our cooperation with FULAN so perfect: immediate reaction to a problem despite the six-hour time difference with China!" AMIKO and FULAN are two companies that are perfect for each other; energetic production and distribution here with component manufacturing there.

1. Marketing Manager of AMIKO is József Zsimán.

2. Zsolt Harangi is happy with the sales figures. He is AMIKO's Financial Manager.

2



József Zsimán sees it all realistically: "We find ourselves in stiff competition with other providers but over the long term success will only be for those who provide the best products and offer the best service." According to József Zsimán, the decision on what receiver the customer uses doesn't rest with the customer but rather with the installer or dealer: just from using the receivers themselves, installers and dealers can recommend a specific brand that provides the best service. It doesn't help the situation if a customer comes back with complaints after only a short time.

József Zsimán says that the accuracy of his statements is proven simply by the consistent, short-term growth of his young company AMIKO.

This increase is above all the result of the speedy development of AMIKO receiver sales. The geographical distribution of these sales is especially interesting. Oddly enough the home market in Hungary is not the biggest; in fact, at about 20%, The Czech Republic, Slovakia and Romania are at the top with Hungary in fourth place at about 15%.

The fact that AMIKO is so well placed in these countries is due in large part to their active business policy: "We have sales offices in The Czech Republic, Romania, Serbia and even here in Hungary", explains József Zsimán why sales are so good in these countries.

In other central European countries AMIKO has very tight relationships with wholesalers. József Zsimán lists them: "This includes Bulgaria, Croatia, Bosnia & Herzegovina, Slovakia, Greece, Slovenia as well as the three Baltic states." And that's not all: "In 2011 we'll be begin distribution in the Ukraine with a local dealer there and in 2012 we plan to go into Albania." AMIKO is continuously in expansion mode.

But we weren't only interested in how AMIKO is spread out geographically; we also wanted to know what they have planned for their receivers. This was a question that József Zsimán was only too happy to answer: "In the

3. Márton Lengyel is Sales Manager and runs a team of 6 Sales Representatives.

4. Beata Karsai is responsible for sales and logistics.





1



2

third quarter the AMIKO ALIEN.2 will appear with an even more powerful chipset. Aside from that, we are always expanding our receiver software with new features."

József Zsimán highlights these features for us that should appear later this year: "Web browser, WiFi, Flash Support, NTFS, USB Hub and Messaging." Owners of AMIKO ALIEN receivers should be happy; these new features will appear on their own in their receivers thanks to the automatic software update feature.

Can we expect to see any other surprises from AMIKO? József Zsimán reveals a little from their second receiver line, SYNAPS, that are used by cable and programming providers: "By the end of 2011 we will also be offering receivers with chipset pairing." In this way AMIKO can service

1. The R&D team in the well-stocked engineering room.
2. An AMIKO technician checking for problems. Once a problem has been localized, production is adjusted to prevent the problem from reappearing.

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■ The large warehouse right next to AMIKO's administration building. Not only are AMIKO receivers shipped from here, but you'll also find satellite components stored here (LNBs, dishes, multiswitches, cable) that AMIKO as a wholesaler ships to installers and shops.

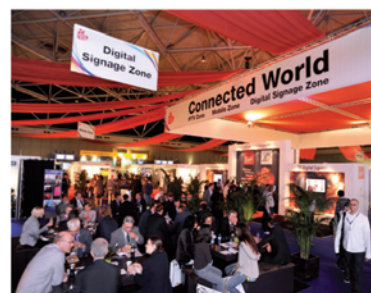
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- **range of production training opportunities** to further your career
- **Awards Ceremony** – recognises those who have made a real contribution to the industry and whose careers have had a positive impact on its future direction



programming providers that also use this technology.

Are the two AMIKO managers at all concerned that TV manufacturers will someday integrate receivers into their products? "As soon as more functions are needed or an expanded frequency range needs to be received, for example, satellite TV, then the only solution

would be to have a separate receiver," comments József Zsimán.

He is convinced that AMIKO with its receivers and above all with its line of new ALIEN receivers will carve a path that will allow it to continuously expand and bring with it extreme growth potential. We can only agree with that!

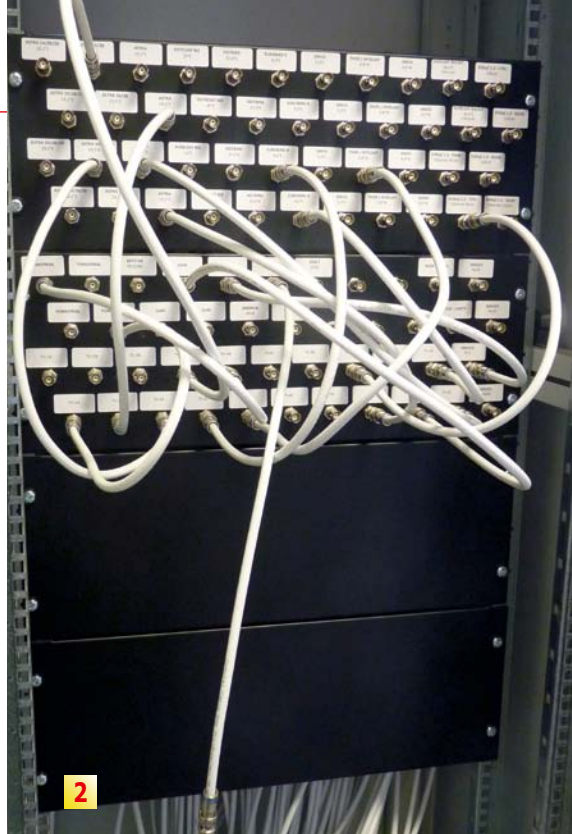
■ The satellite dishes on AMIKO's roof have been installed in a very organized fashion. Zsolt Bornemissza is the R&D team leader and explains to us what's to be seen here: "Here you'll find five 85cm antennas, each fitted with a DiSEqC motor. There are also two 1.25-meter dishes, one with an actuator motor and the other fixed in place and aligned with 36E and equipped with a circular Ku-band LNB."



1



2



1. A Toroidal antenna with 9 Quattro LNBs rounds out this dream satellite antenna setup.

2. All of the satellite antenna cables find their way to this switching cabinet. The antenna connections come into the top half of the cabinet with all of the output lines coming out the lower half of the cabinet going to each work station and to the demonstration monitors. In this way each work station and each monitor can be supplied with an individual satellite signal: you just have to plug into the proper bridging cable. The easy-to-read labeling on all the connections makes it all simple and easy to use.

Fabrication at AMIKO

1



2



1. A look in the production area: AMIKO employees assemble the receivers here.

2. The completed receivers are individually tested before they are packed.

China Satellite

China Satellite 2011

Hotel Nikko New Century Beijing, China

CONFERENCE: October 27-28, 2011

EXHIBITION: October 26-28, 2011

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COMPANY REPORT
該公司報導由衛星廣播製作

Receiver Hersteller AMIKO, Ungarn |

AMIKO

Der Start von AMIKO

- eigene Produktion in Ungarn
- direkte Verkaufsbüros in allen Ländern Zentraleuropas
- intensive Zusammenarbeit mit dem Komponentenlieferanten FULAN
- automatischer Update der Receiversoftware und ständige Weiterentwicklung
- eigenes R&D Team und eigener technischer Service



Download this report in German

www.TELE-satellite.com/TELE-satellite-1107/deu/amiko.pdf

In der vorherigen Ausgabe der TELE-satellite stellten wir von AMIKO den ersten Dual Boot Receiver vor: der Benutzer kann wählen, mit welcher Betriebssoftware er seinen Receiver benutzen will. Dies ist eine wegweisende Innovation, denn sie trennt die Hardware (den eigentlichen Receiver) von der Software, mit der der Receiver bedient wird.

Aber es geht noch weiter: erstmalig kam bei diesem Receiver Spark zum Einsatz. Damit kann nicht nur die Receiver-Software automatisch upgedated werden sondern der Hersteller kann nun auch mit dem Benutzer des Receivers auf direktem Wege kommunizieren. Die Anwendungen für diese neue Technologie sind so vielfältig, dass derzeit noch

gar nicht abzusehen ist, was damit noch alles möglich sein kann.

Aber wer steckt hinter AMIKO? In einem neu erschlossenem Gewerbegebiet im Nordosten von Ungarns Hauptstadt Budapest finden wir AMIKO. Es handelt sich um ein Verwaltungsgebäude mit einem angebauten Lagerhaus. Von hier aus verschickt AMIKO die Receiver in die Länder Zentraleuropas. Erst Ende 2010 ist AMIKO in dieses nagelneue Gebäude gezogen, zuvor war AMIKO im Zentrum Budapests zuhause.

Die AMIKO Gründer kennen sich schon seit langem: „Wir lernten uns 1995 kennen“, erinnert sich Financial Manager Zsolt Harangi. Beide waren in unterschiedlichen Unternehmen der Satellitenbranche tätig. „Das

war damals alles noch in Analogtechnik,“ blickt József Zsimán auf die alten Zeiten zurück.

Irgendwann startete das Digitalzeitalter und es kam der Moment, als beide das Gefühl hatten, es wäre an der Zeit, die Dinge selbst in die Hand zu nehmen.

„Wir waren am Anfang 4 Mitarbeiter,“ erzählt József Zsimán. Heute sind es in der Zentrale in Budapest 14 Mitarbeiter und der Kundenkreis hat sich auf die umliegenden Länder Ungarns vergrößert. Dort arbeiten auch die übrigen AMIKO-Mitarbeiter: 17 im Verkaufsbüro in der Tschechien, 8 in Rumänien, 4 in Serbien sowie 6 weitere im eigenen Verkaufsbüro in Ungarn. Dazu kommen noch die Mitarbeiter in der Produktionslinie für Receiver-Fertigung.



Da hier nicht kontinuierlich gefertigt wird, schwankt die Mitarbeiterzahl zwischen 20 und 40.

Beim Start der Firma konzentrierten sich die beiden Partner auf die Rolle als Satelliten-Fachgroßhandel. Sie vertrieben Digital-Receiver verschiedener Hersteller und alles, was sonst ein Installateur benötigt: LNB, Spiegel, Multiswitches, Kabel. Der Großhandel macht heute noch einen Teil des Umsatzes aus. „In 2010 erzielten wir 50% des Umsatzes im Großhandel und die anderen 50% mit unseren eigenen Receivermarken,“

erklärt uns Financial Manager Zsolt Harangi.

Für 2011 sieht dies aber schon ganz anders aus: „Wir erwarten für das aktuelle Jahr eine Verschiebung unseres Umsatzes auf 70% für unsere eigenen Receivermarken und nur noch 30% auf den Großhandelsumsatzes,“ vermerkt Zsolt Harangi.

AMIKO ist eine sehr junge Marke. Kószef Zsimán erläutert: „In 2010 haben wir zwei Marken gegründet. AMIKO für den Einzelhandel und SYNAPS als Marke für die Betreibergesellschaften.“ SYNAPS bietet Receiver für DVB-C und DVB-T für Kabel- und sonstige Programmbetreiber. AMIKO aber ist die Marke für den Einzelhandel. „Wir arbeiten eng zusammen mit FULAN aus China. Von dort beziehen wir die meisten Komponenten unserer Receiver,“ erläutert Marketing Manager József Zsimán.

Fertiggestellt werden die Receiver in einer Produktionslinie in Budapests. „Wir erreichen eine exzellente Qualität in der Produktion,“ ergänzt er, „denn die Komponenten von FULAN sind erstens sowieso von höchster Qualität und unsere eigene Qualitätssicherung überprüft dies nochmal.“

Der tiefere Sinn einer eigenen Produktionslinie und

einer eigenen Receivermarke ist, für den Kunden verlässlich zu sein. In der langjährigen Erfahrung der beiden Firmeninhaber haben sie die Realität kennengelernt: immer wieder kam es vor, dass Lieferanten ihre Produktion umstellten und die Endkunden sich dann beim Händler beschwerten, warum sie keine Ersatzteile bzw keinen Service mehr bekämen. „Das kann bei unseren Geräten nicht passieren,“ betont József Zsimán, „wir verfügen über ein umfangreiches Ersatzteillager und können für alle unsere eigenen Receiver jedes Bauteil nachliefern - und das auch noch in Jahren.“

Wer die Produktion in eigenen Händen hat, kann solche Aussagen treffen. Aber das war nur einer der Gründe, warum sich AMIKO entschieden hat, selbst in die Produktion eines eigenen Gerätes einzusteigen.

Wie auf Kommando erhält József Zsimán in diesem Moment unseres Gesprächs einen Telefonanruf: die AMIKO-Techniker haben einen Software-Bug in der neuesten Version gefunden und diesen Bug sofort an FULAN in China als den Lieferanten der Komponente weitergeleitet. Es ist in Budapest 14:00 Uhr nachmittags und prompt kommt aus China die Rückmel-

dung: „Wir arbeiten dran.“ József Zsimán blickt von seinem Mobiltelefon auf und betont: „Genau das ist es, was die Zusammenarbeit mit FULAN so angenehm macht: bei Problemen wird sofort reagiert, obwohl es zu China eine Zeitdifferenz von 6 Stunden gibt!“ AMIKO und FULAN sind also zwei Firmen, die sich optimal gefunden haben, hier der engagierte Vertrieb mit Produktion, dort der Hersteller der Komponenten.

József Zsimán sieht die Lage realistisch: „Wir befinden uns in einem harten Wettbewerb mit anderen Anbietern, aber auf Dauer wird nur der Erfolg haben, der die besten Geräte und den besten Service bietet.“ Die Entscheidung, welchen Receiver der Kunde benutzt, trifft nach Meinung von József Zsimán im echten Leben nicht der Kunde, sondern der Installateur bzw Fachhandel: „Schon aus Eigennutz wird jeder Installateur und Fachhändler die Marken bevorzugen, die ihm den besten Service bieten, denn es nützt nichts, wenn der Endkunde nach kurzer Zeit mit Beschwerden zurückkehrt.“

Die Richtigkeit seiner Annahmen kann József Zsimán sogar belegen durch den stetigen und raschen Aufstieg des nur wenige Jahre

alten Unternehmens AMIKO.

Der Anstieg kommt vor allem von der rasanten Entwicklung der Verkaufszahlen der AMIKO-Receiver. Interessant ist übrigens, wie sich der Verkauf geografisch verteilt. Der Heimatmarkt Ungarn ist gar nicht mal der größte Markt, sondern zu fast gleichen Teilen (jeweils etwa 20%) sind dies die Tschechei, Slowakei sowie Rumänien. Erst an vierter Stelle folgt mit 15% Anteil am Gesamtumsatz Ungarn.

Dass AMIKO in diesen Ländern so gut verteten ist, liegt auch an der aktiven Geschäftspolitik: „Wir haben in der Tschechei, Rumänien, Serbien sowie auch hier in Ungarn eigene Verkaufsbüros,“ liefert József Zsimán die Erklärung, warum in diesen Ländern der Verkauf so gut läuft. In anderen Ländern Zentraleuropas ist AMIKO mit lokalen Großhändlern in enger Geschäftsbeziehung. József Zsimán listet auf: „Das betrifft Bulgarien, Kroatien, Bosnien & Herzegowina, Slowakei, Griechenland, Slowenien sowie die drei baltischen Staaten.“ Das ist noch nicht alles: „In 2011 werden wir den Vertrieb in der Ukraine mit einem dortigen Großhändler starten und für 2012 ist der Start für Albanien geplant.“ AMIKO ist kontinuierlich dabei, sich zu erweitern.

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Perforated Dishes from Algeria

Alexander Wiese



With a new series of satellite dishes made out of perforated metal, Algerian manufacturer BYA Electronic wants to start an export offensive. Are there reasons to expect success in the strongly contested satellite dish market? It won't be easy for BYA, but there are several reasons which would make one optimistic. Slimane Ait Yala, founder of BYA, gives us the reasons for this optimism.

BYA
Dish and Receiver Manufacturer, Algeria
www.bya-electronic.com

Company Details

Engineers in Research & Development | Total Number of Employees
0 **75** **150**
 Average Turnover (Previous, This, Next Year Estimates)
0 **5** **10 Mio €uro**

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 RoHS, DVB
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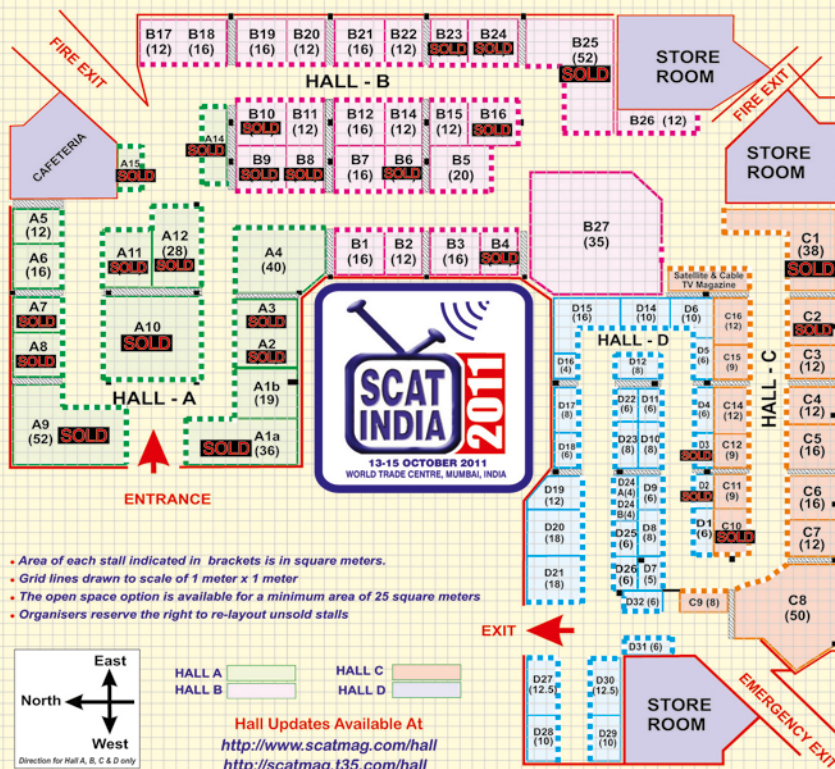
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YOUR COMPETITORS WILL ALL BE THERE, WILL YOU?



**Ain El Bia
(Oran, Algeria)**

The 16,000 squaremeter production plant can be found in the city of Ain El Bia. This city, with 20,000 inhabitants, is located about 35km east of the second largest city in Algeria: Oran with roughly 1.6 million people. The Port Arzew harbor is right next to Ain El Bia; this is where Algeria's national oil company Sonatrach loads its oil tankers.

And this is the first reason why Slimane Ait Yala is confident that the dishes he manufactures will be successful in the export market: "Algeria is an oil-producing country", he explains, "and that means that the energy costs in Algeria are very low." He follows right away with the second reason: "Wages in Algeria are also very low; the official minimum wage is about 100 Euros."

Aside from that, the necessary metal for their dish production is produced domestically. All of these rea-

sons together make for quite an argument that exporting his dishes is a good move to make. Slimane Ait Yala: "I was just at the Canton trade show in southern China and found out that our prices are competitive." And there's still another reason: BYA is not a small company; they produce quite a few other products and thus have plenty of experience as a manufacturer.

BYA was founded in 1993. Back then



■ Slimane Ait Yala is General Manager (PDG: Président Directeur Général) and founder of BYA. BYA actually gets its name from the name of the location: Ain El Bia. Bia was converted to BYA.



■ BYA's production facility in Ain El Bia east of Oran in Algeria

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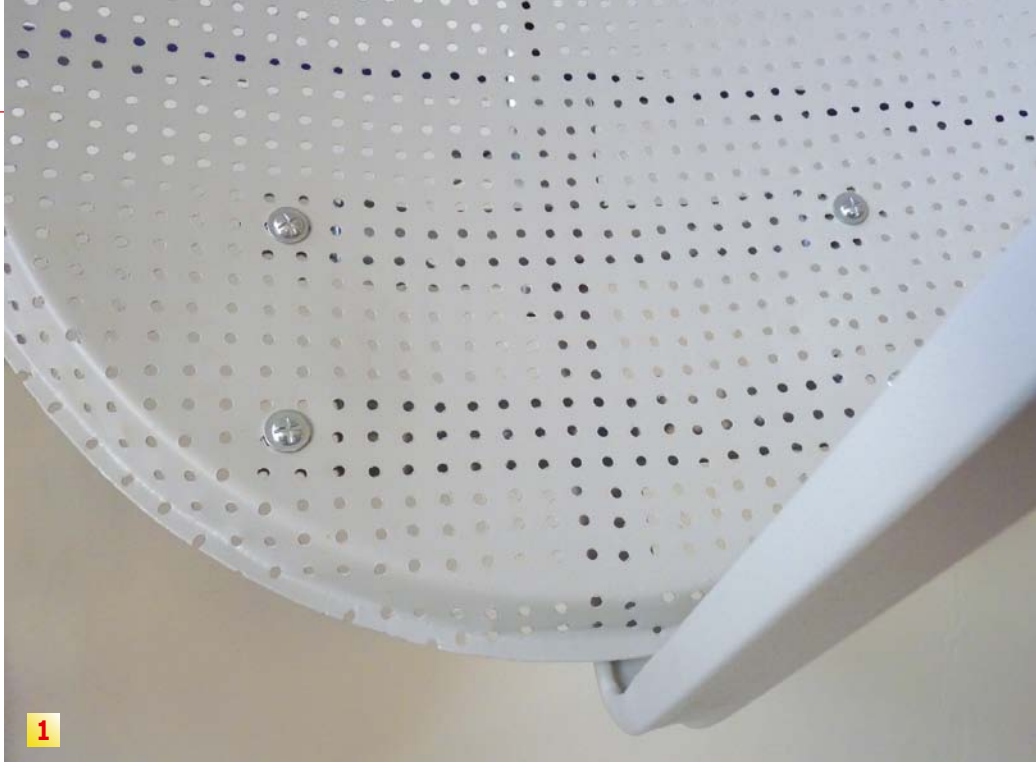
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its prime in 2003 when they had sales of 10 million Euros with 120 employees.

2003 was also the year when he together with his brother Kasim founded AKS (Ait-Yala Kasim Slimane). He also managed to take over the company and the name of the well-established brand 'Continental Edison'. In Metz in France, the company still produces TVs and other household goods today. BYA uses the brand name 'Continental Edison' on its line of dishes and receivers but above all TVs. BYA's Production Manager Azzedine Maouche provided some more details for us: "We produce 32cm and 40cm LCD TVs as well as plasma TVs in 42cm, 50cm and 60cm sizes." He continues, "They all have a built-in DVB-T tuner."

BYA's current target market for its 'Continental Edison' brand is almost completely within Algeria. "10% of our products are shipped beyond Algeria", we learned from Commercial Manager Mahi Bouras, "mostly to Tunisia and Libya." But that's exactly what's supposed to change. "In the first quarter of 2011 we will be releasing a new HD receiver for export and marketing it under the brand name 'Continental Edison'." explains Mahi Bouras who, thanks to his studies in New York, can speak excellent English.

The Algerian government is also doing its part in supporting the export efforts of its local industries. General Manager Slimane Ait Yala, who is very active in





4



5

a number of committees as well as in the Algerian Chamber of Commerce, expects a large export offensive for 2011. "We expect to be able to significantly increase our sales for 2011", he says optimistically. With new products such as the perforated satellite dish and their own HD receiver, he believes there is a good chance for BYA to also become a big name outside of Algeria with the phrase 'Made in Algeria' gaining international recognition.

1. BYA wants to break into the export market with this perforated dish. BYA's production costs are so low that they aren't worried about the competition.

2. This HD receiver will become available in 2011. This model is a pre-production sample. It will come with HDMI, LAN and a USB interface and will be assembled by BYA for now with delivered components and will be produced completely by BYA later on if sales are successful.

3. Azzedine Maouche is BYA's Production Manager

4. Soraya Dahmane handles the invoices.

5. Mahi Bouras is BYA's Commercial Director and is responsible for marketing and the sales department.

6. Nothing can function without bookkeeping. Laoudjane Hadher (left) and Yacoubi Sanaa (right) enter in every bill and invoice.

7. Ait Ali Said Belkacem is one of four technicians at BYA that handle after-sales service and repairs.

8. A look at the workshop. Sample components are made here as are production molds.



6



7



8





Making a 60cm Dish at BYA

1. The dishes are made from this endless strip of sheet metal that is 100cm wide and 0.5mm thick. The first step is to cut pieces of this sheet metal to the proper size for the pressing machine. The BYA employees prepare the sheet metal strip and...

2. ... cut it here into 65cm long pieces.

3. Now its width needs to be shortened to 65cm.

4. The 65cm x 65cm pieces of sheet metal are then pressed into the proper shape with the

pressing machine. Right after that the mounting holes are stamped into the metal.

5. The finished dish forms are then spray painted. One employee takes the dishes and hangs them on the conveyor belt after which a second employee takes them off the conveyor once the dishes have been spray painted and dried.

6. The dishes move through the spray painting booth and then through an oven.

7. Now the brand name is stenciled in place. BYA

is an OEM for many different brands; here in this picture it's MANATAN. Other brand names produced by BYA include ASTON, ECHOSTAR and MAXI POWER just to name a few. If you want to be one of their customers, just keep in mind there are order minimums: "We can put your name on the dishes with an order starting at 10,000 pieces", comments Sales Manager Mahi Bouras, "Simply contact us at contact@bya-electronic.com!"

8. Finished! Mechanical Manager Lahici Driss is satisfied with production.



Making the Dish Mount

- 1,2. The pieces are stamped from an endless strip of sheet metal.
3. The holes are stamped here.
4. The flat pieces of metal are bent into shape; the dish mount is finished.
5. The mounting brackets are bent into shape here.
6. An employee packs all the mounting hardware that is included with the dish.
7. The mounting hardware for 10 dishes comes in one box.



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We look forward to meeting you in Amsterdam at IBC2011 for what is set to be another exciting event.



1



2



BYA's Production Facilities

1. A look at the production facility for their line of HD receivers.
2. The SMD machine from Fuji is used to automatically place components on the HD receiver circuit boards.
3. In the background is the conveyor belt for the assembly of the larger components and at the end is the soldering station from 'Vitronics Soltec'.

3





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The Smallest Satellite Dealers in Moscow

Sergey has set up his business out in Moscow's south. The region is served by metro line 9 and as soon as you have climbed the stairs out of Prazhskaya station you're bang in the middle of a parking lot belonging to 'Electronics Paradise', the self-proclaimed 'largest shopping centre' in Moscow's south. Several hundreds of small shops are dispersed across three storeys, including some 40 dealers selling satellite components.

Sergey Kazimirovich is one of them with his TVSat-Real shop. "As a matter of fact, we're talking about two different companies here," he reveals. "Our second business is registered under the name '1000 Channels' and in addition to that we run a shop in another shopping mall as well." Incidentally, both companies have websites on the

Internet at www.tvsat-real.ru and www.1000kanalov.ru.

"Satellite receivers have been part of our range for some time now," Sergey Kazimirovich continues. "So far, however, we have only sold small numbers of them." Even though Sergey Kazimirovich features satellite receivers pro-

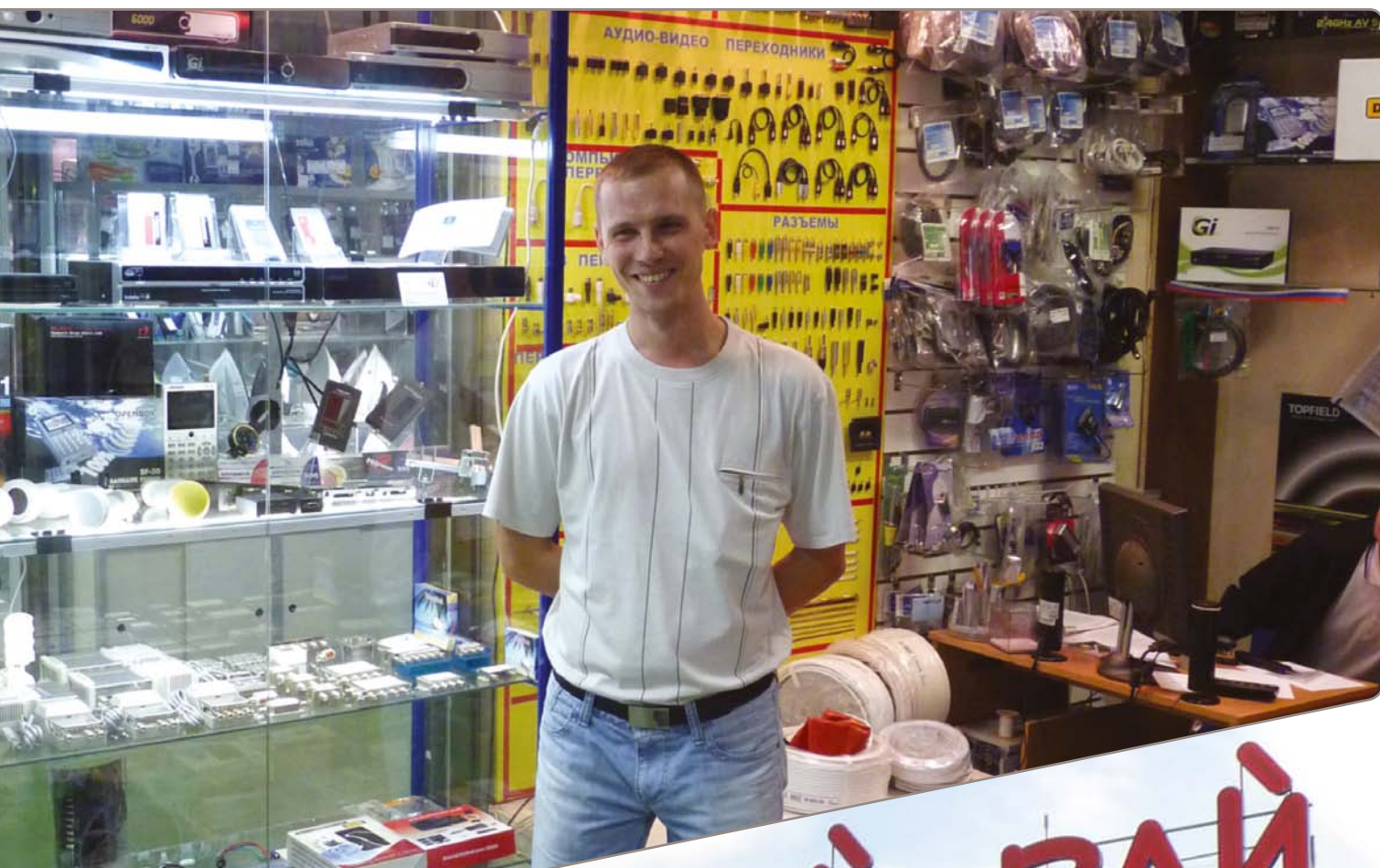
minently on his websites, he rarely sells more than one unit a week. "We believe this will change shortly, as we expect a new delivery any day."

Right now Sergey's business is one of the smallest distributors: "Satellite products only account for 2% of our turnover," Sergey states. But thanks to continuing advertising campaigns this is set to change. And who knows, one day the smallest satellite distributor might be right up there with the largest.

Sergey Kazimirovich ▶
in his small shop on the lowest floor of 'Electronics Paradise'. Together with two additional employees he sells everything to do with satellite reception.



■ Leaving Prazhskaya metro station through its southern exit you will find yourself right in the parking lot of the 'Electronics Paradise' shopping centre. Hundreds of specialised shops have all sorts of products in store for electronics and Hi-Fi enthusiasts. The centre is open every day of the week from 10 am to 8 pm.



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Satellite Shop, Germany

COMPANY REPORT | Klaus Schulz and Bernd Rosenberger, Lüsselt, Germany

Two Satellite DIY enthusiasts

What do you need to build a satellite receiver yourself? Not much, but Klaus Schulz and Bernd Rosenberger, who live in Lüsselt, Germany, have managed to do just that. In 2008, they decided to build their own satellite receiver. They started with a small dish and a receiver, and they have since expanded their collection. They now have a large dish and a receiver, and they have also built a small satellite dish for their car. They are proud of their work and they hope to inspire others to do the same.

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A Website for Professionals

Alexander Derjagin has set some lofty goals for himself. He is the founder and operator of the satbeams.com website. The website is a professional website for satellite professionals. It provides information on satellite technology, satellite programs, and satellite services. It is a website that is designed for professionals and it is a website that is designed to be used by professionals.

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SMARTINNOVATIONS

Satellite Distributor, Netherlands

COMPANY REPORT | Satellite Distributor SMART INNOVATIONS, The Netherlands

The AZBox Champions from Holland

It really helps to not only have a good product but to also have a very ambitious sales team. A perfect example of this is the company Smart Innovations in the Netherlands. The three owners of the company are very much involved with the operation and have helped make the AZBox receivers one of the top selling brands not only in The Netherlands but also in Belgium and Luxembourg. For these three countries, Smart Innovations has taken over distribution of the AZBox.

AZBOX

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PRODUCT NEWS | Fibre Optic Products

GlobalInvacom Expands Product Palette

The British company GlobalInvacom has expanded its optical LNB, TLE-satellite receiver and its future invention back in its 20-02-2009 and 08-02-2009 issues. In the meantime, GlobalInvacom has expanded its optical LNB, TLE-satellite receiver and its future invention back in its 20-02-2009 and 08-02-2009 issues. In the meantime, GlobalInvacom has expanded its optical LNB, TLE-satellite receiver and its future invention back in its 20-02-2009 and 08-02-2009 issues.

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BEST DIGITAL TV COMPANIES in EUROPE



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Satellite Wholesaler, Germany



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COMPANY REPORT | Satellite Wholesaler DOEBIS, Germany

DOEBIS is Expanding

Exactly three years ago TELE-satellite published a report on DOEBIS, a satellite wholesaler in Germany. We thought it was a good time to ask DOEBIS how they without the all-around crisis. We received a rather surprising answer: "We're expanding!" says Rainer Herberich, Operations Manager at DOEBIS. The company used the economic crisis that took hold in 2008 and instead of scaling back they opted for a counter strategy: they used the opportunity to invest and primarily expanded their sales force.

www.TELE-satellite.com/TELE-satellite-1011/eng/doebis.pdf

SMARTWI

Wireless Card Reader Producer, Denmark



www.smartwi.net

COMPANY REPORT | Wireless Card Reader Producer SmartWi

SmartWi to Conquer Provider Market

Readers of this magazine have been familiar with wireless card reader manufacturer SmartWi for years. In TELE-satellite issue 06-07/2007 we published the first report on this Danish company which has come up with a ground-breaking idea about transmitting data from a pay-TV provider's subscription card to a second card in the same household. All of a sudden, your viewing pleasure can be extended from the living room all the way to the bedroom, den or any other room at your place. Pay TV whenever you like – and a smart idea for the consumer's proper name: smart WiTV, or SmartWi in short.

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www.TELE-satellite.com/TELE-satellite-0709/eng/smartwi.pdf

SPAUN POWER

Power Supply Manufacturer, Germany



www.spaun.com

COMPANY REPORT | Power Supply Unit Manufacturer

Power Supply Units Made by SPAUN – guaranteed!

Every multi-switch and every amplifier comes with one, and of course every receiver has one, too: a power supply unit. It has become such an everyday component of virtually any electronic device that we have stopped thinking about how it actually works. SPAUN, on the other hand, has given it a great deal of thought and has arrived at a remarkable conclusion. Kevin Spaun is the managing director of SPAUN, one of the most renowned quality manufacturers of multi-switches and other accessories for satellite signal distribution. He tells us what it's all about.

www.TELE-satellite.com/TELE-satellite-1011/eng/spaun.pdf

GOLDEN MEDIA

Manufacturer and Distributor, Germany



www.cynextra.com

COMPANY REPORT | Manufacturer and Distributor Golden Media, Germany

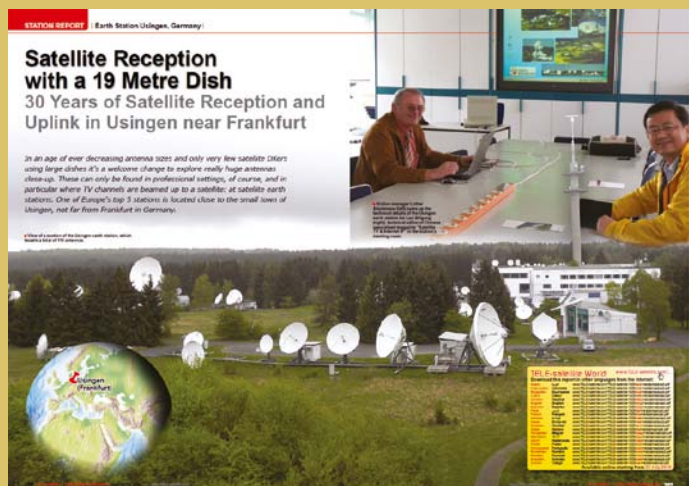
New On The Market: Golden Media

With this TELE-satellite article in our magazine, we are introducing a new company to our readers. Golden Media is a young company that has just started its production of multi-switches and other accessories for satellite signal distribution. The company is based in Germany and is currently expanding its production capacity. The company is also looking for distributors in other countries. If you are interested in this company, please contact us for more information.

www.TELE-satellite.com/TELE-satellite-1009/eng/goldenmedia.pdf

MEDIA BROADCAST

Broadcasting Services, Germany



www.TELE-satellite.com/TELE-satellite-1009/eng/mediabroadcast.pdf

SPAUN

High Quality Accessory Manufacturer, Germany



www.spaun.com



www.TELE-satellite.com/TELE-satellite-0811/eng/spaun.pdf

SMART

Receiver Manufacturer, Germany



www.TELE-satellite.com/TELE-satellite-0901/eng/smart.pdf

GT SAT

LNB Distributor, Luxembourg



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

NANOXX

Wholesaler and Receiver Manufacturer, Germany



www.TELE-satellite.com/TELE-satellite-0901/eng/nanoxx.pdf

TECHNISAT

TV Manufacturer, Germany



www.TELE-satellite.com/TELE-satellite-0709/eng/technisat.pdf



BEST DIGITAL TV COMPANIES in S/E EUROPE

AMIKO

Receiver Manufacturer, Hungary



www.amikostb.com

Company Details

Engineers in Research & Development | Total Number of Employees

0 50 100

Average Turnover (Previous, This, Next Year Estimates)

0 10 20 Mio €uro

Production Certificates

ISO, RoHS, DVB

Production Categories

own brands AMIKO, SYNAPS - cooperation with FULAN

Main Products

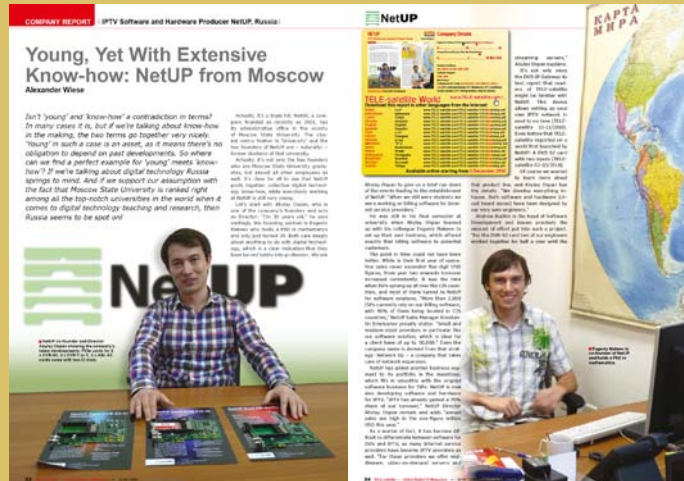
Receiver for DVB-S/S2, DVB-T/MPEG-4, DVB-C, award winning product Dual Boot Linux receiver for DVB-S/S2 and DVB-T



www.TELE-satellite.com/TELE-satellite-1107/eng/amiko.pdf

NETUP

IPTV Software and Hardware Producer, Russia



www.TELE-satellite.com/TELE-satellite-1101/eng/netup.pdf

AB-COM

Satellite Receiver Manufacturer, Slovakia



www.abcomeu.com



www.TELE-satellite.com/TELE-satellite-1009/eng/abipbox.pdf

www.azbox.com

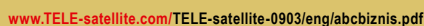


www.TELE-satellite.com/TELE-satellite-0809/eng/antech.pdf

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

www.TELE-satellite.com/TELE-satellite-0809/eng/stab.pdf

www.abcbiznis.sk



163

BEST DIGITAL TV COMPANIES in MIDDLE EAST

YAHYA

ATLANTA
COMINTOUCH
ECHOLINK

ATLANTA

Satellite Wholesaler, UAE

COMPANY REPORT | Satellite Wholesaler: ATLANTA, Dubai

SmartWi Distributor ATLANTA in Dubai

This report was written because of SmartWi, the Card Sharing Module that lets you watch every channel in every room in your house using just one PayTV card. SmartWi in Denmark distributes their products all over the world and this includes The Middle East. SmartWi's ever increasing sales figures in this region are due in large part to the non-stop efforts of local distributor ATLANTA headquartered in Sharjah in the United Arab Emirates.

While having lived in an office for several years, the SmartWi team has been able to establish a strong presence in the region. ATLANTA's success in this region is due to its long-term commitment to the market and its ability to provide a wide range of services to its customers. ATLANTA's success in this region is also due to its ability to provide a wide range of services to its customers.

ATLANTA is a leading satellite wholesaler in the Middle East. It has a long history of providing high-quality products and services to its customers. ATLANTA's success in this region is due to its long-term commitment to the market and its ability to provide a wide range of services to its customers.

ATLANTA is a leading satellite wholesaler in the Middle East. It has a long history of providing high-quality products and services to its customers. ATLANTA's success in this region is due to its long-term commitment to the market and its ability to provide a wide range of services to its customers.

www.TELE-satellite.com/TELE-satellite-1007/eng/atlanta.pdf

ECHOLINK

Satellite Wholesaler, UAE

COMPANY REPORT | Satellite Wholesaler: ECHOLINK, Dubai

TRIMAX Distributor ECHOLINK in Dubai

One of the largest satellite wholesalers in the Middle East, ECHOLINK has a long history of providing high-quality products and services to its customers. ECHOLINK's success in this region is due to its long-term commitment to the market and its ability to provide a wide range of services to its customers.

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www.TELE-satellite.com/TELE-satellite-1007/eng/echolink.pdf

COMINTOUCH

Satellite Wholesaler, UAE

COMPANY REPORT | Satellite Wholesaler: COMINTOUCH, Dubai

SPAUN at COMINTOUCH in Dubai

SPAUN is a leading satellite wholesaler in the Middle East. It has a long history of providing high-quality products and services to its customers. SPAUN's success in this region is due to its long-term commitment to the market and its ability to provide a wide range of services to its customers.

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www.TELE-satellite.com/TELE-satellite-1007/eng/comintouch.pdf

YAHYA

Software Programming, KSA

COMPANY REPORT | Software Programmer: YAHYA, Saudi Arabia

Enigma in Arabic – How does it work? Paying a visit to Yahya in Saudi Arabia

When you switch on a receiver for the very first time you are usually asked which language you prefer. English, German or French are obvious choices. But what about Russian or... Arabic? From a technical point of view translating one language into another is no big deal, but while most languages are written from left to right, Arabic is written from right to left and goes up and down. We set off to meet Yahya and to learn how these problems can be solved. We live somewhere in Saudi Arabia and would rather not have this and name published because what he does is considered a grey area by some, even though it's not against the law.

The Arabic of Satellite Wholesaler: This report is a collection of articles from the Middle East. It is a collection of articles from the Middle East. It is a collection of articles from the Middle East.

The Arabic of Satellite Wholesaler: This report is a collection of articles from the Middle East. It is a collection of articles from the Middle East. It is a collection of articles from the Middle East.

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www.TELE-satellite.com/TELE-satellite-0911/eng/yahya.pdf



BEST DIGITAL TV COMPANIES in MAGHREB

BYA

Dish and Receiver Manufacturer, Algeria



COMPANY REPORT | Dish and Receiver Manufacturer BYA, Algeria

Perforated Dishes from Algeria
Alexander Wines

BYA ELECTRONIC

With a new series of satellite dishes made out of perforated metal, Algerian manufacturer BYA Electronic wants to start an export offensive. Are there reasons to expect success in the strongly contested satellite dish market? It won't be easy for BYA, but there are several reasons which would make the optimistic. Slimane Ali Hla, founder of BYA, gives us the reasons for this optimism.

www.TELE-satellite.com/TELE-satellite-1107/eng/bya.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 75 150

Average Turnover (Previous, This, Next Year Estimates)

0 5 10 Mio €

Production Certificates

RoHS, DVB

Production Categories

OEM, ODM

Main Products

Satellite Dishes with Full and Perforated Metal (60, 105 and 120cm), TV-Sets with CRT, LCD (32 and 40 inch) or Plasma (42 and 50 inch), Satellite Receiver for DVB-S/S2

BOMARE

TV and Receiver Manufacturer, Algeria



COMPANY REPORT | TV-Sets and Receiver Manufacturer Bomare, Algeria

Bomare: a new OEM Manufacturer

In 2009 the European Union entered into an agreement with the Democratic Peoples Republic of Algeria to support economic cooperation between the two. This agreement provides an interesting opportunity for satellite receiver manufacturers and, in the case of the Algerian company Bomare, also for TV manufacturers. Actually Bomare produces both products. For 2011 Bomare has decided to take their products and service capabilities to the European market. We paid a visit to Bomare's production facility in Birtheba, about 20km from Algiers, and had a look around.

www.TELE-satellite.com/TELE-satellite-1103/eng/bomare.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 75 150

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio €

Production Certificates

RoHS, DVB

Production Categories

OEM, ODM

Main Products

LCD and Plasma TV-Sets with integrated DVB-Tuner, Satellite Receiver for DVB-S/S2, DVB-T, Home Theatre Systems



BEST DIGITAL TV COMPANIES in TAIWAN, KOREA

TEVII

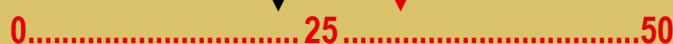
PC Card & Receiver Manufacturer. Taiwan



www.tevij.com

Company Details

Engineers in Research & Development | Total Number of Employees



Average Turnover (Previous, This, Next Year Estimates)



Production Certificates

RoHS

Production Categories

OEM, ODM

Main Products

PC Cards for DVB-S/S2 and DVB-T/MPEG-4, Boxes for DVB-S/S2, DVB-T/MPEG-4, PC Sticks for DVB-S/S2

AZURESHINE

Professional Dish Manufacturer, Taiwan



www.azureshine.com.tw

MOTECK

Antenna Motor Manufacturer, Taiwan



www.moteck.com

COMPANY REPORT | Satellite Dish Manufacturer Azura Shines

Dishes in Focus



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

MOTECK's Motor Professionals



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

TOPFIELD

High-End Receiver Manufacturer, Korea

COMPANY REPORT | High-End Receiver Manufacturer, Korea

Premium Brand Topfield
Alexander Wiese

Topfield has been an established player in the high-end satellite receiver market for many years. The new THS super box will further strengthen Topfield's footprint in the top-quality market. TELE-satellite wanted to learn more about the company's future strategy and spoke with Dang Hyun-Sul of the Topfield marketing team.

TOPFIELD

www.TELE-satellite.com/TELE-satellite-0905/eng/topfield.pdf
www.TELE-satellite.com/TELE-satellite-0801/eng/topfield.pdf

YONGSAN

Satellite Shop, Korea

COUNTRY REPORT | Satellite Shops in Korea

Techno Shopping in Yongsan

Yongsan is the heart of Seoul's satellite receiver and dish industry. It is a place where you can find everything you need for your satellite system. From receivers to dishes, from cables to antennas, you can find it all in Yongsan. The area is filled with shops and markets, all dedicated to satellite technology. It's a place where you can find the latest and greatest in satellite technology, and where you can find the best prices. Yongsan is a must-visit for anyone interested in satellite technology.

TELE-satellite

www.TELE-satellite.com/TELE-satellite-0807/eng/koreasatshop.pdf

ARION

High Quality Receiver Manufacturer, Korea

COMPANY REPORT | High Quality Receiver Manufacturer, Korea

Arion on its way

More than a year ago TELE-satellite published a report highlighting the success of South Korean manufacturer of high-quality receivers Arion with headquarters in Anyang, one of the southern suburbs of Seoul. This time we wanted to find out how Arion has managed its sale through the rough seas of last year and which expansion plans are on the road map for 2009.

ARION

www.TELE-satellite.com/TELE-satellite-0903/eng/arion.pdf
www.TELE-satellite.com/TELE-satellite-0801/eng/arion.pdf
www.TELE-satellite.com/TELE-satellite-0701/eng/arion.pdf

NASA CNS

Satellite Wholesaler, Korea

COMPANY REPORT | Satellite Wholesaler NASA CNS, Seoul, Korea

NASA in Seoul

NASA CNS is a leading satellite wholesaler in Seoul, Korea. They specialize in providing high-quality satellite receivers and dishes to customers. They have a large inventory of products and offer competitive prices. They also provide excellent customer service and technical support. NASA CNS is a trusted name in the satellite industry in Korea.

NASA CNS

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

OPERATOR MARKET Qualified

Classification for Best Digital TV Companies



Attributes of Qualified Company:

- High Production Volume ■ Quality Controlled
- Customized Product Case ■ Customized Product Software
- Aftersale Service

SEKISAT

Satellite Wholesaler, Korea

COMPANY REPORT | Satellite Wholesaler SEKISAT, Korea

SEKI SATELLITE, Seoul

SEKI SATELLITE is a leading satellite wholesaler in Seoul, Korea. They specialize in providing high-quality satellite receivers and dishes to customers. They have a large inventory of products and offer competitive prices. They also provide excellent customer service and technical support. SEKISAT is a trusted name in the satellite industry in Korea.

SEKISAT

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



BEST DIGITAL TV COMPANIES in CHINA

DEVISER

Signal Analyzer Manufacturer, China



www.devisertek.com



www.TELE-satellite.com/TELE-satellite-1107/eng/deviser.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio US\$

Production Certificates

RoHS, CE, UL, ISO 10012, ISO 90001

Production Categories

OEM, own brand

Main Products

Signal Analyzers for Cable, Terrestrial, Telecommunications, Fiber Optic and Satellite, Spektrum Analyzers, Vector Network Analyzers, Broadcasting Measurement Instruments, QAM Meters

PREVAIL

Fiber Optic and CATV Manufacturer, China



www.prevail-catv.com



www.TELE-satellite.com/TELE-satellite-1105/eng/prevail.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 250 500

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio €uro

Production Certificates

RoHS

Production Categories

OEM

Main Products

Fiber Optic Nodes and Systems, Optical Receivers and Transmitters, CATV Equipment, Bi-directional Network Transmission Equipment, Head-Ends, Splitters, Taps

JIUZHOU

Receiver Manufacturer, China



www.jiuzhou.com.cn

COMPANY REPORT CITI at Jiuzhou, China

Terrestrial Receivers at Jiuzhou

Our readers are very familiar with Jiuzhou - have a look at TELE-satellite issue 30-35/2007. In 2008 Jiuzhou celebrated their 50th birthday and moved to their new Jiuzhou Electric Building. The TELE-satellite issue 40-45/2008. In September 2008, when the Shenzhen Metro Line 1 was extended, Jiuzhou became close to a Metro station. It's a five minute walk to the station which has a nice and fitting name: "TV Tech Park".

TELE-satellite World - monthly magazine

www.TELE-satellite.com/TELE-satellite-1003/eng/jiuzhou.pdf
www.TELE-satellite.com/TELE-satellite-0903/eng/jiuzhou.pdf
www.TELE-satellite.com/TELE-satellite-0803/eng/jiuzhou.pdf
www.TELE-satellite.com/TELE-satellite-0703/eng/jiuzhou.pdf

SVEC

Professional Dish Manufacturer, China



www.svec.com.cn

COMPANY REPORT Professional Dish Manufacturer SVEC, China

SVEC Dishes from Chengdu/Sichuan

Alexander Wieser

The Sichuan province is well known outside of China for its spicy cuisine. A national favorite is the "Hot Pot". In one pot with two separated sections a very spicy soup and a mild soup are heated up into which chopsticks are used to dunk in different types of food for a few minutes. This could be many sliced pieces of meat or vegetables. Along with that you drink sweetened living La Kat herbal tea to offset the spiciness of the Hot Pot. The company SVEC in Sichuan's capital city of Chengdu, a city with eight million inhabitants in southwestern China, has its own spicy menu. SVEC is looking for new challenges adding to their production of satellite dishes: they want to play a much bigger role in the world market with high quality products.

TELE-satellite World - monthly magazine

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

BOXSAM

Receiver Manufacturer, China



www.boxsam.com

COMPANY REPORT Digital TV Receiver Manufacturer BOXSAM, China

Receivers made by BOXSAM

BOXSAM can easily be considered an upstart company as it was founded only in 2002 with a seed capital of 15 million RMB. Starting with CATV products BOXSAM expanded its business to cover satellite receivers and some other interesting products as well as in 2004. The past year to this company to learn about their way of doing business.

TELE-satellite World - monthly magazine

www.TELE-satellite.com/TELE-satellite-1009/eng/boxsam.pdf

ALUOSAT

Satellite Consultant, China



www.aluosat.com

COMPANY REPORT Satellite Consultant, China

Aluo-sat Knows Everybody!

Somebody active in the satellite field in China can hardly get around knowing Liu Shi Gang, owner or at least not because he's been distributing TELE-satellites in China for many years, but also because he is a high profile figure in many other satellite areas as well. Since China is entering the 21st age in 2009 this is a good time for visiting Liu Shi Gang in his office in Shenzhen.

TELE-satellite World - monthly magazine

www.TELE-satellite.com/TELE-satellite-0905/eng/aluosat.pdf

YINHE

High Volume Receiver Manufacturer, China

COMPANY REPORT High Volume Digital TV Receiver Manufacturer YINHE, China

Organized for the Future

Receiver Manufacturer YINHE Presents Their Factory

Alexander Wieser

Chinese high volume manufacturer YINHE is one of the top five producers in China. Although this company is well known within China, it is only the readers that recognize the name YINHE outside the country since abroad it is only an OEM. In other words, the YINHE designed boxes (Original Design) are marketed by other companies, primarily dealers and programming operators, under their own brand name. YINHE therefore is just the manufacturer (since OEM) and for the time being it will stay that way. There are no plans for YINHE to dive into the export market with their own brand name. What does it look like inside one of these high volume manufacturing plants? TELE-satellite wanted to find out.

TELE-satellite World - monthly magazine

www.TELE-satellite.com/TELE-satellite-1007/eng/yinhe.pdf

OPERATOR MARKET Qualified

Classification for Best Digital TV Companies



Attributes of Qualified Company:

- High Production Volume ■ Quality Controlled
- Customized Product Case ■ Customized Product Software
- Aftersale Service

BOINGSAT

LNB Manufacturer, China



www.boingsat.com

COMPANY REPORT LNB Manufacturer Boingsat, China

Boingsat's Numerous Production Facilities

- Three Production Locations in Zhuhai, China
- Large Sales Expansion in South America
- In the Works: LNB with Two Feed Rings

Boingsat's numerous production facilities are located in Zhuhai, China. The company has a long history of manufacturing LNBs and has a strong reputation for quality and reliability. The company's products are sold in various markets, including South America, where it has a large sales expansion. The company is also working on developing new products, such as LNBs with two feed rings.

www.TELE-satellite.com/TELE-satellite-1105/eng/boingsat.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 500 1000

Average Turnover (Previous, This, Next Year Estimates)

0 12.5 25 Mio US\$

Production Certificates

RoHS in preparation

Main Products

LNBs for Ku and C bands, Ka band in preparation. Variants in Single, Twin, Quad, Quattro and Octo.

TENOW

PC Card Manufacturer, China



www.tenower.com

COMPANY REPORT PC Card Manufacturer Tenow, China

Innovative PC Cards from China

Tenow is a company that is fully concentrated on the development of their products in the young firm Tenow from Shenzhen, China. PC cards are manufactured through the actual production process in subordinated allowing Tenow to focus their efforts on Development and Marketing. Also interesting to note about Tenow: the company is run by four partners and all four of them work together as a team to further expand their young company. Tenow is in the process of setting up a new office in Shenzhen's expensive High-Tech Park. When we said them a visit, we went to their old office located directly next to the Shen Dan Metro Station on route 1.

www.TELE-satellite.com/TELE-satellite-1103/eng/tenow.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 12 25

Average Turnover (Previous, This, Next Year Estimates)

0 1.5 3 Mio €uro

Production Certificates

RoHS, DVB

Main Products

PC-Cards for DVB-S/S2, DVB-T/T2, DVB-C with single, dual and quad tuner, CAM Box for DVB-S2, USB-Stick for DVB-S/S2, DVB-C and ISDB-T

SKYWORTH

OEM Receiver Manufacturer, China



www.skyworth.com

COMPANY REPORT Receiver Manufacturer SKYWORTH, China

SKYWORTH is Expanding

One of the larger receiver manufacturers in China is SKYWORTH. They've consistently been in expansion mode and have managed to make a phenomenal entrance into the South American marketplace in 2010 in a large contract with the government of Argentina involving 400,000 receivers for the terrestrial ISDB-T standard resulted in SKYWORTH's intense production activity. 500 these receivers have already been shipped! We hear from Jack Jiang, Sales Director of SKYWORTH's receiver division, the company's official name is Shenzhen SKYWORTH Digital Technology Co., Ltd.

www.TELE-satellite.com/TELE-satellite-1103/eng/skyworth.pdf
 www.TELE-satellite.com/TELE-satellite-1003/eng/skyworth.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 1250 2500

Average Turnover (Previous, This, Next Year Estimates)

0 1.250 250 Mio US\$

Production Certificates

RoHS, CE, REACH, DVB

Main Products

Receiver for DVB-S/S2, DVB-T, ISDB-T with single, twin and combo tuner, Receiver Sticks for USB, SCART in DVB-S and HDMI in DVB-S2

GLOBALSAT

Receiver Mass Manufacturer, China



www.globalsatdvb.com

COMPANY REPORT OEM Receiver Manufacturer Globalsat, China

Millions of Receivers from Globalsat

- GLOBALSAT opens a new production facility in Zhuhai (west of Shenzhen)
- Production capacity of up to 8 million units per year
- More than 100 engineers in R&D
- New multimedia receiver in 2nd quarter of 2011
- Distribution of their own brand name by 2012
- Sales numbers expected to double in 2011

With a new production facility, Globalsat will be able to handle a significant increase in demand for its receivers. The new facility is located in Zhuhai, a city with a rich history of manufacturing and a strong focus on electronics. Globalsat has been in the business for over 10 years and has a proven track record of producing high-quality receivers. The new facility will allow Globalsat to meet the growing demand for its products and to expand its market reach. The company expects to double its sales in 2011 and to distribute its own brand name by 2012.

Globalsat was founded in 2004 by a group of experienced engineers and managers. The company has a strong focus on research and development and has a proven track record of producing high-quality receivers. The company has a strong focus on research and development and has a proven track record of producing high-quality receivers. The company has a strong focus on research and development and has a proven track record of producing high-quality receivers.

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www.TELE-satellite.com/TELE-satellite-1103/eng/globalsat.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 125 250

Average Turnover (Previous, This, Next Year Estimates)

0 75 150 Mio US\$

Production Certificates

RoHS, FCC, UL, CE, DVB, ISO

Main Products

Receiver for HDTV and SDTV in DVB-S/S2, DVB-T, DVB-C, ISDB-T, HD+, CI+ and HbbTV, Multimedia Receiver, IPTV Boxes, Media Player

TRIMAX

Signal Analyzer Manufacturer, China



www.trimaxtec.com

COMPANY REPORT Digital TV Meter Manufacturer Trimax, China

New Products from Trimax

- New from Trimax: HDTV Signal Analyzer with HDTV Monitor
- Expansion into New Business Sectors such as Fiber Optics
- Manufacturing on Their Own Since 2008

Trimax's success in the market is due to its focus on research and development and its commitment to quality. The company has a strong focus on research and development and has a proven track record of producing high-quality products. The company has a strong focus on research and development and has a proven track record of producing high-quality products. The company has a strong focus on research and development and has a proven track record of producing high-quality products.

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www.TELE-satellite.com/TELE-satellite-1103/eng/trimax.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 25 50

Average Turnover (Previous, This, Next Year Estimates)

0 1 2 Mio US\$

Production Certificates

RoHS, FCC, DVB

Main Products

Signal Analyzer with built-in Monitor for DVB-S/S2, DVB-T and DVB-C

SOWELL

OEM Receiver Manufacturer, China



www.sowell-tech.com

COMPANY REPORT Receiver Manufacturer Sowell, China

Sowell, an Engineering Firm that's an OEM

- Founded by 5 Partners
- 2500-T and DVB-T2 Receiver in 2011
- Overseas Offices in the Plan
- User Friendliness in Company Philosophy

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www.TELE-satellite.com/TELE-satellite-1103/eng/sowell.pdf

Company Details

Engineers in Research & Development | Total Number of Employees

0 50 100

Average Turnover (Previous, This, Next Year Estimates)

0 25 50 Mio US\$

Production Certificates

DVB

Main Products

Receiver for DVB-S/S2, DVB-T/T2, DVB-C and ISDB-T, Receivers with 3D graphics



Satellite Dealer: USA



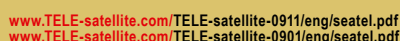
Satellite Dealer, USA



Satellite Dealer. USA



Maritime 3-Axis Dish Manufacturer. USA





HDTV Encryption

- *prevents unauthorised distribution of HDTV content*
 - *gives TV providers full control over content*
 - *blocks many popular features – such as time-shift viewing and PVR functions – for customers*
-

HD

+

by ASTRA



CI+ / HD+

What's the big deal? Is there a hidden agenda? What's the difference between the two?

Thomas Haring

Is CI+ a 'must have' for new receivers? This is a question that bothers end users and manufacturers alike, even though for different reasons. Users want to know whether or not it makes sense to go out and purchase one of the new CI+ models on shelves everywhere, while for manufacturers it all boils down to simple maths: Can I make money with CI+ receivers?

The CI+ initiative is driven by content providers. Film studios and TV channels have been faced with illegal content distribution (unauthorised DVD copying, illegal pay TV reception, etc.) for some time, as well as with gradually eroding advertising revenue. The advent of PVR receivers further accelerated that trend as these devices allow lossless storing of content on internal or external storage media. Content can then easily be burnt on DVD, for example.

What's more, PVR receivers usually come with a time-shift viewing feature which in turn means commercial breaks can be conveniently skipped.

It goes without saying that many end users actually use those features, burn their own DVDs and pass them on to others – a fact that truly annoys copyright owners who in turn exert pressure on content providers.

Content providers are also faced with pressure from their advertising clients who argue that owners of PVR receivers have become a virtually irrelevant target group. So all players on the providing end of the chain agreed on one thing: Something had to change! The introduction of HDTV channels presented the perfect occasion to act.

CI+

When digital television via satellite, cable and antenna (DVB-S, DVB-C and DVB-T) was launched the DVB Consortium (an association of more than 270 channels, manufacturers, pay TV providers and representatives from industry) at the same time introduced the CI standard. It takes care of copyright protection (rights management) and makes

sure paid for content is decrypted at the customer's end.

A so-called CI module (a PCMCIA module as we know it from the PC world) is used in combination with a valid smartcard to decrypt the digital stream received via satellite, cable or antenna. The CI module needs to be inserted into the receiver's CI slot and – together with a smartcard issued by the content provider – becomes the access point for pay TV reception.

With a valid smartcard and a CI module that is compatible with the encryption system implemented by the provider, pay TV content is encrypted and appears on the screen of authorised subscribers. If one of these conditions is not met, however, all you see is a blank screen. There are no further control mechanisms in place for pay TV providers with the conventional CI standard.

The DVB Consortium has been working on a revised CI version for years to offer new and more restrictive control mechanisms for pay TV providers – the name they chose was CI 2.0, but the project got stuck on a treadmill and some providers as well as industry representatives finally took a decision to develop their own system: This is how the CI+ standard came about with CAM manufacturers Neotion and SmarDTV as well as electronics giants Panasonic, Philips, Samsung and Sony being the driving forces behind that move.

What's new with CI+? What are the benefits and drawbacks for end users?

Let's begin with a positive note: CI+ is fully based on the CI standard, which means it does not establish a new standard but rather adds features to an existing one. Those extra features, on the



■ User features such as PVR functionality may be temporary or permanently blocked by the CI+ standard.

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other hand, include numerous restrictions for users.

The whole sphere of encryption was left untouched, but with CI+ so-called usage rule information (URI) can be added to the DVB-S, DVB-C or DVB-T datstream. CI+ receivers are able (more precisely: must be able) to recognise URI and follow its rules accordingly. The following restrictions can be imposed with CI+:

- digital recording of received content can be totally restricted
- digital recording of received content can be partially restricted (restrictions for certain events, channels, etc.)
- rewinding and fast forwarding of recorded content can be restricted during playback
- time-shift viewing can be restricted
- the Macrovision copy protection signal can be activated at the euroscart output of the receiver
- recorded content can be paired to a receiver so that it can only be played back on that particular device
- content providers are able to put receivers out of operation after unauthorised changes to the operating system have been made by a user
- CI+ invariably decrypts only one event at a time – it is not possible to decrypt two events simultaneously
- HD content can only be put out to HDCP compatible devices

as well as the following most significant modifications:

- the datstream as received from the provider is decrypted by the CI+ module, but encrypted again immediately so that the data transmitted through a USB, Firewire or any other data interface is encrypted and therefore cannot be saved on DVD, for example.

How should end users react to CI+?

First and foremost the question is one of personal necessity. You don't receive pay TV or HDTV and have no intention of subscribing in future? In that case

you couldn't care less about CI+. Content that is currently free-to-air will most probably stay that way. Hardly a channel could afford changing completely from FTA to CI+ without causing uproar.

It can be assumed that SD offerings will stay unencrypted, while new HD channels will happily implement the CI+ standard. So even if you are perfectly satisfied with your personal status quo, you may want to upgrade your equipment to HD standard in future, which is when you might be faced with CI+.

Subscribers of pay TV need not waste too many thoughts on CI+, since they use provider-supplied set-top boxes in most cases anyway.

Is an 'old' CI receiver compatible with CI+? Is there any point in buying a non-CI+ receiver anymore?

As mentioned above, CI+ is based on the conventional CI standard, which is why chances are many CI receivers can be upgraded to CI+ compatibility with new software. Some manufacturers even provide firmware updates to add CI+ to their receivers.

We should not fail to emphasise that CI+ has absolutely nothing to do with the encryption of the DVB datstream. Providers may select an encryption system of their choosing irrespective of whether or not they implement CI+. The same is true for DVB-S2, DVB-C2 or DVB-T2, all of which are independent of any CI+ features. This means that a CI+ receiver can handle all DVB formats depending on the built-in tuner(s).

So what's the connection with HD+?

HD+ is a subsidiary of European satellite operator SES Astra and focuses on marketing high-definition TV. The company is currently active only in Germany and is the legal successor of the

failed Entavio project, which had been launched initially by SES Astra as a new TV platform.

At the moment, the HD+ platform carries the HD channels of major German commercial networks (RTL HD, RTL II HD, VOX HD, Pro7 HD, Sat.1 HD, Kabel1 HD) as well as special interest channels six HD and Sport1 HD. Austria and Switzerland are next on the expansion map of HD+ and will be covered shortly, while in future SES Astra hopes to offer HD+ in other countries as well. From a technical perspective, HD+ is mainly based on dedicated HD+ receivers with built-in smartcard reader. HD receivers that are compatible with CI+, may also be used for receiving HD+ channels.

CI+ and HD+ are frequently mentioned in the same breath, even though all they really share is the + symbol in their names. What is true, however, is the fact that HD+ was one of the first major platforms to use CI+. However, features such as automatic channel list management and channel list updates (see Jaeger HD+ 2011 test report in TELE-satellite 12-01/2011) are HD+ features that have nothing to do with CI+.

What the future holds

In many cases, HDTV channels will select an encryption standard that blocks the distribution of received content. As CI+ is one such technology it will gain further ground in the HDTV segment. European viewers in particular will be forced to look at this topic one way or the other.

CI+ specifications:

www.ci-plus.com/data/ci-plus_specification_v1.2.pdf

Provider	Country	CI+ currently used	CI+ planned for future use	Distribution
HD+	Germany	X		satellite
Kabel Deutschland	Germany		X	cable
Caiway	Netherlands	X		cable
Delta	Netherlands	X		cable
Kabel Noord	Netherlands	X		cable
Ziggo	Netherlands	X		cable
UPC Nederland	Netherlands		X	cable
Boxer	Sweden	X		terrestrial
Com Hem	Sweden	X		cable
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What's inside a silicon tuner?

Jacek Pawlowski

• a silicon tuner is a significant technological improvement that finds its way into nearly every new product in digital TV equipment

It is not only cheaper and much smaller but guarantees better performance if applied correctly - see our Feature Story in TELE-satellite 02-03/2011. Does this integrated circuit (which a silicon tuner in fact is) have innovative internal architecture that makes all this possible? Well, from the top level perspective, a silicon tuner has a rather typical front end architecture similar to a modern radio circuit. It is called the "direct conversion" or "zero IF" architecture and is quite popular especially in digital communication circuits. But, as usually, the devil is in the details.

Let's take as an example the simplified architecture of the AT810 chip of company Abilis Systems - see Figure 1. AT810 is a terrestrial TV tuner compatible with DVB-T/T2, ISDB-T, CMMB and DTMB/GB 20600-2006 standards. The first stage of

AT810 is a relatively low gain radio frequency (RF) amplifier followed by a tracking bandpass filter. The filter attenuates the interfering signals originating for example from GSM, or WiFi devices by about 60 dB. That's a lot. The filter is automatically programmed by the on-board microprocessor depending on the currently selected TV channel.

The RF amplifier, except for amplifying the signal by approximately 20 dB, provides additionally a loop-through output - what is very desirable in double tuner TV receivers. For the best performance of the TV tuner, this amplifier not only must have a very low noise coefficient but it must be able to handle large signals without entering into the non-linear region of its characteristics. Technical people say that such amplifier has a large dynamic range.

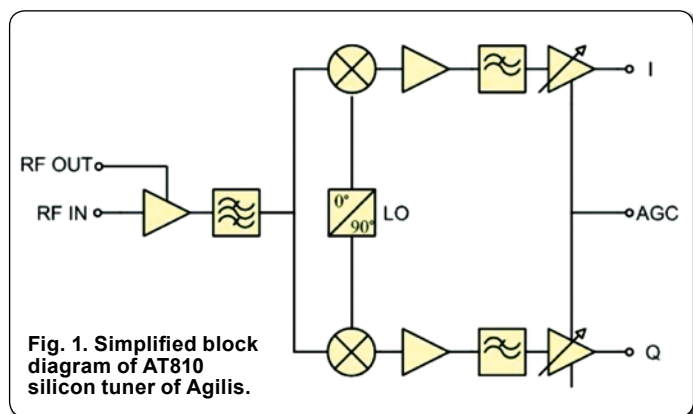
After the RF amplifier and the bandpass filter we have the essence of a direct conversion circuit: two balanced mixers fed with local oscillator signals of the same frequency but shifted by 90°. It is sometimes said that those mixers are fed with sine and cosine signals because the cosine waveform is identical to the sine shifted by 90°. The frequency of the local oscillator (LO) should be equal to the frequency of the received TV channel. In this way, at the outputs of the mixers, we get the modulating signal shifted in phase by 90°. Such signals are called the I and Q vectors. The letters come from the "In-phase" and "Quadrature" terms. I and Q signals are then amplified and unwanted products of the signal conversion are removed in the low pass filters located in both signal paths. The filters need to be very sharp because otherwise we would get interference from the adjacent signals. After the filters, there are the amplifiers of variable gain that enable automatic gain control (AGC). Thanks to the AGC, both weak and strong input signals produce similar signal level at the output of AT810. If the signal is weak, the gain of the amplifiers is set high, and if the signal is strong, the gain is set low.

Once we have I and Q signals, the next step is to convert them to digital form in analog-to-digital converters (ADC's). However, the ADC's are part of a digital signal processor - not the part of a silicon tuner. Having digital-

ized I and Q vectors, we can do all the magic reserved for digital signal processing like: very good filtering, demodulation, moving from time domain to frequency domain (with the help of Fast Fourier Transform) and much more.

Perhaps it will be a surprise for some of the readers to learn that with the digitalized I and Q signals, we can quite simply demodulate also analog TV signals (classical AM modulation).

However, the very first step must be to achieve good quality I and Q signals. And this "good quality" was until recently posing real problems for the chip manufacturers. Except for having very good initial RF amplifier, we also need very good mixers. By very good, we again mean sub-circuits of high dynamic range. But that's not all. Both mixers and all the sub-circuits after them: amplifiers, low pass filters and AGC amplifiers must be identical in I and Q path. Even a small difference in gains or a small phase shift between them would ruin the performance of the direct conversion circuit. Such symmetry requires a very well controlled chip manufacturing process and is not so easy to achieve. Fortunately, the engineers from Abilis like their colleagues from a couple of other competitive companies succeeded in that. Thanks to them, the digital TV receiver designers got a new building blocks - silicon tuners - that enable them to develop better, smaller and cheaper set-top-boxes.





How many SD/HD channels can we get from one transponder?

Jacek Pawlowski

Everybody who ever studied satellite charts with transponder data knows that the symbol rate of a transponder is one of its most important parameters. And that's not only because you need to know it to set the data in manual channel search in your receiver. Symbol rate directly affects the amount of useful data that can be transmitted via a transponder. The higher it is, the more data can be sent. More data means more TV and radio channels.

But can you exactly tell how many TV channels one can send through a transponder having a given symbol rate? Well, the exact answer is: no, we can not tell it with absolute exactness, but we can estimate the number of channels with reasonable accuracy.

Why is that so? The main reason is: we can not say precisely how many bits per second will be needed for a given channel. Channel bit rate changes depending on how dynamic its content is. Moreover, the DVB standard allows the service providers to choose between different video resolutions and different MPEG compression levels. If you have a good satellite signal analyzer, you can check for yourself that SDTV channel have average bit rates ranging from 1.5 Mb/sec to 6 Mb/sec (peaking even to 7 Mb/sec). Of course, the quality of a channel transmitted with 1.5 or 2

Mb/sec is very poor – the picture is foggy and sometimes you can notice compression artifacts. On the other hand, high quality SD channels like for example ZDF channel on ASTRA 19.2° E, have so good picture quality that when received with a set-top-box with an upscaler, you have the impression it is an HD channel. To achieve this, you need about 6 Mb/sec video bit rate.

The majority of the channels with acceptable quality have 3.5-4 Mb/sec video bit rate. Because audio occupies usually 0.256 Mb/sec, one can assume that on the average 4 Mb/sec is need for a good (but not the best) quality SDTV channel. This is true for MPEG-2 compression which is still in use for the vast majority of SD channels.

But what about HDTV channels? Well, they need much more bits per seconds. One can

assume about 15-20 Mb/sec for a HD channel compressed with classical MPEG-2 but only 10 Mb/sec if more modern H.264 (MPEG-4) is used. More and more HD channels move from MPEG-2 compression to MPEG-4. You know, the bandwidth is costly...

Once that we did the assumption on the required bit rate for an MPEG-2 SD channel and MPEG-4 HD channel (4 and 10 Mb/sec respectively), we can calculate how many channels one can send through a transponder of a given symbol rate. Except for the symbol rate, we need to take into account if it is DVB-S or DVB-S2 and what is the FEC value. The higher the FEC, the more efficient transmission, i.e. the higher usable bit rate for a given symbol rate.

In the three graphs, you can see the relationship between transponder symbol rate, FEC

and the bit rate. The Y axis scale has been chosen so that you can easily calculate the number of channels. So the scale has either a unit of 4 Mb/sec or 10 Mb/s.

Use the first graph to find a number of SD MPEG channels transmitted via DVB-S transponder. On X axis find the point equal to the transponder symbol rate and draw a vertical line upwards until it crosses the line corresponding with transponder FEC. From the crossing point, move horizontally towards Y axis to find the value of the bit rate that can be achieved for that symbol rate and FEC. Next count how many 4 Mb/sec steps you can make from zero to the found bit rate. This is the number of good quality SD channels encoded with MPEG-2 you can transmit via the DVB-S transponder. For example if $SR=27.5$ MS/sec and $FEC=3/4$, you will get over 40 Mb/sec what corresponds to 10 good quality SD channels.

The second graph lets you calculate how many HD channels you can send via the same DVB-S transponder. Please mind that now we assume MPEG-4 compression. If this is still MPEG-2, the number of channels will be twice as low. In the same example as

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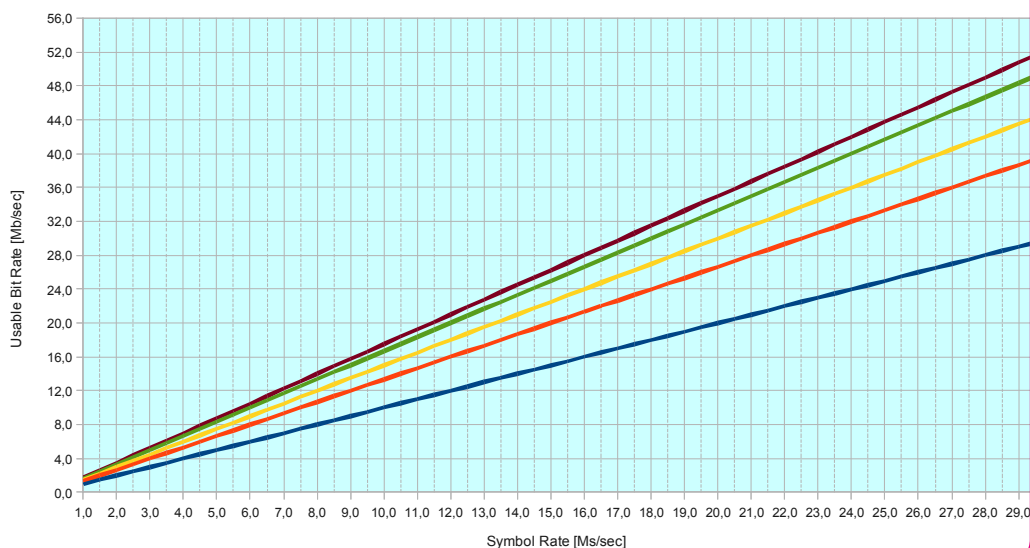
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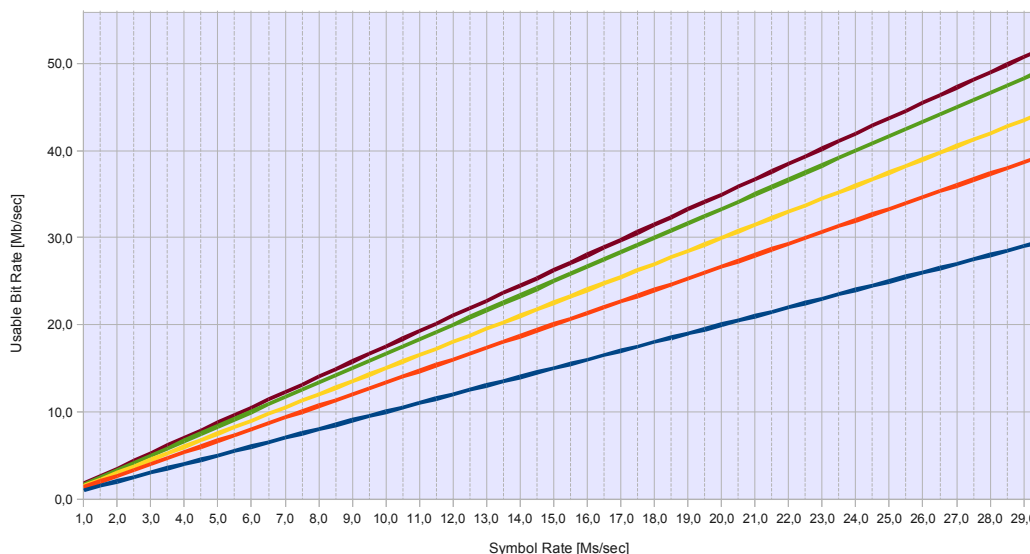
Graph 1. Bitrate vs. Symbol Rate and FEC for DVB-S

Note: 4 Mb/sec = 1 MPEG-2 SD channel of good quality



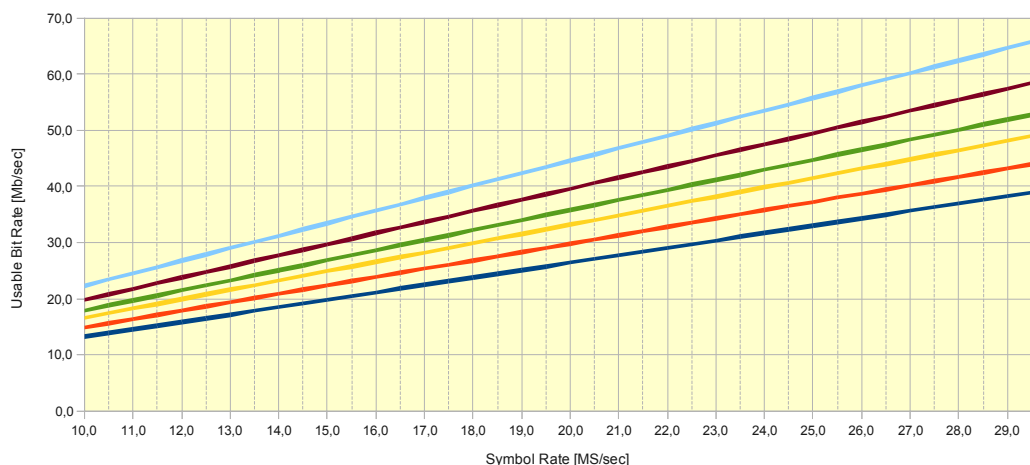
Graph 2. Bitrate vs. Symbol Rate and FEC for DVB-S

Note: 10 Mb/sec = 1 MPEG-4 HD channel



Graph 3. Bit Rate vs. Modulation and FEC for DVB-S2

Note: 10 Mb/sec = 1 MPEG-4 HD channel



above, you will find that 4 HD channels are possible with this transponder.

But what about DVB-S2? It becomes more and more popular. We prepared the third graph, this time only for the HD channels (but you can multiply the result by 2.5 to get the number of MPEG-2 SD channels). We have chosen only the most popular combinations of modulation type (QPSK/8PSK) and FEC values. Drawing all possible combinations would make the graphs completely unreadable. For the same exemplary symbol rate 27.5 Ms/sec, we can use 8PSK modulation and FEC=3/4 in DVB-S2 to get the usable bit rate over 60 Mb/sec what would enable us to transmit even 6 HD channels.

However you should be aware that the 8PSK and high FEC values require higher power to guarantee the same noise margin at the end user reception system. So, only the transponder on a satellite capable of providing enough power from its solar panels can be used in 8PSK mode with high FEC value. That's the physical limitation.

In the old days of analog TV, one could precisely tell how many channels you can transmit in a given bandwidth, but not today. In a real world, you can see quite often a combination of HD/SD channels and TV/radio channels transmitted through the same transponder. Channels differ in bit rates (and in this way in quality), so there is no way to say precisely how many channels we can expect assuming given bandwidth.

However, after reading this article you know what kind of video quality you can expect for example from a transponder filled with 20 channels and having SR=27500 3/4.



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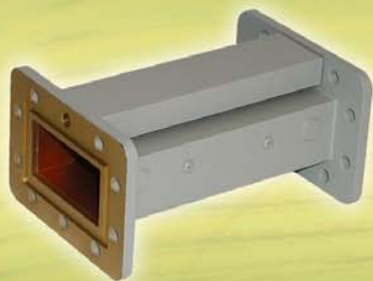
For preparing this report I've interviewed more than 20 persons, who are dish installers, website and weblog owners, receiver and dish sellers and finally receiver servicemen. They all face many problems and we go this in a minute. In accordance to a decision by the Iranian government, selling, buying, installing, repairing and even the possession of satellite dishes are forbidden and against the law, but obviously there are many people in Iran, who watch satellite tv. In fact, the number of Iranians, who decide to use a satellite systems, has even rapidly increased.

■ This is the 190cm mesh dish of Daryoush in Tehran/ Iran. He has pointed his dish to YAMAL at 90E and receives that satellite's 47 tv channels. Daryoush uses a satellite receiver by Starsat, model X95. He uses a STRONG L972 LNB.



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■ The roofs of Tehran (eastern part). How many dishes do you see? We counted 40, some are only partly visible. Hiding a dish is the best option in Iran.



People in Iran use, sell, buy and even install dishes discreetly. They mostly set up dishes on roofs and balconies and hide the system, if it's visible from the street. Legislators defined, that only Iranian telecommunication companies, the state-owned broadcaster IRIB, newspapers, banks, scientific and governmental associations are eligible to officially use satellite systems. But for common people, any type of transaction or possession of satellite reception equipment is forbidden and illegal.

This is somehow even contradicting,

because Iran has a very active history of space activities:

Oct 2005: a Russian rocket launches Iran's first satellite SINA-1

Feb 2007: Iran announced it launched a rocket capable of reaching space

Feb 2008: Iran launched a research rocket as part for satellite launch preparations

Aug 2008: Iran launched a rocket ,capable of carrying satellite'

Feb 2009: Iran declares launch of its first home-built satellite

So although the regime in Iran has

started some activities in the satellite world, it is still blocking channels and tries hard to prevent people from watching satellite tv. The Iranian government even so far and sat up large transmitters on high positions in various cities to disturb the transmission frequencies of Persian speaking satellite channels, mostly coming from Europe via HOTBIRD.

All of the people I interviewed were 20 to 30 years old and only one of them was 45 year old. As they themselves said, they had entered the satel-



■ A wall around the roof helps to make dishes invisible

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- Controlled by Receiver
- Powerful, Fast and Low Noise
- Manual E / W Button
- Goto X.X° Function
- Indicating LED for Easy Trouble Shooting
- Stainless Steel U Bolts to against Corrosion

DiSEqC Positioner

Stand Alone Positioner

V-Box II



- 99 Memories
- Controlled by Receiver
- 3 Digit LED Display
- Full Protective Design
- Optional Remote Control
- Software Limit Protection

MP880

- 99 Memories
- IR Remote Control
- 3 Digit LED Display
- Software Limit Protection

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■ Dishes in Iran blend in with the color of the buildings and roofs

lite world in average between 2 to 12 years ago. Mohsen from Tehran said: „I started with satellite installation, when I was only 10 years old. All my family members were interested in my work and were sitting, watching me working“.

Although satellite receivers are illegal in the country, they are still widely available. There are even a lot of satellite fans in Iran. It's an interesting point, that almost all of the interviewees have studied or are studying in courses which are not related to electronics or communication, for example some took courses such as accounting, agronomy and fishing, chemistry, English translation and so on. They simply got involved in satellite reception because of their strong interest in satellite channels. One of my interview partners was Milad, who was the youngest, 20 years old, and he said: „I really love satellite“. Another one, Mokhtar: „I do it as an entertainment and have the love of doing this“.

As mentioned before, the government blocks Iranians' access to foreign

news and political networks such as the BBC Persian Service and the Voice of America (VOA). According to my survey, the least jamming takes place in the Markazi Province, whilst in Shiraz and Tehran the signal distortion is highest. Mehdi, an installer and a serviceman from Shiraz: „These parasite signals are really annoying and they disable the receivers“.

Now a closer look at dish installers in Iran. On average, an installer does 5-6 dish installations or adjustments in a week. Mohsen from Lorestan, who is working in this field for 9 years since he turned 16 years old, said: „I have 10 to 15 installations in a day“. Almost all of the installers do their work and the dish adjusting as a hobby or fun. All of them said, they are crazy about satellite tv and also because in most Iranian families, the younger members have learned to setup their own satellite systems.

Among those almost 20 persons I interviewed, only Davood from Arak and Mehdi from Shiraz do it as their first

job - although it cannot be named as a formal job in Iran. According to Mehdi's affirms: „My life expenses can hardly be provided with this job“. Davood claimed: „I'm married and our cost of living is not provided at all. After 12 years I cannot change my job“. Only these two persons also were selling receivers, dishes and LNB. Milad from Khozestan said: „My cousin works in a Oil Company, but he does installations as a second job“. It's interesting that although he is an employee in a state-owned company, he does something against the governmental law and secretly installs dishes.

The most favorite satellites in Iran, which the installers have been asked to install, are HOTBIRD (at 13.0 degrees East), EUTELSAT W3 (for BBC Persian), ARABSAT (at 26.0 E), TURKSAT (at 42.0 E), NILESAT (at 7.0 W), SIRISU and recently provincial channels on INTEL-SAT 902 (62.0 E) gained some friends. The brand of receivers people are using depends on each city, because there are different sources that distribute receivers, dishes and LNBs, so each city takes it from the nearest source. For example

in Markazi Province (Arak) most of the receivers are of the STARSAT brand. Esmail from Tehran: „In capital cities like Tehran you can find many different brands of receivers such as ICLASS and HIGHVISION.“ Morteza from Lorestan: „Before all the receivers were by STARSAT, but now more brands appear.“

About gaining new clients Amir said: „Customers themselves find us. For example when they are satisfied with my work, they recommend me to their friends, families or neighbors“. Milad from Khozestan: „We don't need any kind of advertisement and even don't try for it“. Yasin from Yazd: „I'm a student and install dishes for students for free“. Ahmad said: „I do it only for those who I know, like my families and close friends“.

In Tehran you can find both offset and prime dishes and some of them even mounted on a motor, but in smaller cities or far from a source to provide a receiver, dish or other equipment, people only use prime fixed dishes

(mostly 95cm in diameter) and hardly ever one finds an offset dish. In general, most dishes used in Iran are very simple and cheap metallic models, which are self-made in small workshops. The risk for the equipment to be confiscated or destroyed is too big, this is the reason why most people prefer not to spend too much money for their satellite system. The cost of installation in Iran, like the brand of receivers, is different in each city and even in each region of a city, but generally it's from 5 U.S. Dollars up to 20 for setting up a satellite dish.

So how does the equipment arrive in Iran? Alireza said: „My cousin imports receivers and all what's needed from Dubai to the free zone in Kish Island and then brings them to Tehran to sell to others or use for his own installations“. I heard this statement from several others too. Mokhtar from Kermanshah said: „Here is a border region and we get all our equipment from the Baneh Border“. Receivers are smuggled from Dubai and the Emirates to Kish

Island in Iran and even via the Soleimanieh Border in Iraq to Genaveh Port in Iran and then the equipment is brought to capital cities like Tehran, Esfahan and Shiraz and from there again spread to other cities. So you can only find wholesaler in these big cities, especially in Tehran. But all of them work in privacy and you never would find any LNB or any receiver's brand in shop windows. Dishes in Iran are made in underground workshops or places, which manufacture pans especially in big cities such as Tehran, Shiraz, Esfahan.

In recent years after Tehran, Shiraz has become one of the biggest sources where could find anything related to satellite in the Electronic Bazaar.

The interesting point in this report is that almost all the interviewees have learned adjusting and installing satellite dishes from the Internet, including reading the Persian edition of TELE-satellite magazine. Besides the Internet, some of them had the help of a friend or family member skillful in this field.

■ Multi-satellite reception is no problem:
just put a second LNB



Milad: „I have a cousin who is very professional in satellites. Alongside the Internet I've learned what I know by the help of him“.

Mehdi from Shiraz who started this job when he was only 18, said about his competitors: „In Shiraz you can find more than 10 wholesalers. There are a lot of installers in Shiraz maybe more than thousand, but I can't rank them. There isn't competition between us to gain clients, we all work together friendly“. Milad from Khozestan: „I can say that people who work in this state are the best, number one in Iran“. When I asked Davood from Arak how many installers are in his city, he only laughed!

I asked the installers, sellers and website owners, if they are under pressure or limitations by their families and what was thinkable here is that most of their parents are not aware or disagree with their activities in satellite tv. Alireza from Tehran is a young boy from a religious and famous family. His parents are not aware their son is a satellite installer. X from Esfahan said: „I don't care what my parents say, in my view it's an art“. Amir from Kerman: „My parents are well-known in my city and I've not let them know that, although I'm a student I'm an installer too. Maybe it would be bad for their name in my city“.

There are a lot of sites and weblogs and even electronic magazines about satellite in Iran. Saeed from Esfahan who is editor of one of the best electronic magazines and weblog in Iran said: „We are an eight-person group. I myself spend half of my day working and another half working on the satellite group completely for free“. He continued: „A strong feeling of love guides us through this way“.

When I asked his thoughts or ideas about the future of satellite tv in Iran he answered: „The government should accept the reality and it's better to leave them alone, who are active and interested in this field“. Other interviewees said the same and most of them had a hopeful view about the future of satellite reception in Iran. Sadegh from Kerman: „They will be forced to accept this situation which is out of control for lawmakers“. It is obvious that police raids and fines have not stopped dishes



■ Mehdi in Shiraz just installed this dish on a balcony, invisible from the street

springing up like mushrooms on the roofs of homes especially in the big cities.

All of the website owners were complaining about filtering on the Internet. One of them said (for his security he asked me not to mention his name and website address): „We were repeatedly threatened but still continue this way. Now we are a big group because after 4 years we have 140000 users“. Another site owner said: „The government has to accept our activities. To prevent backtracking I always enter my website by a London IP so I'll never be arrested by the police“.

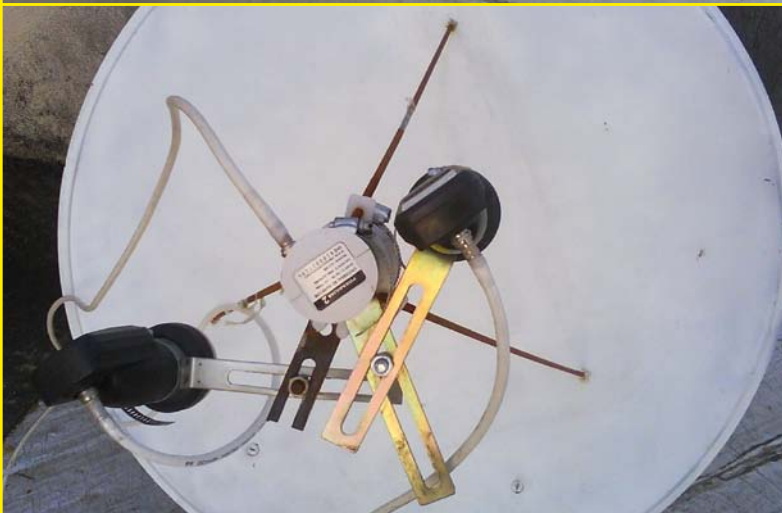
Davood from Arak said: „At least once a year I'm arrested by the police guard and have to pay different amounts of fines from 200 thousand Toman to 3 Million Toman“. The amount of the fine is different in each city. Alireza from Esfahan: „I was several times arrested, the police confiscated all my equipment and fined me more than the amount of all my materials“. Saeed from Esfahan: „They rushed into my house, seized and confiscated all my work's equipments then penalized me“.

Recently a satellite TV station, Farsi 1, is pulling in Iranian viewers by show-

ing soaps and sitcoms but has incensed the dissatisfaction of the clergymen and state television executives. Farsi 1 broadcasts popular Korean, Colombian and U.S. shows and also dubs them in our national language, Farsi, rather than using subtitles. Its popularity has increased since its launch in August last year.

The stateowned Iran TV has reacted and started to produce more attractive TV programs, popular homegrown comedies and soaps to catch the viewers and avoid them watching Farsi 1. Officials acknowledge that they jam many foreign channels, but Farsi 1, which operates out of the Hong Kong-based headquarters of Star TV, is still receivable in Tehran.

According to this research, unofficial reports and statistics, the number of satellite dishes in Iran is more than 8 millions. It can be estimated that around 85% of the population have access to satellite channels. This percentage is up to 95% in the southern and border regions. The increasing number of users has lowered the sensitivity of the officials and it seems that they unofficially decided to be more tolerant and patient against satellite reception in Iran.



Dishes in Zanzibar





Edited by
Branislav Pekic

EUROPE

PENTHOUSE, HUSTLER LAUNCH 3D CHANNELS

Adult programmers Penthouse and Hustler have launched 3D TV channels in Europe. Penthouse 3D is available on Astra satellite platform, airing from 23.00 to 05.00, and has already signed its first carriage deal with French IPTV platform Free. For its part, Hustler uses the Hotbird satellite and discussions are underway for carriage agreements.

FINLAND

FINNISH CHANNELS LAUNCH HDTV VERSIONS

YLE, MTV3 and Nelonen will start national HD broadcasts, after the Finnish Government granted licences in three new multiplexes. Multiplex VHF C will carry two HD channels: Canal+Series HD and 4 Pro 2 HD, Multiplex F will host Discovery HD Showcase, Eurosport HD, MTV3 HD, Nelonen HD, while Yleisradio Oy has reserved capacity for HD broadcasts on one channel. All of the operating licences are valid until 31 December 2016.

GERMANY

ONE MILLION 3D TV SETS TO BE SOLD IN 2011

From their rollout in April 2010 until the end of that year, some 200,000 3-D TV sets were sold in Germany and GfK predicts that sales will rise by 500 percent to one million sets in 2011. It expects the national market to approach 10 million TV sets in the long term. However, only 200,000 pairs of the special glasses needed to watch films in 3-D were sold along with the 200,000 TV sets.

SES ASTRA, DEUTSCHE TELEKOM COMBINE SATELLITE, IPTV

SES ASTRA has teamed up with Deutsche Telekom to combine the satellite TV and IPTV service Entertain. The offer will include all FTA channels in SD and HD, including HD+ as well as the typical Entertain services like VOD, a TV archive and an EPG. Entertain Sat also comprises time shift functions and HD recording with 500 GB memory.

VODAFONE INTRODUCES ABC TV ON DEMAND

The Walt Disney Company Germany has signed an agreement with Vodafone for the country's first ABC TV On Demand. This is one of the first ABC TV On Demand services available outside the U.S. The VOD offering includes a selection of ABC series, kids and family channels Disney XD and Playhouse Disney, as well as access to Disney film classics.

GREECE

NET GEO WILD HD LAUNCHES IN GREECE

National Geographic Channels International has launched its Nat Geo Wild HD network in Greece. The channel is available on the Nova pay-TV platform, where the SD version is already available.

MOLDAVIA

MOLDTELECOM SELECTS ENTONE HDTV BOX

Moldtelecom has selected Entone's Amulet HD IPTV Receiver as part of preparations for the launch of HD content on its IPTV service. Entone's Amulet IPTV Receivers offer modular DVR storage options via USB and eSATA ports, and support a range of content formats including MPEG-4 (AVC/H.264), MPEG-2, VC-1, DivX, Dolby Digital, Windows Media, and MP3.

THE NETHERLANDS

EREDIVISIE LIVE MIGRATES TO HD WITH GRASS VALLEY

Eredivisie Live has migrated to HD for the 2010/2011 season and the broadcaster's new play-out center uses Grass Valley K2 Summit media servers. Alongside the Dutch Premier League domestic games it also has rights to key matches from international competitions such as the UEFA Europa League and English FA Cup.

POLAND

HBO GOES HD IN POLAND

HBO has launched HD versions of all its channels on the Cyfra+, Cyfrowy Polsat and 'N' DTH platforms. HBO's new movie channels HBO2HD, HBO Comedy HD and Cinemax2 HD will be introduced to the Polish market for the first time. The new channels have the same programming offer and scheduling as the ones in SD.

N AIMS FOR 30 HD CHANNELS BY YEAR'S END

n is boosting its channel line-up as the platform is aiming to reach more than 30 HD channels before the end of the year. The latest addition to the HD line-up was National Geographic Channel HD, bringing the total to 26 HD channels.

PORTUGAL

ZON AIRS NBA GAMES IN 3D

Zon Multimedia is broadcasting eight NBA league games in 3D, on its 3D demo channel. Besides games of the regular season, five playoff games will also be broadcast.

SONY ENTERTAINMENT HD LAUNCHES ON MEO

Sony Entertainment Television has launched on Meo in the HD version. The channel is available in the Basic package for IPTV (ADSL and Fibre Optic) customers. With the arrival of Sony TV HD, Meo will have a total of 17 HD channels.

SPAIN

STARMAX SELECTS GLOBECAST FOR HD TRANSMISSION

Starmax HD is using content management and transmission services from GlobeCast for aggregation, encryption and delivery of its full channel line-up. The service includes fibre contribution from several countries, reception of SD and HD channels at the company's Sainte Assise Teleport in France, and signal compression in MPEG-4. Starmax HD offers a prepaid package without requiring a subscription or minimum sign-up period and uses STBs from Ferguson and access cards from Conax.

UNITED KINGDOM

VIRGIN MEDIA ADDS SKY ARTS HD

Virgin Media has boosted its HD channel offering, with the two Sky Arts channels. Virgin Media's channel line-up now includes 19 HD channels available at no extra cost for a total of 31 HD channels, with the addition of Sky 1 Arts HD and Sky Arts 2 HD. Sky is currently market leader with more than 50 HD channels, with Virgin Media a clear second in the market.

SONY TO BRING WIMBLEDON IN 3D

Sony and the All England Lawn Tennis Club announced a multiyear partnership to bring Wimbledon to 3D-ready digital cinemas around the world. The live 3D production, in partnership with Wimbledon host broadcaster BBC, also will be offered to broadcasters. Sony will work with Super-Vision Media, its theatrical distribution partner.

BBC CAUTIOUS ON 3D TV

The BBC is playing it cautiously over the implementation of stereoscopic 3D technology according to a recent report. The March version of the BBC's technology plan has shown that while trials are set to continue with the new format, it will not be investing in programme making for the time being. However the report does not rule out a more comprehensive strategy next year.

NHK WORLD HD AVAILABLE ON FREESAT

NHK World became the first news network to broadcast in HD on the Freesat platform in May. The Japanese TV channel became the fifth HD channel on the DTH service, joining BBC1 HD, The BBC HD Channel, ITV1 HD and C4 HD.

SKY LAUNCHES MULTIROOM HD BOX

Sky has launched a new midrange set top box aimed at customers wanting to watch HDTV in more than one room. When taken with Sky's HD pack, the new Sky HD box gives customers access to the same line-up of more than 50 HD channels, including Sky Atlantic HD, BBC One HD and Sky Sports 1 HD. The receiver completes Sky's HD product line-up, alongside the standard Sky+ HD box and the 1 TB receiver.

NORTH AMERICA

CANADA

VIDEOTRON BOOSTS HD LINE-UP WITH OWN, CNN

Videotron has added two more HD channels – Oprah Winfrey Network (OWN) and CNN to its digital TV service. With these additions, illico TV now boasts a selection of programming on nearly 400 channels, and the largest selection of HD content. The new HD channels are available everywhere in Videotron's service area except Gatineau/Rockland.

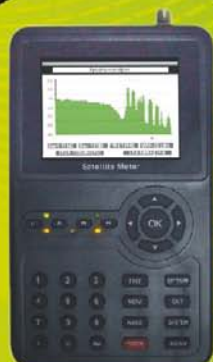
UNITED STATES

3DTV SETS IN 15 MILLION U.S. HOMES BY END-2012

About 15 million 3DTVs will be in homes across the United States by the end of 2012, a study released today by Futuresource Consulting claims. The growth of 3DTV adoption will rely upon the availabil-



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ity of 3D content, Futuresource says, adding that 11 3D services, 2 3D channels, and 6 VOD offerings were available to customers at the end of 2010.

PBTv ADDS SIX HD CHANNELS

Paul Bunyan Communications has added six more networks in HD to Paul Bunyan Television HD service. The networks added to PBTv HD service include MTV, Comedy Central, VH1, Spike, Nickelodeon and CMT. There is no change in the cost to receive PBTv HD service, which now has more than 30 channels available.

AT&T ADDS FOX SOCCER PLUS HD

AT&T has added FOX Soccer Plus HD to the U-verse TV channel line-up for \$15 per month. AT&T U-verse TV includes access to more than 155 HD channels and growing.

DISH NETWORK ADDS RFD-TV IN HD

RFD HD is now available at no additional cost to all DISH Network customers who subscribe to the America's Top 200 programming package or above. RFD-TV serves rural America with a 24-hour schedule of original and family-oriented programs that cover the rural way of life, including agriculture, equine, music and entertainment.

VERIZON ADDS BET HD TO FIOS TV

Verizon has added BET HD for its FiOS TV customers, providing hit music, entertainment and news programming geared toward the African-

American audience. BET HD joins FiOS TV's broad collection of programming, which offers more than 520 all-digital channels including up to 146 HD channels and 19,000 monthly VOD titles.

LATIN AMERICA

IPTV TO ACCOUNT FOR 12.1% OF HD SUBSCRIBERS IN 2015

According to consultancy Dataxis NexTV, in 2010 IPTV accounted for 4% of the total volume of HDTV subscribers in Latin America and this figure should grow to 12.1% by 2015. Driving growth in IPTV is going to the large operators like Telmex Mexico, Telefónica Chile and GVT Brazil. Dataxis NexTV forecasts that HDTV subscribers could reach 16.5 million in 2015, representing 22.7% of the total pay-TV subscriber base compared with 5.4% in 2005. Brazil, Mexico and Argentina will account for 79% of those HD subscribers. However, Brazil, Chile and Colombia are seeing the highest HDTV penetration rates.

BRAZIL

VIA EMBRATEL ADDS ESPN, TELECELINE ACTION HD

Via Embratel has expanded its offering of HD channels. ESPN HD and Telecine Action HD were incorporated into the operator's HD package free of charge. The new channels com-

plement the HD grid, which already includes Globosat HD, Multishow HD, Discovery HD Theater, Fox NatGeo HD, TNT HD, HBO HD, Max HD, Telecine HD and Telecine Pipoca HD.

CHILE

ECHOSTAR EUROPE SUPPLIES STB FOR TELEFONICA MOVISTAR

EchoStar Europe has supplied a HD set-top box to support Telefonica Movistar HD service that allows users to watch up to 1000 channels including HD services. The twin-tuner HDS-600 ships with software that enables the consumer to upgrade to DVR using an external USB hard disk drive.

ASIA & PACIFIC

INDIA

DISH TV LAUNCHES 30 HD CHANNELS

Dish TV has launched 30 new HD channels including Zee TV, Zee Cinema, Zee News, Zee Studio, Zee Caf, HBO, Movies Now, Discovery, National Geographic, Animal Planet, Zee Talkies, Zee Bangla, Zee Telugu, Zee Kannada, Times Now, ET Now, Cartoon Network, POGO, Ten Sports, AXN, MTV, VH1, WB, Pix, TLC, Ten Cricket, UTV Action, UTV Movies, Sony and Colors.

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VIDEOCON LAUNCHES DVR WITH 3D

Videocon d2h has launched India's first HD DVR with 3D. The main features include recording up to 200 hours, 16:9 aspect ratio, 5x digital picture quality and HD Digital sound. The newly added HD channels are Discovery HD, NGC HD, Movies Now HD, Travel XP, HD Active Music, HD d2h Movies, Baby TV, Spacetoon, FX, Fox Crime, Big CBS Prime, Discovery Science, Discovery Turbo, NGC Wild, NGC Adventure and NGC Music.

SOUTH KOREA

ICONCERTS SECURES CARRIAGE ON KT

Swiss HD music events service iConcert has secured multi-platform carriage with Korean IPTV operator KT. The iConcerts is available on the Olleh N-Screen service, as a live or VoD channel on wired and wireless internet services, including tablet PCs and other mobile devices.

OCEANIA

AUSTRALIA

TEN NETWORK LAUNCHES ONE HD

The Ten Network launched its HD sports channel One, with general entertainment programming set to take over its schedule from May. One HD is targeted to a male audience, with a mixture of drama, HD movies and documentaries, as well as premium sport.

NEW ZEALAND

HDTV COVERAGE EXTENDED NATIONWIDE

The New Zealand Government is extending the existing DTT service to Whangarei, Rotorua, Gisborne, Taupo, New Plymouth, Whanganui, Wairarapa, Nelson, Timaru and Invercargill, making it available to an extra 160,000 households. The decision means over 86% of the population will be able to receive the HDTV signal via UHF aerial by September 2011.

SINGAPORE

ONE HD PREMIERES ON STARHUB

Sony Pictures Entertainment Networks Asia has teamed up with StarHub to expand the reach of its Asian general entertainment channel One. StarHub is One HD with Chinese subtitles and a two-hour primetime program dubbed in Mandarin.

AFRICA

SOUTH AFRICA

DSTV LAUNCHES THIRD SUPERSPORT HD CHANNEL

DSTV has launched its third HD sports channel, in addition to the two existing SuperSport HD channels. SS HD3 airs 24-hour English Premier League channel, with a limited amount of programming in SD. The addition of SS HD3 brings

the total number of HD channels on DSTV to six: three SuperSport HD channels, M-Net HD, M-Net Movies 1 HD and Discovery HD Showcase.

WORLD

GLOBAL HDTV SUBSCRIBERS TO TOTAL 225 MILLION IN 2011

The number of pay-TV customers worldwide with subscriptions to HDTV services is expected to reach 225 million this year, according to ABI Research. There were 704 million pay-TV subscribers globally as of the end of 2010, an increase of 56 million from the previous year.

RRSAT PROVIDING 3D DELIVERY OF FASHION TV

RRsat Global Communications Network is providing uplink, play out and connectivity services for fashionTV H3, the 3D programming on the Fashion TV Paris HD channel. FTV has doubled the shows broadcast as part of the FTV HD programming played out and distributed by RRSat on its DTH platforms on the Intelsat-805 satellite over North, Central and South America, on the Eurobird 9A satellite to Europe, the Middle East and Africa, and on the Asiasat-5 satellite to Asia and Australia.



Edited by
Branislav Pekic

EUROPE

AUSTRIA

TELEKOM AUSTRIA IPTV SUBSCRIBERS UP 50%

Telekom Austria had reached over 151,000 subscribers for its IPTV service aonTV by the end of 2010, up more than 50% from one year previously. Thanks to agreement with On Demand Deutschland, aonTV subscribers will be able to watch 3D versions of blockbusters whenever they want and with complete time-shifting capabilities.

BELGIUM

BELGACOM IPTV SERVICES TOP 1.1 MILLION

Belgacom added 223,000 subscribers for its IPTV service Belgacom TV last year to reach a total of 975,000 customers by the end of 2010. Rival Mobistar reached 10,000 subscribers for its hybrid TV service Mobistar TV, launched October 2010. Mobistar plans to add a further 50,000 TV customers by the end of 2011.

CROATIA

T-HRVATSKI TELEKOM CLOSE TO 300,000 IPTV SUBSCRIBERS

T-Hrvatski Telekom had reached 297,496 subscribers for its IPTV service MAXtv by the end of 2010, up 26.1% from one year previously. Growth was driven by continuing promotions and attractive content packages, including new films and HBO programming, and the launch of a Sports package.

FRANCE

SFR PROVIDES SUBSCRIBERS WITH 120 TV CHANNELS ON MOBILES

SFR has enhanced its app for iOS and Android smart phones and tablets by enabling its IPTV subscribers to watch over 120 live TV channels on their mobile devices. The app also allows users to consult their full EPG, schedule recordings remotely, set reminders, and browse the VOD library. SFR has also boosted its on-demand library of 3D content.

FRANCE TELECOM WITH 3.5 MILLION PAY-TV SUBSCRIBERS

France Telecom reached 3.505 million customers for its pay-TV services (delivered by IPTV and satellite) at the end of 2010, up 27% year-on-year. The Orange IPTV service recently added a new top-tier channel package, new information services, and launched a new application which can stream content from Orange cinéma series to a variety of screens including Android devices.

GERMANY

VODAFONE GERMANY LAUNCHES HYBRID TV PLATFORM

Vodafone Germany has officially launched its hybrid TV service, Vodafone TV, based on

the company's Vodafone TV Center box. The service allows customers to receive analogue cable and digital satellite channels alongside Vodafone TV's IPTV offering, Videothek, available over its DSL network. The starter package offers 50 TV channels plus 12 HD channels.

DEUTSCHE TELEKOM SELLS 1.6 MILLION IPTV SUBSCRIPTIONS

Deutsche Telekom reports that it had sold 1.6 million subscriptions to its IPTV service T-Home Entertain by the end of 2010. Total active IPTV subscriptions in Germany had reached 1.156 million by the end of last year, up from 1.042 million one year previously. The operator had also reached 654,000 active IPTV subscribers in other European markets by the end of 2010.

CTC MEDIA SIGNS GERMAN IPTV DEAL

CTC Media has signed an exclusive agreement to distribute the CTC-International channel via the Kartina TV IPTV network, with a one-year right to sublicense it to other IPTV networks across European territories.

WATCHDOG BLOCKS ONLINE TV PLATFORM

Germany's antitrust watchdog has vetoed plans by RTL and ProSiebenSat.1 to launch a joint online video platform for their own content as well as that of other broadcasters. The Federal Cartel Office believes the joint platform "would further strengthen the still existing dominant duopoly between the two broadcasting groups".

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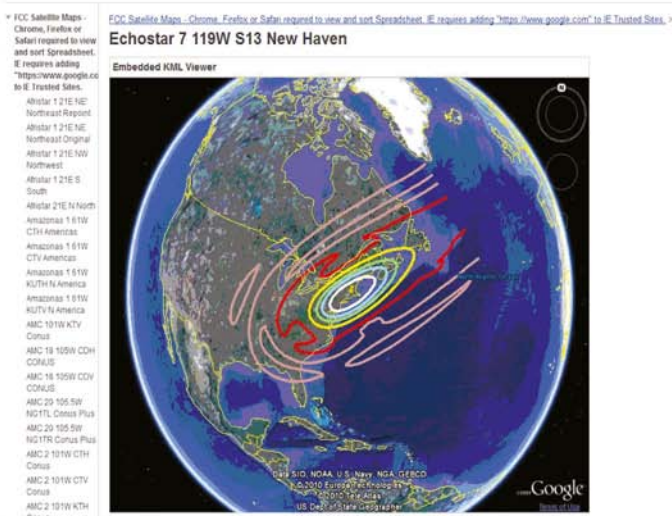
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HUNGARY

HUNGARY WITH 557,000 IPTV SUBSCRIBERS

Hungary's twelve biggest digital TV companies had 1,423,000 subscribers at the end of December 2010, according to the National Media and Infocommunications Authority (NMHH). The number of their digital subscribers with cable or IPTV connections rose by 20,000 to 557,000 during the month.

ICELAND

VODAFONE ICELAND SELECTS AMINO IPTV BOXES

Vodafone Iceland has selected Amino Communications' HD set-top boxes for the next phase of its IPTV service rollout. The operator will deploy a number of Amino A140 SD/HD STBs as part of a service upgrade of its IPTV service which offers TVoD, Catch-up and 100 TV channels to over 25,000 customers.

ITALY

ACCENTURE HELPS MEDIASET LAUNCH OVER-THE-TOP TV

Accenture is providing a solution for Mediaset, enabling the broadcaster to provide Over-the-Top services for TV, PC and other devices as part of the Mediaset Premium offer. Customers will be able to access linear content and non-linear services such as Catch-up TV, VOD and Virtual Linear Channels on the TV set. Premium Net TV will offer over 1,000 different types of

content, including HD films, TV series, cartoons, documentaries and football matches.

KOSOVO

HARMONIC POWERS PTK IPTV SERVICE

PTK has deployed Harmonic's IP-based digital video head end solutions for its new IPTV service. The solution includes ProView integrated receiver/decoders (IRDs), Electra 8000 dual-channel SD/HD encoders, Ion AVC encoders, and NMX Digital Service Manager. BeeSmart is providing the interactive TV middleware platform.

MOLDAVIA

MOLDTELECOM SELECTS MID-DLEWARE FROM MINERVA

Moldtelecom has started scaling up its IPTV service using middleware from Minerva Networks, delivering the service to tens of thousands of subscribers. The operator offers two basic packages and one thematic package for adults. It also recently added an HD package to its content line-up.

MONTENEGRO

CRNOGORSKI TELEKOM UPGRADES IPTV PLATFORM

Crnogorski Telekom introduced a new software solution for its IPTV platform Extra TV. The solution is based on one of the newest version of the Microsoft Mediaroom software, with new features including the addition of favourite channels in real time, the scheduling of recordings, as well as

access to social networks. Since 2010, Crnogorski Telekom is the pay-TV market leader, with a 38 percent market share (42,8000 subscribers).

NETHERLANDS

KPN IPTV SUBSCRIBERS MORE THAN DOUBLE

KPN more than doubled the customer base for its IPTV service Interactieve TV last year to reach 302,000 subscribers by December 2010, compared to 106,000 one year previously. An estimated 80% of Dutch households are now covered, while around 69% of Dutch households are capable of receiving its HD IPTV service.

POLAND

TPSA WITH 544,000 PAY-TV SUBSCRIBERS

TPSA had reached 544,000 subscribers for its TV services (delivered via DTH and IPTV) by the end of 2010, having added 47,000 customers in the 4Q period. The company reports that its pay-TV services now have a 23.8% penetration of its broadband subscriber base.

PORTUGAL

PORTUGAL TELECOM INTRODUCES PRE-PAID CARD FOR VOD

Portugal Telecom has enabled subscribers of its IPTV service Meo to pay for VOD with pre-pay cards. The cards have a value of EUR 5 or EUR 10, valid for a three-month period. Portugal Telecom had reached 830,000 Meo

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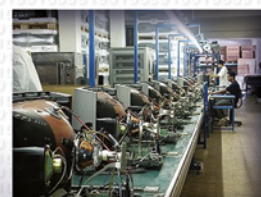


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subscribers by the end of 2010, having added 249,000 customers in the 12-month period.

ABC LAUNCHES VOD SERVICE WITH ZON

ABC TV On Demand has launched in Portugal through subscription VoD operator Zon. Some 500 ABC shows, including Grey's Anatomy, Desperate Housewives and Lost, will be available with new content added each month. Zon customers with subscriptions to its Filmes e Séries Ilimitado on Videoclube package can now access the ABC service for EUR 10 per month.

RUSSIA

NTV PLUS, SMARTLABS LAUNCH JOINT IPTV SOLUTION

NTV-Plus has partnered with SmartLabs to jointly deliver a new IPTV service aimed at Russian broadband operators. SmartLabs will provide customers with client applications and a centralised management system for IPTV services and resources, while NTV-Plus will provide them with access to premium TV content.

VLADLINK TO LAUNCH IPTV IN FAR EAST

Vladlink is conducting trials of IPTV services in Russia's Far East, in preparation for a full commercial launch with its residential customers. The company has selected Netris to provide its iVision middleware for the new service, to be called Vladlink.TV.

URALSVYAZINFORM UPGRADES IPTV PLATFORM

Uralsvyazinform has upgraded its IPTV platform using an end-to-end solution from Moscow firm SmartLabs. The Utel.TV IPTV service currently offers 96 SD channels, five HD channels and

one 3D channel, as well as a range of on-demand content in SD, HD and 3D. In the near future, Uralsvyazinform is expected to introduce over-the-top (OTT) access to Utel.TV from PCs, iPhones, iPads and Android-based devices.

SCANDINAVIA

DREAMPARK PROVIDES MIDDLEWARE SOLUTIONS

Dreampark is providing its TV middleware solution to Faroese Telecom in the Faroe Islands as well as to Finland's Alcom. The Finnish operator is swapping out a competitor's middleware solution and replacing it with the Dreampark Dreamgallery middleware. Meanwhile, Motorola Mobility has signed an agreement to acquire Dreampark and the acquisition should be closed before the 2Q 2011.

OUTDOOR CHANNEL ARRIVES IN SCANDINAVIA

Outdoor Channel has launched on Telia-Sonera's IPTV platform in Sweden and Finland, with upcoming launches planned for Norway and Denmark. The deal is part of a joint venture between Chello Zone and the Outdoor Channel announced last year.

SPAIN

TELEFONICA REACHES 788,000 IPTV SUBSCRIBERS

Telefonica has reached a total of 788,000 IPTV customers by the end of 2010, giving it a 19% market share of the Spanish pay-TV market. The Movistar Imagenio service is adding Sundance Channel Global to its channel line-up on June 1. Additionally, Movistar

Imagenio will offer both the SD and HD versions of Sundance Channel on demand.

TV3 DEPLOYS ANEVIA IPTV SOLUTION

TV3 has chosen to deploy Anevia's IPTV gateways for use within its broadcasting facilities. Anevia IPTV gateways receive live TV broadcasts in DVB and analogue formats and streams them over an IP network.

SWITZERLAND

SWISSCOM REPORTS 81% GROWTH IN IPTV SUBSCRIBERS

Swisscom has reached 421,000 subscribers for its IPTV service Swisscom TV by the end of 2010, up 81.5% from one year previously, having added 63,000 new customers in the last quarter alone.

TURKEY

TTNET LAUNCHES IPTV SERVICE IN TURKEY

TTNET has launched its IPTV service, Tivibu Ev, following the launch of the Web TV service one year ago. A mobile version, Tivibu Cep, will be available in the 2Q 2011. On Demand Group is TTNET's international VOD content management partner.

NORTH AMERICA

CANADA

TELUS ADDS 48,000 IPTV SUBSCRIBERS IN 4Q 2010

Telus had reached 314,000 IPTV subscribers by the end of 2010, up 85% from one year previously.

TRAYTEL SELECTS CALIX FOR IPTV LAUNCH

COLBA.NET TO LAUNCH IPTV

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SALISBURY TO DEPLOY MINERVA MIDDLEWARE

U-VERSE TV WINS INDUSTRY AWARD FOR BEST MULTISCREEN TV

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TELBO SELECTS AMINO IPTV SET-TOP-BOXES

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BTRIB TO DOUBLE IPTV SUBSCRIBERS

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QATAR

QTEL TO ADD HDTV AND VOD IN 2011

Qtel plans to start offering fibre-based services for customers in mid 2011, including high-speed Internet, HDTV, and advanced services such as movies and VOD. More than 300km of fibre network has been laid to replace the existing copper network across Doha.

SAUDI ARABIA

SAUDI TELECOM IPTS FOR JDSU IPTV SOLUTION

Saudi Telecom (STC) has selected JDSU to provide a comprehensive IPTV end-to-end service assurance solution. Saudi Telecom launched its IPTV service inVision in August 2010, initially available in Riyadh, Jeddah and Dammam, and more recently introduced new sports packages.

UNITED ARAB EMIRATES

ETISALAT SELECTS IPTV TECHNOLOGICAL PARTNERS

Pace and Verimatrix have been appointed by Etisalat to enable delivery of digital TV services to customers. The Pace HD PVR will provide VOD, PVR and Interactive services, while Pace's Advanced Residential Gateway enables delivery of a variety of wireless digital services into the home through a single device. A Verimatrix Video Content Authority System (VCAS) solution is being used to secure revenue streams from Etisalat's IPTV service.

AFRICA

EGYPT

EAMS CHOOSES LATENS, DREAMPARK CAS FOR IPTV PLATORM

EAMS has chosen Latens software-only Conditional Access System (CAS) to protect its Satellite IPTV delivery system. The EAMS Ecosystem will consist of Latens CAS, plus other system components. EAMS plans to offer HD/SD linear TV, PPV, and VOD services using satellite delivery of content via Nilesat to 50 regional head ends. The IPTV operator has also chosen the Dreampark Dreamgallery Middleware.

WORLD

GLOBAL IPTV SUBSCRIBERS TO REACH 70 MILLION IN 2015

Subscriber growth in China, Latin America and Eastern Europe will help double the number of IPTV subscribers worldwide to 70 million by 2015, according to a report from IMS Research. The market, which currently stands at 36.5 million, will see a slowing of growth in Western Europe as that market reaches the saturation point. Only China is expected to see continued strong growth.

OVER 11.5 MILLION IPTV SUBSCRIBERS ADDED IN 2010

The total number of IPTV subscribers worldwide had reached nearly 45.4 million at the end of 2010, with over 11.5 million added in 2010, according to the latest figures from the Broadband Forum. Europe is still the number one region for IPTV subscribers, but the growth rate was lower mostly due to market saturation. Asia recorded a 50 percent growth last year and should overtake Europe in 2011. The Middle East & Africa region had the strongest percentage growth at 63.5%. France remains the leading IPTV nation (10 million subscribers), closely followed by China (including Hong Kong, Macau and Taiwan), which should overtake France in 2011.



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Issue	TELE-satellite 06-07/2011	TELE-satellite 08-09/2011	TELE-satellite 10-11/2011
#	1107	1109	1111
Editorial Deadline	1 April 2011	3 June 2011	5 August 2011
Advertisement Deadline	8 April 2011	10 June 2011	12 August 2011
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www.communicasia.com

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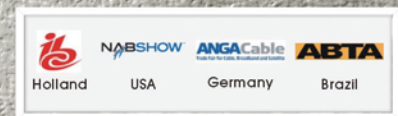


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