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 Expand Your Dish to 2 Satellites and 4 Receivers



**Test Report**  
**Promax TV Explorer II+**  
 Find Those Hidden Transponders

**Test Report**  
**AF-9400PVR HDMI**

TELE **SATELLITE**  
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 06-07/2008

# ARION



## Amazing Picture



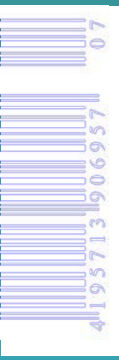
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# Exclusively for TELE-satellite Readers

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Activation  
Code**

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Valid until the publication of the next issue of TELE-satellite magazine

Download SatcoDX Software here:  
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### Step by Step Guide to Get SatcoDX Software Running on Your Computer:

1. Download SatcoDX Software Version 3.12 from the above URL, or install from CD-ROM

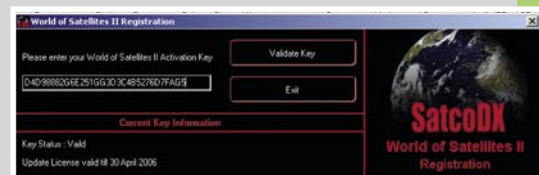
**Note:** if you have already installed Version 3.12, you do not need to do it again. Check your currently installed version by clicking the HELP button, then

ABOUT. The third line tells you the version installed on your computer

2. Enter the Activation Code by clicking LICENSE and then REGISTRATION. After entering Activation Code click VALIDATE KEY and EXIT. Now you are ready to download the newest satellite transponder data anytime you want, provided your computer is connected to

the Internet and is allowed to access FTP.

**Note:** SatcoDX Software also runs without Activation Code, or with an outdated Activation Code. However, the satellite data on



display will be either from last time you performed an update, or from the time when original software has been compiled. By default, each SatcoDX software contains the set of satellite data as current as when it was compiled and put together.



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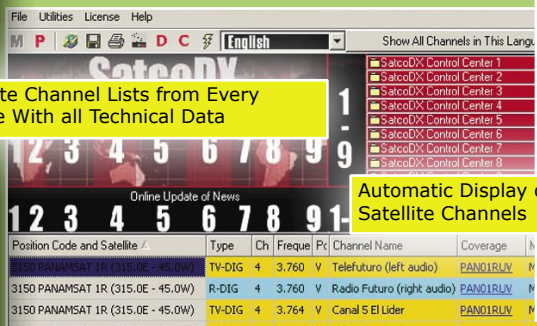
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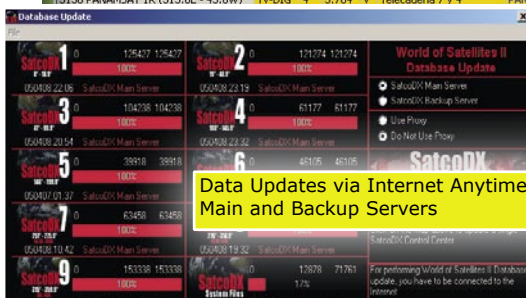
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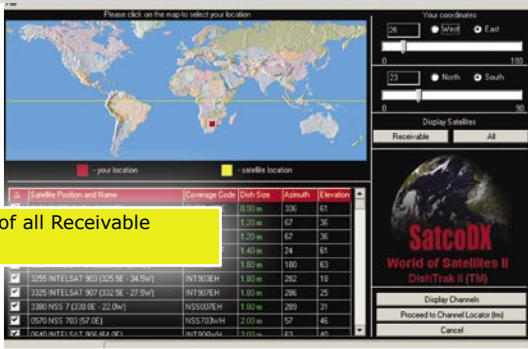
Complete Channel Lists from Every Satellite With all Technical Data



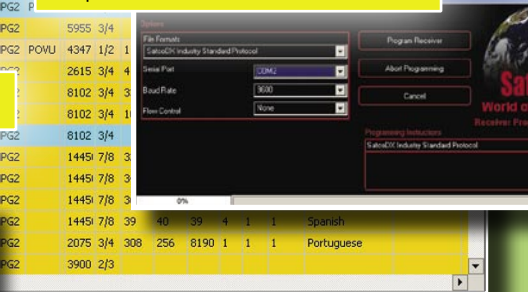
Automatic Display of all Receivable Satellite Channels



Data Updates via Internet Anytime via Main and Backup Servers



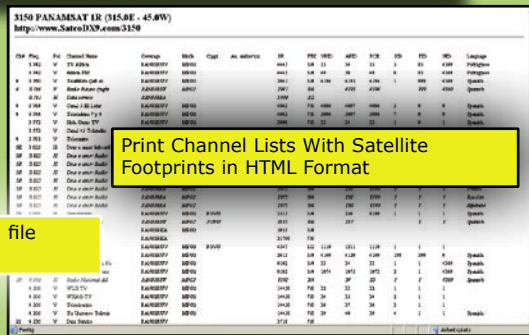
Automatic Programming of SatcoDX Compatible Receivers



Print Channel Lists With Satellite Footprints in HTML Format

- SatcoDX Industry Standard Protocol [\* .sdx]
- SatcoDX Industry Standard Protocol Professional [\* .sdp]
- SatcoDX Tabulator Delimited Text File [\* .txt]
- SatcoDX Comma Separated Text File [\* .csv]
- HTML (SatcoDX Style) [\* .htm]
- HTML List (With Coverage Images) [\* .html]
- HTML List (Without Coverage Images) [\* .html]
- DVB '98 Settings Editor Text File [\* .txt]
- DVB2000 Binary File [\* .dwb]
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Save Chart Data in many useful file formats





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Comon Interface Slot

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**The New**



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- HDMI & Component (YPbPr) Outputs: 1080i, 720p, 576p & 576i
- USB 2.0 for MP3 & JPEG Playback and for Data/Software Transfer
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- Built-in Upscaler to Improve Standard Picture Quality
- 1 Smart Card Reader & 2 Common Interface (CI)

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### TM-6900 HD COMBO

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\*may need to be powered



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# Dear Readers



*TELE-satellite will be spending more time in the future on the subject of signal analyzers. In this issue we are introducing two new signal analyzers: a powerful and complex unit as well as one geared more for normal users. Why are these signal analyzers becoming more and more important? Simple: the technology is becoming increasingly complex. An even more important reason is the ever-increasing number of satellites. More and more satellites are being positioned closer to each other. That alone makes the proper alignment of satellite antennas all the more critical. With only 2° or 3° of separation, it's all too easy to point your dish to the wrong satellite by mistake. The result is that the satellite you want is weaker to receive. Once bad weather arrives, you lose whatever reserve signal you had.*

*With the naked eye and using a living room receiver as your "signal analyzer", you might never notice a slight misalignment of the antenna: the incoming signal is always at its best when the weather is nice (who installs an antenna in the pouring rain?). Only when a proper signal analyzer is used can you reliably determine even on a bright sunny day that the antenna is correctly aligned. The alignment is performed using only the signal analyzer; switching to TV reception takes place only after successful antenna alignment – and is not used as an alignment aid.*

*Precise alignment becomes even more critical with the reception of two satellites, whether it's with a Monoblock LNB such as the 6° model*

*also introduced in this issue or with a multifeed mount. In a case like this, two individual satellites need to be optimally received and this typically can only be done with the help of a signal analyzer. The reception of two (or even more) satellites is becoming more and more important: new HDTV channels are often transmitted from new satellite positions; the need to receive two satellites is becoming far more necessary.*

*The professional installer always knew why he needed to use a signal analyzer. Now the occasional installer and even private users will sooner or later not be able to get around using a signal analyzer. The falling prices put these products easily within reach. A true Man-toy would be the small handheld units with built-in TV monitor – just such a unit is also being introduced in this issue.*

*If you are regularly involved with satellite reception, you can't do without a signal analyzer – in the end, it's all about having a little fun, isn't it?*

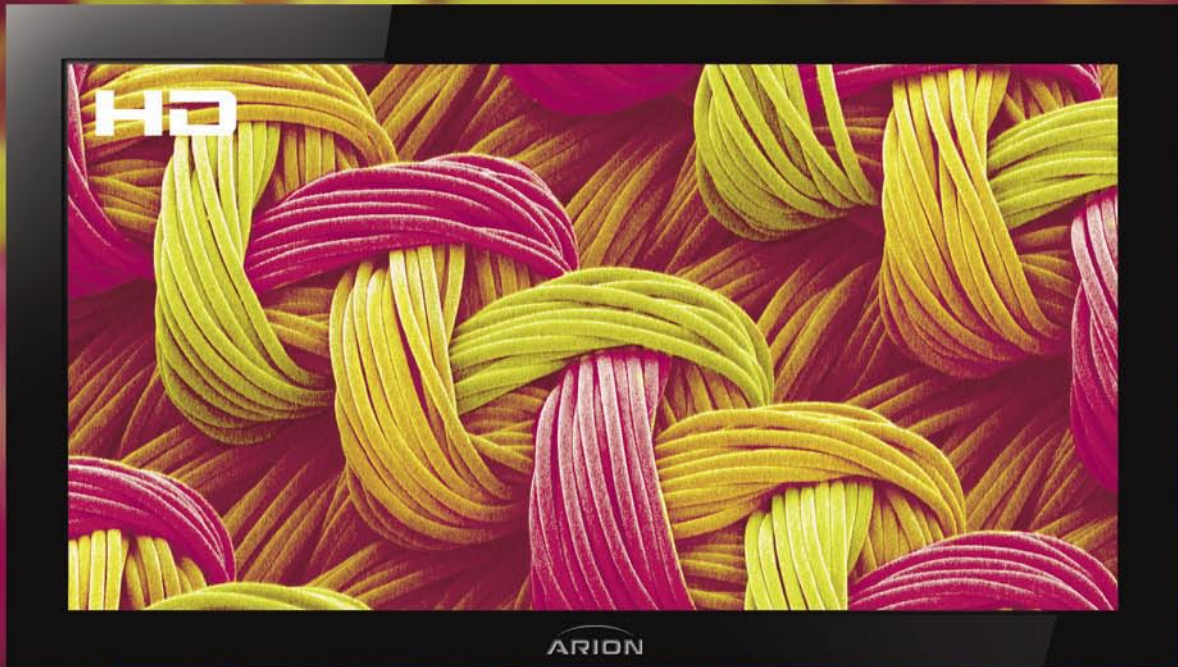
**Sincerely,  
Alexander Wiese**

*P.S.: My favorite radio station of the month: mP3 from Norway, THOR at 359° east (1° West) 11.372V audio-PID 706 – not to be confused with the P3 channel with audio-PID 702. mP3 is – and who couldn't tell by its name – NRK's kid channel in Norway that plays all the top hits with no interruptions and no commercials.*

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# Who makes HD quality?



Pure & Vivid HD picture / Stylish wide body (430mm) with VFD front panel display / Supporting 2 CAMs of DVB Common Interface Standard / Various Video Display Format With PAL/NTSC/576p/720p/1080i 50Hz/60Hz Support / HDMI Digital Audio & Video Output / Easy and Fast Auto Programming, Intuitive User Interface / Supports RS-232C port for S/W upgrade

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HDTV for satellite and cable reception

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- opt. out for Dolby Surround Sound
- Nagravision embedded
- HDMI (with HDCP)
- 2 x CI Slots
- 2 x Scart

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- Audio decoding: Dolby AC-3 (Dolby Digital)
- AV File transfer by USB 2.0 port
- 2 Common Interfaces
- HDMI output

#### TOPFIELD

TF-7700 HD PVR

**NEW**



HDTV Digital Satellite Receiver with Personal Video Recorder

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

#### TOPFIELD

TF-7700 HSCI / TF-7700 HCCI



HDTV for satellite and cable reception

- Supports MPEG-2, MPEG-4, H.264 and fully DVB compliant
- 2 Common Interfaces
- USB 2.0 supported for fast PC interface
- VFD Display for service information

#### HUMAX

**PREMIERE** Receiver

PR FOX II



- Premiere and Kabel Digital
- 1000 services (TV and Radio) programmable
- Optical digital output

BLU FOX S

**blucom ENTAVIO**



- Premiere and Premiere Star
- interactive services via mobile phone by Bluetooth
- Optical digital output

BLU FOX CI

**blucom ENTAVIO**



- Premiere and Premiere Star
- interactive services via mobile phone by Bluetooth
- 1x CI Slot
- Optical digital output

#### TOPFIELD

TF 6000 FE



Digital Satellite Receiver

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

TF 6000 T

Digital Terrestrial Receiver

- MPEG-2 Digital and fully DVB compliant
- 2000 services (TV and Radio) programmable
- Multilingual Audio support

#### HUMAX

F3 FOX CI



Digital Satellite Receiver with CI Slot

- Scrambled channel receivable with DVB CI.
- MPEG-II Digital & Fully DVB Compliant.
- Max. 4000 channels receivable.
- Channel list mode
- 4 Favorite channel groups
- DiSEqC version 1.0, 1.2 USALS compliant

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**emitor**

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- Digital Satlook NIT
- Satlook Micro +
- Satlook Mark IV

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ALSO AVAILABLE:

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- Digisat+
- Digisat Pro
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Digital Satellite Personal Video Recorder

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- Picture-in-Picture
- Dual Recording

Available in black and silver

**TOPFIELD**  
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Digital Satellite Wireless Lan PVR

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- Alphanumeric VFD Display
- Dual decoding (PIP) and Dual tuner

Available in black and silver

**PCMCIA-Modules**



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

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

**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 Quattro Switch
- KU
- C Band
- Circular
- and many more

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V-Series



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- V-8 Octo
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- JAEGER
- JOHANSSON
- MAXIMUM
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up to 17 in/8 out

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- 25 cm distance - Aluminium
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- 50 cm distance - Steel
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- F-Connector - 7 mm
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- TWH-031
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**IRTE**

**TRIAx**

**emme esse**  
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- 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
- 160 cm - White

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- SDI 1,80 m
- Mesh 3,10 m
- Mesh 3,70 m
- Irte 2,00 m
- Irte 2,40 m



**Motors**

Aktuatoren/ Actuators

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- Regular Actuators - 12", 18", 24"
- Heavy Actuators - 24", 36"

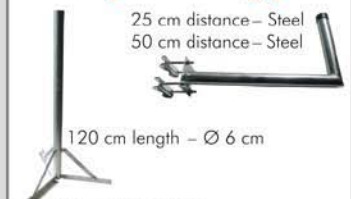


H-H Mounts

- SG 99 - up to 1,00 m
- SG 107 - up to 1,10 m
- SG 2100 A DiSEqC 1.2 - up to 1,00 m
- Stab HH100 DiSEqC 1.2 - up to 1,00 m
- Stab HH120 DiSEqC 1.2 - up to 1,20 m

**Balcony mounting parts**

- 25 cm distance - Steel
- 50 cm distance - Steel



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

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**ONE IN FIVE HOMES HAS HDTV SET**

Satellite operator SES Astra says one in five European homes now has an HDTV set, with more than 37 million HD Ready sets bought in Europe since Feb 2005. According to data drawn from GfK Retail & Technology, almost 40 million HD Ready sets, either Plasma, LCD or rear projection, are in use, while another 24-25m flat panel sets (without the HD Ready tag) are in use. Based on the latest data from Screen Digest, SES Astra expects Europe to have some 400 HDTV channels by 2012, with about 160 of them on satellite.

**AUSTRIA**

**ADB TO SUPPLY IPTV BOXES TO TELEKOM AUSTRIA**

Advanced Digital Broadcast (ADB) has been selected to supply high definition, Advanced Video Coding (AVC) ADB-3800W IPTV set-top boxes to Telekom Austria for their IPTV television services. In addition to 82 TV programmes the IPTV television service includes VOD, an EPG and radio channels.

**FRANCE**

**FREE LAUNCHES NEW FEATURE**

IPTV provider Free has launched a new option allowing subscribers to 'broadcast' websites on television. The Telesite service allows customers to restrict the site to their own Freebox or available to all Free users. It also allows customers to upload videos via the TV Perso feature or the Telesite service. The current availability of these services is only to Freebox HD subscribers.

**EUROSPORT TO LAUNCH HDTV SERVICE IN MAY**

Eurosport will launch an HD simulcast channel on May 25, just in time for the start of the French Open-Roland Garros tennis Grand Slam. Additionally, viewers can count on seeing content from the Tour de France and the Beijing Olympics. Carriage agreements have been signed with platforms in Israel, Turkey, Portugal and the Nordic countries.

**GERMANY**

**JDS UNIPHASE TO PROVIDE IPTV TEST SERVICE TO DT**

California-based provider of optical communications products and services, JDS Uniphase, will supply its IPTV test service to global carrier Deutsche Telekom. JDSU's NetComplete service assurance system and associated IP test probes will be deployed in Deutsche Telekom's network.

**GREECE**

**ERICSSON PROVIDES IPTV SOLUTION FOR OTE**

The Hellenic Telecommunications Organization (OTE) has picked Ericsson as an end-to-end IPTV systems integrator, solution provider and business consultant. The initial offer includes broad range of broadcast channels, VOD, EPG, and PVR capabilities.

**ICELAND**

**VODAFONE OPTS FOR SECUREMEDIA FOR IPTV SECURITY**

Vodafone Iceland has implemented and deployed the Encryptonite ONE System from SecureMedia in order to protect its next generation end-to-end IPTV

offering. Vodafone Iceland offers mobile, fixed-line, FTTH, and ADSL/Internet services, while its IPTV service features an extensive video offering complete with customer personalization and interactivity.

**IRELAND**

**SMART TELECOM LAUNCHES IPTV SERVICE**

Smart Telecom in April launched its DSL-based multi-channel IPTV service in the 37 unbundled exchanges in which it currently offers broadband. The soft-launch will begin with selected customers closest to exchanges, before a general rollout across the country. Smart plans to invest US\$4 million in a MPEG 4 IPTV head end and middleware solution from Thomson. The operator will deliver more than 100 TV and radio channels to an addressable 550,000 homes.

**ITALY**

**MCDONALDS TO INSTALL IPTV NETWORK**

SkyRec will use CodecSys from Broadcast International to implement a private IPTV network in 335 McDonald's restaurants throughout Italy -- the first implementation of its kind. In partnership with Samsung Italy, the new network will deliver proprietary video content. This content includes sports, live news and sports, in addition to pre-recorded commercial content.

**LITHUANIA**

**WIDEVINE SELECTED TO PROTECT TEO IPTV SERVICE**

Widevine Technologies has been selected by Lithuanian telco TEO LT to secure delivery of premium broadcast and video-on-demand content for its GALA IPTV service. TEO now offers hundreds of VOD films, 52 channels including sports packages, Virtual Cinema and games services to more than 20,000 subscribers. Widevine, in partnership with Ericsson, the systems integrator leading the project for TEO, and Motorola, supplier of the set top boxes, offer a tightly integrated and highly scalable IPTV platform.

**LUXEMBOURG**

**SES ORDERS NSS-14 SATELLITE FROM LORAL**

SES New Skies has contracted Space Systems/Loral, a subsidiary of Loral Space & Communications, to supply a new satellite, NSS-14. The new satellite will be deployed over the Atlantic Ocean at 338 degrees East, enabling the incumbent NSS-7 satellite to move to another location. NSS-14 will be a hybrid satellite featuring 52 C-band transponders and 72 Ku-band transponders. The satellite is scheduled for launch in the fourth quarter of 2010.

**THE NETHERLANDS**

**DUTCH PUBLIC TV IN HDTV FROM 2009**

The main Dutch public TV channels will be made available in High Definition as early as 2009 after cable operator Zesko agreed a joint-venture and carriage deal for HD simulcasts of the three national channels Nederland 1, 2 and 3 in its basic digital package. Using the 720p standard at launch, local HD content will initially be limited. Negotiations are underway with other operators, such as cabler UPC, to join the HD initiative.

**POLAND**

**TANDBERG POWERS IPTV SERVICE FOR MULTIMEDIA POLSKA**

Tandberg Television's OpenStream Digital Services platform has been fully deployed by Multimedia Polska to power its entire VOD services, which is a critical part of their deployment of a major, advanced multimedia offering. Tandberg has provided its Xport on-demand content production software system, as well as its OpenStream back office. Multimedia Polska launched a HDTV

offering in 2007 and plans to add more advanced, revenue generating services such as mobile TV.

**PORTUGAL**

**PT CLOSSES 2007 WITH 21,000 IPTV SUBSCRIBERS**

Portugal Telecom (PT) has signed 30 percent fewer customers for its Meo IPTV service in 2007, closing the year with 21,000. The operator managed to sign up 15,000 TV customers in the final quarter of the year.

**RUSSIA**

**STREAM OFFERS HDTV VIA TELEPHONE CABLE**

Comstar-Direct's Stream service has launched a high-definition TV offering and the soft-launch of Stream's HDTV offering will run till June 1. It currently offers four channels—Discovery HD, MelodyZen, Luxe TV and Voom HD—and a package of ten movies via VOD. In Moscow, Comstar has 3.6 million residential subscribers, 452,600 broadband Internet subscribers and 108,600 corporate subscribers.

**RSCC TO BUILD EXPRESS-AM4 SATELLITE**

The Russian Satellite Communications Co. (RSCC) signed a contract with Khronichev Center to build the Express-AM4 satellite. The spacecraft will be based on EADS Astrium's Eurostar E3000 platform and carry 63 transponders operating in C-, Ku-, Ka and L-bands. The satellite, which will be located at 80° East, will be delivered in the second half of 2010.

**SLOVENIA**

**TUŠ TELEKOM OPTS FOR ORBIT 2X SERVER FOR IPTV SERVICE**

Slovenian telco Tuš Telekom has launched on-demand IPTV services using Edgeware's Orbit 2x server system. The system uses solid state flash memory storage to achieve scalability, quality of service, reliability and low total cost of ownership. It also enables deployments of interactive TV services such as time shift TV, VOD, nPVR and dynamic ad insertion.

**SWEDEN**

**RUCKUS WIRELESS SELECTED BY TELENOR FOR IPTV**

Ruckus Wireless has been selected by Telenor to supply Smart Wi-Fi 802.11g systems for the wireless distribution of its popular IPTV service, offered to subscriber homes throughout Sweden through the wholly owned subsidiary Bredbandsbolaget. The Ruckus MediaFlex systems are being made available to consumers in Sweden through Telenor retail outlets, and can be easily self-installed by subscribers. Bredbandsbolaget has over 450,000 broadband customers.

**SWITZERLAND**

**BLUEWIN ENDS 2007 WITH 70,000 IPTV SUBSCRIBERS**

Swiss IPTV service Bluwin TV connected 70,000 homes at the end of 2007 and hopes to increase its customer base to 200,000 - 250,000 users by the end of this year. Bluwin TV currently offers over 100 TV stations, numerous of HD services and radio stations.

**UKRAINE**

**COMSTAR LAUNCHES IPTV IN ODESSA**

Russian fixed line and broadband operator Comstar UTS has announced that its Ukrainian division has launched commercial IPTV in Odessa, the country's second largest city, and plans to expand the service to the capital Kiev by the end of this year. Comstar's TV-over-broadband service is delivered via a fibre-optic network using IPSof iVision software developed

by Netris, and initially offers 60 broadcast TV channels, with further plans to up the number of channels to 90 and launch a VOD service.

**UNITED KINGDOM**

**BBC AND NHK WORKING ON HD SUCCESSOR**

The BBC and Japanese public broadcaster NHK are working on new format which promises to deliver pictures in a quality 33 times better than the best HD sets on the market. Super Hi-Vision is currently being tested by NHK, but the BBC is planning to use the technology to screen the 2012 Olympics on big screens in city centres across the UK.

**OFCOM PLANS TO RAISE BILLIONS FROM HDTV AUCTION**

Television regulator Ofcom is hoping to raise billions from an auction of high definition TV spectrum. Three HDTV channels will be launched in 2009 and a fourth in 2012, the regulator said. One slot will be reserved for the BBC, which already broadcasts its BBC HD channel via satellite and cable. The other three will be awarded after an auction open to ITV, Channel 4, Five and Welsh language broadcaster S4C.

**FRANCE TELECOM PREPARES IPTV LAUNCH**

France Telecom has confirmed it will soon launch its triple play service in the U.K., via the Orange brand. In order to avoid limiting the appeal of the service and alienating any of its existing 1.4 million DSL customers, Orange UK is calling its service Digital TV, and will not use the term IPTV externally. The service has been trialled since November 2007 in London and the northern city of Leeds with 350 existing, paying Orange UK broadband customers.

**NORTH AMERICA**

**CANADA**

**SOGETEL TO OFFER IPTV**

Occam Networks has announced that Canadian independent telco Sogetel has purchased Occam's Broadband Loop Carrier (BLC) 6000 solution to complete a "significant" network upgrade with the intention of offering IPTV and VoIP services. Quebec-based Sogetel is deploying Occam equipment at more than 35 sites across Sogetel's service area. The telco is using ADSL2+ to provide IPTV over the last mile copper line.

**UNITED STATES**

**AMC-14 SATELLITE FAILS**

Dish Network's new satellite designed to expand its High-Definition programming capacity failed in mid-March. The AMC-14 satellite, which Dish was leasing from SES Americom, had lifted off successfully, but an "anomaly" occurred during the second burn of the Breeze M upper stage. The satellite then failed to reach its planned orbit. Once operational, the satellite was expected to enable Dish to begin adding HD channels, increasing its current total to roughly 70 to 100 by year's end.

**TIME WARNER CABLE TO CARRY 100 HDTV CHANNELS**

Time Warner Cable of New York and New Jersey is poised to carry 100 HD channels and add more than 250 HD On Demand choices by the end of 2008 across the company's service area, starting with a total of 50 on April 30. Over the next year in an area-by-area rollout, Time Warner Cable of NY/NJ will launch "Enhanced HDTV" which includes the cable-exclusive Start Over service. It allows customers to start a program over during its allotted time slot without the need for a DVR.

**DIRECTV 11 SATELLITE LAUNCHED SUCCESSFULLY**

DirecTV's new HDTV satellite was successfully launched on March 19 by a Sea Launch Zenit-3SL rocket. Once operational in September, DirecTV 11, will enable the satellite broadcaster to offer up to 150 national HD channels, compared to the current 90. DirecTV also plans to deliver local HD channels to more than 100 markets, representing 84% of U.S. TV households. It plans to launch yet another satellite in 2009 that will enable it to provide up to 200 national HD channels.

**CARIBBEAN**

**TELBO SELECTS AMINO STB FOR IPTV SERVICE**

Telefonia Bonairiano (Telbo), a telecommunications company in the Dutch Caribbean region, has selected the AmiNET125 multi-codec set-top-box from Amino for its IPTV service, jointly developed by Telbo, Savant Communications and Manycast Consultancy. The mitv service, which is a part of Telbo's triple-play offering, will air around 40 channels including HBO, Discovery and FOX. The Dutch Public Channels, Nederland 1, 2 and 3, will be inserted into the head end via optical submarine cables. By deploying

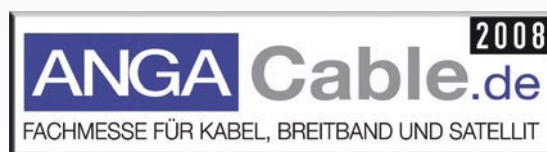
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the AmiNET125, Telbo will offer its subscribers more than the traditional triple-play (video, voice and data) services.

**LATIN AMERICA**

**CHINA TO LAUNCH VENEZUELA-URUGUAY SATELLITE**

Venezuela and Uruguay plan to have their own communications satellite in space by the end of 2008. Under an agreement signed in November 2005, the China Great Wall Industry Corp was contracted to design, manufacture, test and put into orbit the Venesat-1 for Venezuela. Uruguay later joined the US\$ 241 million project, financing 10% of its cost. The satellite is called the "Simon Bolivar Satellite," named after the South American revolutionary.

**COLOMBIA  
EPM TO LAUNCH IPTV IN MID-2008**

Local telecom operator EPM has told local media that it plans to launch its IPTV service in the middle of this year, one year after initially forecast. According to the vice president of resources, Carlos Gabriel Álvarez, EPM will also increase its network coverage to reach 60% of the capital Bogota by year-end. The operator aims to end 2008 with 33,351 subscribers to its IPTV service, and increase this figure to 250,000 by 2011.

**ECUADOR  
ANDINATEL TARGETS 2009 LAUNCH FOR IPTV SERVICE**

Local telecom operator Andinatel anticipates launching IPTV services in 2009, according to company President César Regalado. The executive said that Andinatel expects to launch commercial trials in coming months in order to test the service. IPTV services will initially be available in the national capital of Quito and gradually expand to other areas. The telco provides services in 13 provinces in north-central Ecuador.

**PANAMA  
SECUREMEDIA TO PROTECT CTV TELECOM IPTV CONTENT**

CTV Telecom has selected SecureMedia's Encryptonite ONE System to secure content on its new IPTV service. Through its integration partner Sonitel Networks, CTV Telecom has installed an advanced, optical fibre-based IPTV platform in Panama City, with reach to be expanded to more regions in the future. The IPTV service has already launched and offers over 100 broadcast, music and on-demand channels, telephone and broadband Internet.

**ASIA & PACIFIC**

**CHINA  
SHANGHAI TO OFFER FREE IPTV SERVICE FOR TWO YEARS**

Shanghai will offer a two-year conditional free IPTV service to expand its IPTV user base. The city's IPTV operator BesTV will cooperate with Shanghai Telecom to launch a sales promotion until June 30 targeting the city with unlimited-time 2 Mbps or 1 Mbps ADSL services. During the period, the company will exempt eligible users from paying the RMB 310 installation fee and two years' IPTV service fee if they can spend more than eight days a month browsing IPTV.

**IPTV SURPASSES CABLE IN HONG KONG**

Hong Kong looks set to be the first territory in the world where IPTV services overtake cable delivery of pay-TV. Annual results from telco leader PCCW showed that its Now TV subsidiary had 882,000 subscribers. Although I-Cable

has yet to unveil its own numbers, PCCW was confident enough to claim that Now has "taken a leadership position." I-Cable previously announced that it had 830,000 as of June 30. Meanwhile, PCCW has deployed Harmonic's market-leading DiviCom Electra 7000 HD MPEG-4 AVC (H.264) encoders to power its HD channel service in Hong Kong.

**ZHONGSHAN CABLE ADDS HDTV SERVICES**

Guangdong's Zhongshan Cable is deploying BigBand Networks' (BBND) Broadband Multi-media-Service Router to process, manage and deliver digital television services, including HDTV and video-on-demand. Zhongshan Cable serves approximately 300,000 subscribers in the city and is using the BMR to improve the video quality and bandwidth efficiency of its television services.

**INDIA  
GOLDSTONE TO ROLLOUT IPTV IN 11 COUNTRIES**

Goldstone Technologies plans to roll out IPTV services in 11 countries by the end of 2008-09, according to President and CEO Rajesh Kalidindi. "We are targeting south-east Asian and European countries for offering regional content. There is a huge demand for Tamil, Telugu, Malayalam, Kannada, Gujarati, and Punjabi content in these regions", he said in an interview. Goldstone Technologies recently launched the service in Thailand and plans to roll out IPTV services in Malaysia, Singapore, the Philippines, Japan, New Zealand, the UK, France, Germany, Israel and Spain in the next 11-18 months.

**MALAYSIA  
MEASAT TO LAUNCH NEW SATELLITE IN Q3 2008**

Measat has announced that its next satellite is expected to be launched in the third quarter of this year. The satellite, previously known as Measat-1R, will be renamed Measat-3a as it is being designed to be co-located with the Measat-3 satellite at the 91.5°E orbital slot. The new satellite will have 12 high-powered C-band transponders providing coverage across Africa and Eastern Europe in the West, and Japan through to Australia in the East. It will also have 12 high-powered Ku-Band transponders for DTH customers in Malaysia and Indonesia.

**TIME BROADBAND LAUNCHES IPTV SERVICE**

Time Broadband Services (TBSL) has started mobile IPTV services in Malaysia and plans to expand it to China, India and Ukraine in the next three months. The company said that it will foray in each country with an initial investment of \$10 million. TBSL, with Malaysian's Stanton Technologies has entered into an agreement with Chinese government entity Potevio to offer mobile IPTV services to over 500 million mobile users in China.

**SOUTH KOREA  
KOREAN COMPANIES TO INVEST US\$ 15.8 BILLION IN IPTV**

Korean telecom firms will invest around KRW 1.57tr (US\$ 15.8 billion) in IPTV this year, according to the country's Broadcasting and Communications Commission (BCC). KT alone is expected to invest KRW 1.3tr in its IPTV service "Mega TV" this year, while LG Dacom will spend KRW 146.4bn on "myLGtv" and Hanarotecom will invest KRW 122.1bn in "Hana TV". According to the report, a large part of the funds will be spent on expanding and improving Internet networks and purchasing TV content.

**SRI LANKA  
SRI LANKA TELECOM TO LAUNCH IPTV UNIT**

Sri Lanka Telecom (SLT) has set up a subsidiary to broadcast IPTV services to its broadband customers. SLT plans to invest LKR100 million (US\$ 1 million) in the initial launch of the SLT Visioncom unit.

**TAIWAN  
VASTAR CABLE TV LAUNCHES IPTV TESTS**

Vastar Cable TV System from Taichung has begun operations of Vee TV, its HD IPTV service, on a trial basis. Vastar delivers Vee TV service through its fiber-optic network and the trial broadcast consists of three HD digital channels as well as HD VOD with content including NHK programs from Japan, nature shows and adult movies. Vastar plans to set a minimum monthly fee of NT\$89 (US\$3) per subscriber for viewing at least 32 channels. The whole fiber-optic infrastructure can serve 600,000-700,000 subscribers.

**THAILAND  
GOLDSTONE AND SYNOP MEDIA LAUNCH IPTV SERVICE**

Software services firm Goldstone Technologies in March launched a IPTV service in partnership with Synop Media & Infotech. It broadcasts 20 TV channels along with movies in Hindi, English and several regional languages through the Internet and has its network operating centre in Thailand.

**UNITED ARAB EMIRATES  
YAHSAT TO LAUNCH SATELLITE FOR AFRICA**

Al Yah Satellite Communications Company (Yahsat), the UAE's first nationally-owned satellite operator, has signed an agreement with Ariane-space to launch the Yahsat 1A satellite in the second half of 2010. The satellite is currently being manufactured by the consortium of EADS Astrium and Thales Alenia Space. Another agreement was also signed with International Launch Services (ILS) to launch the Yahsat 1B satellite in first half of 2011.

**VIETNAM  
VIETNAM TO LAUNCH FIRST SATELLITE**

The launch of Vietnam's first satellite has been set for April 19 by commercial services launcher Arianespace. The Vinasat project, which cost about US\$ 300 millions, has been in the pipeline for more than 10 years. Vietnam signed a contract with US firm Lockheed Martin in May 2006 to build the satellite after delays largely due to problems in coordinating its frequencies with those of satellites already in orbit in the region. The satellite 20 transponders for transmission and reception of TV channels, telecommunications and the Internet.

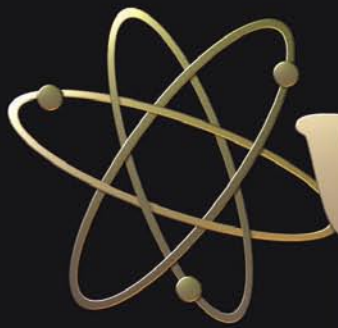
**PACIFICOCEANIA**

**AUSTRALIA  
ABC TO LAUNCH IPTV REPEAT CHANNEL**

ABC has announced four new digital services including an IPTV station called "ABC Playback" which will allow viewers to stream shows that were broadcast by the ABC in the previous week. The trial online service is currently showing three channels - ABC Catch-up (a mix of popular and specialist shows previously screened on ABC1 or ABC2), ABC Real (natural history programs and general documentaries), and ABC Shop channel. An ABC news channel is also on the cards one the service goes live.

**NEW ZEALAND  
FREE-TO-AIR HDTV LAUNCHED**

New Zealand launched its first free-to-air HDTV broadcast service in April, with the TV1, TV2 and TV3 channels. Branded Freeview HD, the new service will be available in nine major centres (Auckland, Hamilton, Tauranga, Napier, Hastings, Palmerston North, Wellington, Christchurch and Dunedin). The first high-definition programming from TVNZ is likely to be coverage of the Beijing Olympic Games, which will be broadcast in HD during August and September.



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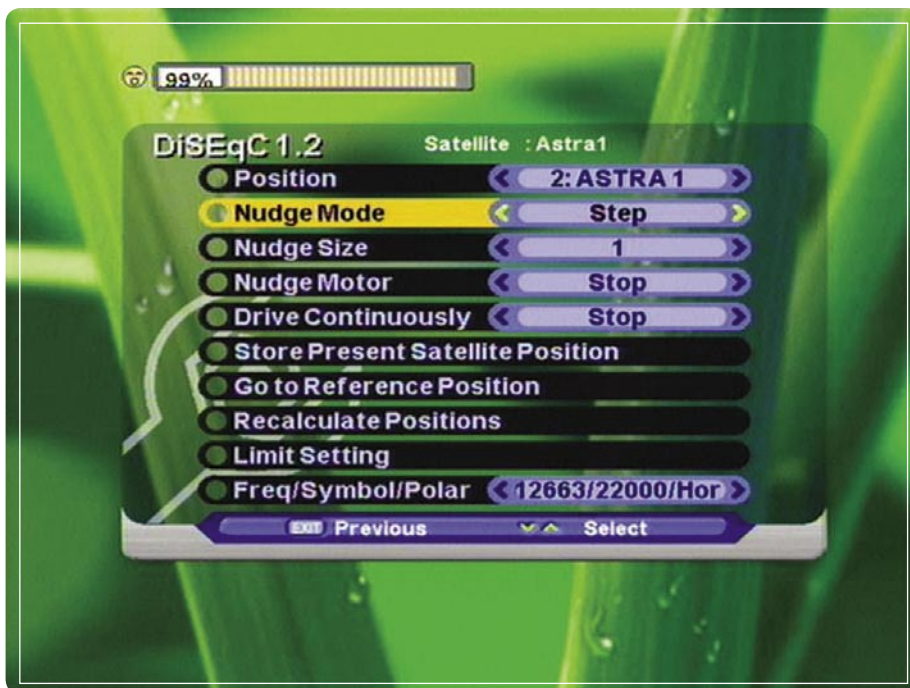
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INDONESIA

# Why DiSEqC Isn't Always Reliable

Heinz Koppitz

The DiSEqC control system, developed jointly by EUTELSAT and Philips that runs over the existing coaxial cable is a feature that modern satellite systems simply can't do without. With the DiSEqC 1.0 and 1.1 versions the receiver automatically selects the necessary parameters and switches between multiple antennas or LNBS. To control motorized antennas, the system was further expanded to include DiSEqC 1.2. Oddly enough, very few receivers implement all of these functions.



▲ Arcor's DiSEqC 1.2 settings

The definitions for the DiSEqC steps are precisely defined in the protocols. The higher the number, the higher the complexity of the control commands; the individual DiSEqC steps were built on top of each other. In other words, DiSEqC 1.2 also includes all of the control commands for DiSEqC 1.0 and 1.1. DiSEqC 1.2 should then be able to do it all – it should not only be able to handle the switching commands for multiswitches but should also be able to control an antenna motor. But this is not true.

## Very Few Receivers Have Implemented All of These Protocol Functions

Most receivers don't fulfill all of the protocol defined functions at the same time. Most of the time DiSEqC 1.2 does not include the control commands defined for DiSEqC 1.1. But this is understandable; a large apartment system that requires DiSEqC 1.1 won't be using a motorized antenna. At the same time, a single antenna mounted on a motor won't need the control commands for DiSEqC 1.1. But it is important to know that when you are purchasing a receiver for use in an apartment system, the DiSEqC 1.2 label is not good enough; the DiSEqC 1.1 label is also necessary!

The motor commands that were added for DiSEqC 1.2 were:

**Goto East/West** – move to the east/west fast or slow

**Store nn** – Store the current motor position in location "nn"

**Goto nn** – move to stored motor position "nn"

**Limits East/West** – East/west software limits on/off

**Goto 0 (Reference)** – Move to Reference Point 0 of the motor

**Re-Sync (Shift)** – Shift all motor memory positions by "nn"

**Goto X** – Move to position X° east/west

## The Motor Control Commands are Not Optimal

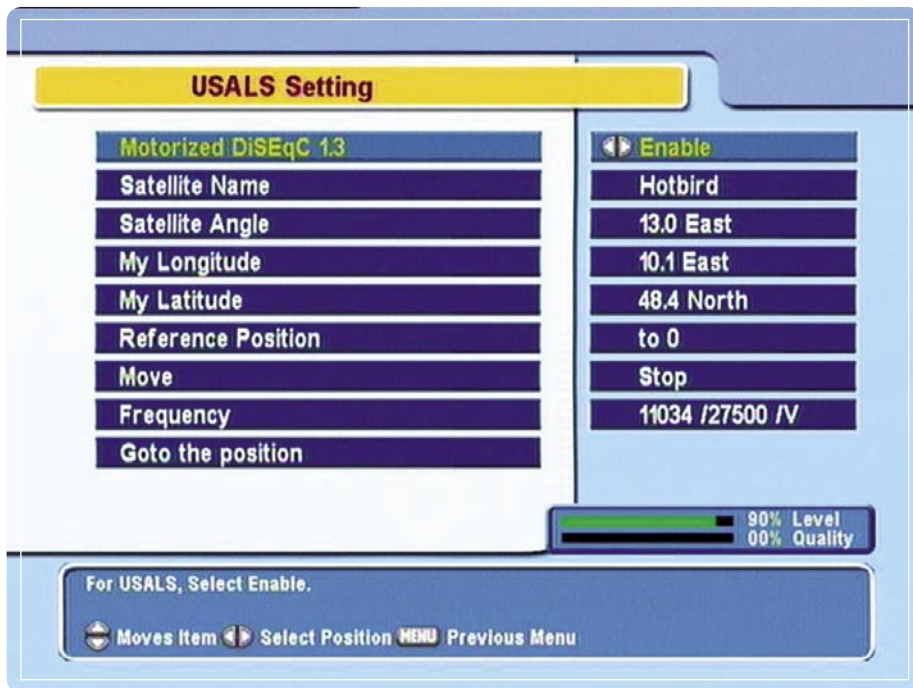
The most critical GoTo east/west control commands can be found in all receivers. However, there are differences in quality: some receivers can't move the antenna slowly or in little steps. On the other hand, there are exceptional receivers that will automatically stop moving the antenna when maximum signal strength has been reached – this greatly simplifies the search for a satellite.

The Store nn and GoTo nn commands are used to store the position of a satellite that has been found so that it can easily be recalled later. "nn" is the two-digit position number assigned by the receiver to store the angular position in one of the 60 storage locations of the motor. But you don't see any of this in the receiver's menu and you therefore have no direct access to these stored locations.

## The Storing of Satellite Positions in the Motorized Antenna is Not Reliable

The receiver assigns the position numbers based on its own internal logic and only rarely are they placed in the proper order





▲ Topfield's USALS settings

in the antenna. This wouldn't normally be a problem except that with a hardware or software reset all existing position values are deleted. All existing settings would then be lost!

The manufacturers of motorized antennas wanted to make the task of finding satellites easier and incorporated preset values for the more popular satellites. With these preset values it was thought that only a fine adjustment would be necessary. It turns out that this was a big mistake. At some point the order in which the receiver stored the positions will not agree with the preset positions so that you won't be able to find them. Furthermore, the preset values are completely useless since your values and the valid local values never agree.

## The Re-Sync Command is Useless

The Re-Sync command takes all the preset position values and

shifts them all by the same amount. This function is just as senseless.

It would only be appropriate if the position numbers between the receiver and antenna motor would agree with each other. But this is not the case; shifting would only result in chaos. The preset values couldn't be corrected with a linear shift anyway – this command makes no sense. Fortunately, there's the GoTo 0 command. It drives the motor to its mechanical null point and restores all the position values to their initial settings.

## GoTo X can simplify the Satellite Search

Even though all antenna motors understand the GoTo X command, it is hardly ever used with DiSEqC 1.2 receivers. Every satellite's position can be directly entered in the receiver.

Of course, this requires that the antenna assembly be meticulously installed in the first place. The motor and antenna assembly

must be aligned perfectly to the south in the northern hemisphere (to the north in the southern hemisphere) so that a fine adjustment is not necessary (this could only have been done by rotating the assembly on the mast). The GoTo X function stores the satellite positions in the receiver instead of the motor. This is a substantial improvement in that this isolates the receiver from the unreliable memory of the antenna motor. That's why they are being used in increasing numbers especially with USALS.

Such receivers (also labeled DiSEqC 1.3) come with yet another improvement that allows the entire satellite fleet to be stored automatically: A spherical coordinate calculation program is built into the receiver that automatically calculates the position of all of your favorite satellites. You just need to enter in your geographical position into the receiver; based on this data, the satellite positions are converted into the required azimuth angles for your location and then stored for each satellite.

# What DiSEqC Do You Need?

1. No DiSEqC is good for single antenna systems that are fixed on one satellite. Every receiver can handle this.

2. Tone Burst is used for the simultaneous reception of two satellites with a monoblock LNB. This switching criteria is supported by every digital receiver.

3. DiSEqC 1.0 is for multifeed and/or multi-antenna systems with up to four LNBs/antennas. This expansion of Tone Burst can operate four to eight switches.

4. DiSEqC 1.1 is for multifeed systems with cascading multiswitches. This expansion of DiSEqC 1.0 can switch between up to 56 satellite signals. Control commands are repeated multiple times to guarantee that they reach every switch level. It is usually only used with larger antenna systems.

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Farsi	فارسی	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/far/feature.pdf">www.TELE-satellite.com/TELE-satellite-0807/far/feature.pdf</a>
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Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/tur/feature.pdf">www.TELE-satellite.com/TELE-satellite-0807/tur/feature.pdf</a>

5. DiSEqC 1.2 drives H-H antenna motors so that all of your favorite satellites can be received. It has some weaknesses with regards to storing satellite positions.

6. DiSEqC 1.3 also drives H-H motors. With the position calculations built into the receiver, it takes full advantage of the DiSEqC 1.2 GoTo X commands. These receivers are labeled with USALS, DiSEqC 1.3 or GoTo X.



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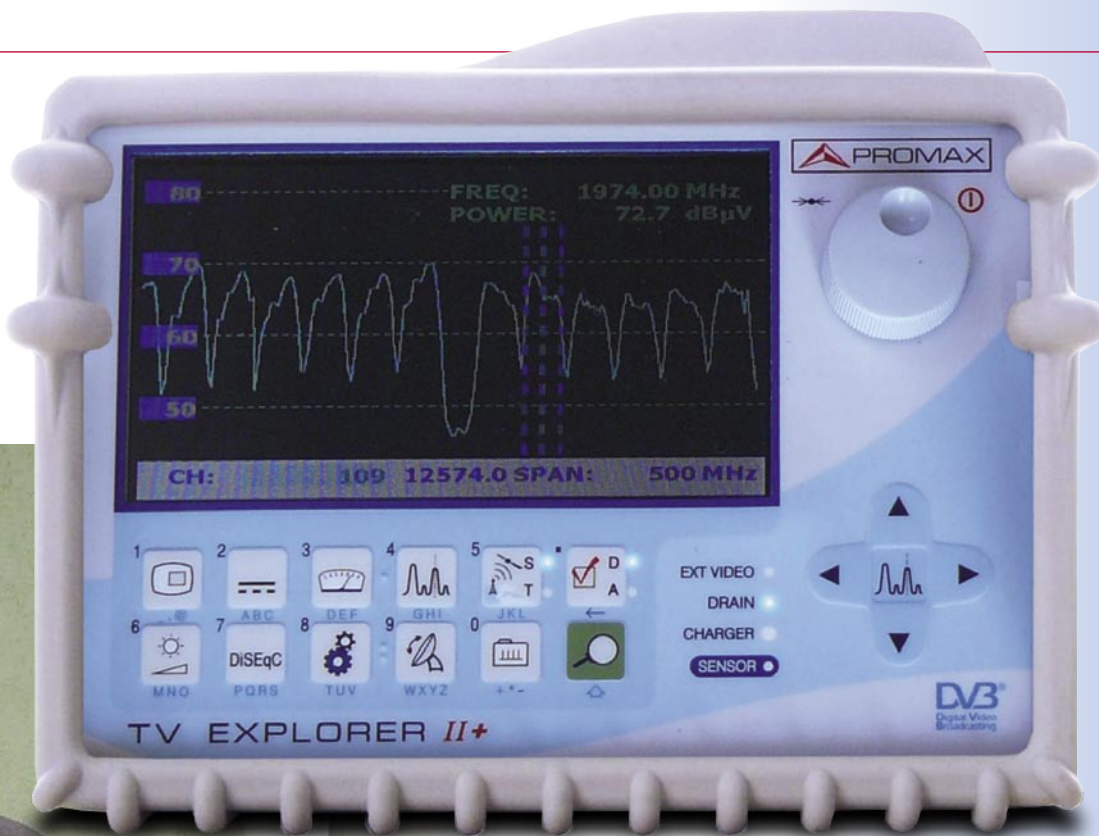
<b>GUT</b>	<b>88,0 %</b>
HDTV Twin-Receiver mit Festplatte	Heft 04/2008



# Promax TV Explorer II+

## State of the Art Universal Signal Analyzer





same screen: channel power, MER, CBER, VBER, L-band frequency, transponder frequency and channel number.

Let's highlight the features of the TV Explorer II+. It can measure TV and radio signals of all kinds: satellite, terrestrial and cable. It is suitable for FM radio, mobile TV (DVB-H) and for the return channel in cable networks. It works equally well with QPSK, 8PSK, QAM or COFDM modulation. The TV Explorer II+ is really a multi-standard instrument. It accepts any TV system: PAL, SECAM or NTSC and any TV standard: M, N, B, G, I, D, K or L.

The TV Explorer II+ covers a frequency range that is continuous from 5 MHz to 2150 MHz. This covers all terrestrial, cable and satellite ranges. Of course, in the case of satellite transmissions, we are not referring to the downlink frequency from the satellite but rather the output frequency from the LNB (L-band). We can either tune the frequency continuously or jump from transponder to transponder. It comes preprogrammed with the transponders of many satellites and, of course, this data can be reprogrammed. It measures signals from 44/45 dBµV to 100/114 dBµV depending on the modulation type. The measured parameters, depending on modulation mode, include: power, BER, VBER, LBER, MER, C/N, noise margin and number of wrong packets.

Of course, the analyzer can measure both DVB-S and DVB-S2 signals. All the different FEC

**Some people can align** their satellite dishes without any extra equipment. Sometimes, they even do it without a signal finder - using only a standard satellite receiver. Of course, this method takes much more time and the alignment may not be as perfect as it could be. Things are not as easy when the antenna is on the roof. In this case you should at least have a simple signal finder although this will not be good enough if you are planning to set up and maintain an SMATV network.

When you have to precisely align several satellite and terrestrial TV and radio antennas, then mix all the incoming signals and distribute them among many different apartments in a building, you need something much more sophisticated. That's where the TV Explorer II+ from Promax comes into play. This instrument is so versatile that it's difficult to find a proper name for it. Is it: a field strength meter, a spectrum analyzer, a satellite finder, a test receiver or a constellation diagram meter? Is it for analog or digital TV signals? Is it for satellite, cable or terrestrial transmissions? Is it for TV or radio signals? The TV Explorer II+ is all of these things and is more than capable of handling all of these measurements! We've decided to call it a universal signal analyzer because there is no better name for such a multifunctional instrument just yet.

Our regular readers may remember our test report on the Prolink-4C Premium. This meter also came from Promax. We were really impressed by its performance and versatility. Its successor, the TV Explorer

II+, is much smaller and lighter but at the same time even more powerful and ergonomic. Sounds impossible? Believe us, it's true! In the TV Explorer II+, Promax added DVB-S2 signal analysis and a USB port. The menu structure has been redesigned and is now more intuitive and more dependent on the current measurement mode. When you measure one parameter, for example C/N, you can conveniently see all the other important parameters on the



Transport suitcase takes it all - the meter and all accessories

code rates are supported. For DVB-S2 this would be 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 and Auto for QPSK signals and 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 and Auto for 8PSK signals. If you also deal with analog signals, you'll be happy to know that you haven't been left in the dark with the TV Explorer II+. It can measure signal level, C/N, video-audio ratio, FM deviation and demodulation (the last two are for classical terrestrial/cable signals).

We can't emphasize enough the importance of the spectrum analyzer in this meter. Not only can you examine a signal without knowing any channel frequencies, but you can also detect all the unwanted signals that may be present in a network because of interference. The frequency span is selectable from 16 MHz to full band and the vertical range is adjustable in steps. Except for measurements, the meter can display the video of a TV signal regardless if it is analog or digital. For digital signals, you can view all free-to-air MPEG-2 channels. It is also possible to receive scrambled channels as long as the proper CAM with smartcard is inserted into the CI slot located on the rear panel of the meter. This is a really unique feature; not many other meters can say they have this. Please note that the meter can not process MPEG-4 streams. In order to view MPEG-4 FTA channels, a suitable MPEG-4 to MPEG-2 conversion module needs to be inserted. However, the meter can measure all DVB-S2 signals even if they carry MPEG-4 streams. The additional module is only required to see the video of a channel.

## Everyday Use

The meter was delivered from Promax in a very large package. We were surprised to discover that so many accessories were included. The box included a very practical carrying bag, a protective suitcase (both with

the shoulder straps), an external power supply with a power cord, a car power adapter, a USB cable, a 10 dB signal attenuator, connector adapters and a USB memory stick with PC software to control the instrument and store the results.

The largest component on the front panel is the 16:9 LCD

between digital/analog mode. In the bottom row from the left the buttons access image and sound properties, DiSEqC commands, utilities/setup, antenna alignment mode, transponder or frequency tuning and transponder identification. If you had any doubts, yes, the TV Explorer II+ can send any DiSEqC com-

work provider name. So, for example, the Explorer may show us: 13E, ABSat.

Four arrows are used in spectrum mode to conveniently set the frequency span and the reference level (moving the spectrum up or down). They can also be used when in the menu to travel among different items and options. The tuning knob is used for moving the marker when in spectrum mode, moving the highlight in the menu or changing the transponder/channel number. Lastly, there are three status LEDs and a luminosity sensor on the front panel. The LEDs indicate that external video (supplied by the Scart connector) is playing on the screen, that an external device (LNB) is powered and that the battery is being charged. The sensor adjusts the brightness and contrast of the display and helps to conserve battery power. The battery can power the instrument for about 4.5 hours continuously. But only 3 hours are needed to charge it to 80%.



▲ Meter with accessories

The F connector is situated on the top side panel. Included in the package are suitable connector adapters (F to BNC and F to DIN). The power supply socket is located on the right side panel; there's also a small hole used to reset the unit. We did not have to use the reset feature; the software functioned properly throughout the entire test. On the reverse side is the Scart connector. It can be used to send the LCD video and audio to an external monitor or TV set or it can accept an incoming video/audio signal for display on the LCD.

display. Underneath there are twelve control buttons. From left to right in the top row the buttons show the video of the channel, set the power for the LNB, show measurement results, show the frequency spectrum, switch between satellite/terrestrial mode and switch

mand 1.0, 1.1 or 1.2. The identification of a satellite is based on the information transmitted from a transponder in the NIT table. If only this information is transmitted (and this depends on the configuration of the provider's headend), there should be an orbital position and net-

The rear panel sports the CI slot for use with a CA module plus there's also a USB port so that the meter can communicate with a PC. The whole case is enclosed in protective grey rubber to help protect the meter should it bump into a satellite mast or some other hard surface.

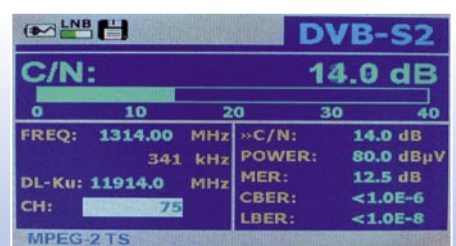
As we mentioned before,



Spectrum analyzer



Antenna alignment



Carrier to Noise ratio measurement

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to quickly find the information you need. There's also a Quick Reference Guide for those who want to get started right away.

We used the TV Explorer II+ for the most obvious task - aligning a dish. Its large display, fast response and good measurement resolution make this a simple task. First, we switched to the antenna alignment mode. The display showed the spectrum with a high sweep rate and two vertical bars on the right side. The left bar showed the maximum value that was recorded within the last few seconds while the right

the elevation and repeated the left-right movement. Once we observed a signal presence, we stopped. Next we wanted to find a maximum level. By delicately pushing and pulling the top, bottom, left and right edges of the dish, we discovered how much of a fine adjustment was still needed. After correcting azimuth and elevation we achieved an almost maximum signal level reading.

But what was the satellite we had just aligned to? To find out we switched to normal spectrum and adjusted the marker to one of the digital transpond-

we've already had some experience with the excellent Prolink-4C Premium meter. Because of this, we didn't really expect too many surprises with the TV Explorer II+. But we were wrong! It not only includes all the functions of its older brother, but comes with a few more. We mentioned the DVB-S2 measurements, but there are also the I-Q constellation diagrams for DVB-T/H, DVB-C, DVB-S and DVB-S2 and special test functions for measuring distribution networks with the help of RP-250 and RP-080

intuitive. In order to see the selected polarization and sub band in many other instruments, you have to enter the L-Band frequency and set the LNB voltage and 22 kHz signal presence. The TV Explorer II+ allows you to jump from transponder to transponder ordered by frequency while automatically setting the proper voltage and 22 kHz signal. Of course, this is possible since the transponder lists are stored in the meter's memory.

Despite the exceptional internal complexity of the instrument



one showed the current level. This is somewhat similar to the volume level meters found in good quality audio equipment. Additionally, there is an audible signal with a pitch that rises when the signal level goes up.

After arbitrarily setting the elevation of the antenna, we moved it steadily from left to right and back again trying to locate some spikes on the spectrum analyzer graph and peaks on the bars. This proved to be unsuccessful so we changed

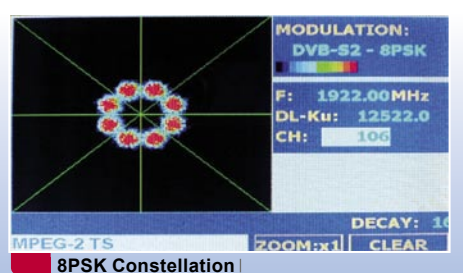
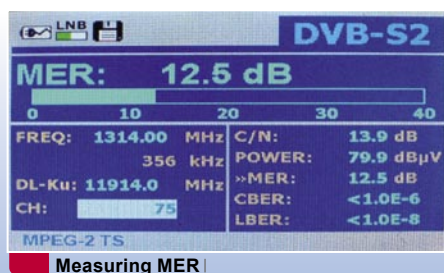
ers. Digital transponders are more "squared" in that they have flat tops. Analog transponders have more of a bell shape. We had two possibilities. Because we had preset the channel frequency plan to the desired satellite (Astra 19.2° E) and switched the tuning to transponder zapping mode, we could use the tuning knob and see if the marker is jumping from the center of one transponder to the center of the next transponder. Unfortunately, the



signal simulators.

However, the most striking difference between these two meters except other than the size and weight is the ease of use. While the Prolink-4C Premium was quite ergonomic, the TV Explorer II+ could probably be used as a reference design for all other similar instruments. We found the operation of all of its controls to be

and its wealth of features and functions, we only had to refer to the user manual occasionally. Naturally, if you want to take full advantage of all of its features, it would be a good idea to read the user manual from cover to cover. It has 85 pages full of pictures and is written in Spanish, English and French. Its content is easy to follow thanks to its logical layout; it is easy







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marker did not jump to the centers of the transponders so we switched to continuous tuning (smooth frequency changing) and moved the marker to the center of a digital transponder. After pushing the satellite identification button, we discovered the dish was pointing to 13° E. As it turns out, we managed to find the Hotbird satellite instead of Astra.

Because our goal was to align the dish to Astra 19.2° E, we knew that we needed to move the antenna to the east. We started moving and after a moment noticed another peak in the signal level. It must have been Eutelsat W2 16° E. We continued moving and arrived at a stronger signal a bit further to the east. After switching to transponder zapping mode, we could see that

the marker was now always in the middle of the transponder spectra. We confirmed that it was Astra by identifying the satellite again. This time we switched to channel watching mode. In 2 - 3 seconds we were watching the channel video. We played for a while tuning between transponders and channels within a transponder. Everything was working; we were watching the Astra 1 satellite at 19.2° E.

But we were not finished yet. Next we wanted to precisely adjust azimuth, elevation and LNB position in the holder (skew). To do that, we switched to C/N measurement mode. We adjusted all three settings in small steps to get a maximum reading. This can also be done using MER measurement mode. If you prefer to tune for mini-

mum rather than maximum, you can use CBER mode. VBER is not that useful for alignment because of its very sharp reaction.

We especially liked the C/N readings when adjusting the skew of the LNB in its holder. Even a slight turn was immediately noticeable by a change in the C/N thanks to its high measurement resolution of 0.1 dB. The perfect antenna alignment; it doesn't get easier than this. Thanks to its large display, you can even put the TV Explorer II+ on the floor/ground and still be able to see the results and perform an antenna adjustment. The reason is that the display is made in transfective TFT technology. Thanks to this the display brightness is really high and it is easy readable even outdoors. Actually, the Explorer

II+ is the only meter on market using this highly user-friendly technology.

The meter also worked well in more complex antenna systems that involved DiSeqC switches and motors. However, for efficient operation, the user must be familiar with DiSeqC commands (which command does what). After tuning to the satellite signal in spectrum analyzer mode, only one button push was needed in order to watch the video of the first channel in the multiplex. We could also switch to all the other channels in the multiplex and at the same time get information on the video/audio PID's and the actual resolution and bit rate.

We also tested the meter with analog cable TV cable signals and managed to do that without any problems.



TV Channel analysis |



Showing channel video |



DiSeqC commands |

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Expert Opinion



Jacek Pawlowski  
TELE-satellite  
Test Center  
Poland

The TV Explorer II+ is an amazingly versatile and ergonomic instrument for a professional installer. It is excellent for setting up and maintaining satellite/terrestrial antennas and their signal distribution networks. The instrument is also a full featured tool for examining analog or digital cable networks connected to headends. It can even be used to check FM radio or DVB-H signals! It's TFT display is readable also in bright sunlight.



None

TECHNIC DATA

Manufacturer	PROMAX Electronica S. A., C/ Francesc Moragas, 71, 08907 L'Hospitalet de Llobregat, SPAIN
Tel	+34-932-602-000
Website	www.promax.es
Email	promax@promax.es
Model	Promax TV Explorer II+
Function	Universal Satellite Signal Meter and Analyzer
Type of signals processed	Analog TV terrestrial/cable and satellite, DVB-S, DVB-S2, DVB-C, DVB-T, DVB-H, FM Radio
TV systems	PAL, SECAM, NTSC
TV standards	M, N, B, G, I, D, K and L
Tuning range	5 to 1000 MHz (terrestrial) and 950 to 2150 MHz (satellite)
Measured parameters for DVB-S (QPSK)	Power, CBER, VBER, MER, C/N and Noise Margin
Measured parameters for DVB-S2 (QPSK/8PSK)	Power, CBER, LBER, MER, C/N and Wrong Packets
Constellation diagram available for:	DVB-T/H, DVB-C, DVB-S, DVB-S2
DVB-S signal range	44 dBμV to 114 dBμV, 2 to 45 Ms/sec
DVB-S2 signal range	44 dBμV to 114 dBμV, 2 to 33 Ms/sec (QPSK) and 2 to 30 Ms/sec (8PSK)
Spectrum Analyzer (satellite range)	Input: 30 dBμV to 130 dBμV Span: Full - 500 - 200 - 100 - 50 - 32 - 16 MHz selectable
Monitor	transflective TFT 6.5"
Aspect ratio	16:9, 4:3, Auto
External units powers supply (e.g. LNB)	5/13/15/18/24 V, 22 kHz: 0.65 ± 0.25 V
Internal power supply	7.2V 11 Ah Li-ion Battery 4.5 hours of continuous operation
Recharging time	3 hours to 80%
External power supply	12 V, 30 W
Operating temperature	5 to 40° C
Humidity	80% (up to 31° C) decreasing linearly to 50% at 40° C
Dimensions	230 x 161 x 76 mm
Weight	2.2 kg

# What do all these acronyms mean?

**QPSK** — phase modulation used in DVB-S and DVB-S2 transmissions. 4 phase angles are used.

**8PSK** — phase modulation used in DVB-S2 transmissions. 8 phase angles are used. If used instead of QPSK, more data can be sent in the same bandwidth.

**QAM** — phase/amplitude modulation used in DVB-C transmission. Different number of phase angles and amplitude levels are used depending on the mode: 16QAM, 32QAM, 64QAM, 128QAM or 256QAM.

**COFDM** — complex modulation used in DVB-T optimized to be insensitive to the interference typical for terrestrial TV.

**L-Band** — frequency range 950-2150 MHz to which all satellite signals are converted to by an LNB (Ku-, C- or S-band). This frequency range is used to transmit satellite signals via a cable from an LNB to a satellite meter and/or satellite receiver.

**MPEG-2** — the older compression method used for digital video in DVB. Still widely used for standard definition channels.

**MPEG-4** — the newer more efficient compression method for digital video in DVB-S2 and DVB-T/H.

**C/N** — carrier-to-noise ratio expressed in dB. One of the basic terms used to assess signal quality. The higher the C/N, the better the signal. In practice, it is difficult to measure it correctly because it is not possible to switch the transponder off and measure only the noise. The meter tries to find a noise level next to the transponder signal and uses it as a reference. The readings may be too pessimistic.

**BER** — bit error rate: a measure of digital signal quality telling us how often we have a false bit in an incoming data stream. Thus,  $3 \times 10^{-4}$  means that in 10,000 bits we have 3 false bits (0's instead of 1's or vice versa). The lower the BER the better. For example,  $4 \times 10^{-5}$  is better than  $1 \times 10^{-4}$ .

**CBER** — channel BER. Bit error rate before the forward error correction technique is used.

**VBER** — Viterbi BER. Bit error rate after the Viterbi forward error correction technique has been applied. VBER is always much better (lower) than CBER. Signals with a VBER =  $1 \times 10^{-4}$  are regarded as Quasi Error Free (QEF). It is marked on the bar indicator scale when the TV Explorer II+ is in VBER measuring mode.

**LBER** — BER after Low Density Parity Check. This is an equivalent of VBER for DVB-S2 signals.

**MER** — modulation error ratio. The relation between the average power of a DVB signal and the average power of noise present in the constellation of a signal. It is "a digital equivalent of signal-to-noise" ratio in analog transmissions. So, the higher the MER the better (like C/N). The TV Explorer II+ also shows the noise margin (in dB) when in MER measurement mode. We should have at least a 3 dB noise margin to ensure good reception even in bad weather conditions.

**HDTV**

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# Arion AF9400PVR HDMI

## Perfect Picture Quality Thanks to the Scaler

The term HDTV has been on everyone's mind for quite some time now and the countless plasma and LCD TV owners are patiently waiting for a breakthrough in this new technology. In Europe though the reality still seems to be that only a handful of HD transmissions are available and that most of the channels are still only in SD format. If you want to watch an SD program on a large diameter TV screen, you'll quickly discover that this may not be the best solution.



Info Bar

The South Korean company Arion thought about ways in which they could help with this problem and came up with the idea to develop a PVR receiver with a built-in Scaler. The Scaler's job is to take the incoming signal and increase its resolution by interpolating the missing pixels such that this increased resolution does not contain any raster, something that is unavoidable with a simple increase in resolution.

The cabinet of the AF9400PVR HDMI is simple but elegant. On the front panel you will find an extremely easy to read VFD display as well as a fold-down flap behind which are a set of eight buttons to control the receiver should the remote control go missing.

This flap also hides two CI slots that can be used with all the typical modules (Irdeto, Seca, Viaccess, Conax, Nagravision, etc.). A pair of LEDs on the left and right side of the housing indicate the receiver's operational status.



The excitement began to build when we took a look at the rear panel. In addition to a satellite IF input and looped-through output for both of the tuners, we also found two Scart connectors, an S-Video

output and naturally an HDMI jack to connect the receiver to a plasma or LCD TV. On top of that there are also three RCA video and stereo audio output jacks, a programmable 0/12V output, an RS-232 interface, a USB 2.0 output to link with a PC, an RF modulator output and, of course, an optical digital audio output. To round out the entire picture, there's also a main power switch.

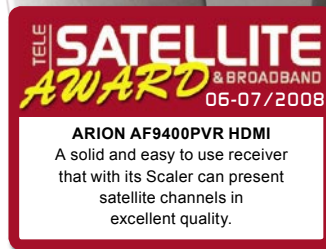
The included remote control is ergonomically designed and sits nicely in your hand with buttons that are clearly labeled. As a special bonus, Arion also included a second, smaller remote control with limited functions; an interesting idea, because it would make it easier for those less technically-inclined family members to use their new receiver.

Especially noteworthy is the detailed user manual; it is logically written and explains every function of this receiver in easy to understand steps.

### Everyday Use

The new Arion receiver is definitely multi-lingual in terms of the on-screen menu languages. Next to English, German, French, Italian, Spanish, Greek, Hungarian, Dutch, Farsi, Polish and Portuguese, the user can also choose from Romanian, Russian, Swedish, Serbian and Turkish.

The video signal can be



delivered via Scart in RGB and CVBS modes. Additionally, multiple modes are available for the 4:3 and 16:9 screen sizes. Along with the PAL standard, the receiver can also handle NTSC signals and can even be set to automatically switch between the two standards.

Since this is a twin tuner PVR, both tuners can be operated in three different modes. In Loop Mode, only one satellite signal source is needed since the input signal is looped-through from the first tuner to the second tuner. In this case, while one channel is being recorded, not all of the remaining channels will be available on the second tuner. In Twin Mode, two identically switched satellite signal



connect two LNBs to  
two STBs using  
**onecable**



## Stacker De-Stacker Stacker De-Stacker *plus*

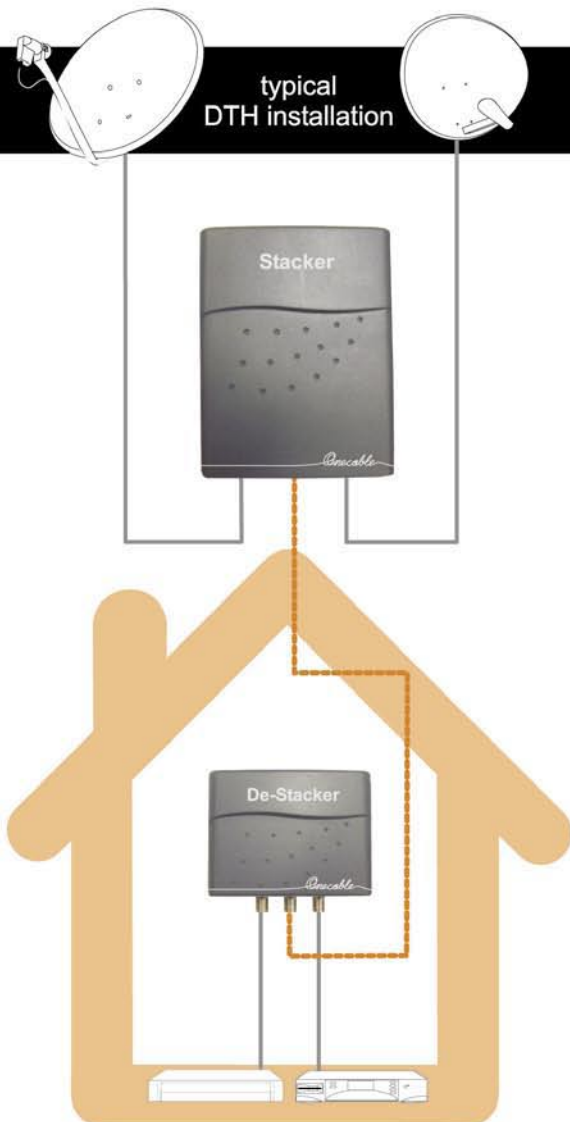
[globalinvacom.com](http://globalinvacom.com)

The Stacker De-Stacker enables two IF feeds, taken from the LNB or Multi-Switch, to be combined together (with UHF) onto a single coaxial cable for connection to PVRs or independent STBs.

Two versions are available now from globalinvacom distributors:

- 'Standard' - for cable lengths up to 30m\*
- '*plus*' - for cable lengths up to 60m\*

\* using RG6/CT100 type cable



sources are routed to both tuner inputs so that every channel is available on both tuners at the same time. The T1/T2 Mode tells the AF9400PVR HDMI that both tuner inputs will be occupied but with independent satellite signals. In this mode, not every channel is available on both tuners.

A motorized antenna (DiSEqC 1.2 or 1.3/USALS) can be set up directly in the installation assistant. The next step displays the list of 54 satellites that unfortunately isn't quite up to date.

During the installation, it is actually quite easy with a single push of a button to set up the LNB and DiSEqC parameters for each individual satellite. In addition to the two motor control protocols, the Arion AF9400PVR HDMI also supports DiSEqC 1.0 and 1.1 and is therefore capable of handling multi-feed reception using up to 16 LNBs. And unlike many receivers from other manufacturers, this new Arion box actually comes with a programmable 0/12V output that can also be set up for each individual satellite.

a network scan is also possible as is scanning for only free-to-air (FTA) channels.

In the Channel Editing menu, everything is geared towards organizing the channel and transponder lists. As many as 8000 channels can be stored and in this menu they can be deleted, moved, renamed, locked out with a PIN code or transferred into one of four Favorites lists.

For owners of plasma and LCD TVs the menu settings become especially interesting: here you can, among other things, set up the HDMI output signal to your personal needs. In our tests using a Technisat LCD and a Pioneer plasma TV, it quickly became clear that this step was absolutely necessary in order to get optimal picture quality. Next to brightness, contrast and sharpness, you can set noise suppression to three different levels.

The Scaler works in three different resolution modes: 576p, 720p and 1080i. If you still intend to use the two Scart jacks despite having the HDMI outputs, the same menu also carries all of the

The importance of the subsequent decryption must be stressed. The receiver can at any time take a prerecorded program stored on its hard drive and automatically copy and thereby decrypt it. The disappointment that used to be associated with recorded programs that could no longer be decrypted because the provider changed the encryption codes is now a thing of the past. As long as the CI module supports this function, the receiver can simultaneously take two programs and store them decrypted. In a test with an Alphacrypt CI module, it worked perfectly.

The Arion AF9400PVR HDMI is available from the manufacturer with a pre-installed hard drive or without one so that you can select your own hard drive. Even though the hard drives installed by the manufacturer are specifically designed for home entertainment use and thereby are very quiet, it is also possible for the hard drives to be automatically turned off after a user-settable time.

After this extensive journey through the many dif-

necessary setting possibilities. The receiver provides the video signal through the Scart outputs in CVBS and RGB. An S-Video output for a projection TV is available on its own output jack; unfortunately, YUV is missing.

The remaining three categories deal with the CI modules, the hard drive and subsequent decryption of previously recorded programs plus, of course, the extra accessories integrated by the manufacturer such as a calculator, calendar and various games.

ferent settings possibilities of this receiver, we naturally wanted to take a closer look at its operational features. What caught our eye was its ability to record four programs simultaneously.

Since the receiver has only two tuner inputs, the four programs that are to be recorded must naturally be on only two transponders. Based on the number of recordings, the receiver also takes those channels that can no longer be received and deletes them from the channel list. Recorded pro-



Expanded EPG Info |



Technical Parameters |



EPG |

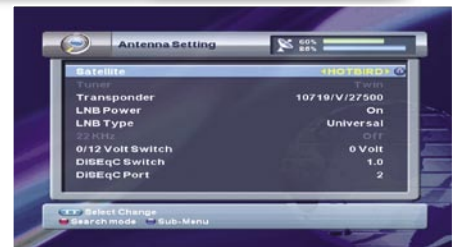


Main Menu |

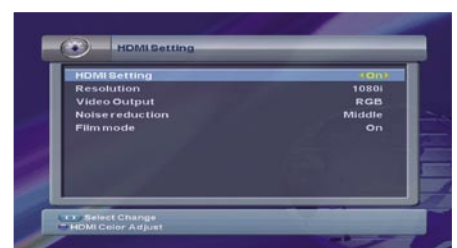


After a brief push of the red function button, the Arion begins to scan our selected satellites and completed scanning our 110 transponders in a blinding 4 min 20 sec.

The Main Menu is divided into six large areas: in the Channel Search menu, multiple settings for antenna configuration and satellite data can be taken care of. The receiver offers an automatic scan, a manual scan and an expanded search with manual PID entry. Of course,



Settings for Every Satellite |



HDMI Settings |

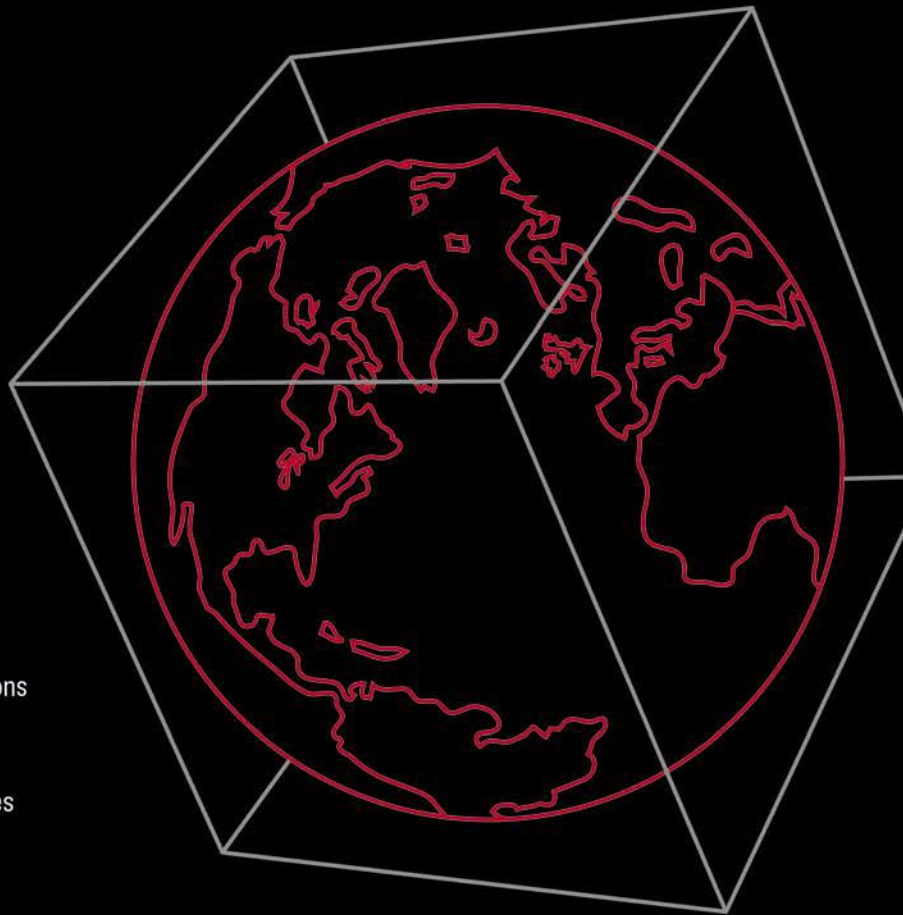


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Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/tur/arion.pdf">www.TELE-satellite.com/TELE-satellite-0807/tur/arion.pdf</a>

grams that have already been viewed are marked with their own symbol. The receiver can also identify the spot where a playback was stopped so that a single push of a button is enough to restart the playback from where it was left off.

The detailed channel list can be activated by pushing the OK button. With the help of

spec given by the manufacturer was right on the money. Additional tests at some of our other locations also came back positive. It became quickly clear that the extremely sensitive Arion tuner is a step ahead of the competition and even managed to deliver a surprisingly good signal even though reception was just at the threshold level.



the function buttons, the list can be arranged by tuner and FTA/CAS and also be sorted alphabetically. Thanks to the multi-picture function, you can get a quick overview of currently running programs on 2,4,9,10,13 or 16 different channels.

When switching between channels, an Info bar appears momentarily and displays information on the current and upcoming program as well as specific channel data (text, subtitle, Dolby Digital audio, etc.) and information on the satellite in use. A second push of the OK button displays expanded EPG data on the current program as long as this information is made available by the provider. Another push of this button displays technical parameters for the channel such as frequency, polarization, symbolrate and PIDs.

Arion's EPG is generally quite good; it is logically laid out, is quickly displayed and shows all information correctly and neatly sorted. Timer entries can be directly set up through the EPG.

The Arion manufactured tuner is very signal sensitive and had no trouble dealing with the weaker signals on BADR 26° east or NILESAT 7° west. The receiver also mastered our SCPC test; the 2-45 Ms/sec.

As a manufacturer, it is almost a must to equip your PVR receiver with a USB 2.0 or network interface in order to be on the same level in the marketplace although the film industry and some PayTV providers might not be too happy with this. Arion did not miss the boat here either; in fact, they went the extra mile and installed a chipset that actually takes full advantage of the capacity of the USB 2.0 interface. In just about three minutes a 2GB recording was transferred from receiver to PC and this without needing any supplemental software since the receiver's hard drive is recognized by Windows as a storage device. Arion also offers a free settings editor that lets you easily manage the channel and favorites lists on your PC.

Since Arion is continuously concerned with the further development of their receivers, new software is regularly made available that can be comfortably downloaded via satellite or copied from a PC to the internal hard drive via the USB interface and then activated via the Data Manager. This is also possible for the channel list; it can be downloaded in the blink of an eye and without the use of the serial interface. Uploading and backing up of the channel list is only possible serially.

### Expert Opinion



**+**  
**The Arion AF9400PVR HDMI is a solid and easy to use receiver that did not reveal any problems in our tests. Thanks to the integrated Scaler, normal SDTV channels can be displayed in outstanding quality. Even those channels that because of cost issues have a less than average picture can have improved video quality. If a channel transmits in higher quality, the Scaler makes viewing naturally that much more fun. Especially noteworthy is, besides the extremely fast USB 2.0 interface, the possibility to record four channels at the same time.**

**-**  
**The satellite and transponder lists could be more up to date.**

TECHNIC DATA	
Manufacturer	Arion, South Korea
Tel	+82 (0) 31 361 3000
Fax	+49 (0) 31 361 3099
E-Mail	info@arion.co.kr
Model	AF9400PVR HDMI
Function	Digital Satellite PVR Receiver with built-in Scaler
Channel Memory	8000
Satellites	54
Symbolrate	2-45 Ms/sec. (in our Test starting at 2 Ms/s)
SCPC Compatible	yes
USALS	yes
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
Scart Connectors	2
Audio/Video Outputs	3 x RCA
UHF Output	yes
0/12 Volt Output	yes
Digital Audio Output	yes
EPG	yes
C/Ku-Band Compatible	yes
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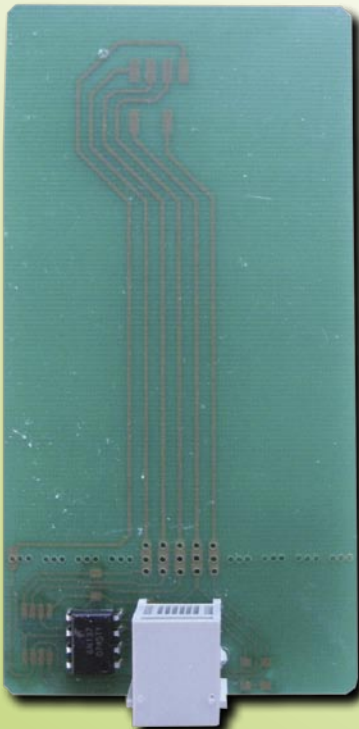
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# CardSplitter

## PayTV Throughout the Entire House

To receive PayTV throughout the entire house, there were up until now only three more or less practical solutions: you either ran coax cable to every room in the house and built up your own cable network or you used video transmitters to distribute the picture to multiple TV's. The main problem with these two solutions is that the same channel always ended up on all the TV's. The third option would be to have more than one PayTV subscription although for most consumers this alternative is out of the question.



▲ Hard-wired Reception Card

If you think about it, thanks to new products such as the Laser LNB from Invacom introduced in the previous issue of TELE-satellite we can assume that satellite, cable or IPTV signals will be made available in every room in the house at some point in the future with the help of modern fiber optic technology. This makes the problem of PayTV decryption on multiple TV's all the more important.

One solution would be card splitters that make it possible

to use one card to supply multiple TV's. The company Card-Splitter sent us a package for this test report with an assortment from their product line:

- Wireless CardSplitter Type B for Viaccess, Conax, Cryptoworks, Mediaguard and Irdeto cards
- Hard-wired CardSplitter CSPRO-8 for Irdeto cards
- Hard-wired CardSplitter CSPRO-4 for Viaccess, Conax, Cryptoworks and Mediaguard cards

Also included was, of course, an assortment of reception cards (wireless and hard-wired) as well as the necessary antennas.

Even while unpacking we could see that all the products were quality-made and left us with a good impression. The least expensive version that can handle a maximum of four cards was delivered without a housing; a housing is only available with the 8 to 16 output versions.

A 6~9V power source is needed although the control box also accepts 12V. A power supply was not included by the manufacturer.

### CardSplitter CSPRO-4/8

First of all, the hard-wired version of the CardSplitter



▲ Hard-wired Control Unit for max. 4 Cards

becomes interesting when the end units aren't too far apart and are actually quite close to each other. A classic example would be a second receiver with a built-in video recorder that would let you record one PayTV channel while watching another one live.

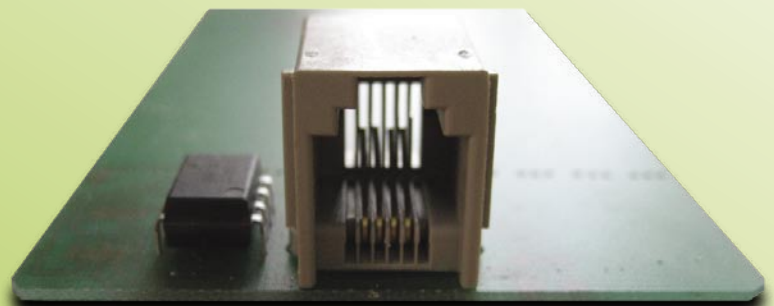
Since two receivers would be needed for this task, the supplied card could be split for both units. The CSPRO series is available with connections for 4, 8 or 16 reception cards. Don't let the pictures fool you; every connection on the control unit can handle two reception cards. Even the smallest version with only two jacks can handle four cards independent from each other.

### Everyday Use

No initialization or other similar preparations are necessary before using the Card-Splitter for the first time. The user must merely insert the

PayTV card in the control unit and connect it to a proper power supply. Thereafter, the connection between the reception card and the control unit is made possible with the help of the included cable.

We first chose to play with a Cryptoworks ORF (Austrian TV) card that the control unit recognized without any problems. The red LED on the front panel went out to signify this. Next we connected the cable to two receiver cards and placed these together with the matching CI modules into two receivers and waited patiently for the decryption of the PayTV channels. But they remained dark and both receivers informed us that invalid cards were being used. We contacted the manufacturer who already knew of this problem. He explained to us that the reception cards are totally blank when first used in the receiver and that the ATR must be transferred to the card's EPROM. This only takes



▲ Reception Card Connector ▲

# Get the Power!

# NANOXX



## NanoXX 9500HD

### HDTV and SDTV Satellite Reception of Premium Quality

- + Outstanding super sharp picture both in MPEG-4 and MPEG-2 transmissions
- + USB2.0 with PVR Function for Digital Video Recording to an external USB2.0 Harddisk (to be connected optional)
- + Record 2 channels and watch a 3rd channel (also Timeshift) from the same transponder at the same time
- + Ethernet RJ45 for Software Upgrades, FTP File Transfer for copying files via LAN to the connected USB2.0 device (also Memory Stick)
- + Integrated Mediaplayer: Playback XVID, AVI, JPG and MP3 files from the connected USB2.0 device on the TV
- + 2 Common Interface Slots und 1 Smart Card Reader for Conax, X-Crypt, DG-Crypt, Firecrypt and Crypton
- + HDMI Ver. 1.2, S-VHS und YPbPr Outputs

HDTV

USB Universal Serial Bus  
Personal Video Recorder  
PVR



## NanoXX 9200, 9400

### Digital Satellite Receiver of Premium Quality

- + 10.000 Channels Memory, Blindscan-Tuner
- + USB1.1 Plug for Software + Channellist Upgrades + JPG-Foto Show
- + 2 Smart Card Reader for Conax, X-Crypt, DG-Crypt, Firecrypt and Crypton
- + Nanox 9400: same as 9200 but additional 2 Common Interface Slots



## NanoXX 9300C

### Digital Cable Receiver of Premium Quality

- + 10.000 Channels Memory, Blindscan-Tuner, DVB-C Standard
- + USB1.1 Plug for Software + Channellist Upgrades + JPG-Foto Show
- + 1 Smart Card Reader for Conax, X-Crypt, DG-Crypt, Firecrypt and Crypton
- + 2 Common Interface Slots



## NanoXX 9600IP

### Digital Satellite Receiver incl. IP PVR Function\*

- + 6.000 Channels Memory,
- + Ethernet RJ45 Plug for Software Upgrades via Internet
- + 1 Smart Card Reader for XCrypt

IP Internet Protocol  
Personal Video Recorder  
PVR

\* Record Video in MPEG format directly over your LAN Home Network to the hard disk of your Personal Computer (Windows). The needed Software Tool is included on CD Rom.  
Before you can use the IP PVR function an automatic software upgrade via the internet has to be made to the Set-Top-Box in order to install the latest firmware version to the Set-Top-Box (Internet connection required).

#### Distribution Germany

MatriXX Systems GmbH  
Industriestr. 2  
D - 65835 Liederbach  
<http://www.matrixxsystems.de>

#### Distribution Switzerland

Telanor AG  
Bachstr. 42  
CH - 4654 Lostorf  
<http://www.telanor.ch>

#### Distribution Austria

Pötzelberger Electronic GesmbH  
Münchner Bundesstraße 121a  
A - 5020 Salzburg  
<http://www.p-sat.at>

<http://www.nanoxx.info>

# NANOXX

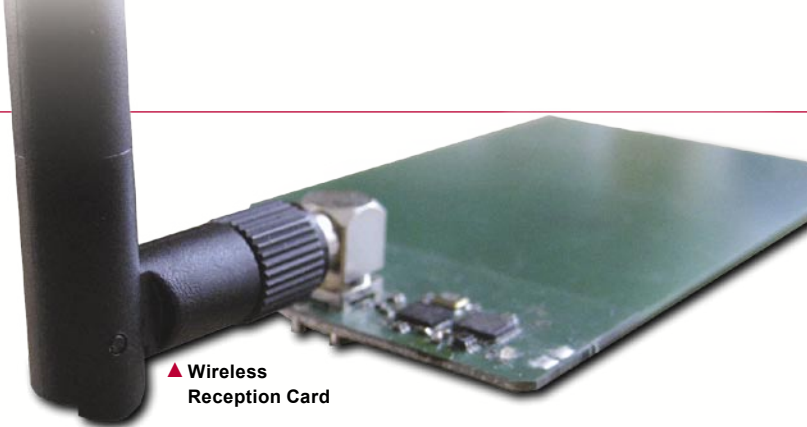
a few milliseconds but for some receivers this is too long and thus they identify the card as invalid since the ATR could not be read.

To get around this problem, the card merely needs to be removed from the receiver momentarily and then reinserted in the CI module. Since the ATR is already available on the card and also stored there, it will from then on be recognized without any problems.

The tip from the manufacturer was right on the money; after we momentarily removed both cards from the CI module and reinserted them, the decrypted ORF picture appeared on both receivers.

card as well as the Irdeto version; both of these also functioned correctly.

Once the ATR has been written to the reception card, it must be deleted again if another encryption system is to be used. For reception cards that are used with Viaccess, Conax, Cryptoworks or Mediaguard, this is not a problem – the card must first be inserted momentarily in the control unit. Unfortunately, it is not as easy with Irdeto cards; once this CA system has been used, these cards must be deleted on a PC with the help of a card reader. The manufacturer offers a corresponding program on its web site for this purpose as well as



▲ Wireless Reception Card

## Everyday Use

Unlike the hard-wired version, the wireless version must undergo an initialization process before it can be used for this first time. The reason for this is fairly obvious: you really only want authorized cards to be processed and not the entire apartment building.

First the control box is turned on without a card and then the PayTV card to be used is inserted. It is then automatically checked and its reaction time confirmed. This is critical for later use of the CardSplitter since the control unit knows exactly how much time the card needs to react to commands. A constant, slowly-blinking LED signifies that the test is complete and that the card can be removed.

Next, all of the cards are momentarily inserted in the control unit to initialize them, confirm the transmission frequency and read in the ATR. The control unit only serves as a power supply; the transmission of data and other parameters occurs wirelessly.

According to the manufacturer, up to 64 cards can be used simultaneously but since our test unit only came with three cards, we could not test this.

Once all the cards have been

initialized, it is suggested to lock additional cards out of the control unit so that no additional unauthorized cards can be set up. This is actually quite easy: simply disconnect the power from the control unit momentarily and with the card still inserted reconnect the power. To unlock simply remove the card and power the control unit back up.

Just like the hard-wired version, the wireless CardSplitter also had to prove itself with a

Cryptoworks, a Conax and an Irdeto SmartCard. Once all of the cards were prepared and coded for the matching CA system, we inserted them into the waiting receivers. The three boxes immediately began decrypting the desired channels.

Just like the hard-wired version, the wireless system was also unaffected by reckless channel surfing and delivered a constant, interference-free decryption. Even reprogramming to a new CA system was handled quickly and without any difficulties.

Naturally, we were



▲ Hard-wired Control Unit for max. 8 Cards

Because of this first success, we became a little more daring: we took four Cryptoworks modules and some receivers out of TELE-satellite stock and built four CI receivers for our test purposes. We quickly connected the four reception cards supplied to us by the manufacturer and, as expected, the four CI receivers did not disturb the CardSplitter in any way. Two colleagues began channel surfing at high speed yet the CSIRO mastered this test as well without any noticeable decryption delay.

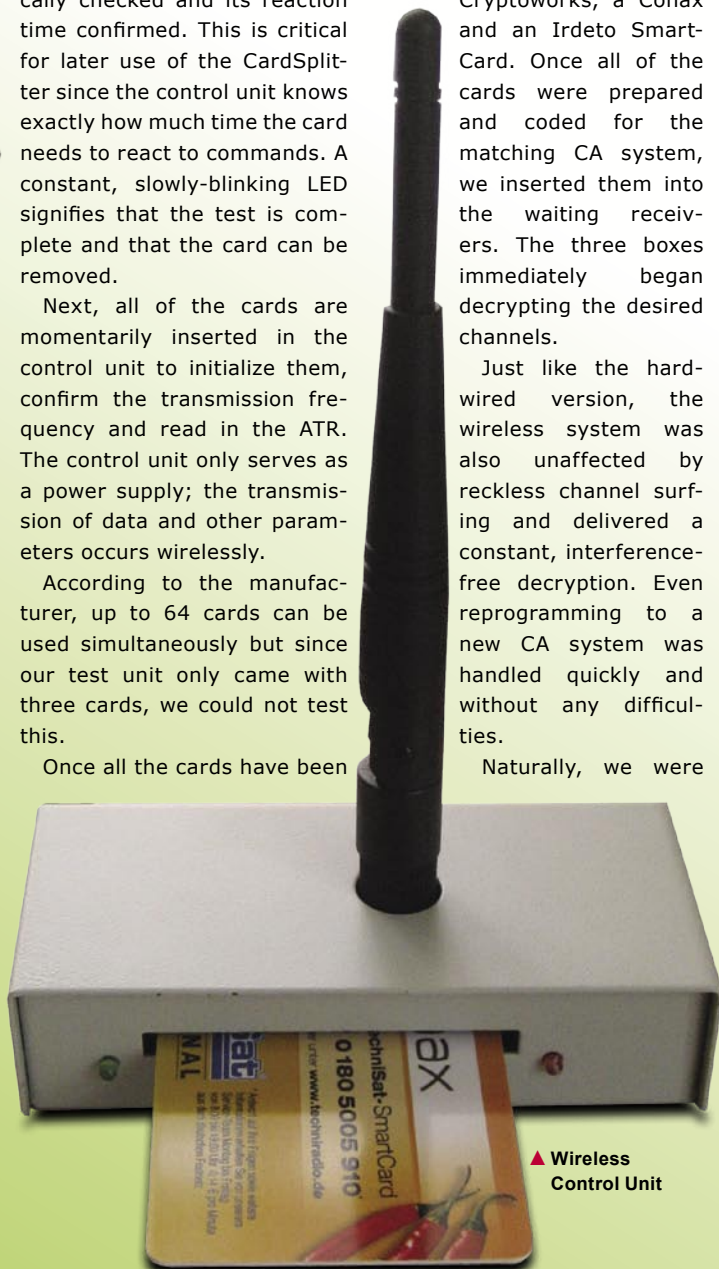
Tests using Mediaguard and Conax Smartcards that we also split to multiple receivers were equally successful. Last but not least we also tested a Euro1080

precise download instructions.

## Wireless CardSplitter

In addition to the hard-wired versions, CardSplitter also offers a wireless version. Compared to the CSIRO, the wireless version can handle five different encryption systems: Irdeto, Conax, Viaccess, Cryptoworks and Mediaguard.

On the front panel are a red LED and a green LED that show the unit's operational status as well as, of course, a card reader. On the top side is the WLAN antenna and on the back is the power connection that would like to be supplied with 6~9V but can also handle 12V.



▲ Wireless Control Unit



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■ **Hard-wired Splitter System**

areas have a range of 100-500 meters while direct, line-of-sight transmissions without any obstacles could have a range of as much as 2 km!

Compared to similar systems from other manufacturers, the products from CardSplitter have far better range. To achieve this, the user must utilize visible receiving antennas on the reception cards. But since these can be adjusted 360° horizontally and 90° vertically, you should surely be able to find a position that doesn't get in the way and yet still delivers excellent reception. Especially practical is the ability to cascade multiple control units so that when serially cascaded the range is extended and when cascaded in parallel the reception capabilities are increased. For our tests we used the appropriate CI module for each CA system; multiple tests with the internal card reader did not result in any problems.

The Internet support forum (English, Greek and Swedish) provided by the manufacturer is also worth mentioning; it offers numerous tips and also quick help should any problems arise.

quite interested in the range of this wireless system and were quite surprised at the results: The reception cards placed on the third floor of our office building functioned effortlessly despite the control unit being located on the ground floor and even through relatively thick walls. Outdoor results were even better; we tested the PayTV signals using the gazebo of a TELE-satellite employee some 300 meters away. The system worked perfectly without any delays or interference.

The modul we tested had a power of only 1 mW; according to manufacturer, soon a model with 250 mW will be released. Future plans include models with 0.5 W and 1 Watts. Even a model with LAN connector is in the pipeline!

This means, signals in urban

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## Expert Opinion



Thomas Haring  
TELE-satellite  
Test Center  
Austria

+

The link between control unit and reception cards functioned nicely even with longer distances; distances of several hundred meters is possible out in the open. Inside a building the setting up of a connection between multiple receivers and transmission units was easily possible. Through the card-reader programmed cards you can be sure that no unauthorized access will occur.

The manufacturing quality of the products is quite good as is the support of the various encryption systems.

-

If a few other CA systems such as Nagravision or NDS were also supported, the system would be perfect. The interference put out by the control unit should be reduced.

## TECHNIC

### DATA

Manufacturer	Decibit, 59/273 M.2, Soi Sukhonthasawat, Ladprad 71, Bangkok 10230, Thailand
Website	<a href="http://www.decibit.com">www.decibit.com</a>
Distribution	<a href="http://www.splitter.cc">www.splitter.cc</a>
Email	<a href="mailto:info@splitter.cc">info@splitter.cc</a>
Model	Hard-wired or Wireless Smartcard Splitter System
Supported CA Systems	Irdeto, Mediaguard, Viaccess, Cryptoworks, Conax
Hard-wired Connections	4, 8 or 16 Reception Cards
Wireless Connections	up to 64 Cards
Range	max. 500m in urban use up to 2km direct line-of-sight with higher power models
Power Requirements	6-9V



■ **3 Control Units, 3 Wireless Reception Cards, 6 Hard-wired Cards**

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# Nanoxx 9500HD

## Busy Manufacturers Still Do Exist

In the last issue of TELE-satellite magazine we introduced the new NanoXX 9500HD. We were so impressed with its craftsmanship and its operational capability that we really had nothing negative to say about it. Some manufacturers would take a test report like that and use it as an excuse to take a well-deserved vacation, but not NanoXX. Despite the high praise received by the 9500HD, their programmers are still working under extreme pressure to incorporate new functions in their box and so just before press time we received word that a new software update was available.

The new software is easy to install: if the receiver is connected to the Internet via a network, one push of a button is all that is needed. You could also download the new software, transfer it to a USB stick and then start the receiver update.

After loading the new software version 02.0.200 without any problems, we looked around to see what changes we could find. Now it is possible to record two programs while watching a third program that had already been stored on the hard drive or you can record two programs and watch a third live or even in time shift mode as long as all three programs are on the same transponder. All of this functioned correctly even when HD programs were involved. The speed of the USB 2.0 connection was more than sufficient for this.

Even hearing impaired viewers will enjoy the fact that the manufacturer updated the recording process so that now teletext, teletext subtitles and DVB subtitles are all automatically recorded and can thus be called up any time a recording on the hard drive is played back.

The playback itself has seen some changes; the NanoXX 9500HD remembers

the point where a playback was stopped so that when it is restarted, it picks up right where it left off. An additional function was also added that lets you skip over those annoying commercial breaks with the push of just one button.

To help guarantee that the beginning and end of your favorite program's recording isn't ruined, NanoXX included the ability to add extra recording time at the beginning and end of a program so that every recording is automatically extended.

And while we're on that subject, the latest update also lets you directly program the recording timer for those optional channels such as the German PayTV channel Premiere. To round it all out, users can now manually set the length of the time shift buffer to whatever they need. Even the short bug list was worked on by the manufacturer;

in addition to taking care of a problem with hard drives larger than 300GB, a timer bug was fixed, a problem with the channel list

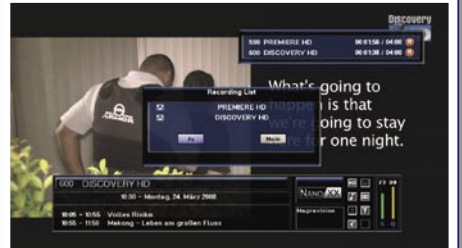
was addressed and the operation with the Alphacrypt CI was improved. A few menu entries were also modified and several new function buttons were added.

All things considered, this was quite a successful update and, above all, it proves that there are still manufacturers out there that after you buy their prod-

# NANOXX



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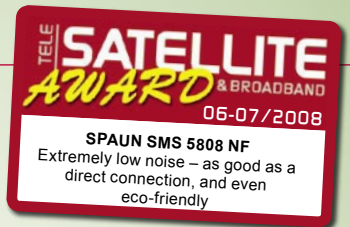
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# SPAUN SMS 5808 NF

## Extremely low noise and eco-friendly multiswitch

When it came, it did not look any special. The multiswitch has only 4 satellite inputs (i.e. 1 quattro LNB) and 1 terrestrial and 8 receiver outputs. Just something for one or 2 families if they are comfortable with just one satellite. Of course it looked very professional as all SPAUN

switches and had the features we used to expect from them: possibility to connect either quattro, twin or quad LNB's or the standby mode. However as soon as we started the measurements we become stunned. Its noise performance was unbelievably perfect!

But let's start from the beginning. We checked the input power to confirm that this is really an environment friendly device. When all connected receivers are in standby mode,

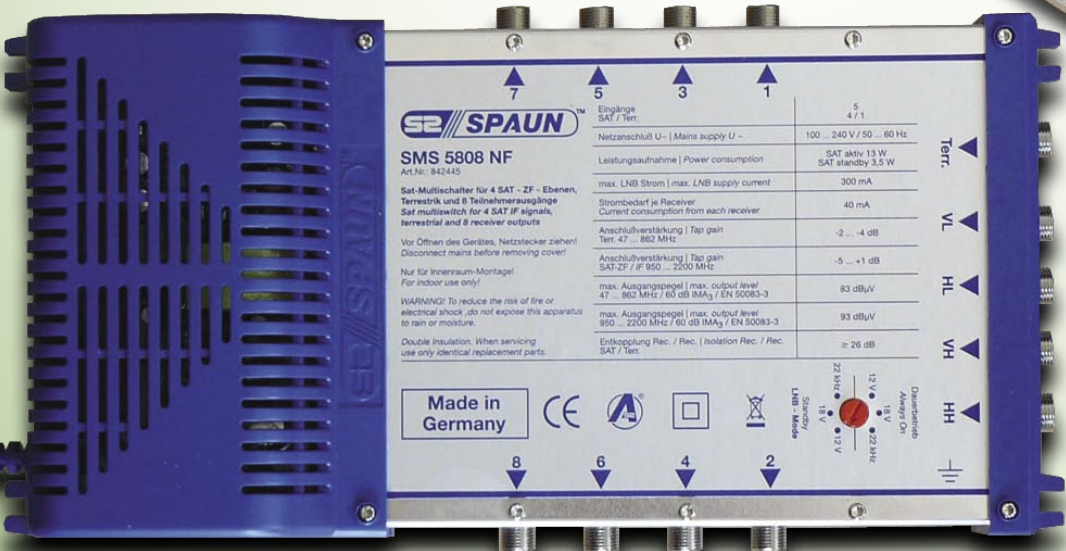
the multiswitch switches off the LNB (or LNB's) and reduces the power down to 3.5 W. We measured that the supply current in standby is 33 mA r.m.s. It means that it consumes 7.6

VA. If we take into account that in the operate mode the power consumption can be even 13 W

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the standby mode makes sense. It saves us almost 10 W.

OK, so the next step was to select the transponders to use as the test input. They are shown in table 1. As you can see, we chose 3 transponders for every satellite input (VL, HL, VH and HH) located more or less at the edges and in the centers of the subbands. Measuring 12 transponders on 8 outputs takes time but if the multiswitch has any weak point, it can not slip unnoticed.

So what about the tap gain? According to the specification it



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## INTRODUCING THE HORIZON DIGITAL METER RANGE

### THE HORIZON DIGITAL SATELLITE METER USB & USB PLUS



#### HDSM USB

- New graphics capable 128 x 64 pixel high brightness (adjustable) backlit LCD
- New Full Speed USB 2 interface with automatic driver download
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- New 3300 mAh battery pack offering in excess of 7 hours operation
- New nylon F connectors for maximum durability
- Faster processor with recall of last selection used
- New manual carrier configuration mode
- Twice the satellite setting capacity with 64 selections available
- Lock indication within 100ms of acquiring the satellite
- Custom program files available on request (e.g. VSAT)
- L-Band, C-Band, Ku-Band and Ka-Band capability
- Quality indicator (Pre BER) displayed alongside RF Level (dBuV)
- Pre and Post BER can be displayed with their actual values (setup option)
- Toggle to display Post BER and Carrier to Noise (dB)

- DiSEqC switch commands (available from sub menu)
- Symbol rates 2Msymb to 45Msymb
- Frequency range 950 to 2150MHz
- Input impedance 75 Ohms
- LNB Pass / Fail test function
- LNB short circuit protection
- Satellite cable integrity test
- Upgradeable firmware
- Intelligent internal AC charger 100 to 240 V AC
- Automatic fast and trickle charge modes
- 12 volt in car charger supplied
- USB lead supplied
- CE approved
- Compliant with EN 61326-1 : 2006 (EMC) and EN 61010-1 : 2001 (Electrical safety)
- Registered design
- Free product support via phone and email

#### HDSM USB PLUS (additional features)

- Easy to use Spectrum Display Mode
- QPSK Constellation Diagram (with zoom function)
- Histogram display with up to 9 simultaneous carrier measurements for single cable installations (SCR)
- Data Logging (upload installation measurement data to your PC)

#### HORIZON DIGITAL TERRESTRIAL METER (HDTM)



- Displays Signal Strength (RF level) with DVB-T indicator.
- Fast and accurate Pre BER readings in real time for easier antenna pointing using the built in CODFM indicator for quality of service.
- Can store up to 32 transmitter selections (via our web site downloads) a default of UHF 21 – 69 step through is preloaded.
- Built in intelligent universal mains charger 100 – 240V AC (CE approved) with V delta detection for fast and then trickle charging.
- Minimum run time of 5 hours with a full charge on the 2400 mAh NiMH battery.
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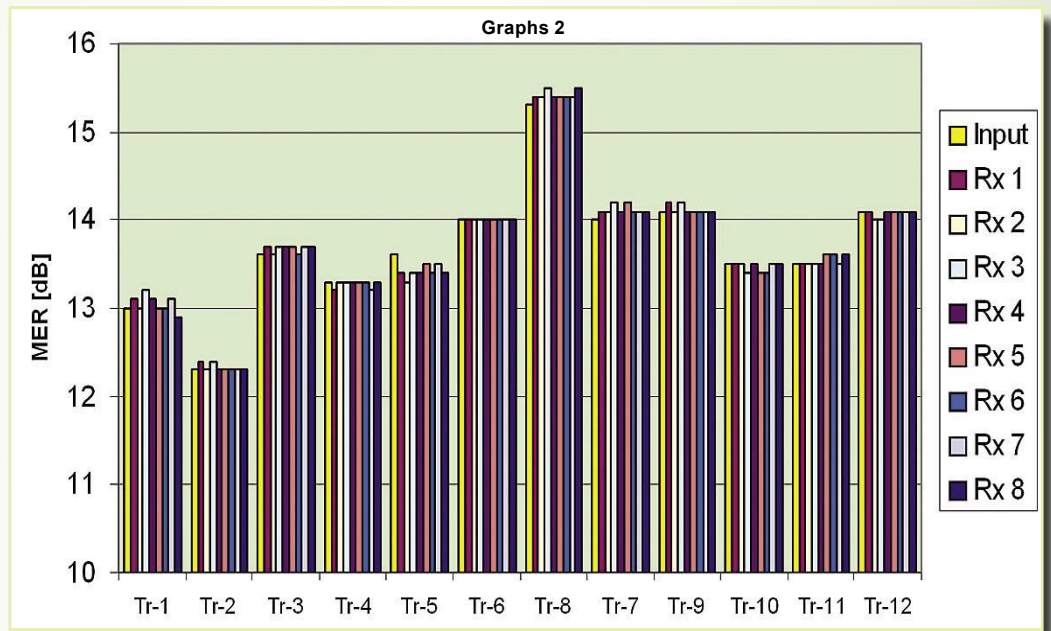
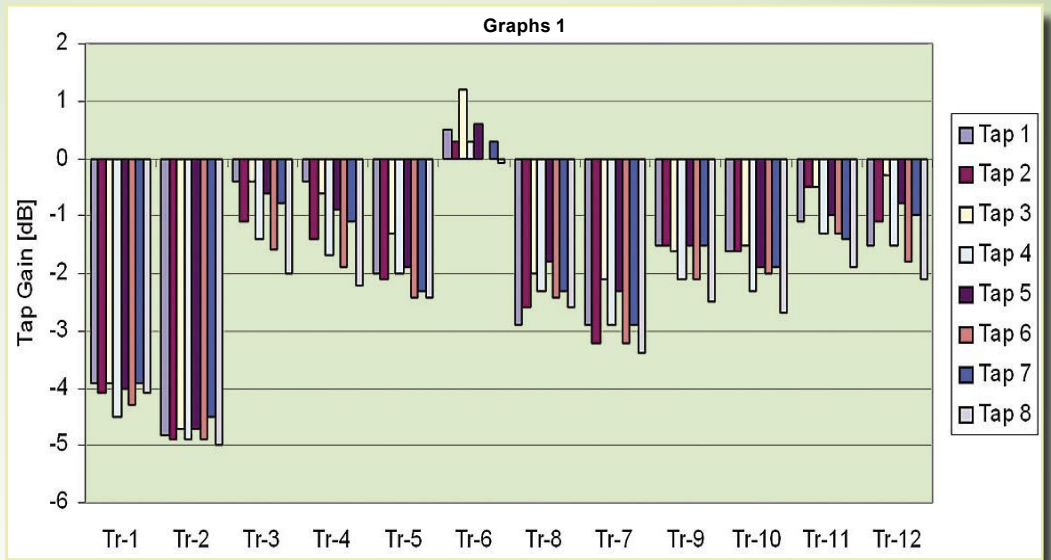
Transponder	Pol.	Freq.	Multiswitch input
Tr-1	V	10719	VL
Tr-2	H	10723	HL
Tr-3	H	11296	HL
Tr-4	V	11278	VL
Tr-5	H	11642	HL
Tr-6	V	11662	VL
Tr-8	V	11727	VH
Tr-7	H	11747	HH
Tr-9	H	12092	HH
Tr-10	V	12111	VH
Tr-11	V	12713	VH
Tr-12	H	12731	HH

should be within -5 dB...+1 dB. We took the measurements and it was the first nice surprise. As you can see on the graphs (Graphs 1), the actual results absolutely confirm what the manufacturer claims.

Moreover, the differences in the tap gain between the taps are only about 1 dB. It is almost nothing.

Now the most critical test. Many multiswitches deteriorate the quality of the signal. The quality is usually measured as C/N or MER. We decided to use modulation error ratio.

And this was the time we got completely stunned. See the MER graphs (Graphs 2). No difference between the input and all the taps. Signal outgoing from the SMS 5808 NF is exactly as good as the one coming from the LNB! On every tap! There is no need to use any bigger dish because of this multiswitch - your receivers will be getting the signal as good as you were directly connected to the LNB.



### Expert Opinion

+ Exceptional performance – extremely low noise and good tap gain characteristics. Possibility to use quattro, twin or quad LNB. Standby mode saves our money and is eco-friendly. Very good workmanship.



Jacek Pawlowski  
TELE-satellite  
Test Center  
Poland

- None

TECHNIC DATA	
Manufacturer	SPAUN Electronic, Byk-Gulden-Str. 22, D-78224 Singen, Germany
Website	<a href="http://www.spaun.de">http://www.spaun.de</a>
Email	<a href="mailto:info@spaun.de">info@spaun.de</a>
Phone	+49 (0) 7731-86730
Fax	+49 (0) 7731-64202
Model	SMS 5808 NF
Function	Multiswitch with standby mode
Inputs	4 satellite and 1 terrestrial
Receiver outputs	8
Tap Gain SAT-IF 950...2150 MHz	-5...+1 dB
Tap Gain Terrestrial 47...862 MHz	-2...-3dB
Mains supply	100...240 V 50...60 Hz
Power consumption (operate)	13 W
Power consumption (standby)	3.5 W
LNB supply current	300 mA max.
Current consumption on receiver outputs	40 mA each
Isolation between receiver outputs	26 dB min.
Ambient temperature	-20 ... +50 °C (Indoor use only!)
Dimensions	259 x 132 x 56 mm

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# Trimax SM-2200 Signal Meter

## Satellite Signal Finding Made Easy

If you're a satellite antenna installer, you want your job to be as easy as possible especially if you have to climb up on a roof to install that dish. You would like to go up and down that ladder as little as possible. Sometimes the most difficult part of the entire job is not erecting the antenna, but finding that elusive satellite that the customer wants to receive. Of course, you could carry that bulky satellite spectrum analyzer up there with you but what if there was any easier way? Trimax may have just what the doctor ordered.

Trimax recently introduced a sophisticated handheld signal meter that should greatly simplify an installer's job. Thanks to Jerry Fisher at SatMan Canada ([www.satmancanada.com](http://www.satmancanada.com)) who sent us a sample, we had the opportunity to take a closer look at this meter. At only about 1.25 LBS (0.5 Kg) and with dimensions of 9.5 x 15.5 x 4.5 cm, it is small and lightweight enough to easily carry around almost anywhere. The internal electronics are surrounded by a sturdy black plastic housing. The meter is powered by a 1950mA rechargeable Li-On battery.

The SM-2200 is fitted with a single male "F" input connector on the top side and a USB serial interface connector plus DC power port on the bottom. The USB connector and DC power port are protected from dirt and moisture by rubber protective flaps. Included in the package are an AC charger, a DC car charger, a female-to-female "F" connector, a black protective carrying case and convenient shoulder strap. Also included is

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a PC cable with an RS-232 connector on one end for a PC and a USB connector on the other end to plug into the meter. Lastly, you'll also find a 15-page user manual for the SM-2200.

### Everyday Use

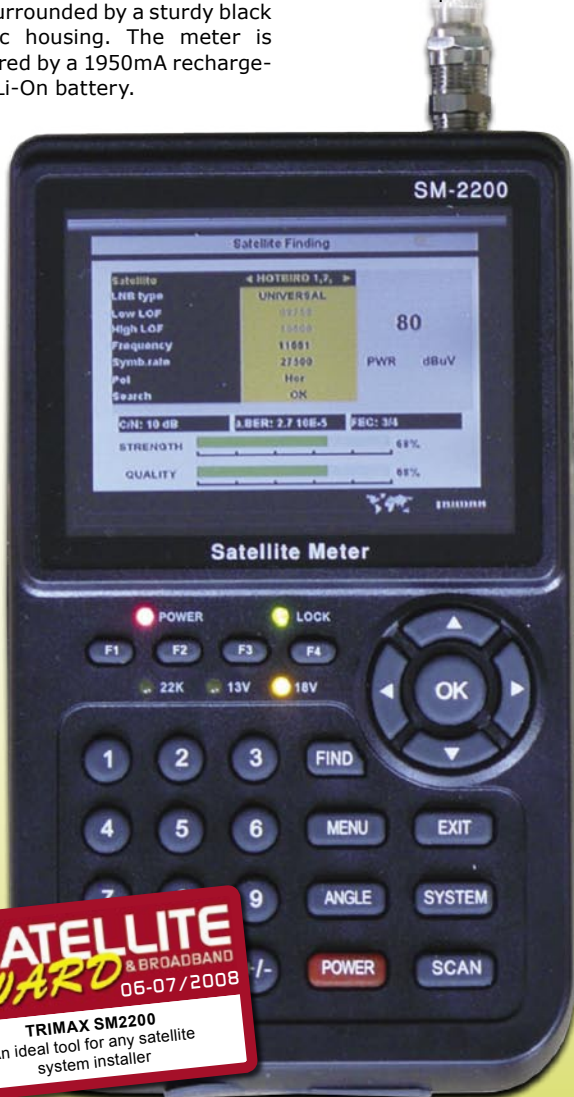
When charging the meter for the first time, the manufacturer recommends charging the internal battery for at least 5 hours before using the meter. The universal AC charger is rated for 90-240VAC/50-60Hz operation that, with the correct wall outlet adapter, lets you use the SM-2200 almost anywhere in the world. The DC car charger can be used to charge the meter while on the road. Just plug the charger into your vehicles 12VDC power port and the meter will recharge while enroute to your next installation job. The meter does not need to be turned on while the battery is being charged; the power LED on the front panel will glow green to show that charging is taking place. It will turn red when the meter is fully charged.

The satellite signal is supplied to the meter via the male "F" connector on the top side of the housing. You might be wondering why the manufacturer installed a male "F" connector and supplied a female-to-female "F" connector in the package instead of just installing a female "F" connector. The idea was that the exposed threads of a female "F" connector were far more likely of becoming damaged over time. In such a case, it would have probably involved

taking the meter out of service to repair or replace the female "F" connector. Instead, when the threads become damaged, it is a simple matter of removing the existing female-to-female "F" connector and replacing it with a new one. Obviously, the manufacturer was thinking ahead when they came up with this idea.

The front panel of the SM-2200 comes with 28 buttons to operate the meter. These buttons include a numerical keypad, four function buttons, four left/right/up/down ring buttons surrounding an "OK" button plus a set of buttons to access specific points in the meter's menu. And let's not forget the main power button. There's also a set of five status LEDs: a power indicator, a signal lock indicator, a 22 kHz indicator as well as 13V and 18V polarization indicators. But, without a doubt, the most prominent feature on the front panel is the 3.5" TFT LCD screen. Not only can you view all the different menu pages right on this screen, but you can also watch and listen to satellite TV channels directly on the SM-2200! This virtually guarantees that the satellite you want is the satellite you get.

Once the meter has been fully charged, hold down the red power button for about one second to turn the unit on. If you are turning on the meter for the first time or if the meter has been reset, the registration code that comes with the package needs to be entered. From this point on, the meter will take



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Meter with accessories

you directly to the Main Menu screen every time it is turned on. Next the meter needs to be set up for the area it will be used in. From the Main Menu screen use the arrow keys to scroll down to System Setting and press the OK button. If the meter happens to be in TV mode, the System button on the front panel can be used to go directly to the System Setting screen. From the System Setting screen, you can select the proper language (English or Russian), the correct TV standard (NTSC, PAL, SECAM or AUTO) and set up the timer to shut down the LCD screen after a user-settable time (5, 10, 15 or 20 minutes). For our initial test we wanted to use the meter to align our dish to Galaxy 25 at 97° west. So we selected English as our menu language and NTSC as our TV standard. From the System Setting screen you can also Factory Reset the meter and view the current software loaded in the meter. Once all the settings have been taken care of, the Exit button will take you back to the Main Menu.

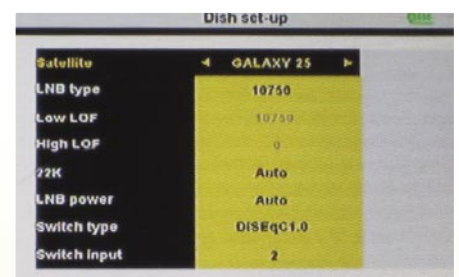
With the system settings taken care of, your next logi-

cal step would be to enter the proper antenna settings into the meter. From the Main Menu screen, scroll to Satellite Setting and press the OK button and then scroll to Dish Set-up and press the OK button again. The Dish Set-up menu lets you choose a satellite and adjust its parameters so that the meter can properly receive a signal from the antenna. With the satellite name highlighted, we used the left/right arrow keys to select Galaxy 25. We were using a standard Ku-band LNB on our dish with an LOF (local oscillator frequency) of 10.750 GHz. In the Dish Set-up menu we scrolled to LNB Type and used the left/right arrow keys to select 10750. Other preprogrammed LOF settings include 5150, 9750, Universal and Customized. The Customized setting can be used to set up a different LOF such as the 11.250 GHz LOF used by the North American DTH satellite services. In the case of the Universal setting, the Low LOF, High LOF and 22 KHz settings are automatically adjusted for you. The LNB power can be used to force the meter to stay at either 13V or 18V regardless of what polariza-

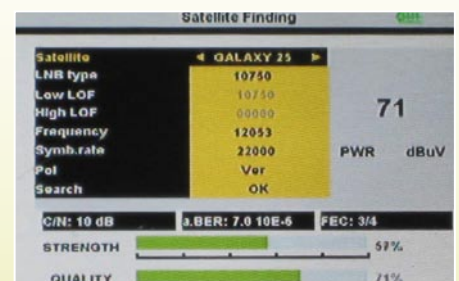
LNB power completely. In the Auto mode, the meter selects the proper voltage based on the polarization.

The antenna we want to align is routed through a DiSEqC 1.0 switch so the meter needs to be set up for this as well. From the Dish Set-up menu we scrolled to Switch Type and pressed the left/right arrow keys until DiSEqC 1.0 was displayed to activate this function in the meter. We selected #2 under Switch Input to match the #2 input used in our DiSEqC switch. Once these settings were taken care of, the Exit button was pushed and OK chosen to save the settings.

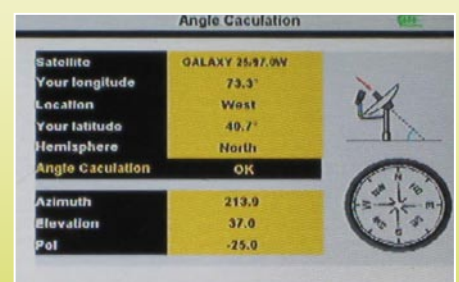
At this point the meter is ready to find satellites for you. The day we were outside to test the meter was cloudy so the video display was easy to see. But, even on those bright sunny days, the included sun screen helps make the video image viewable. For our first test, we wanted to see how easy it would be to find the Galaxy 25 satellite at 97° west. The meter came preprogrammed with all the transponders on this satellite so it was just a



Dish set-up |



Satellite finding |



Angle calculation |



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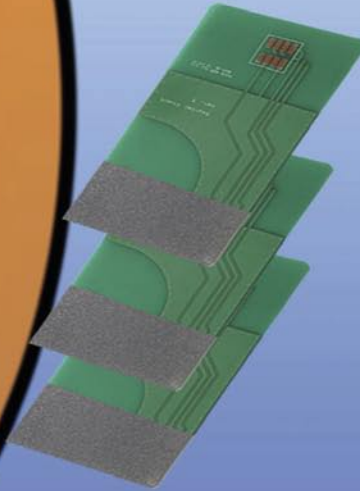
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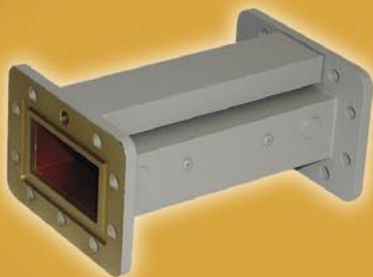
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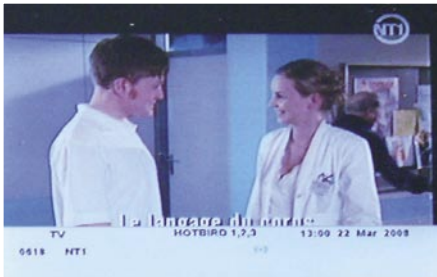
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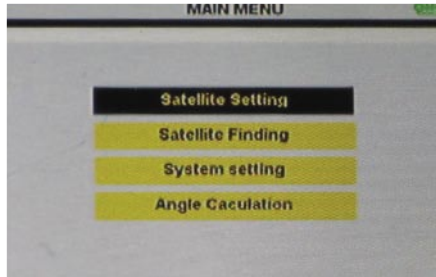


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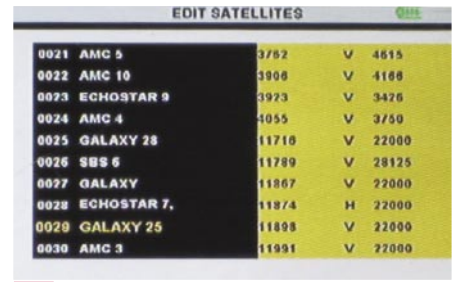
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Info bar |



Main menu |



Edit satellites |

matter of choosing which one to work with. From the Main Menu screen we highlighted Satellite Finding and pressed OK. This took us to the Satellite Finding screen from which we could select the satellite we wanted to look for and the transponder we wanted to use for this task. If a known active transponder is missing from the list, you can use the Satellite Finding screen to edit an existing transponder and put in the missing data. Just keep in mind that doing this will overwrite the existing data for that particular transponder. Unfortunately, it was not possible to add new transponders to a satellite through the meters menu screens; only existing transponders could be changed. Adding new transponders would involve using an interface program made available through the Trimax web site ([www.trimaxmeters.com](http://www.trimaxmeters.com)) and then uploading the new data to the meter through its USB port.

We opted for the 12.115V transponder and began by rotating our 90cm antenna in the general direction of Galaxy 25. In no time at all the signal strength and quality bar graphs on the Trimax meter display came to life announcing that we had found our target satellite. In addition to these two bar graphs, the display on the meter also shows the power in dBμV as well as the C/N and BER values to make fine tuning of the antenna a piece of cake. This information gives an installer an extra level of precision when aligning an antenna that could not normally be achieved using the signal strength and quality bar graphs alone.

If you're not exactly sure where a satellite is located in the sky, the meter also comes with a handy Angle Calculation tool to point you in the right direction. Simply go to the Angle Calculation screen from the Main Menu, enter in your local longitude and latitude coordinates and select the satellite you want to find. The tool will calculate the azimuth and elevation angles needed for that satellite.

Once the alignment is completed, a channel scan of the

transponder can be started by scrolling down to Search and pressing the OK button. All of the active channels on the transponder were found and stored in the meter in just under 10 seconds. By exiting out of the on-screen menus, the channels that were just stored can be viewed. The up/down arrow keys can be used to switch between channels or you can press the OK button to display a list of the available channels. The left/right keys adjust the volume in full-screen mode and act as page up/down buttons when in Channel List mode. In the Channel List mode, the video of the current channel is shown in an insert. Scrolling through the list automatically shows the video of the highlighted channel. Pressing OK again places the current video back into full-screen mode.

The quality of the video is actually quite good; even the audio is good when you consider that this a satellite meter! Switching between channels takes about one second and just like a standard satellite receiver, an Info bar that provides some basic channel information is momentarily displayed at the bottom of the screen. We also tested the meter on several SCPC transponders and found that the Trimax had no trouble dealing with these lower symbol rates.

## Conclusion

Its small size and light-weight design lets you take the Trimax SM-2200 right up to an existing or newly-installed dish antenna regardless of whether it happens to be on the ground, on a wall or on a roof. It is easy to hold in one hand and the menus are quite legible on the 3.5" display. It would make an ideal tool for any satellite system installer. There will undoubtedly be satellite hobbyists out there that will "have to have" this meter to add to their collection; from their point of view, this meter is a portable satellite receiver that they could use together with a small satellite dish anywhere they happen to be. Unfortun-

nately, its price tag is somewhat higher than a standard satellite receiver and this might chase some of them away.

The long-life battery will almost guarantee that you won't run out of power in the middle of your installation and, should it need a charge in the field, simply plug it into your vehicles cigarette lighter with the sup-

plied car power adapter. It would have been nice to be able to add new satellites and/or transponders while in the field. Hopefully a future software upgrade will take care of this minor inconvenience. Overall, though, the Trimax SM-2200 satellite meter is a reliable tool that will reduce much of the time needed to align a satellite system. It doesn't get much easier than this.

## Expert Opinion

**+**  
Small size, light weight, and long-life battery makes it an ideal companion to any satellite installer

**-**  
New transponders can only be added via software upload



Ron Roessel  
TELE-satellite  
Test Center  
USA

# Trimax SM-2200 in Europe

When we powered up the meter and navigated through all of its menus, we quickly discovered that the western hemisphere satellites were pre-programmed into it by default. The test model we got was set up for use in North and South America. Can the SM-2200 also be used in other parts of the world?

We turned to the manufacturer's web site (<http://www.trimaxmeters.com>) and found special versions of firmware that were designed for different parts of the world: 1. Asia and South Pacific, 2. Atlantic Ocean, 3. Europe, Africa and The Middle East, 4. North and South America. The latest software version was higher than the one in our meter (1.03 vs. 1.00). We downloaded the European firmware along with the software loader, a transponder editor tool called the "Meter Tool". The firmware update went smoothly. The



The Trimax SM-2200 used as a small portable satellite tv

European satellite list included satellites from 4.8° E (Sirius) to 72° E (Intelsat 4).

We downloaded the manufacturer's satellite list to our PC, edited it a little bit with the "Meter Tool" by adding more sat-

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Tel: 886-3-3611393 Fax: 886-3-3615877



ellites that can be received here in Europe and then uploaded it back to the meter. After setting up a test antenna in the yard, we connected the meter to see how easy it would be to align our dish. Within seconds we spotted ASTRA 1 (19.2° E) and then rotated the antenna to HOTBIRD (13° E). The meter showed the signal strength bar along with the quality bar that we used for feedback during the alignment.

If you get along with your neighbors, you can also listen to the special audio signal generated by the meter. The better the signal, the faster the beeps. The pitch of the beep stays constant and it is actually quite loud. This is a big plus for an installer working near a busy street and not necessarily in the backyard of someone's house. If you can do without the loud beeps, Trimax included the ability to shut the audio off by pressing the F2 key. We checked a few other satellites and tested FTA and scrambled channels, high and low symbol rate (over 2 Ms/sec); the meter locked onto every signal without any problems.

With the audio muted we had to rely on the screen readouts. Trimax added a practical sun shade to their carrying bag

which we found very useful. The signal bar graphics as well as the signal power value expressed in dBμV were very easy to read. However, the signal quality percentage values and C/N value were harder to read. The last two are the most important when trying to fine tune an antenna. It would undoubtedly be helpful if a future software release made these values easier to read. Also the C/N resolution of 1 dB might be good enough to align a standard antenna that isn't too big. However, if we want to align our DX antenna, a C/N resolution of 0.1 dB (or MER) would be preferable. Once the antenna was properly aligned, we performed a typical automatic channel scan much like in a standard satellite receiver. The quality of the video was surprisingly good. The colors were much better than in the laptop we were using to write this test report. Even the audio was quite acceptable considering this was such a small unit. We really didn't expect to find such high quality in a signal finder. When you start flipping through the channels, you can't help but think about taking it with you on your next camping trip. Watching TV under a tent? Why not?

## Expert Opinion



Jacek Pawlowski  
TELE-satellite  
Test Center  
Poland

+

The Trimax SM-2200 is a signal finder combined with a satellite receiver. The meter has both visual and audible signals that can be used as feedback. The ability to show video is an additional plus; you can show your customer that the antenna system you just aligned is working exactly as it should. This may help in those situations when a customer is convinced that there is a problem with the antenna set up and it turns out to really be at the receiver end.

It would be nice if the manufacturer expanded the satellite list for Europe. If the C/N resolution of the meter could be increased to 0.1 dB, this would allow an installer to align reception systems that are more demanding. The meter might be easier to use if the signal quality displays were larger (C/N and signal quality percentage).

## TECHNIC DATA

Distributor	Satman Canada, Winnipeg, Manitoba, Canada
E-mail	trimaxmeters@mts.net
Tel	+1-204-661-3279
Model	Trimax SM-2200
Function	Hand-held Satellite Signal Meter
Symbolrate	2-45 Ms/sec
DiSEqC	yes, 1.0
Display	3.5" TFT LCD TV screen
Satellite Input	male "F" connector
USB Interface	yes
Internal Power Source	Rechargeable 1950mA battery
External Power Supply	90-240VAC/50-60Hz

# Jiuzhou JQA1P Monoblock Quad LNBF 6

## 2 satellites for 4 receivers

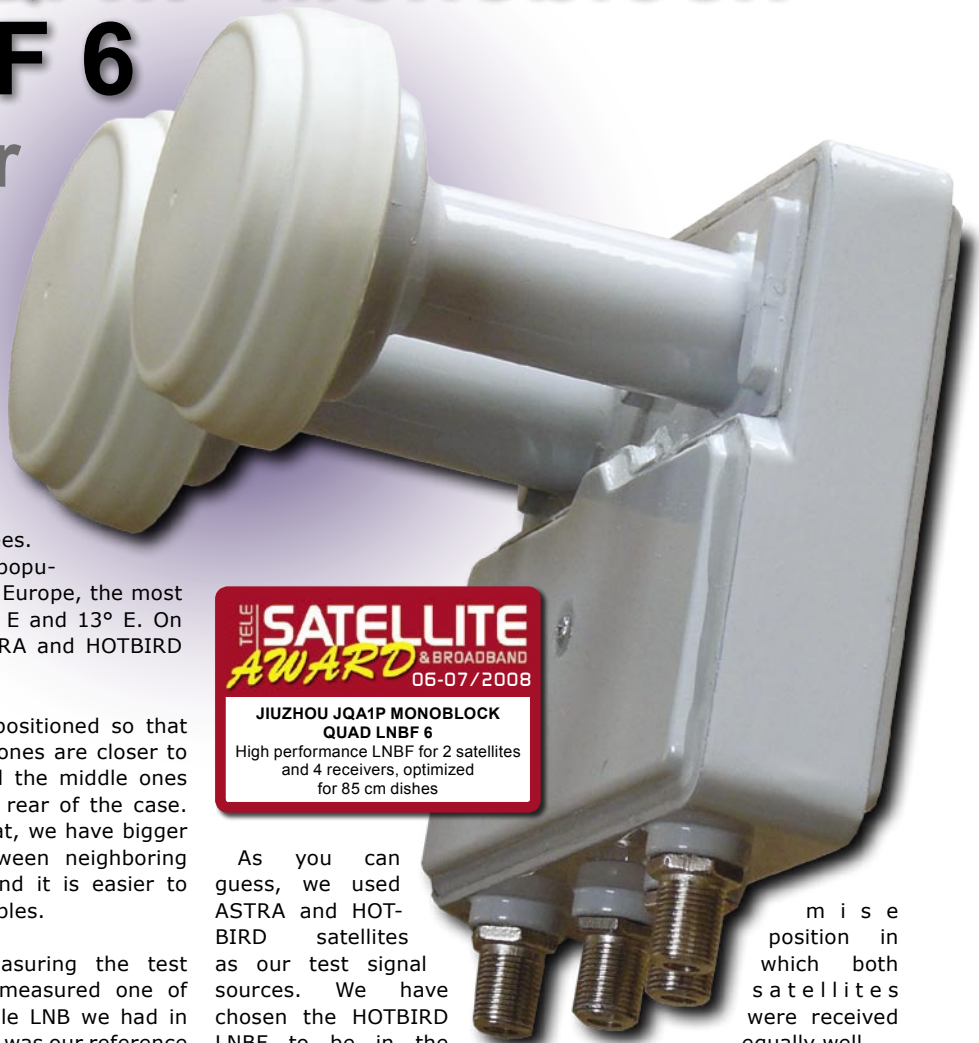
A monoblock LNBF is used when you want to receive 2 satellites in Ku-band. This solution has an advantage over a motorized antenna in speed of satellite switching. It is immediate. A motorized dish would require the extra 2-3 seconds. Of course, the monoblock can only be used when the satellites are separated from one another by an exact number of degrees. And this separation can not be too high. Most popular monoblocks are made for 6° separation. For Europe, the most common combination for a monoblock is 19.2° E and 13° E. On these two orbital positions, there are the ASTRA and HOTBIRD satellite fleets.

Quite often you need to distribute the signal among a few receivers located in different rooms. The simple monoblock is of no use then. But if you have a monoblock quad LNBF, you may distribute the signal to four receivers and every of them will be able to tune to any channel from ASTRA or HOTBIRD independently. One 85-90 cm dish will be enough for ASTRA+HOTBIRD reception in Europe. This is a very practical solution especially for the viewers living in big cities. And evidently this is the target group for Jiuzhou JQA1P monoblock.

JQA1P monoblock has a metal enclosure sealed up. It is not any heavier than the other quad or quattro LNBF's. As you can see on our picture, it is designed for a 23 mm holder. The four F con-

nectors are positioned so that the external ones are closer to the front and the middle ones closer to the rear of the case. Thanks to that, we have bigger distance between neighboring connectors and it is easier to attach the cables.

Before measuring the test sample, we measured one of the best single LNB we had in our drawer. It was our reference unit with NF = 0.2 dB typ. Noise figure of JQA1P is specified as 0.3 dB typical. We used an 85 cm dish for which monoblocks are designed for. Well, you can also use 90 cm, but if you install a monoblock on a 60 cm or 120 cm dish you will not get the orbital spacing of 6°, but a different one and you will not be able to align your antenna correctly.



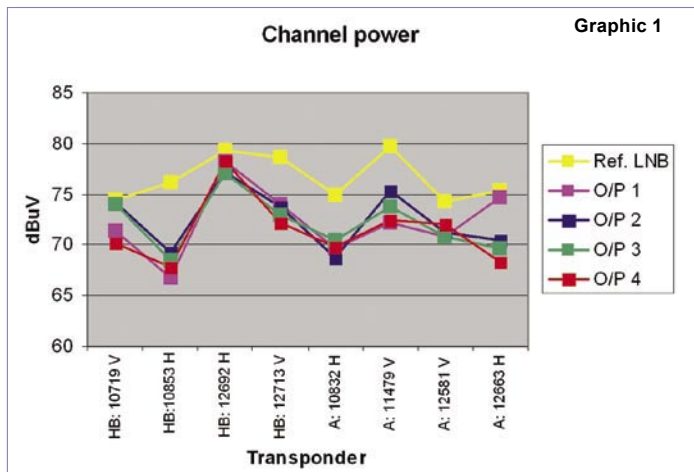
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06-07/2008

**JIUZHOU JQA1P MONOBLOCK QUAD LNBF 6**  
High performance LNBF for 2 satellites and 4 receivers, optimized for 85 cm dishes

As you can guess, we used ASTRA and HOTBIRD satellites as our test signal sources. We have chosen the HOTBIRD LNBF to be in the antenna focus and ASTRA LNBF aside. But of course, one can do it vice versa. After connecting a meter to the JQA1P, we found the optimal antenna position for HOTBIRD. Then we sent a DiSEqC command to switch the monoblock to ASTRA LNB. The signal was weak. We moved antenna a little bit to increase it. After a few such adjustments, we found the compro-

mi s e position in which both satellites were received equally well.

It was time to take the output channel power and C/N measurements to compare them later with the same measurements done for a reference LNB. On the first graph you can see the output power measured for four HOTBIRD transponders and four ASTRA transponders. We selected transponders of both polarizations and frequen-



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Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/tur/jiuzhou.pdf">www.TELE-satellite.com/TELE-satellite-0807/tur/jiuzhou.pdf</a>



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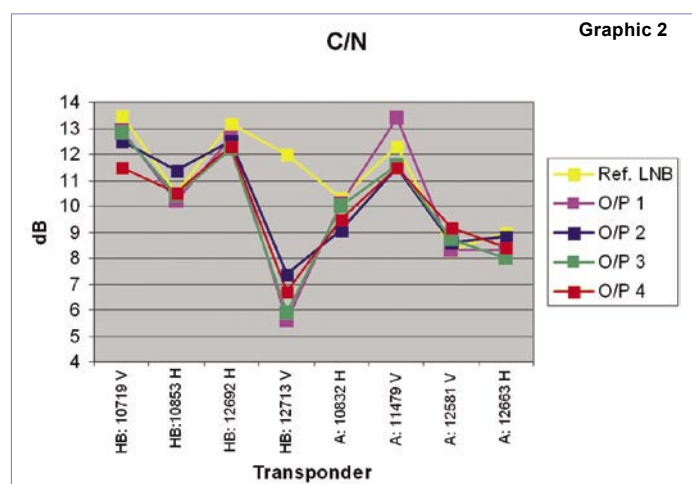
cies close to the ends of Ku-Band.

The output power of JQA1P was somewhat lower than the reference LNB. However, it was very high anyway. If we take a closer look at the graph, we will notice that there are no big differences between the monoblock LNB outputs.

However, the output channel power is not that critical as the quality of the output signal. So, we measured the C/N ratio for the same transponders. As you can see on the second graph, for the majority of transponders, the JQA1P produces almost

equally good signal as our reference 0.2 dB single LNB.

This is really impressive if we take into account that a monoblock is always a compromise between the reception of an LNB in the focus and the reception of a side LNB. We noticed a decrease in performance only for the 12713 MHz V 27.5 Ms/sec transponder - at the very end of Ku-Band. At this point we switched our meter to see if there is still enough noise margin left. And it was! 3.3 dB is quite enough to ensure good reception even if the weather is less favorable.



**Expert Opinion**

**+**  
Performance of JQA1P is almost as good as that of a 0.2 dB single LNB installed in a focus of a perfectly aligned antenna. The difference between its 4 outputs is minimal. Installation is easy thanks to enough space between F connectors.

**-**  
None



**TECHNIC DATA**

<b>Manufacturer</b>	Sichuan Jiuzhou Electric Group Co. Ltd, China
<b>Internet</b>	http://www.jiuzhou.com.cn/
<b>E-mail</b>	overseas@jiuzhou.com.cn
<b>Telephone</b>	(86 816) 2468428 (86 816) 2468360
<b>Fax</b>	(86 816) 2468903 / (86 816) 2469241
<b>Model</b>	JQA1P
<b>Function</b>	Universal Ku-Band Monoblock Quad LNB 6°
<b>Noise Figure</b>	0.3 dB (typ.)
<b>LOF</b>	9.750 and 10.600 GHz
<b>Frequency Stability</b>	±1 MHz max. / T=25° C ±3 MHz / T= -40...+60 °C
<b>Gain</b>	50~62 dB
<b>Gain Variation</b>	5 dB p-p (typ.)
<b>Cross Polarization Isolation</b>	25 dB (typ.), 20dB (min.)
<b>Phase Noise at 1 kHz Offset</b>	-60 dBc/Hz
<b>Phase Noise at 10 kHz Offset</b>	-80 dBc/Hz
<b>Phase Noise at 100 kHz Offset</b>	-100 dBc/Hz
<b>DC Current Consumption</b>	180 mA (max.)
<b>Operating Temperature</b>	-40...+60 °C
<b>Waterproof</b>	+60 °C water for 5 minutes
<b>Holder diameter</b>	23 mm

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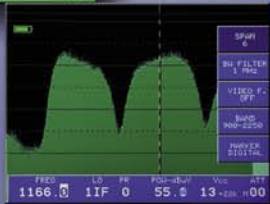
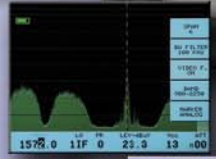


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# Techno Shopping in Yongsan



**Undoubtedly the largest shopping mile for electronics**, PC's and mobile phones – anything that would be of interest to the male population can be found in Yongsan in central Seoul. This electronic marketplace is said to be larger than those in Tokyo, Singapore, Hong Kong or London, and you would have no trouble believing it if you tried to take it all in. The complex is made up of multiple shopping malls in the middle of which we found some satellite shops that TELE-satellite paid a visit to.

## TAEHWA

This shop founded by Hae-Jin Jung has been in existence for over 30 years. His best selling product is the 90cm dish of which he sells roughly 100 a month. The somewhat smaller 75cm antenna is also popular: "We sell about 70 of those every month", explains Hae-Jin Jung. Even 120cm dishes are available; all of these sizes are used for reception of KOREASAT. But even 180cm antennas are sold: "These are used for ASIASAT reception", reveals Hae-Jin Jung, "we sell about 40 or 50 of them each month." Hae-Jin Jung runs his business with three employees.

## CUSTOM

Choi Jong Sik operates his family business also with three employees and at 25 years has been in business for almost just as long. His product line includes 60cm antennas of which he sells about 120 each year, 120cm dishes of which he sells about the same amount each year as well as 180cm antennas that account for roughly 70 a year.

"For satellite receivers, we offer a model from Multiplus", explains Choi Jong Sik.





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If you ride the Seoul Metro Line #1 to the Yongsan station, you'll run into the I'Park Shopping Center sitting right on top of the Metro station: multiple levels are tightly packed with one electronics shop after the other. Everything brand new and 'glitzy'. If you exit the I'Park Shopping Center and walk across the pedestrian bridge (right side in picture), you'll find yourself in the next shopping center that sits over a bus terminal. Here some of the 'glitzy' is lacking. Another pedestrian bridge takes you to the ETLAND Shopping Center (left side in picture), the largest in Yongsan and again very 'glitzy'. Other shopping malls are also linked that are far less 'glitzy' and offer less expensive products.



DIGITAL also offers satellite antennas and reception components.



Choi Jong Sik from CUSTOM, presents his best seller: a 120cm antenna. The smaller 60cm dishes are used for KOREASAT reception.



Hae-Jin Jung with a 75cm antenna in front of his TAEHWA TELECOM shop that also serves as a warehouse. If it's in stock, you can take it with you.

# Satellites in Santiago



▲ Juan Carlos aligns his satellite antenna towards GALAXY. The dish to the left is positioned to receive TELSTAR 12 while the large C band dish on the right still has to be adjusted properly.



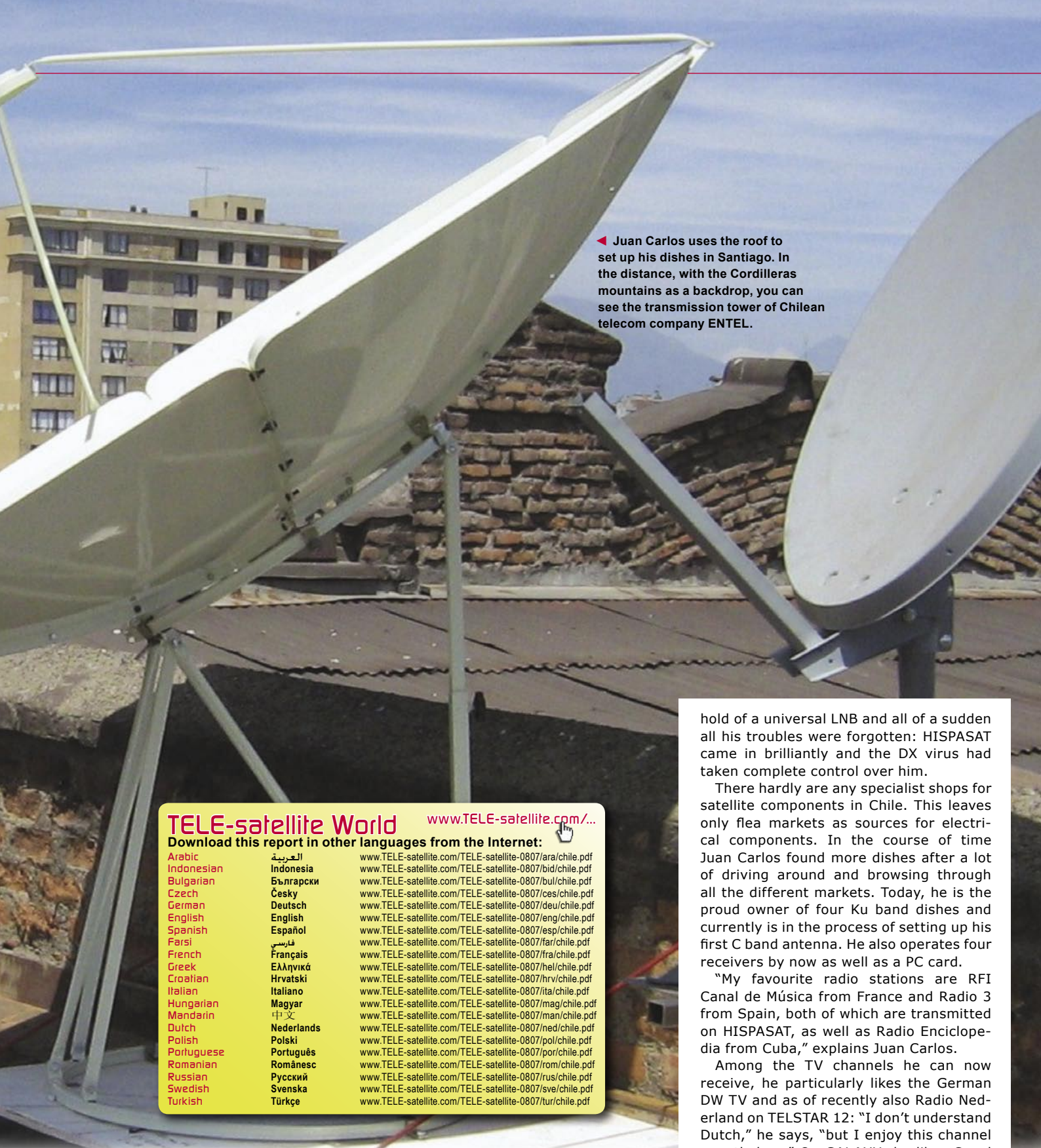
▲ Inside Juan's shack. As you can see his technical equipment is pretty impressive.



▲ Juan Carlos reading TELE-satellite, which he downloads via the Internet and prints at home.



Right next to the LA MONEDA presidential palace in Santiago de Chile, Juan Carlos Miranda Duarte is busy creating his own fully featured DX system. His professional background as a metal worker certainly is an asset for this job. Originally coming from Viña del Mar, a town some 120 km south of Santiago, Juan Carlos tells the story of how he became a DX addict:



◀ Juan Carlos uses the roof to set up his dishes in Santiago. In the distance, with the Cordilleras mountains as a backdrop, you can see the transmission tower of Chilean telecom company ENTEL.

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Turkish	Türkçe	<a href="http://www.TELE-satellite.com/TELE-satellite-0807/tur/chile.pdf">www.TELE-satellite.com/TELE-satellite-0807/tur/chile.pdf</a>

hold of a universal LNB and all of a sudden all his troubles were forgotten: HISPASAT came in brilliantly and the DX virus had taken complete control over him.

There hardly are any specialist shops for satellite components in Chile. This leaves only flea markets as sources for electrical components. In the course of time Juan Carlos found more dishes after a lot of driving around and browsing through all the different markets. Today, he is the proud owner of four Ku band dishes and currently is in the process of setting up his first C band antenna. He also operates four receivers by now as well as a PC card.

"My favourite radio stations are RFI Canal de Música from France and Radio 3 from Spain, both of which are transmitted on HISPASAT, as well as Radio Enciclopedia from Cuba," explains Juan Carlos.

Among the TV channels he can now receive, he particularly likes the German DW TV and as of recently also Radio Nederland on TELSTAR 12: "I don't understand Dutch," he says, "but I enjoy this channel nonetheless." On GALAXY he likes Canal 7 from Argentina and TV Montecarlo from Uruguay. The TV channels from Cuba and TV Canarias from Spain also count among his favourites. "In the evening I switch my receiver to Belgian radio on TELSTAR 12. The good music on this station then wakes me up again the next morning," Juan describes his listening habits.

Currently Juan Carlos is in the process of expanding his equipment. There is enough space available, but getting hold of all the components is the tricky part. However, once the DX virus has a grip on somebody, all obstacles can be overcome.

"About a year ago I stumbled across TELE-satellite while surfing the Internet. It was Ingo Salomon's giant antenna in South Africa that immediately caught my attention." But frankly, Juan Carlos showed a certain predisposition even as a youth when he was a dedicated listener to short-wave radio which he picked up with an old Telefunken tube radio. No wonder, then, that he caught the virus again as soon as he had read the TELE-satellite story: rather than being limited to pay TV channels from his own country he wanted to receive FTA

stations from around the globe.

A friend offered him a used satellite receiver which he bought right away, and he also managed to quickly source a used dish complete with LNB. He put together all components and desperately tried to catch a signal – to no avail. Had he bought a defective receiver? Was it the LNB's fault? What about the dish alignment? Or did he use wrong or incomplete parameters to set up his equipment? Weeks went by, but Juan Carlos never lost his patience.

There came a day when he could get



Edited by  
Sylvain Oscul

**Update from last issue**

GALAXY 18 is scheduled to be launched on 11th of May and TURKSAT 3A and BADR 6 are now scheduled to be launched in May.

**GALAXY 18 237.0° East**

**C-Band**  
42 46 49

<http://www.SatcoDX6.com/2370>  
Coverage Code **GXY018CB**

©2008 by SatcoDX

**GALAXY 19**

This is a new Loral system satellite to be launched soon by Zenit 3 from Sea Launch's Odyssey platform in the Pacific Ocean. The new system will replace GALAXY 25 at 263°E (97°W) with 24 Ku and 24 C Band transponders.

**GALAXY 19 263.0° East**

**Ku-Band**  
38 46 50

<http://www.SatcoDX7.com/2630>  
Coverage Code **GXY019KB**

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**ASTRA 1M**

Another ASTRA satellite for the 19°2E fleet, to be launched by Ariane in June or July, will replace ASTRA 1H with 36 transponders in Ku band for the next 15 years

**ASTRA 1M 019.2° East**

**Ku-Band**  
45 49 52

<http://www.SatcoDX2.com/0192>  
Coverage Code **AST01MKE**

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# New Satellites



**AMC 21**

To be launched in June, this satellite will be placed at 235°E (125°W) with 24 Ku transponders. Launcher is Zenith 3.

**AMC 21 235.0° East**

**Ku-Band**  
41 47 50

<http://www.SatcoDX6.com/2350>  
Coverage Code **AMC021KB**

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**AMC 21 235.0° East**

**Ku-Band**  
Caribbean Beam  
43 49 53

<http://www.SatcoDX6.com/2350>  
Coverage Code **AMC021KC**

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**EXPRESS AM-44**

This satellite will be launched in June by Proton to replace EXPRESS 1 at 349°E (11°W). No official coverage maps available yet.

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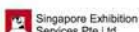
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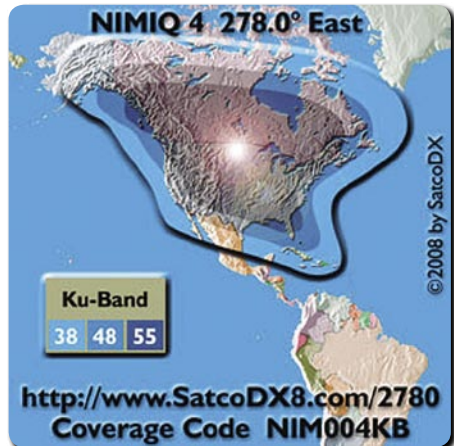
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ALLWORLD  
EXHIBITIONS  
EVENT



Edited by  
**Sylvain Oscul**

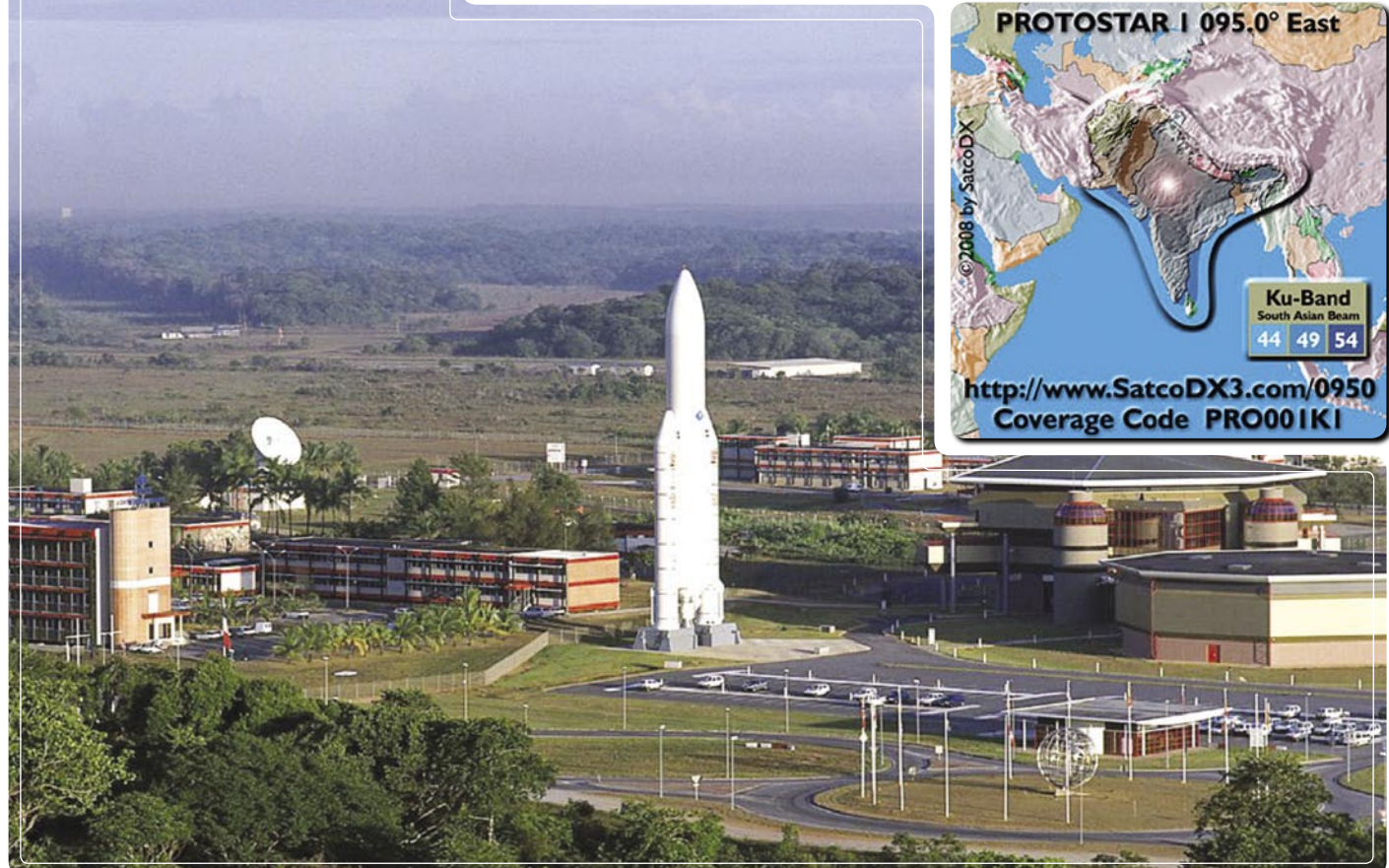
**NIMIQ 4**

Launch is scheduled for May. NIMIQ 4 will continue to enhance digital television services in Canada at 278°E (82°W) collocated with NIMIQ 2. It will feature 32 Ku-band and 8 Ka-band transponders. Launcher is Proton from the Baikonour site in Russia.



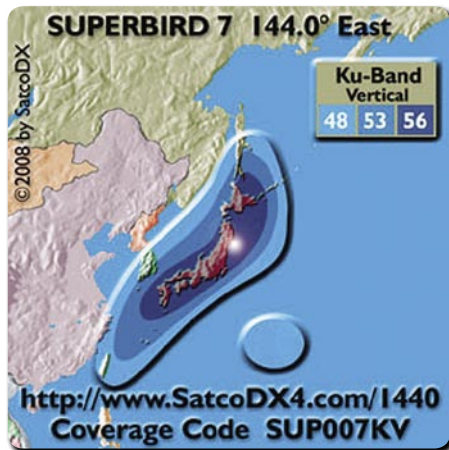
Spaceport technical center  
(with Ariane 5 full-scale model)

[www.arianespace.com](http://www.arianespace.com)



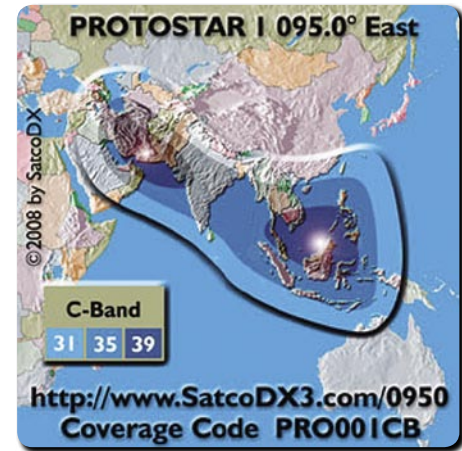
**SUPERBIRD 7**

Will be launched by an Ariane 5 in July from the Guyana Space Center, Europe's Spaceport in Kourou, French Guayana, South America, and be positioned at 144°E with 28 Ku transponders.



**PROTOSTAR 1**

This new bird is to be launched in June by Ariane 5 in Guyana, to be located at 95°E with 22 Ku and 32 C-Band transponders to provide DTH to the Asia area for the next 15 years.



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Main satellite chart table with columns: Freq, Channel Name, Symbol rate, Free PO Channel Name, Symbol rate, Freq PO Channel Name, Symbol rate, Freq PO Channel Name, Symbol rate, Freq PO Channel Name, Symbol rate.

Advertisement for KATHREIN HDTV-Sat-Receiver UFS 910. Includes product image, technical specifications, and contact information for KATHREIN-Werke KG.







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Table with columns: Free PO Channel Name, Symbol rate, Free PO Channel Name, Symbol rate, Free PO Channel Name, Symbol rate. Lists various satellite channels and their frequencies.

Table with columns: Channel Name, Symbol rate, Channel Name, Symbol rate, Channel Name, Symbol rate. Lists various satellite channels and their frequencies.

Table with columns: Channel Name, Symbol rate, Channel Name, Symbol rate, Channel Name, Symbol rate. Lists various satellite channels and their frequencies.







SatCoDX Global Satellite Chart 06/2008

Main table containing satellite details such as Free To Air Channel Name, Symbol rate, Coverage Code, and various channel lists like EXPRESS AM2, YAMAL 201, and others.



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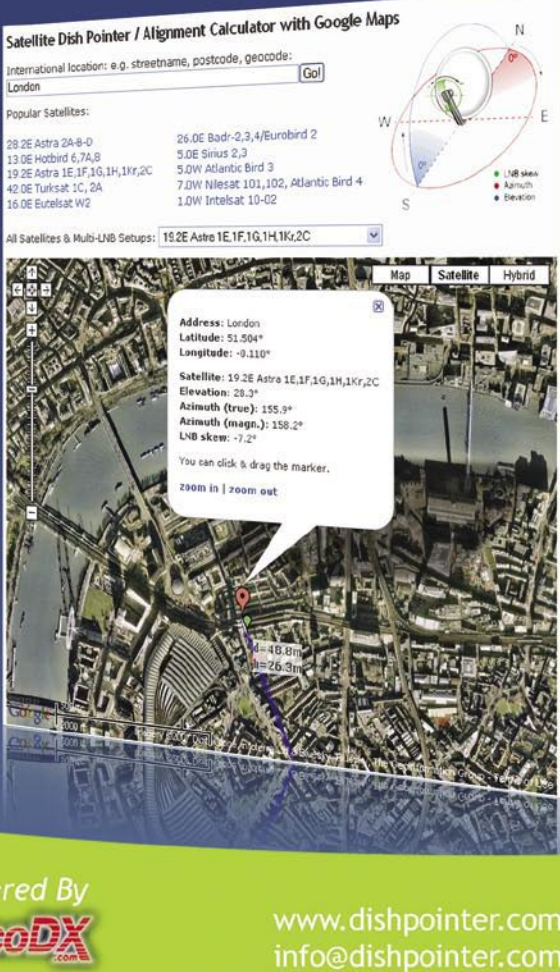
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## References



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010381 NEV TV	40100	010383 GENMUSIC	27000	030801 PCCR	54000	040001 RFR Francis	28120	050001 ASIASAT 3S	105.5° East	060001 448 ESPN Taiwan	27000	070001 444 ESPN Asia	27000	080001 443 ESPN Asia	27000	090001 442 ESPN Asia	27000	100001 441 ESPN Asia	27000	110001 440 ESPN Asia	27000	120001 439 ESPN Asia	27000	130001 438 ESPN Asia	27000	140001 437 ESPN Asia	27000	150001 436 ESPN Asia	27000	160001 435 ESPN Asia	27000	170001 434 ESPN Asia	27000	180001 433 ESPN Asia	27000	190001 432 ESPN Asia	27000	200001 431 ESPN Asia	27000	210001 430 ESPN Asia	27000	220001 429 ESPN Asia	27000	230001 428 ESPN Asia	27000	240001 427 ESPN Asia	27000	250001 426 ESPN Asia	27000	260001 425 ESPN Asia	27000	270001 424 ESPN Asia	27000	280001 423 ESPN Asia	27000	290001 422 ESPN Asia	27000	300001 421 ESPN Asia	27000	310001 420 ESPN Asia	27000	320001 419 ESPN Asia	27000	330001 418 ESPN Asia	27000	340001 417 ESPN Asia	27000	350001 416 ESPN Asia	27000	360001 415 ESPN Asia	27000	370001 414 ESPN Asia	27000	380001 413 ESPN Asia	27000	390001 412 ESPN Asia	27000	400001 411 ESPN Asia	27000	410001 410 ESPN Asia	27000	420001 409 ESPN Asia	27000	430001 408 ESPN Asia	27000	440001 407 ESPN Asia	27000	450001 406 ESPN Asia	27000	460001 405 ESPN Asia	27000	470001 404 ESPN Asia	27000	480001 403 ESPN Asia	27000	490001 402 ESPN Asia	27000	500001 401 ESPN Asia	27000
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010382 STAR USTAY	40100	010384 KIRAN TV	27000	030802 CH2	40000	040002 RFR Langsat	28120	050002 ASIASAT 3S	105.5° East	060002 445 ESPN Asia	27000	070002 443 ESPN Asia	27000	080002 441 ESPN Asia	27000	090002 439 ESPN Asia	27000	100002 437 ESPN Asia	27000	110002 435 ESPN Asia	27000	120002 433 ESPN Asia	27000	130002 431 ESPN Asia	27000	140002 429 ESPN Asia	27000	150002 427 ESPN Asia	27000	160002 425 ESPN Asia	27000	170002 423 ESPN Asia	27000	180002 421 ESPN Asia	27000	190002 419 ESPN Asia	27000	200002 417 ESPN Asia	27000	210002 415 ESPN Asia	27000	220002 413 ESPN Asia	27000	230002 411 ESPN Asia	27000	240002 409 ESPN Asia	27000	250002 407 ESPN Asia	27000	260002 405 ESPN Asia	27000	270002 403 ESPN Asia	27000	280002 401 ESPN Asia	27000	290002 399 ESPN Asia	27000	300002 397 ESPN Asia	27000	310002 395 ESPN Asia	27000	320002 393 ESPN Asia	27000	330002 391 ESPN Asia	27000	340002 389 ESPN Asia	27000	350002 387 ESPN Asia	27000	360002 385 ESPN Asia	27000	370002 383 ESPN Asia	27000	380002 381 ESPN Asia	27000	390002 379 ESPN Asia	27000	400002 377 ESPN Asia	27000	410002 375 ESPN Asia	27000	420002 373 ESPN Asia	27000	430002 371 ESPN Asia	27000	440002 369 ESPN Asia	27000	450002 367 ESPN Asia	27000	460002 365 ESPN Asia	27000	470002 363 ESPN Asia	27000	480002 361 ESPN Asia	27000	490002 359 ESPN Asia	27000	500002 357 ESPN Asia	27000
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010385 TOON DISNEY	40100	010386 WOM	40100	030803 CH3	40000	040003 RFR Langsat	28120	050003 ASIASAT 3S	105.5° East	060003 446 ESPN Asia	27000	070003 444 ESPN Asia	27000	080003 442 ESPN Asia	27000	090003 440 ESPN Asia	27000	100003 438 ESPN Asia	27000	110003 436 ESPN Asia	27000	120003 434 ESPN Asia	27000	130003 432 ESPN Asia	27000	140003 430 ESPN Asia	27000	150003 428 ESPN Asia	27000	160003 426 ESPN Asia	27000	170003 424 ESPN Asia	27000	180003 422 ESPN Asia	27000	190003 420 ESPN Asia	27000	200003 418 ESPN Asia	27000	210003 416 ESPN Asia	27000	220003 414 ESPN Asia	27000	230003 412 ESPN Asia	27000	240003 410 ESPN Asia	27000	250003 408 ESPN Asia	27000	260003 406 ESPN Asia	27000	270003 404 ESPN Asia	27000	280003 402 ESPN Asia	27000	290003 400 ESPN Asia	27000	300003 398 ESPN Asia	27000	310003 396 ESPN Asia	27000	320003 394 ESPN Asia	27000	330003 392 ESPN Asia	27000	340003 390 ESPN Asia	27000	350003 388 ESPN Asia	27000	360003 386 ESPN Asia	27000	370003 384 ESPN Asia	27000	380003 382 ESPN Asia	27000	390003 380 ESPN Asia	27000	400003 378 ESPN Asia	27000	410003 376 ESPN Asia	27000	420003 374 ESPN Asia	27000	430003 372 ESPN Asia	27000	440003 370 ESPN Asia	27000	450003 368 ESPN Asia	27000	460003 366 ESPN Asia	27000	470003 364 ESPN Asia	27000	480003 362 ESPN Asia	27000	490003 360 ESPN Asia	27000	500003 358 ESPN Asia	27000
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010386 STAR USTAY	40100	010387 WOM	40100	030804 CH4	40000	040004 RFR Langsat	28120	050004 ASIASAT 3S	105.5° East	060004 447 ESPN Asia	27000	070004 445 ESPN Asia	27000	080004 443 ESPN Asia	27000	090004 441 ESPN Asia	27000	100004 439 ESPN Asia	27000	110004 437 ESPN Asia	27000	120004 435 ESPN Asia	27000	130004 433 ESPN Asia	27000	140004 431 ESPN Asia	27000	150004 429 ESPN Asia	27000	160004 427 ESPN Asia	27000	170004 425 ESPN Asia	27000	180004 423 ESPN Asia	27000	190004 421 ESPN Asia	27000	200004 419 ESPN Asia	27000	210004 417 ESPN Asia	27000	220004 415 ESPN Asia	27000	230004 413 ESPN Asia	27000	240004 411 ESPN Asia	27000	250004 409 ESPN Asia	27000	260004 407 ESPN Asia	27000	270004 405 ESPN Asia	27000	280004 403 ESPN Asia	27000	290004 401 ESPN Asia	27000	300004 399 ESPN Asia	27000	310004 397 ESPN Asia	27000	320004 395 ESPN Asia	27000	330004 393 ESPN Asia	27000	340004 391 ESPN Asia	27000	350004 389 ESPN Asia	27000	360004 387 ESPN Asia	27000	370004 385 ESPN Asia	27000	380004 383 ESPN Asia	27000	390004 381 ESPN Asia	27000	400004 379 ESPN Asia	27000	410004 377 ESPN Asia	27000	420004 375 ESPN Asia	27000	430004 373 ESPN Asia	27000	440004 371 ESPN Asia	27000	450004 369 ESPN Asia	27000	460004 367 ESPN Asia	27000	470004 365 ESPN Asia	27000	480004 363 ESPN Asia	27000	490004 361 ESPN Asia	27000	500004 359 ESPN Asia	27000
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010387 TOON DISNEY	40100	010388 WOM	40100	030805 CH5	40000	040005 RFR Langsat	28120	050005 ASIASAT 3S	105.5° East	060005 448 ESPN Asia	27000	070005 446 ESPN Asia	27000	080005 444 ESPN Asia	27000	090005 442 ESPN Asia	27000	100005 440 ESPN Asia	27000	110005 438 ESPN Asia	27000	120005 436 ESPN Asia	27000	130005 434 ESPN Asia	27000	140005 432 ESPN Asia	27000	150005 430 ESPN Asia	27000	160005 428 ESPN Asia	27000	170005 426 ESPN Asia	27000	180005 424 ESPN Asia	27000	190005 422 ESPN Asia	27000	200005 420 ESPN Asia	27000	210005 418 ESPN Asia	27000	220005 416 ESPN Asia	27000	230005 414 ESPN Asia	27000	240005 412 ESPN Asia	27000	250005 410 ESPN Asia	27000	260005 408 ESPN Asia	27000	270005 406 ESPN Asia	27000	280005 404 ESPN Asia	27000	290005 402 ESPN Asia	27000	300005 400 ESPN Asia	27000	310005 398 ESPN Asia	27000	320005 396 ESPN Asia	27000	330005 394 ESPN Asia	27000	340005 392 ESPN Asia	27000	350005 390 ESPN Asia	27000	360005 388 ESPN Asia	27000	370005 386 ESPN Asia	27000	380005 384 ESPN Asia	27000	390005 382 ESPN Asia	27000	400005 380 ESPN Asia	27000	410005 378 ESPN Asia	27000	420005 376 ESPN Asia	27000	430005 374 ESPN Asia	27000	440005 372 ESPN Asia	27000	450005 370 ESPN Asia	27000	460005 368 ESPN Asia	27000	470005 366 ESPN Asia	27000	480005 364 ESPN Asia	27000	490005 362 ESPN Asia	27000	500005 360 ESPN Asia	27000
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The Full Chart with the most up-to-date channel data is available exclusively for TELE-satellite readers from SatcoDX's CD 'World of Satellites' This CD is Exclusively Available only by Subscription to Print Copy of TELE-satellite Magazine - For Private and Personal Use Only - Commercial Use is Granted Only to Existing Advertisement Clients to TELE-satellite Magazine © SatcoDX Inc © TELE-satellite Medien GmbH



Main table containing satellite data with columns for Frequency, Channel Name, Symbol rate, and Coverage. Includes various satellite systems like INTELSAT, OPTUS, and NSS/COSMOS.

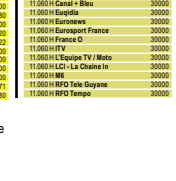
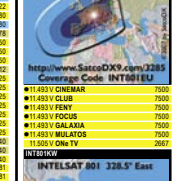
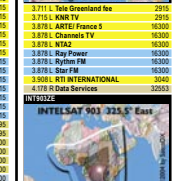
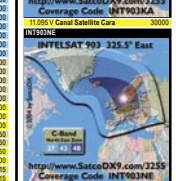
The Full Chart with the most up-to-date channel data is available exclusively for TELE-satellite readers from SatcoDX's CD 'World of Satellites'... This CD is Exclusively Available only by Subscription to Print Copy of TELE-satellite Magazine...



Main table containing satellite data with columns for Frequency, Channel Name, Symbol rate, and Coverage. Includes various satellite systems like ANIK-F1, AMC-1, GALAXY 25, and C-Band BRISLATS 4.



Main table containing satellite data with columns for Frequency, Channel Name, Symbol rate, and various satellite details. Includes sub-sections for C-Band, Intelsat, and various regional services.



# Satellite Global Satellite Chart 06/2008

Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate
110001 Sport	30000	110001 Teve	30000	110001 Teve	30000	110001 Teve	30000	110001 Teve	30000	110001 Teve	30000	110001 Teve	30000



Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate	Free PO Channel Name	Symbol rate
011863 HW Satel Arab	27500	011864 HW Satel Arab	27500	011865 HW Satel Arab	27500	011866 HW Satel Arab	27500	011867 HW Satel Arab	27500	011868 HW Satel Arab	27500	011869 HW Satel Arab	27500	011870 HW Satel Arab	27500

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# Exhibition Preview


- **26 - 28 May 2008: MECOM**  
2nd Middle East International Telecommunications and Communications Exhibition  
Abu Dhabi National Exhibition Center, UAE  
www.mecom.expo.com  

- **27 - 29 May 2008: ANGA Cable**  
Trade Fair for Cable, Broadband & Satellite  
KoelnMesse, Cologne, Germany  
www.angacable.de  

- **17 - 20 June 2008: CommunicAsia 2008**  
19th International Communications and Information Technology Exhibition & Conference  
Singapore Expo, Singapore  
www.communicasia.com  

- **18 - 19 June 2008: CAI Trade Fair 2008**  
29th Annual CAI Trade Fair  
Warwickshire Show Ground, Stoneleigh Park, Coventry, UK  
www.cai.org.uk

- **12 - 16 September 2008: IBC 2008**  
The World of Content  
RAI Exhibition Center, Amsterdam, Netherlands  
www.ibc.org  


- **7 - 12 October 2008: CeBIT Bilişim Eurasia**  
ICT trade show  
TUYAP Fair and Congress Center, Istanbul, Turkey  
www.cebitbilisim.com  


- **11 - 17 October 2008: Taitronics**  
Taipei International Electronics Show  
TWTC Nangang Exhibition Hall, Taipei, Taiwan  
www.taitronics.org  


- **29 - 31 October 2008: EEBC 2008**  
6th Eastern Europe Exhibition and Conference  
Kiev Expo Plaza, Kiev, Ukraine  
www.eebc.net.ua

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