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Company Report

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Test Report

SAT-LINK

Qing Zhang Lin Surprises the Quality Hunters: a DVB-S2 Meter with HDMI Output



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- Stereo Audio output, Coaxial, USB
- Earthnet Support (Optional)



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DVB-T2 MPEG-4

- DVB-T2 MPEG4 HD
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- 3D Image player
- HDMI full HD 1080P output



HDT2-132A

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- CA Interface: NDS, Verimatrix, Novel Super TV, ABV, Suma Vision, etc.
- Mail: 1 Alert Setting: on/off the alert message. 2 View message
- AVM Setting audience view measurement On/Off in secure engineer menu
- Pairing STB and smartcard pairing Channel List view the channels
- OTA Over the air software download
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PCH208-B1

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Dear Readers,

Fibre-optic technology is gaining momentum all the time, and one thing is for sure: Sooner rather than later it will become the new standard. It was several years ago when TELE-audiovision introduced you to fibre-optic LNBs whose signals were no longer distributed via coax cable but through optical waveguides. Why? Because fibre-optic distribution did away with limitations on the length of cables and the number of distribution points. And then there was the mother of all benefits: Each user had the full-bandwidth satellite signal at their disposal at all times.

This issue of TELE-audiovision looks at the next generation of optical distribution systems, which allows conventional LNBs (with coax outputs) to be integrated, or existing distribution setups to be replaced or extended with fibre-optic lines. So to tell you the truth, the coax age is drawing to a close. And it's easy to see why: Coax technology is faced with issues such as signal attenuation, which – to make matters worse – also depends on the signal frequency. The higher the frequency, the higher the attenuation. With fibre-optic technology, on the other hand, you couldn't care less about those matters. Even though signal attenuation does occur, it is marginal and

does not interrelate with the frequency of the lightwave.

In the end, satellite signal distribution technology follows the same path as almost every aspect of our lives: We're aiming for absolute abundance. It seems all restrictions are slowly being eliminated, or at least boundaries are being pushed. Not only do we have an almost unthinkable number of channels, we can now also distribute each and any of them to an almost endless number of consumers. So where does it all stop? Certainly not with the available technology, but with every single individual and their conscious choice of which channel to watch. And speaking of that, let's never forget one other thing: Each device has an OFF button, and it's there for a reason...

Alexander Wiese
Editor-in-Chief TELE-audiovision Magazine



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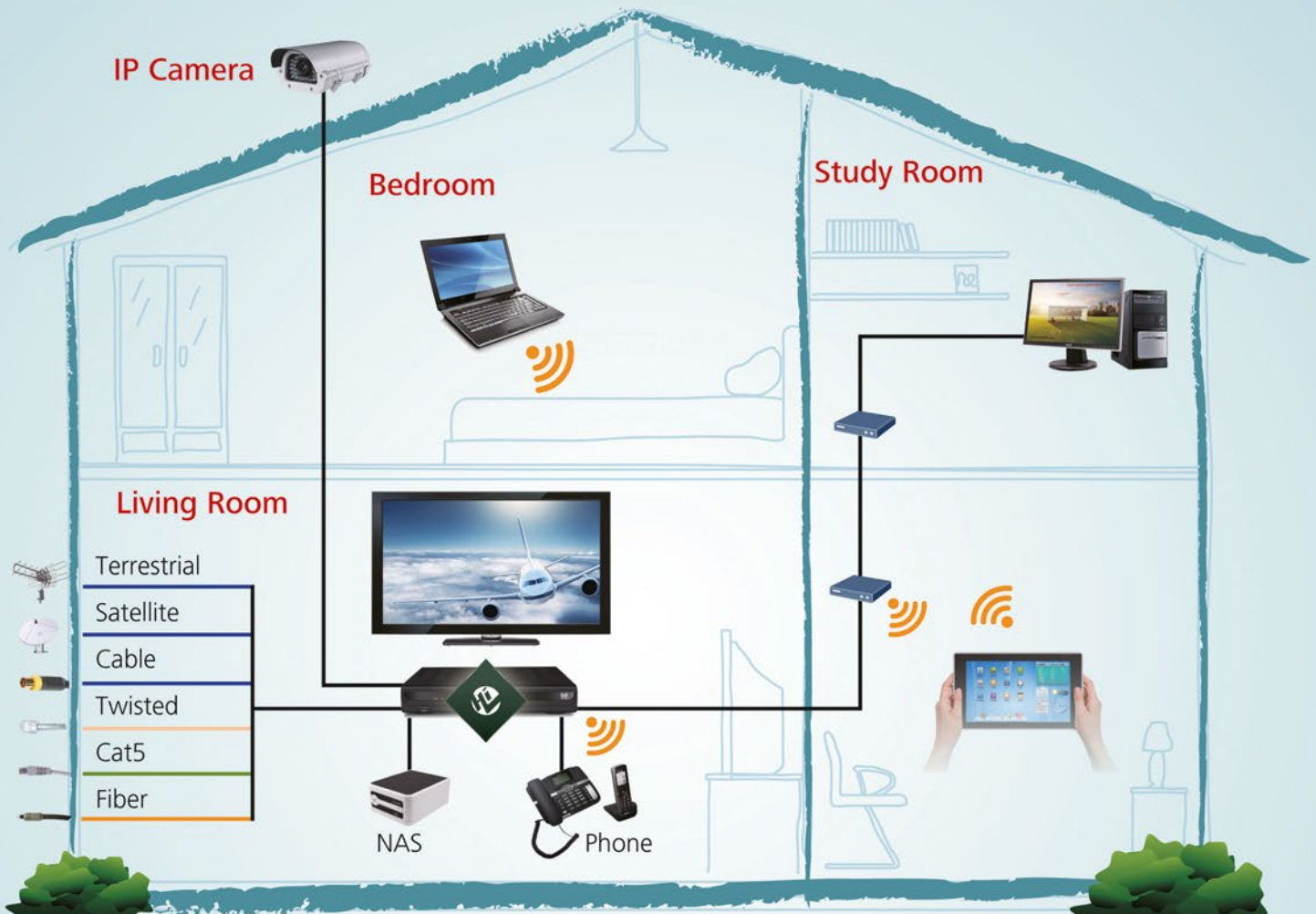
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- Hardware encoder supporting H.264 SVGA
- High performance 2D and 3D engine
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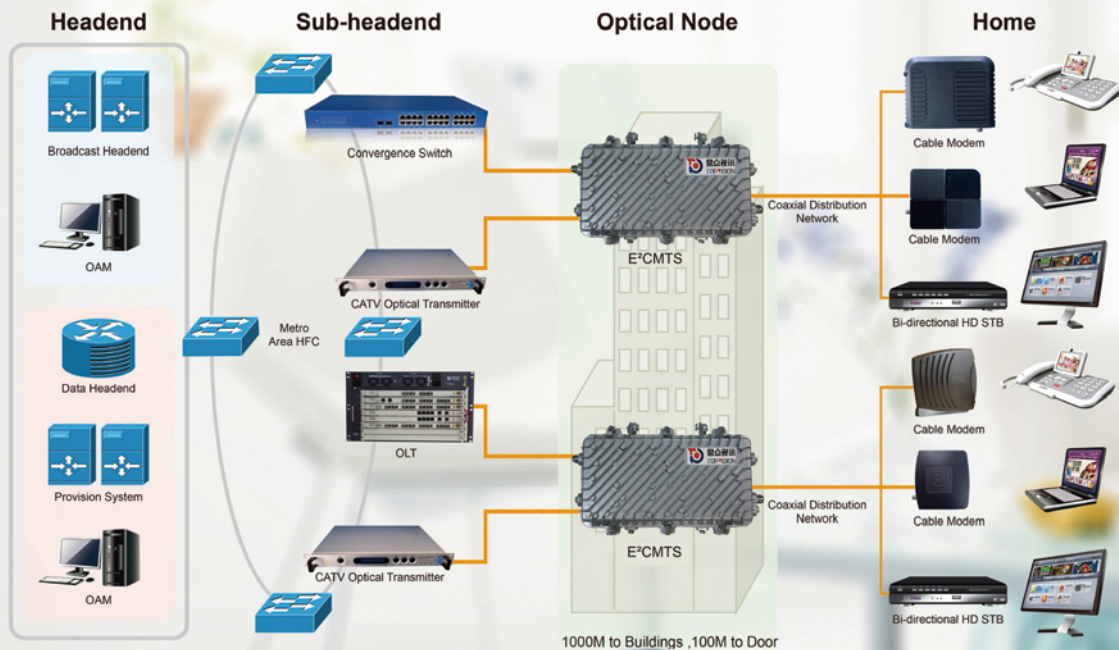
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E²CMTS

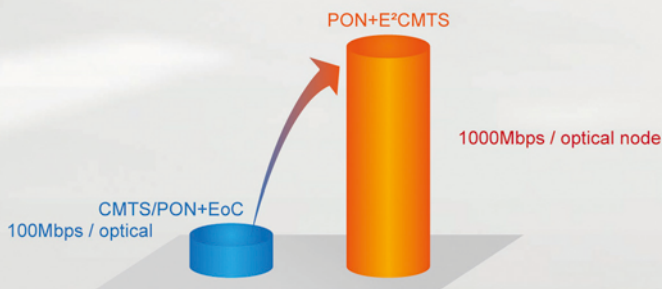
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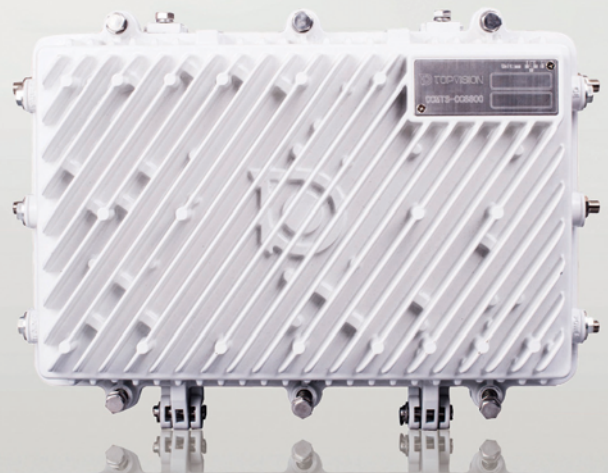
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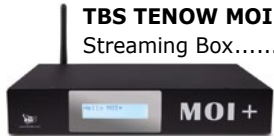
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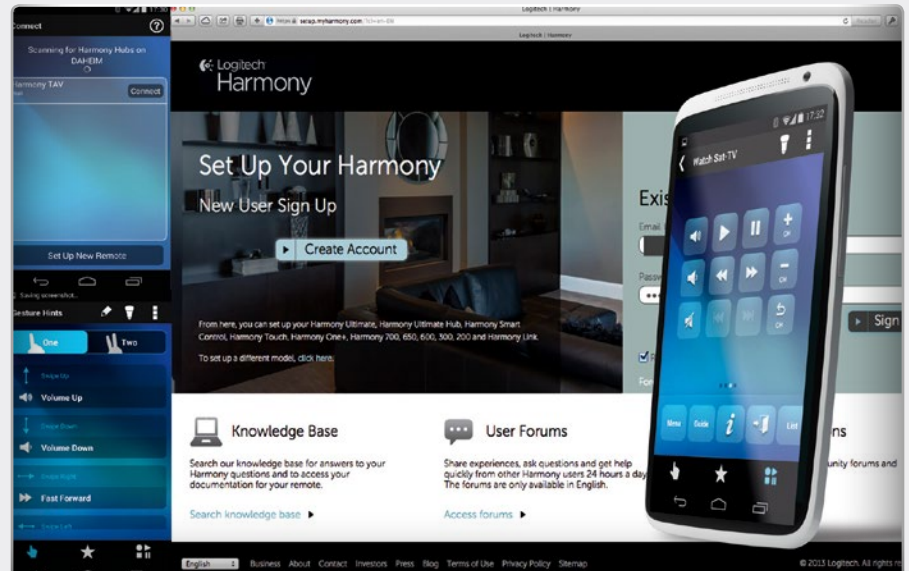
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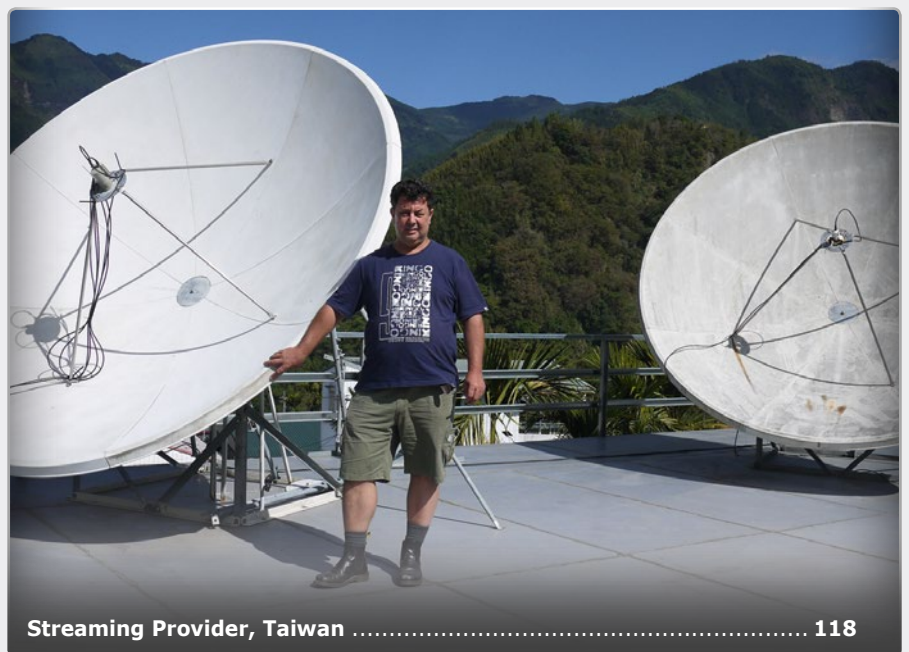
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- One HD TV live, meanwhile push at least two HD streams to other equipment (mobile, PAD, TV) via WIFI
- Various I/O ports

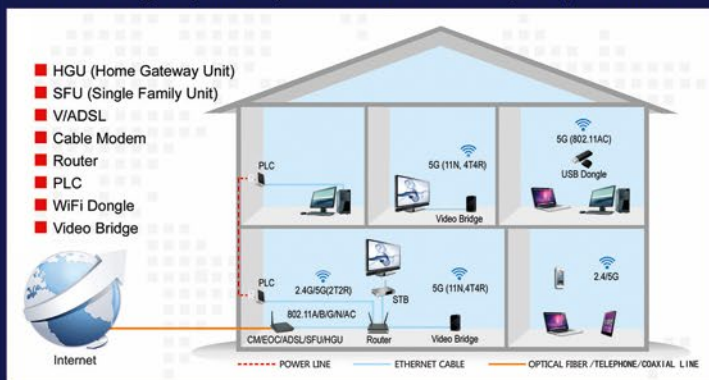


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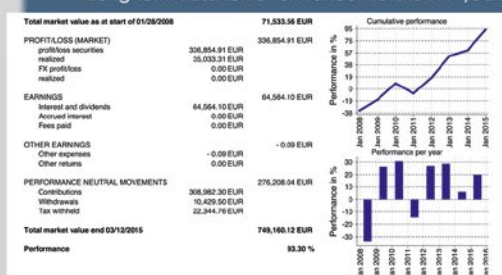
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TeknikSAT: The Power of Light





- **well thought of system to deliver 4 satellite signals to hundreds of receivers**
- **equal signal quality at all outputs**
- **easy adjustment of gain levels**
- **terrestrial signal can be added either at basic unit or at the distribution units**

Optical Distribution System

Fiber optics are used more and more often when there is a need to distribute satellite signals to a large number of receivers. That's because fiber optic cables attenuate signal much less than classical coaxial cables and add very little noise to the signal they convey. It is relatively easy to find components for such a system when you want to distribute the signal from one chosen satellite. But if you want to deliver signals to a high number of receivers from not one but four satellites plus a signal from a terrestrial antenna, the job is no longer that easy. Time for Tekniskat Electronics! They have developed an extensive product portfolio built around fiber optic distribution components.

For this test report we decided to build a simple distribution system and used these components made by Tekniskat: TPF 41-2 Optical Transmitter, TFS 1/32 FC Splitter and TFM 41/10 C Optical Multiswitch.

The TPF 41-2 Optical Transmitter is in fact a rack mounted signal amplifier and converter. Its job is to amplify and convert satellite signals coming from 4

different LNBs and 1 terrestrial input to a single optical signal. Concerning LNBs, you can use either Quattro or Quad LNBs. So, it is easy to figure out that the TPF 41-2 has $4 \times 4 = 16$ satellite inputs designated with HH, HV, LH and LV symbols. The 17th input is for the terrestrial antenna input, which can be either an over-the-air reception like DVB-T/T2 or for connecting to a cable system (DVB-C). Of course, that's because terrestrial and cable TV share the same frequency band: 47-870 MHz. In this test report we decided for connecting the system to a terrestrial antenna.

The unit provides 23 dB gain for the satellite signals and 15 dB gain for the terrestrial signal. You can adjust each input with a multiturn potentiometer and the adjustment range is 15 dB. If needed, you can switch off the LNB power. If you do not, then the four LNBs will get the suitable 13 or 18 V voltage for polarization switching and 22 kHz signal for band switching from the TPF 41-2.

The TPF 41-2 Optical Transmitter is well finished off and looks robust and solid. A cooling fan installed on the

rear panel helps preventing overheating although during our tests we did not notice excessive warming. It may be useful when the unit is installed in a cramped 19 inch cabinet though.

The TPF 41-2 has one SC/APC optical port and generates a strong output signal: 4 mW (6dBm). This is the entry point for the fiber optic network. With such a strong signal you can transfer the signal to very remote locations: hundreds if not thou-

sands of meters and/or split it to many branches.

In our test we used a 1-to-32 splitter. Namely it was the TFS 1/32 FC. The ideal 1-to-32 splitter would produce at each output a 1/32 fraction of the input power. Unfortunately, every practical device has some additional losses. In case of the TFS 1/32 FC those additional losses are really marginal. The insertion loss is only 16.8 dB (vs. theoretical 15.05dB). The splitter itself is a rather



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Optical Distribution System
Perfect to feed hundreds of subscribers with
identical quality signals

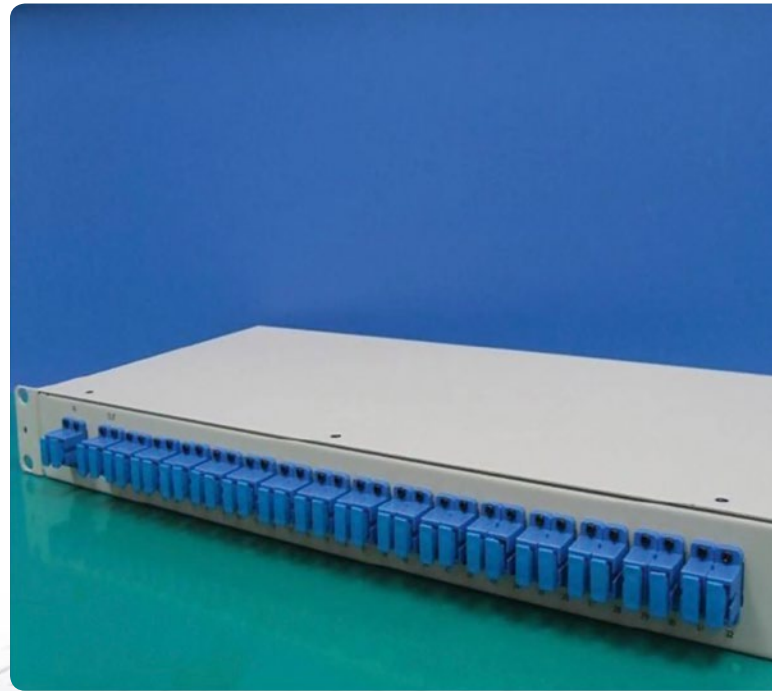
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delicate device, that's why Tekniksat as an option also offers a dedicated rack for it.

To complete the system, we needed a device located at the other end of the optic fiber cable – a converter from light to RF electric current. We used another Tekniksat product: the TFM 41/10 C Optical Multiswitch. Conversely to the optical transmitter, it has only one input but many outputs. Of course, the input is an optical port and the output are the F-connectors to which coax cables are hooked up. There are no less than 10 subscriber outputs to which you can directly connect

satellite/terrestrial receivers. Additionally, there are 16 trunk outputs that regenerate the signals from the four LNBs connected at the other end of the system. You can connect classical (coax) multiswitches to these trunk output and increase the number of subscriber outputs if needed. There is one additional input for a terrestrial signal that may be used if this kind of signal is not originally inserted at the "top" of the system by the optical transmitter.

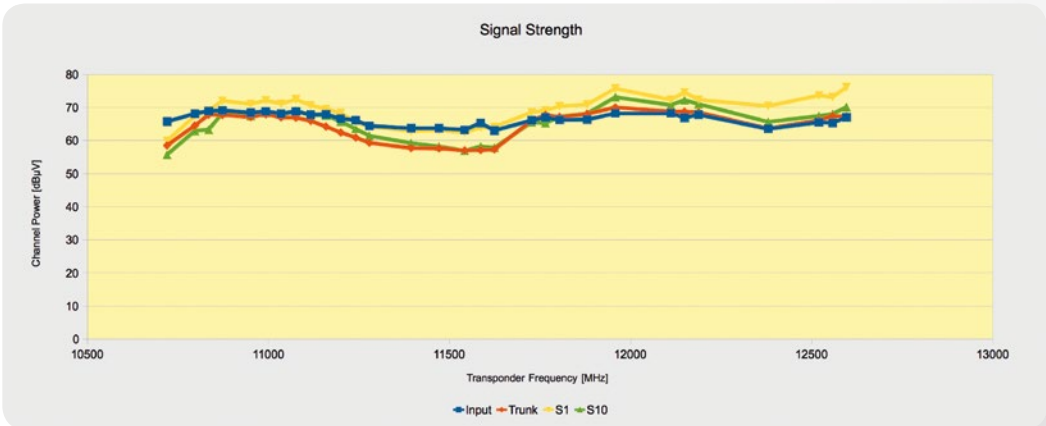
The TFM 41/10 C Optical Multiswitch has an external power supply unit. The workmanship of the mul-



tiswitch itself as well as its power supply leaves nothing to be desired. They are clearly labeled and it is really easy to figure out what should be connected where. Everything is obvious at the first look. The TFM 41/10C has independent gain adjustment of every satellite and terrestrial output (20 dB range). The adjustment is really needed because it is not known a priori how

strong the optical signal will be. Strength of the signal depends on the split ratio and attenuation of the optic fiber cables.

After examining all the products, it was time to build a test network. We connected Quad LNBs to the inputs of TPF 41-2 Optical Transmitter. At the output of the transmitter we inserted the TFS 1/32 FC Splitter and then routed the optical sig-



nal to the input of the TFM 41/10 C Optical Multiswitch. We knew very well that there is little point in adding long fiber cables between the devices because they add very little attenuation. The main sources of attenuation in the optic networks are the splitters and junctions if not kept clean enough.

To evaluate the whole system rather than its particular components, we de-

cided to measure and compare the input signal, i.e. the one coming from LNBs, to the output signals available at the trunk and the subscriber outputs (S1 and S10) of the TFM 41/10 C Optical Multiswitch. You can see the results in two graphs: one showing signal strength and the other signal quality. The first graphs answers the question whether the system has enough gain and the other – to what extent signal

quality suffers when we split it and deliver it to 320 subscribers.

The output signal strength was almost the same as in the input. For some frequencies/subscriber outputs, it was slightly lower and for some others slightly higher than the input. Please remember that the signal has been split 32 times by the optical switch and then 10 times by the TFM 41/10 C



Fig. 1 Test setup circuit diagram.

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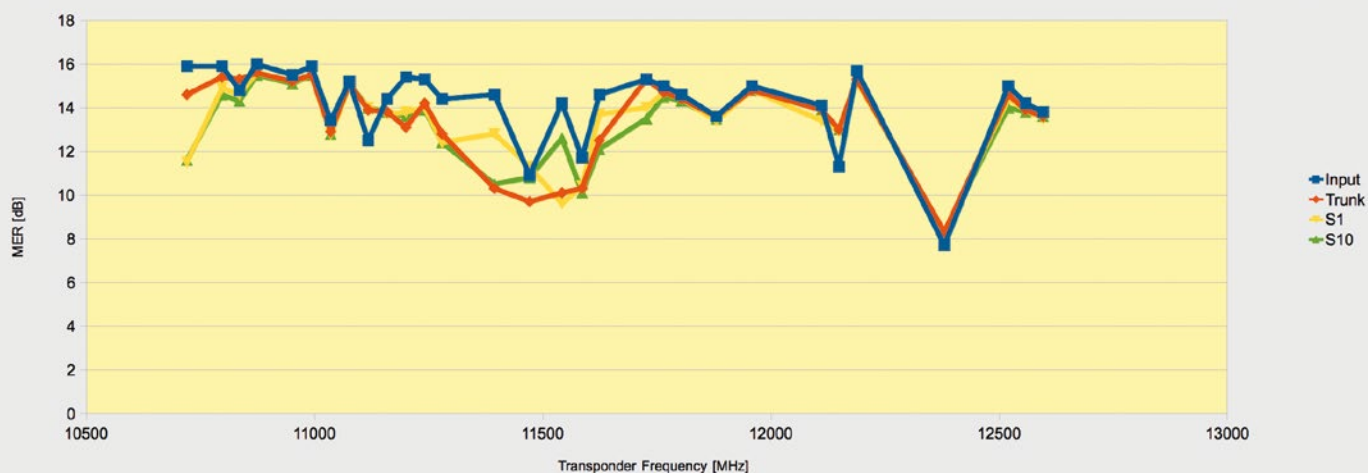
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Signal Quality



Optical Multiswitch before it reached a subscriber output. All the gain settings in the TPF 41-2 and TFM 41/10 C where set to maximum. It proves that the overall system gain is very precisely

calculated and is exactly as needed for a 1:32 split. if you built a system for a lower number of receivers you would need fewer splitting (say, 1:8) and then you would have to reduce the

gain of the Teknicsat devices to avoid over driving subscriber receivers.

The second very important characteristics of the distribution system is its "quietness" or, in other words, the

measure how much it spoils the signal-to-noise parameter. Taking into account that we deal hear with two signal conversions: electrical to optical and optical to electrical and additionally the signal is split firstly in the optical splitter and secondly in the final multiswitch, one could expect a significant decrease in Modulation Error Ratio (MER). But, no! Look at the second graph. Although there is a small degradation of signal quality especially in the lower sub band, the difference between input and output is surprisingly low. You can be pretty sure that if you have a good signal from the LNBs, almost equally good signal will reach each of the maximal possible number of 320 receivers.

And that is what we call the "Power of light". It is so easy to achieve such good results with fiber optic cables when compared with traditional electrical splitting.

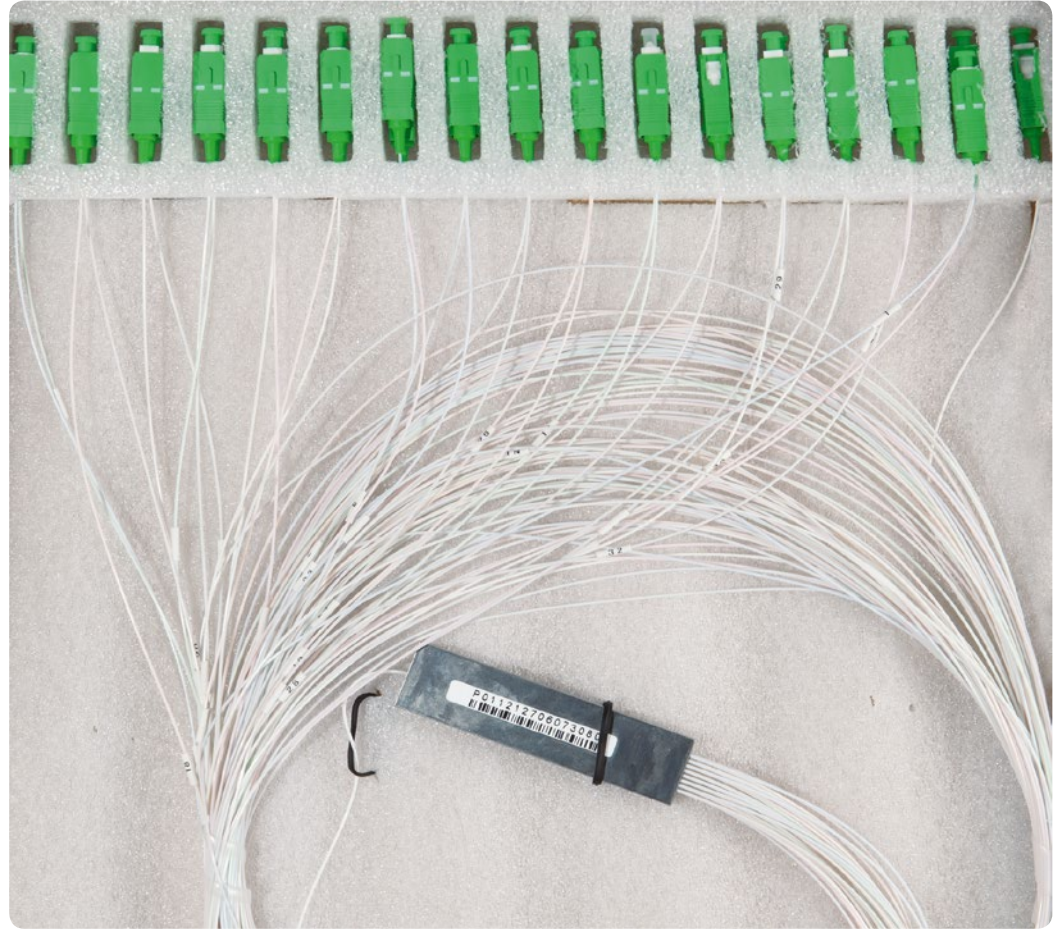
After so good results with satellite signals we wanted to check the terrestrial path. Our measurements revealed that the output signal was stronger by about 15-20 dB with respect to the input signal and that signal-to-noise ratio was again decreased



not much: by 1 dB or so. So, again very positive results. One terrestrial antenna will be enough for 320 receivers. Should it be a stronger cable TV signal you can easily adjust the gain with a multiturn potentiometer, either in the output multiswitch or in the optical transmitter – just as for every single satellite path.

What is also very nice about this system: you are not limited to one satellite. If you connect four different LNBs receiving signals from four different satellites, you can significantly increase the number of available channels for each subscriber. You only need to ensure that the subscriber receivers have DiSEqC 1.1 protocol enabling them to switch among 4 satellites.

To sum it up, the Tekniksat fiber optic system proved to be able to distribute signals to no less than 320 final subscribers. Additionally, it can be very easily enlarged because every final multiswitch



has trunk outputs to which classical electrical multiswitches can be added to increase even more the total number of subscribers. It is

a perfect system for hotels and similar facilities where you need to keep the number of antennas to an absolute minimum and the num-

ber of receivers is very high. Most of all: you can be sure that with this system you get the same signal quality at all outputs.



**EXPERT
OPINION**

TeknikSAT Optical System
TPF 41-2 Optical Transmitter
TFS 1/32 FC Splitter
TFM 41/10 C Optical Multiswitch

RECOMMENDED
PRODUCT BY ▼



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Jacek Pawlowski
Test Center
Poland



CARD



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+

- Sufficient gain to deliver the signal to 320 receivers
- Very small impact on signal quality even after splitting it 320 times
- The terrestrial path offers some extra gain what guarantees problem free DVB-T reception

-

- None

Satlink WS6979HD DVB-S2 & DVB-T2 Signal Meter

- *with HDMI output for connecting an external high-definition monitor*
- *automatic blind scan*
- *extremely responsive spectrum display*
- *screen with very high resolution*
- *perfect also for mobile reception thanks to integrated full-scale receiver*





It doesn't get much better than that: Signal meter with HDMI output

When we received this meter for an in-depth test, the first thing that met our eyes was its elegant packaging. They say first impressions go a long way, and with the top-notch and perfectly equipped meter for DVB-S2 and DVB-T2 signals hidden inside the box, we can state that the packaging is not only eye-candy.

Due to its low weight of 621

grams, the Satlink WS6979HD feels so light you could be forgiven for thinking the battery pack is yet to be installed. But mind you, this is far from the truth and the specified 621 grams already include the battery, which is rated at 8.4 V and has a capacity of 3000 mAh. This should give you ample power for several hours of continuous operation.

And if you actually do run out of battery power at some stage during your workday, the device comes with a 230 V charger for any wall outlet, plus a 12 V variant for charging in your car.

At the centre of the WS6979HD there is a 4.3-inch widescreen display that – without giving away too much too soon – turned out to be a pretty impressive feature during our thorough test. Right below the screen are five status LEDs indicating active use, battery charging, signal lock, activated voltage

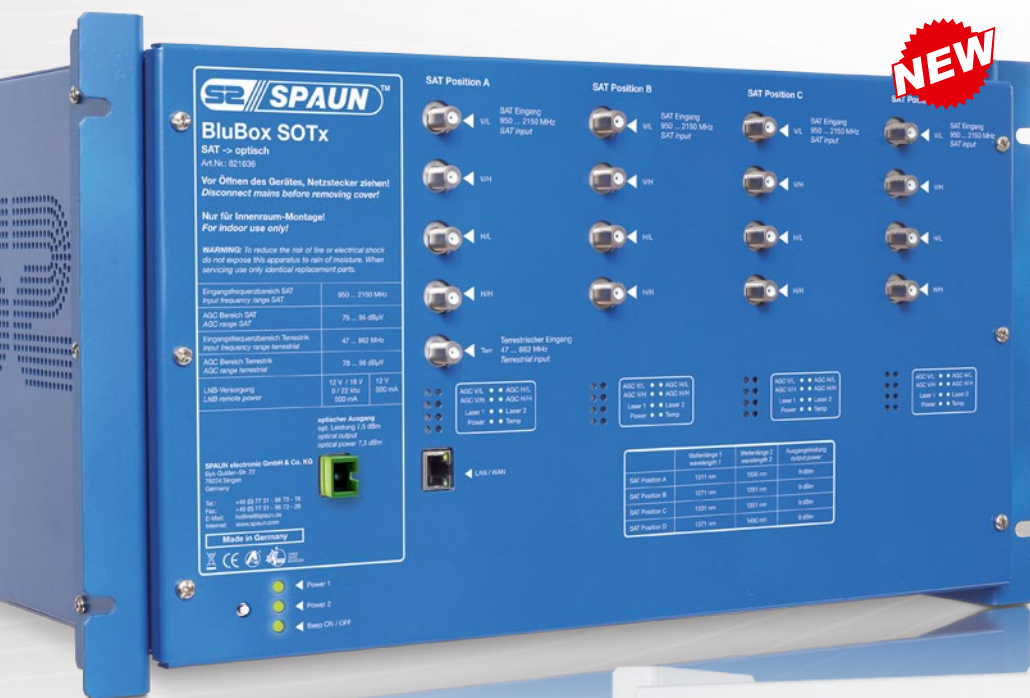
supply via the satellite IF input and switched on 22 kHz control signal.

Still further below, users will find the keypad containing all buttons for operating the Satlink WS6979HD, including eight function keys, a cross-shaped navigation button and a numeric pad.

As far as connection options are concerned, this latest Satlink meter even sports an HDMI 1.3a output, a feature we would never have expected on a signal meter and one that met with our unanimous appreciation.

In addition, the WS6979HD comes with A/V input and output jack plugs (an adaptor cable for RCA counterparts is shipped with the device), a USB 2.0 port, a socket for





BluBox SOTx

- Up to 16 SAT IF levels and terrestrial over a single fiber optic cable
- 19" base unit with redundant switch mode power supply
- Distribution to up to 32 optical nodes possible
- Configuration and monitoring via LAN/IP

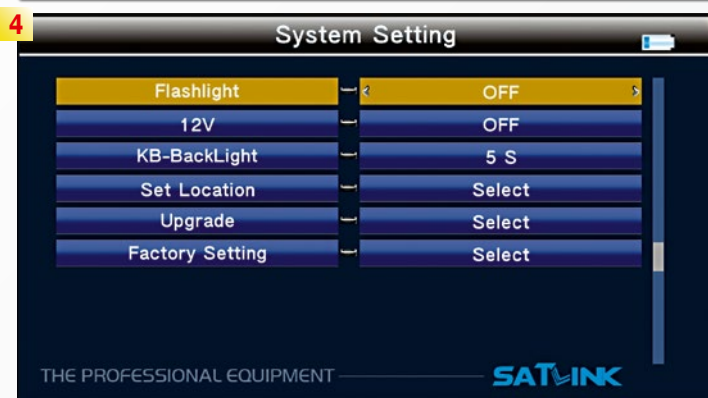
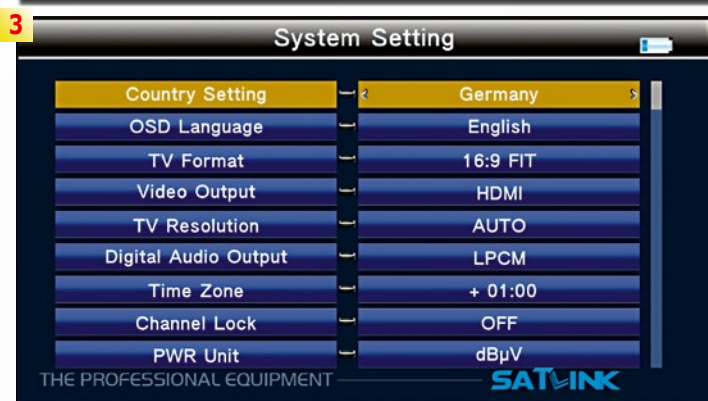
WhiteBox

- Modular headend for multiple conversions
- 19" base unit with redundant switch mode power supply
- Configuration and monitoring via LAN/IP



SPAROS 711 Touch Series

- Intuitive operating thanks to a 10" Touch Screen
- DVB-S/S2, DVB-T/T2, DVB-C, HDTV TV displaying
- Compact and robust aluminium die-cast housing
- Supplied in a stable carrying case!



attaching the charger, as well as a mechanical power switch.

We could not fault the build quality of the WS6979HD in any way, and the extensive range of accessories (A/V cables, protective case, carrying strap, chargers, etc.) that are part and parcel of this new meter is worthy of special praise as well. A 38-page manual is available on the CD that also comes with package.

When you turn on the WS6979HD for the first time and even after only using it for a short time, you'll likely agree that this meter sits very nicely in your hand,

has a great feel factor and is straightforward to operate. The LCD screen is very bright, so that its content can be read even in direct sunlight, a characteristic that is hugely beneficial in everyday use up on the roof on a summer's day.

Its pixel ratio amounts to 480x272 and with a screen size of no more than 4.3 inches this makes for crisp and crystal-clear display quality. All buttons are backlit, so you don't need to guess which is which when working in attics or dark surroundings. This is one of the many pluses of the Satlink WS6979HD and proves yet again that it's the many little details that make a device really great.

The main menu of the WS6979HD is streamlined into offering an extremely efficient user experience. All features and functions can be accessed with a single touch of a button.

Even though at this stage we were itching to put the device to an everyday test, we decided to have a look at the settings menu first. Here, you will find all the usual suspects such as on-screen language, aspect ratio, video signal resolution (up to 1080p available via the HDMI output), as well as a number of different measuring units (dBµV, dBm, dBmV) for signal analysis.

The USB port can be used for installing firmware updates, and if something does go wrong down the road it

1. Satlink logo
2. Main menu of the Satlink WS6979HD
3. System settings
4. System settings
5. Determining the current location
6. Selecting the desired satellite with basic reception settings
7. Comprehensive pre-stored satellite list
8. LOF setting
9. DiSEqC setting
10. SCR unicable solutions are supported as well
11. Pre-stored transponder list
12. DVB-S2 signal measurement
13. Enlarged display of signal measurement for improved readability
14. Constellation diagram (QPSK modulation)
15. DVB-S2 signal measurement

6 **Satellite Find**

Satellite	Ku-Hispasat 30W
Local Frequency	9750/10600
Transponder	001
Frequency	11472
Symbol Rate	05632
Polarity	H
Tone	NONE
Beep Tone	ON
DiSEqC Mode	DiseqC 1.0/1.1

THE PROFESSIONAL EQUIPMENT SATVINK

11 **Satellite Find**

Satellite	Ku-Astra 28.2
Local Frequency	9750/10600
Transponder	1: 10714 / 22000 / H
Frequency	2: 10729 / 22000 / V
Symbol Rate	3: 10744 / 22000 / H
Polarity	4: 10758 / 22000 / V
Tone	5: 10773 / 22000 / H
Beep Tone	6: 10788 / 22000 / V
DiSEqC Mode	7: 10803 / 22000 / H
	8: 10818 / 22000 / V
	ON
DiSEqC Mode	Unicable

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7 **Satellite Find**

Satellite	01: W 030.0 Ku-Hispasat 30W
Local Frequency	02: W 027.5 Ku-Intelsat 907
Transponder	03: W 027.5 C-Intelsat 907
Frequency	04: W 024.5 Ku-Intelsat 905
Symbol Rate	05: W 024.5 C-Intelsat 905
Polarity	06: W 022.0 Ku-SES 4
Tone	07: W 022.0 C-SES 4
Beep Tone	08: W 020.0 Ku-NSS 7
DiSEqC Mode	H
	NONE
	ON
DiSEqC Mode	DiseqC 1.0/1.1

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12

43: Ku-Astra 28.2
LNB: 9750/10600 Power: 13/18V
Freq: 11307 MHz Symb: 27500 K
DiSEqC1.0: None DiSEqC1.1: None
Polar: V 22K: OFF

Sat Longitude: E 028.2
My Longitude: E 016.4
My Latitude: N 048.1

164.3 033.6 +010.4

PWR: 44 dBuV 32%
CN: 11.4 dB 39%
BER: 1.0E-9 100%
MER: 12.0 dB 42%

TP Scan Auto Scan S / Q Constellation

8 **Satellite Find**

Satellite	Ku-Astra 28.2
Local Frequency	4: 10600
Transponder	5: 10700
Frequency	6: 10750
Symbol Rate	7: 11300
Polarity	8: 11475
Tone	9: 5150/5750
Beep Tone	10: Universal(9750/10600)
DiSEqC Mode	11: Universal(9750/10750)
	NONE
	ON
DiSEqC Mode	DiseqC 1.0/1.1

THE PROFESSIONAL EQUIPMENT SATVINK

13 **Satellite Find**

Strength 32
Quality 80

PWR: 44 dBuV
CN: 11.4 dB

BER: 1.0E-9
MER: 12.0 dB

S Q

9 **Satellite Find**

DiSEqC 1.0	1/4
DiSEqC 1.1	2/16

THE PROFESSIONAL EQUIPMENT SATVINK

14

LNB: 9750/10600 Power: 13/18V
Freq: 11307 MHz Symb: 27500 K
DiSEqC1.0: None DiSEqC1.1: None
Polar: V 22K: OFF

Mode Constellation
DVB-S QPSK
Code Rate RollOff
2/3 0p35

PWR: 44 dBuV
CN: 11.1 dB
BER: 1.0E-9
MER: 11.7 dB

32 80
S Q

10 **Satellite Find**

Satellite	Ku-Astra 28.2
Local Frequency	9750/10600
Transponder	001
Frequency	10714
Symbol Rate	22000
Polarity	H
Tone	OFF
Beep Tone	ON
DiSEqC Mode	Unicable

THE PROFESSIONAL EQUIPMENT SATVINK

15

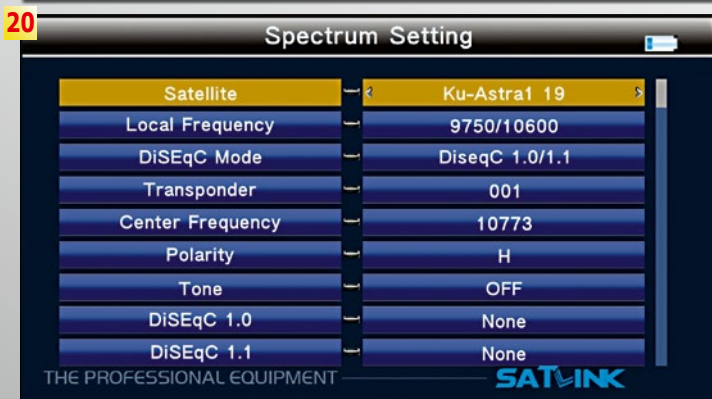
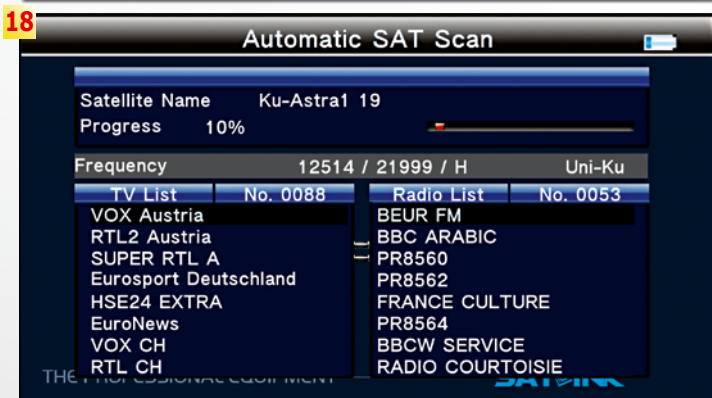
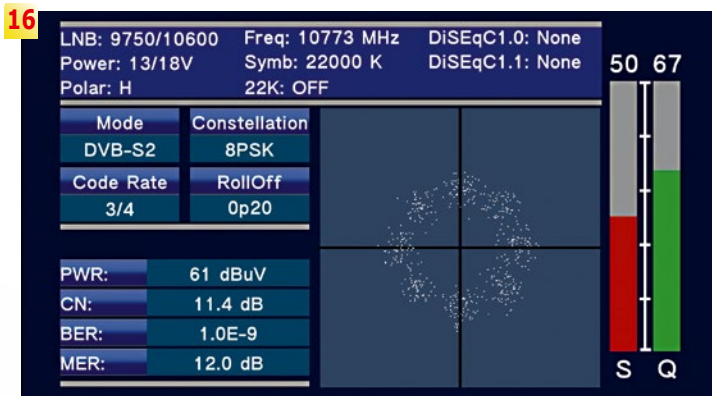
37: Ku-Astra1 19
LNB: 9750/10600 Power: 13/18V
Freq: 10773 MHz Symb: 22000 K
DiSEqC1.0: None DiSEqC1.1: None
Polar: H 22K: OFF

Sat Longitude: E 019.2
My Longitude: E 016.4
My Latitude: N 048.1

176.2 034.7 +002.5

PWR: 61 dBuV 50%
CN: 11.4 dB 39%
BER: 1.0E-9 100%
MER: 12.0 dB 42%

TP Scan Auto Scan S / Q Constellation



is of course possible to do a complete factory reset.

We appreciated the fact that DVB-S2 and DVB-T2 reception are strictly divided, with each operating mode offering a dedicated set of menu items. 99 European and Asian satellite positions complete with their current transponder data are pre-stored in a default database, and if

you need to edit existing entries or add new ones this can be done right on the meter at any time. In addition, a multitude of pre-set LOFs can be selected to meet the requirements of virtually all LNB types including SCR unicable infrastructure. It is, however, not possible to manually set an LOF.

Coming to DiSEqC, the Satlink WS6979HD is compatible with the DiSEqC 1.0 and DiSEqC 1.1 protocols, as well as DiSEqC 1.2 and 1.3 for motor-aligned antennas. We do, however, recommend telling the meter the coordinates of the current location at any rate, even if it is not connected to a DiSEqC motor.

To speed things up, you may also select one of the major cities shown on a pre-stored list, so that the meter knows whether you're in Iceland or

16. Constellation diagram (8PSK modulation)

17. Channel search on a single transponder

18. Full channel search

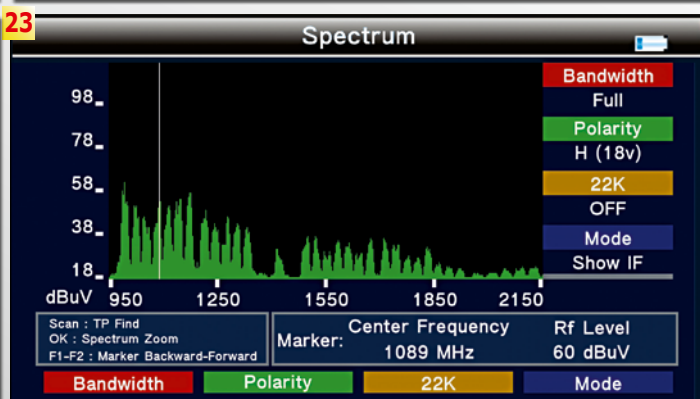
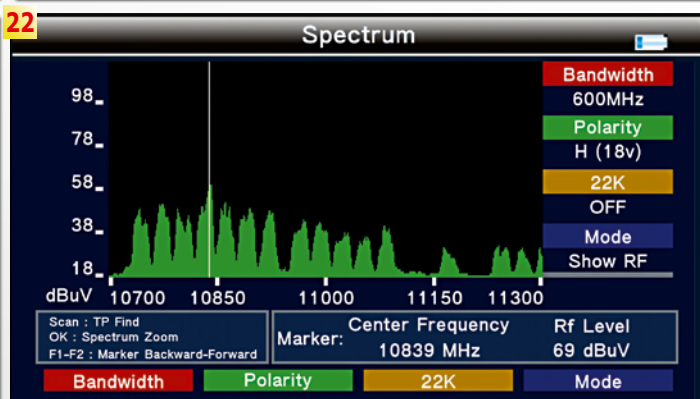
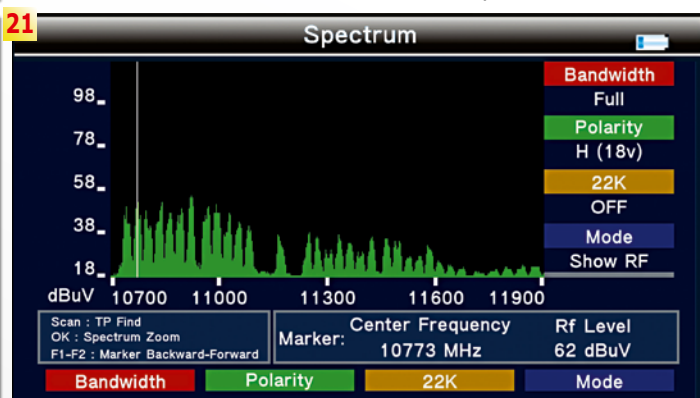
19. Spectrum display is available for both DVB-S2 and DVB-T2 reception

20. Basic reception settings for spectrum display

21. DVB-S2 spectrum display

22. Zooming in to enlarge individual sections of the display

23. IF frequency display



HORIZON

UNDER NEW MANAGEMENT

Taking what you know and love about Horizon broadcast signal meters and applying over 20 years of IMC instrumentation design and manufacturing knowledge to it.



Creative design

Intuitive technology

Cutting edge features

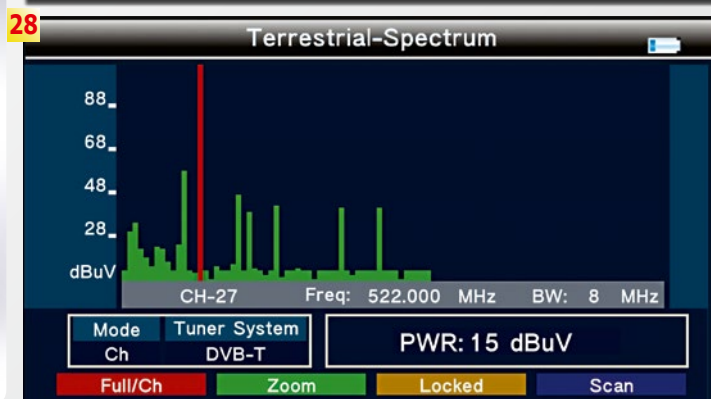
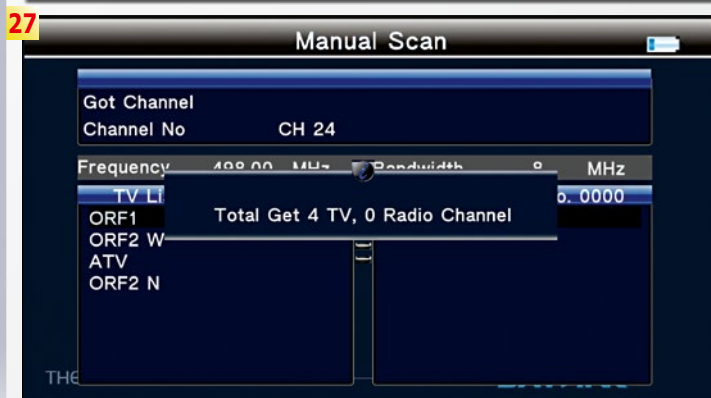
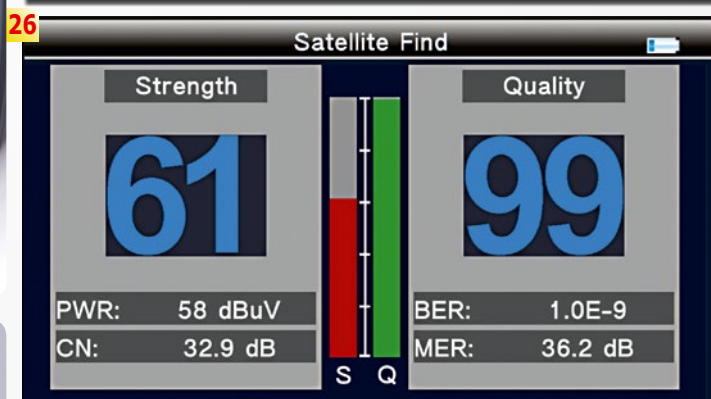
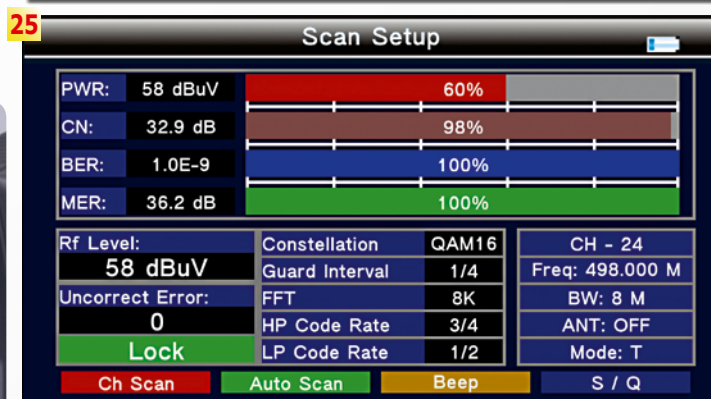
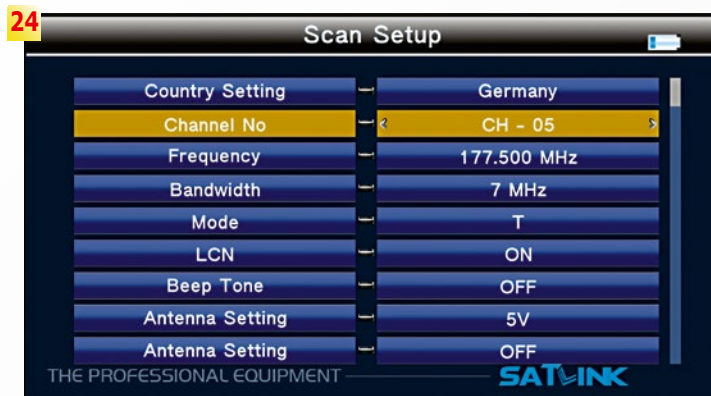
User-friendly interface

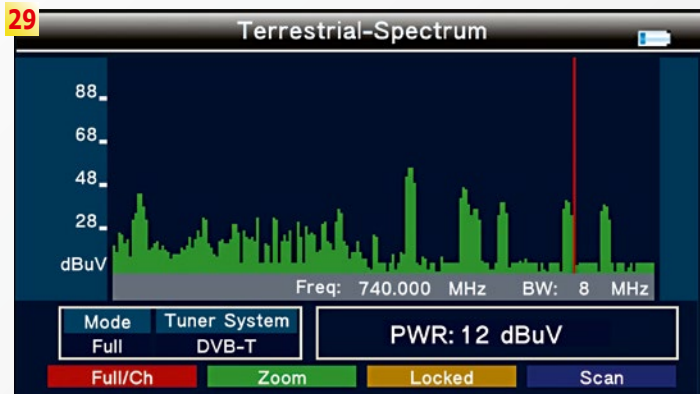
NEW RANGE COMING SOON...

VISIT US ON STAND N41 AT **ANGACOM**

- 24. DVB-T2 reception settings
- 25. DVB-T2 signal measurement
- 26. Enlarged display of signal measurement for improved readability
- 27. Manual frequency search
- 28. Spectrum display in DVB-T2 mode, restricted to active frequencies
- 29. Full DVB-T2 spectrum display
- 30. Sat/TP manager for editing pre-stored satellite and transponder data
- 31. Satellite settings

- 32. Transponder editor
- 33. Automatic DVB-S2 search
- 34. The Satlink WS6979HD comes with all functions you expect from a DVB-S2/T2 receiver
- 35. Channel list editor
- 36. Single entries or the entire channel listscan be deleted
- 37. Detailed information on the currently selected channel
- 38. EPG – electronic program guide





31 Satellite Setting

No.	Satellite Name	Satellite	Ku-Hispasat 30W
001	030.0 Ku-Hispasat	LNB	9750/10600
002	W 027.5 Ku-Intelsat	Transponder	11472 / 05632 / H
003	W 027.5 C-Intelsat 9	DiSeqC 1.0	ToneburstB
004	W 024.5 Ku-Intelsat	DiSeqC 1.1	None
005	W 024.5 C-Intelsat 9	22K Tone	
006	W 022.0 Ku-SES 4	Polarity	13/18V
007	W 022.0 C-SES 4	Motor	None
008	W 020.0 Ku-NSS 7	Unicable	None

Strength 05% 5%

Quality 00% 0%

TP Manager Auto Scan Select All Clear All



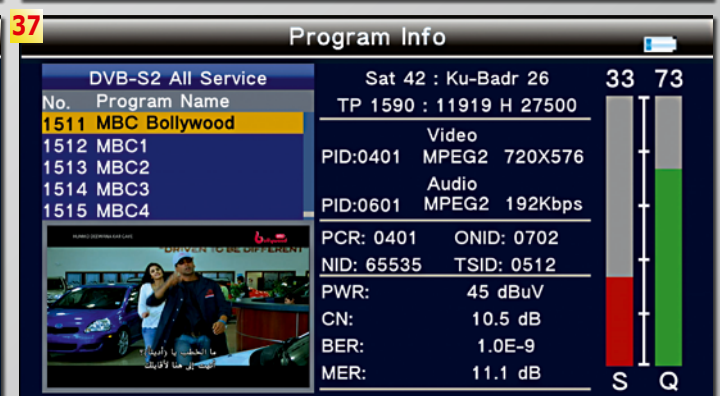
32 Sat/Tp Manager

No.	Satellite Name	No.	Freq	SR	Polarity
001	W 030.0 Ku-Hispasat 30W	001	11472	5632	H
002	W 027.5 Ku-Intelsat			3400	H
003	W 027.5 C-Intelsat 9	No.	000	4444	H
004	W 024.5 Ku-Intelsat	Frequency	11472	0700	V
005	W 024.5 C-Intelsat 9	Symbol Rate	05632	10000	V
006	W 022.0 Ku-SES 4	Polarity	H	4444	H
007	W 022.0 C-SES 4				
008	W 020.0 Ku-NSS 7	008	11520	5000	V

Strength 05% 5%

Quality 00% 0%

Edit Tp Del Tp Add Tp Scan Tp



33 Automatic SAT Scan

Satellite	Ku-Astra 19
Transponder	10773 / 22000 / H
NIT	OFF
Programme	All
Scan Mode	Default TP
Scan Select	Single Sat

Strength 20% 20%

Quality 53% 53%

UnLock

THE PROFESSIONAL EQUIPMENT SATLINK

38 TV Guide

No.	Program Name	17/09/2014Wed.
1511	MBC Bollywood	Today 18 19 20 21 22 23
1512	MBC1	05:30 SADA AL MALAEB
1513	MBC2	06:35 BWAB AL REEH
1514	MBC3	07:30 EMBRATORIAI MEN
1515	MBC4	06:35 BWAB AL REEH
1516	MBC Action	05:30 SADA AL MALAEB
1517	MBC MAX	10:00 SABAH AL KHAIR YA ARA
1518	Wanasah	09:10 AL WESHAH AL AHMAR R
1519	MBC Int	08:20 ZAHRAH AL QASR
1520	MBC DRAMA	12:00 KASR AL KHAWATER
1521	Drama USA	13:00 RIHANA
1522	MBC TEST 1	16:00 ZAHRAH AL QASR
		15:00 AL WESHAH AL AHMAR R

THE PROFESSIONAL EQUIPMENT SATLINK

Greece. Why is that so important? Well, as soon as you have selected the target satellite complete with correct LOF and DiSEqC parameters and once you have chosen a corresponding frequency, the WS6979HD will not only initiate a signal measurement but will also indicate the right azimuth and elevation values for antenna alignment.

Apart from the signal strength, the measurement results will also show the C/N (carrier to noise ratio), BER (bit error rate) and MER (modulation error rate).

If you think the full overview of results is a wee bit too small for keeping track when moving the antenna, you can always change into a separate mode that only displays the most essential parameters in enlarged form.

Alternatively, you can fully rely on the acoustic signal level indicator that works wonderfully and can take a lot of weight off your shoulders. As a side note that is addressed specifically to professionals we can confirm that the

WS6979HD is of course perfectly capable of displaying the constellation diagram of any given transponder. When it comes to modulations like 8PSK or 16APSK, this is a particularly handy tool for visually re-checking signal quality if you need to be on the safe side of business.

As soon as the meter has detected a valid signal, it can be set to either perform a search on the currently selected transponder or across the entire satellite.

Here it is essential to mention that a full-satellite scan is done in blind scan mode, which means that the meter starts out with gathering all active transponders first, before initiating a comprehensive scan based on those data.

Generally speaking, the WS6979HD behaves much like your standard satellite receiver with features such as an editable channel list, teletext, EPG functionality, language selection, subtitles, and so on. This is also where the HDMI output fits in so

39. Extended EPG information

40. Audio and video playback as well as an image viewer for files stored on an external storage medium are also available

41. DVB-S2 channel list

42. DVB-T2 channel list

43. Info bar

44. AVI video playback

45. DivX video playback

46. Flash video playback

47. WMV video playback

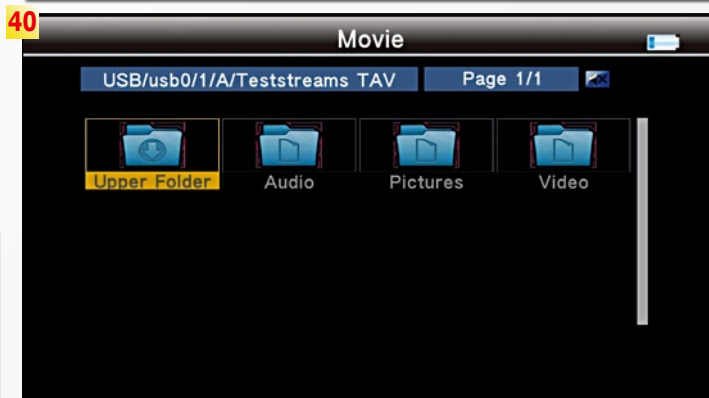
48. AAC video playback

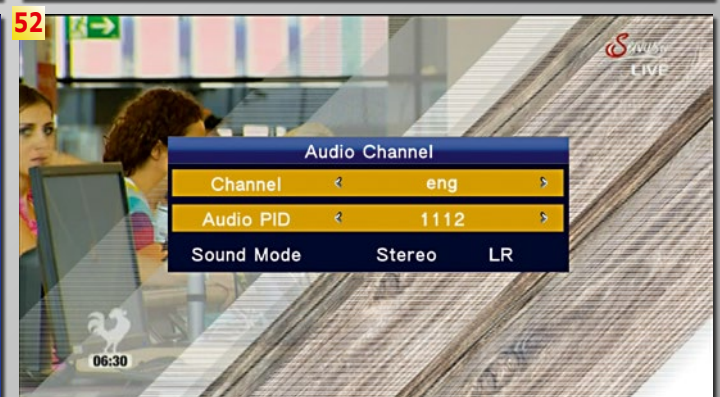
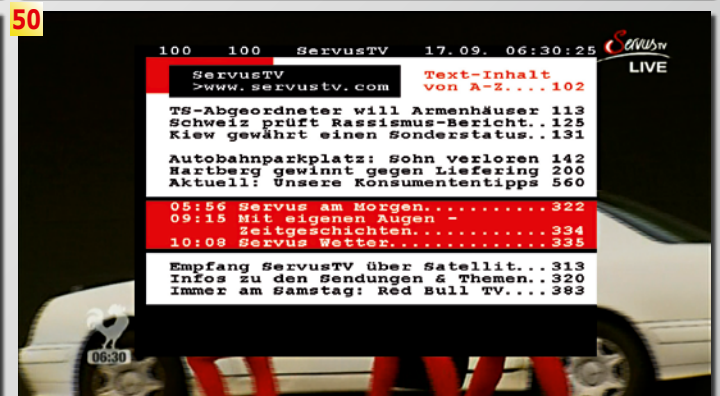
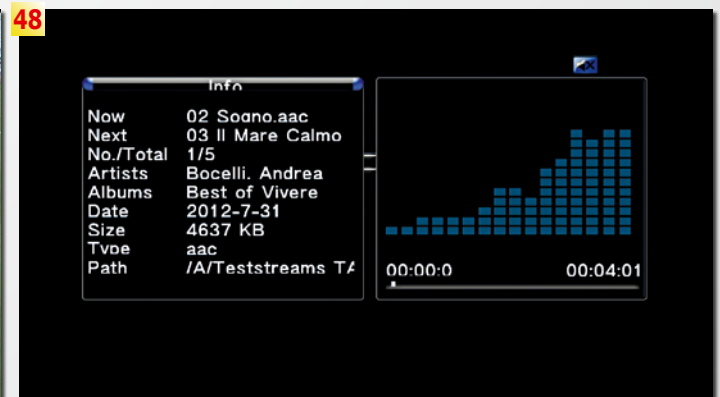
49. Selecting teletext language

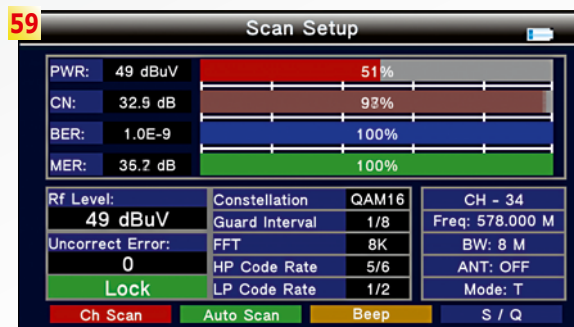
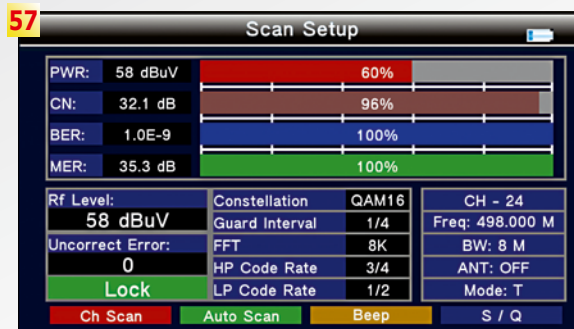
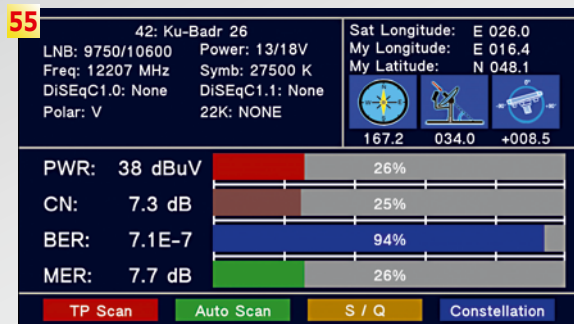
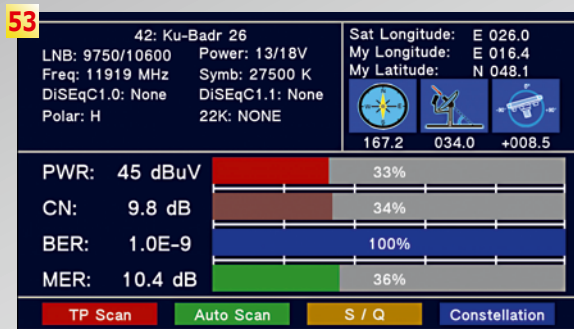
50. OSD teletext

51. Selecting subtitles

52. Language selection







53. Measurement result of BADR 26° East 11919H with Satlink WS6979HD

54. Measurement result of BADR 26° East 12207H with TELE-audiovision reference meter

55. Measurement result of BADR 26° East 11919H with Satlink WS6979HD

56. Measurement result of BADR 26° East 12207H with TELE-audiovision reference meter

57. Measurement result of UHF channel 24 with Satlink WS6979HD

58. Measurement result of UHF channel 34 with TELE-audiovision reference meter

59. Measurement result of UHF channel 24 with Satlink WS6979HD

60. Measurement result of UHF channel 34 with TELE-audiovision reference meter WS6979HD

smoothly, because wouldn't you prefer to watch high-definition content on a large screen? That's not to say the built in display could not handle such content, but it's the first choice for signal measurements rather than for watching TV.

The specifications given by the manufacturer indicate that the meter can process symbol rates from 2 to 45 Ms/s, but regular readers know that we never take a manufacturer's word for anything and insist on verifying those specs ourselves. Better even, we try to push any device to its limits and want

to see how it deals with out-of-specs material. Well done, Satlink – your WS6979HD happily worked with narrow-band SCPC transponders and a symbol rate of only 1 Ms/s!

The menu and settings layout for DVB-T2 is identical to DVB-S2, but of course without the satellite and transponder lists. Instead, there is a pre-stored frequency list covering terrestrial channels for a wide variety of countries. To make matters really easy, any required frequency can quickly be entered manually, and we loved that Satlink has designed the DVB-T2 section of its WS6979HD with users

of antenna signal amplifiers and active antennas in mind as well: The meter can be set to provide different voltages right through the attached coax cable. Thumbs up for that!

Once again, when measuring a signal the WS6979HD displays signal level, C/N, BER and MER, plus RF level and the number of faulty bits detected in the stream. In addition, users can launch a channel scan on any given frequency or across the entire frequency band. So, much like for DVB-S2, this meter can be turned into a fully-fledged DVB-T2 receiver.

Hang on a second, I hear professionals among our readership intervene. Does the new Satlink meter actually come without a spectrum display? Don't you worry, folks – fact is, the manufacturer has put this into a dedicated main menu item. No matter whether you're in DVB-S2 or DVB-T2 mode, simply use that item to access the same LOF, DiSeqC settings, supply voltage, etc. parameters as for antenna alignment, and with a another touch of a button you can call up the spectrum display view right on screen. With the colour-coded buttons it is child's play to change polarisations and (de)activate the 22 kHz control signal, using the cross-shaped navigation button users can move the cursor within the active frequency band and with the blue function key you can change the display from RF to IF mode.

The available zoom function turned out to be hugely helpful during our test, as it allows users to enlarge certain sections of the spectrum. In general, we appreciated that the spectrum display reacted very swiftly to any signal changes in DVB-S2 mode. Sadly, it's a different story in DVB-T2 mode, where the spectrum display reacted somewhat unwillingly to changing signal conditions.

No in-depth test of a signal meter would be complete without throwing it into the battlefield against our reference meter, and of course the Satlink WS6979HD was destined for the same fate. As you can clearly see from the screenshots, the meas-

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X SQUARE TECHNOLOGY

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X SQUARE, a global technology company, designs and develops receiving solutions for the worldwide markets: household, education & training, infrastructure & utilities, defense & security, etc.

In these markets, X SQUARE offers user friendly receiving products that optimize productivity and business efficiency. Its autonomic hard & structural solutions integrate all aspects of communication technology, from signal receiving & processing to terminal image display and adjustment.

X SQUARE has its own facilities for Global Sales & Marketing, Customer Support, R&D and Manufacturing in China. The company is active in more than thirty countries and employs over 500 professional staff world-wide.

X SQUARE, one of the world's largest satellite product manufacturers of low noise blocks and digital satellite receivers, was established in 2003 in Chengdu, China. In 2010, we moved to Shenzhen. We have more than nine years' experience in the satellite field, with an experienced R&D team. Our products guarantee the best support to all partners.

Strong focus on innovation

In the course of its 12-year history, innovation and creativity have always been core values. X SQUARE reinvests 10% of its sales into R&D each year.

With the support of excellent staff and a broad sales network, we are fully confident that we can develop special products according to customers' requirements.

Adhering to the principle of "High quality products, High quality service", and depending on our highly experienced R&D team and advanced production equipment, we are planning to co-operate with more and more customers around the world by providing superior quality products consistently. In order to improve our products' competitiveness, we will try our best to fulfill customers' specifications in a more positive manner.



ADVANCED TECHNOLOGY
From X SQUARE

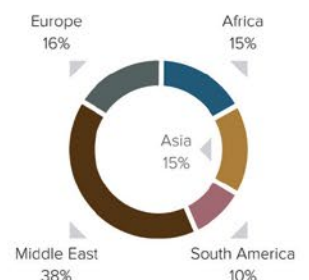
A supplier of choice for most DTH operators across Middle-east with the broadest product range in the industry covering C-band & Ku-band.

Since its introduction, each new X SQUARE model has been a showcase of our advanced technological know-how. Till today, this unflinching principle remains very much an integral part of our product development process. Every technological

aspect has been carefully thought out when integrating cutting-edge design with advanced technology - all with the sole purpose of creating a unique and fulfilling user experience for our valued customers.

Geographical breakdown of sales

Continents	Countries	2014
Asia	China, Kazakhstan, India, Pakistan,	
Middle East	Iraq, Turkey, Afghanistan, Iran, Jordan	
South America	Brazil, Chile, Venezuela, Uruguay & Paraguay	
Africa	Egypt, Nigeria, Angola, Ghana, Algeria	
Europe	Germany, United Kingdom, Russia, Ukraine	





urement results were obviously not identical, but still very similar – which speaks volumes about the quality of the tuners built into this latest Satlink meter. And when we tried out the device for perfectly aligning several antennas, the WS6979HD soon became a highly regarded companion. Its low weight was a major bonus, especially when compared to our reference meter.

You will have noticed our enthusiasm and excitement about this neat little helper by now, and we really don't want to spoil the mood, but there is one drawback that bugged as again and again during our test: The Satlink WS6979HD does not support measurement results to be saved and later transferred to a PC. This certainly isn't a big deal for private users or amateurs who install a dish only now and then, but in the professional realm this is an essential feature. After all, installers must be able to document a job well done if they want to collect money for their work.

On a brighter note, we noticed that the meter is extremely responsive and reacts instantly to all user commands and inputs. Never did we have the impression that the WS6979HD was pushed to its limits, not even when it had to process a high-definition signal in the background. It clearly pays for Satlink to

have used a 500 MHz Novatek processor, bundled with a total of 1 GB DDR memory.

With all the brilliant features and functions for measuring signals it's hard to believe that the Satlink WS6979HD can also be used as a fully-fledged receiver, but that's exactly what the manufacturer has achieved. Not only can this meter-cum-receiver put out TV channels and radio stations with excellent HD quality thanks to the available HDMI output, it also provides all convenience features such as fully-functional EPG, language selection, subtitles and teletext. If required, the integrated A/V input can also be put to good use, for example to feed in the signal of an external receiver (e.g. positioner) and display it on the meter's screen.

To cap it all, Satlink even provides the option of playing back audio and video from an external USB storage medium, and to watch images on the WS6979HD's display. The variety of supported file types is extraordinary and should really accommodate all users. Even AAC audio files were played back flawlessly in our test.

Now if Satlink would also throw in a small remote control for its WS6979HD we'd not only have a wonderful signal analyser, but also an ideal receiver for when we're out and about.

EXPERT OPINION

Satlink WS6979HD
DVB-S2 & DVB-T2
Signal Analyzer

RECOMMENDED
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- +** • Reliable signal meter for DVB-S2 and DVB-T2 reception boasting excellent build quality and logical menu structure for a smart user experience.
 - Very responsive spectrum display (in DVB-S2 mode) as well as correct and reliable measurements.
 - Very convenient to carry along thanks to its low weight.
 - Apart from all required signal metering functions, the WS6979HD also includes a fully-functional receiver for DVB-S2 and DVB-T2 reception complete with a range of multimedia features.
 - Audio and video output in high-definition thanks to integrated HDMI output.
- • It is not possible to save measurement results or to transfer them to a PC.
 - Lethargic spectrum display in DVB-T2 mode.



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Satfinder 3 HD

- DVB-S/S2 Measurement
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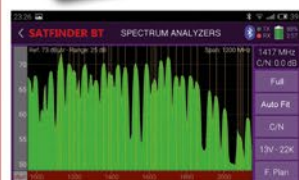


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TBS

Streaming Box Moi Plus





- *optimised for operation as background receiver*
- *ideal for use in private and even public networks*
- *fully-automatic channel search in the background*
- *two tuners are possible*
- *central management of channel list for each user*

One central DVB receiver – many different output devices

You'd think a receiver without HDMI output, without any other signal output sockets and without a remote control is pretty useless, right? All we can say is: Think again!

With its Moi Plus streaming box TBS has come up with a receiver that does not need to be positioned anywhere near a TV panel and that does not use conventional coax cable to feed AV signals to the TV. Instead, the Moi Plus streaming box is designed to serve several TVs or home cinema systems with television and radio signals right from a central location that can be anywhere in the building. Basement, loft, rumpus, storage room? The choice is yours, as long as you make sure all DVB-S2 and/or DVB-T2/C signals are available at that place for processing and that a network connection is available for distribution. This network connection then acts as communications interface between the Moi Plus streaming box and all reception points in the house or apartment.

For reasons of versatility, the box features both an RJ45 socket for cabled networks and a built-in WiFi adapter for wireless communication. If you look at the back panel of the Moi Plus streaming box, you'll discover two USB ports, a reset button to revert to factory-set default values for all parameters, as well as a socket for connecting the external 12V power supply unit. As far as tuners are concerned, TBS has listened to suggestions voiced by a large number of users and now offers the Moi Plus streaming box with an integrated tuner that can easily be swapped by users themselves. The previous model required an external tuner that needed to be connected to one of the USB ports and that required its own power supply. Since the box uses the PCI-e slot standard it is possible to select almost any of the tuner cards offered by TBS for DVB-S2, DVB-T2 or DVB-C reception. See table 1 for an exhaustive list of supported models.



Let's have a closer look at what's hidden inside the Moi Plus streaming box now, because we do not want to be guilty of judging a book by its cover only. TBS has opted for a Marvell 88F6282 1.6 GHz chipset matched to 1GB of DDR3 RAM and 512MB of NAND flash memory, so the box is perfectly equipped for even major processing tasks and for reliable 24/7 operation. Obviously, TBS does not leave pay TV customers out in the cold either by offering two CI slots on the tuner card.

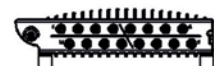
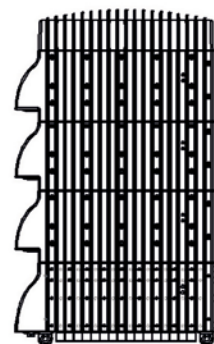
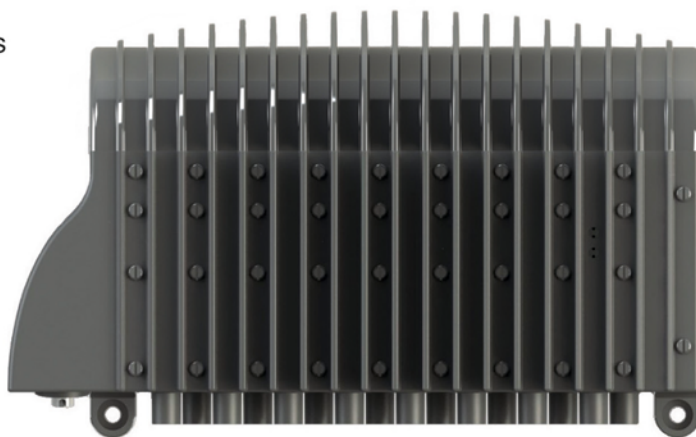
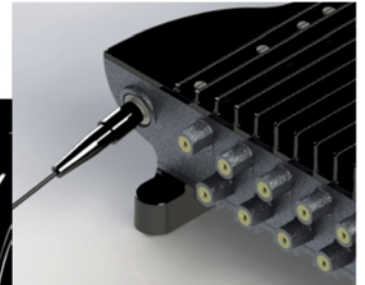
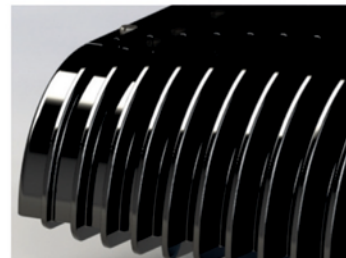
All that stands out on the front panel is a two-line LCD display indicating the operating mode of the box as well as a range of status information. If you expect any keys or buttons right on the front – there are none. We should mention at this point that TBS offers mounting angles as optional accessories, which come in very handy for installing the streaming box into a 19-inch rack system. The build quality of all hardware components left a very good impression with us and the whole box seems

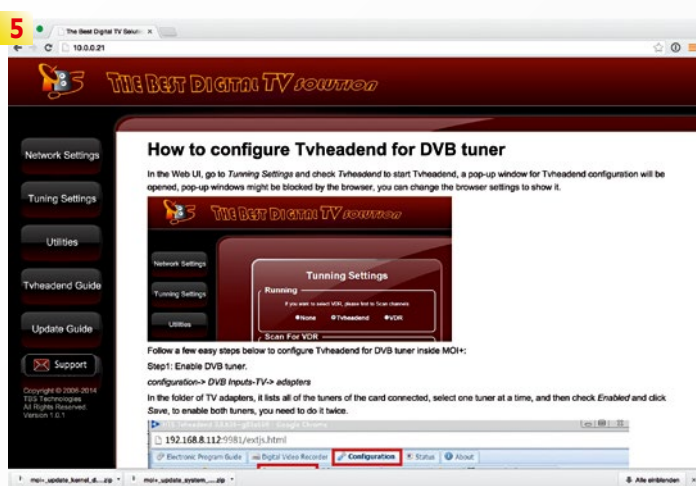
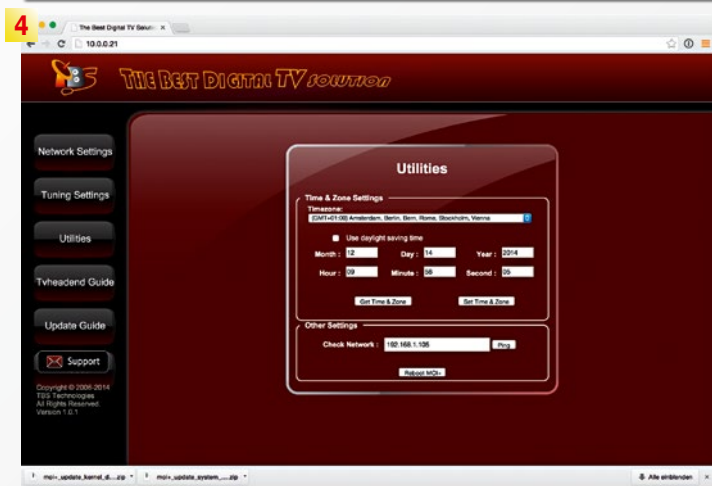
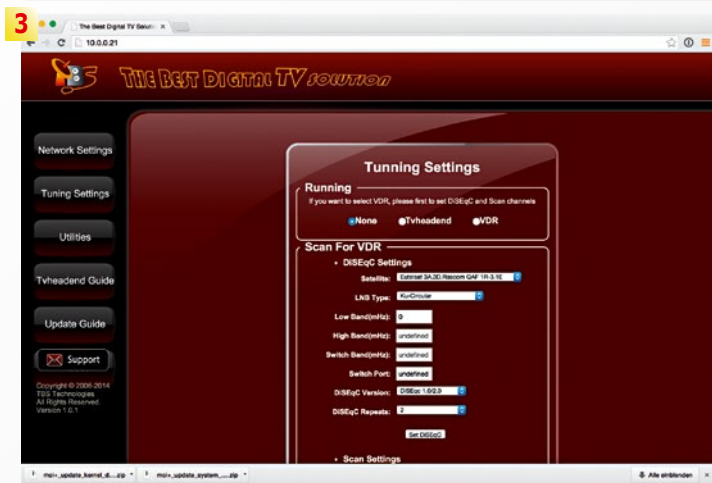
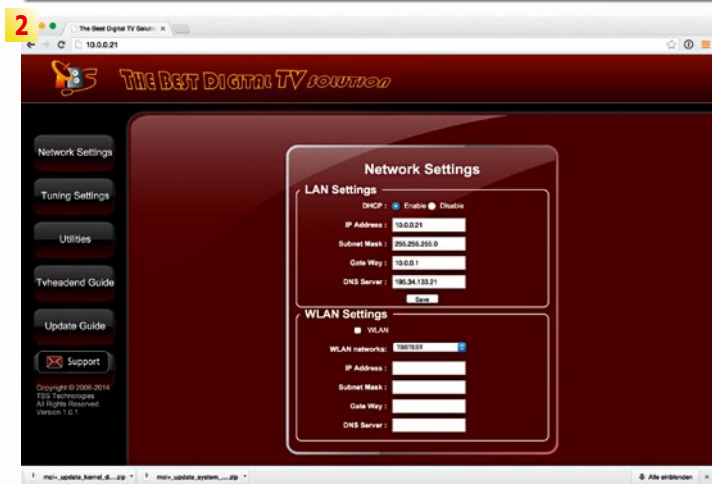




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- Ultra cost effective
- Single PSU
- 8 & 16 output versions
- Frequency Morphing Technology (FMT) for worldwide use





DVB-S2	DVB-T2/T/C	DVB-C
TBS6922SE	TBS6221	TBS6618
TBS6925	TBS6281	TBS6680
TBS6982	TBS6284	
TBS6983	TBS6285	
BS6984	TBS6290	
TBS6985		
TBS6928		
TBS6928SE		
TBS6991SE		

■ List of tuners that are compatible with the Moi Plus streaming box

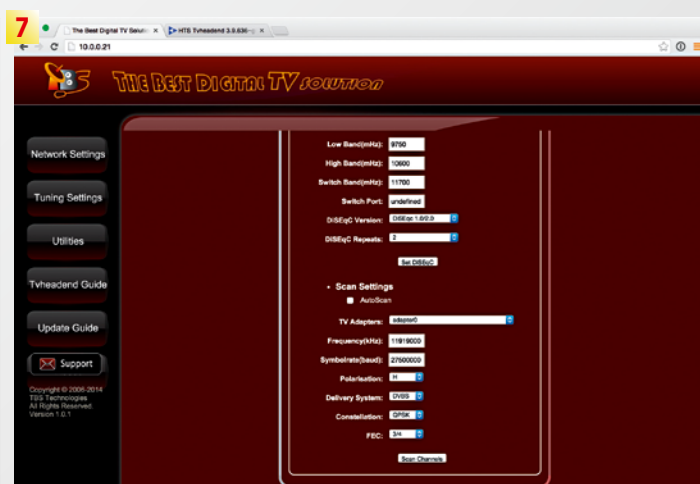
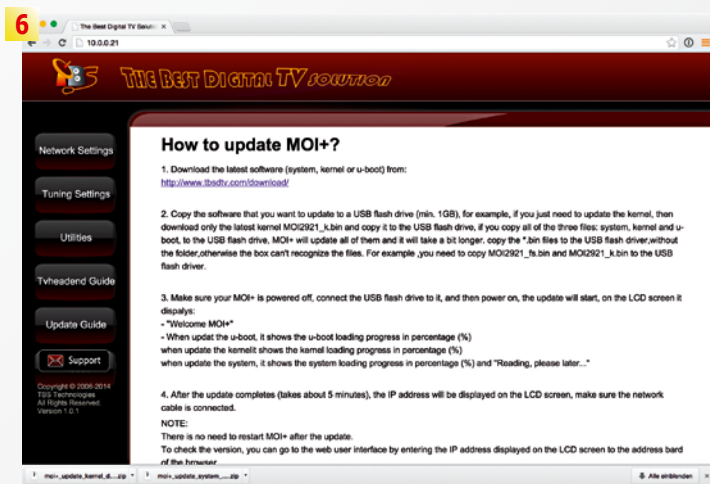
to be built to last. When we needed to swap tuner cards during our test this was a very straightforward affair not requiring any special skills or tools.

Strictly speaking, the Moi Plus streaming box is not a digital receiver in the true sense of the word, but rather a mini PC that has been trimmed by the manufacturer to work as a digital receiver. On the software side, Linux is the operating system of choice, which in turn opens up endless possibilities for TBS to pick open source software solutions that perfectly meet the manufacturer's requirements. To be honest, TBS did a pretty smart job, which means there is not much in-house software included, apart from all necessary drivers

and a simple web interface for initial set-up.

Turn on the device for the first time and you'll be greeted with a friendly 'Welcome Moi+' display message, which disappears after a while to then show the IP address which is currently preset or allocated by the DHCP server. This is a clear hint that the box is pretty much useless without network access. If you key the displayed IP address into your browser's address line you'll gain access to the integrated web server that let's you adjust some basic settings on the box. Among them are network parameters, which can also be used to activate the box's WiFi system. In addition, users can set the internal clock and select one of the two available operating modes for the Moi Plus streaming box. The two options are VDR and Tvheadend. Both are software solutions for DVB reception which run under the Linux operating system and are pre-installed by TBS. In this test report we would like to focus on Tvheadend, which is the more comfortable and

1. Web interface of the Moi Plus streaming box
2. Network settings
3. Tuner settings
4. Setting the time
5. A configuration guide for Tvheadend is available through the web interface
6. Guide for software updates
7. Tuner settings



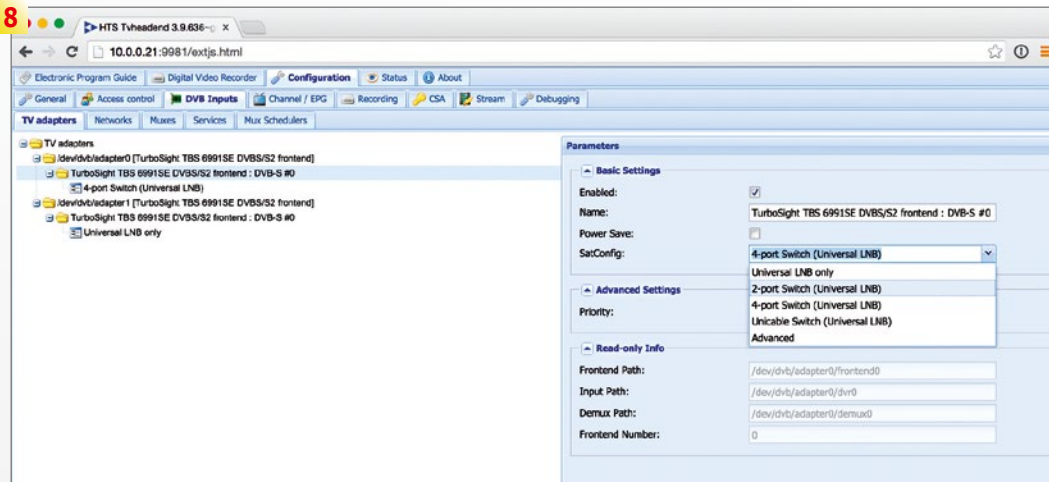
much more versatile software solution of the two.

As mentioned just above, Tvheadend is pre-installed on the Moi Plus streaming box and can be set up from the PC using a web browser. All you need to do is enter the box's IP address and port number 9981. You will then see a user interface that allows you to adjust all required parameters. The software reliably detects the two tuners of the integrated reception card, which can be set up individually and independent of each other. Unfortunately, there is no loop-through output available to forward the signal from tuner 1 to tuner 2, so if you want to make use of both tuners, you require two separate signal input lines.

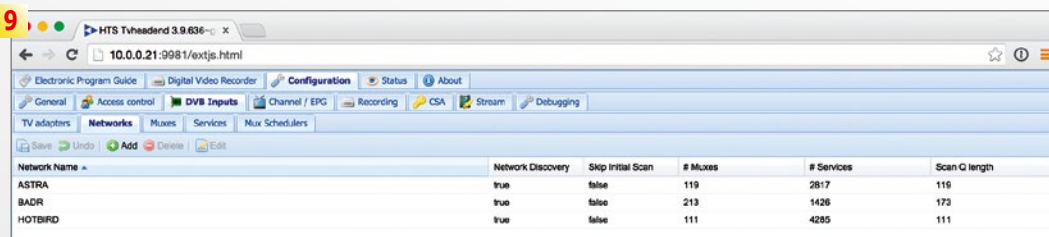
Naturally, any new reception equipment must blend into existing infrastructure, and to that end the Moi Plus streaming box supports DiSEqC 1.0 and 1.1 as well as SCR unicable solutions. It comes with a comprehensive database of pre-stored satellites that include major orbital positions for all regions of the globe and reasonably current transponders data. In addition, a large range of pre-stored frequencies for cable operators worldwide is available, covering both DVB-C and ATSC signals. What's more, even DVB-T2 frequencies for dozens of providers are offered by default. This alone demonstrates that Tvheadend



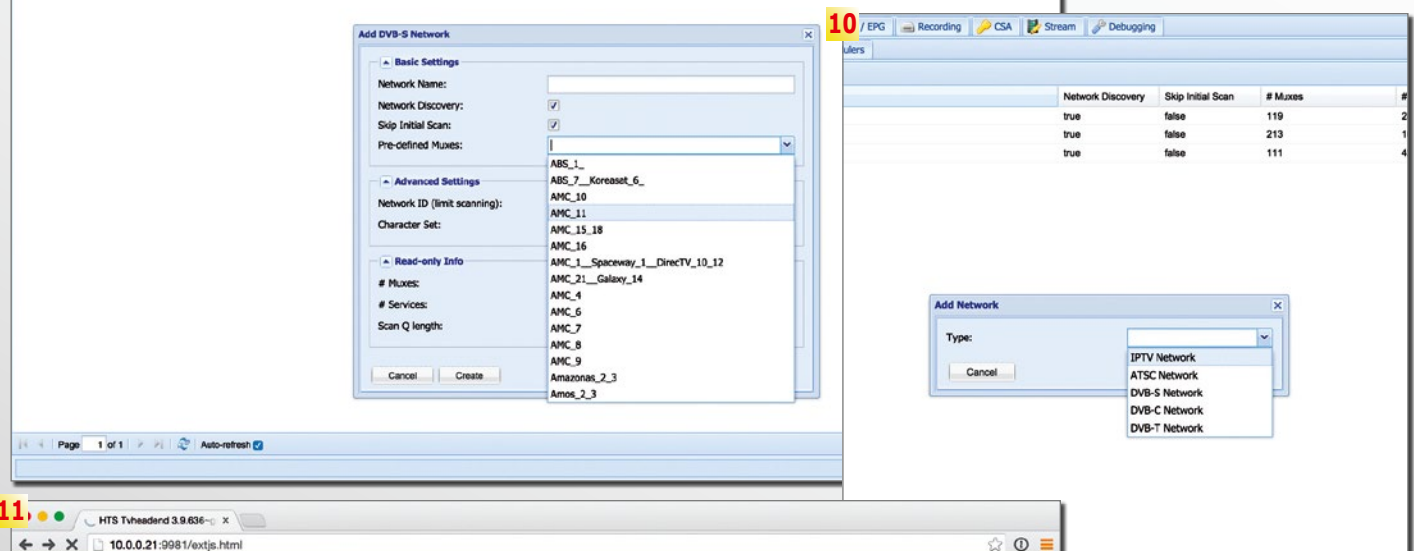
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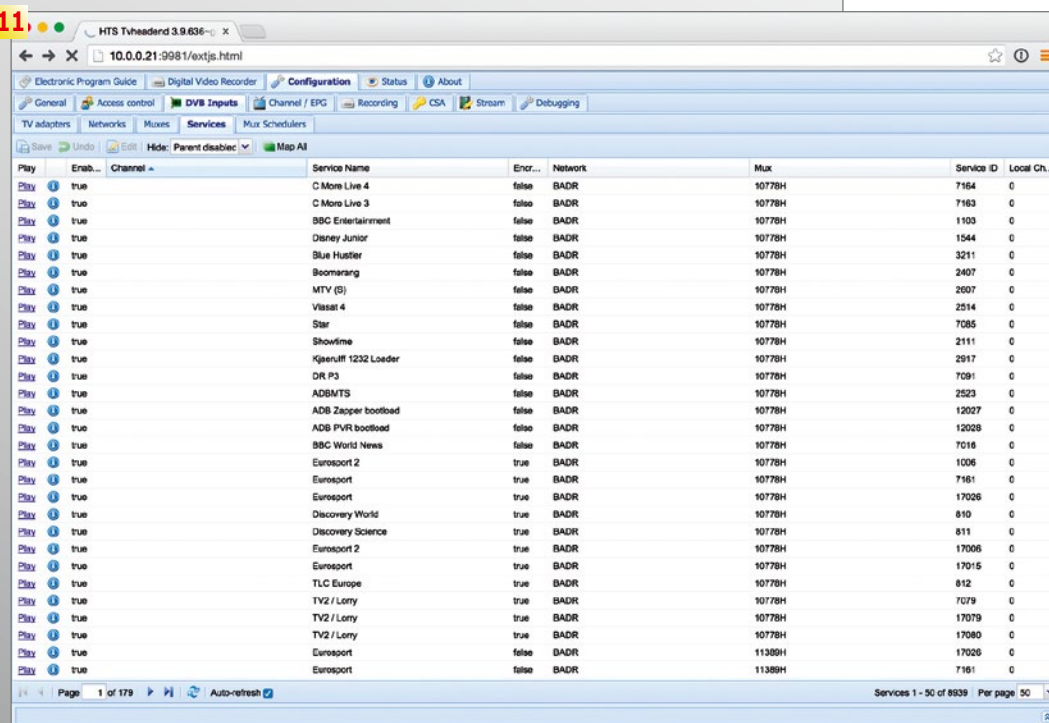
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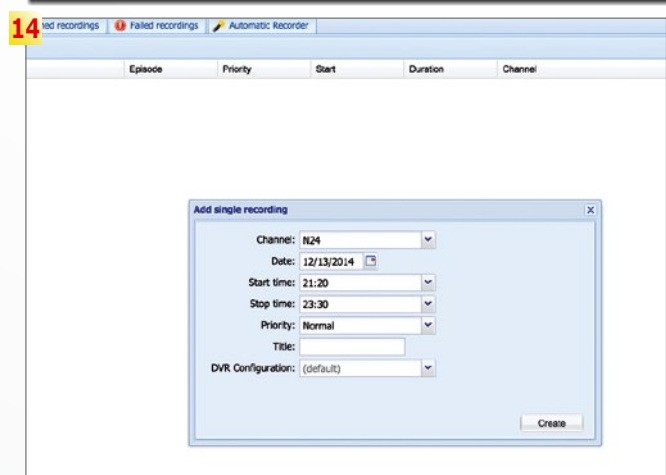
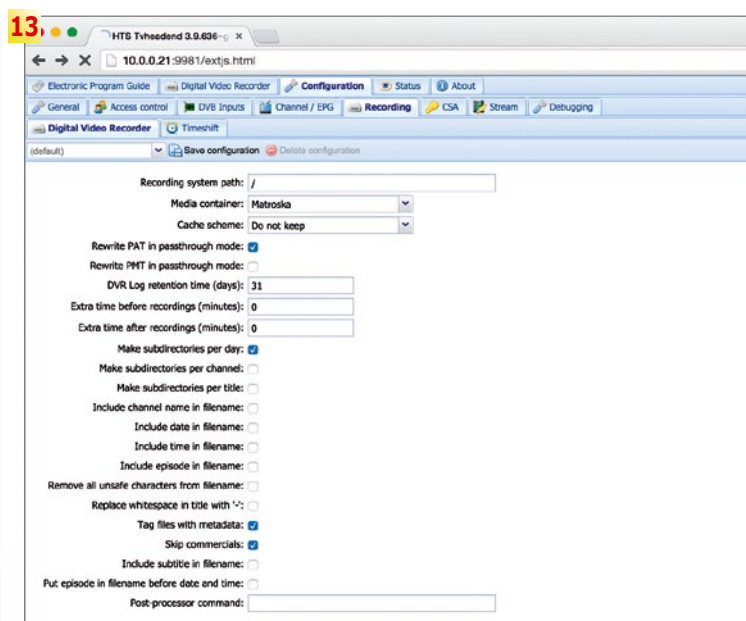
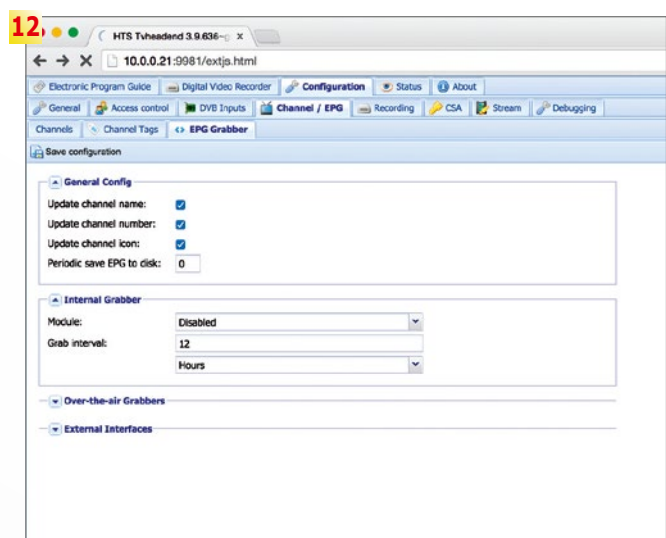


dend is not a commercial product but rather a solution made by enthusiasts for enthusiasts. As a consequence, there is no team of full-time employees available on short notice for customer support on all five continents. Not to worry, though, since all pre-stored data can easily be edited by users at any time if circumstances change.

One thing we particularly liked during our test was the way the Moi Plus streaming box does channel searches. As soon as an orbital position, cable TV operator or DVB-T2 provider has been selected, the box initiates an automatic channel search in the background. At this stage, users won't even notice that something is hap-

pening. What's more, the Moi Plus box regularly updates its channel list whenever it is not busy with user-initiated tasks. So on the one hand you can always rely on a channel list that is up-to-date and – more importantly – also kept that way, while on the other hand this requires no user action whatsoever and it does not interrupt your viewing pleasure at all. Finally a manufacturer that has put channel search right where it belongs: in the background!

Now in case all that automatic action in the background causes some restlessness among you, we can dispel any concerns you



8. The two tuners of the installed reception card were quickly recognised by the system

9. Comprehensive list of pre-stored satellite positions

10. Apart from DVB-S2 the box also supports DVB-C, DVB-T2, ATSC and IPTV

11. Channel list of the Tvheadend software

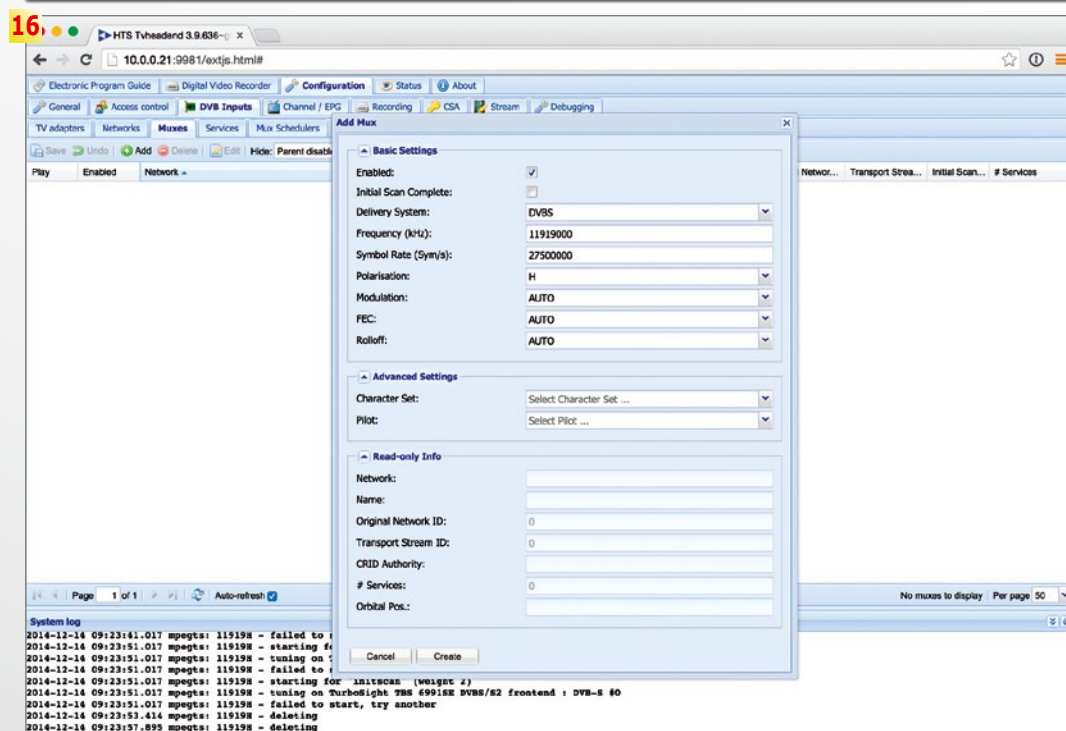
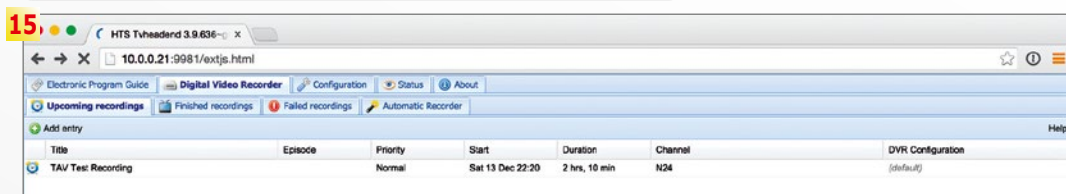
12. EPG settings

13. PVR settings

14. Creating a PVR timer

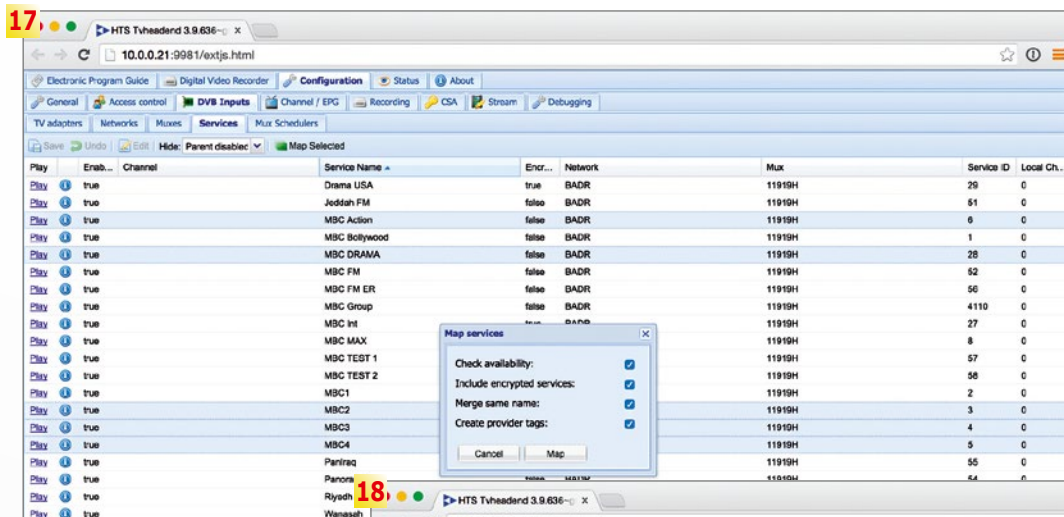
15. Overview of timer entries

16. Adding a new frequency manually



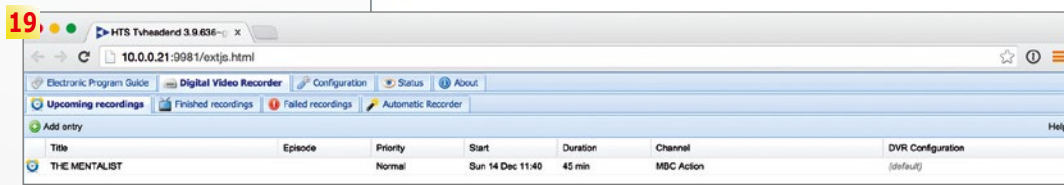
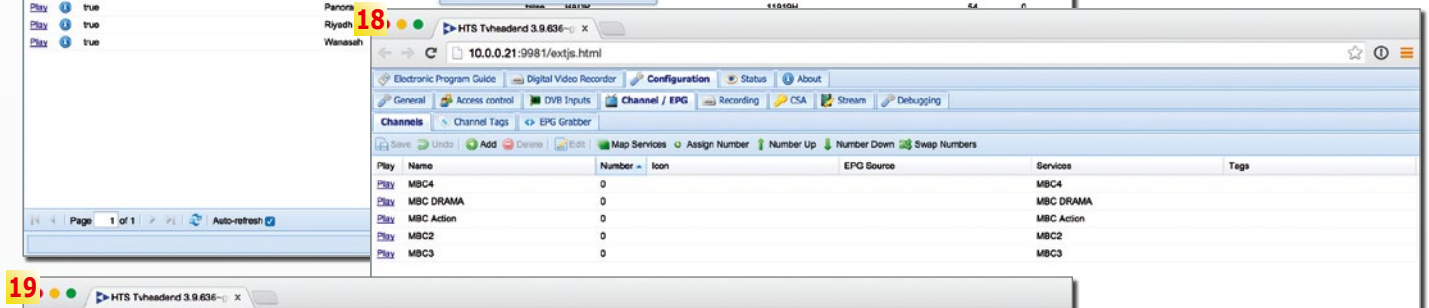
may have in that regard: The Moi Plus streaming box of course gives you all manual search options as well. So if you want or need to search a single transponder or frequency, simply search away. Obviously, we played around with that feature and can confirm that it works flawlessly. With automatic channel searches taking place in the background, you can almost watch the channel list growing over time. In our test we added several satellite positions to our line-up so that we ended up with thousands of channels.

Now comes the point which divides the receiver end of this streaming box system with the client end. In actual fact, all the Moi Plus streaming box and the Tvheadend software do is receive DVB signals and make them available across the network. There's no way you can actually watch any channel at this stage. For that to work you need another box which takes care of receiving the distributed signals and displaying their content on the TV (or any other) screen. As a matter of fact, any piece of hardware will do, provided it can run software such as Xbox Media Center, for example. TBS recommends that software in particular, since it is a perfect match to the Tvheadend software on the one hand, and is avail-

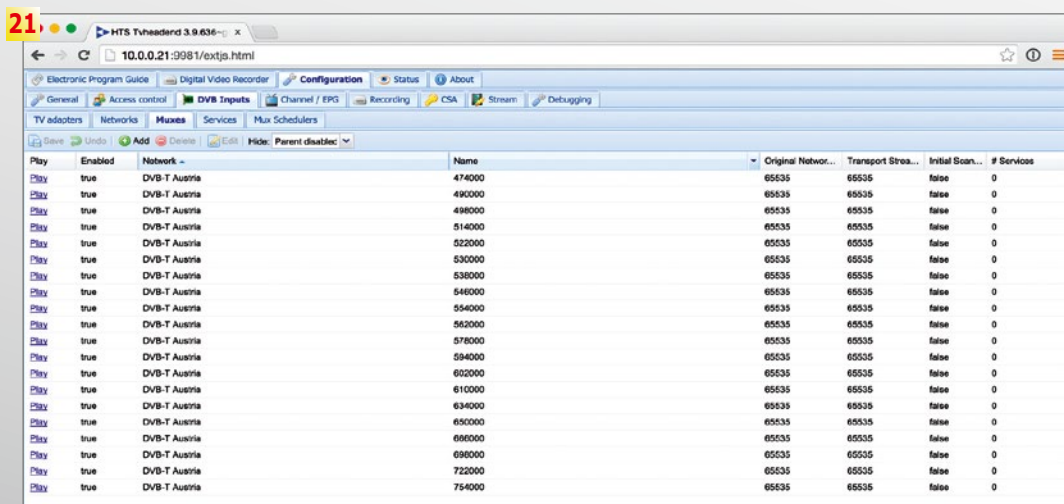
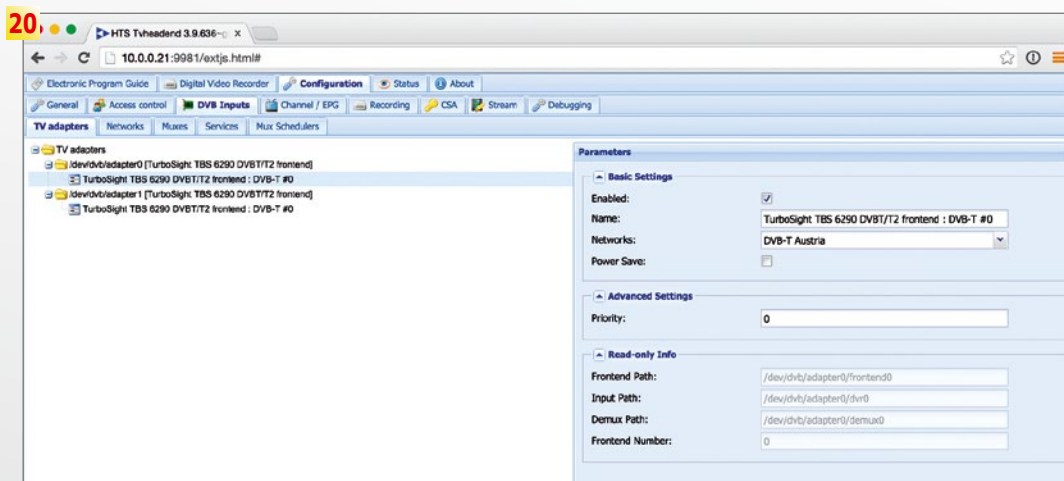


able for virtually all operating systems (MS Windows, Apple Mac OS X, Linux, iOS, Android, Raspberry Pi and Apple TV) on the other hand.

So you realise that you can use a whole variety of equipment for bringing content to a screen, ranging from multimedia boxes, PCs, laptop computers and Macs all the way to smartphones and tablets. And since no user would be happy with having to manage a channel list with



thousands of entries, the developers of Tvhend have come up with a very smart solution for that problem: Using the web interface of the Tvhend software you as the user simply mark all those entries on the overall channel list that should show on your customised channel list. One mouse click will then make sure your channel list looks exactly like you want it to look. Of course you're free to sort, rename or edit each entry whichever way you want, or you may even add special channel logos to individual entries. Gone are the days when you had to spend hours prepping up your channel list using the remote control. With the Moi Plus streaming box and the Tvhend software you can achieve a better result



17. All channels that are selected in the channel list are added to the customised channel list of the individual user

18. Customised user channel list

19. Timer entry created directly in EPG mode

20. DVB-T2 tuner settings

53: Adding pre-stored DVB-T2 frequencies for Austria

21. Overview of DVB-T2 frequencies used in Austria



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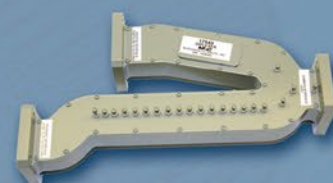
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Transmit Reject & Receive Reject



Transmit Reject



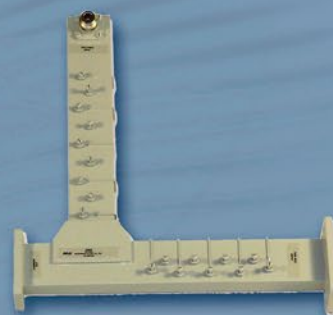
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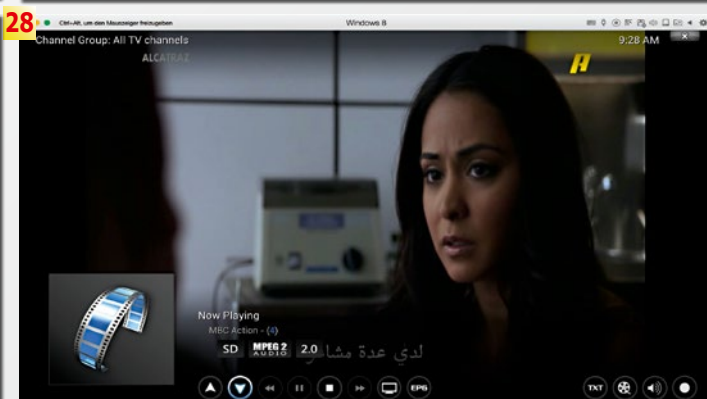
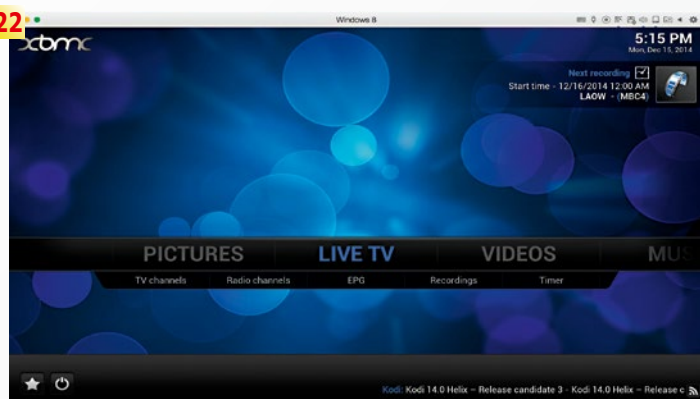
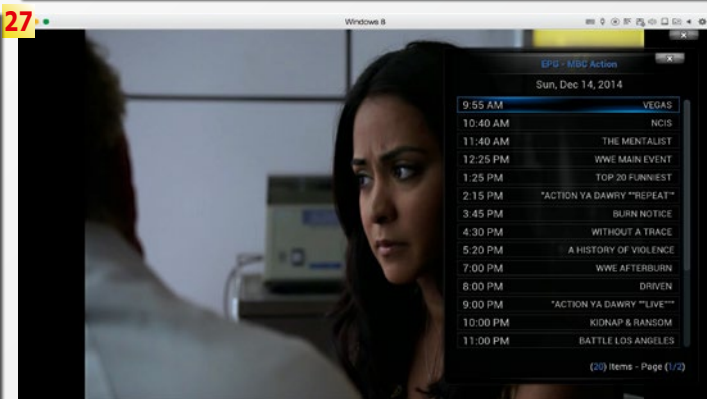
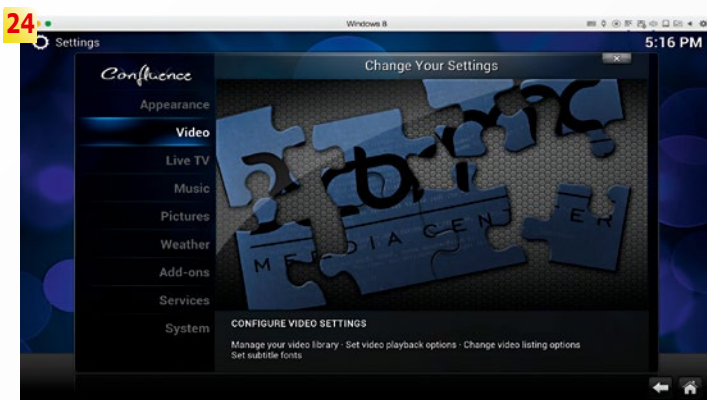
in less time using your PC. While this sounds awesome and also works brilliantly, we know that many users still look for some more icing on the cake. And thanks to this streaming solution they can have it too: Each change you make is instantly pushed to all clients in a matter of seconds! As a side note we can confirm that it is also possible to add IPTV streams to the channel list, a bonus feature we used excessively during our test and which invariably worked to our utmost satisfaction. In addition, the Tvheadend software comes with all features and functions we have come to expect from digital reception, such as an electronic program guide (EPG), for example, which also works with

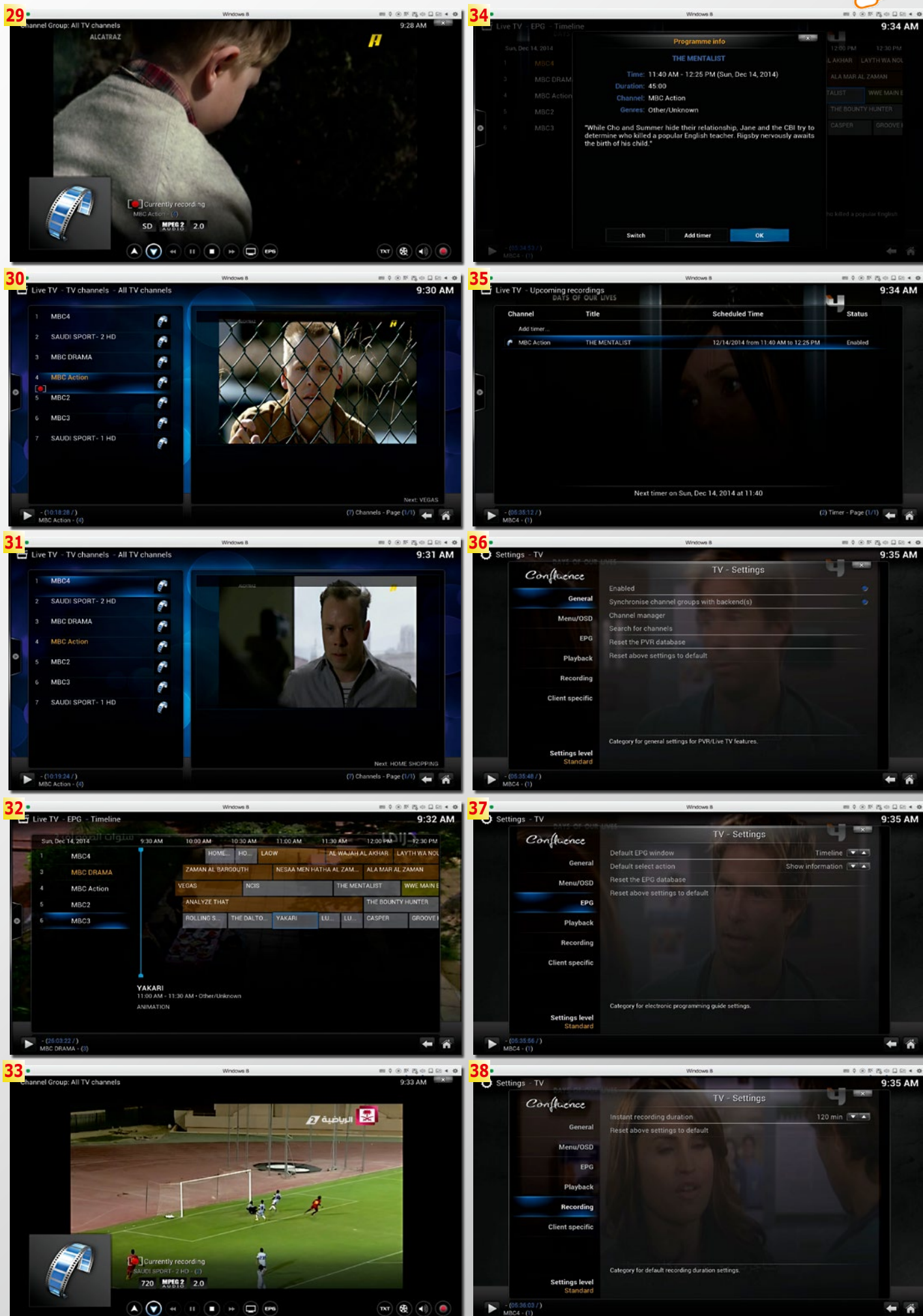
proprietary standards like Freesat or Mediahighway. All EPG data are automatically loaded and processed in the background and are presented with extensive search options.

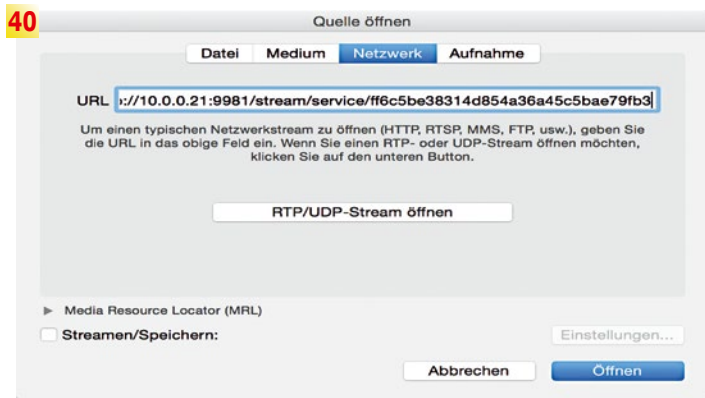
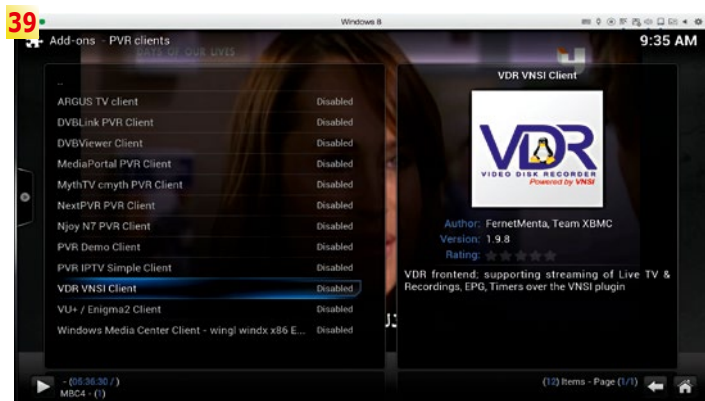
Thanks to the availability of USB ports on the Moi Plus streaming box it is perfectly equipped for using it as a PVR receiver by attaching an external USB storage medium. The Tvheadend software fully supports such a set-up. Timer entries can be created either manually or directly from EPG view and the system offers almost endless customisation options for recordings. Once again, EPG data, recordings or any other required settings can be accessed both from any client devices or via the Tvheadend

- 22. Xbox Media Center on the PC
- 23. Setting up the Tvheadend add-on
- 24. Xbox Media Center settings
- 25. TV settings
- 26. Live TV with Xbox Media Center and Moi Plus streaming box
- 27. EPG view
- 28. Info bar with control buttons
- 29. Recording an event onto an external storage medium that is connected to the Moi Plus

- streaming box
- 30. Channel list with recording currently taking place
- 31. Channel list
- 32. EPG overview
- 33. Info bar
- 34. Extended EPG information
- 35. Overview of timer entries created with the Xbox Media Center
- 36. TV settings
- 37. EPG settings
- 38. Recording settings







web browser, which gives you all the versatility and ease of use required.

Now that we have dealt with all settings and options of the Tvheadend software solution in some detail, let's move on to the Xbox Media Center. First, we can reasonably assume that its name will have changed to Kodi by the time you read this report. Up until version 13.x all releases carried the name Xbox Media Center, while the new name Kodi will be used from version 14, which is currently undergoing intensive beta testing. We made a point of not using the new version 14 beta release because we would not want to potentially wrestle with teething problems that are outside the control of TBS.

So let's return to the Xbox Media Center, which is devised as a conventional media centre that offers live TV as one option among many. The Xbox Media Center boasts a modular structure, and by this we mean it includes some core features and functions by default that can easily be extended with the help of so-called add-ons. One such add-on is available fully pre-configured to inter-

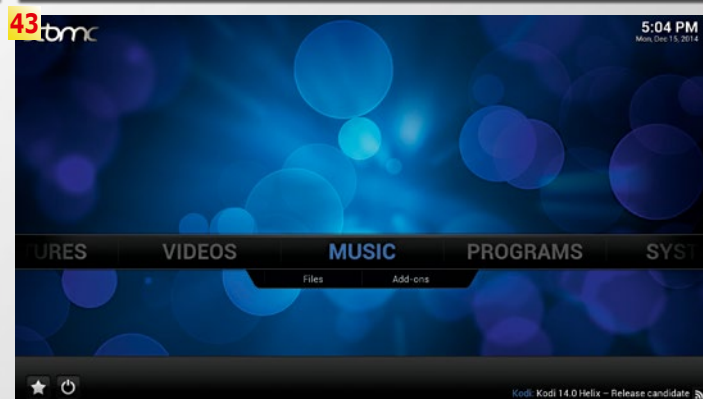
39. Overview of available add-ons

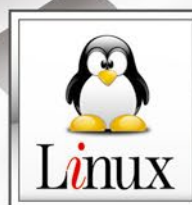
40. Channel playback using the VLC media player by using the network stream address

41. Playback of an HDTV channel using the VLC media player

42. Playback of an SDTV channel using the VLC media player

43. Xbox Media Center on an Android smartphone





FORMULER

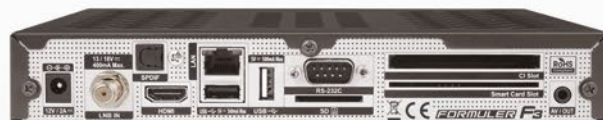
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link the Xbox Media Center with the Moi Plus streaming box and its Tvheadend software. The best part: This add-on is already installed by default, all you need to do is go to System Settings of the Xbox Media Center and activate it. There is only one little thing you need to know and adhere to: The pre-set IP address that the add-on tries to access is 127.0.0.1, so you need to first change that to the IP address of the Moi Plus streaming box. But rest assured, this is not a big deal at all and – thankfully – the only manual intervention that is required. What's more, the web server of the box comes with a comprehensive and easy to understand guide for setting up the Moi Plus streaming box.

When you're all done and exit the Settings menu you'll be taken immediately to the Live TV entry of the main menu, and as soon as

you're there the Xbox Media Center begins to download the channel list provided by the Tvheadend software and presents it on the screen. At long last, the fun of watching TV starts. As a user, you wouldn't notice a difference from any old DVB receiver you may have had before. No matter whether it's info bar, language selection, EPG, subtitles, teletext or PVR functionality – you'll find all of those features and functions right where you expect them to be. They are very easy to use and can be accessed from your PC, laptop computer, tablet, smartphone or from a dedicated multimedia box. The PVR function, in particular, is a real treat: Since the storage medium is connected to the central Moi Plus streaming box recordings can be programmed and played back from any client in the network. And if your home

44. Configuration of the Tvheadend software on an Android smartphone

45. Channel list on an Android smartphone

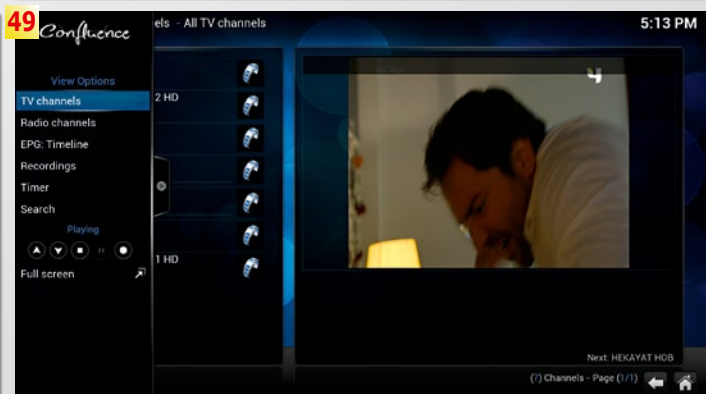
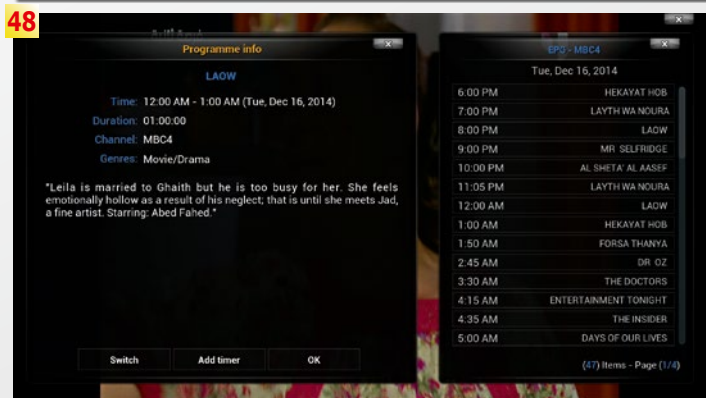
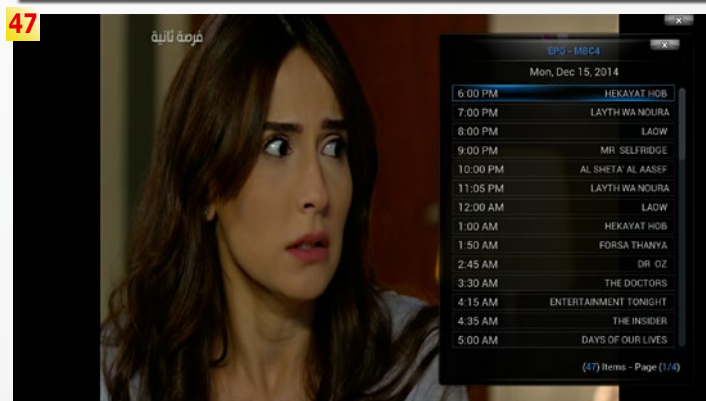
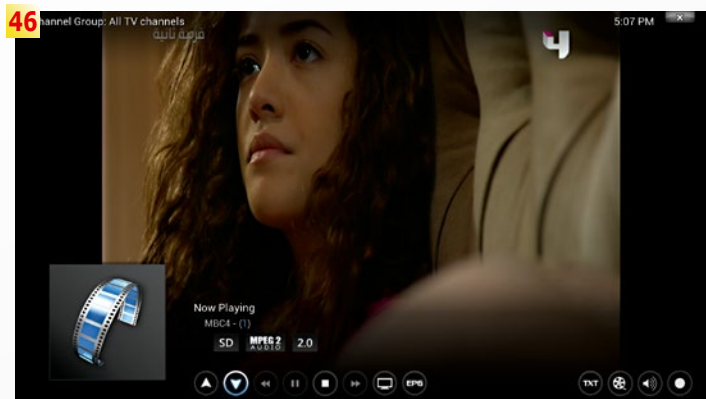
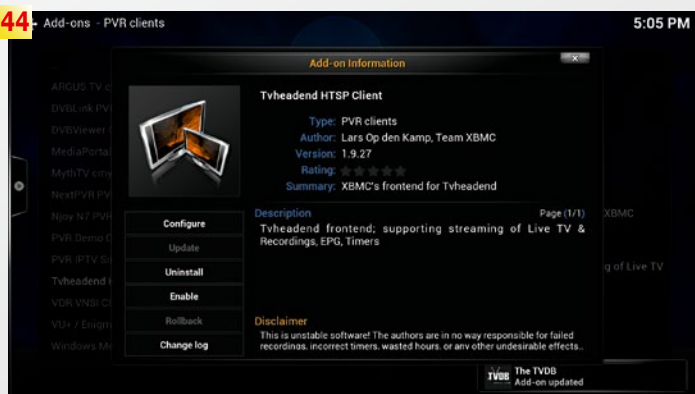
46. Info bar with all control options on an Android smartphone

47. EPG view on an Android smartphone

48. Extended EPG information on an Android smartphone

49. TV control options on an Android smartphone

50. EPG overview of several channels on an Android smartphone



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51. Using the Xbox Media Center on an Android smartphone

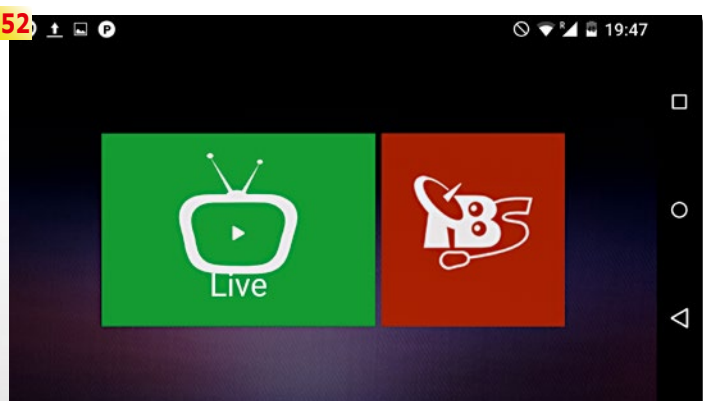
52. TBS IPTV app for Android

53. Channel list of the TBS IPTV app for Android

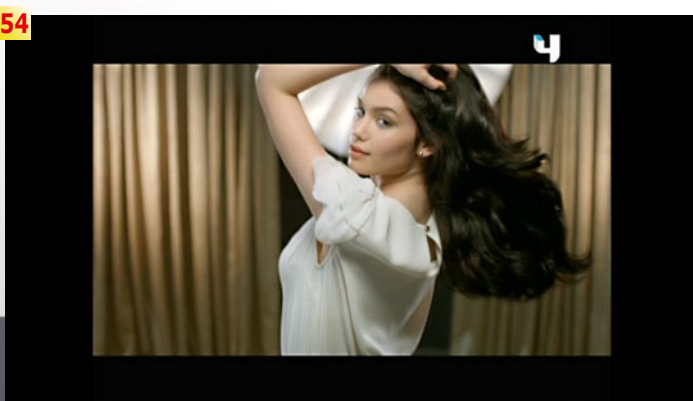
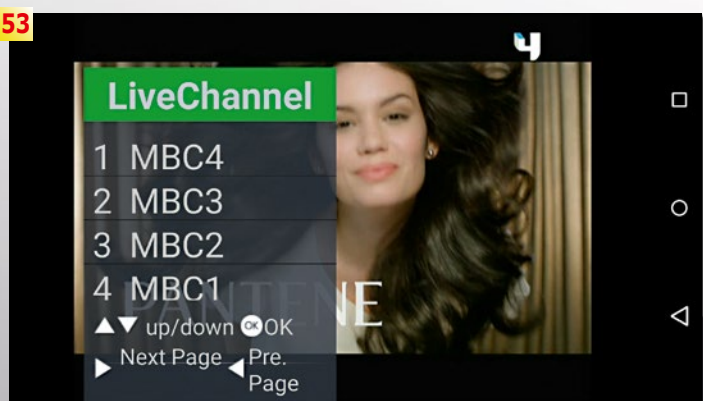
54. Live TV with the TBS IPTV app on an Android smartphone

twin-tuner reception card. It does not make a difference whether the two channels are standard definition or high definition, any combination will work. Overall, the built-in hardware components can handle up to 22 standard-definition channels and up to eight high-definition channels at any given time.

More often than not streaming solutions come with the drawback of long channel switching times, but we were delighted to find out that the Moi Plus streaming box is an exception to that rule and does not take more than one second until audio and video of a newly selected channel become available, which is pretty good by comparison. Naturally, audio and video quality are impeccable,



is served with high-speed Internet access and you set up your router accordingly, you may even access the Moi Plus streaming box and the Tvheadend software via the Internet from virtually any place on earth. We should also mention at this point that two different transponders or frequencies can be watched live or recorded simultaneously thanks to the



but you should expect this result given that the signal is distributed in its original digital form and therefore not subject to outside influences. No matter whether you use a smartphone, tablet, or a 50-inch plasma display, the quality you get will always be perfect – or at least as good as provided by the individual channels in the first place.

In total, we found the Xbox Media Center to be an excellent match to the Moi Plus streaming box. There is, however, a small drop of bitterness involved: If you want to use the Xbox Media Center with an iOS device or the Apple TV this only works with jailbroken devices. In other words, you need to subject the operating system to major modifications which in many cases cannot be undone after the fact. Unfortunately, Apple has so far refused to add the Xbox Media Center to its App Store, so this is why there is no other way. Android users are a little better off. While they are not offered the app in Google Play Store either, at least

they can manually install the Xbox Media Center without having to interfere with their operating system.

And then there might be users who deliberately choose not to install the Xbox Media Center. If you have a PC or Mac, there are some purposeful workarounds such as the VLC media player (available for download from www.videolan.org), which can process the individual program streams provided by the Moi Plus streaming box. The Tvheadend web interface displays a dedicated button next to each channel in the channel list, which can be used for direct playback with VLC. Quite frankly, though, this is not really a convenient alternative. The manufacturer's in-house TBS IPTV app for Android might turn out to be a slightly better option. It turns your Android smartphone or tablet into a streaming client and while it worked as intended during our test, it is a rather bare-bone solution and does not offer any added features like EPG, language selection or PVR functionality. If truth be told, the Xbox Media Center is the best available complement to the Moi Plus streaming box.

Due to the open software architecture of the Moi Plus streaming box it is entirely up to its users if and when individual software components are updated. And if you don't want to deal with that aspect at all you can always visit the TBS website from time to time, where the manufacturer offers an updated overall software package in regular intervals. Using it makes sure all relevant software components are kept up to date more or less automatically. All you need is a USB stick to which you can first download the update file and which then takes care of all the rest as soon as the Moi Plus streaming box is restarted after connecting the USB stick to it. Easy and reliable – just the way we like it.



**EXPERT
OPINION**

TBS Tenow MOI+
 Central Receiver for several TV

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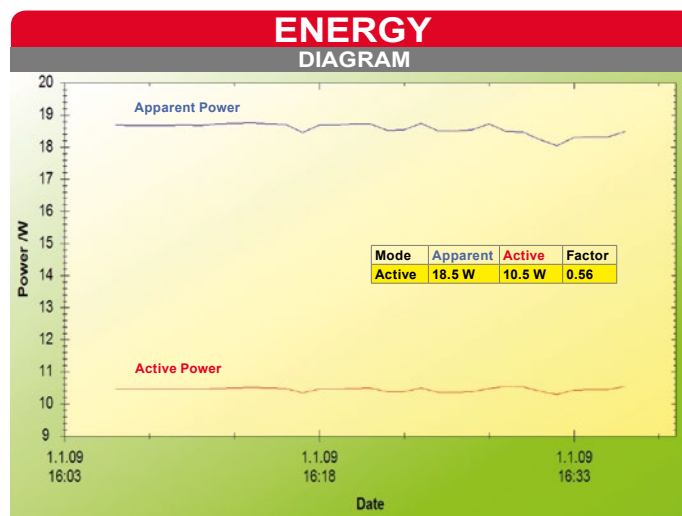
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+

- TBS has managed to implement complex streaming technology in an exemplary way.
- The Linux operating system offers enormous flexibility.
- Streaming can take place across the local network at home or the Internet at large.
- PCI-e slot technology is compatible with almost all TBS reception cards.
- Extensive range of pre-installed software.
- Easy set-up via web interface.

–

- None



MORE ABOUT THIS COMPANY

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COMPANY REPORT PC Card Manufacturer Tenow, China

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

Innovative PC Cards from China

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SATFINDER 5 HD Slim

- *measures DVB-S/S2 signals with NIT and fast realtime spectrum analyzers*
- *supports USALS and UNICABLE systems*
- *Update software and database via USB memory*
- *up to eight transponders can be received and presented simultaneously*
- *high-resolution display with very good readability*
- *pre-programmed transponder database can be edited right on the meter*





Handy, Practical, Precise

The new SATFINDER 5 HD Slim from Alpsat Elektronik is a decidedly small and handy satellite meter that only measures 18x10x4 cm and weighs no more than 0.8 kg – and that already includes the battery. All this makes it a perfect companion for use even in the trickiest of places.

Take it in your hand for the first time and your eyes will probably stay glued to the 3.5-inch TFT high-resolution (960x540px) colour display right away. It is one of those rare examples that provides excellent readability even in direct sunlight. Below the display the manufacturer has placed a total of 12 buttons for operating and controlling the SATFINDER 5 HD Slim. All of them come with easy to grasp labelling and some have more than a single function depending on the menu that is accessed.

The top side of the meter features a satellite IF socket for connecting the cable from the reception system, as well as a TRS socket that becomes a fully-fledged AV interface with the help of an adapter cable. On the bottom side you will find the 12V DC socket for connecting the external power unit/charger and a USB socket that can be used to update either the meter's firmware or the pre-installed satellite,

transponder and channel lists.

The integrated battery comes with a capacity of 2400 mAh and cannot be removed from the meter. It makes sure the SATFINDER 5 HD Slim stays operational for up to three hours before it needs to be recharged. Once that becomes necessary it does not take longer than two hours to reach full capacity again for mobile operation.

Alpsat Elektronik throws in a 12V DV power pack for use with the mains or a car power outlet, as well as a hugely practical protective cover with carrying strap and an F-type angled plug that allows rotating the satellite IF input by 90 degrees. Of course the meter is shipped with a user manual, and in this case it comes with helpful pictures and a useful overall layout. Working with this manual you won't need to be a pro for getting the knack

of this device, which is always a good sign.

Let's have a look now at what's inside this neat little device. Alpsat has opted for an 800 MHz processor that can draw on 8 MB of cache and 512 MB of RAM. In total, the SATFINDER 5 HD Slim boasts 5000 transponder entries, 8000 TV and radio channels and 250 satellite entries.

When you call up the main menu you'll see that it consists of two entries for basic settings – one takes care of all satellite-related settings, while the other one deals with all general settings. Those include the usual suspects, such as OSD language. You can choose between a wide list of languages: English, Turkish, German, Spanish, Russian, French, Portuguese, Arabic, Dutch, Italian, Greek and lastly Serbian. Further options are

the preferred unit for signal level measurements and video output.

An option we particularly appreciated was that the SATFINDER 5 HD Slim can be set to increase its LNB power supply by one Volt, something that is greatly beneficial with extreme coax cable lengths because it makes sure enough voltage arrives at those remote LNBs. Another solution worthy of special mention are the three available status menus that can be accessed to find out the current state of the RAM, the remaining battery capacity and the voltage supply to all available components.

Not only does the SATFINDER 5 HD Slim offer an extensive pre-programmed channel list, it also comes with excellent satellite and transponder entries that reflect the high effort put in by the manufacturer. A total of 159 European, American and Asian satellites are available, complete with





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for evaluating up to four transponders
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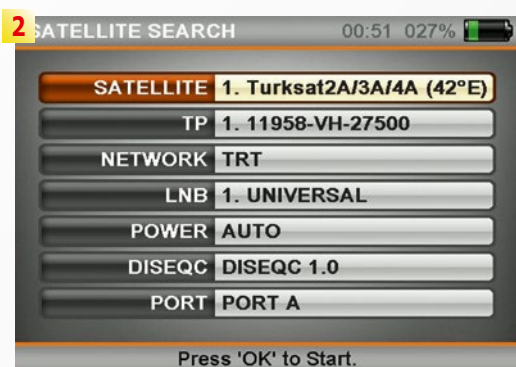


corresponding transponder data. What's more, all entries can be edited and new entries can easily be added directly on the meter – a welcome change from many other meters that require a PC to perform those tasks.

As far as LOF parameters are concerned, Alpsat went the whole hog and offers pre-set values for the Ku, Ka and C bands, as well as less frequently used LOFs and SCR frequencies. This adds up to almost 30 pre-programmed settings, and in case the one you're looking for is still not among them you're more than welcome to manually enter any valid frequency you may require.

Once all initial settings are completed we can now turn to aligning and optimising a satellite antenna. For a first approximate alignment the SATFINDER 5 HD offers a satellite search as well as spectrum mode. For both options it makes sense to first select the desired satellite on the list and then check whether all pre-set parameters are indeed correct. At this stage it is also possible to change the LOF and to activate DiSEqC commands. With the SATFINDER 5 HD supporting all DiSEqC protocols from 1.0 to 1.3 you obviously have all options and possibilities at hand to make full use of that feature. It is even possible

1. Main menu of the SATFINDER 5 HD Slim from Alpsat
2. Selecting the desired satellite from the comprehensive pre-programmed database
3. Signal measurement
4. Signal measurement with all relevant reception parameters
5. Pre-programmed channel list of the SATFINDER 5 HD Slim
6. All DiSEqC protocols are supported, including those for motor-controlled antennas
7. Spectrum display
8. Various spectrum display option
9. Selection menu in multi-transponder view
10. Multi-transponder view
11. Constellation diagram
12. Cross-polarisation measurement

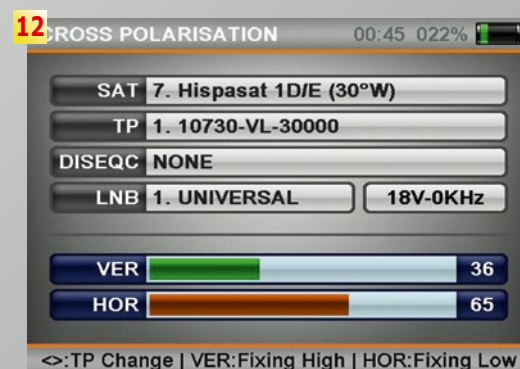
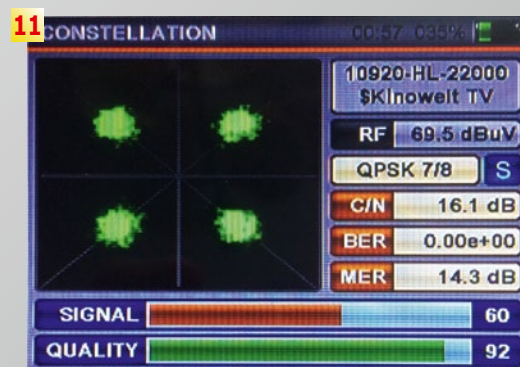
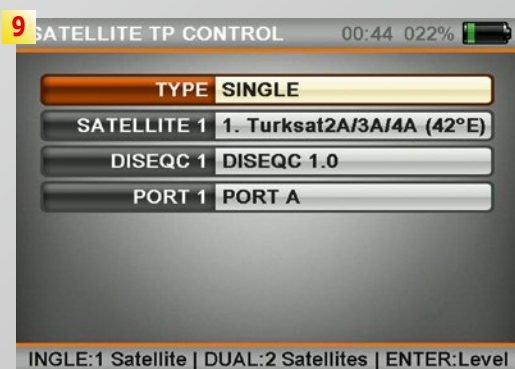
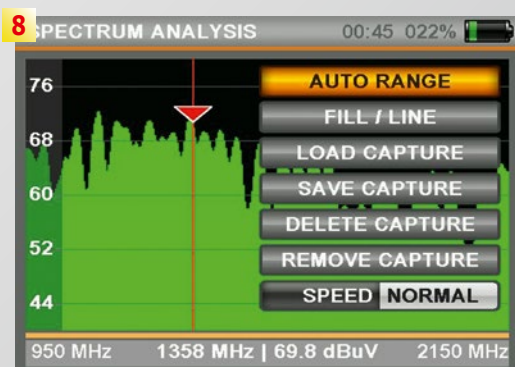
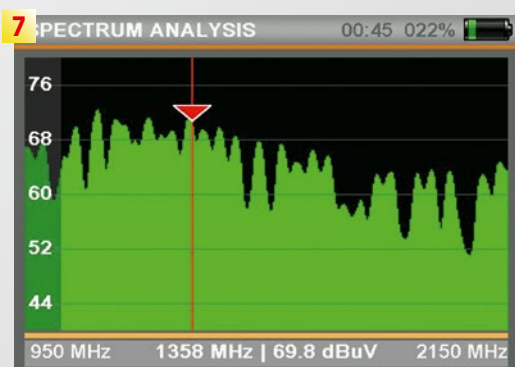


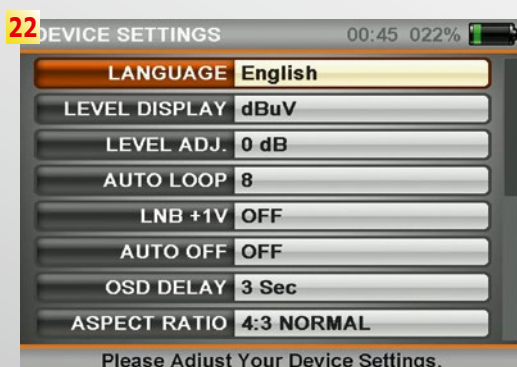
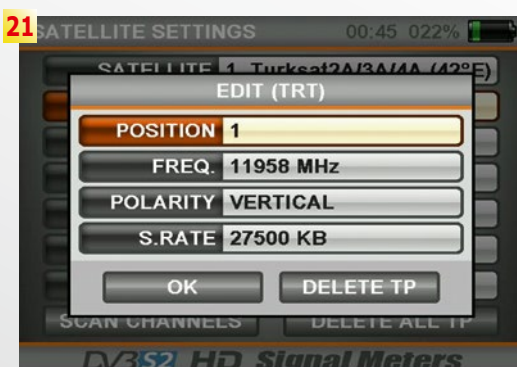
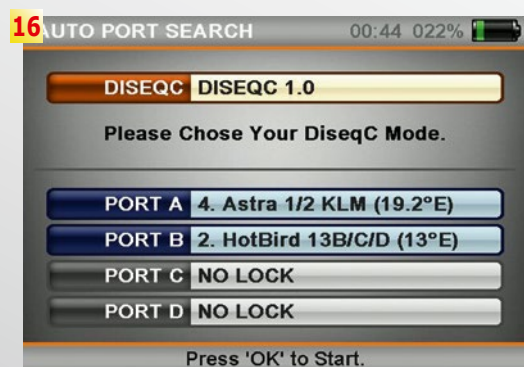
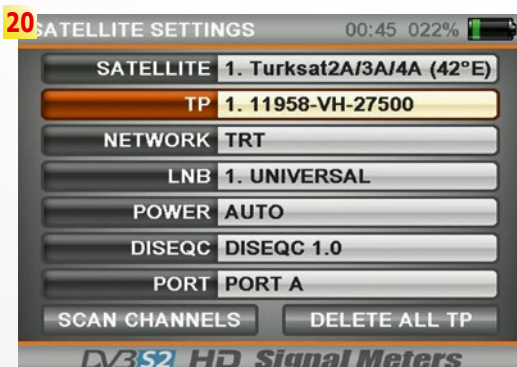
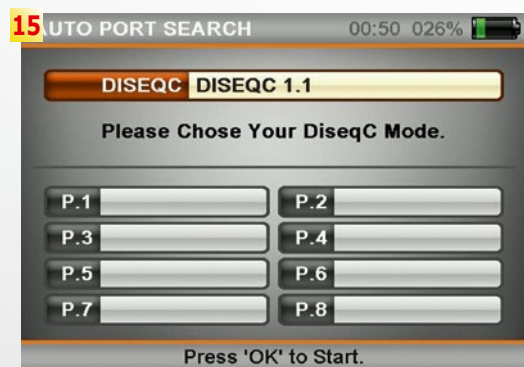
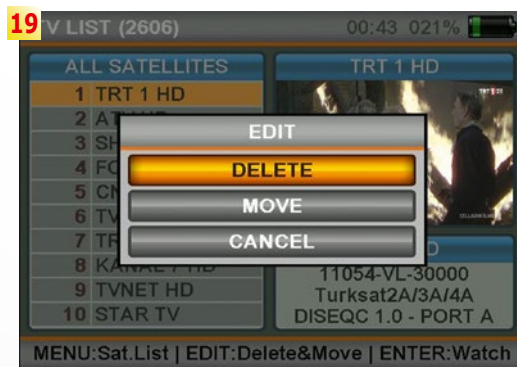
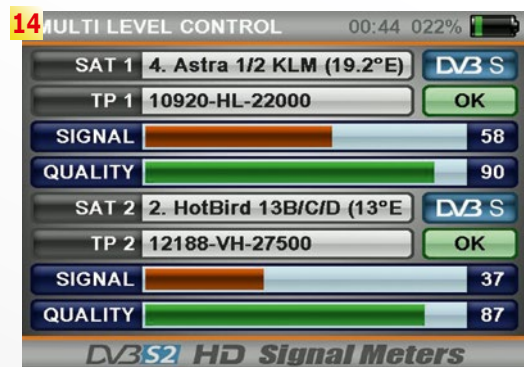
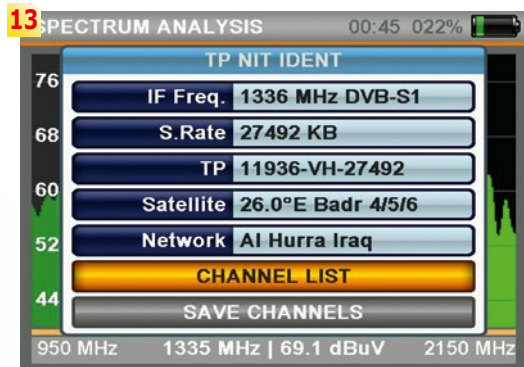
to manage the supply voltage to the LNBs according to your requirements. Either you leave it entirely to the meter – depending on the currently selected frequency – or you can manually select 13V, 18V, 21V, 13V+22kHz or 18V+22kHz.

After a touch of the OK button the SATFINDER 5 HD Slim will present the currently received signal spectrum right away. The selected frequency and the scale of the y-axis can easily be changed at any time using the cross-shaped navigation button. Once you have identified a signal peak you simply press the OK button again for the meter to analyse that particular frequency. It only takes a few seconds for the SATFINDER 5 HD Slim to find out the originating satellite and the channel provider, as long as those data are being transmitted in the NIT via satellite or are available in the internal memory of the meter. When you have found your target satellite using this method – which really worked like a treat in our test – you can then conveniently analyse and evaluate every single frequency with a satellite search.

When doing this, the SATFINDER 5 HD Slim does not only indicate signal quality and signal strength, but of course also C/N ratio, BER and MER. A thing we found very useful is an option to change the desired transponder, satellite or even DiSEqC setting right here and there, without needing to go back to where we started. What this means is that once the antenna is roughly pointing in the right direction, users can move on to fine-tuning the system. To that end, the SATFINDER 5 HD Slim has a number of tools available such as cross-polarisation measurements, constellation diagram and multi-transponder measurements.

What a cross-polarisation measurement does is help you receive signals from orbital





positions that are relatively far away from the southernmost reception spot of the antenna. The best possible reception level for both the horizontal and vertical polarisations can be achieved by rotating the LNB around its axis. While doing so, the SATFINDER 5 HD Slim continually measures the reception level of a frequency with 13V and 18V LNB supply voltage and indicates measured peaks for direct comparison. This way it is almost child's play to adjust cross-polarisation for optimum reception.

A constellation diagram provides visual clues regarding the received signal: The closer together individual image points are positioned and the closer to the centre of the diagram they are located, the fewer errors the received signal has. Apart from the constellation diagram itself, the SATFINDER 5 HD Slim also shows the C/N, BER and MER values, which is a great feature that supports the visual clues with hard facts.

One thing the SATFINDER 5 HD Slim is particularly good at is its satellite transponder control measurements, for which it offers two different modes: One looks at four transponders at a time, the other one checks out eight transponders. All reception parameters are presented both in a numeric and a visual way, which helps tre-

13. Automatic satellite and transponder detection
14. Multi-transponder view of two transponders on two different satellites
15. Both DiSEqC 1.0 and 1.1 are supported for Auto DiSEqC
16. It only takes a few seconds for Auto DiSEqC to correctly identify all connected signal leads
17. Channel list with live TV
18. Selecting the desired satellite for TV and radio reception
19. Editing the channel list
20. All satellite and transponder entries can easily be edited and new entries can be added at any time
21. Editing a transponder entry
22. System settings

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DVB S2/T2 HD COMBO+SPECTRUM+MER

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- ◆ MPEG-2/H.264 HARDWARE DECODING
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4.3 Inch High Definition TFT LCD Screen
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Digital meter for signal strength and quality
Supports scan of Auto,Blind,Manual or NIT
Sound and Light Alarm for Locking Signal
Auto Calculate Angle of AZ,EL
Supports DISEQC 1.0/1.1/1.2,0/22khz Tone
Speaker Integrated
Support both AV out and AV in
LNB short protect
7.4V/3000mAh Li-Ion Battery Included
Software upgrade via USB port
Easy to carry



WS-6933

DVB-S2 Satellite Meter

Input Impedance 75Ω
Measurement Type:signal strength,
quality;ber;pwr
Sound for Locking Signal
Support DISEQC 1.0/1.1 and 22khz Tone
LNB Power Supply:18/13V(I Max 300mA)
Beep Integrated
7.4V/800mAh Li-Ion Battery Included
Max Operating Time:3 hours
12V/1A DC Adapter
USB Port For Software Upgrades



WS-6966

DVB-S/S2;MPEG4;

4.3 Inch High Definition TFT LCD Screen
Constellation analyzer
Spectrum analyzer
HDMI Port
DC 12 output for extern equipment,
Sound and Light Alarm for Locking Signal
Auto Calculate Angle of AZ,EL
Support both AV out and AV in
7.4V/3000mAh Li-Ion Battery Included
Software upgrade via USB port



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mendously with aligning an antenna using transponders with varying signal strength. And that's not even the best part: This simultaneous presentation of different transponders' parameters is not restricted to one satellite at a time, but can be used with two satellites – which is to say the SATFINDER 5 HD Slim can present up to eight transponders from two

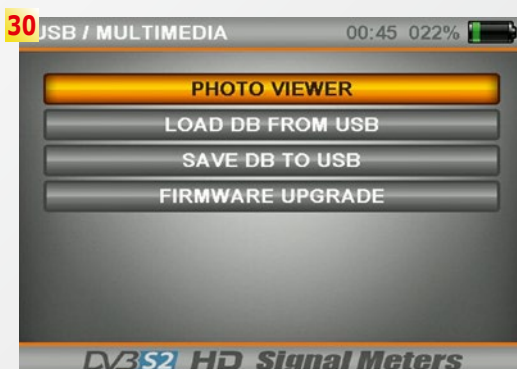
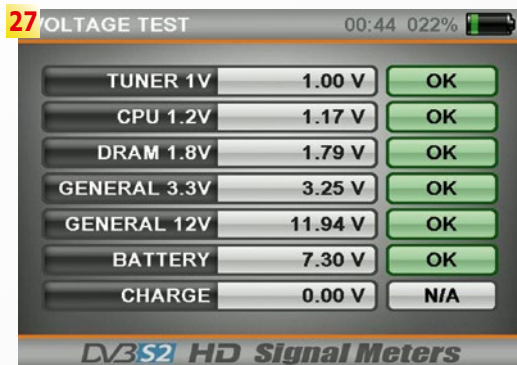
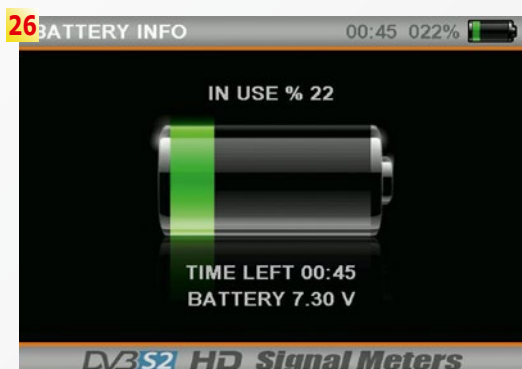
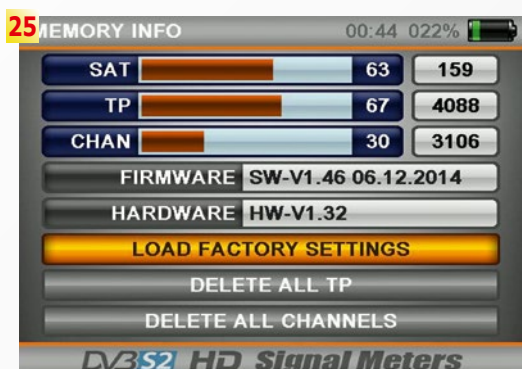
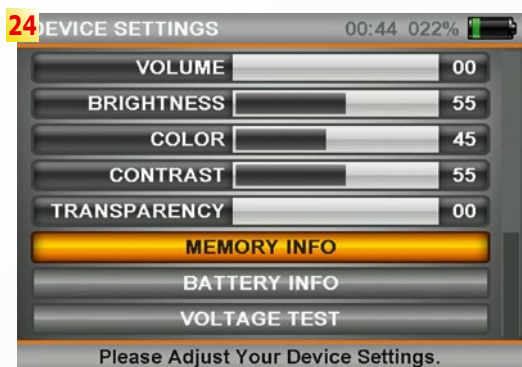
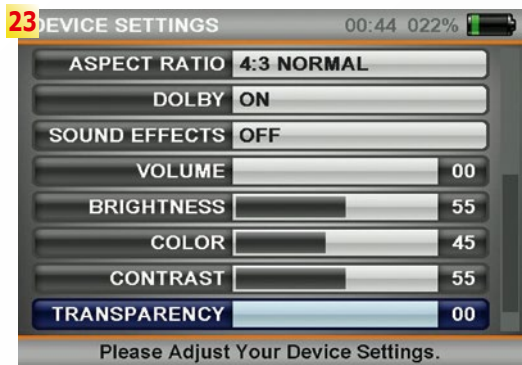
satellites simultaneously! This can truly take the horror out of aligning a multi-focus antenna, which is an awesome achievement. Please note, however, that the meter takes some five seconds until the reception parameters of all eight transponders are refreshed, so you should make a point of moving the antenna slowly and only one step at a time. We also

noticed that some pre-stored transponder data were out-of-date so we strongly recommend you first check and – if necessary – update all data before performing a multi-transponder measurement.

Another feature you may want to look at is Auto DiSEqC. Using it the SATFINDER 5 HD Slim will detect all satellite positions whose signals are led to

the individual ports, no matter which DiSEqC protocol is used. If you have to deal with large-scale distribution setups and complex DiSEqC configurations on a regular basis, Auto DiSEqC will significantly reduce your workload.

After we had looked at all features and functions of the SATFINDER 5 HD Slim in theory and from the comfort of our test center, it was time to wander outside to our antenna farm. There we have a number of offset antennas, some of them motor-controlled. Using the new SATFINDER meter we wanted to find out how it performs in a real-world job. The first thing we noticed was that the display remained perfectly readable even after rays of sun had found their way through the cloud cover. If truth were told, the contrast of the display is best when out of the sun, but we were definitely able to clearly read all content even in direct sunlight. As could be expected, antenna alignment was an absolutely hassle-free affair, with the spectrum display reacting very swiftly to all signal changes. This meant we were able to speed up antenna movement along the Clark Belt without risking missing a satellite position. And while we're at it: We did pause at regular intervals so that the SATFINDER 5 HD Slim could take a moment to analyse the odd signal peak in the spectrum. As a matter of fact, the meter correctly identified five of the six



23. System settings

24. Three dedicated menu items of the SATFINDER 5 HD Slim provide details on internal memory use, battery state and voltage supply

25. Information on the internal memory

26. Information on the battery

27. Information on the power supply

28. DVB-S SDTV reception

29. DVB-S2 HDTV reception

30. The USB port can be used to present pictures on the meter's display, to update and save the pre-programmed databases, and to perform an update of the operating system

transponders we threw at it.

Fine-tuning the antenna alignment went just as smoothly. With the help of multi-transponder measurements of two, four or eight transponders at a time it was child's play to add an additional LNB to our Wavefrontier antenna. But this feature also proved its worth when it came to setting up a conventional ASTRA 19.2° East/HOTBIRD 13° East combination.

After all this praise the question remains whether the actual measurement results provided by the SATFINDER 5 HD Slim are also accurate. Well, we matched them to the results given out by one of our professional meters and could not detect any significant deviation. Obviously, the data are not 100% identical, but the difference always stayed within a tolerable margin. Dif-

ferent hardware components alone account for some of the deviation.

And we're still not fully done yet. The SATFINDER 5 HD Slim sports fully-fledged TV and radio reception functionality for SD and HD channels coming in as DVB-S or DVB-S2 signals. So if need be, the SATFINDER 5 HD Slim can easily be used as a mobile satellite receiver whenever you're out and about. You should bear in mind, however, that the built-in display of the meter can present pictures from external sources, but not video and music.

To sum up, the SATFINDER 5 HD Slim from Alpsat Elektronik fully met out expectation and then some. What we particularly loved was the tuner's swift reaction to all signal changes, as well as the multi-transponder view.

EXPERT OPINION

SATFINDER 5 HD Slim
Hand-held Satellite Meter

RECOMMENDED
PRODUCT BY ▼



TELE-audiovision
THE WORLD'S LEADING DIGITAL TV INDUSTRY PUBLICATION



Thomas Haring
Test Center
Austria

VIP

CARD

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www.TELE-audiovision.com

- +**
 - Comprehensive pre-programmed transponder database
 - Swift reaction of the tuner to changing reception parameters
 - Multi-transponder display
 - Accurate signal measurement
 - Very light and handy
 - Wide range of features, including and radio and TV reception for HD and SD channels
 - Preprogrammed transponder database is updated every 3 months at www.satfinder5.de
- - Tools are required to exchange the built-in battery



- *Professional test modulator for virtually any digital modulation standard*
- *Unique support for all bands: VHF/UHF and L-Band*
- *Configurable signal quality and error injection to simulate threshold conditions*
- *Fully compatible with DekTec API and product line*
- *Plug&Play for Windows*
- *Support for Linux*



DekTec DTA-2115



How should you test a receiver?

One way would be to pack the receiver in a suitcase, fly straight to the installation location so that you can take the signals you want to receive and plug them directly into the receiver on-site. Most of the time, this isn't a very practical solution and it is most definitely not very efficient.

It would be much better if you could create the signals yourself. And this is exactly what DekTec had in mind when they developed their line of test modulator products. Back in the 12-01/2012 issue of TELE-audiovision we introduced the USB modulator DTU-215 Gold. Now there's a new product: the DTA-2115 PCI Express card.

It unites for the first time the modulation of digital signals in the VHF/UHF range with (and here's the best part) the L-band that is used for satellite signals.

This makes it possible to generate test signals for terrestrial, CATV and satellite receivers with just one PC card.

Sure enough, a continuous frequency range from 32 MHz to 2186 MHz is supported with a maximum bandwidth of 72 MHz.

Since we are dealing here with a „Software Defined Modulator“, nearly every known form of modulation is supported regardless of the frequency. This is unique.

A receiver manufacturer

just needs a TS stream, preferably recorded in the region where the receiver will be used. This can then, with the DekTec modulator at a desired frequency and a desired modulation, be fed into a coax cable that is connected to the input of a receiver. And that's it. The manufacturer can now adjust at leisure the receiver's hardware and software until the signal is correctly demodulated.

And this is exactly how bugs can be found. In one of our TELE-audiovision tests we discovered that the receiver could not correctly process the NIT ta-

ble from TV Cabo. Since the manufacturer had a DekTec modulator, we were able to record the transport stream and send it to them via FTP. This allowed the manufacturer to reproduce the error using the original transport stream and then correct the firmware.

Another perfect application for the DekTec modulator would naturally be at trade shows, where the necessary signals are not available. How are you, for example, supposed to be able to demonstrate a DVB-T2 receiver at the CES in Las Vegas? It's very simple: you record a transport stream in



DekTec DTU-215 Gold Edition

- Professional modulator for nearly every digital modulation standard
- Ideal for use as a test signal modulator, for example, for receiver manufacturers
- Capable of modulating transport streams as well as test signals
- Fully compatible with all HD standards
- Plug&Play for Windows PC

<http://www.TELE-audiovision.com/TELE-satellite-1201/eng/dektec.pdf>



VIP Card

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The World's Leading Digital TV Industry Publication

TELE-audiovision AWARD 05-06/2015

DekTec DTA-2115
Makes it so easy to test any receiver
with virtual signals

www.TELE-audiovision.com/15/05/dektec



DVB-T-T2-C Receiver

Fields of application:

- ✓ feeding headends with DVB-T, DVB-T2 or DVB-C signals over ASI or IP
- ✓ as a measuring receiver for DVB-T and DVB-T2 transmitters or CATV headends using DVB-C modulation
- ✓ streaming IPTV signals



Professional receiver for DVB-T, DVB-T2 and DVB-C signals, equipped with Common Interface, with one ASI and four IP outputs per receiver which makes it equal to 6 receivers in one.

Features:

- ✓ 1, 2, 4 or 6 tuner in one frame
- ✓ receiving DVB-C, DVB-T and DVB-T2 signals
- ✓ with or without Common Interface
- ✓ separated web based management
- ✓ IP and ASI outputs
- ✓ SPTS (Single Program Transport Stream) or MPTS (Multi Program Transport Stream) outputs
- ✓ receptacle for SFP (Mini GBIC) module
- ✓ VLAN tagging
- ✓ FPGA circuitry
- ✓ available for 24 V and 48 V, too



H-1116 Budapest, Kondorfa utca 6/B
H-1519 Budapest, Pf. 418.
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Fax: +36 1 204 7839
cableworld@cableworld.hu
www.cableworld.eu



advance and then modulate it on location with the DekTec Modulator. In this way you can also save on the costs to lease TV signals at a trade show - this alone could quickly let the DekTec Modulator pay for itself.

The DTA-2115 arrived in our test center in a small box. Inside we found the PC card as well as a USB memory stick. The PC card was professionally packed in an anti-static sleeve surrounded by foam padding. The USB stick was loaded with all of DekTec's applications which at first might seem somewhat excessive since most of them were not specific to the DTA-2115 and in some cases required individual licenses.

Yet it does make sense that DekTec supplied a USB stick with so many applications stored on it; the PC can be outfitted with any DekTec hardware without having to rely on an Internet connection. In locations such as production facilities, mobile head-end stations, trade shows, etc., Internet may not always be available.

Installing the PC card was managed without any problems. The PC housing was opened, the card was inserted into an available slot and the mounting screw was

secured without any difficulties. With other cards, it occasionally becomes necessary to shift or slightly manipulate the card so that it can be inserted correctly. This was not the case with the DTA-2115.

The card was properly recognized by Windows 8.1 and was immediately available for use after the drivers were installed without a PC restart. A little tip for you: DekTec software and drivers should always be installed with Administrator rights (right mouse button - „Run as Administrator“) otherwise the installation may not always work.

Of course we had to try the card out right away; we connected a coax cable from the DTA-2115 output to a normal satellite receiver. Using the StreamXpress software, a TS file was selected and the DVB-S2 modulation was chosen. Now we simply entered the desired frequency and then started the creation of the signal.

This was all very easy to do, so much so that we really didn't need any documentation. After a manual scan on the receiver, the test transponder was quickly identified and displayed.

At this point we still had our doubts regarding the

enormous frequency range that the DTA-2115 supports so we connected a DVB-T box and also a DVB-C receiver. In order to test this, we simply switched the modulation mode while running from DVB-S2 to DVB-T or DVB-C while at the same time setting a proper frequency.

It quickly became clear that this PC card won't be removed from our PC anytime soon; it is just far too practical to have many different signals available on just one coax cable.

To test the requirements of receiver manufacturers more closely, we recorded transponder streams from a variety of different providers and modulated them with the DTA-2115. We wanted to find out in particular if encrypted transponder streams could be correctly decrypted after being modulated with the DTA-2115.

We, therefore, recorded a Fransat transport stream (Eutelsat 5 West A at 5.0W - Transponder KB3: DVB - 11554 V SR 29950 FEC 7/8) using a normal DVB-S2 card and then modulated that signal with the DTA-2115 and connected the output signal to an official Fransat receiver with an active SmartCard. The receiver decrypted the

signal without any problems and you could not tell the difference between this signal and the original.

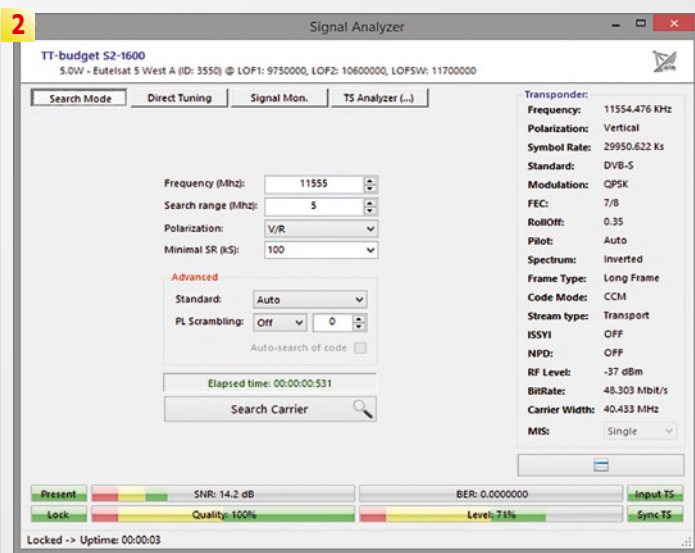
In the same way an NOS transponder (previously known as TV CABO) was recorded using a signal analyzer and then modulated in DVB-C with the DTA-2115. Once again, the official NOS cable receiver had no trouble processing the signal.

For receiver manufacturers this is a blessing; receivers can be developed all the way up to mass production regardless of where the receiver will ultimately be used.

The DTA-2115 is not just a plain test modulator on a PCI-e card, it is an actual laboratory instrument in that it can produce signals in the highest possible quality.

The fact that DekTec developed this PC card also for R&D and test labs, can be seen in the number of available connections. In addition to the standard 75 Ohm „F“ connector from which a -45 dBm signal is provided, there's also a 50 Ohm SMA connector. Here a signal from -50 to 0 dBm (depending on the modulation used) can be provided.

With professional TV equipment it is typical to use an external 10 MHz signal for



perfect synchronization. The DTA-2115 also shines brightly here; there are two 50-Ohm BNC connectors available to provide 10 MHz/1pps input signals. This could be important, for example, when testing SFN networks where different antennas transmit synchronously on the same frequency. This makes the DTA-2115 also interesting for use in broadcasting applications; it supports a frequency range of 32 MHz to 2186 MHz and the symbolrate can be set from 0.088MBd to 85MBd. It has a maximum bandwidth of 72 MHz.

The DTA-2115 is available in two different versions; the hardware in both versions is the same, just the included licenses are different.

The DTA-2115-SP supports the following modulations: ADTB-T, ATSC, DVB-C, DVB-H, DVB-S, DVB-S2, DVB-T, QAM-B and QAM-C.

How to capture a Transport Stream

1. One way to obtain a transport stream is to simply record one. This is what most users want to do anyway, because such a transport stream is required to test or demonstrate a receiver with authentic data. To grab a transport stream I used the EBSpro software, which is popular amongst DX enthusiasts. The first step consists in tuning to the desired satellite and polarisation and do a spectrum scan.

2. Next just double click on the preferred transponder. The Signal Analyser will try to automatically tune into the signal and upon success it will show all reception parameters.

3. EBSpro even features an integrated TS Analyser, which shows all services available in the transport stream of the current locked transponder.

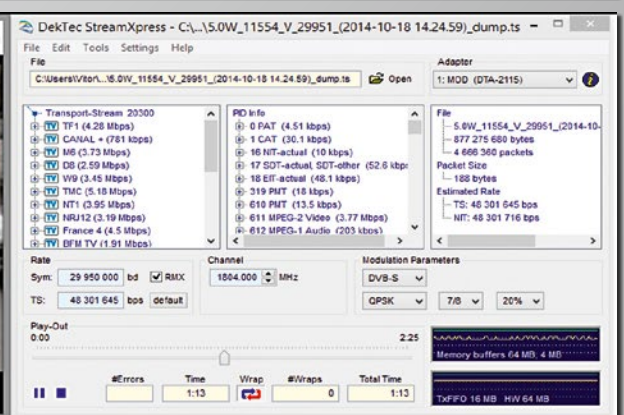
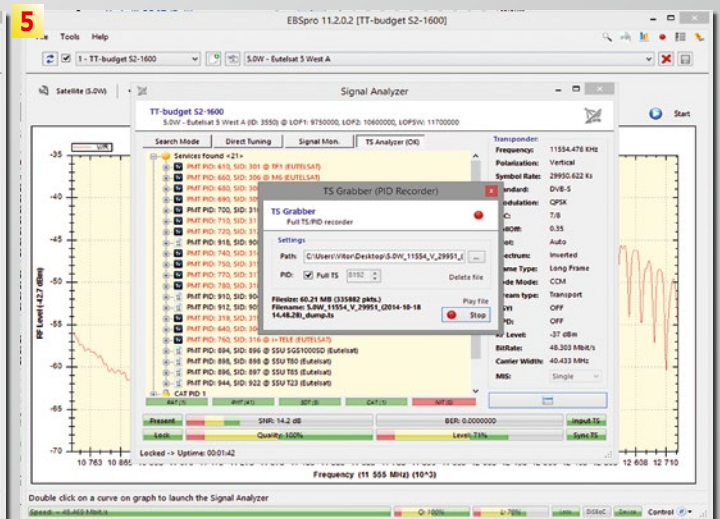
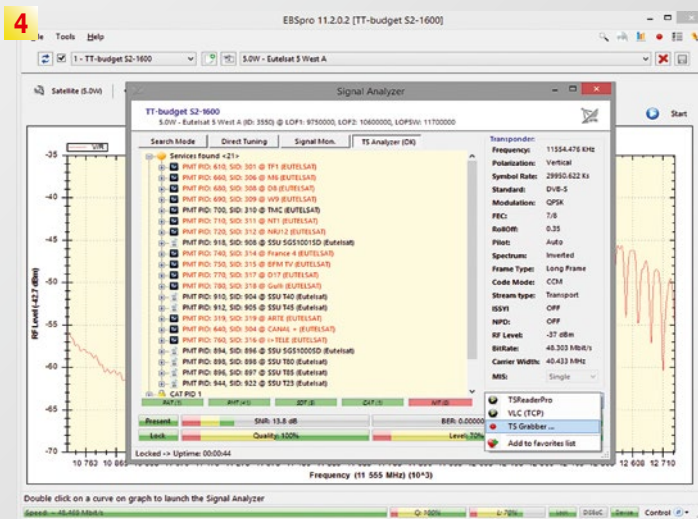
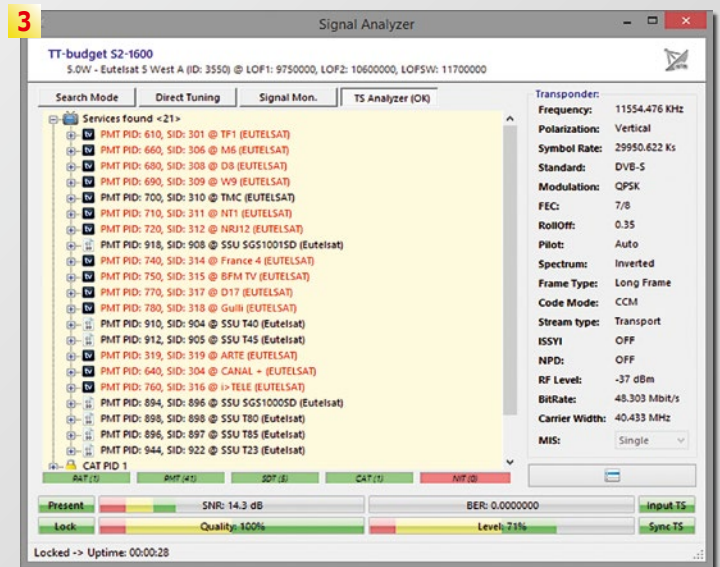
4. Further options include the visualization of the stream with VLC or TSReaderPro, which are certainly familiar tools within our readers. Also, you can just use the TS Grabber option. This simply writes the transport stream to a file: exactly what we need. In this case I am recording a transport stream

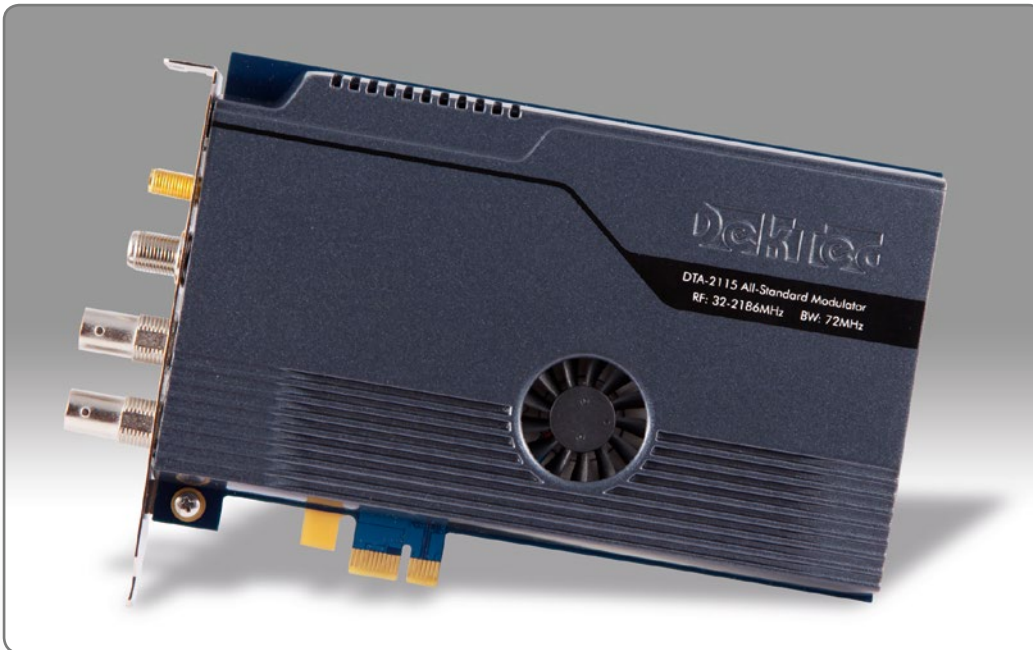
for my test from Eutelsat 5 West A. The transponder is used by Fransat, a French bouquet that transmits with Viaccess encryption.

5. Recording is started and terminated manually. I normally record 1 minute, sometimes 5 minutes. If you do recordings shorter than 1 minute, you will find that the contained transport stream gets looped too quickly and you don't have enough time on the receiver to make the required tests. A side note: the StreamXpress software can loop the transport

stream file automatically, but naturally there is an interruption with each loop, as the tuner must wait for new headers. This takes about 3 seconds and can be annoying with too small transport stream files.

6. Once the recording is terminated you can start StreamXpress, select the file you just created and output a transponder. The picture shows the image grabbed from the official Fransat satellite receiver next to the StreamXpress window.





With the DTA-2115-GOLD that we tested, the following modulations are possible: ADTB-T, ATSC, ATSC-M/H, CMMB, DAB(+), DMB-T/H, DVB-C, DVB-C2, DVB-H, DVB-S, DVB-S2, DVB-S2X, DVB-T, DVB-T2, I/Q, ISDB-S, ISDB-T, QAM-B, QAM-C, and T-DMB.

All of the available modulation types can be set to any desired frequency. You can, for example, take a DVB-S2 signal and output it on a standard CATV frequency.

Normally you'd want to be able to receive perfect signals. When it comes to testing a receiver and its error correction, it can be extremely critical to have the ability to influence the signal quality.

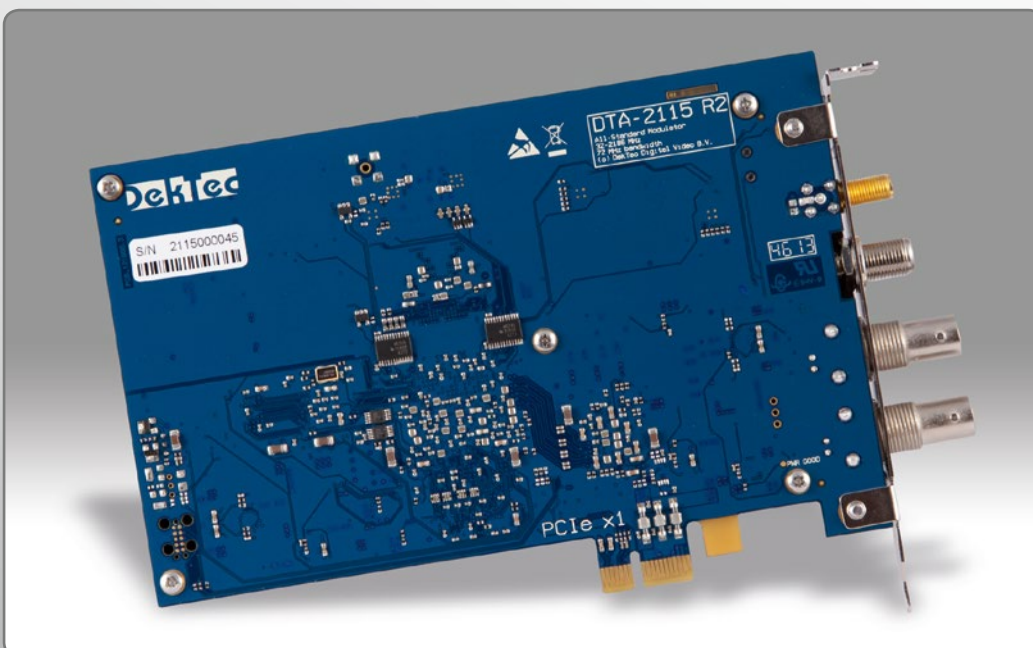
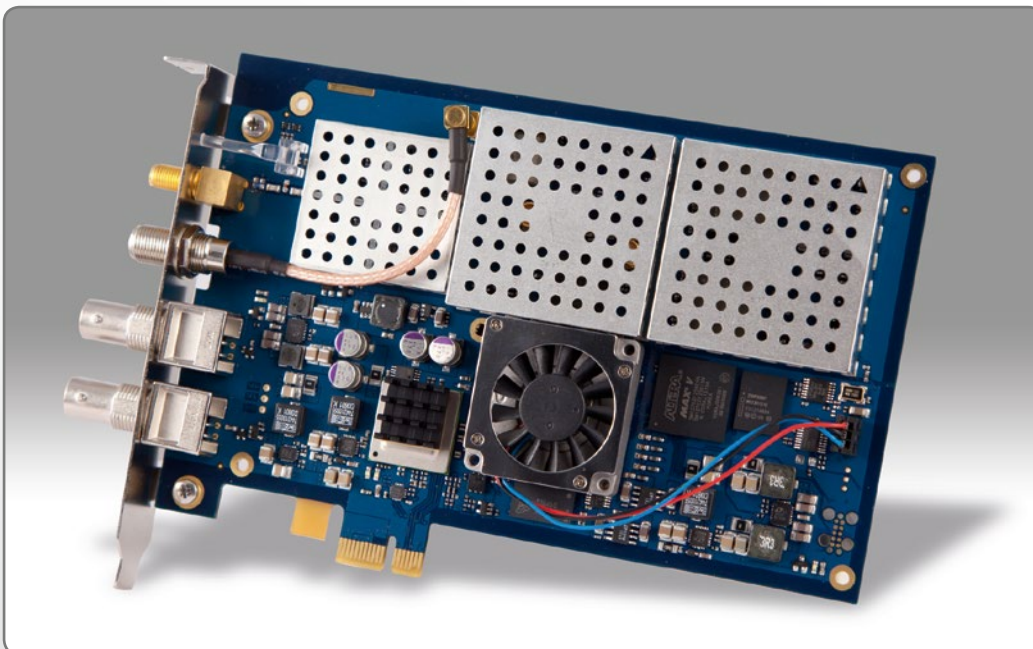
The included StreamXpress software makes it possible to inject errors in the modulated signal. Lost packets, bit errors and byte errors can be generated independent from each other. The errors are created statistically, that is, one error in x packets where x is specified by the user.

In the case of Bit and Byte, errors can be given a maximum value of error bits or bytes per packet so that the error correction algorithm can be tested to its limit.

Naturally, the signal level at the 50-ohm output is adjustable between -63 dBm and -3 dBm in 0.5 dBm steps. Additionally, the signal-to-noise ratio function can be turned on. It can be set between 0.0 dB and 30.0 dB.

In the 05-06/2014 issue of TELE-audiovision we reported on the DekTec API and showed how easy it is to develop your own uses for DekTec hardware in order to create individual test systems.

If, for example, receivers need to undergo a quality test at the end of the manu-



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**NEW
PRODUCT**



● TsingHwa 278A25 · UHF BOOSTER · 25dB

- Frequency Range (MHz): 470 ~ 820
- Gain (dB): 25 min.
- Gain Control (dB): 15 typ. 14 min.
- Noise Figure (dB): 1.6 min.
- Output Level (dBuV): 95 min.
- Impedance / Connector: 75Ω / F Female
- DC Power Consumption: 13±1 VDC, 70mA max.

Features:

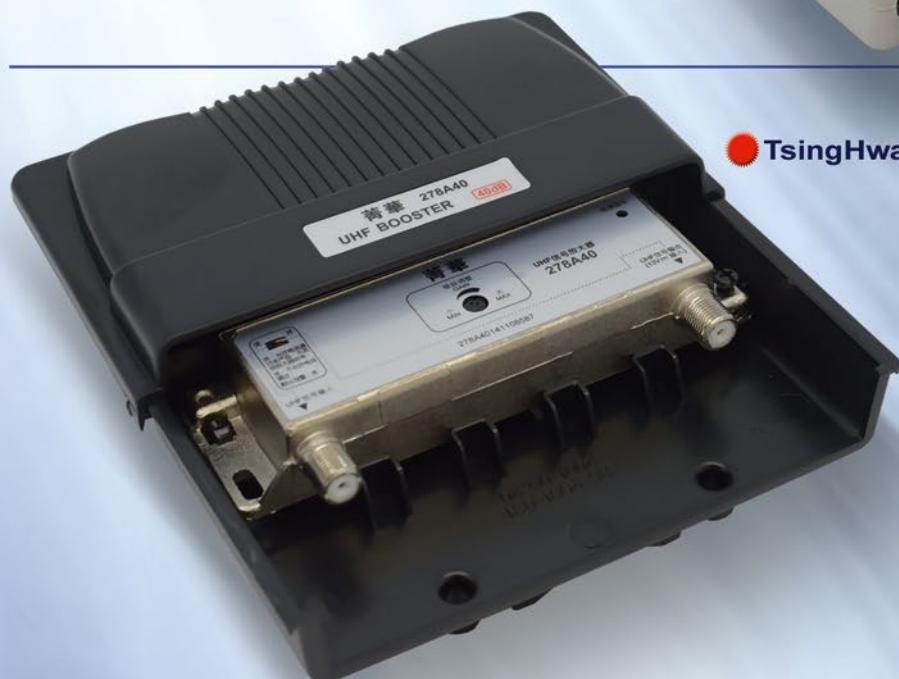
- Designed for DTT (DVB-T/T2, ISDB-T, ATSC, DTMB) signal amplification
- SMD Technology Circuit design achieves high stability
- Gain control function
- Ultra Low Noise
- LED display power on
- Zinc die-casting housing for excellent RFI shielding, additional ABS plastic shelter offers weather resistant for use

TsingHwa - TV SPLITTER ●

- Frequency Range (MHz): 40 ~ 860
- Impedance / Connector: 75Ω / F Female
- Output Voltage / Current: 13±1 VDC, 300mA max.
- Power Requirements: 100-240~, 50/60HZ, 5W

Features:

- 2 Ways signal output Design (TV 1 and TV2)
- Input / output impedance 75Ω, F connector
- High reliable, wide operating range (100-240V~) switching power supply
- LED display power on



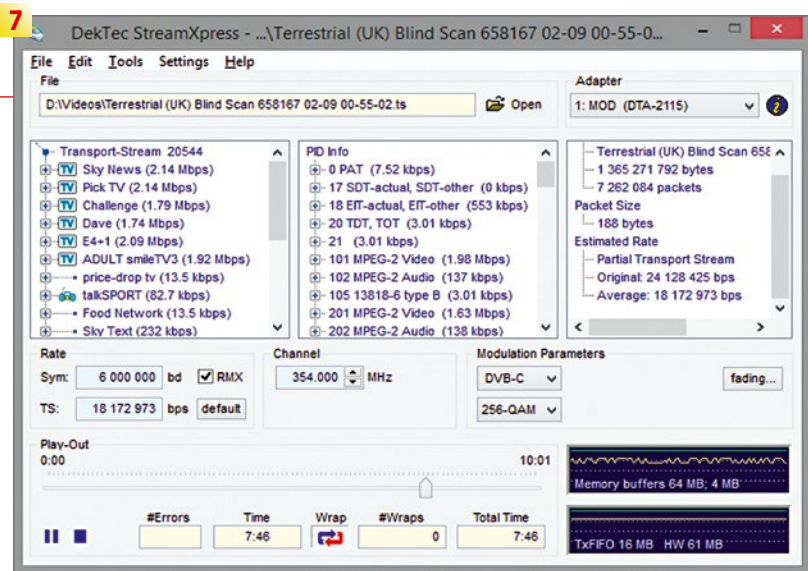
● TsingHwa 278A40 · UHF BOOSTER · 40dB

- Frequency Range (MHz): 470 ~ 820
- Gain (dB): 37 typ. 35 min.
- Gain CONTROL (dB): 15 typ. 14 min.
- Rejection (dB): 820 ~ 870 > 20
- Noise Figure (dB): 2.0.
- Output Level (dBuV): 105 min.
- Impedance / Connector: 75Ω / F Female
- DC Power Consumption: 13±1 VDC, 90mA max.

Features:

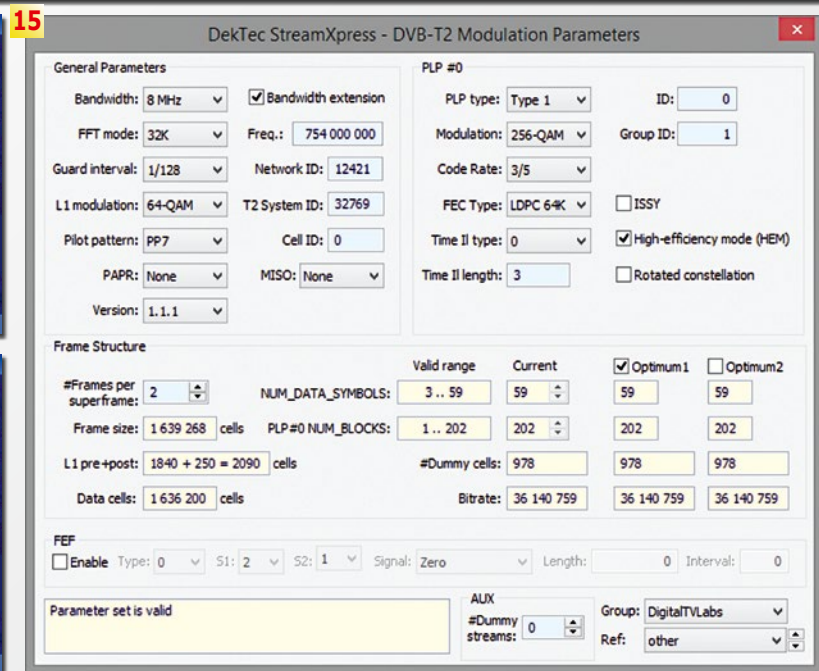
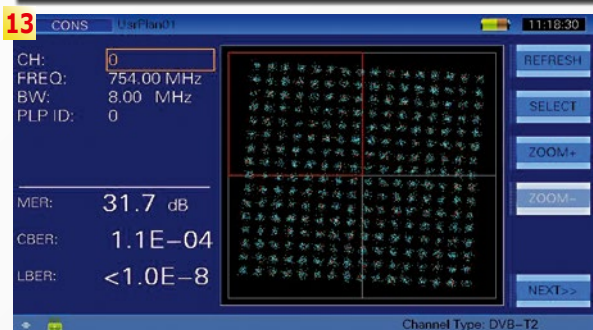
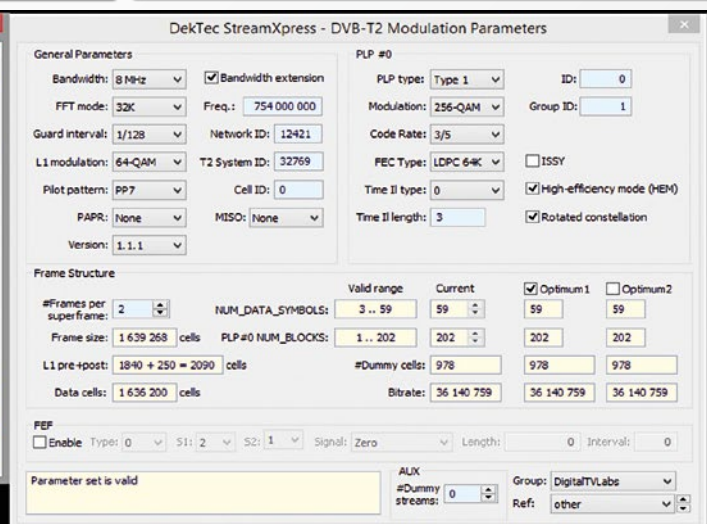
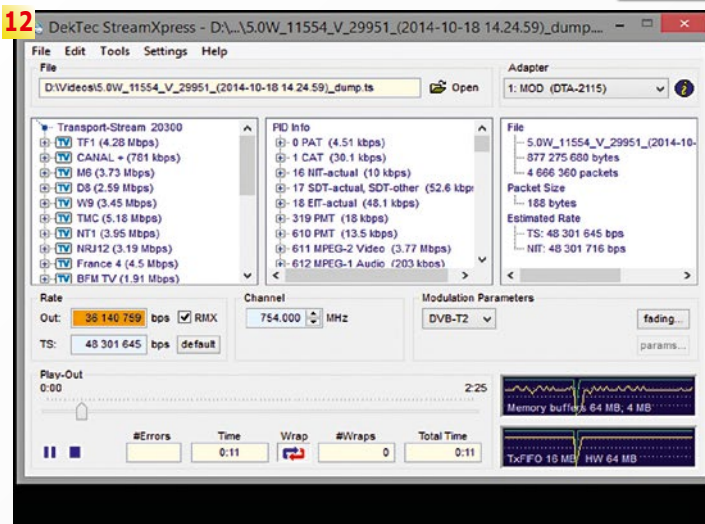
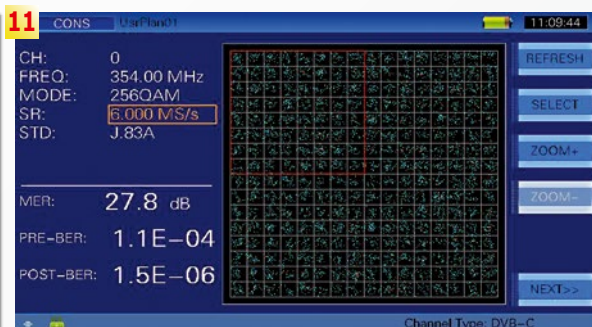
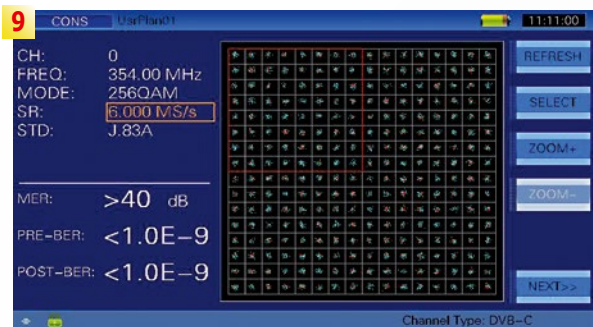
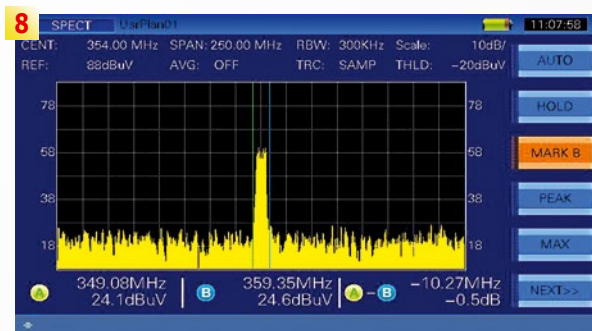
- Designed for DTT (DVB-T/T2, ISDB-T, ATSC, DTMB) signal amplification
- SMD Technology Circuit design achieves high stability
- Gain control function
- Ultra Low Noise and unique DC pass function
- LED display power on
- Zinc die-casting housing for excellent RFI shielding, additional ABS plastic shelter offers weather resistant for use

<http://aluosat.taobao.com/>



DekTec

Results with the Deviser Signal Analyzer



7. First test: modulating a DVB-C transponder with 256-QAM at 354 MHz.

8. The transponder generated by the DTA-2115 is clearly visible in the spectrum.

9. The field meter shows the corresponding constellation diagram, the signal is locked with no problem. This is nice to test a receiver or to analyse the content, however, the signal is unrealistically good.

10. DekTec allows to control the SNR of the signal. Introducing a random background noise will produce a more realistic constellation and gives the tuner some work.

11. The field meter can still lock onto the signal, but now the bit error correction has some work to do.

12. Second test: modulating a DVB-T2

transponder with 256-QAM and rotated constellation. StreamXpress offers a whole window with access to practically all parameters for DVB-T2. Thankfully DekTec included useful default settings.

13. The field meter could lock to the signal without any problem. The result is a perfect tilted constellation diagram.

14. This constellation diagram looks more realistic... I activated the SNR functionality on the StreamXpress software. Notice the slightly lower MER.

15. DVB-T2 does not necessarily use a rotated constellation. On the advanced DVB-T2 settings panel you can turn this off.

16. Here we see the resulting DVB-T2 constellation diagram without rotation.

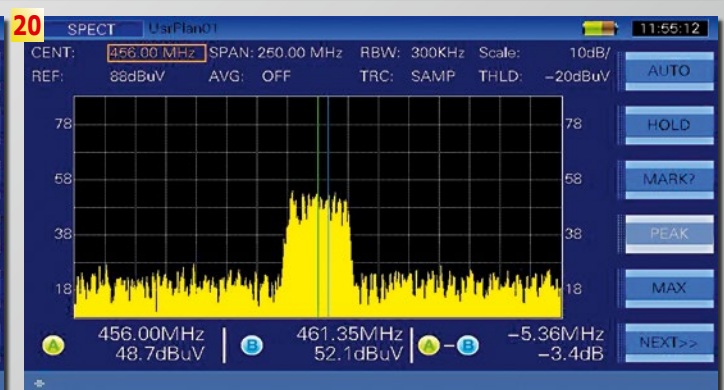
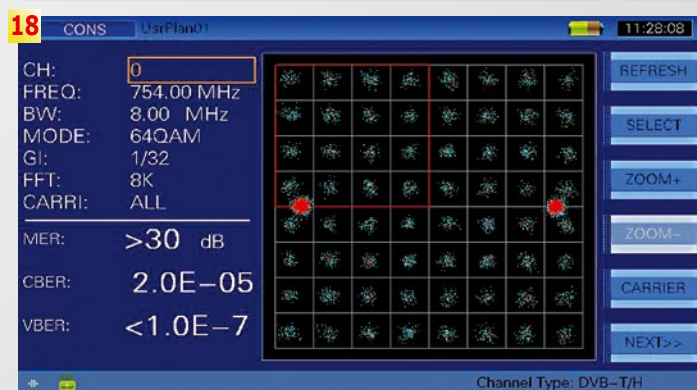
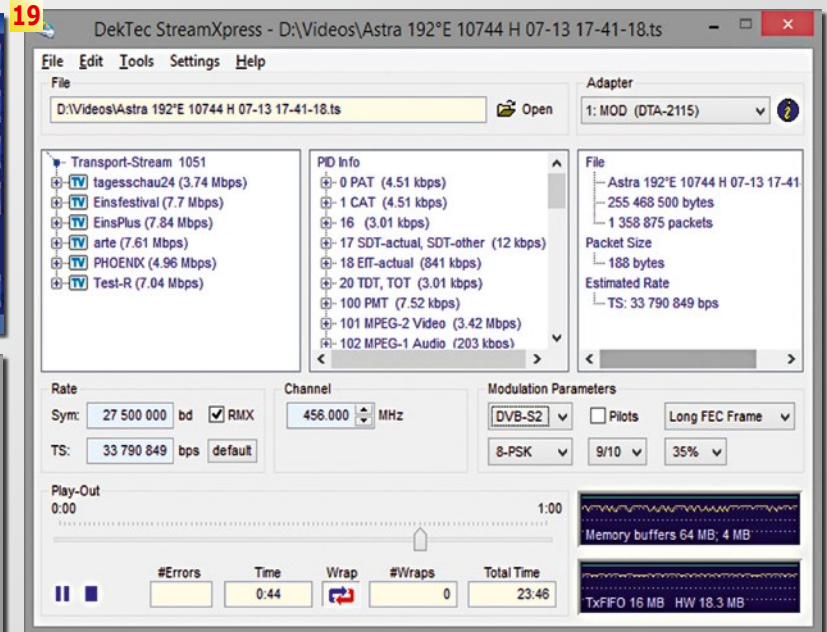
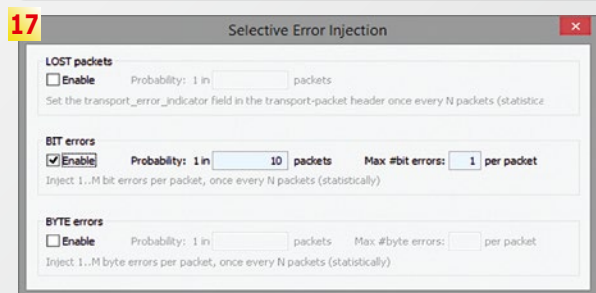
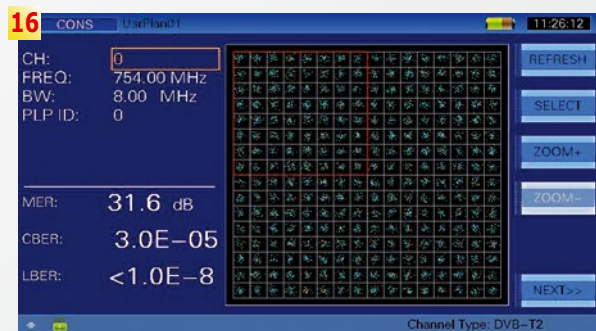
17. To test error handling, the

StreamXpress software allows to introduce errors. This can come in very handy, when error correction algorithms need to be tested.

18. Another test: generating a DVB-H transponder. I do not receive such signal in my location, so it is good to be able to rely on the DTA-2115 to obtain such a signal, when DVB-H receivers have to be tested.

19. Any modulation can be generated. To test this, I modulated a DVB-S2 8-PSK signal at the unusual frequency of 456 MHz.

20. The field meter shows the generated transponder on the spectrum. I don't have a suitable receiver to demodulate this transponder, but this shows how R&D departments could explore new frequency and modulation combinations.



facturing process, special software could be developed that at the touch of a button could play back one transponder stream after another at different frequencies. The technician would not need to do anything special in the StreamXpress software and there would not be any mistakes that would have come from entering wrong frequency information. Even though we're not

professional programmers here in the test lab, we were easily able to create test software like this in a short amount of time. This shows how the well-thought out DekTec concept offers unlimited possibilities. Thanks to the open and documented API, the new DTA-2115 can also, as expected, be integrated into user-defined applications.

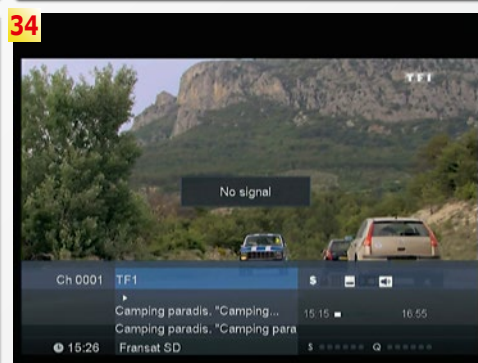
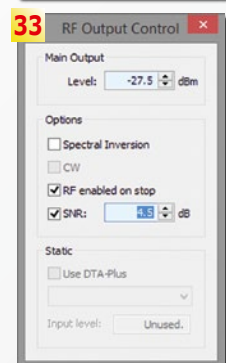
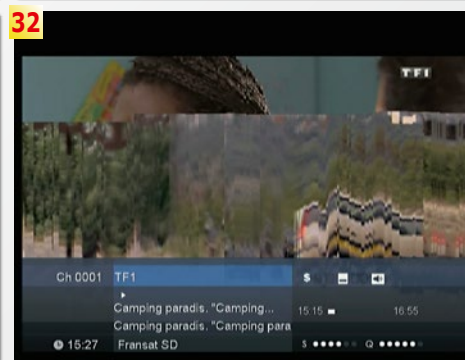
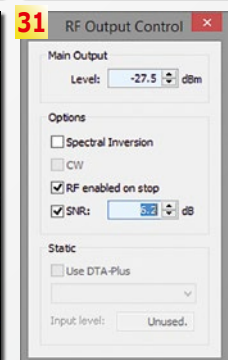
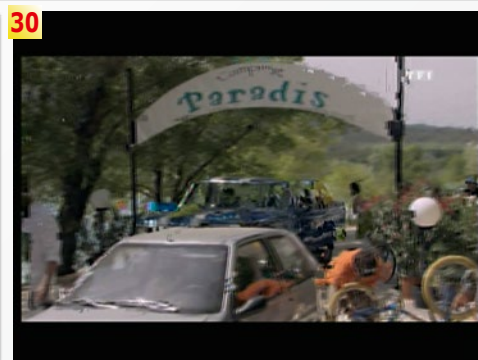
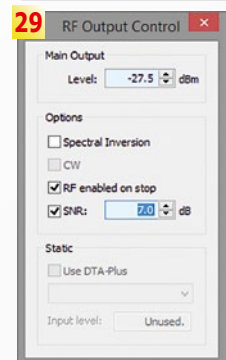
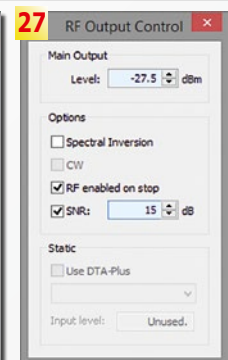
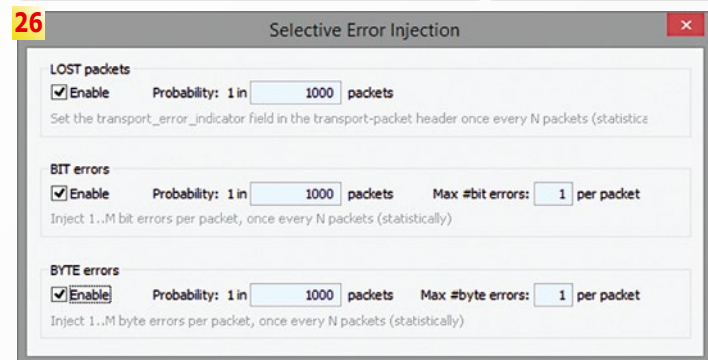
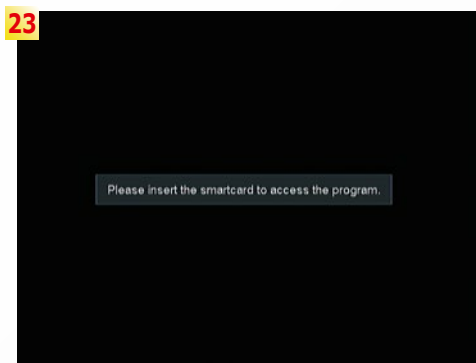
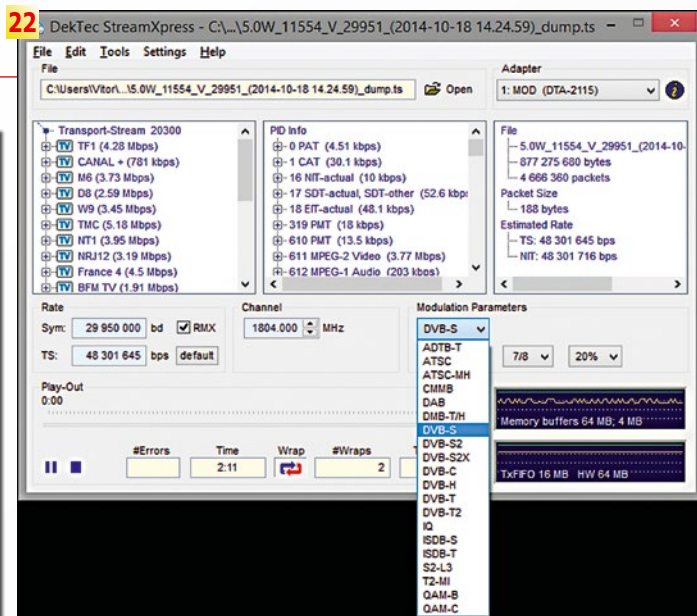
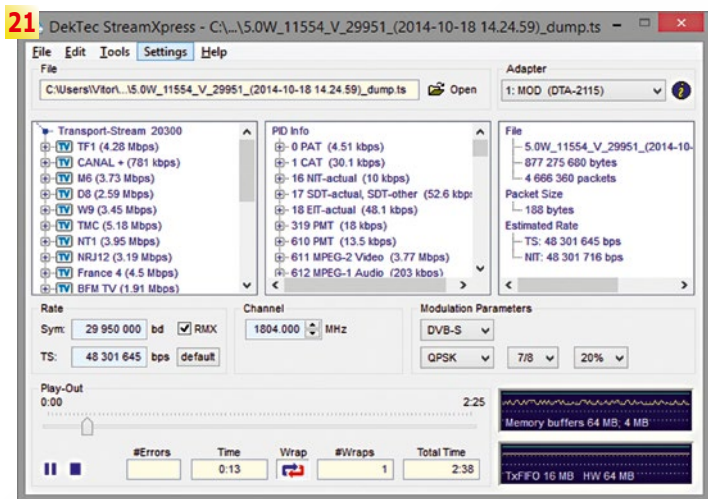
Whether it's in R&D de-

partments, in service centers or at trade shows, if you've worked with a DekTec modulator once, you'll never want to do without it again. With the DTA-2115, we're talking about an unbelievable product that can work with any modulation and in every standard frequency band.

The card works as expected. Working with the StreamXpress software is

logical and uncomplicated. Naturally, complex modulations such as DVB-T2 come with an array of parameters yet the presets are reasonable and if you need to test a signal like this, you would already know which parameters would need to be tweaked.

We love the new DTA-2115 and highly recommend its use in stationary workstations.



Fransat SAT Receiver

21. I want to test the official Fransat satellite receiver. It comes with an official Viaccess card and is configured to be used with Eutelsat 5 West A. What could I do, if I don't have the possibility to receive this satellite, but still need to test the receiver? Easy: get a file containing the transport stream and start StreamXpress.

22. Select the transport stream file, which in my case has been suitably named by ESBpro, the software used to capture the transport stream. Configure StreamXpress accordingly: DVB-S modulation, at 1804 MHz (11554 MHz – 9750 MHz (LO) = 1084 MHz) with SR 29950. Hit the play button and you are set.

23. On the receiver, the signal is received and because I have not inserted the smartcard, yet, the respective message pops up.



24. After inserting the smartcard, the picture is demodulated: the receiver thinks that it is receiving the genuine live satellite feed. Instead, I am looping the same captured transport stream over and over.

25. The reception parameters are confirmed.

26. It's time to test how sensitive the tuner is and how well it can handle weak receptions. I start by injecting a few errors.

27. Also, I specify an SNR value of 15 dB.

28. This causes the receiver to produce a few glitches when the image content changes quickly and a higher bitrate is

required.

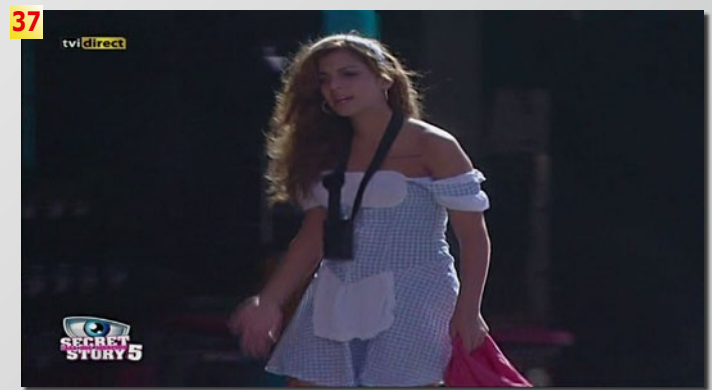
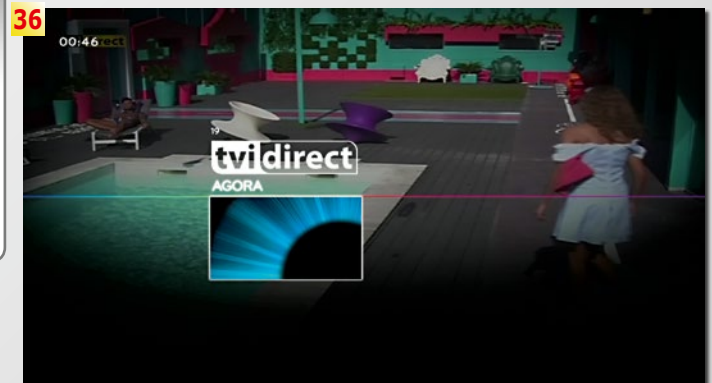
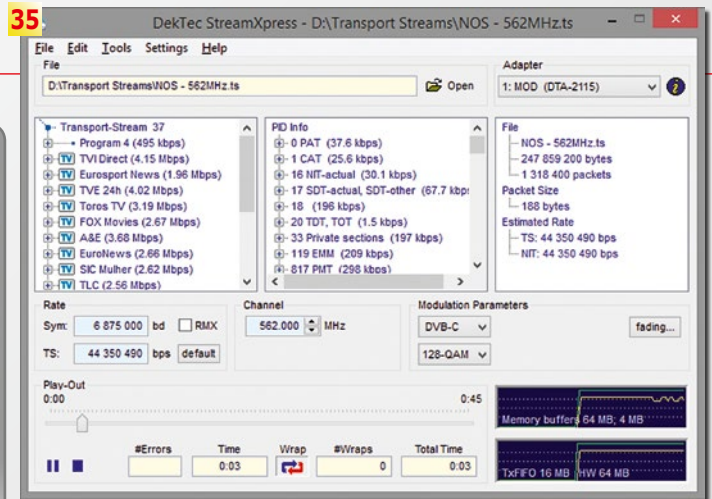
29. What happens if I lower the SNR value to 7 dB?

30. The tuner will struggle with the reception and produces a lot of artefacts, which could not be corrected by the bit error correction algorithm.

31. Setting the SNR even lower to just 6.2 dB.

32. Almost no picture now – just artefacts.

33. With an SNR of 4.5 dB... 34. ...the receiver gives up! No signal is shown. This shows how easy it is to evaluate the tuner's sensitivity and error correction algorithms on a test bench, without the need of a real live signal.



NOS CATV Receiver

35. Setting up StreamXpress to test an official NOS CATV receiver. This is a fully locked down receiver, which does allow little end user configuration – one cannot even select transponders frequencies to be scanned. To test the receiver I had to capture a given transponder, verify which channels it contained and then setup StreamXpress to use the exact same frequency

and modulation, in this case 128-QAM at 562 MHz with SR of 6.875.

36. As expected I got immediately a picture.

37. Because I am looping the same transport stream file, I can change the signal quality of the signal produced by the DTA-2115 and watch the performance of the receiver, by comparing the same scenes over and over.

38. In the advanced settings, the receiver reveals the reception parameters, which naturally match the ones I setup on StreamXpress.

EXPERT OPINION

DekTec DTA-2115
Professional Test Modulator

TELE-audiovision
THE WORLD'S LEADING DIGITAL TV INDUSTRY PUBLICATION

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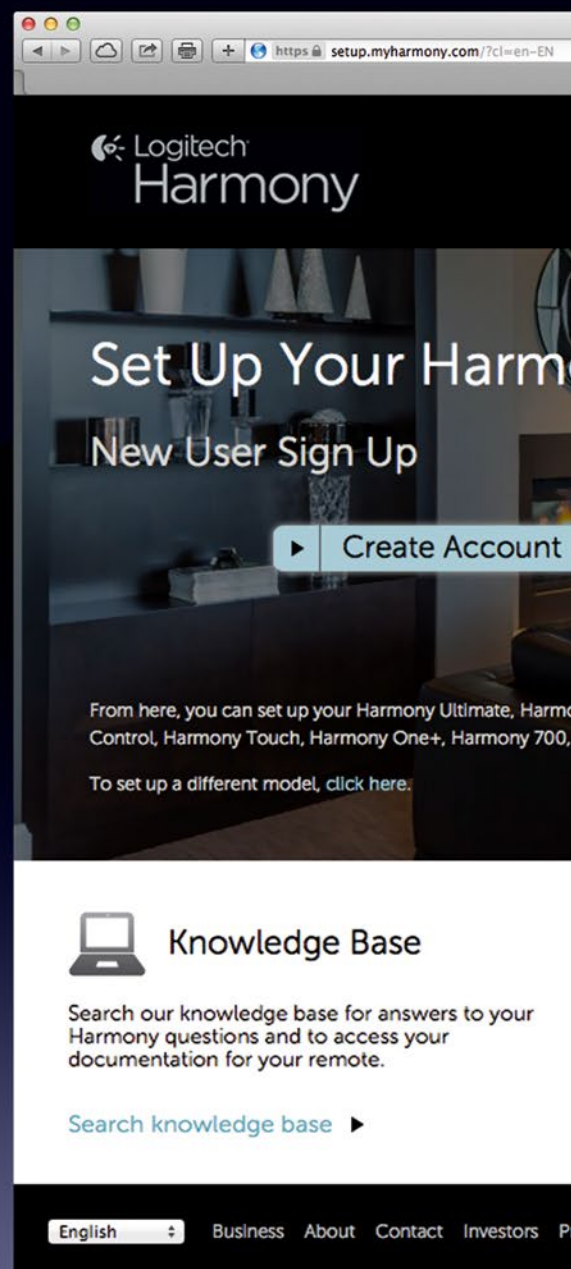
- Supports practically all modulations over the whole frequency spectrum from 32MHz to 2186MHz
- Easy installation and operation
- Very robust – no crashes, hangs or faults over the entire test period
- Allows development of custom applications with provided API
- Runs under Windows, compatible with Linux

-

- None.

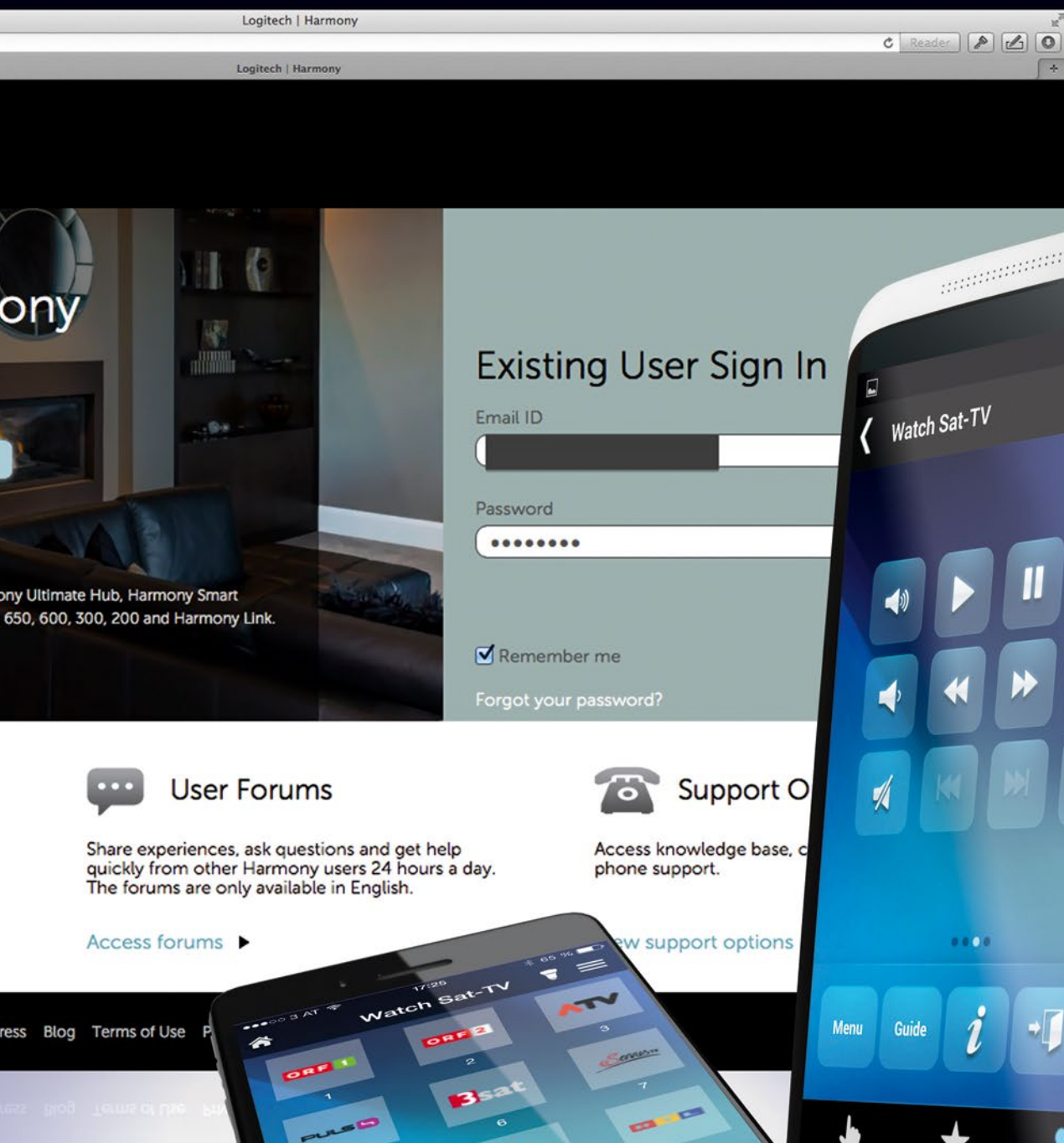
Logitech Harmony Smart Control

- *Replaces all of your original remote controls*
- *Utilizes your home WLAN network to carry commands*
- *External IR receivers expand use to include hidden devices*
- *Command sequences can be preprogrammed*
- *Multiple devices can be used at the same time*





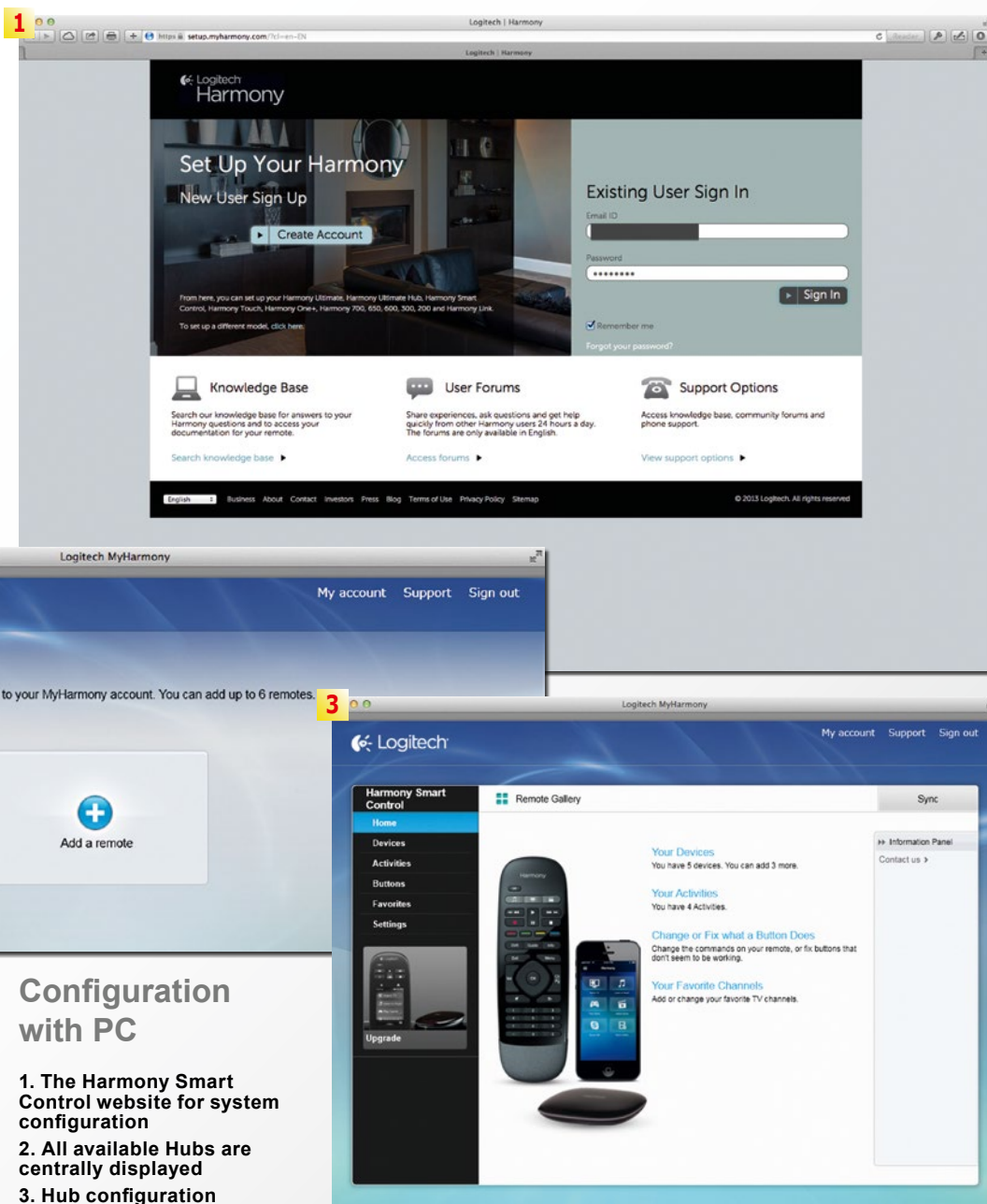
Logitech.



Universal Remote Control in the Form of a Smartphone App

Thomas Haring

Trying to store all of your remote controls on your living room coffee table isn't one of those problems that just happens with us tech-savvy editors here at TELE-audiovision. Wouldn't it be nice if you could make all of those remote controls disappear? Logitech's new Harmony Smart Control System makes this possible by utilizing the already-available Smartphone or Tablet as a fully functional replacement for all of the original remote controls. We like this idea



because it opens the way for receiver manufacturers to completely focus their efforts on the receiver section of their set top boxes and fully outsource the remote control portion. The number of TV viewers that don't have a Smartphone or Tablet is rapidly on the decline. Why not use devices that the customers already have?

The Logitech Harmony Smart Control comes delivered to you in an elegant package. It contains the Hub, the heart of the entire system, as well as the neces-

Configuration with PC

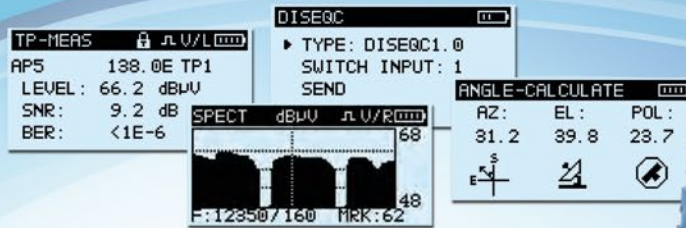
1. The Harmony Smart Control website for system configuration
2. All available Hubs are centrally displayed
3. Hub configuration

sary cables for connection to a PC and power outlet plus an external IR receiver. What the Logitech Harmony Smart Control can do is easily and quickly explained: the Hub is setup close to the devices that are to be controlled and plugged into a wall outlet. It sends the various remote

control commands via infrared and also via Bluetooth to all the different devices.

The fact that Bluetooth is supported is especially interesting for anyone looking to control their gaming consoles such Sony's Playstation. The Hub also con-

nects itself to the local WiFi network and can thus handle those commands that come via a Smartphone or Tablet App. During the initial installation, which can be done via a PC and a direct connection of the Hub to a USB port or wirelessly via Smartphone and Bluetooth connection, it



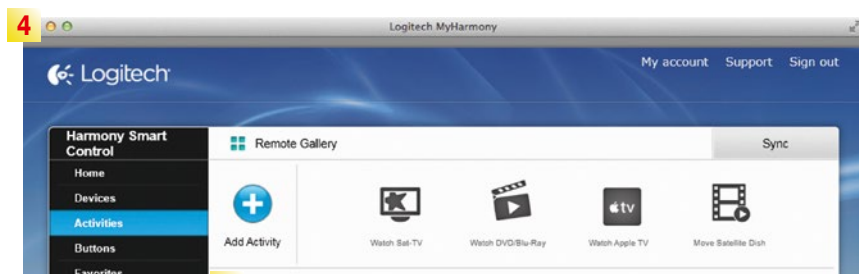
S30✓ Satellite Meter

- Supports DVB-S/S2
- C, Ku, Ka or L band
- MER and BER
- Spectrum function
- Supports DiSeQc 1.0/1.1
- Signal level and quality display together
- 128×64 matrix LCD with back-lighted
- Large lithium battery capacity, over 4 hours working time
- Software upgrade and parameter set via USB interface

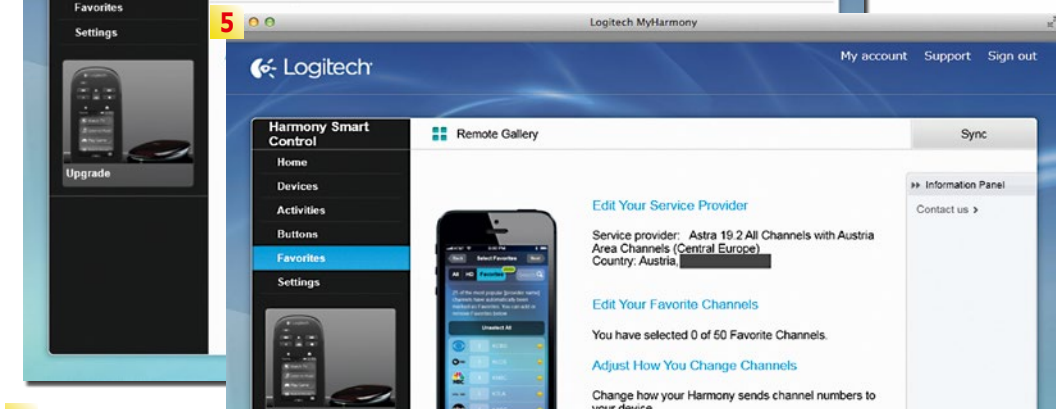
S7000✓ TV Analyzer

- All standards in one: QAM(J.83A/B/C), 8VSB, DVB-T/H/T2, DVB-S/S2
- Digital/Analog TV and Satellite TV analysis
- MPEG2 Transport stream analyzer and monitoring via TS-ASI input & RF input
- Fast spectrum analysis with 5~2150 MHz frequency span
- DSP Technology to support different Video decoding: MPEG-2, MPEG-4 and H.264 for 1080i, 720p and 576i, support PAL/NTSC/SECAM color system
- Support SD&HD Video format
- CI module (Common Interface) for encrypted channels
- TS-ASI input and output
- TS record and TS replay
- IPTV analysis option
- GPS option
- HDMI, LAN and USB interface
- Easy to use
- High resolution 7" TFT LCD with bright display for indoors and outdoors use
- W245×H194×L105, light weight
- Working time >5 hours (battery)

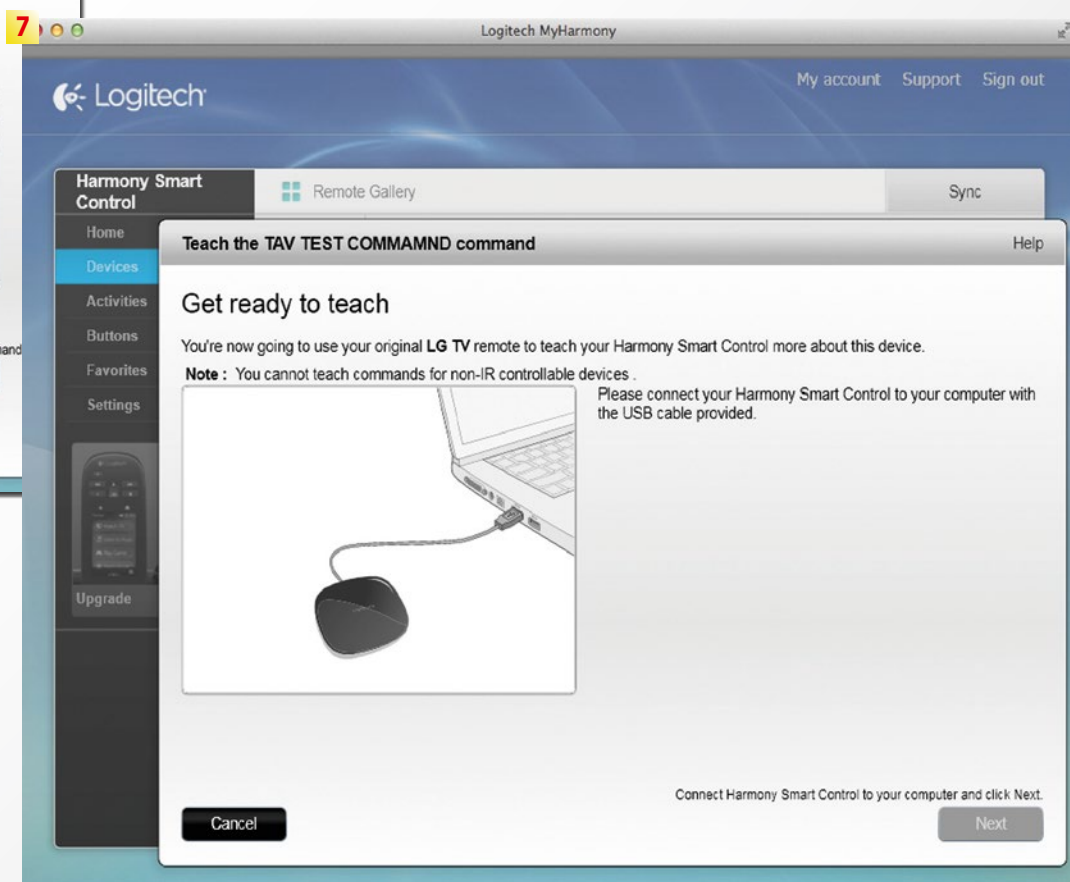
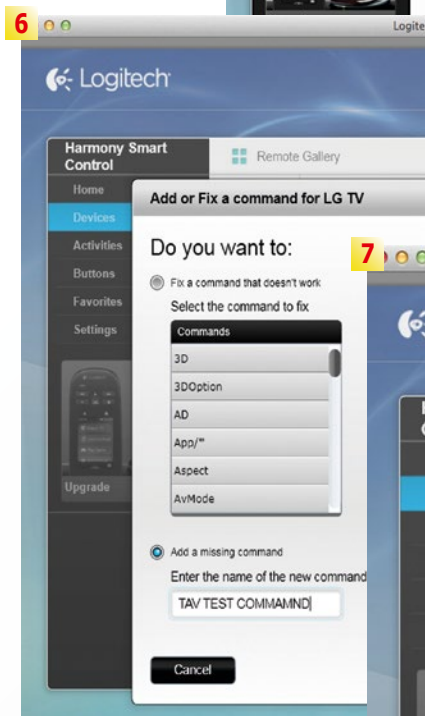




4. With the help of command strings, multiple commands can be executed one after the other
5. Your favorite channels can be selected from an extensive database or you can add them yourself
6. Remote control commands can be individualized and also taught to the system
7. After all of the settings have been taken care of, the Hub is connected to the PC so it can be programmed



the entire system configuration and personalization process can be handled directly from the web browser. Logitech opted to utilize the RIA (Rich Internet Application) concept which in this case is implemented by Microsoft Silverlight. For the user this provides the advantage that all of the system settings and individualization is centrally stored with Logitech and that no special installation tool needs to be installed on the PC. Not only that, any changes to the configuration will instantly be available on the Tablet or Smartphone.



is therefore essential to configure the Hub's WiFi function. Thanks to the support of WiFi 802.11 b/g/n with WPA, WPA2 AES and 64/128 bit WEP encryption, it should be compatible with all standard WiFi routers and not give you any problems when setting up the connection. In our tests, we had no trouble setting it up; in just a few seconds the Hub connected to our office WiFi network.

The initial installation can follow two different paths:

either the Logitech Harmony Smart Control can be configured and individualized via a PC or it can be done directly through a Smartphone or

Tablet. In both cases a user account needs to be setup so that you'll have future access to the website www.myharmony.com. If a PC is used,

In order to be able to get the most out of the Hub, it is critical to tell it what local devices are in use. For this purpose there's an enormous

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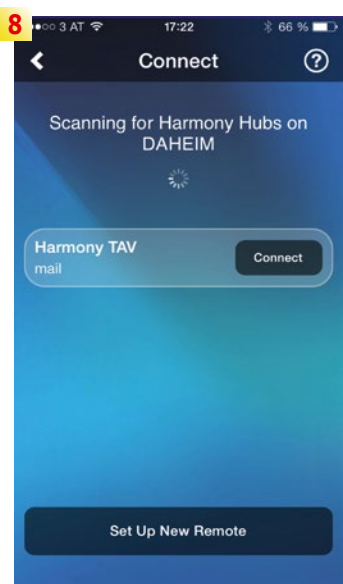


Contact Manager Director:

Mr. Bob
Mobile: +86-13570680375
E-mail: bob@maxingco.com
MSN: maxingbob@hotmail.com
Skype: bobzth

Harmony App with iOS

8. After starting the App, the user selects the desired Hub



9. The App then loads that configuration and makes it available on the Smartphone or Tablet display

10. The Harmony App's start screen with up to eight command sequences

11. The Logitech Harmony Smart Control can also be configured through the App's settings menu just like on the PC

12. Editing a device directly on the Smartphone

13. While the App is active, the Smartphone or Tablet screen can be set to automatically dim if it isn't used

14. The Auto-lock function of the Smartphone or Tablet can be turned off so that the App can quickly be accessed again

15. Simply tap the touchscreen and the App carries out a sequence of commands

16. The remote control buttons can be positioned any way you like

17. You can switch between different screens simply by

swiping across the screen

18. Thanks to gesture control, many functions, such as volume control, can be easily operated

19. Favorite channels overview

20. The App displays the proper remote control commands for each device that it controls. All of the settings can be individually setup for each device

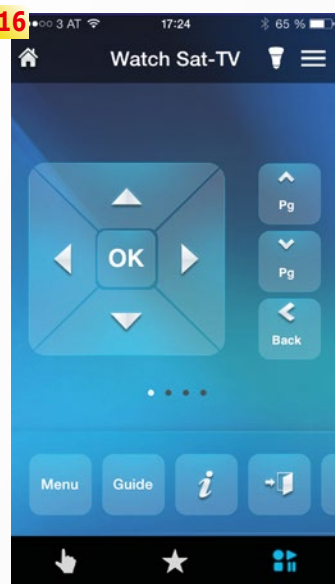
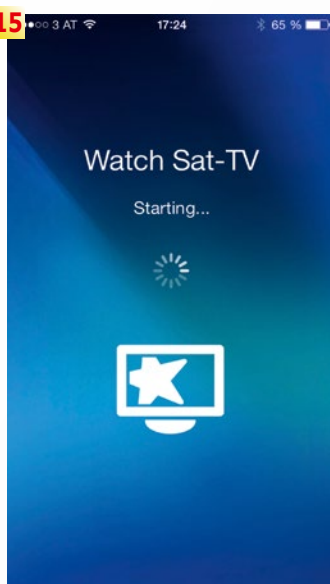
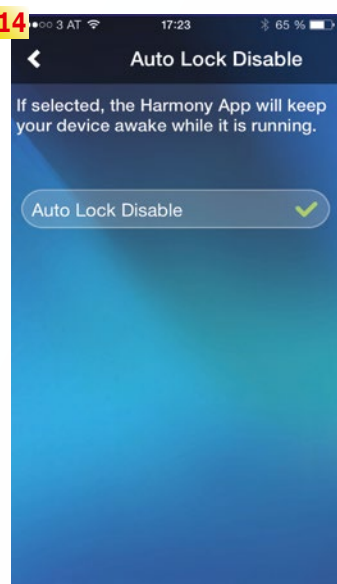
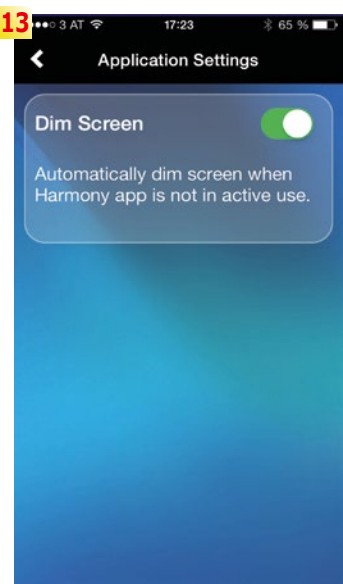
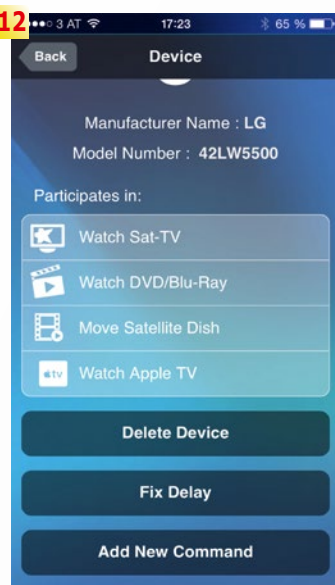
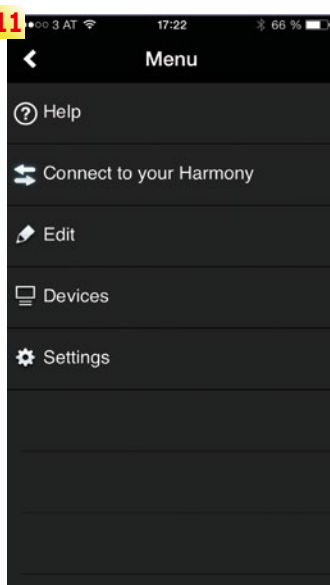
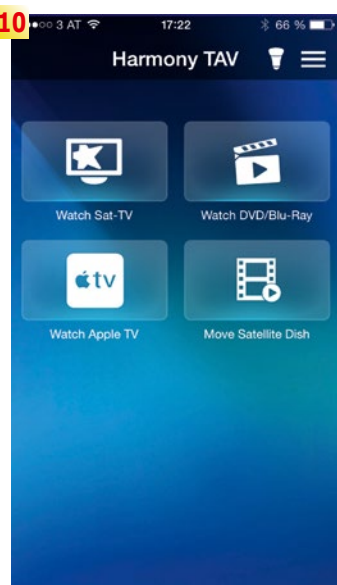
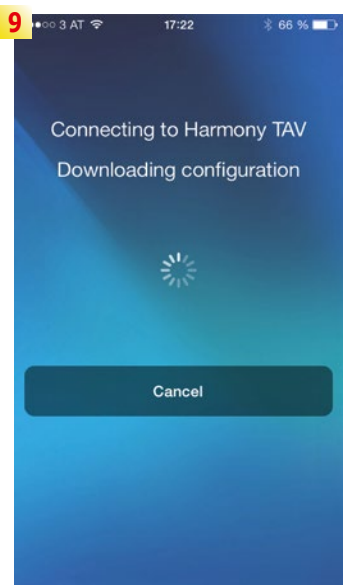
21. The buttons for a DVD player

22. All gestures can be individually set by the user

23. One or two fingers can be used for gesture control

24. Just one tap of the touchscreen turns off all of the devices and places them in Standby mode

database that contains in the neighborhood of 250,000 devices from which you can select the hardware that you have. In our case, all of the devices we tested, receivers, DVD/Blu-Ray players, HiFi systems and TVs were all recognized, as were an Apple TV box and two gaming consoles. Up to eight devices can be simultaneously addressed; this should be enough for even the best-equipped TV cabinets and wall units. If there happens to be a device that is not in that extensive database or if one or the other button on the remote control is not correctly imitated, the Logitech Hub can learn and store those functions with the help of the original remote con-



trol. Once all of the available devices are set up in the Hub, the next step involves creating the command sequences. If, for example, you want to enjoy watching a movie on a DVD, then the TV would have to be turned on and at the same time switch over to the proper A/V input. This task can be handled by the Logitech Harmony Smart Control. You merely need to create the proper command path, namely, TV on, DVD player on, switch to correct A/V input. More experienced users can use this feature to create more extensive command sequences. Here in our test center we set up a string of commands for each receiver that goes so far as to move our satellite dish an-

tenna on the roof. From now on, all we need is the push of a single button to not only turn on the TV and receiver automatically but to also switch to the proper menu to move the antenna where it needs to be.

The App for the Logitech Harmony Smart Control is called „Harmony“ and is available for free from both the Android Google Play store and the Apple iTunes store. They support installation in both Smartphones and Tablets in up to five devices. It should be noted that the App can work with multiple Hubs at the same time so that, for example, a Hub in the kids room and a Hub in the Livingroom can both be

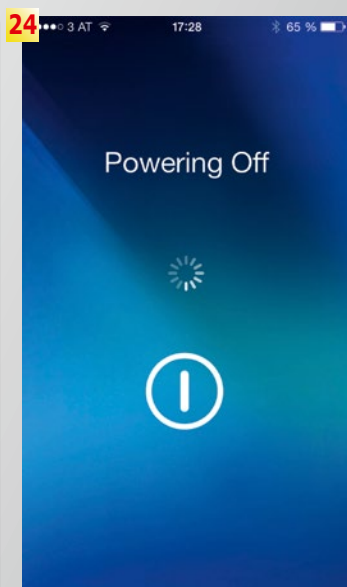
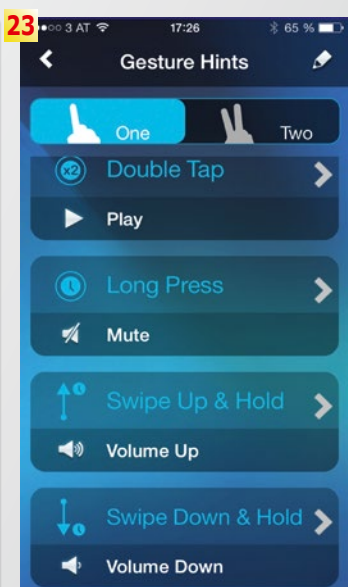
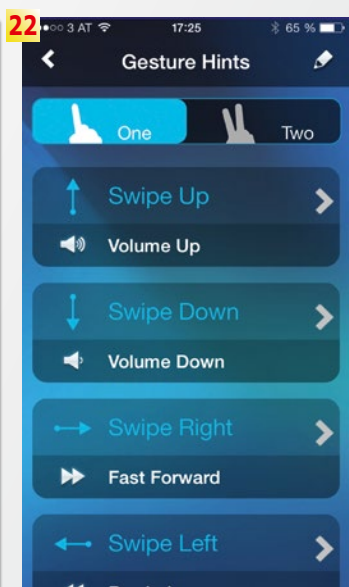
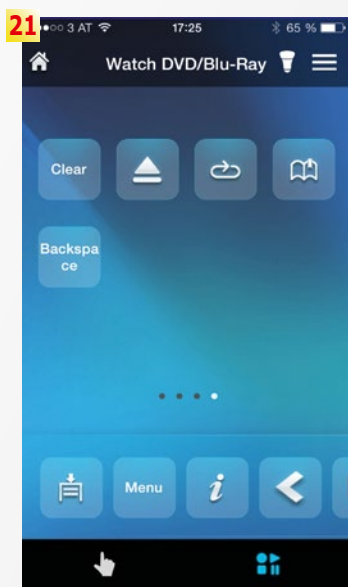
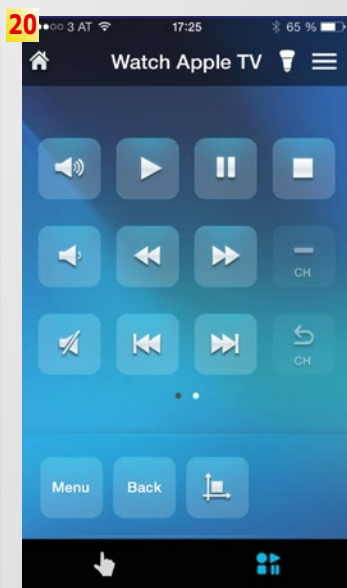
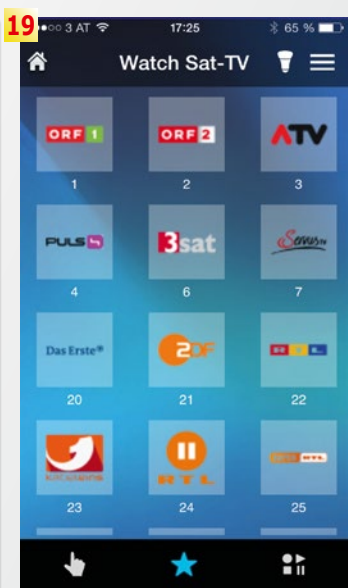
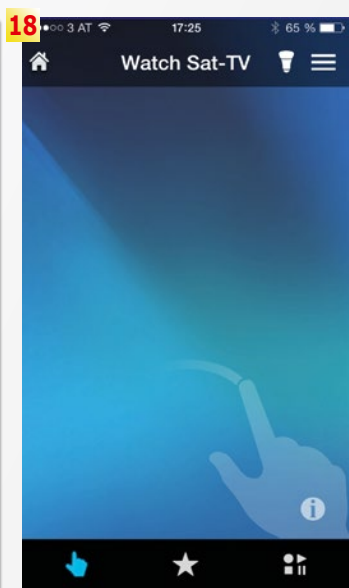
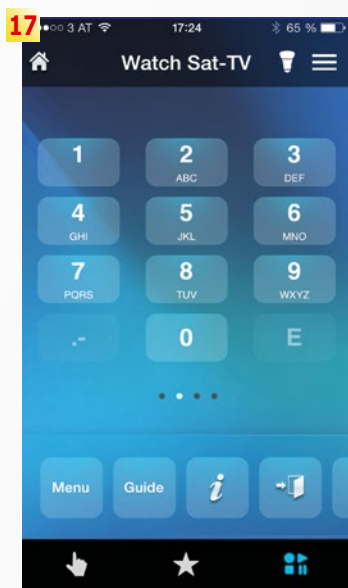
controlled by the App independently from each other.

As long as the App on the Smartphone or Tablet is active, it can be set to prevent the screen from locking as well as prevent the screen for automatically shutting off to save battery power. Our measurements revealed that an iPhone lost about 2-3% battery power every hour with an open Harmony App. For Android (we used a Google Nexus 5) the battery loss was about the same at 3%.

As soon as the App was started and the desired Hub was selected, all of the pre-configured command sequences were available at

our fingertips. In our case it was Watch Sat-TV, Watch DVD/Blu-Ray, Move Satellite Dish Control and Watch Apple TV. A quick push of one of the buttons is all it takes for it to turn on all of the corresponding devices: it turned the TV on and automatically switched to the proper A/V input. Right after that, the App blends in the more critical remote control buttons in a scrolling bar across the bottom of the screen while the rest of the remote control commands are distributed across multiple screens.

Thanks to the practical gesture control feature, functions like volume control, channel switching or fast-forward/rewind can be



activated and controlled with simple finger gestures whereby all user gestures can be freely assigned. The remote control buttons can also be individually positioned so that the ones you use most often can all be grouped together in a prominent position. You can individually adjust the position and number of remote control buttons for each of the controlled devices.

We also liked the Favorites function that lets you display up to 50 TV channels with logo so that you can watch your favorite channel with just the push of one button. The App gives you access to yet another extensive pre-programmed database of

international PayTV, cable, DVB-T and satellite operators.

The Harmony App versions for the Android and iOS operating systems are visually and functionally identical. Of course, if you utilize a Tablet, you get the added advantage of a much larger display.

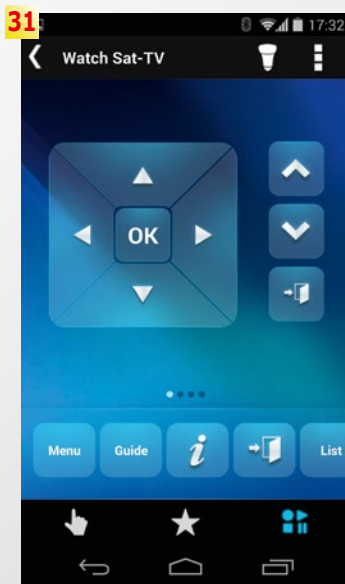
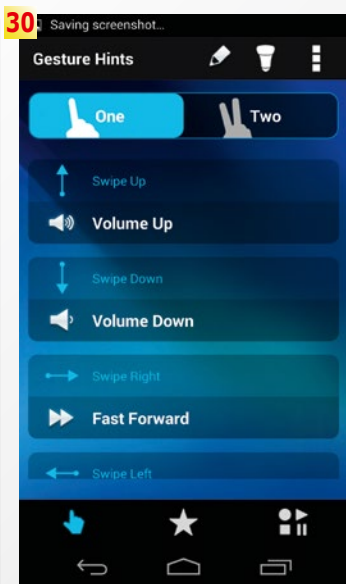
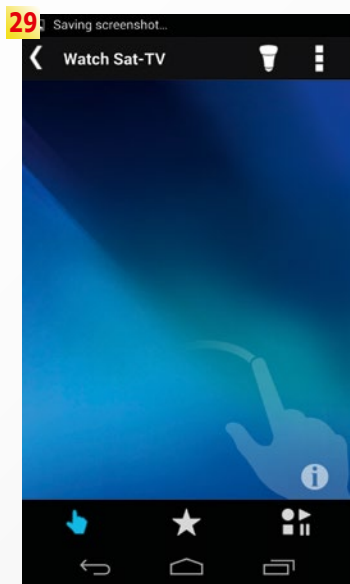
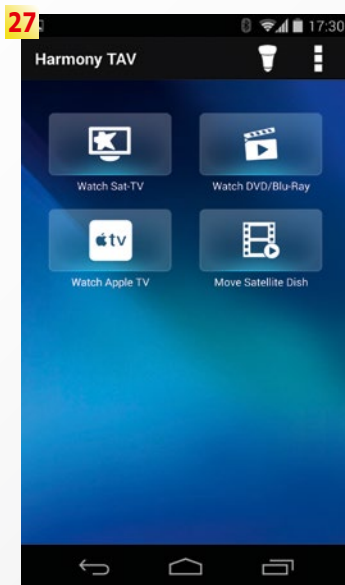
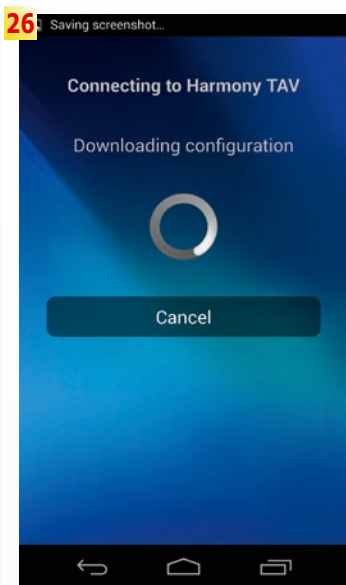
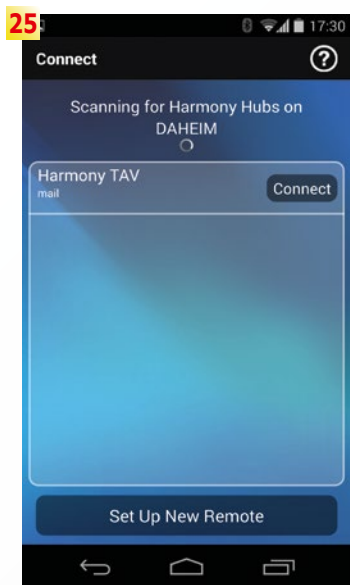
We definitely need to point out that you can also use the Logitech Harmony Smart Control to operate Philips Hue Lights. So, now you can not only control all of your entertainment electronics but you can also set the mood in your home theater room by dimming the lights.

We had a lot of fun con-

trolling all of our entertainment electronic devices here in our test center using the Logitech Harmony Smart Control. The Smartphone/Tablet App really impressed us with its ability to personally design the user interface and set up the buttons to your personal tastes. The Hub itself works with an outstanding IR receiver such that a direct line-of-sight view to the controlled devices is not absolutely necessary. If you happen to have your receiver hidden away in a locked cabinet, you can always switch back to the included IR receiver that routes the commands from the Hub via a cable into the cabinet. The range of the system is limited only by the

range of your local WiFi network; unfortunately, though, you can't as yet send remote control commands through the Internet.

Thanks to the extensive database of preprogrammed devices and the practical learning function, the Logitech Harmony Smart Control can work with nearly every available A/V device; whether it's a DVD/Blu-Ray player, a satellite receiver, game console, HiFi system or a media player. And it can all be done without using a classic remote control, you simply use the Smartphone App. The original remote controls that came with all of your electronic devices are no longer needed.



Harmony App in Android

25. Selecting a desired Hub on an Android Smartphone

26. Configuration download from a Hub

27. Harmony App main menu

28. The remote control buttons can be individually positioned by the user

29. Gesture control via Android

30. Multiple gestures can be associated with different functions as desired

31. The App displays the corresponding buttons for each device it is to control



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AWARD WINNING

**DIGITAL
RECEIVERS OF
21ST CENTURY**

这些是获得最高奖的产品



Manufacturer	TBS Tenow
Website	www.tbsdtv.com
Function	DVB-S2 or DVB-C/DVB-T2 Streaming box
DVB-S2/LAN	• / •
PVR	•
S-Video/HDMI	— / —
Scart/Digital Audio	— / —



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Expert Opinion

www.TELE-audiovision.com/15/05/tenow
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TENOW

Manufacturer	Formuler
Website	www.formuler.tv
Function	DVB-S2 DVB-C/DVB-T2 Triple-Tuner HD-Receiver
DVB-S2/LAN	• / •
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



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FORMULER



Manufacturer	TC Unterhaltungselektronik AG
Website	www.telecontrol.de
Function	DVB-S2 HD Android Satellite Receiver
DVB-S2/LAN	• / •
PVR	•
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	— / —



FERNSEHFFEE



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**Expert
Opinion**

www.TELE-audiovision.com/15/03/fernsehfee
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Manufacturer	Gotech
Website	www.gotechcn.com
Function	Android & Linux Combi Receiver
DVB-S2/LAN	• / •
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



MKTECH



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Manufacturer	TBS Tenow
Website	www.tbsdtv.com
Function	DVB-S2 Receiver for Multi Input Streams
DVB-S2/LAN	• / —
USB/SD Card	• / —
Internal Storage	no
Scart/Digital Audio	— / —



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Expert Opinion

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TENOW

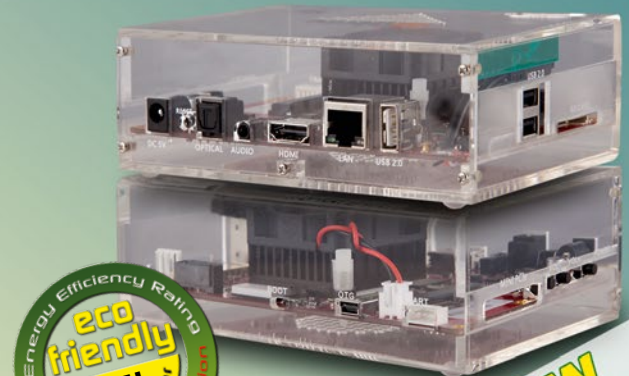
Manufacturer	TBS Tenow
Website	www.tbsdtv.com
Function	Mini PC for web/IPTV and live TV
DiSEqC	1.0 / 1.1 / 1.2
WIFI/LAN	• / •
Internal Storage	no
CVBS/HDMI	— / •
USB/SD Card	• / •
Scart/Digital Audio	— / •



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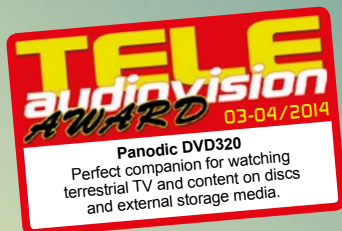
www.TELE-audiovision.com/14/07/matrix
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TENOW



Manufacturer	Panodic
Website	www.panodic.com
Function	DVB-T & DVD Player Receiver
DVB-T/LAN	— / —
PVR	—
S-Video/HDMI	— / •
Scart/Digital Audio	— / —



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PANODIC



Manufacturer	Gotech
Website	www.gotechcn.com
Function	DVB-S2 & ISDB-T Combo Receiver
DVB-S2/LAN	• / •
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



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MKTECH



Manufacturer	Changhong
Website	www.changhong.com
Function	DVB-C Receiver, Mediaplayer, Android Apps
DVB-S2/LAN	— / •
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



CHANGHONG



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Manufacturer	Panodic
Website	www.panodic.com
Function	DVB-T / DVB-T2 Receiver
DVB-T2/LAN	• / —
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	• / —



PANODIC



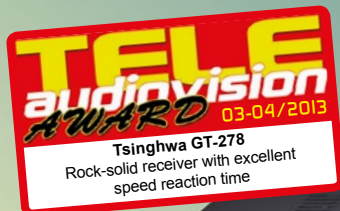
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Manufacturer	Tsinghua
Function	DTMB Receiver
LAN	—
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



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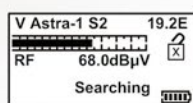
www.TELE-audiovision.com/13/03/tsinghua
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Horizon Digital Meters

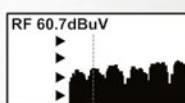
FEATURING THE HD-S2

An easy-to-use, affordable solution to fast and accurate satellite installation

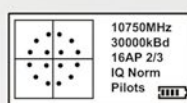
- High definition broadcasts in DVB-S, DSS and DVB-S2
- Storage of up to 256 transponders
- 16 user customisable selections for on-site unique carriers
- Precise and accurate installation
- Built-in, long life, high output rechargeable battery pack



Satellite signal display



Spectrum display



Constellation Diagram*

*Typical 16APSK, 8PSK & QPSK also available



All meters include a carry case, mains lead, 12v car adaptor, USB cable, and installation manual.



The Most Versatile UHF Antennas

室内/室外天线



YAGI
U-LD3

From the Inventors of the YAGI Antenna:
We Know How to Make YAGI Antennas!

从八木天线的发明 -
我们知道八木天线是怎样炼成的！



DESIGNED IN
JAPAN

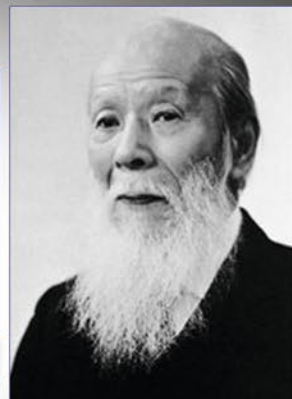


Dr. Hidetsugu Yagi invented the Yagi antenna in 1926

八木天线由八木秀次博士于1926年发明

YAGI

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21ST CENTURY**

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Expert Opinion

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Manufacturer	Satlink Technology
Website	www.sat-link.com.cn
Function	Digital Meter for DVB-S2, DVB-T2 Signals
Frequency Range	950 ~ 2150 MHz
Video Output	CVBS
Built-in Monitor	480 × 272 TFT display



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AWARD 05-06/2015

SATLINK WS6979HD
Full-featured meter for professional
and amateur installers

SATLINK



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Expert Opinion

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Manufacturer	Alpsat Elektronik
Website	www.alpsat.com
Function	DVB-S and DVB-S2 Signals Meter
Frequency Range	950 ~ 2150 MHz
Video Output	—
Built-in Monitor	3.5" LCD TFT Display



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AWARD 05-06/2015

SATFINDER 5 HD Slim
Extremely responsive meter
for evaluating up to four transponders
simultaneously

ALPSAT



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Expert Opinion

www.TELE-audiovision.com/15/03/spaun
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Manufacturer	SPAUN Electronic
Website	www.spaun.com
Function	Professional Digital TV Meter
Frequency Range	50 - 900 MHz (TV); 950-2150 MHz (Satellite)
Video Output	HDMI
Built-in Monitor	10" Touch Screen



SPAUN SPAROS 711

Optimized for professional antennas
installers and technicians, with
touch screen monitor



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Manufacturer	Gotech
Website	www.gotechcn.com
Function	Dual Tuner Meter
Frequency Range	950 ~ 2150 MHz
Video Output	—
Built-in Monitor	3.5" LCD display



MKTech CB200 HD

Who would have thought antenna
alignment can actually be fun?

MKTECH



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www.TELE-audiovision.com/15/01/deviser
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Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Multi Norm Digital TV Signal Analyser
Frequency Range	5 - 1050 MHz (TV); 950-2150 MHz (Satellite)
Video Output	HDMI
Built-in Monitor	7" TFT LCD, 800x480 pixels



DEVISER S7000
Unique:
A single meter for measuring
all digital TV standards



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www.TELE-audiovision.com/14/03/rohde-schwarz
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Manufacturer	Rohde & Schwarz
Website	www.rohde-schwarz.com
Function	Professional DVB Signal Analyzer
Frequency Range	5 ~ 2500 MHz
Video Output	HDMI
Built-in Monitor	640 × 480 FFT display



Rohde & Schwarz EFL210 + EFL-Z100
The best and most complete professional
instrument for CATV operators and their
installers.



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Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Professional Meter for DVB-T, DVB-T2, DVB-C
Frequency Range	5 ~ 1052 MHz
Video Output	—
Built-in Monitor	320 × 240 TFT display



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AWARD 01-02/2014

DEVISER DS2400T
Well equipped for the measurements
in all terrestrial DVB standards

DEVISER



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www.TELE-audiovision.com/13/09/horizon
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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital Meter DVB Signals
Frequency Range	51 ~ 858 MHz
Video Output	—
Built-in Monitor	LCD display



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AWARD 09-10/2013

HORIZON HD-CM+ for DVB-C
Extremely easy to operate,
for professional installers

HORIZON



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Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Professional TV Signal Analyzer
Frequency Range	5 - 1050 MHz (TV); 950-2150 MHz (Satellite)
Video Output	HDMI
Built-in Monitor	7" TFT LCD, 800x480 pixels



DEVISER S7000
Best professional instrument
for measurement and analysis
of all globally used TV systems



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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital Satellite Meter for DVB-S and DVB-S2 Signals
Frequency Range	950 ~ 2150 MHz
Video Output	—
Built-in Monitor	LCD display



HORIZON Nano-S2
Very easy to use instrument
for quick installation of satellite
for HDTV reception



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Manufacturer	Horizon Global Electronics
Website	www.horizonhge.com
Function	Digital Meter for Analogue, DVB-T and DVB-T2 Signals
Frequency Range	48 ~ 862 MHz
Video Output	—
Built-in Monitor	LCD display



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AWARD 11-12/2012

HORIZON HD-T2
One of the world's first DVB-T2 signal
analyzers with exceptional data

HORIZON



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Expert Opinion

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Manufacturer	Tianjin Deviser Electronics Instrument
Website	www.devisertek.com
Function	Optical Power Meter
Frequency Range	-43 dBm ~ +25 dBm
Video Output	—
Built-in Monitor	LCD display



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AWARD 11-12/2012

DEVISER AE 120
Optical Power Meter
Extremely simple to use but
at same time very accurate

DEVISER

The USB-2 VHF/UHF Modulator that can drive any receiver



DTU-215-GOLD

**Connect to your PC...
and test drive any
cable or terrestrial
digital-TV receiver**

**Fully agile from
36 to 1002MHz**

**Channel simulator
included**

DekTec's USB modulator DTU-215-GOLD is an option-packed compact modulator that can cope with any cable or terrestrial modulation standard used throughout the world, including DVB-T2, DVB-C2 and ISDB-T. The modulator comes with streamer software that can run on a PC or laptop. The RF output of the modulator can be connected directly to the antenna input of a digital-TV receiver. As it is powered from the USB-2 bus, no external power adapter is required. This modulator is the ideal tool for demonstrations, research and development and to test drive setup boxes and decoders. For more information visit our website where you also will find our local resellers worldwide.

DeKtec
www.dektec.com

Satbeams mobile



- **fast and visual information on receivable satellites at a given location**
- **satellite data are available offline and can be updated at any time**
- **footprints can be visualised to determine the required antenna diameter**
- **satellites are shown automatically as soon as the camera is activated**



Useful app for satellite antenna alignment

It's the same problem we are faced with again and again. There's a satellite antenna to be set up and aligned, but is the satellite we are aiming at receivable at all at our location? Actually, that's two questions packaged into one. Number one: Is the location within the satellite's footprint and is the antenna's diameter sufficient for reliable reception, especially at the fringes of the footprint? Number two: Is there a direct line of sight between the antenna and the satellite, or does a tree or building stand in the way? Those are key questions that beg answering before you should even think about installing a satellite antenna, because what's the point of going to great lengths if you don't know (a) whether

you'll be successful in the end and (b) which location is best suited for the antenna in order to achieve optimum results.

The people behind the www.satbeams.com website have come up with a new app for smartphones and tablets that can help answer those essential questions quickly, hassle-free, and in a matter of seconds. The best part? You can do all that offline and don't need an Internet connection that may incur additional costs. All you need to shell out is a one-time charge of EUR 10.00 to purchase and download the app to your smartphone or tablet from Google Play Store or

Apple iTunes Store.

Next, you need to create a free account at www.satbeams.com in order to be able to download up-to-date satellite data from the Internet. The app will automatically access a Satbeams server and obtain all current data, a process that in our case only took slightly less than 90 seconds on an LTE connection. The Satbeams mobile app then automatically switches to the main menu, which is pretty much filled to the brim with features and functions and therefore may look slightly overwhelming at first sight. But rest assured, the two

major functions of the app can be launched quickly and without further ado. You can always have a closer look at all other entries (About, Products & Services, News, Contact and Help) at a later stage. In actual fact, all they do is either refer you to the Satbeams website or offer general information and assistance.

We did appreciate that the Augmented Reality (AR) function of the app activates automatically to superimpose the Clarke Belt on the current camera view whenever users point their smartphone or tablet towards the sky. This way you can find out simply by moving your device whether or not the desired satellite can be received with an unrestricted line of sight from your location. The orbital positions that are available are shown along a virtual Clarke Belt. During our test this feature gave no reason for complaint. The only thing you





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without compromise



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Takes an audio signal from a CD Player, Tape player, Tuner or Computer and reproduces it with amazing high quality and resolution

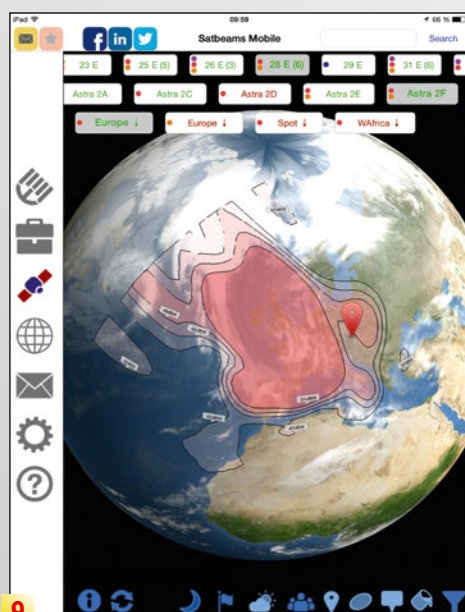
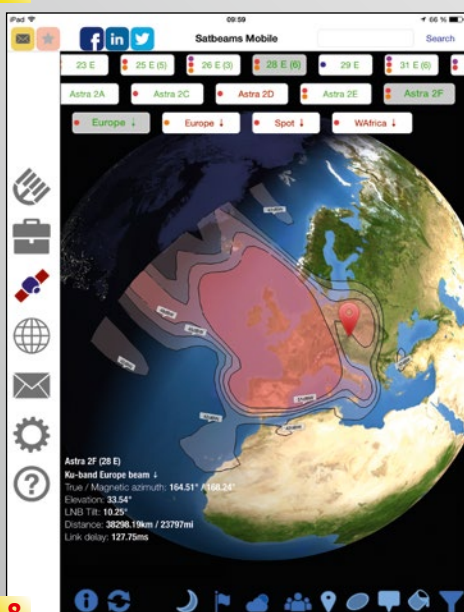
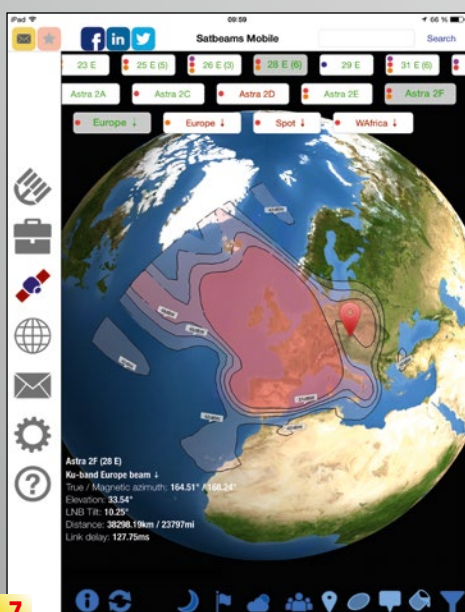
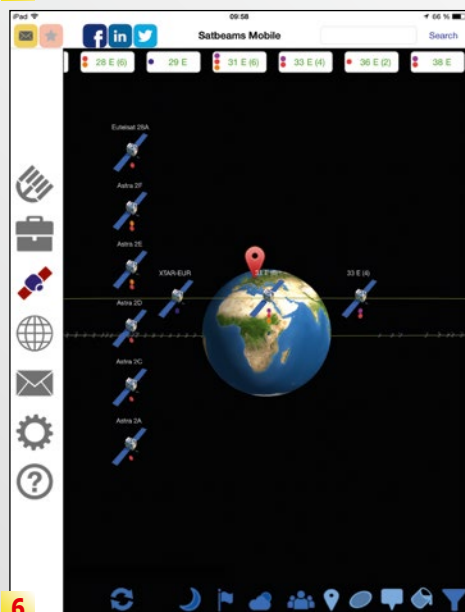
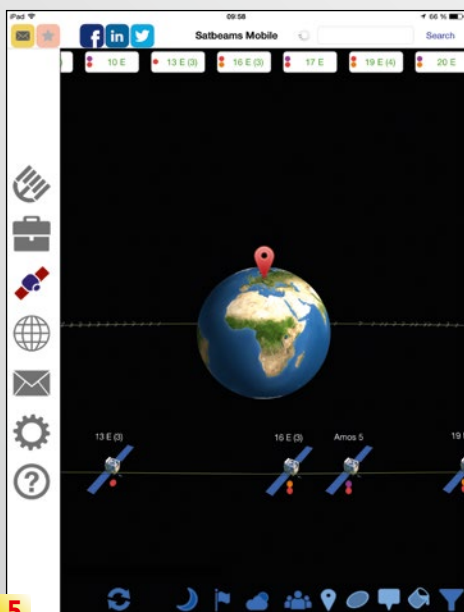
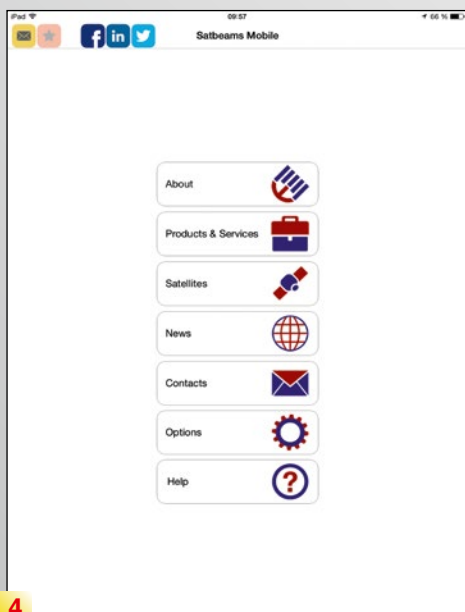
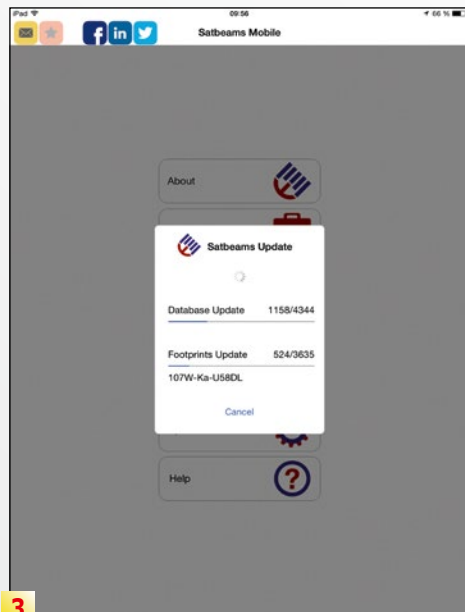
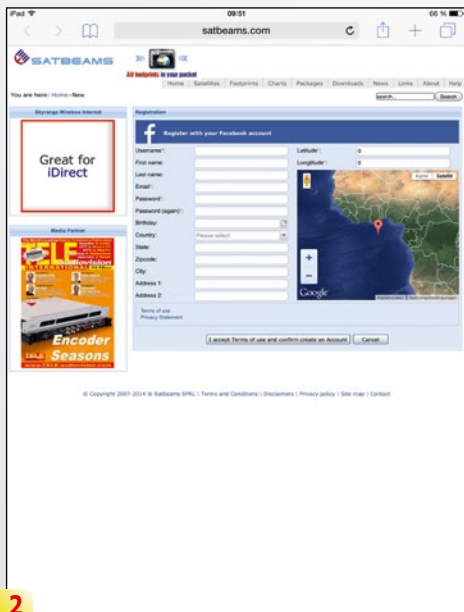
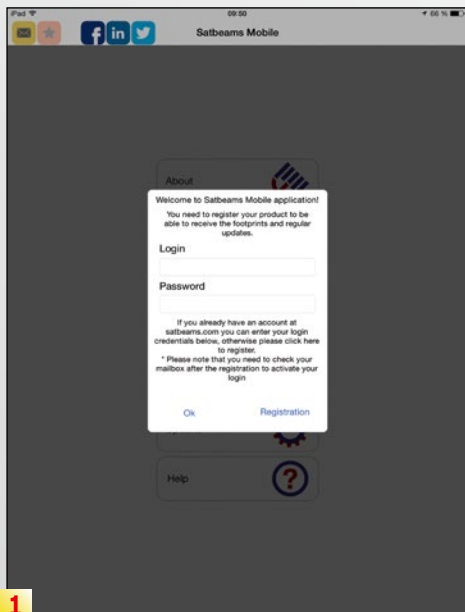
Reveals music dynamics and natural tone never before heard in any standard amplifier both at the instrument and vocal levels

Bias adjustment for each output section to customize the amplifier to your personal tastes

Each tube has been specially selected to provide the best possible sound experience

The result? Sound quality that will take your breath away!





1. Before you can start using the app you need to create a free account at www.satbeams.com
2. Registration page
3. Updating the database via the Internet
4. Main menu of the Satbeams mobile app

5. Presentation of the Clarke Belt above a virtual globe
6. All DTH satellites are listed in a comprehensive database
7. Presentation of the footprint of ASTRA 2F 28.2° East

8. In night mode you can clearly observe which parts of the world are currently facing the sun
9. The current weather can be shown, if required

need to take care of is activating the GPS function of your smartphone or tablet, otherwise the device won't be able to determine the current location.

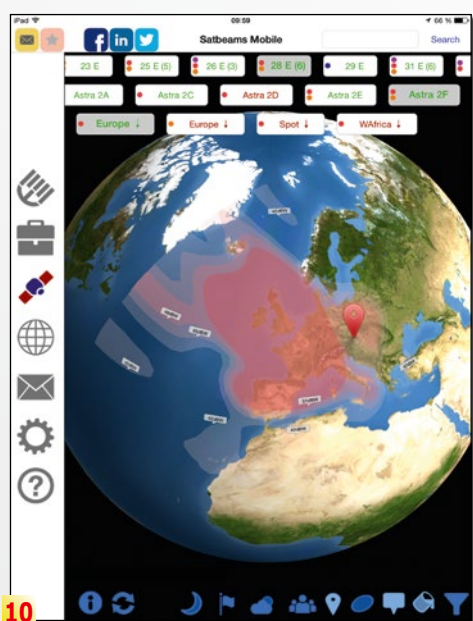
With the help of the footprint function the Satbeams mobile app can display the footprints of all direct-to-home (DTH) satellites worldwide on a virtual globe. We looked very closely at the accuracy of individual beams coming from one and the same satellite. After all,

there's a huge difference between channels transmitted from ASTRA 2A and ASTRA 2F, for example, that need to be received in Central Europe, even though both satellites carry British TV and radio stations from 28.2° East. While in one case an 80 cm antenna will do, the other beam requires an antenna diameter of at least three meters in Central Europe. As hoped, the app takes care of those subtle (and not so subtle) differences and precisely

indicates all relevant information. Looking for some icing on the cake? Well, there you go: Apart from a range of technical details, the app also immediately calculates the right azimuth and elevation parameters for all satellites.

We found it very useful that more than one footprint can be shown at the same time, and the range of customisation options for the virtual globe is almost unlimited. This way you may opt to

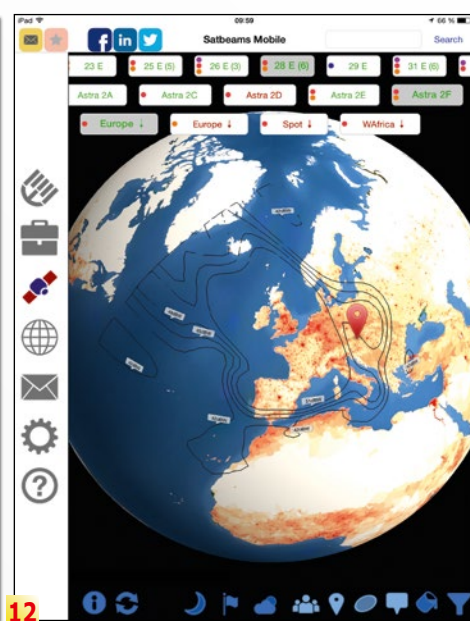
add borders between states, a cloud cover between the sky and the surface or night-time view, if that's to your liking. One thing we found a little quirky but interesting nonetheless is that you can change the way countries are presented according to their respective population densities. The same level of detail is available for the footprints as well, which can be presented with or without full colouring, scaling lines, etc. The entire screen con-



10



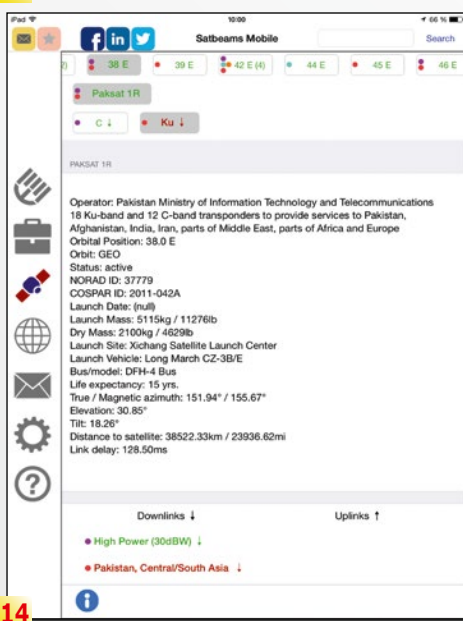
11



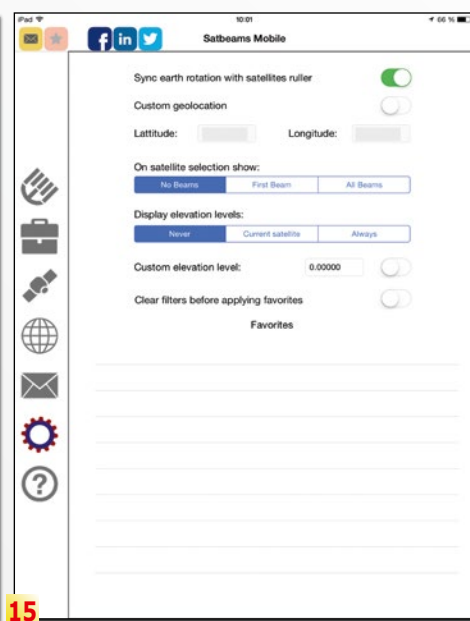
12



13



14



15

10. Presentation of a satellite's footprint without scaling rings

11. Presentation of a satellite's footprint with scaling rings but without colouring

12. You can even have the population density indicated (the darker the red colour, the higher the population density)

13. Simultaneous presentation of two different footprints

14. Each satellite comes with a wide range of technical details that can be called up at any time

15. Settings menu of the app



tent can be shared with friends via Facebook, Twitter and Instagram with a single touch on the screen.

Still, the only aspect that really matters for a satellite alignment app is the accuracy of the provided data, and it is in this field that you simply can't fault Satbeams. The app relies on the same database that is made available to users of the standard website, and we all

know that this is probably one of the most comprehensive and most up-to-date satellite databases around.

With all that praise for Satbeam and its mobile app we did, however, notice that the popular daily frequency lists that are available from www.satbeams.com have not made it to the app. What a pity, since the most current transponder data right on the smartphone

16. Free line of sight – all satellites shown here on the virtual Clarke Belt can easily be received at this location

17. Obvious from this picture: All satellites further out than approximately 40° West cannot be received at this location

or tablet would have been an awesome treat. Other than that, the app is a valuable tool for everyone dealing with antenna alignment that needs to be accomplished easily and quickly.



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<https://play.google.com/store/apps/details?id=com.letsplaymobile.satbeams>

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<https://itunes.apple.com/us/app/satbeams/id863040249?ls=1&mt=8>



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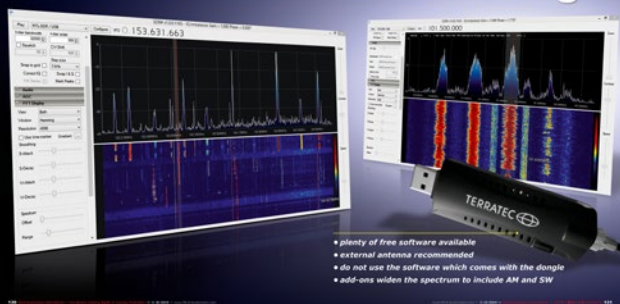
A young woman with long, wavy red hair and blue eyes is smiling at the camera. She is wearing a red, short-sleeved top with ruffled shoulders. She is holding a black tablet computer with both hands. The tablet screen displays a white rectangular box containing text.

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Software Defined Radio with a DVB-T Dongle



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- external antenna recommended
- do not use the software which comes with the dongle
- add-ons widen the spectrum to include AM and SW

www.TELE-audiovision.com/TELE-audiovision-1501/eng/feature-dongle.pdf

Coding Standard

FEATURE New Standard

AVS2 A New Video Coding Standard



- requires even less of the original video information
- re-creates parts of the original video by artificial intelligence
- saves on the amount of data required to transmit
- makes use of software developed for gaming

www.TELE-audiovision.com/TELE-audiovision-1411/eng/feature-avs2.pdf

Terrestrial Satellite Reception

FEATURE Terrestrial Satellite Reception

ROKS MITRIS

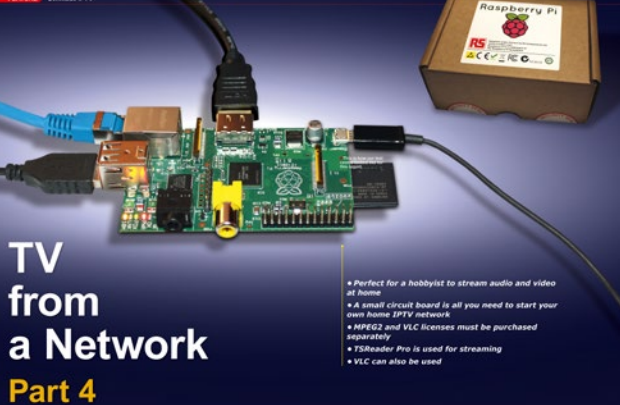
- Easy way to provide large areas with TV
- Utilizes existing satellite TV reception technology
- Technically feasible solution using prefabricated components for all different kinds of terrain and service areas
- Large bandwidth for up to 300 TV channels



www.TELE-audiovision.com/TELE-audiovision-1407/eng/feature-mitris.pdf

Self-made IPTV

FEATURE Self-made IPTV



TV from a Network Part 4

- Perfect for a hobbyist to stream audio and video at home
- A small circuit board is all you need to start your own home IPTV network
- MPEG2 and VLC licenses must be purchased separately
- TSReader Pro is used for streaming
- VLC can also be used

www.TELE-audiovision.com/TELE-audiovision-1311/eng/feature-satip4.pdf

New DVB Extensions

FEATURE New DVB Standards

Extensions to DVB-S2

- new enhancements allow for higher data rates
- more rectangular transponder spectrums provide more space for additional transponders
- reducing sidelobe gives more space for more transponders
- wide-band transponders add to efficiency
- new modulation with 6 bits



www.TELE-audiovision.com/TELE-audiovision-1311/eng/feature-dvbs3.pdf

Self-made IPTV

FEATURE Self-made IPTV

TV From a Network Part 3



- The basics of data transmissions in a network
- TCP, UDP and RTP - What do they mean?
- Utilizing a network
- Network cabling makes all other cables redundant
- 1000Mbps recommended for reliable operation

www.TELE-audiovision.com/TELE-audiovision-1309/eng/feature-satip3.pdf

Ultra High Definition TV

FEATURE Ultra High Definition Television



- Can better display colors, mainly red and green shades
- suitable for 3D due to its higher frame rate
- requires an enormous bandwidth
- users will need brandnew equipment as UHD TV is not backward compatible

www.TELE-audiovision.com/TELE-audiovision-1309/eng/feature-uhdtv.pdf

Self-made IPTV

FEATURE Self-made IPTV

TV From a Network Part 2



- Structure of a Transport Stream
- Multiple TV channels can be placed in a transport stream using a Multiplexer
- TS Reader offers a multiplex function
- Certain Linux receivers operate via a streaming function
- Only high-speed WLANs are suitable for IPTV

www.TELE-audiovision.com/TELE-audiovision-1307/eng/feature-satip2.pdf

Ultra High Definition

The New HEVC/H.265 Standard

- reduced bandwidth by 50%
- can be used also for very small screens
- divides the video in data pixel blocks
- requires advanced processors in the receiver

www.TELE-audiovision.com/TELE-audiovision-1307/eng/feature-hevc.pdf

Self-made IPTV

TV from a Network Part 1

- Digital TV distribution via your own Internet network
- No cables needed if used with WLAN
- Laptops, Smartphones, Tablets can be used as TVs
- Very high data flow with HDTV

www.TELE-audiovision.com/TELE-audiovision-1305/eng/feature-satip1.pdf

Phase Shifts in Digital TV

I/Q Vectors Swap

$y(t) = I \sin \omega t + Q \sin(\omega t + 90)$

$I(t) = V_2 \sin(\omega t + 315^\circ)$

$Q(t) = V_2 \sin(\omega t + 315^\circ)$

- how to detect phase shifts automatically
- reversing inverted phase shifts
- finding the synchronization byte
- how a constellation diagram shows swapped vectors

www.TELE-audiovision.com/TELE-audiovision-1303/eng/feature-iqswap.pdf

Digital Terrestrial TV - 2nd Level

ATSC 2.0

- combines various separate norms and standards into one single suite
- puts all the existing tv viewing features available nowadays into one suit
- merges all variations into one
- enables superior video and audio quality
- new standard will replace current one eventually

www.TELE-audiovision.com/TELE-audiovision-1301/eng/feature-atsc2.pdf

The Secret Special Transmission Modes

Making life hard for DXers – or: TV stations' little tricks to avoid viewers

Thomas Haring

Transmissions that are broadcast via satellite usually can be received by anyone within a particular satellite's footprint. In the case of DTH (direct to home) TV and radio reception this is a welcome scenario, because providers are trying to reach out on potential audiences. On the other hand, programs also need to be distributed within and between different providers without any viewers being able to receive them. In satellite speak these transmissions are called feeds. Feeds can be used to transmit a baseball game from the US, for example, or a live report from a news event.

www.TELE-audiovision.com/TELE-satellite-1209/eng/feature-transmission.pdf

All About Fiber Optic Connectors

Wavelengths & Connector Types

Optical Fibers

- 6 different wavelength bands
- what dispersion is doing to a signal
- the advantages of Laser diodes
- finding the lowest attenuation

www.TELE-audiovision.com/TELE-satellite-1209/eng/feature-optical.pdf

Basic Knowledge: Polar Mount Antennas

Polar Mount Antennas Motorised Antennas for Satellite Reception

Adolf Oberhuber

If you consult the relevant literature you will find that no or – at most – insufficient background information is available about how the type of motorised polar mounted antennas actually works. The same is true for the required formulas and their derivation. The following illustrations are meant to provide answers to all questions in association with a polar mount. This also includes, inter alia, various size determinations for positions as well as calculations for the satellite orbit based on a specific example. Altogether this report is a collection of data and calculations which, the author believes, have hitherto been scattered across an endless number of publications and accounts. For the sake of completeness and reference, technical terms and their origin will be explained in a separate addendum at the end.

www.TELE-audiovision.com/TELE-satellite-1207/eng/polarmount.pdf

DVB-S2: Hide the SD inside the HD

H-8PSK Hierarchical Modulation

- backwards compatible to regular DVB-S2
- useful to pack SD and HD version of a tv program into one transponder
- very sensitive to misalignment
- may remain a niche technology

www.TELE-audiovision.com/TELE-satellite-1207/eng/feature-h8psk.pdf

How a tuner for VCM operates

FEATURE



VCM Signal Reception

- allows more than one stream for each transponder
- dynamic change of FEC coding rates
- different content can be assigned to different transmission modes
- compatible tuner needs function to determine coding rates
- VCM signals only receivable with compatible tuners

www.TELE-audiovision.com/TELE-satellite-1205/eng/dvb-S2-vcn.pdf

DVB-S2 MIS Reception with VCM/ACM

FEATURE

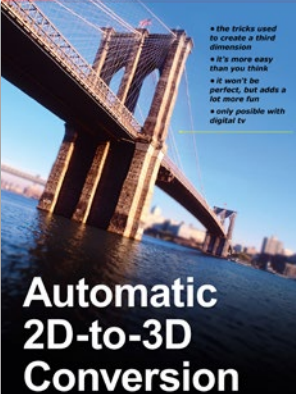
The New Flexible MIS Transmission Technology

- The receiver chooses the optimal reception mode
- Programming providers can optimize transmission costs
- Picture quality based on usable signal
- From "Broad"-Cast it becomes "Individual"-Cast

www.TELE-audiovision.com/TELE-satellite-1201/eng/tenow-TBS6925.pdf

Automatic Creation of 3D

FEATURE



- the tricks used to create a 3rd dimension
- it's more easy than you think
- it won't be perfect, but adds a lot more fun
- only possible with digital tv

Automatic 2D-to-3D Conversion

Software automatically creates the third dimension (depth)

Jack Pawowski



How a Silicon Tuner Works

FEATURE

What's inside a silicon tuner?

Jack Pawowski



www.TELE-audiovision.com/TELE-satellite-1107/eng/silicontuner.pdf

Channel Capacity of a Transponder

FEATURE

Satellite Technology

How many SD/HD channels can we get from one transponder?

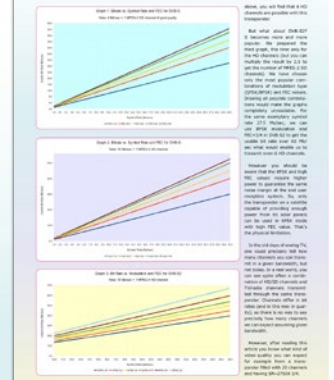
Jack Pawowski

Everybody who ever studied satellite charts with transponder data knows that the symbol rate of a transponder is one of its most important parameters. And that's not only because you need to know it to set the data in manual channel setups in your receiver. Symbol rate directly affects the amount of useful data that can be transmitted via a transponder. The higher it is, the more data can be sent. More data means more TV and radio channels.

But how many channels can we get from one transponder? This is a question that many people ask. The answer is: it depends. There are several factors that affect the channel capacity of a transponder. The most important ones are the symbol rate, the modulation, and the coding rate.

The symbol rate is the number of symbols per second that are transmitted. It is usually measured in Msymbols per second (MS/s). The modulation is the way in which the data is encoded. The most common ones are QPSK and 8PSK. The coding rate is the ratio of the number of data bits to the number of transmitted bits. It is usually measured in bits per symbol.

So, how many channels can we get from one transponder? The answer is: it depends. But we can give you a rough idea. For a typical transponder with a symbol rate of 30 MS/s, we can get about 10 SD channels or 5 HD channels. If we use a higher symbol rate, we can get more channels. If we use a higher modulation, we can get more channels. If we use a higher coding rate, we can get more channels.



www.TELE-audiovision.com/TELE-satellite-1107/eng/sdinhd.pdf

CI+ and HD+Encryption

FEATURE

HDV Copyright Management



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

www.TELE-audiovision.com/TELE-satellite-1107/eng/CI+HD+.pdf

How MPEG Surround Works

FEATURE

Audio Transmission

The New Audio: MPEG Surround

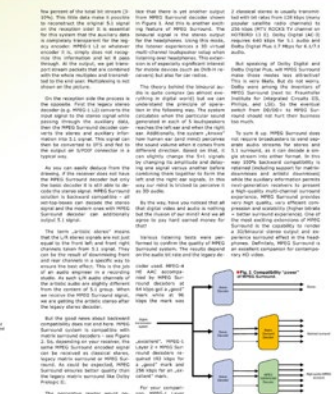
Are we to forget the old good audio codecs? Not exactly!

Jack Pawowski

When we think about digital TV we usually focus on HDV and refer to video resolution. To save bandwidth, the original video data stream has to be compressed. Most of our TV satellite receivers are very familiar with the two most popular video compression standards: MPEG-2 and H.264 (also known as MPEG-4 AVC or MPEG-4 Part 2).

But what about audio? Most of our TV satellite receivers are not familiar with the two most popular audio compression standards: MPEG-1 and MPEG-2. This is a pity, because these standards are very efficient and can provide high-quality audio with a low bit rate.

MPEG-1 and MPEG-2 are part of the MPEG family of standards. They are used for the compression of audio and video data. MPEG-1 is used for the compression of audio data, while MPEG-2 is used for the compression of video data. Both standards are very efficient and can provide high-quality data with a low bit rate.



www.TELE-audiovision.com/TELE-satellite-1105/eng/mpeg-surround.pdf

How the SFN Modulation Works

FEATURE

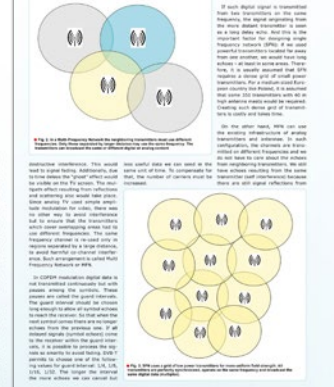
Transmission Technology

Single- and Multi-Frequency Networks in Digital Terrestrial Television

Jack Pawowski

DVB-T2 and DVB-T2-SD standards for digital terrestrial TV use COFDM modulation. COFDM stands for Coded Orthogonal Frequency Division Multiplexing and is a complex form of digital modulation developed to ensure high bit rate capacity along with interference immunity. The latter feature is what makes single frequency networks (SFN) practically possible.

SFNs are used in digital terrestrial television to allow multiple transmitters to broadcast the same signal on the same frequency. This is done by using COFDM modulation, which is a form of digital modulation that is very robust against interference. SFNs are used in a variety of applications, including digital terrestrial television, digital audio broadcasting, and digital mobile radio.



www.TELE-audiovision.com/TELE-satellite-1103/eng/sfn.pdf

How HbbTV Works

FEATURE TV Transmission Standard

HbbTV Hybrid broadcast broadband TV Get organized for the inevitable

This will not be a surprise for HbbTV readers. A new standard initiative has been started to integrate the digital TV world with the Internet. The basic idea is to make the average user as interested as possible. The HbbTV standard is not a new standard, but a new way of thinking about the average user and the way they interact with the digital TV world.

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www.TELE-audiovision.com/TELE-satellite-1101/eng/hbbtv.pdf

How DVB-C2 Works

FEATURE DVB in the best

Ultimate Spectral Efficiency DVB-C2 is around the corner

Jack Pawlowski

The DVB-C2 standard has been in use since 1994. The first for a second generation standard, it was developed by experts from European cable operators. The standard is now being developed by experts from European cable operators. The standard is now being developed by experts from European cable operators.

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www.TELE-audiovision.com/TELE-satellite-1009/eng/dvb-c2.pdf

Streaming TV via the Internet

FEATURE TV via Internet

Streaming TV via the Internet - Quick Setup and Free!

This wouldn't be the first time that we reported in TELE-audiovision streaming solutions that would let you receive TV and video content via the Internet. In this way you could be on vacation in your hotel on the other side of the world and playback your favorite programs from your living room or an internet stream or simply watch your favorite TV channels via an vacation.



www.TELE-audiovision.com/TELE-satellite-1007/eng/streaming.pdf

Testing Horizon to Horizon Actuator

FEATURE Horizon-to-Horizon Antenna Actuators

How Can You Test H-H Antenna Actuators?

Hein Koppitz



www.TELE-audiovision.com/TELE-satellite-1005/eng/h-h-actuator.pdf

How SCR Works

FEATURE SCR LNBs

Thanks to SCR: One single cable for up to eight receivers

Thomas Haring

SCR is a Short for Satellite Channel Receiver and is a specification defined in the EN 50444 standard, which applies worldwide and which is the result of joint forces between several companies under the guidance of SES Astra. So what's in it for you?



www.TELE-audiovision.com/TELE-satellite-0911/eng/scr.pdf

How Decoding Works

FEATURE Pay TV

Decoding of Encrypted Content

Thomas Haring

The currently used DVB standard provides for encrypted channels to be decoded according to the following procedure: A subscriber receives a smart card equipped with a key that is required to decode encrypted channels and/or programs. The relevant key is sent to the card via satellite. As each card features a unique serial number, content providers are in a position to activate or deactivate each individual smart card as necessary. In order to decode the encrypted transport stream transmitted by the satellite a code is required to be generated every few seconds. This code is calculated directly by the CI module or - in case of a proprietary receiver with built-in card required - by the internal circuit of the box, using a number of optional parameters which include - among others - the key that is stored on the smart card.



www.TELE-audiovision.com/TELE-satellite-0909/eng/decoding.pdf

How ABS-S Works

FEATURE New Digital Standard

ABS-S: a competition for DVB-S/S2?

Jack Pawlowski

When we were reading a press release about the launch of Zhongxing-9 (Changshu-9), it seemed like something quite routine. It was nothing out of the ordinary that China had another DTH satellite in service. It was the coding and modulation the satellite was supposed to use that surprised us. It was neither DVB-S nor DVB-S2. It was something brand new: ABS-S (Advanced Broadcast System Satellite).



www.TELE-audiovision.com/TELE-satellite-0903/eng/abs-s.pdf

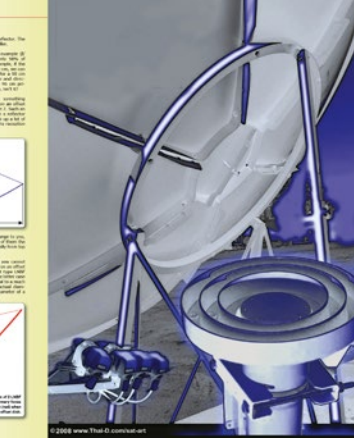
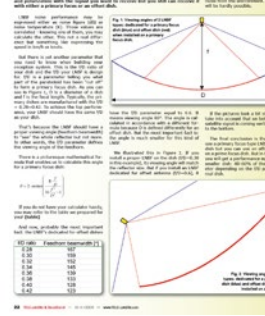
Matching LNB with Dish

FEATURE LNB Types

Matching LNB and Dish Type

Jack Pawlowski

While matching a satellite dish to a receiver is a well-known task, matching a dish to a Low Noise Block (LNB) is a less obvious one. The LNB is the component that receives the signal from the dish and converts it to a frequency that can be received by the receiver. The LNB is the component that receives the signal from the dish and converts it to a frequency that can be received by the receiver.



www.TELE-audiovision.com/TELE-satellite-0811/eng/lbn+dish.pdf

The SES satellite fleet & coverage

SES[^]

your satellite company

SES, a world-leading satellite operator, providing reliable and secure satellite communications solutions to broadcast, telecom, corporate and government customers worldwide.

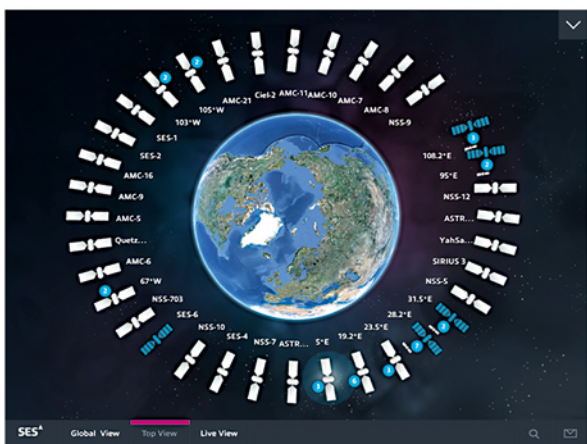


SES fleet & coverage
now in an iPad
app!



"We are pleased to showcase our fleet and coverage using the capabilities of the iPad, with 3D earth navigation and an augmented reality view. This tool illustrates the concept of satellites in space and coverage over the earth, as well as provides information that will enable our customers to learn more about our global fleet. With this new application, we are literally putting our satellite fleet in the hands of our customers."

(Niclas Friese Greene, Senior Vice President of Marketing and Corporate Communications, SES)



SES[^]
Headquarters

Château de Betzdorf, L-6815 Betzdorf, Luxembourg
Tel: +352 710 725 1 ■ <http://www.ses.com>

How to Calculate the Power Factor

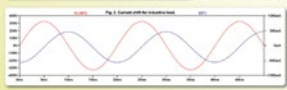
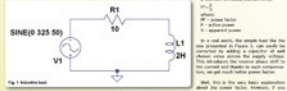
FEATURES Energy Saving

Power Factor

Jack Pawlowski

All our satellites need electrical energy to operate. Obviously, all of us like to have the device that consumes as little energy as possible. But only one thing we can't change but we can alter the power factor. In TELE-satellite, we usually provide information on power consumption of the tested products. The power is generally expressed in Watts (W) but sometimes also in Volt-Amperes (VA). What is the difference?

Let's imagine that we have a device that consumes 100W of power. This means that it needs 100W of power to operate. If we have a device that consumes 100VA of power, this means that it needs 100VA of power to operate. The difference between the two is the power factor. The power factor is a measure of how effectively the device uses the power it consumes. It is calculated as the ratio of real power (W) to complex power (VA). A power factor of 1.0 means that the device is using all the power it consumes effectively. A power factor less than 1.0 means that the device is not using all the power it consumes effectively. This is usually due to the presence of reactive power, which is power that is stored in the device and then returned to the source. Reactive power does not do any useful work, so it is a waste of energy. To improve the power factor, we need to reduce the amount of reactive power that is stored in the device. This can be done by using power factor correction techniques, such as adding capacitors or inductors to the circuit.



www.TELE-audiovision.com/TELE-satellite-0809/eng/powerfactor.pdf

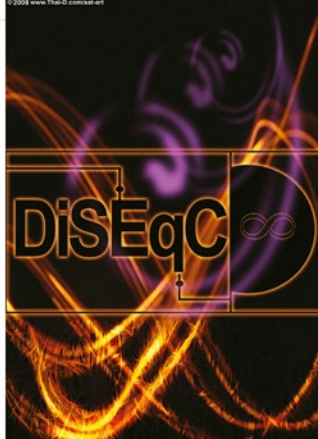
How to Solve Problems with DiSEqC

FEATURES DiSEqC

Why DiSEqC Isn't Always Reliable

Heinz Koppitz

The DiSEqC control system, introduced jointly by HELLER and Philips that came out in the mid-1990s, has been a reliable standard for many years. It allows the receiver to switch between different LNBs (Low Noise Block) and thus between different satellites. This is done by sending a digital signal (DiSEqC) to the LNB. The LNB then switches the output to the corresponding satellite. This system has been very successful, but it is not always reliable. There are several reasons for this. First, the DiSEqC signal is often weak, which can lead to errors. Second, the LNBs are often of different quality, which can also lead to errors. Third, the DiSEqC signal is often blocked by other signals, which can also lead to errors. To solve these problems, there are several things you can do. First, you can try to increase the DiSEqC signal strength. Second, you can try to use a different LNB. Third, you can try to use a different receiver. If these things don't work, you may need to contact the manufacturer for help.



www.TELE-audiovision.com/TELE-satellite-0807/eng/diseqc.pdf

How the 3D Diffractive Antenna Works

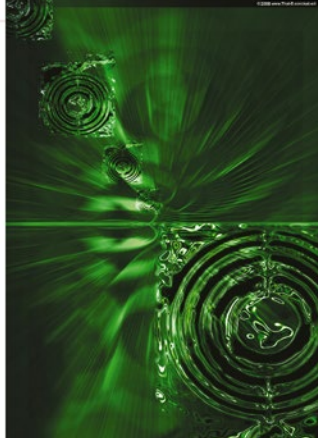
FEATURES Antenna Design

Development and Application of 3D Diffractive Antennas

V.M. Minin, O.V. Minin

Novosibirsk State Technical University, Russia

Recent developments in antenna technology have led to the development of 3D diffractive antennas. These antennas are made of a series of parallel lines that create a diffraction pattern. This pattern can be used to focus or direct the signal. 3D diffractive antennas have several advantages over traditional antennas. They are smaller, lighter, and easier to manufacture. They also have a wider bandwidth and can operate at higher frequencies. However, they also have some disadvantages. They are more sensitive to misalignment and have a lower gain than traditional antennas. To overcome these disadvantages, researchers are working on new designs for 3D diffractive antennas. These designs include using different materials and shapes for the lines, as well as using more complex diffraction patterns. The goal is to create antennas that are even better than the current ones.



www.TELE-audiovision.com/TELE-satellite-0805/eng/3ddiffractive.pdf

Relation between Dish Size and EIRP

FEATURES Dish Size

Dish Size versus EIRP

Jack Pawlowski

There are many factors that affect the EIRP (Equivalent Isotropically Radiated Power) of a satellite dish. One of the most important factors is the size of the dish. A larger dish will have a higher EIRP than a smaller dish. This is because a larger dish can collect more energy from the satellite. The EIRP is also affected by the frequency of the signal and the efficiency of the dish. To calculate the EIRP of a dish, you need to know the size of the dish, the frequency of the signal, and the efficiency of the dish. There are several formulas that can be used to calculate the EIRP. The most common one is the following: $EIRP = \frac{4\pi R^2 P}{\lambda^2}$, where R is the radius of the dish, P is the power, and λ is the wavelength. This formula shows that the EIRP is proportional to the square of the dish radius and the power, and inversely proportional to the square of the wavelength. This means that a larger dish, higher power, and lower frequency will result in a higher EIRP.



www.TELE-audiovision.com/TELE-satellite-0803/eng/dishsize.pdf

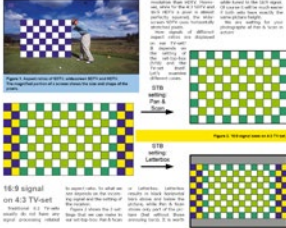
Secrets of the Aspect Ratio

FEATURES Aspect Ratio

Aspect Ratio – Isn't This Simple?

Jack Pawlowski

Aspect ratio is the ratio of image width to image height. It is usually expressed as a ratio of two numbers. For example, a 4:3 aspect ratio means that the width is 4 units and the height is 3 units. There are several different aspect ratios that are used in different applications. The most common ones are 4:3, 16:9, and 21:9. Each aspect ratio has its own advantages and disadvantages. For example, a 4:3 aspect ratio is good for watching movies, but it is not good for watching sports. A 16:9 aspect ratio is good for watching sports, but it is not good for watching movies. A 21:9 aspect ratio is good for watching both movies and sports, but it is not good for watching anything else. To choose the right aspect ratio, you need to know what you are watching and what you want to see. If you are watching a movie, you should choose a 4:3 aspect ratio. If you are watching sports, you should choose a 16:9 aspect ratio. If you are watching anything else, you should choose a 21:9 aspect ratio.



www.TELE-audiovision.com/TELE-satellite-0801/eng/aspectratio.pdf

How the Network Connection Works

FEATURES Receiver • Network

The Network Connection – a jack with multiple uses

Thomas Haring

More and more manufacturers are offering network connections for their receivers. This allows the receiver to be connected to a network and thus to the internet. This is a very useful feature, as it allows the receiver to download software updates and to stream content from the internet. However, there are some things you need to know about network connections. First, you need to make sure that your receiver is compatible with the network connection. Second, you need to make sure that you have a network connection available. Third, you need to make sure that you know how to use the network connection. If you follow these steps, you should be able to use the network connection successfully.



www.TELE-audiovision.com/TELE-satellite-0711/eng/networkconnections.pdf

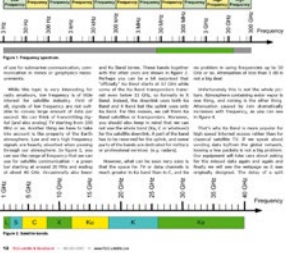
How the Ka Band Works

FEATURES Technology Background • Ka Band

Ka-Band – the future of satellite communication?

Peter Miller

We are entering the Ka-Band era. This band is the next step in the evolution of satellite communication. It offers many advantages over the current bands. It has a higher frequency, which allows for a smaller antenna. It also has a higher bandwidth, which allows for more data to be transmitted. However, it also has some disadvantages. It is more sensitive to atmospheric conditions and has a higher power requirement. To overcome these disadvantages, researchers are working on new technologies for the Ka-Band. These technologies include using different antenna designs and different modulation schemes. The goal is to create a Ka-Band system that is even better than the current ones.



www.TELE-audiovision.com/TELE-satellite-0709/eng/kaband.pdf

How MPEG Works

FEATURES Data Reduction in MPEG

How MPEG really works

An expert view on the deeper secrets of digital compression

Clive J. Grove

MPEG is a standard for digital video compression. It allows for a significant reduction in the size of the video file without losing too much quality. This is done by using a series of algorithms to compress the data. The most important algorithm is the Discrete Cosine Transform (DCT). This algorithm converts the video data into a series of coefficients. These coefficients are then quantized, which means that they are rounded to the nearest integer. This process reduces the amount of data that needs to be stored. The quantized coefficients are then encoded using a series of other algorithms. The final result is a compressed video file that is much smaller than the original file.



www.TELE-audiovision.com/TELE-satellite-0707/eng/mpeg.pdf

BluBox

Professional Headend 8/16/24/32 x DVB-S/S2 into QAM

The proven BluBox headend system offers a high quality modulation from DVB-S/S2 into DVB-C (QAM).



Features:

- 19" Base Unit with redundant switched-mode power supply.
- 4 slots for BluCard 8 or BluCard 4 CI cards.
- Modular extendable to up to 32 QAM transponders.
- LNB remote power with 14/18V + 22 kHz, DiSEqC 1.0 or SCR EN 50494.
- Configuration and monitoring via LAN/IP.
- Complete processing of the transport streams possible.
- Each of up to 32 output channels can be placed individually in the spectrum.
- Two independent input ports per BluCard 8/4 CI.
- BluCard 4 CI with 4 CI slots for the extension with Pay-TV programs.

SPAUN electronic GmbH & Co. KG

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- Live SD/HD TV streaming
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- Switchable DVB tuner design
- 19" 1 U rack-mount system



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Tel: (+86)755 2650 1345

(+86)755 2650 1201

Tvheadend

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VDR

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Jim Edstein's Satellite Station



- *streams satellite channels*
- *HD possible thanks to fast Internet access*
- *receives all satellites that are available in Taiwan*
- *little interfering radiation thanks to favourable mountainside location*

■ You would hardly expect such a huge satellite reception system deep in the mountains of central Taiwan. It belongs to Jim Edstein, who uses it to provide streaming services all around the globe.





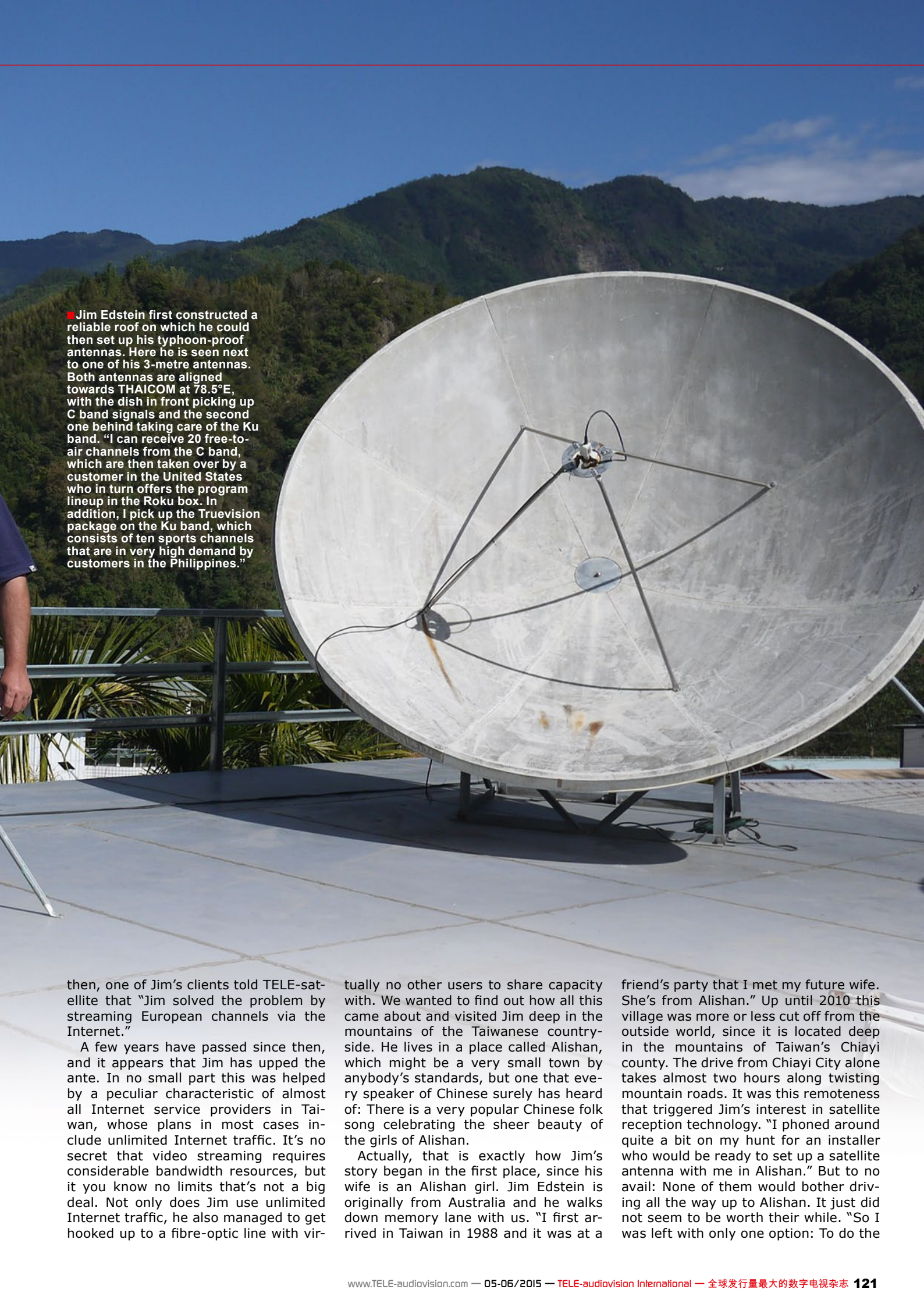
Service Provider for Satellite Channels

It was the year 2007 when TELE-audiovision published its first report on Jim Edstein in Taiwan (TELE-audiovision 06-07/2007). At the time Jim set up satellite systems predominantly for expats, that is to say foreigners living in Taiwan who wanted to watch TV channels from back home. While some US channels were carried on local Taiwanese plat-

forms either as free-to-air or as pay TV channels, there were many other channels that were not easily available in Taiwan. Jim catered for both markets. For locally available channels he installed satellite reception systems, but for all those additional channels he looked for other solutions. Back



Alishan,
Taiwan



■ Jim Edstein first constructed a reliable roof on which he could then set up his typhoon-proof antennas. Here he is seen next to one of his 3-metre antennas. Both antennas are aligned towards THAICOM at 78.5°E, with the dish in front picking up C band signals and the second one behind taking care of the Ku band. "I can receive 20 free-to-air channels from the C band, which are then taken over by a customer in the United States who in turn offers the program lineup in the Roku box. In addition, I pick up the Truevision package on the Ku band, which consists of ten sports channels that are in very high demand by customers in the Philippines."

then, one of Jim's clients told TELE-satellite that "Jim solved the problem by streaming European channels via the Internet."

A few years have passed since then, and it appears that Jim has upped the ante. In no small part this was helped by a peculiar characteristic of almost all Internet service providers in Taiwan, whose plans in most cases include unlimited Internet traffic. It's no secret that video streaming requires considerable bandwidth resources, but it you know no limits that's not a big deal. Not only does Jim use unlimited Internet traffic, he also managed to get hooked up to a fibre-optic line with vir-

tually no other users to share capacity with. We wanted to find out how all this came about and visited Jim deep in the mountains of the Taiwanese countryside. He lives in a place called Alishan, which might be a very small town by anybody's standards, but one that every speaker of Chinese surely has heard of: There is a very popular Chinese folk song celebrating the sheer beauty of the girls of Alishan.

Actually, that is exactly how Jim's story began in the first place, since his wife is an Alishan girl. Jim Edstein is originally from Australia and he walks down memory lane with us. "I first arrived in Taiwan in 1988 and it was at a

friend's party that I met my future wife. She's from Alishan." Up until 2010 this village was more or less cut off from the outside world, since it is located deep in the mountains of Taiwan's Chiayi county. The drive from Chiayi City alone takes almost two hours along twisting mountain roads. It was this remoteness that triggered Jim's interest in satellite reception technology. "I phoned around quite a bit on my hunt for an installer who would be ready to set up a satellite antenna with me in Alishan." But to no avail: None of them would bother driving all the way up to Alishan. It just did not seem to be worth their while. "So I was left with only one option: To do the



■ Jim Edstein points at two LNBs for reception of the Japanese Sky Perfect package. "These two LNBs use a LOF of 11,200 GHz and control voltage of 9/13V." Seen in the foreground is a 2.4-metre antenna for TELKOM at 108°E, with another 2.4-metre dish pointing towards PALAPS at 116°E. "I can catch some 85 free-to-air channels from that position alone," Jim explains, "which are very popular with customers in the Philippines and in Europe."

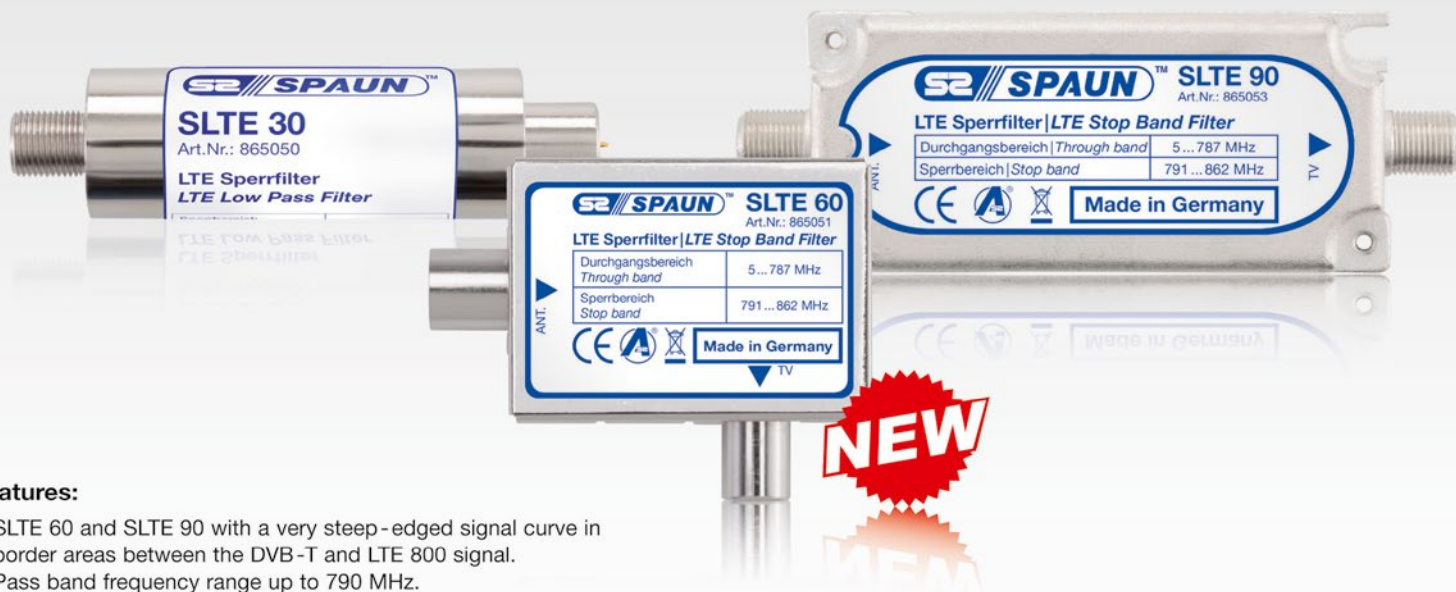


■ Jim is very proud of the robust construction he has devised. "The bars add extra stability, so that even the strongest winds won't move the antennas." Jim highlights another special characteristic: "All existing screws, nuts and lining disks have been replaced with stainless variants. This way I'll never have to worry about rust."

job on my own!" Over time, Jim Edstein had turned into a professional installer of satellite antennas, who knows all the ins and outs of satellite reception in Taiwan.

"In 2006 I began to stream the satellite channels I received." The local sports bars were among his first customers, as they were looking for sports broadcasts to show their guests. Jim opened this line of business in Taiwan's capital Taipei first and only spent the weekends in Alishan. "But all this commuting back and forth eventually started to go on my nerves and so I decided to move back to Alishan for good." He was lucky beyond his measure when a fibre-optic cable connected Alishan of all places to the country's Internet backbone. With fast and unlimited Internet access this new development opened many doors for Jim. "The Internet traffic I generate regularly reaches 1000 TB per month." When asked about how this huge amount of traffic is split up, Jim has the details for us: "I take care of point-to-point streaming for some 90 customers, which means there's a box

SLTE 30, SLTE 60 and SLTE 90



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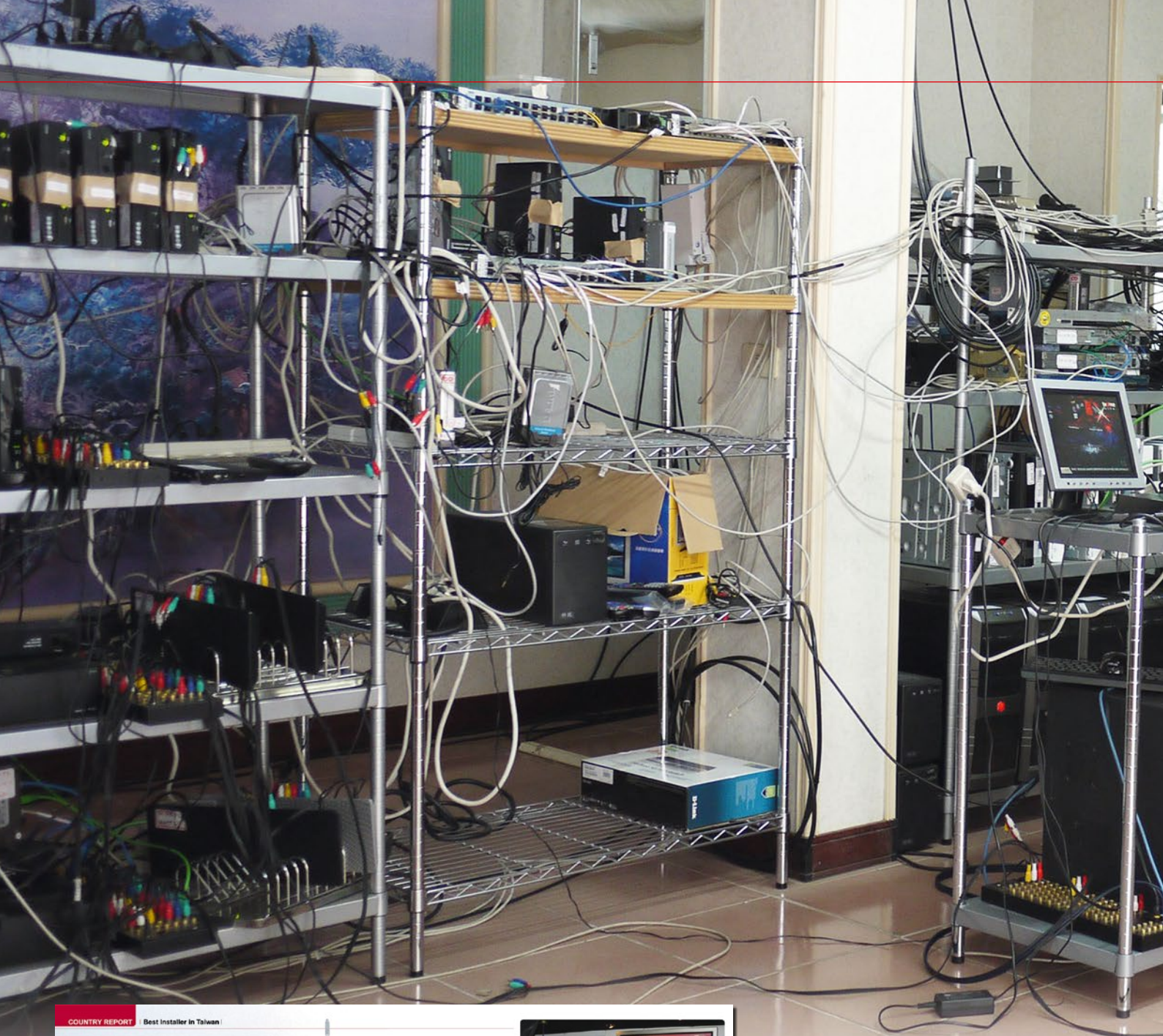
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DEVISER



COUNTRY REPORT Best Installer in Taiwan

Taiwansatellite.tv, Taipei

Alexander Wiese

You won't see too many satellite dishes in Taiwan. The country is for the most part completely laid out with cable. Every region has its own cable monopoly and therefore there is no competition. An average of 110 channels are offered by these cable operators with very little extra regional differences. Any channel that would be of interest to a local is available. Thus there is no real urge to install a satellite receiving system. And let's not forget that housing regulations and city ordinances come into play also, not to mention the overall limited space that would be available. Is there any satellite reception in Taiwan?

Jim Edstein answered this question with a resounding "YES" and did so in the most professional way. The 30-year-old Jim Edstein is a Taiwanese-born man who came to Taiwan 17 years ago. He has a passion for satellite TV and has been installing satellite systems for over a decade. He is the owner of Taiwan Satellite TV, a company that provides satellite TV services to customers in Taiwan. He is also the founder of Taiwansatellite.tv, a website that provides information about satellite TV in Taiwan. He is a very knowledgeable and experienced professional who has helped many customers in Taiwan to get the most out of their satellite TV systems. He is a true expert in the field and is always willing to help his customers with any questions they may have. He is a very friendly and approachable man who is always ready to assist his customers. He is a true professional who is always at the top of his game. He is a true expert in the field and is always willing to help his customers with any questions they may have. He is a very friendly and approachable man who is always ready to assist his customers. He is a true professional who is always at the top of his game.

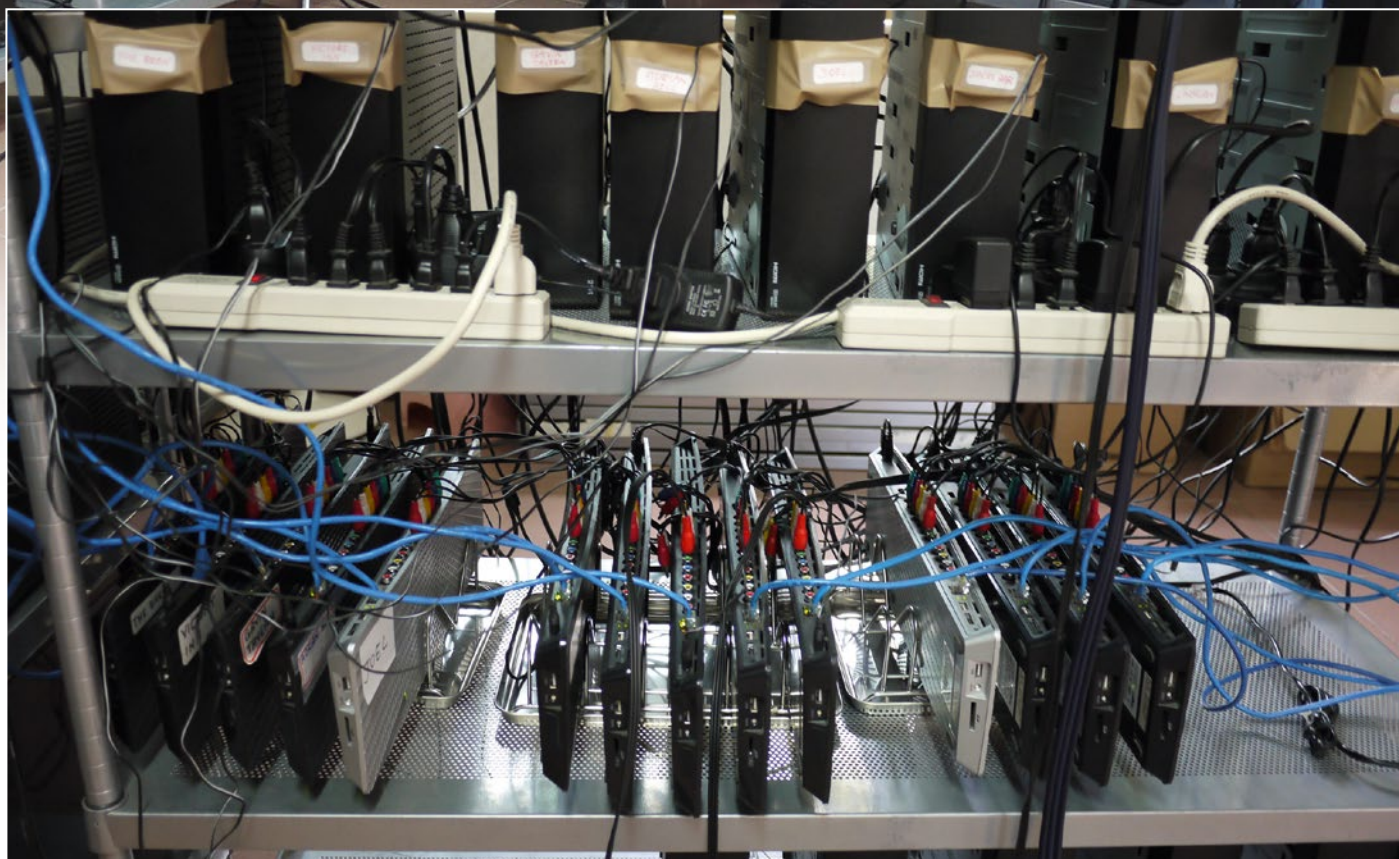
■ TELE-audiovision ran a story about Jim Edstein in issue 06-07/2007. At the time hemainly focused on installing satellite systems. Go back in time and have a look at
www.TELE-audiovision.com/TELE-satellite-0707/eng/taiwansatellite.pdf

here at my end which sends its signal directly to the end customer, something we call 1:1 streaming." For an additional seven customers Jim acts as hosting provider. "I simply host their equipment at my premises." And for another ten customers he provides unicast streams, mainly carrying sports broadcasts. He wants to expand this latter segment, in particular, and has even set up a dedicated website by the name of www.sportstraders.tv to that end.

So that's the story of Jim Edstein, an Australian living deep in the mountains of Taiwan who has become a provider of streams for all satellite channels that are available in Taiwan. And who can provide those streams to anybody around the globe, as long as they have fast Internet access. This way international TV channels are distributed worldwide via a small and remote Taiwanese town. Talk about a global village...



■ Jim Edstein and his makeshift engineering room. All receivers that are fed signals from the rooftop antennas are piled up here. And their output signals are then streamed to Jim's customers in all corners of the globe.



■ Receiver after receiver on the upper shelf. The IR sections for the remote controls are blinded with tape to make sure receivers cannot be switched to another channel by accident. The lower shelf row features routers that are required to stream the receivers' output signals via the Internet.



VAM 420 NG DVB-T
• Modulator with COFDM (DVB-T) output signal

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- Easy to create analog tv signals
- Adjacent channel capable
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■ The true centre of it all: This is Jim's fibre-optic Internet cable, without which he would never be able to offer channel streaming.



■ Here Jim Edstein explains to Aluosat's Luo Shigang how he has configured the multi-switch so that feed signals from the two dishes for the Japanese satellites at 124°E and 128°E are distributed to individual receivers.



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See DishPointer AR in action on YouTube!

DishPointer is the world's No.1 satellite dish pointing site, offering custom built tools for mobile devices or websites to businesses. For more information, visit www.dishpointer.com.

This app uses the iPhones GPS, motion sensor and compass to calculate all the satellite positions and overlays them on the camera. At a glance you will see where to point the dish and any obstacles blocking the line of sight.



References



www.dishpointer.com
info@dishpointer.com

The Decision Makers

in Worldwide Digital TV Industry

according to TELE-audiovision's Company Reports

Haenlein, Germany - Software Developer

- ☒ Manu
- ☒ Distr
- ☐ Whol
- ☐ Shop
- ☒ Serv



Owner

Ralf
Haenlein



Software

Sascha
Haenlein

www.TELE-audiovision.com/TELE-audiovision-1503/eng/haenlein.pdf



- Developing software since 1999
- Offering specialized PVR software since 2001
- Device-independent software since 2004

- Internationalization of the software through menus in every language
- Attractive offers for repeat customers and receiver manufacturers

Eico, Iceland - Distributor

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Co-Owner

Arnor
Sigurthorsson



Co-Owner

Sigthor
Sigthorsson

www.TELE-audiovision.com/TELE-audiovision-1503/eng/eico.pdf



- specialist for TV signal distribution
- uses the GlobalInvacom fibre-optic system with great success

- promising future of satellite reception in Iceland
- delivers products all over the country

Sumavision, China - Broadcast Solutions

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Founder

Haitao
Zheng



EMR

Hao Xu
Dong



Sales

George
Nie



Sales

Linda
Guo

www.TELE-audiovision.com/TELE-audiovision-1501/eng/sumavision.pdf



- End-to-End Technology for broadcasters with flexible adaptation to new standards and features
- Freely Expandable
- Applicable for networks starting at about 500 terminals up to millions

- Quick upgrades through module exchanges
- Full range of features for broadcasters in all digital TV modes

RT-RK, Serbia - Software Developer

- ☒ Manu
- ☒ Distr
- ☐ Whol
- ☐ Shop
- ☒ Serv



Founder

Vladimir
Kovacevic



Head of QA

Vukota
Pekovic

www.TELE-audiovision.com/TELE-audiovision-1411/eng/rt-rk.pdf



- develops software solutions for manufacturers of digital TV devices and content providers
- offers turnkey solutions for testing digital TV receivers; suitable for manufacturers, providers and also repair centres
- designs software solutions for manufacturers of Android-based receivers

- develops ready-to-use software packages for SatIP
- distributes a software solution for live testing of a television network through connected receivers on the viewers' side

Horizon, UK - Signal Meter Manufacturer

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☐ Shop
- ☒ Serv



GM

Ian
Robinson

www.TELE-audiovision.com/TELE-audiovision-1409/eng/horizon.pdf



- The IMC Group was formed in 2007
- IMC specialises in electronic and mechanical instrumentation
- IMC's products are used all over the world

- HORIZON fits perfect into the range of different measurement products of IMC
- HORIZON products frequently win international Product Awards

Jonsa, Taiwan - Satellite Dish Manufacturer

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☐ Shop
- ☒ Serv



CEO

David
Lin



Production

Stanley
Chiang



Sales

Conny
Chen



Marketing

Paula
Chen

www.TELE-audiovision.com/TELE-audiovision-1409/eng/jonsa.pdf



- exports satellite dishes worldwide for 25 years
- guarantees consistently high quality- even with extremely large volume production
- one of only few manufacturers of Ka band antennas

- produces all dish moulds in-house
- ready to manufacture special-purpose dishes, e.g. for multi-satellite reception with multi-LNB holder

Propulsa, Argentina - Dish Manufacturer
www.TELE-audiovision.com/TELE-audiovision-1407/eng/propulsa.pdf

☒ Manu
☐ Distr
☐ Whol
☐ Shop
☐ Serv



CEO
 Juan Carlos
 Vegas



Marketing
 Mitra
 Tarnonsky



- Produces all of the dish components themselves
- Also exports out of the country
- Active in the satellite business since 1982

- Expecting an expansion in activities due to the unblocking of the cable monopoly

Telecontrol, Germany - Analyzing TV Programs
www.TELE-audiovision.com/TELE-audiovision-1407/eng/telecontrol.pdf

☒ Manu
☐ Distr
☐ Whol
☒ Shop
☒ Serv



Chairman
 Guido
 Ciburski



CEO
 Petra
 Bauersachs



- Patented system lets a TV viewer personalize the EPG
- Favorite and often-watched TV channels are automatically recommended
- When commercials appear, the system can automatically change to

- another channel and then back again
- Currently only suitable for German-language TV channels
- Planned expansion into the international market

Hwadar, China - Fiberglass Dishes
www.TELE-audiovision.com/TELE-audiovision-1403/eng/hwadar.pdf

☒ Manu
☐ Distr
☐ Whol
☐ Shop
☐ Serv



CEO
 Wang
 Dang



Sales
 Monica
 Wang



Chief Engineer
 Zhong
 Zhiming



- one step at a time can lead to lasting success
- extraordinary quality thanks to the use of SMC fiberglass offset, PDA and segment dishes in all sizes can be produced

- supplier of choice even for small purchasers
- guarantees very long service life of its dishes

TELE System, Brazil - Logistics and Products
www.TELE-audiovision.com/TELE-audiovision-1403/eng/telesystem.pdf

☒ Manu
☒ Distr
☐ Whol
☐ Shop
☐ Serv



GM
 Marco
 Szili



Engineering
 Jonathan
 Gregory



R&D
 Marcos
 Santos



- largest supplier of complete reception systems for Brazilian pay TV providers
- technical know-how allows swift reaction to changing market requirements

- perfectly equipped for packaging and shipping products in large quantities
- focus on Brazil as the largest market in South America

DVBViewer, Germany - PC Card Software
www.TELE-audiovision.com/TELE-audiovision-1401/eng/dvbviewer.pdf

☒ Manu
☐ Distr
☒ Whol
☒ Shop
☒ Serv



Marketing
 Bernd
 Hackbart



Software
 Christian
 Hackbart



- Light version available at no cost since 2002
- Regular software updates

- Can receive all digital TV standards
- Preconfigured for UHDTV

BSD, Brazil - Digital TV Internet Forum
www.TELE-audiovision.com/TELE-audiovision-1311/eng/bsd.pdf

☐ Manu
☐ Distr
☒ Whol
☒ Shop
☐ Serv



GM
 Marcos
 Benni



- Largest Digital TV Internet forum in Brazil
- Reaches 400,000 readers every month

- Starting a new form of digital TV online shopping with a video shop
- Also active in IPTV and IP Radio

Elnet, Iceland - Distributor
www.TELE-audiovision.com/TELE-audiovision-1311/eng/elnet.pdf

☐ Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



GM
 Asmundur
 Einarsson



Sales
 Magnus
 Eyjolfsson



- can supply everything from DVB transmitters to DVB receivers
- always adapts its large range of products to meet current market demands

- believes in terrestrial and satellite DVB reception
- expects fibre-optic products to gain popularity in near future

GlobalInvacom, UK - Fibre Optic Products
www.TELE-audiovision.com/TELE-audiovision-1311/eng/globalinvacom.pdf

☒ Manu
☐ Distr
☐ Whol
☐ Shop
☐ Serv



Business Development
 Gary
 Stafford



Technical Support
 Matt
 Presdee



- Invented the new satellite IF transmission technology via fibre optics
- Five million FibreIRS connections are expected by 2015
- Through continuous technological improvements FibreIRS can now serve more than 4000 connections from a single LNB; for professional applications it's several 10,000's

- 14 Multiple R&D Engineers are consistently working to improve the system
- Northern Europe, North Africa and Southeast Asia are the largest FibreIRS markets

Oreind, Iceland - Distributor

- Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Founder

Baldur
Sveinsson



Founder

Sigurour
Gunnarsson

www.TELE-audiovision.com/TELE-audiovision-1309/eng/oreind.pdf



- successful in the home electronics segment
- all antenna installation material always in stock

- focus on IPTV for sustained business development
- sizable repair shop for home electronics equipment

Deviser, China - Signal Analyzer

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



President

Zhong
Changan



MD

Liu Lian
Jun



Production Manager

Li Hong
Xiao



Sales

Jason
Wu



www.TELE-audiovision.com/TELE-audiovision-1307/eng/deviser.pdf

- new company headquarters streamlines production and administration at a single site
- expansion of a dedicated repair and logistics centre in and for Europe

- strong growth in export markets
- state-of-the-art test benches for EMS and overvoltage protection

Dexin, China - Digital TV Head-ends

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



GM

Sun
Yu

www.TELE-audiovision.com/TELE-audiovision-1307/eng/dexin.pdf



- Established in 1994 in Chengdu
- Specializes in professional tv head-end equipment

- 50% of their production is exported
- Intense quality controls

Forcotech, China - IPTV Solution Provider

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Sales

Ren
Nan



Marketing

Lan
Haidong

www.TELE-audiovision.com/TELE-audiovision-1307/eng/forcotech.pdf



- offering technically mature and fully-fledged IPTV solutions
- large Chinese movie provider as showcase customer and shareholder

- small-scale IPTV systems can be realised on a tight budget
- excellent video quality thanks to P2P technology

Tianditong, China - Antennas

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



GM

Bang Xian
Peng



Production Manager

Bang Xing
Peng

www.TELE-audiovision.com/TELE-audiovision-1307/eng/tianditong.pdf



- uses state-of-the-art production machinery
- fully automatic quality control during the production process
- volume production of dish sizes from 45 to 180 cm

- ready for production of large quantities at short notice
- environmentally-friendly production according to international standards

ELDTEC, Brasil - Dish, Antennas and Cables

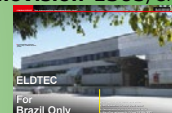
- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Sales Manager

Jefferson
Cruz

www.TELE-audiovision.com/TELE-audiovision-1305/eng/eldtec.pdf



- Large market coverage within Brazil
- OEM production for other brand names

- Concentration on just a few product series
- Also offers antennas for 2.4 and 5.8 GHz (WiFi)

LIANXING, China - Satellite Dishes

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Product Manager

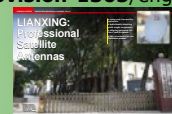
Wen Liang
Yuan



Sales Manager

Liao Wen
Fei

www.TELE-audiovision.com/TELE-audiovision-1305/eng/lianxing.pdf



- using only top-quality materials
- individually checking each single component

- offering antennas for the C and Ku bands
- very successful on the Japanese market

Jiuzhou, China - Android Receivers

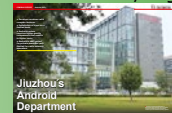
- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Product Manager

Yongjun
Zhang

www.TELE-audiovision.com/TELE-audiovision-1303/eng/jiuzhou.pdf



- Develops receivers with complex features
- Installation of Apps on a limited basis
- Android system requires higher quality components that results in

- higher costs
- Android is well-suited for private users but only limited for cable network operators

Sat-Link, China - Signal Analyzers

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



GM

Qing
Zhang Lin



Project

GuiHuang
Huang



Sales

Nancy



R&D

Han Guang
Rong



www.TELE-audiovision.com/TELE-audiovision-1303/eng/sat-link.pdf

- Only five years on the market
- Focusing on the signal analyzer product group
- Offers signal analyzers in four function classes and four price classes

- Optimizes signal analyzers for every region
- Brand new: combo analyzers for DVB-S2 and T2 with fast spectrum display

Tecsys, Brazil - Professional Equipment

www.TELE-audiovision.com/TELE-audiovision-1303/eng/tecsys.pdf

- ☑ Manu
- ☑ Distr
- ☑ Whol
- ☑ Shop
- ☑ Serv



CEO
Jose Marcos
Freire Martins



COO
Jorge Alberto
Ganuza



Production
Adilson da
Silva



- Very good operational organization
- Concentration on professional satellite reception products

- In-house development department
- IRD is their success product

Cosmosat, Argentina - Satellite Dishes

www.TELE-audiovision.com/TELE-audiovision-1301/eng/cosmosat.pdf


Owner
Ricardo



- Learned everything about satellite reception on his own
- Installs head end stations for cable operators as well as community systems

- Planning his own dish production
- Turned his hobby into his career

Horizon, UK - Signal Analyzers

www.TELE-audiovision.com/TELE-audiovision-1301/eng/horizon.pdf


Technical Director
Paul
Hardcastle



Technical Manager
Rob
Sydee



- Numerous new products for new DVB sectors
- Exports to every country as an OEM and under their own name
- Focusing expansion to emerging countries such as South Africa and in

- South America
- Specializes in easy to use analyzers for installers

Satson, Belgium - HDMI

www.TELE-audiovision.com/TELE-audiovision-1301/eng/satson.pdf

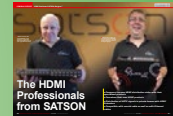
- ☑ Manu
- ☑ Distr
- ☑ Whol
- ☑ Shop
- ☑ Serv



CEO
Stefaan
Cornelis



Technical Manager
Didier
Debey



- Conquers the new HDMI distribution niche with their specialized products
- Conceives their own HDMI products

- Distribution of HDTV signals in private homes with HDMI Extenders
- Compatible with coaxial cable as well as with Ethernet cables

Antiference, UK - Antenna and HDMI

www.TELE-audiovision.com/TELE-satellite-1211/eng/antiference.pdf

- ☑ Manu
- ☑ Distr
- ☑ Whol
- ☑ Shop
- ☑ Serv



MD
Trevor
Paintain



Sales
Arnold
Boeijen



- Manufacturing TV antennas since 1937
- Provides all the components needed for TV reception
- Expanding into HDMI distribution, as well as wireless solutions

- Expanding distribution network to the European market
- Offers their own products as OEM and private label

USATel, Brazil - Distributor

www.TELE-audiovision.com/TELE-satellite-1211/eng/usatel.pdf

- ☑ Manu
- ☑ Distr
- ☑ Whol
- ☑ Shop
- ☑ Serv



MD
Jose Manuel
Pereira



CFO
Allam
Almughrabin



- Imports all of its products from China
- Optimized assortment for digital TV needs in Brazil

- Sells and ships almost exclusively to end users
- Expanding into new business segments such as WLAN and IPTV

DMS International, USA - Distributor

www.TELE-audiovision.com/TELE-satellite-1209/eng/dms-international.pdf

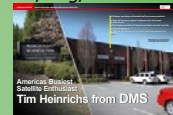
- ☑ Manu
- ☑ Distr
- ☑ Whol
- ☑ Shop
- ☑ Serv



CEO
Tim
Heinrichs



President
Vicky
Heinrichs



- Always working enthusiastically on new products
- Special focus on signal analyzers for the semi-professional
- Enormous growth of the international market outside of North America

- ica
- Innovative expansion of signal analyzer models for 2012

Topsignal, China - Satellite Dishes

www.TELE-audiovision.com/TELE-satellite-1209/eng/topsignal.pdf

- ☑ Manu
- ☑ Distr
- ☑ Whol
- ☑ Shop
- ☑ Serv



Chairman
Zongbao
King



GM
Chaofeng
Ge



Sales
James
You



- OEM delivering exclusively to Wholesalers
- Specializes in large production quantities
- Produces millions of satellite dishes and LNBs

- Majority of shipments go to South America
- Expanding product palette to include high-quality LNBs and VSAT

DVBCN, China - Internet News and Job Forum

www.TELE-audiovision.com/TELE-satellite-1207/eng/dvbcn.com.pdf

Manu
Distr
Whol
Shop
Serv



Owner
Anna
Xie



Chief Editor
Victor
Ho



- Known by every digital TV company in China
- Provides all information regarding digital TV
- Expanding in the areas of recruitment and software development

- Focusing in future technologies such as OTT and IPTV
- Working on international expansion

SVEC, China - Satellite Dishes

www.TELE-audiovision.com/TELE-satellite-1207/eng/svec.pdf

Manu
Distr
Whol
Shop
Serv



CEO
Wang
Duo



Sales
Becky



- Large investment in Quality Assurance
- Expanding VSAT and Ka-Band production

- Opening a new fully automatic satellite dish production line
- Focusing on top-of-the-line Quality dishes

TSReader, USA - Analyzer Software

www.TELE-audiovision.com/TELE-satellite-1207/eng/tsreader-rod-hewitt.pdf

Manu
Distr
Whol
Shop
Serv



Owner
Rod
Hewitt



- Wrote one of the most successful stream reader programs
- Developed a technical solution to archive TV channels for 'Internet Archive'

- Working on IPTV application programs
- Planning on a program for OCR recognition of BBC's EPG data

Hypex, UK - Distributor

www.TELE-audiovision.com/TELE-satellite-1205/eng/hypex-icecrypt-uk.pdf

Manu
Distr
Whol
Shop
Serv



MD
Neal



- Ships large dishes to Great Britain and Europe
- Offers successful product lines from ICECRYPT and GLOBALINVACOM

- Low prices thanks to minimal overhead costs
- Consistent sales despite pricing pressure

Ricks Satellite, USA - Distributor

www.TELE-audiovision.com/TELE-satellite-1205/eng/ricks-satellite-azbox.pdf

Manu
Distr
Whol
Shop
Serv



Owner
Rick
Caylor



Owner
Rick
Caylor



- celebrates its 10th anniversary in 2012
- distributes AZBox's receivers in North America

- is an enthusiastic satellite feedhunter
- sees a good future for the FTA market in North America

SatelliteGuys, USA - Internet Forum

www.TELE-audiovision.com/TELE-satellite-1205/eng/satelliteguys.us.pdf

Manu
Distr
Whol
Shop
Serv



Owner
Scott
Greczkowski



- Provides assistance with technical satellite reception questions
- Founded by Scott as a non-profit forum
- All advertising income is reinvested in better technology

- New is the use of the forums through Customer Service employees of digital TV companies

Sowell, China - IPTV Receivers

www.TELE-audiovision.com/TELE-satellite-1205/eng/sowell-iptv.pdf

Manu
Distr
Whol
Shop
Serv



GM
Eagle
Chain



- Already operating the first IPTV project
- 3D planned for the future

- Integration of TV reception with IPTV
- 60% of all Sowell receivers are already HD

Wadt, Brazil - Headends

www.TELE-audiovision.com/TELE-satellite-1205/wadt-brazil.pdf

Manu
Distr
Whol
Shop
Serv



Owner
Neide
Wadt



Technical Director
Joao
Wadt



- Involved in HF for more than 60 years
- New allocation of cable licenses in Brazil opens up huge opportunities for the company

- Specialized products for cable headends
- Only ships domestically

Jiuzhou, China - Receivers

www.TELE-audiovision.com/TELE-satellite-1203/jiuzhou-ott.pdf

Manu
Distr
Whol
Shop
Serv



Vice Marketing
Jimmy
Zhang



Vice GM
Richard



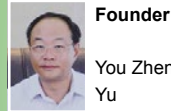
- Developes Digital TV receivers optimized for OTT
- Dedicated OTT development team

- Market for OTT in Europe and North America
- Upgrade of older digital receivers possible with a software upgrade

Panodic, China - Receivers



Manu
Distr
Whol
Shop
Serv



Founder

You Zhen
Yu



Founder

Huang
Wei



CEO

Xu Hai Bin



**Marketing
Manager**

Alan Yu



One of the
Top Five
Panodic



- Multiple quality control points before, during and after production
- Concentrating on digital TV products

- Cooperating with many license providers
- Continuous product palette expansion

Sortec, Slovakia - Distributors

Manu
Distr
Whol
Shop
Serv



Founder

Ladislav
Šmárik



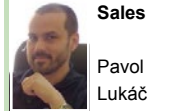
GM

Pavol
Macko



Sales

Alexander
Záhončík



Sales

Pavol
Lukáč



Number One
in Professional
Installations



- One of the largest wholesalers in Slovakia
- Success through distribution of well-known, high-quality brand names

- Move to their own building in 2012
- Active in new technologies such as fiber optics and IPTV

Turbosat, UK - Receivers

Manu
Distr
Whol
Shop
Serv



Sales

Chris
Ward



**Technical
Director**

Ray
Gargiulo



„Small and
Valuable“



- own receiver line ICECRYPT
- 50% of sales outside Great Britain
- Focus on receivers, CAM, SmartCards and LNBs

- 80,000 receivers a year
- produces Dolly Buster TV programming via HOTBIRD

BSD, Brazil - Internet Forum



Manu
Distr
Whol
Shop
Serv



Owner

Marcus
Bernardini



Benni's
BSD



- Operates Brazil's largest digital TV website
- Engaged in the further education of digital TV antenna installers

- Planning his own IPTV channel all about digital technology
- Living his dream with his own worldwide radio station

P-Sat, Hungary - Distributor

Manu
Distr
Whol
Shop
Serv



Owner

Tibor
Posta



How P-SAT
Wins New
Customers



- Has its own customer magazine
- Created supermarket style store

- Planning start of own branded TV services
- Operates one of the most well-known web communities in Hungary

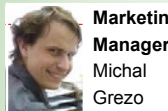
AB-COM, Slovakia - Receivers

Manu
Distr
Whol
Shop
Serv



Founder

Juraj
Masaryk



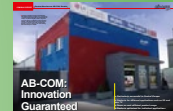
**Marketing
Manager**

Michal
Grezo



Sales

Pavol
Blaho



AB-COM:
Innovation
Guaranteed



- Particularly successful in Central Europe
- Products for different applications such as 3D and pay TV

- Focus on cost-efficient product range
- Products optimised for individual applications

Applied Instruments, USA - Signal Analyzers

Manu
Distr
Whol
Shop
Serv



GM

Tom
Haywood



Engineering

Jeff Haas



Sales

Scott
Haywood



25 Years
Applied
Instruments



- The power of this company is its robust signal analyzers
- Company plans worldwide expansion with its internationally compatible analyzers

- Special test signal generators for receiver manufacturers
- Special attention to ergonomic operation
- Technical customer service an important highlight of the company

Huber+Suhner, Switzerland - Fibre Optics

Manu
Distr
Whol
Shop
Serv



**Marketing
Manager**

Othmar
Fuchs



Fiber Optics at
HUBER+SUHNER

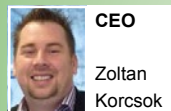


- One of the leading fiber optic companies in the world
- New CLIK! System for easy installation
- New market segment that will make coaxial cable distribution systems

- obsolete
- Now available: economical alternative with distribution systems starting with eight users

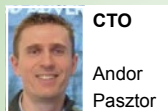
iPONT, Hungary - 3DTV

Manu
Distr
Whol
Shop
Serv



CEO

Zoltan
Korcsok



CTO

Andor
Pasztor



iPONT and 3D



- iPONT's software solution converts 3D for use with auto-stereoscopic monitors
- 3D enjoyment without annoying glasses
- Potential for receiver manufacturers to expand their STB's to include

- 3D
- Compatible with the variety of manufacturer auto-stereoscopic monitor solutions

Megasat, Germany - Receiver and Wholesaler

www.TELE-audiovision.com/TELE-satellite-1109/megasat.pdf

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



GM
Sven
Melzer

- 80% of distributed products come from in-house MEGASAT brand
- full range of satellite components

- special focus on self-aligning camping antennas
- distribution to the whole of Europe



Sapro, Czech - Receiver and Wholesaler

www.TELE-audiovision.com/TELE-satellite-1109/sapro.pdf

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Owner
Lubomir
Proboszcz



Sales
Petr
Zwrtek



Sales
Jana
Proboszczová

- Covers every price segment with its four brand names
- Starting expansion to surrounding countries

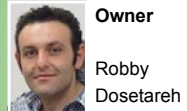
- In-house design and production (assembly line)
- Produces 100,000 receivers per year



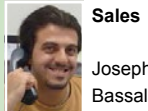
WSInternational, USA - Receiver and Wholesaler

www.TELE-audiovision.com/TELE-satellite-1109/wsinternational.pdf

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Owner
Robby
Dosetareh



Sales
Joseph
Bassala

- Successful Young Company with Ambition
- Manufacturer of Satellite Components

- Plan for Worldwide Expansion with Satellite Signal Analyzers
- Inexpensive Products Thanks to Efficient Production and Distribution



BYA, Algeria - Dishes and Receiver

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

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



GM
Slimane
Ait Yala

Boiingsat, China - LNB

www.TELE-audiovision.com/TELE-satellite-1105/boiingsat.pdf

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



GM
Haowen
Chiang



Co-Owner
Yunnjye
Qin



Sales
Jason
Chiang

- Three Production Locations in Zhuhai/ China
- Large Sales Expansion in South America

- In the Works: LNB with Two Feed Rings



Bomare, Algeria - Receiver

www.TELE-audiovision.com/TELE-satellite-1105/bomare.pdf

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv

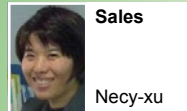


Technical Manager
Tewfik
Lamrani

Prevail, China - Fibre Optics and CATV

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

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Sales
Necy-xu



Sales
Helen



Production Manager
Ren
Guorui

- Substantially Increased Sales for 2011 Thanks to Rising Exports
- Additional Factory Soon to be in Operation
- Increased Number of Employees

- Four New SMT Machines in Operation
- Very Active R&D Team



Jiuzhou, China - IPTV Boxes

www.TELE-audiovision.com/TELE-satellite-1103/jiuzhou.pdf

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Sales
Huang
Wei



Vice Marketing
Jimmy
Zhang

- IPTV box production may reach 1 million units in 2011
- Jiuzhou starts HbbTV boxes for Europe

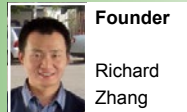
- Big retailers about to launch into IPTV box sales
- Jiuzhou to attend all major exhibitions in 2011, 10 in all



Tenow, China - PC Cards

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

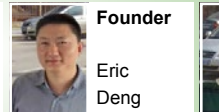
- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Founder
Richard
Zhang



Founder
Bob
Liu



Founder
Eric
Deng



Founder
James
Liu

NetUP, Russia - IPTV

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

- ☒ Manu
- ☒ Distr
- ☒ Whol
- ☒ Shop
- ☒ Serv



Co-Founder
Abylay
Ospan



Co-Founder
Evgeniy
Makeev



Sales
Konstantin
Emelyanov

NetUP, Russia - IPTV



Tevii, Taiwan - PC Cards and Receiver

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



Founder
Matthias
Liu

www.TELE-audiovision.com/TELE-satellite-1101/tevii.pdf

Satbeams, Belgium - Software

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- ☒ Serv



Founder
Alexander
Derjugin

www.TELE-audiovision.com/TELE-satellite-1011/satbeams.pdf

Spaun, Germany - Power Supplies

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



IBC
Certificate
Holder



MD
Kevin
Spaun

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

Boxsam, China - Receivers

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



GM
Xiaofeng
Huang



VP
Jeffrey
Zhao

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

Atlanta, Dubai - Wholesaler

- Manu
- Distr
- ☒ Whol
- Shop
- Serv



Founder
Rajmal
Jain



Director
Sanjeev
Jain

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

Yinhe, China - Receiver

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



**Marketing
Manager**
Jianbiao
Zhu

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

GlobalInvacom, UK - Fibre Optics

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



Sales
David
Fugeman

www.TELE-audiovision.com/TELE-satellite-1005/globalinvacom.pdf

Changhong, China - Receiver

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



Sales
Richard
Cheng Li

www.TELE-audiovision.com/TELE-satellite-1003/changhong.pdf

Kaifa, China - Receivers

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



**Marketing
Manager**
Jackie
Yan

www.TELE-audiovision.com/TELE-satellite-1003/kaifa.pdf

Skyworth, China - Receivers

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



Vice GM
David
Ken



**Technical
Manager**
Jack
Zhang

www.TELE-audiovision.com/TELE-satellite-1003/skyworth.pdf

Promax, Spain - Signal Analyzers

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



Founder
José
Clotet



GM
José-Maria
Clotet

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

Infosat, Thailand - Dishes

- ☒ Manu
- ☒ Distr
- Whol
- Shop
- Serv



Founder
Niran
Tangpiroontham

www.TELE-audiovision.com/TELE-satellite-0907/infosat.pdf


TELE-audiovision Global Company Directory |

Aluosat, China - Wholesaler

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

Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



Founder
 Luo
 Shigang



Sales
 Luo
 Jun



MFC, USA - Filters

www.TELE-audiovision.com/TELE-satellite-0903/mfc.pdf

Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



CEO
 Carl
 Fahrenkrug



Sales
 Scott
 Parsell



Marketing Manager
 Sandy
 Nelepovitz



Nanoxx, Germany - Wholesaler and Receivers

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

Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



Founder
 Marcel
 Hofbauer



Sales
 Daniel
 Sam



Smart, Germany - Receivers

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

Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



MD
 Peter
 Löble



MD
 Christoph
 Hoefler



Spaun, Germany - Accessories

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

Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



IBC
 Certificate
 Holder



Founder
 Friedrich
 Spaun



MD
 Kevin
 Spaun



Technical Manager
 Steffen
 Kuck



Stab, Italy - Motors

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

Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



Founder
 Giorgio
 Bergamini



Subur Semesta, Indonesia - Dishes

www.TELE-audiovision.com/TELE-satellite-0805/subursemesta.pdf

Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



MD
 Tjia
 Tek Ijoe



Finance
 Liong
 Ten Fook



Technical
 Thiang
 Tiong An



Dishpointer, UK - Software

www.TELE-audiovision.com/TELE-satellite-0803/dishpointer.pdf

Manu
☒ Distr
☒ Whol
☒ Shop
☒ Serv



Owner
 Alan



SATBEAMS

GOES MOBILE!



**Worlds best offline satellite browser,
 dish alignment calculator and
 AR Sat finder for your tablet or
 smartphone**

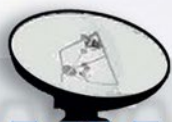
WWW.SATBEAMS.COM



Look at India!

Satellite Signal Reception Discussion Forum for Indian DTH Services, C Band and Ku Band Reception

Dish
Tuning



www.dishtuning.com



CHINA'S BEST FORUM on Digital Video Broadcast

HotTVNews
WiredNetworkDVB-S
DVB-C TV-operators
VoIP-IPTV TV-advertising
IntelligentTelevision
MobileTV
OnlineVideo
TVVideoEDA
Pay-TV BroadcastSecurity
DABHDchannelsLaunchCoverage
DTMB Television CMMB-network
DVB-T MonitoringSTB-Design
Internet
radioMDTV TV-Software
IPTV CPU Digital
CATV

FORUM

DVB CN
数字电视中文网



www.dvbcn.com

Read it in English: <http://translate.google.com/translate?hl=en&sl=zh-CN&tl=en&u=http://www.dvbcn.com>



MOST FAMOUS Satellite and TVRO Enthusiasts **WORLDWIDE**



Mike Kohl

USA

Plain, Madison, Wisconsin, USA

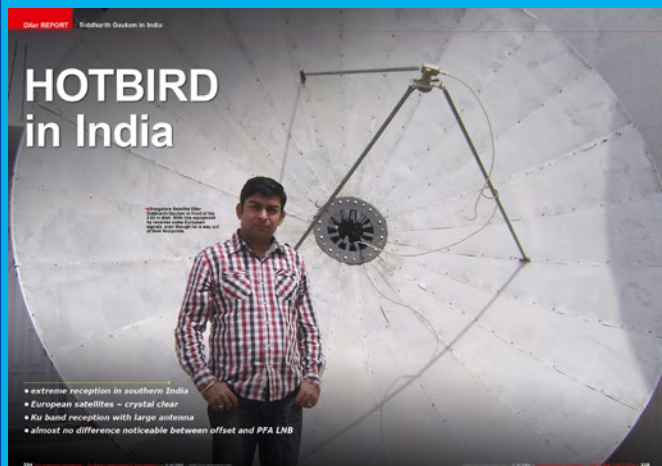


www.tavmag.com/TELE-audiovision-1405/eng/dxer-mikekohl.pdf

Siddharth Gautam

India

Bangalore, India



www.tavmag.com/TELE-audiovision-1311/eng/dxer-siddharth.pdf

Daniel Rank

Germany

Blankenberg, Germany



www.tavmag.com/TELE-audiovision-1403/eng/dxer-danielrank.pdf

Lasmotos

Argentina

Daniel Hasink, Buenos Aires, Argentina



www.tavmag.com/TELE-audiovision-1305/eng/dxer-lasmotos.pdf

Flavio Pairol

Brazil

Sao Jose dos Campos, Brazil



www.tavmag.com/TELE-audiovision-1401/eng/dxer-flaviopairol.pdf

FTA Fan

USA

Michael Kilgore, Denver, USA



www.tavmag.com/TELE-audiovision-1303/eng/dxer-michael.pdf

Henry

Henry Kapitapita, Zomba, Malawi

Malawi



Henry's Colorful Dishes

- Receives all of the FTA channels in the Ku-band
- Educated himself on everything to do with satellite reception
- Would like larger dishes for the C-band
- Setting up his own TV and radio channel

www.tavmag.com/TELE-audiovision-1301/eng/dxer-henry.pdf

Oscar

Oscar Campos, Santiago, Chile

Chile



Oscar's Satellite Station

- Receives the entire world with his seven Ku-band dishes and one C-band antenna
- As a former uplink station employee, he knows his way around satellite TV
- His dishes are his mascots
- Always comes home from trips with satellite components

www.tavmag.com/TELE-satellite-1209/eng/oscar.pdf

Natalino

Natalino, Jundiaí, Brazil

Brazil



The Technically Enthusiastic Natalino

- Receives with eight satellite dishes
- Watches it all on three big-screen TVs
- Always buying the latest equipment
- Regularly keeps himself informed about everything new in the world of satellites
- Very lucky with his wife: she encourages him

www.tavmag.com/TELE-satellite-1211/eng/natalino.pdf

Big Ronaldo

Ronaldo Zovaro, Louveira, Brazil

Brazil



The Big Ronaldo

- Expanded his hobby into two successful companies
- Offers wireless Internet in the 2.4 and 5.8 MHz ranges
- Satellite DXing at a very low elevation
- Enthusiasm for technology led to his hobby and his profession

www.tavmag.com/TELE-satellite-1207/eng/bigronaldo.pdf

Jack

Jack Moran, San Diego, USA

USA



Satellite DXer for 35 Years

- One of the first satellite DXers in the USA
- Regularly records bullfights
- Has his own editing studio in his home
- Follows NASA's TV broadcasts

www.tavmag.com/TELE-satellite-1211/eng/dxerjackmoran.pdf

DX-Ralf

Ralf Sunke, Emlichheim, Germany

Germany



"My Motto: Find TV, Not Watch TV"

- Receives more than 8000 TV channels from 41 satellite positions
- Collects feed horns and LNBs
- Learned everything on his own
- Proved with the construction of a milk carton dish that simple solutions are also possible

www.tavmag.com/TELE-satellite-1207/eng/dx-ralf.pdf

SatGuy

USA

Scott Greczkowski, Newington, CT, USA



www.tavmag.com/TELE-satellite-1205/eng/satelliteguys.us.pdf

DX Bozoth

Hungary

Laszlo Toth, Püspökladany



www.tavmag.com/TELE-satellite-1111/eng/dx-bozoth.pdf

Györgi

Hungary

Györgi (George), Budapest



www.tavmag.com/TELE-satellite-1203/eng/dxerbudapest.pdf

Ken Wong

Hongkong

Ken Wong, Hongkong



www.tavmag.com/TELE-satellite-1111/eng/dxerhongkong.pdf

Benni

Brazil

Marcos Eduardo Bernardini, Jundiá (SP)



www.tavmag.com/TELE-satellite-1201/eng/bsd.pdf

DXer

Iran

Daryoush, Mehdi, Saeed, Davood, Milad



www.tavmag.com/TELE-satellite-1107/eng/dishes-in-iran.pdf

Jang Lee, Gangwon

• Satellite Enthusiast in Korea

Farmer Jang Lee lives in the Gangwon province in northeastern South Korea. As is typical for any farmer, he most often uses shovels of all different shapes and sizes. But since he's also a satellite enthusiast, he uses these shovels not only for his daily farming work but also as satellite dishes! This is something we just had to take a closer look at.



The collage consists of six photographs arranged in a 3x2 grid, illustrating the steps of a satellite dish installation project.

 Top-left: A satellite dish is being mounted onto a metal frame.

 Top-right: A satellite dish is being aligned with a red laser line.

 Middle-left: A satellite dish is being mounted onto a yellow perforated metal plate.

 Middle-right: A satellite dish is being aligned with a red laser line.

 Bottom-left: A satellite dish is being mounted onto a yellow perforated metal plate.

 Bottom-right: A satellite dish is being aligned with a red laser line.

www.tavmag.com/TELE-satellite-1105/eng/korea.pdf

Pepsi, Mengyang, Sichuan, China

Satellite Diker Pepsi from Chengdu, China

Satellite *Oikers* are a rather new species in China. One of the select few is *Pepsi* in the city of Mengyang in Sichuan province in south-western China. Why would anybody choose the nickname *Pepsi*, you may ask? Well, that's not difficult to guess: *Pepsi* used to work for the company by the same name.

[illegible]

www.tavmag.com/TELE-satellite-1011/eng/pepsi.pdf

Keito Takahashi and Takao Kameda, Tokyo

1

Satellite Enthusiasts in Japan

* Japan's most prominent satellite enthusiasts are Keito Takahashi and Takao Kameda, both of whom live in Tokyo. We paid a visit to them and found out about their tricks of the trade.

[illegible]

www.tavmag.com/TELE-satellite-1103/eng/japan-dxer.pdf

Jiri Vanek, Jablonec nad Nisou

the racer

A man with a shaved head, wearing a white t-shirt and dark trousers, stands in a room. To his left is a large potted plant. Behind him is a television set on a stand, and to the right are shelves filled with various electronic equipment and components. The room has wooden beams on the ceiling.

► On the left: In the space of his home, the German physicist, 37, has built a laboratory for his experiments. He has a television, a computer, a potted plant, a lamp, a clock, a radio, a stereo, a microwave, a refrigerator, a washing machine, a dryer, a vacuum cleaner, a lawnmower, a car, a boat, a house, a family, a life.

A large, multi-story house with a gabled roof and several windows. The house is light-colored with dark trim around the windows. In the foreground, there is a small, dark-colored shed or outbuilding. To the right of the house, there are several large satellite dishes mounted on poles. The house appears to be in a suburban or rural setting.

► On the right: The physicist's home is a large, multi-story house with a gabled roof. The house is light-colored with dark trim around the windows. In the foreground, there is a small, dark-colored shed or outbuilding. To the right of the house, there are several large satellite dishes mounted on poles. The house appears to be in a suburban or rural setting.

www.tavmag.com/TELE-satellite-1009/eng/jiri.pdf

Rainer Schulz and Berndt Rosenberger, Tröbitz

öbitz

have you ever built a satellite receiver yourself? Not many have, but Rainer Schulz from the small town of Tröbitz an der Lausitz in the East of Germany is one of the very few who achieved just that in 1988. And he didn't stop there. He even built a 1.5m antenna to go with it. It's no surprise then that he chose to become self-employed and founded a small satellite dispatching business which today is run by



E-Commerce
Schulz & Knoll USA

Author Bio: *Shirley Schulz is a writer, editor, and publisher of the award-winning business magazine, **E-Commerce**. She is also the author of the book, **E-Commerce: The New Business Model**. She is a frequent speaker at industry conferences and has been featured in numerous media outlets.*

Photo: *Shirley Schulz is a writer, editor, and publisher of the award-winning business magazine, **E-Commerce**. She is also the author of the book, **E-Commerce: The New Business Model**. She is a frequent speaker at industry conferences and has been featured in numerous media outlets.*

www.tavmag.com/TELE-satellite-1101/eng/ponny.pdf

Siddharth Gautam, New Delhi

My First in March

Siddharth Gautam operates a major satellite reception station in New Delhi. When the time had come for a refurbishment he invites us to get a first-hand impression of his job. Siddharth Gautam tells us why these changes have become necessary: "The main reason is the relocation of the eight dishes, so that they do not interfere with each other any longer. After all, every dB counts!"

[illegible]

www.tavmag.com/TELE-satellite-1007/eng/india.pdf

Astra Fan

Cahit Nuri Or, Adapazari

Turkey

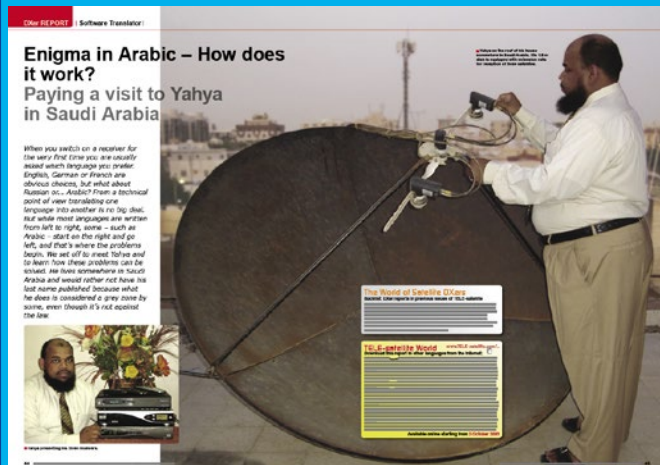


www.tavmag.com/TELE-satellite-1005/eng/astrainturkey.pdf

Yahya

Yahya, Saudi Arabia

Saudi Arabia



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

Satheesan

Satheesan Puzhakkara, Thiruvananthapuram

India



www.tavmag.com/TELE-satellite-1003/eng/indiadxer.pdf

Vincent

Vincent, Jakarta

Indonesia



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Hakan

Hakan Kasli, Antalya

Turkey



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Stone

ShiToy, Beijing

China



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Roy UK

Roy Carman, London



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Pharmacist South Africa

Pieter Redelinghuys, Klerksdorp



www.tavmag.com/TELE-satellite-0901/eng/pharmacist.pdf

Applesat China

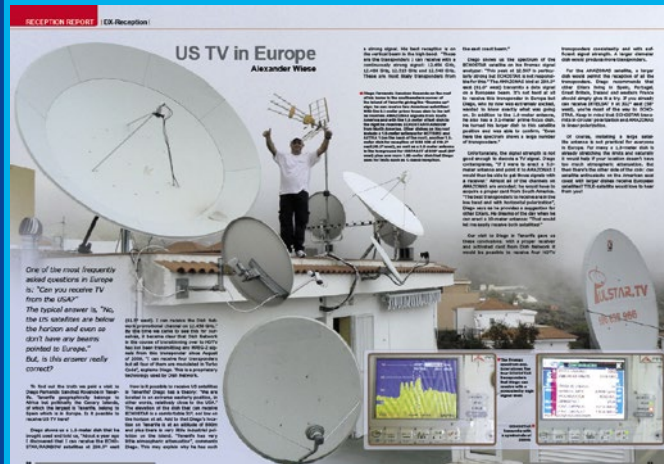
Applesat, Beijing



www.tavmag.com/TELE-satellite-0907/eng/applesat.pdf

Diego Spain

Diego Fernando Sanchez Rosende, Tenerife



www.tavmag.com/TELE-satellite-0901/eng/dxer.pdf

Aluosat China

Luo Shigang, Shenzhen



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

Feedhunter Netherlands

Rini de Weijze, Amsterdam



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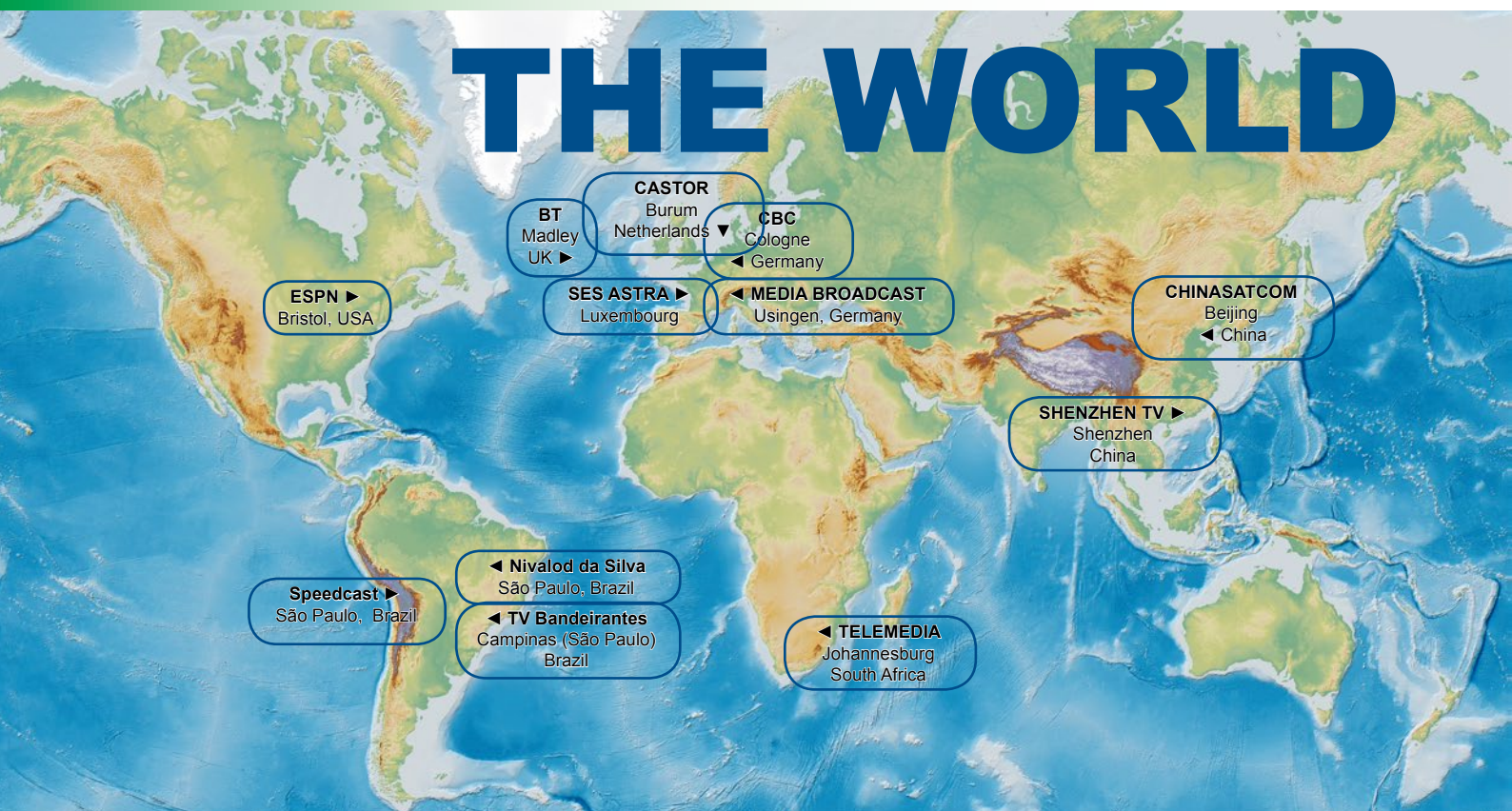


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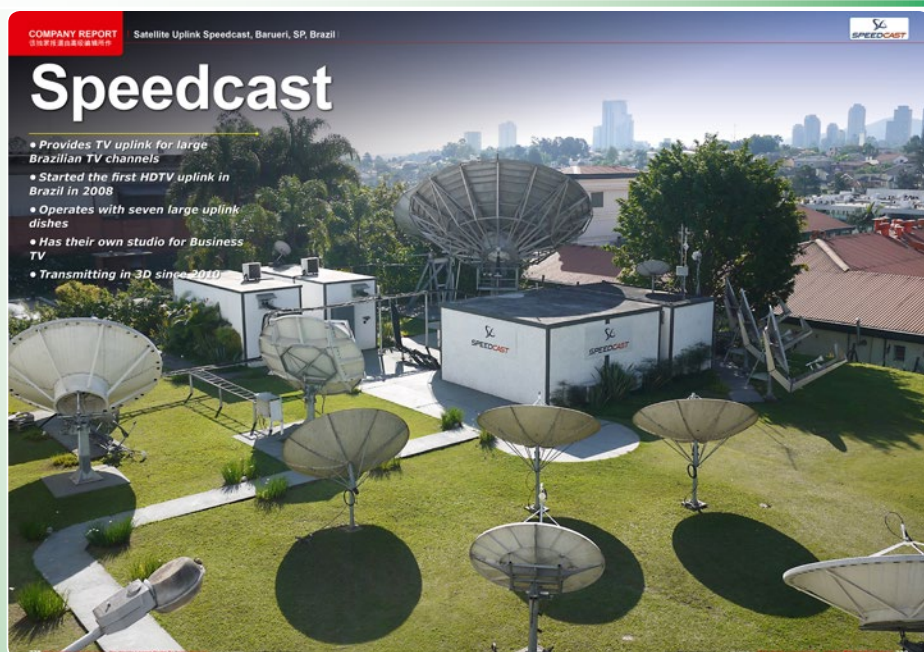


Speedcast Sao Paulo Brazil

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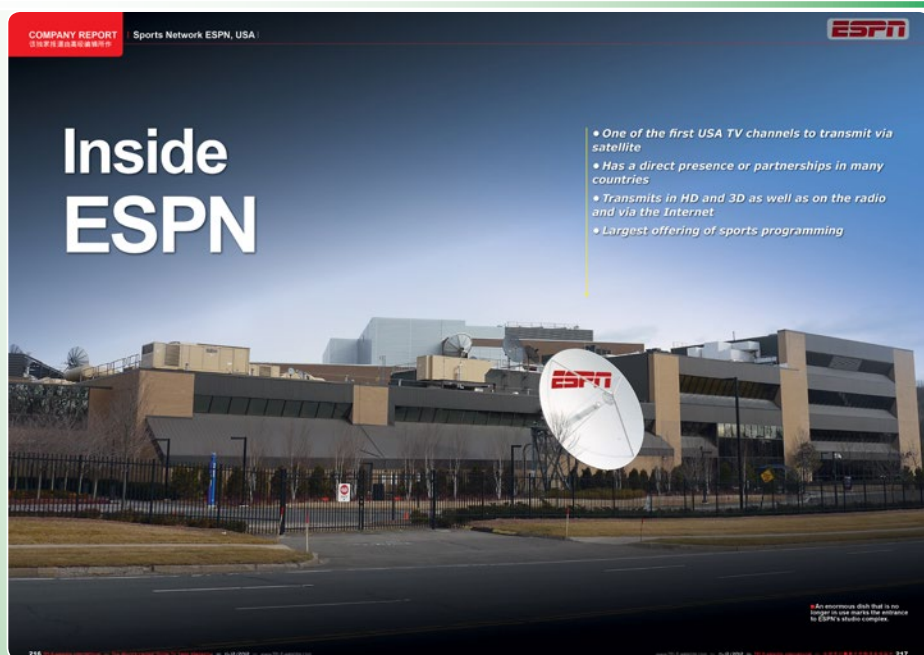


ESPN Bristol USA

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Nivaldo da Silva São Paulo Brazil

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Castor Burum Netherlands

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/12/03/castor](http://www.tavmag.com/12/03/castor)

COMPANY REPORT Satellite Uplink Station, Netherlands

CASTOR:
More than an Uplink Station

- Internet and TV uplink for cruise ships
- Data services for specific user groups
- Uplink for many Dutch radio channels
- Downlink/encoding for IPTV providers
- Free capacity for additional uplink customers

CBC Cologne Germany

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COMPANY REPORT Uplink Provider

Zero Tape – Full HD

- all programming content stored as files
- huge file-based electronic archive
- global content distribution
- production and international playout of live coverage of German Bundesliga soccer matches
- fully equipped for HDTV

BT Madley UK

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/11/11/bt](http://www.tavmag.com/11/11/bt)

COMPANY REPORT BT Madley International Communications Centre, UK

Partner for the Big Players

- Operates 65 dishes in southwestern Great Britain
- Recently began offering uplink services for programming providers
- Equipped for HD and 3D program processing
- International optical links in all directions
- Highly motivated technical specialists

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COMPANY REPORT
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Satellite Provider



SES ASTRA

Spreading its Wings

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- SES with shareholding in world-wide Internet-via-satellite MEO system
- 34 satellites around the world
- extremely low error tolerance makes for equally low failure rate
- remote monitoring of all SES ASTRA satellites via company-run reception stations



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Satellite Provider



STATION REPORT | Earth Station Usingen, Germany

Satellite Reception with a 19 Metre Dish

30 Years of Satellite Reception and Uplink in Usingen near Frankfurt

In an age of ever decreasing antenna sizes and only very few satellite Dikers using large dishes it's a welcome change to explore really huge antennas close-up. These can only be found in professional settings, of course, and in particular where TV channels are beamed up to a satellite: at satellite earth stations. One of Europe's top 5 stations is located close to the small town of Usingen, not far from Frankfurt in Germany.

View of a section of the Usingen earth station, where stands a total of 113 antennas.

Station manager Carsten Wittenberg and his son, the technical director of the station, are sitting at the control desk. The screen in the background shows satellite imagery.

Aerial view of the Usingen earth station, showing a large number of satellite dishes of various sizes mounted on a grassy field. A building is visible in the background.

[illegible]



China Satellite Communications Co. Ltd.

ChinaSat 5A

ChinaSat 5D

ChinaSat 6A

ChinaSat 6B

ChinaSat 9

ChinaSat 10

ChinaSat 11

ChinaSat 12

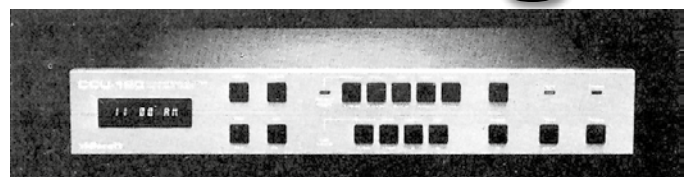
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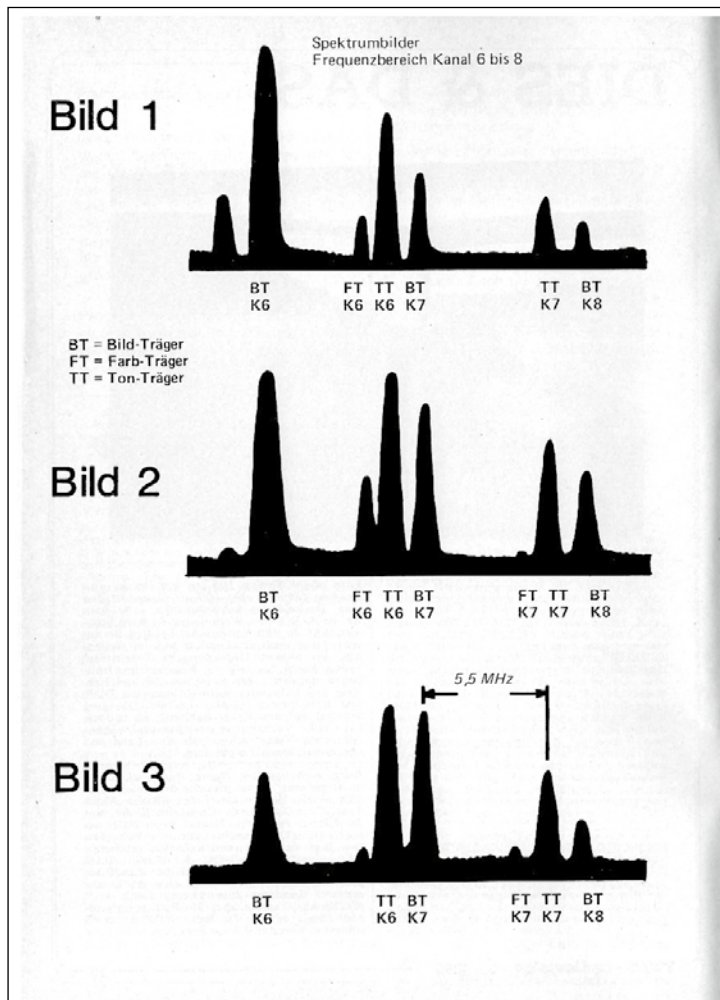
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/ Fax: +86 10 82798299.



30 Years Ago



This is the "Spotkiller CCU 120 Commercial Cutter" from Vidicraft. It kills all advertisement breaks, but only when you record a program to your video recorder. The "Spotkiller" stops when it detects an ad break and resumes recording when the break finishes. The "Spotkiller" is equipped with two Z80 micro-controllers. Actually, the detection is not always stable, as it detects the fade-to-black before and after a break.



Empfangstechnik

Einmal RTL bitte, aber gefiltert!

Mit einer Filterkombination kann man das schwache RTL-Signal aus anderen Fernsehseendern herausfiltern. Ein Erfahrungsbericht von TAV-Redakteur Rainer Bärmann

Als eine Zwillingsantenne für Kanal 7 immer noch nicht in der Lage war, den schwachen RTL-Sender genügend von seinen Nachbarkanal zu trennen, blieben nur noch elektronische Möglichkeiten übrig.

Bild 1 zeigt den schwachen RTL-Bildträger (K7) neben dem starken Kanal 6 Tonträger (TT), der das Nutzsignal mit 20dB mehr Leistung zuspottete. Immerhin liegt der Nachbar-Tonträger nur 2,5 MHz neben dem nutzbaren Bildträger (BT). Die im Tuner des Fernsehers eingebauten „Fallen“ können einen derart hohen Pegelunterschied nicht ausgleichen.

Ein wirkungsvolles Filter (z.B. Polyttron MKK 1-1 k (V)) wird in die Antennenleitung geschaltet. Da das Filter durch seine 4 Kreise eine Durchgangsdämpfung von zirka 2,5 dB aufweist, kann ein rauscharmer Vorverstärker (z.B. MKK 3606 V) mit zirka 30 dB zwischen den ersten und zweiten Filterkreis eingesteckt werden. Das Ergebnis zeigt der Spektrumanalysator im Bild 2. BT und TT des Kanal 7 haben eine merkliche Verstärkung erfahren, der Unterschied zum TT des Kanal 6 ist erheblich geringer. Diese Schaltung erwies sich insgesamt noch nicht ausreichend genug, sodaß ein weiteres 3-Kreis-Filter (MK 1-1 K (V)) zusätzlich dahinter gesteckt wurde.

Ein 4-Kreis-Filter mit Blindstecker wäre ebenfalls möglich gewesen, das verwendete war bereits vorhanden.

Bild 3 zeigt die Wirkung des 7 Kreis-Filter mit zirka 30 dB Verstärkung des Nutzsignals. Der TT des Kanal 6 ist etwa gleich groß wie der BT des Kanal 7 und kann vom Fernseher brauchbar verarbeitet werden. Mit einer Trägerfrequenzsperrre TFV-3 wäre es möglich, den TT des Kanal 6 weiter abzusenken, was nicht mehr notwendig war. Es wäre zum Nachteil der BT des Kanal 7 mit abgedämpft worden.

Hinweis: Die verwendeten Filter von Polyttron werden nach Kundenwunsch auf den jeweiligen Kanal eingestellt und einbaufertig ausgeliefert. Möglich sind auch Einspeisungen verschiedener Sender auf eine Ableitung und getrennte Verstärkung.

RTL ist jetzt gut zu empfangen – gefiltert.

RB

Zusammenschaltung zu einem 7-Kreis-Filter für den Test.
Freie Eingänge des 3-Kreis-Filter können mit anderen VHF-Sendern belegt werden.

von der Antenne

4-Kreis-Filter MKK 1-1 V mit eingestecktem Vorverstärker 12-15 V +

freie Eingänge

3-Kreis-Filter MK 1-1 V

zum Analyser oder TV

TELE-audiovision 30 1985 21

Rundfunk und Fernsehen in Asien China im Fernsichtbild

Wenig ist bei uns über das Fernsehen in China bekannt. Die folgenden Informationen entnehmen wir einem Bericht des „TV-Guide“, die Illustrationen und weitere Details stammen von Wolfgang Kruse, der selbst in der VR China gewesen war.

Manchmal kann man sich auch in China wie zu Hause fühlen. Da gibt es die Fernsehserie „Die Stewardessen“, eine in China produzierte Serie, die das Leben einer Stewardess der chinesischen Fluggesellschaft CAAC schildert. Und die Liebe zu ihr eines Bodenmechanikers der CAAC. Die Probleme und Sehnsüchte sind gleich, den Text könnten auch deutsche (oder amerikanische) Schauspieler sprechen.

Daß man aber in einem gänzlich anderen Land ist, merkt man dann spätestens bei den Nachrichten. Die 35minütige Sendung wird täglich in ganz China um 1900 Uhr in Mandarin ausgestrahlt. Die ersten 20 Minuten sind China gewidmet. Einem China jedoch, in dem ausschließlich gute, positive, freudige Ereignisse



立下雄心跑环球
劈开木板显武功

passieren. Da werden Fabriken eröffnet noch und nücher, über Konferenzen jedweder Art wird berichtet, Besuche ausländischer Gäste und dann wieder ein Fabrikbesuch. Unfälle, Katastrophen, Mord- und Totschlag gibt es in diesem Riesensland, glaubt man den Nachrichten, keine.

Anders dann in den Auslandsnachrichten, die sowohl von guten wie von schlechten Ereignissen berichten und dabei eine Nachrichtenauswahl zeigen, die



Fernseher sehen auch in China so aus wie Fernseher. Blick in ein Schaufenster eines Ladens in Süchina mit TV-Geräten einheimischer Produktion. (Foto: Wolfgang Kruse)

30

30 1985 TELE-audiovision

Medien

wesentlich näher an die Wirklichkeit herankommt und nicht viel anders als bei uns abläuft. Der Durchschnittschinese ist über das Ausland besser informiert als über sein eigenes Land.

Eine Eigenart bei den Informations-sendungen sind die äußerst seltenen Interviews und Sprecher auf dem Bildschirm. Fast immer sind die Kommentare nur aus dem „Off“ zu hören.

Platte Parteipropaganda ist rar geworden. Nur bei der Wetterkarte wird den Chinesen die Wirklichkeit beständig vorgeführt: Grundsätzlich wird auch das Wetter in Teipei auf Taiwan erwähnt. Dort ist jedoch beim besten Willen CCTV, das chinesische TV, nicht zu se-

Daneben ist Sport ein beliebtes Programm. Abends stehen eigenproduzierte Filme und Serien auf dem Plan, daneben Importfilme. Die Hälfte der ausgestrahlten Spielfilme kommt aus dem Ausland, meist den USA, und ist hervorragend ins Chinesische synchronisiert.

CCTV würde gerne mehr ausländische Produktionen zeigen, hat aber nicht die dazu notwendigen Devisen zur Verfügung. Eine Lösung bot CBS letzten Sommer an und offerierte CCTV insgesamt 64 Stunden Programm und bekam dafür im Gegenzug die Genehmigung, in diese Programme jeweils pro Stunde 5 Minuten Werbung internationaler Kon-

CHINA DAILY

hen, die täglichen Wetterwerte für Taipei sind für die eigene Bevölkerung gedacht.

Das Fernsehen spielt in einem China mit einer Unzahl von gegenseitig meist unverständlichen Dialekten eine wichtige Rolle für das gemeinsame nationale Bewußtsein. Heute sind etwa 30 Millionen Geräte im Einsatz, vor zwei Jahren waren es erst 15 Mio. Etwa 60% des riesigen Landes, etwa so groß wie die Vereinigten Staaten, ist fernsehserviert. Ein in China hergestelltes S/W-Gerät kostet so viel wie zwei Monatslöhne, ca DM 300.-. Das größte Statussymbol im heutigen China ist ein Farb-Gerät, das man ab etwa DM 900.- bekommt, allerdings nur mit Glück. Denn die Nachfrage ist größer als die Importe, die aus Japan, Westdeutschland und Taiwan (über Hongkong) kommen; die eigene Farbgeräteproduktion unter dem Markenzeichen „Peony“ ist erst im Aufbau begriffen.

An Programmen stehen den Chinesen durchschnittlich zwei zur Auswahl: Das Nationalprogramm und ein jeweiliges Lokalprogramm, in Beijing auch noch ein drittes Programm.

Wie seit Jahren besteht das Programmangebot zu einem großen Teil aus Lehrprogrammen, nicht zuletzt deshalb, weil die Kulturrevolution eine empfindliche Lücke an Lehrern hinterlassen hat.

zerte zu schalten. So ganz wie geplant klappte es dann doch nicht, die erste solche Sendung, die letzten Dezember gesendet wurde, hatte nur Werbespots von IBM und Boeing, die restlichen acht Spotttermine von zehn blieben unbesetzt.

Neben dieser internationalen Werbung gibt es auch reichlich Nationalwerbung zu sehen. Fünf bis zehn Spots sind jeweils als Werbeblock zu sehen. Seit 1979 verdiente sich CCTV durch die Werbung weitere Finanzen; es wird prinzipiell durch das chinesische Ministerium für Radio und Fernsehen finanziert. Die Werbung in China braucht einen Vergleich mit westlichen Spots nicht zu scheuen, sie sind routinierter und oft mit modernster Technik hergestellt. Ein 30-Sekunden-Spot kostet DM 2000.-.

Ein Problem für die Zuseher bleibt die Unbekümmertheit, mit der die Programm-Macher senden. Zeiten werden nur eingehalten, wenn es der Zufall will, und wenn einmal ein anderer Film als angekündigt läuft, ist es auch nicht weiter schlimm. Dafür gibt es dann aber die „Briefecke“ im chinesischen TV. Aus den 8000 bis 10000 Briefen, die pro Monat zu CCTV kommen, werden viele auch der kritischen und im scharfen Ton formulierten Briefe vorgelesen. Und so etwas gibt es noch nicht einmal hierzulande. AW

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Satelliten

Satellitentechnik – TAV erklärt Begriffe aus der Satellitentechnik

„Der Azimutwinkel“

Die Richtung des Satellitenstandorts, bezogen auf den Platz der Empfangsstation, kennzeichnet den Azimutwinkel.

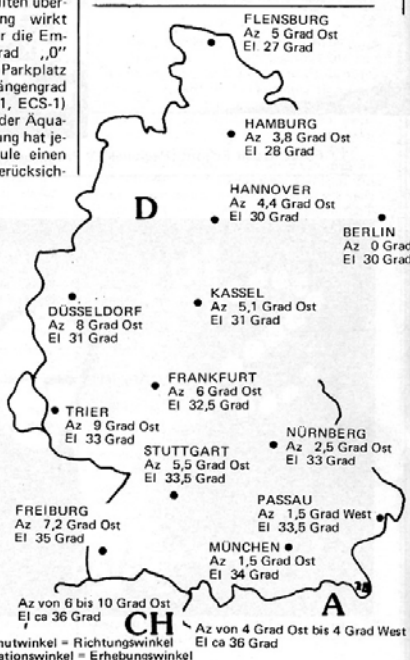
Viele DXer wunderten sich schon oft, daß der tatsächliche Richtungswinkel bezogen auf Süd nicht mit dem angegebenen „Parkplatz“ des Satelliten übereinstimmt. Diese Abweichung wirkt sich umso größer aus, je weiter die Empfangsstation vom Längengrad „0“ (Greenwich) entfernt ist. Der Parkplatz eines Satelliten wird vom Längengrad „0“ aus (für EUTELSAT 1 F1, ECS-1) auf 13 Grad Ost definiert, auf der Aquatorlinie. Durch die Erdkrümmung hat jeder Standort in der Sendekette einen anderen Richtungswinkel zu berücksichtigen.

Während der DXer auf der Linie Saarbrücken – Düsseldorf seine Antenne etwa 9 Grad östlicher als Süd einstellt, darf sein Kollege auf der Linie Salzburg – Berlin genau Süden einstellen. Ein Wiener ist sogar gezwungen, seinen EUTELSAT-Transponder bei 3 Grad westlich von Süd zu suchen.

Anhand der Karte ist jeder Leser in der Lage, seinen Elevationswinkel (Erhebungswinkel, s. TAV-29) und Azimutwinkel in etwa abzulesen.

TAV-Karte zur Ermittlung des Azimut- und Elevationswinkels für Eutelsat 1 F1

Spezialisten können sich gegen Rückporto von der Satellitenredaktion ihre Winkel auf 1/10 Grad genau ausrechnen lassen. (genaue Koordinaten angeben!) Anschrift: TELE-audiovision * Satellitenredaktion * Postfach 801965 * D-8000 München 80. RB



26

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HIMMELSFUNK

SAT-TV AKTUELL

Die Firma „GHZ Design“ Horlender, Hindemühl 24 in Schifferstadt bietet komplette Sat-TV-Anlagen an, die die 4-GHz- und 11-GHz-Bänder bestreichen. Die Konverter, Demodulatoren, Spiegel und Erreger sind ausgetrennt erhältlich. Spezialanfertigungen werden nach Wunsch ausgeführt. Ausführlichere Informationen in der nächsten TAV.

STS, 3 Thicket Road, Staple Hill, Bristol BS16 4LW, bietet im Basissystem 11-GHz-Sat-TV-Anlagen an. Mit 2 x 500 MHz breiten Low-Noise-Konvertern wird der 11-GHz-Bereich getunt. Empfohlen wird ein 1,8m Aluminium-Spiegel. Das Foto zeigt die Erreger-Konverter-Einheit.

Bestellungen aus England werden ohne VAT (Value Added Tax – 15%) geordert. Beim deutschen Zoll ist für Privat-Abnehmer dann nur die MWST von 14% nachzutragen. Der Wert der Sendung muß vom Sender angegeben sein.

„Music Box“ ein englischsprachiger Kanal auf EUTELSAT 1 F1 (ECS-1) darf seit Juni in Baden-Württemberg ins Kabel eingespielt werden. Vollzug ist auf Karlsruhe zu melden. 3-SAT (ZDF, ORF, SRG) wird künftig mit Ton-Unterträger von 6,65 MHz ausgesendet. Der bisherige PCM-Ton (5-TAV-29) entfällt deshalb. Mit 6,65 MHz gleicht sich die erste deutsche Ausstrahlung den im Sat-TV üblichen Ton-Normen an. Dies gilt für alle Ausstrahlungen auf dem Ost-Beam des EUTELSAT 1 F1.

Rillenhornerreger mit Konverter. Kostet 659 Englische Pfund + MWST. (Foto: STS)

wenn der Sender selbst kein Scrambling verlangt. Mit geringfügigem Aufwand genügt es somit, den Audio-Tuner nur für 6,6 bis 6,7 MHz auszulagern.

Die erste Fernsehsehung oberhalb des DBS-Bandes. Auf 12,65 GHz sendete RTL einen Beitrag zu einer Filmveranstaltung nach Paris. Ob die EUTELSAT-Frequenzen schon nicht mehr ausreichen? Jedenfalls fiel die Sendung durch sehr hohe Feldstärken (50 dBW) über das ganze Bundesgebiet auf, mit sehr geringem Transponder-Abstand von 5,8 MHz in SECAM-Farbe. Der Empfang von derart hohen Feldstärken über den TELECOM F1 gibt einen Ausblick auf das spätere DBS-Band. Bei Spiegeln von 2m Durchmesser wäre es vermutlich möglich, das ankommende 12-GHz-Signal ohne Verstärkung direkt in den Misch-zu leiten.

Auch zwischen 2,5 und 2,7 GHz trudein Satelliten-Signale in Europa ein. Die Keule des ARABSAT-Satelliten strahlt so breit ab, daß auch hierzulande noch einiges abfällt.

Nach ungeprüften Meldungen soll AFRTS, bisher auf INTELSAT IV F8 beheimatet, seinen Transponder gewechselt haben. Dies soll gleichzeitig eine Leistungserhöhung gebracht haben, die eine Verwendung von 1,8m Spiegeln gegenüber zuvor 6m ermöglicht. Das AFRTS-Programm versorgt die amerikanischen Truppen weltweit mit US-Fernsehprogrammen.

Nach Meldungen englischer Sat-TV-DXer gibt der SKY CHANNEL diesen Sommer sein Scrambling auf. Dieses Verschleißen des Bildes und Tones konnte nur mit einem gezielten Disamblier nach dem OAK-ORION-System in ein ordentliches Programm verwandelt werden. RB



TELE-audiovision 30 1985

27

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**Das doppelte
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IPS 05

20 Years Ago

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Technik für die Zukunft
Der neue Receiver LaSAT LS500 ist gerüstet für die Anforderungen der Zukunft. Dieses „made in Germany“ Gerät garantiert mit seinen 250 Programmen, Digitalem Sound Prozessing System (Quasi Panda), Multifunktionsdisplay, 2 (Option 3) Scartbuchsen, 22 KHz-Impuls und 1 oder (Option 2) HF-Input optimales Fernsehvergnügen zu einem vernünftigen Preis. (OEM und spezielle Kundenwünsche sind auf Anfrage möglich).

Technische Daten

Satelliten-Receiver	LaSAT LS500
Tunereingänge	250 Kanäle
Videofrequenzbereich	1 (Option 2)
Video-Hub umschaltbar	900-2050 MHz
Stereo	5,5-9,99 MHz
Audiofrequenzbereich	56µV/17
Audio-Demodulator	0/12 V (Option)
Schaltspannung	4-stellig
Frequenzanaloge	2 (Option 3)
Scartbuchsen	14/16 V
IR-Fernbedienung	
LNC-Spannung	
22 KHz-Schaltsignal (Option)	
Kindersicherung	
CIKU-Band Umschaltung mit	
IR Fernbedienung bei 1 HF-Input	
Technische Änderungen vorbehalten	

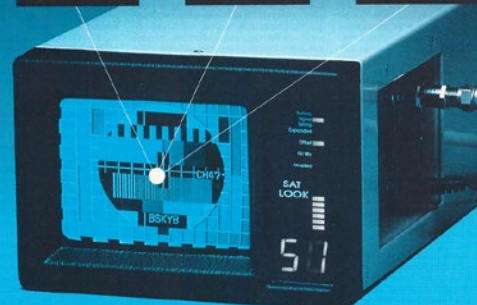
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SCHLUSS MIT DER SUCHEREI: SATLOOK

MULTIFUNKTIONS - SAT - ANALYZER

SATLOOK ist ein hochwertiges Sat-Meßgerät, hergestellt in Schweden, zum präzisen Auswählen von Satelliten-Antennen und Messungen an aktiven und passiven Bauteilen. Der 13 cm x 10 cm Monitor erlaubt eine sofortige Beurteilung der Bildqualität und in Verbindung mit der Spektralanalysefunktion eine Übersicht über den gesamten Frequenzbereich.

Insgesamt bietet dieses Gerät bei einfacher Handhabung, geringem Gewicht und vielfältigen Diagnosemöglichkeiten eine Alternative, die den Vergleich mit weit teureren Meßgeräten nicht zu schaden braucht. Die Aufladung des Akkus erfolgt über ein Zigarettenanzündkabel während der Installation zum nächsten Einsatzort fährt.



- | | | |
|---|--|---|
| <p>Technische Daten:</p> <ul style="list-style-type: none"> • Multifunktionsfähig PAL/SECAM/NTSC/normal/Invers • Frequenz 920-2050 MHz über Präzisionskopf übersteuert • Spektralanalysefunktionen normal: 920 - 2050 MHz expanded: 200 MHz Bandbreite, Frequenzbereich wählbar | <ul style="list-style-type: none"> • LNC-Speisespannung 13/18 V schaltbar • 3 parallele Anzeigekarten der Signalmuster • über LED-Beleuchtung (Diagramm) • über 2-stufiges LED-Display • im Spektralanalyse-Modus über Peak-Größe | <ul style="list-style-type: none"> • Bedienung u. Betriebsartenwahl über selbst. Tastatur • im KZ über Zigarettenanzündkabel-Ladestrom übersteuert • Gewicht! nur 2,5 kg einstellbar • Maße 15 x 10 x 21 cm • Umhängetasche, Akku und KZ-Ladestrom im Lieferumfang |
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Unentbehrlich für denjenigen, um Frequenzen und Positionen mit nur einer Empfangsanlage zu fixieren, die von terrestrischen und satellitären Stationen gesendet werden. Hierfür ist der AZ-EL Rotor Full-Sky die optimale Lösung. Außerst robust und zuverlässig, erlaubt der Rotor die Installation auch auf einem Mast, mit nur ungefährender vertikaler Ausrichtung. Ebenso ist die Montage von Spiegeln bis 3m in Kompositumaterialien erlaubt, und gelocht wesentlich darüber.

Unentbehrlich:

- für einen besseren Empfang auch im extremen orbitalen Bereich und dahinter
- für einen zusätzlichen Empfang, der über den normalen Horizont hinausgeht
- zur Vermeidung von Windlast bedingter veränderter Fokussierung
- für eine bessere Standfähigkeit auch bei starken Winden
- zur Vermeidung von unnötiger Schneelast, speziell in bergigen Bereichen
- für eine bessere und parallele Ausnutzung des 1° Offset für zirkuläre Polarisations - Systeme im 2° Offset für Band-C; im 3° Offset für Meteosat; im 4° Offset füres bleibt der Fantasie und der Kreativität des Anwenders überlassen, welche weitere Bereiche noch abgetastet werden sollen.



il Punto Antenna s.n.c.

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Bertelsmann Online

Jetzt ist es raus: Der Kooperationspartner von Bertelsmann beim Aufbau eines europäischen Online-Dienstes heißt: America Online.



Demnächst bei uns: "Bertelsmann Online"? Derselb ist America Online offiziell nur in den USA zugänglich

Nach in diesem Jahr will man in Deutschland, Großbritannien und Frankreich folgen, später kommen weitere Länder hinzu. Organisiert wird das ganze allerdings leider wie einer dieser bekannten Bertelsmann-Cuba-Mitglieder haben elektronischen Zugang zu Katalogen, Nachschlagewerken und diversen Zentren. Man soll auch elektronisch einzukaufen wie wir die Praktiken des Bertelsmann-Konzern kennen, muß man vorerst einmal pro Quartal etwas bestellen, wofür man man zwangweise etwas zugewiesen bekommt. Bertelsmann wird sich außerdem mit 1 Prozent an America Online beteiligen.

Internet gegen Unterwasser-Sex

Mary Feller, Hausfrau aus Kalifornien, hat etwas gegen die zweite Staffel der Fernsehserie "SexQuest 2000". Die Fernsehmacher haben zwecks Quotenauflösung mehr Sex in die Folgen gebracht, außerdem die Science fiction durch Fiction ersetzt. Wissenschaftlich begründet ist an den Unterwasser-Abenteuern kaum noch etwas, stattdessen wird mit Monstern nur so um sich geschmissen, und die Helikopter fliegen fröhlich über den Strand, mit dem sich Mary Feller nicht abfinden will. Mit pausenlos Mail-Bombardieren der bei NBC Verantwortlichen über Internet, CompuServe und Prodigy ersuchte sie innerlich, das sie die Koproduzent der Serie anrief. In der Sache blieb es aber hart: Sex und Monster bleiben drin, die Einschaltquoten liegen schließlich nicht.

Satelliten-News

Die italienische Satellitenzeitschrift "Satellite" ist ein Neuzugang im weltweiten Internet-Verband. Sie kann unter der Home-Page <http://www.videomusic.com/sat.htm> erreicht werden. Es werden aktuelle Sat-Nachrichten und weitere Infos zum Satellitenfischerei gegeben, darunter eine Programmierung der neuen Businesskanäle EBN. Natürlich wird "satellite online", so der Name des neuen World Wide Web-Dienstes, in italienischer Sprache produziert.

Die niederländisch sprechenden Sat-Zeher, die im Internet herumstreifen können, haben sich kürzlich eine neue Anlaufstelle: Veronica hat eine eigene Home-Page eingerichtet, die unter <http://www.veronica.nl>

Shows, Sender und Satelliten

Auf der Infobahn

Zusammenstellung:
Peter C. Klanowski

Fax +49-451-594865
CompuServe 100103,1341

Veronica/Blad/Sat News! besucht werden kann. Zu finden sind dort wöchentlich aktualisierte Satelliten-Nachrichten in holländisch. Angebote werden übrigens auch Soundfiles. Zu empfehlen ist dazu ein ISDN-Zugang zum Internet, denn die Files sind mehr als 1 MB groß.



Auch die niederländischen Sat-Freunde bekommen jetzt Sat-Nachrichten in ihrer Sprache. Anbieter ist Veronica

Auch die amerikanische Keystone Organisation bietet inzwischen Nachrichten aus der Satellitenwelt im Internet an. Zu finden sind die News, die sich vorwiegend mit den US-amerikanischen Satelliten beschäftigen, unter <http://www.keystone.com/~keycom/sat.htm>



Neu in Internet: die italienische Satellitenzeitschrift "satellite"

So hübsch kennt man CompuServe auch erst seit kurzem: Hier der modernisierte Einstieg in die Unterhaltungsforen von Entertainment Drive. In denen sich jetzt auch ein "Turner Press Room" befindet.



Und noch 'ne Informationsseite für Satellitenfreunde: diesmal in den USA von Keystone

den. Wer nun keine Lust hat, die Videotextseiten über den Fernsehgerät zu empfangen, kann das nun auch über Internet tun: unter der Kennung <http://www.keystone.com/~keycom/sat.htm> sind die News in Textform abrufbar. Unter der gleichen Home-Page sind auch die kompletten Videotexte weiterer Sat-Sender abrufbar. (Unser Spezialist: Das soll auch mit videoregistrierenden Fernsehgeräten funktionieren.)

Fernsehen und Internet

DirectTV, das US-Digitalfernsehen, verbindet mit Onlinediensten wie Prodigy, America Online und CompuServe. Nutzen möchte man die Dienste offenbar als Rückkanal für

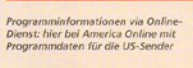


Schlichtes Unterstatement herrscht im Inhaltsverzeichnis der Sat-Abteilung bei 3sat Text, Tafel 690

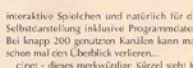


Education Resources, zu guter Letzt Menüpunkt 7, Discovery Learning Community.

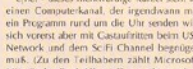
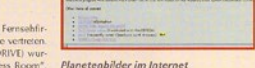
Wer von Satelliten die Nase voll hat, kann sich im World Wide Web jetzt auf Planeten verlieren. "The Nine Planets" ist eine Multimediale Show über das Sonnensystem auf 60 Seiten, zu erreichen unter <http://www.uzh.ch/~arizona/nineplanets/>. Die besten Bilder der NASA kann man sich in einer zweiten Präsentation zu Gemüte führen: "Welcome to the Planets" findet man unter <http://stardust.jpl.nasa.gov/planets/>



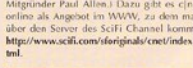
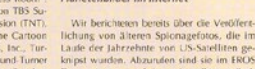
Programminformationen via OnLine-Dienst: hier bei America Online mit Programmdaten für die US-Sender



interaktive Spielchen und natürlich für die Selbstentlastung inklusive Programmieren. Bei knapp 200 genutzten Kanälen kann man schon mal den Überblick verlieren.



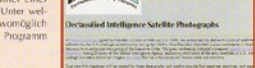
Einmal - dieses köstliche Kürzel steht für einen Computerkanal, der irgendwann mal ein Programm rund um die Uhr senden will, sich vorerst aber mit Castorfrucht beim USA Network und den Sci-Fi Channel begnügen muß. (Zu den Teilnehmern zählt Microsoft-Gründer Paul Allen.) Dazu gibt es jetzt online als Angebot im WWW, zu dem man über den Server des Sci-Fi Channel kommt: <http://www.scifi.com/storipages/cnet/index.html>



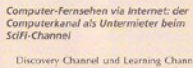
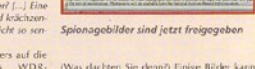
hinter the scenes



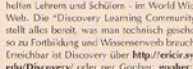
Computer-Fernsehen via Internet: der Computerkanal als Unterhalter beim Sci-Fi-Channel



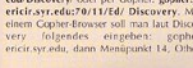
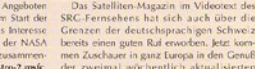
Wöllig losgelöst...



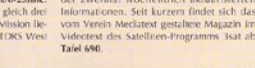
Die letzte Space-Shuttle-Mission wurde lang und breit im Web behandelt. Angebote werden unter anderem Videos vom Start der Raumfähre im MPG-Format. Das Interesse der Web-Surfer an den Angeboten der NASA war demnach groß, daß der Server zusammenbrach. Hier der Adresse <http://astro.zamk.nyu.edu/70111/ed/> Discovery. Mit einem Copier-Erreuer soll laut Discovery folgendes eingetippt: gopher://eric.yr.edu, dann Menüpunkt 14, Other



Spionagebilder sind jetzt freigegeben



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8 Receivers
1 LNB @ 1 Cable

Unexpected Channel Reception
"The fact that there are channels that appear on the TV screen that are not supposed to be FTA will remain a small secret of the DSSN receiver."

Starting With This Issue: Part I
The Satellite Enthusiast's Handbook. All About Satellite Reception

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STARSAT: Elegant for Beginners

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INTERNAL REPORT | Distribution

TELE-satellite in: Pakistan

TELE-satellite International magazine was established in 1981 as the first and only worldwide satellite-related publication, which over the years grew to become the most widely distributed and respected satellite magazine on any continent. TV and radio reception via satellite is not a factor in every country but in those countries where satellite reception is available, TELE-satellite can also be found. In Pakistan for example.

The distribution of TELE-satellite began in 1998 with the English version. English is the common language among the technology oriented population. TELE-satellite is sold at newsstands just like every other local or imported magazine, the same place where the locals get their newspapers and books on a daily basis.

Distribution is handled by "Paradise Books & Distributors". Founded in 1942, they are responsible for having built up the best printed press distribution network within Pakistan.

As in many countries where the sun shines more than it rains, most of the newsstands are open-air kiosks. To help protect the magazine

from dirt and pollution and also to help keep it dry should it rain, TELE-satellite has been for the last several issues delivered in a plastic pouch. This guarantees that every buyer gets a "fresh" copy of TELE-satellite and that the included CD does not get lost.

The pictures shown here give you an idea of how you might find TELE-satellite at every newsstand in Pakistan.

"Paradise Books & Distributors" goes to great lengths to make sure that TELE-satellite is presentable. TELE-satellite as well as "Paradise Books & Distributors" have played their role in the widespread distribution of satellite reception in Pakistan.



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The Last Page

This is the last page of this TELE-audiovision issue and, in fact, this is the last page of all TELE-audiovision issues: there will be no future issues; this is the last one. After 34 years, TELE-audiovision comes to an end with this issue. The two main reasons why I started TELE-audiovision back in 1981 (the first issue appeared in March of 1981) have dissolved away.

My original motivation was the reception of distant channels. That was in the days when there were only three TV channels and not that many more radio channels. It was a great adventure. You felt as though you were in an elite class if you were able to receive twice as many channels compared to almost everyone else in the city.

It's hard to imagine that it was ever like that, when today you can receive not just thousands of channels, but tens of thousands of channels. All you need is a high-speed Internet connection. 34 years ago it was completely different; back then in order to be able to receive just one single extra TV channel you needed a large terrestrial antenna. Later on, you could do that with the first satellite dishes. My first dish was a 1.8-meter prime focus antenna with which I was able to receive an unbelievable six TV channels. In those days that entire setup cost about as much as a used car.

The motivation to receive numerous channels is today run of the mill. Anyone can do it and the costs are minimal, technical knowledge is no longer necessary and even reception equipment is not needed anymore.

And then there's my second reason for starting TELE-audiovision that has vanished into electronic thin air: and that was the need to tell other people how they could receive more than the standard assortment of TV channels. This was done through publishing test reports on all the various equipment needed to get these extra channels, by visiting the manufacturers and reporting on those visits, finding distributors and dealers that would sell this equipment and, last but certainly not least, visiting other hobbyists and reporting on their setups.

34 years ago, the only way to get all of this information and these reports out to everyone was through a printed magazine. Demand for TELE-audiovision was enormous; there was really no other source for this kind of information. Over these 34 years, TELE-audiovision climbed the ladder to become the world's leading publication in this industry. "Worldwide" because the technology that was used was the same all over the world and also because TELE-audiovision was made available in different languages early on.

The Internet has made the dissemination of this information completely redundant; today there are so many different ways to get the same information that it no longer makes any sense to continue to add to this information overkill. Information has become essentially worthless. Anyone can write test reports and make them available for free. Anyone can visit manufacturers and tell everyone about them, every manufacturer can

market their own products.

And it's because of all this that the reasons for starting TELE-audiovision 34 years ago have all but faded away. Information is now available everywhere for free; it has therefore become worthless.

So, as you can see, the two reasons for the existence of TELE-audiovision no longer exist. The time has come to stop the publication of TELE-audiovision since continuing it no longer makes any more sense for me. However, you can still page through all of the TELE-audiovision issues electronically but only the back issues: starting July 2015 a complete archive of all the electronic issues of TELE-audiovision will be available. There will be select issues available from 1981 to 2005 as well as all other issues from 2006 up to and including this last issue. It's an enormous archive that will provide a detailed look at the development of TV technology that took place from 1981 to 2015.

Access to this one-of-a-kind TV reception archive is possible through the main web address www.TELE-audiovision.com but it can also be accessed through www.TELE-satellite.com since this was the name of the magazine for many years when satellite reception was the most popular way to receive a large number of TV channels.

If you don't want to type so many letters, you can also access the archive using this shortened address: www.tavmag.com. All three of these web addresses work in parallel with each other and will take you directly to the TELE-audiovision archive.

As for me, I will be taking a different path. I will be starting a new venture in the financial services sector. The overriding theme here is "you gotta have money to make money". Specifically, my new company will deal with the stock market: www.beam88.com

These days, if you keep your money in a bank savings account, you're basically earning negative interest on that money. So, if you want your money to work for you, you really have no other choice but to put your money into the stock market. Stock prices will continue to rise; it's a subject that I'm so very fascinated with that it doesn't sadden me to shut down TELE-audiovision after 34 years.

The last 34 years have been a very thrilling and exciting time for me. But now I will be starting something new.



Alexander Wiese
Founder and Chief Editor
TELE-audiovision Magazine
(founded 1981, ended 2015)

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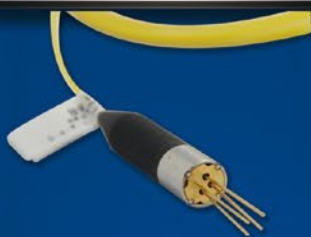
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