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INTERNATIONAL

07-082014



Test Report

MAXING

Bob Zheng introduces
an innovative LNB
with built-in multiswitch



Product Report

JIUZHOU

Richard Han enters the world
of tomorrow with a complete
wireless Home Media Center



Company Report

PROPULSA

Juan Carlos Vegas
significantly expands big
satellite dish manufacturing



Company Report

TELECONTROL

Petra Bauersachs and
Guido Ciburski give you
a way to have more fun
watching the TV you
want to watch



Feature

MITRIS



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large areas
with TV

Test Report

Tenow Matrix
ARM mini PC



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HDTS-271M

DVB-S2 + T2 HD MPEG-4 With CI/CA

- Full HD DVB-T2 & S2 Compliant
- CA slot (Optional) & CI slot (Optional)
- USB: Multimedia playback, PVR & Time shift
- HDMI 1.3/ HDCP 1.2 Copy protection
- Output: HDMI, Scart (Optional) CVBS, Y Pb Pr (Optional)
- Stereo Audio output, Coaxial, USB
- Earthnet Support (Optional)



DVB-T/T2 DVB-T2 With CI+ DTMB-TH ISDB ATSC DVB-S/S2 DVB-S2 + DVB-T/T2 DVB-C OTT BOX Hybrid Set Box

DVB-T2 MPEG-4

- DVB-T2 MPEG4 HD
- T2 1.31 profile, support with T2 LTE
- Multi Media Player for Music/Picture/Movie
- EWS System (Early Warning System)
- 3D Image player
- HDMI full HD 1080P output



HDT2-132A

DVB-C HD MPEG-4/H2.64 With CA

- 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
- HDMI, CVBS, L/R, Coaxial, Ethernet(optional), USB



PCH208-B1

DVB-S2 SD MPEG-4/H.264 With CA

- DVB-S2 MPEG4 HD with CA
- DiseQC 2.0 compatible
- Multi Media Player for Music/Picture/Movie
- USB PVR
- HDMI full HD 1080P output
- CVBS, L/R, Coaxial, USB



SDS2-6381

OTT Android TV + DVB-T/T2 Combo

- OTT plus DVB-T/T2
- Android 4.0 / 4.2 / ARM Cortex A9 Dual Core 1.5GHz
- 1GB DDRIII SDRAM / 4GB NAND FLASH
- Built-in Wi-Fi module 802.11 b/g/n
- Online Live TV and VOD Flash/HLS
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**TELE-audiovision
International**
The World's Leading
Digital TV Industry Publication

since 1981

Alexander Wiese
Publisher

alex@tavmag.com
HQ in Munich, Germany

Dear Readers,

The separation of hardware and software continues to progress and in this issue we can show you yet another example of this trend: a box that is actually see-through so that you can see that nothing is being hidden from you; there's nothing but hardware in it. The manufacturer makes their own software version available so you can use the box but you can also install any number of other software solutions.

This lets the manufacturer focus solely on the box's hardware components so as to optimize them while the user can install the software that best suits him. If there was no demand for this, manufacturers wouldn't pay any attention to this trend at all. We here at TELE-audiovision are wondering if this trend will become as explosive as it did with mobile telephones: a large number of manufacturers in large part use the same operating system: Android.

On the other hand, there doesn't seem to be any one particular digital TV software program that stands out

above all the rest to become the dominating system. There's still plenty of competition between a significant number of different versions and it is not expected that any particular one of them will prevail over the others. The requirements of the users vary so much from one another that they would likely not be satisfied with a single standardized system.

Digital TV will remain free of any one specific dominating system and we will continue to enjoy being able to load our favorite software onto the hardware. Adventurous programmers can continue to develop new operating systems and create new user interfaces. We can't wait to see what's yet to come!

Alexander Wiese

Editor-in-Chief TELE-audiovision Magazine



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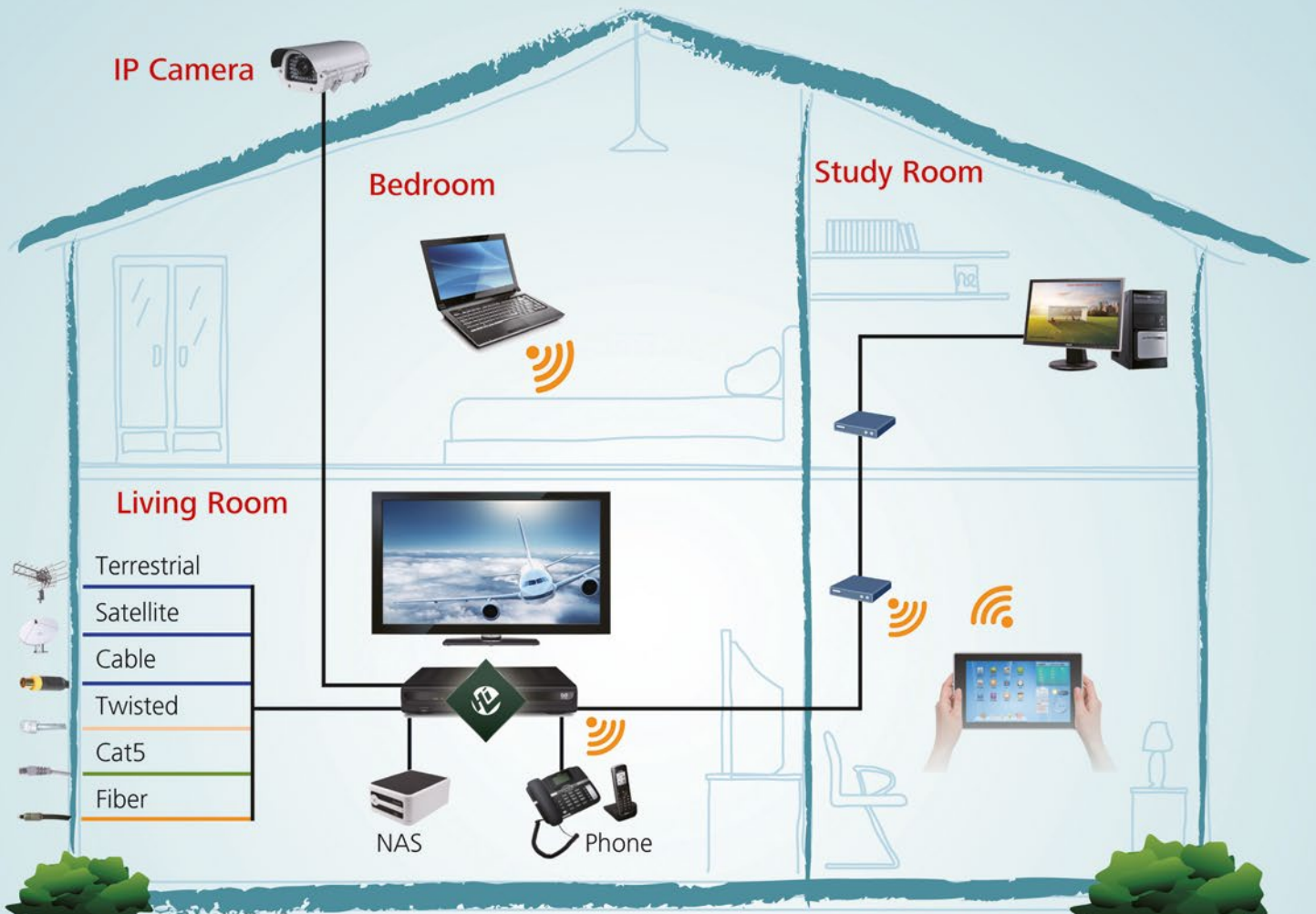
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Hisilicon

Home network SoCs and Solutions



Hisilicon STB SoC Key Features

- High performance ARM Cortex A9 CPU
- Integrated with DVB-C or DVB-S/S2 Demodulator
- Hardware decoder supporting Full HD H.264/MPEG2/MPEG4/AVS/Real/VC-1/FLV/VP6/VP8
- Hardware encoder supporting H.264 SVGA
- High performance 2D and 3D engine
- Advanced security features
- Dual Ethernet, Dual USB 2.0, HDMI 1.4

Solution Features

- Low cost HD-STB solution with 3DTV
- Quick Boot-up, Low Power Consumption
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Company Report
PROPULSA
Buenos Aires, Argentina

07-08/2014

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Kiev, Ukraine

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ASIATVRO
Guangzhou, China

Product Report
JIUZHOU
Shenzhen, China

Test Report
TENOW
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Test Report
MAXING
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Company Reports are written by TELE-audiovision's editorial staff on location
Test Reports are written by TELE-audiovision's engineering staff located at
different strategic reception points around the world



**TENOW
MATRIX ARM
MINI PC**
Mini PC for
Web/IPTV and
Live TV..... 18



**JIUZHOU
WIRELESS
HUB**
Home Media
Center..... 38



**MAXING
MB04**
Universal LNB
with Built-in
DiSEqC
Switch..... 46

**Global Readership of
TELE-audiovision Magazine..... 12**

AWARD Winning:
Digital Receivers of 21st Century 52

Feature:
ROKS MITRIS
Terrestrial Satellite Reception 68

Digital Technology:
New Developments 74

Company Report:
TC Unterhaltungs Elektronik AG,
Germany 86

Company Report:
Dish Manufacturer Industrias KC
(Propulsa), Argentina 96

Global Company Directory:
The Decision Makers in
Worldwide Digital TV Industry 106

Company Report:
TVRO Website ASIATVRO, China 120

Satellite DXer Overview:
Hall of Fame of Satellite
Enthusiasts of the World..... 124

Uplink Overview:
Best Satellite Uplink Earth Stations 140

TELE-audiovision History:
TELE-audiovision in 1984..... 154

TELE-audiovision History:
TELE-audiovision in 1994..... 156

TELE-audiovision History:
TELE-audiovision in 2004..... 158



TC Unterhaltungs Elektronik AG..... 86



Industrias KC (Propulsa) 96



ASIATVRO 120

CHANGHONG

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CREATING EASY LIFE



Smart Center Box

- Android 2.2, 1080P HD
- Multi-screen interaction
- Content sharing with Pad, phone, STB
- Multi-media player
- 3D somatic games
- HTML 5 browser
- IP camera
- Smart remote control
- Changhong APP store



Products & Technologies

- DVB-C/T/S/C2/T2/S2, ISDB-T, IPTV
- Conax/Nagra/Irdeto/NDS
- MHEG-5/OpenTV/NDS Core/MHP
- Android/OS21/Linux/μ_iTron
- OTT/HBBTV/CATCH UP TV/UNICABLE

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MHEG-5



openTV



NDS Core



m@p

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E-mail:stbinfo@changhong.com

ALUOSAT	China	63	JIUZHOU	China	164
ALUOSAT-YAGI	China	55	JEZETEK	China	164
AMIKOSTB.....	Hungary.....	5	JONSA	Taiwan	99
ASIATVRO	China	137	MACAB	Sweden.....	137
AUDOLICI	Portugal.....	85	MAXINGCO.....	China	49
AZURESHINE.....	Taiwan	37	MFC	USA.....	95
BIRTV2014.....	China	117	MICO	China	2
B-MAGA.....	Japan	81	MKTECH	China	103
BSD	Brazil	71, 131	PANODIC.....	China	2
BT.....	UK.....	145	PERFECTVISION	USA.....	31
CASTOR.....	Netherlands.....	147	ROHDE&SCHWARZ	Germany	163
CES2015.....	USA.....	119	ROKS-TV	Ukraine.....	129
CHANGHONG.....	China	9	ROVELL	Turkey.....	133
CHINASATELLITE2014	China	113	SARFTNET	China	129
COSMOSAT	Argentina.....	79	SATBEAMS.....	Belgium	135
DEVISER	China	43, 123	SAT-IMPEX	Germany	45
DEKTEC	Netherlands.....	83	SAT-LINK	China	89
DEXIN	China	109	SCATINDIA2014.....	India	115
DIGITALTELEMEDIA	China	164	SES.....	Luxembourg	143
DISHPOINTER.....	UK.....	84	SICHUANJIUZHOU.....	China	164
DISHTUNING.....	India	139	SKYWORTH	China	11
DVBCN.....	China	139	SPAUN	Germany.....	127, 131, 135
FERNSEHFEE	Germany	57	SPAUN ELECTRONIC	Germany	27
FRAUNHOFER.....	Germany	61	TEKNIKSAT	Turkey.....	123
FTATV.....	Argentina.....	133	TENOW	China	127
GIGABLUE	Germany	45	TIANDITONG.....	China	21
GLOBALINVACOM.....	UK.....	35	TORAY	Turkey.....	133
HISILICON	China	4	TSINGHWA.....	China	67
HORIZON	UK.....	62, 77	UGODISK.....	China	59
IBC2014	UK	111			

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Specifiction:

System: Basic on Android 4.0 ICS
 OSD: 3D Graphical User Interface(Support OpenGL ES2.0)
 DVBS/DVBS2 Demodulator
 Mpeg2,Mpeg4(H.264) decoder ,fully DVBS&DVBS2 compliant
 Storage 8000 TV and Radio programs
 Video codec: H.264(MPEG4-AVC, VC-1), MPEG2, DviX3/4/5/6,Xvid
 Audio codec: MP3, AAC, OGG, MPEG, MPEG Audio, Dolby AC-3
 Container : MP4, AVI, MKV, FLV, MPEG TS
 DLNA 1.5 compliant
 Networking-WIFI AP,Ethernet



Feature:

Multi-Screen shifting (DLNA and AIRPLAY Alike)	Motion sensing games
OTT (Over the top)	Powerful Media
Android Market	OTA(over the air)
Web Browser	2.4G wireless interface
Twitter, Facebook,YouTube...	Support 3D and 3D convert 2D function



HS1J

- Video decode: MPEG2 SD, MPEG2 HD, H.264/AVC SD, H.264/AVC HD,MP4
- Interface: Single Cplus, SCART,dual USB2.0,LNB ,HDMI,RCA, Digital Audio, Ethernet
- Video Resolution: 480i/p, 576i/p, 720i/p, 1080i/p
- Function : Manual/Auto search, Edit Channel, EPG, Subtitle,TXT, PVR , RSS, Weather Forecast ,Youtube ,Game,32 FAV group, Media player;
- Language:English, French, German, Italian, Spanish, Portuguese, Russian, Turkish, Arabic, Polish etc



HS1C

- Pluggable tuner,support S2+S2/S2+T2/S2+C tuner
- Video decode:MPEG2 HD/SD H.264/AVC HD/SD
- Output interface:Single CI plus,,dual USB2.0, HDMI,SPDIF,YPbPr/SCART
- Features:
- youtube,google map,picasa,Weather Forecast, RSS,Fastscan search,PVR
- Support WIFI



HTAB

- Video decode :MPEG2 SD, MPEG2 HD, H.264/AVC SD, H.264/AVC HD
- Output Interface : HDMI ,SPDIF, USB,SCART
- Video Resolution : Full HD 1080P, 1080i
- DVB Function : Manual search, Edit Channel, EPG, Subtitle, TXT, PVR,Media player



HTJ4

- SD MPEG-2/HD H.264 & fully DVB-T compliant,
- Output Interface: HDMI,Scart ,SPDIF
- Video Resolution : Full HD 1080P,
- Function : Manual search, Edit Channel, EPG,
- Subtitle, TXT, PVR
- Wifi(option):RSS Reader, Weather Forecast ,maps,
- Picasa,Google ,Youtube ,Youporn,Vimeo,etc



> 350 000



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Indonesia



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Farsi
فارسی



French
française



Hebrew
עברית



Croatian
hrvatski



Italian
italiano



Hungarian
magyar



Chinese
中

Worldwide

Asia



Asia >38000 Readers

China
Indonesia
India
Pakistan
Malaysia



Chinese dutch polish portuguese romanian russian turkish
nederlands polski português român pyckcky türk

Top 25 Countries > 3200 Readers

COUNTRY	Readers #
Brazil	38,048
Germany	26,685
United States	22,206
China	16,661
Italy	14,147
France	12,848
UK	11,674
Iran	10,881
Turkey	9,835
Indonesia	9,787
Algeria	9,613
Netherlands	8,646
Portugal	8,277
Romania	7,895
Spain	6,574
Russia	6,376
Belgium	5,994
Morocco	5,902
Bulgaria	5,496
Egypt	5,041
Poland	5,015
Hungary	4,731
India	4,612
Canada	3,921
Saudi Arabia	3,883
Greece	3,843
Czech Republic	3,680
Argentina	3,588
Ukraine	3,558

Readers' Breakdown

Manufacturers	7%
Distributors	12%
Wholesaler	17%
Dealers	24%
Installers	9%
Satellite Provider	2%
Cable Provider	10%
IPTV Provider	6%
Program Provider	11%
Private Enthusiasts	2%

Top 25 to 105 Countries > 130 - 3200 Readers

Chile	3,167
Switzerland	3,011
Tunisia	2,725
Slovakia	2,605
Pakistan	2,573
Austria	2,562
Croatia	2,548
Venezuela	2,401
Iraq	2,275
Sweden	2,196
Norway	2,183
Malaysia	2,176
Israel	2,067
Australia	2,041
Mexico	1,968
Serbia	1,900
Colombia	1,778
South Africa	1,629
UAE	1,508
Ireland	1,501
Denmark	1,339
Thailand	1,223
Libya	1,181
Finland	1,179
Peru	1,083
Slovenia	992
Sri Lanka	972
Philippines	942
Yemen	908
Jordan	856
Ecuador	842
Uruguay	775
Lebanon	752
Lithuania	748
Nigeria	717
South Korea	716
Macedonia	711
Syria	676
Japan	674
Bolivia	669
Kenya	656
Sudan	632
Bosnia and Herzegovina	629
Albania	601
Taiwan	594
Puerto Rico	580
Kuwait	534
Panama	519
Qatar	486
Hong Kong	472
Luxembourg	469
Paraguay	462
Latvia	459
Cyprus	457
Belarus	422
Kazakhstan	414
Senegal	414
New Zealand	407
Oman	398
Moldova	379
Vietnam	378
Georgia	358
Estonia	334
Singapore	318
Palestine	284
Mauritius	279
Bahrain	271
Dominican Republic	254
Costa Rica	249
Ghana	245
Iceland	211
Uganda	210
Ethiopia	205
Malta	188
Afghanistan	181
Cameroon	178
Suriname	174
Bangladesh	167
Uzbekistan	162
Azerbaijan	159
Zimbabwe	158
Trinidad and Tobago	157
Tanzania	149
Barbados	144
Brunei	134

Top 106 to 180 Countries < 130 Readers

Brunei	134
Mali	131
Montenegro	129
Malawi	115
Macau	111
Armenia	106
Botswana	103
Martinique	103
Mauritania	95
Maldives	93
Madagascar	90
Myanmar	90
Angola	87
New Caledonia	86
Aruba	85
Namibia	83
Rwanda	77
Guyana	76
Netherlands Antilles	75
Zambia	74
Guatemala	72
Congo	71
French Guiana	70
Mozambique	69
Niger	64
Kyrgyzstan	62
Burkina Faso	61
Cape Verde	59
Haiti	56
Togo	56
Kosovo	56
Reunion	53
Benin	52
Greenland	51
El Salvador	51
Cuba	50
Nicaragua	49
Jamaica	46
French Polynesia	46
Turkmenistan	45
Honduras	44
Djibouti	43
Gabon	43
Tajikistan	38
Guadeloupe	35
Cambodia	34
Seychelles	31
Mongolia	30
Comoros	28
Monaco	28
Nepal	27
Bermuda	26
Dominica	25
Palau	25
Curacao	24
Faroe Islands	21
Timor-Leste	19
Bahamas	18
Burundi	15
Fiji	15
Gambia	15
Guinea	15
Laos	15
St. Vincent & Grenadines	14
Somalia	13
Eritrea	12
Liechtenstein	12
Papua New Guinea	12
Sao Tome and Principe	12
Sint Maarten	12
Swaziland	11
Belize	10
Guernsey	10
Cayman Islands	9
British Virgin Islands	9
Anguilla	8
Equatorial Guinea	8
Jersey	8

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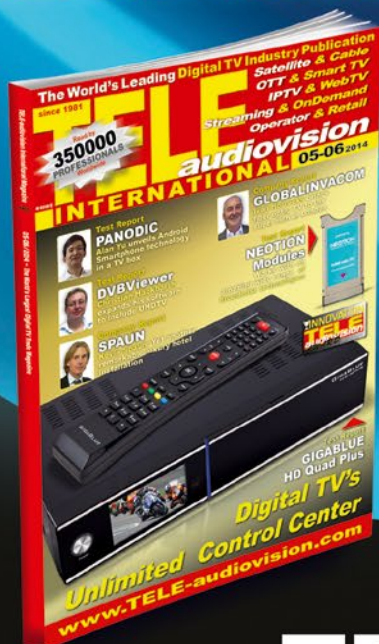
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AWARD 01-02/2014

Macab Catline TVB-02
Clever solution to use network cables
to distribute TV signals

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Tenow Matrix

- *perfectly equipped for today's TV transmission systems*
- *external tuners required for live reception*
- *no unified user interface due to modular system*
- *mini PC with extremely versatile customisation options for experienced users*





ARM mini PC



Minimum size for maximum performance

Mini PCs are gaining popularity all the time, and with the Matrix ARM mini PC offered by Tenow it's easy to see why. The first thing it does is please the eye with its transparent case made of acrylic glass, while at the same time offering a glimpse of all the technical components that are hidden inside – quite a stylish look, and a smart idea at the same time. What's more, with its small overall size of 135 x 90 x 45 mm the Matrix ARM is set to find its sweet spot in any room or cabinet. Tenow selected the Quad ARM Cortex A9 processor clocked at 1 GHz as CPU, so that users always have ample processing power at their disposal. It is paired with a Vivante GC2000 Quad Core GPU which takes care of the graphics performance.

The manufacturer also throws in 2 GB of DDR3 memory, plus an additional 16 GB of eMMC memory to be used by the operating system and for user applications. As far as connections to the outside world are concerned, the Matrix ARM mini PC comes with three USB 2.0 ports, an HDMI socket, 3.5 mm audio socket, S/PDIF output, SATA 2.0 port, SD card slot, USB OTG port as well as an RJ45 network interface. The system obtains its power from an external 5V power pack, which is one of the reasons for the mini PC's small size.

Right from the first look we found the build quality of the Matrix ARM mini PC nothing short of impressive – no quibbles whatsoever. We should also mention the built-in Wi-Fi



receiver at this stage, which comes very handy for integrating the device into your wireless network at home. Three buttons on the right side of the case can be used to adjust the volume and to put the mini PC into standby mode, while a reset button is located on the rear side.

What's more, an UART port is available for connecting an external RS232 adapter as well. Obviously, an infrared receiver is part and parcel of any multimedia device, and in this particular case Tenow has opted to safely position it inside the transparent case. Finally, there's a small DIP switch that calls for an explanation: It is labelled 'Boot' and can be found on the front of the mini PC. The two options that can be selected are update mode for installing or updating the device's firmware, and regular mode which is the default setting for everyday use.

The Matrix ARM mini PC is shipped with a Linux distribution that has been customised by Tenow to perfectly match the hardware in place. It is called MatrixTV and supports all currently available external reception solutions (i.e. tuners), namely TBS5922, TBS5922SE, TBS5980, TBS5925, TBS5680, TBS DVB-C Stick, TBS5220, TBS5280, TBS5281, TBS5880, TBS5881 and TBS5990 from Tenow. All required drivers are pre-installed, and for our test we used the two external DVB receivers TBS5990 and TBS5925.

Once the MatrixTV system is fully launched it allows running any Linux-compatible software. The Xbox Media Center (XBMC), for example, is already pre-installed by default. The great thing





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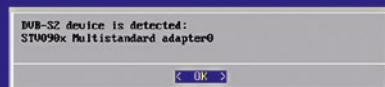
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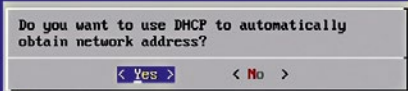
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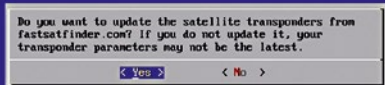
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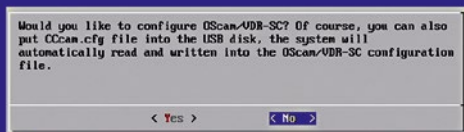
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9

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```


about the Matrix being a fully-fledged mini PC is the fact that alternative operating systems such as Android or various Linux distributions etc. can be installed in place of the default software. You should note, however, that only MatrixTV, Android and Ubuntu are available for download as pre-packaged versions through 'official' Tenow channels.

If you intend to install new software or update the currently running operating system, Tenow has come up with

a brilliant yet easy solution – a USB OTG interface. OTG is short for on the go and enables direct communication between two PCs using their respective USB ports. Sounds rather technical? Well, it really isn't. To give you a real-world example, the Matrix ARM mini PC can be connected directly via USB to a MS Windows PC, which in turn identifies the mini PC as an external storage medium. With special software provided by TBS Tenow it is then almost child's play to transfer any required

Android

18. Instead of the MatrixTV operating system, the standard Android OS can be installed in the Matrix ARM mini PC as well.

19. Main menu of the Xbox Media Center under Android.

20. List of all installed Android apps.

21. The Matrix ARM mini PC can easily be hooked up to the local Wi-Fi network.

22. Android language settings.

23. Google Play Store

24. Web browser under Android.

25. Image viewer.

26. Media player for video files.

27. DivX video playback.

28. WMV video playback.

29. TS video playback.

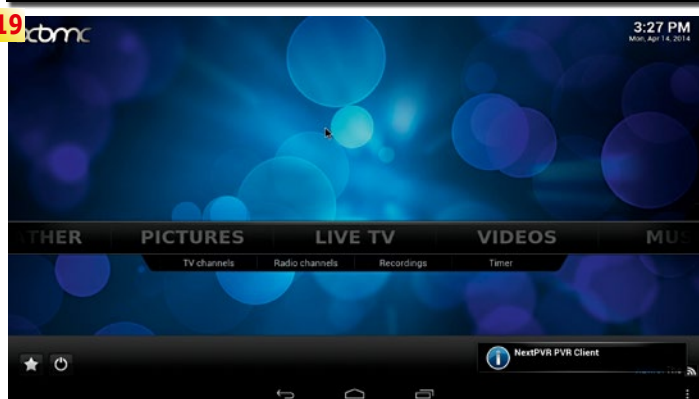
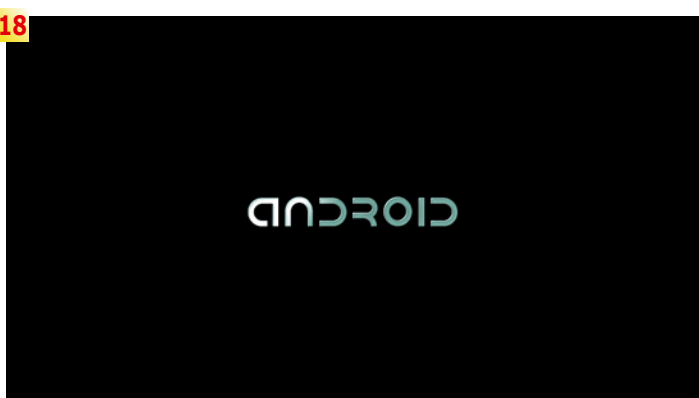
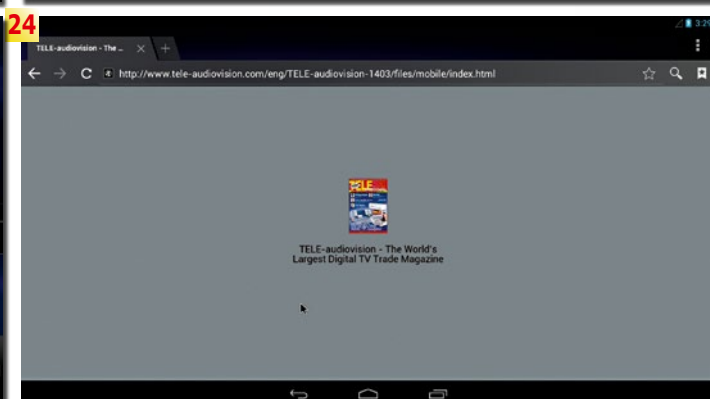
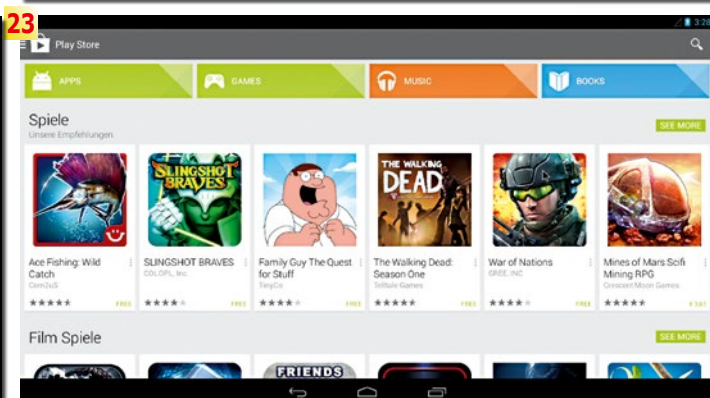
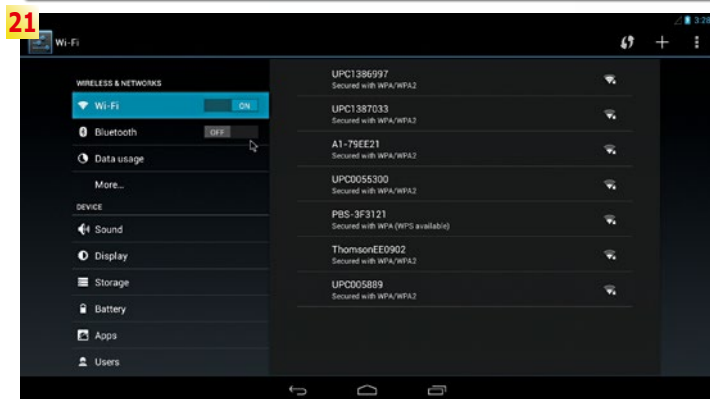
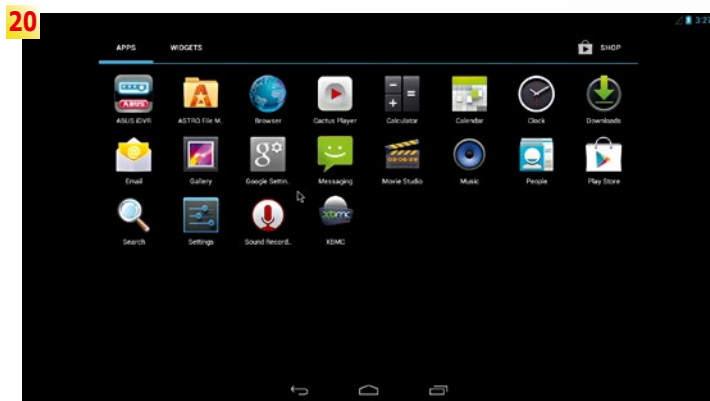
30. Android app manager

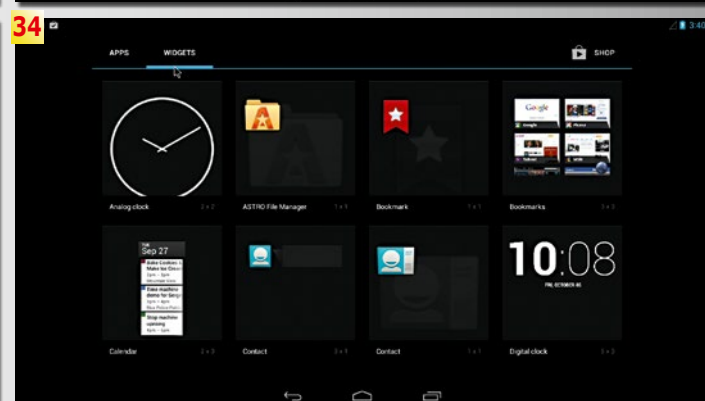
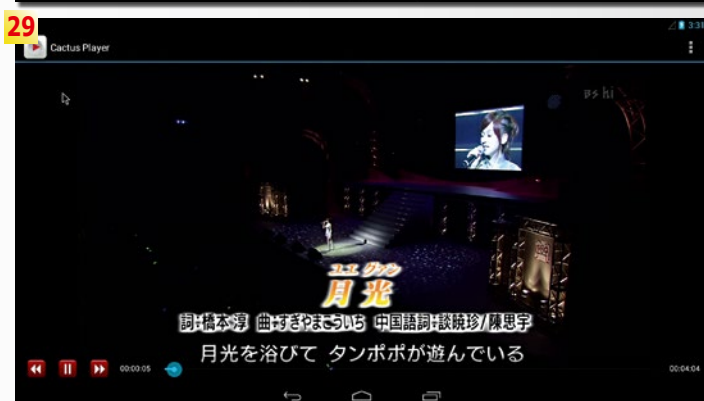
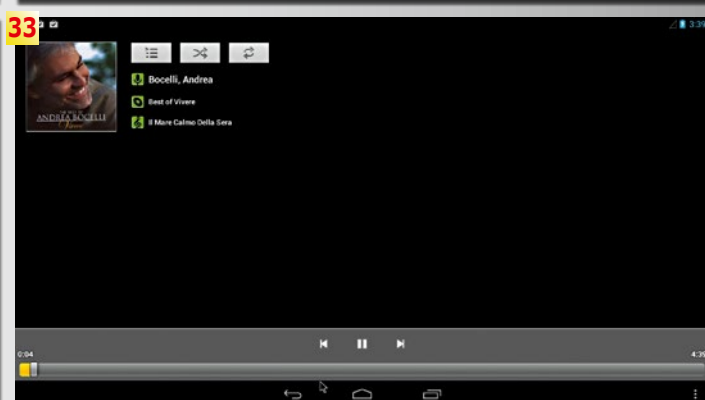
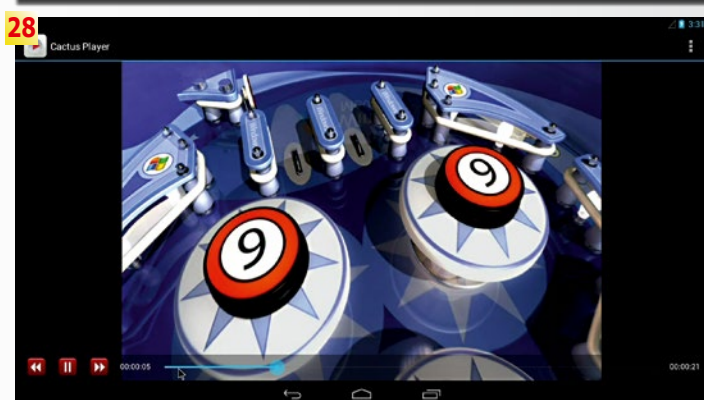
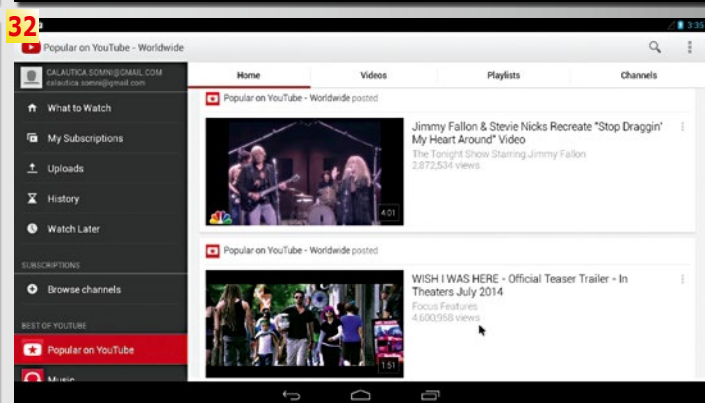
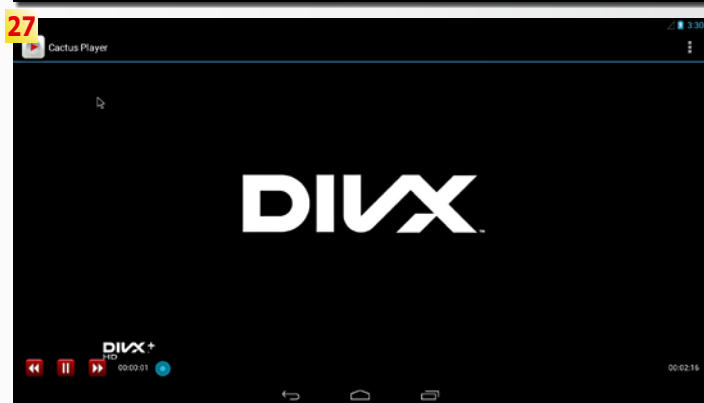
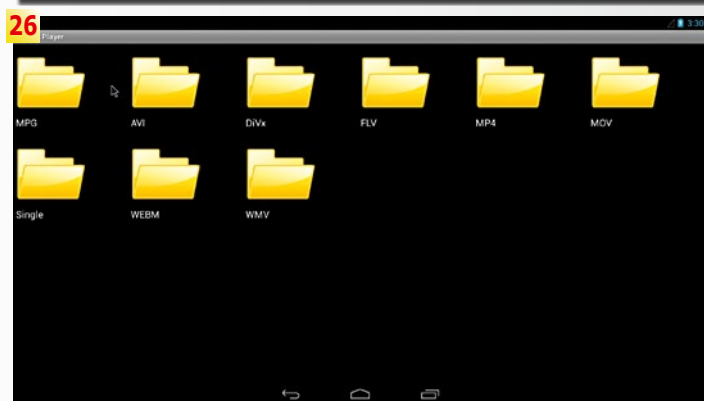
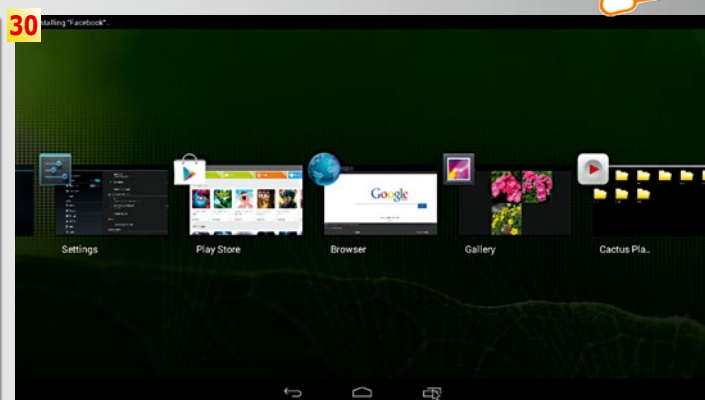
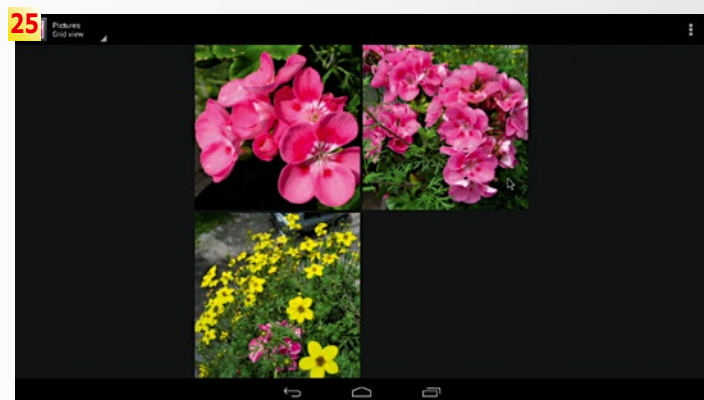
31. Android dashboard with freely selectable apps.

32. YouTube

33. MP3 audio playback.

34. Android widgets can be shown and used as well.





operating system component from the MS Windows PC to the mini PC. During our in-depth test we carried out that procedure dozens of times (no exaggeration!) and never encountered even the slightest flaw, let alone a software freeze or forced re-start. The only thing that must be taken care of is the DIP switch, which must be changed from Run (regular operation) to Burn (update mode). The actual software installation is then only a matter of minutes.

The default MatrixTV software supplied by Tenow is based on a basic Linux frame with added drivers to create an easy-to-use control interface, namely that of the Xbox Media Center. Unfortunately, however, the nicely designed Xbox Media Center itself cannot be used to adjust basic settings of an external DVB receiver, such as changing the DiSEqC configuration or performing a channel search. Te-

now therefore had to whizz up a small work-around, which is called Matrix Configurator and consists of a user interface that vaguely resembles the BIOS. If you need to access that configurator all you have to do is press any button while the Matrix ARM mini PC is booting.

This will provide you with all basic settings in a clear layout, including OSD language with a vast range of available options, network parameters, audio output settings, activation or deactivation of the built in IR receiver, as well as all options that are required for customising the external DVB receiver so that it meets personal preferences or requirements. DiSEqC protocols 1.0, 1.1 and 1.2 are available, which means that more or less any satellite reception setup will work with the Matrix ARM mini PC. In addition, the list of pre-programmed LOF values should please any con-

Android Apps

35. Google Play Store

36. If the Matrix ARM mini PC runs with the Android operating system, users can easily access the content libraries of a wide range of TV channels.

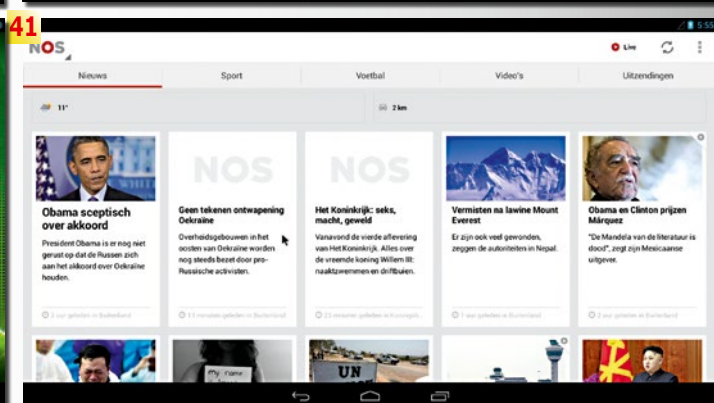
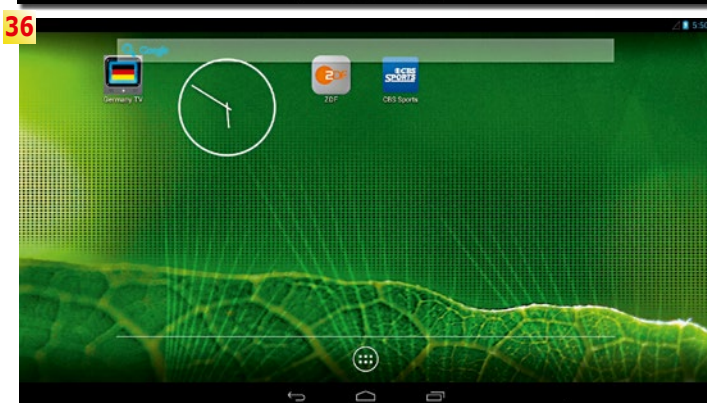
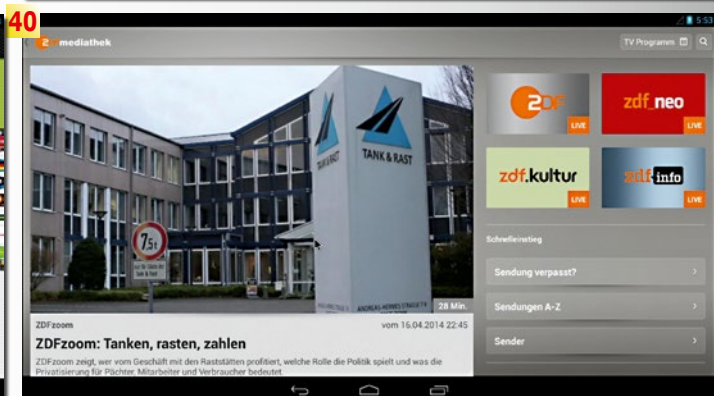
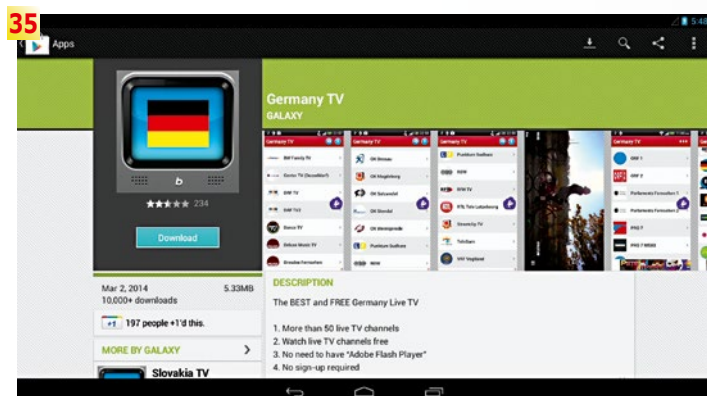
37. Live TV with the Germany TV app under Android – in this case the TV stream is fed from the Internet, rather than from an external DVB receiver.

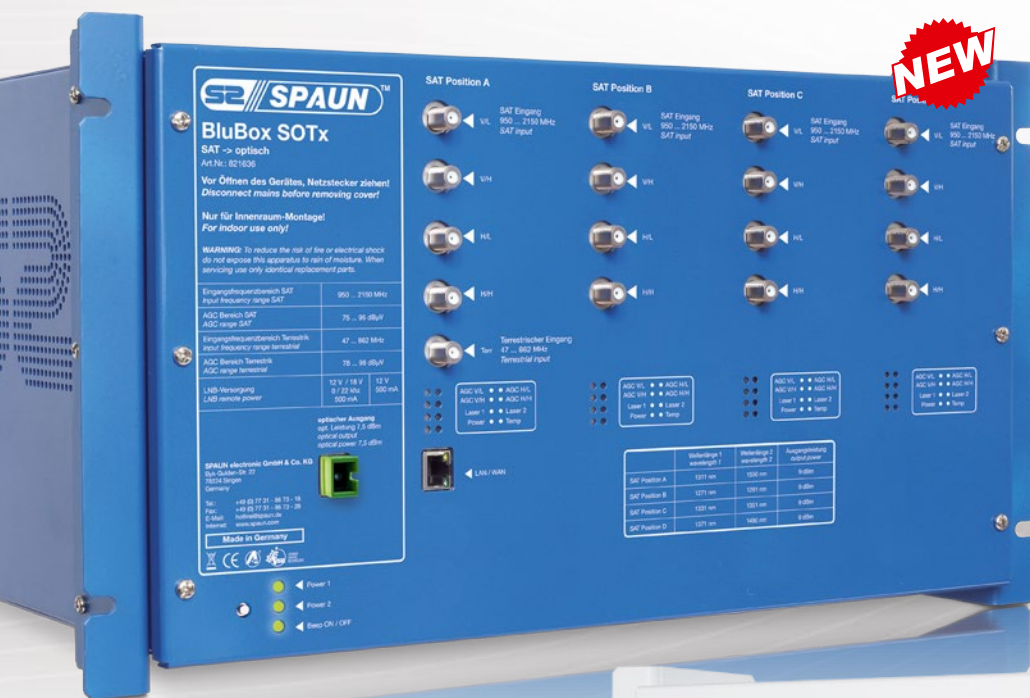
38. Germany TV App

39. CBS Sports App

40. ZDF content library.

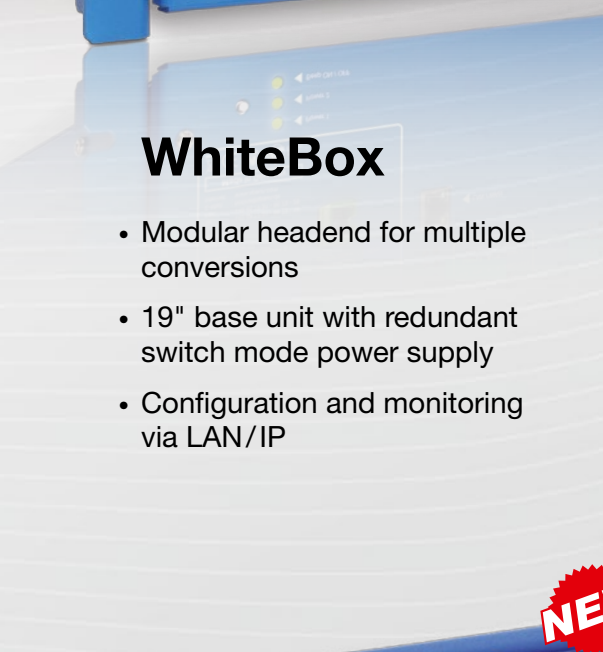
41. NOS content library.





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- Configuration and monitoring via LAN/IP

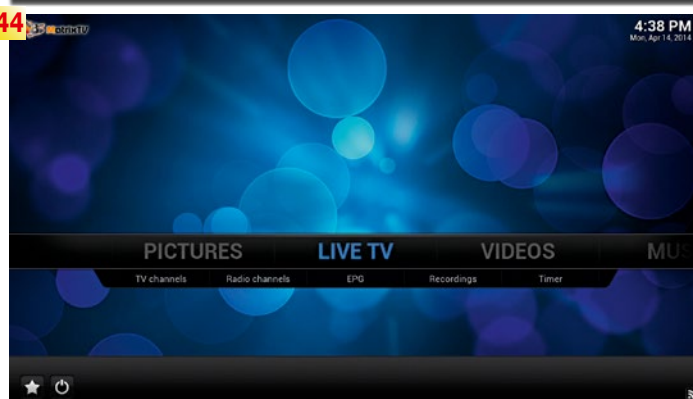
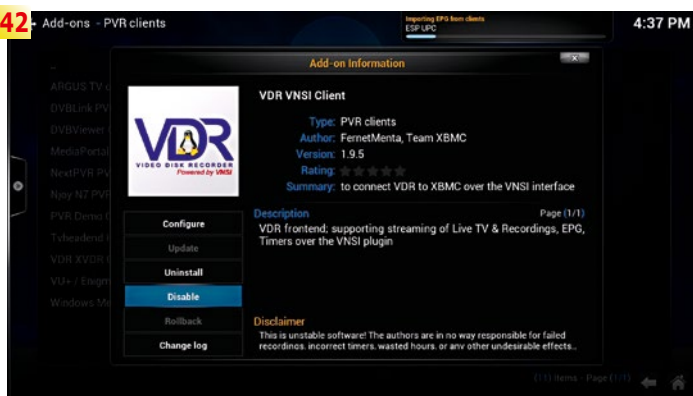
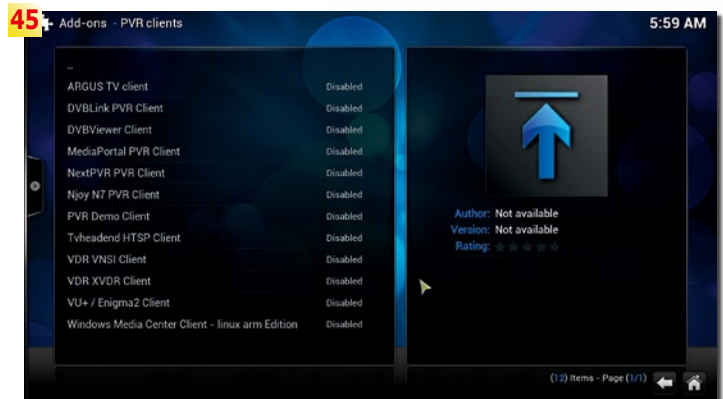


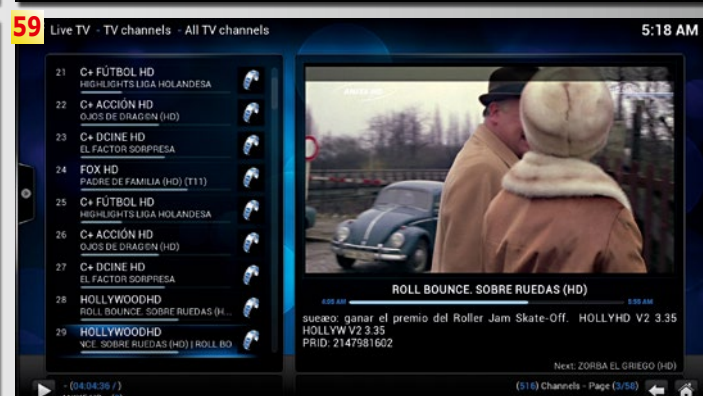
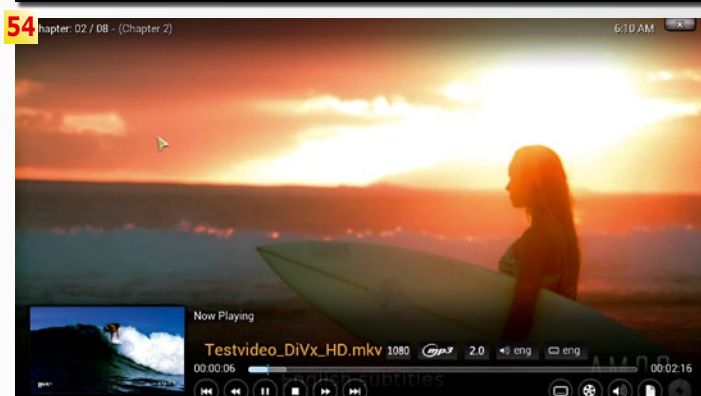
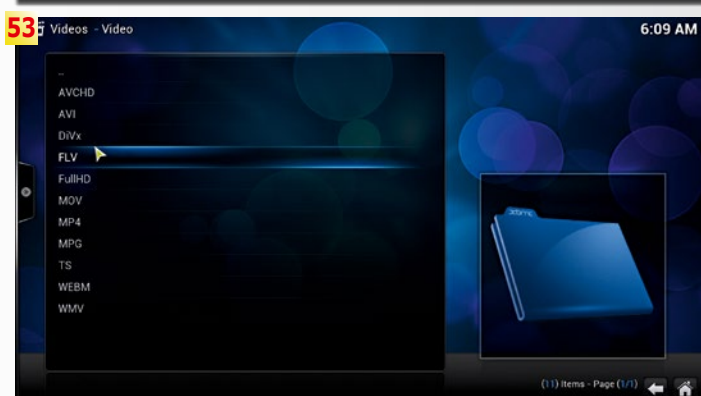
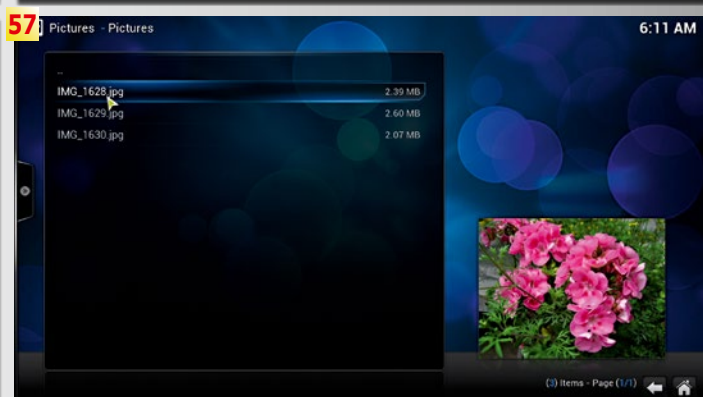
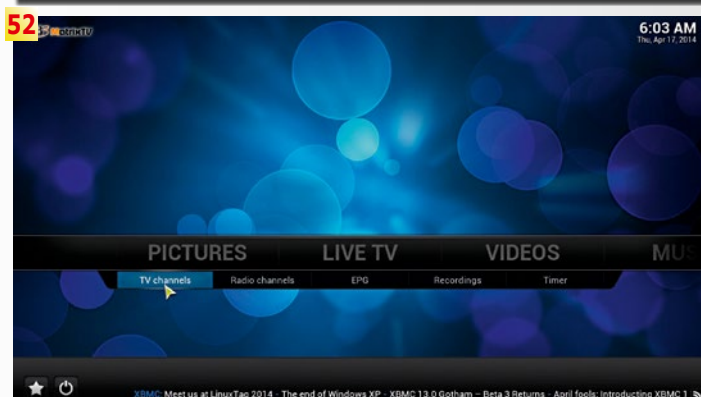
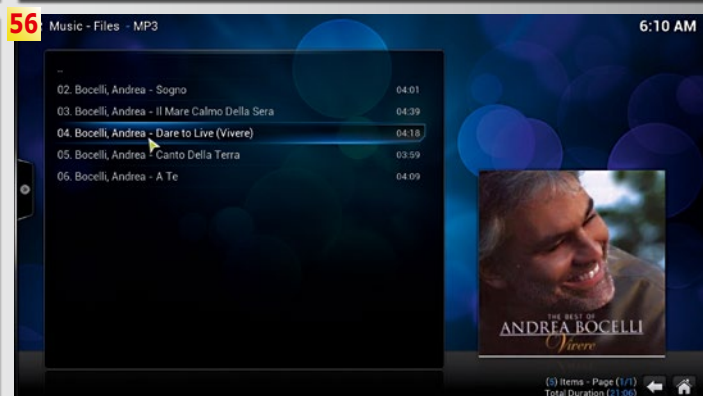
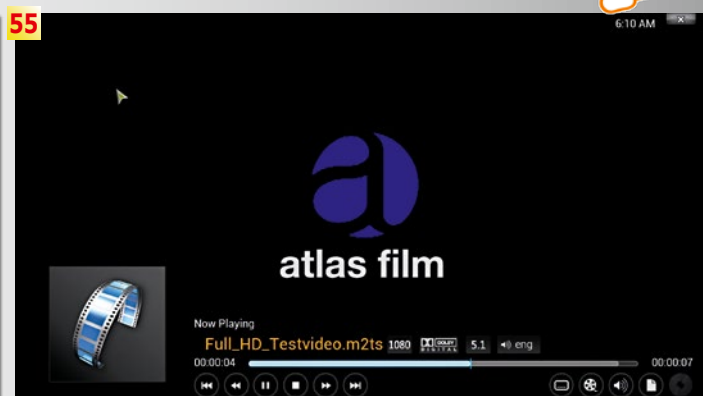
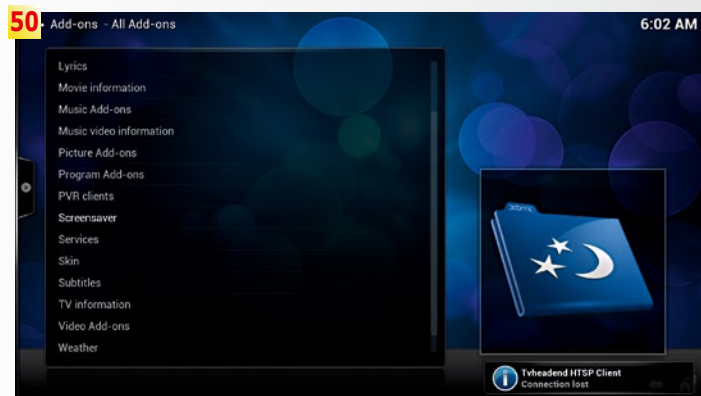
SPAROS 711 Touch Series

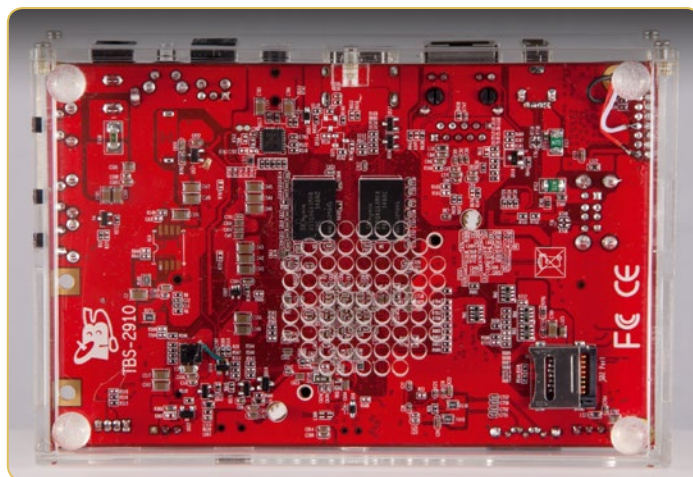
- Intuitive operating thanks to a 10" Touch Screen
- DVB-S/S2, DVB-T/T2, DVB-C, HDTV TV displaying
- Compact and robust aluminium die-cast housing
- Supplied in a stable carrying case!

Xbox

42. The Xbox Media Center uses a PVR client to connect to the external DVB receiver.
43. PVR Client settings.
44. Main menu of the Xbox Media Center.
45. Add-ons can easily be downloaded from the Internet to the Matrix ARM mini PC.
46. Settings menu of the Xbox Media Center.
47. The OSD design can be customised in order to meet users' preferences and requirements.
48. Setting the time.
49. The local weather right from the Internet.
50. Add-ons are available for download in different categories.
51. The Xbox Media Center comes with a built-in web server, which can be used to remotely control certain functions using a web browser when away from home.
52. It doesn't stop with just TV and radio reception: EPG information and PVR features are of course also available.
53. The Xbox Media Center supports audio and video playback with a huge range of file formats.
54. DivX video playback
55. Full HD video playback
56. MP3 player
57. Image viewer
58. Looking at the local weather report.
59. The channel list of the Xbox Media Center for TV and radio reception with the help of an external DVB receiver.







figuration, and if you're faced with more exotic demands, the LOF can always be set manually as well.

No matter if you're using the Matrix ARM mini PC with your run-of-the-mill Ku band system, a C band antenna or an LNB with circular polarisation, you always have all setting options at hand to create a smooth match between hardware and software. With a total of 148 pre-set European, Asian and American orbital positions, the internal database is a powerful tool for reception, and in order to keep that list up to date Tenow has integrated an online update feature that can be launched

with a single touch of a button. A word of caution: While this feature is a godsend in theory, it did not really work to our complete satisfaction during our test. Even after an update, we were left with some out-dated designations such as ARABSAT at 26° East, plus we were missing a number of live transponders that had been on air for some time already on various positions.

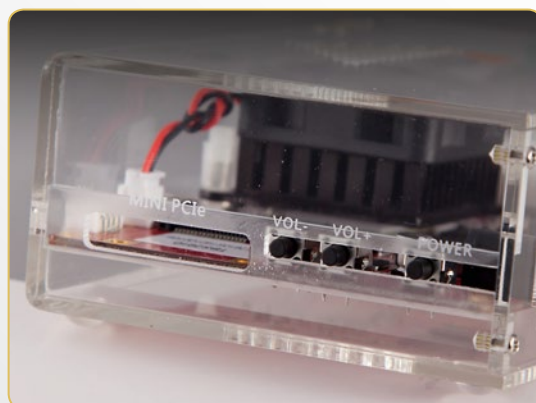
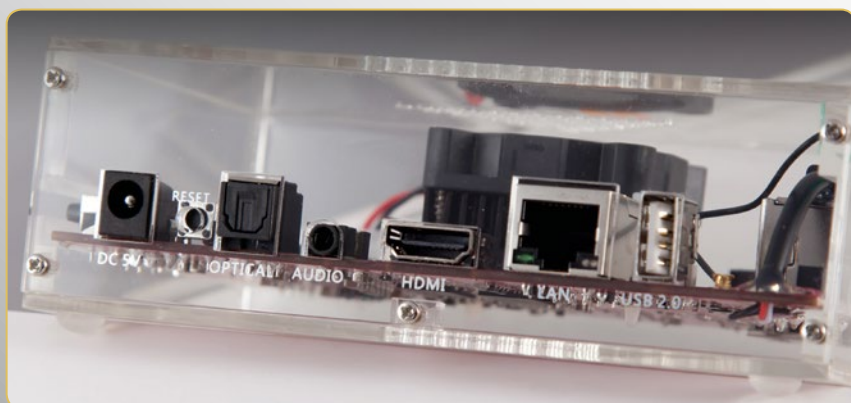
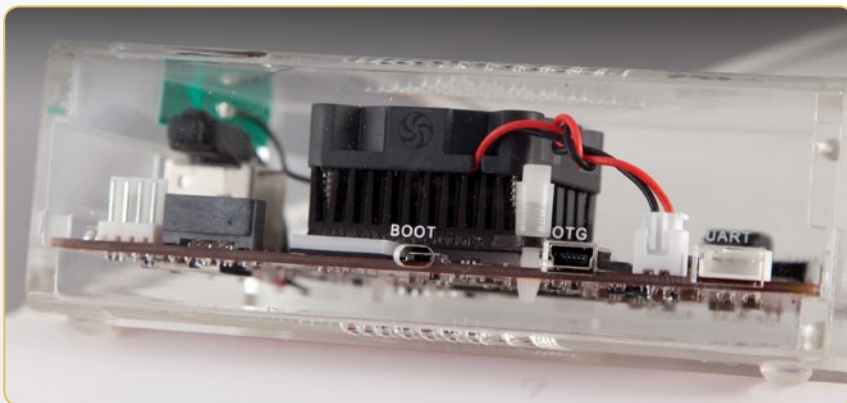
Like most users out there we always start out with an automatic channel search. In this particular case, we can advise that a certain level of patience is required, since our search on ASTRA 19.2° East and HOTBIRD 13° East – one

of the most popular combinations in Europe – took almost 30 minutes. Manual and PID search modes are not available at all. On a brighter note, reception is not restricted to DVB-S2, which means that DVB-T and DVB-C reception boxes from Tenow are fully supported too.

In addition to standard TV and radio reception, users also have the Xbox Media Center at their disposal, which is software available under General Public Licence (GPL) provisions for the MS Windows, Apple Mac OS X, Linux, iOS, Android, Raspberry Pi and Apple TV operating systems. Designed as a con-

ventional media center, this software cannot only be used to play back audio and video files, but also to support live TV reception through its PVR client.

So how do two different worlds interact in the Matrix ARM mini PC? Well, essentially Tenow has built in drivers that act as interfaces between the Xbox Media Center and the actual reception hardware. Technically speaking, we're looking at two entirely different systems, which do not impact each other. The Xbox Media Center sends information to the external reception box, telling it which channel was selected by the user. The



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external DVB receiver in turn sends back the completely packaged AV signal as an AV stream via the USB cable. This procedure also explains why it is not possible to perform a channel search right from the Xbox Media Center, since the software itself has no direct access to functions of the external DVB receiver.

Before you are able to watch live TV for the first time, the corresponding function has to be activated in the basic settings of the Xbox Media Center. Once that is taken care of, "live TV" appears as a separate item in the main menu and can be used to access all available TV and radio channels that have been identified and stored previously by the Matrix ARM mini PC configurator.

In case you're worried how two basically independent systems can be streamlined to create a purposeful user experience, you can rest assured: We found that the Xbox Media Center and the Matrix ARM mini PC cooperate smoothly and without manual input from users. You're offered all features and functions you'd expect from a conventional satellite receiver, such as EPG data, a number of different video resolutions to choose from, an info bar with details about the current and next events, and so on. When we tried to record an event onto an external stor-

age medium while watching another channel on the same transponder, the system took care of all that without further ado and – even more importantly – to our utmost satisfaction. If you opt for the TBS5990 dual tuner box as your external DVB receiver, it is even possible to record two events simultaneously, while watching a third event live at the same time. Channel switching takes less than one second, something we cannot praise highly enough. What's more, the quality of the AV output signal left absolutely nothing to be desired.

Two features most users require regularly is timeshift viewing and timer mode, both of which we tested thoroughly and could not fault in any way. The range of convenience features is completed by functions such as an OSD teletext decoder that must be one of the best available today, language selection and a very efficient channel list editor built right into the Xbox Media Center. It helps you create favourites lists, among other useful things. We should mention at this junction that the Matrix ARM mini PC configurator does not come with such a channel list editor.

It goes without saying, that the Xbox Media Center does not only provide live TV and radio reception, but also a bunch of additional multimedia features such as an excel-

lent audio and video player, image viewer, RSS feed reader and a whole lot more. The software is equipped with a universal add-on interface, which means users can fully customise their version of the Xbox Media Center with almost boundless options. In general, we can say that only the sky is the limit when it comes to getting the Xbox Media Center to interplay with the Matrix ARM mini PC – provided users have the required skills and really know what they are doing. If that is the case, then you can also easily activate a softcam function that will allow reception of encrypted channels, since not all external DVB receivers from Tenow come with a built-in CI slot.

As an alternative to the default MatrixTV operating system, Tenow provides a fully pre-packaged Android system for the Matrix ARM mini PC, which can be downloaded from the company website. Should you choose to install that system you only need to follow precisely the same steps as for the MatrixTV operating system. We tried it in our test and can confirm that both the installation process and the OS itself worked with-

out a glitch.

If you require some more details before you're ready to take that decision, here's what you should know: The Android version provided by Tenow is 4.2.2, which means it is a relatively current distribution dating from February 2013. It's always important to run a current release of any operating system since it is the only way to make sure as many apps as possible can actually be installed and used. Once Android has replaced MatrixTV the Matrix ARM mini PC behaves exactly like a smartphone or tablet PC running the same Android operating system. This means you should link the device to a Google account so that you can actually make use of the entire range of available features. Thankfully, the Tenow-customised Android OS comes with Googly Play Store so that users can browse through millions of apps (both free of charge and for a charge) and install the ones that might seem useful to them. Once again, you'll find that only the sky is the limit and it didn't take us long to identify a handful of essential apps we would not want to do without: Facebook or YouTube, any-

Xbox

60. EPG view

61. Events can be marked for automatic recording using the timer feature

62. Radio reception is possible as well with an external DVB receiver

63. EPG listings of a channel can be searched for keywords

64. Result of an EPG search for 'news'

65. Channel list of the Xbox Media Center.

66. Need more details about a certain event? Simply call up extended EPG information.

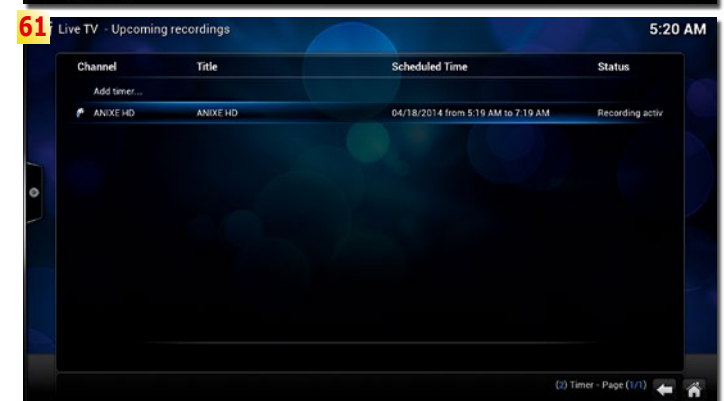
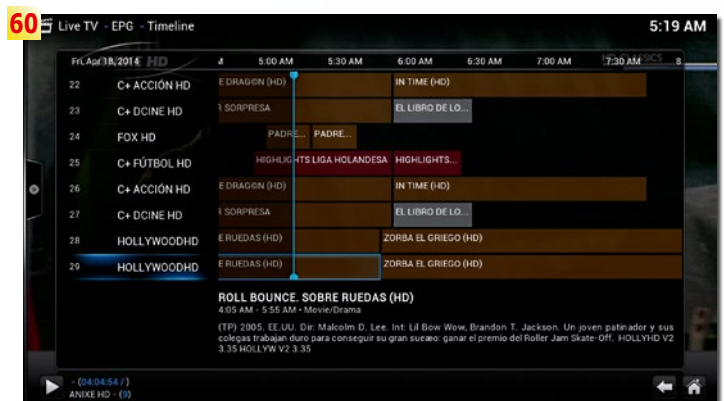
67. List of timer entries.

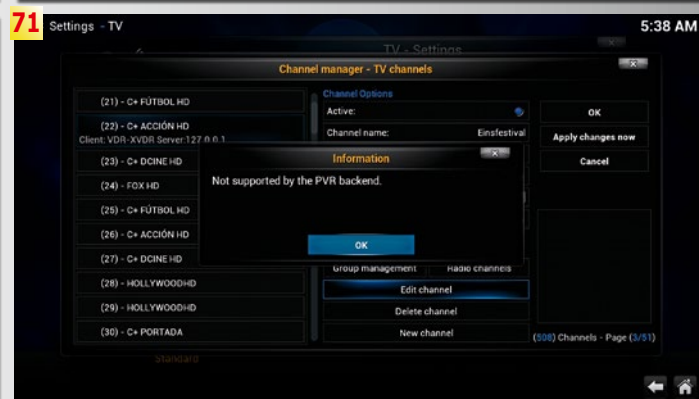
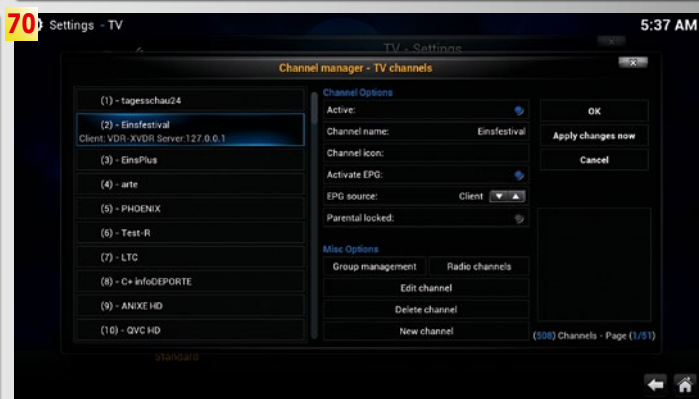
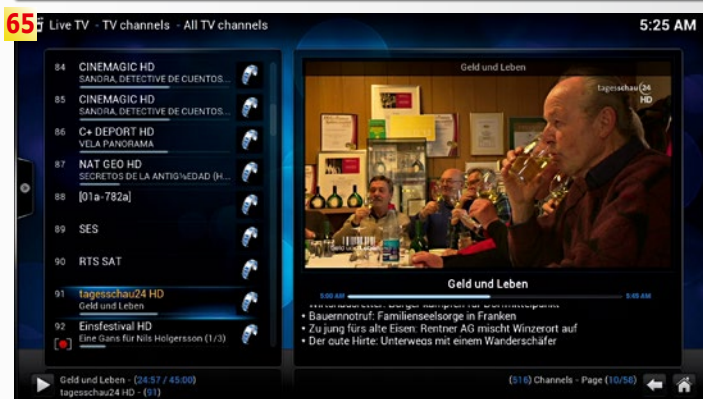
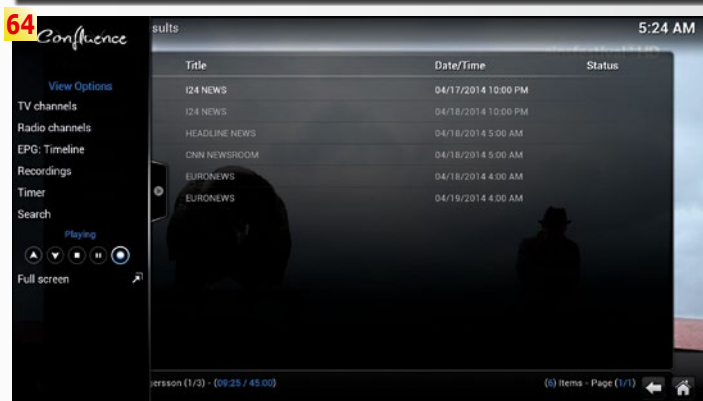
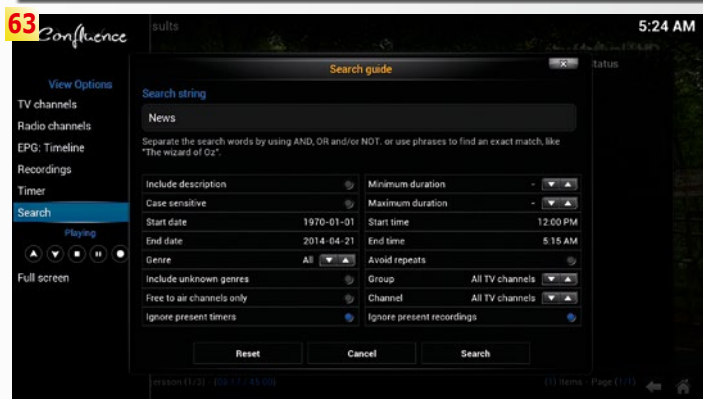
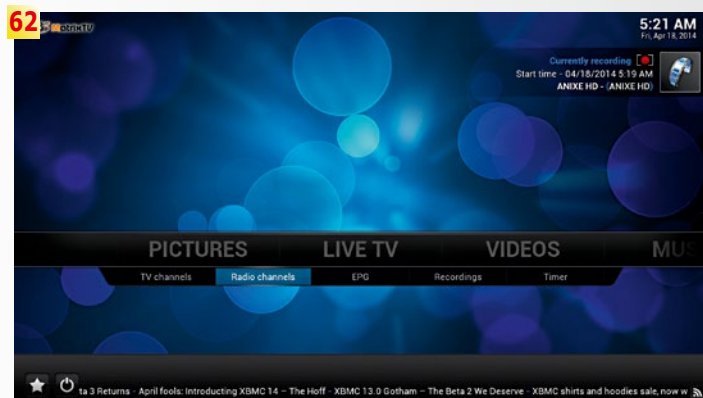
68. Every time you switch channels this convenient info bar shows the title of the current event of the selected channel.

69. You can launch the main menu in order to adjust some settings while the currently selected channel can still be watched in the background.

70. Channel list editor of the Xbox Media Center.

71. Some functions – such as deleting individual channels, for example – are missing.

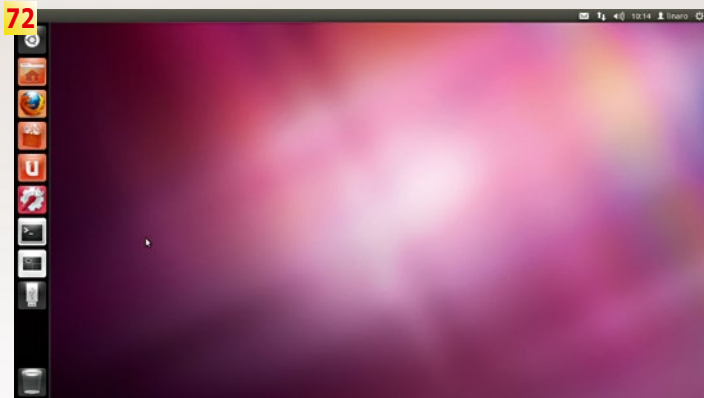






Ubuntu

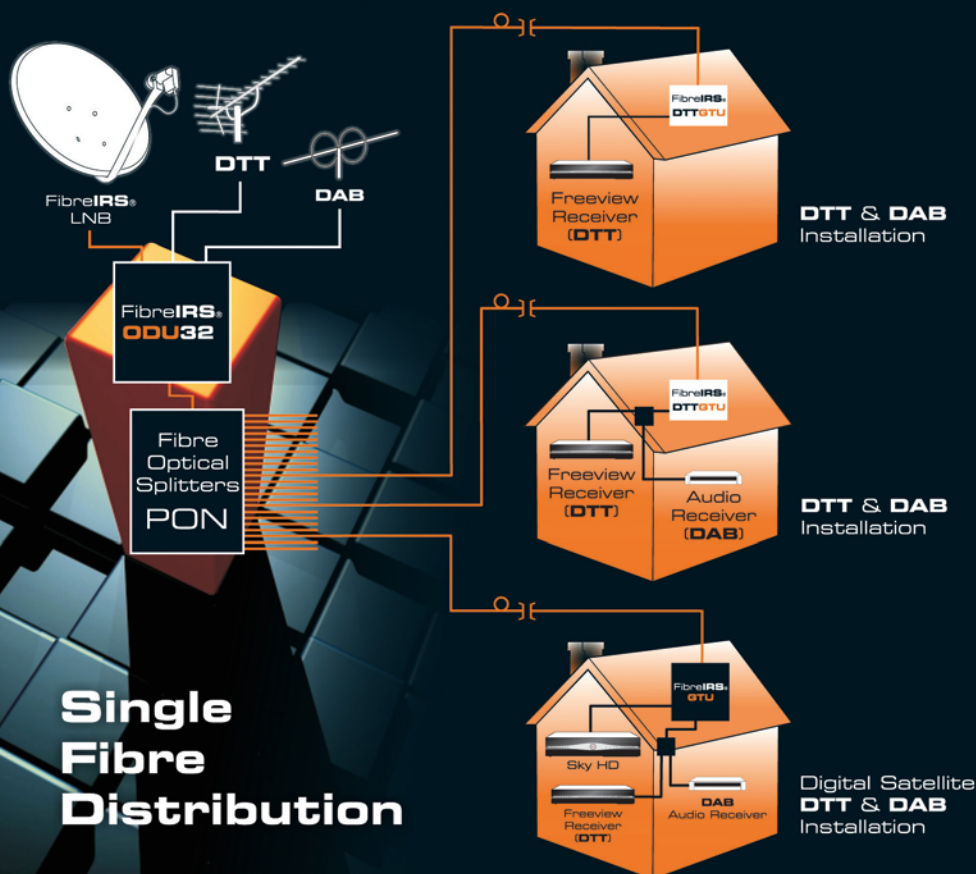
- 72. Ubuntu on the Matrix ARM mini PC
- 73. Web browser under Ubuntu.
- 74. Various apps under Ubuntu.
- 75. Various apps under Ubuntu.





The New Generation Fibre Integrated Reception System

The only cost effective solution for distributing
**Satellite IF, DTT and DAB over a
Single Fibre Optic Network.**



- Compatible with all digital satellite STBs
- Compatible with all DTT/Freeview™ STBs
- Compatible with all DAB Tuners
- Can be easily expanded to **256** points
- Simple installation* via 'Plug & Play' technology
- Ideal for short or long cable runs.

*Compared with existing Fibre Systems

**Single
Fibre
Distribution**





one? We even discovered an app that was able to show the signal from the camera above the main entrance to our test center, for example. With Android you can also benefit from apps for accessing the content libraries of a whole number of TV and radio stations. This way you're not only restricted to what's on air at any given time, or to what you have recorded in the past, but you can watch hundreds of events from different providers at your leisure. And come to think of it, that way you're not even required to connect an external DVB receiver to the Matrix ARM mini PC.

In case you're wondering, the Xbox Media Center is also available for the Android operating system, but in this case it is neither pre-installed nor available from Google Play Store. Users have to manually download the software from the Internet and install it on their Matrix ARM mini PC. While this may sound like the second best option, you should still give it a try since the wonderfully straightforward Android user interface makes sure you can achieve that in next to no time. Believe us, we've tried it!

Our in-depth test revealed that when it comes to multimedia features and compatibility, there's no way around Google's Android operating system. Not only does it offer a thought-through and easy-to-navigate user interface, it will also support virtually all multimedia file formats you will ever come across.

As a final point we can inform you that – in addition to the default MatrixTV and the Android OS dealt with

just above – Tenow also has in store a customised Ubuntu Linux distribution for truly advanced users, or at least those who know their Linux stuff. Average end users should rather keep their hands off that system, since they can do more harm than good. That's why we'll not go into any more details here, apart from saying that Linux enthusiasts and professional users will be delighted by that alternative.

The entire team at the TELE-audiovision test center have truly enjoyed putting the Matrix ARM mini PC to the acid test. The idea behind this solution is novel and mainly intends to give users a low-cost, small and silent but still capable and versatile alternative to the good old stationary PC. The Matrix ARM mini PC boasts excellent build quality and on the software front Tenow also has embarked on a journey into the right direction. The manufacturer has attempted to arrive at a usable solution, which is quite an achievement given the enormous range of functions and the fact that we're talking about an open platform that has to cope with an endless supply of available third-party software. The result is an awesome playground for enthusiasts and a top-notch arena for professional – giving them a tool to try out new stuff and experiment to their heart's content. Your average John Doe, on the other hand, might be better served with a more conventional solution, but we believe that Tenow never had this target group in mind for the Matrix ARM mini PC in the first place.

EXPERT OPINION

Tenow Matrix ARM mini PC
Mini PC for Web/IPTV & Live TV

RECOMMENDED
PRODUCT BY ▼



TELE-audiovision
THE WORLD'S LARGEST DIGITAL TV TRADE MAGAZINE



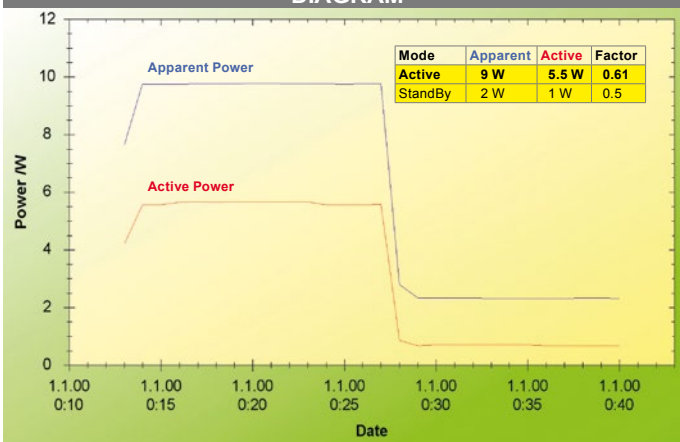
Thomas Haring
Test Center
Austria

VIP
CARD

TELE
audiovision
www.TELE-audiovision.com

- +** • Small but capable mini PC.
- Three pre-configured operating systems available.
- Smooth integration of external DVB receivers offered by Tenow.
- Wide range of multimedia features in addition to live TV reception thanks to Xbox Media Center and Android.
- • Not really suitable for beginners and those with little experience.
- No unified user interface for the setup process and for accessing all functions.
- Very lengthy channel search.

ENERGY DIAGRAM



15 minutes of active use, followed by 15 minutes in standby mode.

MORE ABOUT THIS COMPANY

www.TELE-audiovision.com/11/03/tenow

COMPANY REPORT PC Card Manufacturer Tenow, China

26968999

One company that is fully concentrated on the development of their products is the young firm Tenow. Based in Shenzhen, China, PC cards are manufactured through the actual production process is outsourced allowing Tenow to focus their efforts on development and marketing. Also according 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 Shen De Metro Station on route 1.

Innovative PC Cards from China

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VSAT Antenna System

DTH Antenna System



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AZURE SHINE INTERNATIONAL INC.

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E-mail: azure.shine@azureshine.com.tw

TEL : 886 3-3611393 / FAX : 886 3-3615877



- *wireless hub for all media devices you use at home*
- *the central box is the only device with a power cable and actual data cables*
- *first available models feature two DVB-C tuners*
- *up to six TV panels or monitors can be linked to the wireless system*

Streaming at home – thanks to Jiuzhou

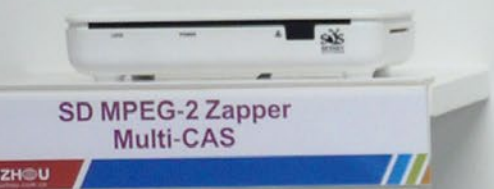




The dream of wireless TV at home finally turns into reality

Among many other aspects, the triumphant success of smartphones and tablet PCs in recent years has shown us one thing: Using cables to connect different devices in your home is just so yesterday. Make no mistake about it, there are a number of situations when

cables are a must, such as transmitting enormous amounts of data or requiring an absolutely secure means of data transportation. But for most consumers, going wireless takes out the pain of pairing different devices with each other. As far as smartphones are concerned, your



Richard Han is Vice General Manager of Jiuzhou and head of Research & Development





cellular provider takes care of the technical side and all you need to do is get a SIM card and turn on your phone. But what about using wireless technology at home?

When it comes to watching TV, Jiu Zhou – one of the largest receiver manufacturers worldwide – has now launched a solution that does away with cables altogether and connects all TV panels using WiFi instead.

Bye bye cable tangle, bye bye scratching your head while pondering which cable connects to which socket. No need to get furious any long-

er when that important cable lacks an inch or two in length, or when a connector simply won't fit into a device's socket. In a nutshell, forget about cable madness, and enjoy a new freedom of placing your TV where you actually want it, not where a wall outlet is positioned. Change your mind? Move your TV! And if you watch TV on your tablet PC, you'll never lose a signal no matter where you roam inside (or even outside) your home.

Richard Han is Vice General Manager of Jiu Zhou (picture left) and head of Research &

Development. He set aside some generous time for an exclusive interview with TELE-audiovision in which he introduced the latest innovation by Jiu Zhou, which is called Home Media Center Gateway DTC9623. It's a long product name, standing for nothing less than the future of watching television at home.

The new box bundles all information and distributes content wirelessly throughout your home. In a few years' time we will all use boxes like that at home, since there's no doubt the future will be wireless. Here at Jiu Zhou we are afforded a sneak peek into what that future will look like.

Richard Han explains to us how the Gateway DTC9623 works: "The C in the model designation stands for DVB-C, as this initial launch is for a Chinese cable provider." The box comes with two DVB-C tuners as standard. "One tuner processes the TV signal distributed by the cable provider, while the second tuner basically acts as an Internet connection that takes care of all online applications such as standard Internet access, web TV offerings or VoIP."

What's particularly striking with this device is that all sockets are clearly labelled as input sockets. Output is strictly wireless. "We use the DNLA protocol and as far as multicast is concerned we have opted for Miracast technology."

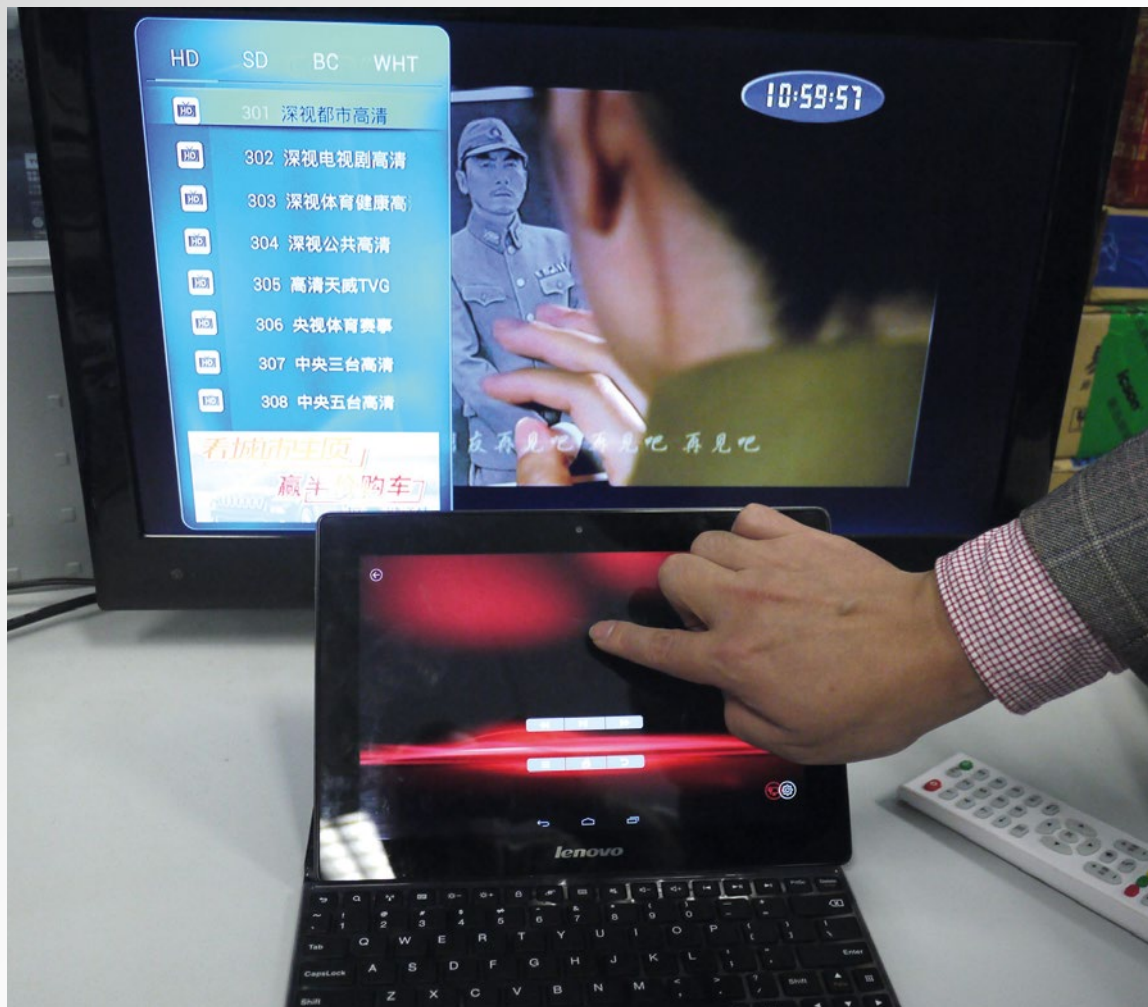
This way up to six TV panels or monitors can be hooked up wirelessly. "The bandwidth is designed to cater for up to six simultaneous HD transmissions." Both the 2.4 GHz and the 5.8 GHz WiFi bands are used.

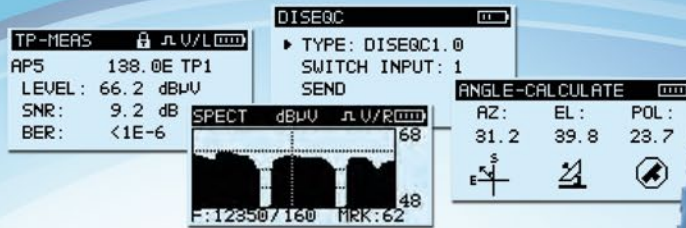
What's more, additional peripheral devices can be added to the set-up with Bluetooth 3.0. "You can easily connect a wireless key-

board for surfing the web or as a beefed-up remote control. The same goes for a wireless headphone, for example.” Worth noting: “You can also add voice control capability, so that channels are switched by calling out the selected channel name.”

Of course we’re also interested in the hardware components and operating system used by Jiuzhou for its Gateway DTC9623, and Richard Han isn’t backward at coming forward: “We have selected the 3716 IC chip from Hisilicon. The cable modem is based on DOCSIS and our OS is Android 4.2.” The first boxes will be shipped around the publishing date of this issue of TELE-audiovision.

With this new wireless system Jiuzhou pushes the door into the future wide open. We will be able to watch all TV channels at home without the need for cables in the not so distant future.





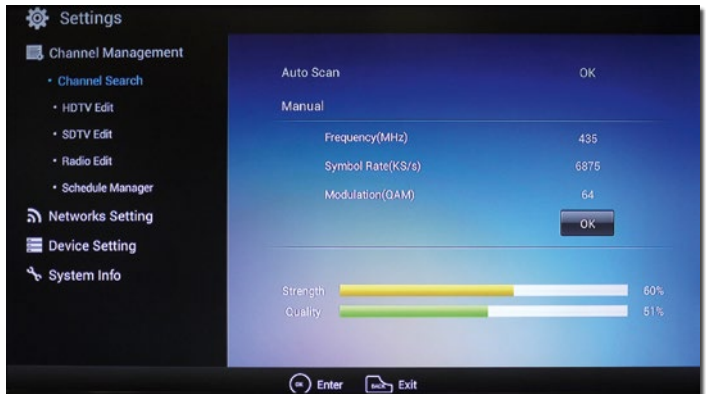
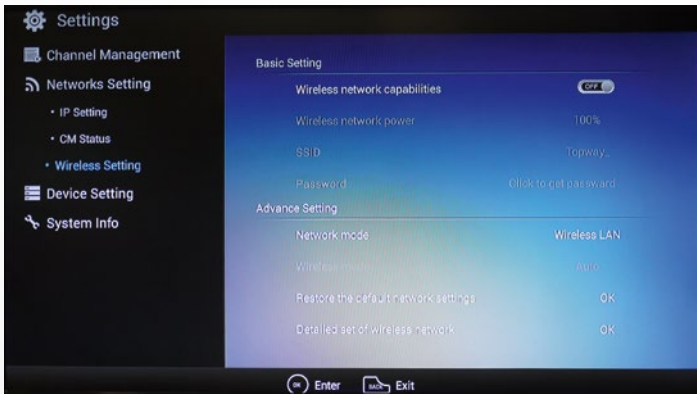
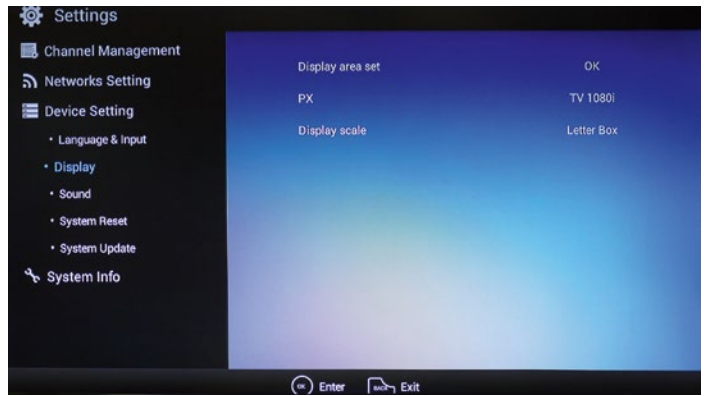
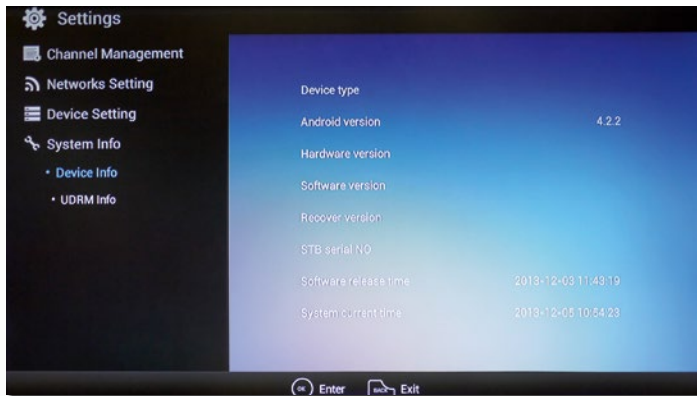
S30✓ Satellite Meter

- 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)





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NEW ITEM

fast processor with 1GB DDR3 RAM
large color TFT display
2 x PnP DVB-C2/S2/T2 ready
2 x card reader
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DVB-T2/C2/S2

eSATA
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HDMI
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HD
TV

USB
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GigaBlue HD UE Plus

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Many ways leads to us

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Web: www.gigablue.de

Maxing MB04



Universal LNB with built-in DiSEqC switch

RECOMMENDED
PRODUCT BY ▼

n
INE



Jacek Pawlowski
Test Center
Poland

TELE
audiovision

www.TELE-audiovision.com

- *perfect weather protection of the built-in DiSEqC switch*
- *easier cabling and installation work*
- *excellent reception results*
- *any LNB can be connected to second input*

Forget a Separate DiSEqC Switch

When you want to receive two different satellites without a motorized dish, you either use a monoblock LNB or two separate LNBs. A monoblock can be used only in special cases, for example, if the satellites of interests are only a few

degrees apart. In all other cases you need two separate LNBs and a DiSEqC switch so that your receiver can switch from one LNB to another.

But this is not true anymore! Maxing Electronics Technology have developed

a very interesting product. It is an LNB with a DiSEqC switch built-in. Maxing gave this unique new product the name MB04 and it looks like a typical universal Twin LNB at first sight. But that is misleading. Do not connect two receivers to this

device! Instead, you should connect a coax cable from another LNB to one of the MB04 F connectors and a cable from a set-top-box to the other F connector. Your receiver should be set up to work with a DiSEqC switch. DiSEqC position A is for the MB04 LNB while position B is for the second LNB. This second LNB can be any regular LNB. In this way, you do not need a two-way DiSEqC switch in your antenna setup. It is inside the Maxing MB04 LNB.

What are the benefits? Well, you have only three F junctions instead of five in a typical setup. Thanks



to that you can expect better reliability. Also the cabling is somewhat simpler as you do not have to care where to mount the DiSEqC switch. Best of all: you do not have to care to insulate the DiSEqC switch against the weather, as it is well protected inside the housing of the MB04 LNB.

As the MB04 looks like a Twin LNB it is the same size and it is not any heavier. Its workmanship leaves nothing to be desired. And what about the parameters? Well, its Noise Figure is specified as 0.3 dB minimum and 0.7 dB typical. All other parameters seem to be quite typical for a universal LNB.

ALL **MAXING** TYPES OF LNB



◦ Universal Ku Band LNB:

available colors:



Single: **MX-16, MX-26**
white, orange



Twin: **MX-KT22C**
white, orange



Quad: **MX-KQ24G**
white, orange



One cable solution:
orange **MX-OCS12**

◦ Extral long neck Ku Band LNB for multi-claps:

available colors:



Single: **MX-100L**
green



Twin: **MX-KT22CL**
green



Quad: **MX-100GL**
green

◦ Multi grade dual Ku Band LNB:

available colors:



MX-MD100
green

◦ Custom-Made LNB:

One cable solution
Extral long neck lnb for multi-claps
Multi grade dual ku band LNB



Factory:

3rd Fl., No. 2 YongTai Road, HongQi Town, JinWan District,
Zhuhai, Guangdong Province, China
Tel: +86-756-7221216, Fax: +86-756-7221010

www.maxingco.com



Contact Manager Director:

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



We decided to test this device on our toroidal antenna on which we have a number of LNBs. We measured one of the existing LNBs - dedicated for ASTRA 28.2° East and then another one mounted in the position to receive ASTRA 19.2° East. The first LNB was a very good contemporary LNB with NF=0.1 dB. We took these measurement results as our reference levels.

Then, we removed the LNB for ASTRA 28.2° and mounted in its holder the MB04 LNB. We also connected the MB04 with the second reference LNB for ASTRA 19.2° East.

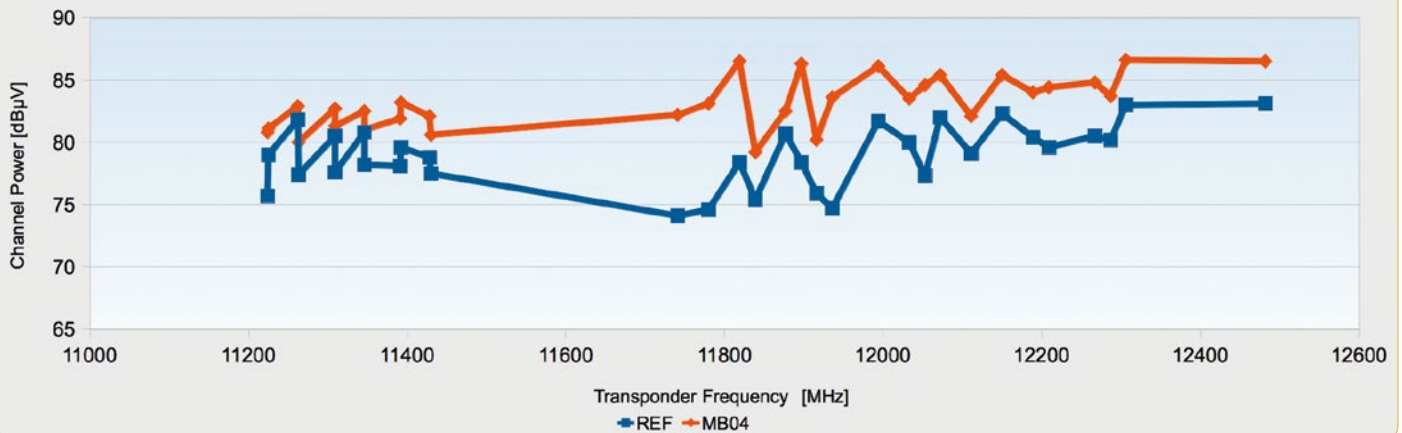
As you can see in the

graph, the MB04 output was stronger than that of the reference LNB by 2 through 8 dB. It means that you can use long coax cables with the MB04.

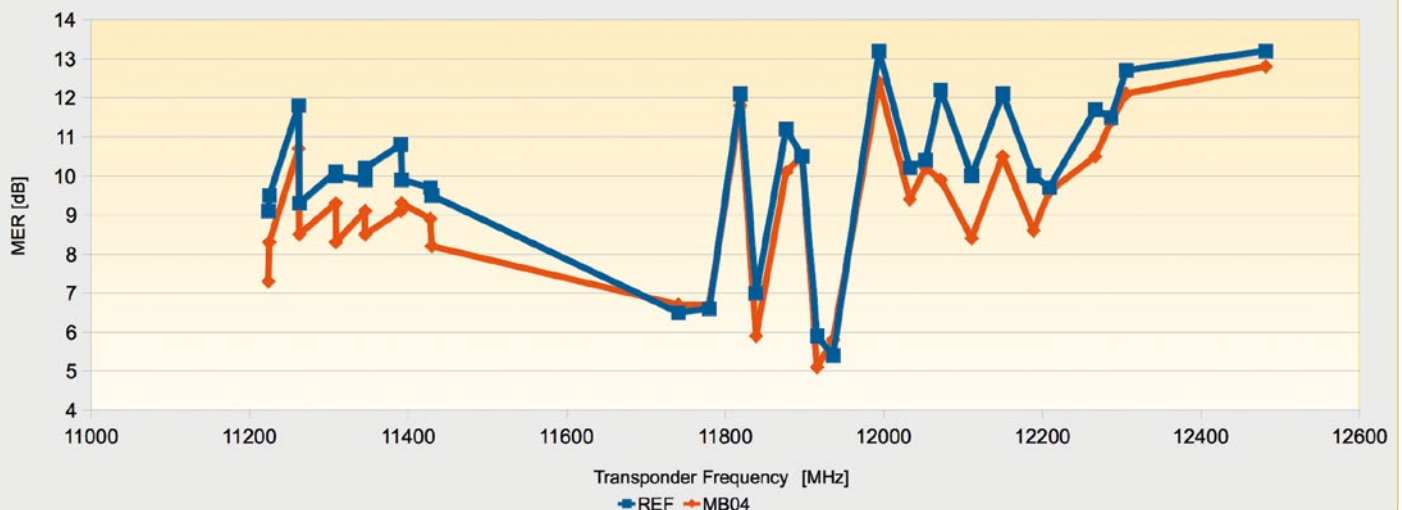
When we compared signal quality we noted that its MER was 0.5...2 dB lower than that of 0.1dB LNB reference. Which makes it a very good choice for regular DTH installations.

On the following graphs we tested the MB04 impact on the signal coming from the second LNB. The signal was attenuated by a couple of decibels what is absolutely normal for a DiSEqC switch. The strong point is: its MER did not change. So, signal quality at the MB04

MB04 Output Power vs. Reference LNB



MB04 Signal Quality vs. Reference LNB





output was as good as at its input.

To sum it up: the MB04 LNB with its built-in DiSEqC switch performed very well and can be successfully used throughout the regions well served by DTH satellite like in Europe. You also do not have to worry about the quality of the DiSEqC switch – it is very good. The MB04 will not add any extra noise to the signal from the second LNB.

And, last but not least, so much simpler cabling by using the MB04 which adds extra reliability to any reception system.

EXPERT
 OPINION

MAXING MB04
LNB with DiSEqC

RECOMMENDED
PRODUCT BY ▼

THE WORLD'S LARGEST DIGITAL TV TRADE MAGAZINE

Jacek Pawlowski
Test Center
Poland

VIP

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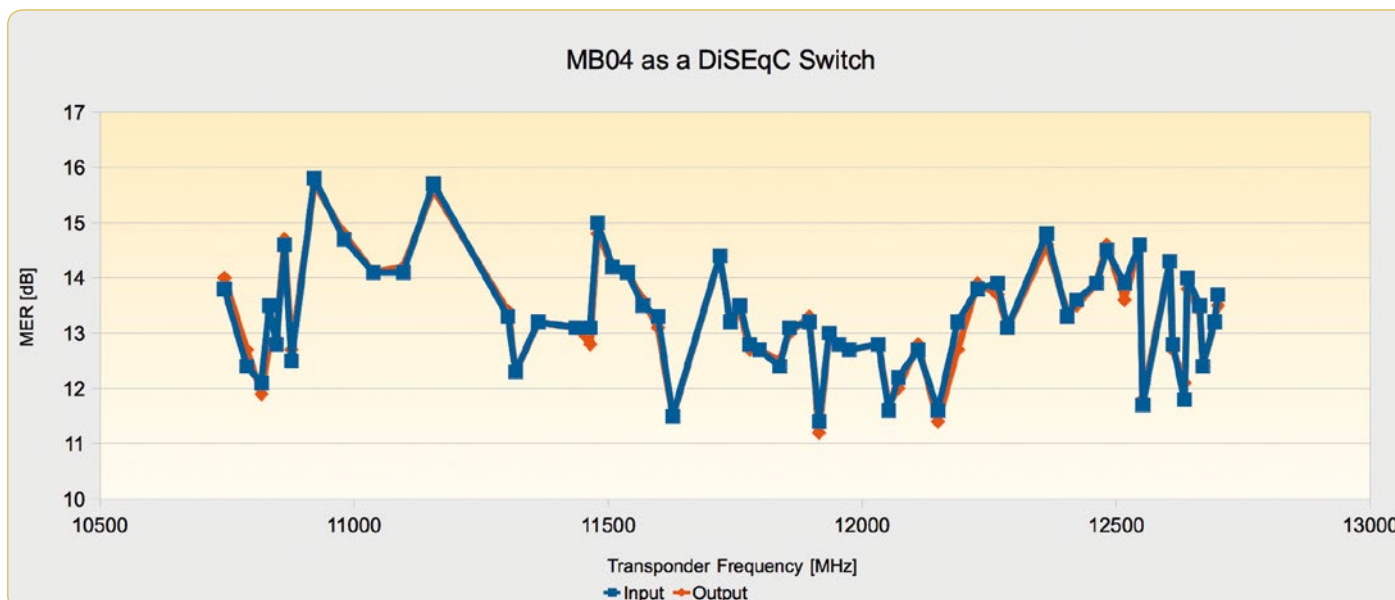
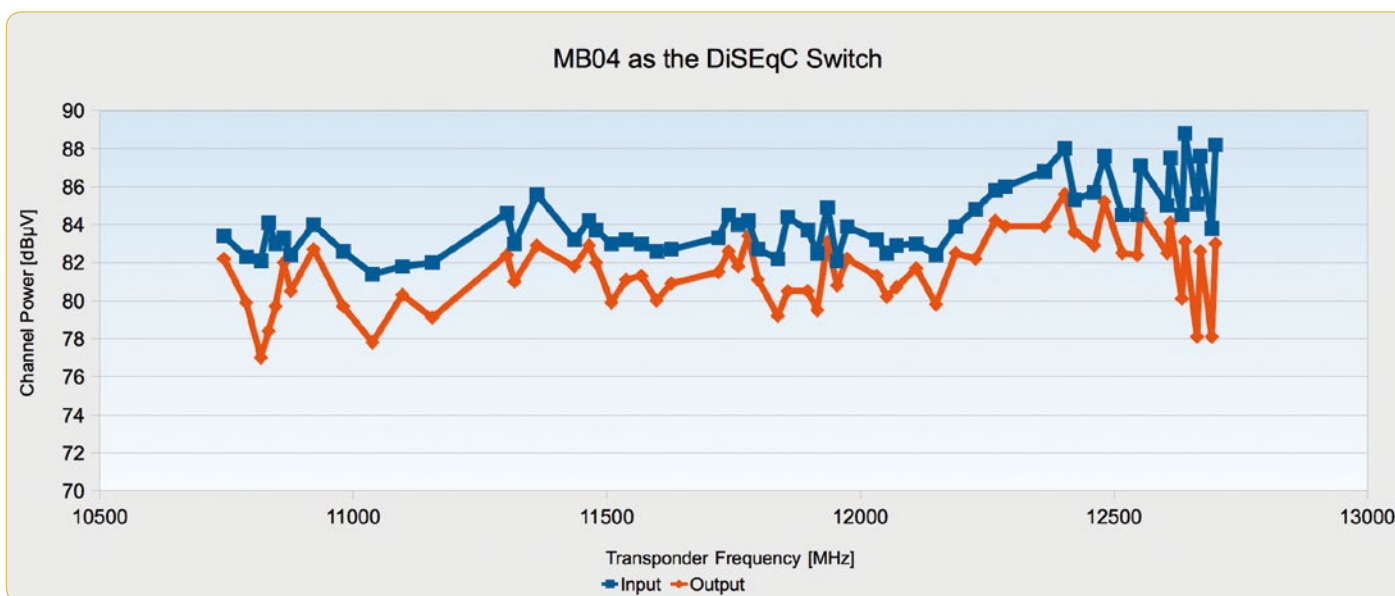
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+

- superb weather protection
- full MER goes through
- excellent workmanship
- well suited for DTH reception

-

- none



AWARD WINNING

**DIGITAL
RECEIVERS OF
21ST CENTURY**

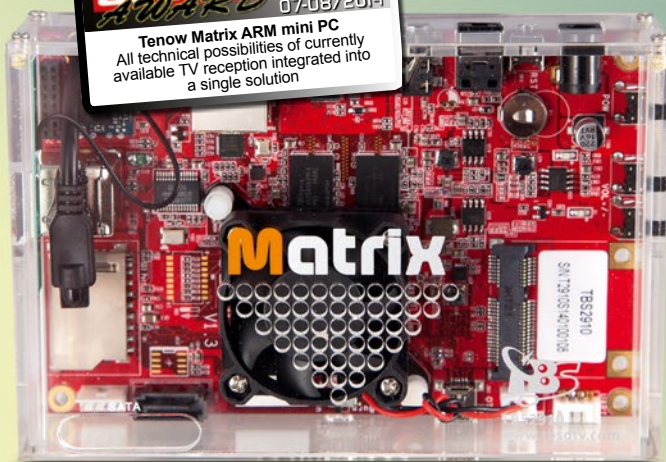
这些是获得最高奖的产品



Manufacturer	TBS Tenow
Website	www.tbsdtv.com
Function	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	— / •



Tenow Matrix ARM mini PC
All technical possibilities of currently available TV reception integrated into a single solution



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International
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Expert Opinion

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TENOW

Manufacturer	Giga Blue
Website	www.gigablue.de
Function	DVB-S2 DVB-C/DVB-T 4-Tuner HDTV Receiver
DVB-S2/LAN	• / •
PVR	•
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



Giga Blue HD Quad Plus
First receiver with 4 tuners and web TV – a perfect companion for couch potatoes



GIGA BLUE



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Expert Opinion

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Manufacturer	Panodic
Website	www.panodic.com
Function	DVB-T1 & DVD Player Receiver
DVB-T2/LAN	— / —
PVR	—
S-Video/HDMI	— / •
Scart/Digital Audio	— / —



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PANODIC



Manufacturer	Amiko
Website	www.amikostb.com
Function	Miniature DVB-S / DVB-S2 PVR Receiver with external IR remote control
DVB-S2/LAN	• / •
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	— / •



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AMIKO

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！



YAGI

U-PA
UHF DIGITAL



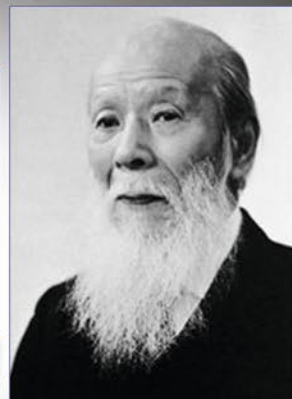
**DESIGNED IN
JAPAN**

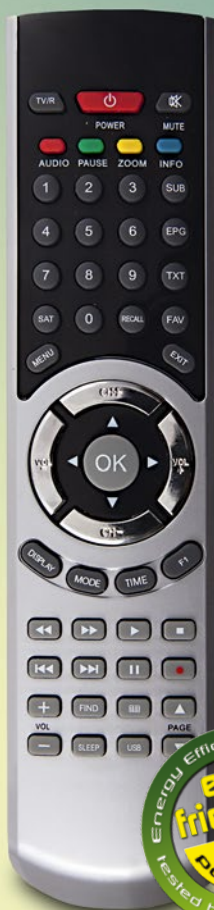
Dr. Hidetsugu Yagi invented the Yagi antenna in 1926

八木天线由八木秀次博士于1926年发明

YAGI

中国代理 China Agent: www.aluo-sat.com
<http://aluosat.taobao.com>





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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Expert Opinion

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MKTECH



Manufacturer	TBS Tenow
Website	www.tbsdtv.com
Function	DVB-S2 compatible Twin Tuner Streamingbox
DiSEqC	1.0 / 1.1
DVB-S2/LAN	• / •
PVR	•
S-Video/HDMI	— / —
Scart/Digital Audio	— / —



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TENOW



First **Live TV-Ad-Blocker** *worldwide unique*



Let the **TV Fairy** do the Program Selection

The TV Fairy offers a unique concept in watching tv: **The Personal TV.** It automatically arranges the most watched programmes - by the general audience and by the individual preferences - and then sorts channels dynamically. What's more, the TV Fairy's unique system filters out unwanted program segments.



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www.telefairy.com

Distributors Wanted / Licences Available

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56072 Koblenz, Im Kimmelberg 2-4, Germany,
Tel +49--261-98436-0



Manufacturer	Gotech
Website	www.gotechcn.com
Function	DVB-S2 Satellite Receiver
DVB-S2/LAN	• / •
Channel Memory	unlimited
DiSEqC	1.0 / 1.1 / 1.2 / 1.3
S-Video/HDMI	— / •
Scart/Digital Audio	• / •



MKTECH



TELE-audiovision
International
Magazine

**Expert
Opinion**

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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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Ugodisk.com

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



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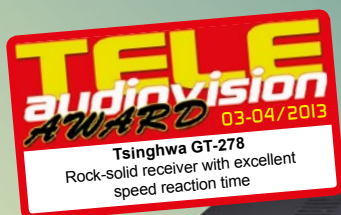
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PANODIC



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INNOVATION
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11/12/2012

Jiuzhou DTP2100
Cutting-edge receiver thanks
to Android operating system

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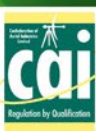
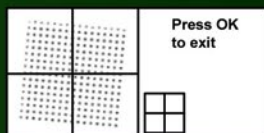
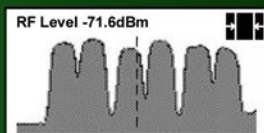


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Magazine
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The only way to survive in the oversupply world that exists today is to offer more to your customers than what other manufacturers offer. And this philosophy should not be limited to just the products that you produce, but in everything else that is involved in the making of those products. And the end result? The customers will recognize the long-term advantage of ONLY purchasing YOUR products. They will know that your company will still exist next week, next month, next year. These days products require frequent updates. In the continuously developing digital world, firmware and software need to be regularly upgraded to add new features and to improve on existing features.

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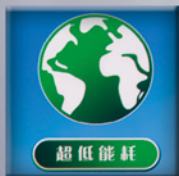


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GT-278

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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*





Satellite Frequencies Transmitted Terrestrially

Vitor Martins Augusto

When a provider wants to bring their digital TV programming to their customers, there are several ways to do this: via satellite, via cable or terrestrially. Each one of these methods comes with advantages and disadvantages.

With satellite a provider can broadcast to large areas all at once and there are enormous bandwidths available which, in turn, results in extra costs and, depending on the type of content that is transmitted, may also require encryption.

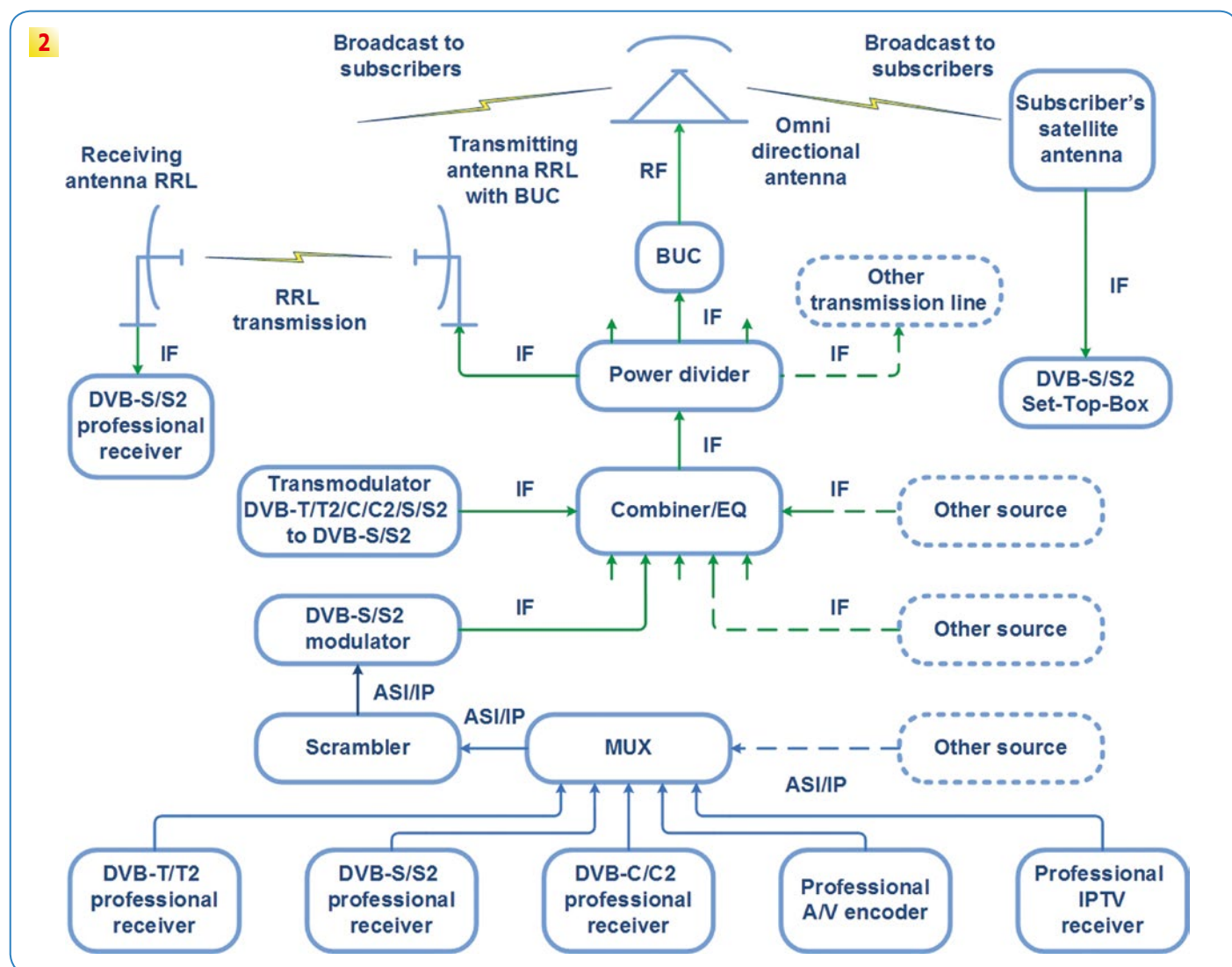
Not only that, the bandwidth on the most popular satellites is already booked.

A cable network gives the provider the ability to offer additional services such as telephone and Internet, in addition to normal TV, through a return channel. Yet the installation of all the cabling brings with it very high costs and really only makes sense in areas with higher population densities.

Terrestrial transmissions take place using a network of reduced-power an-



tennas. Even here it becomes problematic to provide TV service to large regions because the ratio of the number of customers to the number of broadcast antennas needed is not profitable. Far more relevant is the fact that terrestrial TV such as DVB-T/T2 in many





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1. Satellite TV reception from a terrestrial antenna. The principle behind MITRIS: a terrestrial transmitter using satellite frequencies

2. Typical infrastructure for MITRIS. Content is streamed to a multiplexer and then modulated to DVB-S/S2. Transmission is made through omni-directional terrestrial antennas, instead of uplinking to a satellite. Reception, however is not different from a traditional satellite TV. Just point the dish to the transmitter antenna.

countries is only allotted a minimum amount of bandwidth and the VHF/UHF frequency bands are used for other mobile services such as LTE.

The answer for some time has been MMDS. This acronym stands for Multi-channel Multipoint Distribution Service. It has to do with terrestrial transmission in the 2.5 to 2.7 GHz frequency range. 33 channels, each with 6 MHz bandwidth can be transmitted (in the USA it's only 31 channels) in this higher frequency range. What's special about this is the modulation of the digital signal: just like with cable it's either 64QAM or 256QAM. But since there are already other services in use in this frequency band, MMDS was expanded out of which came, among other things, MITRIS.

MITRIS stands for Microwave Inte-

grated Tele Radio Information System and operates in the Ku-band satellite frequency range. Another advantage over the original MMDS is the output transmission power used: it is lower (less than 10 mW) with almost the same coverage.

Because of this, MITRIS antenna masts can be installed very close to residents without incurring any of the drawbacks that would result from excessive radio waves. Naturally, this simplifies the setup of MITRIS and simultaneously reduces the costs involved since antennas can be mounted, similar to mobile telephone services, on existing structures.

With a bandwidth of 800 MHz, significantly more channels can be broadcast with MITRIS in the 11.7 to 12.5 GHz frequency band since it has enough room for up to 25 transponders. This would yield an impressive 200 to 300 TV channels depending on the bandwidth and modulation used.

It should be pointed out that MITRIS does not transmit a polarized signal so it doesn't matter if the LNB operates in the horizontal or vertical position. For this reason only half as many transponders are available compared to a

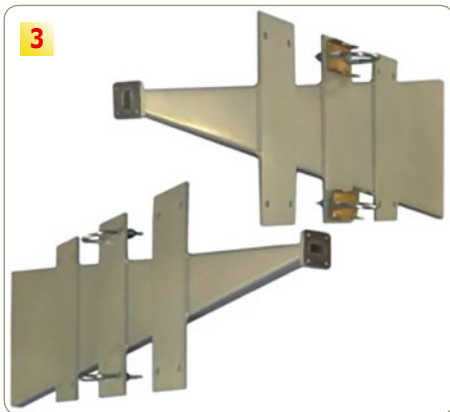
standard satellite broadcast.

The frequency band used by MITRIS is also used for satellite reception. If the antennas transmitting the MITRIS signals are located too close to the satellite antennas disturbances can occur, especially in high geographic latitudes where the satellite antennas have a low elevation.

A solution to overcome these problems is to install the MITRIS antennas separate from the satellite antennas or by making use of natural reflectors or of intentionally putting up reflectors. In any event, installing a MITRIS systems requires careful planning to not disturb satellite signals.

In exactly the same way that the same frequency band from different satellites can be used independently from each other, MITRIS can also be used without having to worry about different signals, i.e. satellite and/or MITRIS interfering with each other.

This is a great way to utilize the limited availability of frequency bands making MITRIS the ideal solution for TV distribution in rural areas and even more so in mountainous regions with its many natural obstacles which can be used favorably as a reflector to tune out unde-



sired signals.

The company ROKS took the MISTRIS system and expanded it marketing it under the name MISTRIS-CS; the CS stands for Cellular Structure and refers to the ability to operate any number of relay stations.

Implementation is ingeniously simple: the transmission system, in which the incoming TV signals are combined via a multiplexer, optionally encrypted with a DVB scrambler and finally modulated to DVB-S/S2, functions exactly the same as in any satellite station except with MISTRIS-CS the signal is not uplinked to a satellite in geostationary orbit, rather, the signal is broadcasted terrestrially using omni-directional an-

tennas.

The end user receives these signals with a standard satellite system including a satellite antenna that is instead pointed horizontally at the provider's transmission antennas.

In other words, it's pointed to a transmission antenna mast instead of up to a satellite. There's only one restriction and it's the same restriction you would have with normal satellite reception: there must be a clear line-of-sight view between the transmission and receiving antennas.

If this is not the case or if a larger region needs to be covered, relay stations can be utilized with MISTRIS-CS. Through specially developed ROKS directional antennas additional transmission towers can be supplied with the MISTRIS-CS signal which would then re-transmit the signal to end-users using omni-directional antennas.

In order for this to work, two different frequency bands must be used, each with 800 MHz bandwidth: one for the directional antenna and at the same time the other for the omni-directional antenna. If both of the transmissions were in the same frequency band, the differing transmission times would lead to significant interference similar to

the all-too-familiar echoes in DVB-T/T2 SFNs (Single Frequency Networks).

Since the Ku-band already utilizes two frequency bands (Low Band: 10.7-11.5 GHz and High Band 11.7-12.5 GHz), it made sense for ROKS to use it also for their MISTRIS-CS. The Low Band is used for the relay stations while the High Band is used by the end-users. Why?

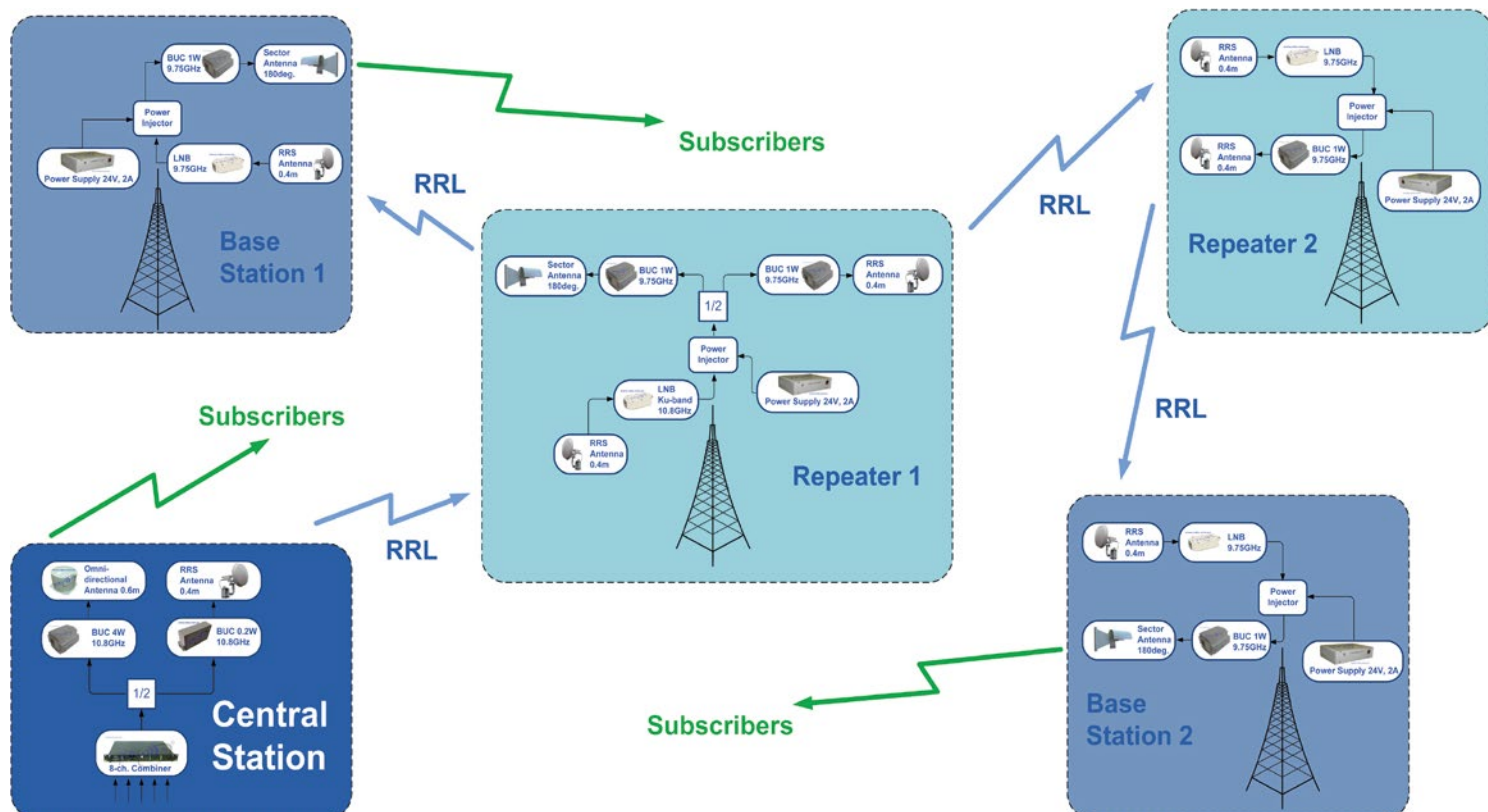
It's very simple: the lower the frequency the further the transmission propagation at the same output power.

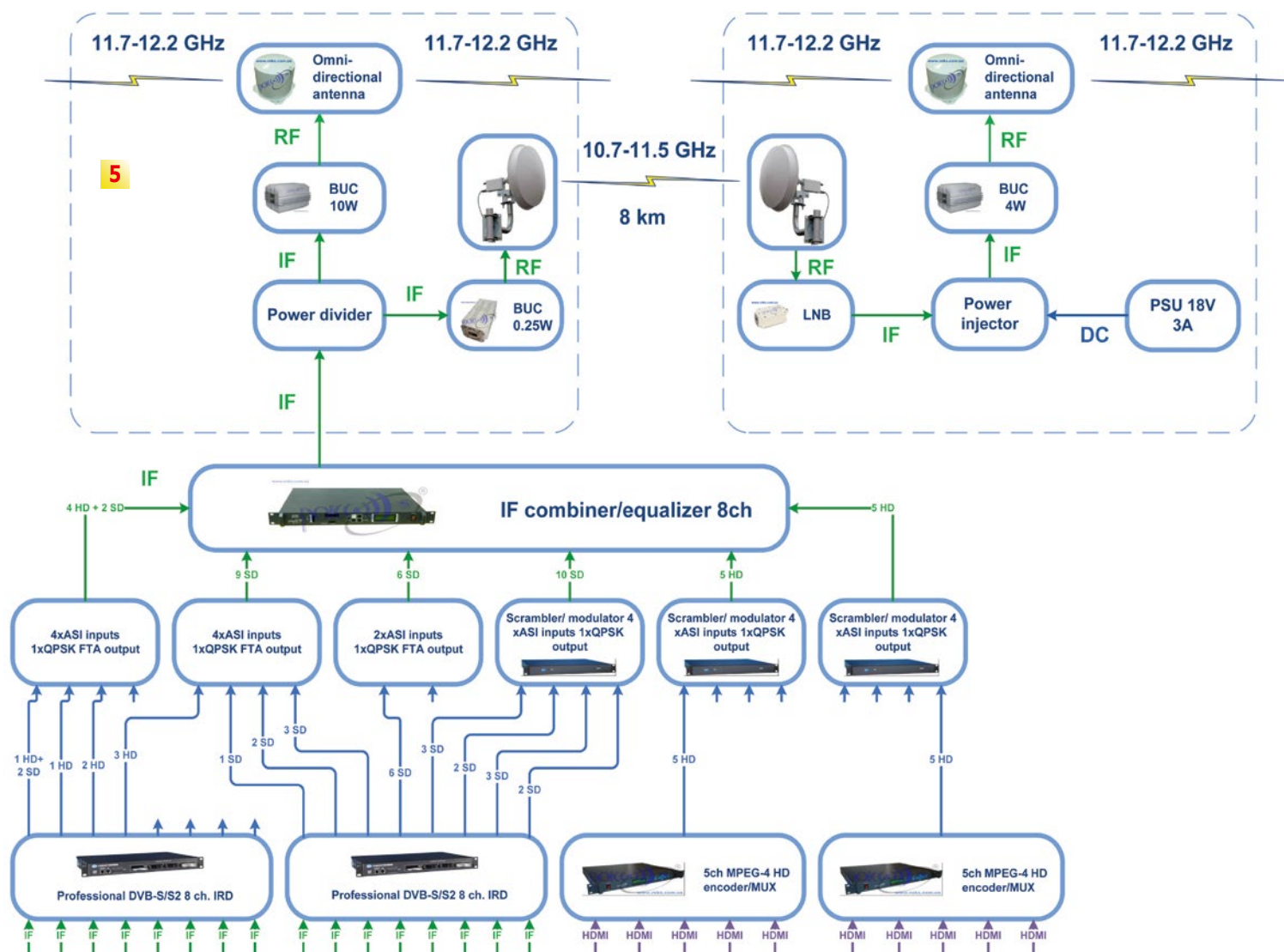
It's for this reason that ROKS uses the lower frequency band for their directional antennas while the end users utilize reception systems with the 22 kHz switching signal turned on in the High Band. The LNBs ROKS distributes actually are for the high-band only.

Calculations show that MISTRIS-CS is the most cost-effective way to broadcast TV content: if you consider both the costs to build the infrastructure and operate the system, the result is the lowest price per channel. This type of system is also advantageous for end users since they would be able to use standard satellite systems for reception.

How do you build such a MISTRIS-CS system? ROKS, the inventor of the MISTRIS-CS system, was founded in

4





1994 and therefore brings 20 years of experience to the table. This company already claims several patents in the HF sector to their name.

Their businesses include research,

3. ROKS developed their own antennas to handle frequencies of 11-12GHz. Here you see antennas used for repeaters.

4. What if you need to cover bigger regions? No problem, just use repeaters!

5. Another example of an implementation. The head station receives different transponders over satellite and uses a combiner/multiplexer to create the provider's bouquet. Channels can be encrypted. The resulting stream is then up-modulated and transmitted through an omni-directional antenna to subscribers in the 11.7-12.2 GHz band, while a second directional antenna transmits the stream in the 10.7-11.5 GHz band to a relay antenna. Here, the signal is up-converted again to 11.7-12.5 GHz and transmitted through the antenna to the subscribers.

Notice the relatively low power used.

development and manufacture of microwave products for various applications but primarily it's the implementation of the entire MISTRIS infrastructure from broadcasting via radio relay up to the headend.

It must be emphasized that the system includes the word "information". This means that the MISTRIS system was not just meant as a system to transmit TV broadcasting but also as a data transmission system.

In the beginning, it was used for analog broadcasts with some data transmissions in parallel. With the introduction of digital tv the tv signals and data signals merged and the amount of data signals increased. Eventually we will see the TV broadcast part of the signal disappear and move over to IPTV, thus making the MISTRIS system to a data-only environment for the transfer of high data rates.

ROKS' product palette is quite extensive: LNBs, antennas, multiplexers, en-

coders, decoders, encryption systems, modulators, etc.

This allows ROKS to offer complete MISTRIS-CS distribution systems that are based as much as 70% on their own hardware.

With customers all over the world from Algeria to Kenya to Spain, ROKS-TV has become a globally powerful company with their one-of-a-kind TV distribution solutions.

MISTRIS-CS is a very interesting alternative to standard TV distribution technology; it makes it possible to supply TV services inexpensively to people outside of larger city areas.

Because the MISTRIS-CS infrastructure is based in large part on existing technology and makes use of standard satellite reception equipment, the costs for end-users would also be quite low.

Thanks to this technology, ROKS has become the reference company and is the first contact when it comes to the setup of a MISTRIS based network.

Take Advantage

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 in front of her chest. The tablet screen displays a white rectangular box containing promotional text.

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- 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



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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
- HREF2 and VLC licenses must be purchased separately
- TSReader Pro is used for streaming
- VLC can also be used

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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



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Self-made IPTV

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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

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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

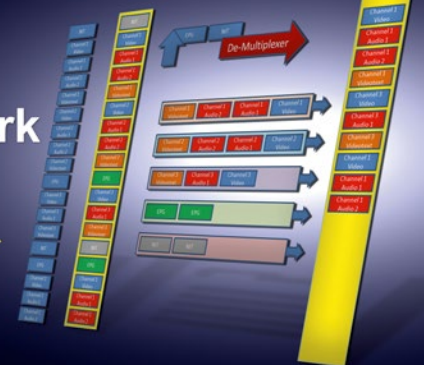


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Self-made IPTV

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
- TSReader offers a multiplex function
- Certain Linux receivers operate via a streaming function
- Only high-speed WLANs are suitable for IPTV

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Ultra High Definition

FEATURE Ultra High Definition



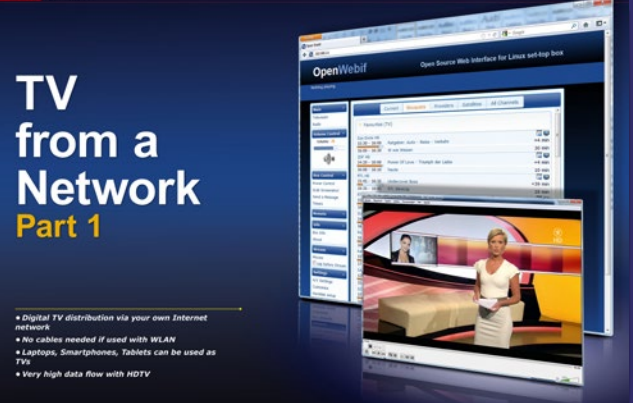
The New HEVC/H.265 Standard

- reduced bandwidth by 50%
- can be used also for very small screens
- divides the video in 4x4 pixel blocks
- requires advanced processors in the receiver

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Self-made IPTV

FEATURE 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

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Phase Shifts in Digital TV

FEATURE Phase Shifts in Digital TV

I/Q Vectors Swap

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

$I(t) = \sqrt{2} \sin(\omega t + \theta)$

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

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Digital Terrestrial TV - 2nd Level

FEATURE Digital Terrestrial TV - 2nd Level

ATSC 2.0

- combines streams separate motion 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

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The Secret Special Transmission Modes

FEATURE 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, providers also need to be distributed within and between different providers without any viewers being able to receive them. In satellite space, 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.

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All About Fiber Optic Connectors

FEATURE Fiber Optics

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

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Basic Knowledge: Polar Mount Antennas

FEATURE Basic Knowledge

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 this type of motorised polar mount antennas actually works. The same is true for the required formulae and their derivation. The following illustrations are meant to provide answers to all questions it associates with a polar mount. This also includes, inter alia, various size determinations for positions as well as calculations for the azimuth and elevation of the antenna for a specific location and a specific satellite. A specific example, although 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.

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DVB-S2: Hide the SD inside the HD

FEATURE Satellite Transmission Technology

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 multipath
- may remain a niche technology

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How a tuner for VCM operates

FEATURE VCM Tuner

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-vcv.pdf

DVB-S2 MIS Reception with VCM/ACM

FEATURE Satellite Reception

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

HORIZON

For a reliable solution!

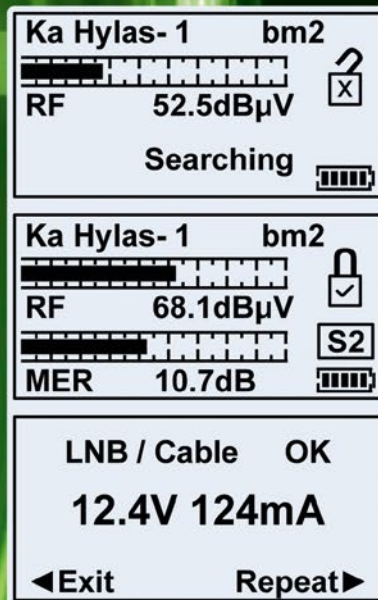
Winners of the Queen's award for international trade 2007, Horizon Global Electronics is a UK Company established in 2001 specialising in the design and manufacture of hand held test equipment for the digital satellite and TV sector. Our strength lies in being able to find innovative solutions to leading technology issues.

Introducing the new HD-S2A!



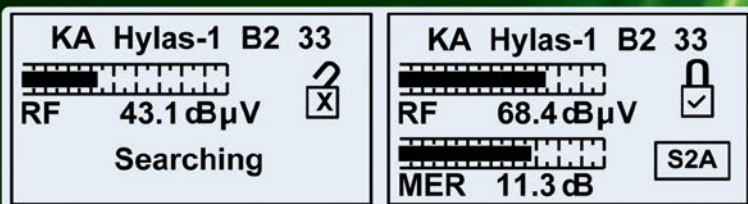
The HD-S2 satellite meter features all the functions you will need to perform DVB-S and DVB-S2 satellite installations.

The HD-S2A developed for Avanti Broadband features tone functions for Hughes Ka-Band ODU polarisation selection.



The cost effective Nano S2A

The Nano-S2A satellite meter is the ideal cost effective solution for Hylas-1 and Hylas-2 VSAT installations. The Nano-S2A features tone generation for Hughes ODU polarisation control along with a lock state indicator that supports DVB-S2 advanced modulation schemes. The signal level and quality indicators make this the easiest meter to use ever. One button does it all. The Nano-S2A can be receiver or battery powered.



Phone:
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Automatic Creation of 3D

[illegible]

www.TELE-audiovision.com/TELE-satellite-1109/eng/2d3dconversion.pdf

How a Silicon Tuner Works

[illegible]

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

Channel Capacity of a Transponder

TECHNICAL
DEPARTMENTS

Satellite Technology

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

Jack Pawlowksi

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 just because you need to know it to get the data in manual channel search on your receiver. Symbol rate directly affects the number of useful data that can be transmitted via a transponder. The higher it is, the more data can be sent. Those data represent more TV and radio channels.

But we are usually left with the question: How many channels can we receive? In order to answer this question, we can make a comparison between the symbol rate of a transponder and the symbol rate of a channel. If we know the symbol rate of a transponder, we can tell how many channels we can fit into it. In other words, we can tell how many channels we can fit into a transponder.

There is a lot of talk about the symbol rate of a transponder. But what is it? The symbol rate of a transponder is the number of symbols per second that the transponder can transmit. It is the number of symbols per second that the transponder can transmit. It is the number of symbols per second that the transponder can transmit.

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

CI+ and HD+Encryption



FEATURES
CI+ 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 29.0 30.0 31.0 32.0 33.0 34.0 35.0 36.0 37.0 38.0 39.0 40.0 41.0 42.0 43.0 44.0 45.0 46.0 47.0 48.0 49.0 50.0 51.0 52.0 53.0 54.0 55.0 56.0 57.0 58.0 59.0 60.0 61.0 62.0 63.0 64.0 65.0 66.0 67.0 68.0 69.0 70.0 71.0 72.0 73.0 74.0 75.0 76.0 77.0 78.0 79.0 80.0 81.0 82.0 83.0 84.0 85.0 86.0 87.0 88.0 89.0 90.0 91.0 92.0 93.0 94.0 95.0 96.0 97.0 98.0 99.0 100.0

HDTV Copyright Management

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

HD

+

by ASTRA

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

How MPEG Surround Works

[illegible]

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

How the SFN Modulation Works

6 | ESD: Transmission Technology

Single- and Multi-Frequency Networks in Digital Terrestrial Television

Jack Panowski

DVB-T2 and DVB-H standards for digital terrestrial TV use COFDM modulation. COFDM stands for Coded Orthogonal Frequency Division Multiplexing and is a quite complex sort 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.

Before the digital era, it was impossible to build a multiplexing network for analog TV. It is completely understandable, as it requires a significant amount of power to transmit a signal clearly in a multiplexing network. This would require a transmitter to be located near the receiver. This is not a very practical solution, as the transmitter would have to be located near the receiver, which is not a very practical solution. The transmitter would have to be located near the receiver, which is not a very practical solution. The transmitter would have to be located near the receiver, which is not a very practical solution.

But all of this changed when digital TV came along. Digital TV is a much more efficient way of transmitting data. It uses a technique called COFDM (Coded Orthogonal Frequency Division Multiplexing) to transmit data. This technique allows for a much higher data rate than analog TV. It also allows for a much higher data rate than analog TV. It also allows for a much higher data rate than analog TV.

Fig. 1 Single-Frequency Network (SFN) and Multi-Frequency Network (MFN) operation

democratic environment. This would mean that the same signal would be transmitted from multiple transmitters. This would mean that the same signal would be transmitted from multiple transmitters. This would mean that the same signal would be transmitted from multiple transmitters.

COFDM modulation is a digital modulation technique that allows for a much higher data rate than analog TV. It uses a technique called COFDM (Coded Orthogonal Frequency Division Multiplexing) to transmit data. This technique allows for a much higher data rate than analog TV. It also allows for a much higher data rate than analog TV.

Fig. 2 Multi-Frequency Network (MFN) operation

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

How HbbTV Works

[illegible]

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

How DVB-C2 Works

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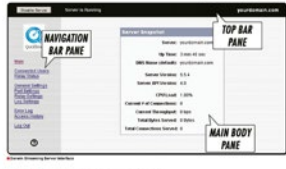
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<http://www.cosmosat-digital.com.ar>

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 on streaming solutions that would let you receive TV and radio 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 in an Internet stream or simply watch your favorite TV channels while on vacation.



WOL - Wake On LAN
This is the first time that we reported in TELE-audiovision on streaming solutions that would let you receive TV and radio 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 in an Internet stream or simply watch your favorite TV channels while on vacation.

WOL - Wake On LAN
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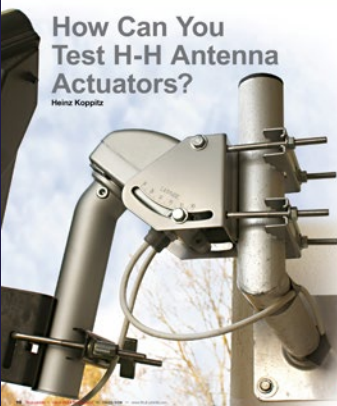
www.TELE-audiovision.com/TELE-satellite-1007/eng/streaming.pdf

Testing Horizon to Horizon Actuator

FEATURE Horizon-to-Horizon Actuators

How Can You Test H-H Antenna Actuators?

Heinz Koppitz



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

How SCR Works

FEATURE SCR LNB

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

Thomas Haring



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

How Decoding Works

FEATURE Pay-TV

Decoding of Encrypted Content

Thomas Haring



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 ABS-S (Advanced Broadcast System) we were not only interested in the technical details but also in the fact that it was a competition for DVB-S/S2. It was something that we had not heard of before.



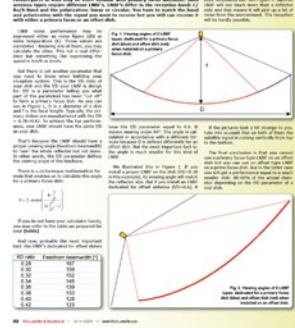
www.TELE-audiovision.com/TELE-satellite-0903/eng/abs-s.pdf

Matching LNB with Dish

FEATURE LNB Types

Matching LNB and Dish Type

Jack Pawlowski



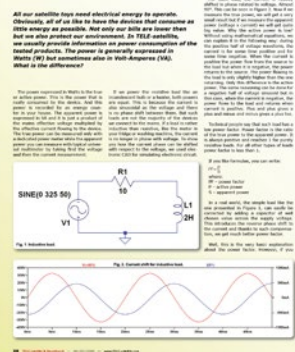
www.TELE-audiovision.com/TELE-satellite-0811/eng/lbn+dish.pdf

How to Calculate the Power Factor

FEATURE Energy Saving

Power Factor

Jack Pawlowski



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

How to Solve Problems with DiSEqC

FEATURE DiSEqC

Why DiSEqC Isn't Always Reliable

Heinz Koppitz



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

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デジタル時代のメディアビジネスマガジン
Monthly Broadband * Broadcasting * Business Magazine

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9

2013 SEPTEMBER

Interview
小牧次郎氏 スカパーJSAT(株) 執行役員常務 有料多チャンネル事業部門 放送事業本部長
Jiro Komaki, Managing Executive Officer Group President Broadcasting Business Group Multichannel Pay TV Business Group, SkyPerfect JSAT

CS Channel Focus
時代劇専門チャンネル&スカパー! Jidaigeki Senmon Channel & SkyPerfect TV!
衛星劇場 Eisei Gekijo

CS/BS/CABLE/BBの最新加入者数
Subscriber Trends for BS & CS Broadcasting, Cable, Broadband
CSチャンネル加入世帯数TOP50ランキング
Top 50 Subscriber Count CS Channel Rankings

Future Technology

ケーブルテレビの 今と未来を考える

Contemplating Cable TV Today and Tomorrow

Interview 福岡 徹氏 総務省 情報流通行政局
Toru Fukuoka, Director General, Information and Communications Bureau, MIC

**ケーブルテレビ事業者 215社に聞いた
ケーブルテレビの今と未来を大調査!!**
Extended survey of cable TV today and tomorrow: 215 cable operators respond

IP-VODプラットフォームを検証 Validation of IP-VOD platforms
アクティバ/ジュビターテレコム&ジュビターエンタテインメント/ブロードメディア
Activa Corp. / Jupiter Telecom & Jupiter Entertainment / Broadmedia Corp.

ケーブルテレビの技術トレンド2013 Cable TV 2013 technology trends
ARRIS Group/ジャパンケーブルキャスト/メディアキャスト
ARRIS Group / Japan Cablecast / Mediacast

How the 3D Diffractive Antenna Works

FEATURE | Antenna Design

Development and Application of 3D Diffractive Antennas

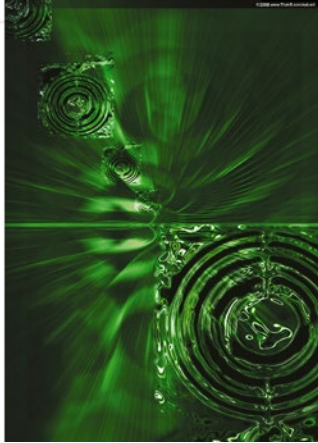
I. Miron, O. Vlasov, Novosibirsk State Technical University, Russia

Recent years have witnessed a rapid development of 3D diffractive antennas. These antennas have a number of advantages over conventional antennas, such as a high efficiency, a low profile, and a low weight. The development of 3D diffractive antennas is a complex task, requiring a deep understanding of the diffraction theory and the antenna design.



Table 1. Characteristics of Parabolic and Diffractive Antennas

Parameter	Parabolic Antenna	Diffractive Antenna
Efficiency, %	~60-70	~80-90
Profile, mm	~1000	~100
Weight, kg	~100	~10
Cost, \$	~10000	~1000



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

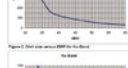
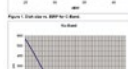
Relation between Dish Size and EIRP

FEATURE | Dish Sizes

Dish Size versus EIRP

Jack Perkowski

The relationship between dish size and EIRP is a fundamental concept in satellite communications. It determines the power density of the signal transmitted from the dish, which is crucial for the reception of the signal by the ground station.



How to read SatcoDX Coverage Images



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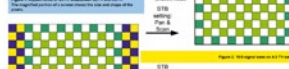
Secrets of the Aspect Ratio

FEATURE | Aspect Ratio

Aspect Ratio – Isn't This Simple?

Jack Perkowski

Aspect ratio is a ratio of image width to image height. It is a fundamental concept in video and image processing, determining the shape and proportions of the content.



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

How the Network Connection Works

FEATURE | Network

The Network Connection – a jack with multiple uses

Thomas Haring

The network connection is a versatile interface that allows for the transmission of data and multimedia content. It is a key component in modern digital systems, enabling high-speed communication and data exchange.



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

How the Ka Band Works

FEATURE | Technology Background (Ka Band)

Ka-Band – the future of satellite communication?

Peter Miller

The Ka-band is a high-frequency band used for satellite communication. It offers a number of advantages, including a high data rate and a small antenna size. However, it also has some challenges, such as atmospheric attenuation and rain fade.



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

How MPEG Works

FEATURE | Data Reduction in MPEG

How MPEG really works

Clive J. Grove

MPEG is a standard for digital video compression. It uses a series of algorithms to reduce the amount of data required to represent the video, allowing for efficient storage and transmission.



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

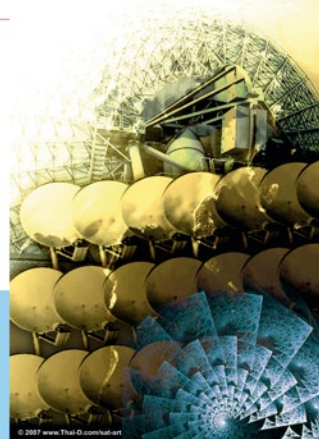
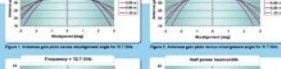
Secrets of Antenna Alignment

FEATURE | Dish Alignment

Antenna Underperformance Due to Misalignment

Peter Miller

Antenna alignment is a critical factor in ensuring optimal performance. Even a small misalignment can lead to significant signal loss and reduced system efficiency.



www.TELE-audiovision.com/TELE-satellite-0705/eng/performance.pdf

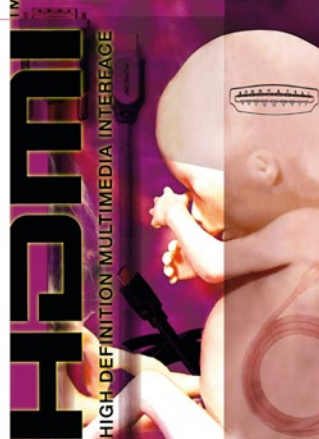
The Secrets of HDMI

FEATURE | HDMI

HDMI – the interface not only for HDTV

Peter Miller

HDMI is a digital interface that carries both audio and video data. It is widely used in consumer electronics, providing a high-quality connection between devices.



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



DTU-215-GOLD

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

**Fully agile from
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**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

The Relation of Dish Size and EIRP

FEATURE | The ERP Secret

Dish Size versus EIRP

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The Secrets of Polarization

Circular or Linear Polarization

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The Secrets of Intermodulation

FEATURE ■ Intermediation

**The stronger, the better
– it that always true?**

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www.TELE-audiovision.com/TELE-satellite-0609/eng/intermodulation.pdf

The New FEC in DVB-S2

FEC equal to 9/10 or 8/9 – what is this?

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www.TELE-audiovision.com/TELE-satellite-0605/eng/fec.pdf

DishPointer AR

See where to point your dish, live on the iPhone screen!

The revolutionary DishPointer Augmented Reality app is now available on the app store. Just point your iPhone anywhere towards the sky and see all the satellites lined up on the live video screen.

See the Video

See DishPointer AR in action on YouTube!

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.

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.



References



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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!



Increase Your TV-Viewing Plea

■ Guido Ciburski, Board Member for TC Unterhaltungs Elektronik AG, with a Fernsehfee 2.0 model. The individual EPG display can be seen on the TV. Popular channels and personal favorites are highlighted in color, for example, the personalized daily highlights are in red.



- **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**

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Polizeiruf 110

MDR · Krimi-Serie

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PRO7MAXX · null

Promi Big Brother

SAT1 · Daily Soap

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ZDF

In aller Freund...

ARD · Arzt-Serie

Tatort

NDR · Krimi-Serie

Apartme...

PRO7 · C...

Mike und...

PRO7 · C...

The Following

RTL · Krimi-Serie

tation & Report

Death in Paradise

TRENEO Krimi S.

Goodbye Deutschland...

VOX · Wissen

Die Kuechenchefs

VOX · Essen+Trink

The Following

RTL Krimi S.

Navy CIS

ZDF Krimi S.

FELIOTERIE

LG

Technical Solutions Bring More Enjoyment to TV Viewing



The more TV channels that become available, the harder it becomes to keep track of all the channels. How can you bring more organization to the channel list and at the same time enhance the user's viewing pleasure?

If you ask the broadcasters, they'll tell you that's there's nothing to optimize: as far as their concerned, TV viewers shouldn't be switching channels and if they do, it should be to another one of their channels. But that itself could be problematic; it would be easy to bypass a channel that would be just as interesting to the viewer.

The incredibly high number of TV channels makes navigation through it all very difficult for the individual TV viewer: there are simply too many channels that you would have to keep track of in order to find every channel that you would be interested in.

There is a company that decided to address this specific concern: TC Unterhaltungs Elektronik AG from Koblenz, Germany has a new product, the Fernsehfee 2.0, that we recently introduced in TELE-audiovision (issue 01-02/2014). It's an Android satellite receiver that can intelligently take all the TV channels and display them in a list based on the user's preference. We wanted to know how it all actually works and who's behind the company.

TC Unterhaltungs Elektronik AG has leased some spacious office space in Koblenz located in the western part of Germany. Here Petra Bauersachs and Guido Ciburski tell us about the company's surprisingly long history that began back in 1995. „Back then we applied for a patent for an ad blocker“, recalls Guido Ciburski. Together with Petra Bauersachs they came up with the idea: „We became so annoyed with all of the many commercial breaks that we started thinking, is there anything that can be done about this?“ The idea of an ad blocker was so tempting that the two of them, who together still run the company today, managed to find investors that invested over 1 million DM in 1996. „We leased some office space and immediately increased the number of our employees to 16.“

Back then new technology emerged that allowed the use of the unused frequency range of an FM station to transmit data. This later became RDS. The two

■ **Petra Bauersachs** is TC Unterhaltungs Elektronik AG's CEO and is also at the same time the company's advertising model for the Fernsehfee 2.0

SATLINK

Digital Satellite Meter

WS-6936

DVB-T&S COMBO METER WITH SPECTRUM



DVB-S Spectrum:

In satellite signal C band and KU band range ,
show the energy distribution of the received signal,
show Cursor location and signal strength downlink frequency,
Signal was locked.

Show spectrum bandwidth: 1200MHz; 540 MHz; 108 MHz

DVB-T Spectrum:

In the 104MHz-862MHz frequency range or stored state table,
Shows the energy distribution of the received signal (Frequency,
bandwidth, signal strength) Signal was locked, can be displayed
Ber, S / N and other indicators.

So don't wait, Call us for a sample!

For the first time in an Economical digital meter, you are now able to view the actual channel on the screen of the meter. Now you can quickly and accurately align the satellite and you can instantly check the stable of the channel right on the screen of the meter. Transponders, Frequency, Symbol Rate, Polarity, and other settings can be modified by the user.



WS-6909
DVB-T&S COMBO METER



WS-6918P
DVB-S2 Satellite Finder Meter



WS-6932
HD Satellite Finder Meter

SATLINK**SATLINK TECHNOLOGY CO., LIMITED**

Add: Jiangnan High-Tech, Licheng District, Quanzhou, Fujian, China

Tel: +86-595-28106302 Fax: +86-595-28106253

E-mail: dp02@baotong.cc

Website: <http://www.sat-link.com.cn> www.hktdc.com/em/fjbaotong



owners of the young company managed to acquire the license for nearly all of Germany to transmit data on this unused portion of FM. What did they need their own data channel for?

Back then, when the Internet was still in its infancy, this was the only financially feasible idea: and that was to transmit additional TV channel information and above all the switching signals for TV commercials that could then be processed by the Fernsehfee 1.0.

Guido Ciburski tells us more: „The original idea was to block out commercials from a TV program. We tasked teams of employees to continuously keep an eye on all of the available TV channels and to mark each and every commercial break. The question was what to do with all of these markings. The logical conclusion was that a TV viewer, who didn't want to see any commercials, would be able to watch other channels that were especially interesting to him during a commercial break. This led to the second idea: categorizing the content of each individual TV program.“

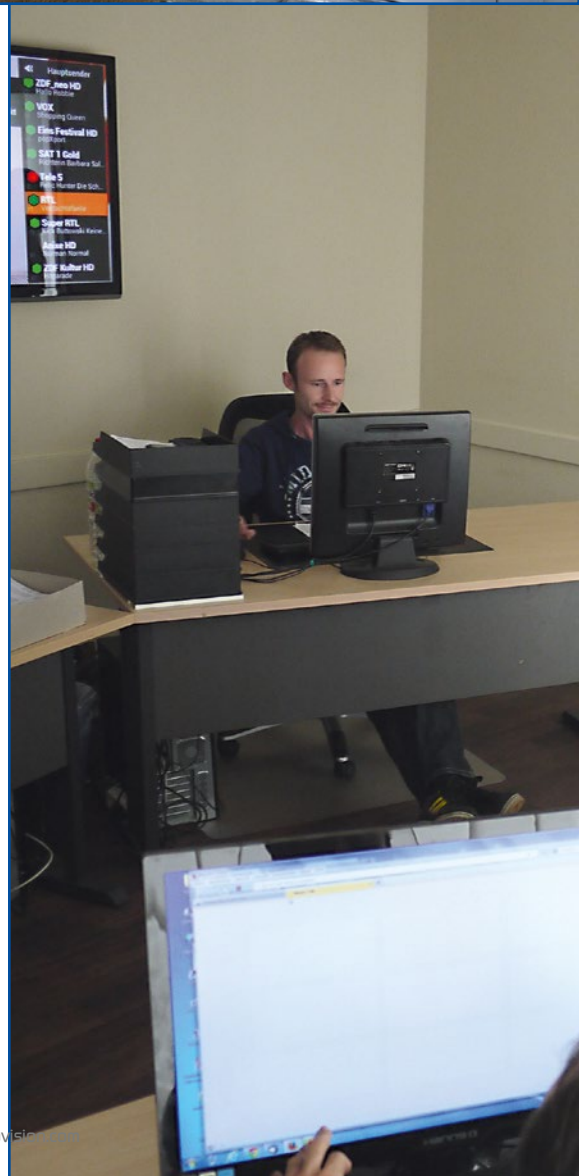
To accomplish this, the EPG data made available for each TV channel was evaluated by category. If there wasn't enough information in the EPG data, the employees attempted to determine the appropriate categories themselves. „We managed

to capture all of the German-language TV programming.“

After a lengthy design phase, it was finally time: in 2000 the Fernsehfee 1.0 was introduced to the market and at the same time the company incorporated itself into the firm it is today: TC Unterhaltungs Elektronik AG. Petra Bauersachs became the CEO and Guido Ciburski a Board Member. „We hired 20 employees who kept an eye on all the TV channels, marked the commercial breaks and categorized the programming content.“ Unfortunately, the enormous success didn't last too long; a TV broadcaster filed suit against the system and the Fernsehfee 1.0 had to stop operating.

„We moved to other areas and developed software for other companies“, explains Guido Ciburski to us as to why that decision didn't mean the end for them. „As the Internet grew more popular and with Germany's highest court deciding in our favor, we started up a new version using TVOON.“ But this system required the TV viewer to use a PC that had to remain turned on, something that many customers found to be too cumbersome. TVOON was not successful and was discontinued in 2006.

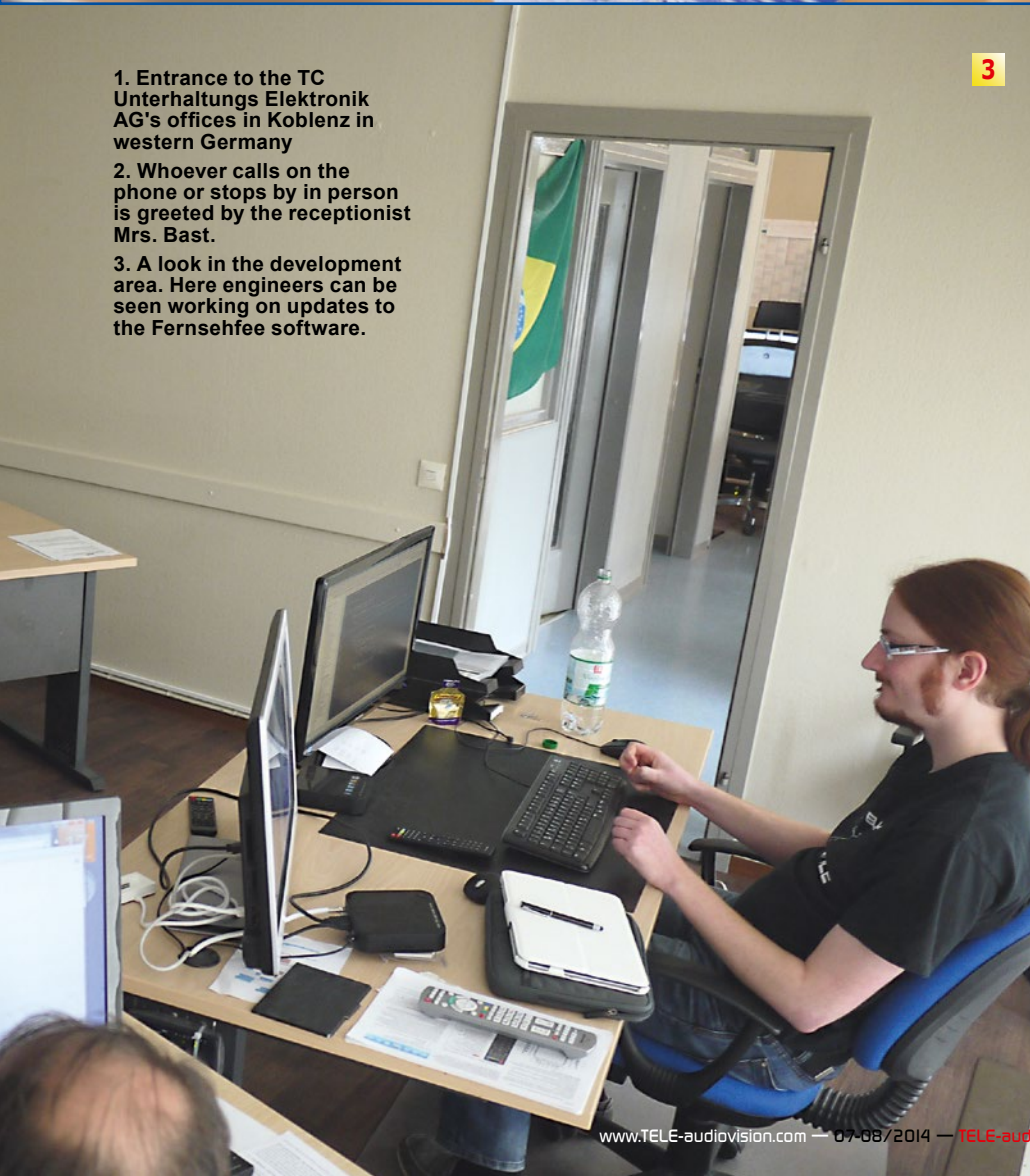
When Android Smartphones gained popularity a few years ago there was a new reason to resurrect the old idea.





2

1. Entrance to the TC Unterhaltungs Elektronik AG's offices in Koblenz in western Germany
2. Whoever calls on the phone or stops by in person is greeted by the receptionist Mrs. Bast.
3. A look in the development area. Here engineers can be seen working on updates to the Fernsehfee software.



3

„Now everything fit together“, Guido Ciburski said enthusiastically, „Android is perfectly suited for this technology and thanks to the extremely wide reach of the Internet it's no longer a problem to get the necessary data to the customer.“ And so, Fernsehfee 2.0 was born. We recently presented a test report on the Fernsehfee 2.0 (TELE-audiovision 01-02/2014) and it was introduced to the market in April 2013.

Today there are once again 16 employees working for the company. There are an additional 10 employees keeping an eye on the TV channels. „This takes place from 6:00PM to 2:00AM partly here in our studio and partly with the employees at home.“ At other times the commercials are automatically recognized; it may not always work but it does function quite adequately.

Distribution of the Fernsehfee 2.0 is currently limited to German-speaking regions since for now only German-language TV channels can be processed. „But our system is already set up for international use; we already have numerous satellites in our system.“ So much so that even new channels and changing channels from one frequency to another is included: „After every automatic update, the Fernsehfee 2.0 boxes are totally up-to-date.“

Although TC Unterhaltungs Elektronik





■ The ad blocker headquarters: employees sit here and keep an eye on multiple channels at the same time. As soon as a channel switches to commercials, the appropriate button is pressed and at the end of the commercial break that same button is pressed again. During the commercial break, the Fernsehfee 2.0 switches to another one of the viewer's favorite channels.



6. A look at the heart of the system: every TV broadcast is categorized and then evaluated to determine which ones should be viewed. This statistic makes it possible to individually personalize the EPG to every TV viewer.

6

sells these Fernsehfee 2.0 boxes as hardware, the real heartbeat of the company is the software: the processing of the TV channel content and the personalization of the TV viewer's EPG. „We see ourselves as a system supplier for TV and receiver manufacturers“, says Guido Ciburski regarding the company's strategy.

The Fernsehfee 2.0 shows that the system works perfectly for German-language TV channels. „Everything is already in place for expanding the system to include other languages“, reveals CEO Petra Bauersachs. Now it all depends on manufacturers interested in incorporating the Fernsehfee 2.0 system into their devices so that other TV viewers can really enjoy watching TV!



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Receive Reject
Single Channel Bandpass



WiMAX & Radar Eliminator



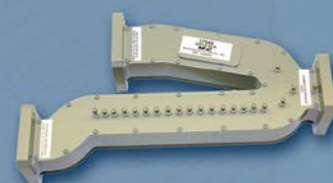
Transmit Reject

Ku-Band (All Bands - Worldwide)

Transmit Reject & Receive Reject
Multi-band Reject
Diplexers



Transmit Reject



Diplexer

K/Ka-Band (18-40 GHz)

Transmit Bandpass & Receive Bandpass

X-Band (7.25-8.4 GHz)

Transmit Reject & Receive Reject



Transmit Reject



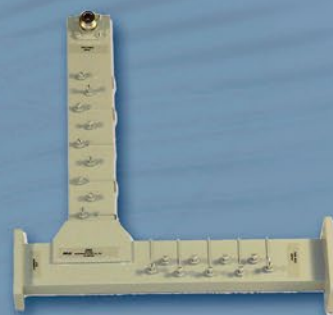
Receive Reject

Broadcast (DTV & FM)

DTV Transmit Mask
Multi-Channel Combiners
Single Channel Preselectors
DTV Adjacent Channel Eliminator
FM Adjacent Channel Notch
Harmonic Lowpass



DTV Transmit Mask



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STL (950 MHz) - Multi-Channel Ferrite Combiners
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www.microwavefilter.com

4.50m Dishes from Propulsa

- ***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***

■ You can't tell from the outside that satellite dish production takes place behind these large gates. Industrias KC chose not to place their name on the façade for security reasons. The next set of gates also belongs to the company; metal components are manufactured there and have nothing to do with satellite reception.



Satellite Dishes and C-Band Feeds from Argentina



Large dishes are always in need; the numbers are naturally rather low since generally only professional users need big dishes. One of the large dish manufacturers is the company Industrias KC in Buenos Aires, Argentina, that markets its satellite products under the brand name Propulsa (www.industriaskc.com/antenaskc). Since there aren't too many manufacturers of 4.5-meter diameter dishes, we were a little curious and decided to pay them a visit. Manager of Industrias KC's satellite division is Juan Carlos Vegas, a long-time reader of TELE-audiovision.

Juan Carlos Vegas founded the company Propulsa back in 1982 along with two other partners. He remembers back: "The distribution of TV channels via satellite was just getting started back then and large contracts from the large satellite operators were issued for the installation of reception systems that would redistribute the satellite signals." That meant enormous numbers of satellite dishes that Propulsa manufactured back then. The company was thereby able to make a name for itself.

■ Juan Carlos Vegas, Founder of dish manufacturer Propulsa who today runs the satellite division of Industrias KC, can be seen here standing in front of a poster showing the 4.5-meter dishes that have already been installed. For those who are interested: due to interference caused by terrestrial transmissions, Industrias KC constructs a Faraday cage around the satellite dish.



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1. Mitra Tarnonsky is Industrias KC's Marketing Manager for its satellite division; she is also actively involved in sales.

2. Carlos Paz (right) is the satellite division's Production Manager. Claro Franz is standing to his side (left). They are showing us a panel from the 4.5-meter dish. 18 of them are needed for a complete dish.

3. A look inside the production facility. This is where the satellite dishes are manufactured that carry the name Propulsa.

4. This is the press used to produce the panels for the 4.5-meter antenna. "It takes about 15 minutes to make one of these panels", explains Production Manager Carlos Paz.



Ten years before that, Carlos Kase founded a metal fabrication business that he named Industrias KC. The "KC" doesn't just represent his initials but in Spanish these letters also sound like his last name. In the 1990's Propulsa and Industrias KC cooperated together which ultimately lead to a strategic alliance in 2010: Propulsa became a part of Industrias KC and Propulsa founder Juan Carlos Vegas was put in charge of the satellite division. "Industrias KC is made up of four divisions, one of them is the one where we manufacture satellite dishes and C-band feeds."

Production numbers with these kinds of large dishes are not all that high.





"We sell on average 250 dishes and 500 feeds and C-band couplers a year." When it comes to 4.5-meter antennas, Industrias KC produces only about 25 of them a year. "Most popular with our customers are the 2.4-meter and 3.0-meter dishes." Most of the production is shipped domestically. "20% is exported - mostly to the neighboring countries Uruguay and Paraguay." While most of the dishes are made of sheet metal segments, the smaller dishes are manufactured through rotational presses. The smallest size dish is 90cm in diameter.

Many of the production steps are outsourced, only the main work is handled by the 75 employees of the company.





"We have sales of about US\$7 million a year", reveals Juan Carlos Vegas to us, "Of that about US\$1.5 million comes from the satellite segment." He is optimistic for the future. The Argentine government has broken the cable company's monopoly; this will create a large number of community systems that will each need satellite dishes.

Industrias KC is so optimistic that they are currently in the process of centralizing their four Buenos Aires locations. "We are in the process of constructing our new headquarters in an industrial park, the Parque Industrial General Rodriguez, located about 40km west of Bue-

nos Aires. By 2014 all of our production operations should be moved into the new location."

But things don't always work as planned in Argentina. For example, the government has imposed strict importation hurdles which have created a few problems for Industrias KC's satellite division: "We can, for example, no longer manufacture any fiber-glass dishes because the raw materials have become too expensive since it has to be imported." A similar problem exists with cable head-ends: "We're planning to significantly expand this segment but we can't import sufficient quantities."

1. Claro Franz shows us the mounting platform for the 4.5-meter dish. This isn't really suitable for a private user. In the background is the mast that will eventually carry the 4.5-meter antenna at the reception location.

2. This is what the section looks like on which the 4.5-meter panels will later be fastened. These are also manufactured by Industrias KC.

But after being in business for more than forty years, Industrias KC knows all of the ins and outs and will eventually find solutions to these problems so that they can continue to remain successful in the satellite business.



Android 4.2 OS OTT Box with DVB-S2 & 3D GPU

- ARM Cortex A9 CPU up to 1GHz frequency and 5000DMIPS
- Support DVB-S/DVB-S2 Satellite Compliant
- Video-On-Demand (VOD) and Over-The-Top (OTT) Services Support
- 4 USB 2.0 support Mouse and Keyboard, 3G DONGLE, PVR
- popular applications and games under Android OS
- Support Google Search, Web browser, Email, XBMC, Skype
- Support G-multiscreen
- CE & FCC approval



ISDB-T+DVB-S2 HDTV Combo CA LAN GPRS Box

- ARM Cortex A9 CPU up to 1GHz frequency and 5000DMIPS
- Support DVB-S/DVB-S2 Satellite Compliant
- Video-On-Demand (VOD) and Over-The-Top (OTT) Services Support
- 4 USB 2.0 support Mouse and Keyboard, 3G DONGLE, PVR
- popular applications and games under Android OS
- Support Google Search, Web browser, Email, XBMC, Skype
- Support G-multiscreen
- CE & FCC approval



About us

Gotech is a leading digital solution provider for the international digital TV market and specializes in the provision of digital set-top-boxes and digital TV sets. It deploys a wide range of digital STB to satellite, terrestrial, cable and IPTV/OTT markets, from entry-level receivers to advanced multi-tuner high definition digital TV recorders with integrated or removable hard disc drive. Its devices are deployed across Europe, the Middle East, Latin America, North Africa and Australia.

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CSTB



Broadcast Asia 2014



1



2



3

1. The smallest dish made by Industrias KC: a 90cm model for use with cable headends.

2. A look in the dish storeroom: the panels for the smaller dishes are stored here as well as the assembly components so that the dishes can be put together at a later time.

3. A special component available from Propulsa: a C-band feed with an 11cm diameter. "It's primarily used with the 2.4 and 3.0-meter antennas."

4. A look in the warehouse: this where Industrias KC stacks its products, mostly for the C-band.

5. As a metal processing plant, Industrias KC naturally produces all of the mechanical components themselves such as these dish mounts in various sizes.

4

5

The Decision Makers

in Worldwide Digital TV Industry

according to TELE-audiovision's Company Reports

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



Business Development
Gary Stafford



Sales Director
Ivan Horrocks



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

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

- Manu
- ✓ Distr
- ✓ Whol
- ✓ Shop
- ✓ Serv



Founder
Baldur Sveinsson



Founder
Sigurour Gunnarsson



- 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

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



President
Zhong Changgan



MD
Liu Lian Jun



Production Manager
Li Hong Xiao



Sales
Jason Wu



- 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

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

- ✓ Manu
- Distr
- Whol
- Shop
- Serv



GM
Sun Yu



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

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

Forcetek, China - IPTV Solution Provider

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

- ✓ Manu
- ✓ Distr
- Whol
- Shop
- ✓ Serv



Sales
Ren Nan



Marketing
Lan Haidong



- 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

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



GM
Bang Xian Peng



Production Manager
Bang Xing Peng



- 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

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

- ✓ Manu
- Distr
- Whol
- Shop
- Serv



Sales Manager
Jefferson Cruz



- 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

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

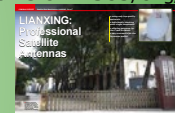
- ✓ Manu
- ✓ Distr
- Whol
- Shop
- Serv



Product Manager
Wen Liang Yuan



Sales Manager
Liao Wen Fei



- 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

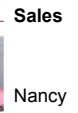


Project

GuiHuang Huang

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

Sales



Nancy



R&D

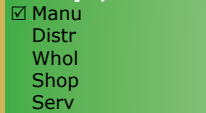
Han Guang Rong



- 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



- ☑ 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



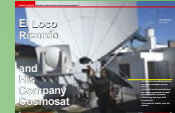
- ☑ Manu
- ☑ Distr
- ☑ Whol
- ☑ Shop
- ☑ Serv



Owner

Ricardo

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



- 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



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



Technical Director

Paul Hardcastle



Technical Manager

Rob Sydee

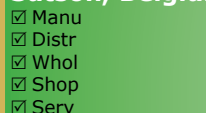
www.TELE-audiovision.com/TELE-audiovision-1301/eng/horizon.pdf



- 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



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



CEO

Stefaan Cornelis



Technical Manager

Didier Debey

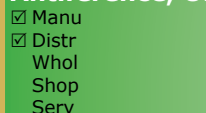
www.TELE-audiovision.com/TELE-audiovision-1301/eng/satson.pdf



- 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



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



MD

Trevor Paintain



Sales

Arnold Boeljen

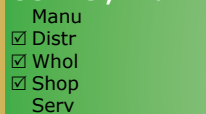
www.TELE-audiovision.com/TELE-satellite-1211/eng/antiference.pdf



- 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



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



MD

Jose Manuel Pereira



CFO

Allam Almughrabin

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



- 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

Home Encoder Modulator Series



MPEG4 HD/SD Encoding



MPEG2 SD Encoding

**NDS3558 HD/SD
Encoder Modulator
with USB and Web
NMS management**

New



Enhanced USB Function:

Compatibility: Compatible with Hard Disks and USB Keys of various brands and types (USB 2.0, 3.0 acceptable; file system FAT32, NTFS, EXT2, EXT4 etc. acceptable.)

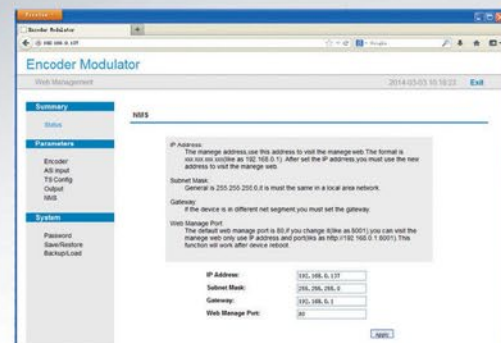
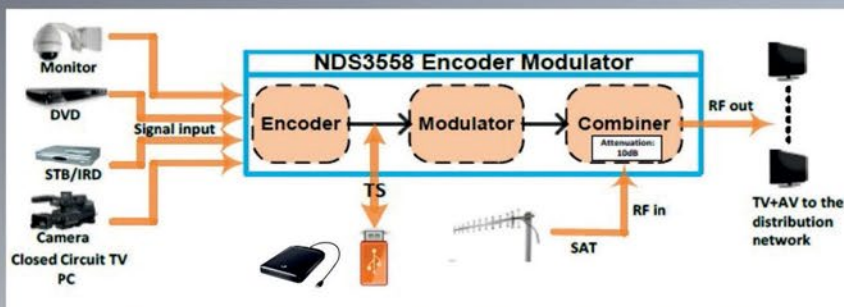
Stability: The USB key/Hard Disk can run timelessly to play your ts files and run more stably.

New

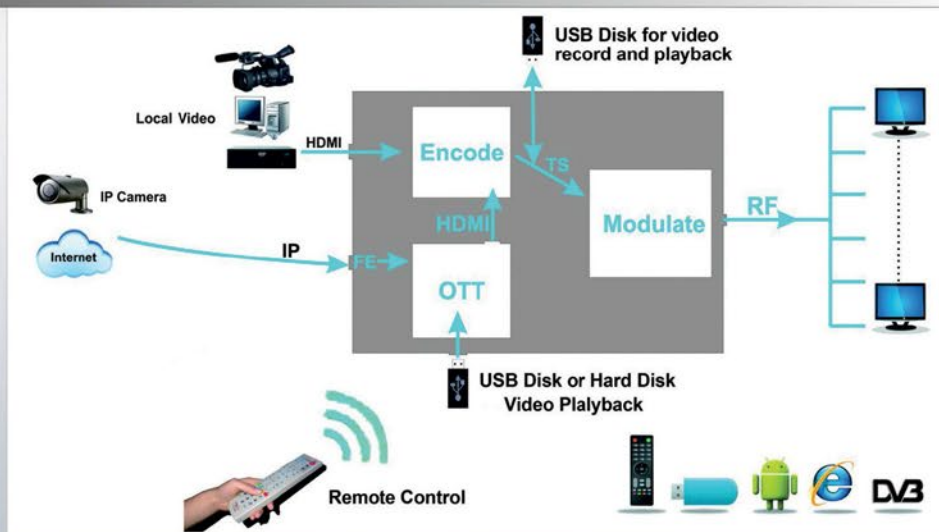


Web-server Management:

In addition to control the device with LCD and navigation buttons on the front panel, the device can be also easily managed through a friendly User Interface after connected to a PC.



**NDS3554 + OTT
Encoder+Modulator
+OTT STB in one case**



www.dsdvb.com



Chengdu Dexin Digital Technology Co.,Ltd

No. 10 adn No. 12 Wuxing Fourth Road, Wuhou District, Chengdu 610045, Sichuan, China
Tel: +86-28-85558928, +86-28-85550524, +86-13882088846 ■ Fax: +86-28-85585255
<http://www.dsdvb.com/english> ■ E-mail: sunyu@dsdvb.com

DMS International, USA - Distributor

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

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



CEO

Tim Heinrichs

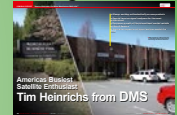


President

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

- 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



StelliteGuys, 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



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Conference 11-15 September | Exhibition 12-16 September



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Wadt, Brazil - Headends

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



Owner
Neide
Wadt



Technical Director
Joao
Wadt

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



- 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

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



Vice Marketing
Jimmy
Zhang



Vice GM
Richard

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



- Develops 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

www.TELE-audiovision.com/TELE-satellite-1203/panodic.pdf



- 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



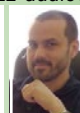
Founder
Ladislav
Šmárik



GM
Pavol
Macko



Sales
Alexander
Záhončík



Sales
Pavol
Lukáč

www.TELE-audiovision.com/TELE-satellite-1203/sortec.pdf



- 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

www.TELE-audiovision.com/TELE-satellite-1203/turbosat-icecrypt.pdf



- 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

www.TELE-audiovision.com/TELE-satellite-1201/bsd.pdf



- 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

www.TELE-audiovision.com/TELE-satellite-1201/p-sat.pdf



- 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

www.TELE-audiovision.com/TELE-satellite-1111/abcom.pdf



- 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

www.TELE-audiovision.com/TELE-satellite-1111/appliedinstruments.pdf



- 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

China Satellite



China Satellite 2014 Hotel Nikko New Century Beijing, China
CONFERENCE: October 29-30, 2014
EXHIBITION: October 28-30, 2014

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China Satellite 2014
 中国卫星应用大会

Huang Xu Secretary-General Email: huangxu@china-satellite.org

Tony Wong Email: tony@china-satellite.org

Tel: +86-10-58494900 Fax: +86-10-62218122

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<http://www.china-satellite.org>

Huber+Suhner, Switzerland - Fibre Optics

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



Product Manager
Patrick Zaina



Marketing Manager
Othmar Fuchs

www.TELE-audiovision.com/TELE-satellite-1111/huber+suhner.pdf



- 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

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



- 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

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



GM
Sven Melzer

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



- 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

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



Owner
Lubomir Proboszcz



Sales
Petr Zwrtek



Sales
Jana Proboszczová

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



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

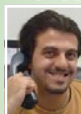
- In-house design and production (assembly line)
- Produces 100,000 receivers per year

WSInternational, USA - Receiver and Wholesaler

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



Owner
Robby Dosetareh



Sales
Joseph Bassala

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



- 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

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



GM
Slimane Ait Yala

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



Boiingsat, China - LNB

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



GM
Haowen Chiang



Co-Owner
Yunnjye Qin



Sales
Jason Chiang

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



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

- In the Works: LNB with Two Feed Rings

Bomare, Algeria - Receiver

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



Technical Manager
Tewfik Lamrani

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



Prevail, China - Fibre Optics and CATV

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



Sales
Necy-xu



Sales
Helen



Production Manager
Ren Guorui

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



- 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

The 23rd



**Compulsory Digitisation Declared by The Government
Opens Up A Huge Market For Digital CATV Product Sales
*Be There To Maximise Your Market Share***

Co-Hosted by:



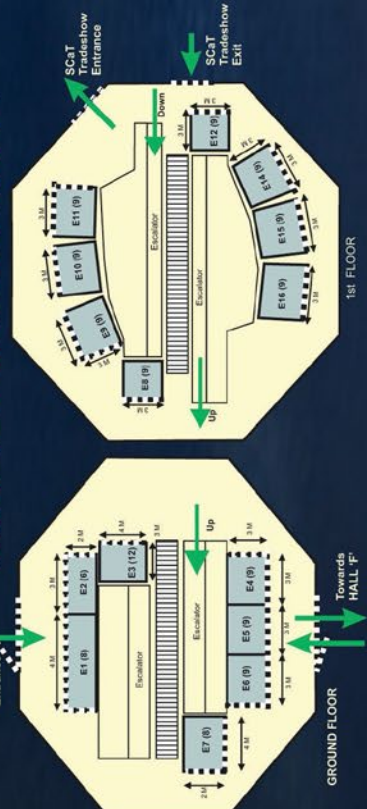
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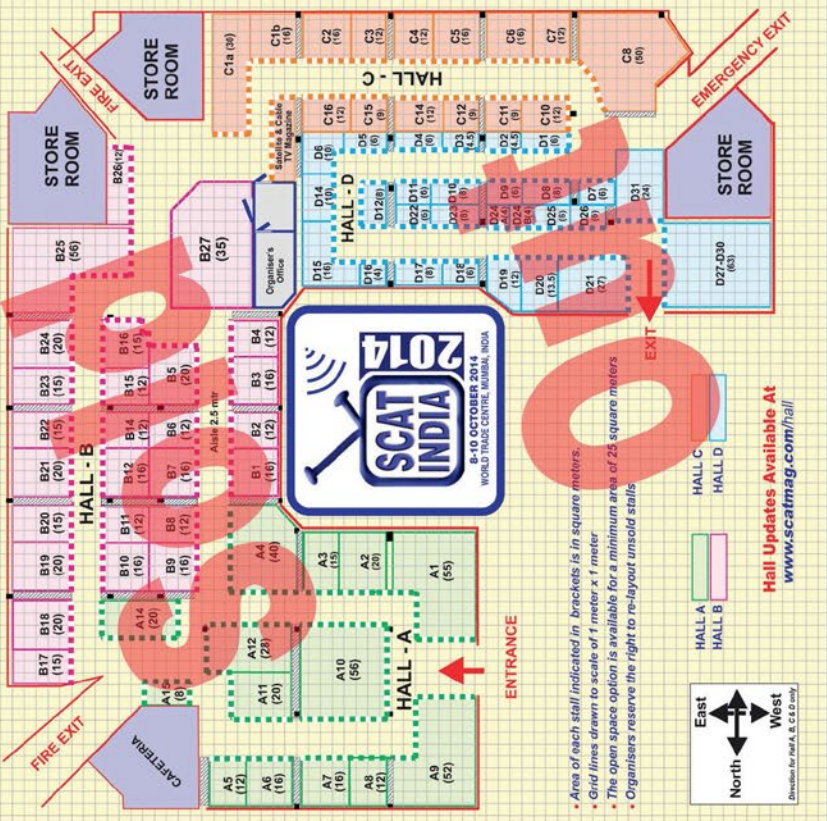
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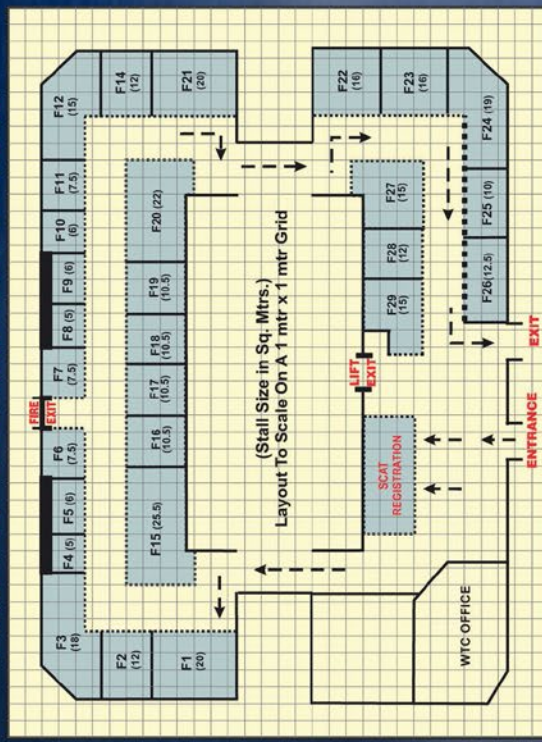
HALL E - CRUSH HALL



HALL LAYOUT 2014



HALL F - TOWER BLOCK



Jiuzhou, China - IPTV Boxes



Manu
Distr
Whol
Shop
Serv



Sales
Huang
Wei



Vice Marketing
Jimmy
Zhang

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



- 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



Manu
Distr
Whol
Shop
Serv



Founder
Richard
Zhang



Founder
Bob
Liu



Founder
Eric
Deng



Founder
James
Liu

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



NetUP, Russia - IPTV

Manu
Distr
Whol
Shop
Serv



Co-Founder
Abylay
Ospan



Co-Founder
Evgeniy
Makeev



Sales
Konstantin
Emelyanov

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



Tevii, Taiwan - PC Cards and Receiver

Manu
Distr
Whol
Shop
Serv



Founder
Matthias
Liu

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



Satbeams, Belgium - Software



Manu
Distr
Whol
Shop
Serv



Founder
Alexander
Derjugin

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



SmartWi, Denmark - Wireless Card Reader

Manu
Distr
Whol
Shop
Serv



Founder
Kurt
Olesen



Technical Manager
Jens
Glad

www.TELE-audiovision.com/TELE-satellite-1011/smartwi.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
Ivan
Horrocks



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





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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



Aluosat, China - Wholesaler

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



Founder
Luo Shigang



Sales
Luo Jun

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



MFC, USA - Filters

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



CEO
Carl Fahrenkrug



Sales
Scott Parsell



Marketing Manager
Sandy Nelepovitz

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



Nanoxx, Germany - Wholesaler and Receivers

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



Founder
Marcel Hofbauer



Sales
Daniel Sam

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



Smart, Germany - Receivers

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



MD
Peter Löble



MD
Christoph Hoefler

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



Spaun, Germany - Accessories

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



IBC Certificate Holder



Founder
Friedrich Spaun



MD
Kevin Spaun



Technical Manager
Steffen Kuck

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



Stab, Italy - Motors

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



Founder
Giorgio Bergamini

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



Subur Semesta, Indonesia - Dishes

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



MD
Tjia Tek Ijoe



Finance
Liong Ten Fook



Technical
Thiang Tiong An

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



Dishpointer, UK - Software

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



Owner
Alan

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





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- **Regularly updated by Xiaojun Tan**
- **Thanks to ad banners, Xiaojun Tan can maintain his website full time**
- **Always in contact with active satellite DXers in China**



WWW.ASIA



ASIATVRO.com

The Information Source for Satellite DXers in China



Xiaojun Tan has been operating the www.ASIATVRO.com Internet site since the year 2000. There you'll find everything you need to know in detail about all the satellites in the Chinese sky. He even publishes a frequency list that is regularly updated. All the satellites from 49°E to 172°E are listed. Xiaojun Tan lives in Guangzhou, the capital of the Guangdong province in southern China and that's where we met up with him.

His first experience with satellite reception occurred in 1998: "That's when I bought my first satellite dish; it was 75cm in diameter." He used that dish to receive the APSTAR 7 satellite at 76.5°E. Two years later he started his website as a BBS (Bulletin Board System). "I also published quite a bit of

satellite product news."

Since 2007 he's been working full time for his own website. "This is made possible by the satellite dealers and manufacturers that advertise on my site." This works only because Xiaojun Tan spends almost all of his time keeping his site up to date.

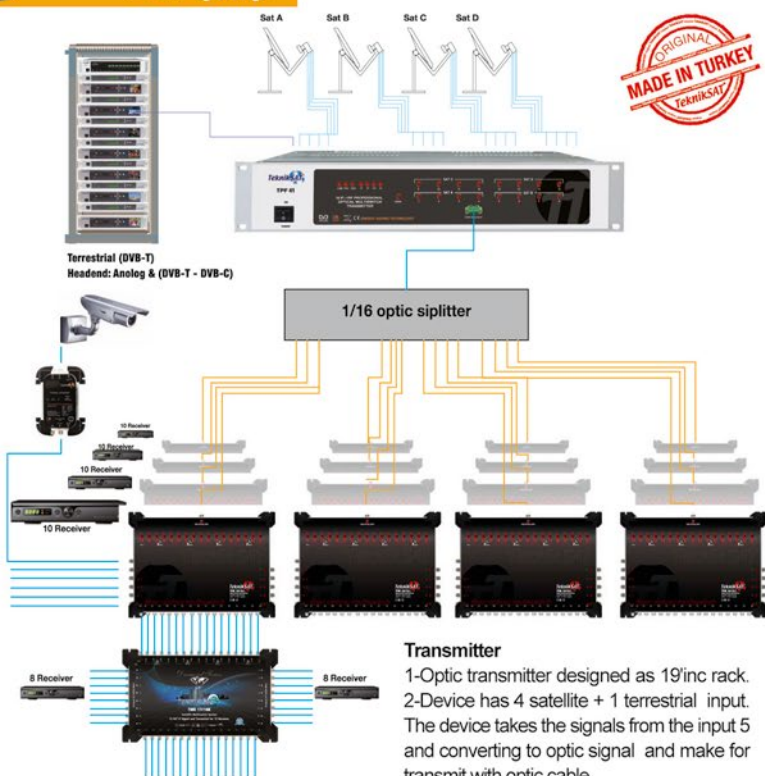
He gets help from roughly 2000 active TVRO fans – that's what the satellite DXers in China call themselves – from the English expression 'TV Receive Only'. Unfortunately, not everything is rosy in Xiaojun Tan's life: "When I moved into a new apartment in 2009, I was not allowed to erect any satellite dishes." Since then he's only been able to watch satellite TV when he drops by his many TVRO friends in Guangzhou to talk shop. "The active TVRO fans

meet once a month to share their experiences", he tells us, "and we've also already met up at the CCBN trade show in Beijing."

With an average of 5000 active threads every month, it's easy to see that his website is heavily used. The TVRO fans in China can use this website to find out everything they need to know for their hobby. Xiaojun Tan is convinced that satellite reception in China will continue to grow, especially for the reception of HDTV channels. "The necessary bandwidth for HDTV is only available through satellite technology", he is convinced. With his www.ASIATVRO.com website he has become and will be for the future the right source of information for all the satellite reception friends in China.



■ Xiaojun Tan presents on his laptop his very successful website for Chinese TVRO fans: www.ASIATVRO.com



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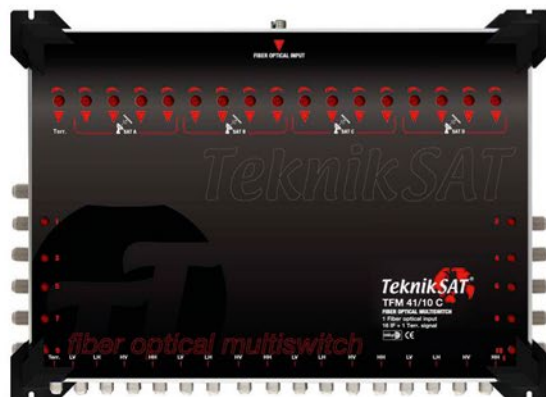


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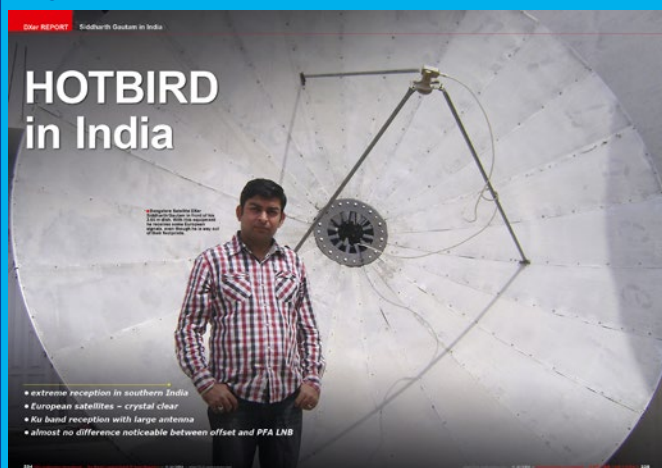


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Siddharth Gautam

India

Bangalore, India



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Daniel Rank

Germany

Blankenberg, Germany



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Lasmotos

Argentina

Daniel Hasink, Buenos Aires, Argentina



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Henry

Henry Kapitapita, Zomba, Malawi

Malawi



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Oscar

Oscar Campos, Santiago, Chile

Chile



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Natalino

Natalino, Jundiá, Brazil

Brazil



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Big Ronaldo

Ronaldo Zovaro, Louveira, Brazil

Brazil



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Jack

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Györgi

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Ken Wong

Hongkong

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Benni

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Marcos Eduardo Bernardini, Jundiáí (SP)



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Yahya, Saudi Arabia

Saudi Arabia



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Satheesan

Satheesan Puzhakkara, Thiruvananthapuram

India



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Vincent

Vincent, Jakarta

Indonesia



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Bosnian	un-09	☐
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Roy

Roy Carman, London



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UK

Pharmacist

Pieter Redelinghuys, Klerksdorp



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South Africa

Applesat

Applesat, Beijing

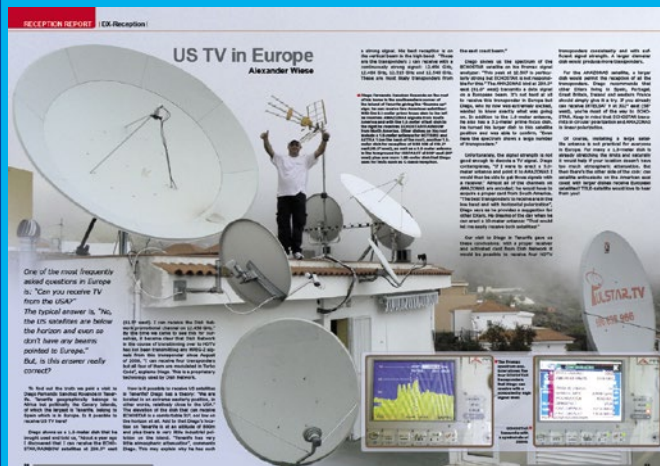


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China

Diego

Diego Fernando Sanchez Rosende, Tenerife



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Aluosat

Luo Shigang, Shenzhen



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DXer REPORT | Reception Experiments

First Steps in the Ka Band
Reception Experiments
In the 20 GHz Range



With some help from a friend, Ron Ebersson has been able to receive signals in the Ka band (20-30 GHz) using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

The Ka band is the part of the radio spectrum between 26.5 and 40 GHz. It is a very important part of the spectrum for satellite communications. It is used for a variety of applications, including satellite television, satellite internet, and satellite mobile communications. It is also used for scientific research and for military communications.

Receiving signals in the Ka band is a challenge. The signals are very weak and the atmosphere can absorb them. It is important to use a high-quality dish and a sensitive receiver. It is also important to use a good antenna and a good amplifier.

Ron Ebersson has been able to receive signals in the Ka band using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

www.tavmag.com/TELE-satellite-0811/eng/ka-band.pdf

Grandfather South Africa

Ivor Cartmell, Johannesburg

ENTHUSIAST REPORT | South Africa

„Satellite Grandfather“



Ivor Cartmell is a well-known satellite enthusiast in South Africa. He has been receiving satellite signals for many years and has a large collection of satellite dishes and equipment. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

The Ka band is the part of the radio spectrum between 26.5 and 40 GHz. It is a very important part of the spectrum for satellite communications. It is used for a variety of applications, including satellite television, satellite internet, and satellite mobile communications. It is also used for scientific research and for military communications.

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Juan Carlos Chile

Juan Carlos Miranda Duarte, Santiago

ENTHUSIAST REPORT | Chile

Satelliten in Santiago



Juan Carlos Miranda Duarte is a well-known satellite enthusiast in Chile. He has been receiving satellite signals for many years and has a large collection of satellite dishes and equipment. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

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Juan Carlos Miranda Duarte has been able to receive signals in the Ka band using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

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Ingo South Africa

Ingo Salomon, Stilfontein

DXer REPORT | Satellite Reception in South Africa

Ingo Wants to Know!
Alexander Wiese



Ingo Salomon is a well-known satellite enthusiast in South Africa. He has been receiving satellite signals for many years and has a large collection of satellite dishes and equipment. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

The Ka band is the part of the radio spectrum between 26.5 and 40 GHz. It is a very important part of the spectrum for satellite communications. It is used for a variety of applications, including satellite television, satellite internet, and satellite mobile communications. It is also used for scientific research and for military communications.

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Ingo Salomon has been able to receive signals in the Ka band using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

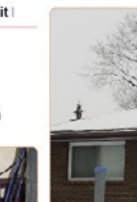
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Tony Canada

Tony Di Rienzo, Toronto

SATELLITE DX | Portrait |

Tony Di Rienzo



Tony Di Rienzo is a well-known satellite enthusiast in Canada. He has been receiving satellite signals for many years and has a large collection of satellite dishes and equipment. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

The Ka band is the part of the radio spectrum between 26.5 and 40 GHz. It is a very important part of the spectrum for satellite communications. It is used for a variety of applications, including satellite television, satellite internet, and satellite mobile communications. It is also used for scientific research and for military communications.

Receiving signals in the Ka band is a challenge. The signals are very weak and the atmosphere can absorb them. It is important to use a high-quality dish and a sensitive receiver. It is also important to use a good antenna and a good amplifier.

Tony Di Rienzo has been able to receive signals in the Ka band using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

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Leo Belgium

Leo Stouten, Leuven

SATELLITE DX | Portrait |

Leo Stouten



Leo Stouten is a well-known satellite enthusiast in Belgium. He has been receiving satellite signals for many years and has a large collection of satellite dishes and equipment. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

The Ka band is the part of the radio spectrum between 26.5 and 40 GHz. It is a very important part of the spectrum for satellite communications. It is used for a variety of applications, including satellite television, satellite internet, and satellite mobile communications. It is also used for scientific research and for military communications.

Receiving signals in the Ka band is a challenge. The signals are very weak and the atmosphere can absorb them. It is important to use a high-quality dish and a sensitive receiver. It is also important to use a good antenna and a good amplifier.

Leo Stouten has been able to receive signals in the Ka band using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier. He has also been able to receive signals from the 20 GHz range using a 1.2-meter dish and a 100W amplifier.

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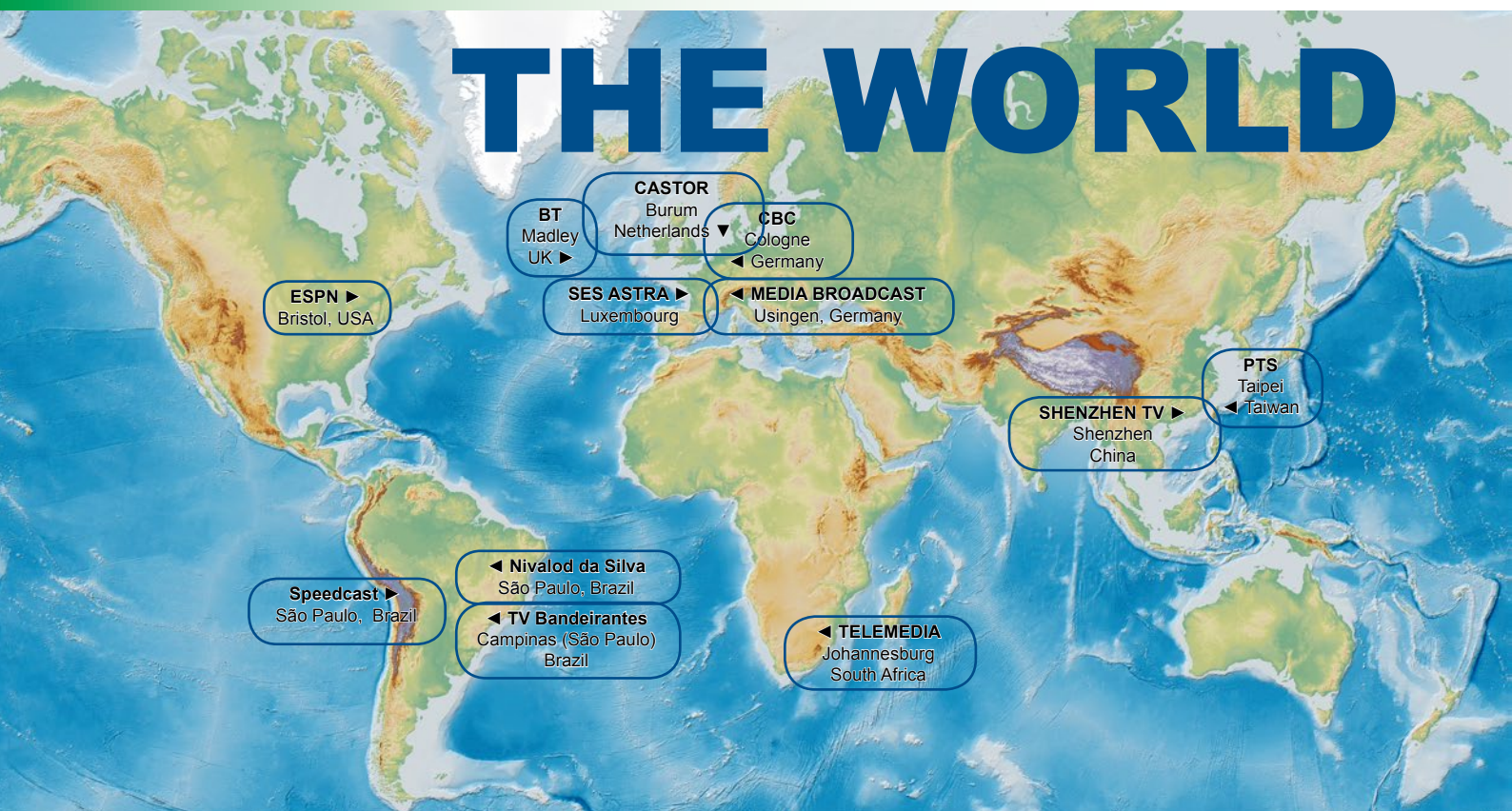
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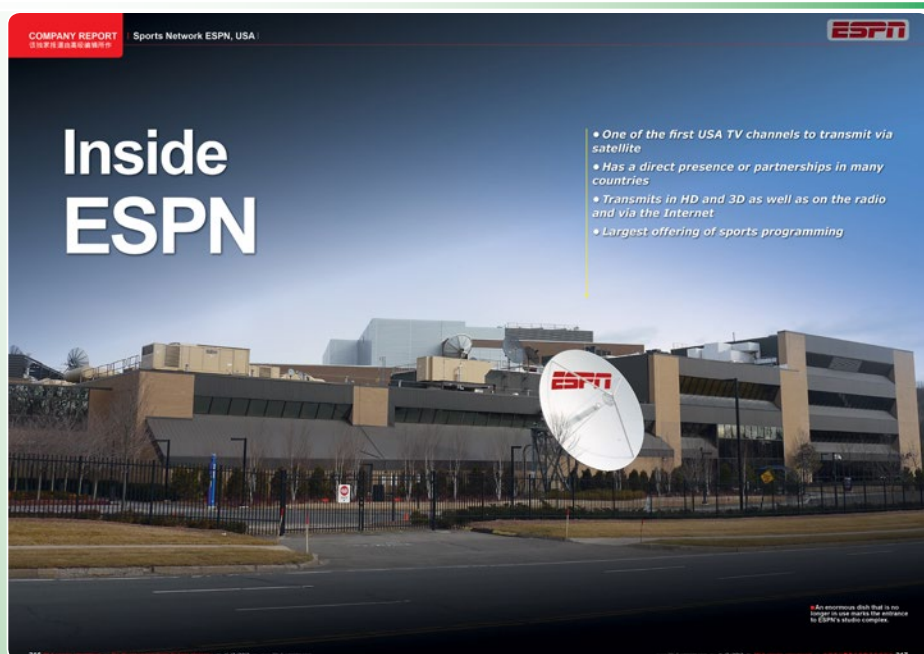


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COMPANY REPORT Ground Station Shenzhen TV, China

Satellite Uplink directly from Shenzhen

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COMPANY REPORT Satellite Uplink Station, Netherlands

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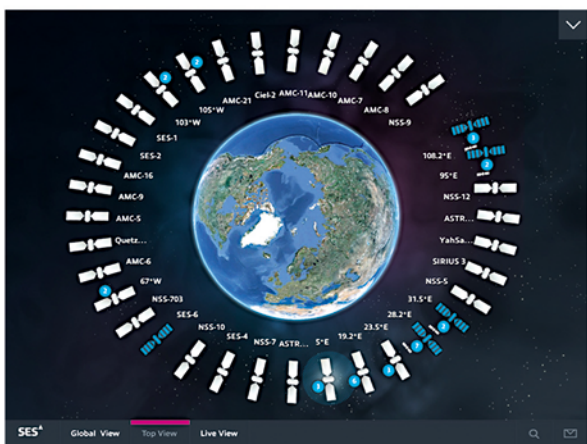


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(Niclas Friese Greene, Senior Vice President of Marketing and Corporate Communications, SES)



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STATION REPORT | Earth Station Usingen, Germany

Satellite Reception with a 19 Metre Dish

30 Years of Satellite Reception and Uplink in Usingen near Frankfurt

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Company Report

Telemedia, Johannesburg

[illegible]

STATION REPORT | PTS Taipei, Taiwan

Satellite Channels for Taiwan - PTS's Control Center

A photograph of the Public Television Service building, featuring a large sign with the text "Public Television Service" and Chinese characters "公共電視". The building has a modern architectural style with large glass windows and a prominent entrance.

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3 in 1 Triple LNB	BAND DBS / ECS / DBS	12,75 GHz / TELCOM	typ/max LNB	Noise fig. (dB) typ/max 12/20
3 in 1	ECS + TELCOM	DBS + TELCOM	DBS + ECS	
DUAL LNB	RSCD 86400 RSCD 86400 RSCD 86700 RSCD 86800	RSCD 87000 RSCD 87400 RSCD 87700 RSCD 87800	RSCD 85900 RSCD 85900 RSCD 85700 RSCD 85700	2,0 - 2,0 4,6 - 4,6 1,7 - 1,7 1,5 - 1,5
1 in 1	ECS	DBS	TELCOM	Noise fig. (dB)
SINGLE LNB	RSCA 86400 RSCA 86400 RSCA 86700	RSCA 85400 RSCA 85400 RSCA 85700	RSCA 87400 RSCA 87400 RSCA 87700	1,3 max 1,3 max 1,7 max
DBS Tuner	Small Size Single Input Dual Input	The Scalder 1/2B 1/2B6, without Bandwidth 20 MHz, 27 MHz, 27/16 MHz, FM Threshold type 4 dB noise Input frequency 950 - 1750 MHz		
RF Module	Small Size	UK / Germany PAL / PAL G Test Signal Generator		

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These Companies Started Their International

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PHILIPS PRESENTS

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SIEMENS

SIEMENS
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Volles Programm aus dem All

Wer die richtige Antenne für Zukunftsentwicklungen hat, setzt auf Satelliten-TV. Und dabei gleich auf die Empfangsanlagen von Siemens. Nicht nur, weil sie sich rechnen, langfristig und montagefreundlich sind sowie ganzkörperliche Fernsehverträge bieten. Wenn Ende '94 für den Sender-Satelliten Astra 1G die Siemens schließt, empfangen Sie das volle Programm – ohne zusätzlichen Aufwand für Antenne und Receiver! So gar auf den zukünftigen Satelliten-Star Astra 1E sind die Siemens Empfangsanlagen schon vorbereitet. Da fällt es nicht schwer, sich schon heute die Programmvielfalt von morgen zu sichern.

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TELE - audiovision

Zeitschrift für UKW und Fernsehen

Nr.23 Juli/August 1984 DM 4,80



30 Years Ago

Berlin

The Berlin cable tv system now carries four satellite channels: PKS, ZDF-2, Sky Channel and Musicbox.

Berlin

Im Berliner Kabel speist die Post jetzt vier Satellitenprogramme ein: PKS, ZDF-2, Sky Channel sowie seit 23.7. Musicbox.

Fernsehen auf Island

Teil 2: AFRTS Keflavik

□ Mit den Amerikanern begann auf Island das Fernsehzeitalter. Als 1955 die Geburtsstunde des AFRTS-Fernsehsenders schlug, sollte es noch über 10 Jahre dauern, bis das isländische Fernsehen aus der Taufe gehoben wurde.

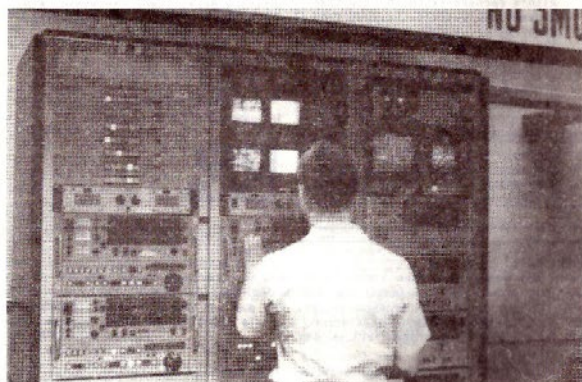
Fernsehen und Politik

Das Verhältnis zwischen den Isländern und den amerikanischen Truppen auf den beiden NATO-Basen Keflavik und HSBn (letzte an der Südostküste) ist sehr kompliziert. Bis heute empfinden die meisten Isländer die Stationierung als aufgedrängt, und die Spannungen sind nicht ohne Auswirkungen auf das Fernsehen aus Keflavik geblieben. Die isländische Regierung hat die Stationierung mit vielen Auflagen verknüpft, so dürfen die GIs den Stützpunkt am Tage nur in Ausnahmefällen verlassen,

und außerhalb nicht in Uniform auftreten.

Als man 1955 in Keflavik mit den Sendungen im Kanal A-B begann, sendete man noch mit großer Leistung und erreichte auch weite Teile des Südwestens Islands, einschließlich von Reykjavik. Viele Familien schafften sich daraufhin einen Fernseher an.

Der Einfluß des amerikanischen Fernsehens auf die isländische Kultur wurde in den nachfolgenden Jahren heftig diskutiert, und schließlich verfügte die Regierung

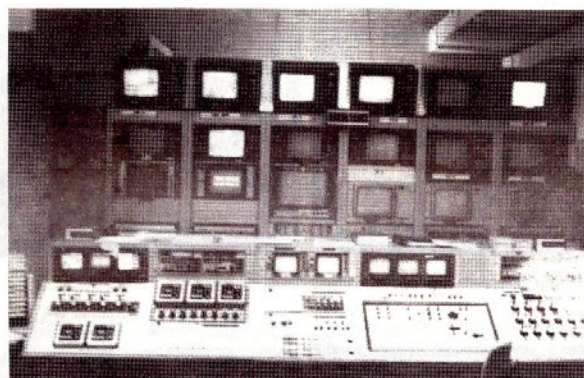


□ Der MAZ-Schrank

4

TELE-audiovision 23 1984

Skandinavien



□ Im Kontrollraum

1966, als das isländische Fernsehen mit seinen Programmen begann, eine Reduzierung der Sendeleistung, worauf man auf der Basis auf 250 Watt herunterging. Damit war ohne Hilfsmittel ein Empfang nur noch innerhalb des Stützpunktes möglich. Mit hohem Antennen- und Verstärkeraufwand allerdings konnte man das US-Fernsehen allerdings auch in Reykjavik weiterhin empfangen, das 40km von Keflavik entfernt liegt.

Auf den Vestmannaeyar-Inseln vor der Südküste errichteten 1966 private Betreiber sogar einen Umsetzer für das AFRTS-Programm, das sie dort immerhin über 130 Kilometer heranholten. Das staatliche Fernsehen protestierte vergeblich dagegen und verlor den Prozess deswegen, weil im damaligen Rundfunkmonopolgesetz von 1934 von Fernsehen noch nicht die Rede war.

In den Jahren 1971-74 kam dann aber per Regierungsbeschluss das endgültige Aus für die drahtlose Ausstrahlung, von nun an durfte man in Keflavik nur noch über Kabel senden.

4 TV-Kanäle

Mit nur 14 Angestellten bietet AFRTS Keflavik mehr Programm als AFN - TV in der Bundesrepublik. Nicht weniger als 4 Programme sind im Kabelnetz zu sehen, davon zwei mit digitaler Information.

Auf Kanal 4, dem Hauptkanal, gibt es fast rund um die Uhr Unterhaltung und Nachrichten, ebenso auf Kanal 6, der aber nur 12-14 Stunden am Tag in Betrieb ist. Zusätzlich gibt es im Kanal 2 stündige Wetterinformationen, was auf Island einfach eine Notwendigkeit ist. Auf Kanal 5

TELE-audiovision 23 1984

5

EUROCAST 84

Internationale Ausstellung

Ein Bericht von Thomas Martin, Berlin

Die Jahre 1984/85 bringen für die Entwicklung des Privatrundfunks in der Bundesrepublik und Berlin eine deutliche Wende. Die dafür grundlegende Voraussetzung, Anschluß von Haushalten an Breitbandkabel mit entsprechenden Verteilnetzen, ist in den europäischen Ländern Schweiz, Holland und Belgien bereits weit gediehen. Dort befinden sich zwei Drittel aller Kabelabonnenten Europas.

Mit einem Verkabelungsanteil von knapp 50 Prozent (900.000 angeschlossene Wohneinheiten von insgesamt zwei Mio. TV-Haushalten) ist die Schweiz unter den deutschsprachigen Ländern führend. Grund genug für den englischen Veranstalter Cable and Satellite Television Exhibition Ltd., die "Eurocast 84", eine internationale Fachmesse der Kabel- und Satellitenkommunikation, in Basel auszurichten.



Großdisplay beim Eingang zur "EUROCAST" in Basel. Foto: TM

Nach dem erfolgreichen Einstand im vergangenen September in britischen Birmingham, trat der Veranstalter in Zusammenarbeit mit der "Schweizerischen Mustermesse" zum zweiten Mal an die Öffentlichkeit. Wie in England (nach Vorstellung des Veranstalters ist ein ein-jähriges Pendeln

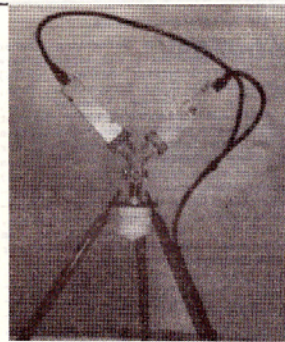
zwischen Basel und Birmingham geplant) gliederte sich die "Eurocast 84" in drei Teile: eine Ausstellung, Satelliten-Antennen Außenstationen auf dem über der Halle gelegenen Dach, ein Kongreß, der Erfahrungen in der Kabel- und Satellitenindustrie behandelte.

Ziel ist der Anschluß von 30 Mio. Haushalten (z.Z. 9,5 Mio.) in Westeuropa an das Kabelfernsehen bis zum Ende der neunziger Jahre, möglicherweise in Konkurrenz zum dann einsetzenden Empfang direktsender Satelliten (DBS).

Große Unterschiede bestehen beim Entwicklungs- und Ausbaustand der Kabel-TV-Anlagen in den einzelnen Ländern, teilweise bedingt durch unterschiedliche medienpolitische und gesetzliche Zielsetzungen.

Während manche Industrieländer gerade in der ersten Aufbaustufe stehen, sind in dichtvernetzten Ländern Anschlußzahlen bis zu 80 Prozent keine Seltenheit. Und dennoch gibt es für übertriebenen Optimismus wenig Hoffnung. Obgleich Marktlücken für Unterhaltungsprogramme, Spielfilme, Musik und vermehrte Nachrichtenangebote bestehen, geben aktuelle Entwicklungen in den USA, wo der Schrumpfungprozess auf dem Kabelmarkt voranschreitet, wie auch die Ergebnisse einer umfassenden Marktstudie zu denken Anlaß geben.

Die mit umgerechnet DM 1 Mio. privat finanzierte "CIT Research"-Studie "Kabel-TV Kommunikation in West-Europa" entwarf 1982 ein ökonomisch optimistisches Szenario. Die jetzt vom Co-Autor Patrick Whitten vorgelegte 400 Seiten starke Folgeuntersuchung



Polarisationswellen: die rechts- und links-drehenden Signale werden getrennt abgeleitet.

kommt zu einer weitaus pessimistischeren Einschätzung: Wegen des Einsetzes "überzüchteter" Technologien, den immensen Kosten für die unterirdische Kabelverlegung (in den USA dienen Telefonmasten häufig der Kabelführung), dem Fehlen qualitativ herausragender Programme, finanzieller und gesetzlicher Beschränkungen, werden Kabelfirmen auf abschbare Zeit mit Verlust arbeiten. Ohne Veränderungen postalischer und gesetzlicher Auflagen wird das jährliche Wachstum 10 Prozent nicht überschreiten. Kurzfristig wird für Kabel-TV Betreiber die Gebühreneinnahme durch Abonnement-TV (Pay-TV) die einzige solide Geldquelle sein, bei maximaler Belastung der Haushalte mit DM 30.- monatlich für die Zusatzprogramme.

Kritisch wurden nicht nur seine Zahlenprogramme aufgenommen (angeblich wünschen sich 62 % aller Bundesbürger englischsprachige Spielfilme - mehr als in dichtvernetzten Belgien und den Niederlanden), auch die Methodik erschien manchen anfechtbar: Das Potential interaktiver Dienste (also Zugriff auf Datenbanken, elektronische Post, Aussendung von Alarmsignalen, zentrale Gas- und Stromabrechnung etc.), wie geschäftlicher Sprachdienste, sei außen vorgelassen worden.

Die Grundtendenz gegenüber der Glas-

faser war wegen der größeren Dialogfähigkeit, Programmkapazität und verminderter Störanfälligkeit positiv. Mit einer totalen Verkabelung durch Lichtleiter ist jedoch erst im kommenden Jahrhundert zu rechnen. Die Amerikaner warnten nicht zu unrecht vor allzu kooperierten Systemen. Sie gewannen dem traditionellen Koaxialkabel in modifizierter Form (statt eines reinen Kupfer-Innenleiters Verwendung von kupferbeschichtetem Aluminium), das lediglich 37 Prozent des herkömmlichen Gewichts ausmacht, Vorteile ab, ohne die der Glasfaser allerdings dazuzusetzen.

Charles Bonan, Repräsentant der "Turner Broadcasting Co.", die gerade bei der Übernahme des mit 32 Mio. Abonnenten stärksten Kabelanbieters ESPN (Sport) von ABC ausgebootet wurde, ließ nebenbei fallen, "Cable News Network CNN" plane in sechs bis acht Monaten europäisch Nachrichten zu vertreiben. Ted Turner's Konzept des 24-stündigen Nachrichtensenders hat sich in den USA allen Unkenrufen zum Trotz seit vier Jahren bewährt: Neben seiner Superstation WTBS mit 30 Mio. Abonnenten zählt CNN 27 Mio. und CNN "Headline News" 11 Mio. Abonnenten. Da sich die BBC angeblich mit ähnlichen Plänen trägt, bleibt abzuwarten, wer das Rennen macht.

Die Demonstration zukunftsreicher Empfangstechnik war nahezu ausschließlich dem schwedischen Gerätehersteller LUXOR überlassen. Grenzüberschreitenden Fernsehgenuß vermittelte er mit zwei auf dem Dach installierten 1 bzw. 1,8m Parabolspiegeln, die die Programme TSS-1 (Horizont) und Sky Channel (ECS-1) anliefern. Luxor, die mit ihrem Aufbau einen anschaulichen Leistungsbeweis lieferten, verfügen nach eigenen Angaben nach nur zweijähriger Präsenz in den USA über einen Marktanteil von bereits 20 bis 25% (namhafte Firmen in den USA sind weiters: General Instruments, Scientific Atlanta, KLM, Drake, Dexcel, Avantek und M/A Com.)

Der prosperierende Markt für TVRO-Equipment verzeichnet nach jüngsten konservativen Schätzungen zwischen 200.000 und 300.000 ausgelieferten Einheiten mit einem monatlichen Zu-



Parabolantennen von LUXOR auf dem Freigelände.

wachs von 30.000 Einheiten. Ermöglicht wurde dieser Trend erst durch Lockerung der einschlägigen FCC-Vorschriften aus dem Jahre 1979. Der Preis für die kleinste 4-GHz-Empfangsanlage (Horizont, Intelsat) liegt bei Luxor z.Z. bei 8000,- sFr; ein spezieller Satelliten-Tuner für ihre neuen zukunftsweisenden TV-Geräte, der lediglich rückseitig eingesteckt wird, kommt um die 1200,- sFr. Einzig das finnische Unternehmen SALORA kann bei dieser Neuerung mithalten.

Das amerikanische Unternehmen Avantek setzt auf seine für ECS-Anwendung gedachten 12-GHz Verstärker/Konverter (6500,- sFr), die "Huber&Suhner AG" aus der Schweiz baut auf ihre gerade entwickelten zirkular polarisierten 12 GHz Antennen für DBS-TV (bisher nur bei internationalen Nachrichtensatelliten eingesetzt, ansonsten ist lineare Polarisation Standard). "Racal Oak" führte ihr adressierbares Pay-TV System NIMROD mit einer Kapazität von 48 Kanälen vor. Individuell lassen sich bis zu zwei Mio. Einheiten ansteuern. Oak ist in den USA mit dem "ON-TV"-Netz und 400.000 Abonnenten der größte Pay-TV Betreiber. Erst kürzlich sicherten sie sich einen 3 Mio. Pfund Auftrag der "British Telecom" (Post) zur Lieferung von Codier/Decoder-Geräten. Die Technik basiert auf der Unterdrückung der Synchronimpulse, die durch digi-

tales Daten ersetzt werden.

Mit im Rennen um Scrambling-Zubehör und "Ferngesteuerte und adressierbare Teilnehmer-Konverter"-Systeme (FATS) Produkte von C-Cor Europe B.V., Fuba, Salora, Le Groupe Videoway Inc., Zenith und das interaktive Konzept "Delta Com 2000" der holländischen "Deltakabel". Außer Speicherung der Gebühreneinheiten liefert dieses System einen Rückkanal (TV oder Daten) und eignet sich für Überwachungsaufgaben, Datenkommunikation, telemetrischen Informationsaustausch, Videotext, Zuschauerbeteiligung am Programm, Anschluß der Heimcomputer und vieles mehr.

Kabelbetreibern wird für ihre Kopfstation eine Einheit für den computer-gesteuerten Programmablauf (von Connolly Systems und Sony) angeboten. 'Dolby' verwies auf sein Rauschunterdrückungssystem für professionelle Videobandmaschinen, wie es bereits bei allen ITV-Stationen in England eingesetzt wird. Von besonderem Interesse auf der Eurocast war der Prototyp eines stereotightigen digitalen Tonübertragungssystems (Adaptive Delta Modulator). In Massenproduktion soll der Decoderchip nicht mehr als DM 10,- kosten. Die Firma setzt hierbei auf die BBC-Entscheidung, das deutsche TV-Stereo-System nicht in England einzuführen.



Durfte eigentlich gar nicht fotografiert werden; zu schauen ist allerdings sowieso nicht viel: Auf dem weißen Blatt neben dem Receiver-Dolby's Prototyp für Digitalton. Alle Fotos/TM

Mit dem 'Haus der Zukunft' schließlich machte man sich auf der Messe Gedanken darüber, wie die künftige - befürchtete oder erhoffte - Programmlauf aus Kabel und All zu bewältigen ist: Im Garten die Parabolantenne, im Wohnzimmer der Videorekorder und über dem Bett ein Fernsehprojektor. Auf dem dem Televisonisten auch nachts nichts entgeht...

Technik

Wellenausbreitung

Einige grundlegende Gedanken

Wer erst seit kurzem zu dem Hobby des UKW/TV-DXings gefunden hat, wird sich sicherlich gefragt haben, wie es möglich ist, so weit entfernt liegende Sender in so guter Qualität zu empfangen, wo es doch mitunter schon schwierig ist, den Ortssender einigermaßen gut hereinzubekommen.

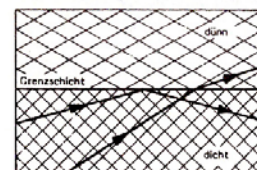
Nun, eine entsprechend groß dimensionierte Antennenanlage - wie etwa die von Rijn Muntjewerff [siehe Anlagenvorstellung TAV 10] - verbessert natürlich die Chancen, fremde Stationen in guter Qualität auf den Bildschirm zu holen.

Grundsätzlich sind aber - neben geographischen Bedingungen - die unterschiedlichen physikalischen Eigenschaften innerhalb unserer Lufthülle dafür verantwortlich, daß man unter Umständen den Ortssender nur in mäßiger Qualität, eine über 1000 km entfernt liegende Station aber kurzzeitig in einwandfreier Wiederabgabegüte, sogar in Farbe, empfangen kann.

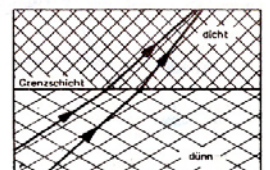
Versuchen wir also, das Phänomen im Groben zu verstehen und betrachten wir uns hierzu einmal den strukturellen Aufbau der Erdatmosphäre:

Wie allgemein bekannt ist, wird das Luftgewicht mit zunehmender Höhe in unserer Lufthülle immer dünner. Der Bereich mit atembarer Luft reicht je nach Breitengrad in Höhen zwischen 8 km bis 16 km und wird allgemein als Troposphäre bezeichnet. Das allgemeine Wettergeschehen (Wolken, Regen, Nebel) innerhalb dieser Troposphäre beeinflußt zwar in gewisser Weise die Ausbreitung der Rundfunkwellen, für einen schlechten Empfang des Ortssenders sind aber in der Regel die geographischen Einflüsse dominierend, d.h. die Funkstrahlen des Ortssenders werden entweder abgeschattet (durch Berge und Gebäude) oder an Hindernissen so ungünstig zurückgeworfen, daß sich häufige Interferenzerscheinungen bemerkbar machen (Geisterbilder beim Fernsehen).

Die Troposphäre nimmt nur dann entscheidenden Einfluß auf die Ausbreitung von Rundfunk und Fernsehsignalen, wenn sich großflächige Temperaturinversionen ausbilden. Da sich der Brechungsindex an der Grenzschicht einer Inversion relativ stark ändert, wird hier der Strahlengang doch merklich beeinflusst. Ähnlich wie eine Lichtwelle, die an der Grenzschicht zweier Medien mit unterschiedlicher Brechzahl gebrochen wird (z.B. beim Übergang von Luft in Wasser), wird auch die Radiowelle an diesen Inversionsschichten um- bzw. abgelenkt werden.



Brechung bzw. Reflexion bei Einfall der elektromagnetischen Wellen vom dichteren Medium her



Brechung der elektromagnetischen Wellen bei Einfall vom dünneren Medium her

Auch wenn Boden- und Höheninversionen gemeinsam auftreten, so ermöglichen sie in der Regel doch nur einen Überreichweiteempfang über Entfernungen

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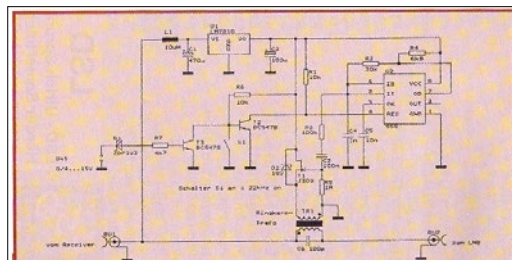
Exklusiv: Fernseh-Foto-Frequenzliste

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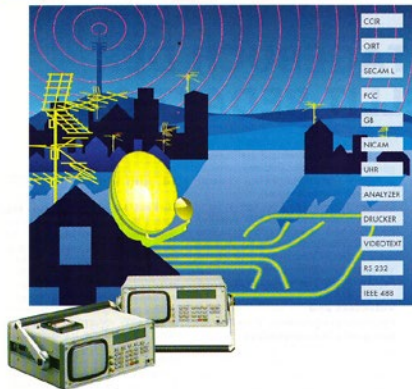


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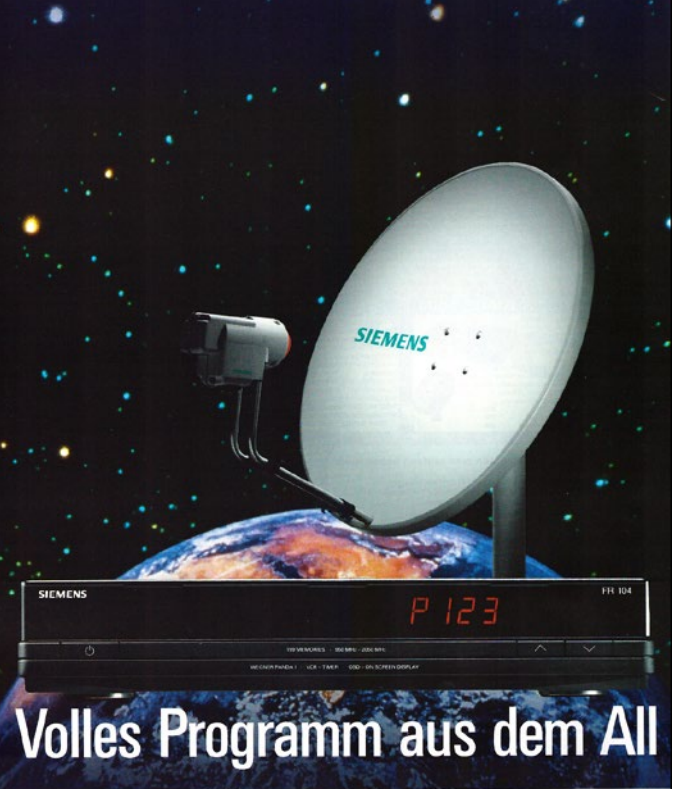


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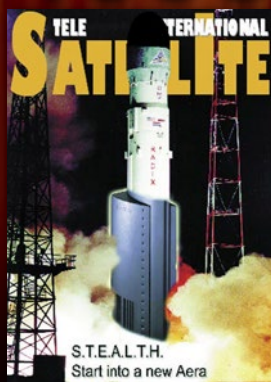
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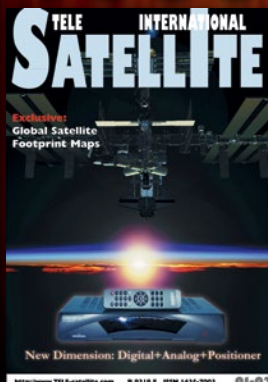
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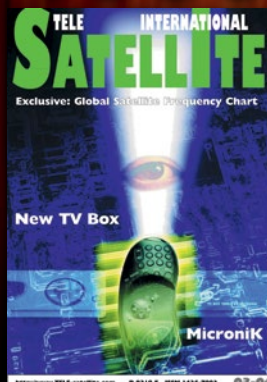
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12 - 13 November 2014
VSAT Africa 2014
Cape Town, South Africa

19 - 21 November 2014
InterBEE
International Broadcast Equipment Exhibition
Makuhari Messe, 2-1 Nakase, Mihama-ku, Chiba 261-0023, Japan
19 - 20 Nov.: 10:00am - 5:30pm
21 November: 10:00am - 5:00pm
www.inter-bee.com



6 - 9 January 2015
2015 International CES
Manufacturers, developers and suppliers of consumer technology hardware, content, technology delivery systems and related products and services
Las Vegas Convention Center, Las Vegas, Nevada, USA
Opening Hours:
6 January: 10:00am - 6:00pm
7 - 8 Jan.: 9:00am - 6:00pm
9 January: 9:00am - 4:00pm
www.cesweb.org

20 - 22 January 2015
Convergence India 2015
New Delhi, India

27 - 29 January 2015
CSTB 2015
Moscow, Russia

3 - 5 March 2015
Andina Link 2014
Cartagena, Colombia



10 - 12 March 2015
CABSAT 2015
Premier Broadcast & Satellite Platform in the ME & North Africa
Dubai International Convention and Exhibition Centre, Dubai, UAE
www.cabsat.com

16 - 19 March 2015
Satellite2015
Washington D.C., USA

March 2015
CCBN 2015
China Content Broadcasting Network Exhibition - largest broadcasting technology and equipment expo in the Asia-Pacific region
China International Exhibition Center (CIEC), Beijing, China
www.ccbn.tv

13 - 16 April 2014
HKTDC Spring
Hongkong, China

28 - 30 April 2015
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