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Bob Cooper's

MARCH 15 2003

SatFACTS

MONTHLY

Reporting on "The World" of satellite television in the Pacific and Asia

IN THIS ISSUE

Strong's SRT4800 II "bread and butter" IRD

Programming and reading emulator cards

Germany's press exposure of Irdeto secrets

✓ Latest Programmer News
✓ Latest Hardware News
✓ 54xx technoplastic
✓ Observer Reports

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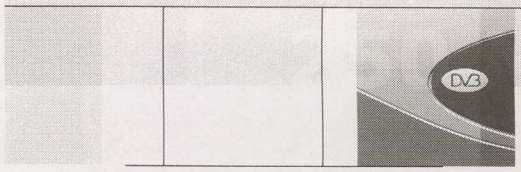
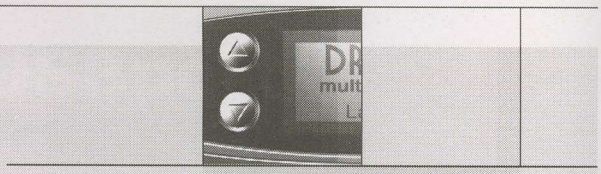


DREAMBOX
DM 7000-S

Power • speed • stability • design



Global Innovation

In the DREAMBOX you will find power united with intelligence: The Power PC processor from the house of IBM combined with the LINUX operating system provides lightning switching times together with high stability.

The 100 Mbit Ethernet connection makes the DREAM- BOX Intranet and Internet ready. Thus the user can update the operating software and new setting lists directly, or even download new skins for individual adaptation and configuration of the user interface.

A further innovation in the area of the satellite receiver is the built-in flashcard reader, with which flashcards and minidrives can be read and written.

In addition, the low power consumption (standby mode 1.2 W) together with the minimal heat generation speaks for this receiver.

The DREAMBOX will take you to the future of the satellite receiver.

Features:
- 250 MHz IBM PowerPC Processor (350 Mips)
- Linux open source (most parts under the terms of GPL, accordingly expandable)
- Supports Linux Standard API (Direct-FB, Linux-FB, LIRC, ...)
- DVB Common-Interface Slot
- 2 x Smartcard-Reader
- Integrated Compact Flash Interface Slot
- MPEG2 Hardware decoding (fully DVB compliant)
- Support for MPEG4 decoding
- Common available NIMs (DVB-S, DVB-T, DVB-C)
- 100 MBit full duplex Ethernet Interface
- USB Port Keyboard, Pointing Devices, WebCams and other devices
- V.24/RS232 Interface
- Big-size LCD-Display
- Up to 256 MByte of RAM
- integrated IDE UDMA66 Master/Slave Interface
- Support for internal HDD in any capacity
- unlimited channel lists for TV/Radio
- channel-change time < 1 second
- full automatic service scan
- supports directly 6 bouquet-lists (indirect unlimited)
- supports EPG (electronic program guide)
- supports videotext (insertion)
- various applications such Web-Browser or Mail-clients
- supports multiple LNB-Switching control (supports DiSEqC)
- fully adaptable OSD in many languages (skin-support)
- SPDI/F Interface for digital bit stream out (AC-3 / DTS)
- 2 x Scart-interfaces (fully controlled by software)

DREAM multimedia.TV

Contact and more informations at:
www.dream-multimedia-tv.com

SatFACTS
MONTHLY

ISSN 1174-0779

is published 12 times each year (on or about the 15th of each month) by Far North Cablevision, Ltd. This publication is dedicated to the premise that as we are entering the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install the appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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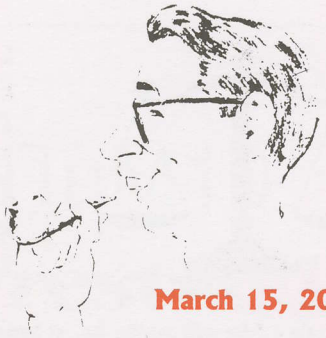
our NINTH year!

COOP'S COMMENT



March 15, 2003

Where have the suppliers gone? If you inspect this issue closely, and compare it to say November or December, a number of "fixture" pages are no longer with us.

Avcom-Ramsey, the USA firm manufacturing various spectrum analyser, FM broadcast and kit-able products, left us with the January issue. Patriot Antenna Systems, another USA supplier dedicated to antennas up to 6.3m in size and Strong Aust Pty Ltd (aka Phoenix Technologies Pty Ltd) are absent with this issue. Something significant is obviously happening here.

It would be simplistic to explain their absence on a failure of SatFACTS to attract for them sufficient business to warrant their continued advertising support. That is not the cause, at least directly. What is happening here is an evolution of corporate focus and as participants in a greater "industry" that involves a partnership between suppliers, installer/dealers and consumers you should be aware of how these "evolutionary changes" will one day - soon - impact on the way you do business.

Taking them one at a time, Avcom-Ramsey first. Avcom of Virginia (not to be confused with Garry Cratt's Avcomm Pty Ltd) began in business in 1979 building a quality analogue satellite receiver. In 1985 the firm added relatively low-cost spectrum analysers because company founder Andrew Hatfield wisely foresaw the encroachment of digital transmission technologies and knew the day of analogue receivers was drawing to a close. The "Ramsey side" also grew from a spare-time home card table operation founded by John Ramsey in 1979. He too did very well during the heydays of American C-band home dish growth (1980 - 1985) and his expansion included what was ultimately several hundred different build-it-yourself kits covering virtually the entire world of hobby electronics. And he also saw the closing of the C-band window and expanded into two-way radio test equipment. Both firms were of moderate size (close to but not quite 100 employees at their peak) but when you cut through the bureaucracy of each, Andy and John stood out as innovative company founders without which neither firm would long survive. By the late 1990s, both fellows were into their 50s and independently pondering why, having accumulated some resources, they bothered to work 18 hours a day, 7 days a week anymore. So over the next two years both sold out their privately held firms and as luck or fate would have it both were purchased by the same new-age Philadelphia based firm, thereby creating Avcom-Ramsey Inc. Without John and without Andy, the new owners found it difficult - impossible, actually - to continue the sales success that each had independently enjoyed. Sales fell, so the new owners combined the two operations into one physical facility and quite predictably cutting costs was not the right answer to reviving lagging sales. Eventually this led to cutting way back on advertising, SF included. Their future is at best undecided.

Patriot grew out of a combination of C-band businesses; Paraclipse for example and feed designer ADL. Patriot bought out firms that were privately owned, which individually did very well during the C-band growth days but as the owners grew older and the markets changed away from C-band, none of those bought-by-Patriot component parts was likely to ever again be a market leader. Think of it as a corporate fire sale - old owners, ready to close the doors and along comes fresh, new money to combine them with others of a similar nature. Unfortunately when firm-founding owners leave, more often than not new owners have neither the instinct nor stamina to make business adjustments changing market conditions require.

Strong Aust/Phoenix Technologies is a mini-scale Australian version of all of this. Founder Steve Phoenix six months ago created a business liaison with competitor Australia Satellite Systems simply because there was no longer enough business for both to survive and the two combined seemed like an appropriate pathway if either was going to stay in business. The survivor in this case is Australia Satellite Systems.

We'd like to believe these will be the last "adjustments" we can expect this year but of course that is not true. Business, like time, marches on and often to the beat of its own drum.

In Volume 9 ◆ Number 103

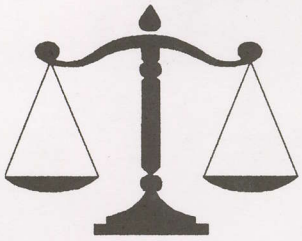
Strong's SR4800 multi-talented machine -p. 6; **Programming** and reading emulator cards -p. 8; **How** Germany exposed Irdeto's secrets of Premiere World -p. 12; **Humax** 54xx series factory software protection -p. 18

Departments

Programmer/Programming -p.2; Hardware/Equipment Update -p. 4; Technical Topix -p. 19; SatFACTS Digital Watch -p. 22; Supplemental Data -p. 26; With The Observers -p. 27; At Sign-Off -p. 30

-On the cover-

Resurrecting, rebuilding, proofing older dishes? New series begins SF#104.



LETTERS

Free to take?

"We have a 3.6m solid satellite dish on framework suitable for setting on a solid foundation such as on top of a hill or building. It was originally installed by PacSat for our station at CTV. Now we have shifted premises and have this dish as surplus to our requirements. Interested parties to peter.brown@ctv.co.nz."

Peter Brown

Impact of Sky NZ

"Rereading November 2001 SF and note your prediction that terrestrial aerial installs would drop by 50% in the first 122 months after TVOne, TV2 became a part of the Sky NZ satellite bouquet. In March 2003, our terrestrial installs from November 2001 had dropped 75%. This may be a factor of our location, in the rural countryside, but it sure has made an impact! If only TV3 and Prime were FTA alongside TVOne and TV2, so that rural viewers not able to afford Sky NZ could opt for a self-owned FTA system, we could simply change the way we look at installing - from yagi/logi to dish. But hey, that's not how it is thanks to a failure on the part of Government to decree FTA should be free to air whether on satellite or terrestrial!"

Paul Burton, Waipu Cable TV, Waipu, NZ

Worse yet - "Government" has not given up yet on the totally illogical plan to replace all (1,200-plus) FTA terrestrial transmitters with digital DVB-T. A new study group - another in what hopefully is an endless series of proposals - is scheduled to bring the latest recommendations to Government in June. We can but hope someone with an open mind and a good sense of technology will shoot down this foolish plan (see our comments in 'At Sign-off', page 31 here).

SDStv.com?

"A year ago I could not pickup my copy of SF without reading page after page about the SDStv equipment that uses L-band to link between a satellite dish and secondary locations. Suddenly no more text and then no more advertisements. What gives?"

William T., Papua New Guinea

What gives is a major expansion of the equipment line, adding 2.4GHz to the existing 1.2/L-band region and the development of some nifty video surveillance packages which piggyback TV linking with remote monitoring capabilities. Some of this new equipment is now being Beta tested in Africa and the Pacific and when we are comfortable that it has no design or production problems, SF will illustrate how anyone who sells and services satellite TV equipment can put their skills to work selling and installing either the 1.2 or 2.4 GHz versions as well.

LNBf comparisons?

"There is a lot of chatter about 'which' LNBf is 'best' and how you determine this for yourself. Can SF help?"

Craig Sutton, NZ

We can and in fact plan coverage of this shortly.

PROGRAMMER PROGRAMMING PROMOTION

UPDATE

MARCH 15, 2003

ACCESS DENIED UNAUTHORISED PIRATE SMART CARD

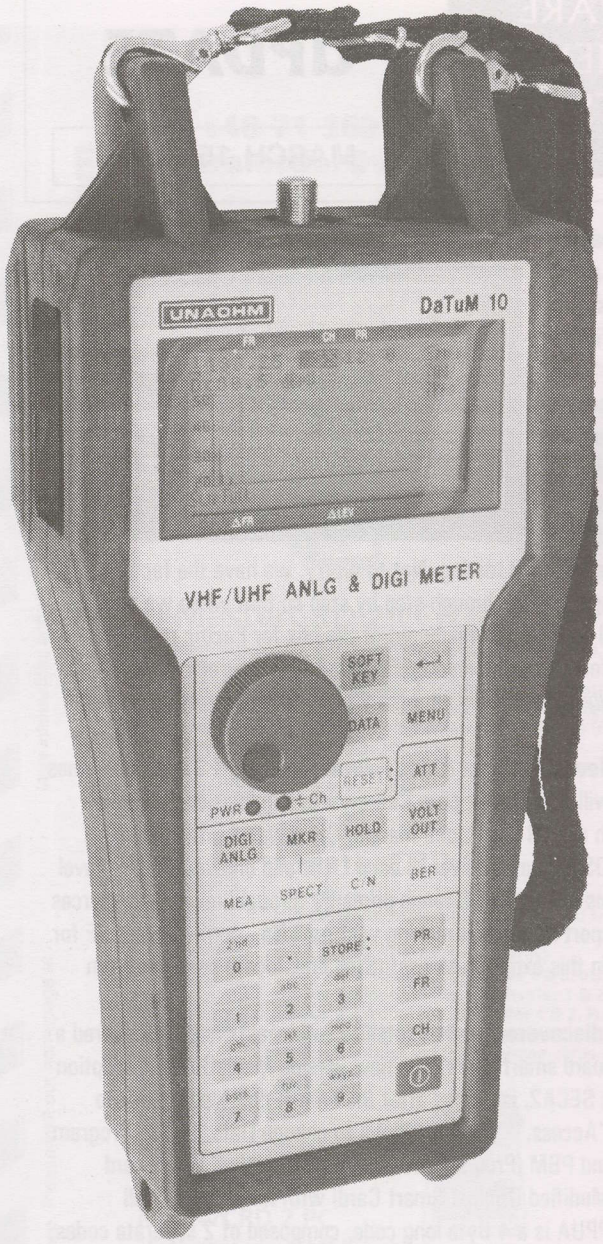
Getting the message. Following our SF "Coop's Comment" for February, both Foxtel and Austar have begun including messages within their monthly guides warning, "*The subscription television industry is getting serious about the theft of its services through pirated equipment and those involved are starting to get the message*" (Foxtel Guide March, pages 76-77, 106-107; Austar Guide March, page 116). The quickly-prepared advertisement includes the message, "*Piracy is a crime incurring penalties of up to $60,500 and 5 years imprisonment*" and ends with the tag line, "*To report piracy activity call the ASTRA Anti-Piracy Hotline (1800 428 888)*."

RAI CA on As2? A text message appearing in early March on RAI-TV within the European Bouquet advised viewers, "*this service will shortly become conditional access.*" Assuming this message did not migrate to the As2 feed in error (in which case it is not true), this would be a major change in the "constitution" of the European Bouquet as all members now using this platform originally agreed it would never-ever become a pay service.

"Freeview" growth. Any positive sign that any form of DVB-T (digital video broadcasting terrestrial; using terrestrial transmitters and VHF as in Australia or UHF as in UK) is showing signs of growth is an encouragement. When ITV Digital went bankrupt last May, future of British conversion from 1930's style analogue to 21st century digital seemed poor. Now that ITV Digital transmission licenses have been reissued to BBC, and "the Beeb" is heavily promoting 99 pound digital set-top box under marketing name of "Freeview" sales have shot out of sight. At peak, ITV digital boasted 1.2 million homes and BBC reports they have now regained lost ITV viewers and topped 1.4 million homes. Success is however spotty; large segments of UK are beyond DVB-T transmitter reach, and a high percentage of those inside of predicted coverage are unable to locate signal even with expensive rooftop aerials (see p. 31 here). When UK Sky's satellite homes, satellite fed cable homes and Freeview are summed, more than 15,000,000 UK homes remain without digital service.

BVN Holland to Australia-NZ? Globecast/MediaSat transponder on 12.336B3 Vt reported to be adding another (initially) FTA service within next 90 days; BVN, export package of Dutch TV from Holland. The Dutch service had been widely courted to become a partner in the struggling European Bouquet MUX but was unable to justify the going-in and maintenance costs demanded. Also reported - Hungarian Duna TV is scheduled for transmission on same MUX, initially FTA (30 day start-up) and then available using Irdeto2 format as a subscription service.

South African Porn. Major furore in RSA concerning Spain-origin "Don't Panic" explicit sex service sharing an African PAS7 beam with local-provider MultiChoice. Set-tops for MC function with Don't Panic by removing normal smart card and replacing with R2,000 (A$408) locally available card distributed by South African entrepreneur. MultiChoice's first reaction was to issue press releases warning people not to mess with decoders, until it was clarified that MC sells their decoders to consumers and has no legal control over how the STBs are used once sold. Then Government minister gave view that as service was not uplinked from RSA, nothing could be done about it. RSA forbids explicit sex on the airwaves, including satellite. But only when programming originates there. Next stop - South Africa's courts.



DaTuM10 Terrestrial Digital and Analogue Television Instrument

- **Automatic Digital signal measurement.**
- **Simultaneous view of Seven channels.**
- **Spectrum Analyser with variable Spans, MAX, MIN, FREEZE and Dual markers.**
- **Auto Carrier to Noise ratio measure.**
- **50 memory 7 program Data Logger.**

DaTuM10 is a new hand held TV Signal Level meter that measures 45 to 860 MHz Analogue and Digital, COFDM and QAM. The signal levels of any 7 channels can be shown simultaneously in the new histogram function. Spectrum Analysis and Expanded Spectrum with 2 Markers enable a broad range of detailed and specialised measurements to be made. A moulded rugged Rubber Holster protects the DaTum10 against knocks and falls. The keypad has been designed for use even in humid and dusty environments and a Pulse Encoder knob speeds function selection.

It detects Digital from Analogue, automatically adjusting the signal level read to Digital Channel Power and tuning to the centre of the channel. Measurements include Signal Level, D.C.P., Carrier to Noise Ratios, Vision to Audio Ratio, and Bit Error Rate estimation. The graphic LCD can be read in darkness or daylight. Clear Menus guide the user through functions which include mast or line amplifier powering and Data Logging. DaTuM10 employs precision signal level detection circuitry (superior to AGC detection) that reliably measures signals as weak as 20dBµV and provides Peak and Average detectors.

Internal Ni-MH battery life can be extended with optional external batteries and the instrument can recharge whilst still being used from the mains switch mode power supply included or 6V DC.

DaTuM 10, exciting instrumentation that needs neither a mortgage to buy it or a sherpa to carry it.

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Signal strength versus signal quality

"I have been experimenting with various LNBf devices on a 60cm dish and came down to a pair which seem overall to be 'best' of the lot. However, there are significant differences between them which I cannot comprehend. One produces a signal level of 75% with a signal quality of 53%. The other produces a lower signal level (60%) but a signal quality of 82%. Which one is the 'best', and why?"

PB, NZ

Signal strength is the measurement of the actual signal level delivered to the receiver from the LNBf. If the dB (decibel) gain of the LNBf is low (such as 40dB rather than say 55) there will be less "signal strength" on the displayed scale. Conversely, you can add dB of LNBf "amplifier" system gain by adding a post or inline amplifier between the LNBf and the receiver. Unfortunately, what the receiver "sees" and measures is a combination of both signal and noise. An LNBf with a high amount of gain and an above average amount of internal noise will create a higher "signal level" reading simply because the sum of the high gain and the noise generated within the LNBf is greater. The receiver is unable to determine how much of the "signal voltage" is pure signal and how much is "LNBf generated noise." Which brings us to signal "quality." Once the digital data stream has been corrected and interrogated, what the receiver now sees is the "bit error rate" - that is, how much of the original signal stream has been "lost" due to corrupting noise. Corruption of the data stream, by noise or other factors, reduces the signal quality even if the indicated signal "level" appears high. If the noise is bad enough, you could in theory have 100% signal level and 0% signal quality. So which is best - more "signal level" or "more signal quality?" The answer is obvious - more quality since this is the final measurement before you see a picture on the screen.

Dirty dish?

"What is the safe way to cleanup a dish which has fungus, mildew, stains and lots of dirt on it? I notice the stuff 'growing' on the rear does not look like the crud on the front (reflective) surface."

Avery B, Queensland

Fungal growth can be only surface cleaned with a heavy duty cleaning agent. Your local hardware store will stock such a liquid for purposes of cleaning metallic roofs and industrial area walls. We find that dissolving 1/2 litre of solvent with 3 litres of warm water, and then adding 1 litre of chlorine bleach is a good mixture. The cleaner does cleaning and takes the surface layer of the fungal growth off allowing the chlorine to then attack and dissolve this yukky stuff. Apply with a soft bristle (never a metallic bristle!) brush and have a thick sponge handy to scrub with. When you are done, use a hose and rinse the full dish surface to carry the junk away. The rear of dish stuff, pointing to the south, is simply more fungal than dirt as the sun spends far less time shining there than on the front. A cleaned dish can then be painted with a flat (not semi and never gloss!) non-metallic outdoor paint suitable for either your aluminium, steel or fibreglass dish material. Keep the paint surface thin - .025mm is recommended.

HARDWARE EQUIPMENT PARTS UPDATE

MARCH 15, 2003

Dreambox tests. A learning curve here - this item is much closer to a PC than any set-top IRD before it. Designed first and foremost for Europe, the test version SF received refused initially to take single frequency LO (such as 11.300) having software that is built around the Universal LNB platform. And that also shoots down C-band testing. Not to worry; we have the factory's attention and are working our way through step by step so that when we do review it, and report here, it will be instantly ready out of the box for Pacific region C and Ku band use. Call our effort, "*an advanced BETA test.*" Call their effort, "*co-operating with us fully to make the necessary adjustments for non-European use.*"

Tests conducted in New Caledonia during February indicate 1.2m offset dishes intended for Ku service will in fact lock onto Cakrawarta's Indovision service on S-band from 107.5E with a 1 dB headroom margin. Cakrawarta grey market systems consisting of NDS format receiver, S-band LNBf and one year "Gold" level subscription currently runs in US$1,300 range primarily through Indonesian sources who consider this an "export item profit making venture." No - don't contact SF for names of folks involved in this export business! (Step one: locate someone from Indonesia in your area.)

Bug in SECA2 cards discovered. Italian satellite enthusiasts have discovered a bug in the latest MediaGuard smart cards. The new version MediaGuard encryption system, better known as SECA2, is named after the French developer "Societe Europeene de Controle D'Access." The bug allows to change Date, PPUA (Program Provider User Address) and PBM (Program Bit Map) on the original smart card turning it into a MOSC (Modified Original Smart Card) with full access to all encrypted content. The PPUA is a 4 Byte long code, composed of 2 separate codes. The first 3 bytes of the PPUA are called the Shared Address, the last byte of the PPUA is the Customer Word Pointer. The PPUA is used to identify and address SECA's smart cards. The PBM is an 8 Byte long code handling the possible programs that can be viewed. It works like a Matrix or table and gives conditional information to the CAM (Conditional Access Module) as to which channels have been subscribed to and may be viewed. Canal+ New Caledonia broadcasting via IntelSat 701 in the Pacific region uses MediaGuard (SECA) to encrypt their PayTV content. MediaGuard encryption Version 1 was in the news when French Vivendi Group claimed that Rupert Murdoch's NDS hat cracked their encryption and intentionally put on the Internet to harm their business.

Tracing the smart card. Irdeto Access claims new patented system using "fingerprinting" executed by smart card when CA service is initially received, making it possible to trace backwards any video tape/DVD copies of copyrighted material to the particular card where it began.

Launch reminders: AsiaSat 4 to 122E from Cape Kennedy scheduled "before end of March"; InSat 2E to 83E between 15 March and 15 April. Optus C1 still not known.

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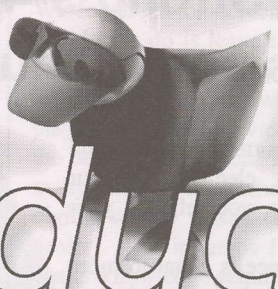

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MasterCRD 2 LCD

Spefication: 100% compatible to all cards sold by us, and also most other universal types of smart cards.
- Micro processor controlled, with our newest applications from software programmer is controlled and works fully automatic!
- Compatibility to almost all Programmer software (if necessarily) everything over a press touch key switchable!
- Mode Display over one LCD display and two LEDs.
- Specifications to modes: see MasterCRD 2!

100,- €

Magic Module

The original Magic Module!
Free programmable PCMCIA-Module with integral card-reader as ISO-Norm.
- 5V PC-Card with 3,3V chip-technologie internal (very low thermal producing)
- ARM7 Prozessor 30 MHz
- 256k RAM, 2MB flash
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Usage for:
- smartcard-reader and writer for laptops such as for GSM-Card utilities and also prozessor cards off all types
- e-mail-cryption and secuirity over smartcard
- password controlls to your laptops

199,- €

MasterCRD 2

Spefication: 100% compatible to all cards sold by us, and also most other universal types of smart cards.
Modus 0 = 6,00 Mhz (SmartCards)
Modus 1 = 3,57 Mhz (SmartCards)
Modus 2 = Pic-Ludi (Goldwafer 1 & 2, etc.)
Modus 3 = Pic-EEPROM (Goldwafer 1 & 2, etc.)
Modus 4 = Atmel Mode (Jupiter 1 & 2, Funcard, etc.)
Modus 5 = Atmel EEPROM (Jupiter 1 & 2, Funcard, etc.)
Modus 6 = ChipCard (GSM, phone-cards, etc.)

80,- €

MM Programmer

Also required is the programmer to program the Magic cam.

28,- €

MasterCRD 2 PC

- Connection over RS232 flat cable
- Power supply is connected inside to your pc
- Mounted on a metal sprayed grey surface, for sliding into your spare disk floppy section.
- Micro processor controlled, with our newest applications from software programmer is controlled and works fully automatic!
- Compatibility to almost all Programmer software (if necessarily) everything over a press touch key switchable!
- Mode Display over one LED display and two LEDs.
- Specifications to modes: see MasterCRD 2!

80,- €

MasterCRD LC

This is basically the MasterCRD 1 without a CNC formed casing.
- Compatibility to almost all Programmer software (if necessarily) over a press touch key switchable!
- Modes see MasterCRD 2 (exception is mode 6)

50,- €

AT90S8515_EEPROM24C128
The smartcard with a fast AT90S8515A and an extra big EEPROM 24C128.
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PIC16F876_EEPROM24C128
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The smartcard with the fast AT90S8515A and EEPROM24C64 in a hot Sandy design.
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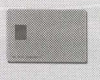
PIC16f84_EEPROM24LC16
5,- €

PIC16F84A_EEPROM24LC64
6,- €



PIC16F876_EEPROM24C64N
17,- €

More informations and wholesaler prices you will find at our homepage:
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All prices are only so long stock availibility lasts, and are subject to change. Please visit our homepage at www.visoduck-international.com for daily price changes.

www.visoduck-international.com

Smaller, better, more versatile

Strong's 4800 II has some unusual skills

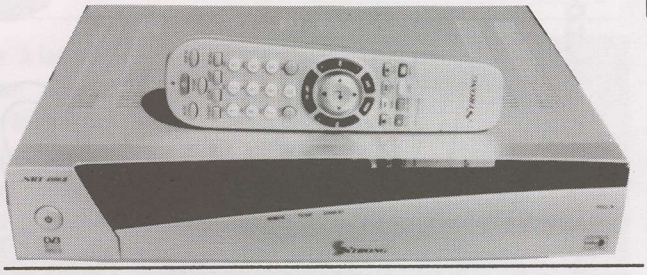
Price, performance and distributor/importer backup should be the three primary decision making elements in your selection of a digital set-top box for yourself or your customers.

Price? "Cheap" is OK if the performance is equal to more expensive units, and - this is the important one - you have a direct line to the distributor which has proven itself "in the business for the long haul." No decision should be made on price alone.

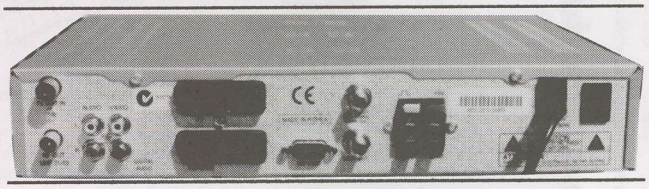
Performance? This is tougher to quantify because the trend in Korea (and to a lesser extent, Taiwan) is to create market-specific receivers which do what the majority of the consumers in that geographic area want it to do. There are, for example, some wonderful examples of receivers in the European marketplace, originating at the same factories as similar - but not identical - units intended to be sold into Asia and the Pacific. But if the receiver only has software to accept "Universal LNBs" - for example - you won't be using this IRD on C-band and you may find it difficult to program for even Aurora. The Dreambox in its European configuration is a prime example of this (see p. 4 here).

Distributor longevity. Nobody, no firm, lasts forever. Not in this business (see p. 1 here). A one or even two-year warranty is pretty enticing but if the distributor or OEM source goes out of business or ceases to deal with a specific supplier, where are you when the SMPS quits working? Out on a limb because the warranty is suddenly worthless if there is no way to get service work done.

Strong Technologies Pty Ltd. (not to be confused with Strong Aust Pty Ltd - see p. 1 here) is more than an Australian branded importer; it is a direct link to the "Strong" brand name, owned and operated by the Middle Eastern firm that actually designs and holds contracts for the manufacture of the Strong line of products. The difference here is significant; a distributor switches brands when it suits management; Strong is "strong" forever and a receiver such as the 4800 II is simply the latest in a sizeable series of products bearing that factory-original name.



SRT 4800 (II) is small in size, light in weight, and designed to access with an appropriate CAM + card the services you want.



The SRT 4800 II is a common interface digital receiver capable of producing high quality pictures and sound from Aurora, B3 Hz, Canal-Plus (I701) and the full C-band world visible in your town. It does not care whether the incoming signal is NTSC or PAL, allowing you to set in software commands a PAL (or other) output format without respect to the incoming standard.

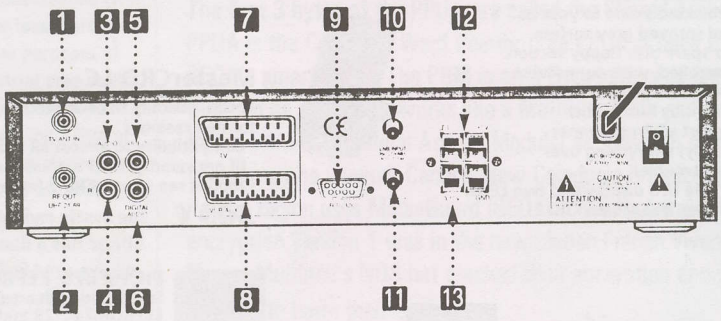
For CA (conditional access) services, you select an appropriate CAM (conditional access module, such as the 2.06 for Optus B3 Hz or 2.09 for Optus B3 Aurora), and select one of the two (2) CAM slots on the front to slide the device into the receiver. An appropriate authorised smart card then slides into the selected CAM; 2.09 for Aurora is an illustration.

The 4800 (II) is a mature product with several years of pre-model history . What it does is precisely what you would expect a mature product to do. It works and very well at that.

"Fully compliant with MPEG-2 and DVB standards" indicates the receiver has followed the internationally accepted digital encoding (as opposed to digital encryption) formats; any telecast service using the standard will load and play. And for those that don't follow the standard?

"Manual PID control" which indicates that services such as Imparja on B1 Hz can be loaded by going to a PID entry menu and entering the relevant (SF listed) numbers.

"Integrated common interface" means that when the receiver is equipped with a suitable CAM product, any authorised card supported by that CAM will result in CA (conditional access) reception. There are two CAM slots in the receiver; you could equip for B3



1/ Terrestrial TV antenna "in"; 2/ UHF remodulated output (format and frequency software selected); 3/ Audio-left; 4/ Audio right; 5/ Video; 6/ digital audio (out); 7/ TV SCART; 8/ Aux/VCR SCART; 9/ Low sped serial port (RS232) for downloading new software; 10/ LNB input (power here software selected for LNB operation); 11/ LNB looped output (to feed onward to 2nd receiver, spectrum analyser); 12/ Skew control voltages for resetting antenna feed polarisation; 13/ 0 or 12V DC voltage used for switching between LNBs from receiver software controls

Operational Parameters

The SRT 4800 II is a wideband L-band receiver covering the frequency range 950 - 2150 MHz. This means any LNB that outputs within this frequency range can be accommodated by the receiver's DVB (S) compliant software. The receiver requires an input signal level in the range of -65dBm to -25 dBm. A 50 dBw footprint received on a 60cm dish will typically produce -40 to -50 dBm signal level through a 1 dB noise figure, 55 dB gain LNB. The 40 dB "window (-65 to -25) covers the nominal range of signals which one anticipates in both C and Ku band service. The receiver will demodulate any symbol rate (SR) between 2 and 45 Msps; this covers the range of all known video transmissions in the Pacific including the Measat Astromux package using a Sr of 41.500. Megasymbol rates reflect the "bandwidth" of the incoming signal. Narrow bandwidths, typically carrying only a single video (+ companion audio) channel generally fall below Sr 7,000 (7.000). Single video channels with two or more accompanying audio channels (such as 7th Day Adventist PAS-2 service) generally have a Sr in the 6 to 8 region. Two or three video channels within a single multiplex (mux) typically have a Sr in the region of 10(.000) to 13(.000) and as more video channels are added (or video plus audio as in the case of the PAS-8 Taiwan mux) the symbol rate is increased. Multi-video channel symbol rates directly reflect either the present-day use of a multiplex or the plans of the uplinker to add more video channels in the future. There is a maximum number of video (plus audio) channels than can be accommodated with any symbol rate (Sr). And there are trade offs.

The greater the "resolution" or "quality" of a single transmitted channel, the greater the bandwidth it requires. For example, a HDTV (high definition television) signal, 1080 lines of resolution (lines on the screen with image material) may require a symbol rate of nearly 19(.000) for just that one programme channel. However, as Fashion TV and others have demonstrated, acceptable quality video can be produced with lower resolution (definition) with symbol rates as low as 2(.500). If the transmitted information is heavily "compressed" (most of the intricate detail eliminated before transmission), the 19(.000) Sr requird for a single HDTV programme can be utilised for as many as 7 (+) Fashion TV quality programme channels.

Transponder "space" (bandwidth within the satellite) is sold in increments of symbol rate "space." A transponder with a fixed transponder bandwidth, such as AsiaSat 3S and 27 MHz per transponder, can be sold to one user who in turn can create some maximum amount of symbol-rate "bandwidth" for that transponder. And the user in turn determines how much actual symbol rate to assign to each programme channel in the mux (multiplex) based upon the requirements of that channel. Television programming with "fast action" (sporting events, high-action special effect movies) have dramatic sudden changes in the image on the screen - each such change requires a higher symbol rate to process than say a static video image such as a test card.

The SRT 4800 II like all quality receivers must correctly interpret the "data stream instruction" for each programme channel accessed, and recreate the image on the screen based upon those instructions. The SRT 4800 II has a maximum data rate of 15M bit/s (megabits per second) which means that while it cannot process a HDTV signal requiring 19M bit/s exactly as it was transmitted, it can handle any DVB-S compliant video (+ audio) transmission.

The weakest link in most DVB-S receiving systems is the television set or video monitor connected at the end of the line. The lowest resolution image will come when you utilise the receiver's in-built UHF modulator for connection to a TV set. The highest, in the case of the SRT 4800 II, will occur when you go into a suitable video monitor using the SCART.

and another of your choice, such as Intelsat 701's French Canal Plus bouquet (each supported by its own card).

It does more: Child lockout features, Teletext decoding, and full dish mover control using the DiSEqC 1.2 format software. We found the on screen guide fairly easy to follow (one test we always do is leave the written manual closed and attempt to get the receiver playing without reading a word of instruction). In fact, while we had no trouble loading and playing a host of services, the manual turns out to be one of the best we have seen. There is only one major fault - like so many manuals it assumes the reader has prior experience with digital set-top boxes (as in the reader being an installing dealer). And it jumps from consumer friendly instruction to dealer-knowledge-required instruction without warning. This continues to be a difficult challenge for manual writers. The manual also neglects to show how the receiver is connected to a dish mover system which could cause some confusion for those first-time users of the receiver.

Of particular interest to some readers is the ability of this receiver to access, with an appropriate CAM and card, services such as Zee TV's As3 bouquet. Zee uses an Irdeto format CA package and the cards required are generally available "on the street." With a 2.09 (or 2.06) CAM installed, we are told (but cannot say from test experience) that a Zee card will lock and load the As3 services. Zee's Australian-intended service through MediaSat/Globecast is Irdeto 2 format, which means there are no "street cards" available to the best of our knowledge. However, original cards as issued by the provider should play here without difficulty using a 2.06 CAM.

Strong is attempting to walk a "narrow line" with this receiver, not anxious to anger the folks who are in the CA business (such as Irdeto) while at the same time desiring to appeal to the legitimate as well as slightly-grey consumers who want a receiver that does a specific purpose that suits their television viewing needs. "Slightly-grey?" Folks who live, for example, in NSW or Victoria, who have a direct cultural interest in Zee TV programming, but who for various personal reasons want nothing to do with the MediaSat/Globecast homogenised version of same.

Good marks: Speed, sensitivity, ease of menu use, low heat build-up (30w maximum power consumption), step-by-step manual dialogue, ability to handle two CAMs and therefore two separate CA formats

Not so good marks: Initial confusion with remote control functions even while reading manual for assistance, failure of manual to explain steps for downloading new software

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Remember that Strong Australia Pty Ltd is a Melbourne based office of an international firm with significant monetary and engineering resources headquartered in the Middle East. And that Australia is a "by-product market" for the firm, which apparently produces significant revenue and has a large base of customer loyalty with people who live in the Middle Eastern region. All of this says, correctly, that you are dealing "with the source" and as such, you can expect a higher level of customer satisfaction for this particular product than you might experience through a traditional importer.

The 4800 II is a significant product with a pedigree that makes it a serious contender for your dealer/installer commitment. Strong Technologies Pty Ltd at Unit 2, 1-3 Westpool Drive, Hallam, Victoria 3803 (Australia). Telephone (++) 61-3-8795 7990 and fax (++) 61-3-8795 7991.

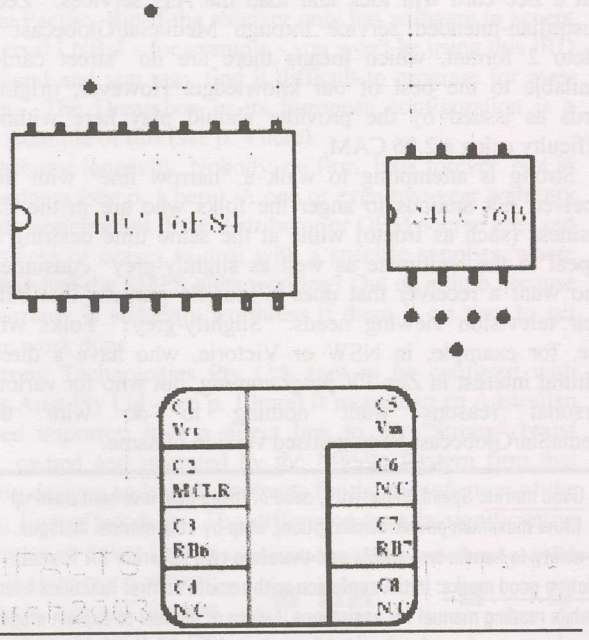
Another "how to" series

Programming and reading of emulator cards

A couple of issues ago, SatFACTS introduced you to the different smart cards used in the conditional access business. We also discussed non standard, so-called emulator cards.

Today I would like to show you how these cards are programmed or their content is read back. There are two different sorts of emulator cards; the PIC based ones and the AVR based ones. Let's recall: the PIC based ones are the Goldwafer (GW) or Goldcards as well as the Silvercards (DS9). Other PIC variants include Greencards and Blue cards but they do not play a major roll.

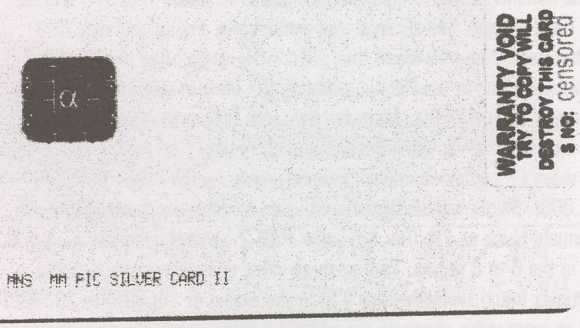
The AVR controller based cards are the Funcards in various memory steps ranging from a 24C64 EEPROM up to a 24C1024 EEPROM and are called Funcard 1 to Funcard 5. SatFACTS did explain that the Operating System or "code" is programmed into the programmable IC (CPU) and the data is stored in the external EEPROM.



The example shows a PIC 16F84 of a Goldwafer with external EEPROM 24LC16B.

The big difference between the two groups of smartcards is how the external EEPROM is programmed. Unfortunately the external EEPROM of a Goldwafer smartcard canNOT be directly programmed; so a trick is used to access this EEPROM through the PIC.

"Through the PIC" means, that a "loader" needs to be programmed into the PIC which streams the data to the EEPROM. This loader is only used for this purpose and later overwritten by the "real" Operating System (OS) of the smartcard. Again, very unfortunate is the fact that if someone would like to read the content of a PIC based smartcard, the



controller's OS needs to be overwritten by a loader and is therefore lost; thus if you don't know what OS is used, the data file of that EEPROM is not of much use if you wanted to make "clones" of that particular smartcard!

Operating System and EEPROM data addressing have to match. One can NOT use a PIC OS from author A and combine it with a data file from author B as the addressing is most probably shifted to the needs of the particular author of the OS.

Sellers of Pay TV emulator cards make use of the fact that a PIC's EEPROM cannot be directly addressed and actually warn their clients with a label on the smartcard (above).

We have been offered one of these emulator cards for testing. and preparing this report. This card contained data of a popular Asian bouquet and was claimed to be auto updating; in other words it did not only contain the monthly Public Keys (Session keys) but also valid Provider Identification (PPUA) and Private Keys (Master keys) of a subscription card. Therefore the emulator card is updated over air like the (original) subscription card and will be working as long as the subscription is paid for. Many people would falsely call this emulator card a "clone"; falsely because a true clone is made from an old / former / expired genuine subscription card and not just data copied onto a GW or DS9 card.

I wondered why the tested card's seller was using a fairly expensive Silvercard for a one-provider-only emulator card. The cheapest PIC 16F84 based Goldwafer would have done the job and therefore expected some kind of a trick when looking deeper into the card. I read the external EEPROM and not to my surprise, it was empty! The cheeky author was "hiding" the subscription data in the code (CPU's Flash RAM) so that 99.9% of all people who try to read or copy the card would destroy the content of the Flash as the "Warranty Void" label suggests! Let me state the content of the internal EEPROM here so that the author, should he read this article, knows that I did, in fact, read the complete (!) card: RPIC2RD20d.... so... *it is possible* to take hurdles.

EEPROMs of Funcards are also programmed "through" the CPU, but with use of the OS itself (no loader needed). The

This report and the two following reports have been researched and prepared by SatFACTS contributing Technical Editor Rolf Deubel, Capetown, South Africa

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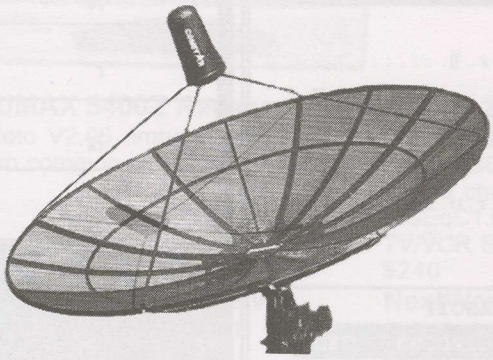

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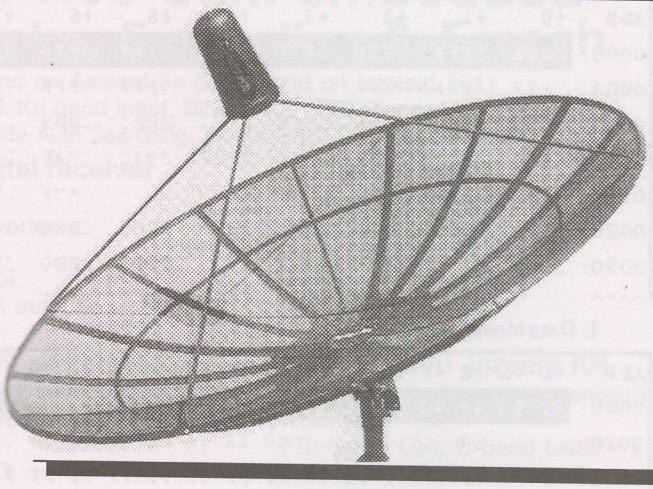

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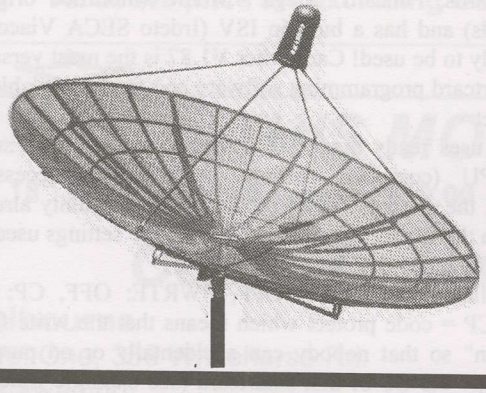

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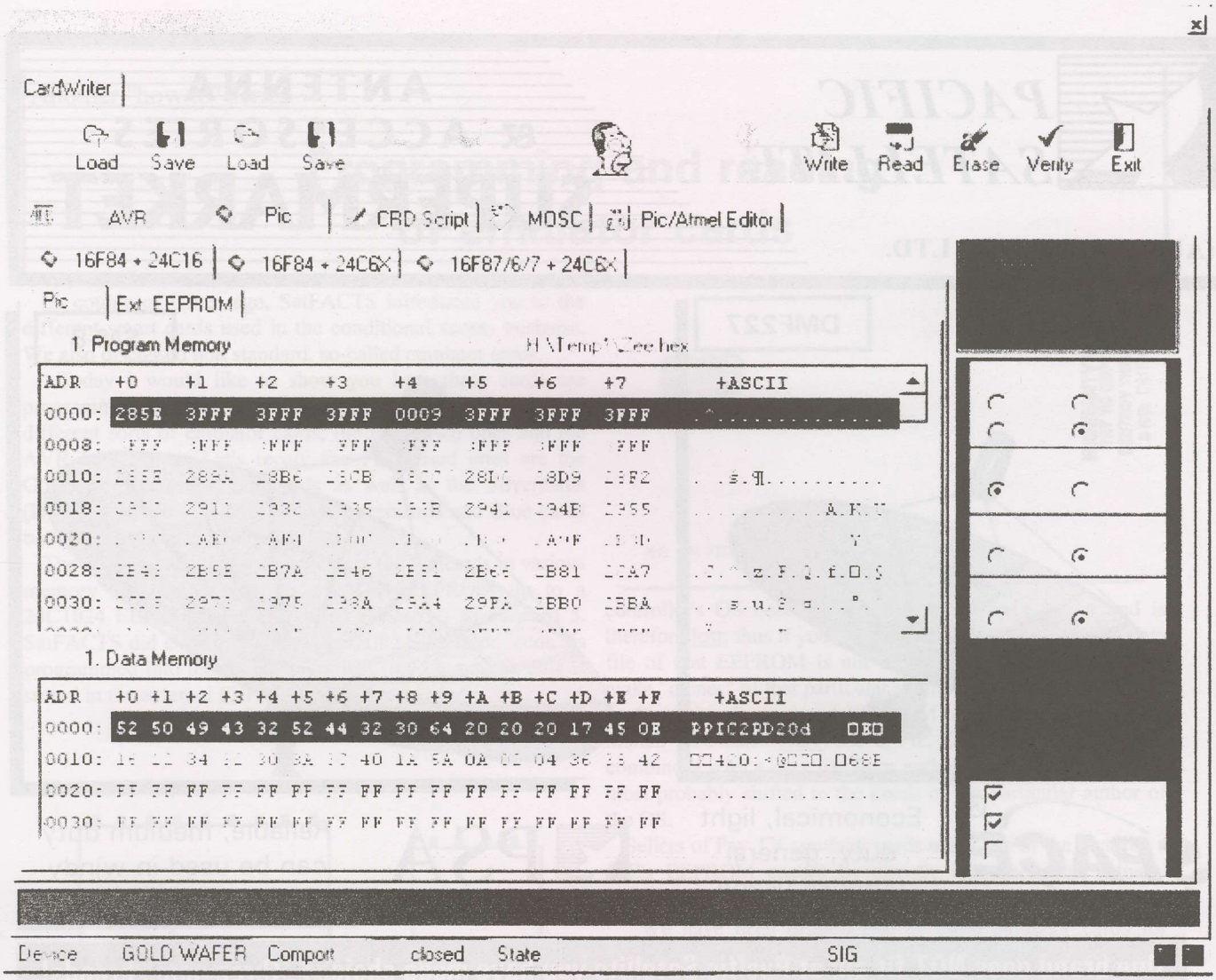

Funcard's CPU Flash RAM is big enough to allow an addressing system to be built into the OS and a programming file in .crd standard (like a batch handler in good old DOS) is used to program the EEPROM in Phoenix mode (simple 6MHz serial programmer).

Once the OS is programmed into the Funcard, the EEPROM can be accessed (written and read) without the Flash having to be rewritten ever again! This allows editor programs to be used e.g. ISVEdit which reads and writes directly to the EEPROM making use of the built in addressing system of the ATMEL AVR OS.

PIC based smart cards and AVR based smart cards need different programmers. The difference is in the hardware and determined by the specific programming routines for the controllers (CPU). In a future edition SatFACTS will introduce you to the various hardware programmers; today we are going to handle some software for programming smart cards.

Most of the programmers do come with specific software when purchased but there are very good "generic" programs available from the Internet which are very easy to use and worth while trying out.

If one does use Goldwafer only, most probably the best solution is a program called "Chipcat" currently published in Version V2.3 which also works in Windows XP environment. This easy to handle programmer software does not give any problem nor did it ever fail when we tested smart cards. When a problem occurred during our tests then it was because of faulty virgin smart cards, wrong programming voltage or wrong device selection on programmer (hardware) but never from Chipcat itself. Should you want to start experimenting with smart cards, we definitely recommend this nice little piece of software.

Another program worth to be mentioned is Cardwriter in current version V1.87. This piece of smartcard programming software has many more features not necessary needed by beginners but still the program is worth "playing" with. It supports not only the most common PIC based smart cards but also Funcards, Funcard "Mega", MOSC (modified original smart cards) and has a built in ISV (Irdeto SECA Viaccess) editor ready to be used! Cardwriter V1.87 is the most versatile of all smartcard programming software and freely available on the Internet

If one uses ready made HEX files to program the smart card's CPU (compiled entirely in processor accessible language), the settings for a PIC are most commonly already "stored" in the file by the author. Here are the settings used for a Goldwafer card:

Oscillator: XT, WDT: OFF, PWRTE: OFF, CP: ON whereby CP = code protect which means that the write fuses are "blown" so that nobody can accidentally or on purpose read or copy the OS of that smartcard (see example warranty void label, here). More or less the same applies for Funcards, except there are two security level fuses and for maximum security we advise to set both to be "blown" when programming an AVR Funcard.

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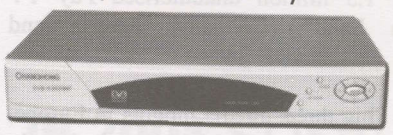

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Freedom of the press! (?)

How Germany's 'PC Direkt' exposed Irdeto's encryption secrets of Premiere World

Conservative readers of SatFACTS monthly have expressed their concern on our reports on pay TV piracy since pay TV piracy became a new word in our modern world's dictionary. In 1999 when SatFACTS reported about my "activities" in the Southern Hemisphere and later followed up the proceedings in Thailand, there have even been threats to jeopardise the magazine's existence and to put pressure on the editor to stop publishing these articles. In every article published, no matter what the subject might be, there is some "educational interest," one way or the other!

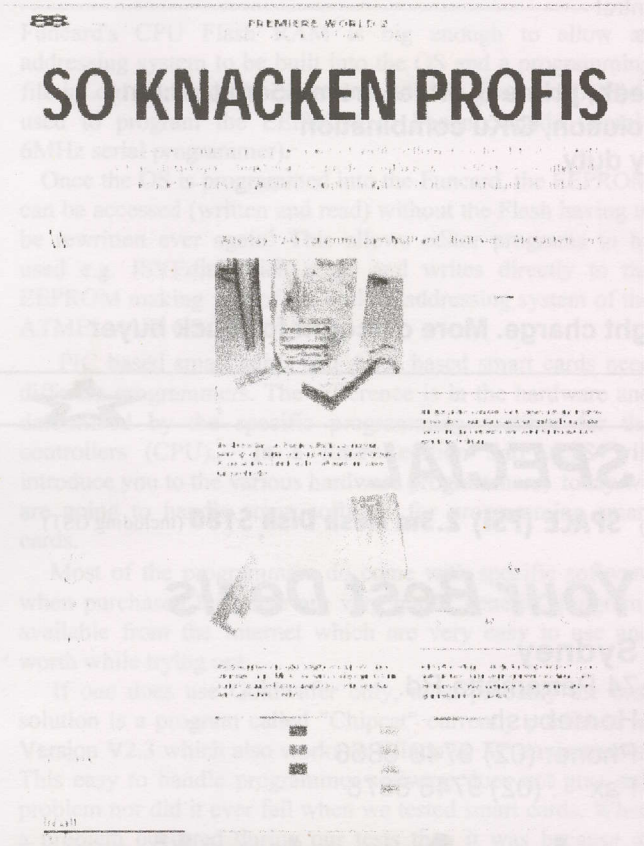
Publications also reflect interest of hobbyists and the "lobby behind them." Take for instance all the gun magazines in the United States. You have the anxious people who don't even want to speak out the word "gun," as frightened as they are, and there are the conservative people, who link liberty and freedom with the right to possess and carry guns. Now the big question: *"Is reporting about guns immoral"?*

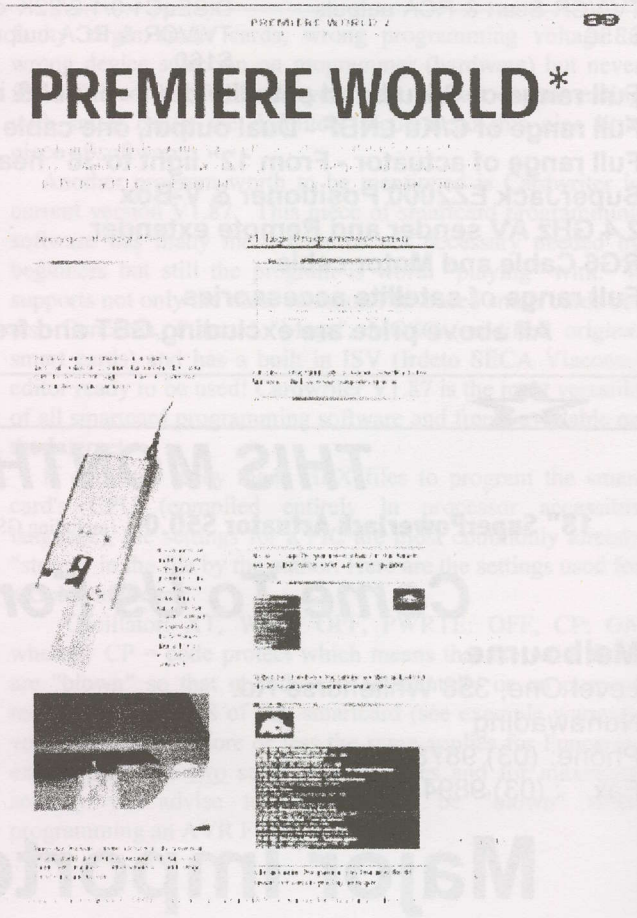
Let's change subject back to satellite business again and have a look on related publications in other parts of the world. I would like to draw your attention to a German magazine "**PC Direkt**" which in October 2001 ran an article "**So knacken Profis Premiere World**" which freely translated means "*See how the professionals crack Premiere World.*" Premiere World was Germany's Pay TV provider which went "belly up" mid 2002 due to mismanagement within the Kirch Group of companies. This bankruptcy was not even closely related to any so called "piracy activities" as one might suspect, although Premiere, on paper the successor company of Premiere World, claimed in a statement in late 2002 that there are an estimated 1.5 million unauthorised Pay TV viewers in "Premiere Land" (Germany, Austria and Switzerland).

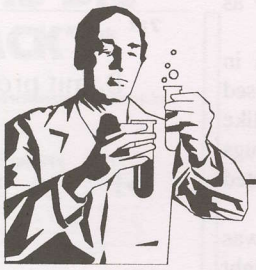
Leo Kirch, one of the "big three" media moguls in Europe, next to Berlusconi and Murdoch, became rich when he bought the movie rights for films like "La Strada" and others back in 1956.

The pay TV service of Premiere operates still today, now under new management, less the ballast of un-resalable TV rights (e.g. Formula One's Bernie Eccleston's Multi Million US$ deal with Kirch, which Kirch was not able to utilise), plus fresh funding from the state and an obvious in-house slogan *"Premiere World is dead, long live Premiere"*!

PC Direkt got hold of a self claimed "Hacker" (name known to SatFACTS) and published "his" instructions on 1) How to modify original subscription smart cards to "add value" to a basic subscription (open all channels inclusive of PPV Pay Per View services; MOSC = Modified Original Smart Card) and on 2) How to use emulator cards (see article on page 8 in this issue) to watch all services for free. This information was so







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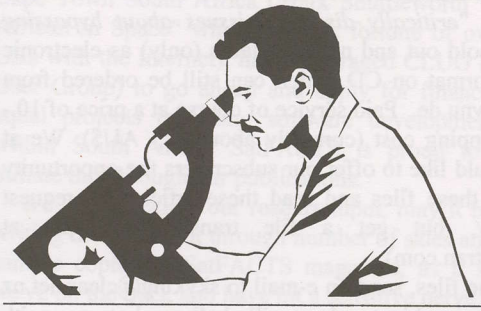
IN 2003 SDStv.com plans to introduce the first dual-band (1.2 & 2.4 GHz) personal and business full-fidelity wireless surveillance system



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detailed and informative that for a layman it was as easy as baking a cake by following the recipe in a cookbook.

No wonder that German police found at drug raids in German schools 13 - 15 year old kids dealing in unauthorised Premiere World Pay TV cards to finance their hobbies like computer games and others; funny enough .... fewer drugs were found in these raids and one wonders if this is to be rated as a positive aspect or not!

Like the "resistance" to SatFACTS publications there was some reaction to PC Direkt's articles but other than you might expect! The "Hackers" in an anonymous resolution wrote to PC Direkt and gave their comments ranging from "absolutely stupid" to "now we will see others also reporting about this too." Perhaps, they were mostly upset that "their" secrets had been exposed in such a commercial way.

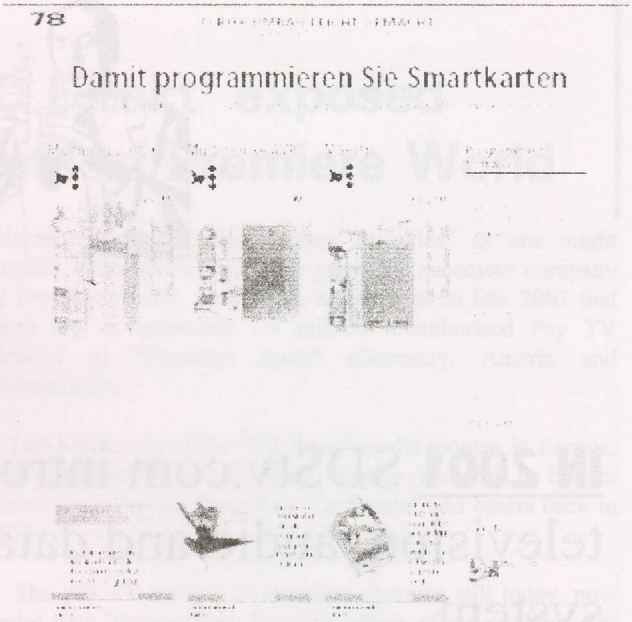
Well... PC Direkt management couldn't care less as their aim to increase profit margins crossed the "Break Even Point" in such a way that they had to reprint this particular issue of the magazine numerous times.

In March 2002 PC Direkt landed a second hit by publishing "How to crack d-box2 encryption."

PC Direkt's second publication was an instant winner!

This time they went even further than in the first publication. The same "Hacker" revealed all secrets of the d-box2, which was supposed to be Premiere World's answer on Pay TV piracy, LINUX Operating System of the d-box2, and again a recipe book like instruction on "How To" do things to watch Pay TV for free. The report consisted of six pages of fully illustrated information with introduction of hard and software, showing seriously detailed instructions on how to go on step by step.

One page, which contained information on smartcard programmers, even had a very naughty headline which translates as "*Program YOUR smart cards with this gadget.*"



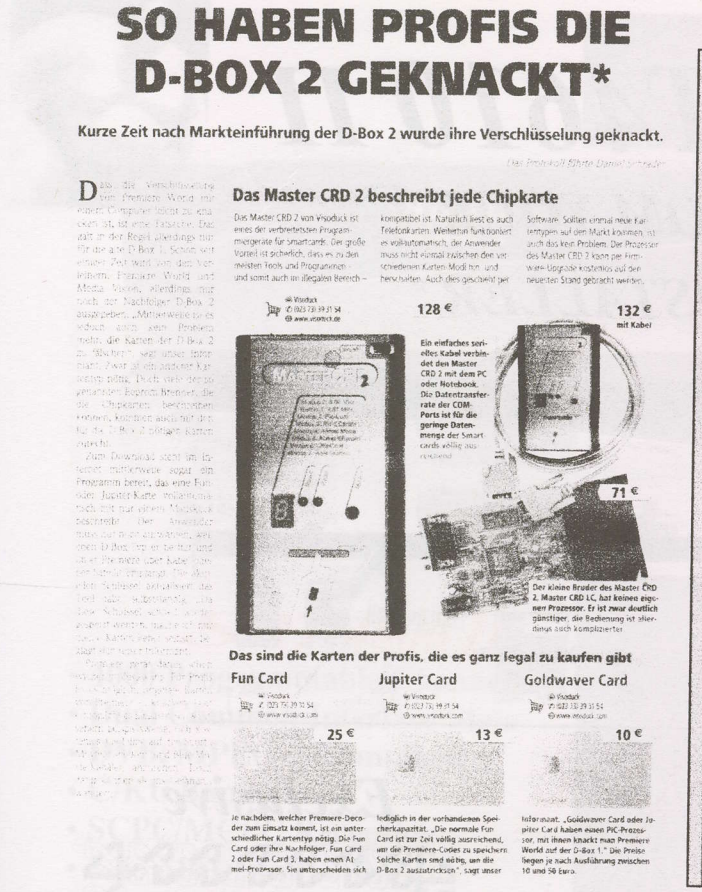
The devil at work: "Suggestive Headlines"

They virtually placed a little devil on the reader's shoulder who always whispered in their ear "*Come-on... you can do it, too*," "*Try it out, it's easy*," "*Others can do it... so do it too!*"

This time when the PC Direkt magazine hit the public, the whole edition was sold out within three days of delivery to the Kiosks (little street vending stands in Europe where you can buy hundreds and hundreds of newspapers and magazines as well as drinks and tobacco goods). Reprinted five times already, there is still a "demand" for this "instruction book" on pay TV hacking. And, SatFACTS found copies offered on Ebay, Germany's Internet Auction House Online, at about 400% of the original selling price and believe it or not.... "*Going, going ...Gone*" - it still does sell well!

SatFACTS tried to get these back issues directly from the publisher, VNU Business Publications, Munich, Germany but without any luck (as I mentioned before). In issue 03/2002 chief editor Thomas Jannot states in his editorial comments that all of the "*critically discussed issues about bypassing codes....*" are sold out and now available (only) as electronic files in PDF format on CD which can still be ordered from pcdirekt-abo@vnu.de. Paid service of course at a price of 10,- € inclusive shipping cost (currently about 20,- AU$). We at SatFACTS would like to offer our subscribers the opportunity to go through these files and read these articles on request (German only, but get a file translated on-line at http://www.systran.com).

To receive the files, send an e-mail to skyking@clear.net.nz with **PDF Files** as subject and we will gladly reply to you with the adequate file attached. We went as far as bidding for two of the PC Direkt magazines to be able to bring you this article and report "right from the horses' mouth." Print media / publishers are not as fortunate as politicians who make promises in their election campaign and after that never ever listen to the public and their general interest again until the next election comes up. The print media lives directly from you, the readers, and we listen what you would like to read about. This reflects daily newspapers and yellow press as much as it reflects on us with our publications for hobbyists and professionals. SatFACTS does not condone publications



SO HABEN PROFIS DIE D-BOX 2 GEKNACKT*

Kurze Zeit nach Markteinführung der D-Box 2 wurde ihre Verschlüsselung geknackt.

Das Produkt Ihrer Daten-Sicherheit

D

Das Master CRD 2 beschreibt jede Chipkarte

Das Master CRD 2 von Visoduck ist eines der verbreitetsten Programmiergeräte für Smartcards. Der große Vorteil ist sicherlich, dass es zu den meisten Tools und Programmen – und somit auch im illegalen Bereich – kompatibel ist. Natürlich liest es auch Telefonkarten. Weiterhin funktioniert es vollautomatisch, der Anwender muss nicht einmal zwischen den verschiedenen Karten-Modi hin- und herschalten. Auch das gleichzeitige Software. Sollten einmal neue Kartentypen auf den Markt kommen, ist auch das kein Problem. Der Prozessor des Master CRD 2 kann per Firmware-Upgrade kostenlos auf den neuesten Stand gebracht werden.

Visoduck
✆ (023 73) 39 31 54
www.visoduck.de

128 €

132 € mit Kabel

Ein einfaches serielles Kabel verbindet den Master CRD 2 mit dem PC oder Notebook. Die Datentransferrate der COM-Ports ist für die geringe Datenmenge der Smartcards völlig ausreichend.

71 €

Der kleine Bruder des Master CRD 2, Master CRD 1C, hat keinen eigenen Prozessor. Er ist zwar deutlich günstiger, die Bedienung ist allerdings auch komplizierter.

Das sind die Karten der Profis, die es ganz legal zu kaufen gibt

Fun Card

Visoduck
✆ (023 73) 39 31 54
www.visoduck.de

25 €

Je nachdem, welcher Premiere-Decoder zum Einsatz kommt, ist ein unterschiedlicher Kartentyp nötig. Die Fun Card oder ihre Nachfolger, Fun Card 2 oder Fun Card 3, haben einen AI mei-Prozessor. Sie unterscheiden sich

Jupiter Card

Visoduck
✆ (023 73) 39 31 54
www.visoduck.de

13 €

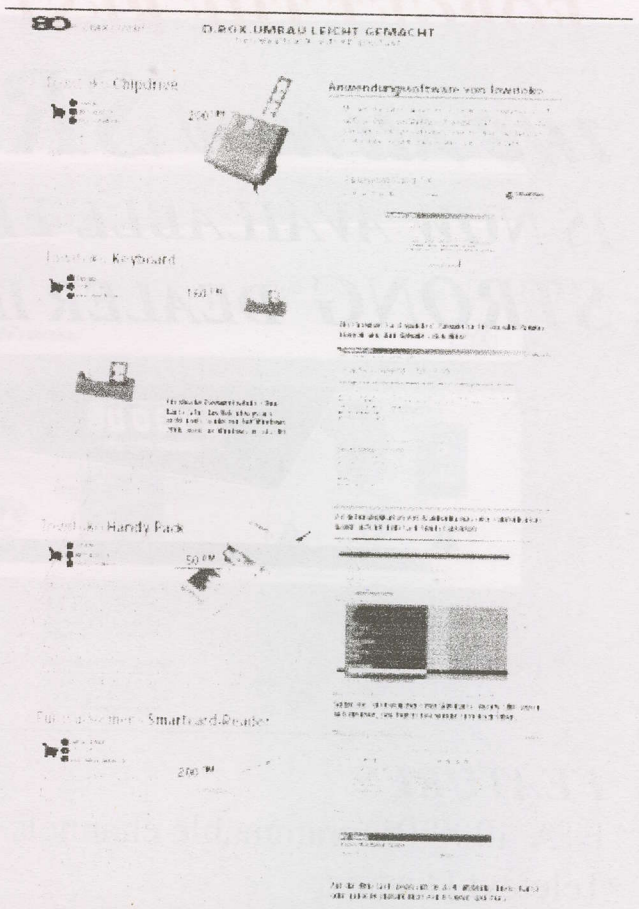
lediglich in der vorhandenen Speicherkapazität. „Die normale Fun Card ist zur Zeit völlig ausreichend, um die Premiere-Codes zu speichern. Solche Karten sind nötig, um die D-Box 2 auszutricksen", sagt unser

Goldwaver Card

Visoduck
✆ (023 73) 39 31 54
www.visoduck.com

10 €

Informant. „Goldwaver Card oder Jupiter Card haben einen PIC-Prozessor, mit ihnen knackt man Premiere World auf der D-Box 1." Die Preise liegen je nach Ausführung zwischen 10 und 50 Euro.



"This is how the professionals cracked the d-box 2" (left) explains three card options detailing cracking the system. Step by step hardware and software combinations (right) took away "all mystery."

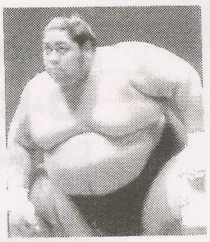
like the one by PC Direkt nor do we encourage any illegal activities. We do however encourage our readers to learn about new technologies by reporting about them and giving you the opportunity to access "information" that enhances your own skills.

After our reports about LINUX being used in Satellite TV STB (set top boxes) the "Mark Shuttleworth Foundation" Cape Town South Africa (Mark Shuttleworth was the "First African in Space" who made his fortune of over 20 million US$ with the Internet), has encouraged CLUG (Cape LINUX User Group) to go ahead and apply for financial support of equal projects regarding software development in LINUX within South Africa. SatFACTS is proud to have helped initiate this through our publications.

We do appreciate our readers input, may it be verbal or in writing or even input through number of sales and / or order of sample copies of SatFACTS magazine, as it shows us that we've on the track and have hit a sensitive nerve which attracts your interest. Thank you for giving us the opportunity to express the "Freedom of the press." (RD)

If you want the data - buy it on CD!

FORGET THE REST



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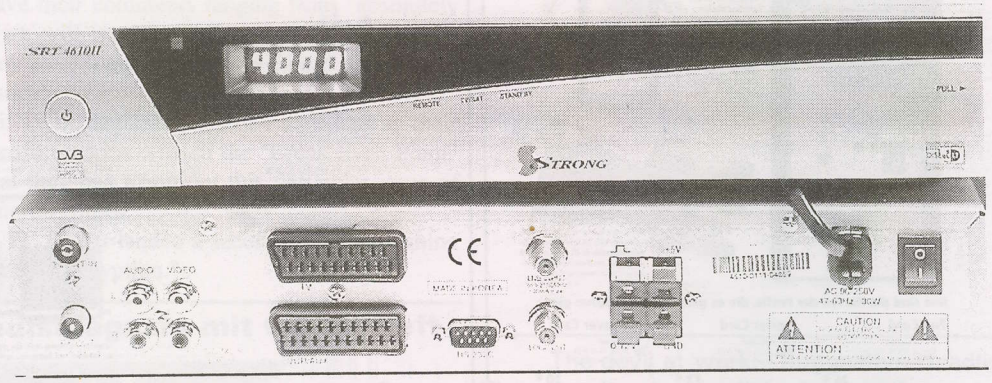
IS NOW AVAILABLE FROM YOUR STRONG DEALER INSTALLER.



FEATURES

FTA 4000 Programmable channels
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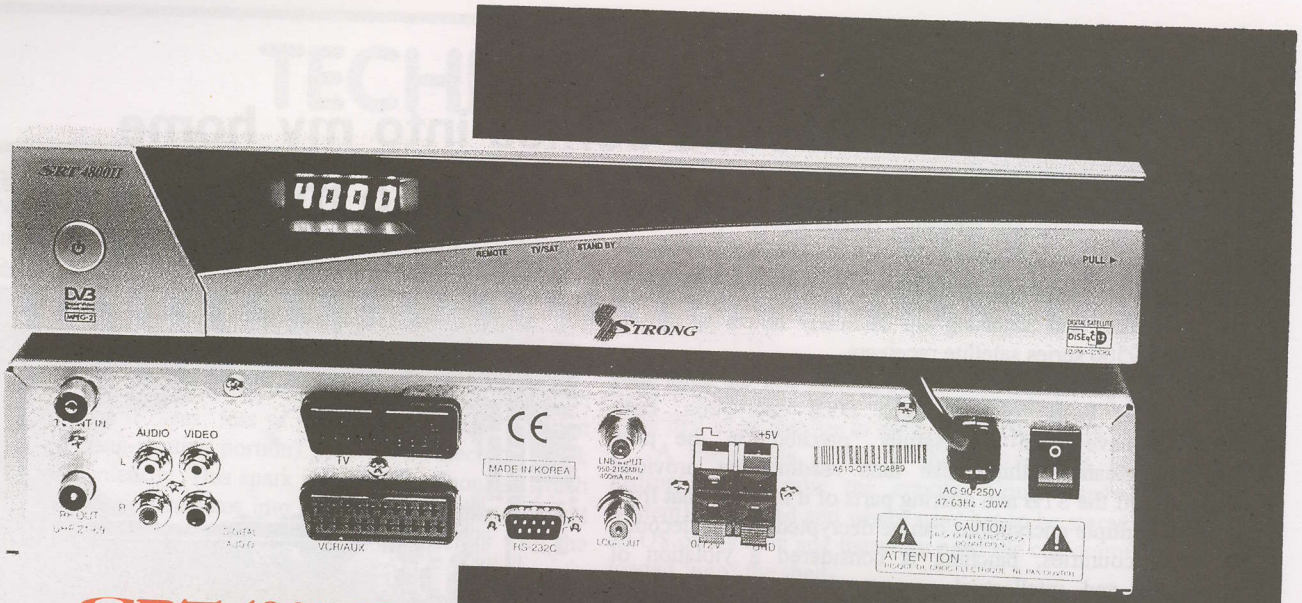

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- Upgradable Software
- Data Transfer Between Units
- Teletext
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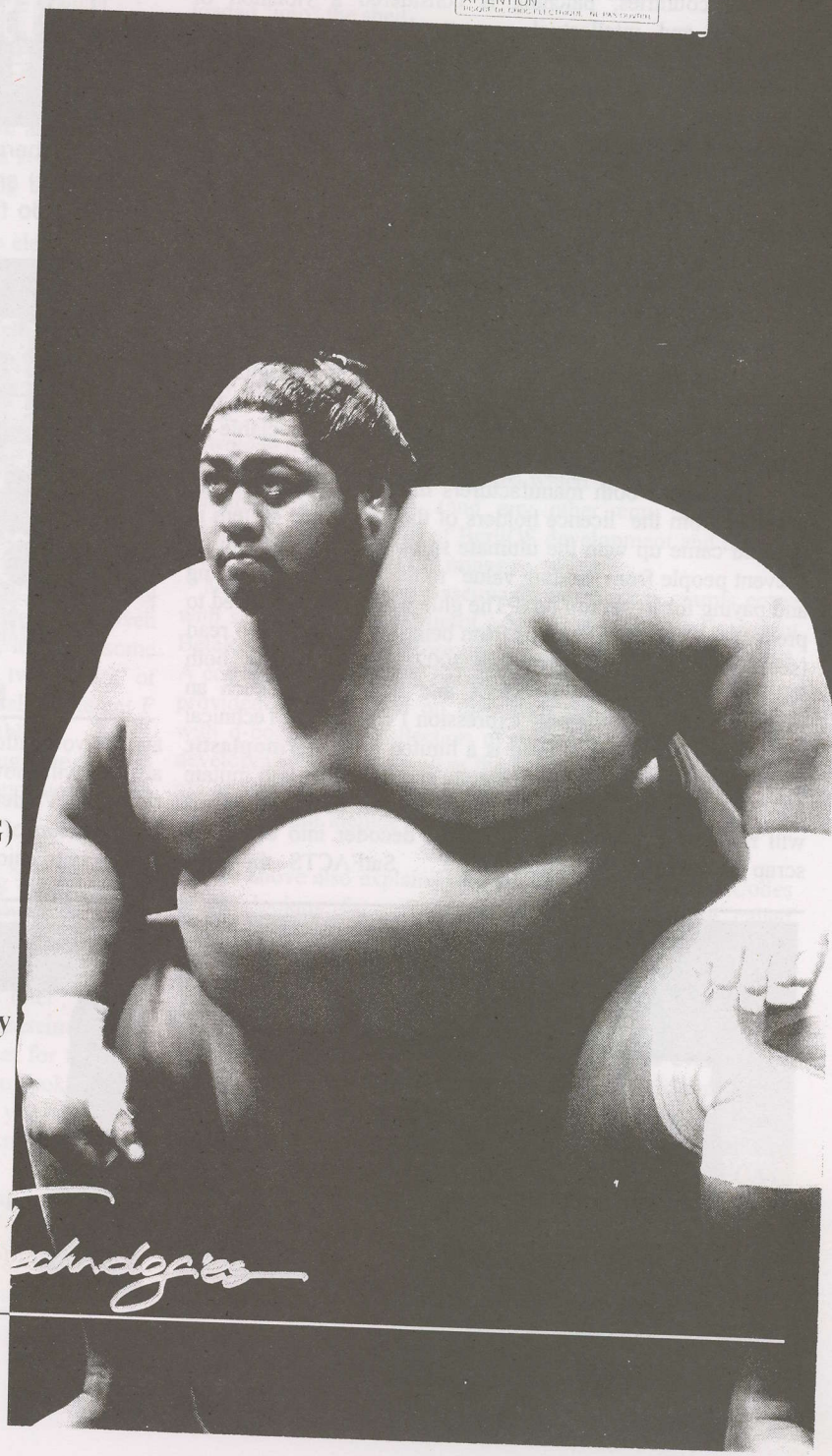
- Parental Lock
- Auto Power Back On
- PAL/NTSC Modulator
- 21-69 UHF PLL Modulator
- VCR Loop-Through on Stand-By
- Digital Audio Output
- Auto Voltage (AC 80-260V) SMPS



STRONG technologies

Stick it to the buyer ...

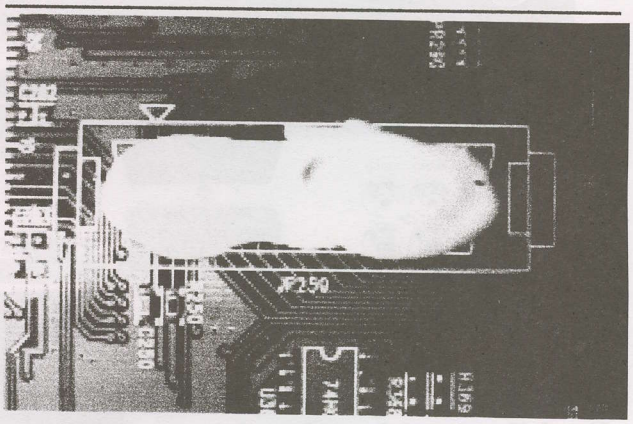
"And so this kid comes into my home and pours a can of cola into my IRD"

It is an open secret that HUMAX 54xx series STB are selling like hot cakes and Samsung are definitely following closely with their 9500 series satellite receivers.

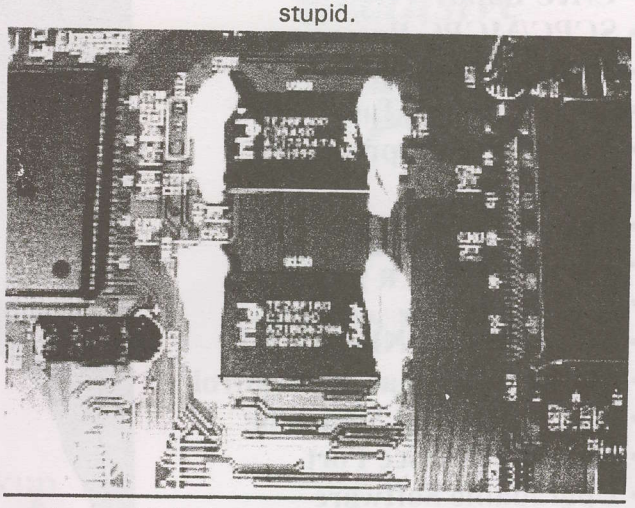
The first is an Irdeto embedded system and the latter uses Viaccess as basis for embedded DVB decryption. Both receivers have been successfully "patched" in the past. Patching means nothing else than reading the provided firmware off the STB and altering parts of it in a way that from now on multiple encryptions can be decrypted by this decoder. In some countries, patching is considered a violation of copyrights and intellectual property laws, although one definitely must hold in the "patcher's" favour that *value is added* to the capabilities of the box when code is altered to enhance the box value (see ruling of a Norwegian court on added value on DVD software "hacking," published by SatFACTS in January and February issues page 2, whereby the court ruled that "hacking" as charged by the Motion Picture Association of America was actually added value and therefore was not prosecutable; a DVD player was modified for use with a Linux operating system, an "added value" not previously available).

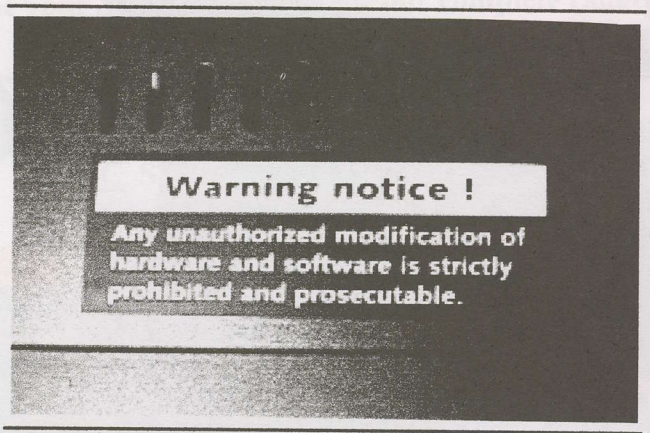
The HUMAX is wider spread and available in the AussiFoxy region with its hardware Irdeto support on the mainboard, whereby the Samsung is more Europe oriented but will definitely find the Pacific French services very sociable to establish its own fame in the Pacific.

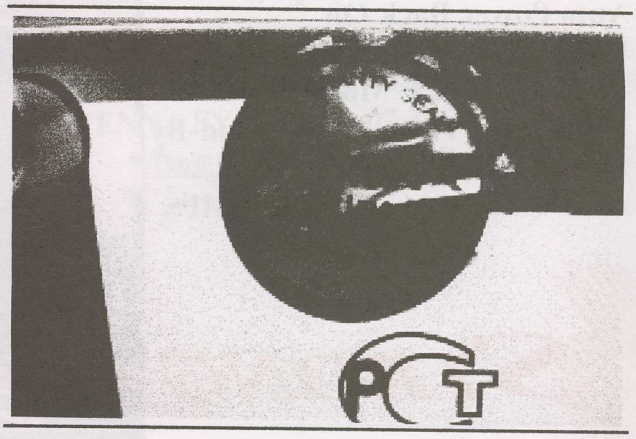
Nevertheless both manufacturers have been under severe pressure from the licence holders of the encryption system in use and came up with the ultimate stupid method of trying to prevent people from "adding value" to their own - after buying and paying for it- set top box! The glue which has been used to prevent the Flash RAM chips from being de-soldered and read (see SatFACTS issue November 2002) is now used by both Korean manufacturers, HUMAX and Samsung, in such an excessive way that the only expression I can use is "Technical Sabotage!" The material used is a limited time **thermoplastic glue** which, when not used correctly and carefully, will mutate into a glass-hard substance and again when tried to peel off will render the mainboard of YOUR decoder into computer scrap in return! Well done guys.... SatFACTS therefore awards you with the SatFACTS 2003 Sour Lemon Award and also we will show our readers in a future issue "How to..." get rid of this Viadeto© pattie to be able to load not a patched but legal version of LINUX (TUX on HUMAX) onto **your own property** to enjoy maximum viewing pleasure.



J250 thermoplastic (above), RAM "protected" (below) and case "Warranty Seal" at bottom. RAMs do fail and this "protection" is incredibly stupid.







TECHNICAL TOPIX

Ignition noise

"My satellite dish installed towards roadside has interference from passing cars. Would your SatFACTS 'Hard-core Manual TB9404' help me get rid of it?" Bob Tahir, Auckland

Ref 9404 - probably not as you vehicle ignition noise interference at C (or Ku) band is a "special case."

How special? Well, there are only two answers.

ONE - and the most logical, is to relocate the reception antenna so that it "sees" less of the traffic. Vehicles' ignition (the petrol firing-igniting portion) generate an electrical spark if significant intensity. This spark is rich in "harmonics" which the vehicle's wiring radiates into the air as short distance but powerful radio waves. Those radio waves interfere with the reception.

Your dish antenna is or should be rejecting the interference because (hopefully) it is not pointing directly AT the traffic. Above it is OK if above is ten or more degrees in elevation. If you are having this problem with a low look angle satellite, there is only one solution - move the antenna so that it is (a) further from) and / or (b) no longer pointing at or down a traffic flow pattern.

If your problem is with a higher look angle elevation signal (such as PAS-2 or PAS-8), then I suspect the coaxial cable between the LNB(f) and the receiver is in poor shape - either it was too cheaply produced and has poor electrical shielding, or, it has gotten old/nicked/cut or perhaps the F fitting at the LNBf end is corroded (old, tarnished by weather and oxidants) and needs to be replaced.

For a start, replace the LNBf end F fitting. If you have spliced the line from LNBf to receiver, consider replacing the entire line or at least take the splices apart and redo the fittings using a proper crimping tool to crimp the cable to the connectors.

If the line is not at least twin shielded (i.e. a tightly wrapped aluminium foil covered with some sort of webbed woven shield), replace it totally. If you do replace it, look for some QUAD SHIELD cable - with more than two layers of shielding. This cable will possibly require a totally different F connector format than the one commonly available.

In summary - either correct the pickup through the antenna (LNBf) or eliminate it through the feedline/connectors which are below standard.

d-box2 102

Background: Rolf Deubel has been assisting buyers of the d-box2 to locate and load the appropriate software to make their "toy" do the special things that only it is capable of doing. This is email text exchanged to that end.

"I have not found a Ingos version that is 1x Intel , they all seem to be 2x. Anyway, I have a AlexWx1_Baseimage ver 1.6.8 (18th Feb) It loaded, asks for IP to be set for the box, Done that. Now it asks for the cdk.cramfs ....you spoke of this and I always wish I could record everything you say - my memory is 1k sometimes. I downloaded a cdk.cramfs file (6.8 meg); is this a file for dual flash systems ?

"It says ....'Nun per FTP cdk.cramfs nach / tmp und Ucodes nach/ucodes hochladen OK'

"If I hit OK , ...'Ucodes wurden nicht (alle) hochgeladen Bitte Pruefen '.

"I think this means:

"Now by ftp cdk.cramfs after/tmp and after Ucodes /ucodes Ucodes high-load not (all) were high-loaded request examining.

"Can you put this in better English ?

Rolf's answers:

";-) First a smiley.... you are doing well and you actually have to go through all of this if you want to be a d-box2 Guru! Now first to all that has to do with AlexW images!

A Baseimage is like a shell; it consists of all major instructions on how the cramfs (Compressed RAM File System) is handled and where what has to be stored! It is NOT an OS on it's own and therefore need the cdk.cramfs file to be loaded "into" the shell.

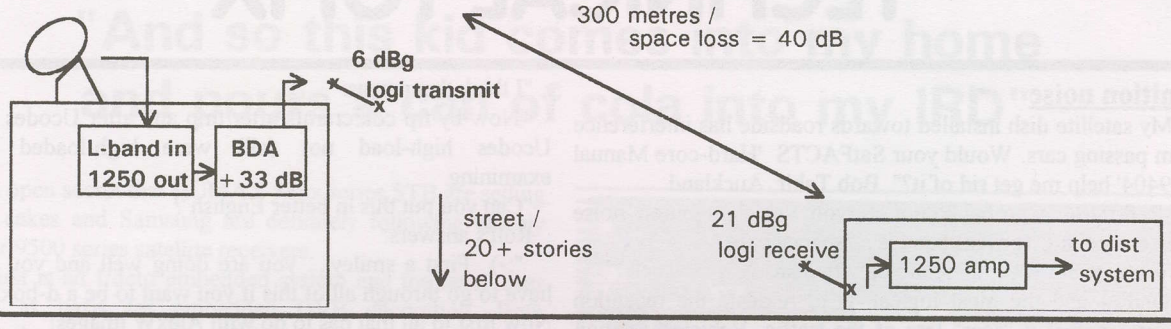
"This is what happened to you.... you loaded the Baseimage and the Baseimage then requested the appropriate cdk.cramfs which goes with it! Not to worry.... just look on the web for the matching cdk.cramfs and load it into the d-box2 if you really want to try this OS out. Remember that Baseimage and cdk.cramfs are already compiled and you are VERY limited in actions you can take..... the complete OS consists of a cramfs and a jeffs the latter is fully accessible through FTP (read / write) whereby the first is read only!!! That is why - should you wish to go deeper into the d-box2 LINUX programming - you need to get ahold of the source and then work on the source files (programmed in C++).

By the way.... the same above applies for the Dreambox as well..... so it is definitely worth looking at it! I can give you the download links for the sources. I also have the sources for G-box which is a plug in as you certainly know. G-box (and any other emu plugins like newcamd) are NOT part of BerliOS development and therefor NOT supported by AlexW images.

Now secondly.... The Baseimages nor the cdk.cramfs come with so called uCode (MicroCode). This uCode is Copyright BetaResearch and therefore not openly offered for download. A company like BerliOS can certainly NOT place it in images provided for download on their web site. Any guy involved with d-box2 has a collection of different uCodes in various development stages as well as the C-Cube video drivers for the gtx and enx versions used. I will make you the CD I promised to provide and include all the goodies so you can "play" a bit more.

"The above also explains why the box didn't find the uCodes it was looking for. Part of the uCodes is a file called cam-alpha.bin which is the software CAM for the BetaCrypt system used in Germany. You may want to have a look at it (into it ;-)) but may find it pretty useless as it expects all your smart cards used in the original card readers to be CAID 1702 or 1722 (BetaCrypt DVB registered CAID) and even if you should be able to modify it in a way that it would work with normal Irdeto CAID cards i.e. 0600 it is definitely worth less than G-box which can now decrypt (100% working) all the following systems: Irdeto1, Irdeto2, BetaCrypt, SECA1, SECA2, Viaccess1, Viaccess2, NagraVision, Conax, Cryptoworks, VideoGuard (NDS).

So, why worry about the "old" original file (which still needs to be present in cramfs for bootup)?



Crossing streets

"I have a situation where in a CBD (Central Business District) my company has leased building-top space for a number of satellite dishes. We use these dishes to feed into a full-building RF distribution system that begins near 50 MHz and carries through to 2,100 MHz. Into this 2050 MHz of cable bandwidth we place off-air terrestrial analogue, off-air terrestrial digital, local FM radio (all on their original FTA transmission frequencies) plus a variety of satellite received packages. Some of these are analogue (received with analogue receivers, demodulated to baseband video and audio and then dropped into the system as analogue PAL signals tuneable by either TV sets or through set-top cable-family tuning devices on new cable-only channels), some are received as digital signals from one of several satellites our building top dishes intercept, and then fed at L-band through the cable network (which consists of passives and active amplifiers) to in-office installed standard L-band digital STBs.

"It happens that one of these service channels, a financial news service, is desirable in a building less than 300 metres away but across a busy CBD street some 20+ stories below. Option one is to demodulate the channel, convert it to analogue, and 'squirt' it (perhaps on UHF) across the street 300 metres to a receiving antenna placed on the second building, process that signal with CATV processing equipment and then drop it into a second (not connected to the primary building) cable distribution system.

"Another option is to take the digital format L-band signal from building one and process it with a single channel/transponder amplifier, and having done so, connect this amplifier output to a L-band transmitting antenna and squirt this across 300 metres of 20 story high 'space' to a receiving antenna located on the second building. There it can be reamplified as an L-band signal and dumped into the cable distribution system (also 50 - 2100 MHz) which serves the second building. All of this is to avoid having to install a sizeable C-band antenna on building two and processing a satellite signal which consists of a single desirable and financially important channel for secondary distribution in the second building. Will this work?" (Installer, Sydney)

The answer here could well be the SDS.tv BDA amplifier. If you process the single transponder (call it 1250 L-band) through a L-band processor, and return it at the output to 1250 MHz (which mirrors the input frequency), all other L-band signals from that particular satellite will be eliminated. At this point only the 1250 centre-frequency 27/36 MHz wide transponder remains. Connect this now to a BDA amplifier and then feed it to a 6 dB gain SDS.tv directional logi antenna which points from building one across the street to building two. At building two, install a SDS.tv 21 dB gain "active yagi" which will take the "squirted" signal at 1250 MHz and allow you to dump it directly into a cable distribution network on the original L-band frequency. The BDA at the transmit end can be "powered" with a receiver that simply provides 18VDC but otherwise does nothing for the signal; the receive-side Active Logi similarly would be powered with a satellite receiver through a power injection splitter . The signal "loss" in 300 metres of air, between building "1" and building "2" will be in the region of 40 dB which means the 33 dB gain BDA plus the 6 dB gain of the transmit logi plus the 21 dB gain of the receive yagi will produce (33 + 6 + 21) 60 dB of circuit gain versus the 40 dB of free-space circuit loss; net result: +20 dBg over the circuit, above and beyond what you begin with at the input to the BDA.

More - ignition noise

"Why when my neighbour uses his weedcutter or gasoline engine propelled mower does my digital satellite reception break up going to 'tiles' and generally disappearing? My antenna looks across his property and this is especially troublesome when I am pointed at As2 or As3?" (LG, Sydney)

It is a subject previously covered. A gasoline engine requires a spark to ignite the carburettor's mixture of fuel and air. The spark is electrical, created by a coil of wire driven by a small electrical generator. The same principal applies to auto and truck engines only they have more cylinders (spark plugs) than the typically single cylinder law machine.

Sparks generated by the ignition coil are 'square waves' which means that generate a wide range of frequencies roughly at harmonics of the original spark 'frequency'. A harmonic is a replica of the original spark, only it will be in a frequency range capable of interfering with normal terrestrial radio and TV reception.

When Marconi perfected the original radio transmission system, he was using a very large version of the 'sparking coil' found in your neighbour's weedcutter or lawnmower. His 'sparks', keyed and unkeyed using a Morse Code format, were fed into a monstrous antenna which in turn radiated or sent these sparking radio signals into space. A lawnmower or weedcutter generates the same pulses as Marconi and the short electrical wires that connect the sparking coil to the spark plug act as an 'antenna' radiating (transporting) the sparking of the machine into the air around it.

The repetition rate of the spark is aligned to the RPM or revolutions per minute of the engine. The more gas the operator 'pours on' the faster the sparks fly and the more rapid the spark discharges. Each spark is a pulse of radio energy, rich in harmonics which extend well into the SHF (microwave) frequency region. Thus a lawnmower or weedcutter located

however briefly below a satellite dish or within say 100-200 feet of the dish 'sees' these sparks as interfering radio energy. Digital TV transmissions are in particular very vulnerable to "sparking interference" and in fact DVB-T (terrestrial digital TV) is even more prone to break-up than the satellite version of digital.

One solution is quad-shielded cable - more layers of copper or aluminium shielding to absorb the sparking interference before it reaches into the cable to the copper/copper coated centre conductor. But that assumes the sparking energy is getting into your system at L-band (the frequency used between your LNB/f and your receiver) when in fact it is most probably occurring at C (or even Ku) and entering your system via the dish, feedhorn and LNB/f input (rather than the L-band output line).

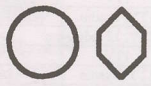
F connector crimping

"I have read back issues of SF and wonder why you seem to dogmatic about using a crimping tool which as you describe it, 'is designed for the particular F fitting model you have in hand'. " (Charles T. Tasmania)

Ahh yes, the old "when is an F fitting properly crimped" saw. All fittings, F or otherwise, are supposed to emulate (duplicate) the "impedance" of the cable. If they do not, you have something bad called an "impedance bump" at the point where the connector and the cable "merge." An "impedance bump" is a point where the nominal 73/75ohm RG6 cable meets something that is not 73/75 ohms impedance and when this happens, some of the energy being transported through the cable literally 'bounces" - backwards back towards the source (LNB/f). This energy is "lost" - it never reaches the receiver.

The only way to assure there is no "bump" is to make the mechanical transition between the fitting and the cable as "electrically seamless" as possible. That means the connector "folds gently into and around the cable's shield making electrical contact between the shell of the connector and the shield of the cable for the complete 360 degree circle.

A crimping tool forms the metal shell of the connector to the cable shield. If the crimper is designed to create a "star" pattern rather than a fully compressed circular pattern, the electrical connection between connector shell and cable shield is in "spots" - 5 or 6 points rather than for a complete cable-emulating circle. In the drawing here, the left hand "circle" forces the F connector shell to touch, electrically connect to, the full wraparound shield of the cable. In the right hand "crimp" the cable and shield touch together at only 6 points, resulting in not only impedance bumps but opportunities for water to leak down into the fitting as well. Neither is desirable.



good bad

So an improperly "crimped" or "sized" F fitting is more than simply a nuisance; it disturbs the often very delicate impedance transformation segment of a receive system which introduces signal reflections on the transmission line. These, in turn, raise the bit-error rate of the energy passing the impedance "bump" by creating new, secondary, signal flows that bounce first backwards towards the LNB and then start again down the line heading for the receiver - all at the speed of light. Add to that the increased opportunity for moisture (rain, dew, bird crap) to "leak" into a fitting (because the fitting is not tight) and you have multiple reasons for using the correct fitting and the correct crimper at all times.

The SatFACTS Parts Store

Pieces and parts which relate to prior articles detailing conversions of various d-box/Humax receivers

✓ **d-box2 stock**, standard/not modified. You do the conversions (SF#101). US$599 + US$70 air shipping (A$1137 at this time).

✓ **d-box2** + LINUX + GBox Multicrypt Plugin + COM2 Board + EMU Plugin + preset for Australia (for legal and ethical reasons, no keys included!); SF#101. US$999 + US$70 air shipping (A$1817 at this time)

✓ **Nokia 9500-S** (or equivalent) with Beta8 Antares patch installed, Australian settings, FatCAM (ready to modify; SF#97). US$399 + US$70 air shipping (A$797 at this time).

✓ **Nokia 9500-S** with all 9500-S (above) + AMON4.3 CAM patch (SF#95/96/97). US$499 + US$70 air shipping (A$967 at this time).

✓ **Z-Board to patch 54xxZ (SF#98/99); US$195**

✓ **COM2 Multicrypt board** (specify which d-box2 model [brand] you will use with; i.e. Sagem, Nokia, Philips); SF#101. US$60 inclusive of shipping (A$102 at this time).

✓ **Flash RAM chip** (d-box1) 1MB 29F800 (SF#95); US$29(*)

✓ **2MB RAM chip** (d-box1) to upgrade RAM to 3MB (SF#96); US$25 (*)

✓ **AC3 Dolby** Digital Kit for Nokia (SF#100); US$39 (*)

✓ **AMON4.1/4.3 kit** for CAM (SF#97); US$39 (*)

✓ **MOLEX JP250 socket** (Humax 54xxZ) (SF#98/99); US$25 (*).

✓ **Needle Set** for Humax 54xxZ needle board (SF#99); US$40 (*)

* - plus typical US$5 per order air postage fee

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SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 March 2003

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym	Receivers and Errata
Thcm3/78.5	SkyChAust	3695/1455H	up to 3	3/4	5(.000)	CA (#1, 3); FTA audio #2 (dm)
	Indiavision	3685/1465H	1	3/4	6(.830)	Tests Jan 2003; not permanent
	MRTV-Myn	3676/1474H	1	2/3	6(.000)	erratic service
	Korean Central	3665/1485H	1	2/3	3(.367)	Global footprint; changes 02/03.
	TARBS ME mux	3640/1510H	12TV, 12 radio	3/4	28(.066)	CA + 2 FTA(A1TV, IRB3)(DM)
	Mahar mux	3600/1550H	11TV, 1 rad	3/4	26(.667)	Thai + Indian services; FTA (DM)
	SE asia Mux	3569/1581H	2+ TV	3/4	12(.500)	MRTV3, MRTV (DM)
	Nepal TV+	3554/1596V	3+ in mux	3/4	13(.333)	FTA + CA mux
	RR Sat mux	3551/1600H	8TV,10 radio	3/4	13(.333)	3TV, 5radio currently in use (DM)
	JAIN TV	3538/1612V	1TV	3/4	3(.300)	PIDs 4132/4133
	PTV1 +	3521/1629V	1TV, 1 radio	3/4	3(.333)	frequency change
	TARBS	3520/1630H	12TV, 12 radio	3/4	28(.066)	Feeds to TARBS Australia and PAS-8 (DM)
	TVK Cambodia	3448/1702H	1TV	1/2	6(.312)	**FTA**
	TARBS/Th5	3480/1670H	12 TV+radio	2/3	26(.667)	**3FTA**: TV5, VTV4m ATN Bangla (DM)
	KCTV/Korea	3424/1726H	1TV	2/3	3(.366)	Not 24 hour
	Thai Global	3425/1725V	up to 7?	2/3	27(.500)	FTA (reaches SE Australia)
InSat 2E/83	**ETV mux**	4005/1145V	6+ TV	3/4	27(.000)	Several ETV now here; wide beam
	Hyd Dig 2E	3910/1240V	1	3/4	5(.000)	SCPC, OK E. Aust. wide beam
	Kairali TV	3699/1451V	1	3/4	3(.184)	SCPC, OK E. Aust wide beam
	Indian mux	3643/1507V	3	3/4	19(.531)	New 07/02; corrections 12/02
	ETV Mux#2	3485//1665V	4+TV	3/4	27(.000)	Several new ETV here; Asia beam
	Sky Bangla	3430/1720V	1TV	3/4	6(.000)	New - November 2002
ST1/88E	MMBN	3632/1518V	12TV	3/4	26(.667)	Nagravision, some FTA; erratic
NSS6/95E	Tests	12.600H	?	5/6	30(.000)	Test signals noted January 2003
As2/100.5E	**Shandong TV**	4070/1080H	1TV	3/4	6(.811)	New - October 2002
	Euro Bouqt	4000/1150H	6TV, 21r	3/4	28(.125)	FTA TV + radio
	5-Star Med	3951/1199H	3TV	3/4	13(.185)	Macau MUX
	Reuters News	3905/1245H	1TV	3/4	4(.000)	Was 3923H; sometimes **FTA**
	WorldNet	3880/1270H	4+/28radio	1/2	20(.400)	FTA; multiple audio services
	Hubei/HBT	3854/1296H	1	3/4	4(.418)	FTA SCPC, teletext, 2 radio
	Hunan/SRT	3847/1303H	1	3/4	4(.418)	FTA SCPC, teletext
	Guan./GDT	3840/1310H	1	3/4	4(.418)	FTA SCPC, radio APID 81
	In. Mongolia	3828/1322H	2	3/4	8(.397)	FTA: #1 Mongolian, #2 Mandarin
	APTN Asia	3799/1351H	1	3/4	5(.632)	Sometimes **FTA**; also 3895Vt
	Reuters/Sing.	3775/1375H	1	3/4	5(.631)	**FTA** & CA
	Liaonin/Svc2	3734/1416H	1	3/4	4(.418)	FTA SCPC, radio APID 256
	Jiangx/JXT	3727/1423H	1	3/4	4(.418)	FTA SCPC, teletext, radio APID 81
	Fujian/SET	3720/1430H	1	3/4	4(.418)	FTA SCPC, + radio APID 80
	QinghaiTV	3713/1437H	1	3/4	4(.418)	FTA SCPC, + 2radio (APID 80)
	Henan/Main	3706/1444H	1	3/4	4(.418)	FTA SCPC, + radio
	Egypt/Nilesat	3640/1510H	7+, radio	3/4	27(.850)	Thru TARBS Aust, occ. **FTA**
As2/100.5E	**Macau MUX**	4148/1002V	5TV	3/4	11(.850)	5 chs TV, FTA, some tests
	Feeds	4086/1064V	1	3/4	5(.632)	FTA SCPC feeds
	Dubai MUX	4020/11430V	4+, radio	3/4	27(.500)	FTA including sport
	Jilin Sat TV	3875/1275V	1	3/4	4(.418)	FTA SCPC, + radio
	Shanghai BN	3846/1304V	1	3/4	4(.800)	V1110, A1211 + 2 radio ; FTA Jan 2003
	HeiLongJian	3834/1316V	1	3/4	4(.418)	FTA SCPC
	JSTV	3827/1323V	1	3/4	4(.418)	FTA SCPC, + radio
	Anhui TV	3820/1330V	1	3/4	4(.418)	FTA SCPC + radio
	ShaanxiQQ	3813/1337V	1	3/4	4(.418)	FTA SCPC, radio APID 81
	Guan/GXTV	3806/1344V	1	3/4	4(.418)	FTA SCPC, radio APID 257
	Fashion TV	3795/1355V	1	3/4	2(.533)	Now Viaccess version 2 CA
	Myawady	3766/1384V	1	7/8	5(.080)	FTA SCPC - difficult to load
	Saudi TV1	3660/1490V	7+/tests	3/4	27(.500)	FTA MCPC; Yemen, MBC Europe tests
As3S/105.5E	Telstra I-Net	12.596V	no TV	5/6	30(.000)	Signal useful for dish testing - no TV
	Zee bouquet	3700/1450V	10TV	3/4	27(.500)	Mediaguard (SECA) CA; 2 FTA
	Macau MUX	3713/1437H	2TV	3/4	5(.868)	New June 2002; low res MUX
	Arirang TV	3755/1395V	1	7/8	4(.418)	FTA SCPC; audio now OK
	Now TV +	3760/1390H	up to 8TV	7/8	26(.000)	CA + NOW, B'berg, Indus FTA
	Star TV	3780/1370V	15(+)TV	3/4	28(.100)	NDS CA (Pace DVS211, Zenith)
	Star TV	3860/1290V	21(+)TV	3/4	27(500)	NDS CA (Pace DVS211, Zenith)
	Star TV	3880/1270H	20(+)TV	7/8	26(.850)	NDS CA (Pace DV211, Zenith)
	HK Mux	3900/1250V	2+TV	7/8	27(.895)	FTA PAL + occ. feeds and CA
	Star TV	3940/1210V	7(+)TV	7/8	26(.850)	NDS CA as above
	CNNI	3960/1190H	8(+)TV	3/4	27(500)	PowVu CA; new SR Apr 29
	StarTV	3980/1170V	12+TV	3/4	28(.100)	NDS CA (Pace DVS211, Zenith)
	Star TV	4000/1150H	9(+)TV	7/8	26(.850)	NDS CA w/ **4(Chinese) FTA**
	Sahara digital	4020/1130V	8TV	3/4	27(.250)	New 12-02, FTA tests
	Sun TV	4095/1055H	1	3/4	5(.554)	"History Channel" testing SCPC
	CCTV bqt	4129/1021H	4(+) TV	3/4	13(.240)	moved from 4115
	Zee Bqt #2	4140/1010V	8(+) TV	3/4	22(.000)	Mediaguard (SECA) CA
Cak1/107.5	Indovision (S-band)	2.536, 2.566, 2.596, 2.626	33(+) TV	7/8	20(.000)	NDS CA using RCA/Thomson, Pace IRDs
T'Kom/108E	**IndoBqt**	3460/1690H	up to 6	3/4	28(.000)	also 3586H/17.500, 3496H/19.615
C2M/113E	**TPI**	4185/965V	1	3/4	6(.700)	FTA SCPA; NT/NC only
	Anteve	4144/1006V	1	3/4	6(.510)	change from 4055V; FTA SCPC

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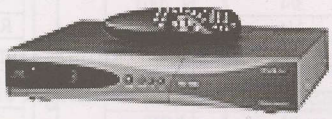

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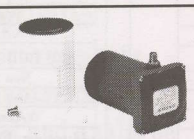

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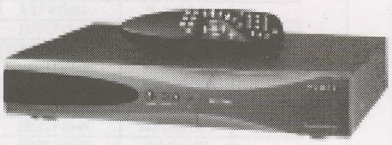

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Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	Receivers and Errata
(C2M)	**Indo Mux**	4080/1070H	5+ TV	3/4	28(.125)	Global TV - frequent changes in lineup
	Indosiar	4074/1076V	1	3/4	6(.500)	FTA; solid on 3.5m in New Caledonia
	SCTV	4048/1102V	1	3/4	6(.618)	FTA SCPC; NT/NC only
	Indone.Mux	4000/1250H	6+TV	3/4	26(.085)	unstable platform - testing?
	Satelindo	3935/1215H	1TV	3/4	6(.700)	Test card only reported
	Bali TV	3926/1224H	1TV	3/4	4(.208)	Returned to air Nov. 2002; V33, A36
	Indo. MUX	3880/1270H	3+ TV	7/8	28(.121)	FTA; Sr, FEC change 01/03
	GlobalMUX	3760/1390H	up to 11 TV?	7/8	28(.121)	Test cards (11); new Sr, FEC -1/03
	Brunei/Sing	3733/1417H	1TV	3/4	6(.000)	FTA; share time, Brunei-23hrs,Sing1h
	TBN/Trinity	3727/1423H	1 TV	3/4	3(.000)	New PIDs 02/03: V177, A180
	Unknown	3605/1545H	1TV	3/4	2(.900)	Tests-multi-screen, may have no video
	RCTI	3473/1677H	2	3/4	8(.000)	FTA SCPC, Australia, NC OK
	Myawad TV	3706/1444H	1	3/4	5(.924)	may be test; svc has been erratic
Jc3/12	Miracle Net	3996/1154V	3 up to 6	5/6	22(.000)	PowVu, some **FTA** (ch # 1,3)
	Asian bqt	3960/1190V	up to 8	7/8	30(.000)	CA & **FTA** NTSC: Japan, Taiwan
Jc28/54	**BYU tests**	3.915/1245V	2	3/4	3(.425)	not fulltime; very strong NZ, Aust
MeaSs2	New Mux	12.532H	17	3/4	41(.500)	New Sept 2002, unknown source
	Astro Mux	11.602H	up to 17TV	3/4	41(.500)	Aust East beam - **3 FTA** + 14 CA
	VTV MUX	11.522Vt	3 TV	3/4	9(766)	WA only? Skew path, intended Asia
B3/156	**Mediasat**	12.336V/T2	12TV, 7radio	2/3	30(.000)	Hungary Duna new; Dutch BVN soon
	Aurora	12.407V/T3		2/3	30(.000)	Aust, NZ 90 cm
	Aurora	12.532V/T5		3/4	30(.000)	Aust only; changein FEC
	Aurora	12.595V/T6		2/3	30(.000)	Possibly Aust + NZ; FEC change
	Aurora	12.657V/T7	data only?	3/4	30(.000)	Aust only; in transition
	Aurora	12.720V/T8		3/4	30(.000)	Aust only; - smart card p. 26
	Austar	12.313H/T9	iTV + here	3/4	30(.000)	Austar Interactive + demos), p. 29, SF#97
	Austar/Optus	12.376H/T10		3/4	29(.473)	CA, subscription available Australia
	Austar/Foxtl	12.438H/T11		3/4	29(.473)	CA, subscription available Australia
	Austar/Foxtl	12.501H/T12		3/4	29(.473)	CA, subscription available Australia
	Austar/Foxtl	12.564H/T13		3/4	29(.473)	CA, subscription available Australia
	Austar/Foxtl	12.626H/T14		3/4	29(.473)	CA, subscription available Australia
	Austar/Foxtl	12.688H/T15	(some FTA ra)	3/4	29(.473)	CA, subscription available Australia
B1/160	**ABC NT fd**	12.258V	1TV, 3 radio	3/4	5(.026)	V832, A833; occ. drops power 10dB
	ABC feeds	12.317H	1	3/4	6(.980)	also 12.326, 12.335; ex PAS8 Ku
	Net 7 service	12.397H	1	3/4	7(.200)	Full schedule less commercials
	Central 7	12.354H	1TV + 1 radio	3/4	3(.688)	V1280, A1281; occ. 2nd TV ch
	Imparja mx	12.379H	2TV + 8 radio	3/4	5(.424)	V1024, A1025, P1024; also try 12.360
	7 digital feeds	12.397H	1TV	3/4	7(.200)	Occ digital feeds, FTA
	Feeds to NZ	12.411V	1 TV	3/4	6(.111)	NTSC; sport feeds USA-Aust-NZ
	Sport feeds	12.420V	1	3/4	6(.110)	Weekend footy feeds reported-FTA
	Mediasat#3	12.424H	3+ TV	2/3	19(.800)	
	TVNZ DTH	12.456/483V	4+TV	3/4	22(.500)	FTA 4 channels (TVNZ x 4)
	Nine Net	12.512H	1 TV typ	3/4	5(.632)	testing digital feeds; Sr may be incor
	Sky NZ	12.519/546V	7TV/7TV	3/4	22(.500)	NDS CA, subscription available NZ
	Sky NZ	12.581/608V	6TV/6TV	3/4	22(.500)	NDS CA, subscription available NZ
	Sky NZ	12.644/671V	9TV	3/4	22(.500)	NDS CA, subscription available NZ
	ABC HDTV	12.603H	5TV	7/8	14(.300)	also 12.626, 643, 670, 688, & 706H
	Sky NZ	12.707/733V	8+TV	3/4	22(.500)	NDS CA, subscriptions available NZ
	Mix 106.3	12.574H	1 radio	3/4	1(.851)	Radio SCPC; was 12.570Hz
P8/166	**ABC A-P**	12.284H	1TV, 2 radio	5/6	5(.858)	Feed, Adelaide; not permanent; was 12.301Hz
	TARBS3	12.326H	13TV + radio	3/4	28(.066)	TPG/EurodecMDS CA, occ. FTA
	TARBS	12.526H	13TV + radio	3/4	28(.066)	TPG /Eurodec MDSCA, **radio FTA**
	TARBS2	12.606H	13TV + radio	3/4	28(.066)	TPG/Eurodec MDS CA, **TRT FTA**
	TARBS5	12.646H	testing	3/4	28(.066)	TPG/Eurodec MDS CA
	TARBS4	12.726H	13TV + radio	3/4	28(.066)	TPG/Eurdec MDS CA, **Thai TV, FTA**
	JEDI/TVB	12.686H	11+ TV	3/4	28(.126)	June 2002-Irdeto-2 CA
	ABC A-P	4180/970H	2TV, 2 radio	3/4	27(.500)	Datcline west, east PAS2, 3901
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(.125)	PowVu CA
	NHK Joho	4060/1090H	7TV, 1 radio	3/4	26(.470)	PowVu CA & **FTA**; subscription avail
	FOX MUx	4040/1110V	up to 5TV	7/8	26(.470)	was PAS-2, previously 2992Vt
	ESPN USA	4020/1130H	8 TV, data	3/4	26(.470)	PowVu CA, ch 11 DCP-CCP bootload; new FEC
	Discovery	3980/1170H	8 typ.	3/4	27(.690)	PowVu/CA (some audio **FTA**)
	CalBqt/Pas8	3940/1210H	up to 8TV	7/8	27(.690)	PowVu CA & **FTA (EWTN +)**
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)	FTA at this time
	FilipinoMUX	3880/1270V	up to 8TV+radio	3/4	28(.694)	**Myx FTA** V1960, A1920 + radio FTA
	TaiwanBqt	3860/1290H	12TV + 30 r	5/6	28(.000)	Soundtrack + others FTA; Z-TV CA (02/03)
	CCTV Mux	3839/1311H	up to 4	3/4	13(.240)	PowVu FTA, replaces PAS-2 svc
	TVBS-N	3836/1314V	**1FTA**, 4+ CA	3/4	22(.000)	Difficult because of CCTV cross pole
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(.632)	was As2; PowVu CA
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)	PowVu, CNN/CNNI now CA
	Discovery Asia	3769/1381V	Upto 5 TV	3/4	13(.240)	PowerVu; Asian MUX
	MTV	3740/1410H	8	2/3	27(.500)	#2, 8 **MTV China FTA (V0385, A0386);** rest CA
P2/169E	P2/169	12.281V	2+ TV, radio	2/3	27(.500)	PowVu CA, WIN, ABC NT
	WA PowVu	12.637(.5)V	4TV, 8 radio	1/2	18(.500)	PowVu CA, WA only - D9234
	TARBS	4087V	9TV + radio	3/4	21(.000)	New Sept 2002; TARBS input links
	TVB(S)	4020/1130V	1TV	3/4	6(.620)	feeds to (USA) pay-TV
	Feeds	3966/1184V	1	2/3	6(.620)	PowVu (FTA) occ feeds
	Feeds	3957/1193V	1	2/3	6(.620)	PowVu (FTA) occ. feeds
	Feeds	3929/1221V	1	3/4	10(.850)	PowVu (FTA) occ sport feeds
	Feeds	3912/1238V	1	2/3	6(.620)	PowVu(FTA) occ. feeds
	Feeds	3898/1252V	1	2/3	12(.000)	PowVu (FTA) occ. feeds
	Middle East	3836/1314V	4 typ	3/4	13(.331)	**02/03: Now ALL Irdeto 2 CA**
	Feeds	3803/1347V	1	3/4	6(.000)	PowVu (FTA) occ sport feeds
	BBC +	3743/1407V	3	3/4	21(.800)	**BBC FTA**, others nominally CA

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SatFACTS Digital Watch: Supplemental Reference Data / March 2003

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	Receivers and Errata
(PA8/169E)	**Feeds**	4040/1010H	1	3/4	10(.850)	PowVu occ FTA feeds
	7thDayAdv.	3872/1278H	1	3/4	6(.620)	Sat, Sun 0030, 0900+UTC?)
	Feeds	3868/1182H	1	2/3	6(.620)	FTA (occ sport); also try 3863,Sr6.100
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498	FTA-typ NTSC-occ sport, live Shuttle
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)	PowVu CA + **FTA** (BBC gone)
	HK bouquet	3850/1300H	up to 8	2/3	24(900)	was 4148Vt; some **FTA**
	occ feeds	3776/1374H	1 typ	3/4	5(.560)	occ feeds, typ FTA; also Sr 5.600
	Korean Bqt	3771/1379H	1	3/4	9(.041)	Korean MUX, reload 02/03
I702/176E	**RFO Poly**	4027/1123L	1TV	3/4	4(566)	SE spot beam
I701/180E	TNTV	11.060&11.514	9	3/4	30(.000)	east spot; 10TV + r each, vertical pol.
	Canal+Sat	11.610H	16TV, 1 radio	3/4	30(.000)	1+ **FTA**, Mediaguard; also 10.975 weak
	TVNZ	4195/955RHC	1	3/4	5(.632)	DMV/NTL early vers., occ feds, typ ca
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)	DMV/NTL early vers. occ feds, typ ca
	TVNZ	4178/972RHC	1	3/4	5(.632)	DMV/NTL early vers., occ feds, typ ca
	AFRTS DTS	4175/975L	3 TV, 3 radio	2/3	3(680)	'DTS' **radio, TV audio FTA** somc IRDs
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)	DMV/NTL early vers. occ feds, typ ca
	TVNZ/feeds	4161/989RHC	1	3/4	5(.632)	DMV/NTL early vers., occ feds, typ ca
	RFO-Canal+	4086/1064L	4TV, radio	5/6	12(.041))	east hcmi 20.5 dBw thru 2003+; new Sr
	TVNZ/feeds	4052/1098RHC	1	3/4	5(.632)	DMV/NTL early vers.,occ feeds, typ ca
	TVNZ feeds	4044/1106R	1	3/4	5(.632)	SCPC, mixed CA and **FTA** feeds
	NZ Prime TV	4024/1126L	1	2/3	6(.876)	PowVu CA; Auckland net feeds
	NBC to 7 Oz	3960/1190R	1	7/8	6(447)	CA, Leitch encoded
	WorldNet	3886/1264R	1TV, 37 radio	3/4	25(.000)	New Feb 2002; very strong NZ, Pacific
	Ioarana	3772/1378L	1	3/4	4(.566)	FTA SCPC; East Hemi Beam-Tahiti
	TVNZ	3846/1304R	1	3/4	5(.632)	SCPC, mixed CA & **FTA**, feeds
	10 Australia	37691381R	4	7/8	20(.000)	PowVu CA & **FTA; #3 TBN**
	USA feeds	3749/1401R	4?	?	26(400)	16-QAM (not MPEG-2 compatible)

MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!

Aston Simba 201. Embedded SECA (Zee, Canal +); review SF#97. MediaStar 61-2-9618-5777.
AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM P/L, 61-2-9939-4377.
AV-COMM R3100(A). FTA, good sensitivity, ease of use exc (review SF May 2002). See above contact.
Benjamin DB6600-CI. FTA, Foxtel/Austar w/CAM+card. Autosat Pty Ltd 61-2-9642-0266 (review SF#72)
eMTech eM-100B (FTA), eM-200B (FTA + CIx2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)
Humax F1-CI. Primarily sold for TRT(Australia), does (limited) PowerVu (not Optus Aurora approved).
Humax ICRI 5400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available, SF#76.
Humax IRCI 5400 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). WIdely available.
Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good. SATECH (V2.26)
Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.
Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.
MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. 61-2-9618-5777
MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777
MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.
MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738
Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.
Nokia 9200/9500. When equipped with proper software, does Aurora, pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. SatWorld 61-3-9773-9270 (www.satworld.com.au)
Pace DGT400. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). Units being replaced with UECs.
Pace DVR500. Original DGT400 modified for NBC (PAS-2)/RSA use. with CAM equivalent to DGT400 but more reliable.
Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version.
Panasat 520/630/635. MCPC FTA, Irdeto capable, forerunner UEC 642, 660. Out of production, spares fax ++27-31-593-370. No longer wotrk with Austar/Foxtel.
Panasonic TU-DS10. FTA + Irdeto CA; one of 2 IRDs approved by Optus for Aurora, but never available in Australia.
Phoenix 111, 222. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH(below)- 222; terminated
Phoenix 333. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review SF#51. SATECH 61-3-9553-3399.
Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)
PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, GWN+ PAS-2 Ku, CMT etc). Scientific Atlanta 61-2-9452-3388.
Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.
SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telsat 64-6-356-3749)
SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above).
STRONG Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).
Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.
Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, Aurora. Strong Technologies 61-3-8795-7990.
Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSEqC 1.0, 1.2 (review SF#84); Strong Technologies, # above.
UEC642. Designed for Aurora (Irdeto), approved by Optus; w/new software, C-band FTA; faultyP/S. Norsat 61-8-9451-8300.
UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel-limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.
UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks
Winersat DigiBox 200. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fax 64-9-814-9447
Xanadu. DVB compliant special-priced receiver for members of SPACE Pacific (Av-comm Pty Ltd, tel +61-2-9939-4377)

Accessories:

Aurora smart cards. New v1.6 now available, 1.2 no longer available for RABS. Price now A$105, Sciteq 61-8-9306-3738.
PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)

WITH THE OBSERVERS

AT PRESS DEADLINE

In fact - Golf Channel is back on California bouquet (see PAS2 below; 3940Hz) but still PowerVu CA (VPID 2160, APID 2120). Major changes in Thaicom C band resulting from loss of multiple transponders on Thaicom 2/3 package. First major satellite failure in five years.

AsiaSat 2/100.5E: "3945V, Sr 6.666, 7/8 C308, A256 CCTV test card and occ feeds." (**Bill R**, Aust).

AsiaSat 3S/105.5E: "Another analogue channel gone? Phoenix Chinese 3920H in NTSC is now running a test card." (**TK**) (Ed's note: service continues on 4000H, Sr 26.850, 7/8 FTA within Star Asia mux there. Star is apt to bring up an additional digital mux on 3920 channel.)

AsisSat 4/122E: Launch still scheduled last two weeks March from Florida's Cape Kennedy.

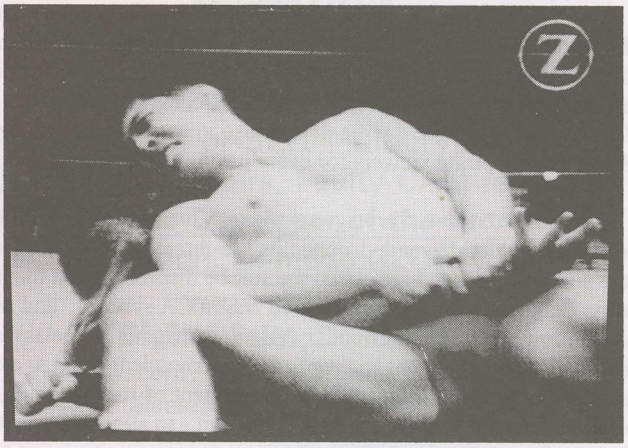
InSat 2E/83E: "Using Humax 5410Z + 4m mesh, following Indian 'Zone Beam' signals received in eastern NSW: Sky Bangla + test 3430V (6.000, 3/4); Star Vijay (CA), Splash TV India, Maa TV (CA), Tamil TV, Win TV (3525V, 24.082, 7/8); Ajak TV 3580V (3580V, 3.255, 3/4); Jaya TV 3615V (3.255, 3/4 at 54% signal level and P2 analogue from Jaya TV 3603V." (**D. Leach**, NSW)

OptusB1/160E: "Occasional feeds 12.430V (Astralinks SNG, Surfing coverage), 12.525H, 6.111, 3/4; test cards and World Cricket feed from Globecast." (**B. Richards**, Aust)

Optus B3/156E: "ABC TV National (12.594V, 30.000, 2/3) Aust + NZ footprint) is changing (and back again, without notice) from being ABC SE (Sydney) to ABC Queensland and is therefore exactly same channel as Aurora ch 39 (ABC TV Q, 12.730V, 30.000, 3/4 on Aust only footprint). EPG for 'Now' and 'Next' are correct on ABC National but still wrong on ABC SE and ABC SA. Austar's ABC (channel 2) continues to be ABC SE (Sydney)." (**IF**, Qld.) "Aurora radio channel 68 has switched from Rhythm FM to Sport 927 (CA), which is identical to Austar/Foxtel radio channel 4. Aurora radio ch 44 now has label 'BID-JARA' suggesting Imparja is adding a new Aboriginal service (radio ch 43, Mulba, was added several months ago, runs FTA)" (**AI**, NSW) "Changes in Mediasat/Globecast radio services: DMX Radio is new, ran FTA for a few days, now seems to be version 2 CA; and a new 'Future Service' position now loads as well." (**IF**, Qld) (Ed's note: see updated list p. 30)

Palapa C2M/113E: "Gone again. MTV Indonesia, TV5 Asie and Metro TV on 3880H from Mux; typical Palapa scenario." (**Edwards**) "TBN's feed on 3727H has new PIDs; V177, A180 - will require reloading if previously put into memory." (**Harold**, NT)

PanAmSat PAS2/169E: "Changes on California Bouquet - Golf Channel (V2960/A2920) now gone (was CA of course) and knowing Japanese passion for game, it must have been moved to someplace else!" (**Jerry T**, Qld.) "Korea's KBS-TV, YTN and MBC are left 3771H." (**Edwards**) "4054H. Sr 5.420, 1/2 V1160/A1120 English/French and V1160/A1122 Spanish, Portuguese Sabrate School feed." (**Bill R**, Aust). "RAI on 3836V has finally joined other services there in Irdeto 2 CA mode - end of an era." (**AD**, NSW) "NBN, 4126V, 3.615, 3/4 V33, A34 FTA testing." (**Eleanor**, Victoria)



"Z" Channel 24 hour wrestling (Japan, USA, Europe) mixed with soft-porn sexual advertisements found on PAS-8 3860Hz "Taiwan Bouquet" (Sr 28.000, 5/6); a very unusual channel, indeed. On March 3, "first" Z channel (+SET International) adopted Viaccess2 CA format but TV channel 12, "Z#2," remains FTA some of the time (VPID920, APID 921); may need to be reloaded.

PanAmSat PAS8/166.5E: "Z-Channel 3860H is now CA; will miss the wrestling and advertisements for Japanese ladies!" (**Jerry T.**, Qld.) (Ed's note: Try V440, A441 PID entry)

Thaicom 3/78E: "Korean (Central) TV now FTA 3665H, 3.367, 2/3 on what appears to be Global footprint." (**Harold**, NT). (Ed's note: Also try 3678H, 3.367, 2/3) "TARA Bangla has moved to 3600H from 3585, V514, A670, SID2." (**Bill R.**, Aust)

Soapbox: "Hungarian TV CA, testing FTA Globecast/ Mediasat, website is http://www.duna.tv.hu; subscription info from www.aaacom.com.au. Dutch BVN website is www.bvn.nl, information in English at www.bvn.nl/html /english.html and guide is www.bvn.nl/html/program

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for April 15th issue: April 3 by mail or 5PM NZST April 5th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

US Judge "slaps" DirecTV in Murdoch case

There should be a daily updated guide to keep track of all of the legal actions brought against Rupert Murdoch's NDS Limited, the Israeli based firm that designs and markets Videoguard encryption systems. Unlike Irdeto, SECA and other encryption systems, NDS's Videoguard is significantly altered for different customers; knowledge of the American DirecTV system card algorithms, for example, provides little guidance to someone desirous of cracking Star TV Asia or Sky TV NZ (both using NDS). The "no-two-alike" scenario has been a hallmark of NDS success with keeping all but the most determined hackers from "emulating" their encryption stream.

In December 2001, NDS's largest customer, DirecTV USA brought suit against NDS charging fraud, breach of warranty, violation of (US) federal law amongst other charges. In February 2002 the two "kissed and made up" and the suit was dropped. At the time DirecTV was being courted by both News Corp. and second ranked US satellite pay-TV provider Echostar. Sometimes charges like this are brought to send a "wake-up call" message to someone.

In March 2002 French pay-TV giant Vivendi brought similar but more compelling charges against NDS, claiming the Israeli firm deliberately hacked its competitive-to-NDS encryption system and then arranged for the hacking instructions to be posted on two prominent web sites. Vivendi's Viaccess-named system is in widespread use world-wide including by Vivendi owned Canal + on I701 in the Pacific. It was also in use at an Italian pay-TV service (Telepiu) which by mid-2002 claimed it had 2 or 3 non-paying pirate viewers for every paying subscriber; a fact it blamed on the web distributed hacking instructions which it claimed NDS encouraged.

In June 2002 News Corp agreed to pay Vivendi US$900 million over a period of time to purchase the beleaguered Italian service, provided Vivendi dropped its life-threating NDS law suit. In August 2002 Vivendi went to the California court where the suit was filed and requested the suit be dismissed. But the judge thought otherwise and in September 2002 we found out why: Echostar (using the Swiss bred Nagra CA system), and Malaysian pay-TV operator Measat brought suits against NDS which plowed the same ground as Vivendi's original suit, claiming NDS had engineered hacks of their CA systems, distributed information on web sites to propagate that knowledge and as a result tens of millions of dollars was being lost to piracy. They were joined in their suit by the US Department of Justice which ordered NDS to "freeze" its records in a San Diego, California office as related to the original Vivendi suit - to allow US agents to examine the contents even if the suit might be dismissed.

Late in September 2002, DirecTV brought a new suit against NDS claiming essentially the same activities which the original December 2001 suit charged, with one major addition. DirecTV, to combat piracy, was in the process of upgrading from their "P3 era" smart card to a new one called P4. Now, in September 2002, DirecTV claimed NDS was up to "the same old tricks" and was encouraging hacking of the P4 card as well.

In December 2002, a US court threw out the bulk of the DirecTV claims noting with irony that the claims were, "essentially the same as those brought in December 2001 which had been 'settled' by private agreement between the two in February 2002." No consideration as to the validity of the claims - merely that DirecTV had agreed in February to dismiss the charges and therefore they could not be rebrought. The court did agree to hear the charges relating to the P3 versus P4 issue, "because it is a new issue before us."

Everything about NDS-Vivendi-Echostar et al is straight out of a (bad) James Bond movie. For example, the head of NDS security is a former deputy chief of Shin Beit (Israel's super secret anti-terrorism agency that is the brother or sister agency to Israel's secret service The Mossad). This fellow left Shin Beit after the Palestinian "300 Bus" affair, during which a Palestinian hijacker was beaten to death after his arrest by a Shin Beit agent who just happened to be the brother of the then-head to Mossad. Gilles Kaehlin, top security man at Canal Plus, came out of the counter-terrorism unit at the (French) Elysee Palace. The Mossad is deeply involved in the roundup of persons who can help get NDS out of its sizeable legal problems simply because NDS is based in Israel and NDS is the employer of choice when ex-Mossad and ex-Shin Beit agents want to "retire" from their dangerous lifestyle. Most hackers don't walk around with C4 explosives strapped to their bodies but the guys the Mossad and Shin Beit chase daily do. Canal Plus is equally quick to hire ex-anti terrorist and French secret service agents for their own security work. There is significant evidence that much of what has been happening between Canal Plus and its cohorts (including Nagra/Echostgar), and, NDS is actually an underground "war" between The Mossad and the French Secret Service driven by some very jealous relationships involving personnel from both state agencies. And now the US Department of Justice brings the USA to a par level in the battle. This is one can of worms that crossbreeds itself daily. Piracy has just been elevated to a dangerous, new level of personal danger for those involved.

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_guide.html. Sources for BVN and Dunas TV is Mark Lobwein, DTH Services Manager for Globecast Australia" (**C. Sutton**, NZ) "Good to see SF give the ABA a bit of a rev (February, Coop's Comment); they need it. It is a bit like building a super highway and then the ABA comes along and installs a barricade, saying, 'you can not proceed past this point - because *we say so!*'" (**DN**, Aust.) "AFN decoders for the normal qualified users can now be authorised on line at www.pvconnect.net/unreg/auth1.php by having UA and TID numbers ready along with usual Military/Diplomatic Corp information to enter." (**DB**, Japan) (Ed's note: For those with short-wave receivers, AFRTS Radio can be located at 10.320 daytime, 6.350 night time from Hawaii; 13.362 daytime, 5.765 night time from Guam and 12.579 daytime, 4.319 night time Diego Garcia in upper sideband mode; handy frequencies to

know should Iraq erupt into a war scene.) "Can someone help me locate service for a SatCruiser FTA IRD? I live in Melbourne, had previously sent it off to Canberra Skyvision which appears to be out of business. My telco is 0412 425362 or Email davewave111@msn.com." "Reference '...by the strange name of Blackbutt' relates to a burned out tree stump whereas Blacktown (western Sydney suburbs) in the 1800s was used for segregation purposes." (NS) UEC Multiview digital Set-Top box just announced RSA features on board parallel processing system allowing two separate, simultaneous Irdeto programming channels to be outputted to TV sets of monitors. Also includes Internet and e-mail optional modem In South Africa, the 'Dual View' sells over the counter for R749 (A$XXX) and subscribers to that country's MultiChoice Africa also pay R50 per month (A$XX) for the 'privilege' of being able to access a second programme channel without actually having two IRDs in the household. A single smart card serves both processors. But there is an interesting challenge - Dual View requires either a two-output LNB(f) feeding each of two separate inputs at L-band, or, a two-way splitter at the rear of the receiver. And, the second set while it has access to all of the smart card authorised programme services, is not able to access EPG, games, (text/graphics) weather or any (other) interactive services .Australian contact is UEC Australia, (61) (2) 9889 3500 or Email info@uec.com.au. "I wonder if people realise that when they have a Humax modified for Multicam that it loses its ability to function with a standard Aurora/Austar/Foxtel card and will only then work with a Gold/Silver/Funcard product? Has anyone who went Multicam tried to return to factory software (from Humax web site) and if yes, to what result?" (NS, Qld) "Channels unique to Optusvision's ill-fated satellite fed service going primarily to a small number of motel/hotel/vacation properties on satellite are now gone (examples: Animal Planet, CNN Financial et al). This appears to be for purpose of allowing Foxtel and Austar to double the number of 'Footy' channels making two now available to subscribers who previously had opted for extra pay to have one. " (AI, NSW)

Globecast/ex-Mediasat (Optus B3/12.336V/30.000/2-3)

(as loaded on UEC 642, March 8, 2003)

TV: (all channels PAL format)
#1) Vision Asia 1: SET (Sony Enter., I2 CA)
#2) Vision Asia 2: Zee (Zee TV & News, I2 CA)
#3) Vision Asia 3: Zee (Cinema, I2 CA)
#4) Vision Asia 4: Star + India/Star News, I2CA)
#5) TRT International (Turkish, **FTA**)
#6) Trinity (TBN USA religion, family, **FTA**)
#7) Da Al TV (Tzu Chi, Asian religion, **FTA**)
#8) Med TV (Health Care Educational, occ., **FTA**)
#9) HRT (Croatian inc. HRT1,2,3; I2 CA)
#10) TV Korea (KBS and YTN programmes, **FTA**)
#11) Ad Hoc (Duna TV Hungry scheduled here, CA)
#12) TEST (test card, BVN Holland 'coming', **FTA**)
Radio:
1) TRT FM (**FTA**); 2) Voice of Turkey (**FTA**); 3) ABS Radio (**FTA**); 4) Tamil Radio (**FTA**); 5) SNG IFB (audio feedback for field remotes); 6) DMX Music (background music; was FTA, now CA); 7) Future service. (Courtesy IF, Qld.)

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	Receivers	
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D-Box	Irdeto Emb/Aur+LBC+Jade	$340
Dion513	digital w/DiSEqC	$250
COSHIP	Digital FTA	$190
	LNB	
Zinwell D21A	ZCF/ 15K C-band	$40
PBI Turbo	C-band	$25
PBI 1040	Ku (10.6M)	$30
PBI	C + Ku LNBf	$130
Zinwell -J21N	ZKF/Universal prime/offset	$30
Zinwell-H21N	ZKF/Ku (11.3M prime+off.)	$30
	Actuators	
Super Power	Jack - 18" actuator	$60
Super Power	Jack - 24" actuator	$65
	Positioners	
Super Power	EZ2000 32 memory	$60
Motec MP880	High Qual 60 memory	$80
Prostar V-Box	New generation/1.2 DiSEqC	$80
	Other	
Cable	4 wire actuator/100m roll	$50
Switch	22 kHz tone switch	$15
Bracket	wall bracket for 65gal pole	$5-$10
AV Sender		$150
Spectrum Analyser	analogue + digital Spectrum Analyser - **NEW product!**	$1,300

AT Sign-off

A foolish waste of taxpayer money

The New Zealand (Labour) Government has revived the call for "input" on how and when the present terrestrial TV system should be replaced with a DVB-T (digital video broadcast, terrestrial) system. My answer is very simple. Never.

There is only one country in the world where DVB-T has approached success and that is the UK. There, to coerce consumers into upgrading from 4 or 5 channels of terrestrial analogue, the BCC (which is government owned) has created "Freeview" which when and where it works offers 30+ free to view (FTV) channels. It does this for the equivalent of NZ$300 per home, plus aerial installation. This is a subsidised cost of the actual cost per STB; more than triple that figure. Unfortunately, according to UK magazine Television, in 1 out of 3 locations within 20km of digital transmitters, it does not work; nor in 1 out of 2 locations within 40km nor in 2 out of 3 within 50km.

New Zealand's nearest neighbour, Australia, has struggled for 15 months to sell an estimated 15,000-20,000 DVB-T boxes into homes; approximately .03% of the total marketplace. The United States has after 4 years of pushing DVB-T conversion for homes only managed to entice .05% of the homes to "upgrade."

Both the USA and Australia offer something the UK does not offer; high definition (1080 line or there abouts compared with the present PAL <625 line) television. New Zealand has signed up for the UK version; more TV programming channels but still at the <625 line PAL format standard. Widescreen? Yes, sometimes, but hardly all of the time.

As SF has reported in considerable detail, no engineer involved with DVB-T planning anticipated the significant problems associated with noise, greatly reduced coverage (when compared to existing analogue), or the special requirements for such a simple implement as the outdoor, rooftop TV receiving antenna. Nobody foresaw that where rabbit ears now provide adequate analogue reception, sizeable and expensive rooftop aerials are required for digital. Nobody foresaw that simple multi-set splitters which allow one rooftop analogue aerial to function for two or more TV sets in a home (motel, hotel) almost never work with digital. Nobody foresaw that electrical appliances, capable of causing mild interference to analogue reception, totally stop digital reception. And nobody foresaw that while "fringe area" viewers perhaps 50-60-70km from an analogue transmitter are able to receive sufficient signal to at least "enjoy" television reception, there is no such thing as a "fringe area" with digital. Signals do not become "slightly impaired" but still viewable; *they simply stop working totally*.

New Zealand has more than 1,200 TV transmitters functional; an incredible quantity for a country barely equalling in land mass the US state of Colorado. They vary in power from 0.1 watt to 100,000 watts and every one of these requires a tower (mast), transmitting antennas, electrical power and maintenance. The UK experience has been that for every existing analogue transmitter, each having a well defined "service area," ultimately as many as four (4) digital TV transmitters will be required to provide digital service of the same coverage. Translate that to New Zealand? 4,800 TV transmitters - one for every 729 people!

DVB-T is awesome when it works. It is blemish free, exciting, and attractive to watch. Even in 625 line SDTV (standard definition) format. But it is also very-very expensive. The least expensive 25-35" screen American digital receiver is priced above NZ$4,000. There is no such thing, in America or the UK, as a "14" bedroom/kitchen "secondary TV" in digital format. Two out of five NZ homes have a second TV. Two out of three NZ homes also own a VCR which with the conversion to digital will become totally useless; each will have to be replaced with a digital equivalent.

Of course these are early day prices and perhaps in 3 to 5 years the cost of a digital 25" TV will come down to under NZ$3,000. Perhaps. But only if DVB-T catches on world-wide which every sign at the present suggests will not happen. Not in 3 years, not in 5, not in ten. How long might it be before The Warehouse offers 14" "secondary/kitchen digital TV sets" for their present NZ$289 price tag? Try ten years.

So who wants digital TV for terrestrial? People who sell TV sets and VCRs naturally; they believe they will sell 1.4 new TV sets to every home in NZ when digital arrives. Plus .67 new VCRs to every household. Some broadcasters, mostly ill-advised and certainly not exhibiting good common sense are also in favour (how they can ignore all of the facts we have described here and still opt for a digital conversion suggests a lack of honesty, perhaps even technical competency, on the part of their engineering advisors).

DVB-T is a dead goose; it can only work with tremendous new costs for additional transmission sites which will of course greatly increase the cost of providing a "networked" service for the telecasters. Australia's Nine Network seems to have this figured out; they are opting to place their digital service on DVB-S (satellite) and DVB-C (cable). The American telecasters have this figured out - they are cutting "deals" with cable and satellite companies rather than spending tens of millions to convert to high power digital.

DVB-S is already in place (Sky TV NZ). What is missing is a Government decree that the national networks (TVOne, TV2, TV3, TV4 and Prime) be accorded FTA (free to air) status through the Sky DVB-S platform, giving consumers a real choice (owning their own home dish system, or, renting one from Sky) rather than forcing them - as at present - to pay NZ$17.29 per month to rent the required equipment from Sky.

What the Government receives for making such a decision is multifaceted. First, it earns a clear conscience for having made a non-political, benefits-the-public decision. Next, over five to ten years time, it can retire virtually all of the existing analogue TV transmitters and gain back for Government resale 381 MHz of valuable spectrum space below 1 GHz (21 MHz in band I, 56 in band III, 304 in bands IV and V). Even by the most modest of estimates, that spectrum would produce Government revenues in excess of NZ$2.5 billion every 20 years under their present auctioning format. Last, and hardly least important, it will save the "average" NZ home $3,750 to replace 1.4 TVs, .6 VCRs, a rooftop aerial and associated cable + distribution/splitting equipment. For 972,000 homes, that's $3,645,000,000. Yes, that's 3+billion dollars.

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Hard Core (Serious) "How to do it" References

☐ Tech Bulletin (TB) **9402**: MATV (master antenna terrestrial) systems - wiring up a home, motel, hotel, camp site from one set of antennas - $15 all regions

☐ TB **9404**: Home Satellite Dish Systems. "Newbie" trying to work out what all those terms means and how a home system goes together? Perfect. $15 all regions

☐ TB**9405**: Satellite to Room Systems. Combining MATV (9402) with satellite (9404) to distribute satellite TV reception to multiple outlets - 2 to 1000+! $15 all regions.

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☐ TB**9302**: (Terrestrial) Weak Signal Reception Techniques; off-air TV reception to 300km+. Seriously detailed. $15 all regions.

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☐ TB**9304**: Identifying and eliminating noise interference from fence lines, signs, electrical appliances. How to cleanup marginal TV reception. $15 all areas.

☐ TB**9305**: Cable TV - the basics. How a cable system works, how you can build one! $15 all regions.

☐ **Nelson Parabolic Manual**. The "bible" of building your own 13 foot dish from scratch. Serious stuff for dedicated builders. $15 all regions (supply limited)

SOFT CORE - recent back issues of SatFACTS (while supply lasts)

☐ **SF#93** (May 2002) - European Piracy, hundreds of piracy web sites - $10 all regions.

☐ **SF#96** (August 2002) - Nokia BDM, Faster Channel Zapping with Nokia - $10 all regions

☐ **SF#98** (October 2002) Humax mods, Nexus PC Card, Low power FM broadcasting - $10 all regions

☐ **SF#99** (November 2002) FunCARDS - how they work, software mods for Humax - $10 all regions

☐ **SF#100** (December 2002) d-box2 BIG report! AC3 Surround Sound for Nokia, PanAmSat's Terrorist Problem - $10 all regions

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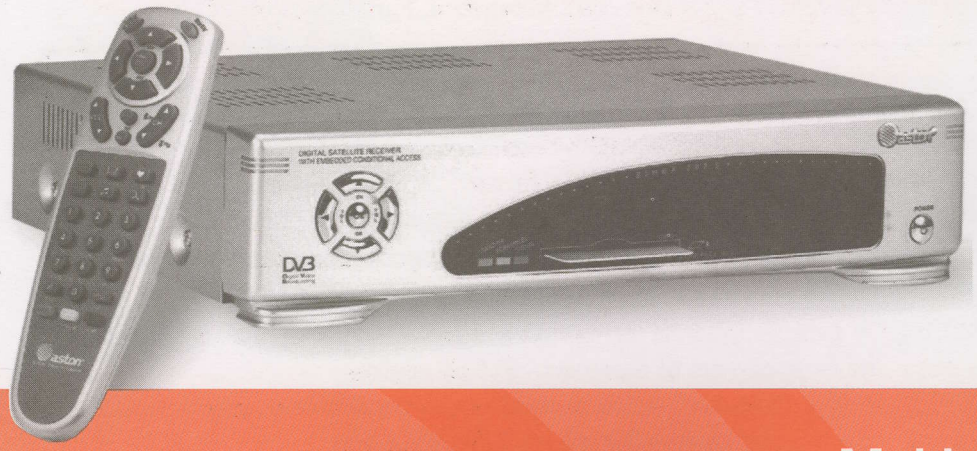

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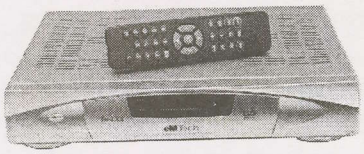

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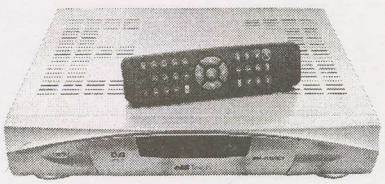

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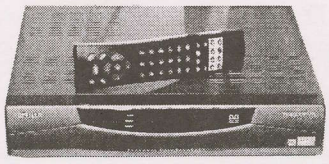

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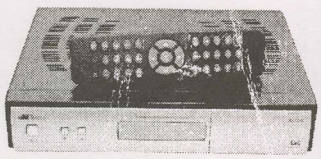

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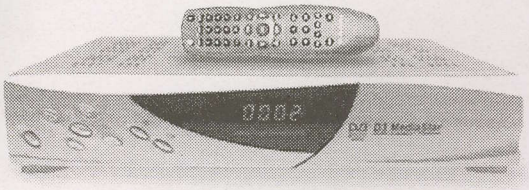
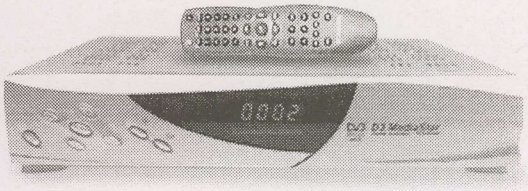


D2 with Iredto 2.06 cam



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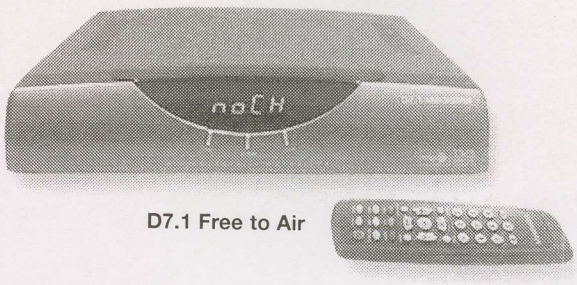

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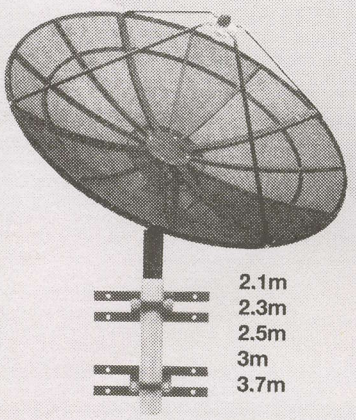

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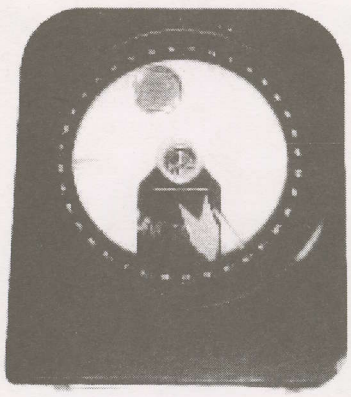

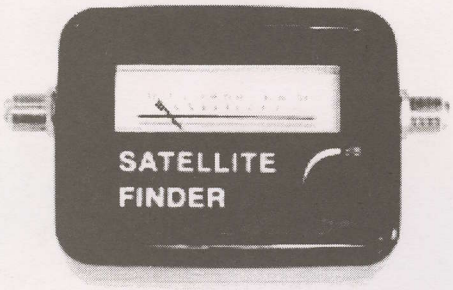

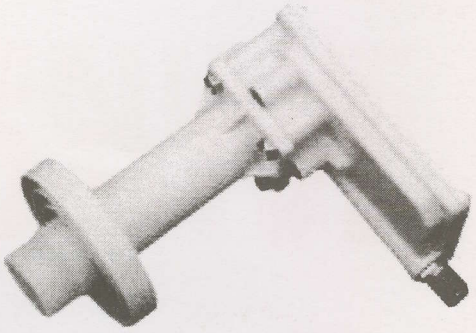

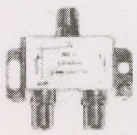

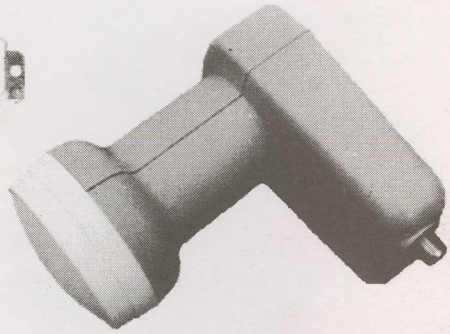

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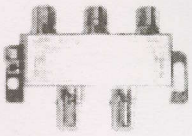

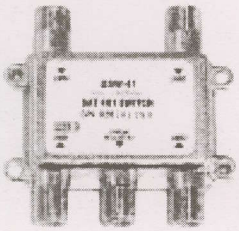

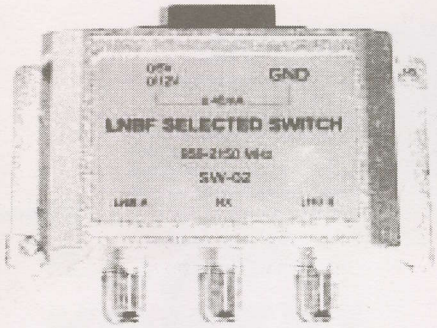

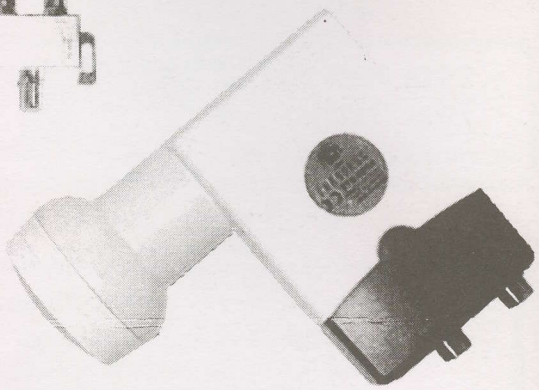

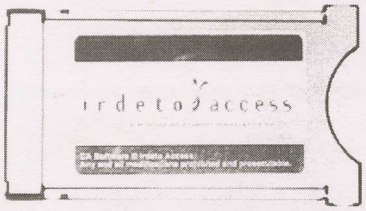

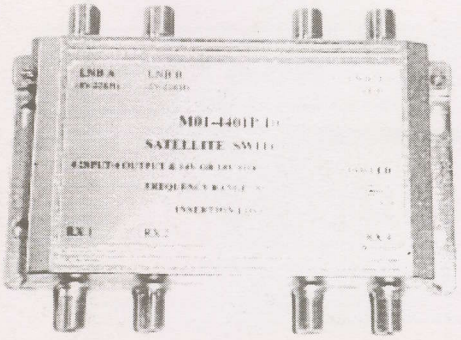

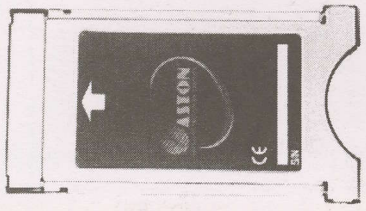

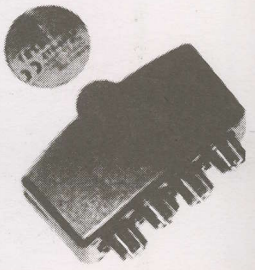

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