Bob Cooper's

NOVEMBER 15 2002

SatFACTS

MONTHLY

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

IN THIS ISSUE

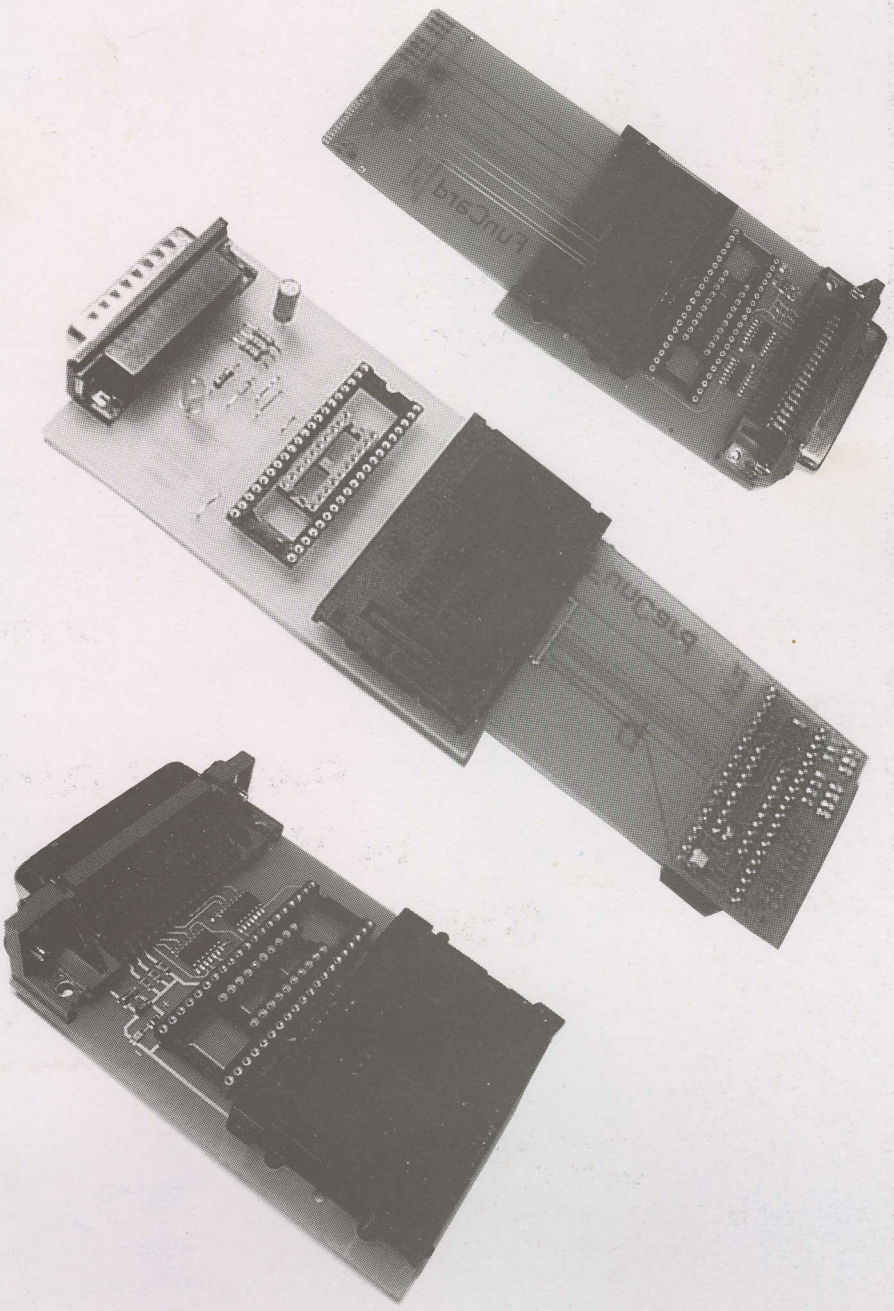
FunCARDS are not "funny" to programmers

Optus C1's Footprints - are they real???

"Needling" the Humax; 660/720 blocks

✓ Latest Programmer News
✓ Latest Hardware News
✓ Murdoch's lawsuits
✓ Observer Reports

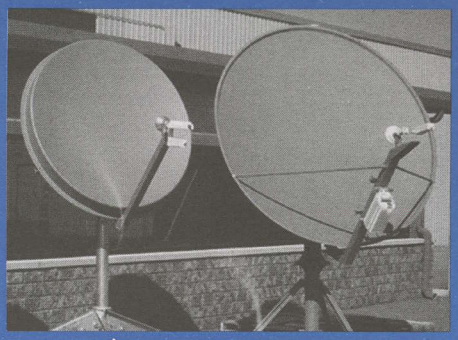
Vol. 9 ◆ No. 99
Price Per Copy:
NZ$10/A$11/US$-Eur8



PATRIOT

Antenna Systems

Prime Focus
Offset
VSAT
DBS / DTH
Antennas
Accessories
Receivers
Feeds
LNBs



90 cm - 2.4 meter
Tx/Rx Approved

1.2 meter - 6.3 meter

Patriot Antenna Systems is Your One-Stop Complete Source for Satellite Equipment

704 North Clark Street • Albion, MI 49224 USA
800.470.3510 toll free
402.545.2222 phone • 402.545.2221 fax
nbruner@sepatriot.com
www.sepatriot.com

Made in America

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.

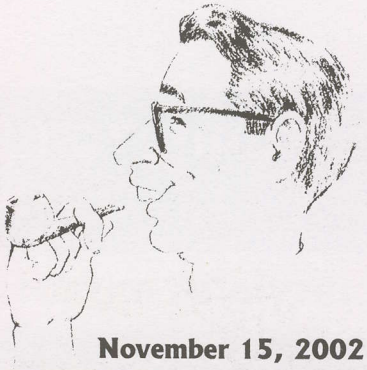
Editor/Publisher
Robert B. Cooper (ZL4AAA)
Office Manager
Gay V. Cooper (ZL1GG)

Reaching SatFACTS
Tel: 64-9-406-0651
Fax: 64-9-406-1083
Mail: PO Box 330
Mangonui, Far North
New Zealand
Email -Skyking@clear.net.nz
http://www .apsattv.com

Subscription Rates
Within NZ: $70 p/y
Australia: AV-COMM Pty Ltd, PO Box 225, Brookvale, N.S.W. 2100
61-2-9939-4377
Elsewhere: US$75p/y
All copies sent via airmail fast post world-wide

our NINTH year!

COOP'S COMMENT



November 15, 2002

A 147 page document ("Radio Spectrum Management Organisational Review" dated 4 September 2002) is difficult to discuss in 200 words or less. What it says in our "executive summary" is as follows:

1/ New Zealand's government no longer considers it essential that 'radio frequency policemen' provide the front line of spectrum management. Accordingly, 6 RSM field offices have closed (November 4) and field engineers cut from 40 to 15.

2/ The three major components of RSM field engineer activity have been redefined. Interference to broadcast (radio or TV) reception has become the lowest priority, checking of marine and other two-way radio systems has been all but dumped, and people/firms who import radio frequency emitting devices (such as cordless phones, baby monitors) will now have to largely depend upon outside engineering consultants to "certify" their devices meet the NZ criteria for license free operation.

3/ The trend towards the sale of more spectrum (management rights) will escalate and it will become the responsibility of the rights holder to keep "poachers" out of his megahertz-paddock.

4/ Exams (amateur, other) will be shuffled to the private sector and individual fees for licenses (such as held by hams, marine stations) will either be reduced, eliminated or handled for terms longer than the present one year.

RSM (Radio Spectrum Management) is a small group (fewer than 100 before the review) buried deeply inside of the Ministry of Economic Development. RSM has charged fees for its work (a number like $128 per hour has been average) and according to records I inspected, the group has made more money than it has cost to operate the agency for more than a decade; cutting "costs" was not an issue here. A few years back, fees for their work were reduced partially out of embarrassment that it cost less to run the place than it was taking in - *what kind of Government agency actually makes a profit*???

The significant reduction in size (after closing offices and terminating personnel - those no longer employed averaged 21 years of service) is not limited to RSM - there are 10 groups similar to RSM housed under the MED umbrella and each of these is under similar scrutiny. Under the new regime, RSM will share vehicles, office space, staff with such diverse groups as those who regulate business bankruptcies in New Zealand. People who previously could call a regional (if not local) RSM office for assistance will now be talking to a toll call centre located in Christchurch that also answers the calls of folks enquiring about bankruptcies ("*you have interference to your what???*").

New Zealand is following the lead of the Australian Communications Authority (ACA) here, having dispatched investigative teams to Sydney and Newcastle to inspect how the present Australian system functions one year after a similar revamping. However, internally the proposed changes (announced last May) were kept bottled up within the agency on a "need to know" basis. Only TVNZ and BCL appear to have been consulted before the final report was issued early in September.

The new operation believes (their words), "*...large (international) commercial organisations will increasingly dictate the way spectrum is managed in New Zealand*," "*the country will increasingly become a follower, rather than a leader*," and, " *regulatory intervention by the Government will diminish*." There is a bit of sad irony here. In the late 1980s, New Zealand was the first nation in the world to recognise that "spectrum management rights" could (and perhaps should) be "sold" on the open market. Sky TV New Zealand, for example, probably would not exist today had there not been such a major policy change more than a decade ago.

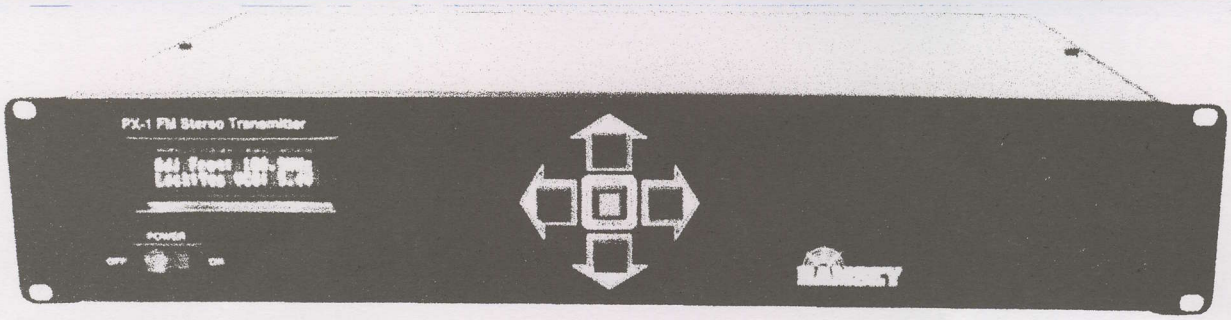
Where all of this will lead is beyond our crystal ball, just as the decision to "sell spectrum" was in 1989. Bureaucracy has once again rewritten the rule book.

In Volume 9 ◆ Number 99

-ON THE COVER-

FunCards - how they work. Page 6.

Everything You Need To Get Your Community FM Station On The Air!



- ✔ **35 Watt Continuous Duty RF Output**
- ✔ **Frequency Agile - 87.5 to 108.0 MHz**
- ✔ **Temperature and VSWR protected**
- ✔ **120/240/12 VDC power with auto battery back-up**
- ✔ **Certifiable for licensed operation anywhere in the world**

The PX1 was designed to fill the needs of the low power or community broadcaster. And we've loaded it with standard features to simplify setup, and save you the expense of adding additional components.

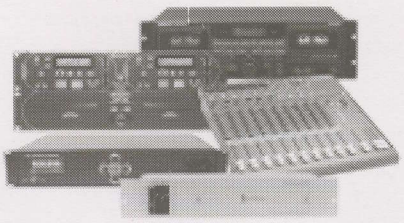
- Set-up and use is fast and simple with just 5 buttons to access all parameters - power, frequency, modulation, and more.
- Built-in stereo generator - no need for a separate encoder. Of course you can also broadcast in Mono.
- Built in Automatic Gain Control (AGC) gently "rides the peaks" and smoothes out level variations for consistent on the air sound.
- Built in "clipper" over-modulation protection keeps you clean and legal.

The 2-line vacuum fluorescent display gives you "at-a glance" verification of all parameters. The micro-controller continuously monitors frequency, temperature, deviation, etc. and makes subtle adjustments on the fly-like a "virtual" station engineer.

Connecting program sources is simple with two balanced inputs (XLR). For subcarrier broadcasters, we provide input for your SCA encoder and a pilot output. The antenna connection is type "N".

Only $1795.00 USD

Let Us Equip Your Entire Station!



- ✔ **Professional Audio Mixers**
- ✔ **Professional CD & Tape Decks**
- ✔ **Studio Microphones**
- ✔ **Studio Monitors**
- ✔ **High Power FM Antennas**

We Have Everything You Need For Your Station!

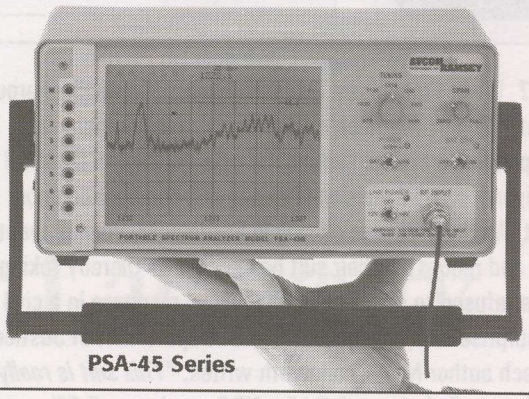
MX1202	Professional 12 channel stereo audio mixer, balanced and unbalanced inputs	$459.00
MX1402	Professional 14 channel stereo audio mixer, balanced and unbalanced inputs	$629.00
RM1202	Rack mount kit for MX1202 mixer	$12.00
RM1402	Rack mount kit for MX1402 mixer	$12.00
PRCD10	Commercial single bay CD Player, designed specifically for professional studio use, rack mountable	$209.00
PRCD20	Commercial dual bay CD Player, designed specifically for professional studio use, rack mountable	$375.00
DCD202	Professional Dual Cassette Deck, dual speed, computerized search makes edits a snap, rack mountable	$625.00
BM01	Shure hand held Cardioid Dynamic Microphone	$107.00
BM05	Shure Premium Cardioid Dynamic Microphone, desk/stand mounted, broadcast quality	$595.00
PMS31	Self powered studio monitor speaker set, 15W subwoofer, two 5W speakers, studio quality	$349.00
FMA200	Colinear Vertical Omnidirectional FM Antenna, 3.4 dB gain, 200W power rating	$115.00
FMA300	Log Periodic FM Directional Antenna, 7 dB gain, 300W power rating	$379.95

Your ONE-STOP Source for Community FM Broadcast Equipment!

AVCOM RAMSEY Technologies, Inc.

AVCOM RAMSEY TECHNOLOGIES, INC.
793 Canning Parkway • Victor, NY 14564
Phone: 1-716-924-4560 • www.highpowerfm.com • sales@avcomramsey.com

What's New at AVCOM RAMSEY?
The LCD Lightweights!



PSA-45 Series

L-Band Spectrum Analyzer

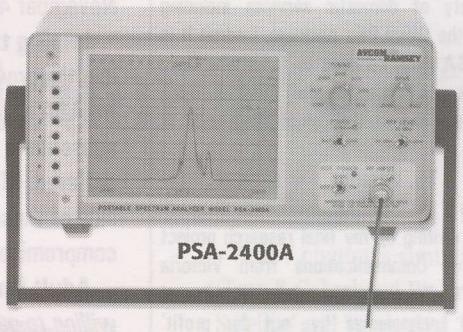
- *LCD Display with On-Screen Menu*
- *950-1450 MHz*
- *+12/18V LNB power*
- *Portable, battery and line operated*
- *3.6 kg (8 Lbs)*
- *Affordable!*

PSA-45A $2,060.00
PSA-45B $2,475.00

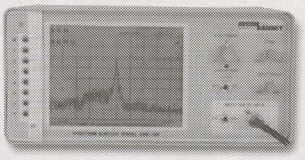
2.4 GHz Spectrum Analyzer

- *LCD Display with On-Screen Menu*
- *2400-2500 MHz*
- *Survey wireless LAN's with ease!*
- *Great for all ISM Band 2.4GHz sources*
- *Survey antennas available*
- *Portable, battery and line operated*

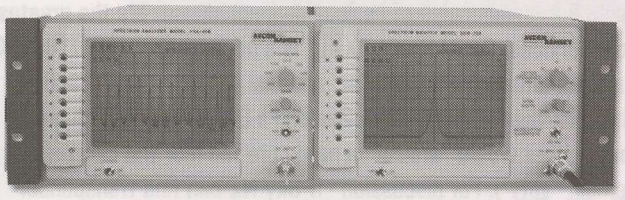
PSA-2400A $2,775.00



PSA-2400A



SDM-42B



SDM-70AR with PSA-45BR

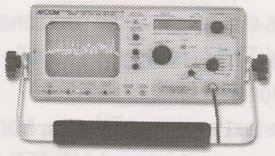
Spectrum Display Monitors

- *10.7 MHz, 70 MHz, Custom Freqs.*
- *LCD Display with On-Screen Menu*
- *Single or dual rack mountable*
- *Combo great for uplink's and trucks to monitor both L-Band and IF together*
- *Affordable!*

SDM-42B $1,595.00
SDM-42BR $1,860.00
SDM-70A $1,595.00
SDM-70AR $1,860.00

Check out our other Portable Satellite Test Equipment!

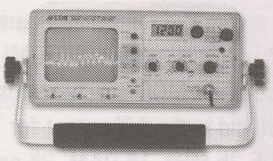
PSA-39A



- 950-2050 MHz in one sweep
- Offset frequency display directly displays L, C, or Ku frequencies

PSA-39A $2,845.00

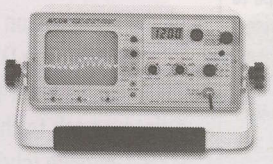
PSA-37D



- 5 bands cover 1-1750 MHz plus 3.7-4.2 GHz
- Frequency display

PSA-37D $2,475.00

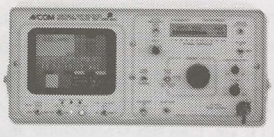
PSA-33A



- 1-1100 MHz, 950-2100 MHz
- 3 MHz and 300 KHz Res. BW
- Frequency display

PSA-33A $2,775.00

PTR-25D/LCD



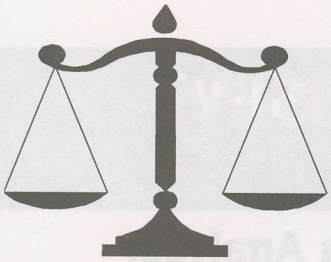
- Receiver & video monitor in one
- 950-2050 MHz input
- Digital frequency lock
- B&W or Color displays available

PTR-25D B&W $1,395.00
PTR-25LCD Color $1,625.00

Visit us at www.avcomramsey.com

AVCOM Technologies, Inc. RAMSEY

500 Southlake Blvd. • Richmond, VA 23236/793 Canning Parkway • Victor, NY 14564
Phone: 1-804-794-2500 • www.avcomramsey.com • sales@avcomramsey.com



LETTERS

Too much piracy stuff?

"I have noticed on the various web chat sites considerable discussion concerning the 'tone' of SatFACTS and the apparent willingness to divulge information which on the surface appears only of interest to and useful to someone with a 'piracy' mentality. To the contrary, I have found through October your reports to be very interesting and although I have no MOSC cards nor an interest in anything that is possibly illegal, knowing what is happening is I think crucial to those of us who are still trying to make a living from FTA and commercial satellite work. My 'competition' routinely offers grey market cards accessing a variety of domestic services including Austar/Foxtel and the Canal Plus package. I admit it is difficult selling "FTA only' services to folks who have been offered so much more for only slightly more money. But at the end of the day, I sleep well at night!"

TS, Victoria

TVNZ's doubling up

"I am currently writing up my final research project for my Master of Communications from Victoria University here in Wellington. My subject is; 'use of new video digital technologies by 'not for profit' organisations'. As part of my paper I'm looking at the feasibility of using satellite broadcast by 'not for profit' organisations (e.g.. the government sets aside say 3 channels with some basic funding, for an 'Access' type TV). Anyway what I'm trying to figure out is exactly what TVNZ is using its half transponder on Optus B1 for at the moment? Looking at the SatFACTS listing and Web site postings, I notice TVNZ has doubled up its Wn & Chch TV1&2 channels (for regional advert breaks I'm told), but why double? (I assume the straight TVNZ channels are the Auck ones). Are they just playing safe on another frequency or is there some other reason? Also have they any spare bandwidth? As you will guess I'm trying to establish whether they do in fact have spare capacity that could be picked up by 'not for profits' at the flick of a switch."

Grant Dixon, Lower Hutt

Within the Sky operated bouquet TVOne and TV2 appear with Auckland region advertisements and in theory for homes located on North Island from Taupo to the Cape receive these commercials when accessing Sky's TVNZ services. Receivers located between Taupo and Wellington are supposed to be getting their TV One and TV2 through a TVNZ operated feed on 12.456Vt - this is FTA and if you load this transponder you sill see it says "TV One Wellington." The same 12.456 also has TV One and TV2 Christchurch which is different from the other two sets because it contains regional commercials for the South Island. TVNZ sells commercials to 'regional' advertisers and as Sky penetration has grown, those regional sponsors have complained folks in their area are receiving Auckland - not their own adverts. TVNZ and Sky worked out the 'duplication' system to assure everyone receives the correct commercials! See SF#98, October, p. 29.

PROGRAMMER PROGRAMMING PROMOTION UPDATE

NOVEMBER 15, 2002

Murdoch. How bad is it? When French pay-TV giant Vivendi (Canal Plus) brought a US$1bn civil lawsuit against Rupert Murdoch's NDS encryption company last March, the media baron responded in typical fashion; he offered Vivendi US$900 million for a failing Italian Vivendi pay-TV division (Telepiu) but conditioned upon Vivendi dropping the lawsuit. As the deal was closing in September, Vivendi went back to the California court and requested their suit be cancelled - thereby taking NDS off the hook. The judge refused to do so - a most unusual response in a civil suit. Find out why and the surprise intervention of the U.S. Department of Justice on p. 19, here. As Australian tech author Neil Chenoweth writes, "*This suit is really about the future shape of the media industry*." Oddly, NDS stock rose 5.8% November 4.

Joining the parade. Malaysian multi-billionaire Ananda Krishnan is the latest to join the growing line of individuals and firms bringing suit against NDS. Krishnan's MEASAT uses the CPT/Vivendi (SECA) encryption system claiming 800,000 subscribers and as the SECA system was compromised by pirates, it too has suffered. MEASAT filed with a California court late in October to "intervene" on the side of those demanding compensation from NDS for its alleged efforts to compromise rival-to-NDS encryption systems, is asking for US$3 billion in damages.

Adult fare? A number of web site surveys have been asking "*Would you be willing to pay $X per month for (Triple-X) programming?*" Most of the responses are negative but Adult viewing in Europe only attracts 5 - 6% of total dish owners and that is profitable for them. One survey, with more than 1200 responses late in October, recorded the following results: "I would pay $9.95 monthly for adult content": Definitely 19.16 % (236); Likely 10.80 % (133) Unlikely 17.69 % (218) Definitely Not 52.35 % (645) Total Votes: 1232. This (North American) survey is in a market where Adult channels proliferate although most viewers complain they are not "hard core" enough. European choice of various degrees of porn are the greatest of all including 24 hour services. Canal Plus's "XXL" is a prime reason I701/180E Ku dishes are sold in Australia although the "official" channel package (now A$400+ per year) excludes this late night service. New Zealand's Sky offers two channels they label as Adult but neither would "arouse" a hard core fan (nor the censors which is why they remain "soft"). For discussion - if Sky NZ can find transponder space for two "adult" channels, which if European experience follows attracts not over 6% of the subscriber homes, why can't it find room for one Christian channel?

TVNZ's DVB-T. We reported (SF#98, October) a clever offer of NZ$2,500 for installation of a set-top terrestrial box and UHF aerial which would provide coverage of the Louis Vitton Cup prelim and following America's cup races. Some additional information. The DVB-T is Euro-standard (COFDM) and TVNZ itself uses Zinwell ZDX7100FTA set top boxes at MCR (master control room). This box delivers Teletext both to the VBI and in the A/V output for Teletext equipped TV sets. Normal DVB-T service (ch49/695.25 MHz, 16-QAM, 2K carriers, guard interval 1/8, FEC 1/2) repeats TVOne. When TVOne leaves their own racing coverage for previously scheduled programming, the racing continues on DVB-T. The service is FTA - anyone with an appropriate set-top box (such as the Zinwell) can "tap in" without paying a monster fee to a private party who is presently leasing equipment to yachties. TVNZ plans to shutdown the "experimental" ch49 transmitter when the America's Cup series is completed.

SKY NZ offering subscribers "SKYmail" text (only) email service "just in time for Christmas" - subscribers will purchase own keyboard. Details 0800 759343.

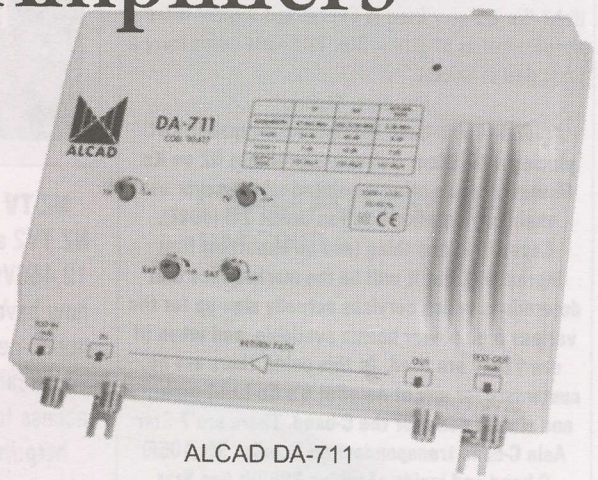
Powerful TV Amplifiers

- TV and Sat IF models
- Single input or Multi-Band
- Wide mains voltage tolerance
- Up to 45 dB gain and 120dBµV output
- Superb construction includes F connectors

6 powerful versions in stock!

FOXTEL APPROVED

BROCHURE AVAILABLE



ALCAD DA-711

Laceys.tv TM

Handheld TV Instruments

RENTAL PLAN AVAILABLE NOW!

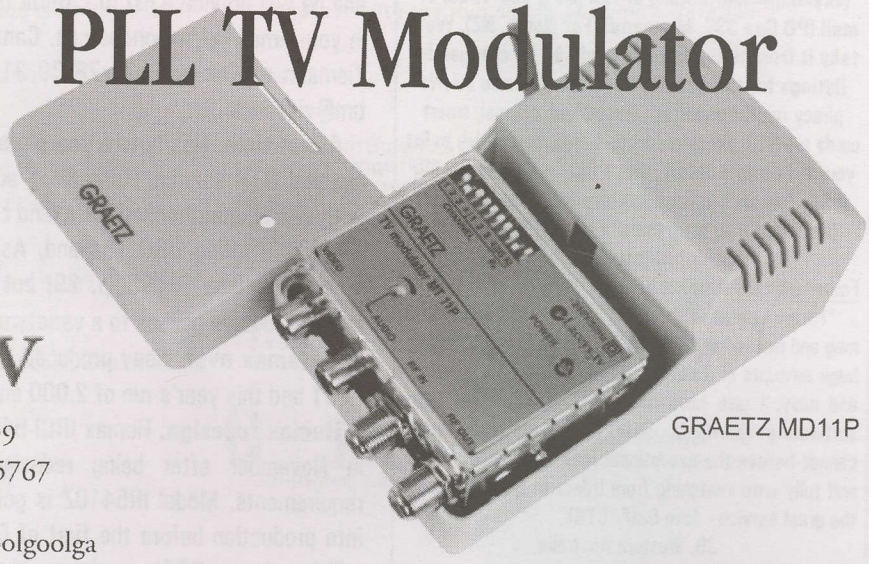
UNAOHM DaTuM 10

- View 7 channels simultaneously
- True & Calculated Bit Error Ratio
- Satellite and Terrestrial TV models
- Useful Spectrum Analyser included
- Precision signal level measurement

Laceys.tv TM

PLL TV Modulator

- RF In for mixing
- High output level suits 120dBµV modules
- Audio level adjustable
- Integrated power supply
- Excellent frequency stability
- Extended UHF channel range



GRAETZ MD11P

Laceys.tv TM

12 Kitson St Frankston VIC 3199
Tel (03) 9783 2388 Fax (03) 9783 5767
e-mail: info@laceys.tv
Branches in Sydney, Ulverstone and Woolgoolga

AsiaSat 4?

"What impact with AsiaSat 4 have on NZ? Will we be able to receive more programming via a private (small) dish? We are very keen in Cricket and wonder if there are possibilities of getting Star TV Sports which carry a great deal of Cricket."

Raz, New Zealand

AsiaSat 4 will have the technical capability of placing a 60-90cm dish size signal into NZ on Ku. However, so do other satellites which never use their full capacity (such as JcSat 2-8 (154E). Capacity is one thing (and an important first ingredient), but it will be the marketplace that determines which services actually sign-up for the various high power beams available, and when (if ever) they are used. At this point, there are no customers for any of AsiaSat 4's Ku-band capacity and almost none for the C-band. There are 7 Star Asia C-band transponders on AsiaSat 3S (105E) C-band and inside of which 3860Vt has Star Sports Taiwan (#413, Ch 3), Star Sports India (#412, ch 12) as well as #411, ch 13) and Star Sports SEA (ch 18). However, all are NDS CA which, short of "breaking the CA code" would require a NDS authorised receiver sourced within India.

Pilfered September

"Both of your subscription copies for SF September have disappeared - something very interesting must have been inside! Could you mail out replacements with our October magazines? On another subject, have you thought about opening the floodgates and allowing anyone looking for hard to locate parts to use SatFACTS to list their needs? Our want-to-source list would include chopper transformers for the Yuri YDR-301 receivers, PAL-B demodulators and modulators to facilitate reverse path transmission of at least two channels in our CATV system in the 19 - 39 MHz region. NTSC modulation equipment is readily available but unfortunately PAL is impossible to locate."

Gareth Welsby, Channel 8 Ltd, Port Moresby, PNG

Fine idea. Here are the "rules". (1) No charge (at least initially). (2) Start with "WANTED" or alternately "FOR SALE/TRADE" so we know how to group your listing. Send the information to us under heading of "Trading" via email (skyking@clear.net.nz) or fax (64-9-406-1083) or mail (PO Box 330, Mangonui, Far North, NZ). We'll take it from there and there will be no charges for listings for the first 90 days. Oh yes - rule #3. No piracy related products - unmodified, original, smart cards are NOT piracy products. If you don't wish to list your full contact details, that's OK - we'll assign a "SF # XXX" to such listings and forward queries one-way (from reader to you), thereby keeping your identity unpublished (see p. 33, here).

Faster than the speed of light

"I have upgraded the RAM in my Nokia d-Box to 3 meg and man what a difference; faster channel zapping, huge amounts of Teletext. Delivery from SA was fast and easy. I also have the new Rolf formatted Linux software in the Humax 5400 (as a Beta tester) and I cannot believe the exceptional features - bloody unreal and fully auto switching from Irdeto to SECA. Keep up the great service - love SatFACTS!"

JB, Western Australia

HARDWARE EQUIPMENT PARTS UPDATE

NOVEMBER 15, 2002

NZ TV on Norfolk Island. With a 2.3m dish and Humax receiver, NZ TV One and NZ TV2 are registering 54% signal level and 35% quality from TVNZ's FTA Optus B1 12.456Vt. Approximately 40% of Norfolk residents are "Kiwi" which means they now have access to "home town TV" for first time; setting aside the not-so-permissible reception from Sky NZ's bouquet. Norfolk is self governing but has significant reliance on mainland Australia - making it the only Australian "region" with access to New Zealand's satellite services on a more or less manageable basis.

http://www.yes.net/. Figure out how "they" do this one. This web site asks you to enter the name of a city (in USA - try Chicago) and a radio station's call letters (try WLS) and if that station is playing music *at that instant* (a song, as it were) the site will identify the name of the artist and the name of the song for you. Further, it will go back to the beginning of that day (12 midnight) with a *full list* of the songs that have been played since the day began. There are more than 12,000 AM and FM radio stations in USA and those that play music average 15+records per hour. Work out the logistics of that one (or even *why* anyone would go to this trouble)!

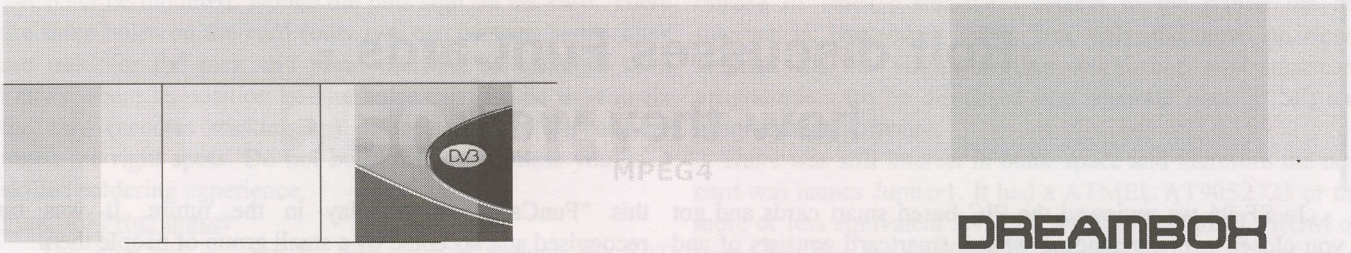
CPU heat. Central processor unit (chips) are microprocessors or microcontrollers. Many have more than 100 "legs" and internally, millions of transistors. Each of which, when it operates, generates heat. Up to 200C heat at the chip's centre. CPU heat is a major contributor to IRD failure, especially when the "box" is crammed into a tight fitting shelf with other electronic equipment. Only adequate ventilation will keep the CPU from "frying" (shutting the IRD down and requiring a replacement CPU). Hot air will only leave the CPU/IRD if cooler air can come in to replace the hot air. How much space around the IRD to allow "air flow?" 100mm below, above and on both sides - anything less is not enough to move the required volume of air to "carry" the hot air away. One answer: SatCure at http://www.satcure.co.uk has a cooling fan kit plus heatsink (which fits over the CPU above a thin layer of thematic conductive cream). The heatsink adds "cooling fins" to the CPU's heat transfer mechanics and this may be adequate. However, a fan kit is also available to improve the cool to hot transfer. SatFACTS told you how to add a fan cooling kit to always-too-hot D9223 receivers more than four years back!

Dreambox Importers / Outlets in OZ and NZ? Contact Tim Ziemann (follows) and he will provide a list of criteria to handle the new receivers; reference SatFACTS in your email/fax/telephone call. Contact is: VisoDuck Discount GmbH, attention Tim Ziemann at Tel: +49 23 73 39 31 53 or Fax: +49 700 84 76 38 26 or email: tim@visoduck .de.

About time. Nearly two years after Murdoch's Star TV announced a closing of its regional DTH service, Hong Kong authorities have charged at least five local firms with selling unauthorised IRDs (and companion smart cards) in the territory. Receiving systems offering UBC Thailand, Astro Malaysia and Dream Philippines violate HK regulations (see SF#98, p. 29) but have been sold in their thousands to viewers anxious to have access to a variety of sport, news, movie and NGS/Discovery fare.

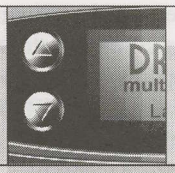
Betamax over. Sony produced 2.3m consumer Beta machines in 1984, 2,100 in 2001 and this year's run of 2,000 ends the consumerformat's 27 year history.

Humax redesign. Humax IRCI-5400Z series IRDs went back into production early in November after being redesigned to pass a new set of Irdeto/Mindport requirements. Model IR5410Z is going through similar redesign and should be back into production before the first of December. *One rumoured change* - neither model will function on B3/Hz services without interdiction.



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

ATMEL AVR/CPU

Rolf discusses FunCards - how they work

In SF 96 we reviewed the PIC based smart cards and got you closer to understanding what a smartcard consists of and what purpose they are for. In this issue we would like to continue with this report and take a closer look on RISC processor equipped smart cards based on ATMEL AVR units.

Let us start this time with web sites so you can follow on-line on what we have to say as this is a far too complex matter and it would carry on over most probably one year's subscription if we reported about every single feature of these units. Therefore we suggest that you visit the sites listed below and also follow their links to give you a broader view of the subject.

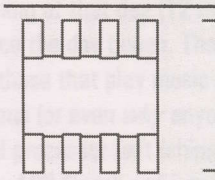
http://www.atmel.com
ftp://www.atmel.com/pub/atmel/astudio3.exe
ftp://www.atmel.com/pub/atmel/asmpack.exe
http://www.funcard.net/fc/index.html
http://www.avrfreaks.net
http://www.iucaa.ernet.in/~dvg/avr_appl.html
http://home.overta.ru/users/denisc/

Atmel's AVR microcontrollers have a RISC core running single cycle instructions and a well defined I/O structure that limits the need for external components. Internal oscillators, timers, UART, SPI, pull-up resistors, pulse width modulation, ADC, analogue comparator and watchdog timers are some of the features you will find in AVR devices. AVR instructions are tuned to decrease the size of the program whether the code is written in C or Assembly. With on-chip in-system programmable Flash and EEPROM, the AVR is a perfect choice in order to optimise cost and get product to the market quickly.

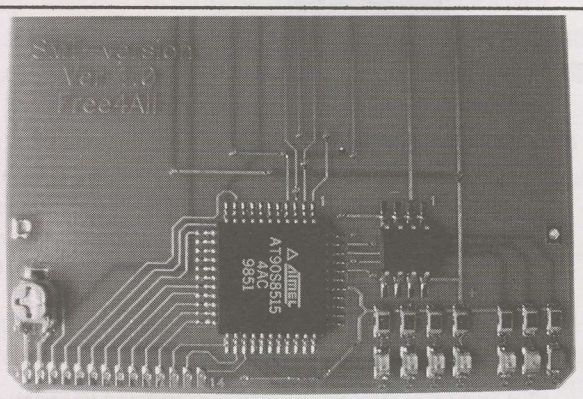
In 1998 a German web site was published and is running ever since introducing the first smartcard based on ATMEL CPU. They called their product "FunCard" because it was real fun to "play" with this new toy with ease if one compares the limited capacity of a PIC. At that time nobody knew what role this "FunCard" would play in the future. It was only recognised and accepted by a small group of people then.

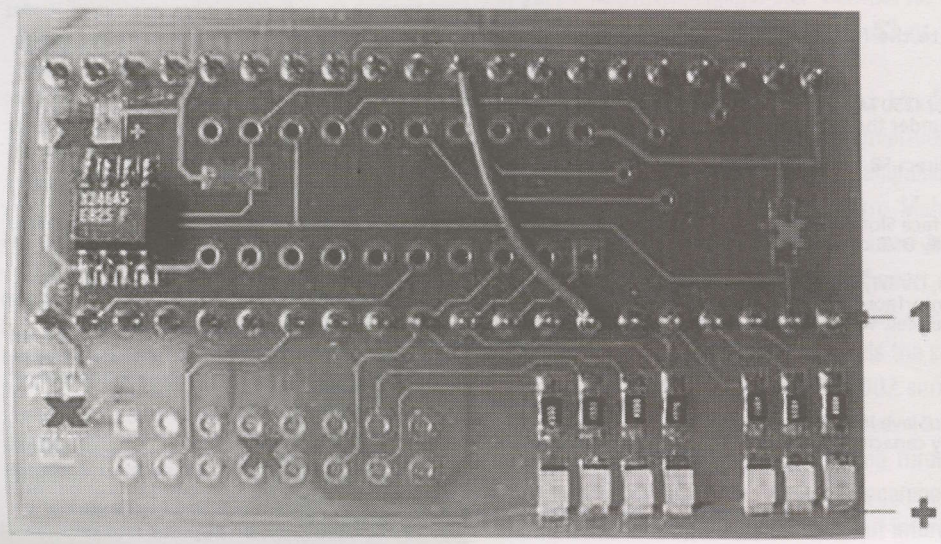
FunCard (HMD and SMD)

Here are a few versions of the FunCard. One might be easier to build yourself, the other might look nicer. See for yourself and determine which one you'd like to build. (The) v1.0 HMD (Hole Mounted) was the first release of the FunCard (photo below, left). You should see it as a beta release without LCD support. The card will however work just fine if you choose not to use an LCD display. There is place for more components than necessary to mount. The reason for this is that we wanted to do some measurements and those components helped to make them. We now know they can be left out without jeopardising the function of the card. We begin with the 2464 memory. As you can see there is a little ring on the 8 pin circuit, this is to mark pin number 1. On this card it is very important that you buy a 2464 or 2465 with the size of SO8 SOIC. This means that the distance between the sides of the legs is 0.15". If you are not careful, you will get the bigger size and it will be very hard to solder, if possible at all. Due to a hardware change the jumper wire (cable) must be soldered to make future versions of software work. The cable is connected between pin 7 and pin 31 on the processor. The crosses mean that no components should be mounted or used here.



2464 memory device





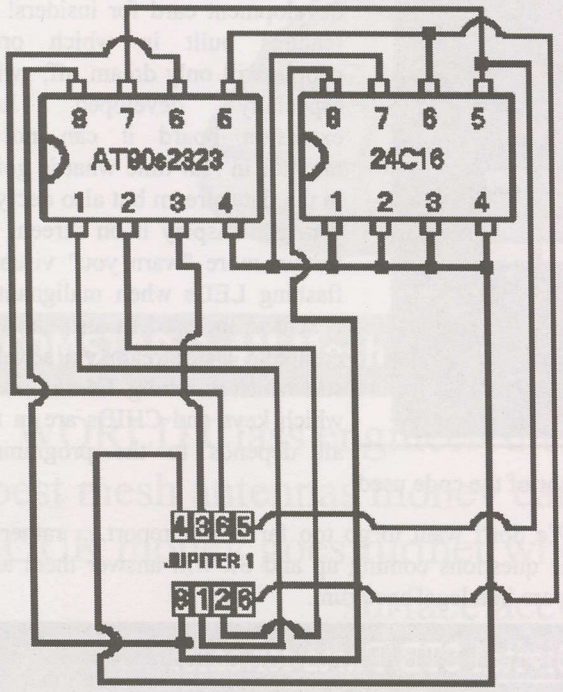
FunCard v1.0 SMD (Surface Mounted)

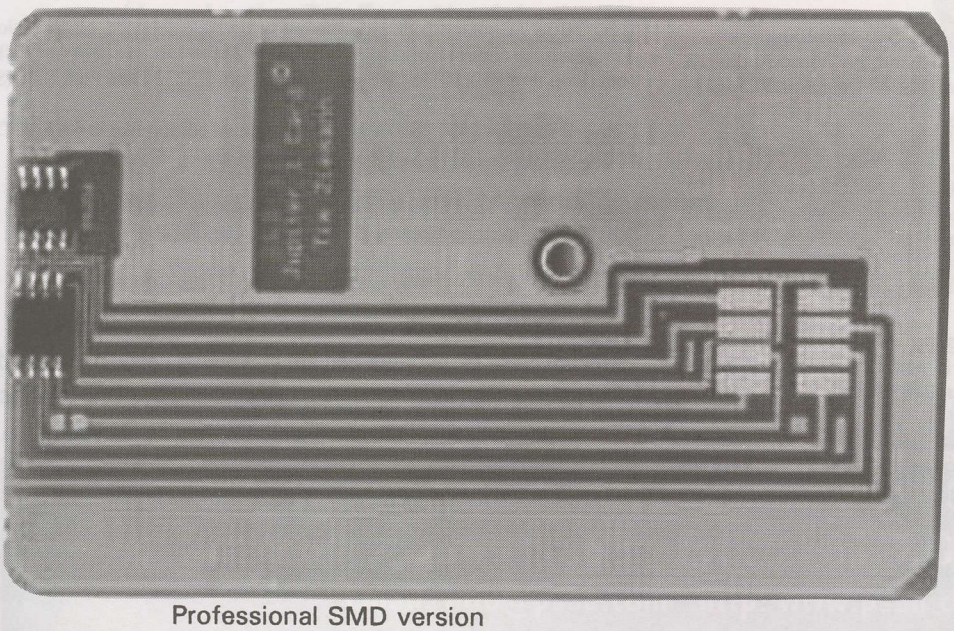
Above is a picture of the SMT (Surface Mounted) FunCard. This is the toughest card to build. The reason for this is the TQFP package of the processor. On these cards the LCD is connected in another way; this to make the programming a

little bit easier and the code generated will take less space. On this layout, both wide and narrow sizes of the 24C64 and 24C65an be mounted. Notice the plus sign on the card. There are three holes on the card (only two can be seen here). They are used for the pick and place machine to calibrate so it knows where its position is. The holes can also be used to fix the card (needles sticking up) so measurement probes will touch the right spots. Do not build this card unless you have skilled soldering experience.

FunCard Programmer

The FunCard is normally programmed through the LPT printer port of your PC. This version of the programmer should be really easy to build. The PCB (Printed Circuit Board) is single sided and the components used are hole mounted. Please go to the FunCard web site http://www.funcard.net to get detailed instructions and layouts to DIY build a unit. The real breakthrough of AVR controllers used by people in the satellite "business" came from the FunCard.





Professional SMD version

It was in early 2000 when most groups and blank smartcard shops grew like mushrooms out of the blue sky after the release of Irdeto's smartcard secrets to the public via the Internet in November 1999. Not only did new smartcard creation hit the virgin satellite world but also smartcard programmers (to be discussed in a separate issue in SF) and programming software.

There was still interest in outer space and therefore the new card was names Jupiter1. It had a ATMEL AT90S2323 or the more or less equivalent AT90S2343 chip and an EEPROM on board just like the good old Goldwafer PIC 16F84 but easier to program because not only Assembler but the easier C++ could be used to get code going.

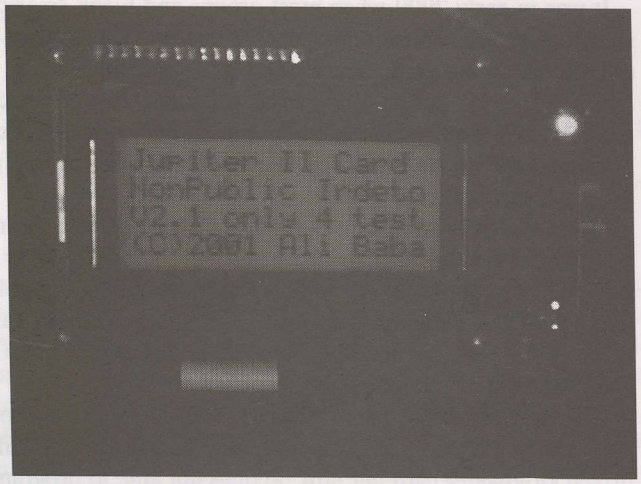
The professionally manufactured SMD version again looks very pretty. Functionality was more or less like the PIC16F84 driven Goldwafer card but now novices not able to program in machine code assembler could develop their own code and youngsters as young as 14 / 15 years of age started to get into the "business". C++ is a modern kind of BASIC programming language and one can more or less express with words what the CPU should do (for about 2 month there are real BASIC programmable FunCards on the market, especially for the old dogs who don't want to learn something new; they're called "BASIC Cards").

In late 2000 raids were carried out in German schools and believe it or not, about 1.000 "arrests" were made because of pupils -mainly under the age of 16- dealing in .... no... not drugs(!) but Pay TV emulator smart cards!!! These cards (Goldwafer, FunCards, DS9 and all others) are called emulator cards because they are not a clone. A cloned card is based on an original smartcard which has been erased and reprogrammed with the data of a valid subscription card. Thus, a true clone because even the Pay TV providers could not recognise it as a clone and would accept it as the real thing (if the serial number printed on the cards face has been altered as well).

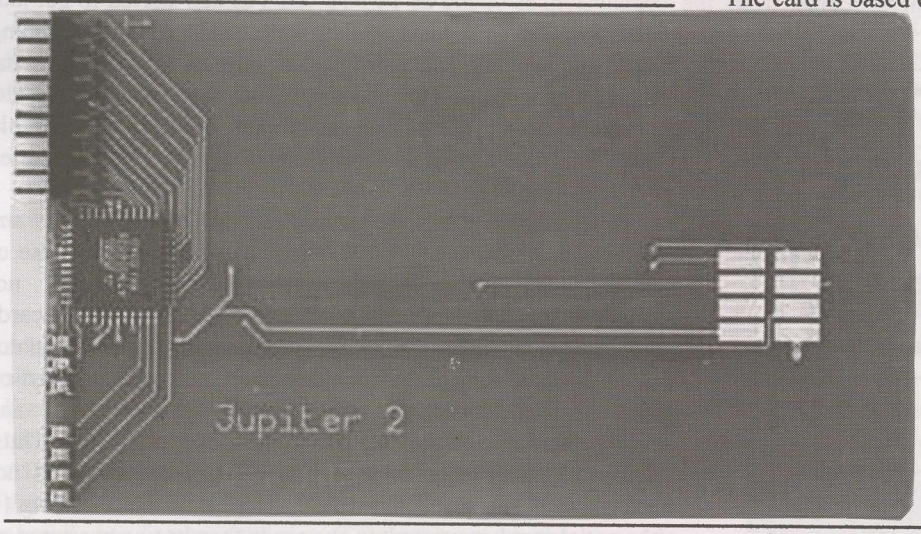
Emulator cards are based on subscription card data but only emulate that particular subscription card. In most cases the subscription card is emulated even better than the original card. Good emulator cards do not need Channel indicators (Channel IDs) but will open ANY available channel avoiding true Conditional Access limitations.

Let me explain this on an example with German Pay TV provider Premiere World: In Germany they have multiple bouquets one can subscribe to. The basic bouquet costs as little as 5,- US$ per month. If one extracts the subscription card data and programs an emulator card (e.g. a FunCard) with this data, the FunCard would overcome the limitation of the condition (Start bouquet for 5,- US$) and would give full access (no more conditional access) to all available bouquets inclusive of PPV (Pay Per View at 6,- US$ per movie).

In the extreme case such an emulator card would give it's owner access to Pay TV content worth about 700,- US$ per month if all PPV events were utilised and all



Optional LCD display (above); Juipter 2 (below)



available bouquets were watched! This also the reason why German Forums urge their members (10.000+ alone with http://www.dpsc.de) to at least do the basic subscription to support a good service! The trend has gone away from FREE viewing as there is an understanding that Pay TV providers struggle to survive. Especially in Germany where first Pay TV provider DF1 and recently Premiere World have gone "bang" the "pirates" have realised that there MUST be some kind of support if they still want to be able to watch Pay TV in the future!

Let's get back to the smart cards based on ATMEL AVR processors; like with the Goldwafer cards, there has also been a trend towards plastic cards. The "purple" card was the first plastic card based on the ATMEL AT90S8515 processor to be launched to the public. Varieties with more memory have followed like with the DS9 silver cards which is PIC based of course.

There is one exception which we think is need to report about: The Jupiter2 development card. It was presented to the public in early 2000 and ONLY the inner circle developers have ever been able to use this development card to it's full capabilities!

The card is based on an ATMEL AT90S8535 processor with an EEPROM 24C64 on board to store the data. This card is a pure development card for insiders! It has features built in which ordinary people will only dream off; with the especially developed Jupiter2 extension board it can not only monitor in real time what is going on in the data stream but also decrypt the data and display it on screen. It can further more "warn you" visually by flashing LEDs when malignant code is sent to the card. It also can log the complete DataStream via serial port, still whilst watching TV and watching which keys and CHIDs are in use. It all depends to the programmer / author of the code used!

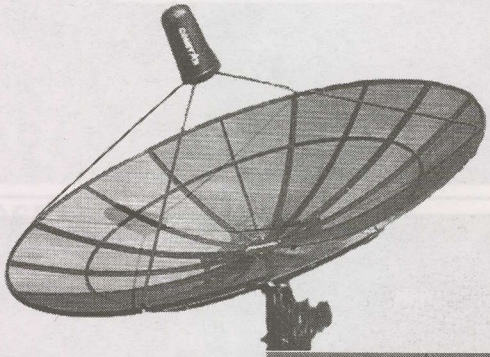
We don't want to go too far in our report.... rather, have some questions coming up and SF will answer them as long they are in a legal spectrum.

It doesn't get any better than this.

COMSTAR 2.4M Mesh Dish - AUD$185 (each). Conditions apply (*).

WORLD Class engineered HIGH performance antennas. The very best mesh antennas money can buy. And now - for a limited time - YOUR money goes further when you upgrade to the 2.4M HIGHLY surface accurate COMSTAR!

√ Long Lasting Pro-Form Aluminium reflector
√ Super-strong bridge-rib design
√ S & C & Ku mesh (!)
√ Durable Powder Coat finish
√ High stability Quad Feed support
√ Your choice: Fixed, polar, Horizon-Horizon mount
√ Time saving Pre-Assembled mount
√ "Natural surroundings" colour options
√ Multi-Feed option for multiple satellites



*** - contact PACIFIC SATELLITE today**

COMSTAR®

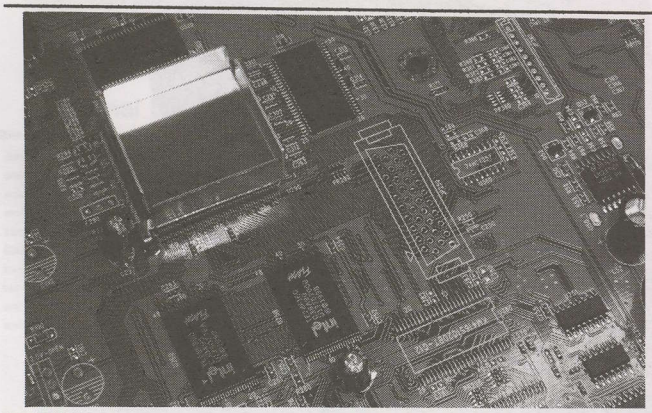
3/71 Beenleigh Road, Coopers Plains, Qld 4108 Australia
Ph: +61 7 3344 3883 FAX: +61 7 3344 3888
Email: info@psau.com http: www.psau.com

Part two: Upgrading your 54xx series

Rolf Deubel describes getting around Humax's anti-modification designs

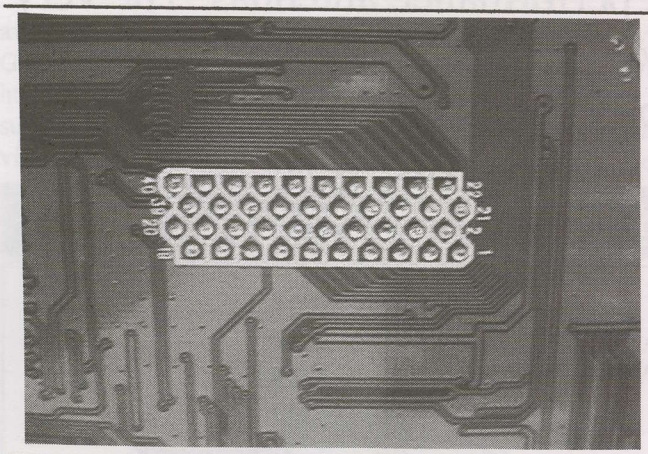
Continued from SF#98

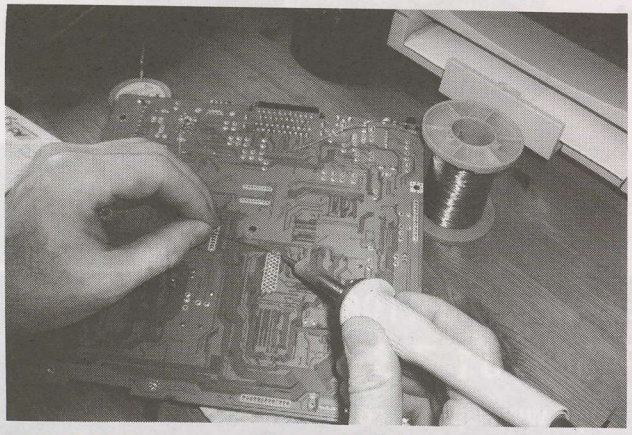
Now that you have calmed down, the Molex socket needs to be soldered to the mainboard. Do not worry about which way around it needs to be soldered, it only fits in one direction, so the Koreans made our DIY job not too difficult in this area.



Hint:

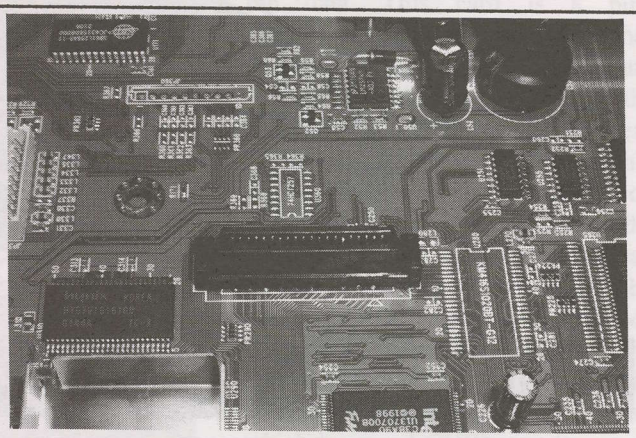
Before you actually set the Molex socket into the JP250 solder holes, you should put a fine layer of solder onto the MOLEX' pins. Firstly it is easier to solder with the solder layer already present on the pins, secondly it reduces heating time of the mainboard and therefore reduces the risk of damaging the board.

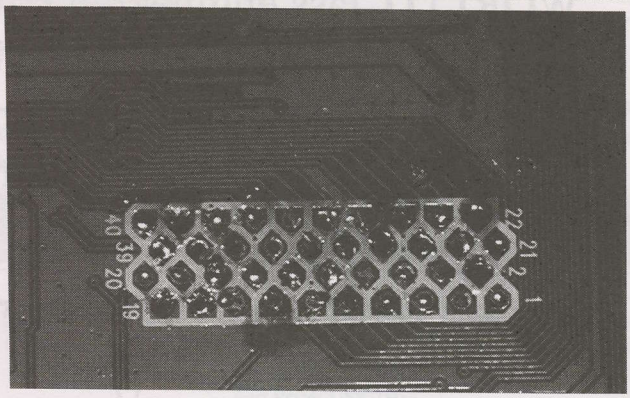




Now after you prepared the Molex socket, you need to set it onto the mainboard. It actually should fit perfectly with no need for any adjustments to the pins. However experience shows that there might be some solder left over in the holes and by gently pressing the socket towards the mainboard you should be able to set it correctly.

Once set correctly, turn the mainboard around (photo, bottom left) still holding the Molex socket in position with one hand and solder one solder point on each end of the socket to fix it's position. Now you can place the mainboard flat on the table and solder all 40 pins to the mainboard.





NO - this is NOT good!

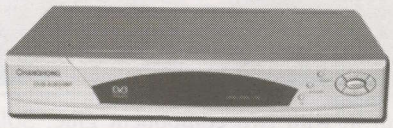
If you took your time and worked with the necessary care, the finished product will just look as if the mainboard came out of the factory. But SF's engineers have also seen converted mainboards of people with no pride in their work and this might as well look like the photo directly above. What went wrong here (notice the scorch marks and residue)? In this case, the temperature of the soldering iron was set too high and the man used solder with soldering agent inside which cooled the soldering point down with even more heat required to "fix" the problem. So the man heated the point up "a bit longer" as he stated and you can see the result!

You have reached the finish line and after a bit of cleaning (yes AGAIN) you can re assemble you HUMAX in the reverse

Australia Satellite Systems

Satellite Equipments & Accessories One Stop Supermarket

ChangHong 3600MF
385.00 Only



Aston 1.05 Cam embedded

Best Value For Indian & Franch

(C-band on Asiasat 3s & Ku band on Intelsat 701)
C & Ku band input, DiSEqC1.2, 3000 Channels,
Multi-Mode Auto Searching, 7-days EPG, PIG, zone in/out

HUMAX 5400Z Receiver
Irdeto V2.06 embedded
Two common interface slot

Only **$575**

HUMAX 5410Z Receiver
Irdeto V2.06 embedded

Only **$475**

SPACE 8800a Receiver
Irdeto V2.09 embedded
C & Ku band input
DiSEqC1.0 control
TV/VCR Scart & RCA outputs
$350

ARION 3300E digital receiver
C & Ku band input
PAL/NTSC auto converter
>3000 channels
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA outputs
$240

NextWave 2300F/C digital receiver
C & Ku band input
PAL/NTSC auto converter
>3000 channels
Picture in picture EPG
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA outputs
$240

SPACE 2800 digital receiver
C & Ku band input
Fully auto Sat sarch
>4000 channels
DiSEqC1.0/1.2/22K control
TV/VCR & RCA outputs
$160

Optus Aurora Kit
Humax 5410Z Receiver
11.3 GHz Ku LNBF
90cm dish (Foxtel App.)
Wall mount bracket
$600/set
Aurora card $105

LBC, ART, Al Jazeera Kit
Space 8800a (Irdeto embedded) Receiver
PBI 5.150 GHz C-band LNBF
1.8m panel dish
$650/set
Subscription fee $30/month*
* Condition apply

Free to air kit
Including dish, LNBF, digital receiver, etc.
Start from $3xx to $9xx

Full range of C/Ku band satellite dish - panel & mesh, prime & offset, from 45cm to 3.6m
Full range of C/Ku LNBF - Dual output, one cable solution, C/Ku combination
Full range of actuator - From 12" light to 36" heavy duty
SuperJack EZ2000 Positioner & V-Box
2.4 GHz AV sender and Remote extender
RG6 Cable and Motor cable
Full range of satellite accessories

All above price are excluding GST and freight charge. More discount for buck buyer

THIS MONTH SPECIAL

18" SupperPowerJack Actuator $50.00 (Including GST) **SPACE (PSI) 2.3m Mesh dish $180** (including GST)

Come To Us For Your Best Deals

Melbourne
Level One, 358 Whitehorse Rd.
Nunawading
Phone: (03) 9878 7026
Fax : (03) 9894 4888

Sydney
74 Parramatta Rd.
Homebush
Phone: (02) 9746 6866
Fax : (02) 9746 8878

Major Importer In Australia

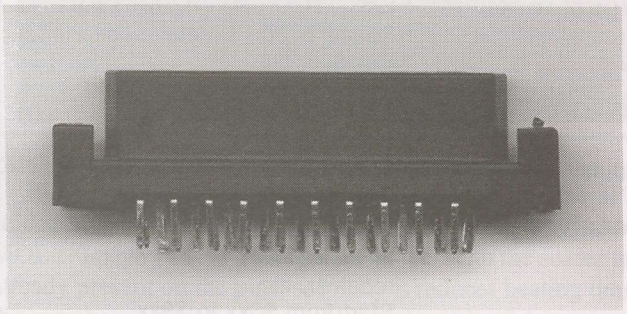
way as you took it apart; except for the top cover as we still need to change to Bootloader to H2.08 and then patch our toy. This is the easiest part and if you've read this report carefully you should remember that we've discussed this part already because now your HUMAX is a normal 5400Z / 5410Z with the Molex socket present at JP250. Just change the Bootloader as described previously.

The Needle Board solution

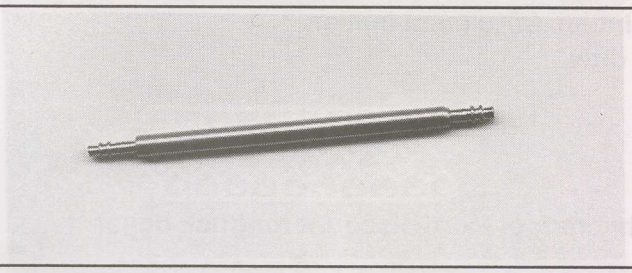
For building your own needle board for your new HUMAX 5400Z / 5410Z you need:

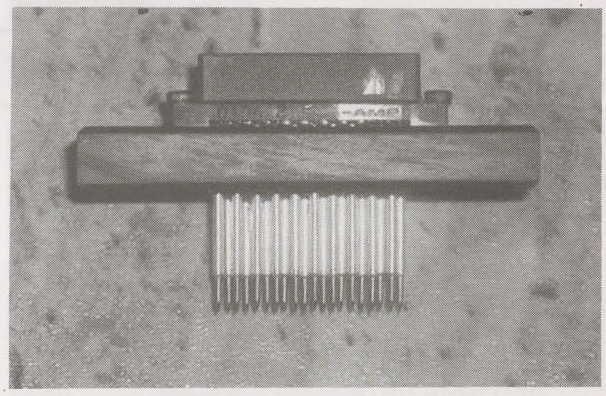
40 pieces 0.6mm hollow needles
with springs inside and sharp tip;
1 Molex socket
1 piece 1 cm thick non electrical connecting material
e.g. plastic or even wood
Drilling machine and 0.6mm drill
Soldering station, solder

Instead of the precise needles you could use the tension clips of wrist watches (see photo, below). Yes, this is downright clever!

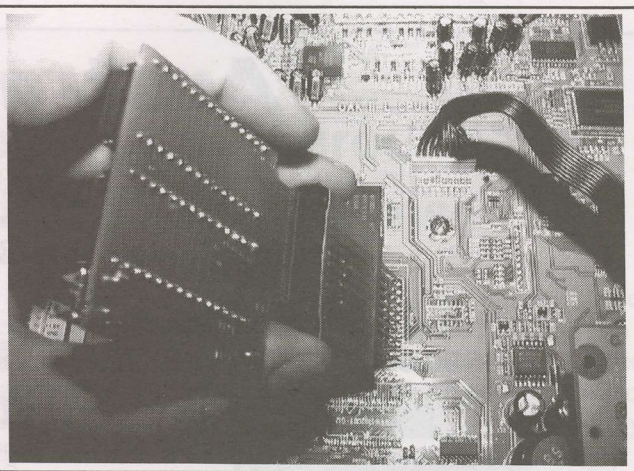


Molex socket (above) and wrist-watch "resourced" tension (spring loaded) clip (below).





Take your piece of plastic and cut it to size (about 5mm bigger than the size of the JP250 Molex socket each side) and drill the pattern of the Molex pins with the 0.6mm drill into the plastic board. Then stick the first row of 10 needles through



the holes and glue them in with two component glue. Solder these 10 pins to the Molex socket and continue this way until all 40 pins are glued into the plastic plate and soldered to the Molex socket.

Then fix the Molex socket with two screws on the plastic board. Photo top, right, another version of "home made" needle board" with Z-Board in place ready to swap flash Bootloader.

Once you have all in place, the needle board with "shock absorber" springs make contact to the solder points on your mainboard and you can start flashing the Bootloader as described above.

SatFACTS alternate (and recommended) method:

We are sure that all our readers who are interested in modifying their HUMAX are at least hobbyists but are not necessary "specialists" in the soldering field.

SatFACTS has looked deeper into this subject; we were searching for a method like a "work around" for the layman amongst our readers and we developed the following solution without even the need of a soldering iron!

We will be using a hot air blower. No, not your lady's hair dryer gentlemen.... unfortunately this one does not work as we need a bit more "wumme" in the air, let's say at least 400°C is needed, so something industrial called the "hot air gun" is more appropriate.

As before, we have disassembled the 5410Z and have taken the main board out of the 5410Z's casing. Then we have mounted it on a pc board station so we have both hands "free" for the job (photos, page 14).

We recommend to warm the complete board slowly to about 200-250°C to avoid stress to the components and only then concentrate on the Molex socket solder points. Caution: Do NOT overheat the board as the tracks might separate from the actual board if you are overdoing it! When it starts smelling you are very close to that point! If you do it slowly you will not even see a mark or stain on the pc board! Again we are doing this from the backside of the mainboard like with the unsolder solution.

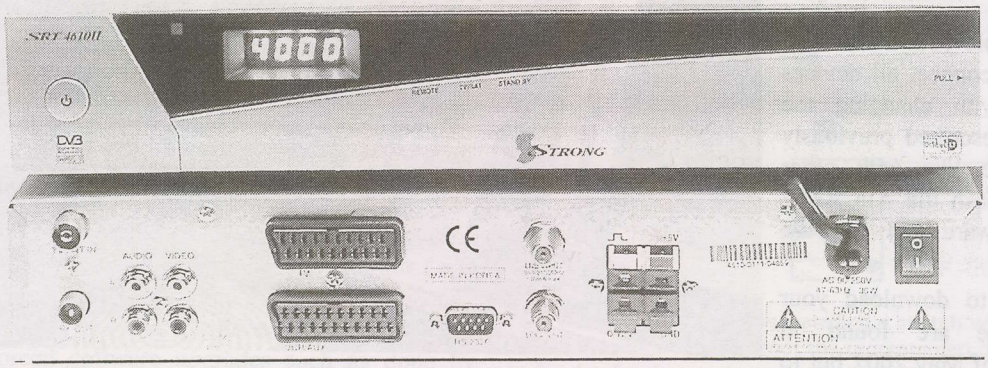
Hold the Molex socket in the one hand and heat the solder points with the air gun in the other hand. Once the solder points turn shiny the solder is melting and you can now push the Molex socket from the top side into place!

Make sure that you hold the Molex socket the right way around and that the solder pins of the Molex are straight and not bent before you try to push it into the melted solder in the solder points!

FORGET THE REST

THE ALL NEW SRT4610 II

IS NOW AVAILABLE FROM YOUR STRONG DEALER INSTALLER.



FEATURES

FTA 4000 Programmable channels
Teletext Decoder
Digital audio out
Picture in graphics
Electronic program guide
NTSC to Pal converter
DiSEqC 1.2
Data transfer between units
Upgradable from our Web site
Full factory warranty and spares backup
C Tick approved for Australia and New Zealand
Polarizer and 12volt switch functions

Exclusive

2 YEAR WARRANTY

WHEN WARRANTY CARD IS REGISTERED

See your *STRONG* Dealer for our complete range of satellite receiving equipment

- **NSW ELECTROCRAFT** 02 9438 3266
- **WA NORSAT** 08 9451 8300
- **QLD NATIONWIDE ANTENNA SYSTEMS** 07 3252 2947
- **VIC STRONG TECHNOLOGIES** 03 8795 7990
- **New Zealand HILLS** 09 262 3052

STRONG Technologies PTY LTD

ABN 35 097 861 731

Internet: www.strong-technologies.com - E-mail: admin@strong-technologies.com
Unit 2, 1-3 Westpool Drive, Hallam, Victoria 3803, Australia
Tel: +61 3 8795 7990 - Fax: +61 3 8795 7991

There is enough solder in the solder points to give the right connection and the temperature is sufficient for that. Remove the air gun whilst still holding the Molex socket in place until the solder has hardened again. Visually inspect your work; you should not need to do any cleaning as this is in our opinion the cleanest and fastest method for the conversion with the Molex socket.

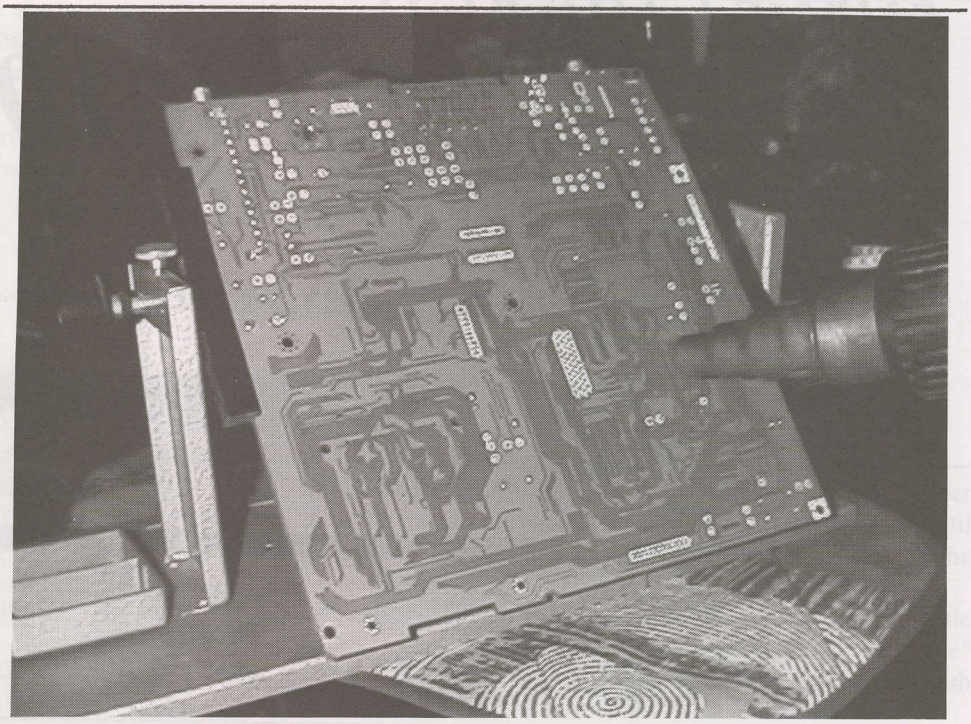
Now reassemble your mainboard into the casing, connect all devices and continue with changing the Bootloader as described previously (same procedure like with other methods) then flash the AllCAM / MultiCrypt software and you are done.

Web sites to download your +CAM software are found in SatFACTS #93 of May 2002 but to complete this report we have some listed for you

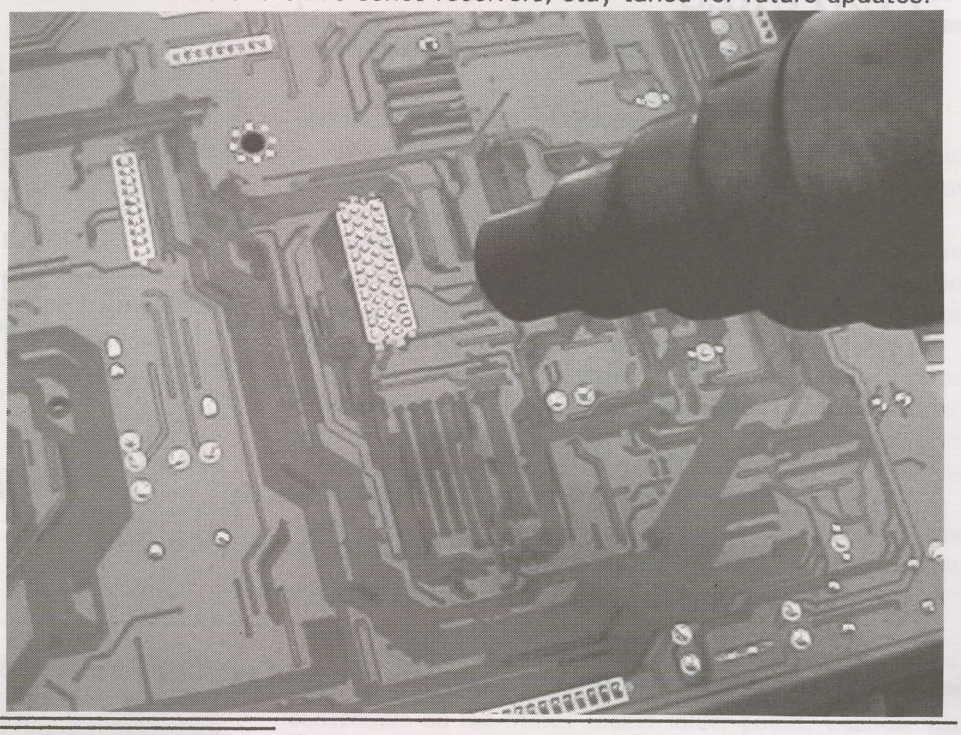
http://www.humfree.de
http://sat-digital-tv.admin.net.pl
http://sat4you.n3.net
http://www.humaxdigital.com/support/Files/hic.htm
http://www.axs-ict.nl/humax5400/Talen/English/index.htm
http://www.poltergeist.ch
http://get.to/humax
http://mitglied.lycos.de/antenne18/Humax-Soft
http://www.humaxsettings.nl
http://www.angelfire.com/tv2/crvena23/humax.html
http://www.anticlip.de/6451.html

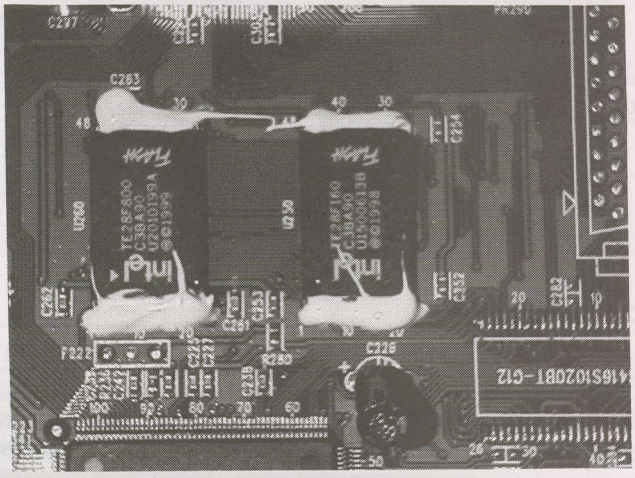
That should be enough web sites for this matter and again, have a look in our previous issues

In the struggle to comply with CAM / CAM software developers like Irdeto, Viaccess and others, the HUMAX factory gets more and more inventive to prevent end users from altering the software in their own box. The next trick was to smear glue onto the IC pins and the Molex solder points trying to make soldering impossible with extensive cleaning unavoidable (photo, left). Here an example to prevent unsoldering, programming and resoldering the C3B Flash.



UPDATE: Humax is (November 2002) releasing yet another anti-modification version of 5400 and 5410 series receivers; stay tuned for future updates!





We see this more like sabotage than anything else; imagine if you needed to replace the Flash for repairs! This could render your HUMAX to scrap metal rather than a working IRD.

Editor's note: If locating "watch band spring loaded probe pins" proves difficult for you, try http:www.rswww.com.au for 2-part (Harwin brand) spring probes on a variety of mechanical pitches including 2.54, 2.0, 1.27mm. Be warned - they are more expensive than watch shop parts!

And even more IRD tricks

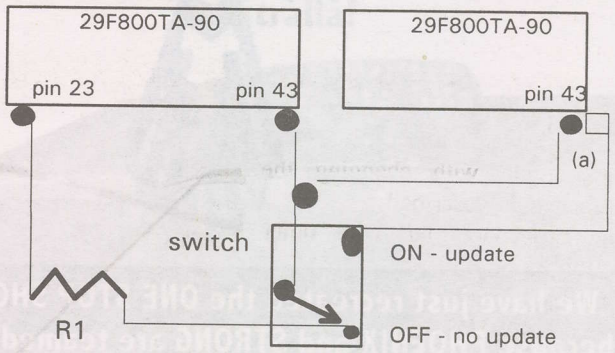
Protecting UEC 660 and 720s from forced downloads? Rolf Deubel Reveals All

UEC receivers are currently used around the world wherever Irdeto CAS encryption is used and Mindport / MIH have a share in the business. In some countries UEC satellite receivers are part of the subscription and owned by the pay-TV provider, where in other countries these receivers are freely available from retail stores (including supermarkets in South Africa!) and they obviously then become the property of the subscriber.

In any case development of bouquets and service sometimes demands a software upgrade of the satellite receiver where in other cases the Pay TV providers do *forced* software updates to limit (restrict) the box capabilities. If you <u>own</u> your UEC box, this may certainly not be in your interest as somebody else is applying force on your property by limiting your viewing rights (forced software upgrades such as done by Aurora in December 2000 are an example of "somebody else" telling your IRD what it can, and cannot, do *after* you have paid for and own it!).

The receiver's operating system is stored in one or more so called Flash ROMs (also see SatFACTS articles on NOKIA d-box / 9x00 series and HUMAX 54xx series in August - November 2002). In the UEC boxes these Flash ROMs are set permanently "write enabled" which means that updates can be applied via either the on board COM port (RS232 communications port) or "over (the) air" as Optus did to Aurora boxes.

The over air updates is what we are looking into here. There is a feature in the firmware where the viewer can select a "Firmware Update" in the advanced options menu of the UEC STB. This gives the viewer freedom of choice to decide whether a firmware update should proceed or not.

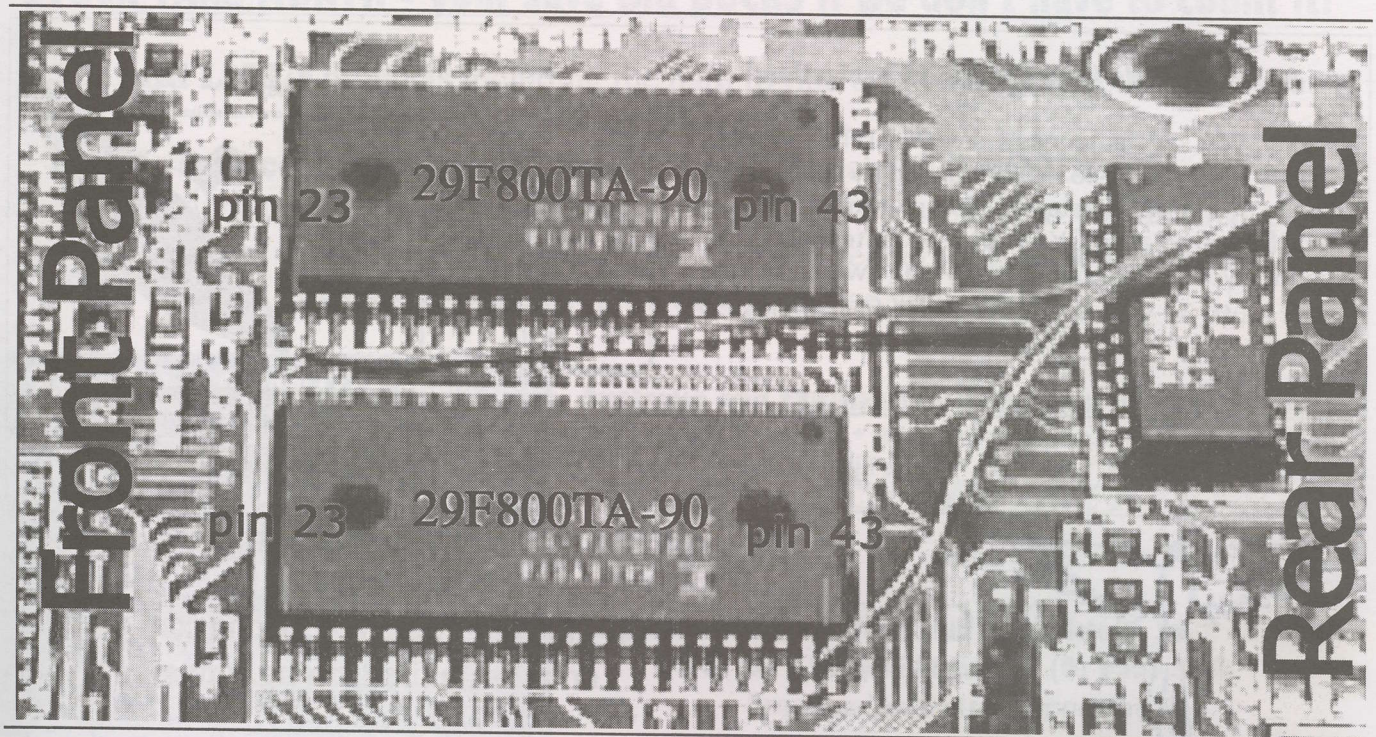


SWITCH. This mod involves installing a switch which "breaks" the download stream so you (not the programmer) determines when to "update" software (switch shown in 'firmware update bypass' position).

On the other hand, Pay TV providers can *force* such an update if they deem it necessary for whatever reason. Sometimes such updates are advantageous with new features to the STB (see SatFACTS report on UEC's interactive features in December) but sometimes not; the box will play crazy, it freezes occasionally or the box has been stripped from some features, which the viewer deemed comfortable and handy. Our "how to" report will show how to set a *hardware* "write disable" to the Flash ROM combined with a switch so that you yourself can decide if you want your firmware updated or not.

<u>Parts needed</u>:

80 cm thin cable
1 micro switch 2-way switching
1 resistor 4K7 Ohm (4700 Ohm)
Fine tip soldering iron and radio solder

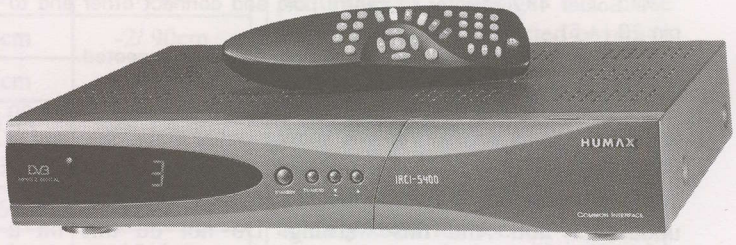


STRONG
AUSTRALIA PTY LTD

Don't sell out $$$ - keep it in Australia!

HUMAX

When ONLY the **GENUINE** will do . . .



CALL AROUND and call us last because WE will give you the BEST price on GENUINE Humax product in Australia. Nobody - *NOBODY* - will beat our price on first-quality GENUINE Humax products! Don't be fooled into buying a Humax-clone with a "iffy" warranty!

ONE STOP SHOP for ALL OF YOUR IRD NEEDS!

HUMAX 5400Z (V2.06 embedded) / **HUMAX 5410Z** (Irdeto V2.06 embedded) / **SPACE 8800a** (Irdeto V2.09 embedded) / **Aston 1.05** (CAM embedded best value for AsiaSat 3R Indian and Canal + I701 Ku) /**Arion 3300E** (PAL/NTSC auto converter; FTA) / **NextWave 2300F/C** (PAL/NTSC auto converter; FTA) / **SPACE 2800** (full auto sat search) plus **STRONG**'s full line of IRDs (and antennas + LNBs), and of course the complete line of **ZINWELL** products including "kits" for Aurora, LBC/ART/Al Jazeera.

STOCK TAKE MONTH - your save BIG BUCKS if we don't have to count it!

LNB and LNB/f products including the hard to find STRONG products for MeaSat and Canal +.

Cable and connectors - by the metre, roll or truck load! NOBODY beats out quantity buys and the money we save by buying BIG is passed on to you as savings!

Actuators / tools / **test equipment** / 2.4 GHz senders and remote extenders/ **actuator cable**/ and everything else you need!

This month's QUANTITY specials!

Mate - EVERYTHING we have in stock is on SPECIAL NOW - STOCK TAKE SALE - once a year SUPER opportunity including GENUINE Strong LNBs and receivers!!!

Australia and the Pacific's Premiere TVRO Supplier!

STRONG Aust Pty Ltd.

ABN 55 089 555 122

302 Chesterville Road Moorabbin East Victoria 3189 Australia
Ph 61 (0) 3 9553 3399 Fax 61 (0) 9553 3393
Email sales@strong.com.au

Drill and drilling machine to position the switch on the back panel

Again, like in all our "How to" reports, you should have some experience with the soldering iron or consult someone who has.

Remember always to unplug mains when working on electrical appliances!

1/ Take cover off your UEC 660 or UEC 720 box and find IC13, IC14 located on the UEC's mainboard.

2/ Locate pin 43, second from the end of Flash ROM 29F800TA-90 (see picture, p. 15).

3/ Unsolder this pin 43 and lift clear of track. Solder wire to pin 43 on both IC's and connect to switch' centre pole.

4/ Solder 4K7 resistor to centre pole and connect other end to pin 23 (+5).

5/ Solder wire to pad (track) where pin 43 was connected.

6/ Solder other end to switch opposing pole.

Drill a corresponding hole in the back plate and fit switch. Mark on and off positions so that you will know in what state your mod is (even years later!).

From now on YOU can decide if you want a firmware update or not. And this warning: Do not do this on a programmer provided box - it does not belong to you and you have no "right" to modify it in any way!

Remarks: There are UEC STBs on the market with FlashROM other than the 29F800TA-90 (i.e. 28F800, Hyundai, Intel and others). Should your UEC receiver have a chipset other than the 29F800xx or 28F800 FlashROM (the 642 for example), this modification cannot be performed. SatFACTS will report in a future issue how to modify those 'non-standard' boxes.

Murdoch's problems - How serious are they?

History lesson: Last March French based Vivendi Universal brought a civil law suit seeking more than US$1bn in damages against NDS, the News Corp technology arm that designs and markets pay-TV smart cards. Vivendi claimed in the suit NDS had reverse engineered the smart cards used for Canal Plus (France and the Pacific) and Telepiu (Italy). Vivendi further charged, in the California filed suit, that NDS directed an employee, one Chris Tarnovsky, to place the smart card busting instructions into the "public domain" using a Canadian based web site (DR7.com). Tarnovsky has a significant traceable career in piracy before he joined NDS - Vivendi contended Tarnovsky brought his "piracy mindset" with him to NDS and continued to practice the art even as an NDS employee.

Vivendi supported the March suit with sworn depositions filed with the court in April covering a range of hacker related individuals including one Oliver Kommerling who named NDS personnel (including Tarnovsky) citing specific instances where NDS did in fact "reverse engineer" competitive smart cards. Kommerling owns 20% of a British firm known as Advanced Digital Security Research and after he gave evidence against NDS, the folks who owned the remaining 80% of ADSR changed the locks of his doors effectively blocking him from his duties. The other 80%? Owned by NDS: Kommerling in giving testimony was basically blowing the whistle on his majority partner.

Murdoch took NDS from a totally News Corp owned private firm to a public corporation in 1999 and by early 2002 the market capitalisation of the security firm was in excess of US$5bn. When the Vivendi suit became public, NDS public stock dipped 29% in 24 hours losing more than US$1.5bn in value overnight.

If you want to attract Keith Rupert Murdoch's attention, do something that takes US$1.5bn from of his pocket. He reacted by pulling a now well practised KRM rabbit out of the hat. News Corp. went to Vivendi and made them a offer they could not refuse - nearly US$900M for a Vivendi owned Italian pay-TV business trading as Telepiu. The offer had one major condition attached - Vivendi had to agree to *drop* the US$1bn "piracy" filed in California - or *no deal*.

From the original March filing through mid-August, virtually everyone who researched the Vivendi suit and KRM's response came to the same conclusion: Murdoch or his people were "guilty as hell" of reverse engineering the Canal Plus smart card and posting instructions on web sites. Murdoch, speaking to reporters following his News Corp annual stockholder meeting in Adelaide during October, labelled all such lawsuits as "mischief -making" by "second rate competitors."

In August the Vivendi deal came close to consummation and according to the agreement Vivendi was to terminate the piracy suit. But late in August, anticipating this was going to happen, U.S. District Court Judge Vaughn Walker refused to allow the suit to be dismissed. In September, KRM's legal

Murdoch / continues page 22

Being prepared

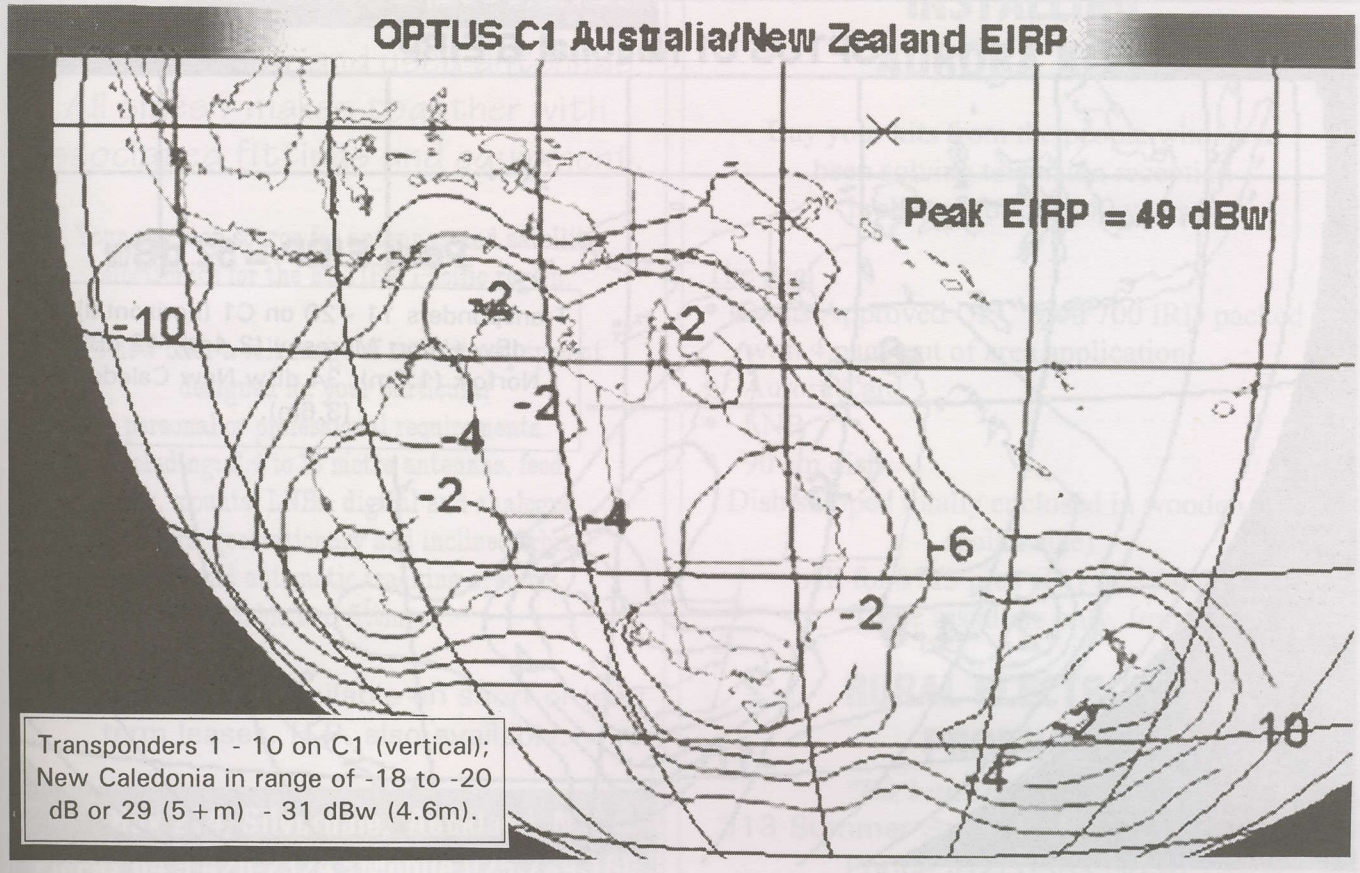
Optus C1 footprints? Which service to which beam???

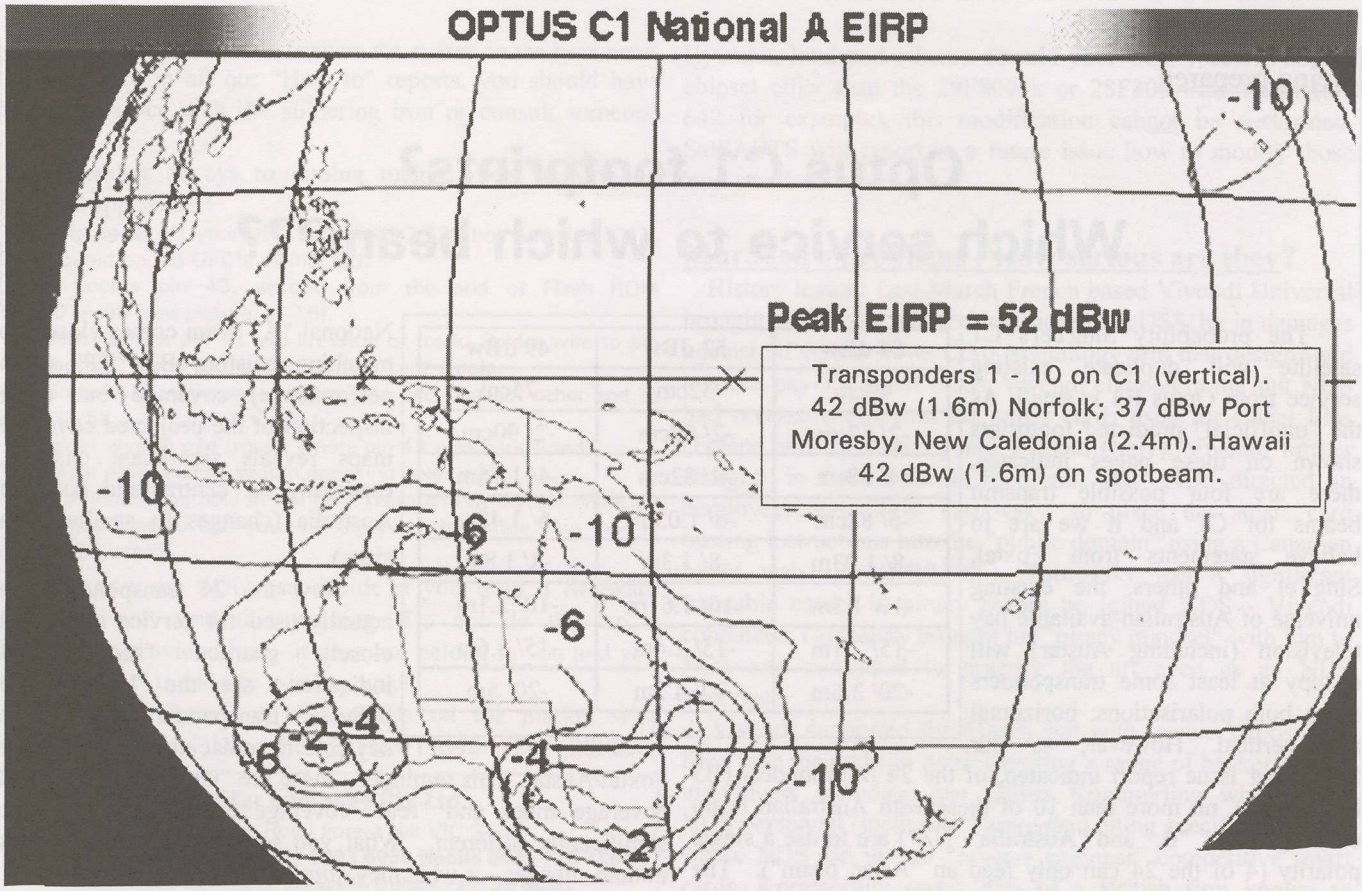
The probability SingTel's C1 satellite will duplicate existing service from Optus B3 is small. As the "unofficial" predicted footprints shown on these pages indicates, there are four possible transmit beams for C1 and if we are to believe statements from Foxtel, SingTel and others, the existing universe of Australian-available pay television (including Austar) will occupy at least some transponders using both polarisations; horizontal and vertical. However, as our September issue report indicated, of the 24 transponders (B3 has but 15), no more than 10 of these with Australian beam coverage ("A," "B," and "Australia - NZ") are to use a single polarity (4 of the 24 can only feed an "Asian beam"). The National "A" beam comes closest to matching existing B3 "HP" (high performance) coverage but close inspection of the projected coverage maps reveals significant changes, especially for central and northern Australia (changes to smaller dish sizes).

54 dBw	52 dBw	49 dBw
40cm	52cm	75cm
-2/ 52cm	-2/ 68cm	-2/ 90cm
-4/ 68cm	-4/ 82cm	-4/ 1.16m
-6/ 82cm	-6/ 1.03m	-6/ 1.45m
-8/ 1.03m	-8/ 1.3m	-8/ 1.8m
-10/ 1.3m	-10/ 1.61m	-10/ 2.1m
-15/ 2.1m	-15/ 2.4m	-15/ 3.6m
-20/ 3.6m	-20/ 4.2m	-20/ 5m

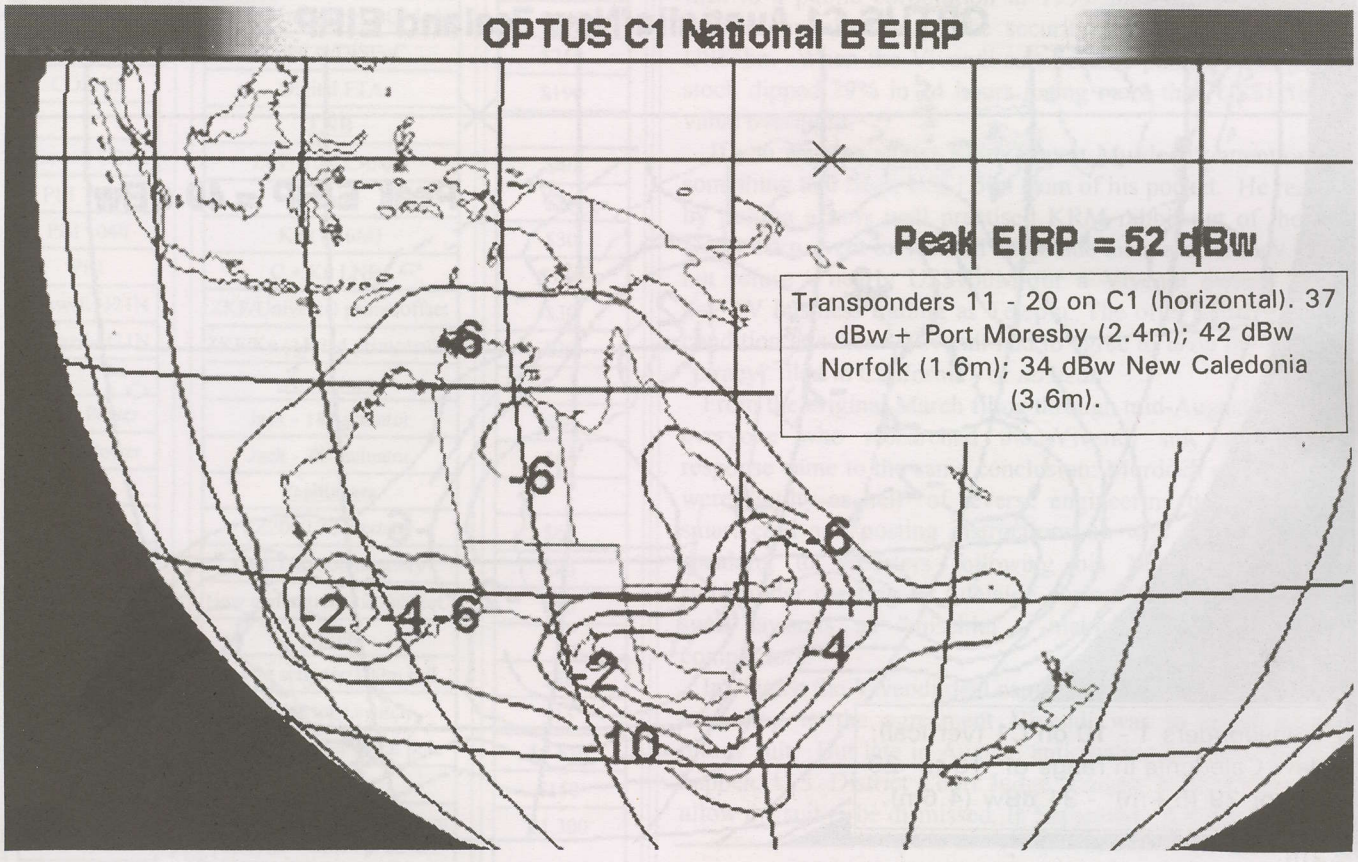
How the 24 transponders are actually used for service remains a closely guarded "secret" but indications are the "A" vertical polarised transponders will play a key role in replacing B3 service for Foxtel/Austar. This reminder - these are "unofficial" projected coverage maps and "real" coverage after launch may be significantly different. What you see here - subject to last minute changes - is what they *hope* will happen!

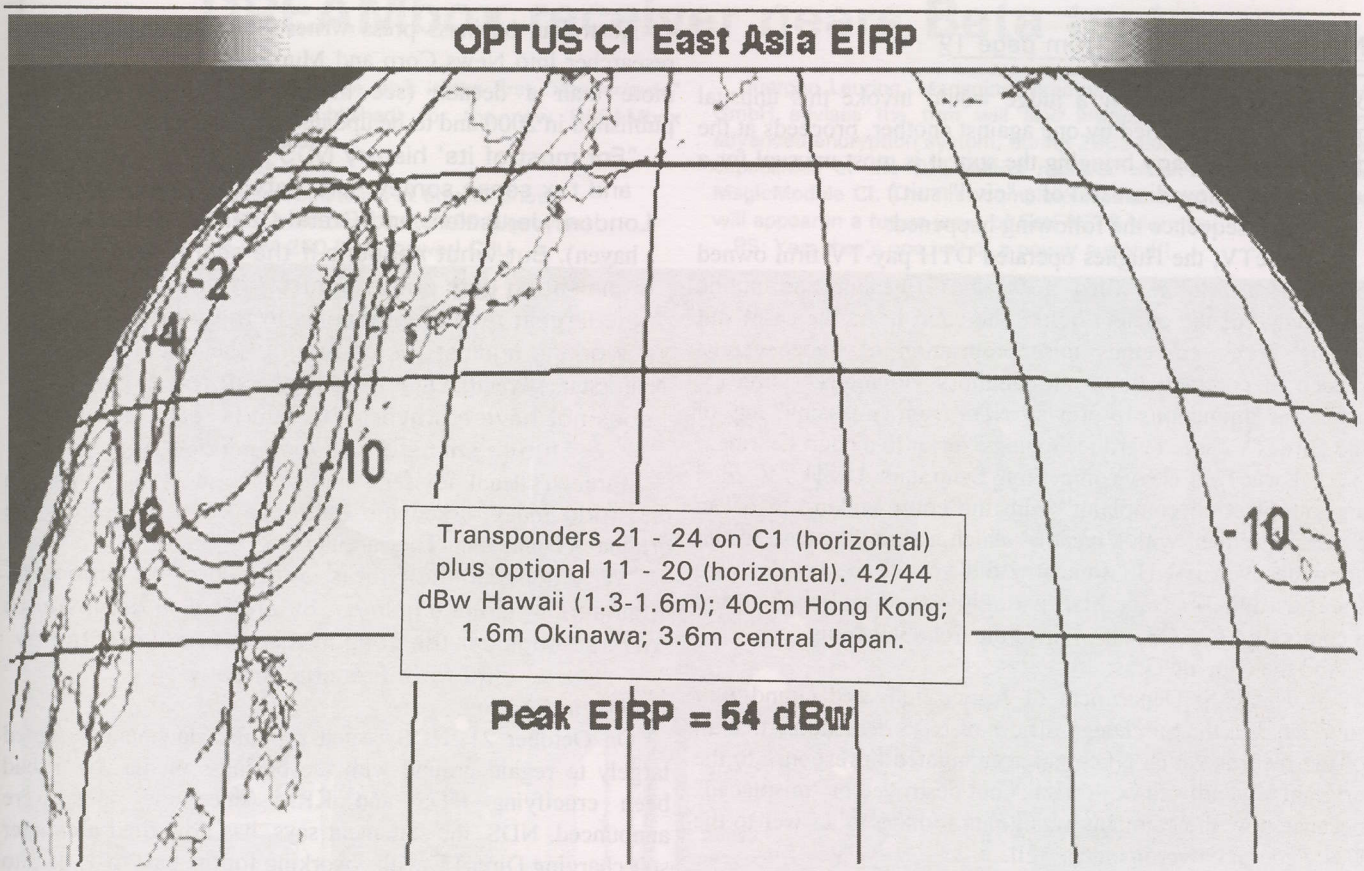
AT most - two transponders to NZ plus Australia? At peak of B3 vertical use, 4 transponders (12.336 [MediaSat/Globecast], 12.407, 12.527 and 12.657 - all Aurora) were configured to reach NZ and Australia. Subsequently 12.527 has been returned to National "A" on B3; 12.657 shut down, leaving only 12.407 (Aurora). For C1 (below), peak NZ levels would be 49 dBw (same as SE Australia) on as many as ten (10) transponders. Of course very few (perhaps only 1 or 2) will use this beam as the Australian footprints suffer significantly when NZ is added (minimum dish size goes from 52cm up to 75cm).





THE TWO that "count." National A (above) is projected to go down to 46 dBw (-6 from 52 dBw boresight) which translates to 1m size dishes in worst (central and NT) regions of Australia. National A is shared with the optional NZ beam - which means 8 or 9 transponders maximum (out of 10). National "A" is vertically polarised - the opposite of the present pay-TV services. National B (below) is similar but adds Norfolk Island to -10 dBw contour (42 dBw effective), or a 1.6m dish. Most dishes on Norfolk presently are 2.1 and 2.3m for Foxtel service.





AND the Asian beam (above); 54 dBw throughout a very large centre region (equal in area to 85% of Australia which shows what could have been in Australia proper if they wished!); 40cm dish for 3 dB fade margin, Also of not: 42 - 44 dBw spotbeam into Hawaii (1.3 - 1.6m dish for 3 dB fade margin).

Murdoch / continued from page 19

battalion found out *why* a judge would invoke this unusual move (a civil suit, filed by one against another, proceeds at the direction of the party bringing the suit; it is most unusual for a judge to not allow dismissal of a "civil" suit.)

In quick sequence the following happened:

1/ DirecTV, the Hughes operated DTH pay-TV firm owned by General Motors, filed a "sealed" (meaning no public knowledge of the content before the court hears the case) suit against NDS, charging "misappropriation of trade secrets, breach of contract, fraud and statutory violations." DirecTV asked for injunctions to prevent NDS from "misusing" any of the DirecTV "smart card technology" prior to a court hearing.

2/ DirecTV's USA competitor, EchoStar's DISH TV, filed an "intervention complaint" with the court seeking to be an equal participant with Vivendi - which assured the case would continue even if NDS somehow did get off the hook. Swiss smart card maker NagraStar, partially owned by EchoStar and a competitor to NDS, also joined the EchoStar filing.

And the coup de Gras:

3/ The U.S. Department of Justice delivered Grand Jury subpoenas to the San Diego offices of NDS demanding that all of the records which NDS had accumulated in response to the original Vivendi suit be "frozen," not destroyed or "misplaced" because now the company was going to have to answer to the U.S. Federal Government as well.

Murdoch when questioned about the sudden spate of legal charges waved his hand in a manner reminiscent of an Italian Count dismissing a hapless gardiner who had tracked mud across his marble floor.

"NDS just happens to be the best in the world (at creating encryption systems) and its competitors are trying to fight in the courts instead of the marketplace." Lumping NagraStar, EchoStar with the United States Department of Justice into a singular dismissal may ultimately prove to be an unfortunate flight of arrogance for the Australian born naturalised American media baron. Moreover, while the EchoStar/NagraStar interventions involve a previously filed *civil* suit, the Justice Department is seeking *criminal* sanctions for NDS personnel - right up to and including members of the board who happen to have a last name of Murdoch.

DireecTV is a customer of NDS, and its' "sealed suit" alleges "breach of contract, fraud and misappropriation of trade secrets." DirecTV fired NDS as its smart card supplier last March shortly after the Vivendi suit was announced. In April, DirecTV admitted, "as many as 25% of all viewers are using hacked cards and not paying for their service." Those would be NDS supplied cards which DirecTV had been using since service was launched in 1994.

The original Vivendi suit argued that NDS used cutting edge technology to reverse engineer the Canal Plus encryption system and then arranged to release hacking information using piracy oriented web sites. Why?

Vivendi claimed NDS sought to put it out of business as a competitive smart card encryption system supplier by demonstrating through (NDS promoted) piracy the weakness of the competitor's system. EchoStar and Nagra cite specific examples of this happening to their own security system as well and offer sealed testimony claiming to identify NDS as the culprit. The Department of Justice served 31 subpeonas on NDS officials at their San Diego area offices after a Grand Jury heard the evidence.

Australian business press writer Neil Chenoweth, a keen researcher into News Corp and Murdoch family activities for more than a decade (see his book, "Virtual Murdoch," published in 2000 and to be updated by year's end), writes:

"For most of its' history NDS has existed in a legal and tax sense somewhere between Hong Kong, London, Jerusalem and Grand Cayman (island - a tax haven). But what happens if the secret side of an organisation gets out of control? If you have one of the largest media companies in the world actively working against the copyright (held by EchoStar, NagraStar, Vivendi, DirecTV and others), the digital future does not have a prayer. This suit is really about the future shape of the media industry."

Murdoch's legal advisers, amongst the most highly paid in the world today, asked the California court to dismiss the original Vivendi suit. They argued:

"Why does United States law govern the actions of engineers in Israel employed by an English company to reverse-engineer the code in a smart card created by and for a French company?'

Why - indeed!

On October 21, NDS issued a public statement designed largely to regain ground with the business media which had been crucifying NDS and KRM since the suits were announced. NDS, the statement says, has now filed a counter suit charging DirecTV with, "working for the past two years to create a knockoff chip that infringes NDS's patents and misappropriates its technology."

Interpretation? Sometimes the best defence is a vigorous attack on the opposition. NDS is basically taking the DirecTV sealed-suit charges and shoving them back into the face of General Motors with a suit of its own. This has the effect of spreading the legal staff working on the original DirecTV suit into two parts - the guys and gals who will pursue the original suit, and now, the lawyers who will have to be diverted to defend DirecTV from the counter suit charges.

When DirecTV gave NDS the boot last April, it said it had been working using its own resources on a new smart card system. NDS's counter suit charges DirecTV with using the NDS technology found in the pre-April DirecTV cards as a "foundation for the new card system." From the day DirecTV announced termination of its NDS smart card agreement, NDS receipts (earnings) in the United States have dropped by 50% and more. So not only has NDS stock been hit hard by the piracy accusations, but its income stream has also suffered.

In the NDS counter suit, and in the public press statements issued by NDS, the UK based firm is also charging that it was DirecTV (not some third party) which arranged for web sites to post hacking information against the DirecTV cards. NDS is asking a court to believe that DirecTV so much wished to be "free" of any involvement with NDS that it deliberately gave away the "keys" to its own smart cards on Internet web sites as a "pretext" to voiding the NDS contract with DirecTV.

NDS claims, "DirecTV's faulty distribution policies and gross mismanagement of satellite television piracy jeopardise NDS's technology and (this) resulted in widespread piracy of DirecTV's services."

If any (or all) of this seems a tad like science fiction to you, we suggest you go back to SF October and read (or reread) our page AA, "Coop's Comment," dealing with how smart card "copyright" and "patents" interrelate.

DREAMbox receiver nears Beta tests

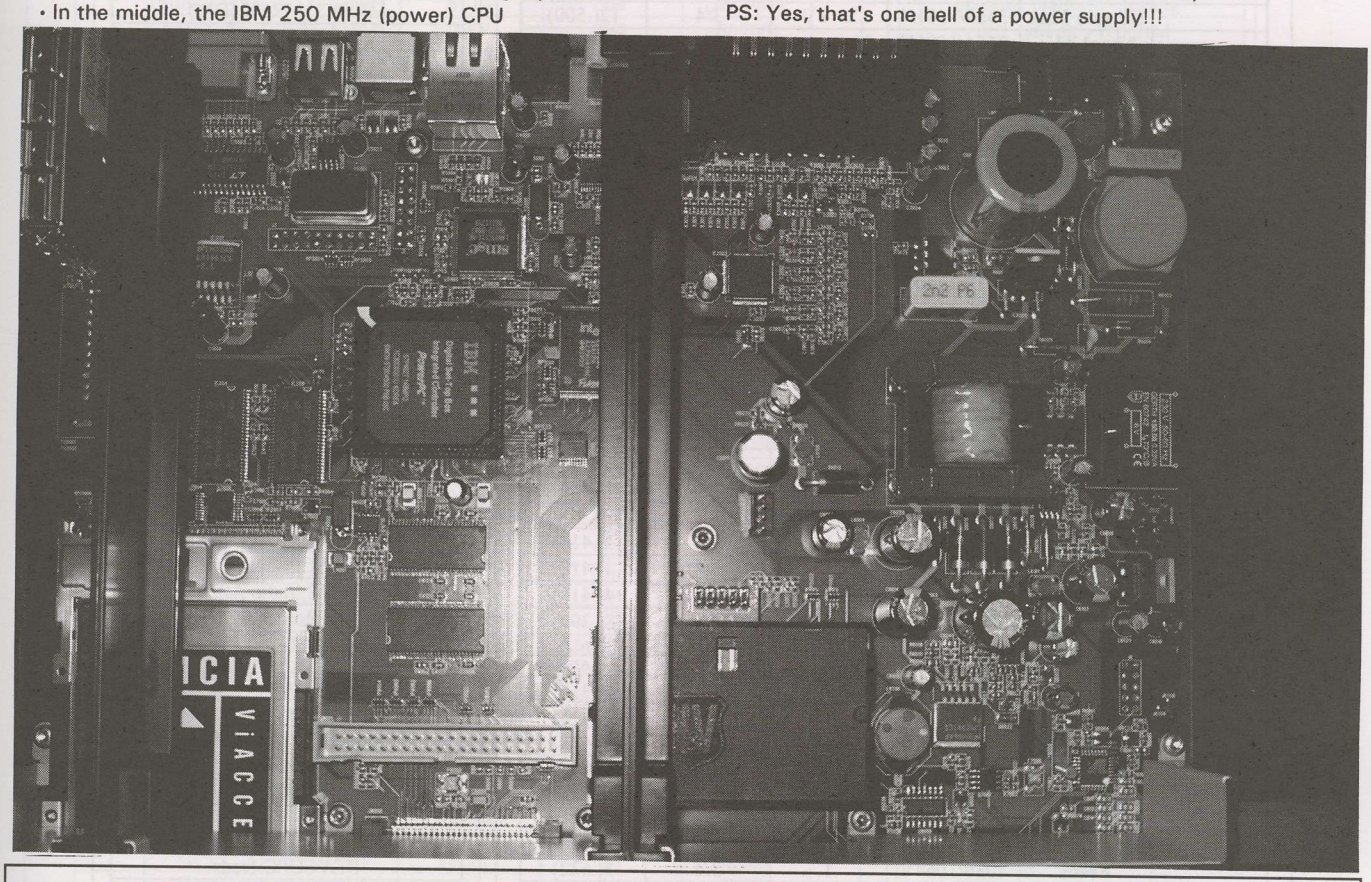
To the best of our knowledge, this is the first "interior/guts" photo available (or ever published) for the new DREAMbox receiver originating in Germany.

What you can see here is:

- CI port with Viaccess CI installed at time of photo
- IDE port for HDD (PC hard drive up to 100 Gigabytes)
- In the middle, the IBM 250 MHz (power) CPU

Juergen Leuring, Managing Director for Dream Multimedia TV GmbH advises the firm will also introduce "DreamCrypt," an advanced encryption system, during 2003 built around the unique capabilities of the DREAMbox receiver when equipped with a MagicModule CI. The first complete test drive of the DREAMbox will appear in a future issue of SatFACTS Monthly.

PS: Yes, that's one hell of a power supply!!!



SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 November 2002

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)
	MRTV-Myn	3676/1474H	1	2/3	6(.000)	erratic service
	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(.351	New 07/02; corrections 09/02
	ETV Mux#2	3485//1665V	4+TV	3/4	27(.000)	Several new ETV here; Asia beam
ST1/88E	MMBN	3632/1518V	12TV	3/4	26(.667)	Nagravision, some FTA; erratic
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	39-5/1245H	1TV	3/4	4(.000)	Was 3923H; sometimes **FTA**
	WorldNet	3880/1270H	4+/28radio	1/2	20(.400)	FTA; Now here full time
	Hubei/HBT	3854/1296H	1	3/4	4(.418)	FTA SCPC, teletext
	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
	Hubei TV	3713/1437H	1	3/4	4(.418)	FTA SCPC, radio 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	7/8	4(.800)	V1110, A1211 + 2 radio (new 10/02)
	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	5+/tests	3/4	27(.500)	FTA MCPC; some testing here
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**
	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

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
	Indo. MUX	3880/1270H	3+ TV	3/4	28(.125)	TVRI, others FTA
	GlobalMUX	3760/1390H	up to 12 TV?	3/4	26(.087)	Testing- 12 chs promised; 2-12 tests
	Brunei/Sing	3733/1417H	1TV	3/4	6(.000)	FTA; share time, Brunei-23hrs,Sing1h
	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	10TV, 4+radio	2/3	30(.000)	see listing p. 29, SF#100
	Aurora	12.407V/T3		2/3	30(.000)	Aust, NZ 90 cm
	Aurora	12.532V/T5	Inc Zee TV	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
	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, A 1281; occ. 2nd TV ch
	Imparja mx	12.360H	2TV + 8 radio	3/4	5(.424)	V1024, A1025, P1024; also try 12.379
	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
P8/166	**ABC A-P**	12.301H	1TV, 2 radio	5/6	5(.858)	Feed, Adelaide; not permanent
	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)	Dateline 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
	TVB mini	4050/1100V	4TV	3/4	13(240)	TVB tests, sometimes FTA
	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)	some TV FTA; radio may require PIDs
	CCTV Mux	3839/1311H	up to 4	3/4	13(.240)	PowVu FTA, replaces PAS-2 svc
	DVBS-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
	MTV	3740/1410H	8	2/3	27(.500)	#2, 8 **MTV China FTA;** 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; possibly TARBS
	TVB(S)	4020/1130V	1TV	3/4	6(.620)	feeds to (USA) pay-TV
	Fox Bouquet	3992/1158V	8TV/data	7/8	26(.470)	Pv, CA/FTA (**FTA ch3 test card)**
	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)	**RAI TV, radio FTA**; balance 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 CA usually

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 ? need verif)
	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	3762/1388H	up to 3	3/4	11(.570))	Korean MUX, reload June 01
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	4175/975L	3 TV, 3 radio	2/3	3(680)	'DTS' radio, TV audio FTA some 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 hemi 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; vert 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. See 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

Optus B3 156E All channels on 12595 V have started on 12527 V, Irdeto 1, same SIDs and PIDs as on 12595 V. Globecast B3 (12.336V) testing HRT + HRT2; VPID1960, APID 1920 (Croatia). Kuwait TV has no longer "loads" (As2 3660V) but old PID settings reveal it is still there. Imparja B1 (12.360H) ? Try 12.379Hz.

AsiaSat 2/100.5E: "Complaining of interference, Reuters World News has moved from 3923Hz to 3905Hz, Sr 4.000, 3/4 FTA and CA and abandoned alternate 3744Hz." (**Arnie**, NT) "Shandong TV is new Chinese SCPC; 4070Hz, Sr 6.811, 3/4 (note unusual Sr) - VPID 32, APID 33; Shanghai Broadcasting Net is also new on 3846V, Sr 4.800, 7/8 (note unusual FEC) - VPID 1110/APID 1211 + 1212 and 1213 radios." (**Jonathon**, PNG) "EuroSports News has begun on 3660Vt, Saudi MUX (Sr 27.500, 3/4) FTA, similar look to Bloomberg - probably not FTA long." (**DM**, NSW) (In fact - already CA-editor)

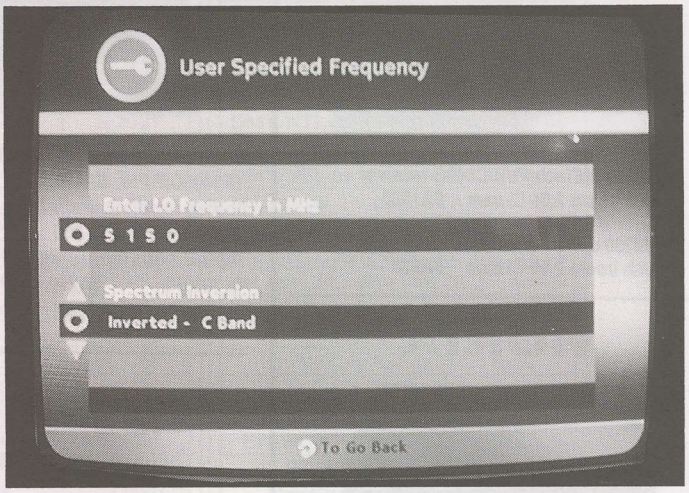
AsiaSat 3S/105.5E: "Correction: The (Telstra) Ku tests on 12.569 are in fact vertical, not horizontal, when it reaches Australia, vertical is skewed clockwise (45 degrees) leading some to believe it is Hz; Lord Howe Island tests of this were negative." (**RW**, NSW) "Indus info cards on 3900Vt are now gone leaving them only on 3760Hz." (**Jergen**, Hong Kong).

Gorizont 33/145E: "STS (+7 hours Moscow) is testing 3731RHC, Sr 3.200, 3/4 (VPID 4194, APID 4195)." (**J**, PNG)

InSat 2E/83E: "Jaya TV 3.615Vt, Sr 3.255, 3/4 has left the air." (**DM**, NSW)

Optus B1/160E: "Sky Box office has added a pair of new order-channels on 12.734Vt (SIDs 1046, 1047)." (**CS**, NZ) "Globecast feeds 12.370Hz, Sr 6.110, 3/4 (VPID 1160, APID 1120)." (**B. Richards**, Aust) "106.3FM on 12.570Hz, Sr 1.853, 3/4 APID 4195, 128 kbit/s, sampling 48kHz stereo." (**B. Richards**, Aust) "Imparja Bouquet, usually 12.360Hz, Sr 5.424, 3/4 still on occasion 'jumps' to 12.379Hz for up to 24 hours - did this October 12." (**DM**, NSW)

Optus B3/156E: "Major changes - perhaps related to preparation for an uncertain launch of C1. T5 (12.532Vt), Aurora, has switched from NZ + Australia to National beam (Australia only, now on 12.527Vt), with a new FEC of 3/4 (Sr remains 30.000). On November 8, 12.594.9 switched from FEC 3/4 to FEC 2/3 suggesting this transponder *may* now be on Australia + NZ beam (which has ABC National on it). Additionally, the so-called 'DTH Bouquet' (loading from the 12.314Hz transponder) is now gone. SBS SE, SBS WA now 12.407 (PIDs 200/201 and 230/231) (**IF**, Qld.) "Yes - 12.595Vt is now on NZ + Australia beam and ABC National + RFM work as they did on 12.532Vt before the shuffle." (**CS**, NZ) "This (early October) announcement from Optus: 'From 7/10/02 to 7/11/02 ABC NT, Imparja and WIN will be dual fed on their current B3/T5 frequency of 12.594.9 and a new frequency of 12.527(Vt). From 8/11/02 all B3/T6 services will be interrupted (0300-0400 AEDT) after which only 12.527(Vt) will continue to operate'. (Update: professional decoders using ABC WA, ABC NT, Imparja, WIN and Westlink will now find them only on 12.527; ABC Nat and SMA Rhythm are now on 12.594.9.) "As on November 8, 12.527 loads 41 services including ABC Nat, ARRN, SMA RFM + most TV channels from 12.594; i.e. WIN-TV etc. but these 'extra' channels only load on Nokia with DVB2000 and as '12527-1, 12527-2' and so on. Meanwhile, the 'new' 12.594.9 loads 39 services on Nokia. (**Bill R.**) "ARRN, Retail Radio Network, noted 12.527Vt (Sr 30.000, 3/4) October 18 APID 1872/SID524." (**B. Richards**, Aust.) "This announcement from Optus: 'ABC has implemented Regional Blocking on all Aurora TV services. ABC DTH viewers will now only have their state Regional TV available (except ABC SE viewers who will also get ABC National Aurora channel 49). ABC has implemented this on instructions from the legal department; details from ABC 1300 139994'." (**Grady**, NSW) "ABC has always promised full access to all regional packages to Aurora viewers - something they can no longer do?" (**Mad as hell**, SA) "ABC SE has always had a unique 'key number' address with Aurora and when it was added (the last to come on the air) we had to contact Optus to have it added to our Aurora card service. My own since the change allows viewing ABC SE, ABC SA but not others; a neighbour with a gold wafer card reports he still receives all service channels even after regional blocking was implemented." (**Edward T.**, NSW) "It is farmers in rural SA who are complaining the loudest. If they



SKY NZ digiboxes. It is possible to enter a C-band LO (i.e. 5150) but it refuses to "take" (hold long enough to allow you to enter C-band numbers). Does anyone know the way around this block?

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. NOTE: Early deadline for December 15th issue: November 25 by mail or 5PM NZST November 26th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

Optus B1: 12.407Vt. Sr 30.000, FEC 2/3 (Television + radio + data channels) Footprint: NZ + Aust.

Ch/Net Load	Channel Label	FTA or CA?	Comments	Ch/Net Load	Channel Label	FTA or CA?	Comments
TV 1 (1)	Tune Aurora	FTA	Test card	Radio4 (4)	R4 Classic Gold	Aurora Card	SMA
TV2 (2)	SBS SE	Aurora Card	Sydney time	Radio5 (5)	R5 Country Beat	Aurora Card	SMA
TV3 (3)	SBS WA	Aurora Card	Perth time	Radio6 (6)	R6 High Energy	Aurora Card	SMA
TV4 (4)	BTV1 (CITEC, Rural Health, Common. Bank)	CA	or RHEF card for RHEF programmes only	Radio7 (7)	R7 Rock Radio	Aurora Card	SMA
TV5 (5)	BTV2 (Vic school, Vic state)	CA		Radio8 (8)	SMA Bus1/ Woolworths	CA	SMA
TV6 (6)	BTV3 (Sky special, Sky PPV, QANTAS inflight)	CA		Radio9 (9)	SMA Bus2/ Sanity Music	CA	SMA
TV7 (7)	Sky 1 (normal)	CA		Radio10 (10)	Q-TAB	Aurora Card	
TV8 (8)	Sky 2 (NSW rad.)	CA	Same pix/Sky 1	Radio11 (11)	NIRS	unknown	Nat Indg. Radio
TV9 (9)	Sky 3 (Vic radio)	CA	Sam pix/Sky 1	Radio12 (12)	RPH	unknown	02/9310-2999
TV10 (10)	Sky 4 (WA radio)	CA	Same pix/Sky 1	Radio13 (13)	BBC World	Aurora Card	02/9955-4092
TV11 (11)	Sky 5 (Sat Com)	CA	Same pix/Sky 1	Radio14 (14)	CBBA	CA	2/9310-2999
TV12 (12)	Sky 6 /NSW data	CA	No A or V	Radio15 (15)	SBS R SE	Aurora Card	SE SBS radio
TV13 (13)	Sky 7/Vic data	CA	Same pix/Sky 1	Radio16 (16)	SBS R NT	Aurora Card	NT SBS radio
TV14-20	not in use			Radio17 (17)	SMA BUS 3	CA	Big W radio
Radio1 (1)	R1 Contempor.	Aurora Card	SMA	Radio18 (18)	UCB Vision FM	Aurora Card	1800 068 204
Radio2 (2)	R2 "Aria 100"	Aurora Card	SMA	Radio19 (19)	not in use		
Radio3 (3)	R3 "Cool Vibes	Aurora Card	SMA	Radio 20 (20)	SBS R WA	Aurora Card	WA SBS radio

replace their 60cm dishes with 1.2m, ABC HD bouquets on B1 would be available. Unfortunately these will not load on a UEC642 and on 660 you can load them but not simultaneously with Aurora. So it is the people using the non-Optus-approved IRDs that are in the best shape here - setting aside those with Gold Wafer cards!" (**NSD**, SA) (Editor's note: Actually, the regionalisation was prompted by a murder case where potential jurors in SA watching ABC coverage intended for WA and Qld were 'tainted' by the news reports; ABC coverage of the case in SA had followed the 'rules' but the viewers had not!) (Editor note: ABC returned to normal card access 2PM AET Nov. 1) "12.688 shut down for 45 minutes (2:45AM) October 26th but no apparent changes in loading after returning to air." (**NS**, Qld) "As predicted, Star Plus (with news and other features; Hindi, (VPID 1460, APID 1420), SET, Zee Cinema and Zee TV Australia on 12.336Vt (MediaSat/Global) have ended brief period of FTA." (**IF**, Qld.) "Expo Channel has Australian produced Greek programming with movies, commercials on weekend evenings; apparently the creator is leasing time/space from Austar and/or Optus for his (FTA) telecasts." (**RA**, Qld)

Palapa C2M/113E: "Bali TV seems to have shut down their 3926Hz service; no surprise here." (**Jonathon**, PNG) "Advertising/promotional service 3604Hz, Sr 2.900, 3/4 has screen divided similar to Bloomberg with CNN crawling type news banner at bottom." (**DM**, NSW) "Unidentified promo 3605Hz, Sr 2.900, 3/4 VPID 1110, APID 1211; sometimes A only - no V. (**B. Richards**, Aust)

PanAmSat PAS2/169E: "Test cricket feeds 3968Vt, Sr 6.620, 3/4 VPID 33, APID 36." (**B. Richards**, Aust). "4058Vt, Sr 13.238, 3/4 has five CA (occ. FTA) Chinese services." (**DM**, NSW) "BBC + Bouquet 3743Vt, Sr 21.800, 3/4 recently added a new CA channel labelled 'Discovery'." (**DM**, NSW) "Indy car racing from Queensland 4045Hz, Sr 6.110, 3/4

VPID308, APID 256." (**B. Richards**, Aust) "4030Vt, Sr 11.000, 3/4 TVBJ, test card 3 chnls." (**BR**, Aust)

PanAmSat PAS 8/166.5E: "TVB mini-MUX on 4050Vt, Sr 13.240, 3/4 with four channels, some FTA." (**Jonathon**, PNG) "Taiwan Bouquet 3860Hz, Sr 28.000, 5/6 has been running FTA some of the time; new radio includes '50 & 60 Popular hits' with music from USA and UK 1950-60 era and 'Movie Festival' which is music from the soundtrack of older USA films." (**IF**, Qld) "Mexico APEC feeds 3920Vt, Sr 25.707, 7/8, 7 channels starting with VPID257, APID 258." (**B. Richards**, Aust)

Thaicom 3/78.5E: Major updates on Digital Watch (p. 24) courtesy **DM**, NSW.

Soapbox: (*Comments from readers; opinions are those of reporter.*) "Reference C1 and the (Australian) military. All mil coms will be outside of the normal (commercial) C or Ku frequency assignments - probably X, perhaps L and inside of military VHF and UHF bands. As such their footprints will be customised to their needs and probably will in fact include Singapore in their coverage with relatively modest antennas." (**RW**, NSW) "More piracy supplier raids - New Castle. Three arrested and charged, Fed Police using UHF two-way frequencies just above 480MHz directed this one." (**AE**, NSW) "BTV2 (Aurora channel 5) carried an excellent series presented by Victorian Farmer's Federation dealing with the drought crisis. Unfortunately, Optus had it in CA mode and only those with Gold card could view unless you went to a public school in Victoria where it was on display. What a waste of spectrum space when *anyone* and *everyone* with a dish could have benefited and participated! " (**AI**, NSW). "About TVNZ's 12.456Vt B1 service. Because Sky NZ carries the northern region TVOne and TV2 services, complete with Taupo - north commercials, 12.456 is being programmed with four additional channels; TVOne Wellington + TV2 Wellington, and, TVOne Christchurch + TV2 Christchurch. Sky receivers located from Taupo to Wellington are directed to 12.456 as are receivers on South Island directed to Christchurch's regionalised feeds. The only real difference are commercials and promotions - base programming remains the same for all 3 regions (including Sky's northern-North Island package)." (**DS**, Auckland) "ABC programme 'Feedback' is commenting on viewer letters complaining about 'black stripes at top and bottom of screen'. Their answer, demonstrating what they said was 16:9 on a 4:3 receiver, and then 14:9, was that this was a compromise to serve 'universe of digitally equipped receivers' in TV land - a number they said now totalled 30,000. In their dreams!" (**NS**, Qld) "Blackspot terrestrial area rollouts continuing: Capertee, Hartley, Megalong Valley and Portland are latest to request funding (all NSW)." (**DM**, NSW) "Truck loads of ex-CATV gear including dishes to 10m heavily discounted at out-of-business Taupo Cable TV (NZ); contact David Jones, tel 09-239-1522. (**BE**, NZ). "Believe it or not - dishes as small as 1.2m 'work' on B3Hz into southern tip of South Island (NZ) - such as Dunedin but 2.1m is better choice for rain fade margin protection." (**PE**, NZ). "Germany"s Premiere electing not to use Irdeto/BetaCrypt-2 while replacing existing Irdeto/BetaCrypt-1 - which has been hacked by estimated 1,500,000 homes!" (**RD**, RSA) "New Austar rules: No more 6-month subscriptions (coinciding with NRL); minimum now 12 months." (**Gerard**, NSW) "More accessible eMtech site (SF#98, p. 30) is http://www.emtechnics.com." (**DM**, NSW) "Try this on. TVNZ has 1/2 of a B1Vt transponder (the second half owned by TelstraSaturn) which they presently use to send TVOne and TV2 commercial service to southern-North Island (i.e. Wellington) and South Island. There is room on this half-transponder to support a minimum of 4 additional programming channels. Maori TV is looking for a home and 'somebody' is asking for prices on quantity 20,000 FTA STBs for NZ. Could 2+2+1 equal Maori TV on B1?" (**RC**)

AT Sign-off

Whither goest HDD?

The concept that a (computer) hard drive could be an eventual replacement for plastic (VHS) tape has been around for nearly 15 years. Virtually any PC equipped with the MPEG-2 (or other MPEG variant) software and having sufficient unused hard drive memory can record many hours of digital video directly to the drive. Digital video manipulated with a suitable software program is no different than text or still photos. It is simply a "data stream."

By 1998 a couple of USA firms were offering stand-alone hard drive equipped recorders and as of 2000 the price for a 20 hour capacity HDD unit was under US$200; slightly more than the typical reduced-price VHS recorder at the time but still an excellent buy.

TiVo and RePlay Video (the 2 US firms) promptly ran into significant sales problems. The typical consumer was turned off by the complexity of operating the machine, and many disliked not being to archive material (save it long term on a shelf as VHS tape can do). But the primary impediment to sales was a series of responses uttered by the established television software (programming) marketplace, culminating in that favourite American pastime - lawsuits.

TiVo promoted their unit by championing its ability to "skip over" commercials. Both TiVo and RePlay initially offered an "optional" telephone modem connection to a central computer through which EPG (electronic program guide) information flowed. Upgrading their EPG, TiVo created an easier method of programming the complex machine - a "point and shoot" remote control that began with calling up the telephone modem connected EPG and ended with selecting programs up to a week in advance (and beyond) which the user wished to record. TiVo buyers now pay a fee (US$9.95 monthly) for the EPG service.

More quietly than TiVo and RePlay has been home satellite TV service supplier DISH in the USA. It elected to build a TiVo equivalent into its top-end home receivers and through the DISH satellite feed produce their own EPG. With DISH, consumers had access to the benefits of HDD, contained internally in their satellite receiver, putting all functions into a single remote control. DISH will ship (HDD equipped) unit number 1,000,000 before the end of this calendar year - significantly more than TiVo and RePlay have shipped combined in twice that period of time.

SatFACTS reviewed a Strong (model 4890) FTA + HDD receiver combo in our August, 2001 (#84) issue. Our primary review complaint was that it would only record the receiver segment's signals (you could not record on hard drive signals from other V/A sources) and the function that might have been interesting to semi-commercial users was not part of the design; the ability to not only tell it what and when to record, but when to playback (automatically by menu selection) as well. Cable, SMATV, commercial users would have found that an important function but unfortunately it was not an option at all. Subsequent SF readers who tried the Strong unit found lip-sync problems intolerable (something our unit did not exhibit). Nothing seemed to be going well for HDD.

HDD - the technology - has continued to improve. 40 hour maximum record times are now available, and TiVo has fine tuned its EPG system so that users need only to enter one "point and shoot" instruction and it does the rest - including "remembering" to record the show selected when it appears again (such as in a weekly series). RePlay has fine tuned their's as well - if the viewer is a Elvis Presley movie devotee, the software will locate any and all Elvis Presley movies and automatically record them without specific instruction and across the full channel spectrum available to the recorder. And yes, both now "fast forward" (skip over) commercials.

One of the more interesting features is that you can tell it to record a 7PM show that lasts an hour, come in at say 7.20 yourself and while it continues to record the balance of the show, you zip through from the 7PM start point skipping over commercial breaks. Many report they can start 20 minutes into a show and end up watching it "live" (having short circuited the commercial clutter along the way) before it actually finishes. Of course "instant replay" and digital stop-frame displays are part of the system.

But TiVo has now made the EPG mandatory - in fact other than a short preview period, it won't operate at all unless it has been modem connected to their EPG source computer, making it all but useless for viewer-entered instructions from an external source (such as the A/V output of a satellite IRD).

Most recently, Pace has announced a new DVB-T (terrestrial) set-top box with a built-in HDD. Their DTVA is a purpose-designed set-top for the reactivated 20 channel British terrestrial digital service (this replaces ITV Digital after it filed for bankruptcy). This unit has twin digital tuners and decoders so one box can feed two separate in-house sets with independently selected programming, either via remodulated analogue UHF or via an analogue SCART.

What it won't do is accept an external analogue or digital input for recording (through suitable SCART or RCA input sockets). At this point in time, no firm has dared cross that "threshold" because of fear of retribution from the copyright programme rights owners.

A digital "copy" of anything will be equal to or perhaps better than the best analogue copy you could get your hands on. Noise on an older VHS tape, for example, is "washed out" (ignored) when the signal is converted from analogue to digital for recording. And once digital, unlimited copies can be made from the "digital master" - either analogue "first-new-generation" or heaven forbid - digital. Thus copies of copies, the primary self-limiting feature of VHS tape, is overcome by *digital* copying.

The movie/sports/entertainment programming folks view this technical achievement as effectively the end of their copyright control, an invitation to copy-piracy on a scale never previously imagined.

To date, they have been successful in trapping the HDD "genie in the bottle," keeping it bottled up. DISH is "allowed" to produce a satellite receiver + HDD because the HDD copy can't leave the IRD. Pace can build a DVB-T set-top with HDD because, again, once captured on the HDD the digital recording is kept inside the box.

The rights owners want HDD builders to guarantee a control system which makes it impossible for you to share your HDD content with another; any other. And until that happens, the only HDD you will see for sale will keep the genie inside.

FREE!!! Class-i-Sat Advertisements!

Based upon a suggestion by reader Gareth Welsby (Channel 8 Ltd, Port Moresby, Papua New Guinea) - in issues 100, 101 and 102 - a trial. NO CHARGE classified advertising. Simply complete the form below AFTER reading the "rules" and mail, fax or email the relevant information to us.

THE RULES

#1/ Private (individuals) only - no advertising from commercial firms who deal in satellite TV equipment.
2/ Start your listing with "For Sale/Trade" or "Wanted" as appropriate, describe the equipment or part fully.
3/ Provide FULL telephone/fax/email contact information **or** ask us to assign a "box number" (below).
4/ No products or services than could be construed to promote piracy - ORIGINAL cards are OK.

IMPORTANT: Available space will be limited; when full, listings will be held over!

Example Listing

WANTED: Chopper (power) transformers for Yuri 301 receivers; PAL-B modulators and demodulators capable of working between 19 & 39 MHz. G. Welsby, Channel 8 Ltd, Port Moresby, PNG (email service@channel8.net.pg).

Your Listing

☐ FOR SALE/TRADE ☐ WANTED ☐ (other) _____ (check one)

_____

_____

_____

_____

Also complete here

DO you wish a SF assigned "Box Number" (such as "SF100-001") in which case all queries will come to SF and be forwarded to you (see below). ☐ YES ☐ NO

If you checked ☑ YES above, complete the following

Your name _____

Mailing address _____

City/Town/state/Province/country _____ _____ _____

Email address (essential for same day "forwards") _____

REMINDERS

This is a FREE trial service from SatFACTS Monthly. Should it be successful, it will become permanent in issue #103 and a fee schedule will be posted in issue #102.

SatFACTS: DON'T MISS #s 100 & 101!

Dream box tests? d-box**2** functions and mods? Germany's detailed public hacking instructions??? Count down to Optus C1? Murdoch's problems in US courts?

The world is rapidly moving into an evolutionary phase where CAMs are ancient history, and for some purposes smart cards will be replaced with emulator software.

SatFACTS will keep you up to date providing information you require to evaluate your own receiver system options.

AIRMAIL world-wide to 68 countries on or about the 15th of each month.

☐ **ENTER** my **12 MONTH** subscription to **SatFACTS** starting with next issue; rates below.
☐ **ENTER** my **36 MONTH** subscription to **SatFACTS** starting with next issue; rates below.

(11/02)

My name _____

Company (if applicable) _____

Mailing address _____

Town or city _____ Province/state/postal code _____ Country _____

Amount to send (or ask us to charge your credit card - see separate form below):

One Year / 12 months: NZ address? NZ$70; Australia or Pacific Islands address? A$96. European (Eu) region? 75 Euros; Anyplace else? US$75.

Three Years / 36 months: NZ - NZ$160; Australia + Pacific - A$220; Europe - 170 Euros; Elsewhere - US$170. If by credit card (VISA or Mastercard only!) **complete below**.

AUSTRALIA? Another (Australian) option is through Av-Comm Pty Ltd. See page 30.

Please charge my VISA/MASTERCARD as follows:

Card # __ __ __ __ - __ __ __ __ - __ __ __ __ - __ __ __ __ expires____/____

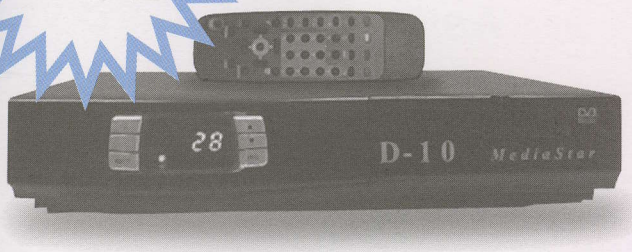
Name as appears on card _____

☐ **ONE Year** of SatFACTS (NZ$70, A$96, Eu75, US$75)
☐ **THREE Years** of SatFACTS (NZ$160, A$220, Eu 170, US$170)
☐ **TB9402**: MATV Systems. Coop explains how master antenna systems work, how they should be designed and installed. A complete course in wiring motel, hotel, office, large homes. ($15 all areas)
☐ **TB9404**: Home Satellite Dish Systems. Coop gently leads you through the technology of the home dish, explains what each part does and how to trouble shoot an ailing system. ($15 all areas)
☐ **TB9405**: Satellite to Room Systems. A combination of master antenna technology and home satellite system knowledge. You learn how to "mix and match" terrestrial and satellite signals in one piece of cable so every set connected receives all channels on demand. ($15 all areas)

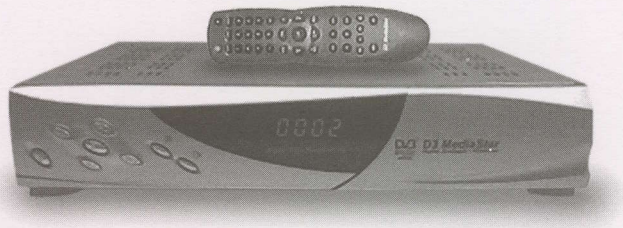
Returning this form: **Choice #1** - Mail to SatFACTS, PO Box 330, Mangonui, Far North, New Zealand. **Choice #2** - if you are charging by credit card (only), fax to ++64 9 406 1083

MediaStar RECEIVERS

$499



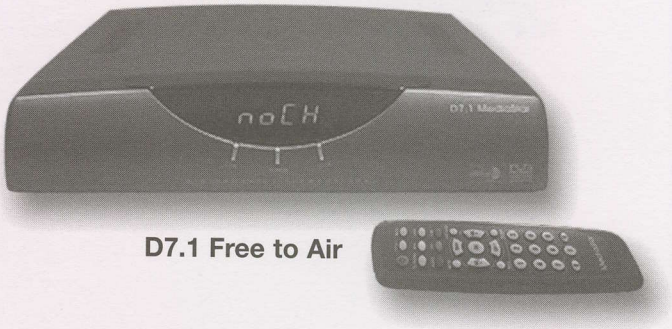
D10 Embedded IRDETO



D3 Digital Analogue and Positioner

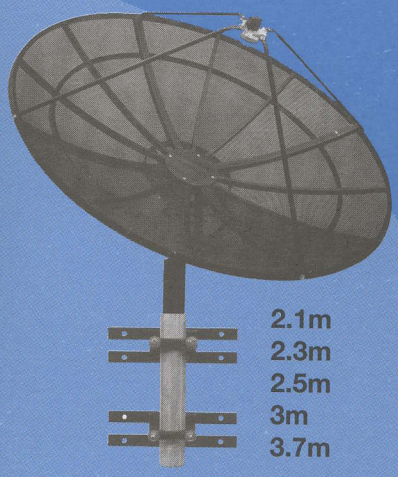
MediaStar Communications International
24 Bosci Road
Ingleburn NSW
2565 Australia

Tel: 02 9618 5777
Fax: 02 9618 5077
Opac@bigpond.com.au



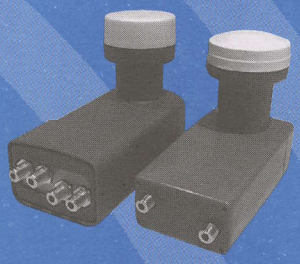
D7.1 Free to Air

MediaStar High Performance



2.1m
2.3m
2.5m
3m
3.7m

Heavy Duty Frame
Stronger Mesh



11300 MHz L/O
Dual and Quad Output

Mustang Actuators
18", 24", 36", 56"

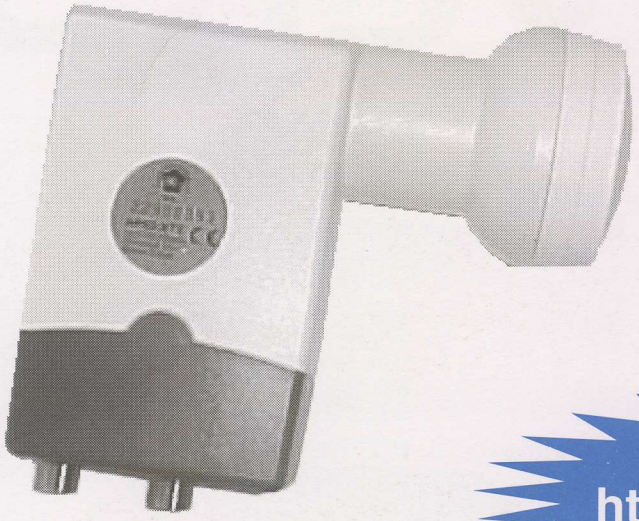
Aston Cams

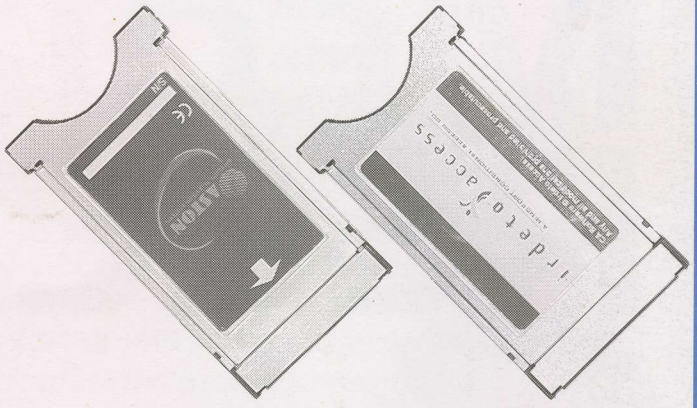
EZ2000+
Positioner

Making communications shine. MediaStar

MTI AP82XT2

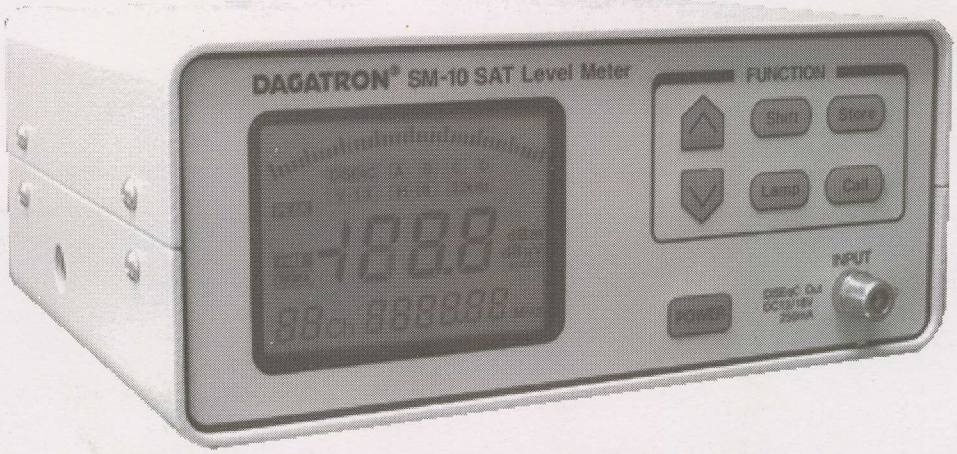
Twin output universal LNBF





Irdeto v2.09 &
Aston Mediaguard v1.05

Shop online at
http://www.sciteq.com.au



Dagatron SM-10

Satellite signal level meter

Trade supplier of quality products:

SCI TEQ
PTY LTD ABN 34 009 235 090

Phone: +61 8 9409 6677 Fax:+61 8 9309 5210
sales@sciteq.com.au http://www.sciteq.com.au