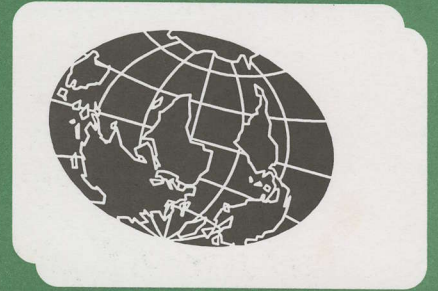


11-07-02 10AM

Bob Cooper's

JULY 15 2002

# SatFACTS



MONTHLY

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

## IN THIS ISSUE

**Modern TV  
in the  
Fiji Islands**

**Nokia d-box  
software  
and mods**

**What ever  
happened to  
MadMax?**

- ✓ Latest Programmer News
- ✓ Latest Hardware News
- ✓ Cable TV Technology
- ✓ Observer Reports

**Vol. 8 ♦ No. 95  
Price Per Copy:  
NZ\$10/A\$11/US\$8**





**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](http://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/ly

Australia: AV-COMM Pty Ltd, PO Box

225, Brookvale, N.S.W. 2100

61-2-9939-4377

Elsewhere: US\$75 p/ly

All copies sent via airmail fast post world-wide

## ERRATA

SatFACTS Copyright 2002 by Robert B. Cooper; any form of copying is a violation of our international copyrights. Advertising rate sheet available upon request.

## COOP'S COMMENT

From that day in 1996 when we saw our first Nokia 9200 digital receiver, we instinctively knew the satellite world would be forever changed. No, it was not the "hidden menus" nor the uncanny ability to sweep entire satellites looking for unlisted SCPC or MCPC signals. Nor was it the widely reported *after market* "technology break through" alleged to have happened in Europe (which ultimately became known as 'DVB2000'). Rather it was the way Nokia engineers, who initially were very-very friendly to us, suddenly clamed up and went stone cold when asked about some "extra features" the Nokia model receivers were alleged to have available. For years there were oft-repeated rumours suggesting that if one really knew his digital programming "stuff" it was possible to combine a Nokia receiver and a PC and tap into pay television bouquets without

even possessing a smart card. We had to travel to Melbourne's annual show in June 2000 to actually witness this in action and we reported, *briefly*, what we saw in SF#71.

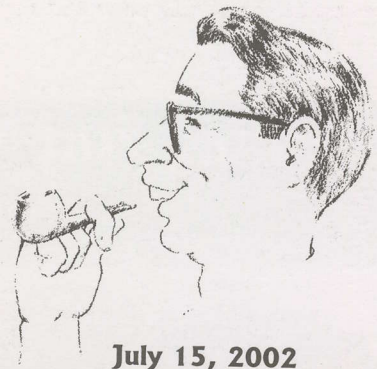
Two of our recently stilled Space Pacific Report TV shows featured "Dr Overflow" software for the Nokia. Neither was very specific in instruction. Both, perhaps out of fear of retaliation to the presenters, skirted around the edges of the Nokia's true abilities. Every week for years we have received telephone and email queries asking for more information on making a Nokia play "outside the circle" (translation: Do pay-TV stuff without paying). We have developed a stock answer - "*go to Internet.*"

If you are a green novice and not trained in satellite and digital communications, the Internet is a very bewildering venue. If you are not an Internet buff, it is a hopeless maze of dead ends and blocked passages. Those who spend much time on Internet know, "*all the really good stuff is restricted to forum members and password protected.*"

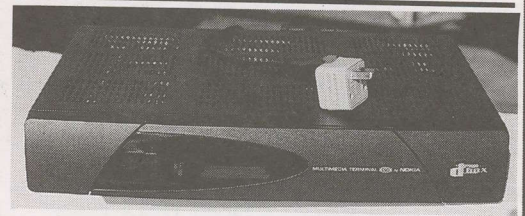
So in this issue we break all (well, *some*) of the "rules" and tell you about the infamous "D-Box." What we explain in some detail is not - repeat not - going to get you free Austar or Foxtel or TVBJ. What it will tell you, in detail those who can spell digital properly will protest is 'common knowledge', is (1) how the D-Box plus Internet software works, (2) how the D-Box can be field modified to expand the memory and with some accessories tap into encrypted data flow instructions, and, (3) how to marry software from Internet to a modified D-Box to produce a "tool" for your own further education. What you do with this new tool is entirely up to you. We don't suggest, or condone, your breaking any laws. We don't suggest, or condone, your "hacking" pay-TV data streams for "free-pay-TV." We *don't* give step by step instructions to do so.

In the process of this report we also destroy some untruthful myths (one of which we have been guilty of repeating, such as suggesting only certain Nokia products with 'special tuners' can be field modified). Actually, the D-Box (or 9500 as it is known outside of Germany) is already history. There is now a "D-Box-2" which inventive Europeans have wasted no time souping up for their extra pleasure and of course as most are aware, certain Pacific available receivers starting with the number "5" also have some interesting "field-mod" possibilities.

In future issues we'll visit receiver mods again because I think you have the right after spending your money to know about everything a particular product can do. Sure, some of it may be on Internet. And if you know how to work through password protected forum sites, perhaps all of it is on Internet. We don't claim all to follow is totally original but we do believe it to be done in a way so that even green-novices can understand.



July 15, 2002



THE infamous Nokia dbox ("D-Box"), complete with "Euro" power plug

## In Volume 8 ♦ Number 95

Fiji Islands solution to TV distribution challenges -p. 6

Field mods and improvements to the Nokia line of receivers -p. 14

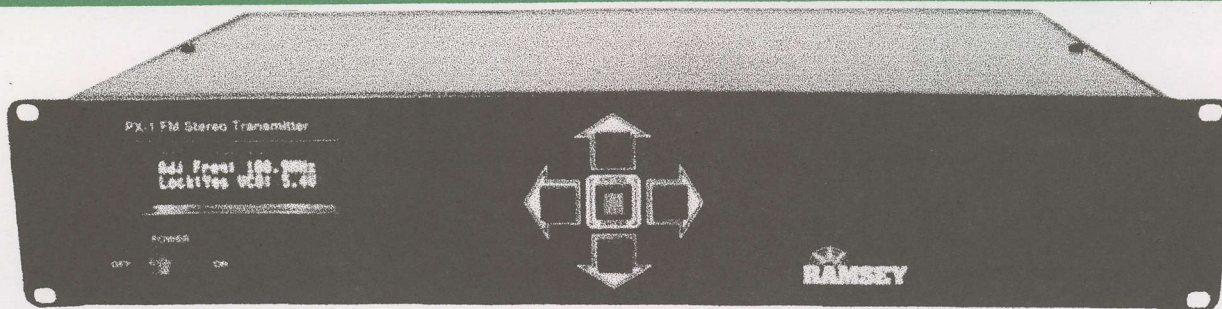
## Departments

Programmer/Programming Update -p.2; Hardware/Equipment Update -p. 4; SatFACTS Digital Watch -p. 23; Supplemental Digital Data -p. 26; With The Observers -p. 28; A funny thing happened on the way to the bird - p. 26; At Sign-Off: (What ever happened to 'Mad Max'? ) -p. 31

## -ON THE COVER-

Ajay Bidesi, Fiji TV Operations Technical Supervisor, with ground mounted trio of dishes used for reception of FTA and pay services. For roof top antennas, see page 6 report.

# 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.

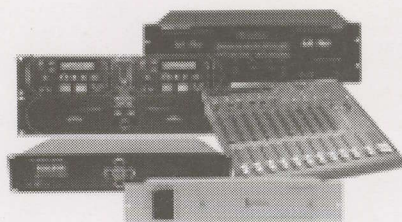
- Set-up and use is fast and simple with just 5 buttons to access all parameters - power, frequency, modulation, and more.
- Built-in stereo generator - no need for a separate encoder. Of course you can also broadcast in Mono.
- Built in Automatic Gain Control (AGC) gently "rides the peaks" and smoothes 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!***

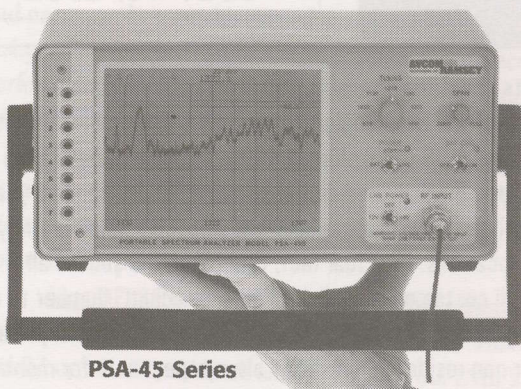
MX1202	Professional 12 channel stereo audio mixer, balanced and unbalanced inputs	\$459.00
MX1402	Professional 14 channel stereo audio mixer, balanced and unbalanced inputs	\$629.00
RM1202	Rack mount kit for MX1202 mixer	\$12.00
RM1402	Rack mount kit for MX1402 mixer	\$12.00
PRCD10	Commercial single 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**  
Technologies, Inc. **RAMSEY**

**AVCOM RAMSEY TECHNOLOGIES, INC.**  
793 Canning Parkway • Victor, NY 14564  
Phone: 1-716-924-4560 • [www.highpowerfm.com](http://www.highpowerfm.com) • [sales@avcomramsey.com](mailto: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!

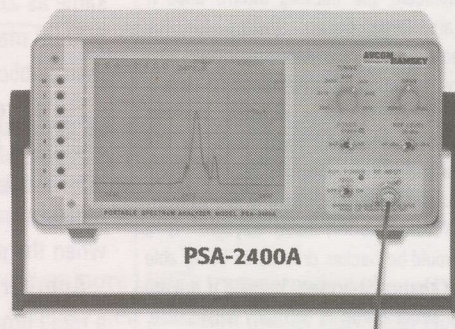
PSA-45A \$2,060.00

PSA-45B \$2,475.00

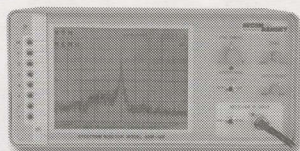
## 2.4 GHz Spectrum Analyzer

- 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

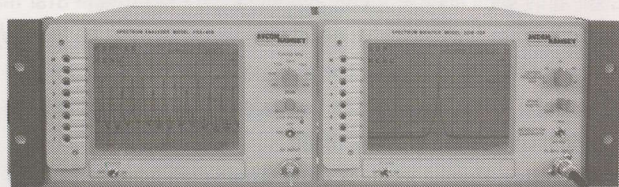
PSA-2400A \$2,775.00



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!

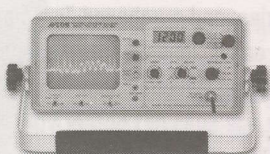
PSA-39A



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

PSA-39A \$2,845.00

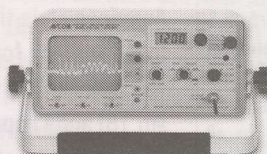
PSA-37D



- 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



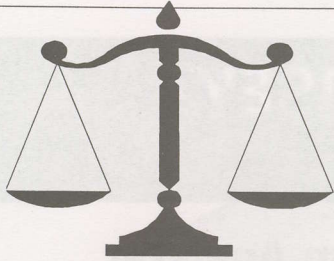
- Receiver & video monitor in one
- 950-2050 MHz input
- Digital frequency lock
- B&W or Color displays available

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

**AVCOM**  
Technologies, Inc. **RAMSEY**

Visit us at [www.avcomramsey.com](http://www.avcomramsey.com)

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



### Piracy revisited

"A number of potential misjudgements, crept into your June 'Revisit to Piracy' report. First, the only way piracy really injures programmers is when card cloning or duplicating becomes commercial. Not to argue semantics, but one person - even two or three - sitting quietly in their home or office 'hacking away' on their PC to recover data sufficient to allow them unauthorised access to pay programming is not a commercial threat. Unfortunately, as you have eluded to in past issues going back several years, when a 'hacker' or 'hackers' work out the algorithms to gain access to a pay TV data stream, 'greed' becomes a powerful factor. No matter how innocent the hacking intent, once it succeeds there are large dollars waiting for the 'sharing' of the hack. It is a rare individual indeed who sits on a 'discovery,' resisting all temptations to 'pass it on' to a commercial entity. It is difficult, perhaps impossible, to 'hide' a successful hack inside of the hacking world. First there is the Internet data exchange that goes on constantly. Secondly, there is the element of pride. 'I have broken it - I have daylight' is a statement every would-be hacker dreams of being able to 'post.' It follows that once broken, keeping it private and within a very small group is virtually impossible. That's why NDS 'mined' the THOIC.com site daily, looking for clues to possible breaks. NDS knew, still knows, the Internet is a rich field filled with 99.9% babble. It is that remaining 0.1% which they covet and are willing to dedicate hundreds of thousands of dollars to 'mining' each and every month. It is fair to assume NDS and other programmers through their European co-operative group has advance warning on every break of any consequence. Could there be an exception to that statement? Only if the 'Eureka - daylight' guy or gal avoids making their proclamation to the world. And in this case, if the hack remains a tightly held secret, it poses no commercial threat to NDS (and others) anyhow - they are naturally curious if they learn of the hack, but have no dollar interest as long as it stays 'private'. So the dilemma. Hacking for the pure sake of personal accomplishment or hacking for the ultimate aim of reaping commercial rewards. It is this transition from 'personal accomplishment' to 'commercial' which energises the NDSs of the world. The next element is the commercialisation of the hack. The original Irdeto 1 hack resulting in the short lived (but highly profitable) Hornet Card is an apt example. It lacked automatic (key) updating capability, and although it could be updated 'manually' after the provider changed the all important key number, it produced a black screen until a new key number was inserted. The Gold Wafer card was developed as a one-piece 'solution' and it included 'auto updating' (ability to detect a key change and correct the card to the new key). At that point an unlimited number of cards could be mass distributed and for the first time large scale commercialisation had arrived."

BJ, UK

## PROGRAMMER PROGRAMMING PROMOTION

## UPDATE

JULY 15, 2002

**SKY Network NZ reports reaching the 500,000 level with subscribers,** translating (they say) to 37% of the New Zealand home base. The service initiated as a UHF analogue service using NDS encryption in 1990, but has steadily been expanding a 40+ channel Optus B1 delivered digital satellite service for five years. Their stats show 135,992 still-analogue subscribers and 365,894 satellite (they call them "broadband") viewing locations. In actual fact, Sky takes the sum of all subscription revenues from all customers and divides by a "medium" number to arrive at their front-lobby displayed "subscriber total" posting. As hotels, motels, private clubs, restaurants and other non-residential facilities always pay more for monthly service, a motel paying (for example) \$1,000 per month for 40 rooms counts the same as 20 homes paying \$50 each. But in their subscription tallies (such as the 500,00 mark), the single motel counts not as "1" but as "20 equivalent homes" in their public relations based utterances. 500,000? 37%? *Not yet.*

**Fiji's pre-TV history.** Fiji TV began as an experimental service installed by New Zealand's TVNZ staff in October 1991, to provide temporary coverage from the World Cup. A lively and well established video rental business in the country prior to 1994 was a major factor contributing to a "base of TV receivers" being in place when the present service package launched.

**Another Fiji pay element.** As we update here (p. 6), (The) Fiji Islands has become a rapid growth area of terrestrial and satellite television. One ingredient not mentioned in our report is Strong Technologies Pty Ltd. (61-3-8795 7990) which as "official representative for Star TV Asia" offers a group of 5 NDS encrypted pay channels to virtually all Pacific areas (NZ and Australia excluded), including Fiji. The Holiday Inn, Suva, recently added some of these channels (including Star Movies) to their in-house distribution system raising a new legal question as of yet unanswered. "*Does Star have business rights to sell pay-TV in Fiji, lacking a local license status?*" Fiji TV Limited holds the only such license there, and while Strong through Star may have acquired distribution rights for some channels in Fiji, that may not be the *only* "permission" required to actually do business there. Equally, Sky NZ's Movie Link service at the Sheraton Hotel resort may also be "extralegal" as well, not holding a government license to do business in Fiji. Stay tuned.

**Lee Gibling's shopping list.** Human interest stuff. Thoic.com administrator Gibling has of course disappeared. As "scholars" work their way through thousands of pages liberated from his hard drive (including Lee's messages to NDS's Ray Adams, Avagail Gutman and others), some amusing anecdotes. Lee shopped at tesco.com, a typical order topped £250 (home delivered); he liked Italian food, American style thin fries, and purchased "aromatic bath oils." No doubt he kept those in stock for his email female contacts, one of whom wrote, "Hi lee - what do you look like? I live in Deal which is near Dover. I don't mind you are older than me (I am 18) and I hope my age does not bother you." His response: "I am 33, live in Cornwall and just out of a 3 year relationship with a girl who is now 19. I have my own home, a country mansion in the wilds of Falmouth. I am genuine, if you fancy a wild time with a passionate guy, then I'm yer man." An amusing set of extracted Gibling emails is scheduled to appear in the reference section of a book now being compiled by Rolf Deubel.

**News Corp (Australian based) stock** dropped to 3-1/2 year low on June 30th at close of (Australian) financial year. Analysts said, "*It is a low-dividend stock trading on a high price to earnings ratio with question marks about (true) asset values.*"

# Penta a Premium Performer

Fracarro Penta Ku band offset dish antennas work better than the competitors two ways. Thanks to precision of design, higher gain and narrower beamwidth exceed the performance of competing dishes. The unique 5 sided shape dramatically reduces side lobes performance, eliminating interference from other satellites. Why use a 105cm dish when a Penta 85 works better?

10 piece Trade Packs minimise shipping costs! LNBF mounts 60, 40 and 23mm Ø included. 85cm *Penta85* and 65cm *Penta Digit*, available now with matching single and dual pol. LNBF's that optimise that performance.

New DFP85 dual lnb mount permits one Penta dish to see 2 satellites at the same time, reducing roof clutter! PAS8 and B1, B1 and B3 or C1. PrimaMatch single and dual out LNBF's available!



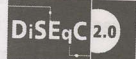
sales@  
**Laceys.tv**  
TM  
(03) 9783 2388

## NEW DiSEqC Switches

- S-164D** 4 x LNB inputs to 1 output **DiSEqC 2.0 Weatherproof**
- S-162CW** 2 x LNB inputs to 1 output **DiSEqC 2.0 Weatherproof**
- S-166A** 4 x LNB & 1 x 5-860MHz inputs to 1 output **DiSEqC 2.0**
- S-115** Generate **Polarisation Band Position & or Option** comands

Access 4 or more LNBF's transparently with any DiSEqC receiver with our new premium quality European DiSEqC switches. From \$19. plus GST wholesale discounts for volume.

DiSEqC details @ [http://www.eutelsat.com/satellites/4\\_4\\_5.html](http://www.eutelsat.com/satellites/4_4_5.html)



sales@  
**Laceys.tv**  
TM  
(03) 9783 2388

## Measure Digital and Analogue

UNAOHM EP 3000 and DaTum10 are *new* top of the line and entry level TV instruments that measure Digital and Analogue with reliability and precision. UNAOHM's 70 year old pedigree of design, calibration and support is included. Bit Error Rates, Spectrum Analysis, Signal to Noise ratios and a host of analogue functions have made Unaohm the instrument of choice for installers from Aberdeen to Auckland.



sales@  
**Laceys.tv**  
TM  
(03) 9783 2388



### More about splitters

"In my junk box I find some cheap 3-way splitters with uneven outputs; I measure -5, -9 and -9. I note in the Peter Lacey catalogue similar models with -4, -7 and -7 claimed. Further, it is my belief splitters without power-pass on all ports are of better quality than those that do and exhibit a better level of port to port isolation. Splitters with (power blocking) diodes also seem to have superior port to port isolation, perhaps because they do not share common windings. I also notice that lower quality splitters when measured with an ohm meter (from the input to any output) typically shows a reading of a few ohms or less (the better quality having a higher input to output port resistance)."

IF, Queensland

We find the resistance check (input/output) to be an undependable method of grading splitters. 3-way splitters with uneven outputs (-4, -7 for example) do a 'double divide' - first a two-way split (-3.5 dB each 'leg') and then one of those is split again (-7 dB x 2).

Original splitter designs used resistor networks to divide the signal while modern devices use a tapped ferrite core transformer. Two-way resistor divider designs are still sold, cheaply, and should be avoided - always.

"So as you have measured a variety of splitters, tell us please which brands or models are the best (27 dB port to port isolation or better)."

Robert S, NZ

Not to condemn in one blanket statement all Taiwan built splitters, but there are many brands and models of similar design which simply must be measured before choosing the best of the lot. Brand names - we found DX Antenna and (USA) Blonder Tongue, in their more expensive (read quality) models, were dependable at -27dB output port to output port isolation if - IF - the spec sheet said it should be so. However, both brands also offer less expensive models which do well to make

14 dB (and in fact their fact spec sheets correctly identify this) so it is not possible to issue a blanket statement that "all splitters from DX (or any other brand) are high quality." *Caveat emptor*. You get what you pay for - buyer beware. Which is why we detailed how you can simply *measure* the splitters *before* you carelessly grab one from a pile for an application that demands high isolation values.

### Giggle

"Sydney readers may have been giggling a bit when your report on missing DVB-T coverage there identified Kings Cross and North Head as 'two affluent suburbs.' Kings Cross in fact is often rated 'the worst for crime' and people who live there hide that fact by saying they are from Potts Point, a nearby affluent community. North Head is actually a region made up of many different suburbs. Translators at Kings Cross and (near) Collaroy Plateau (North Head) are widely used for analogue reception throughout Sydney because of terrain and high building signal blockage at both V and UHF. Certainly, as you report, by not having DVB-T functional from these two locations, a sizeable percentage of the Sydney homes are out of luck for digital signals."

Fred R, Sydney

## HARDWARE EQUIPMENT PARTS

## UPDATE

JULY 15, 2002

**Two Victoria area satellite distributors**, hit by thieves who reportedly made off with more than 100 Humax (brand) satellite receivers, may have been prologue to Victorian police raid on alleged piracy smart card creators in western suburb town of Footscray. Police claimed seizure of "thousands of piracy items" including card writers and cards alleged to have Foxtel authorisation already inserted. SF sources report sale of complete Foxtel (plus) reception packages had spread to pubs where \$1500 would buy complete system *with* piracy card. If the receivers are stolen, that's a pretty decent '*profit margin*'!

**Rupert buys God**. In USA, pioneer USA satellite pay-TV provider DirecTV is the process of being sold by owner General Motors to number two competitor (the) DISH Network. Murdoch tried to purchase DirecTV, failed because he apparently was unable to meet the price DISH offered. This made him angry. Very angry. Before the sale can be completed, various Government regulatory (approval) procedures must be negotiated. Which is where politics enters the picture. Special interest groups in USA often can sway regulators in making a decision. Enter God. A group calling itself the "Traditional Values Coalition," which includes a number of very conservative (read President Bush supporting) mostly fringe religious groups have come out in favour of DISH being denied permission to acquire DirecTV. Which if the regulators agree with their views, would allow Rupert Murdoch a new, second (third, etc.) "shot" at grabbing DirecTV. Enter Rupert. It turns out the leaders of the Traditional Values Coalition have been romanced by Rupert. Reports say he promised them, "*I will commit to airing more religious programming if the EchoStar/Dish- DirecTV merger falls through and I end up owning DirecTV.*" How much money does it take to "buy God?"

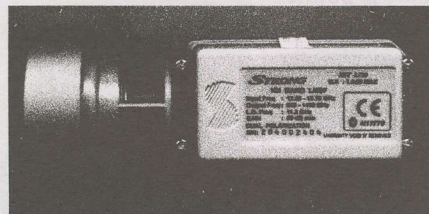
**Rupert hopes he has bought Italy**. Surprise-surprise. The law suit charging NDS with piracy is on ice after Rupert Murdoch pulled out his cheque book to make Vivendi temporarily halt the California filed suit. Murdoch is trying to purchase Vivendi's Italian pay-TV system Telepiu (one billion euros) and while that sale is pending, "*all law suits between the two firms are frozen*" - static as it were. Not dropped, not settled, just frozen while the sale sorts out. Is the suit over? We've read Lee Gibling's (THOIC.com) emails to NDS personnel - and don't think so. (Yes - Vivendi has a full set as well and if they don't pursue this, others are likely to do so.) Logic suggests Gibling could be found if enough effort was put into finding him leading to the unpleasant conclusion that he may be dead.

**Smart card vulnerability**. Normally, a technical paper presented at a San Francisco area symposium on security and privacy would attract virtually no interest. Not this time. Two Cambridge University researchers, in presenting "Optical Fault Induction Attacks" at a meeting of the IEEE, detailed how a US\$30 camera flashgun and microscope has been used to locate and extract from G.S.M./S.I.M./smart cards the so-called "private keys." Researchers Sergei Skorobogatov and Ross Anderson reported, "*we used duct tape to fix the photoflash lamp on the video port of a Wentworth Labs MP-901 manual probing station. By sequentially changing the values of the transistors used to store information, we were able to reverse engineer the memory address map which allowed extraction of the 'secret' information contained in the smart card.*" Hackers have long known that by dropping the operating voltage to a smart card to (around) 3 volts, the card will often "upchuck" some or all of its data in a, "*here it is - leave me alone!*" response cycle.

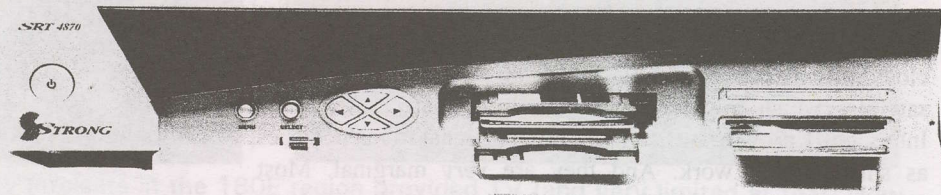


# STRONG KU BAND

DISH S  
LNBF S  
RECEIVER S



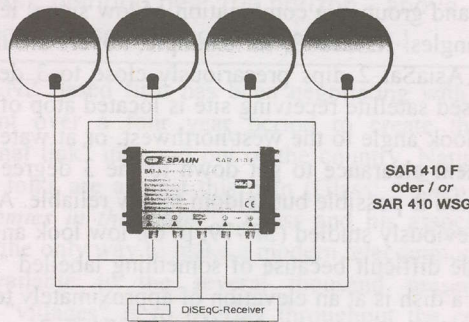
SRT L720 11.300 SRTL717 UNIVERSAL



SRT 4870 EMBEDDED IRDETO +2 CI SLOTS  
OPTUS AURORA LBC ART IRDETO 2

SRT 90 T

NEW PRODUCT



SAR 410 F  
oder / or  
SAR 410 WSG

The Worlds Best Satellite Switching And Amplifying Equipment

See your Strong dealer for our complete range of satellite receiving equipment

• NSW AV-COMM 02 9939 4377

• WA NORSAT 08 9451 8300

• QLD NATIONWIDE ANTENNA SYSTEMS 07 3252 2947

• VIC STRONG AUST 03 9553 3399

• New Zealand HILLS 09 262 3052

STAR  FOR OFFICIAL STAR TV SUBSCRIPTIONS IN THE PACIFIC  
CONTACT US AT THE ADDRESS LISTED BELOW

 **STRONG** Technologies  
ABN 35 097 861 731 PTY LTD.

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

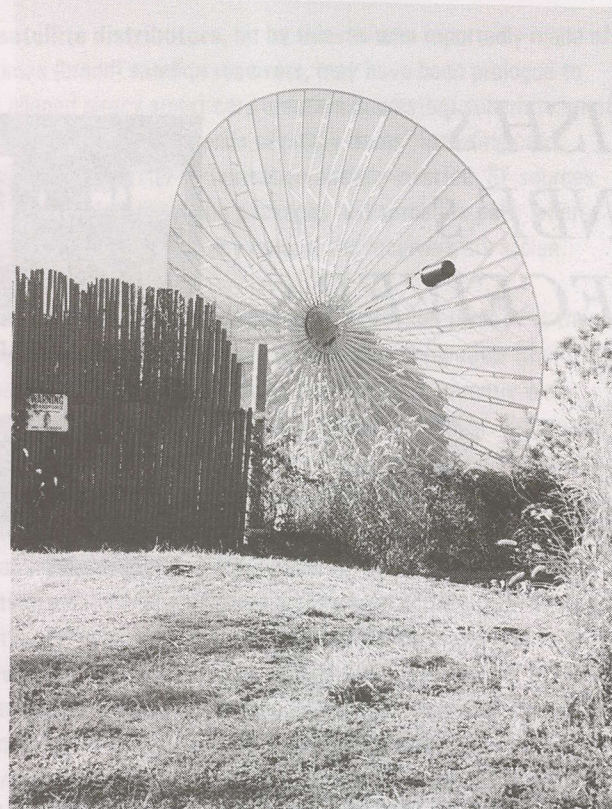
## The evolution of commercial television in the Fiji Islands

The Fiji Islands (capital is Suva, more than 300 islands located in region of 178E/18S, population approximately 740,000) was the last Pacific Islands country of any appreciable size to adopt television. The country's political history past declaring its total independence from Great Britain (1970) has been chequered with a succession of military leaders briefly interspersed by an elected Parliamentary format government. SatFACTS covered one of those transitions in our June and July 2000 issues when we reported on satellite television coverage of a freelance coup led by one George Speight.

The country's business world is largely dominated by the capital Suva and the balance of the island of Viti Levu which rests on the western edge of the country. In terms of satellite coverage, Suva (on the south-eastern corner of Viti Levu) is close to being the "black hole" of the mid-Pacific. Of all of the satellites which might be useful, only C-band PAS-2 and Intelsat 701 provide sufficient on ground signal to make dishes as small as 3m work. And they are *very* marginal. Most satellite antennas on Viti Levu are 5m in size or larger. Very recently, Canal Plus Ku band service has become available - the first DTH practical (90cm) commercial package.

What makes (C-band) installer life complex anyplace within the island group is a combination of low signal levels and low look angles. AsiaSat 3, for example, hovers around 7 degrees while AsiaSat 2 dips precariously close to 3 degrees. If the proposed satellite receiving site is located atop of a hill with a clear look angle to the west/northwest, or at water's edge with sufficient clearance to get down to the 3 degree region, As2 reception is possible but seldom totally reliable. As SatFACTS has previously studied (SF#79, p. 6), low look angle reception is made difficult because of something labelled "earth noise." When a dish is at an elevation of approximately ten degrees or below, the antenna's feed system (SF#74 & 75, p. 6) sees not only the direct LOS satellite signal but through feed + antenna sidelobes, the actual "earth" (ground) below as well. And the earth is a constant source of "noise" - the very stuff you must eliminate if you wish to develop reliable reception from the satellite.

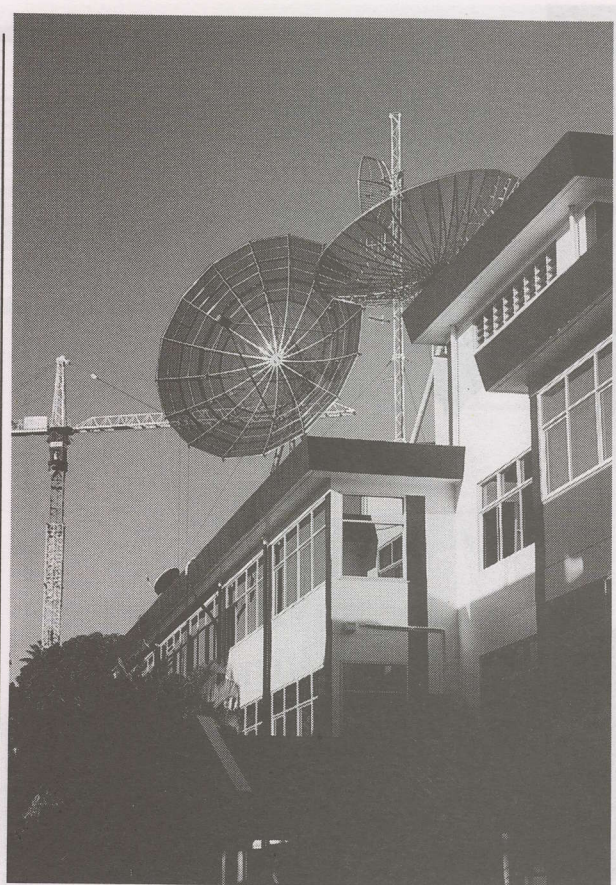
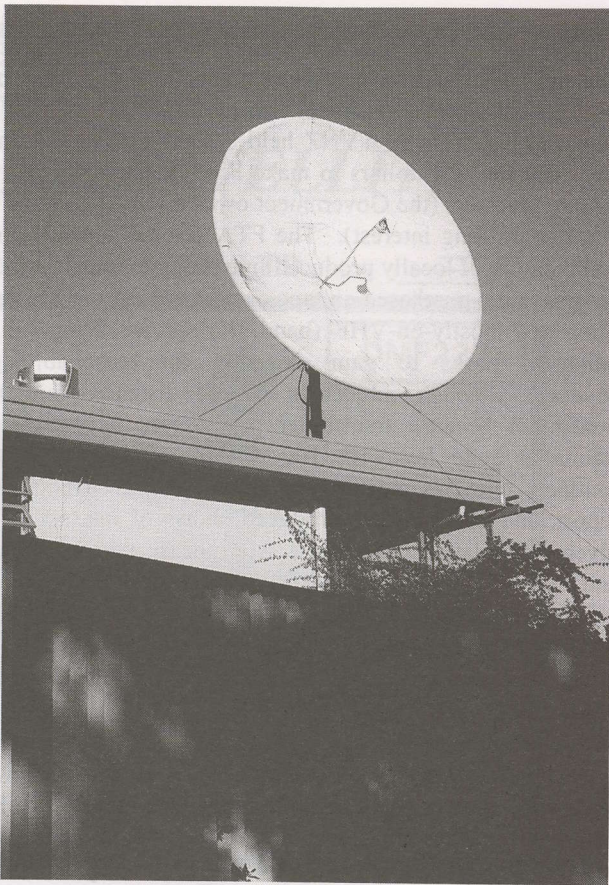
A further complication arises when the proposed reception site has buildings and/or trees protruding into or near the LOS (line of sight) pathway from dish to satellite. They, too, are sources of "earth noise." As happens into much of Fiji from As2 and As3, even though the signal levels are quite strong (30 dBw or better - suggesting 3m dishes) the presence of noise forces the dish size upwards in an effort to reduce earth noise pickup by creating narrower antenna reception "patterns" with reduced "sidelobes." It is the sidelobes of the feed + antenna which respond (pickup) the earth noise, whether it originates from the ground below, ocean water (for those sites on the edge of the coast), or from buildings/trees which to the eye appear to be "just off LOS" to the satellite but which still, in a three dimensional world, contribute "earth noise" radiation that is seen (picked up) by the dish system.



LOW look angles. Prior to local TV, commercial resorts invested in sizeable (5m is common) dish systems to provide 'essential' services such as CNN. As3 is around 7 degrees above the west/northwest horizon and reception requires high quality skills.

Fiji's number two revenue earner is tourism and the western and southern coastal regions of Viti Levu began sprouting modern, middle and upper (tourism) market facilities approximately ten years ago. Resorts tend to be self-contained and are sold as "packages" that cover aeroplane flight to and from, accommodations, meals and a variety of inclusive or optional local activities. Television in rooms has been a difficult challenge for two reasons - the cost of the equipment required to produce the reception, and, more recently the cost of the programming itself. One of the largest resorts, operated by Sheraton (Denarau), includes both short stay and time share facilities. At this stage, (satellite) television in rooms is available in approximately half of their total. Which is another way of noting, "CNN is not available in (anything approaching) all hotel rooms in *this* country."

Also not available is Internet connection. The local international linking "concession" is held by a British based firm which somehow manages to control every application which involves two-way satellite (or fibre) connection (into-out of Fiji). This has the effect of making telecommunication costs rather expensive with one result



TWELVE years back when only Intelsats in the 180E region provided TV (and very limited at that) New Zealander Bryon Evans (owner at the time of Pacific Antennas Ltd) set up a production facility in (Lami) Suva (Fiji) to create 5m range 1 piece fibreglass dishes. This (left) 'antique' remains, inoperative, atop a roof in an upper middle class neighbourhood. There is no LNB (remaining). Fiji TV Ltd / Sky Fiji launched in 1994 and uses 5 to 7m dishes dedicated to satellites ranging from As2 pointing near the horizon - above - to PAS-2 (pointing closer to straight overhead on right, above. Also see front cover photo.).

being rural villages often still do without even a basic telephone connection.

On the one hand, international telecommunication connections are vital to the country's economy so Government has been willing to grant concessions in exchange for guaranteed connection to undersea fibre cable and satellite. On the other hand, with a monopoly of those interconnections, and pleading poverty because of the comparatively "low volume" of traffic handled, the international connection carrier firm acts as a gate valve on the completion of even a basic terrestrial telephone service.

Enter the World Bank and a New Zealand entrepreneur named Kane Glass (E-Comm Pacific Ltd.). That there is a need for improved telecommunications is unquestioned. That it would be a viable business to somehow expand the existing system is less certain. It works this way. Adding a new "village" to the network could involve either terrestrial wires/fibre, or two-way (typically VHF) radio. There is an obvious capital investment which somehow must be returned by the volume of usage. And it is that "volume" which is both unknown or when forecast so low as to challenge the viability of the project. A classic example of chicken and egg - which comes first?

The UK based international connection carrier is one element. The Government owned terrestrial (wire/fibre/radio) telephone system is another. Seemingly, adding a new village is a *domestic* matter that excludes the international carrier. In fact, it is more complex.

Glass's NZ based firm has been negotiating with the Fiji Government over a four year period to create their own "international link" into and out of the country. Naturally the UK based folks are against this plan (Glass: " *They are our mortal enemies in this fight!*"). Glass and his associates are convinced the only way to make a modern telecommunications service available to the several thousand presently not connected "villages" is to overlay throughout the country a new largely radio based system. With one, two or more Intelsat connected 7 - 9 metre terminals located so as to function as hubs. What this translates to is providing services into and out of the international (Intelsat linked) system *without using* either the UK based connector or the local Government operated terrestrial telephone service. The hubs would be connected through VHF, UHF and SHF (microwave) links to individual village phone centres. These links would be capable of handing from one to 96 separate, individually "numbered," phone lines each.

The World Bank. There are funds available for this level of project and the Fiji Government, according to Glass, has been supportive of his loan application for a very simple reason. If it goes through, remote villages will have first time phone service, at no direct dollar cost to Government. It will be a World Bank "loan risk" and if it does not work out - well, it's no money out of their treasury. And like all Governments world wide, it can take the initial accolades when the system goes in and to the public it will simply *seem to be* the result of a Government initiative.

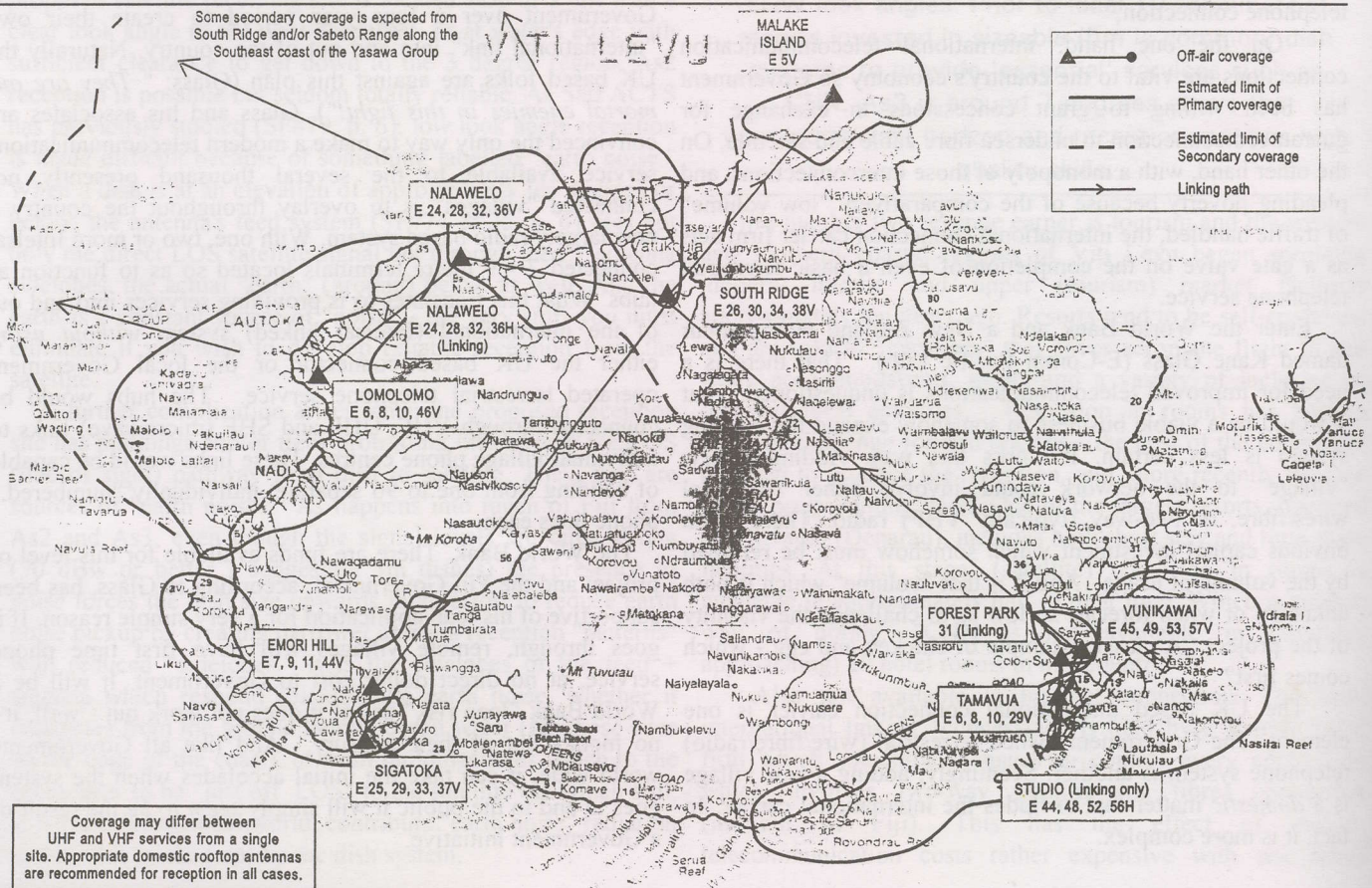


TARUN PATEL is General Manager Pay TV & Information Technology for Fiji TV Ltd.

Television. In the middle of all of this political intrigue sits Fiji TV Ltd. and its' still relatively new four channel TV service. From Suva, Fiji TV manages to broadcast one free to air (FTA) terrestrial channel plus 3 pay-TV service channels.

The original system plan was created by engineers from New Zealand's BCL (Broadcast Communications Limited) under contract. BCL is the technical arm of TVNZ (Television New Zealand) and initially TVNZ held a small stake (5%) in Fiji TV. But the real dollars to make Fiji TV happen came from private investors (the Government owns a [14%] stake as well, not a controlling interest). The FTA service depends upon a combination of locally produced live programming, syndicated programming purchased on tape or disc and of course satellite. This is a mostly-on-VHF (band III) service using hill and mountain peaks to gain elevation for reasonably good coverage although subject to limited distance (range) per transmitter because transmitter powers are by international standards quite low (10, 100 or 500 watts). "Fiji One" routinely televises meetings of Parliament, an evening news report, and other locally produced shows of interest to Fiji's diverse population base. Fiji 1 is a modern television service and, for example, connects its' studio to the Parliament building using a fibre optic link and a Taiwan built A-V in, A-V out package coupled to the fibre line.

The FTA segment currently operate 24 hours daily, carrying ABC Asia-Pacific during "in between periods" of the day (and through the night). There is a 6PM nightly newscast which is "must viewing" for a major segment of the population within reception range of the transmitter sites (see map, p. 8). Fiji 1 believes it reaches more than 80% of the population but those beyond direct reception range, while a minority in terms of population, still makeup a majority of the actual countryside. In other words, terrain blockage and relatively low transmitter powers combine to leave more *ground* "uncovered" than covered. Unlike most broadcasters, Fiji TV maintains a technical staff of antenna and system installation specialists who daily provide what amounts to "free consulting service" to assist those beyond normal coverage range to find a hilltop or





**PACIFIC  
SATELLITE**

(AUSTRALIA) PTY. LTD.

**ANTENNA  
& ACCESSORIES  
SUPERMARKET**

DMF227



Economical, light  
duty, general  
purpose usage

SM-8



Reliable, medium duty  
can be used in windy  
areas

**One brand does NOT fit all; at Pacific Satellite you have mega-choices - three name brands!**

**Pacific Satellite is the EXCLUSIVE authorised DISTRIBUTOR  
for COMSTAR antenna products in Australia.**

ST-12



Strong, heavy duty,  
suitable for cyclone  
areas

**...is a registered trademark for the world's  
BEST C/Ku Rolled Expanded Metal 2 - 13  
GHz antennas!**

Comstar products are simply unbeatable - available from  
7 feet to 16 feet and everyone a winner!

Products are also available through following quality  
distributors:

Seto Electronic Services (NSW) Tel: (02) 9743 6053 Fax: (02) 9743 6053  
V-Com (Australia) Pty Ltd (VIC) Tel: (03) 9886 8018 Fax: (03) 9886 8787

**3/71 Beenleigh Road, Coopers Plains, Qld 4108 Australia  
Ph: +61 7 3344 3883 Fax: +61 7 3344 3888**

**Email: [info@psau.com](mailto:info@psau.com) <http://www.psau.com>**



Canal-Plus Satellite, French Ku band service from 1701, is newly represented by Fiji TV. 90cm dishes bearing familiar Canal Satellite logo are adequate for package of channels which excludes some within the bouquet not authorised for the Fiji Islands.

other optimised location where reception is possible. A sizeable percentage of rural villages use "remote" antenna sites, long runs of downhill transmission lines coupled with masthead and set-side signal preamplifiers to turn a few microvolts of terrestrial TV into something the entire village can enjoy clustered around a single, community, receiver.

The pay-TV service is primarily on Band IV (UHF), using hand-me-down equipment purchased through Sky Network New Zealand; the same analogue NDS system Sky still uses there. The trio of pay-TV channels are programmed with sport, movies, cartoons, National Geographic - a collage of programming that includes as regular fare weekend Rugby fed from (TVNZ) New Zealand and even major pay-per-view events such as the recent heavyweight title bout.

Ethnic. Fiji's population base is very close to 50 - 50; that means, half of the people are descendants of the original Polynesian settlers aeons back while the remaining 50% are Hindi Indians, some imported in the 1800s to provide labour for the agricultural plantations originally launched by British émigrés. The Indians retain their knowledge of Hindi and largely prefer programming that "speaks to them" from their origin (largely the Gujarat region of India). For this reason, one of the pay channels largely sources programming (via satellite) from India, while the balance of channels are in

English. The pay service in mid-May passed an important plateau in subscribers and makes a sizeable contribution to the pleasantly profitable TV service operation. A fourth pay channel is on the drawing boards.

#### Mixed blessings

The rapidly growing tourism facility world in Fiji caters on an annual basis to millions of visitors from throughout the world. However, the largest single group comes from Australia with New Zealand a distant second followed by North Americans, Japanese, Koreans and others. It follows that the vacationers who can afford a stint in Fiji are people of above average income and this in turn means they are more likely than not to have some form of pay-television (multi-channel) service "at home." A minority of Fijian holiday resorts cling stubbornly to the belief that people don't spend thousands of dollars to fly in for a week from Melbourne and then sit around their rooms watching CNN (or any other television). "Out island" resorts specialising in "back to nature" and "getting away from it all" proudly advertise their total lack of television (radio, newspapers, magazines published in the current year, or Internet connection). At the opposite end of the scale, the Sheraton complex (Denarau) has an in room pay-to-view movie service installed and operated by New Zealand's Sky Network TV subsidiary Movie Link - a library of 20 films viewable on demand or NVOD from the hotel room, for a fee.

When CNN was free to air from PAS-2 (later PAS-8), virtually all hotels carried the signal; without paying (it was, after all, FTA). When this "must carry" service went to a conditional access "for sale" plan, CNN essentially disappeared from Fiji hotel rooms. And it remains that way today. One substitute is the Fox News (USA) service claimed from PAS-2 (3992Vt) which with a 5m or larger dish remains accessible. Another substitute is CCTV-4 or 9, from China, through PAS-2, PAS-8 or As3. In fact, Fiji TV relies upon the Chinese based English language news service for its daily international news reports. The Chinese have been courting the Fiji Government for several years, gradually working out arrangements that would allow Chinese fishing vessels to ply within Fijian waters, setting up commercial operations there and largely funding a significant sporting venue to house an international sporting event scheduled for Suva early in 2003. The Chinese Embassy is perhaps the only full-time user of AsiaSat 2's 3 degree elevation range service through a 5m dish (one of two atop the embassy; the second is pointed at As3). A local firm headed by Isaac Fong (Professional Electronics Ltd) has installed a 16 channel SMATV system for the Embassy compound and if you are familiar with that long list of Chinese SCPC channels one finds on As2, you can pretty quickly fill in what channels Fong has cabled throughout the facility. As Fong notes, "*reception is good most of the time but we do have periodic outages.*"

Very recently Fiji TV, under the tutelage of former TV3 (NZ) head Ken Clark, has expanded into the DTH business. Clark and his staff have carefully studied the possibility of creating a Pacific-wide satellite fed English (+) language "network" headquartered in Fiji but the challenges are huge. First there is the multitude of languages (although English is common), next is the relatively low economic basis once one leaves the city lights of communities such as Suva proper, and finally, there are the various island government fears that television originating from *any* country, including Fiji, might have a detrimental (negative) effect on the culture of *their*



# Australia Satellite Systems

Satellite Equipments & Accessories One Stop Supermarket

## HUMAX 5400Z Receiver

Irdeto V2.06 embedded  
Two common interface slot  
C & Ku band input  
PAL/NTSC auto converter  
>3000 channels  
DiSEqC1.0/1.2 control  
TV/VCR Scart & RCA outputs  
\$695

## ARION 3300E digital receiver

C & Ku band input  
PAL/NTSC auto converter  
>3000 channels  
DiSEqC1.0/1.2 control  
TV/VCR Scart & RCA outputs  
\$290

## Optus Aurora Kit

Humax 5410Z Receiver  
11.3 GHz Ku LNBF  
90cm dish (Foxtel App.)  
Wall mount bracket  
\$750/set  
Aurora card \$105

## HUMAX 5410Z Receiver

Irdeto V2.06 embedded  
C & Ku band input  
PAL/NTSC auto converter  
>3000 channels  
DiSEqC1.0/1.2 control  
TV/VCR Scart & RCA outputs  
\$595

## SPACE 2200a digital receiver

C & Ku band input  
PAL/NTSC auto converter  
>3000 channels  
DiSEqC1.0/1.2 control  
TV/VCR Scart & RCA outputs  
\$230

## 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

## SPACE 8800a Receiver

Irdeto V2.09 embedded  
C & Ku band input  
DiSEqC1.0 control  
TV/VCR Scart & RCA outputs  
\$395

## COSHIP 3288 digital receiver

C & Ku band input  
>2000 channels  
DiSEqC1.0/22K control  
TV/VCR & RCA outputs  
\$200

## 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



RG6 double shield cable \$90/box (305m, including GST)    Space 15K C-band LNBF \$35/each (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

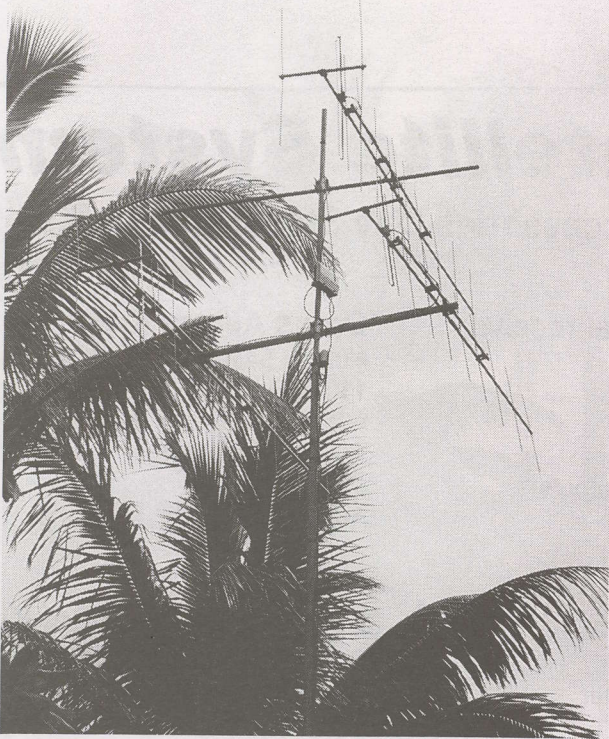
74 Parramatta Rd.

Homebush

Phone: (02) 9746 6866

Fax : (02) 9746 8878

# Major Importer In Australia



Taking trio of 3-pay channels plus Fiji 1 FTA off air at hotel site for redistribution through cable to 250+ rooms involves creative engineering because transmitter power levels are low and coverage terrain dependent (map, p. 8).

country. To learn more about the mechanics of DTH, and more specifically Ku small dish DTH, Fiji TV launched an agency arrangement with Canal Plus (headquartered in New Caledonia) during April. Canal + 90cm dishes, the standard Canal + receivers and LNBF packages are now slowly beginning to appear in and around Suva proper. The channel line-up is essentially the same as one finds available into Australia for example - some of the channels remain on the "locked out" list because Canal + has not pursued acquiring distribution rights outside of New Caledonia, Vanuatu, and other smaller French speaking island states (so-called LBF package). Fortunately, some of the permitted channels do include English language soundtracks (Euro News for example) and during the recent World Cup Soccer count down, a Noumea channel available to Fiji carried all 64 matches - albeit with French language commentary. The Canal + package costs around F1,995 for installation and a 12 month subscription (which translates to an almost identical number of dollars in New Zealand). Clark's installer group headed by Ajay Bidesi oversees this aspect of the business as well as the rapidly growing pay-TV installation activity.

In a typical week Bidesi (see front cover) will cover as many as 750km in a four wheel drive vehicle taking him into isolated villages and via ferry boat to offshore resort islands. On a Monday he might be spending a full day to reach a hilltop on an island 20km off the coast line of Viti Levu where with a portable antenna and spectrum analyser he tests for available Fiji 1 service from a distant transmitter. If he finds enough signal, he will later in the week arrange for a suitable antenna system, masthead amplifier package and perhaps a roll or two of RG6 cable to be sent by courier or bus to the nearest accredited system installer - with a schematic drawing outlining how it is to be installed. On Tuesday and Wednesday

he might be found hanging a metal mast in amongst palm trees on a narrow spit of land jutting out into the ocean fronting onto 250 room tourist hotel (see photo to left). The hotel wants Fiji 1 and the pay channels, and already has a 5m dish installed for As3. His job is to first find a spot where the four Fiji TV channels are available, working out how to get those signals.

As the photo illustrates, the antenna for this site is ultimately buried in palm trees. What is not visible is the location of the trees. A tiny "island" 100m off shore, reached over a walking bridge, has been converted to a "tiki hut" bar and grill. This happens to be the best (only, actually) location on the hotel's property where there is near-LOS (line of sight) to the distant low power transmitters. Moreover, the hotel wishes the antennas to be "hidden" from view for aesthetic reasons. Ajay ends up burying the four receivers, decoders for the three pay channels, and new modulators, in a cupboard at the hut. Resort locations typically are on the water, which means they have a mean elevation above sea level of "zero." Along the southern coast of Vita Levu hills rim the island and more often than not there is terrain blockage of the terrestrial signals. On the hilltops surrounding such sites, plenty of terrestrial signal.

Ajay has found he often must use SDStv.com L-band microwave relay to link the hilltop site signal(s) over paths of a kilometre or less "downhill" to the intended resort. For such short paths, the mW20 (20 milliwatt) transmitter with a passive logi antenna transmitting to an active logi receive antenna is the technical answer. What is unusual here is that Fiji TV must provide "total solutions" for television reception of their channels, not merely creating the programming and broadcasting sites. The level of technical expertise for all of Fiji is on a steeply rising learning curve but until local "technicians" come up to speed Fiji TV has no business choice but to "complete the circuit" using their own staff.

Fiji TV's supplies are largely from New Zealand; Strong Antennas (Wellington) produce most of the antennas used (Hills supplies masthead amplifiers - which are required at a high percentage of receiving sites because of the low transmitter powers).

#### The satellite connection

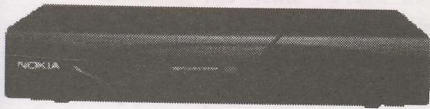
Because satellite TV was the "only TV" for more than a decade, a significant base developed amongst commercial (such as hotel) and upper income private individuals. Bryon Evans of Pacific Antennas Ltd (NZ) pioneered local system creation, including the manufacture of 4.6m fibreglass dishes, in Suva. Bryon began with a master mould (an AMS 4.6 metre) dish and using locally available labour and ordering in supplies, turned out approximately 30 dishes during 1990. His legacy dots the landscape to this day (photos pages 6 and 7 are Evans' era antennas). In that initial period, FTA analogue transmissions (CNN and USA network feeds to Australia in two-for-one Vidiplex format, ESPN in B-MAC) were available. Others including NZ's Super Nova also dabbled in the Fiji market with imported product. As the Intelsat era closed and PAS-2 became "the satellite of choice," the local industry became more complex - and digital had arrived.

Reception became more complicated again when PAS-8 arrived and began off loading services (CNN, Discovery, ESPN et al) from PAS-2 as PAS-8 coverage into Fiji on C-band is very difficult ("*impossible above 3980Hz*," according to Isaac Fong) because of a satellite transmit antenna malfunction. Fiji TV's arrival more recently has inspired an entirely new local industry which is rapidly developing into a major (Pacific) communications centre.

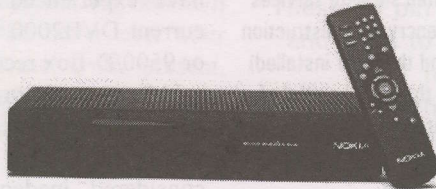


# SATWORLD

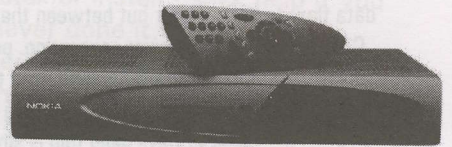
**YOUR SATELLITE TV SPECIALISTS!**



**NOKIA 9800S**

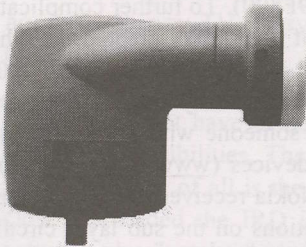


**NOKIA 9200S/9500S**



**NOKIA 9902S WITH HDD**

**DIRECT IMPORTERS OF QUALITY BRAND PRODUCTS!**



**GRUNDIG UNI SINGLE OUT**

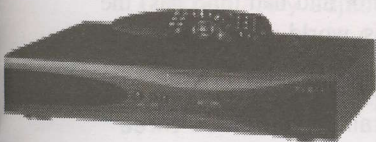


**GRUNDIG UNI DUAL OUT**



**GRUNDIG UNI QUATTRO**

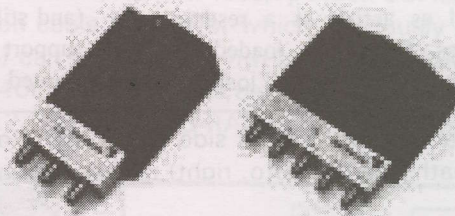
**PLUS A WIDE RANGE OF PRODUCTS AND ACCESSORIES!**



**HUMAX RECEIVERS**



**TOROIDAL 90**



**NOKIA DISEQC SWITCHES**

- ACCESSORIES
- RECEIVERS
- DISHES
- C & KU LNB'S
- TRADE PRICES

**[www.satworld.com.au](http://www.satworld.com.au)**

**TRADE ENQUIRIES WELCOME!**

PO BOX 24, PATTERSON LAKES, VICTORIA, 3197, AUSTRALIA, PHONE AND FAX: (03) 9773 9270

MOBILE: 0402 844 698 or 0412 55 77 11

E-MAIL: [sales@satworld.com.au](mailto:sales@satworld.com.au)

## Souping up your Nokia IRD for increased utility

There is a belief that unless you can locate a Nokia Germany sourced "D-Box" and load it with DVB2000 software, it is not possible to achieve "full utility" from the multi-talented Nokia brand satellite receiver product. Let's begin by dispelling that myth:

Any Nokia D-Box, 9200, 9500 or 9600 can be modified by the user to create access to a wide range of FTA and encrypted satellite services including the technical ability to read not only the encryption instruction data flow to the receiver but between the card and the (user installed) CAM as well. *Any receiver* - excepting, perhaps, that tiny handful of Chinese market intended 9500s (and even that limited edition model can be made operative; SF 'did one' in preparing this report). Anything else you hear or have been told is simply incorrect.

There is no such thing as a 'bad' (as in unmodifiable, expandable) Nokia. For reference:

**9200:** This was the entry level FTA receiver and there was no SCSI ("scuzzi") port connection (more about this later) or CAM. Later in the 9200 production run, the 9200 was reconfigured to accept a CAM and a SCSI was added.

**9500/aka D-Box:** The D-Box "version" was created for Germany's DF1 and Premiere pay-TV services. The 9500 while cosmetically different is electronically more or less the same IRD. It contains a SCSI device and a modem to facilitate (in the case of Germany) interactive TV.

**9600:** This version substitutes a CI (common interface) for an externally added CAM (i.e. 9500) and the CI is to the PCMCIA 'standard' which makes it Mediaguard, Nagra and so on compatible. The 9600 originally had a single (1MB) memory chip but later (post 1999) versions had enlarged (2 MB) memory (more about that, shortly).

About the CAM. The "fat (Irdeto) CAM" device, common in Australia, can be reconfigured so as to do more than its original Irdeto format. We'll have more to say about this, also. Enough memory?

The Nokia use an Atmel 29F800 (or 2 Atmel 29F400) to create a (1 MB) flash memory. This memory must handle the "operating software" as well as acting as a reservoir for specific bouquets (frequencies, SR, FEC) loaded into the receiver for reception; including the boot loader which

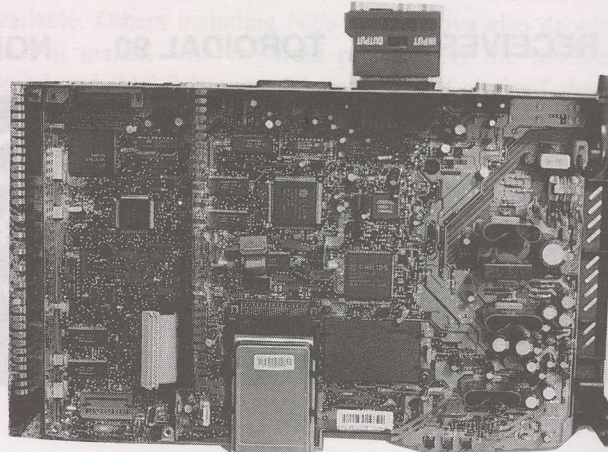
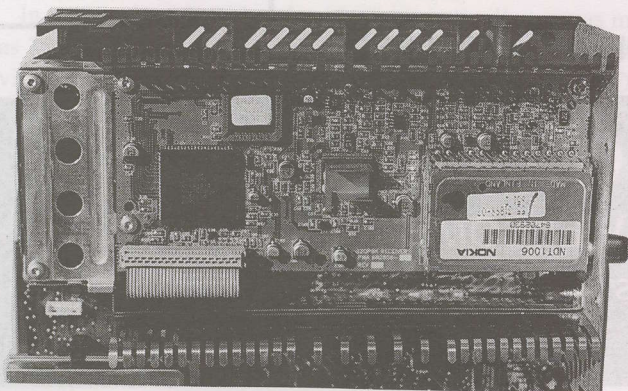
qualifies the receiver for over air (firmware) updating. The 29F800's capacity is adequate for some applications, but not for others. For example, if you are using some of the later versions of DVB2000 for operating, such software requires more flash RAM memory than the 1 MB capacity will handle. This is an important point and will explain why some people have experienced problems with trying to load the most current DVB2000 format(s) to a "stock" 1 MB capable 9200 or 9500/D-Box receiver.

In Europe where the Nokia's are used by not only Germany's pay-TV networks but also by many others from Russia to North Africa, the standard 1 MB flash RAM memory is considered inadequate. In Germany, a firm called Beta Research developed its own Irdeto based operating system (firmware) on behalf of Premiere. Beta's interactive expansion of the basic Nokia functional Irdeto system increased the demand for flash memory. And this was handled by Nokia expanding the 1 MB to 2 MB. Some Beta capable Nokia boxes were factory equipped with 2 x 29F800 (2 MB total flash), others with 4 x 29F400 (the 400 is 500 KB and it takes two of these to equal one 29F800). To further complicate the world, a special version of the 9500 created for the Netherlands was equipped with 1 x 29F800 and 1 x 29F400; 1.5 MB total flash RAM. None of this really matters if you are technically competent (or know someone who is) and locate your own Atmel flash memory devices ([www.atmel.com](http://www.atmel.com)) for modification of your particular Nokia receiver box. There are, as the photos illustrate, two positions on the sub layer circuit board for either 29F800 or 29F400 chips and to expand the memory from a factory original value (typically 1 MB) to something larger requires accessing the correct board location, desoldering and replacing the original chip, or, alternately adding a new chip.

### DVB2000

A creative German software engineer named Uli Herrmann began work on Nokia software modifications in 1997. He was (and still is) a brilliant software creator and had (and has) the support of thousands of Nokia fans world-wide. What he wanted to do was expand the capability of the Germany

NOKIA D/9500 IRD, cover off, left is front side with tuner module at right (rear of container). Remove three screws to access beneath board (photo, right) revealing sub board below (left hand side of *right* photo).



available D-Box to new levels of performance. He would ultimately call his creation "überflüßig" (pronounced in German urberfleshig) which shortly non-German-speaking enthusiasts somehow turned into "Overflow." As in naming Uli "Dr Overflow". What does *überflüßig* really mean, in German (there is no test at the end - you may promptly forget the answer that follows)?

"It means something you are doing or plan to do which nobody wants, a totally non-productive, perhaps useless exercise." Uli viewed his tens-hundreds-thousands-tens of thousands of creativity hours as "mostly useless" because, "nobody (commercially) really wanted the end result, anyhow." *Uli was wrong.*

The first, then called DVB98, was released to a mostly uninterested world in 1998. It was an instant hit, big time. Uli reacted by digging a hole and pulling the cover over after lowering his head. From the initial release to the present, virtually everyone and his half brother has "patched" additions to the original concept. Which was? To make the D-Box more than a *simple* satellite receiver.

The basics first. DVB2000 is operating software written specifically for Nokia receivers. Even the first release did things which perhaps even Nokia had not envisioned; but then, Uli is one hell of a software guy. Uli wanted the D-Box to be more functional while others quickly saw that after Uli opened the door to Nokia's secrets (and added a few of his own), the D-Box could also do some grey market things. Like access a pay-TV service without paying. As in hacking.

One does not have to be a "hacker" to get excited by the DVB2000 possibilities. That said, if you are into hacking, the most basic tool of all is the D-Box/9500. Nothing else comes close - provided the IRD is loaded with suitable DVB2000 software plus "patches" created by those who hang around the perimeter of Uli's creations. This would be a good point to restate that any - ANY - Nokia receiver on our list (the newer 9800 series is not on our list) can be modified (by software, firmware and/or with wiring changes and additions) to do almost anything you can imagine. Including, this is for those

### Increasing flash RAM capacity

- 1/ Remove IRD wrap around cover (will require special hollow point torx set if still original screws)
- 2/ Remove (snaps off - carefully!) front panel, disconnecting 6 pin (display) cable socket on board
- 3/ Identify tuner board (photos), unplug ribbon cable from board socket. Remove three screws (1 at rear, two at chassis front). Slide board towards front allowing F connector to clear chassis hole.
- 4/ Identify (photos, drawing below) 29Fxxx memory IC and expansion memory board position adjacent. If 29F400, capacity is 500 KB; if 29F800, 1 MB. Select suitable upgrade part(s) which typically will be 2 x 29F800 - one per board location. Caution: These 44 pin devices require special soldering tools and skills to de-install or install - seek help if you have never done it before!
- 5/ Replace the tuner board and reattach flat cable.
- 6/ The receiver is now ready for a BDM connected loading of new software; see text to follow.

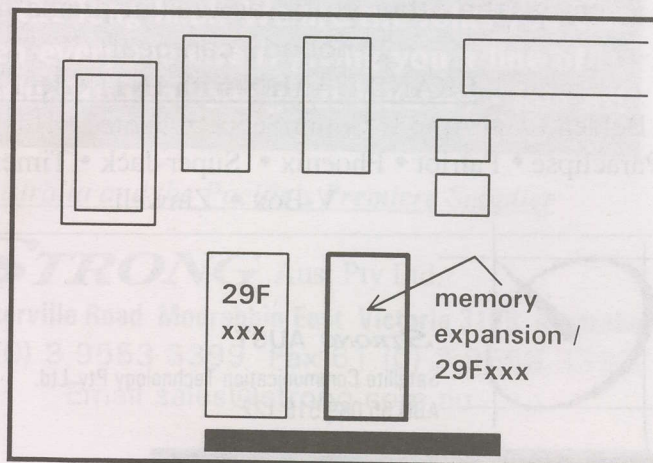
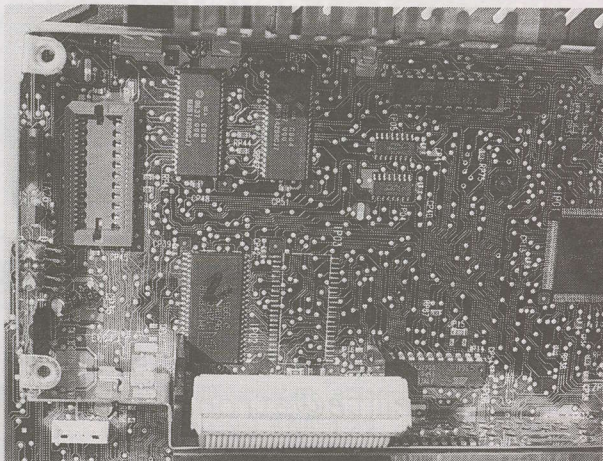
with a hacker interest, receive pay-TV programming without a paid for card. Or even a CAM.

### Limitations

First you take stock of what you have, or are thinking about acquiring. Ideally, you would locate a D-Box/9500 with 2 MB of flash RAM already installed. You probably won't find this easily, or cheaply, so we'll show you how to identify the steps to increase the flash RAM. Let's assume you have a 1 MB unit. It will load DVB2000 operating software between versions 1.768 and DVB2000 2.00.0 beta 5, and reward you with access to pay-TV; versions earlier (pre 1.768) load as well but ... . Even if you have not subscribed to pay-TV and provided you know where to download from the Internet, software instruction to make your IRD play "outside the circle." Older versions (before 1.768) won't give you "full functions" and newer versions (after 2000) can require more memory space than the 1 MB can provide.

Some people are more curious and would like to be able to see (in real time) the data flow coming from the programmer. Moreover, how about being able to monitor the flow between

WITH top (tuner +) board removed, front of chassis at left; factory stock 29Fxxx series flash RAM sits immediately adjacent to bottom end of ribbon cable connector which previously plugged into top (tuner) board. 29Fxxx is 44 pin device. F800 (1 MB) can be doubled with additional F800 added to unused board location (diagram right), combinations of F400 and F800 can be used and some Europeans have piggy backed 2 x F800 atop one another (2x2, x2) for 4 MB RAM total (not advised for amateurs!).



# STRONG AUSTRALIA PTY LTD

.... is still going **STRONG** and on and on and on with you and your project from beginning to end!

We are ALWAYS ready to make a deal on quantity or complete packages.

## HUMAX... ZINWELL... STRONG

AND - don't forget our specials on PALCOM receivers! and terrestrial TV set-top boxes!

TERRESTRIAL TV set-top boxes. OK, so Australia has not exactly gone crazy for terrestrial digital TV. Maybe it's the fault of the broadcasters for not putting more on digital - maybe it's the ABA's fault for listening to some bad advice. But the fact remains WE have digital terrestrial on the air, in the air and *we* are one of the first countries in the world to do so. Show some Australian pride - *support digital terrestrial!* And it is actually fun to play with. You deserve to have some fun - so get a digital terrestrial set-top box and see what all the commotion is about. After you play with it, surely you can find a customer to flog it off to for at least the wholesale price we'll charge you for our STRONG 5100 set-top terrestrial box. We have the 5100 in stock (A\$400 + gst trade, A\$375 + gst trade in quantity). *Buy one today and stick an Australian flag in your front window.*

**STRONG** - we have the VERY LATEST STRONG models in stock for immediate delivery!

If it says STRONG on the outside, make sure it says STRONG Aust on the invoice!

### ANTENNAS!

When you say "antennas", say QUALITY mate. All sizes from 65cm to 4.9m branded by the USA's premiere satellite antenna firm - **Paraclipse-by-Patriot**. You say USA antennas are too rich for your pocketbook? *Worry not* - we carry "the other stuff" as well at prices nobody but nobody can beat!

### BRAND NAMES with INTEGRITY!

Belden ♦ Cal Amp ♦ CommScope ♦ Geotec ♦ Humax ♦ Palcom ♦ Paraclipse ♦ Patriot ♦ Phoenix ♦ Super-Jack ♦ Times Fibre ♦ UEC ♦ V-Box ♦ Zinwell

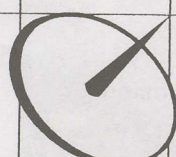
#### Paraclipse Dishes

- Exceptional strength and wind resistance
- Accurate reception

**!!SPECIAL!!**  
90cm  
GIANT killer \$85  
Intelsat 701  
French service!



**Paraclipse**  
HIGH PERFORMANCE ANTENNAS

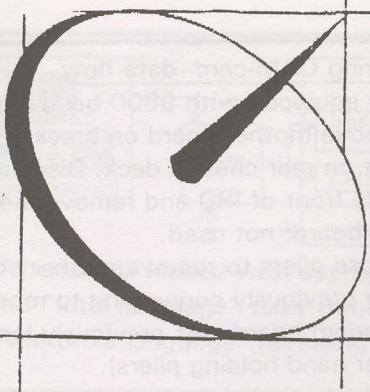


**STRONG AUST**

Satellite Communication Technology Pty Ltd.  
ABN 55 089 515 122

**FAST SERVICE - DIRECT CONTACT - HERE TO SERVE YOU!**

On the web <http://www.strong.com.au>  
email [satellite@strong.com.au](mailto:satellite@strong.com.au)



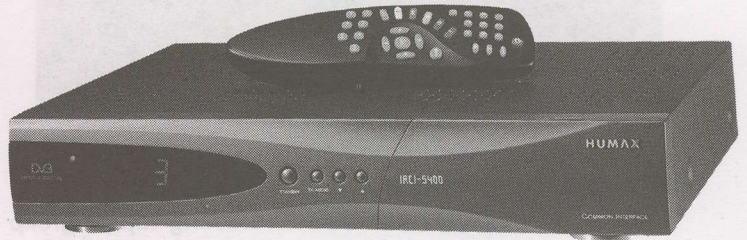
# STRONG

## AUSTRALIA PTY LTD

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

# HUMAX

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



**BEST PRICE in town. If you want to talk price - BE PREPARED to talk QUANTITY! We stock only GENUINE AUSTRALIAN delivery HUMAX - not the soon-to-be-troublesome GREY MARKET versions being sold clandestinely! GENUINE PRODUCT from a GENUINE AUSTRALIAN company where every \$\$\$ stays in Australia and is not sent overseas to an offshore partner!**

**CONTACT us NOW for THE best PACKAGE PRICING in AUSTRALIA!**

Complete systems - individual parts: We have it all!

**LNB/LNB(f):** C- band 17K, voltage switching; Ku band, 0.8 dB prime or offset focus; Digi-Ready PLL; High stability; Low phase noise; CalAmp, Strong and more; And, 2.3 GHz MMDS integrated.

**Cable/connectors:** Huge range of RG6, RG11, dual-flooded-quad-messenger. And 5-core tracking system cabling by reel or by the metre from names you know and trust - Times Fibre and Belden!

**Accessories:** Fly leads, wall plates, feed horns, tools, tape, poles, dectite and much-much more!

**ONE STOP SHOP** for **ALL** of your professional satellite requirements!

**STRONG Aust Pty Ltd is a full service - full line supplier. From "F" connectors and tools to dishes and mounts - and everything in between. We are the "strongest" source of DTH/TVRO hardware and here for the long haul. We are the folks you can count on to be here and help you out when everyone else is giving you a line of excuses. We have tremendous vitality and enthusiasm for our great industry - join us!**

**This month's QUANTITYspecials!**

2.3m mesh (Strong) \$162; 17K C V/S LNBf (Strong) \$25; 90cm Ku c/s (Strong) dish \$35; Ku offset LNBf 11.300 LO (Strong) \$30; Zinwell D-10 B3 Buster \$454; Palcom 7900 (dual position control) \$300. All CAMS - \$250

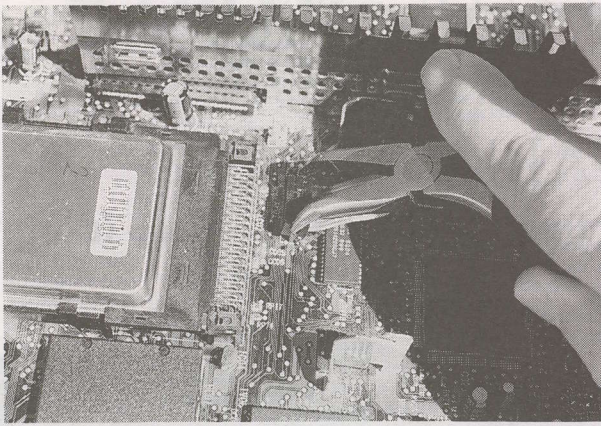
*Australia and the Pacific's Premiere Supplier*

**STRONG** Aust Pty Ltd.

302 Chesterville Road Moorabbin East Victoria 3189 Australia  
Ph 61(0) 3 9553 3399 Fax 61 (0) 3 9553 3393

Email [sales@strong.com.au](mailto:sales@strong.com.au)

**STRONG** Satellite Communication Technology Pty Ltd.  
ABN 55 089 555 122



D/9500s have factory installed modem. After removing this sub-board, use needle nose to lift modem cable plug from socket retaining top plug/clip for later use.

the CAM and the card? If you have a 9500 or later version with the built-in SCSI (plus modem), it's already there. Provided your PC is also SCSI equipped. But suppose it is not? Now you would be forced to purchase a PC SCSI card (such as the Adaptec 2940U) which could set you back as much as US\$250. Ouch. The low cost substitute for a PC SCSI involves a small change in the Nokia circuit board. It just happens that by adding one wire (detailed here) your RS232 port will now give you full "monitoring access" to the flow of nanos. From the RS232, it links (with a *null modem* cable) to your PC where (surprise) Hyperterminal by Windows will read the nano flow. This works because the wire added sits at the I/O line to the smart card, "spying" (a naughty word but accurate) on the back and forth exchanges between card and CAM. The data rate can be very impressive, by the way, as monitored on your PC - up to 10 Mb/s with SCSI (not through serial -232- port; 232 is a maximum of 38 Kbp/s).

**Internet software.** DVB2000 is an operating system that alone will not allow access to pay-TV services you have not paid for. For that, one or more "patches" are required. The first was called (the) "MadMax Patch." Subsequently, the "Sally Patch," the "Sandra" and the latest is the "Antares." The latest for DVB2000 is "Beta8." *Sandra* is a "key finding auto

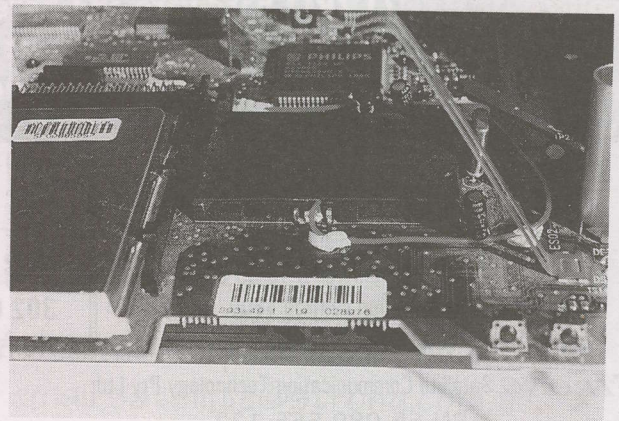
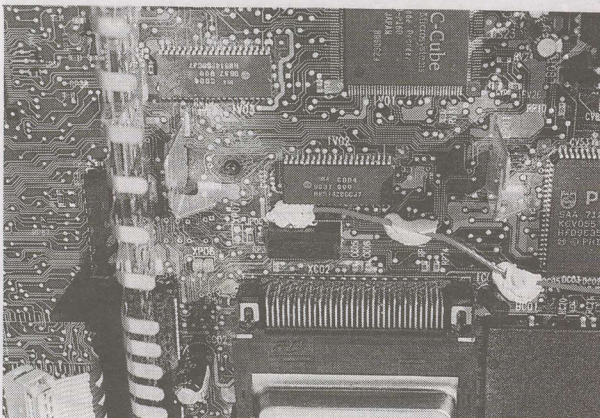
#### Monitoring CAM-card data flow

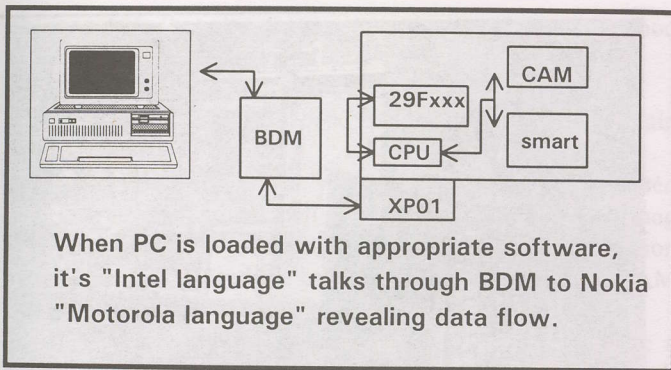
- 1/ Stock D/9500 equipped with 9600 baud modem (board) sitting above mother board on bracket with telephone socket on rear chassis deck. Disconnect flat cable towards front of IRD and remove modem board; not used.
- 2/ Use needle nose pliers to remove mother board end of flat cable previously connecting to modem (in photo left, modem board was previously located under hand holding pliers).
- 3) Extract black plastic 'top' previously used at mother board end; set aside.
- 4/ Cut piece plastic coated (not shield insulated) hook-up wire to route from pin 3 on formerly used modem mother board socket (rear, 2nd from left end) to pin 2 on smart card holder (2nd from right; drawing p 19). Wire is routed over board traces, held in place with "hot glue gun," Blu-Tack or Dow's 738 sealant.
- 5/ Bare smart card end to solder, bend into L shape which is inverted to provide surface area soldering attachment and solder.
- 6/ Opposite end is laid between "knife" blades of pin 3 on former modem socket connector, original black plastic cap is forced down cutting into (making connection with) wire copper.
- 7/ Hot glue or Blu-Tack wire onto mother board out of harm's way.

updating" patched version of DVB2000 1.82.0 (actually found as DVB2000 Sandra) that turns a "secret button" on your Nokia remote into access of your CAM's menu (typically the "opt" button). "Auto updating" means the system detects changes in master (or plain/channel) keys so the user does not have to re-enter new "keys" obtained from the web. This patch was originally created for BetaCrypt, formally an evolution version of Irdeto 1 (BetaResearch is paying Irdeto/Mindport royalties for their developmental version of Irdeto 1, being used in Germany by Premiere). Inserted into the CAM, and "educated" by having access to the CAM card data flow, it became a fairly simple matter to extract the "administrator key" (hex master [HMK] or hex plain [HPK]) from

ADDED wire allows PCs without SCSI capability to "tap into" data flowing between CAM and smart card and with appropriate Windows (Hyperterminal) software running in PC, read the data stream. Wire is plastic insulated hook-up, connects/solders from pin 2 (2nd from right as viewed from front of chassis; right hand photo below) to pin 2 on former modem socket located behind CAM (left hand photo); see diagram p. 19.

Caution: When soldering to pin 2 of smart card socket board, keep card pathway clear!



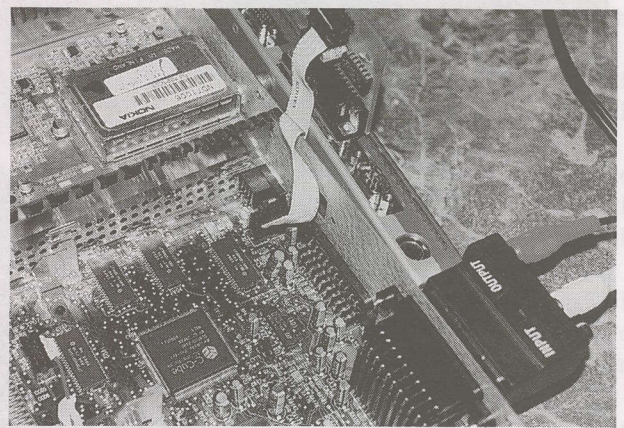
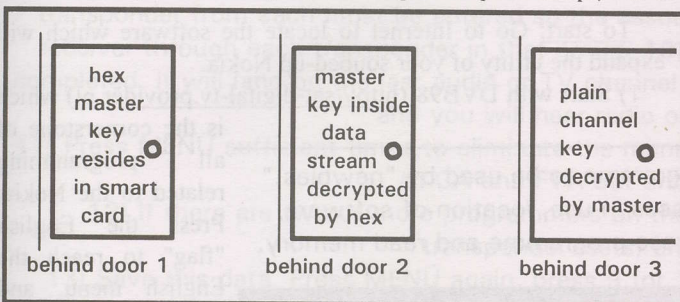


somebody's paid for card (virtually any card) and then re-enter the keys to the Nokia through the CAM menu. These keys are extracted by "stepping" which means one byte is read from a smart card, written to the buffer, then the buffer is read and the results shown. Then the next byte and so on until the ten byte key is clearly visible. *This is the first door of the three door Irdeto protection.*

Once you have this key (taken from a card), it is possible to "grab" the over air transmitted crypted master keys, decrypt them with the administrator key and put it into the Nokia box CAM menu. *Now the second door is open.*

The third door will be catching the over air updates of the 16 encrypted channel (plain) key(s). They are then decrypted with the master key and again stored into the CAM menu memory. *Now all three doors are open.* Which means? Instant access ("the light goes on") to the Irdeto "protected" programming without paying. *Very naughty.*

Sandra instantly became very popular and versions of it were written for virtually every European language and pay-TV provider system, thereby allowing people to edit the binary file to the flash RAM in their "native tongue." Most people, by the way, utilise what the trade calls "The Polish Server" to locate the necessary software (<http://sat-digital-tv.provider.pl>). It is



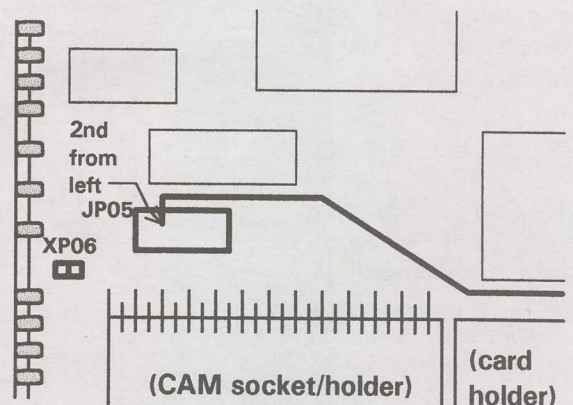
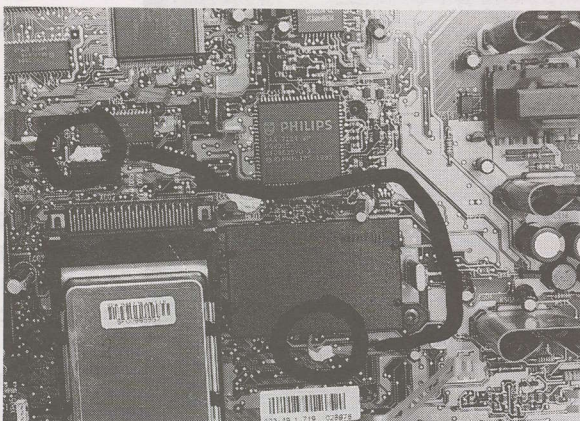
XP01 access point is located at rear of the NOKIA's main board against the chassis wall. In this photo a flat cable is connected to a Notebook's port replicator, but in your case it would most probably go directly to the PC's LPT (printer) port.

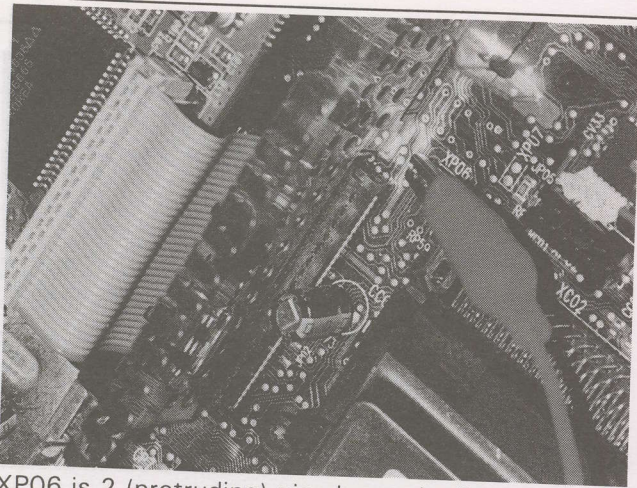
here you can locate essentially every Nokia relayed software release ever created - including the original Nokia software for the 9200, 9500, 9600 and so on. Also here, CI or embedded software (for example, 5100 is Humax Viaccess embedded while 5400 is Irdeto embedded Humax software; more about that in a future issue).

#### Making the PC and Nokia "talk"

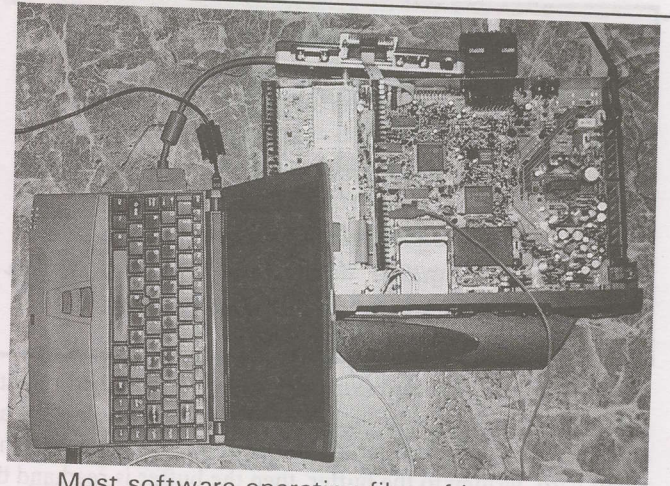
Downloading data from a web site is one step, getting it into the Nokia is another. This requires a BDM (background debugging module) and many are available (for example, TranxBDM from <http://www.rehtec.de>, (a firm which sponsored Uli Herrmann and deserves support for doing so) which interfaces from Nokia (through a socket labelled XP01 - see photo, above) to the PC's LPT connection. Here is what must happen. The Nokia uses a Motorola (brand) CPU and the PC uses an Intel (brand). They can speak the same language but need some help to do this. When the PC (loaded with programming) "speaks" to the Nokia, the BDM is a conduit. The PC extracts from an appropriate web site software to accomplish the task you have chosen. The PC through the BDM transfers this software to the Nokia's CPU, and is stored by the CPU in the 29F800 (system) so that the Nokia then performs as the new software has instructed.

MODEM socket on mother board "converts" to wire connection point for data reader flow originating at pin 2 of smart card holder. All communications between CAM and card will now flow to PC-lacking SCSI internal board (a "cheap way" to monitor data flow). Note: XP06 (marked) - we explain p. 20. Also - XP06 may appear adjacent to 29Fxxx expansion socket on some models.





XPO6 is 2 (protruding) pins located adjacent to JPO5 (where we connected the single wire from the smart card holder). To access memory area in 29F800 where boot loader is housed, these two pins must be shorted (connected) together. We show an alligator clip, but any computer two-pin shorting bar will do the same thing. *Note: This can be dangerous - take this step only if you really wish to write the boot loader. Never short otherwise!*



Most software operating files of interest are "zipped" (super compressed) and range from 300 to 550 KB. This defines the type and capability of PC required. In this example, a (modest) 4 GB laptop through a (not required by you) multiport adapter (behind Nokia) and BDM (barely visible sitting atop multiport is connected to Nokia's XPO1 (also see photo, p. 19) to reconfigure boot loader. Note shorting clip for XPO6 (see close up photo, left).

#### Obtaining the software data

This is an appropriate point to make the following statements:

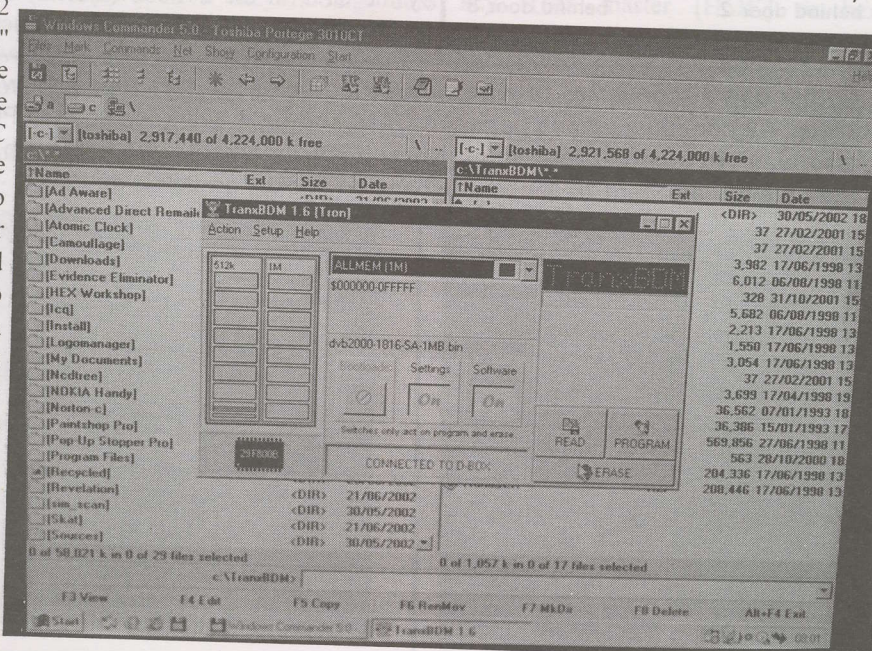
1) There is no requirement that you intend to pirate programming to have an interest in owning and maximising a Nokia receiver. It is, after all, the most versatile receiver ever created - including the latest from other better distributed Pacific brands. Don't feel "guilty" for having an interest in a souped-up Nokia!

2) It is *not* illegal to experiment on your own in the privacy of your home (office) with software that allows you to gain access to encrypted data streams. It is illegal to create cards (or software) which are shared with others that ultimately allows such practices.

3) In some (political) jurisdictions it *can be* illegal to post detailed (step by step) (line #1, line #2 and so on) "text" which allows someone to merely copy the "file" into their PC and then use the file through a BDM to reprogram their (for example) Nokia. And just because the web site is using a Germany (de) address does not foreclose prosecution of you as a user if you use such a site to reprogram your receiver.

*One more point.* Nothing in this report is intended for

TranxBDM, perhaps the best programme to be used by "newbies," showing RAM size, RAM addresses in use, location of software, boot loader protection, easy to erase programme and read memory.



developing illegal uses of any pay-TV hard or software. Logic tells you that *everything* here is well known (to devoted Internet users), put into daily practice at much higher technical levels than we develop here, by those who are in fact dealing in commercial activities. This is but the tip of a technology iceberg and if we were grading this SF report on a scale of 0 - 100 wherein 50 was a minimum requirement for commercialisation of piracy technology, this report rates about a "10."

To start: Go to Internet to locate the software which will expand the utility of your souped-up Nokia.

1) Start with DVB98 (<http://sat-digital-tv.provider.pl>) which

is the cornerstone of all programming related to the Nokia. Press the English "flag" to reach the English menu, and because this is programmed in Java, all Java options on the PC must be enabled. Use the menu on the left hand side to select over a variety of options (for example, "operating system" to "hacking" - where about 90% of the so-called "good stuff" can be found). No, you cannot access the "secret" sections of this server - they are password protected and passwords are



changed daily (but alas, that is where the last "10% of the good stuff" is hidden). You might if feeling adventurous try this.

1) Where it asks for the user's name (top box) enter FREE

2) Where it asks in the second box for password, enter again FREE.

This works on approximately 80% of all password protected sites but no guarantee it will work for you (nor for very long after this issue is in your hands!). Remember, select a version which does not exceed the capacity of the 29Fxxx flash RAM (memory) installed in your box.

3) Start (a strong suggestion) with DVB98 if you are a newbie (version 80e) because this is small in size and has all of the features required for exploration (including data recording).

3) Download the selected program to your PC. Also download TranxBDM version 1.6 (by Erwin Reuss) which allows you to upload this software to the D-Box with the aid of a BDM interface. Don't have a BDM interface? Same server has a schematic of same which most can build (3 up to fewer than ten component parts).

Should you elect to transfer the software just downloaded to the D-Box with a null modem cable, then download software Transbox by Michael Bohn which allows serial uploading

from your PC. A warning: This can cause complications however in the bootloading and we don't recommend this approach.

4) To start any of these programs you have chosen, select the file you wish to upload (DVB98, V80e) and send it to the Nokia using either the TransBDM or the Transbox (again, if you have a choice, use the TranxBDM and a BDM). If you have upgraded the memory in your Nokia D-Box, the TranxBDM will also activate the second memory bank (the new one added). The software is now in the box.

5) With the software in the D-Box, a dish should be connected to the receiver and a TV set connected to the D-Box (remember the D-Box comes as a SCART output machine and you will need an appropriate SCART cable).

6) To activate the menu, press the light blue button on the D-Box remote control (it says MENÜ which means "menu" in case your remote is slightly different than the stock D-Box version). For step by step instructions covering downloading of appropriate software, see table here ("Steps to starting the new Nokia").

For steps to validate your paid for smart card, see table on p. 22. You are paying for it, you have the right to know what it does and how it works.

#### Steps to starting the "new" Nokia

1) Press MENÜ button once; 2) With 80e, go to set-up and then tuner; 3) Press number that corresponds to tuner; 4) A new MENÜ opens allowing you to enter Frequency, SR, FEC and V/H; leave everything else untouched; 5) Leave by pressing MENÜ again (1 time); 6) Now you see the previous MENÜ and a button called search. Press corresponding key on remote for search. 7) A new MENÜ comes up allowing selection of transponder only or satellite; choose satellite (last one in MENÜ).

8) A new MENÜ opens and you have start search, replace and add (select add); third choice is quick or normal (select normal), and FTA & scrambled, or, FTA only. Press FTA & scrambled corresponding button (should be 6). Leave rest untouched. 9) Press 1 to start satellite search. It will search and find the NIT table for all transponders associated with that particular programmer. If there are two or more programmers, a transponder from each must be entered so the associated NIT (network identification table) can move the receiver through each transponder in that group. 10) The search will start and locate transponders. When completed, it will land on the last audio or TV channel depending which is the last one loaded (typically radio) and you will hear radio or see picture - *if it is FTA*.

11) Press MENÜ sufficient times to eliminate the menu graphics and you will have FTA reception. It scanned all CA and FTA but only the FTA can be seen.

12) If there are two or more programmers on the same satellite, enter new data for the additional transponder (sets) and repeat steps 1 - 11.

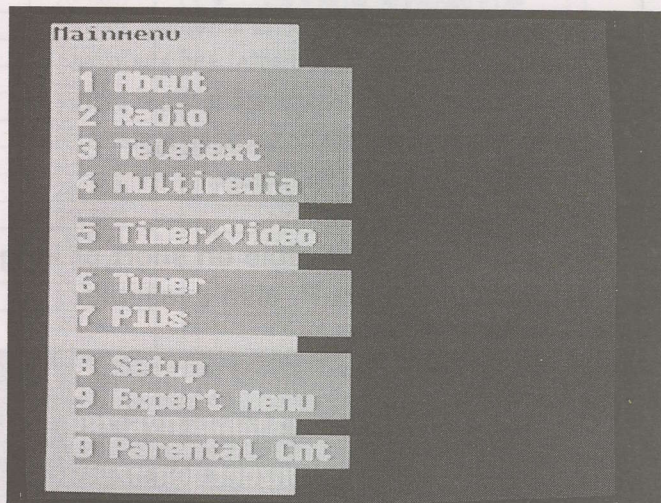
13) Save this data. Press MENÜ again, press 9 for expert MENÜ and A (mark) for general set-up; press A (mark) again to save all settings, then MENÜ (sufficient times) to leave all MENÜ functions.

14) Press red (power) button to turn off IRD and this will save all changes made. On the display of IRD it will say, "save settings."

15) You are now properly loaded. If you added a CAM and a smart card, you could now be watching pay-TV by selecting the appropriate transponder.

**Secret menu for ECM?** Press opt/opt/opt (3x). A new menu will appear. If you are using DVB98 version 7806es, enter key # 6677595; if DVB98 version 080es enter key# 555666789; if DVB2000 Beta 1.36.0, enter 56578888. Now you can set ECM numbers (see page 22) on or off.

YOUR Nokia menu will look like or similar to this as Dr Overflow tries to maintain similar looks in software.



## INSTALLING AURORA KITS?

Buy your kits from the people who have been solving television reception problems for 40 years.

### The deal

- Optus Approved UEC Mod 700 IRD packed with 4 page out of area application
  - Aurora Card
  - LNB
  - 90 cm Dish (choice of 2 brands)
- Dish shipped totally enclosed in wooden crate (pallet size).

All for \$748 plus GST and freight  
Trade installers only, from

## RURAL ELECTRONIC PRODUCTS

*"The better reception centre"*

315 Summer Street Orange NSW 2800  
Phone (02) 6361 3636

## PACIFIC ANTENNAS (2000) LTD.

Brokers of new and used antennas.  
All sizes / makes together with  
associated fittings and equipment.

Your one stop source for antennas and satellite  
electronics for the ENTIRE Pacific region.

We now offer a full range of satellite equipment  
designed for your particular  
personal or professional requirements.  
Including: 2.4 to 13 metre antennas, feed  
horns, mounts, LNBs, digital and analogue  
receivers, geostationary and inclined orbit  
manual and automatic tracking systems,  
cable and fittings.

Most equipment available on short or long  
term leases. H.P. also available.

PO Box 214, Silverdale, Auckland, N.Z.  
Ph/Fax 64-9-426-2324 : Mobile 025-789-160  
Email: pacant@nznet.gen.nz

### Interrogating your paid for services

- 1) You must locate the ECM PID (entitlement control message) - this controls what your smart card can provide.
- 2) Still on version 80e, press "secret MENÜ" button (opt on D-Box used for example)
- 3) From that MENÜ select CAM menu, then CAM info and you will see on bottom of screen entry EMM/ECM with two numbers next to it (EMM or entitlement management message) will contain master keys and plain keys, and ECM (entitlement control message) and the number will be the channel. It will be a 2-byte (4 digit) number. Write it down or memorise it.

[www.linuxtv.org](http://www.linuxtv.org)

BV1.13f IRDETO  
(prot(CA)type(C  
500443202000  
5005A200000001  
50052300010602

00 00 BC 00

Ser:

Nat:

EMM/ECM: 1FFF 0000

EMM/ECM: Last 4 digits (0000 here because no card is in IRD) are what you are looking for - this is the ECM (log) PID needed to record data stream with DVB-98/2000 and your PC.

- 4) Press MENÜ repeatedly to go back to expert MENÜ. Press button that corresponds to data download and a new MENÜ comes up.
- 5) In line 1, you will see log PID. Press 1 and enter the number you have just written down or memorised.
- 6) Connect your null modem cable from your PC, select and start Hyperterminal (Windows) software with 38,000 baud - make sure you have selected the correct COM port on your PC.
- 7) Press 3 on D-Box remote to start data transmission. The D-Box will display "Hello master, what are we going to do today?" on the PC screen and will automatically begin logging data communications between the smart card and CAM. It will show all channel IDs in use by the selected pay-TV provider.
- 8) Channel IDs that are currently on your subscription smart card (active) will reply to the CAM command 01 05 00 00 9d (xxxx - more bytes following that are not important). Any other "answer" between your smart card and the CAM means you are not entitled (subscribing to) those channels. More information can be found on the widely available programmer file cardwizard.exe.

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

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	
Thom3/7R.5	SkyChAust	3695/1455V	up to 3	3/4	5(.000)	
	MRTV-Myn	3676/1474H	1	2/3	6(.000)	
	MidEst Mux	3640/1510H	up to 12	3/4	28(.066)	
	Mahar/DD1	3600/1550H	up to 8	3/4	26(.661)	
	ME Mux	3569/1581H	up to 4	3/4	9(.000)	
	Nepal TV+	3554/1596V	3+ in mux	3/4	13(.333)	
	3ABN +	3551/1600H	4+ TV, radio	3/4	13(.330)	
	JAIN TV	3538/1612V	1TV	3/4	3(.300)	
	PTV1 +	3521/1629V	1TV, 1 radio	3/4	3(.333)	
	TARBS	3520/1630H	unknown	3/4	28(.062)	
TARBS/Th5	3480/1670H	6+ TV?	3/4	18(.180)		
Thai Global	3425/1725V	up to 7?	2/3	27(.500)		
InSat 2E/83	ETV mux	4005/1145V	6+ TV	3/4	27(.000)	
	DD2	3910/1240V	1	3/4	5(.000)	
	DD National	3830/1320V	1	3/4	5(.000)	
	Kairali TV	3699/1451V	1	3/4	3(.184)	
	AsiaNet	3683/1467V	1	3/4	4(.340)	
	Jaya TV	3615/1535V	1	3/4	3(.255)	
	ETV Mux#2	3485/1665V	4+TV	3/4	27(.000)	
ST1/88E	MMBN	3632/1518V	12TV	3/4	26(.667)	
As2/100.5E	Euro Bouqt	4000/1150H	6TV, 21r	3/4	28(.125)	
	5-Star Med	3951/1199H	3TV	3/4	13(.185)	
	WorldNet	3880/1270H	4+/28radio	1/2	20(.400)	
	Hubei/HBT	3854/1296H	1	3/4	4(.418)	
	Hunan/SRT	3847/1303H	1	3/4	4(.418)	
	Guan./GDT	3840/1310H	1	3/4	4(.418)	
	In. Mongolia	3828/1322H	2	3/4	8(.397)	
	APTN Asia	3799/1351Hz	1	3/4	5(.632)	
	Reuters/Sing.	3775/1375H	1	3/4	5(.631)	
	Liaonin/Svc2	3734/1416H	1	3/4	4(.418)	
	Jiangx/JXT	3727/1423H	1	3/4	4(.418)	
	Fujian/SET	3720/1430H	1	3/4	4(.418)	
	Hubei TV	3713/1437H	1	3/4	4(.418)	
	Henan/Main	3706/1444H	1	3/4	4(.418)	
	Egypt/Nilesat	3640/1510H	7+, radio	3/4	27(.850)	
	As2/100.5E	Macau MUX	4148/1002V	5TV	3/4	11(.850)
		Feeds	4086/1064V	1	3/4	5(.632)
		Dubai MUX	4020/11430V	4+, radio	3/4	27(.500)
		Jilin Sat TV	3875/1275V	1	3/4	4(.418)
		HeiLongJian	3834/1316V	1	3/4	4(.418)
		JSTV	3827/1323V	1	3/4	4(.418)
		Anhui TV	3820/1330V	1	3/4	4(.418)
ShaanxiQQ		3813/1337V	1	3/4	4(.418)	
Guan/GXTV		3806/1344V	1	3/4	4(.418)	
Fashion TV		3795/1355V	1	3/4	2(.533)	
Modelflat		3792/1358V	1	3/4	2(.730)	
Myawady		3766/1384V	1	7/8	5(.080)	
Saudi TV1		3660/1490V	5+/tests	3/4	27(.500)	
As3S/105.5		Zee bouquet	3700/1450V	10TV	3/4	27(.500)
		Macau MUX	3713/1437H	2TV	3/4	5(.868)
		Arirang TV	3755/1395V	1	7/8	4(.418)
		Now TV +	3760/1390H	4+ TV	7/8	26(.000)
		Star TV	3780/1370V	22(+)/TV	3/4	28(.100)
	Star TV	3860/1290V	18(+)/TV	3/4	27(.500)	
	Star TV	3880/1270H	19(+)/TV	7/8	26(.850)	
	Indus Music	3900/1250V	5TV	7/8	27(.895)	
	Star TV	3940/1210V	9(+)/TV	7/8	26(.850)	
	CNNI	3960/1190H	6(+)/TV	3/4	27(.500)	
	StarTV	3980/1170V	2+TV	3/4	28(.100)	
	Star TV	4000/1150H	10(+)/TV	7/8	26(.850)	
	Sun TV	4095/1055H	1	3/4	5(.554)	
	CCTV bqt	4129/1021H	4(+)/TV	3/4	13(.240)	
Zee Bqt #2	4140/1010V	8(+)/TV	3/4	22(.000)		
Cak1/107.5	Indovision	2.536, 2.566, (S-band)	33(+)/TV	7/8	20(.000)	
	IndoBqt	3460/1690H	up to 6	3/4	28(.000)	
T'Kom/108E	TPI	4185/965V	1	3/4	6(.700)	
C2M/113E	Anteve	4144/1006V	1	3/4	6(.510)	

## Receivers and Errata

Finally settled here from As2
erratic service
Now essentially all CA
USA religion chs, CMM music FTA
possibly TARBS?
FTA + CA mux
3 Angels USA, Ch of Hope, +9 radio
PIDs 4132/4133
frequency change
MUX testing
TARBS label, CA-no SIDs
FTA (reaches SE Australia)
Several ETV now here; wide beam
SCPC, OK E. Aust. wide beam
SCPC; OK E. Aust. wide beam
SCPC, OK E. Aust wide beam
SCPC, OK E. Aust. wide beam
SCPC; OK E. Aust. wide beam
Several new ETV here; Asia beam
Nagravision, some FTA; erratic
FTA TV + radio
Macau MUX
FTA; Now here full time
FTA SCPC, teletext
FTA SCPC, teletext
FTA SCPC, radio APID 81
FTA: #1 Mongolian, #2 Mandarin
Sometimes FTA; also 3895Vt
FTA & CA
FTA SCPC, radio APID 256
FTA SCPC, teletext, radio APID 81
FTA SCPC, + radio APID 80
FTA SCPC, radio APID 80
FTA SCPC, + radio
Thru TARBS Aust, occ. FTA
5 chs TV, FTA
FTA SCPC feeds
FTA including sport
FTA SCPC, + radio
FTA SCPC
FTA SCPC, + radio
FTA SCPC + radio
FTA SCPC, radio APID 81
FTA SCPC, radio APID 257
Now Irdeto version 2 CA
New FTA SCPC June; testing
FTA SCPC - difficult to load
FTA MCPC
Mediaguard CA; 2 FTA
New June 2002; low res MUX
FTA SCPC; reported audio problems
CA + NOW, Bloomberg FTA
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DV211, Zenith)
PAL, NTSC, 1 ch CA
NDS CA as above
PowVu CA; new SR Apr 29
NDS CA (Pace DVS211, Zenith)
NDS CA + 4(Chinese) FTA
"History Channel" testing SCPC
moved from 4115
Mediaguard CA
NDS CA using RCA/Thomson, Pace IRDs
also 3586H/17.500, 3496H/19.615
FTA SCPA; NT/NC only
change from 4055V; FTA SCPC

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	
(C2M)	<b>Indo Mux</b>	4080/1070H	5+ TV	3/4	28(.125)	
	<b>Indosiar</b>	4074/1076V	1	3/4	6(.500)	
	<b>SCTV</b>	4048/1102V	1	3/4	6(.618)	
	<b>Indone.Mux</b>	4000/1250H	6+TV	3/4	26(.085)	
	<b>Satelindo</b>	3935/1215H	1TV	3/4	6(.700)	
	<b>Bali TV</b>	3926/1224H	1TV	3/4	4(.208)	
	<b>Indo. MUX</b>	3880/1270H	3+ TV	3/4	28(.125)	
	<b>Global MUX</b>	3760/1390H	up to 12 TV?	3/4	26(.087)	
	<b>Brunei/Sing</b>	3733/1417H	1TV	3/4	6(.000)	
	<b>RCTI</b>	3473/1677H	1	3/4	8(.000)	
Je3/12	<b>Myawad TV</b>	3706/1444H	1	3/4	5(.924)	
	<b>Miracle Net</b>	3996/1154V	3 up to 6	5/6	22(.000)	
Meas2	<b>Asian bqt</b>	3960/1190V	up to 8	7/8	30(.000)	
	<b>Astro Mux</b>	11.602H (+)	up to 10TV	3/4	41(.500)	
3/156	<b>Mediasat</b>	12.336V/T2	5TV, 3 radio	2/3	30(.000)	
	<b>Aurora</b>	12.407V/T3		2/3	30(.000)	
	<b>Aurora</b>	12.532V/T5	Inc Zee TV	2/3	30(.000)	
	<b>Aurora</b>	12.595V/T6		3/4	30(.000)	
	<b>Aurora</b>	12.657V/T7	TV tests	2/3	30(.000)	
	<b>Aurora</b>	12.720V/T8		3/4	30(.000)	
	<b>Austar</b>	12.313H/T9	iTV + here	3/4	30(.000)	
	<b>Austar/Optus</b>	12.376H/T10		3/4	29(.473)	
	<b>Austar/Foxit</b>	12.438H/T11		3/4	29(.473)	
	<b>Austar/Foxit</b>	12.501H/T12		3/4	29(.473)	
	<b>Austar/Foxit</b>	12.564H/T13		3/4	29(.473)	
	<b>Austar/Foxit</b>	12.626H/T14		3/4	29(.473)	
	<b>Austar/Foxit</b>	12.688H/T15	(some FTA ra)	3/4	29(.473)	
	B1/160	<b>ABC NT fd</b>	12.258V	1TV, 3 radio	3/4	5(.026)
		<b>ABC feeds</b>	12.317H	1	3/4	6(.980)
<b>Net 7 service</b>		12.367H	1	3/4	7(.200)	
<b>Central 7</b>		12.354H	1TV + 1 radio	3/4	3(.688)	
<b>Imparja mx</b>		12.360H	2TV + 8 radio	3/4	5(.424)	
<b>Sport feeds</b>		12.420V	1	3/4	6(.110)	
<b>Mediasat#3</b>		12.424H	3+ TV	2/3	19(.800)	
<b>TVNZ DTH</b>		12.456V	2TV	3/4	22(.500)	
<b>Nine Net</b>		12.512H	1 TV typ.	3/4	5(.632)	
<b>Sky NZ</b>		12.519/546V	7TV/7TV	3/4	22(.500)	
<b>Sky NZ</b>		12.581/608V	6TV/6TV	3/4	22(.500)	
<b>ABC Mux</b>		12.606H	4TV	7/8	14(.300)	
<b>Sky NZ</b>		12.644/671V	9TV	3/4	22(.500)	
<b>ABC HDTV</b>		12.670H	5TV	7/8	14(.300)	
P8/166		<b>Tel/Saturn</b>	12.707/733V	8 TV	3/4	22(.500)
	<b>ABC A-P</b>	12.301H	1TV, 2 radio	5/6	5(.858)	
	<b>TARBS3</b>	12.326H	13TV + radio	3/4	28(.066)	
	<b>TARBS</b>	12.526H	13TV + radio	3/4	28(.066)	
	<b>TARBS2</b>	12.606H	13TV + radio	3/4	28(.066)	
	<b>TARBS5</b>	12.646H	testing	3/4	28(.066)	
	<b>TARBS4</b>	12.726H	13TV + radio	3/4	28(.066)	
	<b>JEDI/TVB</b>	12.686H	11+ TV	3/4	28(.126)	
	<b>ABC A-P</b>	4180/970H	2TV, 2 radio	3/4	27(.500)	
	<b>Disney Pac</b>	4140/1010H	typ 6 TV	5/6	28(.125)	
	<b>NHK Joho</b>	4065/1085H	7TV, 1 radio	3/4	26(.470)	
	<b>ESPN USA</b>	4020/1130H	7+TV, data	7/8	26(.470)	
	<b>Discovery</b>	3980/1170H	8 typ.	3/4	27(.690)	
	<b>CalBqt/Pas8</b>	3940/1210H	up to 8TV	7/8	27(.690)	
	<b>CNBC HK</b>	3900/1250H	up to 7TV	3/4	27(.500)	
<b>FilipinoMUX</b>	3880/1270V	up to 8TV+radio	3/4	26(.694)		
<b>TaiwanBqt</b>	3860/1290H	12TV + 30 radio	5/6	28(.000)		
<b>CCTV Mux</b>	3839/1311H	up to 4	3/4	13(.240)		
<b>EMTV PNG</b>	3808/1342V	1 + 2 radio	3/4	5(.632)		
<b>CNNI</b>	3780/1370H	3, up to 5 TV	3/4	25(.000)		
<b>MTV</b>	3740/1410H	8	2/3	27(.500)		
P2/169E	<b>P2/169</b>	12.281V	2+ TV, radio	2/3	27(.500)	
	<b>WA PowVu</b>	12.637(.5)V	4TV, 8 radio	1/2	18(.500)	
	<b>TVB Mux</b>	4026/1124V	up to 8	3/4	22(.000)	
	<b>Fox Bouquet</b>	3992/1158V	8TV/data	7/8	26(.470)	
	<b>Feeds</b>	3966/1184V	1	2/3	6(.620)	
	<b>Feeds</b>	3957/1193V	1	2/3	6(.620)	
	<b>Feeds</b>	3929/1221V	1	3/4	10(.850)	
	<b>Feeds</b>	3912/1238V	1	2/3	6(.620)	
	<b>Feeds</b>	3898/1252V	1	2/3	12(.000)	
	<b>Middle East</b>	3836/1314V	4 typ	3/4	13(.331)	
	<b>Feeds</b>	3803/1347V	1	3/4	6(.000)	
	<b>BBC +</b>	3743/1407V	3	3/4	21(.800)	

Receivers and Errata
Global TV - frequent changes in lineup
FTA; solid on 3.5m in New Caledonia
FTA SCPC; NT/NC only
unstable platform - testing?
Test card only reported
Testing June 2002
TVRI, others FTA
Testing- 12 chs promised
FTA; share time, Brunei-23hrs, Singlh
FTA SCPC, Australia OK
may be test; svc has been erratic
PowVu, some FTA (ch # 1,3)
CA & FTA NTSC: Japan, Taiwan
Aust East beam - FTA + CA
FTA - TRT+, Zee Irdeto CA, feeds
Aust. NZ 90 cm; CA (*); ABC Nat
cvrs Aust, NZ 90 cm; CA (*)
Aust only; * - smart card p. 26
cvrs Aust, NZ 90cm( Optus FTA test)
Aust only; * - smart card p. 26
Austar Interactive + (data?)
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
V832, A833
also 12.326, 12.335; ex PAS8 Ku
Full schedule less commercials
VPID1280, APID 1281
V1024, A1025, P1024; also try 12.379
Weekend footy feeds reported-FTA
FTA 2 channels; more unlikely!
testing digital feeds
NDS CA, subscription available NZ
NDS CA, subscription available NZ
ABC K, ABCFly, ABC WA, test card
NDS CA, subscription available NZ
also 12.686 12.706H; ABCVic, Qld
NDS, Wellington uplink
Feed, Adelaide; not permanent
TPG/EurodecMDS CA, occ. FTA
TPG/Eurodec MDS CA, radio FTA
TPG/Eurodec MDS CA; TRT FTA
TPG/Eurodec MDS CA
TPG/Eurdec MDS CA; Thai TV, FTA
June 2002-Irdeto-2 CA
Dateline west; east PAS2, 3901
PowVu CA
PowVu CA & FTA; subscription avail
PowVu CA; ch 11 DCP-CCP bootload
PowVu/CA (some audio FTA)
PowVu CA & FTA (EWTN)
FTA at this time
Myx FTA V1960, A1920 + radio FTA
currently FTA; radio may require PIDs
PowVu FTA, replaces PAS-2 svc
was As2; PowVu CA
PowVu, CNN/CNNI now CA
#2, 8 MTV China FTA; rest CA
PowVu CA, WIN, ABC NT
PowVu CA, WA only - D9234
CA feeds to pay-TV; 6 chs FTA
Pv, CA/FTA (FTA ch3, 5
PowVu (FTA) occ feeds
PowVu (FTA) occ. feeds
PowVu (FTA) occ sport feeds
PowVu(FTA) occ. feeds
PowVu (FTA) occ. feeds
RAI TV, radio FTA; balance CA
PowVu (FTA) occ sport feeds
BBC FTA, others CA usually

## SATELLITE TV IS A GREAT HOBBY - Let's not forget that!

Since 1976 we've been involved in satellite TV. A hobby in those early days, our interest led to establishment of a business in 1981 that has introduced thousands of people to the exciting world of satellite TV. We produced our first international satellite receiver kit in 1986, and the first DIY home satellite system in Australia back in the early days of 1990.

**Along the way** we have found that above all else, customer support is critical. If you look around the industry, you'll soon sort out those vendors who operate on a strictly commercial basis, and, those who really have your real hobby interests at heart.

**That's why we have made it our priority** to give you all of the information to help you make your hobby a success. So if you are contemplating Satellite TV as a hobby, give us a call; we'll help get you off on the best track. Who knows - you might even become a part of this growing industry!! You can count on our decades of experience to provide you with the best "right" solution at an affordable price.

### AV-COMM Pty Ltd

P.O. Box 225 Brookvale NSW 2100 AUSTRALIA

Tel 61-2-9939 4377 Fax 61-2-9939 4376 or, visit our website at

<http://www.avcomm.com.au>

Email [cgarry@avcomm.com.au](mailto:cgarry@avcomm.com.au)

You are welcome to also visit our showroom (24/9 Powell's Rd, Brookvale NSW),  
join our E-mail newsletter service ([addme@avcomm.com.au](mailto:addme@avcomm.com.au))

(Av-Comm Pty Ltd ACN 004 174 478)

# MELBOURNE SATELLITES



Established 1992  
ACN: 065 270 733  
ABN: 51 477 349 864

Dual Output Ku-Band LNBF  
Suit Optus 11.3Ghz  
Run 2 Receivers  
H/V on Both Ports

Cat# LK-ZINOSDu



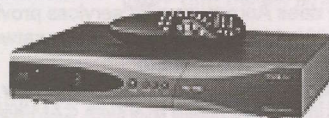
JONSA

HUMAX

ACER



Norsat



Get your **IRCI-5400z, IR-5410z & F1-Ace** HERE



**C-Band LNBF**  
with Scalar Ring

*Full Range of Hardware & Accessories*  
*Stockest of most Popular Brands*  
*Intersate Inquiries Welcome*  
*Freight Deliveries Available to Most Areas*

## Please Phone, Fax or Email for SATalogue and Pricelist.

MELBOURNE SATELLITES Pty Ltd  
84 Bayfield Road East  
P.O. Box 901  
Bayswater VIC 3153  
Phone: 03 9738 0888  
Facsimile: 03 9729 8276

[sales@melbournesatellites.com.au](mailto:sales@melbournesatellites.com.au)  
[www.melbournesatellites.com.au](http://www.melbournesatellites.com.au)

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS-2/169)	Feeds	4040/1010H	1	3/4	10(.850)
	7thDayAdv.	3872/1278H	1	3/4	6(.620)
	Feeds	3868/1182H	1	2/3	6(.620)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)
	HK bouquet	3850/1300H	up to 8	2/3	24(900)
	occ feeds	3776/1374H	1 typ	3/4	5(.560)
	Korean Bqt	3762/1388H	up to 3	3/4	11(.570))
<b>I702/176E</b>	AFRTS	4177/973LHC	8TV, 12+radio	3/4	26(.694)
	RFO Poly	4027/1123L	1TV	3/4	4(.566)
<b>I701/180E</b>	TNTV	11.060&11.514	9	3/4	30(.000)
	Canal+Sat	11.610H	16TV, 1 radio	3/4	30(.000)
	TVNZ	4195/955RHC	1	3/4	5(.632)
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)
	TVNZ	4178/972RHC	1	3/4	5(.632)
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)
	TVNZ/feeds	4161/989RHC	1	3/4	5(.632)
	RFO-Canal+	4086/1064L	4TV, radio	5/6	12(.041))
	TVNZ/feeds	4052/1098RHC	1	3/4	5(.632)
	TVNZ feeds	4044/1106R	1	3/4	5(.632)
	NZ Prime TV	4024/1126L	1	2/3	6(.876)
	NBC to 7 Oz	3960/1190R	1	7/8	6(.447)
	WorldNet	3886/1264R	1TV, 37 radio	3/4	25(.000)
	Ioarana	3772/1378L	1	3/4	4(.566)
	TVNZ	3846/1304R	1	3/4	5(.632)
	10 Australia	3769/1381R	4	7/8	20(.000)
	USA feeds	3749/1401R	4?	?	26(400)

Receivers and Errata
PowVu occ FTA feeds
Sat, Sun 0030, 0900+UTC
FTA (occ sport); also try 3863, Sr6.100
FTA-typ NTSC-occ sport, live Shuttle
PowVu CA + FTA (BBC gone )
was 4148Vt; some FTA
occ feeds, typ FTA; also Sr 5.600
Korean MUX, reload June 01
PowVu CA
SE spot beam
east spot; 10TV + r each, vertical pol.
3 FTA, Mediaguard; also 10.975
DMV/NTL early version, occ feds, typ ca
DMV/NTL early version, occ feds, typ ca
DMV/NTL early version, occ feds, typ ca
DMV/NTL early version, occ feds, typ ca
DMV/NTL early version, occ feds, typ ca
east hemi 20.5 dBw thru 2003+; new Sr
DMV/NTL early version, occ feeds, typ ca
SCPC, mixed CA and FTA feeds
PowVu CA; Auckland net feeds
CA, Leitch encoded
New Feb 2002; vert strong NZ, Pacific
FTA SCPC; East Hemi Beam-Tahiti
SCPC, mixed CA & FTA, feeds
PowVu CA & FTA; #3 TBN
16-QAM (not MPEG-2 compatible)

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

**AV-COMM R3100.** FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM Pty Ltd, 61-2-9939-4377.  
**AV-COMM R3100(A).** FTA, good sensitivity, ease of use exc (review SF May 2002). See above contact.  
**Benjamin DB6600-CL.** FTA, Foxtel/Austar w/CAM+card. Autosat Pty Ltd 61-2-9642-0266 (review SF#72)  
**eMTech eM-100B (FTA), eM-200B (FTA + Clx2), eM210B (FTA + 2xCl + positioner);** KanSat 61-7-5484 6246 (review SF#89)  
**Humax F1-Cl.** Primarily sold for TRT(Australia), does (limited) PowerVu (not Optus Aurora approved).  
**Humax ICRI 5400.** Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available, review SF#76.  
**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 HSS800Cl.** 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. Int. 61-2-9618-5777  
**MediaStar D7.5.** New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777  
**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.** 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. SatWorld 61-3-9773-9270 (www.satworld.com.au)  
**Nokia 9500/d-box:** 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)  
**Pace DVR500.** Original DGT400 modified for NBC (PAS-2) affiliate 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.  
**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 out of production  
**Phoenix 333.** FTA SCPC, MCPC, analogue + dish mover. Detailed SF review Nov. 1998. 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 March 2002 (# 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; faulty P/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.  
**Winersat DigiBox 200.** C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fx 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, 7/8; pgm ch 11 and follow instructions (do not leave early!)

# eMtech Digital Satellite receivers-SatcoDX<sup>®</sup> compatible

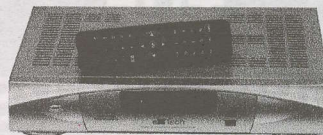


**eM100** FTA only \$A399

**eM200** FTA + 2 x CI Slots \$A499

**eM210** FTA + 2 x CI slots+Positioner \$A599

**PVR Model  
Now 40GB!  
22hrs recording**



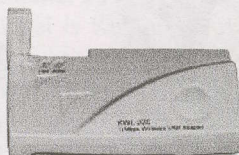
**eM300** FTA with 2 x CI slots and 40GB Hard drive built in \$A899

## KAI-LINK 11 Mbs Wireless network Products

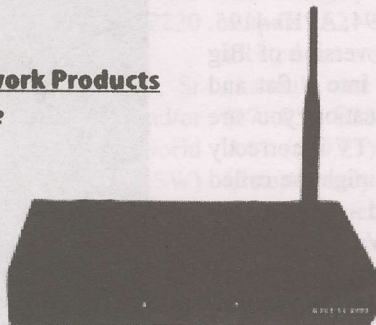
Full details on our site



**PCMCIA Card** \$A250



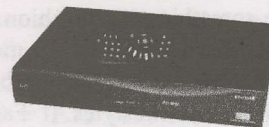
**USB Adaptor** \$A260



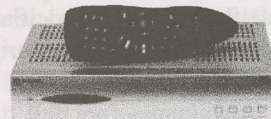
**Access Point** \$A500

Prices exclude  
Australian GST

## HUMAX



**IRC15400Z** embedded irdeto + 2 CI slots  
**IR5410Z** embedded irdeto only



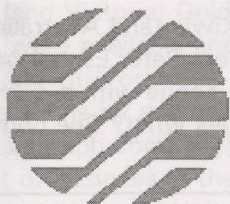
**NEW! F-10M** Low cost FTA digital  
model \$A299



25 Cataract Ave, Rangewood Townsville Qld  
4817 Australia.

Contact Us-email- philip@kristal.com.au  
Fax- (07) 47888906 Phone- (07) 47888902

Check out our on-line store at -  
<http://www.kristal.com.au>



# IKUSI

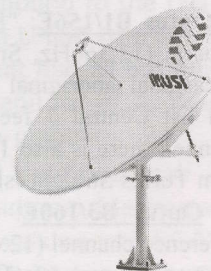
# IKUSI ANZ PTY LTD

7 Amsted Road, Bayswater, Victoria  
Australia 3153

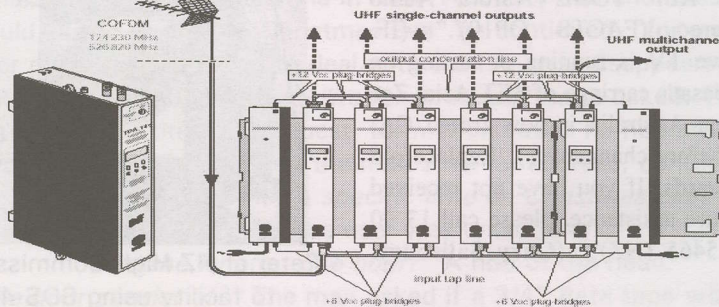
Tel: ++ 61 3 97207022 Fax: ++ 61 3 97207422

e-mail: sales@ikusianz.com.au

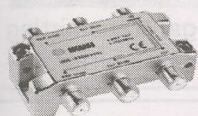
Web: <http://www.ikusi.com>



## NEW TDA COFDM to AM VSB TRANSMODULATORS The Future Headend Available Now!



**SZB-190**  
Sat IF Head Amp  
+ Power Inj + Terr. DPX



**UDL/UDV Series**  
HQ Taps & Splitters  
1/2/4/6/8 Way  
For 5 - 2150MHz  
~39dB Tap to Tap Isolation



**SAE-933**  
Sat. & Terr.  
Extension Amplifiers



**SDA-041**  
QPSK to AM VSB  
For FTA & Encrypted  
Services

Our new TDA's are mounted at the headend & receive FTA COFDM Terrestrial Digital Signals which they modulate on any UHF VSB Carrier you require. Professional Broadcast quality pictures free of noise and ghosting to distribute through your network.

Exceptionally low noise broadband floor & perfect C/N Ratio allows you to program the output in adjacent channel format.

Free Quotation Service Available for any number of outlets: 10 - 100 - 1000 - 10,000!  
Contact us now!

# WITH THE OBSERVERS

## AT PRESS DEADLINE

Imparja B1 Hz now on 12.360 (briefly 12.379), other parameters same. ABC bouquets B1 Hz (Sr14.300, 7/8) adding "DiG Radio" - check 12.607H. C2M 4080Hz, Sr 28.125, 3/4 has added TV5 France. Austar Interactive B3, 12.313Hz, Sr 30.000, 3/4 adding "9oG, 9oI, 9oJ and 9oK" and testing with BBC series "Walking with the Beasts; use 4 coloured buttons on remote to access."

**AsiaSat 2/100.5E:** "Modelflat is FTA new on 3792Vt, Sr 2.730 (yes - a low number), FEC 3/4; VPID 4194, APID 4195. This seems to be something like Fashion TV's version of 'Big Brother' TV. They have crammed 15 models into a flat and with cameras in virtually every possible location you are 'treated' to following their lifestyles. If Fashion TV is correctly labelled 'The Bill Clinton Channel,' Modelflat might be called 'The Howard Stern Channel.'" (IF, Queensland - Any bets on how long this one will last! Web site is [www.ftv.com/modelflat/\\_receive\\_modelflat.htm](http://www.ftv.com/modelflat/_receive_modelflat.htm) Editor). "Confirming WorldNet has shut down original SCPC service on 3765Hz, now only 3880Hz (Sr 20.800, FEC 1/2) with up to 5 different video programmes (not full time) and 28 radio." (Barney T, NT) (Editor: And the FTA analogue PAL format on 3880Hz is obviously also gone - for good.) "Macau TV MUX, 4148Vt, Sr 11.850, FEC 3/4 now has ch1 - 'Macau East TV Live', ch2 - 'MSTV', ch3 - 'Chinese TV Guide', ch4 - 'New Cartoon Satellite TV' and ch 5 'Macau Asia Satellite TV', all FTA." (DM, NSW)

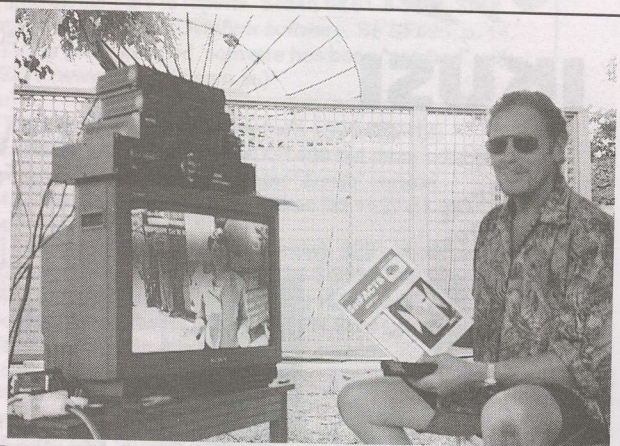
**AsiaSat 3S/105.5E:** "Star Chinese now on 3860Hz (Sr 27.500, FEC 3/4 VPID 920, APID 921, FTA; Star World India, Star Plus Pakistan, Channel V India and CNBC are now here as well - National Geo 1 Asia has left (all Videoguard CA of course)." (Barney T, NT) "Macau MUX on 3713Hz, Sr 5.868, FEC 3/4 loads two channels: ch1 '5 Star', ch2 'Travel Channel' which seems to be testing, not full time." (DM, NSW)

**Optus B1/156E:** "Digital watch shows 1 TV channel for Imparja (12.360Hz, Sr 5.424, 3/4); there are two + 8 radio. Occasional aboriginal programming on second video. Also, you list Central 7 feed (12.354Hz, Sr 3.688, 3/4 as 1 TV channel; there is also 1 radio (TAIMA, a CA radio on Aurora from Torres Straight Islands; 4K1G on 107.1)." (DM, NSW)

**Optus B3/160E:** "Optus has moved their FTA Audio Reference channel (12.407Vt, Sr 30.000, 3/4) from channel 20 there to channel 50 (12.720Vt, Sr 30.000, 3/4). The channel label says something like 'REF TONE Aurora Audio Reference -14dB/1kHz Stereo (FACTS OP10)'." (IF, Queensland "Austar Interactive TV is running or testing on 12.313Hz." (AZ, WA) "Mediasat's carriage of SET Asia, Zee TV Australia and Zee Cinema Australia is now Irdeto CA; viewers were told (mid-June before changeover), 'Replace old smart cards with new smart cards. If you have not received your (new) smart card or require assistance, please call 13 30 36 (Australia) or 0508 933 5465 (NZ)'." (Gary Salisbury,



YEAH right, it's winter. And Kiwis (and Australians) head for warmer climes. Here Peter Escher of SatLink NZ on the island of Tonga with a 4.2m pointing at PAS-2. Which does what? See photo below.



Peter at NZ High Commission (Tonga) transmitting to facility using SDS 4-channel transmitter.

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



Qld) "Austar's radio channels (24) slightly modified - #24 is now Eurobeat, was Great Symphonies." (IF, Qld)

**Palapa C2M/113E:** "The Bali Channel has been testing on 3926Hz, Sr 4.208, FEC 3/4, VPID 308, APID 256 - as I report it is new and not there 24 hours." (DM, NSW - also at one time on 4053Hz) "Global Vision 3760Hz, Sr 26.087, 3/4 continues to have self-promoting slides advising '12 channels are coming - apology for the delay'." (DM, NSW)

**PanAmSat PAS2/169E:** "Occasional feeds 3897Vt, Sr 6.750, 3/4." (B. Richards, NSW) "3810Hz, Sr13.238, FEC 3/4, V2160/A2120/SID21 Belleville MCPC; V2260/A2220 /SID22 Globosat MCPC, occ. feeds." (B. Richards)

**PanAmSat PAS8/166.5E:** "Taiwan bouquet 3860Hz, Sr 28.000, 5/6 frequently changes programming channels and/or reverts to a test card." (DM, NSW) "All channels in Jadeworld 12.686Hz bouquet are now Irdeto-2 CA." (Lloyd B, NSW) "TARBS 4, 12.726Hz, has Thai 5 as FTA - not shown in Digital Watch (and the correct network loading table listed Sr is 28.066)." (IF, Qld) "Myx has replaced Lakbay TV on 3880Vt, Filipino, FTA (Sr28.694, FEC 3/4; VPID 1960, APID 1920); channel is Karaoke music clips, often in English plus on screen subtitling in English (and thus the Karaoke connection)." (BR, Qld) (Editor: This vertical MUX is difficult to load in some of Australia, and not at all in NZ. Also ABS/CBN Music Radio, APID 1622, is FTA here as well.) "Turkish channels, perhaps for a 'free preview period,' noted FTA on TARBS 12.526Hz (Sr 28.066, FEC 3/4) including KDTV (Ch 11), AZTV (ch 12) and TGRT (ch 13) while on

12.606Vt TRTint (ch 14 and normally FTA anyhow) and Vizion (ch 15)." (IF, Qld)

**Soapbox:** "Av-Comm's IRD review (p. 18, May) should be updated to report, this receiver can also control a mechanical polariser. This allows fine tweaking of probe polarity and is significantly better than the straight V/H switching which only properly aligns the probe(s) for one segment of the orbit belt." (IF, Queensland) "A late model NEC and a late model NEC VCR, each with a cable compatible tuner, would not automatically tune to the eMTEch receivers European channel outputs (E21 to E69). In manual store, the channels could be located but would not store properly. Between Australia's UHF channels and the European channels, I found E21 = A20 (471.25), E28 = A28 (527.25), E35 = A36 (583.25), E42 = A44 (639.25), E49 = A52 (695.25), E63 = A68 (807.25). Unfortunately E21/A20 has two-way (police) traffic, E28/A28 is immediately adjacent to SBS A29, E35/A36 has off-air interference created by tuner mixing from local UHF signals producing interference to A41 ("Ten"), E42/A44 has a local signal on it, E49/A52 has another local signal on it, leaving only E63/A68 which fortunately works. By using a diplexer which inputs A0 to A44 on one port and A55 to A65 on the other, I was able to mix (add) the eMTEch's modulated output with success." (DM, NSW) "Someone recently showed me a Gold Wafer card with the international 'Peace Symbol' etched into the gold contact area." (Franklin, Vic) "While dismantling a 4.6m dish, as I took off the plastic dome shaped feed + LNB cover I discovered an active Sparrow nest carefully constructed on the top of the Scalar feed. No

#### **A funny thing happened on the way to the satellite (Christmas message to God)**

Indonesia's original Palapa series birds (A1, later A2) were with Canada's first Anik satellites the earliest domestic (one nation dedicated) satellites. In the 1976 - 1985 period, the equivalent of the 1850's California (and Victoria) Gold Rushes occurred in the satellite world - a limited number of geostationary orbit spots were available and while the ITU (International Telecommunications Union) attempted to referee which country or group was assigned to what Clarke orbit parking spot, nobody was really bound to the ITU decisions by any enforceable law. The first USA domestic satellite was built for Western Union (the landline telegraph company) which saw C-band satellite as a way to rejump-start a company that had all but gone out of business in the previous decade. The second USA domestic satellite was built by and for RCA. Westar (Western Union) had 12 C-band transponders of nominal 36 MHz bandwidth, RCA pioneered 24 transponder/channel birds by interleaving two opposite polarity groups using vertical and horizontal.

"I want to hire a satellite" the man announced, having walked into an RCA office in midtown Manhattan (New York City). It was 1978 and Satcom F1 was brand new. Not many people were walking into RCA at that time to enquire about "hiring a satellite." It was mid-December, ten days prior to Christmas. The man "looked" normal enough, as best anyone in New York City can and does "look normal."

"I would like to do this on Christmas Eve" he continued, "for one hour."

The RCA counter person, ill equipped to deal with the request, disappeared to a back office.

(New) RCA man: "You wish to hire a satellite for an hour?" he re-asked. The man confirmed.

RCA man, breaking out a 'satellite time request' form which even he had never previously filled in:

"Let's work through this," taking the man's name, address, contact numbers.

"Now, about the time. A specific time on Christmas eve?"

The would-be user was uncertain.

"And the length - one hour?" A nod of the head.

"What will the hour consist of?" The man asked if a 3/4" Beta tape would be suitable.

"Yes - we can play that back. Now - where do you want this sent to?"

The man: "Sent to - what do you mean?"

The RCA chap now explains how the satellite system works, a signal is sent into the sky, is intercepted by the satellite, and 'bent' back to earth where at some designated point or points it is received.

"All - all of the transmission goes through the satellite? None goes past???"

RCA man: "No, actually most of the signal does go past the satellite and into deep space. There is nobody there to receive it, of course - except perhaps, God."

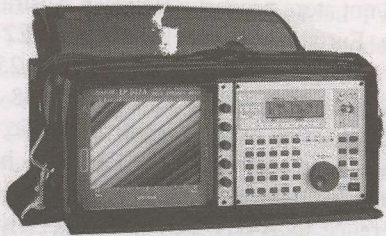
The man smiled broadly. "Excellent. That is where I want it to go!"

# SATWORLD

**YOUR NOKIA SPECIALISTS!**

**EX DEMO - BARGAIN!**

## **UNAOHM EP 507A SPECTRUM ANALYSER**



**THIS IS A SPECTRUM ANALYSER OF THE HIGHEST QUALITY. IT IS THE CURRENT MODEL AND TOP OF THE RANGE. THIS UNIT IS EX DEMO AND IS IN EXCELLENT CONDITION. INCLUDES FOUR OPTIONAL CARDS 2230 MHz SAT, DISEQC DSQ7, MPEG II AND SCPC. WILL BE SOLD WELL BELOW REPLACEMENT VALUE!**

**www.satworld.com.au**

PO BOX 24, PATTERSON LAKES, VICTORIA, 3197, AUSTRALIA  
PHONE & FAX: (03) 9773 9270 E-mail: sales@satworld.com.au

### **FAT CAM modifications**

(ALL-CAM or 5in1 MultiCrypt-CAM)

**Faulty CI repairs, Faulty CAM repairs**

**Originator-Developer of the futuristic**

**all-region, all-mode GLOBAL CI**

**Digital Sales, Digital House**

Byron Crescent, Coppull, Chorley, Lancashire, UK

**www.digitalsales.co.uk**

**sales@digitalsales.co.uk**

## **Hey Australian Mate!**

**WE are the source for**

**SatFACTS Monthly**

**in all of Australia.**

**Yes, even in Tasmania.**

AvCOMM Pty Ltd

Email cgarry@avcomm.com.au

telephone 02 9939 4377

detrimental effects to performance had been noted!" (Charles L, Vic). "IRDs with embedded Irdeto 2 software - will they still work with the Irdeto 1 cards?" (Larry, NSW) Answer: Irdeto 2 uses the exact same number of bytes as version 1, and runs even on the oldest FAT CAM. Irdeto 2 makes use of byte space which version 1 simply did not use - there is nothing revolutionary here, only evolutionary. "My MTV Palapa C2M analogue picture increases from P2-3 to a solid P4 on a 1.8m dish when the outside air temp drops to -5C or below." (Arnold, mountains of NSW) "SF#94, p. 4 reports 'Country Music Channel 'Australia in glorious PAL...'. Not so. Yes, it is PAL but far from perfect. Most video clips are reduced in height (14:9) or smaller (!) and the image quality is on a par with a well worn VHS tape. There are the odd full-screen good picture quality (almost all Australian origin) clips which only proves it is a conversion, not transmission, deficiency." (MD, NSW) "ETV Mux#2 on InSat 2E at 83E (3485Vt) acts like a zone not wide beam. This is the only wide beam one of InSat 2E listed wide beam which does not load on a 1.8m in NSW." (DM) "Conversion problems? Our local Prime TV (a 7 affiliate) Monday - Friday airs a recording of the Sydney 6PM news for replay at 6.30PM. There is an intermittent, irritating fault. On average ten times during the 30 minutes the image changes from the (correct) 4:3 to 16:9. These 16:9 bursts last only a few seconds. The conversion learning curve goes on!" (NS, NSW) "About conversion woes. I have noticed that shows recorded quite recently (last year or two) often have colour splotches - a blue sky is not uniform. It is similar to the artefact one sees when using a camcorder in a dark setting where the light is low and the video image boost switches on - noise is in the image. And the same shows that have this artefact also often lack contrast - picture is too dark, or just the opposite - too light and too much contrast. It is annoying when you have a commercial break during one of these shows airing and everything looks normal, only to go back to what you now recognise as a (often badly) degraded picture." (FH, Victoria) "Do you plan to show us how to convert an (Irdeto) FAT CAM so that it will operate as a multicrypt CAM?" (Answer: The plans are on Internet and a version of this is already in process for future publication.) "Our Nokia 9200 FTA receiver stopped receiving RAI International from 3836Vt PAS-2. We have reloaded it several times, still does not work. I am aware the other 3 services there are now Irdeto-2 CA. Any help?" (G.O., Victoria) Answer: Go to page 14 (to 22) and learn how to reload (from Internet) any DVB2000 software from 1.70 onward (but because we don't know your 29F memory ability, don't go above version 1.82). Once loaded, rescan 3836Vt. "BushNet is a new proposal to provide 'wireless Internet' through NTL terrestrial tower sites, or a fibre-optic link along state owned rail lines. Perhaps related - Telstra reportedly has purchased SBS and ABC tower sites nation-wide for A\$850 million." (Charlie, NSW) "66cm widescreen TVs are now just over A\$900 and Target (stores) has a Voxson brand DVD player for \$199." (Emanuel G., NSW) "I unpacked a UEC642 which at most had ten hours of use from when purchased, plugged it in, and there on the screen for the first 5 minutes annoying 50 hertz hum bars. SatFACTS reported others with this problem which were believed to be due to out of tolerance power supply capacitors. Perhaps, but as this unit is essentially brand new, they have not gone out of tolerance from use." (IF, Qld) "Anyone know how to locate schematic diagrams for UEC 642, 660, 700 and 720?" (David)

### Why MadMax (R. Deubel) went to a Bangkok Prison

German born, Cape Town (RSA) resident Rolf Deubel (better known to SatFACTS readers as MadMax) was placed in a Bangkok jail September 16, 1999 (following his arrest 2 days earlier) and charged with violation of a Thailand intellectual property law, forbidding decryption of pay-TV data streams by an unauthorised individual. SatFACTS, and more especially our then operating stand-alone web site, kept up a running report commentary on his apparent status through February 2000 when he was finally able to sneak back to Cape Town. By June 2000, Rolf was communicating with us expressing his gratitude for our coverage of his incarceration and reporting he was slowly gaining back the 40 kilos he lost while "on holiday in Bangkok." Deubel sought our post release assistance to locate a suitable "ghost writer" to tell his story. We sent him in several directions, none panned out properly. Then he found a writer of some visibility and we began to receive excerpts and pages of dialogue for review.

We knew Bangkok was not Wallhalla, but until we read the rough drafts detailing police perversion, judicial bribery and the pervasive influence of "Thai Mafia" into virtually every daily activity there, a proper appreciation of his 144 day "detention" was simply not possible. In his book, that will ultimately run between a good 400 and 500 typeset pages with illustrations, we are here but scratching the surface in a hit and miss fashion. I have asked for and received Deubel's permission to extract from these drafts. The very day he was detained by a squad of investigators from the Thai Economic Crime Unit, four Europeans and a South African flew into Bangkok to participate in his formal arrest.

**Ray Adams**, Security Chief for NDS to Deubel:

*"Rupert Murdoch wants you too. You made a terrible mess in Australia and you'll pay for that."*

**Andrew Curle**, Security Chief for Irdeto to Deubel:

*"You are going to be locked away for 10 years. We finally have you where we want you - in Thailand and totally under our control. These people here will make your life miserable - unless of course you agree to tell us who's in your gang!" (Gang? What gang?)*

**Sarawut X** (last name known to SatFACTS), Thai investigator who originally headed up the detention detail, but who later assisted Deubel in his escape.

*"We were paid quite some money to detain, arrest and keep you. You want out? Make us an offer."*

We are, of course, cherry picking from the early dialogue received as SatFACTS goes to press. And this is not the only material Rolf Deubel has been providing. Our page 14 - 22 Nokia report is from his memoirs as well. As NDS's Ray Adams spat in

Deubel's face after the South African was formally booked into a Thai jail, *"You made a terrible mess in Australia."* What he meant was, Deubel masquerading as MadMax, the unpredictable, notorious and outspoken Irdeto format smartcard pirate, had blazed a brief but fiery trail across metropolitan Australia in mid 1999 leaving behind his "MM" brand of wide open card hacking. Pages 14 - 22 here is written as a semi technical paper for virtually anyone who would like to better understand what this "piracy deal" is all about. After reading these pages, we asked Rolf for permission to publish the Nokia report prior to appearing (in a more concise format) in his memoir book. Many people donated funds to a THOIC.com trust established by Lee Gibling (THOIC's admin) to financially assist Rolf in "beating" the Thai charges. Not a penny of those donations sent to Gibling ever reached Rolf or Thailand and now of course we know: Gibling was acting on directions of NDS, who were paying THOIC's bills. As much as US\$50,000 sent to Gibling simply "disappeared" - and nobody knew - until Gibling's personal computer files were "hacked" by someone "neutral" in early 2000, some "safe distance" away from Gibling's Cornwall home.

The material appearing on pages 14 - 22 is a slightly updated version of what MadMax was "preaching" to anyone who would listen during the mid months of 1999. Perhaps if we read and comprehend this we will better understand why Mindport, Irdeto and NDS were willing to fly half way around the world to be present for his official booking and spend about US\$500,000 on the "case". Deubel before going into Bangkok remand was flamboyant and perhaps a little overly sure of himself.

He repeatedly points out that his MOSC activities in Australia, when he was there in mid 1999, were not -repeat not illegal. The law covering such activities only went into effect during March 2001. In his mind, he is a leading edge technologist, perhaps a few steps ahead of the law, which means - *before there was a law against what he once did*.

Deubel is a 47 year old God fearing man with an absolutely fascinating background in computer electronics and software. He did not suddenly fall out of a tree in 1999 when "MadMax" as a pseudonym gained popularity. He believes Mindport and associates deprived him of his freedom and liberty disregarding "his" human rights. He believes they did this in Thailand because the Thai "system" allows people to be swallowed up and held for years without a formal trial. Ultimately, his original charge papers "disappeared" in the Thai legal system; nobody ever found him guilty of anything; there or elsewhere.

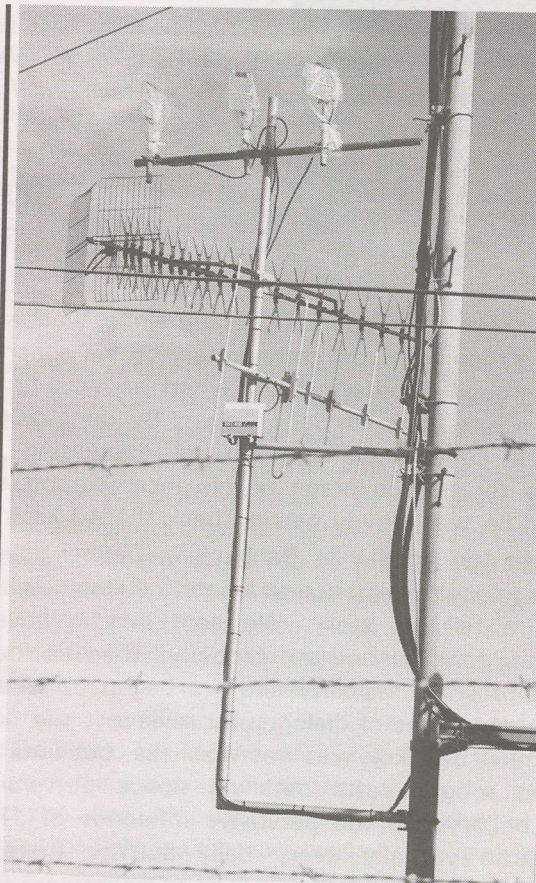
He's angry and the book passages we have inspected explain why. They also condemn NDS and Irdeto/Mindport and a host of others for "preaching" honesty while simultaneously practising deceit. What we have previewed seems more like a movie script than real life. Unfortunately for Rolf who lived the experience, it was the "real (Thai) NDS/Irdeto world." And before it is all over, it could easily make its way to Hollywood. But it won't be a "Foxy" movie.

## THE elements of a SDStv.com L-band System

SDStv.com is L-band (950 to 1450 MHz) transmission equipment. Any video + audio source from a satellite TV receiver, a VCR (A-V output), a DVD player or even live camera + microphone will be transmitted on a specific FM (Frequency Modulated) channel as selected by the user - between 950 and 1450 L-band.

SDStv.com 24 transmit channel (user selected, agile) transmitters are 20 mW (milliwatt). Connected to a suitable L-band transmit antenna (our SDStv.com passive logi or our Discone) LOS (line of sight) transmission ranges to 4 km are reliable. Receivers? Use any L-band analogue receiver connected to a SDStv.com passive or active logi! What comes out of the L-band (standard analogue satellite receiver) is the same video + audio as you fed into the transmitter.

Need greater distance, don't have LOS? We have ten watt amplifiers and high gain PARAflector antennas with proven performance to 60 km!



### WHEN does 1 + 1 = MORE than 2???

One SDStv.com transmitter connected to a SDStv.com passive logi or Discone transmit antenna makes it possible for an infinite number of non-wire connected receive sites to enjoy the original video + audio content delivered to the transmitter. This is "broadcasting" in its pure form, using L-band frequencies, to an "infinite" number of receivers located within LOS reception range. One satellite dish reception can be shared throughout the "neighbourhood."

## WHO is using SDStv.com L-band systems?

Broadcasters throughout the Pacific and Asia, Africa use SDStv.com to extend their coverage areas - filling in where terrain or distance blocks direct reception. Simply select an elevated or clear-view site where direct terrestrial reception is possible, demodulate the reception using a standard VCR, and then wire connect the VCR video + audio output to a (SDStv.com) mW20 transmitter. In the photo here, three Band III and Band IV signals are received, and then pumped down from a hill to direct-reception-shielded reception point using L-band SDStv.com passive (directional, gain) transmit antennas (L-band antennas are at top of array, receiving antennas below).

**SDStv.com installation notes - from user experiences. Contact us and request J001!**

# YOU CAN HAVE SDS.tv in YOUR AREA!

\* - Not available in New Zealand nor Australia unless you are a licensed Radio Amateur  
Use this form to order equipment, solicit additional information

## SDStv.com Limited Factory-Direct Orders

- SDStv.com 20 mW Starter Kit.** You receive 24 channel-agile L-band transmitter with (230-260 V AC) power pack supply, Discone omni-directional transmit antenna with RG6 pigtail and F connector, 6 dB gain "Passive-Logi" receive antenna. Connect up your A/V source, connect "Passive-Logi" to any functional analogue L-band receiver, set the mW 20 and receiver to the same L-band channel and turn it on. Instant television with subcarrier audio over distances of 0 - 4km.
- SDStv.com 20 mW Starter Kit - X003.** Same as above but substitutes R-003A "Active Logi" with 21 dB package gain for receive antenna. US\$358 + Air Parcel Post/Fed-X charges.
- SDStv.com Passive Logi antenna.** 6 dB gain over frequency range 950 - 2500 MHz, 75 ohm, F connector installed with mounting snaps. 1 - 6 US\$25 each; 7 - 24 US\$22.50 each. Quantity required: \_\_\_\_\_
- SDStv.com Active-Logi antenna.** 21 dB gain over frequency range 950 - 1450 MHz, reduced gain to 2150 MHz. 75 ohm, F connector installed with mounting snaps. 1 - 6 US\$90, 7 - 24 US\$81 each. Quantity required: \_\_\_\_\_
- SDStv.com 10-watt Linear amplifier.** 27 dB gain turns 20 mW into 10 watts, or BDA-33A (below) into 10-watt total for full 950 - 1450 MHz bandwidth. Requires external 24V DC, 2 amp power supply (you supply - Dick Smith Model AIL 4542 M9636 or equivalent). US\$590 + Air Parcel Post/ Fed-X charges.
- SDStv.com BDA-33A Wireless Link System.** You receive BDA-33A bandpass amplifier (powered from your existing analogue or digital receiver), SDStv.com Discone transmit antenna with pigtail RG6 and F connector, 6 dB gain "Passive-Logi" receive antenna. Connect as shown on p. 33 here and use any analogue/digital receiver with passive logi to receive full 950 - 1450 bandwidth dish signals over distances as great as 3 kilometres. US\$260 + Air Parcel Post/Fed-X charges.
- SDStv.com BDA-33A/R003A Wireless Link System.** Same as system directly above but substitutes R-003A "Active Logi" for passive Logi receive antenna. US\$323 + Air Parcel Post/Fed-X charges.
- YES** - I have checked <http://www.sdstv.com> web site and I have the following question(s):

**Have you REALLY gone to <http://www.sdstv.com> for more information???**  
**Attention Asia: New sources for SDStv.com equipment ([www.sdstv.co.za](http://www.sdstv.co.za))**  
**- ask us!**

## Who I am - Where to ship this equipment

Name \_\_\_\_\_ Company \_\_\_\_\_

Mailing/shipping address \_\_\_\_\_ (e-mail \_\_\_\_\_)

Town/City \_\_\_\_\_ State/Province \_\_\_\_\_ Mail Code \_\_\_\_\_ Country \_\_\_\_\_

### If this is an order:

Payment by:  Cheque enclosed (drawn in US\$ or your equivalent to SDStv.com Limited) in the amount of US\$/equivalent \$ \_\_\_\_\_

Charge to (VISA or Mastercard - only) credit card as follows:

Name on card \_\_\_\_\_ Card expires \_\_\_\_ / \_\_\_\_

Card number \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Total amount of order (in listed US\$) \$ \_\_\_\_\_ (\*) Signature of card holder \_\_\_\_\_

\* - Air parcel post (or Fed-X) charges will be added; GST where applicable

**Return:** Fax to 64-9-406-1083 (tel 64-9-406-1282; email [skyking@clear.net.nz](mailto:skyking@clear.net.nz)) or mail to  
**SDStv.com Ltd, PO Box 30, Mangonui, Far North, New Zealand**

## SatFACTS: DON'T MISS A SINGLE ISSUE!

Nokia dbox Mods? d-box2 functions and mods? Humax after-market software?

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 67 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.

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; Australian 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.

Paying by cheque? Send to SatFACTS, PO Box 330, Mangonui, Far North, New Zealand

**AUSTRALIA? Another (excellent) 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, Eu170, 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

● UNIVERSAL COMPATIBLE TUNER 950-2150 MHz

● LOOP THROUGH TO ANALOGUE RECEIVER

● DiSEqC 1.0 LNB OR POSITIONER CONTROL

● EXTENDED SYMBOL RATE (2-45 Mbps)

● PID FUNCTION FOR VIDEO, AUDIO & PCR

● EPG/ TELETEXT DISPLAY

● TP SEARCH, NETWORK SEARCH AND FTA ONLY FUNCTION

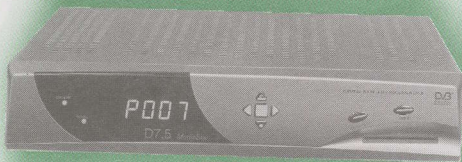
● NTSC TO PAL AUTO CONVERTING

● RF MODULATOR (CH 21-69)  
PLL CONTROL)

● TV AND RADIO CHANNELS  
EDIT WITH MOVE, DELETE AND  
FAVOURITE FUNCTION.

● SOFTWARE UPDATE VIA  
RS-232 SERIAL DATA PORT.

**NEW  
D7.5  
MediaStar**



**MediaStar  
Communications  
International**  
24 Bosci Road  
Ingleburn NSW  
2565 Australia

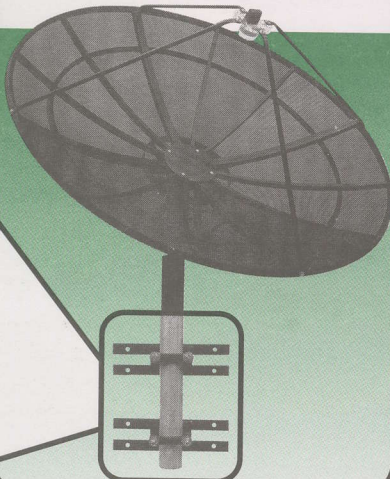
Tel: 61 2 9618 5777

Fax: 61 2 9618 5077

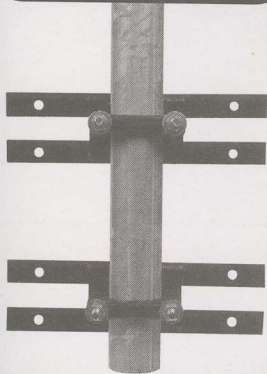
Opac@bigpond.com



HIGH PERFORMANCE ANTENNA DISH



**ALL SUPPLIED WITH  
WALL BRACKETS**



## AVAILABLE IN

- 1.95m Quad Fixed mount
- 2.3m Quad Polar mount
- 3.1m Quad Polar mount



**RG6 Tri shield 300 and 100m  
ACTUATOR CABLE AVAILABLE**

# HUMAX

## IR-5410Z

- Software upgradable from home PC
- Latest software FREE on the web
- Channel/Transponder data upload/download to PC
- Embedded IRDETO (compatible with all Australian IRDETO services)
- Digital Audio Output
- DiSEqC 1.0 switching
- DiSEqC 1.2 positioning
- 22kHz Switching
- 4:3 or 16:9 aspect ratio

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



Trade supplier of quality products:

**SCITEQ**  
PTY LTD ABN 34 009 235 090

Phone: +61 8 9306 3738 Fax: +61 8 9306 3737  
[sales@sciteq.com.au](mailto:sales@sciteq.com.au) <http://www.sciteq.com.au>