

15/11/01 - Has 155 dup PAsen

Bob Cooper's

NOVEMBER 15 2001

SatFACTS

MONTHLY



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

IN THIS ISSUE

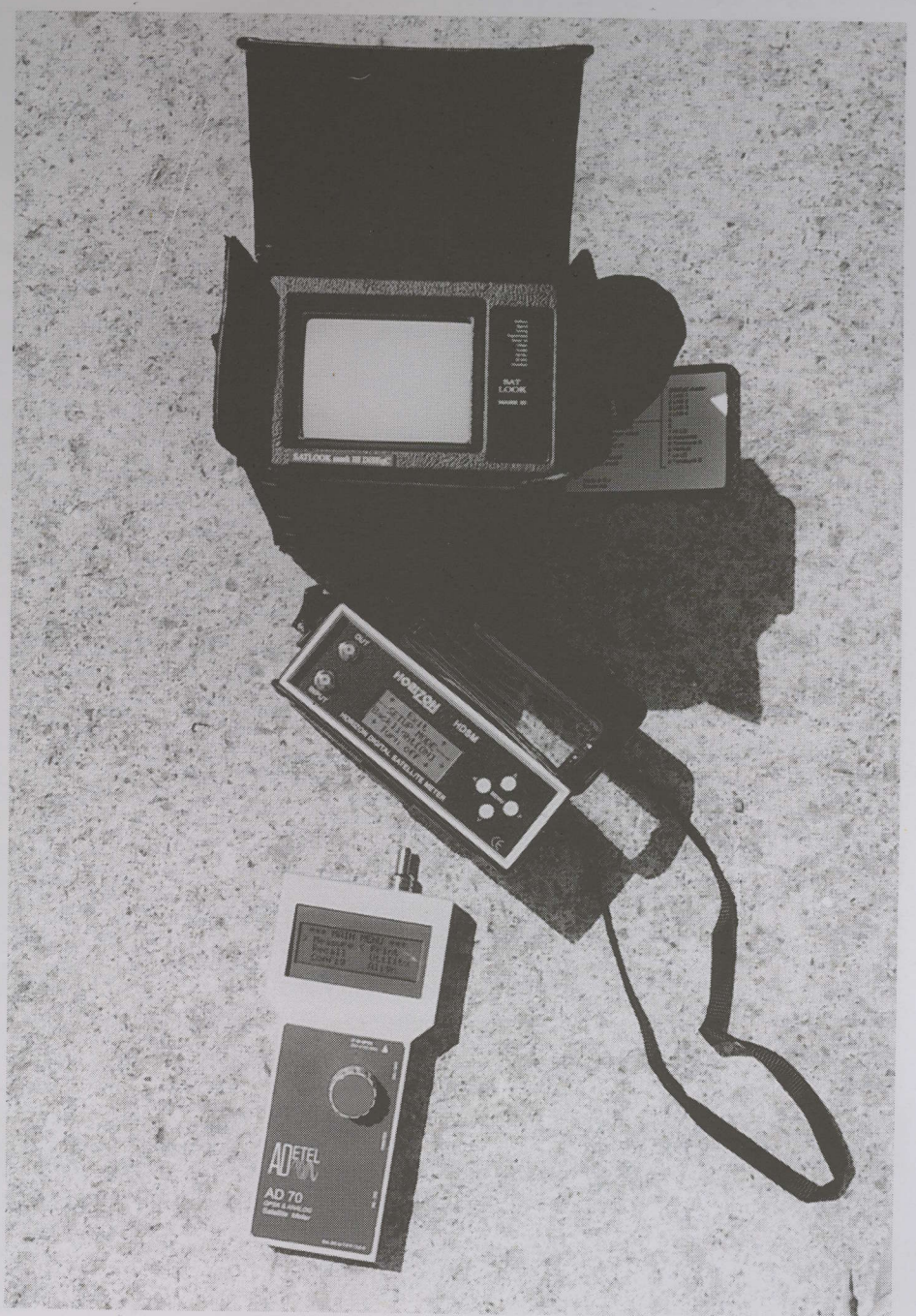
Digital Signal Measurements:
3 reviews

Re-radiating L-band - barefoot

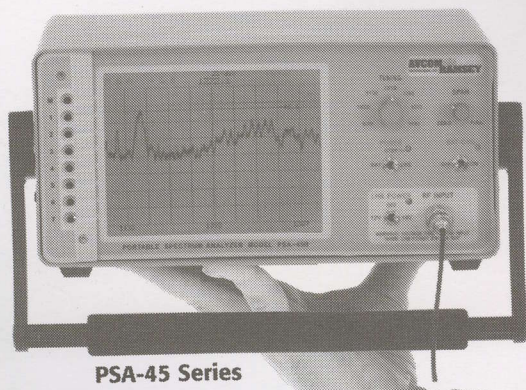
Palapa C2M Bandscan

- ✓ Latest Programmer News
- ✓ Latest Hardware News
- ✓ SDStv application notes
- ✓ Observer Reports

Vol. 8 ♦ No. 87
Price Per Copy:
NZ\$10/A\$11/US\$8



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!

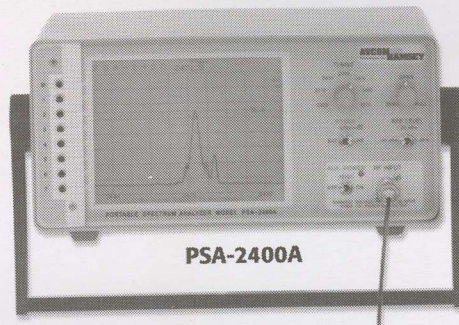
PSA-45A \$2,060.00

PSA-45B \$2,475.00

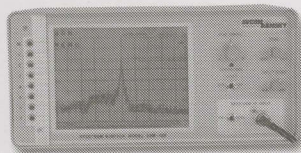
2.4 GHz Spectrum Analyzer

- 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

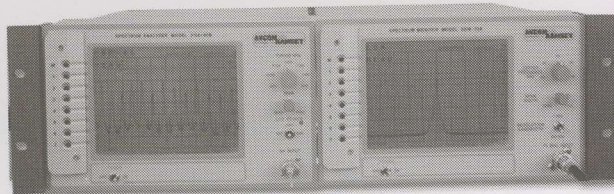
PSA-2400A \$2,775.00



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!

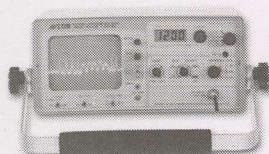
PSA-39A



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

PSA-39A \$2,845.00

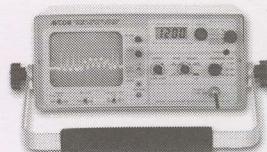
PSA-37D



- 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

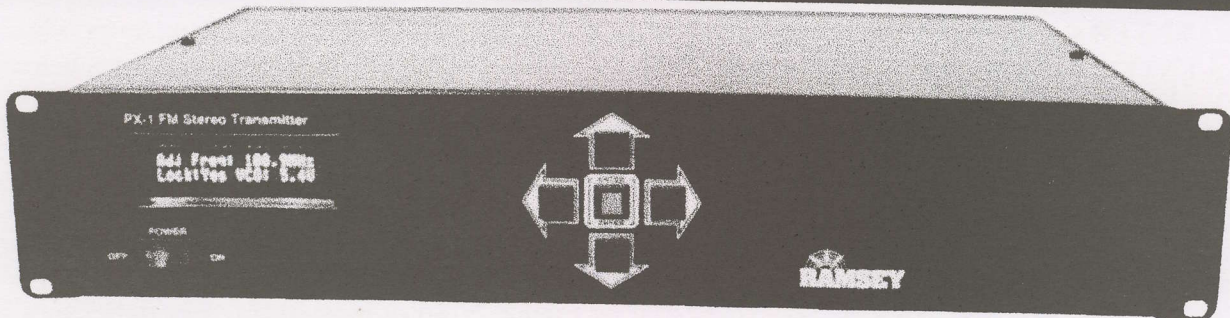
PTR-25D B&W \$1,395.00
PTR-25LCD Color \$1,625.00

AVCOM
Technologies, Inc. **RAMSEY**

Visit us at www.avcomramsey.com

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

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.

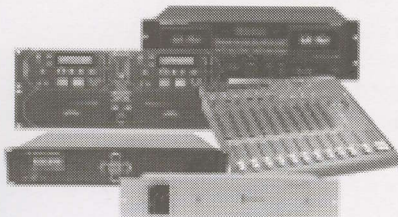
- Set-up and use is fast and simple with just 5 buttons to access all parameters - power, frequency, modulation, and more.
- Built-in stereo generator - no need for a separate encoder. Of course you can also broadcast in Mono.
- Built in Automatic Gain Control (AGC) gently "rides the peaks" and smoothes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

THE 2001 SATELLITE EXPLOSION IN THE PACIFIC/ASIA!

TVNZ Free to Air on Satellite - NOW!

Stay tuned with SatFACTS!

- ENTER my **12 MONTH** subscription to SatFACTS starting with December 15th issue (rates below)
 ENTER my **36 MONTH** subscription to SatFACTS starting with December 15th issue (rates below)

NAME _____

Company (if applicable) _____

Mailing address _____

Town/city _____ Country _____

Amount to send: 1 year - **NZ\$70**(inside New Zealand) / **A\$96** (inside Australia) / **US\$75** (outside of NZ and Australia) or 3 years - **NZ\$160/ A\$220/ US\$170** if by cheque. **VISA** or **Mastercard**? See form below and return with order. Return to: **SatFACTS, PO Box 330, Mangonui, Far North, New Zealand** or if by VISA or Mastercard fax to 64-9-406-1083

IF YOU ARE IN AUSTRALIA - See AV-COMM Pty Ltd Advert p. 29!

USE THIS FORM ONLY WHEN CHARGING ON VISA/MASTERCARD

Please charge my **VISA/Mastercard** as follows:

- ONE Year of SatFACTS MONTHLY (NZ\$70, A\$96, US\$75)
 THREE Years of SatFACTS MONTHLY (NZ\$160, A\$220, US\$170)
 TB9402: MATV Systems (\$20) / TB 9404: Home Satellite Dish Systems (\$20) /
 TB 9405: Satellite to Room Systems (\$20)

Indicate charge card type: VISA Mastercard

Name (as it appears on **VISA / Mastercard**) _____

VISA/Mastercard Number _____ - _____ - _____ - _____

VISA/Mastercard expiration date _____

Instructions: If ordering by mail, return this complete card or a copy of same (to **SatFACTS, PO Box 330, Mangonui, Far North, New Zealand**); if order by FAX, send full card as a single sheet to **64-9-406-1083**

ALL COPIES OF SatFACTS Monthly are sent FAST POST - Airmail world-wide!

SUPPLEMENTAL MATERIALS from SatFACTS MONTHLY: Order Form

- TECH BULLETIN 9402: MATV Systems.** One antenna (system) on the roof, amplifiers and cable to distribute off-air VHF and UHF channels, perhaps FM, perhaps a video channel or two to the rooms of a home, motel, or commercial building. How do you do it? And maintain clean reception on each channel, at the same signal level as all other channels, to each of the wall plate outlets? It is all here - from antenna system design to distribution system and outlet mechanics + electronics. TB9402 - \$20 each.
- TECH BULLETIN 9404: Home Satellite Dish Systems.** New to satellite? Uncomfortable making all of the pieces fit, telling a "good piece" from a "not so good piece"? The difference between analogue sparklies and digital pixelations? When to use (and not to use) a line amplifier! Confused by polarisation systems, or why a vertical signal on your western horizon is actually a vertical signal? TB9404 - \$20 each.
- TECH BULLETIN 9405: Satellite to Room Systems.** Mixing off-air terrestrial signals with off-satellite FTA (or CA) signals to distribute all together on one piece of coaxial cable such that standard TV sets can receive all of the channels without a set-top decoder or box. Whether it be a large home, a motel/hotel or commercial building - the "blending" of terrestrial and satellite requires some special skills and new approaches. This is your "how to do it" guide that will prepare you for bidding on "the big jobs". TB9405 - \$20 each.

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/yr

Australia: AV-COMM Pty Ltd, PO Box

225, Brookvale, N.S.W. 2100

61-2-9939-4377

Elsewhere: US\$75p/yr

All copies sent via airmail fast post
world-wide

ERRATA

SatFACTS Copyright 2001 by Robert B. Cooper; any form of copying is a violation of our international copyrights. Advertising rate sheet available upon request.

COOP'S COMMENT

Twin press releases issued at 12 noon on October 31st in New Zealand announced that the Government owned and operated state broadcaster, Television New Zealand, and the News Corp controlled private pay-TV broadcaster Sky Network NZ, had reached agreement. From 1 December, TVNZ's TVOne and TV2 will become a part of the growing bouquet of Sky TV service channels. The winners here are people who have Sky's digital (satellite) service for essentially all of their viewing - except (until 1 December) TVOne and TV2. And the losers? Virtually everyone else.

The New Zealand Government mandated this decision - putting intense pressure on TVNZ to go with Sky's digital proposal or risk further retaliation from Government ministers. TVNZ is an unusual animal in the corporate world - it is owned by the people of NZ, a stockless corporation, operated by the state. And it has been subject to the whims and petty dictums of every elected Government since its 1960-1961 start as a broadcaster.

With this forced decision, TVNZ becomes a "content provider" for Sky, and for all practical purposes loses its dignity as an independent entity representing the people of the country. Sky in its new found role of "gatekeeper" for all New Zealand television will now move quickly to silence any voices they do not directly manipulate.

One such voice belongs to television broadcaster Jim Blackman who is head of the 17 TV station group Regional Television Broadcasters. Blackman's Triangle TV (channel 42, Auckland), Channel 7 in Wellington and 15 other "independents" provide a niche service originating local programming, relaying Deutsche Welle and offering half hour time blocks to minority groups such as New Zealand's Indian population. Last June the group discovered that Sky digital contractors were neglecting to reconnect or retune viewer's TV sets after installing Sky digital. Before the installer did his thing the home viewer had an outside aerial supplying TVNZ, TV3, TV4 on VHF and various Sky analogue terrestrial channels + local independent channels such as Blackman's Triangle on UHF. When the installer left, the VHF aerial was looped through the Sky set-top box and perhaps - maybe - TVOne and TV2 terrestrial analogue still played. But the UHF signals were left out. In effect, each home that became a Sky digital home lost access to all UHF channels.

When the regional telecasters complained to Sky, they got two answers: (1) "*The UHF aerial belongs to Sky, we put it there for the home's reception of Sky analogue. You have been getting a free ride from our aerial all of these years. If you want these people to view you, talk them into installing their own UHF aerial.*" Never mind the old and abandoned-by-Sky UHF aerial was still on the house. (2) "*Maybe you should tell your viewers they should offer to pay the installer to reconnect the UHF aerial - most of them would appreciate the extra income for this extra service.*"

When Sky abandons an aerial on a house, who does it belong to? The law suggests the aerial (whether UHF or a digital dish) is an unregistered "Chattel" - still the property of Sky. To clear that status up, the homeowner must go through the legal process of serving written notice on Sky to either collect the antenna or lose title to it.

Now with TVOne and TV2 to be available via Sky digital, the VHF aerial on the home - clearly not the property of Sky - will be "abandoned" in place by the home owner. As Sky adds new digital subscribers, abandoned VHF aerials will rust, fall down, become useless reminders of a bygone era. I predict that within 18 months, outdoor VHF aerial sales in New Zealand will fall by 25%; in 36 months, by 50%. At which point not even Dick Smith stores will offer this product. The transition is just beginning; see p. 31 here.

In Volume 8 ♦ Number 87

Measurement technology - 3 new approaches -p. 6

Re-Radiating microwave signals -p. 12

Passive versus Active Re-Radiation -p. 20

Bandscan: Palapa C2M -p. 26

Departments

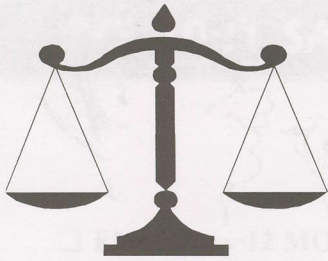
Programmer/Programming Update -p.2; Hardware/Equipment Update -p. 4; SatFACTS Digital Watch -p. 22; Supplemental Digital Data -p. 26; BANDSCAN: Palapa C2M 113E -p. 26; SPACE Pacific Report - TV Show schedule -p. 26; With The Observers -p. 28; At Sign-Off (A tiny crack in the dike) -p. 31

-ON THE COVER-

New measurement test instruments from Skandia (top), Skinka (middle) and Lacey's Australia (bottom) - the more you know, the better you do your job (p. 6).



November 15, 2001



LETTERS

Where have all of the people gone?

"Reference report about small attendance at Melbourne show in September. Perhaps it is as simple as the monthly turn off of yet more FTA services in favour of CA, and the fact that there is each month less and less to attract a backyard satellite enthusiast?"

Paul Burton, Waipu Cable TV, Waipu, NZ

Don't be so hard on yourself

"There appears to be a different perception on the usefulness / value of the Melbourne SPRSCS 2001, most quite different from those attributed to Messrs Lacey and Freitag. I have spoken to quite a percentage of those who did go as well as an almost equal number of those who did not. That that did go reckoned it was good - particularly as you were able to reorganise 'on the fly' for those who were not able to make their promised presentations. I fear you may be 'whipping yourself' quite unnecessarily. However, I am not sure anything done would have a dramatic positive impact on the number of attendees. One possibility might be to schedule it over a weekend even if that means longer sessions or parallel sessions. For my part I already have two more 'bookings' for further packaged talks - one for the Australian Electronic Technician group in early December and one from a large electronic and electrical distributor for his Queensland customers who could not make SPRSCS. In all cases I am asking a substantial fee and there was no quibble from either party. If there is useful information and others 'need to know', then it is saleable."

Eric Fien, Broadnet International

All the way from Perth

"Coming all the way from Perth, it was a great opportunity to put faces to the names and voices of people I often deal with when ordering equipment and materials. The show was also valuable in making contacts and being informed with the latest techniques in our industry - even as I had the trauma of being booked on Ansett!"

Nic, Northside Antennas, WA

Everything but the kitchen sink

"No show complaints here - we sold everything but the truck we arrived in on Saturday!"

Mark Simmons, Skandia Electronics P/L

Individual TVRO enthusiasts have certainly declined over the past 2 - 3 years. Witness the lack of a REAL equipment supplier in ALL of New Zealand as but one example of very little business remaining. What we have tried to do however is make the annual conferences appeal to a wider range of people, in particular those who still do home DTH for a living or install commercial systems for motels, apartments and the like. There are hundreds of people still involved in these aspects of the industry and to them, the technical content of the show should be a major reason for attending.

PROGRAMMER PROGRAMMING PROMOTION

UPDATE

NOVEMBER 15, 2001

TARBS strikes again. Just when you thought TARBS had spent their wad and would not be negotiating any more deals to remove additional FTA national services - another strike. This one seems to involve potentially the encryption, as early as December, of Thai TV5 which currently appears FTA through Mediasat (Optus B3, 12.336Vt) over Australia and New Zealand. A source at Mediasat ("Mark" as mlobwein@mediasat.com.au) has advised, "That TV5 are looking to move (from Mediasat) to TARBS." Of course TARBS has followed a procedure of shutting down all FTA feeds for services which they carry within their CA-pay package from PAS-8 Ku. Early in November observer Bill Richards found Thaicom 3's 3485Hz (Sr 18.180, 3/4) carriage of the Thai TV Global Network had been renamed "TARBS" on his Nokia, a very suspicious change indeed. Thai 5 TV's service, while not hugely popular, has thousands of devoted fans in Australia (who will be forced to pay A\$60 a month to TARBS for continued service) and New Zealand (where TARBS is not available for any price). Complaints? You can try going to http://www.tv5.co.th/ and registering your feelings there. One recent communicator - Surasak Doung-ratuna as global@tv5.co.th.

MMBN. Bit the dust or bad stumble? If you have been around this industry long enough, you will recall the July 1997 issue of SatFACTS where we reported the then (and still today) strange (short lived) appearance on Intelsat 177E of a Canadian + Taiwan service then called SpaceTV. The memorabilia part - within this Ku bouquet that reached New Zealand and Australia FTA was "Exxtasy," a Canadian based US origin triple X adult service that left nothing (nothing) to the imagination. We also reported a visit from the creators of this service. The Taiwan side of the group was supposed to provide the equipment and bucks to launch the service into Asia while the Canadian side was to provide the bare-everything programming and the well, it rhymes with bucks. In 1998 SPACE TV was swallowed up by another Taiwan group called MMBN - a real estate turned cable TV operator founded in 1985. MMBN began broadcasting on Palapa C2M (first C only, then Ku) in 1999 and by early in 2000 "agents" for the Nagravision CA service were busy selling home dish systems and an annual subscription throughout Eastern Australia. Estimates of how many were sold go beyond 1,000 including a tiny number into New Zealand as well. What viewers got for their money was a mixture of Taiwan programming including movies. Now MMBN's two C2M C-band transponders (4000Hz and 3760Hz) have moved to a single transponder (3632Vt) on that least powerful of all Pacific-Asia birds ST-1 at 88.0E (Sr remains 26.667, FEC 3/4). In the last year many of the original Taiwan channels have disappeared to be replaced by the likes of BBC-World, Fashion TV and even RAI. Where all of this leaves the original viewers, especially those in the Pacific region, is unknown but at best it doesn't look good. As Gareth E. Welsby on PNG writes, "Today the service is FTA including their 'Rainbow Channel' which is their adult sex offering. From the little I saw of Rainbow today, it could not be classified X-rated because genital areas were not shown, and the Chinese actors pretending to have intercourse were anything but professionals - in fact the pained expressions on the actor's faces would not arouse any censor!" A long ways from such Exxtasy titles as "300 Men for Nora" that opened with a camera shot of at least that number waiting in a long waist-down-naked line that snaked from Nora's bed under a tree on top of a hill down into the valley below. Now that was adult.



The growing Unaohm Television Analyser family



EP507 permits excellence in measurement across a wide range of television functions. Dual colour coded frequency markers provide a sound method of Digital Channel Power measurement. Automatic measure functions include Carrier to Noise and Video to Audio Ratios plus expanded Data Logging. Improved resolution bandwidth displays extra Spectrum detail. QPSK, OFDM and QAM quality measures of Bit Error Rate and Modulation Error Ratio etc., colour Constellation Diagram and printout of MPEG Network Information Tables are available. An internal reference Noise Generator that permits measurement of insertion loss or filter alignment etc. anywhere between 45 and 2000MHz is also available. A quality TFT LCD screen uses colour to clarify the meaning of most measurements, or simply to show a colour TV picture.

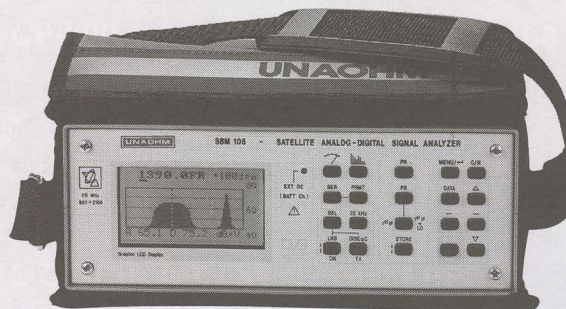
EP 319 level and Spectrum measurements feature high accuracy and selectable Resolution Bandwidths of 100kHz, 1.5MHz and 4MHz to provide real time spectrum displays of signals from TV stereo audio and colour sub-carriers to SCPC satellite signals. 5-40MHz is included, with Analogue and Digital data logging. Options include Digital Signal Quality measures of QPSK+QAM or OFDM. Operational running time is extended thanks to a Ni MH battery pack. Dual Spectrum Markers with Frequency and Level difference (Delta) measures, an electronically generated graticule, On Screen Display function indicator, automatic analogue Carrier to Noise and Vision to Audio ratio measures, DiSEqC 2.0 switching, Teletext etc. are included.



EP-313 provides a new benchmark for price, function and quality in a Television Analyser. Spectrum mode uses an easy to see frequency marker. Carrier to Noise ratio, Vision to Audio ratio and Digital Channel Power measurements display digitally and are automatic. 100 PReset tuning positions store your favourite channels, whilst factory preset channel plans enable tuning by Channel almost anywhere, by Frequency either by direct entry or step. Teletext is standard. Factory Digital Signal Quality options for QPSK, OFDM or QAM round out the EP-313's measurement abilities.



SBM-105 makes all the necessary measurements for Digital and Analogue Satellite signal Quality. Built around the standard Unaohm Digital Signal Quality measures, the SBM-105 includes Spectrum with Analogue and Digital signal level measurement. The graphic matrix LCD is readable in direct sunlight or low light. Versions are available for QPSK, QAM and OFDM. The SBM-105 is a low cost answer to installer measurement requirements of digital from a company with over 60 years experience manufacturing electronic instruments.



12 Kitson St. Frankston VIC 3199
Tel:(03) 9783 2388 Fax:(03) 9783 5767
e-mail: placey@netlink.com.au
branch offices in Sydney, Ulverstone & Woolgoolga



Chinese fella at show?

"At the Melbourne show was a Chinese fella by rear door entry from antenna lot - got his card, admired his low cost digital receivers and LNBf products but cannot locate my card? Now that TVNZ has TV One and TV2 on satellite - hopefully to stay FTA and to stay period - I can see many sales for his products here. Believe it or not, there are still large expanses of New Zealand with no terrestrial TV service!"

Robert Skilton, Te Anau

That would be Stanley Tong at SVEC Company Pty Ltd; tel 61-3-8801 0336. By a coincidence SVEC begins a long term advertising run with us this month.

Quick Check

"Just off the telephone with Sky. They want \$495 to install a 60cm dish plus decoder system to receive the FTA (TVOne, TV2/3/4/Prime) package plus of course \$17.29 per month."

OK, En, New Zealand

See page 31 for our take on the new business opportunities here.

SDStv in NZ?

"I would like to know what the status is of licensing for SDStv.com equipment in New Zealand? I have carefully digested the content of the (sdstv.com) web site and am now an eager Beaver!"

Montri, New Zealand

In August two professionals from the (NZ) Ministry of Economic Development (Kathryn Moody, Andrew Mulcahy) came to Mangonui to visit with Coop about the SDStv.com system and discuss possible 'holes' in the 950 - 2150 MHz NZ spectrum where SDStv.com could fit in without creating interference to others.

More recently, on the advice of MED's Hugh Railton (sort of the Guru of everything technical at MED), Coop created applications for "testing" of SDS in NZ. After tests, which frankly could last 6 months, will come MED consideration for 'Experimental Licensing' of SDS. Railton is of the professional opinion SDS will have a difficult time becoming 'legal' in NZ because of the country's International Treaty obligations. Coop believes this is a minor hurdle, that the big one is getting the support of MED which if it really wanted to do so could make this happen in a legal format almost overnight. SDStv.com's 20 mW single channel transmitters are one version which ultimately may find two or three 27 MHz bandwidth channels to operate. Quite separately are the BDA-33A systems described on p. 33 here. A very similar service was approved by the Ministry of Commerce/MED in late 1994. At that time "On-Channel" boosters for UHF-TV were approved, allowing 0.5 watt EIRP per TV channel to be radiated to serve pockets of people living behind hills or in valleys where direct terrestrial UHF reception was not possible. We see BDA-33A systems as exactly that - very low power, very specified coverage areas, relaying C or Ku band (at L-band) satellite signals exactly as first received (if CA, still CA; if analogue, still analogue). Until it becomes "law" we'll keep you advised of progress - or lack thereof and tell you why some people have a 1960 approach to a 2001 invention and what we are doing to convince them they are wrong. There is something elegantly simple about SDStv.com which makes the fight worthwhile (see p. 20, here).

HARDWARE EQUIPMENT PARTS

UPDATE

NOVEMBER 15, 2001

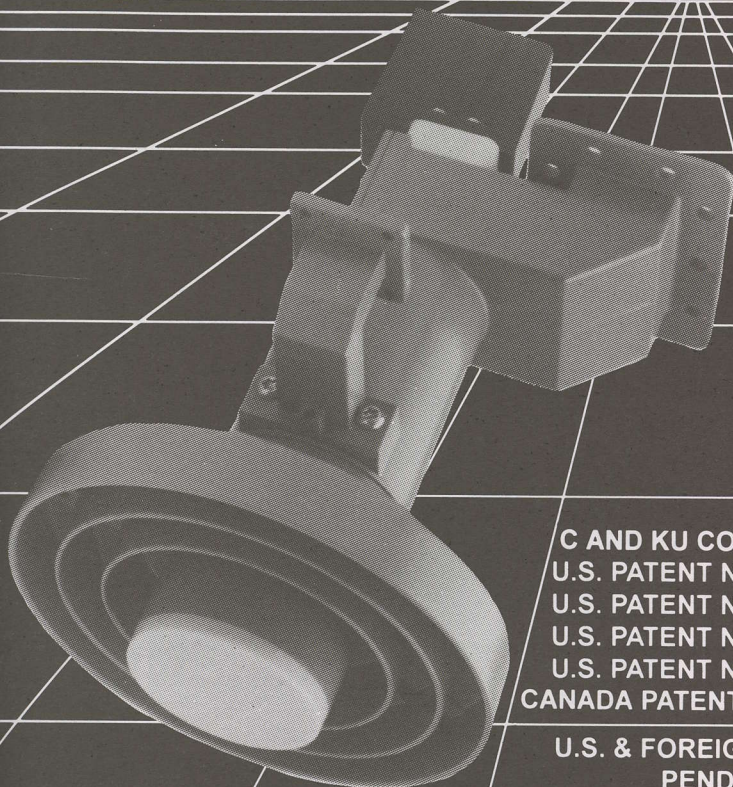
How much information is enough? Peter Lacey on the AD 70 instrument reviewed in this issue: "Of most interest to me are the BER measurements the AD70 provides. The Unahm approach measures Pre Viterbi, Post Viterbi and counts how many damaged Reed Solomon uncorrected packets there are over time. The ADetel approach measures Pre Viterbi BER only and indicates the presence only of RU damaged packets. Whilst not the full picture, in my opinion it is sufficient as the Pre Viterbi is the real thing while the presence of RU errors regardless of how many says you are too close to the cliff edge for comfort." Then there is the matter of taking the European-bred instrument and loading in the Pacific region satellites. "The instrument will hold 80 transponders in memory, which brings up the question of which 80 do we load in for users? Do we really need that many out here or would the 'Top Ten' be enough? The loading/file format is not Excel compatible so the parameters do have to be entered manually into the special program." Indeed. But the surprise to us was the pricing of the AD 70 which we did not know when we were testing the instrument. How surprised? It could have been 50% greater and not been a shock to us. Details on p. 6.

Another PVR equipped digital IRD is now available (the first from Strong was reviewed in SF for August). eMTEch's version at A\$995 is eM-300B, with 20 Gb hard drive, 2 x CI slots, holds up to 11 hour of recording with ability to use USB connection to PC and shareware (cable supplied). Distributor is Kansat (p. 21, here). Robert Anthony (NT) has suggestions for future PVR-inclusive IRDs. "There are two shortcomings in my Humax IRCI-5400 and Strong SRT-4800 I want to see overcome before I buy a PVR unit. They concern the timers. The Strong 4800 has a lousy clock (it continually loses time) while the Humax changes it's time when I move around the MUXes on PAS-2/8 (California bouquet, CNBC, etc, each have different universal times specified in their DVB signal making timer programmed channel changes difficult). The Strong 4800 lets me get past that problem but unfortunately the clock drifts a lot each day. And because most of the MUXes do not have EPG, I also need a robust manual programming capability while retaining the ability to use the EPG for 1701 Canal+ or Aurora. I also want to be able to get the audio from the PAS-8 ESPN mux (and 1701 AFRTS) FTA. My Humax 5400 allows me to listen to the audio even while the video is encrypted so it is like having sports radio available. Finally, I want to be able to record the TARBS ESPN Pac Rim service but as TARBS uses a unique encryption system which requires a unique receiver (not merely a receiver with CI capability), that is another unsolved challenge." OK - all of your Korean, Chinese and Taiwanese IRD designers reading this - how much of this can you do - Robert has money waiting!

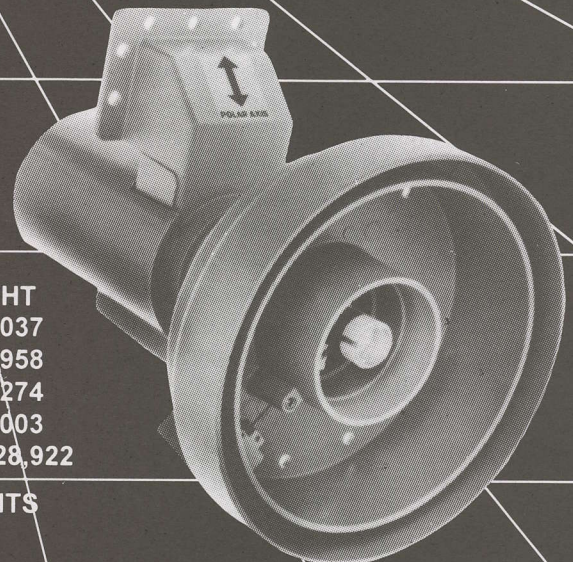
10,000 Ku band dish systems are homeless. When Telstra/Saturn was planning a 1 September start date for a DTH service in competition to Sky NZ, a firm called Auckland Logistics Company (ALC) was somehow talked into becoming an importer of dish systems for the service. ALC reportedly is now stuck with 10,000 60cm dishes packages and LNBs which mysteriously, although purchased for NZ\$20 less than Sky NZ now pays for similar if not identical products, are gathering dust in a warehouse. The Triax brand dishes and Sharp LNBf packages reportedly came in around \$3 less per package than the nearest price competitor, Hills Industries. This is one Hills should be delighted they lost!

ADL[®]

BECAUSE PERFORMANCE IS ALWAYS YOUR FIRST PRIORITY



**RP3-CKU/ International
Adjustable Scalar Ring Feed
with Extended C Band**



RPI-CKU Feed

C AND KU CO-BORSIGHT
U.S. PATENT NO. 4,903,037
U.S. PATENT NO. 5,066,958
U.S. PATENT NO. 5,107,274
U.S. PATENT NO. 5,255,003
CANADA PATENT NO. 1,328,922

**U.S. & FOREIGN PATENTS
PENDING**

ADL HYBRID MODING CIRCULAR POLARIZED INTELSAT FEEDS WITH EXCLUSIVE T.I. REJECTION



RP1-CP400



CP-300



CPOR-100

- C BAND LINEAR & CIRCULAR • C/KU LINEAR & CIRCULAR • KU 12 GHz FEEDS
- INTELSAT 4 GHz CIRCULAR • ARABSAT S BAND FEEDS

OPTIONAL: CO-BORSIGHT S BAND

2216 AGATE COURT, UNIT B, SIMI VALLEY, CALIFORNIA 93065 • (805) 526-5249 • FAX (805) 584-0634

NEW ADL Web site - www.adlfeed.com

You don't have one - yet

Test Instruments that change the way you do business

Any device that reduces the amount of time you require to complete a job is just like finding an extra hour or two in a ten hour work day. If this means you can do more paid-for work each day or week, then the cost of the device is quickly erased by the additional income you receive for time spent working.

Most satellite jobs are paid based upon not time spent doing the work but rather on a set fee per job. If it takes you three hours to do a \$90 income job, you effectively gross \$30 per hour. On the other hand, if you could do the same job in two hours, your pay just went up to \$45 an hour.

In more complex situations, running into a "bug" while doing an installation which you simply cannot "think" your way through becomes a significant expense. When it is hour five on the job and you should have been gone in three - well, you might be there another 5 before you solve the problem. A ten hour day spent on one \$90 job quickly becomes a \$9 per hour pay scheme. It does not take very many of either scenario to pay off a test instrument which allows you to do the work faster, or pinpoint the problem in minutes rather than hours.

The challenge and primary question becomes, "How much test equipment do I need?" and "Am I skilled enough to operate it to the full extent of its capabilities?"

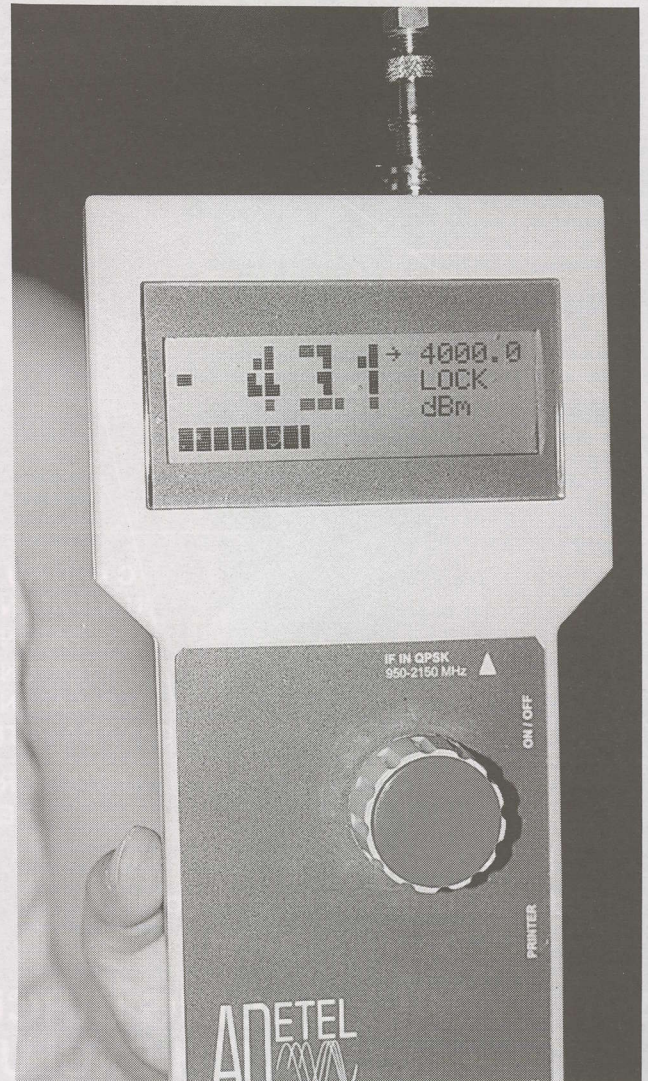
The primary requirements for installing TV reception systems are:

- 1) Where is the signal? (find it first)
- 2) How much signal is present? (measure the signal level)
- 3) Is the signal clean? (what interference is present)

That gets us started - we have the signal(s), now the challenge is to deliver what we have received (at the antenna) to the reception equipment. If there is only a single TV receiver, this becomes an exercise in cable attenuation - the longer the cable run from antenna to receiver, the lower the signal level at the receiver (1). If there are two or more receivers connected to the same antenna system (2) we have a new factor - "split loss". When a given amount of signal is divided into two or three (or more) equal parts, to serve two or more TV sets, the amount of signal available to any one set is a fraction of the total available (such as 1/2 to each with 2 receivers, 1/3 to each with 3 and so on).

Signal level is measured using a "scale," a table of numbers created to assist you in analysing various points of reference. One scale is in dB (decibel) units, another is in micro or millivolts. They both mean the same thing although the numbers between the two measurement systems can only be compared using a conversion table.

- 1/ Attenuation (a weakening of the signal level) is inversely proportional to cable size and the frequency of the signal(s) transported. Smaller cable has greater loss, so too do higher frequencies.
- 2/ In systems requiring many TV sets connected to the same aerial, a more complex design utilising additional signal amplifiers and signal tap-off devices called directional couplers is employed.

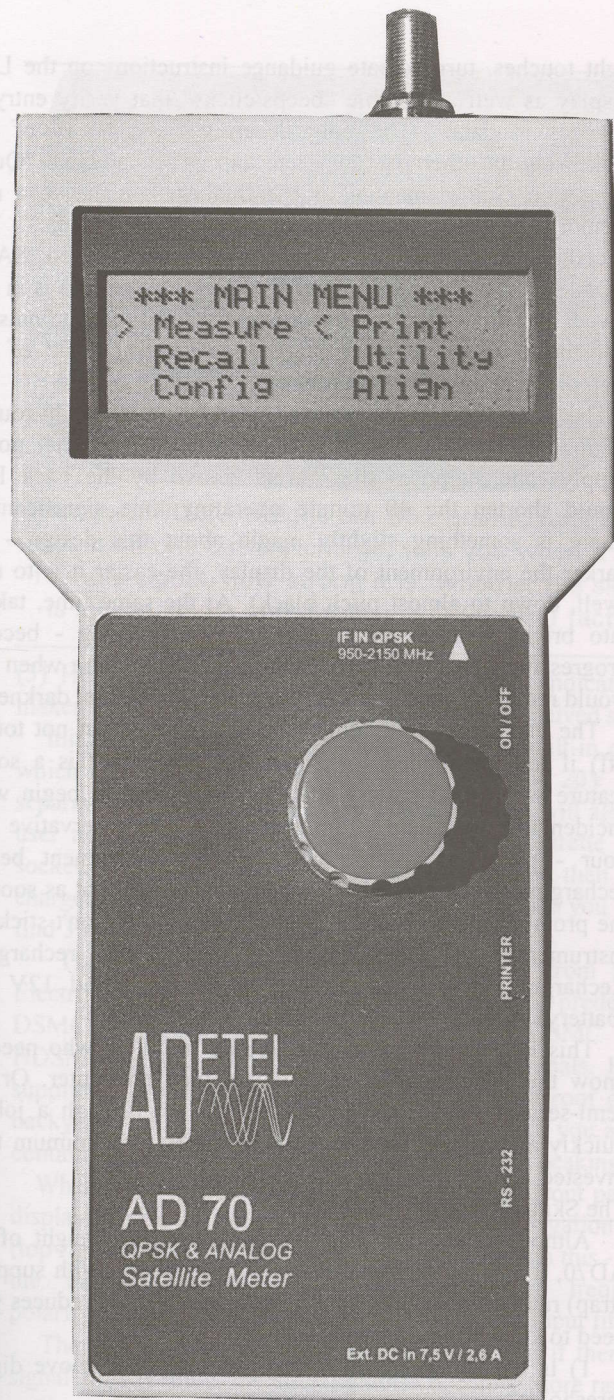


All the essential information. "Frequency" (4000), digital "Quality" (lock), and signal level (43.1 dBm) in the palm of your hand.

Important factor number one: Although "twice as much signal" sounds like quite a dramatic change in signal level, in fact it may not be. If we have 1,000 microvolts of signal, this is the same as 0 dBm or 60 dBuV; all 3 numbers are the same actual signal level. Now if we double the amount of signal to say 2,000 microvolts, we now have +6 dBm (same as +66 dBuV).

In the meter display shown above, the signal level says "43.1 dBm". A 6 dB positive change would cause it to read +49.1 dBm while 6 dB less signal would translate to 37.1 dBm. In the first case the actual signal level would be twice as great while in the second case it would be half the original (43.1 dBm) value.

But they are merely numbers. *How much* is enough, and how do we know when the signal we are receiving is dangerously close to being too little? Suppose for discussion this particular



It fits in your hand, weighs 817 grams, runs 40 (+) minutes on a self-contained rechargeable battery, memorises received levels for later reference which can be outputted to your PC.

signal loses digital lock at 42.0 dBm, a fact you could determine by observing when "lock" occurs as you adjust the receiving dish for maximum signal. If lock occurs at 42.0 dBm and the best signal you can create is 43.1 dBm, how much "headroom" (safety area) do you have?

Simple math here: $43.1 - 42.0 = 1.1$ dB.

Why do you need any headroom (a signal margin)? Several good reasons:

1) Ku band signals are at their best when the sky is clear (cloudless). Water (rain) bearing clouds in line between the satellite dish and the satellite (the elevation angle) attenuate the signal. If your margin is 1.1 dB when the sky is clear, even a light rain shower will cause the received signal to drop by 1.1 dB - or more. Moderate rain showers cause signal losses in the range of 3 dB, heavy rain can create as much as 10 dB loss.

2) Equipment ageing. LNB(f)s degrade over time, slowly. Some of this is mechanical (the plastic feed cover bakes in the sun, becomes brittle changing the loss characteristics), other is electrical (amplifier transistors internal to the LNB no longer perform as well as when brand new). Some of the ageing is external - F fittings corrode, small amounts of moisture seep through the cover, causing signal loss. Or, the alignment of the "f" portion of the LNB (f) twists a few degrees because the hardware was not cinched down properly.

Anything affecting the feed/probe or the amplifying transistors result in a direct loss of "C" (signal carrier power). Output F connector degradation affects the "R" (ratio) of carrier to noise but may not degrade the actual service.

Why do we need margin? Because margin is what "guarantees" adequate reception even when equipment ages and the weather turns foul. How do you measure margin? With a suitable test instrument.

Levels of confidence

Virtually all test equipment for measuring satellite TV C or Ku band service levels begin from the same premise: The test instrument functions at L-band (950 - 2150 or some approximation of that range) and it will be preceded by a suitable downconverter (LNB) device that translates the C-band (3,400-4,200 MHz) or Ku-band (10,900 - 12,750 MHz or some portion thereof) to "L". Therefore the test instrument is very much like a L-band receiver - you could think of it as a receiver without a video display screen, substituting some form of numeric display for the normal TV image.

What separates test instruments into categories is the degree of accuracy you can expect. The more precise the measurement procedure, the more complex the instrument becomes. And we should add - the more it costs.

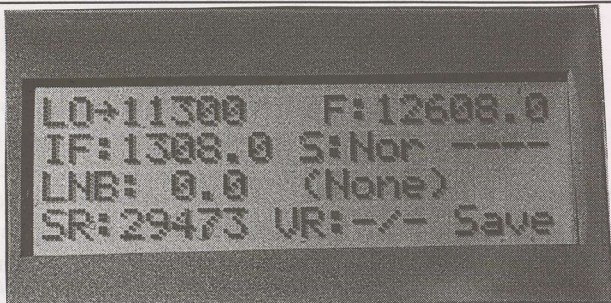
The AD70 from Lacey's tv

Of the three instruments to be described, this is the most complex, the least prone to measurement error, and the most expensive.

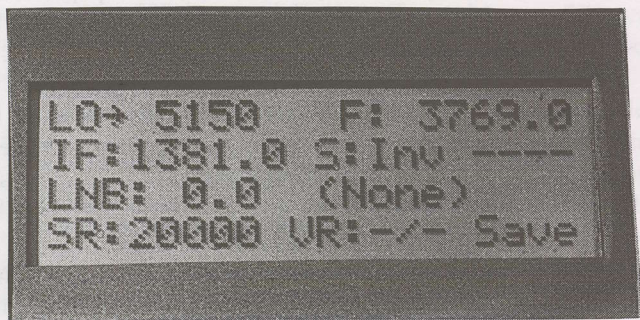
Lacey's Australia has been an enthusiastic promoter of high quality, bottom line drop-dead-accurate TV reception measurements for more than a decade. As distributors for the world-class Unaohm analyser and meter series, the firm's engineers have been at the forefront of virtually every important new measurement technology to come along since the analogue-only days.

Peter Lacey has had a very negative approach to any measurement device you could hold in one hand - certain as he was that unless the digital signal was properly processed and then analysed and measured, the resulting "numbers" were inadequate for "serious" work. The ADetel hold-in-one-hand "instrument" (one avoids calling it a "meter" because it does so much more than you would expect from a mere meter) is possibly too good for most user needs. How's that? The chances are you will never (as in *ever*) find yourself requiring all of the measurements it can do or needing all of the subroutines it is capable of when mated to external devices such as your home or laptop PC.

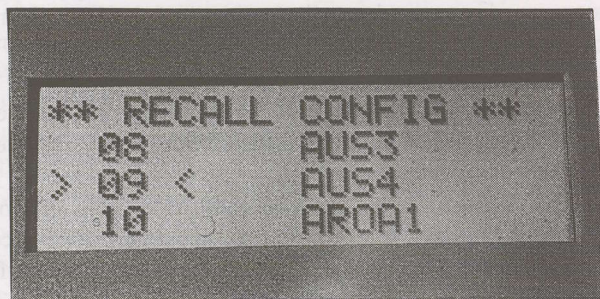
Out of the shipping carton, the instrument requires charging. You know the internal measurement electronics are substantial when you discover the initial charge time is 9 hours (resulting in 40 minutes of work time). The space-age NiMH (Nickel Metal Hydrate) battery pack sits down towards the bottom of the "T" shape and when you are using the AD70 there is a gentle warm (alas, not fuzzy) "feeling" to the handle. That's normal.



Ku band set-up involves entering correct parameters for channel to be received - no different in substance from setting up a digital IRD (above). C-band parameter entry is same but with different numbers (below).



When parameters have been entered (and placed into memory) you end up with a satellite and/or transponder list. Dial it up, enter recall and go directly to those measurement parameters.



Operation of the instrument begins much like you approach a brand new satellite IRD; all of the parameters for each transponder you may wish to measure must be entered. The large round knob just right of centre is your control panel -

light touches, turns create guidance instructions on the LCD display as well as audible "beeps/clicks" that verify entry or changes in data. The only deceptive step in all of this (following an otherwise complete and understandable "Quick Operation Guide" manual) is the final step in saving a new memory position after entering the required data. The deceptive part is you have entered the data and pushed "SAVE CONFIG" which misleads one into believing the data is in fact saved. Not quite - there is one more step left - the data must be transferred from a buffer stage to a specific (one of 80) memory positions and then resaved.

The LCD display is deceptive. An optional backlight routine is possible but only when you are using an external power supply (one supposes the current drawn by the back light would shorten the 40 minute operating time significantly). There is something slightly magic about this design - the darker the environment of the display, the easier it is to read (well, down to almost pitch black). At the same time, take it into bright sunlight and it does the same thing - become progressively easier to read. Bottom line? Not sure when you would require a backlight excepting perhaps in total darkness.

The instrument shuts down (goes to sleep - but not totally off) if left unattended for 2 minutes time. This is a sound feature when total battery life time is limited to begin with. Incidentally, we found 40 minutes was very conservative - an hour - plus was routine with our test instrument before recharging was required. The manual suggests that as soon as the prompt 'Charge Battery' does appear, do it. Don't stick the instrument away for a day or a week before recharging. Recharging is with an external power pack and 12V DC (battery) operation is also possible.

This is a serious meter for serious installers who need to know the full story on every signal they encounter. Or the semi-serious guy or gal who wants to get through a job as quickly as possible with maximum results for minimum time invested.

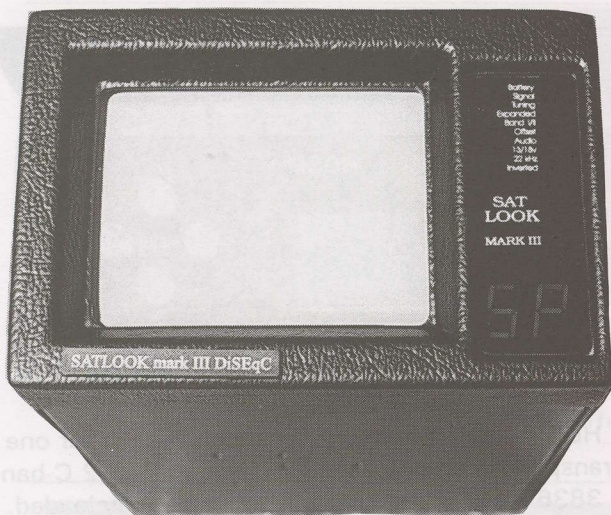
The Skinka Horizon HDSM

Although the HDSM is approximately the weight of the AD70, it is a hang-around-the-neck instrument (with supplied strap) rather than a hand held instrument. HDSM reduces your need to know to three areas:

- 1) Is the signal strong enough to lock (i.e. above digital threshold)?
- 2) If it locks, what is the "quality" (something akin to BER; arguably not as accurate as BER) of the reception?

The AD70 - What it will measure

- 1) A maximum of 80 different measurement configurations can be stored in memory for instant recall.
- 2) When accessing a memorised parameter set, upon recall you select 'Measure'. This will display (1) Signal level (dBuV or dBm - your choice), (2) BER (bit error rate), SNR (more accurately, carrier to noise level), Lock (or not locked if below threshold), actual frequency (indicating whether it is + or - the original entered frequency - a way of checking LNB local oscillator stability - and by how many MHz).
- 3) In set-up, for each memory position you determine whether you wish 13, 18 volts to LNB (or no voltage), 22 kHz and/or DiSeqC switching, the symbol rate between 1,000 and 30,000 (AD70 will determine the FEC/Viterbi rate and display same).
- 4) Individual measurements can be "stored" (up to 250 total storage spots) for later recall, or,
- 5) Print a hard copy (in ASCII) to a separate printer or to a PC memory (standard PC printer cable).
- 6) For dish alignment, an "Align" menu choice produces an audible tone which increases in tone frequency (higher pitch) as your dish tuning creates a stronger signal level (i.e., if you can listen to the tone, you can peak the dish without looking at the meter).
- 7) LNB parameters - AD70 will verify the voltage to the LNB from the AD70 and show the current consumed by the LNB (a way to verify the operating status of the LNB).



Satlook Mark III is triple-purpose meter. It displays spectrum as a spectrum analyser would, it receives (analogue only) satellite signals as a satellite receiver would, and, it provides a reference measurement of signal levels for adjusting dishes and checking coax line losses or amplifier gains. All functions are chosen with side-panel touch keyboard recessed under protective Velcro fastening cover (right).

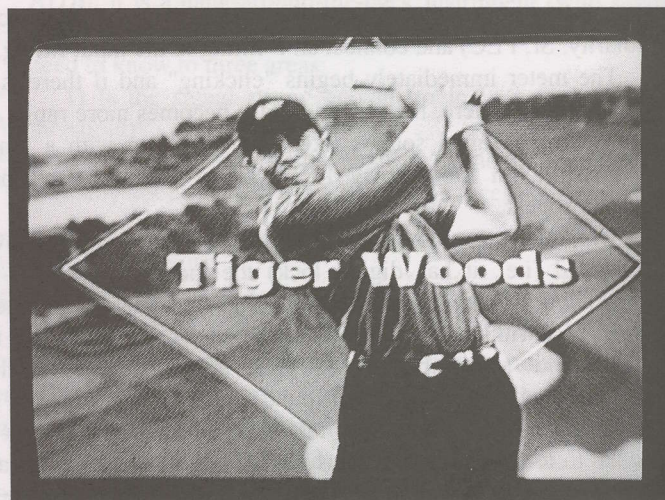
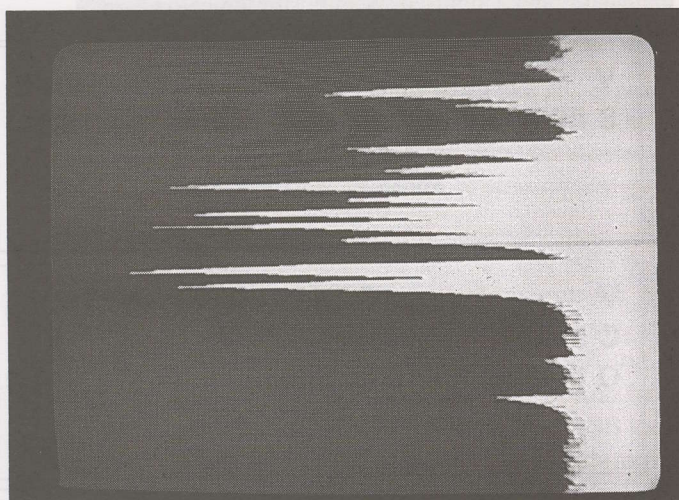
Meter number 3 is an interesting lower-cost approach to measurements. The Satlook Mark III is a pretty decent analogue receiver, a passable spectrum analyser and as a bonus you have a limited ability to measure signal levels and determine when you have a dish peaked for best reception.

This Swedish designed and built product supports switchable 14/18V LNB powering, DiSEqC software, an internal battery charging system, 12V DC operation, and weighs in with supplied carrying case near 3.5 kg. Operating time fully charged is about 60 minutes, recharge time around 3 hours. The side-mounted, Velcro cover protected keypad, controls all functions including an audible "beeper" that increases in tone frequency (pitch) as the signal selected on the spectrum

analyser increases in signal strength (for dish installation and alignment). The meter does not care whether you are dialling up analogue or digital for spectrum display or signal level indication although actual reception on the 4.5" black and white screen is limited to analogue. Audio subcarrier tuning covers 5.5 - 8.5 MHz and the meter covers 950 - 2150 MHz.

This is especially handy for SDStv.com work because with a Logi antenna connected to the input you have a completely pedestrian-mobile walk about SDStv.com receiving/test system. Five under-chassis adjustments allow field setting of (1) contrast, (2) V-size, (3) H-hold, (4) V-sync and (5) brightness. A two digit LED display reports on received signal strength in numerical fashion.

Spectrum display has "cursor line" to dial up a particular carrier (frequency) which leads to pushing buttons on keypad to switch from spectrum to analogue reception as well as signal level measurement.

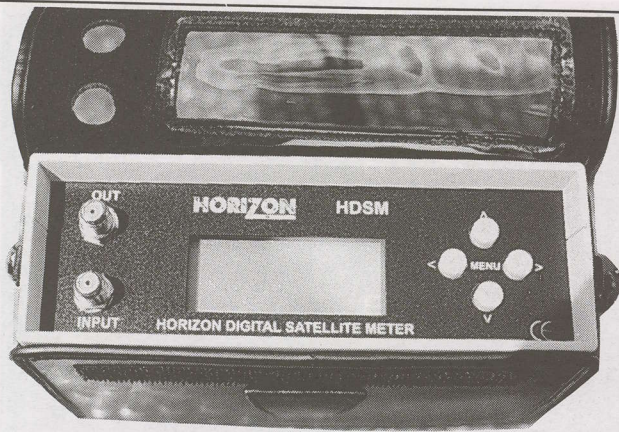


Sources/pricing/errata for these three devices

AD70 (ADetel) from Lacey's.tv, 12 Kitson St, Frankston Victoria 3199, Australia; tel 61-3-9783 2388, fax 61-3-9783 5767; e mail info@laceys.tv. Price: A\$1295.00 + GST as applicable

HDSM from Skinka Electronics Ltd, PO Box 6706, Grantham NG32 2JW UK; e-mail only Bill Eaton as billkce@msn.com (www.thit.com.co.uk). Price A\$639, NZ\$782, US\$328. Applications for distributorships in Pacific are currently being accepted.

SATLOOK Mark III from Skandia Electronics P/L, PO Box 488, Hawthorn Victoria 3122, Australia; tel 61-3-9819 2466, fax 61-3-9819 4281 (www.skandia.com.au). Price: A\$790 if you mention SatFACTS.



Horizons HDSM weighs but 952 grams, runs for 3 hours on one battery charge, tells you when it has found a signal, how strong it is, whether the signal is locked or not and displays a Q (quality) factor.



HDSM has 16 memory "channels," each for one transponder on one satellite (such as PAS-2 C-band 3836 Vt - Middle East Mux) - factory preloaded. (below)

(3) How strong is the signal (a relative scale indicator that makes it possible to peak a dish for maximum received signal).

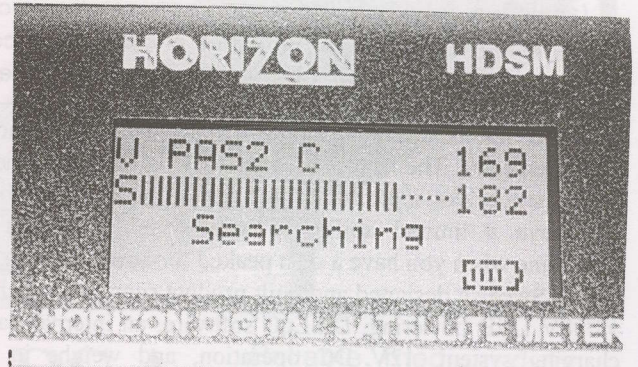
Initial charge is 6 hours minimum using a built-in charger which handles any input voltage between 90 and 20V AC. A separate (supplied) 12V DC "car charging lead" will allow the user to charge the meter from the vehicle's cigarette lighter socket. The meter "fast charges" for 6 hours and then trickle charges for 2 additional hours - at the end of which you should find 3 hours of use.

The HDSM is the current meter version from Skinka Electronics (UK) and SatFACTS reviewed their predecessor DSMC 10 in our July (2001) issue. Unlike the DSMC 10, the HDSM functions with both C and Ku band signals. HDSM supplies 14 or 18 volts for the LNB(f) so on a roof or in a backyard with a dish and feed and LNB attached, you are self contained ready to do a complete dish install and peaking.

When the HDSM is turned on (one button on front panel) it displays a product notice and then goes to a navigation menu (top right photo). It does not get much simpler than this - select the factory pre-loaded satellite (transponder frequency, polarity, Sr, FEC) and connect an F fitting to the input fitting.

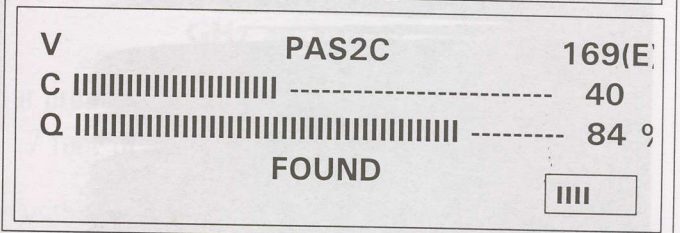
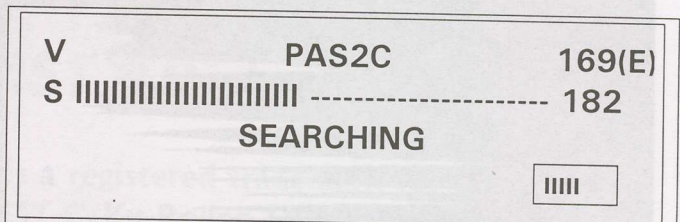
The meter immediately begins "clicking" and if there is a signal already there, the clicking noise becomes more rapid. A really strong signal sounds like a machine-gun with a tone. Meanwhile on the display LCD screen, numbers and bar graphs appear.

Until the meter identifies a signal which is totally above threshold (i.e., it has digital lock) the meter tells you it is "Searching" (see photo above to right). Searching when combined with a bar display (indicated by "S" in photo to right) and a number ("182") advises that indeed the programmed service has been found, but for some reason it is not locking. We found it may take a minute - even two - for a signal to lock. If you are adjusting the dish (or feed) while all



of this uncertainty is going on, the machine-gun sound of the clicking noise circuit gives you an aural (sound) indication of whether you are going up or down in signal level.

When the signal is finally locked, the word "Searching" at the bottom changes to "Found" while the "S" changes to a "Q" (quality) and a new bar-graph appears with a percentage (such as 84%) where previously the number appeared to the right of the bar graph. Confused? See illustration below.



The HDSM - What it will measure

- 1) Whether there is a signal on the pre-programmed memory position or not
- 2) Whether that signal is strong and clean enough to be above digital threshold (i.e., "lock")
- 3) If there is a signal that locks, the relative (bar graph and number) signal level
- 4) If the signal locks, the relatively (bar graph and number) "Q"uality
- 5) The status of the battery (battery indicator lower right on PAS2 C display above)
- 6) Once a signal locks, you can toggle between Carrier to noise ("C" above) and Signal ("S" above)
- 6) While charging - the status of the charging (percentage / % charged at any point, whether on fast charge or trickle charge)



Satlook Mark III is triple-purpose meter. It displays spectrum as a spectrum analyser would, it receives (analogue only) satellite signals as a satellite receiver would, and, it provides a reference measurement of signal levels for adjusting dishes and checking coax line losses or amplifier gains. All functions are chosen with side-panel touch keyboard recessed under protective Velcro fastening cover (right).

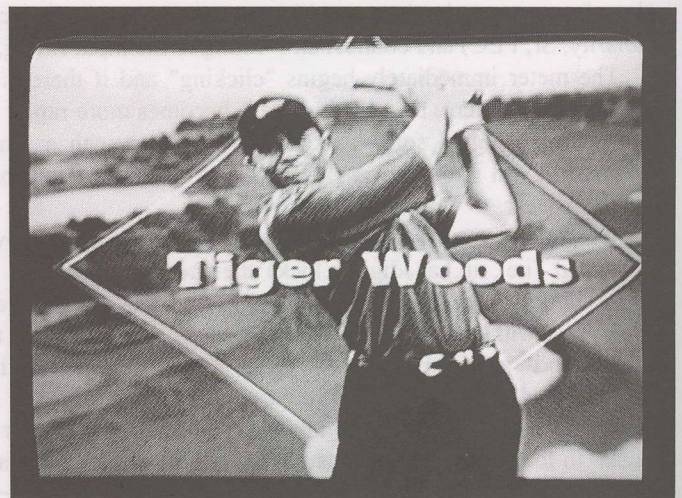
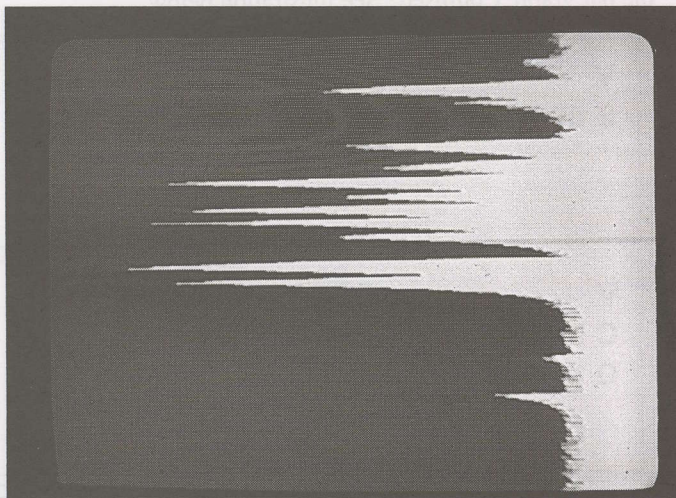
Meter number 3 is an interesting lower-cost approach to measurements. The Satlook Mark III is a pretty decent analogue receiver, a passable spectrum analyser and as a bonus you have a limited ability to measure signal levels and determine when you have a dish peaked for best reception.

This Swedish designed and built product supports switchable 14/18V LNB powering, DiSEqC software, an internal battery charging system, 12V DC operation, and weighs in with supplied carrying case near 3.5 kg. Operating time fully charged is about 60 minutes, recharge time around 3 hours. The side-mounted, Velcro cover protected keypad, controls all functions including an audible "beeper" that increases in tone frequency (pitch) as the signal selected on the spectrum

analyser increases in signal strength (for dish installation and alignment). The meter does not care whether you are dialling up analogue or digital for spectrum display or signal level indication although actual reception on the 4.5" black and white screen is limited to analogue. Audio subcarrier tuning covers 5.5 - 8.5 MHz and the meter covers 950 - 2150 MHz.

This is especially handy for SDStv.com work because with a Logi antenna connected to the input you have a completely pedestrian-mobile walk about SDStv.com receiving/test system. Five under-chassis adjustments allow field setting of (1) contrast, (2) V-size, (3) H-hold, (4) V-sync and (5) brightness. A two digit LED display reports on received signal strength in numerical fashion.

Spectrum display has "cursor line" to dial up a particular carrier (frequency) which leads to pushing buttons on keypad to switch from spectrum to analogue reception as well as signal level measurement.



Sources/pricing/errata for these three devices

AD70 (ADetel) from Lacey's.tv, 12 Kitson St, Frankston Victoria 3199, Australia; tel 61-3-9783 2388, fax 61-3-9783 5767; e mail info@laceys.tv. Price: A\$1295.00 + GST as applicable

HDSM from Skinka Electronics Ltd, PO Box 6706, Grantham NG32 2JW UK; e-mail only Bill Eaton as billkce@msn.com (www.thit.com.co.uk). Price A\$639, NZ\$782, US\$328. Applications for distributorships in Pacific are currently being accepted.

SATLOOK Mark III from Skandia Electronics P/L, PO Box 488, Hawthorn Victoria 3122, Australia; tel 61-3-9819 2466, fax 61-3-9819 4281 (www.skandia.com.au). Price: A\$790 if you mention SatFACTS.



**PACIFIC
SATELLITE**

(AUSTRALIA) PTY. LTD.

**ANTENNA
& ACCESSORIES
SUPERMARKET**

DMF227



Economical, light
duty, general
purpose usage

SM-8



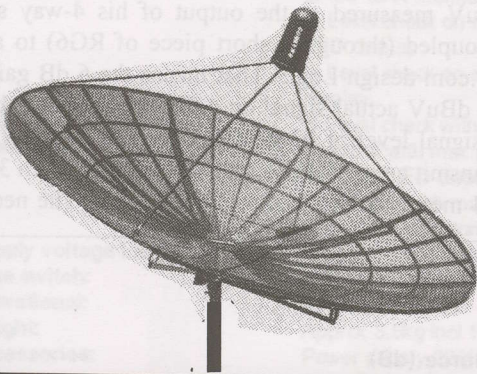
PSA

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



COMSTAR[®]

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

Start with the LNB(f) and head for the receiver

Paul Burton, Waipu Cable TV (Waipu, New Zealand) asks, "Can you give me the physical dimensions of the SDStv.com prototype logi - the concept of sending signals through the air in lieu of cable is excellent and I would like to try it using off-the-shelf L-band line amplifiers." His request is not unusual and it points up a need to better understand just what happens when you attempt to replace cable with through-the-air "linking".

The reality, as Paul discovered, is that if you have an appropriate "launching antenna" at the "transmit" end of the path, it takes very little at the receive end to "link" between the two over distances of 30 metres or so. No cable - just signal through the air.

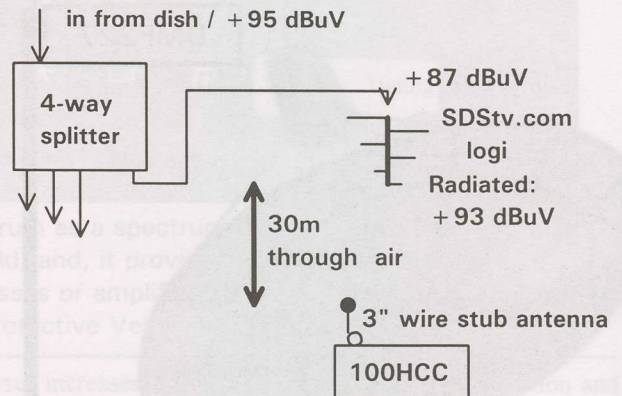
In Paul's test he was receiving the entire horizontal side of AsiaSat 2 and then rebroadcasting it through a SDStv.com (6 dB gain) printed circuit board design logi. He happened to make his measurements only on the European Bouquet 4,000 MHz transponder - in fact the entire horizontal side of As2 made the same (30m) trip as the Euro Bouquet and would also be available at his wireless-linked Hyundai receiver.

With the possible exception of the SDStv.com printed circuit board Logi (see page 32, here) there is nothing Paul used for his test which you don't have on your own work bench. His ultimate goal is to reach approximately 400m from his remote-sited AsiaSat 2 dish to his cable headend facility, transporting all of the vertical side of As2 through the air over that distance.

His As2 dish is already remotely powered to feed the horizontal side of As2 through 400m of cable. The cost to duplicate the same 400m run with line amps and low loss cable (such that he has enough signal to make the system work properly at the cable headend) is many hundreds of dollars. And a lot of cable.

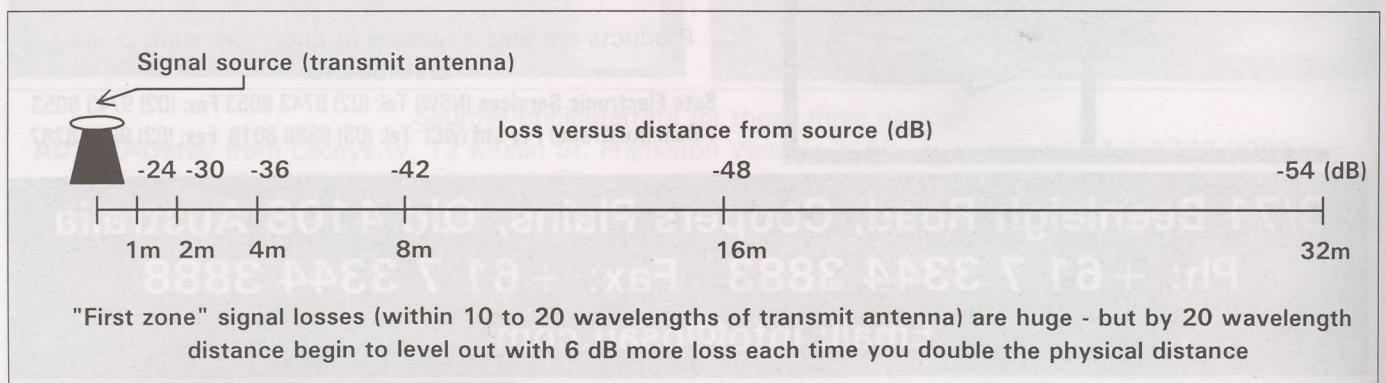
If Paul can "link" enough signal through the air to cover 30m with just an unused splitter port as a signal source, a SDStv.com design Logi on the transmit end and a 3" piece of wire on the receive end, what does he need to do to increase 30m to 400m?

Basics. Each time we double the distance between the transmitter source and the receiver, we expect to lose 6 dB of signal. In the chart immediately below, you can see how a measurement test range has signal loss as a function of

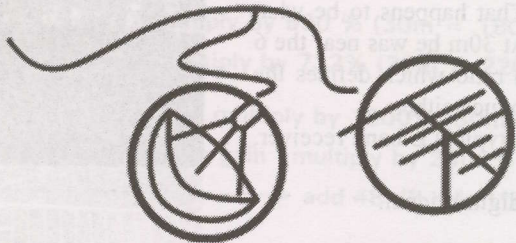


No special tools - no special skills. Just do it. Using output from spare port on 4-way splitter, SDStv.com design Logi is connected to signal source. Then 30 metres away, a Hyundai 100C digital IRD has a 3" piece of wire jammed into its L-band input fitting - an "antenna". The 87 dBuV signal level Paul measured out of the 4-way splitter is "magnified" by the 6 dB gain of the SDStv.com logi resulting in 87 + 6 (93 dBuV) being radiated through the air. Thirty metres away, a 3" chunk of hook-up wire is jammed into the centre pin of the Hyundai IRD L-band input as a "receive" antenna. Results? The 93 dBuV radiated was now 40.5 dBuV and the Hyundai on the European Bouquet (4000 from As2) showed 6.1 dB signal to noise (as read by the Hyundai software). Now stick a 15-20 dB gain inline amp between the 3" stub antenna and the Hyundai and the signal to noise became 9.3 dB.

distance between the transmitter source and the receiver. Paul had 87 dBuV measured at the output of his 4-way splitter, which he coupled (through a short piece of RG6) to a 6 dB gain SDStv.com design Logi. That means the 6 dB gain Logi plus the 87 dBuV actual signal on 4,000 MHz of As2 became a radiated signal level of 93 dBuV (87 + 6). But only inches from the transmit antenna, the signal drops by 24, then 30, then 36 dB (at 4 metres from the transmit antenna). The near field



Skandia

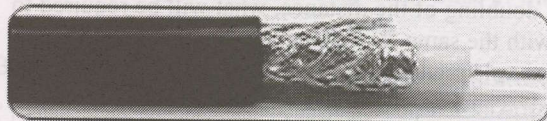


RG6 Quad Cable



Satellite Cable

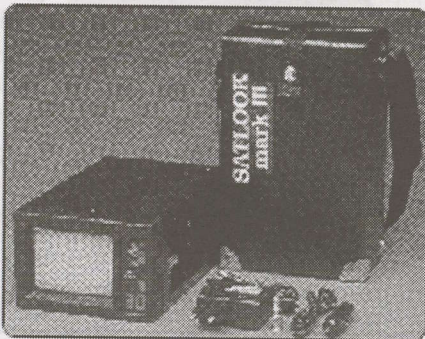
RG6 Dual Cable



Digital Cable

Thank you to everyone who supported Skandia at the Box Hill Cable & Satellite show.

Our satellite meter, Satlook Mark III was a huge success.



The instrument is provided with a 4.5" B/W monitor which either shows normal TV-channels or the frequency spectrum 920-2150MHz (normal or expanded mode). Sound frequencies between 5.5 - 8.5MHz can be tuned in and listened to. The polarisation of the LNB is switchable with 22KHz-tone and/or with 13/18V. The instrument is protected from short circuiting when connecting the LNB. Weighs only about 3.5kg

SPECIFICATIONS

Input Frequency:	920-2150MHz
Input level:	30-100dB μ V-volt
Input impedance:	75 ohm, BNC Connector
Monitor type:	Multi(PAL, NTSC, SECAM)
Picture mode:	KU and C-band(normal/inverted video)
Audio soundcarrier:	Tunable 5.5 - 8.5MHz(Mono) Volume Control.
Measuring method:	1. Full spectrum, normal or expanded video 2. 4.5" B/W monitor with full picture 3. Level check on single channel with two digit LED display 4. Level check on single channel with colour bar display 5. Level check with audio indication on loudspeaker
Max Level:	Spectral with max peaks Two digit LED display with max value Colour bar with max indication Maximum audiotone on loudspeaker
Supply voltage LNB:	13V/18V switchable
Tone switch:	22KHz tone, On/Off
Operational:	Approx 1.5 hours
Weight:	Approx 3.5kg incl 12 volt, 3 Amp battery
Accessories:	Power supply 220/13.5volt DC, 1.7 Amp Car adaptor Carry case Adaptor BNC/F connector Owners manual.

The best meter for less than \$1000.00

Skandia
is an Australian
Owned Company

www.skandia.com.au
Ph: 03 9819 2466
Fax: 03 9819 4281

losses are huge but at around 4m from the transmit antenna (in L-band) the signal losses become predictable and much more manageable. At 30m he measured 40.5 dBuV for a total circuit loss of 52.5 dB ($93 - 40.5 = 52.5$ dB).

At 7.5m (then 15, then 30m) he measured signal drops of 6 dB each time the distance doubled. That happens to be what the text books tell you will happen. At 30m he was near the 6 or 7 or 8 dB C/NR (carrier to noise) ratio which defines the (minimum) signal level required to produce either:

- 1) A noise free analogue picture to a typical L-band receiver, or,
- 2) A glitch/pixel free (no break up) digital signal.

From 30m to 400M?

If the signal attenuation (weakening) continues to be 6 dB for each new doubling of the distance, what will be required to reach 400m with the same 30m-observed 8 dB (region) C/NR? Some very simple math.

30m	60m	120m	240m	480m
	-6 dB	-12 dB	-18 dB	-24 dB

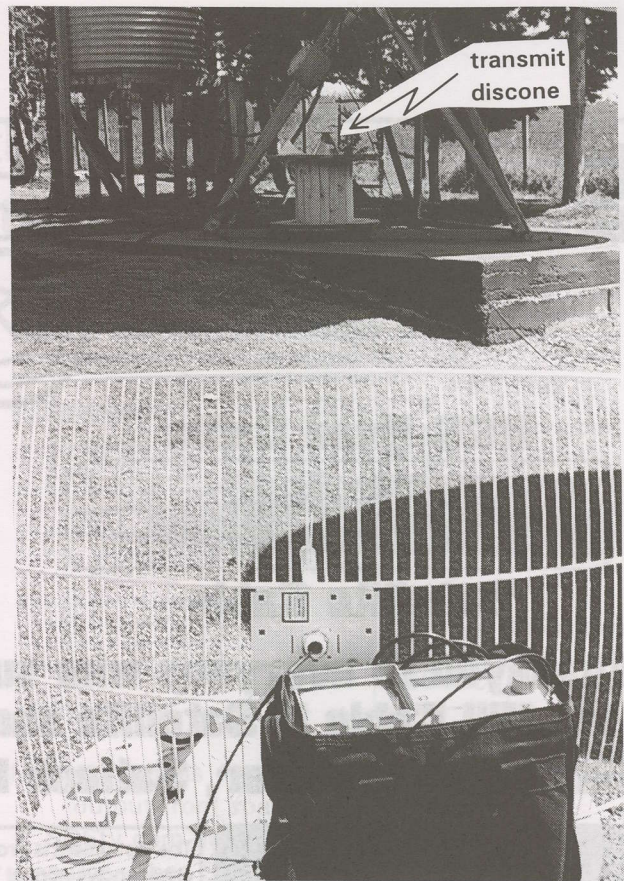
Paul's 400m falls between the -18 dB additional loss to be expected at 240m and -24 dB loss at 480 m. If he designed his system for 480m but was in fact only 400m away, he would end up with a small "reserve" of signal to guard against unexpected additional losses. If he wanted only enough to make it 400m, he would be 18 dB + 4 dB or a total of 22 dB below the needed level.

So how will Paul gain 22 dB of additional signal to complete his 400m circuit?

The table at the bottom suggests several options. For example, remember he was using a 3" stub of wire for his receiver antenna. If he replaced that with an SDStv.com 6 dB gain Logi with a built-in 15 dB gain masthead amplifier, he would add 21 dB "circuit gain" to the system - only 1 dB shy of the required 22 dB (but an important 1 dB - we assure you).

Another approach would be to increase the transmit antenna gain from the 6 dB gain Logi. For example, a grid reflector antenna "driven" by a 6 dB gain Logi would add 17 dB of circuit gain. Well, almost. The 17 dB gain grid reflector is 17 dB of gain more than a 0 dB gain antenna (such as a Discone) but only 11 dB more than Paul's original Logi. So a grid reflector by itself would not do the job unless he used two of them (one for receive, one for transmit); i.e.:

- 1) Replace the 6 dB gain Logi at the transmit end with a grid reflector - picking up 11 dB more circuit gain, and,
- 2) Replacing the 3" wire stub (which we will assume has 0 dB of gain - just like the SDStv.com Discone antenna) with a second grid reflector - which will now add a full 17 dB of gain to the circuit.



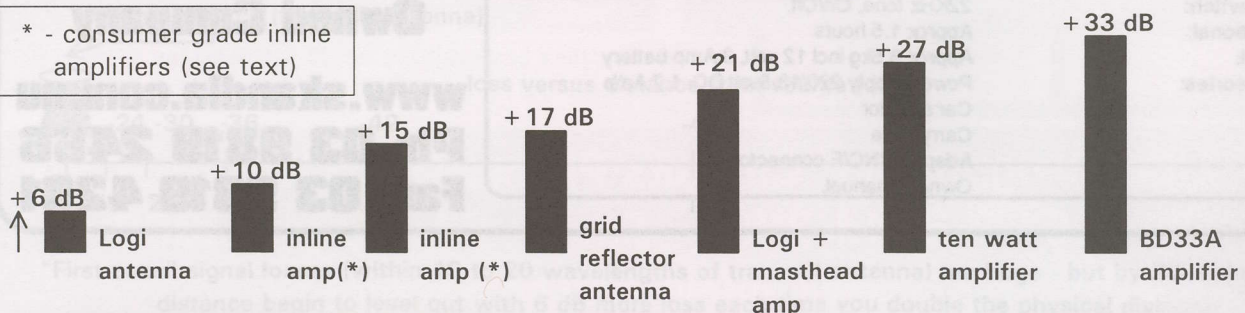
SatFACTS SDStv.com test range. Structure in shadow is 5m dish beneath which an empty coaxial cable wooden reel sits. On top of this, a SDStv.com discone antenna fed through a 2-way splitter from the 5m dish. Foreground, SDStv.com grid reflector with SDStv.com 6 dB logi feed antenna, measuring 15 metre "path loss" with Promax MC944.

Add those two numbers together (11 dB more circuit gain for the transmit end, 17 dB more dB for the receive end) and we have a total of 28 dB more gain than Paul now has to cover 30 metres; 6 more than the 22 he actually requires (which would give him some headroom or "margin"). The beauty of all of this is Paul would accomplish this with no L-band transmit amplifier (only the original +87 dBuV signal level from a signal splitter). Talk about getting something (or going someplace) for almost nothing invested!

Gain blocks. Linking (retransmitting) L-band frequencies is all about overcoming the free-space-attenuation which begins in the first millimetre of "space" the signal covers after radiating from the transmit (launching) antenna system. To

"Gain Blocks" - to increase range

* - consumer grade inline amplifiers (see text)



How many dB in "Gain Blocks" to go how far???

8 dB C/NR

a	→	Add 6 more dB - double the distance (i.e. 30m = 60m)
b	→	Add 10 more dB - multiply distance by 333% (i.e. 30m = 100m)
c	→	add 15 dB more gain - multiply by 600% (30m = 180m)
d	→	add 17 dB more gain - multiply by 733% (30m = 220m)
e	→	add 21 dB more gain - multiply by 1200% (30m = 360m)
f	→	add 27 dB more gain - multiply by 2400% (30m = 720m)
g	→	add 48 dB gain (*) - multiply by 28,800% (30m = 8,640m)

* - Example: Add 27 dBg at transmit (10 watt amp) plus 21 dBg at receiver (logi with built-in masthead)

How the dBs add up. If we begin with Paul Burton's 30m distance covered using the system shown on page 12 (a 8 dB C/NR or carrier to noise at 30m distance), the maximum distance increases in increments as the total circuit gain (dB gain for transmit end and receive end) is increased. Rule of thumb: For every doubling of the distance, the signal level drops by 6 dB. To make up for greater distances (or losses in intervening objects such as building walls, trees, hills), increase the system's total gain using the table above.

compensate for this "free-space-loss" you need to create amplifier gain or antenna gain - or both.

This note. Paul's original measured signal level was +87 dBuV (same as +27 dBmV). This just happened to be what he had to work with. Your situation may start with more (or less) signal and how much more (or less) will have a direct one to one relationship with how far your original signal travels before it runs into the "8 dB C/NR barrier". If, for example, your original signal was 6 dB stronger than Paul's (87 + 6 = 93 dBuV) and you used the same equipment as Paul, you would go "6 dB further" than Paul in the initial hop (60m rather than 30m). If on the other hand you started out with 6 dB less signal than Paul (87 - 6 = 81 dBuV), your initial distance coverage would be half of what Paul measured (15m rather than 30m).

Take that one step further. If rather than coming out of a splitter as Paul has done your original signal source is the SDStv.com 20 milliwatt transmitter, you are already at a level of +124 dBuV. This means your 8 dB C/NR cut-off point using a 6 dB gain Logi on one end of the circuit and a 0 dB gain antenna on the other will be in the region of 2,000 metres

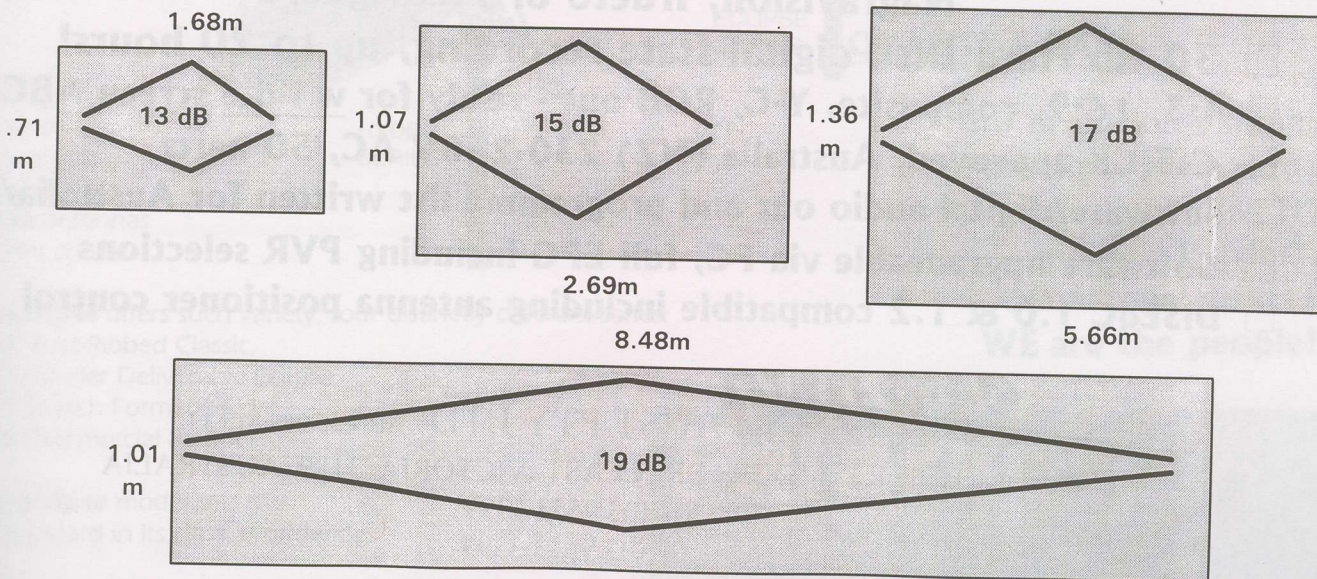
(2 km). Obviously where Paul managed 30m and you manage 2,000 metres in that "first hop", you will end up going much further when you begin adding "gain blocks" - or you may not need to use any gain blocks at all beyond the original 20 mW transmitter power level.

Passive versus active

"Passive gain blocks" describe a way of enhancing or increasing the circuit gain without using anything electronic. An antenna with lots of gain (such as the grid reflector fed with a Logi and 17 dB of "passive gain") is one such example. An "active gain block" describes gain through electronic amplification; the masthead amplifier built-into the Logi, an inline amplifier, a ten-watt power amplifier are each active.

Passive gain requires no power to operate, and may technically escape being classified as a "transmission device" simply because there is no actual transmission amplification involved in the system. In some areas, this "fine distinction" could be an important element in meeting regulatory requirements. Rhombic antennas, very high gain wire-design

Passive Gain Blocks - wire antennas

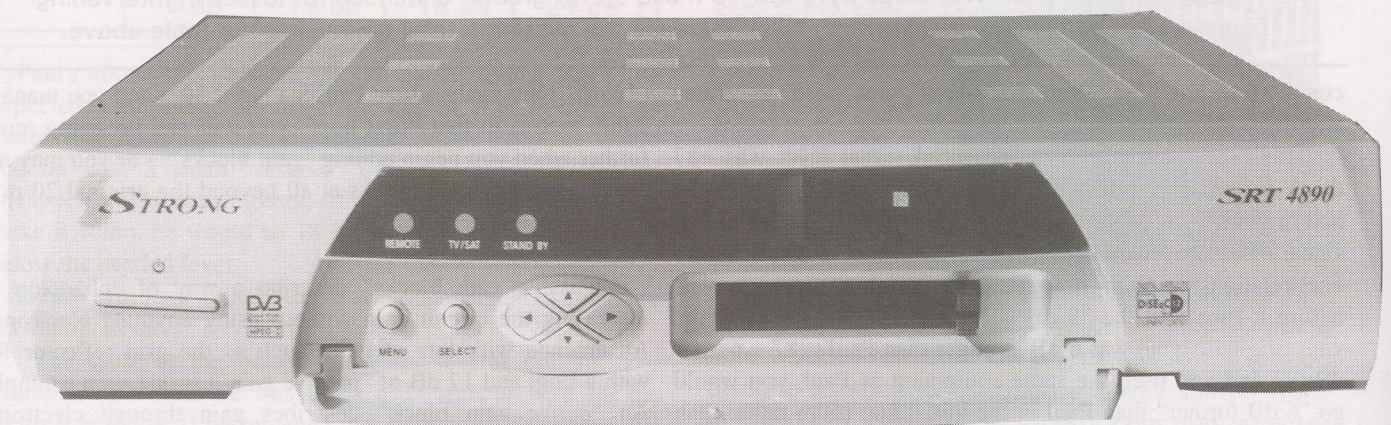


November 2001

**27 dB
Circuit
Gain!**

BUILD YOUR OWN SDStv.com link system on a budget by using your existing dish + LNB + a signal splitter - no additional transmit amplifier required! Use the SDStv.com "Passive Logi" for launching, and the hot-new SDStv.com "Active Logi" (21 dB gain) for the receive end. Any signal that you can measure at +80 dBuV or greater at the 2-way splitter will travel 500 metres or more LOS (line of sight) without a transmit amplifier! The secret is the 21 dB gain "Active Logi" at the receiver. SPECIAL PACKAGE this month only: One-each SDStv.com Active Logi and one Passive logi - A\$203 + gst - call for details!

STRONG SRT4890



**Common Interface with twin card reader
including integrated Hard Disk PVR recorder!**

- DVB Common Interface - add CAM and smart card for any two of Viaccess, Conax, Cryptoworks, Nagravision, Irdeto or Mediaguard**
- 30 Gb Hard Disk digital-state recording, up to 20 hours!**
- 4:3, 16:9, composite, Y-C, RGB out - ready for w i d e screen ABC!**
- C TICK approved, Australia (NZ) 230-250V AC, 50 hertz**
- Software/digital audio out and programme list written for Australia/NZ**
- Software upgradeable via PC, full EPG including PVR selections**
- DiSEqC 1.0 & 1.2 compatible including antenna positioner control**

STRONG AUST PTY LTD ABN 55 089 515 122

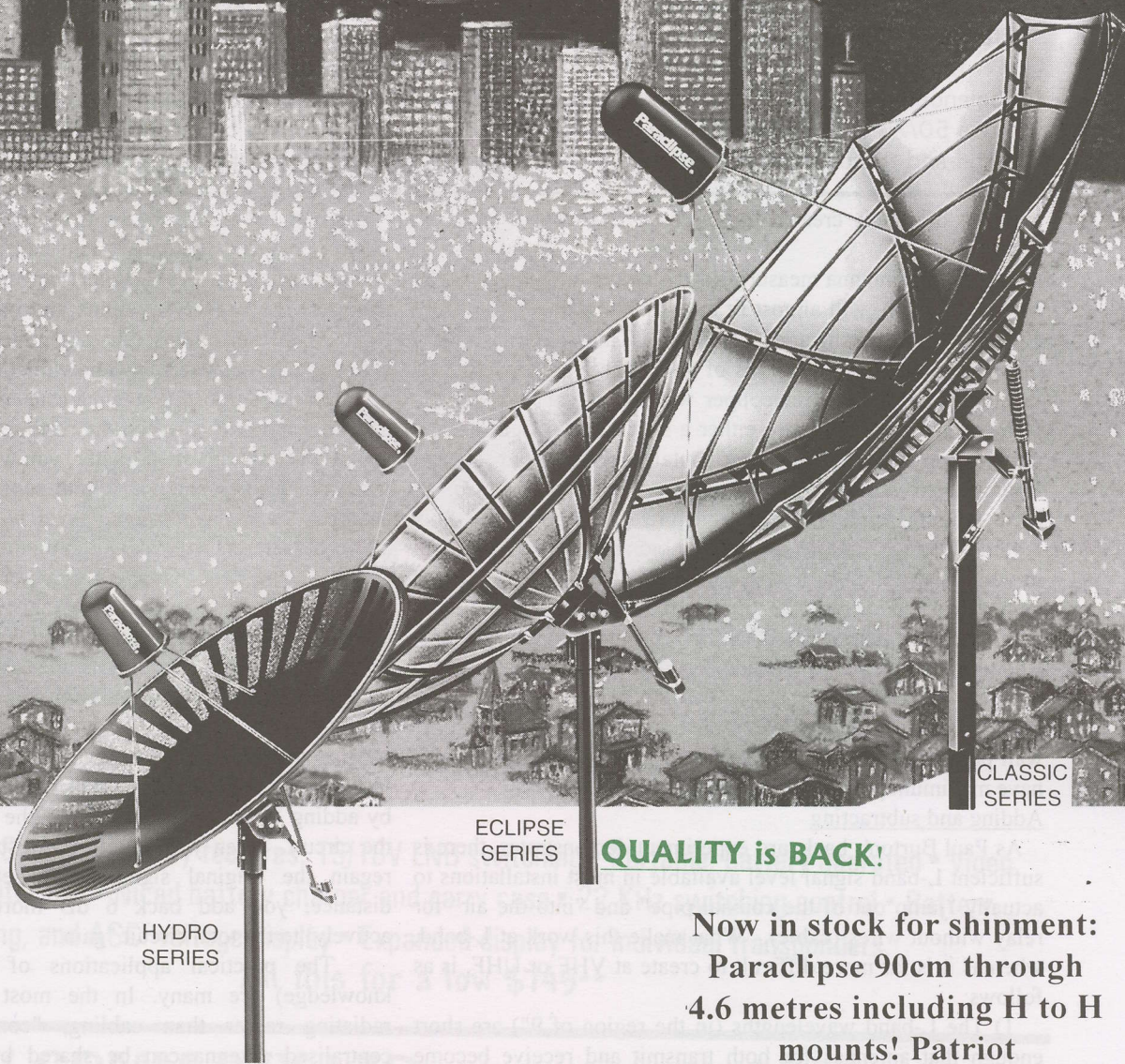
302 Chesterville Rd MOORABBIN EAST VICTORIA 3189 AUSTRALIA

Ph 61-(0)3 9553 3399

Fax 61(0)3 9553 3393

eMAIL satellite@strong.com.au

Paracclipse[®]



CLASSIC
SERIES

ECLIPSE
SERIES

QUALITY is BACK!

When quality, strength, and accuracy are your main requirements, **Paracclipse** antennas are your first choice.

HYDRO
SERIES

Only **Paracclipse** offers such variety; four distinctly different series: the Truss-Ribbed Classic, the Courier Deliverable Eclipse, the Stretch Formed Hydro, the Commercial Patriot.

Every **Paracclipse** model sets the industry standard in its class, worldwide.

Now in stock for shipment:
Paracclipse 90cm through 4.6 metres including H to H mounts! Patriot commercial dishes? WE are the people!!!

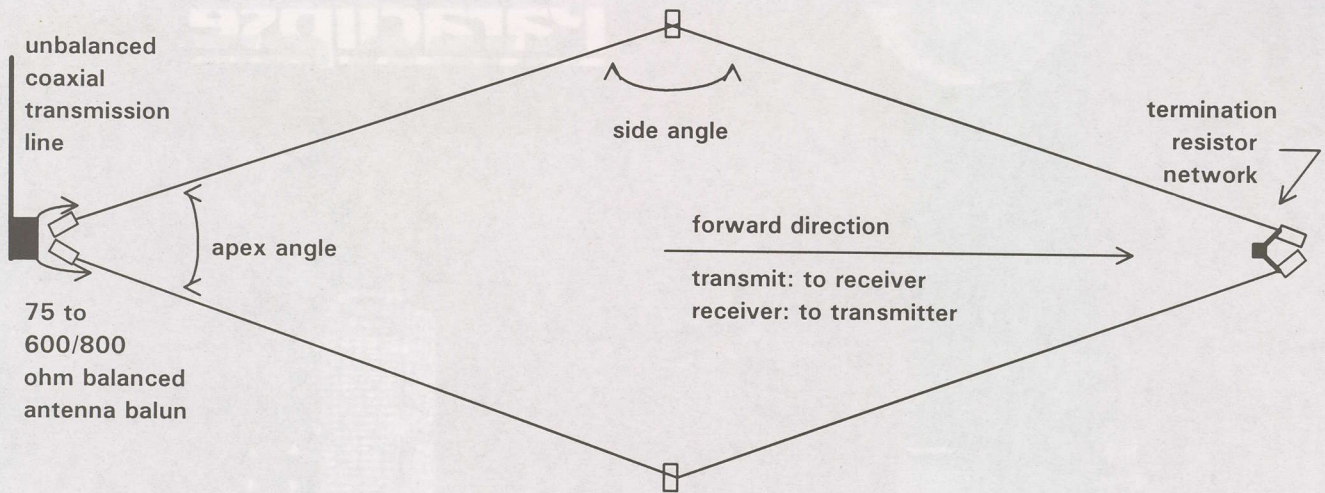
Paracclipse[®]
HIGH PERFORMANCE ANTENNAS

★ **MADE IN AMERICA**

and distributed by

STRONG AUST PTY LTD

302 Chesterville Rd MOORABBIN EAST VICTORIA 3189
Ph 61(0)3 9553 3399. Fax 61(0)3 9553 3393



At L-band, high gain wire-constructed antennas such as Rhombic design become small and manageable and offer advantage they can be physically attached to a vertical surface (wall) or horizontal surface (ceiling) and thereby become virtually "invisible". Minor challenge - L-band receiver or transmitter is 50/75 ohm unbalanced device (fed with coaxial cable) whereas Rhombic is 600/800 ohm "balanced" antenna. Solution is to use 50/75 ohm unbalanced to 600/800 ohm balanced "matching transformer" (balun) designed to work at L-band frequency range to couple coaxial cable to antenna proper (baluns available from SDStv.com).

antennas originally created for short-wave work, are one such example.

A Rhombic antenna measuring 1.07 metres in width and 2.69 metres in length will almost fit totally onto a single 4 x 8 foot (1.21m x 2.43m) sheet of plywood. This suggests a very inexpensive way to get 15 dB of gain. There are four (equal) lengths of copper clad or copper wire, arranged in a specific form, by tacking them onto either a sheet of plywood or even onto a (vertical) wall or (horizontal) ceiling. Four L-band Rhombics of various sizes are shown on the bottom of p. 15 here, ranging from .71m x 1.68m (13 dB gain) to 1.01m x 8.48m (19 dB of gain). Two Rhombic antennas, each 1.01m in width and 8.48m in length would produce 19 dB of circuit gain at each end - 38 dB total - all without any electronic amplifier equipment. In HF (high frequency) applications, Rhombics are huge and typically suspended in the air using tall wooden or steel supports. For L-band, even the 19 dB gain version could be "tacked" onto the side of a wall provided the wall pointed in the direction where you wished the antenna to have maximum performance (gain).

Adding and subtracting

As Paul Burton's backyard experiment demonstrates, there is sufficient L-band signal level available in most installations to actually "jump out of the coaxial pipe" and "into the air" for relay without wires (cable). What make this work at L-band, whereas it is far more difficult to create at VHF or UHF, is as follows:

1) The L-band wavelengths (in the region of 9") are short enough that antennas for both transmit and receive become relatively small in size. This means more gain using less (antenna) space (a 3" stub is acceptable for short range).

2) Making up loss (which occurs when the signal travels through "free space") is relatively doable; (passive) gain in antennas adds up quickly whether it is on the transmit or receive end of the circuit (it makes little difference which end has the "gain"). Active gain is slightly more complex, but with modern transistors and hybrid amplifier devices, well within the range of practical solutions.

The major "loss" is in the first few centimetres/inches; 30 - 40 - 50 dB very quickly. You can prove this to yourself - connect a signal level detection device (meter, spectrum analyser) to a receive antenna and move the receive antenna right up to (and almost but not quite touching) the transmit antenna. If you start by knowing the transmit signal level going into the transmit antenna (the +87 dBuV in Paul's case) and then carefully position the receive antenna using the same signal level measurement meter, you will quickly see that even when the receive antenna is mm separated from the transmit antenna, the received signal level will at best be - (minus) 30-40 dB reference the signal going into the transmit antenna.

Once you accept that loss is a factor you cannot correct, the rest is textbook. Double the distance between the transmit antenna and the receive antenna and the signal level goes down 6 dB. Each time you double the distance. That is -6 dB whether you are going from 4m to 8m, or 400m to 800 m. Or - 4 km to 8 km!

So as the distance increases, and the signal level goes down in a predictable fashion, your challenge is to makeup that loss by adding "circuit gain" to one or the other (or both) ends of the circuit. When you double the distance and lose 6 dB, to regain the original signal level before you doubled the distance, you add back 6 dB more signal (passively or actively) to the total circuit "gain."

The practical applications of this technology (and knowledge) are many. In the most obvious scenario, by radiating rather than cabling, "connection" to a single centralised antenna can be shared by many without being directly connected at all. On the one hand, this is less costly and as important, can be accomplished quickly without the time required to actually run direct-connection cabling. Seen from yet another direction, "air-links" can be "run" across streets, through buildings, over terrain which is simply impassable for the laying of cable.

L-band frequencies combined with wideband FM (or digital) modulation techniques are ideally positioned for this application as you can demonstrate to yourself and others.

FIND-IT ■ MEASURE-IT ■ FIX-IT

NOW - everyone (including you) can afford the professional results one only achieves with a visual display. For years we have been searching for an instrument capable of real assistance in setting up a satellite dish. Alas, apart from our simple 'Satfinder' tool, there has been no simple to operate, affordable instrument that will produce professional results every time.

Search no more - **SATVIEW** will become your trusted tool aiding with dish alignment, LNB polarisation adjustment, locating and identifying TI and of course what only a "real instrument" does best - spectrum monitoring. The answer? "**SATVIEW Spectral Display**" (Cat # Q2000).



"SATVIEW" Spectral Display features: 13/18V LNB switching ■ Portable, battery operated ■ Video input for monitor use ■ Nicad battery charger and carry case ■ 22 KHz switching control ■ Battery, tuning, and AGC voltage display ■ Expanded display for individual transponders.

All this for a low \$745**

AV-COMM PTY LTD (ACN 002 174 478) since 1981

PO Box 225, Brookvale NSW 2100 Australia

Tel: 612 9939 4377 Fax: 612 9939 4376

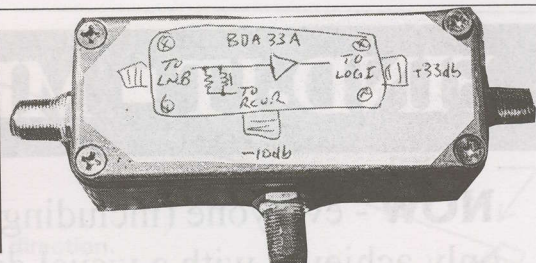
Web: <http://www.avcomm.com.au> ■ e-mail sales@avcomm.com.au, or, cgarry@avcomm.com.au

You are welcome to join our e-mail Newsletter Service. Just send e-mail to addme@avcomm.com.au.

**Prices do not include shipping or Australian GST (as applicable)

SDStv Technical Application Notes

Clever things you can do with SDStv



Receiving vs. Transmitting?

"At what power level does one change from being a 'passive transporter via cable' to a through the air broadcaster? If I stack up two 20 dB gain inline amplifiers built for L-band applications I would have 40 dB of gain. If I 'happen' to connect them to a device that radiates rather than cable, am I a broadcaster?"

PE, Auckland

Placing two (or more) L-band line amplifiers in series (one after the other) is not terribly productive as the gain from the first one will overload the second creating total garbage at the output. The total output capability of the BDA-33A, on the other hand, is in the region of 20 mW - around 24 dB more (greater) than a typical inline amplifier. Our tests using AsiaSat 2 and rebroadcasting the satellite's full horizontal polarity had the following results. We measured 69 dBuV input to the BDA-33A on L-band 1265 (WorldNet) and 101 dBuV output. LOS one mile distant we received and measured 48 dBuV using the 21 dB gain "active-logi" described on p. 33 here. The total radiated power (for WorldNet analogue) worked out to under 20 milliwatts after factoring in the 6 dB gain logi we used for transmitting. Were we "broadcasting?" We are reminded of the way CB (Citizens Band) radios were marketed in the USA in the 1969 era. E.F. Johnson, the largest seller of CB two-ways, on page one of their instruction manual wrote in big bold letters:

"Do not under any circumstances cut the wire leads on resistor R10 as this will cause the total power output of the CB set to increase to 10 watts - exceeding the 5 watt legal limit."

Competitor General Radiotelephone in their manual wrote in equally large, black letters:

"Wire jumper L2 should not be removed as its removal will cause this 23 channel FCC type accepted transceiver to operate on 40 channels of which 17 are not legal for CB radio."

Perhaps future shipments of the BDA-33A will contain a similar warning, as follows:

"This 33 dB gain amplifier is intended only for use as a closed-circuit cable amplifier. Two outputs are provided; output -10 is for shorter cable runs of 35 metres or less, output +33 is for longer cable runs of 275 to 325 metres. You are not encouraged to connect the +33 dB output to any type of radiation device (such as a transmission antenna) as this may be in violation of your local regulations."

How much signal for digital?

"Most of what I read in SatFACTS and on the www.sdstv.com web site deals with transmission and reception of analogue signals. What happens when you retransmit digital? Is it a problem?"

E.L. Patashi, NT

The mW 20 is only an analogue device - on purpose to keep the costs down because analogue receivers are so cheap these days. Digital must be processed through the BDA-33A which should be thought of as nothing more complex than a "translator" or extender-amplifier. Just as any L-band inline amplifier will process digital, so too will the BDA-33A. Only

better because it has a much higher output capability. The "trick" with reprocessing digital transponders is something called "linearity". Distortion (the opposite of being linear) is a problem when amplifying and rebroadcasting any digital transponder. Something called "in band flatness" is crucial which is why some of the commonly available 10 or 15 or 20 dB inline amplifiers give poor results with digital services. The BDA-33A makes an excellent closed-circuit line amp in applications where there will be heavy splitting (such as 4, 8, 12 or 16 receivers off of a single line) of an L-band spectrum because of its attention to "linearity" and "in band flatness." Bottom line - if your digital receiver requires 6 dB carrier to noise when attached via cable to the dish, it will still require 6 dB (or whatever the number happens to be) when air-linked via the high power output fitting on the BDA.

BDA + mW 20?

"My application calls for two different sets of conditions. Within 2 km or less I have a group of ethnic viewers who will want Mandarin language programming which I intend to grab from AsiaSat 2 digital and rebroadcast through a BDA in the original digital format. At the same time, around 4 - 5 km distant I have a second group who want one or at most two Middle Eastern channels which I plan to demodulate and then retransmit using the mW 20 approach. Can I do this and share one transmitting antenna? How would I configure the spectrum for this?"

Arnold Towton, (someplace in) Asia

It might be possible to multiplex (mix together) the BDA-33 output and the mW 20 output(s) but it is not worth the effort nor expense. Use two separate transmit antennas and that will eliminate possible interference problems. As for spectrum configuration, let's see: Starting with As2 horizontal, we have Hubei at 3854 (1296Hz) up through Henan at 3706 (1444Hz) which could be BDA-transmitted. That leaves the spectrum from 3900 to 4200 "open" for mW 20 transmissions from the same site - room for 14 or 15 mW channels. We suggest you place them on SDS channels 22 and 24 (1010 and 970 MHz) to create maximum spectrum separation.

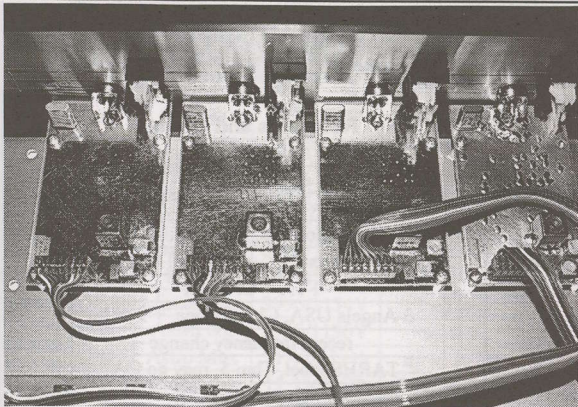
Inexpensive Internet linking?

"Is it possible to somehow use a mW 20 extra audio subcarrier for transmitting Internet data to a remote location? The TV works so well over a 3 km path that I would like to be able to somehow connect my Internet modem connection to my friend."

A. Jensen, Indonesia

Allowing your friend to have full-time access to Internet would require that you and your PC are also full-time connected. On the other hand, you can "share" PC files including Internet downloads in real time by simply having a sound card to mW 20 interface that connects the Internet data stream to the aural subcarrier input jack. A device designed for a slightly different application but having all of the required elements to do this on both ends of the circuit (your transmit end and your friend's receive end) is the Signalink SL-1 Sound Card/Transceiver Interface. Try

www.tigertronics.com.



Deceptive?

"During SPRSCS Melbourne I thought I saw a multiple channel mW 20 transmitter unit designed for mounting in an equipment rack. But I find no reference to it anywhere. Does it really exist?"

Sandy Wirth, NSW

It does (see photo above with top cover removed). The original product design was for up to six separate mW 20 transmitters in the same rack enclosure, sharing a common power supply and each "controlled" with a microcomputer that provides a front panel florescent display advising which transmitter is on, and operating on what (of the 24 available) channels. This model has not yet gone beyond the prototype stage at this time.

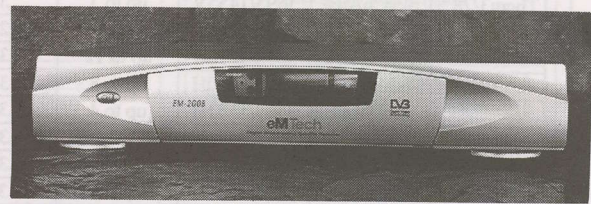
Bounce back?

"When there is a power cut my mW 20 returns to Channel 1 when restarting. How about 'last channel memory?'"

LM, NZ

Great suggestion!

KANSAT is proud
to present **eMTech**



eMTech by KANSAT: *superior performance, reliability - before the name goes on.*

- SatcoDX compatible digital satellite receivers - download channel data using **SatcoDX** (tm) (CD/Internet) ■ Picture in graphic EPG ■ SCPC/MCPC 1-45Ms/sec ■ DiSeqC 1.0 & 1.2
- **eM-100B** - FTA, 1MB Flash Memory, 2MB DRAM, 2,000 ch; **eM200B** - 2 CI slots, 2 MB Flash, 2 MB DRAM, 4,000 ch; **eM110B** - FTA + positioner; **eM210B** - 2XCI/positioner
- **Brand New!** **eM300B** 20 Gb PVR, 2 CI slots, USB shareware + PC connection



KANSAT Satellite Television, Gunalda QLD 4570
Tel (61) (0) 7 5484 6246 Fax (61) (0) 7 5484 6136
www.kansat.com.au

Comstar

MESH DISH ANTENNAS DIGITAL RECEIVER FTA

DIRECT IMPORTER and suppliers of the following:

COMSTAR digital receiver model FTA CS-5500

COMSTAR digital/analogue receiver model CS-6000

COMSTAR digital/analog/positioner model CS-9800

2.4 GHz video sender

BENJAMIN analogue receiver model BEN-4400

COMSTAR mesh dishes antennas 2.3 to 3.2m

JONSA dishes 0.65 to 2.4m

ZINWELL LNBf (C. Ku)

IMAGE LNBf

SPACE TV "Box"

C & T SATELLITE SERVICES PTY. LTD.

ACN 086028882

Unit 2, 1 Stockwell Place, Archerfield, BRISBANE 4108 AUSTRALIA tel 61-7-3255-5140/5211 fax 61-7-3255-5126

SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 November 2001

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym	
Them3/78.5	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)	
	PTV1 +	3521/1629V	1TV, 1 radio	3/4	3(.333)	
	TARBS/Th5	3485/1665H	6+ TV?	3/4	18(180)	
	Alpha TV	3430/1720H	1	2/3	3(.255)	
	TV Maldives	3412/1738V	1	1/2	6(.312)	
	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)	
As2/100.5E		Euro Bouqt	4000/1150H	6TV, 21r	3/4	28(.125)
	5-Star Med	3951/1199H	3TV	3/4	13(.185)	
	Reuters Sing	3907/1243H	1	3/4	5(.632)	
	WorldNet	3880/1270H	4+/20+radio	1/2	20(.400)	
	Hubei/HBT	3854/1296H	1	3/4	4(.418)	
	Human/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)	
	Reuters/Sing.	3775/1375H	1	3/4	5(.631)	
	WorldNet/US	3764/1386H	1 + 20 radio	3/4	6(.100)	
	Liaonin/Svc2	3734/1416H	1	3/4	4(.418)	
	Jiangxi/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	Feeds	4086/1064V	1	3/4	5(.632)
		TVSN	4033/1117V	1	3/4	4(.298)
		Jilin Sat TV	3875/1275V	1	3/4	4(.418)
HciLongJian		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)	
MSTV		3791/1359V	1	3/4	4(.340)	
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	9TV	3/4	27(.500)
		Arirang TV	3755/1395V	1	7/8	4(.418)
	Now TV +	3760/1390H	4	7/8	26(.000)	
	Star TV	3780/1370V	17(+TV)	3/4	28(.100)	
	Star TV	3860/1290V	14(+TV)	3/4	27(.500)	
	Star TV	3880/1270H	12(+TV)	7/8	26(.850)	
	Indus Music	3900/1250V	5TV	7/8	27(.895)	
	Star TV	3940/1210V	12(+TV)	3/4	26(.850)	
	CNNI	3960/1190H	6(+TV)	3/4	26(.000)	
	StarTV	3980/1170V	2+TV	3/4	28(.100)	
	Star TV	4000/1150H	7(+TV)	7/8	26(.850)	
	Sun TV	4095/1055H	1	3/4	5(.554)	
	Cak1/107.5	CCTV bqt	4129/1021H	4(+TV)	3/4	13(.240)
Zee Bqt #2		4135/1015V	4(+TV)	2/3	15(.000)	
Indovision (S-band)		2.536, 2.566, 2.596, 2.626	33(+TV)	7/8	20(.000)	
C2M/113E	TPI	4185/965V	1	3/4	6(.700)	
	Anteve	4144/1006V	1	3/4	6(.510)	
	Satelindo Bq	4089/1061H	2+ 1 radio	3/4	14(.062)	
	Indosiar	4074/1076V	1	3/4	6(.500)	
	SCTV	4048/1102V	1	3/4	6(.618)	

Receivers and Errata

Finally settled here from As2
erratic service
Now essentially all CA
USA religion chs, CMM music FTA
New November - possibly TARBS?
FTA + CA mux
3 Angels USA, Ch of Hope, + 9 radio
recent frequency change
TARBS label, Thai 5, may go CA?
Greece SCPC
FTA
FTA (reaches SE Australia)
ETV Bangla 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
FTA (TV5 teletext); MCM gone
Macau MUX
occasional feeds, some FTA MPEG2
Will move here-replace analogue
FTA SCPC, teletext
FTA SCPC, teletext
FTA SCPC, radio APID 81
FTA: #1 Mongolian, #2 Mandarin
FTA & CA
FTA; to shut down 30Nov. (see 3880H)
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
FTA SCPC feeds
Occ. FTA, not same as Aust. version
FTA SCPC, + radio
FTA SCPC
FTA SCPC, + radio
FTA SCPC + radio
FTA SCPC, radio APID 81
FTA SCPC, radio APID 257
FTA SCPC, reload VPID 308, APID 256
FTA SCPC
FTA SCPC - difficult to load
FTA MCPC, Dubai Sports Europe
Mediaguard CA
FTA SCPC; reported audio problems
includes TECH TV from USAFTA
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DV211, Zenith) + 1 FTA
PAL, NTSC, 1 ch CA
Recently started -NDS CA as above
PowVu CA; CNN + Cartoons, occ FTA
"777" Fox News USA FTA
NDS CA + 2 (Phoenix Chinese) FTA
"History Channel" testing SCPC
moved from 4115 July 1
some (i.e. Kaveri) FTA + CA
NDS CA using RCA/Thomson,
Pace IRDs
FTA SCPA; NT/NC only
recent change from 4055V; FTA SCPC
ChNewAsV33/A34,
FTA SCPC; NT/NC only
FTA SCPC; NT/NC only

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	
(C2M)	ABC radio	3976/1174H	2+ radio only	3/4	2(.061)	
	Indo. MUX	3880/1270H	3+ TV	3/4	28(.125)	
	MMBM#2	3760/1390H	11TV,radio	3/4	26(.666)	
	Brunei/Sing	3733/1417H	1TV	3/4	6(.000)	
	RCTI	3475/1675H	1	3/4	8(.000)	
JcSt3/128	Miracle Net	3996/1154V	3 up to 6	5/6	22(.000)	
	Asian bqt	3960/1190V	up to 8	7/8	30(.000)	
MeaSat 2	Astro Mux	11.478H (+)	up to 10TV	7/8	30(.000)	
Op 3/156	Mediasat	12.336V/T2	7TV, radio +	2/3	30(.000)	
	Aurora	12.407V/T3		2/3	30(.000)	
	Aurora	12.532V/T5	Inc Zee TV	2/3	30(.000)	
	Aurora	12.595V/T6		3/4	30(.000)	
	Aurora	12.657V/T7	TV tests	2/3	30(.000)	
	Aurora	12.720V/T8		3/4	30(.000)	
	Austar	12.314H/T9	iTV + here	3/4	29(.473)	
	Austar/Optus	12.376H/T10		3/4	29(.473)	
	Austar/Foxtl	12.438H/T11		3/4	29(.473)	
	Austar/Foxtl	12.501H/T12		3/4	29(.473)	
	Austar/Foxtl	12.564H/T13		3/4	29(.473)	
	Austar/Foxtl	12.626H/T14		3/4	29(.473)	
	Austar/Foxtl	12.688H/T15	(some FTA ra)	3/4	29(.473)	
	Op 1/160	ABC NT fd	12.258V	1TV, 3 radio	3/4	5(.026)
		ABC feeds	12.317H	1	3/4	6(.980)
	Central 7	12.354H	1TV	3/4	3(.688)	
	Imparja mx	12.360H	1	3/4	5(.424)	
	Mediasat#2	12.406V	up to 6 TV	2/3	30(.000)	
	Mediasat#3	12.424H	3+ TV	2/3	19(.800)	
	TVNZ DTH	12.456V	1+ TV	3/4	22(.500)	
	Nine Net	12.512H	1 TV typ.	3/4	5(.632)	
	Sky NZ	12.519/546V	7TV/7TV	3/4	22(.500)	
	Sky NZ	12.581/608V	6TV/6TV	3/4	22(.500)	
	Sky NZ	12.644/671V	9TV	3/4	22(.500)	
	ABC HDTV	12.670H	5TV	7/8	14(.300)	
	Tel/Saturn	12.706/733V	8+TV, 1 radio	3/4	22(.500)	
PS8/166	TARBS3	12.326H	13TV + radio	3/4	28(.067)	
	TARBS	12.526H	13TV + radio	3/4	28(.067)	
	TARBS2	12.606H	13TV + radio	3/4	28(.067)	
	JEDI/TVB	12.686H	11+ TV	3/4	28(.126)	
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(.125)	
	NHK Joho	4065/1085H	7TV, 1 radio	3/4	26(.470)	
	Japan Bqt	4050/1100H	2	3/4	12(.000)	
	ESPN USA	4020/1130H	7+TV, data	7/8	26(.470)	
	Discovery	3980/1170H	8 typ.	3/4	27(.690)	
	CalBqt/Pas8	3940/1210H	up to 8TV	7/8	27(.690)	
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)	
	Filipino Bqt	3880/1270V	up to 9 TV	3/4	28(.700)	
	Radio Bqt	3851/1299H	up to 30 radio	3/4	13(.240)	
	CCTV Mux	3839/1311H	up to 4	3/4	13(.240)	
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(.632)	
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)	
	MTV	3740/1410H	8	2/3	27(.500)	
	PS2/169	Pv Bouquet	12.281V	2+ TV, radio	2/3	27(.500)
WA PowVu		12.637(.5)V	4TV, 8 radio	1/2	18(.500)	
HK PowVu		4148/1002V	up to 8	2/3	24(.430)	
TVB Mux		4058/1092V	up to 5	3/4	13(.382)	
Fox Bouquet		3992/1158V	8TV/data	7/8	26(.470)	
Feeds		3966/1184V	1	2/3	6(.620)	
Feeds		3957/1193V	1	2/3	6(.620)	
Aust-feeds		3942/1208V	1	2/3	6(.620)	
Feeds		3929/1221V	1	3/4	10(.850)	
Feeds		3912/1238V	1	2/3	6(.620)	
Feeds		3898/1252V	1	2/3	12(.000)	
Middle East		3836/1314V	4 typ	3/4	13(.331)	
Feeds		3803/1347V	1	2/3	10(.322)	
YTN Korea		3769/1381V	2+ TV	3/4	11(.570)	
BBC +		3743/1407V	3	3/4	21(.800)	

Receivers and Errata
SCPC radio only - purpose unknown
TVRI, others FTA
CA, Aust subs avail-10 radio typ FTA
FTA: share time, Brunei-23hrs, Sing 1h
FTA SCPC, Australia OK
PowVu, some FTA (ch # 1,3)
CA & FTA NTSC: Japan, Taiwan
+11.664; 18 pay-TV svcs, CA
FTA, CA
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 i-TV; CA, subs avail. Aust.
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
Also try 12.265; V832, A833
also 12.326, 12.335; ex PAS8 Ku
VPID1280, APID 1281
VPID 1024, APID 1025
also try Sr 28.000; FTA & CA
net feeds, Australia only, FTA & CA
Tests; also 12.706, 12.733; CA, Irdeto
testing digital feeds
NDS CA, subscription available NZ
NDS CA, subscription available NZ
NDS CA, subscription available NZ
also 12.686 12.706H-same parameters
Irdeto CA, tests
TPG/Eurodec CA, occ. FTA
TPG /Eurodec CA, radio FTA
TPG/Eurodec CA; TRT FTA
Irdeto CA, some FTA tests
PowVu CA
PowVu CA & FTA; subscription avail
PowVu CA; NTV Int, Fuji TV
PowVu CA; ch 11 DCP-CCP bootload
PowVu/CA (some audio FTA)
PowVu CA & FTA (EWTVN/Fox occ)
FTA at this time
Some FTA; also 4040V, 27.686, 7/8
Taiwan-see p. 29, SF Nov 2001
PowVu FTA, replaces PAS-2 svc
was As2; PowVu CA
PowVu, CNN/CNNI now CA
1-7 CA; #8 FTA occ. feeds
PowVu CA, WIN, ABC NT
PowVu CA, WA only - D9234
PowVu CA; some FTA, occ feeds
CA feeds to pay-TV
Pv, CA/FTA (FTA ch 3 only)
PowVu (FTA) occ feeds
PowVu (FTA) occ. feeds
Mediasat outward bound feeds
PowVu (FTA) occ sport feeds
PowVu(FTA) occ. feeds
PowVu (FTA) occ. feeds
LBC CA Irdeto; JSC, ART to follow
PowVu (FTA) occ sport feeds
Svcs 1 and 2, CA
BBC FTA, others CA usually

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS-2/169)	Feeds	4040/1010H	1	3/4	10(.850)
	KBS/Korea	4026/1124H	1	3/4	5(.062)
	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)
	occ feeds	3776/1374H	1 typ	3/4	5(.560)
	Korean Bqt	3762/1388H	up to 3	3/4	11(.570))
	Satcom 1-6	3743/1407H	up to 5	7/8	19(.465)
I702/176E	AFRTS	4177/973LIIC	8TV, 12+radio	3/4	26(.694)
	RFO Poly	4027/1123L	1TV	3/4	4(.566)
I701/180E	TNTV	11.060V	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	13(.347)
	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)
	Inarana	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
occ. FTA, usually CA
Sat, Sun 0900+UTC; also sport 3873
FTA (occ sport); also try 3863, Sr6. 100
FTA-typ NTSC-occ sport, live Shuttle
PowVu CA + FTA
occ feeds, typ FTA; also Sr 5.600
Korean MUX, reload June 01
poss. USA pgming to Carnival Line
PowVu CA
SE spot beam
eastern spotbeam CA; 8,000 subs
Mediaguard CA, up to 3 ch FTA
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+
DMV/NTL early version, occ feeds, typ ca
SCPC, mixed CA and FTA feeds
PowVu CA; Auckland net feeds
CA, Leitch encoded
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!)

ASTRX D 1000CI. SCPC, MCPC, two CAM slots, auto search routine. Reviews SF#78 & #79. LTG Mason 61-3-9457 1222.

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM Pty Ltd, 61-2-9939-4377.

Benjamin DB6600-CI. FTA, Foxtel/Austar w/CAM+card. Autosat Pty Ltd 61-2-9642-0266 (review SF#72)

Humax F1-CI. 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 HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.

MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. 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. Tricky to use.

Nokia 9200. When equipped with proper CAM, does Aurora, pay-TV services provided software has been "modified" with Dr Overflow or similar program was available from (www.BAKKERELECTRONICS.COM), now only from established users.

Nokia 9500/9600. Numerous versions for different world parts; not distributed in Pacific but assistance from Av-Comm Pty Ltd.

Pace DVS211. NDS CA (no FTA) for Star Asia, previously used for Indovision. (Solution 42, 61-2-9820-5962)

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 SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Aust 61-3-9553-3399.

Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, Aurora, exc. vendor support. Strong Aust 61-3-9553-3399.

Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSeqC 1.0, 1.2, wide screen (review SF#84); Strong Aust (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.

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!)

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	
(C2M)	ABC radio	3976/1174H	2+ radio only	3/4	2(.061)	
	Indo. MUX	3880/1270H	3+ TV	3/4	28(.125)	
	MMBM#2	3760/1390H	11TV,radio	3/4	26(.666)	
	Brunei/Sing	3733/1417H	1TV	3/4	6(.000)	
	RCTI	3475/1675H	1	3/4	8(.000)	
JcSt3/128	Miracle Net	3996/1154V	3 up to 6	5/6	22(.000)	
	Asian bqt	3960/1190V	up to 8	7/8	30(.000)	
MeaSat 2	Astro Mux	11.478H (+)	up to 10TV	7/8	30(.000)	
Op 3/156	Mediasat	12.336V/T2	7TV, radio +	2/3	30(.000)	
	Aurora	12.407V/T3		2/3	30(.000)	
	Aurora	12.532V/T5	Inc Zee TV	2/3	30(.000)	
	Aurora	12.595V/T6		3/4	30(.000)	
	Aurora	12.657V/T7	TV tests	2/3	30(.000)	
	Aurora	12.720V/T8		3/4	30(.000)	
	Austar	12.314H/T9	iTV + here	3/4	29(.473)	
	Austar/Optus	12.376H/T10		3/4	29(.473)	
	Austar/Foxtl	12.438H/T11		3/4	29(.473)	
	Austar/Foxtl	12.501H/T12		3/4	29(.473)	
	Austar/Foxtl	12.564H/T13		3/4	29(.473)	
	Austar/Foxtl	12.626H/T14		3/4	29(.473)	
	Austar/Foxtl	12.688H/T15	(some FTA ra)	3/4	29(.473)	
	Op 1/160	ABC NT fd	12.258V	1TV, 3 radio	3/4	5(.026)
		ABC feeds	12.317H	1	3/4	6(.980)
	Central 7	12.354H	1TV	3/4	3(.688)	
	Imparja mx	12.360H	1	3/4	5(.424)	
	Mediasat#2	12.406V	up to 6 TV	2/3	30(.000)	
	Mediasat#3	12.424H	3+ TV	2/3	19(.800)	
	TVNZ DTH	12.456V	1+ TV	3/4	22(.500)	
	Nine Net	12.512H	1 TV typ.	3/4	5(.632)	
	Sky NZ	12.519/546V	7TV/7TV	3/4	22(.500)	
	Sky NZ	12.581/608V	6TV/6TV	3/4	22(.500)	
	Sky NZ	12.644/671V	9TV	3/4	22(.500)	
	ABC HDTV	12.670H	5TV	7/8	14(.300)	
	Tel/Saturn	12.706/733V	8+TV, 1 radio	3/4	22(.500)	
PS8/166	TARBS3	12.326H	13TV + radio	3/4	28(.067)	
	TARBS	12.526H	13TV + radio	3/4	28(.067)	
	TARBS2	12.606H	13TV + radio	3/4	28(.067)	
	JEDI/TVB	12.686H	11+ TV	3/4	28(.126)	
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(.125)	
	NHK Joho	4065/1085H	7TV, 1 radio	3/4	26(.470)	
	Japan Bqt	4050/1100H	2	3/4	12(.000)	
	ESPN USA	4020/1130H	7+TV, data	7/8	26(.470)	
	Discovery	3980/1170H	8 typ.	3/4	27(.690)	
	CalBqt/Pas8	3940/1210H	up to 8TV	7/8	27(.690)	
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)	
	Filipino Bqt	3880/1270V	up to 9 TV	3/4	28(.700)	
	Radio Bqt	3851/1299H	up to 30 radio	3/4	13(.240)	
	CCTV Mux	3839/1311H	up to 4	3/4	13(.240)	
	EMTV PNG		3808/1342V	1 + 2 radio	3/4	5(.632)
CNNI		3780/1370H	3, up to 5 TV	3/4	25(.000)	
	MTV	3740/1410H	8	2/3	27(.500)	
PS2/169	Pv Bouquet	12.281V	2+ TV, radio	2/3	27(.500)	
	WA PowVu	12.637(.5)V	4TV, 8 radio	1/2	18(.500)	
	HK PowVu	4148/1002V	up to 8	2/3	24(.430)	
	TVB Mux	4058/1092V	up to 5	3/4	13(.382)	
	Fox Bouquet	3992/1158V	8TV/data	7/8	26(.470)	
	Feeds	3966/1184V	1	2/3	6(.620)	
	Feeds	3957/1193V	1	2/3	6(.620)	
	Aust-feeds	3942/1208V	1	2/3	6(.620)	
	Feeds	3929/1221V	1	3/4	10(.850)	
	Feeds	3912/1238V	1	2/3	6(.620)	
	Feeds	3898/1252V	1	2/3	12(.000)	
	Middle East	3836/1314V	4 typ	3/4	13(.331)	
	Feeds	3803/1347V	1	2/3	10(.322)	
	YTIN Korea	3769/1381V	2+ TV	3/4	11(.570)	
	BBC +	3743/1407V	3	3/4	21(.800)	

Receivers and Errata

SCPC radio only - purpose unknown
TVRI, others FTA
CA, Aust subs avail-10 radio typFTA
FTA; share time, Brunei-23hrs, Sing 1h
FTA SCPC, Australia OK
PowVu, some FTA (ch # 1,3)
CA & FTA NTSC: Japan, Taiwan
+11.664; 18 pay-TV svcs, CA
FTA, CA
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 i-TV; CA, subs avail. Aust.
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
Also try 12.265; V832, A833
also 12.326, 12.335; ex PAS8 Ku
VPID1280, APID 1281
VPID 1024, APID 1025
also try Sr 28.000; FTA & CA
net feeds, Australia only, FTA & CA
Tests; also 12.706, 12.733; CA, Irdeto
testing digital feeds
NDS CA, subscription available NZ
NDS CA, subscription available NZ
NDS CA, subscription available NZ
also 12.686 12.706H-same parameters
Irdeto CA, tests
TPG/Eurodec CA, occ. FTA
TPG/Eurodec CA, radio FTA
TPG/Eurodec CA; TRT FTA
Irdeto CA, some FTA tests
PowVu CA
PowVu CA & FTA ; subscription avail
PowVu CA; NTV Int, Fuji TV
PowVu CA; ch 11 DCP-CCP bootload
PowVu/CA (some audio FTA)
PowVu CA & FTA (EWTN/Fox occ)
FTA at this time
Some FTA ; also 4040V, 27.686, 7/8
Taiwan-see p. 29, SF Nov 2001
PowVu FTA, replaces PAS-2 svc
was As2; PowVu CA
PowVu, CNN/CNNI now CA
1-7 CA; #8 FTA occ. feeds
PowVu CA, WIN, ABC NT
PowVu CA, WA only - D9234
PowVu CA; some FTA , occ feeds:
CA feeds to pay-TV
Pv, CA/FTA (FTA ch 3 only)
PowVu (FTA) occ feeds
PowVu (FTA) occ. feeds
Mediasat outward bound feeds
PowVu (FTA) occ sport feeds
PowVu(FTA) occ. feeds
PowVu (FTA) occ. feeds
LBC CA Irdeto; JSC, ART to follow
PowVu (FTA) occ sport feeds
Svcs 1 and 2, CA
BBC FTA , others CA usually

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS-2/169)	Feeds	4040/1010H	1	3/4	10(.850)
	KBS/Korea	4026/1124H	1	3/4	5(.062)
	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)
	occ feeds	3776/1374H	1 typ	3/4	5(.560)
	Korean Bqt	3762/1388H	up to 3	3/4	11(.570))
	Satcom 1-6	3743/1407H	up to 5	7/8	19(.465)
I702/176E	AFRTS	4177/973LIIC	8TV, 12+radio	3/4	26(.694)
	RFO Poly	4027/1123L	1TV	3/4	4(.566)
I701/180E	TNTV	11.060V	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	13(.347)
	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)
	Inarana	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
occ. FTA, usually CA
Sat, Sun 0900+UTC; also sport 3873
FTA (occ sport); also try 3863, Sr6. 100
FTA-typ NTSC-occ sport, live Shuttle
PowVu CA + FTA
occ feeds, typ FTA; also Sr 5.600
Korean MUX, reload June 01
poss. USA pgming to Carnival Line
PowVu CA
SE spot beam
eastern spotbeam CA; 8,000 subs
Mediaguard CA, up to 3 ch FTA
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+
DMV/NTL early version, occ feeds, typ ca
SCPC, mixed CA and FTA feeds
PowVu CA; Auckland net feeds
CA, Leitch encoded
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!)

ASTRX D 1000CI. SCPC, MCPC, two CAM slots, auto search routine. Reviews SF#78 & #79. LTG Mason 61-3-9457 1222.

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM Pty Ltd, 61-2-9939-4377.

Benjamin DB6600-CI. FTA, Foxtel/Austar w/CAM+card. Autosat Pty Ltd 61-2-9642-0266 (review SF#72)

Humax F1-CI. 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 HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.

MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. 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. Tricky to use.

Nokia 9200. When equipped with proper CAM, does Aurora, pay-TV services provided software has been "modified" with Dr Overflow or similar program was available from (www.BAKKERELECTRONICS.COM), now only from established users.

Nokia 9500/9600. Numerous versions for different world parts; not distributed in Pacific but assistance from Av-Comm Pty Ltd.

Pace DVS211. NDS CA (no FTA) for Star Asia, previously used for Indovision. (Solution 42, 61-2-9820-5962)

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 SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Aust 61-3-9553-3399.

Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, Aurora, exc. vendor support. Strong Aust 61-3-9553-3399.

Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSeqC 1.0, 1.2, wide screen (review SF#84); Strong Aust (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.

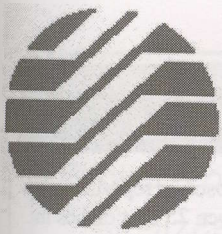
UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers.

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!)



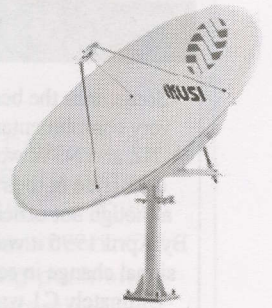
IKUSI ANZ PTY LTD

7 Amsted Road, Bayswater, Victoria
Australia 3153

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

e-mail: sales@ikusianz.com.au

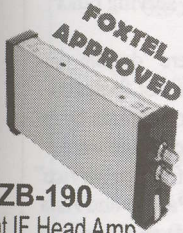
Web: http://www.ikusi.com



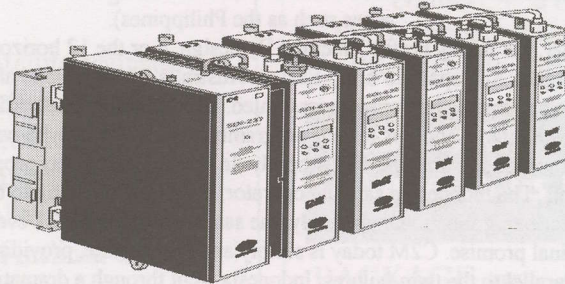
IKUSI

SDI - TOTALLY TRANSPARENT QPSK to QAM TRANSMODULATORS

Why Re-Invent the wheel !



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



SAE-933
Sat. & Terr.
Extension Amplifiers

Our SDI-630 / 640 TDT's mounted at the headend will receive the full Satellite QPSK transponderstream, rebuilding it, using both Reed Solomon & Viterbi error correction algorithms.

The output is then digitally remodulated & compressed into a 16 - 256 QAM stream of your choice, anywhere in the VHF or UHF band.

Being TOTALLY TRANSPARENT, no part of the bit stream is altered in anyway.
This of course includes the NIT, which is part of the TS or Transport Stream.

The output of the headend can be then distributed into the existing MATV or CATV distribution network with the least of fuss delivering perfect BER of >1E-8.

With more than 250,000 SDI-630 TDT's sold worldwide, we know that our product delivers the goods at a fraction of the cost of a QPSK distribution.



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

Free Quotation Service Available for any number of outlets: 10 - 100 - 1000 - 10.000 !



MELBOURNE SATELLITES P/L

ACN 065 270 733

Established 1992

Direct importers and suppliers of the following world renown products.

KTI
ORBITRON
PATRIOT
JONSA
ANDREW

ECHOSTAR
SCIENTIFIC ATLANTA
NOKIA
IKUSI
DX

GARDINER
CALIFORNIA AMPLIFIER
MTI
CHAPARRAL
ADL

Full range of cables, splitters and connectors.

Phone, fax or write for our 2001 Product SATalogue.

Sales/Warehouse - 84 Bayfield Road, Bayswater Victoria
Construction Services - 13 Elsum Avenue, Bayswater Victoria
Postal Address - PO Box 901, Bayswater 3153 Victoria Australia

Phone: (03) 9738 0888
Fax: (03) 9729 8276

User Friendly Site!

www.melbournesatellites.com.au

e-mail: sales@melbournesatellites.com.au

BANDSCAN: Palapa C2M Analysis

Sometimes the best plans simply do not work. When Palapa C1 was launched in February 1996 to 113E, the initial observer reports were very complimentary. The original 113E satellite, B2P, had proven to be elusive for anyone south of the equator and even 25 foot dishes in NZ and NSW were fortunate to get even a whiff (as in P1) signal from the then-analogue services. Not to worry - the C1 footprints were deliberate in their coverage of Australia and New Zealand - for the first time. Of special interest - Pal B-Mac pay TV programming which although not officially available through Indonesian sources to viewers outside of that country was promising to be very interesting indeed. By April 1996 it was apparent C1, "If not broken is badly bent" according to SatFACTS reports. Users reported wild gyrations (9 dB or more signal change in seconds) which Palapa ground controllers could not explain. Attempts to re-point the satellite continued through May 1996. Ultimately C1 was pronounced "unsuitable" and replaced with C2M (C1 was moved to 150E where it had a brief fling with serving other areas such as the Philippines).

C2M would turn out to be a better, but hardly perfect satellite. By design, 6 or the 12 horizontal polarity transponders were "double boresighted" - a clever design of Hughes Anacrospace to bring Eastern Australia, New Zealand and the western Pacific into the hot footprint regions. A set of 6 verticals were also supposed to be double-boresighted. Unfortunately, the verticals were down from the 6 horizontals by as much as 6 dB in Australia and New Zealand, and this led to programmer wars - those who wanted Australia-NZ-Pacific coverage were fighting to get on the six horizontal transponders that did this properly. In the end, C2M was pronounced "well enough to continue in service" but significantly disappointing as well. The Indonesian satellite operator, originally planning to become a major force in the Pacific and Asia with the two satellites, had to settle for being functional with only one satellite (C2M - as C1 eventually was pronounced dead) and even that one was operating far below the original promise. C2M today is simply another satellite, providing less than stellar service, and commercially the victim of its own design flaws. Parallel to the twin failures, Indonesia went through a dramatic upheaval in government which had a direct impact on their ability to "fix" the satellite problem. What remains today is the debris of failure - Indonesia pioneered privately operated

C-band satellites, ahead of virtually every other country in the world.

3473Hz (Asean beam) RCTI (Rajawali Citra TV) SCPC MPEG-2 FTA (Sr 8.000, FEC 3/4)

3728Vt (Asean beam) NBN SCPC Digicipher 1 MPEG 1.5 (requires GI Digicipher receiver)

3733Hz (Asean beam) TV Brunei (15.30-14.30 UTC) + Singapore International TV (14.30 - 15.40 UTC) SCPC MPEG-2 FTA (Sr 6.000, FEC 3/4)

3743Hz (Asean beam) RCTI SCPC MPEG-2 FTA (Sr 8.000, FEC 3/4)

3755Vt (Asean beam) RCTI SCPC MPEG-2 FTA (Sr 8.000, FEC 3/4)

3840Hz (Asean beam) TVRI National Program analogue PAL FTA (audio 6.8 MHz) (P5 east coast Australia, P4 NZ)

3880Hz (Asean beam) Metro mux (Metro TV, Metro Business) MCPC MPEG-2 FTA (Sr 28.125, FEC 3/4)

3976Hz (Asean beam) radio only SCPC (Radio Australia, ABC Triple J, ABC News Radio) FTA (Sr 2.061, FEC 1/2)

4048Vt (Asean beam) SCTV (Surya Citra TV) SCPC MPEG-2 FTA (Sr 6.618, FEC 3/4)

4071Hz (Asean beam) Satelindo Bouquet Singapore (Channel News Asia, CNBC + Radio Singapore) MCPC MPEG-2 FTA (Sr 14.062, FEC 3/4) (to get CNBC enter VPID 1057, APID 1058)

4074Vt (Asean beam) Indosiar SCPC MPEG-2 FTA (Sr 6.500, FEC 3/4)

4120Hz (Asean beam) MTV Asia analogue PAL FTA (Audio 6.8, 7.56, 7.74 MHz) (P4 east coast Australia)

4144Vt (Asean beam) Antevs SCPC MPEG-2 FTA (Sr 6.510, FEC 3/4)

4160Hz (Asean beam) (French) TV5 Asia PAL FTA (Audio 5.8, 6.6 MHz) (P5 New Zealand)

4184Vt (Asean beam) TPI (TV Pendidikan Indonesia) SCPC MPEG-2 FTA (Sr 6.700, FEC 3/4)

...

At various times C2M Ku band tests have been reported.

10.972Vt, 11.008Vt, and 11.132Vt - all with a beam "north"

11.490Vt (North beam) Herbalife Asia analogue (Monday 1100 - 1300 UTC) NTSC FTA (audio 6.2, 6.8, 7.3 and 7.9)

11.616Vt (North beam) Maharishi Open University Asia (Sunday 0900 - 0500 UTC) SCPC MPEG-2 FTA (Sr 2.000, FEC 3/4)

Credits: David Leach, Observer in New South Wales

TUNING IN THE INDUSTRY'S TV PROGRAMME

SPACE Pacific, the Asia-Pacific industry membership trade association, has produced (and continues to produce) a series of one hour television programmes. These "SPACE Pacific Report" shows, hosted by Bob Cooper, cover a range of topics of interest to installers and enthusiasts. Show numbers and content are as follows: #9901- Spectrum Analyser techniques, #9902- Feeds and LNBS, #9903- Dish antenna designs and problems, #9904- The dish marketplace, and, "tiny parts," #9905- Dr Overflow (Nokia) software (Robin Colquhoun), #9906- How the uplink works (tour of RCA's Vernon Valley site), #9907- Uplink Two, including uplink transmitters, #9908- Digital Basics (Mark Long), #9909- Real World Installs (Mark Long), #9910 - Installing a polar mount dish and signal level test equipment, #9911 - "SPIN" (the hidden side of satellite). #0012 - First Report from SPRSCS 2000 (recorded in Melbourne June 28, 29 - "Ideal IRDs," more), #0013 - Second Report from SPRSCS 2000 (recorded in Melbourne June 29, 30 - "ABA Blackspot session"), #0014 - Naughty Nokia from SPRSCS 2000; #0101 - Preview of new technology including SDS from SPRSCS 2001 (September 27, 2001 Melbourne). "Report" is broadcast by Mediasat on Optus B3, 12.336Vt, ad-hoc channel 4(*) (Sr 30.000, FEC 2/3). The coming-weeks schedule: **Sunday November 18** - 9903 at 0200-0300 UTC (1500 NZST, 1300 AEST, 0900 Western Australia; repeats 0700 UTC/8PM NZST, 6PM Sydney, 2PM Perth). **Sunday November 25** - Show 9904, same times as November 18; **Sunday December 2** - Show 9905, same times as November 18; **Sunday December 9** - Show 9906, same times as November 18; **Sunday December 16** - Show 9907, same times as November 18; **Sunday December 23** - Show 9908, same times as November 18; **Sunday December 30** - Show 9909, same time as November 18 (Note: Daylight savings time adjustments - we stay with original UTC times). (* - Mediasat may pre-empt showings, check other bouquet channels - such as 3 - if not on 4.) In the event of schedule changes (*), SPACE Pacific attempts to pre-announce which show(s) will appear through <http://www.apsatv.com> Sponsorship of SPACE Pacific Report. In general answer to queries - Av-Comm, Satech and Sciteq have contributed corporate funding to make possible the production of the first set of nine SPACE Pacific Report programmes. IKUSI ANZ contributed funds for completion of 9910. If interested in sponsoring future shows, contact Bob Cooper at skyking@clear.net.nz (64-9-406-0651) * - Note: Mediasat Sunday feed loads have increased and the first showing (0200UTC) may be "bumped" to accommodate other clients. The 0700UTC feed typically is not bumped and would be the better choice if taping for later review.

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

PRICE BUSTER!

PACKAGE one: Au \$5xx

Comstar 2.3m dish (Model ST-7 C/Ku, 38.2 dB
gain at 4.2 GHz) + Zinwell LNB (15 degree
Kelvin, 65 dB gain, 3.4 - 4.2 GHz) + Dion
Digital receiver (950 - 2150 MHz L-band: C &
Ku) + DiSEqC 1.0/1.2 (including positioner
control) + 3100 channel memory +
Multi-language (5) menu + TV/VCR Scart and
RCA outputs, UHF remodulator (chs 21-69)

**Dealers: We want to supply you!
Come to us for your best deals**

PACKAGE two: Au\$4xx

SVEC 2.3m mesh dish + PBI LNB + Innovia
Digital Receiver - equipped with all of the primary
features of the PACKAGE One system but
slightly lower quality dish and electronics for
those bargain hunters who simply must have the
lowest price!(Conditions apply)

SVEC COMPANY PTY LTD

64 Mahoneys Road Forest Hill Victoria
tel 61 3 8801 0336 fax 61 3 9893 6908 mobile 0425 770 336

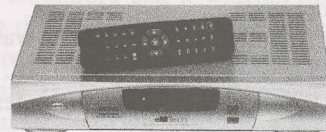
eMTEch Digital Satellite receivers-SatcoDX[®] compatible



eM100 FTA only \$A499 RRP
eM200 FTA + 2 x CI Slots- \$A599 RRP
eM210 FTA + 2 x CI slots + Positioner \$A699 RRP

- MPEG-2 DVB Compliant
- Quick Channel Switching Time
- 256 Color On Screen Display
- Easy Installing Program Setup
- SCPC & MCPC Receivable from C/Ku-Band Satellites 1-45Ms/sec
- Output in PAL or NTSC OSD selectable
- EPG for On Screen Channel Information
- Subtitle & Teletext Supported by OSD & VBI
- MPEG/Music Cam Layer I and II, CD Quality Audio Sound
- Small Window Screen Picture with EPG Graphic Menu
- Automatic TP Scan Function with Manual PID
- DiSEqC 1.0 & 1.2 Control Compatible
- TV Screen format selection (16:9 / 4:3)
- Auto-Searching function for many popular default satellites
- Firmware be Download Through RS232 From PC to Set and From Set to Set
- SATCODX chart compatible (Download from the Internet or SATCODX CD satellite chart list)
- PLL RF-Modulator (Ch. 21 ~ Ch. 69)
- RS232 Data Port & 2 Scart / 3 RCA Jack
- Flash Memory 8Mbit * 1, Dram 16Mbit * 2
- Power Supply AC 90V ~ 260V

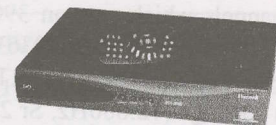
**NEW!
PVR
Model**



eM300 FTA with 2 x CI slots and 20GB Hard drive built in \$A999 RRP

The eM300 is the latest model from eMTEch.
20GB HDD gives up to 11 hours of recording/playback at 4MB/sec.
The unit has 2 x CI slots and can be used for encrypted services
with the relevant CI module and authorised smart card.
Time shift function allows you to pause live off-satellite program
and resume after a period up to 11 hours, and continue
watching the program with the time shift.
The receiver will continue to record the incoming live program
while you watch the delayed program!
USB port allows to upload and download
PVR, WAV and MP3 files to and from your PC.
USB lead and driver supplied.
Dolby AC3 digital optical bitstream
output lets you patch into a high
quality audio surround system

HUMAX



IRC15400Z with embedded irdeto smart
card slot and 2 x CI slots! \$A899 RRP

KRISTAL
electronics

25 Cataract Ave, Rangewood Townsville Qld 4817 Australia.
Contact Us-email- philip@kristal.com.au
Fax- (07) 47888906 Phone- (07) 47888902
Check out our NEW on-line store at -
<http://www.kristal.com.au>

WITH THE OBSERVERS

AT PRESS DEADLINE

Alert - Yet another return of Leonids meteor shower forecast in 1000-1400 UTC time window November 18 - at risk are satellites in geostationary orbit. Alert #2 - Launch in December of JcSat 8 to 154E with 16 vertical polarisation C-band transponders that include coverage to Pacific region. Reports to us please!

AsiaSat 2/ 100.5E: "Egyptian/Middle East MUX 3640Hz (Sr 27.850, 3/4) has been FTA for days at a time, perhaps some sort of 'goodwill' gesture related to the current terrorist threats?" (D. Leach, NSW). "EBU Islamabad (Pakistan) path 1 news feeds 3927Vt, Sr 6.110, 3/4; also 3687Vt, Sr 6.110, FEC 3/4" (Bill Richards). "Cyasa3 (unknown) feed 3945Vt, Sr 6.666, FEC 7/8 VPID 512, APID 4112 in 4.22 format" (Bill Richards). Planned shut down of WorldNet October 10 analogue service (3879Hz) to be replaced with new full-time digital (3880Hz, Sr 20.400, FEC 21/2) simply did not happen - speculation is VOA-WorldNet reconsidered shutting down Asian analogue feed during a period when USA interests in Middle East and Indian subcontinent region were high would be a mistake. No new announcement as to when the conversion to full-time digital only will take place but it could be a while.

AsiaSat 3/ 105.5E: "Ekushey TV has reconfigured with Sr 4.340, FEC 3/4 on 3749Vt" (D. Leach, NSW).

AsiaSat 4/ 122E: "Latest announced launch date is May 28 (2002) with 28 C-band and 20 Ku-band on board." (D. Nolan).

InSat 2E/83E: "ETV Bangla has moved to the ETV digital bouquet (4005Vt, Sr 27.000, 3/4)" (D. Mitchell, NSW).

Optus B1/ 156E: ABC TV Northern mux reported moved from 12.258 to 12.265Vt (Sr 5.026, 3/4) but later reported back again - hard to know what is happening here. "TVNZ TVOne and TV2 on 12.456Vt, Sr 22.500, 3/4 is permanent operation" (DS, Auckland).

Optus B3/ 160E: "Austar homepage/i-TV was testing FTA, now CA (Sr 29.473, 3/4) on 12.313Hz" (IF, Queensland). "ABC National here, perhaps only as test, 12.407Vt, PID848/849" (AI, NSW).

Palapa C2M/113E: "CNBC analogue (4040Hz) has shut down (31 October) ending another era of FTA analogue for Asia" (D. Mitchell, NSW). "Anteve digital has left 4055Vt, moving to 4144Vt Sr 6.510, 3/4" (D. Leach, NSW - Ed's note: Also reported 4153Vt, same parameters). "Unknown 4.22 format feed 3934Hz, Sr 6.110, 3/4 labelled 'MTT-ENC1'" (Bill Richards).

PanAmSat PAS-2/169E: "Auto racing feeds 3915Vt, Sr 20.000, 3/4 VPID 36, APID 37" (Bill Richards). "Al-Jazeera Satellite Channels which was on 3901Hz California Bouquet now with Middle East Bouquet 3836Vt" (D. Leach, NSW).

PanAmSat PAS-8/166.5E: "TRT International is FTA in TARBS Ku package (12.606Hz, Sr 28.067, 3/4), the only such FTA. Is this a move to shutdown TRT (Turkey) through



Osama, where are you? Chances are excellent you will find the answer to that question - first - here on PTV (Pakistan Television), AsiaSat 3, 4100 Vt in good old fashioned (FTA) analogue.

Mediasat?" (IF, Queensland) "CNNI Financial has gone CA - permanently (1 November) 3780 Hz" (D. Leach, NSW)

Thaicom 2-3/ 78.5E: "PTV1 and Radio Pakistan have moved to 3521Vt, Sr 3.333, 3/4" (D. Leach, NSW). "Perhaps another TARBS-headed mux - 3569Hz, Sr 9.000, 3/4 with Video Italia, Lig TV, Future TV USA" (GD Harper, Aust). "CMM music alternating with Thai TV5 on 3600Hz" (D. Leach, NSW). "Thai-TV which labels as TARBS 3485Hz, Sr 18.180, 3/4" (Bill Richards).

Soapbox comments: "Actually, ABC Kids and ABC Fly (for older kids) is one 24 hour channel broken into day parts at 6PM nightly; ABC National is on Austar ch 2, ABC Kids/Fly on Austar channel 14" (AI, NSW). "Star TV's 4000Hz is now NDS CA + 2 FTA - 743 is Phoenix Channel (identical to 727 Phoenix Chinese on 3880 and also identical to the NTSC Phoenix analogue channel on 3920Hz) while 746 is Phoenix Info News; currently there are 81 Star TV channels + 1 radio" (NS, Victoria). "Matchmaster has introduced a new digital terrestrial TV antenna product line called 'DG'. They claim to be 'the first Australian made combination antenna with UHF X type collinear elements covering channels 21 to 69 wideband.' Could it be that the original series of antennas was not broadband enough to include the proposed datacasting channel assignments?" (Arnold T, Melbourne). "Is there a published

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 December 15th issue: December 4 by mail or 5PM NZST December 6th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

Radio channels (of a sort) are mystery on PAS-8

Tony Drexel of Free to Air Satellite (South Australia) and Bill Richards report operational details on a new 29 radio channel bouquet that has appeared on PAS-8, 3851 Hz (Sr 13.240, FEC 3/4, standard MPEG-2). Some of the music channels are a bit on the strange side (such as continuous "waterfall sound" or similar background sounds) for who knows what purpose. Still, there is an amusing variety here and it may find some useful application if it stays available (started November 4). The following list shows channel number (courtesy Richards), APID (such as 0671), PCR (such as 0670), channel description (courtesy Drexel) and the apparent language of the vocals or announcers. (#1) 0065/0671/0670/Best Enka/Taiwanese; (#2) 0066/0681/0680/instrumental/no language; (#3) 0067/0691/0690/tango/no language; (#4) 0068/0701/0700/pops - new songs/English; (#5) 0069/0711/0710/HMV - the music/English; (#6) 006A/0721/0720/Sweet love songs/English; (#7) 006B/0731/0730/Hip Hop/English; (#8) 006C/0741/0740/Rock-pops/English; (#9) 006D/0751/0750/Country/English; (#10) 006E/0761/0760/Seasonal instrumental/no language; (#11) 006F/0771/0770/Main street jazz - instrumental / no language; (#12) 0008/0781/0780/Shopping (background?) music-instrumental/ no language; (#13) 0070/0791/0790/Italian pops/Italian; (#14) 0072/0801/0800/Latin instrumental-vocal/Spanish; (#15) 0073/0511/0511/Symphony - instrumental/no language; (#16) 0074/0521/0520/Opera/English; (#17) 0075/0531/0530/Baroque - instrumental/ no language; (#18) 0076/0541/0540/"birds"/no language; (#19) 0077/0551/0550/Piano - instrumental/ no language; (#20) 0078/0561/0560/"Bgm" - instrumental/ no language; (#21) 0079/0571/0570/"BGM?" - instrumental/ no language; (#22) 007A/0581/0580/Japanese music/Japanese; (#23) 007B/0591/0590/Taiwanese music/Taiwanese; (#24) 007C/0601/0600/Mandarin music/Mandarin; (#25) 007D/0611/0610/Chinese lyrics/Chinese (Mandarin?); (#26) 007E/0621/0620/Mandarin pops/Mandarin; (#27) 007F/0631/0630/Wedding music/Taiwanese; (#28) 0080/0641/0640/Birthday song(s)/English; (#29) 0081/0651/0650/Electronic music/English; (#30) 0661/0660/test channel/Taiwanese

footprint map for Optus C1?" (D. Nolan - Ed's note: To date the usual sources have not been able to supply suggesting there are some last minute changes underway in the planned coverage and frequency planning.) "Optus B1 T9 12.314 should now read 'Austar I-TV + TV' but after briefly being FTA on I-TV is now CA" (IF, Queensland). "Aurora T7, 12.657Vt, has been reduced in TV channels by removing Zee TV's package" (HE, NSW). "I have installed more than 200 Zee TV systems here in New Zealand personally" (Tony D. - Ed's note: Ahh yes, but how many of these are paying ZEE for monthly service?) "The new ABC-TV National (carried by Austar) is not the same as ABC NSW (Sydney). Their opening night 7PM news was unique, a female news reader, with a new not-seen-before logo in lower right hand corner, 'ABC News National'." (AI, NSW). "Optus has changed the bouquet names on 12.670, 12.686 and 12.706 (ABC HDTV) from ABC-TV to ABC-Northern NSW. Alas, Optus did not change the correct figures into the NIT loading tables so the UEC642 cannot load the channels on these 3 bouquets." (ER, Victoria; Ed's note: On Hyundai HSS-100C, #1 is ABC HDTV, #2 ABC TV NSW, #3 ABC Kids, #4 Fly TV, #5 ABC TV4 - test card. The wide button on 100C remote correctly changes 4:3 to 16:9 as suits the programme content and the Y-C [S-video] output

or composite is a treat.) "ABC Kids and ABC National now within Austar package 12.376Hz, PIDS 519/647 and 512/640" (Connie M, Sydney). "SMA (Satellite Music Australia) now provides the first 12 of the 24 Austar radio channels - all CA. The SMA services are (1) Light Classical, (2) New Age, (3) Radio Italia, (4) Sport 927, (5) News and More, (6) Rhythm Digital (*). (7) Country, (8) Top 100, (9) Smooth Cafe, (10) Beautiful Moods, (11) Classic Gold, and (12) Special Events. Of interest - * Rhythm Digital appears to be the same service as channel 68 on Aurora and it will not play with an Austar card, replacing the High Energy music channel. Possibly it is intended for Foxtel subscribers as it also loads for the Foxtel service. (Lonnie D, Sydney). "How about holding SPRSCS 2002 in Tasmania?" (Brian Watson, Kings Meadow). "Fans of old time radio programmes will delight with 'Theatre of the Mind' which is broadcast Tuesdays for CBA affiliates on Optus B3, 2-4 PM, channel 14 Aurora audio (www.cbaa.org.au)" (BW, Tasmania). "Austar channel 99 is a 30 minute loop (called FYI) explaining what to do if your IRD/remote or system does not operate properly - obviously you would have to visit and absorb this before your IRD quit working! 'Home' (homepage) from the services menu is a 5 minute loop advertising new interactive options (such as

If you live in Australia -
the most extraordinary service for
SatFACTS Monthly
is through
Av-Comm Pty Ltd.
Email cgarry@acommm.com.au
or telephone 02 9939 4377

Proudly a pioneering sponsor of SPACE Pacific
Reports each Sunday on Mediasat Optus B3.

We have CI Modules
and you have the card.

Let us get together.

SECA CI Modules fit all CI module capable IRDs. These are top-quality European products designed specifically for the use you have in mind. Quantity pricing and dealer protection.

JOHN's Electronics (61) 418 698 106
e-mail manager@johnselectronics.com.au
<http://www.johnselectronics.com.au>

Readings of Optus B1 Vertical - Sky NZ versus Telstra/Saturn and TVNZ Levels

Using a 76cm offset dish in Christchurch, here are the off-Optus-B1 readings with a typical Sky NZ LNBf: TR4L (12.456 TVNZ TVOne + TV2) - 5.6 E-7; TR4U (12.483 - no present use but Telstra/Saturn reserved) - 4.4 E-6; TR5L (12.518: Sky TV) - 7.0 E-7; TR5U (12.546: Sky TV) - 3.7 E-5; TR6L (12.581: Sky TV) - 4.6 E-5; TR6U (12.608: Sky TV) - 1.0 E-4; TR7L (12.644: Sky TV) - 7.2 E-5; TR7U (12.671: Sky TV) - 8.8 E-6; TR8L (12.706: Telstra/Saturn) 1.7 E-4; and, TR8U (12.733: Telstra/Saturn) 8.5 E-5.

Notes: "L" means lower (half) of transponder while "U" means upper. These Optus B1 transponders have been split in half (27 MHz per half transponder) to allow slightly increased channel loading using a symbol rate of 22.500 and a FEC of 3/4. (Half) transponders 8L and 8U are carrying Telstra/Saturn feeds from Wellington to Christchurch (CATV headend) using Irdeto encryption; transponder 4L carries TVOne and TV2 from TVNZ, free to air, MPEG-2; transponders 5L, 5U, 6L, 6U, 7L and 7U are NDS conditional access for Sky Network TV - but as of 1 December at least two programme channels (TVOne and TV2) will, within these transponders, be FTA MPEG-2.

Tmail, iDaily, LudiTV (subscription games). 'Demo' is another 5 minute loop from the services menu which explains how to use the new ABD and SMS receiver menus." (IF Queensland) "Some USA CBS network programmes can be found on Star TV 4000Hz, Sr 26.850, 7/8 - FTA, such as '24 Hours' which airs on Saturdays in NSW time." (AN, Victoria) "As previously reported, the ABA has now officially awarded an orbit spot to Foxtel suggesting that sometime in the next 3 years we can expect to see Foxtel's satellite TV programming pulled off of Optus in favour of a new Foxtel bird." (D. Nolan - Ed's note: And likely to go with Foxtel would be Austar for whomever owns it by that time as well as the Sky NZ services.) "Aurora tune information as moved from 12.595Vt to 12.407Vt, FTA VPID 53, APID 54" (AN, Victoria). "Sky TV ran briefly (2 days) FTA on 12.608Vt while testing ability of their IRDs to handle simulcrypt FTA services as well as their NDS CA" (CS). "I sent e-mail to Greek ERT/NET, a

Government operated channel, asking why they would allow their service to be abducted by TARBS and turned into a pay-TV service. The answer from Simos Hajiraptis reads, 'I do not disagree with you but this is not the worst thing that can happen to the world like lets say bombing countries and running after ghosts. Anyhow, please contact TARBS in your country for more information.' Obviously these people do not see serving Greek nationals world-wide as a priority." (Kasharta, Sydney). "Web site change for Skyvision Australia - now www.satcruiser.tv" (Jim Cotterill).

"After reading and thinking about your 'At Sign-Off' in the July 15th SatFACTS, my own experience with Scientific Atlanta. I obtained a D9223 four years ago before I could receive Austar at my location. I did this just so I could receive CMT, having purchased my first C-band dish at about the time PAS-2 went up with CMT in analogue. I missed having CMT when they went digital so when the PowerVu came along I spent A\$3,000 on the D9223. Then they went CA and when I asked to subscribe I was told no way and that I had to subscribe to Austar. I was caught between the days when CMT was FTA digital and there was no authorised agent for it in Australia and then when Austar became the agent and it also went CA, I was caught in the middle. I asked SA to help out, to take the receiver back with some sort of refund. They were not interested. What I have sitting here is a very limited ability FTA receiver that can only deal with a single transponder at a time and requiring significant programming time to even change transponders. Unfortunately SA is not the only company that shows little interest in helping out. I have a friend using a Phoenix 333 which has a tendency to 'green glitch' without warning at random times. It does this even when the signal level is above the 50% mark on the built-in metering system, indicating it is not a lack of signal (which I have verified by using it on a bigger dish as well). Surely out there is someone who has found a software (or hardware - perhaps it is the tuner?) solution to this problem? So many of the receiver sellers talk about the software being capable of being upgraded through the RS232 port or your PC. But try to find someone who really understands how to do this! It has been my experience that only one receiver supplier has stood behind this claimed ability - Jim Cotterill of Satcruiser. When I was unable on my own to make a Satcruiser 101 update properly, he offered to do it for me if I would return the receiver to him., which I did and he did perfectly. The SA motto seems to be contagious - when you need an upgrade their stock line is 'buy a new one with the upgrade built in'. I think that is a lousy way to conduct business!" (D. Pemberton).

Note: Letters to SatFACTS must be signed for publication consideration - but identity in print is not mandatory.

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 \$773 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

AT

Sign-off

A tiny crack in a huge dike

Pick up the telephone in New Zealand and dial 0800-800 759 and ask, "How much will it cost me to have a Sky dish system to receive just the free to air services including TVOne and TV2?" The answer will be, "\$495 plus \$3.99 per week."

Effective 1 December the Sky NZ pay-TV bouquet will offer TVOne, TV2, TV3, TV4, Prime and TAB (the racing service channel) as a "free to air" package. The viewer can optionally subscribe to one of Sky's many pay-TV packages which will quickly double or treble the weekly / monthly fee.

\$3.99 pays for the "rental" of the Pace or Zenith set-top device, the (typically) 60cm dish, LNBf and cabling. \$3.99 per week comes to \$207.48 per year. If a home has two TV sets and requires a pair of Zenith or Pace set-tops, add \$25 per month for the second box. Or, if the home has a VCR and a TV set and would like to be able to record one programme while watching a second, they will also require a second Pace or Zenith set-top box. And what began as \$3.99 per week for one decoder now becomes \$42.29 per month (\$9.84 per week). For the record, this is not pay-TV - this is free to air TV delivered through a pay-TV commercial provider. Pay-TV comes "extra."

Television New Zealand's agreement to allow Sky to distribute its programming has attracted mixed reviews. In a country where 78% of the homes have 2 or more TV sets and 73% have one or more VCRs, the "sting" of equipping the home with a Pace or Zenith decoder for each of these appliances has not yet sunk in. That \$495 installation fee covers the first set-top box, quickly with two or more set-top boxes involved the installation fee will climb past \$600. Now add \$42.29 per month (\$507.48 per year) in monthly fees to "rent" a pair of set-top boxes and we have a home paying more than \$1,100 during the first year to become a Sky digital format subscriber to TVOne-TV2-TV3-TV4-Prime and TAB. That \$3.99 "per week" suddenly grew to \$21.15 each week during year one.

The publicity to date explaining this to the 900,000 New Zealand homes not yet subscribing to Sky digital has focused on the \$3.99 number. There is a "tiny" business opportunity here.

The first target is the \$495 (+ gst) installation fee. Can you supply a 60cm dish, LNBf, cabling and installation - including a MPEG-2 FTA IRD for NZ\$495? It is possible to buy all of the hardware for around NZ\$400 and this would leave you with NZ\$95 for the installation labour. Before you scoff at that, Sky installers are seldom paid more than \$100 for this chore.

The reason you have a shot at this is because Sky's carriage of TVOne and TV2 will be free to air. Any brand, model of MPEG-2 receiver should decode these two channels (although not the remainder the Sky Mux which is NDS encrypted). There is more. At the same time these two programme channels will be FTA within the Sky bouquet, TVNZ will also provide the same two services FTA on 12.456 Vt, Optus 1, Sr

No need to keep quiet any longer it seems, just had this pointed out to me. I will post under "TvNZ to be FTA inside Sky transponder" as the subject

from <http://www.mediawatch.co.nz/>

With two failed attempts to go digital behind it, TVNZ has announced a deal with the dominant digital broadcaster, Sky - the company with which it once wanted to compete.

Under the deal, TV One and TV2 will occupy the one and two positions on Sky's remote control and electronic programme guide. They will be broadcast unencrypted as part of the Sky Digital bouquet, using Sky's satellite capacity.

But, as a legacy of its lapsed joint venture with Telstra Saturn, TVNZ has leased capacity on the same satellite, and it is this it will use to deliver any additional services - both an educational channel and interactive advertising have been mooted - it wishes to launch next year. TVNZ chairman Ross Armstrong has described the deal as a victory for viewers that leaves TVNZ in control of its own destiny. Our read is that commercial, technical and regulatory matters will all have an impact on that issue.

TV One and TV2 can now be viewed in digital by anyone who pays Sky \$4 weekly for decoder hire without pay services - or, in theory, any satellite decoder (and dish) compliant with the DVB standard.

Where it might get interesting is if TVNZ launches a service to which it wishes to control access (typically so it can charge for it). Will it be able to negotiate its own conditional access (CA) system - in effect, play gatekeeper of its own gate on Sky's box?

22.500, FEC 3/4. TVNZ is maintaining their own feed as an "insurance policy" against some future change in policy at Sky, and it will have the technical room to grow to perhaps 8 programming channels total within this "insurance channel".

Any customer who focuses only on the \$495 (+gst) figure will doubtless become a Sky customer. Those who realise they will also pay \$207.48 per year (forever; \$2,074.80 in 10 years) to Sky will be at least interested to hear your proposal, which should begin with, "By doing business with me, you will never be forced to pay Sky for TVOne, TV2 service."

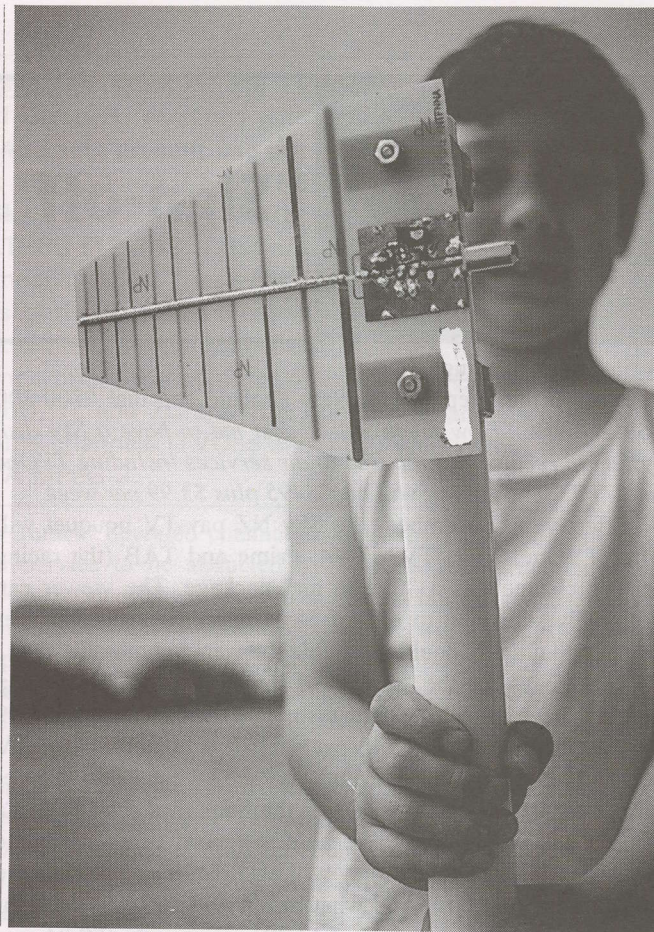
A tiny crack in a dike, because Sky's package also includes TV3, TV4, Prime and TAB. Working for *you* is that TVOne and TV2 routinely attract 73% of all TV viewing in New Zealand - which means 7.3 out of 10 homes watch one of these two channels and never venture away.

It's difficult to romance people with only TVOne and TV2 - and while there is the premise (that is premise, not promise) of additional TVNZ programme channels in the future (such as an all-news channel), today not much else exists. You could offer them the Australian ABC (NT) feed also on Optus B1 Vt, but that would require a dish larger than 60cm. With a small dish actuator, or twin LNBfs and an Autosat multi-satellite dish, you could throw in Mediasat on Optus B3 - but at a larger price.

What may be a hidden factor in all of this is a feeling that Sky's growth is contrary to the best of New Zealand's free to air traditions. TVOne and TV2 launched TV in this country, and something like 40% of all homes in the country to this day never - *never* - watch anything but TVOne and TV2. Never. If your customer base includes people in that 40 percentile group, you may find customers are actually delighted to deal with somebody who does not represent Sky. There is a perception - a challenge for Sky's PR folks to correct - that the Rupert Murdoch/INL controlled Sky is an "evil empire" created to put their much loved and faithful TVNZ out of business in New Zealand. TVNZ as an icon has lost some of its lustre in recent years but it remains head and shoulders above the competition.

There is one more aspect to this. Shared dish systems. If only TVNZ's 12.456 is of interest, the L-band equivalent is 1156. If you have two or more receiver locations to service, a BDA-33A amplifier feeding some sort of reradiation system on 1156 L-band could serve 2 or 200 or 2,000 TV sets for very modest costs. How? SatFACTS December 15th.

CLEVER IS as CLEVER DOES



21 dB link gain! Very clever indeed. The brand new SDStv.com R003A integrated Active-Logi antenna + 15 dB gain masthead amplifier is all one piece - superb low-noise performance directly matched and fed by the 6 dB gain Logi. Powering is from your analogue or digital L-band receiver (14 - 18V DC) and mounting is a "snap" using extremely clever European designed all-weather corrosion proof collars that literally "snap" onto a range of commonly available PVC pipe sizes. The entire assembly is weather sealed - simply connect RG6 from receiver to antenna mounted connector and you are on the air!

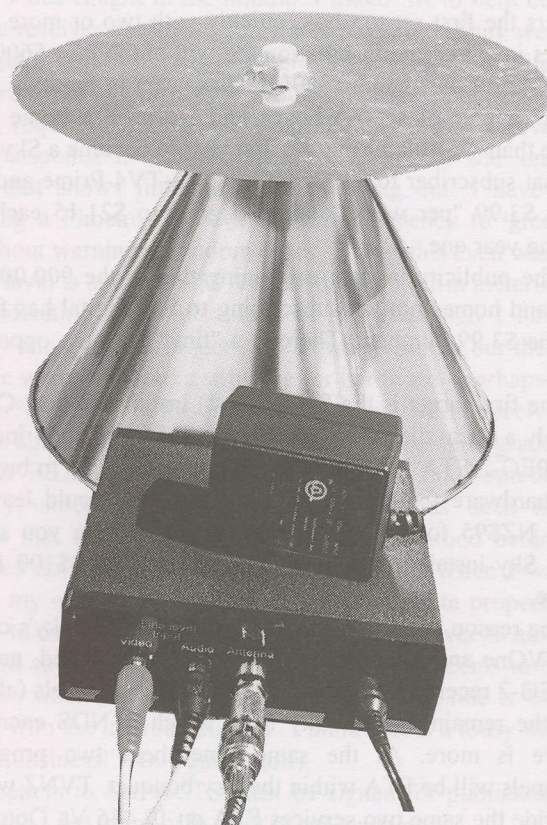
the SDStv.com modulator system

Any video + audio source (from your satellite receiver, VCR, DVD player) connected to the A/V input; the SDStv.com 20 mW (milliwatt) transmitter connects to a suitable transmit antenna (SDStv.com discone omni-directional antenna is shown to right) through standard RG6. Dial up a suitable frequency (*) and you are on the air covering 2 - 4 kilometres LOS (line of sight) with high quality FM video and subcarrier audio! For reception, use SDStv.com L-band Logi or the brand new 21 dB gain "Active-Logi" described here and any L-band analogue receiver(s).

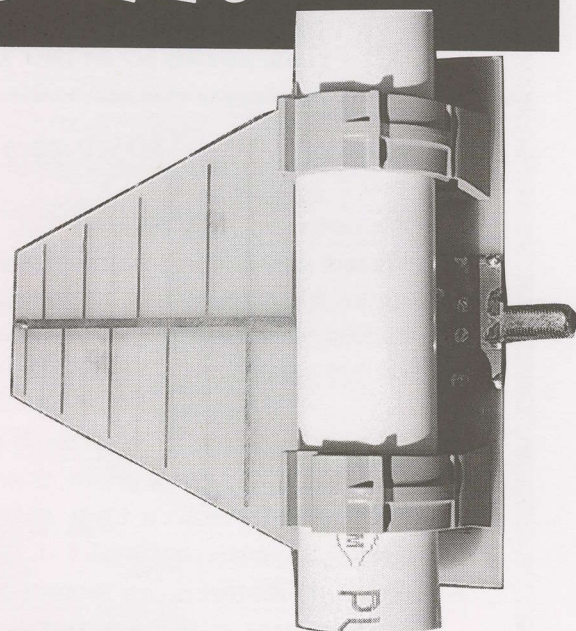
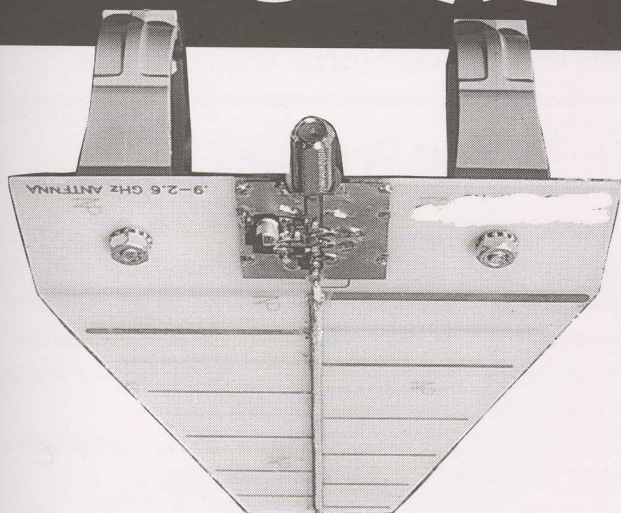
SPECIAL OFFER valid until December 15.

See order form page 34 here.

* 24 user-select frequencies in channel-agile mW 20 transmitter. User is responsible for transmitter licensing if required by local regulation.
(NZ Patent Pending #513814)

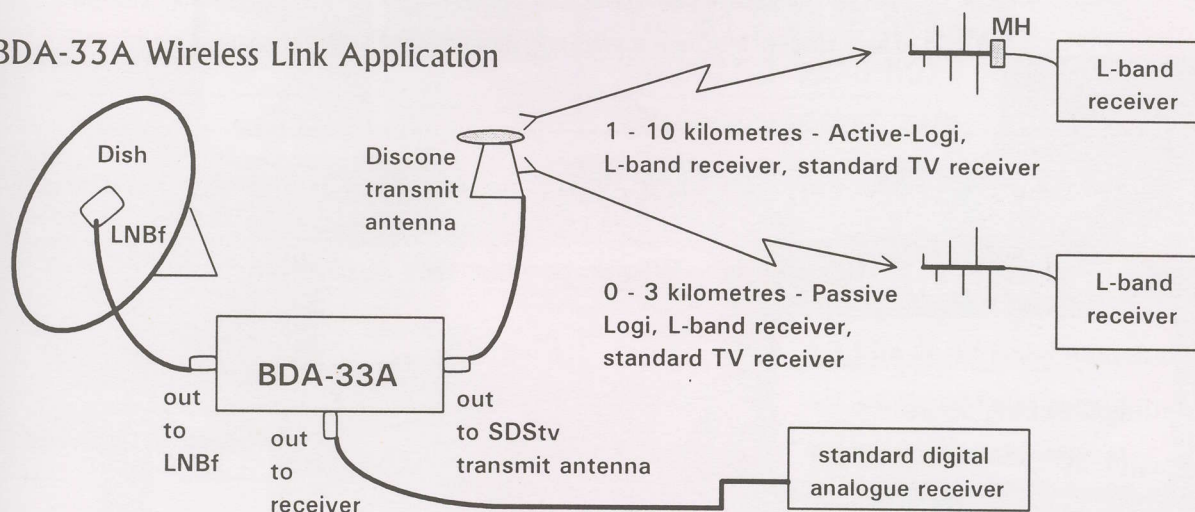


SNAP TO IT!



Click-click. Snap-snap. Unique UV resistant poly plastic mounting "snaps" grab hold of PVC, aluminium or steel antenna mast support and lock-down tight with just gentle thumb and forefinger pressure. No more tools to drop, parts to lose. No more corrosion because the entire assembly is outdoor protected (not shown in photos here - to give you an "inside view" of how it goes together). Best of all, super-low noise (under 2 dB) amplification adding 21 dB (Logi + amplifier) link gain to your SDS system. The easiest, quickest, least expensive way to **suck** signals past walls, over hills, through thick vegetation.

BDA-33A Wireless Link Application



Simple is as simple does. Why battle with cables, inline amplifiers, signal splitters or multiple dishes when one dish and a BDA-33A can serve an entire building, apartment or condominium, even a small community? With virtually no cable. The BDA-33A is a compact weathertight metal container (92mm x 39mm x 32mm) with three female "f" fittings. One connects to RG6 and your LNB(f). The second connects to RG6 and your normal L-band digital or analogue receiver. The third is a "secret weapon"; a +33 dB gain output which connects to RG6 and your SDStv.com "linking antenna." Now - everything the dish + LNBf receives (between 950 & 1450 MHz) will be carried to the linking antenna and sent **through the air** to 1, 10, 100 - any number of air-link connected L-band receivers. With our SDStv.com Passive Logi, reception to 3km. With our Active-Logi, to 10 km LOS. Yes, through walls, dense vegetation, crossing streets and property lines with no wires to install! Each "remote receiver" performs as it would if connected to master-dish (see page 34).

Ye Handee Order Form - SDStv.com Limited

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. Special until December 15 only: Also receive approximate 2 hour version of SDStv.com Melbourne demonstration and teaching session on VHS videotape.
US\$295 + Air Parcel Post/Fed-X charges.
- 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 - 2600 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???

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) or mail to
SDStv.com Ltd, PO Box 30, Mangonui, Far North, New Zealand

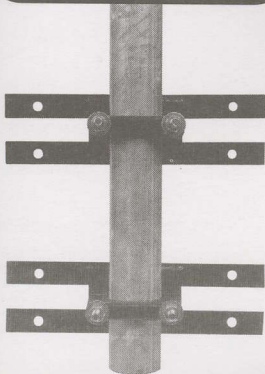
- UNIVERSAL COMPATIBLE TUNER 950-2150 MHz
- LOOP THROUGH TO ANALOGUE RECEIVER
- DiSeqC 1.0 LNB OR POSITIONER CONTROL
- EXTENDED SYMBOL RATE (2-45 Mbps)
- PID FUNCTION FOR VIDEO, AUDIO & PCR
- EPG/ TELETEXT DISPLAY
- TP SEARCH, NETWORK SEARCH AND FTA ONLY FUNCTION
- NTSC TO PAL AUTO CONVERTING
- RF MODULATOR (CH 21-69) PLL CONTROL)
- TV AND RADIO CHANNELS EDIT WITH MOVE, DELETE AND FAVOURITE FUNCTION.
- SOFTWARE UPDATE VIA RS-232 SERIAL DATA PORT.



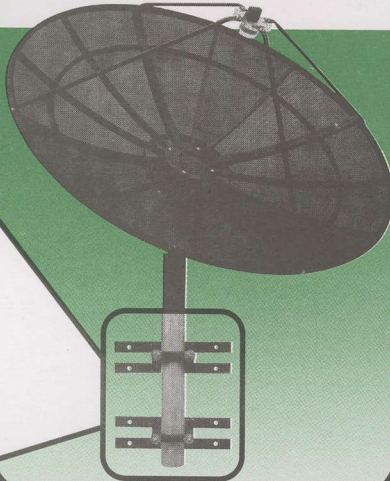
MediaStar
Communications
International
 24 Bosci Road
 Ingleburn NSW
 2565 Australia

Tel: 61 2 9618 5777
 Fax: 61 2 9618 5077
 Opac@bigpond.com

**ALL SUPPLIED WITH
 WALL BRACKETS**



HIGH PERFORMANCE ANTENNA DISH



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

- Software upgradable from home PC
- Latest software FREE on the web
- Channel/Transponder data upload/download to PC
- Embedded Irdeto
- 2 Common Interface slots
- Digital Audio Output
- DiSEqC 1.0 switching
- DiSEqC 1.2 positioning
- 22kHz & 0/12V Switching
- Supports NTSC & PAL
- 4:3 or 16:9 aspect ratio

IRCI-5400



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

F1-ACE



- Software upgradable from home PC
- Latest software FREE on the web
- Channel/Transponder data upload/download to PC
- DiSEqC 1.0 switching
- DiSEqC 1.2 positioning
- 22kHz Switching
- Supports NTSC & PAL
- 4:3 or 16:9 aspect ratio

Trade supplier of quality products:



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