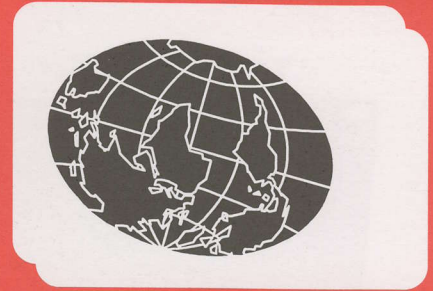


SatFACTS

MONTHLY



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

IN THIS ISSUE

**New Zealand's
New FTA
DTH World**

**High-gain
broadband
amplifiers**

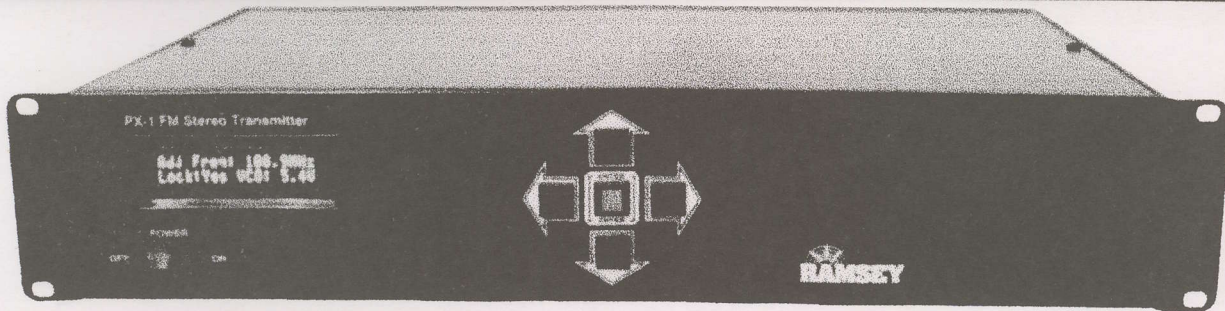
**Radiating
through
"coax slots"**

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

Vol. 8 ♦ No. 88
Price Per Copy:
NZ\$10/A\$11/US\$8

Service Name	Freq	Symb	AB	P	VIDI	AUDI	PMT	PCR	TXT	PMC
TVNZ ONE	12456	22500	3/4	44	V	0206	0290	0029	009A	0582 0549 00FF PAL N
TVNZ TV2	12456	22500	3/4	44	V	0207	0291	002C	009B	0583 0549 00FF PAL N
Trackside / FTV	12671	22500	3/4	44	V	0203	028D	0112	1FFE	0579 0549 01FF PAL N
TV One	12671	22500	3/4	44	V	0204	028E	0118	1FFE	0580 0549 00FF PAL N
TV 2	12671	22500	3/4	44	V	0205	028F	0104	1FFE	0581 0549 00FF PAL N
SBO Movies	12671	22500	3/4	44	V	0200	028A	0100	1FFE	1FFF 0549 01FF PAL N
Playboy	12671	22500	3/4	44	V	0201	028B	0102	1FFE	1FFF 0549 01FF PAL N
Spice	12671	22500	3/4	44	V	0202	028C	0103	1FFE	1FFF 0549 01FF PAL N
SKY MovieMax	12644	22500	3/4	44	V	0200	028A	010E	1FFE	1FFF 0549 01FF PAL N
Nickelodeon	12644	22500	3/4	44	V	0201	028B	0106	1FFE	1FFF 0549 01FF PAL N
TV 3	12644	22500	3/4	44	V	0202	028C	0107	1FFE	0578 0549 01FF PAL N
TV 3	12644	22500	3/4	44	V	0202	028C	0105	1FFE	0578 0549 01FF PAL N
TV 4 / FTV	12644	22500	3/4	44	V	0203	028D	0108	1FFE	1FFF 0549 01FF PAL N
SBO Movies 2	12644	22500	3/4	44	V	0204	028E	0109	1FFE	1FFF 0549 01FF PAL N
Phoenix	12644	22500	3/4	44	V	0205	028F	010A	1FFE	1FFF 0549 01FF PAL N
CTVC	12644	22500	3/4	44	V	0206	0290	010D	1FFE	1FFF 0549 01FF PAL N
SKY Movies	12519	22500	3/4	44	V	0200	028A	0105	1FFE	1FFF 0549 01FF PAL N
Cartoon Network	12519	22500	3/4	44	V	0201	028B	0103	1FFE	1FFF 0549 01FF PAL N
ESPN	12519	22500	3/4	44	V	0203	028D	0102	1FFE	1FFF 0549 01FF PAL N
SKY News	12519	22500	3/4	44	V	0202	028C	0100	1FFE	1FFF 0549 01FF PAL N
J2	12519	22500	3/4	44	V	0204	028E	0101	1FFE	1FFF 0549 01FF PAL N
SKY Box Office	12519	22500	3/4	44	V	0205	028F	0104	1FFE	1FFF 0549 01FF PAL N
KTV	12519	22500	3/4	44	V	0206	0290	010C	1FFE	1FFF 0549 01FF PAL N
Juice TV	12608	22500	3/4	44	V	0202	028C	0104	1FFE	1FFF 0549 01FF PAL N
Discovery	12608	22500	3/4	44	V	0200	028A	0101	1FFE	1FFF 0549 01FF PAL N
Prime	12608	22500	3/4	44	V	0204	028E	0102	1FFE	1FFF 0549 01FF PAL N
Sundance	12608	22500	3/4	44	V	0201	028B	0100	1FFE	1FFF 0549 01FF PAL N
JTV	12608	22500	3/4	44	V	0206	0290	010E	1FFE	1FFF 0549 01FF PAL N
SKY 1	12581	22500	3/4	44	V	0200	028A	0101	1FFE	1FFF 0549 01FF PAL N
Hallmark	12581	22500	3/4	44	V	0204	028E	0102	1FFE	1FFF 0549 01FF PAL N
SKY Sport 2	12581	22500	3/4	44	V	0202	028C	0103	1FFE	1FFF 0549 01FF PAL N
Animal Planet	12581	22500	3/4	44	V	0201	028B	0104	1FFE	1FFF 0549 01FF PAL N
CNN	12581	22500	3/4	44	V	0203	028D	0105	1FFE	1FFF 0549 01FF PAL N
VCR SCART Input	12671	22500	3/4	44	V	1FFF	1FFF	0117	1FFF	1FFF 0549 01FF PAL N
TAB	12671	22500	3/4	44	V	1FFF	0297	0113	1FFE	1FFF 0549 01FF PAL N
Weather	12519	22500	3/4	44	V	0205	028F	0106	1FFE	1FFF 0549 01FF PAL N
SDM: House	12519	22500	3/4	44	V	1FFF	0295	010E	1FFE	1FFF 0549 01FF PAL N
SKY Sport Extra	12608	22500	3/4	44	V	0203	028D	0106	1FFE	1FFF 0549 01FF PAL N
SDM: 50's & 60's	12519	22500	3/4	44	V	1FFF	0296	010D	1FFE	1FFF 0549 01FF PAL N
SDM: Disco	12519	22500	3/4	44	V	1FFF	029A	0112	1FFE	1FFF 0549 01FF PAL N
SDM: Smooth	12608	22500	3/4	44	V	1FFF	0295	0111	1FFE	1FFF 0549 01FF PAL N
SDM: Chill	12608	22500	3/4	44	V	1FFF	0296	0112	1FFE	1FFF 0549 01FF PAL N
SDM: Jazz	12608	22500	3/4	44	V	1FFF	029A	0110	1FFE	1FFF 0549 01FF PAL N
SDM: Chart Attack	12581	22500	3/4	44	V	1FFF	0298	010E	1FFE	1FFF 0549 01FF PAL N

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.

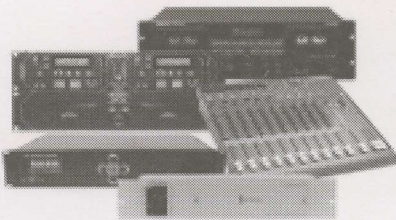
- Set-up and use is fast and simple with just 5 buttons to access all parameters - power, frequency, modulation, and more.
- Built-in stereo generator - no need for a separate encoder. Of course you can also broadcast in Mono.
- Built in Automatic Gain Control (AGC) gently "rides the peaks" and smoothes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

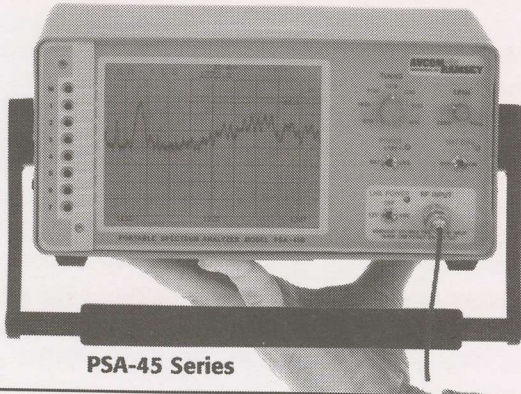
Your ONE-STOP Source for Community FM Broadcast Equipment!

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

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!

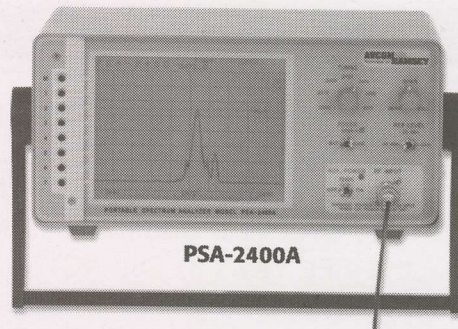
PSA-45A \$2,060.00

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

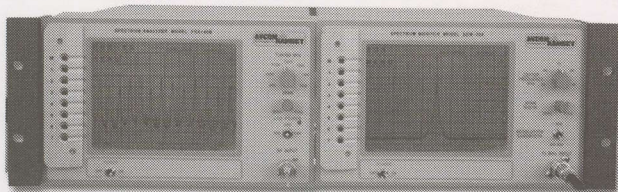
PSA-2400A \$2,775.00



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

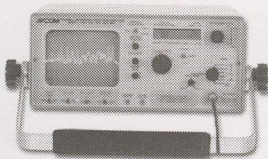
SDM-42BR \$1,860.00

SDM-70A \$1,595.00

SDM-70AR \$1,860.00

Check out our other Portable Satellite Test Equipment!

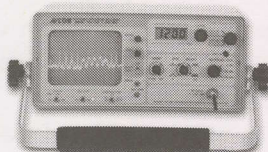
PSA-39A



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

PSA-39A \$2,845.00

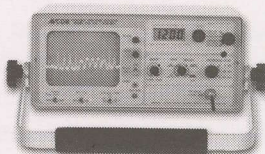
PSA-37D



- 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

THE 2002 SATELLITE EXPLOSION IN THE PACIFIC/ASIA!

New satellites coming! Stay tuned with SatFACTS!

- ENTER my 12 MONTH subscription to SatFACTS starting with January 15th issue (rates below)
 ENTER my 36 MONTH subscription to SatFACTS starting with January 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: Skyskying@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\$75 p/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

Our June 1998 issue reported in considerable depth on the "death" of Australian pioneer satellite pay-TV operator Galaxy. There is a better than 50% chance we will be doing the same thing - about Austar - in January or February.

Nothing about Austar appearing in the news is good. First they ran out of funds to keep up their share of the TelstraSaturn fibre + coax + DTH buildout in New Zealand, leaving Telstra holding the bag. And New Zealand without their much anticipated FTA + pay-TV satellite service in partnership with TVNZ. More recently, they announced that if they could not navigate through lender requirements to obtain an additional A\$409 million by Christmas, their chances for survival were someplace between 0 and a minus number. Most recently, they gave end-of-employment notices to 400 of 1,200 employees and next advised the remainder that everyone "other than a skeleton staff" would be given a three week holiday without pay from Christmas onward. That some of these 7-800 placed on forced leave will never return is a given.

Austar's parent firm, USA-based UnitedGlobalCom, is having significant problems of their own. As CTD reported December 5, UGC has notified the US Securities & Exchange Commission (the watchdog for public traded stocks and bonds) it will, "be unable to make a scheduled A\$66 million loan-interest payment." Immediately, ratings agency Standard & Poors downgraded the UGC notes to a "D" rating - barely better than junk bonds.

Galaxy went out of business because it was unable to get income up to a level that would pay current operating expenses. Austar managed to spend A\$93 million more than it took in for the year-quarter ending September 30th. Presently it is losing A\$50 million every 3 months and has been making up that shortfall with funds borrowed from (USA's) Citibank, JP Morgan and (Canada's) Dominion Bank.

Satellite pay-TV is a very cash-consuming business to launch. Firms such as Austar (Sky NZ, BSKyB) believe they must pay for IRDs, antennas, LNBf parts to attract subscribers. So to convince someone to spend A\$50 a month with them, they spend A\$500 or more to make the home installation. Unfortunately, out of that A\$50 must come their cost of operation (the 1,200 people Austar employed before mid-December), the programming, the satellite space and so on. So in fact out of A\$50 there might be - in theory - A\$5 left over each month to repay the money they borrowed to buy the IRD, antenna, LNBf provided to the customer. But there are unpredictable variations in that \$50 a month and how it is spent. For example, most of the programming comes from the USA and today \$1 USA equals A\$0.51. Programming contracts for sport, movies, Discovery (to name only 3 categories) were done in US dollars at a time when A\$0.80 equalled one US dollar. So while Austar subscriber rates are "frozen", Austar's cost of programming has risen by as much as 60%. *Ouch.*

Moreover, Austar experienced flat growth for the first 9 months of the year. Approximately 30% of the homes that were subscribing one year ago do not today (that is called "churn" in the pay-TV biz) and there have been just enough new subscribers to replace 1 for 1 those who have quit. But for all of those that quit - a satellite dish, LNBf, cabling and parts are left behind because it costs more to go after them than to simply leave them in place.

Pay TV firms such as Austar (and Foxtel and Sky NZ) keep promising that, "in another (year) (two-years) we will catch up, we won't be spending \$500 to get new subscribers, we'll be able to break even and then someday make money." Only it has not happened



December 15, 2001

In Volume 8 ♦ Number 88

New Zealand gets first taste of FTA DTH -p. 6

Tilt and crossmod in broadband, high output amplifiers -p. 14

What happens when you cut a "slot" in coaxial cable? -p. 20

Bandscan: PanAmSat PAS-2 -p. 26

Departments

Programmer/Programming Update -p.2; Hardware/Equipment Update -p. 4; SDStv.com Tech Notes -p. 20; SatFACTS Digital Watch -p. 22; Supplemental Digital Data -p. 26; BANDSCAN: PanAmSat PAS-2 169E -p. 26; SPACE Pacific Report - TV Show schedule -p. 26; With The Observers -p. 28; At Sign-Off (On the trail of teletext) -p. 31

-ON THE COVER-

A Nokia "log-scan" of the Optus B1 vertical transponders now bringing FTA + pay-TV to New Zealand (p. 29).



MMBN?

"Your November edition carried an update on MMBN and leaving Palapa C2M. It is not clear to me whether this service continues on C2M or is only available on ST-1 (88E). I live in Cairns, have a 3.5m dish, and receive Palapa C2M around to As2 quite well but cannot receive PAS2 because I live in a forest and there is too much tree cover in that direction. The report stated BBC World was now on MMBN and that is my reason for asking!"

Quentin Reilly, Cairns, Queensland

MMBN themselves advised (cable) affiliates they were leaving C2M and would henceforth only be available on ST-1. A few guys with big dishes (Darwin, Bangkok) found them operating at greatly reduced power on C2M 3580Hz later in November but a cable affiliate reader in PNG with a 3.5m says he cannot detect that signal there. In any event, their two (movie) channels seem not to be operating - that seems to be a unanimous report. If your reception stops at C2M, that is you cannot get to As2 and As3S, your chances with ST-1 at 88E which at best sends very little signal south (or east) would not be good.

SDStv interference?

"The details on www.sdstv.com seems like a potential interference source for SSR/PSR radar and DME utilised by all modern airports. Is there an interference risk?"

John Meyer, Wellington Facilities Manager
Airways Corporation of New Zealand Limited

We wondered about that as well and took a set of SDStv gear to a major (not Wellington) airport on November 20th for some tests under the direction of airport technical personnel. We found no signs of interference to any of their radar or other installations when operating on 1250 and 1270 MHz - but beyond that did not venture into the 950-1200 MHz region.

Such testing is ongoing and we will have detailed reports when more study has been completed. For a different approach, see p. 20 here.

Regarding new Sky TV software

"On a Zenith model IRD, the newly loaded software runs verrrry slowly compared to the upgrade before OpenTV was added. Of interest - the "main" (original) weather channel refuses to play - it is not just moved - but has been replaced with what Sky is calling 'Interactive Weather'. Now it takes additional key strokes to find the (weather) information you want. The first time I used it, locked up and required a power-down to reset. People are going to have to learn that entering too many keystrokes in too short a time is dangerous and learn to be patient!"

SM, New Zealand

Sky is to be commended for their innovation but not congratulated for being forced into what may turn out to be premature "interactivity" by what amounts to public opinion originating from their stockholders. The full and complete Sky NZ line-up as of 8 December appears on pages 29 and 30 in this issue.

PROGRAMMER
PROGRAMMING
PROMOTION

UPDATE

DECEMBER 15, 2001

They who will scramble. Announcements during Hong Kong CASBAA show included following "encryption plans:" (1) **Tech TV** (As3S 3760Hz) plans February 1 (earliest) 2002 date, receiver is SA D9223-803-376 (last numbers are software version), available through Email joy.mcnee@sciatl.com. Cable fee to be US\$0.10 per sub per month. (Karen Kaufman Perlman, fax + +1-415-355-4055; Email karenperlman@techtvcorp.com) (2) **Fashion TV** (As2 3795Vt) had previously announced 1 December, now 15 December using Viaccess. Cable rate is US\$0.10 per sub per month, you provide Viaccess compatible IRD, they send you a card. (Manivel Malone, fax + +33 1 4501 2097, Email manivel@ftv.com; a source for compatible receivers suggested by Manivel Malone is Hualin Pty Ltd in Homebush, NSW at Email hualin@optushome.com.au.) (3) **MTV** on PAS-8 (3740Hz) plans February 01, US\$0.23 per home sub and US\$0.55 per hotel room per month - using a Philips IRD which suggests Viaccess. The present PAS-8 bouquet includes a Korean and a Filipino targeted service, this will add an English language service by 1 February. And by the way, MTV on Palapa C2M (analogue 4120Hz) has no plans to encrypt but they will increase Indonesian music content from 10% (present) to 40% on 1 February and then gradually to 60%. Isn't that a form of encryption? (Christopher James, fax + +65 221-5567, e-mail jamesc@mtv-asia.com)

Those who would go to trade shows. Hong Kong's CASBAA had no hardware trade booth exhibitors - *none*. And the high profile programming outfits usually with money to burn opted to take hotel suites, setting up private meetings with potential cable and other affiliates in coffee shops. Maybe Melbourne was not such a disaster as we have painted!

Reports Taiwan MMBN, which moved to ST-1 (88E) late in October from wider reach C2M, had reappeared on 3580Hz C2M not verified. Observers with quality dishes and equipment as close to footprint as PNG report no sign of the service there although reports from Darwin area and Thailand persist that C2M does have a MMBN signal on this frequency - approximately 30% as strong as other C2M services. Meanwhile, Taiwan offices of MMBN continue to ignore requests for information concerning their future availability and Mega TV and Scholar TV (movie channels) which may be missing - even on ST-1.

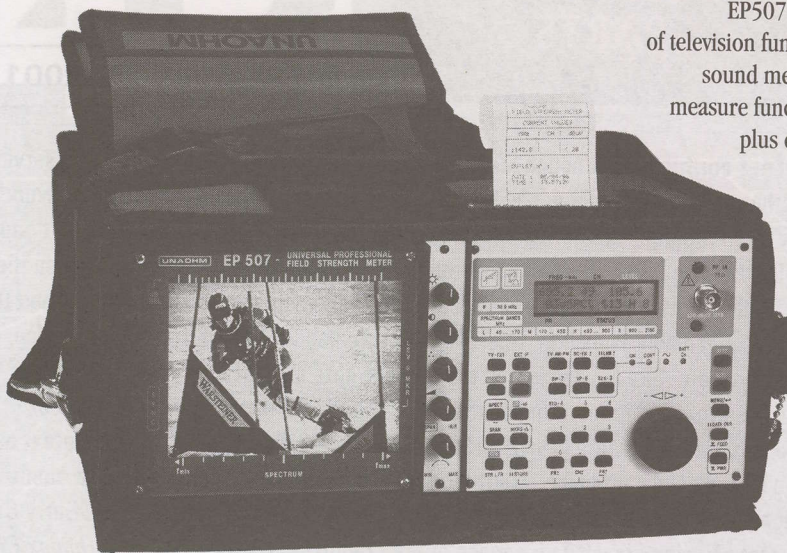
Echoes of failure? The press is filled with reports forecasting the demise of Austar unless they are (against considerable odds) able to arrange a new A\$400 million bank line of credit "*before Christmas*." Nor will it be "happy holidays" for an estimated 400 employees who have been permanently terminated or for another 6-800 who are being told they must take a 3 week holiday without pay. But the most cunning double-play has to be the *warped mind* in Austar sales who created promotional letters mailed to tens of thousands of potential subscribers in early December, headlined with the following phrase in bold print:

"There's never been a better time to get switched on to the galaxy of stars on AUSTAR."

Galaxy of stars? Galaxy? Good grief - *how soon they forget* (May 1998)!!!

Chaos? When Galaxy went out of business in mid-May 1998, chaos followed. Thousands of Pace DGT400 IRDs "disappeared" to resurface at boot sales and Sunday swap meets. Piracy cults grabbed the smart cards and promptly made them dumb creating a mess Austar and Foxtel have never cleaned up. Austar has 434,000 subscribers and every one of them will be a target for future boot sale and swap meet sellers. Our prediction? If Austar folds, it will be very-very messy.

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.

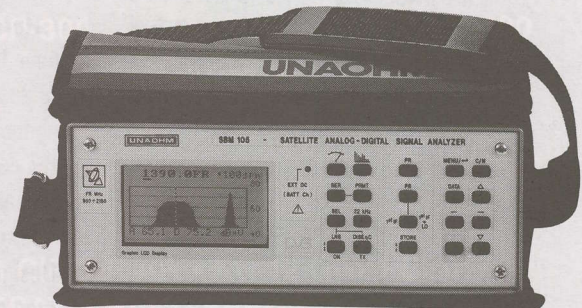
EP 319 level and Spectrum measurements feature high accuracy and selectable Resolution Bandwidths of 100kHz, 1.5MHz and 4MHz to provide real time spectrum displays of signals from TV stereo audio and colour sub-carriers to SCPC satellite signals. 5-40MHz is included, with Analogue and Digital data logging. 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

UNAOHM

Another quality product from

Lacey's
Australia

WRN in Wellington?

"We are exploring the possibility of taking World Radio Network programming off of satellite to use in our 'All-Nighter' segment (12 midnight to 5AM). However, the published footprint suggests Wellington is on the wrong side of their coverage contour by perhaps 100km. We understand Far North Cable TV carries WRN and are wondering whether your feed is reliable and if we devised a way to link between Far North and Wellington, could you provide WRN to us for broadcast?"

Kevin Oliff, Station Manager, 783AM Access Radio Wellington, NZ

World Radio Network is one of the best kept resource secrets on satellite. Terrestrial broadcast stations pay no fees to use the service which is all-English 24 hours.

More than a dozen national broadcasters (including Radio Australia) have their best programmes distributed by WRN satellite and major broadcasters such as Canada's CBC routinely do exactly what you plan - carry segments of the broadcast day 'overnight'. Far North Cable's carriage of WRN is 24 hours, 7 days. Our AsiaSat 2 look angle is 5.53 degrees which is certainly close to the horizon, but better than Wellington's 3.35 degrees. Any signals that close to the horizon require obstruction free 'looks' at the satellite and you will lose perhaps 1 hour per month on a 3m dish here because of low angle signal absorption - one answer to which would be to use a larger dish to better protect against absorption outages. We suggest you contact Wellington's satellite 'guru' Nigel Clough (04) 293 2058 for technical advice on this one.

Reverse raw BER

"Reference the SatFACTS review of our Horizons HDSM meter (November SF, p. 9). Our 'Q' reading (for quality) is in fact a reverse reading of BER - that is, a 'Q' of 97% is the same as an error of 3% and so on. Your comments neglected to mention how we derive 'Q' and I think it important that the record be straight on this feature."

Patrik Lagerstedt, Skinka Electronics Ltd, UK

In fact we did not know how the 'Q' was created or how it related to BER - thanks for the advisory.

Industry may be losing a good friend

"You perhaps are not aware that I have left MediaSat and the operation is now being run by Mr Mike Lattin. I am now with NTL working on a new venture which is not necessarily satellite related but is very exciting none the less."

Paul Mullen

Paul while launching MediaSat readily agreed to placing the SPACE Report TV programme on the air twice each Sunday. Hundreds, nay, thousands of satellite installers and enthusiasts have been introduced to the world of 'formal' satellite technology through this weekly show and we are indebted to Paul for his faith in our educational programme and supporting us with this endeavour.

Bit-mapping

"A text based subtitle system requires a choice of 256 characters (0-255) and as in binary only a few (8) binary bits. But using bit-mapping to produce each character requires much more information, essentially a drawing of each character. No wonder bit mapping is not widely used!"

IF, Queensland

HARDWARE EQUIPMENT PARTS

UPDATE

DECEMBER 15, 2001

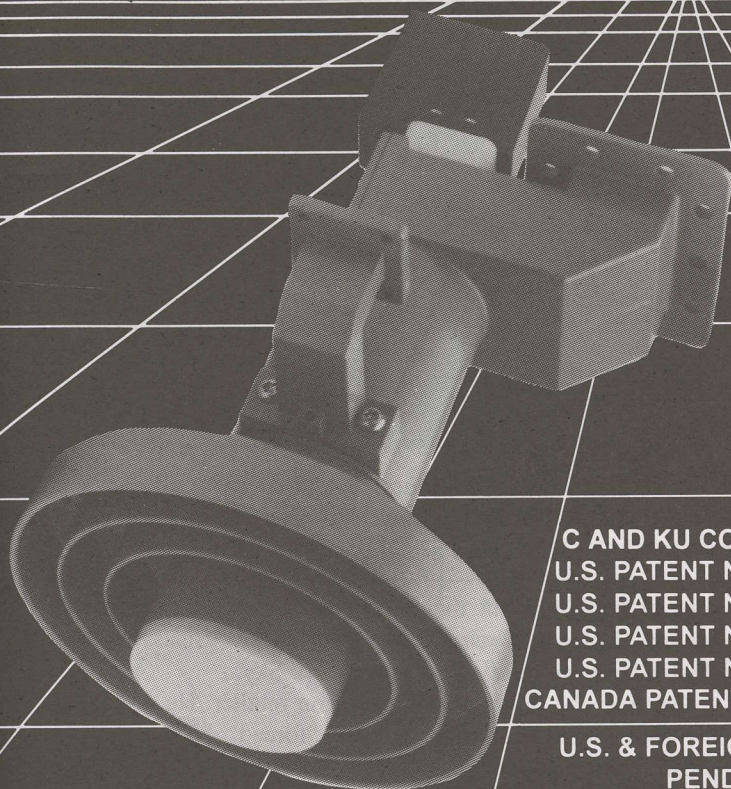
Text confusion. Although French TV5 service has been carrying teletext service within the AsiaSat 2 European bouquet, and ABC on Aurora has done some work with "subtitling", most of us have never really experienced a need for a "text capable IRD." Network 7 (Australia) pioneered both information-teletext and closed-caption subtitling in Australia and their success is largely responsible for text-on-screen there. With 1 December launch of Television New Zealand's 12.456 free to air service, a new concern. Sky NZ eliminates the teletext data stream for TVOne, TV2, TV3 because to leave it operating costs them around 500 Kbit/s per TV channel of transponder bandwidth. TVNZ on their FTA 12.456 Optus B1 provides teletext as well as "closed captioning" (subtitling for the hearing impaired). But what about receivers? Not all "teletext capable" IRDs may in fact be teletext ready. Garry Cratt in testing using French TV5 service on As2 reports, "*You can eliminate Humax F1 ACE, 5400Z, 5410, Nextwave from consideration.*" To which we add, "*and the Xanadu*". Others tuning in TVNZ's new 12.456 service report the SatCruiser 101EM RF output contains teletext (on user chosen UHF channel). Several report Nokia 9500S does just fine with teletext and using page 800, captions for the hearing impaired. Peter Eade reports his Mitsubishi CT-25GB1 reads TVNZ text, "*without any problems,*" through a Techsan IRD. TVNZ testing done by their technical staff reveals the Zinwell ZDX-7100 and, "*the latest model from Pacific Satellite*" (Queensland) pass teletext properly. All of this says before you settle on a supplier for TVNZ FTA receivers, make very sure the IRD processes teletext and "closed captions" as well. And if you want to be *really* confused, turn to p. 31 here!

Teletext 2. There are at least three teletext formats in use with Aurora and on satellite for Australia. The "cleanest" closed captions are reportedly found on Optus B1, 12.354Hz, the Central 7 feed. On Aurora, one version displays a line at a time and then without clearing that line overwrites a second (third, etc.) line so you have a disorganised jumble of letters and words. Another version, that works better with the UEC 700 than the 642, displays a line at a time, clears itself, but may be as much as 30 seconds behind the spoken word coming out of the speaker on ABC channels. Imparja and 7 Central generally have functional closed captions and are to be commended for the effort. But when all is said and done, teletext on satellite in Australia has not been a commercial success to date - all of this contrary to the original Optus screw-up with approving any IRD other than the UEC because it was insisting that approved receivers must handle teletext. In fact, Optus itself seems unable to create teletext in a commercially satisfactory manner.

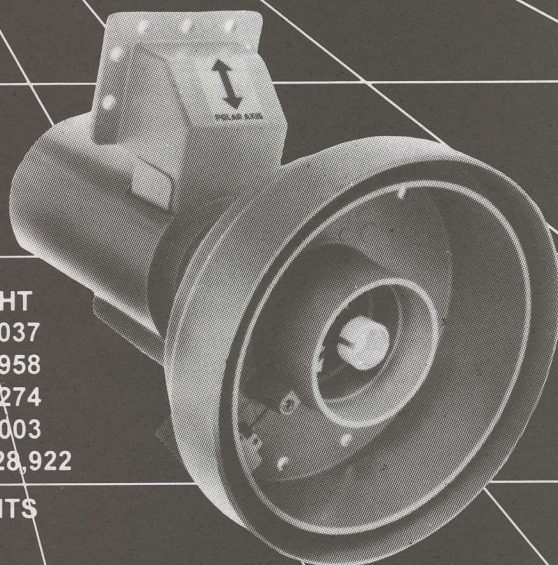
Hard work if you can get it. Many complaints that Optus's Aurora approval lines have become almost impossible to access. Installers are saying after driving 200 km to do an (Aurora) install, when they phone in for card turn on, nobody answers the phone and a message advises them to send a fax! On site, they can hardly leave until the customer has a working system and doing a 400km return round trip when Optus is ready to acknowledge their call is a bad second choice. Things are no better at Telstra where 570 technicians are being / have just been dismissed from the Network Design and Construction (NDC) arm of the company. Telstra defends the job cuts as a step towards "privatisation" and also claims, "*a downturn in the telecommunications industry*" is at fault. The reality is by eliminating jobs, cutting overhead, "shareholder returns" are boosted. Which looks great on the annual statement but hardly pleases customers who have to wait days or weeks for a technician to repair a faulty line.

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

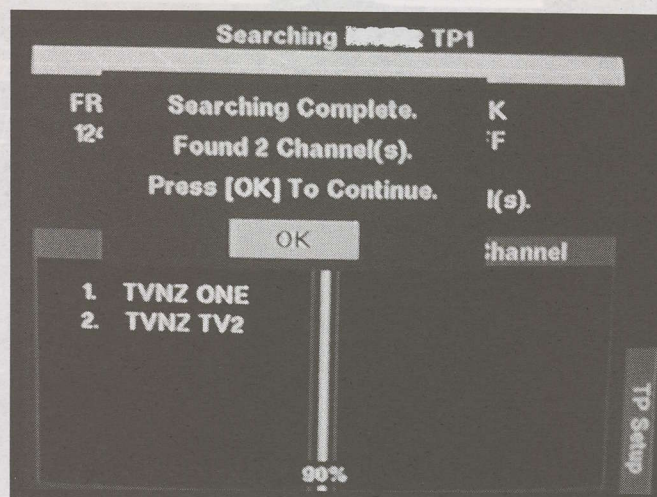
LAUNCHING A (almost) FTA DTH business in New Zealand

Paying "money" for FTA

The concept that viewers will (must) pay money to watch television has attracted approximately 33% of all New Zealand homes to the satellite digital or terrestrial analogue pay-TV services of Sky (Network) NZ. There is no similar national service elsewhere in the world and on a percentage of homes reached analysis, Sky has no peers. It is the very best at what it does bar none.

Until 1 December, Sky lacked only the TVOne and TV2 government operated (State Owned Enterprise or SOE) channels to be a "complete" service. Now they too are a part of the "Sky package" and New Zealand through a side door left unguarded by a government preoccupied with rewriting the rules of social intercourse is well on its way to becoming the first country in the world to abandon terrestrial analogue TV transmissions in favour of all-satellite, all-digital to every home.

Sky's method of operation leaves little to business "chance." Every aspect of promoting, installing and operating the digital service is central office dominated. Installations are sold primarily by direct telephone solicitations which may actually contact *every* home in the country as frequently as twice each year. Installations are farmed out at a rate guaranteed to keep installers in line and loyal - if financially strifed. Equipment used for installations is purchased in lots of 25,000 and up by shopping constantly on the world markets for LNBf, antenna and hardware pieces which are a few cents less costly than the last round acquired. Piracy, the bane of Australian satellite services (recent estimates say up to 10% of Australian viewers of Austar and Foxtel may not be paying monthly fees) has been held in check through a network of bounty-paid "informers" who quickly report suspected piracy sources to Sky's legal staff. And potential competition, such as the aborted TelstraSaturn planned digital satellite package, has a



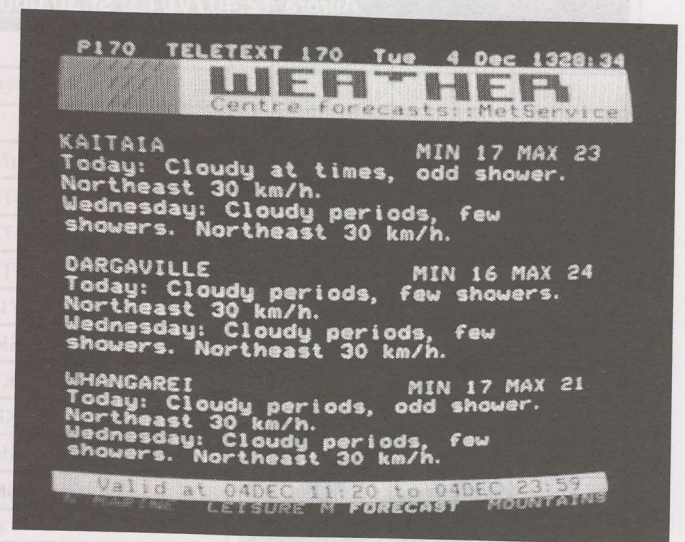
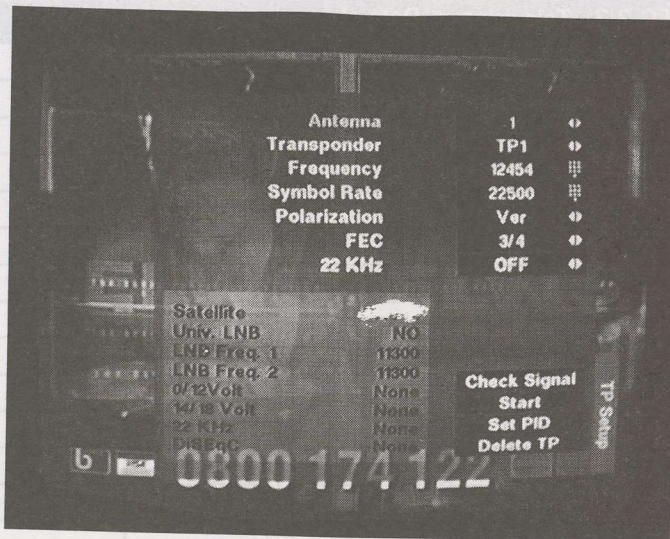
Punch in the numbers (12.456 vertical), Sr 22.500, FEC 3/4 and ask the receiver to load. Up pops TVOne and TV2, FTA MPEG-2.

way of ending up in the trash heap before it gets off the ground. In short, if you want to do "satellite business" in New Zealand, you do it following the rules of Sky.

Consider the plight of the television retailer. He distributes his name-brand television sets, is "forced" by competitive pressures to show-off Sky's pay-TV service in his show room, but collects virtually nothing for being a promotion spot for Sky. A handful of name-brands have packaged Sky subscription packages with the sale of new TV sets but Sky has managed to avoid the UK scenario where BSkyB digital is actually sold and promoted by retailers of TV sets almost to the exclusion of all other promotion techniques. In the UK, a retailer of TVs sells the consumer on having BSkyB, passes the "order" onto BSkyB and collects a sales commission check

It's all about pixels. TVOne through Sky's DTH service (left, below) has 544 x 576 pixels while TVOne through the TVNZ 12.456 bouquet (right, below) has higher definition 720 x 576 pixel count. (No, you cannot "see" that enhancement here because of the relatively low quality 14" TV set for this display. But on a high-end set, or 100 hertz line doubling, it is a significant improvement.)






And - it is all about teletext. TVOne (and TV2 and TV3 and TV4) may load "TXT" PIDs on receiver but alas there is no teletext data stream present within the Sky NZ bouquet (left, above). On the 12.456 bouquet, TVOne and TV2 both display high quality teletext. It's all about bandwidth usage.


for each customer turned in who keeps the service for a minimum of one year. BSkyB in turn schedules the installation by the nearest contract installer and everyone makes a dollar.

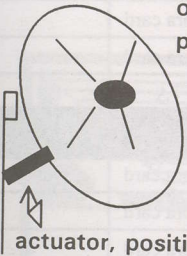
In New Zealand, if you are not a member of the Sky installation contract group, you are not allowed to handle any aspect of the installation. By controlling the flow of equipment, the promotion, and the programming, Sky has been

able to build a uniquely successful "brand loyalty" in New Zealand.

Television New Zealand, the operator of TVOne and TV2, with the assistance of TelstraSaturn, planned to challenge that domination. TVNZ worried that if Sky continued to grow without any effective competition, the country would end up turning over essentially all aspects of TV to Sky. TVNZ was

 <p>60/65 cm offset fixed on B1 Vt</p>	<p>Suitable Receiver Any MPEG-2 DVB compliant receiver with teletext support</p>	<p><u>What your customers will receive</u></p> <p>Optus B1 (Vertical Polarity - TV) - 12.456: TVNZ TVOne, TV2 + possible Prime TV sometime in 2002; 12.671: Sky TV TVNZ FTA channels (same as 12.456 but lower video resolution and no teletext); 12.706/733: TelstraSaturn occasional FTA</p>
---	--	---

 <p>90 cm offset fixed on B3 Vt</p> <p>actuator, positioner optional - see text</p>	<p>Suitable Receiver</p> <ol style="list-style-type: none"> 1) eMTEch eM200B 2) Strong 4870, 4890 3) IRCI5400Z, 5410 if teletext capable <p>...</p> <p>* / plus Aurora smart card</p> <p>** / plus ZeeLink smart card</p>	<p><u>What your customers will receive</u></p> <p>Optus B3 (Vertical polarity - TV) - 12.336: (Mediasat) Tzu Chi TV, Maharishi Open University Asia, Thai TV Global Network, TRT International (Turkey) + TRT FM and Voice of Turkey radio, frequent sport and news "feeds"; 12.407: ABC National/* (subtitled), occ. Optus Business TV/*; 12.532: SBS SE/*, SBS WA/*, ZeeLink - 4 channels/**; 12.657: Optus tests</p> <p>Optus B3 (Vertical Polarity - radio) - 12.407: SMA (7) radio services/*, QTAB Radio/*, RPH/*a, BBC Radio/*, UCB Vision FM/*, Radio Italia/*; 12.532: SBS SE/*, SBS NT/*, SBS WA/*, Tamil Radio (trial)</p> <p>/*a Aurora smart card + individual approval; see table p. 8.</p>
--	--	---

 <p>1.2 - 1.5m offset or prime focus dish</p> <p>actuator, positioner</p>	<p>Suitable Receiver</p> <ol style="list-style-type: none"> 1) eMTEch EM200B, eMTEch 210 2) Strong 4870, 4890 + positioner 3) IRCI5400Z, 5410 + positioner - if teletext capable. <p>* / Aurora smart card;</p> <p>** / ZeeLink smart card</p>	<p><u>What your customer will receive</u></p> <p>Optus B1 (Vertical polarity) - ABC NT (12.260); TVNZ TVOne, TV2 (12.456); Sky TV TVNZ FTA channels(12.671); TelstraSaturn occasional FTA.(12.706/733)</p> <p>Optus B3 (Vertical polarity-TV) - 12.336: All 6 TV, 2 radio above (90 cm) 12.407: ABC National/* (subtitled), occ. Optus Business TV/*; 12.532: SBS SE/*, SBS WA/*, ZeeLink - 4 channels/**; 12.657: Optus tests.</p> <p>Optus B3 (Vertical polarity-radio)- 12.407: SMA (7) radio srvcies/*, QTAB Radio/*, RPH/*a, BBC Radio/*, UCB Vision FM/*, Radio Italia/*; 12.532: SBS SE/*, SBS NT/*, SBS WA/*, Tamil Radio (trial).</p>
--	---	---

Aurora 12.407Vt/T3, Sr 30.000, FEC 2/3 - Television + Data channels

Ch. #	NZ #	Aust #	Channel Label	FTA/CA	Comment
1	1	1	TUNE AURORA- line-up	FTA	test card
2	2	2	(not in current use)	FTA	
3	3	3	ABC NAT (National) (subtitled)/ - 2 hours NZ	Aurora card	(Sydney)
4	4	4	BTV1 Optus Business TV	CA; occ A/C	some FTA
5	5	5	BTV2 Optus Business TV	CA; occ A/C	some FTA
6	6	6	BTV3 Optus Business TV	CA; occ. A/C	some FTA
7	7	7	SKY1 (racing service for TABs)	CA	Aust Sky TV
8	8	8	SKY2 (NSW TAB radio)	CA	"
9	9	9	SKY3 (Victoria TAB data)	CA	"
10	10	10	SKY 4 (WA TAB radio)	CA	"
11	11	11	SKY 5 (Sat Comm links)	CA	"
12	12	12	SKY 6 (NSW TAB data)	CA	"
13 - 20	13 - 20	13 - 20	(not currently in use)		

Aurora 12.532Vt/T5, Sr 30.000, FEC 2/3 - Television + Data channels

1	21	46	SBS SE (SBS South East / - 2 hours NZ)	Aurora card	(Sydney)
2	22	47	(not currently in use)		
3	23	48	SBS WA (SBS Western Australia / -5 hours NZ)	Aurora card	(WA time)
4	24	49	(not currently in use)		
5	25	50	ZeeLink 1 (Zee TV / Zee News; contact Australia 133036)	Zee card	NZ subs avail
6	26	51	ZeeLink 2 (Zee Cinema / Zee News)	Zee card	"
7	27	52	(was ZeeLink 3 - Zee Music until 01-12-01)		
8	28	53	ZeeLink 4 (Sony Entertainment Television)	Zee card	"
9	29	54	(was ZeeLink 5 - Alpha Punjabi until 01-12-01)		
10	30	55	ZeeLink 6 (Prakasham Tamil TV Service (contact 61-2-9747-2792)	Zee card	"
11 - 16	31 - 36	56 - 61	(not currently in use)		

Aurora 12.657Vt/T7, Sr 30.000, FEC 2/3 - Television + Data channels

1	37	62	Ch 62 (Optus test card or no transmission - no current service)	FTA	
?	?	?	(believed to include Optus Internet on this transponder)		

Aurora 12.407Vt/T3, Sr 30.000, FEC 2/3 - Radio Channels

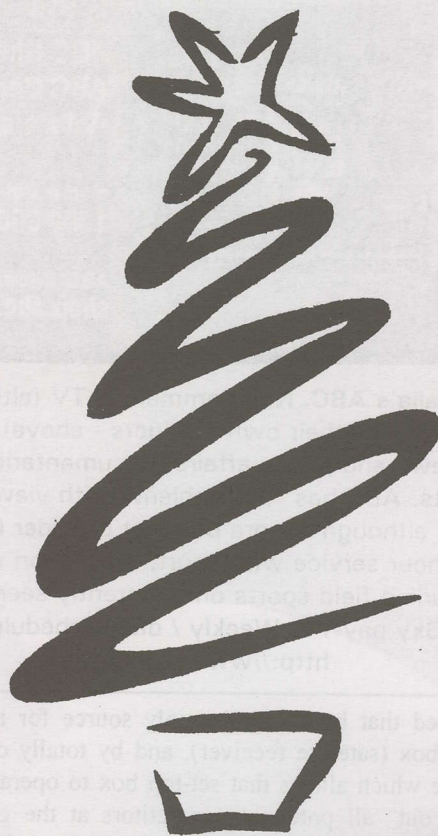
1	1	1	R1 SMA Contemporary (radio)	Aurora card	
2	2	2	R2 SMA Aria 100 (radio)	Aurora card	
3	3	3	R3 SMA Cool Vibes (radio)	Aurora card	
4	4	4	R4 SMA Classic Gold (radio)	Aurora card	
5	5	5	R5 SMA Country Beat (radio)	Aurora card	
6	6	6	R6 SMA High Energy (radio)	Aurora card	
7	7	7	R7 SMA Rock Radio	Aurora card	
8	8	8	SMA BUS1 (Woolworths background music, promotions)	CA	feed only
9	9	9	SMA BUS2 (SMA - BO2 radio)	CA	feed only
10	10	10	QTAB Radio (Queensland TAB radio service)	Aurora card	
11	11	11	NIRS (National Indigenous Radio Service)(61-7-3252 4511)	unknown	requirements
12	12	12	RPH (Radio for Print Handicapped) (61-2-9310 2999)	unknown	requirements
13	13	13	BBC (World Radio Service) (contact ius 61-2-9955 4092)	Aurora card	
14	14	14	CBAA (Community Broadcasting Assn Aust) (61-2-9310 2999)	CA	feed only
15 - 16	15 - 16	15 - 16	(not currently in use)		
17	17	17	SMA BUS3 (Big W Radio)	CA	feed only
18	18	18	UCB VISION FM (Christian radio) (contact 1800 068 204)	Aurora card	
19	19	19	SMA ITA (Radio Italia)	Aurora card	
20	20	20	REF TONE (Aurora Audio Reference -14 dBfs/1000Hz dual mono)	FTA	

Aurora 12.532Vt/T5, Sr 30.000, FEC 2/3 - Radio Channels

1	21	64	SBS R SE (SBS radio south east)	Aurora card	(Sydney)
2	22	65	SBS R NT (SBS radio Northern Territory)	Aurora card	
3	23	66	SBS R WA (SBS radio Western Australia)	Aurora card	
4	24	67	Tamil Radio (trial service - may not be permanent)	FTA	
5	25	68	SMA R FM (Rhythm FM)	CA	feed only

Look what
we have
under our
Christmas tree
for you!!!

COMSTAR ST-7 2.4m dishes
The "standard" of an
industry;
Rolled, expanded metal,
Strong, heavy duty.
Suitable for cyclone areas!



**BUY 10 and receive
a 10% discount!**

**Buy 20 and receive
a 20% discount!!**

**Buy 30 and receive
a 30% discount!!!**



**PACIFIC
SATELLITE**

(AUSTRALIA) PTY. LTD.

ANTENNA & ACCESSORIES SUPERMARKET

3/71 Beenleigh Rd Coopers Plains Qld 4108

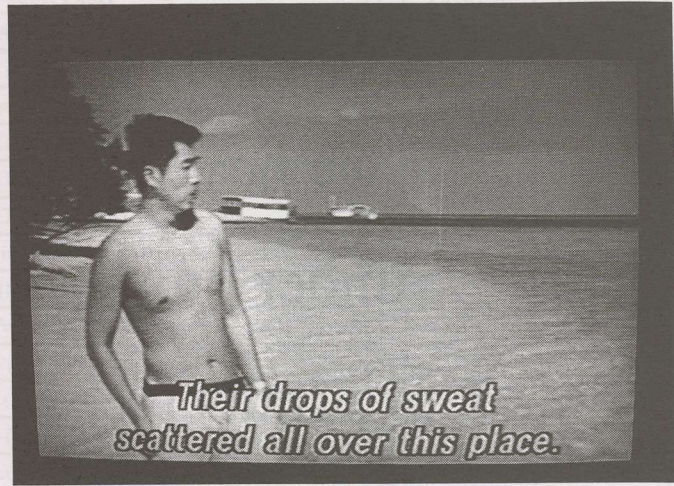
Australia

Ph: +61 7 3344 3883 Fax +61 7 3344 3888

Email: info@psau.com <http://www.psau.com>



Australia's ABC. Non-commercial TV (although they do promote their own products - above), excellent news and public affairs, documentaries, BBC imports. ABC has "no problem" with viewers located in NZ, although Aurora bouquet provider Optus does. 24 hour service with sport, movies on weekends including field sports only currently seen in NZ on Sky pay-TV. Weekly / daily schedule from <http://www.abc.net.au>.



Australia's SBS. Developed as an ethnic (minority) service, now widely acclaimed for non-commercial alternate programming that does include limited daytime (mornings) imported daily original-language newscasts (Japan, China, Italy, Germany, France, Russia and Spain). Major attractions: Subtitled films (3 daily - NZST 2.30PM, 12mid, 2AM) and European soccer coverage which Foxtel covets. Programme guide <http://www.sbs.com.au>.

concerned that by being the only source for a self-selected set-top box (satellite receiver), and by totally controlling the software which allows that set-top box to operate, Sky would "freeze out" all potential competitors at the gate. If a new service (such as TVNZ + TelstraSaturn planned) could not get through the Sky set-top box, how would viewers even know they existed?

As SatFACTS reported (SF#84, p. 15) TelstraSaturn pulled the plug on the planned September launch date of the new service in early August. This left TVNZ with no technical backup and no moneyed partner to carry out their planned "alternative digital satellite" service. On October 31, TVNZ caved in to intense pressure from *their own* "gatekeeper", the sitting government, and agreed to become a part of the Sky digital service. But they left themselves a backdoor.

When TelstraSaturn aborted the planned new service, they were under a legal obligation to pay for two Optus B1 satellite transponders (TR4, TR8) for the next seven years. And part of that agreement set aside 1/2 of a 54 MHz transponder for TVNZ to distribute free to air (FTA) TVOne, TV2 and in the future additional services as well. TelstraSaturn may have shut down their own pay-TV plan, but they could not get out of their obligation to fund the 1/2 transponder for TVNZ. It is that half transponder (12.456 Vt, Sr 22.500, FEC 3/4) which provides TVNZ with a "back door" to keep their options alive.

This is a tiny crack in a complex television world. TVNZ, anxious to maintain a "free to air" outlet, is using the 12.456 1/2 transponder spectrum to distribute their TVOne and TV2 service while at the same time Sky NZ has added TVOne and TV2 on 12.671 in their own version of FTA. Why is Sky transmitting TVOne and TV2 FTA?

A negotiated status - because TVNZ would not agree to become a part of the Sky bouquet unless Sky agreed to make the transmission FTA. The 12.671 parameters are identical to 12.456 (Sr 22.500, 3/4) but the services are quite different. Sky has eliminated the TVNZ teletext service, and to save spectrum shrunk the pixel image from the normal higher

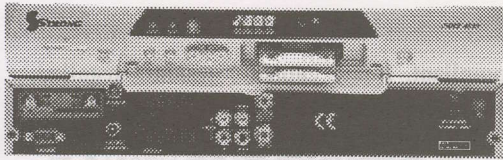
definition 720 x 576 pixel count (per scanned image) to a lower resolution 544 x 576 pixels. From Sky's tight fist bottom line perspective, a compressed image with no teletext saves them between 500 Kbit/s and 1,000 Kbit/s of transponder capacity per channel. The savings for TVOne and TV2's reduced definition image (less teletext) is the equivalent of adding "bandwidth/space" for another low image service such as MGM Movies or Juice TV in the future.

And there is the business opportunity.

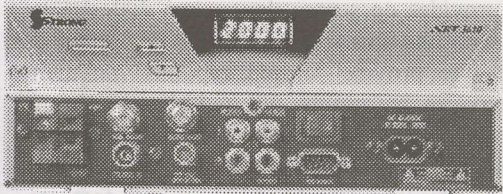
"I installed 3 TVOne and TV2 systems by December 6th" reports a North Island installer. "These people don't give a stuff about having TV3 (or TV4) and their badly flawed terrestrial reception was immediately corrected with installation of their own TVNZ FTA system."

In fact, once the public's attention is diverted away from Sky being the only "satellite digital service" several new avenues are opened for savvy TV outlets who understand that with modest size Ku band dishes (60cm to 1.2m) a relatively attractive package of television services can be offered. We illustrate with three sample systems on p. 7. In the first system (60/65cm dish, FTA receiver capable of teletext support) the viewer is able to watch TVOne and TV2 today, Prime TV is likely to be added shortly. The consumer "advantage" here is they pay no monthly fees for these FTA service whereas through Sky they will pay \$17.29 per month.

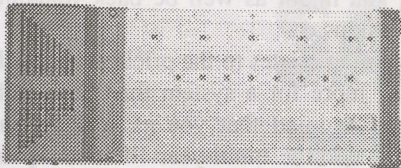
In the 90cm dish package, fixed not on Optus B1 but rather on the vertical side of Optus B3, the viewer immediately gains access to 10 TV services and 18 radio services provided they select a Irdeto capable receiver and locate a suitable (one time purchase cost of NZ\$135) Aurora smart card (1). Add an actuator (dish mover) to the package and you gain back the Optus B1 vertical TVNZ bouquet services. Grow the 90cm to 1.2m, equip with an actuator, and the installation adds still additional (ABC-TV) service channels. Perhaps the most logical package will be the 90cm dish equipped with an actuator, the single (vertical) polarity with the Aurora smart card capability to access the services listed on page 8. The



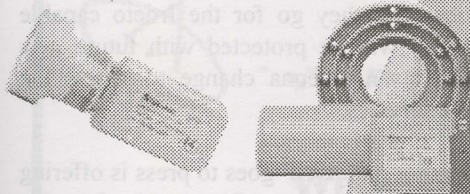
Digital Satellite Decoders



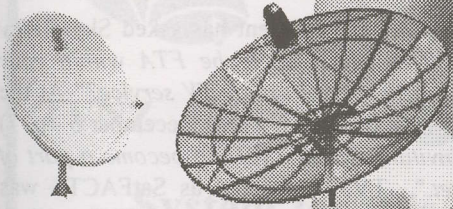
Digital Satellite Receivers



IF Distribution Systems



All types of LNBs



ø 60-450 cm

ROBUST SATELLITE TELEVISION RECEIVING EQUIPMENT AND PROGRAMMES FOR AUSTRALASIA



STRONG *Technologies*
PTY LTD.

Internet: www.strong-technologies.com - E-mail: sales@strong-technologies.com
Unit 2, 1-3 Westpool Drive, Hallam, Victoria 3603, Australia
Tel: +61 3 8795 7990 - Fax: +61 3 8795 7991

ZeeLink services, from India, require a second subscription card through ZeeLink.

Who is the target market here?

There are three early-start buyers in the marketplace. Number one is the home with degraded TVOne and TV2 service, largely not interested in TV3's brand of programming. TVNZ would have us believe 99% of all New Zealand homes receive TVOne and 95% receive TV2 via terrestrial means. In fact, the number of homes receiving inadequate reception from one or both channels is far larger. There are tens of thousands of potential customers here.

Then there are the homes where big screen TVs are in use. While you may not be able to discern the difference between 720 x 576 pixels and 544 x 576 pixels on a 14 or 21" TV set purchased from The Warehouse, there are many, new, line doubling, 100 hertz or just plain big screen "high definition" sets now being sold where Sky's bandwidth reduction jumps out at the viewer. Certainly anyone spending NZ\$1699 and up for a 29" or larger modern receiver will quickly notice the improvement in resolution (image quality) when they are plugged into the 12.456 service. If you sell TVs, this is a pretty easy one to demonstrate. Have a pair of IRDs to display on a pair of larger screen TVs. Program both IRDs for 12.456 and 12.671 and then allow the customer to switch back and forth between TVNZ's full resolution and Sky's reduced resolution on the receivers. *It sells itself.* Then put the IRD on 12.671 and ask the customer to push the "Teletext" button on the remote. It will say "*No teletext available.*" Repeat on 12.456 and proceed to write the order for a TVNZ DTH installation!

Finally, there are the commercial installations. While many motels have added one or more Sky digital channels to their MATV/SMATV line-up, they struggle along with terrestrial TVOne and TV2. For quality TVOne, TV2 they could go to Sky, pay \$495-plus for each Sky decoder and \$17.29 per month for each. Or they could buy a TVOne and TV2 system from you and pay *nothing* each month for the same service. With two decoders (TVOne and TV2), you have just saved them \$414.96 in the first year.

Caveats

There are some danger spots in all of this. We notice (in advertising appearing in this issue of SatFACTS) that "low ball pricing" in the dealer-cost region of under NZ\$275 seems to be the order of the day for "TVNZ systems." By comparison, in Australia the lowest price we could locate was A\$500 for a "*take it home and install it yourself*" dish + LNBF

1/ Aurora smart cards are not *directly* distributed inside of New Zealand and they remain a "grey market" item. Technically, Aurora is not pay-TV (as is Sky or Austar or Foxtel) but it is "restricted TV" because of *polices* created by the satellite operator Optus. "Exporting" an Aurora card outside of Australia is not a "criminal act" but it is contrary to Optus business *policy*. New Zealand law deals with importing of smart cards for "pay-TV" but does not deal with importing cards for FTA TV (which even Optus agrees is the proper description for their restricted-viewing Aurora service).

2/ For a quick course in this "teletext does not work here" situation, see p. 3; for a complete analysis, p.

31.

+ cable + DVB compliant, Irdeto capable, system. Installed, Australians are paying A\$600 up for this system package for the likes of Turkey's TRT (within the Mediasat transponder on Optus B3). A\$500 today is NZ\$622, A\$600 is NZ\$746. The key to understanding the price differentials might be the "quality" of the digital receiver. First of all, not all available receivers will work with teletext (2). There is a subset of "text" which is more complicated - "Closed Captioning" as TVNZ calls it. For the hearing impaired, a special text stream is transmitted which provides on screen the spoken dialogue in written form - like subtitling on a foreign film.

Sky is preparing to provide "closed captions" on their TVOne and TV2 services, but not the full multi-hundred page teletext service. TVNZ's 12.456 uniquely has both available. Sky receivers *could be* software instructed to process both "closed captions" and regular teletext but only if both features are transmitted. Other receivers (such as the Xanadu which SatFACTS tested to no avail) claim in their literature to be "teletext compatible" but in fact they are not. So there is a warning here when you are sourcing receiver product - the IRDs should be proven to be compatible with both closed captions and teletext or you might as well be back watching the degraded Sky transmissions.

The other matter for warning relates to the pricing. Naturally nobody is anxious to pay more for a system than absolutely necessary. However, keep in mind that you as an installing dealer will be responsible for the multi-year lifetime of the IRD you sell. And if the source you use is gone from business next month or next year, where does that leave you? Equally important - FTA-only receivers (not equipped for Irdeto/Aurora cards) are limited in use. A client opting only for the TVNZ 60/65cm services initially will have to replace both the receiver and the antenna if they later wish to upgrade to other B1/B3 services. If they go for the Irdeto capable receiver at the start, they will be protected with future new services and only require an antenna change to access the balance of the available services.

Promotion

Sky is a fierce competitor and as SF goes to press is offering digital TV "installed" for \$199 "with the first month of service free." In the fine print, the customer must agree to a full 12 months of service at a service level which guarantees Sky a return. At the same time, if you order only the Sky DTH package (including TVOne and TV2), you will pay at least \$495 for the installation and \$3.99 per week/\$17.29 per month for the service.

The NZ Prime Channel management has asked Sky, "*Why are you allowing TVOne and TV2 to be FTA within your bouquet while Prime is restricted to pay-TV service?*" At the same time, Prime has let it be known (CTD December 5 - p. 7) it has a, "*standing invitation from TVNZ to become a part of the (12.456) bouquet.*" TV3, contacted as SatFACTS was going to press, insists, "*We will not be joining TVNZ on their free to air bouquet.*"

Perhaps not soon but as TVNZ's marketing department tells SF, "*When the number of (FTA) DTH homes reaches 20,000, all of the rules change. And by the time it reaches 50,000, very significant 'new pressures' will be brought into the equation by the advertisers.*"

SatFACTS will be monitoring the growth (or lack thereof) of TVNZ FTA system sales and installations and will be reporting to you in these pages the status of this potentially important new segment of the industry.

DIGITAL FREE to AIR TV

Crystal Clear

**TV1 - 2
Teletext**

Music
+ next?

**Best Prices & Quality
Guaranteed on any
Satellite equipment**

**FAX: 09 814 9447
www.satlinknz.co.nz
peter@satlinknz.co.nz
ph: 025 937 025**

SATLINK NZ needs YOU now!

**Receivers from
NZ \$230+**



**Register your interest for your area
either as installer or distributor**



TELSAT COMMUNICATIONS LTD.™

TECHNOLOGY IN TOUCH WITH TOMORROW

**We wish you all a very Merry Christmas
and a successful New Year**



- * IRD's Domestic and Commercial
- * Dish's 60cm to 7m
- * LNB's & LNBF's Ku - C - S Band Domestic & Commercial
- * Video Standards Convertors & multi system VCR's
- * Full range of Accessories

TVNZ ONE & 2 ARE NOW AVAILABLE FTA ON OPTUS B1

**System for this service priced from \$286 + GST & freight
Order today from the company that has served the industry since 1988**

SPECIAL CONDITIONS APPLY

FREE COFFEE MUG WITH EVERY ORDER, WHILE STOCKS LAST

Visit our WEB site at: <http://www.telsat.com>

Our Email address is: satellitetv@telsat.co.nz Contact us for your FREE 24 page catalogue.

17 Westhaven Grove, P.O. Box 1537, Palmerston North, New Zealand
Tel: (06) 356-2749 Fax (06) 355-2141 Int'l +(64) 6-355-2141 Cellular (021) 454-945

High Output Distribution Amplifiers for MATV Service

Right power, right place

Modern broadband signal amplifiers designed for the demanding requirements of MATV/SMATV/CATV signal distribution are sometimes difficult to "get right" at the installer level. We tend to do a quick read of the "spec" sheet, find the number that interests us most and, ignore the fine print to charge ahead with the installation. And then discover we have made a mistake in amplifier selection.

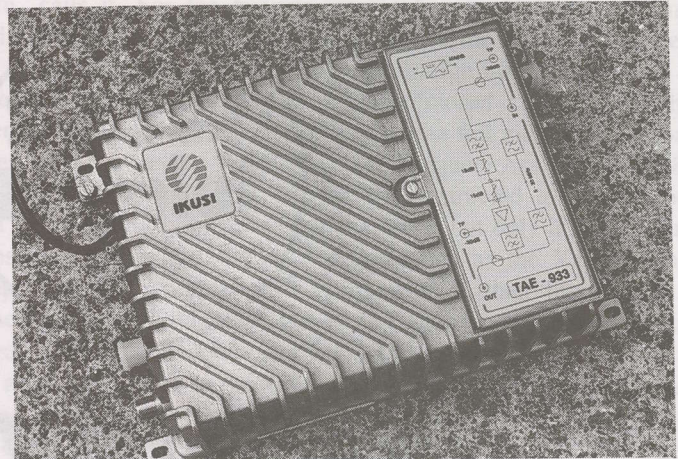
Amplifier sellers usually emphasise in large print one number - "output level". In smaller print, they tell you what the restrictions are for achieving the particular output level claimed.

For example, a spec of, "Maximum output: 120 dBuV" immediately *seems like* a better choice for a larger cable distribution network than, "Maximum output: 114 dBuV". However, in the fine print the 120 dBuV unit might tell you "For one or two TV channels" while the 114 dBuV amplifier might reveal "for 10 channels". What is this all about? And which is really the most "robust"?

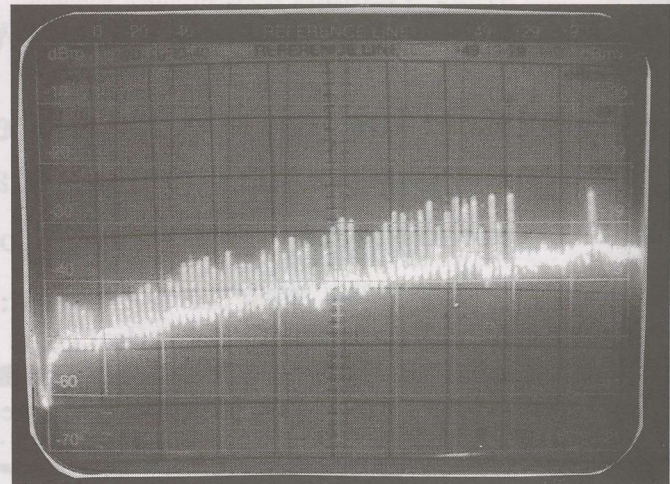
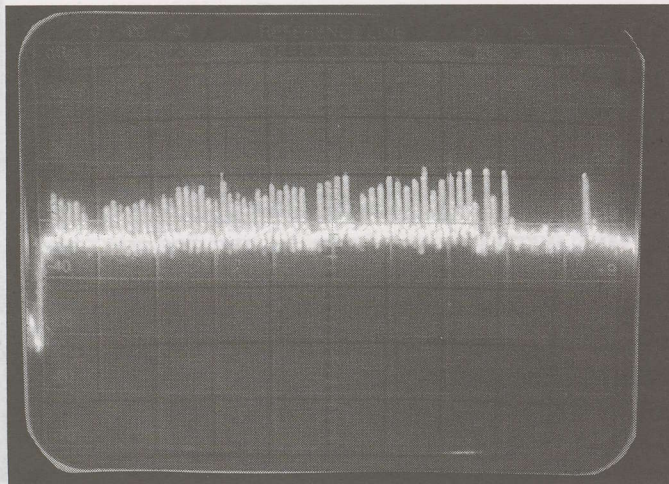
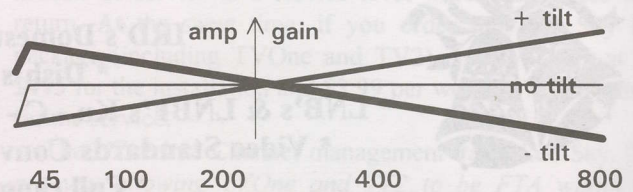
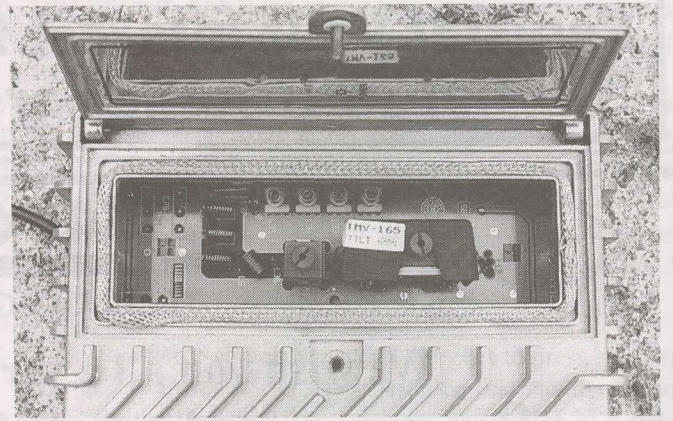
Amplification is the process of increasing signal voltage (the signal level). We employ amplifiers to overcome attenuation (losses) in cables used to distribute the signals to a variety of TV set locations in a building or complex, and, to compensate for signal "splitting" (where a 2, 3 or more way "splitter" divides the available signal up for two or more separate runs of coaxial cable).

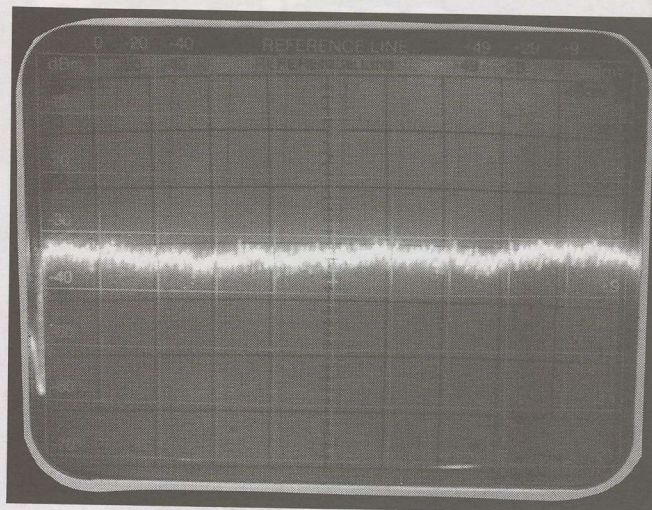
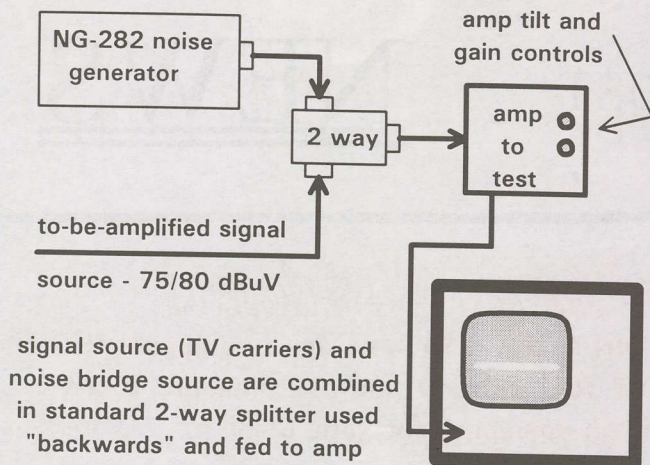
Cable has predictable losses which increase with operating frequency. RG6 loss at 55 MHz (in the region of 3 dB per 100 metres) is lower than the same piece of cable's loss at 550 MHz (15 dB loss per 100 metres). Therefore if a 55 MHz signal and a second 550 MHz signal begin the run to a cable connected receiver some distance away at the very same signal level, the 55 MHz signal will arrive at the TV set stronger than the 550 MHz signal. This frequency sensitive loss variation is termed "cable tilt".

In the left hand photo below, the spectrum analyser display shows the output of a 55 - 550 MHz spectrum through an Ikusi TAE 933 amplifier (each bump is a TV channel) with 55 MHz on the left, 550 on the right. The left hand photo "line" is level,



Ikusi TAE 933 broadband amplifier (45 - 890 MHz) has user adjustable "tilt" and gain controls (below). Tilt allows adjustment of overall gain at low end (45 MHz) versus high end for cable compensation.





A broadband noise source (such as the NG-282 20 - 2000 MHz generator from Promax) provides a "frequency-flat" output which can be used as a reference level in checking amplifier gain and adjustments.

the same all across the screen from 55 to 550 MHz. The signal line in photo on the right has a "tilt" to it - the 55 MHz end is "down" (lower on the screen) indicating the signal level at 55 MHz is in fact lower (smaller) than at the top (right hand) end; 550 MHz.

"Tilt" is a signal amplification compensating circuit built into an amplifier. It recognises that the longer the cable plant you will be driving with the amplifier, the greater the disparity will be at the end between the lowest frequency (55 MHz in our example) and the highest frequency (550 MHz here but the principal remains the same even if it is 800 MHz +).

In a multiple carrier system (lots of TV channels) you can measure (with a signal level meter, spectrum analyser) the individual carriers and then compute the difference in level to be expected between "lowest" and "highest" - finally turning down (tilting) the low frequency signal sources and turning up the high end signals. There is a much better, quicker way to make that adjustment.

Let us assume the cable's "tilt" will be 12 dB between 55 and 550 MHz at the end of the line. To properly adjust the amplifier you need to set the lowest (55) MHz carrier -12 dB reference the highest (550) signal. And all of the ones in between 55 and 550 have to be set to levels someplace between the -12 of 55 MHz and the 0 dB (of tilt) for 550 MHz.

If you have a spectrum analyser, it would be handy to have a "tilted line" drawn on the screen between 55 and 550 MHz as a reference against which you can set the individual carrier levels, or adjust the amplifier itself. In the diagram above, we have such a system. The premise is as follows:

1) A wideband noise generator (bridge) outputs a very even (in signal level) amount of energy between some low frequency (such as 20 MHz) and some high frequency (such as 2000 MHz).

2) If we send this "noise bridge" flat level signal through the amplifier and display it on a spectrum analyser, we will have a flat line (not tilted) display (see CRT display upper right, here).

3) Now, if we combine this noise generator input with the actual TV signals on the cable to be amplified, using a 2-way splitter "backwards" as a signal combiner, the individual TV carriers become "spikes" on the display - an instant "reference line" for setting up individual carrier levels or making full amplifier adjustments (photos at bottom of p. 14).

All amplifiers have a specified bandwidth (range of frequencies which they amplify). The tilt control is related to this range and as the drawing near the bottom right of p. 14 illustrates, the "tilt range" typically "pivots" around (up and down from) a centre point. For example, if the amplifier covers 55 to 800 MHz, the tilt "centre point" might be 350 MHz. and in a typical application you will roll down (reduce) the amplifier gain below that point and raise (increase) the gain above the centre pivot frequency. The pivot point is specified in most data sheets, although knowing it is not essential to setting up the amplifier. Tilt "range" is the number of dB of variation you can obtain with the tilt control. The tilt control can be designed to function at the amplifier input circuit or at the output; the designer's choice. Most appear on the input side, and function as a frequency sensitive attenuator circuit. The amplifier gain is not varied in this case but the input signal to the amplifier is adjusted to raise or lower the signal before amplification.

The danger here is that if your two extremes (55 and 550 in our example) are both around 75 dBuV at the input, a -12 dB electronic tilt (attenuation) of the 55 MHz end will send the pre-amplification signal down into the 63 dBuV (75 - 12) region which can create a grainy picture on the lower channels (63 dBuV approaching a point where amplifier noise can begin to appear as a "shimmer" in the background of the TV channel).

Other dangers

But how much gain is safe gain? If the spec sheet says "120 dBuV for one or two channels" and you will be sending ten channels through the amplifier, can all be adjusted to 120 dBuV? The answer is a definite no.

Any signal amplifier has a maximum safe-rated output. This means that if you exceed the safe-rating, nasty things happen inside the amplifier. The (analogue) TV carrier is a pretty complex creation being a mixture of picture image, sound modulation and synchronising pulses. An amplifier that operates beyond its safe rating will "merge" these discrete TV channel parts on top of one another, creating unwanted (and very annoying) interference lines in the picture and thumps, bumps and hisses in the audio. Not all amplifier data sheets properly explain what undesirable artefacts will be created if you attempt to operate the amplifier beyond its "safe output" rating.

December 2001



HOLIDAY SAVINGS SPECIAL!

Until January 15th only - buy a SRT4890 hard drive equipped IRD and STRONG Aust will GIFT YOU with a brand new analogue receiver with built-in positioner for your dish!

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

Paraclipse[®]

STRONG AUST
is holding a super-sale
on Paraclipse NOW!



CLASSIC
SERIES

ECLIPSE
SERIES

QUALITY is BACK!

HYDRO
SERIES

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

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

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

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

Paraclipse[®]

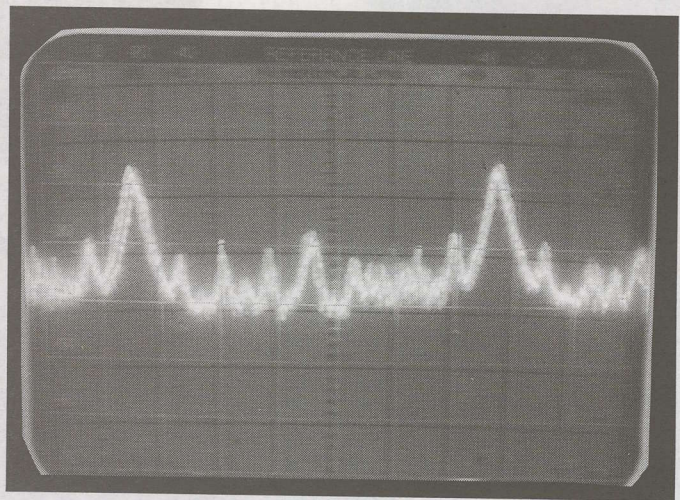
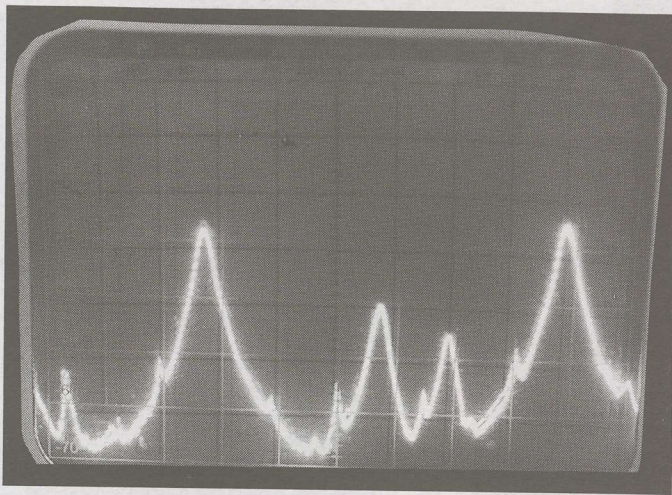
HIGH PERFORMANCE ANTENNAS

★ **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



No - the right hand photo is NOT our noise generator plus a TV channel display. When an amplifier exceeds its' rated output, the "noise floor" internal to the amplifier goes berserk, rises up (towards the signal tips) significantly and turns the amplifier into a self-induced "noise generator". What this looks like on a TV set screen is utter picture corruption ("distortion") with beats (signals generated within the amplifier appearing along side of or on top of the actual TV carrier[s]) mixing with "noise" throughout the entire spectrum.

The first rule of thumb is something called "back off". This means when you increase the number of individual TV carriers (channels) going through the amplifier, the individual output (signal) level for the strongest TV carrier(s) must be reduced to make room for the additional TV carriers. An amplifier rated for 120 dBuV output for a single TV channel must be reduced by 3 dB (from 120 dBuV maximum to 117 dBuV) when two channels flow through. This rule of thumb suggests that each time you double the number of channels (1 - 2, 2 - 4, 4 - 8 and so on) you must "back off" the highest output level by an additional 3 dB. So if 1 channel = 120 dBuV, then 2 = 117 dBuV, 4 = 114 dBuV and 8 = 111 dBuV. This dBuV rating is for the strongest channel in the tilt-group, and assumes all other channels (because of the tilt factor) will be at a lower output level.

Unfortunately this "rule of thumb" does not apply to all amplifiers. You have probably noticed that amplifier pricing (to you as an installer) vary over a wide range - from below \$50 to well over \$500.

The least expensive amplifiers use one or more bipolar (nothing special) transistors in something called a "single ended circuit". Such amplifiers have a very limited signal handling capability and as the number of pass-through the amplifier carriers goes up the "distortion" increases very rapidly. Any amplifier that does not have a "tilt" control typically is single-ended although it may have a gain control.

Next up the quality ladder are (hybrid) push-pull amplifiers. "Push-pull" means there are two (or more) gain stages and they are configured in a circuit that improves the signal handling (output level) capability before distortion levels are created. Gain and tilt controls are provided for user adjustment.

And then there are "power doubling" amplifiers which have been designed to get an extra 3 dB of signal level at the output while still restricting the distortion (interference) levels. Power doubling offers no more user controls but the cost has gone up significantly because it is really "two companion amplifiers in one case".

Interference quantifying

Anything that mars the image on the screen or sound in the speaker is a form of interference. If this impairment originates inside of an amplifier, the only solution is to change the way

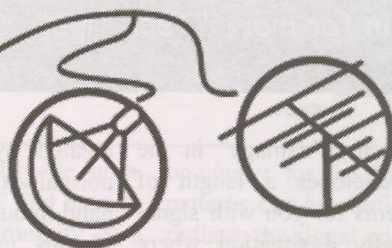
the amplifier is operating. In some cases, you can instantly clean up the interference by simply reducing (backing off) the gain control. This should always be the first "test" by an installer when faced with lines in the picture and/or squeals in the sound.

In a multiple channel amplified system, only one TV channel needs to be "too hot" (operating beyond the amplifier's rating for the number of channels being amplified) to create various forms of amplifier generated distortion. It is easy to spot the "too hot" channel - go through the channel selection and the one that is too hot will be "clean" while the balance will be filled with distortion. Solution? Either selectively reduce the input level to the amplifier for that one channel, or, use the gain control on the amplifier to turn them *all down* until the "hot one" is low enough not to drive it into distortion.

Technically, there are several different forms of distortion. When the input is too low (not enough signal level) on one or more channels, the resulting "grain" in the picture (or outright "snow") is a form of distortion but typically not created within the amplifier. When one or more channels are much hotter than the rest, and they exceed the amplifier's output rating, these too-hot channels transfer their modulation (video and audio) and sync pulses onto the weaker carriers. This is called "cross modulation" and is abbreviated on data sheets as "X-mod". Yet another form of distortion is called "second" and/or "third order beats". When signals "beat" (mix together) inside an amplifier, new signals are created. These new signals don't really exist except as they are created by the amplifier. When the "beats" fall in frequency inside of an occupied TV channel you have interference appearing on the screen. Beats will also fall on channels not in use - if you switch through channel 7 and there is not supposed to be something there - but there is a distorted image - a second or third order "beat" is being created by the amplifier and just happens to land (in this example) on channel 7.

In most cases of X-mod and beats, the solution is to turn down (reduce) the gain of the amplifier. You can do this with the gain control or by placing an attenuator (pad) at the input of the amplifier. In some situations, fine tuning the tilt control will reduce the distortion but only at the price of creating incorrect signal levels for the overall system.

Skandia



RG6 Quad Cable



Satellite Cable

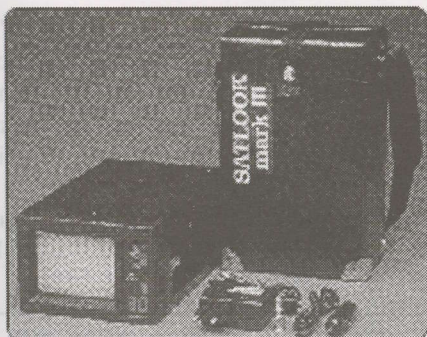
RG6 Dual Cable



Digital Cable

Thankyou 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 13/18 V. 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:	<ol style="list-style-type: none"> 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:	<p>Spectral with max peaks</p> <p>Two digit LED display with max value</p> <p>Colour bar with max indication</p> <p>Maximum audiotone on loudspeaker</p>
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:	<p>Power supply 220/13.5volt DC, 1.7 Amp</p> <p>Car adaptor</p> <p>Carry case</p> <p>Adaptor BNC/F connector</p> <p>Owners manual.</p>

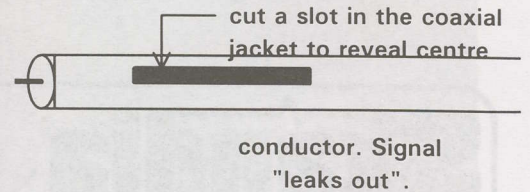
The best meter for less than \$1000.00

Skandia
is an Australian
Owned Company

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

SDStv Technical Application Notes

Clever things you can do with SDStv
check <http://www.sdstv.com> for more "Tech Tips"



Cutting a slot in coax

While we have been taught that any "damage" in the copper/aluminium/foil sheath that envelopes a length of coaxial cable is going to create problems for you with signal "egress" or "ingress", there is actually a situation where allowing signal to "leak" from a line could be a sound answer to a reception problem. The subject is "leaky lines" which are also known as "slot" or "lens" (antennas).

Coaxial cable (whether small RG59, larger RG6, even larger RG11 or the solid aluminium wrapped CATV cables) operate on a single principal. The centre conductor carries energy in the forward direction, the sheath or outer covering provides a 50 or 75 ohm impedance connection and also acts as a "shield" to protect the integrity of the centre conductor. Imagine a coaxial line that has no sheath, and in place of the sheath there is a second wire of the same size as the centre conductor, parallel to the centre conductor, at a uniform spacing from it. Such a line exists, and is known as "75 ohm twin lead". In some applications, 75 ohm twin lead can be substituted for 75 ohm coax.

The major differences are (1) The twin lead has no surrounding protective sheath, and, (2) the line is called "balanced" because each parallel wire is identical to the other wire (balanced as in equal or the same). When you use a balanced line, signal travels from the source to the end (point of termination - where the receiving equipment is located) with minimal loss and if properly installed, there is very little or no signal radiation from the parallel line. On the other hand, if you cut into the sheath of coaxial line creating a break or opening in the sheath, signal *leaks out* of the line. The difference? The coaxial line is "unbalanced" (emphasis on the "un" portion) and the geometry of the coaxial line depends upon the inner surface of the sheath to act as a "wall" to stop any radiation from the line.

Now suppose you are transporting 950 - 1450 MHz L-band energy from the satellite dish to the receiver, using coaxial line. And imagine you cut into the outer sheath of the coaxial line creating a narrow slit (opening) of a specified length. What do you suppose happens at the slit?

Some signal being transported from the dish/LNB to the receiver at the end "leaks out". The slit (we'll call it a "slot" from now on) is simply a "break" in the integrity of the outer conductor. But (here is the surprising part) the opening

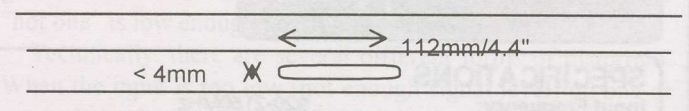
created by the slot becomes a transmitting antenna. We normally think of antennas as something we can hold in our hand, mould into various shapes and sizes. The "slot" is more like an "image" or the reverse of something you can hold in your hand. For it is the dimensions of the *edge* of the slot which becomes an antenna and the "cut" or "opening" is nothing more than what is left (nothing - air) after you create a slot of the right dimensions. Think of it as the "hole in a donut" - the size of the hole determines the operating frequency of the "slot antenna".

Now the warnings.

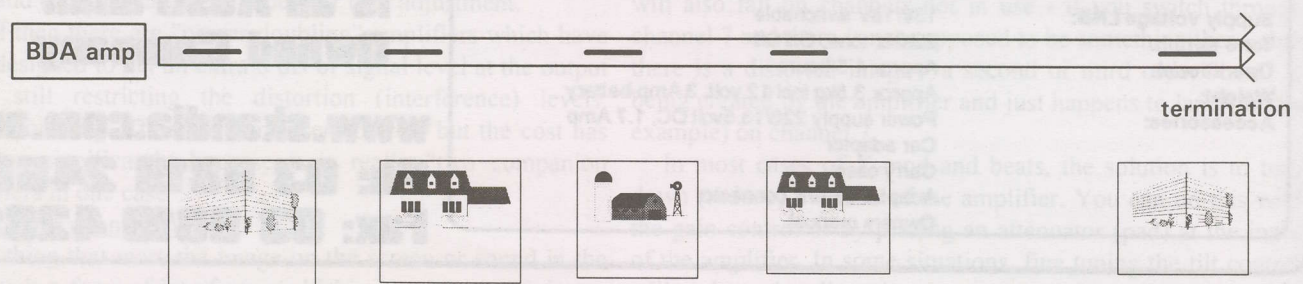
1) RG59, RG6, even RG11 are not suitable for creating "slots". The small diameter of the cable, the complex method of marrying centre conductor to dielectric (white insulating material) to foil + braid shield plus the outer vinyl jacket simple does not lend itself to pulling out your pocket knife and slashing away.

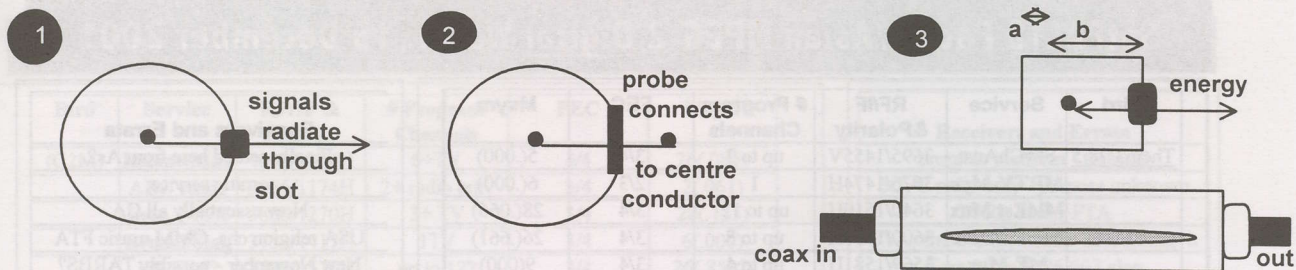
2) Larger diameter cable, such as CATV's .500 (1/2") diameter, is only slightly better. At least it is possible to pierce and lift out a chunk of the aluminium jacket without damaging the integrity of the cable but the "spacing" between the centre conductor and the "slot" is not correct to create a "gain multiplying" slot antenna.

Neither of these warnings will stop people from experimenting so we'll give you the dimensions of a suitable slot at this point:



If you were to run a multi-hundred metre length of suitable coaxial cable around a neighbourhood or through the rafters of a building (see below), creating slots where you want signal to "leak out", you end up with a highly localised semi-wireless system. A high gain amplifier such as the SDStv.com BDA-33A used as a "signal driver" connects to one end of the line, while at the opposite end a 75 ohm termination resistor completes the RF loop. Then at appropriate locations (as the line passes a house, for example) a slot is cut to allow signal to "leak" out towards the house. At each "slot-induced-radiation" point, a suitable SDStv.com logi antenna connected to an L-band receiver completes the last link of the circuit. This





eliminates spraying the L-band signal over a wide area. controls which homes actually get into the "loop" and marries the benefits of "wireless" with the controlled integrity of a "wired/cable" system.

Consider an installation where a network of security cameras are fed to a central monitoring point using conventional wire for interconnection. But the security personnel are mobile, constantly on the move. What they need is a way to use a hand held TFT or CRT display miniature monitor to "plug into" the security camera system while they are away from the central monitor display point. An airport, or CBD security video camera system, would be an example here.

By lacing the region where the security personnel move about with a wired system using radiation slots, the security personnel can stay totally mobile and yet tune-in while in motion the images being shot by the security cameras. We tested such a system at a major New Zealand transportation centre recently and when you can move between floors on the escalator, or even inside an enclosed elevator and still monitor what the security cameras see on a portable hand held L-band receiver with CRT display, the bad guys just lost a round (1). Yes, security people have their own two-way radios. Now for the first time they had their own mobile-in-motion TV camera coverage of the full facility.

Slot radiation offers the opportunity to cover a specific distance or geographic area with signal simply by "tuning" the size, shape and direction of the slot opening. Cutting an opening is a simple step (provided you don't screw up the integrity of the transmission cable in the process) but coverage distances are relatively small (on the order of less than 30 metres). If you modify the slot (2 in drawing above) to include a radiation "probe" (in reality, a small resonant antenna which can be optionally connected [one design] or not connected [a better design] to the centre conductor) the coverage distance jumps to the region of 100 metres. At some point you realise there has to be a better way of creating slot radiation than carving chunks out of a suitable transmission line. Which leads to 3 in the above drawing. Where you need a "slot", physically cut the transmission cable and insert a purpose-designed separate rectangular gadget of approximately 8 inches length over all. With an appropriate coaxial fitting on each end, the rectangular channel is both an extension/splice on the transmission line and a slot radiator. Using aluminium, brass

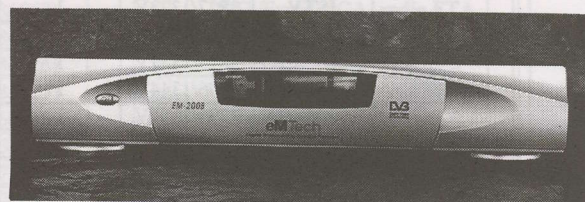
or copper for the "purpose-built-slot" a number of coverage patterns can be configured. For example, one slot on one side radiates the signal only in that direction. Two slots on opposite sides radiates the signal in a figure 8 (bi-directional) pattern. A slot on one side and on the top creates signal in a 90 degree wedge - each location solving its own radiation-coverage requirements with a "slot-channel" designed for that location.

Moreover, trials suggest the entire assembly could be done largely using two-sided PC (printed circuit) board which allows you to vary the spacing between the thru-line (centre conductor portion) and the slot for additional variations in the amount of signal that is allowed to "leak" and the direction that leakage is transmitted.

We conducted our Auckland tests using nothing more complex than the standard mW 20 transmitter, a discone transmit antenna, and for receiving the SDStv.com active logi connected to a Skandia Satlook Mark III battery operated L-band receiver. In a purpose designed system, the slot-channel restricted coverage system combined with a miniature 4" TFT receiver would create total freedom of movement for public safety and security personnel.

1/ In a public safety context, security personnel, even police cars in motion, through relayed security camera views directly to hand held or vehicle mounted receivers, can for the first time "see" what is happening at a trouble point before they arrive on the scene. SDStv gives them "eyeball extension" and complete mobility - effectively eyes in the back and sides of their head. Someday it will be built into their helmets as reality vision goggles now are.

KANSAT is proud to present **eMTech**

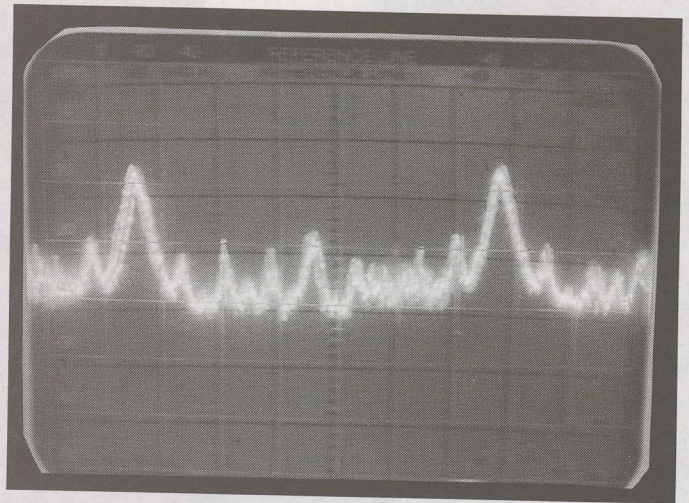
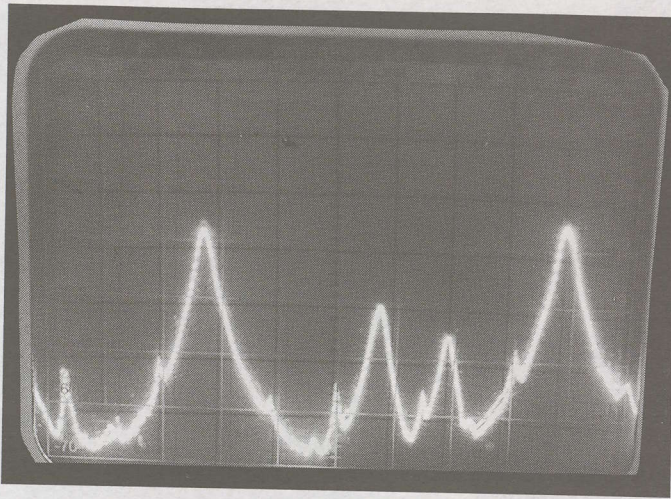


eMTech by KANSAT: *superior performance, reliability - before the name goes on.*

- 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



No - the right hand photo is NOT our noise generator plus a TV channel display. When an amplifier exceeds its' rated output, the "noise floor" internal to the amplifier goes berserk, rises up (towards the signal tips) significantly and turns the amplifier into a self-induced "noise generator". What this looks like on a TV set screen is utter picture corruption ("distortion") with beats (signals generated within the amplifier appearing along side of or on top of the actual TV carrier(s)) mixing with "noise" throughout the entire spectrum.

The first rule of thumb is something called "back off". This means when you increase the number of individual TV carriers (channels) going through the amplifier, the individual output (signal) level for the strongest TV carrier(s) must be reduced to make room for the additional TV carriers. An amplifier rated for 120 dBuV output for a single TV channel must be reduced by 3 dB (from 120 dBuV maximum to 117 dBuV) when two channels flow through. This rule of thumb suggests that each time you double the number of channels (1 - 2, 2 - 4, 4 - 8 and so on) you must "back off" the highest output level by an additional 3 dB. So if 1 channel = 120 dBuV, then 2 = 117 dBuV, 4 = 114 dBuV and 8 = 111 dBuV. This dBuV rating is for the strongest channel in the tilt-group, and assumes all other channels (because of the tilt factor) will be at a lower output level.

Unfortunately this "rule of thumb" does not apply to all amplifiers. You have probably noticed that amplifier pricing (to you as an installer) vary over a wide range - from below \$50 to well over \$500.

The least expensive amplifiers use one or more bipolar (nothing special) transistors in something called a "single ended circuit". Such amplifiers have a very limited signal handling capability and as the number of pass-through the amplifier carriers goes up the "distortion" increases very rapidly. Any amplifier that does not have a "tilt" control typically is single-ended although it may have a gain control.

Next up the quality ladder are (hybrid) push-pull amplifiers. "Push-pull" means there are two (or more) gain stages and they are configured in a circuit that improves the signal handling (output level) capability before distortion levels are created. Gain and tilt controls are provided for user adjustment.

And then there are "power doubling" amplifiers which have been designed to get an extra 3 dB of signal level at the output while still restricting the distortion (interference) levels. Power doubling offers no more user controls but the cost has gone up significantly because it is really "two companion amplifiers in one case".

Interference quantifying

Anything that mars the image on the screen or sound in the speaker is a form of interference. If this impairment originates inside of an amplifier, the only solution is to change the way

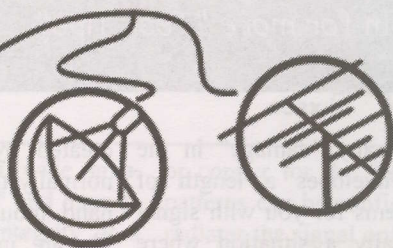
the amplifier is operating. In some cases, you can instantly clean up the interference by simply reducing (backing off) the gain control. This should always be the first "test" by an installer when faced with lines in the picture and/or squeals in the sound.

In a multiple channel amplified system, only one TV channel needs to be "too hot" (operating beyond the amplifier's rating for the number of channels being amplified) to create various forms of amplifier generated distortion. It is easy to spot the "too hot" channel - go through the channel selection and the one that is too hot will be "clean" while the balance will be filled with distortion. Solution? Either selectively reduce the input level to the amplifier for that one channel, or, use the gain control on the amplifier to turn them *all down* until the "hot one" is low enough not to drive it into distortion.

Technically, there are several different forms of distortion. When the input is too low (not enough signal level) on one or more channels, the resulting "grain" in the picture (or outright "snow") is a form of distortion but typically not created within the amplifier. When one or more channels are much hotter than the rest, and they exceed the amplifier's output rating, these too-hot channels transfer their modulation (video and audio) and sync pulses onto the weaker carriers. This is called "cross modulation" and is abbreviated on data sheets as "X-mod". Yet another form of distortion is called "second" and/or "third order beats". When signals "beat" (mix together) inside an amplifier, new signals are created. These new signals don't really exist except as they are created by the amplifier. When the "beats" fall in frequency inside of an occupied TV channel you have interference appearing on the screen. Beats will also fall on channels not in use - if you switch through channel 7 and there is not supposed to be something there - but there is a distorted image - a second or third order "beat" is being created by the amplifier and just happens to land (in this example) on channel 7.

In most cases of X-mod and beats, the solution is to turn down (reduce) the gain of the amplifier. You can do this with the gain control or by placing an attenuator (pad) at the input of the amplifier. In some situations, fine tuning the tilt control will reduce the distortion but only at the price of creating incorrect signal levels for the overall system.

Skandia

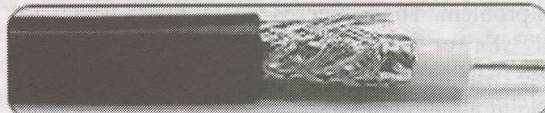


RG6 Quad Cable



Satellite Cable

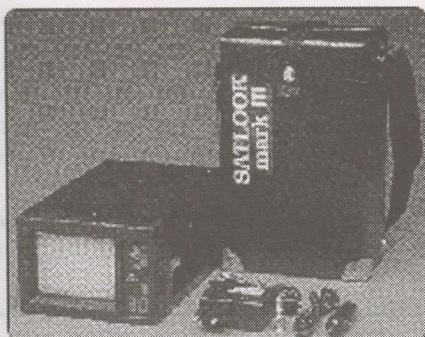
RG6 Dual Cable



Digital Cable

Thankyou 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.

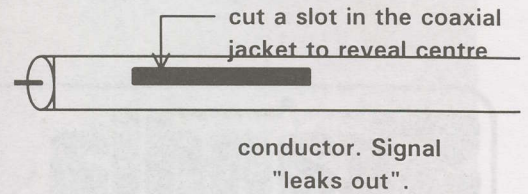
The best meter for less than \$1000.00

Skandia
is an Australian
Owned Company

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

SDStv Technical Application Notes

Clever things you can do with SDStv
check <http://www.sdstv.com> for more "Tech Tips"



Cutting a slot in coax

While we have been taught that any "damage" in the copper/aluminium/foil sheath that envelopes a length of coaxial cable is going to create problems for you with signal "egress" or "ingress", there is actually a situation where allowing signal to "leak" from a line could be a sound answer to a reception problem. The subject is "leaky lines" which are also known as "slot" or "lens" (antennas).

Coaxial cable (whether small RG59, larger RG6, even larger RG11 or the solid aluminium wrapped CATV cables) operate on a single principal. The centre conductor carries energy in the forward direction, the sheath or outer covering provides a 50 or 75 ohm impedance connection and also acts as a "shield" to protect the integrity of the centre conductor. Imagine a coaxial line that has no sheath, and in place of the sheath there is a second wire of the same size as the centre conductor, parallel to the centre conductor, at a uniform spacing from it. Such a line exists, and is known as "75 ohm twin lead". In some applications, 75 ohm twin lead can be substituted for 75 ohm coax.

The major differences are (1) The twin lead has no surrounding protective sheath, and, (2) the line is called "balanced" because each parallel wire is identical to the other wire (balanced as in equal or the same). When you use a balanced line, signal travels from the source to the end (point of termination - where the receiving equipment is located) with minimal loss and if properly installed, there is very little or no signal radiation from the parallel line. On the other hand, if you cut into the sheath of coaxial line creating a break or opening in the sheath, signal *leaks out* of the line. The difference? The coaxial line is "unbalanced" (emphasis on the "un" portion) and the geometry of the coaxial line depends upon the inner surface of the sheath to act as a "wall" to stop any radiation from the line.

Now suppose you are transporting 950 - 1450 MHz L-band energy from the satellite dish to the receiver, using coaxial line. And imagine you cut into the outer sheath of the coaxial line creating a narrow slit (opening) of a specified length. What do you suppose happens at the slit?

Some signal being transported from the dish/LNB to the receiver at the end "leaks out". The slit (we'll call it a "slot" from now on) is simply a "break" in the integrity of the outer conductor. But (here is the surprising part) the opening

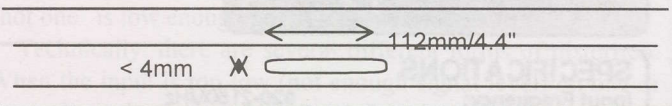
created by the slot becomes a transmitting antenna. We normally think of antennas as something we can hold in our hand, mould into various shapes and sizes. The "slot" is more like an "image" or the reverse of something you can hold in your hand. For it is the dimensions of the *edge* of the slot which becomes an antenna and the "cut" or "opening" is nothing more than what is left (nothing - air) after you create a slot of the right dimensions. Think of it as the "hole in a donut" - the size of the hole determines the operating frequency of the "slot antenna".

Now the warnings.

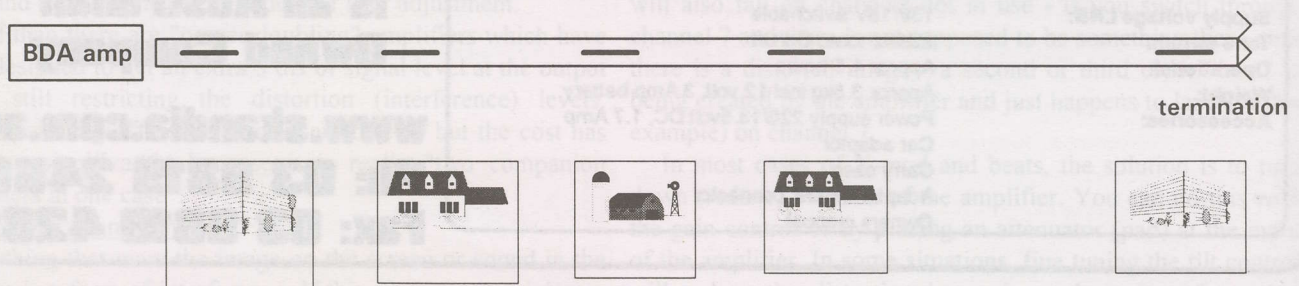
1) RG59, RG6, even RG11 are not suitable for creating "slots". The small diameter of the cable, the complex method of marrying centre conductor to dielectric (white insulating material) to foil + braid shield plus the outer vinyl jacket simple does not lend itself to pulling out your pocket knife and slashing away.

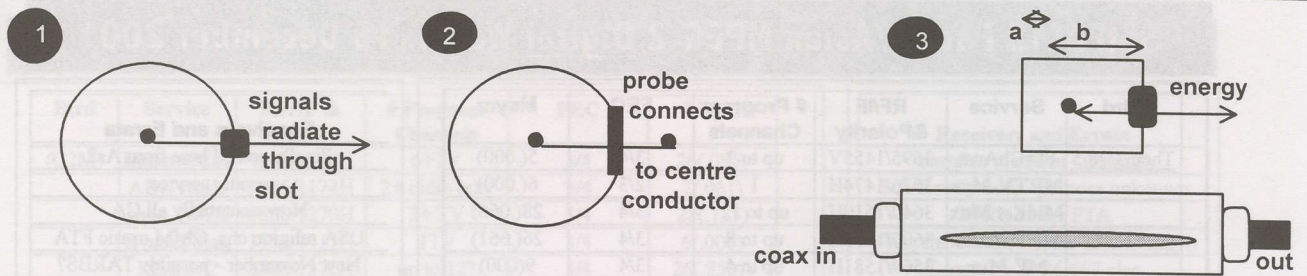
2) Larger diameter cable, such as CATV's .500 (1/2") diameter, is only slightly better. At least it is possible to pierce and lift out a chunk of the aluminium jacket without damaging the integrity of the cable but the "spacing" between the centre conductor and the "slot" is not correct to create a "gain multiplying" slot antenna.

Neither of these warnings will stop people from experimenting so we'll give you the dimensions of a suitable slot at this point:



If you were to run a multi-hundred metre length of suitable coaxial cable around a neighbourhood or through the rafters of a building (see below), creating slots where you want signal to "leak out", you end up with a highly localised semi-wireless system. A high gain amplifier such as the SDStv.com BDA-33A used as a "signal driver" connects to one end of the line, while at the opposite end a 75 ohm termination resistor completes the RF loop. Then at appropriate locations (as the line passes a house, for example) a slot is cut to allow signal to "leak" out towards the house. At each "slot-induced-radiation" point, a suitable SDStv.com logi antenna connected to an L-band receiver completes the last link of the circuit. This





eliminates spraying the L-band signal over a wide area. controls which homes actually get into the "loop" and marries the benefits of "wireless" with the controlled integrity of a "wired/cable" system.

Consider an installation where a network of security cameras are fed to a central monitoring point using conventional wire for interconnection. But the security personnel are mobile, constantly on the move. What they need is a way to use a hand held TFT or CRT display miniature monitor to "plug into" the security camera system while they are away from the central monitor display point. An airport, or CBD security video camera system, would be an example here.

By lacing the region where the security personnel move about with a wired system using radiation slots, the security personnel can stay totally mobile and yet tune-in while in motion the images being shot by the security cameras. We tested such a system at a major New Zealand transportation centre recently and when you can move between floors on the escalator, or even inside an enclosed elevator and still monitor what the security cameras see on a portable hand held L-band receiver with CRT display, the bad guys just lost a round (1). Yes, security people have their own two-way radios. Now for the first time they had their own mobile-in-motion TV camera coverage of the full facility.

Slot radiation offers the opportunity to cover a specific distance or geographic area with signal simply by "tuning" the size, shape and direction of the slot opening. Cutting an opening is a simple step (provided you don't screw up the integrity of the transmission cable in the process) but coverage distances are relatively small (on the order of less than 30 metres). If you modify the slot (2 in drawing above) to include a radiation "probe" (in reality, a small resonant antenna which can be optionally connected [one design] or not connected [a better design] to the centre conductor) the coverage distance jumps to the region of 100 metres. At some point you realise there has to be a better way of creating slot radiation than carving chunks out of a suitable transmission line. Which leads to 3 in the above drawing. Where you need a "slot", physically cut the transmission cable and *insert* a purpose-designed separate rectangular gadget of approximately 8 inches length over all. With an appropriate coaxial fitting on each end, the rectangular channel is both an extension/splice on the transmission line and a slot radiator. Using aluminium, brass

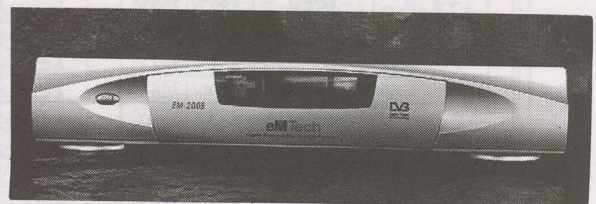
1/ In a public safety context, security personnel, even police cars in motion, through relayed security camera views directly to hand held or vehicle mounted receivers, can for the first time "see" what is happening at a trouble point before they arrive on the scene. SDStv gives them "eyeball extension" and complete mobility - effectively eyes in the back and sides of their head. Someday it will be built into their helmets as reality vision goggles now are.

or copper for the "purpose-built-slot" a number of coverage patterns can be configured. For example, one slot on one side radiates the signal only in that direction. Two slots on opposite sides radiates the signal in a figure 8 (bi-directional) pattern. A slot on one side and on the top creates signal in a 90 degree wedge - each location solving its own radiation-coverage requirements with a "slot-channel" designed for that location.

Moreover, trials suggest the entire assembly could be done largely using two-sided PC (printed circuit) board which allows you to vary the spacing between the thru-line (centre conductor portion) and the slot for additional variations in the amount of signal that is allowed to "leak" and the direction that leakage is transmitted.

We conducted our Auckland tests using nothing more complex than the standard mW 20 transmitter, a discone transmit antenna, and for receiving the SDStv.com active logi connected to a Skandia Satlook Mark III battery operated L-band receiver. In a purpose designed system, the slot-channel restricted coverage system combined with a miniature 4" TFT receiver would create total freedom of movement for public safety and security personnel.

KANSAT is proud
to present **eM**Tech



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, Gungalda QLD 4570
Tel (61) (0) 7 5484 6246 Fax (61) (0) 7 5484 6136
www.kansat.com.au

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

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	
Thom3/78.5	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)	
	TV Maldives	3412/1738V	1	1/2	6(.312)	
InSat 2E/83	Thai Global	3425/1725V	up to 7?	2/3	27(.500)	
	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)	
	Euro Bouq	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)	
As2/100.5E	WorldNet	3880/1270H	4+/20+radio	1/2	20(.400)	
	Hubei/HBT	3854/1296H	1	3/4	4(.418)	
	Hunan/SRT	3847/1303H	1	3/4	4(.418)	
	Guan./GDT	3840/1310H	1	3/4	4(.418)	
	In. Mongolia	3828/1322H	2	3/4	8(.397)	
	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)	
	Jiangx/JXT	3727/1423H	1	3/4	4(.418)	
	Fujian/SET	3720/1430H	1	3/4	4(.418)	
	Hubei TV	3713/1437H	1	3/4	4(.418)	
	Henan/Main	3706/1444H	1	3/4	4(.418)	
	Egypt/Nilesat	3640/1510H	7+, radio	3/4	27(.850)	
	As2/100.5E	Feeds	4086/1064V	1	3/4	5(.632)
	Jilin Sat TV	3875/1275V	1	3/4	4(.418)	
HeiLongJian	3834/1316V	1	3/4	4(.418)		
JSTV	3827/1323V	1	3/4	4(.418)		
Anhui TV	3820/1330V	1	3/4	4(.418)		
ShaanxiQQ	3813/1337V	1	3/4	4(.418)		
Guan/GXTV	3806/1344V	1	3/4	4(.418)		
Fashion TV	3795/1355V	1	3/4	2(.533)		
MSTV	3791/1359V	1	3/4	4(.340)		
Myawady	3766/1384V	1	7/8	5(.080)		
Les Amis	3714/1436V	2	3/4	6(.500)		
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)	
	CCTV bqt	4129/1021H	4(+)/TV	3/4	13(.240)	
	Zee Bqt #2	4135/1015V	4(+)/TV	2/3	15(.000)	
	Cak1/107.5	Indovision (S-band)	2.536, 2.566, 2.596, 2.626	33(+)/TV	7/8	20(.000)
IndoBqt		3460/1690H	up to 6	3/4	27(.500)	
T*Kom/108E	TPI	4185/965V	1	3/4	6(.700)	
C2M/113E	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?
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 "soon" (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
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
two test cards - December
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
Test mux; try 3500H as well
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)	Indone.Mux	4000/1250H	6+TV	3/4	26(.085)	
	ABC radio	3976/1174H	2+ radio only	3/4	2(.061)	
	Indo. MUX	3880/1270H	3+ TV	3/4	28(.125)	
	Brunei/Sing	3733/1417H	1TV	3/4	6(.000)	
	MMBM?	3580/1570H	up to 12?	3/4	26(.850?)	
JeSt3/128	RCTI	3475/1675H	1	3/4	8(.000)	
	Miracle Net	3996/1154V	3 up to 6	5/6	22(.000)	
MeaSat 2	Asian bqt	3960/1190V	up to 8	7/8	30(.000)	
	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	2TV	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)	
	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)	
	TaiwanBqt	3860/1290H	4TV + 30 radio	5/6	13(.240?)	
	CCTV Mux	3839/1311H	up to 4	3/4	13(.240)	
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(.632)	
	PS2/169	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)
MTV		3740/1410H	8	2/3	27(.500)	
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		4026/1124V	up to 6	3/4	22(.222)	
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)	
TowerBcst		3941/1209V	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)	
YIN Korea	3769/1381V	2+ TV	3/4	11(.570)		
BBC +	3743/1407V	3	3/4	21(.800)		

Receivers and Errata
unstable platform - testing?
SCPC radio only - purpose unknown
TVRI, others FTA
FTA; share time, Brunei-23hrs, Sing 1h
Tests? Try Sr 26.667 also
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
FTA 2 channels; more possible
testing digital feeds
NDS CA, subscription available NZ
NDS CA, subscription available NZ
NDS CA, subscription available NZ
also 12.686 12.706H-levels down
Irdeto CA, tests, S16 FTA occ.
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; ch 11 DCP-CCP bootload
PowVu/CA (some audio FTA)
PowVu CA & FTA (EWTN, BBC)
FTA at this time
Some FTA; also 4040V, 27.686, 7/8
Also try 28.000; p. 29 Nov SF
PowVu FTA, replaces PAS-2 svc
was As2; PowVu CA
PowVu, CNN/CNNI now CA
1-7 CA; #8 occ FTA
PowVu CA, WIN, ABC NT
PowVu CA, WA only - D9234
PowVu CA; some FTA, occ feeds
CA feeds to pay-TV; some FTA
Pv, CA/FTA (FTA ch 3 only)
PowVu (FTA) occ feeds
PowVu (FTA) occ. feeds
BT 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	4195/955RIIC	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)
	Ioarana	3772/1378L	1	3/4	4(.566)
	TVNZ	3846/1304R	1	3/4	5(.632)
	10 Australia	3769/1381R	4	7/8	20(.000)
	USA feeds	3749/1401R	4?	?	26(.400)

Receivers and Errata
PowVu occ FTA feeds
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/NIL early vcrsion, occ feds, typ ca
DMV/NIL early version, occ feds, typ ca
DMV/NIL early version, occ feds, typ ca
DMV/NIL early version, occ feds, typ ca
DMV/NIL early version, occ feds, typ ca
east hemi 20.5 dBw thru 2003+
DMV/NIL 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!)

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**

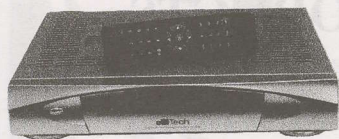
PACKAGE two: Au \$4xx

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

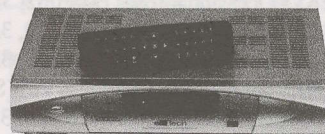
eMTech Digital Satellite receivers-SatcoDX[®] compatible



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

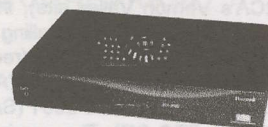
**NEW!
PVR
Model**



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

BANDSCAN: PanAmSat PAS-2 Analysis

The essence of PanAmSat PAS-2 (169E) is that to properly "enjoy" its versatile and frequently changing services, one should be equipped with a Nokia (9500S) receiver operated by the latest DVB software. No other satellite in the Pacific-Asia region has such a heavy work load nor makes as many changes in operations on a daily/weekly basis. More than 75% of the trans-Pacific SCPC special event, live news feed coverage passes through PAS-2. Even the most current (today!) lists will be outdated before the ink dries or the web site posting has been locked up. In fact, perhaps 90% of all special feeds carried on PAS-2 go "unnoticed" by enthusiasts because of their brief duration and constantly changing (SCPC) frequencies and parameters. Here are the highlights:

3716Vt Occasional feeds with varying parameters

3744Vt Singapore bouquet including FTA BBC World (Sr21.800, FEC 3/4 FTA V1360/A1320

3736Vt TBS news feeds (CNN) (Sr6.620, 3/4)

3771Hz South Korea mux FTA + CA Sr 11.574, 3/4

3785Hz Occasional feeds (Sr5.560, 3/4)

3794Hz Occasional feeds (Sr5.560, 3/4)

3836Vt Middle East bouquet FTA (Al-Jazeera, ART Aust, RAI)

and CA (LBC Aust; subscriptions available, contact Strong

Technologies 61-3-8795 7900), (Sr13.330, 3/4)

3855Hz Occasional feeds (Sr6.620, 2/3)

3864Hz Occasional feeds (Sr6.620, 2/3)

3865Vt Occasional feeds (Sr19.530, 3/4)

3872Hz Occasional feeds (Sr6.620, 2/3)

3888Vt Occasional feeds (Sr6.620, 2/3)

3901Hz California bouquet FTA (feeds, BBC World)

V1560/A1520, Bloomberg V1660/A1620), CA (Sr30.800, 3/4)

3905Vt Occasional feeds (Sr6.620, 3/4)

3929Vt Occasional feeds (Sr6.620, 3/4)

3939Vt Occasional feeds (Sr6.620, 3/4)

3951Vt Occasional feeds (Sr6.620, 2/3)

3958 Vt Occasional feeds (Sr6.620, 2/3)

3960 Hz Occasional feeds (Sr1.724, 2/3)

3968Vt Occasional feeds (Sr6.620, 2/3)

3992Vt Fox bouquet FTA (Fox News V1560/A1520) and CA (Sr26.470, 7/8)

3992Hz NTV occasional feeds (Japan) (Sr5.632, 3/4)

4026Vt ERA (HK) bouquet FTA (6) and CA (2) (Sr22.222, 3/4)

4026Vt Occasional feeds (Sr5.062, 3/4)

4035Hz Occasional feeds (Sr6.110, 3/4)

4044Hz Occasional feeds (Sr5.560, 3/4)

4058Vt TVB (HK) bouquet (all CA PowerVu) (Sr13.238, 3/4)

4063Hz Occasional feeds (Sr6.620, 3/4)

4148Vt Hong Kong bouquet tests FTA (Sr24.430, 2/3)

Note: PAS-2 Ku band including beams that cover Australia and New Zealand will be "bandscanned" in our January issue.

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

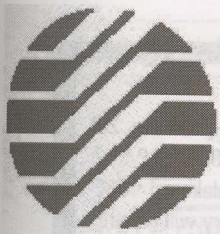
RURAL ELECTRONIC PRODUCTS

"The better reception centre"

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

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 December 16** - 9907 at 0200-0300 UTC (1500 NZST, 1300 AEST, 0900 Western Australia; repeats 0700 UTC/8PM NZST, 6PM Sydney, 2PM Perth). **Sunday December 23** - Show 9908, same times as December 16; **Sunday December 30** - Show 9909, same times as December 16; **Sunday January 6** - Show 9910, same times as December 16; **Sunday January 13** - Show 9911, same times as December 16; **Sunday January 20** - Show 0012, same times as December 16; **Sunday January 27** - Show 0013, same time as December 16 (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.



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

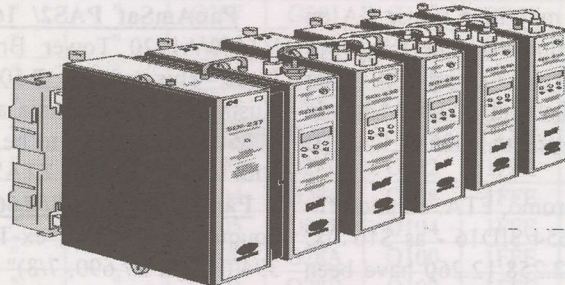
Web: http://www.ikusi.com



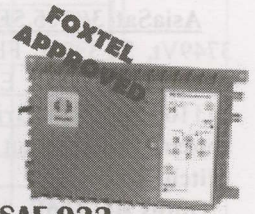
IKUSI

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 steam 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

WITH THE OBSERVERS

AT PRESS DEADLINE

Corrections: In this page report AND in Digital Watch Tables (p. 22) and PAS-2 Bandscan correct ERA Bouquet Sr to 22.000 for PAS-2 4026Vt. Also reported Channel News Asia others Telekom 1 108E 3460Hz with new Sr 28.000. SatFACTS for January will go into the mails Wednesday January 16th.

AsiaSat 2/ 100.5E: "On 3714Vt, Sr 6.500, FEC 3/4 Two Les Amis de TV test cards FTA" (Anthony, NT).

AsiaSat 3/ 105.5E: "Ekushey TV may be FTA or CA on 3749Vt, Sr 3.418, FEC 2/3 time sharing on same frequency with commercial Ekushey TV service using SA gear (V1160/A1120)" (Brian Goddard, Thailand). "ETV Marathi appears to have shut down FTA, moved to 4005Vt CA" (D Mitchell, NSW).

Optus B1/ 156E: "Saturn Cinema promo, FTA, on and off 12.483Vt, Sr 22.500, 3/4 -0 V651/A654/SID16 - as S16" (C Sutton, NZ). "ABC NT signals on 12.258/12.260 have been up and down like a yo-yo because of the same-transponder loading of a data signal - on good days locks on 65cm, on bad days it won't lock on 1.2m" (CS, NZ). "Last remaining analogue E-PAL? 9 Net 12.487Hz" (D Mitchell, NSW). "ABC digital services 12.670/686/706Hz have gone down in level since testing started, no longer satisfactory even on 1.8m" (IF, NSW).

Optus B3/ 160E: "12.375Hz now loads on Nokia 9500S as (1) ABC, (2) DISN, (3) CNNF, (4) TCM, (5) C7S, (6) NRL, (7) EXPO, (9) ABCK. Expo is a CA service, running (and rerunning) the kind of infomercials one usually sees late at night on terrestrial services - now they have a channel of their own!" (IF, Queensland) "ZeeLink 3 -Music/news and 5 - Alpha Punjabi, have shut down (1 December)" (D Mitchell, NSW).

Palapa C2M/ 113E: "No, they are not strong but MMBN fans should try 3580Hz, Sr 26.850 (and 26.667 - ed) at FEC 3/4. When Indovision used this transponder the service was much stronger suggesting the lack of signal is uplink, not satellite related" (DR, NT). "The ex-MMBN transponder 4000Hz is now a whopping big data signal (Sr 24.000, 7/8). Using the IPDVB software on a Nokia revealed heaps of junk, MP-3 music downloads. Sort of like going over a beach with a different kind of metal detector!" (TC, NZ). And maybe that was temporary - for, "Channel News Asia is one of the services appearing on 4000Hz, Sr 26.085, FEC 3/4 with PIDs suggesting it is a SA equipped uplink (i.e., V1160/A1120)" (BR, Australia). "Some days this is CA, some days FTA - lots of playing around here; Channel News Asia comes and goes at uplinker whim" (Robert T, Qld). "Try 3633Hz, Sr 7.406, FEC 3/4 for what initially looked like MMBN's 12 channels restarting (although Sr is woefully low even for them); try V32/A33" (Bill Richards, Australia). "FTV has been testing two-channel service on 3633Hz V32/33, A34/35" so maybe

they will be here FTA (as in tests) after the AsiaSat 2 service becomes CA?" (F.N, NT)

PanAmSat PAS2/ 169E: "3941Vt, Sr 6.620, FEC 3/4 V1460/A1420 Tower Broadcast Centre test card and BT feeds. This was Sr 7.500, 2/3 previously" (Bill Richards, Australia). "TVBS Asia and Newsnet no longer 4044Vt; try 4026 which appears to be a new bouquet, Sr 22.222, FEC 3/4 with some CA, some FTA" (TT, Taiwan).

PanAmSat PAS-8/ 166.5E: "BBC World has replaced the bouquet position of ex-TNT (since moved to As3S), FTA 3940Hz (Sr 27.690, 7/8)" (TD, SA). "Thai TV Global now on 12.726Hz, typically FTA, V524/A652" (II, NSW). "People should not forget the Taiwan bouquet detailed in SF November (3851) also has some TV services in addition to 30 radio channels; and, it appears to have changed parameters to 3860Hz, Sr13.240, FEC 5/6" (IF, Qld). "On 3860Hz new, you might also try Sr 28.000 which was used briefly on 3850 before moving" (Bruce).

Telekom 1/108E: "There are many changes almost daily on 3500Hz TelekomVision, various symbol rates (try 27.500, FEC 3/4; also try 3460Hz at 27.500, 3/4 where they have been most recently reported) with a variety of Indonesian and European (FTV, BBC World +) services" (AK, PNG).

Soapbox: "The Austar box broke down on 1 December and I am advised the earliest anyone can come around to replace or repair it is December 10th" (AI, NSW). "Approximately 80% of the Austar dishes in our community are not in use (people have cancelled the service). A local terrestrial tech is now using the LNB clamping arm on abandoned dishes as a clamp-to spot for terrestrial aerials, and moving the coax from the LNB to the terrestrial aerial!" (NS, NSW) "Have been told Intelsat 602 now inclined orbit at 60E will be moving to 157E" (DL, NSW). "Check out www.sasktel.com. They claim they will launch a 'broadband' service with more than 100 channels into portions of NSW 'after Christmas'" (David Leach, NSW). "Lest we forget - Radio Australia continues on C2M 3976Hz, Sr 2.061, 1/2 but should be popping up soon on some satellite with their new 'regional' TV service; I'm still betting it will be PAS-8 and a second satellite simultaneously" (Aaron Brown, NSW). "Anyone know what the story is with the WorldNet As2 analogue service that was supposed to shut down back on 10 October? I can see they have kept it going analogue because of Afghanistan but now the bad guys are about wiped out, how long before this analogue service is gone?" (Juan T. Booker, Thailand). "The chaps behind DigiSat Limited,

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

Nokia "Log-Run" of the operating parameters for TVNZ, Telstra/Saturn and Sky Network NZ/Optus B1

Service	Frequency	Symb	FEC	VidPid	AudPid	PMT	PCR	Text	PMC	AC3
TVNZOne	12,456	22,500	3/4	0206	0290	0029	009A	0582	0549	00FF
TVNZ 2	12,456	"	"	0207	0291	002C	009B	0583	0549	00FF
(T/S)S07	12,733	"	"	0200	028A	0106	0080	1FFF	0550	01FF
(T/S)S09	12,733	"	"	0203	028D	010A	0083	1FFF	054F	01FF
(T/S)S20	12,733	"	"	0202	028C	0109	0082	1FFF	054D	1FFF
(T/S)S19	12,733	"	"	0204	028E	010B	0084	1FFF	054E	1FFF
(T/S)S97	12,733	"	"	0207	0291	0110	0087	1FFF	0548	1FFF
(T/S)S21	12,733	"	"	0206	0290	011D	0086	1FFF	054C	1FFF
(T/S)S23	12,733	"	"	0201	028B	0108	0081	1FFF	054B	1FFF
(T/S)S25	12,733	"	"	0205	028F	010C	0085	1FFF	054A	1FFF
(T/S)T80	12,733	"	"	1FFF	028F	010F	0085	1FFF	0549	1FFF
Trksd/Ftv	12,671	"	"	0203	028D	0112	1FFE	0579	0549	01FF
TV1	12,671	"	"	0204	028E	0118	1FFE	0580	0549	00FF
TV2	12,671	"	"	0205	028F	0104	1FFE	0581	0549	00FF
SBO Mov	12,671	"	"	0200	028A	0100	1FFE	1FFF	0549	01FF
Playboy	12,671	"	"	0201	028B	0102	1FFE	1FFF	0549	01FF
Spice	12,671	"	"	0202	028C	0103	1FFE	1FFF	0549	01FF
IA Test 1	12,671	"	"	1FFF	1FFF	0101	1FFF	1FFF	0549	01FF
IA Test 2	12,671	"	"	1FFF	1FFF	0106	1FFF	1FFF	0549	01FF
IA Test 3	12,671	"	"	1FFF	1FFF	010A	1FFF	1FFF	0549	01FF
IA Test 4	12,671	"	"	1FFF	1FFF	010B	1FFF	1FFF	0549	01FF
IA Test 5	12,671	"	"	1FFF	1FFF	010C	1FFF	1FFF	0549	01FF
IA Test 6	12,671	"	"	1FFF	1FFF	010D	1FFF	1FFF	0549	01FF
VCR Input	12,671	"	"	1FFF	1FFF	0117	1FFF	1FFF	0549	01FF
TAB	12,671	"	"	1FFF	0297	0113	1FFE	1FFF	0549	01FF
Interaction	12,671	"	"	1FFF	1FFF	0114	1FFF	1FFF	0549	01FF
Interaction	12,671	"	"	1FFF	1FFF	0107	1FFF	1FFF	0549	01FF
Weather	12,671	"	"	1FFF	0296	0115	1FFF	1FFF	0549	01FF
LudiGames	12,671	"	"	1FFF	1FFF	0116	1FFF	1FFF	0549	01FF
MovMax	12,644	"	"	0200	028A	010E	1FFE	1FFF	0549	01FF
Nickelod.	12,644	"	"	0201	028B	0106	1FFE	1FFF	0549	01FF
TV3	12,644	"	"	0202	028C	0107	1FFE	1FFF	0549	01FF
TV3	12,644	"	"	0202	028C	0105	1FFE	1FFF	0549	01FF
TV4/FTV	12,644	"	"	0203	028D	0108	1FFE	1FFF	0549	01FF
SBO 2	12,644	"	"	0204	028E	0109	1FFE	1FFF	0549	01FF
Phoenix	12,644	"	"	0205	028F	010A	1FFE	1FFF	0549	01FF
CTVC	12,644	"	"	0206	0290	010D	1FFE	1FFF	0549	01FF
SkyMovie	12,519	"	"	0200	028A	0105	1FFE	1FFF	0549	01FF
CartNet	12,519	"	"	0201	028B	0103	1FFE	1FFF	0549	01FF
ESPN	12,519	"	"	0203	028D	0102	1FFE	1FFF	0549	01FF
SkyNews	12,519	"	"	0202	028C	0100	1FFE	1FFF	0549	01FF
J2	12,519	"	"	0204	028E	0101	1FFE	1FFF	0549	01FF
BoxOffice	12,519	"	"	0205	028F	0104	1FFE	1FFF	0549	01FF
KTV	12,519	"	"	0206	0290	010C	1FFE	1FFF	0549	01FF
Weather	12,519	"	"	0205	028F	0106	1FFE	1FFF	0549	01FF
Sdm50/60	12,519	"	"	1FFF	0296	010D	1FFE	1FFF	0549	01FF
SdmDisco	12,519	"	"	1FFF	029A	0112	1FFE	1FFF	0549	01FF

If you live in Australia -
the most extraordinary service for
SatFACTS Monthly

is through
Av-Comm Pty Ltd.
Email cgarry@avcomm.com.au
or telephone 02 9939 4377

We have CI Modules for SECA cards
that fit all CI module capable IRDs.

Top quality European products designed to do the job.
You supply the card - we supply the module!

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

Service	Frequency	Symb	FEC	VidPid	AudPid	PMT	PCR	Text	PMC	AC3
StarTracks	12,519	22,500	3/4	1FFF	O297	O10F	1FFE	1FFF	O549	O1FF
LifeStyle	12,519	"	"	1FFF	O298	O110	1FFE	1FFF	O549	O1FF
Smooth Snd	12,519	"	"	1FFF	O299	O111	1FFE	1FFF	O549	O1FF
JuiceTV	12,608	"	"	O202	O28C	O104	1FFE	1FFF	O549	O1FF
Discovery	12,608	"	"	O200	O28A	O101	1FFE	1FFF	O549	O1FF
Prime	12,608	"	"	O204	O28E	O102	1FFE	1FFF	O549	O1FF
Sundance	12,608	"	"	O201	O28B	O100	1FFE	1FFF	O549	O1FF
JapanTV	12,608	"	"	O206	O290	O10E	1FFE	1FFF	O549	O1FF
SportXtra	12,608	"	"	O203	O28D	O106	1FFE	1FFF	O549	O1FF
SdmSmooth	12,608	"	"	1FFF	O295	O111	1FFE	1FFF	O549	O1FF
SdmChill	12,608	"	"	1FFF	O296	O112	1FFE	1FFF	O549	O1FF
SdmJazz	12,608	"	"	1FFF	O29A	O110	1FFE	1FFF	O549	O1FF
Eng26	12,608	"	"	O205	O28F	O105	1FFE	1FFF	O549	O1FF
WolfRadio	12,608	"	"	1FFF	O294	O10F	1FFE	1FFF	O549	O1FF
WolfRadio	12,608	"	"	1FFF	O294	O107	1FFE	1FFF	O549	O1FF
TheEdge	12,608	"	"	1FFF	O298	O113	1FFE	1FFF	O549	O1FF
Mosaic	12,581	"	"	O205	O28F	O100	1FFE	1FFF	O549	O1FF
Sky1	12,581	"	"	O200	O28A	O101	1FFE	1FFF	O549	O1FF
Hallmark	12,581	"	"	O204	O28E	O102	1FFE	1FFF	O549	O1FF
Sport 2	12,581	"	"	O202	O28C	O103	1FFE	1FFF	O549	O1FF
Animal Pl	12,581	"	"	O201	O28B	O104	1FFE	1FFF	O549	O1FF
CNN	12,581	"	"	O203	O28D	O105	1FFE	1FFF	O549	O1FF
SdmChart	12,581	"	"	1FFF	O298	O10E	1FFE	1FFF	O549	O1FF
SdmPop	12,581	"	"	1FFF	O299	O10F	1FFE	1FFF	O549	O1FF
Nat Radio	12,581	"	"	1FFF	O295	O111	1FFE	1FFF	O549	O1FF
Concert	12,581	"	"	1FFF	O297	O110	1FFE	1FFF	O549	O1FF
Nat Radio	12,581	"	"	1FFF	O295	O106	1FFE	1FFF	O549	O1FF
Concert	12,581	"	"	1FFF	O297	O107	1FFE	1FFF	O549	O1FF
MGM	12,546	"	"	O202	O28C	O100	1FFE	1FFF	O549	O1FF
Granada	12,546	"	"	O203	O28D	O104	1FFE	1FFF	O549	O1FF
SkySport	12,546	"	"	O204	O28E	O102	1FFE	1FFF	O549	O1FF
NatGeo	12,546	"	"	O200	O28A	O103	1FFE	1FFF	O549	O1FF
CNBC	12,546	"	"	O201	O28B	O101	1FFE	1FFF	O549	O1FF
XtraXtra	12,546	"	"	O204	O28E	O10C	1FFE	1FFF	O549	O1FF
CTVN	12,546	"	"	O205	O28F	O10A	1FFE	1FFF	O549	O1FF
CTVE	12,546	"	"	O206	O290	O10B	1FFE	1FFF	O549	O1FF
SdmRock	12,546	"	"	1FFF	O294	O10E	1FFE	1FFF	O549	O1FF
SdmContry	12,546	"	"	1FFF	O295	O10F	1FFE	1FFF	O549	O1FF
SdmClassic	12,546	"	"	1FFF	O296	O110	1FFE	1FFF	O549	O1FF
SdmKids	12,546	"	"	1FFF	O299	O111	1FFE	1FFF	O549	O1FF
AdTrack	12,546	"	"	1FFF	O29A	O112	1FFE	1FFF	O549	O1FF
MerryXm	12,546	"	"	1FFF	O297	O10D	1FFE	1FFF	O549	O1FF

Palmerston North, who had promised a dual purpose embedded VideoGuard (NDS) + a CI CAM for Irdeto - I heard they got tired of the changes in NZ satellite service planning and are now moving their operation to Australia. Anyone know for sure what is happening here - a combo NDS + Irdeto machine would be verry useful!" (Syd Chappel, NZ). "Not all of the Sky (NZ) telephone operators understand the FTA option for TVOne-4; I called, was told it was \$50 a month no matter what!" (PE, Auckland). "I did need to reload my IRD after TVNZ added the teletext PID" (PE, NZ). "Did anyone notice that a California court has ruled it is not illegal to post on web sites the DeCSS software developed in Norway for Linux which effectively breaks the DVD copyright technique? If this ruling stands on the basis of limiting 'free speech' is it not logical that posting smart card busting schemes on the web

is also not illegal?" (KG, NSW). "Because SatFACTS has a wide readership, we are counting on you to keep us informed in some way of the growth of FTA DTH in New Zealand which ultimately could have a bearing on whether TV3/TV4 join the TVNZ bouquet" (OT, NZ). "It is not unusual to find the ENG 45 channel FTA within the Sky bouquet but usually not for very long" (RC, NZ). "It is to be expected that some or all of the As2 3640Hz channels from Middle East will be FTA during a portion of the Christmas holiday season" (Arnie, NSW). "Matchmaster Communications has launched a satellite high speed Internet delivery service with a firm called Harmonic Data Systems including 200 Northern Territory schools; information from them toll free at 1800 816 460" (Bill King, Qld).

AT

Sign-off

On the trail of teletext

There is an abundance of confusion concerning what it takes to process "teletext" through a satellite IRD / set-top box so that a typical consumer can navigate the on-screen text service. The launch of TVNZ's TVOne and TV2 on Optus B1, complete with teletext and something uniquely called "closed captions," is sending many IRD engineers back to the drawing boards for IRD redesign.

Until TVNZ came along with their free to air 12.456Vt Optus service, almost nobody really cared about text on screen beyond the newer EPG formats. But because TVNZ is the only New Zealand (and dare we say it - Pacific) service with real, live, teletext included in the FTA data stream, a suitable "standard" system for processing teletext has simply not evolved.

There are at least two different so-called teletext formats. The first is the multi-hundred page news and information system that allows viewers to scroll through the latest headlines, sport scores, advertisements, programming notices and even play rudimentary games. This is modelled after the European system credited to the BBC and something that was once called Ceefax. The second method is modelled after an American design called closed captioning where in real time the words spoken by people on (or off) screen appear as subtitles on the bottom of the screen. Closed captions are supported to assist the hearing impaired enjoy television.

ABC Australia's Aurora package contains closed captioning, most of the time on most of that service's channels. TVNZ's TVOne and TV2 and CanWest's TV3 terrestrial services in NZ do the same with a greater degree of frequency. It was only natural to TVNZ to make the same service, plus the full New Zealand version of the broadly information based teletext, also available on Optus 12.456Vt.

Until TVNZ launched the service early in December, the only teletext one might find on Asia-Pacific satellite was on French TV5 (European bouquet As2) and a few of the (analogue) Indonesian services (C2M). The first challenge in marrying teletext to DVB (digital) is the space or bandwidth consumed. A reduced definition service (544 x 576 pixel display) can get by consuming as little as 2.5 Mbit/s (witness FTV on As2). Adding full teletext increases the data rate by at least 500 Kbit/s (turning 2.5 into 3.0). In a commercial world where kilo/megabits represent inventory and inventory represents cash flow (income), bouquet operators are loathe to include something in the data stream which does not create immediate revenue.

Teletext (the full multi-hundred page service) requires either a terrestrial TV set with a special "decoder" in-built, or in the case of a satellite IRD, a decoder function included there. It is possible to have a decoder that functions for closed captions but not the full teletext - and it costs less at the point of manufacture. Current New Zealand statistics suggest only 7% of all TV sets sold have the full teletext capability included and many brands offer this option only when the TV set has a

25"/64cm or 29"/74cm screen - and above. As Sciteq's Peter Merrett correctly asserts, "Generally this is available only at the upper end of the market."

When TVNZ began full teletext service on 12.456Vt, there was a rush to see which IRDs would produce on screen text. Nokia's 9500S was quick to work, a Zinwell ZDX-7100 worked. We asked Peter Merrett to use the French TV5 service as a test and he reports, "The Humax IRCI-5400Z, IR-5410Z will *not* produce teletext on TV5." The 5400Z brochure makes the statement, "Supports letterbox Subtitle (DVB A009) and teletext (DVB ETS300 472) by VBI insertion." Both models work properly with the ABC closed captioning.

One trick is to check an IRD two ways - first using the video output of the IRD directly to the video input on a teletext capable TV set and when (or if) that fails, connect the UHF modulator output of the IRD to the TV's aerial input.

Reinserting teletext through the VBI (vertical blanking interval) is an inexact procedure and different designers may or may not do it in a manner which a normal consumer teletext-equipped TV set will process.

"In the DVB system there are two types of subtitling: DVB Teletext (EN 300 472) of which subtitling can be a part and DVB Subtitling (EN 300 743) which is a bit mapped system and quite complex," reports an engineer at TVNZ. Notice EN 300 743 (DVB Subtitling) is not the same as the Humax VBI insertion procedure (ETS 400 472).

"You can have a DVB subtitle service component just like (sending) video and audio. It comes in two flavours - text-based (meaning mostly Eurocentric [text] characters) or bit-mapped which allows for ideographic support of Chinese, Thai and other Asian languages. I do not have much confidence in the ability of FTA receiver designers to create anytime soon a text system that will take a packet of data and turn it into bit-mapped Chinese characters which are displayed with sufficient accuracy to appear at the same time as the audio it is meant to represent," suggests an Asian engineer with one of the major TV service providers.

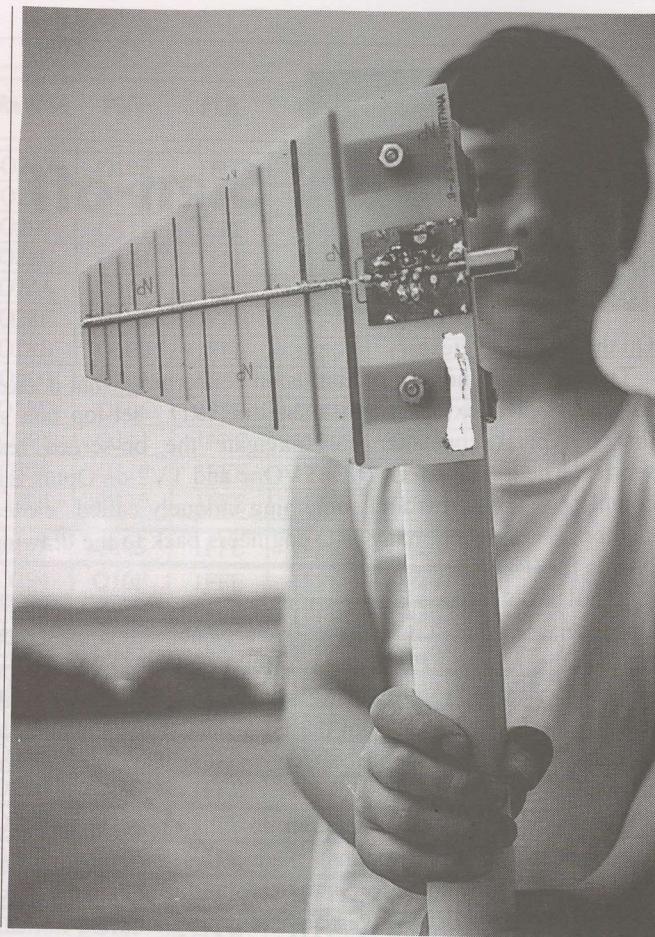
"(TVNZ) has no plans at the present time to do bit-mapped subtitling. In theory, any FTA box displaying the 'DVB' logo on the front should handle all features of the service information (including teletext). Virtually all set top box manufacturers claim they can handle bit-mapped subtitling although Australia has found a great deal of trouble in the implementation (of this)," continues the TVNZ engineer.

The Asian engineer disagrees. "The DVB logo does *not* mean support for all SI features in DVB. Now we are touching on the 'beauty' and the aggravation which is DVB: A standard with so much room to manoeuvre while the product manufacturer can still claim to be 'compliant'. So many of the (SI) tables are not mandatory (for compliance with DVB), yet some receivers will not work if they are missing. So who is right and who is wrong? Factor on top of that the non-generic nomenclature and it is amazing we can make any progress!"

In fact, until TVNZ came along with their FTA 12.456, no broadcaster we are aware of dared to send DVB subtitling in an FTA data stream. So until now there has been no economic benefit for the FTA receiver industry to create receivers that will do this. Some that do are perhaps doing so quite by accident if our Asian engineer quoted here is correct.

Teletext may not be the most significant service we have to offer, but it will sell DTH systems for us. Let's do it!

STRE- TCH IT OUT

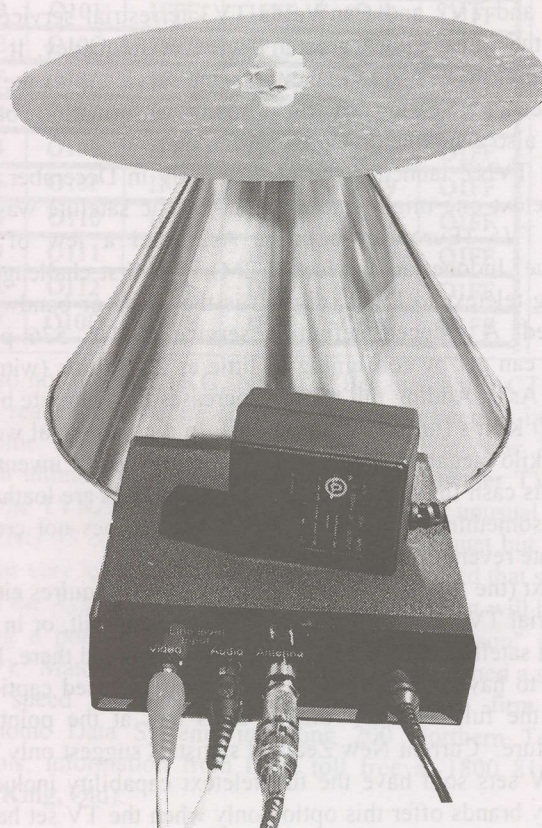


21 dB link gain! Field tests show this active antenna can double, even triple your coverage range. The brand new SDStv.com R003A integrated Active-Logi antenna + 15 dB gain masthead amplifier is all one piece - superb low-noise performance directly matched and fed by the 6 dB gain Logi. Powering is from 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

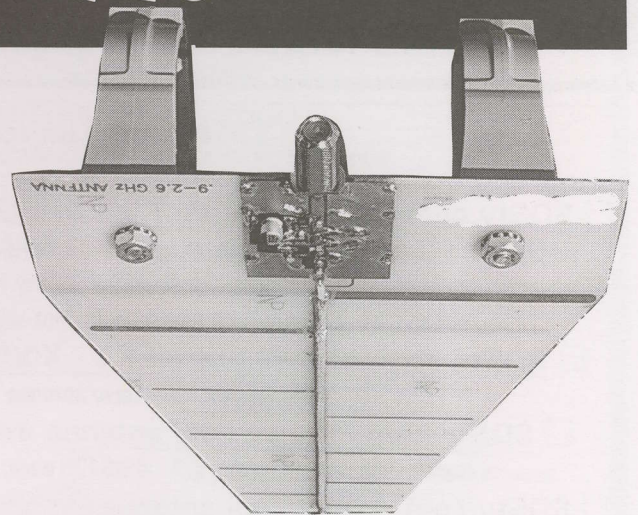
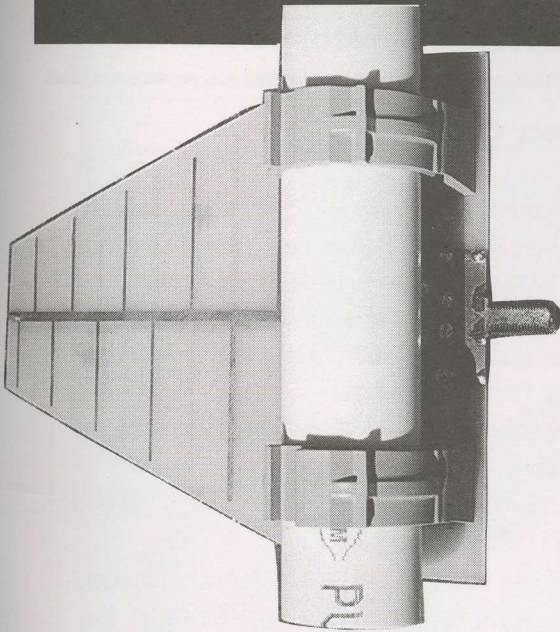
Any video + audio source (from your satellite receiver, VCR, DVD player) connected to the A/V input; the SDStv.com 20 mW (milliwatt) transmitter connects to a suitable transmit antenna (SDStv.com discone omni-directional antenna is shown to right) through standard RG6. Dial up a suitable frequency (*) 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).

See order form page 34 here.



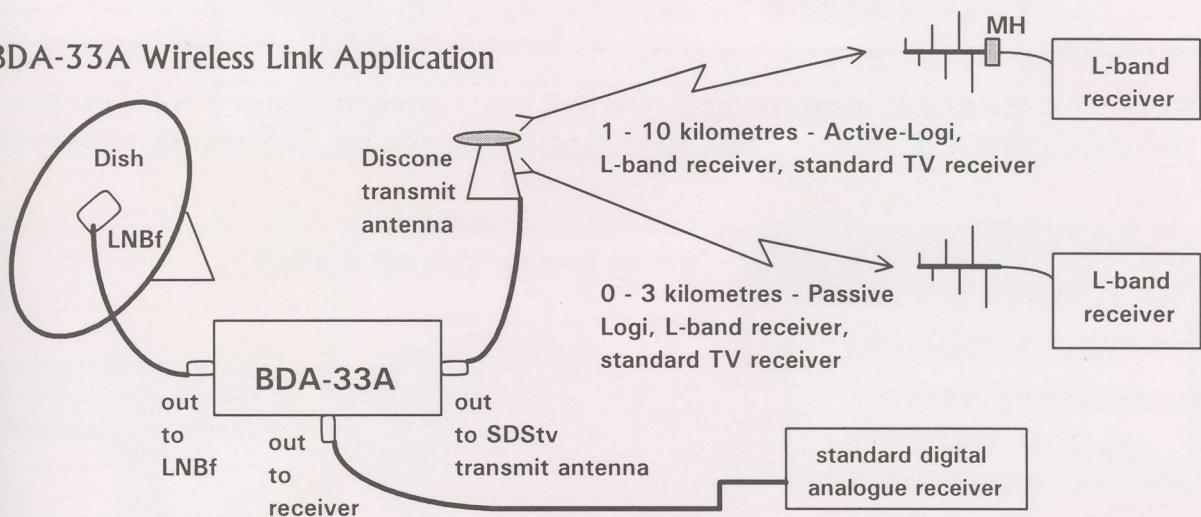
* 24 user-select frequencies in channel-agile mW 20 transmitter. User is responsible for transmitter licensing if required by local regulation.
(NZ Patent Pending #513814)

SNAP 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.
- 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???
Attention India & Middle East: New "local" sources for SDStv.com equipment
- ask us!

Who I am - Where to ship this equipment

Name _____ Company _____

Mailing/shipping address _____ (e-mail _____)

Town/City _____ State/Province _____ Mail Code _____ Country _____

If this is an order:

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

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

Name on card _____ Card expires ____/____

Card number _____ - _____ - _____ - _____

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

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

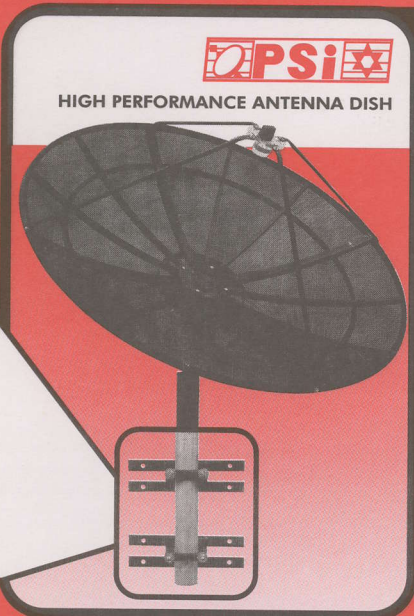
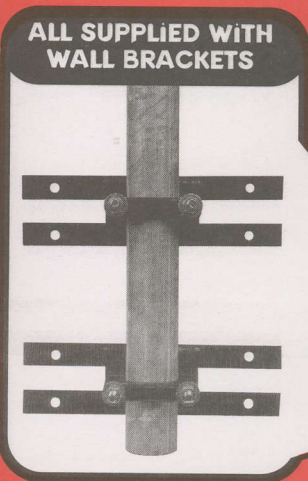
Return: Fax to 64-9-406-1083 (tel 64-9-406-1282; email skyking@clear.net.nz) or mail to
SDStv.com Ltd, PO Box 30, Mangonui, Far North, New Zealand

- 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



- AVAILABLE IN**
- 1.95m Quad Fixed mount
 - 2.3m Quad Polar mount
 - 3.1m Quad Polar mount



HUMAX

IR-5410Z

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

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



Trade supplier of quality products:



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