Bob Cooper's

AUGUST 15 2004

SatFACTS

MONTHLY

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

IN THIS ISSUE

BER/MER? Confused? Peter Lacey

Inline Amps: What, when and how to use

Tiny Tots. Super small, very efficient

- ✓ Latest Programmer News
- ✓ Latest Hardware News
- ✓ SCRATCHI on satellite clubs
- ✓ Observer Reports

Vol. 9 ◆ No. 120
Price Per Copy:
NZ$10/A$11/US$/Eur8

Phoenix Technologies

Satellite Equipment & Accessories One Stop Supermarket

Phoenix JT3100T Digital Terrestrial Receiver

- Digital Audio Output (S/PDIF)
- Dolby Digital
- Wide Screen (16:9) Hot-Key
- S-VHS, CVBS & RGB Video Outputs

- Super-Fast Channel Scan
- Electronic Program Guide
- Channel Rename Function
- Software Upgradeable

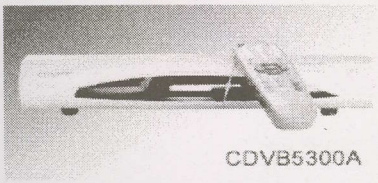
$180/each (for 6 unit)
$160/each (for 30 units)

Magix 8800 Receiver
(Made in Korea) **$220**

Coship digital receiver
(Iredto V2.09 CAM embedded) **$220**

SPACE 5300A CI Receiver
(Two Common Interface Slots)

Auto PID correction
C & Ku band input
PAL/NTSC auto converter
5000 channels
Picture in picture EPG
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA output
$180



SPACE 2300 digital receiver
Auto PID correction
C & Ku band input
PAL/NTSC auto converter
5000 channels
Picture in picture EPG
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA output
$140

NextWave 3220 FTA digital receiver
(Made in Korea)

C & Ku band input, PAL/NTSC auto converter
5000 channels Picture in picture EPG
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA outputs
$160

NextWave 3220C digital receiver
(Two common interface slots) **(Made in Korea)**

C & Ku band input
High symbol rate >45,000
PAL/NTSC auto converter
5000 channels Picture in picture EPG
DiSEqC1.0/1.2 control
TV/VCR Scart & RCA outputs
$220

Irdeto 2.06B CAM	$140	Zinwell C band LNBF	$35
Viaccess CAM	$140	Zinwell 10.70/11.3 /Universal Ku band LNBF	$25
65cm offset dish	$27		
75cm offset dish	$40	MTI C band LNBF	$35
Superjack DiSEqC 1.2 motor	$95	One cable solution C-banc LNBF	$50
Universal Mount	$15	Satellite finder	$30
2.1m mesh dish	$120	Silver Card (10/bag)	$125
2.3m mesh dish (motorized)	$170	Gold Card (10/bag)	$85
		RG6 Stripper	$20
2.4m heavy duty mesh dish (motorized)	$210	RG6/11 Crimper	$30
1.8m 6 panel dish	$130	Angle meter (made in USA)	$85
RG 6 Dual cable (305m/roll)	$75	Compass	$30

Optus C1 Aurora Kit
Coship digital receiver

(Iredto cam embedded)
11.3 GHz/Universal Ku LNBF, 75cm dish, Mount bracket.
$315/set
+Aurora card $75

LBC, ART, Al Jazeera Kit
Coship digital receiver

(Iredto cam embedded)
C-band LNBF, 2.3m Mesh dish.
$435/set
+Subscription fee $20/month*

Free to air kit (for NSS 6, Optus B3)

Including dish, LNBF, digital receiver, etc.
Start from $250/set

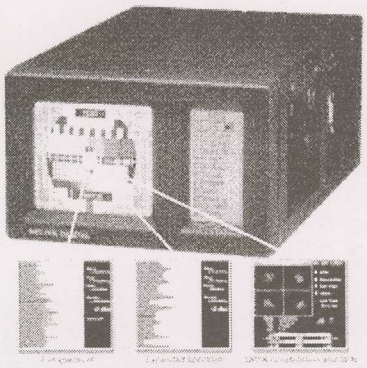
Changhong 1000 Digital Receiver
Aston 1.05 Cam embedded

Best Value For Indian & French
(C-band on Asiasat 3s & Ku band on Intelsat 701)
C & Ku band input, 2000 Channels.
$170

(Top quality) TESTING EQUIPMENT SPECIAL (made in Sweden)

Satlook MARK III $950
- 4,5" B/W monitor for PAL/NTSC/SECAM
- Satellite-receiver 920-2150 MHz
- Tunable sound 5,5-8,5 MHz
- Spectrum analyzer
- Expanded spectrum
- LNB voltage 13/18 V
- 22 kHz tone switch
- KU- and C-band (normal/inverted video)
- Built in rechargeable battery
- Only 3,5 kg complete with carrying-case

Satlook Digital NIT $1550
We are pleased to introduce our new SATLOOK Digital NIT. NIT stands for NETWORK INFORMATION TABLE, which today almost all DVB-satellites transmit as standard. The NIT contains information about the Satellite and TV/Radio-channels. It's very easy to identify a Satellite when reading out this information. The different TV/Radio-channels on a transponder can also be read-out.



Satlook COMBO $2550
- Input frequency: 2-900 MHz and 920-2150 MHz
- 4.5" B/W Monitor for PAL/NTSC/SECAM
- Lots of memory positions for spectrum pictures
- RS232 for PC-connection
- Built in, rechargeable battery. Only 7kg complete with carrying case

TV-PART:
- 2-900 MHz spectrum analyzer
- Presents full range spectrum (and expanded)
- Very high accuracy, ±1dB (at 20°C)

SAT-part:
- 920-2150MHz spectrum analyzer. Digital BER, QPSK and S/N-ratio
- Satellite-ID and TV/Radio-channel info (NIT)
- Tunable audio bandwidth 5.5-8.5MHz
- LNB voltage 13/18V, 22kHz tone switch
- DiSEqC according to level 1.0, 1.1, 1.2
- KU- and C-band (normal/inverted video)

Full range of C/Ku band satellite dish - panel & mesh, prime & offset, from 45cm to 4.5m
Full range of Zinwell, MTI C/Ku LNBF - Dual output, one cable solution, C/Ku combination
Full range of actuator - From 12" light to 36" heavy duty
DiSEqC 1.2 Positioner & SupperJack EZ2000 Positioner
2.4 GHz AV sender and Remote extender
RG6 Cable and Motor cable
Full range of satellite accessories

THIS MONTH SPECIAL

SPACE 2300A FTA Digital Receiver $1300/(10 units)
Magix 8800 Digital Receiver $1200/(6 units)
Phoenix 2.3m Mesh dish $1650/(pallet of 10 sets)
Zinwell LNBF 15K C-band LNBF $648/(box of 24 units)

Come To Us For Your Best Deals

302 Chestertville Rd. Moorabbin VIC 3189
Phone: (03) 9553 3399 Fax: (03) 9553 3393
Website: www.phoenixsatellite.com.au
E-mail: sales@phoenixsatellite.com.au

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 enter 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 appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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

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

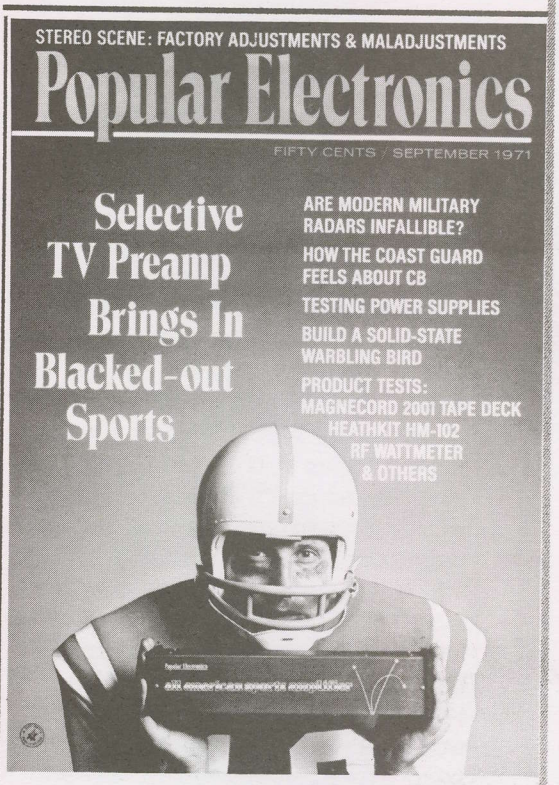
Subscription Rates
Within NZ: $70 p/y
Australia: AV-COMM Pty Ltd.
PO Box 225. Brookvale.
N.S.W. 2100
61-2-9939-4377
Elsewhere: US$75p/y
All copies sent airmail post.

our TENTH year!

COOP'S COMMENT

August 15, 2004

This issue of SatFACTS marks the completion of ten years; 120 monthly issues. It did not begin ten years ago - rather it was June 1956 when an 18 year old "sold" his first technology creation to a national (USA) magazine; Popular Electronics to be precise. The subject was "long distance television reception," a subject that would follow me for what is rapidly coming up on 50 years. The jump from creating articles for magazines to becoming a magazine publisher was surprisingly small; Television Horizons, Communication Horizons, CB Horizons all leapt into print during 1960. Books followed, TV programming next and then trade shows. Crammed into this busy lifestyle, more than 50 cable TV systems designed and built on 3 continents, a half dozen U.S. patents on innovative (and ultimately commercial) TV signal processing devices, and the conceptualising of C-band home-dish systems.



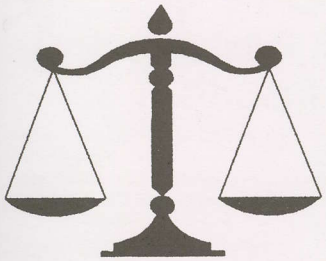
One illustration sums it all up. Tinkering in my Oklahoma City garage for a year on a parts strewn workbench, something I would later call "The Interdigital Pre-Amplifier" (IPA) was born. When connected into the coaxial cable line from a rooftop TV aerial to a TV set, the IPA allowed me to sit and comfortably view a 250km distant TV station which was, in dial position, immediately adjacent to a full power local TV station (100kw, 1,500 foot tower) only 6 miles distant. Moreover, my rooftop TV aerial had to point directly at the channel 4 local transmitting antenna to be correctly oriented for the 250km distant channel 3.

Naturally I saw a commercial possibility here. American grid iron games were "blacked out" (not telecast) locally when a team played at home. But 150-200-250km distant, other stations carried the contest. A version of the IPA called the "*All American Sports Amplifier*" followed, attracting ten "how-to-build-this" pages in the September 1971 issue ("Selective TV Preamp Brings In Blacked-Out Sports")of PE. To meet the demand, a company was hurriedly created to build the AASA, and tens of thousands sold over and through a barrage of lawsuits and serious threats to me personally coming from the paid-gate-protective football team owners. Post grid iron, a professional version of the IPA was created for the cable TV system operators who cried out for both "gain" and "selectivity" for their headend antenna systems.

So, as you can see, I have been chasing "elusive microvolts" from distant stations for a very long time. And ten years of SatFACTS is but a tiny chunk of a much longer tenure following a 50 year "tradition."

-On the cover-

YES the receiver is small (tiny, even). That's not the point. It operates on 12V dc, uses an external wall-wart power pack, and consumes only 15 watts of juice. Now that's progress! - p. 18



LETTERS

DVB-T PC cards

"I purchased a 'Vision One' terrestrial DVB card because it featured user selectable 6 or 7 or 8 MHz bandwidth. However on my local (translator) signals it had a bad glitch fault even with plus-80% signal levels and quality readings. I returned it to Jaycar. A 'DVICO' PC card from Harvey Norman, while limited to only a 7 MHz bandwidth, functions properly. Then on TVSN I noticed promotion for a 'High Definition' set- top-box which they claimed already has software to play HD resolution 'when it is introduced later this year.' Are other set-top boxes sold limited to SD (standard definition) 576 line? Australia's HD standard allows either 576 progressive, 720 progressive or 1080 interlaced lines (SD being 576 interlaced). Will consumers discover, too late, that the early-version boxes they have purchased will not function with HD? If the older and existing set-tops won't do HD, shouldn't there have been a prominent label to this effect on all products sold?"

DM, NSW

Of the approximately 30 DVB-T set-top boxes currently offered for sale in Australia, 8 claim to be "HD" although "which HD" (720, 1080, or 1150) they actually process is not so clear. They are: Panasonic QTR 2140, TEAC DV-B800HD, Thomson DTI 1500HD, Toshiba's HD-523A and HD 525, DGTEC's DH-2000A and DG-5000i and Homecast's D2000. Many of these have a multitude of output configurations to suit virtually any monitor's input criteria: S-Video, YPbPR, RGB, CVBS, Scart, DVI, S/PDIF optical, RCA and RS-232C. Some SD only also feature hard drives: The Strong SRT 5390B, for example, includes 80GB of hard drive recording capability. At this time, none of the HD versions include a hard drive. Like any "early adopter" field in new technology, there will be consumers who believed they were getting the latest and greatest only to later discover HD was not included.

At it a while!

"Started late 70s with screen wire grid reflectors; keep up the good work."

Peter Burns, Cape York Electronics

PROGRAMMER PROGRAMMING PROMOTION UPDATE

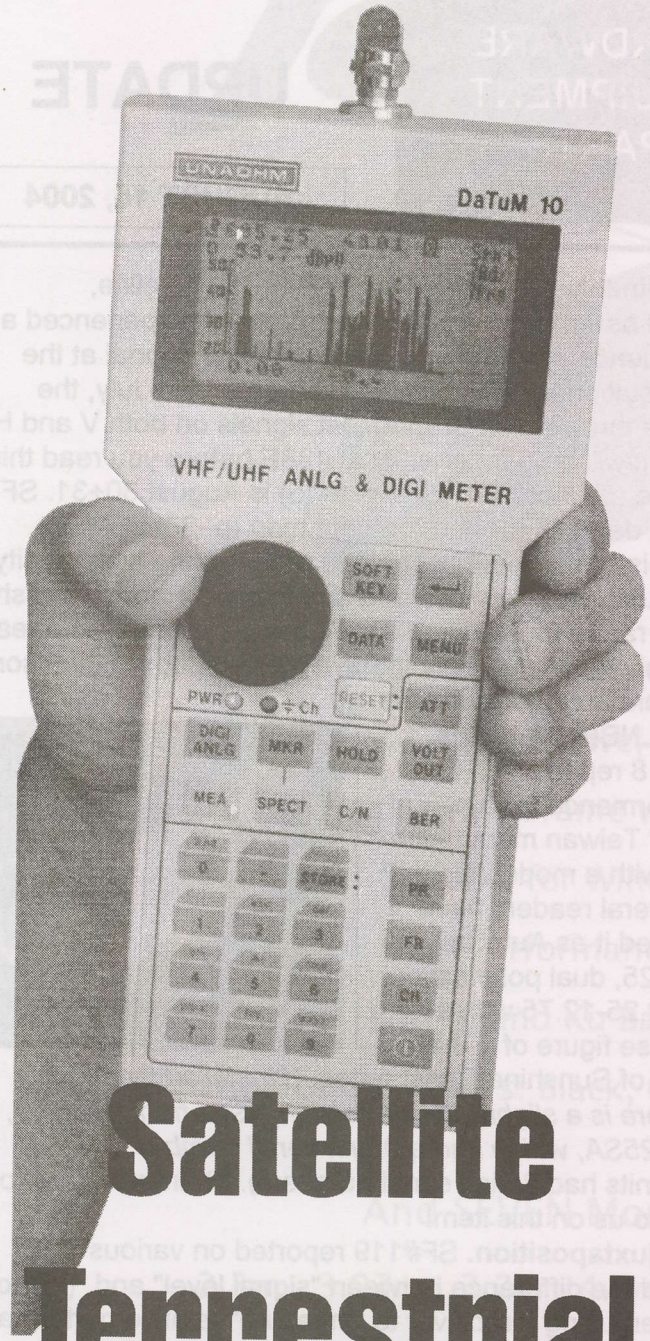
AUGUST 15, 2004

Scheduled for September. Australian Christian Channel to become available through Globecast on B3.

Fiji TV. Equipment for the uplink was completed July 24th; the legal wrangle concerning "which satellite" (SF#119, p. 28) remains unresolved. As SF goes to press, Fiji TV plans to use Intelsat 701 (180E), starting the week of August 9 for testing on a footprint (beam coverage pattern) that is essentially identical to that employed by Canal-Plus (i.e. it *will* cover eastern Australia whereas NSS-5 if ultimately used by Fiji TV is unlikely to cover *any* of Australia short of a monster dish). An announcement from Fiji TV notes, "*testing will be conducted throughout the month of August*" and "*Delivery of Sky Pacific will begin in earnest in September.*" What is missing in all of the announcements is the ongoing legal dispute between New Skies (owner/operator of NSS-5 - the original Sky Pacific choice for a satellite) and Fiji TV. Sky Pacific has no desire to *permanently* use the I701 footprint - it has gone into the programming marketplace to acquire new programming for satellite distribution which requires coverage into such previously unserved areas as Samoa, Tuvalu, The Cooks and Nauru. This *only* works with NSS-5, *not* with I701. If NSS-5 use is ultimately denied (court hearings are ongoing), and Sky Pacific is only able to use I701 as a "consolation prize," the content of Sky Pacific will be dramatically affected. As you read these words, SatFACTS has just completed an editorial fact finding visit to Fiji to fully understand this developing situation; a full report in SF#121, September.

Also in Fiji. There continues to be underground rumblings from one, two or even three would-be contenders for satellite TV service from or to the island nation(s). Latest is calling itself PBS for "Pacific Broadcasting Service," and claims it would option the uplink equipment used by defunct TARBS when testing on I701 just prior to bankruptcy. This group is led by one Simon Fong, ex-senior engineer at TARBS Sydney, nephew of B. Vunibobo who is a senior Fijian politician. Programming? PBS claims to have an agreement with Zee and the target market in Fiji would apparently be that country's 50% Indian-origin folks. Stay tuned - *this one is not over yet*!

Hong Kong rural? A tiny announcement that Hong Kong's cable TV system is leasing two Apstar V/ Telstar 18 transponders from the new bird's 138E location is curious. It seems there are an estimated 30,000 "homes" located within the China district of Hong Kong but beyond reach of the terrestrial cable service company. The two transponders are to serve these individual homes with up to 20 TV channels; HK$2-6,000 install, HK$308 monthly. Of course there WILL be footprint overspill which would possibly include a significant part of China-proper, Macau and Taiwan. It *may be* the latter (Taiwan) which is the REAL target of this new service!



It's all in hand.

No matter which you need, Laceys.tv has a better TV measurement answer that we'd like to put in your hands.

Features go beyond true Bit Error Rate and fully calibrated Modulation Error Ratio, view of the levels of any seven channels simultaneouly, comprehensive data logging, Spectrum and Expanded Spectrum.

DaTum10 started it all, S20 continues the theme and now C30 and D40 now complete the family.

And they all ship in this robust rubber holster.

Satellite Terrestrial Cable Digital Analogue

Ask about the first Digital meter to be FOXTEL Approved.

Sole and exclusive Australian distributor:

Laceys.tv™

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

Euro Laws

"Roy Carmen's letter (SF#119, p. 4) relating the state of 'legal viewing' in the UK needs some correction. He is obviously a highly skilled receiver reviewer but equally obviously not a lawyer. Here are the facts. It is not illegal in the UK for an individual to watch any satellite programme he or she wishes, inside a private home, hacked or otherwise. What is unlawful, although not illegal (a fine point perhaps) is for the service provider (not the viewer) who has programme rights for, say, France only, to show that programme in the UK. But this is purely a copyright matter and at least for the moment not a criminal matter as he suggests. Indeed, on the contrary, under EU law a viewer in the UK has the 'right' to watch any French (or other) EU satellite he or she wishes."

SG, Thailand

'SG' is, in fact, a lawyer and was instrumental in helping us trace the arrest of one Rolf Deubel in Bangkok back in 1999 by putting his legal background to work dissecting the Thai official smokescreen created to cover-up the status of the South African hacker.

IRD?

"I am not a technophile and do not understand what the term 'IRD' means. Please explain!"

PO, Ireland

IRD = Integrated Receiver Decoder as in a MPEG-2 digital format receiver plus the capability of "decoding" a CA (conditional access) transmission. We sometimes slip and use the phrase IRD for a FTA (free to air) receiver or worse yet, refer to a unit as an "FTA IRD." We don't make it any easier - sorry!

Disappointed in review

"I have read your review on the LNBs; may I say I am disappointed. The comparison using a 11.3 GHz LO LNB for a specific bandwidth as opposed to a Universal 9.75/10.6 GHz LO is like comparing apples to oranges. One (the 11.3) is designed for a specific narrow bandwidth which if possible to use is usually the best choice while the other (9.75/10.6) is designed to cover the whole spectrum. Two different LOs - two different purposes. I would like you to also test and publish cross pole as well as interference rejection."

Jason, aDigitaLife

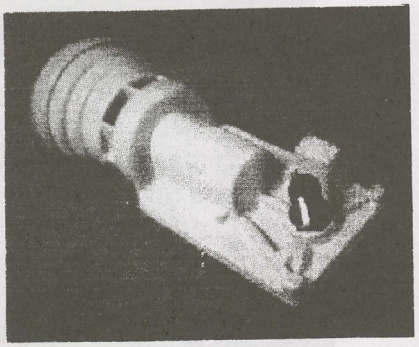
Sorry you are disappointed - more to come on this subject of course with a preview starting on p. 20, here.

HARDWARE EQUIPMENT PARTS UPDATE

AUGUST 15, 2004

Back on line. Newest Asia-Pacific C (+ Ku) satellite, dual-named as Apstar 5 *and* Telstar 18, which experienced a launch sequence error early in July, is now functional at the correct geostationary altitude (36,000 km). In mid-July, the satellite was throwing off C band test signals on both V and H from 142E; it will be permanently at 138E before you read this - transfer date (off Apstar 1, On Apstar 5) is August 30+31. SF published a detailed C-band footprint map (p. 28) in April - bottom line is this satellite is capable of delivering high quality service to Australia, New Zealand and the mid-Pacific on dishes in the 2.4m range (or smaller). That's the good news. The reality is at least initially it is unlikely to have more on board than some Chinese/Mandarin programmers.

Mystery LNB(f) identified. SF#119, p. 8 reported on the stellar performance for a pair of "unmarked" Taiwan manufactured by ??? with a model number of ???. Several readers have now identified it as AutoSat model BK525, dual polarisation, covering 12.25-12.75 with a claimed noise figure of 1.0 dB.



Sheng Yee of Sunshine Coast notes, "*I installed these for Austar. There is a slightly larger version, used from 1996/97, model LK225SA, which had a 9 unit serial number*" (our two "mystery" units had 8 digit serial numbers). Thanks to all who "fed back" to us on this item!

Number juxtaposition. SF#119 reported on various LNBf devices and the difference between "signal level" and "(video) quality" when using a receiver to "measure" relative performance between competitive products. Page 10, next to last paragraph. We reversed the signal level and quality for a pair of LNBf units (see immediately preceding). The text should have read as follows:

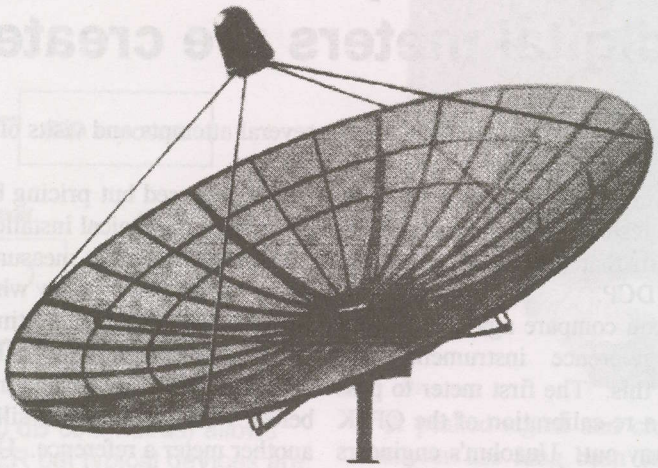
"(6) brand ? - SN015 L73/Q87; (7) ? brand - SN016: L73, Q89."

Quality is of course the more important criteria (see report here on line amplifiers, p. 8 for an amplifier that offers ONLY signal level "gain").

TARBS. Something or someone called "City West" appears to have ownership of the TARBS equipment (uplinks et al) and TARBS was leasing/renting same or use of this equipment. Which greatly reduces the *actual* assets-in-bankruptcy for TARBS proper. Kind of tough to grab assets that in fact don't exist on the TARBS balance sheet!

Optus D2, to co-locate with C1 at 156E, will include 11.65-12.15 GHz downlink to increase channel capacity from single orbit location. Austar, Foxtel have begun installing LO 10.7/11.3 GHz LNBf units to create 950-1450 (C1) and 1550-2050 (D2).

JOYSAT



SIX Reasons to Choose a JOYSAT Mesh Dish !

Cost Effective, Economical

Heavy Duty Frame with Strong Mesh

Suitable for Windstorm areas

High Performance, High Gain

Both C and Ku Band: 2-13GHz

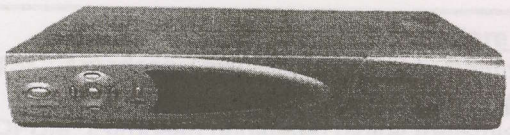
Choice of Colours: Black, Cream and Dark Green

And SEVEN More Reasons !

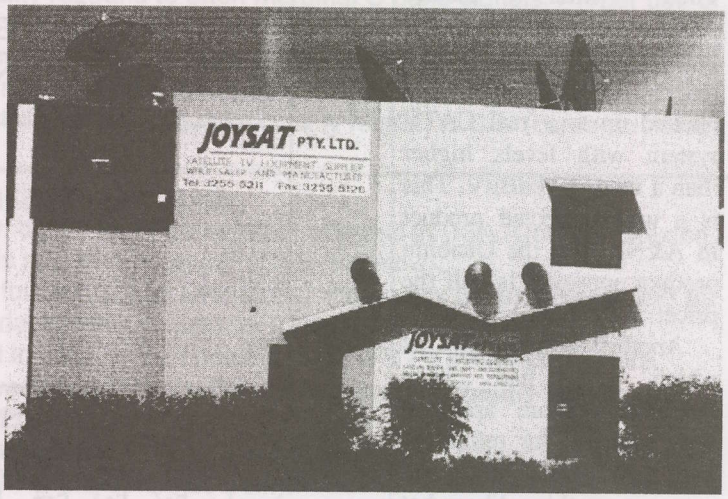
2.3m 3.07m 3.7m 4.5m 4.9m 6.1m 9.0m

Supermas

Digital Terrestrial Set-top Box



Teletext, EPG, Signal Strength Meter, 4.3/16.9 Signal Output, Sleep Timer, Games, SCART, RCA and RF connections and much more !



Telephone: 07 3255 5211 + Fax 07 3255 5126

http://www.joysat.com email: info@joysat.com

BER? What is a meter to do?

Peter Lacey explains why not all digital meters are created equal

From the perspective that many have been using MC360B or APM381 as their preferred meter, and the results have been as one at Foxtel said 'all over the shop', earlier this year they called for instruments to be tested. They were interested in QPSK, QAM and COFDM in that order and wanted to reliably measure BER MER and DCP.

Great objective, but what do you compare against? Foxtel has a Rohde & Schwarz reference instrument, and comparisons were made against this. The first meter to pass was the Unaohm EP300 - after a re-calibration of the QPSK MER which Foxtel noted was way out. Unaohm's engineers had altogether overlooked calibration of this measure in the late version submitted. Six weeks later and the new software was loaded into stock instruments made months before on different days and the result was not good, it was perfect!

Who would have thought calibration could be backwards compatible?

Next they went downmarket looking for an installer meter. Unaohm's S20 was submitted and it passed as well. Nice story but what others did they look at? I won't mention other brand names but one instrument had problems with latency - much to slow in its response to changes in the signal being tested. Then after factory modification to fix QAM level measurements it was found to lock up when hooked up to a real CATV system with levels higher than a modest 70dBµV. This is a well respected product in A&NZ, and the Unaohm product approved is half the price!

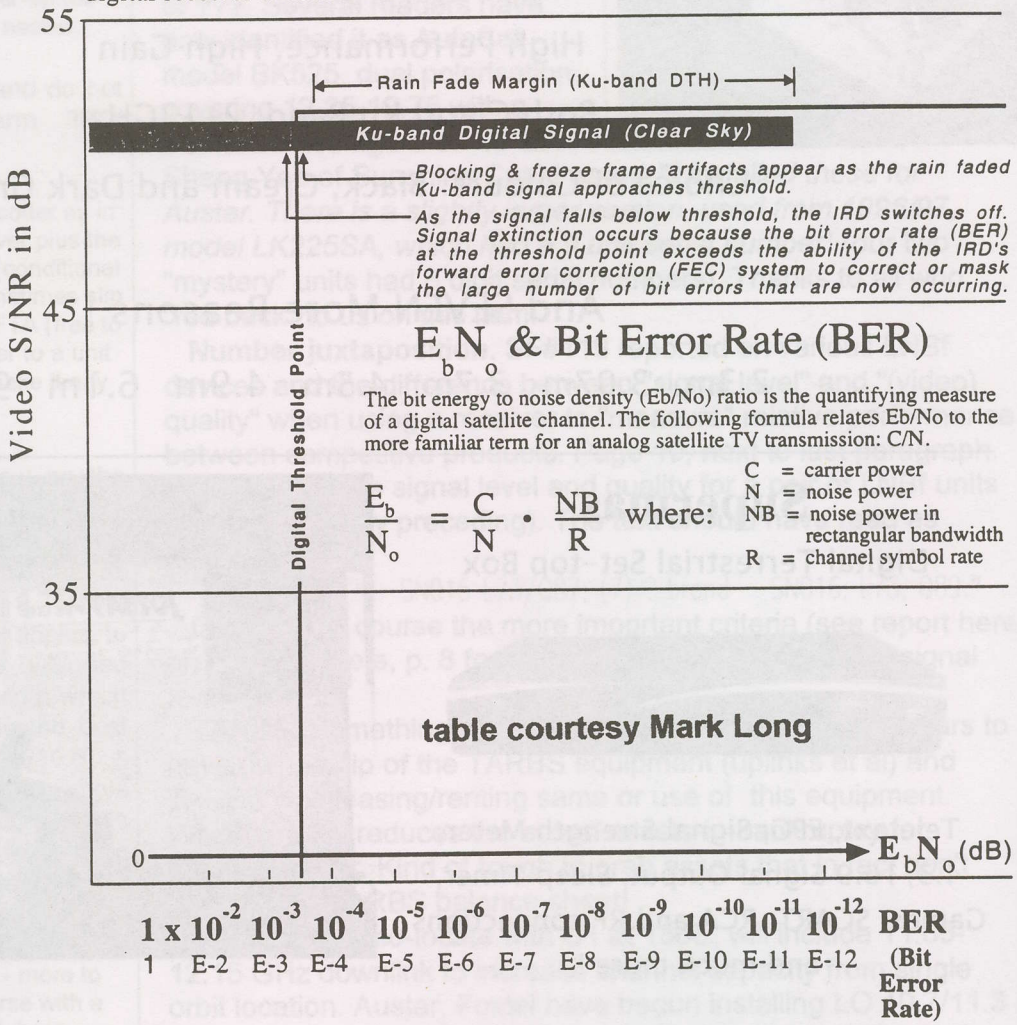
Another brand again of which 10 had been purchased before approval were returned for refund as the instruments failed to measure anything like what they should have after several attempts and visits of engineering management Down Under.

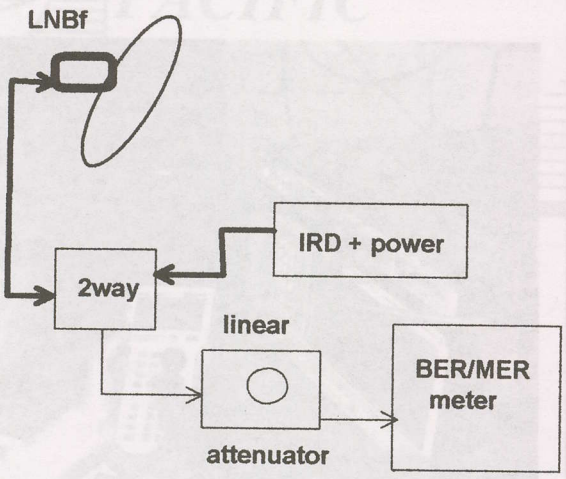
Others passed but pricing between $15-$20k puts them out of reach of the typical installer.

The big deal about measuring Digital is that it is new and many don't seem to know what they need. The danger is that without some reference testing like Foxtel have done they will wind up with meters that fall short of the mark. Some have said 'ahh yes, but I compared 2 meters against each other before I bought'. Not a silly idea, but you can hardly call another meter a reference. Unless those comparisons tests are made over a wide range of qualities and levels in a controlled

DIGITAL IRD THRESHOLD

The Threshold for a digital satellite receiver is defined as occurring at a particular bit error rate (BER). Reduction in incoming signal level (Eb/No, expressed in dB) has no effect on video S/NR. Instead, video signal quality is determined by the bit rate and frame resolution assigned to each individual TV service within the MPEG-2 digital multiplex. Blocking and freeze frame artifacts, however, will occur as a rain faded Ku-band satellite signal approaches threshold, just before the digital receiver switches off.

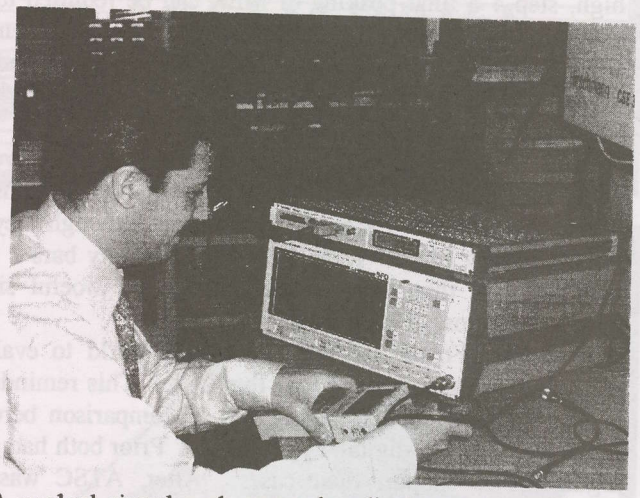




Linear attentuator (0-20 dB continuous) allows analysis of "real" BER/MER but typical devices are certified only to 1 GHz and seldom have power pass capability. One solution - use 2-way splitter, power pass one leg only, separate IRD to power LNBf. Calibrated (4 dB per turn - 5 turn device) attenuators certified to 2 GHz (or better) and power passing are laboratory curiosity items.

environment, they have no value. This is a specialised engineering field! How many have ever compared levels measured between 2 analogue meters and found them to be as much as 10dB different? If you consider some meters that are rated as ±3db but are actually ±6db, difference between installer meters of 10dB is entirely possible.

Peter Lacey (peterl@laceys.tv) has been a champion of full-disclosure high accuracy digital signal "level" and "quality" readings from the onset of digital.



A peaked signal and crosspole adjustment on a spectrum analyser has long been considered optimal alignment of a satellite signal. That is no longer the case, and I think SatFacts could do more to re-inforce that idea! Those measurements should be followed by BER and then optimised MER to get a more reliable service from a smaller dish. Foxtel recognise the importance of that for their strong signal, those installing C band will be amazed at the increase in the reliability of their services after proper BER alignment. For Ku it means a reduction in the effect of rain fade, for C sometimes a more precise alignment can overcome the need for a bigger dish.

To go over this point again, alignment step 1 is to find the service required. This has traditionally been done as an analogue measurement of the 1st IF frequency required, but a digital instrument feature like Network Identification Table (NIT) display tells you the bird and service locked removing any doubt!

Step 2 is to peak up the crosspole on a spectrum display. Optimal digital signal quality is usually a little away from that.

Nomenclatures

BER: Bit error rate, the most accepted digital signal quality measurement. Can be difficult to interpolate as there are 3 (on some meters, 2) measurements to keep an eye on; all are important towards understanding signal "quality" across the range from the usually high quality Ku band to often marginal C band signals. Proper use of this measurement requires some study; it is not complicated, but it is new for those from an analogue-only world.

DCP: Digital channel power, a measure of the power level of a digital transmission over the bandwidth occupied. More complex to measure than and not to be confused with analogue signal level.

MER: Modulation error ratio, a total measurement of digital signal quality closely related to C/N (carrier to noise).

More - Digital Nomenclatures

ATSC: American Television Standards Committee; digital terrestrial system adopted in USA, Canada, Mexico, Korea and Japan. System is not compatible with DVB-T (below).

COFDM: European originated digital transmission format (Coded Orthogonal Frequency Division Multiplex) for terrestrial service (a variant of this is used for Australia).

DVB-C: Digital transmission standard adopted initially by European cable ("C") TV system operators.

DVB-S: Digital transmission standard adopted world-wide for satellite ("S") delivery, currently based upon MPEG-2 format.

DVB-T: Digital transmission idiom describing all terrestrial ("T") digital formats, but not limited to ATSC nor COFDM (yes - there are others as well!).

QAM: Quadrature Amplitude Modulation, digital modulation format used by DVB-C (and elsewhere).

QPSK: Quadrature Phase Shift Keying, digital modulation format extensively used for DVB-S.

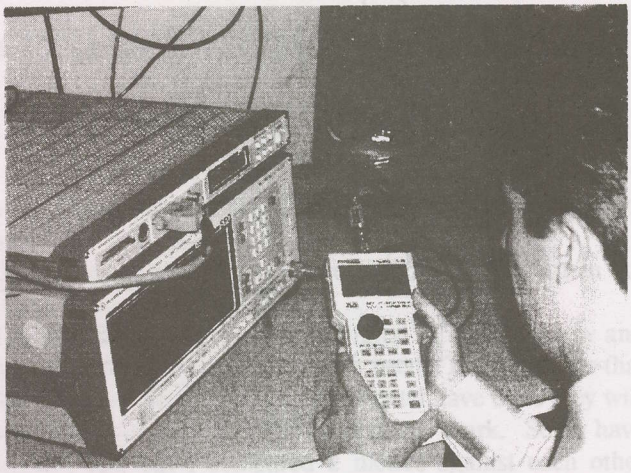
8-VSB: 8 Vestigial Side Band, modulation format used by ATSC.

Step 3 is to optimise the BER. Easily done with a fast instrument you don't need to wait for. If your signal quality is high, step 4 a final peaking of MER can be required to get your alignment spot on. Step 4 is necessary as when the signal quality is high pre-viterbi BER runs out of puff and an overall quality measure like MER makes the difference. Did I hear you say near enough is good enough?

Some want to use the signal quality bar on a receiver to align their dish. Check your receiver with a proper constant 75 ohm attenuator. Laceys.tv stocks these although they are rated to 1GHz not 2. Most STB signal quality bars I have seen are less than linear whilst others are woeful signal quality indicators of little value.

It appears Foxtel are the first in the world to evaluate instruments in the detailed way they have. This reminds me of when Australia was the test bed of comparison between DVB-T and ATSC digital TV standards. Prior both had good arguments to support their cases. After, ATSC was left feeling like the poor cousin.

This is a big pat on the back for Unaohm engineering. No doubt competitors will be trying very hard to meet this achievement, you should have seen the quietly satisfied smiles. It is interesting to note that not only will Unaohm have been in business for 70 years next year, and they pioneered many of the features we have come to accept as standard from TV instruments. It would be nice to think that people might buy an instrument for reasons other than buttons for the buck. The market will decide.



Peeling the mystery away from -

Inline Amplifiers: When to use, which to use, WHEN?

Recent issues have focused on the significant difference between signal "level" and signal "quality." For the more professional reader, Peter Lacey delves into a parallel subject on p. 6; how measurements work and the various "quality" issues involved.

To restate what should now be painfully obvious, signal "level" is no guarantee of signal "quality." The inline amplifier is a signal "level" enhancer but mis-use of this tool can actually cause a loss of signal "quality!"

The basics. At the LNBf there is signal amplification which creates a signal "level" that can be measured on a simple inline meter (the kind we recommend you not use), spectrum analyser, or receiver/IRD with a built-in "signal level" on-screen indicator. The same LNBf also establishes "signal quality" through the use of ultra-low-noise preamplifier stages that immediately follow (come after) the signal pickup antenna ("probe") that is built into the LNBf. Quality is largely dependent upon how well the ultra-low-noise preamp stages function - which is what our detailed comparison report on LNBf's in SatFACTS #119 (p. 6) focused on.

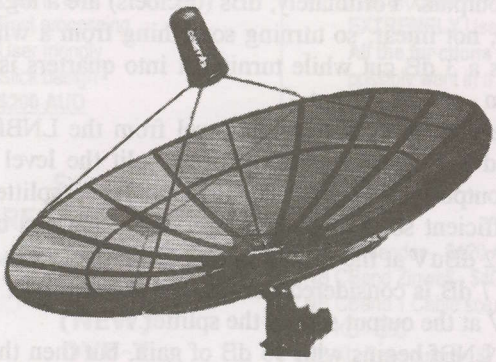
Inline amps are basically simple, low-tech devices designed to boost faltering LNBf signal levels at *the end* of long runs of coaxial cable from the dish.

From the output (F) fitting on the LNBf through the interconnecting RG6 family coaxial cable to the actual receiver there is "passive loss" - less signal reaches the receiver/IRD end of the line that starts out at the LNBf end. How much "passive loss" depends upon (1) the quality of the RG6 cable, (2) the care with which the two connectors were installed at each end of the cable, and, (3) how long the cable run might be. There is one more ingredient: the (L-band) frequency leaving the LNBf, travelling through the cable + connectors to arrive at the receiver/IRD. The closer the L-band frequency is to 950 MHz, the lower the cable loss between the LNBf and the receiver/IRD. The nearer the L-band frequency is to the top-end (1450/2050/2150 MHz) of the spectrum, the higher the cable loss between the LNBf and

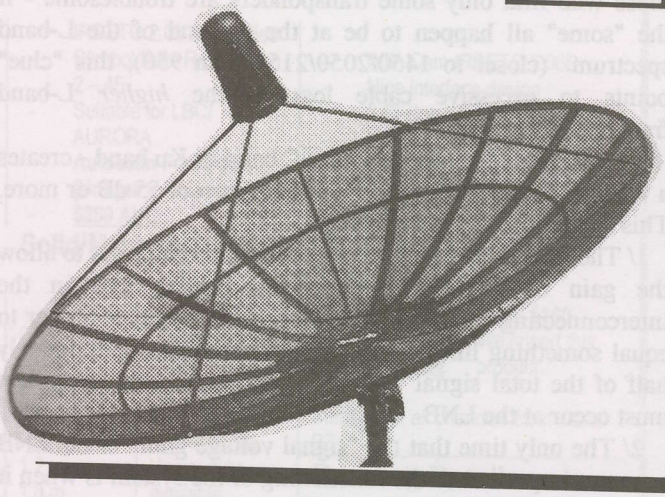
PACIFIC SATELLITE (AUSTRALIA) PTY. LTD.

ANTENNA & ACCESSORIES SUPERMARKET

DMF227



SM-8



SPACE®

Economical, light duty, general purpose usage

PSA

Reliable, medium duty can be used in windy areas

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

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

ST-12

COMSTAR®

Strong, heavy duty, suitable for cyclone areas

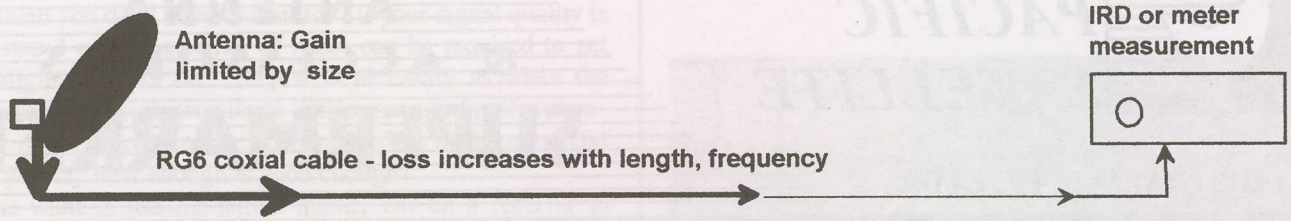
...is a registered trademark for the world's BEST C/Ku Rolled Expanded Metal 2 - 13 GHz antennas!

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

Products are also available through following quality distributors:

Seto Electronic Services (NSW) Tel: (02) 9743 6053 Fax: (02) 9743 6053
V-Com (Australia) Pty Ltd (VIC) Tel: (03) 9886 8018 Fax: (03) 9886 8787
Universal Satellite TV (N.Z.) Ltd. (New Zealand) Tel: (64) (9) 274 7998

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



the IRD/receiver. This last element is a potential clue for those who find only some transponders are troublesome - if the "some" all happen to be at the top end of the L-band spectrum (closer to 1450/2050/2150 than 950), this "clue" points to excessive cable loss at the *higher* L-band frequencies.

The standard LNB(f) - whether C band or Ku band - creates a voltage (signal level) "gain" in the region of 55 dB or more. This "gain number" is deliberate:

1/ The gain must be above a certain minimum level to allow the gain of the LNB (minus the passive loss in the interconnecting cable) plus the gain of the receiver proper to equal something like 110-120 dB. Therefore, approximately half of the total signal "voltage" gain in a reception system must occur at the LNB.

2/ The only time that the "signal voltage gain" of the LNB becomes important to the functioning of the system is when it drops to such a low level (after the passive cable loss or signal splitting) that the total of the LNB + the receiver adds up to something less than 110 dB.

Consider a 55 dB gain LNB which feeds through an interconnecting cable which has (for whatever reason) 20 dB of loss. This makes the "real" LNB gain 55 - 20 or 35 dB. Add the "real 35 dB" to the receiver's "real 70 dB" and the sum (105 dB) falls below the receiver's "signal voltage threshold" of 110 dB.

20 dB of cable loss might amount to 100 metres of not-great RG6 at 2150 MHz or 200 metres of better-grade RG6 at 950 MHz (that's the "frequency versus loss" component kicking in).

There are other ways to "lose dBs" than through cable. Shoddy F connectors, or improperly installed connectors, are two of these. A more common "loss" occurs in a signal splitter.

The relevant word here is "split" as in "dividing" the signal. A 2-way splitter essentially takes the whole input and creates two 1/2 outputs. A 4-way splitter turns a whole input into quarter outputs. Fortunately, dBs (decibels) are a logarithmic function, not linear, so turning something from a whole into halves is a 3 dB cut while turning it into quarters is a 6 dB reduction - at each output.

If the end of (passive) line level from the LNBf can be measured as 66 dBuV, after a 2-way split the level at each splitter output will become -3 dB (actually - a splitter is not 100% efficient so the real loss will be -4 dB), you can then expect 62 dBuV at the splitter output (66 - 4). And in a 4-way splitter, 7 dB is considered normal making 66 dBuV become 59 dBuV at the output side of the splitter.

If the LNBf begins with 55 dB of gain, but then the signal voltage drops 20 dB in the cable + connectors and at the receiver goes into a 4-way splitter creating another 7 dB of "signal voltage loss," we have 20 + 7 or 27 dB of "voltage" *loss* before reaching the receiver. And that turns a 55 dB gain LNBf into a 55 - 27 or 28 dB "gain" device.

Which is where the appropriate use of an inline amplifier enters the scene.

The limitations of the inline

The L-band inline amplifier has a number of important (to us) design characteristics:

1/ The bandwidth (what portion of L-band does it cover; 950-1450? 950 - 1700? 950 - 2050? or, 950 - 2150?).

2/ The gain of the amplifier (10 dB? 14 dB? 18 dB?).

3/ Is the gain "flat" or is it "sloped?"

4/ The "noise figure" of the inline.

5/ The total (dB) "output capability" of the inline.

Most manufacturers will tell you 1,2,3 and perhaps 5. They will not tell you (and possibly do not know themselves) the noise figure. If your installation uses a standard Ku band 11.3

WE evaluated 8 different inline amplifiers using a transponder in the region of 12.400 GHz (L-band 1100 MHz) while monitoring the signal on a separate receiver to ensure the incoming "level" was not varying as we changed inlines. Sloped gain versions averaged a higher output level, 10 dB gain versions were uniformly lower. Best of the bunch (for gain/level) was older 900-1750 MHz "high gain" version. All, apparently, are products of Taiwan.

Our Ref #	Model	Freq Range	Spec	Level	Quality
"A"	LA9215	950-2050 MHz	sloped gain 10-14	77	43
1	LA9215	950-2050 MHz	sloped gain 10-14	78	45
2	LA9215	950-2050 MHz	sloped gain 10-14	79	45
3	CHY SA910LA	900-2350 MHz	10 dB	72	45
4	LA9215	950-2050 MHz	sloped gain 10-14	79	43
5	SA20	900-1750 MHz	"high gain"	82	44
6	CHY SA910LA	900-2350 MHz	10 dB	73	43
7	CHY SA910LA	900-2350 MHz	10 dB	72	45

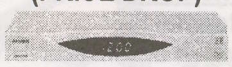
Hualin Pty Ltd

Satellite Equipment Specialists
Import and wholesale

Unit 51/159 Arthur ST Homebush West, Sydney Australia 2140
Phone: (02) 9763-1366 | Fax: (02) 9763-1356
Email: hualin@optushome.com.au | Web: www.hualin.com.au

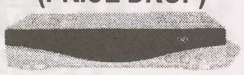
ALL PRICES EXCLUDE GST, THIS MONTH SPECIALS!

Arion 1200 (PRICE DROP)



- Free to air
- Fast processing
- User friendly
- Slick design
- **$200 AUD**

Success 5860 (PRICE DROP)

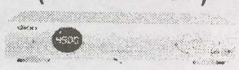


- Fast process
- **EXTREMELY** User friendly
- **All the functions** you can possibly want in a FTA receiver
- **$160 AUD**

Supernet (SPECIAL)

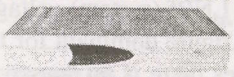
- IRDETO 2.09 Embedded
- Symbol Rate Range from 2 – 45
- Suitable for LBC/ AURORA
- **Autoscan Function (Unique to this receiver)**
- **$250 AUD**

Dion CI + CAM (PRICE DROP)



- With Cam IRDETO 2.06B
- Nice interface design
- 2 CI slots
- User Friendly
- Symbol Rate from 2 – 45
- **$370 AUD**

Supernet TERRESTRIAL RECEIVER



(NEW) DVB-T

- VERY easy to use, **Specially designed for housewives**
- EPG for up to 64 DAYS!
- Teletext function
- RCA/S-VIDEO/RGB/SCART Outputs
- 16x9 and 4x3 widescreen
- **$210 AUD**

Accessories

2.4G AV sender – $120 AUD **Special**
LNB CBand Zinwell - $40
LNB CBand 1 Cable solution -$ 70
LNB KU - $35
LNB KU Twin output - $75 **SPECIAL**
Actuator SuperJack 18" - $50
Actuator SuperJack 24" - $55
Positioner EZ2000 - $60 **SPECIAL!!!**
Positioner SAP2200 - $85
Positioner VBox Diseq 1.2 - $70
Cable RG6 Dual Shield - $70/305m
Cable RG6 Quad Shield - $80/305m
Actuator Cable CAT5 – $80/305m

Solid/Mesh Dish

0.45 m
0.6 m
0.65 m
0.8 m
0.9 m
1.2 m
1.8 m

From $25 - $200 AUD

2.13m
2.3m
3.07m
Light Duty
Medium Duty
Heavy duty
available

From $130 - $550 AUD

IRDETO 2.06B CAM (PRICE DROP)

Price: $160
We import this product

Suitable for all channels from Optus B3

Banking Details

ANZ Bank
Branch 012432
Account 3474 57536

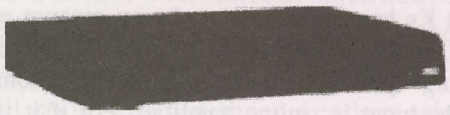
WAVELENGTH communications

SUPERJACK

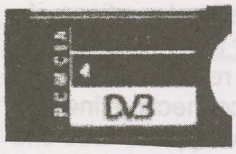
C I Module

irdeto 2.09 cams

TOPFIELD

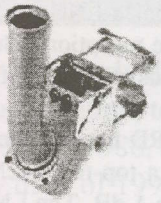


TF3030F (FTA)
TF3000CI *pro* (common interface)
TF3000CIP *pro* (common interface with built-in positioner)



TF3200IR (Irdeto embedded)
TF4000PVR (Personal Video Recorder 40GB)
TF5000PVR (PVR 80GB)

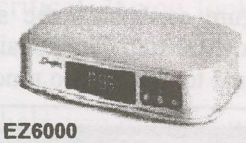
viaccess 2.5 cams



DG-120
DiSEqC H-H Mount

Positioner

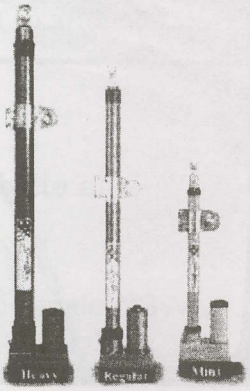
EZ-2000
EZ-4000
EZ-6000
VBOX II DiSEqC 1.2



EZ6000

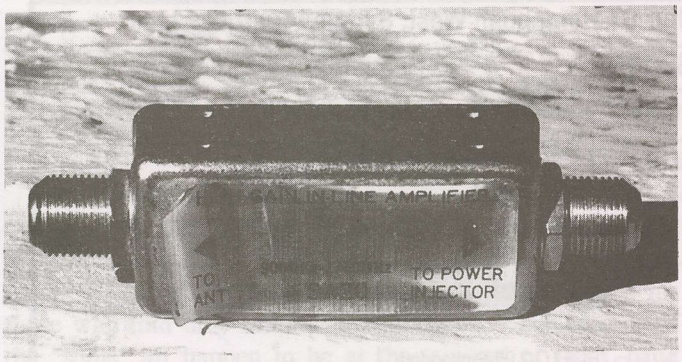
Actuator

12" to 36"



Wavelength Communications Pte Ltd

1 Rochor Canal Road, #02-26 Sim Lim Square Singapore (188504)
Phone # +65 6332 2273 Fax # +65 6334 3017
Email sales@wavelength.com.sg
Website www.satellite.com.sg



AND the *winner* is - non-brand-name marked SA20 with "high" (not specified) voltage gain; 20dB(?).

What counts with an inline-amplifier?

✓ Covers the correct L-band frequency range
✓ Uses sloped gain circuits provided your needs exceed 1450 MHz L-band
✓ Consumes modest amounts of 14/18 volt current (50 mA or less is pretty standard)
✓ **Is correctly installed:**
► NEVER at antenna/LNBf
► Match dB cable loss between antenna/LNBf to amplifier gain (i.e. 10 dB cable loss "point" equals nearest location to antenna of inline amp)
► Use just ahead of 2-way/4-way splitter only if voltage gain is required for proper IRD operation

GHz local oscillator (Ku) or 5.150 LO (C band), the 950 - 1450 MHz L-band inline will do just fine. If you use other (lower LO frequency) LNBf devices, you probably need an inline designed to cover a wider swath - up to 2150 MHz.

If your LNB creates L-band signals that go beyond 1450 MHz, a sloped-gain inline makes sense. Why? Because it increases the inline (voltage) gain as the frequency increases. A 4 dB difference in gain between 950 MHz (the low end) and 2150 MHz (the high end) will at least partially compensate for higher (greater dB) cable losses at the higher frequencies. But there is a caveat as we shall see.

The total output capability (#5 above) is a serious consideration and while the manufacturer should tell you this number (measured in dBuV or dBmV) chances are the number will not appear on the data sheet or product nameplate. We'll explore, shortly.

Noise figure. This one should not be relevant but just when you most need an inline to work for you, and it does not, noise figure becomes a kick in the butt hidden number. Here is why.

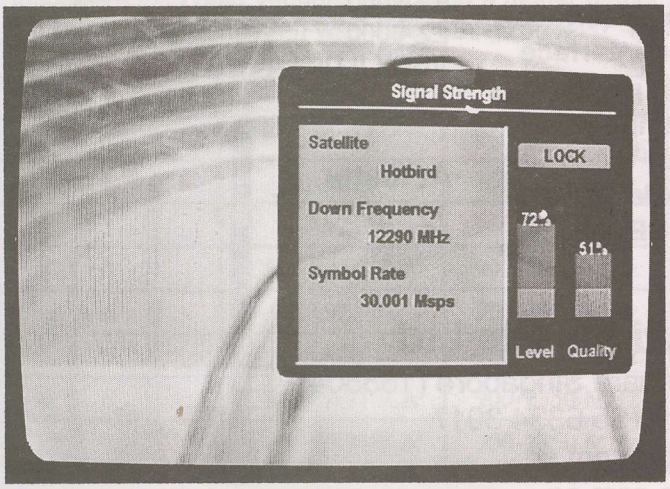
Recall that the ultra-low-noise LNB preamplifier stage(s) establishes the "quality" of the reception. But only if nothing happens to drag the signal back down into the "noise region" *after* the LNB(f).

A really top notch digital IRD has a "tuner noise figure" in the region of 12 dB whereas a top-notch LNBf (at Ku band) has a noise figure of less than 1 dB. The LNBf's <1 dB noise figure establishes the sensitivity for the receiving system provided the voltage gain in front of (ahead of) the tuner is equal to at least two times the noise figure of the tuner. If the tuner is 12 dB noise figure, that means the LNBf must as an absolute minimum create 12 times 2 or 24 dB of system gain. A not so good digital IRD tuner more commonly has a noise figure in the region of 15 dB, or higher. Whatever it is, double it and that's the minimum LNBf (system) voltage gain required to make the LNBf noise figure dominant for the full receiver system. And that assumes there is no "passive loss" between the LNBf and the receiver - but there always is.

When signal "voltage" is lost in the wiring/connectors/splitter between the LNBf output and the receiver/IRD input, the "voltage gain" required to allow the LNB noise figure to dominate (rule) the system's sensitivity can be lost. One solution is to increase the voltage gain, through use of an inline amplifier. *But hold on.*

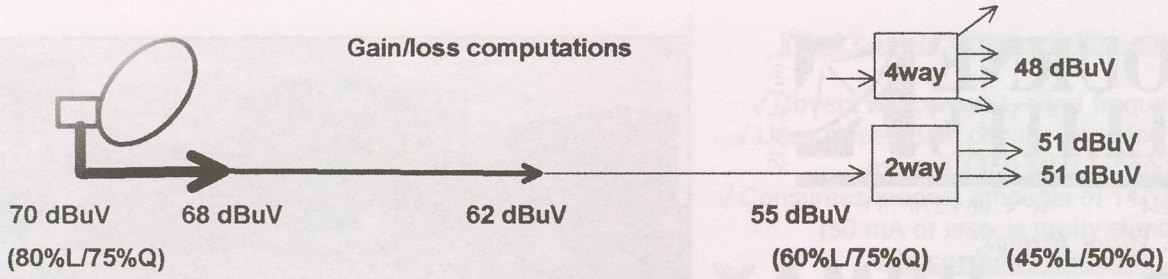
The inline also has a noise figure and as soon as it is placed in front of the actual receiver/IRD, this new noise figure now becomes a modifying factor on the overall system sensitivity. If we assume (with some justification) that the inline has a noise figure of 10 dB, we now know that as a minimum for the LNBf that functions in front of (before) the inline to still be the segment that creates the system noise figure, the voltage gain must as a minimum be 10 times 2 or 20 dB at the LNB - *after* the loss incurred between the LNBf output and the inline input. This means the total gain of the LNBf must be increased beyond the mythical 24 dB best case minimum by an amount equal to at least the passive loss between the LNBf and the receiver.

This begins to tell us something about where we place the inline amplifier. For if it is installed so far away from the LNBf that the cable/connector losses back to the LNBf exceed



IRD "quality" and "level" readings can be useful

Although Peter Lacey's report (p. 6, here) correctly questions the "integrity" of IRD signal readings, if done with care they are superior to no readings at all! Use same IRD at antenna for reference readings (see text) as at end of RG6 interconnecting line and you will be comparing "apples and apples." Use one IRD/meter outside at antenna, a different one inside is to mix apples and oranges and that's where you get into trouble. By using the same readout device at both test points, you can reasonably be sure that what you see at both measurement locations can be used for direct comparison.



the two times noise figure number of the inline, we won't see an appreciable improvement with the inline. In fact, using an inline that is installed "too far down the line" (too far from the LNBf) may actually make things worse! And if the inline has a high noise figure (greater than 10 dB - say 15 dB), then following our "two-times-noise-figure" rule of thumb, the inline will have to be located even closer to the LNBf to allow it to recover the rapidly weakening signals.

So why not stick it in right at the LNBf, say a few metres of cable away but essentially at the antenna? *Bad choice.*

Overload

The fifth listed criteria for inline amplifiers is "total output capability." Which means?

Any amplifier (in any use for any purpose) has a maximum output "power" it can generate before bad things happen. If you have ever installed a terrestrial TV house amplifier with a gain control, and discovered that the gain control when adjusted "full on" caused horizontal lines in the pictures or worse artefacts, you've seen the ill effects of "amplifier overload." The L-band amplifiers are no different - except they have no "gain control" which you can turn down to eliminate the "overload" problem.

The inline covers a wide range of frequencies and within that range may be a dozen separate transponders. *Each* transponder has its own "power level component" and when these *individual* transponder power levels are added together (it is a dB thing), you end up with a "total" power output.

Because the inline manufacturer does not conveniently advise you what the total power output capability for their device happens to be, you are in the dark shooting fish with a sling shot. You'll know when you have exceeded the "output capability" because bad things will happen to the reception (even worse things than having not enough signal!). We'll see how you determine this, shortly.

Here is a new "rule of thumb." Never-never install an inline amplifier at or even close to the LNBf. Why? Because close to the LNBf, before the RG6 cable has reduced the level(s) through passive cable losses, the LNBf output signal voltages are maximum - at their greatest levels. When the high input level from the LNBf is further amplified by the inline amplifier (whether 10 dB or more), the sum of the two (original LNBf levels plus the gain of the inline) will almost always exceed the output capability of the external amplifier. Causing no end of new problems.

So where do you place the inline?

Be certain you even need one (this is a situation where if the system runs without an inline, do *not* install it!). Anyone with an IRD/receiver that provides an on-screen menu selected "Signal Level" plus "(Signal) Quality" set of bars or numbers can do their own proof-of-performance.

First, know how long your cable is from LNBf to the receiver(s). Second, know the highest frequency of the L-band signals being transported (such as 1840 MHz). Third, with the help of the cable supplier, work out how many dB of loss there is in your cable at that frequency (if cable loss is specified as so many dB at a certain frequency per 100 metres, use simple math to determine what your less-than-100 metres of cable loss should be). Say the loss at 1840 MHz is supposed to be 16 dB per 100 metres and you are using 65 metres of cable. OK - your total loss is .65 times 16 or 10.4 dB.

Fourth, add in any intended splitter losses. Say there will be a 4-way splitter at the end. As a test, install it, send power from the signal level/BER measurement tool through the power pass output and *terminate* the other three outputs with 75 ohm resistive terminators. Now turn the IRD on, set it to the highest L-band frequency to pass through the system (1840 MHz in our example) and measure using the on-screen bar graphs or numbers (1) the signal level, and, (2) signal quality.

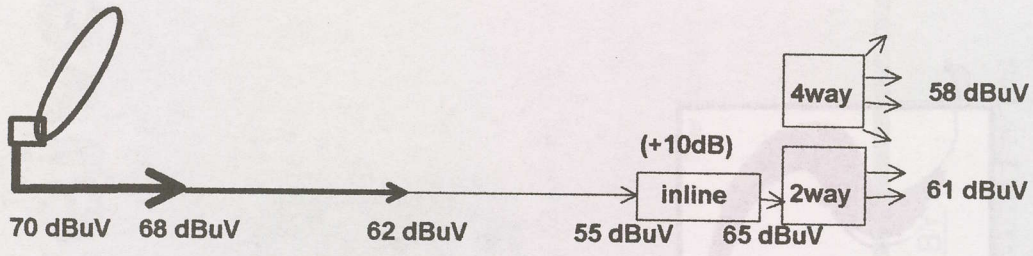
Fifth, turn it all of, take out the splitter, and connect the RG6 line directly to the IRD/receiver. Turn the power back on and remeasure the level and quality numbers.

At this point you have determined how the system works without an inline amp, with and without the splitter. Turn it off again after writing the Level and Quality numbers down for reference.

Disconnect the input from the IRD/receiver, install the inline amplifier just ahead of the receiver/IRD, and turn back on again remeasuring. Now you have the LNBf plus inline plus receiver numbers. Finally, turn off again and install the inline just in front of the input to the 4-way splitter, keeping the three unused outputs terminated with 75 ohm resistors; reconnect the IRD/receivcer to the power passing splitter output port and turn back on. Record the Level and Quality numbers.

Results. If the quality stayed the same, or became worse, with the inline amp, don't use it! That applies to both with and without the splitter. If the quality was best with the IRD alone connected and identical or nearly identical with the inline connected ahead of the splitter but worse with the splitter connected without the inline, use the inline *only* if you are also going to use a splitter. Notice we are talking about the "quality" here, not the signal level. It is quality (BER/MER) that counts - not signal voltage (signal strength) level!

Exception: As quality falls (goes down) you *might* gain a slight (not major) advantage by adding a modest amount of inline amp gain. When does quality fail in an otherwise properly running system? When there is rain or heavy cloud cover reducing the input signal to the LNBf. But only if the signal level reading is abnormally low to begin with (the real solution in this situation is to use a larger dish - adding an inline amp is to place a small plaster on a major cut).



10 dB of inline gain should be enough to handle up to 50-60 metres of nominal RG6 line loss provided the cable is of reasonable quality (SF#113, p. 6) but it may not be enough gain to compensate for line loss plus splitter losses (above). Delivering 45-50 dBuV on the highest L-band transponder frequency to the IRD is a *minimum* benchmark for system planning.

Not all inlines work alike but they are close - at least four of the models and brands we tested (see box report, p. 10 here). The check out procedure is dead-simple provided you have an IRD/receiver with menu-selected "level" and "quality" readouts. Why can we depend upon the receiver's "level/quality" measurements if (as Peter Lacey insists on p. 6, here) such indicators are often in error? Simple enough - without respect to how "precise" a particular receiver's level/quality interrogation might be, as long as you are using the same receiver for each in-system test, the results will remain comparable (i.e. allow you to determine which equipment arrangement produces the best quality).

So - where does the inline go?

Never at the antenna. *Never.* Ideally, if the inline has 10 dB of gain, calculate where there is 10 dB of passive loss in the system and insert it at that point. If you are using a signal splitter, place it *ahead* of the splitter as close to the splitter's input as possible. 10 dB of passive loss, before the splitter, will depend upon the highest frequency in use in your system. One way to confirm this is to connect a suitable signal level meter or spectrum analyser to the output of the LNBf close to the antenna/LNBf. Now roll out the length of cable you intend to use, plus a few metres for safety, place a connector on both ends and insert this length between the LNBf and the same meter. If the at-LNBf measurement produces a number such as 70 dBuV on the highest L-band frequency you will carry, and the end of RG6 end produces 55 dBuV, the answer is simple enough; 15 dB of signal will be lost between the antenna/LNBf and the receiver inside.

This gets you around either locating the loss number for the frequency of interest from the cable supplier (chances are they won't have a clue anyhow) or making a bad guess. No signal level measurement meter?

The IRD with built-in level and quality interrogation is a less reliable but acceptable second choice - if you are careful. At the antenna/LNBf the signal "level" will have a number - call it 80%. And the quality will have a number - call it 75%. It is best to use a constant video source (such as B3 Optus Tuning Card; see SF#119, p. 6) so the quality is not prejudiced by moving video.

Now, at the end of your premeasured line, check both again. The "level" will drop by the amount of passive loss in the cable. The "quality" should not change unless the passive loss is in excess of what the receiver requires for proper operation. All of this - in suitable weather - can be done at the antenna site before time is spent burying or routing the cable to the house and/or through the building to the final receiver location.

If the quality *does* drop, you quickly know the receiver's input (L-band signal) voltage threshold has been breached. While you are still in a test/measurement mode, this would be a good time to pull the inline amplifier from your pocket and insert it into the RG6 precalculated line at the intended receive-end; and measure again. The signal voltage level will immediately come back up. If the quality does not also recover with this test, there is a clue here.

1/ Signal level back, quality still reduced: Option one - you have lost too much signal voltage at the end of the line and the receiver's noise figure has now taken over to degrade the quality.

2/ Signal level back, quality still reduced: Option two - the inline amplifier is of poor quality.

Solution - try another inline (preferably different brand and/or model) and then if no improvement move closer to the antenna/LNBf with the inline, cut the line and try again.

Most IRDs want to see a minimum of 45-50 dBuV to produce a high "quality" picture; that is a minimum. It is worth noting that if an IRD receives too much signal ("level" reads abnormally high - anything *greater than* the dBuV level you have at the antenna is suspect as "too much signal"), the quality will also degrade (become worse). Lacking a signal level meter that tells you how many dB(uV) of signal exists (whether at the antenna/LNBf or at the end of the RG6 run) you can use the IRD's built-in "level/quality" display to at least provide *guidance* as to what is happening. If the receiver reports 80% level at the antenna but 85% *after* the inline amplifier, that is an immediate hint that the inline is too close to the LNBf (and in fact may not be required at all). Having more signal "voltage" after the inline than you have at the LNBf suggests the output capability of the inline has been or is very close to being exceeded. And when that happens? The amplifier develops an unhealthy state known as "inner" or "cross mod" which translates to "overload." At the overload "threshold" point within the inline amp, a set of new amplifier created artefacts ("signals") is generated and they immediately attack the BER (bit error rate) driving down the quality reading. This is where you can have too much signal "voltage" and simultaneously suffer a loss in signal "quality." If by good luck this does not happen inside the inline, it can also occur within the IRD's tuner section - and overload is overload without respect to where it occurs. Signal "level" up but "quality" down? Remove the inline amplifier.


X
Digital Satellite Receiver
CE
DiSEqC 1.2
DVB
Digital Video
Broadcasting

X Digital Satellite Receiver

- DVB, MPEG-2 compliant
- 4000 channel capacity
- Extended EPG
- Program reservation through EPG
- Teletext decoding
- 8-event timer
- Parental control
- Renameable 8 favorite groups
- 4 sorting modes
- DiSEqC 1.2 USALS
- Picture-in-graphics
- Automatic NIT scan
- Multi language support OSD
- Software upgrading
- Unit-to-unit data transfer

IF SECTION

Input Frequency Range	: 950 - 2150 MHz
Input Frequency Level	: -65 dBm - -25 dBm
Noise Figure	: 12 dB Max.
Input Impedance	: 75 ohm
I.F. Bandwidth	: 36 MHz
Input Return Loss	: -8 dBm
Tuning Step Size	: 125 KHz
Demodulation	: Shaped QPSK
Symbol Rate	: 2-45 Mbauds
FEC Rates	: 1/2, 2/3, 3/4, 5/6, 7/8, AUTO

LNB SECTION

Connector	: F-Type - Loop-through	
Power	: 400 mA Max.	
Polarization	: Horizontal	: DC 16-19 V
	Vertical	: DC 11-14 V
Band (Hi/Lo) Selection	: 22 KHz On/Off	
DiSEqC 1.2 USALS	: 64 Universal LNB Control	

SYSTEM RESOURCES

Processor	: 32 bit (80 MHz)
SDRAM	: 8 Mbyte
FLASH	: 2 Mbyte
EEPROM	: 32 Kbyte

VIDEO SECTION

Decoding	: MPEG-2 & MPEG-1 Compatible
Compression Technique	: Main Profile, Main level
Format	: PAL (NTSC)
Frame Rate	: 25 (30) Hz
Aspect Ratio	: 4:3, 16:9
Active Pixel	: 720 x 576, 720 x 480
Output Impedance	: 75 ohm
Composite Output Level	: 1Vp-p±0.07Vp-p (75 ohm load)
S/N Unweighted	: 57 dB Min.
Frequency Response	: 3 dB Max. (0.5-5.0 MHz)
Data Rate	: Up to 15 Mb/s

AUDIO SECTION

Compression Technique	: MPEG-1, 2 Layer 1 & 2
Sound Mode	: Dual (Main/Sub), Stereo
Frequency Response	: 2.0 dB - 20 Hz to 20 KHz
Output Impedance	: 600 ohm unbalanced
Total Harmonic Distortion	: 1% Max. - 40 Hz ~ 20 Khz

CONNECTORS SECTION

A/V Out	: RCA x 3
RF Out	: IEC Male
Aerial In	: IEC Female
Service Port	: RS-232C (115 Kbps Max.)

MODULATOR SECTION

Output: PAL G/I/K CH : 21-69 UHF

POWER SUPPLY

AC 80-264 V, 47-63 Hz, 40W Max. Power Consumption : 30W Max.

DIMENSIONS

260 (W) x 240 (D) x 58 (H) mm

WEIGHT

1.9 Kg. E. & O. E.

DISTRIBUTED BY:

• STRONG TECHNOLOGIES Pty Ltd
60 Wedgewood Road, Hallam, Victoria
3803 Australia
PH (61) (03) 8795 7990 FAX (61) (03) 8795 7991
E-mail: admin@strong-technologies.com

☐ **HILLS INDUSTRIES** (New Zealand)
(64) (09) 262 3052

"The whole world - in your hand!"

Tiny Tots: If they become much smaller shoplifting could become a dealer problem!

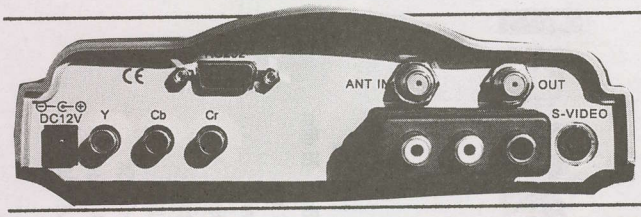
The interior of virtually all modern DVB-S satellite IRDs has for a year or more contained far too much "dead air" - space not used. Some receiver designers have responded by halving the size of outer shell containers thereby reducing the "footprint" of receivers. Now, the next step.

Almost everything important required is now performed by a single monster chip and the soon-to-appear "next generation" will take downsizing further by integrating the until-now outboard "tuner" function into the master processor. What remains is more wiring and connectors than actual functional circuits leading to someone asking an obvious question: "Why must we continue to build satellite receivers with monster power supplies inside the case?" If you could move the power supply outside, the miniaturisation of the satellite receiver would be approaching nirvana; "it doesn't get much better than this!"

Av-Comm's Garry Cratt, always on the lookout for "leading edge" hardware, has introduced the R3100 receiver which SatFACTS has dubbed, "The Tiny Tot." It begins by kicking the usually space consuming, heat generating, troublesome power supply board outside and turning it into a "wall wart" device that operates over a mains range of 100 - 260V AC while delivering to the receiver a logical 12V DC. This alone shrinks the receiver-proper "footprint" to slightly under 50% of the Strong 2620 (itself a "small" receiver) and below 40% of the Fortec line reviewed in SF#119. There is a bonus here - while we might like to hope the companion "wall wart" 12V DC supply will last forever, should it fail, you can be back in business with a replacement in minutes using virtually any common 12V DC source - including those available from Dick Smith/Radio Shack. And that of course leads to being able to operate while "portable" or even mobile using the 12V electrics of a vehicle or battery.

There is one more advantage here, although possibly not one likely to be exploited by many readers; smuggling! Leon Senior at Strong once told us the reason why Strong created the smaller-than-normal 2620 was to, "cater to those guys in the Middle East who make a living secreting satellite receivers in goat-skin packs carried by camels; smugglers who wander from border to border selling products that might in fact be banned (or attracting a high import duty). If Leon was not pulling our leg with this story, the "Tiny Tot" just became the latest item attracting the interest of the smugglers. Yes, it slides into your coat pocket and the 450 grams creates only a slight bulge.

WHAT is important here is not the size but separating the receiver from the power supply and offering a 12V dc operation ability.

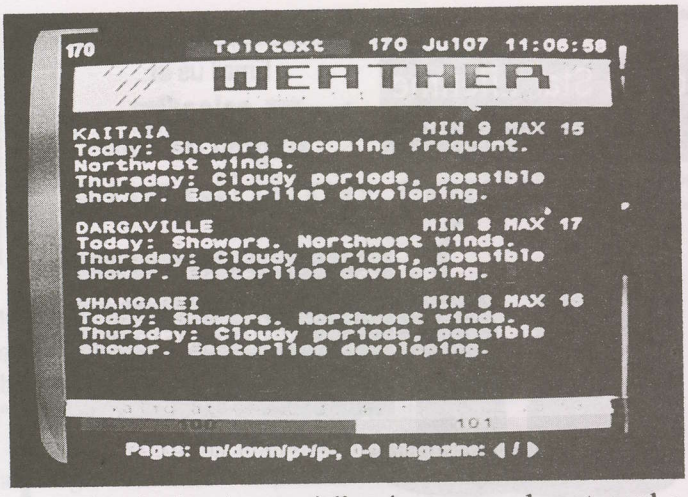


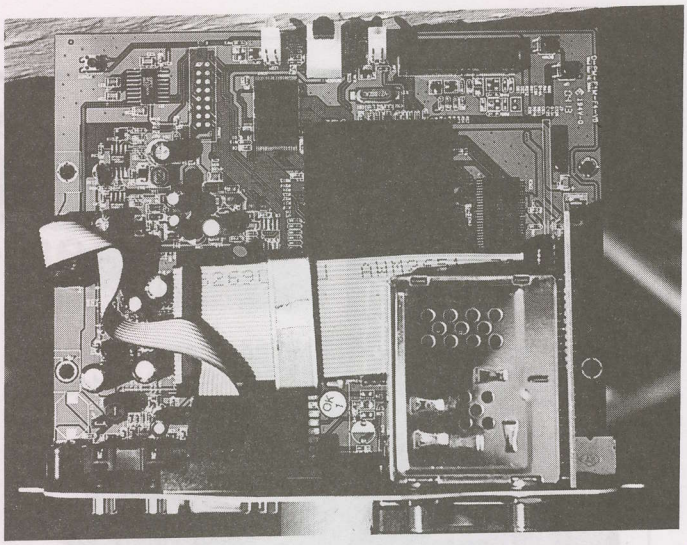
Performance ...

...is not tiny. It does anything you would expect from a FTA receiver and does it well. Sensitivity is adequate, loading speed fast from pre-programmed memory, and the display clean if not brilliant. Having said that, we found it the equal of much larger receivers - no short-cuts here. The on screen

Tiny Tot DVB-S receiver

Frequency coverage: L-band 950-2150 MHz; **Inut signal level range**: -25 > -70 dBm; **DiSEqC** - 1.0, 1.2; **Symbol rate range**: 2 > 45 Msps; **Channel memory**: 4,000 TV and radio max; **Switching**: 22KHz (LNB current overload); **LNB memory**: 8 separate selections; **RF connections**: In, loop through; **Baseband output**: SCART (adapter included for RCA out), RGB, S-Video; **EPG:** Now, next (must be programmer supported with data stream); **Video format**: PAL, NTSC. "auto;" **RF output:** PAL B/G/I 471.25 - 855.25 - PAL D/K 471.25 up (44 channels) - NTSC M 471.25 up (64 channels); **Signal search**: Preset (factory memory entered) FTA, transponder, manual, manual-PID; **On screen search/quality display:** "signal level," "CNR": **Teletext**: Embedded teletext/subtitle decoder and VBI; **Software download**: RS232C and box to box up/download for channel list + satellite database and operating software; **Language support**: Menu-selected ; **Powering**: External "wall wart" power supply 100-260VAC mains, 12VDC to receiver allowing use with standard (battery-DC-car) electrics (15 watt power consumption); **Mechanics**: 175mm width, 160mm depth, 40mm height and 450g weight. **Source**: Av-Comm Pty Ltd, tel 61-2-9939-4377; Email cgarry@avcomm.com.au. Pricing: A$395. **Additional**: There is a DVB-T (terrestrial) model at A$299 and a CI model (not currently stocked by Av-Comm).





teletext/captioning is especially nice as you do not need a teletext capable television set to access and display either TT or captions (it's in the software).

Recommendations?

While it probably has a small negative effect on performance, the inclusion of two "games" in the software (pinball, car game) illustrates the mindset that seems to continue to dominate Asian designer minds. It is a bit like including an orange peeler as an accessory on your desk stapler; *why would you do this*???

The pricing is perhaps the major negative. It is not small (nor tiny). But then perhaps that is what happens when one brings out a new product design for a market of unknown size (the camel smugglers and SUV portable operation folks) and cannot be certain of how many you will sell. The major step here is getting the sizeable heat generating power supply out of the case which effects both packaging and we believe should also improve reliability. There is also a CI version (not handled by Av-Comm) which might be just the ticket for the new Fiji based Sky Pacific service with receivers spread across hundreds of islands each with uncertain and unreliable AC power sources.

For now, it is innovative, works well, and may cause other designers to rethink their own packaging.

TECHNICAL TOPIX

Data stream changes

"Regarding SF#119 and report on key entry function receivers. While SatFACTS was being printed, two of the (Asian) sourced channels within a MUX went from what was apparently SECA 1 to some other format. Of interest, while most of the code-key and autoupdating key receivers now fail to function on these two channels, the Opentel IRD and apparently most of the PC card models continue to provide these two services. Additionally, an Agila (satellite) service has gone from monthly/weekly code key changes to daily causing a loss of services such as Fox News (USA) unless the viewer obtains the current/daily keys and inserts them - short-term, almost like renting a videotape! This lasted for a week until Dynasat, the people who make the high grade dishes in Thailand, introduced a new auto updating (AU) version of their Silverbox which handles the daily updates without user intervention. This was apparently accomplished by obtaining a newly issued subscriber card in Manila and reverse engineering the embedded code so that the Silverbox software could be patched. Finally, your review of Fortec product neglected to mention the 1500 Plus is the only model currently able to decrypt Viaccess 2.4 and SECA 2 - apparently because it is the only receiver able to accept the 32 digit keys both require (www.rdi-sat.com). However, to 'test' this feature requires version 2.33 software and the 6.3 bootloader and according to your review, the IRD SatFACTS tested was an earlier version."

Anonymous, Thailand

More than merely a LNBf?

"Reference SF#119's review of LNBf performance including the Invacom TWH-031 (0.3 dB noise figure) Universal LNB we provided for test. By testing only on B3, one polarity, you were not creating much of a challenge for this particular LNBf. A strong signal, such as from Globecast, does not properly test the true abilities of this LNB as your testing revealed performance over what is a small 500 MHz portion of its more than 2 GHz coverage capability."

Jason, aDigitaLife

Not to defend our testing choices, but to explain. We selected B3 vertical for testing because *all* of the (7) LNBf versions included in the testing sequence share a common ability to function there and the point of the exercise was to *compare performance* between different brands and models. And to make sure we were comparing "apples to apples" we conducted testing immediately at the dish and then alternately after a 25 metre run of RG6.

Even this is not laboratory-precise because the different LOs (local oscillators) involved created a variety of L-band measurement frequencies. So while you may be measuring the same Ku-band input signals using different LNBf devices, the link from the LNBf to the receiver varies in frequency from one LNBf to another when different local oscillators are involved. This has two direct effects on the "apple-to-apple" integrity of the measurements.

SATELLITE & TERRESTRIAL TV SPECIALISTS

CONTACT US FOR OUR BRAND NEW CATALOGUE!

WANT TO SEE THE LATEST? VISIT OUR WEBSITE WWW.SATWORLD.COM.AU AND CLICK ON "WHATS NEW!"

WHY USE SATWORLD?

- *FRIENDLY SERVICE*
- *BEST PRICES*
- *IMMEDIATE DELIVERY*
- *FULL RANGE*
- *ONLINE STORE*

SEE THE LATEST ON DISPLAY!

OPENTEL

eMTech

SATWORLD

NOKIA eMTech DRAKE TOPFIELD HUMAX

FACTORY 2/493 HAMMOND ROAD, DANDENONG, VICTORIA, AUSTRALIA, 3197
PH: 03 9768 2920 FAX: 03 9768 2921 E MAIL: sales@satworld.com.au WEBSITE: www.satworld.com.au

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. Hire Purchase (HP) also available.

PO Box 214, Silverdale, Auckland, NZ
Ph/Fax 64-9-426-2324; Mobile 0274 789 160
Email: pacant@clear.net.nz

INSTALLING AURORA KITS?

Buy your kits from the people who have been solving television reception problems for over 40 years;
useful technical advice available!

The deal

- Genuine Optus approved UEC Model 910 IRD packed with 4 page out-of-area reception application
- LNB
- Includes report signal level calculator
- 90cm quality dish

All for $428 plus GST and freight (90cm dish shipped, enclosed, in a strong cardboard box).

Trade installers, only, from:

RURAL ELECTRONIC PRODUCTS

"*The Better Reception Centre*"
315 Summer Street Orange NSW 2800
Phone (02) 6361 3636

LO =	L-band 950 =	L-band 1450 =	L-band 1650 =	L-band 2050 =	L-band 2150 =
9.75	10,700	11,200	11,400	11,800	11,900
10.6	11,550	12,050	12,250	12,650	12,750
10.7	11,650	12,150	12,350	12,750	**12,850**
10.75	11,700	12,200	12,400	**12,800**	**12,900**
11.3	12,250	12,750	**12,950**	**13,320**	**13,450**
5.15 (C-band)	4,200	3,700	3,500	**3,100**	**3,000**

Modern receivers are designed to accept input signals falling between 950 MHz (0.95 GHz) and 2,150 MHz (2.15 GHz). The local oscillator (LO) in the LNBf determines where the incoming Ku-band signals (10,700 upwards through 12,750 MHz - a frequency span of 2,050 MHz) will actually appear within the L-band design coverage range. At C-band, the LO is at 5,150 MHz (5.15 GHz) or *above* the incoming C-band range of 3,500 - 4,200. At Ku, the LO frequency is **added to** the L-band frequency to determine the actual Ku input frequency (i.e. 9,750 LO + 950 L-band = 10,700 Ku) while at C the L-band frequency is **subtracted from** the LO to determine the C input frequency (i.e. 5,150 - 1450 = 4,200 C). Bold faced are "outside of (Ku or C) band" and therefore of no particular use (see below).

In a Universal LNB(f) several design factors differ from "narrow band" versions. These include:

1/ The ultra-low noise first stage or two of gain are circuit designed in a Universal (broadband) LNB(f) to cover a much wider bandwidth. It is exceptionally difficult (most LNB designers would agree, "*impossible*") to maintain the same noise "figure" (*that 0.3 dB business*) over a narrow range of frequencies (such as 12,250 > 12,750 MHz). To maintain the noise figure over an even wider bandwidth (such as 10,700> 12,750) is in the same realm as parting the Red Sea - *it takes a great deal of faith*!

A noise figure claim is quite meaningless unless there are footnotes that explain the precise method utilised to make the measurement. And, whether the figure quoted represents the "best case" or "worst case." A decade ago, LNB manufacturers would affix a label to the LNB and show 3, 4 or 5 "measurement points" between the low frequency end (such as 12.25) and the high frequency end (such as 12.75). An old LNB (not "f") with the brand name of "Star Scan (Aussat)" sitting in front of the keyboard has an LO of 11.3. Affixed to the metal case, a silver coloured label which indicates the manufacturer (Gardiner Communications, Garland, Texas) measured the noise figure at 7 different frequencies between 12.25 and 12.75 and found the "average" to be 1.4 dB while the actual measurements varied from 1.25 to 1.6 dB. Within the constraints of their measurement techniques, technology and skills - this was their attempt to provide an accurate depiction of what to expect with this particular LNB. Honesty in LNB labelling *very possibly* ended at about the time this particular LNB was manufactured.

(For a tongue in cheek view of LNB noise figure / noise temperature labelling, see "LNB Claimed Noise Figures? Give me a break!" on p. 30.)

This observation. 0.3dB noise figure is the same as 21 degrees Kelvin. At 0 degrees Kelvin all molecular (electron) motion stops; another term for "*dead*." The quietest spot in deepest space has a carefully (and accurately) measured noise temperature of 4 degrees Kelvin - which happens to be the same as 0.06dB. That's the nearest to no-noise physicists and astronomers have been able to locate in the entire stellar system. Even "Black Holes" have a noise temperature greater than 21 degrees Kelvin.

So are we to accept as gospel a noise figure of 0.3dB? We'll make this offer to those who *manufacture* LNB and LNBf products for Ku-band; some conditions apply.

Contact us and we will arrange to have your product tested by a certified laboratory with "standards" traceable to the National Bureau of Standards (USA) or an equivalent European facility. If - IF - your LNB or LNBf Ku product at ANY point within the designed input Ku frequency range (such as 12.25 > 12.75 GHz) actually meets the 0.3dB claimed on the label, we will reward you with 12 full pages of FREE SatFACTS advertising for one year. And suitable editorial acclaim. If not - well, we will report the actual test measurements here anyhow.

(Dealers: Ask your source if they have submitted an LNB/LNBf for this test offer!)

Continuing with how a Universal LNBf differs from a "narrow band" version:

2/ When the L-band converted output frequency climbs above 1,500 MHz, the "wideband" L-band output must be very carefully "tweaked" by both the designer of the circuit and the end-of-production-line tester to maintain suitable overall LNB/LNBf "gain" at the higher L-band region. When this is not done (our sweep tests at SatFACTS suggest it is NOT done more often than it is done), the Ku band signals falling into the range above 1,500 MHz suffer (are degraded). Now - add to this the higher (greater) RG6 (or other) coaxial cable losses, the higher F fitting losses, in the region 1,600 > 2,150 MHz and you have significant degradation which quickly translates to troublesome LNB/LNBf losses in the higher portions of L-band.

3/ At the receiver end of the circuit, the tuner becomes a new factor. Just as the LNB/LNBf ultra-low-noise front end (the system noise figure-determining input gain stages) have to work harder, and less efficiently, when asked to work over a wider bandwidth (such as 10,700 - 12,750 rather than 12,250 - 12,750 MHz), so too is the tuner working less effectively at 2,150 MHz than at 950 MHz. It is one of those "law of physics" considerations - higher frequencies *always* have higher noise figures (lower sensitivity) in a broadband device. And the tuner, covering 950 - 2,150 MHz is just such a broadband device.

Net result? The LNB/LNBf works less well at the "top end" and to complicate life, so too does the receiver's tuner. Bottom line? There is no free lunch here!

SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 August, 2004

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym	Receivers and Errata
Thcm3/78.5	SkyChAust	3695/1455H	up to 3	3/4	5(.000)	CA (#1, 3); FTA audio #2 (dm)
	ANT Greece	3672/1478H	1 TV	3/4	13(.333)	Late July 04: room for more (FTA)
	Korean Central	3665/1485H	1	2/3	3(.367)	Global footprint; changes 02/03.
	TARBS ME mux	3640/1510H	12TV, 12 radio	2/3	28(.066)	CA + 2 FTA(A1TV, IRB3)(
	Ch Nepal	3626/1524V	1	3/4	15(.556)	New 03/03; FTA
	Mahar mux	3600/1550H	11TV, 1 rad	3/4	26(.667)	Thai + Indian services; FTA
	SE asia Mux	3569/1581H	2+ TV	3/4	12(.500)	MRTV3, MRTV (DM)
	RR Sat mux	3551/1600H	8TV,10 radio	3/4	13(.333)	3TV, 5radio inc. Hellas TV Greece FTA
	JAIN TV	3538/1612V	1TV	3/4	3(.300)	PIDs 4132/4133
	PTV1 +	3521/1629V	1TV, 1 radio	3/4	3(.333)	frequency change
	FTA Mux	3520/1630H	12TV, 12 radio	3/4	29(.800)	Aug 04: 5TV, 1 ra FTA (India)
	TVK Cambodia	3448/1702H	1TV	1/2	6(.312)	**FTA**
	TARBS/Th5	3480/1670H	12 TV+radio	2/3	26(.667)	**3FTA**: TV5, VTV4, ATN Bangla
	KCTV/Korea	3424/1726H	1TV	3/4	3(.366)	Not 24 hour; FTA?
	Thai Global	3425/1725V	up to 7?	2/3	27(.500)	FTA (reaches SE Australia)
InSat 2E/83	**ETV mux**	4005/1145V	6+ TV	3/4	27(.000)	Several ETV now here; wide beam
	Hyd Dig 2E	3910/1240V	1	3/4	5(.000)	SCPC, OK E. Aust. wide beam
	Kairali TV	3699/1451V	1	3/4	3(.184)	SCPC, OK E. Aust wide beam
	Indian mux	3643/1507V	3	3/4	19(.531)	corrections 12/02
	ETV Mux#2	3485//1665V	4+TV	3/4	27(.000)	Several new ETV here; Asia beam
	Sky Bangla	3430/1720V	1TV	3/4	6(.000)	New - November 2002
NSS6/95E	Free-X TV, plus	12.729V-Australia	5+TV	7/8	27(.500)	Require authorisation: sales@bluekiss.biz; some fta
As2/100.5E	**Guangdong TV**	4075/1075H	1TV + radio	3/4	6(.000)	July 04: FTA
	Euro Bouqt	4000/1150H	6TV, 21r	3/4	28(.125)	FTA TV + radio; TV5 Asie moved "down" April
	Reuters News	3905/1245H	1TV	3/4	4(.000)	Was 3923H; sometimes **FTA**
	WorldNet	3880/1270H	4+/28radio	1/2	20(.400)	FTA; multiple audio services V2360, A2320
	APTN Asia	3799/1351H	1	3/4	5(.632)	Sometimes **FTA**; also 3895Vt
	Reuters/Sing.	3775/1375H	1	3/4	5(.631)	**FTA** & CA
As2/100.5E	**Macau MUX**	4148/1002V	5TV	3/4	11(.850)	5 chs TV, FTA, some tests
	Feeds	4086/1064V	1	3/4	5(.632)	FTA SCPC feeds
	Dubai MUX	4020/11430V	4+, radio	3/4	27(.500)	FTA , EuroSport PID change (1213/1313) June
	Fashion TV	3795/1355V	1	3/4	2(.626)	FTA as of May 1, 2003
	3-ch miniMUX	3752/1398V	up to 3	3/4	5(.640)	Sun-TV, Surya TV, KTV (FTA)
	Saudi TV1	3660/1490V	7+/tests	3/4	27(.500)	FTA MCPC; Yemen, MBC EUROsport tests
As3S/105.5E	Telstra I-Net	12.596V	no TV	5/6	30(.000)	Signal useful for dish testing - no TV
	RR Mux	3669/1481V	up to 5 TV	3/4	13(.333)	Bluekiss adult here; CA cards sales@bluekiss.biz
	Zee bouquet	3700/1450V	10TV	3/4	27(.500)	Mediaguard + Conax CA; 2 occ FTA
	Ch News Asia	3706/1444H	1TV (+)	3/4	6(.000)	New September 2003; English + V1160, A1120
	BTV World	3725/1425V	1TV	3/4	4(.450)	Bangladesh TV FTA started early March 2004
	SAB TV	3743/2407V	1TV	3/4	3(.300)	
	Arirang TV	3755/1395V	1	7/8	4(.418)	FTA SCPC; New PIDs V3601, A3606 June 2003
	Now TV +	3760/1390H	up to 8TV	7/8	26(.000)	CA + NOW, B'berg, Indus Music, MTA **FTA**
	Star TV	3780/1370V	7(+)TV	3/4	28(.100)	NDS CA (Pace DVS211, Zenith)
	GXTV	3806/1344V	1TV + 3 radio	3/4	4(.420)	Guangxi TV; was As2
	Shaanxi TV	3813/1337V	1TV + 2 radio	3/4	4(.420)	Was As2
	Anhui TV	3820/1330V	1TV + 2 radio	3/4	4(.420)	Was As2
	Jiangsu TV	3827/1330V	1TV + 2 radio	3/4	4(.420)	Was As2
	HLITV	3834/1316V	1TV	3/4	4(.420)	Was As2; HeiLong
	Star TV	3840/1310H	7(+) TV	7/8	26(.850)	NDS CA (Pace DVS211, Zenith)
	Star TV	3860/1290V	5(+)TV	3/4	27(500)	NDS CA (Pace DVS211, Zenith)
	AbuDhabi MUX	3880/1270H	8+TV, 2Radio	3/4	27(.500)	New April 2004: link to Optus B3 Globecast
	Dragon TV	3886/1264V	1 TV	3/4	4(.800)	Shanghai
	Shaandong	3895/1255V	1TV + 6 radio	3/4	6(.813)	Apparently Mongolia; was As2
	Jilin TV	3914/1236V	1TV + 1 radio	3/4	4(.420)	Was As2
	Star TV	3920/1230H	4+ TV	7/8	26(.850)	Star Sports Asia (+), **FTA** NTSC; V512, A640 English
	Star TV	3940/1210V	6(+)TV	7/8	26(.850)	NDS CA as above; may NOT be operational
	CNNI	3960/1190H	8(+)TV	3/4	27(500)	PowVu CA; new SR Apr 29; CNN radio **FTA**
	StarTV	3980/1170V	6+TV	3/4	28(.100)	NDS CA; Star News India **FTA** VPID 514, APID 648
	Star TV	4000/1150H	8(+)TV	7/8	26(.850)	NDS CA w/ **4(Chinese) FTA**
	Sahara digital	4020/1130V	8TV	3/4	27(.250)	New Sr September
	Hubei TV	4035/1115H	1TV + 2 radio	3/4	4(.420)	Was As2
	Sichuan TV	4051/1099H	1TV + 1 radio	3/4	4(.420)	Was As2
	Qinghai TV	4067/1083H	1TV + 2 radio	3/4	4(.420)	Was As2
	Hunan TV	4082/1068H	1TV + 1 radio	3/4	4(.420)	Was As2
	Pakistani TV	4091/1059V	4TV, 1 radio	3/4	13(.333)	new Sr, channels, Nov 2003
	Sun TV	4095/1055H	1	3/4	5(.554)	"History Channel" - SCPC
	TVB8 Mux	4110/1040H	3	3/4	13(.650)	**MATV Chinese movies FTA** +CA; new Sr 05-04
	Indus News	4115/1035V	1	3/4	3(222)	Hindi (+ "Plus")
	CCTV bqt	4129/1021H	4(+) TV	3/4	13(.240)	moved from 4115
	Zee Bqt #2	4140/1010V	8(+) TV	3/4	27(.500)	Mediaguard (SECA) CA
	Henan TV	4166/984V	1TV + 4 radio	3/4	4(.420)	Was As2
	Fujian TV	4180/970V	1TV + 2 radio	3/4	4(.420)	Was As2
	Jiangxi TV	4187/963V	1TV + 2 radio	3/4	4(.420)	Was As2
	Liaoning TV	4194/956V	1TV + 2 radio	3/4	4(.420)	Was As2
Cak1/107.5	Indovision (S-band)	2.535, 2.565, 2.595, 2.625, 2.655	33(+) TV	7/8	20(.000)	NDS CA using RCA/Thomson, Pace IRDs; **2.535 has 2 FTA**
T'Kom/108E	**IndoBqt**	3460/1690H	up to 6	3/4	28(.000)	also 3586H/17.500, 3496H/19.615
C2M/113E	**TPI**	4185/965V	1	3/4	6(.700)	FTA SCPA; NT/NC only
	TVE Asia-Africa	4160/990H	1	3/4	5(.632)	New August 2003
	Anteve	4144/1006V	1	3/4	6(.510)	change from 4055V; FTA SCPC
	Kabelvision Mux	4080/1070H	7+ TV	7/8	28(.125)	07-04: testing new CA pay-TV service; strong NZ
	Indostar	4074/1076V	1	3/4	6(.500)	FTA (new 06-03); V2201, A2202
	SCTV	4048/1102V	1	3/4	6(.618)	FTA SCPC; NT, New Caledonia only
	Indonesian Mux	4000/1250H	6+ TV	3/4	26(.085)	unstable platform - not always there
	Satelindo	3935/1215H	1	3/4	6(.700)	test card - only - reported
	Bali TV	3926/1224H	1	3/4	4(.208)	FTA, may not be active full time
	Indo MUX	3880/1270H	3+ TV	7/8	28(.121)	FTA; Sr change 01/03; erratic
	Global MUX	3760/1390H	up to 11 TV?	7/8	28(.121)	frequent changes; often only test cards

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	Receivers and Errata
	Brunei/Sing	3733/1417H	1TV	3/4	6(.000)	FTA ; Singapore 23hrs, Brunei 1 hr;Brunei V1200
	RCTI	3473/1677H	2	3/4	8(.000)	FTA SCPC; Australia, New Caledonia, some English
As4/122E	**Tests**	3733/1417H	2 TV	3/4	5(.789)	Tests: erratic service
Jc3/128	Miracle Net	3996/1154V	3 up to 6	5/6	22(.000)	PowerVu; some FTA (Ch. 1 & 3)
	Asian bqt	3960/1190V	up to 8	7/8	30(.000)	CA & **FTA** NTSC: Japan, Taiwan
Jc2A 154	**BYU-TV**	3915/1245V	1+languages	3/4	4(.166)	Erratic service; strong NZ & Australia
MeasSs2	**Astro Mux**	11.602H	up to 17TV	3/4	41(.500)	Aust East beam - **3 FTA** + 14 CA
	VTV MUX	11.522V	3 TV	3/4	9(766)	WA only? Skew path, intended Asia
B3/152	Optus tests	12.407V	4 TV, 10 radio	2/3	30(.000)	differs from 12.407 C1; **tune ch FTA; NZ+Au**
	Occ feeds	12.440H	1TV	3/4	6(.666)	Net 10, V8 racing
	Occ feeds	12.450H	1TV	3/4	6(.666)	Big Pond; V8 racing
	GWN news feeds	12.460H	1TV	3/4	6(.670)	NOT DVB compliant
	Globecast 2	12.525V	10 TV, 7 radio	2/3	30(.000)	GlobeCast, NZ + Au
	Globecast (feeds)	12.550-.555V	1TV	3/4	6(.110/.670)	occ feeds, NZ + Au
	Sydney Racing	12.563H	1TV	2/3	30(.000)	Competitor to TAB; **FTA** but not for long
	Globecast 1	12.657V	14TV, 15 radio	2/3	30(.000)	NZ + Au
	WA/NT mux	12.688H	3TV, 4 radio	2/3	30(.000)	GWN, WIN, ABC NT have been FTA here
	WA ABC	12.702V	1 TV, 1 radio	7/8	14(.288)	ABC WA tests, FTA
	WA SBS	12.720V	4TV, 2 radio	5/6	12(.600)	SBS, radio tests WA FTA
	WA GWN/WIN	12.738V	2TV	7/8	14(.295)	Irdeto V2 CA, tests (GWN, WIN)
C1/156E	Optus test bed	12.292V/T1L	(empty)	1/2 (*)	30(.000*)	testing late May; * - may be temp #s; on and off
	Optus test bed	12.325V/1U	(empty)	1/2 (*)	19(.540*)	testing late May;*-may be temporary numbers
	Pay TV	12.367V/T2	11TV, 2 radio	3/4	27(.800*)	Tests, not always operational; SBS.
	Aurora Home	12.407V/T3	5 TV, 13 radio	2/3	30(.000)	NZ (90cm) + Australia (**Only svc left on NZ; C1**)
	Pay-TV	12.447V/T4	5TV, 4 data	3/4	27(.800)	Australia NA only (leakage to Norfolk, New Cal)
	Pay TV (test)	12.487V/T5	3 TV	3/4	27(.800)	Australia NA only (leakage); 9-Net x 3 widescreen
	Aurora 2	12.527V/T6	7TV, 20 radio	3/4	30(.000)	Arrow radio, tone FTA
	Pay-TV	12.567V/T7	10 TV	3/4	27(.800)	Pay-per-view movies; CA
	Pay-TV	12.607V/T8	10 TV	3/4	27(.800)	Pay-per-view movies; CA
	Pay-TV	12.647V/T9	10 TV	3/4	27(.800)	Pay-per-view movies; CA
	Austar	12.305H/T11	6TV, 24 data	3/4	30(.000)	Austar inter; Expo FTA
	Pay-TV	12.358H/T12	10 TV	3/4	27(.800)	NDS CA + Mcrypt; CA
	Pay-TV	12.398H/T13	10 TV	3/4	27(.800)	CA, subscriptions available Australia, Norfolk
	Pay-TV	12.438H/T14	6TV, 3 data	3/4	27(.800)	Sky News active; "Help" FTA
	Pay-TV	12.478H/T15	10 TV	3/4	27(.800)	CA, subscriptions available Australia, Norfolk
	Pay-TV	12.518H/T16	10 TV	3/4	27(.800)	CA, subscriptions available Australia, Norfolk
	Pay-TV	12.558H/T17	10 TV	3/4	27(.800)	"Home"CA, subscription available Australia, Nrflk
	Pay-TV	12.638H/T19	9TV, 30 radio	3/4	27(.800)	CA, subscription available Australia, Norfolk
	Pay TV	12.688H/T20	11TV	3/4	27(.800)	CA, subscription available Australia, Norfolk
B1/160	Occ. feeeds	12.380H	1 TV - *	3/4	6(.111)	* - plus 12.451H, 12.460H
	Occ. feeds	12.384V	1 TV - *	3/4	6(.111)	* - plus 12.293V, 12.402V, 12.411V
	Net 7 service	12.397H	1	3/4	7(.200)	Full schedule less commercials - links; may be CA
	Net Ten	12.353H	1TV + 1 radio	3/4	5(.100)	Possibly feed to Tasmania?
	Imparja mx	12.379H	2TV + 8 radio	3/4	5(.424)	PIDs vary; also try 12.360, 12.370
	7 digital feeds	12.397H	1TV	3/4	7(.200)	occ. digital feeds; typ fta
	Feeds to NZ	12.411V	1 TV	3/4	6(.111)	Often NTSC; USA-Australia-NZ
	SBS Mux	12.420H	3+ TV, 2+ radio	5/6	12(.600)	Also 12.420H same params; SBS HDTV + w-s
	TVNZ DTH	12.456V	5+TV	3/4	22(.500)	FTA 4 channels (TVNZ x 4); +Maori here
	Nine Net	12.512H	1 TV typ.	3/4	5(.632)	testing digital feeds; Sr may vary
	Sky NZ	12.519/546V	7TV/7TV	3/4	22(.500)	NDS CA, subscription available NZ
	Sky NZ	12.581/608V	6TV/6TV	3/4	22(.500)	NDS CA, subscription available NZ
	Sky NZ	12.644/671V	9TV	3/4	22(.500)	NDS CA, subscription available NZ
	ABC HDTV	12.603H	5TV	7/8	14(.300)	also 12..626,.643,.670, 688, & 706H
	Sky NZ	12.707/733V	8+TV	3/4	22(.500)	NDS CA, subscriptions available NZ
	Mix 106.3	12.574H	1 radio + data	3/4	1(.851)	Radio SCPC is "cover" for high speed data
P8/169	**ABS-CBN**	12.575H	4+TV, radio	2/3	13(.845)	FTA but going CA as of 08-04
	JEDI/TVB	12.686H	11+ TV	3/4	28(.126)	June 2002-Irdeto-2 CA
	ABC A-P	4180/970H	2TV, 2 radio	3/4	27(.500)	Dateline west; also east PAS2, 3901V
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(.125)	PowVu CA
	Taiwanese MUX	4080/1070H	12+ TV	5/6	30(.000)	Tests - CA service coming
	NHK Joho	4060/1090H	7TV, 1 radio	3/4	26(.470)	PowVu CA & **FTA**; subscription available
	FOX Mux	4040/1110V	up to 5TV	7/8	26(.470)	was PAS-2, previously 3992Vt; **feeds FTA**
	NET +	4121/1029V	1 TV	3/4	4(.774)	NET25 + FTA; new PIDS April '03; reload
	ESPN USA	4020/1130H	8+TV, data	3/4	26(.470)	PowVu CA; ch 11 DCP-CCP bootload; audio **FTA**
	Discovery	3980/1170H	8 typ.	3/4	27(.690)	PowVu/CA (some audio **FTA**)
	CalBqt/Pas8	3940/1210H	up to 3+ FTA	7/8	27(.690)	PowVu CA & **FTA (EWIN +)**
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)	NDS CA (6 channels); one test card FTA
	FilipinoMUX	3880/1270V	up to 8TV+radio	5/6	28(.694)	**Myx FTA** V1960, A1920 + radio FTA
	TaiwanBqt	3860/1290H	12TV + 30 r	5/6	28(.000)	Mixed **FTA** & CA; STC gone (CA)
	CCTV Mux	3829/1321H	up to 4 + 1 radio	3/4	13(.240)	PowVu FTA, replaces PAS-2 svc
	TVBS-N	3836/1314V	**1FTA**, 4+ CA	3/4	22(.000)	Difficult because of CCTV cross pole
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(.632)	was As2; PowVu CA
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)	PowerVu; some audio **FTA**
	Discovery Asia	3764/1386V	Up to 6 TV	3/4	19(.850)	PowerVu; Asian MUX; new parameters Nov '03
	MTV	3740/1410H	8	2/3	27(.500)	**# 8 MTV China FTA V289, A290;** rest CA
P2/169E	WA Mux Pv	12.281V	3+ TV, radio	2/3	27(.500)	PowVu CA, WIN, ABC NT, SBS; status unknown
	Ariang TV	12.401V	1TV	3/4	4(.400)	Test - may not stay permanently
	ABS-CBN	12.575H	4TV, 2 radio		13(.845)	Temp **FTA**; will be CA, subs 011-800-2270-0722
	NBN	4126/1024V	1TV	3/4	3(.075)	May not be permanent; not available to NZ
	TARBS	4090V/1060V	9TV + radio	3/4	21(.000)	Occ **FTA** (Chile +); BIG power reduction Nov 03
	Feeds	4027/1123H	1+TV	2/3	6(.620)	Sporting feeds from USA (occasional)
	Feeds	3957/1193V	1	2/3	6(.620)	PowVu (FTA) occ. feeds
	Feeds	3929/1221V	1	3/4	10(.850)	PowVu (FTA) occ sport feeds
	Feeds	3912/1238V	1	2/3	6(.620)	PowVu(FTA) occ. feeds
	Feeds	3898/1252V	1	2/3	12(.000)	PowVu (FTA) occ. feeds
	Middle East	3836/1314V	4 typ	3/4	13(.331)	**Irdeto 2 CA - subscriptions avail; Strong Tech**
	Feeds	3803/1347V	1	3/4	6(.000)	PowVu (FTA) occ sport feeds inc. Japan BB
	PAS/BBC mux	3744/1406V	3	3/4	21(.500)	**BBC, test card FTA**, others nominally CA

OK ... so why should **YOU** advertise in SatFACTS???

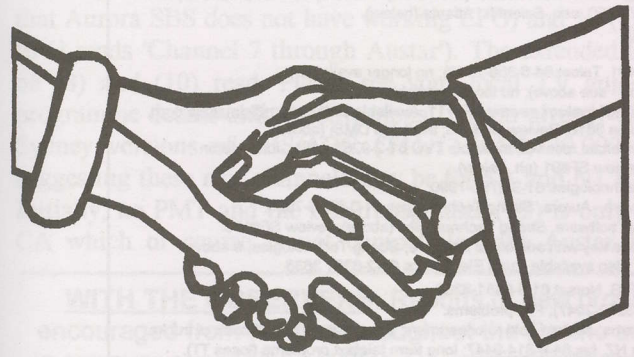
"My friend and I have been reading SatFACTS from day one and I have a complete set. Each month SatFACTS brings us new challenges and we are inspired to educate ourselves by experimenting with new concepts. Each time, we learn something from our mistakes and our successes. And when we fail, we look forward to the next issue to help

☒ REASON ONE: **Readership loyalty**. 88% of all subscribers renew - more than 300 (out of 9,900 readership impressions per issue) have been with us from Vol. 1, Number 1!

☒ REASON TWO: **Enquiring minds**. SatFACTS readers are the leading edge sellers, installers, fix-it-folks for C, Ku, S-band installations throughout the Pacific and Asia.

☒ REASON THREE: **Volume**. SatFACTS readers sell equipment. To others. And they buy that equipment from firms who advertise in SatFACTS!

"Your SF#105 report on reviving once-proud larger dishes, and correcting their deformities, was exceptionally well done. I have been in satellite for a decade, have strung dishes in the past but never have I see it so clearly explained."



(03-04)

SatFACTS is your partner in industry growth

1 full page - as low as A$338monthly
1/2 page - as low as A$219 monthly
1/4th page - as low as $142 monthly
1/8th page - as low as A$93 monthly

A full "advertising rate sheet" available FAX or mail; send us your send-to details at e-mail skyking@clear.net.nz or via fax 00-64-9-406-1083.

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS2/169E)	**Adventists.tv**	4040/1010H	1	2/3	5(.900)
	Feeds	3868/1182H	1	2/3	6(.620)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)
	HK bouquet	3850/1300H	up to 8	2/3	24(900)
	Korean Bqt	3771/1379H	1	3/4	9(.041)
I804/176E	**iPSTAR**	12.619H	1	2/3	25(.220)
	Tests-NZ beam	12.646H	1	3/4	22(.418)
	RFO Poly	4027/1123R	1TV	3/4	4(.566)
I701/180E	TNTV	11.060&11.514	9	3/4	30(.000)
	Canal+Sat	11.610H	16TV, 1 radio	3/4	30(.000)
	TARBS Pacific	12.691H	16TV possible	3/4	28(.066)
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)
	TVNZ	4178/972RHC	1	3/4	5(.632)
	AFRTS DTS	4175/975L	3 TV, 3 radio	2/3	3(680)
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)
	RFO-Canal+	4086/1064L	4TV, radio	5/6	12(.041))
	TVNZ/feeds	4052/1098RHC	1	3/4	5(.632)
	TVNZ feeds	4044/1106R	1	3/4	5(.632)
	NZ Prime TV	4024/1126L	1	2/3	6(.876)
	NBC to 7 Oz	3960/1190R	1	7/8	6(447)
	WorldNet	3886/1264R	1TV, 37 radio	3/4	25(.000)
	Ioarana	3772/1378L	1	3/4	4(.566)
	NASA TV	3854/1296R	1 TV	3/4	2(.000)
	TVNZ	3846/1304R	1	3/4	5(.632)
	NBA (Barker) Ch	3803/1347R	1	3/4	6(.111)
	10 Australia	37691381R	4	7/8	20(.000)
	USA feeds	3749/1401R	4?	?	26(400)
NSS-5/177W	Pacific IP Data	3745/1405R	none-date	3/4	44(.995)
	iPSTAR Tests	12.700V	8+ TV		

Receivers and Errata
New December 2003; 24/7 "Hope Chs."
FTA (occ sport); also try 3863,Sr6.100
FTA-typ NTSC-occ sport, live Shuttle
PowVu CA + **FTA** (BBC gone)
was 4148Vt; some **FTA**
Korean MUX, reload 02/03
Tests, late May start; also 12.646H
Testing possible data links; June 2003
SE spot beam; was 4027LHC
east spot; 10TV + r each, vertical pol.
1+ **FTA**, MediaGd "2"; + 10.975 weaker
Testing Fiji region pay-TV package (June 2004)
DMV/NTL early vers. occ feeds, typ ca
DMV/NTL early vers., occ feeds, typ ca
DTS Direct to Sailors; audio previously FTA - no more
DMV/NTL early vers. occ feeds, typ ca
east hemi 20.5 dBw +; new Sr
DMV/NTL early vers.,occ feeds, typ ca
SCPC, mixed CA and **FTA** feeds
PowVu CA; Auckland net feeds
CA, Leitch encoded
New PIDs Dec 03 very strong NZ, Pacific
FTA SCPC; East Hemi Beam-Tahiti
Special events only covered - new 08-04
SCPC, mixed CA & **FTA**, feeds
NBA feeds - probably CA - new Nov 2003
PowVu CA & **TBN-JCTV FTA**
16-QAM (not MPEG-2 compatible)
Data only but useful for dish alignment, top Sr check
Tests - Taiwan TV but only temporary; data coming

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

Aston Simba 201. Embedded SECA (Zee, Canal +); review SF#97. MediaStar 61-2-9618-5777.
AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. AV-COMM P/L, 61-2-9939-4377.
AV-COMM Tiny Tot. FTA, 12Vdc operated, palm sized, low power consumption; review SF#120. Contact # above.
AV-COMM R3100(A). FTA, good sensitivity, ease of use exc (review SF May 2002). See above contact.
Coship 3188C. Review SF#107. Blind search FTA rcvr; works well. Available from Satlink NZ www.satlinknz.co.nz. **(ONLY** KNOWN DISTRIBUTOR IN WORLD)
Divitone: "Left-handed" review SF#115; does "code key" entry. Available http://www.satmax.ws
eMTech eM-100B (FTA), eM-200B (FTA + Clx2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)
Fortec Star Lifetime. Two versions, both blind search, code-key programmable, one X 2 CI. Review SF#119. www.aDigitaLife.com
Humax F1-CI. Primarily sold (originally) for TRT(Australia), does (limited) PowerVu (not Optus Aurora approved); not desirable.
Humax ICRI 5400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available; new software avail 04-04, SF#76.
Humax IRCI 5410 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available; original importer Sciteq (www.sciteq.com.au).
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.
INNOVIA IDS3088. Review SF#111. Blind search FTA receiver. High quality IRD; available Phoenix Technologies, and Satmax (http://www.satmax.ws).
ID Digital CI-24 Sensor. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.
MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. 61-2-9618-5777
MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777
MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.
MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738
Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.
Nokia 9200/9500. When equipped with proper software, does Aurora, originally did pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. SatWorld 61-3-9773-9270 (www.satworld.com.au)
Pace DGT400/DVR500. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced; Sept 18 (2003) "drop-dead" day; all were to have been "turned off" on that date (in fact, those with V1.13 CAMs may still be working; still does radio including CA, not TV).
Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).
Panasat 520/630/635. MCPC FTA, Irdeto capable, forerunner UEC 642, 660. Out of production, spares fax ++27-31-593-370. No longer works with Austar/Foxtel.
Phoenix 111, 222. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH (below)- 222; terminated
Phoenix 333. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review SF#51. SATECH 61-3-9553-3399.
Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)
PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).
PowTek. Blind Search Chinese sourced, field tests rate it highly. Source jason@aDigitaLife.com
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 64-6-356-2749); no longer available.)
SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.
SATWORK ST3618. Blind search FTA receiver. Fast search, problems, especially in "memory-filing" system; review SF#111. Available DMSi at tim@dmsiusa.com.
SATWORK ST3688. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSi (above).
Scientific Atlanta D9223, D9234, D9225; Orig. PowerVu, superceded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481, John Martin
Strong Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).
Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.
Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, does code-key with additional software, Aurora. Strong Technologies 61-3-8795-7990.
Strong 4800 II. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +, code key with additional software. Strong Technologies (above); review SF#103.
Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSEqC 1.0, 1.2 (review SF#84), does code key with additional software; Strong Technologies, # above.
UEC Atlas/Titan (1000). New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.
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; propensity to fall off back of trucks.
Winersat DigiBox 200. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fax 64-9-814-9447; long term teletext problems (loses TT).
"X" Digital. When modified with "aftermarket" smartcard reader and Internet softwre, does Aurora and other V-1 CA without card; review SF#119. Strong Technologies.

Accessories:

Aurora smart cards. MYCRYPT (Irdeto V2) cards now available (Oct. 2003), Sciteq 61-8-9409-6677.
PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)
PowerVu (Pacific) repair service: Cable & Sat Svcs, Darius West, 61-2-9792-1421 (Email darius@cases.net.au)

WITH THE OBSERVERS

AT PRESS DEADLINE

Persistence pays off! USA NASA TV I701, 3854RHC, Sr 2.000, 3/4; not full time! As4-/30 MPEG (CA) pay-TV - ✓4100V, 4020V Sr 27.500, 3/4. TARBS coming back as United Broadcasting International? Stay tuned. C1 did positioning fine tuning Aug 3 - "fringe areas" affected. Syria TV replacing Yemen As3S 3880H. NZ Telstra-Clear selling 1/2 Ku Tr B1; new services possible - but not soon.

AMC11/131W: Testing completed but in-service date not until November.

Apstar 5/Telstar 18/138E: "Strong carriers V and H from 142E test location.: (**David L**, NSW) (Editor's note: Bird is now at 138E and should be operating full-time before you read this.)

AsiaSat 2/100.5E: "APTN/Globecast Jakarta feeds 3896V, Sr 5.532, 3/4 FTA." (**B. Richards**, SA) "Guangdong TV FTA 4075H, Sr 6.000, 3/4." (**SU**)

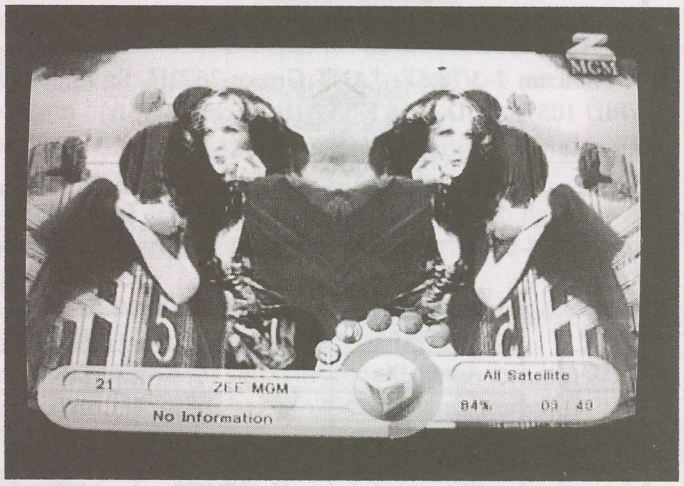
AsiaSat 3/105.5E: "Changes Arab MUX 3880H, Sr 27.500, 3/4 adding Yemen TV." (**AA**)

AsiaSat 4/122E: "STV MUX3880H has shut down; two signals still available are 3863V (Sr 4.304 with 2 Chinese versions of TVSN) and 3733H (Sr 5.789, 2 programme channels, test cards." (**DM**, NSW) "Brief test 3733H, Sr 5.789, 3/4 2 video channels." (**B. Richards**, SA)

NSS-6/96E: "Free-XTV promos 12.647V, 12.688H FTA on Australia beam." (**KT**) (Editor's note: Sexy TV reported on Australian beam, 12.729V, Sr 27.500, 7/8; VPID 2305, APID 2306.) "ABC Asia Pacific was seen 12.657V, Sr 6.515 late July - did not last." (**DM**, NSW) "Antenne Greece (11.083H; Sr 2.170, 3/4) and TV R International (11.106H, Sr 3.255) running FTA late in July." (**Richards**, SA)

Optus B3/160E: "Sky (Aust) now has a radio channel on Tr3/12.407V (Sr 30.000, 2/3 Aurora); audio PID 517 (decimal) and CA in Sky's unique version of Irdeto. Tr13 12,563H (Sr 30.000, 2/3 Sydney Racing) remains FTA but has reverted to airing graphics between races whereas initially ran recorded races from prior while waiting for next race to run." (**IF**, Qld) "Sun TV remained FTA until end of July - subscription is through 1300 881 679, $32 per month plus GST." (**AI**, NSW)

Optus C1/156E: "Something happening on T2/12.365V (Sr 27.800, 3/4) end of July: New labels chs 7 (ABC-same EPG as NT, SA ABC Aurora), 8 (Ch 9 - EPG reads 'Channel 9 through Austar'), 9 (SBS - same EPG as SBS NSW - note that Aurora SBS does not have working EPG) and 10 (Ch 7 - EPG reads 'Channel 7 through Austar'). The extended EPGs on (8) and (10) read 'Please see your local TV guide for programme details and classifications'. Austar already carries Sydney versions of SBS/ABC (T11/12.305H, 30.000, 3/4) suggesting these new channels may be for SA and NT (only). Initially, no PMT and the full transponder (T2) is only NDS CA which of course is not compatible with Austar home IRDs." (**IF**, Qld) "Tr3/12.407V (Sr 30.000, 2/3 Aurora) - Satellite Music Australia's radio channels 'SMA BUS1' and 'SMA BUS2' have disappeared although SMA BUS3 (Big W) continues. SMA BUS4 is new at audio PID 272 (decimal) in the EPG, labelled 'CML' and only Mcrypt (Irdeto 2). Tr6/12.527V (Sr 30.000, 3/4 Aurora) has added 'ABC RR AS' for Alice Springs (audio PID 839; Irdeto V1 but because of ABC rules, only receivers in NT should play it." (**IF**, Qld)



GOTCHA! AsiaSat 3S Zee carriage of MGM Movies, English disappeared from most code-key receivers during July although PC card and Opentel (brand) hardware reportedly continue to play the services. Zee's countermeasure attacked "V-1" software.

Palapa C2/113E: "Kabelvision (Indonesian start-up DTH) testing 4080H, Sr 28.125 (some report 28.150), 3/4, over 50% quality on 1.8m dish in NZ (Nagravision CA)." (**AS**)

PanAmSat PAS2/169E: "KBS World noted FTA 4054H, Sr 6.150, 3/4." (**B. Richards**, SA) (Editor's note: Also reported 3771H, probably CA now.)

PanAmSat PAS8/166E: "Correction to SF#119: ABS-CBN is on PAS-8, *not* PAS-2, 12.575H, Sr 13.845, 2/3." (**DM**, NSW) "New Taiwanese transponder, 4080V, Sr 30.000, 5/6 indicates 12 channels including 'Sony Entertainment Television' and movies, loading channels but no programming although FTA (format) late July." (**DM**, NSW) "ABS -CBN 1 has vacated 3710V." (**NK**)

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 September 15th issue: September 3 by mail or 5PM NZT September 5th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

World Radio Network on As2 - European Bouquet

European Bouquet, radio channels, has World Radio Network with 24/7 services originating at more than 20 different terrestrial radio networks. Live (mostly) from a variety of countries, all in English, with some of the highlights (full schedule www.org.org) to follow:

Mon-Fri UTC in AEST schedule (*times AEST*): **Australia** 10AM; **Canada** 7AM, 12n, 6:30PM; **Germany**: 8PM; **Ireland** 12:30PM, 5PM, 10PM, 9AM; **Netherlands** 7PM, 8AM; **Sweden** 11:30PM; 9:30AM: **USA** 11AM (NPR), 3PM (NPR), 12mid (VOA), 1AM (NPR).

Sat-Sun UTC in AEST schedule (times AEST): **Australia** 9PM; **Canada** 7AM; **Germany** 8PM; **Ireland** 1:30PM, 5PM, 10PM, 4AM, 9AM; **Netherlands** 7PM, 8AM; **Sweden** 9:30AM; **USA** 11AM (NPR), 3PM (PBS), 12mid (VOA), 1AM (Sunday) Car Talk.

Thaicom 2-3/78.5E: "ANT Greece 3672H, Sr 13.333, 3/4 VPID 1057, APID 1058 FTA." (**B. Richards**, SA)

Soapbox: "I am looking for software to remove the Boomerang parameters from the Star Pro receivers - perhaps someone can help?" (**rick@antechtv.com.au**) "Surely New

Optus B3 (152E) and C1 (160E) as of August 2, 2004

(1/ 12.4-07V-C1 also contains UEC receiver software upgrades; 2/ 12.407V-C1 is ONLY C1 transponder with a Australia plus NZ beam currently.)

Sat	Service	RF & polarity	Program channel	FEC	Msym	Content/notes
B3	Aurora Biz	12.407V/T3	4TV,10Ra,4 data	2/3	30(.000)	Tune, Ra (FTA/Au + NZ))
	Globecast 2	12.525V/T5L	10TV, 7 Ra	2/3	30(.000)	Aust + NZ
	Globecast feeds	12.550-.555V	1TV	3/4	6(.110/.670)	occ use Aust + NZ
	Globecast 1	12.657V/T7	14TV, 15 Ra	2/3	30(.000)	Aust + NZ
	WA ABC feed	12.702V/T8L	1TV, 1 Ra	7/8	14(.300)	WA only; FTA
	WA SBS feed	12.720V/T8C	4TV, 2 Ra	5/6	12(.600)	WA only; FTA
	WA GWN, WIN	12.738V/T8U	2TV	7/8	14(.300)	WA only; Mcrypt
	Occ feeds	12.440H/T11	1 TV	3/4	6(.666)	V8 racing; Net 10
	Occ feeds	12.450H/T11	1 TV	3/4	6(.666)	V8 racing; Big Pond Inter.
	GWN news feeds	12.460H/T11	1TV	3/4	6(.670)	NOT DVB compliant
	Sydney racing	12.563H/T13	1TV	2/3	30(.000)	FTA; to be Mcrypt
	NT feed	12.688H/T15	3TV, 4 radio	2/3	30(.000)	Central Aust. FTA
C1	Optus tests	12.292/T1L	(empty)	1/2	30(.000)	Australia only
	Optus tests	12.325V/T1U	(empty)	1/2	19(.540)	Australia only
	Pay TV	12.367V/T2	11TV + 2 Ra	3/4	27(.800)	SBS + (Olympics?)
	Aurora-**Home**	12.407V/T3	5TV, 13 Ra (**1**)	2/3	30(.000)	Aust + NZ (**2**); Tune FTA
	Pay TV	12.447V/T4	5TV + 4 data	3/4	27(.800)	Sports active, games
	Pay TV	12.487V/T5	3TV	3/4	27(.800)	Foxtel Ch 9s
	Aurora 2	12.527V/T6	7TV, 20 Ra	3/4	30(.000)	Arrow radio, tone FTA
	Pay TV	12.567V/T7	10TV	3/4	27(.800)	pay-per-view movies
	Pay TV	12.607V/T8	10TV	3/4	27(.800)	pay-per-view movies
	Pay TV	12.647V/T9	10TV	3/4	27(.800)	pay-per-view movies
	Aurora 3	12.720V/T10	6TV, 16 Ra	3/4	30(.000)	Irdeto V1 + Mcrypt
	Pay TV	12.305H/T11	6TV, 24 data	3/4	30(.000)	Austar inter.; Expo FTA
	Pay TV	12.358H/T12	10TV	3/4	27(.800)	NDS CA + Mcrypt
	Pay TV	12.398H/T13	10TV	3/4	27(.800)	
	Pay TV	12.438H/T14	6TV, 3 data	3/4	27(.800)	Sky news active; help FTA
	Pay TV	12.478H/T15	10TV	3/4	27(.800)	TVSN FTA
	Pay TV	12.518H/T16	10TV	3/4	27(.800)	"+2 hour" channels
	Pay TV - **Home**	12.558H/T17	10TV	3/4	27(.800)	
	Pay TV	12.598H/T18	10TV	3/4	27(.800)	
	Pay TV	12.638H/T19	9TV, 30 Ra	3/4	27(.800)	
	Pat TV	12.688H/T20	11 TV	3/4	27(.800)	

These firms are available to do contract dish installs

Fiji Islands

Safeway Electronics Ltd, **Suva + Lautoka + all islands** (Ph 3395300/6666822; safeway@connect.com.fj)

New Zealand:

Tauranga TV Svcs Ltd, western **Bay of Plenty** (ethnic Ku packages) (Ph 07 578 7276; dave-tts@clear.net.nz)
Raycom, **Coromandel Peninsula/Waihi/Tairua** (B1 FTA) (Ph 07 864 8083; raycom@slingshot.co.nz) (*)
Frontline Electronics, **Mosgiel** region (ethnic Ku packages) (Ph 03 489 4001)
Advanced Aerials, **Napier/Hawkes Bay**, comcls (Ph06835 6618/021 272 6618; advanceaerials@xtra.co.nz)
Nelson TV & Video Svcs, all **Nelson Bays** (Ph 03 548 0304; ntv@tasman.net)
Rexels AV Electronics Ltd, **Palmerston N, Manawatu, Hawke's Bay, Wanganui** (Ph 06 357 6186; rlblair@infogen.net.nz)
The Antenna Man, **Taranaki** (Ph 06 758 1633; antenna.man@xtra.co.nz) (*)
Quality Pics, entire **Waikaito** region (Ph 0800 007 667; maxnkay@xtra.co.nz)
Smartzone, **Wellington-Wairarapa-Palmerston N** (C+Ku) (Ph 029 289 6333; info@smartzonesystems.co.nz)
Homestead HiTech, **Wellington, Masteron-Levin** (PAS-2, B1, B3) (fitzgera@ihug.co.nz)
Waipu Cable Television, **Wellsford to North Cape**, (Ph 09 4320 973; waipucable@xtra.co.nz)
John Stewart, **southland** including Otago (john.s@tritec.co.nz)

New South Wales:

Woolgoola Antenna Service, **Coffs Harbour** (50km radius) (Ph 0266561889; woopaerials@iprimus.com.au)
Town & Country Antennas, 60km radius **Murwillumba/Tweeds Heads** (Ph 02 6672 8595)
Newcastle Satellite, **Newcastle + Lwr Hunter Vly** (Ph 0249614449; satellites@netcentral.com.au)
Home Satellite TV, 40km radius **Port Macquarie** (Ph 02 6584 3838; kazbah25@optusnet.com.au)
Goodcom Communications P/L, 100km radius of **Walcha** (Ph 02 6777 1044; goodcom@northnet.com.au)

Queensland:

Cape York Electronics, **Cooktown and "the cape"** (started 1970s) (Ph 07 40 695 252; cyectn@tpg.com.au) (*)
Phil's Antenna Systems, 100km radius of **Hervey Bay** (C+Ku since 1996). (Ph 0741 256 273)
Rick Dalton TV & Satellite, 100km of **Kawana Waters** (C + Ku). (Ph 07 5493 4343; rick@antechtv.com.au) (*)

Tasmania:

.65 Electronics, **Launceston and Northern Tasmania** (Ph 03 63 330820; sales@65group.com)

Victoria:

Riviera Satellite Antenna Svcs, 100km radius **Bairnsdale** (Ph 03 5152 4884; gilhooleystv@net-tech.com.au)
Leden Communications, (100km radius) **Glengarry** (Ph 0427 745105; leden@netspace.net.au) (*)
Geoff's Communications, 60km radius **Korumburra** (Ph 0408 582010; gwyhoon@tpg.com.au)
Foreign Satellite TVP/L, **Melbourne (region)** C+Ku since 1995 (Ph 040445509; joe12@dodo.com.au)

To be listed here, tell us: 1/name of your business or your name, 2/ your home town and radius-distance covered from same, 3/ your telco, 4/ your e-mail. Send to skyking@clear.net.nz, or fax to ++64 9 406 1083 or mail to SatFACTS, PO Box 330, Mangonui, Far North, NZ. No, there is *no charge* to be listed.
(* - NEW or modified this month.)

Zealand cannot be serious about placing a new C + Ku or Ku-only satellite at 158E halfway between Optus B1 and C1 (SF#119)?" (**IF**, Qld) (Editor's note: If they used some frequency band other than that/those in use with C1 and B1, why not? The Europeans stack up as many as four separate birds at the same location but then divide up the 10.7 - 12.75 GHz bandwidth amongst the satellites and interleave the polarity as well. See note reference Optus D2, bottom p. 4, this issue.) "Best teletext on satellite award? Has to be GWN's Aurora (or B3 FTA) service feed. Hundreds of pages, showing what teletext really can do if they put their mind to it. Downside? UEC 642s is slow to respond to page changes because it does not have the ability to store the pages whereas same card in (DVB2000) Nokia produces flawless results." (**AI**, NSW) "Australia is about to introduce yet another (new) terrestrial HDTV format - 1152 lines which is of course exactly double the 576 SD - standard definition - format." (**NS**, NSW) "Regarding low noise high performance LNBf. The Jonsa LNBFU is by my experience at least the equal of the 'mystery' (ex-Austar/Autosat) unit described in SF#119 and I have found it to be better than the narrow-band units (this being a broadband, Universal). It was purchased from Jason at aDigitaLife but probably is also in stock at Melbourne Satellite." (**DM**, NSW) (Editor's note: The Jonsa looks very much like the Zinwell pictured on p. 7 of SF#119. aDigitaLife did not send us one for test so cannot comment on its performance.) "Noting your plan to cover the Av-Comm 'Tiny Tot' 12V receiver, these thoughts. There have been some 12/24V DC operated models previously on the market, perhaps not as small nor as effective as the Av-Comm model but 'mobile' none the less. The pre-Tiny Tot versions had a negative case (i.e. case is minus with respect to positive 12V, such as in automobiles). In situations where multiple appliances are powered by the one battery (i.e., a car battery) - such as a stereo *plus* the satellite receiver *and* a TV set - earth loops can appear, creating a better opportunity for SMPS noise to enter the video and audio. There is also the possibility of melting the AV interconnected leads if multiple appliances are negative-to-ground and a power supply load has a bad connection or broken negative lead (causing the IRD to draw current through the AV lead). There is however a quick test to determine if the F connector and RCA connector shields are connected to the negative of the supply. Simply take an ohm-meter between the supply socket and the AV sockets or the F connector should tell you the answer." (**HE**, NSW) "Several of the Austar-Foxtel C1 movie channels

SOUND OFF!

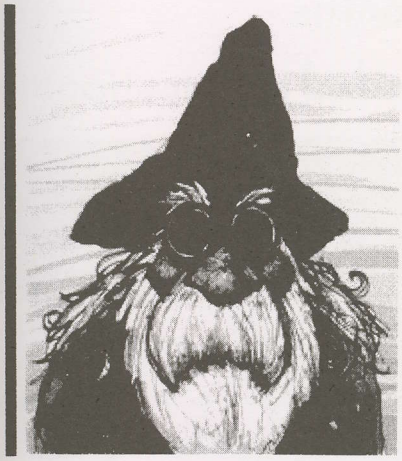
LNB Claimed Noise Figures? Give me a break!

"My wife was out of town on a family emergency and the July issue of SatFACTS was on my desk. As I found myself staying at the warehouse until 1 or 2 AM each night this week, I kinda got caught up on what I had to do and after looking at the should do pile, I picked up SatFACTS to see if I could catch up with what is happening in the Pacific and Asia. It is always refreshing to read the views from across the way.

"0.3dB LNBf devices? We have 'em here as well. LNBf manufacturers have become professional label makers and BS artists. I stayed at labelling our products as 0.6dB long after the competition had gone to 0.5dB. Now, reluctantly, I am at the 0.5dB point as well. Whoever is leading the labelling pack can benefit from sales. Put 'the right' label on a product and you can ask for (and receive) $20, even $30, more. After all, it's just a number on a UV protected label. It has no relation to the actual performance of the device that it is stuck to. I believe I am going to live long enough to see a label proclaiming a 0.0dB LNBf - why, I might even live long enough to see it go into the minus! Numbers are a strange thing. Put them in print and people will believe them! Proof? I've had several dealers who wrote meaningless numbers on checks and I believed them! I think for fun I am going to run a couple of LNBf units that say 0.1dB on the label. Maybe I will even gold plate them. Let's see - can you gold plate plastic? I don't think I will revive any of the old fashioned over-sized housings however. They look like antiques now - or do you think having an oversized case helps the dealer accept the price increase? No, I think it is the label; $10 LNBf and $20 label. Oh not to worry, I'll send SatFACTS a couple of the HIGH END / LOW NOISE labels if I do them. What do you think? 0.1dB, or should I really push the edge and go for 0.05? Or even 0.001??? Let's see the competition beat THAT one! I've already got the brand name picked out .... what do you think of **INOSHITU**? It's an Asian technical sales term meaning, "*would I lie to you???*" or "*you can trust me*!!!" depending upon who is translating it. Hummm. I'll have to think about that."

Tim Heinrichs, tim@dmsiusa.com, DMSi, Georgia, USA

now employ AC3 (surround) sound. Per-chance the Pace brand NDS format IRDs now being introduced have an AC3 output, allowing connection of a surround-sound amplifier?" (**Harry T**) "About Optus reception in portions of PNG after the turn on of C1 and movement of B3 to 152E. The C1 footprint seems to be exceptionally tightly wound over PNG; Lae, 325km north of Port Moresby, is at a distinct disadvantage and only SBS can be received on a reasonable sized dish there. Further west, near the Irian Jaya border in the town of Kiunga, a number of Australians who previously depended upon PAS-2 Ku, for GWN and WIN, have been without signal since June 12th. Is there any hope for these folks?" (**GW**, PNG) (Editor's note: Hope springs from a larger antenna. Looking at Optus C1 coverage maps, we see transponder 3 [12.407V] over Port Moresby at 42 dBw on NANZ beam and 40 dBw into Lae to the north. Kiunga drops to 34 dBw on the same transponder. From May 1998 SF#45, the following numbers: With 3 dB rain-cloud cover margin included, 34 dBw = 3.6m while 40 dBw = 1.95m and 42 dBw = 1.61m [antenna size]. Reference Bougainville at 155E/6S, two different Optus maps dated July 2004 suggest 29dBw [8m] and 32 dBw [5m] while Honiara [160E/9S] looks to be 35 dBw on one map [3.2m] but 30 dBw on a second map [7m].) "Reference 'Fijian' versus Fiji Islander. With the political heat now rising in Suva over which firm should be allowed to provide area-wide TV, it is important to understand that a 'Fijian' is a native by birth *and* heritage - while a 'Fiji Islander' is one who lives here but who does not have (Polynesian) heritage roots in these islands. Thus the Indian-Fiji Islanders are not in the same category as the 'native Fijians' and on many matters the two groups do not agree." (**Fijian in Suva**). (Editor's note: It is perhaps unfortunate that the question of expanding Fiji's TV coverage to include essentially all of the mid-Pacific has degenerated to whether the backers are "Fijian" or "Fiji Islanders." *When* there is mid-Pacific coverage from Fiji, best done from NSS-5 and not Intelsat 701 or some other in-place Intelsat bird, suddenly almost overnight the entire mid-Pacific region from Rarotonga to Honiara, Tarawa to Port Vila will have *one* evening news, *one* 'islander' voice providing a forum that until this point has been totally missing. "Local" television will make a huge difference to these widely scattered isles and Fiji - the-nation - will become the defacto leader of the entire region simply because the *face* on the tube at 6PM each night is one of them - whether "Fijian" or "Fiji Islander." No conference, no forum, nothing done in the past will have such a strong impact as having their own "regional" television service. Fiji television will change and mould the way the mid-Pacific thinks, acts and behaves as nothing previously introduced.) "John V's suggestion about obtaining ABC + SBS authorisation before going to the others on Aurora (SF#119): The UEC course taught there is a technical reason for this. When you contact Optus for ABC + SBS, Optus first 'initialises' the card - apparently giving the card the master key and possibly country code before adding the keys for ABS, SBS, Westlink and several radio channels. So it is doubtful C7, Imparja or others could authorise a card until the 'initialisation' has been completed." (**AI**, NSW) "SA's D9234 on FTA? Try this: Settings (Frequency, Sr and so on) must be saved in one of the 24 *individual* user settings. Don't be caught out by just putting the info in the receiver set-up - will not work! Set Network ID to 1. Not all Optus C1 and B3 services are network ID: 1. A different setting may be required - On C1: Aurora is hex 0069, decimal 105 while pay-TV is hex 1000 and decimal 4096. On B3: Aurora Biz is hex 0069, decimal 105; Globecast (including Horse Channel) are hex 0001 and decimal 1; NT feed (12.688H, Sr 30.000, 2/3) is hex 0000 and decimal 0. Initial set-up is fiddly but superb video quality is the reward when working." (**DM**, NSW) Antenna shortage continent wide? This from August 1 Sciteq newsletter: "Following the demise of TARBS we had a run on our 2.4m mesh dishes which have left us out of stock. Our next shipment of 2.4m dishes will arrive early September." "Sydney has a 'Digital terrestrial TV Channel 44; can anyone explain what this is, what it carries and who operates it?" (**NS**, NSW)



SCRATCHI

In recent times the Internet is becoming more and more the norm; if you don't have access to this resource then you are missing out. It is almost a prerequisite that the satellite hobbyist uses the Internet to search for the latest information on satellite TV. For example, using Lyngsat or Satcodx for frequency updates - unless you are addicted to your blind scanner receiver - and using it for discussion on the many forums.

The forums have their place and many are very informative although they can be dangerous spots where "leaches" and "knowitalls" prowl hoping to identify their next victim. Many lurk in the background taking information in but seldom if ever providing feedback, unless there is a "newbie" enthusiast on line whom they can attempt to impress with their vast reservoir of "knowledge."

The "newbies" are an attractive target for satellite suppliers lurking in the shadows of a forum group simply because in their "newness" and their "first time questions" they become vulnerable for knowitall opinions as to what they should or should not "know" and more important "which equipment they should buy" to enter the hobby. The "knowitall" plants a bold statement within the forum discussion and the newbie responds by going for the recommended source of equipment - perhaps never to know that the "knowitall" and "the source" are one of the same! Satellite equipment sellers hiding behind false names are a worry on Internet.

These newbies are preyed upon in many of these forums and it is disappointing to see certain "knowitalls" trying to take advantage of their innocence just to make one sale. So often, the newbie gets burnt on the first one (or two) purchases because Internet provides the cloak of identity that is essential to their duplicity. Sooner than later, the newbie does work out he has been played for a sucker and some will be lost to the hobby because of the bad taste generated by the illusion of being helped by a crooked talking "knowitall." A newbie should be treated with respect and encouragement, not as a target for a quick and dirty sale of some piece of equipment they neither require nor will benefit from owning.

If a newbie identifies themselves as simply a "Iwannawatchfreepaytv" kind of individual, then perhaps they receive what they deserve. But a large percentage of those who first show their interest within an Internet forum are old Ham (radio operators) or genuine from-scratch satellite TV learners. Circumstances beyond our individual control, for example, brings in new individuals who have a sincere interest in what we do and how we do it - to become a part of what we all enjoy. The demise of TARBS is an example - not very many folks with 60-70-82cm dishes anchored on PAS-8 for TARBS ethnic programming had an interest that extended beyond their favourite ethnic channel or channels. But now that package is gone, these same TV enthusiasts are discovering identical or similar programming is actually available on C-band with say a 2.3m dish. At the same time, they are hearing that in addition to the limited-by-TARBS fare their PAS-8 service provided, the 2.3m C-band dish opens up dozens, hundreds of new channels. True, it may only be a few percent of the original TARBS suffers who will go this extra level of interest, but even a few percent of 60,000 ex-TARBS subscribers is a significant boot in the butt for our hobby interests.

As helpful as Internet forums may be, why not take it another step? Ham (amateur) radio was built upon a foundation of one-to-one interaction. This hobby has endured for 90 years and is widely supported at private and government levels by a significant cross section of society. One of the more useful aspects of amateur radio is the degree of help "old timers" routinely share with "newbies." This works largely because ham radio enthusiasts maintain local clubs, groups of as few as 5 and as many as several hundred, who gather at one spot once each month to share a general program (from their own ranks there are those who are willing to explain new techniques, new hardware to the gathering). Ham radio "clubs" continue strong today and are the lifelines that allow "newbies" to actually feel, touch and participate in their new found hobby.

What local satellite clubs would do more than anything else is to tear down that automatic fence that forms around Internet forums. It would offer the opportunity to put a face to "hackedbygeorge" and discover without the cloak of obscurity that george is really David, he lives only a few miles from you, and once introduced the two of you become fast friends and constant supporters of one another's satellite interests.

To all SatFACTS readers I pose the question: "*Where is your Satellite TV Club?*" Is it Internet??? Wrong answer. Is it SatFACTS??? Wrong again.

The forums, newsgroups and SatFACTS are a great way to stay in touch with the developments that onrush over us each month. But each is a "distant learning tool" that provides no real one-on-one human-to-human contact. Someplace around you is at least one more satellite enthusiast. Meet him (or her). Dig around - there are others out there! Get together - all 2 or 4 or 6 of you and talk satellites. Use Internet (and SatFACTS) to post the gathering dates and locations - let others who share your interest come out from behind their "hackedby george" cloaks to join you. In the process, you will create a mechanism that allows the newbie his or her first real opportunity to find out what satellite TV is all about. Let the newbie feel, touch and smell satellite TV first hand, not through the Internet filter. You may even learn something too in the process!

SCRATCHI is a nom-de-plume for an individual deeply involved in the satellite television world. His opinions are his own and his intent is to make you think about your own involvement and participation in this technology. *No*, there is no reward for guessing **Scratchi**'s identity.

For 120 months - 10 years + 0 months -

SatFACTS has been here when you needed information.

For 560 months - 46 years + 8 months -
"Coop" has been here when you needed information.

Perhaps you missed something important? It is still available!

Hard Core (seriously SERIOUS!) "How to do it" References

☐ **UHF 20' Parabolic**: For a few hundred dollars in materials at the local lumber yard, you can build a 20+ dB gain UHF parabolic capable of providing "scatter region" reception to 300km! **$15** all regions.

☐ **Surface Wave 40+ element "yagi"** format single channel antennas. Stack 'em! Designed by the legendary Oliver Swann, this is the biggest, highest gain single channel VHF-UHF antenna ever created. Oliver routinely used them for 600km reception. Not for careless folks. **$10** all regions.

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

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

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

☐ TB9301: **Terrestrial Antenna Systems** to eliminate co-channel interference, stack for additional gain. **$15** all regions.

☐ TB9302: (Terrestrial) **Weak Signal Techniques**; off air reception to 300km+ using conventionally available equipment. Seriously detailed. **$15** all regions.

☐ TB9304: **UHF - Big Antennas** for 300km+ Reception over terrain! Professional. **$15** all regions.

☐ TB9305: **Cable TV** - the basics. How a cable system works, how to build one! **$15** all regions.

☐ **Nelson Parabolic Manual**. Step by step allows you to build satellite dishes with high accuracy to 13' - 4m diameter. Nelson was the very best and his techniques have stood the test of time. **$15** all regions.

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

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

☐ SF#96 (August 2002). **Nokia BDM**; faster channel zapping. $10 all regions.

☐ SF#97 (September 2002). Turning **FatCAMS** into Multicams. $10 all regions.

☐ SF#100 (December 2002). **d-box2** BIG report. AC3 surround sound. $10 all regions.

☐ SF#101 (January 2003). **d-Box2 conversion** to LINUX operating system. $10 all regions.

SatFACTS NEW Subscriptions!

ONE YEAR (12 issues): ☐ Australia & Pacific - A$96 per year airmail; ☐ New Zealand - NZ$75 per year, fast post; ☐ Balance of world - US$75/Euro75 per year airmail.

THREE YEARS (36 issues): ☐ Australia & Pacific -A$220 airmail; ☐ New Zealand - NZ$170 fast post; ☐ Balance of world - US/Euro $175 airmail.

WHO YOU ARE (where we ship to) - How Much You are Spending!

My name _____

Company name (if applicable) _____

Ship Address _____

Town/city _____ postal code _____ State/Province _____ Country _____

☐ Cheque in the amount of $_____ enclosed (to SatFACTS)

☐ Charge to my VISA or Mastercard $_____ - sorry - no other cards

_ _ _ _ _ - _ _ _ _ _ - _ _ _ _ _ - _ _ _ _ _ expires ____/____

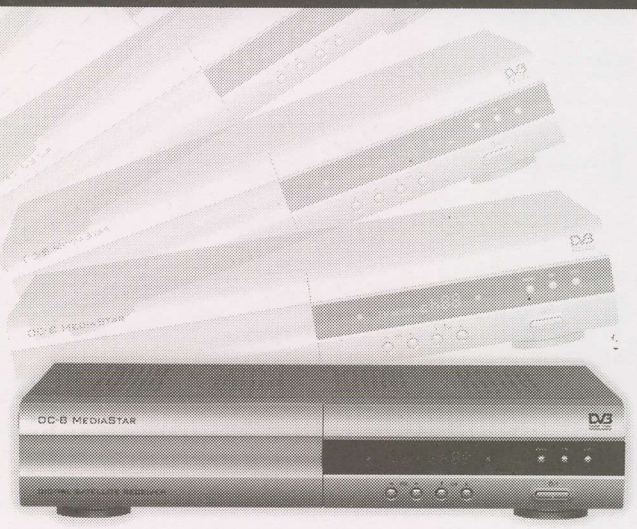
Name as it appears on card _____

Fax to ++64 9 406 1083, or mail to SatFACTS, PO Box 330, Mangonui, Far North, New Zealand

THE DC-8 HAS LANDED

NEW DC-8 MediaStar

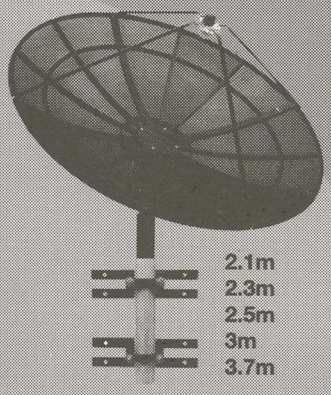
- 2 Slot common interface for Irdeto, Seca,Viaccess
- Symbol rate 2-45 MBPS
- Digital Audio AC-3 support by SPDIF
- S-Video output
- Close Caption subtitle and Teletex
- DiSEqc 1.0 and 1.2
- NTSC-PAL auto converting
- DSR to DSR copy



MediaStar Communications International
24 Bosci Road
Ingleburn NSW
2565 Australia

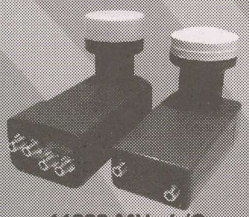
Tel: 02 9618 5777
Fax: 02 9618 5077
Opac@bigpond.com.au

MediaStar
High Performance

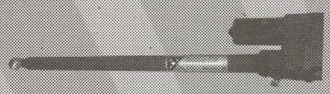


2.1m
2.3m
2.5m
3m
3.7m

Heavy Duty Frame
Stronger Mesh



11300 MHz L/O
Dual and Quad Output



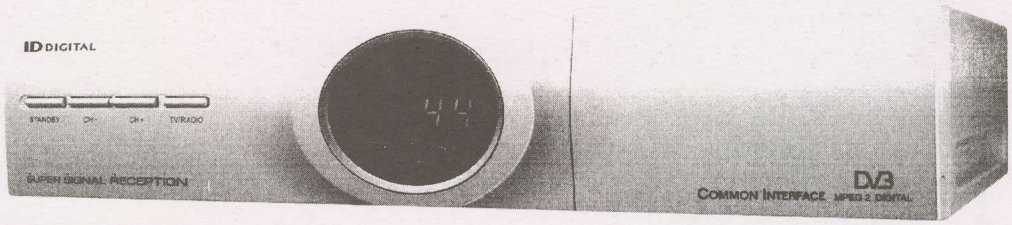
Mustang Actuators
18", 24", 36", 56"

Aston Cams

EZ2000+
Positioner

Making communications shine. MediaStar

IDDIGITAL



Stock No. 102002

CI-44 SENSOR plus

Super Signal Reception
Common Interface
Free to Air

Order online at www.sciteq.com.au

Features & Functions

- Less than 1 second channel switching time.
- 1 Slot Common Interface for VIACCESS™, Conax, Cryptoworks™, Nagravision, Irdeto and more.
- MPEG-2 DVB compliant.
- SCPC & MCPC receivable from C/KU-band satellites.
- 950-2150 MHz input frequency, 1-45 Ms/s symbol rate.
- EPG & Infomation Plate.
- DiSEqC 1.0 and DiSEqC 1.2 are available.
- Support letterbox, subtitle and teletext.
- Languages: Arabic, Persian, English, Russian, Spanish, German, French, Italian, Portuguese, Turkish.
- Software download via RS232.
- MPEG/MusicCam Layer I & II, CD quality audio sound.
- Aspect Ratio 4:3, 16:9 (letterbox)

New CI-44

Web: www.sciteq.com.au
Email: sales@sciteq.com.au
Ph: +61 8 9409 6677
Fax: +61 8 93095210
SCITEQ Pty Ltd ABN 34 009 235 090