

Bob Cooper's

FEBRUARY 15 2002

SatFACTS

MONTHLY



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

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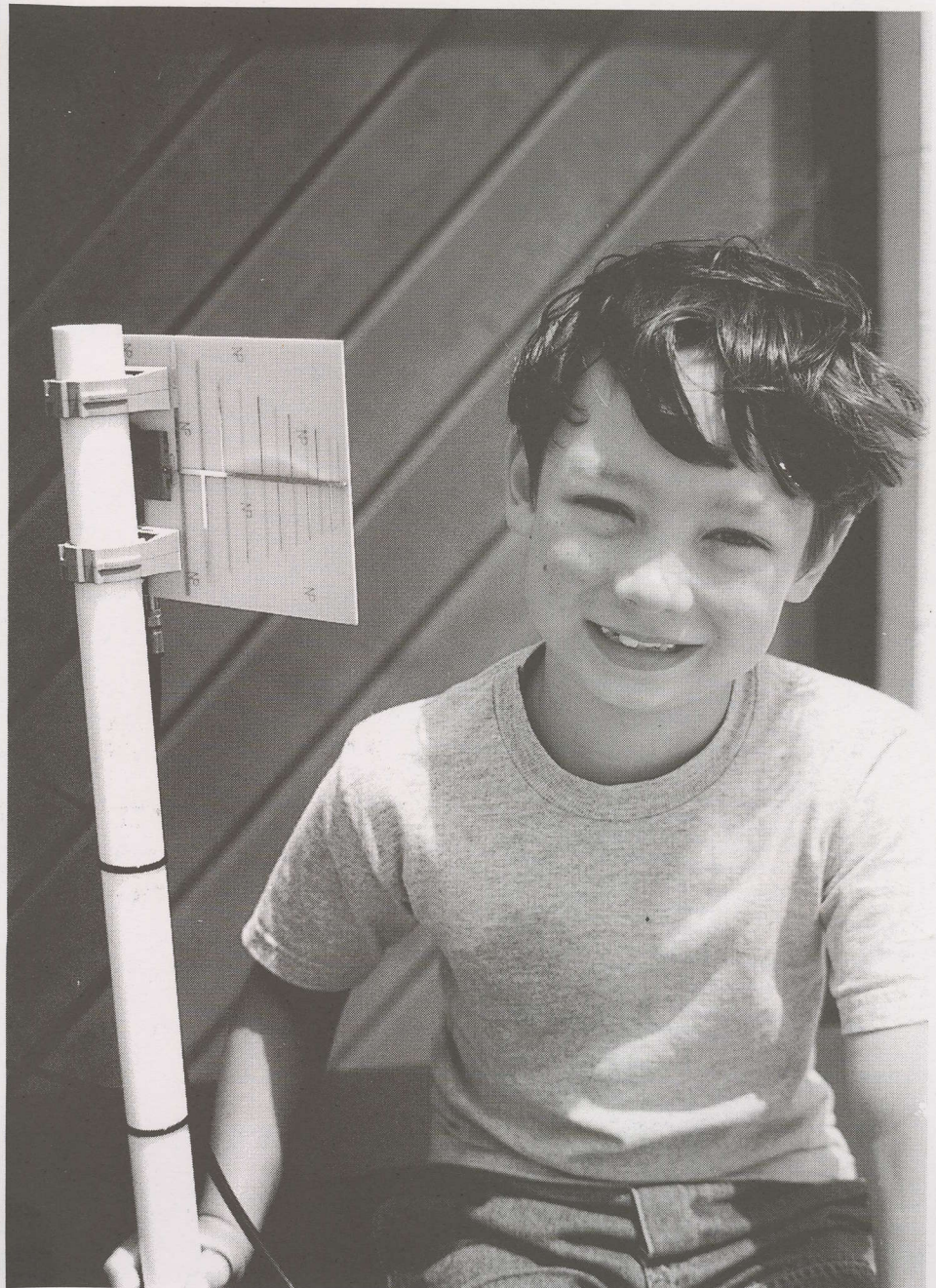
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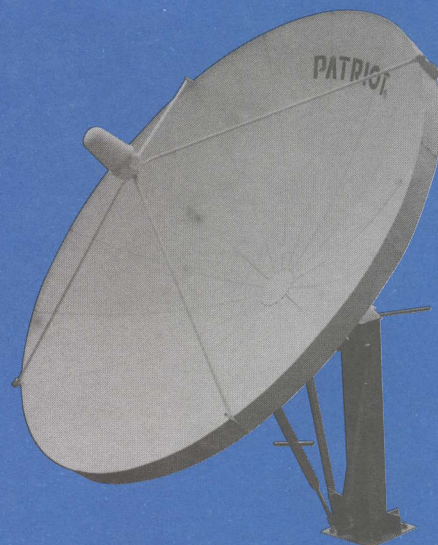


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This publication is dedicated to the premise that as we are entering the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education.

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

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COOP'S COMMENT

Over the 7.5 years that SatFACTS has been published, numerous winds have blown through the Asia-Pacific satellite world each leaving an imprint on the nature and status of our trade. In 1994 there was no pay-TV in the Pacific or Asia, satellites were of limited coverage and strength, and large antennas (3 to 4m) were the order of the day. A tiny handful of "most desirable" services (ESPN, AFRTS, CNN) were FTA on Intelsat but you needed a special box to manipulate the alternate line two video-channel per analogue carrier format. Those were "fun" days, new adventure times, where the emphasis was on "logging new services" far more than on programming content.

There was but one real supplier to the industry in that period - Garry Cratt at Avcomm Pty Ltd. Garry stocked most of what an experimenter would require including Australian Aussat B-Mac equipment. In New Zealand Selwyn Cathcart was trying to run a satellite supply business from his garage while holding down a full-time job at Massey University. Selwyn's primary emphasis was in supplying "offshore" (as in Pacific island) enthusiasts with big antennas and state-of-the-art equipment.

When PAS-2 launched and CMT (plus a few other early entrants that did not sustain) came along in 1995, CMT was the big news. Country Music Television was initially FTA analogue (later FTA SA PowerVu) and hundreds of country music fans throughout the Pacific rushed to buy receiving systems. So it is with more than a touch of sadness that we note the total and complete shutdown of CMT on February 28, to be replaced by another service which will doubtless only last as long as its Hollywood backers want to throw money into its sinkhole; (The) Soundtrack Channel.

Our trade has been driven by programming availability and then content for the last three to four years. As TARBS has bought the rights to more than a dozen national broadcasters, effectively removing them from the FTA category, dish system sales outside of the pay-TV market segment have plummeted. When there is less and less to view, fewer and fewer systems are sold - this is not a rocket science equation. And it follows that as fewer dish systems are sold, those who design equipment for our needs (virtually all in Korea and Taiwan these days) have less and less interest in keeping us supplied with the latest designs. The trickle-down effect through distributors to dealers and installers is unavoidable. Less to view, fewer sales, less business.

As an industry or trade we were hopeful the launch of DTT (digital television - terrestrial) in Australia would provide a new growth curve. The formal accounting of DTT set-top boxes actually sold into user hands in all of Australia during the period 1 January 2001 to 31 December 2001 was just over 4,000. Australia as a country purchased more DVD players in a typical week than it bought DTT set-tops all year.

With interest in DTT almost zero and virtually no hope that it will improve this calendar year, related trades such as rewiring hotels, motels, homes and flat complexes for DTT + analogue is an adversely affected subset of what we do. In consumer minds, DTT offers very little more than the existing analogue. Spending thousands - tens of thousands to rewire and re-equip a building for DTT has no priority whatsoever and it will unfortunately remain that way until the Australian DTT government policy makers wake-up to realise what a terrible blunder they have evoked in the name of "national pride".

This is a difficult time for our technology. Our past successes have largely evaporated, our future seems endlessly bogged down in irrational, technically unsound politics while robber barons such as TARBS are kidnapping national heritage programming without mercy. Is it any wonder that frustration has led to mass-scale piracy? I think not.

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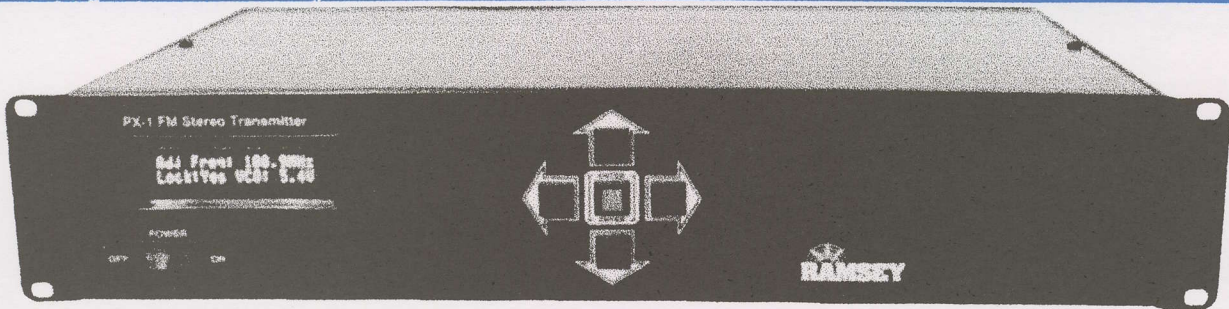
-ON THE COVER-

" More bang for the buck" - Seth Brett Cooper (related) and his 21st century version of Tinker Toys or the Meccano construction set. An SDStv.com active logi for L-band reception.



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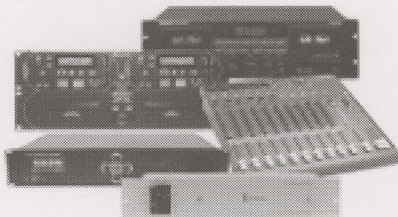
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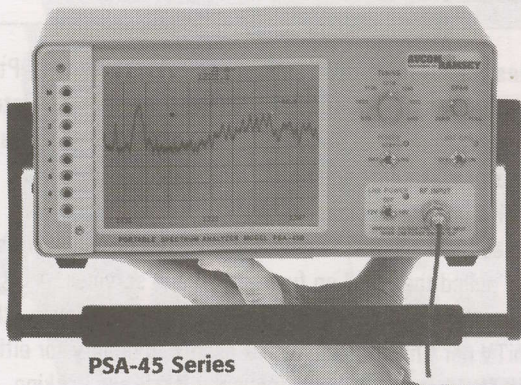
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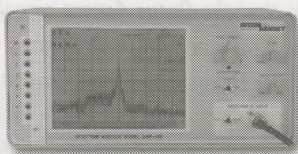
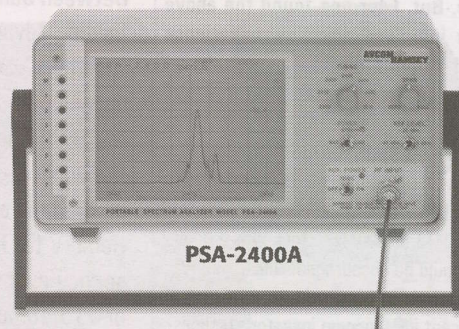
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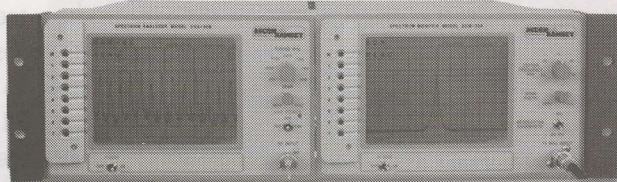
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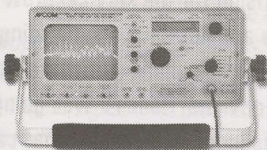
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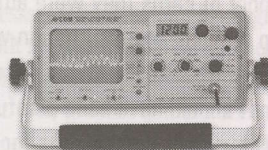
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- Offset frequency display directly displays L, C, or Ku frequencies

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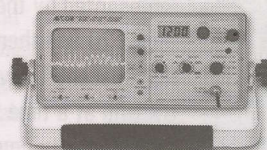
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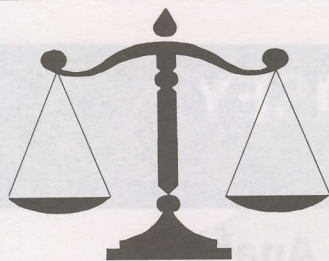
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**Sky (NZ) EPG speed**

"There are several, not well publicised, improvements one can make when using the remote on the Sky NZ service. #1) When watching a program, use the up and down arrow on the right hand side of the remote, and hold the button down. This scrolls through the channels at a far more suitable pace. #2) When in the EPG, use the blue key at the top right to scroll down a whole page at a time. Having said this, however - the performance of the games, RAM capability of the current receivers, how the Email service will ultimately work (etc. etc.) are all to be resolved issues in my view. But, I for one found the above fixes dramatically improved my (Sky) experience with the EPG and allowed me to concentrate on how much I liked the new format, features and content."

David Lane, Equities Analyst, UBS Warburg
David Lane wrote a detailed financial analyst's report for his employer UBS Warburg which came to the conclusion (mid-2001) that Sky NZ stock was a good investment and should be encouraged. Our (January 2002) concern was that people like Lane, who's very words have significant influence on investor attitudes towards a stock, could turn negative because of their reaction to the EPG slowness. Sky can thank it's lucky stars Lane, for one, is still encouraged by "what he sees" in Sky's investment value.

On the other hand ...

"The operation of the new Sky firmware is pathetic, and there is no excuse for this significant reduction in performance of the prime application of the STB, that being the selection of viewing material. Having been involved in developing electronic products with embedded software for 20 years, I can easily imagine that the OpenTV 'middleware' is designed to allow application development with minimum time of delivery and testing at the expense of hardware. This I am sure is a poor premise to start from. Would it not have made more sense to spend an extra 4-6 months development time getting it 'right'? Now they are paying a price and so are the customers - a 'price' far greater than what the extra development time might have cost them. There is one feature of the upgrade I am thankful to have - the inclusion of the 4:3 letterbox option that was sadly missed in the old firmware. With that 'compliment', I suggest to Sky - get back to your knitting, concentrate on more good programming and make more and better use of the widescreen option, for both sports and movies. And if (and when) you finally do upgrade the boxes, please make damn sure you include DD5.1"

Stephen Abbot, Design Engineer

Exicom Technologies (1996) Ltd.

Sky's stock has been doing very well of late - in the NZ\$4.50 region.

**PROGRAMMER
PROGRAMMING
PROMOTION****UPDATE****FEBRUARY 15, 2001**

Indian pay-TV provider files for liquidation. Reminiscent Television (Aust) Pty Ltd, the original provider of channels of imported television from India through Optus Aurora, is all but legally 'wound up'. RemiTV in June 2001 began to wind down its operation and an Official Liquidator was court appointed. Amongst the creditors, Optus for Au\$1,759,296 and Hills Industries claiming (Au)\$11,040. RemiTV was launched by Bill Khan in November 1999 and the company operated through Optus until 9 May 2001 when Optus "pulled the plug" on further satellite services. A UK company, Reminiscent Television (UK) Limited, had guaranteed the Optus lease - the court determining neither RemiTV nor Khan had sufficient assets to qualify for either an Optus lease or the providing of operating funds without the UK firm's backing. Between January 2000 and April 18, 2001, RemiTV ran through A\$862,738 of funding advanced by the UK firm - funds which in theory were to make up any "cash shortfalls" experienced by the Australian start-up company. From the court documents, some interesting "Optus fee" schedules emerge: Aurora was to receive A\$10,000 per month per TV channel for the first six-month (start-up) period, then the fee was to escalate to A\$60,000 per month per channel. That, with GST, for two programme channels was to be A\$790,000 per year plus an interesting "spiff" from RemiTV to Optus of A\$1.48 per subscriber per month. (Just for interest - if the service ever reached 5,000 paying subscribers, it would pay Optus \$12.00 + \$1.48 or \$13.48 per subscriber per month to deliver the signal to homes.) Court records include the notation, "*On several occasions prior to the agreement being signed, Mr Martin Collins of Optus told (Bill Khan) that the Optus Aurora signal was a secure signal.*" Keep that "promise" in mind as you read on. Court records shown Khan agreed to pay Hills Industries Au\$470 per Hills-supplied Irdeto set-top box - but, he had to promise to buy 5,000 such IRDs at a total cost of Au\$2,350,000 + gst. Khan's court statement reflects he talked with Optus about his belief the Irdeto system was not secure starting in November 1999 and onward weekly or monthly until May 2001 when Optus turned off the service. Records show the company took in only \$21,000 during its full history, a lack of sales which Khan repeatedly claims in court documents was the direct result of a failure of the Optus Irdeto system to protect him from piracy viewers. Khan during the history of the company received Au\$38,178 for his services. The firm's assets totalling under \$20,000 were largely confiscated by the Sheriff. This observation. While Optus may indeed be able to explain the ill-chosen Irdeto system which could not be made piracy-proof (i.e., not their fault but rather the fault of the folks at Mindport/Irdeto), they will have a harder time explaining how they could watch the RemiTV 'subscriber list' (as represented by the number of cards they were authorising for the service) grow from ten to 20 and then stop growing at 38 (!) nation-wide and not have some inkling that Reminiscent TV was in big trouble. For Optus to rely on a payment guarantee from a UK firm at a time when it should have been painfully obvious RemiTV was going to fail is a pretty cowardly business practice. As for Hills Industries - well, what can you say about someone who demands 5,000 receivers be purchased at Au\$470 each at a time when RemiTV was able to count their real subscribers (not their piracy-activated viewers) on the fingers of one hand? How many of the piracy viewers (estimated to be in the thousands at the peak) were using receivers sourced through Hills? If Reminiscent (UK or Australia) or Khan can get a court decision agreeing with his contention that Optus was responsible for his business failure, or contributed to it, because of Irdeto, dozens of similar suits could appear world-wide. And Mindport + Irdeto could be in big legal trouble. Are you listening NDS?

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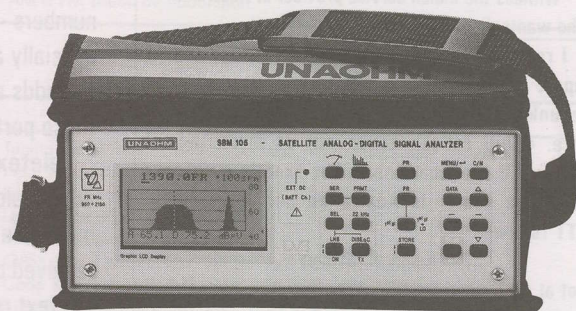
EP 319 level and Spectrum measurements feature high accuracy and selectable Resolution Bandwidths of 100kHz, 1.5MHz and 4MHz to provide real time spectrum displays of signals from TV stereo audio and colour sub-carriers to SCPC satellite signals. 5-40MHz is included, with Analogue and Digital data logging.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



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



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Alive and well

(Reference photo appearing on front cover of SF for January) "Now that I am safely past my 84th birthday, I really have nothing to grumble about - except embarrassing lapses in memory: Events which happened only last week seem to have mysteriously disappeared. However, as long as I can still spell 'Alzheimer', I am not too worried. My best wishes to everyone!"

(Sir) Arthur C. Clarke, Colombo, Sri Lanka

Nothing to grumble about? During 2001 Sir Arthur managed to see nine books published or republished, one TV show, one eBook. Two novels (with author Stephen Baxter), six TV shows are in production for 2002 plus 2 movies (*Childhood's End*, *The Fountains of Paradise*) and eight TV movies are also in 'process' this year. And he still plays a very serious game of table tennis.

Hackers "hacking me off"

"A year ago it was a rare month when I heard someone mention 'piracy cards' for the Australian services. Today, I hear from people daily. Everyday people tell me about smart cards they have purchased for (A)\$150 that allow them to watch all of the Foxtel, Austar and Aurora services without payment after the initial card's \$150. It would seem that a great number of 'card sharks' are operating in and about Victoria - just in my relatively small circle of acquaintances I made up a list in my head of 20 people who have recently acquired piracy cards. Some people call these 'Gold Cards' and a smaller number say they won't mess with the so-called 'Gold' product - preferring to have a small PC sitting there next to the TV grinding out the codes. It occurs to me that in the end, as 'cute' as all of this may be, the result is that folks like myself who pay for their pay-TV end up paying more for it. The charges for pay-TV keep rising and I for one am convinced there is a direct relationship between the price us 'dumb people' pay and the number of 'smart cards' in circulation. Can't the service providers do something about this situation?"

PH, Victoria

The new national law that went into effect one year ago this month has had very little impact on the piracy card business in Australia. In Europe and the USA, satellite pay-TV operators anticipate 5% of all viewers may be pirating the service and seldom get really concerned until they estimate the number at 10%. The number of piracy cards in service in some areas actually outnumber the number of paying subscribers - witness the Indian service provider in Australia.

Who wants digital?

I read the February Coop's Technology Digest report quoting various Australian sources who debunked the myth DTT (terrestrial) is going well here. 4,000 set-top boxes out of more than 7 million TV set locations is not exactly a success after one year! Is Australian uniquely-slow in DTT take-up?"

Kenny G, Sydney

Not at all. Even in the UK where they give away (free!) set-top DTT boxes, the take-up has been miserable.

And after two years in the USA, under 0.02 (that's 2/10ths of 1 percent) have true DTT reception equipment.

HARDWARE EQUIPMENT PARTS

UPDATE

FEBRUARY 15, 2002

BSkyB insurance. Unlike NZ and Australia where the pay-TV-satellite company owns the IRD, in UK BSkyB sells the consumer the box (for a fraction of its real cost) in exchange for the consumer subscribing to a basic minimum package with a one year contract. Who is responsible for maintaining the IRD after the manufacturer's one-year warranty runs out? Answer is insurance - For ninety pounds Sterling (UK has not yet adopted the Eurodollar), 2 years protection with optional 9 pounds a month direct debit payment. What consumer receives is promise that within 3 days of trouble call, a service technician will show up. If the dish requires realignment, he'll do it. LNBf goes bad - they'll replace it. IR link quits? They'll fix or replace it. If the IRD needs involved repair work, they'll provide a loaner. Exemptions: If the trouble is your dish needs realignment and everything else is OK - they'll charge you for the service call.

ABC or PanAmSat screw-up? PanAmSat's PAS-8 was supposed to be superior for the Pacific and Asia to PAS-2. Unfortunately, this has never been born out in real use. Witness the launch of Australian ABC-TV's Asia-Pacific service (4180Hz). ABC was claiming right up to launch time coverage would include such central Pacific locations as Fiji, Samoa. It does not. As Fiji's Bob Kennedy (CB Communications) observes, "The entire top (frequency) end of PAS-8 C-band is missing here - not just ABC A-P." In fact, the lack of signal from PAS-8 to Fiji extends at least down to 4020Hz (from 4200) as Fiji TV has been trying desperately for over a year to make a 27 footer with the best LNB and feed they can acquire play on ESPN there. "We are 1 dB shy of enough signal to lock, plus of course it would be nice to have even a small margin for variations." So late in January ABC A-P took over a programme channel on the California Bouquet (3901Hz) on PAS-2 for a test that could shutdown as early as 20 February. This one does reach Fiji (and we assume Samoa plus other eastern Pacific locations). PanAmSat has always been less than detailed with their "after launch" analysis of PAS-8; at the time, there were widely reported stories that the satellite was damaged by the launching sequence. It would not take much of a "dent" in the transmission reflector to punch a "hole" in a portion of the C-band coverage - which unfortunately just "happens" to wipe out the area east of the dateline.

WorldNet fill-in. The Voice of America/ US Information Agency WorldNet service (AsiaSat 2, 3764Hz) is now available on Intelsat 701 (3886RHC) with such a strong signal in New Zealand and much of Australia that dishes under 2m in size equipped with linear (rather than the normally required circular) feeds are reporting big time numbers - like 98% quality for the MPEG-2 FTA service. The 701 service remains officially a "test" according to Bangkok office manager Joyce Ngoh but SF is advised the odds are 90% or better the service will stay on this satellite (as a way of filling in those portions of the Pacific missed by AsiaSat 2).

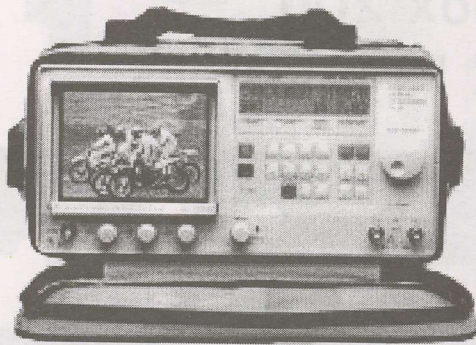
Teletext. Our questionnaire (January SF, p. 11) asking for reports from readers who could verify which digital IRDs will do either subtitles and/or teletext drew a miserable response; shame on you for not contributing. If we "read" those we received correctly, there is not one IRD out there that does both subtitles and teletext reliably and nobody has ever seen teletext on French TV5 (As2). *True?*

Antenna feed firm ADL which has "owned" our page 5 position for more than 4 years has been sold to Patriot (antennas) of Michigan, USA. Patriot took over the operation of Paracclipse as well approximately one year ago. One of the ADL "assets" was a court victory awarding the firm damages from Chaparral after a decision the latter had used patents of ADL to manufacture feeds - without permission.



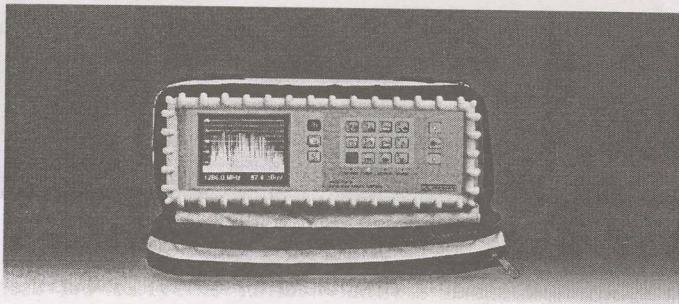
PROMAX

CHOOSE THE IDEAL TV & SAT LEVEL METER FROM PROMAX



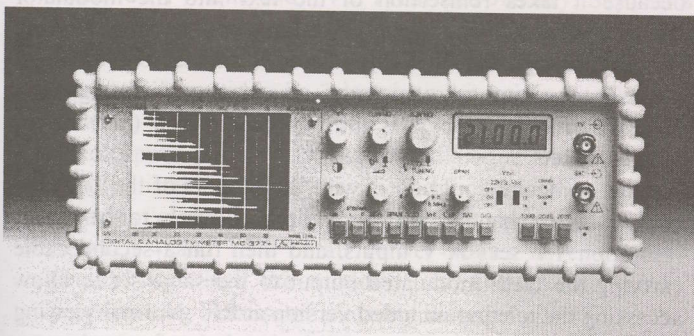
PROLINK-7

- * Tuning range from 5-862 MHz and from 920 to 2150MHz
- * Analogue and digital TV measurements
- * 5.5" B&W monitor
- * Image, spectrum and synchronism pulse display
- * Direct measurements: level, V/A and C/N ratio for analogue channels, and power into channel bandwidth and C/N ratio for digital channels.
- * BER measurement of QAM, QPSK, and OFDM modulated signals (optional)
- * External units power supply and 22 kHz signal
- * 99 memories for measurement configurations
- * Data logger function (more than 900 measurements can be acquired automatically)
- * RS-232C interface to connect a PC or serial printer
- * FM, TV and NICAM sound
- * Scart connector



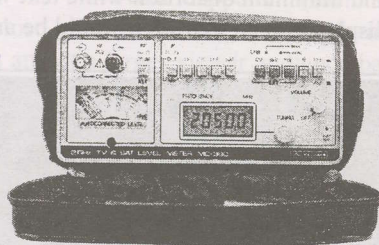
PROLINK-2

- * Range 46-860 MHz, 920-2150 MHz
- * Analogue: Level, V/A, C/N and picture
- * Digital: Channel Power (integration method), C/N and BER in Satellite DVB-QPSK (MCPC/SCPC)
- * Spectrum Analyser with 50 dB dynamic range and calibrated. Allow analysis of analogue and digital channels simultaneously
- * Spectrum sweep: high speed/high accuracy
- * Teletext and NICAM
- * RS-232 interface for connection to PC or external printer. Allows firmware update
- * Software for data transfer and reports generation
- * QPSK Card included



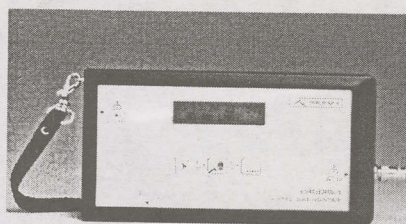
MC-377+

- * Tuning range from 48 to 855 MHz and 950 to 2050 MHz
- * Resolution 10 kHz in VHF and UHF, 100 kHz in SAT
- * B&W CRT 4.5"
- * Analogue signals level
- * Digital channel power
- * Measurements C/N ratio of analogue and digital signals
- * Reading scale calibrated in dBµV (linear) analogue signals level measurement and digital channel power measurement
- * Impedance 75 Ω
- * Scart connector



MC-360B

- * Tuning range from 46 to 856 MHz and 950 to 2050 MHz
- * Alphanumeric display, it shows the tuned frequency
- * Analogue and acoustic indication of the measured level
- * External units power supply: 13, 15 and 18 V and 22 kHz signal
- * AM & FM sound demodulation



PRODIG-1

- * Tuning range from 950 to 2150 MHz, 16 measurement points
- * Input impedance 75 Ω
- * Universal connector with BNC or F adaptor
- * Level range 30 dBµV to 90 dBµV
- * Maximum signal level 120 dBµV
- * QPSK signal parameters, symbol rate 1000 to 30000 kbauds
- * Code Rate Auto and 1/2, 2/3, 3/6, 5/6, 6/7, 7/8
- * Automatic spectral inversion
- * External units power supply, output voltage 13 V, 18 V ± 1V
- * 22 kHz signal

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Precisely!

Winersat Digibox 200 is acceptable for NZ FTA installs

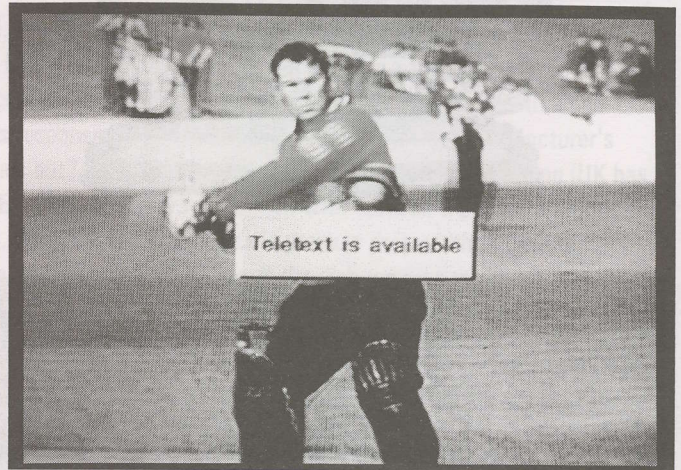
One of the best ways to guarantee problems is to design a system which is uniquely your own and then hope (pray, count on) the balance of an industry to adopt your methods. That is why we have standards - to protect consumers from getting stuck with one-off designs which seem spectacular at the time of introduction but ultimately fail leaving the buyer unable to source parts or repairs.

Teletext within digital transmissions falls into that category. Yes, there are MPEG-2 standards covering text transmission and display; no, virtually nobody wants to "go there" and so if you are building a transmission system that will include text - good luck to you!

Optus insisted there be text capability built into their Aurora decoders. They found only UEC willing to "play that game" and thereby eliminated essentially every other IRD supplier from the Optus approval list. We won't recount what happened here - if you are too new to remember those ugly months in 1998, well - consider yourself fortunate. Text and digital don't really like one another - the two are basically incompatible unless you as a programmer are willing to accept some pretty hefty limitations in the text department. Text works with analogue, after a fashion, only by good fortune - certainly the inclusion of text streams within the basic television image system was never a criteria when the analogue system was being developed.

Therefore when someone comes along with a digital receiver that does text, it is a noteworthy event. When someone does this without increasing the cost of the receiver, it is worthy of praise.

Winersat's DigiBox 200 does text by processing the text data stream and then adding it back into the analogue signal output using a technique known as vertical blanking interval (VBI). This means the DigiBox 200 has teletext (if available from the programmer) included within the remodulated output - which in Winersat's case is a UHF channel (preset to channel 32 as a

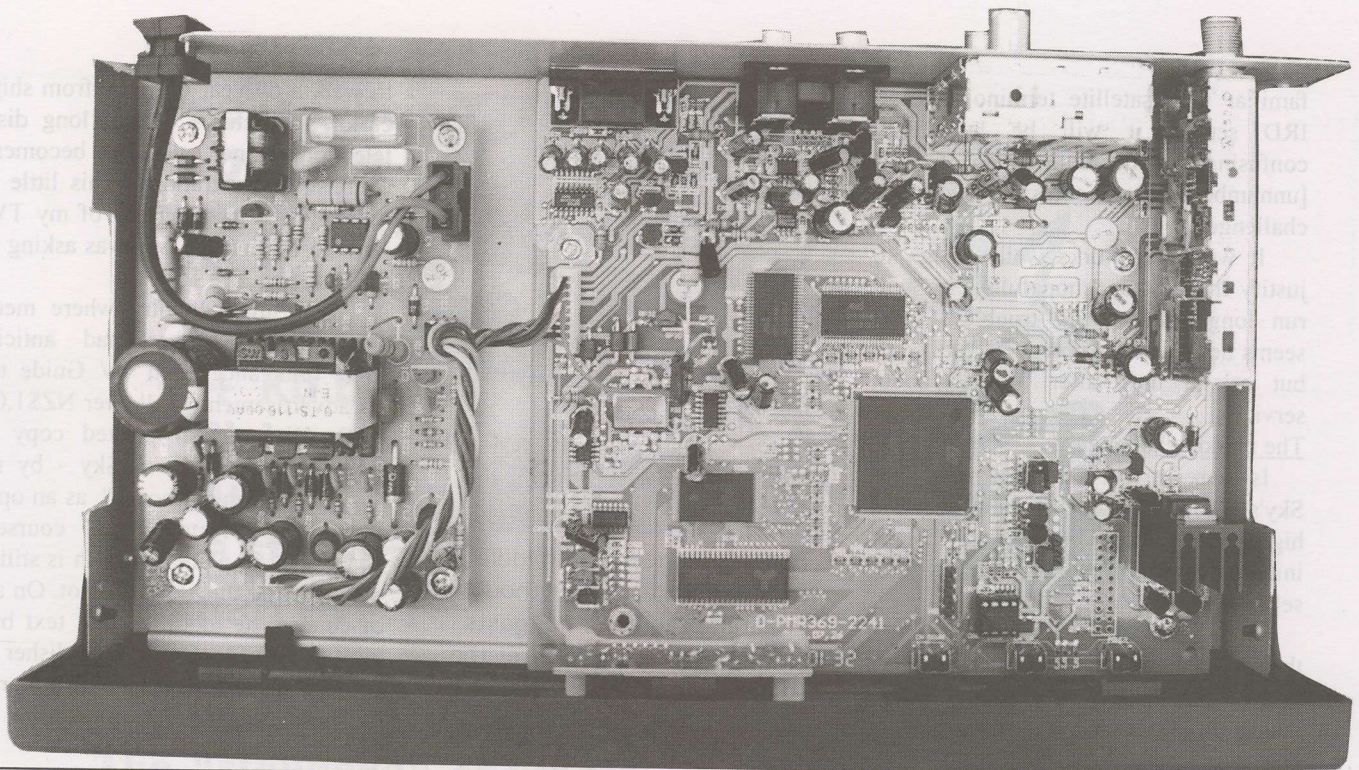


You bet your bippy - it works!

Pal-G format signal - visual carrier at 591.25 but user adjustable from 559.25 up to 623.25). Like most digital IRDs, the DigiBox also provides baseband audio and video outputs (RCA sockets) but - there is no teletext at the video spigot because it takes reinsertion of the text into the modulator carrier system to make it play. For most applications, viewing the text through the UHF modulator is satisfactory although the user is giving up a measure of video quality (signal to noise) by having to bypass the baseband video (and audio) output sockets.

What someone could do is wire the outputs of the DigiBox so that the baseband video and audio go directly to the higher resolution TV set's A-V inputs, and then run a second cable carrying the UHF modulated output to the same set to allow accessing the teletext included version at RF. Normal viewing would be baseband out and baseband in for maximum definition and minimum distortion while text would be a lower definition display (which in truth it would be anyhow).





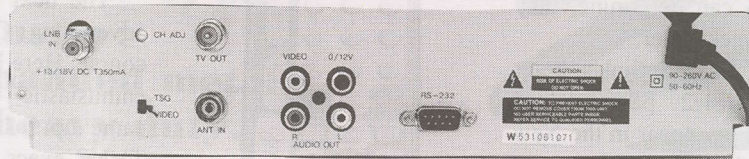
All of this is of some interest and importance because of the much reported New Zealand situation. Pay TV operator Sky NZ has (from 1

December) included in their bouquet Television New Zealand's TV One and TV2. From mid-January, Sky has also included subtitling as provided by TVNZ. Subtitling is not quite the same as text, at least not in New Zealand. Subtitling, also called captions or "closed circuit captioning," involves creating a data line within the signal to allow hearing handicapped people to "read" the dialogue which most of us simply listen to from the speaker. Not all programming includes "closed captions" of course but various sources tell us between 4 and 15% of all viewer homes have at least one person who less the subtitling is unable to follow TV programming because of a hearing disorder.

It costs money to subtitle programming - especially "live" and "current" as the event happens (such as the evening newscast). Most stations do this because their research tells them it helps attract a larger viewer audience base. And where advertising dollars sold goes up and down as the audience grows and deflates, every viewer has value. Enough value to make spending extra dollars for captioning worthwhile. And still other networks (such as ABC) do it out of a sense of "public duty".

But subtitling is not teletext. It is a version of but not the real thing. Teletext descends from the British CeeFax system and for those who live where no such comparable service is available, it is page after page (after page - sometimes 800+) of printed text with some very rudimentary artwork - as can be created using a keyboard. It is information not unlike the "news" one can find on Internet. Only it is much slower, and much less detailed. Some in fact envision the day when teletext will be a forgotten technology to be replaced with something more appropriate -such as (here's that word again) Internet.

When Sky NZ elected to not include teletext in their data stream, a handful of adventurous entrepreneurs thought there might be an opportunity to create a small market for DTH systems which happened to include teletext. To do this, you



needed an IRD that could function with the Television New Zealand Optus B1 12.456 vertical transponder put "up" by TVNZ itself.

When on 1 December Sky

launched TV One and TV2 within its bouquet, three things were missing: (1) the image was "low res" - 544 by 576 pixels; (2) there was no subtitling, and (3) no teletext. Since that launch numbers 1 and 2 have been corrected. Which leaves non-Sky competitors with teletext. The market is obviously much smaller than some had initially hoped.

The receiver

Set-top (IRDs) that will display both subtitles and full teletext are difficult to find. The Winersat DigiBox 200 was originally selected by Satlink NZ because of price - Winersat has a reputation of providing "suitable" if not brilliant satellite and TV processing equipment for reasonable pricing. It was only after an involved search trying to locate other receivers (at ever higher pricing) that it was discovered the DigiBox was not only reasonably priced (around NZ\$235 to installing dealers) but unique as well.

Our test unit first impressed us because of size - it is around 35% smaller than say a Sky NZ or other "standard format" IRD. And it weighs far less. In fact it borders on being tiny. What you don't find are lots of extra features (no SCART outputs for example). But as a receiver it covers SCPC (starting at 1 Msps) through MCPC (45 Msps), DiSEqC, 0/12V and 22 kHz tone switching, NTSC or PAL video output selection - basically everything you would expect with any modern IRD, with storage for up to 450 transponders.

Teletext is automatic - a key on the remote selects the text stream if available. Software loading from Internet via a (home) PC is provided. On screen menu takes you through transponder loading and allows adding/editing/deleting functions including adding new transponders and new satellites. Pretty basic, pretty simple. If you have "driven" virtually any other ID, this will seem comfortable and familiar. What will not be comfortable is the instruction sheet - something Winersat has never excelled in creating. It is an A3 sheet folded to make 8 reading sides and unless the user is

familiar with satellite terminology and IRD set-up, it will be hopelessly confusing (just deciding which of the 8 [unnumbered] page sides is "next" is a challenge!).

It works, it works well enough to justify the cost and hopefully they will run long and without trouble. Heat seems not to be a problem (it runs cool) but ask a user after a year about servicing.

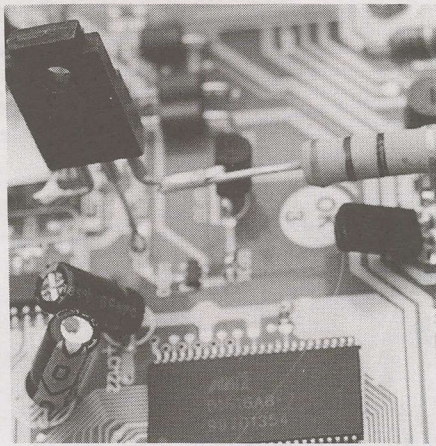
The market challenge

Is there in fact a market here? Has Sky's clever addition of subtitling and higher resolution video yanked the initiative away from the "independent" sellers?

There was a ramped up interest when the service came on offer in December - even against the near simultaneous launch of Sky's version. But the sales began to taper off by the Christmas holidays. And as best SatFACTS can determine, they have not recovered six weeks later.

Enter a marketing plan. Satlink's Peter Escher has created a 1/2 page colour advertisement scheduled to appear in the New Zealand TV Guide for the week of February 23 - March 2. Such advertising will be a first for satellite television in the South Pacific (many people advertise in the Yellow Pages, some in local newspapers - to the best of our knowledge no prior firm has advertised "nation-wide"). Satlink's advertisement is aimed at acquainting TV viewers with an option they do not presently know about - TV One and TV2 (with teletext of course) at virtually any location in the country via satellite. The kicker is - Escher is hammering home that "this satellite TV system" does not have a monthly "payment for free to air reception" (Sky NZ does charge \$17.29 per month for equipment rental, not the programming).

Prior to the advertisement appearing, Escher has been advising dealers and potential dealers (he has shied away from consumer sales - this is not exactly a do-it-yourself project for the average person) that his advertising will create sales leads and those leads will be forwarded directly to his network of stocking dealers. Escher toyed with the concept of direct sales, and in fact provides the usual attachments (LNBf, mount + dish) in support of the DigiBox 200. And he admits to "tripling a couple" just to see how it went. It did not. Trying



Possible concern. In middle of circuit board an "after thought" voltage regulator suggests something changed after the original design was "frozen"



to walk a 60 year old lady from shipping carton to pictures over a long distance telephone line quickly becomes an exercise in frustration ("This little white thing - does it sit on top of my TV and how do I point it?" She was asking about the LNBf.)

In a small country where media is consolidated, Escher had anticipated some reluctance from TV Guide to run his advertisement (well over NZ\$1,000 in cost). His original printed copy made mention of "having a (Sky - by name) dish already on the house", as an optional cost-saving factor. Of course an abandoned-in-place Sky dish is still Sky's dish whether they left it or not. On advice of counsel he modified that text but not until *after* TV Guide's publisher (INL which also just happens to own more than 60% of Sky!) brought the wording of the

text to his attention.

The next phase of marketing is television advertising. On TVNZ's TV One and TV2 of course. Here he has had something less than an enthusiastic interest. When his advertising came up for discussion during a meeting of TVNZ execs, the agenda presented the matter and according to reports there was complete silence. Nobody had anything to say - for, against or otherwise.

As of February 1, the original TVNZ 2 Optus B1 transponders were down to 1.5 as Sky NZ has taken over 1/2 of one as a part of its arrangements with the original TVNZ DTH partner, TelstraSaturn (Clear). According to reports another half transponder will go to Sky sometime before August 2003 leaving TVNZ with a single transponder. There are fears that at some point, TVNZ may reconsider continuing their 12.456 FTA service. Sixty days back, TV programmer Prime TV was anxious and openly supportive of trying the TVNZ bouquet. They no longer hold that position.

Escher says he's not worried: the DigiBox 200s now routinely ship with the Sky 12.671 GHz frequency preloaded. Remember - that while TVNZ is FTA with two channels on 12.456, Sky is required by their agreement with TVNZ to also be FTA with the same services on 12.671. Less, of course, teletext. But during January Radio New Zealand announced it was requesting that it's Sky carried services (Concert FM, National Radio) be changed from encrypted to FTA. Escher sees this as a good sign of a better climate to come.

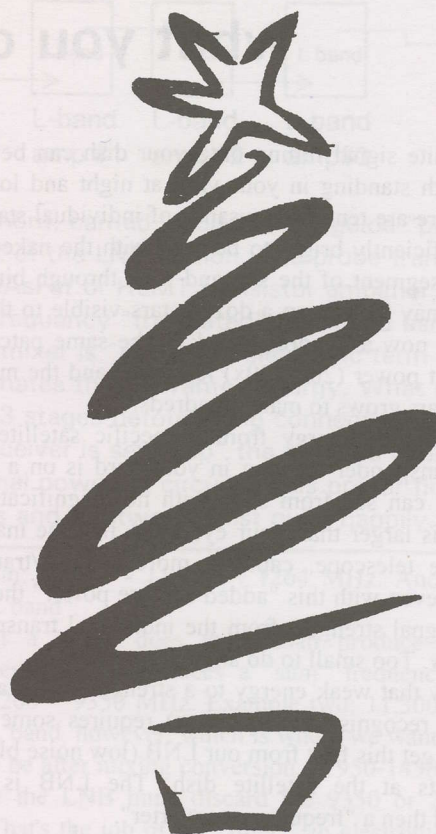
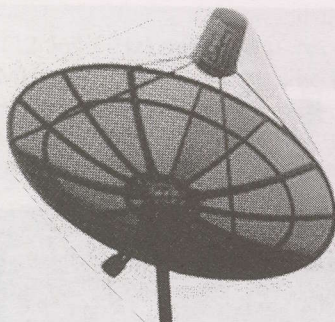
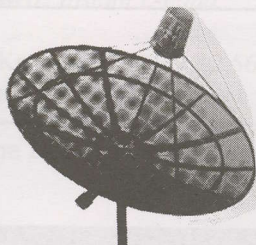
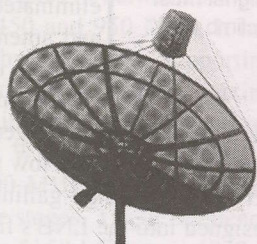
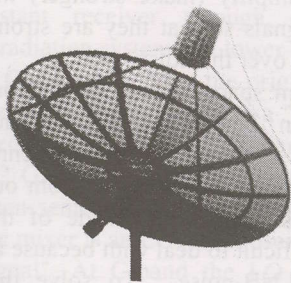
Sourcing and Specs for DigiBox 200

Tuner input: 950 - 2150 MHz. **Mps:** QPSK 1 to 45; **FEC:** automatic. **Decoding:** MP/ML MPEG-2. **Video resolution** (through RCA video output socket), 720 x 576 pixels, stereo audio (left and right sockets). **RF remodulator:** PAL-G UHF from channel 32 to 40, default at 591.25 MHz with tuning signal generator (TSG). **Power supply:** Universal (SMPS) 90 to 260Vac input. **Dimensions:** 300mm long by 161mm wide by 65mm high. **Interconnection bridging:** RS-232 to PC and Internet for future software updating. **LNB powering/options:** 14/18 volts, 0/12V switching, DiSEqC (1.0). **Memory loading:** By satellite or transponder. **Source:** Satlink NZ in NZ\$235 price range. **Contact:** Peter Escher through peter@satlinknz.co.nz, www.satlinknz.co.nz, fax (64) (09) 814 9447 or (mobile) 025 937 025.

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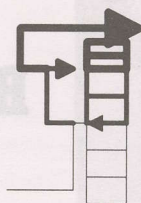
LNB and LNBf Faults - what you can do about them

The satellite signal falling onto your dish can be directly compared with standing in your yard at night and looking at the stars. There are tens of thousands of individual stars in the night sky sufficiently bright to be seen with the naked eye. If you select a segment of the sky and look through binoculars, where there may have been a dozen stars visible to the naked eye there are now a hundred. Look at the same patch of sky with a modest power (200-300x) telescope and the number of discernible stars grows to many hundreds.

The amount of energy from a specific satellite and an individual transponder arriving in your yard is on a par with the light you can see from stars with no magnification. The dish surface is larger than your eye so it, like the magnifying power of the telescope, captures more satellite/transponder energy. But even with this "added capture power" the amount of energy (signal strength) from the individual transponder is very-very low. Too small to do anything useful.

To amplify that weak energy to a strength which a satellite receiver can recognise (and process) requires some "steroid power". We get this first from our LNB (low noise block) unit which mounts at the satellite dish. The LNB is first an amplifier and then a "frequency converter".

Before the weak satellite energy can be "interrogated" for its information content, it must be separated from the "noise". The noise in a satellite receiving system originates from three places: (1) The heavens (in the Cosmic Bang energy was released which remains with us to this day - with a sensitive antenna you can "measure" this energy [noise] in "space"); (2) our planet (Earth is a living thing and every living thing has molecules which are constantly moving. Movement creates a release of energy which in turn is "noise"); and, (3) our receiving equipment (the electronics of the LNB has electricity - electrons - moving [flowing] and that



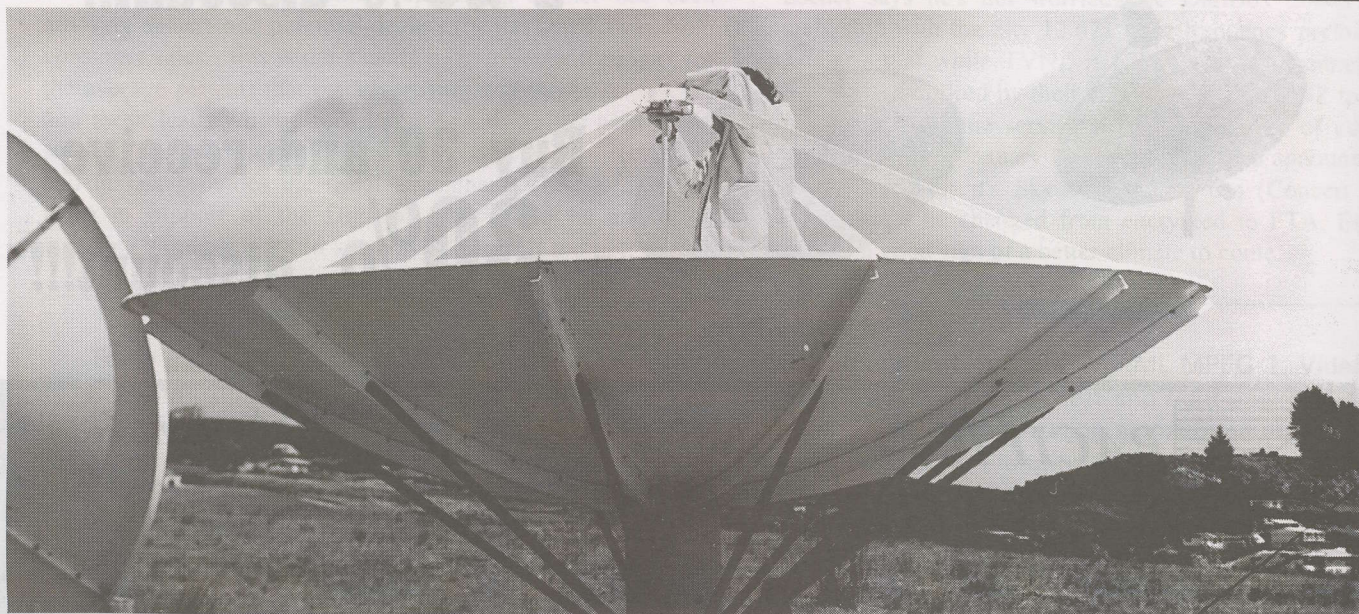
noise is a wall the signal must "climb over"

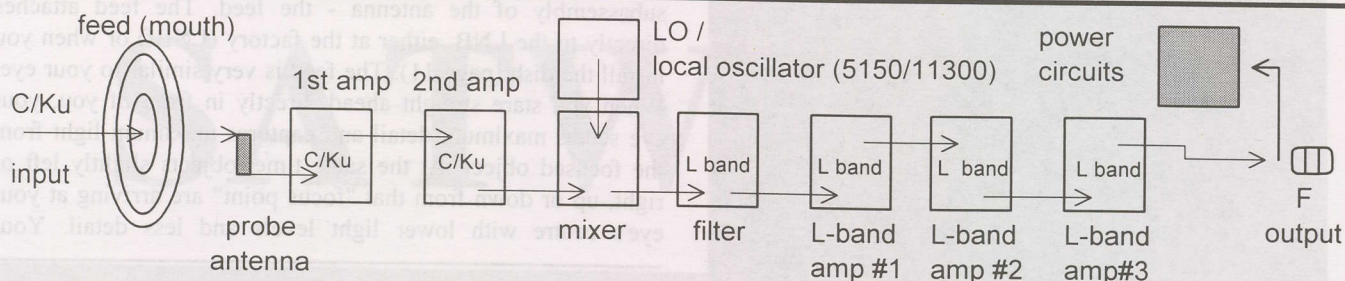
"movement" creates more noise). So there is a "noise wall" present in every radio receiving system. The first function of the LNB is to amplify (make stronger) the weak satellite signals so that they are strong enough to "climb over the noise wall."

The noise from space and the noise from planet earth can be controlled (but not eliminated) with a carefully chosen antenna and antenna-feed design. The noise from our flowing electrons, originating inside of the LNB, is more difficult to deal with because as we amplify we also generate LNB-noise. To solve this challenge, extremely low noise amplifier devices created from very special design gallium arsenide or HEMT transistors are designed into the LNB's first amplifier stages (#1 and #2 in the diagram at top of next page). The design-trick is to "boost" the



Think of the LNB as you would a terrestrial TV "masthead amplifier" or "signal booster". With an added function - it converts the incoming frequencies to a new band - L band.





Pathway to the stars. Input C or Ku signal is "grabbed" by feedhorn, carried through waveguide "pipe" to the "real antenna" - the gold (or other colour) rod-probe at the input of the LNB portion. The probe transports the received energy to a low noise, medium gain C or Ku band GaAsFet or HEMT transistor amplifier, another and then to the "mixer" stage. Here the C or Ku band input is frequency "translated" to L-band using energy from the LO (local oscillator) as a "tickler". The output of the mixer is "dirty" (an electronic term meaning there are signals coming out we do not want) so a "filter" eliminates this unwanted energy. What remains is L band (950-1450/2150) and it is further amplified in 2 or 3 stages before being connected to the F connector "output". 14/18 volts DC supplied by the satellite receiver is sent "up" the antenna cable, passes through the F connector and is then diverted to the LNB's internal powering circuits. This power flows in the opposite direction as the down-heading L-band signals and the two coexist quite happily.

signal more than we add "new noise" to the signal flow. The C or Ku band satellite signals are amplified just enough to establish a new "noise figure/factor" before the LNB performs its second bit of magic; frequency conversion.

As diagrammed above, the C or Ku band signals are left at their original frequency only for a brief interval inside of the LNB. All radio amplifier devices perform better at lower (smaller) frequencies. And when connecting the LNB to the distant receiver through coaxial cable (or SDStv.com reradiation systems), a lower frequency is much preferred.

Once amplified at the original C or Ku band frequency, the incoming signal is sent to a "mixer" device. Think of this as a frequency changer - the C band signal goes in between 3.7 and 4.2 GHz. and comes out between 1450 and 950 MHz. It has been sent downward, in frequency, by the mixer. Supporting the mixer is an LO (local oscillator), the source for the "mixing signal". At C-band the LO is a miniature very low power "transmitter" operating at 5150 MHz. When this 5150 signal is sent to the mixer and it finds a 4,200 MHz (4.2 GHz) signal coming in from the C-band amplifier stages, a new frequency is created (mixed). Simple math here: 5150 LO minus 4200 is 950 MHz. *Instant L-band.*

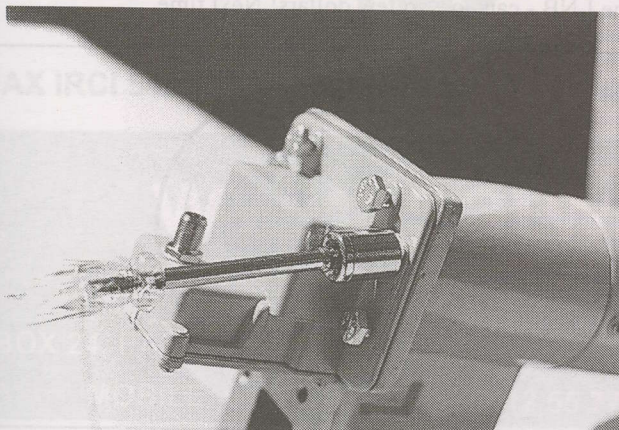
A Ku band signal at 12,564 MHz (12.564 GHz) mixes in a Ku band LNB with a LO at 11,300 MHz (11.3 GHz). Simple

math again: $12,564 - 11,300 = 1264$ MHz. Another case of "instant L band".

But a mixer does more than produce "difference" frequencies. It also produces a "sum" frequency. Example: $5150 + 4200 = 9350$ MHz. Example two: $11,300 + 12,564 = 23,864$. L band, however, which is where we want our satellite signals to be after mixing conversion, is 950-1450-2150 MHz. Somehow the LNB must discard the 9350 or 23,864 MHz signals. That's the job of the "filter," an electronic circuit that acts like a gate. It allows certain frequencies to pass through, and rejects all others. Past the gate, only those frequencies between 950 and 1450 (2150) remain.

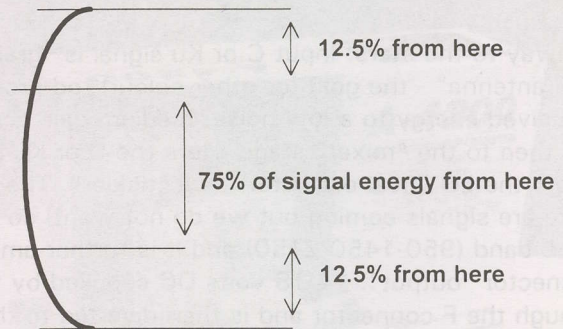
Now we have our C or Ku band signal(s) "down converted" to L band and we can pass them through as many stages of L band amplification as we require; three is pretty common. Through this process the signal gets stronger - but not continuously. The first two amplifier stages (at C or Ku band) add 20 dB or so of gain total. But the mixer stage absorbs signal and there is loss here - up to 6-8 dB. So we have amplified, and then gone back down in signal level, in the process of reaching L band. The L band amplifier stages, more transistors but not nearly as exotic (nor as expensive) as the C or Ku band transistors, boost the signal back up again. The end result as the signal leaves the LNB through the F fitting and heads for the receiver is a total gain in the 50-60 dB region.

The LNB can be a stand-alone "block" (left) which attaches (bolts) to the feed (horn) antenna, or, the two can be factory-attached together (right) forming an LNBf - "f" is for "feed".





subassembly of the antenna - the feed. The feed attaches directly to the LNB, either at the factory (LNBF) or when you install the dish (page 11). The feed is very similar to your eye. When you stare straight ahead directly in front of you, your eye seems maximum detail and captures maximum light from the focused object. At the same time, objects slightly left or right, up or down from that "focus point" are arriving at your eye's centre with lower light levels and less detail. Your



peripheral vision (off to the side) is not nearly as good as your straight ahead vision.

The "feed" has the same limitations. It sees best straight ahead, but not as well off to the side (whether "the side" is left, right, or, above or below the centre focal point). This means that satellite energy striking the dish away from the centre arrives at the feed with less efficiency than the energy striking the dish in the middle.

In fact, between 75 and 80% of all of the energy that finds its way into the LNB probe comes from the centre 50% of the dish surface. The further and further way from the centre, the lower the efficiency of the transfer of the energy into the "mouth" of the LNB. It is peripheral vision for satellite reception. And this is why a dish system may only be rated as "55% efficient" by the manufacturer - not because the dish itself is deficient (although certainly a poorly designed or assembled or installed dish can complicate this situation). But - because even the very best feed installed on this dish will at best capture no more than 55% (or whatever percent they claim) of the total energy striking the dish.

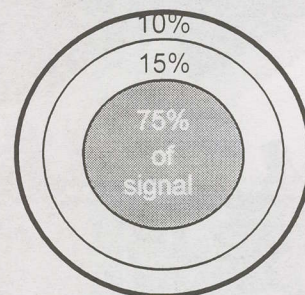
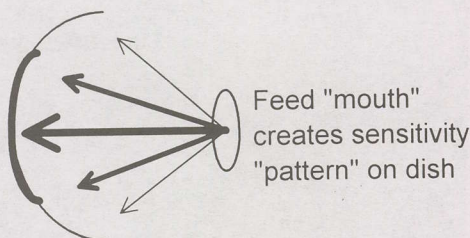
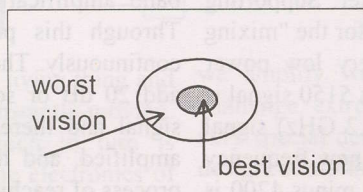
Feed designers, especially those clever people creating "unusually shaped offset dishes," have wrestled with this challenge for more than 20 years trying to create a "dish shape" that mates with the very real design limits of the feed. Which leads us to "over" and "under" illuminating the dish surface with the feed - and how that "plays" with the LNB. Plus - the wonder that so much "perfection" in engineering - the LNB - can cost so few dollars! Next time.

As the L band signal heads through the (typically RG6 size) downline to the receiver, cable attenuation becomes a loss ingredient. The amount of loss in the downline depends of course upon the length of the line (more line equals more loss), the size and quality of the line (larger diameter cables if of the correct impedance - 75 ohms - have less loss) and the care taken in affixing connectors to both ends of the line (poorly installed connectors add loss to the line).

Seeing all there is to see

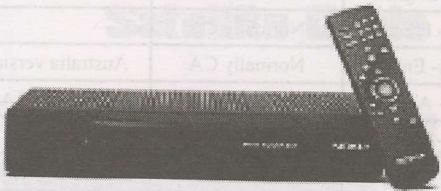
Only a fraction (55-60%) of the satellite energy striking a typical dish (whether prime focus or offset) ends up inside the LNB. From the launch of satellite TV, engineers have worked to perfect the transfer of satellite energy reaching the dish and going into the first amplifier stage of the LNB. There are several barriers here, some very basic to elementary grade school science.

The larger the dish surface, the greater the amount of signal intercepted. That's the easy part. The tough part is "building an eye" to "see" the full surface of the dish with optimum efficiency. The dish captures and redirects the satellite energy to a single "spot" - the "focal point". At that point is a



SATWORLD

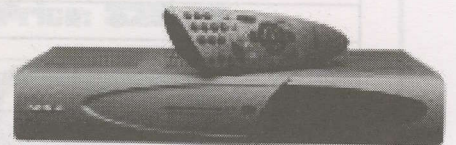
YOUR NOKIA SPECIALISTS!



NOKIA 9200S/9500S

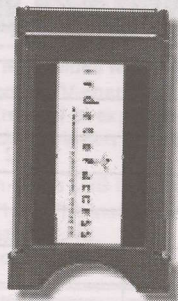


NOKIA MEDIA TERMINAL



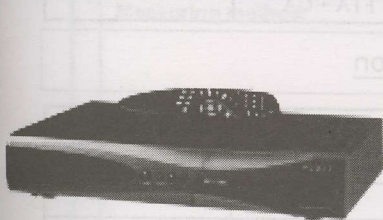
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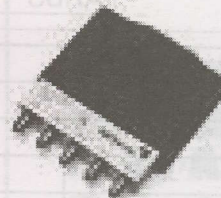
HUMAX IRCI 5400Z



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NOW - will the REAL pirate please standup?

Controversial TARBS attracts major pirate interest

TARBS 12.526Hz, Sr 28.066, FEC 3/4 - Television

| UEC Net Load | Nokia 9500S | Hyundai 100C | Ch Label | Language - if known | CA or FTA | Comments |
|--------------|-------------|--------------|----------|---------------------|-------------|-------------------|
| 1 | 1 | 1 | RAD | Sky Racing + Adult | CA | Same as Austar |
| 2 | 2 | 2 | ESPN | Sport-English | normally CA | Same as Austar |
| 3 | 3 | 3 | CNN | News - English | Normally CA | Same as Austar |
| 4 | 4 | 4 | MCM | Music - French | Normally CA | |
| 5 | 5 | 5 | CN | Cartoons- English | Normally CA | Australia version |
| 6 | 6 | 6 | ESC | Egypt - Arabic | Normally CA | Ex As2 FTA |
| 7 | 7 | 7 | NDM | Egypt-Arabic | Normally CA | movies plus |
| 8 | 8 | 8 | FUT | FutureTV /Lebanese | Normally CA | |
| 9 | 9 | 9 | NTV | NTV - Russia | Normally CA | |
| 10 | 10 | 10 | NTV Plus | HTV Russia | Normally CA | |
| 11 | 11 | 11 | KDTV | Kanal D - Turkish | Normally CA | |
| 12 | 12 | 12 | ATV | ATV 2002 - Turkish | Normally CA | |
| 13 | 13 | 13 | TGRT | Turkish | Normally CA | |

TARBS 12.606Hz, Sr 28.066, FEC 3/4 - Television

| | | | | | | |
|----|----|----|------|---------------------|----------|------------------|
| 14 | 1 | 1 | TRT | TRT Int - Turkish | FTA | same as Mediasat |
| 15 | 2 | 2 | VIZ | Vizyon - Turkish | CA | |
| 16 | 3 | 3 | TVP | TV Polonia | CA | Polish |
| 17 | 4 | 4 | ESC2 | Egyptian-Arabic | CA | |
| 18 | 5 | 5 | TVC | Chile - Spanish | CA | |
| 19 | 6 | 6 | TVE | Spanish | CA | |
| 20 | 7 | 7 | TI | Italian | CA | |
| 21 | 8 | 8 | TVG | TV Globo | CA | Brazil |
| 22 | 9 | 9 | KOTV | Arirang-Korean | CA | |
| 23 | 10 | 10 | PHOE | Phoenix Cantonese | CA | |
| 24 | 11 | 11 | BTV | Mandarin | CA | |
| 25 | 12 | 12 | TFC | Filipino Channel | CA | ABS - CBN |
| 26 | 13 | 13 | CINI | Cinema 1 - Filipino | FTA + CA | |

TARBS 12.326Hz, Sr 28.066, FEC 3/4 - Television

| | | | | | | |
|----|----|----|------|--------------------|----|----------------|
| 27 | 1 | 1 | TCM | Turner Classic Mov | CA | same as Austar |
| 28 | 2 | 2 | NITV | Persian | CA | |
| 29 | 3 | 3 | VIT | Italian | CA | |
| 30 | 4 | 4 | MKTV | MKTV Sat | CA | Macedonia |
| 31 | 5 | 5 | PINK | PINKplus Belgrade | CA | |
| 32 | 6 | 6 | BKTV | Serbian | CA | |
| 33 | 7 | 7 | RTS | Serbian | CA | |
| 34 | 8 | 8 | TS30 | Tele Liban Lebanon | CA | |
| 35 | 9 | 9 | TVS | Syria - Arabic | CA | |
| 36 | 10 | 10 | ALPH | Alpha - Greek | CA | |
| 37 | 11 | 11 | MEGA | Cosmos - Greek | CA | |
| 38 | 12 | 12 | ERT | ERTsat - Greek | CA | |
| 39 | 13 | 13 | ANT | Antenna - Greek | CA | |

TARBS - continues page 18

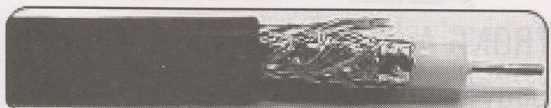
Skandia

RG6 Quad Cable

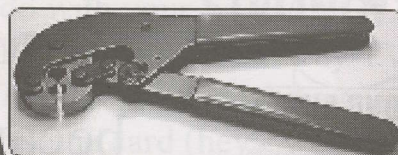


Satellite Cable \$119.00
per 305m

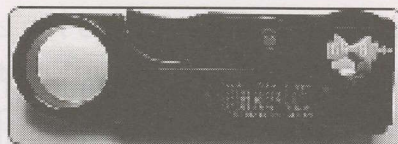
RG6 Dual Cable



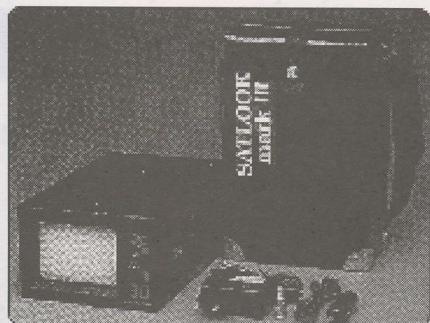
Digital Cable \$99.00
per 305m



Crimping Tool:
Crimper for RG6/RG59
0.360/0.324
Price: \$20.70



Stripping Tool:
Stripper for Coaxial Cable
Price: \$13.20



SATLOOK mark III

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

SPECIFICATIONS

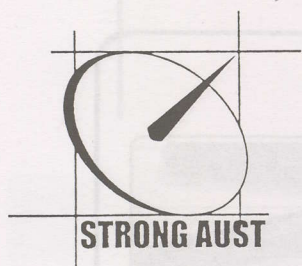
| | |
|----------------------|--|
| Input Frequency: | 920-2150MHz |
| Input level: | 30-100dBµV-volt |
| Input impedance: | 75 ohm, BNC Connector |
| Monitor type: | Mult(PAL, NTSC, SECAM) |
| Picture mode: | KU and C-band(normal/inverted video) |
| Audio sound carrier: | Tunable 5.5 - 8.5MHz(Mono)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

The best meter for less than \$791.00

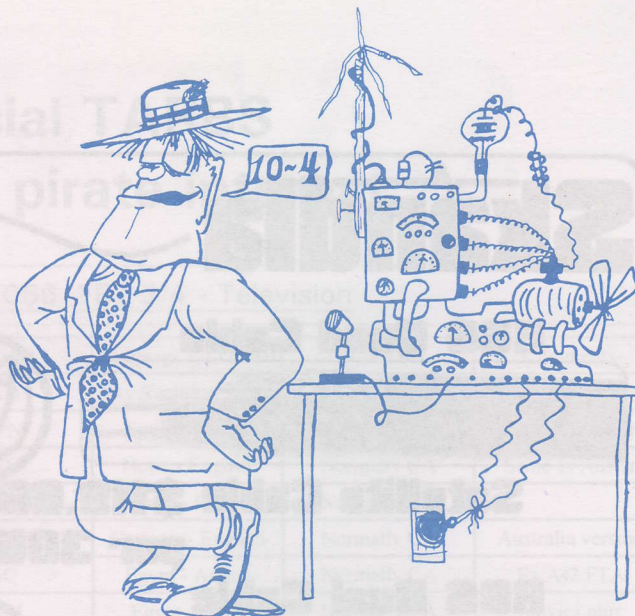
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February-March Specials on TVRO/DTH Antennas *

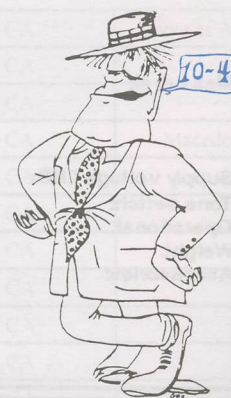
MESH DISHES - 2.3m and 3.0m: The least expensive in Australia- bar none, no matter what "sale" you are going to. Get everyone else's price *first* - then call STRONG Aust. We'll beat any price on a quality for quality basis you get from a legitimate distributor.

Six-segment solid dishes - 1.8 and 2.3m. Where else can you buy a 1.8m prime focus polar mount all solid dish for A\$118? Who else has a "no-crate" dish line that eliminates paying upwards of A\$100 just for the stupid crate to ship your otherwise "bargain" dish?

This is a *great antenna* for C and Ku for NT - because we don't sell you a low-cost antenna and then rip you off by charging A\$100 for a shipping crate!

* - Specials - Hell! We are the lowest cost folks in the Pacific ALL of the time!

Paraclipse. We are now going to share a well kept secret. The Paraclipse 90cm offset dish actually out performs Jonsa 1.2 and most 1.5m dishes for Ku. Paraclipse is - well, *Paraclipse*; the Rolls Royce of all antennas. And the quality shows - very pleasing to the customer's eye, better performance than 1.2 and 1.5m Asian specials, 10X as strong and you won't end up requiring 6 stitches on your left hand trying to tippy-toe around sharp, unfinished edges the Asian cheap dishes have. **STRONG Aust** stocks in depth the *Paraclipse* antenna line for the South Pacific. If we don't have it in stock - it's not for sale south of the equator! When a man needs a **REAL** antenna, he needs a *Paraclipse* - not some cheap Asian paper-thin sometimes-parabolic, most of the time not, pretend dish created from reconstituted beer cans.



MADE IN AMERICA!

STRONG Aust buys Paraclipse by the container load - nobody outdoes our volume in Paraclipse!

**WHAT'S ALL THIS CRAP about embedded IRDs
that *sometimes* do this, *sometimes* do that???**

**The STRONG D10 is "Pay TV Friendly"
and "neutral" about the origin of the card you stick into it.**

We don't sell "cards". We won't sell cards. But what you do with your **STRONG D10** inside the privacy of your own home is your business. What we do sell is a "Pay TV Friendly" IRD. And we sell version 2.06 and version 2.09 cams. In fact we have a complete French TV (Intelsat I701) system package less only the card (hey - we are all grown up folks here. The guy who sells 12 cylinder Jags doesn't tell you what kind of petrol to put in it - right?). If you are not familiar with the D10 - well, it's the **STRONG** equivalent of the Humax 5410. But you knew that - didn't you?

TERRESTRIAL TV set-top boxes. OK, so Australia has not exactly gone crazy for terrestrial digital TV. Maybe it's the fault of the broadcasters for not putting more on digital - maybe it's the ABA's fault for listening to some bad advice. But the fact remains WE have digital terrestrial on the air, in the air and *we* are one of the first countries in the world to do so. Show some Australian pride - *support digital terrestrial!* And it is actually fun to play with. You deserve to have some fun - so get a digital terrestrial set-top box and see what all the commotion is about. After you play with it, surely you can find a customer to flog it off to for at least the wholesale price we'll charge you for our STRONG 5100 set-top terrestrial box. We have the 5100 in stock (A\$500 + gst trade, A\$399 + gst trade in quantity). Buy one today and stick an Australian flag in your front window.

ANALOGUE receiver/dish controller. Are we crazy, or just plain stupid? We have this very large supply (anything more than 3 would be a "very large supply" - in this case) of Palcom SL7700 super-low-threshold analogue receivers. Brand new, factory cartons. Analogue? Yes, we said analogue. Good grief. What a disaster! Maybe not. The SL7700 when reviewed by SatFACTS yonks and yonks ago was rated "*the very best of the best*". It still is. So what makes this worthy of you spending your money? Well #1 - it has full automatic tracking of the satellite. The dish mover "brain" samples the signal every minute or so and if the satellite is moving (such as the Russian birds for TNT and NTV), it creates a pulse to the dish mover to reapeak the signal. Better yet - it does this for both the elevation and azimuth motor drives! The signal need not even be a "real" analogue TV carrier - it can be a beacon, for example. #2 - it has step after step after step of threshold extension - the last of the "*red hot analogue weak signal machines*". #3 - playing with SDStv.com analogue stuff in L-band? That's right - super low threshold for maximum SDStv.com range. #4 - finally, if you have a digital IRD but lack a suitable dish mover, the SL7700 is the best and easiest to use - bar none. The price? Too hot to publish - *call us!*

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

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TARBS 12.726Hz, Sr 28.066, FEC 3/4 - Television

| UEC Net Load | Nokia 9500S | Hyundai 100C | Ch Label | Language if known | FTA/CA | Comments |
|--------------|-------------|--------------|--------------|-------------------|--------|-------------|
| 40 | 1 | 1 | SIC | Portuguese | | |
| 41 | 2 | 2 | TS41 | TEST | | |
| 42 | 3 | 3 | TS42 | TEST | | |
| 43 | 4 | 4 | TS43 | TEST | | |
| 44 | 5 | 5 | TS44 | "coming soon" | | |
| 45 | 6 | 6 | TS45 | "coming soon" | | |
| 46 | 7 | 7 | TS46 | "coming soon" | | |
| 47 | 8 | 8 | TS47 | "coming soon" | | |
| | | 9 | hidden? TS48 | | | |
| | | 10 | hidden? TS49 | | | |
| | | 11 | hidden? TS50 | | | |
| | | 12 | hidden? TS51 | | | |
| | | 13 | hidden? TS52 | | | |
| 48 | 9 | 14 | PTV | power TV - | CA | Mandarin |
| 49 | 10 | 15 | TS56 | "coming soon" | ? | |
| 50 | 11 | 16 | TS57 | "Coming soon" | ? | |
| 51 | 12 | 17 | TS58 | "coming soon" | ? | |
| 52 | 13 | 13 | TV5 | Thai Global | FTA | Ex-Mediasat |

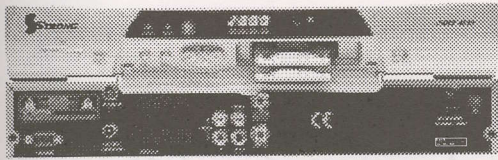
TARBS 12.526Hz, Sr 28.066, FEC 3/4 - Radio only

| UEC Net Load | Nokia 9500S | Hyundai 100C | Ch. Label | Language if known | FTA/CA | Comments |
|--------------|-------------|--------------|-----------|--------------------|--------|---------------------|
| 1 | 1 | NA | EBE | Arabic | FTA | |
| 2 | 2 | NA | ESEA | Arabic | FTA | |
| 3 | 3 | NA | EQK | Arabic | FTA | |
| 4 | 4 | NA | ELSH | Arabic | FTA | noise only |
| 5 | 5 | NA | FUTR | Arabic | FTA | |
| 6 | 6 | NA | TGR | Turkish | FTA | |
| 7 | 7 | NA | RD | Turkish | FTA | |
| 8 | 8 | NA | RDSP | Turkish | FTA | Turkish sport radio |
| 9 | 9 | NA | VOT | Turkish | FTA | |
| 10 | 10 | NA | 2ME | Middle East Arabic | FTA | Sydney based |
| 11 | 11 | NA | NTC | News Talk/country | FTA | (Tamworth) |
| 12 | 12 | NA | RA72 | "AQK" | FTA | |
| 13 | 13 | NA | REE | Spanish | FTA | |

TARBS 12.606Hz, Sr 28.066, FEC 3/4 - Radio only

| | | | | | | |
|----|----|----|-------|--------------|-----|-----------|
| 14 | 1 | NA | RA74 | "RAUS T TBA" | ? | no audio |
| 15 | 2 | NA | "TBA" | | CA | |
| 16 | 3 | NA | DZMM | Manila | CA | |
| 17 | 4 | NA | RA77 | not in use | ? | no audio |
| 18 | 5 | NA | RA78 | not in use | ? | no audio |
| 19 | 6 | NA | RA79 | "ERA 5" | CA | |
| 20 | 7 | NA | RA80 | "ANTR" | CA | |
| 21 | 8 | NA | RA81 | "ERA 1" | FTA | |
| 22 | 9 | NA | RA82 | "ERS" | FTA | |
| 23 | 10 | NA | RA83 | unknown | FTA | has audio |
| 24 | 11 | NA | RA84 | not in use | FTA | |
| 25 | 12 | NA | RA85 | not in use | ? | |
| 26 | 13 | NA | RA86 | not in use | ? | |

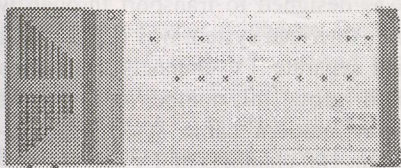
Notes: Additional (future expansion - not operational) radio is found on 12.326 (13 channels), 12.726 (13 channels) which load on the UEC format and Nokia 9500S receivers but alas not on the Hyundai 100C.



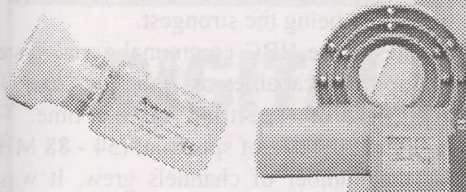
Digital Satellite Decoders



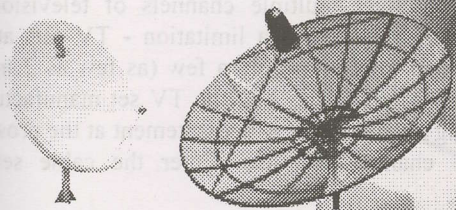
Digital Satellite Receivers



IF Distribution Systems



All types of LNBs



ø 60-450 cm

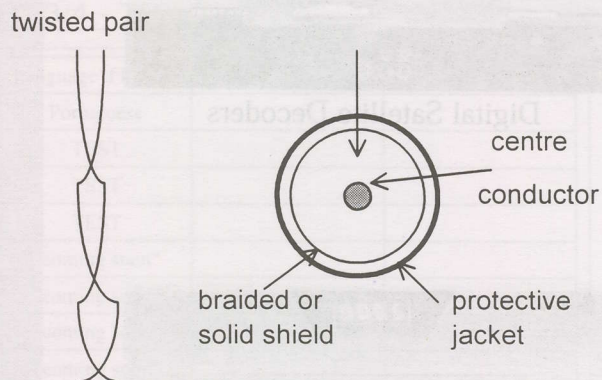
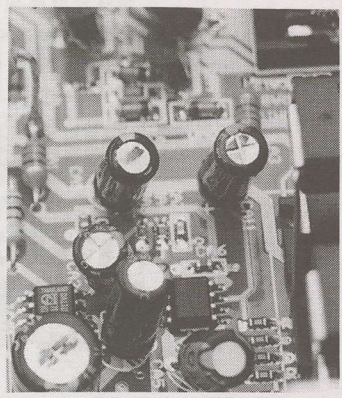
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The CABLE Connection



Frequency translation

The concept that a wide range of unrelated signals or TV channels can be made to simultaneously pass through a length of coaxial cable was borne out of necessity in the late 1940s. The original concept of sending TV (or radio) programming through wire rather than through the air (as in broadcasting) actually predates World War Two. In the UK, a number of firms (including Rediffusion) ran telephone-grade wire around English communities to deliver from a central location radio programming. This was in an era when AM (broadcast band) AM radio was not yet mature, and electrical equipment (including motor cars) generated massive amounts of radio frequency interference, depriving tens of thousands of homes from listening to the (BBC) radio. By finding a location where the radio signals were clean of interference, installing a receiver, and then pumping the audio (sound) only through wires, individual homes were equipped with "speakers" and a switch - on to listen, off to not listen. Rediffusion collected a few pence per month for the service.

An American company tried to take that a step further by utilising the existing telephone network. Their concept was, dial up a specific number, place the telephone instrument in a cradle, and radio programming (or non-interrupted music) came out of the box attached to the cradle. Unfortunately, for the creators of the system, this was prior to any technology that would allow a large number of simultaneous listeners to connect.

Coaxial cable was an answer to both challenges simply because, unlike the telephone grade wire, it had the capacity to carry a group of frequencies (or a "band") rather than the single audio channel. Coaxial cable was just developing in the late 1930s when World War Two intervened. By the end of the conflicts, coax had matured as a war time necessity into a range of cable sizes each with unique properties. The primary advantage of coaxial cable, over "twisted pair" telephone family cable, was the ability to transport a significant number of the HF (high frequency) / VHF (very high frequency) and eventually UHF (ultra high frequency) signals. If you could create two or more separate signals, each one with its own distinct operating frequency (channel), coax could transport them. Twisted pair was restricted to the audio frequency range except for very short distances.

Cable TV began as "communal aerials" (master antenna systems connecting two or more separate homes) in the UK. The concept at the time was to distribute the single (BBC) television channel from a well situated master antenna to individual TV sets in private domiciles. This actually began as early as 1937, took a war-hiatus in 1939, and then restarted in 1946 when the BBC resumed telecasting. Meanwhile in

America, a slightly different variation of this was being created first in the hills and mountains of the states of Oregon and Pennsylvania, later spreading like wildfire nation-wide. The American version was designed around carrying two or more TV channels to two or more distinct homes. To ensure that individual homes did not create interference that would be fed backwards into the cable and then to other homes, a system using "signal taps" was developed. Whereas the British "communal aerial" was designed to transport through wire a single TV channel, the American system was initially designed to transport up to five separate TV channels simultaneously. Later technology would "grow" this number to 12 and then 35 and then - well, today modern cable systems world-wide routinely carry more than 100 channels of TV.

The "pacing" ingredients in this development were as follows:

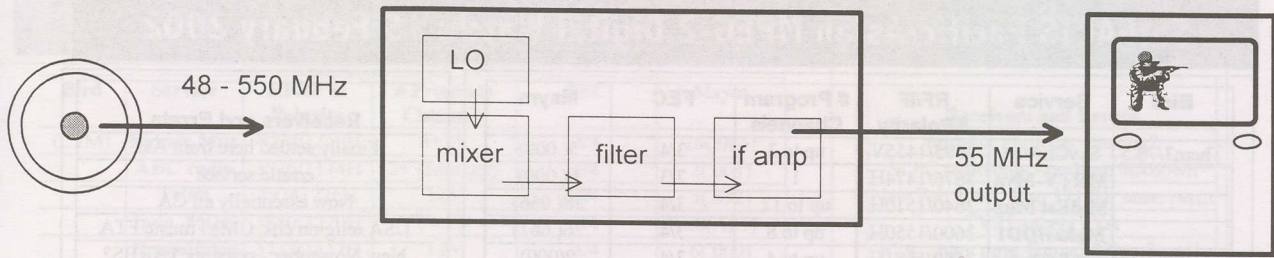
1) Cable losses. Coax always exhibits more loss at higher transport frequencies - 550 MHz is higher than 50 and for a given length of cable, two signals starting the trip at the same level will arrive at the opposite end with widely divergent levels - the lower frequency being the strongest.

2) Amplifier broadness. The BBC communal aerial system only required an amplifier capable of handling one TV channel, less than 5 MHz of "spectrum" at the time. The American system required 34 MHz of spectrum (54 - 88 MHz) initially, growing as the number of channels grew. It was a relatively straight forward matter to create amplifier gain over a 5 MHz bandwidth, quite another matter to retain the same gain but spread it out over 34 MHz. Today's "broadband" amplifiers easily do more than 800 MHz but originally this was a design problem to be conquered.

3) The interface. This was a serious problem. The aim of the exercise was to deliver multiple channels of television to multiple homes. But there was a limitation - TV sets at the time were designed to tune-in only a few (as few as 2 in the UK, 12 in America) channels. And the TV set manufacturers were not jumping up and down with excitement at the prospect of building 35 channel TV sets. Enter the cable set-top "converter" box.

Lot's of channels "in" - one channel "out"

If the TV set designers would not create expanded-tuning TV sets (yes - eventually they did but it was more than ten years following cable's expansion to more than 12 channels in America), then the cable industry would create a box to do just that. The cable-TV set-top box was initially a frequency-translation device: only. Inside was a tuner with an expanded range of coverage - 35 channels in the first few years. The cable drop signal into the home plugged into the set-top box at a signal level which made sense - typically in the region of 70 to 80 dBuV. The "design trick" was to



individually select one of the (up to 35) channels, and frequency translate (change) whatever channel it might arrive on down to a common "IF" (intermediate frequency). This was typically 55 (.25) MHz.

To do this, the entire range of signals (55, 61, 67 - remember these are American NTSC not PAL channels) went into a "mixer" stage.

The mixer was designed to receive two different "inputs"; the first was from a LO (local oscillator) and the second was from the range of TV signals delivered by the cable.

In DTH/TVRO, the LO is fixed (5150 MHz for C band, 11,300 or some other frequency for Ku). In this instance, the LO had to be "tuneable" - it had to change each time the viewer wished to view a different channel. Why? Because the IF was fixed at 55 (.25) MHz which was a commonly available (all TV sets) channel found on TV sets. If the TV set by itself could not tune the range of cable TV channels, the set-top box would convert that range to a frequency (TV channel) which the TV set could receive. The frequency-switching LO is a form of TV tuner itself - kind of in reverse. When the viewer changes channels, he or she is actually telling the LO to switch

LO tuning

- 119 - 55 = 64 MHz LO
- 175 - 55 = 120 MHz LO
- 303 - 55 = 248 MHz LO
- 447 - 55 = 392 MHz LO

for PAL - later 8 MHz steps) was not possible without the introduction of tiny tuning devices called "varactors". By selecting a "tuning voltage" for the varactor, each new voltage was a new "frequency step". So the tuner became essentially an exercise in creating finely tuned, but varying by channel, "tuning voltages".

More recently, the cable set-top has done away with the concept of IF by creating a miniature TV receiver that looks as if it is actually just a tuner. The tuner still uses varactors to step through the channels but it demodulates (creates video and audio) internally. This baseband is now used to remodulate a single channel low power "transmitter" operating on a single frequency (such as 55 MHz still).

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

| Bird | Service | RF/IF &Polarity | # Program Channels | FEC | Msym | |
|---------------|---------------|--------------------|---------------------------|------------|----------|----------|
| Thcm3/78.5 | SkyChAust | 3695/1455V | up to 3 | 3/4 | 5(.000) | |
| | MRTV-Myn | 3676/1474H | 1 | 2/3 | 6(.000) | |
| | MidEst Mux | 3640/1510H | up to 12 | 3/4 | 28(.066) | |
| | Mahar/DD1 | 3600/1550H | up to 8 | 3/4 | 26(.661) | |
| | ME Mux | 3569/1581H | up to 4 | 3/4 | 9(.000) | |
| | Nepal TV+ | 3554/1596V | 3+ in mux | 3/4 | 13(.333) | |
| | 3ABN + | 3551/1600H | 4+ TV, radio | 3/4 | 13(.330) | |
| | PTV1 + | 3521/1629V | 1TV, 1 radio | 3/4 | 3(.333) | |
| | TARBS/Th5 | 3485/1665H | 6+ TV? | 3/4 | 18(180) | |
| | Thai Global | 3425/1725V | up to 7? | 2/3 | 27(.500) | |
| InSat 2E/83 | Thai mux | 4005/1145V | 6+ TV | 3/4 | 27(.000) | |
| | DD2 | 3910/1240V | 1 | 3/4 | 5(.000) | |
| | DD National | 3830/1320V | 1 | 3/4 | 5(.000) | |
| | Kairali TV | 3699/1451V | 1 | 3/4 | 3(.184) | |
| | AsiaNet | 3683/1467V | 1 | 3/4 | 4(.340) | |
| | Jaya TV | 3615/1535V | 1 | 3/4 | 3(.255) | |
| | ETV Mux#2 | 3485/1665V | 4+TV | 3/4 | 27(.000) | |
| | ST1/88E | MMBN | 3632/1518V | 12TV | 3/4 | 26(.667) |
| | As2/100.5E | Euro Bouqt | 4000/1150H | 6TV, 21r | 3/4 | 28(.125) |
| | | 5-Star Med | 3951/1199H | 3TV | 3/4 | 13(.185) |
| WorldNet | | 3880/1270H | 4+/20+radio | 1/2 | 20(.400) | |
| Hubei/HBT | | 3854/1296H | 1 | 3/4 | 4(.418) | |
| Hunan/SRT | | 3847/1303H | 1 | 3/4 | 4(.418) | |
| Guan./GDT | | 3840/1310H | 1 | 3/4 | 4(.418) | |
| In. Mongolia | | 3828/1322H | 2 | 3/4 | 8(.397) | |
| APTN Asia | | 3799/1351Hz | 1 | 3/4 | 5(.632) | |
| Reuters/Sing. | | 3775/1375H | 1 | 3/4 | 5(.631) | |
| WorldNet/US | | 3764/1386H | 1 + 20 radio | 3/4 | 6(.100) | |
| | Liaonin/Svc2 | 3734/1416H | 1 | 3/4 | 4(.418) | |
| | Jiangx/JXT | 3727/1423H | 1 | 3/4 | 4(.418) | |
| | Fujian/SET | 3720/1430H | 1 | 3/4 | 4(.418) | |
| | Hubei TV | 3713/1437H | 1 | 3/4 | 4(.418) | |
| | Henan/Main | 3706/1444H | 1 | 3/4 | 4(.418) | |
| | Egypt/Nilesat | 3640/1510H | 7+, radio | 3/4 | 27(.850) | |
| | As2/100.5E | Feeds | 4086/1064V | 1 | 3/4 | 5(.632) |
| | | Jilin Sat TV | 3875/1275V | 1 | 3/4 | 4(.418) |
| | | HeiLongJian | 3834/1316V | 1 | 3/4 | 4(.418) |
| | | JSTV | 3827/1323V | 1 | 3/4 | 4(.418) |
| Anhui TV | | 3820/1330V | 1 | 3/4 | 4(.418) | |
| ShaanxiQQ | | 3813/1337V | 1 | 3/4 | 4(.418) | |
| Guan/GXTV | | 3806/1344V | 1 | 3/4 | 4(.418) | |
| Fashion TV | | 3795/1355V | 1 | 3/4 | 2(.533) | |
| MSTV | | 3791/1359V | 1 | 3/4 | 4(.340) | |
| Myawady | | 3766/1384V | 1 | 7/8 | 5(.080) | |
| | Les Amis | 3714/1436V | 2 | 3/4 | 6(.500) | |
| | Saudi TV1 | 3660/1490V | 5+/tests | 3/4 | 27(.500) | |
| | As3S/105.5 | Zee bouquet | 3700/1450V | 9TV | 3/4 | 27(.500) |
| | | Arirang TV | 3755/1395V | 1 | 7/8 | 4(.418) |
| | | Now TV + | 3760/1390H | 4 | 7/8 | 26(.000) |
| | | Star TV | 3780/1370V | 22(+TV) | 3/4 | 28(.100) |
| | | Star TV | 3860/1290V | 18(+TV, 1r | 3/4 | 27(.500) |
| | | Star TV | 3880/1270H | 19(+TV) | 7/8 | 26(.850) |
| | | Indus Music | 3900/1250V | 5TV | 7/8 | 27(.895) |
| | | Star TV | 3940/1210V | 9(+TV) | 7/8 | 26(.850) |
| CNNI | | 3960/1190H | 6(+TV) | 3/4 | 26(.000) | |
| StarTV | | 3980/1170V | 2+TV | 3/4 | 28(.100) | |
| | Star TV | 4000/1150H | 10(+TV) | 7/8 | 26(.850) | |
| | Sun TV | 4095/1055H | 1 | 3/4 | 5(.554) | |
| | CCTV bqt | 4129/1021H | 4(+TV) | 3/4 | 13(.240) | |
| | Zee Bqt #2 | 4135/1015V | 4(+TV) | 2/3 | 15(.000) | |
| | Cak1/107.5 | Indovision | 2.536, 2.566, (S-band) | 33(+TV) | 7/8 | 20(.000) |
| | | IndoBqt | 3460/1690H | up to 6 | 3/4 | 27(.500) |
| | C2M/113E | TPI | 4185/965V | 1 | 3/4 | 6(.700) |
| | | Anteve | 4144/1006V | 1 | 3/4 | 6(.510) |
| | | Satelindo Bq | 4089/1061H | 2+ 1 radio | 3/4 | 14(.062) |
| | | SCTV | 4048/1102V | 1 | 3/4 | 6(.618) |

Receivers and Errata

| |
|---|
| Finally settled here from As2 erratic service |
| Now essentially all CA |
| USA religion chs, CMM music FTA |
| New November - possibly TARBS? |
| FTA + CA mux |
| 3 Angels USA, Ch of Hope, + 9 radio |
| recent frequency change |
| TARBS label, Thai 5, may go CA? |
| FTA (reaches SE Australia) |
| Several ETV now here; wide beam |
| SCPC, ; OK E. Aust. wide beam |
| SCPC; OK E. Aust. wide beam |
| SCPC, OK E. Aust wide beam |
| SCPC, OK F. Aust. wide beam |
| SCPC; OK E. Aust. wide beam |
| Several new ETC here, wide beam? |
| Nagravision, some FTA; erratic |
| FTA; MCM gone |
| Macau MUX |
| Will move here-replace analogue |
| FTA SCPC, teletext |
| FTA SCPC, teletext |
| FTA SCPC, radio APID 81 |
| FTA: #1 Mongolian, #2 Mandarin |
| Sometimes FTA; also 3895Vt |
| FTA & CA |
| FTA; to shut down "soon" (see 3880H) |
| FTA SCPC, radio APID 256 |
| FTA SCPC, teletext, radio APID 81 |
| FTA SCPC, + radio APID 80 |
| FTA SCPC, radio APID 80 |
| FTA SCPC, + radio |
| Thru TARBS Aust, occ. FTA |
| FTA SCPC feeds |
| FTA SCPC, + radio |
| FTA SCPC |
| FTA SCPC, + radio |
| FTA SCPC + radio |
| FTA SCPC, radio APID 81 |
| FTA SCPC, radio APID 257 |
| FTA SCPC, reload VPID 308, APID 256 |
| FTA SCPC |
| FTA SCPC - difficult to load |
| two test cards - December |
| FTA MCPC, Dubai Sports Europe |
| Mediaguard CA |
| FTA SCPC; reported audio problems |
| + TECH TV USA FTA to 1 March |
| NDS CA (Pace DVS211, Zenith) |
| NDS CA (Pace DVS211, Zenith) |
| NDS CA (Pace DV211, Zenith) |
| PAL, NTSC, 1 ch CA |
| Recently started -NDS CA as above |
| PowVu CA; CNN + Cartoons, occ FTA |
| NDS CA (Pace DVS211, Zenith) |
| NDS CA + 2 (Chinese) FTA |
| "History Channel" testing SCPC |
| moved from 4115 July 1 |
| some (i.e. Kaveri) FTA + CA |
| NDS CA using RCA/Thomson, Pace IRDs |
| Test mux; try 3480H & 26.667 also |
| FTA SCPA; NT/NC only |
| recent change from 4055V; FTA SCPC |
| ChNewAsV33/A34, |
| FTA SCPC; NT/NC only |

| Bird | Service | RF/IF & Polarity | # Program Channels | FEC | Msym | |
|-------------------|---------------------|--------------------|--------------------|--------------|----------|----------|
| (C2M) | Indone.Mux | 4000/1250H | 6+TV | 3/4 | 26(.085) | |
| | ABC radio | 3976/1174H | 2+ radio only | 3/4 | 2(.061) | |
| | TPIN | 39241226H | 1TV | 3/4 | 5(.632) | |
| | Indo. MUX | 3880/1270H | 3+ TV | 3/4 | 28(.125) | |
| | Brunei/Sing | 3733/1417H | 1TV | 3/4 | 6(.000) | |
| | RCTI | 3475/1675H | 1 | 3/4 | 8(.000) | |
| | JcSt3/128 | Miracle Net | 3996/1154V | 3 up to 6 | 5/6 | 22(.000) |
| | Asian bqt | 3960/1190V | up to 8 | 7/8 | 30(.000) | |
| | MeaSat 2 | Astro Mux | 11.478H (+) | up to 10TV | 7/8 | 30(.000) |
| Op 3/156 | Mcdiasat | 12.336V/T2 | 5TV, 3 radio | 2/3 | 30(.000) | |
| | Aurora | 12.407V/T3 | | 2/3 | 30(.000) | |
| | Aurora | 12.532V/T5 | Inc Zee TV | 2/3 | 30(.000) | |
| | Aurora | 12.595V/T6 | | 3/4 | 30(.000) | |
| | Aurora | 12.657V/T7 | TV tests | 2/3 | 30(.000) | |
| | Aurora | 12.720V/T8 | | 3/4 | 30(.000) | |
| | Austar | 12.314H/T9 | iTV + here | 3/4 | 29(.473) | |
| | Austar/Optus | 12.376H/T10 | | 3/4 | 29(.473) | |
| | Austar/Foxtl | 12.438H/T11 | | 3/4 | 29(.473) | |
| | Austar/Foxtl | 12.501H/T12 | | 3/4 | 29(.473) | |
| | Austar/Foxtl | 12.564H/T13 | | 3/4 | 29(.473) | |
| | Austar/Foxtl | 12.626H/T14 | | 3/4 | 29(.473) | |
| | Austar/Foxtl | 12.688H/T15 | (some FTA ra) | 3/4 | 29(.473) | |
| | Op 1/160 | ABC NT fd | 12.258V | 1TV, 3 radio | 3/4 | 5(.026) |
| | | ABC feeds | 12.317H | 1 | 3/4 | 6(.980) |
| Occ feeds | | 12.356V | 1 | 3/4 | 6(.110) | |
| Central 7 | | 12.354H | 1TV | 3/4 | 3(.688) | |
| Imparja mx | | 12.360H | 1 | 3/4 | 5(.424) | |
| Mediasat#3 | | 12.424H | 3+ TV | 2/3 | 19(.800) | |
| TVNZ DTH | | 12.456V | 2TV | 3/4 | 22(.500) | |
| Nine Net | | 12.512H | 1 TV typ. | 3/4 | 5(.632) | |
| Sky NZ | | 12.519/546V | 7TV/7TV | 3/4 | 22(.500) | |
| Sky NZ | | 12.581/608V | 6TV/6TV | 3/4 | 22(.500) | |
| Sky NZ | | 12.644/671V | 9TV | 3/4 | 22(.500) | |
| ABC HDTV | | 12.670H | 5TV | 7/8 | 14(.300) | |
| Tel/Saturn | | 12.706/733V | 8+TV, 1 radio | 3/4 | 22(.500) | |
| PS8/166 | | TARBS3 | 12.326H | 13TV + radio | 3/4 | 28(.067) |
| | | TARBS | 12.526H | 13TV + radio | 3/4 | 28(.067) |
| | TARBS2 | 12.606H | 13TV + radio | 3/4 | 28(.067) | |
| | JEDI/TVB | 12.686H | 11+ TV | 3/4 | 28(.126) | |
| | ABC A-P | 4180/970H | 2TV, 2 radio | 3/4 | 27(.500) | |
| | Disney Pac | 4140/1010H | typ 6 TV | 5/6 | 28(.125) | |
| | NHK Joho | 4065/1085H | 7TV, 1 radio | 3/4 | 26(.470) | |
| | ESPN USA | 4020/1130H | 7+TV, data | 7/8 | 26(.470) | |
| | Discovery | 3980/1170H | 8 typ. | 3/4 | 27(.690) | |
| | CalBqt/Pas8 | 3940/1210H | up to 8TV | 7/8 | 27(.690) | |
| | CNBC HK | 3900/1250H | up to 7TV | 3/4 | 27(.500) | |
| | Filipino Bqt | 3880/1270V | up to 9 TV | 3/4 | 28(.700) | |
| | TaiwanBqt | 3860/1290H | 4TV + 30 radio | 5/6 | 28(.000) | |
| | CCTV Mux | 3839/1311H | up to 4 | 3/4 | 13(.240) | |
| | EMTV PNG | 3808/1342V | 1 + 2 radio | 3/4 | 5(.632) | |
| CNNI | 3780/1370H | 3, up to 5 TV | 3/4 | 25(.000) | | |
| MTV | 3740/1410H | 8 | 2/3 | 27(.500) | | |
| PS2/169 | Pv Bouquet | 12.281V | 2+ TV, radio | 2/3 | 27(.500) | |
| | WA PowVu | 12.637(.5)V | 4TV, 8 radio | 1/2 | 18(.500) | |
| | HK PowVu | 4148/1002V | up to 8 | 2/3 | 24(.430) | |
| | TVB Mux | 4026/1124V | up to 8 | 3/4 | 22(.000) | |
| | Fox Bouquet | 3992/1158V | 8TV/data | 7/8 | 26(.470) | |
| | Feeds | 3966/1184V | 1 | 2/3 | 6(.620) | |
| | Feeds | 3957/1193V | 1 | 2/3 | 6(.620) | |
| | Feeds | 3929/1221V | 1 | 3/4 | 10(.850) | |
| | Feeds | 3912/1238V | 1 | 2/3 | 6(.620) | |
| | Feeds | 3898/1252V | 1 | 2/3 | 12(.000) | |
| | Middle East | 3836/1314V | 4 typ | 3/4 | 13(.331) | |
| | Feeds | 3803/1347V | 1 | 3/4 | 6(.000) | |
| | YTN Korea | 3769/1381V | 2+ TV | 3/4 | 11(.570) | |
| | BBC + | 3743/1407V | 3 | 3/4 | 21(.800) | |

| Receivers and Errata |
|--|
| unstable platform - testing? |
| SCPC radio only - purpose unknown |
| New Feb 2002; also 3718H, same parm |
| TVRI, others FTA |
| FTA; share time, Brunei-23hrs, Singlh |
| FTA SCPC, Australia OK |
| PowVu, some FTA (ch # 1,3) |
| CA & FTA NTSC: Japan, Taiwan |
| +11.664; 18 pay-TV svcs, CA |
| FTA, CA feeds ch. 3 |
| Aust, NZ 90 cm; CA (*); ABC Nat |
| cvrs Aust, NZ 90 cm; CA (*) |
| Aust only; * - smart card p. 26 |
| cvrs Aust, NZ 90cm (Optus FTA test) |
| Aust only; * - smart card p. 26 |
| Austar i-TV; CA, subs avail. Aust. |
| CA, subscription available Australia |
| CA, subscription available Australia |
| CA, subscription available Australia |
| CA, subscription available Australia |
| CA, subscription available Australia |
| CA, subscription available Australia |
| Also try 12.265; V832, A833 |
| also 12.326, 12.335; ex PAS8 Ku |
| Mostly sport feeds from w/in Australia |
| VPID1280, APID 1281 |
| VPID 1024, APID 1025 |
| net feeds, Australia only, FTA & CA |
| FTA 2 channels; more possible |
| testing digital feeds |
| NDS CA, subscription available NZ |
| NDS CA, subscription available NZ |
| NDS CA, subscription available NZ |
| also 12.686 12.706H; levels back up |
| Irdeto CA, tests, S16 FTA occ. |
| TPG/Eurodec CA, occ. FTA |
| TPG/Eurodec CA, radio FTA |
| TPG/Eurodec CA; TRT FTA |
| Irdeto CA, some FTA tests |
| Launched 31 December |
| PowVu CA |
| PowVu CA & FTA; subscription avail |
| PowVu CA; ch 11 DCP-CCP bootload |
| PowVu/CA (some audio FTA) |
| PowVu CA & FTA (EWTN) |
| FTA at this time |
| Some FTA; also 4040V, 27.686, 7/8 |
| New Sr from November |
| PowVu FTA, replaces PAS-2 svc |
| was As2; PowVu CA |
| PowVu, CNN/CNNI now CA |
| 1-7 CA; #8 MTV China FTA |
| PowVu CA, WIN, ABC NT |
| PowVu CA, WA only - D9234 |
| PowVu CA; some FTA, occ feeds |
| CA feeds to pay-TV; 6 chs FTA |
| Pv, CA/FTA (FTA ch 3 only) |
| PowVu (FTA) occ feeds |
| PowVu (FTA) occ. feeds |
| PowVu (FTA) occ sport feeds |
| PowVu(FTA) occ. feeds |
| PowVu (FTA) occ. feeds |
| LBC CA Irdeto; new PIDs 02/02 |
| PowVu (FTA) occ sport feeds |
| Svcs 1 and 2, CA |
| BBC FTA , others CA usually |

SatFACTS Digital Watch: Supplemental Reference Data / February 2002

| Bird | Service | RF/IF & Polarity | # Program Channels | FEC | Msym |
|------------------|--------------|------------------|--------------------|-----|-----------------|
| (PAS-2/169) | Feeds | 4040/1010H | 1 | 3/4 | 10(.850) |
| | KBS/Korea | 4026/1124H | 1 | 3/4 | 5(.062) |
| | 7thDayAdv. | 3872/1278H | 1 | 3/4 | 6(.620) |
| | Feeds | 3868/1182H | 1 | 2/3 | 6(.620) |
| | Feeds | 3939/1211H | 2 (typ NTSC) | 2/3 | 6(.620)/7(.498) |
| | Cal PowVu | 3901/1249H | up to 8 | 3/4 | 30(.800) |
| | occ feeds | 3776/1374H | 1 typ | 3/4 | 5(.560) |
| | Korean Bqt | 3762/1388H | up to 3 | 3/4 | 11(.570)) |
| I702/176E | AFRTS | 4177/973LHC | 8TV, 12+radio | 3/4 | 26(.694) |
| | RFO Poly | 4027/1123L | 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) |
| | TVNZ | 4195/955RHC | 1 | 3/4 | 5(.632) |
| | TVNZ/BBC | 4186/964RHC | 1 | 3/4 | 5(.632) |
| | TVNZ | 4178/972RHC | 1 | 3/4 | 5(.632) |
| | TVNZ/Aptn | 4170/980RHC | 1 | 3/4 | 5(.632) |
| | TVNZ/feeds | 4161/989RHC | 1 | 3/4 | 5(.632) |
| | RFO-Canal+ | 4086/1064L | 4TV, radio | 5/6 | 12(.500) |
| | TVNZ/feeds | 4052/1098RHC | 1 | 3/4 | 5(.632) |
| | TVNZ feeds | 4044/1106R | 1 | 3/4 | 5(.632) |
| | NZ Prime TV | 4024/1126L | 1 | 2/3 | 6(.876) |
| | NBC to 7 Oz | 3960/1190R | 1 | 7/8 | 6(.447) |
| | WorldNet | 3886/1264R | 1TV, 37 radio | 3/4 | 25(.000) |
| | Ioarana | 3772/1378L | 1 | 3/4 | 4(.566) |
| | TVNZ | 3846/1304R | 1 | 3/4 | 5(.632) |
| | 10.Australia | 3769/1381R | 4 | 7/8 | 20(.000) |
| | USA feeds | 3749/1401R | 4? | ? | 26(.400) |

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

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

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM Pty Ltd, 61-2-9939-4377.
Benjamin DB6600-CI. FTA, Foxtel/Austar w/CAM+card. Autosat Pty Ltd 61-2-9642-0266 (review SF#72)
eMTech eM-100B (FTA), eM-200B (FTA + Clx2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)
Humax F1-CI. Primarily sold for TRT(Australia), does (limited) PowerVu (not Optus Aurora approved).
Humax ICRI 5400. Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available, review SF#76.
Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good. SATECH (V2.26)
Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.
Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.
MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. Int. 61-2-9618-5777
MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777
MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738
Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. Tricky to use.
Nokia 9200. When equipped with proper CAM, does Aurora, pay-TV services provided software has been "modified" with Dr Overflow or similar program was available from (www.BAKKERELECTRONICS.COM), now only from established users.
Nokia 9500/9600. Numerous versions for different world parts; not distributed in Pacific but assistance from Av-Comm Pty Ltd.
Pace DVS211. NDS CA (no FTA) for Star Asia, previously used for Indovision. (Solution 42, 61-2-9820-5962)
Pace DGT400. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818)
Pace DVR500. Original DGT400 modified for NBC (PAS-2) affiliate use, with CAM equivalent to DGT400 but more reliable.
Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version.
Panasat 520/630/635. MCPC FTA, Irdeto capable, forerunner UEC 642, 660. Out of production, spares fax ++27-31-593-370.
Panasonic TU-DS10. FTA + Irdeto CA; one of 2 IRDs approved by Optus for Aurora, but never available in Australia.
Phoenix 111, 222. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH(below)- 222 out of production
Phoenix 333. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review Nov. 1998. SATECH 61-3-9553-3399.
Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)
PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, GWN+ PAS-2 Ku, CMT etc). Scientific Atlanta 61-2-9452-3388.
Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.
SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telsat 64-6-356-3749)
SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above).
Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Aust 61-3-9553-3399.
Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, Aurora, exc. vendor support. Strong Aust 61-3-9553-3399.
Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSEqC 1.0, 1.2, wide screen (review SF#84); Strong Aust (above)
UEC642. Designed for Aurora (Irdeto), approved by Optus; w/new software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.
UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel-limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.
UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers.
Winersat DigiBox 200. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fx 64-9-814-9447.
Xanadu. DVB compliant special-priced receiver for members of SPACE Pacific (Av-comm Pty Ltd, tel +61-2-9939-4377)
Accessories:
Aurora smart cards. New v1.6 now available, 1.2 no longer available for RABS. Price now A\$105, Sciteq 61-8-9306-3738.
PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 7/8; pgm ch 11 and follow instructions (do not leave early!)

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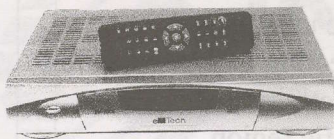
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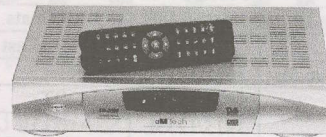
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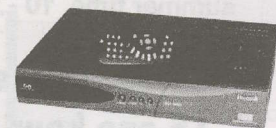
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SatFACTS Pacific/Asian FTA ANALOGUE Watch: 15 February, 2002

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| BIRD/ Location | RF/IF & Polarity | Service | Errata |
|-----------------------|---------------------|-----------------|-----------------|
| <u>I703/57E</u> | 3750/1400R | Sun TV | 6.6 |
| | 37981352R | RTNC 1 | 6.5 |
| | 3808/1342R | Udaya TV | |
| <u>I704/66E</u> | 376501390R | ETV Kanada | 6.6 |
| | 4015/1135L | Mongolia | (SECAM) |
| | 4095/1055L | ETV Teluga | 6.6 |
| <u>PAS10/68.5E</u> | 3905/1245V | MahVedeVi | 6.6, 7.2 |
| | 4034/1116H | MTV India | 6.8 |
| | 4154/996V | DD Bharti | 6.3 |
| | 4182/968H | BBC India | 6.6 |
| <u>LMI/75E</u> | 3980/1170V | various | (Madagascar) |
| <u>ApStar 2R</u> | 3780/1370H | DD NE | 5.5 |
| <u>Thaicom3/78E</u> | 4155/995VV | DD12 Jam. + | 5.5 |
| | 3800/1350V | DD Punjabi | 5.5 |
| | 3536/1614V | Jain TV | 6.8 |
| <u>Exprs 6A/80E</u> | 3675/1475R | RTR | (global; 7.0) |
| <u>InSat 2E/83E</u> | 3447/1703V | Kairali | 6.6 |
| | 3603/1547V | JayaTV | 6.6 |
| | 3650/1500V | AsiaNet | 6.6 |
| | 3809/1341V | DD5-Tamil | 5.5 |
| | 3849/1301V | DD-National | 5.5 |
| | 3929/1221V | DD Metro | 5.5 |
| | 3961/1189V | DD8-And.Pra | 5.5 |
| | 4089/1061V | DD7-W.Bangl | 5.5 |
| <u>ChnStr1/87.5E</u> | 3880/1270H | occ feeds/ card | P4 NSW, Ntsc |
| <u>MeSat-1/91.5E</u> | 3710/1440H | VTV1,2, 4 | 6.5 |
| | 3880/1270H | RTM-1 | 6.6 |
| <u>InSat 2B/93.5E</u> | 4170/980V | DD Gyandar. | NSW on 3.7m |
| | 4161/989H | DD-4 Kerala | 5.5 |
| | 4125/1025H | DD-11 Gujarati | 5.5 |
| | 3889/1261H | DD-10 Mahara. | 5.5 |
| | 3802/1348H | DD-9 Kamats. | 5.5 |
| | 2.595H | DD NorthEast | S-band, 5.5 |
| <u>Gz28/96.5E</u> | 3675/1475L | RTR | Inc. +/- 4.8, 7 |
| | 3875/1275L | ORT | 7 |
| | 3915/1235L | | 7 |
| | 3935/1215L | | 7 |

| BIRD/ Location | RF/IF & Polarity | Service | Errata |
|---------------------|---------------------|----------------|----------------|
| <u>As2/100.5E</u> | 388501270H | WorldNet | VOA subers |
| <u>Exp. 9/103E</u> | 3675/1475R | RTR | inc +/- 3.2, 7 |
| <u>As3S/105.5E</u> | 3640/1510H | Asia Plus | 5.55, 6.2 |
| | 3680/1470H | CETV | 6.6 |
| (temp FTA) | 3800/1350H | Star Sport | NTSC;5.94+ |
| (temp FTA) | 3840/1310H | Channel [V] | NTSC;5.58+ |
| (temp FTA) | 3920/1230H | Phoenix Ch | NTSC;6.2+ |
| | 4020/1130V | Sahara TV | 6.8 Hindi |
| | 4100/1050V | PTV2/World | 6.6 |
| <u>PalapC2/113E</u> | 4160/990H | (France) TV5 | 5.8, 6.6 |
| | 4120/1030H | MTV Asia | 6.8,7.56,7.74 |
| | 3840/1310H | TVRI | 6.8 audio |
| <u>AsSat1/122E</u> | 3677/1473V | Test card | 3933/1217H |
| <u>Ap1A/134E</u> | 4180/970V | CCTV2 | 6.6 |
| | 4160/990H | CCTV7 | 6.6 |
| | 4100/1050V | Shandong TV | 6.6 |
| | 4080/1070H | Sichuan TV | 6.6 |
| | 4020/1130V | ZheJiang TV | 6.6 |
| | 4000/1150H | Yunnan TV | 6.6 |
| | 3980/1170V | CETV1 | 6.6 |
| | 3960/1190H | Guizhou TV | 6.6 |
| | 3860/1290V | CCTV 1 | 6.6 |
| | 3820/1330V | CETV SD | 6.6 |
| <u>Gorizont 33</u> | 3675/1475R | ORT | +/- 0.3 deg.7 |
| <u>Ag2/146E</u> | 3890/1260H | GMA | P1/2 s. eqtr |
| <u>PAS2/169E</u> | 3940/1240V | Napa test card | not full time |
| <u>SpNet4/172E</u> | 3920/1230V | unknown video | |
| <u>1802/174E</u> | 4166/984R | Feeds | |
| | 4188/962R | Feeds | |

Note: Analogue updates run 3 times each year, reflecting the slow-down in analogue activity in the Asia - Pacific region.

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Optus B3, 12.336Vt, Sr 30.000, FEC 2/3 courtesy of Mediasat

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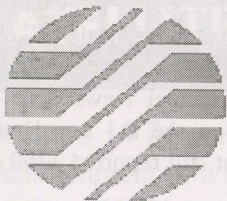
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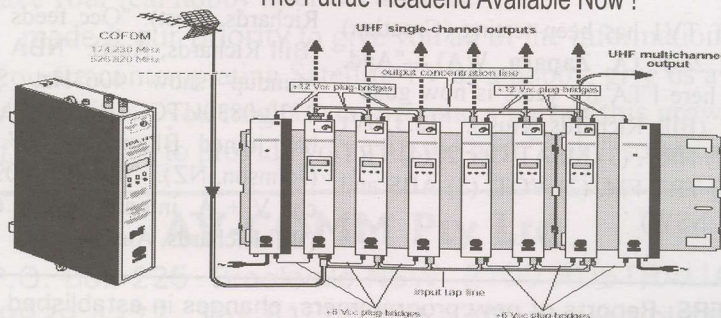
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WITH THE OBSERVERS

AT PRESS DEADLINE

Not exactly of the calibre or international interest as the Summer Olympics, but the 2002 Winter version is now underway with many opportunities to grab some coverage especially using SCPC Napa feed spots on PAS-2. Early starter - 3708Hz, Sr 6.110, 3/4 VPID 33, APID 34 with Bonneville Satellite (Utah) feeds. (B. Richards)

AsiaSat 2/100.5E: "APTN 3799Hz is in and out of NDS/NTL CA mode" (Bill Pemberton, Aust).

AsiaSat 3/105.5E: "I think somebody is using 'Fashion TV' as if it was a (moving) test card - now on 3760Hz (Now-TV MUX, Sr 26.000, 7/8), FTA today - who knows tomorrow?" (Leonard J., PNG). "H&WeTV seen on 3960Hz briefly" (E.L. Houghton, NT). "Fox News Channel, FTA since September within Star Asia 3980VtMUX, turned off and replaced by CA service N GEO Adventure. It will be sorely missed by Asians who found it significantly more informative than highly structured CNN service" (Leonard J., PNG). "Phoenix Chinese 3880Hz has left FTA package of Star Asia, now just test card" (E.L. Houghton, NT). "That fat signal on 3820Vt is (Speedcast) Internet, Sr 27.500, 3/4" (E.L. Houghton, NT).

InSat 2E/83E: "Several services (ETV's Bihar, Madhya Pradesh, Uttar Pradesh and Rajasthan) appear ing regular service 3485Vt, Sr 27.000, 3/4; ETV Oriya on 4005Vt, Sr27.000, 3/4" (Leonard J., PNG).

Intelsat 701/180E: "TNTV Tahiti has added a second frequency; 11.514Vt (Sr 30.000, 3/4) joins 11.060 same parameters, both with 10TV + radio. Also, RFO-Canel+ 4.086LHC (eastern beam) has changed Sr from 12.250 to 12.500, still 5/6" (Grant Waldref, Tahiti). "WorldNet 3886RHC, Sr 25.000, 3/4 is signal strength 72%, quality 98% here on 20 footer" (Bob Kennedy, Fiji). "WorldNet's 31 channels locked, NTSC, strength 50% on 3m linear" (Parsiman, NZ). "There are 38 total channels, ten of which load as radio only - a first for WorldNet" (P. Burton, NZ). "Try 4175LHC, PV but audio FTA (SR 3.680, 2/3) labelled 'Pacific', 'News', 'Sport' on eM100B" (D. Mitchell, NSW).

Optus B1/ 156E: "End of an era - 9-Net has closed down 12.488Hz PAL format" (IF, Qld.) "Sky Sports Extra now gone, may be temporary; TV One and TV2 now have subtitles when appropriate but no teletext" (Johnson, NZ). "Golf and other sport feeds 12.356Vt, Sr 6.110, 3/4" (Bill Richards, Aust).

Optus B3/ 160E: "HRT TV1 has been testing (Croatian) 12.336Vt, FTA (Sr30.000, 2/3)" (A. Zapara, WA). "And, Thai TV5 which has been here FTA for years is now gone - another 'win' for TARBS" (Bill Richards, Aust). "12.336Vt now loads (1) MOU TV, (2) HRT, (3) MSAT Occ 2, (4) TRT Int, (5) Tzu Chi + radio (1) TRT FM, (2) VOT, (3) ABS and (4) SNG IFB" (D. Mitchell, NSW).

win television

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NOBODY is perfect. PAS-2 Ku Western Australia service provider WIN Television with announcement advising viewers of a service shut down early in February (photo courtesy C. Jenkins, WA).

Palapa C2M/ 113E: "3880Hz (Sr 28.125, 3/4) is playing silly bugger again; first Metro TV, then TVRI, then Anteve leaves the MUX - is there nothing stable with any of the digital services on this satellite???" (E.L. Houghton, NT). "3924Hz, Sr 5.632, 3/4 VPID 308, APID 256, TPIN Channel FTA testing - another (new) Indonesian terrestrial TV channel)" (Bill Richards, Aust; SF note: also reported 3718Hz, same parameters, on Asian beam). "Channel News Asia has left 4071Hz, another case of 'now you see it - now you don't!" (E.L. Houghton, NT; SF note: But still reported 3460 & 4000, sometimes FTA, Sr26.085, 3/4).

PanAmSat PAS-2/ 169E: "Middle East bouquet (3836Vt) briefly FTA for LBC Australia, now again CA: PID changes: LBC-A 2307/2308, RAI International 2309/2310" (Jacob K. Sydney). "Blood and guts television direct from Beijing hospital, 3813Vt, Sr 6.000, 3/4 VPID 308, APID 256" (Bill Richards, Aust). "Occ feeds 3803Vt typically Sr 6.000, 3/4" (Bill Richards, Aust). "NBA Entertainment weekly basketball roundup show 4063Hz, Sr 6.620, 2/3 on Thursdays 0730-0830UTC" (Bill Richards, Aust). "Bloomberg Radio has joined Bloomberg TV 3901 Hz California bouquet" (Johnson, NZ). "4089Vt (4090), Sr 24.607, 3/4 with up to 12 chs V + A, initially testing (22 January) FTA is now gone" (Bill Richards, Aust).

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 March 15th issue: March 4 by mail or 5PM NZST March 6th if by fax to

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PanAmSat PAS-8/ 166.5E: "ABS-CBN Music Radio now FTA on 3880Vt, SID 6, PID 1622" (E.L. Houghton, NT).

ST-1/ 88E: "Another here today gone tomorrow package - MMBN on 3632Vt, Sr 26.667, 3/4, has been moving services around, changing PIDs, typically some FTA but not always there" (E.L. Houghton, NT).

Telekom 1/ 108E: "BBC-W has left 3496Hz, test card now for Global; TVRO, MTV Asia and TV5 Asia have returned to 3586Hz, Sr 17.800, 3/4" (E.L. Houghton, NT).

Soapbox: "On UEC 642, loading finds '9 operators', '639 accessible services'. '7 of 7 transport streams'. Now, 9 bouquets as DTH Test, Optus, Austar, Foxtel, Foxtel Vic, Foxtel Qld, Foxtel SA, Foxtel WA and 'Public Bqt' which is currently empty but default for UEC (used when no others are available). No radio channels now run FTA; 24 (new) radio chs on 12.563Hz B3 transponder of which the first 12 appear on the 4 Foxtel Bqts. Radio r13 to r24 will not load with UEC but Hyundai loads them - all CA with some relabelling from prior list. There is a 'Cart' channel on 12.438, ch. 45 which Hyundai will load, that does not seem to be a part of any other bouquet grouping - and audio here is FTA. (IF, Qld) "Radio ch on 12.594 Aurora now FTA (same as CAAMA radio, ch 35 which requires an authorised Imparja card); Aurora radio ch 67 was labelled as trial, now says 'Tamil Radio Inbathamil Oli, Tamil Media Group 02 97472792 - it is FTA" (NS, NSW). "Western Australian Trotting Association produces 4.5 hour live. sports television programming (from Perth) Friday evenings called 'Friday Night Live', broadcast on Optus Aurora channel 31, FTA" (Kerry Hanks, Special Project Manager, WA Harness Association; 08-9323 3555). "Letter received from Foxtel early February asked me to substitute new smart card (provided) for older card, gave me date to do so by or

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lose service, provided envelope for returning card. I did as instructed, they turned off original card and advised me on phone they have only 900 ex-Galaxy Pace boxes still operating." (ER, Sydney). "Tech TV advising new date for encryption (within Now-TV bouquet, As3S) is 1 March - still

SA PowerVu" (G. Welsby, PNG). "Sky NZ took over half of Telstra/Saturn (Clear) transponder (12.706 or 12.733 - not active yet) 1 February, will take other half in 18 months so look for more Sky NZ programme channels here. TVNZ continues to have T4L (using 12.456Vt) which - for now - it will keep." (OT, Auckland). "In fact it is possible to access some - but not very much - ABC A-P programming for terrestrial rebroadcast - for a license fee of course. An interesting situation - they arrive here FTA, they make no on-air announcement or advisory concerning license status but when contacted in a courteous manner advise 'do not touch'. Contact is Kaye Warren as warren.kaye@abc.net.au" (Hans Versluys, NZ). "With Fox News ("777") gone from As3 3980V, Star Asia loading now shows 3780Vt (28.100, 3/4 = 22 TV), 3860Vt (27.500, 3/4 = 18TV, 1 radio), 3880Hz (26.850, 7/8 = 19TV), 3940Vt (26.850, 7/8 = 9 TV), 3980Vt (28.100, 3/4 = 2 TV), 4000Hz (26.850, 7/8 = 10 TV of which 2 are FTA). IRD also indicates 3932Vt (14.000, 3/4) and 4123Vt (20.000, 3/4) but they refuse to load." (RN, Vic). "The Soundtrack Channel, to replace CMT 1 March, will feature movie videos of music from hit films as well as close up and personal looks at celebs in movie industry (PAS-8. California Bouquet, 3940Hz, Sr 27.690CA); contact is William Lee as blee@stcchannel.com. Operational status of PowerVu IRDs originally for CMT unknown. Lots of people very angry about this one!

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AT

Sign-off

The changing face of distribution

In the not very distant past, you could (as an enthusiast, installer) call up any number of equipment suppliers ("distributor") and order over the phone virtually everything you might require for an installation. Or drop by in person, load up your Ute and haul off. Then along came some selfish people who were determined to make their particular version of DTH/TVRO just enough different that you would be required to buy parts from them - or else not get the parts you needed. For example, there was Galaxy followed by Austar and the Foxtel. More recently TARBS and Sky NZ.

Their logic was "control" - to make it impossible for you to deal with them as a programme service provider unless you also agreed to buy from them the hardware you required. In New Zealand, for example, you cannot install a Sky dish system unless you are affiliated with Sky. You cannot wire up a motel or home with multiple outlets and deliver service to the customer unless you have a written contract with Sky. An almost identical situation exists in Australia with respect to Austar and Foxtel. And Sky Channels.

By controlling the software and the hardware, the programmers delude themselves into the belief that nobody actually "taps into" their services unless they are "clean" folks who have been cleared for the work. They also exert a measure of "quality control" over the hardware selection, creating "approved supplier lists" for everything from F-connectors and crimping tools to the actual IRD required. And in that process, the price they pay for the installation labour is determined not by the circumstances of each installation but rather by some "national average" that is supposed to reflect "typical" amount of time, "normal amount of cable and clips" and so on. We all know that the averages tend to be weighted towards the lower end of what is "normal" when it is the programmer setting the "numbers" and as often as not the installer spends an extra 30 minutes to an hour (of his or her time - not paid for) dealing with a wall that refuses to admit a drill bit, a customer "demand" that the cable be terminated in an existing terrestrial antenna wall plate, a side of house that refuses to accept the lag mounting bolts because the guy who built the house cut corners and used too few 4 x 2 re-enforcing stubs.

Somehow into this complex scenario the non-Austar/Foxtel Sky hardware parts distributor is supposed to find his own niche. It is a difficult challenge because the big guys are constantly greasing the politicians to get special-interest laws adopted that have only one purpose - to limit the availability of IRDs, for example, that could if "field modified", also receive the supposedly "secure" pay-TV transmissions.

Customers outside of the Ausatar/Foxtel/Sky clubs demand access to everything available - a shrinking universe that gets smaller and smaller each month. The "temptation" to accept an offer of a AS150 "Gold Card" that happens to receive some of the normally secure pay-TV services grows stronger each month as free to air services which were available to the

consumer when he originally bought his equipment are disappearing all too rapidly. Some blame TARBS for this - a company that by most accounts is hell bent on taking over all of the ethnic programming in the world by making dollar deals with the broadcasters to eliminate FTA transmissions. Others believe the monthly fees charged for most ethnic and English language pay-services are outrageously high and urge programme suppliers to accept subscriptions from people who already own their own equipment - rather than demanding that such folks be forced to pay for the installation and monthly rental of programmer equipment.

While the "name brand" suppliers (such as Sciteq, Strong Aust, Avcomm) maintain inventories of a full line of equipment (even including the outmoded analogue gear), many others stock limited supplies and while they "offer" items such as cable and connectors, will actually go to an outside supplier themselves to source the parts you order from them.

Receiver suppliers are especially vulnerable. Ordering 100 to 250 of a particular brand and model is about all that makes economic sense. But the best pricing breaks, the most profit, appears at the 1,000 and up level.

Leon Senior at Strong Technologies believes he has found a way to resolve this particular problem. When he was managing Strong Aust (not to be confused with Strong Technologies which is a totally separate, unrelated business), his Strong brand receivers were being sold directly to dealers essentially only through Strong Aust. The volume was good but it was difficult to reach that 1,000 per order level to achieve the best price that in turn brought the dealer cost down.

Strong Technologies is essentially a Dubai firm operating in Australia with Leon in charge. Dubai-Strong and Australia-Strong now combine orders to reach the magic 1,000 per receiver level. To support this, Leon has been setting up sub-distributors who will handle the Strong IRD product line. These are as often as not the same distributors you have been purchasing from already; they no longer "see" Strong as a "competitive brand" but rather see it as a new brand they can offer because for the first time they can "buy it right."

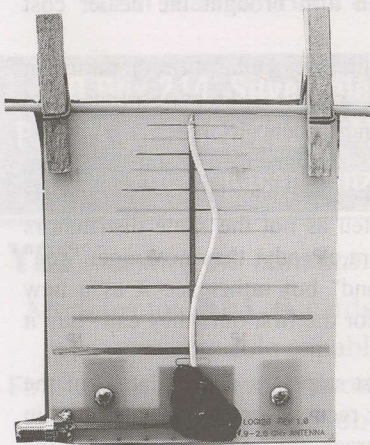
Some will see this as a first step in a consolidation of the market - not necessarily fewer receiver options at this point in time but certainly more sources for receivers bearing the "Strong" label. The good news is with more of a specific brand and model in circulation, backup service becomes less "iffy" and the ultimate selling dealer and consumer will both benefit from this.

The downside of this is that products which are not sold with suitable profit margins are destined to become less and less on offer. Have you tried to find a 0.6 dB low noise Ku-band LNB (not LNBf) recently? Or a 3.7m dish with sufficient ruggedness and structural integrity to withstand cyclone winds? I can pick up the telephone and order 100 "gold cards" and charge them to my credit card. I can't locate a 0.5 or 0.6 dB noise figure Ku-band LNB for any price from anyone, anywhere (although I have found some off-brand Asian LNBs which claimed to be 0.5 dB but in fact are closer to 1.0 dB!).

These are changing times. Staying in business requires that you be smart, quick to realise when the conditions are changing, and carry a willingness to adapt. Good luck to you.



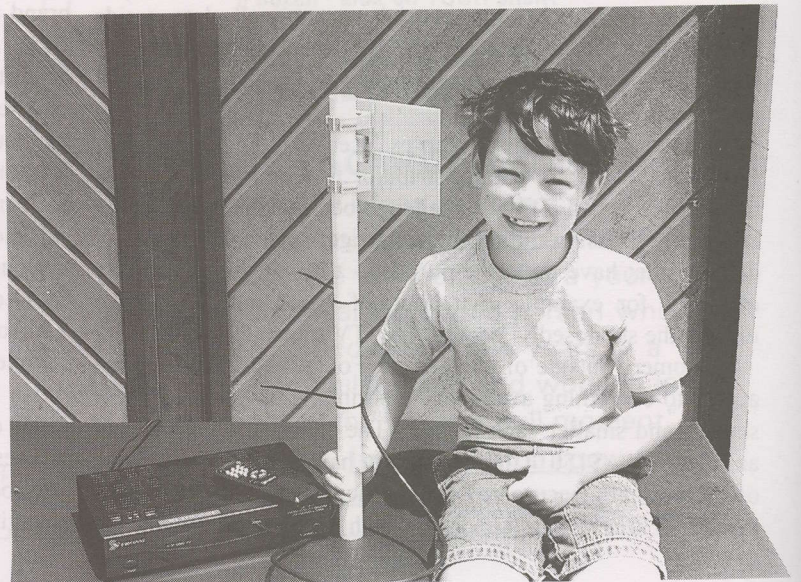
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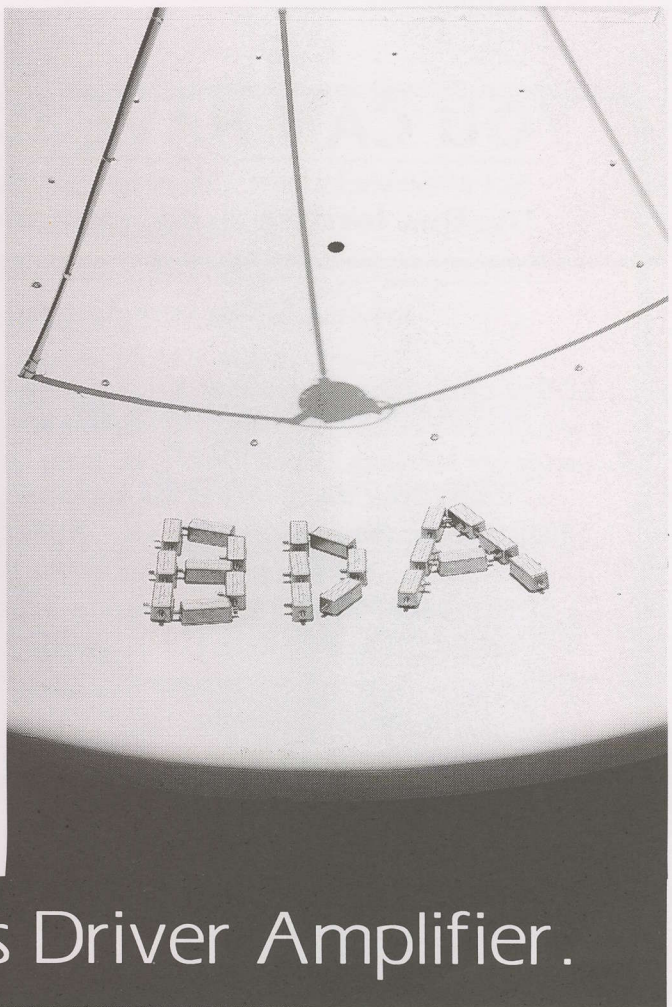
SDStv.com Active Logis take all of the work out of creating your own L-band transmission systems. By providing 21 dB of gain (passive logi gain + in-built 15 dBg low noise amplifier, directly matched to the logi), SDStv.com builds "system gain" into the least obtrusive end of the circuit - *the receive end!* This allows you to keep ""radiated power" down without any sacrifice in system signal to noise ratio (S/NR). Our Active Logis are going to some pretty unusual places including the tropics so we "humidity and environment" test them in moisture condensing plastic bags to ensure they will work before, during and after a soaking!

LOOK how simple it is! (1) Unpack the Active Logi from its shipping bag, (2) Attach Active Logi to any suitable mast (such as schedule 40 25-34mm PVC) with antenna's "Snap-On" clamps, (3) Connect your own RG6 F-both-ends cable from female F-connector on Active Logi to LNB input F-connector on any standard satellite receiver, (4) Turn-on the satellite receiver, tell it to "power" the Active Logi (14 or 18V) and set to correspond to SDStv.com L-band transmitter parameters, (5) Connect TV set to satellite receiver. That's it!

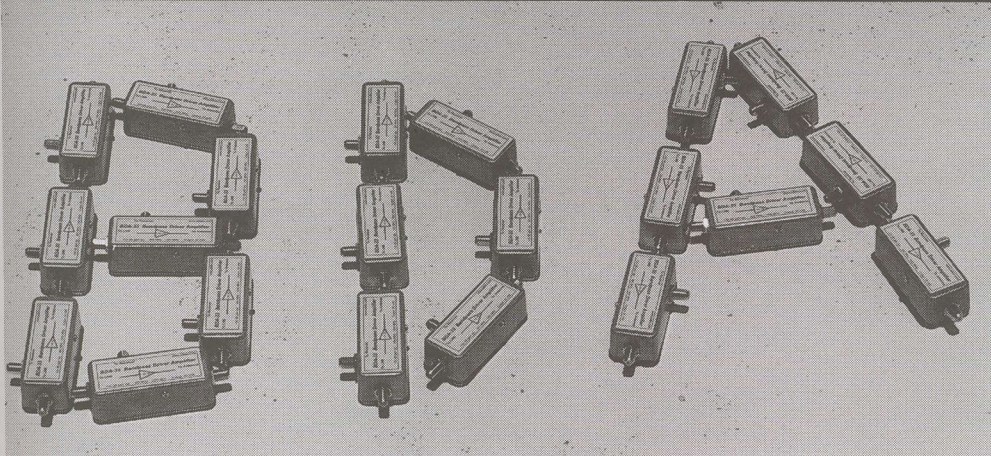
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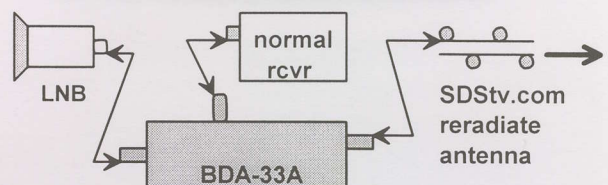
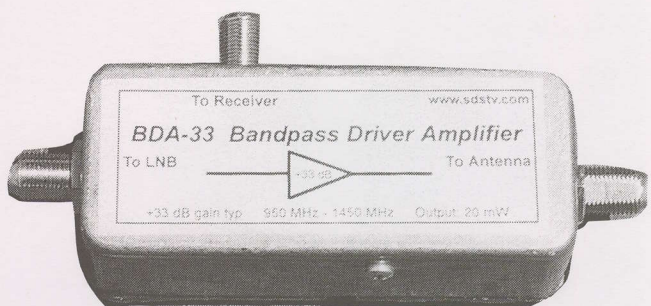


BDA. Bandpass Driver Amplifier.



BDAs are the neatest thing since sliced bread. Think of it as a "signal diverter" that grabs off a tiny amount of LNB signal on the way to your receiver, amplifies it, and then using an SDStv.com antenna relays the entire LNB output band to a distant point, through the air, **without cable!**

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SDStv.com order/pricing on next page

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Use this form to order equipment, solicit additional information

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- SDStv.com 20 mW Starter Kit - X003.** Same as above but substitutes R-003A "Active Logi" with 21 dB package gain for receive antenna. US\$358 + Air Parcel Post/Fed-X charges.
- SDStv.com Passive Logi antenna.** 6 dB gain over frequency range 950 - 2500 MHz, 75 ohm, F connector installed with mounting snaps. 1 - 6 US\$25 each; 7 - 24 US\$22.50 each. Quantity required: _____
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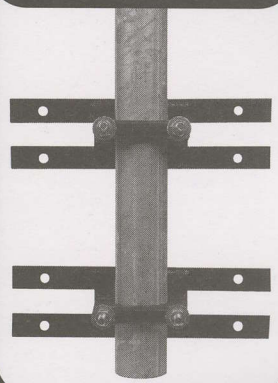
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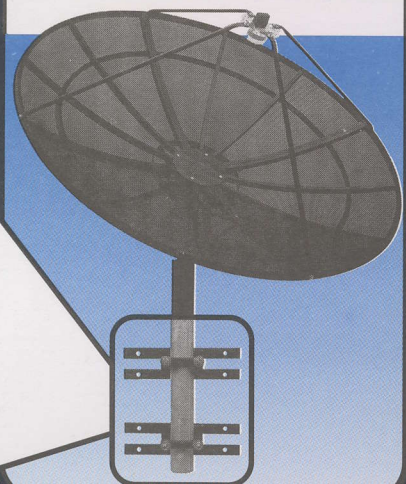
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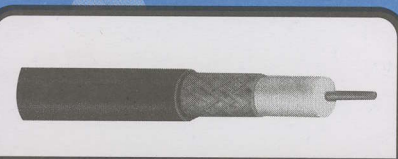


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