

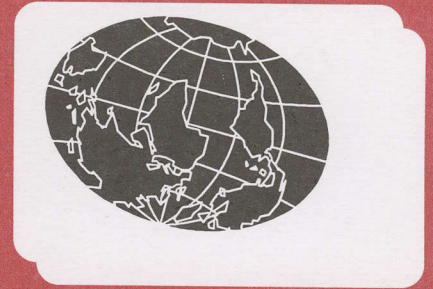
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Bob Cooper's

February 15 2000

SatFACTS

MONTHLY



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

IN THIS ISSUE

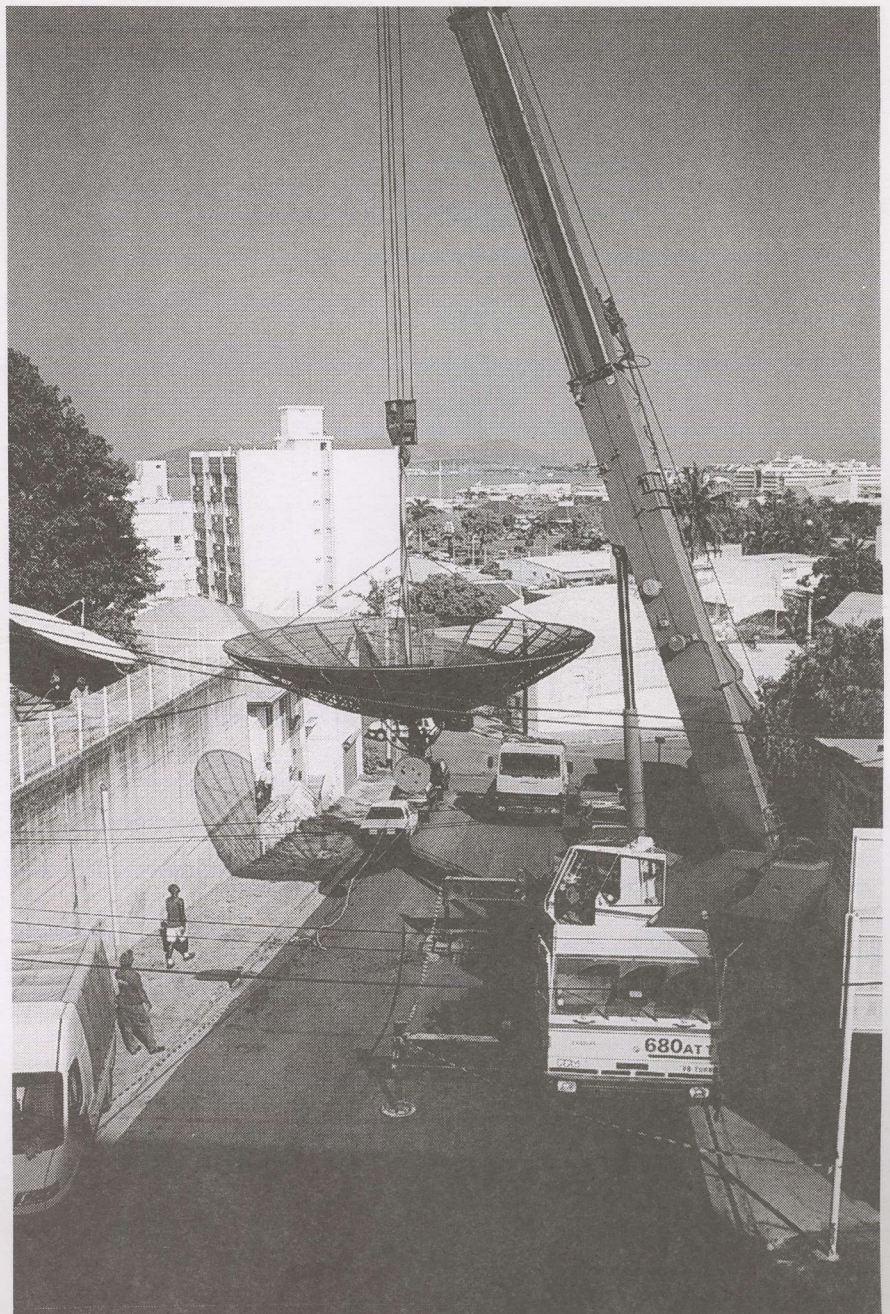
**BLACKSPOT
viewers get
ABA OK!**

**The Crooked
Road to DVB
Terrestrial**

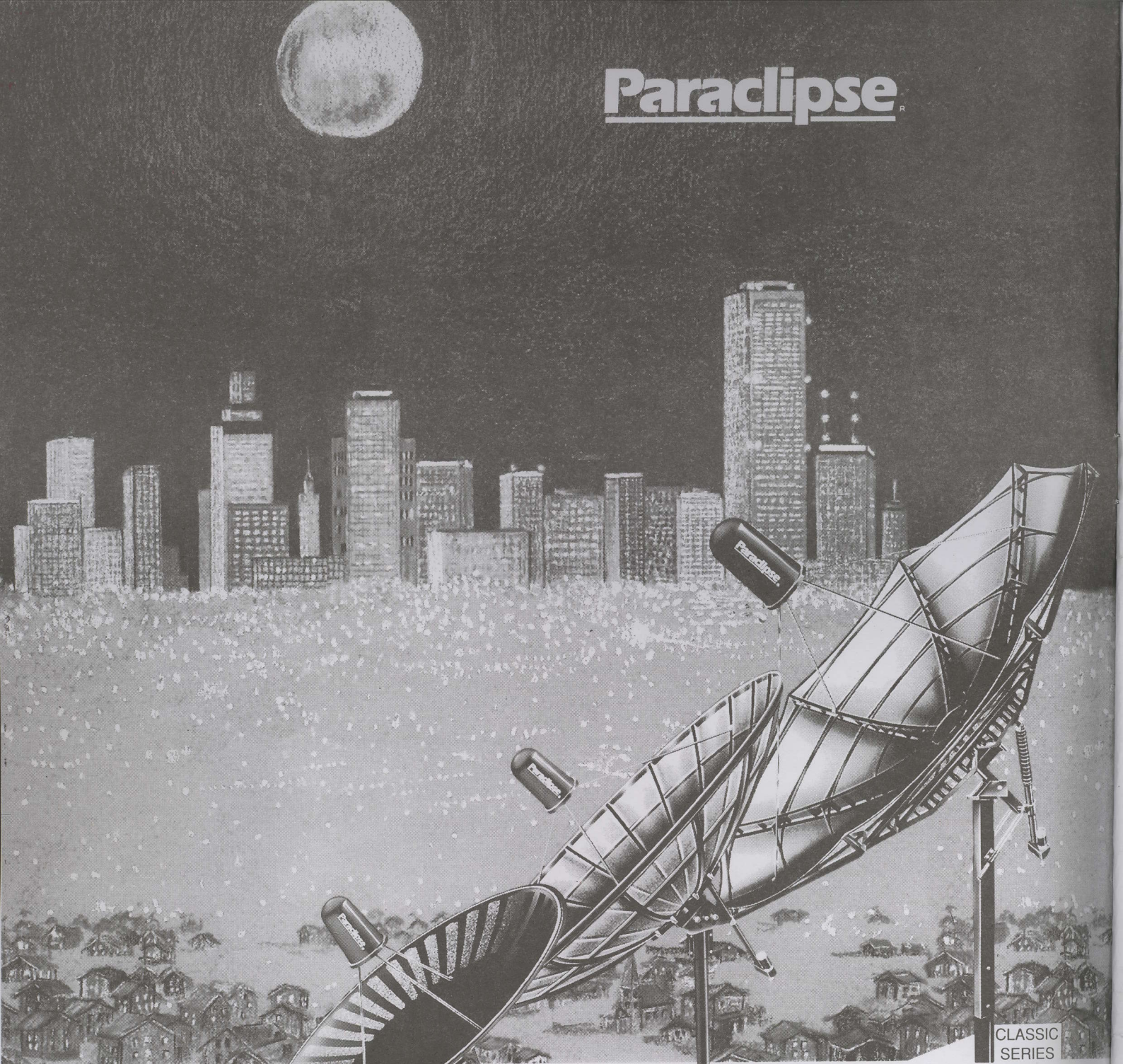
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- ✓ Cable TV Connection

Vol. 6 ♦ No. 66
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THIS is YOUR TV show -

Do YOU want it to continue???

It began during the planning for SPRSCS '99 - the 1999 industry trade gathering held in New Zealand last March. The concept was to create industry-topic television programming using the skills and resources available from within the industry. SPRSCS '99 provided an opportunity for "raw" TV material to be shot and eventually edited into TV programmes. Shows 9902, 9903 and 9904 were the result.

Initial distribution was to be via SPN (then on I180E) and KIBC (then on AsiaSat 2). When programming went to air in July 1999, SPN was history while KIBC lasted until early October.

By November SPACE Pacific Report was running on Mediasat each Sunday and Westlink Monday, Wednesday and Fridays - a total of 6 showings each week for Australian, New Zealand viewers.

Nine one-hour shows have been produced to date, a 10th is ready for final editing. Initial funding has been from commercial firms Av-Comm Pty Ltd, Satech and Sciteq Pty Ltd (approximately 10% of total cost to date) with the balance from SPACE memberships (at an average cost of A\$1,300 per programme). On air time is generously donated by Mediasat and Westlink.



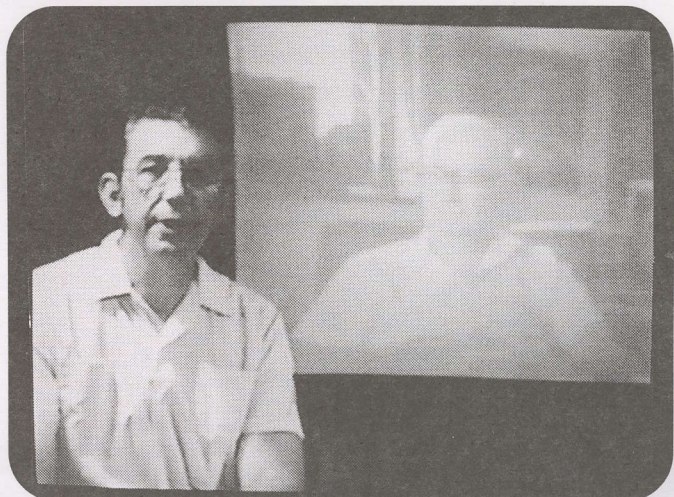
Pietro Casoar, Digitalsat in Melbourne walks you through mechanics of polar mounted dishes in SPR 9910 - currently awaiting funding.

Further programme production will depend upon you!

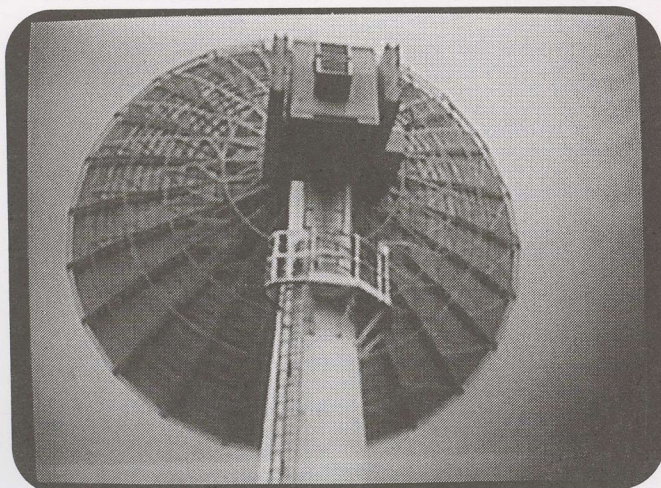
The primary benefits of SPACE Pacific Report are to viewers - like you. Call it "pay-TV" or "user-pays" if you must - but somehow the burden of paying the costs of these programmes must be carried by those who benefit the most. And that is the viewer.

We are asking for your support, to the best of your ability (see over page).

"Coop" interviewing SatFACTS reader Sir Arthur C Clarke in Sri Lanka on SPR 9901



How the money is used



RCA Uplink Tour (SPR 9906, 9907) gives rare intimate look at technology of uplinking.

All programmes are edited/produced in a Sony digital video format. However, more than 90% of the original material was shot in analogue and half of this from our archives is in NTSC format. Conversion first to PAL, then to digital, is step one and averages more than \$600 per show (NTSC archives are on 3/4" analogue, the tapes are old and frequently require hours of segment by segment conversion to get even 15 minutes of PAL format material). There is a valuable side benefit to this painstaking work - we are "restoring" and making digital 1970-1980 era tapes that would otherwise perish and be lost for all time.

Shows are scripted, rough-cut edited using time codes and checked for accuracy (by Coop) and then taken to a New Zealand video production house for show production-editing. Finally shows are placed on either DV or S-VHS format for shipping to Mediasat and Westlink where they are scheduled and run to waiting viewers - **you!**

**Costs average A\$1,300 for each one hour programme
- in a box to Mediasat and Westlink**

Which is where **YOU** come in. We are asking for financial support on a monthly basis (or one-off option, see below) to continue the creation of NEW programmes. How many programmes? That will depend entirely upon **YOUR** support. Note the various categories below - a "Trade Sponsor" has the option of being listed in new show credits as a contributing sponsor to SPR - that will allow you to deduct the "donated" amount as an advertising expense to your business. Let us hear from **YOU** - soon!

SPACE Pacific Report financial support form

YES! I want to support a continuation of **SPACE Pacific Report**.

- Put me down as a "Booster" at \$5 per month \$10 per month
- Make me a "Super Booster" at \$25 per month
- I will be a "Trade Sponsor" at \$50 per month \$100 per month
and for Trade Sponsors only - Please list me in future shows as a "Trade Sponsor"
- Here is a one-off support donation of \$ _____
 Charge to my VISA Mastercard as follows:

Card number _____ - _____ - _____ - _____ expires ____/____

Cheque/check enclosed

Your name (as it appears on charge card if using charge card)

Company _____

Mailing address _____

Town/city _____

your signature _____

Return to: SPACE Pacific, PO Box 30, Mangonui, Far North, New Zealand or fax to 64-9-406-1083

SatFACTS MONTHLY

ISSN 1174-0779

is published 12 times each year (on or about the 15th of each month) by Far North Cablevision, Ltd.

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

These messages are available to anyone willing to install 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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ERRATA

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COOP'S COMMENT

Approval and announcement by the ABA of a new, relaxed approach to authorising Aurora reception to "Blackspot" disenfranchised viewers is a watershed event. It is likely to become the major important event of the year 2000 for Australian TV viewers and equipment installers.

We first investigated this problem one year ago in SatFACTS. At that time, Imparja was showing aggressive signs of becoming a 'national' broadcaster by encouraging viewers located in "Blackspot" locations to purchase an Aurora equipment package and be authorised for their combination 9/10 network service. Imparja supported promotion of their service as far away from Alice Springs as Tasmania. Then it all crumbled when the ABA decided they lacked the legal authority to continue this procedure and ran to Parliament for assistance.

The initial ABA announcement, posted on their Web site February 1, looked promising but lacked many important details. We immediately went to the ABA press office seeking clarification. We had one major concern - that somehow in the ABA approval procedure, terrestrial broadcasters who stand to "lose" their claim to viewers located inside of the predicted terrestrial coverage areas, might somehow stop the ABA approval process.

Our worry was for naught. The new rules do not allow the terrestrial broadcaster to stop the approval unless there has been a deliberate misrepresentation of facts in the application to the ABA from the Blackspot viewer.

The ABA procedure is not complicated (we explain it in step by step fashion starting on p. 6, here) but it is unforgiving. You - the installer - must "prove your case" for ABA approval. That means you are required to "make reception tests" using an appropriate terrestrial TV antenna 10 metres above ground, record the results on a form provided, and justify the application with a subjective listing of the reception quality at the site. An early query from a NSW installer wondered, "Why if we provide signal level meter readings are we also required to provide an ITU Picture Quality - PQ - statement?" This sort of question worries us. This particular question was from someone who did not understand that you can have a very strong signal (such as 80 to 90 dBuV) and still not have a viewable image. Why? Multi-path ghosting, severe co-channel interference, even a loss of reception caused by a local interference generator such as a cross country power grid.

We've dealt with terrestrial reception technology in the past - but never at a purely basic level. If you are going to sell and install Blackspot systems and your background does not include difficult reception area terrestrial reception, you will be at a serious disadvantage! We can help and will begin a series in March designed to teach you why terrestrial reception fails. But the very best teacher will be you, going into the field with a suitable (all channel fringe quality) aerial and a 10 metre mast. Set it up, use a signal level meter to measure the actual signal levels, and a portable TV receiver (or spectrum analyser that combines signal level readings with on screen viewing) to inspect the quality of the reception. Ghosts, noise interference, co-channel interference (horizontal lines on the screen), herringbone pattern interference (from nearby radio transmitters) are all reasons for ABA Blackspot approval - without regard to how strong (or weak) the signal level may be.

Finally, our compliments to people at the ABA who responded to our last minute questions within hours of our submission. We were against a Friday close of business deadline for this issue and happily report ABA people continued answering our questions right through the weekend. This bodes well for your relationship with the ABA.

In Volume 6 ♦ Number 66

ABA Approves "Blackspot" site Aurora policy -p. 6
Roadblocks ahead for the digital conversion -p. 14

Departments

Programmer/Programming Update -p.2; Hardware/Equipment Update -p. 4; SPACE Pacific Report (MadMax is REALLY home) - p. 20; Cable TV Connection (Satellite footprint options); SatFACTS Digital Watch -p. 24; Supplemental Digital Data -p. 26; SatFACTS Analogue Watch -p. 27; SPACE Pacific Report - TV Show schedule -p. 28; With The Observers -p. 29; At Sign-Off (Towards a co-ordinated national rural area TV policy) -p. 32

-ON THE COVER-

7.5m coming down in New Caledonia (and then it went to the dump!) (p. 30).



February 15, 2000



LETTERS

Technophobic?

"There are many new problems in the world because of Internet - for example, would Rolf Deubel have become MadMax if there had been no Internet forum for him to invade? The spread of information is not always a positive thing. And the Internet is a bit like trying to water a garden with a fire-hose. Internet may do some good and be a valuable tool for less developed countries but the plague of constant viruses suggests it is an unhealthy environment. All of the current 'advances' in digital technology frighten me. It is as with most facets of life not the technology but what people such as Senator Alston plan to do with them. I am a strong believer in 'if it is not broken, why fix it?'. Australia's analogue TV system works well (although we all know it is not perfect) and the mobile telephone system worked until the Government attempted to improve it with digital phones. Until a transmission system can be proved to be better than what it is supposed to replace, there should be no plans to introduce it. I fear the transition to DVB-T will be the most frightening of all transitions we have attempted to date - even more so than Internet!"

AI, Queensland

DVB-T feedback

"After reading about the troubles in the USA with 8-VSB, and the similar problems with COFDM, I can see where a lot of people around Australia are going to get very upset with Government over the digital TV decisions."

Paul Hadlow, via email from Victoria

"I am 31 years old, not terribly pleased with what I have done with my life to this point. And I do part time TVRO installs, have completed Mark Long's SPACE course, and am very interested in this field as a possible life avocation. January's SatFACTS and companion CTD made up my mind. I can clearly see myself spending the next 10 to 15 years helping Australia make the transition to DVB-T. It will be the most exciting and challenging decade any of us in telecommunications have ever known. Thanks for laying it on the line and explaining so clearly what the technical problems are and will be. I've started a special savings account to set aside money to acquire a suitable terrestrial and satellite digital + analogue spectrum analyser and based upon your published reports in SatFACTS and Coop's Technology Digest, am actively scouring every Web site I can locate to stay current with the latest developments. Thanks for helping me decide what to do with myself!"

LG, NSW

Good decision, If we were 30 years younger, that is precisely where we would be headed as well.

PROGRAMMER PROGRAMMING PROMOTION

UPDATE

February 15, 2000

iCraveTV.com caved in January 29th to US Court order demanding they cease carrying US copyrighted television programming on their Canadian Web site (see SF January, p. 10-11). Reader Ken Grady, Sydney, reported, "*I had Optus cable installed January 28 and one of the benefits was high speed downloading of video services. I had no difficulty loading iCraveTV and the TV reception was very good, far better than a 56K dialup modem. For a memorable Friday, I had (NBC's Tonight Show's) Jay Leno sitting in a corner of my screen with excellent video and audio while I did other things on the PC. With RealPlayer 7 on double image size, the video quality was still excellent - at full screen, it was of course blocky. In the intended size, having 'real TV' stuck in a corner of the screen is a perfect auxiliary application. Perhaps if the USA stations can't be shown, the Canadian ones will come back?"* Perhaps. But US programming licensed to Canadian stations still carries US copyright. The shutdown of iCraveTV was timed to prevent them from carrying the blockbuster American "Super Bowl" football game on January 30. The court issued a temporary order to this effect, a full hearing on the merits of on-line video will be argued at a later date.

Mindport cautiously refrains from admitting their participation in the (second) Copyright suit filed in Thailand against admitted Irdeto card pirate Rolf Deubel but MPAA (Motion Picture Association of America) office in Bangkok defers to Mindport in Netherlands all questions concerning current status of Deubel aka MadMax. In email to SatFACTS, Andrew Curle of Irdeto Access writes, "*The authorities in Thailand appear to suspect that Mr Deubel has been involved in signal theft and the law in Thailand appears to be taking its course. I dare say we will see more such cases as the authorities around the world appear to be taking a progressively harder line on signal theft and the misuse of intellectual property.*" We incorrectly reported Deubel was "on the way home to Cape Town" in our January issue - based upon what his family there understood to be the case as SatFACTS went to press in January. It turns out he was moved from a prison to a less draconian jail, a move his family misinterpreted as a release to freedom. Deubel was in fact "in transit" when moved to the Satorn Road jail facility, as we report on p. 20 here. And - if you "like a mystery," there are no written records in court nor at the two jails showing Rolf Deubel was ever charged a second time or detained after November 3! *Yes, we are digging further.*

Speaking of Mindport - they own OpenTV and claim 4.5 million satellite IRDs world-wide now equipped with this software option. In the fourth quarter (October-December) of 1999, OpenTV *lost* US\$4 million, against same period total income of US\$8.4 million. Pretty small change - OpenTV is not exactly setting the world on fire.

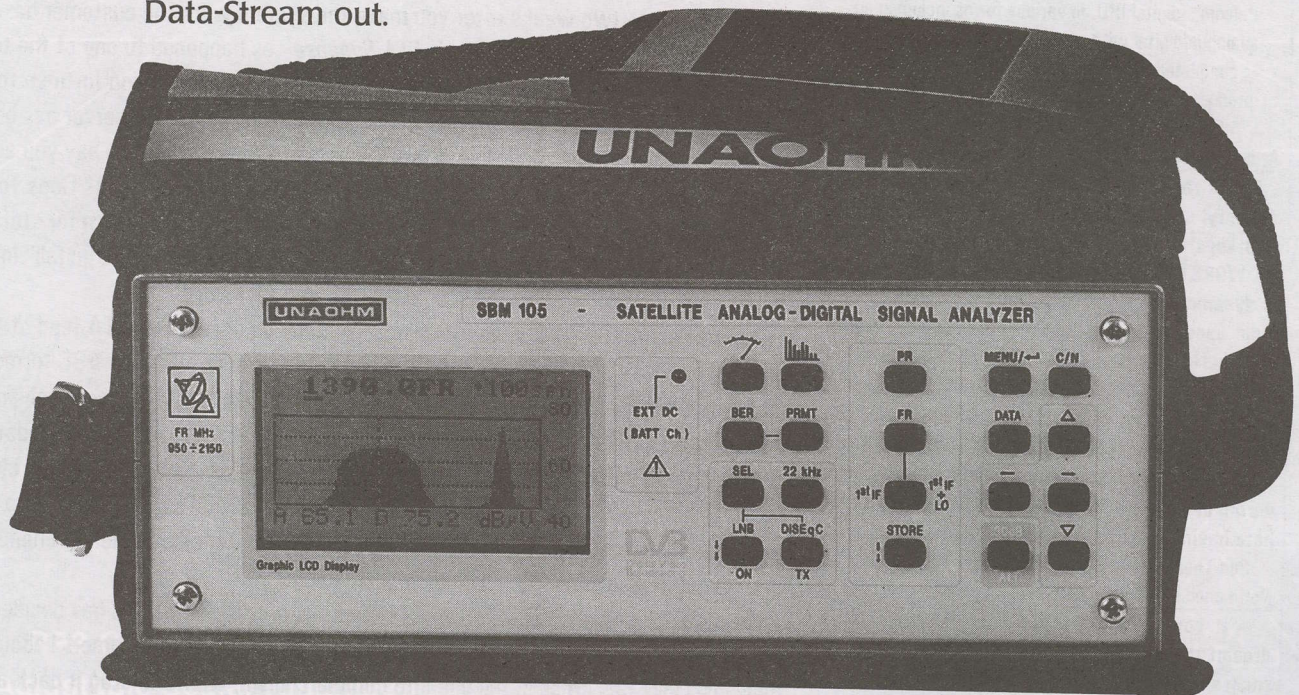
And a second French-Pacific service. French Polynesia MMDS service provider Tele Fanua is testing on I1802 (174E), 4061RHC, Sr 4.340, FEC 3/4 to determine feasibility of serving scattered islands with a pay-TV service. While competitor Tahiti Nui TV (TNTV) is planning a Ku band service on I701 (180E), using spot beam K2 (K1 is in use by Canal+ for New Caledonia) with an intended 11 channel pay-TV service and a late June start date. Related to all of this - existing RFO-Canal+ C-band link on I180LHC (4095LHC) is scheduled to reduce bandwidth significantly as a result of new Ku band services. Of interest - there ARE New Caledonia Canal+ viewers in the French Polynesia "out islands," perhaps of concern to the Tahitian pay-TV folks who fear an "invasion" into "their" territory. On February 10, tests to move the New Caledonia beam "further south-east" were scheduled. *Is there a war here?*

New SBM-105 DVB-Satellite Bit Error Rate & Signal Level Meter

Measures Single Channel Per Carrier and MCPC Bit Error Rate at 3 points, Analogue & Digital Channel Power, and Full or Partial Spectrum with marker!

100 preset storage locations. RS232 for connection to Printer, PC or Modem.
LNB supply, 22kHz switch, and DiSEqC, generated internally.
Automatic Carrier to Noise Ratio Measurement.
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Symbol Rate range 2-32Ms/s typical.
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Digital and Analogue worlds of measurement merge with Spectrum Analysis in the new Unaohm SBM-105 Satellite TV instrument. Dish peaking to signal distribution, Digital and Analogue, even mixed dish-sharing installations can be accurately set up with the SBM-105. Finding a satellite is easy and optimisation of LNB skew for rejection of the opposite polarity is simple in Spectrum mode.

Bit Error Rate mode provides simultaneous access to parameters of Symbol Rate, Forward Error Correction Code Rate (automatic or manual), Centre Frequency Offset, Lock status and Power index to permit proper signal Lock and BER measure. Coverage of the entire range from error free to beyond picture drop out is assured as the SBM-105 measures instantaneously (i) Channel BER, (ii) Post Viterbi BER and (iii) a statistical count of damaged packets after the Reed Solomon stage, RS Uncorrected. Signals including SCPC typically from 2 to 32MS/s can be locked and BER measured. Video Polarity (automatic or manual), Power Index, tuned IF or actual downlink frequency, and Preset number also show in BER mode.

Spectrum mode shows the entire band in one sweep whilst Expanded Spectrum provides practical views of 500, 300, 100 or

50MHz. Frequency marker at span centre tracks the instruments tuned frequency. Sweep speed is selectable to show greater detail.

Signal measurement mode provides a Bar Graph indicator for dish peaking with simultaneous digital displays of Digital Channel Power and Analogue Signal Level indications. Sensitivity down to 43db μ V allows the weakest of signals to be detected.

Connections provided include Transport Stream Out for MPEG2 decoders, an RS232 Data port for printer modem or computer, and an RF In and Out loop through that enables real time use in series with a satellite receiver.

The graphic matrix LCD employed in the SBM-105 is readable in direct sunlight or low light. A high capacity internal rechargeable battery is included with a 2Amp Battery Charger, that is also capable of running the instrument continuously. Housed in a compact and portable case, SBM-105 comes complete with a nylon-based field case complete with accessory pocket and shoulder strap. An innovative instrument, SBM-105 provides Unaohm quality at a modest price.

See Bob Cooper's reviews in SatFACTS Dec '99 & Jan '00.

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The fun is gone?

"Just a note to advise I am no longer working with Systec Corporation (Japan), the company which took over the PALCOM crew one year ago. They are nice people but ... just not my cup of tea! After one year of 'sarariimaan' existence and no (new) digital receiver in sight, I have decided to wrap up my PALCOM banner. The industry has changed in recent years, beyond recognition. And I wonder whether there is still any fun left in it."

Rainer J. Pitwon, formerly PALCOM

Palcom - the brand name and the various analogue receivers that carried it - will now become revered collector items. They were unique receivers with uncommon features, and exceptional performance. Palcom's digital IRD, in various forms including an analogue/digital with positioner model, never quite completed the journey from drawing board to production. We'll miss the Palcom innovation and Rainer's incisive insight into our industry.

At best, at worst

"(Your report on iHUG connection to iCraveTV in January) said our service AT BEST (would deliver 400 kbps) when in fact I would suggest you say AT WORST (it is 400 kbps). This satellite service is dynamite for those with lack of access to real high speed Internet and works like a charm anywhere in New Zealand or Australia. I personally have been able to download files at rates in excess of 1 mbps although we tell subscribers to expect a nominal 400 kbps. Most Web servers are still not capable of 400 kbps during peak hours. Invariably, customers of Satnet hate having to go back to just a POTS service."

Ron Theaker, Manager, iHUG Digital TV, Auckland
Not named by an Australian?

"It could not have been an Australian who dreamt the TPG service name 'Boomerang' up - in Australian slang, it is a job not done well the first time such as an automobile repair when the customer brings it back a few days later with the same fault again!"

NS, Victoria

On the other hand perhaps it was a clairvoyant Australian!

Austar and cards

"I rang up Austar to request a card for my UEC receiver purchased for RABS reception. The lady accused me of having an illegal decoder and all I wanted to do was to give them some money!"

L. Wilson

If there is a policy at Austar allowing Aurora service users to subscribe without having to install a second IRD and antenna system, it is apparently not well known to their telephone sales people. Equally strange - Aurora viewers living in NSW have been / are being systematically contacted by Austar offering their pay-TV service. Setting aside how Austar would acquire access to the RABS user list, there seems to be less than a "complete circle" of effort on the part of the pay-TV provider.

Barter

"I will consider renewal if you stop printing information on piracy and hacking which does not give satellite a good name."

Anonymous, NZ

OK - only "happy news at 6PM" from now on!

HARDWARE EQUIPMENT PARTS

UPDATE

February 15, 2000

Who pays the bill? So you are hired by TPG or Austar or some other TV + Internet firm to make an installation. Part of your job is to open up the customer's PC, insert a satellite TV/Internet card, turn the system on and download the first satellite data stream. *Suppose* - the customer's PC is whacked and he doesn't tell you. *Suppose* - the card is stuffed and you can't figure out why the system won't work? *Suppose* - two weeks after you make the system work the customer has a bad PC day and claims you stuffed up his PC! *Suppose* - as happened to one of the test installs for TPG - you spend 3 hours trying to make it work, back and forth on the telephone with TPG and then discover - horror of horrors - the TPG server has been "down" all of this time? And there wasn't a data stream to read. You say you are going to be a "handyman installing TPG systems" for a flat fee of \$60? Does your insurance cover you in case a customer brings a claim against your firm for stuffing his computer? Are you prepared to turn what should be a "45 minute install" into a full day job because of the computer learning curve - for \$60???

Consideration by ABC being given to putting up on satellite an FTA feed of their new HDTV/SDTV service. Not a part of Aurora, but as a stand alone. ABC terrestrial analogue typically has ghost, low-signal level, ignition noise interference problems in capital cities CBD (Central Business District) regions. Their Government mandated DVB-T service will be a nightmare to untangle on a building by building, block by block basis. One answer: Cover everyone they can with terrestrial service, back stop that with a satellite feed as well to fill-in where the terrestrial fails. Is there a chance 7, 9 and 10 might also seem the wisdom in such a plan?

No plan. The newly elected (Labour) Government of New Zealand has decided that state owned broadcaster TVNZ will not convert to digital, "at this time." Labour believes TVNZ has crossed the line into commercialism, wants to drag it back as an ABC-type of public broadcaster and while they work out a plan to do this, ordered TVNZ's partnership deal with UK's NTL called off. TVNZ + NTL were planning to spend several hundred million dollars implementing DVB-T in New Zealand.

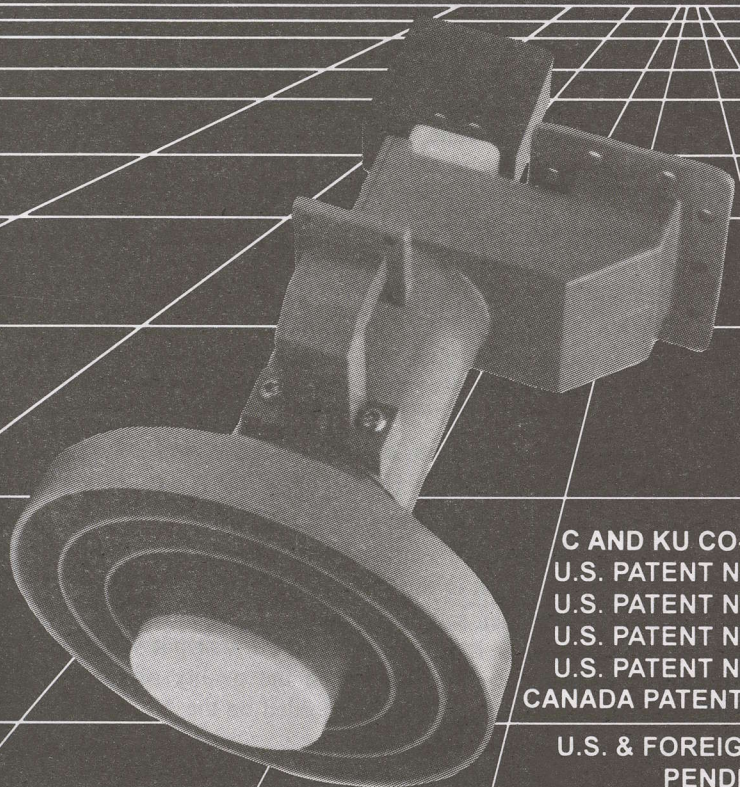
The thin line. Occupational Health & Safety is a major concern at Comet (installations). Installers have been forced to purchase, through Comet, bags of safety gear (nearly \$700 worth) to meet the Comet mandated standards. Comet says their standards are Australia wide, but in fact they are based upon worst-case scenarios in Queensland and NSW. And OHS is a "Code of Practice," not a law or regulation. Installers are concerned that if work place rules such as OHS are mandated, job assignments are dictated, work fees are set by dictum and they are required to purchase their raw stock (mounts, fittings, cable) from one source - *are they really subcontractors or are they employees?*

COFDM versus 8-VSB. As we summarised last month, backers of both techniques have strong arguments for their particular standard. Now comes well known to us Pace Micro Technology advising the US Federal Communications Commission, "if a U.S. COFDM standard were announced today, our belief is we could have DTV receivers/STBs on the retail shelves by the Christmas shopping season this year ... as low as (US)\$300-\$400. This is 50% less than the lowest U.S. DTV STB price currently available." This statement highlights a point nobody argues over - COFDM set-top-box (STB) receiving equipment created for SDTV (not HDTV - that's important for Australia) is *always* cheaper than 8-VSB equipment designed for HDTV.

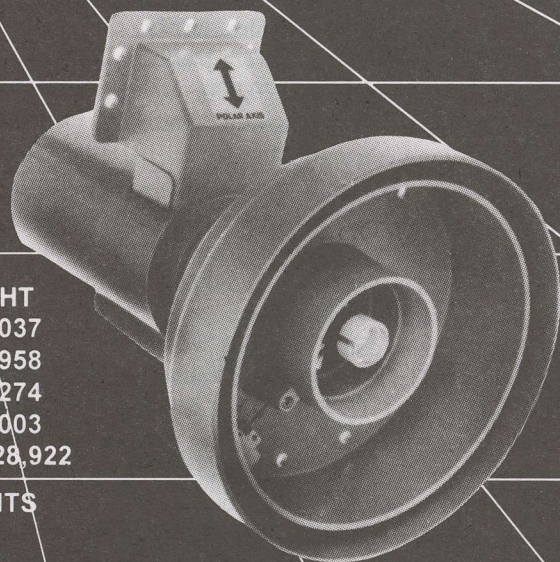
UEC 700 decoder failure for Foxtel. A sizeable 1uF chip-capacitor is being "stressed," fails shortly after IRD set-up. Solution - installers are to plug-in IRDs immediately upon arriving at install site. *Real* solution? UEC is working on it.

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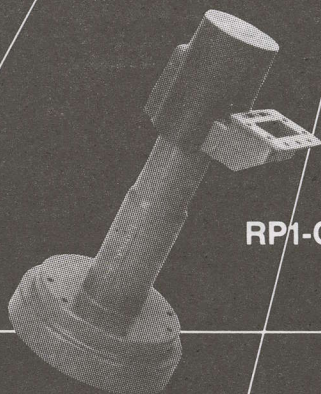


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- OPTIONAL: CO-BORSIGHT S BAND

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NEW ADL Web site - www.adlfeed.com

ABA GIVES GREEN LIGHT to BLACKSPOT AURORA HOMES

The premise was almost too simple. People who live where terrestrial television does not work should be allowed access to the 7/9/10 network signals via satellite. Was that not why Optus created the much maligned Aurora platform?

Aurora's distribution in Western Australia for GWN and WIN, and elsewhere of Central 7 and Imparja, was intended to be a transition for "outback" television from B-MAC analogue to MPEG-2 digital. At some point this transition became overly regulated, most complex, terribly complicated.

The actual number of Aurora platform IRDs now authorised is not public; some say 29,000, others suggest double that number. The one firm that would know is UEC as to date their 642, 660 (and currently 700) model IRDs have been the only commercially available home style (DTH) digital receivers in the marketplace. Whatever the real number, it includes more than 5,000 for the (Sky Australia) horse racing service and many groups in the 100 to 1,000 quantity range for specialised radio, data and TV networks.

The number could be twice what it is today had the ABA allowed "Blackspot" homes to subscribe to Aurora one year ago. As SatFACTS reported in depth at the time (see March 1999, p. 32 for a summary), the ABA was unable to decide whether one-off homes, unable to receive adequate off-air terrestrial reception, should be allowed to substitute Aurora network services. Alice Springs Aurora telecaster Imparja TV led the fight for a more "field-manageable" approach to determining who should (and should not) be allowed access to the Aurora services.

SatFACTS had suggested that a system be created to measure individual homes for terrestrial TV reception ability and where the test revealed the terrestrial signals were simply too weak, too impaired by ghosting or suffered from too much interference, certify this to be the case. Our concept was the installer could make these tests, following prescribed procedures which are time proven for this purpose, submit the results to the ABA or the individual broadcaster for approval and if approved turn on the IRD.

Going back in SatFACTS from February 1999 through July, one finds that this procedure actually did work - some homes were approved for Aurora reception, until the ABA had a change of tune in late June. "We do not believe we have the authority to approve such applications" was their statement "and until such approval is clarified (by new legislation), all such approvals will cease." Imparja in particular was wounded by the decision, having made a "run" on Tasmania and rural sections of Victoria between February and June promoting its service and assisting installers with the paperwork of individual approvals (see SatFACTS June 1999, p. 18).

Imparja appeared at "Field Days" throughout the country and acted like an aggressive telecaster intent upon buildings its audience base. Competitive regional telecasters took notice and complained to the ABA - charging Imparja with "poaching on their territory." In June, the ABA withdrew its Blackspot approval programme and ran to Parliament for a clarification. That happened on December 23, 1999 when amendments to the Broadcasting Services Act of 1992 were adopted, "authorising (the ABA to approve) reception of broadcast services outside of the licence area of the (stations)."

There are conditions to the ABA power:

"(i) That a person in another licence area is not receiving an adequate service within their license area; and

"(ii) the out-of-area service is provided to that person only to the extent necessary to ensure adequate reception by that person."

The procedure, as we understand it at this time, is as follows:

1) A contractor (that is you - reading this) makes known to a Blackspot viewer their satellite option.

2) The contractor is authorised by the Blackspot viewer to perform technical tests to determine the quality of existing terrestrial reception (this data is recorded on the "Assessment of inadequate reception..." form).

3) The Blackspot viewer signs the "Request for reception..." form, the contractor performing the tests of terrestrial TV signs the "Assessment of inadequate reception..." form by adding the phrase -

"I declare the details in the attached form

ASSESSMENT OF INADEQUATE RECEPTION OF BROADCASTING SERVICES to be true and correct"

and then printing the contractor's individual name, company name, full address, telephone and fax and email contacts and finally signing the form (see "Statutory Declaration," p. 8).

4) The package of forms is returned to: Director, Planning & Licensing, Australian Broadcasting Authority, PO Box 34, Belconnen ACT 2616.

5) The ABA will process the application. No indication at this point how long that will require but you can be certain that as the workload increases the approval times will lengthen (please keep SatFACTS advised of how long these are taking so that we might post this information here and on our Web site).

6) It appeared to us the ABA *might* do a preliminary study of each application, then notify the terrestrial station in who's "licence area" the Blackspot falls for some "comment." If this happened, we expected some lengthy delays in approvals.

Bottom Line

You can go out and sell Imparja + Central 7, or GWN + WIN even in capital city areas if you can prove a lack of adequate terrestrial reception - **today!**

Two Forms Australian Installers Need to Qualify Blackspot Viewing Locations

REQUEST FOR RECEPTION OF BROADCASTING SERVICE(S), UNDER A LICENCE OUTSIDE THE LICENCE AREA OF THE LICENCE, DUE TO INADEQUATE RECEPTION OF BROADCAST SERVICE PROVIDED BY A LICENSEE WITHIN THE LICENCE AREA

(TO INCLUDE A STATUTORY DECLARATION FROM THE INSTALLATION CONTRACTOR)

Director, Planning & Licensing
Australian Broadcasting Authority
PO Box 34
BELCONNEN ACT 2616

Request for out-of-area reception of broadcast service(s) due to inadequate reception

I wish to advise you that I am unable to receive a satisfactory signal from the following commercial television / commercial radio / community broadcasting service(s) within the commercial television / commercial radio / community broadcasting licence area(s).

Attached is a Statutory Declaration from my installation contractor, with the form "ASSESSMENT OF INADEQUATE RECEPTION OF BROADCASTING SERVICES". The contractor has indicated that there is no adequate reception of the mentioned commercial services at my location.

My most practical means of receiving adequate broadcast reception is via:

(tick) Imparja (All States except WA) (other)
..... Central Seven (All States except WA)
..... GWN (WA only)

for which I require the ABA's approval to receive outside of its licence area.

I declare that, to my knowledge, the information I have given is full and correct. I understand that the ABA will use the information I have given to assess my application and then, if successful, inform the out-of-area broadcast service provider(s) and the relevant terrestrial broadcast services for my licence area.

Yours faithfully,

Name Signature

Date Postal Address

ASSESSMENT OF INADEQUATE RECEPTION OF BROADCASTING SERVICES (TO BE ATTACHED TO STATUTORY DECLARATION BY INSTALLATION CONTRACTOR)

The statutory declaration must be completed by the installation contractor and include the following wording: "I declare the details in the attached form ASSESSMENT OF INADEQUATE RECEPTION OF BROADCASTING SERVICES to be true and correct."

CONTRACTOR:			
Name			
Business name			
Postal address			
Telephone contact / E-mail			
VIEWER or LISTENER:			
Name			
Address and location			
<i>Including latitude & longitude and physical address</i>			
Telephone contact / E-mail			
SATELLITE RECEIVING EQUIPMENT:			
<i>As proposed to be installed</i>			
Model			
Serial number			
Smartcard number			
Services proposed for reception*	Service 1:	Service 2:	Service 3:
RECEPTION QUALITY:*			
<i>Television and FM radio reception to be measured using a dedicated aerial 10 metres above ground level.</i>			
Broadcasting licence area(s)			
Currently licensed commercial services *	Service 1:	Service 2:	Service 3:
Transmission site			
Field strength at viewer's location			
ITU (Television) Picture quality PQ scale (1-5)			
Description of reception in words (eg 'No picture,' 'Severe ghosting,' 'inaudible') *			
[AM Radio; please provide description of day and night time reception]			

"Request to reception of broadcasting services..." (left) is actual application to ABA; "Assessment of inadequate reception..." (right) is technical description of proposed receiving site with "statutory declaration" to be attached. Full forms available from ABA at freecall 1800-810-241, via email SatelliteTV@aba.gov.au quoting "DTH satellite reception" in subject line. See text about Statutory Declaration.

Indirectly, the terrestrial TV stations will be gaining valuable insight into "holes" in their terrestrial coverage from these requests and might plan their own terrestrial TV coverage improvements to correct for such "holes" under some circumstances.

Note that on the "Assessment of inadequate reception..." form, (above) the contractor must specify the following:

- 1) Model of intended IRD
- 2) Serial number of same
- 3) Smartcard number

It makes some sense to provide all of this information at the time of the application - eliminating further exchanges with the ABA to supply this data after the approval is granted. In theory, when granted, the Blackspot viewer will know he has been approved because the requested satellite services will "suddenly be there."

Unfortunately for the contractor, this means setting aside a specific IRD and a specific smartcard for that IRD at the time the application is submitted. If the approval process stretches out weeks and then months, the contractor will have to carry this equipment in inventory, unable to sell it to another, until

the approval comes through. There may be some ways around this. First, without respect to this new approval process, contractors have the right to sell home systems for Aurora to deliver ABC and SBS anyplace - even suburban Sydney where off-air signals are adequate. If you can convince your customer of the likelihood their Blackspot application will be approved, the installation can be completed with the specified IRD and smartcard even before the application is filed.

If no approval is granted...

Until many hundreds of applications have been approved and we can judge the skills of the ABA to make this work with a minimum of delay, there remains the possibility that individual applications will fail to gain approval. The ABA admits this in their release. It says:

"The Amendment Act allows appeals to the Administrative Appeals Tribunal for the review of a decision by the ABA for either:

- the licensee seeking to provide a service, for refusal of permission; or
- the licensee within the area, for the granting of permission.

This does not suggest the applicant or contractor has a "right of appeal." Concerned, SatFACTS went to the ABA February 4th with some questions.

We asked...

"Under the Administrative Appeals Tribunal, it appears the broadcaster being relayed via satellite can appeal if the ABA does not approve the application. It also appears the terrestrial broadcaster, within who's 'coverage contour' the Blackspot viewer lives, can appeal if the application is approved. Does this mean that the viewer - the person most affected by the procedure - has no right of appeal should the application NOT be approved?"

The ABA answer:

"You are correct. The legislation restricts appeals to the broadcasters. The legislation is framed in terms of the regulatory obligations to and of the broadcasting licensees. However, any decision made is also subject to the Administrative Decisions (Judicial Review) Act of 1997, and, provided the information provided meets the criteria the ABA will approve an application, subject to further checks in less clear cut cases. We have streamlined the application process to allow individual applications for services, rather than expecting individuals to apply to each broadcaster, then to the apply (separately) to the ABA and so on. A satellite broadcaster may, however, choose not to enable an ABA-approved application for service reception."

Checking on application status ...

We further asked:

"Will applications be assigned a case or trace number so that someone interested in the progress of a 'pending application' can contact the ABA to learn where the paperwork is and what is happening? Could there not be a file number system created and these numbers posted 'on-line' so that anyone who knows their own number could check on the status using Internet, without having to tie-up valuable ABA personnel office time in running down status reports?"

The ABA answer:

"All applications received in the appropriate way will be registered by ABA records and thus the status of applications could be checked. However, the number of applications expected (several thousand) means that, while status enquiries will be possible, we have designed the forms to minimise the duration of each approvals process, while meeting the obligations of the legislation. Both the broadcasters (i.e. - satellite and terrestrial) and applicants will be notified in writing simultaneously (we suppose this is the way applicants will have a written acknowledgement of their application -

editor), and, while the broadcasters (may) require contact from each individual application to cross-check with the ABA's information, the broadcasters may accept telephoned or faxed notification." If you have further difficulties, see table of contacts on p. 10 here.

How processing works ...

We asked what happens when an application is received by the ABA. Their answer:

"We will check each application for completeness. There are four points of signal description: (i) signal strength, (ii) ITU picture quality, (iii) physical description of service received and (iv) the likely cause of poor reception. We will also check the location against our maps."

Is ABA approval the formal approval or can the telecasters intervene?

"The terrestrial broadcaster has no power of veto, it may only challenge the ABA's approval process. The notification to the terrestrial broadcaster is a courtesy allowing them to check the data against their own (signal) coverage knowledge.

"The satellite broadcaster may also challenge, if the ABA refuses to approve an application. Conversely, the satellite broadcaster is also entitled to not enable the smartcard."

When the ABA sends out the notices to the terrestrial broadcaster and the satellite service provider, a simultaneous notice goes to the Blackspot viewer. Receipt of this approval means the viewer is now able to contact the satellite service provider to ask, "When will you turn me on?" The ABA sees the Blackspot viewer contacting the satellite broadcaster as a "simple cross-checking confirmation process from two separate sources; the ABA and the individual."

The ABA goes on to say, "The information from the two sources should match and thus, the satellite broadcaster will be able to enable delivery of the programming at the earliest opportunity. If there are turn-on problems, this can be resolved via the same broadcaster-client relationship that currently exists for all enabled viewers living in remote areas."

"The approval process has the advantage of spreading the burden of work: Placing the onus of proof and responsibility for securing connection (if approved) on the individual and the contract installer. This leaves the satellite broadcaster free to cross-check the information and enable the many services ASAP. The ABA is left with something of a bureaucratic process, even if we have tried to limit the information handling sequence (this is what the legislation requires). And while each approval should be very quick, it will be numbers of applications that cause whatever delays as may occur. We will do our best to meet the likely demand in an efficient and timely fashion."

**END POOR QUALITY
TV RECEPTION FOREVER!**

ABC· SBS· 7 Network· 9 Network· 10 Network

A January decision by the ABA has given the green light to correcting "Black Spot" TV and radio reception with the amazing, new, Aurora satellite service. Eight + channels of television, more than 20 radio services all static and interference free via satellite! No more ghosts, no snow - just studio perfect images and sound 24 hours a day.

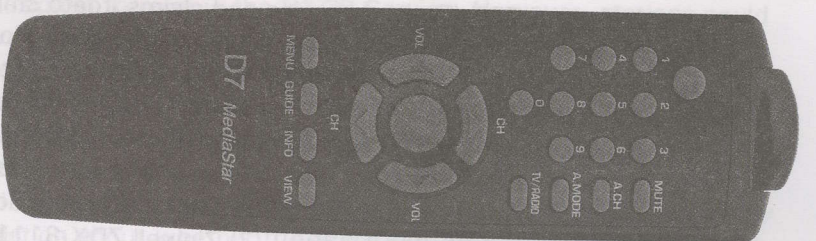
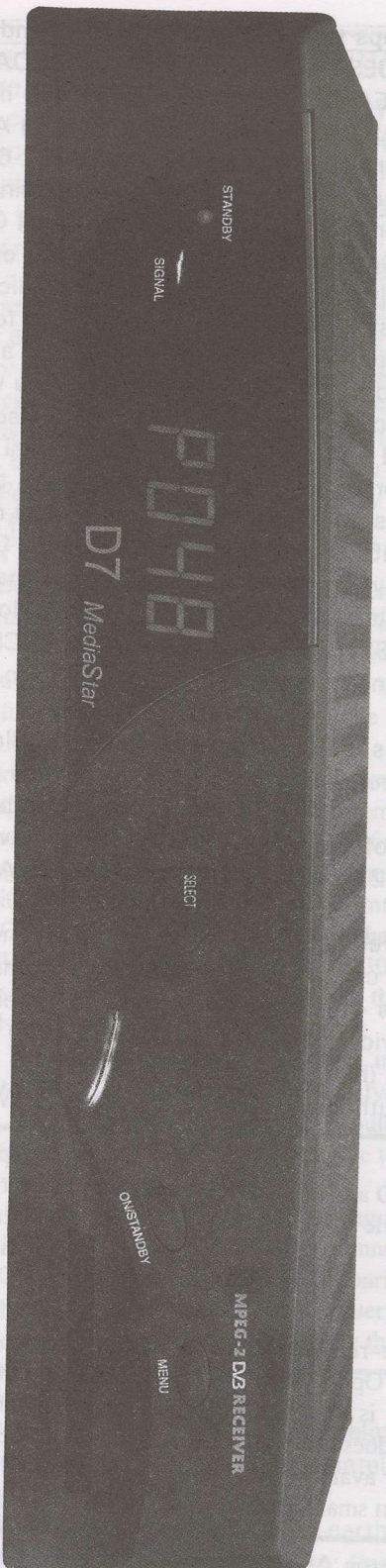
No monthly fees - a one-time installation charge for a small satellite dish and associated equipment installed by our professional staff. State of the art digital equipment on a service provided by Optus.

Our business is getting you turned on to satellite TV!
We do ALL of the paperwork, and the installation.

No More Snow Pty Ltd.
Telephone 999-9999

Step one - let your marketplace know about this new service by placing advertising in the papers.

The Most Advanced Free To Air Digital Satellite Receiver D7-MediaStar



- MCPC/SCPC 2-36 Msym
- Direct channel selection from channel list
- Channel Edit menu Delete, Skip, ON.
- Fast response when changing channels
- No channel over-write
- 200 Video 100 Audio channels
- Automatic search and download
- 22 KHz switch

- PID Menu
- NTSC/PAL Auto switching NO NTSC Glitch
- NTSC converted to PAL-60Hz Free Option
- Audio L, R, Stereo selectable via remote control
- RF Modulator PAL-G, VCR/TV Scarts, RCA Audio/Video, SVHS outputs.
- 90-265VAC-50-60Hz power supply
- Low threshold performance



MediaStar Communications International
24 Bosci Road
Ingleburn NSW 2565 Australia

E-mail opac@bigpond.com
Tel ++61 2 9618 5777
Fax ++61 2 9618 5077

Steps to gaining ABA approval and services turn-on

- 1/ Secure correct forms (REQUEST FOR RECEPTION OF BROADCASTING SERVICE(S) UNDER A LICENSE OUTSIDE OF THE LICENCE AREA OF THE LICENCE, DUE TO INADEQUATE RECEPTION; ASSESSMENT OF INADEQUATE BROADCASTING SERVICES(form)) from ABA by contacting freecall 1800 810 214, telephone Michael Barry or Richard Longman at ABA 02-6256-2800, emailing request to Satellite TV@aba.gov.au and mentioning in subject line "DTH satellite reception."
- 2/ Secure Statutory Declaration form from local JP, the local CPS Office (previously known as Registry) or Attorney General's Department/NSW), Post Office or stationary store - 50 cents each.
- 3/ Complete both ABA forms. Have the Blackspot viewer applicant sign, date and with complete location and mailing address on the "Request for reception ..." form. This form when taken from the ABA Web site spills onto two pages which can be rearranged slightly to all fit on a single page. The "Assessment of inadequate reception..." form is completed by the contract installer. You will need to know the IRD make/model, serial number, smartcard number to complete the form. You will also need to perform a signal survey using a test aerial 10 metres above ground - detailing the measured signal level (preferably in dBuV - what? You do not yet own a spectrum analyser or signal level meter? Buy one - today!) The ITU (Television) Picture quality PQ scale is essentially the same as our P1 to P5 analogue TVRO reception scale - PQ1 is "watchable only with extreme difficulty" rising to PQ5 (perfect picture and sound). Obviously if you are reporting PQ4 or PQ5, the Blackspot viewer is not in a Blackspot for that particular channel after all!
- 4/ Complete the Statutory Declaration form by adding the following text to the form: "I declare the details in the attached form from ASSESSMENT OF INADEQUATE RECEPTION OF BROADCASTING SERVICES to be true and correct." Yes - this line must appear on the SD form. You must sign the form in the presence of a JP.
- 5/ Bundle up all of the forms and mail them to: Director, Planning & Licensing, Australian Broadcasting Authority, PO Box 34, Belconnen ACT 2616. Or, fax them to 02-6256 8615 after obtaining their permission to submit the forms by fax.
- 6/ Allow a reasonable period of time for approvals. If you have questions, contact Michael Barry or Richard Longman at 02 6256 2800 (they are at the ABA help desk for this project).
- ...
- 7/ When your customer receives notification from the ABA their application has been approved, immediately go to the telephone and begin contacting the various programmers which you requested on the ABA form. It is your responsibility to do this - the programmers are not likely to contact you, and they will not turn on the service for your customer until you have made this call.
(a) Imparja - 1300-301-683; (b) Central 7 - 07-4721-3377; (c) GWN - 1300-301-681 (same as Optus for authorising ABC et al); (d) WIN West 08-9442-3314

What about equipment?

There are two issues here; the IRD and the smartcards. Optus has approved only two home style IRDs at this point for Aurora use:

- 1) UEC 642
- 2) Panasonic TU-DS10

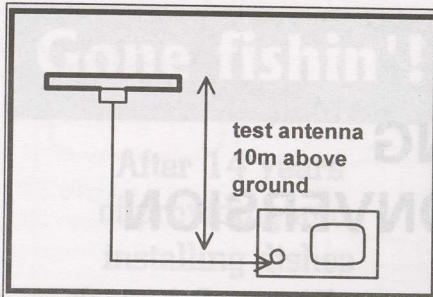
The UEC 660 and UEC 700 are reported to have various degrees of testing with the 660 "Optus Approval" expected first. The problem is the UEC642 is no longer manufactured (although some unsold inventory does exist in Australia) and the Panasonic TU-DS10 was never available except for a brief period in mid-1998 and then only in small quantities.

Optus would prefer that only IRDs which have been subjected to their testing procedure be utilised for Aurora, claiming that while other IRDs "may work" with the "present Aurora data stream configuration, future changes in the data stream could prove incompatible with these non-approved IRDs." We list all of the Australian IRD sources in the non-approved category known to SatFACTS in a table here. One or more of these may, ultimately, gain Optus approval - but don't hold your breath.

The smartcards are a more complex story and the truth is buried inside of the Optus' Aurora project. First there was the Aurora v1.2 (as in version 1.2) card. This card had limited

Non-Optus Approved IRDs claiming to work with Aurora services

- (1) Echostar D2500IP, a dual CI - common interface - IRD that can be equipped with one or two Irdeto CAMs (available through Sciteq Pty Ltd, tel 08-9306-3738); (2) Humax F1-CI imported for the Mediasat PowerVu format TRT (Turkey) service and claims Irdeto smartcard capability (requires appropriate Irdeto CAM). (3) Hyundai HSS800CI, dual conditional interface slots and will accept Irdeto CAM (IRD and CAM available from Kristal Electronics at tel 07-4788-8906);
- (4) Multichoice 660, South African version of UEC660 but functional with Aurora when used with v1.2 or v1.6 smartcards (see text, here) - available through Sciteq Pty Ltd at tel 08-9306-3738; (5) SatCruiser DSR101CI, can be equipped with Irdeto CAM for Aurora use (Skyvision at tel 02-6292-5850); (6) Strong/Hyundai new CI capable of Irdeto CAM and Aurora access, works with Australian programme rating system (Satech at tel 03-9553-3399); (7) Zinwell ZDX-8111 CI, claims to work with Irdeto when outfitted with CI TRDECK module (C&T Satellite Services, tel 07-3255-5211).



Steps to signal analysis
 #1/ Use reference antenna such as cut to channel dipole, 10m above ground
 #2/ Measure signal level and record; visual inspection of reception and complete ITU quality report

ITU 5-point scale of impairment
 PQ1 - very annoying impairments
 PQ2 - annoying impairments
 PQ3 - slightly annoying impairments
 PQ4 - Perceptible impairments (not annoying)
 PQ5 - Imperceptible impairments

memory capacity (some claim it can hold only 20 different channel ID authorisations for Aurora - identified in the system as "provider 10"). However, for provider "0," v1.2 cards are capable of holding 100 channel IDs - provider "0" is Austar and Foxtel. In December, v1.6 was launched which is believed to be capable of holding 60 channel IDs for either Foxtel or Aurora. In effect, v1.6 appears to have redistributed between the various services (Aurora and Foxtel are two of these - whether Austar and Foxtel are together or not is unclear) the memory capacity. Reports also say v1.6 cards have the capacity of holding 3 different providers.

None of this is really important - except that if you get the *wrong* card inside the *wrong* CAM, an IRD will not function. Optus attempted to download (through satellite) v1.6 cards installed in UEC 642 receivers during December and failed. An additional "test" was scheduled in January but apparently went unnoticed if it happened. Optus in early February told one installer, "it may be two months before an upgrade is available." The v1.6 cards were then reported withdrawn although one major source (Sciteq Pty Ltd) reports, "Only the v1.6 cards are currently available to us." A Western Australia dealer notes, "I have customers who purchased (second hand) authorised UEC 642 receivers but Optus cannot supply a card to operate these receivers at this time. If they want Aurora, they are being told, 'go out and purchase a *new* UEC receiver' with its distributor supplied smartcard."

Getting the right version card and the correct version CAM is essential for Aurora. The UEC 642 (or the Multichoice 660) with the v1.2 cards are known to work. One report tells us, "the UEC 700 distributed to Foxtel customers armed with a v1.2 card will only produce FTA service TVSN and the FTA radio channels." Another says, "The Optus cards will not work in the Foxtel 700 receiver - at all."

It is perhaps ironic that based upon reports to SatFACTS, the only Optus approved IRDs available in quantity (the UEC 642) does not work with the Optus created v1.6 card. The trick, then, is to get the assurance of the IRD supplier that his IRD with a CAM he either supplies with the IRD or recommends specifically to you will in fact function with the present Aurora platform.

And the tax question

All television equipment for remote area broadcast reception has been tax exempt. There are reports that even a 3m dish system equipped with actuators was allowed to be sold in commerce without tax being paid provided the user could attest of its use for the old-style B-MAC or newer Aurora digital platform.

Most Australian views at this point hold that Blackspot systems will be tax exempt as well. The argument goes like this: The Aurora platform is for remote area broadcast reception. It does not matter where the receiving location is located (even in downtown Melbourne) - only that the reception is a part of the (original) RABS project. Taxes of course can hover in the 30 percent range.

If this proves correct, there is a clock running because when GST goes into effect (July 1), all goods and services (including RABS type installations) will be taxed 10%. A clever person, after verifying that RABS exemptions extend to Blackspot systems, would promote "*Buy now - before the taxes hit*" as an incentive to have sales made before 1 July.

Positive vibes

Yes, there are teething problems. But quite contrary to past experience, ABA personnel are bending over backwards to be of assistance. In preparing this report, one ABAer even answered an email query from SatFACTS at 3AM on a Saturday morning. Now that is dedication!

History of the "tax question"

Sales tax exemption/exception: The rules were last altered in 1992 as relates to satellite TV receiving systems. Item 170 defines the standards applied to determine whether a satellite installation (equipment and services provided) are exempt or not.

Item 170: Satellite receiving equipment. General description: Satellite earth stations for use mainly for receiving the Homestead and Community Broadcasting Service(s). Note: Parts and accessories for these goods will be exempt. This will not include batteries. Change (1992): The exemption has been substantially reworked, but there will be no significant change in its coverage. Specific changes include:

- the existing law exempts an earth station designed to receive the H&CB Service. However, stations could satisfy that test and still be used exclusively or mainly for other purposes. To more clearly focus the exemption, it will now apply to stations when they are used mainly to receive that service.
- the existing law excludes satellites used exclusively for business purposes. This exclusion is maintained in the new law but the terminology has been significantly simplified.

Editor's note: Regardless of how your installation qualifies, the new GST regime to start 1 July will wipe out this exemption from that date forward and all hardware and labour charged for installation will be subject to the (new) 10% GST tax. If you have any question about whether the exemption applies to your installation or the parts you are purchasing for same, consult a local tax authority.

These ARE the "good old days"

CHALLENGES FACING THE DIGITAL TELEVISION CONVERSION

Instructor, author Mark Long in SPACE Pacific Show 9908 defines DVB as "Digital Video *Blunder*." As we reported in SatFACTS for January, there is now mounting evidence - so much that it is virtually accepted as fact - that both standards of DVB-T have significant problems with a number of artefacts. Ghosting, or multipath as we explained in January, is a major concern.

Digital was supposed to cure all artefacts. No more ghosts, no electric fence or ignition noise, no weak signal snow effects. And digital was expected to bring new benefits simply not possible with analogue - higher definition, wider screen displays, 3 to 5 channel surround sound, a long list indeed. And all of this depended upon one very basic law of physics:

That a VHF/UHF signal transmitted into the atmosphere from an elevated transmission site would arrive at the intended receiving locations and produce flawless digital images.

As of early 2000, this has not happened. We told you "why" in January. Now here are some often overlooked additional misconceptions about the transition to digital.

Digital is automatically better (than analogue)

"Better" is a poor word choice. "Better than analogue?" Does better mean a clearer picture, with fewer undesired artefacts?

Terrestrial analogue artefacts are quickly listed:

- 1) Not enough signal creates a degraded picture (snow - salt and pepper dots randomly appearing)
- 2) Signal arriving at the receiver from more than one direction (path between transmitter and receiving location) creates multiple on-screen images (ghosts), which may be combined with a lack of overall signal
- 3) Interference from electrical devices, internal combustion engines, create "static" producing black streaks, white blotches on the screen, more troublesome with weaker signal reception levels

4) Interference from other (not the desired) television and radio transmitters, producing horizontal bars on the screen that look like venetian blinds folding down (or up) over the desired image

In fact, when digital works according to the text book, it *will* correct *all* of these problems. The trick is to get digital "working according to the textbook." Because when digital does not work, *it does not work at all*. It is not possible to have snow, ghosts, static or interference from other transmitters appear on a digital screen image - because when these artefacts appear, the digital reception simply stops. Totally. It is a bit like claiming your child only brings home school test scores of 100% without mentioning that anything less than 100% is left in a trash can at school.

The sadly misinformed "public"

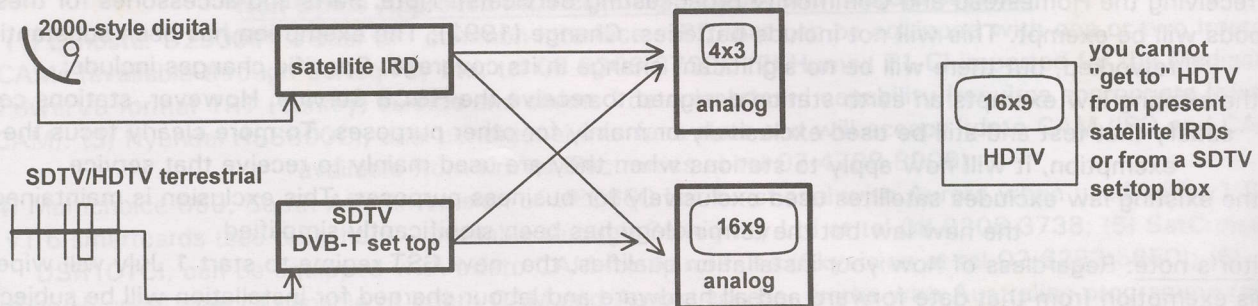
Digital TV is being promoted largely based upon eliminating the analogue artefacts, and, large screen, high definition, wide display images with multiple channels of surround stereo sound. Surveys of public opinion find the public "clamouring for this new innovation." There is the misguided matter of cost.

Politicians have exploited the "ultimate digital experience" by explaining all of the wonderful things it is *capable* of doing, and then tossing in the price of an SDTV set-top box as a carrot alluding to this being the cost of the full service. It is not.

Set-top boxes are basically the same device we now utilise for digital satellite reception. They:

- 1) Receive digital signals, process them, and
- 2) Create inside of the box an analogue format output signal that can be viewed (displayed) on any existing analogue TV receiver.

There is virtually no technical difference differentiating the satellite IRD from the SDTV set-top box. Here's a fact. Non-CA version satellite IRDs are now in the marketplace costing distributors less than US\$100. And that translates to under NZ/A\$200. This is important because for the same pricing level, an SDTV terrestrial DVB set-top box can also be manufactured. Pace Micro Technologies has advised the US

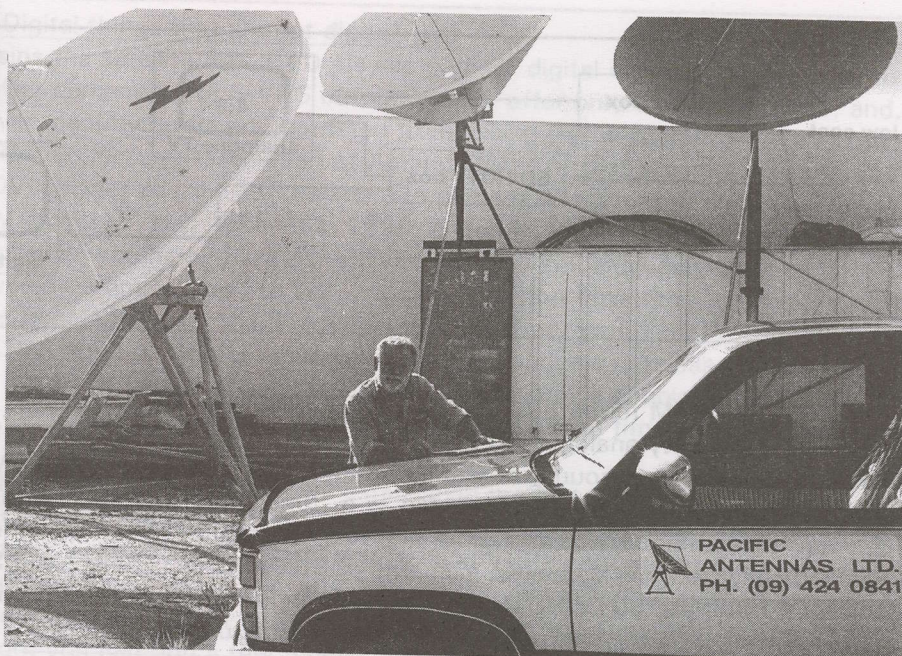


satellite broadcasters do NOT transmit HDTV, seldom transmit 16:9 wide screen and existing digital IRDs cannot process a HDTV satellite signal

Gone fishin'!

After 14 years
of providing and
installing dishes
from 1.8m to 13m
throughout the
Pacific -

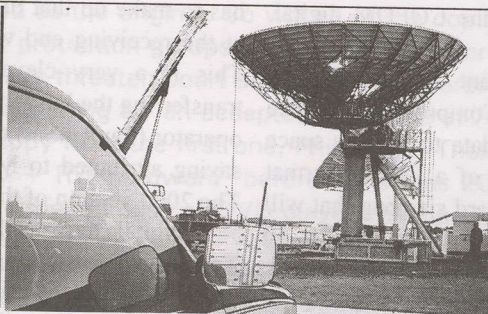
Bryon Evans'
Pacific Antennas Limited
is on the market.



A total operating established business with an enviable track record. Complete - all tools, a sizeable inventory of (Andrew, Patriot, R.S.I., Scientific Atlanta and other) antennas up to 6.5M in size, trailer mounted antennas equipped for demo or downlinking contract fulfilment, digital and analogue receivers, LNBS, feeds - first class (American) Chevy work vehicle, and work in process (real estate optional with on-site pads for dishes up to 13m in size!).

INCLUDES: Dishes up to 6.5 metres in size on operating rental agreements at well established, 4-A rated, client facilities. Ongoing commercial business with clients such as AAPT, BT, Prime TV, Sky NZ and many more. Spectrum analysers, full tool and field construction equipment - everything we have needed to go virtually anyplace in the Pacific to install antennas up to 13m in size.

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What we do: Pacific Antennas Limited is the leading satellite dish rebuilder in the Pacific. We purchase, refurbish, resell and install as required professional grade transmit and receive satellite antenna systems featuring some of the most creative mounting and tracking systems on the planet. This is a hands-on business with a dedicated professional staff available for new management and enthusiasm.

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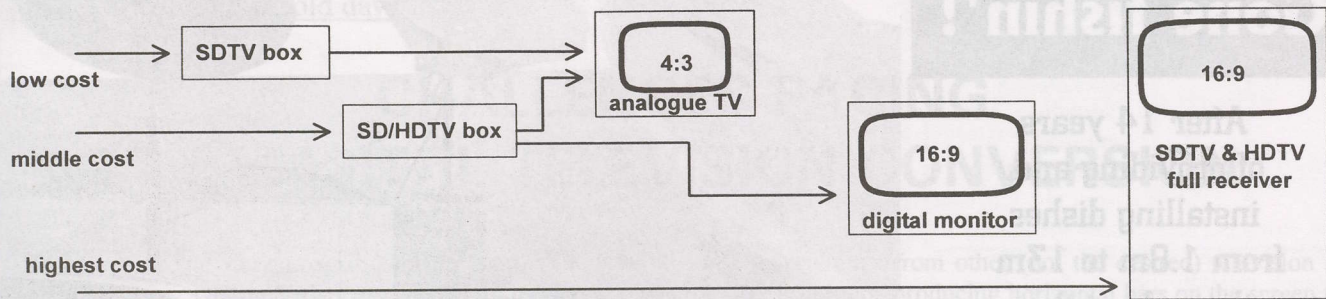
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Serious enquiries only - the present owner does not have time for dish thumpers who get in the way of his fishing!

* - includes rental contracts, all equipment

SatFACTS February 2000 ♦ page 13



The SDTV (COFDM format) set-top box is the least expensive transition to "digital" television - for viewers receiving a quality analogue service, it will look the same, may offer a few refinements such as optional camera angles, stereo sound, access to Internet type services. The SDTV/HDTV set-top box adds HDTV to the "translation" capability, can be used as a "tuner" in conjunction with separate HDTV monitor as a "step up" investment which will allow first real "digital thrupt HDTV" reception. Totally self-contained SDTV/HDTV receiver combines elements of SDTV/HDTV "tuner" and SDTV/HDTV "monitor" into single piece of furniture. SDTV/HDTV set-tops will range from 200 to 300% more money than SDTV (COFDM) only units.

Federal Communications Commission they are ready to deliver set-top SDTV boxes to the US marketplace "before this Christmas" for between US\$300 and \$400 (see p. 4, here). But, what is a DVB-T "set-top box?"

It is an "illusion" when sold for COFDM DVB-T. There is no way to get from a COFDM set-top box designed for SDTV to a high definition image. A set-top box is a translating device - it receives and processes signals in digital form, and then converts them to standard analogue so they can be seen on analogue TV receivers. It is a bit like dropping a 300 horsepower V8 engine into a Mini 1000 and not bothering to replace the transmission or other running gear. Digital reception viewed on an analogue receiver is still - *analogue* reception. It may have no analogue transmission artefacts, but the display which the consumer sees is not digital - it is analogue. That's what your satellite IRD does today, that is what COFDM SDTV set-top boxes are doing in the UK today.

In locations where UK viewers have high quality analogue reception, there are many who believe the pre-existing PAL 625 line format analogue is superior to the COFDM digital. There are solid reasons for this belief.

1) Any form of digital involves significant "compression" of the video information data stream. Compression is like compacting - it involves forcing more data to occupy space originally set aside for less data. Think of a kitchen format garbage compactor - you can turn a standard size bag that will hold 10 pounds of garbage into a saturated bag holding 40 pounds of garbage under pressure from the compacting tool. Garbage in - garbage out!

Compression creates its own (exclusive to digital) artefacts. The more a video signal is compressed, the greater the artefacts. One of the most annoying is "jerky motion" when a fast moving source image literally moves along the screen faster than the compression can compensate. The image briefly freezes, jerks ahead, and freezes again. Anyone who has watched digital satellite has seen this effect.

2) Digital television operators are selfish buggers. PanAmSat, for example, offers firms willing to transmit their information on a transponder using an FEC of 7/8s a huge discount over transmitting the same data at FEC 1/2. As SatFACTS has explained previously (April 1999, p. 6), there

is a 4.2 dB difference in received "signal level" between FEC 1/2 and FEC 7/8. Or to put that another way, at Ku band a 60cm dish operating at threshold with an FEC of 1/2 must be increased to a 1.05m dish if the FEC is changed to 7/8 (at C-band, FEC 1/2 at threshold requiring a 1.8m dish must grow to a 2.7m dish).

Terrestrial digital broadcasters have even less channel bandwidth available than do the satellite folks and they need to get as much data (compression) compacted into their 6, 7 or 8 MHz wide channel as possible to be profitable. So you can be certain that FEC rates adopted will be in the higher ranges (3/4 to 7/8) because the higher the FEC, the more data they can compact into the channel-width. More data means more programme service channels, more auxiliary Internet data delivery streams ... which means more income.

Now, in PanAmSat's case, their dollar incentive to programmers to accept an FEC of 7/8 is real. They know of course that if a programmer converting to FEC 7/8 from FEC 1/2 is going to be 4.2 dB weaker on the ground, that somebody has to make up that difference. In this case, it is the poor guy at the receiving end who is stuck to install a larger antenna. This is a very clever (if not fully explained) method of transferring the burden of adequate reception from the satellite operator (PanAmSat) to the user on the ground. Remember the saying attributed to Marie Antoinette - "Let *them* eat cake!" The 2000 version of that is "Let them install bigger antennas!"

Digital terrestrial is subject to the same basic rules. Terrestrial broadcasters who allow their bottom profit line to get in the way of their good engineering sense are leaning towards less friendly FEC parameters (New Zealand's announced DVB-T standard, by the way, is FEC 3/4).

When is digital really digital?

Some satellite IRDs have an "S-video/VHS" output socket on the rear panel. If you have a television receiver equipped with a similar socket, running a cable from "S" on the satellite IRD to "S" on the TV receiver will create the best digital/analogue reception possible *today*. This "S" to "S" connection bypasses the RF modulator in the satellite IRD, and bypasses the RF demodulator in the TV set. It is raw (S-format) video handed directly to the TV set. But it remains analogue.

Digital is digital when nothing analogue intercepts the transmission between the digital format origins and the TV

Digital things that are not digital - yet

DVD Players: Like their second cousins the satellite IRD, DVD players convert digital versatile disc movies to an analogue output. Some players offer component or S-VHS outputs, many offer only video plus audio, and, modulated (UHF) outputs. DVD player manufacturers are restricted from selling digital-output players at this time because of pressure from the Motion Picture Association of America (MPAA) that wants a piracy-proof digital linking system between the DVD player and the TV monitor - to prevent unauthorised digital copies of movies. Sale of "home theatre HDTV monitors" sky rocketed in 1999, driven by consumers who want bigger screen, 16:9 displays for their DVD movie watching, even if the DVD source is still analogue. When a piracy proof DVD to HDTV monitor system is finally ready to sell, watch out for the after market. Present generation players will be replaced as people discover the best video images of our time - HDTV DVD directly digitally linked to an appropriate HDTV monitor. Oh yes - this will also bring about a re-release of the early DVD discs as most were configured for SDTV viewing. Once again, the greedy movie people have discovered an entirely new way to sell and resell the same product over and over again, each time with a slightly different technical twist!

Home VCRs: You know when the end of a life cycle for an established product is near - prices drop dramatically as concerned manufacturers rush to clean up old inventories of specific-purpose parts, cabinets and attachments. Over the Christmas holiday period, brand new 4-head VCRs with stereo dropped to US\$49.95 in America and 2-head models were advertised at \$39.95 (actually less money than some pre-recorded tapes). 53 competitive manufacturers of analogue VCRs have agreed on a new "digital VCR standard" and if you look hard enough, you can find a few models already available. There will be no repeat of the Beta versus VHS wars that signalled the launch of analogue recorders. But will there be digital tape memory VCRs at all? Some believe not - that other than some early starters, the home recording industry will go from analogue tape VCRs straight to hard drive (computer memory) PVR (personal video recorder) technology. PVRs are impressive, and not that expensive for a start-up technology. Designers can stack memory to suit (typically starting at 6 to 10 hours total, climbing to 40+) and there are many special features not found on VCRs. For example, users can subscribe (\$10 or less per month) to a telephone modem connected service that will automatically programme your PVR to record any TV programme genre you wish. Like wrestling? Simply tell it so using on screen prompts and every wrestling show on TV will be recorded. A Lauren Bacall fan? Tell it so - every Bacall movie will be recorded. Plus, PVRs can operate in less than real time - if you come home at 8.15 and have told the machine to start recording at 8PM, you can join in watching from the 8PM recording start and actually catch up to real time before 9PM! Biggest negative? Archiving. Even with 40 hours of PVR hard drive "space," you will run out of room to record and be forced to delete programmes earlier recorded. "Recording inventory management" is a new catch phrase for the PVR crowd. And if you really wish to archive material stored in the PVR - read on.

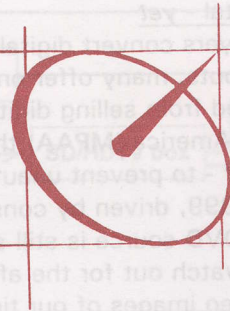
DVD + RW: DVD players only play. Recording on PC type discs has been the plan for half a decade, but only when they can hold enough material to make them competitive to VHS tape. There are other problems - that "copyright thing" again. VHS works because copies are self-limiting to a few generations. But sticking a digital data stream direct from a broadcaster or film source onto a DVD disc is "first" generation - that is the nature of digital, copies are as good as the original. So will all of the copies made from that first copy. Enter the MPAA and other copyright protection groups. Basically, "not over our dead body" has been their reaction. So while the rights owners threaten court suits if anyone dares offer such a system, most major consumer electronic firms are searching for an acceptable method of "encrypting" the data stream, to prevent anyone making a second copy from the first one. Philips and Thomson, two major consumer names, say they are coming out with DVD + RW hardware "before Christmas 2000." Unknown - whether DVD + RW recorded discs will play on the growing base of DVD players. Philips first said "Yes - on *all* models," later recanted and said, "Yes, on *most* models."

picture tube. Analogue is like the standard factory transmission in our mythical 300HP Mini 1000. It is a (very) weak link in a chain. In the satellite TV world, the very first "digital-thruput" receivers have just appeared in the USA, offered by the DISH Network operated by Echosphere. "Digital thruput" means that a satellite IRD will pass digital (not analogue) signals out of the IRD and directly to a digital television set equipped with the appropriate input connector to accept "baseband digital data."

There is no other "digital-thruput" IRD available today, from anyone. Therefore, owning a digital TV receiver or a digital TV monitor does you no good because you cannot locate the required digital data stream to feed to the receiver. If we

accept that digital TV sets (whether SDTV, or, HDTV/SDTV) are really coming, we must also accept that when this happens, the entire present universe of digital IRDs now in use (Austar, Foxtel, Sky NZ and the rest) will eventually have to be taken out and replaced with digital thruput IRDs. And until that happens, satellite viewers are not actually receiving the benefits of so-called "digital delivery" - they are merely getting "digitally-enhanced analogue" reception.

Recall that Pace Micro Technology is telling the US Federal Communications Commission, "We can deliver set-top boxes (for DVB-T) to the United States by Christmas for between \$300 and \$400 each?" You should also know that in



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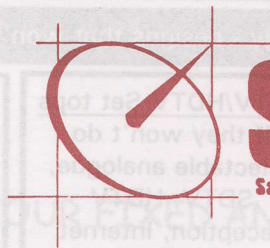
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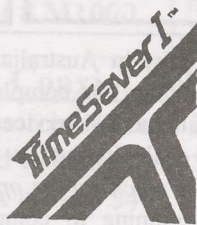
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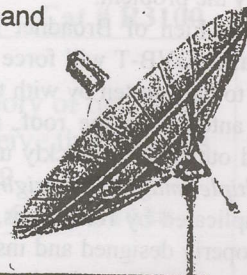
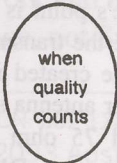
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Digital Satellite IRDs

If they won't do HDTV, feature a built-in PVR, do EPG or OpenTV or some form of electronic programme guide, won't do multiple format Conditional Access, won't allow access to Internet downloads and don't have a telephone line modem - they are history.

DVD Players

If they won't handle DVD + RW playback, won't record on blank DVDs, won't interface to digital data streams for external source recording and do not have a "data stream output" to directly connect to an HDTV monitor or HDTV set, and play "all regions," - it is history.

SDTV/HDTV Set tops

If they won't do selectable analogue, SDTV, HDTV reception, Internet data stream processing, electronic programme guide, on-screen ordering of products or programmes through a built-in phone modem, history.

Home video recording

If it can't be driven to record functions by an external programming service (forget the antiquated G-code!), won't allow instant access to the nearest second of a particular piece of video, cannot be seamlessly connected to the home PC, satellite IRD, SDTV/HDTV receiver - history.

Australia, SDTV set-top boxes are being cited as the "low cost approach to terrestrial digital reception." What this tells us is the so-called digital revolution is happening in stages. For some people, there will be a direct step from analogue to a true digital display receiver. For most people, there will be an intermediate step from analogue to set-top-box "digitally enhanced analogue" reception. The difference in cost will be significant - set-top boxes for US\$300-\$400 or full HDTV/SDTV wide screen sets for US\$5,000 and up. And all of this, of course, depends upon the ability of the SDTV and HDTV transmitters to deliver clean, ghost free images to either the set-top box or the fully digital receiver through an unfriendly atmosphere and over cluttered, difficult terrain.

Which presupposes ...

All of this is built upon the assumption that digital terrestrial reception can be rescued from its current very real delivery problems. In the UK, two major contracts have recently been let to rewire 85,000 flats with new "digital ready cabling." In the UK COFDM world, master antenna systems designed in the 50s and installed using then-state-of-the-art passive and active distribution equipment has proven to be totally inadequate for the distribution of off-air (UHF band) DVB-T. The Councils that own these flats are responding to public interest in digital, aware that their master antenna systems are not capable of digital signal distribution, and taking steps to rectify the problem.

Eric Fien of Broadnet International (NSW) believes the arrival of DVB-T will force (Australian) building owners who have to date gotten by with the sparsest of MATV installations ("an antenna on the roof, a broadband amplifier and series wired outlets") to quickly upgrade. Eric's point is well taken: "Multiple images can originate because the transmission path is duplicated by reflections, or it can be created in-house by improperly designed and installed master antenna systems that fail to properly maintain a terminated 75 ohm unbalanced distribution network. COFDM, all forms of DVB-T, have shown a very low tolerance for such mistakes. The task ahead is to show these building operators that where they have gotten by with shoddy TV reception in the past, with the arrival of digital it will be NO television reception."

There are real business opportunities here for savvy system designers and installers. Several hundred thousand "MATV

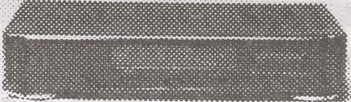
outlets" pre-exist in Australia. Virtually every motel, hotel, apartment building, flat complex and office building has been wired for analogue TV service. All will require some level of upgrading to deal with the low tolerance DVB-T signals.

"There is a much larger opportunity here. Just as DVB-T needs are beginning to come into sharper focus, building managers are discovering the need to consolidate satellite link connections as well. It is no longer competitive for an office building in the CBD (Central Business District) of Sydney to offer floor space without access to one or more satellite connections. Suddenly, in the last 12 months, rooftop space for satellite antennas has become a premium item. Currently, building managers want broadband distribution through one or at most two cables covering the frequency region 45 through at least 1,500 megahertz. Up on top, they want multiple shared satellite dishes capable of providing access to at least PAS-2, PAS-8 (Ku), some also want C-band and Optus. When you try to combine several satellite L-band 500 MHz bandwidths with VHF + UHF terrestrial TV, there is an obvious frequency versus bandwidth crunch. Some very creative thinking will be required to resolve these challenges."

All of this activity suggests a tremendous amount of turmoil and a greatly increased workload for that handful of capable people who have the knowledge, experience, test equipment and resources to meet the new demands of converting to digital. To date, much of the effort and energy has been spent in the low profit, highly competitive home DTH market. The DTH market is dominated by the "least common denominator" syndrome - work skills and pay scales plummet to the lowest qualified, least creative firms and individuals. An example of this is the \$60 per install offered by TPG for its Boomerang service and their repeated assurances that installers need be "no more qualified than those who install terrestrial TV aerials." We suggest they mean analogue TV aerials because the next generation COFDM DVB-T aerialists will require skills and equipment never before demanded.

And there is the reality that DVB-T, if it fails to develop for whatever reason as hoped will be fighting a battle for survival as a delivery technology within 24-36 months. The competition - satellite delivered digital and even Internet delivered television - will continue to make rapid strides. In the end, the consumer viewing public has no interest in "how" their TV gets to their living room. Only that it is there, it works well, and is dependable.

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Rolf Deubel is REALLY home

And it is doubtful he will offer his "services" to anyone in Thailand again. Deubel, also known as MadMax through his Internet promotion of MOSC (Modified Original Smart Cards), was arrested by Thailand police in mid-September and charged with violation of the 1994 Thai Copyright Act, as we have previously reported here. The suit was brought against him privately by Irdeto encryption system operator Mindport but his prosecution was by the ECID (Economic Crimes Investigation Detail) of the Thai police department. Deubel was held without bail, and was essentially sealed off from direct contact with his family and business associates for several weeks until SatFACTS ran down his court records and through sparse information obtained from an uncooperative Thai police department, the details of his detention.

On November 3rd, Deubel was brought before a Thai judge where he plead guilty to charges of copyright invasion. The judge ruled he could serve time in jail, or pay a fine. Using money borrowed from people he had met while in jail, the fine was paid. Instantly he was rearrested and charged anew with the violation of the very same act. This is quite "legal" in Thailand as long as the party bringing the charges is "new" to the action. The second time charge was brought by Thai pay-TV broadcaster UBC.

Deubel is a self-admitted MOSC supplier. His trip to Thailand was for the purpose of decoding the UBC data stream to allow creation of MOSC (piracy) cards for that market. It would turn out the UBC services are already widely pirated in neighbouring countries (Burma, Laos, Viet Nam) using MOSC technology supplied by competitors of Madmax (see p. 29, here).

Deubel's arrest was a coup for Mindport primarily because it served as a red flag to warn MOSC providers that

*i finally made it
Home!
Rolf*

programmers using Irdeto were not without their own resources to combat signal piracy. Deubel carried with him a lap top computer and inside, once in the hands of Mindport, were hundreds (some say thousands) of "contacts" leading to others interested in the same technology. Mindport's court approved confiscation of Deubel's lap top later extended to a South African court order that allowed his home PC to also be confiscated and turned over to Mindport.

Deubel's release has not been acknowledged by Mindport as this issue goes to press. He may have been released out of concern that a well documented major heart condition, reported first by SatFACTS, combined with the questionable sanitary and health conditions of the Bangkok facilities where he was held, might lead to his premature demise. Having Deubel in prison and taking possession of his lap top "filing system" was one thing - having a (dead) martyr would be quite

MEMBERSHIP IN SPACE

Membership in SPACE Pacific is open to any individual or firm involved in the "satellite-direct" world in the Pacific and Asia regions. There are four levels of membership covering "Individuals," the "Installer/Dealer," the "Cable/SMATV Operator," and the "Importer/Distributor/Programmer."

All levels receive periodic programme and equipment access updates from SPACE, significant discounts on goods and services from many member firms, and major discounts while attending the annual SPRCS (industry trade show) each year. Members also participate in policy creation forums, have correspondence training courses available and their support makes possible the TV show SPACE Pacific Report. To find out more, contact (fax) 64-9-406-1083 or use information request card, page 34, this issue of SatFACTS. Page space

within SatFACTS is donated each month to the trade association without cost by the publisher.

another. Or, it might have simply been that after 4 months and two weeks in custody, Mindport had exhausted any further hope of gaining additional information from either Deubel or his software.

Not as unrelated as you might think: In late October, a 16 year old Norwegian student announced on Internet the "solution" to the DVD (digital versatile disc) encryption system. His "DeCSS Solution" was posted on a Web site maintained by his father, and quickly duplicated on several dozen additional sites world-wide. The DVD movie rights world went into orbit; their 40 bit encryption system, designed to last more than a decade without crumbling, had been busted by a kid!

Late in December, the motion picture rights people brought suit in a California court charging every Web site operator who had "copied" the DeCSS instruction to drop it - *immediately*. A California judge refused the request but two days later two new judges, obviously "more friendly" to the movie industry, agreed. Immediately, more than 500 Web site operators and individuals (including a site operator located at Dundas Valley, Australia) scattered around the globe were notified by official documents to "cease and desist" posting the DeCSS information.

In a communiqué to SatFACTS dated February 3 (after Deubel was heading home to Cape Town), an official of Mindport wrote, "I dare say we will see more such cases as the authorities around the world appear to be taking a progressively harder line on signal theft and misuse of intellectual property; witness the recent ruling in the USA on DVD piracy."

The last portion of that sentence is of interest. "...witness the recent ruling in the USA on DVD piracy." What this hints is

Mindport, always concerned that a martyred Deubel or a prematurely released Deubel might result in a world-wide release of Irdeto "hacking" technology on Internet, now feels they have a "court tool" to prevent that happening.

"Furthermore, the increasing collaboration of many sectors of the industry, from the MPAA to law enforcement agencies and technology vendors, bodes well for both protection and action against theft of valuable television content."

Perhaps. But the court injunctions issued in California and New York are temporary, pending a full hearing (and perhaps a subsequent trial). The "hacking world" (quite outside of the relatively mild world of Irdeto hacking) is up in arms over this one and a significant number of legal minds are preparing to defend the 16 year old Norwegian who - if his word can be believed - did nothing more than "reverse engineer" the DVD software. "Reverse engineering" is not illegal in Norway, nor in most countries. Moreover, there is a level of indignation that a private firm (such as Mindport) can place a "defective" (as in not secure) encryption technology on the market, and then when it is broken by a 16 year old Norwegian kid, run to friendly courts to claim damages and protection.

"No other products in the world that I am aware of can be proven defective, sold as not defective, and then the manufacturer can bring charges against anyone who points out the defects," suggests industry observer Frank A. Stephenson, a research programmer in Oslo, Norway.

Deubel, meanwhile, is described as "recuperating with his wife and daughter" in South Africa after his ordeal. A friend tells SatFACTS, "He is a tough bugger, I reckon he will be OK."

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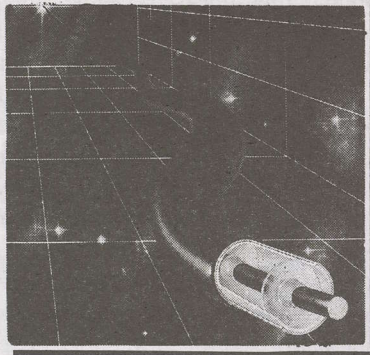
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Footprints - what they mean to you

When a new satellite is paper designed, computer programmes attempt to define the type of coverage they can anticipate with various transmitting power levels and variations of a transmitting antenna pattern. Power levels are important but not nearly so as the transmitting antenna design.

At microwave frequencies, a signal can literally be steered from one area to another simply by moving the antenna's parabolic reflector, the feed, or both. Many satellites, such as I701 at 180E, employ steering mechanisms - devices that actually move the transmit antenna mechanism in space to cause it to point at (favour) one region of the earth over others.

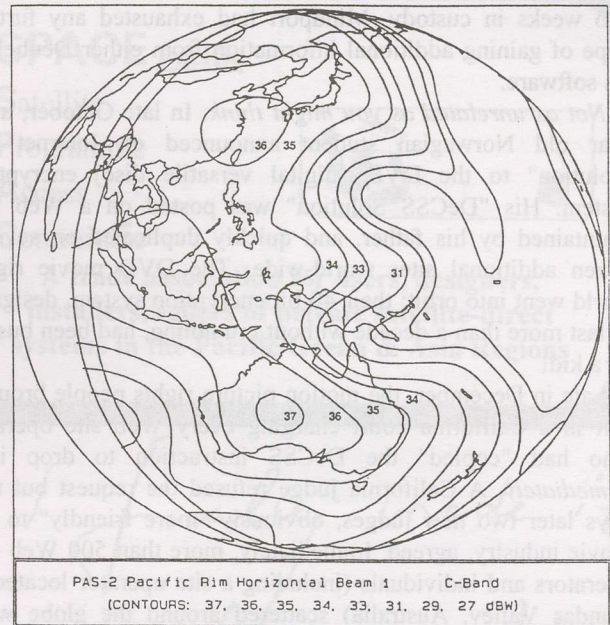
PanAmSat's PAS-2 satellite (169E) was originally designed in advance of full knowledge of who their clients might be and where these users would wish maximised coverage. So two separate beams were designed into the antenna system and from the ground, flight controllers would be able to remotely connect various transponders to either of the transmitting antenna arrays (see SPACE Pacific Report, 9906 and 9907 for illustration of this).

On paper and in fact, the Pacific Ocean region visible from PAS-2 is a very large portion of the earth (42% to be precise). Moreover, 80-some percent of it is water; no useful business there. But, in 1993-1994, nobody really knew which of the dots of land in view from this satellite would produce paying customers.

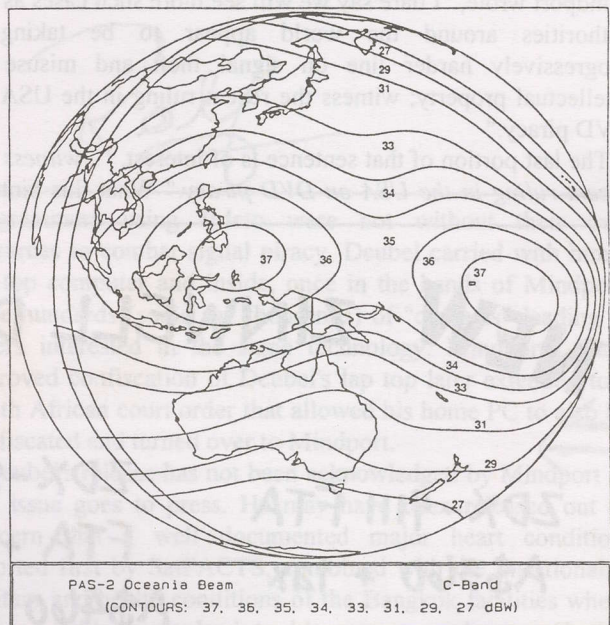
Two separate C-band coverage patterns were built into the satellite. In the Pacific Rim pattern (top, above), Australia and the south eastern coastal region of China were at "boresight" (maximum signal level). Virtually all of Australia receives 35 dBw or better signal on this beam; New Zealand 31 dBw. An alternate beam, the Oceania, shifted boresight along the equator with 37 dBw now near the southern Philippines and further east a second bubble near Kiribati. With the Oceania Beam, the populated coastal regions of Australia dropped from 35 dBw (Pacific Rim) to between 28 and 31 dBw.

When PAS-2 was put into service, customers quickly developed for Australia, nobody turned up from Kiribati. As a consequence, while four of the PAS-2 transponders can provide C-band signals equivalent to 1.7m dishes and FEC 1/2 digital service for a wide area along the equator, a lack of customers resulted in this Oceania beam never being turned on, commercially. If such service was activated, presently installed Melbourne dishes in the 1.9m region would be forced to enlarge to 4.8m (!) to have the same reliability they now have.

What this points up is the dollar and cents decisions faced by any satellite system operator planning service to the Pacific



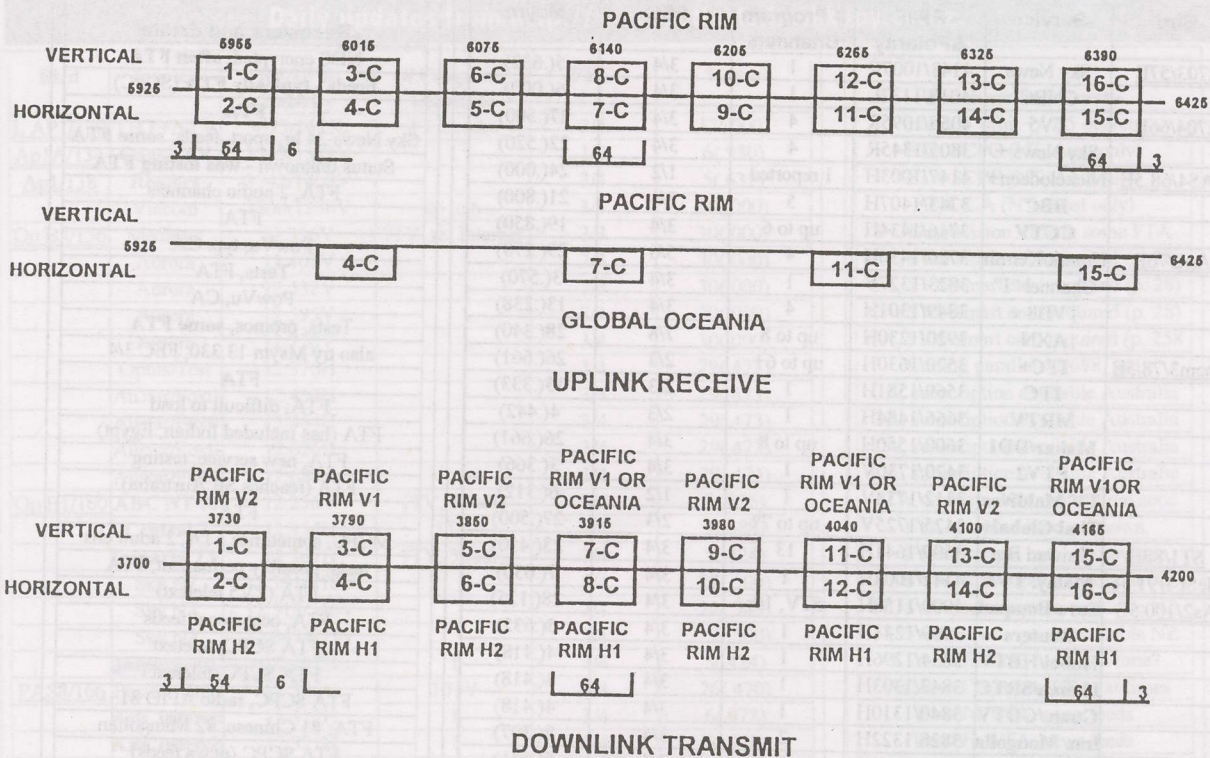
PAS-2 Pacific Rim horizontal (vertical very similar) footprint (above); seldom used Oceania beam (transponders 4, 7, 11 and 15) below.



region. Sooner or later, dollars must rule and given a choice between big signals for lots of people or big signals for a few people, the multitudes always win.

While your attention is focused on the PAS-2 operational parameters, notice this is a 16 transponder C-band satellite. Transponders 7 and 8C and 15 and 16C are 64 MHz wide while the remainder are 54 MHz. These bandwidth numbers are more akin to what we would expect from a Ku band satellite. It happens that the output power from the 16 C-band transponder TWTA (travelling wave tube amplifier) stages is 34 watts, a respectable if not outstanding power level given the design era of the bird. That is not the only unusual design facet of this satellite. Some of the C-band transponders can be "cross-strapped" (interconnected) to PAS-2 Ku band transponders; in effect, go to the satellite on a C-band transponder, come back down on a Ku band transponder. Transponder 1C connects to 10K, 7C connects to 15K, 4C

PAS-2 (POR) C-Band Frequency Plan



connects to 11K while 6C connects to 14K; these are all Australia-capable Ku band transponders. There are efficiencies in this arrangement, allowing edge of coverage C-band uplinks to come out on Ku band, something that would not be feasible in a Ku to Ku link. The more you know and understand about a satellite's capabilities, the better your own use of it.



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SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 February 2000

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym	
I703/57E	Sky News	4143/1007R	1	3/4	5(.632)	
	CNBC	4018/1132L	1	3/4	6(.000)	
I704/66E	TV5	4055/1095R	4	3/4	27(.500)	
	Sky News +	3805/1345R	4	3/4	22(.520)	
PAS4/68.5E	Nickelodeon+	4147/1003H	1 reported	1/2	24(.000)	
	BBC	3743/1407H	5	3/4	21(.800)	
	CCTV	3716/1434H	up to 6	3/4	19(.850)	
Ap2/76E	Hmark/Kermit	3720/1430H	4	5/6	29(.270)	
	Channel "I"	3823/1327V	1	3/4	3(.570)	
	TVB8 +	3849/1301H	4	3/4	13(.238)	
	AXN	3920/1230H	up to 8	7/8	28(.340)	
	ITC+	3520/1630H	up to 6+	2/3	26(.661)	
	ITC	3569/1581H	1	2/3	13(.333)	
Thcm3/78.5E	MRTV	3666/1484H	1	2/3	4(.442)	
	Mahar/DDI	3600/1550H	up to 8	3/4	26(.661)	
	PTV2	3420/1730V	1	3/4	3(.366)	
	TV Maldives	3412/1738V	1	1/2	6(.312)	
	Thai Global+	3425/1725V	up to 7?	2/3	27(.500)	
ST1/88E	Taiwan Bqt	3509/1641H	13	3/4	23(.450)	
MeSt 1/91.5E	Malay. TV3	4147/1004H	1	3/4	7(.030)	
As2/100.5E	Euro Bouquet	4000/1150H	5TV, 19r	3/4	28(.125)	
	Reuters	3909/1241H	1	3/4	5(.632)	
	Hubei/HBTV	3854/1296H	1	3/4	4(.418)	
	Hunan/SRTC	3847/1303H	1	3/4	4(.418)	
	Guan./GDTV	3840/1310H	1	3/4	4(.418)	
	Inn. Mongolia	3828/1322H	2	3/4	8(.397)	
	APTN A-O	3799/1351H	1	3/4	5(.631)	
	WTN Jer/Lon	3790/1360H	1	3/4	5(.631)	
	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/JXTV	3727/1423H	1	3/4	4(.418)	
	Fujian/SETV	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)	
	As2/100.5E	Korea feeds	4090/1060V	1	3/4	10(.320)
		TVSN	4033/1117V	1	3/4	4(.298)
		Sky Racing	4020/1130V	up to 3TV	1/2	18(.000)
		EMTV	4006/1144V	1TV, 2 radio	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)	
ShaanxiQQQ		3813/1337V	1	3/4	4(.418)	
Guan/GXTV		3806/1344V	1	3/4	4(.418)	
Fashion TV		3796/1354V	1	3/4	2(.533)	
Feeds		3785/1365V	1	3/4	5(.632)	
Myawady TV		3766/1384V	1	7/8	5(.080)	
Saudi TV1		3660/1490V	1 (?)	3/4	27(.500)	
As3S/105.5E		Arirang TV	3755/1395V	1	7/8	4(.418)
		Now TV	3760/1390Hz	1	7/8	25(.000)
		Star TV	3780/1370V	17(+TV)	3/4	28(.100)
	Star TV	3860/1290V	14(+TV)	3/4	27(.500)	
	Star TV	3880/1270H	12(+TV)	7/8	26(.850)	
	CNNI	3960/1190H	4(+TV)	3/4	26(.000)	
	Star TV	4000/1150H	7(+TV)	7/8	26(.850)	
	Zee Bouquet	4020/1140Vt	4+TV	3/4	27(.000)	
Cak1/107.5E	Indovision (S-band)	2.536, 2.566, 2.596, 2.626	33(+TV)	7/8	20(.000)	
Sinosat/110E	CCTV2	3889/1261Hz	1	3/4	3(.000)	
C2M/113E	TPI	4185/965V	1	3/4	6(.700)	
	Indosiar	4074/1076V	1	3/4	6(.500)	
	Anteve	4055/1095V	1	3/4	6(.510)	
	Space TV	4000/1150H	11TV, radio	3/4	26(.666)	
	C Net Taiwan	3760/1390H	11TV, radio	3/4	26(.666)	
JcSAT3/128E	RCTI	3475/1675H	1	3/4	8(.000)	
	Miracle Net	3990/1160V	3 up to 6	5/6	12(.997)	
	Asian bouquet	3960/1190V	up to 8	7/8	30(.000)	

Receivers and Errata
NDS encrypted, often FTA
Feeds - typically FTA (SCPC)
FTA
Sky News 24 hr, sport, feeds; some FTA
Status unknown - was testing FTA
FTA; 2 audio channels
FTA
PowVu, typ. CA
Tests, FTA
PowVu, CA
Tests, promos, some FTA
also try Msym 13.330, FEC 3/4
FTA
FTA; difficult to load
FTA (has included Indian, Egypt)
FTA, new service, testing
FTA (reaches SE Australia)
FTA
MCPC, sometimes FTA, 2 adult chs
tests, possibly permanent, FTA
FTA (TV5 teletext)
FTA, occasional feeds
FTA SCPC, teletext
FTA SCPC, teletext
FTA SCPC, radio APID 81
FTA: #1 Chinese, #2 Mangolian
FTA SCPC (news feeds)
Mostly CA; some FTA
FTA & CA
FTA; up to 20 radio channels
FTA SCPC, radio APID 256
FTA SCPC, teletext, radio APID 81
FTA SCPC, + radio APID 80
FTA SCPC, radio APID 80
FTA SCPC, + radio
FTA SCPC/MCPC
FTA, not same as Aust. version
(Irdeto) CA; 1 & 3 occ. FTA
PowVu CA; poor signal level
FTA SCPC, + radio
FTA SCPC
FTA SCPC, + radio
FTA SCPC
FTA SCPC, radio APID 81
FTA SCPC, radio APID 257
FTA SCPC, now easy to load
FTA & CA, feeds
FTA SCPC - difficult to load
FTA MCPC + radio / NDS equipped
FTA SCPC; very strong signal
Tests, promotional material, FTA
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DVS211, Zenith)
PowVu CA; some FTA feed channels
NDS CA (Pace DVS211, Zenith)
Testing, service on/off, up to 8 promised
NDS CA using RCA/Thomson, Pace IRDs; improved reliability since June
FTA SCPC, difficult to load
FTA SCPC; may be test
May only be test - not reliable
FTA SCPC; may be test
CA, sometimes FTA
CA, subs available -10 radio FTA
FTA SCPC; may be test
PowerVu; TBN #3 FTA, some CA
CA and FTA, Japan, Taiwan, China

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
L AP1/130	THT+NTV	3675/1475L	2 + 2 radio	3/4	12(.000)
Ap1A/134	Gansu TV	3769/1381V	1	1/2	6(.930)
Ap1/138	Reuters	3742/1408V	1	3/4	5(.632)
	Viacom	3860/1290V	up to 6	3/4	30(.000)
Op B3/156	Mediasat	12.336V	7TV, ra, Internet	2/3	30(.000)
	Aurora	12.407V		2/3	30(.000)
	Aurora	12.532V		2/3	30(.000)
	Aurora	12.595V		3/4	30(.000)
	Aurora	12.720V		3/4	30(.000)
	Optus/Test	12.376H		3/4	29(.473)
	Austar/Foxtl	12.438H		3/4	29(.473)
	Austar/Foxtl	12.564H		3/4	29(.473)
	Austar/Foxtl	12.626H		3/4	29(.473)
	Austar/Foxtl	12.688H		3/4	29(.473)
Op B1/160	ABC NT fd	12.256V	1TV, 3 radio	3/4	5(.026)
	Central 7	12.354H	1TV	3/4	3(.688)
	Imparja TV	12.367H	1TV, 3 radio	3/4	5(.424)
	Sky NZ	12.391/418V		3/4	22(.500)
	Sky NZ	12.518/546V		3/4	22(.500)
	Sky NZ	12.643/671V		3/4	22(.500)
	Imparja fd.	12.367H	1	3/4	5(.424)
PAS8/166	Pacific Time	12.286V	10TV	3/4	26(.470)
	ABCInterch	12.312H	1	3/4	6(.978)
	ABCInterch	12.321H	1	3/4	6(.978)
	Pacific Time	12.326V?	8TV	3/4	27(.500)
	ABCInterch	12.330H	1	3/4	6(.978)
	TARBS	12.526H	12+ TV	3/4	28(.067)
	Boomerang	12.725H	5+TV	7/8	25(.728)
	NHK Joho	4065/1085H	5TV, 1 radio	3/4	26(.470)
	ESPN USA	4020/1130H	7+TV, data	7/8	26(.470)
	DiscoveryTest	3980/1170H	8 typ.	3/4	27(.690)
	CalBqt/Pas8	3940/1210H	up to 5TV	7/8	27(.690)
	CNBC HK	3900/1250H	up to 7TV	7/8	25(.728)
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)
	MTV Test	3740/1410H	4	2/3	27(.500)
PAS2/169	Pv Bouquet	12.290V	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)
	NBCHonKn	4093/1057V	5, up to 7	3/4	29(.473)
	Fox Bouquet	3989/1161V	8TV/data	7/8	26(.470)
	Feeds	3942/1208V	1 or 2	2/3	7(.497)
	Feeds	3929/1121V	1	3/4	6(.618)
	Feeds	3898/1252V	1	2/3	12(.000)
	Middle East	3778/1372V	4	3/4	13(.331)
	Service 1	3761/1389V	1	3/4	6(.620)
	CCTV Pv	3716/1434V	5 typical	3/4	19(.850)
	Feeds	4138/1012H	1	3/4	6(.620)
	7thDyAdv	4034/1116H	1TV, 14 audio?	3/4	6(.620)
	CNNI HK	3996/1154H	1	3/4	9(.998)
	Feeds	3867/1183H	1	2/3	6(.618)
	7thDyAdv	3957/1193H	1TV, 14 audio	3/4	7(.000)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)
	Disney	3804/1346H	3	5/6	21(.093)
	Discvry Sng	3776/1374H	8 typ	3/4	21(.093)
	Satcom 1-6	3743/1407H	up to 5	7/8	19(.465)
I802/174E	TeleFania	4061/1089RHC	1	3/4	4(.340)
I702/177E	AFRTS	4177/973LHC	8TV, 12- rad	3/4	26(.694)
	ThaiBouqut	12.650H	up to 3 TV	1/2	17(.800)
I701/180E	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)
	RFO-Canal+	4095/1055L	7TV, 5+ radio	3/4	27(.500)

Receivers and Errata
inclined orbit +/-2.5 degrees
FTA SCPC (NT, Aust only)
FTA SCPC (NT, Aust only)
FTA, CA (NT, Aust only)
Pv, Nagravision, Irdeto; some FTA
CA, \$105 smart card required (p. 28)
CA, \$105 smart card required (p. 28)
CA, \$105 smart card required (p. 28)
CA, \$105 smart card required (p. 258)
feeding parallel 12.698, test
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
FTA, Sydney -30 minutes time zone
FTA, purpose here unknown
FTA, purpose here unknown
NDS CA, subscription available NZ
NDS CA, subscription available NZ
NDS CA, subscription available NZ
NDS CA, subscription available NZ
FTA, difficult to load, full time?
Viaccess CA, some FTA at times
PowVu, FTA, news feeds
PowVu, FTA, news feeds
Viaccess CA, some FTA at times
PowVu, FTA, ABC Melbourne feeds
'MDS' CA; 12.605/28.067/3/4
TPG /Eurodec CA, some FTA
PowVu CA & FTA; subscription avail
PowVu CA; ch 11 DCP-CCP bootload
PowVu/CA test, same as PAS2 3776H
PowVu CA & FTA (EWTN)
parallel to 4.093V PAS2
PowVu, FTA at this time
PowVu, intermittent tests, CA+FTA
PowVu CA, WIN, ABC NT
PowVu CA, WA only - D9234
PowVu CA, some FTA
Philips MPEG-2, FTA
Pv, CA/FTA (Fox News USA)
PowVu (FTA) occ feeds
Mediasat links, PowVu, usually FTA
(PowVu) FTA, occ. feeds
FTA, testing CA, "threatening"
FTA SCPC feeds (occasional use)
PowVu FTA; # pgm chs varies
FTA SCPC/MCPC, news and sports
1900-2030UTC; also see 3957H
reverse link HK/Atlanta, feeds, FTA
FTA (occ. sport feeds)
1900-2030UTC; also see 4034H
FTA-typ. NTSC-occ. sport, shuttle
(PowVu) CA
PowVu CA
PowVu CA & occ. FTA
currently FTA, lowlevel, Mid East fds
Tests using Papeete sources; e. hemi?
PowVu CA
Thai5 service, tests, FTA
Mediaguard CA, some occ. FTA
DMV/NTL occ. feeds, typ CA
DMV/NTL occ. feeds, typ CA
DMV/NTL occ. feeds, typ. CA
DMV/NTL occ. feeds, typ. CA
#1, 2 CA - rest FTA-France to Polyn.

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(I701/180E)	TVNZ feeds	4044/1106R	1	3/4	5(.632)
	NZ Prime TV	4024/1126L	1	2/3	6(.876)
	RFO Polycast	3858/1292L	1	3/4	4(.566)
	TVNZ (TL)	3854/1293R	1	3/4	5(.632)
	TVNZ	3846/1304R	1	3/4	5(.632)
	10 Australia	3765/1385R	6	7/8	29(.900)

Receivers and Errata
SCPC, mixed CA and FTA feeds
PowVu CA; Auckland net feeds
FTA SCPC; East Hemi Beam-Tahiti
SCPC, mixed CA & FTA, feeds
SCPC, mixed CA & FTA, feeds
PowVu CA & FTA; #3 TBN

BOUQUETS - FTA vs. CA: Listings here show SCPC (single channel per carrier) and MCPC (multiple channels per carrier) digital transmissions which "more or less" conform to the MPEG-2 DVB "standard." Unfortunately, "conforming to the standard" is interpreted differently by the various transmission equipment suppliers - of which, Scientific Atlanta is the most notorious with its PowerVu proprietary (that means "unique to SA") method of creating MPEG-2. If you want to see REAL MPEG-2 DVB-Compliant (as in world standard) signals - try AsiaSat 2, European Bouquet (4000/1150Hz). SA "modifies" their PowerVu format in an attempt to force each programmer using its uplink equipment to also use its proprietary (PowerVu) receivers. PanAmSat, closely linked to Scientific Atlanta, virtually insists that any digital service user of their satellites use PowerVu format transmission equipment. The good news is that some clever non-PowerVu receiver designers and receiver software writers have created "quasi-PowerVu" decoding routines which in many cases outperform the PowerVu originals. If your use requires access to one or more PowerVu CA (conditional access) service, you have no choice but to purchase a PowerVu receiver. If you are only interested in FTA (free to air) PowerVu services, there are many lower cost options (see below).

All services listed in bold face (i.e. **Arirang TV**) are FTA. When MCPC services are FTA, they are also listed bold face (i.e. **Euro Bouquet**). When there are mixed CA and FTA programme channels in a MCPC bouquet, see right hand column for a bold face indication of this (i.e. **some FTA**). The primary (mostly or total) FTA MCPC bouquets are as follows: PAS4/68.5E: CCTV (3716H); Thaicom 3/78.5E: Mahar (3600H), Thai Global (3425V); As2/100.5E: European Bouquet (4000H); Optus B3 /156E: Mediasat (12.336V); PAS8/166E: NHK Joho (4065H), California Bouquet (3940H), CNNI (3780H); PAS2/169E: NBC Hong Kong (4093V), Middle East (3778V), BBC + (3743V), CCTV (3716V), California PowVu (3901H), Satcom 1-6 (3743H); Intelsat 701/180E: RFO (4095LHC), 10 Australia (3765RHC). There are far more SCPC FTA digital services than MCPC FTA digital services.

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

ADI MediaMate. FTA, NTSC+PAL outputs. (Pacific Digital Sys. Pty Ltd, tel 61-2-8765-0270)
AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM Pty Ltd, 61-2-9949-7417.
Benjamin DB6600-CA. FTA, Foxtel/Austar w/CAM+card. Try Steffen Holzst ++687-438-156.
Grundig DTR1100. Mfg by Panasat (SA), very similar to Panasat 630; out of production, Irdeto capable. See Av-COMM above.
Humax F1-CI. Primarily sold for TRT(Australia), does (limited) PowerVu (not Optus Aurora approved).
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) (Dec 99 - serious glitch with EBB reception)
Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8906.
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
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 (www.BAKKERELECTRONICS.COM- Note: This site shut-down by Mindport early November - may not be functioning!). Reported factory 12 mo. warranty. Peter Older, tel 61-3-5133-7911, mobile 61-0418-386287
Nokia 9500/9600. Numerous versions for different world parts; not distributed in Pacific but assistance from Av-Comm Pty Ltd.
Nokia 9800. Latest single chip version, with CI and Irdeto capable. No software for Pacific, Asia; not recommended.
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.
Pacific Satellite DSR2000. Advises no longer current model (see. p. 2, here); Clone of Mediastar D7 (see above)
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 no longer 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)
PowerCom. FTA, PowVu, NTSC, excellent sensitivity. NetSat 61-2-9687-9903.
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.
Praxis/DigiMaster 9600 MKII/9800AD. FTA, PowVu+analogue, withdrawn from sale in Pacific (was Skyvision-below)
Praxis 9800 ADP. FTA SCPC/MCPC, PowVu, analogue, positioner. SF review Dec '98; withdrawn from Pacific sale (below).
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 61-2-6292-5850, Telsat 64-6-356-3749)
SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - review this issue (Skyvision - see above).
Skandia SK888 (aka DigiSkan-SMS). FTA MCPC, Irdeto CAM+software upgrade. Out of production; Skandia 61-3-9819-2466
Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. SATECH 61-3-9553-3399.
Sky 21/SJ 3000ci. Claims "clone" Hyundai HSS800ci; if so, poor copy. Runs very hot, reportedly burns up smart cards
UEC642. Designed for Aurora (Irdeto), approved by Optus; limited other uses. Nationwide 61-7-3252-2947.
UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel-limited FTA. (Nationwide - above); power supply problems.
UEC770. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, not sold to consumers.
Xanadu. DVB compliant special receiver for members of SPACE Pacific (Av-comm Pty Ltd, tel +61-2-9949-7417)
Yuri HSS-100C. FTA, clone of Hyundai, V2.27 software custom to Australia (Nationwide-above).
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!)

SatFACTS Pacific/Asian FTA ANALOGUE Watch: 15 February, 2000

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BIRD/Location	RF/IF & Polarity	Service	Errata
<u>I703/57E</u>	3808/1342R	Udaya TV	
	4052/1098R	WorldNet	VOA subers.
	4178/972L	MTA Inter.	
<u>I604/602/60E</u>	4166/984	various feeds	
<u>I704/66E</u>	3765/1385R	tests	
	4015/1135L	Mongolia	(SECAM)
<u>PAS4/68.5E</u>	3743/1407V	RTPi	(+ radio subcr)
	3864/1286V	BBC World	
	3907/1243H	Sony TV	Hindi
	4034/1116V	Doordan	(various)
	4087/1063H	CNNI	
	4110/1040H	TNT/Cartoon	
	4113/1037V	Series Ch.	
	4182/968H	MTV	
<u>PAS7/68.5E</u>	3470/1680V	test signal	
<u>LM1/75E</u>	3977/1173V	various	(Madagascar)
<u>AP2R/76E</u>	3745/1405V	Vasta Music	(P5 in NSW)
	3691/1459V	TEN	
<u>Thaicom3/78E</u>	3871/1279H	TVT	
	3760/1390V	Army TV	
	3690/1460V	MRTV	
	3685/1465H	VTV	6.6, 7.02
	3616/1534V	ETN	
	3576/1574V	ATN Bangalr	Bengali
	3554/1596V	test card	
	3536/1614V	Punjabi TV	(occ service)
	3514/1636V	Falak TV	
	3489/1661H	Vasta Music	occ tests
	3465/1685V	RAJ-TV	
<u>Express 6/80E</u>	3672/1478L	TK Norsija	(north beam)
<u>InSat 2E/83E</u>	3481/1669V	Sun TV	
	3575/1575V	Vijay/Asianet	aud. 5.5/6.6
	3810/1340V	DD1-Tamil	"
	3850/1300V	DD1-National	"
	3930/1220V	DD2 Metro	"
	3970/1180V	Teluga 1	"
	3998/1152V	sport feeds	"
	4035/1115V	Sun TV	"
	4060/1090V	Surya/Sun TV	"
	4093/1057V	DD7	"
<u>ChnStr1/87.5E</u>	3880/1270H	occ feeds	P4 NSW, Ntsc
<u>ST1/88E</u>	3550/1600V	test card	
	3582/1568V	Nila TV	(vintage TV)
<u>CIS S6/90E</u>	3675/1475R	RTR1	P3 NSW
	3875/1275R	Orbita 1	
	3916/1234R	RTR II	
	3935/1215R	Orbita II	
<u>MeSat-1/91.5E</u>	3710/1440H	VTV1,2, 4	
	3880/1270H	RTM-1	
<u>InSat 2B/93.5E</u>	4165/985H	India Metro	NSW on 3.7m
	4125/1025V	India National	NSW on 3.7m
	4080/1070V	DD7 (Tamil)	
	4070/1080H	DD9	
	3970/1180V	DD9 (Kan.)	
	3882/1268V	DD1	
	3840/1310V	DD?	
	3762/1388V	DD4	
<u>AsSat2/100.5E</u>	3642/1508H	ERTU Egypt	
	3660/1490V	feeds, tests	
	3680/1470H	feeds	
	3860/1290V	feeds	

BIRD/Location	RF/IF & Polarity	Service	Errata
(As2/100.5E)	3885/1265H	WorldNet	VOA subers
	3960/1190H	CCTV4	
	3980/1170V	RTPi	+5 radio svcs
<u>CIS S21/103E</u>	3675/1475R	RTR	
	3875/1275R	Vrk Apt	
<u>AsSat3S/105.5</u>	3660/1490V	Z-Marathi	audio 6.6
	3680/1470H	CETV	
(temp FTA)	3800/1350H	Star Sport	NTSC
(temp FTA)	3840/1310H	Channel [V]	NTSC
	3900/1250V	AlphaTV Punja	
(temp FTA)	3920/1230H	Phoenix Ch	NTSC
	3940/1210V	Zee India	
	3980/1170V	Zee TV	
	4140/1010V	Angla Bangla	
	4060/1090V	Zee Cinema	(Starcrypt)
	4100/1050V	PTV2/World	
	4120/1030H	CCTV	NTSC
<u>T'kom1/108E</u>	4000/1150H	tests	
<u>PalapC2/113E</u>	4160/990H	(France) TV5	
	4140/1010V	Brunei + feeds	
	4120/1030H	MTV Asia	
	4080/1070H	Herbalife	+ tests
	4040/1110H	CNBC	
	3970/1180V	CNNI	
	3880/1270H	Aust ATN7	
	3840/1310H	TVRI	tests
	3742/1408V	RCTI	English suber
<u>AsSat1/122E</u>	3677/1473V	Test card	& 3933/1217H
<u>ChinS 6/125E</u>	4085/1065V	feeds	seldom seen
<u>JcSat3/128E</u>	3768/1382V	feeds	occ., P5 NZ
	4085/1065V	test card	NTSC. 6.8 aud.
<u>Ap1A/134E</u>	4160/1050V	CETV	
	3980/1170V	CETV1	
	3900/1250V	CETV2	
<u>Ap1A/138E</u>	4160/990H	CCTV7	
<u>S7/140E</u>	3675/1475R	ORT Moscow	+/-4d. inclined
	3875/1275R	feeds, tests	
<u>LMAP2/142.5</u>	3675/1475L	occ. tests	+/- 3 deg inc.
<u>Ag2/146E</u>	3787/1363H	GMA	P1/2 s. eqtr
<u>Me2/148E</u>	4080/1070H	test card	occ. use
<u>PAS8/166.5E</u>	3880/1270V	test card, feeds	not full time
	3865/1285H	Napa test card	not fulltime
<u>PAS2/169E</u>	3940/1240V	Napa test card	
<u>1802/174E</u>	4166/984R	Feeds	
	4177/973R	Feeds	
<u>I702/177E</u>	4166/984R	Feeds	inc. KBS Korea
	4187/963R	Occ. feeds	
<u>I701/180E</u>	3810/1340R	Occ. feeds	
	3841/1309L	RFO	East Beam
	3845/1305R	Occ. feeds	inc. from USA
	3930/1220R	USA net feeds	FTA & encrypt
	3975/1175R	Occ. feeds	

PAS4/68.5E	3785/1365V	Discovery India	BMAC
	3860/1290H	ESPN India	BMAC
Ap2/76E	3960/1190H	HBO Asia	GI Digicipher2
C2/113E	3930/1220H	Filip. Peo. Net	GI 1.5 MPEG
Ap1/138E	4100/1050V	ESPN	BMAC
PAS2/169E	4028/1122H	ABS/CBN	GI 1.5 MPEG

BLACKSPOT TECHNICAL INFORMATION

Australian installers are being asked to complete two sets of ABA forms, and a Statutory Declaration, in application for a "Blackspot Aurora Waiver" allowing customers to access Supernet stations 7-Central, Imparja, WINwest and GWN. Portions of the forms require technical measurement of existing television reception for each of the TV services currently viewable at the Blackspot applicant's location (home or business).

Signal Levels: Measurement should be taken with a test antenna elevated to a height of 10 metres above ground. Starting from the roof of a building is permissible since few installers have the equipment to start at ground level and measure signals 10 metres over head. The test antenna should be broad banded (covering a range of channels) including the VHF and/or UHF off-air TV channels which are supposed to be viewable at the applicant's home location. Alternately, cut to channel (single channel) (yagi) antennas can be used but require separate testing after mounting for each channel. We advise you to take a photograph during one of your first measurement tests of the antenna system and to keep it on file should you be required to produce proof of the antenna used for testing. If the antenna is designed for 300 ohm (balanced line) transmission cable, install a broadband antenna mounted 300 ohm to 75 ohm matching transformer (balun) at the antenna, and then utilise a suitable (RG6/u) length of cable from the antenna to the measurement device (signal level meter/field strength meter, or, spectrum analyser [known in the trade as a spec an]). Try to dedicate a piece of RG6/u to the test system, using the same cable with each measurement location, to have uniform results from location to location.

The test antenna should not have a mast mounted (pre)amplifier as it will distort the actual signal levels present. Most modest size, fringe area, antennas have "gain" over a tuned dipole in the range of 5 to 7 dB, typically with slightly more gain on channels above 100 MHz than those below 100 MHz. Using such an antenna, any location showing a maximum on-channel visual carrier signal of less than 40 dBuV is going to be difficult to produce a suitable quality picture, even with a mast mounted preamplifier. Signal level meters and spec ans will allow you to separately measure both the visual carrier and the aural carrier. For any channel received, the visual carrier frequency will always be at the "bottom" or low end of the channel and the visual carrier will typically be from 3 to 10 dB stronger on the meter than the aural carrier. Be certain you are tuned to the correct carrier when making measurements. On a spec an, the visual carrier will "display" higher on the screen, and appear to the left of the lower level aural carrier signal.

To produce a "impairment free" image, the TV video carrier typically must be 40 dB stronger than any noise or interference as a minimum. The typical television receiver requires 60 dBuV of signal voltage as a minimum for an impairment - free image. If you start with a 20 dBuV signal from the antenna, run it through a 40 dB gain masthead amplifier, in theory you will have 60 dBuV. But the original 20 dBuV signal was NOT 40 dB stronger than the background noise (in fact - it is no more than 10-15 dB above the background noise in a quiet location) so the required 40 dB signal to noise ratio is not possible. The masthead amplifier is a voltage amplifier that amplifies both noise and signal simultaneously making only a modest improvement in signal to noise ratio in the process. In effect, a 15 dB signal to noise ratio at the input to the masthead amplifier remains a 15 dB signal to noise ratio at the output of the amplifier - even if the signal voltage is stronger at the output.

So as a rule of thumb: Off-antenna levels 40 dBuV or lower simply do not have sufficient signal to noise ratio to produce a PQ5 image. Signals between 40 dBuV and 50 dBuV may approach a 40 dB signal to noise ratio but only in locations where "background noise" (from man made devices such as electric fences, neon signs, power lines) is low to begin with.

Image quality: Strong signals (50 dBuV and higher before amplification) may still be PQ1 to PQ3 (not acceptable). If manmade interference is very high (such as measuring 30 dBuV on a TV channel where there is no TV station, adjacent to the channel you are trying to receive), you fall short of the required 40 dB signal to noise ratio simply because the noise is too high to begin with. Strong signals also may exhibit ghosts (multi-path) which distorts the images. In the final analysis, first you measure the signal level, then you look at the images on a TV screen and grade the picture between PQ1 and PQ5 (see p. 11, here).

TUNING IN THE INDUSTRY'S TV PROGRAMME

SPACE Pacific, the Asia-Pacific industry membership trade association, has produced (and continues to produce) a series of one hour television programmes. These "SPACE Pacific Report" shows, hosted by Bob Cooper, cover a range of topics of interest to installers and enthusiasts. Show numbers and content are as follows: #9901- Spectrum Analyser techniques, #9902- Feeds and LNBs, #9903- Dish antenna designs and problems, #9904- The dish marketplace, and, "tiny parts," #9905- Dr Overflow (Nokia) software, #9906- How the uplink works (tour of RCA's Vernon Valley site), #9907- Uplink Two, including uplink transmitters, #9908- Digital Basics (Mark Long), #9909- Real World Installs (Mark Long), #9910 - Installing a polar mount dish (in production); "Report" is broadcast by Mediasat on Optus B3, 12.336Vt, ad-hoc channel 3 (Sr 30.000, FEC 2/3) with the following coming-weeks schedule: **Sunday February 20** - Show 9905 0300-0400 UTC (1600 NZDT, 1400 AESummerTime, 1100 Western Australia; repeats 0700 UTC). **Sunday February 27** - Show 9906, same times as February 20; **Sunday March 5** - Show 9907, same times as February 20; **Sunday March 12** - Show 9908, same times as February 20; **Sunday March 19** - Show 9909, same times as February 20; **Sunday March 26** - Show 9910, same times as February 20 (*Premiere showing*). SPACE Pacific Report is also broadcast by Westlink, Aurora service on Optus B3, vertical (12.595, Sr 30.000, FEC 3/4 - requires Optus Aurora card but is otherwise FTA). Schedule is Monday, Wednesday and Friday as follows: Monday: 8AMWST/11AM AEST; Wednesday 10AM WST/1PM AEST; Friday 8AM WST/11AM AEST repeated 12noon WA/3PM AEST. Show schedule: Week of **February 14, 16 and 18**: Show 9901; week of **February 21, 23, 25**: Show 9902; week of Feb 28/Mar 2, 4: Show 9903; week of March 7, 9, 11: Show 9904; week of March 14, 16 and 18: show 9905; week of March 21, 23, 25: Show 9906. In the vent of schedule changes, SPACE Pacific attempts to pre-announce which show(s) will appear through the SatFACTS Web site prior to each weekend (<http://www.satfacts.kwikkopy.co.nz>). Shows are digitally mastered and VHS copies are available from SPACE Pacific - see insert card between front cover and page 1 SF#65.

Sponsorship of SPACE Pacific Report. In general answer to queries - AvComm, Satech and Sciteq have contributed corporate funding to make possible the production of the first set of ten SPACE Pacific Report programmes. Funds derived from sale of VHS tape copies are also an important element to meeting the \$1,300 overhead of each show. Mediasat and Westlink donate the time to broadcast the programmes, and both are to be commended for this support. As we move into the next group of (10) programmes now being scripted and shot, we solicit financial support from members of the industry or those with commercial activities they wish to have associated with the project (see insert card between front cover and page 1, here). To discuss your own support, contact Bob Cooper at telephone 64-9-406-0651, fax 64-9-406-1083, e-mail Skyking@clear.net.nz. C-band wide area service is still being negotiated - something could happen here - soon!

WITH THE OBSERVERS

AsiaSat 2/100.5E: Nervous people - "Unexpected heavy snowfall in Israel shut down European Bouquet 4000/1150Hz from 23.15UTC January 27 to 08.29UTC on 28th" (H. Knudsen, DW, Germany); no, it was not another PID trick!

AsiaSat 3R/105.5E: "Is Zee-TV on 4017/1133Vt (Sr 27.500, 3/4) serious or has this just been a stretched out test?" (D. Leach, NSW). Additional audio language channels for Zee TV News 3940/1210Vt; 6.30 and 6.48. Correct Sr for NOW TV on 3760/1390Hz is 25.000, FEC 7/8. Sahara TV has leased 36 MHz C-band transponder for FTA general entertainment channel to launch sometime in March - schedule is very impressive.

Cakrawarta 1/107.5E: "You have the FEC listed incorrectly - it is 7/8 (not 5/6) and Thomson IRDs to load must be told the correct number" (Chris, NZ).

Chinasat 22 /98E: Reported at this location (slightly inclined) at our press deadline - no further information.

InSat 2E/83E: This satellite will share the orbit spot with Insat3B if March 14th scheduled Ariane launch goes well. "Strongest signal in NSW is from Asianet on 3650/1500Vt followed by National 1 (3850/1300Vt), Metro 2 (3930/1220Vt) and Tamil TV (3810/1340Vt)" (D. Leach).

Intelsat 1701/180E: Tanhiti Nui TV (TNTV) planning 11 channel Ku spot beam service similar to New Caledonia Canal+ on this satellite - target date late June. "RFO-Canal+ 4095/1055LHC bouquet currently Sr 27.500, 3/4 rescheduled bandwidth reduction to June (expect change in Sr at that time)" (G. Waldref, Tahiti).

Intelsat 1802/174E: "Tests ongoing 4061/1089RHC at Sr 4.340, 3/4 to determine feasibility of distributing pay-TV for Tele Fanua (Papeete) MMDS service" (G. Waldref, Tahiti) - probably using eastern spot or zone beam making it difficult for those west of 174E.

Intelsat 804/64E: "New Delhi TV NDTV news feeds on 3651/1499RHC, Sr 5.730, 3/4 primarily for Star News India, east-hemi beam" (A. Zapara, WA).

Intelsat ? /178E: Two new Intelsat IX series birds, to be built by Hughes, will free up existing Intelsat to be relocated at this somewhat new location (currently 174, 177 and 180E).

LM11/ 75E: "TVM (3977/1173Vt), TV5, CFI, RFO P3 on Drake 700E, 3.7m dish in NSW at 3 degrees elevation (D. Leach). "Initial testing was with ORT-1 on 3980/1170Vt, Secam, P5 on 2.3m in eastern Australia" (D. Pemberton).

AT PRESS DEADLINE

Intelsat and British Tel have agreed to test moving Ku spot beam for Canal+/RFO on I1701 at 180E to south-east - tests were to be February 10 on existing 11.610Hz transponder (Sr 30.000, 3/4).

Most likely affected - mid to northern Queensland viewers who may have noticed signal drop, NZ viewers noting signal increase.

Reports please fax 64-9-406-1083, email skyking@clear.net.nz.



Viet Nam. Yes, they have satellite TV and Mr. Cua (right) poses with SF reader John Bracey visiting from WA in front of his satellite TV shop in Saigon with their favourite magazine. Of interest - Irdeto MOSC cards are commonly available in Viet Nam, Laos, Cambodia and Burma delivering 22 channels of Thailand UBC pay-TV (from Ku band) to anyone who pays a small fee to Government for a receiving dish permit. There is no "law" in these countries concerning MOSC cards or (TV) copyright.

Optus B3/156E: Mega Cosmos has left Mediasat 12.336Vt, two (new) Turkish pay-TV services probably in Irdeto are scheduled here "soon." This PowerVu multiplex has been

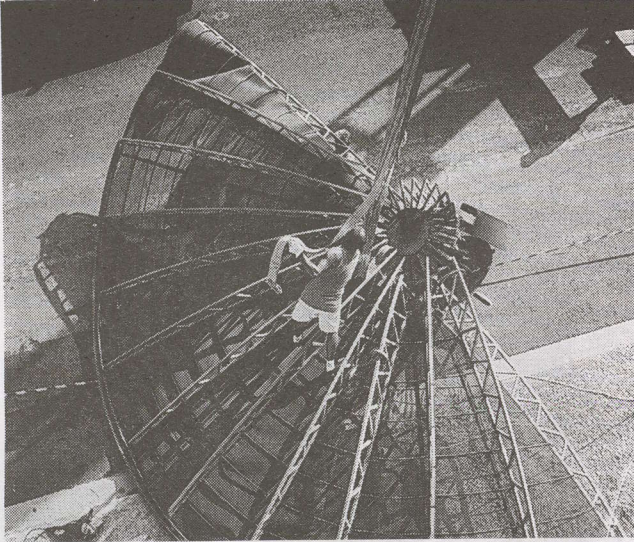
WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos 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 5 by mail (use form appearing page 34), or 5PM NZT March 6th if by fax to 64-9-406-1083 or Email

skyking@clear.net.nz.

The 7.5m dishes nobody wanted

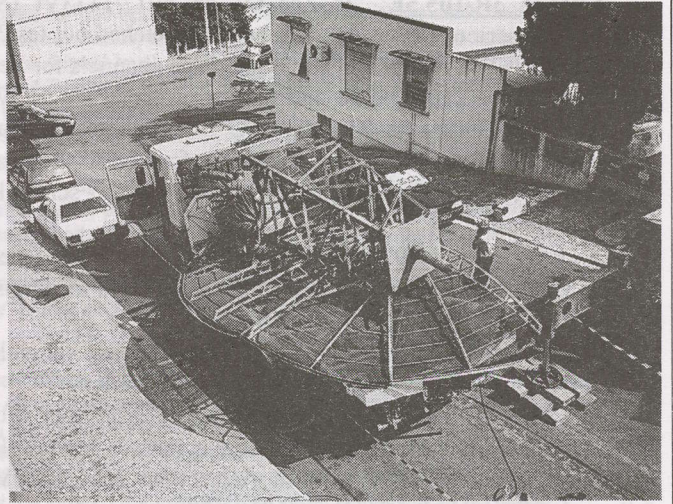
It began with a need to remove pair of screen mesh 7.5m dishes installed for Noumea, New Caledonia's RFO. The decision to have the existing dishes pulled down was made one day before Christmas.

Noumea's Antenne-cal had seven days to get the job done in preparation for installation of new transmit + receive Andrew 7.5m solid (Ku rated) antennas. The 7.5m mesh were "free" to anyone who could show up in time to arrange their dismantling.



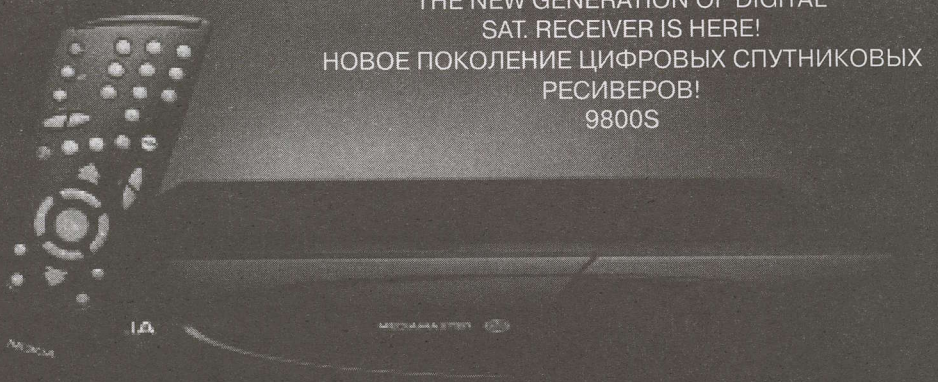
Alas, getting a crew together to do the work during the holidays proved impossible so on the appointed day, the dish was lifted from the mount with a crane (see our front cover), dropped (without ceremony) on the ground where it was "folded in half (below, left) on top of itself," and the steel tower base was dismantled and dropped (again, without ceremony - directly below) on top of the trailer loaded antenna.

Next stop? *The Noumea community dump!*
Oh yes, Antenne-cal has 6 Orbitron 3.6 polar mount micromesh dishes, 20 3.0 metre clogging up their warehouse. Next stop? Email antenne-cal@canl.nc.



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retrofitted to allow Irdeto or Nagravision CA options and is subdividing itself into a 9 MHz SCPC "splinter" for Access1 Internet and SCPC video feeds (**P. Mullen**, Sydney); "Access1 Internet service ID is 0102, pmt 5102 while Mediasat Internet is 0101 and 5009" (Rex, NZ). "Two promised Indian service channels, on Aurora 12.532Vt in new footprint configuration including NZ, is further delayed - possible testing around 14 February" (**S. Johnson**, NZ).

Palapa C2M/113E: "Now TV has started on 3760/1390Hz, Sr 28.125, FEC 7/8 but there is not much to watch" (D. Leach, NSW). RTB Brunei variously reported with 1 to 2 dB improved signal level in Australia on 4141/1009Vt.

PAS 2/169E: "Fox News in PowerVu format bouquet at 3989/1161Vt (Sr 26.470, 7/8) is only regular FTA programme channel in 8 service bouquet although Napa test card is sometimes FTA on channel 3" (D. Leach, NSW). "Occasional Mediasat - Sydney outbound feeds on 3929/1221Vt (Sr 6.618, 3/4); also 3961/1189Vt Sr 5.632, 3/4 occasional sport feeds, Rugby" (**B. Richards**, SA). "Winwest and ABC are Sr 27.500, 2/3 (not 3/4) on 12.290Vt - and CA PowerVu" (**S. McLeod**, NZ). More occasional sport, news feeds on 3898/1252Vt (Sr 12.000, 2/3). "Formosa TV on 12.512Hz, Sr 12.495, 2/3 has 2 Taiwan channels FTA" (**D. Morris**, Thailand)

PAS 8/166.5E: "12.605Hz with Sr 28.067, FEC 3/4 has same channel line-up as 12.526 TARBS" (B. Richards, SA). CNBC now running parallel from PAS2 4.093Vt (March 31 close down PAS2) with Sr 27.500, 3/4 on 3900/1250Hz. TPG/Boomerang bouquet on 12.725Hz (Sr 25.728, 7/8) apparently has 6 programme channels (at press time) of which upper 2 (sometimes 3) are CA using Eurodec (Scandinavian) system. One side effect of Eurodec - many IRDs (such as

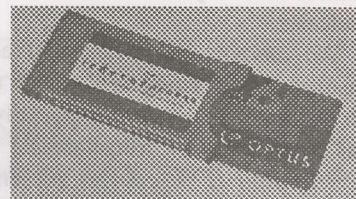
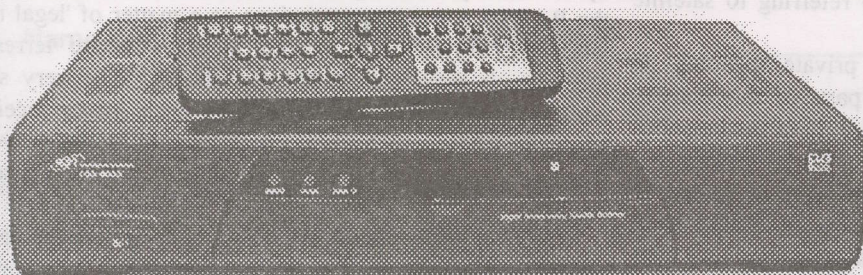
642s) pretend it is not even there. "PIDs are V0301/A0302, V0311/A0312, V0321/A0322, V0331/A0332, V0341/A0342 and V0351/A0352" (**BH**, Australia). "Boomerang around 8 dB CNR on 3m solid (**Rex**, Dunedin, NZ); 7 to 8 dB CNR on 2.4m solid as measured on Promax 277 spec an" (**R. Skilton**, Te Anau, NZ). ESPN has shut down PAS2 3860/1290Vt in favour of 4020/1130Hz here (Sr 26.465, 7/8) with 11 channels - of which #11 is DCP-CCP bootloader" (S. McLeod, NZ). Discovery continues tests on 3980/1170Hz, Sr 26.465, 7/8. Occasional feeds 3810/1340 Sr 10.849, 3/4 in NTSC. MTV bouquet 3740/1410Hz has Nickelodeon NZ in CA now (Sr 27.500, 2/3).

ST1/ 88E: "Unable to make any of the reported digital services here load with 3.7m" (D. Leach, NSW). "As many as 13 TV programme channels on 3509/1641Hz, Sr 23.450, 3/4 including two 'adult' services sometimes FTA (such as Chinese New Year); encryption is Powercom Tech IRDs running non-standard MPEG-2 and requiring PID entries" (D. Morris, Thailand).

Thaicom 3/78E: Gurbani Keertan has left 3554/1596Vt, now test card. MRTV on 3685/1465Hz has been replaced by VTV, audio 6.6 and 7.02.

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Picture for illustration purposes.
Card is inserted chip facing upwards for correct operation

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AT

Sign-off

Chewing on your local politician

Leigh Wilson lives in a mining camp in remote Queensland. The camp is "served" by a low power translator 50 miles distant and reception is at best difficult. He calls it "the textbook grey area" and notes, "the camp is in the shadow of a mountain range, the reception is totally obliterated when the camp's electric trams run or they use their two-way radios. Summer storms make a hash of the reception. That is why I was quick to adopt B-MAC for at least the basic services. The nearest 'town' is 43 km where a 4TAB racing service, ABC and low power (country and western) community radio stations operate."

Leigh is concerned the Australian government's policy to convert all terrestrial services to digital will mean a total end to services for communities such as his own. As he notes, "What we have is poor but marginally it is far better than *no* service." He has taken his concerns to The Honourable Paul Neville, MP, member for Hinkler.

"Please accept some of my thoughts about the TV reception in your electorate. I refer to correspondence in 'The Morning Bulletin' regarding poor reception in areas including the Boyne Valley, Mount Morgan, and Miriam Vale shire.

"*There is a straight forward solution* which has been available for 15 years. I am of course referring to satellite broadcasts.

"*No amount of Government and private spending on terrestrial broadcasting will cover all parts of this country with guaranteed reception, especially in hilly or mountainous areas or the so-called 'fringe areas'.*

"*The plan is to convert present analog transmitters to digital. There is already a parallel which we should learn from - the recent conversion of analog mobile telephone sites to digital. This conversion has been a backward step with many people losing mobile telephone service that was formerly available with analog.*

"*There is nothing to be gained by switching to digital from analog for commercial broadcasters trying to serve rural areas with widely scattered population. Overseas reports emphasise overwhelming problems with receiving digital broadcasts even in regions close to the transmitters in major cities. Should we be rushing into digital at a time when no solution to these problems has yet been worked out by the overseas pioneers in digital terrestrial broadcasting?*

"*What seems to be missing in Australia is a merging of separate but similar plans into a single, cohesive, national policy. On the first hand, we have ABC, SBS and the commercial broadcasters represented by 7 Central and the combined 9/10 services through Imparja available through the Aurora platform. On the second hand, we have Austar pay television. Both share a common satellite (Optus B3) and it is technically possible to have *one* satellite antenna, *one* set of receiving equipment, to allow rural homes to have service from *both* providers simultaneously.*

"*In fact, I am told that rural/remote homes who have purchased their own equipment for the Aurora platform are under some (not well defined) circumstances allowed to use the same equipment for the Austar service. My own experience has been contrary - I was refused Austar service unless I agreed to a totally new, separate installation by Austar of their equipment. This is totally unnecessary as the Aurora equipment is identical to the Austar equipment and one doesn't require two sets to receive two services.*

"*My concerns are this.* On the first hand we have a 'national Remote Area Broadcasting Services' policy deigned to provide first-time quality television to people like myself. On the other hand, there is a national pay-TV policy loosely regulated by Government, administered by private business to rules they make up on the fly. The RABS policy is cast in concrete, the pay-TV policies seem to be cast in jelly.

"*There should be one, overriding policy, established by Government. Anyone who is using the RABS service (which we acquire by purchasing our own equipment or with the assistance of a Government subsidy) should be entitled as a matter of Government policy to subscribe directly to the (Austar or other as may become available in the future) pay-TV service as well. The pay-TV provider should *not* be free to create commercial rules which undermine the overall national policy of making available to the greatest number of people possible the benefits of satellite distributed services.*

"*And it should work in reverse as well.* Digital satellite reception functions by making each receiving location 'addressable'. Service providers (whether the Aurora service or pay-TV service) can turn on or turn off any single receiving site remotely. An Austar installed system provided by them and paid for by them should be capable of receiving the RABS - Aurora transmissions as a matter of 'legal right' when the viewers are located in areas where terrestrial reception is poor (so-called Blackspots). The very slight additional cost to Austar for making each Austar receiving site compatible with Aurora could be paid by the viewer or through a government subsidy administered in true cases of hardship.

"*The time has come to give the satellite system the teeth it needs to do a complete job, not a series of half jobs done by independent services that essentially duplicate each other's efforts. I am in favour of competition, but not when it results in wasteful deployment of unnecessary equipment and makes use of a 'stack' of equipment mandatory for any remote home that wishes to avail themselves of the combination of services.*

"*The Government is already on record deploring multiple 'set-top-boxes'. The next logical step is to adopt legislation or ABA rules that mandate a sharing of equipment for - as a minimum - the RABS qualified rural users. The first step is in place with the February 1st announcement that RABS viewers located in 'Blackspots' can now be qualified for Aurora reception service.*

"*The Government's plan to spend millions of dollars taken from the sale of Telstra is a bad plan because it is founded on the mistaken belief that terrestrial transmitters can be built to correct for terrain and distance problems. The same money placed in a fund to expand satellite services is a far better answer. We have 15 years of history with RABS - and a foundation of proven success. Digital terrestrial has no such history and based upon overseas reports, little chance of success.*"

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- NEW programming sources seen since March 1st: _____
- Changes (signal level, transponder, programming content) in pre-existing programming sources since March 1st: _____
- OTHER (including changes in your receiving system): _____

NOTE: Please use P1 - P5 code when describing signal levels and receiver IF/RF settings.

Your Name _____
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CLIP & SAVE - SPACE Pacific Reports programmes and schedules

There are presently nine shows completed and on air, 9910 is in final production.

Show 9901: Spectrum Analysers (the Avcom of Virginia series of PSA models is used for illustration), covers TI (Terrestrial Interference), signal level measurements.

Show 9902: From SPRSCS '99 - What you should know (and question) about dish feeds, LNBs plus Mark Long's Thumbnail Sketch of TVRO History (the first pioneers)

Show 9903: From SPRSCS '99 - A critical (and not very complimentary) look at parabolic dish designs, where they go wrong, what to avoid in selecting a dish plus a discussion of PVRs - the next generation VCR device.

Show 9904: From SPRSCS '99 - "What is the market?" - discussion of who buys satellite systems, plus a look at good, bad and inferior F fittings, splitters, "tiny parts"

Show 9905: Dr Overflow Software (for Nokia breed receivers) with Robin Colquhoun

Show 9906: Uplink Tour - RCA in Vernon Valley, NJ

Show 9907: Uplink Tour part two; **Show 9908:** Mark Long on digital basics; **Show 9909:** Mark Long on system basics

Show 9910: Joe Bonavia describes test equipment operation, Pietro Casoar explains polar tracking dish adjustments

Each Sunday 0300, 0700 UTC on **Mediasat** Optus B3, 12.336Vt, Ad Hoc Ch. 3 (Sr 30.000, FEC 2/3)
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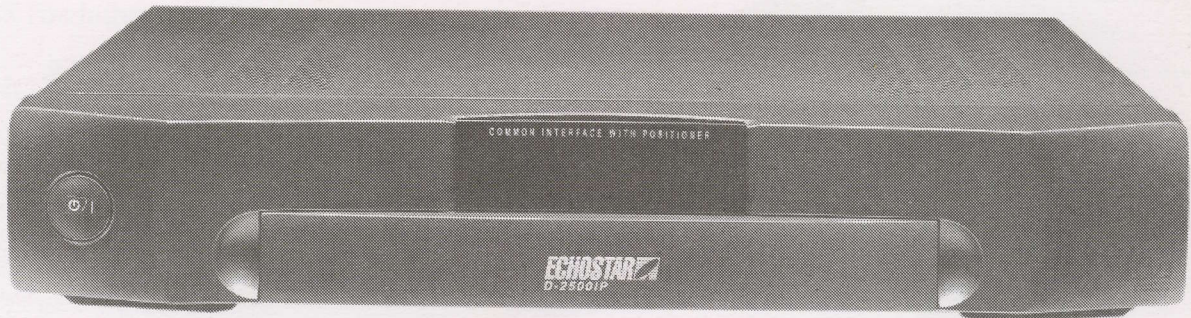
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