12-04-96 9AM

Bob Cooper's

APRIL 15 1996

SatFACTS

MONTHLY

Reporting on "The World" of satellite television in the Pacific Ocean Region

IN THIS ISSUE

PALAPA C1
In The Air Report
From Observers
Across PacAsia

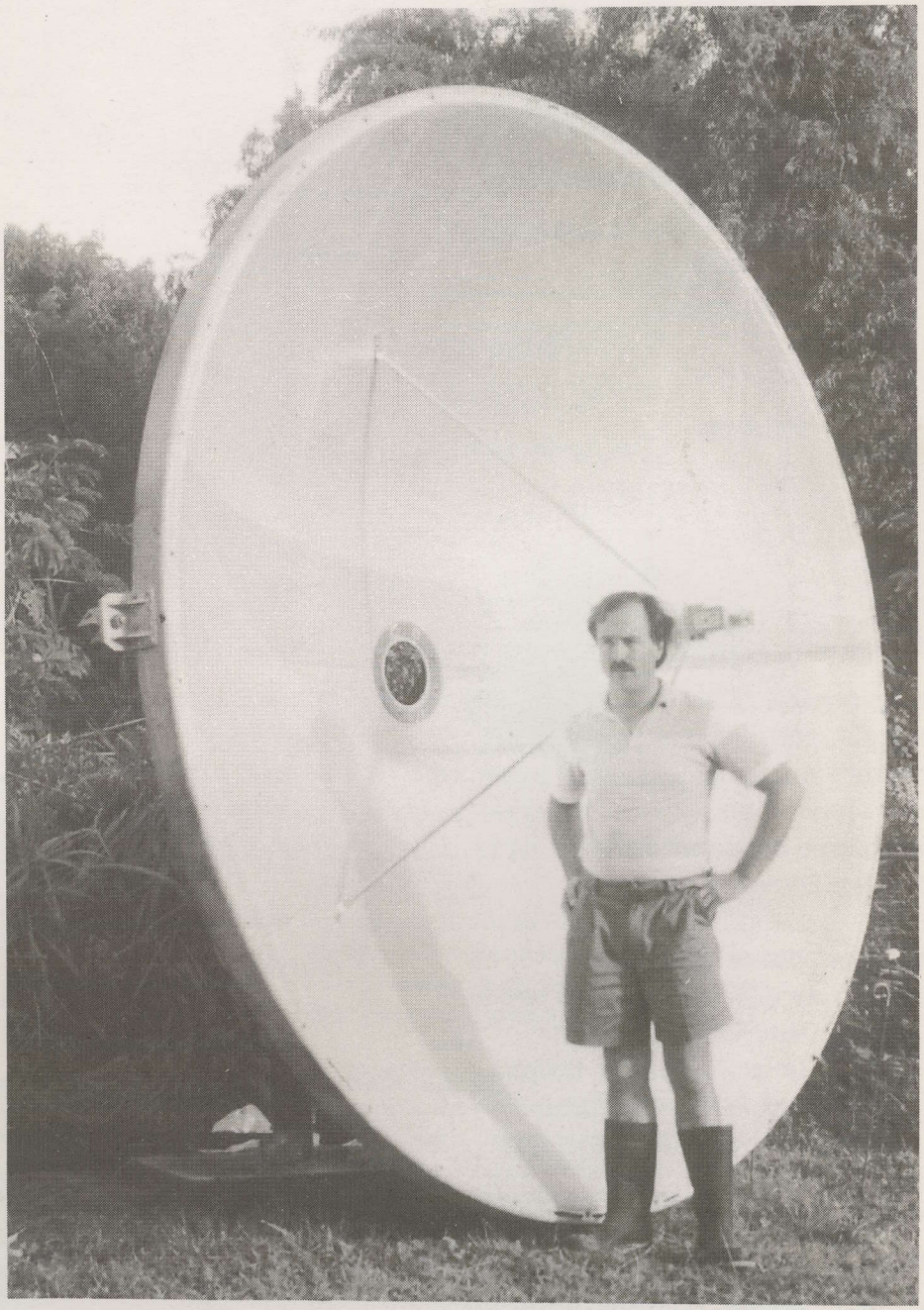
ATMOSPHERICS
The Blemish On As2
Reception From
New Zealand

DVB COMPLIANT
First Receivers Are
On The Way
to Pacific/Asia!

√ Latest Programmer News
√ Latest Hardware News
√ Latest SPACE Pacific Reports
√ Cable TV Connection

Vol. 2 • No. 20

Price Per Copy:
NZ$8/A$9/US$5



Paraclipse®

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

Only **Paraclipse** offers such variety; four distinctly different series:

- •the Truss-Ribbed Classic,
- •the Courier Deliverable Eclipse,
- •the Stretch Formed Hydro,
- •the Commercial Patriot.

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

HYDRO SERIES

ECLIPSE SERIES

CLASSIC SERIES

Distributed in New Zealand by
Bay Satellite TV Ltd. PO Box 14050 Hastings
Tel: 64-6-878-9081 Fax: 64-6-878-5994

Paraclipse®
HIGH PERFORMANCE ANTENNAS

Paraclipse Inc.
2271 29th Avenue East, Columbus, Nebraska USA 68601
Telephone: (402) 563-3625 FAX: (402) 564-2109

★ MADE IN AMERICA

SatFACTS
MONTHLY

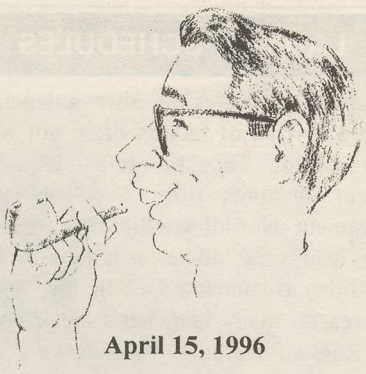
SatFACTS Monthly is published 12 times each year (on or about 15th of each month) by Far North Cablevision, Ltd. This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, 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 the messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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

Reaching SatFACTS
Tel: 64-9-406-0651
Fax: 64-9-406-1083
Mail: PO Box 330
Mangonui, Far North
New Zealand

Subscription Rates
Within NZ: NZ$40 p/y
Australia: AV-COMM Pty Ltd, PO Box 225, Balgowlah NSW 2093 61-2-9947-7417
Elsewhere: US$40 p/y

COOP'S COMMENT



April 15, 1996

Australia. Pushing 17,000,000 people now, growing at an impressive rate, with regulations enacted and enforced by the Australian Broadcasting Authority (ABA) that makes it illegal for a resident to purchase a satellite dish and subscribe to non-Australian TV programming. Canada has a similar law; most everyone there ignores the law and for the US originated DirecTv Ku band service, they estimate 90,000 Canadians have subscribed (out of a DirecTv universe of 1.3 million subscribers).

Australia's recent election changes this rule. Chances are you are learning of this change, first, here.

Satellite and outback TV expert Les Brooks (Alice Springs) gets the credit for this change. In a letter dated 18 February (new) Minister for Communications and the Arts Senator Richard Alston tells Les:

PARLIAMENT OF AUSTRALIA · THE SENATE
SENATOR RICHARD ALSTON
Deputy Leader of the Opposition in the Senate
Shadow Minister for Communications and the Arts

"***Currently*** *there is no restriction on individuals receiving either free to air or pay TV signals from international satellites. There is nothing legally preventing individuals from purchasing a satellite dish and decoder and tuning in these services. However, the retransmission of pay TV signals, for instance on a local cable network, will be illegal until July 1997.*"

Yes, there has been a subtle policy change here. Brooks then went to the ABA (Planning Branch, PO Box 34, Belconnen ACT 2616 [tel 06-256-2800, fax 06-253-3277]) and checked with a "senior official" who validated the Senator's statement.

Bingo! All of you grey market Australian resellers of decoders for CMT, Indovision, Star TV (et al) can now come out from under a rock and openly sell your decoders or IRDs. Can you advertise your products? Possibly. A lifting of the DTH pay-TV subscription ban addresses ABA policy but skirts the tangled web of Australian copyright law. New Zealand's international copyright Guru John Rutherford suggests those seeking to take business advantage with this change tread carefully. New Zealand and elsewhere? Your national laws still apply and while a case might be made for owning an Indovision decoder to watch TNT + Cartoons, Discovery and ESPN, HBO Asia presents a special case that warrants precautions (CTD, 96-02-25, p.2).

Still, outside of Australia we will all benefit. By granting DTH buyers full citizenship rights, programmers suddenly have a reason to come to the DTH party in the Pacific. And that means more programming available to us all. Les Brooks didn't cause the policy to go away but pushing on Senator Richard Alston helped; well done, Les!

In Volume 2 ◆ Number 20

Departments

-ON THE COVER-

Low look angles? This 3m ex-Telecom dish is the pride and joy of Steve Jepson (Levin, New Zealand) and it points as shown at AsiaSat 2. Jepson has excellent quality pictures (photo, page 26). Alas, many dishes looking below approximately 10 degrees elevation angle are finding unexplained "signal fading." We explore why starting page 12.

LAUNCH SCHEDULES

Launch schedules are always dependent upon a myriad of factors often not within total control. Thus the schedule here is current at press-time but subject to adjustment. Not all satellite operators give long lead time advance notice of their intentions to launch a specific bird and for this reason many launches "sneak up" on us. Russian advance information (using Proton launchers) is especially uncertain.

April/May: Palapa C2(M) to 118E where it may be 'stored' for up to a year before replacing B4 at same location. Same C+Ku as C1.

July: Long March 3 launch of Chinasat 7 could well be delayed but when it goes it will be Hughes 376 platform with 24 C-band on board at 87.5E or 125E. Boresight is China proper.

October: Intelsat 801 (delayed from June) to 174E, moving 701 to 180E. New high power C and Ku for Pacific (SF#18, p.10).

December: Thaicom 3 to 78.5E with significant coverage of Australia (SF#18, p.9).

January 1997: Intelsat 803 to 177E, replacing 703. See 801 above.

1st Quarter 1997:
JCSAT4 to 124E.
Mabuhay (Philippines) to 144E.
Indostar 1 to ???E (L-band digital radio, S-band TV).

July 1997: Superbird C (Japan) to 144E (Ku).
November 1997: Intelsat 805 to 110.5E with 36 dBw C, 42 dBw Ku as "regional" satellite.

Late 1997: PanAmSat 7 to region of 68.5E.
Agila 1 (Philippines) with 24 C and 12 Ku to ???E.
Palapa C2 to 108E with 24C, 4 Ku.
Yamai (Russian) with C + Ku to 75E (1st of Russian 15 year lifetime birds).

PROGRAMMER PROGRAMMING PROMOTION UPDATE

APRIL 15, 1996

Malaysian Measat-1 on air (March 31) at 91.5E; Thailand's Mark Long reports P5 level B-Mac signal 4,000/IF1150, vertical. They plan to transmit up to 20 DTH satellite channels (not all FTA of course) by end of this year.

ATN, for more than a year operating on Gz42 at IF of 1465+/-, abruptly announced at end of cricket match (March 14) it was moving to PAS-4 but would return to 142.5E "*in the future*." Not quite. Indian sources report ATN has not even begun negotiations for PAS-4 space and is certainly not there at press deadline. On March 27th ATN returned to normal 142.5E (IF1465) frequency and observers tell us they were never on PAS-4. The Indian satellite world is strange, indeed.

BBC World Service is off AsiaSat 1 (March 31) and is now only available into India and subcontinent area on PAS-4 (4155 vertical/995IF). Replacing BBC on STAR TV package is free to air Hindi movie/entertainment channel which previously shared with Zee TV on As1. Whether BBC World will be a part of STAR TV MPEG-2 service on As2 is not known. PAS-4 (68.5E) has another new service operating: Discovery Channel India on vertical, 3790/1360IF. BBC also now part of PAS-2 Sylmar uplinked MPEG 1.5 package with CMT et al (IF1408, Vt).

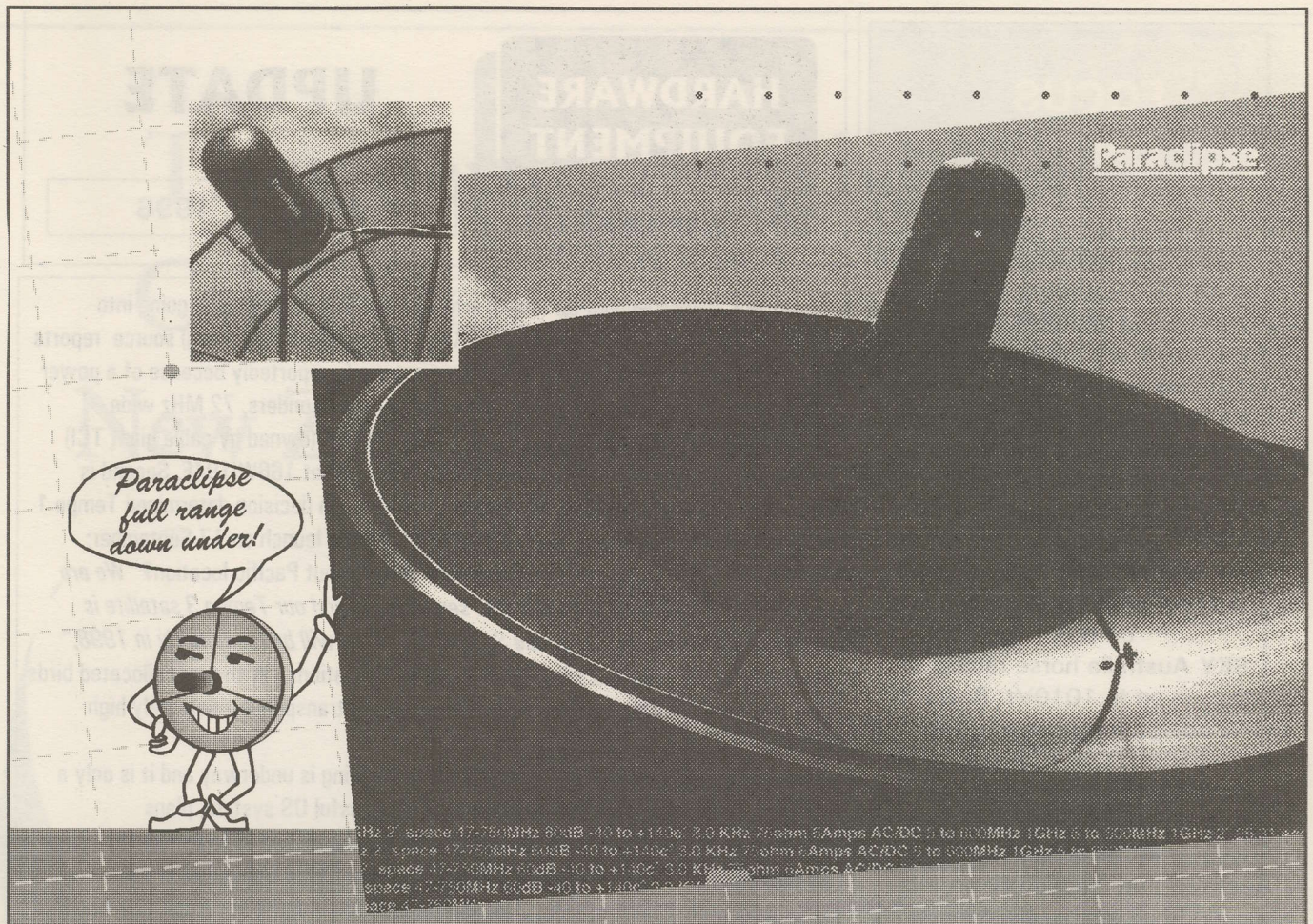
USA DirecTv hackers continue to sell pirated cards at US$600; most sales are to Canada, Mexico and Caribbean where DirecTv is not sold legally. The present hack is based upon the master-clone concept; one authorised card is replicated exactly and as long as the master card is kept active, the authorisation stream maintains the active status for the "clones" as well. McCormac's Hack Watch News reports conditional access contractor News Datacom will upgrade the DirecTv "smart card" to the Sky 10 card architecture which replaces the present card's Motorola 6805 microcontroller with the newer Siemens 8051. This expands the card's ability to withstand hacks by adding ASIC (Application Specific Integrated Circuit). Hackers will first have to emulate the microcontroller code and then replicate the ASIC. Sound complicated? It is a challenge but the stakes are huge; a mere 1,000 cards brings in US$600,000 and in a universe where DirecTv has more than 1,300,000 paying subscribers, a few thousand using "hacked" equipment is not a threat to the operators of DirecTv.

United International Holdings (UIH) is not ruling out accepting DTH subscribers in Pacific for 10 channel service (SF#19, p.23) scheduled to start Intelsat 701 (174E) July-September. They have a 72 MHz wide "Prime Hemi Beam" which will handle more than 20 DVB Compliant MPEG programme channels; all programming is to be in English from US, Canada, UK sources (see p. 22 here). DTH dish size for some could be as small as 2.4m.

NHK on PAS-2 refined their uplink system during February and is near ANBC-level on 1115Hz making NHK-only systems now feasible with Pacific dishes under 3m.

PAS-2 uplink instability. Hong Kong uplink (TNT, NBC, CTN, CCTV, ABN) suffered downtimes March 28 and again 29th because of power system failures. Additionally, Discovery shifted from California to Singapore uplink 1 April with some loss of service at midnight Sydney time; not an April Fool's joke.

NBC is operating C1 transponder 6EH (horizontal, IF 1530; audio 6.6) as "barker channel" in FTA form until July 1st combining some of CNBC and some of NBC Asia programming. NBC Asia is being carried 1930 (HKT) - 0130 weekdays, 1230-1930 Saturdays and 1230-1900 Sundays; rest of day is CNBC. NBC Asia launches permanent schedule today (April 15th) with significant changes. Service has been in test and demonstration mode on PAS-2 in MPEG 1.5 since mid-January, will not upgrade to MPEG-2 before late June.



Paraclipse Antennas

- High efficiency perfect reception
- Precision hydroformed and mesh antennas provide years of trouble-free reception
- Exceptionally distortion-free C and Ku band reception, even from 2° spaced satellites
- One piece hydroformed reflectors
- Heavy-gauge aluminum antenna adds structural strength
- Protected with a baked-on powder-coat finish
- Self-aligning, three pole feedhorn support
- A heavy duty, pre-assembled, fully adjustable polar mount

Available from:
SKANDIA ELECTRONICS PTY. LTD.

Skandia

Head Office: 183 Burwood Road Hawthorn, Victoria, Australia 3122
Tel: (613) 9819 2466 Fax: (613) 9819 4281
NSW Office: 4/411 Church Street Nth Parramatta, NSW, Australia 2151
Tel: (612) 630 0888 Fax: (612) 630 8690

STARnet

FOCUS ON C1 PROGRAMMING

STAR TV (IF 970Vt), while not nearly as strong south of the primary Asian coverage area as others, continues to be a high interest service because of its mixed English language content. Sports and Channel V are featured much of the day with Star Movies in the evening Indonesian time (UTC +8). Stereo audio is on 6.3 and 6.48 (Panda compressed) with conventional audio on 6.8.

SKY Australia horse racing, in B-MAC, is on IF 1010Vt. **Radio TV Brunei** operates there from (before) 0930-1100UTC in FTA analogue; possibly the least appealing programming on any satellite, anyplace in the world. **Gold Net Australia** may be history on this transponder now that SKY racing is there.

Encrypted US programming (video - line cut and rotate system) is common on RTM-1 (IF 1330Vt) and TV3 (IF 1250Vt); the audio is not encrypted.

TPI (IF 1070Hz) and TVRI (IF 1310 Hz) frequently parallel programming with TVRI showing up on the TPI transponder. Weekday evenings at 0800UTC (6PM Sydney) TPI shows a family-type English language movie with Javanese/Bahasa sub-titles. On weekends, there are numerous English language programmes (including sports and musical variety) on TPI, TVRI or both.

Teletext is extensive on C1 with programme schedules, news, sports and weather found on many. The CFI teletext is especially intense (start on page 300!) although TPI, TVRI and others also have extensive scheduling information (TPI pages 663>).

CFI (IF990Hz) is heavily into sports on weekends including Five Nations Rugby (some Sundays around 0700UTC), major European Tennis matches (usually live).

HARDWARE EQUIPMENT PARTS UPDATE

APRIL 15, 1996

Palapa C2M, scheduled for launch late this month, was originally going into "storage" at 118E. Probably not, now. Add to C1 woes - (Hong Kong) source reports Ku side defect; basically, Ku on board does not work, reportedly because of a power supply failure (!). C1 and C2M both have four Ku transponders, 72 MHz wide.

TEMPO 1 (SF#19, p.4). Not in our backyard. Tempo (owned by cable giant TCI) has two orbit positions for high powered Ku DBS; one at 166W/194E. Second is much further east, not usable for Pacific. A late March decision determined Tempo 1 will go to eastern location (possibly 82W) with Proton launch on 17 September; Tempo 2 to same location in mid-November. What about Pacific location? "*We are sensitive to the need for a Pacific Rim service base and our Tempo 3 satellite is already under construction (Space Systems/Loral). It will be ready to fly in 1998,*" according to Gary McCue, Director of Satellite Operations. With two collocated birds they will have 32 transponders with 226 watts per transponder; definitely high power.

Other Ku DBS options for Pacific? Serious planning is underway and it is only a matter of when, not if. DirecTV, operator of successful US system, plans July-September launch of 100 channel service for Japan and India apparently using Ku capability on JCSAT-3 (128E). Echostar has purchased transmission rights for 24 transponders at 148W; scheduled launch targets July-August but is not firm because of latest Chinese Long March failure. And Direct Broadcast Satellite Corp (DBSC) has permits for 61.5W + 175W (32 transponders, 115 watts each); 1st bird to fly in July 1997. None of these are known to possess southern hemisphere footprints but given past performance records, we may benefit fortuitously.

Thaicom 3 is going after video market in virtually all of Asia plus Australia. New satellite, scheduled for late this year to 78.5E, will have extensive big footprint capabilities (34.5 dBw) over most of Australia. Latest trade publication adverts proclaim its unique ability to provide DTH to, "*Asia, Europe, Australia and Africa.*"

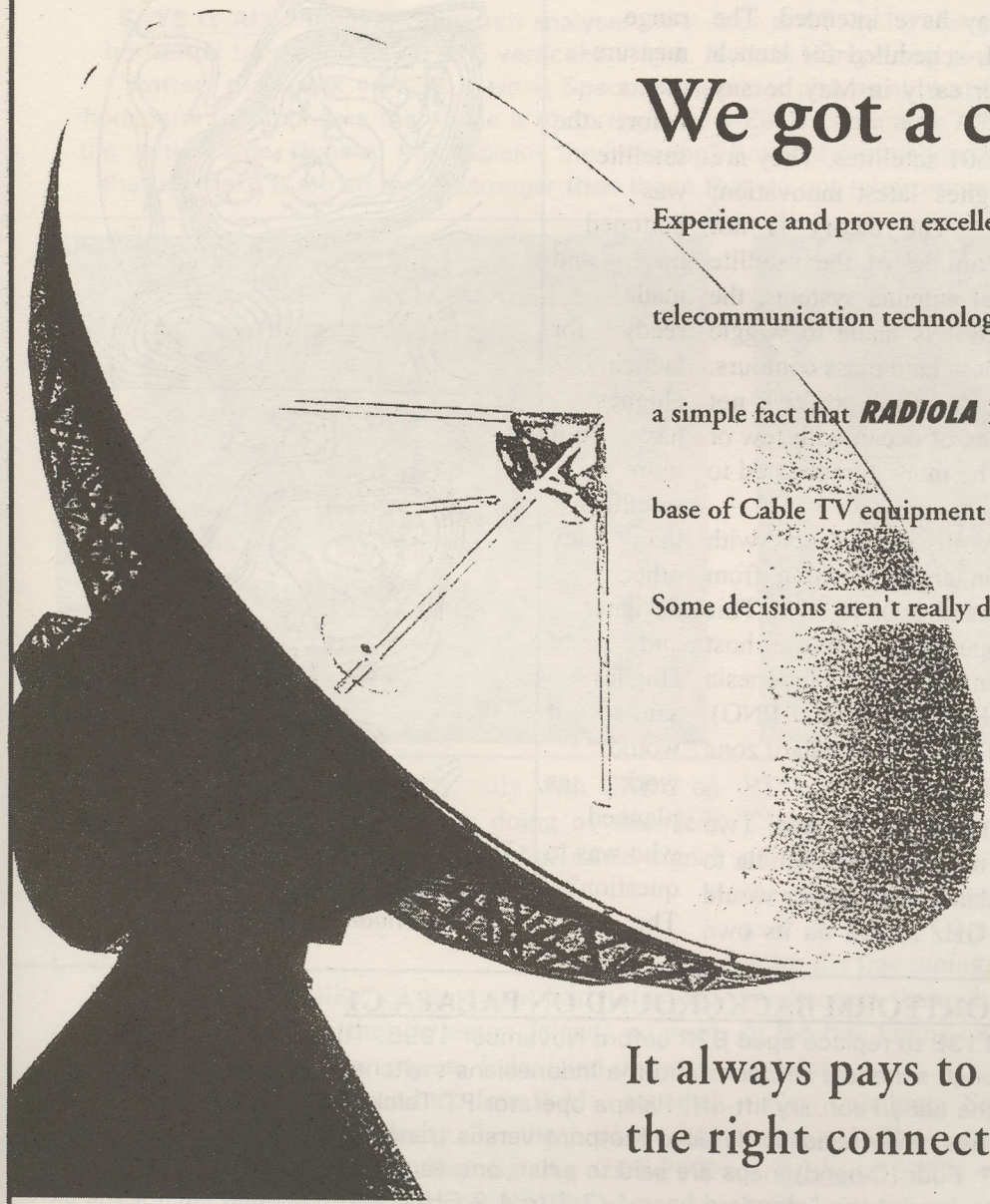
Philippines MPSC says their December 14th launch to 144E is a hard date and it will not slide. There are problems: Japan plans Superbird-3 to same 144E slot in 1997 and MPSC is building C + Ku band bird. Filipino company says in worst case, it will launch and operate only C-band portion since Superbird is Ku only satellite (two can collocate on separate bands without interference problems).

Possibly inexpensive STAR TV and Indovision decoders could be found in PNG and Solomon Islands. Switch from B2P to C1 has left hundreds (thousands?) of private dishes without service from these programmers. Many of those who had acquired decoders through Indonesia are now without reception; see detailed report page 6.

MPEG status report (SF#19, p. 9) update this issue (p. 16) does not paint improving picture. Increasingly, it looks like you have this choice: Locate a PACE unit without Galaxy PCMCIA (Iredito) conditional access module (A$900 range in "grey market"), or order SA D9223 DVB Compliant commercial version (A/NZ$3,000 range). PAS-2 changing out receivers on Sylmar uplink at this time to 9223; Hong Kong, then Singapore will follow during late April, May and probably extending well into June.

First Indovision decoders (Scientific Atlanta CDE-2000) are arriving in Pacific area; early tests indicate you should have at least P4 level signal on TPI (as reference) and equivalent level signal on TNT, HBO (et al) for decoder to function.

They demanded the best Cable Television supplier New Zealand could provide.



We got a call.

Experience and proven excellence in every aspect of telecommunication technology mean everything. It's a simple fact that ***RADIOLA*** has the largest installed base of Cable TV equipment throughout the country. Some decisions aren't really decisions at all.

It always pays to have the right connections.

Proud distributors for Scientific Atlanta.

RADIOLA
CORPORATION LIMITED

Making life easier for all sorts of people

Wineera Drive, Porirua, Wellington. Tel: 04-237 0159 Fax: 04-237 1267

One Weird Bird

PALAPA C1: NOT ACCORDING TO PLAN

Murphy's Law

"*Whatever can go wrong will go wrong, in the most uncorrectable way at the least favourable time.*"

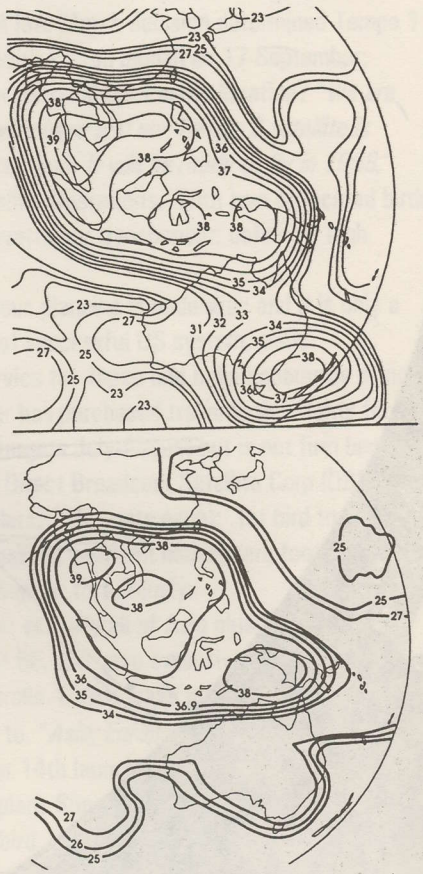
Palapa C1, if not broken, is at least badly bent. How badly only engineers and top management at PT Telekomunikasa Indonesia know for sure. But the evidence as gathered by SatFACTS from readers spread throughout Asia and the Pacific does not point to this satellite functioning as TPTI may have intended. The major today concern: Will C2M, scheduled for launch close to the end of this month or early in May be any better than its C1 twin?

C1 and C2M are Hughes HS 601 satellites. They are amongst the first to employ Hughes' latest innovation; "sculptured C band footprints." The theory is not difficult to grasp: By careful "tuning' of the satellite transmit (and receive) directional antenna systems, the footprint (coverage on the ground) is made to wiggle and waggle back and forth to follow land mass contours. In this way valuable transponder downlink power is not wasted by covering large expanses of ocean with few or no people. Alas, the theory may be more complicated to implement than to explain.

C1 and C2M have one primary mission; to serve with the strongest signals possible an area stretching from approximately 90 east to 150E and 30N to 17S. This takes in all of Indonesia proper (the satellite host country) as well as nearby important to Indonesia markets (Malaysia, Thailand, Hong Kong and PNG). All of this is possible with an off-the-shelf standard zone satellite beam.

The secondary mission was more complicated. Two additional "markets" beckoned; mainland Asia (India to Japan) and Australia + New Zealand. Asia proper would be served using the 3.4 to 3.7 GHz region on its own beam. Australia and the Pacific region would be reached through the specially sculptured standard "zone" footprint. Hughes could "model" the footprints after sculpturing with computer simulation using test range measure-ments before the satellite was buttoned up and made ready for launch. Hughes has built more satellites than any other designer and if Hughes said it would work as planned, who was to question? The

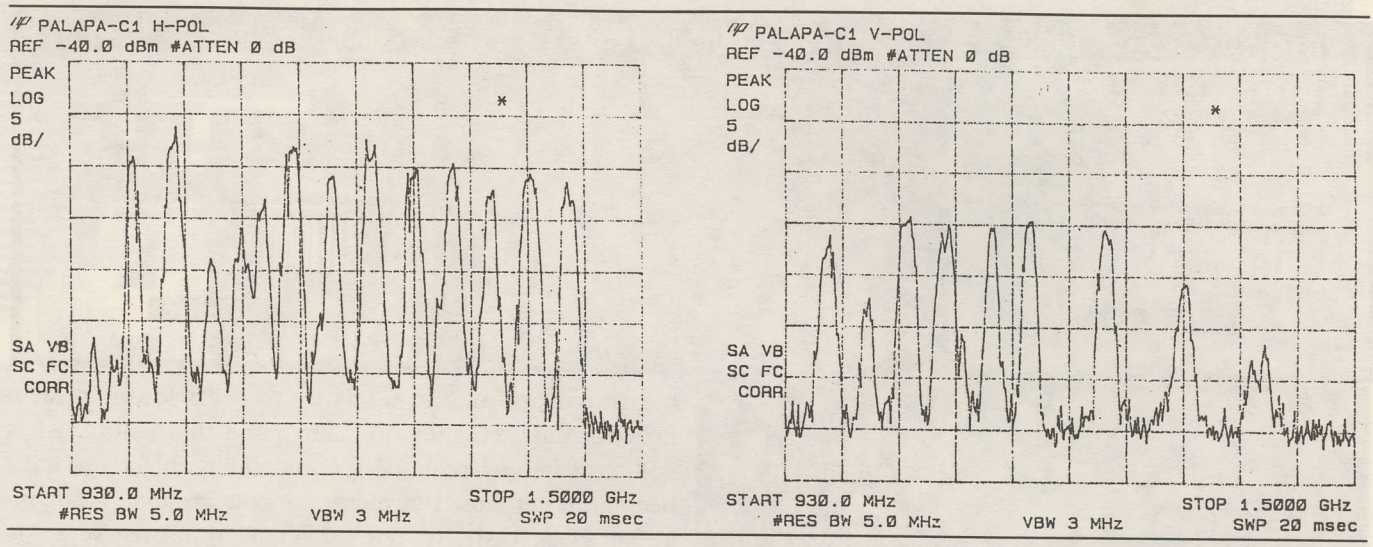
This coverage map partially explains 6 hot horizontals but fails to explain medium-level verticals.



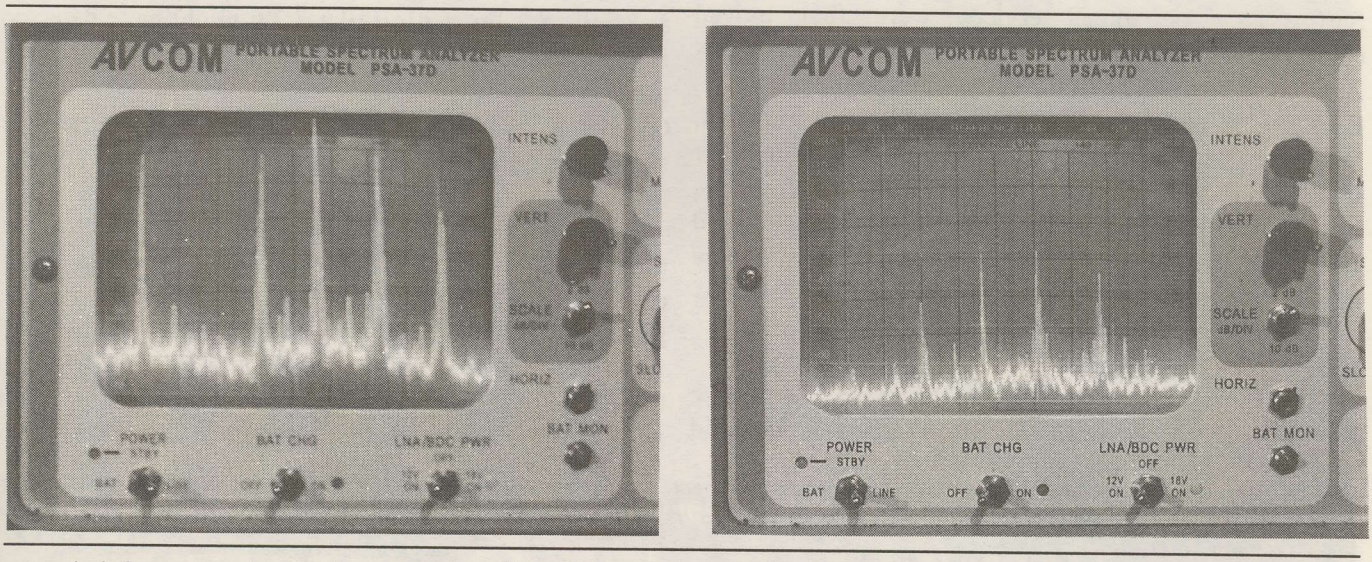
This map explains weaker verticals and horizontals but also fails to explain medium level verticals

SHORTFORM BACKGROUND ON PALAPA C1

Palapa C1 was to go to 113E to replace aged B2P before November 1995. The launch was delayed following a succession of launch schedule setbacks and the Indonesians switched to an Atlas (US) launch vehicle only months before the early February lift-off. Palapa operator PT Telekomunikasi Indonesia (PTTI; telephone 62-21-520-3321) has never released detailed footprint versus transponder coverage maps citing "commercial sensitivities." Four (C-band) maps are said to exist; one each for horizontal and vertical polarisations, one set of maps for the "standard beam" (3.7 to 4.2 GHz) and a second set for the "extended C-band" (3,400 to 3,700 MHz). Two maps appear here. New Zealand and eastern Australia fall into the 34 dBw+ region on one map, well down (under 23 dBw on New Zealand) on the second map. Alas, perhaps there are two more maps - actually two maps for each beam, one for the horizontal and one for the vertical channels - and to the best of our knowledge the full set of four maps has never been published. The results observed starting near 0000UTC on the 16th suggests there were significant variations at play as the satellite turned on.



SAYS IT ALL. (*above*) Spectrum analyser plots shot at STAR TV Hong Kong (CWB) uplink site with horizontal transponders on left, vertical on right. Note in Hong Kong peak horizontal is more than 7 dB "hotter" than peak vertical. (*below*) Spectrum analyser photos shot at SatFACTS on 4.5m dish. The horizontal transponders that make it to northern New Zealand are also 7dB+ hotter than the strongest on the vertical side. None of this explains the "missing" horizontal transponders in New Zealand or why those that do make it are so much stronger than those that do not (photo taken before TPI switched to C1).



extended frequency band signals, only with CNBC on board late in March, seems to be doing as intended; Japanese observers report the IF1525 horizontal signal P4 in Tokyo on a 1.8m dish (Harald Steiner).

Case Number One

With the B2P satellite, employing a fairly standard zone beam, PNG and (the) Solomon Islands enjoyed eirps in the 32 to 36 dBw region. Indovision decoders sold well in both countries and the four B-Mac encoded services had grown in popularity. For those who could not afford the US$1,000+ outlay for the CDE-2000 decoder and a year's service contract, the less expensive partially encrypted Star TV single channel service was available. By March 18th virtually all of these DTH systems had gone dark. Television station EM TV in PNG complained (they had Indonesia's attention because they were - still may be - considering leasing space on C1 or C2M for their post-142.5E move early in 1997). PTTI management decided to risk some fine tuning of C1 and by remote control on March 25 made a vernier adjustment to move the C1 antenna feed system. Prior to the move EM TV was measuring wild gyrations as great as 9 dB as the C1 signal popped in and out randomly. After the fine tuning the signal settled down but remains weaker now than with the old B2P. With advance notice of the fine tuning exercise, a number of observers were watching.

New Caledonia: Signals on some vertical transponders came up 1 dB.

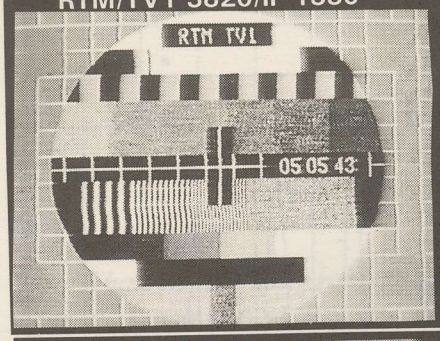
Brisbane: ESPN went from unusable on a 2.4m dish (with Indovision decoder) to a solid lock.

Northern New Zealand: No change measured.

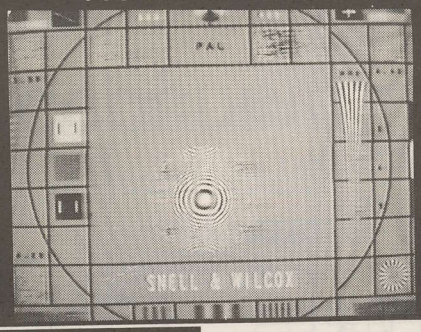
Sydney: Improvements of up to 2dB.

From the first sign of C1 operation (1800UTC on March 15) to approximately 0000 UTC on the 26th,

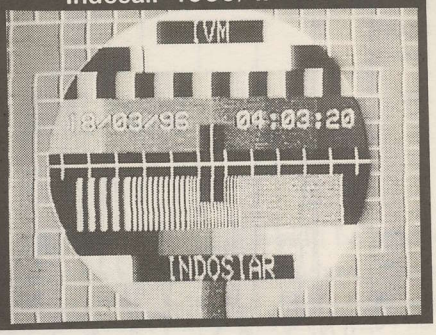
RTM/TV1 3820/IF 1330



TV3 3900/IF 1250



Indosair 4060/ IF 1090



Vertical side P3 or better at SatFACTS on 4.5m terminal. To left, CNNI on 3980/ IF1170

hundreds of reports (many "play by play") came in to SatFACTS. As some services were first moved (Indosair, for example) the signals were brilliant in New Zealand but within hours they were down in the noise. By the 18th the major move from B2P was completed. What they had was what we now accept as "normal" for C1. Normal is a relative term and it appears from the reports that if this was the type of coverage Hughes and PTTI had initially anticipated, there were some very unusual objectives at work.

Case Number Two

The primary objective, high quality small dish service into SE Asia seems not to have been met. Our Thailand measurements suggest C1 is up to 3 dB lower in level than forecast. Hughes might respond that a forecast is not the same as real service and their objectives have been met. Perhaps. But measurements in Hong Kong on a 9m class dish by one of their uplinkers suggests otherwise; C1 is 1 dB lower in level than B2P had been. And that is the best case example we can report.

And The Good News

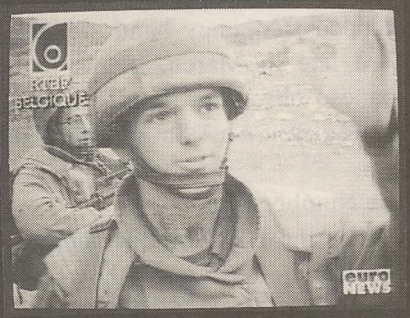
There is much. All across Australia Palapa signals on at least some transponders are loud and clear on dishes as small as 2.4m (with B2P a 7.3m might have detected frame bars). Likewise in New Zealand, although for far fewer transponders than Australia. And in New Caledonia and surrounding islands, some first-time service on some vertical and horizontals - but nothing really strong.

For six of the horizontal side transponders (half of the total of 12), New Zealand seems to be enjoying levels that approach in the best case (Canale France International and HBO) those in Malaysia and Thailand. HBO believes they are on the "South Pacific extended beam" and if this is true, the levels are up to 4dB weaker than original footprint maps forecast. On the other

TVRI 3840/IF 1310

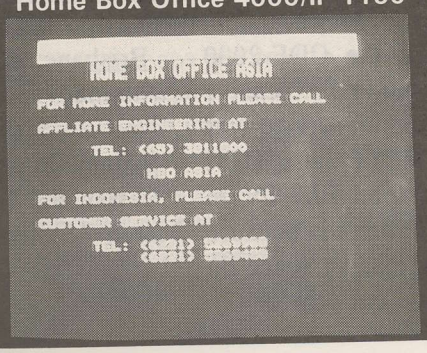
ABN 3920/ IF 1230

CFI / 4160/IF 990

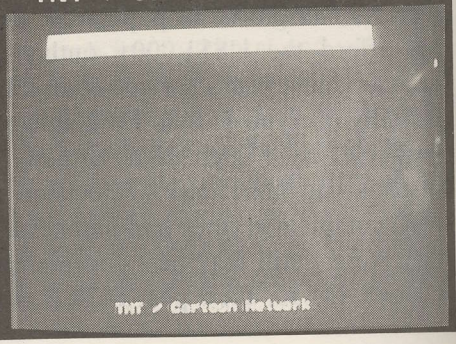


Horizontal side P5+ at SatFACTS on 4.5m terminal. Discovery at 3720/IF 1430 is just below B-MAC threshold. TNT+ and HBO are of limited practical value (see text).

Home Box Office 4000/IF 1150



TNT + Cartoons 3760/IF 1390



C1 Transponders

RF freq	IF freq	Vt	Hz
4,180	970	STAR TV	* = B-MAC
4,160	990		CFI
4,140	1,010	Sky Oz* et al	
4,120	1,030		MTV
4,100	1,050	ESPN*	
4,080	1,070		TPI
4,060	1,090	TV Indosair	
4,030	1,120		GMA (1/2 Tr)
4,020	1,130	An-Teve	
4,000	1,150		HBO*
3,980	1,170	CNN	
3,960	1,190		SCTV
3,940	1,210	(None)	
3,920	1,230		ABN
3,900	1,250	TV3	
3,880	1,270		ATVI
3,860	1,290	(None)	
3,840	1,310		TVRI
3,820	1,330	RTM-1	
3,800	1,350		RCTI
3,780	1,370	(None)	
3,760	1,390		TNT+*
3,740	1,410	(None)	
3,720	1,430		Discovy*
3,625	1,525		CNBC

Apparent dBw Levels - end of March

Alice Spgs.	Sydney	New Zeal.	New Caled.	Thailand	Hong Kong
28 dBw	NM - not measured	<24 dBw	24 dBw	34 dBw	34 dBw
33.5 dBw	33 dBw	35 dBw	27 dBw	38 dBw	36 dBw
NM	NM	26 dBw	25 dBw	33 dBw	NM
26 dBw	NM	<24 dBw	25 dBw	34 dBw	38 dBw
28 dBw	26 dBw	<24 dBw	24 dBw	34 dBw	35.5 dBw
32 dBw	33 dBw	33 dBw	27 dBw	33 dBw	37 dBw
32.5 dBw	NM	27 dBw	28 dBw	33.5 dBw	35 dBw
<24 dBw	28 dBw	<24 dBw	25 dBw	34.5 dBw	32 dBw
24 dBw	NM	<24 dBw	NM	34 dBw	34.5 dBw
33 dBw	35 dBw	34 dBw	28 dBw	34 dBw	37 dBw
32.5 dBw	29 dBw	28 dBw	29 dBw	34 dBw	35.5 dBw
30 dBw	24 dBw	24 dBw	27 dBw	34.5 dBw	34 dBw
33 dBw	33 dBw	33 dBw	27 dBw	36.5 dBw	37.5 dBw
33.5 dBw	<24 dBw	27 dBw	28 dBw	34.5 dBw	34.5 dBw
30 dBw	<24 dBw	<24 dBw	27 dBw	37 dBw	35 dBw
31 dBw	33 dBw	32 dBw	27 dBw	36 dBw	35.5 dBw
28 dBw	<24 dBw	27 dBw	28 dBw	34 dBw	29.5 dBw
25 dBw	<24 dBw	<24 dBw	27 dBw	35.5 dBw	32.5 dBw
32.5 dBw	24 dBw	32 dBw	28 dBw	37 dBw	34.5 dBw
26 dBw	<24 dBw	25 dBw	27 dBw	36 dBw	33.5 dBw
26 dBw	NM	26 dBw	25 dBw	36.5 dBw	NM

THIS TABLE: Compiled from knowledgeable reports solicited by SatFACTS from skilled and properly equipped observers. Read horizontally noting how certain transponders are universally strong (TPI for example), others are universally weaker (such as ESPN). Others are hot here and cold there (i.e., ATVI). The two right hand columns (Thailand & Hong Kong) represent primary target region; four left are expanded coverage from B2P.

hand, the other six horizontals are P1 with an occasional P2 on a 7.3m at the University of Auckland (see our calculated eirp level chart, above). And in at least eastern Australia, the horizontal set of six "missing" in New Zealand are at least P3 on 3m range dishes. Further north in New Caledonia the "hot six" are only P3 to 3.5 on 3.6m dishes; about equal to the best of the verticals. All of this makes for some very unusual variations in signal levels from location to location. A distance of 100km can easily make a 3-5 dB difference if you are in just the wrong spot; witness the EM TV experience.

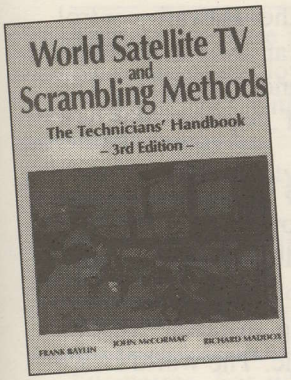
C2M - Coming Up

With the scheduled launch (late April - early May) to 118E of C2M, the four to six week checkout will begin again. The original C2M plan was to "store" it since B4 (118E presently) was only put into position in 1992. However, with the C1 complications a number of scenarios are possible, including splitting the users between the two satellites. The Palapa saga continues.

AV-COMM SATELLITE TV EQUIPMENT

WORLD SATELLITE TV AND SCRAMBLING

Cat # B1020



Known as "the technicians' handbook", this text is a must buy for technicians, satellite professionals, and enthusiasts. The design, operation, and repair of satellite antennas, feeds, LNBs and receivers are examined in detail. An in depth study of scrambling methods, and broadcast formats is the backdrop to a discussion of all current American and European satellite TV technologies, including the Videocypher II, Oak Orion, Filmnet, UK Sky Channel, EuroCypher, D2MAC, BSB and Teleclub Payview III. Circuit and block diagrams of all components are presented and clearly explained throughout the book.....$79

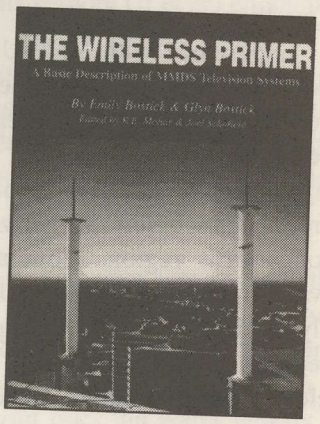
WIRELESS CABLE & SMATV

Cat # B1011

A comprehensive study of the new broadcast method, Wireless Cable, and the closely related field of satellite master antenna TV systems (SMATV). Three chapters are dedicated to details of the site survey, planning and design phases of a private cable system. Off air and satellite headends and all components from antennas to processing and mixing electronics are studied in detail. Ideal for those considering an MMDS installation. $89

THE WIRELESS PRIMER

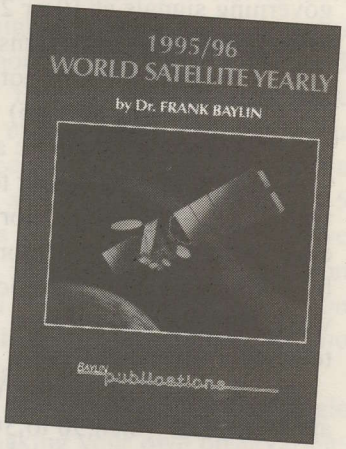
Cat # B1021



A 76 page complete description of MMDS television systems. This first edition, published in 1995, contains thirteen comprehensive chapters covering all aspects of system design, and shows actual on-air configuration of a 31 channel MMDS system. A valuable reference for anyone involved in installation or maintenance of an MMDS system, "The wireless primer" shows how one operator in the USA saved $100,000 on hardware by following the designs in this book!! $45

1995/96 WORLD SATELLITE YEARLY

Cat # B1013



The 768 page 1995/96 World Satellite Yearly contains the latest information about satellites, technology and programming. Features updated chapters on audio and video compression, footprints for satellites launched during 1994 and projected for 1995/96, and worldwide programming assignments. The ultimate reference book on satellite TV footprints, programming and technology. $140

AV-COMM PTY. LTD.

DIRECT IMPORTER ACN 002 174 478

PO BOX 225, BALGOWLAH
NSW 2093 AUSTRALIA

TEL: (02) 9949 7417

FAX: (02) 9949 7095

CUSTOMER BULLETIN BOARD
(02) 9905 0849

LIGHT YEARS AHEAD OF OUR IMITATORS

✓YES GARRY, Please send me

- ☐ ***1 x World Satellite TV and Scrambling @ A$79 Plus $17 Airmail***
- ☐ ***1 x The Wireless Primer @ A$45 Plus $6 Airmail***
- ☐ ***1 x Wireless Cable & SMATV @ A$89 Plus $23 Airmail***
- ☐ ***1 x 1995/1996 World Satellite Yearly @ A$140 Plus $23 Airmail***

Order two or more titles and we'll send your shipment freight FREE!!

Credit card No: |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Signature _____ Expiry Date: __/__/__

Name: _____

Delivery Address: _____

_____ P'code: _____

Satellite Signals That "Fade"

ATMOSPHERICS: LOW LOOK ANGLE CHALLENGE

Our Troposphere At Work

Experience with VHF-UHF-SHF signal transmission paths through the atmosphere (i.e., earth originated and received signals) has created a significant body of resource data. Prior to the mid 1930s all radio transmission and reception work was conducted at frequencies below 30 MHz in either the short-wave or long wave region. Coverage was either by "ground wave" or by ionospheric "skip," which causes signals to fly to distant points through an intermediate "passive" relay in the ionosphere (layers of rarefied gases at elevations from 100 to 600km). The ionosphere, prior to satellites, was the only medium offering communication circuits that were beyond the "ground wave" (nearby region) reach of a transmitter.

In the early 1930s investigation of our lower VHF frequency region (30 to 100 MHz) began and entirely new laws of physics were discovered. Radio waves at 50 megahertz (MHz) did not obey the same observed laws governing signals at 10 or 20 MHz. The ionosphere was seldom an influence to transmissions beyond 30 MHz so these frequencies could not be depended upon for long distance (300 km and up) communication circuits. At first this was thought to be a negative since all emphasis was on long distances. But television and FM radio were waiting in the wings for serious development and eventually it occurred to forward thinking scientists that by eliminating long distance circuits these frequencies were actually quite ideal for "radiovision" (as early television was termed).

By the start of World War Two in Europe, it was apparent VHF (then,30 to 300 MHz) was ideal for many things including air to ground, air to air and other "line of sight" circuits. Strong signals, freedom from interference, and dependable coverage all worked to make VHF an appropriate choice for covering distances from 0 to perhaps 200 km.

During WW2 it was verified that VHF was more akin to "optics" (physical laws governing the transmission of light waves) than the distant cousins short or long waves. It was thus not a total surprise that VHF radio waves could be bent or reflected in their transmission path by a physical object; just as light can be redirected in a science experiment with a prism or mirror. At first this was an idle scientific curiosity until some quite perplexing observations began to pile up. VHF military radar in India began to pick up "targets" (reflections) up to 2,500km distant. Air carrier pilots lifting off the deck at San Francisco's airport found the Hawaii control tower coming through loud and clear over a 4,000km path at frequencies between 100 and 200 MHz. The scientific world's understanding of "optics" did not explain these reports.

By the mid-1950s television was digging a toehold world-wide. Now there were quite powerful transmitters scattered around the globe in the 40-220 MHz range. And millions of receivers to intercept their transmissions. The number of "long distance" reports mushroomed and became an epidemic. The world's love affair with the first bloom of television created a cadre of long distance TV enthusiasts; people who prowled the dials looking for signs of "abnormal" reception.

Shortly numbering in the tens of thousands of reports, the sheer volume demanded serious scientific study. By the 1960s the explanation was quite clear; the lower layers of the atmosphere, the so-called troposphere, could under certain climatic conditions carry "line of sight" VHF (and later UHF and SHF) signals well beyond the normal (optical) limit of reception.

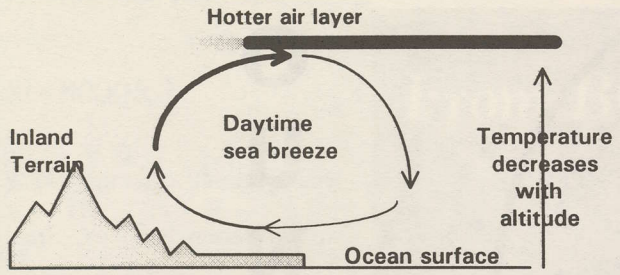
Atmospheric Inversion and Ducting

Climb or fly higher and the air cools off. They have very few days (or hours or minutes) of above freezing temperatures on top of Mt. Everest. As you might suspect, there is a "standard" rate of temperature drop for every 1,000 feet of additional altitude above the earth's surface using sea level as a reference point. In the daytime the sun will on a clear or partially overcast day warm the earth and this heated air rises giving creation to "convection currents" (relatively narrow vertical pockets of heated air). Close to a coastal line, the always cooler water establishes an onshore breeze in the daytime as cooler air over the water comes ashore (as a breeze or wind) to replace the heated air that rises with earth heating.

What does this have to do with satellite reception?

Heated air forms into horizontal layers above the earth. If you started at sea level and went up measuring the temperature along the way you would find the temperature descending at a "standard" rate until you encountered one of these horizontal layers of heated air. Then, quite abruptly, the temperature would cease dropping and rise; often by many degrees.

Where the heated layer of air meets the "standard" (for that altitude) cooler air an invisible boundary forms.



You can measure it, you cannot see it. That boundary is the cause of our low look angle satellite signal fading.

Boundaries within the atmosphere (layers of air that are distinctly different in either temperature, or moisture content - humidity) have a most unusual ability. They act as "traps" for VHF, UHF or SHF (frequency range) signals. A signal that originates on the under side of the boundary (i.e., on earth) is trapped within the boundary region and may be transported just a few thousand feet above the earth's surface for hundreds, or thousands of kilometres. For whatever distance along the surface of the earth this boundary persists, the "line of sight" optic-like signals stay trapped. They exit (and continue their path into space) only when the boundary "layering" in the atmosphere ceases to exist. Thus a pilot leaving San Francisco airport climbs a few thousand feet and suddenly he encounters this boundary layer which is transporting VHF airport control radio signals from Hawaii over a 4,000 km path. And there Hawaii is loud and clear on his radio.

The boundary layer works in both directions; signals originating above the boundary (such as satellite signals) that must pass through the "inversion layer" (formal term for this layering) are trapped along the top of the layer. A satellite dish that, without the layer, has a clean line of sight shot or path to the satellite is now deprived of the signal because the "inversion layer" stops the signal in its last few kilometres of travel and carries it forward to some distant point (the point being where the inversion layer breaks up).

Angle

A satellite signal that arrives at your dish with a 0 degree elevation (look) angle is for all practical purposes a "terrestrial signal." It will behave just as a C or Ku band terrestrial signal would behave in the presence of an "inversion." As the angle increases the intensity of the inversion becomes a factor as to how much of the signal is totally trapped by the inversion, or alternately, how much "leaks through" to the satellite dish. Increasing the angle reduces the trapping. This is why higher look angle signals seldom (if ever) encounter this "terrestrial" effect.

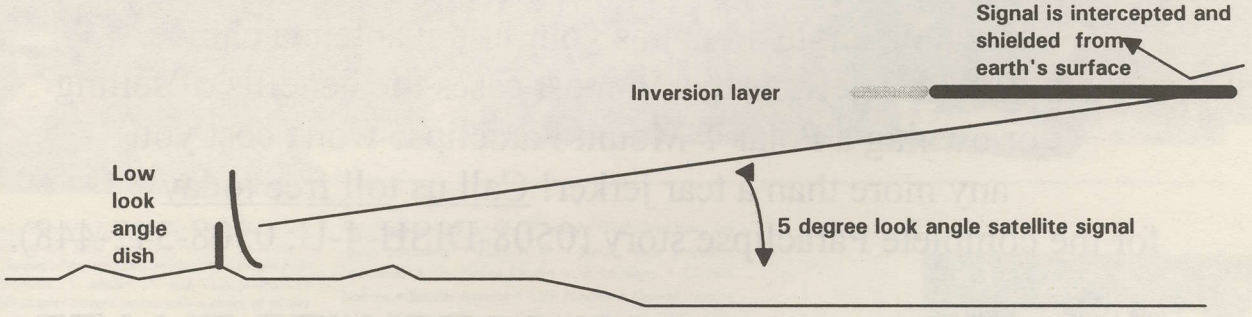
At angles of arrival below 10 degrees there will be some percentage of the signal that is trapped by the inversion layer. Reduce the angle or strengthen the inversion layer and the amount of signal leaking through quickly rises.

Periodicity

Inversion layers form best and most often where the earth's surface is relatively flat. They are frequent over water (witness the Hawaii to San Francisco route), fairly rare in irregular (mountainous) terrain. If your dish is located such that you look out over the water nearby to your dish towards a satellite, or over a flat (not hilly or mountainous) stretch of ground, you can anticipate inversions to form more often.

Inversions form only when there are substantial areas of high (barometric) pressure over you; squalls, low pressure areas are too turbulent to allow such a layer to form. They also form far more frequently in the warmer, summer months (within a high barometric pressure area) and are typically most pronounced from 6AM to 10AM and 6PM to 10PM local time. However, unlike the Hawaii to San Francisco example, for this particular (satellite signal trapping) scenario, they need not cover a large area; by the time you are 30km from your dish a 5 degree look angle signal is already high enough above ground (in altitude) that it is past the normal inversion layering heights. Thus you might experience "inversion trapping" on your dish while a mate 30km away sees no ill effects; it can be that localised.

You can verify this by noting when low look angle signals drop in level and making your own observations for your local weather. Is there a cure? Increase the look angle, install a bigger dish (not a total solution).



How an inversion layer can cut out low look angle reception

MOUNTS ???

IS the polar mount on your dish or the dishes you are selling up to the challenge of our newly evolving **'KIWI ARC'**?
DOES your Pacific Island reflector lean back in style for the high birds and still make it down to your western horizon?
The sad fact is many mounts on the market today either won't make it to As2 or do but sag and droop over time (known as the **'TEAR DROP'** effect).
PARACLIPSE antennas equipped with the decades proven

POLAR T MOUNT

are your guarantee that the dish you sell today will stand proud and true, tracing perfectly the geostationary arc, tomorrow, next month, next year and beyond! DO NOT settle for second rate mounts! Remember - the TRUE value in any antenna is its ability to produce rated gain, across the full arc, while tracking that arc perfectly. Your reputation as a DTH installer depends on the quality of the products you sell and install. The **KIWI ARC** is demanding because we have so many present and planned birds down low to our horizon. Over time an inferior mount allows the dish to sag and droop and your reputation will depend upon your having selected the one proven low look angle mount as your initial antenna choice.
AND THE best news is that in most cases the benefits of selling or owning a Polar T Mount Paraclipse won't cost you any more than a tear jerker! Call us toll free today for the complete Paraclipse story (0508-DISH-4-U; 0508-347-448).

YES ! We accept VISA & MASTERCARD with no surcharge!

BAY SATELLITE TV LTD

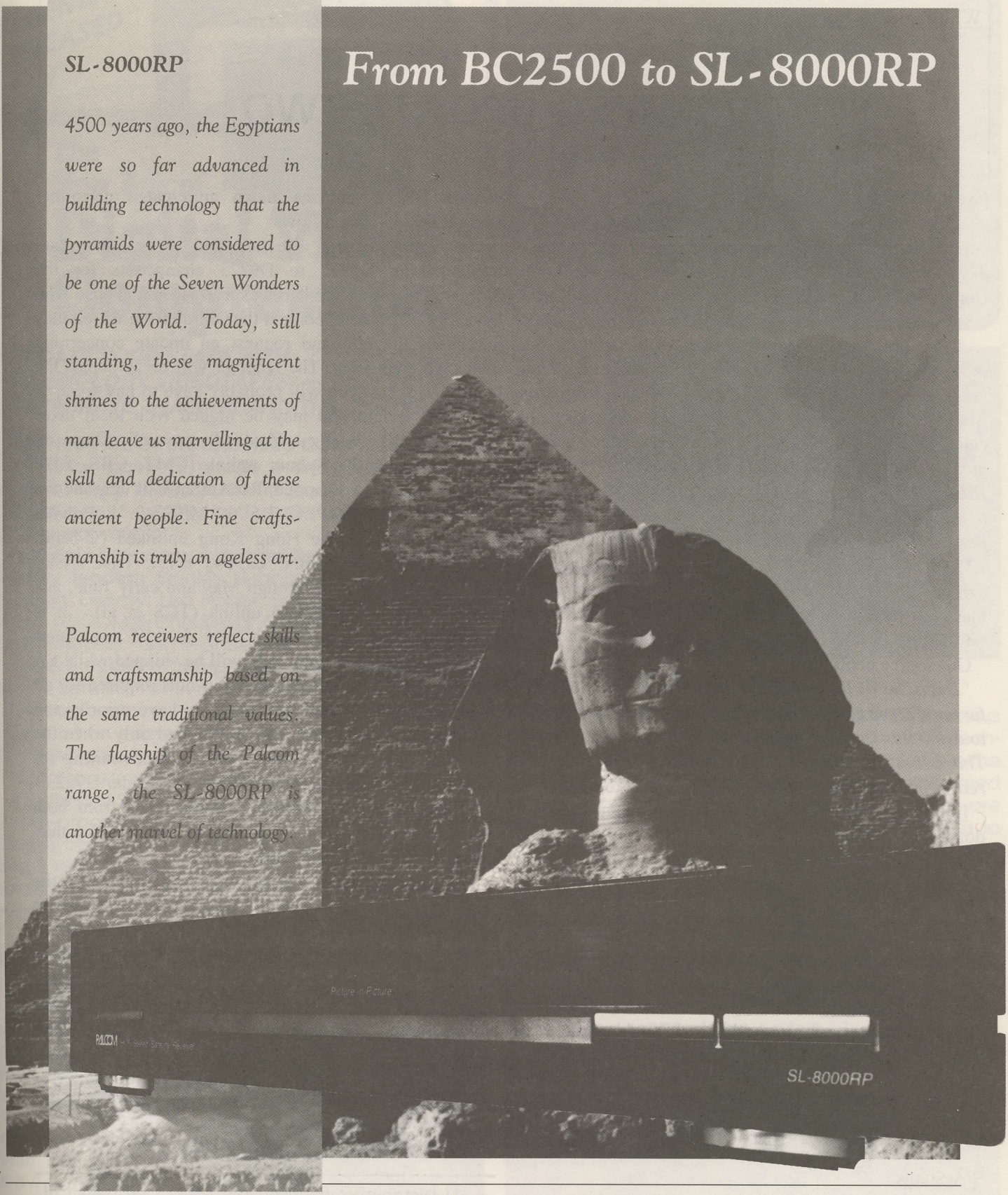
PO Box 14050 · Hastings · New Zealand · Tel toll free 0508-DISH-4-U
International 64-6-878-9081 Fax 64-6-878-5994 (0508-347-448)
E-mail john@baysat.co.nz

From BC2500 to SL-8000RP

SL-8000RP

4500 years ago, the Egyptians were so far advanced in building technology that the pyramids were considered to be one of the Seven Wonders of the World. Today, still standing, these magnificent shrines to the achievements of man leave us marvelling at the skill and dedication of these ancient people. Fine craftsmanship is truly an ageless art.

Palcom receivers reflect skills and craftsmanship based on the same traditional values. The flagship of the Palcom range, the SL-8000RP is another marvel of technology.



Its unique moving Picture-in-Picture feature permits the viewing of two channels at the same time (on one TV or two) or watching one channel whilst recording another. Mix images from satellite and terrestrial TV, satellite TV with VCR playback or satellite TV and security camera output with a choice of picture size for each image source.

The weakest signals may be viewed using the Palcom low threshold tuning facility producing improved video and audio performance.

A built-in antenna positioner provides access to all current satellites

500 Channels • 2 Tuners • 3 IF Inputs • Weak signal Video and Audio processing • HiFi 1600 • Stereo Audio processing (surround) • On Screen Display in 6 languages • Channel Naming • Satellite Naming • LNB Naming • Decoder Naming • 16 Local Oscillator presets (adjustable) • 22kHz Tone Switching • Global and Fine Ferro/Skew adjustment • Alphanumeric Channel List • Favourite Channel Function • 16 Preset External Decoder configurations • Internal VideoCrypt ready • Timer / Priority switching for TV and VCR

with software by....

PALCOM

State of the Art Simplicity

AV Comm PTY LTD 198 Condamine Street BALGOWLAH NSW 2093 Tel: 02-949 7417/948 2667 Fax: 02 949 7095
Bay Satellite TV LTD PO Box 14050 HASTINGS NEW ZEALAND Tel: 06 878 9081 Fax: 06 878 5994

Whither Goes Receivers?

DVB MPEG UPDATE TWO

Positively, Definitely Not DVB

As reported in SF#19 (p. 9), the STAR TV compendium of MPEG2 services to appear one of these days in commercial form on As2 will not be DVB Compliant. No chance.

Says a source:

"*Star has been having problems with their AsiaSat designated engineering parameters for MPEG2. They had chosen 1/2 QPSK, 28.1 Msym/sec as a transmission 'standard.' Unfortunately, AsiaSat told them they had to run 'tighter-than-DVB-spec skirts' on their (uplink) modulator. This causes freeze framing with NTL model IRDs but not with the PACE models. When Star changes to 2/3 QPSK the problem seems to fix itself. They are presently (late March) running this format on Vt IF 1250. On 1450 and 1410 Vt they continue to test the original 1/2 QPSK format.*" The programme material on these tests as of late March was BBC World in PAL and STAR Plus in NTSC.

Our source continues:

"*Deutsche Welle could find they must also adjust their forward error correction to 2/3* (from their planned 3/4) *to avoid this freeze frame artefact* (with some receivers). *This is but the first, perhaps mandatory to work in the real world, deviation from 'DVB Compliant' standard.*"

In English: There are DVB Compliant parameters,and, dozens of others unique to one or two services. The forward error correction (FEC) is a part of the standard defintion. Fortunately, receivers will adjust themselves or be field adjustable to most FEC rates likely to be encountered. But Star finds the so-called DVB Compliant FEC is not going to work with some receivers they have tested; at least not through AsiaSat which has its own mandated standards on top of the DVB Compliant rules. Add this FEC "deviation" to Star's plans to employ a unique conditional access (CA) system and you have another reason why Star-designated receivers may be difficult to use for non-Star services evntually to be found on As2.

S/A Status

Increasingly it is looking as though those who want to be first to own DVB Compliant capability had better get in line to order a Scientific Atlanta D9223 receiver (**1**). Nobody else seems ready, willing and able to deliver. The latest word we have on the status of the commercial version D9223 and the much anticipated consumer version D9233 is as follows:

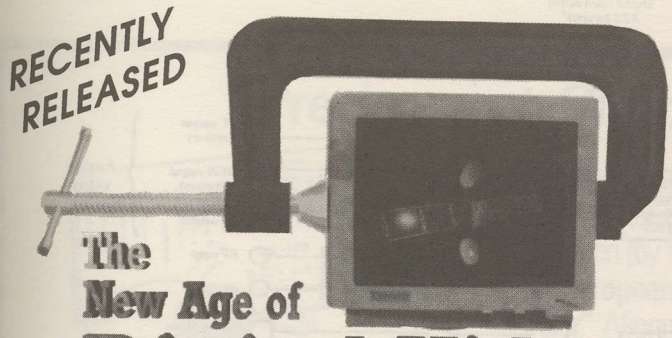
1) PanAmSat is directing and programmers are implementing D9222 to D9223 changeouts for the Sylmar, California fed services at this time. Those who have a D9222 should contact the source from which they purchased the unit and request an update concerning their own changeout. The receiver will be an across the board swap, but, you will probably have to pay some or all of the freight and may be tagged with local taxes (such as GST in New Zealand) as well. Once all receivers using the Sylmar uplink (CMT, CBS, BBC World) have been swapped, PanAmSat will upgrade the uplink from SA MPEG 1.5 to MPEG-2. Following Sylmar will come the Hong Kong uplinked (C-band) service swap-outs (ABN, CCTV, CTN, NBC Asia) possibly in late April through May and early June, and then finally the Singapore uplink (TCS et al). It is important to understand that very few (if any) "*new user*" D9223 commercial units will be shipped while SA is dealing with the universe of swap-outs required for all of these uplinks sites. The swap-outs have priority and "*additional, new orders*" will be shipped only when the swap-outs are under control. You could be waiting for some months to get shipment of your new-order D9223.

Those who have receivers taking feeds from both uplinks should do their swap with the first service they signed on with (typically CMT).

2) D9223 receivers will sell to new customers at the same rate as the older D9222 units; there is no increase in price for the DVB Compliant model.

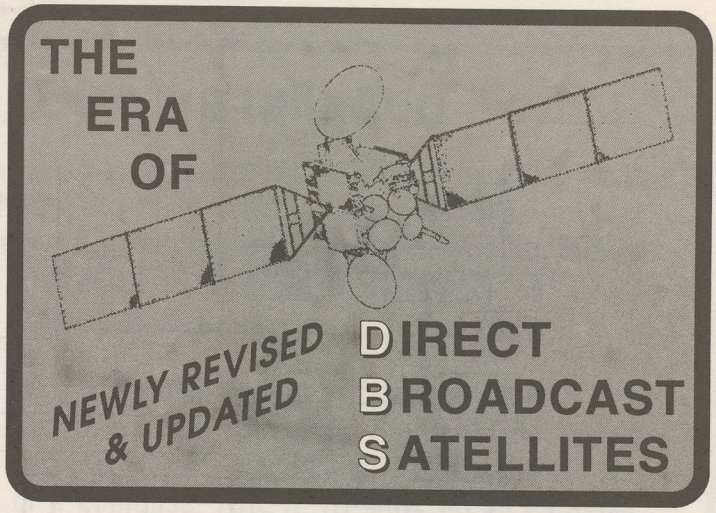
3) The distributors listed (below) are authorised to handle SA MPEG receivers only so far as these receivers are sold to users of the CMT service. In other words, you purchase a receiver and CMT simultaneously. Since it is a DVB Compliant receiver, you can also use it for the non-conditional-access services (such as the European Bouquet or the present STAR TV tests previously mentioned).

1/ Distributors handling the D9223 on behalf of CMT are Maser (Southstar) in Auckland; tel 64-9-479-7889, fax 64-9-479-6536; and Telsat Communications in Palmerston North (tel 64-6-356-2749, fax 64-6-355-2141. In Australia, Av-Comm Pty Ltd in Sydney (61-2-9949-7417, fax 61-2-9949-7095). Additionally, there is Scientific Atlanta Australia (Elizabeth Jennison) in Sydney (tel 61-2-452-3388, fax 61-2-451-4432).



The New Age of Digital Video Compression

SHELBURNE FILMS/MLE Satellite Series Videotapes



EDUCATE YOUR STAFF WITH TWO SATELLITE TECHNOLOGY VIDEOTAPES — PERFECT FOR CORPORATE TRAINING AND THE CLASSROOM

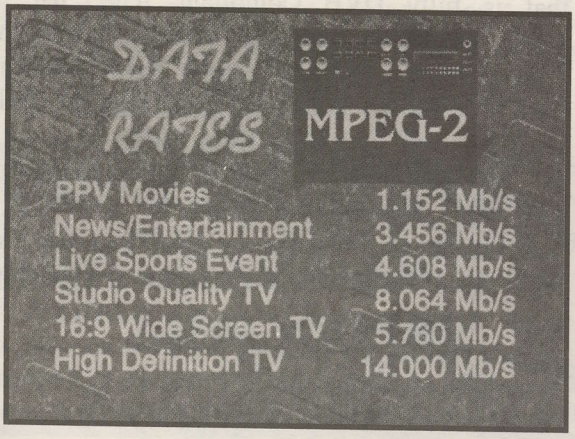
"THE NEW AGE OF DIGITAL VIDEO COMPRESSION" is an information-packed, quality production videotape which offers an in-depth, on-location tour of one of this century's most exciting and revolutionary technological developments:

Featuring interviews with satellite and compression industry leaders: Stanley Hubbard II - USSB; Thomas Bracken, DirecTv; Lisa Hobbs, Scientific-Atlanta; Mark Brady, TV/COMM; Chris Kelkar, General Instrument; Todd Townsend, CLI; and Michael Antonovich, PanAmSat.

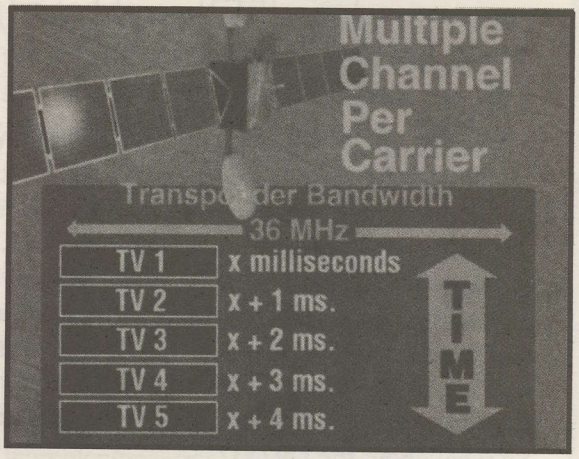
Demonstrations of compression applications: educational satellite delivery; desktop and corporate videoconferencing; twisted pair telephone delivery; direct-to-home satellite delivery; personal computer & CD-ROM; as well as laboratory demonstrations of MPEG-2 digital video at various data compression rates.

A Technical Short Course Covering: MPEG-1 & MPEG-2; pre-processing; motion compensation; Discrete Cosign Transform; quantization; Huffman coding; I, P, and B frames; Open Systems Interconnection Model; satellite transmission formats and compatibility issues.

"The video presents the information in a very smooth, progressive and precise format. In fact, we would like to utilize the video for training purposes." — David Gordon, Field Service Engineer, ***TV/COM International.***



A frame from ***The New Age of Digital Video Compression*** *that shows typical uses for various MPEG-2 encoding data rates.*



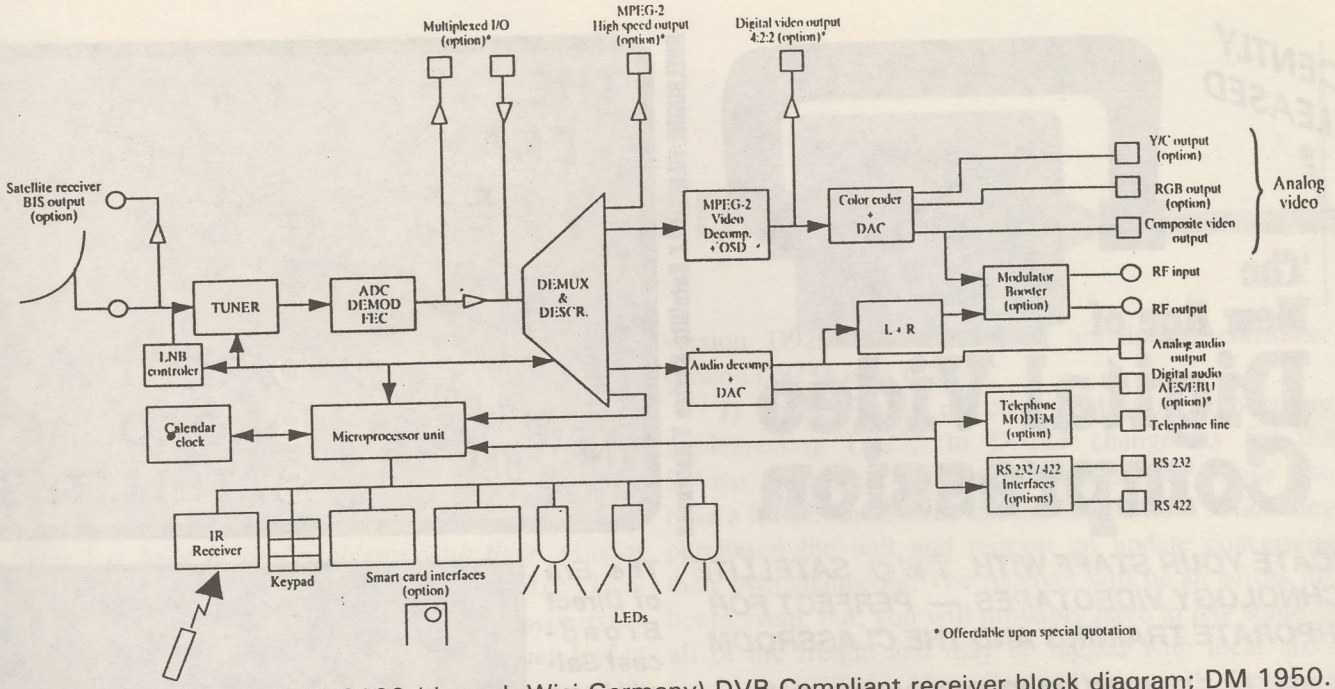
The Era of Direct Broadcast Satellites *presents the basic technical concepts concerning how the new DBS satellites in orbit and TV receiving systems operate.*

"THE ERA OF DIRECT BROADCAST SATELLITES" makes a detailed examination of the high-powered satellite technology which already has become a major force in the U.S.A. and around the world. Designed and programmed to reach the home viewer directly, DBS satellites are using new digital video compression technologies to bring about a worldwide entertainment revolution.

DBS systems in the USA *(DirecTv, USSB, Primestar, & EchoStar),* Europe, Asia and Australia are examined in depth, including how the technology works and the economics of their operation. Mark Long visits with leading experts involved in both the development and marketing of these new DBS services. He also takes the viewer on a journey through the history of home satellite TV, meeting some of the earliest pioneers and key players in the development of the new television technology. (59 minutes in length.)

Order either videotape for: $ 149.95 *VHS - NTSC format* or $ 189.95 *VHS - PAL format PLUS $7.50 (N. America) or $ 17.50 (Overseas) shipping & handling.* **Or order both tapes NOW for $ 299.90** *(NTSC)* **or $ 379.90** *(PAL)* & we'll pay the shipping charges.

Available from **MARK LONG ENTERPRISES, INC.**
P.O. Box 159, Winter Beach, FL 32971
US Fax: 1-407-589-9411 Thailand Fax: (66) 53-818-435



SAGEM SA (France) ISD 2100 (through Wisi Germany) DVB Compliant receiver block diagram; DM 1950.

None of these distributors presently has authority to sell the consumer version D9233 receiver. Why not? Because CMT has only agreed to support the D9223 commercial version and as none of these distributors is a true SA distributor (being, rather, a CMT distributor), if CMT will not endorse the consumer 9233 then these folks cannot obtain one for you. End of story, for now. So what about the D9233?

SA Australia believes there will not be D9233 units available until "perhaps June." Even this is an unverified date. SA originally said it would not crank up the consumer version production line until someone placed an order for 100,000 units. That is a major ouch.

SA has come off of that position slightly but the fact remains there is not yet a hard scheduled date for the consumer version receiver. In the worst case, it could be late this year before it happens. The consumer version has a list price that is less than half of the commercial version unit and for most users it will be a very suitable receiver.

If you have placed an order for a D9233 consumer version and have heard nothing from your supplier, now you may know why. Scientific Atlanta Australia could supply the consumer units but they have not made that policy decision yet. Similarly, Radiola Corporation Limited (Wellington [tel] 64-4-237-0159; [fax] 64-4-237-1267) has the necessary distributorship status to also handle the D9233. They have shown very little interest in doing so to date but you can talk with Phil Josephs there about this.

Other DVB Compliant Sources

German firm WISI (Postfach 1220, 75219 Niefern-Oeschelbronn, Germany; [tel] 49-7233-660; [fax] 49-7233-663009; Wolfgang Rehbaum) responding to our SF#19 report, advises:

1) Model ISD 2100 is priced at DM 1,950 (for small quantities)

2) Delivery is 4 months after prepaid order

3) IF tuning range is 950 - 2050 MHz

4) Consumer unit with remote control, polariser control, LNB switching

5) QPSK, 2-30 Mbauds variable symbol rate, Reed Solomon 204, 188, 8 decoder, FEC of 1/2, 2/3, 3/4, 4/5, 5/6, 7/8 and 8/9

6) BER threshold 8.10 to 2nd power

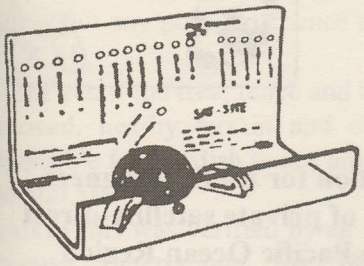
7) CD ISO/IEC 13818-1 and DVB Compliant

This receiver is branded SAGEM. An Australian source advises us that potential buyers should obtain written verification of a specific delivery date and to that we might suggest purchasing using a Bank Letter of Credit which in turn makes as a condition of the order the meeting of the mutually agreed to delivery date.

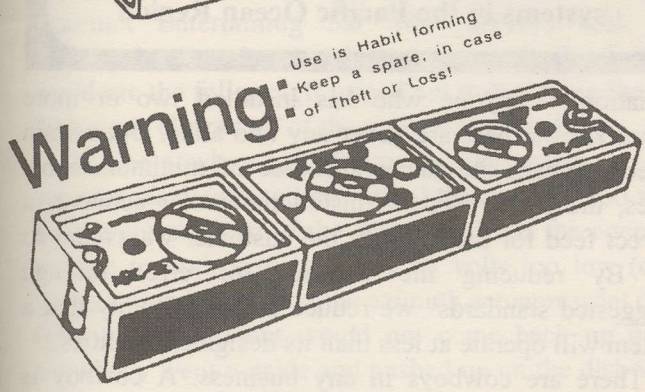
US programmer UIH advises their new cable TV affiliates in the Pacific and Asia (see p. 22, this issue) will be able to buy through them a Philips brand IRD that is fully DVB Compliant. The "list price" is US$2,100 but we anticipate after discussing the matter with UIH this price may come down substantially, at least for cable TV affiliates (Doug Stewart, UIH Denver, Co. [tel] 1-303-770-4001, [fax] 1-303-770-4207).

At least one Australian source suggests PACE DGT-400 receivers, minus the PCMCIA Iredito conditional access card, are available within Australia in the range of A$900. As we reported in SF#19 (p. 9), our tests of this receiver using the STAR TV As2 test signals verifies it will work there but we caution readers to carefully read the full SF19 report before making this decision. Now, let's see what the next 30 days brings!

Precise, yet Simple, Dish Installation Tools:

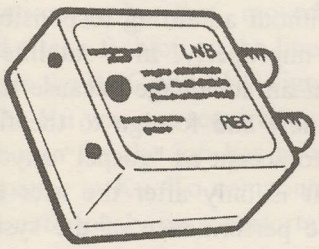


Sat Sites Custom built to your locale, survey sites for obstructions to reception of Satellites! Within their 100-mile ranges, Sat Sites are Robot Salesmen (by involving your clients). **$89/ea for American C & Ku; $99/ea for European Ku & $123/ea for World-wide (all video).** OPTIMUM "Polar" Alignment Analysis included.

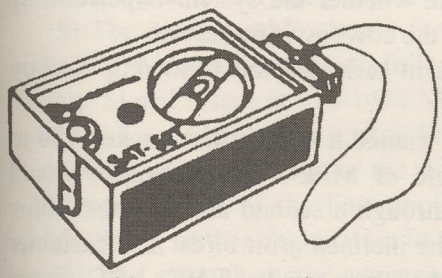


ARC-SETs Pre-set to your local & extreme bird (50-mile range) put you "Ku-Right" on Arc in minutes, without posts having to be plumb nor need of a compass! ARC-SETs work on all parabolic Dishes, all "Polar" Mounts, reduce "Polar" alignment to the simplicity of fixed (AZ/EL) installation, and help correct off center Feeds! **$69/ea for all American; $79/ea for Ku European & $89/ea for World-wide.** OPTIMUM "Polar" Alignment Analysis included.

NEW!



Spectrum Analy"zzz"er (a.k.a. "CANARY") answers your request for "An Idiot-Proof way to Peak Alignment". **Simple**-it sings like a canary in response to Satellite IF Signals. No switches, knobs or adjustments. **Durable**-metal housing is Canary yellow so you won't loose it, and it has no needles, lights, or fragile circuit components. **Accurate**-its sensitivity is -58, to 0, dBm (samples/analyzes Digital, and Analog, IF frequency spectrum from 500MHz to 2.5GHz) for weak to strong Satellites, and small to large Dishes. Has ports for Multi-Meter probes (for those who want/need numbers, or a needle). **$99 ea.**



SAT-SETs Pre-set to your locale (50-mile range), "set" you to a single Satellite's elevation! **$29/ea for American; $34/ea for European & $39/ea for World-wide.** OPTIMUM Analysis included.

OPTIMUM "Polar" Alignment Analysis lists Birds' AZ/ELs and residual error (to 1/10,000 degree) to prove your achievable "Polar" tracking accuracy. **$10/American; $15/European & $20/World-wide Site and Birds.**

We use a computer full of Scientific Data & Classical Mathematics to build the PRECISION that you need, yet which no one else comes close to offering you; QUALITY that lasts; and the SIMPLICITY, and DEPENDABILITY, you want. You have made a big investment in YOUR KNOWLEDGE and SKILLS. Use those, with our tools, to achieve a True Professional's results!

TERMS: Pre-Paid orders are shipped surface freight paid, within these prices. C.O.D. orders have freight, and C.O.D. charges added. Air Freight, Air Mail and Express Mail charges (exceeding surface freight) are additional. G...E sales in California have Sales Tax. American Express is the only Credit Card accepted (and freight, plus 4.25% handling, charges are added to these prices).

Gourmet...ENTERTAINING, 3915 Carnavon Way, L.A., Calif. 90027
Phone: (213) 666-2728 Fax: (213) 666-2442
Browse our World Wide Web Site at the URL http://www.gourmet-ent.com/

a technical and marketing advisory

memo

to the membership from your industry trade association

SPACE Pacific

Satellite
Programme
Access
Committ**E**e

A trade association for users, designers, installers, sellers of private satellite-direct systems in the Pacific Ocean Region

Who Is Ultimately Responsible?

Members will recall our discussion of "complaint calls" in SF#17 (p. 20). As the size of the TVRO universe grows there has been an alarming increase in complaints which often land at SPACE as a last resort. We have no desire nor sanction or reprimand powers; the best we can do is to act as a go-between, trying to sort out the essence of the consumer complaint versus the often equally complicated recitation of "facts" offered in defence by the installer.

Several SPACE members are offering suggestions as to how we, as a trade, can self-police ourselves before some regulatory agency finds themselves drawn into our problems. As an industry we can ill afford to attract the attention of regulatory bodies who as often as not believe all problems will go away if they adopt tough regulations to control who can install and service equipment, or "standards" of installation which ultimately end up raising the cost of each installation without a companion improvement in system performance or reliability.

An Australian member suggests that SPACE adopt installation standards as a suggested (they could never be mandatory) way of putting in a TVRO. Such standards would be drawn in "first cut" form by a small working group, then circulated to the full membership for comment and revision. The revised edition would in effect be the "Recommended Installation Standard." That is step one.

If members then agree to "follow, where practical, the SPACE suggested installation standards," we have a sizeable body of installers all marching to the same drum beat. Of course there could and would be deviations - anyone who has installed two or more dishes knows there are never any two alike. But certain aspects remain the same; a choice of minimum cable specs, the proper way to install the motor actuator, a correct feed for the services the customer wants and so on. By reducing the chances for error through "suggested standards" we reduce the opportunity that a system will operate at less than its design capabilities.

There are cowboys in any business. A cowboy is simply an individual who does things without regard to short or long term defects. A cowboy wants to be done as fast as possible without admitting responsibility for anything that works improperly. In a satellite system install, a cowboy is at an advantage because the entire satellite world is so new and foreign to the first time user they are forced to accept as "gospel" anything the installer tells them. It is only after the user becomes disenchanted with the performance of the system and begins to investigate whether the system is performing properly or not that the cowboy is found out.

A recent complaint reflected the following cowboy mentality:

► The customer wanted a system that tracked 180 to 100(.5), was capable of MPEG and analogue, would track the belt and through a second actuator also allow the user to follow the inclined orbit birds. The customer didn't realise that they also needed RHC, LHC, linear vertical plus horizontal in the feed.

The cowboy installer collected more than $12,000 for the system that had the following defects:

1) The dish was placed next to a building because the customer thought "it looked nice there." In fact:

MEMBERSHIP IN SPACE

Membership in SPACE Pacific is open to anyone involved in the satellite direct industry in the Pacific and Asia. There are four levels of membership covering "Individuals," Installer/Dealer," Cable/SMATV Operator," and "Importer/Distributor/Programmer." All levels receive periodic programme and equipment access updates from SPACE, significant discounts from some equipment and software suppliers, and major discounts for the annual SPRSCS trade show. In June, members will be able to participate in the Mark Long created SPACE Certification Course; at home learning leading to a certificate for levels of satellite system install and trouble shooting proficiency. Please use card appearing here as page 30 (bottom) for no obligation SPACE Information Packet, or fax us at 64-9-406-1083.

a) The dish was behind a sizeable tree that shaded the arc from 170 to 130E;

b) The customer, on advice of the cowboy, installed a six foot fence in front of the ground mounted dish wiping out any possible chance the dish could see 140E to 100.5E.

c) Even if the tree, fence and building were magically removed, nearby terrain and other blockage made it impossible for the dish to see any satellite between 135E and 100.5E.

All of this was verified by an inspection crew using a Gourmet Entertaining Sat Site (survey) tool. The cowboy had used no such tool to verify the location could see the full arc. (It turned out that moving the dish 20m away cleared all of these problems nicely.)

2) The cowboy installed power wiring for the twin actuators (azimuth and elevation) that was 1/2 too small for the current load of the actuators. Thus the operating voltage to both actuators was 10 volts too low (cable voltage drop losses) and the azimuth actuator went down (gravity pulling) but would not come back up unless somebody went outside and pushed up on the dish while the power switch was applied.

3) The cowboy installed a C+ Ku feed with a polarisation probe that moved on command. This worked after a fashion on the linear feed signals but very poorly on the RHC and LHC signals.

4) The Ku was not required nor wanted and the 3.7m dish chosen for the job has a very unsuitable level of performance at Ku. To compound matters, the C + Ku feed is notoriously poor performing on C-band because the Ku segment badly degrades C-band performance.

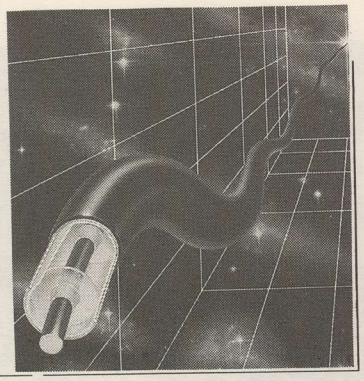
5) The coaxial cable chosen for both C and Ku runs was a 40% copper braid, non-foil wrapped low grade of cable. Signal losses at 950-1450 MHz were so high that the cowboy added a poor quality line amplifier to both C and Ku lines to make up for the extra loss in the cables. The noise figure of the line amplifier was excessively high adding further degradation to the system.

6) The azimuth motor actuator was installed on the east side of the support pipe; the incorrect side for a dish that will track from straight north to west. By the time the actuator arm pivoted itself towards the more westerly satellites the arm was running into both the dish support pipe and the dish support structure.

7) The MPEG receiver, a D9222, was cowboy authorised for ABN although the customer had not wanted ABN and had in fact asked for (and apparently paid for) several other services. The customer claimed he was told the receiver would be "later" authorised for 9 additional channels (5 of which are not even transmitting in MPEG).

A group of concerned dealers, members of SPACE, determined what was improperly done and are now assisting the customer in getting restitution from the cowboy dealer. What would <u>you</u> <u>do</u> in this case?

THE CABLE CONNECTION



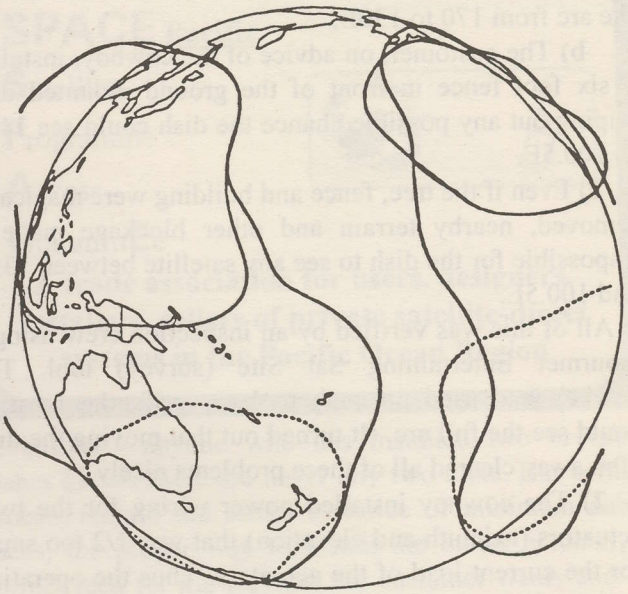
MORE ABOUT - UIH Programming Plans

UIH (United International Holdings, Inc.) plans 10 channels delivered in DVB Compliant MPEG2 into the Pacific sometime after July. Their original plan was to utilise I180 Intelsat but this was only to happen after Intelsat 801 was launched to 174E and the existing 701 at that location moved east to 180 replacing the present 511. We'll come back to this detail.

The ten channels are their "First Tier" which in cable-talk means the widest appeal, least costly to cable (**1**) services. UIH is taking a 72MHz wide C-band transponder which is capable of transporting up to 20 compressed digital programme services. The beam to be used is described by UIH as a "Prime Hemi Beam" which is apparently the same as a Zone Beam in standard Intelsat literature for the 700 series satellites. As shown here, this is 33 dBw at beam edge (dashed line in footprint map) for 177E.

With the rescheduling of Intelsat 801 to October /November launch and late November/December turn-on, the change out of I511 at 180E with 701 from 174E will now be very late this year or early next year. Thus UIH programming will start on either 174E or 177E sometime after July 1st but may well move to 180E when 511 is replaced (**2**). The signal level to plan for, to cable TV or SMATV headends, will therefore be 33 dBw if you are located within the dashed line contour region shown on the footprint map here. This translates to a 2.1m dish for a 9dB carrier + noise to noise ratio. For cable system use where some "extra" margin is recommended, a 3m dish with a quality (RHC; this is Intelsat!) feed would be required.

UIH is the international investment arm of ex-USA cable TV multiple system operator United Cable TV. When United was sold to cable giant TCI some years ago, the owners took the sale proceeds and began to systematically invest into cable TV opportunities world-wide. Other than the German state-owned cable TV system, UIH is the largest cable system operator outside the USA with 2.7 million cable subscribers in 23 countries. They are a major investor in Australian MMDS licences and some cable there, and own 50% of New Zealand's largest private cable operator Saturn Communications (formerly Kiwi Cable). They are rapidly expanding in the Pacific (operating an MMDS system in Tahiti), and Asia.



Probable 33 dBw coverage area (dashed line) using Intelsat 700 series satellite from 174-180E

Their Australasia Programming Venture (APV) is designed to solve a major impediment to cable growth "out here," the shortage of North American and European cable programming available to Asia and Pacific cable operators at reasonable pricing and adjusted for our time zones. Project Manager Doug Stewart (**3**) tells SF, "*We have a near term plan for two separate tiers of programming. The first tier will be ten programme channels offered at a reasonable cost to cable headends (**4**). Shortly we will also announce a second tier, up to 8 channels which will cost the cable operator more money but which will also have a stronger appeal. We believe the second tier programming will be carried by operators on an 'optional channel available' basis* (i.e., subscribers elect these premium channels on a channel by channel basis).

What about DVB Compliant receivers for this package of programmes? A cable system taking the "basic tier" will require 10 receivers. Stewart notes, "*We are co-owned by Philips Media which prior to their becoming a part of UIH was the largest cable operator (*outside of Germany*) in Europe. We will be able to supply affiliates with IRDs directly from Philips and this is an essential part of our roll-out plan.*" Pricing? Stewart says they will be "competitively priced."

1/ UIH is studying DTH service as well and an announcement is anticipated before July.

2/ If it begins on 174 or 177E, it would essentially move to 180E along with the bird itself.

3/ Doug Stewart, Asia/Pacific Programming at tel (Denver, Colorado) 1-303-770-4001; fax 1-303-770-4207.

4/ Not yet official, US$3.50 per cable TV home per month for all 10 channels or US$0.35 per channel per month. This is roughly the same as CMT now costs cable operators.

The Australasia Basic Tier Programme Package - tentative but nearing formal announcement

Channel 1 / Performing arts and foreign (to USA) movies
Channel 2 / **Newsworld International** - 24 hour news and feature story service
Channel 3 / **TRIO** - General entertainment service drawn from (multiple network sources) prime time
Channel 4 / Combination fitness and lifestyle family oriented
Channel 5 / (New) music service with international cultural content
Channel 6 / Entertainment and information service centred on the home
Channel 7 / Prime time entertainment channel from United Kingdom
Channel 8 / Channel devoted to outdoor activities
Channel 9 / Entertainment channel devoted to food and information
Channel 10 / Devoted to travel and sight seeing adventure

Stewart is anxious to attract interest on behalf of the service from cable and would-be cable operators throughout the Pacific. The precise footprint coverage of the service will not be totally known for some months yet, and the map appearing here is a best information approximation from Intelsat standard data. If a 33 dBw level will cover the region shown within the dashed line, all of New Zealand, northward to New Caledonia, and westward to central Australia will be included. Cable operators in Australia might be successful in having some or all of these ten channels ruled as "Narrowcast" because of the perhaps non-general appeal. Barring that, certainly some of these channels would qualify under narrowcasting. And barring that, after July 1, 1997, all of the channels could become available to Australian cable.

One of the UIH programme sources, North American Television, Inc. (Mitchell D. Freund, Bethesda, Md. fax 301-986-5940) advises, "*Our company would provide UIH with 2 programme channels; 'Trio' (*general entertainment*) and 'Newsworld International' (*24 hour international news service). *We plan a last quarter 1996 launch.*"

DTH?

A definite possibility. There is more. As reported in SF#19, a New Zealand bred 3 channel DVB Compliant service also to be on Intelsat will work with the same receiver. That means 13 channels of service via one Intelsat satellite, all digital, before the end of the year. The New Zealand service provider is presently studying how they could make this happen and we hope to have an announcement in an early issue of SatFACTS.

SatFACTS Pacific Ocean Region Orbit Watch: 15 April 1996

Free-to-Air 40E to 96.5E

RTPi	40E/1226
Rtr/Mart	40E/1475
ORTI	53.2E/ 1475
Ethiopia	57E/1220
Zee News	60E/961
ABN	62.9E/964
TV India	62.9E/986
WorldNet	66E/1135
Discovery	66E/984
Various	66E/1058
E TV	66E/1058
Discovery India	68.8/Pas4 Vt/1360
ESPN	68.8/Pas4 Vt/1290
Sony Ent.	68.8/Pas4 Vt/1239
MovieClb	68.8/Pas4 Hz/1117
CNN	68.8/Pas4 Vt/1061
TNT+	68.8/Pas4 Vt/1036
BBC World	68.8/Pas4 Vt/995
MTV & Jain TV	68.8/Pas4 Vt/966
shaded indicates	reported in Europe
TW6 Mos.	80E/1275
TV Viet.	80E/1275
MAPTV	80E/1475
TK Rossi	80E/1475
TVi India	85E/1271
Moscow 1	90E/1475
Moscow 2	90E/1275
India 1	93.5/1025
India 2	93.5/1060
India 3	93.5/1420
Azerbaid.	96.5/1275
CCTV	96.5/1325

Free-to-Air 96.5E to 128E

Moscow 1	96.5/1475
RTPi	100.5/Vt 1167
CCTV	100.5/Hz 1183
Moscow 1	103.5/ 1472
Star TV	113/Vt 970
CFI	113/Hz 990
MTV Asia	113/Hz 1030
TPI	113/Hz 1070
TV Indosair	113/Vt 1090
GMA	113/Hz 1120
ANteve	113/Vt 1130
CNNI	113/Vt 1170
SCTV	113/Hz 1190
ABN	113/Hz 1230
TV3	113/Vt 1250
ATVI	113/Hz 1270
TVRI	113/Hz 1310
RTM	113/Vt 1330
RCTI	113/Hz 1350
CNBC	113/Hz 1525
JCSAT (test)	128/Vt 1166

Data Base

Left to right, name of service, satellite location, polarity, receiver IF

Free-to-Air 130E to 180E

Sun Music	130E/1225
IBC-13	130E/1265
AsiaNet	130E/1325
Sun Movie	130E/1425
RAJ-TV	130E/1475
Saudi TV	140E/1425
Moscow 1	140E/1475
Udaya	142E/1225
EMTV	142E/1265
EagleNet	142E/1325
JJAY	142E/1425
ATN +	142E/1475
Moscow 1	145E/1475
ANBC	169E/Vt 1038
NHK	169E/Hz 1115
CNN	169E/Hz 1183
CCTV (MPEG)	169E/Hz 1426
RFO	180E/1105
WorldNet	180E/1179

S14 (Gorizont) 96.5E (RHC)

+/- 3.2 deg.

Jain TV	1,275
Muslim TV	1,425
Orbita II	1,475

S21 (Gorizont) 103.2E (RHC)

+/-2.2 deg.

(Various)	1,275
APNA	1,375
Orbita II	1,490

Russian Polarisation

S (Stationar) series satellites are RHC (right hand circular); R series are LHC (left hand circular).

AsiaSat 2 100.5E

None	990Hz
None	1010Vt
Tests	1070Hz
None	1090Vt
None	1130Vt
(DW)	1150Hz
RTPi	1167Vt
CCTV	1183Hz
None	1210Vt
Reuters	1230Hz
StMPEG	1250Vt
Data	1270Hz
Data	1290Vt
None	1310Hz
Tests	1330Vt
N-Band	1350Hz
APTV	1370Vt
News-crypt	1390Hz
St(ar) MPEG	1410Vt
None	1430Hz
StMPEG	1450Vt
Tests	1470Hz
Tests	1490Vt
None	1510Hz

R41 (Gorizont) 130E (LHC)

+/-0.7 deg.

Sun Music	1,225
IBC-13	1,265
AsiaNet	1,325
(tests)	1,375
Sun Movie	1,425
RAJ-TV	1,475

Inclined Orbit

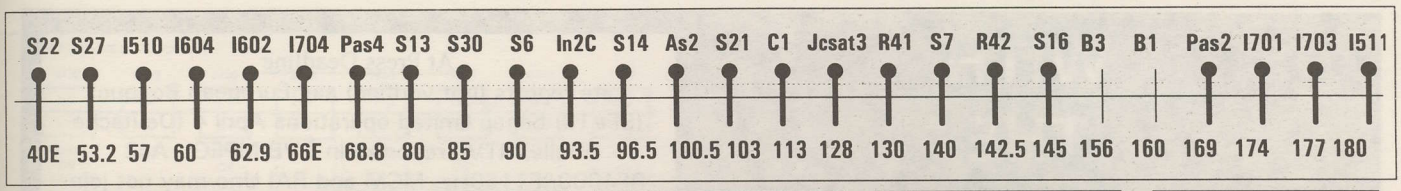
R, S series inclined orbits indicate extremes (i.e.+/- 0.7)

Palapa C1 113E

Star TV	970Vt
CFI	990Hz
Aust Sky (B-Mac)	1010Vt
MTV Asia	1030Hz
ESPN (B-Mac)	1050Vt
TPI	1070Hz
TV Indosair	1090Vt
	1100Hz
GMA (1/2 tr)	1120Hz
ANteve	1130Vt
HBO (B-Mac)	1150Hz
CNNI	1170Vt
SCTV	1190Hz
	1210Vt
ABN	1230Hz
TV3	1250Vt
ATVI	1270Hz
	1290Vt
TVRI	1310Hz
RTM	1330Vt
RCTI	1350Hz
(data)	1370V
TNT+ (B-Mac)	1390Hz
(data)	1410Vt
Discovery (B-Mac)	1430Hz
CNBC	1525Hz
(MPEG)	1700Hz

C1 Coverage

Palapa C1 has very uneven coverage from PNG & Solomons south and east (see report SF#20). Hz / Vt transponders shaded strong in NZ.



OPTUS B3 156E (Ku only)

	1425/Vt
Central ABC HACBSS	1393/Hz B-Mac
Vic. ETV	1361/Vt CryptV.
Imparja TV	1329/Hz B-Mac
	1265/Hz
Net 9, Sky specials	1233/Vt B-Mac
Central ABC HACBSS	1201/Hz B-Mac
	1169/Vt
Galaxy	1137/Hz Iredito Mpeg 2
	1105/Vt
Galaxy	1073/Hz Iredito Mpeg 2
Golden West	1041/Vt
	1009/Hz
	977/Vt

S7 (Gorizont) 140E (RHC)

+/- 4.2 deg.

Saudi TV	1,425
Orbita I	1,475

S16 (Gorizont) 145E (RHC)

+/-3.7 deg.,

Moscow 2	1,275
Moscow 1	1,475

OPTUS B1 160E (Ku only)

Net 9, Sky feeds	1425/Vt B-Mac
Data	1402/Hz
QTV	1377/Hz B-Mac
NE ABC HACBSS	1370/Vt B-Mac
NE SBS HACBSS	1344/Vt B-Mac
SE SBS HACBSS	1339/Hz B-Mac
SE ABC HACBSS	1313/Hz B-Mac
Sky Channel	1296/Vt B-Mac
ABC Radio	1276/Hz (digital)
OmniCast	1270/Vt (FM/FM)
ABC feeds	1247/Hz Pal
Net 7	1244/Vt E-Pal
Net 9 feeds	1219/Vt Pal&Ntsc
	1214/Hz
Net 10	1182/Vt E-Pal
Net 9	1180/Hz E-Pal
Net 10 feeds	1155/Vt Pal
Net 7	1120/Vt E-Pal
Net 9 feeds	1091/Vt Pal
CAA air to ground	1009/Vt Nbfm
CAA air to ground	977/Vt Scpc(fm)

PAS-2 169E (C + Ku)

Abn/Ctn/ Cctv/Nbc	1,426/Hz (SaMpeg)
Cmt/Cbs/ Bbc	1408/Vt (SaMpeg)
Discovery	1372/Hz B-Mac
MTV Asia	1346/Vt B-Mac
Occ.Video	1300/Hz
ESPN	1288/Vt B-Mac
Occ.Video	1249/Hz
TNT+	1218/Vt B-Mac
CNN+	1183/Hz (1/2 Tr)
FoxSports	1161/Vt (SaMpeg)
NHK	1115/Hz
()cc.Video	1110/Vt
Filipino Channel	1060/Hz (GI Mpeg)
ANBC	1038/Vt
(Data)	998/Hz
B'lmberg	985/Vt (SaMpeg)

(PAS-2 Ku)

Service	RF Freq.
Pas2 test	12325/V
Test card	12451/H
Karaoke	12730/H

R42 (Gorizont) 142.5E (LHC)

+/- 0.7 deg.

Udaya	1,225
EMTV	1,265
EagleNet	1,325
(tests)	1,375
JJAY	1,425
ATN	1,465

Intelsat 701 174E

Feeds	963
Feeds	984

Intelsat 703 177E

AFRTS	973 B-Mac *
Feeds	980

* uniquely left hand circular

Intelsat 513 177W

Feeds	963
Feeds	984

(513 Ku)

Service	RF Freq.
US Nets	10980Vt
NBC	11015Vt
Feeds	10510Vt

Ku Services

Intelsat Ku band services shown here are boresighted to Japan and nearby Asia, have not been reported south of equator. At boresight, signals of <2m levels.

Intelsat 511 180E(W)

TVNZ	964/NTL Mpeg
TVNZ	972/NTL Mpeg
TVNZ	980/NTL Mpeg
TVNZ	988/NTL Mpeg
Aust 9	1,021 *
(data)	1,054
Canal +	1,054 **
(data)	1,092
RFO Tahiti	1,105
(vacant)	1,137
World-net	1,179
CBS/e	1,223
Keystone	1,256
NBC/e	1,277
Mpeg tests	1,310
Mpeg tests	1,325
Mpeg	1,388
Keystone	1,432

* RHC & LHC
** LHC only
e/ encryption

(511 Ku)

Service	RF Freq.
CBS	11480Hz
CNNI	11510Hz

UPCOMING SATELLITE LAUNCHES

April/Palapa C2M to 118E for 'storage'.
Before June/ 3rd Russian Express to 95E.
October/ I801 to 174E (with 701 at 174 moving to 180E).
December/ MPSC (Philippines) to 144E.
January('97)/ I1803 to 177E.

Optus Ku Listing Credit to Garry Cratt of AV-COMM Pty Ltd.

WITH THE OBSERVERS

At Press Deadline

Late reports (not verified) say European Bouquet (SF#18) began limited operations April 4 (Deutsche Welle, RTVE reported in DVB MPEG), As2 RF4000/IF1150Hz. MCM and RAI Uno may not join bouquet for several months.

It is all about Palapa. As our detailed analysis shows (p. 6) the switch over from B2P to C1 (March 16-18) produced many surprises. As late as press-time (9 April) rumours persist suggesting only some of the B2P users have shifted to C1. Yes, that might explain the lower signal levels from many of the vertical polarised services. And no, Palapa personnel do not issue statements concerning the status or operating plans for their satellites (a matter of "commercial sensitivity"). So anything is, in theory, possible.

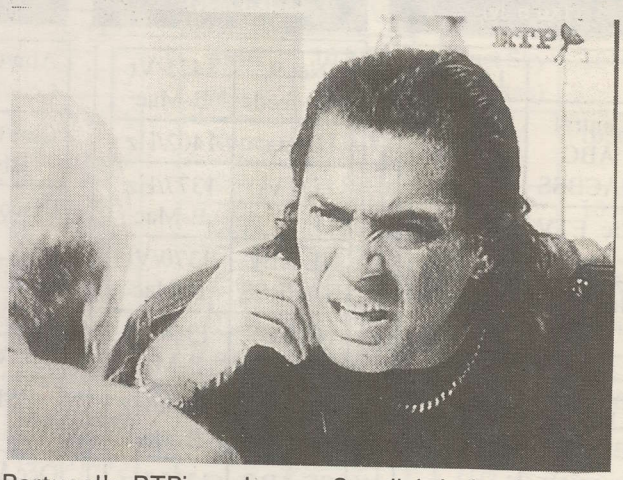
But the numbers suggest C1 simply failed to perform - as designed, as intended. Satellites are made by humans and humans make mistakes. This could be a big one. On observer suggests:

"*Suspect these whiz bang shaped reflectors didn't take gravity into account when they tested the C1 transmit antenna on the ground* (pulls the signal down, don't you know). *Or, somebody was using a 5 pound sledge hammer when a precision ballpeen was in order.*"

So what do the observers say? **Garry Cratt** (NSW, Australia) may have been one of the first to spot C1 - the bird if not the actual programming. On 20 February a beacon at 3405 MHz (IF1745) near midnight Sydney time at an elevation slightly above B2P. Real TV pictures would wait until March 15th and observer **Mark Long** (Thailand) was amongst the first to notice as CNNI, RTM-1 and An-Teve switched off on B2P and came back on C1. For most observers it would be the 16th before they noticed the new signals. The changeover that began on the 15th continued a transponder at a time until the 18th and there was more fine tweaking throughout the week ending March 23. In Thailand, Long found the GMA signal up 4.5dB at the end; the biggest upgrade noticed there. Further south, New Zealand and Australia and even in the Chatham Island group (where the look angle is but 2 degrees) B2P, formerly just detectable on 4.5m antennas now had signals well above threshold on dishes as small as 2.4m. At least "something" was working as planned!

Steffen Holzt in New Caledonia finds TNT P5 (BER of 008), Discovery and CNN P4 and RTM, TV3, RCTI, TPI, ATVI, ABN, HBO, GMA and CFI all P3 on a 3.6m dish. TNT, and Discovery "lock" properly on Indovision while the audio is slightly degraded and the picture has noise bits on HBO (Bit Error Rate / BER 040).

(For those contemplating adding Indovision S/A CDE-2000 B-Mac decoders, some advice. One observer with a PAL format SA 9708 wanted to get it authorised for HBO on C1 and the programmer agreed. Well, it did not happen. Seems the 9708 uses a different algorithm than the CDE-2000 unit and the C1 "data stream" will not turn on a 9708. At least that is the "official" story of SA in Canada where both units are manufactured. Our observer then acquired a CDE-2000 which came out of the box and "turned on" immediately. We'll have an in depth report on the CDE-2000 in the May 15th SF.)



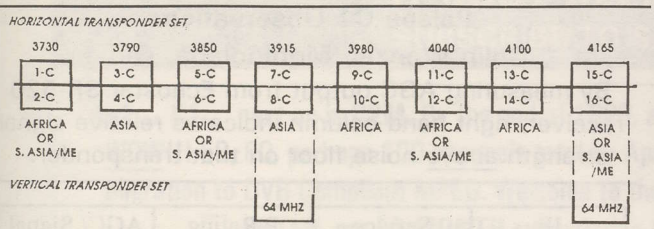
Portugal's RTPi on Jepson 3m dish in Levin, NZ. A P5+ quality at under 5 degrees elevation angle.

Brian Oliver using the University of Auckland 7.3m system reports P3 levels from SCTV, GMA and IVM and P2 from STAR TV and ATVI. What is interesting here is that while smaller dishes work very well in NZ on the stronger signals, Oliver believes it would take a 10m (or larger) to totally clean up the weaker ones. MTV and RCTI are the weakest on C1 (P1).

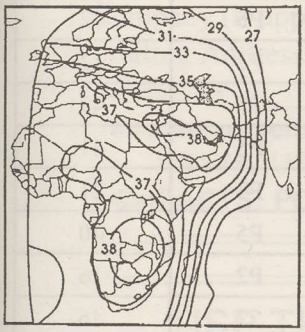
Dennis Warmington (Tauranga, NZ) with a 3m finds five strong horizontal signals (11 to 13 dB C/NR) and 4 verticals all around 5 dB C/NR. The rest simply don't show.

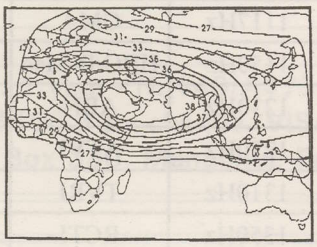
We asked observers to compare "*the best signal on C1 with the best of another bird.*" **Chris Kenny**, using a 3m dish and Drake 700E receiver near Melbourne rates CFI "*stronger than any other signal that I can receive (on any satellite).*" Additionally, TPI, ABN and TVRI are stronger than any of the As2 signals at his location. His weak side signals include P2's STAR TV, An-Teve and P1's TV Indosair, CNN, TV3, RTM and CNBC.

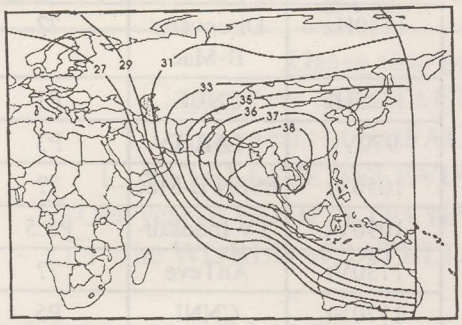
WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite service understanding. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 and 1/15th second with ASA 100 film; for NTSC, change speed setting to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception on tape to SatFACTS and we will photograph for you. Deadline for May 15th issue: May 4th by mail (use form appearing page 30, here), or fax to 64-9-406-1083 by May 5th.



Transponder layout for PAS-4 (68.5E) shows different beam patterns (below) for Africa, South Asia/ Middle East, or, Asia (proper).







PAS-4 patterns (above, left) - Africa beam (above, right)- South Asia/ Middle East beam (right) Asia Beam

Mark Long (Thailand) reports Intelsat 704 (66E) has recently moved WorldNet from RHCP Global beam (4177/IF973) to the east hemispheric beam (4015/IF1135). He also finds unusual "polarisation nulls" on Gorizont at 90E on the spot beam transponder (3675/IF1475) while others on board exhibit normal circularity. Anyone else notice this?

Les Brooks (Alice Springs) ponders scarcity of BBC World and Movie Club on PAS-4. Mark Long updates our knowledge of this satellite (68.5E) with table (above) showing transponders that could be usable in Australia. RFs of 3730, 3850, 4040 and 4165 have capacity to work at levels of 27dBw or better into much of Australia while 3790 and 3915 just cut across northern NT at 27 dBw. RF 3980 and 4100 are Africa only. Note BBC World (4155/IF1117Hz) would be on 16C, which if not visible in Alice Springs suggests it is on the South Asia/Middle East beam. Movie Club (4033/1117Hz) would be on 11C, same beam. See Orbit Watch, page 24, for more detailed PAS-4 listing.

Anthony Williams (Geelong, Vic) grades C1 signals into three levels; those that are P5 (CFI, TPI, HBO, ABN and TVRI), those P3 on his receiver (Echostar 9800 with KTI 3m), or STAR, MTV, GMA, An-Teve, SCTV and RCTI, and finally those he receives at B2P levels (Sky Australia, TV Indosair, CNN and RTM). Add his P1 reception from CNBC and a new digital signal he detects at 3450/IF1700Hz. He provides a chart of all signal levels versus his system noise level for 5 different satellites.

Bruce Barnett (Wanaka, NZ) with 3.7m has P5 signals from CFI, TPI, HBO, ABN, TVRI and TNT - the "standard 6" for NZ viewers. The strongest vertical is CNN with P4 signals.

Palapa C1 Observations

Colin Wenzel, Mooloolaba, Qld.

By measuring AGC output from Echostar SR-520 receiver, right hand column indicates relative signal strength above noise floor on that transponder.

IF	Service	P Rating	AGC/ Signal only level
990Hz	CFI	P5	43
1030Hz	MTV	P2	12
1070Hz	TPI	P5	42
1117Hz	GMA	P2	12
1150Hz	HBO/B-Mac	??	47
1230Hz	ABN	P5	41
1270Hz	ATVI	P3	21
1310Hz	TVRI	P5	40
1350Hz	RCTI	P2	16
1390Hz	TNT+/BMac	??	46
1430Hz	Discovery/ B-Mac	??	14
1525Hz	CNBC	P1	12
970Vt	STAR TV	P3	16
1050Vt	ESPN/B-Mac	??	24
1090Vt	TV Indosair	P3.5	24
1130Vt	AnTeve	??	20
1170Vt	CNNI	P5	34
1250Vt	TV3	??	28
1330Vt	RTM-1	P5	35

Owen Birchall, near Palmerston North (NZ) with a 3m has P5 only on CFI which could suggest a dish tracking or feed problem as others nearby find at least 6 horizontal signals at the P5 level. Owen, by the way, identifies himself as the individual at the far right edge of our March 15th front cover photo; thank you for being there to hold up the end of the banner, Owen!

Eric Fien (Satellite Systems Installers Australia, Mount Kembla, NSW) reports 1.8m commercial installations are functioning with excellent results (BER 2 x 10 to -6) with CBR 201 and 301 digital/data receivers on the As2 feeds of Reuters. He notes, "*The main data carriers are 5 - 5.5dB below the 'typical' (As2) analogue (CCTV) signal while the (Reuters) 8MHz wide digital TV signal is 4dB lower again.*" Dishes 2.3m in size will be required in the most difficult installations. The Reuters channels are used for radio and television stations and news services feeds.

Richard Brooks (Marshall Islands; 167E, 9N) reports ATVI is the strongest C1 signal on his 12' dish and Drake 700E. Others viewable: RCTI, SCTV and GMA, or, essentially all of the horizontals weak to the south. The mystery deepens!

Internet (satellite) use group formed by **Andrew Rajcher** (tel 61-3-9500-0327) launched early April with exchanges and tech tips (alt.satellite.tv.australasia) has been accepted as Internet provider. Observers with Internet ability are invited to check in.

IT JUST KEEPS GETTING BETTER!
SUBSCRIBE TO SatFACTS USING THIS FORM

As2 ... C1 ... next up is **C2M**. By the end of 1996, an additional four to six Pacific & Asia satellites. And programming - WOW!!! 50, 60, perhaps 100 channels total by April 1997. And of course there is the continuing saga of analogue's migration to DVB Compliant MPEG. Welcome to the future - here today and SatFACTS is taking you there monthly.

☐ **ENTER** my **12 MONTH** subscription to SatFACTS starting with May 15th issue (rates below)

☐ **ENTER** my **36 MONTH** subscription to SatFACTS starting with May 15th issue (rates below)

NAME _____

Company (if applicable) _____

Mailing Address _____

Town/City _____ _____ Country _____

Amount to send: 1 year - NZ$40/A$75/($US40 outside NZ and Australia) or 3 years - NZ$100/ A$175/ US$100 if by cheque. **VISA?** See form below and return with order. Return to: **SatFACTS, PO Box 330, Mangonui, Far North (NZ)** or if by **VISA** by FAX to 64-9-406-1083.

USE THIS FORM ONLY WHEN CHARGING ON VISA CARD

Please charge my VISA card as follows:

☐ One Year of **SatFACTS MONTHLY** (Nz$40/A$75/US$40)

☐ Three years of **SatFACTS Monthly** (NZ$100/A$175/US$100)

☐ **SATELLITE TELEVISION:** The Booklet (NZ$10/A$12/US$10)

☐ One year of **COOP'S TECHNOLOGY DIGEST** (NZ$125/A$125/US$125)

☐ The **WORLD of SATELLITE TV**-1992 edition (NZ$15/A$20/US$20)

Name (as it appears on VISA card) _____

Visa Card Number: _ _ _ _ - _ _ _ _ - _ _ _ _ - _ _ _ _

Visa Card Expiration date: _____

Instructions: If ordering by mail, return this complete (3-part) card (SatFACTS, PO Box 330, Mangonui, Far North, New Zealand); if ordering by FAX, send full card as single sheet to 64-9-406-1083.

SUPPLEMENTAL MATERIALS from SatFACTS MONTHLY: Order Form

❑ **SATELLITE TELEVISION:** The Booklet. Excellent introduction to home dish ownership for the layman with contributions from world famous science writer *Arthur C. Clarke*. The perfect tool to help the system seller explain dish ownership to prospective customers, from SPACE Pacific. NZ$10/ A$12/ US$10 by fast post.

❑ **COOP's TECHNOLOGY DIGEST.** For the really serious enthusiast, investor, business person in satellite TV and allied industries. Ten issues per year, jam-packed with information you will not find anyplace else. "Coop" routinely culls more than 60 monthly publications, $1,500 per year newsletters, Internet and his hundreds of private contacts to keep you up to date on the REAL changes underway in telecommunications. Conveniently issued near **first** of the month, provides excellent time-line-filler between mid-month issues of SatFACTS. Now in 4th year, airmail world-wide. Normally NZ/A/US $250 per year; for limited time **50% off offer** at NZ/A/US$125.

❑ **WORLD OF SATELLITE TV** - 1992 edition. The famous *Mark Long* handbook that takes a novice and turns him or her into a satellite TV pro! 1996 edition $45 or more; this special offer only NZ$15/A$20/US$20.

OBSERVER REPORTING FORM - Due May 3, 1996

NOTE: See special Palapa **C1 UNIVERSAL MEASUREMENT SUNDAY** form below.

• **New programming** sources seen since April 1st: _____

_____

• **Changes** (signal level, transponder, programming content) in pre-existing programming sources since April 1st: _____

_____

• **Other** (including changes in your receiving system): _____

_____

Note: Please use P1-5 code when describing reception quality and receiver IF or RF settings.

Your name _____

Town/City _____

Make/Size dish _____ LNB _____ Receiver _____

Mail: SatFACTS, PO Box 330, Mangonui, Far North, New Zealand. **Fax:** 64-9-406-1083

UNIVERSAL PALAPA C1 MEASUREMENT SUNDAY APRIL 28th
Be A Part of this first-ever footprint coverage measurement exercise!

Premise: From Perth to Chatham, Tasmania to Thailand everyone checks out C1 signals within the same six hour time segment. Then on Monday April 29th fax (64-9-406-1083) or airmail (PO Box 330, Mangonui, Far north, NZ) this card. Results in early issue of SatFACTS.

WHEN? April 28, at some point between 0500 and 1100 UTC (London time; 5PM -11PM NZT, 3PM-9PM AEST etc.)
WHAT? Very simple. List C1 signals from strongest (first listed) to weakest (last listed) for each polarisation.
HOW? Use this form. Ignore any transponders you cannot see, and use P1-5 code (see p.28).

HORIZONTAL (CFI, MTV, TPI, GMA et al) List with P code strongest to weakest (i.e., TPI P5, TVRI P5, CNBC P4, et al): _____

_____

VERTICAL (STAR, TV Indosair, CNNI et al): _____

_____

Your name _____ Location (City, country) _____

WANT TO KNOW MORE ABOUT THE BENEFITS OF SPACE MEMBERSHIP?

Return this no obligation form

Membership in SPACE Pacific entitles you to significant hard and soft ware discounts from many fellow SPACE member firms, access to not-in-SatFACTS information concerning programme access and decoder status, the opportunity to be a part of the SPACE Mark Long Satellite TV Basics correspondence course, and, very significant discounts to attend the annual South Pacific Region Satellite (and) Cable Show (January 21-25, 1997 in Auckland).

☐ YES - send me SPACE Membership Introductory Pack!

NAME _____

Address _____

Town/City _____

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

ORBITRON

Complete Satellite Antenna Systems World Wide

PRECISION
PERFECTION
DURABILITY
DEPENDABILITY
SERVICE
SELECTION
EXCEPTIONAL
EXPERIENCE
INNOVATIVE
NUMBER ONE
AMERICAN MADE

NEED WE SAY MORE.

ORBITRON
351 S. Peterson St.
Spring Green, Wisconsin U.S.A.
53588
Tel (608) 588-2923
Fax (608) 588-2257

IN NEW ZEALAND:**Telsat Communications Ltd.,** PO Box 1537, Palmerston North
Tel: 64-6-356-2749 • Fax: 64-6-355-2141

When they wanted Cable Television throughout Europe, Asia and America they called the man from Maser. Now that it's happening in New Zealand Maser is receiving those calls too.

We've been telling you about James Golden for months now and lots of you have responded. That extraordinary skill and knowledge is still available to New Zealand people interested in Cable Television .

Maser's alliances now include:

- Alpha Technologies (power supplies)
- Belden (cable)
- CableData (billing systems)
- CCMS (advertising billing systems
- Channelmatic (automation systems)
- Communications & Energy (filters)
- Eagle Comtronics (traps)
- General Instrument (CATV & MMDS equipment)
- IPC (connectors and tools)
- Kingfisher (fibre optic)
- Norsat (LNBs, satellite receivers)
- Trilithic (test equipment)
- And many other market leaders

From studio to set top. Everything you require including automatic systems for inserting commercials and foolproof billing. All from the world's leading suppliers.

And now there are more men from Maser - Steve Subritzky, Steve Peters, Ross Patterson, Paul Balfour - all available through Maser's Auckland Office and National Distribution Centre.

Call Maser now and we'll put you together with the best names in the business.
Phone: 64 9 479 7889 or fax 64 9 479 6536
PO Box 65-166 Mairangi Bay, Auckland 10, New Zealand

MASER
MASER TECHNOLOGY GROUP