

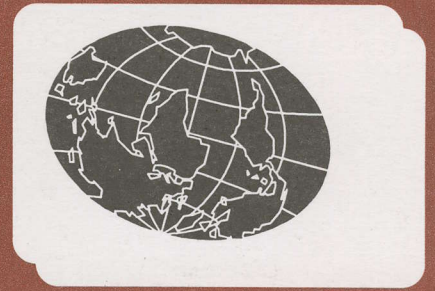
14/04/00 9am

Bob Cooper's

APRIL 15 2000

SatFACTS

MONTHLY



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

IN THIS ISSUE

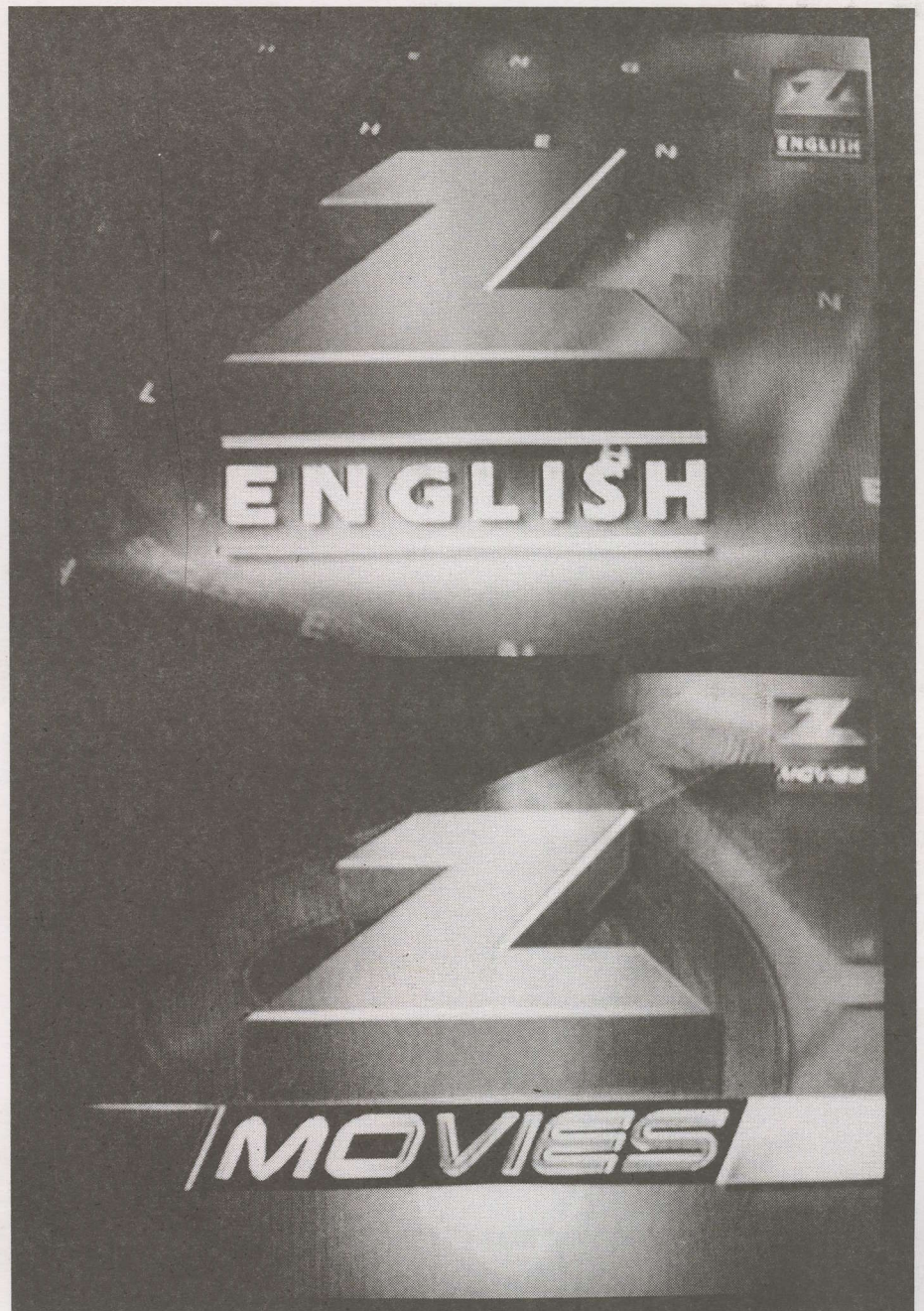
CONFUSION!
Zee Movies/
Zee English-FTA?

**Proving Terrestrial
Blackspots -
Part Two**

**Australia's FIRST
hands-on
satellite show**

- ✓ Latest Programmer News
- ✓ Latest Hardware News
- ✓ Latest SPACE Pacific Reports
- ✓ Cable TV Connection

Vol. 6 ♦ No. 68
Price Per Copy:
NZ\$9/A\$10/US\$7



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

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Announcing:

SPRSCS 2000 / June 29-30-July 1 / Melbourne

**South Pacific Region
Satellite & Cable Show
-2000-**

Presented by SPACE Pacific Ltd.
your regional industry trade association

✓ TRADE MEMBERS ONLY - Thursday June 29, Friday June 30th

The very latest inside technical and programming information covering every aspect of home and SMATV system design and installation. Come prepared to work, bring your Camcorder, be ready to be overwhelmed with information, insider insight, and rubbing shoulders with hundreds of guys and gals who make this industry tick!

✓ CONSUMER EDUCATION DAY - Saturday July 1st

With massive publicity throughout Melbourne and Victoria, the welcome mat will be out to consumers to come and see dozens of satellite systems in operation. Ethnic viewers, hobbyists, commercial users will be on hand to learn all they can about why satellite service is good for their home or business!

The very first hands-on satellite show held in Australia -
ever!

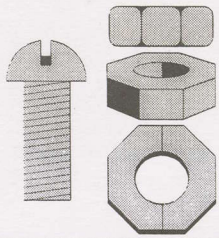
To be first on your block to register to attend - see over

- WE WISH TO EXHIBIT - please rush information
- I / WE WISH TO MAKE A PRESENTATION - please rush information
- I WANT MORE DETAILED INFORMATION ABOUT -
 - Participating in "Satellite Skills Olympics"
 - Being a part of the history making TV program production
 - "Consumer Education Day" on July 1st

Your name _____
Company name _____
Mailing address _____
Town/city _____
Email address _____
Telephone number _____
Fax number _____

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

SIMULTANEOUS LECTURES for Technicians & Management June 29 & 30!



Lecture Theatre One

- ◆ Antenna Antics
- ◆ Blackspot Babel
- ◆ Card Clowns
- ◆ GST Gamble
- ◆ IRD Indiscretions
- ◆ LNB Laziness
- ◆ Measurement Madness
- ◆ Power supply Pitfalls
- ◆ Repair or Retire?

Lecture Theatre Two

- ◆ Ethnic Erratic
- ◆ Health & safety Habits
- ◆ Indian Intrigue
- ◆ Pricing for Profit
- ◆ Out-of-market Oddballs
- ◆ SMATV Semantics



Note: This list will be updated again in May 15th issue!

PRE-REGISTER HERE - Don't put it off - SEATING IN LECTURE THEATRES MOST LIKELY WILL BE SOLD OUT BEFORE SHOW TIME!

- REGISTER ME for SPRSCS 2000 June 29-30-July 1
- REGISTER US for SPRSCS 2000 June 29-30-July 1

First name _____

Second name _____

Third name _____

Company name (if applicable) _____

Mailing address _____

Town/city _____

Email address _____

Lodging Information

- I/We will will NOT require motel/hotel lodging assistance

If YES only - Number of people (____) for (circle) June 28 June 29 June 30 July 1

Paying for registrations

For each registrant before May 31 - A\$150 (A\$125 if CURRENT member of SPACE Pacific - cite your membership certificate number here _____)

Cheque enclosed to SPACE Pacific Ltd for A\$ _____

Charge to (circle one) VISA Mastercard credit card as follows:

Name as appears on card: _____

Card number: _____ - _____ - _____

Expiry date: _____

Return: SPACE Pacific, PO Box 30, Mangonui, Far North, New Zealand / fax 64-9-406-0183

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ISSN 1174-0779

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Office Manager

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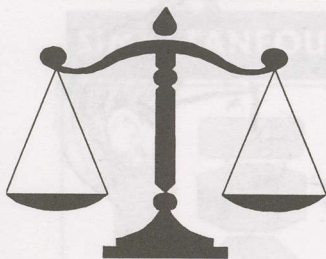
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-ON THE COVER-

On AsiaSat 3 right now - two English channels from Zee TV (p. 6).

**Piracy of the airwaves?**

"Enclosed clipping from Sydney Morning Herald (30 March) reports on imminent auction of C-band spectrum in the region of 3.2 - 3.4 GHz for mobile, digital telephone service. I read your report on Terrestrial Interference in January SF and I believe this is the sort of encroachment which ultimately could kill C-band uses for DTH. I find it very difficult to accept this level of 'piracy of the airwaves' by the larger commercial firms who seem to have little respect for prior occupants of the same (general) spectrum. I feel a letter writing and public relations campaign should be launched to prevent big guys like Channel 7 from plundering the designated satellite TV band(s). I suggest letters of protest to at least the following: (1) Members of Parliament, (2) Local regulatory authorities - who control approvals for microwave transmission sites, (3) International regulatory authorities - this is in direct conflict with designated C-band uses, (4) Allied professional groups overseas and within Australia. The potential here is that many people will lose usefulness of their present C-band systems, and those who depend upon this group will lose their business viability, if mobile telephony encroaches upon the satellite TV downlink band. If we don't respond to this urgent call, our future business will be disrupted by a proliferation of terrestrial towers spewing forth microwave energy in urban and rural areas."

Alex Kugaevsky, J.P., Sydney, Australia

The Herald article highlights Channel 7's plan to utilise the C-band frequency range for terrestrial delivery of wireless broadband data (Internet, television) directly to homes. In New Zealand, a similar plan from Television New Zealand would use 12 GHz frequencies to deliver Internet plus (interactive) TV to homes. Both make economic sense to the broadcasters because home satellite receivers (C-band or Ku as appropriate) are inexpensive "boxes" which could be installed to reach homes. The bottom line is simply - is C (or Ku) band satellite to home capable of defending its prior use of these frequency ranges against terrestrial broadcasters anxious to create terrestrial broadband networks?

Hard luck at Christchurch Polytech

"We have a pair of Pacific Satellite DSR 2000 IRDs and neither will play the audio on Arirang TV Korea (As3). All of the numbers have been correctly entered, all cables are checked. They simply won't play Arirang audio although both IRDs did so without trouble for many months. Any clues?"

Starr Moffatt, Christchurch, NZ

Try a different brand and model - there is a software glitch someplace as Arirang is FTA DVB compliant.

**PROGRAMMER
PROGRAMMING
PROMOTION****UPDATE**

April 15, 2000

Egypt just went away! Panic in the streets of Australia, New Zealand (and we suspect elsewhere in the Pacific and Asia). Egypt's ERTU/ESC, free to air in analogue on As2 for nearly 3 years, suddenly was not there. A shut down? Not quite. A conversion from analogue to digital (3640/1510Hz, Sr 27.850, 3/4) but don't bother looking - it is CA! Calls to Egyptian consulates, to the broadcaster in Egypt, even to Asiasat (the satellite operator) brought mixed, incorrect statements. "*It is free to air*" said AsiaSat. Wrong. "*It is just a test*" said an ESC spokeslady in Cairo. Wrong again. One ERTU fan dug out a videotape of an interview programme transmitted by the service last winter in which the Director of Tourism for Egypt made a promise the service would remain free to air "*forever*." Forever just happened.

Hot movies. New Zealander, returning from Australia with suitcase crammed full of off-air taped SBS movies was dismayed to have his tapes confiscated and his body strip searched. Protests that the movies were free-to-air and generally available over the counter brought no customs sympathy. "*They are foreign films and not classified by the NZ Film Board*" was terse retort. More MPAA handiwork?

Hotter satellite. Most are aware the Canal+ bouquet (Intelsat 180E, Ku) includes an adult nightly 'XXXX' programming block. But Australian viewers report that bouquet's general film channel, Cine Cinema, has been running "full on" no censorship European made erotic films a couple of evenings each week as well (generally 11PM Australian eastern). "*There is nothing this explicit, this detailed, this total available anywhere in Australia*" writes one viewer. Queries to the New Zealand French Embassy bring this advice: "*This service is not available in New Zealand because the films shown have not been approved by the Film (censorship) Board.*" Nor would they ever be! Oh yes, Australians get by on this service with dishes in the 65cm - 1.2m class, New Zealanders would require Ku rated dishes larger than 4m, almost as "big" as some of the human "attachments" one sees on Cine Cinema.

BBC World. On April 1, the format changed to eliminate 90 minute news roundup programmes in favour of 30 minute newscasts each hour followed by 30 minute features. A fine point perhaps - but creating feedback world-wide, especially in Australia where Astar has dropped BBC-W from their line-up over protest from many.

Dual channel audio (adding English to the existing French) has been added to Euronews and Eurosport is a scheduled addition as well - for the Canal + bouquet on 1701/180E.

Deutsche Welle Radio is now carried four hours each weekend on Aurora (Optus B3) audio channel of CBAA Saturday and Sunday 4 - 6PM Australian eastern. CBAA through satellite arm ComRadSat feeds 85 community radio stations throughout Australia.

September 9, 2008 is announced date for close-down of the last remaining Australia channel 0, 1 and 2 TV transmitters. The frequencies will be reassigned to other (non-TV) services. Channel 0 is lightly utilised, 1 and 2 have many transmitters (typically ABC and regional relays) which will be moved to UHF or Band III in digital format.

Web site for Indian ATV video services available NZ + Australia (SF March 15): <http://www.satcom.co.nz>, second web site (may not yet be operating) to be <http://www.asiantv.com.au>.

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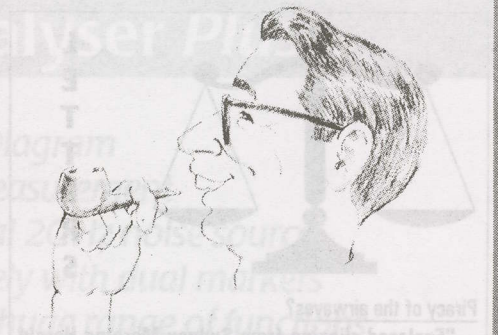
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Pricing?

"This is not to be construed to be an endorsement of any particular supplier but did want to share a survey I have just taken using email and fax. Some of these people advertise in SatFACTS, some do not. I am starting a satellite antenna farm up in NT so I can demonstrate to residents what they have available with various size dishes. People believe satellite TV is either expensive, complicated or both. I intend to demonstrate neither assumption is valid. For the trade, here is what I found out with my study. Offset dishes / 90 cm. The lowest price quoted was under \$80 while the highest was \$122. For 120 cm, highest was \$220, lowest was under \$125. For Ku LNBFs of identical specifications, highest was \$72, lowest was under \$35. Of interest to me, the same Australian company was always the most expensive - for every product, by typically 40 to 50%."

Dave Nolan, NT

Our own caution. Antenna size versus price is not the only criteria when selecting antennas. Parabolic curve accuracy, overall strength to resist storms, hardware intolerance to corrosion sometimes can make a 40% more expensive antenna the "best buy."

The answer is "no permission required"

"I have read the report in SatFACTS February explaining the approval process for Blackspot areas to gain permission to view services such as Imparja and Central 7. Do you have to go through the same procedure to get approval to watch ABC and SBS only? I have big problems receiving viewable ABC - PQ1 or PQ2 at best - and I am located in the suburban Melbourne region. I have tried numerous antenna systems and am now prepared to switch to satellite if this is possible."

Paul Hadlow via Email

No ABA approval is required for ABC or SBS. Simply buy the equipment, call the ABC at 1300-301-681 and get turned on.

Letter to Egypt

"Follows my Email to WEBMASTER @NileSat.8m.com relating my feelings and those of my home DTH system customers who really are angry about the close down of FTA service from ERTU/ESC:

'Your change to an encrypted signal on AsiaSat 2 has not been welcomed in Australia. Hundreds of Egyptian people living in Australia, who had installed satellite dish systems to view this service, are not prevented from viewing anything from their home country. The majority of Egyptians living here do not have access to the only pay-TV provider presently carrying these services (Optus Vision). This does not do anything good for improving relations. From our country, we provide Australia TV in a free to air service (Palapa C2) 24 hours a day, free to all people living in the Pacific, Asia and eastern Europe. Australia TV is very highly rated as one of the best methods of promoting and further exchanges between countries. What you have done is insensitive and shows a lack of consideration for not only your countrymen living abroad but for your own promotion of tourism and investment in Egypt.'

HARDWARE EQUIPMENT PARTS

UPDATE

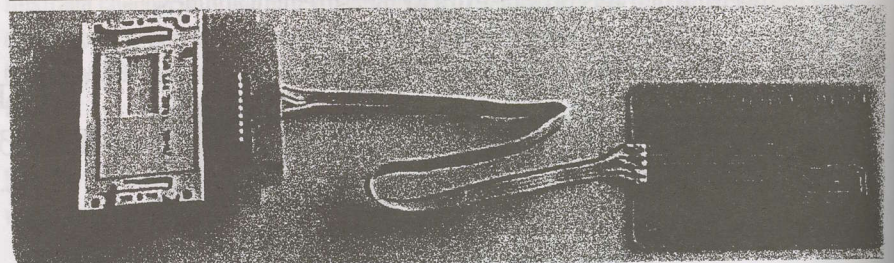
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March 20th - an announcement within an Australia Internet group. "*Blockers become illegal to manufacture (but not to have in your possession) after the 23rd. I have ten left that I need to rid myself of before then. They are high quality and work on all boxes. For more details (a mobile fone number in Sydney area).*" Supporting the statement, several jpeg file colour photos of the gadget (see below). While it is true that March 23rd was kick-in date for new Australian anti-piracy law adopted late in September, the pirates learned of a much bigger challenge on the 22nd. Foxtel + Austar adopted a "Euro Cycling" system rotating service provider Master Keys once each day, and changed programme channel ID numbers. Result? Hundreds, thousands of blocker-protected MOSC (modified original smart cards) went "down." The blocker made no difference to this particular "ECM" attack. This created big traffic and business on the various web sites where pirates gather to exchange information. It also resulted in some very confused legitimate subscriber smart cards - witness the 3-1/2 hour "wait in line" on the telephone as late as April 5 to get through to Foxtel or Austar help desks to ask them to undo the damage accidentally done when the pirate cards were ECMed. Good news - bad news summation: Pirates are reeling, but they now threaten to do new routines to create havoc for the programmers. Secret word? *Cloning*. Our interpretation? Cloning is "*conspiracy to commit fraud*" which when caught greatly increases the penalties involved.

It pays to complain department. Intelsat is not perfect, they do make mistakes and here is a case in point. The Thai 5 "bouquet" still running on I702 (177E) is not the most watched service in Australia - but some have installed dishes for it. So when the transmission gets into problems, there aren't many viewers around to complain. Gary Salisbury (KanSat) found the service had dropped out on his customer's 90cm dishes. Using an Email address he located in SatFACTS, he fired off a complaint/query to Intelsat Operations Control (Bill Mitchell at IOC6@intelsat.int). Prompt response, prompt fix: "*IOC investigation found one carrier on this transponder running above nominal transmit power. IOC made an adjustment and noted the received signal 12.650 GHz improved in level. Hope that fixed it for you!*" Indeed it did.

European bouquet changes? Email from Hermann Josef Fuchs advises, "We intend to reduce the video bit rate down to 4 Mbit/s to allow us to invite more broadcasters to join us and increase the attraction of the bouquet. At the moment several are considering this, but no decisions yet. Encryption is against our free to air concept and I don't think it will happen. As for MCM, their continued involvement in our bouquet remains a question."

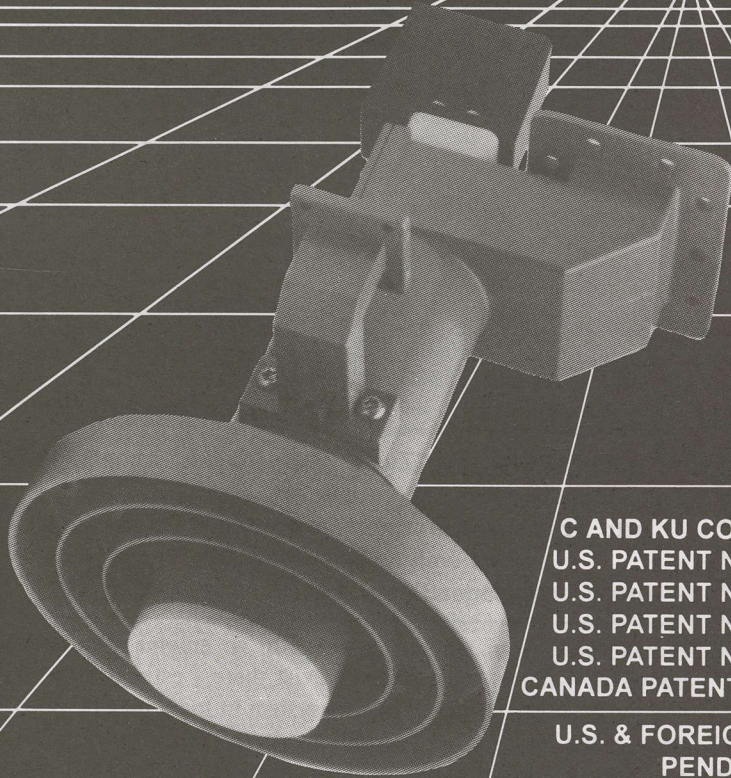
Expand your horizon. Long range cordless phones are booming in the marketplace. A new advertiser here this month (p. 18) boasts 0.4 watt (NZ approved - higher power for outside of NZ) with coverage of 5 to 30 km in "open spaces." Like any VHF/UHF product, antenna installation is the key. Which is where you come in.



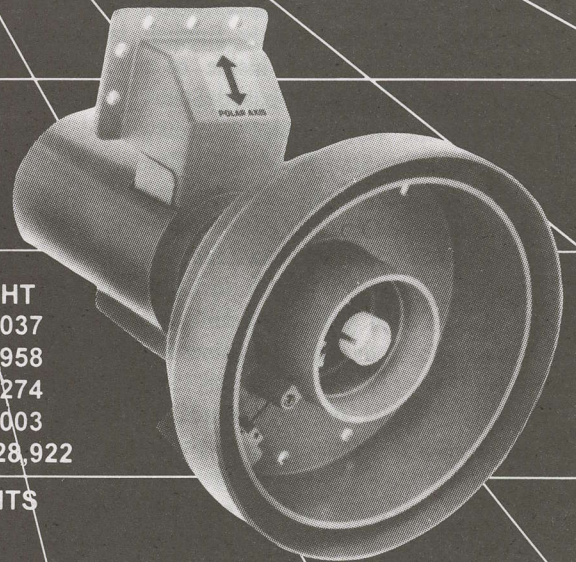
Blocker as offered on Internet by Australian manufacturer

ADL[®]

BECAUSE PERFORMANCE IS ALWAYS YOUR FIRST PRIORITY



**RP3-CKU/ International
Adjustable Scalar Ring Feed
with Extended C Band**



RPI-CKU Feed

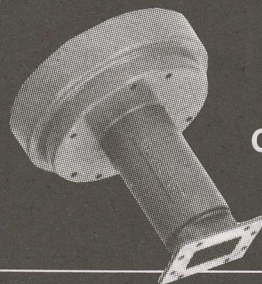
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India's Cable TV Wars Heat Up and we all may benefit!

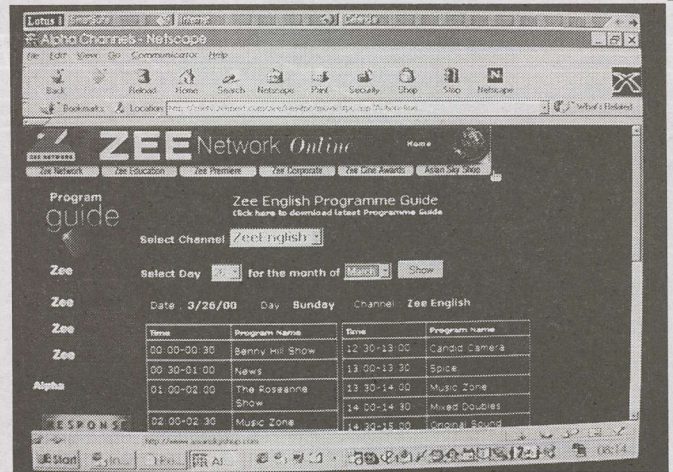
Ask any home dish system seller what it would take to boost business. "Free-to-air English (language) movies and sport" is the probable answer. Part of this wish-list came true on March 15th when India's Zee Telefilms launched a new digital bouquet on AsiaSat 3's 3700/1450Vt (Sr 27.500, FEC 3/4).

Zee Telefilms is a corporate arm of an Indian firm that wants to be kingpin in the new era television industry for southern Asia. Until November, Zee was coupled in a business marriage with Star TV Asia. Zee provided the on-ground muscle and contacts, Star the (mostly English language) programming which was distributed inside of and outside of the NDS encrypted Hong Kong based Star bouquets. But all was not well in the relationship - Zee wanted to do specialised programming, Star did not. So Zee purchased the interest of Star/News Corp (some reports say US\$350 million was paid) and Zee was essentially free to pursue its own destiny.

Zee believes they can create access to 7 million Indian homes by early in 2001. It is a tough challenge - more languages than you can count, more dialects than you can imagine, and incredible business and political opposition at every level. Zee's Chairman Subhash Chandra has local political battles and the inroads created by Rupert Murdoch controlled Star TV Asia to overcome.

Zee believes there are emerging "splinter groups" which transcend the various language and sub-ethnic groups that make up India. English speaking middle class Indians, mainly the business and educational layers of the society, are believed to number more than 30 million. That's where 7 million homes derives. Zee calls this subgroup the "dot.com generation"; people who are by Indian standards middle or upper class, upwardly mobile, lured by western images and fads.

Zee has no inside information when identifying this subgroup. Star World, Star Movies did so more than 18 months ago and these two digital services have driven the acceptance of Star programming by Indian cable systems.



"Zee English" and "Zee English Movies" schedules are posted on

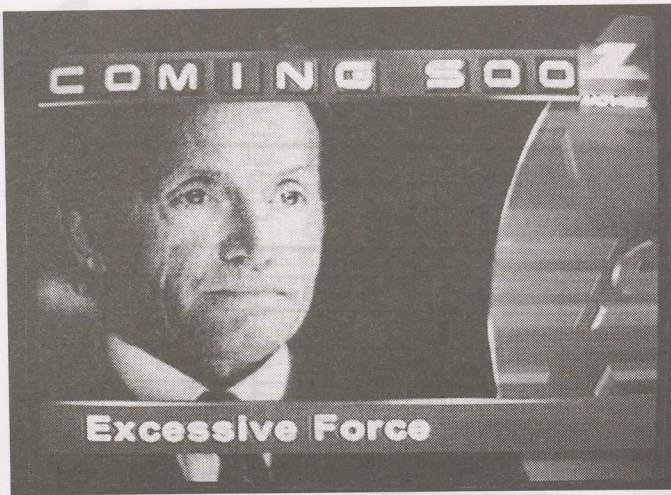
<http://zeetv.zeenext.com/zeenewlook/pstzeef.asp>
as well as linked through

<http://homepages.ihug.co.nz/~suttonc/index.html>

Indian cable is an enigma wrapped in an enigma. Nobody knows how many cable systems exist there - estimates go to and top 50,000 routinely. A cable system in India may be fibre optic cable and set-top Internet modems. But usually not - more often it is a satellite dish propped against the side of a building, two stories above the street, feeding a motley collection of well used satellite receivers connected to VCR decks for modulators. Out of this "headend" small and medium size cables attach to sides of homes, lay in rain gutters, winding their way through block after block of flats. A typical Indian cable system charges 100 - 150 Rs (rupees) per month for some quantity of channels; that's A/NZ \$4 to \$7 (US\$3.50). Cable operators in India pay minimal fees per household for encrypted "premium" channels such as Discovery, Star World - typically under Rs6 (US 14 cents). Where possible, they pay

This "time conversion" thing

Planet earth requires 24 hours (plus a few seconds) to rotate one complete turn on its axis. The earth is divided into 360 degrees of longitude, thus for each 15 degrees there is one hour of time zone difference. The "prime meridian" or 0 degrees longitude runs through Greenwich, England and time in the UK was for many centuries called GMT (Greenwich Mean Time). Currently GMT is called UTC - the two are interchangeable along with UCT ... all mean the same thing. The International Date Line is half way around the world from Greenwich - 180 degrees longitude. If you travel from east to west across the dateline, you move into the next day of the week. Going from west to east, you go back a day. New Zealand, located in the 180 degree time zone, is 12 hours ahead of UTC; 9AM in Greenwich is 9PM in Auckland. Between 12 midnight and 12 noon Auckland time, Greenwich is a day behind New Zealand (think about it). India is one of those countries that refuses to respect GMT/UTC, and they are +5.5 hours ahead of Greenwich. 12 noon in Greenwich is 12 + 5.5 or 5.30PM in India. Thus a TV programme starting at 9PM in India works out to the following: 2.30PM the same day in Greenwich (UTC), 2.30AM (the next day) in Auckland, 12.30AM (the next day) in Sydney, 10.30PM (the same day) in Perth. UTC/GMT is kept on a 24 hour basis - midnight to noon counts from 00.00 (midnight) to 12.00 (noon). For the balance of the day, 1PM becomes 13.00, 2PM becomes 14.00 and so on up to 24.00 (midnight). See table p. 10.



Zee (English) Movies is four films per day (plus many Hollywood fillers) scheduled over 10 showings (see schedule p. 10, 11). "Zee English" is off-US and British network 30 minute / 60 minute series and specials including talk shows Roseanne and David Letterman's "The Late Show" (schedule, p. 8).

nothing (piracy boxes - and cards as applicable - are endemic to India) or if forced to pay to obtain a service, typically divide their "real" subscriber count by 2 or 3 and then "report" the smaller number that results.

There are no secrets here, no revelations. Everyone knows what happens, many complain about it, nobody has yet figured out what to do about it.

Why Zee?

So if revenue is a challenge and business ethics have a new meaning in India, what prompts Zee Telefilms to chase this pot of pennies at the end of the rainbow? Numbers. Even when the per subscriber fees are small, and everyone buying the service reports only a fraction of their subscribers, the market is so vast that it is easy to fall into the "volume will fix that" mindset. Only China comes close to offering so much potential, and China has a top down political system that leaves entrepreneurs little room to manoeuvre. India may not be the "wild west" of America in the 1870s, but it comes close. Even today.

So it is about money. Big money. Or more accurately, the lure and *promise* of "big money." Since breaking away from Star TV Asia, Zee's top management have been scouring the world to raise US\$1.5 billion in venture capital funds. And Zee English and Zee Movies are but two cards in a deck to be played - and played again.

Zee says it is waving the Indian flag to woo Star TV cable affiliates away. It is also waving money. Zee claims to have placed an order to Philips for 40,000 digital IRDs - with CA. As of early April, approximately 1,400 had been distributed by the company to cable operators in India. Zee is collecting US\$285 per IRD from cable operators and expects them to pay Rs5 for Zee Movies and/or Rs4 for Zee English for each subscriber.

On March 22, HBO India launched their movie service as well. It collects US\$230 per (HBO) decoder but that is only a security deposit - unlike the Zee Philips units which cable operators purchase outright. And, Rs5.45 per (reported) subscriber per month. Between their March 22 sign-on date and April 1, HBO featured 20 films with an average release date of 1995 and on a 1* to 4* rating system averaged 2.324*.

Zee says it has acquired a "library of 700 films." With ten showings each day and four new films per day they will run through those initial 700 in 175 days. Their Web site posted schedule for the April 16 to 28 appears on p. 10/11. More than half of the Zee film titles cannot be cross referenced with a suitable world-films master list. Of those that could be, the average age is in the late 1970s. And of those that could be, more than half are British or French or Australian or Japanese. It is difficult to get excited about a service that takes a 1966 Japanese-made copy ("*What's up Tiger Lily?*") of an American hit-film ("*What's new pussycat?*"), hands the Japanese version back to Pussycat creator Woody Allen and allows Allen to cut and chop it into an English language (dubbed) *sequel* to his own hit film! Incredibly, the movie rating folks gives this one 3* (April 24, 05:30UTC and after). To be charitable, Zee has not acquired big name films here.

Not to mind - Zee Movies is not long for FTA anyhow. So what is that all about?

Zee is working a delicate balance between making its availability known and a commercial goal of realising revenue from the new services. Operating the package FTA for a period of time is the easiest and quickest way to get recognition (witness this report!). Taking it off FTA *before* there is an established base of cable headend receivers in place is the danger - timing is everything. During that period of time it remains FTA, programmer sources (the folks who own the

How "Zee English Movies" schedule works

Currently, they show 4 movies each day with ten showings as follows:

Film 1 - 0000UTC (12n NZT, 10am AE, 8am AW) repeated at 1630 UTC (04:30, 02:30, 12:30).

Film 2 - 02:30UTC, repeats at 11.30 UTC (23.30, 21.30, 19.30) and again at 1900UTC (07:00, 05:00, 03:00).

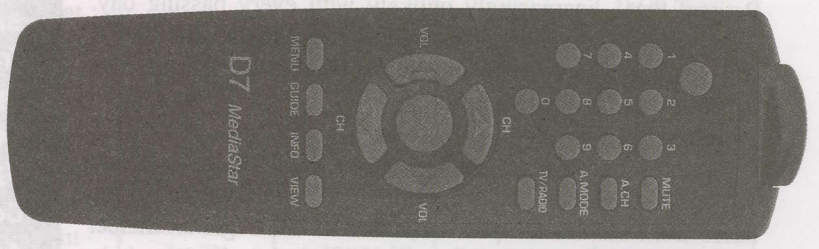
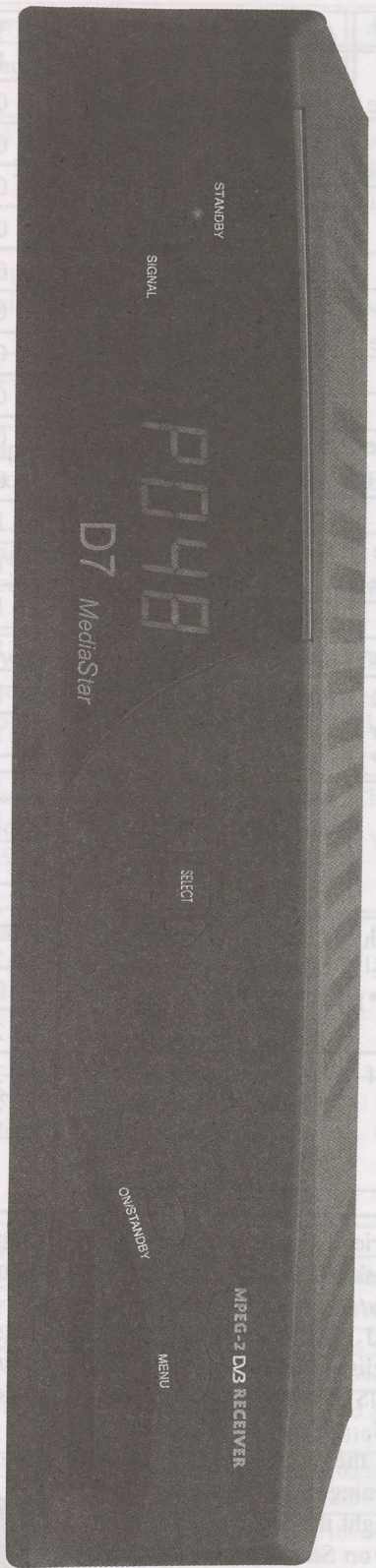
Film 3 - 04:30UTC, repeats at 09:00 UTC (21:00, 19:00, 17:00)

Film 4 - 21:30UTC, repeats at 06:30UTC (following UTC day - 18:30, 16:30, 14:30) and 14:00UTC (02:00, 12mid, 22:00)

ZEE ENGLISH - programme channel 1
AsiaSat 3S, 3700/1450, Sr 27.500, FEC 3/4

Time-UTC	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
18:30	Benny Hill	Tonight/Feroze	You Got It	Lifestyle Show	Mixed Doubles	Spice	Benny Hill
19:00	News	News	News	News	News	News	News
19:30	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne
20:30	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone
21:00	Late Show	Late Show	Late Show	Late Show	Late Show	Late Show	Late Show
22:00	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone
22:30	Sunday Special	Twilight Zone	Central Park West	Academy Award Winner	ER	Touched by an Angel	If Tomorrow Comes
23:30	Late Show	Late Show	Late Show	Late Show	Late Show	Late Show	Late Show
00:30	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone
01:00	Benny Hill	Tonight/Feroze	You Got It!	Lifestyle Show	Mixed Doubles	Spice	Benny Hill
01:30	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Show
02:00	Late Show	Late Show	Late Show	Late Show	Late Show	Late Show	Late Show
03:00	Kate & Allie	Check it Out	20th Century	Too Close for Comfort	Three's Company	Candid Camera	Academy Award Winner
03:30	20th Century	Gregory Hine	Dave's World	Evening Shade	Can't Hurry Love	Remarkable 20th Century	
04:00	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone
04:30	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Lifestyle Show
05:30	Friends	Friends	Friends	Friends	Friends	Original Sounds	Here's Lucy
06:00	Sunday Special	Twilight Zone	Central Park West	Academy Award Winner	ER	Touched by an Angel	Three's Company
06:30							Kate & Allie
07:00	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Candid Camera
07:30							Spice
08:00	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone
08:30	Friends	Friends	Friends	Friends	Friends	Kate & Allie	Mixed Doubles
09:00	20th Century	Gregory Hine	Dave's World	Evening Shade	Can't Hurry Love	Candid Camera	Original Sound Track
09:30	Nothing Lasts Forever	Twilight Zone	Central Park West	Academy Award Winner	ER	Touched by an Angel	If Tomorrow Comes
10:30	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne
11:30	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone	Music Zone
12:00	Original Sound Track	Check it Out	Remarkable 20th Century	Too Close for Comfort	Three's Company	Original Sound Track	Here's Lucy
12:30	20th Century	Tonight/Feroze	You Got It!	Lifestyle Show	Mixed Doubles	Spice	Over the Edge
13:00	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne	Roseanne
14:00	Tonight with Feroze	You Got It!	Lifestyle Show	Mixed Doubles	Spice	Candid Camera	You Got It!
14:30	Friends	Friends	Friends	Friends	Friends	Here's Lucy	20th Century
15:00	Check it Out	20th Century	Too Close for Comfort	Three's Company	Kate & Allie	Over the Edge	Nothing Lasts Forever
15:30	Gregory Hine	Dave's World	Evening Shade	Can't Hurry Love	Candid Camera	If Tomorrow Comes	
16:00	Twilight Zone	Central Park West	Academy Award Winners	ER	Touched by an Angel	Benny Hill	(4.30AM) Benny Hill
17:00	News	News	News	News	News	News	News
17:30	Late Show	Late Show	Late Show	Late Show	Late Show	Late Show	Late Show

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Time/UTC	April 16	April 17	April 18	April 19
19:30	Alice in Wonderland in Paris	Body Language	Sword & Sorcerer	Death by misadventure
22:00	I Don't Want to be Born	Millennium	Angel of Desire	Dangerous Desire
00:30	Fourth Protocol	Domino Principle	Empire of the sun (1987, 2*)	Circle of friends
03:00	Alice in... (above)	Body Language	Sword & Sorcerer	Death by misadventure
05:30	As long as they are happy	My Favorite Brunette	Star Odyssey	Someone behind the door
08:00	Fourth Protocol	Domino Principle	Empire of the sun	Circle of friends
10:30	Body Language	Sword & Sorcerer (1982, 2*)	Death by misadventure	Little Red Riding Hood
13:00	My Favorite Brunette (1947, 3*)	Star Odyssey	Someone behind the door (1971, 2*)	The Jesus Trip
15:30	Domino Principle (1977, 1*)	Doctor in Trouble (1970, 2*)	Circle of friends (1995, 3*)	Defense of the realm (1985, 3.5*)
17:30	Millennium (1989, 2*)	Angel of Desire	Dangerous desire	Red Blooded American girl

Time UTC	Time India	Time NZT	Time AE	Time AW
00:00	5:30AM	12:00	10AM	8AM
01:00	6:30AM	1PM	11AM	9AM
02:00	7:30AM	2PM	12 noon	10AM
03:00	8:30AM	3PM	1PM	11AM
04:00	9:30AM	4PM	2PM	12noon
05:00	10:30AM	5PM	3PM	1PM
06:00	11:30AM	6PM	4PM	2PM
07:00	12:30PM	7PM	5PM	3PM
08:00	1:30PM	8PM	6PM	4PM
09:00	2:30PM	9PM	7PM	5PM
10:00	3:30PM	10PM	8PM	6PM
11:00	4:30PM	11PM	9PM	7PM
12:00	5:30PM	12 mid	10PM	8PM
13:00	6:30PM	1AM	11PM	9PM
14:00	7:30PM	2AM	12 mid	10PM
15:00	8:30PM	3AM	1AM	11PM
16:00	9:30PM	4AM	2AM	12mid
17:00	10:30PM	5AM	3AM	1AM
18:00	11:30PM	6AM	4AM	2AM
19:00	12:30AM	7AM	5AM	3AM
20:00	1:30AM	8AM	6AM	4AM
21:00	2:30AM	9AM	7AM	5AM
22:00	3:30AM	10AM	8AM	6AM
23:00	4:30AM	11AM	9AM	7AM
24:00	5:30AM	12 noon	10AM	8AM

3:30AM 1 weekday ahead of UTC

copyrights for shows such as "Friends") are drumming their fingers on the corporate table asking, "OK - so you have shown it off. Now when will you cut out the FTA exposure???" Zee denies it is after Star World with Zee English or Star Movies with Zee Movies (in English) but Indian cable firms find it amusing that Zee runs US network show "Friends" seven days a week (20:30UTC, 14:30 UTC) which just happens to be 30 minutes before the same series appears on Star. Star World has current screening rights for the first three years of "Friends," while Zee bought the four years that come after the programmes now airing on Star World. This is the level of "game" being played between the two competitors.

FTA? Well, now, for at least the balance of this month. Beyond that - increasingly unlikely with every passing day. The Philips IRDs? Still a mystery machine - along with the CA "system" they employ. SF attempts to identify the unit have so far been without positive result.

More coming from Zee

Zee now leases at least seven (some say 8) AsiaSat (2 and 3S) transponders. Their programming intent is to cover the bases from movies to sport to education and regional dialect languages. The various regional services typically launch in old-fashioned analogue (see right) with the promise that digital

bouquet presence will follow. DVB-S MPEG-2 IRDs are not common in India at this stage - special IRDs for Star services and a smaller quantity for international services such as Deutsche Welle, and TV5 are found at the larger systems serving more internationally oriented audiences.

"Zed" is to be a 24 hour educational channel with "six hours of original programming" synchronised with www.zeelearn.com, an Internet portal for education created by

ALPHA TV GUJARAT

STARTING FROM MARCH 21, 2000
TECHNICAL SPECIFICATIONS

Satellite	: Asiasat 2S
Transponder	: 7A
Uplinking Frequency	: 6125 MHz
Downlink Frequency	: 3900 MHz
Uplink Polarisation	: Horizontal
Downlink Polarisation	: Vertical
Audio Frequency	: Channel 1 : 6.6 MHz Channel 2 : 7.2 MHz

Time/UTC	April 20	April 21	April 22	April 23	April 24	April 25	April 26	April 27	April 28
19:30	Little red...	Last Godzilla	Robo vs Godzilla	George	Swiss Family...	Nickolas Nickelby	Benji	Beach-comer	Bushido Blade
22:00	Red blooded...	Lonely Hearts	Ruby Cairo	Evil Dead 2	Red blooded 2	Tainted love	Army of darkness (1993, 2*)	Black Cobra	Little Shop of Horrors (1960, 3.5*)
00:30	Defense of ...	Leon (Forgiven ...)	Welcome Home	Linguini incident	Gleaming the cube	To die for	Rude awakening	Pyrates	Girl in the picture
03:00	Little red...	Last Godzilla	Robo vs Godzilla	George	Swiss Family ...	Nickolas Nickelby	Benji	Beach-comer	Bushido blade
05:30	Jesus trip...	High Risk	Dynamite Chicken	Disappearance ...	What's Up Tiger Lily (1966, 3*)	Lethal Panther	Blood brothers	Challenger	Delta Force
08:00	Defense of ...	Leon (Forgiven ...)	Welcome Home	Lingui Incident	Gleaming the cube	To die for	Rude awakening	Pyrates	Girl in the picture
10:30	Last Godzilla	Robo vs Godzilla	George	Swiss Family Robinson	Nickolas Nickleby (1947, 3*)	Benji (1974, 3.5*)	The beach-comer (1955, 3*)	Bushido Blade (1979, 2.5*)	Messenger
13:00	High Risk (1981, 2.5*)	Dynamite Chicken (1971, 2*)	Disappearance Flt 412	Beneath 12 mile reef (1953, 2.5*)	Lethal panther	Blood brothers (1978, 2.5*)	Challenger	Delta force commando	Beast Master 2 (1991, 1.5*)
15:30	Leon (Forgiven sinners) (1961, 2.5*)	Welcome Home (1981, 2*)	Lingui Incident (1992, 1.5*)	Gleaming the cube (1984, 2*)	To die for	Rude Awakening (1989, 1.5*)	Pyrates (1991, 1*)	The girl in the picture (1986, 2*)	The act of love (1953, 2.5*)
17:30	Lonely Hearts (1981, 3*)	Ruby Cairo	Evil Dead 2 (1987, 2*)	Red Blooded 2	Tainted Love	Best of the best 2 (1993, 2*)	Black Cobra	Excessive force (1993, 1.5*)	High voltage (1929, 1.5*)

Zee. Remember that effort to raise US\$1.5 billion in new investment venture capital? The more "bases" Zee appears to have covered, the greater the width and depth of their operating packages, the better their chances to raise that money. Which brings us back around to square one - the "image" Zee portrays not just at home but throughout the world. Channel Zed is designed to wrap itself around every aspect of the business to attract the attention of the "dot.com generation" Zee is targeting.

In the table (to right) we list the current AsiaSat 2 and AsiaSat 3 Zee service channels - less the analogue, encrypted Zee Cinema on As3S 4060/1090Vt. This service, Zee has announced, is closing down in favour of a digital format "soon." There are other Zee digital bouquets coming - one that could be them testing has been spotted on As3S 3820/1330Vt with test name of "Reseau" - same Sr (27.500) and FEC (3.4) as the 3700 As3S bouquet.

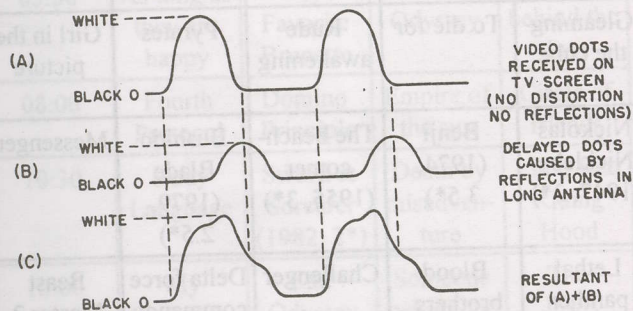
Ahead? Confusion, uncertainty, and the supreme test. Will the Indian DTO (Direct to [cable] operators) market support the new initiative? Waiting in the wings - a government decision to approve Ku-band DTH.

Service Name	Satellite frequency	Technical data	Notes
Alpha TV Marathi	As3S/105.5E 3660/1490Vt	PAL analogue	6.6, 7.2 audio
Alpha TV Bangla	As3S/105.5E 4140/1010Vt	PAL analogue	6.6, 7.2 audio
Alpha TV Gujarati	As2/100.5E 3900/1250Vt	PAL analogue	6.6, 7.2 audio
Alpha TV Punjabi	As2/100.5E 3740/1410Vt	PAL analogue	6.6, 7.2 audio
Zee Digital Bouquet #1	As3S/105.5E 3700/1450Vt	Sr 27.500, FEC 3/4	1) Zee English, 2) Alpha Bangla, 3) Zee Movies, 4) Alpha Marathi 5) Alpha Punjabi 6) Alpha Gujarati 7) Test card
Zee News	As3S/105.5E 3940/1210Vt	PAL analogue	6.3, 6.48, 6.8 Hindi
Zee TV	As3S/105.5E 3980/1170Vt	PAL analogue	6.3, 6.48 Hindi, 6.8

Yes - you can beat the bureaucracy!

The Basics of Terrestrial Antennas (it is a wonder they work at all)

Before there can be a picture on a television receiver, there must be some minimal amount of signal. The minimum signal required to produce various quality levels of picture from terrestrial analogue television is measured by a carrier to noise (ratio) test (C/NR). Images that can be watched with impairments require not less than 20 dB C/NR, noise or impairment free images generally require a 40 dB C/NR. The antenna is the signal capturing device that determines C/NR.

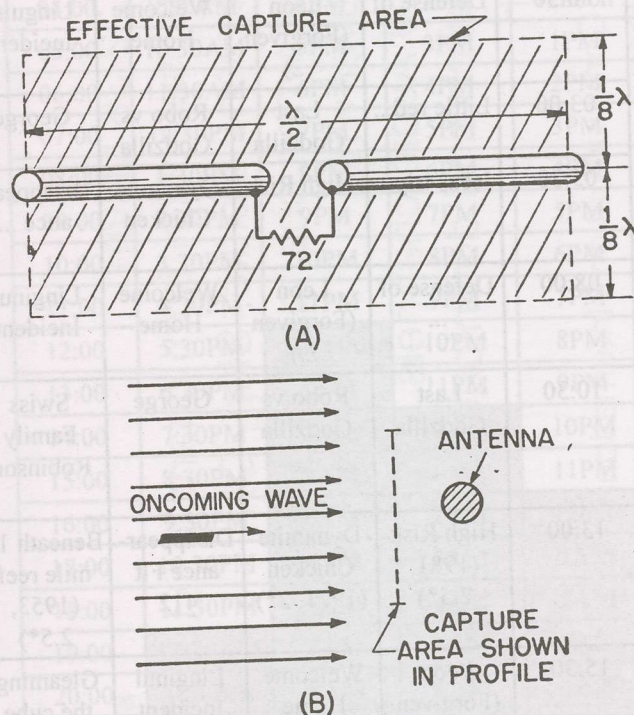


The two camel hump rounded display at the top (A - above) represent a pair of white dots on the picture tube, "turned on" by the television signal. Black is zero information while the "white peak" at the top represents the TV signal "turning on" one dot on the picture tube screen.

(B) above represents the same two "dots" but received through the antenna after reflecting from an object. Note the time line (left to right) is shifted to the right for (B) because the reflected signal has travelled further before reaching the receiver. When you cover a greater distance between transmitter and receiver, you arrive "late."

If (A) is the direct signal, following a straight line from the transmitter to the receiver, and (B) is a reflected path from transmitter to receiver, (C) is what happens when the two paths join together at the antenna download and head for the receiver. There is a shift in time (the marriage of direct and reflected equals a balance between the two - now shifted and delayed), a reduction in signal level (the height of the two humps in (A)), and a distortion of the actual electronic information that makes up the single dots. The "width" of the electronic impulse carrying that "dot" is stretched, because the direct signal when married to the reflected signal creates a new hybrid waveform.

(A) is what the wave form or transmitted impulse should look like to produce a clean image on the screen. Barring that, (B) would produce a clean image as well but of not as great a strength. When (A) and (B) are simultaneously received by the



antenna and sent to the TV receiver through the downline, we have (C) which on the TV screen appears as a "smeared" dot; no longer pristine and shapely as originally transmitted.

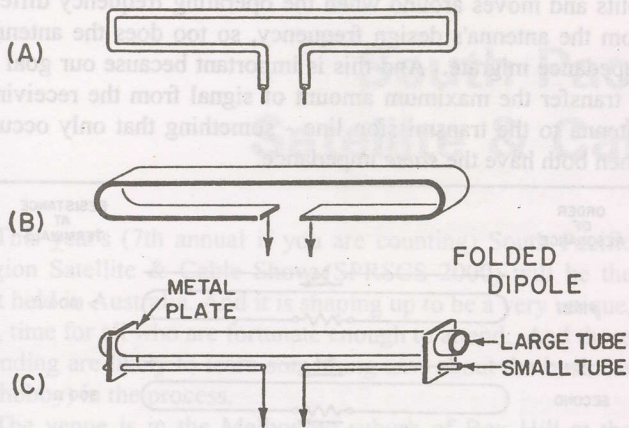
This is the essence of getting quality images to the TV screen; pristine "dots" in their original as transmitted impulse shape, neither distorted not delayed in time.

Without respect to antenna design, all antennas have one thing in common; a feed point where the transmission line connects. The basic building block for all antennas is a "standard dipole" (see diagram, above). It is $1/2$ wavelength in length and provides a means for connecting a proper transmission line to connect to the TV receiver. The standard dipole has an overall length determined by the frequency (wavelength) of the desired station to be received. And this is important: In the very best case, a dipole is the appropriate length for *only one* TV channel.

A dipole is a split-in-the-middle metallic piece (of a specific electrical length to correspond to the channel to be received) with a specific impedance. *Impedance?* That means the dipole will transfer the energy it receives to a transmission line only if the "match" (impedance) of the dipole and the transmission line are the same. The dipole you see above has a natural

Tokenism or leak in the system?

In SatFACTS for February, we reported the ABA's decision to allow terrestrial TV viewers residing in "Blackspots" (where terrestrial reception is supposed to exist but does not) to apply for permission to have Network 7, 9 and 10 service delivered via satellite. On March 22, a group of (approximately) 10 applications were released, primarily in NSW and Victoria for Imparja and Central 7. Alas, as SF goes to press, no additional approvals have been reported. The ABA procedure is outlined in step by step fashion on pages 6 - 11 for February. If you need help, freecall ABA at 1800-810-214 or email SatelliteTV@aba.gov.au.



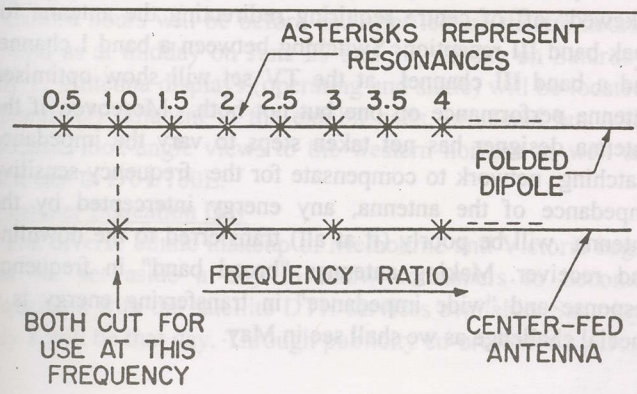
impedance in the region of 75 ohms. But that 75 ohms is "balanced" (as opposed to unbalanced) and as soon as you expand the antenna to include more "elements" than the dipole alone, the impedance changes dramatically. So don't rush out and hook up a piece of RG-6 to it ... just yet.

Now it happens that when additional pieces of metal are included in the TV antenna design, they have an effect on the impedance (and performance) of the dipole. One of the effects is to lower or reduce the "impedance" of the dipole element so that it no longer is 75 ohms.

The TV receiving system is a series of building blocks, all interconnected. The TV antenna connects to the downline (either directly or through a masthead amplifier), which in turn connects to the TV receiver. TV signal energy transfers from the antenna to the following "block" in direct proportion to the efficiency of the "match" between the two blocks. A TV antenna with an impedance of 30 ohms, for example, will transfer only a fraction (approximately 40%) of the intercepted energy from the antenna to a 75 ohm transmission line (even less to a 300 ohm line). And because the transmission line is "fixed" in impedance, it is best to match the antenna to the transmission line rather than the reverse.

Directly above is a variation of the standard dipole - called a "folded dipole." The physical differences are obvious. Rather than a single rod broken in the middle, we now have a pair of rods, interconnected at the ends, with only the lower rod broken in the middle. This is where the transmission line connects.

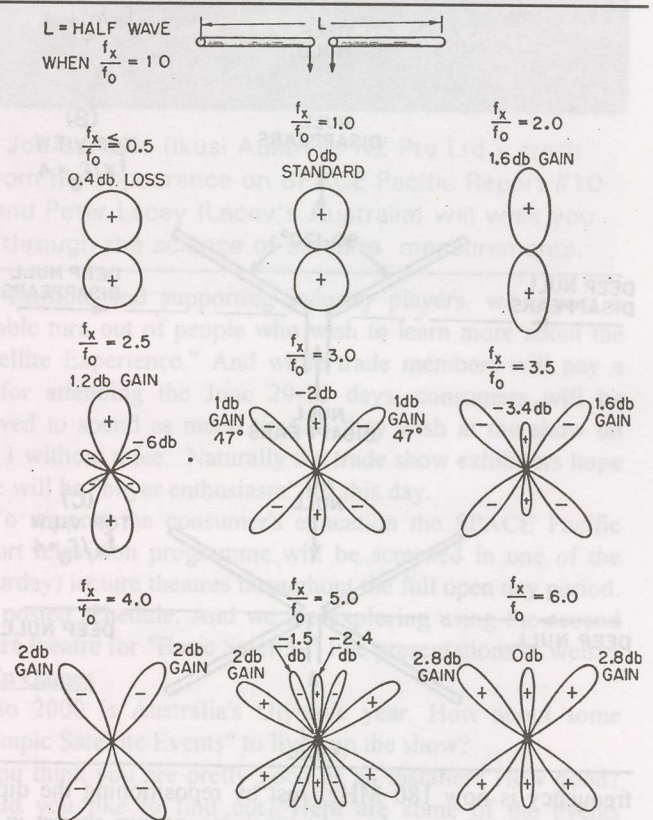
The "folded dipole" is an impedance transforming device as well as an antenna. It has a natural self-impedance near 300 ohms, 4 times as high as the split-in-the-middle rod. When you place a folded dipole antenna in a complex antenna of many additional pieces of metal ("elements"), we start off not with a 75 ohm impedance but rather a 300 ohm impedance. However,



just as placing additional "elements" around the split-in-the-middle dipole lowers the impedance of the standard dipole antenna, placing additional elements around the folded dipole also lowers its impedance below the stand-alone 300 ohms as well.

In the diagram at lower left, we have a new comparison. What happens when a standard dipole or a folded dipole are used to receive not only the original TV channel but others as well? Remember the dipole (any dipole) is electrically a specific length (one half wavelength) for one TV channel. That says it works properly only for the channel where the electrical length of the antenna approximates the electrical wavelength of the transmitted signal.

The top line, lower left, represents the folded dipole. It functions reasonably at frequencies which are 0.5f, 1.5f, 2f, 2.5f, 3f, 3.5f and 4 times the original designed-for frequency (45 MHz). Thus a folded dipole designed for 45 MHz will function at 22.5 MHz, 67.5, 90, 112.5, 135, 157.5, and 180 MHz. The standard dipole, however, will only so-function at 2f, 3f and 4f (times) the designed for frequency.



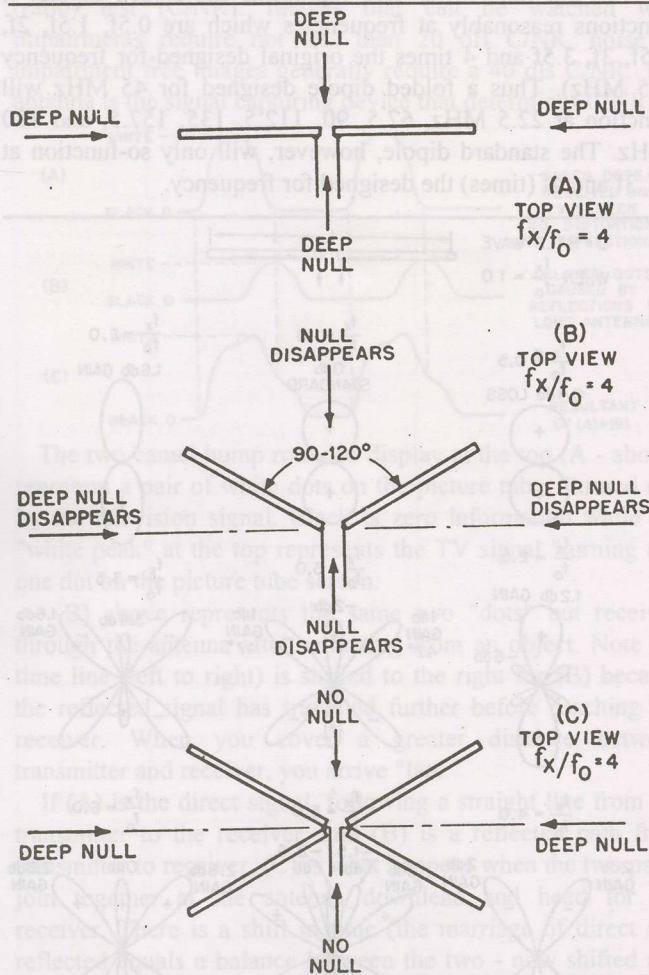
"Function" is a bit of a misnomer. In the illustration above, we see what happens to the "dipole directivity" as the frequency is varied but the dipole remains of a constant length. There are nine frequencies illustrated - top left is 0.5 (one half the design frequency), while bottom right is 6.0 (six times the original operating frequency). Those funny "blips" on the diagram indicate the direction at which the dipole exhibits "gain" (signal reception response). Focus on the top line, middle diagram. This is the design frequency of the dipole, and the maximum signal reception is perpendicular to the dipole "rod(s)." The same antenna at frequency = 2 exhibits more gain than at frequency = 1, but at a price. Now there are "minor" or lower level "blips" (reception directions) showing. The gain numbers ("2 dB gain," and "-1.5 dB gain" in bottom centre diagram) reference the real gain at frequency = 1. What this tells us is that a dipole that is too long for the desired

frequency creates many "sidelobes" (new directions, not perpendicular to the rods) where it exhibits gain (reception capability).

All of this discussion assumes the dipole antenna is suspended (installed) so that its long side is perpendicular to the approaching TV signal (wavefront) and in the same plane (horizontal if the transmitted signal is horizontally).

There are other options. Suppose, for example, we bend (align) the two halves of the dipole so they point upward leaving an angle of between 90 and 120 degrees between the two (below, top).

Note the frequency here is $F = 4$, or for a dipole designed to operate at 45 MHz, the dipole is $4f$ long and our operating



frequency is now 180 MHz. Just by repositioning the dipole into an upward cant, the split receiving pattern shown in the bottom left diagram (p. 13) magically turns into a pattern that now looks like the top line, centre. The "null" (lack of reception) at the centre disappears.

In the bottom diagram, we have added a second pair of similarly positioned dipole elements to the dipole antenna. Now we have two dipoles, connected together at the centre, with both sets of elements "tilted" away from the horizontal. Welcome to the first major derivative of the standard dipole - the "conical" antenna.

Alas - there is no free lunch

Although a folded dipole has superior off-design-frequency performance to a "standard" (straight) dipole, there are disadvantages in trying to use it at $3F$ or $4F$ (for example).

Remember that a dipole has a design impedance - 75 ohms for a standard split-in-the-middle variety, 300 ohms for a folded model. But both impedances are only going to occur at

the design frequency. Just as the antenna's receiving pattern splits and moves around when the operating frequency differs from the antenna's design frequency, so too does the antenna impedance migrate. And this is important because our goal is to transfer the maximum amount of signal from the receiving antenna to the transmission line - something that only occurs when both have the *same* impedance.

ORDER OF RESONANCE	LENGTH	RESISTANCE AT TERMINALS
FIRST	$\lambda/4$	$> 1000 \Omega$
SECOND	$\lambda/2$	300 Ω
THIRD	$3\lambda/4$	1000 Ω APPROX
FOURTH	λ	VERY LOW
FIFTH	$1\lambda/4$	HIGH
SIXTH	$1\lambda/2$	LOW
SEVENTH	$1\lambda/4$	HIGH
EIGHTH	2λ	VERY LOW

The folded dipole impedance varies as a function of frequency being received. While the $4f$ reception capability of the folded dipole "looks good" on paper, the 300 ohm impedance at $4f$ has plummeted to an incredibly low number - 0.118 ohms! In simple terms, there is no reasonable way to "match" an antenna with a 0.118 ohm impedance to a transmission line you have ever seen (75 or 300 ohms). This means that while the received signal may exist at the dipole, there is not a convenient way to transfer that signal energy to the transmission line. The folded dipole works reasonably well and can be impedance matched to a transmission line at f , $2f$ and $3f$ but at $4f$ it becomes impossible to match. So much for using the folded dipole at $4f$.

Low band TV (band 1) operates within 45-90 MHz. Antennas designed for low band are $2f$, $3f$ or $4f$ when used on high band (band III). Between their $(1)f$ design frequency and $2f/3f/4f$ the antenna's electrical characteristics change radically. In most designs, the band III antenna performance is "skewed" off of centre requiring redirecting the antenna for peak band III reception. Switching between a band I channel and a band III channel at the TV set will show optimised antenna performance on one but not both. Moreover, if the antenna designer has not taken steps to vary the impedance matching network to compensate for the frequency-sensitive impedance of the antenna, any energy intercepted by the antenna will be poorly (if at all) transferred to the downline and receiver. Making antennas "broad band" in frequency response and "wide impedance" in transferring energy is a special challenge as we shall see in May.

South Pacific Region Satellite & Cable Show 2000

This year's (7th annual if you are counting) South Pacific Region Satellite & Cable Show (SPRSCS 2000) will be the first held in Australia. And it is shaping up to be a very unique, fun, time for all who are fortunate enough to attend. And those attending are likely to learn something new about the business (or hobby) in the process.

The venue is in the Melbourne suburb of Box Hill at the facility operated by Box Hill Institute (TAFE - Nelson Campus). Hosts Rob McAllister, Keith Gledhill and crew have a background in telecommunications including satellite and have attended previous SPRSCS events.

June 29 and 30 are "trade show" days while Saturday July 1 is an "open day" to allow consumers and non-trade members to come out to the campus, tour the exhibit areas and inspect operating satellite systems covering C and Ku.

Box Hill has twin lecture theatres - comfortable seats, all of the latest video and audio presentation gear - and SPRSCS 2000 will make use of both, simultaneously, for many day parts June 29 and 30. In Theatre One - two days filled with the latest technology designed to appeal to the hands-on technician. And in Theatre Two - simultaneously where it makes sense (or is unavoidable - a function of scheduling) - lectures and presentations covering the employment of technology to make one's business more successful (translation - for management type people).

Box Hill has well equipped video recording gear and we intend to record for permanent record (and later use and reuse) all sessions in both theatres. Most theatre sessions will be scheduled to allow straight forward transfer from session to videotape to airing on Mediasat and Westlink (Aurora) later in the year.

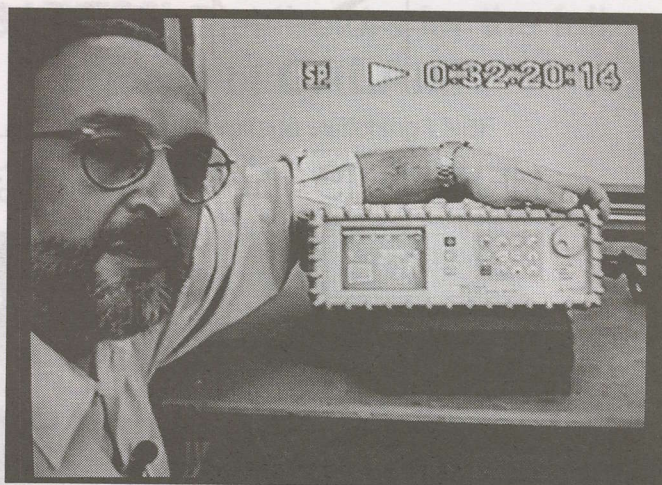
Trade displays

Our "A" list (previous SPRSCS participant firms) were notified March 29 of the 2000-show details. And an announcement was posted on the SatFACTS web site (<http://www.satfacts.kwikkopy.co.nz>) the same day. Early birds have taken 25% of the trade show space even before this hits print. There are three separate "display rooms" each 8 by 10m in size (to be used typically by a single firm) and room for nearly 50 "trade tables." Details are available through SPACE Pacific Ltd. (PO Box 30, Mangonui, Far north, New Zealand; tel 64-9-406-0651, fax 64-9-406-1083, Email skyking@clear.net.nz).

Exhibit hours will be before and after lecture theatre hours, as well as at midday on June 29 and 30; all day on Saturday July 1. Antenna displays (operating and static) will be located immediately adjacent to the exhibit halls, protected but with adequate look-angle views to the western horizon as well as back east to 1701/180E.

Consumer Education Day

The diverse ethnic makeup of Melbourne and Victoria begs that we set aside a day to allow consumers to become acquainted with the satellite DTH services available. Saturday July 1 will be that day. Through publicity co-ordinated by Box



Joe Bonavia (Ikusi Australia NZ Pty Ltd.), fresh from his appearance on SPACE Pacific Report #10 and Peter Lacey (Lacey's Australia) will walk you through the science of satellite measurements.

Hill Institute and supporting industry players, we expect a sizeable turn out of people who wish to learn more about the "Satellite Experience." And while trade members will pay a fee for attending the June 29-30 days, consumers will be allowed to spend as much time as they wish at the show on July 1 without a fee. Naturally the trade show exhibitors hope there will be "buyer enthusiasm" for this day.

To support the consumer's education the SPACE Pacific Report television programme will be screened in one of the (Saturday) lecture theatres throughout the full open day period. to a posted schedule. And we are exploring using the second lecture theatre for "Basic Satellite" live presentations as well.

Fun 'n Games

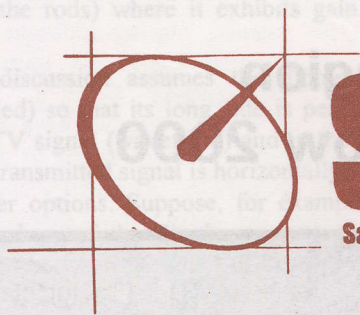
So 2000 is Australia's Olympic year. How about some "Olympic Satellite Events" to liven up the show?

You think you are pretty good as an installer? How good? Would you like to find out? Here are some of the events planned - each person enters as a "single" and you will be racing against the clock to produce judged quality work.

1) Fastest F fitting installer in the world? Against the clock, you wire up one each 2, 3 and 4 way splitter to specifications starting with a roll of cable. You start by cutting cables to specified lengths, prepare cables for F fittings, install the fittings, connect to the splitters and then measure and record the signal levels provided.

Too complex for you? A "junior event" requiring you to prepare ten F to F patch cables to specified lengths (neatness and accuracy will count!).

2) Signal level / signal quality measurements. Using suitable test gear from Ikusi and Lacey's Australia, contestants will draw five random analogue service or digital service names from box and be timed as to how long it takes to find, and measure accurately the parameters of each service.



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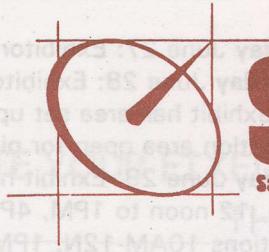
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- CALAMP C band mini-mag digi extended 20k LNB
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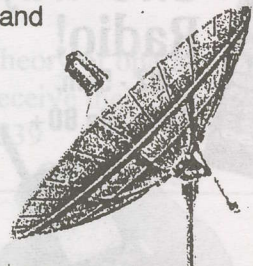
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- Mathews Electronic Service Services (New Zealand) Tel: (09) 634 5130, outside Auckland 0800-777 376

More events are being considered. The object is to span the three days with hands on, show us how it is done events that will by observation of participation lead to better qualified installers and technicians in the field. "Satellite Olympic Winners" will be announced late on July 1st with suitable "rewards" for being the best in the various events.

Lodging and mechanics

The Box Hill Institute facility is about as close to perfect for this type of gathering as one could imagine, as if it had been planned in advance. However, there are some restrictions. Theatre seating is limited to typically 90 seats per facility. An "overflow" third theatre will be pressed into service for televised coverage (those who cannot get seating in the primary theatre will be shunted to the overflow facility where the event will be on TV). Seating will be by registration number, which means it will be safer to register early rather than later.

There are plenty of lodging facilities around - it works this way. When registering, you will advise whether you require lodging (and which nights and for how many people). As a part of your Registration Confirmation you will be advised of who to contact and what to request for lodging. Like the theatre seating, the best (closest - 10 minute walk) facility will fill up fast.

The Nelson Campus of Box Hill Institute is a 5 minute walk from public transport stations (bus and train) and 35 minutes from the Melbourne airport. A Canteen will be open for on-site lunches, and it is a 5 minute walk to the Box Hill Shopping Centre for additional food choices.

The hours for the event are tentatively 9AM to 6PM June 29, 30 and 9AM to 4PM July 1. Exhibitors will be able to start antenna set-ups June 27 and complete these plus do their exhibit area set-ups on June 28. Detailed exhibitor information is available separately from attendee information.

The Events - SPRSCS 2000

- Tuesday June 27:** Exhibitor antenna set-up
- Wednesday June 28:** Exhibitor antenna set-up, inside exhibit hall area set up. From 12 noon - registration area open for pickup of packets.
- Thursday June 29:** Exhibit halls open 9AM to 10AM, 12 noon to 1PM, 4PM to 6PM. Trade presentations 10AM-12N, 1PM to 4PM. "Satellite Olympics" 4PM to 6PM.
- Friday June 30:** Exhibit halls open 9AM to 10AM, 12 noon to 2PM, 4PM to 6PM. Trade presentations 10AM - 12N, 2PM to 4PM. "Satellite Olympics" 4PM to 6PM.
- Saturday July 1:** Exhibit halls open 9AM to 4PM. SPACE Pacific Reports in theatre 9AM to 4PM. "Satellite Olympics" 10AM until 3PM.

...
Notes: Only properly registered "trade personnel" will be admitted June 29-30. Antenna area will be open for observation June 28 after 12 noon, exhibit hall during set-up will be closed to all but exhibitors all day on 28th. Registration badges (part of registration packet when you arrive for pickup) **MUST** be worn at all times for admission to lecture theatres and exhibit halls June 29-30. No badges required for Saturday July 1. "Satellite Olympics" contestants must bring your own crimping tool and F fittings of your choice (there is an edge here - think about it!) - cable will be supplied (and you get to keep the cables you prepare under the shadow of a time clock). Restriction: No products even remotely related to smart card modification or creation will be allowed for display area.

A videotape screening area is planned so that attendees can bring their own tapes for sharing with others. Bring your camcorder and take home a personal tour of the event. Taping inside of lecture theatres is permitted but only as it does not interfere with the attention of others attending the event for their own learning experience.

Accent on practical

This is a hands-on, shoulder rubbing schedule. Suits and ties might be fashionable elsewhere - not here (if you don't want to stand out in the crowd, dress casually). A nearby lodging facility with dining facilities and a public room will be the unofficial "after hours" headquarters for story tellers.

And if you positively cannot attend - well, the flavour of the event will at least be available through the generous co-operation of satellite telecasters Mediasat and Westlink on a schedule to be published here and on our web site in mid-June.

A special section of the SatFACTS web site will be created around 15 May to update changes in SPRSCS 2000 schedules and to advise the status of registration and lodging. This warning - registration will shut down when we have sufficient people attending the June 29-30 trade show to fill the lecture theatres. That will leave you with one other option - attending the July 1 "Open Day" for which the only restrictions will be the ability to find a place to park after you arrive on site! See you in Melbourne in June.

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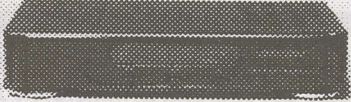


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A trade association for users, designers,
installers, sellers of private satellite-direct
systems in the Pacific Ocean & Asia Regions

Worry Warts

Every month we hear from people who want some sort of ironclad guarantee that the satellite TV service they are interested in watching will in fact "stay on satellite" in a format which will be available to them. We can seldom give such a guarantee and that probably causes some callers to put-off buying a satellite system.

Egypt's ERTU/ESC close down on free to air analogue caused a sizeable commotion in mid-March. The fallout is not over yet. However, if we go back several years to the start of the service, we will locate (in SatFACTS no less) reports from a firm headquartered in Australia claiming that they owned the rights to ERTU/ESC "for Australia" and sooner than later it would become a CA service. Similar claims have surfaced from time to time for various European services including RAI.

The grand daddy of all FTA international telecasters is WorldNet from the USA. Operated by the same folks who manage Voice of America, WorldNet has been available world-wide on satellite for more than a decade. A close second to this front spot is Germany's Deutsche Welle. On page 3 here this month we quote a communiqué from one Hermann Josef Fuchs of DW in which he relates:

"About the European Bouquet, it must be said that Deutsche Welle takes all efforts to look for another five year contract and it looks like RAI will stay with us. We (do) intend to reduce the video bit rate [VBR] down to 4 Mbit/s in order to invite more broadcasters to take part on the European Bouquet and to increase its attraction. At the moment acquisition is going on but no decisions have yet been taken. (As for encryption, (this) would be against our free to air philosophy and I don't think it will happen."

Fuchs does not "think" it will happen - but he stops short of an unequivocal statement, "it will not happen." If you want to

be a pessimist and worry about things that might happen, now you can get stressed about losing DW (and the balance of the EB).

Another announcement this month comes from Arirang TV, Korea's commercially backed overseas satellite delivered television service. They advise:

"A milestone for Korean broadcasting! Arirang TV becomes the first Korean television station to tap into the Chinese market. At a ceremony held in Beijing's Great Hall of People on February 22, Arirang TV's president Hwang Kyu-whan delivered satellite reception equipment to Chinese representative. The equipment will be installed at 14 influential organisations such as SARFT (State Administration of Radio, Film and TV), CCTV, and Beijing University. For China, Arirang will add subtitles in dramas and pop music shows popular among the Chinese viewers and will expand coverage of their favourite sports such as badminton and football. Launching an exclusively Chinese channel will be in consideration depending on the degree of their reaction to the Arirang programs."

So we have *fourteen* receivers for Arirang installed in a country of nearly one billion people and Arirang is excited about the prospects. Not to belittle the effort, but they have a long-long way to go.

Countries that fund services (Germany, Italy are two examples) remain more likely to remain FTA than those that are funded by private business. ERTU/ESC was a surprise in this respect - Nile TV is essentially state TV and has been instrumental in creating their own satellite platforms for the Middle Eastern region. On the ground in Australia, if you call the Egyptian Consulate, you are given a telephone number for TARBS. This has led to the suspicion that TARBS was somehow behind the switch over of Egypt analogue to conditional access digital. TARBS is not saying of course.

MEMBERSHIP IN SPACE

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

All levels receive periodic programme and equipment access updates from SPACE, significant discounts on goods and services from many member firms, and major discounts while attending the annual SPRCS (industry trade show) each year. Members also participate in policy creation forums, have correspondence training courses available and their support makes possible the TV show SPACE Pacific Report. To find out more, contact (fax) 64-9-406-1083 or use information request card, page 34, this issue of SatFACTS. Page space within SatFACTS is donated each month to the trade association without cost by the publisher.

What fails in this explanation is that the Egyptian service on AsiaSat 2 covers not only Australia but New Zealand, Indonesia, the Philippines, Japan, India and another 55 countries. TARBS, however, only reaches one and if TARBS has so much influence that they can persuade Egypt to turn off a single analogue channel just for TARBS subscription growth benefit, something is very rotten in Egypt.

More likely, FTA analogue was simply not working well enough for Egypt. With a half dozen or more TV channels (and a larger group of radio) all on the same transponder in digital format, now Egypt has a much more compelling message to peddle. Except, of course, it is not possible - today - to "buy" into the service, even if you are outside of the TARBS coverage zone.

FTA "national" services are expensive to operate. DW says it spends upwards of 100 million marks per year to keep their service going. They try to cut into this outgo by selling off rebroadcast rights to various commercial and public broadcasters around the world. "Selling off" may involve money being paid, or it may simply be a piece of paper granting "official" authorisation to rebroadcast (using terrestrial TV or radio) the programmes fed by DW. Several TV stations in New Zealand have such agreements, but it could surprise you to learn that of the 11 hour English telecast day on DW, on average only 3 hours daily are available for terrestrial rebroadcast. The balance have complicated "copyright" restrictions.

Very simply, there are no guarantees. As a seller or installer of DTH, you need to be careful about the way you represent what you do and the "promise" of forever service. Birth, taxes and death - in that sequence - are forever. Satellite TV as we now know it does not come even close.

JUNE 29-30 & JULY 1

**South
Pacific
Satellite
and
Cable
Show
in Melbourne.**

Details page 15.

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- **High speed port** (IEEE-1284, RS-232)
- **CI TRDECK Module** - A\$150 (available only to ZDX-8111 buyers)

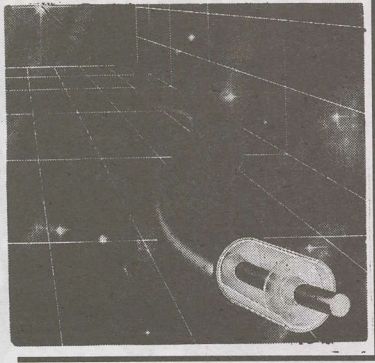
DIRECT IMPORTER AND SUPPLIERS OF THE FOLLOWING:

Jonsa Dishes, MTI, Zinwell LNBFs, SPACE TV "BOX", Benjamin Analogue

C & T SATELLITE SERVICES PTY. LTD. ACN086028882
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C&T/C&T/C&T/C&T/C&T

The CABLE Connection



Moisture and temperature

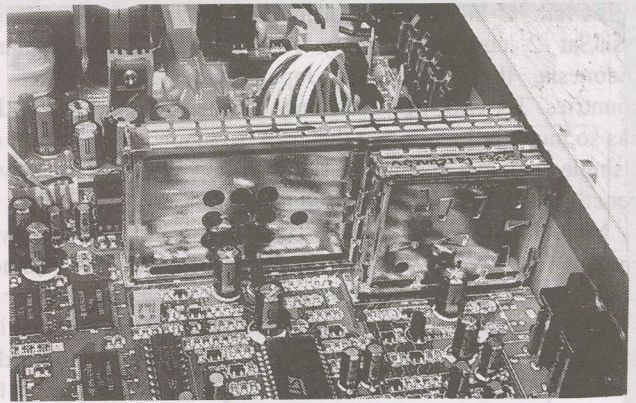
Most cable TV headends are overcrowded with equipment. No matter how well planned, technology has a way of growing faster than you planned to happen and one day you end up stacking equipment on top of equipment (on top of equipment). As we have discussed previously, heat rises towards the ceiling (while cold air falls towards the floor) and when an IRD is at the top of a pile, it absorbs heat from the units below which adds to the heat that it generates all by itself.

Hot air rising carries moisture with it. In an air conditioned facility, there is a continual flow of air from near the ceiling down to the floor and back again. Over the course of a 24 hour day and a 365 day year, internal and external temperatures

in the vicinity of the headend change. A thermostat controlled A/C unit recognises these changes and should adjust the outflow of cooled air to hold the temperature within a few degrees of the selected point.

Unfortunately, there is the added element of moisture to contend with. Hot air rising carries whatever humidity level as is present with it. If the external temperature of the headend falls at night, the moisture flow reverses and actually falls towards the floor (and in the process immerses the equipment racks and stacks).

Heat by itself can shut equipment down. Digital IRDs are especially prone to "lock up" (all reception quits, a nasty unwanted message appears on the screen, or the screen simply goes to a solid colour such as blue or grey). The first Panasat 520 IRDs we saw in the Pacific were very heat sensitive. Fortunately, IRD creators have learned to distribute the IRD's internal heat generating component to reduce the likelihood that sensitive portions of the receiver will shut down with heat prostration. The first step in redesigning IRDs to be less heat sensitive was moving the internal AC to DC power supply off by itself. In most IRDs, the actual power supply creates less than 10% of the total heat generated. But at locations where zener voltage regulating diodes are mounted, that 10% can be a significant problem. Locating the zener diodes far away from the digital processing ICs - themselves very sensitive to being too hot - was a welcome first step. The next step was to re-layout the internal parts placement of the IRD to spread the heat generation around. Some sections - the IF amplifiers for example - can handle heat very well. So too the input tuner (receiving the L-band IF signal) and the TV modulator

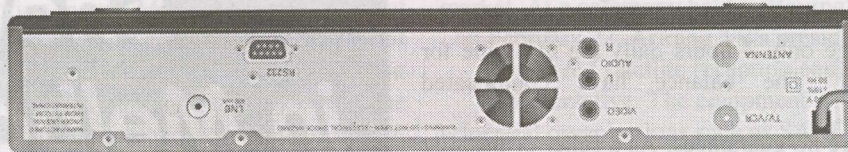


Vertically configured subsections create hot-spot strip-zones directly above on the IRD case because so much heat comes from a concentrated area.

(producing the output signal to be viewed on a standard TV set). Not so happy with heat - the various ICs created for processing the digital (or analogue) signals.

Nokia was one of the first to release an IRD with an exhaust fan on the rear apron. Old time readers may recall a self-help

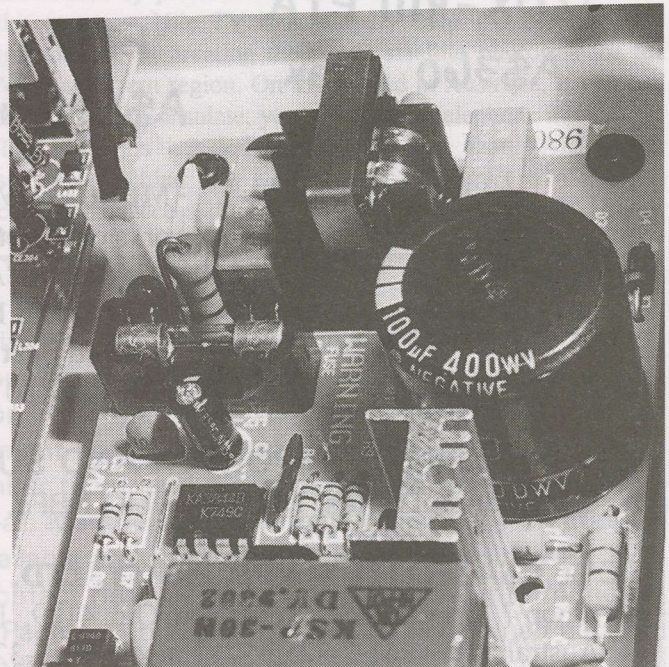
project created by Robin Colquhoun showing how you could install an exhaust fan on the rear apron on an SA D9222 IRD. Not many rushed out to punch a hole in their IRD but the message was clear enough - get

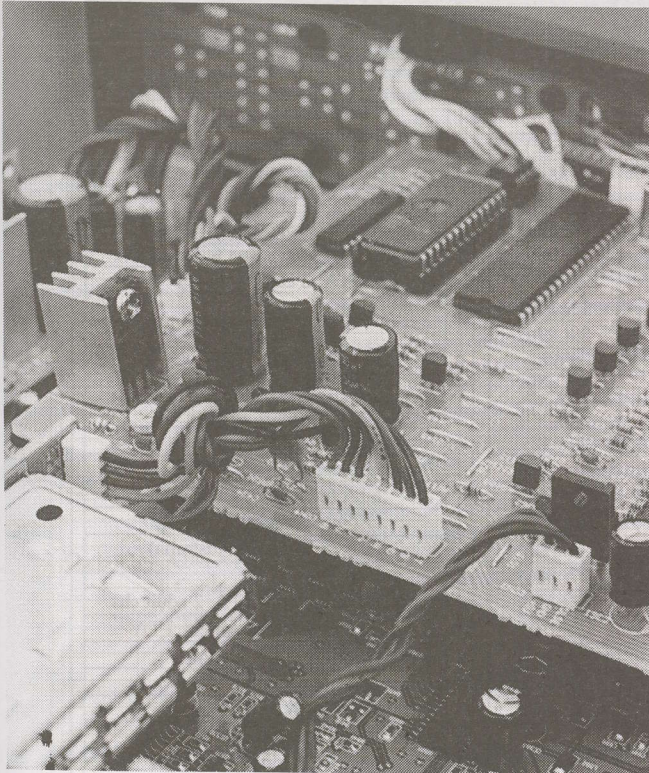


Exhausting heated air from the IRD is a positive approach, but only if new, cooler air has a way in and the heat has someplace to go other than onto other nearby equipment.

the hot air out of the IRD container before heat damage could result. But there is more to heat distribution than mere moving parts around and the exhausting of air. The exhausted air needs replacement with clean, cooler air. If an IRD sucks air in from the bottom or side (slots left for ventilation), the installer needs

Surprise. Power supplies in IRDs generate less than 10% of the total heat created.





Circuit board "sandwiches" transfer heat board to board on the way to outside world.

to be certain the air on the outside of the case adjacent to the intake slots is in fact better than the air being exhausted!

And the moisture. Over a period of weeks, months the presence of humidity in the air takes a toll on connectors.



RCA sockets (left), PAL plug connections (next to right), SCART socket connectors and F fittings (right) are all susceptible to oxidation.

Polished metal connector pins (such as the centre pin on an RCA lead), unpolished pins on SCART plugs, and most of all the copper (coated) wire of the RG-6 downlead all rest inside of sockets when put to use. These "sockets" are better described as "pockets" for stagnate air. Moisture in the heating/cooling cycle collects here, placing a visible-to-the-eye "tarnish" on connector pins and wires. If you experience erratic IRD operation, first disconnect the L-band RG-6 and check the quality of the "brightness" on the copper wire centre conductor. A quick scrape with a pocket knife may be all that is required to remove accumulated tarnish. Intermittent video or audio can be traced to tarnished pins on RCA jumper cords that connect video and audio outputs to modulators or switchers. Unplug the line, inspect the quality of the pin coating and scrape a few times with a pen knife. Instantly, as good as new again.

Connectors are passive but moisture and heat are not. Regular scheduled maintenance is the order of the day.



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

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym
I703/57E	Sky News	4143/1007R	1	3/4	5(.632)
	CNBC	4018/1132L	1	3/4	6(.000)
I704/66E	TV5	4055/1095R	4	3/4	27(.500)
	Sky News +	3805/1345R	4	3/4	22(.520)
PAS4/68.5E	Nickelodeon+	4147/1003H	1 reported	1/2	24(.000)
	BBC	3743/1407H	5	3/4	21(.800)
	CCTV	3716/1434H	up to 6	3/4	19(.850)
Ap2/76E	Hmark/Kermit	3720/1430H	4	5/6	29(.270)
	Channel "I"	382301330V	1	3/4	3(.570)
	TVB8 +	3849/1301H	4	3/4	13(.238)
Thcm3/78.5E	AXN	3920/1230H	up to 8	7/8	28(.340)
	MRTV	3666/1484H	1	2/3	4(.442)
	Mega Cosmo	3625/1525H	1	2/3	3(.254)
	Mahar/DD1	3600/1550H	up to 8	3/4	26(.661)
	PTV2	3420/1730V	1	3/4	3(.366)
	TV Maldives	3412/1738V	1	1/2	6(.312)
	Thai Global+	3425/1725V	up to 7?	2/3	27(.500)
ST1/88E	Taiwan Bqt	3509/1641H	13	3/4	23(.450)
MeSt 1/91.5E	Malay. TV3	4147/1004H	1	3/4	7(.030)
As2/100.5E	Euro Bouquet	4000/1150H	5TV, 19r	3/4	28(.125)
	Reuters	3909/1241H	1	3/4	5(.632)
	Hubei/HBTV	3854/1296H	1	3/4	4(.418)
	Hunan/SRTC	3847/1303H	1	3/4	4(.418)
	Guan./GDTV	3840/1310H	1	3/4	4(.418)
	Inn. Mongolia	3828/1322H	2	3/4	8(.397)
	APTN A-O	3799/1351H	1	3/4	5(.631)
	WTN Jer/Lon	3790/1360H	1	3/4	5(.631)
	Reuters/Sing.	3775/1375H	1	3/4	5(.631)
	WorldNet/US	3764/1386H	1 + 20 radio	3/4	6(.100)
	Liaonin/Svc2	3734/1416H	1	3/4	4(.418)
	Jiangx/JXTV	3727/1423H	1	3/4	4(.418)
	Fujian/SETV	3720/1430H	1	3/4	4(.418)
	Hubei TV	3713/1437H	1	3/4	4(.418)
	Henan/Main	3706/1444H	1	3/4	4(.418)
As2/100.5E	Egypt/Nilesat	3640/1510H	6+, radio	3/4	27(.850)
	TVSN	4033/1117V	1	3/4	4(.298)
	Sky Racing	4020/1130V	up to 3TV	1/2	18(.000)
	EMTV	4006/1144V	1TV, 2 radio	3/4	5(.632)
	Jilin Sat TV	3875/1275V	1	3/4	4(.418)
	HeiLongJian	3834/1316V	1	3/4	4(.418)
	JSTV	3827/1323V	1	3/4	4(.418)
	Anhui TV	3820/1330V	1	3/4	4(.418)
	ShaanxiQQQ	3813/1337V	1	3/4	4(.418)
	Guan/GXTV	3806/1344V	1	3/4	4(.418)
	Fashion TV	3796/1354V	1	3/4	2(.533)
	MSTV	3791/1359V	1	3/4	4(.340)
	Feeds	3785/1365V	1	3/4	5(.632)
	Myawady TV	3766/1384V	1	7/8	5(.080)
	SABe	3743/1407V	1	3/4	3(.300)
	Saudi TV1	3660/1490V	1 (?)	3/4	27(.500)
As3S/105.5E	Zee bouquet	3700/1450V	7TV	3/4	27(.500)
As3S/105.5E	Arirang TV	3755/1395V	1	7/8	4(.418)
	Now TV	3760/1390Hz	2	7/8	26(.000)
	Star TV	3780/1370V	17(+TV)	3/4	28(.100)
	Star TV	3860/1290V	14(+TV)	3/4	27(.500)
	Star TV	3880/1270H	12(+TV)	7/8	26(.850)
	CNNI	3960/1190H	4(+TV)	3/4	26(.000)
	Star TV	4000/1150H	7(+TV)	7/8	26(.850)
Cak1/107.5E	Indovision (S-band)	2.536, 2.566, 2.596, 2.626	33(+TV)	7/8	20(.000)
Sinosat/110E	CCTV2	3889/1261Hz	1	3/4	3(.000)
C2M/113E	TPI	4185/965V	1	3/4	6(.700)
	Indosiar	4074/1076V	1	3/4	6(.500)
	Anteve	4055/1095V	1	3/4	6(.510)
	Space TV	4000/1150H	11TV, radio	3/4	26(.666)
	C Net Taiwan	3760/1390H	11TV, radio	3/4	26(.666)
	RCTI	3475/1675H	1	3/4	8(.000)
JcSAT3/128E	Miracle Net	3990/1160V	3 up to 6	5/6	22(.000)
	Asian bouquet	3960/1190V	up to 8	7/8	30(.000)

Receivers and Errata
NDS encrypted, often FTA
Feeds - typically FTA (SCPC)
FTA
Sky News 24 hr, sport, feeds; some FTA
Status unknown - was testing FTA
FTA; 2 audio channels
FTA
PowVu, typ. CA
Tests, FTA
PowVu, CA
Tests, promos, some FTA
FTA; difficult to load
previously 3443H (Greek)
FTA (includes VTV, DDR)
FTA, new service, testing
FTA (reaches SE Australia)
FTA
MCPC, sometimes FTA, 2 adult chs
tests, possibly permanent, FTA
FTA (TV5 teletext)
FTA, occasional feeds
FTA SCPC, teletext
FTA SCPC, teletext
FTA SCPC, radio APID 81
FTA: #1 Chinese, #2 Mangolian
FTA SCPC (news feeds)
Mostly CA; some FTA
FTA & CA
FTA; up to 20 radio channels
FTA SCPC, radio APID 256
FTA SCPC, teletext, radio APID 81
FTA SCPC, + radio APID 80
FTA SCPC, radio APID 80
FTA SCPC, + radio
CA, unknown system, no subscriptions
Occ. FTA, not same as Aust. version
(Irdeto) CA; 1 & 3 occ. FTA
PowVu CA; poor signal level
FTA SCPC, + radio
FTA SCPC
FTA SCPC, + radio
FTA SCPC
FTA SCPC, radio APID 81
FTA SCPC, radio APID 257
FTA SCPC, now easy to load
FTA SCPC
FTA & CA, feeds
FTA SCPC - difficult to load
tests, SCPC
FTA MCPC- BBC radio gone?
Currently FTA, CA will happen!
FTA SCPC; very strong signal
Tests, promotional material
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DVS211, Zenith)
PowVu CA; some FTA feed channels
NDS CA (Pace DVS211, Zenith)
NDS CA using RCA/Thomson, Pace IRDs; improved reliability
FTA SCPC, difficult to load
FTA SCPC; NT only
May only be test; NT only
FTA SCPC; NT only
CA, sometimes FTA
CA, subs available -10 radio FTA
FTA SCPC, Australia OK
PowerVu; TBN #3 FTA, some CA
CA and FTA, Japan, Taiwan, China

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
L AP1/130	THT+NTV	3675/1475L	2 + 2 radio	3/4	12(.000)
Ap1A/134	Gansu TV	3769/1381V	1	1/2	6(.930)
Ap1/138	Reuters	3742/1408V	1	3/4	5(.632)
	Viacom	3860/1290V	up to 6	3/4	30(.000)
Op B3/156	Mediasat	12.336V	6TV, ra, Internet	2/3	30(.000)
	Aurora	12.407V		2/3	30(.000)
	Aurora	12.532V	now NZ coverage	2/3	30(.000)
	Aurora	12.595V		3/4	30(.000)
	Aurora	12.720V		3/4	30(.000)
	Austar/tests	12.376H		3/4	29(.473)
	Austar/Foxtl	12.438H		3/4	29(.473)
	Austar/Foxtl	12.564H		3/4	29(.473)
	Austar/Foxtl	12.626H		3/4	29(.473)
	Austar/Foxtl	12.688H	(some FTA radio)	3/4	29(.473)
Op B1/160	ABC NT fd	12.256V	1TV, 3 radio	3/4	5(.026)
	Central 7	12.354H	1TV	3/4	3(.688)
	News feeds	12.367H	1	3/4	5(.424)
	Sky NZ	12.518/546V		3/4	22(.500)
	Sky NZ	12.643/671V		3/4	22(.500)
PAS8/166	Pacific Time	12.286V	10TV	3/4	26(.470)
	ABCInterch	12.312H	1	3/4	6(.978)
	ABCInterch	12.321H	1	3/4	6(.978)
	ABCInterch	12.330H	1	3/4	6(.978)
	TARBS	12.526H	12+ TV	3/4	28(.067)
	Tests	12.606H	12+ TV	3/4	28(.067)
	Boomerang	12.725H	5 TV	7/8	25(.728)
	NHK Joho	4065/1085H	5TV, 1 radio	3/4	26(.470)
	ESPN USA	4020/1130H	7+TV, data	7/8	26(.470)
	DiscoveryTest	3980/1170H	8 typ.	3/4	27(.690)
	CalBqt/Pas8	3940/1210H	up to 5TV	7/8	27(.690)
	CNBC HK	3900/1250H	up to 7TV	7/8	25(.728)
	NTV/Russia	3870/1280H	1	3/4	12(.000)
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)
	MTV Test	3740/1410H	4	2/3	27(.500)
PAS2/169	Pv Bouquet	12.290V	2+ TV, radio	2/3	27(.500)
	WA PowVu	12.637(.5)V	4TV, 8 radio	1/2	18(.500)
	HK PowVu	4148/1002V	up to 8	2/3	24(.430)
	NBCHonKn	4093/1057V	5, up to 7	3/4	29(.473)
	Fox Bouquet	3989/1161V	8TV/data	7/8	26(.470)
	Feeds	3942/1208V	1 or 2	2/3	7(.497)
	Feeds	3929/1121V	1	3/4	6(.618)
	Feeds	3898/1252V	1	2/3	12(.000)
	Middle East	3778/1372V	4	3/4	13(.331)
	Service 1	3761/1389V	1	3/4	6(.620)
	CCTV Pv	3716/1434V	5 typical	3/4	19(.850)
	Feeds	4138/1012H	1	3/4	6(.620)
	Lakbay TV	4044/1106H	1	3/4	5(.043)
	7thDyAdv	4034/1116H	1TV, 14 audio?	3/4	6(.620)
	CNNI HK	3996/1154H	1	3/4	9(.998)
	"1"/Korea	3980/1170H	1	3/4	4(.410)
	Feeds	3867/1183H	1	2/3	6(.618)
	7thDyAdv	3957/1193H	1TV, 14 audio	3/4	7(.000)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)
	Disney	3804/1346H	3	5/6	21(.093)
	Satcom 1-6	3743/1407H	up to 5	7/8	19(.465)
I802/174E	Telefenua	4066/1084R	up to 4	3/4	9(.668)
I702/177E	AFRTS	4177/973LHC	8TV, 12+ rad	3/4	26(.694)
	ThaiBouquet	12.650H	up to 3 TV	1/2	17(.800)
I701/180E	Canal+ Sat	11.610H	16TV, 1 radio	3/4	30(.000)
	TVNZ	4195/955RHC	1	3/4	5(.632)
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)
	TVNZ	4178/972RHC	1	3/4	5(.632)
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)
	RFO-Canal+	4095/1055L	7TV, 5+ radio	3/4	27(.500)

Receivers and Errata
inclined orbit +/-2.5 degrees
FTA SCPC (NT, Aust only)
FTA SCPC (NT, Aust only)
FTA, CA (NT, Aust only)
Pv, Nagravision, Irdeto; some FTA
CA, \$105 smart card required (p. 28)
CA, \$105 smart card required (p. 28)
CA, \$105 smart card required (p. 28)
CA, \$105 smart card required (p. 258)
Austar I-TV tests
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
CA, subscription available Australia
FTA, Sydney -30 minutes time zone
FTA, purpose here unknown
FTA
NDS CA, subscription available NZ
NDS CA, subscription available NZ
Viaccess CA, some FTA at times
PowVu, FTA, news feeds
PowVu, FTA, news feeds
PowVu, FTA, ABC Melbourne feeds
'MDS' CA; 12.605/28.067/3/4
tests, paralleling 12,526H at times
TPG /Eurodec CA, occ. FTA
PowVu CA & FTA; subscription avail
PowVu CA; ch 11 DCP-CCP bootload
PowVu/CA test, same as PAS2 3776H
PowVu CA & FTA (EWTN)
parallel to 4.093V PAS2
Feed to USA, Dish Network, CA
PowVu, FTA at this time
PowVu,CA
PowVu CA, WIN, ABC NT
PowVu CA, WA only - D9234
PowVu CA, some FTA
Philips MPEG-2, FTA
Pv, CA/FTA (Fox News USA)
PowVu (FTA) occ feeds
Mediasat links, PowVu, usually FTA
(PowVu) FTA, occ. feeds
FTA, testing CA, "threatening"
FTA SCPC feeds (occasional use)
PowVu FTA; # pgm chs varies
FTA SCPC/MCPC, news and sports
tests, unknown programming
1900-2030UTC; also see 3957H
reverse link HK/Atlanta, feeds, FTA
FTA SCPC VPID 33, APID 36
FTA (occ. sport feeds)
1900-2030UTC; also see 4034H
FTA-typ. NTSC-occ. sport, shuttle
(PowVu) CA+FTA; UEC642 now ok
PowVu CA
currently FTA, lowlevel, Mid East fds
tests, eastern beam
PowVu CA
Thai5 service, tests, FTA
Mediaguard CA, some occ. FTA
DMV/NIL occ. feeds, typ CA
DMV/NIL occ. feeds, typ CA
DMV/NIL occ. feeds, typ. CA
DMV/NIL occ. feeds, typ. CA
#1, 2 CA - rest FTA-France to Polyn.

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(1701/180E)	TVNZ feeds	4044/1106R	1	3/4	5(.632)
	NZ Prime TV	4024/1126L	1	2/3	6(.876)
	RFO Polycast	3858/1292L	1	3/4	4(.566)
	TVNZ (TL)	3854/1293R	1	3/4	5(.632)
	TVNZ	3846/1304R	1	3/4	5(.632)
	10 Australia	3765/1385R	6	7/8	29(.900)

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

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

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

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

ADI MediaMate. FTA, NTSC+PAL outputs. (Pacific Digital Sys. Pty Ltd, tel 61-2-8765-0270)
AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM Pty Ltd, 61-2-9949-7417.
Benjamin DB6600-CA. FTA, Foxtel/Austar w/CAM+card. Try Steffen Holz +687-438-156.
Grundig DTR1100. Mfg by Panasat (SA), very similar to Panasat 630; out of production, Irdeto capable. See Av-COMM above.
Humax F1-CI. Primarily sold for TRT(Australia), does (limited) PowerVu (not Optus Aurora approved).
Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good. SATECH (V2.26)
Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8906.
Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.
MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. Int. 61-2-9618-5777
MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738
Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. Tricky to use.
Nokia 9200. When equipped with proper CAM, does Aurora, pay-TV services provided software has been "modified" with Dr Overflow or similar program (www.BAKKERELECTRONICS.COM- Note: This site shut-down by Mindport early November - may not be functioning!). Reported factory 12 mo. warranty. Peter Older, tel 61-3-5133-7911, mobile 61-0418-386287
Nokia 9500/9600. Numerous versions for different world parts; not distributed in Pacific but assistance from Av-Comm Pty Ltd.
Nokia 9800. Latest single chip version, with CI and Irdeto capable. No software for Pacific, Asia; not recommended.
Pace DVS211. NDS CA (no FTA) for Star Asia, previously used for Indovision. (Solution 42, 61-2-9820-5962)
Pace DGT400. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818)
Pace DVR500. Original DGT400 modified for NBC (PAS-2) affiliate use, with CAM equivalent to DGT400 but more reliable.
Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version.
Pacific Satellite DSR2000. Advises no longer current model (see. p. 2, here); Clone of Mediastar D7 (see above)
Panasat 520/630/635. MCPC FTA, Irdeto capable, forerunner UEC 642, 660. Out of production, spares fax ++27-31-593-370.
Panasonic TU-DS10. FTA + Irdeto CA; one of 2 IRDs approved by Optus for Aurora, but no longer available in Australia.
Phoenix 111, 222. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH(below) 222 out of production
Phoenix 333. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review Nov. 1998. SATECH 61-3-9553-3399.
Pioneer TS4. Mediaguara CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)
PowerCom. FTA, PowVu, NTSC, excellent sensitivity. NetSat 61-2-9687-9903.
PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, GWN+ PAS-2 Ku, CMT etc). Scientific Atlanta 61-2-9452-3388.
Praxis/DigiMaster 9600 MKII/9800AD. FTA, PowVu+analogue, withdrawn from sale in Pacific (was Skyvision-below)
Praxis 9800 ADP. FTA SCPC/MCPC, PowVu, analogue, positioner. SF review Dec '98; withdrawn from Pacific sale (below).
Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.
SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-2-6292-5850, Telsat 64-6-356-3749)
SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - review this issue (Skyvision - see above).
Skandia SK888 (aka DigiSkan-SMS). FTA MCPC, Irdeto CAM+software upgrade. Out of production; Skandia 61-3-9819-2466
Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. SATECH 61-3-9553-3399.
Sky 21/SJ 3000ci. Claims "clone" Hyundai HSS800ci; if so, poor copy. Runs very hot, reportedly burns up smart cards
UEC642. Designed for Aurora (Irdeto), approved by Optus; limited other uses. Nationwide 61-7-3252-2947.
UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel-limited FTA. (Nationwide - above); power supply problems.
UEC770. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, not sold to consumers.
Xanadu. DVB compliant special receiver for members of SPACE Pacific (Av-comm Pty Ltd, tel +61-2-9949-7417)
Yuri HSS-100C. FTA, clone of Hyundai, V2.27 software custom to Australia (Nationwide-above).

Accessories:

Aurora smart cards. New v1.6 now available, 1.2 no longer available for RABS. Price now A\$105, Sciteq 61-8-9306-3738.
PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 7/8; pgm ch 11 and follow instructions (do not leave early!)

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

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BIRD/ Location	RF/IF & Polarity	Service	Errata
<u>I703/57E</u>	3808/1342R	Udaya TV	
	4052/1098R	WorldNet	VOA subcs.
	4178/972L	MTA Inter.	
<u>I604/602/60E</u>	4166/984	various feeds	
<u>I704/66E</u>	3765/1385R	tests	
	4015/1135L	Mongolia	(SECAM)
<u>PAS4/68.5E</u>	3743/1407V	RTPi	(+ radio subcr)
	3864/1286V	BBC World	
	3907/1243H	Sony TV	Hindi
	4034/1116V	Doordan	(various)
	4087/1063H	CNNI	
	4110/1040H	TNT/Cartoon	
	4113/1037V	Series Ch.	
	4182/968H	MTV	
<u>PAS7/68.5E</u>	3470/1680V	test signal	
<u>LM1/75E</u>	3977/1173V	various	(Madagascar)
<u>AP2R/76E</u>	3745/1405V	Vasta Music	(P5 in NSW)
	3691/1459V	TEN	
<u>Thaicom3/78E</u>	3871/1279H	TVT	
	3760/1390V	Army TV	
	3690/1460V	MRTV	
	3685/1465H	VTV	6.6, 7.02
	3616/1534V	ETN	
	3576/1574V	ATN Bangalr	Bengali
	3554/1596V	test card	
	3536/1614V	Punjabi TV	(occ service)
	3514/1636V	Falak TV	
	3489/1661H	Vasta Music	occ tests
	3465/1685V	RAJ-TV	
<u>Express 6/80E</u>	3672/1478L	TK Rossija	(north beam)
<u>InSat 2E/83E</u>	3481/1669V	Sun TV	
	3562/1588V	Vijay/Asianet	aud. 5.5/6.6
	3599/1551V	JayaTV	
	3810/1340V	DD1-Tamil	"
	3850/1300V	DD1-National	"
	3930/1220V	DD2 Metro	"
	3970/1180V	Teluga 1	"
	3998/1152V	sport feeds	"
	4035/1115V	Sun TV	"
	4060/1090V	Surya/Sun TV	"
	4093/1057V	DD7	"
<u>ChnStr1/87.5E</u>	3880/1270H	occ feeds	P4 NSW, Ntsc
<u>ST1/88E</u>	3550/1600V	test card	
	3582/1568V	Nila TV	(vintage TV)
<u>CIS S6/90E</u>	3675/1475R	RTR1	P3 NSW
	3875/1275R	Orbita 1	
	3916/1234R	RTR II	
	3935/1215R	Orbita II	
<u>MeSat-1/91.5E</u>	3710/1440H	VTV1,2, 4	
	3880/1270H	RTM-1	
<u>Chinasat22/98</u>	3900/1250H	tests	+ 3940/1210
<u>InSat 2B/93.5E</u>	4165/985H	India Metro	NSW on 3.7m
	4080/1070V	DD7 (Tamil)	
	4070/1080H	DD9	
	3970/1180V	DD9 (Kan.)	
	3882/1268V	DD1	
	3840/1310V	DD?	
	3762/1388V	DD4	
<u>AsSat2/100.5E</u>	3660/1490V	feeds, tests	
	3680/1470H	feeds	
	3860/1290V	feeds	

BIRD/ Location	RF/IF & Polarity	Service	Errata
<u>(As2/100.5E)</u>	3885/1265H	WorldNet	VOA subcs
	3960/1190H	CCTV4	
	3980/1170V	RTPi	+5 radio svcs
<u>CIS S21/103E</u>	3675/1475R	RTR	
	3875/1275R	Vrk Apt	
<u>AsSat3S/105.5</u>	3660/1490V	Z-Marathi	audio 6.6
	3680/1470H	CETV	
(temp FTA)	3800/1350H	Star Sport	NTSC
(temp FTA)	3840/1310H	Channel [V]	NTSC
	3900/1250V	AlphaTV Punja	
(temp FTA)	3920/1230H	Phoenix Ch	NTSC
	3940/1210V	Zee India	
	3980/1170V	Zee TV	
	4140/1010V	Angla Bangla	
	4060/1090V	Zee Cinema	(Starcrypt)
	4020/1130V	Sahara TV	6.2, 6.8
	4100/1050V	PTV2/World	
	4120/1030H	CCTV	NTSC
<u>T'kom1/108E</u>	4000/1150H	tests	
<u>PalapC2/113E</u>	4160/990H	(France) TV5	
	4140/1010V	Brunei + feeds	
	4120/1030H	MTV Asia	
	4080/1070H	Herbalife	+ tests
	4040/1110H	CNBC	
	3970/1180V	CNNI	
	3880/1270H	Aust ATN7	
	3840/1310H	TVRI	tests
	3742/1408V	RCTI	English subcr
<u>AsSat1/122E</u>	3677/1473V	Test card	& 3933/1217H
<u>ChinS 6/125E</u>	4085/1065V	feeds	seldom seen
<u>JoSat3/128E</u>	3768/1382V	feeds	occ., P5 NZ
	4085/1065V	test card	NTSC. 6.8 aud.
<u>Ap1A/134E</u>	4160/1050V	CETV	
	3980/1170V	CETV1	
	3900/1250V	CETV2	
<u>Ap1A/138E</u>	4160/990H	CCTV7	
<u>S7/140E</u>	3675/1475R	ORT Moscow	+/-4d. inclined
	3875/1275R	feeds, tests	
<u>LMAP2/142.5</u>	3675/1475L	occ. tests	+/- 3 deg inc.
<u>Ag2/146E</u>	3787/1363H	GMA	P1/2 s. eqtr
<u>Me2/148E</u>	4080/1070H	test card	occ. use
<u>PAS8/166.5E</u>	3880/1270V	test card, feeds	not full time
	3865/1285H	Napa test card	not fulltime
<u>PAS2/169E</u>	3940/1240V	Napa test card	
<u>1802/174E</u>	4166/984R	Feeds	
	4177/973R	Feeds	
<u>I702/177E</u>	4166/984R	Feeds	inc. KBS Korea
	4187/963R	Occ. feeds	
<u>I701/180E</u>	3810/1340R	Occ. feeds	
	3841/1309L	RFO	East Beam
	3845/1305R	Occ. feeds	inc. from USA
	3930/1220R	USA net feeds	FTA & encrypt
	3975/1175R	Occ. feeds	

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

BEGINNER TECHNICAL INFORMATION

LNB design. There is often confusion about what constitutes the "best buy" in a LNB. Some definitions first. LNB is shorthand for Low Noise Block (downconverter). LNBF is the same item with a permanently attached feed. The feed is actually an antenna, specifically designed to receive energy reflected to its frontal opening from the parabolic (or offset) reflector surface. The feed is the "real" antenna in a DTH/TVRO system - the larger metallic parabolic or hyperbolic screen or solid "dish" is a signal capturing and focusing device.

Internal to the LNB and a part of that portion is a polished metallic "probe," clearly visible if you hold the LNB in your hand and stare into the open "mouth". The probe is not visible on an LNBF because it is covered with a weather-protection (plastic) cover that is in place to keep moisture and small creepy-crawly bugs out of the probe chamber. This warning: The probe is a part of the actual electronic circuit for the LNB and should not be finger touched and never contacted with anything metallic. We have written previously (SF#67, p. 22) about the ill effects of allowing spiders and wasps/bees to build a home inside of the opening that houses the probe.

The purpose of the LNB or LNBF is to (1) amplify the incoming signals received from the antenna's reflective surface, and, (2) shift or change the frequency. C-band transmissions occur in the 3.7 to 4.2 GHz range (3,400 to 4,200 megahertz - MHz). Ku band transmissions are someplace between 11.25 and 12.75 GHz (11,250 and 12,750 MHz). At frequencies above 2 GHz (2,000 MHz), normal coaxial cable transmission lines become very poor conductors of (microwave) energy. Connecting from the antenna system to the receiver, if the original downlink frequency band was maintained, would require physically large, expensive and difficult to install "hardline" cables. However, if the incoming C or Ku-band signals are frequency converted at the antenna to a lower frequency band where normal coaxial cables still function, a much smaller less expensive cable can be used.

C and Ku-band signals are frequency converted to an industry standard "L-band" region; typically .950 - 1,450 GHz (950 - 1,450 MHz). Some LNBs extend the L-band range to as high as 2.1 GHz including those that work on "extended C-band" or on two or more different Ku-band regions. In a standard Pacific region C-band LNB, 4,200 (top frequency in C) is down converted to 950 MHz while the lower end of standard C-band (3,700) is down converted to 1,450. This "reversal" of top and bottom occurs because the LNB's frequency changing system uses an "LO" (local oscillator) frequency that is above C-band; 5,150 MHz. When you "mix" 5150 and 4200 the L-band output of the LNB is the difference between the two (5150 - 4200 = 950). The LO is fixed in frequency inside of the LNB while the output or L-band signal depends upon the input frequency. $5150 - 3700 = 1,450$. An "extended C-band" LNB sees 3,400 (the lowest frequency currently in the extended portion) and converts it to 1,750 ($5150 - 3400 = 1,750$). Thus receivers for use below 3,700 must have extended L-band coverage to at least 1,750 MHz.

A Ku-band LNB has its local oscillator below the Ku-band, such as 11,300. Thus 12,250 - 11,300 ends up on 950. With LO below the Ku band, the frequencies appear "upright" (in logical low first to high last) as you tune - unlike C-band which are "reversed" because the LO is above the C-band frequencies. Note that in both C and Ku bands, the L-band range is the same, typically falling between 950 and 1,450. This allows one receiver that covers L-band to work with either C or Ku created inputs.

LNB/LNBFs are promoted based upon gain, stability of their LO and most important of all - the noise figure. At C-band, tradition relates noise figure to something called noise temperature. This is a scale that begins with 0-degrees-Kelvin as a totally noise free environment and higher numbers mean more noise. The lower the noise temperature (noise figure), the better the performance of the LNB/F with weaker signals. At Ku, noise is measured on a dB (decibel) scale. Kelvin and dB noise figure mean the same thing - simply the difference between measuring in inches or mm/cm. For example, 1.0 dB noise figure is approximately 75 degrees Kelvin. At C, a noise "temperature" in the region of 20 degrees or just below is state of the art. At Ku, noise figures as low as 0.6 dB are advertised (43 degrees Kelvin). Manufacturers do not agree on how to measure noise temperature/figure and some variation should be expected even between units claiming the same (identical) number. This is also a bonanza for advertising departments who may be making low-noise claims the equipment will not support.

TUNING IN THE INDUSTRY'S TV PROGRAMME

SPACE Pacific, the Asia-Pacific industry membership trade association, has produced (and continues to produce) a series of one hour television programmes. These "SPACE Pacific Report" shows, hosted by Bob Cooper, cover a range of topics of interest to installers and enthusiasts. Show numbers and content are as follows: #9901- Spectrum Analyser techniques, #9902- Feeds and LNBs, #9903- Dish antenna designs and problems, #9904- The dish marketplace, and, "tiny parts," #9905- Dr Overflow (Nokia) software, #9906- How the uplink works (tour of RCA's Vernon Valley site), #9907- Uplink Two, including uplink transmitters, #9908- Digital Basics (Mark Long), #9909- Real World Installs (Mark Long), #9910 - Installing a polar mount dish (in production - now May release); "Report" is broadcast by Mediasat on Optus B3, 12.336Vt, ad-hoc channel 3 (Sr 30,000, FEC 2/3) with the following coming-weeks schedule: **Sunday April 16** - Show 9904 0200-0300 UTC (1400 NZT, 1200 AET, 1000 Western Australia; repeats 0700 UTC). **Sunday April 23** - Show 9905, (1400 NZT, 1200AET, 1000 Western Australia); repeats 0700UTC; **Sunday April 30** - Show 9906, same times as April 16; **Sunday May 7** - Show 9907, same times as April 16; **Sunday May 14** - Show 9908, same times as April 16; **Sunday May 21** - Show 9909 - same times as April 16. **Sunday May 28** - Show 9910 premiere showing (finally!!!) - same times as April 16. SPACE Pacific Report has also been broadcast by Westlink, Aurora service on Optus B3, vertical (12.595, Sr 30,000, FEC 3/4 - requires Optus Aurora card but is otherwise FTA). Westlink will again carry SPACE Pacific Report when new shows currently in planning are produced and available; details here when air schedule is complete. In the event of schedule changes, SPACE Pacific attempts to pre-announce which show(s) will appear through the SatFACTS Web site prior to each weekend (<http://www.satfacts.kwikkopy.co.nz>). SPRSCS 2000 sessions taping scheduled for play on Mediasat and Westlink will be announced in June.

Sponsorship of SPACE Pacific Report. In general answer to queries - AvComm, Satech and Sciteq have contributed corporate funding to make possible the production of the first set of nine SPACE Pacific Report programmes. Additional funding from Ikusi Australia NZ Pty Ltd. has been received for final production of show 9910. Funds derived from sale of VHS tape copies are also an important element in meeting the (A)\$1,300 overhead of each show. Mediasat and Westlink donate the time to broadcast the programmes, and both are to be commended for this support. As we move into the next group of (10) programmes now being scripted and shot, we solicit financial support from members of the industry or those with commercial activities they wish to have associated with the project (see insert card between front cover and page 1, SatFACTS for February 2000). To discuss your own support, contact Bob Cooper at telephone 64-9-406-0651, fax 64-9-406-1083, e-mail Skyking@clear.net.nz. C-band wide area service is still being negotiated - keep the faith - it could happen yet!

WITH THE OBSERVERS

ApStar 2/76E: "Channel 1 is FTA on 3820/1330Vt, Sr 3.570, 3/4" (D. Leach, NSW). Reports BBC World Service radio has left Saudi service on 3660/1490Vt - did not last long!

AsiaSat 2/100.5E: ERTU/ESC FTA analogue is gone, replaced by CA bouquet (3640/1510Hz, Sr 27.850, 3/4). Of interest - on North American feeds, ERTU/ESC has been replaced by Nile TV International service. Alpha TV Gujarati is now here on 3900/1250Vt FTA analogue, audio 6.6, 7.4.

AsiaSat 3R/105.5E: "Sahara TV now into programming after testing 4020/1130Vt with good analogue signal into NSW - audio 6.2, 6.8 and unmodulated carrier at 7.4" (D. Leach). SABe testing on 3743/1407Vt, Sr 3.300, 3/4. NOW stands for Network Of (the) World, is an ambitious Hong Kong funded project that will distribute TV and Internet in a single data stream, when operational (3760/1390Hz, Sr 26.000, 7/8 but likely to change). Latest line-up is (1) NOW TV Tests / VPID 1010, APID 1011, and (2) Music Videos / VPID 1020, APID 1021. Zee TV bouquet (3700/1450) reported in detail p. 6 here works with under 1.8m dishes in Victoria, NSW - 2.4m in New Zealand. During early testing just after March 15, MusicAsia and Zee Cinema appeared.

AsiaStar / 105E: This L-band downlink (1490-1500 MHz) CD quality 100 channel radio service satellite is now on station and tests should be underway. Anyone equipped to measure the signal levels?

Chinasat 22/98E: Test carriers, not modulated, reported on 3900/1250 and 3940/1210Hz. This satellite is inclined, reports say 0.6 degrees but those tracking it suggest it is greater.

Express 6A/80E: Tests in area of 96E should be completed and service on 3625, 3725, 3775, 3825, 3875, 3925, 3975, 4025, 4075 and 4125 (all RHC) should appear soon. It may use northern beam which would be not good south of equator.

JcSat 3/128E: "On air announcement says Sr will be changed to 22.000 from 12.997 for Miracle net on 3990/1160Vt. Asian bouquet on 3960/1190Vt has been mostly FTA of late" (Sr 30.000, 7/8) (D. Leach, NSW).

InSat 2B/93.5E: Gujarati TV has left analogue 4125/1025, perhaps because programming is on AsiaSat 3 Zee bouquet?

InSat 2E + 3B/83E: Indian sources say 3B will be Hz only, and transponders are dedicated to data and telephony - any TV here will be a bonus.

Intelsat 701/180E: "Canal + 11.610Hz works on 75cm pay-TV dish, 0.7dB Chaparral LNB, Nokia 9500 with DVB2000 software in Sydney" (R. Woodward).

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for May 15th issue: May 5 by mail (use form appearing page 34), or 5PM NZT May 6th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

AT PRESS DEADLINE

New Korean FTA - "One TV" is on PAS-2, 3980/1170Hz, Sr4.410, 3/4 (VPID 33, APID 36).

Express 6A appears ready to head to 80E; digital testing was noted on 3625 and 3875 with 3625 apparently a 75 watt high power Global configuration.

abc NEWS NewsOne Channel
Monday, March 6, 2000

PLEASE STAND BY

NewsOne NY Phone	212 - 456 - 4110
NewsOne NY Fax	212 - 456 - 2771
Email affiliate scripts to...	abcn1@abc.com
ABSAT Phone	212 - 456 - 4134
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ABSAT Email	absat@abcnews.com
Audience Relations	212 - 456 - 7477

18:13:29:09 abc News New York

On the off chance a 747 crashes next door and you want the news guys to roll a truck, here are some numbers to keep handy.

APTN

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Intelsat 802/174E: Telefenua, apparently on eastern beam, is on 4066/1084RHC, Sr 9.668, 3/4 with (1) Eurosports, (2) LCI - talk & news in French, (3) TF1, (4) Cinestar 1 (French movies). They were scheduled to test on same bird, Ku during April - no reports yet.

LM1/75E: "Why do signals here fade up and down, is it my low look angle?" (D. Leach). Possibly - more likely it is changes in the noise from earth in front of dish - the signal is probably quite stable but the noise goes up and down creating the appearance of fading.



Autosat Australia Pty Ltd

51 Cosgrove Road, Strathfield South, NSW 2136 Australia
Tel: +61 2 9642 0266 Fax: +61 2 9642 8853
E-mail: autosat@accsoft.com.au

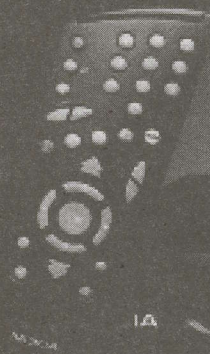
Ku off-set dish: 45, 65, 80, 85, 120, 150 cm

- *Designed for Aus/NZ environment with weather-proof coating*
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C prime-focus dish: 180 polar or ground mount
Ku LNBF: in-built lightning protection
C LNBF: 17 deg K, dual polarity

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The end

RFO on I701/180E (4095/1055L) is down sizing their coverage from 1 July. New numbers will be an EIRP of 20.5 dBw, 4.095/1055L, Sr

13.375 and FEC 5/6. No 7 metre dish? You will be out of luck after 30 June.



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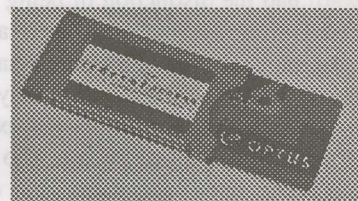
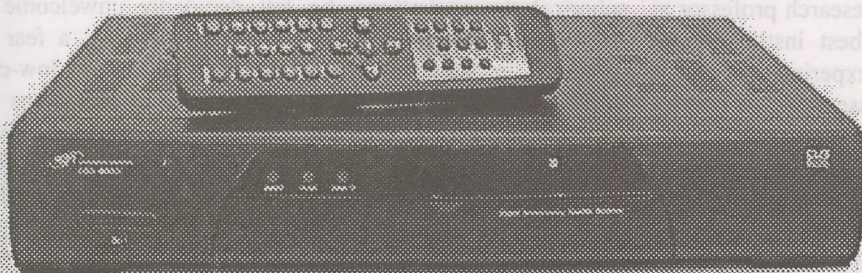
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Irdeco CI module.

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Sign-off

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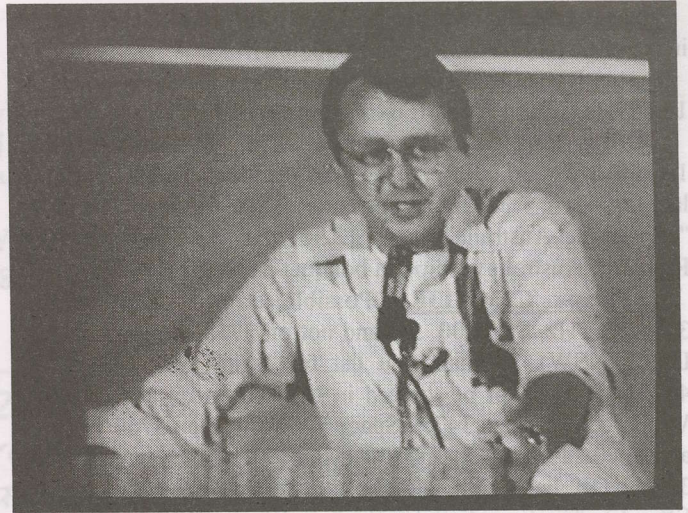
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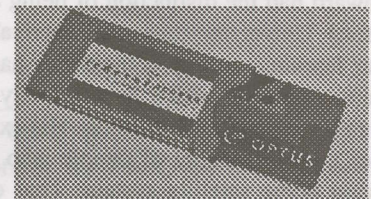
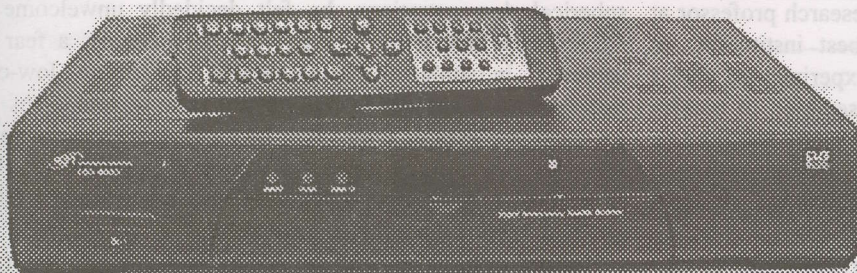
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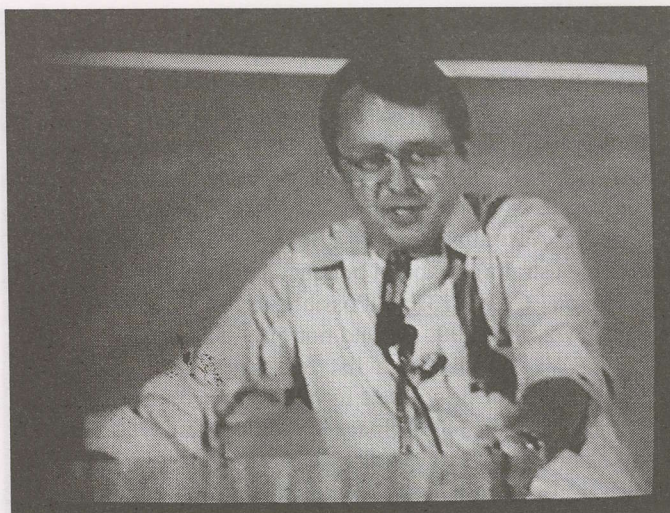
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- NEW programming sources seen since April 1st: _____
- Changes (signal level, transponder, programming content) in pre-existing programming sources since April 1st: _____
- OTHER (including changes in your receiving system): _____

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

Your Name _____

Town/City _____

Make/size dish _____ LNB _____ Receiver _____

Your email address _____ if you have one!

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CLIP & SAVE - Recent and Scheduled Launches of new satellites

Recently launched - status uncertain

98E / Chinasat 22, C-band transponders, is closely spaced to AsiaSat 2 at 100.5E (now testing; will move to ??)

Note: Satellite is inclined orbit, perhaps not on purpose, must be tracked.

105E / AsiaSat L-band (1452 MHz +) stereo radio service

83E / InSat 3B with 3 Ku, 12 Hz C and 1 S band transponder; will collocate with InSat 2E

80E / Express 6A with 5 Ku, 12 C transponders; will replace Express 2

Scheduled launches - subject to usual delays

145E (April) / Gorizont 33 with 1 Ku, 7 C transponders (inclined orbit by design) - last Gorizont built

108.2E (June-September) / GE2A, 36 Ku, to be collocated with GE1A (see below)

115.5E (August or after) / Chinasat 8, long delayed 16 Ku, 36 C transponders

108.0E (September) / GE1A, 28 Ku, collocated with GE2A scheduled for previous launch

91.5E (September) / Measat 3, Ku and C

68.5E (October - December) / PanAmSat 10, 24 Ku 11.45-11.700, 12.25-12.75 and 24 C 3.7-4.2

90E (December) / Express K1, 20 Ku and 32 C

62E (January-March 2001) / Intelsat 901, 12 Ku, 44 C

60E (January-March 2001) / Intelsat 902, 12 Ku, 44 C

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Dual CAM Sockets (PCMIA)	NA	•	NA
Dual input Analog Receiver (low Threshold)	NA	NA	•
On board Dish Positioner (Medium Duty)	NA	NA	•
Motorized Feed horn Support (Polorotor)	NA	NA	•
32 Step Threshold Extension-Analog	NA	NA	•
Auto Audio Carrier Search-Analog	NA	NA	•
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FTA Power Vu Reception	•	•	•
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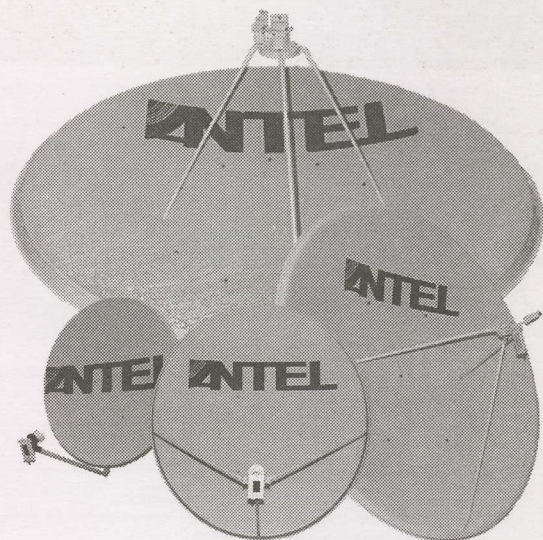
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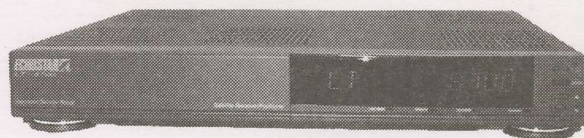
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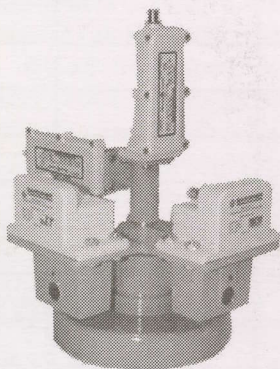


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