

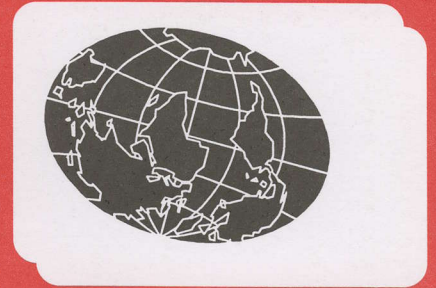
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Bob Cooper's

JUNE 15 2000

SatFACTS

MONTHLY



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

IN THIS ISSUE

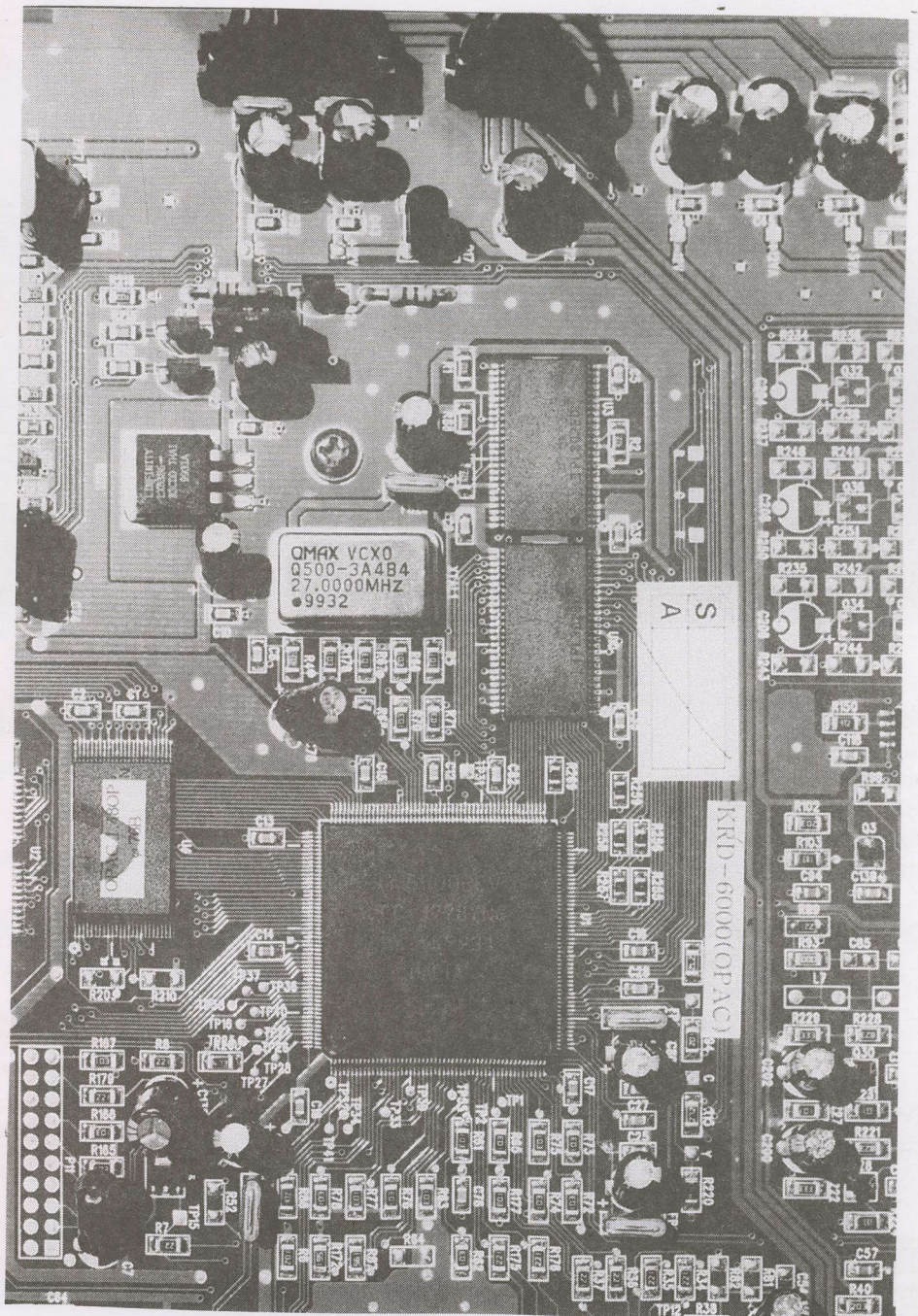
**MediaStar
dot . 5
Generation**

**Fiji's Made for
Satellite TV
Revolt**

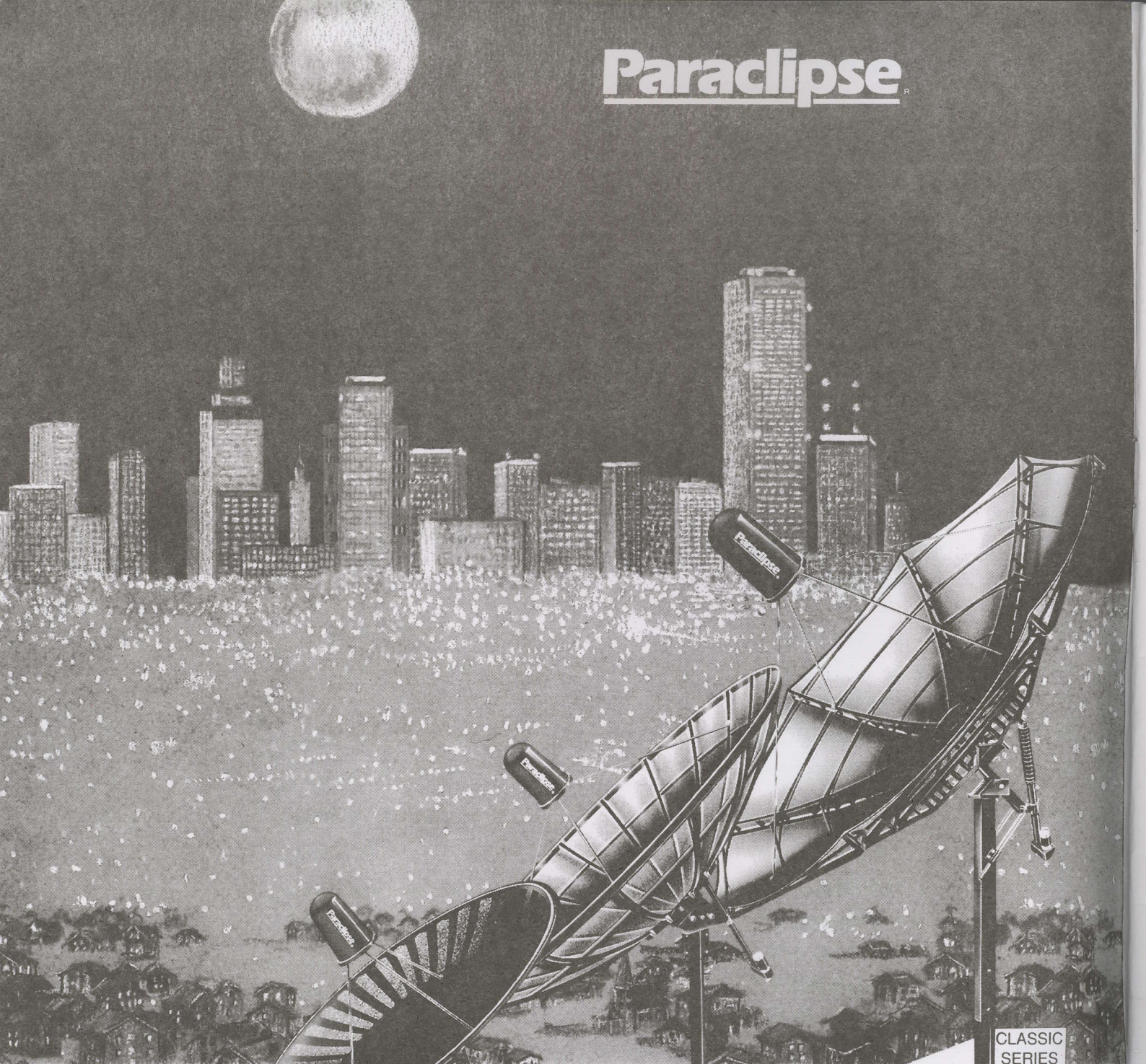
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Blackspots
(four)**

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

**Vol. 6 ♦ No. 70
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The Life of an installer of pay-TV in Australia

TPG says to be an installer, you need an "F" fitting crimping tool. They don't say you need anything else, and they don't tell you how to dress or how to act.

Foxtel, on the other hand, runs a very tight ship. They send field checkers behind the installers to verify the quality of work and to question the customer about the presentation and attitude of the installer. We feel certain Foxtel installers are no better (nor worse) dressed than TPG installers, no better nor worse in their attitude. And here is the proof - taken from a mid-May advisory memo sent to Foxtel installers citing specific customer complaints about the "quality" of installers.

FIVE THINGS YOU MUST NOT DO IF YOU ARE A FOXTEL INSTALLER

- #1/ **If you have dirty shoes on**, take them off at the door. Don't wait for the customer to ask you to do so.
- #2/ **If you have soiled your coveralls**, go to your truck and change out of the dirty clothing before you enter the house.
- #3/ **Do not approach the customer** with your pants pockets hanging out - with dirty shoes and soiled clothing, they already know you are below the poverty line.
- #4/ **If your shoes are clean**, be sure the right shoe is on the right foot, left shoe on the left foot. There have been complaints about this.
- #5/ **Do not knock on the door with your fly unzipped**. If your coveralls are too small to zip-up over your attachments, find larger coveralls or think of a creative way to use those pockets you have hanging out. Barring that, take off your dirty shoes, stick them in your exposed pockets, criss cross the ties and fasten over your unzipped fly. **Then** ask the lady of the house if she wishes you to take off your coveralls.

LAST CHANCE TO REGISTER AND ATTEND SOUTH PACIFIC REGION SATELLITE & CABLE SHOW!!!

**Do you sell, service, install home satellite or SMATV systems?
Attend Thursday June 29, Friday June 30, Saturday July 1!**

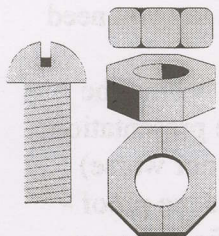
**Are you a satellite enthusiast or weekend warrior?
Attend Saturday July 1!**

WHERE? Box Hill Institute (TAFE), Nelson Campus, Nelson Road, Box Hill
(Melbourne)

WHEN? Register Wednesday 1PM-5PM June 28, or Thursday morning 9AM onward or Friday 9AM onward. Saturday? A "Public Day" - *just show up*, exhibit hall doors and displays open 10AM - 4PM!

HOW TO REGISTER? Down to the wire - we **MUST** have mail, fax, telephone reservations **BEFORE** Saturday June 24th. See over, this card. **After 24th?** Show up and *hope* there is room in the June 29 - 30 sessions!

SIMULTANEOUS LECTURES for Technicians & Management June 29 & 30!



Lecture Theatre One

- ◆ Antenna Antics
- ◆ Blackspot Babel
- ◆ IRD Indiscretions
- ◆ LNB Laziness

- ◆ Measurement Madness 1
- ◆ Measurement Madness 2
- ◆ Power supply Pitfalls
- ◆ Naughty Nokias

Lecture Theatre Two

- ◆ Ethnic Erratic
- ◆ Indian Intrigue
- ◆ Pricing for Profit
- ◆ Out-of-market



Oddballs

- ◆ Receiver Revolt
- ◆ SMATV Semantics

Updates? <http://www.satfacts.kwikkopy.co.nz>

PLUS - 3 day "Satellite Olympics" to find BEST INSTALLER in the South Pacific!

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 - A\$200 after May 31 (A\$150 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 64-9-406-1083

SatFACTS MONTHLY

ISSN 1174-0779

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

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

Editor/Publisher

Robert B. Cooper (ZL4AAA)
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COOP'S COMMENT

I had a challenging call from an Australian chap who began by telling me off. I am, he said, "full of yourself," and "a legend only in your own mind." I chuckled and asked him if he called to tell me off or ask for something.

"Both" he retorted. "Tell me about this Boomerangtv thing" he asked. I did, trying to be fair to TPG since at this stage we can only judge them by their product and the way they are handling customers. "Their product is top rate, if you like American produced pay-TV programming. The jury is still out on their customer manners," said I.

"So how do I get ahold of them?" he asked. We suggested he check out their web site which contains the full explanation of their service, "or read any recent issue of SatFACTS where we have reviewed extensively their status."

"I don't like SatFACTS" he quickly said, "The editor is full of himself." Which got us back to square one where we began. "I've been installing satellite dishes here for 14 years and I don't need no damn American to tell me how to do it." I felt as if I was not there on the telephone - that he was talking about me to a third party. Taking a deep breath, I asked, "So why do you want to know more about Boomerangtv?"

"A fellow can always use more work and they sound like they will have plenty for an installer like me." I was very tempted to ask him if he had his own F-fitting crimping tool but thought better of that.

Now I know there are some (but not very many) satellite installers out there who do not subscribe to SatFACTS. And with the satellite world doubling on itself every six months or so, there is an acute shortage of skilled, professional installers; guys who don't arrive at the customer's door with their fly unzipped. **Coop's Technology Digest** reported on June 8th that in the United States, their industry trade association has announced the satellite industry in that country will need no fewer than 1.5 million additional satellite, cable, Internet installers in the next 24 months. Not just warm bodies with their flies zipped up, but skilled, professional people capable of installing a Ku-band dish, IRD, hooking up a modem line connection, and integrating the new hardware with the customer's home PC software.

I am constantly amazed how little vision installation companies have when it comes to improving the skills of their present employees (or contract installers). We all know integrated satellite and Internet IRDs are just over the horizon. And all should know that when they hit, a "wham-bam-thank-you-mam" 1 hour dish install will become a 2 to 3 hour project requiring PC to IRD hook-up and PC software skills. Not one installation contract company outside of the UK seems to be concerned about increasing the skill level of the installers. Not Comet, not Sky (NZ), not anybody is conducting seminars to educate their people.

Cable TV firms in the USA, pushing out several million high speed set-top cable boxes to consumer homes this year, have run into a brick wall because their installers are not capable of dealing with the complexity required when Internet is added to the standard install. Tens of thousands of US cable installers have been taken back to "school," by and at the expense of their employers, to upgrade their skills. Out here? Comet tells people to keep their fly zipped up and take off muddy shoes. Sky (NZ) warns installers not to cut into the Telecom cable outside the home when installing the IRD modem line connection. Training? "Do you have a crimping tool? OK, you're hired."



June 15, 2000

In Volume 6 ♦ Number 70

MediaStar 7.5 monster chip IRD is for the dot . generation -p. 6

Fiji's made-for-satellite-TV revolt -p. 10

Blackspot reception challenges (part four) - p. 12

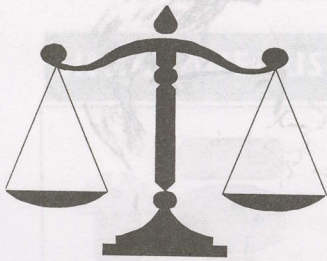
SPRSCS 2000 Events and Scheduling - p. 18

Departments

Programmer/Programming Update -p.2; Hardware/Equipment Update -p. 4; SPACE Pacific Report (Can I do it with a piece of fence lashing wire?) - p. 20; Cable TV Connection (How signals travel) - p. 22; SatFACTS Digital Watch -p. 24; Supplemental Digital Data -p. 26; SatFACTS Analogue Watch -p. 27; SPACE Pacific Report - TV Show schedule -p. 28; With The Observers -p. 29; At Sign-Off (IPDVB2000 stink) -p. 32

-ON THE COVER-

MediaStar 7.5 single-monster-chip IRD. (p. 6).

**Good show!**

"A quick note to let you know that I really enjoyed 'SPIN' on Mediasat's SPACE Pacific Report Sunday June 4th. A show like this should be mandatory viewing for potential dish system customers by all dealers! I was mesmerised by the excellent professional qualities of the presentation, and fascinated with what a dedicated devotee of ad-hoc feeds can collect on his home video machine. If more people saw this show, we would have a bonanza in dish sales overnight. Keep up the great work at SPACE and with SatFACTS."

Garry Luxton, Mount Hutton, NSW

SPIN is a classic "so-you-want-to-own-a-satellite-dish!" piece. With the 2000 repeat of the 4 year Presidential race cycle in the USA, it will all happen again and a few of us will catch 'SPIN-quality' snippets even out here in the Pacific. Closer to home, the "Fiji Revolt" (p. 10, here) provided those with Internet alerting capabilities (through our SatFACTS Web site) with equally enjoyable 'insider stuff'.

Not so good a show

"SPIN may be 'too American' for many of the Australian viewers. Most have forgotten (if they ever knew) who Perot or Robertson are and Gore is of no interest to us here. The few people I know with Austar rarely watch CNN because it is too American. If anything (at all!) appears on Australian TV about American politics, it is a good excuse for an Australian to change the channel or head for a cold one. Admittedly most Australians know who Clinton is, but that has more to do with the Lewinsky fiasco than his political career."

Al, Queensland

SPIN shows real people - even the leaders of the most powerful nation in the world - can be 'stripped naked' in private moments. And that goes double for media "stars" such as Larry King who comes across far worse in SPIN's "off-the-air" captures than he does on air.

Does it really make any difference that these guys caught with their pants down are American? We think not. The premise that live satellite bares the soul is intact without respect to their nationality.

Channel overwrite

"A R3100 IRD bought from Av-comm refuses to load Hubei (As2) on 3713 (Sr 4.418) and Hubei 3854 (Sr 4.418). I can get one or the other but not both. Is there an answer?"

Simon Judge, Australia

Receivers that use station ID ("Hubei") as memory identification automatically find the second Hubei as a replacement for the first already in memory. So it overwrites the frequency parameter of the last Hubei loaded. Later software versions want to see station ID and frequency as a checksum for the memory.

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

June 15, 2000

"Up your nose" TV journalism. When colourful character George Speight and gunmen took control of Fiji's government May 19, Australian satellite flyaway Newsforce headed for Suva with a portable Ku band uplink. On May 23rd, for 48 hours, astute viewers were treated to unrehearsed, ad-libbed TV reports to all of Australia's networks, NZ's TV3, the BBC as the beach located Newsforce terminal linked through I701 Ku back to Los Angeles where the feeds were turned around and redistributed on I701 C-band 3765/1385RHC, FTA on the Network 10 (Australia) transponder requiring dishes in the 4m class. By May 25th, feeds had switched to I802/174E, 4166 analogue but still FTA for those few with dishes big enough to resolve the weak signals. Our report on p. 10; just as we cautioned readers about on p. 6 in May!

Egyptian charade continues.

ESC/ERTU/Nilesat (As2) went FTA May 15th for 2 weeks, then back to CA. Just long enough to create sale to hundreds (or more) of Arabic speaking viewers throughout Asia and Pacific for digital receivers. Saudi Embassy in Thailand telling irate Arabic viewers, "*Rights to this bouquet are controlled by Australian TARBS; if you have a complaint, take it to them (61-2-9776-2000).*" Of course if viewers are outside of Australia, only place TARBS PAS-8 Ku beam reaches, they are out of luck anyhow. A sad day for Egyptian broadcasters who have shut off ex-pat countrymen. Free-to-Air Satellite Services (South Australia) is organising a petition campaign to force the issue.

June 30th is end-of-present-service target date for I701/180E RFO at 4095/1055LHC. Service has been on 28 dBw global beam, is to change July 1 to 20.5 dBw (same frequency) with downshift to 13.346 and 5/6. Reports at press time - the existing RFO signal was up in level June 10th, never previously as strong in Auckland.

Two new I701/180E Ku French to Tahiti bouquets testing on eastern beam which reception tests SF requested in New Caledonia show "*are not here on ANY size dish.*" Still, for those who can try, go to 180E for 11.060Vt, Sr 30.000, 3/4 and/or 11.168Vt, Sr 10.100, 3/4. First will be TNTV service, second to be Tele Fenua as we reported in detail on our web site during May.

Installer shortage in Australia. Temporary? Perhaps. New 12 channel Chinese service from TVBI launches PAS-8 July 1, but 10,000 homes are being prewired as you read this by Comet. Add Foxtel, Austar, and a small number from TARBS and Boomerangtv and result is - more work than installers.

BoomerangTV currently quoting 2 week delivery time for new installations, but installers report "*one or two per week*"; no, IRD won't do other services - yet.



Making up for "real TV" - Larry King and Bill Clinton, from SPR 9911, on Mediasat this month.

Radio Frequency Video Mixing answers

Notch out interference and unwanted TV channels with minimal insertion loss
Use SF4 for anywhere in band 4 or SF5 for anywhere in band 5
Not one but two individual notch filters in each unit
Installer adjustable in the field



Satellite receivers that output on UHF have been the order of the day for some time. They mix everything coming from the TV antenna with the signal from the internal modulator. Most Video Cassette Recorders are now the same.

Sometimes this kind of broadband mix compromises picture quality. Masthead amplifiers lift the noise floor by the gain of the amplifier, which can effectively degrade the picture quality from the receiver. Anything in the way of noise, harmonics, interference, or even TV signals from far away, on the same frequency as the RF Output can spell trouble.

A simple answer is to filter out everything from the antenna system on the frequency used by the VCR. The Fracarro SF4 filter is ideal for this purpose. The SF4 and SF5 have two -20dB notch filters, that can provide a substantial -40dB rejection for less than 1dB ins. loss!

First the filter must be tuned. This can be done with the receiver in question and a signal level meter. Connect the RF Out from the receiver to a signal level meter with the filter between them. With the receiver switched on and the instrument tuned to the receiver's RF Output signal, adjust the filter until the maximum attenuation is obtained. The tuned filter is then connected between the antenna system and the RF In of the satellite receiver for greatly improved viewing.

After all, the picture quality from on board modulators used in satellite receivers etc. is usually quite good, so why not use it! The savings over the cost of an MATV modulator are substantial.

Laceys catalogue 102 has products that provide answers to most TV distribution problems. Perhaps you only needed to know who to ask.



Another quality product from



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e-mail: placey@netlink.com.au

UEC Power Supply problems

"I want to let people know about my dealings with (name of distributor) where we have purchased our UEC 660 IRDs for our clients. Even though it is well documented that the UEC power supply boards keep blowing up, the distributor is refusing to replace them at their cost if the units are out of warranty (in some cases, by two weeks or less). I believe they should replace them all at their cost because of the known fault with the UEC units. In any other product line, a fault such as this would see the company responsible recalling the item for corrective action."

John Mackay, Commsat Pty Ltd, Australia

In fact, we understand UEC has gone to the expense of replacing ALL power supplies in ALL of the UEC660 units purchased by Sky Channel Australia. This followed a rash of complaints from the betting shops that units were quitting at an alarming rate. So, if Sky Channel got all of their power supply boards replaced at UEC cost, why should *individual* owners with the same fault be denied? Is there an agency of the Australian government that could force this issue?

7th Day transmissions

"Using information provided by Adventist management, we installed a Satcruiser DSR101. In the Napa test card leading up to the actual 7th day transmission, it works fine., Then they drop the carrier and come back from a Sydney uplink which causes the DSR101 to immediately advise, "Conditional Access(\$)." We are assured this is a non-PowerVu format and that most any MPEG-2 IRD should work here. What gives?"

Nigel Clough, New Zealand

SA cannot resist leaving a few PowerVu identifying "bits" in the data stream, probably their sneaky way of getting more of the 7th day business for just the circumstances you report. We found that if we totally eliminate the prior Napa test card channel from memory, and then wait until Sydney comes up, we can load 7th day as a new service without difficulty. From that point on it should come back up and work whenever Sydney is transmitting but it may not work for the Napa test card when Sydney is off!

Uncollected money

"Nobody seems to want our business. We expect to spend up to US\$12,000 for a suitable 5 to 7 metre dish and receiver system for satellite reception here at 157.20 west, 20 south (Cook Islands). We wrote to Paracclipse from their advert in SatFACTS and they told us to contact you and their distributor in Australia. We have contacted several firms including Telsat in NZ and nobody seems interested in our work."

Ian Guinea, Cook Islands

Reality check time. The Cooks are in between footprints, nobody really puts a decent signal there from any C-band bird. If you can cope with mostly French plus some English, a new Ku service intended for Tahiti might make it to a quality 4m dish (contact Grant Waldref as waldref@mail.pf). From opposite direction, another possibility with a wider range of French + English programming would be the New Caledonia Canal + service; try Steffen Holz as antenne-cal@canl.nc. C-band service will be very difficult, even for US\$12,000. Let's be real here - you live in a tropical, no-TV paradise.

HARDWARE EQUIPMENT PARTS

UPDATE

June 15, 2000

Power supply saga continues. Foxtel has sent advisory to installers warning of "potential electrical shock" with (not named - *one* guess!) set-top box used for satellite reception. Warning advises installers, "*It is critical that Field Liaison is advised* (of trouble calls where customer complains of electrical shock from IRD). *Failure to do so could result in danger to the Tech's safety.*" Procedure is Tech Service or Team Leader will give trouble shooting techs "special instructions" regarding handling of IRDs where fear of electrical safety is involved. Time for a product recall or does someone have to die, first?

Blackspot enigma. Early in June, first Blackspot authorisation for a resident in suburban Perth, shielded by hills, having tried 40 foot mast, larger than life antenna and masthead amplifier decided GWN, WIN, ABC and SBS via satellite was only option left open. ABC, SBS turned on of course as soon as Aurora system was installed; 6 weeks after applying, and following some telephone prodding, back came authorisation for GWN and WIN. Only - **only** GWN refuses to turn on the site, citing AFL football agreement terms that preclude them from serving anyone (for *any* reason) inside of primary Perth market. ABA says, back peddling very fast, "*Well, yes - the TV stations do have the legal right to deny service to a home if they so choose.*" Not what we had been led to believe the law says. Definitely a topic for "discussion" at SPRSCS 2000 when ABA people appear for presentation June 30 (10.30AM)!

Australian DTT/HDTV in better focus. Terrestrial broadcasters will be required to initially transmit 20 hours of HDTV per week, rest can be SDTV. Analogue is to phase out sometime between 2007 and 2009 - exact date still under consideration. Datacasters, such as Fairfax and News Corp, are likely to be limited to 10 minutes per programme for drama, lifestyle, (scheduled) news bulletins but unlimited in providing "*live event news coverage*," sport news (not events), finance-market-business information. ABC is to receive top-up of A\$36.8 million for digital conversion, SBS A\$29.4 million.

Horizont 33 has been launched, should be testing at previously announced 3675/1475 at any time from 145E.

Tough on MPEG-2. When a movie cuts to a blank TV screen with dancing "snow," the MPEG-2 system goes into overdrive. All of those dancing dots and dashes create the ultimate challenge for MPEG-2 encryption.

NDS, owned by News Corp, has won potentially lucrative (some say "dangerous") contract from China's State Administration of Radio, Film and Television (SARFT) to convert that country's analogue cable TV networks to digital.

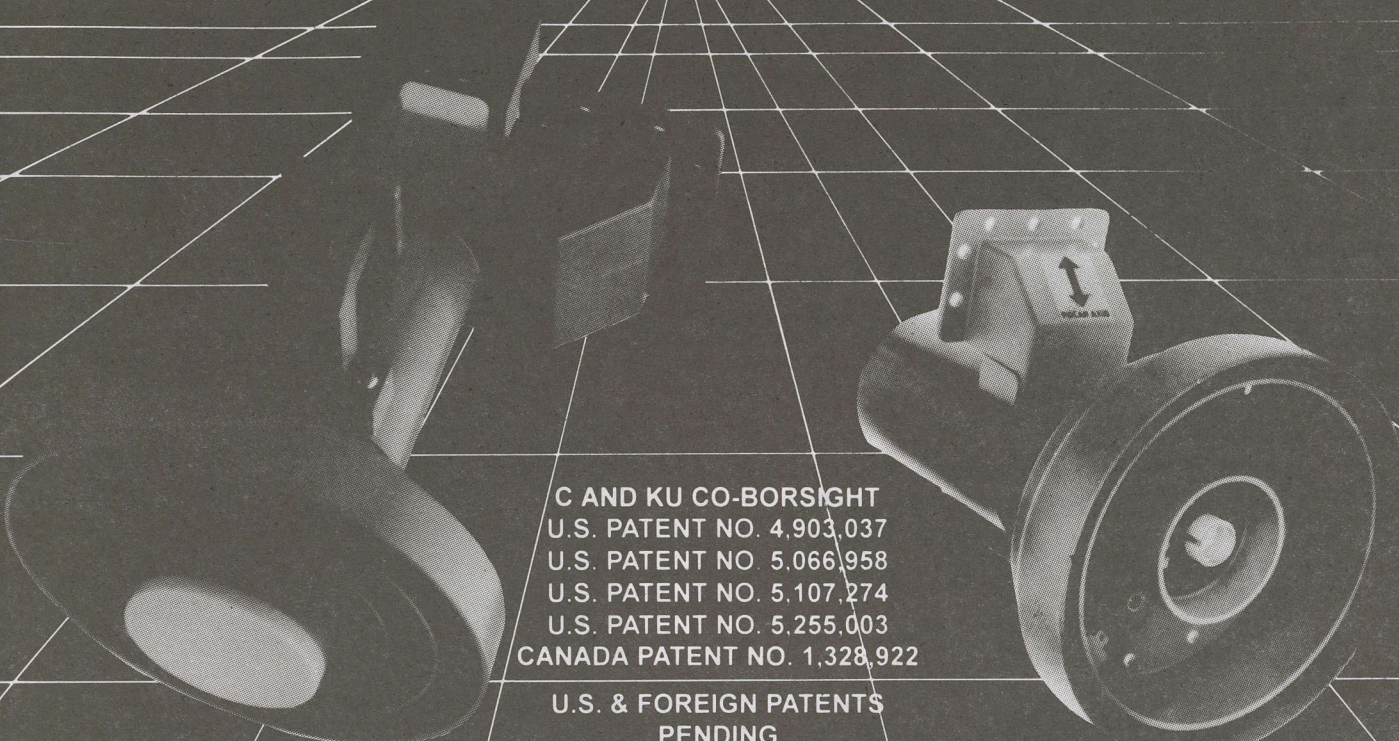
Not this year - citing "poor results overseas to date," Finnish government has decided to delay DTT (digital terrestrial television) introduction which had been scheduled for September, to coincide with Olympics.

iCraveTV, the Canadian web site that posted 17 US and Canada TV stations for 90 days says they will return "before end of year" using new proprietary iWall user screening software. Problem is to identify each user by their ISP address; Canada will be OK, anyplace else will not be, initially. They have filed patent and copyright applications on new technology, say they will also charge US\$7 to \$9 per month ("*just like cable TV*") for initial access to up to 10 TV services.

Access 1 is new 128 kbps Internet download service offered to Australians through Optus B1, 12.336Vt (yes - Mediasat). Customers now being installed, using "Broadlogic Satellite Adapter" PC plug-in board. Advantage, they claim, is rapid downloading of large files including audio and video streaming services. Installers report installations can take anyplace from 1 to 5 hours to complete (!).

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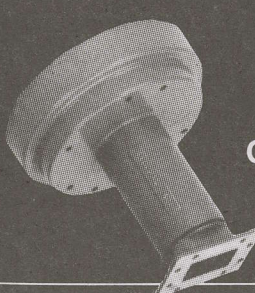
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NEW ADL Web site - www.adlfeed.com

Is a dot 5 better than a zero?

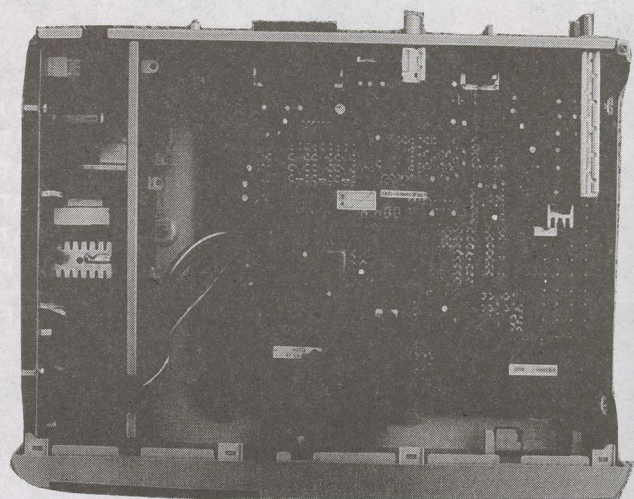
MediaStar D7.5 is a "dot generation" IRD



When we first reported on the "promise" of single chip IRDs (June and July 1998), UEC was promising to deliver the next plateau of set-top receivers and the competition was suggesting they, too, would abandon the old fashioned multiple chip approach.

Within an IRD there are numerous separate but electrically related functions. In the "old fashioned" approach, customised integrated circuits (ICs or "chips") performed one or two of these functions and then the semi-processed incoming signal was sent to the next chip in the line. As many as nine chips were required - each doing its designed-for job, before the L-band RF signal turned magically into audio and video before your ears and eyes.

With a plurality of chips, each consuming its own circuit board space, power, and generating its own heat, the IRD creator has been dependent upon multiple chip sources to build a single IRD. If somehow all of these functions could be compressed into a single (monster) chip, several advantages occur. The satellite receiver potentially becomes smaller (although initially we remain with the original size cases created for the multiple chip IRDs), the power supply can be down sized as fewer oddball voltages and less current are required. In theory, there should be operating advantages to the single chip design. In fact, the big advantage is that

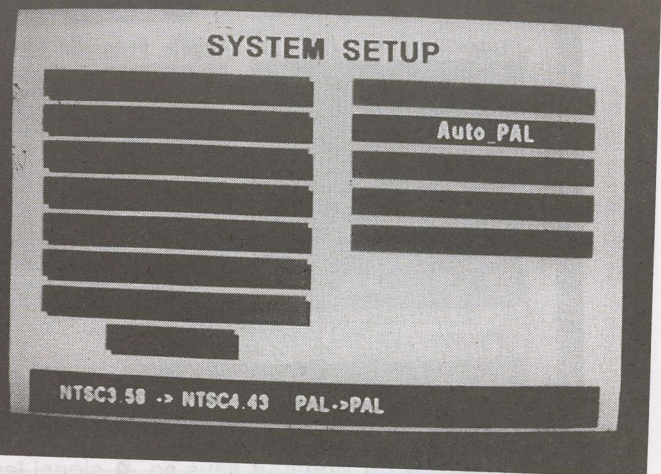
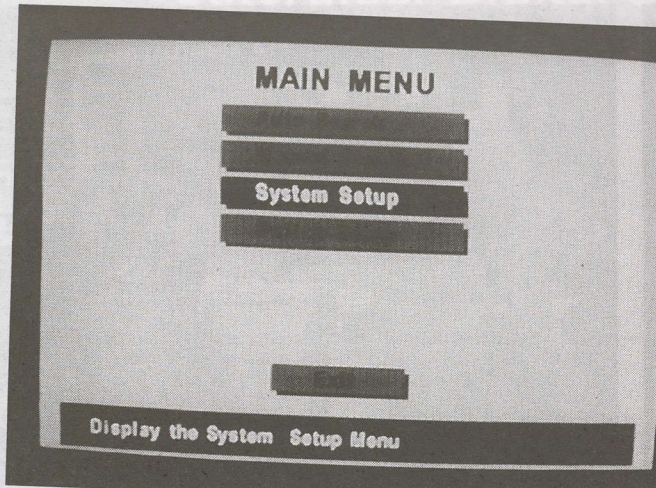


ultimately - as the "monster chips" are available from competitive manufacturers - IRD pricing will come down even further.

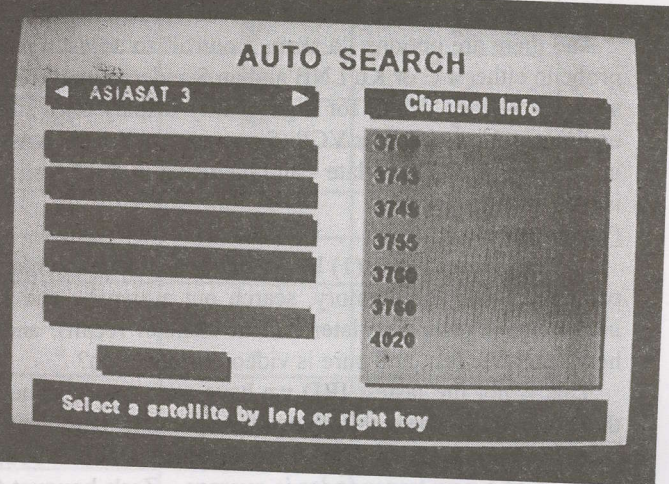
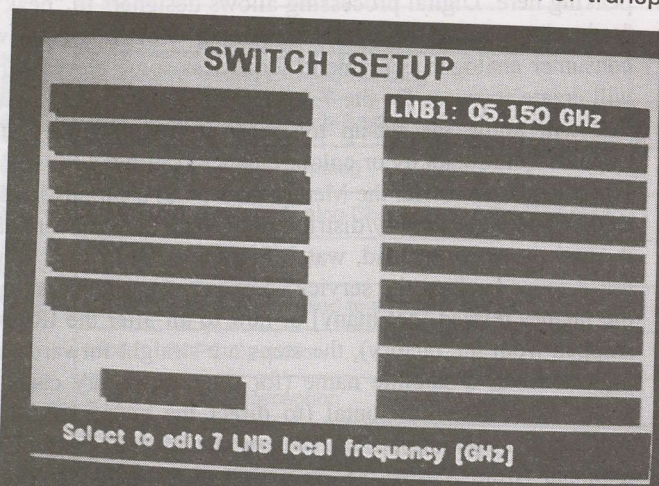
The MediaStar D7.5 is a clever step forward of the time and field proven design of the now two year old D7. It joins other first generation single-chipper IRDs (such as UEC 700) but is one of the very first to actually arrive in the (consumer) marketplace. Cosmetically, it looks like a multiple chipper (front and back) with a lighter colour finish which - if nothing else - photographs better for our purposes! And as the photos

Left to right, rear apron: L-band (IF) input and looped output to feed second receiver (below); RS232 data link, A-r, A-l + V RCA sockets; Terrestrial aerial in, UHF modulated out; S-video; SCART x 2; 0/12Vdc.

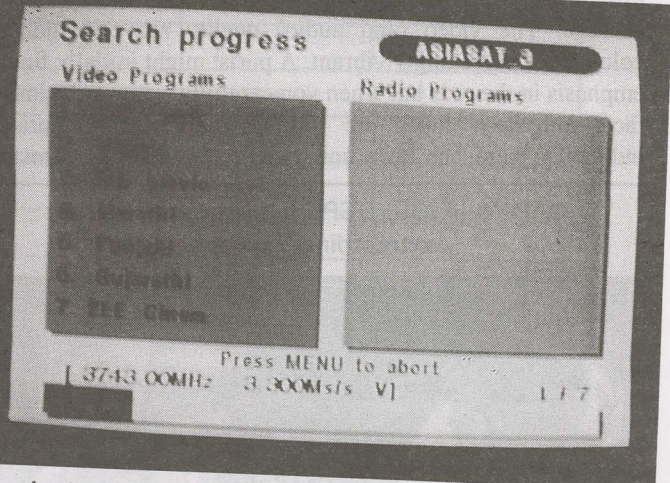
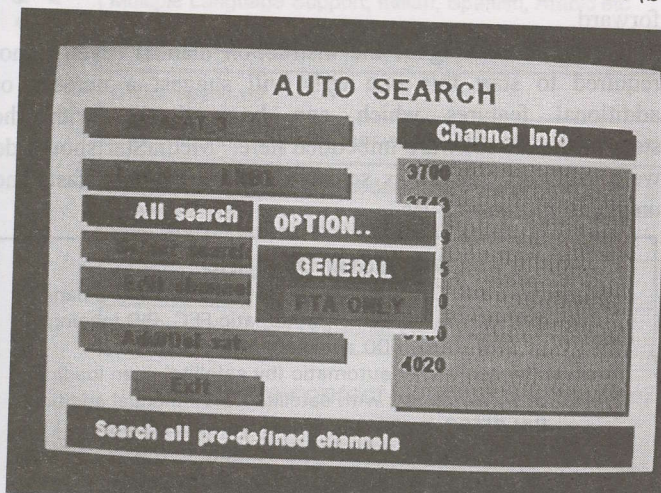




Start with the "Main Menu" (left), proceed to "System Setup" (right). At this point you have the receiver, through sub-menus, pointed in the correct direction. Now, select "Switch setup" for LNB parameters (below, left) and either a full pre-loaded set of transponders or one-only ("Auto Search," below, right).



Now select the level of search you wish conducted (everything in memory, just one specific frequency) plus whether you want to load both FTA and CA (below, left); and the result (below, right) on Zee As3S

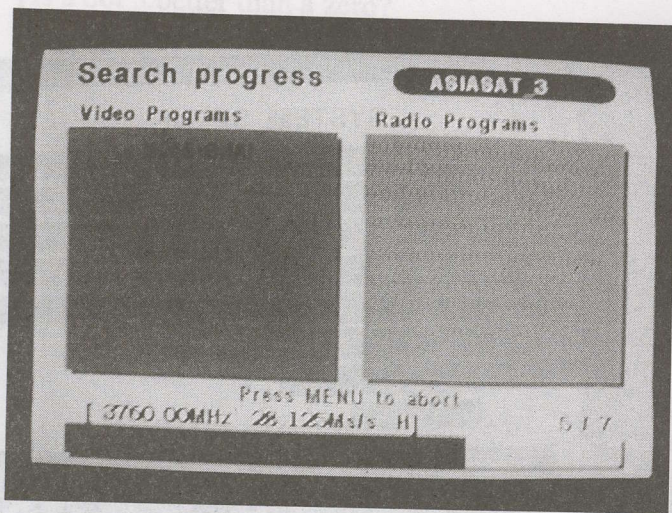


here show, the displays are quite extraordinary - easily one of the three best we have ever witnessed in a consumer IRD. Our initial test was for ease of operation - as follows. (1) We did not open the instruction manual; (2) We did not even place batteries in the remote. Could we set up the IRD from start to finish with the front panel buttons?

The answer - shown above - is yes with one exception - that datted "PIN number" (factory default 0000). Sooner or later, IRD creators will abandon the silly "What is your pin

number?" foolishness (a "gotcha" demanding use of the remote control). Or special buttons to push to view the image. Everything - but the PIN number - can be done from the front panel options.

It does C and Ku, will log parameters for 999 video and 500 audio channels, SCPC and MCPC, handles NTSC or PAL or PowerVu, provides for more LNBs than you will ever have (see above), covers the full range of LNB switching (DiSEQc, 22 KHz, 0/12 volt), provides dual-SCART and RCA outputs,



When there is no signal, it says so. A signal level and separate "quality" on screen display track performance for each service entered. On screen, after selection - top of screen gives "ID," audio parameters.

tunes the full 950 - 2150 MHz L-band range, looped L-band input/output. Cute touches - a signal LED that flashes when there is no signal, stays lit when the receiver has capture.

And there are options - a skew "control" to adjust a rotating probe in either a C or Ku LNB and an S-video output (requires separate S-video cable) for high quality display on a suitably equipped TV, monitor or VCR. Skew control has been missing in virtually all IRDs to date - and inclusion in the 7.5 software is a welcome advance.

Performance

Two categories here - (1) How long does it take to enter new parameters into the memory, search out a signal, and log it into memory (allowing later instant channel recall), and, (2) how sensitive, fast, and pure is video reproduction?

This is not the fastest IRD we have seen - two, sometimes three seconds when switching transponders, just under a second when switching programme channels within a bouquet. Loading of a new transponder is average - Zee's bouquet from pushing "OK - Select Search" to having the nine programme channels listed was under 9 seconds. The traditionally more difficult SCPC services loaded much faster - 2 seconds was average. The video (and audio) quality are exceptional - colours are exceedingly vibrant. A purist might initially find an emphasis in the reds but when you carefully critique the image, face and flesh tones are normal (not overly saturated) indicating there has been some selective video performance

SABe's (As3S) SCPC loads promptly, has extraordinary colour.



SatFACTS June 2000 ♦ page 8

peaking here. Digital processing allows designers to "peak" or "reduce" specific colours, something not possible with consumer analogue equipment. Doubtless some clever person will create software for the 7.5 and other single chip receivers that will allow the set-up to create its own unique set of "Gamut" (chromaticity or colour balance) settings.

In the present world, the MediaStar 7.5 has a simplistic set of steps to activate factory/distributor loaded transponders (find it, mark it, ask it to load, watch it - and once loaded, simply ask it to go back to the service). For new transponders (those the factory missed [not many] or new to air after the IRD was shipped from the factory), the steps are straight forward - and logical. Enter a satellite name (for proper memory caching), select vertical or horizontal (to direct the appropriate LNB voltage or switching), enter the usual frequency-symbol rate numbers (from SatFACTS or a web site) and push "load." Once found, the new service is loaded and ready to be instantly recalled. Deleting, changing the memory sequence, even changing the identification name is logical and straight forward.

A careful reading of the instruction manual (even if not required to start this one up!) will suggest a number of additional features which can be activated with the state-of-the-art software imbedded here. MediaStar should do well with this item, it is sensitive and adequately fast, and uncommonly easy to use.

MediaStar D7.5 IRD

Digital MPEG-2. C and Ku bands 950 - 2150 MHz L-band SCPC/MCPC (2 - 45 Mbps), automatic FEC, PID logging
999 video, 500 audio channel memory

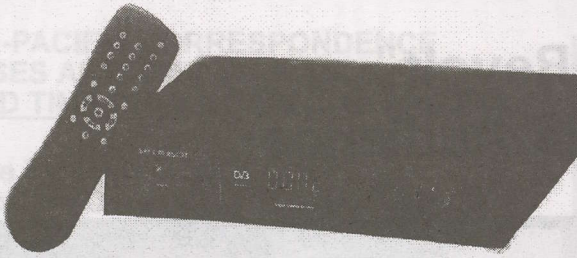
Manual (by service) or automatic (by satellite) scan loading
Preloaded by distributor with satellite data - manual addition
PAL/NTSC (to PAL)/PowerVu video decoding
RCA, SCART (2) outputs

L-band loop thru inputs for second receiver (analogue or digital)
On screen automatic programme channel parameter listing
Teletext, stereo, EPG, on screen channel guide-select
Normal (4:3) and wide (16:9) screen displays
22 KHz, 18V (Hz)-14V (Vt), DiSEqC 1.0, 0-12V LNB switching
PAL G/D/K/M, NTSC, SECAM UHF modulator (ch. 21-69)
Internal timer to turn IRD on, off (standby)

8 LNB local oscillator memory positions including Universal
(Optional) 3 wire polarisation (skew) adjust for feed(s)
100-240VAC (+/- 10%) 50 - 60 hertz powering

Source: MediaStar Communications International, 24 Bosci Rd, Ingleburn NSW 21565 Australia; tel 61-2-9618-5777

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Dual CAM Sockets (PCMCIA)	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 Extention-Analog	NA	NA	•
Auto Audio Carrier Search-Analog	NA	NA	•
Auto Channel Search-Analog	NA	NA	•
Asia/Pacific Digital / Analog Channels Pre-Programmed	•	•	•
FTA Power Vu Reception	•	•	•
TP/Sat table can be copied to another - via serial port	•	•	•
MCPC / SCPC Operation	•	•	•
C / Ku / S Band Reception	•	•	•
Auto PID Detection and manual PID entry	•	•	•
Universal LNB Support	•	•	•
DiSeqC / 22KHz / 0-12 volt LNB switching modes	•	•	•
Multiple Language Support, Italian, Spanish, Arabic etc	•	•	•
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You had to know where to look

Fiji's "TV Revolt" Plays to a Wide Audience

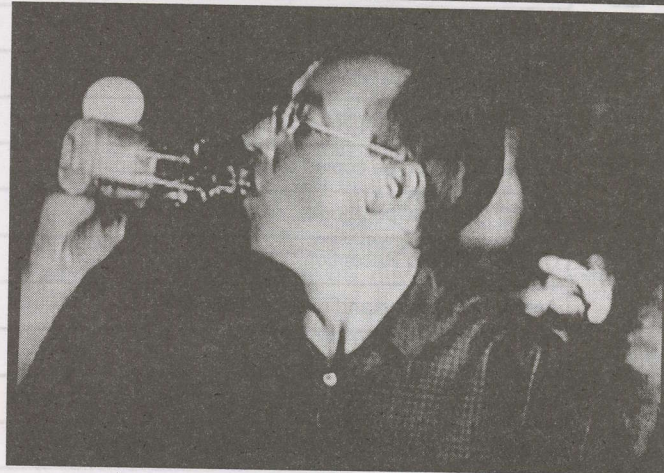
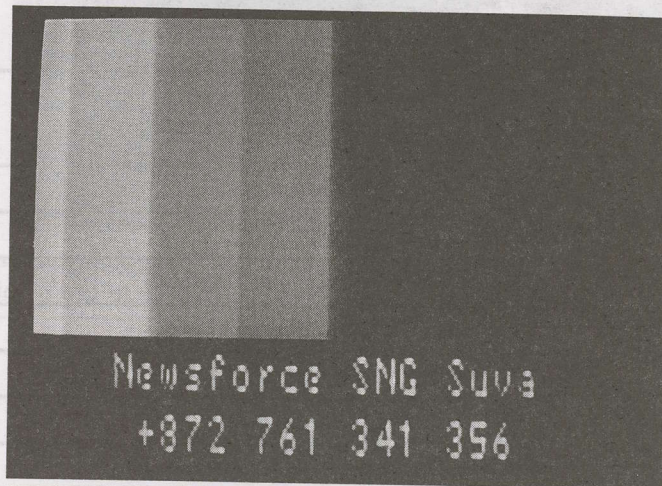
BBC World gave it headline attention, but very little in the way of live video. Australia's ABC, 7, 9 and 10 networks dispatched crews and an Australian flyaway terminal calling itself Newsforce headed for Suva. TVNZ and TV3 from Auckland sent crews, and piggy backed with the Australians. The "Fiji Coup" grew into a "made for media" event.

May 23rd: 0300UTC, a feed pops up on I701/180E (3765/1385RHC) with the signature "Newsforce SNG Suva." The Australian portable uplink is digital, Ku band, and it shoots signals to I701Ku which beams to Los Angeles where a NZ TV3 C-band service link (3765) brings it back into the Pacific; a "double hop." Live coverage for 9 hours on this day is memorable, exciting, and "raw" with plenty of ad-libbed moments worthy of any private satellite tape collection (see SatFACTS May 15, p. 6).

May 24th: Around 0300UTC (3PM NZ, 1PM Sydney, 11AM Perth) the Newsforce feeds are back but today they are cleaner, fewer "live" pieces, more of the news crew work is being done on tape, edited in Suva, and then sent via satellite. Interesting, but not nearly as "raw" as May 23rd. A news conference featuring President Ratu Mara is spectacular because nothing is rehearsed and the man is clearly unnerved with the media's attention.

May 25th: The I701 C-band feeds are gone. "*The cheap Australians have moved to APTN*" was the report from California, "*not willing to pay the higher Intelsat costs.*" Not true. Truth is - Fiji's telephone company has their own C-band link to I802/174E and even in the midst of an armed insurrection, they demand the Newsforce flyaway shut down. "*If the news crews wish to send coverage out of Fiji, they must use the Fiji-Tel link*" (analogue 4166/984RHC from 174E). Some do, others attempt to use MPEG-4 software and cell phones to transfer video and audio coverage. An interesting question - how, if there is *no* government, can a flyaway terminal get the appropriate "license" to transmit to a satellite from a bureaucracy dismantled by armed revolt?

Move ahead to May 28th. Local terrestrial TV service, "Fiji 1," has been showing "Fireside Chats" with still in power President Ratu Mara (while Prime Minister Chaudhry is being held captive by the insurrectionists). A Sunday evening round table discussion ("Up Close") angers supporters of insurrection leader George Speight when Speight is called a criminal and worse. A mob estimated at 100 attacks Fiji 1, demolishes the TV studio and production centre, even attempts to scale the building to destroy twin 7.3 metre Orbitron satellite dishes there. Fiji 1 is off the air, limps back on May 31 using an outside broadcast (OB) unit missed by the mob. Next stop of the mob - the hotel where foreign journalists are staying. Speight supporters, perhaps alerted to the export-version news report content by viewers of Intelsat I701 in Suva, have several "foreign journalists" on a list. The cry is, "*death to the foreign invaders.*" The impact of satellite television coverage has reached a new plateau in Fiji - now, what a journalist says, if not friendly to armed insurrectionists, becomes a reason to



While it lasted (top) - Newsforce on beach at Suva. Armed insurrection, coverage is hot, sweaty work as Australian journalist takes a break.



hunt the journalist down and punish him. The journalists abandon Suva, in haste, leaving behind a vacuum of honest reporting. Those who had the right equipment and knowledge of the coverage (from our SatFACTS web site) tuned in. All the more reason to be Internet connected!

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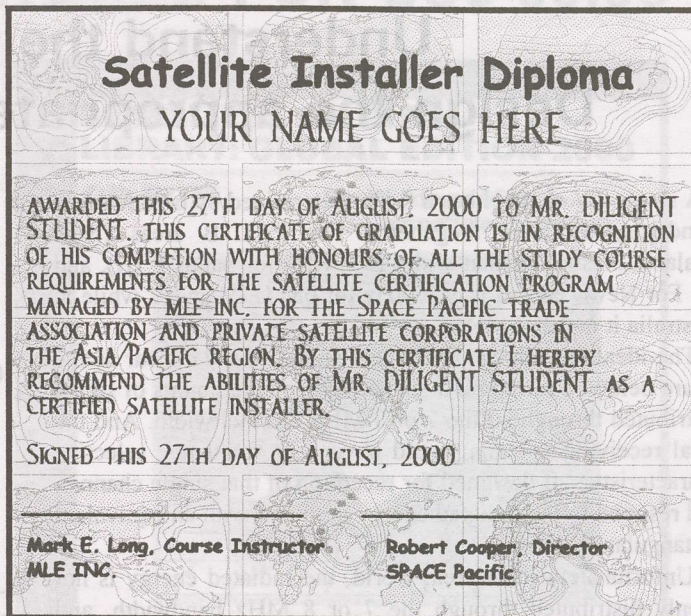
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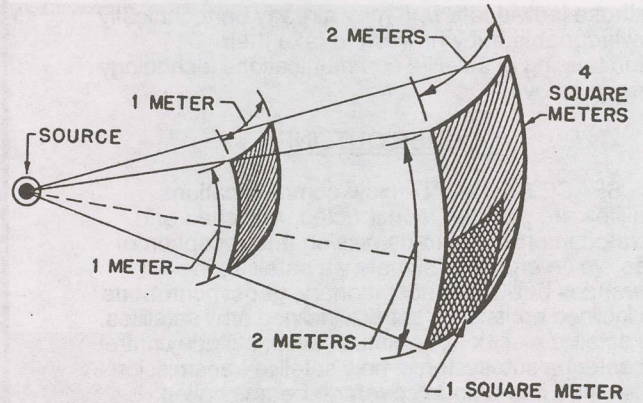
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Understand the signal flight - Design the appropriate receiving antenna

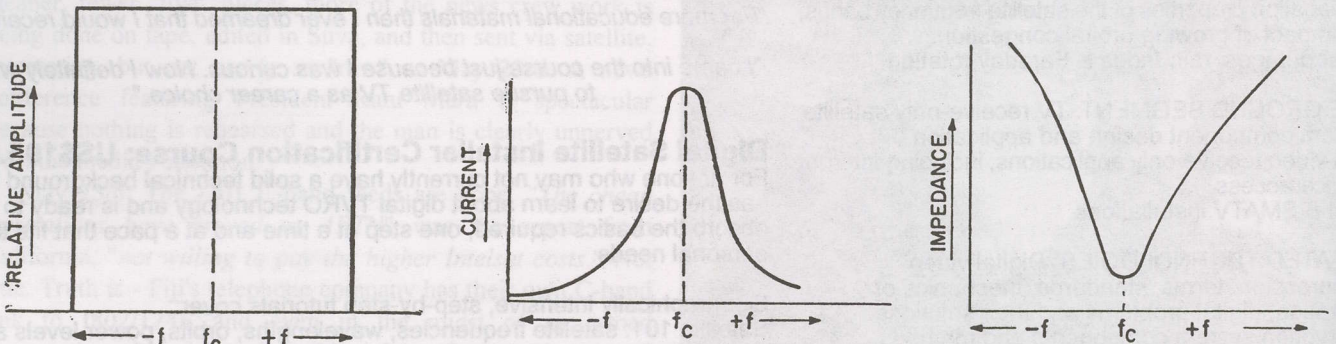
A single TV channel has a finite, determined by broadcasting standards, width in megahertz. For PAL B areas (New Zealand, Australia), that width is 7 MHz for bands I, (II), and III. For New Zealand it is 8 MHz for bands IV and V while in Australia it is still 7 MHz.

The idealised television channel signal would appear as the figure below; a rectangular shape with equal amounts of signal distributed throughout the 7 or 8 MHz channel width. And the ideal receiving antenna would have very frequency selective characteristics, if designed for reception of that single channel, and respond to the radiated energy in the air with an equivalent rectangular response.

Unfortunately in the real world, the radiated energy is not evenly distributed through the 7 or 8 MHz bandwidth, and more important to you as you select the best receiving antenna for a given location, the antenna itself does not respond evenly to the 7 or 8 MHz bandwidth, either.



metres, which means that it is 1/4th as strong in an area 1 metre square as it was closer to the transmitter in an area only 1 metre square. Suppose, for ease of math, the original energy

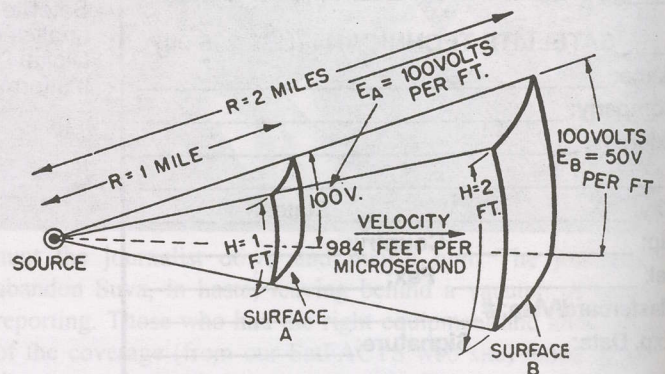


The idealised TV channel bandwidth would have uniform distribution of "power" throughout the channel. Unfortunately, analogue formats do not (although many digital formats do so). And the idealised receiving antenna would receive equally well through the channel width (left). In the real world, the transmitter power is maximum at the video carrier frequency (f_c in middle diagram). And the receiving antenna has a sharp resonance (f_c again) where the impedance of the antenna is lowest at the design frequency - resulting in maximum transfer of signal voltage (right hand illustration).

The power radiated from a transmitter travels outward from the (point) source at a speed of 984 feet per microsecond. Right at the transmitting antenna, power is measured in thousands of watts (far too much for a TV receiver to handle). But with each new microsecond, the distance from the transmitter increases and what was thousands of watts in an imaginary area only 1 metre square nearby to the transmitter antenna becomes a fraction of that further from the transmitter. The original "point source" or radiating antenna at the transmitter spreads out to cover a constantly increasing "square area" over time. If all of the power located in a flat area 1 metre square close to the transmitter was measured, and then a new point twice as far from the transmitter was measured, the energy that now occupies a square metre will be 1/4th as great.

Why? Because at twice the original distance, what started out as a "point source" of energy has expanded as a sphere would expand (think of a balloon being blow up). The original energy occupying 1 square metre now occupies 4 square

was measured as 100 volts per square foot at a distance from the point source of 1 mile. At a distance of 2 miles, the original 1 square foot is now 4 square feet (2 foot per side). The original 1 foot high area that measured 100 volts of signal now must be enlarged to 2 feet by 2 feet per side to collect the same



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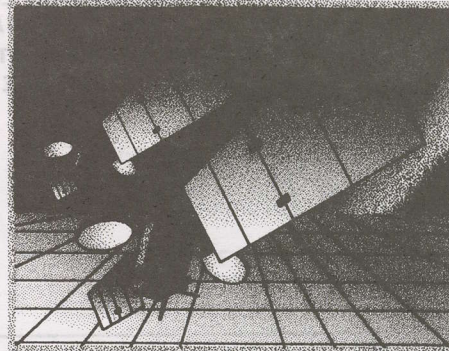
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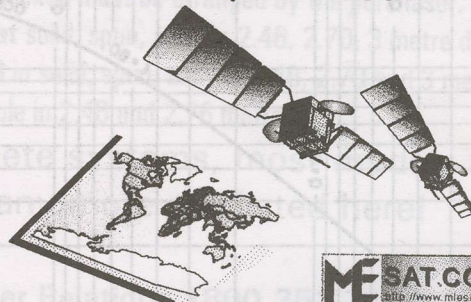
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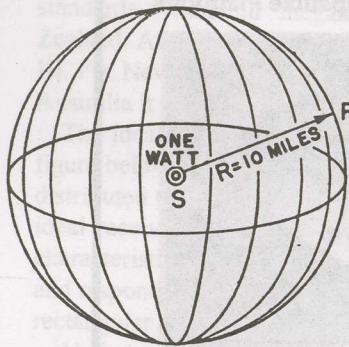
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100 volts; or, each square foot in the new area has 1/4th of the total voltage in it. This illustration is true without respect to frequency (bands I - V, satellite).

If our transmitting antenna was a true "point source," it would radiate (transmit) equally well in all directions in both planes (vertically or up and down from the sphere as well as horizontally or directly away from the point source along a horizontal line).

If a one watt point source transmission is measured at a



POWER OVER ENTIRE SPHERE EQUALS THAT RADIATED BY SOURCE S.

distance of 10 miles, the signal level will be significantly less than 1 watt (306 microwatts). But - and this is elementary to understanding radiated RF energy - the "sum" of all of the energy that could be collected and measured along the surface of that 10 mile radius sphere surrounding the 1 watt point source transmitter would be 1 watt. It is not that power is *lost*, it is that as the original power travels further from the transmitter, it must spread itself out (thinner and thinner) to cover an increasingly larger area ("sphere" in the case above).

The I/Q Factor

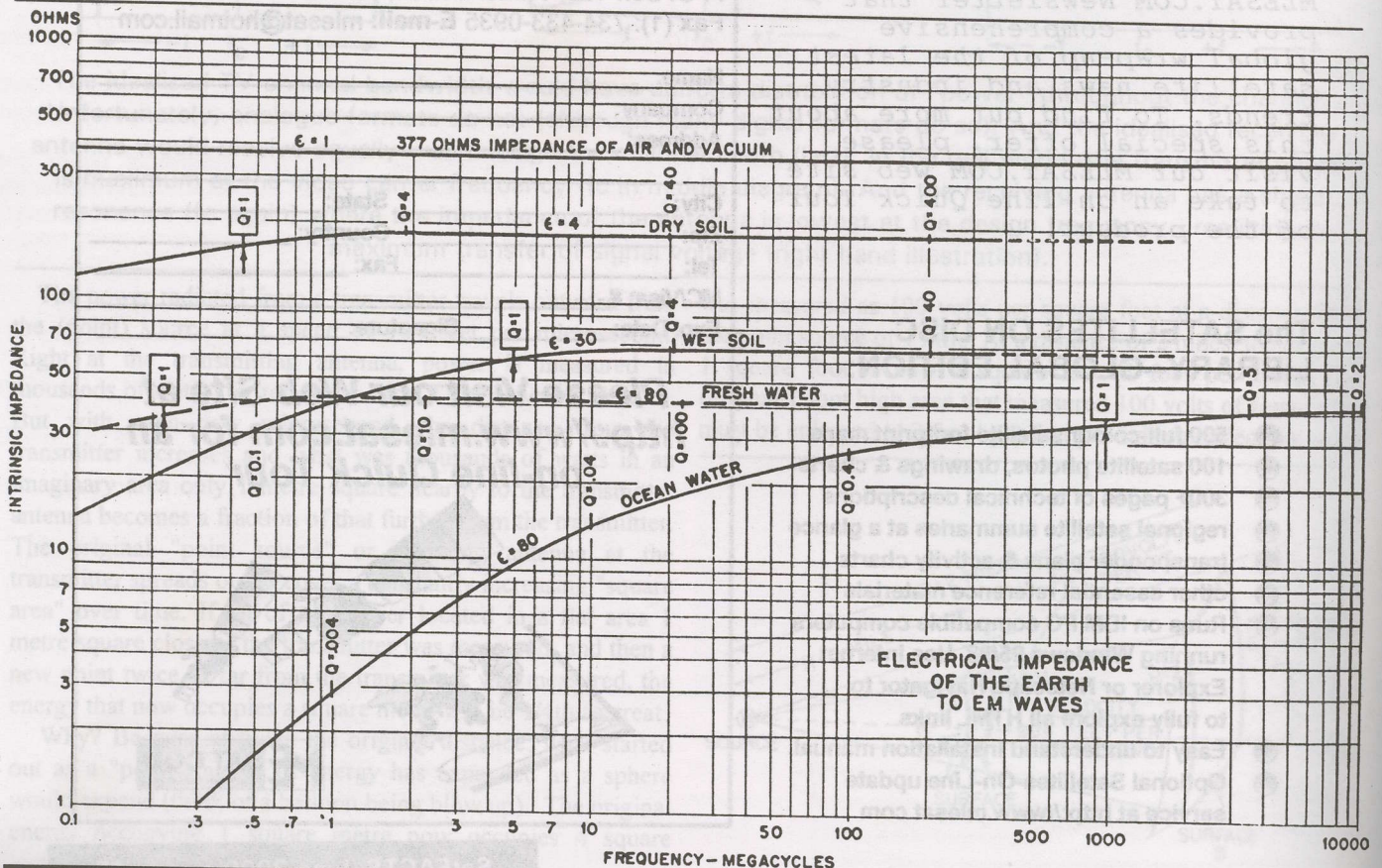
Impedance - a phrase we normally encounter with respect to transmission lines (RG6/U, for example, is 75 ohms impedance). In fact, virtually everything has a "characteristic

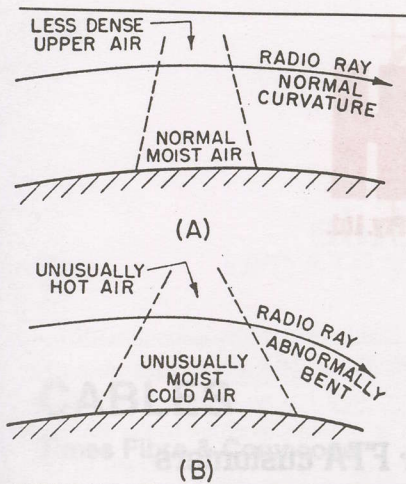
impedance" and with the appropriate equipment and technique, that impedance can be measured. Impedance is the ability of something to appear like a pure resistance.

Pure resistance is important because it determines whether the power from a source (such as a TV signal) is absorbed and allowed to continue travelling or is "wasted" because the resistance is not pure and some of the energy is lost (dissipated) by heating up a material that is not a good conductor of (radio) energy. Aluminium (copper, silver) makes a good "pure resistance" because (radio) energy striking objects made from these ingredients flows or conducts through the material. Wood makes a poor "pure resistance" because (radio) energy striking it does not conduct and is lost in heating of the wood. If you doubt or do not understand that statement, take a small piece of wood and place it inside of your microwave oven, turn it on and then touch the wood after a minute or two. Do not place a piece of aluminium inside of your microwave oven, however!

Radio (television) waves transmitted through air "conduct" well because there is very little to absorb their energy. Unless the air is wet, and then the moisture in the air is literally "heated" by the RF waves, and as that happens, some of the energy of the passing wave front is lost (forever) in the heating process. Air, by the way, has a "characteristic impedance" of 377 ohms.

VHF-UHF radio (television) waves travel through air, but only when there is an unobstructed "line of sight" view between the transmitter (point source) and the receiving antenna site. For most locations, the waves must travel for at least a portion of the trip over the earth's surface. The chart below shows how differing quality of earth affects the passage of radio energy for various frequencies between 0.1 megahertz (100 kilohertz) and 10,000 megahertz (10 GHz). In order of reducing characteristic impedance, we have "dry soil," "wet soil," "fresh water," "ocean water," "fresh water," "sea water."





Although air nominally has a characteristic impedance of 377 ohms, it is not always uniform. If, over the sea coast there is an overlaying layer of hotter air (as occurs during the early morning hours just after dawn, and again at and just after sunset), the impedance of the air changes quite dramatically where the layer of hotter upper air meets the nominally cooler air

inland just a few kilometres and the "coastal inversion" interfering signals disappear - totally!

below. This change in "characteristic impedance" of the atmosphere creates a *boundary* which causes the (VHF-UHF) radio/TV signals travelling through the atmosphere to actually slow down at their leading edge. When the "leading edge" slows down, the trailing edge tries to "cart wheel" and the result is the signal path is *bent*. This has the effect of extending the distance the signal travels before it is lost in the upper atmosphere. What began life as a "line of sight" straight as an arrow signal path now finds itself bending to actually follow the curvature of the earth over the salt water coastal area. Or, where normal reception might be getting too weak to create a useful television image at a distance of 100 km, now suddenly it finds itself travelling 200 or 300 or more km at the same strength as the original signal was at 100 km.

This may sound like a paradox and in a sense it is. But that "boundary" between cooler and hotter air, with the hotter air above and the cooler air below, functions like a piece of coaxial cable - it is called an "air mass waveguide" in the trade. And this makes possible reasonably high quality TV (and FM radio) reception over distances much greater than would normally be expected, provided the path covers a salt or fresh water "earth" for an appreciable portion of the total path length. This is why coastal areas of Victoria experience significant "co-channel" (same channel) interference from stations in Tasmania through much of the year. But move

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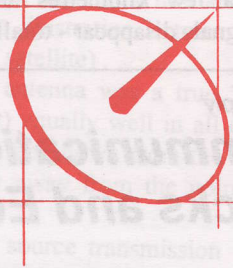
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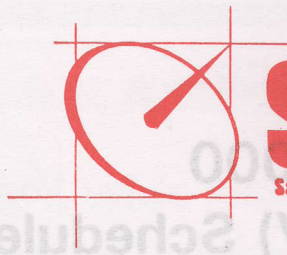
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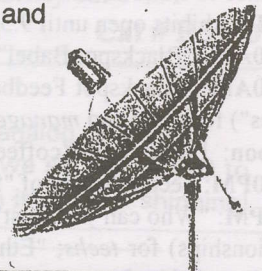
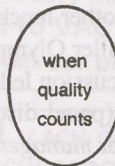
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"Naughty Nokias" and all of those fun things

SPRSCS 2000 Attendee (and TV) Schedule

There are two separate events here. June 29 and 30 are for *registered* trade members - that is essentially anyone willing to pay the entry fee of A\$200, the fee acting as a "qualifying" filter at the gate to separate those who are serious about the satellite TV industry and those who see it as a hobby or part-time avocation. For the latter, July 1 is an "Open Public Day" designed to encourage *everyone* with an interest in satellite television receiving equipment or systems to come to the Box Hill (Nelson Campus) facility (Nelson Road, Box Hill, suburban Melbourne; take Maroondah Highway/Whitehorse Road to Box Hill and Nelson Road).

The facility has a pair of "lecture theatres" and for some of the June 29 and 30 periods, both will be in use simultaneously - one for "technicians" and one for "management." Each day will open with a "Today at SPRSCS 2000" made-for-television segment (10AM) which along with the conference sessions will become the foundation for the next ten SPACE Pacific Report TV shows aired by Mediasat and Westlink. Guests on "Today" will discuss topics related to that day's show schedule, preparing the attendees for the issues involved in each session. If - IF everything mechanical works as we hope, the first SPACE Pacific Report originating from Box Hill will air on Mediasat Sunday July 3 (0200 UTC/2PM NZ, 12 noon Sydney, 10AM Perth).

Tuesday and Wednesday June 27, 28: Antenna exhibitors in the "Atrium Show Yard" will assemble and install antennas (mostly on June 27) and set up their exhibit areas. There are five total areas, four independent exhibit halls occupied by one or two firms, and an exhibit atrium region containing multiple exhibitors. Those who have pre-registered (by mail, fax, telephone) can pickup their "Show Packages" from 1PM to 5PM on Wednesday the 28th. Those who have not pre-registered may register at that time as well. Enter through Gate 11 of the Box Hill facility, follow signs to parking (Gate 13) and then return to the main entrance (Gate 12).

Thursday June 29: Registration packets will be available from 8.30AM; on-site registration also at same time. Note: To gain entrance to exhibits and lecture theatres, you **MUST** be wearing a show badge - included in your Show Package.

9AM: Exhibits Preview - until 9:50AM; 10AM: "Today at SPRSCS" (topics, antenna design parameters, measurements).

10.30AM: "Antenna Antics" (Garry Cratt, Av-Comm Pty Ltd.) for *techs*; "Indian Intrigue" (led by Leon Senior, Satech) for *management*.

11.15AM: "Measurement Madness 1" (Peter Lacey, Lacey's Australia) for *techs*; ""SPIN" (SPR 9911) video showing for *management* (to 12.15).

12noon: Lunch break (coffee shop open, other lunch options available). Exhibits open until 1.25PM.

12.30PM: First round of "Satellite Installer Olympics"

1.30PM: "Measurement Madness 2" (Joseph Bonavia, Ikusi NZ & Australia) for *techs*; "SMATV Semantics - the development of digital" (Eric Fien, Broadnet International) for *management*.

2.30PM: "LNB Laziness" (Bob Cooper, SPACE Pacific) for *techs*; "Receiver Revolt" (panel including Garry Cratt, Av-Comm, Philip Igegneri Kristal Electronics) for *management*.

3.30PM: Exhibit areas open until 5.30PM

4PM: SPACE Pacific Report #9910 - test equipment and polar mount dishes, showing.

Friday June 30: Registration packets available from 8.30AM; on-site registration also at same time. Note: To gain entrance to exhibits and lecture theatres, you **MUST** be wearing a show badge - included in your show package.

9AM: Exhibits open until 9.50AM; 10AM: "Today at SPRSCS 2000" (topics, Blackspot ABA approval)

10.30AM: "Blackspot Babel" (Richard Longman of ABA and accompanying engineer) for both *techs* and *management*

11.30AM: "Blackspot Feedback" (Brian Watson, Western Video Pty Ltd Tasmania leads a panel discussion about the ABA "rules") for *techs* and *management*.

12noon: Lunch break (coffee shop open, other lunch options available). Exhibits open until 1.25PM.

12.30PM: Second round of "Satellite Installer Olympics"

1.30PM: "Who can you trust?" (panel discussion led by Bob Cooper covering sensitive subjects such as contractor-contractee relationships) for *techs*; "Ethnic Erratic" (panel discussion covering the here-today gone-tomorrow nature of ethnic service offerings, led by Leon Senior of Satech) for *management*.

2.30PM: "Internet via satellite" (Eric Fien, Broadnet International) for *management* and *techs*.

3.30PM: Exhibit areas open to 5.30PM

Saturday July 1: "Open Public Day" with exhibit areas open for traffic at 9AM and remaining open until 4PM.

9.30AM: Third Round of "Satellite Installer Olympics"

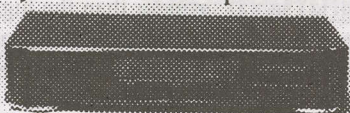
10AM: SPACE Pacific Report shows 9901, 9902, 9903, 9904 (runs until 2PM) in lecture theatre

10.30AM: "Naughty Nokias" (a session revealing *some* of the Internet available software and what it does with a Nokia IRD)

3PM: Awarding of "South Pacific Satellite Installer of the Year - 2000"

Note: This schedule is as it exists on June 10th. Revisions, if they occur, will appear in Show Package for attendees.

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Fence lashing wire and professionalism

Cable TV firms with appropriate technical management routinely use a quad-shield version of RG6 (or even 11 in rare circumstances) to connect their cable lines to individual homes or multiple dwelling units. Satellite TV installers, under contract and paid a "flat rate" for plopping a dish on the side of a home and stringing coaxial cable to the IRD and TV set, may not be told "what quality" of coaxial cable to use with their installations. Comet on behalf of Foxtel wants installers to use a quality cable and provides a "suitable product" list for the installers. Sky (NZ) resells rolls of RG6 to their contract installers, using their bulk buying power to import a version of Times cable from the USA. Initially, at least, TPG installers for Boomerangtv are apparently free to use whatever cable as they happen to prefer.

Coaxial cable is available in a variety of formats. Some of the differences are obvious to the eye (white cable versus black jacket) even from the "outside"; others are not. Cable has two inherent characteristics which are important to anyone making a cable choice:

1) The loss of the cable, measured at various frequencies that include 50 through 2,000 MHz for manufacturer specified "benchmark" lengths (typically so many dB per [100 feet] [100 metres]).

2) The "shielding characteristics" of the cable, typically specified in a plain English statement such as "one foil wrap, one (60%) braided shield."

Cable loss is elementary to grasp. With a given length of cable (100 metres), a signal introduced at one end (the beginning) will come out the opposite end reduced in amplitude (signal voltage) by some number of dB (decibels). The amount of loss increases with frequency, so a 55 MHz signal and a 550 MHz signal introduced at the beginning, at equal levels, will come out the opposite end with the lower

frequency (55 MHz) signal stronger than the higher frequency. In a typical satellite installation, signals that travel from LNB(f) to IRD/receiver at 950 MHz will arrive stronger than those making the same trek at 1,450 MHz. Coaxial cable losses are related to the size (diameter) of the cable and the composition (materials used to create the cable). The centre conductor, a solid strand of wire, is "insulated" from the outer "shield" portion with some form of plastic or Teflon material, chosen because it has very little "conductive" properties. The very best insulator to place between the centre conductor and the shield would be dry air as air is a near perfect non-conductive "material." Coaxial cables that utilise "foam" insulation material force "air" pockets or bubbles into the plastic/Teflon to reduce the cable "loss."

Shielding is not so easy to grasp. First, the shield is the "return path" in a radio circuit. It is as important to the flow of radio frequency energy as the second wire is to an AC circuit. But it does more than merely complete a circuit; it provides the one design feature of all "coaxial" cables which make them unique as carriers of radio frequency signals. And that is "shielding."

Older style TV aerial "twin-lead" is a fine transmission medium, but unfortunately the radio frequency signals in transit are "wide open" to ingress from other nearby radio frequency signal sources. The original coaxial cable designs protected the signal carrying centre conductor with a braided (web-like) copper shield. More modern designs improve upon this by wrapping a metallised foil around the insulating material, then covering that with a braid shield. But there are problems with this - the foil is a "wrap" with a seam, and when the cable bends sharply, the seam separates creating a "slot" or "hole" through which interference can enter the cable. There is a solution to this - double foil wrap and double braided shielding. A look at quad shielding in July.

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."

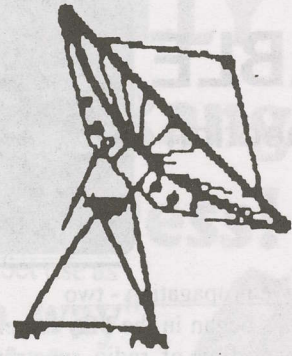
All levels receive periodic programme and equipment access updates from SPACE, significant discounts on goods and services from many member firms, and major discounts while attending the annual SPRCS (industry trade show) each year (Melbourne June 29-30, July 1). Members also participate in policy creation 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.

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Terrestrial wave propagation - two

(This analysis began in the May issue.) Television channels cover a wide portion of radio spectrum, from the 40 MHz region through more than 800 MHz. This is "prime real estate" in the world of radio, selected for television in the 40s before any serious use of these frequencies had ever been attempted. At the time of this decision, knowledge about how the various wavelengths reacted when transmitted was primarily theoretical.

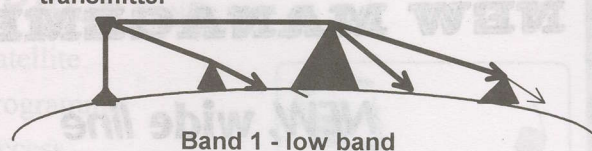
Frequencies at the low end of this range are called low-band VHF, with wavelengths in the 7 to 8 metre region. Frequencies at the upper end, ultra high frequencies, are down to 40 centimetres in length. The longer wavelengths have a unique ability to "crawl over" obstacles in the way (anything that blocks visual "line-of-sight") while the shorter wavelengths are "bouncers" reflecting from solid objects and heading off in an entirely new direction. In between the two extremes, we have wavelengths with diminished characteristics of both - they crawl, a little bit, and bounce, a little bit. Band III (high band VHF) is in the middle of the two examples.

The length of the waves determines the physical size of the antennas because the antennas extract maximum signal from the passing wave when they are "resonant" to the wavelength. Resonance occurs when the antenna's dipole or signal pickup element(s) is exactly as long as the desired wavelength.

Objects other than antennas can be resonant. The top of a sharply defined rock outcropping on a hill or mountain can actually act as a "relay antenna!" The physical object, quite by accident, actually receives and then rebroadcasts VHF or UHF waves off in a new direction; this is called "refraction." Non-resonant solid objects, such as a sheer rock wall or the metal side of a large building, act just like a mirror does for light waves. The VHF and UHF signals strike the solid object, and reflect (bounce) off at a new angle. The shorter the wavelengths (UHF), the more likely they are to reflect. In very cluttered landscape areas, refraction and reflection may occur simultaneously. A central business district (CBD) of a major city has the kind of "cluttered landscape" that creates both forms of signal interaction. Add to this the original "direct path" signal which is *supposed* to be there (the only one planners expected) and you have a mess.

Band I signals have a natural superior ability to range over longer distances, "crawling" as it were over and around objects in the way. Australia and New Zealand launched the original television broadcasting in band I believing long transmission distance was the objective (more distance covered per transmitter location, the smaller the number of total transmitters required). But band I is also the portion of the television spectrum where two undesirable disturbances occur. First, there is very long distance signal propagation when the

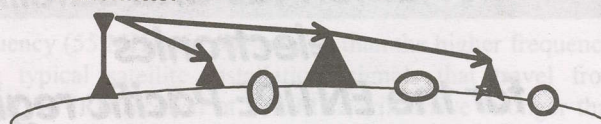
transmitter



Band 1 - low band

Band 1 channels (in region below 120 MHz) tend to fill in behind solid objects (buildings, hills or mountains) by "bending" over top of obstacles.

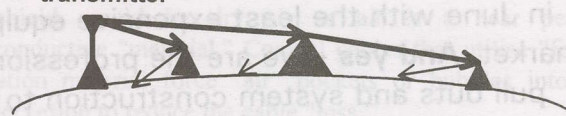
transmitter



Band III - high band

Band III signals fill in less efficiently, appear in "puddles" (small, sharply defined areas) if at all.

transmitter



Bands IV & V - UHF

UHF's shorter wavelengths are more prone to reflection from solid objects, creating secondary "ghost" fill in.

lower VHF frequency range signals encounter reflective layers in the upper reaches of the atmosphere (called the ionosphere). Just as short-wave signals cover multi-thousand kilometre distances routinely, at largely unpredictable times, the same effect extends upwards in frequency to band I as well. This means stations on the same TV channel, separated by thousands of kilometres, bounce from the ionosphere to interfere with each other's normal service area. The second undesirable effect is noise; signals created by power lines, combustion engines, thunderstorms, household appliances. These have their own "natural resonant frequency" range which unfortunately falls inside of band I. So while band I signals may cover greater distances, they do so at risk of being covered up at the receiver with noise.

Band III signals, if sufficient transmission power is used (100 kW or more), will take on *some* of the desirable characteristics of band I but with a far lower "noise factor." Band IV and V (UHF) signals also can be "forced" to act like band I, but only at *extremely* high transmission powers (1,000 kilowatts or more). But this very high power creates new problems with signal reflections, especially at locations fairly close to the transmitter. There, virtually every solid object within the first 20-30 km of the transmitter turns into a reflection (and/or refraction) source. This creates ghosts (multipath transmission) which greatly complicates antenna placement in the very region where reception should be clean and clear. The pathway to long distance coverage is a difficult one for engineers to traverse, filled with unexpected problems.

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

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
I703/57E	Sky News	4143/1007R	1	3/4	5(.632)
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/Kermt	3720/1430H	4	5/6	29(.270)
	Channel "I"	382301330V	1	3/4	3(.570)
	TVB8 +	3849/1301H	4	3/4	13(.238)
	AXN	3920/1230H	up to 8	7/8	28(.340)
Them3/78.5E	MRTV	3666/1484H	1	2/3	4(.442)
	Mega +	3640/1510H	12	3/4	25(.517)
	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)
Insat 2E/83E	DD2	InSat2E/83E	1	3/4	5(.000)
	DD tests	3929/1221V	1	3/4	5(.000)
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 Bouq	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/SRT	3847/1303H	1	3/4	4(.418)
	Guan./GDTV	3840/1310H	1	3/4	4(.418)
	In. 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)
	Egypt/Nilesat	3640/1510H	6+, radio	3/4	27(.850)
As2/100.5E	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	3766/1384V	1	7/8	5(.080)
	SABe	3742/1408V	1	3/4	3(.300)
	Saudi TV1	3660/1490V	1 (?)	3/4	27(.500)
As3S/105.5E	Zee bouquet	3700/1450V	9TV	3/4	27(.500)
	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)
	CCTV bqt	4115/1035H	4(+)-TV	3/4	19(.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)

Receivers and Errata
NDS encrypted, often FTA
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
Mega Cosmos here; new Sr
FTA (includes VTV, DDR)
FTA, new service, testing
FTA (reaches SE Australia)
FTA
SCPC, testing MPEG-2
SCPC, tests, may be north beam?
MCPC, sometimes FTA, 2 adult chs
CA but occ. 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
SCPC - now regular programming
FTA MCPC
Still FTA, CA will happen!
FTA SCPC; very strong signal
Tests, promotional material; some CA
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)
was analogue; now FTA MCPC
NDS CA using RCA/Thomson, Pace
IRDs; new services added June
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

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(C2M/113)	RCTI	3475/1675H	1	3/4	8(.000)
JeSat3/128	Miracle Net	3990/1160V	3 up to 6	5/6	22(.000)
	Asian bqt	3960/1190V	up to 8	7/8	30(.000)
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	7TV/7TV	3/4	22(.500)
	Sky NZ	12.581/608V	6TV/6TV	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)
	Discovery	3980/1170H	8 typ.	3/4	27(.690)
	CalBqt/Pas8	3940/1210H	up to 8TV	7/8	27(.690)
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)
	NTV/Russia	3870/1280H	1	3/4	12(.000)
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)
	MTV	3740/1410H	8	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)
	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)
	Feeds	3812/1338V	1	3/4	6(.620)
	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	3872/1278H	1TV, 4+ audio	3/4	6(.620)
	CNNI HK	3996/1154H	1	3/4	9(.998)
	"1"/Korea	3980/1170H	1	3/4	4(.420)
	Feeds	3867/1183H	1	2/3	6(.618)
	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)
I701/180E	TNTV	11.060V	3 now, more later	3/4	30(.000)
	Tele Fenua	11.168V	4 now, more later	3/4	10(.100)
	Canal+ Sat	11.610H	16TV, 1 radio	3/4	30(.000)

Receivers and Errata
FTA SCPC, Australia OK
PowVu, some FTA (1,3)
CA & FTA Ntsc: Japan, Taiwan
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. 28)
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
NDS CA, subscription available NZ
Viaccess CA, some FTA, Asian beam
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 (audio FTA)
PowVu CA & FTA (EWTN/Bberg)
Sing, Aust, India svcs; UEC 642 'ok'
Feed to USA, Dish Network, CA
PowVu, FTA at this time
CA; #7,8 FTA feeds
PowVu CA, WIN, ABC NT
PowVu CA, WA only - D9234
PowVu CA; some FTA
Pv, CA/FTA (Fox News USA, sports)
PowVu (FTA) occ feeds
Mediasat links, PowVu, usually FTA
(PowVu) FTA, occ. feeds
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
Sat, Sun 0930 UTC typ.
reverse link HK/Atlanta, feeds, FTA
FTA SCPC VPID 33, APID 36
FTA (occ. sport feeds)
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
Testing new pay-TV service, east beam
Testing new pay TV service, east beam
Mediaguard CA, one FTA

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(1701/180E)	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)
	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
DMV/NTL early version, occ feds, typ ca
DMV/NTL early version, occ feds, typ ca
DMV/NTL early version, occ feds, typ ca
DMV/NTL early version, occ feds, typ ca
#1,2 CA-rest FTA-France to Polynesia
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: FTA (free to air) services appear as SCPC (single channel per carrier) and within MCPC (multiple channels per carrier). FTA services here are shown **bold face**, when FTA is occ(asional) or only for a portion of MCPC bouquets, **bold face** appears in right hand column. PowVu stands for Scientific Atlanta PowerVu which is accessible even when FTA only when the IRD has been software-designed to process SA's unique version of MPEG-2. SA IRDs, such as D9223, can be equipped with MPEG-2 standard or may only be capable of receiving SA's version of MPEG-2, even for FTAs services. SA offers an over-the-air software update for existing non-MPEG-2 versions of the receiver (see bottom of this page). Not all receivers automatically receive MPEG-2 transmissions which have variations of the MPEG-2 software "standard." In Mediasat's Optus B3 service, for example, Thasi5 is difficult to load for some IRDs unless you enter the PID numbers for the service. PID numbers are discussed in our web site (<http://www.satfacts.kwikcopy.co.nz>). Not all IRDs can deal with PID entry - virtually all 1999 and 2000-new models will do this. In tables, "# Programme Channels" indicates the total number of video + accompanying audio the IRD should load if you load the bouquet. Most IRDs ask you if you wish to load "FTA Only?" or "All including CA." Typically, load "all" even if you cannot routinely access CA services.

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

ADI MediaMate. FTA, NTSC+PAL outputs. (Pacific Digital Sys. Pty Ltd, tel 61-2-8765-0270)
AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM Pty Ltd, 61-2-9949-7417.
Benjamin DB6600-CA. FTA, Foxtel/Austar w/CAM+card. Try Steffen Holzst ++687-438-156.
Grundig DTR1100. Mfg by Panasat (SA), very similar to Panasat 630; out of production, Irdeto capable. See Av-COMM above.
Humax F1-CI. Primarily sold for TRT(Australia), does (limited) PowerVu (not Optus Aurora approved).
Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good. SATECH (V2.26)
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
MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777
MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738
Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. Tricky to use.
Nokia 9200. When equipped with proper CAM, does Aurora, pay-TV services provided software has been "modified" with Dr Overflow or similar program (www.BAKKERELECTRONICS.COM- Note: This site shut-down by Mindport early November - may not be functioning!). Reported factory 12 mo. warranty. Peter Older, tel 61-3-5133-7911, mobile 61-0418-386287
Nokia 9500/9600. Numerous versions for different world parts; not distributed in Pacific but assistance from Av-Comm Pty Ltd.
Nokia 9800. Latest single chip version, with CI and Irdeto capable. No software for Pacific, Asia; not recommended.
Pace DVS211. NDS CA (no FTA) for Star Asia, previously used for Indovision. (Solution 42, 61-2-9820-5962)
Pace DGT400. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818)
Pace DVR500. Original DGT400 modified for NBC (PAS-2) affiliate use, with CAM equivalent to DGT400 but more reliable.
Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version.
Pacific Satellite DSR2000. Advises no longer current model (see. p. 2, here); Clone of Mediastar D7 (see above)
Panasat 520/630/635. MCPC FTA, Irdeto capable, forerunner UEC 642, 660. Out of production, spares fax ++27-31-593-370.
Panasonic TU-DS10. FTA + Irdeto CA; one of 2 IRDs approved by Optus for Aurora, but no longer available in Australia.
Phoenix 111, 222. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH(below)- 222 out of production
Phoenix 333. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review Nov. 1998. SATECH 61-3-9553-3399.
Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)
PowerCom. FTA, PowVu, NTSC, excellent sensitivity. NetSat 61-2-9687-9903.
PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, GWN+ PAS-2 Ku, CMT etc). Scientific Atlanta 61-2-9452-3388.
Praxis/DigiMaster 9600 MKII/9800AD. FTA, PowVu+analogue, withdrawn from sale in Pacific (was Skyvision-below)
Praxis 9800 ADP. FTA SCPC/MCPC, PowVu, analogue, positioner. SF review Dec '98; withdrawn from Pacific sale (below).
Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.
SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-2-6292-5850, Telsat 64-6-356-3749)
SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - review this issue (Skyvision - see above).
Skandia SK888 (aka DigiSkan-SMS). FTA MCPC, Irdeto CAM+software upgrade. Out of production; Skandia 61-3-9819-2466
Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. SATECH 61-3-9553-3399.
Sky 21/SJ 3000ci. Claims "clone" Hyundai HSS800ci; if so, poor copy. Runs very hot, reportedly burns up smart cards
UEC642. Designed for Aurora (Irdeto), approved by Optus; limited other uses. Nationwide 61-7-3252-2947.
UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel-limited FTA. (Nationwide - above); power supply problems.
UEC770. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, not sold to consumers.
Xanadu. DVB compliant special receiver for members of SPACE Pacific (Av-comm Pty Ltd, tel +61-2-9949-7417)
Yuri HSS-100C. FTA, clone of Hyundai, V2.27 software custom to Australia (Nationwide-above).

Accessories:

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

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

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BIRD/Location	RF/IF & Polarity	Service	Errata
<u>I703/57E</u>	3808/1342R	Udaya TV	
	4052/1098R	WorldNet	VOA subscr.
	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>	3980/1170V	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>Expres 6A/80E</u>	3675/1475R	RTR	(global 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/ card	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
(As2/100.5E)	3885/1265H	WorldNet	VOA subscr
	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>	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	
	4060/1090V	Zee Cinema	(Starcrypt)
	4020/1130V	Sahara TV	6.2, 6.8
	4100/1050V	PTV2/World	
<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>JcSat3/128E</u>	3768/1382V	feeds	occ., P5 NZ
	4085/1065V	test card	NTSC. 6.8 aud.
<u>Ap1A/134E</u>	4160/1050V	CETV	
	3980/1170V	CETV1	
	3900/1250V	CETV2	
<u>Ap1A/138E</u>	4160/990H	CCTV7	
<u>S7/140E</u>	3675/1475R	ORT Moscow	+/-4d. inclined
	3875/1275R	feeds, tests	
<u>LMAP2/142.5</u>	3675/1475L	occ. tests	+/- 3 deg inc.
<u>Gorizont 33</u>	3675/1475L	tests soon	+/- 1.2 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	

"Unusual" CA formats

PAS4/68.5E	3785/1365V	Discovery India	BMAC
	3860/1290H	ESPN India	BMAC
Ap2/76E	3960/1190H	HBO Asia	GI DigiCipher2
C2/113E	3930/1220H	Filip. Peo. Net	GI 1.5 MPEG
Ap1/138E	4100/1050V	ESPN	BMAC
PAS2/169E	4028/1122H	ABS/CBN	GI 1.5 MPEG

Horizon to Horizon ("H to H") Mounts

What are they?

An advertisement first appearing in SF for May offered "Horizon to Horizon Chain Drive adapters" for dishes. Several readers wrote to ask, "What is that???"

The antenna "mount" system determines its' ability to be moved through the sky, following the geostationary (satellite or Clarke Orbit Belt) located birds. Simple mounts (Az-EL) have mechanical azimuth (left/right, or east west) and elevation (up and down) adjustments. You find the satellite with the bolts finger tight (loose) and then tighten the bolts. The dish stays pointed at that one spot in the sky. Polar tracking mounts, which can still be Az-El in design, follow the satellite arc from side to side.

Once the elevation is properly determined, the azimuth will adjust itself as the dish is moved either by hand or with a motor drive.

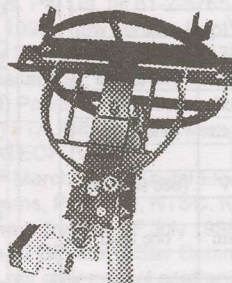
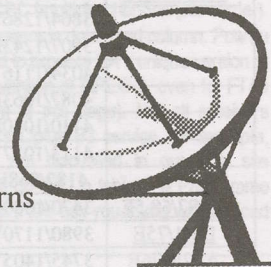
Motor drive mounts are very useful because from the comfort of the receiver, the antenna can be directed (and redirected) to any location along the Clarke Orbit Belt. But motor drives are typically "screw jack actuators" of varying lengths (6 through 36 inches); you select the length which corresponds to the size dish you wish to "move." The screw jack (linear) actuator has one major shortcoming - it installs to "the side" of the dish, and typically is shortest in length for satellites due north (or south) of you, and then "grows" longer as the actuator unwinds pushing the dish further east or west towards the ground and the lowest look angles. It is virtually impossible to use a linear screw jack to cover more than half of the Clarke Orbit Belt.

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- Positioners and Actuators
- LNB's, LNBF's and Feedhorns
- Full Range of Accessories



Horizon-Horizon Chain Drive Adaptor

- Suitable for KTI dishes:
(S, SI, XTI, & CKD)
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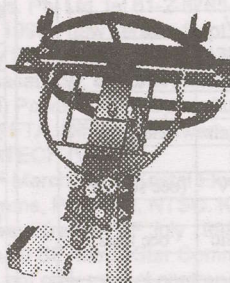
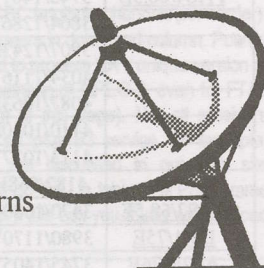
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WITH THE OBSERVERS

AT PRESS DEADLINE

It happens periodically, to promote new system sales (like a free preview weekend). SPACE TV on C2M, 4,000/1150Hz, Sr26.666, 3/4, and 3760/1390Hz is FTA at press deadline. Probably not when you read this - but chances are they will be again. Yup - "Hot Channel" as well. And - Zee bouquet As3 remains FTA but nobody expects this to continue.

ApStar 2/ 76E: "Unknown Indian service 3820/1330Vt, Sr 3.570, 3/4" (D. Leach, NSW).

AsiaSat 2/ 100.5E: Alpha Punjabi (3740Vt) and Alpha Gujarati (3900Vt) are gone in analogue, now only in Zee bouquet (As3, 3700/1450Vt, Sr 27.500, 3/4). CCTV4 FTA analogue still here (they said this would be shut down) on 3960/1190Hz.

AsiaSat 3R/ 105.5E: Alpha TV Bangla (4140Vt) and Alpha TV Marathi (3660Vt) have left FTA analogue; now only available within Zee bouquet on 3700/1450Vt. Nickelodeon on Zee bouquet ch 9 is unusual mixture of original American service and Indian modifications; they have been testing their CA system on this service, up to several hours at a time. Zee Cinema, ex-CA analogue is ch. 7, Alpha Kaveri (dialect) is 8. "CCTV bouquet exc. here, includes 3,4,7,9 and feeds on 4016/1134Hz, Sr 19.850, 3/4 - much easier than PAS-2 service" (D. Leach, NSW). "SABe TV 3742/1408Vt, Sr 3.300, 3/4" (D. Leach, NSW)

ChinaStar/ 87.5E: "P4 analogue test card 3880/1270Hz, audio 6.6, 6.8" (D. Leach., NSW)

Express 6/ moving: Was at 80E, now moving east to unannounced location; 103.5 seems possible.

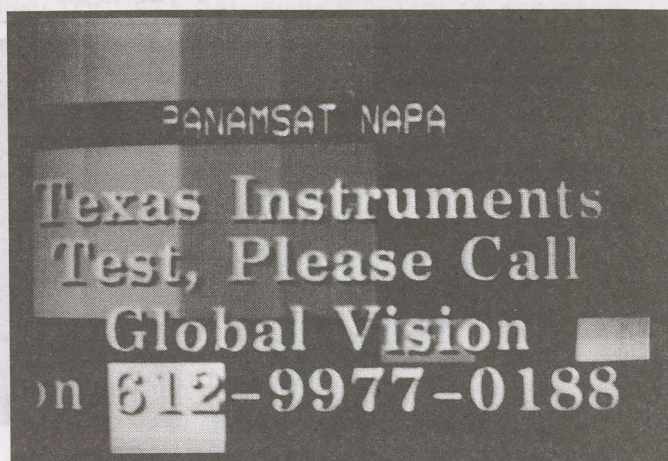
Express 6A/80E: "Signal down to P3 from near P5 while testing at 96.5E; RTR 3675/1475" (Zapara, WA). "Signal here better than at 96.5E" (D. Pemberton, NSW)

Gorizont 33/145E: Launched June 6 at 02:59UTC, reported alive and well and heading to geostationary position (originally announced as 145E but the Russians have a way of making changes and not announcing them!).

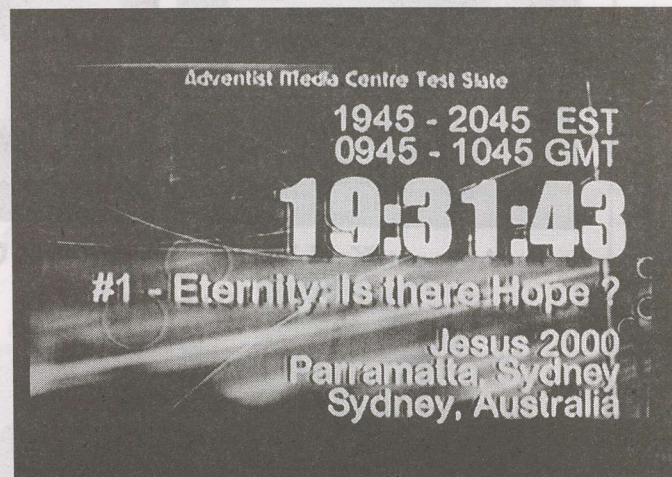
JcSat 3/128E: "Asian bouquet 3960/1190Vt, Sr 30.000, 7/8 difficult but possible on 4m, mostly NTSC for Taiwan" (D. Leach., NSW). Ed- Sky NZ has installed 10m SA dish for this service to feed new World TV Asian optional package.

JcSat 4/124E: "Testing seen 3795/1355Hz not repeated" (D. Leach, NSW)

Intelsat 701/180E: "11.060Vt, Sr 30.000, 3/4 TNTV, S2 beam; also, 11.168Vt, Sr 10.100, 3/4 Tele Fenua" (Grant Waldref, Tahiti). "Feed is originating in Los Angeles" (S. Holzt, New Caledonia). "Tests on 3m solid with authorised Canal + decoder shows I am right on edge, good evenings, poorer mornings" (Kosmalski, Auckland). "For Canal +, check <http://tv.kaori.nc>" (S. Holzt, New Caledonia) "What happened to March 1 promise of RFO New Caledonia in Canal + bouquet?" (D. Furrows, Qld. - They are still trying to work



Scheduled but not well announced "feeds" are a major part of hobbyist satellite viewing. TI seminar course (above), 7th Day Adventist service (below).



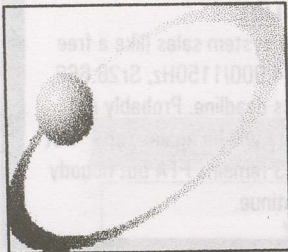
out way to get it from NC back to Paris for inclusion in bouquet - ed.)

1702/177E: Watch for new direct service to Austar from states, possibly 12.650Hz, shortly. "Fiji revolt feeds to KBS Korea, 4166 and 4187" (D. Leach., NSW)

Intelsat 802/174E: "Fiji feeds have been on 4166/984RHC, audio 6.6" (Peter Eade, NZ). "Also on 4187/963" (D. Leach, NSW).

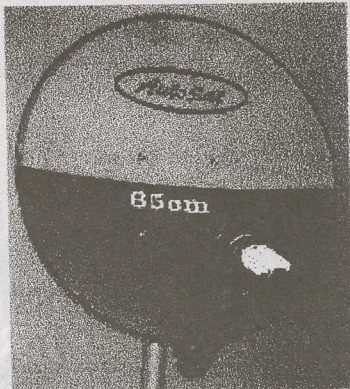
Optus B1/ 160E: "New Sky TV (NZ) line-up has 12.518Vt-7TV, 12.546Vt-7TV, 12.581Vt-6TV, 2 radio, 12.608Vt-6TV, 1 radio, 12.644Vt-9TV" (Whitehead, NZ).

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 July15th issue: July 5 by mail (use form appearing page 34), or 5PM NZT July 6th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

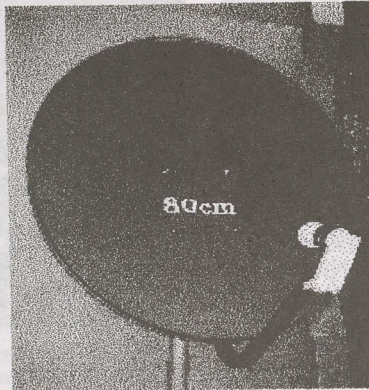


Autosat Australia Pty Ltd

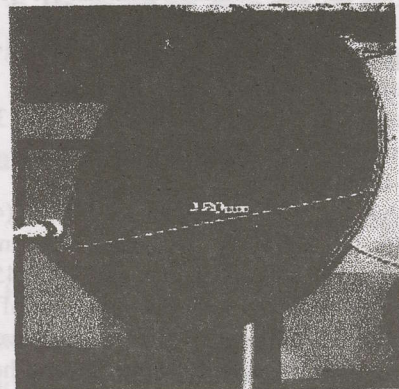
51 Cosgrove Road, Strathfield South NSW 2136 Australia
Tel: +61 2 9642 0266 Fax: +61 2 9642 8853
e-mail: mleu@rivernet.com.au; autosat@accsoft.com.au



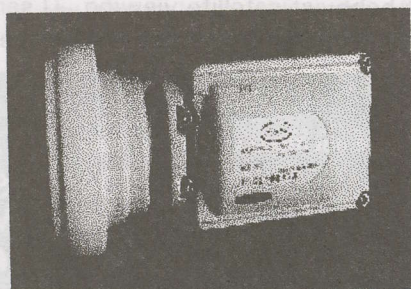
65cm Ku offset dish



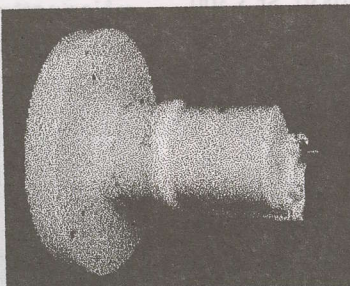
80cm Ku offset dish



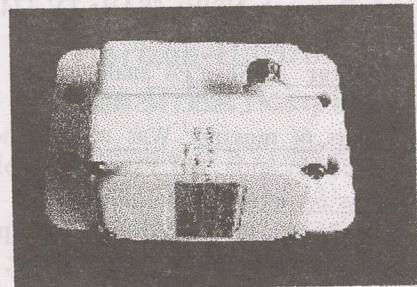
120/150/180cm Ku dishes



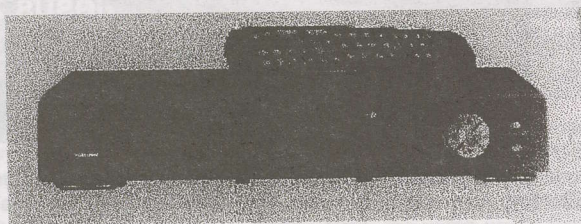
Autosat Ku LNB



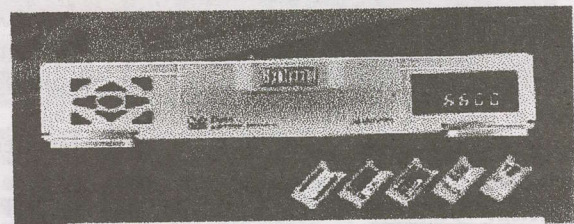
Autosat C LNB- dual



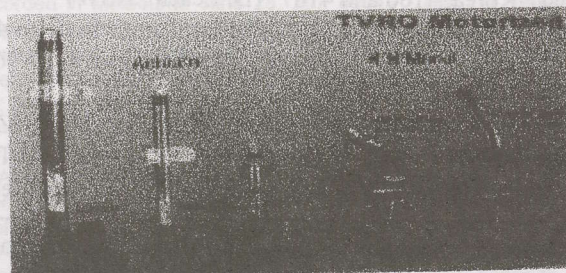
Autosat C LNB- single



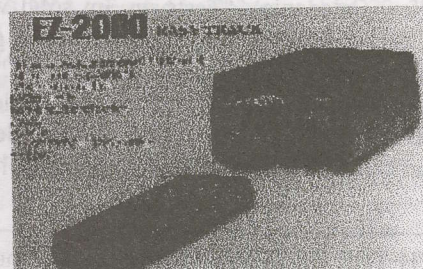
Logix Digital/CI receiver



Benjamin Digital/CI receiver



12"/18"/24"/36" heavy/regular actuator



Positioner

Autosat = quality* (product+service+price)

Ad-hoc feeds available to Australian viewers - Optus B1

Interest generated in non-scheduled feeds by our May issue report ("SPIN") and the currently running edition 9911 of SPACE Pacific Report (the one hour "SPIN" special) suggests a need for an updated list of where you can find feeds inside of Australia. Andrew Innes reporting from Queensland supplies the following.

Vertical of Optus B1/160E: (1) 12.257/957 - ABC NT feed digital 5.026, 3/4; (2) 12.306/1006 - unknown digital; (3) 12.455/1155 - Ten News Exchange FTA analogue PAL, audio 7.4, 7.8; (4) 12.480/1180 - Net10 main feed in E-PAL with intercom audio on 7.4 (*); (5) 12.704/1404 - SRS7 SNG3 FTA analogue PAL, audio 7.4, 7.58; (6) 12.728/1428 sometimes moving to 12.736/1436 - Net10 SA, audio 7.4, 7.58.

Horizontal of Optus B1/160E: (7) 12.350/1050 Central 7 feed digital 3.688, 3/4; (7A) 12.367/1067 News feeds, Imparja digital 5.424, 3/4; (8) 12.389/1089 - Net7 main feed E-PAL analogue, unused audio subs at 7.58, 7.7, 7.8 (*); (9) 12.420/1120 - Net7 "Telstra Sydney TOC" FTA PAL, audio 6.6; (10) 12.458/1158 - Net7 feeds FTA PAL, audio 6.6; (11) 12.487/1187 - Net9 main feed E-PAL analogue, unused audio subs at 7.4, 7.58, 8.03 (*); (12) 12.513/1213 - Optus Ad Hoc feeds, FTA PAL, data on 5.46, audio on 7.4, 7.58; (13) 12.536/1236 - unknown digital; (14) 12.572/1272 - unknown digital. * - Scheduled for conversion to digital before 1 September. Updates, additions to SatFACTS or e-mail skyking@clear.net.nz.

Palapa C2M/ 113E: "TPI does load here on 4m, 20 degree LNB, dual feed horn" (Simon Judge, Canberra). SCTV reported again active 4048/1102Vt, Sr 6.620, 3/4.

PAS-2/ 169E: 7th Day Adventist services to schedule (www.amcdiscovery.com.au or 61-2-9847 3394) typically 3872.5/1277.5Hz, Sr 6.620, 2/3. "Ad-hoc feeds 3812/1338Vt, Sr 6.620, 3/4" (B. Richards).

PAS8/ 166.5E: Troubled by TPG/ BoomerangTV assignments? Their install "Logistics Administrator" is at andreas@tpg.com.au or 02-9850-0943. BoomerangTV giving away 'free installs' through June 30th. Bloomberg is running on 3940/1210Hz, Sr 27.690, 7/8 along with EWTN et al. "Anyone know what IRD options I have for authorised MTV service here?" (brooks@krmrmail.kmr.ll.mit.edu)

Telekom 1/ 108E: "Divicom test 3580/1570Hz, Sr 8.000, 3/4" (D. Pemberton, NSW)

Thaicom 3/ 78E: Mega Cosmos, 3640/1510Vt, inside bouquet, has switched to Sr 25.517, 3/4! Alpha TV MPEG-2 3600/1550Hz bouquet gone, as well as ATN Bangla analogue 3576/1574Vt.

Errata: Nokia's new MA1.2 software is ONLY for European satellites!

DO YOU Live in Australia???

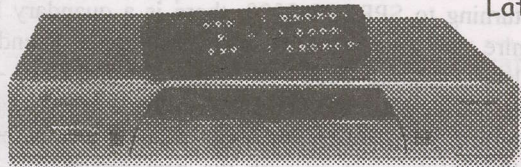
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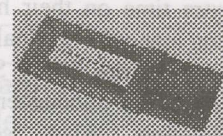
Hyundai HSS800ci/Strong SRT4800 digital ci satellite receiver

Latest Software model



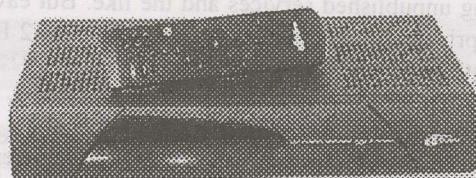
Irdeto CI module.

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



Works on Irdeto CA services, and FTA DVB, PowerVu, in both NTSC and PAL!

- ◆ 1300+ channels Video and Audio
- ◆ 2 x CI slots for 5 types of conditional access modules.
- ◆ Irdeto, Viacces, Conax, Cryptoworks and Nagravision.
- ◆ Conversion to PAL or NTSC at the output, menu selectable
- ◆ Editable channel name, satellite name and Video, Audio and PCR PIDs
- ◆ Works on Aurora and Astar (with CI module and authorised card) as well as FTA services from Apstar 2R, Thaicom 3, ST1, AsiaSat3, Palapa C2, Pas8, Pas2, and MediaSat on Optus B3
- ◆ MCPC-SCPC 2-45Ms/sec coverage
- ◆ Switchmode power supply 90-260VAC 50/60Hz
- ◆ RCA Video and Audio output sockets as well as SCART. Video available in Composite, RGB or Y/C
- ◆ **June Special \$A499each!** (+ tax)
Freight for each receiver Australia wide \$15ea
CI Irdeto module \$A150ea. Sold only with the receivers.



Nokia 9600s digital receiver

We have limited stock of this receiver with CI slot for cam. Will work on Irdeto services with CI cam and Authorised smartcard. Comes with SCSI port and FTA 2.3 software. Serial port upgradable. These are re-furbished units with 90 day warranty.

Cost \$A699 + Australian Sales Tax (22%) if applicable
\$A849 (+ tax) with Irdeto CI cam.

After June30 Australian GST of 10% replaces the Sales Tax and NO tax exemptions will apply, except for Export only.

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AT

Sign-off

A funny thing happened on the way to the show

SPRSCS 2000 - Melbourne June 29, 30 and July 1. We announced a special session for Saturday July 1st, "open only to those registered for the first two trade days," and labelled it as an opportunity to learn about software routines which the Nokia (9600, 9600S, 9800 et al) receivers will do, quite beyond the normal stuff you expect and find in their regular on screen menus. That produced some e-mail correspondence from two people in Australia, both of whom assumed something that was not true at the time of the announcement.

"I refer to your 'Naughty Nokia' mention in the current issue of SatFACTS" wrote one. "The author of the third party Nokia Mediamaster software (DVB2000) releases his software without documentation or support. This is quite simply because if you cannot operate this software and discover its many extra features unaided, on your own, quite possibly you should not be using it. I liken the Dr Overflow software and related utilities in the wrong hands to a twin turbo Toyota Supra at the mercy of a ten-year-old; not much good can result. As a legitimate paying subscriber for the Ihug Internet service, I am in a position where I would like to ask how you would feel about somebody demonstrating the method and possibility of viewing your PRIVATE Internet data, including electronic mail, with a Nokia Mediamaster terminal and the IPDVB2000 or related software, to an audience of people?"

IPDVB2000 is one of many software routines created by Europeans with extra time on their hands. Neither SPACE Pacific nor the young man who originally volunteered to show off "Naughty Nokia" routines during SPRSCS 2000 had any intention - at the time of our announcement - of including it in the Nokia presentation. What was planned included demonstrations of using the Nokia IRDs for spectrum analysis search, locating unpublished services and the like. But eavesdropping on "private" Internet e-mail through the PAS-2 Ihug service was not even remotely on our agenda.

"The bottom line," our correspondent continued, "is demonstrating this type of thing is morally wrong."

OK, so we have at least one Ihug subscriber who apparently uses the IPDVB2000 software to "check on the delivery of his own PAS-2 e-mail." Purely a scientific quest, we would guess. We went to an Ihug executive and discussed the situation.

"It is correct that presently our PAS-2 feeds are not encrypted. When we pioneered this service, the first in the Pacific to interconnect ISPs in this innovative way, encryption was non-existent. However, we are finishing up evaluation on several encryption routines and will be securing these feeds sometime soon."

By coincidence, two days after our discussion with the Ihug chap, company co-founder Nick Woods issued a statement reflecting on this matter through their own web site. Nick wrote, "The Internet is simply a loosely structured organisation of networks. At any point of interconnection of those networks, someone can look at the traffic and read your mail. We are concerned that satellite technology...is

particularly vulnerable to snoopers with sophisticated monitoring devices. We are aware of at least one individual who claims to be **illegally** viewing satellite data streams."

The point about "illegal viewing" is worth some thought. It was not that encryption was "not available" when Ihug fired up their PAS-2 service, but rather that the encryption then available was apparently not acceptable to Ihug - for whatever reason. Encryption does (1) slow down data transfer speeds, (2) sometimes raises the headroom required for receive systems (larger dishes needed), and (3) always adds costs. Satellite bandwidth costs money, satellite transmission power costs money. And besides, Ihug was first and the sheer challenge of the technology probably seemed like a decent anti-snooping system all by itself.

But "illegal?" Only if the law in the country of receipt (where the snoopers is located) specifically denies access to "free to air satellite interconnection services" to casual voyeurs. If Australia has such a law (indeed, if New Zealand does), our search failed to turn it up. So, *illegal?* Not as best we can determine.

But "morally wrong?" We have to give this point to our correspondent. E-mail on satellite can be likened to a personal piece of written hard copy correspondence left out on a desk of a businessman while he leaves the room and you are left there all alone. It is morally wrong to read the guy's mail. Unfortunately, not everyone - and this includes the Europeans who wrote the IPDVB2000 software which has only one function in life - leads a moral life.

IPDVB2000 software is freely distributed on "the net." Another correspondent suggested to us, "Now that the screws have been tightened on stealing Austar and Foxtel pay-TV, I am concerned that these same people who got their kicks out of busting pay-TV will turn to the Ihug feeds. The next step is for the Thoi.com site to set up a special section for Ihug busting!"

Returning to SPRSCS 2000, there is a quandary here. A quagmire. We take some pride in bringing to attendees the very latest, leading edge technology in our field - which happens to include delivering *all* categories of data streams via satellite. Some we have discussed this with suggest, "If it ain't illegal, then get on with the demonstration!" Another suggests, "It is currently free-to-air-Internet and as such it should be no more illegal to intercept than tuning in TV services such as CNBC." A third wrote, "Look - if Ihug was really concerned about interception, they would have done something about encryption two or three years ago. As the operator of the data stream, with paying customers who perhaps have been misled about the private nature of their personal e-mail transmissions, they and they alone are responsible for privacy. The post office guarantees you privacy in sealed letters, it is illegal to own a cell phone receiver in most countries to protect the privacy of the cell calls. Fax messages from most businesses routinely warn, 'If this is received by you and you are not the intended recipient, don't read it and let us know immediately.' As a voyeur of Ihug, I have yet to see any such warnings in their traffic!"

The young Australian who originally suggested the "Naughty Nokia" session is nonplussed by the furore. Will he show off intercepted Ihug traffic? "I had no interest in IPDVB2000 originally but after this feedback, well ... perhaps we'll ask for a raise of hands to determine this!" You can almost "hear" him smiling over the telephone.

THE 2000 SATELLITE EXPLOSION IN THE PACIFIC/ASIA!

RUSSIA - A revived satellite programme?

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OBSERVER REPORTING FORM - Due July 5, 2000

- NEW programming sources seen since June 1st: _____
- Changes (signal level, transponder, programming content) in pre-existing programming sources since June 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!

RETURN: SatFACTS, PO Box 330, Mangonui, Far North, NZ, fax 64-9-406-1083, Email Skyking@clear.net.nz

Installer Fun 'N Games

First - see insert card this issue, front side facing Paracclipse advertisement, top ("The Life of an installer of pay-TV in Australia"). **Now** - as thoughtful as these "citations" may be, directly from the pen of a Foxtel service manager, we think they might be done better. **Here's** the game. Immediately below we list the five installer "warnings" sent out by Foxtel and Comet.

On the bottom is room for a few of your own. Be creative, be original, be nasty! And send them off to us for possible publication in a future edition of SatFACTS!

FOXTEL SAID:

- #1) "The installer did not remove his dirty shoes - until asked";
- #2) "The installer wore his dirty coveralls into the house";
- #3) "The installer had his pants pockets hanging out";
- 4) "The installer arrived with his left shoe on his right foot, his right shoe on his left foot";
- 5) "The installer appeared at the door with his fly unzipped".

NOW - YOU SAY:

- 1) _____
- 2) _____
- 3) _____

Mail to: Foxtel BINGO, PO Box 330, Mangonui, Far North, New Zealand (fax 64-9-406-1083)

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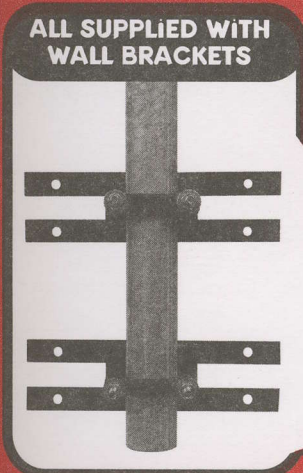
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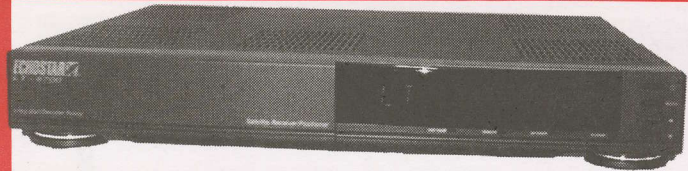
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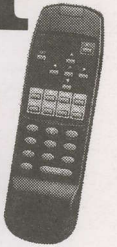
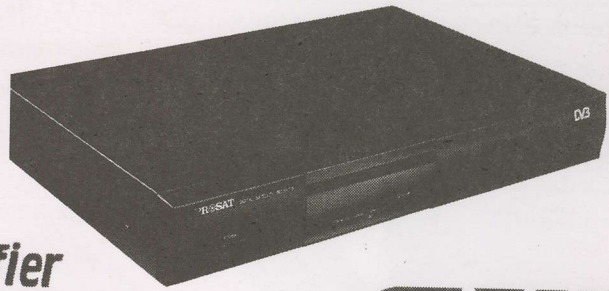
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 - 2.3m Quad Polar mount
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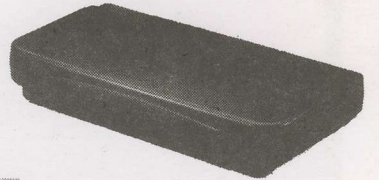


California  Amplifier

CYP

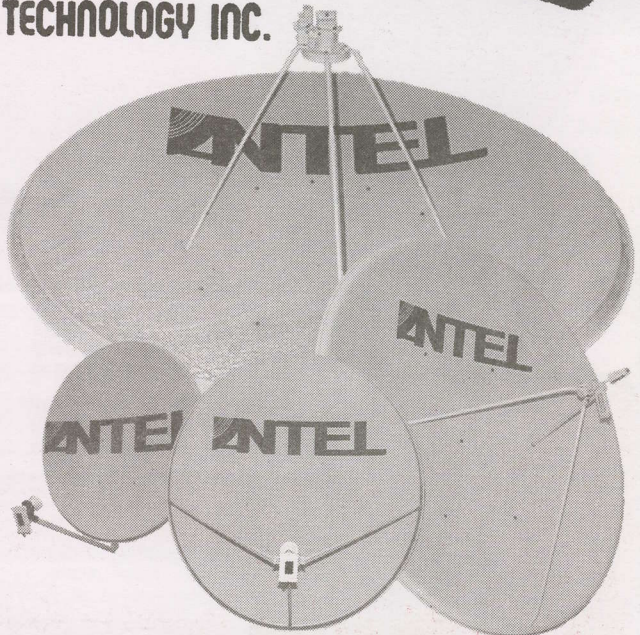
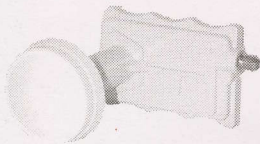


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