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Bob Cooper's

MAY 15 2000

SatFACTS

MONTHLY

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

IN THIS ISSUE

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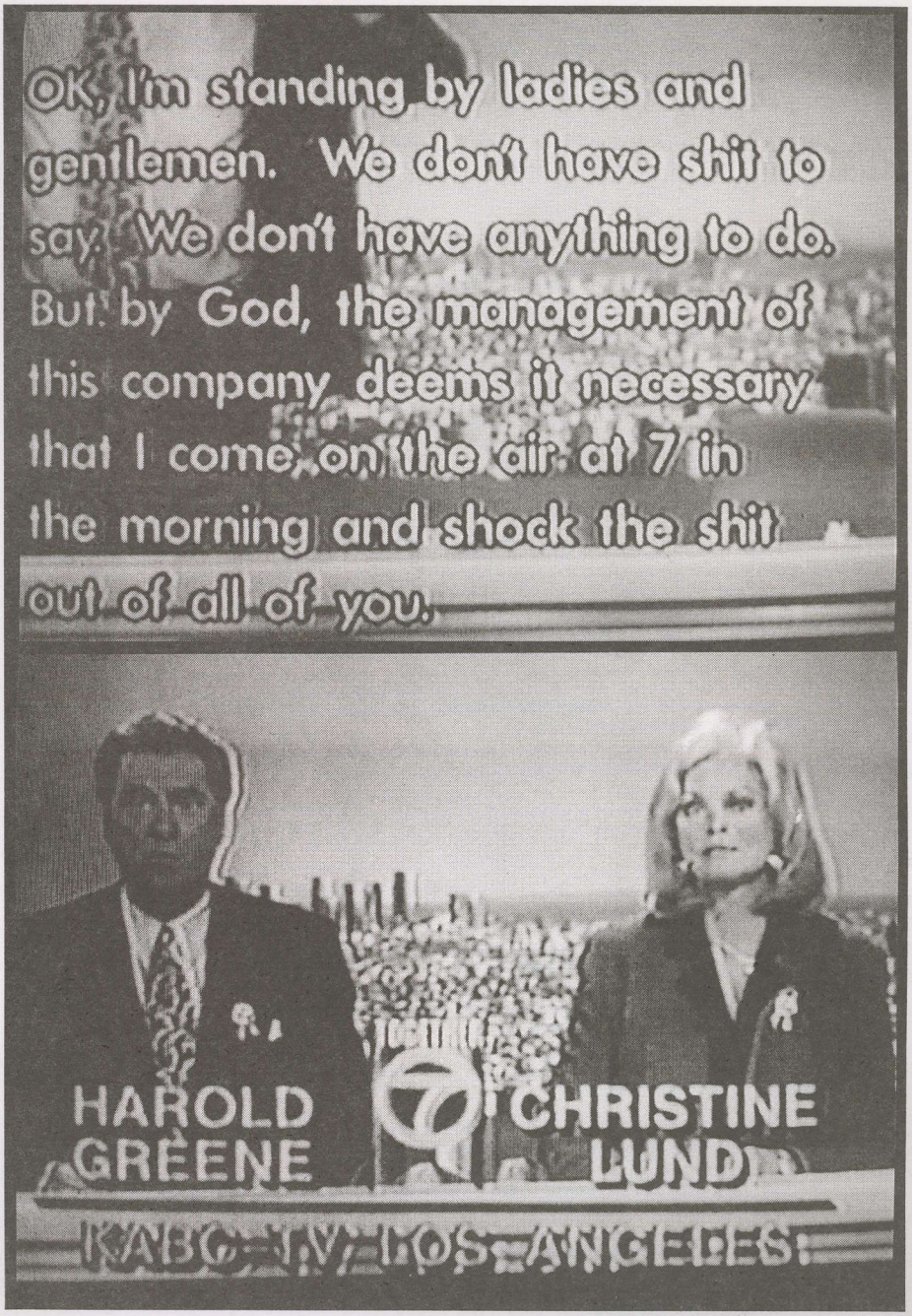

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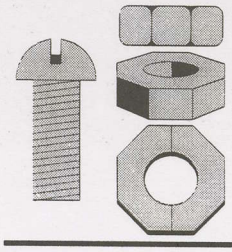

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- Antenna Antics
- Blackspot Babel
- Card Clowns
- IRD Indiscretions
- LNB Laziness
- Measurement Madness 1
- Measurement Madness 2
- Power supply Pitfalls
- Repair or Retire?

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ISSN 1174-0779

is published 12 times each year (on or about the 15th of each month) by Far North Cablevision, Ltd. This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no long define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install the appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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COOP'S COMMENT

May 15, 2000

A caller recently remarked, "*Pay TV pricing is being prostituted by TPG and others and the end result is viewers no longer believe the programming is worth very much - if anything at all.*"

TPG's Boomerang service gives away five channels of high quality pay-TV to anyone who agrees to send them $19.95 per month to become their Internet customer. It happens that A$19.95 monthly for unlimited use of Internet is a bargain all by itself, without the five channels of "free pay TV."

One of the five, ESPN, recently made the home-base American cable TV operators see red when it announced the per month (per home) fee for ESPN was climbing to US$1.10 this August. ESPN charges to cable companies have nearly doubled in five years (ESPN is owned by Disney, should you care about such things; Disney also owns the US ABC or American Broadcasting Network).

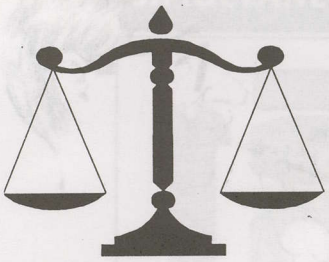
As a cable operator in NZ, I can tell you that US$1 per month is very similar to what I pay per subscriber for CNN and again for TCM/Cartoons. I *used* to pay a similar amount for Discovery.

Used to pay because earlier this year Discovery sent me a new contract demanding an annual fee of US$10,000. That works out to US$833 a month which if I had 833 paying customers would still be US$1 a month. But I don't - 200 would make me grin from ear to ear (and I am not grinning). So Discovery really wants me to pay more than US $4 per month per cable subscriber. I have spent far too much time trying to work this out with their Singapore office and they stubbornly refuse to appreciate that I was their *very first* cable TV affiliate in the Pacific.

Discovery charges US military base cable systems less than US 70 cents per month and many of these "systems" have 200 or fewer "subscribers." So I know they have lower rates for smaller systems. Perhaps I should rename our company "Camp Coopers Beach US Army Base."

Boomerang's "free TV" is of course not free - to TPG. For the programming, I calculate they are paying no less than US$4.50 per month per Boomerang customer - Australian $7.00 or so. Then there is the PanAmSat PAS-8 Ku transponder - a tidy US$3.5 million per year. And the uplinking fees from PanAmSat's Napa facility. If we assume they break every record in the book and attract 100,000 new Internet clients with this promotion, that works out to US$3.75 per month per Boomerang home for transponder and uplinking. Add $4.50 for programming and $3.75 for the satellite and you have US$8.25 (Australian $13.00) TPG is paying out just to give away "free pay-TV" to Australians subscribing to their $19.95 Internet service. And that leaves TPG with A$6.95 per month to pay all of the costs of a user's unlimited Internet usage. If they attract "only" 50,000 new clients to TPG with the promotion, the cost for the "free TV" rockets to US$12 per customer per month. And if only 10,000 new clients - US$23.25 per month overhead for the "free TV." It is very difficult to show a profit when you collect Australia $19.95 for something that costs you US$23.25 just for the "free-extra-bonus" premium you give away. The scary part of this is the people who made the "free pay-TV" decision at TPG are highly paid and we suspect well educated.

So is pay-TV being prostituted here? By definition, "a misuse of one's talents or skills for money" is prostitution. It is difficult to see where the money is coming from in this instance, but we can all quickly see where it is *going*!



LETTERS

More IRDs please!

"I read with great pleasure your work and comments about the technical universe affecting satellite reception. In Tahiti, with Tahiti Video Media, I install C-band TVROs for hotels and others. SatFACTS has been reviewing typically one new IRD each month but since December (1999), no more reviews. How come? I am particularly interested in the sensitivity of receivers. Tahiti, geographically quite far from other areas of importance in the Pacific Ocean, is always struggling with 'distant' satellites. My spectrum analyser shows more SCPC and MCPC carriers than the excellent Digital Watch in SatFACTS lists. Is there a receiver out there which will locate and lock onto these signals even if we know nothing about the frequency, symbol rate and FEC?"

Francois Bauer, Satel Conseils, Tahiti

No new IRDs tested since December - because there have been none for several months., However, the new single chip MediaStar 7.5 will be reviewed in June and a new Phoenix is in the pipeline as well. Both will be seen as well at SPRSCS 2000. As for a receiver that can locate any service without being told anything other than the lowest and highest frequencies to search, contact reader Jeff Bannister in WA (Email jsat@iinet.net.au) for a Korean product he recently tested. Oh yes - many (most) of the SCPC/MCPC looking carriers you see on your spectrum analyser are not TV at all but data (such as Internet). We only list TV programmers in our tables.

April issue comments

"D. Leach's question whether RCTI is in fact available on Palapa C2, vertical arrives at the wrong conclusion. RCTI is on vertical but the service is far weaker than their Hz SCPC. Starr Moffatt's letter concerning audio problems with the Pacific Satellite 2000. The manufacturer advises the receiver cannot be 'put right' with a software download and they suggest exchanging the IRD for a newer model that does not have this problem. Moffatt was lucky - many of these IRDs have a host of audio problems, not merely with Arirang! And some thoughts about Zee TV. I try not to get excited about something that will have a very short FTA life. My suggestion is the various Indonesian channels with excellent English language films are far more likely to be 'there' for the long haul and the newer ST1 Korean channels as well."

D.M., Bangkok, Thailand

While we are updating April reports, the Malaysian TV3 service on Measat 1 is encrypted and requires an NTL decoder to receive. D. Leach reported in "receivable" in NSW - to which we add yes, but not viewable.

PROGRAMMER PROGRAMMING PROMOTION UPDATE

May 15, 2000

VIN-TV is most recent "would-like-to-be" programming provider for Indian viewers in Australia and NZ. Firm has Sydney office, claims to have negotiated "exclusive" deal with Star Asia Philippines office's David Llogan to receive Star Plus and Star News India, and then repackage it for Ku-band distribution on an unnamed satellite serving NZ and Australia. There are only two choices - Optus Aurora 12.532Vt and Mediasat 12.336Vt - no other transponder covers both countries. Literature claims "May-June" start but SF cannot locate anyone at Optus nor Mediasat who has heard from these guys. Participants in marketing effort include owners of **Vin**ayak Spice Shops (5 in Sydney area) who also deal in Indian videos, two promoters in NZ and a "satellite professional" from Australia. They are asking customers to sign contract for installation + service at fees varying between A$999 and $1,499 using spice shops as marketing outlets. SF understands their Star Asia "copyright cleared" package of programming amounts to an average of 8 hours a day, leaving 16 hours unfilled. They are claiming as many as 2,000 customer "contracts" have been signed. This one needs to be watched carefully - verrry carefully.

Sky NZ has had two subtle changes in policy. First, it is now possible to rent a decoder ($17.29 per month) to receive FTA services TV3, TV4, Trackside and Prime TV (+ promotional channels Mosaic, Sky Box Office Events). TV3 is on Sky 33, TV4 on 34 while 31 and 32 are not currently used - leading to speculation the two are reserved for possible future use by TV1 (31) and TV2 (32). Next, Sky will in June sublease 1/2 of a transponder to World Television Ltd, planning to bring up six "Asian" services including four Chinese, one Japanese and one Korea. This amounts to 1/6th of the total transponder capacity for Sky - leading to further speculation that heavy-duty pay-per-view movie and sports have been pushed to a back burner. Sky was claiming nearly 130,000 digital subscribers on 1 May, 10% of all New Zealand households.

TPG's Boomerang launched marketing effort April 22 with radio advertisements in Melbourne, followed by full page Sydney Morning Herald advert. Installations were to begin May 1 with installers typically getting +/- $75 per install. Basically, they are trying to build their Internet client base by offering no-monthly-charge 5-channel satellite TV when you sign-on to be a $19.95 unlimited use Internet client (higher fees outside of specified districts). Satellite package is being sold in region of $400, plus installation; service includes CNN, CNNfn, TCM/Cartoons, Animal Planet and ESPN. One or two optional pay channels (including movies) are promised as well. TPG uplinks the 5 pay-TV channels directly from USA to PAS-8 (12.725Hz). Internet service providers are now locked in serious competition to expand their client bases - competitor Eisa.com will shortly announce new DVD player and Internet access dual purpose set-top-box which will sell for A$99 to those agreeing to be their Internet customer at $23.95 (for 24 months).

TARBS founder Mike Boulos remains out of Australia and "unreachable" after Australian Tax Authority agents raided his Sydney office hauling away boxes of financial records. TARBS has been poorly promoted since launching, *may have* 15,000 subscribers, and their revenue versus known transponder rental and programming royalty expenses simply "*do not add up*." ATA suggests there are unresolved matters relating to possible tax fraud. There are other questions as well - relating to several tens of thousands of Pace DGT-400 IRDs reportedly held in Boulos warehouses as "security" on behalf of Galaxy when that pay-TV company failed. Suspicious "private sale" of ex-Galaxy IRDs in the grey market may trace to TARBS.

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Crazy Professor unearthed

"Read with interest your report on how Taylor Howard from USA came to Australia in early 80s to 'show us' how to build low-cost TVRO systems. Digging, I found an article (Satellite Television for the Outback) in Electronics Australia for August 1981. It seems to verify your report with the added note that Hills Industries was involved in manufacturing these C-band systems which they sold for $7000-$7500 each."

Al, Queensland

The EA two-page article reported a Perth-based firm, Microwave Systems Pty Ltd., was licensed by Professor Howard for the "low cost ground station" technology. A 5 metre square curved (spherical) reflector captured the C-band energy, redirecting it to a ground mounted flared horn attached to an LNA (low noise amplifier) and then a block down converter. ABC television, relayed by Intelsat IV, was received and distributed to viewers. The first Hills Telesat installation went in at the Uluru Motel (Ayers Rock). Additional installations were planned at the time for Moomba (SA) at a site operated by Santos Ltd (energy company) in northern SA. Two ABC feeds were carried (one for WA, one for eastern). A footprint map with the report appears to us to be in error, showing a tear drop shaped pattern running NE-SW. Hill's "guaranteed clear reception when the system was used in prime reception areas." More likely, for political reasons, Hills doctored the footprint map to favour the central portion of Australia cutting off all of the edges including all of NSW. The 1985 published World Satellite Handbook (by Mark Long) shows Intelsat IVA F3 at 179E carrying Australia's ABC twin feeds with Brisbane's ABQ-2 on 3885 RHC and Perth's ABW-2 on 3975 RHC with more than 26 dBw over all of Australia. The same satellite with similar service levels was also carrying CNN and NBC Los Angeles in a multiplex (two for one) format, CBS and ABC and AFRTS. Given that the terminals would have been able to receive the USA multiplex or AFRTS services with the same quality as ABC, one can quickly see why ABC felt "threatened" by the growth of these Hills terminals (we couldn't have these outback folks watching non-Australian television, now - could we!).

Sky NZ expansion

"Guess it was inevitable they would add Asian channels to their bouquet but that just about seals the fate for C-band 3m dishes in this country."

Stu McLeod, Napier, NZ

Perhaps but many people will balk at the monthly fees and in the case of Chinese very much reduced programming available. NHK offers two (including one premium) and Korea has another FTA in addition to Arirang, now. Selling a China born viewer a 3m dish may hinge on availability of one or more Mandarin (or Cantonese) language channels but the 'other 200' available services still make C-band dish systems unique and a worthwhile investment.

Not in Samoa

"We are interested in having satellite TV from Western Samoa; there is one government run TV service. Can you help?"

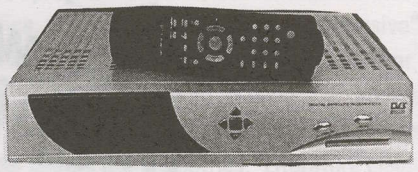
Anne Willis, CJ Exports & Imports Ltd

Samoa is the "black hole" of satellite coverage for the Pacific requiring at least a 4m dish.

HARDWARE EQUIPMENT PARTS UPDATE

May 15, 2000

MediaStar D7.5 is new single chip FTA IRD from MediaStar Communications (Opac). The IRD is fast and impressive - we'll have a technical evaluation in June 15th issue.



Blackspot progress. Space Member Brian Watson (Tasmania) late in April visited in Canberra with the ABA people processing the Blackspot applications. As of the visit, Richard Longman of the ABA reported 140 approved applications, "around 1,800" pending. Watson's firm (Western Video Pty Ltd) is a major source in Tasmania for Aurora systems and many of his customers have previously been denied access to Imparja or Central 7 because they live inside of "predicted coverage regions" for terrestrial broadcasters. "*A very large percentage of the applications are defective*" Longman told Watson. "*Among the more common mistakes - dealers who obviously do not know how to read a signal level meter. Example - a 10 volt signal is definitely NOT PQ1.*" It is nothing to be ashamed about - not understanding microvolts, dBuV scales can be corrected. "*Statutory declarations are not optional - they are mandatory*" was another common mistake that sent applications to the "don't do anything" file. Watson adds, "*The ABA wants to see realistic numbers and accuracy. When somebody makes up numbers or errs with their facts, I was shown how quickly the mistake jumps out in the computer processing program.*" SPACE Pacific has invited Longman or a representative of the ABA to appear in a question and answer session at SPRSCS 2000 (Melbourne, June 29-30) and Watson has agreed to lead a SPRSCS 2000 panel discussion to assist dealers in properly completing the ABA requirements. Additionally, a session illustrating the principals of proper signal level meter reading is also scheduled. There is one unpleasant item to report: Prime TV (Network 10) has been sending field engineers out to check on the locations of applications which impinge on their predicted coverage contours - they are not simply rolling over on this one.

Sky NZ is refusing to install digital satellite customers who do not allow a telephone line extension to be connected to their IRD. "*There are NO acceptable excuses - if the cable has to go room to room along floor boards, if the customer has poor Telecom service and 'dodgy' Internet or simply does not want the IRD connected*" - installers are being told "*take a walk*" and advise the wanna-be satellite customer to take it up with Sky management. If installer gives in and does job anyhow, his installation pay from Sky is cut in half and he receives a "stern warning." This is putting pressure on Sky installers and some have been cutting into telephone cable at building entry to gain access to lines, reducing quality of telephone service. Telecom says they are now charging satellite customer for repairs to such poor workmanship and Sky says it will pass such bills on to the installer to pay. One unsolved problem: Increasing switch over from landline telephones to cell phones by rural customers - it is "difficult" to hardwire the IRD into a cell phone!

California Amplifier (CalAmp) has settled US$100 million lawsuit for US$11 million by agreeing to pay cash and issue new stock shares to disgruntled stockholders.

Cine Cinema in Canal + bouquet (I701, 180E) finally CA after delighting many with hard core triple X rated flicks around 11PM Sydney time.

A different approach to selling TVRO

GETTING INSIDE THE MIND & HEART
of very private people

Routine business

The year is 1992 and in America, a very close political race is shaping up between incumbent George Bush and challenger William Jefferson Clinton. Television will play a major, some believe decisive, role in determining which will be elected.

Clinton's Vice Presidential running mate, Senator Albert Gore from the state of Tennessee, is no stranger to the telecommunications world. A frequent and vocal supporter of Internet, and in 1981, Senator Gore threw his political support behind the then new C-band home DTH (direct to home) industry, calling for "mandatory programmer access for home satellite viewers."

Clinton's home state of Arkansas had from 1980 been a centre for home satellite equipment manufacture. Arkansas-made became the twin brother of "made in Japan" in an era when Japanese products were not well respected. Arkansas built more (early design) analogue receivers, satellite antennas, dish mounts and feeds than virtually the entire balance of the USA during the period 1980-1985. Candidate Clinton drew deeply from the Arkansas satellite reservoir of experience for his campaign against President Bush.

Clinton and Gore were children of the television generation. They had grown up in homes that already had TV when they were born and unlike Bush, could not recall a day without "the tube." Bush, following in the footsteps of Ronald Reagan, saw television as a mechanical tool to be used with great care. Clinton and Gore saw it as a means of running circles around Bush.

By 1992, virtually every television broadcast station in the US and Canada (more than 1,600) had their own functional uplink - the ability to go back to satellite to send programming into all of North America and the world. Add to that the nearly 400 operating C (and Ku) band mobile vans capable of coupling from any spot on the ground back to the multitude of satellites and you had instant TV coverage from anyplace at anytime.

In 1992, there were around 2,500,000 C-band home dish systems in the US and Canada. A high percentage (better than 50%) were motor drive equipped, and a skilled user could locate any of more than 20 satellites in the sky and then tune through the up to 24 (analogue) TV channels available at each satellite location.

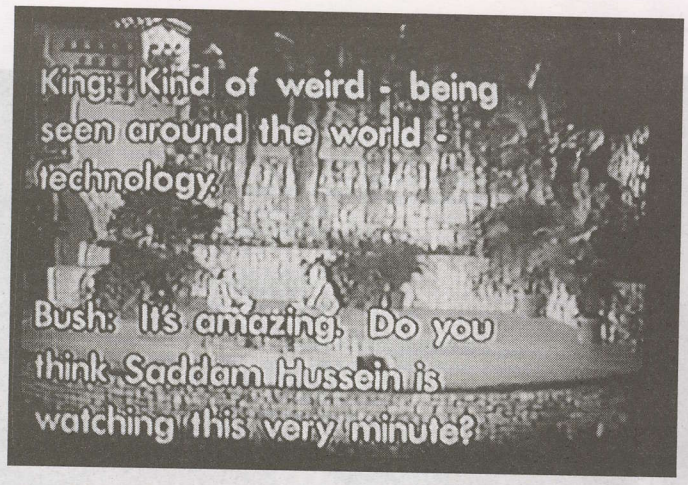
"SPIN" - the TV documentary produced after years of collecting "satellite feeds" illustrates how news departments and politicians routinely "spin" or twist the facts to suit their own agendas.

"Clinton Campaign Headquarters" (Little Rock, Arkansas) bristled with satellite dishes. A volunteer staff of Arkansas bred and educated satellite professionals manned the controls 24 hours a day, picking off "satellite feeds" that might contain information helpful to the Clinton/Gore campaign.

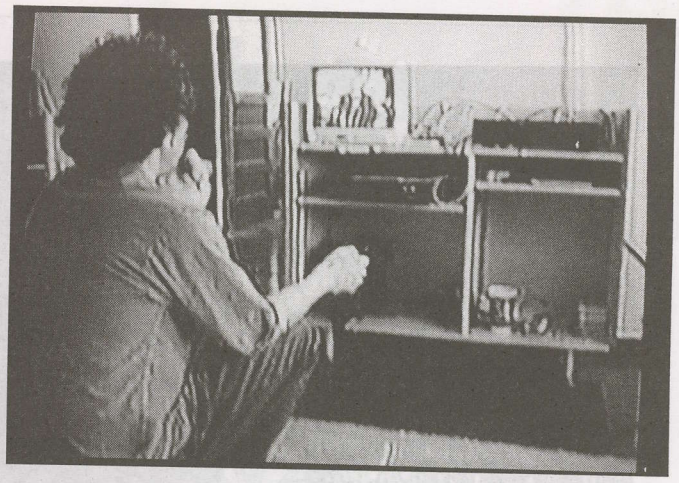
A special team operating in a locked room with access limited was responsible for "following President Bush around" from TV feed to TV feed, radio link to radio link. Bush would learn only after being defeated that his every move and most of his telecommunication contacts with his own staff had been "taken down" off of satellite in Little Rock, analysed and electronically filed for use by Clinton's top campaign advisors. What Clinton's people did from the moment he won the Democratic nomination was to "get inside of the Bush camp, electronically," which pretty much guaranteed Clinton

Where to find itinerant feeds

They move around from day to day, hour to hour. What you probably don't want are the edited "ready to broadcast" feeds found on services such as APTV. These have already been "homogenised" for instant air use and you will seldom find any unrehearsed material here. It is when the news folks get in a hurry, and are trying to beat a deadline or the competition to the story that you see the unusual, unstructured material. A man or woman standing in front of a camera, live, preparing to do a "live link" is when the really good stuff is seen. The "FLASH" warning on APTV is an indication that a major news story, perhaps not yet edited for air use, is on the way.



President George Bush on stage 3 minutes before 90 minute "Larry King Special" is to begin. The cameras are on, and so too the microphones.



The "special" is from Washington, and is being back-fed to Atlanta via satellite. Near Buffalo, New York, Brian Springer has his tape machines rolling.

there would very few "Bush surprises." In this campaign, forewarned was to be forearmed.

Little Rock was not the only place watching the campaign feeds. Near Buffalo in western New York, a satellite enthusiast had been watching, recording and learning the tricks associated with being several jumps (and many hours) ahead of the network newscasts. In Brian Springer's opinion, the most interesting portions of the satellite feeds occurred *before* and *after* the "official" telecasts. And on occasion, within a telecast while shows like Larry King "broke" from their programme content to allow local stations to insert commercials.

Anyone who has watched on-the-spot news feeds knows the routine. A reporter stands in front of the camera and babbles while technicians set up the video and transmission equipment. Sometimes they are funny, more often what is said is meaningless and not memorable. But when Candidate Clinton or Bush were hanging out before an official transmission, *everything said* was important. Their unrehearsed ad-libs were quite often a better measurement of the depth of the man (or woman) than those carefully rehearsed lines they utter when they know the transmission is "live."

Springer started his video recording the instant the equipment was operating, sometimes minutes, occasionally hours before the "official" telecast. As CNN's Larry King moved around the United States to conduct his show, the "raw" remote feeds were transmitted back to Atlanta where CNN doctored them for on-air presentation. Springer tuned in the raw feeds and recorded what he saw and heard. He wasn't alone, of course; Little Rock was usually doing the same thing for the Clinton team's analysis.

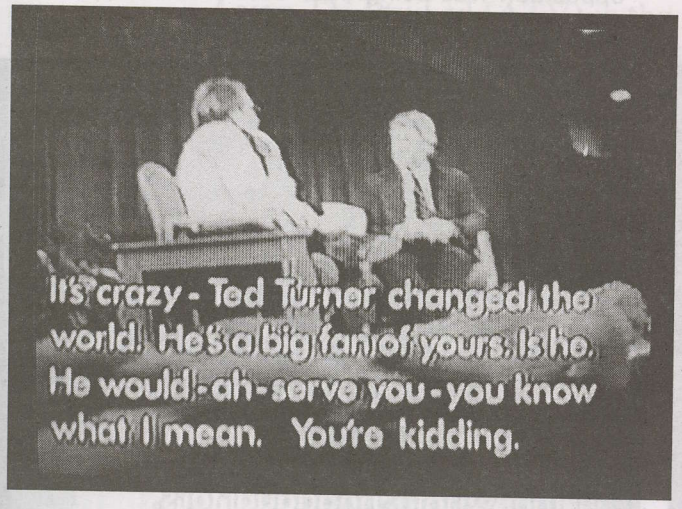
But Springer's tapes were universal, covering the most mundane political candidates, from the truly unusual locations. Within the first two months, he had more than 500 hours. Clinton's team would bury their tapes internally; Springer had another plan.

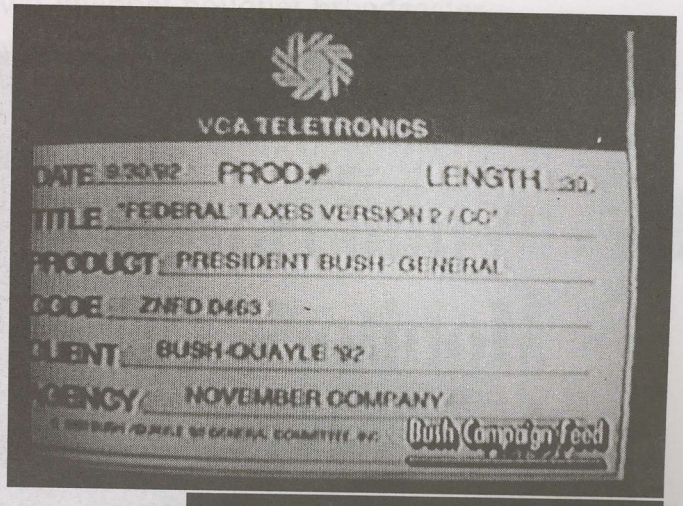
"SPIN" is a one hour documentary television programme funded by public interest groups. Like "TV Bloopers" of commercial fame, "SPIN" documents the dark and the usually hidden side of some of America's most important political figures from 1992 through 1996. And it does so by using the politician's own, they thought guarded and private, statements uttered when they believed they were "*off the air*."

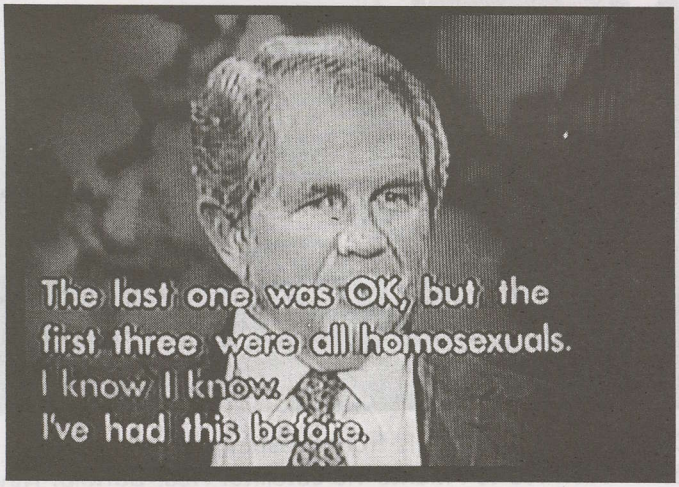
You don't have to be an American, or political junkie to become totally absorbed in this "hang them with their own words" portrayal. President Bush's medical problems, Larry King's ego, Clinton's John F. Kennedy characterisations, GOP

Another night, another show for King, here making off-air small talk with candidate Bill Clinton. Larry King showered "off-air" praise on both candidates as "SPIN" so clearly relates.

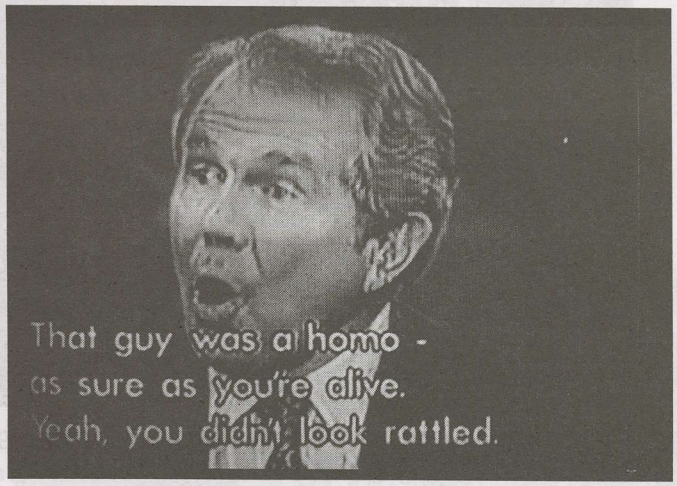
Bush campaign commercials intercepted by Clinton forces before they hit the air handed the Democrats an opportunity to "answer" TV commercials prior to being aired by Republicans.







During the primary elections, candidate Pat Robertson was bombarded by calls from people he identified, off-air, as homosexuals. Robertson's Christian Coalition openly attacked gays.



What Robertson - who was owner of CBN, a major satellite network - never realised was that just because he was "*off the network*" did *not* mean he was "*off the air*."

candidate Pat Robertson's homophobia all stand out with no need for dramatic emphasis by programme producer Springer.

The amazing realisation is that one man armed with a home satellite dish and a modest level of videotaping equipment got inside the inner most workings of the world's most powerful political machines. In the states they call these satellite transmissions "wild card feeds" or "unscheduled news feeds." What this translates to is an opportunity - if you have the right equipment, the bird dog instincts of a news junkie, and the time to scan the skies looking for those telltale signs that something unscheduled and unrehearsed is about to appear on a transponder you can receive.

Springer's "SPIN" has become a cult hour in America because is strips away all of the pretence and phoniness of the American political system revealing it for what it really is. Viewers learn more about Bush, Clinton, Gore and many more whom you have never heard about, from SPIN, than you will ever learn by watching the "news clips" and "sound bites" which services such as CNN so carefully manipulate before putting them to air. Personalities such as Larry King are stripped bare by Springer and hung by their own words so convincingly you will never view these "stars" again with anything approaching admiration.

Anyone with a satellite dish and a tape machine can create their own "SPIN." But don't be in a hurry - Springer spent five years assembling the material in this hour. This warning - before you start. Careful attention to having the right equipment to produce high quality S-VHS (or digital) tapes from the feeds is highly recommended - further, future, use of the raw tapes you stockpile will involve editing which means normal VHS tapes are usually not adequate for multiple generation editing dubs. Of course knowing where and when unedited, raw feeds are transmitted is also a major assist.

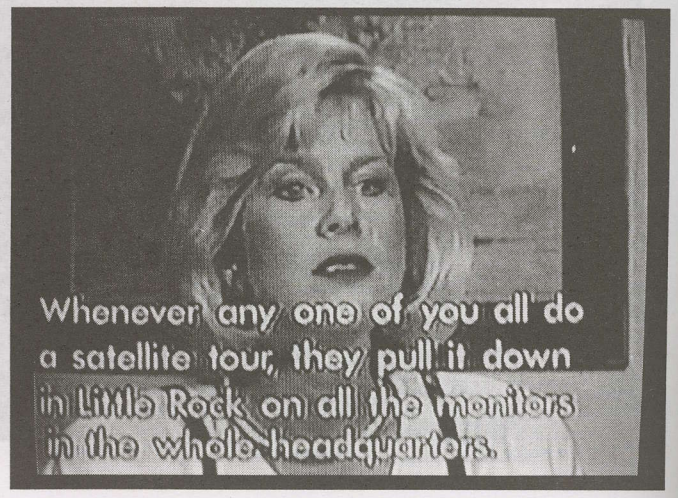
By arrangement with Brian Springer, SPACE Pacific Reports is airing the full one hour SPIN on two dates during June. Attendees at SPRSCS 2000 in Melbourne will also have an opportunity (Saturday, July 1) to view the show.

"SPIN" schedule on SPR

Mediasat (Optus B3, 12.336Vt, Sr 30.000, 3/4) Sunday June 4 and 18 at 2PM NZT, 12n (A)EST, 10AM (A)WST.

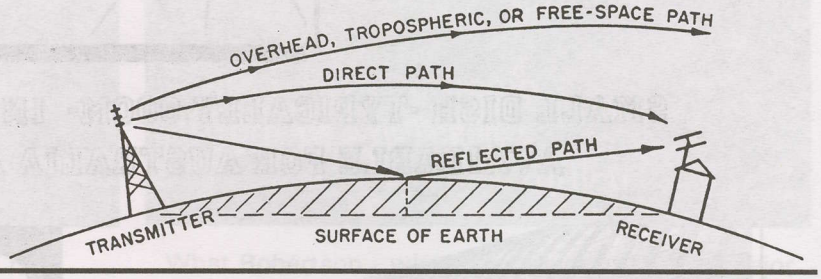
Because most evening news segments are shot in the field and satellited to network headquarters prior to news time, politicians have learned to respond to what will be said about them in the news even before it is said!

Possible next first lady Tipper Gore is told how Clinton HQ in Little Rock (Arkansas) used monitoring of satellite feeds to learn what the opposition was doing. Ms. Gore was visibly shaken to learn, "thousands are watching you - *now*."



Part three of a series

How Terrestrial Signal Propagation affects reception performance



A basic comprehension of how VHF and UHF signals propagate (flow from transmitter to receiver location) is essential to becoming a skilled terrestrial aerial installer. Understanding this will in turn allow a more educated appraisal of receiving antennas. Every antenna that is more complex than a simplistic "dipole" (SF#68, p. 12) has its own distinctive operating characteristics and no two designs are totally alike. The trick is to identify the one antenna design most capable of extracting energy from the passing wavefront(s) at the particular location in question.

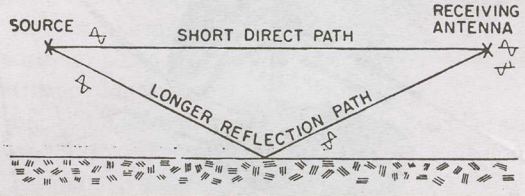
Experience to date with DVB-T (digital terrestrial broadcast TV) indicates strongly that aerial selection will be extremely critical. The science of proper aerial selection and installation has been raised several plateaux with the introduction of terrestrial digital transmissions.

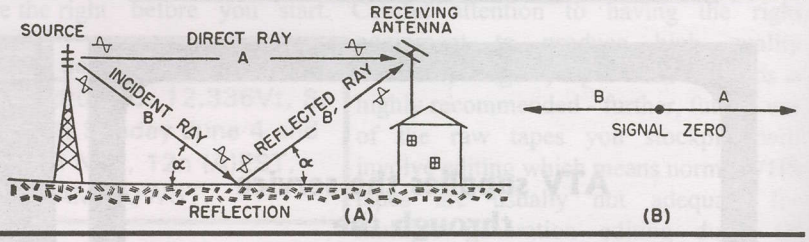
A TV transmitter attempts to place all of the radiated energy in a horizontal line which begins at the centre of the transmitting antenna array and ends at the visual horizon. Not all transmitting antennas have this as an objective; short-wave antennas, for example, attempt to concentrate the radiated power above the horizon by as much as 45 degrees simply because the distant receiver they are trying to reach is at the other end of a "skip" through the ionosphere (this issue, p. 22).

As the diagram upper right shows, radiated energy typically arrives at the receiving antenna by following two or more distinctly different routes. There is a "direct path" which approximates "visual line of sight" between the transmitter and the receiver, a reflected path which arrives at the receiving antenna after bouncing off of the earth in between the two points and a normally useless "free space path" which consists of the transmitted energy which is wasted by being too high above the visual horizon to be intercepted by anything approach a normal receiving antenna height.

The direct path is the "clean" one, while the reflected path (middle diagram, right) is typically "distorted" by the earth between the two points. If the reflected signal is "in phase" with the direct path, the signal strength can be as much as 6 dB stronger than with the direct path alone. More often, the reflected path is somewhat out of phase (does not have the same "timing" in transmit as the direct path) and there is signal loss when the two join up at the receiving antenna.

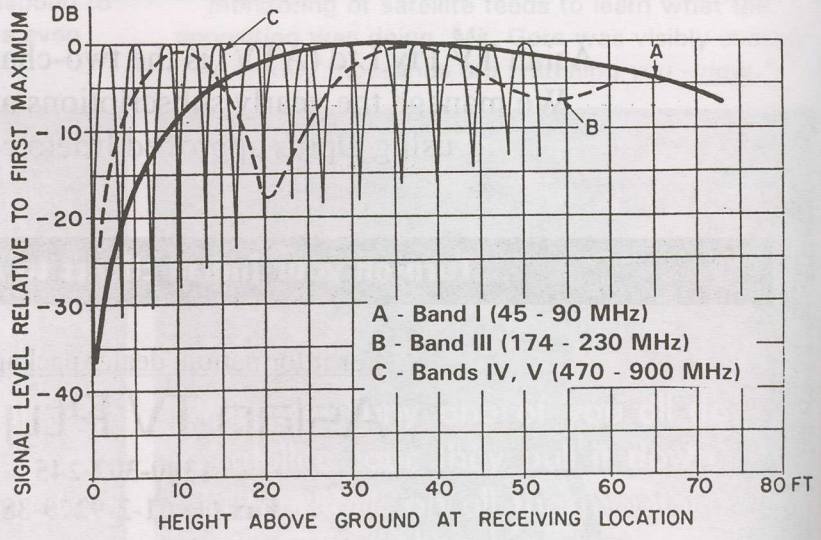
If you begin by testing a receiving antenna while it is laying on the ground, and then carefully and methodically raise the antenna above ground you will see the signal levels increase as the height increases. *But there is a warning here.* As the diagram at the bottom of this page indicates, the signal level change as the height increases is a function of the





frequency of the received signal. Band I signals (solid black line) gradually become stronger to a height of 30'/10m. Band III signals have peak levels at 10 and 38 feet. And Band IV/V signals peak 11 times between ground and 40 feet! The higher the transmission frequency, the greater the variation in

Ground reflected signals even within line of sight to the transmitting antenna create "interference nulls" in reception which vary as a function of transmission frequency.



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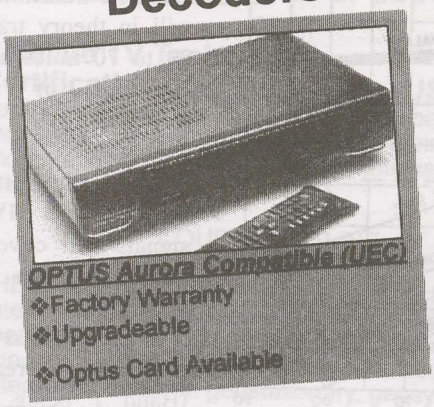

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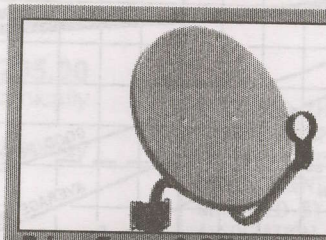

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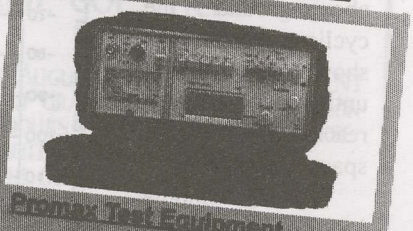

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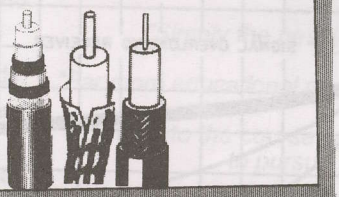

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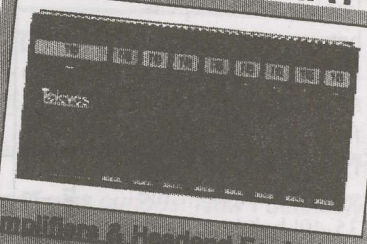

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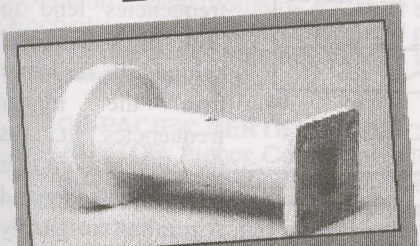

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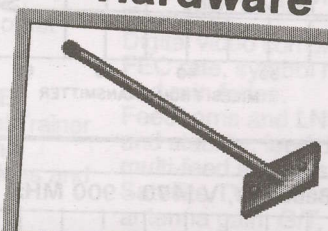

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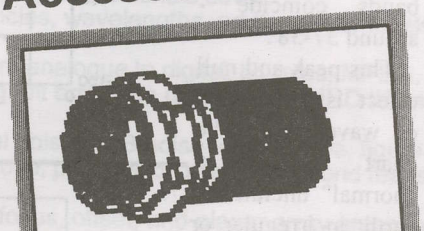

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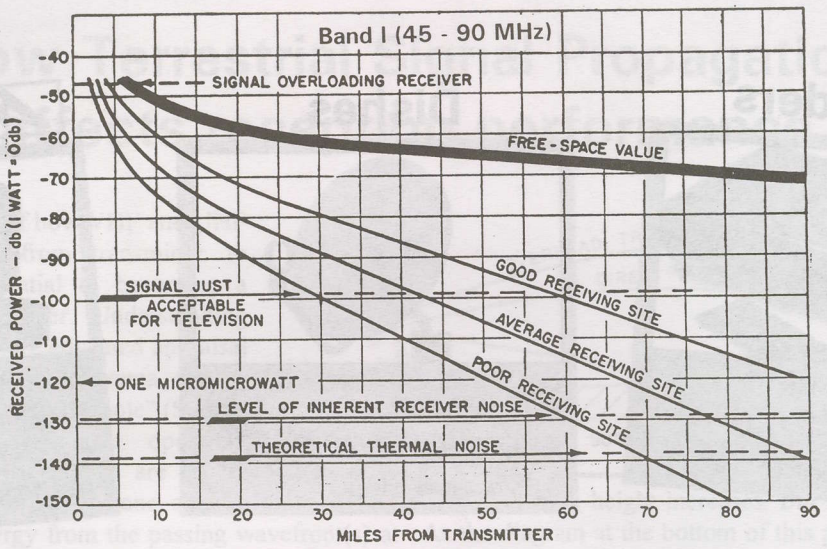
received signal level as the antenna is raised.

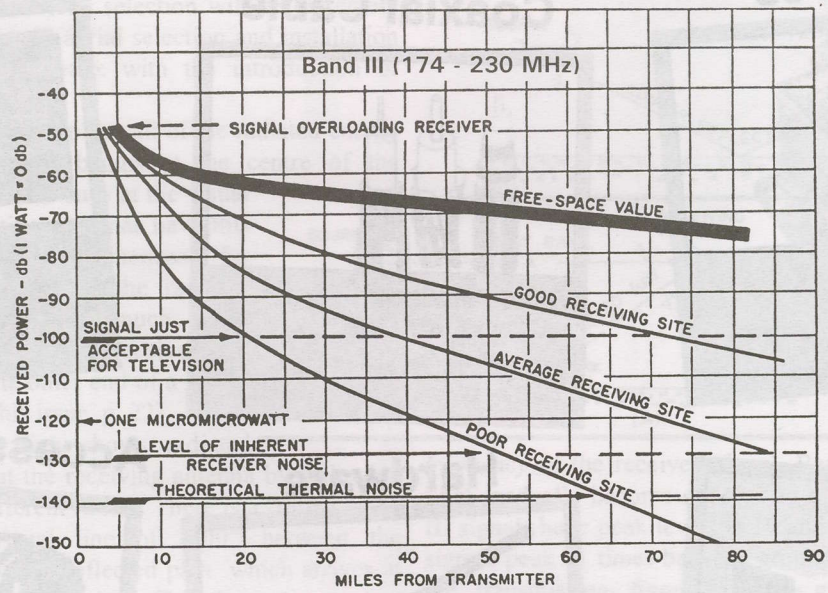
The chart could be extended to go past 100 or even 200 feet above ground - the cyclic variations shown continue until the antenna reaches the "free space" height.

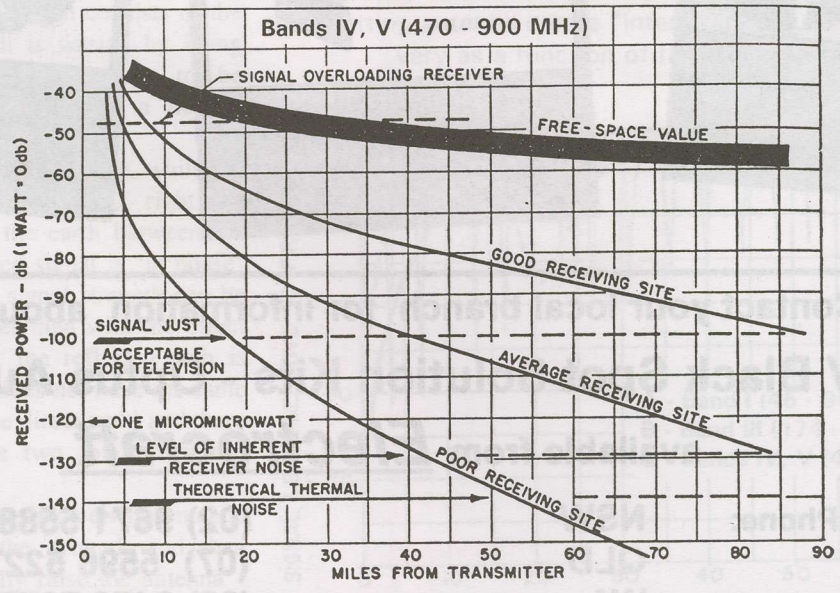
Band I only installations gain no appreciable signal advantage when they leave the 30-45 foot height region until they reach "free space." Band III signals (the dashed line) will peak between 35 and 40 feet. This suggests an antenna height for a *combined* Band I and III receiving system that is in the 35-40' height region. If Band IV/V is added (the thin line on the chart), there is only one height above ground where all three frequency bands coincide - around 37-38'.

This peak and null effect is a function of wavelength. The chart assumes a "normal" uncluttered earth; in irregular or difficult terrain, the suggested heights will probably vary from those shown. But the difference in height where different bands (I, III, IV/V) peak will not change; this is a basic law of physics that is independent of terrain effects.

The wavelength also affects the "normal transmission range" of a transmitter. In the top chart here, a Band I transmitter with an antenna 1,000 feet above average terrain will reach a point between 30 and 60 miles distant







depending upon the "quality" of the receiving site.

In the middle chart, Band III transmitters will in theory travel 20 to 70 miles as a variation of the receiving site ":quality."

And in the bottom chart, Band IV/V signals will cover a range between 18 and 85 miles.

Notice that as the frequency increases (Band I being the lowest and bands IV/V being the highest), the "range" of dependable coverage grows wider and wider. This is a direct result of the irregularity of the terrain between transmitter and receiver. As the terrain becomes more and more irregular, there are distinct advantages to Band I. Lower VHF region frequencies tend to "fill in" over and behind hills far better than the higher frequencies. It was for this reason that New Zealand and Australia originally selected 45 MHz region channels for their first TV operations.

One of the side effects of irregular (hilly) terrain is to "modulate" the height above terrain (for best signal) chart shown on the bottom of p. 10. Irregular terrain creates re-radiation signal patterns - a sharp edge on a hill actually acts like a retransmission "antenna" setting up new coverage patterns unique to the

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region just past the hill. These retransmission signals vary widely in terms of coverage as the frequency varies.

If you set out with an antenna in the 30 foot region and then carefully raise the antenna making measurements of each channel every foot to .5m, you will in short order sort out where the channels to be received are best. If there are Band IV/V signals to be received, you can usually skip right to these frequencies for your measurements. If only Band I and III are received, make your measurements at the highest frequency to be received - Band III - since the highest frequency will be the most critical to peak up in signal level.

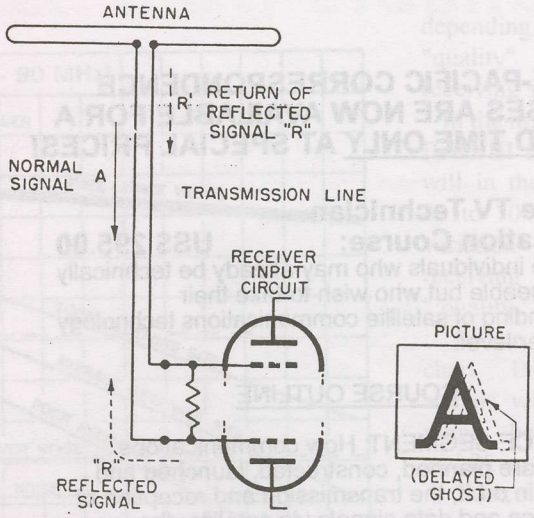
There are other factors to watch out for. The coverage charts and the height above ground charts here assume you are within a normal coverage range of a TV transmitter. At VHF and UHF, coverage is broken down into primary (sometimes called Grade A) and secondary (also called Grade B). All coverage predictions issued by stations are idealised to *ignore* any shielding effects of terrain (a mountain range immediately west of a transmitter, for example, would severely limit reception to the west even if the printed coverage map showed it to be "Grade A" area). Stations stubbornly refuse to correct their coverage charts to show reduced coverage caused by terrain - this is the origin of the so-called "Blackspot" rules. What broadcasters refuse to admit, the Australian ABA is now recognising provided there is a level of technical proof to substantiate claims that "predicted" signals do not reach the actual home location (SF#66, p. 6 for full report on ABA ruling).

Grade A coverage normally suggests reception is possible with an indoor (setback or rabbit ear) antenna. Grade B accepts that an outdoor antenna is required and the greater the distance from Grade A the larger the antenna required. In both cases, we should return to the charts on page 12 to see how dramatically the "quality" of the receiving site affects the quality of reception. Taking the Band III chart as an example, the "*Signal just acceptable for television*" line (at -100 dB from one watt of power; essentially in the region of 60 dBuV) can be as close as 20 miles (32km) or as far as 70 miles (113km) as the "quality" of the receiving site varies from "poor" to "good." Most ABA recognised Blackspot locations will fall into the "poor" range because by definition they fall inside of a station's secondary/grade B coverage zone but because of terrain, do not receive an adequate signal.

Installer created problems

In the diagram upper right, we see the basic off-air VHF-UHF installation. The aerial (represented by a folded dipole) is connected to the TV receiver through a transmission line. The aerial collects energy from the passing wavefront, conveying this signal down the transmission line to the receiver. The energy collected flows with minimal losses from the transmission line connection at the aerial to the input circuit of the (TV) receiver provided the *impedance* of the aerial, the transmission line and the input to the receiver are all identical.

A transmission line is supposed to carry the received energy in only one direction - aerial to receiver input. When the impedance match between the transmission line and the TV set is not perfect, a measurable amount of energy is rejected by the TV set end. This not-accepted energy is orphaned and because it has forward motion, it "bounces" from the TV tuner input and immediately retraces its path back to the antenna. Arriving at the antenna, it now radiates back into the air. But if the impedance match between the aerial and transmission line

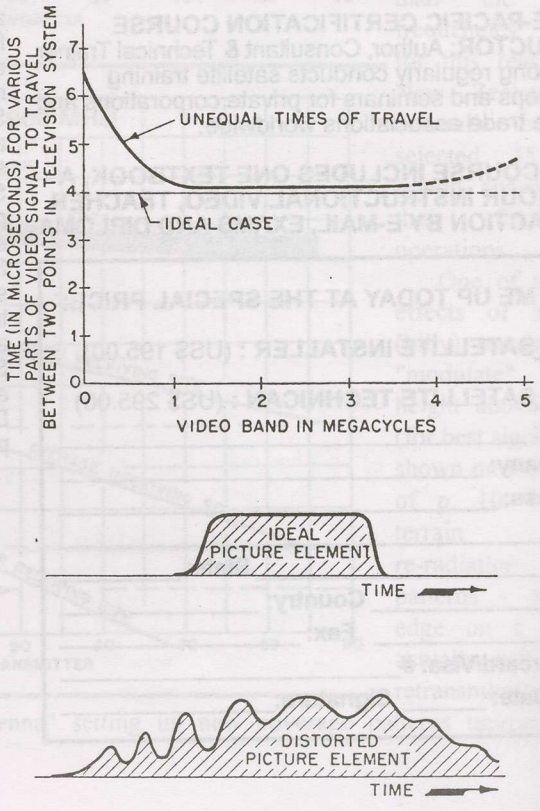


is also not perfect, the wayward signal bouncing back from the tuner now finds itself rejected - in part - by the aerial as well. So still having forward motion, it begins a *second* trip down the transmission line to the tuner. Arriving at the tuner a second time, it encounters the same mismatch as the original trip down the line; some of the signal is accepted by the tuner, a portion now begins another return trip back to the aerial.

Each trip down, back up, down a second time and so on reduces the strength or level of the wayward signal. But each time it presents itself to the tuner for "acceptance," a portion of that particular signal does gain admittance into the receiver.

All of these extra trips take time and when the signal is "delayed" from arriving at the tuner, this delay in time creates a distortion (ghost image) as displayed on the TV screen.

One picture dot (approximately 1/350th of a single line) distorted by time delay produces a "smeared" (neither crisp nor sharply defined) image as shown below. The ghosting can be propagation path created or installer created and moderate ghosting does not create an obvious extra image on the screen. How antennas can enhance or reduce ghosting will be our next subject.



Don't believe everything you hear

STATUS REPORT - DVB-T (8VSB versus COFDM)

The orderly transition from today's analogue to tomorrow's DVB-T (terrestrial digital free to air) is at considerable risk. After nearly a decade of testing, DVB-T has now rolled out in Sweden, the UK, and the United States. More than 40 countries are currently someplace between having reached a definite technical decision for how DVB-T will work in their country, and actually implementing that decision.

The most successful start to a transition to date is in the UK, where a COFDM format has been put to work. The British COFDM system supplies "standard definition" digital, on a technical level with 625 line PAL, using digital television receivers or set-top boxes connected to existing analogue receivers.

The least successful to date has been Sweden where after ten months of operation, there are between 500 and 600 homes equipped with digital receiving equipment (in a country of 3 million homes).

Sweden and the UK have adopted very similar DVB-T technical systems. The United States has adopted an entirely different "standard" known as 8-VSB. One year ago, a major US broadcaster (Sinclair) began testing side by side transmissions in the UHF TV band from a facility in the eastern USA. They found the 8-VSB channel was very difficult to receive, required outdoor rooftop antennas, and special care with the antenna's selection, orientation and installation. At the same receiving locations where 8-VSB was working in a marginal way, COFDM reception was possible with set-top rabbit ear (UHF loop) antennas. Sinclair invited the entire broadcasting industry to use their two side-by-side transmitters to perform their own tests.

COFDM backers immediately jumped on this bandwagon from Europe, claiming these tests proved the superiority of their standard. But the American 8-VSB standard was not only already approved, more than 50 TV stations had built (at a cost of millions of dollars each) new 8-VSB transmission sites. And the world class firms that design and sell home TV receivers were already tooled up and distributing 8-VSB receivers.

The evidence against 8-VSB continued to mount up; Australia claimed it had found COFDM superior to 8-VSB after tests were conducted in Sydney. 8-VSB designers in the USA questioned the Australian testing techniques. Then Brazil offered to test 8-VSB and COFDM and a third "neutral" digital system as a part of their own decision making process. Hundreds of engineers from throughout the world went to Sao Paulo to witness and make their own tests. In a lengthy and highly detailed set of engineering reports, Brazil explained why they also had decided in favour of COFDM. Unlike the Australian tests, the Brazilian exercise was conducted in the open with so many technically savvy participants that the 8-VSB people found it impossible to dismiss the test results.

Sinclair, in the USA, meanwhile filed a formal petition with the Federal Communications Commission (FCC) asking it to reopen the issue of standards - 8-VSB versus COFDM or even an unrelated methodology for creating DVB-T. The FCC, under intense political pressure, voted not to do that. But behind the scenes, out of public view, the powerful American broadcaster groups were already launching their own tests. The NBC television network conducted tests privately and quietly and then released its findings. They agreed with the Sinclair tests. Late in March, the FCC did a partial rebuke of itself and suggested a six month period during which the questions raised about the performance of 8-VSB be addressed. An end-of-September deadline has been set to bring in the testing results.

8-VSB works poorly, if at all, when the received signals are (1) strong to very strong - these would be locations within 40 km of the transmitting stations, (2) when the receiver is located in an "irregular terrain" area - this could be where there are mountains, even hills and worst of all, in major downtown city areas where tall buildings exist. 8-VSB has problems in these areas because of "ghosting" or multi-path reception, which confuses the DVB-T receiver because there are so many separate signals coming in at the same time from the transmitter. The digital receiver cannot decide whether the direct path signal or a reflected signal is the correct one to process. When it becomes confused, it simply processes nothing (creating a totally blue screen and silent speaker).

Tests have shown that 8-VSB can tolerate no phase differences. In actual tests, a bird landing on a rooftop antenna causes the antenna to vibrate. The "oscillating" aluminium elements creates phase changes in the received signal, and it simply quits. A wind buffeting the rooftop aerial has the same effect. Needless to note, you won't receive 8-VSB reception with a "moving" receiver. Our existing analogue works fine or at least continues functioning even when you take a hand sized miniature screen portable and walk down the street. The 8-VSB signal cannot stand the "motion" of the antenna (and receiver). What this tells us is that 8-VSB only works according to plan when a sizeable, quality installed, rooftop aerial captures the signal and a much better than average

Where the trouble spots are located

UK: Despite a great deal of slick press-agentry, the take-up of DVB-T is going far too slowly to believe that old fashioned analogue can be turned off by the 2010 target date. A high percentage (50) of the population is simply not interested in digital because it will cost them money every month to receive the channels they already receive without charge in analogue. To counter that, the DVB-T operator ONdigital is giving away set-top digital boxes. Technically, digital multiplex transmitters are creating significantly reduced quality analogue reception for those who refuse to be lured by the digital PR campaign. Failing to meet targets with DVB-T, ONdigital has turned to "bonus Internet."

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coaxial line connects the aerial to the indoor receiver. 8-VSB in it's present form is the end of portable television.

COFDM uses a different approach and while you might not be able to walk down the street watching it on a hand held portable, at least you can expect results with a set-top aerial. In any area where an analogue picture is "clean" on a set-top aerial, generally COFDM will also be clean. But COFDM was designed as a "PAL analogue equivalent" service, not (as with the American 8-VSB) a high definition, wide screen standard. Australia believes it can use COFDM and still transmit high definition television. They will be the first to try this innovative approach, and in doing so have adopted Australian technical standards unlike any others in the world. Major city stations have until 2001 to launch high definition COFDM television under the present law.

The UK had hoped to phase out (turn off) analogue PAL transmitters by 2008; later modified to 2010. But, Government policy will not allow this to happen until, "*95% of all UK homes have been equipped with DVB-T receiving equipment.*" As of 1 May, just under 700,000 British homes had signed up for DVB-T after 17 months of operation. There are another 18 million or so homes to convert. The UK use of COFDM has run into some unexpected difficulties. The first is a social issue - while the set-top digital conversion boxes are essentially free (operator ONdigital has a "special plan"), installation is not and the ONdigital box only works with a subscription. In effect, the camera is free but the film and development -printing costs money. Survey after survey taken by numerous UK groups report "less than 50% of homes will *ever* convert to digital if that means they must then pay a monthly fee to watch television." Free box or no free box.

The second problem is technical. To squeeze in the digital broadcasts, the British threw out the rule book for creating TV stations on the same or adjacent channels. The new digital stations (called multiplexes) are interfering with analogue reception; badly. Using channels 7 and 9 for analogue and squeezing in digital on channel 8 - as Australia has elected - has proven to be very troublesome. The digital signals "bleed" into the adjacent channels, creating snow filled pictures and hissing sound for analogue viewers where previously the analogue reception was "picture perfect." If the analogue stations could be turned off tomorrow, this would be a non-problem since eventually nobody will be watching analogue anyhow. But for the transition period, which could extend well beyond the idealistic 2010 date, digital is creating havoc with existing analogue viewers.

New local-region analogue stations, first launched one year ago, have been put totally on ice in the UK - no new stations at all until the interference between digital multiplexes and analogue is resolved. Separately, British "block houses" (hundreds, thousands of connected homes) are proving to be a problem of a different kind. Old, analogue-rated master antenna systems (one antenna on the roof, feeding through coaxial cable hundreds or thousands of viewing locations) simply do not work with the new digital signals. This has created a sizeable new business for installers and aerial fitters who are tackling blocks as large as 20,000 flats for overhaul of the master aerial systems.

Free digital set-top boxes, embarrassing interference to existing analogue reception, and an unexpected requirement that analogue design distribution systems be rebuilt for accommodate digital is making COFDM a challenge. Virtually nobody remains optimistic about 2010 any longer.

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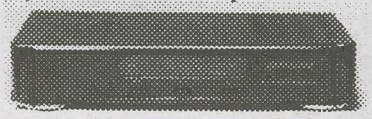

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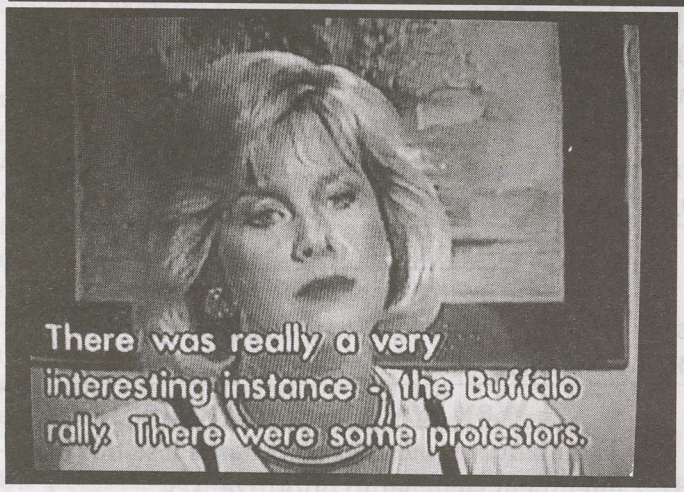
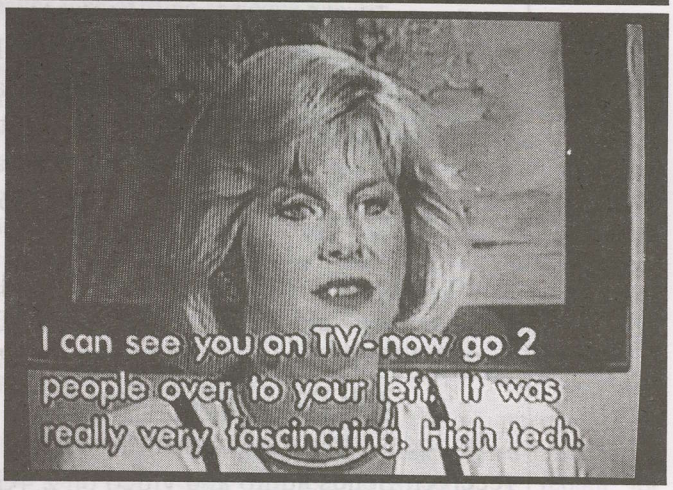


Wife of VP candidate Al Gore is told by floor producer about an incident in New York state...

Tipper Gore is the wife of US Vice President Albert Gore. She is frequently called upon to be a part of his political life.

In the series of off-screen photos here, Mrs Gore is being educated by a media professional on what happens when Clinton-Gore operatives micro-manage an appearance by either Gore or President Clinton.

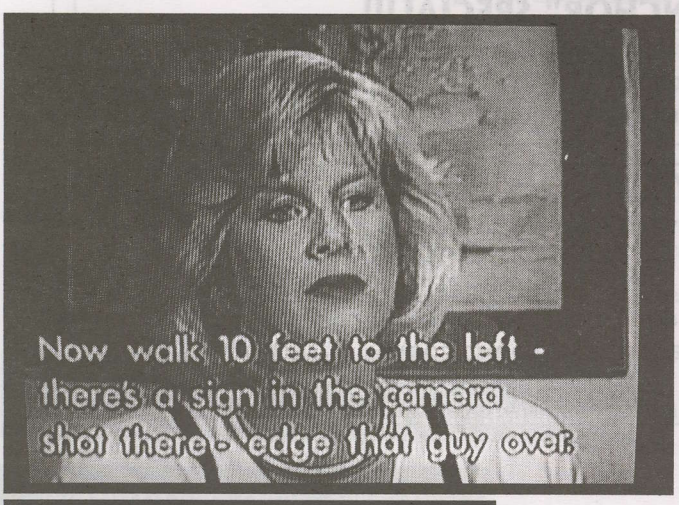
Mrs Gore is sitting in a TV studio, waiting for her "cue" to be interviewed. Off camera, a Clinton-Gore TV producer is coaching her on the importance of television in their managing of American affairs. The text you see on the screen is 95% from the out of view TV producer - words spoken softly to Mrs Gore who stares blankly at the TV camera waiting for her time to be on TV.



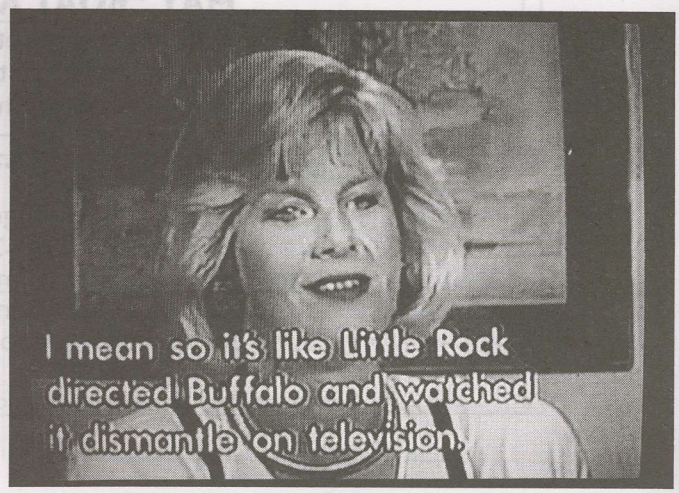
...where Little Rock Clinton/Gore HQ saw an antiabortion sign in the crowd on the TV feed.

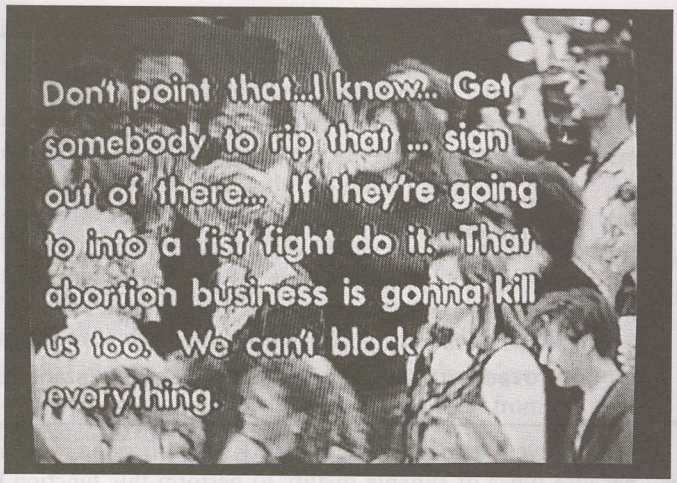
The TV producer is describing an incident where Clinton political advisors, watching the preparations for his arrival at a campaigning stop, used the TV camera to "survey" the crowd, to look for "trouble" before it happened. The advisors were located in Little Rock (Arkansas), connected via satellite to the actual campaign stop. From Little Rock, they spotted "trouble" and using cell phones directed on-ground operatives at the campaign site to a person in the crowd crouching down with a sign that was unfriendly to candidate Clinton. Oh yes, anyone watching satellite at the time of this "wild card feed" could have been a participant in this intrigue. For a better understanding, see p. 6 this issue and "SPIN" on SPR show number 11.

Little Rock could see the sign on TV, the local Clinton/Gore field people could not.



The protester never knew what hit him or how his concealed sign had been spotted.

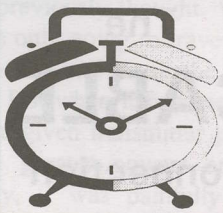


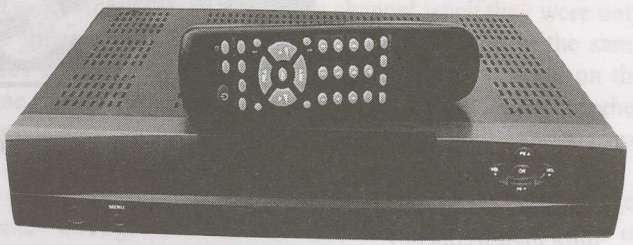


The sign came down before the live TV started.
A sobering thought - "everybody watches."

AT SPRSCS 2000

race against the clock ...





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(See insert card facing inside front cover)

EXTRA Saturday July 1st LAB Session: Latest "Naughty-Nokia" IRD "Tricks!"

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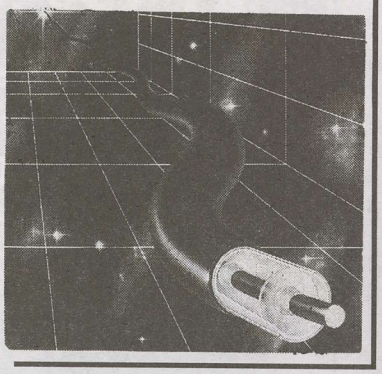

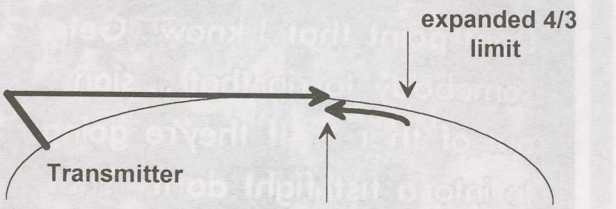

Improved equipment increased coverage distances

Terrestrial wave propagation - one

The frequency band from 30 to 300 MHz (megahertz) is called the "VHF range." VHF is short for "very high frequency." The range from 300 to 1,000 MHz is called UHF; "ultra high frequency. "

Frequencies below 30 MHz, down to 3 MHz, are known as "HF" or high frequencies. HF transmissions are capable of bouncing around the earth (short-wave radio) provided a radio wave reflective layer in the ionosphere is properly charged by solar radiation. Prior to geo-stationary (Clarke Orbit) satellites, short-wave radio was the only way you could send information to distant locations lacking a telephone connection.

The VHF range was first put to serious use in the early 1930s. Mankind's knowledge of what happened to radio waves transmitted on frequencies above 30 MHz was at best incomplete but the educated guesses of that era said that frequencies higher than 30 would reflect from the ionosphere to distant points.

This suggested that VHF could be very useful for local short distance services; television was one, FM radio another and two-way radio (police, taxis, aeroplanes) yet a third. For VHF to work as envisioned, several theories had to be validated.

First were the parameters of transmission power and transmission antenna height. Theory in the early 30s suggested VHF waves would go from the transmitting antenna in a straight line to a receiving antenna. This was the "optics" theory - if you could "see" the receiving site from the transmitting antenna, there would be signal at the receiver. Extending optical theory to the next level, if something got in the way of the VHF signal (a tall building, hill), the signal would be "blocked" from the receiver.

RCA began to field test these theories in 1931 with a system installed at the top of the newly completed Empire State Building (New York City). From 1,250 feet above ground, they sent receivers into the field to measure signal strengths at various frequencies between 30 and 100 MHz.

The next parameter to be tested was the distribution of "gain" between the transmitter and the receiver sides of the system. In the 1930s, creating more than a few hundred watts of transmitting power was a real challenge at VHF as none of the equipment we today take for granted had yet been invented. Paper models said that if you employed high power at the transmitter, the receiver could be very simple. The alternative to that was to employ more modest transmitting power and create receivers with very high internal gain. Unfortunately there was an impasse there as well. Receiver "gain" was a function of multiple stages of RF (radio frequency) and IF (intermediate frequency) amplification. And as late as 1946, TV and FM receivers, VHF 2-way radios lacked even a *single* stage of RF amplification - simply because tubes of suitable quality to perform this function had not yet been perfected.

Another challenge was the world of transmitting and receiving antennas. Antennas originally designed for HF (3 - 30 MHz) simply did not function at VHF; an entirely new family of (for that era) "sophisticated" and totally new antennas was required. Even the matter of coupling the antenna received energy to the relatively insensitive receiver was a problem. Transmission lines used for HF were totally unsuitable for VHF and coaxial cable did not appear as a commercial product until midway through World War Two.

All of this added up to a badly understated theory of coverage. When the transmission power was modest, the receiving aerial low in performance and the receivers lacking in overall gain, the distances covered were short and often did not even reach the predictions of optical wave theory ("*if you can see the receiver, you can transmit to it*").

But television was launched in the mid-30s (France, Germany, Great Britain, Russia and USA), FM radio in 1941 (USA) and two-way VHF radio happened in the same period. For the first few years field performance fit optic wave theory fairly neatly. But then when World War Two was over and serious expansion of these services began to spread throughout the world, the fallout of extensive war time development produced higher power transmitters, greater gain antennas and most of all, far more sensitive higher gain receivers.

The same sequence of events affected the early development of radio. As late as 1927-1928, more than 95% of all AM broadcast radios in the UK were simplistic "crystal sets" that did not even require electricity to operate. Broadcasters (the BBC) built high power transmitters so that most UK radio listeners were close enough to a transmitter to hear the programming with a modest wire antenna connected to a galena crystal detector creating weak sounds in earphones. "Loud" speakers did not exist, sensitive multi-tube broadcast receivers did not exist.

Between 1928 and 1931, a revolution happened in radio set design. Along came low cost receiving tubes, followed by low cost mains or battery operated table radios. Suddenly homes that previously had to share a single pair of earphones to hear the nearby high power BBC transmitter were picking up dozens of stations from all over Europe "at loud speaker quality" - simply because for the first time they had sensitive receivers.

Television and FM receivers followed this same pathway between 1946 and 1953. The 1931 radio listener in the UK was "appalled" by the interference (even to local BBC stations) they now noticed with their more sensitive receivers. The 1950 TV viewer in the UK now found his neighbour's

automobile, the borough's electrical supply lines, and ham radio operators from Spain drowning out their TV reception.

When TV transmitter powers were more modest, TV receiving aerials simplistic and TV receivers low in sensitivity, nobody expected much in the way of distant coverage. Coverage was limited to the so-called "primary" or "A" region - from the transmitter to the edge of "visual line of sight" at the horizon (see diagram, p. 22). Better receiving antennas, higher sensitivity TV receivers pushed the TV coverage out into a "B" (secondary) region. Only now these better aerials and hotter receivers were sitting ducks for transient signals that floated in from distant points; sometimes with great regularity. And in the process, interfered with reception from the desired (intended) station.

By the late 1940s, with more than 15 million TV sets in operation in the world, mountains of practical evidence pointed the way to a new theory for VHF. This one was based upon field experience, not optical physics translated to radio.

A new term appeared - "*the radio horizon.*" Rather than expecting VHF signals to only reach as far as the "optical horizon," it was not prudent to expect them to go 4/3rds the distance as the optical horizon. Routinely, not merely when "the weather conditions were good." A station that had anticipated coverage to a point 45 miles distant (a function of the transmission power plus the transmission antenna height above ground) now was told to expect "routine coverage" to 60 miles. That extra 15 miles (1/3rd further than the 45 mile optical horizon limit) was being reached because VHF radio waves - it was now understood - did in fact "bend" over the horizon for some distance past the point of optical limit. By the mid 1950s, it would be discovered that UHF (ultra high frequency) waves performed in the same manner.

For many, this revelation sent TV planning groups back to the drawing boards. It was now obvious that VHF TV stations operating on the same frequency (channel) would have to be separated by more miles than previously thought. When you firmly believed the signals were only going to travel 45 miles and quit, you were tempted to use and reuse the same TV channel every 100 miles or so. But when it became clear the signals travelled 60 miles (for a given transmitter power and antenna height - further with greater powers and higher transmitting antennas) routinely, it was painfully apparent stations could not share the same channel when they were only 100 miles apart. Just as you and I cannot stand in the same shoes simultaneously, two TV stations cannot operate on the same frequency (channel) without interfering with one another - unless they are far enough apart that the signals from the two do not intrude into each other's coverage zone.

This is the art of "radio wave propagation," an inexact science through the 30s, 40s and 50s. Knowing the limits of dependable coverage, and creating TV transmission towers to completely cover a country (such as New Zealand or the UK) so that virtually every home is within range of such a tower was a significant challenge.

Unfortunately, VHF (and later, UHF) signals had a few unannounced tricks of their own that only became apparent after dozens and hundreds of stations were on the air and millions of receivers had been installed. Trick one was the too-late-learned fact that short-wave radio "skip" was not unknown at VHF. Signals from transmitters 500 or 1,000 1,500 miles away "bounced in" with unfortunate regularity. Trick two was these signals often were *not* blocked by hills or mountains (as had been predicted) and would appear without warning on the *wrong* side of the obstruction.

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

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym	Receivers and Errata
I703/57E	Sky News	4143/1007R	1	3/4	5(.632)	NDS encrypted, **often FTA**
I704/66E	TV5	4055/1095R	4	3/4	27(.500)	**FTA**
	Sky News +	3805/1345R	4	3/4	22(.520)	Sky News 24 hr, sport, feeds; **some FTA**
PAS4/68.5E	Nickelodeon+	4147/1003H	1 reported	1/2	24(.000)	Status unknown - **was testing FTA**
	BBC	3743/1407H	5	3/4	21(.800)	FTA; 2 audio channels
	CCTV	3716/1434H	up to 6	3/4	19(.850)	FTA
Ap2/76E	Hmark/Kermt	3720/1430H	4	5/6	29(.270)	PowVu, typ. CA
	Channel "I"	382301330V	1	3/4	3(.570)	Tests, FTA
	TVB8 +	3849/1301H	4	3/4	13(.238)	PowVu, CA
	AXN	3920/1230H	up to 8	7/8	28(.340)	Tests, promos, **some FTA**
Thcm3/78.5E	**MRTV**	3666/1484H	1	2/3	4(.442)	FTA; difficult to load
	Mega +	3640/1510H	12	3/4	24(.378)	was SCPC 3625; now MCPC w/CA
	Mahar/DD1	3600/1550H	up to 8	3/4	26(.661)	FTA (includes VTV, DDR)
	PTV2	3420/1730V	1	3/4	3(.366)	FTA, new service, testing
	TV Maldives	3412/1738V	1	1/2	6(.312)	FTA (reaches SE Australia)
	Thai Global+	3425/1725V	up to 7?	2/3	27(.500)	FTA
ST1/88E	Taiwan Bqt	3509/1641H	13	3/4	23(.450)	MCPC, sometimes FTA, 2 adult chs
MeSt 1/91.5E	**Malay. TV3**	4147/1004H	1	3/4	7(.030)	CA but occ. FTA
As2/100.5E	**Euro Bouqt**	4000/1150H	5TV, 19r	3/4	28(.125)	FTA (TV5 teletext)
	Reuters	3909/1241H	1	3/4	5(.632)	FTA, occasional feeds
	Hubei/HBTV	3854/1296H	1	3/4	4(.418)	FTA SCPC, teletext
	Hunan/SRT	3847/1303H	1	3/4	4(.418)	FTA SCPC, teletext
	Guan./GDTV	3840/1310H	1	3/4	4(.418)	FTA SCPC, radio APID 81
	In. Mongolia	3828/1322H	2	3/4	8(.397)	FTA: #1 Chinese, #2 Mangolian
	APTN A-O	3799/1351H	1	3/4	5(.631)	FTA SCPC (news feeds)
	WTN Jer/Lon	3790/1360H	1	3/4	5(.631)	Mostly CA; **some FTA**
	Reuters/Sing.	3775/1375H	1	3/4	5(.631)	**FTA** & CA
	WorldNt/US	3764/1386H	1 + 20 radio	3/4	6(.100)	FTA; up to 20 radio channels
	Liaonin/Svc2	3734/1416H	1	3/4	4(.418)	FTA SCPC, radio APID 256
	Jiangx/JXTV	3727/1423H	1	3/4	4(.418)	FTA SCPC, teletext, radio APID 81
	Fujian/SETV	3720/1430H	1	3/4	4(.418)	FTA SCPC, + radio APID 80
	Hubei TV	3713/1437H	1	3/4	4(.418)	FTA SCPC, radio APID 80
	Henan/Main	3706/1444H	1	3/4	4(.418)	FTA SCPC, + radio
	Egypt/Nilesat	3640/1510H	6+, radio	3/4	27(.850)	CA, unknown system, no subscriptions
As2/100.5E	TVSN	4033/1117V	1	3/4	4(.298)	Occ. FTA, not same as Aust. version
	Sky Racing	4020/1130V	up to 3TV	1/2	18(.000)	(Irdeto) CA; **1 & 3 occ. FTA**
	EMTV	4006/1144V	1TV, 2 radio	3/4	5(.632)	PowVu CA; poor signal level
	Jilin Sat TV	3875/1275V	1	3/4	4(.418)	FTA SCPC, + radio
	HeiLongJian	3834/1316V	1	3/4	4(.418)	FTA SCPC
	JSTV	3827/1323V	1	3/4	4(.418)	FTA SCPC, + radio
	Anhui TV	3820/1330V	1	3/4	4(.418)	FTA SCPC
	ShaanxiQQQ	3813/1337V	1	3/4	4(.418)	FTA SCPC, radio APID 81
	Guan/GXTV	3806/1344V	1	3/4	4(.418)	FTA SCPC, radio APID 257
	Fashion TV	3796/1354V	1	3/4	2(.533)	FTA SCPC, now easy to load
	MSTV	3791/1359V	1	3/4	4(.340)	FTA SCPC
	Feeds	3785/1365V	1	3/4	5(.632)	FTA & CA, feeds
	Myawady	3766/1384V	1	7/8	5(.080)	FTA SCPC - difficult to load
	SABe	3742/1408V	1	3/4	3(.300)	tests, SCPC
	Saudi TV1	3660/1490V	1 (?)	3/4	27(.500)	FTA MCPC
As3S/105.5E	Zee bouquet	3700/1450V	7TV	3/4	27(.500)	Still FTA, CA will happen!
	Arirang TV	3755/1395V	1	7/8	4(.418)	FTA SCPC; very strong signal
	Now TV	3760/1390Hz	2	7/8	26(.000)	Tests, promotional material; some CA
	Star TV	3780/1370V	17(+)TV	3/4	28(.100)	NDS CA (Pace DVS211, Zenith)
	Star TV	3860/1290V	14(+)TV	3/4	27(500)	NDS CA (Pace DVS211, Zenith)
	Star TV	3880/1270H	12(+)TV	7/8	26(.850)	NDS CA (Pace DVS211, Zenith)
	CNNI	3960/1190H	4(+)TV	3/4	26(.000)	PowVu CA; some **FTA** feed channels
	Star TV	4000/1150H	7(+)TV	7/8	26(.850)	NDS CA (Pace DVS211, Zenith)
	CCTV bqt	4115/1035H	4(+) TV	3/4	19(.850)	was analogue; now FTA MCPC
Cak1/107.5E	Indovision (S-band)	2.536, 2.566, 2.596, 2.626	33(+) TV	7/8	20(.000)	NDS CA using RCA/Thomson, Pace IRDs; improved reliability
Sinosat/110E	**CCTV2**	3889/1261Hz	1	3/4	3(.000)	FTA SCPC, difficult to load
C2M/113E	**TPI**	4185/965V	1	3/4	6(.700)	FTA SCPA; NT only
	Indosiar	4074/1076V	1	3/4	6(.500)	May only be test; NT only
	Anteve	4055/1095V	1	3/4	6(.510)	FTA SCPC; NT only
	Space TV	4000/1150H	11TV, radio	3/4	26(.666)	CA, sometimes **FTA**
	C Net Taiwan	3760/1390H	11TV, radio	3/4	26(.666)	CA, subs available **-10 radio FTA**
	RCTI	3475/1675H	1	3/4	8(.000)	FTA SCPC, Australia OK
JcSAT3/128E	Miracle Net	3990/1160V	3 up to 6	5/6	22(.000)	PowerVu; **TBN #3 FTA**, some CA

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym	Receivers and Errata
JcSat3/128	Asian bqt	3960/1190V	up to 8	7/8	30(.000)	CA & FTA: Japan, Taiwan, China
L AP1/130	**THT+NTV**	3675/1475L	2 + 2 radio	3/4	12(.000)	inclined orbit +/-2.5 degrees
Ap1A/134	**Gansu TV**	3769/1381V	1	1/2	6(.930)	FTA SCPC (NT, Aust only)
Ap1/138	**Reuters**	3742/1408V	1	3/4	5(.632)	FTA SCPC (NT, Aust only)
	Viacom	3860/1290V	up to 6	3/4	30(.000)	**FTA**, CA (NT, Aust only)
Op B3/156	Mediasat	12.336V	6TV, ra, Internet	2/3	30(.000)	Pv, Nagravision, Irdeto; some FTA
	Aurora	12.407V		2/3	30(.000)	CA, $105 smart card required (p. 28)
	Aurora	12.532V	now NZ coverage	2/3	30(.000)	CA, $105 smart card required (p. 28)
	Aurora	12.595V		3/4	30(.000)	CA, $105 smart card required (p. 28)
	Aurora	12.720V		3/4	30(.000)	CA, $105 smart card required (p. 258
	Austar/tests	12.376H		3/4	29(.473)	Austar I-TV tests
	Austar/Foxtl	12.438H		3/4	29(.473)	CA, subscription available Australia
	Austar/Foxtl	12.564H		3/4	29(.473)	CA, subscription available Australia
	Austar/Foxtl	12.626H		3/4	29(.473)	CA, subscription available Australia
	Austar/Foxtl	12.688H	(some FTA radio)	3/4	29(.473)	CA, subscription available Australia
Op B1/160	**ABC NT fd**	12.256V	1TV, 3 radio	3/4	5(.026)	FTA, Sydney -30 minutes time zone
	Central 7	12.354H	1TV	3/4	3(.688)	FTA, purpose here unknown
	News feeds	12.367H	1	3/4	5(.424)	FTA
	Sky NZ	12.518/546V		3/4	22(.500)	NDS CA, subscription available NZ
	Sky NZ	12.643/671V		3/4	22(.500)	NDS CA, subscription available NZ
PAS8/166	Pacific Time	12.286V	10TV	3/4	26(.470)	Viaccess CA, some **FTA**, Asian beam
	ABCInterch	12.312H	1	3/4	6(.978)	PowVu, FTA, news feeds
	ABCInterch	12.321H	1	3/4	6(.978)	PowVu, FTA, news feeds
	ABCInterch	12.330H	1	3/4	6(.978)	PowVu, FTA, ABC Melbourne feeds
	TARBS	12.526H	12+ TV	3/4	28(.067)	'MDS' CA; 12.605/28.067/3/4
	Tests	12.606H	12+ TV	3/4	28(.067)	tests, paralleling 12,526H at times
	Boomerang	12.725H	5 TV	7/8	25(.728)	TPG /Eurodec CA, occ. FTA
	NHK Joho	4065/1085H	5TV, 1 radio	3/4	26(.470)	PowVu CA & **FTA**; subscription avail
	ESPN USA	4020/1130H	7+TV, data	7/8	26(.470)	PowVu CA; ch 11 DCP-CCP bootload
	Discovery	3980/1170H	8 typ.	3/4	27(.690)	PowVu/CA (audio **FTA**)
	CalBqt/Pas8	3940/1210H	up to 8TV	7/8	27(.690)	PowVu CA & **FTA (EWTN)**
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)	Sing, Aust, India svcs; UEC 642 'ok'
	NTV/Russia	3870/1280H	1	3/4	12(.000)	Feed to USA, Dish Network, CA
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)	PowVu, FTA at this time
	MTV	3740/1410H	8	2/3	27(.500)	PowVu,CA; #7,8 **FTA feeds**
PAS2/169	Pv Bouquet	12.290V	2+ TV, radio	2/3	27(.500)	PowVu CA, WIN, ABC NT
	WA PowVu	12.637(.5)V	4TV, 8 radio	1/2	18(.500)	PowVu CA, WA only - D9234
	HK PowVu	4148/1002V	up to 8	2/3	24(.430)	PowVu CA; some **FTA**
	Fox Bouquet	3989/1161V	8TV/data	7/8	26(.470)	Pv, CA/FTA (**Fox News USA**)
	Feeds	3942/1208V	1 or 2	2/3	7(.497)	PowVu (FTA) occ feeds
	Feeds	3929/1121V	1	3/4	6(.618)	Mediasat links, PowVu, usually FTA
	Feeds	3898/1252V	1	2/3	12(.000)	(PowVu) FTA, occ. feeds
	Middle East	3778/1372V	4	3/4	13(.331)	FTA, testing CA, "threatening"
	Service 1	3761/1389V	1	3/4	6(.620)	FTA SCPC feeds (occasional use)
	CCTV Pv	3716/1434V	5 typical	3/4	19(.850)	PowVu FTA; # pgm chs varies
	Feeds	4138/1012H	1	3/4	6(.620)	FTA SCPC/MCPC, news and sports
	Lakbay TV	4044/1106H	1	3/4	5(.043)	tests, unknown programming
	7thDyAdv	3872/1278H	1TV, 14 audio?	3/4	6(.620)	Sat, Sun 0930 UTC-see p. 34 here
	CNNI HK	3996/1154H	1	3/4	9(.998)	reverse link HK/Atlanta, feeds, FTA
	"1"/Korea	3980/1170H	1	3/4	4(.420)	FTA SCPC VPID 33, APID 36
	Feeds	3867/1183H	1	2/3	6(.618)	FTA (occ. sport feeds)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)	FTA-typ. NTSC-occ. sport, shuttle
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)	(PowVu) CA+**FTA**; UEC642 now ok
	Disney	3804/1346H	3	5/6	21(.093)	PowVu CA
	Satcom 1-6	3743/1407H	up to 5	7/8	19(.465)	currently FTA, lowlevel, Mid East fds
I802/174E	Telefenua	4066/1084R	up to 4	3/4	9(.668)	tests, eastern beam
I702/177E	AFRTS	4177/973LHC	8TV, 12+ rad	3/4	26(.694)	PowVu CA
	ThaiBouqut	12.650H	up to 3 TV	1/2	17(.800)	Thai5 service, tests, FTA
I701/180E	Canal+ Sat	11.610H	16TV, 1 radio	3/4	30(.000)	Mediaguard CA, one **FTA**
	TVNZ	4195/955RHC	1	3/4	5(.632)	DMV/NTL occ. feeds, typ CA
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)	DMV/NTL occ. feeds, typ CA
	TVNZ	4178/972RHC	1	3/4	5(.632)	DMV/NTL occ. feeds, typ. CA
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)	DMV/NTL occ, feeds, typ. CA
	RFO-Canal+	4095/1055L	7TV, 5+ radio	3/4	27(.500)	#1, 2 CA - **rest FTA-France to Polyn.**

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

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

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

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

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

ADI MediaMate. FTA, NTSC+PAL outputs. (Pacific Digital Sys. Pty Ltd, tel 61-2-8765-0270)
AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. Av-COMM Pty Ltd, 61-2-9949-7417.
Benjamin DB6600-CA. FTA, Foxtel/Austar w/CAM+card. Try Steffen Holzt ++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 May, 2000

BIRD/ Location	RF/IF & Polarity	Service	Errata
I703/57E	3808/1342R	Udaya TV	
	4052/1098R	WorldNet	VOA subcrs.
	4178/972L	MTA Inter.	
I604/602/60E	4166/984	various feeds	
I704/66E	3765/1385R	tests	
	4015/1135L	Mongolia	(SECAM)
PAS4/68.5E	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	
PAS7/68.5E	3470/1680V	test signal	
LM1/75E	3980/1170V	various	(Madagascar)
AP2R/76E	3745/1405V	Vasta Music	(P5 in NSW)
	3691/1459V	TEN	
Thaicom3/78E	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	
Express 6/80E	3672/1478L	TK Rossija	(north beam)
InSat 2E/83E	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	"
ChnStr1/87.5E	3880/1270H	occ feeds	P4 NSW, Ntsc
ST1/88E	3550/1600V	test card	
	3582/1568V	Nila TV	(vintage TV)
CIS S6/90E	3675/1475R	RTR1	P3 NSW
	3875/1275R	Orbita 1	
	3916/1234R	RTR II	
	3935/1215R	Orbita II	
MeSat-1/91.5E	3710/1440H	VTV1,2, 4	
	3880/1270H	RTM-1	
Chinasat22/98	3900/1250H	tests	+ 3940/1210
InSat 2B/93.5E	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	
AsSat2/100.5E	3660/1490V	feeds, tests	
	3680/1470H	feeds	
	3860/1290V	feeds	

BIRD/ Location	RF/IF & Polarity	Service	Errata
(As2/100.5E)	3885/1265H	WorldNet	VOA subcrs
	3980/1170V	RTPi	+5 radio svcs
CIS S21/103E	3675/1475R	RTR	
	3875/1275R	Vrk Apt	
AsSat3S/105.5	3660/1490V	Z-Marathi	audio 6.6
	3680/1470H	CETV	
(temp FTA)	3800/1350H	Star Sport	NTSC
(temp FTA)	3840/1310H	Channel [V]	NTSC
	3900/1250V	AlphaTV Punja	
(temp FTA)	3920/1230H	Phoenix Ch	NTSC
	3940/1210V	Zee India	
	3980/1170V	Zee TV	
	4140/1010V	Angla Bangla	
	4060/1090V	Zee Cinema	(Starcrypt)
	4020/1130V	Sahara TV	6.2, 6.8
	4100/1050V	PTV2/World	
T'kom1/108E	4000/1150H	tests	
PalapC2/113E	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
AsSat1/122E	3677/1473V	Test card	& 3933/1217H
ChinS 6/125E	4085/1065V	feeds	seldom seen
JcSat3/128E	3768/1382V	feeds	occ., P5 NZ
	4085/1065V	test card	NTSC. 6.8 aud.
Ap1A/134E	4160/1050V	CETV	
	3980/1170V	CETV1	
	3900/1250V	CETV2	
Ap1A/138E	4160/990H	CCTV7	
S7/140E	3675/1475R	ORT Moscow	+/-4d. inclined
	3875/1275R	feeds, tests	
LMAP2/142.5	3675/1475L	occ. tests	+/- 3 deg inc.
Ag2/146E	3787/1363H	GMA	P1/2 s. eqtr
Me2/148E	4080/1070H	test card	occ. use
PAS8/166.5E	3880/1270V	test card, feeds	not full time
	3865/1285H	Napa test card	not fulltime
PAS2/169E	3940/1240V	Napa test card	
1802/174E	4166/984R	Feeds	
	4177/973R	Feeds	
I702/177E	4166/984R	Feeds	inc. KBS Korea
	4187/963R	Occ. feeds	
I701/180E	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

SPRSCS 2000 TECHNICAL INFORMATION

Rules for participating in Satellite 2000 Skills events at SPRSCS 2000

Anyone attending the South Pacific Region Satellite & Cable Show over the period June 29 - 30 - July 1 can enter the "Satellite Skills" events. The object is to identify the most skilled, qualified, satellite system installers in the South Pacific region. The best of the best will be awarded a XANADU digital IRD as a prize for being "best."

Several different events are planned. Here are the rules.

1) Bring with you your own crimping tool and RG6 family cable prep tool(s). Some of us still use a packet knife and side cutters. And TPG (Boomerang) insists you need nothing else to install a satellite dish anyhow!

2) **Event One**: You will be given a roll of RG-6/U and a handful of F connectors suitable for the cable. And you will be given a list of cables to make up in the shortest period of time possible (you will be timed by the judge). Cables will be judged for "quality" of the F fitting installation on a scale of 0 - 10. The total of your points divided by the time (in seconds) will be your score. Highest score wins.

3) **Event Two**: You will be handed a test instrument from a major manufacturer, directed to a dish with LNB installed, and given a list of satellite programme channels (mostly digital, some analogue). You will be timed while directing the dish to the appropriate satellite, finding the signals on your list, measuring the carrier to noise ratio (C/NR) on analogue signals, the Bit Error Rate (BER) on digital signals. The individual with the shortest elapsed time from start to locating and recording the last programme channel / transponder on the list will be the winner.

4) **Event Three**: Still being perfected but will involve locating analogue VHF - UHF off-air TV signals and measuring their carrier to noise ratio (C/NR) in the shortest time. The antenna will be the tricky part.

The winner of events One, Two and Three will have their names dropped into a container. If the same person wins two of the three events, their name will be dropped twice into the container. Then one name will be drawn from the container and that individual will receive the Xanadu digital IRD provided by SPACE Pacific and Av-Comm Pty Ltd.

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You may enter one, two or all three events. You must sign-up at the Registration Desk when you arrive on site to pick-up your registration packet (most will do this the afternoon of June 28th - between 1PM and 5PM. But you can also do this the morning of June 29th between 8.30AM and 10AM) or you may PRE-REGISTER (see below).

...

Some contest events will be videotaped for later use on SPACE Pacific Reports; if "hot TV lights" impair your judgement or destroy your concentration, wear dark glasses. If you don't wish to be seen on international TV displaying your "skills," wear a mask or bag over your head! Cheering squads made up of your mates are allowed but each INDIVIDUAL is on his or her own. This, by the way, will be an interesting way to spend your lunch-hour on June 29 and 30 - watching these people rush to beat the clock. Each registrant will be assigned a day and time period to conduct his or her own entry. Contest periods will run midday (during lunch breaks of the theatre presentations) June 29, June 30 and all day (9AM to 4PM) on Saturday July 1st. SPACE Pacific reserves the right to limit the number of people registering for any event in recognition of the limited available time for this "contest." You may PRE-REGISTER by sending an Email (skyking@clear.net.nz) or fax (64-9-406-1083) giving us your name, address, and which of the events you wish to enter. Those who PRE-REGISTER will have their instructions and time assignments included in their registration packets when these are picked up.

...

Suppliers participating will supply the cable and connectors (Satech, Lacey's Australia) and test equipment (Ikusi NZ & Australia, Lacey's Australia). Antennas will be commandeered on the spot by Coop from unsuspecting antenna system exhibitors. Winners will be expected to "shout their mates" at the local watering hole following the contest events. The grand prize winner will be required to pose for a SatFACTS front cover photo.

TUNING IN THE INDUSTRY'S TV PROGRAMME

SPACE Pacific, the Asia-Pacific industry membership trade association, has produced (and continues to produce) a series of one hour television programmes. These "SPACE Pacific Report" shows, hosted by Bob Cooper, cover a range of topics of interest to installers and enthusiasts. Show numbers and content are as follows: **#9901-** Spectrum Analyser techniques, **#9902-** Feeds and LNBs, **#9903-** Dish antenna designs and problems, **#9904-** The dish marketplace, and, "tiny parts," **#9905-** Dr Overflow (Nokia) software, **#9906-** How the uplink works (tour of RCA's Vernon Valley site), **#9907-** Uplink Two, including uplink transmitters, **#9908-** Digital Basics (Mark Long), **#9909-** Real World Installs (Mark Long), **#9910** - Installing a polar mount dish and signal level test equipment, **#9911** - "SPIN" (the hidden side of satellite); "Report" is broadcast by Mediasat on Optus B3, 12.336Vt, ad-hoc channel 3 (Sr 30.000, FEC 2/3) with the following coming-weeks schedule: **Sunday May 21** - Show 9909 0200-0300 UTC (1400 NZT, 1200 AET, 1000 Western Australia; repeats 0700 UTC). **Sunday May 28** - Show 9910, (premiere showing - same times as May 21); **Sunday June 4** - Show 9911 (premiere showing), same times as May 21; **Sunday June 11** - Show 9910, same times as May 21; **Sunday June 18** - Show 9911, same times as May 21; **Sunday June 25** - Show 9901 - same times as May 21. SPACE Pacific Report has also been broadcast by Westlink, Aurora service on Optus B3, vertical (12.595, Sr 30.000, FEC 3/4 - requires Optus Aurora card but is otherwise FTA). Westlink will again carry SPACE Pacific Report when new shows currently in planning are produced and available; details here in June (will start after July 1). In the event of schedule changes, SPACE Pacific attempts to pre-announce which show(s) will appear through the SatFACTS Web site prior to each weekend (http://www.satfacts.kwikkopy.co.nz). SPRSCS 2000 sessions taping scheduled for play on Mediasat and Westlink will be announced in June issue and will air through July-September.

Sponsorship of SPACE Pacific Report. In general answer to queries - AvComm, Satech and Sciteq have contributed corporate funding to make possible the production of the first set of nine SPACE Pacific Report programmes. Additional funding from Ikusi Australia NZ Pty Ltd. has been received for final production of show 9910. Funds derived from sale of VHS tape copies are also an important element in meeting the (A)$1,300 overhead of each show. Mediasat and Westlink donate the time to broadcast the programmes, and both are to be commended for this support. As we move into the next group of (9) programmes now being scripted and shot, we solicit financial support from members of the industry or those with commercial activities they wish to have associated with the project (see insert card between front cover and page 1, SatFACTS for February 2000). To discuss your own support, contact Bob Cooper at telephone 64-9-406-0651, fax 64-9-406-1083, e-mail Skyking@clear.net.nz. C-band wide area service is still being negotiated - keep the faith - it could happen yet! If you want to be a part of this project, attend SPRSCS 2000 in Box Hill (Melbourne) June 29 - 30, July 1st!

WITH THE OBSERVERS

AT PRESS DEADLINE

Zee TV's English and Movies continue FTA (As3; SF April, p. 6). Yes, CNBC has shut down on PAS-2 and is now only on PAS-8 (see p. 25 listing). CCTV-4 analogue on As2 and As3 are history - replaced by As3 (only) digital bouquet (see As3, below). UEC 642s will function perfectly on CNBC, PAS-8 bouquet.

ApStar 1/138E: Shanghai TV reported on 3870/1280Hz, Sr 4.290, 3/4.

ApStar 1A/134E: Macau Satellite reported on 3929/1221Hz, VPID 4130, APID 4131.

AsiaSat 2/100.5E: SCPC test card and Holy Koran Program (APID 662) + Soth-Al-Arab (APID 663) 3640/1519Hz, VPID 522, APID 650. CCTV-4 (3960/1190Hz) has shut down analogue service (see As3 below). "RAI Italy in European Bouquet (4000/1150Hz, Sr 28.125, 3/4) did technical tune-up on digital data stream April 14 and even on oldest Panasat 520 IRD, is now stable and clean" (**P. Casoar**, Victoria). Editor's note: Two Email technical contacts for Euro bouquet include fuchs@dwelle.de for Germany and a.depalo@rai.it for Italy. EBU ASA2 feeds now on 3936/1214Vt, Sr 6.110, 3/4.

AsiaSat 3R/105.5E: "CCTV-4 has shut down As2 and the (As3) 4120/1030Hz FTA analogue service; now here at 4115.5/1034.5Hz, Sr 19.850, 3/4" (**S. McLeod**, NZ). "Reports of As3 Ku reception in Australia (12.700Hz) - find no signal here" (**B. Richards**). SABe TV testing 3742/1408Vt, Sr 3.300, 3/4. Ekushey TV sometimes in clear on 3749/1401Vt, Sr 4.000, 3/4 (VPID 33, APID 34).

Express 6A/80E: Satellite testing at 96.5E is now over, should be at this permanent location as you read this. Check 3675/1475, may be digital, is high power transponder on global beam. See list of tests p. 29, SF April. Also watch 4125/1025RHC Sr 22.906, 3/4 for TV Center.

Gorizont 25/ 103E: STS on 3714/1436RHC, Sr 6.498, 3/4. Satellite is inclined nearly 3 degrees, tracking required.

Gorizont 33/ 145E: Launch delayed to 30 May, is last Gorizont ever built; should be "big signal" when turns on.

JcSat 3/128E: Sky NZ is installing a 10m dish for this satellite, to bring down various "Asian" services for new to launch in June "World TV" package of 6 programme channels.

JcSat 4/ 124E?: "Saw testing at this location on 3795/1355Hz, strong in NSW - anyone else seen something here?" (**Leach**)

Intelsat 701/180E: "Canal + Ku service on 11.610Hz (Sr 30.000, FEC 3/4) is now stronger in Auckland area - from 49 previously to 59 on Nokia signal level meter" (**Kosmalski**, NZ). Editor note: But this is on a 3m Ku quality dish, so is still 'not generally available' to NZ viewers.

LM1/75E: TV Malagasy (TVM) uplinking to 3980/1170Vt is also getting into ApStar 2R at 76.5E and coming back on same 3980Vt frequency. Case of too wide an uplink beam, hitting both satellite inputs simultaneously! Service has been running English language oldies recently.

A surprisingly high percentage of the "world-class" boxing events are sent unencrypted in digital format through Intelsat and PanAmSat "itinerant" feed channels. This late April event was an example and because it was the "raw" feed there were plenty of "Brian Springer" out-takes just waiting to be taped (see p. 6, this issue).

Optus B3/ 156E: TVBJ is now in Aurora bouquet at 12.407Vt replacing NHK Premium, Sr 30.000, FEC 2/3 but CA. Lashkara and Gujarati channels now CA, Irdeto on 12.532Vt (see p. 6, SF for March 15).

Palapa C2M/113E: SCTV returned to 3746/1404Vt, Sr 6.620, 3/4 FTA (VPID 2201, APID 2202). "RCTI has reduced level in NSW but with 3m or larger, still locks fine (3475/1675Hz, Sr 8.000, 3/4) (Leach). "Asia Works TV Jakarta Bureau" test card, occ feeds 3935/1215Hz, Sr 5.632, 3/4 (VPID 308, APID 256, PCR 8190)" (**B. Richards**, Aust.) "Site for Indonesian programmers on C2 is http://www .kompas.com/entertainment/teve/rcti.htm" (**Craig Sutton**, NZ).

PAS-2/169E: "CTN-1 through CTN-4 on 4148/1002Vt (Sr 24.430, 2/3) have FTA audio, video CA; ad-hoc 5th channel has occasional FTA feeds" (Leach, NSW). "Fox bouquet (3989/1161Vt, Sr 26.470, 7/8) has FTA golf, NBA feeds to Australia ch 3 and Fox News USA ch 5" (Leach, NSW on

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 June15th issue: June 5 by mail (use form appearing page 34), or 5PM NZT June 6th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

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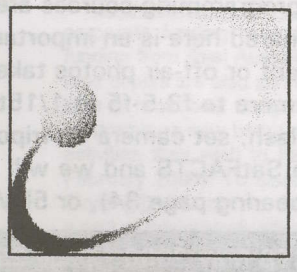

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4m). "Lakbay TV has video but no audio found on 4044/1106Hz (Sr 5.043, 3/4) - this from Haiti in Caribbean" (Leach. NSW). Story is not true - that CCTV digital multiplex (3716/1434Vt) *may* be gone from here - see replacement in As3 listing p. 29. Alas, this this *has been* a troublesome frequency for CCTV dating back to days when TVSN shared this 1/2 transponder spot. PanAmSat never could get power balance proper between two separate simultaneous users and one always fought the other for 'control' of output power. Korea's One-TV change in Sr to 4.420 - from 4.410 (3980/1170Hz, FEC 3/4). CNBC shut down PAS-2 service April 25, now only on PAS-8 (see listing, p. 25).

PAS-8/166.5E: "MTV ch 7 has MTV logo, occ. feeds from Asia, USA FTA (3740/1410Hz, Sr 27.500, 3/4); Discovery Animal Planet bouquet (3980/1170Hz, Sr27.690, 3/4) and ESPN (4020/1130Hz, Sr 26.470, 7/8) have mostly FTA audio feeds, video CA" (Leach, NSW). CMT is testing on 3940/1210Hz within PAS-8 California bouquet (VPID 2760, APID 2720); will most likely move here permanently from PAS-2 California bouquet. Boomerang TV sign-up forms at http://www.boomerangtv.com.au and Queensland RetraVision stores.

Thaicom 3/78E: "Mega TV (Greece) back inside of multiplex bouquet at 3640/1510Hz Sr 24.378; is second programme ch, only one FTA (in Pal)" (**Free To Air**, SA). Test card reported 3554/1596Vt, Sr 13.333, 3/4.

Footnotes: If TARBS "falls over" as some are forecasting, look for (Egyptian) ESC/ERTU to return to FTA format on As2 or 3. Fall out from TARBS tying up ESC Government run channel for commercial use only in Australia is still occurring.

Tahiti TeleFauna claming it will move to Ku with 10 ch bouquet on I802/174E while competitor TahitiNui TV (TNTV) says they will fire up on Tr K2 (Ku) on I701/180E sometime after 15 May (June 29 official target date) with 10-11 channel bouquet; reportedly has ordered 15,000 1.2m dishes from France. TNTV is majority owned by government, TeleFauna is private. Something *is* happening in Tahiti - but it may all be "hot air."

SatFACTS Web Site Problems

Our http://www.satfacts.kwikkopy.co.nz site went into terminal lock and disappeared late in April. Our "server" quit serving for business (not technical) reasons not disclosed to us. As this is written (May 6), we are back up but unable to "get in" ourselves to update. The last active update (as this is written) was 19 April! Promises - we are promised it will be fully functional again by May 12. We'll see. In the event we are still "down" when you read this, check http://homepages.ihug.co.nz/~suttconc/index.html

AT Sign-off

This year's industry trade show

Putting together the hundreds of individual elements that will make up SPRSCS 2000 in a Melbourne suburb is a hectic challenge. This year's industry gathering is the seventh for SPACE, the first in Australia. Past shows in New Zealand have attracted as many as 100 Australians out of total turn outs of 300+. The 1996 show which featured live entertainment arranged by CMT and full blown public participation with the support of Auckland radio stations attracted thousands.

This year's show is for trade members only (if you are reading this magazine, it is assumed you are a member of the "trade") June 29 and 30. July 1 is an "open day" to allow the general public to attend. Serious people who want to learn all there is to know about the hardware, software and programming aspects of satellite TV will attend all three days.

On both June 29 and 30 there will be two lecture theatres operating - one for "technical material" presentations, a second for "management material."

The division here is simple enough - if you work with a crimping tool in your hands, you will want to head to the technical sessions. And if you sit at a desk in front of a PC screen, the management sessions. And if you do both - as so many of us do? Well, that's why we are videotaping both lecture theatre sessions and over the period July - September, we will run the sessions over satellite to you "live on tape" through the helpful assistance of Westlink (in the Aurora bouquet) and Mediasat.

The speaker / presenter line-up is filling in nicely as these words are written. There are some surprises. The "Blackspot Babel" session - showing you how to deal with the bureaucracy of the ABA in gaining approval for satellite service to homes located where terrestrial TV stinks - is likely to turn into two sessions. One, we anticipate, will be presented by a representative from the ABA. The second will be done by members of our industry who will address the "real world" of signal measurements and paperwork form completion. The percentage of "incomplete" ABA applications submitted to date is appalling and tells us a high percentage of those trying to sell Blackspot systems do not understand how to read a (terrestrial) signal level meter. A third session will deal with microvolts and dBuV(s). You can sit there, take notes, and quietly figure out where you went wrong with your own ABA-forms.

Antennas. AV-Comm's Garry Cratt will only be able to attend a single day - June 29th, but has agreed to share his two decades of experience in antenna selection and installation. At the opposite end of the spectrum, a very quiet man who *never* speaks at trade shows has finally agreed to do so. Bryon G.G. Evans, founder of Pacific Antennas Limited back in 1985, will host an informal session to discuss motor drives, antenna mounting systems, and assembly practices for dishes 4m and larger. Evans recently sold his pioneering big-dish antenna business headquartered in New Zealand, and now that he's out of the business figures he is ready to "spill the beans" about a wide range of previously confidential topics. If big money commercial jobs are in your business plan, this session is for you.

Speaking of "spilling the beans," Bill Karnes of Asian TV Pty Ltd. is hot under the collar because he believes the Indian viewers in Australia have been badly mislead by some "promoters" in the field. And his "Indian Intrigue" session will address his perception of "wrongs."

Leon Senior from Satech has a slightly different take on ethnic programming and his session titled "Ethic Erratic" will put you into the front row with explanations about what you can *realistically* expect from those offshore programmers.

Technically, Joe Bonavia from Ikusi NZ & Australia and Peter Lacey of Lacey's Australia will attempt to show you why test instruments (spectrum analysers, signal level meters) are more important to your eventual business success than a new Ford Van or a girl friend on the side. With the ABA all over our cases concerning our (that is an industry "our") inability to read signal levels properly, both of these sessions will help you focus on why 10 volts is not a P1 signal. And if these guys are too technical for you, the editor of this magazine will put it all into 1st grade terms with handout sheets you can attach with a safety pin to your shorts so you will never again think 10 volts of signal is P1.

LNB/LNBF products, with emphasis on the DiSEqC switching, will be the task of Elie Abourrousse, MD of Strong Technologies (Dubai).

Eric J. Fien, who has pioneered Internet packages through SMATV business systems, leads off our attack on satellite master antenna systems. Others are in the mill.

Hands on guys and gals will delight in the Saturday morning (July 1st) session titled "Naughty Nokias." There is (dare we tell you) some Internet software out there that allows Nokia IRDs to tune in some intriguing transmissions (NO - we do NOT mean pay-TV with MOSC cards!). This note: This session will *only* be open to those who register to attend the June 29 - 30 trade dates.

All of the latest package services will be demonstrated - including Canal + from I701, Boomerang, and TARBS (if they are still operating) from PAS-8, the Zee bouquet and even some Star Asia services. But no "funny cards."

Now - turn to page one and look left for the enrolment card. *Note prices go up June 1*!

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☐ **SATELLITE TELEVISION:** The Booklet. Excellent introduction to home dish ownership for the layman, including major contributions from the father of geostationary satellites - famed science fiction writer *Sir Arthur C. Clarke*. The perfect tool to help the satellite system seller explain home satellite TV to the consumer. From SPACE Pacific. NZ$10/ A$12 / US$10, airmail.

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OBSERVER REPORTING FORM - Due June 5, 2000

• NEW programming sources seen since April 1st: _____

_____

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

_____

• OTHER (including changes in your receiving system): _____

_____

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

Your Name _____

Town/City _____ _____ _____

Make/size dish _____ LNB _____ Receiver _____

Your email address _____ **if you have one!**

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

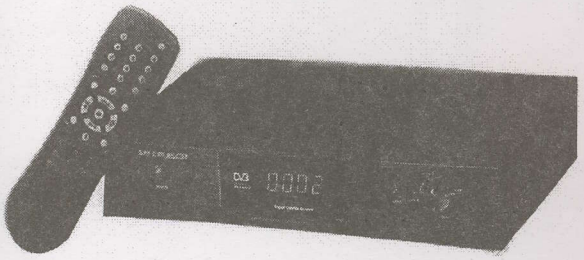
"Random Sightings"

Foxtel's decision to scrap DGT400 IRDs: "They are doing this because Foxtel wants to begin employing QPSK-QAM transmodulators (TDTs) in the MATV (master antenna) business sector. The older DGT400s will not accept the version of Network Information Table (NIT - provided in their transponder 1 multiplex) required for the TDTs to do a straight through carriage of the NIT which QAM version boxes can use. The NIT provides the details the IRD-receivers require to locate all of the other Foxtel transponders after the first one has been tuned in. An expensive German made TDT can regenerate the NIT (at each headend site) but a simpler solution for Foxtel is to simply begin removing the DGT400s from service so they can upgrade the NIT and thereby eventually permit use of substantially less costly TDTs." (PL, Victoria)

New location for (Greek) Mega TV: "Yes, the Thaicom 3 3625 Mega TV has shut down. However, they can now be found on 3640/1510Hz with a Sr of 24.378. They new line-up is as follows: (1) METV VPID 512, APID 640, P8190 encrypted; (2) MEGA TV V513, A 641, P8190 FTA; (3) TVP V514, A642, P8190 encrypted; (4) CD V515, A643, P8190 encrypted; (5) ? V516, A644, P8190, encrypted; (6) NTV V517, A645, P8190 encrypted; (7) NTVP V518, A646, P8190 encrypted; (8) TVG V519, A647, P8190 encrypted; (9) TVC V521, A649, P8190 encrypted; (10) TRT V521, A649, P8190 encrypted; (11) CT11 V522, A650, P8190 encrypted; (12) CT12 V523, A651, P8190 encrypted." (Free-to-Air Satellite, SA)

Seventh-day Adventist schedule for Pacific: "The 'Jesus 2000' program is being uplinked live from the Parramatta Church on the following schedule during May: PAS-2C (3872.5/1277.5Hz, Sr 6.620, FEC 2/3) at 0945UTC Saturday May 20, Sunday May 21; at 0115UTC Saturday May 27, 0945UTC Sunday May 27. Audio channels are as follows: Ch 1 (left) English, Ch 1 (right) Spanish), Ch 2 (L) Korean), Ch 2 (R) Mandarin, Ch 3 (L) Serbian, Ch 3 (R) , Ch 4 (L) Fijian, Ch. 4 (R) Samoan."

Satcruiser Digital Satellite Receivers



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Common Interface Standard (CI)	NA	•	NA
Dual CAM Sockets (PCMIA)	NA	•	NA
Dual input Analog Receiver (low Threshold)	NA	NA	•
On board Dish Positioner (Medium Duty)	NA	NA	•
Motorized Feed horn Support (Polorotor)	NA	NA	•
32 Step Threshold 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	•	•	•
TP/Channel/Satellite Name Edit and delete Mode	•	•	•
C Tick approved	•	•	•
Low Threshold Digital Tuner with IF loop output	•	•	•
On board TELETEXT Decoder	•	•	•
Real time on-screen Signal Level Meter	•	•	•
Auto FEC/SR/Polarity Detection -when enabled	•	•	•
NTSC to PAL 50Hz Converter On board	•	•	•

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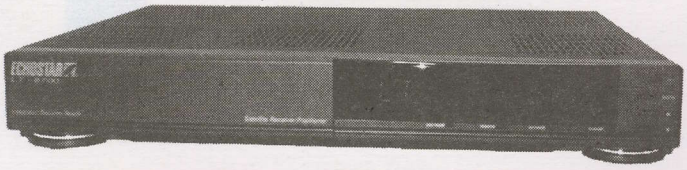

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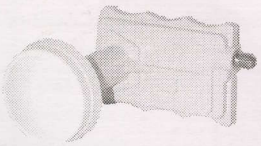

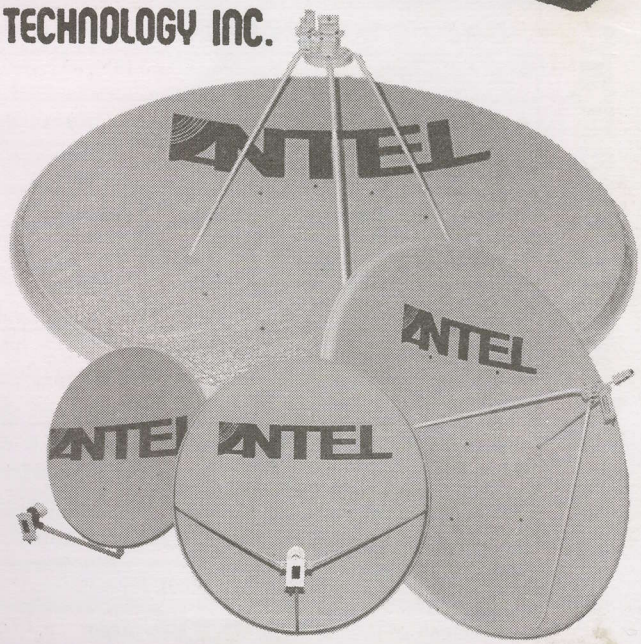

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