

**OFFICIAL NEWSLETTER FOR THE WEST AUSTRALIAN VHF GROUP(INC)  
P.O. BOX 189, APPLECROSS WA 6153.**

**MEETINGS ON THE FOURTH MONDAY OF EACH MONTH AT WIRELESS HILL  
TELECOMMUNICATIONS MUSEUM, ALMONDBURY RD, ARDROSS**

**VK6WH**

**VK6WH**

**PATRON MR. F.W. DAWSON**

PRESIDENT	BOB BLINCO	VK6KRC H277 7049	SECRETARY	BOB PINE	VK6ZFY	H 339 3273
VICE PRES	PETER TAIT	VK6ZPT	TREASURER	BERT MEUWISSEN	VK6ME	H 457 3892
COUNCILLOR	TERRY LEITCH	VK6ZLT H332 7008	BULLETIN ED.	JACK BORTHEN	VK6KDX	H 447 5933
COUNCILLOR	BRUCE DOUGLAS	VK6BMD	MUSEUM REP.	BOB PINE	VK6ZFY	
COUNCILLOR	COLIN MURRAY	VK6ZCR	MUSEUM REP.	TOM BERG	VK6ZAF	
ACTIVITIES	TERRY LEITCH	VK6ZLT	PUBLICITY	PHIL MALEY	VK6AD	
MATERIALS	COLIN MURRAY	VK6ZCR	LIBRARIAN	ILMAR BELTS	VK6AIB	

**CALENDAR**

<b>JANUARY</b>	<b>20 COMMITTEE MEETING</b>	<b>MARCH</b>	<b>16 COMMITTEE MEETING</b>
	<b>25 FOX HUNT</b>		<b>21 FOXHUNT</b>
	<b>27 GENERAL MEETING</b>		<b>23 GENERAL MEETING</b>
<b>FEBRUARY</b>	<b>20 COMMITTEE MEETING</b>	<b>APRIL</b>	<b>18 COMMITTEE MEETING</b>
	<b>17 FOX HUNT</b>		<b>20 FOXHUNT</b>
	<b>24 GENERAL MEETING</b>		<b>27 GENERAL MEETING</b>

**JANUARY 92**

## BEACON NEWS

The local Perth beacons are located at the QTH of Bob VK6KRC.

They are:-

6M	50.066Mhz	10 watts into omni
2M	144.460Mhz	10 watts into omni
70cm	432.160Mhz	3 watts into pair 15 element NBS yagis

pointed in the DX direction

23cm	1296.480Mhz	1.5 watts into an Alford slot
10Ghz	10.4Mhz	More info at the January meeting.

Beacon of the air until further notice.

VK6RTT previous located at Karratha has been taken of the air.

## ALFORD SLOT.

What is an Alford slot you might ask.

Well the Alford Slot antenna was developed for 1.3GHz by G3JVL as an easy means of obtaining an omni-directional radiation pattern. It has a gain, dependant mainly on its length, of typically 5 to 9 dBi. It is particularly suitable for beacon use. There is a 3 page article in the RSGB publication "The Microwave Newsletter Technical Collection" giving full constructional details. The editor will happily lend this publication to anyone willing to summarise the article for publication in this bulletin and maybe that person might wish to give a talk to the group. The newsletter has articles covering topics from 1.3GHz to 24GHz.

## CHIP CAPACITORS.

I recently purchased a 1.7GHz receive converter through the VHF Group from VK5. I raced through building the oscillator and even got it working (with some help from VK6ZFY). The convertor stage however sat looking at me for several days. The problem. It contained about 11 chip capacitors. A terrifying prospect for an inept constructor like myself. However I overcame my inertia and had a go. It turned out that they are a piece of the proverbial ..... to insert. I followed the instructions which suggest that you pre-solder the PC surfaces, hold the chip in place with a tooth pick, and with a reasonably hot iron, flow the solder up to the chip. It was easy. I pass this on in hope that others may be inspired to have a go at some of these great

kits. The club benefits from the purchases as well. Unfortunately getting the convertor up and going will take me little longer.

## SATELLITE TV.

My interest in radio has also been driven by curiosity of what is on those bands which my gear never seems to cover. This is what has lead me to the VHF and higher bands particularly when it is still possible to build some of the gear. This SWL bent has recently lead me to satellite SWLing. Today I watched a Russian TV service on C Band (3.7 to 4.2 GHz) for the first time. This was achieved using a 3 metre dish, a 30 degree Kelvin 64 dB gain LNB (low noise amplifier and downconvertor) and a satellite receiver feeding into UHF TV. The 64 dB LNB cost just under \$300 which when you consider its specs is amazing. The KU Band (12.25-12.75GHz) is also of great local interest with the Aussat satellites providing a number of interesting signals. Silicon Chip ran a series of articles on what can be seen and heard. Should you be interested in this pursuit there a number of sources of second hand equipment available. Some of this gear, for example the 5 foot pressed steel dishes for about \$300, represent good value and would be useful in the ham bands. A second hand KU band LNC is about \$100 and the receiver about \$250. Some of the LNCs are made from reasonably discrete circuitry and may well be adaptable to 10 Gig. If there is interest I can probably organise a demonstration at Wireless Hill on a meeting night. I have found playing around with these frequencies very instructive. The problems of cabling, finding the satellite, attenuation by trees and which type of feed horn to use have all increased my knowledge of handling microwave frequencies. For instance the beam width on my 3M dish is less than 1 degree at 12GHz. I have also developed an insight into our news services which has only increased my general sceptism about what we are told. As I ramble on it now occurs to me what the Wayne Green 73 mag editorials are all about. Filling space because there are not enough articles.

## IDEAS FOR ARTICLES.

I would like to feature some of the current available technology in future bulletins. Help with source material and notes on devices such as MMICs, mixers and oscillators will be gratefully accepted.

## Editorial

I will commence my term as bulletin editor with the usual appeal for articles, comments or bits of useful information for publication. You may :

Telephone me on 447 5933 (home) 420 4989 (work)

Fax me 325 1585

leave a PACKET on VK6KS (formerly VK6XPS)

or write me a letter at 108 Lynn Street, Trigg, 6029.

I even occasionally listen on 2M.

Having got that commercial out of the way I will now launch into another.

How about shocking everyone by turning up at the next meeting. The regular attendees would really like to see you. I remember when I joined , several sunspot cycles ago, if you were late you had to stand outside the door. Then came computers, packet and other distractions. So maybe it is time to return to the real hobby.

This next meeting was traditionally seen as an opportunity for country members to attend (being a Monday holiday). This may well be the last Monday holiday meeting for some time as the Australia Day holiday will in future be taken on the actual day. Yet another reason to attend.

In discussions with another amateur recently he raised the issue that "VHF" was no longer challenging and that the former "VHF" enthusiasts are now into microwave frequencies. This lead to the suggestion that maybe it is time to change the name of the group to reflect this change. He suggested that if we don't ,there may be a risk of another group taking on the "microwave" title.

What do you think ?  
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## STOP PRESS

### South Australian Beacons

The VK5 beacons are now back on air (as of 12/1/92) having been refurbished.

6M 52.450 12 watts into turnstile

2M 144.450 8 watts into 2 x stacked big wheel

70 cm 432.450 4 watts into 2x stacked big wheel

23 cm 1296.450 12 watts 2 antennas pointing SE &  
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**Subject: 92 Sidereal correction:**

**Subject: Tracking Notes for 92**

**A Note From Your AMSAT Orbital Data Manager**

Time once again to remind those users of tracking programs written in BASIC, such as the W3IWI Orbit Tracking Program, that it is time to update the Greenwich Sidereal Time (GST) value in the program (variable name G2).

For 1992: GST = 0.27477847

A short BASIC listing to compute this yourself is available from AMSAT for an SASE.

Also, some programs crash on Keps from the previous year. This happens in early January before 1992 keps are published. You can fool your program by entering 12/32/1991 for 01/01/1992, and so on, and it will work just fine

Best Wishes for a great New Year from N3FKV.  
(TKS to VK6KS bulletin board.)  
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### Opening to VK5

My informants tell me there was an opening to VK5 at 7:15 am local time on the 14th of January. I believe that Ken VK6AKT and Wally VK6KZ worked the VK5s. Other may have also been involved. (Bob Pine was out watering his garden at the time.)

Satellite: NOAA-9  
Catalog number: 15427  
Epoch time: 92002.59209814  
Element set: 965  
Inclination: 99.1578 deg  
RA of node: 25.8363 deg  
Eccentricity: 0.0014503  
Arg of perigee: 221.1567 deg  
Mean anomaly: 138.8550 deg  
Mean motion: 14.13237014 rev/day  
Decay rate: 4.58e-06 rev/day<sup>2</sup>  
Epoch rev: 36368  
Checksum: 311

Satellite: NOAA-10  
Catalog number: 16969  
Epoch time: 92002.56482212  
Element set: 808  
Inclination: 98.5492 deg  
RA of node: 26.5940 deg  
Eccentricity: 0.0014287  
Arg of perigee: 70.2560 deg  
Mean anomaly: 290.0164 deg  
Mean motion: 14.24442404 rev/day  
Decay rate: 5.91e-06 rev/day<sup>2</sup>  
Epoch rev: 27493  
Checksum: 297

Satellite: MET-2/17  
Catalog number: 18820  
Epoch time: 92002.78011069  
Element set: 638  
Inclination: 82.5407 deg  
RA of node: 261.5604 deg  
Eccentricity: 0.0015819  
Arg of perigee: 175.5049 deg  
Mean anomaly: 184.6256 deg  
Mean motion: 13.84579499 rev/day  
Decay rate: 2.61e-06 rev/day<sup>2</sup>  
Epoch rev: 19830  
Checksum: 327

Satellite: MET-3/2  
Catalog number: 19336  
Epoch time: 91363.12614642  
Element set: 880  
Inclination: 82.5411 deg  
RA of node: 241.2512 deg  
Eccentricity: 0.0017553  
Arg of perigee: 358.0701 deg  
Mean anomaly: 2.0348 deg  
Mean motion: 13.16937923 rev/day  
Decay rate: 2.5e-07 rev/day<sup>2</sup>  
Epoch rev: 16465  
Checksum: 275

Satellite: NOAA-11  
Catalog number: 19531  
Epoch time: 92002.63651007  
Element set: 719  
Inclination: 99.0586 deg  
RA of node: 324.1910 deg  
Eccentricity: 0.0012592  
Arg of perigee: 131.7425 deg  
Mean anomaly: 228.4832 deg  
Mean motion: 14.12462726 rev/day  
Decay rate: 6.81e-06 rev/day<sup>2</sup>  
Epoch rev: 16862  
Checksum: 290

Satellite: MET-2/18  
Catalog number: 19851  
Epoch time: 92002.82599471  
Element set: 590  
Inclination: 82.5202 deg  
RA of node: 138.5107 deg  
Eccentricity: 0.0013354  
Arg of perigee: 218.5246 deg  
Mean anomaly: 141.4984 deg  
Mean motion: 13.84219721 rev/day  
Decay rate: 1.52e-06 rev/day<sup>2</sup>  
Epoch rev: 14367  
Checksum: 303

Satellite: MET-3/3  
Catalog number: 20305  
Epoch time: 92002.52966881  
Element set: 491  
Inclination: 82.5515 deg  
RA of node: 179.9340 deg  
Eccentricity: 0.0017031  
Arg of perigee: 4.6362 deg  
Mean anomaly: 355.4914 deg  
Mean motion: 13.15972014 rev/day  
Decay rate: 4.3e-07 rev/day<sup>2</sup>  
Epoch rev: 10517  
Checksum: 276

Satellite: MET-2/19  
Catalog number: 20670  
Epoch time: 92002.58495375  
Element set: 340  
Inclination: 82.5478 deg  
RA of node: 200.5781 deg  
Eccentricity: 0.0015903  
Arg of perigee: 139.3035 deg  
Mean anomaly: 220.9314 deg  
Mean motion: 13.84059883 rev/day  
Decay rate: 1.66e-06 rev/day<sup>2</sup>  
Epoch rev: 7658  
Checksum: 311

Satellite: FY-1/2  
Catalog number: 20788  
Epoch time: 92002.80731109  
Element set: 301  
Inclination: 98.9206 deg  
RA of node: 36.9894 deg  
Eccentricity: 0.0015443  
Arg of perigee: 350.0214 deg  
Mean anomaly: 10.0649 deg  
Mean motion: 14.01193889 rev/day  
Decay rate: 3.94e-06 rev/day<sup>2</sup>  
Epoch rev: 6816  
Checksum: 290

Satellite: MET-2/20  
Catalog number: 20826  
Epoch time: 92002.83821661  
Element set: 341  
Inclination: 82.5254 deg  
RA of node: 139.0982 deg  
Eccentricity: 0.0014215  
Arg of perigee: 42.7373 deg  
Mean anomaly: 317.4893 deg  
Mean motion: 13.83431405 rev/day  
Decay rate: 1.45e-06 rev/day<sup>2</sup>  
Epoch rev: 6381  
Checksum: 280

Satellite: MET-3/4  
Catalog number: 21232  
Epoch time: 92002.70710817  
Element set: 141  
Inclination: 82.5482 deg  
RA of node: 83.5709 deg  
Eccentricity: 0.0016840  
Arg of perigee: 278.2987 deg  
Mean anomaly: 81.6232 deg  
Mean motion: 13.16764853 rev/day  
Decay rate: 4.3e-07 rev/day<sup>2</sup>  
Epoch rev: 3337  
Checksum: 290

Satellite: NOAA-12  
Catalog number: 21263  
Epoch time: 92002.60872576  
Element set: 158  
Inclination: 98.7153 deg  
RA of node: 34.6942 deg  
Eccentricity: 0.0012116  
Arg of perigee: 315.0112 deg  
Mean anomaly: 45.0093 deg  
Mean motion: 14.21772993 rev/day  
Decay rate: 6.88e-06 rev/day<sup>2</sup>  
Epoch rev: 3309  
Checksum: 283

Satellite: MET-3/5  
Catalog number: 21655  
Epoch time: 92001.57164922  
Element set: 159  
Inclination: 82.5568 deg  
RA of node: 30.6601 deg  
Eccentricity: 0.0012364  
Arg of perigee: 283.9432 deg  
Mean anomaly: 76.0173 deg  
Mean motion: 13.16791374 rev/day  
Decay rate: 1.63e-06 rev/day<sup>2</sup>  
Epoch rev: 1832  
Checksum: 287

Satellite: UO-14  
Catalog number: 20437  
Epoch time: 91362.78780821  
Element set: 489  
Inclination: 98.6549 deg  
RA of node: 80.9696 deg  
Eccentricity: 0.0011412  
Arg of perigee: 320.5887 deg  
Mean anomaly: 39.4482 deg  
Mean motion: 14.29417837 rev/day  
Decay rate: 5.39e-06 rev/day<sup>2</sup>  
Epoch rev: 10078  
Checksum: 334

Satellite: AO-18  
Catalog number: 20439  
Epoch time: 91364.47169209  
Element set: 387  
Inclination: 98.6598 deg  
RA of node: 83.1328 deg  
Eccentricity: 0.0011298  
Arg of perigee: 319.0221 deg  
Mean anomaly: 41.0107 deg  
Mean motion: 14.29493162 rev/day  
Decay rate: 4.81e-06 rev/day<sup>2</sup>  
Epoch rev: 10103  
Checksum: 295

Satellite: DO-17  
Catalog number: 20440  
Epoch time: 91364.43870866  
Element set: 388  
Inclination: 98.6602 deg  
RA of node: 83.1820 deg  
Eccentricity: 0.0011980  
Arg of perigee: 319.5685 deg  
Mean anomaly: 40.4694 deg  
Mean motion: 14.29600397 rev/day  
Decay rate: 5.04e-06 rev/day<sup>2</sup>  
Epoch rev: 10103  
Checksum: 302

Satellite: WO-18  
Catalog number: 20441  
Epoch time: 91361.25521035  
Element set: 387  
Inclination: 98.6602 deg  
RA of node: 80.0683 deg  
Eccentricity: 0.0012302  
Arg of perigee: 328.4742 deg  
Mean anomaly: 31.5701 deg  
Mean motion: 14.29813406 rev/day  
Decay rate: 5.06e-06 rev/day<sup>2</sup>  
Epoch rev: 10058  
Checksum: 262

Satellite: LO-19  
Catalog number: 20442  
Epoch time: 91361.70895321  
Element set: 388  
Inclination: 98.6584 deg  
RA of node: 80.5992 deg  
Eccentricity: 0.0012980  
Arg of perigee: 327.2903 deg  
Mean anomaly: 32.7474 deg  
Mean motion: 14.29893630 rev/day  
Decay rate: 4.85e-06 rev/day<sup>2</sup>  
Epoch rev: 10085  
Checksum: 322

Satellite: UO-22  
Catalog number: 21575  
Epoch time: 92002.23014725  
Element set: 92  
Inclination: 98.5273 deg  
RA of node: 79.4185 deg  
Eccentricity: 0.0008933  
Arg of perigee: 100.9712 deg  
Mean anomaly: 259.2479 deg  
Mean motion: 14.36383900 rev/day  
Decay rate: 6.57e-06 rev/day<sup>2</sup>  
Epoch rev: 2428  
Checksum: 302

Satellite: MIR  
Catalog number: 18609  
Epoch time: 92002.98104240  
Element set: 972  
Inclination: 51.8008 deg  
RA of node: 3.8492 deg  
Eccentricity: 0.0001470  
Arg of perigee: 287.2544 deg  
Mean anomaly: 92.8924 deg  
Mean motion: 15.62149988 rev/day  
Decay rate: 1.29725e-03 rev/day<sup>2</sup>  
Epoch rev: 33632  
Checksum: 301

Satellite: HUBBLE  
Catalog number: 20580  
Epoch time: 92003.06244094  
Element set: 547  
Inclination: 28.4697 deg  
RA of node: 241.9832 deg  
Eccentricity: 0.0006018  
Arg of perigee: 246.0395 deg  
Mean anomaly: 113.9667 deg  
Mean motion: 14.89891373 rev/day  
Decay rate: 4.940e-05 rev/day<sup>2</sup>  
Epoch rev: 9213  
Checksum: 308

Satellite: GRO  
Catalog number: 21225  
Epoch time: 92001.55626131  
Element set: 385  
Inclination: 28.4655 deg  
RA of node: 162.5715 deg  
Eccentricity: 0.0008718  
Arg of perigee: 87.4354 deg  
Mean anomaly: 272.7247 deg  
Mean motion: 15.48356881 rev/day  
Decay rate: 1.8204e-04 rev/day<sup>2</sup>  
Epoch rev: 4189  
Checksum: 303

Satellite: SARA  
Catalog number: 21578  
Epoch time: 91364.73973182  
Element set: 156  
Inclination: 98.6281 deg  
RA of node: 78.9279 deg  
Eccentricity: 0.0005581  
Arg of perigee: 98.4192 deg  
Mean anomaly: 261.7627 deg  
Mean motion: 14.36676503 rev/day  
Decay rate: 2.755e-05 rev/day<sup>2</sup>  
Epoch rev: 2392  
Checksum: 338

Satellite: UARS  
Catalog number: 21701  
Epoch time: 91351.79834655  
Element set: 78  
Inclination: 56.9862 deg  
RA of node: 215.1611 deg  
Eccentricity: 0.0004957  
Arg of perigee: 117.2771 deg  
Mean anomaly: 242.8911 deg  
Mean motion: 14.96789117 rev/day  
Decay rate: 4.253e-05 rev/day<sup>2</sup>  
Epoch rev: 1435  
Checksum: 308

Satellite: AO-10  
Catalog number: 14129  
Epoch time: 92001.35048454  
Element set: 787  
Inclination: 26.0819 deg  
RA of node: 106.3387 deg  
Eccentricity: 0.6071848  
Arg of perigee: 306.5088 deg  
Mean anomaly: 11.7803 deg  
Mean motion: 2.05885513 rev/day  
Decay rate: -1.32e-08 rev/day<sup>2</sup>  
Epoch rev: 3632  
Checksum: 283

Satellite: UO-11  
Catalog number: 14781  
Epoch time: 91364.60407727  
Element set: 151  
Inclination: 97.8752 deg  
RA of node: 42.0861 deg  
Eccentricity: 0.0011039  
Arg of perigee: 265.6878 deg  
Mean anomaly: 84.3088 deg  
Mean motion: 14.67900564 rev/day  
Decay rate: 1.782e-05 rev/day<sup>2</sup>  
Epoch rev: 41825  
Checksum: 318

Satellite: RS-10/11  
Catalog number: 18129  
Epoch time: 92002.41078888  
Element set: 989  
Inclination: 82.9278 deg  
RA of node: 271.8274 deg  
Eccentricity: 0.0012129  
Arg of perigee: 0.4093 deg  
Mean anomaly: 359.7073 deg  
Mean motion: 13.72244148 rev/day  
Decay rate: 1.75e-06 rev/day<sup>2</sup>  
Epoch rev: 22691  
Checksum: 312

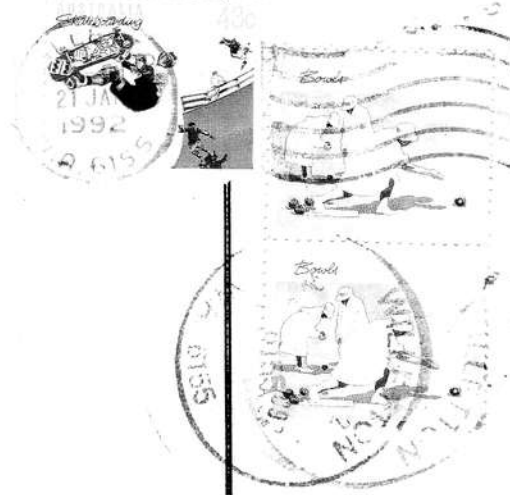
Satellite: AO-13  
Catalog number: 19216  
Epoch time: 91333.49594371  
Element set: 329  
Inclination: 56.6796 deg  
RA of node: 57.8015 deg  
Eccentricity: 0.7264022  
Arg of perigee: 271.2361 deg  
Mean anomaly: 14.4191 deg  
Mean motion: 2.09897804 rev/day  
Decay rate: 2.18e-06 rev/day<sup>2</sup>  
Epoch rev: 2649  
Checksum: 315

Satellite: FO-20  
Catalog number: 20480  
Epoch time: 91355.34702538  
Element set: 287  
Inclination: 99.0659 deg  
RA of node: 302.2049 deg  
Eccentricity: 0.0539965  
Arg of perigee: 237.5764 deg  
Mean anomaly: 117.2711 deg  
Mean motion: 12.83199150 rev/day  
Decay rate: 2.7e-07 rev/day<sup>2</sup>  
Epoch rev: 8756  
Checksum: 312

Satellite: AO-21  
Catalog number: 21087  
Epoch time: 92003.15364568  
Element set: 199  
Inclination: 82.9434 deg  
RA of node: 85.7960 deg  
Eccentricity: 0.0036994  
Arg of perigee: 62.2008 deg  
Mean anomaly: 298.2887 deg  
Mean motion: 13.74442391 rev/day  
Decay rate: 1.25e-06 rev/day<sup>2</sup>  
Epoch rev: 4649  
Checksum: 329

Satellite: RS-12/13  
Catalog number: 21089  
Epoch time: 92002.89024768  
Element set: 188  
Inclination: 82.9262 deg  
RA of node: 316.0548 deg  
Eccentricity: 0.0031077  
Arg of perigee: 82.9262 deg  
Mean anomaly: 277.5423 deg  
Mean motion: 13.73953247 rev/day  
Decay rate: 1.33e-06 rev/day<sup>2</sup>  
Epoch rev: 4558  
Checksum: 317

JANUARY 1992



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