The West Australian
VHF Group Bulletin
March 2003

Calendar

Mar	10	VHF Microwave Net
	17	Committee Meeting
	24	General Meeting
Apr	13	**Field Day**
	14	VHF Microwave Net
	21	Committee Meeting
	28	Annual Gen. Meeting
May	12	VHF Microwave Net
	19	Committee Meeting
	26	General Meeting
Jun	9	VHF Microwave Net
	16	Committee Meeting
	23	General Meeting
Jul	14	VHF Microwave Net
	21	Committee Meeting
	28	General Meeting
Aug	11	VHF Microwave Net
	18	Committee Meeting
	25	General Meeting

Committee

President	Alan	VK6ZWZ
Acting Sec.	Don	VK6HK
Vice President	Terry	VK6ZLT
Treasurer	Cec	VK6AO
Activities		
Materials		
Publicity		
Librarian	Al	VK6ZAY
Museum Rep	Tom	VK6ZAF
Bulletin Editor	Ben	VK6TLA
Councillor	Luigi	VK6YEH
Councillor	Wally	VK6KZ
Councillor	Terry	VK6TRG

The official newsletter for the West Australian VHF Group (Inc), PO Box 189 Applecross. Email for the editor can be sent to vk6tla@amsat.org.

Editors Notes

Ben Rampling, VK6TLA

Welcome to the March edition of the Bulletin. In this issue we'll be going through a few activities scheduled over the next few months, and some notes from Terry Grammer on his recent antenna tests.

First up, the WIA has written to the group seeking comment on proposals to introduce a foundation licence class. The WIA is encouraging involvement in the process by individuals and groups, and have invited amateurs to contact local division councillors for details. While on the topic of the WIA, the Western Australian Division Annual General Meeting is coming up on 19 April. Continued participation by members of the VHF Group would greatly assist representation of the club on issues such as beacon approvals.

Chris Hill VK6KCH will be giving a talk on *APRS in the Perth Area* at the March meeting. Chris is involved in efforts to construct a network of digipeaters to carry APRS traffic around Perth and surrounding country areas, and an Internet gateway to wormhole packets to other networks around the world. A number of nodes are already on air, on the official Australian frequency of 145.175MHz. Chris is particularly keen on gaining access to a rooftop location in central Perth for better coverage of the metropolitan area. If you can assist, please come along to the March meeting or email Chris at vk6kch@amsat.org. Activities for April are to be announced, and the May meeting is the annual junk sale.

The field day is coming up on April 13. Rules have been published in the January bulletin, and are also available at vhf.worldsbest.com.au. There are no significant changes to the rules from the previous field day.

Don Graham VK6HK has continued tests with his GPS frequency standard, and has set up an experimental 2403 MHz 10mW signal source. Frequency accuracy at this frequency was estimated at better than ±10 Hz.

The experiment has been built up from a controller designed by Brooks Shera W5OJM and described in *A GPS-Based Frequency Standard*, QST July 1998. The article—and details of the controller and other GPS applications—can be found at www.rt66.com/~shera/. The pulse per second (PPS) reference signal is provided by a Motorola Oncore UT+ GPS board. The Oncore UT+ model is designed specifically for timing applications. Amongst other optimisations, when the GPS is in position hold mode—where processing assumes the antenna is stationary for more accurate timing—an on board auto survey mode can be used to average 10,000 fixes to achieve higher position accuracy.

10 GHz Antenna Range Notes

Terry Grammer, VK6TRG

A short 10GHz antenna range was setup in the backyard of the home QTH to set up various dish and feed combinations and to test the gain relative to a horn.

The source was a gunn oscillator tuned to 10.368GHz and AM modulated with one kilohertz. The receiver was a coaxial diode detector feeding a HP415E. This setup is described in recent issues of Scatterpoint the UK Microwave group newsletter that is available on the web at www.microwavers.org.

An home made horn, ex VK6XH, of nominal 20db gain, was used as a reference antenna to provide relative gain measurements.

The following dishes were tested:-

- Grey Steel 565mm F/D 0.32
- White Erricson 610mm F/D 0.42

Feeds for above

- Calvin Feed
- Circular Feed with circular adjustable chock ring

Feeds with Dishes attached

- Telurometer
  Dish 300mm F/D 0.335 with intergral feed
- Black F/Glass dish 615mm F/D 0.405
  with penny feed

Results

	Measured	Theory
Telurometer	23.5 db	27 db
P/feed Dish	26 db	34 db
White Dish Calvin feed	31.5 db	34 db
White Dish C/Feed	28 db	34 db
Grey Dish Calvin Feed	30 db	32.5 db
Grey Dish C/ Feed	31db	32.5 db

Conclusions

- The horn is not precision so the absolute gains are less.
- The length of the range is probable to short—500 wave lengths.
- The focus is critical and not where theory predicts.

Does anyone have a 24GHz and 5GHz gun oscillators?