

Official Bulletin



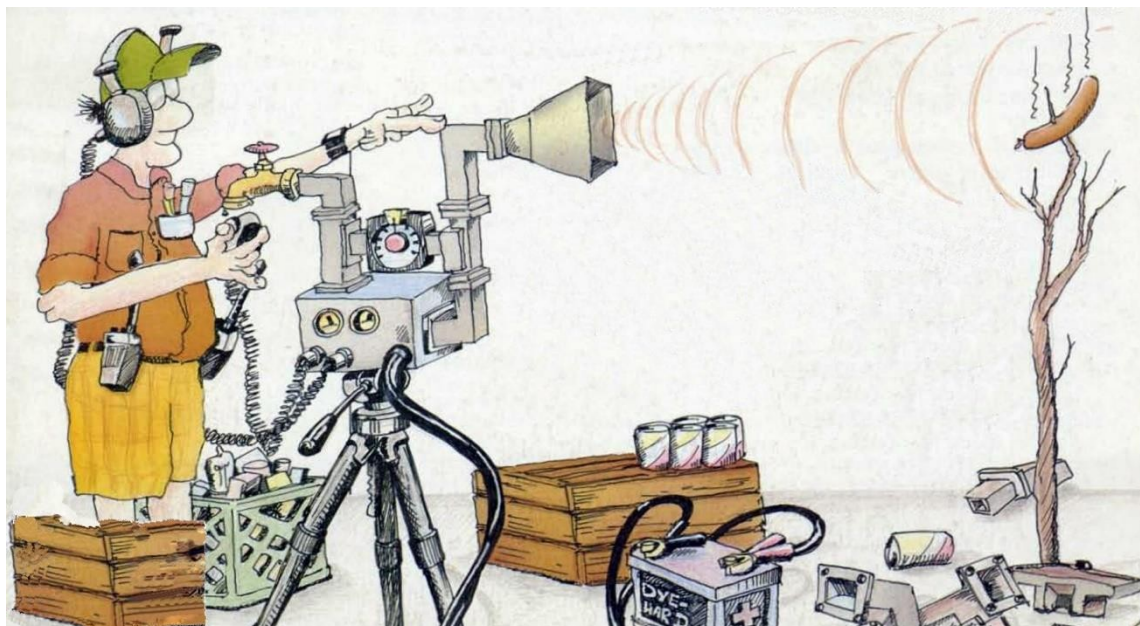
MHz to GHz

The West Australian VHF Group Bulletin

APRIL 2017

THE WEST AUSTRALIAN VHF GROUP (INC)

PO BOX 189 APPLECROSS 6953



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1. Editor's Comments

Small powerful microprocessors such Raspberry Pie or Arduino units are becoming readily available from electronic stockists. This April issue includes a typical amalgamation of a Arduino processor and a broad band oscillator chip in the form of the TenaTesta, check out the facilities this little unit offers. As a reader do you have suggestions or a project that club members would appreciate building? More submissions from members would be appreciated. There is only 4 months to go before next edition of the magazine.

2. From the President's Desk Terry VK6ZLT



On Tuesday 28th march Bob VK6KW, Phil VK6ZKO & Terry VK6ZLT worked on storing and collating assorted club and ex museum material in the club container. All thanks must go to Bob VK6KW on his untiring effort in obtaining the container and the transportation of the

material within. On behalf of the WA VHF GROUP, Many thanks Bob for all your effort on our behalf.

Although this is from the November 2016 issue the pressures facet which has been the pressures are increasing and the deteriorating situation for radio propagation beacons run by the club.

Esperance VK6REP site loss

Bunbury VK6RBU Site loss

Augusta VK6RSW site loss

Mt Barker VK6RST – 2m GPS upgrade, 70cm upgrade pending.

Perth Wireless Hill VK6RSP Operational (10GHz being serviced)

Dampier VK6RSX operational

Perth VK6RPH operational - site in doubt.

3. Report by Denis VK6AKR Vice President WA VHF GROUP.

Last year the WA VHF Group began a continuing series we call our "Activity Days" and these occur on the first Saturday in a month. The idea arose because many members find the "trek" to WH in mid-Winter, at night for our 4th Monday of the Month meetings, is an impediment. The format is open, except for a couple of announced presentations; one talk delivered by Allan VK6MST and Steve VK6VHZ on DMR radio. This was very well received - no pun intended! Prior to last year's John Moyle Field Day Alan VK6AMH delivered an excellent Activity Day presentation on contesting and has supported us since with Excel log sheets that make recording and reporting much easier and more accurate. Terry was able to use an Activity day to conclude a presentation that had "issues" on the previous Monday night meeting. We have many members on our books who have not attended a meeting for some time, for various reasons. If your circumstances permit, please consider coming to one of the meetings, either our usual Monday ones or the new Activity Days. Guests are always welcome and should not consider that the "VHF" in our name implies a restriction to bands, A visit to our website gratefully maintained by Ty VK6HTY is a good introduction to the breadth of our interests. A scan through the WIA 2016 Callbook reveals some 70-plus operators within a 10Km.

radius of Wire Hill - if you know some of these please invite them along

4.LED Lighting History

We all know that LED stands for Light Emitting Diode, but some may not know that the invention of the LED goes back to the discovery of electroluminescence back in 1907 when British experimenter H. J. Round of the Marconi Labs used a crystal of silicon carbide plus a cat's whisker. (A [cat's whisker detector](#) is an antique electronic component consisting of a thin wire that lightly touches a crystal of semiconducting mineral (lead galena) to make a crude contact-junction rectifier.)

True LED lighting would have to wait until the early 60s when Texas Instruments, General Electric, & RCA Laboratories all played a role in developing the technology. Miniature crystals (gallium arsenide) would emit infrared radiation when electric current was applied and that became the first (infrared) LED.

The first visible spectrum LEDs were colored red and today we enjoy a full palette of colors.

A Walk Through LED Lighting History

1907 - Light Emitting Solid
1955 - Infrared LED
1962 - Red LED
1971 - Blue LED
1972 - Yellow LED
1972 - Amber LED
1995 - White LED
Late 90's - UV LED



5. NOTES on EME Moon Bounce.

Who said EME was difficult? Do you need a sophisticated antenna array? Well, apparently not, Tom Hackett MX0CNS and Dan HB9Q had a complete contact with optimised 2-Element 70 cm Yagi. Tom was able to copy HB9Q at -28(dB relative to the noise) but after decoding a few CQ's, Dan's signal jumped up to -19. Tom called Dan and was delighted to complete a contact using the 2 element Yagi and a barefoot FT-857. Software used was WSJT 9.7 for those interested.

6.TenaTesta

Well, the latest piece of test equipment to come to hand is a device based on an Arduino microprocessor and an oscillator with flexibility of signal generator and a VNA

Easy 3 button TenaTesta

- Click * moves cursor
- Double click * to select
- Hold down * to return
- Click – to decrease
- Click + to increase
- Hold down – fast dec.
- Hold down + fast inc.



Generate RF & trim-n-tune SWR with TenaTesta

- Set frequency
- Connect load or antenna
- Single * move cursor
- Double * turns on
- Drive = 4mA read SWR
- Drive <> 4mA no SWR
- Double * turns off



Measure RF power with TenaTesta

- +3.0 dBm maximum !!
- 0.002 W maximum !!
- Attenuate higher power
- Wideband, ADC volts only
- Generator OFF
- Input RF & read PWR



Calibrating Tena Testa

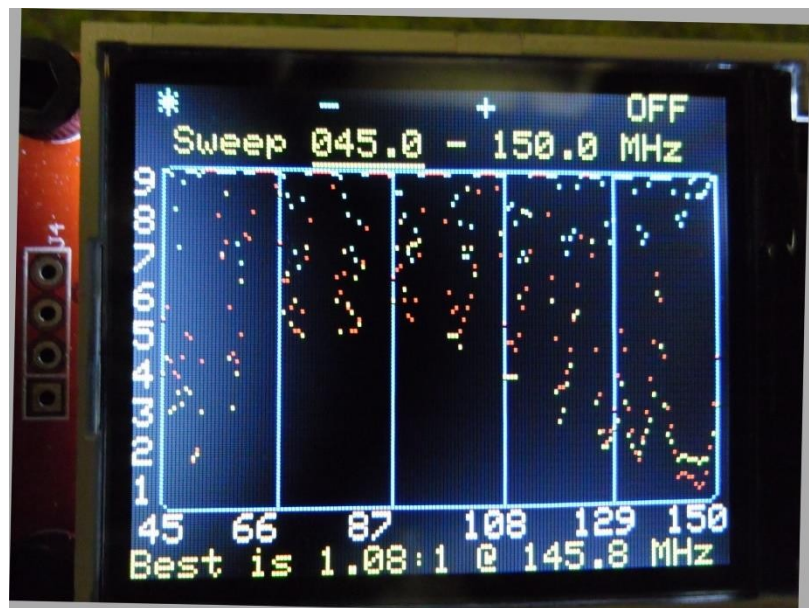
- Set frequency
- Cursor to calibration
- Turn generator on
- Measure output
- Adjust calibration
- Hold * 'To menu...'
- Hold * 'Saving...'



Typical analysis of HF
Multiband Vertical
Antenna



Typical analysis of
diamond triband
Vertical

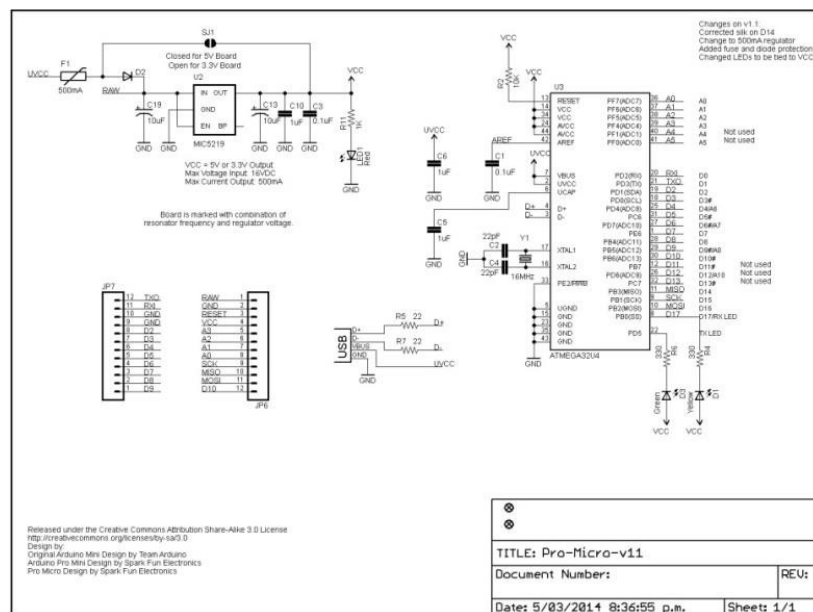


TenaTesta Sites of interest

<https://sites.google.com/site/zl1cvd/Home/tenatesta>

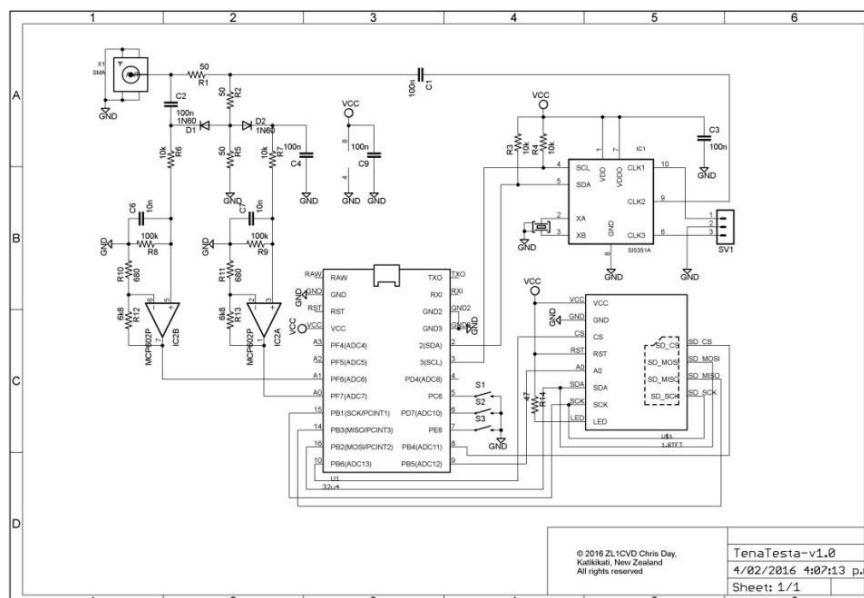
<https://www.youtube.com/watch?v=3iJNwfMVzMs>

<https://www.youtube.com/watch?v=9TCTD82IBMc>



Microprocessor schematic

Sweep generator and detector schematic



7. VHF /Microwave - Sites of interest

<http://www.satsig.net/lnb/db-calculator.htm>

W1GHZ Microwave Antenna Handbook

<http://www.w1ghz.org/>

I suppose you didn't think there was so much out there

New or Intending members

Why not checkout the following

<http://www.wavhfgroup.org.au/history>

<http://www.wavhfgroup.org.au/subscriptions>

**Having trouble with your TV
reception?**



This space is reserved for your input in the August next issue