Zululand Amateur Radio Club News

The newsletter for the discerning Ham

January 2014

ZARC Committee

Chairman: Andrew Jansen ZS5AND

Vice Chairman: John Kramer ZS5J

Treasurer: Willie Axford ZS5WI

Secretary: Dawn Snyders ZS5ME

Ham Net: Jo Snyders ZS5PO

Editor: Jo Snyders ZS5PO

Webmaster: Andrew Jansen ZS5AND

Member: Warren Snyders ZS5WOZ

Member: Anne Griffiths ZS5FAB

Club Repeaters

Ntumeni 145.675 MHz

Empangeni 145.700

Club Packet Digipeater/Mail-drop & APRS Digipeater

Ntumeni 144.625 (ZS5ZLB Mail, ZS5ZLB-2 Digipeat, ZS5ZLB-7 KA-Node) PBBS: ZS5AND

Club Nets

CANCELLED DUE TO LACK OF INTEREST

SARL News

08h30 - Sundays - 145.650, 7.066 MHz

NEXT ZARC MEETING

DATE: 4th May 2014 (Sunday) (Tentative)

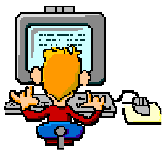
TIME: Meeting will take place at 13:h00, Braai will take place at 12:00. (Tentative)

QTH: To be decided after the date has been confirmed

E-Mail (Secretary) dawnjo@telkomsa.net

Web site http://196.21.81.139/zarc

Editor, Q.R.L.



Greetings & Salutations fellow members, I trust that this news letter finds you all in good health. The next club meeting date is tentatively **4th May 2014.** The venue will be decided after the meeting date has been confirmed. The meeting will take place at **13:00,** and braai at **12:00**. Please make a note in your day books and diaries. The time of the meeting will be **13:00**, giving everybody a chance to get there after Sunday morning commitments.

Have you bought insurance to continue enjoying your hobby yet? SARL membership IS that insurance!!!
Is your hobby worth R1.09 per day to you? YES?! Then join the SARL, it's the RIGHT thing to do!!!

The radical opinions, and rantings of the Editor, are not necessarily the opinions of, or supported by, the ZARC Committee, or it's members.

Wots Potting In The ZARC

Birthday Greetings Go To:

Jan: Daniel, grandson of ZS5PO & ZS5ME, on 10th.
March: Rob, OM of ZS5FAB, on 14th , Jo, ZS5PO on 15th.
April: Warren, ZS5WOZ, on 13th, Brian, ZS6AE, on 26th.
Many happy returns to all of you, and may you be spared for many more years.
(If your birthday wishes do not appear here, it is because you have not informed me of your birth date).

Get Well Soon

I have heard that Andrew, ZS5AND has still been having problems. We wish him all the best for a speedy and complete recovery. GBWY.

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Club Happenings

On Sunday 12th January, the ZARC held their club meeting, followed by their belated Christmas dinner, at Adams Outpost in Eshowe. Attending were seven club members and 6 family members, made up of, clockwise from the left in the picture, Anne ZS5FAB, Rob, Jo ZS5PO, Bridget, Daniel, Melissa, Belinda, Warren ZS5WOZ, Gerald ZS5GS, Willie ZS5WI, Tinkie, Mike ZS5MB, and Dawn ZS5ME took the picture. Mike is a new member, who filled in all the membership forms during the proceedings. We all wish you a hearty welcome Mike, and may your membership be a long and happy one. Mike also happens to be the brother of another of our club members, namely John, ZS5J, who was unable to attend the proceedings due to other commitments.
The dinner consisted of a buffet comprising, of a served bacon and feta salad, after which we all went and helped ourselves to Roast Lamb, Chicken curry, beef stew, roast vegetables roast potatoes and rice. Followed by chocolate, or, vanilla mousse, with fresh cream, and ice cream with chocolate sauce.

After lunch, Mike accompanied me up to the repeater site at Ntumeni, and the dead Yaesu repeater was removed, and replaced with the faithful old Storno repeater. That now only leaves the 700 repeater at Matshana to be changed …or whatever!.

Packet

On the packet Mail-Drop scene. The TNC is beaconing out. The coax on this set-up still has to be renewed, and the antenna moved to the east side of the tower

APRS

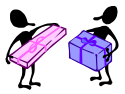
Your path to any stations in RSA, (or anywhere in the world via the I-Gate on 144.625) will be **ZS5ZLB-2, RELAY4-4.** The I-Gate should be available between the hours of about **09:00** and **22:00**, WHEN I AM AT HOME. People in the Richards Bay/Empangeni area can get into the PMB I-Gate on 144.800.

For those of you Zululanders who have Internet, go and look on the **www.aprs.fi** web site, and put your call sign in the slot at the top of the column on the right, and press enter, and see if your station comes up on the map.

Repeaters

145.675: This repeater was replaced after the Xmas meeting & lunch, and the old Storno is working well.
145.700: This repeater is now a DEAD puppy, and needs LOTS of TLC. STILL waiting for ESKOM to open up for us to get into this site.

"SWAP SHOP"



If you have any items you want to get rid of, or if you are looking for something, Please let the Editor know and he will advertise it in the swap column for you.

Home Brewers Hoekie

Build a 2 Meter, 5/4 Wave Antenna

By Mike Martell N1HFX

(with dimensions changed to metric)

....I decided to build a 2 meter 5/4 wave antenna. This antenna is unique in that it is enclosed entirely in 20mm PVC which makes the design a little more complicated. The primary problem is that PVC tubing has a significant velocity factor which causes RF to slow down. This means that an antenna encased in PVC will normally need to have its physical length reduced by about 19%. To further complicate the design, a 5/4 wave antenna's impedance has a highly inductive component which must be tuned out to get a good match. Fortunately, the design in **Figure 1** solves all of these problems.

This antenna is made with the following components:

- About 600mm of outdoor type 300 ohm TV twin lead (Used for matching system.)
- About 1.5m of 1mm stranded insulated wire (Used for radiating element.)
- About 1.5m of RG58/U coax
- One PL259 Connector
- One PL259 female to female coupler
- About 2.5m of 20mm PVC tubing.
- Two 20mm PVC end caps
- About 2.5m of 6mm hardwood dowel
- About 25 small cable ties
- Miscellaneous: PVC cement, solder, small piece of tubing, etc.

The twin lead was originally cut for 508mm with 124mm cut back on the braid or ground side. The 1mm insulated wire was cut to exactly 1467mm. The overall length of the antenna assembly is 1975mm. This indicates a velocity factor of about .81 compared to a normal 5/4 wave 146 MHz antenna. See calculation: (300/146x5/4*.95)*.81 = 1976mm

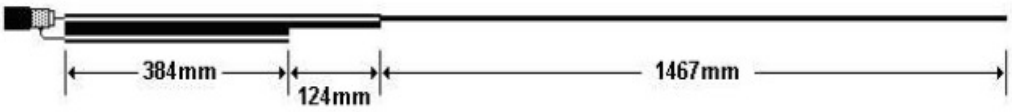


Figure 1

Now that we have all our parts, let's begin assembly by cutting back the insulation of the coax and the TV twin lead. We will need to cut back the coax to expose the centre conductor as well as part of the braid. It is a good idea to lightly tin the braid with solder to prevent any strands from shorting out to the centre conductor. Solder the centre conductor to one end of the twin lead and solder the braid to the other end off the twin lead as in **Figure 1**. Notice the braid of the coax is soldered to the shorter part of the twin lead which is left open. This serves as our matching system which adds capacitance to our antenna to offset the inductive component of the antenna. Trim the twin lead to 510mm and solder about 1525mm of 1mm stranded wire to the twin lead as in **Figure 1**. The insulation should not be removed except as necessary for soldering.

Prepare the 6mm hardwood dowel by joining two 1200mm or 1500mm lengths together. The ends can be joined by crimping a 25mm length of 8mm aluminium tubing or using a good quality wood glue. Now attach the coax, twin lead and wire assembly to the 6mm dowel using tie wraps about every 75mm. Pull the twin lead and wire to keep it as straight as possible. Before attaching the PL259 connector to the coax, drill a hole in one of the PVC end caps and slide it over the coax to prepare for permanent mounting in the PVC. Now attach the PL259 connector as well as any other connectors needed to check SWR. Cut back the open end of the twin lead to about 406.5mm as in **Figure 1**. Now we are ready for final tuning. Slide the antenna, dowel assembly inside the 20mm PVC first. All SWR readings must be taken with the antenna, dowel assembly inside the PVC tubing or the antenna will appear electrically shorter than necessary. Check SWR on both the top and bottom edge of the band. If the SWR is higher at 147.995 MHz than at 144.005 MHz then the antenna is too long and should be shortened. Cut off no more than 6mm at a time of the $1mm^2$ wire. Also, trim the open end of the twin lead by no more than 3mm at a time to further lower SWR. Remember the twin lead is simply a matching system which changes impedance and has no real effect on the electrical length of the antenna. The final lengths of the 1mm wire and twin lead should very closely resemble those listed in

Figure1. The prototype antenna achieved SWR readings of less then 1.2 to 1 across the entire 2 meter band. Remember to keep the antenna away from metal objects when checking SWR. After the antenna is properly tuned, trim the antenna dowel assembly to about 2130mm. Leave a few inches of coax attached to the bottom of the dowel so that the mast will be away from the twin lead portion of the antenna when mounted. Trim the PVC tubing to about 2185mm and cement the top end cap. Double check SWR before cementing

the bottom end cap. After SWR has been doubled checked, slide the antenna, dowel assembly into the PVC and cement the bottom end cap. If desired, Styrofoam spacers may be used to get a very snug fit. Waterproof the bottom end cap where the coax leaves the antenna. When completed, the antenna should resemble **Figure 2**. When mounting the antenna, use a PL259 female to female coupler. Do not use RG58/U for the entire feed line because it is too lossy. Use good quality RG213/U or similar coax for the feed line.

Of course, do not forget to waterproof the female to female coupler. Mount to any mast using standard TV antenna clamps at the bottom of the antenna and
keep it high and away from other metal objects for best performance and lowest SWR.

Completed 5/4 Wave Antenna

Figure 2

Although not actually measured, this antenna should give at least 6 dBi gain if mounted high enough. Remember, the small diameter of the radiating element has no effect on the radiation resistance. The only real benefit with using a large diameter radiating element is durability and slightly improved bandwidth. This antenna should give many years of reliable performance for a fraction of the cost of a commercial antenna.

The Committee of the ZARC, wishes all its members and their families, a happy, healthy, prosperous & safe

2014

If you would like to contribute to your Club newsletter, or to contact me for any reason, please use the address / Phone numbers below.

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