Zululand Amateur Radio Club News

The newsletter for the discerning Ham

January 2015

ZARC Committee

Chairman: Andrew Jansen ZS5AND

Vice Chairman: Warren Snyders ZS5WOZ

Treasurer: Willie Axford ZS5WI

Secretary: Dawn Snyders ZS5ME

Ham Net: Jo Snyders ZS5PO

Editor: Jo Snyders ZS5PO

Member: Anne Griffiths ZS5FAB

Member: Gerald Scrooby ZS5GS

Webmaster: Chantel

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

ZS5PO & ZS6AE Have A Sched On Thursdays Between 17:30 and 18:45
On 7.175 Or 3.645 Depending on propagation
ALL are more than welcome to join us for a "rag chew"

SARL News

08h30 - Sundays - 145.650, 7.066 MHz

NEXT ZARC MEETING

DATE: 15th February 2015(Sunday)

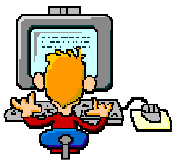
TIME: Meeting will take place ± 13:30, after the customary Braai at 12:00

QTH: Tattenham Resort Dam

E-Mail: dawnjo@telkomsa.net (Secretary)

Club Web site: http://zs5zlb.zs5and.co.za/

Editor, Q.R.L.



Greetings & Salutations fellow members, I trust that this news letter finds you all in good health. The next club meeting will be on Sunday 15th February **2015.** The venue will be at Tattenham Resort near Gingindhlovu. The meeting will take place at **± 13:30**. Please make a note in your day books and diaries. The time for the customary braai will be at **12:00**, 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:

March: Rob, OM of Anne, ZS5FAB, on the 14th. Jo ZS5PO, on the 15th.
April : Warren ZS5WOZ, on the 13th . Brian ZS6AE, on the 26th.
May : Tinkie, SW of Willie ZS5WI, on the 18th. J-J, son of Warren ZS5WOZ, on the 23rd.

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

Willie, ZS5WI, is off to hospital in February to get his lower back operated on. I believe that Sakkie ZS5ID, had a stroke during the end of last year some time. We all wish you both well, and hope you have a speedy recovery. GBWY

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 type your call sign into the slot at the top of the column on the right, and press search, and see if your station appears 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.**

Re-licencing

It is "THAT TIME OF YEAR AGAIN"

RENEWAL OF AMATEUR RADIO LICENCES AND FORM B - **Form B is no longer required**. Amateur radio licenses are due on 1 April 2015. ICASA will be sending out reminders in January but the responsibility remains with the licensee to ensure that the license is paid. **Unpaid licences will expire at the end of April**. Radio amateurs also have the **option to pay for 5 years**. Simply send an email to **dkuhrau@icasa.org.za** and advise him that you are converting to a 5 year license then when making payment**, pay R500**. This is a saving of **R100** and protects the licensee against **inflation increases** which will be introduced from the **2016** license year. **When paying ICASA, please ensure that you quote your licence number and call sign.**

"SWAP SHOP"

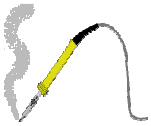
If you have any items you want to get rid of, or if you are looking for something, Please let the Editor know and he will advertise it in the swap column for you.

1 X **Neutec SM-1645** 16 channel 2Mtr VHF radio for sale.
Service, user and reprogramming instruction manuals available.
Reason for selling: Surplus to requirements
Please contact Gerald, ZS5GS on: **071-143 5433**

NB This picture of the radio was found on the internet, and is NOT a picture taken of the actual radio that is for sale

Please contact me if you are looking for a **Hy-Gain TH-MK4** beam antenna, The price being asked is **R4500,** and this one is in very good condition. Brand new they go for around **R9500**.

Home Brewers Hoekie



How to Use an Antenna Tuner

Get maximum power to your antenna by learning how to hook up
and use a tuner to properly "trick" your rig!

Yes, "TRICK" YOUR RIG!
WHAT IS AN ANTENNA TUNNER?

You have to learn how to hook them up to your transceiver properly and tune them correctly to make your radio **think** that it is feeding it's signal into a "perfect or near perfect 50 ohm load called your antenna. ***An antenna tuner, (transmatch), doesn't really TUNE your antenna OR ANY PART OF IT!***

What an "antenna tuner" or transmatch does do, however, is transform the impedance at the antenna feed output at the radio to a value that your transceiver can handle, (typically 50 Ohms).
When thinking about "antenna tuners" and SWR, it's important to remember that **the "tuner" has no effect whatsoever on the SWR between itself and the antenna.**
It's the SWR between the transmitter and the "tuner" that is changed with the "tuner" controls.

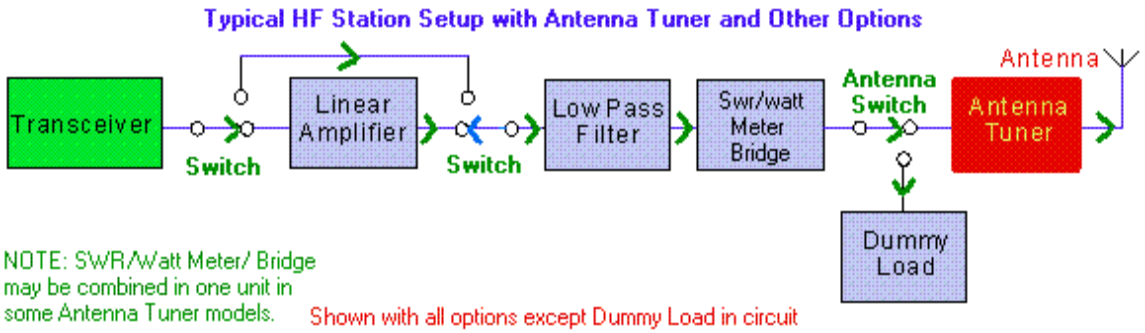
In layman's terms, all a "tuner" does is act as a kind of adjustable impedance transformer between the radio and the antenna. It takes whatever impedance the antenna system presents, up to the design limits of the "tuner", and attempts to convert it back to 50 Ohms--or something reasonably close to that value for the transceiver. When the transceiver "sees" a 50 Ohm impedance, it is able to load, or produce, it's maximum designed RF output into the system because it is designed to operate into a 50 ohm load.
Your rig "thinks" it's seeing a 50 ohm antenna on it's output!
That power is transferred through the antenna "tuner", to the feed line and, ultimately, to the antenna--**minus any losses incurred along the way.**
If you have high loses and a poor excuse for an antenna, you will have a poor excuse for a good signal no matter how well your tuner "tricks" your radio.
Most of the power will be lost as heat in the tuner and very little will get to the other station!

These losses are the reason that the highest efficiency feed-line for each individual case is desirable and why some amateurs use ladder line on HF, which has the least loss per foot, which means maximum power at the input terminals of the antenna.

HOW TO HOOK UP AND USE
So now that you have a better understanding of what an antenna "tuner" actually does, let's hook one up in a typical HF station.

In the block diagram below we have a typical HF station setup consisting of:

An HF Transceiver, A Linear or power amp, Low Pass Filter, Swr/Watt Meter combo, The Antenna Tuner, A Dummy Load, The MOST IMPORTANT PART.....THE ANTENNA!



Take a look at the block diagram above and notice where the antenna “tuner” and SWR meter are in relation to the flow of the RF signal coming from the transceiver.
PLEASE DISREGARD THE LINEAR AND LOW PASS FILTER FOR THE MOMENT! (Your station may not use them)
You will notice that.... first, from left to right, you have the transceiver, Swr/watt meter, ANTENNA TUNER and then the antenna on the output.
The RF moves from the transceiver to the SWR/WATT meter, then finally thru the "tuner" and out to the antenna.
You just learned how to hook it all up! Just remember that our goal is to make the transceiver think all is well, and in order to "read" the SWR and Power out pertaining to "all is well".....at the radio's output....**the meter must be between the radio and the tuner**. NOT ON THE ANTENNA SIDE!

NOW LET'S LEARN TO TUNE THAT TUNER!

Most antenna tuners have an inductance rotary switch and two capacitors. (refer to photo at top of page) The capacitors are often labeled ANTENNA and TRANSMITTER. In some antenna tuners the inductance switch is replaced with a continuously variable inductance, popularly known as a roller inductor.

Let's assume you're using a tuner with an inductance switch, because they are the most common**.**

SHOCK HAZARD! NEVER TRANSMIT WITH THE TUNER COVER OFF AS IN THE NEXT STEP!
TURN OFF THE POWER TO THE RADIO!

Place both capacitor controls at their mid-range positions. Don't trust the knob markers if this is your first experience with the tuner! If you are comfortable with the next procedure, remove the cover of the tuner and turn the knobs until the moving capacitor plates are only half meshed with the stationary plates. If the knobs are pointing to half scale with the reference markings on the knobs and front cover, consider yourself lucky.
If not, loosen their Allen screws and rotate the knobs so that they point to mid scale.
Re-tighten the knobs, replace the tuner cover and you're ready to go.

Turn the radio on and tune receiver to an un-used frequency on the band you desire, listen for a few seconds, with the antenna and transmitter controls at mid scale, move the inductance switch to each of its positions until you hear the loudest noise or signals coming into your radio. Then, rotate the antenna and transmitter controls until you get to the absolutely loudest noise or signal level on the radio. All three of these controls interact with each other so practice on several bands to get the "feel" of the procedure.
Select your final band of operation and repeat the procedure above. When noise peaks out using your ears and the S meter, your tuner settings should be very close for final operation. With your rig set to low power, monitor the frequency to assure that it is not in use, send your ID then transmit a continuous carrier while you tweak the antenna and transmitter controls for the lowest reflected power reading with the highest output power as read on the SWR/Watt meter. You may find that you have to vary the position of the inductance switch a position or two either way to get your best match.
Play it safe and un-key before turning the inductor switch...**un-key first**....turn the switch...key up....repeat as needed until lowest SWR and maximum output. Be gentle to your radio; keep the key-down periods as short as possible**. Depending on the impedance at the antenna input (and the overall design of the tuner) you may not be able to obtain a flat 1:1 SWR on all frequencies and bands.**
Also important to remember is that your SWR will change, go up, as you tune further away from the frequency you used to "trick" your radio! So re-check and re-tune as needed as you move around the band.
You can get an idea of your SWR bandwidth by starting with your original frequency, and using the procedures above with low power, (don't move any knobs or switches after best setting)....sweep or tune your VFO up and down the band while watching the SWR readings and note the frequency where the SWR reaches **2:1** at the highest and lowest frequency. **Stop there!**

Example: If you're on 40 meters at say...7.162mhz as your starting point, and your SWR is 2:1 at 7.192mhz and the highest going the other way is 2:1 at 7.159mhz, then your "safe tuning range" without retuning the antenna tuner would be about 60khz.
Keep in mind to use very low power and ID because your signal may be heard for a split second as you tune across the band! When that transmit key is down, someone somewhere can hear you. Even a dummy load gets out somewhere! Remember, your "TRICKING" your way around a bad antenna!
++++++++++++++++++

Editors note:

In reality, there is no "tricking" and we were playing with words here like "tricking, fooling", etc.
It is useful to employ a matching device, the "antenna tuner", between the transmitter and the antenna feeder when antennas with complex impedances are used..... so the transmitter will "see" a 50 -52 ohm load even though a significant mismatch is present at the antenna feed point. The tuner, matchbox or trans-match as it is sometimes called, will not correct the actual SWR condition on the feed line OR antenna, but it will resonate the antenna system **as a whole** and allow the transmitter to deliver as much power to the antenna system as possible within the design parameters of the tuner. The transmitter now can produce its rated power out **to the tuner** in the hopes that the tuner can do its job and get most of that power into the antenna system with some efficiency.
Bottom line: Your transmitter will not know that you are trying to "load up" those old rusty bed springs or that poor excuse for an antenna! Just because you're now seeing that magic 1 to 1 VSWR reading on the meter does not mean you have changed the design of those old rusty bed springs you're trying to us as an antenna!!! The more efficient your antenna system.....the better!

The Zululand Amateur Radio Club Committee and members wish everybody a safe, healthy and happy festive season, and God's richest blessings for 2015.

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

Jo Snyders ZS5PO
PO Box 98
Mandini 4490

Telephone **032–456 2301**
Mobile (Cell) **083-666 0709**
Email jodawn@telkomsa.net