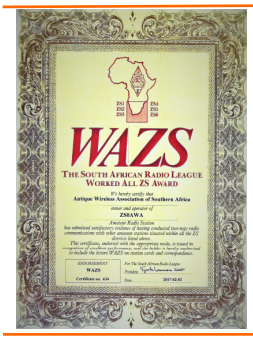
# Newsletter


**# 130**

**May 2017**


A Member of the SARL




Inside this issue:



AWA Committee:

* President—Jacques ZS6JPS
* Vice President and-Western Cape—John ZS1WJ
* Technical Advisor—Rad ZS6RAD
* Secretary/PRO—Andy ZS6ADY
* KZN—Don ZS5DR
* Historian—Richard F4WCD (ZS6TF)
* Member—Ted ZS6TED

## Reflections:

Some may notice, others maybe not, that there is a change to the front page of the Newsletter, namely the addition of the WAZS certificate for the AWA.

This is the basic award for contacts on HF and is multiband. This was actually achieved last year, and the certificate has just recently been issued to us.

Which makes me wonder how important, or unimportant, is the receiving of awards such as this to many of our illustrious members of the Ham fraternity ?

I have seen pictures of some shacks adorned with various certificates and QSL cards to show the prestigious levels that have been attained by the operator concerned, and others where the walls are absolutely bare of any kind of recognition whatsoever.

To me, this is entirely dependant on the person themselves and to what extent they actually take part in the activity of being a radio operator.

Those who spend large amounts of time at their desks, chasing DX or even local stations to get DXCC awards or WAZS or WAGS, will obviously want to display their achievements in some way. And what better way to do it than by hanging the certificates of awards up for all to see.

Others on the other hand are very blasé about achieving awards. Some will get them and put them in a drawer somewhere, never to be seen again except when somebody stumbles upon them maybe after becoming a silent key. Some are not interested in achieving awards and simply use their radios as a means of communicating with like minded friends.

But whatever it is that blows your hair back, to coin the phrase, this is the beauty of the hobby that we partake in.

You can be as serious about Amateur radio as you want to, and at the end of the day, it's the satisfaction that you get of being an amateur that really matters.

Like most things in life, it has to be satisfying to you, for you to enjoy it.

It really is one of those, that what you get out, depends on how much you put in.

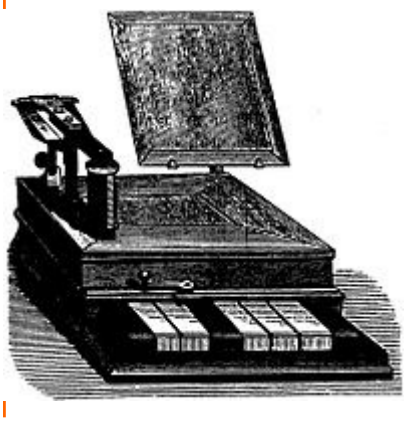
So often we hear people saying "Be radio active". So Decide what it is that you want to achieve in Amateur radio and go for it. Don't let anything or anyone try and change your mind about what you want to get out of it.

Best 73

DE Andy ZS6ADY

## WIKIPEDIA

### Electrical Telegraph



David Edward Hughes invented the printing telegraph in 1855; it used a keyboard of 26 keys for the alphabet and a spinning type wheel that determined the letter being transmitted by the length of time that had elapsed since the previous transmission. The system allowed for automatic recording on the receiving end. The system was very stable and accurate and became the accepted around the world.[36]

The next improvement was the Baudot code of 1874. French engineer Émile Baudot patented a printing telegraph in which the signals were translated automatically into typographic characters. Each character was assigned a five-bit code, mechanically interpreted from the state of five on/off switches. Operators had to maintain a steady rhythm, and the usual speed of operation was 30 words per minute.[37]

By this point reception had been automated, but the speed and accuracy of the transmission was still limited to the skill of the human operator. The first practical automated system was patented by Charles Wheatstone, the original inventor of the telegraph. The message (in Morse code) was typed onto a piece of perforated tape using a keyboard-like device called the 'Stick Punch'. The transmitter automatically ran the tape through and transmitted the message at the then exceptionally high speed of 70 words per minute.

## Amateur Data Interchange Format

The Amateur Data Interchange Format (ADIF) is 21 years old. Most people will recognize ADIF, and associated "ADI-files" as the means by which contest logs are exported from contest logging programs and into general purpose logging programs, log analysers, OQRS systems, and the like. ADIF has evolved from a relatively simple way to encode QSO information so that it can be read or written by computer programs to the recent ADIF 3's ADX files that use XML for self-describing data formats. People involved in the standard as producers or consumers of ADIF data participate in the Yahoo ADIF Developers Group https://groups.yahoo.com/neo/groups/adifdev/info, while ADIF standards are published at http://adif.org/

## OQRS

Online QSL Request System. An OQRS system tries to make obtaining QSL confirmations easier by providing a paperless method for requesting them. Typically, a website is set up to gather QSO information by a web form, or by ADIF log upload. That QSO information is matched against a station's logs, and at the requesting station's preference, paper QSL cards or electronic confirmations are generated.

## Intrepid Spirit Award

The Intrepid-DX Group (www.intrepid-dx.com) has announced that Sebastien "Seb" Poulenard, F5UFX is the recipient of the annual Intrepid Spirit Award, made in memory of James McLaughlin, WA2EWE/T6AF (killed in Afghanistan on 27 April 2011). The award - presented at the International DX Convention (Visalia) on 21 April - recognizes Sebastien's "outstanding efforts" and "unselfish acts" - as well as his "pursuit of operating excellence in assembling the best operators available" - to activate the "challenging and much need-ed entities" of Juan de Nova Island (FT4JA) and Tromelin Island (FT4TA) "on behalf of a grateful Global DX Community".

## The 2016 CQ World Wide DX SSB Contest

Results of the 2016 CQ World Wide DX SSB Contest have been posted (PDF) https:// www.cqww.com/results/2016_cq_ww_dx_ssb_line_scores.pdf. If you entered the con-test, did you look at your Log Check Report (LCR)? Thank you for submitting a log in the 2016 CQ WW DX SSB Contest. Your log checking report is below. We believe it is helpful for
participants to receive information on how their log was scored.
Log checking details for CQ WW SSB 2016:
7,573 Logs total
3,458,751 QSOs total
2,862,882 (82.8%) QSO checked against another log
2,780,827 (97.1%) QSO checked good when checked against another log
45,296 (1.6%) Busted calls
8,582 (0.3%) Busted exchange
28,177 (1.0%) Not in log
Average Score Reduction for all logs: 12.1% (Median 8.0%)
Average Error Rate for all logs: 3.7%
It's impressive that 83% of all QSOs were cross-checked, and the overall error rate was just 2.9%.
In refreshingly candid language, Doug Zwiebel, CQWW Director, posted an entry https://www.facebook.com/cqwwdx/posts/10155292676654292 on the CQWW Con-test Facebook Page https://www.facebook.com/cqwwdx/, regarding disqualifications due to self-spotting and observance of the rule regarding recording the entire contest effort there is an expectation of being a top scorer. According to Doug, over 75 SSB entries were disqualified in 2016 due to self-spotting. The bottom line is self-spotting or mutual spotting collusion between operators or stations is not allowed, and can and will result in "strong sanctioning actions." (via Twitter)

## How's that microphone working out for you?

Different audio qualities are needed for different tasks, and you may find that by adjusting your audio chain for the characteristics required for contesting will result in more contacts. Jim, K9YC, published an article last year in *NCJ* entitled "Clean, Punchy, Competitive Contest Audio Without Splatter" that is also available on his website http://audiosystemsgroup.com/

### April

27 - Freedom Day
27 to 30 - Karoo Food Festival, Cradock
28 - School Holiday
28 and 29 Prince Albert Town and Olive Festival
29 and 30 - Haenertsburg Food, Wine and Beer Festival; Pringle Bay Village Festival
30 - Knysna Motor Show

### May

1 - Workers Day
5 and 6 - Riebeek Valley Olive Festival
5 to 7 - SARL National Convention
7 - Ngwenya Country Market
13 and 14 - AWA Valve QSO Party
14 - Mothers day
19 to 21 - Dayton Hamvention
20 - Radio Amateur Examination; Wakkerstroom Natural Fibre Handcraft Fair
21 - ZS3 Sprint
25 - Ascension Day; Closing date Radio ZS June
25 to 27 - Handcraft Exhibition, Fish Hoek
26 - Start of Ramadan
26 to 28 - SA Bike Festival, Kyalami
28 - SARL Digital Contest
31 - Republic Day; Shavuot

ContestAudio.pdf (PDF).

## Print working Transistors

Researchers in Ireland have demonstrated the ability to print working transistors out of nanomaterials http:// exactlyscience.com/archives/11928.html. The goal is to be able to inexpensively incorporate working circuitry into objects like food and beverage containers, clothing, paper products, and the like. The effort uses particles including graphene, boron, and tungsten compounds suspended in liquid to construct the active devices.

## N1MM for RTTY Contesting

Bud, AA3B, talked about using *N1MM for RTTY Contesting* at a recent Frankford Radio Club meeting https:// www.youtube.com/watch?v=0vTC4Ngzadw. In addition to addressing N1MM's integration with the MMTTY program, he discussed appropriate macros for RTTY contesting, and compared RTTY frequency usage in general versus during RTTY contests. One encouraging observation made is the doubling of CQ WW RTTY contest participation since 2006.

## Removing power-line buzz

The Four States QRP Group has introduced the new BUZZ-KILL kit for removing power-line buzz from an audio channel http:// www.4sqrp.com/ buzzkill.php. The BUZZ-KILL is a comb filter - a notch at 60 Hz and every harmonic of 60 Hz. According to the website, "This is a compact, flexible design that can be used as a stand-alone outboard unit, or it can be easily integrated into an existing receiver (see manual for details). Its onboard audio amp can drive a speaker or headphones. Gain is constant from 100 Hz to 5kHz, so it can be used with any CW, SSB or AM receiver." The circuit uses two analogue delay lines to combine the signal with a time Shifted version of the signal, which creates a comb filter https://en.wikipedia.org/wiki/Comb_filter.

## DSP Filter

If you're looking for a little more selectivity, you can retrofit an existing radio with an audio DSP filter from SOTABEAMS. Their LASERBEAM-VARI modules need just a single rotary encoder to provide a variable filter bandwidth of 200 Hz to 3 500 Hz http:// www.sotabeams.co.uk/variable-bandwidth-filter-modules-ssb-cw/. The module is 36 mm x 36 mm and requires a supply voltage of between 5 and 15 Volts.

## African DX

Botswana, A2. Nick, G4FAL, Dave, G4BUO, Nobby, G0VJG, Giles, M0TGV, Tony, G4LDL, Graham, G4FNL, Guy, G0UKN, Toby, M0TBS, Glenys, G8KWD, and Martin, M0MDR activate Botswana from April 25 until May 5 with the call A25UK. They will be active on 160 to 10 m on CW, SSB, and RTTY. QSL via M0OXO. http://www.a25uk.com/

Mail, TZ. Denis, F8DAK is QRV as TZ6BB from Bamako and is here for about 18 months. Activity is on 20 metres. QSL to home call. In addition, Jeff, TZ4AM is active from Bamako. He is active on the HF bands, and possibly on 6 metres as well. QSL to W3HNK.

Morocco, CN. Carlos, CT1QP, Helder, CT1CDP, and Antonio, CT1CDU, will be active again as CN2CL and CN2DP from Morocco from 21 April to 5 May. Until 25 April they will be active on 40 and 20 metres only (around 7070 kHz and 14175 kHz), while touring the Sahara Desert. QSL CN2DP via CT1CDP, QSL CN2CL via CT1QP.

Liberia, EL. A team of five operators is planning to be active for 3 - 4 days from Baiyah Island (AF-111, new one for IOTA), Liberia later this year. "A reconnaissance trip has been completed with vital information on this little-known island being collated". Dates, call sign and a dedicated website will be announced in due course.

African Islands

IOTA frequencies

CW: 28 040 24 920 21 040 18 098 14 040 10 114 7 030 3 530 kHz

SSB: 28 560 28 460 24 950 21 260 18 128 14 260 7 055 3 760 kHz

Seychelles, S7. Ivan, LZ1PJ will be active holiday style as S79J from Mahe (AF-024), Seychelles between 2 and 10 May. He will operate CW only and will be active for SKCC (Straight Key Century Club) calls from those needing a new country". QSL via home call (direct or bureau) and possibly LOTW.

Chagos, VQ9. Jeremy, N1ZZZ will be active again as VQ9ZZ from Diego Garcia (AF-006), Chagos Islands indicatively between late April and mid-June. He will have to commute between his ship and his operating location on the island, then set up and break down each time. He will be active on 20 and 17 metres SSB and "various low power digital modes". When on the ship, he will be signing VQ9ZZ/mm. QSL via N1ZZZ and LoTW.

## Morsum Magnificat now available for free download

The English language edition of Morsum Magnificat, the Morse Magazine, otherwise known as “MM,” contained a vast amount of information and illustrations of interest to Morse operators, key collectors, historians, researchers and other Morse enthusiasts.

Published from 1986 to 2004, in 89 issues, with readers and contributors around the world, it covered every conceivable as-

pect of Morse telegraphy, past, present and future, in a truly international way.
With the permission of the copyright holder, Zyg Nilski, G3OKD, this vast resource is now available for download in PDF format, free of charge, thanks to the generosity of Lynn Burlingame N7CFO who was a reader of, and contributor to, MM.
Included in the downloads is an updated and revised version of the MM 54-page Key WT 8 Amp Worldwide Survey which has proved to be of great interest to both users and collectors of the many versions of this famous pre-war, war-time and post-war military Morse key.
MM was first published in the Dutch language, by Morse enthusiasts, Rinus Hellemons PA0BFN, and Dick Kraayveld PA3ALM. They were later joined by Tony Smith G4FAI who helped them launch the English language edition of the mag-azine.
After Rinus died, G4FAI produced and edited MM alone until he was joined by Geoff Arnold G3GSR, one-time editor of Practical Wireless and founder of Radio Bygones. Later, Zyg Nilski G3OKD took over as editor and produced the final 28 issues of the magazine.
Original readers of MM who have copies missing from their collection can now fill the gap with a digital download. Today's newcomers, and those who missed it first time round, now have the opportunity to discover what this unique publication has to offer them, and it costs nothing!
Free downloads of MM are available for personal use only from www.n7cfo.com/tgph/Dwnlds/mm/mm.htm
73 of the 89 issues have been posted so far. If anyone can provide any of the missing issues for scanning to com-plete the set please contact Lynn Burlingame at n7cfo@n7cfo.com
Copies of MM may not be downloaded or distributed for any commercial purpose. Any website offering digital down-loads of Morsum Magnificat or the Key WT 8 Amp Worldwide Survey for payment is doing so without copyright permission. Anyone finding such a site is asked to send details to g4fai@btinternet.com
*Tony Smith G4FAI*
Co-founder of the English edition of Morsum Magnificat.

---

# Rising noise floor on High Frequency: Establishing uniform measuring techniques

**Introduction:**
The increase in the noise level on the HF bands, and that it is dramatically rising, is a well known fact, and rapidly so due to the domestic use of all sorts of digital electronic devices, the replacing of linear mode power supplies and chargers with switch mode types, used in all the types of electronic devices we use at home, including cell phones, television sets, DSL data lines, computers, various types of energy saver lamps that includes the CFL and LED types.
Inducted noise, generated by these devices, gives rise to radiation of interference, via building wiring. Even the emergency types used in portable and fixed installation, have built-in chargers that operate in the switch-mode configuration. LED and CFL lamps have these supplies or ballasts built into the lamp bases. Although none of us can argue against the effectiveness of such devices, small units can deliver high currents, where previously such devices would have been large and bulky, modern units are small and compact, due to surface-mount technology. This brought with them a tremendous potential of interference, extending from the Low Frequency bands to sometimes right up to UHF or even beyond.
A large part of the problem is that regulations are not enforced with regards to EMC compatibility of such devices, when it comes to the sale and use thereof. With the advent of cheap, inferior, mass-importation of electronic devices, mainly from China, the perception of the public would be that if it is available off the shop shelves, then surely the use of these devices is legal.
In the Amateur Radio context, it is becoming increasingly necessary to address this problem on an official level, and as part there-of, I would suggest that a set of measuring techniques be adopted, firstly to establish the type and magnitude of a particular interference. Secondly, it may be necessary to present such measurements in an official manner to a body such as a municipality, manufacturer of apparatus, ESKOM, ICASA etc.
For that reason, measurements should be made in a sound, acceptable manner, and should adhere to, as prescribed in regulations relating to EMC compatibility, laid out for that equipment. Such regulations must obviously be studied by the party conducting the investigation.

**Interference, detection and measurement:**
Let's look at interference most commonly experienced by Radio Amateurs in the HF bands:

- Electric fences: radiated interference.
- High tension or power-line noise, normally radiated, depending on what the fault might be.
- Switch-mode, coupled and radiated noise, smpsu units, used inside the home such as cell phone chargers, power-supplies (wall-warts) television sets, computers, security systems and so forth.
- Street lighting systems, such as sodium-vapor lamps, arcing or digital noises generated by their switching circuits, conducted or radiated.
- Signage and Neon lights, arcing at contacts or inside the ballast systems, normally radiated.
- Noise received from domestic energy saving lamps, such as LED types, and CFL lamps. Normally this noise is conducted and then radiated by the associated house wiring.
- Noise generated by digital systems such as computers, networks, DSL lines, or POTS lines, conducted and then radiated by such lines or from the wiring of such networks.
- Switching and arcing noise generated by switches, thermostats, timing devices, contactors and electric motors. Arcing is caused by worn contacts, brushes or another fault causing arcing inside such a device. Conducted or radiated.
- Long distance, propagated interference such as OTH radars etc.

In the Amateur Radio context the interference investigation will have the following steps:
a) Correct identification of the type of interference.
b) Detection and direction finding of the noise source, determining the position of the source.
c) Measurement of the noise source, or testing of the offending equipment.
d) Lastly, the resolution of the problem, either by removing or preferably fixing or replacing the source of noise.

**Establishment of relative noise floor**:
With typical modern HF receiver sensitivity levels in the order of **0.15 uV**, the receiver is very sensitive indeed to any form of noise present on the desired frequency band. Normal noise levels experienced on the HF band are in the order of about **S1 or -121 dBm** up to **S3 or -109 dBm** for night time reception. Just a quick check on my dipole on 3.7 MHz and 7 MHz, revealed noise levels as high as **– 97 dBm**, or about **S5.** That is high enough to seriously influence the readability of very weak signals. Further, pulse-type noise, and such noise as received from arcing on an electric fence, can have the effect that the AGC's decay time will influence the readability of signals, when set to slow, for normal SSB reception.
In the more informal context, taking into account the lack of proper measuring equipment, the Amateur can devise his own method of establishing his own reference system, whereby he can establish the noise floor that is normally present on the frequency band in question. As is known, the normal HF receiver's signal meter will only give a relative indication of signal level. Measuring, however relative, can be done by noting noise base signal levels, without any transmissions present on the band, both day and night, and also keeping propagation conditions on that band in mind. These levels can then be recorded on a few frequencies over that band to use as a reference later on. Measurements should be made on the same antenna system each time. Noise levels on each of the bands can be recorded. Over time, a good idea can be determined of what acceptable noise levels should be.

**Detection and recording of noise:**
If an interference or noise is detected, checks can be made to see if it is broad-band, or located to a specific frequency, and if so, at what frequency maximum levels can be detected, and these details, along with the time and frequency, recorded. Signal level

measurements can then be made to record the level of the noise, and establish if it is present on, or peak, on another frequency. Also the timing of the noise, for instance should it coincide with the switching on of street lights. Measurements will be relative to the receiver and antenna used, and signal levels, recorded in S units.
Above measurements must include the time, date, and frequency. All these measurements will be relative to the receiver and antenna used. Direction finding techniques of various types can then be used to get an idea of the origin of the noise. Maybe even by eliminating one's own home, by switching off circuit breakers. Some professional or SDR receivers, can record signal levels in a more accurate fashion, in dBuV. This will also be relative to the type of antenna used.
If the reference measurements can then be compared to the noise measured, a ratio of rise can then be calculated. Maybe the SARL could think about supplying a standardized form where all this information could be filled in.

**Measurement:**
Some situations will call for a more formal investigation, for instance, to prove that the offending equipment or device is radiating an interfering signal or radiating above the stated specification.

For that investigation the following will be required:
- Knowledge of regulations, specifications and radiation limits of the equipment in question.
- Calibrated measuring receiver or apparatus.
- Calibrated antenna and cable with known loss factor...
- Access to device under test.
- Test procedure.

I would suggest that these procedures be standardized, where possible, the same measuring procedures should be developed and followed, so that consistent reporting can be done, and a report with reasonable accuracy. Especially where such a report would be presented to a third party, or even should it come to a point where legal action could be involved.
Where possible, measuring equipment with traceable, sound calibration should be used, such as dedicated HF field strength meters or test receivers, spectrum analyzer, attenuators. Antennas could include active monopole, even inductive loop-types. Artificial mains networks would be very handy to test individual items, such as CFL and LED lamps, power supplies etc.
Normal equipment more readily available to the Radio Amateur could be used, such as an HF receiver, if modified, for instance to disable the AGC. The S- meter can be calibrated against a dBuV scale, for each band.
A number of the newer software-defined radios can also be used in this roll, as many of them can display a spectrum, with peak-hold functions and such, and display signal-strengths accurately in dBuV. An active, portable vertical antenna could be used, and then calibrated against a correctly calibrated field-strength antenna, gain and frequency-response curves drawn up, and then referred to when making measurements. Various other antennas, such as loop, ferrites, Yagi or Log Periodic antennas can also be useful for tracking or direction finding purposes.
Sound test procedures and methods for each type of interference or noise measurement should be investigated, and then compiled in a manual, so that the process can be repeated in the same manner.
Where possible, the offending piece of equipment could be obtained and individually tested. For instance, a LED lamp may cause severe radiated interference because its switching frequency is coupled into the mains wiring and radiated from there, yet the lamp may well be inside specification when tested individually. The same holds true for an electric fence energizer unit. The noise only gets radiated, once the unit is connected to a fence, for instance.
To establish if HF noise levels in a particular area are rising; it would require testing over a longer period of time, and say about five consecutive days and nights measurements repeated at the same time for each day. A SDR receiver running over a period of time could be very handy if such a system could automatically record levels digitally.

**Conclusion:**
Rising HF RF noise levels are experienced world-wide and not just in South Africa. There is also no easy way in solving the problem. Obviously, the best starting point is to enforce rules and regulations set for importation and distribution as well as use of devices and equipment, which it seems, at this moment, is sadly lacking.
If the SARL gets involved in setting up a committee for addressing the problem, even in the investigation of such problems, establishing guide-lines and test procedures, keeping a record of all cases investigated, and the outcome there-of, would be a good starting point. Publishing a sort of "self-help" procedure, made available to all Hams, describing types of interference, how to detect it, and how to try and solve it. For instance, switching off his own home's power, and then checking with a portable or battery-operated receiver, will go some way to educating the average Ham, who may not know what steps to follow. Getting some sort of central reporting system in place, where Hams can report to will also help in establishing over time, the scope and magnitude of the problem.
There are also a few steps the Amateur can take to try and minimize at least, conducted noise reaching his receiver. Radiated noise from some outside source, will be received, along with the wanted signal by his receiver.

**The following steps can be tried**:
- Operate the station receiver off a battery supply, or a good portable receiver, tuned to the same frequency. Switch off the home main circuit breaker and if possible, also switch off the isolator switch, preventing any inducted noise from entering the distribution board. See if noise drops or disappears. If it does, use individual circuit breakers to find the offending section, unplug or switch off devices such as chargers, LED lights, or computer systems, TV sets, monitors etc.
- Note if interference coincides with switching on of streetlights, sign-boards, neon signs, switching on of lights at a neighbor etc.
- Ensure that all RF connectors in the station, at antenna feed-points etc. are properly fitted, and not rusted. Those used outside, should be sealed with a self-vulcanizing tape.
- Make sure all equipment is properly grounded.
- Operating the station mains supply through an electronic voltage regulator, can help a great deal in removing conducted

noise on the supply line. This can easily get induced in the 12 Volt supply to the equipment. Or at least an in-line mains filter with 15 Amp current rating.

Use a portable receiver on a clear frequency around 600 KHz in the MW band with the internal ferrite antenna, rotating it, to find sources of noise, arcing on electric fences, streetlights etc. Even on HT lines.

On HT lines, noise can be conducted and radiated, sometimes for many kilometers. For accurate direction finding, a wide-band VHF handie, capable to receive AM, or a wide-band handheld receiver with a signal indicator can be used, along with a 2m hand-held Yagi antenna. Drive along the power lines with the car radio tuned to an unused frequency in the MW band. Note at which point a rise in the noise from the line can be noted. Switch the portable receiver to AM mode, tune it to around 130- 135 MHz, as power line arcing in many instances also has a peak on these frequencies. Scan the lines in a horizontal plane with the Yagi antenna. Note rise of the signal strength. More often than not, a piece of wire will be found, hanging over one of the phases. Sometimes the wires will be found close to pylons, where birds sit, and sometimes droppings are on the wires.

Arcing on an electric fence will emit a "tick" sound once a second; a good time to look for arcing is at night or after rain, when the fence is wet. The above method, using the portable receiver, can be used to find the point of arcing that will be connections, splices, contact points that have rusted, insulators, arcing on the inside, near walls, where leaves or branches are touching the wire.

(*This article has been reproduced from the talk given by Jaap Lourens at the SARL HO. Jaap is the Investigating Officer at Sentech)*

---

# Counterpoise.

*For those who always Knew about putting a counterpoise on antenna, but never really knew why, I found this really good explanation by Henry ZS1AAZ on the SARL Forum after someone posed a question about why should we put a counterpoise on an HF antenna, and it made a lot of sense to me. (Now that's saying something).*

As I understand it, an antenna radiates because the antenna has to have a capacitor that can be charged and discharged by the signal supplied by the radio. A capacitor is formed by two plates and in a dipole, the two legs of the dipole form the two plates which are charged by the signal from the radio. The ground below also supplies some capacitance as well as any nearby objects. The wire conductor has inductance and this together with all the capacitances, forms a resonant circuit. That is why an antenna is often referred to as a system, because so many nearby objects influence it.

In a vertical antenna, the capacitor is formed by the vertical element and the ground. Because the ground is often a poor conductor, a wire can be laid on the ground with one end attached to the ground terminal of the radio to make a better capacitor. A mobile whip mounted in the center of a car's roof, will radiate equally in all directions, but mounted on the edge of the roof will cause it to radiate in the direction of the most capacitance.

A dipole will have more capacitance when it is mounted closer to the ground, causing it to resonate at a lower frequency and it will have to be shortened to make it resonate at the wanted frequency. Similarly an inverted VEE antenna will have more capacitance because the two legs are closer together and it will also be shorter than a dipole.

To simplify calculations, they are done for antennas in free space to get rid of the effects of nearby objects.

So to answer the question, if you put up a vertical or an end fed antenna make sure you have an efficient second plate for your capacitive antenna by using a conductive ground or a counterpoise so that the charge and discharge process can take place effectively.

Henry
ZS1AAZ

---

CentralElectronics100V

Geloso G212

# AWA Valve QSO Party

1. The aim of the AWA QSO party is to create activity on the 40 and 80 meter bands. It is a phone only contest.

2. Dates : Saturday 13th May and Sunday 14th of May. The Saturday will be an **AM** QSO Party and the Sunday an **SSB** QSO Party

3. Time. From 16:00 - 18:00 SAST (both dates)

4. Preferably, Valve radio's, or radio's with valves in them may be used. (No Linear Amplifiers). The output power may not exceed 100w, unless the rig itself has a higher output power. (FTdx400 etc)

5. Frequencies - 80m 3,600 to 3650 Mhz
   40m 7,050 to 7,100 Mhz

6. Exchange - call sign, RS and consecutive serial numbers starting at 001, plus type of radio used. eg HT37 Tx.

7. Scoring - All valve radio 3 points per contact
   Hybrid (valve & solid state) 2 points per contact
   Solid State Radio 1 point per contact

8. Certificates will be awarded to the first three places in each category. (AM/SSB)

9. Sponsor : The Antique Wireless Association of Southern Africa (AWA).

All contact logs to be sent to the:

Antique Wireless Association
P.O. Box 12320
Benoryn
1504

email: andyzs6ady@vodamail.co.za

---

## Donation from National Laboratory Association.

A letter of thanks was passed on from Jacques ZS6JPS to Dr Louis DeWet from the National Laboratory Association for the donation of a Cropico DC Null Detector and a Cropico Resistance Bridge. These two items will be passed on to the SAIEE museum to be incorporated into the display there.


**CONTACT US:**

P.O. Box 12320
Benoryn
1504

Mobile: 082 448 4368
Email: andyzs6ady@vodamail.co.za

**Get your backdated issues at**
http://www.awasa.org.za

**Visit our Website:**
www.awasa.org.za

**Antique Wireless Association of Southern Africa**

## Mission Statement

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yesterdays radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website: www.awasa.org.za

# Notices:

**Net Times and Frequencies** (SAST ):
Saturday 06:00 (04:00 UTC) —AM Net—3620
Saturday 07:00 (05:00 UTC) —Western Cape SSB Net— 3630
Saturday 07:30 (05:00 UTC) —KZN SSB Net—3615
Saturday 08:30 (06:30 UTC)— National SSB Net— 7140; (Echolink connect to Sandton repeater ZS6STN-R)
Saturday 14:00 (12:00 UTC)— CW Net—7020
Wednesday 19:00 (17:00 UTC) — AM Net—3620, band conditions permitting.

---

WANTED:
Prof Devries, ZS1ADD, is looking for an Astatic D104 to complete his line up with a Viking Ranger and Hallicrafters SX130. If any one can help him please contact at :
prof@global.co.za

---

I saw your impressive collection on AWASA, and your call for "Dust Collectors" to emerge.....

I have a Tektronix Type 105 Square Wave Generator from ca 1960 that still works.
I also have other old stuff:
Tech Model TO-3 scope;
Avometer Model 8;
Hartman&Braun Elevation meter;
Marconi TF995B/5 FM/AM Signal Generator;
BBC Goertz Unigor 3n A41 meter;
Heathkit oscillator Model 10-12;
Telegraph Galvanometer Elliott Bros (ca 1890);
Test Set Demolition MK1 from CB &Co Ltd (WW2); etc

If someone is interested in buying, I can send some photos along. Most of the stuff still works!
(*If anyone interested, I have photos of all the equipment offered– Ed*)

Best regards.
Marius Olivier
0845139568