



A Member  
of the  
SARL



Antique  
Wireless Association  
of Southern Africa

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#### AWA Committee:

- \* President—Richard ZS6TF
- \* Technical Advisor—Rad ZS6RAD
- \* Secretary/PRO—Andy ZS6ADY
- \* Western Cape—John ZS1WJ

# AWA Newsletter

#72

January 2012

## Reflections:

So begins another year and only you can make it a year of good tidings and great joy, or a year filled with disaster and great sadness.

The world economy does not look that great at the moment, but if you have a roof over your head and food in the pantry, then you are doing well.

If you have a corner to place your radio and an antenna to plug into it, then you're doing great.

Anything more than that and you're spoilt rotten.

I know very often that is how I feel when I walk in to my little radio shack, which is a 6x3 Wendy house, and see the wonderful radios I have been blessed to have.

Now maybe some of you

are saying "what a smug idiot", but I also know there are some who have a lot more than I do.

The big thing is how much do we really use this wonderful means of communication our forefathers worked so hard at designing and developing so we can sit and talk around the world for less than the cost of a local telephone call. Of course the more you talk, the cheaper it becomes. The exact opposite to a telephone call.

I know I do not utilise my radio shack to its full potential, but I also know I get a great amount of enjoyment out of the times I am in there. Is that not the whole idea?

It really does not matter how many radios one has, you can only use one at a

time, unless of course you're running the AWA 20m relay. I certainly get the most out of operating my station and I hope you all will get to use your radios a lot more in this coming year, than what you did last year.

Already we are seeing a large contingent calling in on the SSB net, more than we have had in the last 2 years. Hopefully this is a good sign and it is going to be the revival of the AWA.

We have missed many of you calling in on the nets so do come and join us again and get the maximum use out of your radios. It really would be great to log those call signs we have not heard in a while.

A happy and prosperous New Year to you all.

De Andy ZS6ADY

## WIKIPEDIA

### Reactance:

In electrical and electronic systems, **reactance** is the opposition of a circuit element to a change of electric current or voltage, due to that element's capacitance or inductance. A built-up electric field resists the change of voltage on the element, while a magnetic field resists the change of current. Notion of reactance is similar to electrical resistance, but it differs from it in several aspects.

Capacitance and inductance are inherent properties of an element, just like resistance; their reactive effects are not exhibited under constant direct current, but only when the conditions in the circuit change. Thus, the reactance differs with the rate of change, and is a constant only for circuits under alternating current of constant frequency. In vector analysis of electric circuits, resistance is the real part of complex impedance, while reactance is the imaginary part. Both share the same SI unit, the ohm.

## CW Net:

Its getting to that time of year again when the AWA CW Activity day takes place. The first weekend in February is the date.

Before this happens, I would like to know if it is worth having the activity for a full 24 hours ?

In the past, there has not been a lot of interest in the Activity Day and very few stations actually take part. Would it not be better for us to reduce the time period to a day or an afternoon into the evening to allow all the bands to be used ?

The activity day was originally on the first Sunday of February from 14:00 SAST to 19:00 SAST using 40 and 80m. It was then suggested to be over a 24 hour period with all bands being used.

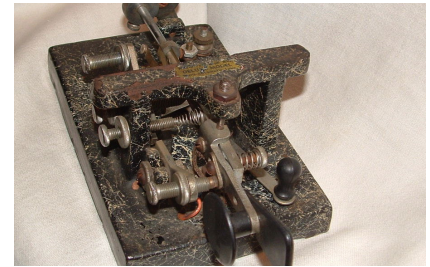
The first two activity days after that were well attended, but last year interest was not very good.

We need to get some response on this so that changes to the rules can be made well ahead of time, so please consider this and give us your input.

Our aim is to encourage the use of the bands using CW as it is a mode that is fast losing its momentum on the bands in SA.

The CW net still meets regularly on a Saturday afternoon at 14:00 on 7020 under the watchful ear of Barrie ZS6AJY and there is quite a group going at present.

Remember too the QRP net every morning on 3579.



Straight keys, paddles, keyers, whatever your choice, as long as it keeps the interest in CW going.

We look forward to hearing you all on frequency

Best 73,

De ZS0AWA ... -.-

## SSB activity:

The SSB net on Saturday morning seems to be gaining some momentum at present with record call in taking place.

We miss the Div 3 stations that used to call in these days and are not sure whether it's the band conditions on 40m or what ?

Remember, we are now running the relay on 14125 and reports from the Western Cape are pretty good these days. I wonder if 20m would not be suitable for Div 3 as well ?

The Western Cape net runs on Saturday morning from 08:00 on 7070 as 40m does work well within the area of operation there. However signals up to Div 6 are not always

that good, hence the 20m relay coming in.

So far response to the relay has been quite good with a few Western Cape stations calling in on frequency and two Z2 stations having called in as well.

Of course it would be nice to hear more stations using 20m, but typical to the situation is that when they transmit on 20m, the local stations find it very difficult to copy them.

Isn't it strange, there is always a play off some where along the line.

Conditions from the Western Cape to Div 6 on 20m is usually good though and stations can be heard with a good Q5 readability with

very little QRN on the frequency.

Listen out for us and join us on 20m.



Yaesu FT200

## AM:

The AM net is still going along well on Saturday mornings, but 80m proving to be a problem as time draws on and the D layer fades for Div 5 stations.

Don has suggested that the div 5 stations move to a frequency higher on 80m after Div 6 stations have faded, thus allowing the Div 5 stations to continue an AM net without causing any QRM to the Div 6 stations.

There are a few Div 5 stations who call in or listen in on the AM net, so this may be a good opportunity to join in if you feel you don't have the power capabilities to reach Div 6. Listen out on a Saturday morning and once the band fades, 3680 has been suggested as a suitable frequency for the Div 5 sta-

tions to move to.

AM is certainly gaining in popularity these days with a few more stations calling in than before. Its always nice to hear new stations coming up on AM and then starting to play MF as well.

It's a tricky business getting all the settings right, but once one gets the nack of it, it becomes an enjoyable way of playing radio.

Lets not forget that MF are very South African and there are no other countries that we are aware of that are allowed to play MF on Ham Frequencies.

One important thing though, do know the regulations around the playing of MF.

1. Your MF transmission may not be longer than three minutes.
2. You may not mention names or artist names.
3. There must be at least a 5 minute break between your musical transmissions. These are but a few of the important ones.



Hallicrafters SX28

## S Meter Calibration

### By K9STH

*This subject appeared on the Collins Collectors Reflector and I found it to be of interest as we have broached it on a few occasions. Ed.*

I hear "20 over" and "40 over" reports on the bands all the time. Of course, I am not sitting in the exact location of the receiving stations but I seriously doubt that a signal level of 5,000-microvolts is being received.

When I tell a station what my "S" meter actually reads, quite a number are insulted and often express their displeasure. Therefore, I try not to even give an "S" meter reading but rely on the old method used when receivers generally didn't have an "S" meter. That is, if I don't have any problems copying the station then they are an S-9! Frankly, a lot of stations don't make anything close to an S-9 but I have absolutely no problems copying them. At times, there are stations that don't even move the "S" meter but are perfect copy.

Most operators these days don't realize that what the "S" meter reads is immaterial. It is the signal-to-noise ratio that makes the difference and not what some arbitrary meter reads. If a station is reading "20 over" on the "S" meter and the noise level is almost "20 over" then that station is hard to copy. If the station is not even reading on the "S" meter and if the noise level is very low then they are perfect copy. On VHF and UHF, most stations are used to getting like an S-1 or S-2 report (when read on the "S" meter) yet they are "perfect copy" because those operators realize that the signal-to-noise ratio is what really counts. Unfortunately, many HF operators do not understand and therefore rely on whatever their "S" meter reads even when the received signal is very difficult to copy.

What I normally do when measuring receiver performance is to measure the LDS/MDS (weakest signal that I can copy, one that just makes it above the internal noise of the receiver). This gives a pretty good idea as to the actual capabilities of the receiver. Of course, on HF, with band noise, it takes a signal stronger than the LDS/MDS of the receiver to be able to be copied. As such, a low LDS/MDS doesn't make much, if any, difference in how well signals can be copied on HF. Frankly, a receiver has to be pretty deaf not to be able to receive signals especially on the lower frequency HF bands. If the noise level received increases when the antenna is connected, you can be pretty darn sure that the receiver can receive any signal that is stronger than the level of the noise.

An "S" meter can be used to get relative readings of signal strength when comparing antennas, amplifiers, etc. If the actual readings have been calibrated, i.e. with a signal generator with an accurately calibrated attenuator, then more precise measurements can be made and actual dB levels can be calculated.

There are receivers that have "S" meters calibrated directly in microvolts that can be used to measure actual signal levels at various points. Of course, these receivers use a specific antenna since different antennas will produce different signal levels. I have one of these receivers. However, it is of the UHF variety and receives 375 MHz to 1000 MHz. Therefore, I cannot measure anything that remotely approaches HF!

The "standard" for S-9 was adopted by the RMA, forerunner of the EIA, in the late 1930s, as being 50-microvolts for S-9. The 6 dB per "S" unit was also adopted.

Unfortunately, this "standard" is often ignored by manufacturers these days. A number of years ago, the various equipment manufacturers started claiming that "their" receivers were more sensitive than those made by a competitor. Basically, what was done is to reduce the signal level required for the S-9 reading and to compromise the "dB over" readings so that they have no real relationship to an actual dB ratio.

I have measured as little as less than 10-microvolts for S-9 on some "modern" equipment and a "40 over" reading at around 100-microvolts. When the "olde tyme" standard of 50-microvolts for S-9 is met, then a "20 over" reading requires 500-microvolts, a "40 over" reading requires 5,000-microvolts, and a "60 over" requires 50,000-microvolts. To get a "60 over" reading basically requires your next door neighbour to be running the full legal limit.

Operators today are used to getting at least an S-9 report and more likely "20 over" or "40 over". When one doesn't give that kind of report the "other" station is often insulted! All of my "S" meters are calibrated for S-9 = 50-microvolts and many stations don't even make an S-9 reading. A relatively few make it to "20 over" and it takes a local, within a mile, or two, to make it to even close to "40 over". I do have a better than average antenna system although there definitely are those who have a lot better.

Glen, K9STH

## President's Corner

Richard ZS6TF

The “apple & blackberry” generation can be forgiven for believing that social networking is a recent internet phenomenon. However it was perfected in the mists of time by radio amateurs who could afford to buy the same frequency crystal. Born out of the “farm” party line culture where groups of subscribers connected to these lines could converse for free, despite the eavesdroppers, whistlers, clickers and heavy breathers, radio hams developed skeds and nets which networked people over a much wider area than the unlicensed population. CB radio offered an exam free option in the 70’s but 4 watts on AM was a limiting factor and as technology improved, mobile phones, the internet, and mobile computing devices placed the capability to network anywhere, anytime in the hands of the masses. The flip side of this life enhancing ability the darker side of viruses, anti-social networking, and ready access to questionable material and abuse.

Meanwhile radio amateurs continue to participate in nets, some informal, some run by interest groups such as the CCA net, and some more serious such as the maritime mobile net and Hamnet. Being mindful of the deterioration in global operating standards, it is a great pleasure to participate in a well run net. A disciplined net controller is key but without the self discipline of those who check in, he cannot make it happen alone. The AWA AM, SSB and CW nets are the means for radio amateurs who subscribe to the mission statement values to stay in contact, and above all to keep the older equipment on the air with a high standard of operation.



Richard, in his much younger days operating some Heathkit equipment.



## A Microphone Story :By John Dilks, K2TQN From QST, February 2003

The most popular early microphone was the "carbon" type. Most hams purchased their microphones or adapted older telephone mikes. Carbon mikes were fairly inexpensive. QST and other magazines had numerous articles showing how to make mike stands and how to use suspension springs to keep the carbon mike from picking up annoying vibrations from the room.

In 1916 Edward C. Wente (at Western Electric and Bell Labs, 1914-1954) devised the condenser microphone, the first microphone with a flat frequency response suitable for music. With amplification, this microphone was initially used over telephone lines for music.

After 1921 the number of commercial broadcasting stations grew and there was a need for better microphones for use with music and singing. Large companies, such as Western Electric and GE, began developing new types, not using carbon. One type, the condenser microphone, quickly became popular.

At the same time more hams began using microphones to broadcast voice. They too desired to sound better than the carbon type would allow. As commercial condenser microphones were very expensive, hams began to make their own.

Then in the November 1932 issue of QST there was an article by Howard Anderson, WIBVS, called "A Sure-Fire Condenser Microphone." Anderson said, "The materials used for this job require a minimum of machine work and are of a type that is generally available, the whole thing being built around an obsolete magnetic loudspeaker unit of a type widely distributed in years past and still to be found kicking around radio shop 'grave-yards' in goodly numbers. As an alternative to this unit, the whole head can be machined to the specifications given in the drawings."

Also in the article was a schematic for a one-tube amplifier necessary to make the microphone function well. A small cylindrical case was also shown, to house the microphone and the amplifier as one complete unit.

In the same issue was an ad for "A Real Condenser Microphone with a 2-stage amplifier by Sound Engineering of Chicago for \$65." Several pages later there was another ad from United Radiobuilders, a New Jersey firm, saying: "Complete parts for making a condenser mike head, with instructions for \$4.50." So if the ham wanted one badly enough to build one, they were now affordable.

In 1934 the Philadelphia M&H Radio Company featured the "Bruno" microphone kit in their catalog. It was really inexpensive, \$2.94 in kit form, or \$5.88 completely assembled and factory wired.

### The W6CKF Condenser Microphone

Thomas J. Imler, Jr. of Phoenix, Arizona was first licensed as W6CWI on April 30, 1929. The following year he picked up a second station license, W6EXC, for "Portable operation in the sixth radio district only." (It was com-

mon back then to have a second call, good only for "portable" operation. These were issued as a "Station License.") His next call sign was issued in mid-1932, W6CKF. At the same time he dropped the other, older calls, and they were reissued to other hams. On page 60 of the November 1932 issue of QST he is mentioned as helping W6FEA construct a 200-watt c.c. (phone) rig. He held this new call for a few years, and by 1939 his call was no longer listed.

Little else of Imler's ham radio career is known, but his legacy will live on, thanks to one very beautiful microphone he constructed. His family owned the first sign shop in Phoenix, and I'm assuming he was active in the business and familiar with metalworking. The workmanship on the microphone is outstanding.

Not satisfied with the usual cylindrical housing, he constructed an Art-Deco cabinet out of heavy sheet copper. Seventeen inches tall overall, it has a lower compartment for the "Bruno" condenser microphone, a centre compartment for the one tube amplifier, and a third compartment at the top to hold the batteries. The cabinet itself measures 15 inches tall by 6 inches wide and 6 inches deep. "W6CKF" is embossed down the front and his name, "T. Imler" is engraved at the top, into the hanging bracket. The back panel slides up and off to expose the interior; no screws are used. Design wise, I think it has a Southwest look.

There appears to have once been a two tube amplifier in it, as there are cut outs for two tubes. The knob at the top at one time controlled the gain as well as functioning as an on-off switch for the batteries.

Can you imagine how it must have felt, sitting in front of that microphone, calling CQ? It makes me wonder what the rest of his station looked like. I'll bet it looked just as good. The microphone came with his two early licenses and his W6CKF logbook. His log covers from August 26 to July 8 with no year shown. I think it's safe to assume it was in the 1933-1934 time frame, consistent with the 1933 and 1934 call book listings.

He worked stations from as far away as Japan and Australia as well as locals from the sixth district, and quite a few QSOs from the fifth, seventh, eighth and ninth call districts. There were just a couple of ones and threes listed. The two bands operated were shown as 40 and 20-meters. Strangely, there were no comments, no operator names, cities, states or times listed in the log.

### How I Got the Microphone

This mike was listed on the on-line auction site eBay in 1998. I bid on it, but did not bid high enough to get it. My friend Brad Jones, a microphone collector, was the winning bidder. Realizing what a mistake I made, I contacted him immediately and let him know that I was interested in the microphone, if he ever

decided to sell it. Eventually he did decide to get rid of it, and I traded some things for it.

To finish the microphone for display, I'm hoping to find a W6CKF QSL card to put with it. And maybe someday I'll find someone who knew him or worked him.

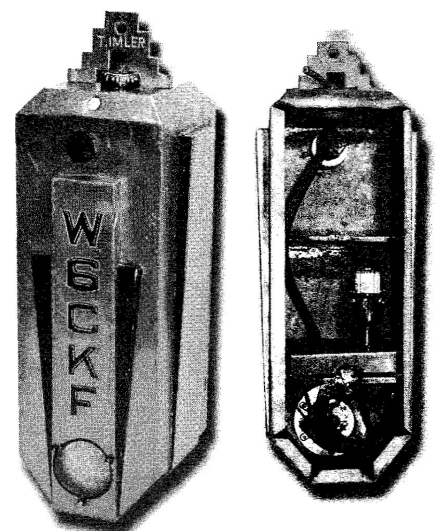
Condenser microphones are still in use and popular in the music industry today. Some recording artists closely guard their own personal mikes and only use them for their own recordings. They feel it provides the sound the artist wants. Good condenser mikes today can cost well over \$1000, with many manufacturers producing them.

Condenser microphone from the 1932 QST article.



The W6CKF mike is a beautifully crafted instrument.

Rear view of the microphone with cover removed.



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**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 yester-days radio transmitters and receivers. 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.

**Notices:****AWA CW ACTIVITY DAY:**

Date: Sunday 05 February 15:00 to 19:00 SAST

Bands and Freq: 80m 3510 to 3560; 40m 7000 to 7040; 20m 14000 to 14060

Categories:

- a) Single Operator All Band, Low Power (maximum 100 W)
- b) Single operator All Band, QRP (Maximum 5 W)
- c) Single Operator Single Band, Low Power (maximum 100 W)
- d) Single operator Single band, QRP (maximum 5 W)

Exchange: RST, Operators name and Grid Square.

Scoring: 1 point for low power; 2 points for QRP

Awards: Certificates are awarded for the highest score rankings

Logs to be sent to : Southern African Antique Wireless Association,  
PO Box 12320, Benoryn,  
1504.

E-mail: andyzs6ady[at]vodamail[dot]co[dot]za

Closing date for log submission: Monday 20 February 2012.

**NET TIMES AND FREQUENCIES:**

The following are times and frequencies for the AWA nets:

**AM Net**—Wednesday evenings from around 18:30; Saturday mornings from around 06:00 or when band conditions allow. Frequency—3615.

**SSB Net**—Saturday mornings from 08:30. Frequencies—7070 with a relay on 14125.

**CW Net**—Saturday afternoon from 14:00. Frequency—7020.  
(Times given are CAT or SAST)