

Newsletter of the West Rand Amateur Radio Club.

JULY/JULIE 1998.



Nuusbrief van die WesRand Amateur Radio Klub.



## Forthcoming National Events:

### JULY '98.

- 19 SARL Provincial 2M QSO Party

### AUGUST '98.

- 2 SARL HF Phone Contest  
30 SARL HF CW Contest

### SEPTEMBER '98.

- 5/6 SARL HF Field day SSB Contest.  
5/6 JARL All Asian SSB Contest.  
19/20 SARL VHF/UHF Contest.  
19 World Amateur Radio Day.

### EDITORS NOTE:

This is the last anode to be published by this committee and myself as editor. I would like to thank Erika for her hard work, as well as the two club members who contributed.

I wish the new committee, and the new editor, success for the next year.

Theuns Reyneke - ZS6MJR.

### BULLETINS:-

Sundays @ 11h30 SAST

145.625 FM  
7.066 LSB  
10.135 USB  
+ Wefax Daily @ 52.745 FM

## FROM UNDER THE CHAIRMAN'S TABLE.

Membership of a club or any organization, is in many ways like membership of an extended family. There will be those you like, and those you don't. Once a member there are benefits and obligations, and the most obvious obligation is to support. Some members end up doing all the work while some just want to enjoy the benefits. Please remember that without the help there are no benefits, so please help support your family club. In this way again like a family, we always will be there for you, we are your extended family.

Wal.

**Visit the SARL Website at:**

**WWW.SARL.Org.Za**

### BIRTHDAY LIST: JUNE 1998.

- |    |                                    |
|----|------------------------------------|
| 3  | Peter ZS6PLC                       |
| 6  | June (Granddaughter of Bill ZS6ZC) |
| 11 | Danie ZS6AMQ                       |
| 12 | Patty wife of the Captain ZS6AGF   |

### JULY:

- |    |                                    |
|----|------------------------------------|
| 2  | Bronwen (ZS6AGF daughter).         |
| 2  | Henk ZS6ENK.                       |
| 4  | Lindsay (Wife of Chris ZR6AVA).    |
| 8  | Chris ZR6AVA.                      |
| 17 | Samantha (Daughter of John ZS6WL). |
| 20 | Sheralee (Daughter of Dave ZS6CC). |
| 23 | Susan (Daughter of Theuns ZS6MJR). |
| 28 | John ZS6WL.                        |



## GENERAL RADIO OPERATING PROCEDURES FOR AIRCRAFT:

### 1) GENERAL:

Radiotelephony (RTF) provides the means by which pilots and ground personnel communicate with each other. Used properly the information and instructions transmitted are of vital importance in assisting in the safe and expeditious operation of aircraft. On the other hand, the use of non-standard procedures and phraseology can cause misunderstanding. Incidents and accidents have occurred in which a contributing factor has been the misunderstanding caused by the use of poor phraseology. The importance of using correct and precise standard phraseology cannot be over-emphasized.

### 2) TRANSMITTING TECHNIQUES:

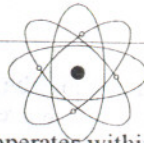
The following transmitting techniques assist in ensuring that transmitted speech is clearly and satisfactorily received:-

- A) Before transmitting listen out on the frequency to be used to ensure that there will be no interference with a transmission from another station.
- B) Be familiar with good microphone operating techniques.
- C) Use a normal conversational tone, speak clearly and distinctly.
- D) Maintain an even rate of speech not exceeding 100 words/minute. When it is known that elements of the message will be written down by the recipient, speak at a slightly slower rate.
- E) Maintain the speaking volume at a constant level.
- F) A slight pause before and after numbers will assist in making them easier to understand.
- G) Avoid using hesitation sounds such as "er".
- H) Depress the transmit switch fully before speaking and do not release it until message is completed. This will ensure that the entire message is transmitted.
- I) Be aware that the mother tongue of the person receiving the message may not be English. Therefore, speak clearly and use standard RTF words and phrases wherever possible.
- J) Avoid "clicking" the microphone switch as acknowledgment of a message.

### NOTE:

One of the most irritating and potentially dangerous situations in radiotelephony is a "stuck" microphone button. Operators should always ensure that the button is released after a transmission and the microphone placed in an appropriate place that will ensure that it will not be inadvertently switched on.





## MAKING COMMUNICATIONS CLEARER.....

**Bandwidth:** The set of frequencies over which an antenna operates within a specified level of efficiency.

For example GSM900 equipment is required transmit between 890 and 915MHz, and to receive between 935 and 960MHz. It could be said that the “centre frequency” is 925MHz and the bandwidth is 70MHz.

A typical Panorama GSM900 glass mount antenna has a bandwidth of 90MHz. It can operate between 870 and 960MHz with VSWR better than or equal to 1.5 : 1 at transmit frequencies; and better than or equal to 2 : 1 VSWR at receive frequencies.

**Communication antenna:** A device for receiving and transmitting radio signals. Used, for example, with 2-way radios and cellular telephones. Designed for use at a specific bandwidth. (Not to be confused with broadcast receivers such with FM/AM radios which operate across much wider frequency ranges.)

The power of the signals generated by most communication equipment is much weaker than broadcast signals. Therefore the size, design and position of antennas for communications applications are critical - in fact the antenna is one of the most important parts of a communications installation. Without an efficient antenna, even the best quality radio will fail to perform properly.

Communication antennas are often described by their length. The length of an antenna relates to the wavelength of the radio transmitter it is used with. For example a “¼ wave” antenna is as long as a quarter of the wavelength it operates at.

### Antenna Types:-

The most common types of antenna whip used in mobile communications are:- ¼ wave, ½ wave, 5/8 wave and collinear.

These types all have different radiating pattern properties which means that we can select the type of antenna that best suits our requirements.

**Collinear:** A stacked element antenna with the elements joined by phasing coils. (Phasing coils ensure the current in the elements are in phase.)

The elements may be of various wavelengths (such as  $3/8$ ,  $1/4$ , and  $5/8$ ). For example, the “ $5/8$  over  $1/4$ ”, is a collinear antenna because it has a  $5/8$  wave element joined end to end with a  $1/4$  wave element.

Different types of antenna construction produce different performance characteristics. For example, if the performance of a collinear antenna is compared with the performance of a  $1/4$  wave antenna (assuming frequency, power and efficiency are the same) a collinear antenna will appear to flatten the radiating pattern along the horizon. As the amount of signal is the same for both antennas, the flattening effect pushes the signal further along the horizon than  $1/4$  wave antennas. This is known as the “gain effect”.

Depending on the application, it may or may not be beneficial to “flatten” the signal along the horizon. Antenna manufacturers can engineer the “gain effect” by careful design and testing to produce antennas for different applications.

Directivity: The shape and angle of elevation of the radiating pattern are known collectively as directivity.

Each type of antenna creates a characteristic three dimensional radiating pattern. The radiating patterns of Panorama antennas are measured in both the E and H planes using the anechoic chamber.

All Panorama's antennas produce radiating patterns that have vertical polarization, and are omni directional in the H-plane. This means that (if the antenna is vertical) the signal will be transmitted equally in all directions along the horizon.

Directivity is determined by the type of antenna (such as  $1/4$  wave or collinear).

If the radiating patterns of a  $1/4$  wave and a collinear were compared (for a given frequency and power output) the radiating pattern of the collinear antenna would be more squashed and stretched along the horizon.

Directivity is difficult to measure, so we normally talk about gain. (In theory, if an antenna is 100% efficient, then directivity is equal to gain.)

Efficiency: The electrical performance of the communications antenna system (including radiating element, base and cable). Efficient antennas are expected to transmit all the signal available to them. In reality antennas can never be 100% efficient. Inefficiency can be caused by many factors which are often inter-related.



**6-METER SLIM JIM** - *Ken Gadd - ZR6SL.*

Since the Slim Jim antenna seemed to work so well at 2 M, I thought it might be interesting to see how it performs at 6 M. As I intended it for use with the junk-box transceiver from 50 to 50.5 MHz, I centered the calculation on 50.25 MHz and chose a velocity factor of 0.95 as an empirical starting point.

From the local hardware shop I bought a 4.3 M length of 50 mm-white plastic pipe normally used for wastewater drainage. A 4 mm hole was drilled through both walls of the pipe 25 mm from one end and a similar pair of holes, in the same place, 25 mm from the other end.

Measuring a point 2.820 M from the hole at one end (which was going to be the top of the antenna), I drilled a 4 mm hole through one wall only and inserted a self-tapping screw and a solder tag. At a point 25 mm below this screw, still in the same place as the other holes, this procedure was repeated with a screw and tag. This second screw was now 1.4 M from the hole at the bottom of the antenna, give or take 5 mm.

Next I took a 9 M length of earthing wire (7 1/5 copper) and threaded one end through the holes at the upper end, bringing it down to the upper solder tag where it was soldered. The other end was passed through the lower two holes and up to the lower tag where it was soldered. Cable straps were used at three points to stop the wire moving in the wind. The feed point, as in the original Slim Jim, is about 6.75% of the distance up the  $\frac{3}{4}$  wavelength side of the antenna loop, and is found by tapping the inner of the coax up the long arm and the outer of the coax up the short arm until an optimum SWR is found, using a carrier on 50.25 MHz. When the correct feed-point is found one can either solder the coax directly to the antenna or attach a SO 239 socket to the plastic pipe and wire it to the feed point. I used the latter approach, which makes it easier to dismantle the antenna if required.

The signal from the beacon ZS6DN/B on 50.05 MHz is usually strength 3 to 6; I do not know the polarization of that antenna but it is described as being beamed on VK, so at my location I'm looking at the side, towards the back of his beam.

## **REGULAR HAPPENINGS:**

- 1) Club meeting every 2nd Monday evening of the month @ 19h00 SAST at the Clubhouse.
- 2) Morse classes every Tuesday @ 19h00 on 145.625mhz - ZS6ENK.
- 3) 1st Monday of the month Chris Botham will run a technical and construction workshop at the Clubhouse from 19h00.

## **SUPPORT YOUR CLUB!**

## SCENES FOR THE FORTHCOMING AGM.

Like I said in the last Anode ..... The club committee's year is over. The next AGM will be held in place of the next monthly meeting on Monday 13th July 1998 at 19h30 at the clubhouse. Dirk, ZS6AU offered a pickup service for members that does not want to drive at night. If you want to use this service please phone him on 760-1444 to make arrangements.

The evening will run as follows:-

1. Chairman's welcome.
2. Reading of the previous AGM minutes.
3. Chairman's report.
4. Treasure's report.
5. Chairman will appoint an acting chairman for election purposes.
6. Chairman leaves the room and a new chairman is selected.
7. New chairman takes the chair.
8. New chairman continuous with the business of selecting new committee members.
9. General.
10. Close.

No member will be able for election to the committee if not present at the meeting unless such a member has given written notice to the meeting that he will be absent for the meeting and would be available to serve on the committee if elected.

Only paid up members for the current year (1997/98) will be eligible for the positions on the committee.

Only paid up members for the current year are allowed to give proposals, second proposals and cast votes.

Acting Treasurer: ZS6MJR





I CAN HEAR MORSE CODE!

**Clubhouse:** Erf 2447

Kroton Street

WELTEVREDENPARK Ext. 12.

Tel: 475-2368

### **CLUB COMMITTEE CONTACTS:**

<b><u>NAME:</u></b>	<b><u>CALL SIGN:</u></b>	<b><u>TEL:</u></b>
Wally - Chairman	- ZS6WAL	- 672-7958
Dirk - V/Chairman	- ZS6AU	- 760-1444
Cedar - Treasurer	- ZS6JQ	- 763-6929
Eric - Secretary	- ZS6EPL	- 794-2188
Sarel - Member	- ZS6APO	- 768-2091
Keith - Member	- ZS6AGF	- 679-1156
Steven - Member	- ZR6SJK	- 887-3820 (W)
Dave - Member	- ZR6AOC	- 475-0566
Johan - Technical	- ZS6JVV	- 955-2788
Chris - Member	- ZR6AVA	- 673-2726
Lance - Member	- ZS6ZN	- 475-8482

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