

Q S X P E

ZS2PE

FREQUENCIES:

Bulletin	3640 Khz
	7107 Khz
National Call	145,5 Mhz
P.E. Repeater	145,05/65
Grahamstown	145,20/80
Lady's Slipper	145,10/70



***Port Elizabeth Branch of the
South African Radio League***

P.O.Box 462, Port Elizabeth. 6000.

17 JUL 1979

PORT ELIZABETH BRANCH.

COMMITTEE MEMBERS:

	Phones.	
	Home.	Business.
Chairman ZS2RS Dick	324737	541461
Vice Chairman Lionel ZS2BD	321770	422041
Secretary ZS2OB Marge	302334	
Treasurer ZS2CY Frank	511259	
ZS2AB Brian	393498	21173
ZS2BK Andre	396893	28501
ZS2SS Selwyn	304651	543634

The next General meeting of the Branch will take place at the Y.M.C.A. Havelock Street, Port Elizabeth at 8p.m. on Friday 20th July, 1979.

The Bulletin roster for the next month is as follows:

22nd July	Brian ZS2AB
29th July	Andre ZS2BK
5th August	Selwyn ZS2SS
12th August	Dick ZS2RS

If you have any items of news and interest for the Bulletin, please give the Bulletin reader a call and let him know. He will most certainly appreciate it.

QX-PE. If members have any small advertisements or articles of technical or general interest they wish to include in the Newsletter, just give the Secretary a call at 302334 or drop them in the post to Box 462 and they will receive the attention they deserve.

NOBLESSE OBLIGE.

If she wants a date - Meter.
If she comes to call - Receiver.
If she wants an escort - Conductor.
If she wants to be an angel - Transformer.
If she proves your fears are wrong - Compensator.
If you think she is picking your pockets - Detector.
If she is slow of comprehension - Accelerator.
If she goes up in the air - Condenser.
If she wants chocolates - Feeder.
If she eats too much - Reducer.
If she is wrong - Rectifier.
If her hands are cold - Heater.
If she fumes and splutters - Insulator.
If she wants a vacation - Transmitter.
If she talks too long - Interrupter.
If she is narrow in her views - Amplifier.
If she is a poor cook - Discharger.

MINUTES OF THE GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE S.A.R.L.
HELD AT THE Y.M.C.A., HAVELOCK STREET, PORT ELIZABETH AT 8P.M. ON FRIDAY 15th
JUNE, 1979.

PRESENT: 16 members.

APOLOGIES: ZS2CY, ZS2TY, ZS2CJ, ZS2BF, ZS2KT.

The Chairman welcomed all those present to the meeting and extended a special welcome to Bert ZS2EA and Van ZS2Y. He explained to the meeting that Frank ZS2CY was not present as there had been a burglary at his QTH during the day.

MINUTES: The Minutes of the meeting held 18th May, 1979, having been circulated in QSX-PE were taken as read, proposed by Brian ZS2AB and seconded by Colin ZS2AO.

CORRES: The following correspondence was tabled:
(a) Letter from the President of the League.
(b) Minutes of Council.
(c) Letter from West Rand Branch.
(d) W.R.R. Newsletter.

ARISING: The Chairman read the letter from the President and the letter from the West Rand Branch.
Reference was made to the East Cape Technical Co-ordinating Committee with regard to VHF Planning in Division 2 and the Chairman explained the position.
Discussion took place regarding the Algoa Branch and various members expressed their opinions. The Chairman stated that the Branch had taken legal opinion and according to the legal adviser, the formation of the Branch was unconstitutional.

FINANCE: -

GENERAL: The Chairman informed the meeting that information had been received from Headquarters that subs. for the next year would still be R12 and that these are now due. The amount of R18 mentioned at the Annual General Meeting was fortunately deferred.
The Chairman referred to the Technical Classes being run by Peter ZS2PD. These are very successful with about 25 attending and Peter was thanked for his tremendous efforts.
With reference to the Lady's Slipper Repeater, the Chairman explained that there had been technical problems and no electricity for several weeks, but this was about to be restored. Many thanks to Trevor ZS2AE for all his work and assistance, and Hermie Hertel was also thanked in his absence.
Progress was being made with the Town Repeater.
The Secretary was congratulated on the face lift for QSX-PE.
It was hoped that several members of the Branch would travel to a site in Kareedouw to take part in the V.H.F. Contest and details would be arranged later.
The Chairman congratulated Colin ZS2CT on the fact that he had been awarded a trip to Johannesburg to take part in a Science week as a result of a Frequency Counter which he had built for a Science and Technology Competition.

There being no further business, the meeting closed at 8.40p.m. Tea was taken and thereafter, two very interesting films were shown.

sgd.
R.W. Schonborn ZS2RS
Chairman

sgd.
M.T. Colson ZS2OB
Secretary.

Snooper locates radio transmitters

NEWS FOR D.F. HUNTERS.

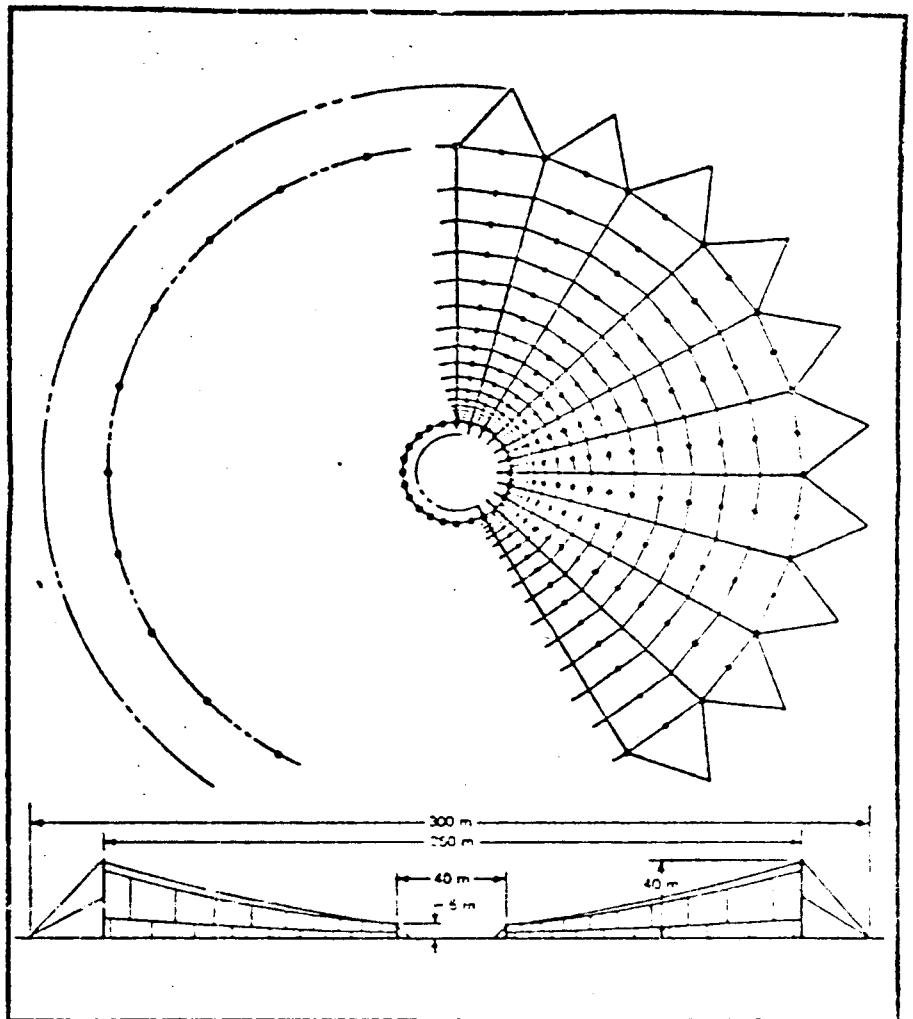
The spy world won't be quite the same following the Communications/78 International Exhibition in Birmingham, England, last April. There, Technology for Communications International Inc. unveiled a system for locating clandestine transmitters that takes a fraction of a second to spot the source of any radio signal in the 500-kilohertz-to-30-megahertz range.

This means that broadcasters, regulatory authorities, and the intelligence community now can be armed with more accurate and faster monitoring equipment, according to Larry Blum, marketing vice president for the Mountain View, Calif., firm. He says he has already sold two of the model 410 systems to undisclosed customers, one of them in the Middle East.

Defects. Conventional detection methods suffer from several major defects, Blum says. Because they pinpoint location by triangulation, they must employ two widely spaced antenna arrays. The arrays themselves are typically composed of concentric circles of vertical monopole antennas interconnected to reflecting screens.

Blum's company has created a new kind of antenna array controlled by a minicomputer. The array is large—300 meters in diameter—but it reverses the standard layout by having the smaller antenna elements for high frequencies on the inside. The elements graduate outward to larger quasi-log periodic ones for low frequencies. This setup cuts the number of elements by 75%, the company says, and reduces the array's diameter to one third of what would otherwise be required.

Sky waves. The array operates by measuring the high-angle sky wave signals that bounce off the ionosphere from the relatively short-range transmitters for which it searches. Given the incoming angle and the height of the ionospheric reflection layer at the time, the minicomputer calculates the distance to the transmitter. The array is horizontally polarized to handle this angular measurement, as well as vertically polarized to measure azimuth. A conventional array is usually just vertically polarized.



Listener. Smaller, high-frequency elements at the center graduate outward to larger, quasi-log periodic elements for lower frequencies in giant 300-meter-diameter antenna designed for locating clandestine transmitters. Antenna is in the \$1 million-and-up class.

If the 410 finds a signal of interest, it records it for computer analysis, says Roy Woolsey, senior physicist. This takes less than a second for any frequency-shift-keyed, single-sideband, a-m or fm signal.

Because the firm's approach needs information about a signal's amplitude and phase, the 410 employs a dual-channel direction-finding technique. One channel focuses on the strongest signal, while the other polls the rest of the array. This yields the phase information and also removes any effects of modulation, Blum says. The results are converted to 12-bit data for analysis by a Hewlett-

Packard 21MX minicomputer.

The array locks on signals that have skipped only once off the ionosphere. In tests, it pinpointed a 3.056-MHz signal to within 9 kilometers of a known 231-km distance. The 9 km seems far but it is actually close enough to allow the transmission to be tracked to its source using more conventional techniques, Blum says. His 10-year-old company, specializing in antenna arrays, says the model 410 costs \$1 million and up depending upon complexity. He puts its market at between \$10 million and \$20 million a year. □

ANTENNA BONANZA FOR 10 - CB IS GOOD FOR SOMETHING!

MODIFYING YOUR ANTENNA IS EASY.

Most CB equipment can be modified, tuned or used as is to operate on 10 meters. The CB industry is manufacturing an array of excellent economical antennas that can be easily modified to 10 meters with a near perfect match.

Here is how to modify several types of antennas. The tuning will be covered later. The actual length will vary with each type of antenna.

MOBILE - BASE LOADED STEEL WHIP, 47 INCHES.

It was necessary to reduce the whip length to 41 inches. The original whip was retained for 11 meters and another whip was cut for 10 meter operation: swr 1.2 to 1 - 29 MHz.

FIXED STATION - VERTICAL HALF WAVE.

No modification: swr 1.8 to 1 - 29 MHz. This antenna is known as a Starduster. If you don't mind a little swr, use it as is. Cutting it to length would be difficult since the coax is inside the bottom element.

FIXED STATION - QUARTERWAVE GROUND PLANE.

This antenna had three 106 inch radials and one 106 inch vertical driven element. The vertical element was shortened from 106 to 96 inches. The three radials were not modified: swr 1.2 to 1 - 29 MHz.

MOBILE - QUARTER-WAVE WHIP.

Reduce length in accordance with the pruning procedure.

MOBILE - FIBREGLASS WIREWOUND.

These antennas are made by winding wire around a fiberglass rod and then applying shrink tubing over the entire length. The tuning consists of removing turns of wire from the top end. The frequency is determined by the number of turns rather than the overall length of the glass rod. The size of wire determines the power handling capability. 18-gauge wire will handle 200 watts.

FIXED STATION - 5/8-WAVE VERTICAL.

These antennas normally have a loading coil to obtain electrical length without extending the mechanical length. Tuning would consist of reducing the mechanical length. The loading coil is located in the bottom end of the antenna assembly and is not readily available for modification. If the loading coil is wound with small wire, it will not handle power. This is a good antenna to stay away from!

MOBILE - CENTRE LOADING COIL.

Tuning is accomplished by shortening the whip on the top end of the coil. The actual length will be critical and the bandwidth narrow.

LOADING COILS.

Antenna loading coils are sealed against moisture. This is normally accomplished by injection moulding or potting the coil in epoxy. Do not attempt to remove coil turns unless you have determined a satisfactory method of resealing.

POWER HANDLING CAPABILITY.

Antennas without loading coils are usually good for a KW. RG-58 coax is satisfactory up to 200 watts input. Above this level use RG-8/U. Antennas with loading coils have power limitations. The larger the wire in the loading coil the more power it will handle. Visual inspection of wire size is usually impossible due to moisture seals. A clue to power capabilities is the outside diameter of the loading coil housing. If it's 12mm or less, the power handling capability will be low, not more than 25 watts. Excess power will cause the coil to heat and possible coil destruction. If there is a gradual increase in swr when the transmitter is turned on, the chances are that the loading coil is working up a fever.

ANTENNA TUNERS.

Antenna tuners are not required. Do not have one in the line when changing the length of the driven element. There is nothing wrong with trying a tuner with a CB antenna as is.

PRUNING PROCEDURE.

Regardless of antenna type, the tuning from 27 MHz to 29 MHz requires the reduction of the electrical length of the driven element.

An swr bridge is required. The function switch is first placed in the forward position and adjusted for set level. The switch is then placed in the reflected position and the swr recorded. Minimum swr will not necessarily be a perfect match 1 to 1. It could be 1.3 to 1 or even 1.5 to 1. Do not settle for more than 1.5 to 1. This would indicate there is a problem somewhere.

A base-loaded mobile CB antenna, when operating on 10 meters, will show an swr reading of approximately 4 to 1. A quarter-wave base antenna will show an swr reading of approximately 2.5 to 1. A loading coil narrows antenna bandwidth. While pruning a mobile antenna whip, cut off 1 inch at a time until the swr drops below 2 to 1. From this point on, cut only $\frac{1}{2}$ inch at a time. The best way to cut a stainless steel whip is to use the edge of a file to notch the whip and then break off the notched piece with pliers. All mobile antennas have an adjustment screw which allows at least a $\frac{1}{2}$ -inch adjustment. With this adjustment, it is possible to obtain minimum swr at the centre of your operating frequencies.

PRUNING FIXED STATION ANTENNAS.

The procedure is the same but not as critical. Cut off 2 inches at a time until the swr drops below 2 to 1 and then cut only 1 inch at a time until you obtain minimum swr at the centre of your operating frequencies. In the pruning of any antenna, all swr measurements must be made with the antenna in its permanent position. If it's going to be mounted on the roof, that's where you adjust it. If it's a mobile installation on the trunk lid, close the lid and position the car in the clear, away from all obstructions such as trees, buildings and other automobiles. Close the car doors during swr measurements.

Acknowledgements to Joe Goode W6LVT and 73.

THE BASIC PRECEPTS OF SCIENCE

Submitted by E. Renouf VK2AWR

Gary Owen, of New Mexico, has supplied these interesting observations after many years of Amateur Experiments. His experience and observations are the same as ours.

ALLENDORFER'S AXIOM —

When all else fails, read the instructions.

BASSAGORDIAN'S BASIC PRINCIPLE AND ULTIMATE AXIOM —

By definition, when you are investigating the unknown, you do not know what you will find or even when you have found it.

CALLAHAN'S COMPENSATION COROLLARY —

The experiment may be considered a success if no more than 50 per cent of the observed measurements must be discarded to obtain a correspondence with theory.

FINKELRAT'S FUTILITY FACTOR —

No experiment is ever a complete failure, inasmuch as a well-written account of it can serve admirably as a bad example.

FLANNERY'S EFFECT —

Those items most urgently needed are inversely available to the degree of urgency of the need, i.e. in any pile of papers,

when search commences at the top, the sought-after paper is at the bottom or vice versa.

FLIEGELBAUM'S LAW OF THE PERVERSITY OF INANIMATE OBJECTS —

Any inanimate object, regardless of its composition or configuration, may be expected to perform at any (unpredictable) time in a totally unexpected manner for reasons that are either totally obscure or completely mysterious.

GUMPERSON'S LEMMA —

The probability of a given event occurring is inversely proportional to its desirability.

HORNER'S FIVE-THUMB POSTULATE —

Experience varies directly with the amount of equipment irrevocably ruined.

LOUGHRIDGE'S IMMUTABLE REALITY —

The intensity of the desirability of an event is directly proportional to its occurrence at a wholly inopportune time.

MURPHY'S LAW —

If anything can go wrong, it will (e.g. if you drop a piece of toast, it will inevitably fall jam-side down).

PATRICK'S THEOREM —

If the experiment works, you must be using the wrong equipment.

SCHIMMELPFENNING'S CONSTANT —

That quantity which, when multiplied times, divided into, added to, subtracted from or taken to the power of the answer you got, yields the answer in the back of the book.

SPINKENHEIMER'S SPARE PARTS PRINCIPLE —

The accessibility, during recovery of spare parts which fall from the workbench, varies directly with the size of the part and inversely with its importance to the completion of the work under way.

WIRESTRACK'S WELL-ORDERED PRINCIPLE —

Those supplies necessary for yesterday's experiment must be ordered by no later than noon tomorrow.

STAPP'S LAW —

The Universal aptitude for ineptitude makes any human accomplishment an incredible miracle.

E. Renouf VK2AWR