QSX PE

Christmas

ZS2PE

FREQUENCIES:

Bulletin	3640 Khz
	7102 Khz
National Call	145.5 Mhz
P.E. Repeater	145.05/65
Grahamstown	145.15/75
Lady's Slipper	145.10/70

Greetings

Port Elizabeth Branch of the

South African Radio League

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

Dec. 80

FURTHER CONFESSIONS OF A TREASURER.

San Francisco.

The Chairman,
Port Elizabeth Branch.

Dear OM,

So sorry to have taken so long to reply to your 14 letters and 5 telexes but I have been moving about quite a bit since I last wrote and it was only with difficulty that I managed to avoid them as long as....I mean, that it took them some time to catch up with me.

Whilst I was naturally delighted to hear from you I must confess to feeling a little pained at the tone of some of your messages, particularly the last telex. Frankly, I think your remarks about calling in Interpol and applying for extradition were quite uncalled for.

I am sure that there must be some rational explanation for the absence of the travel agent I referred you to. After all, even travel agents must travel... sometimes. HI!

In any event, there is absolutely nothing to worry about. I realise that the members are asking some tiresome questions but to say that they are planning to hang, draw and quarter you suggests that you are suffering from a touch of hysteria. As I said before, do try to relax a little and don't take the members' remarks too seriously. I assure you that you will be able to come out of hiding as soon as I get home. In a year or two, In the meantime that cave in the berg must be marvellously peaceful without the wife and kids to pester you!

Now, I'm sure everyone will want to know what I have been up to since I last wrote. From Rio I popped up to Miami to watch the "Miss Universe" contest and my, what a show it was! I wish you could have seen it. The colour, the gaiety, the top quality artists and, of course, the GIRLS! I was lucky enough to excort a small group (about 10) of the contestants to one of the better night clubs in Miami - ruinously expensive, but as I always say, it's only money.

Then I did a quick tour of the U.S.A. - to get to the places I wanted to see I had to charter an aircraft and for the price I paid you'd think I was buying the darn thing! One of the stopping places was, of course, Las Vegas and you'd be amazed at the variety of Casinos and the methods there are of losing your money....my money, I mean.

Right now I'm staying in a rather pleasant penthouse suite in Beverley Hills, California. I'm thinking of buying it, in fact. It seems reasonable at $500000.

Ah, my butler (you should meet him - he's a very fine fellow) tells me that I have visitors. These must be the two starlets who are under the impression that I am the casting director for a major new movie which is planned (well, I may have misled them just a little!) so I'd better go. More later.

Next day. I was wrong about the starlets. My visitors were two very pleasant chaps who seemed extremely interested in my travels and offered to take me on a tour of the sights. I was only too pleased and joined them in a trip up the coast. Very scenic, the Californian coast. Especially the beaches. Anyway as it was getting a bit late in the day I suggested that we find a place to spend the night. They said they had just the place - an island retreat in the middle of San Francisco Bay. It sounded like fun and when they said I would be the guest of the U.S. Government it seemed to be too good to be true!

And so, here we are. The place has very attractive peach coloured walls but otherwise the decor is very unusual, featuring a lot of ironwork - quite extraordinary. The beds are very confortable even if the place is a little austere otherwise. There is certainly plenty of interesting company.

Well, I'd better close now. I'm told that they turn the lights out quite soon. Typical of these country retreats, of course - they always turn off the generator at night.

Oh, I haven't told you the name of this place. It sounds vaguely familiar - Alcatraz. I wonder who those two chaps were....

73 es gud dx.

Your Treasurer.

(Editor's Note: Since receiving the above we have had a letter from the U.S. Prisons Administration begging us to remove our Treasurer as soon as possible as he is undermining the moral integrity of the other prisoners in Alcatraz.)

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P.S. QSX-PE would like to thank CQ Newsletter, Durban Branch, for the original Confessions of a Treasurer, and also ZS5EC who wrote the masterpieces and thought that we deserved the follow-up for our good taste in publishing the first!!!!

****

POETRY CORNER.

S for S meter that suit so handy,
O is for Ohm who worked out Laws dandy.
U for the units which go ticking fast,
T for the Turns on the coil - made to last.
H is for Henry, both micro- and Mister.

A for the 'and on the key - what a blister!
F is for Frequency, checked now and then.
R for the Rag Chewer's Cert. in the den.
I for the Input which makes the tubes glow.
C for the Cards which come in so slow.
A for Antenna, both dipole and beams.
N is for Noise all over it seems.

R is for [illegible] transmission line.
A for the Amateur Code, six rules fine.
D is for DX [illegible] the air
I for the Ions which put current there.
O is for Output [illegible] necessary too.

L for the ladies - it's to you.
E is for [illegible] wide-spaced or close.
A is for Anodes and things such as those.
G for the guys who operate fone.
U for the Umpteen cw-prone.
E for the End - and about time too!!

ZS20B.

****

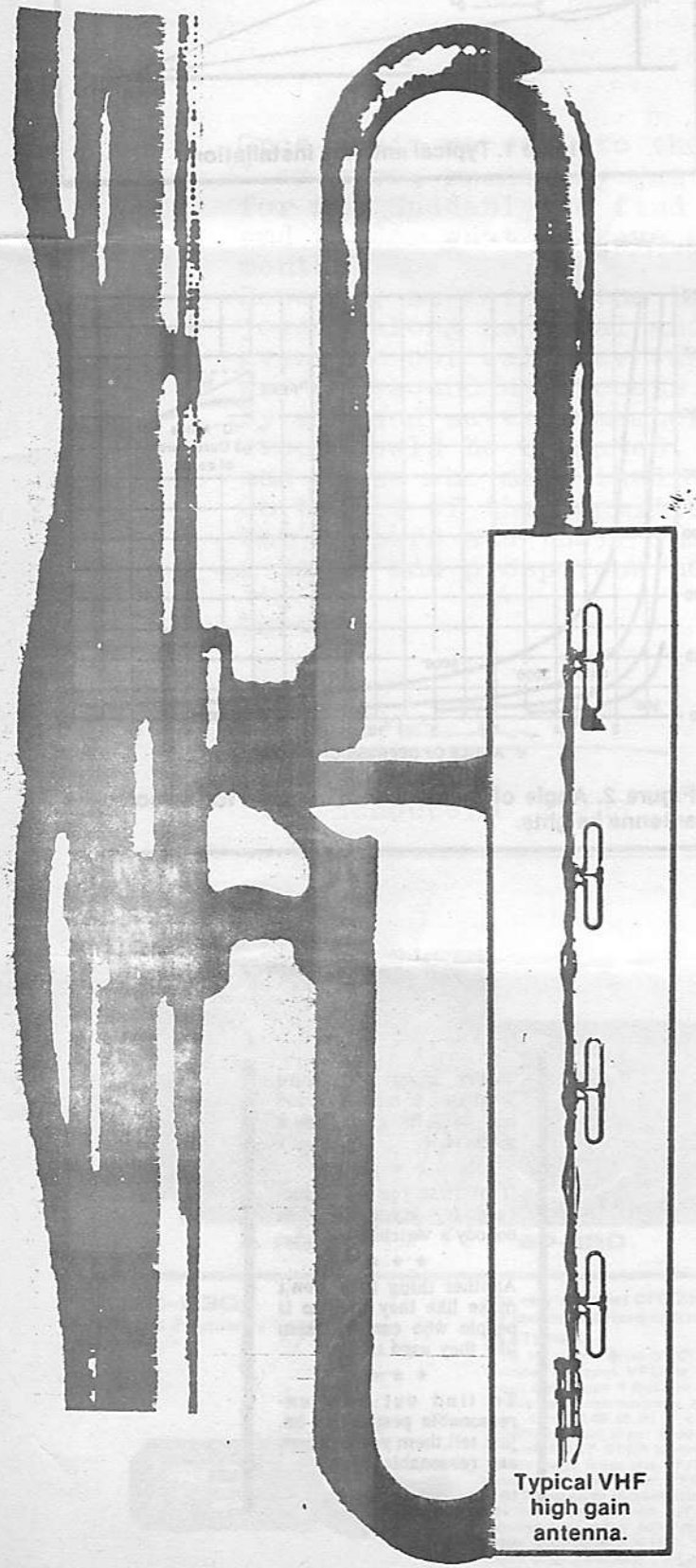
MAY YOUR EVERY CHRISTMAS WISH COME TRUE . . .

BULLETIN ROSTER.

4th January	Marge ZS20B
11th January	Frank ZS2CY
18th January	Selwyn ZS2SS
25th January	Peter ZS2PS

...living Dead Spots Through Site Geometry

By Dale W. Horn and Alex F. Dolgosh
The Antenna Specialists Co.
Cleveland, Ohio



Typical VHF high gain antenna.

Communications users have historically sought the highest geographical location for an antenna site. These locations offer the greatest line-of-sight distance and, hence, the greatest communications range potential. However, several factors can enter into system performance which makes it important to examine, under certain circumstances, the entire surrounding topography — or "site geometry."

The expansion of communications services to VHF and UHF frequencies made physically possible the use of omnidirectional antennas with large gain values. Vertically polarized, omnidirectional antenna gain is achieved only by compressing the beam in the elevation plane. The more compression, the more minor lobes with pattern nulls. For example, a typical collinear antenna array with a power gain of 10 times would have its first null approximately six degrees below the horizon. The depth of this null is on the order of 30 dB.

A study of site geometry might well indicate that communications "dead spots" are being caused by this null appearing in an area where coverage is desired, such as point X in Figure 1.

Using the illustration in Figure 1 and the graph in Figure 2, we can assume a hypothetical installation for the purpose of discussion.

A 10 dBd gain antenna is installed at location h2 which is 2000 feet above the surrounding terrain. The first pattern null at minus 6 degrees puts point X at a distance of 3 miles from the antenna site, so a mobile unit at this point is experiencing 30 dB attenuation due to site geometry. At a distance of 7 miles, the mobile unit has improved its position up to the half power point of the antenna pattern, but is still not realizing maximum system performance. This does not begin to occur until the mobile unit is 30 or more miles from the antenna site. So, we are faced with a paradox — the mobile unit will find weaker signal areas as it approaches the antenna.

There are three ways shown to improve the signal level at point X without increasing transmitter power. One is to lower the antenna to height h1. Another is to use a lower gain antenna, even a dipole, at h2 such that point X is no longer in the null.

The signal level at point X could be further enhanced by "null fill" in the lower half of the antenna radiation pattern. The addition of null fill results in less major lobe gain because that is from where the signal must be taken. Beamtilt without null fill will result in an antenna with less horizon gain because the lobe is electrically tilted to some angle below the horizon.

In the case where the major lobe is on the horizon, it should be remembered that 1/2 of the radiated signal is above and 1/2 below the horizon. Unless the site geometry dictates coverage at elevation angles above the antenna, then the power in the upper hemisphere is wasted and can be a contributing factor. Coverage is most effective when the major lobe is directed slightly below the horizon.

Using the same hypothetical installation as before, a 10 dBd antenna with minus 3 degrees tilt will only reduce the signal at the horizon by 3 dB, yet increase the signal at point X by 27 dB (by raising the original level from the minus 30 dB null to the lower half-power point).

Effective radiated power (ERP) is calculated by multiplying the transmitter output in watts, less coax and other losses (hybrid, circulators, duplexer), by the power gain of the antenna. However, because the standard method of measuring gain on VHF and UHF antennas is at zero degrees, the gain at other elevation angles can be radically less than this. For this reason it is desirable to know what the vertical plane pattern of the antenna is and the probable

signal levels at various points in the service area.

The beamwidth of an antenna is the number of degrees between the half power points in the major lobe. Where the system requires coverage in local as well as distant areas, and where the site geometry permits, the user should select the highest possible antenna location and the antenna configuration which will be the best compromise. Because VHF signals propagate over essentially line of sight distances, it is important to select a high antenna location to maximize the line of sight distance.

At the same time, consideration needs to be given to local coverage. The user should consider using a high gain antenna with a moderate degree of beamtilt and null fill so that he will make the greatest possible use of the power he radiates. The dotted pattern of the high gain antenna at h2 illustrates a depressed major lobe wherein the upper half power point is at the horizon. For the sake of clarity, the minor lobes have been left off. This concept makes more use of available power and will tend to minimize interference with systems beyond your coverage area.

The most interesting, yet untested, aspect of negative beamtilt is its application in services where ERP is limited by regulation and even further limited through application of contour calculations in shared-channel areas. A factor in calculating ERP is antenna gain. Through industry standards, this gain is measured at the horizon (zero degrees elevation) since this is where maximum interference potential exists. By using a 10 dBd antenna with sufficient beamtilt to place the unity gain point at the horizon, a 500 watt ERP signal level at zero degrees will produce up to 5000 watts ERP within the prime coverage area. Therefore, we have theoretically improved system performance tenfold while maintaining the calculated system contour so as to not cause co-channel interference. Interesting — but yet untested through application.

In many systems a reckless approach to system design has contributed to problems. This approach is to "run all the power your license permits and put up the largest antenna you can" based on the rationale that this provides a margin of safety, and that even under adverse conditions you will "get through." This is self-defeating. The higher gain antennas offer small beamwidths in the vertical plane, which can result in "close in" dead spots because of the nulls in the radiation pattern between the minor lobes, which in turn requires the user to run more power to fill in these "weak areas." Needless to say, the signal level in the outlying areas will probably be very good because it is there that the major lobe offers the highest gain to the detriment of areas nearer the base station antenna.

If a study of site geometry indicates that shadowing (complete lack of line-of-sight through terrain) is causing a "dead spot," then beamtilt is not the answer. For the true value of negative beamtilt antennas to be gained, and until reckless application of them is discouraged, each system must be examined carefully to qualify and quantify the extent of its problem areas.

The net result is improved system performance, reduced co-channel and adjacent channel interference, and more effective spectrum utilization through the concept of antenna pattern control. □

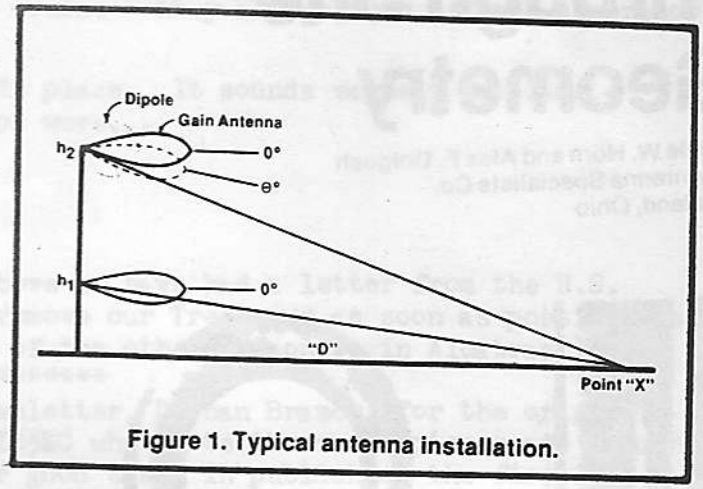


Figure 1. Typical antenna installation.

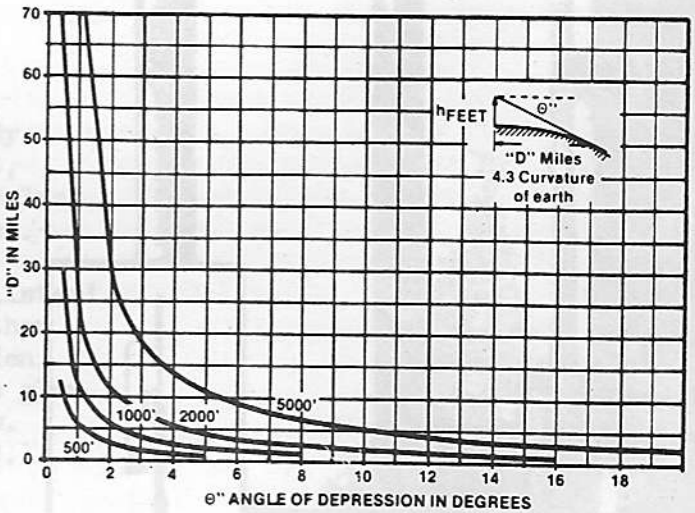


Figure 2. Angle of depression distances for selected antenna heights.

You're never quite sure what kind of mind a person has until he gives you a piece of it.

* * *

If at first you don't succeed, try, try again when nobody's watching.

* * *

Another thing they don't make like they used to is people who can fix them like they used to.

* * *

To find out how unreasonable people can be, just tell them you'll accept any reasonable offer.

* * *

PORT ELIZABETH BRANCH.

A MERRY CHRISTMAS TO ALL

Once again we come to the end of yet another year which, I am sure, rushed by just as quickly for you as it did for me. Suddenly we find ourselves another year older and wonder what we have achieved during the past twelve months.
However, as far as the Branch is concerned, we have jogged along as usual and all is well. The most recent event on our calender was the travelling supper which was a resounding success. It was most certainly enjoyed by all and several members expressed the hope that the event would be repeated. Thanks to all who assisted and those who made their homes available.
On behalf of the Committee I would like to wish all our members and their families a blessed Christmas and a happy and prosperous new year.

Best 73

Dick.

Dick Schönborn ZS2RS Chairman.

KENWOOD **THE PACESETTER IN AMATEUR RADIO**

TS-130S

HF SSB TRANSCEIVER

The TS-130S series is an incredibly compact, full-featured, all solid-state HF SSB/CW Transceiver for both mobile and fixed operation. The TS-130S gives optimum performance in a compact package, all solid-state . . . easy to operate, as well as incorporating, 80-10 meter (including the three new bands), built-in speech processor and narrow/wide filter selection for both SSB and CW modes. It also has digital display, IF shift to eliminate QRM and many other outstanding features to make this model, another top-of-the-line from KENWOOD!

VFO-120
Remote VFO

Allows split-frequency operation when DX chasing, net monitoring, and finding an unused frequency while retaining the original frequency.
The VFO-120 also incorporates T.F. set switch which prevents transmitting on the wrong frequency during split-frequency operation and also allows quick setting of transmit frequency. LED indicators show VFO functions at a glance.

SPECIFICATIONS
• Oscillator Frequency: 5.50–6.00 MHz • Oscillator Circuit: Clapp • Output Voltage: 0.2V ±1 dB (across 470Ω load) • Frequency Stability: Within 100 Hz per 30 minutes after 3 minutes warm-up (at room temperature) • Solid-state Complement: FET; 2, Transistor; 2, Diode; 6 • Power Source: From TS-130 Series • Dimensions: 123 (4.9)W x 96 (3.8)H x 235 (9.9)D mm (inch) • Weight: 2.5 kg (5.6 lbs)

PS-30 (for TS-130S)
Power Supply

Supplies regulated 13.8V DC at 20A intermittent load with complete ease and safety due to the use of generous heat sinks and an automatic reset electronic overload trip.

SPECIFICATIONS
• Power Consumption: Approx. 600W • Output Voltage: 13.8V DC • Output Current: 20A (intermittent load 50% duty cycle), 15A (continuous load current) • Output Voltage Fluctuation: Within ±700 mV (at 20A load current), Within 400 mV at 2–20A load current • Ripple Voltage: Less than 20 mV at 13.8V DC 20A • Power Requirements: 120/220/240V AC • Dimensions: 180 (7.2)W x 133 (5.3)H x 287 (11.5)D mm (inch) • Weight: 8.9 kg (19.6 lbs)

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