

October 2002

FEEDBACK



The OFFICIAL Newsletter

of the

Georgian Bay Amateur Radio Club Inc.

P.O. Box 113, Owen Sound, Ontario N4K 5P1

GBARC Meetings

are held on the 4th Tuesday of every month except July and August in our CLUBHOUSE, Unit 6 Rockford Plaza, Rockford On. 5km S of Owen Sound. 7:30 p.m.

Breakfast Anyone?

Any Saturday 9:00 a.m., at the Rockford Restaurant.

Nets

80 metre net on Sunday at 9:30 a.m. on 3.783 Mhz. Two metre net on Thursday at 9 p.m. on VE3OSR 146.94-Mhz.

Submissions

are always welcome. Send them to Barry/Steven

This Month

Amateur Radio Quiz

Terry Fox Run 2002

S - Meters And How To Use Them

Up Coming Events

GBARC Mail Box

**NEXT MEETING November
26th**

President

Bernie
VE3BQM



Vice-President

Bob
VE3XOX



Secretary

Susan
VE3TLK



Treasurer

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Newsletter Team

Editor
Barry VA3WBG



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Steven VE3SEG



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Tom VE3CVL



AMATEUR RADIO QUIZ

<p>1. (2)</p> <p>Who is responsible for the proper operation of an amateur station?</p> <ul style="list-style-type: none">- Only the station owner who is the holder of an amateur radio operator certificate.- Both the control operator and the station licensee.- The person who owns the station equipment.- Only the control operator.	<p>2. (4)</p> <p>When a station is transmitting, where must its control operator be?</p> <ul style="list-style-type: none">-Anywhere in the same building as the transmitter-At the stations entrance to control entry to the room-Anywhere within 50 km of the stations location-At the stations control point
<p>3. (2)</p> <p>If you transmit from another amateur's station who is responsible for its proper operation?</p> <ul style="list-style-type: none">- You the control operator- Both of you- The station owner, unless the station records show that you were the control operator at the time- The station owner	<p>4. (3)</p> <p>Which of the following statements is correct?</p> <ul style="list-style-type: none">- A person, holding only basic qualification, may operate another station on 14.2MHZ- Radio amateur may permit any person to operate the station without supervision- Any person may operate an amateur station under supervision, and in the presence of, a person holding an appropriate qualifications- Any person may operate a station in the amateur radio service
<p>5. (4)</p> <p>During a disaster:</p> <ul style="list-style-type: none">- Use only frequencies in the 80 metre band- Use only frequencies in the 40 metre band- Use any United Nations approved frequency- Most communications are handled by nets using predetermined frequencies in amateur bands	<p>6. (1)</p> <p>If you let another amateur with additional qualifications than yours controls your station , what operating privileges are allowed</p> <ul style="list-style-type: none">- Only the privileges allowed by your qualifications- Any privileges allowed by the additional qualifications- All the emission privileges of the additional qualifications, but only the frequency privileges of your qualifications- All the frequency of the additional qualifications but only the emission privileges of your qualifications

TERRY FOX RUN 2002

Well,, another year has come and gone and this was, I believe the 7th Terry Fox run that GBARC has supplied communications for. This year 200 people took part in Owen Sound and raised approximately \$15,000. I want to thank those members who supported me with donations and helped me raise \$350 and run 15 kilometres. This was my 6th time running. I didn't get the final count but there had to have been 15 Amateurs helping this time. I only heard of one injury of someone falling off of a bike. Bob, VE3NX and myself attended organizing meetings and have another meeting with the Terry Fox people in November to get things rolling for 2003. We will be taking suggestions for next years run to the committee. It seems that business's set aside donation money at the first of the year and we're hoping to target some of that. If you work for a company that may be of help, please let us know and we'll follow up with the lead.....73...Gene VE3IJD



S - METERS AND HOW TO USE THEM

One S-unit is a change of 6dB in signal strength, which corresponds to double the VOLTAGE or four times the POWER at the receiver input.

HANDY-DANDY S-METER CHART

S Meter reading	Voltage at receiver input (microvolts)	Power (dBm)
S9+20dB	500	- 53
S9+6dB	100	- 67
S9	50	- 73
S8	25	- 79
S7	12.5	- 85
S6	6.2	- 91
S5	3.1	- 97
S4	1.6	-103
S3	.77	-109
S2	.39	-115
S1	.19	-121

(dBm is power expressed as decibels relative to one milliwatt)

An S-METER is calibrated by connecting a signal generator to the antenna terminal and setting the output power to 50uV, or -73dBm, and adjusting the S-meter calibration pot for a reading of S-9. Since the S-meter is usually derived from the receiver AGC line, it *is* relatively linear from about S3-S4 and upward (since a good AGC usually "kicks in" around -100 to -105dBm). This linearity is also due to the diodes used for the AGC detector, once they are conducting in the linear region (again, around S3-S4). Statements that "S-meters are totally worthless" or "a change in 2 S-units means nothing" are thus actually quite incorrect. An S-meter *is* a fairly good RELATIVE power indicator for received signal strengths and noise levels.

SO WHAT-THE-HECK IS AN S-METER GOOD FOR?

The purpose of an S-meter is not to provide any absolute indication of power or voltage, but a RELATIVE indication between received signal strengths ... such as between two different signals, or between a signal and the "noise floor" of the band.

Example: On 40M, typically the "noise" will be S4, or about -103dBm. If your receiver has an MDS (minimum detectable signal) of -133dBm, it means you're loosing 30dB of your dynamic range to the noise! (133-103=30dB). In this case, the S-meter is more-or-less giving you an absolute power DIFFERENCE between it's MDS and the noise floor, in dB.

Example: A station claims his beam antenna has 12dB gain over his dipole. So he switches between the two and asks you for an "A-B" comparison. His signal goes from S7 to S8 ...a 6dB change. That ain't 12dB! 12dB should have shown 2 S-units of change. (I'm assuming his beam antenna *was* properly pointed at you -hi).

Likewise, YOU are comparing two antennas at your shack. You are LISTENING to a QSO in progress, switching between the two antennas. One antenna causes the S-meter to rise about 1/2 S unit. Well, that's 3dB, and that's not bad for most wire antennas. Or ... you are switching between two antennas and notice that the noise seems to be much less on one, in fact, the S-meter drops from S4 to S3. You have a problem with the antenna with the higher noise. If the noise drops 2 S-units, you have a BIG problem with that antenna! Obviously, you want to use the antenna with the lowest noise, because an S5 signal will be an S5 signal on the same receiver. The difference, is if one antenna has an S4 to S5 noise, you'll be digging that S5 signal "out of the mud." With an antenna at S3 noise level, that S5 signal now has a 2 S-unit (12dB) improvement in signal-to-noise, and will obviously be much easier to work.

An S-meter also makes it convenient to make internal tuning adjustments to your receiver, such as peaking any IF cans, filters, etc. You can tune to a carrier or QSO in the S8 range, then tune above and below and mark the frequency where the S-meter drops 1 S-unit (6dB), 2 S-units (12dB), etc. to make a rough graph of your overall selectivity/filtering of your receiver. If your receiver claims the RF amplifier, when kicked in, provides 12dB of gain, well, you should clearly see about a 2 S-unit change. Or if the 3dB filter BW is 300Hz, then you should clearly see a 1 S-unit change over about twice that, huh? You can do the same with a DVM on your audio output, but an S-meter sure makes it more convenient, and quite easy to verify some of the specs and claims the rig/kit vendor is claiming. Or to check for a change in performance later on for troubleshooting purposes. It is ALWAYS beneficial to do some of these basic measurements when you put a new rig on-line, so you have a baseline to check performance later on if troubles begin. A simple S-meter is all you need to record some of these important specs.

WHAT ABOUT THIS QRO vs QRP THING?

You have to QUADRUPLE (X4) your signal to DOUBLE your signal strength at the receiver end. Likewise, if you drop your power by one-fourth, your received signal strength will be one-half less, or 1 S-unit. You are working a station running 100W and he is S8. If he drops his power to 1/4th, or 25W, his signal strength should drop about 1 S-unit, or to S7. If he drops another 1/4th, to about 6W, he should drop another S unit, or to about S6. Therefore, the difference between 100W and 5W QRP is about 2 S-units. Big deal. Dropping to 1W is about another S-unit, then to 250mW another S-unit, etc. OK, now you're getting down into the S4 noise level on 40M. Now you're hoping the guy on the other end has only a S3 noise level on his end :-)

UP COMING EVENTS

The 26th Annual YORK REGION HAMFEST is on Saturday, November 2, 2002 if you would like to carpool down please call Jim ve3cjm 422-0202.

The Santa Claus parade is on November 16. The GBARC club has been asked to help out with communications. If you are able call Bernie ve3bqm for more info.

From The Mailbox

ZEROBEAT

THE BRUCE AMATEUR RADIO CLUB NEWSLETTER

IS NOW POSTED 73 DE JIM COVERLEY VE3OVV

When in Barrie stop in at the **Barrie Amateur Radio Club Meeting**

Georgian college, Rowntree Theatre

Date: TBA Time: 7:30 PM

73 de ken ve3kpp

