



The Repeater

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The Livonia Amateur Radio Club

INSIDE THIS ISSUE	PRESIDENT'S CORNER
President's Corner 1	<p>At the November 22nd meeting, we will have Bruce Whitney, W8RA, give us a presentation on RFI from power lines. Bruce spent many years with DTE Energy and is now employed by ITC Transco. He will bring along an impressive set of professional grade locating gear to support his presentation. This is a great talk. Don't miss it.</p>
Hamfests & Swaps 2 Elmer Hotline Miscellaneous Notes	<p>We had a great start to the fall season. On November 6th, 21 members enjoyed dinner and chat at our annual LARC Nite Out. The food and the company were great. And this year, people who ordered fish got more than just a fish. And of course, the canoli were stellar.</p>
Gain, Watts & db 3	<p>The day after LARC Nite Out was the Edmund Fitzgerald special event. We activated the Dossin Great Lakes Museum for the 4th year in a row. Using the callsign W8F, the Phone station, sporting their new Hustler 6BTv vertical, contacted 113 stations in the 4+ hours of operation. The CW station, on the other hand, had tough competition with the ARRL CW Sweepstakes Contest captivating the CW portions of the bands. We used the club's new G5RV antenna in an inverted Vee form and, while we got consistent 579 - 599 reports from the west coast and beyond, we only managed twelve contacts. This was in no way a reflection of our fine CW operators, but rather a testament to what happens when your special event gets inadvertently scheduled on the same day as a major contest. Next year, we will return to Saturday and our QSO count should increase.</p>
DX News 4	<p>Even though the station success was lopsided this year, we managed to out on a good show for the general public who stopped by to see our "broadcast." Several people stopped by to ask us about our hobby - always a good thing. It also gave a number of our members valuable experience operating and logging under somewhat difficult circumstances. John, KD8NWD and Doris, KD8DXJ, learned how to work pileups while Al, KD8NWE, got lots of practice with the phonetic alphabet. Thanks also to Bruno, WA8DHP, John, K8AZT, Tas, K8TAS, Doug, KD8HMA, Jerry, W8WQU, Lynette, K8LCR, Sophia and James, W8ISS for helping us. It was a good showing of the club coming together to help out with a public event and a great opportunity for members to hone their operating skills. Photos are in the back of the newsletter. Also, photos of the concurrent operation at Whitefish Point by the Stu Rockafellow ARC can be found at http://www.qsl.net/w8njh/fitz10.html</p>
<p style="text-align: center;"><u>Pictures</u></p> LARC Nite Out 5-6 The Fitz Special Event 7	<p>On Friday, November 12th, Tas, Doris, Pam and I took to the club's storage locker for a much needed cleaning. I had no idea of the amount of ... well ... stuff the club owned. Much of it is from the late 1970s or early 1980s. Much of it has to go and we are offering it to the members. Take a look at the Yahoo Group, in the Photos section. We have two directories set up, "Make Us an Offer" for items we'd like to sell and "Up for Grabs" for items we want to give away to whoever wants it. Let Tas, Doris or me know if you are interested in any of the things shown.</p>
<p style="text-align: center;"><u>IMPORTANT DATES</u></p> Meeting Nov. 22 Christmas Party Dec. 3 Memberships expire Dec. 31	
<p style="text-align: center;"><u>NEXT MEETING</u></p> 7:30 pm Monday November 22nd Livonia Civic Center Library East Wing Meeting Room	
<p style="text-align: center;">LIVONIA REPEATER ▪ 145.35 PL 100HZ ▪ ECHOLINK W8WQU-R LARC 2-METER NET EVERY THURSDAY 8:00PM LOCAL TIME</p>	

This year's Christmas Party will be once again graciously hosted by John and Judy Dellinger on Friday, December 3rd, at 6:30 pm. RSVP to John via the phone number and e-mail in the roster, on the net or in person by the November 22nd meeting. John will provide directions to those who need the route.

We need Net Controls for the LARC 2-Meter Net. Contact Dave, KC8YWT, our Net Control Coordinator and let him know that you want to be a net control. It's a fun, educational and rewarding venture, and Dave will set you up with all the scripts, net log, etc.

At the Dossin this year, I was operating the CW station when I felt the presence of someone watching me. While in mod-QSO, I peeked over my right shoulder to see a girl in her early teens sitting in a chair, intently watching me copy and send those mysterious dits and dahs. She must have watched me for fifteen minutes straight before reluctantly following her parents out of the room. It underscores a phenomenon that plays out every few years, the busting of the myth that young people see communication via Morse Code as being antiquated to the point of being detestable. In my 22 years of hamming, I've found the opposite to be true. I believe that younger people see it as being a rather cool mode of communication - the language of spies. I'm glad to see more and more amateurs becoming interested in learning this special language. I'm also glad to see that our club includes this mode in our public events. Hopefully more people will be able to learn this language of the spies and join us when we demonstrate CW to the public during these events.

73,
Mike, N8MR

Hamfests and Conventions

12/05/2010 | [LCARC Amateur Radio Swap/Hamfest](#)

Location: Harrison Township, MI

Type: ARRL Hamfest

Sponsor: L'Anse Creuse Amateur Radio Club

Website: <http://www.N8LC.org>

02/12/2011 | [Cherryland ARC Swap-n-Shop](#) Location:

Traverse City, MI

Type: ARRL Hamfest

Sponsor: Cherryland Amateur Radio Club

Website: <http://cherrylandarc.com>

01/16/2011 | [45th Hazel Park ARC Hamfest](#) Location:

Hazel Park, MI

Type: ARRL Hamfest

Sponsor: Hazel Park Amateur Radio Club

Website: <http://www.hparc.org>

02/20/2011 | [Livonia Amateur Radio Club Swap-N-](#)

Shop Location: Livonia, MI

Type: ARRL Hamfest

Sponsor: Livonia Amateur Radio Club

Website: <http://www.livoniaarc.com/Swap.htm>

Elmer Hotline!

Starting out on a particular mode or stumped by technical problems with your equipment? Are you hesitant to bring up their problems at meetings or breakfasts? Bring your questions regarding a piece of equipment or a new mode to the Elmer Hotline: (President@livoniaarc.com). We will get you connected to someone who has the expertise you need.

Miscellaneous Notes

Our Thursday night net has added an open discussion period and all members are encouraged to stay on frequency after they have checked in and join the discussion period.

Ours is an informal net with the intent to provide an opportunity for amateur operators to share topics of interest so stick around, if you can, and share your current radio projects, equipment changes or issues, or any thing else you would like to share with your LARC friends.

As I mentioned in an earlier Repeater, this is the time of year that many of prepare our equipment for the long dark winter months when we hunker down and hunt for DX. What Ham hasn't said "If I just had a little more power I could have made that contact." Or maybe it was "If I had a bigger antenna I could hear that contact". The following article by Ken Larson KJ6RZ puts the relationship of gain, watts, and db in perspective and just might help save you some hard earned cash. -Editor-

Transmitter Power, Antenna Gain, and Coax Loss Trade-offs

By Ken Larson KJ6RZ

In the 1950s and 60s many hams built their own transmitters for the simple reason that commercial transmitters were too expensive. For example, a Johnson Viking II transmitter cost \$300, which doesn't sound too bad until you stop to consider that a new Ford or Chevy cost \$1,000. The alternative was to buy cheap war surplus radios and use the parts to build one of the transmitters shown in the Radio Amateur's Handbook. In a way, that was more fun. As far as power was concerned, you had control! You could push your transmitter as hard as you dared, to squeeze every bit of power out of it, even to the point where the plates of the transmitter's output vacuum tubes glowed cherry red.

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It turns out that you must increase the output power of your transceiver by at least 3 db in order for the person you are talking with to notice any change in your signal strength. For your signal to sound twice as loud, you must increase your power out by about 9 db. How much is a 3 db increase in power? A 3 db power gain is equal to a times 2 increase in power (3 db = x2). So, if your transceiver is running 100 watts, you must increase your transceiver's output to 200 watts in order for the person you are talking with to notice any increase in your power. If you wanted your signal to sound twice as loud, you must increase your power to 800 watts (9 db = 3 db + 3 db + 3 db = x2 x2 x2 = x8)!. Clearly, increasing power by 20 watts, say from 100 to 120 watts, is not going to make any difference at all to the person receiving your signal. On the other hand, if you cut your power in half from 100 watts to 50 (a 3 db decrease in power), the other operator will hardly notice any drop at all in your signal strength. So why beat your transceiver into the ground by running it at full power? If you run at 75 watts instead of 100, your transceiver will run cooler and no one that you talk to will know the difference. There is someone who may notice the difference however, your neighbors. If you are having interference problems, cutting your power level in half could solve those problems without having any noticeable affect on your ability to make contacts. For example, when I operated on 10 meters at 100 watts, my lawn sprinklers would turn on whenever I keyed my transceiver. When I dropped to 50 watts, the problem went away. Running at 50 watts turned out to be a great water conservation technique.

What about antennas? The same 3 db rule applies. You can go to a lot of trouble and expense on 40 and 80 meters putting up phased vertical arrays to achieve 2 or 3 db of gain. But 3 db of gain will hardly be noticeable to anyone listening to your signal, so why bother? The threshold in antenna cost verses performance gain is around 6 db. If your antenna provides 6 db of gain, operators listening to your signal will notice a difference. Your signal will not be twice as loud, remember you have to get 9 db of gain for that to happen, but at 6 db the gain will be noticeable. The table below puts antenna cost verses performance gain somewhat into perspective. This table compares various yagi beam configurations to the performance of a dipole. The table shows the db gain, relative to a dipole, achieved by each of the antennas. The antennas get more expensive as you go down the table. The table also indicates the increase in signal strength observed by the S-meter on a distant transceiver that is receiving your signal.

<u>Antenna</u>	<u>db Gain</u>	<u>S-unit Increase</u>	<u>Comment</u>
Dipole	0	0	Baseline
2-element Yagi Beam	4	0.6	Marginal performance increase
3-element Yagi Beam	6	1.0	Good performance increase
10-element Yagi Beam	12	2.0	Excellent performance increase

The cost versus performance trade-off for the transmission line connecting a transceiver to an antenna is similar to the antenna cost trade-off. However, this time the trade-off relates to the difference in loss between two types of transmission lines, for example, between two different grades of coax cable. As an illustration, 100 feet of LMR 400 coax used to connect a transceiver with a 10 meter antenna will produce a loss of 0.7 db. If standard RG-8/X coax is used instead, the loss will be 2.0 db. The difference in loss between the two types of coax is 1.3 db. Is it worth buying the more expensive LMR 400 coax to reduce loss by 1.3 db? Probably not. The strength of your signal in this example will sound the same to other hams regardless of which type of coax you use. Notice in making a comparison between two types of coax (or two types of antennas, etc.) it is the difference in loss (or gain) that is important, not the actual loss (or gain). At UHF frequencies, the differences in loss will be greater. 100 feet of LMR 400 coax at 440 MHz has a loss of 2.7 db. In comparison, RG-8/X has a loss of 8.1 db. The difference in loss is 5.4 db. In this case the more expensive LMR 400 coax may be worth the money. LMR 400 coax is relatively thick, stiff, and difficult to work with compared to RG-8/X, particularly inside the radio shack. Suppose that you use 75 feet of LMR 400 to get from your 440 MHz antenna to the wall outside your radio shack. Then you use a 25 foot length of RG-8/X to come through the wall and into the radio shack because RG-8/X is smaller and easier to handle in the shack. What performance penalty will you pay for doing this? The loss of 25 feet of RG-8/X is about 2.03 db. If you brought the LMR 400 all the way into the shack, the loss associated with the additional 25 feet of LMR 400 would be 0.68 db. The difference in loss is approximately 1.36 db, a negligible amount. Using RG-8/X within the radio shack is thus a good choice since it simplifies cable management within the shack and provides negligible additional loss.

In making trade-off comparisons, you have to look at the total system as well as the individual components. For example, a 2-element 10 meter yagi antenna (4 db gain over a dipole) feed by LMR 400 coax (1.3 db gain over RG-8/X coax) produces a total system gain of 5.3 db compared to a 10 meter dipole feed with RG-8/X coax. The total system gain of 5.3 db probably is worth the effort, even though the gains between the individual components was not that attractive. The system trade-off can easily go the other way as well. At 440 MHz, 100 feet of LMR 400 coax has a 5.4 db performance gain over RG-8/X coax and is clearly better. However, if your transceiver has power settings of 5, 10, and 50 watts, and you can hit all of the area repeaters at 10 watts using RG-8/X coax, why upgrade to LMR 400? Unless you are running off of batteries, using LMR 400 coax so that you can drop your transmit power to 5 watts probably is not worth the trouble or cost.

In conclusion, when making trade-offs between transmitter power, antenna gain, coax loss, and total system performance, it is the db difference between the options available to you that is important. A difference of 3 db will not be apparent to the hams that you are communicating with. They will hardly notice the difference if you run your transmitter at 50 watts instead of its maximum 100 watt output power. A difference of 3 db or less between two antennas, two types of coax, or two system implementations is usually not sufficient to justify higher costs. However, a difference of 6 db may justify the more expensive approach.

DX News

MADAGASCAR, 5R. Eric, 5R8IC is QRV from Sainte-Marie Island, IOTA AF-090, until December 18. He is active holiday style using CW, RTTY and PSK63. QSL to home call.

CHILE, CE. Members of the Radio Club de Copiapo are QRV as XR33M until the end of December to celebrate the thirty-three rescued miners. Activity is on 80 to 15 meters using SSB. This includes an entry in the upcoming ARRL 10-Meter contest. QSL via CE3BBC.

SAN ANDRES AND PROVIDENCIA, HK0. After his Colombia activity, Gerd, DL7VOG will be QRV as HK0GU/1 San Andres, IOTA NA-033, from November 22 to December 2. Activity will be on the HF bands using CW and RTTY. This includes an entry in the upcoming CQ WW CW contest. QSL to home call.

GUAM, KH2. Eri, JF1VGZ will be QRV as KH7ERI/KH2 from November 22 to 24. QSL direct to home call.

GUAM, KH2. Eri, JF1VGZ will be QRV as KH7ERI/KH2 from November 22 to 24. QSL direct to home call.

ANTARCTICA. Alex, RD1AV is QRV as RIIANC from Vostok Base until the end of 2011. Activity is on the HF bands, mainly on the lower bands, using CW, SSB and digital modes. In mid-December, he'll be active as RIIANC/A from Molodezhnaya Base. QSL via RN1ON.

SEYCHELLES, S7. Operators Noboru, JA2AAU, Iwao, JA2LSS, Seiji, JA2ATE and Tug, JA2ZS are QRV as S79AU, S79SS, 79TE and S79ZS, respectively, from Mahe, IOTA AF-024, until November 27. Activity is on 160 to 6 meters using CW, SSB, RTTY and PSK. QSL to home calls.

INDIA, VU. Special event station AU2JCB will be QRV from November 20 to December 5 in remembrance of the Indian physicist and radio pioneer Jagadish Chandra Bose. Activity will be on 40 to 10 meters

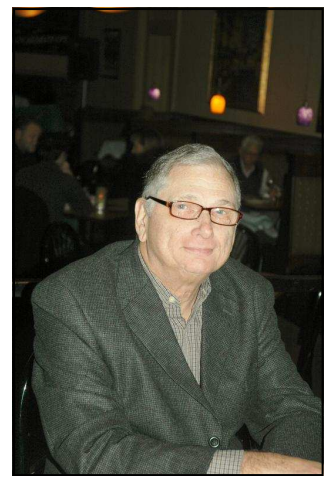
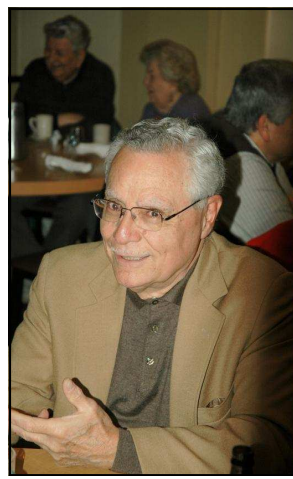
KERMADEC ISLANDS, ZL8. A group of operators are QRV as ZL8X from Raoul Island, IOTA OC-039, until December 5. Activity is on 160 to 6 meters using CW, SSB and RTTY. QSL via DJ2MX.

CHATHAM ISLANDS, ZL7. Seppo, OH1VR will be active as ZL7VR from November 23 to 30. Activity will be on the HF bands. He will also be active as ZL7V in the upcoming CQ WW CW contest. QSL both calls to home call.

CAYMAN ISLANDS, ZF. Robert, K5PI is QRV as ZF2PI from Little Cayman, IOTA NA-016, until November 22. Afterwards, he will be active from Grand Cayman Island from November 23 to 26. QSL to home call.

ZIMBABWE, Z2. Antonio, DL4EA, will be QRV as Z24EA from November 21 to 30. Activity will be on 160 to 6 meters using CW, SSB and possibly some digital modes. This includes an entry in the upcoming CQ WW CW contest. QSL to home call.

LARC Nite Out 2010



More LARC Nite Out



The Edmund Fitzgerald Special Event Station 2010

