

CQ de WA2LQO

Seventy Four Years: 1944 -2018

The official independent voice of the Grumman Amateur Radio Club.

AUGUST 2018 VOLUME 91 NUMBER 8

ANNUAL SUMMER DINNER MEETING - 5:30 PM WEDNESDAY AUGUST 15 AT LA CASA AT CRAB MEADOW BEACH

PRESIDENT'S NOTE by ED GELLENDER, WB2EAV

SUMMER PARTY ON WEDNESDAY AUGUST 15 (third Wednesday of the month) at La Casa Restaurant on Crab Meadow Beach

Every August we dispense with our usual meeting to have a picnic or dinner out. This year we decided again to have dinner at LaCasa, on Long Island Sound at Crab Meadow Beach in Northport. We consistently enjoy it and keep going back. We meet Wednesday August 15th (the THIRD Wednesday in AUGUST) at 5 PM and will sit down to order at 6 PM.

Directions: Easiest way is Sunken Meadow Pkwy north to last exit, SM5W, for Route 25A west. Proceed to Waterside Rd, turn right and stay on Waterside 2 miles until it ends at the beach. Alternately, you can take Larkfield Rd. all the way north as it becomes Vernon Valley Rd, then Waterside Rd. A third option is to load <445 Waterside Rd, Northport, NY> into your GPS and let it do the navigating.

SEND THIS BOY TO CAMP (sorry, nothing to do with ham radio)

Just as an aside, in addition to ham radio I have other obsessions – Boy Scouts and target shooting. I recently became certified to run a boy scout rifle range, and took advantage of a number of things to spend a week volunteering at the Onteora Scout Camp in Livingston Manor in the Catskills (run by Nassau County Boy Scouts), helping out on the shooting range. We had about 60 boys earn the rifle merit badge and 40 earn shotgun, while also allowing dozens and dozens more to shoot for entertainment. We make absolutely sure that it is all done with an obsession with order and safety. Everything worked out quite well.

I enjoy every opportunity to go to any boy scout camp as an adult, and I have always loved the Catskill mountains. On the way home I stopped off in the town of White Lake, where I spent many summers as a kid. (My father absolutely loved it there) One place in particular is unoccupied now (and regrettably the building is slowly degrading), and I went up into the woods behind it, where everything is exactly as I remember it. It was interesting to be eight years old again for a few minutes.

It is common for people go to the cemetery to visit their parent's graves. In White Lake I felt I was instead visiting my father's soul. All in all it was a delightful experience, capping off a very nice week.

Ed WB2EAV

GRUMMAN AMATEUR RADIO CLUB

TREASURER'S REPORT – Ed, WB2EAV

Ed reports that finances continue to be in good shape.

REPEATER REPORT – Gordon, KB2UB

Gordon reports 146.745 Repeater is intermittent.

NET REPORT – Karen, W2ABK

Thursday night net at 8:15 PM on 146.745 MHz had 0 check ins.

Thursday night net at 8:30 PM on 145.330 MHz had 3 check ins

VE REPORT – Ed, WB2EAV

There was one applicant for General. He passed.

VEs were: WB2EAV, WB2IKT, WB2QGZ, KC2YRJ

GARC NETS: Net Controller Karen W2ABK **40 Meters: 7.289 MHz at 7:30 AM EST Sundays**

2 Meters (repeaters) Thursdays: 146.745 MHz (-600 kHz) at 8:15 PM

145.330 MHz (-600 kHz) at 8:30 PM. Tone for both repeaters: 136.5 Hz.

ARES/RACES NETS: Mondays.

PROGRAM:

WEBSITE

The GARC web site can be found at <http://www.qsl.net/wa2lqo>. Webmaster is Pat Masterson, KE2LJ. Pictures of GARC activities, archives of newsletters, roster of members, and other information about the GARC may be found there. The membership roster has not been updated to delete Silent Keys and to enter new e-mail addresses for remaining members and friends. Please inform Pat Masterson if you need to delete, update or edit your roster information.

MEETINGS

Board and General Meetings are now combined. Effective January 2018, unless otherwise notified, meetings start at 5:30 PM on the FOURTH Wednesday of the month, at HAYPATH ROAD Town Park in OLD BETHPAGE. **[This month's meeting is dinner at LaCasa at Crab Meadow Beach on Wednesday August 15]**

GARC Officers:

President: Ed Gellender, WB2EAV 516-507-8969

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NEWSLETTER CQ de WA2LQO is published monthly by the GARC for its members and friends.

WEBMASTER Pat Masterson, KE2LJ Retiree 813-938-4614 Pat-Masterson@tampabay.rr.com

GARC VE EXAMS

We normally proctor exams for all classes of ham licenses on the second Tuesday of each month, starting at 5:30 PM, BUT sessions may be cancelled if no applicants make appointments. The fee is \$14. All applicants must pre-register with Ed Gellender wb2eav@yahoo.com All new applicants should be aware that they must write their Social Security number on the application form if they have not gotten an FRN number. Applicants for an upgrade must leave with the examiner a copy of their current license. All applicants must show a photo ID such as a driver's license. Study material may be obtained from ARRL-VEC at <http://www.arrl.org>, or W5YI-VEC at <http://www.W5YI.org>. All VECs use and update the same Q&A pools.

1 MEGAWATT AT 14 KC: Reaching submarines underwater – PART 3

Submitted by Jim K7JAJ

We've been including an article about a one-time transmitting station used to communicate with submerged submarines. We have described the antenna array and the transmitter. Now, in the third and final chapter we discuss modulation techniques.

With the advent of the Polaris weapon system, grave concern arose regarding the reliability of command and control communications via the Navy's VLF transmitting system. In responding to this situation, NRL developed a VLF facsimile transmission system which was first to provide reliable command and control communication from a single high power transmitting station in the United States to continuously submerged submarines when operating in any critical world area (1959). Early in 1959, the submarine USS SKATE used the system successfully on its trip to the North Pole, The submarine USS TRITON, in accomplishing the first circumnavigation of the globe, submerged, used the system throughout the voyage with good results (February-May 1960). The system was installed on all Polaris submarines and provided highly reliable command-control communications during the critical period that followed. This system became known as "Bedrock".

The Navy's existing transmitting system had to contend with high atmospheric noise levels prevalent at the very low frequencies which produced low signal to noise ratios and seriously affected the reliability of communications in distant areas of operational importance, such as the Mediterranean Sea, In the system devised, the superior performance obtained under extremely low signal to noise ratio conditions was achieved through the use of very narrow frequency bandwidth transmissions and the redundancy provided by facsimile type signaling, A facsimile-controlled exciter provided the small frequency shifting of the transmitter. The frequency-shift receiver utilized the novel techniques for high selectivity and discrimination previously devised for the VLF teleprinter system, Transmitter components were provided for installation at shore stations: NSS, Annapolis, Maryland; NAA, Cutler, Maine; NPM, Lualualei, Hawaii; NPG, Jim Creek, Washington; and NBA, Summit, Panama Canal Zone (1958-1964). Receiver components were supplied for submarines, the first installation being made on the USS SABLEFISH (January 1959) . In the trials of the system made with this submarine in the Mediterranean Sea area, excellent submerged reception results were obtained on transmissions from the station at Annapolis, Maryland. Similar results were obtained by the submarine USS BANG at its station in the North Atlantic off Norway (February 1959).

NRL developed a frequency-shift keyer which for the first time permitted automatic operation of the Navy's VLF transmitters at a rate as high as 60 words per minute with a high degree of reliability for command-control communications to Polaris submarines (1963). All of the Navy's high power stations were then equipped with these keyers.

The system utilized two frequency levels for keying with provision to avoid the large voltage and current transients previously experienced when the large quantity of oscillatory energy in the antenna system was abruptly changed in frequency. These transients had, at times, caused a flashover of "horn-gaps" and other protective devices followed by objectionable shutdown of transmitters due to overload. In certain instances, critical damage occurred, such as the burnout of antenna loading inductance cable, rendering the station inoperative for a considerable period. The transients were avoided by beginning each successive "mark" and "space" frequency shift at the zero-crossing points of the "mark" and "space" frequencies, when these points were coincident in phase, and arranging the rate of change of frequency to be linear during the transition process. The transition period was of such length as to hold the sideband energy generated during transition within the frequency bandwidth of the antenna.

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Maximum utilization of the antenna bandwidth was obtained by very precisely maintaining the "mark" and "space" frequencies; this was possible with NRL-devised techniques. Full utilization of the antenna bandwidth and confinement of the sideband energy to within its limits are major factors in maximizing the rate of transmission. The system permitted changes in the transmitter frequency to be made quickly and easily. Frequency-shift keyers of this type were provided for all of the Navy's VLF stations.