

CQ de WA2LQO

Merry Christmas

Happy New Year

Sixty Eight Years: 1944 -2012

The official voice of the Grumman Amateur Radio Club

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COMMUNICATIONS SYSTEMS (continued from November 2012)

By Bob Wexelbaum, W2ILP

An acronym for Teleprinting Over Radio is TOR and TOR is described as three popular communications modes which are technically believed to be error free because they utilize error correction feedback. The modes are AMTOR, PACTOR, G-TOR and variations of these types. We talked about the first two. Now let us describe G-TOR and other keyboard modes.

G-TOR: This is an FSK mode that is faster than PACTOR. G-TOR automatically changes its baud rate depending on the error rate. It starts at 300 baud, but it can reduce to 200 baud or 100 baud, depending on the error rate. It has a data interleaving system that is designed to work against atmospheric noise and QSB. It can process and repair garbled data. G-TOR is proprietary. It only works with a Kantronics multi-mode TNC. Because of its cost it is not very popular and is now rarely used. G-TOR's protocol was adapted from a non-ham system that was used on the Voyager space mission to send back pictures of Saturn and Jupiter.

JT65: This MFSK mode is designed specifically to work with very weak and slowly varying signals. It can work with signals so far below noise peaks that they cannot be heard by the human ear. It differs from other keyboard modes in that messages are transmitted in block units after being compressed and encoded with forward error correction (FEC). It has been used at VHF and above for Earth-Moon-Earth (EME) "moonbounce" work. Some hams use it on HF and there are software updates that have been made to improve it for HF propagation conditions. The HF version is called J65-HF.

OLIVIA: This keyboard mode was developed after the other popular modes that only require connections from SSB Transceivers to and from PCs. It was designed for receiving HF signals in high noise conditions. It claims to be capable of receiving signals as weak as 14 dB below the noise floor in the presence of QSB, QRM, polar path flutter, and aurora conditions. It is the second best mode, only exceeded by JT65-HF, but is often preferred because of its simple interfacing. It is actually a variation of MFSK that can use bandwidths in Hz / number of tones of: 125/4, 250/8, 500/16, 1000/32 and 2000/64. Most hams use 500/16 or 1000/32, but other tone numbers are also experimented with. The number of tones being used can be recognized in the waterfall (acquisition) display and hams have gotten familiar with the look of Olivia when they encounter it.

DOMINO-EX: This is another MFSK mode. It was especially designed to send text data. Other MFSK use a tone to recognize one bit. This mode uses many different tones sent one at a time, but each tone can represent more than one bit because of phase shifting within the tone. This is a similar technique that is used by commercial telephone systems. While the character rate is slower for Domino-EX than other MFSK modes, its advantage is a good data rate as compared to the bandwidth it uses. Under some HF propagation conditions it may be better than other MFSK modes. This mode requires extreme frequency stability. It uses no FEC but its software is designed to reduce problems that inherent in other NDSK modes. There is Phase Shift Keying which enables a single pulse to carry more than one bit yet DOMINO-EX is designed to beat multi-path interference by rejecting signals that are not of the expected phases. The tone sequences are managed by a technique called Offset Incremental Keying (IFK). There are various versions of this mode being experimented with such as DOMINO-EX4, ...EX5, ...EX8, ...EX11...EX16 and... EX22. The higher number is the fastest and can be used when conditions are good and it is desired to transmit large amounts of text quickly, but lower

numbers must be used during bad propagation conditions.

CONTESSA: This is a mode that has evolved from DOMINO-EX. It offers a compromise between speed and robustness. It may employ various bandwidths: 125, 250, 500, 1000 or 2000 Hz and number of tones: 2, 4, 8, 16, 32, 64, 128 or 256. Presently the most common formats being used are 250/8, 500/16 and 1000/32. Method that are designed to increase speed include using a shorter symbol block size (32) rather than the OLIVIA block size (64) and a shorter decimal character code (6 bit) versus ASCII (8 bit). Because of the lower character set that limit permutations, it does not print out in both upper and lower case. Thus it prints out similar to the old shiftless TTY that Western Union managed to use for its telegrams. Under most conditions OLIVIA performs better than CONTESSA but sometimes CONTESSA is better because of its flexibility and speed. CONTESSA is presently not very popular and is mostly used by experimenters.

PACKET: This is the oldest digital keyboard mode that had been commonly used by hams on VHF. It requires an inexpensive Terminal Node Controller (TNC). Some hams had set up billboards where they could store pages of information, similar to what we now have on the Internet's interactive websites, but without pictures or graphics. The original Packet was not designed to work with HF SSB transceivers. It was originally meant to work on 2-Meters with transceivers that have a wide enough bandwidth for NBFM 'phone. There is, however, an HF Packet version with data rate limited to 300 baud, but this is rarely used. There has been some use of original Packet on the high end of 10 Meters, where NBFM is permitted. I haven't heard much packet rackets on 2-Meters lately. What little there may be is used for the Automatic Position Reporting System (APRS). Packet supports the full ASCII character set. It is arranged in frames of up to 256 bytes of 8 bit ASCII.

PRESIDENT'S NOTE by ED GELLENDER, WB2EAV

The Christmas holiday season is upon us and I would like to wish everyone a very happy holiday season. The club usually celebrates by having the December meeting at a restaurant for some good food, conversation, and companionship. This year we will be going to Kwong Ming in Wantagh. We will be gathering at the restaurant at 5:30 PM on Wednesday December 19th and we will be getting serious about ordering and eating at 6 PM or so.

Kwong Ming is famous for serving the food that you fondly remember from your childhood. When was the last time you had true family style dining with large platters on the table, or had wonton soup just loaded with pork strips and greens? I can guarantee you will leave absolutely stuffed. I've been there many times; usually with friends; sometimes a larger group. Several have concluded that yes, you can go home again.

Directions: Take the Southern State Parkway to exit 28-S, Wantagh Avenue South. Go about half a mile to the first major intersection at Jerusalem Avenue (NY105), and turn right. The restaurant comes up quickly on the left. Note that the front parking lot is only a fraction of what is available around the back.

OTHER NEWS: Our NLI Section Manager and-friend-of-the-club Mike Lisenco has been elected as the new Hudson Division Director. Our heartiest congratulations go out to him and we look forward to a productive relationship going into the future.

Ham Radio University will be held on Sunday, January 6, 2013 at Briarcliffe College in Bethpage. It is always a fascinating event and I can't recommend it highly enough. There is a \$3 suggested contribution, but it is worth coming even for an hour or two. Check out the extensive website at hamradiouniversity.org for all kinds of information including a detailed schedule of all events and technical forums, as well as bios of all the speakers, many of who you already know.

DUES: Now is also the time of year that 2013 dues are payable. Basic dues continue to be \$20, with a family membership of \$25, and \$10 for retirees living outside the NYC metro area.

Ed, WB2EAV

**GRUMMAN AMATEUR RADIO CLUB
MINUTES OF GENERAL MEETING 11/12/2012**

By Karen, W2ABK

This meeting was held at the Bethpage Skating Rink because Ellsworth Allen Park was not available.

The meeting was called to order by Ed at 5:30 PM..

TREASURER'S REPORT – Ed, WB2EAV

Finances continue to be in good shape.

REPEATER REPORT – Gordon, KB2UB

The 146.745 repeater is noisy.

NET REPORT – Karen, W2ABK

Thursday night net at 8:15 PM on 146.745 MHz had no check-ins.

Thursday night net at 8:30 PM on 145.330 MHz had 5 check-ins.

Sunday morning net at 7:30 AM on 7.289 MHz had 4 check-ins.

VE REPORT – Bob, W2ILP

One applicant applied and passed the Technician exam. Four VEs were present: Ed WB2EAV, George WB2IKT, Karen W2ABK and Bob W2ILP

NEW BUSINESS

Congratulations to Mike Lisenco, N2YBBb who is now our new Hudson Division Director. Mike is looking for a volunteer who wants to replace him at his former position as NYLI SM.

Our Dec. 19 meeting will be a Holiday Party at Kwong Ming Restaurant in Wantaugh.

As a result of our November Election Meeting our officers are:

President: Ed Gellender, WB2EAV

Vice President: Gordon Sammis, KB2UB

Secretary: Karen Cerfalo, W2ABK

Treasurer: Ed Gellender, WB2EAK

WA2LQO Trustee: Ray Schubnel, W2DKM

2 yr Board Member: Jack Cottrell, WA2PYK

1 yr Board Member: Dave Ledo, AB2EF

1 yr Board Member: Jack Hayne, WB2BED

1 yr Board Member: George Sullivan, WB2IKT

PROGRAM

Ed showed a video of ARRL Headquarters from their website to test the projection system at the skating rink.

GARC NETS: 40 Meters: 7.289 MHz at 7:30 AM EST Sundays

Net Controller: Eugene, W4JMX

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.

GARC Net Controller Karen, W2ABK

ARES/RACES NETS: Mondays.

MEETINGS

General Meetings of the GARC are held on the third Wednesday of each month, starting at 5:30 PM, at the Ellsworth Allen Park in Farmingdale. Driving directions and map can be obtained from <http://www.mapquest.com>. It is suggested that the GARC web site be checked to be certain of meeting location, which may change after this newsletter is distributed. Board meetings are held a week before the General Meeting at the Bethpage Skating Rink.

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.

INTERNET LINK OF THE MONTH FOR INTERNERDS

A list of Mark Twain's famous quotations may be found on the Internet link for this month.

<http://www.digitaldreamdoor.com/pages/quotes/Mark-Twain-quotes.html>

At the bottom of the page there are links to jokes and quotations from other famous people. There are lots of lists that can be reached from the "digital dream door", so I am surprised that I only recently found it myself. Maybe this will teach me to stop quoting myself and being egotistical. Jokes and quotes will always be remembered when they come from famous people

GAS LINES AFTER SANDY

By gas lines I don't mean gas pipes. I mean the queues that formed after Sandy and the nor'easter. I witnessed a long line of cars waiting to buy gas on Crooked Hill Rd. in Commack. The line stretched from Commack Rd., where Crooked Hill Rd. begins, all the way to a gas station near the LIE. I dunno why the line was so long because there was an open, large, full-service, Gulf station on Jericho Turnpike, near the Mayfair shopping center, with no waiting and reasonably priced gas. The line on Crooked Hill Rd. was so long that I'm sure that the people on the end of the line had no idea as to what the price of the gas might be. Perhaps they thought it would be free. Most of them had panicked. Their homes were probably without electricity, maybe flooded, and they feared that their cars might run out of gas if they weren't filled to the top and ready for any additional disastrous emergency that might befall them. I was on Crooked Hill Rd, on my way to buy food at a Shoprite Supermarket and had to risk driving in the left lane to pass the long gas line. People panic when things are scarce and expect the things to become scarcer. There were also long gas lines in the mid-1970s.. But that was because the gas companies were holding up gas shipments until doubled prices would be acceptable. This time it was different. Some gas stations could not pump gas because the stations had no electricity, and gas shipments could not proceed as usual in the NY-NJ harbor. Was it because of high tides and rough seas, or because emergency coordinators had mixed up the storm emergency with security more fitting for an expected terrorist attack? We get oil from 34 countries, 12 of which are price-fixed by OPEC, but the oil must be refined to become gasoline, with additives like ethanol added. There are a limited number of refineries in the US. Some are in nearby NJ. The largest refineries in this hemisphere are in Aruba, Dutch East Indies and Montréal, Canada... maybe to avoid US taxation or pollution? I dunno. Like the electrical grid, the routes of gas delivery are not redundant enough to be robust. At any rate, the gas is now easily available and priced about the same as it was before the storms. Maybe now is the time for me to go fill up.

PUZZLE

Last month I asked the following question from the Amateur Extra Exam:-

What is the best time of day for transequatorial propagation?

- A. Morning
- B. Noon
- C. Afternoon or early evening
- D. Late at night

The correct answer is C.

This month I will again ask a question from the Amateur Extra Class Exam.

What is a depletion mode FET?

- A. An FET that exhibits a current flow between source and drain when no gate voltage is applied.
- B. An FET that has no current flow between source and drain when no gate voltage is applied.
- C. An FET without a channel so no current flows with zero gate voltage,
- D. An FET without a channel so maximum gate current flows.

GARC 2012 Officers (See Page 3 for 2013 Officers)

President: Ed Gellender, WB2EAV M/S:X08-14 516-575-0013 edward.gellender@ngc.com
or wb2eav@yahoo.com

Vice President: Gordon Sammis, KB2UB Retiree 631-666-7463

Secretary: Karen Cafalo, W2ABK 631-754-0974

Treasurer: Ed Gellender, WB2EAV (see above)

WA2LQO Trustee: Ray Schubnel, W2DKM Retiree

1 Yr. Board Member: Jack Cottrell, WA2PYK Retiree 516-249-0979

2 Yr. Board Member: Dave Ledo, AB2EF

2 Yr. Board Member: Jack Hayne, WB2BED

2 Yr. Board Member: George Sullivan, WB2IKT

Newsletter

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Editor: W2ILP 631-499-2214 W2ILP.RADIO@gmail.com This is new E-mail address.

Contributing writers: All GARC members (we hope). To submit articles or ham equipment advertisements contact the editor. Articles will only be edited when permission is granted by the author.

GARC 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 5:00 PM. The exams are given at Briarcliffe College, 1055 Stewart Avenue, Bethpage, NY in room: Long Beach #5. Ham Exams are: Element 2 – Technician, Element 3 - General, Element 4 – Amateur Extra Class. All applicants must pre-register by contacting W2ILP. Time and location of exams are subject to change. If there are no applicants VE sessions will be cancelled. The fee for 2012 is \$14 for all exams taken at one sitting. New first time applicants should be aware that their Social Security Number will be required on the application form unless they register with the FCC for an FRN. Applicants for an upgrade should bring their present license and a photocopy of it. All applicants should bring picture ID such as a driver's license. Study material may be bought from the ARRL-VEC or W5YI-VEC <http://www.arrl.org> or <http://www.w5yi.org> All VECs use the same Q & A pools.

Commercial FCC Radio Operator Exams

We are certified by the National Radio Examiners to administer exams for all classes of FCC commercial radio operator and maintainer exams. All Commercial Operator License Examiner Managers (COLEMS) use the same commercial license pools. Adminstrating fees vary. For information or to register contact W2ILP.

Editorial

I received a nice thank you e-mail from the man who passed the Technician exam last month. So far there have been no applicants for the scheduled December exam. As of Jan. 2013, I will no longer be the GARC Contact VE and CE. I am handing over that job to our President / Treasurer Ed Gellender. In 2013, prospective applicants should contact Ed. I have been the GARC Contact VE for 20 years...and I don't know if I should be bragging or complaining about that. I can no longer take that responsibility now. Driving to Briarcliffe in Bethpage from my home in Commack is no longer as automatically easy as it once was. Enough said. -w2ilp--

Grumman Amateur Radio Club
215 Birchwood Park Drive
Jericho, NY 11753

FIRST CLASS MAIL
Do Not Delay

HOLIDAY PARTY WEDNESDAY DEC 19 5:30PM – SEE PAGE 2 FOR FULL INFO

The Signal and the Noise

“The Signal and the Noise – Why so many predictions fail – but some don’t” is the name of a book by Nate Silver. When I first read the main title I thought it would be about HF radio signals in the noise but it is about forecasting or predicting lots of stuff...including baseball stats, economic bubbles, weather, hurricanes, global warming, terrorist attacks, poker playing, chess playing, political elections, and just about anything that might be bet on using percentages of odds based on related data. The book was released in 2012, before the recent presidential election results and before Hurricane Sandy. It was written after Hurricane Irene and well after the 9/11 attack. Events that occurred after the book was published have fit within Silver’s predicted percentages. Silver explains that there is a scientific difference between forecasts and predictions. He uses Bayes’s theorem to modify the probability percentages of occurrences when additional information is available.. I first learned Bayes’s theorem when I took a Random Variables course. The math involved with the theorem requires only basic algebra. The Baye’s equation is $-xy / [xy + z (1 - x)]$ where x = a prior probability; y = a new event that alters the prior probability; z = the probability that the new event does not alter the initial probability. In some cases where new information is found more than once, Bayes’s theorem is applied more than once to determine the final probability. You should read the book to see how Silver uses Bayes’s theorem to predict the odds of a second plane hitting the World Trade Center, as it did in 9/11. The result is a 99.9 % probability. It is easy to say that Silver might have rigged the results since 9/11 was a past event, but Silver gave favorable odds for Obama to beat Romney well before the election by applying Bayes’s theorem to data from the usual pollsters, with some significant modifying information. Silver concedes, however, that it is impossible to forecast earthquakes. For those who are not interested in math, Silver provides us with some history. Bayes was a mysterious person. Like Shakespeare, we are not exactly certain when he was born, what he looked like, or even if he originated his theorem. This leaves me skeptical about Bayes, the man, but just as confident in his theorem.