

ARC-SHORTS

AUGUST 2016

Club Repeaters: 147.315 (PL 107.2), 444.6 (PL107.2), 224.82 (PL107.2), 53.13 (PL107.2) 927.6 (-25Mhz, PL107.2), and 1282.600 (PL 107.2), DSTAR 145.38Mhz, 442.060, and 1284.600 ALL AR UP AND RUNNING – HAM IT UP! Get on the air!

NEXT CLUB MEETING

Our next meeting is August 12th. Jack, KE7VOU will give us a program and demo on JT65. Additionally, if you have been working on a project, we would like to have you tell the club about it! Jack's notes for the program are below:

JT65 Presentation Notes and Outline
August 12, 2016
Alexandria Amateur Radio Club

1. JT65 is a low power, QRP, HF digital operating mode that is able to do long distance, DX, communication with the use of small antennas in limited spaces such as indoors. Many hams live in residential locations where the installation and operation of large scale antennas is not possible because of lack of space along with zoning and HOA(Home Owners Association) restrictions.
2. The design and configuration of JT65 does not allow ham radio operators to engage in normal paced conversation because of the much slower pace of JT65. However, the inability to have a normal paced conversation is not a problem because of the ease and low cost of modern voice, video and text based communications over the internet.
3. Joe Taylor, K1JT, originally developed JT65 mode in 2001 to do HF moon bounce communications with lower powered signals at the higher frequencies, VHF, as compared to CW.
4. JT65 uses redundant, multiple-frequency shift keying, data compression and complex Reed-Solomon coding. JT65 signals are tightly time synchronized with transmissions being made at specific intervals while a receiving end computer does complex calculations to decode the weak signal in the noise.
5. JT65 uses one minute transmit and receive sequences meaning that a ham radio operator transmits for one minute and then listens in the next minute.

6. A 1270.5 Hz synchronizing tone is used along with 64 other tones, ie the 65 in JT65. These 65 different audio tones give this mode an unusual musical quality.
7. The cost of the ability of JT65 to do weak signal operation is slow speed and severely limited text communication of 13 characters per every minute transmission sequence.
8. JT65 has a 177.6 Hz bandwidth that is divided into 65 different channels.
9. In comparison, JT9 has a smaller bandwidth of 15.6 Hz than JT65 with 117.6 Hz and fewer channels with 9 instead of 65.
10. JT9 is another weak signal digital HF mode developed by Joe Taylor, K1JT, for EME, or Moon bounce operation at the lower frequency bands such as HF, LF and MF.
11. With a greater number of channels that allow more redundancy, JT65 signals are able to propagate better in poor conditions than JT9.
12. To set up a JT65 radio station, a ham radio operator, first, needs to have a more modern, solid state transceiver capable of connecting to a computer through ports. Second, a computer is needed to run the desired radio operating software in the required operating system. Third, an interface is a desired option because of creating isolation between the computer and the transceiver and a sound card in the interface that is dedicated to hf digital mode communication. Fourth, ferrite cores allow the ham radio operator to construct baluns by wrapping cables around ferrite cores to reduce interference.
13. The following software applications are able to do JT65 operation include:
 - a. WSJT-X by Joe Taylor, K1JT, will function in the operating systems of Windows, Linux and Mac.
 - b. JT65-HF by Joe Large, W9CQZ, will function in the Windows operating system. Joe Large is no longer supporting the JT65-HF program
 - c. Ham Radio Deluxe. JT65 was added in 2015.
14. For a computer running the Windows operating system, the time needs to be synchronized to an internet source. A software application known as Dimension4 will run in the background of a Windows OS computer and synchronize with various internet time services. It is available at www.thinkman.com/dimension4/.

15. Audio overdrive of the transmitter needs to be monitored with ALC (Automatic Limiting Control) meter setting on the transceiver. Audio overdrive can be limited with the audio level settings in the software drivers for the computer transceiver interface sound chip and audio signal strength setting adjustment knob on the outside of the computer transceiver interface. Audio adjustments at the microphone gain adjustment level are not recommended since the microphone is not the source of the audio signal.
16. Dirty digital signal reception with a lot signal distortion is the result in many instances of a maximum setting for RF gain in the receiver. Before declaring a digital signal to be “dirty” in the waterfall, try reducing the RF gain in the receiver. If reducing the RF gain does not reduce the distortion in received digital signal, then attempt decreasing the receive audio level in the computer transceiver interface.
17. Besides audio signal and RF gain levels, poor signal reception can also be the result of other station problems such as interference, bad cables and connections. For example, to detect and decode JT65 signals at a minimum level of interference, I run my station on battery power while all other appliances and lights are turned off in my apartment. Computer monitor, switching power supply and stereo-cd sound system produce too much interference while turned on and make JT65 signal reception impossible.

73 Jack KE7VOU

FOR D-STAR USERS

From Ian, N8IK http://www.charlottedstar.org/dstar_tips.htm

President's Corner

ELMERS CORNER

From one of our members: Please talk about power requirements, both for regular operation and emergency operation.

First, most of our equipment now runs on 12 Volts DC. Most of us buy a 110VAC to 12 VOLT DC power supply. How many amps should the power supply be able to produce depends on what equipment you need to run. Most HF 100 watt transceivers will run happily with a maximum draw of 14 Amps or so peak on SSB. If your running digital modes or CW you may expect that the draw may be more. Look at your owner's manual for max draw. Now remember that's peak transmit current, on receive you may draw only an amp or so. SO, most people buy a 20 to 25Amp power supply. If you cannot afford one you can do what some folks use to do, find a car battery and float it on a smaller power supply. A 7 amp or so power supply can make up the average draw of a 100 watt HF station.

Now you add your VHF/UHF 50 watt mobile to the shack. Again the draw on that may be as high as 15 amps on transmit. Question you need to ask yourself is: do you expect to transmit on both the HF and VHF/UHF radio at the same time? If so you will want a separate power supply for the VHF/UHF radio, but most of us don't transmit on both radios at the same time, so you can run both the HF and VHF/UHF on one 20 Amp power supply. If you start adding things like a keyer or other accessories, remember to watch the loads. They can add up.

Now for emergency power. First, what do you want to run when the commercial power fails? If you want to be up on HF and VHF/UHF then you can expect the same draw as you calculated for your HF and VHF/UHF radios. SO, what do you expect to be your needed operating time and how much do you expect to transmit? Let say your ready to check into the state net or worse yet you will be the net control for the HF net and you will also assume net control on VHF for the local ARES group. SO, 15 amps half the time for either transmitter and 2 Amps on receive. So, average is 8.5 Amps. Now you want to run for 48 hours. So you need 408 AMP HOURS. That's 5 80AmpHour marine deep discharge batteries. VERY EXPENSIVE. Lets think in terms of what 1 80 AmpHour battery will do. First you don't get the full 80 Amphours, assume 60% of that so 48 Amphours. Now you have your 8.5 amps average load. You can expect 5.6 hours at 50% talk. If you cut back to 25% talk you will average 4.5 Amps so your 48 Amphours will last a little over 10 hours. Most of us should not expect to lose power for more then10 hours, but it CAN happen. I have two 80 Amphour batteries, but only one is in the shack. I also have a 2KW Honda generator. Your mileage may vary.

If you just put the battery in the shack and leave it uncharged it will be dead when you need it. You can buy power supplies that will float charge a battery or West Mountain Radio has a iGate power switch and charger. It's a bit pricy, but I have one in my go kit and one in my shack. The battery takes a float charge and if the power supply goes out (power out), the switch goes to the battery without any need to do ANYTHING.

So. You need to check your gear for current draw on both receive and transmit, How much do you plan to transmit? How long do you expect to be on emergency power?

There is also conservation. A good antenna means you can work on lower power and maintain communications. If you run 10 watts you draw can be down to 3 to 5 amps on transmit.

A short note on types of power supplies. The newer power supplies are called "Switching" power supplies. They take the 60 cycle 110 VAC from the wall and convert it to a higher frequency which allows for much smaller transformer. These switching supplies are much much smaller then the conventional supplies. This is not an important consideration for the shack but if you need to go portable... The conventional supplies are much larger and as heavy as a car battery (20 to 30 Amps). Good news is that with the advent of the smaller switching supplies you can find the old supplies at good prices. The most common make for both is the Astron supplies. I have a refurbished 50 amp supply in my shack backed up with a 35 Amp. The load is due to the 4 VHF/UHF radios and 4 100+ watt amplifiers on the all mode VHF/UHF radio. My HF radios and the FT-736 have their own power supplies with better speakers installed, but I am able to connect all of the radios to the standby battery if needed.

74 Rick
N4ASX

JULY MEETING MINUTES.

Our July meeting program was provided by Howard, WD5DBC on the upcoming Marine Corps Marathon. Lots of changes to the course are expected. Other changes will be the move to handle patient tracking primarily over commercial connections. Given all the new turns in the course, there will need more operators.

Hamfests –

SHORT NOTICE HAMFEST – BERRYVILLE. AUGUST 7th (Sunday!!) One of the best hamfests in the area, Rick, N4ASX will have a tailgate spot under the trees. The BBQ lunch is good. Fair number of vendors and lots of tailgaters. Location is Route 7 about half mile beyond 340. Take around for the club will be 147.315 Simplex We can also listen to 446.025 DSTAR digital and 927.600 simplex.

Later this month is the Carrol County Tailgate fest in Upperco, MD on August 21, 2016. The location is the Sportsman's Hall Skating Rink at 15500 Hanover Pike in Upperco. Talk in is on the 145.410 (PL 114.8) MHz repeater.

The Virginia Beach Hamfest is on September 10, 2016. Location is the VA Beach Convention Center, right off I-264 in the heart of VA Beach. They have an arrangement with a hotel right next to the convention center for special room rates if you need one. Talk-in on the 146.970 (PL 141.3) MHz repeater.

As you may have seen on ARRL, Eham, QRZ and other ham radio related websites, as well as the club email reflector, the Hara Arena, home of the Dayton Hamvention since 1964, is closing at the end of this month. For those who have been to Hamvention, you get used to knowing where vendors are located in the building, tailgaters ask for a specific spot every year and everybody has their favorite hotel to stay at.

The folks at Dayton Amateur Radio Association have had a "Plan B" in place for a while and have announced there will be a Hamvention 2017 in another venue in the Dayton area. DARA has not announced the new venue yet, so stay tuned.

Training -

Our next class is scheduled to start September 27 and end December 6, 2016. If you know of somebody who has wanted to be ham, let them know about our class. The cost is still just \$50, which includes the book, test fee and class materials.

Contests -

August 13 and 14 – Maryland/DC QSO Party. Exchange is entry class and state. Entry classes are standard (most of us operating from home), mobile, QRP, or club station. With the bad band conditions lately, this one should be ok on 80/75 and 40 meters.

August 20 1nd 21 – North American QSO Party, SSB. Exchange is name and state. Everyone in this contest is limited to 100 watts.

August 27 through 29 – Hawaii QSO Party. Exchange is RST and state.

September 3 and 4 – Colorado QSO Party. Exchange is name and state.

September 4 and 5 – Tennessee QSO Party. Exchange is RST and state.

September 10 through 12 – ARRL VHF Contest. All VHF bands above 50 MHz. Exchange is 4 character grid square. Most of us are in FM18.

As always, ham it up and get on the air.

73,

Rich, KA4GFY

MARINE CORPS MARATHON

Marine Corps Marathon is in October, but the volunteer website is up. It's an ALL DAY event, MCM needs over 130 volunteers. If you can, sign up. If you work on the Virginia side of the course you will need to be checked in before 4AM. For those on the DC side, you may be able to check in as late as 6AM. When the race passes your post you will be able to leave.

Assignments are based on your equipment, experience and your request. When you fill out the volunteer form you can request your assignment.

73 Rick

Future Programs

August – JT65 and other digital HF operations (see Jack's notes above)

September - HF Portable Operations (tent.)

October – ARES ops and City interface
November - Club Elections
December – Club Party

Let me know what you want to hear about. HELP !!!! If you have an idea for a program, please let Rick know and he will try to find someone to provide the program.

Social Events

Monday Night Burgers – There is a group that gets together at 6:15 PM on Mondays at a local burger joint. Mark up on the 147.315 repeater and join them for the fun. Mark up on the repeater about 6PM and join the group. The location does change! IF you have a good spot, you might make a suggestion.