SHORT SKIP

Volume 65 Issue 8 August 2017

REPEATERS

Freq	*Location*
147.000	Merrillville
147.240	St. John
442.075	Merrillville

All Lake County ARC Repeaters are open to all amateurs. All repeaters must have a PL of 131.8 set in order to access.

FROM THE PARADE STAND

by Tim, N9CA, LCARC President

Greetings to you all. What a great summer we are having. Six meters has been open with E skip (Es) multiple times as often it will be this time of year. There have been numerous tropo openings on two meters. Meteor scatter fans are using Joe Taylor's ; JT65, MSK144, and a new digital mode FT8.

According to NASA nearly 100 tons of large and small meteorites enter our Earth's atmosphere daily. When they burn up they vaporize and leave a charged gaseous trail in Earth's ionosphere that we can bounce our VHF radio signals off like a mirror. It used to be that you had to wait for a large 'Meteor Storm" event (like the Perseid Shower which peaks this August 12 through the morning of the 13th) use high speed CW, and a lot of luck. The software is free to download from Joe Taylor's website and other.

The Peotone Illinois Hamfest is on Sunday August 6th starting at 8:00. Plenty of easy parking.

Our LCARC program for the Friday August 11th meeting will be: "Station Grounding". I will present (sorry. I will bring items along for "show and tell".

Yes, there will be a free raffle at the meeting. The winner will have their choices of some cool radio items as always. Remember, as always, you must be present to win.

In the theme of the coming program "Station Grounding" here are a few quiz questions. Give it a try and see how well you do. The answers are at the bottom.

1. We know static electricity can be 1,000's of volts. The reason we survive it is the small amount of current flowing. What current can be lethal? a) 0.000050 amps, b) 0.5 amps, c) 5 amps
2. Can 24 volts be lethal? a) yes b) no
3. In our area of the US how many days have lightning and thunderstorms? a) 20, b) 40, c) 100
4. Which US State has the most lightning days? a) Colorado, b) Hawaii, c) Florida
5. Is there a difference between these grounds; electrical , RF, equipment, lightning? a)yes b)no
6. Can your station's equipment be safe in a lightning storm while the operator is not? a)yes b)no
7. If a ground rod is driven 8 feet down, is it a pretty good ground? a) yes b) no c) it depends

I remember many years ago reading about a TV repairman (now SK) who

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MEETING MINUTES

July 14, 2017

Introductions were made with 18 people attending meeting

Dan K9ARD and Tim N9CA are both ARRL volunteer examiner's. Mark will have to get re-certified and John is a VE that is active now.

Discussions about VE testing and what is needed to maintain your VE certification.

August 11 program will be grounding your station.

Net report June 15 had 7 check-ins and July 6 had only 5. July 20 is next net check-in. Bill said he might do the net on alternate weeks for technical questions.

The program tonight is on the Buddy Pole and accessories.

Mark did a presentation for LCARC Ham of the Year.

Bill Young N9QLS and Russell McComb KB9HO were awarded the Ham of the Year.

Motion made to adjourn, motion carried, meeting adjourned at 7:56PM

Program finished at 8:50PM on Buddy Pole Antenna.

From the Parade Stand

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claimed he used his wetted fingers to feel the voltages while repairing the TV set rather be slowed down by a volt-ohm meter. Many have had the temptation to "quick swipe" a wire with our finger to see if the wire is hot. While most of us can move our fingers a few feet per second, electricity is moving near the speed of light.

The 2017 session of the US House of Representatives passed a "Radio Parity" Bill HB555. The Radio Parity Act would allow Hams to install "effective" antennas without the restrictions imposed by Home Owner Associations. However, in 2016, the US Senate "Radio Parity" Bill was defeated by just one vote.

Right now, our US Senate has Bill SB 1534 before it. We need to contact our Senators to show our support and to help pass this SB 1534. The ARRL has made it easy to contact your Indiana Senators asking for passage of SB 1534. Go to ARRL.org and in the search box type in SB1534.

ANSWERS: 1) a, 2) a, 3)b, 4)c, 5)a, 6)a, 7)c

WHAT DO WE DO?

Southlake

Traditional ham radio leaves youngsters uninterested. ARRL President Rick Roderick, K5UR, expressed his surprise when he discovered his usual amateur radio talk didn't impress young people

In the 2016 ARRL Annual Report Rick writes:

"I prepared my usual talk about some interesting ham radio stories over my 50 years as a ham, how we can talk all over the world, and I brought some QSL cards from rare places to show the group. I have given that talk many times, and it usually impresses people — but not this time. I was surprised to see flat, uninterested faces."

"I realized that I had to change my approach to the presentation if I was going to keep the attention of these young people. After all, what could ham radio offer people who grew up in homes that had computers hooked up to the internet? Today's young people are used to riding down the interstate at 70 MPH as a passenger while watching high-definition videos on their iPhones."

"What we're hearing from what I call the "new-generation ham," is that they don't view ham radio as being about talking around the world, contesting, or traditional aspects of our hobby."

"Change generally doesn't come easy to us. But when I looked out at that group of young faces and saw their disinterest in traditional ham pursuits, I realized that I had to change. We have to change. It won't come easy, but it's essential that we get to work on it now."

Download the 2016 ARRL Annual Report from **http://www.arrl.org/annual-reports**

When radio amateurs speak about the hobby to potential newcomers they frequently talk about things that took place in the last century.

For many young people even events that happened in 2010 will still be half-a-lifetime ago!

CONGRATULATIONS TO 2016 AND 2017 HAMS OF YEAR

Each year, at its discretion, the LCARC names a member, who has shown leadership, who has accepted responsibility, and is active in multiple areas of ham radio and in service to the club (not just the best DXer, or the oldest club officer).

The recipiants are (Far Left) Russ McComb, KB9HO, Ham of the Year for 2017; (Far right) Bill Young, N9QLS, Ham of the Year for 2016 and in the center presenting the award is Mark, K9MQ, Indiana Section Technical Specialist.

LCARC Ham of the Year Award Guidelines:

1. Must be well rounded in the hobby.
2. Must have served as an officer of the club.
3. Must be above reproach.
4. Must not have received any admonishments from the club.
5. Must be public service oriented.
6. Must have made significant contributions through amateur radio to/for the club.
7. Must conduct himself in an exemplary manner at all times.
8. The nominee must be nominated by and agreed to by a majority of previous Hams of the Year.
9. Check out the club website, **http://lcarc.weebly.com/awards.html** for a list of all hams of the year.

HAM RESEARCHER TO INVESTIGATE EFFECTS OF SOLAR ECLIPSE

By Dan Romanchik, KB6NU

August 21 is a once-in-a-lifetime opportunity for many in the U.S. to see a total eclipse. It's also an opportunity for a team of Virginia Tech researchers to study the effects of the eclipse onchanges in the upper atmosphere that have an impact onHF propagation and the global positioning system (GPS). Backed by research funding from NASA and the National Science foundation, the team is headed by Dr. Greg Earle, W4GDE.

The Virginia Tech team plans to gather data from a variety of sources, including radar systems, transceivers, satellites, ham radio, and GPS receivers, in order to analyze the effects of the solar eclipse on the conductive region of the atmosphere.

"Whether military radar, or consumer GPS signals, the eclipse is going to have effects on the medium that we would like to understand better, so that we can either mitigate them or use them to our advantage," said Earle.

Here are a couple of links to news stories on the research team and the experiments:

- Virginia Tech team prepares for special project during total solar eclipse (**http://wset.com/news/local/virginia-tech-team-prepares-for-special-project-during-total-solar-eclipse**)
- Virginia Tech expert to study August solar eclipse effects on radar, ham radio,GPS (**http://wtkr.com/2017/07/17/virginia-tech-expert-to-study-august-solar-eclipse-effects-on-radar-ham-radio-gps/**)

Let's party!

In conjunction with the eclipse, the HamSCI and the ARRL are sponsoring the Solar Eclipse QSO Party (**http://www.hamsci.org/seqp**). (SEQP). According to an article in the August 2017 issue of QST, the goal of the SEQP is to "flood the airwaves with contacts, all measured by the automated receiver networks of the Reverse Beacon Network, PSKReporter, and WSPRNet." Once all the logs are in, researchers will analyze the data to see what effect the eclipse had on radio propagation.

A YouTube video of a presentation at Dayton on the SEQP can be found at **https://youtu.be/3EviY2Cuxpo?list=PLihPo8xWmo8-xDYAtpP9BWX9QnhUoT7k4**

The SEQP will run from 1400Z - 2200Z on Monday, August 21. This is well before the eclipse is due to begin on the West Coast. The reason it starts before the eclipse is to establish a baseline for radio propagation conditions.

SEQP organizers urge you to make as many contacts as you can on as many bands as you can operate. Like nearly every contest, contacts are not allowed on 60m, 30m, 17m, and 12m. CW, RTTY, and PSK31 are the preferred modes because automated receivers can record those contacts, but phone and other digital modes count, too.

An interesting twist to this contest is that, like Field Day, you can earn a number of bonus points, including:

- Operating outdoors (100 points)
- Operating in a public place (100 points)
- Operating a wide-band automated receiver at your station (100 points)

Hams have had a long history of supporting scientific research. They provided communications for some of the early polar explorations and listened for Sputnik as it flew overhead. The Solar Eclipse QSO Party continues this tradition, and it's going to be a lot of fun as well. Visit the HamSCI website (**http://www.hamsci.org/seqp**) for more information.

The History of CB Radio in the USA

http://ukspec.tripod.com/rf/cb/?utm_source=amateur-radio-weekly&utm_medium=email&utm_campaign=newsletter

1933

Experimental Station W6XBC Yuma AZ operated at 27.1 MHz.

1940

World War II spurs development of 27MHz equipment for use in tanks and beachhead landing networks. The BC-1335 4Watt military unit is a forerunner of things to come.

1946

Doctors use 27MHz, operating diathermy medical equipment.

1947

After the Atlantic City Conference - in June, Amateurs lose parts of 10 meters and 20 meters, but will gain a new band at 15 meters in 1952 (although I found : 15M "was cleared of its Marine users which took until May of 1954"). To compensate for the loss, the FCC allows use of the 11 meter band (26.96 to 27.23 Mc) on a shared basis with Industrial, Scientific and Medical devices.

Thanks to the efforts of pioneer Al Gross and portable two-way radio equipment had proved its worth during WWII, a Citizens Radio Service was established for shared professional use, introduced at 460-470 MHz UHF. Nobody seems to have published full and accurate details online (or at least I can't find it!), with a number of different and conflicting sets of information, so the best I have at present is :

- Class A : 460-462 MHz, assigned frequencies 50W AM/FM,
- Class B : 460-468 MHz (461? 465?), 5W, 50 channels 50kHz spaced - ended 1.nov.1971,
- Class C : Remote Control : 27.255MHz only at first, later (1958) the other 5 27MHz channels, and 72-76MHz,
- Class D : 465 MHz?

This early Citizens Radio Service had some limited success, but the technology of the time, valves and crystals, weren't conducive to mass market success, so Class D didn't catch on in any big way.

(The UHF band later shrank as Class B ceased and Class A ended up in the 462 & 467 segments now used for GMRS and FRS)

Doctors permitted to continue using 27MHz.

1948

Firestone Tire Company granted experimental license W10XXD for 27.255MHz using two 3Watt transmitters.

465MHz Class D service deemed a failure, the search is on for a replacement band.

Early 1957

FCC Docket #11994 proposes reallocating Class D in the very underused 11 meters Ham band 26.96-27.23 MHz (USA-only). At this time there was little business/military use of 27MHz and model control on 27.255 was inadequate, being shared with paging and other services.

11th Sept 1958

The 11 meters Amateur band is reassigned to models and Class D Citizens' Band radio. The band is divided into 10kHz channels, the first channel bounded by 26.96 and 26.97 with the carrier frequency centered at 26.965 - and 27.225 being the last channel center - 27 channels in all. Models were allocated 5 new channel centers, 50kHz apart, the outer channels being 35kHz away from the band edges. 22 Class D channels were arranged around the model channels that later became known as channels 3A, 7A, 11A, 15A and 19A. The old model channel at 27.255 was allocated as a further 23rd Class D channel, a shared frequency that remains as the 6th model channel also. The Business Band above 27.23 couldn't yet be used for CB apart from channel 23 - the two-channel gap between 22 and 23 gave rise to pirate channels 22A and 22B. I'd still like to know what the channels were on that business band, whether it was a fluke that 27.255 fitted in nicely with the new 10kHz steps. Official (!) US usage above 27.410 is with 20kHz FM channels (1990s) starting at 27.430 I believe.

- --26.96-----
- 26.965 01
- 26.975 02
- 26.985 03
- 26.995 "Brown" / 3A
- 27.005 04
- 27.015 05
- 27.025 06
- 27.035 07
- 27.045 "Red" / 7A
- 27.055 08
- 27.065 09
- 27.075 10
- 27.085 11
- 27.095 "Orange" / 11A
- 27.105 12
- 27.115 13
- 27.125 14

- 27.135 15
- 27.145 "Yellow" / 15A
- 27.155 16
- 27.165 17
- 27.175 18
- 27.185 19
- 27.195 "Green" / 19A
- 27.205 20
- 27.215 21
- 27.225 22
- --27.23-----
- (27.235 22A before becoming 24 in 1977)
- (27.245 22B before becoming 25 in 1977)
- 27.255 23 + models #6 - "blue"

23 Channel CB radios became enormously popular in the 1970s (US) due to the fuel shortages and new 55mph speed limits, making vehicle-to-vehicle communications extremely useful for finding fuel and avoiding speed traps.

The technical standards weren't great though, with much interference around. The FCC decided to tighten up the specs, and at the same time introduced more channels...

1st Jan 1977

More CB channels added - there was talk of having 99 channels up to 27.995 but it was decided not to allow a span of more than 440kHz - to prevent intermod breakthrough to any 455kHz receiver Intermediate Frequency stages. The business band lost 27.23 - 27.41, to new CB channels 24 to 40. Channels 24 and 25 filled in the reclaimed gap between 22 and 23 (which is why the order is strange), and channels 26 to 40 continued from 27.265 to 27.405 - by coincidence the first two decimal places match the channel number. The five newer model freqs are now part of an allocation from 26.96 to 27.28 in the UK with channel 25 now being "Blue" (27.245) and channel 02 now "Black", amongst other interleaved channels. In the USA, channel 23 is still the "Blue" model channel.

- --26.96-----
- 26.965 01
- to
- 27.225 22
- 27.235 24 *new*
- 27.245 25 *new*
- 27.255 23
- 27.265 26 *new*
- to *new*
- 27.405 40 *new*
- --27.41-----

My thanks (for info) to : The Wayback machine (link dead), Richard McCollum & Meg on rec.radio.cb, Retro-Dave (RetroCom 27Mc museum)), WoodyWorld CB pages, 'the author' of 'UK Bands'

(CB was also legalised in Australia in 1977 with 18 channels, the full 40 coming later on 1.1.1982. But 40 channels at 476/477MHz UHF were also provided in 1977)

To hasten the take-up of the better new 40 channels rigs and make older equipment obsolete, the FCC ordered that the older 23 channel rigs were to be off dealers' shelves by the start of 1978. The glut of unwanted rigs lowered prices so much that they ended up making their way around the world to the UK and other countries where CB was in demand by a public eager to join the communications revolution and stay in touch on the move at last.

By 1978 there were, apparently, some 40,000,000 users in the US.

Technical note

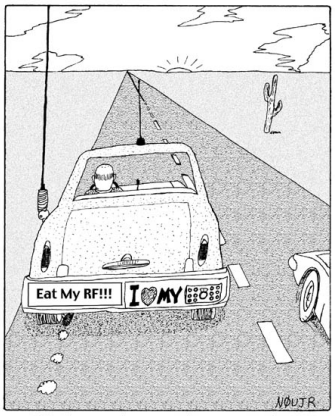
The standard 26.965 to 27.405 "mid"/CEPT/EU channels are transposed up and down the spectrum by multiples of 450kHz to create extra sets of 40 channels such as "hi" and "lo", including the gaps and sequence jumps! Even the 40 New Zealand channels at 26.33 to 27.77 MHz feature the same order.

However, the 40 UK FM channels run straight through from 27.60125 to 27.99125, likewise the extra 40 German channels from 26.565 (41) to 26.955 (80).

Many operators just use ham radio equipment simply modified to allow all modes on any frequency, and usually at least 100 Watts too.

CB Bands worldwide : **wikipedia.org/wiki/Citizens'_band_radio**

And I bet you all thought tht the CB radio thing started in the late 1950's eh? -- ed.



QCWA members with an attitude...