

EST DARK RADIODS





FOUNDED 1947

Web:

http://www.westparkradiops.org Email: w8vm-<at>-arrl.net

June - July VOL. LVIII

2023 No. 4

CLUB'S W8VM SKCC #12111

WEST PARK NETS*

*Subject to change

We have started holding meetings in a library meeting room. At this time the opportunities appear that we will always first try for a room at the North Olmsted Library. In our Zoom meeting we voted to have a major paradigm shift and have our meetings at 3 p.m. on a Tuesday. Our Monday night nets are on the NODXA's repeater at 8 p.m. Listen or check in. Join the fun. We thank the Northern Ohio DX Association for our use of their repeater, W8DXA, 147.36+ (107.2).

UPCOMING CONTESTS AND ACTIVITIES...

(sourced from WA7BNM and ARRL information)

- June 3 **ARRL Inter. Digital Contest**
- June 10 ARRL June VHF Contest
- June 17 Stew Perry Topband Challenge, Antenna Day North Olmsted H.S.
- June 24-25 ARRL FIELD DAY weekend
- July 1 **Original QRP Contest**
- July **IARU HF World Championship** 8
- 15 **CQ Worldwide VHF Contest** July
- 21 **West Park Radiops picnic** July
- July 28 **NCCC RTTY Sprint**

WEST PARK RADIOPS MEETING PROGRAMS FOR 2023*

Possible Choices* June 13

QRP operation* July 11

Linux Demonstration* 8 Aug 12

* Subject to Change, Including order of

events

ARRL FIELD DAY JUNE 24-25 RULE CHANGES

https://contests.arrl.org/ContestRules/Field-Day-Rules.pdf

There are three new rule changes:

GOTA – multiple wordngs

Sept

Three power level options

Automated operations and multi-channel streaming prohibited

PARKS ON THE AIR...

On May 13 we had an invitation to attend the Parks On The Air event held by the Northern Ohio Amateur Radio Society. Some of our members are also members of other clubs including NOARS. There were several stations in this event set up at the Findlay State Park in the Picnic Point Pavilion Shelterhouse. Dan, W8AJF, is the most experienced guru of POTA operating in our club. Here Dan is discussing how to set up a slate of station callsigns divided by band and mode. All stations were 100 watts or less.



ORIGIN OF "CONTINUOUS WAVES"...

In the April-May 2023 issue of the *Log* (two months ago) the physics behind making a spark gap actually spark was explained in great detail. But the description was really for a single spark after the electrical current was disconnected by the opening of a switch. Now we all know that in the sending of Morse Code by "CW" the key closes, not opens, during each piece of the Morse Code modulation. So how did amateur radio spark really work?

In simple terms, in a spark transmitter there was a coil supplied with electrical current that was continuously interrupted by a vibrating reed. The closed key merely controlled the period of time when that current could be applied to the coil. As soon as the key was depressed a "continuous wave" of sparks flowed. The reed could be vibrating because of being coupled to a solenoid excited by the frequency of the ac power in the station.

But that combination could have been a later refinement of the one where the key opens the circuit to the coil only once and the spark happens momentarily, once. So it could be that in very early spark radio transmission there were two possible ways for the spark signal to happen. One, it only happened once when the key is lifted. The second way was for sparking to continue as long as the key was held down.

(So the question arises, which way was it really on the night the *Titanic* sank in 1912.)

In the 1950's my father was working as for the Illinois Central Railroad as a civil Engineer. His job was as a "Track Supervisor", responsible for keeping his area's railroad tracks in good shape and level. In those early 1950's I had the occasion to accompany my father to a dispatcher's office on a Saturday when he had some work reason to check in there. In that office there was a wall where large mechanical levers came up from the floor about four or five feet. The handles could be swung and locked forward or backwards by the standing human operator. Each handle electrically operated, in railroad parlance, a "switch", a piece of movable track swung out of the way (opened) to let a train go straight through, or swung into line (closed) to cause the train to curve over to an adjacent line of track. Railroad "switches" are in common use even today. In the early 1950's the operator (dispatcher) would hear Morse Code on a sounder clicking away and he would read the code in his head and actuate the levers to actuate the switches upon command from someone down or up the telegraph line sending him instructions on which way to let trains come through. The important point here: he was copying "clicks" of Morse Code, not continuous buzzing. I had the once in a lifetime opportunity to hear real use of Morse Code as clicks.

To add to that: only a few years later I became a Boy Scout Tenderfoot. In the Boy Scout Manual was a diagram of how to make a Morse Code "clicker" with a wood board, some wire and nails, cut up pieces of "tin can", and a large "Number 6" 1-1/2 volt battery. When I had everything properly constructed per the manual, I could push down on a piece of tin can, closing a circuit, to energize a coil around a nail. The nail, now magnetized, would attract another piece of metal toward the head of the nail and there would be a click. I didn't know Morse Code then, but I sure heard those clicks.

CW for the letter "C" in clicks or short sparks ("snaps") sounds like these time lines.

CW for the letter "C" in buzzes or tones sounds like this familiar line..

***	r	****	*****		****	***
	******	* **	* *	*****	***	+
	BUZZ	BU	ZZ E	BUZZ	BUZ	ZZ

So the latter signals eliminate listening for silence and decoding it, and instead calls for listening to the "Continuous Wave" aka "CW".

This makes more sense to me than saying CW is Continuous Wave modulation when in fact it is not continuous. There is just a little bit of trivial interpretation of the words.

Above, I mentioned a question. Which version of code sound did they use on the Titanic?. I am still looking for that answer. I might find the answer and tell you if and when that happens. -de AF8C

FT8 TONE FREQUENCIES...

In WSJT-X SETTINGS of RADIO functionality there is the "Split Operation" subset of buttons "None", "Rig", and "Fake It".

The following information might help clarify the use of "Split" in FT8, to help with the "picture" of what's going on with Split. With FT8 I ran a real test and got real numbers. I used the normal FT8 frequency of 28074.000 kHz. F/H was not enabled. I used a dummy load for rig TX output. I had audio sidetone enabled (MONITOR on my radio) so I could hear the actual audio frequency being sent to the rig over cable.

The first list below shows what happens with Split->None. It is the ONLY option to use when you have no CAT control of your rig. When you position the red marker on some audio slot frequency and transmit, that frequency of audio (the start of the 50 Hz wide modulation) is sent from the computer, probably through an interface box like the Signalink, RASCAL, etc., to the radio's audio input. The frequency can be set from 200 Hz to somewhere above 4000 Hz. So the passband of audio frequency for transmitting is further filtered and modulated in the radio and then transmitted. The linearity and amplitude of the radio's transmit audio path is dependent on what the audio circuits can faithfully reproduce. You can check the operating manual for your radio to see what the path is.

Below is what you will get in the case of "Split Operation -> None" and no control of transmit frequency by CAT. It is based on my test frequencies in Column A. I listened to the MONITOR audio frequency with the FT8 TUNE button turning on the transmit with no modulation (for tuning only). That single audio frequency is mixed in the rig to get antenna connector frequency out. (Best to do this with very low power or a dummy load on.) So this is what followed when I tested the range of audio slot frequencies.

COLUMN A	COLUMN B	COLUMN C Rig sidetone	COLUMN D =COLUMN C + COLUMN B
RED BAR AUDIO TX	RIG VFO	MONITOR AUDIO HEARD	RF TX on air
(Hz)	(kHz)	(Hz)	(kHz)
411 911 1411 1911 2411 2911 3411 3911	28074.000 28074.000 28074.000 28074.000 28074.000 28074.000 28074.000 28074.000	411 911 1411 1911 2411 2911 3411 3911	28074.411 28074.911 28075.411 28075.911 28076.411 28076.911 28077.411 28077.911

The people who wrote the software for FT8 figured that the range of 1500 to 1999 Hz is the best range to stay clean and unmodified by audio filtering when Split->Rig or Split-

>Fake-It is used. (As we know from SSB voice transmission, the clear range is likely wider, perhaps from 500 Hz to 2500 Hz. But the software was designed to assume 1500 to 1999 Hz as will be discussed below.)

When FT8 has CAT control of the radio's transmit frequency, and you use "Split Operation -> Rig" then the software shifts the transmit VFO to another frequency when necessary to keep the audio sent to the rig between 1500 Hz and 1999 Hz. With "Rig" split, VFO A stays on the main RF band frequency for receive and VFO B is adjusted during transmit as follows.

DESIRED SLOT SUBBAND (Hz) FOR RED BAR	DISPLAYED VFO B ON RIG TX (kHz)	HEARD AUDIO FREQUENCIES (Hz) on MONITOR
200*-499	28072.500	1700-1999
500-999	28073.000	1500-1999
1000-1499	28073.500	1500-1999
1500-1999	28074.000	1500-1999
2000-2499	28074.500	1500-1999
2500-2999	28075.000	1500-1999
3000-3499	28075.500	1500-1999
3500-3999	28076.000	1500-1999
**	**	**

^{*}Lower limit permitted by software.

Checking the math: 200 Hz will be offset by 1500 Hz in order to fit inside 1500-1999 Hz. The modulated result of 1700 Hz, that is, 1.700 kHz, becomes 28072.500 + 1.700 = 28074.200 when transmitted.

Now this is what happened when I tested the range of audio slot frequencies. The setting for split was "Split Operation -> Rig". By picking a frequency 88 Hz below the subband top edge in each 500 Hz segment, I could test that the MONITOR frequency in my ear was always the same.

COLUMN A Red Bar	COLUMN B VFO B	COLUMN C	COLUMN D =COLUMN C +COLUMN B	COLUMN E
RED BAR AUDIO (Hz) (Hz)	RIG VFO B (kHz)	MONITOR AUDIO HEARD(Hz)	RF TX on air (kHz)	"SPLIT"
411 911 1411 1911 2411 2911 3411 3911	28072.500 28073.000 28073.500 28074.000 28074.500 28075.500 28075.500 28076.000	1911 1911 1911 1911 1911 1911 1911	28074.411 28074.911 28075.411 28075.911 28076.411 28076.911 28077.411 28077.911	DOWN DOWN DOWN NONE UP UP UP UP

Alternatively, per the WSJT-X User Guide, and my testing, "Fake-It" will adjust (shift) VFO A instead of VFO B, per the "Rig" table frequencies. VFO B will not be used. (In my rig the VFO B display is actually turned off.)

^{**}Operation continues past 4000 but I didn't explore there.

IMPORTANT: "Fake It" will NOT help you if you are NOT using CAT frequency control. What WILL happen is you will only get 1500 to 1999 Hz out even if you set the red marker somewhere else. This might confuse your operation if you think you set the red marker on an open slot because your actual slot could be somewhere else.

Also, "Fake It" and "Rig" does NOTHING with the receiver audio settings!

N.B. I did the testing above because the WSJT-X User Guide paragraph on Split operation is very vague and i wanted to understand it better. -de AF8C

CHARLES HALLINAN WHO?

His final reward was being URNed.

Charles Hallinan worked as a radio engineer at WKOP radio in Binghamton, NY after



W W II. He helped build the station's transmitter building and studio. He retired in the 1980's. He also founded The Society of Broadcast Engineers in 1964. Charlie was known as a "tube man". After he passed away in April, 1998, a fellow station engineer contacted Econco Tubes company and arranged for a dud tube to be shipped over for use as a burial urn for Charlie's ashes. Along with the ashes and a note about Charlie's life, the tube was mounted on a special base and sealed with epoxy.

https://www.findagrave.com/memorial/24717616/charles-hallinan

ARRL VOTA...

Volunteers On the Air.

In 2023 the ARRL is celebrating a year- long operating event honoring all ARRL volunteers. The event was decribed in the January 2023 QST.

Activities and Details

There will be two week-long activations of portable W1AW/# stations in all 50 states and in several US Possessions/Territories, The schedule for those is in a dashboard.

Who are the Volunteers? Likely you might be one. ARRL Volunteers are Members on the air as well as ARRL Officers, Directors, Section Managers (and their appointees), Staff, and even Members domestically (and DX) can be contacted for points. There is a POINTS TABLE for the full list of points and you might be listed in it.

Logbook of the World is THE data source for QSOs. Participants will work W1AW

portable stations and other ARRL volunteers to earn QSO points. Uploads to LoTW by W1AW portable stations and by the volunteers will feed the points scoring system. All you have to do is make QSOs even if you are not a LOTW user.

A Leaderboard has been activated now that the year long event has ramped up. Certificates will be available after the event concludes. Once the year is completed, a final summary will be released and certificates of scores will be available.

You might have a score in the Leaderboard! Go to https://vota.arrl.org/ and https://www.arrl.org/files/file/VOTA%20-%20Volunteers%20On%20The%20Air/VOTA_2023_Points_v5_1.pdf

ARRL RF SAFETY -- RF EXPOSURE CALCULATOR

All U.S. radio amateurs are by now supposed to have calculated by FCC rules what their fixed station RF exposure is likely to be. The ARRL has a webpage to consult for estimating what your own RF field strengths could be. It only takes a few minutes to get some rough estimates, so why wait?

http://arrl.org/rf-exposure-calculator

LSB BELOW 20 METERS, WHY?..

Do you know why the bands 30, 40, 80, and 160 are used with LSB in phone mode, while 20, 17, 15, 12, and 10 are used with USB phone? One source says it is because the first SSB transmitters used a 9 MHz IF and a 5 MHz VFO. When these two frequencie are mixed and one sideband is filtered out in the transmitter, the additive side becomes Upper Sideband for the receiver while the subtractive side has a reversed image frequency band. This Lower Sideband reversal then had to be matched with LSB decoding in the receiver.

The SSB technique for radio design was first studied by Oswald G. "Mike" Villard, Jr., W6QYT, and other students at Stanford University (pre-silicon valley) in September, 1947. Their results were published in QST in January, 1948. Once the sideband layout became a de facto standard it could not be changed in early amateur gear. Only years later was it technically possible to have either sideband available for any HF band.

(from http://www.astrosurf.com/luxorion/qsl-ham-history9.htm)

THE DX SCENE...

(Courtesy of the NG3K website)

Call, Start Date., End Date, DXCC Entity 5UA99WS,2023 May01,2023 Jun15, Niger V7,2023 May06,2023 Jun30, Marshall Is 9X2AW,2023 May23,2023 Jun14,Rwanda D4CW.2023 May30.2023 Jun13. Cape Verde Is T31TT,2023 Jun01,2023 Jun12, Central Kiribati VU7W,2023 Jun06,2023 Jun18,Lakshadweep Is VP6A,2023 Jun10,2023 Jun24, Ducie Is CE0Y,2023 Jun12,2023 Jun18, Easter Is 8Q7KB.2023 Jun13.2023 Jun21.Maldives WH0RU,2023 Jun21,2023 Jun27, Mariana Is 7Q7WW,2023 Jun21,2023 Jul03,Malawi VP2V.2023 Jun23.2023 Jun29.Br Virgin Is OY,2023 Jun25,2023 Jul05, Faroe Is VP9,2023 Jun27,2023 Jul08,Bermuda FP,2023 Jun27,2023 Jul11,St Pierre & Miguelon PJ5,2023 Jul06,2023 Jul18, Saba & St Eustatius 8Q7HU,2023 Jul11,2023 Jul18, Maldives TG4,2023 Jul23,2023 Aug04,Guatemala 9Q2WX,2023 Aug20,2023 Sep09,DR Congo KH0,2023 Aug31,2023 Sep14, Mariana Is 9Q1AA,2023 Sep06,2023 Sep18,DR Congo T8,2023 Sep12,2023 Sep18,Palau OX0J,2023 Sep15,2023 Sep21,Greenland KH2,2023 Sep16,2023 Sep30,Guam 5W0LM,2023 Oct01,2023 Oct14,Samoa YJ0TT,2023 Oct01,2023 Oct31,Vanuatu J88PI,2023 Oct02,2023 Oct10,St Vincent V7,2023 Oct03,2023 Oct15, Marshall Is W8S.2023 Oct04.2023 Oct17.Swains Is E6AM.2023 Oct10.2023 Oct23.Niue V63AH,2023 Oct18,2023 Oct30, Micronesia PJ5,2023 Oct25,2023 Oct31,Saba & St Eustatius H40WA,2023 Oct31,2023 Nov14,Temotu E6AJ.2023 Nov03.2023 Nov10.Niue TX7L,2023 Nov04,2023 Nov19, Marguesas H44WA,2023 Nov15,2023 Nov29,Solomon Is VK9XGM,2023 Nov21,2023 Dec05, Christmas Is TO9W,2023 Nov26,2023 Dec08,St Martin TX5S.2024 Jan17.2024 Feb03. Clipperton Is CB0ZA,2024 Feb13,2024 Feb20, Juan Fernandez

2023 ELECTED CLUB **OFFICERS**

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AF8C

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WA8NVW

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KA8ZEP

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N8WB

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WEST PARK RADIOPS ARC meets at the North Olmsted Library on the second Tuesday of the month 3 p.m.

Dues are \$15/yr. We welcome anyone interested in amateur radio to our activities. We operate Monday night nets on 147.36+ MHz (PL 107.2 Hz) at 8:00 p.m. Eastern.

http://www.westparkradiops.org
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W8VM



