

The News of the
SWAMP FOX CONTEST GROUP
Tales From the Swamp

Editor: Scott Brown, N2OG

MAY 2022

Presidents Corner, No New Announcements

VOACAP Features Use
By
Jari Perkiömäki OH6BG

The MUF and SNR Distribution Choosing the Best Frequency You have now run the prediction and are anxious to operate between the chosen locations on the frequencies you entered. There are two things to discuss in our analysis: • What is the best of our frequencies? • What is the predicted SNR (Signal-to-Noise) distribution on that frequency? The Meaning of MUF In VOACAP, the MUF (maximum usable frequency) is a statistical concept. The MUF is defined here as the median maximum usable frequency for a given ionospheric path, month, SSN and hour. On each day of the month at this hour, there is a maximum observed frequency (MOF) for a mode. The median of this distribution is called the MUF. Therefore, it is not the maximum usable frequency in terms of communications. In other words, the MUF is the frequency for which ionospheric support is predicted on 50% of the days of the month, ie. 15 days out of 30 days. So on a given day communications may or may not succeed on the

frequency marked as the MUF. To ensure a good communication link between two locations, the operating frequency is typically chosen below the predicted MUF. It is often claimed that the optimal operating frequency lies somewhere between 80-90% of the MUF (e.g. if the MUF is 10 MHz, the optimal frequency would be around 8-9 MHz). However, in VOACAP it is the predicted SNR distribution using Complete System Performance methods (e.g. Methods 20, 21, 22 or 30) that determines which frequencies provide an acceptable grade of service. The MUF_{day} The MUF is also related to another parameter, MUF_{day}. The value of the MUF_{day} is the fraction of the days in a month at that hour that the operating frequency is below the MUF for the most reliable mode (that is, the mode with the highest reliability of meeting the required SNR). The mode and the associated data shown below the userspecified frequencies are always the most reliable mode. For a more detailed discussion, see Calculating MUF_{days}.

SNR, SNR10 and SNR90: The Predicted SNR Distribution The SNR distribution tells us what grade of service is to be expected over the days in the month on a given frequency at a given hour. A statistical method is used to determine the grade of service over 27 days (SNR90), 15 days (SNR) and 3 days (SNR10) out of 30 days. However, it does not tell you which days are good or which days are bad. Below are the four SNR output parameters needed for analysis:

1.0	13.1	6.1	7.2	9.7	11.9	13.7	15.4	17.7	21.6	25.9	0.0	0.0	FREQ	F2F2																			
F2F2	-	-	MODE	80 63																													
69	78	83	78	68	28	-39	-58	-	-	SNR	26.7	12.4	13.8	21.2	26.7	26.8	26.8																
26.8	26.8	13.3	-	-	SNR	LW	18.5	7.6	7.1	7.8	12.7	22.2	25.7	25.7	25.7	7.6	-	-	SNR	UP	54	51	55	57	56	51	41	1	-66	-71	-	-	SNRxx

The SNR indicates the dB-Hz value that can be maintained on 50% of the days (ie. on 15 days) in the month. In our example above on 11.9 MHz, the SNR value is 83 (dB-Hz). The SNR_{xx} (ie. SNR90, provided the REQ.REL. is 90%) indicates the dB-Hz value that can be maintained on 90% of the days (ie. on 27 days) in the month. In our example above on 11.9 MHz, the SNR_{xx} value is 56 (dB-Hz). This can be calculated as SNR - SNR LW (or 83 - 27 = 56 in our example). And finally, the SNR10 (calculated as SNR + SNR UP) is the dB-Hz value that can be maintained on 10% of the days (ie. on 3 days) in the

month. In our example above on 11.9 MHz, the SNR10 value is appr. 96 (dB-Hz). The two most prominent parameters to consider in search of the best frequency are the SNR and SNR90 values. As a rule of thumb, look for the highest SNR value and the highest SNR90 value. Let us assume that the required SNR we wish to maintain in our circuit is 67 (not a good but still a reasonable listening quality in international broadcasting). We will see that the SNRxx is below 67 at all our frequencies which means none of them cannot maintain that grade of service on 27 days out of 30 days. Then we will need to look for the highest SNR. Of our frequencies, the best would be 11.9 MHz with the SNR value of 83. Conclusion In conclusion, 11.9 MHz is the best candidate for the operating frequency at 01 UTC during that month. 11.9 MHz is also below the predicted MUF of 13.1 MHz for that mode.

The RPWRG and the REL Let us expand our example above by adding two other output parameters (RPWRG and REL) as follows:

1.0	13.1	6.1	7.2	9.7	11.9	13.7	15.4	17.7	21.6	25.9	0.0	0.0	FREQ	F2F2																
F2F2	F2F2	F2F2	F2F2	F2F2	F2F2	F2F2	F2F2	F2F2	F2F2	F2F2	-	-	MODE	80 63																
69	78	83	78	68	28	-39	-58	-	-	SNR	13	16	12	10	11	16	26	66	133	138	-									
-	-	RPWRG	0.74	0.24	0.57	0.74	0.78	0.70	0.51	0.03	0.00	0.00	-	-	REL	26.7	12.4	13.8	21.2	26.7	26.8	26.8	26.8	26.8	13.3	-	-	SNR	LW	18.5
7.6	7.1	7.8	12.7	22.2	25.7	25.7	25.7	7.6	-	-	SNR	UP	54	51	55	57	56	51	41	1	-66	-71	-	-	SNRxx	The RPWRG is related to the SNR90 and REQ.SNR. In our example above, the REQ.SNR was set to 67 (program config - user preferences). The RPWRG (the required power gain) parameter tells us how many decibels are needed in the communication system to achieve the SNR90 value of 67. It is calculated as REQ.SNR - SNRxx (or 67 - 56 = 11 on 11.9 MHz). As the value of the RPWRG is positive in our example, it means that many decibels are needed for our system; if the value had been negative, that many decibels would have been in excess (ie. unnecessary) to achieve the required SNR for 27 days out of 30 days. This parameter relates to the (communication) system design. In our example on 11.9 MHz, we should consider what measures we could take to add the necessary 11 desibels to the system: doubling the transmitting power would give us 3 desibels, using a more powerful				

transmitter antenna could give us a few desibels more, and at the receiving end we could choose, say, a 3-element Yagi instead of the whip antenna which would still contribute some more desibels. The REL is related to the SNR and REQ.SNR, and is defined as a circuit reliability factor. It tells us the percentage of days in the month when the SNR value will equal to or exceed the REQ.SNR. The SNRxx tells us which SNR value can be achieved on 90% of the days (27 days) in the month. If the SNRxx would have been 67, then the value of REL had been 0.90 (or 90%, which is the REQ.REL. we have specified) and the RPWRG would have been zero (0). Conclusion The REL value of 0.78 on 11.9 MHz suggests that the required SNR of 67 can be achieved on 78% of days in the month. To translate the percentage value to the number of days, take a look at the Z Tables. We will see that 78% equals to 23 days.

Originally written and copyrighted by Jari Perkiömäki OH6BG,
<https://www.voacap.com/muf.html> Memory reminder (Favourites)

Touch Portal By Kevan Nason

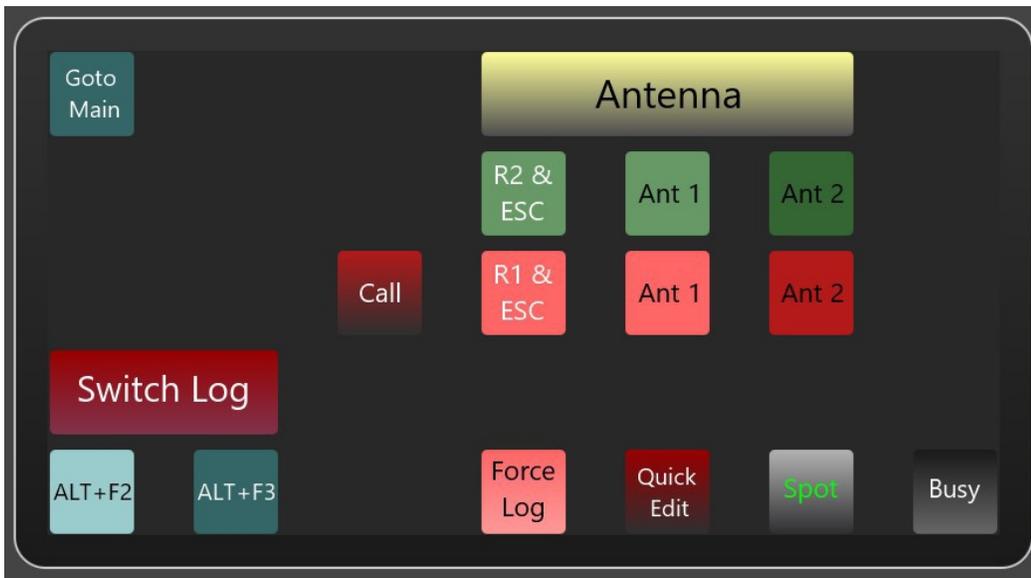
Touch screens are very common. It's the unusual ham that doesn't have at least one – a smart phone. Tablets, computer monitors, and even computers themselves have them. Modern radios, software programs for FT8, RTTY, and logging programs are all controlled or used by computers. There are so many key combinations and control functions to actuate our shack's equipment it is difficult to remember them all. Programs like AutoHotKey allow remapping keyboard buttons and gaming keyboards or gaming keypads allow quick access to commonly used commands or macros, but you have to remember what button does what, or use labels on your keyboard that eventually need to be changed or they fall off.

A program called Touch Portal has helped me solve the problem of easy identification after 30 hours of contesting and a quick way to reconfigure my operating station for different operating modes and

programs. It runs under the Android operating system and can be installed on an old smart phone you may have stuck in a drawer or an inexpensive tablet. I bought an 8" ONN tablet on sale at a local store. It can also be configured for almost any computer program too. Besides Ham software I set up a page for it to control the Windows media player play music so I don't have to use the mouse to skip a track, pause playback, or change volume. Instead, I just tap a digital button on my tablet smart screen.

I've just begun to use it for contesting and love it. Here's a screenshot of my tablet with a screen I configured for use in the Michigan QSO party contest. The Ontario and Quebec QSO parties were going on at the same time and I would need to switch logs when I ran across a Canadian station. One tap of a screen button lets me do the following:

- Switch between the various QSO party logs
- Move the cursor from whatever window it was in immediately back to my logging program's Entry Window Call field for logging a contact – be it on either Radio 1 or 2 of my SO2R station
- Switch between two different antennas on each band
- Force the logging program to record a QSO even if it thought the information was bogus
- Quick edit the previous contact if I had made a mistake
- Send a Spot to the DX clusters
- Mark the frequency busy on my band map so I don't waste time listening to non-contest stations the next time I spin the VFO through the band.



Here's my tablet sitting conveniently next to my keyboard.



And here is the screen for Windows Media controller.



The full program costs about \$12 for a lifetime subscription. The number of buttons can be customized to your application.

Check out all the capabilities for yourself at <https://www.touch-portal.com/>

Interesting Reading about Computer Science Taken from the Internet

By exchanging a classical material for one with unique quantum properties, scientists have made a superconducting circuit that's capable of feats long thought to be impossible.

The discovery, made by researchers from Germany, the Netherlands, and the US, overturns a century of thought on the nature of superconducting circuits, and how their currents can be tamed and put to practical use.

Low-waste, high-speed circuits based on the physics of superconductivity present a golden opportunity to take super computing technology to a whole new level.

Unfortunately, the characteristics that makes this effortless form of electrical current so handy also happen to create endless challenges in designing superconducting versions of common electrical components.

Take something as simple as a [diode](#), for example. This basic unit of electronics is like a one-way sign for currents, providing a means to regulate, convert, and tune the movements of electrons.

In superconducting materials, the identity of those individual electrons blurs, leading to partners called [Cooper pairs](#), giving each particle in the partnership the ability to avoid the energy-sapping jostling of a more typical electric current.

But without the usual laws of resistance at work, scientists have been unable to make superconducting electrons travel in a single direction, as they always demonstrate what is termed 'reciprocal' behavior.

This fundamental assumption – that superconductivity can't violate reciprocity (at least not without magnetic field manipulation) – has persisted since the very beginning of study in the area.

Frankly, it's a hurdle engineers could do without.

"In the '70s, scientists at IBM tried out the idea of superconducting computing but had to stop their efforts: in their papers on the subject, IBM mentions that without non-reciprocal superconductivity, a computer running on superconductors is impossible," researchers explain in a [press statement](#) on their new study.

Those efforts might now need to be revisited, in the wake of an experiment that shows a type of junction with a quantum component that's capable of directing even Cooper pairs down a one-way street.

[Josephson junctions](#) are thin strips of non-superconducting material separating a pair of materials that are superconductors. If the material is thin enough, electrons can ghost right through them without a care in the world.

Below a certain level, this 'supercurrent' has no voltage. At a critical point, a voltage emerges, rapidly oscillating in waves that can be put to use in applications like [quantum computers](#).

Ensuring this current only ever goes one way has previously been possible via an external magnetic field. But the team found if they used a 2D lattice based on the metal niobium, they could ditch the field and rely solely on the material's quantum properties.

"We were able to peel off just a couple atomic layers of this Nb₃Br₈ and make a very, very thin sandwich – just a few atomic layers thick – which was needed for making the Josephson diode, and was not possible with normal 3D materials," [says](#) lead researcher Mazhar Ali, a physicist from Delft University of Technology in the Netherlands.

The team is confident they've ticked all the boxes required to make a solid case for their discovery. Still, there's a long way to go before we'll see superconductors at the heart of next-generation computing.

For one thing, the phenomenon of superconductivity typically occurs in materials chilled to just above absolute zero.

[Some superconducting materials](#) can deal with the warmth, but only if placed under insane amounts of pressure.

Learning how Josephson junctions based on these new quantum barriers operate under higher temperatures and pressures could eventually be a game-changer – reducing the amount of equipment needed for incredibly efficient supercomputers, the likes of which the world has never seen.

"This will influence all sorts of societal and technological applications," [says](#) Ali.

"If the 20th century was the century of semi-conductors, the 21st can become the century of the superconductor." This research was published in [Nature](#).

Reference Material suitable for framing

Code	Question	Answer or Statement
QNI	May I join the net?	You may check in...
QRA	What is the name (or call sign) of your station?	The name (or call sign) of my station is ...
QRG	Will you tell me my exact frequency (or that of ...)?	Your exact frequency (or that of ...) is ... kHz (or MHz).
QRH	Does my frequency vary?	Your frequency varies.
QRI	How is the tone of my transmission?	The tone of your transmission is (1. Good; 2. Variable; 3. Bad)
QRJ	How many voice contacts do you want to make?	I want to make ... voice contacts.

QRK	What is the readability of my signals (or those of ...)?	The readability of your signals (or those of ...) is ... (1 to 5).
QRL	Are you busy?	I am busy. (or I am busy with ...) Please do not interfere.
QR M	Do you have interference? [from other stations]	I have interference.
QRN	Are you troubled by static?	I am troubled by static.
QRO	Shall I increase power?	Increase power.
QRP	Shall I decrease power?	Decrease power.
QRQ	Shall I send faster?	Send faster (... wpm)
QRS	Shall I send more slowly?	Send more slowly (... wpm)
QRT	Shall I cease or suspend operation?/ shutoff the radio	I am suspending operation. /shutting off the radio
QRU	Have you anything for me?	I have nothing for you.
QRV	Are you ready?	I am ready.
QR W	Shall I inform ... that you are calling him on ... kHz (or MHz)?	Please inform ... that I am calling him on ... kHz (or MHz).
QRX	Shall I standby / When will you call me again?	Please standby / I will call you again at ... (hours) on ... kHz (or MHz)
QRZ	Who is calling me?	You are being called by ... on ... kHz (or MHz)
QSA	What is the strength of my signals (or those of ...)?	The strength of your signals (or those of ...) is ... (1 to 5).
QSB	Are my signals fading?	Your signals are fading.
QSD	Is my keying defective?	Your keying is defective.
QSG	Shall I send ... telegrams (messages) at a time?	Send ... telegrams (messages) at a time.
QSK	Can you hear me between your signals?	I can hear you between my signals.
QSL	Can you acknowledge receipt?	I am acknowledging receipt.
QSM	Shall I repeat the last telegram (message) which I sent you, or some previous telegram (message)?	Repeat the last telegram (message) which you sent me (or telegram(s) (message(s)) numbers(s) ...).
QSN	Did you hear me (or ... (call sign)) on .. kHz (or MHz)?	I did hear you (or ... (call sign)) on ... kHz (or MHz).
QSO	Can you communicate with ... direct or by relay?	I can communicate with ... direct (or by relay through ...).
QSP	Will you relay a message to ...?	I will relay a message to
QSR	Do you want me to repeat my call?	Please repeat your call; I did not hear you.

QSS	What working frequency will you use?	I will use the working frequency ... kHz (or MHz).
QST	Should I repeat the prior message to all amateurs I contact?	Here follows a broadcast message to all amateurs.
QSU	Shall I send or reply on this frequency (or on ... kHz (or MHz))?	Send or reply on this frequency (or on ... kHz (or MHz)).
QSW	Will you send on this frequency (or on ... kHz (or MHz))?	I am going to send on this frequency (or on ... kHz (or MHz)).
QSX	Will you listen to ... (call sign(s) on ... kHz (or MHz))?	I am listening to ... (call sign(s) on ... kHz (or MHz))
QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency (or on ... kHz (or MHz)).
QSZ	Shall I send each word or group more than once?	Send each word or group twice (or ... times).
QTA	Shall I cancel telegram (message) No. ... as if it had not been sent?	Cancel telegram (message) No. ... as if it had not been sent.
QTC	How many telegrams (messages) have you to send?	I have ... telegrams (messages) for you (or for ...).
QTH	What is your position in latitude and longitude (or according to any other indication)?	My position is ... latitude...longitude
QTR	What is the correct time?	The correct time is ... hours
QTU	At what times are you operating?	I am operating from ... to ... hours.
QTX	Will you keep your station open for further communication with me until further notice (or until ... hours)?	I will keep my station open for further communication with you until further notice (or until ... hours).
QUA	Have you news of ... (call sign)?	Here is news of ... (call sign).
QUC	What is the number (or other indication) of the last message you received from me (or from ... (call sign))?	The number (or other indication) of the last message I received from you (or from ... (call sign)) is ...
QUD	Have you received the urgency signal sent by ... (call sign of mobile station)?	I have received the urgency signal sent by ... (call sign of mobile station) at ... hours.
QUE	Can you speak in ... (language), – with interpreter if necessary; if so, on what frequencies?	I can speak in ... (language) on ... kHz (or MHz).
QUF	Have you received the distress signal sent by ... (call sign of mobile station)?	I have received the distress signal sent by ... (call sign of mobile station) at ... hours.

The RST System

Readability

- 1–Unreadable
- 2–Barely readable, occasional words distinguishable.
- 3–Readable with considerable difficulty.
- 4–Readable with practically no difficulty.
- 5–Perfectly readable.

Signal Strength

- 1–Faint signals, barely perceptible.
- 2–Very weak signals.
- 3–Weak signals.
- 4–Fair signals.
- 5–Fairly good signals.
- 6–Good signals.
- 7–Moderately strong signals.
- 8–Strong signals.
- 9–Extremely strong signals.

Tone

- 1–Sixty cycle a.c. or less, very rough and broad.
- 2–Very rough a.c., very harsh and broad.
- 3–Rough a.c. tone, rectified but not filtered.
- 4–Rough note, some trace of filtering.
- 5–Filtered rectified a.c. but strongly ripple-modulated.
- 6–Filtered tone, definite trace of ripple modulation.
- 7–Near pure tone, trace of ripple modulation.
- 8–Near perfect tone, slight trace of modulation.
- 9–Perfect tone, no trace of ripple or modulation of any kind.

Common CW Abbreviations

A	ABT	about
	AGN	again
	ANT	antenna
B	BK	break-in (listening between signals)
C	C or F	temperature in Celcius or Farenheit degrees
	CFM	confirming
	CONDX	conditions
	CPY	copy
	CQ	general call
	CUAGN	catch you later
	CUL	catch you later
	CW	continous wave
D	DE	from (station)
	DR	dear
	DX	long distance
E	EL	element
	ES	and
F	F or C	temperature in Celcius or Farenheit degrees
	FB	fine business
	FER	for
	FM	from (a place)
G	GA	good afternoon
	GB	good bye
	GD	good day
	GL	good luck
	GM	good morning
	GN	good night
	GND	ground
H	HPE	hope
	HR	here
	HVE	have
	HVY	heavy
	HW	how
K	K	transmit

M	MNY	many
	MSG	message
N	NW	now
O	OK	ok
	OM	old man
	OP	operator
P	PSE	please
	PWR	power
R	RPRT	report
	RST	Readability Signal strenght Tonality
	RX	receiver
S	SIG	signal
	SRI	sorry
	STN	station
T	TEMP	temperature
	TEST	contest
	TNX	thanks
	TKS	thanks
	TU	to you (thank you)
U	UFB	very nice job
	UR	your
W	WID	with
	WX	weather
X	XCVR	transceiver
	XMAS	Christmas
	XYL	ex-young lady
Y	YL	young lady

From The Reflector

Kevan N4XL

Haven't been much of a Sprint operator so learning curve is steep.

As Ed said, 20 should be open early to West coast as SFI is at 160. Read where normally people on East coast start on 40 and catch a few close in q's before it goes long, then change to 20. After 20 worked for a while do the same with 80 and end up on 40. A index is

supposed to be between 12 and 8 on Saturday and Saturday night. Not as quiet as it has been the last couple years, but much better than the 20+ it has been for some of the more recent contests.

N1MM F-Keys.

Decided to voice call and then let N1MM finish the exchange using ESM. This works fine. Had to locate number voice files correctly. 0.05Sec.wav is a spacer so wav files aren't quite so close together. Think ended up with 0.03 seconds as being best and that is silenced wav file time under 0.05Sec.wav. A bit concerned processor loading might upset that balance though. Time will tell. This is one of the rarer contests that my Run and S&P Fkey files don't match up. Again, will voice their call when running then hit enter and let N1MM finish with the exchange.

```
Run F2 Exch,N4XL.wav,#,0.05Sec.wav,Ken SC.wav  
S&P F2 Exch,#,0.05Sec.wav,Ken SC.wav,N4XL.wav
```

Decided to have N1MM jump up 5 KHz for me when I log a CQ response. Set 5 KHz in the configuration area for SSB up/down jumps and using the macro {CONDJUMP} to make it move. that amount. Might end up missing some busted q's since I will be off freq if a fill needed after I say "Thanks", but better that then losing q's for being within 5 KHz before starting a new CQ. Will keep spectrum scope very wide to help identify stations to tune to after freq jump or a hole to start a new CQ. Finally found out why people use the {END} macro. You need it to tell N1MM that you are done telling it things to transmit and everything after it is macro code to be executed for logger or radio control functions. It wouldn't jump without the {END} in there.

```
Run F3 TU,TU N4XL.wav{END}{CLEARRRIT}{CONDJUMP}  
S&P N/A
```

Figure since everyone jumping around moving up and down the band will happen a lot so jumping 5 KHz before starting a tune for a new one or a CQ freq seems a workable plan that will still let me catch people in between my CQ freq and that 5 KHz jump. They will be

somewhere else as the night goes by and I should stumble across them.

Think I've heard of folks jumping up calling CQ, jump up 5 KHz after the q and calling CQ again, then jump back down 5 KHz for station who worked the answering station to the first CQ. They repeat that over and over. May try that, but right now like the idea of spinning the knob.

Need to read the rules. I think I put assisted in the expected to be operating field. Don't know if assistance is allowed, but it isn't really relevant as people aren't staying in one place. For those of you who have Autospot worked q's checked in N1MM, please turn it off.

Kevan N4X

Thanks for the tips Kevan.

On CW sprints, there's just a small area on each band where all the ops are located. On the phone, the phone portions of the bands are soo wide.

Where will most stations be operating on each band?

Ty
Dave afp

Dave: Here are the "suggested" phone freqs from the rules. These are just suggested frequencies but I've found them pretty accurate.

On 80m and 40m most SSB sprint contesters "usually" stay away from the rag chewers/nets who typically occupy the top 100kc'sh of those bands (above 3830 and 7230). Not sure about 20m - could be anywhere but I'd look in the window suggested below. Anyone else have frequency experience to share with the group?

73,
Ed K3DNE

"Bands: 20, 40 and 80 meters only. You may work the same station once per band. Suggested frequencies are:

1. 20m: 14200 to 14275

40m: 7125 to 7225

80m: 3700 to 3825 (stay out of the DX window 3790 to 3800)"

ED K3DNE

And your other interconnecting coax cables in your junk boxes. I know it sounds weird. I am in the process of getting my 432MHz station temporarily on the air for the 432 sprint on Wednesday.

In the process, I found 3 short runs (10-18ft) of 1/2" superflex with commercially installed N connectors (4 N males and 4N males right angle) that I checked with my MFJ 259 and a dummy load and found to have anywhere from 2:1 SWR to infinity SWR from HF thru 460MHz. I bought all 3 off of ebay over a decade ago. I also checked the 120ft run of 1/2" superflex I was gonna use and found great swr until 420MHz and then it had several SWR bumps between 420MHz - 460MHz. This piece of superflex got nicked - just the insulation and a little of the copper outer conductor. Apparently enough to affect it at UHF. I will cut the area off and install a new connector and have a shorter piece of feedline!

Don't assume all is well - verify!

73,
Ed K3DNE

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Thanks for the tips Kevan. On CW sprints, there's just a small area on each band where all the ops are located. On the phone, the phone portions of the bands are?

Dave: Here are the "suggested" phone freqs from the rules. These are just suggested frequencies but I've found them pretty accurate.

On 80m and 40m most SSB sprint contesters "usually" stay away from the rag chewers/nets who typically occupy the top 100kc'sh of those bands (above 3830 and 7230). Not sure about 20m - could be anywhere but I'd look in the window suggested below. Anyone else have frequency experience to share with the group?

73,
Ed K3DNE

"Bands: 20, 40 and 80 meters only. You may work the same station once per band. Suggested frequencies are:

1.20m: 14200 to 14275

40m: 7125 to 7225

80m: 3700 to 3825 (stay out of the DX window 3790 to 3800)"

73

ED K3DNE

Hello All,

I wanted to update you on my situation here in N2OG land. I have started my CW class. It is slow going but I enjoy the class and feel like I will make some good progress over the 8 weeks. I am looking forward to starting some on air CW action soon with you.

Also, I have been able to operate my station remotely using Remote Hams. I am fine tuning the audio although I think its OK, I just need a new microphone or move away from my current shack location to see if it helps the TX audio. I am transmitting using the built in laptop microphone, which may be the issue. I am excited about remotely operating because I can move my station to farmland where some big antennas can be installed. My wife and I continue to look for a new property in Greenville too. This may provide a new opportunity for my station. Time will tell.

Enjoy your Hobby!

73 N2OG Scott