W.W.A.R.A. – General Meeting Minutes
December 1, 2018

Howard Wilhelm – K7UID	Stan Nelson, K7DKK	Lorraine Nelson, K7LJN
Kenny Richards – KU7M	Doyle Wenzel, N7UJK	Ken Sousa, N7AXJ
Frank Wolf – NM7R	Spencer Banner – K7SLB	Tony Annese – KG4EXA
Josh Saran – N7WPM	Mike Dunn – KG7WFV	Jack Prendergast – N7JP
Peter Dahl – WA7FUS	Scott Honaker – N7SS	Rob Chatham – AF7PR

Absences:
None

In accordance with Article IX, Section 3a of the bylaws, a quorum was present. The meeting was called to order at 10:10am at the Tukwila Fire Station #51. Introductions were made and by a motion the minutes of the September 15, 2018 general meeting was approved, as posted on the website.

Officer's Reports

Treasurer Report:

- WA7FUS read a summary of the accounts, the only expenses were the $14 monthly bank fee.
- Full details are available upon request.
- Current assets total $16,066.17

Secretary Report:

- All TDS received prior to Nov 29 have been processed.
- All Certificates of Coordination's approved in the last three months were e-mailed on Nov 23.
- The expired and about to expire coordination lists on the website are now updated daily.

Committee Reports

IACC/BCARCC/ORRC

- IACC – A new machine on Raven Roast is now available, with coverage in both WWARA and IACC coverage area.
- The IACC has a new website, the link has been updated on the WWARA website.

6/10 Meters – Frank Wolfe, NM7R

- Three pending applications
- New 6m repeater now operational on Oregon side of Columbia

2 Meters – Peter Dahl, WA7FUS

- Nine repeaters in testing/pending status
- Two repeaters still proposed / development
- See band chair report for details

220 – Peter Dahl, WA7FUS

- Three repeaters in testing/pending status
- One proposed, but not ready to begin testing.
- See band chair report for details

440/430 Repeaters & Links – Howard Wilhelm, K7UID

- 13 repeaters in testing/pending status
- 12 repeaters in proposed state (not on air)
- See band chair report for details

900 / 1.2Ghz – Scott Honaker, N7SS

- One 927Mhz repeater proposed
- Discussion on two proposed 1.2Ghz repeater (and 2m/440 which are apart of DSTAR stack). Agreement that since it has been almost a year since submitted and not on air, the applications will be cancelled.

Database Enhancement Committee – Kenny Richards, KU7M

- Brief discussion about desire to upgrade/replace current website, but due to active Secretary duties, the IT support staff isn't able to allocate time.

Old Business

Band Plan Update – N7SS / KU7M

- For context I have included the summary posted in the agenda for the December 2018 meeting below, since this topic has been ongoing for the last three meetings.
- There was a lively and good discussion about the two proposals, new members present provided additional input.
- Those present requested a single proposal be created, which covers the changes which are common to the two proposals, so it can be voted on at the next general meeting. (March 2019)
- A request for a 'band plan whitepaper', which covers the proposed future of transiting from wide to narrowband channels, was made to capture the various positions. Spencer, Scott and Kenny were volunteered to write it.
- **KU7M NOTE**: I want to make it clear there is no plan to initiate an immediate transition of all repeater pairs to narrowband channels. This whitepaper is intended to be a forward-looking plan, because it is generally understood a transition will happen at some point in the future. The WWARA believes having a plan for how to transition will benefit all repeater owners and users in Western Washington.

History

- At the March 2018 meeting, N7SS provide a summary of a document that updated sections of the band plan relating to the narrow band pairs created in the 2m band in 2011 and the 70cm band in 2016. The proposal also proposed some methods for how the WWARA could transition from the existing 20 kHz (wide band) channel sizes to a narrowband or 12.5 kHz channels sizes in the future. The original 2m narrowband changes left a number of confusing sections and N7SS's proposal address these areas.
- In addition to the clarifications, the original proposal by N7SS removed the digital only restriction put in place on the ten 2m narrowband (eight 12.5 kHz and two 6.25 kHz) pairs, along with the ten narrowband pairs created in the 70cm band a couple years ago.
- While there is general agreement in the direction called out in N7SS original proposal, removing of the digital only restriction was not universally supported. A second proposal was drafted by KU7M and presented at the Sept 2018 meeting that represented this alternative view.

New Business

Nominations Elections of Officers

- Frank-NM7R for Chairman
- Scott-N7SS for Vice Chair
- Kenny-KU7M for Secretary
- Peter-WA7FUS for Treasurer
- Howard-K7UID – Director1
- Steve-N9VW – Director3

Unanimous vote to approve board as posted

Meeting schedule for 2019:

- Discussed various options for meeting, agreed to the following schedule
  - March 2nd
  - June 15th
  - September 28th
  - December 7th
- The decision was made to not hold the regular meeting at the Seaside Hamfest in June, but the WWARA would still sponsor a talk and Q&A session. KU7M has already requested and confirmed with the Seaside Hamfest speaker chairman

Adjourn Meeting: 11:14 AM
Next Meeting: March 2, 2019 / Tukwila Fire Station #51 / Time: 10am – 12pm

December 2018 2 meter and 220 Band Chair Report

3225	145.35 W7BBO	PURDY	New trustee and new location – Testing
3213	146.425 K7TGU	Puyalup Ridge	P-25 – passed board poll – currently in member comment period
3177	146.425 K7TGU	Cowling Ridge	Extended testing and discussion period
3210	146.4375 AF7PR	BALDI MTN	Agreement reached on " quiet period" with co-channel packet repeater – polling soon
3171	146.4375 N7FDM	LOOKOUT MTN	Agreement reached on " quiet period" with co-channel DMR repeater – polling soon
3215	146.5 AF7PR	LOOKOUT MTN	Testing
3220	146.78 WW7CH	Paradise-MtRainier	Testing
3222	147.02 AF7PR	RATTLESNAKE MTN	Testing
3211	147.06 N7OEP	SEATTLE	no recent communication nor complaints
3223	147.12 W7USJ	SOUTH MTN	Testing
3209	147.22 KI7CPI	Neilton Point	No recent communication – status unknown
3208	145.11 KI7CPI	FORKS	No recent communication – status unknown
3224	145.21 KF7VZZ	FORKS	Testing
3214	147.4875 N7XCG	ARLINGTON	Last communication said "awaiting new antenna"
4089	224.82 AF5TR	ANACORTES	Repeater testing at a residence – awaiting final site agreement and installation

Scott Honaker – N7SS

33cm

6056	927.2125	902.2125	114.8	COUGAR MTN	KING COUNTY	SeaTac Repeater Assoc	W7WWI	SALTER	RICH

New application not yet on the air

23cm

6522	1248.1	1248.1		ARLINGTON	SNOHOMISH COUNTY		N7XCG	BIGGER	SCOTT
6521	1290.3	1270.3		ARLINGTON	SNOHOMISH COUNTY		N7XCG	BIGGER	SCOTT

Trying to reach applicant. Status unknown.

Narrowband Channel Usage

Background

WWARA has published the following vision statement –

> *Recognizing the value of the spectrum we manage, we have an obligation to be the best stewards of this public resource and insure access to as many licensed amateur radio operators as possible.*
>
> *We will do this by:*
>
> 1. *Requiring engineering "best practices" when installing systems*
> 2. *Encouraging as many co-channel systems as technically possible*
> 3. *Encouraging the use of existing and future narrow-band analog and digital modes*
> 4. *Insuring geographic diversity in coverage areas*
> 5. *Encouraging users into less populated bands*
> 6. *Working to eliminate inactive systems to allow equal access to spectrum*
> 7. *Encouraging potential new repeater owners consider joining an existing system*

Riley Hollingsworth of the FCC challenged frequency coordinators to make space for new digital modes coming online during a talk at Dayton Hamvention. Most spectrum was already crowded with FM machines and there was a concern there would be no room for new, experimental modes. WWARA took up this challenge and in 2010/2011 adopted a plan to create 10 new repeater pairs from spectrum previously used for simplex on 2m. Eight of these channels are designated as 12.5kHz width and 2 pairs are 6.25kHz and all digital. These channels are now full and they have accomplished their original goal. WWARA has been very successful accommodating new machines on these channels and the vast majority of newly coordinated systems have been digital and narrowband.

Since then questions have arisen about the best use of these channels. Ultimately, the question comes down to whether and under what circumstances analog narrow FM (11K2F3E)[i] should be allowed on the eight 12.5kHz channels.

The recent proliferation of Yaesu Fusion repeaters and growth of the DMR network make it clear that more (digital) modes will be coming online and be looking for more channels. The current 2m and 70cm spectrum is full so we need to be looking for opportunities to create more channels. That future is narrowband, as discussed in bullet #3 of the WWARA vision statement. There must be an effort to migrate existing wide FM users to narrowband. Although that is beyond the scope of this issue, it is related.

Proposal

Remove the mode restriction from the 8 narrowband channels (and 2 ultra narrowband channels). This will allow analog narrow FM (11K2F3E) on the eight narrowband channels. It is not necessary and more complicated to discriminate by mode in this spectrum and analog narrow FM should be allowed for the following reasons:

1. To support future growth, WWARA needs to be champions of narrowband technologies, not just digital

2. It is directly supported in the WWARA vision statement (bullet #3)
3. Since the beginning WWARA allowed multi-mode repeaters (such as P25 and narrow FM) to exist on these frequencies. Narrow FM has been a legitimate mode on these frequencies if it fit.
4. It may become necessary to use these channels when shifting/migrating existing wide FM users. Excluding these channels is more likely to make a migration process more complicated by taking these channels out of a future solution.
5. It can be easier to co-channel analog/digital than some digital modes. Although DMR systems easily support co-channeling with other DMR systems, the same is not true of Fusion and is not ideal for DSTAR. Fusion repeaters can have different NAC codes but the NAC setting in current Fusion radios (subscriber units) is a system-wide setting and cannot be saved in memory. This makes it nearly impossible to support co-channeled Fusion systems. DSTAR can support this but it invalidates the automatic programming function of subscriber units that allows a user to "kerchunk" a repeater and have it program the radio (since it's unclear which system would respond and may reprogram after subsequent transmissions). It is unknown what issues future modes may have.

Issues

Should a coordination holder be able to switch to a new mode merely by notifying WWARA?

No. There are a number of factors which would likely trigger a new test period. Co-channel users may be impacted and new letter may be required stating there are no issues. It's likely the change required a hardware swap which, even if it didn't change other technical parameters, is still a new transmitter and should be tested. The nature of digital signals is that they consume 100% of their bandwidth which may impact adjacent users. The world has become more complicated and there may be combinations of modes that are simply incompatible under certain (or any) circumstances. These need to be identified and other users protected. The test period could be abbreviated if these concerns have been mitigated.

Would notification of co-channel coordination holders be required?

Yes. This would be part of the typical testing process. See above.

Would notification of adjacent channel coordination holders be required?

Yes. This would be part of the typical testing process. See above.

Does this require adding Mode to the "Significant change" list of Section 2 of the coordination policies?

Yes. This should be the only other rule change required and be done regardless of whether this proposal is accepted. There are simply too many interactions as mentioned previously. WWARA procedures already address testing periods and interference issues.

What about noise/interference complaints from analog users?

WWARA must not entertain interference complaints if the users simply don't/won't use tones or other selective calling techniques. This is precisely why these features exist.

Will WWARA allow existing wide band analog FM repeaters to be modified for narrow band FM use?

Only if it complies with the narrow band 11K2F3E emission mask (or better) under all circumstances. If all users of a wide band (20K0F3E) repeater transmit in narrow mode (11K2F3E), the output will be narrow. The issue is when one wide band user transmits and the

system is now out of spec for the narrow channel. The repeater must always be narrow on the output, regardless of input (misprogramming by the user).

As an example, although Yaesu DR-1X repeaters transmit narrow in Fusion mode, when they are in auto/auto mode, an FM wide input signal will come out FM wide. This is clearly not acceptable and will cause interference to adjacent users.

What about the two "UBND" (6.25kHz) channels on 2m?

The only current narrow analog repeater mode is FM narrow (11K2F3E) which is too wide to fit. It's unlikely someone would/could install an analog system that would meet the bandwidth criteria so this essentially represents no change. Removing the digital designation and changing the name to simply "Ultra narrowband", rather than using the obscure abbreviation will make it consistent with other spectrum and land mobile terminology.

What about the UHF narrowband digital repeater segment (440.700-440.775)?

WWARA should be consistent with this spectrum designation and remove the digital restriction. The only restrictions should be based on bandwidth.

Specific Changes Required

- Mode must be added to the "Significant change" list of Section 2 of the coordination policies
- NBFM, VNBD and UNBD definitions at the top of the bandplan can be removed because this should be done inline.
- The 2m bandplan and Footnotes 5 and 6 need to be updated

Old

146.0050 Special UNBD Repeater Output #1[1 6]
146.40625 - 146.50625 VNBD Repeater Outputs[1 5]
146.6050 Special UNBD Repeater Input #1[1 6]
147.3950 Special UNBD Repeater Input #2[1 6]
147.40625 - 147.50625 VNBD Repeater Inputs[1 5]
147.9950 Special UNBD Repeater Output #2[1 6]
5 146.4125, bottom center frequency; 12.5 kHz steps, 8 channels to 146.5000, + 1 MHz offset; VNBD, UNBD only
6 Two Special UNBD channels, 6.25 kHz bandwidth only

New

146.0050 Ultra Narrowband Repeater Output #1[1 6]
146.4125 - 146.5000 Narrowband Repeater Outputs[1 5]
146.6050 Ultra Narrowband Repeater Input #1[1 6]
147.3950 Ultra Narrowband Repeater Input #2[1 6]
147.4125 - 147.5000 Narrowband Repeater Inputs[1 5]
147.9950 Ultra Narrowband Repeater Output #2[1 6]
5 Eight 12.5 kHz narrowband channels, 146.4125, 146.4250, 146.4375, 146.4500, 146.4625, 146.4750, 146.4875, 146.5000, + 1 MHz offset
6 Two Ultra narrowband channels, 6.25 kHz maximum bandwidth

- In the band plan the *VNBD* and *UNBD* terminology needs to be replaced with industry standard *Narrowband* and *Ultra narrowband*, respectively.
- Similar changes must be made to the 70cm bandplan and footnotes

Old

440.7000 - 440.7750 Narrowband digital repeater outputs[9]
445.7000 - 445.7750 Narrowband digital repeater inputs[9]
[8] NBFM channel spacing is 25 kHz, VNBD spacing is 12.5 kHz.
[9] All channels spacing is VNBD or 12.5 kHz.

New

440.7000 - 440.7750 Narrowband repeater outputs[9]
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[8] Channel spacing is 25 kHz, Narrowband spacing is 12.5 kHz.
[9] All channel spacing is Narrowband or 12.5 kHz.

[i] https://www.apcointl.org/spectrum-management/resources/licensing-links/emission-designators.html

Narrowband Digital Channel Usage – Counter Proposal

Background

Early in 2018 a proposal was drafted by Scott, N7SS to address several points of confusion around the ten narrowband 2m repeater pairs that were created in 2011 by the WWARA. The WWARA board of directors have debated this proposal internally several times over the course of the year, as well as presented at two general membership meetings. In general, there is agreement for most of the items that Scott proposed. This document addresses a single point which the board could not come to agreement on, which his dropping the 'digital' mode requirement which was put in place when the ten narrowband 2m pairs were created. (And the ten 70cm narrowband pairs created several years later.) I feel it is important that the general membership have both sides of the discussion represented, as they consider the proposed changes.

Concern

The ten 2m narrowband pairs (eight 12.5kHz and two 6.25kHz) and the ten 70cm pairs (ten 12.5kHz) were created to ensure new digital modes had a place to exist and be developed. This was specifically called out in both proposals when the pairs were created. At the time of the original 2m narrowband proposal, there were no available 2m pairs and multiple digital systems trying to share the SNP pairs across Western Washington. The single 'coordinated' 2m digital repeater (DSTAR) system at that time was using a converted 20kHz pair, which only happen because the club had multiple 2m analog systems and converted one of their existing repeaters. Today there are 56 20kHz pairs and 90 coordinated systems. Of those 90 coordinated systems on standard pairs, only that original DSTAR system is using a digital modulation. The landscape of the traditional analog pairs has not changed in the seven years since the narrowband digital pairs were created.

All of the growth for digital repeaters has happen because of the 10 narrowband pairs that were created, with the restriction that the systems had to support digital modulation types. In Scott's proposal, one of his key argument to drop the digital-only requirement for these 10 narrowband pairs is:

> *''These channels are now full and they have accomplished their original goal."*

While I agree the channels are now full, I don't believe it means they have accomplished their original goal. In fact, I believe the opposite is true. The WWARA is essentially back to where it was in 2011 with no available 2m pairs for new digital narrowband systems.

This discussion and proposal came about because the WWARA received an application for an analog only narrowband system, using one of the eight 12.5kHz pairs. With the availability of cheap repeater systems that support the 12.5kHz channels, I believe more of these requests will be submitted if the digital only requirement is dropped from the ten digital only narrowband pairs.

Going back to the statement Scott calls out in his proposal from Riley Hollingsworth, part of the WWARA missions is to encourage new digital mode systems. The WWARA took a bold step in 2011 by creating the original ten digital only narrowband pairs, we should not take a step backwards now because it would make things 'easier' to administer. Instead we should look to the future and take another bold step forward.

Proposal

The current narrowband digital channels remain digital only, with a better definition created and documented in the WWARA band plan. One of the primary complaints with the existing band plan for the digital only narrowband pairs is the lack of a definition of what 'digital' means. The FCC doesn't currently have definitions for all the 'digital' modes in use currently on the ham bands. N7SS proposal suggests the WWARA use 11K2F3E as the emission type, but even that doesn't full encompass all the use cases. The 11K2FE emission type is a "2.5 kHz deviation FM "narrowband 12.5 kHz" analog voice, 11.25 kHz occupied bandwidth" signal.

There are emission codes for some of the digital emission types in use for the business or land mobile segments. As an example, P25 Phase 1 (C4FM voice) is 8K10F1E and 2-slot DMR Voice is 7K60FXE. But amateur only DSTAR hasn't been assigned an emission type. To work around this limitation and to not require changing the band plan every time a new digital encoding method is created, I propose the following definition be added to the narrowband digital only pairs.

> *Digital voice modes are defined as those which encode the speech into a data stream before transmitting it.*

Going forward

One of the key goals of N7SS's proposal was providing a path for the WWARA to eventually convert the existing 2m and 70cm bands to narrowband channels. As called out before, the commercial space has already made this switch as required by the FCC to provide additional channels to enable more repeaters. While this change won't happen overnight, the board does believe we need to put in place the mechanics for starting the slow conversion of the existing 96 analog 20 kHz pairs to narrow FM (11K2F3E) pairs. This plan address both items called out in bullet three of the WWARA mission statement. (promoting narrowband and digital modes)

Some proposals to be considered are:

1. The WWARA board should commission a special committee to draft a plan for how this shift could happen. As part of educating and getting feedback, the plan should be communicated to the various ham radio groups in western Washington.
2. To support future growth, WWARA needs to be champions of narrowband technologies and a plan should be created to start the process of converting traditional 20kHz channels to 11K2F3E as existing systems are retired. The first pair which is made available can be used as a temporary channel for enabling the shifting/migrating as necessary.
3. Consider requiring any dual-mode systems (such as the P25 and narrowband FM) to pledge full digital conversion after 1 year if using one of the digital only narrowband pairs.