

RM-11785 COMMENTS ON EXPANSION OF 60 METER AMATEUR BAND

There is an ARRL sponsored proposal to expand the 60 meter (5.2 MHz) amateur band. I urge timely adoption of this proposal, with slight modifications. Basically, ARRL requests a departure from the international commonly accepted practice of 15 watts max in the new non channelized (VFO) portion of the band, allowing 100 watts maximum to a dipole. While I support the ARRL's appropriate action on this issue, I differ from their proposal on the exact power level, for reasons to be expanded on below:

LICENSE CLASS: While I welcome any new frequencies available, there are some concerns, due to our secondary user status. Most importantly, I vigorously oppose use of the new contiguous VFO portion of the 60 meter band by any license class less than General. We do not need to jeopardize our access by interference with the primary users of 60 meters. This especially includes the proposed new entry level license class that ARRL is going to file with the FCC. If allowed access to 60 meters, to encourage emergency communication participation, new entry level class (and possibly Technician) should be confined to only the existing "channelized" portion. No automatic control or communication with ACDS (automatically controlled digital) stations, inside or outside the US, should be allowed for ANY class of license on 60 meters.

FREEDOM FROM CHANNELIZATION: There are to be 4 channels in the existing 60 meter allocation that allow 100 watts for long haul use. One of the existing 5 channels is inside the new VFO segment; ARRL suggests that channel be absorbed into the new segment and de channelized. I agree with that concept. It fortunately appears to be the channel that is currently popular for CW and narrow band data foreign or "DX" use. That is likely to popularize 60 meters. This will result in more amateurs possessing equipment and antennas for 60 meters. This should make 60 meter Emergency Communication with more areas effective. I have been considering taking down my 60 meter antenna, so that I can use my small lot space for more effective antennas that are useful on frequencies I find more interesting. I may reconsider that choice, if the new VFO band on 60 meters is implemented by the FCC as I am suggesting. Others may also give 60 meters a try, increasing the available pool of potential stations capable of emergency communications on 60 meters at a variety of locations.

CORRECT POWER LEVEL: The issue of departing from the current generally accepted standards of IARU and other international authorities by raising the power level from 15 watts to 100 watts in the new VFO section creates some problems. The most obvious is that US amateurs will be running more power than foreign amateurs; this may inhibit foreign to foreign amateur contacts by USA high power interference. For instance, Canadian amateurs typically are found lower in frequency, outside the 80 meter US General class voice/image assignment. That observation alone would preclude the large disparity between 100 watts for US and 15 watts for foreign amateurs in IARU Region 2 and beyond. A US FCC level of 30 watts is a compromise that levels the playing field, but will still be enough to get the job done. When a government or primary user needs the channel, it may not be easy to get control of it for urgent use if amateurs are at 100 watts, but they will be OK at 30 watts. Primary user's equipment may not easily tune off frequency; it is made for simple fixed channel operation by non technical users. Our equipment often (for CW or digital) has very narrow filters. We may not be able to hear or demodulate a weaker far off frequency USB voice transmission requesting us to shut down and relinquish the channel. World wide communication often can be done with QRP low power, 5 watts or less. I have contacts all over the east coast, and frequently Puerto Rico and South America using 20 watts and dipoles on 80 and 40 meters CW. The narrow band digital modes are very effective at that power level also. In fact, many 100 watt (SSB rating) radios must be reduced to less than 30 watts on digital modes, to prevent damage, due to duty cycle and distortion product limitations of the radio. So I

welcome the new VFO band, but at 30 watts, close to what the IARU proposes. A primary user has an even chance of maintaining essential life safety communications, at their higher 100 watt power level, if amateurs are restricted to 30 watts in the VFO portion. In the channelized 100 watt portion, the primary users are more likely to establish communications with an amateur secondary user who is on-channel, and successfully gain control of the channel they need.

REPLY TO ONE COMMENTER: The 30 watt restriction in the new allocation would result in more efficient utilization of the resource. Channelization wastes spectrum by permitting only ONE conversation in its approximately 3 KHz band width channel, regardless of mode or its required band width. Amateurs are more efficient in their use by employing narrow band modes, allowing many more conversations within such a 3 KHz channel, and adjusting frequency and mode as appropriate for prevailing circumstances. Breaking the new allocation into 3 KHz channels (one conversation per channel), as one commenter suggests, wastes valuable resources. Permitting higher power of 100 watts in the new allocation does not encourage the use of minimum power or band width necessary to conduct communications, an essential concept in amateur practice. I disagree with "channelized" operation in the new allocation, because amateurs adjust their habits to prevailing conditions to make for efficient spectrum management, not some rigid protocol that may not be optimum for current circumstances. I do agree with his other statement: "Lastly, due to the finite resource of the 60M band, contesting on this band should continue to be banned."

<https://www.fcc.gov/ecfs/filing/10310004672693>

AUTOMATICALLY CONTROLLED DIGITAL STATIONS AND WIDE BAND DIGITAL MODES: Under absolutely no conditions should PacTor 4 with automatic control or ARDOP like automatic wide band digital communications be allowed anywhere on 60 meters, even in the channelized region. The last thing we need to have is an incident with a primary user and an email robot station that did not have working channel busy detection. We already have had unfortunate results with that mistake, and there are related rule makings (RM-11708, WT 16-239, RM-11759) that hopefully will soon be adjusted to redress that error. It has also been misused for a competing substitute for commercially available email, in conflict with Part 97 rules for the stated purposes of amateur service, as noted in filings on the other FCC proceedings listed above. Imagine that RM-11708 is implemented as WT 16-239, with NO band width limits on wide band data; one single email robot station could monopolize the entire 60 meter VFO band, or in any other spectrum it is allowed. Once one of these stations sets itself up (without any frequency coordination I might add), that becomes "their" channel, and any other stations that attempt to occupy it will be reported as "intentional interference", even if no activity is there at the time. This is not efficient use of spectrum, by any measure, and it is in contradiction with the FCC principal that no one station has the right to a given operational frequency. While informal (coordinated) assignment of a given frequency for an automatic repeater station has been successful for regional communications on VHF and UHF, it has no place in the HF spectrum. To preclude such misuse of new 60 meter allocations, due to the special case of this band, ANY permitted emissions MUST be specified to be LESS than the existing "channelized" band widths. In fact, I suggest the band width limit in the new allocation might be best at 500 Hz, as discussed later, and narrow band data operations be conducted there, protected from interference from SSB voice and wider band digital operations. In any event, it appears that common usage is for the one SSB width "channel" located inside the new contiguous allocation is already being used for CW and narrow band digital. Adopting that existing convention into new FCC assignments would be logical, and the least disruptive procedure. The only exception to this should be an FCC issued Emergency Communication Declaration (ECD) that holds for the duration of the emergency allowing such operation. (See 47 C.F.R. § 97.401(b)) I would support the adoption of STANAG protocols for digital communications on the

existing channelized segment of 60 meters, to promote interoperability with military and government stations conducting emergency communications. Any adjustments for amateur transmitter standards to existing channelized 60 meter allocations to accommodate STANAG should be made now. STANAG is not a proprietary standard like the others. Grants could allow inexpensive purchase of older surplus radio modems employing STANAG for amateur use. This should be done completely separately from any proceedings like RM-11708, WT 16-239, and RM-11759, since 60 meters is a special case.

<http://hflink.com/EmergencyCommunicationsDeclaration/>

I would rather not have 60 meter expansion at all, than to see proliferation of automated digital HF email happen there. One interference incident with a primary user from these wide band data email servers could wreck our collective reputation, and ruin our chances of keeping the other spectrum we have.

WRAP UP OF POWER LEVEL DISCUSSION: The ARRL postulates that 100 watts is not enough for Emergency Communications work. They already have 4 channels (after implementation of the VFO band) at 100 watts for Emergency Communications, for long haul work. In a true emergency, they can use those. If they need more channels for short haul regional work or narrow band digital modes, those could be in the VFO portion at 30 watts. Many more narrow band digital stations could fit into the new allocation without channelization. In a country wide emergency incident, the lower 30 watt power would enable many more regional communications without larger more powerful stations to monopolize the small allocation proposed. Stations on battery or other emergency power, or with less effective portable antennas could still be heard, without as much interference from the 100 watt stations. The factual math states that the reduction in received signal is about one S unit from 100 watts to 30 watts. The channelized 100 watt portion could be used for SSB, and the new contiguous lower power section could be used for narrow band digital during an emergency. Narrow band digital is very effective at that level, as I previously explained. This would encourage innovation at lower power levels and narrower band width digital modes. It would provide an alternative for the 30 meter CW/DATA (10 MHz) band as sunspot numbers decrease over the next 5 years.

IN CONCLUSION, I WOULD FAVOR A COMPROMISE LEVEL OF 30 WATTS IN THE NON CHANNELIZED "VFO" PORTION, WITH 500 HZ MAX BANDWIDTH IN THAT CONTIGUOUS VFO PORTION. THAT IS THE PRACTICAL POWER LIMIT FOR DIGITAL MODES FOR MOST 100 WATT (SSB RATING) TRANSCEIVERS. THE ORIGINAL 4 "CHANNELS" WOULD BE USED AS BEFORE, MOSTLY FOR SSB OR WIDER DIGITAL MODE NVIS LOCAL COMMUNICATIONS AT THEIR EXISTING 100 WATTS AND BANDWIDTH SPECS. STANAG SHOULD BE ALLOWED IN EXISTING 60 METER CHANNELS (BUT NOT THE PROPOSED CONTIGUOUS PORTION), FOR INTEROPERABILITY WITH GOVERNMENT PRIMARY USERS.

REPLY TO COMMENTS REQUESTING NO CW AND REDUCTION TO 50 WATTS FROM EXISTING ALLOCATION: Another filer with emergency communications experience has raised some of these concerns. I vigorously disagree with his opinion of not allowing CW in the VFO portion of 60 meters. CW and narrow band digital are at their best at low power levels like the proposed 30 watts. CW and narrow band digital modes tend to be much better neighbors than wide band digital modes. While he primarily advocates for Emergency Communications use, there are many of us who use amateur radio for the original intended use - experimentation, self training, and FUN. This promotes interest in 60 meters. I also disagree with his contention that we should reduce the existing power level from 100 watts to 50. It would only result in half an S unit change in received signal strength, negating

any supposed benefits of reducing interference. He has failed to produce a single instance of interference to primary users resulting from the existing 100 watt level. There is no demonstrated need for changing it now. That issue has already been considered by the FCC when it raised the power level to 100 watts, and there is no justification to revisit it now, in the existing practice with the currently assigned channels. While we may disagree, I have considered some of the valid issues he raises in my comments:

<https://ecfsapi.fcc.gov/file/10217792618119/RM-11785%20Amateur%2060%20Meter%20Allocation%20Springer%20Comments.docx>

REPLY TO COMMENTER WHO QUESTIONS AMATEUR TRANSMITTER STABILITY: Another filer raises the issue of amateur station transmitter stability. He states: "While the Amateur community has shown great responsibility in maintaining the channels allotted on 60 meters, there are inherent problems. Amateur radio equipment is not made to maintain such frequency precision, so we are not maintaining the channel allocations in any case." I disagree. That may have been true of older vacuum tube and transistor equipment employing free running master oscillators, but such equipment generally does not cover 60 meters, often because its mixing schemes produce unacceptable spurious emissions in the 5 MHz region. Most equipment currently in use, particularly equipment capable of 60 meter operation, is sufficiently stable to meet the Part 97 "state of the arts permits" criteria because of synthesized frequency generation. Besides, even as much as 200 Hz off frequency SSB reception still permits you to understand the transmission. CW can be similarly demodulated at comparable deviation from frequency. Digital modes generally incorporate a "drift compensator" type implementation (automatic frequency control or AFC) that tracks the desired signal, without loss of data. The channelized portion signals I have observed are all in compliance within reasonable accuracy. I have an older out of production Yaesu FT-950. It has a synthesized frequency control oscillator. Its service menus allow trimming of the master crystal clock oscillator to correspond with WWV transmissions, to an accuracy of a few Hz. Periodic maintenance of our equipment is standard operating procedure for our stations to maintain their stability. While the standards in the so called VFO band can be somewhat relaxed, the emissions will in any event still be confined to the new allocation, so that is not a consideration the FCC needs to take into account. This is a distraction that should be ignored.

<https://www.fcc.gov/ecfs/filing/10304959310660>

CURRENT EXAGGERATED EMPHASIS ON HF FOR EMERGENCY COMMUNICATIONS AND DIGITAL EMAIL: I have seen one comment on line that presents a new viewpoint. The 6 meter amateur band is under utilized. Emergency Communication could be effective on that band, since it would have most of the band to itself. It would be immune from distant interference common on HF for much of the sunspot cycle. Much of the modern HF amateur equipment includes 6 meters on their HF radios. A very efficient beam antenna can be transported in the trunk of a normal vehicle. A 6 meter full performance omnidirectional mobile whip antenna is about half the size of a 108" full performance CB whip antenna. FM Repeaters are legal on 6 meters, so a temporary repeater, powered from a battery or solar power (or even based in a car or van, so it can be easily moved) can quickly be set up on a nearby hill to facilitate longer range communication that is not generally subject to the vagaries of signal propagation as on HF. Over the next 5 years, solar flux is down and HF communication will be more difficult. The six meter band is 4 MHz wide, allowing many more channels of communication of any mode that is dictated by circumstances. This is nearly as large as the entire HF amateur spectrum. There may be a prevailing over emphasis on use of limited HF resources when other resources more appropriate to the purpose of emergency communication are available. NVIS communication primarily focuses on short or medium distances. VHF or 6 meters may better serve immediate medium and

shorter range needs, within a 50 mile radius station to station in flat terrain, or much farther in hilly terrain by employing a well situated repeater. I would add that widespread amateur use of the centimeter wavelength amateur spectrum is not high. This resource could easily be developed with the proper equipment and used effectively by hams. The commercial wireless use of this spectrum has proved very effective for voice and digital communication. There are many MHz of channels in that region available for emergency use. Its antennas are small and easily portable to a nearby hilltop. It could be capable of very long haul, if redundant networks were implemented properly. That could provide a secure dedicated secondary backup email, voice and internet system, should a doomsday (SHTF) scenario arise. HF is subject to sunspot activity. HF is also vulnerable to jamming conducted from a long distance away. We have seen that happen when using Voice of America to communicate in other countries. Fact based FM radio broadcasts or even uncensored internet access has been provided from nearby airplanes in areas that need communication free of oppressive regimes. Jamming a microwave network which has directive antennas to link its hubs or stations is much more difficult than interfering with HF transmissions. The VHF and above spectrum should be developed for city wide and regional emergency communications, and HF spectrum should be employed only for very long distant links. This would provide more abundant and more reliable back up communications service than running it all on HF, should commercial satellite or wired connections fail.

I wish to thank the FCC for soliciting input from a variety of viewpoints before acting on these proposals. The ARRL can sometimes be so focused on its own agenda, generated in its own closed "echo chamber". But in this case, except for a few details like power level, ARRL got it essentially right.

Respectfully submitted,
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