In the Matter of	**)**	
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Amendment of Parts 2, 15, 80, 90, 97 and 101 of	**)**	**ET Docket No. 15-99**
the Commission's Rules Regarding Implementation	**)**	
of the Final Acts of the World Radiocommunication	**)**	
Conference (Geneva, 2012) (WRC-12), Other	**)**	
Allocation Issues, and Related Rule Updates	**)**	

Reply by Donald B. Chester, K4KYV, to previous comments by The Utilities Telecom Council, regarding proposed amateur radio allocations in the 135.7-137.8 and 472-479 kHz bands.

To: The Commission

The Utilities Telecom council (UTC) has expressed concern over interference to power line carrier systems from amateur radio transmitters operating in these proposed allocations, and opposition to any amateur radio allocation in the 472-479 band. Note the following excerpts from their comments posted 09/02/2015:

I. Introduction and Background

…. Owing to the importance of these services, the underlying communications systems are designed, built and maintained to standards that far exceed those of commercial communications networks in terms of reliability and resiliency. Any failure of these systems can impact utility safety, security and operational reliability, as well as public safety and national security.

… Moreover, there are over fifty utilities in the United States that have PLC systems with transmitters operating in the 135.7- 137.8 kHz band. Clearly, the importance of these systems cannot be overemphasized, and the Amateur allocation could have a potential significant impact on utilities nationwide.

II. The Commission Should Refrain from Permitting Amateur Operations in the 472-479 kHz Band, and It Should Limit Amateur Operations in the 135.7-137.8 Hz Band to Avoid Interference.

UTC opposes the Commission's proposal for a secondary allocation in the 472-479 kHz band for Amateur operations, and urges the Commission to restrict Amateur operations in the 135.7-137.8 kHz band in order to avoid interference between Amateur operations and PLC systems.

… Allocating the 472-479 kHz band for Amateur operations at this time would represent an unreasonable risk of interference given the importance of PLC systems, and it would unreasonably discourage utilities from being able to use these frequencies for PLC systems at a time when they are likely need flexibility to expand existing systems.

III. The Commission Should Elevate the Operating Status of PLC Systems.

… Utilities must be able to object to interference caused by Amateur operations. To allow Amateur operations to cause interference and not be responsible for correcting that interference would threaten public safety, contrary to the public interest in electric reliability…

V. Conclusion

UTC remains concerned that there is the potential for interference between PLC systems and Amateur operations

After reviewing comments on this issue by UTC and other utility interests and by amateur radio operators who advocate the proposed allocation, my conclusion is that we face one of two possible scenarios:

(1) The fears of harmful interference are highly exaggerated, or (2) the raising of this issue has revealed an intolerable vulnerability in the electric power distribution system in the United States that should have been resolved long ago.

(1) Based on myriad technical data presented in comments to this proceeding too numerous to mention individually, it appears that the likelihood of an amateur radio transmitter, even one running moderately high power in the vicinity of electrical transmission lines, causing harmful interference to PLC systems would be extremely small. As cited in their comments above, UTC specifically states that "the underlying communications systems are designed, built and maintained to standards that far exceed those of commercial communications networks in terms of reliability and resiliency" but then goes on to express fear that these systems could be disabled by amateur radio transmitters some distance away, running extremely low power and using inefficient antennas.

The amount of spectrum proposed for these amateur allocations is an extremely small fraction of the total frequency range used by PLC systems nationwide, which UTC claims to run from 9 to 490 kHz. It is unlikely that any single utility would be using all frequencies within this entire range for their PLC operations, so in face of any perceived threat to PLC operation within the proposed amateur bands, operating frequencies could be shifted to unused adjacent or nearby frequencies, which should not entail undue cost or expense. Furthermore, UTC cites approximately fifty utilities in the United States that have PLC systems with transmitters operating in the 135.7- 137.8 kHz band, and no figures are cited for the 472-479 kHz band. Since there are thousands of utilities nationwide, "fifty"

represents a very small percentage of the total. It would not be justifiable to deny allocations to amateur licensees nationwide to accommodate a very small number of utilities, a minuscule percentage of the total. Regarding future expansion of these systems, the proposed allocations would constitute a negligible reduction in the total spectrum available.

(2) This proceeding has raised a far more serious issue, the possible vulnerability of the electric power distribution system in the United States. Utility interests have long and repeatedly raised opposition to allowing low power amateur operation anywhere within the 9-490 kHz frequency range, claiming these signals could interfere with PLC systems and result in widespread power outages and cause damage or destruction to equipment.

Ever since the terrorist attacks of 9/11, radical, extremist and terrorist groups have openly and publicly expressed a desire and intent to damage or disable infrastructure in the U.S. in any way possible. This includes not only air travel, bridges and communications facilities, but most importantly, the electric power grid. If the U.S. power grid is so sensitive and vulnerable to disablement or damage from simple, low-technology, limited power radio transmitters operating in the MF an LF frequency ranges as the utilities claim, this represents an unacceptable vulnerability to deliberate acts of sabotage. If this were indeed the case, it would be most urgent that PLC control systems be replaced post-haste with more secure means of control and communication, such as fibre optic cable. The fact that in all the years that the issue of MF and LF amateur allocations has periodically recurred, no action to upgrade the security of these systems has been announced by the industry, indicates either that the threat is not so serious as utility interests claim after all, or else that the entire industry has remained negligent, probably in order to save money.

The fact that such attacks have not occurred is a good indication that the perceived threat is low to non-existent, or else that nefarious individuals and groups have not been made aware of the vulnerability. With the public release of these proceedings and requests for comments from the public, we can no longer count on unawareness as our only protection.

If it is determined that PLC is indeed subject to harmful interference from nearby low power transmitters, I would suggest that the Commission offer limited protection to these unlicensed systems from interference from licensed operation, only up to a near-future sunset date. This would give the utility industry an incentive to immediately take measures to convert to more secure technology.

Respectfully submitted for your consideration,

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