Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D. C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2 and 97 of the Commission's Rules to Create a Low Frequency allocation for the Amateur Radio Service	)	ET Docket No. 02-98 RM-9404
	)	
Amendment of Parts 2 and 97 of the Commission's Rules Regarding an Allocation of a Band near 5 MHz for the Amateur Radio Service	)	RM-10209
	)	
Amendment of Parts 2 and 97 of the Commission's Rules Concerning the Use of the 2400-2402 MHz Band by the Amateur and Amateur-Satellite Services	)	RM-9949

COMMENTS OF UTC

The United Telecom Council ("UTC") hereby submits its Comments on the *Notice of Proposed Rulemaking* in the above-captioned proceeding.[1]

I. INTRODUCTION

UTC is the national representative on communications matters for the nation's electric, gas, and water utilities, natural gas pipelines and other critical infrastructure industry ("CII") entities. Approximately 1,000 such entities are members of UTC, ranging in size from large combination electric-gas-water

[1] Amendment of Parts 2 and 97 of the Commission's Rules to Create a Low Frequency allocation for the Amateur Radio Service, *Notice of Proposed Rulemaking,* ET Docket No. 02-98, FCC 02-136 (released May 15, 2002) (the "Notice", "NPRM").

utilities that serve millions of customers, to smaller, rural electric cooperatives and water districts that serve only a few thousand customers each. The electric utility members of UTC rely on power line carrier ("PLC") systems to ensure the safe and reliable delivery of electric service to their customers. These systems provide an essential link to the devices that monitor and control the safe, reliable and widespread delivery of affordable electric services to the public at large. These mission-critical systems are designed to trip electric relays less than a second after a fault occurs on the electric grid in order to prevent widespread outages that could occur. Although basic in design, these systems have been used for decades and have helped to keep electric service affordable and reliable in urban and rural areas.

The instant proceeding would affect directly and adversely the interests of the electric utility members of UTC, because it would encourage widespread amateur operations in the 135.7-137.8 kHz band that would likely interfere with nearby co- and adjacent- channel PLC system operations. Therefore, UTC is pleased to offer its comments in this proceeding.

Given the sensitivity of the information to homeland security, UTC is constrained in the level of detail that it may disclose concerning the PLC operations in the 135.7-137.8 kHz band. UTC hopes that these comments will sufficiently describe the nature and the magnitude of the risk to PLC systems that would result from a secondary allocation for amateur operations. UTC looks forward to working with the FCC throughout this proceeding to address its concerns in more detail, and will provide more specific data as needed.

II. A Secondary Allocation for Amateur Operations in the 135.7-137.8 kHz Band Would Threaten the Operation of PLC Systems.

UTC opposes the Commission's proposal to allocate the 135.7-137.8 kHz band for amateur operations on a secondary basis.[2] UTC submits that the public interest in experimental use of this band by amateurs would be outweighed by the risk that interference from these operations to PLC systems would cause disruption to essential electric utility services to the general public. Amateurs can and already have obtained experimental authority to operate in this band.[3] The proposal under consideration in this proceeding would open the floodgates to unrestricted amateur operations that would be free to interfere with PLC systems with impunity.[4] Even a secondary allocation for amateur operations would be primary to PLC operations, which are unlicensed.

In addition to the probability of the risk, the magnitude of the risk is high as well. These PLC systems are the first line of defense that protects the electric grid (and thus, the public) from overloads. While PLC systems have backups, interference to these systems could trigger the activation of protective relays or prevent them from functioning, either of which could create instabilities in the grid that could cause widespread service outages. Utilities could not afford to run that risk, and would likely be forced to change out their systems, which would entail

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[2] *See NPRM* at ¶22.

[3] *See* Application of Amateur Radio Research and Development Corporation, Application File No. 6220-EX-PL-1998.

[4] Amateur operations would enjoy primary status over unlicensed PLC systems that would be required to accept interference from amateur operations and would be prohibited from causing interference to amateur operations, if the Commission carries through with its proposal to allocate the 135.7-137.8 kHz band to amateurs on a secondary basis.

significant cost and effort – all for the sake of accommodating LF experimental communications that are already permitted on a case by case basis.[5] Moreover, electric transmission services to the public would be disrupted during the system modification.

The Commission believes that the risk of interference to PLC systems in this band is minimized to the extent that 135.7-137.8 kHz is only a narrow segment of the band in which PLC systems operate, and because amateur interests have promised to follow the "listen-before-transmit" protocol. Neither of these measures will mitigate the potential for interference to PLC systems. Although the Commission proposes to allocate less than an additional 2 kHz for amateur operations, PLC systems operate on 4 kHz-wide channels, meaning that the proposed allocation would impact systems as low as 131.7 kHz or as high as 141.8 kHz. As a result, UTC estimates that nearly 2000 PLC systems would be at a greater risk of interference if the Commission makes a secondary allocation for amateur operations in the band.[6]

In addition, amateurs would use this band for "telegraphy, RTTY, data, SSB telephony, RTTY/data and image emissions."[7] Assurances that amateurs

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[5] Nor is it at all clear that there is overwhelming public interest in LF experimental communications that would justify the need for such an allocation. To UTC's knowledge, only one application was filed by amateurs for experimental authority to operate in the 135.7-137.8 kHz band, which was granted by the Commission in only seven months and authorized such use for a full year. *See* Application of Amateur Radio Research and Development Corporation, Application File No. 6220-EX-PL-1998.

[6] Estimate of PLC systems affected based upon UTC search of the PLC database for transmitters operating in the 131.7-141.8 kHz range. *Compare NPRM* at ¶ 23, fn 58 (stating that only 430 PLC systems are in the 135.7-137.8 kHz band that could receive interference from a amateur operations).

[7] *Petition for Rule Making,* RM-9404, Public Notice (rel. November 23, 1998) Report No. 2306.

would abide by the listen-before-transmit protocol ring hollow considering that the proposed data communications are not capable of observing such protocol. Even if amateurs did abide by the protocol, the record is replete with evidence that they would not detect PLC systems that use ON / OFF or FSK modulation schemes.[8] UTC notes that the *NPRM* recites but does not respond to this evidence.[9] Therefore, the Commission appears to have underestimated the scope of the problem associated by amateur operations in the band.

While the Commission has proposed technical limits on proposed amateur EIRP, bandwidth and output power, these technical rules would not reduce the potential for interference at all unless limits on antenna size and design were imposed as well.[10] Oddly, the Commission has refused to restrict antenna size or design, because such limits would "inhibit experimentation," and because it believes that interference to other users can be adequately addressed by the proposed power limitations.[11] UTC disagrees, and calls to the Commission's attention comments on the record warning that amateurs have developed, and would likely employ, a kite-borne, 900-foot antenna that would

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[8] *See* Comments of IEEE Relay Committee/Mark Simon, RM-9404 (filed Feb. 12, 2001). (explaining ON/OFF and frequency shift keying on PLC systems and demonstrating that amateur operations cannot detect their presence because these systems either rarely operate on the frequencies to be heard, or only operate on them when a fault has occurred.)

[9] *See NPRM* at ¶ 17 (citing comments filed by IEEE Relay Committee/Mark Simon, Commonwealth Edison, and Comments of Alabama Power, Georgia Power, Michigan Power and Savannah Electric in subsection II. B, but not addressing these comments in its proposal in subsection II. C.)

[10] *See NPRM* at ¶ 23.

[11] *Id.* at ¶ 25.

dramatically increase the interference potential to PLC systems.[12] Nor does the *NPRM* explain how such limits would "inhibit experimentation" or how a power limitation alone would mitigate the risk of interference from amateur operations in the band. Power limits without antenna size and design restrictions will do nothing to mitigate interference, and the Commission must provide a reasoned analysis to conclude otherwise.[13]

Why would the Commission jeopardize the broad public interest in the integrity of the electric grid only to serve the narrow interest of the amateur community? That is a perplexing question for utilities, and the only answer on the record appears to be the Commission's misguided notion that a secondary allocation for amateur operations in the 135.7 – 137.8 kHz band will "harmonize LF allocations and promote international exploration of a common band."[14] The Commission cites to the European Posts and Telecommunications Commission ("CEPT") Recommendation 62-01 E, which allocates the band to the amateur service on a secondary basis.[15] There is an important distinction between the U.S. and Europe that the Commission apparently overlooked, however. PLC

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[12] *Id.*at ¶ 20 (citing Comments by IEEE Relay Committee in subsection II. B., but not addressing those comments in any detail in subsection II.C.)

[13] *See Motor Vehicles Mfrs. Ass'n of US., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29 (1983)(holding that an agency changing its course by rescinding a rule is obligated to supply a reasoned analysis for the change beyond that which may be required when an agency does not act in the first instance.) *See also Inquiry Relative to Preparation for a General World Radio Administrative Radio Conference of the International Telecommunications Union to Consider Revision of the International Radio Regulations*, 1978 WL 36174 (1978)(declining to allocate spectrum for amateur operations between 10-4000 kHz due to the presence of PLC operations in the band and "the extreme difficulty of satisfactory frequency coordination due to the unpredictable nature of amateur operations.")

[14] *See NPRM* at ¶ 24.

[15] *Id.*

systems in Europe use the 135.7-137.8 kHz band only for in-home applications, where the probability, and the magnitude of the risk, of interference to these PLC systems is far less than the risk to PLC systems used in the U.S. for substation control.[16] Nor has Canada adopted a secondary allocation for amateurs; instead merely proposing it to WRC-03.[17] Therefore, the FCC would be venturing into new (and possibly dangerous) territory, rather than achieving harmony if it allocates this spectrum for amateur operations.

[16] *See* CENELEC Standard No. EN50065 (allocating the 95-148.5 kHz band for in-home PLC systems.) *Compare* 47 C.F.R.§ 15.113 (specifying that PLC operations are permitted only for general supervision of the power system and are not permitted on electric lines which connect the substation to the customer or house wiring.)

[17] *See NPRM* at ¶ 24, n. 59 (citing Document PCC.III/doc. 2171/02, Draft Proposals for the Work of the Conference WRC-03 Agenda Item 1.1, submitted by Canada, dated February 11, 2002.)

III. The Commission Should Not Provide Public Access to the PLC Database

The Commission has suggested that spectrum in both the 135.7-137.8 kHz and 160-190 kHz bands could be used more efficiently if potential operators knew where other users of the spectrum were located and could avoid them. It has recognized that UTC maintains a database of PLC locations in order to notify primary Federal Government users of PLC operations, and has invited comment on whether amateur operators should have access to this database and whether it would provide sufficient information for them to avoid causing interference to PLC systems.

Amateur operators should not be given access to the PLC database, because it is not at all clear that amateurs could or would make effective use of the data. Nor would the possible benefits of disclosure outweigh the risk to the security of the data and the integrity of the systems – government as well as non-government – that are coordinated using the data. Apart from following the "listen-before-transmit" protocol, amateur operators do not have experience coordinating with other users. Even if they learned from the database where the PLC transmitters are located, they would not know where the electric transmission lines that carry the signal to the receivers are located. More importantly, perhaps, the data itself is sensitive information that should not be disclosed to the general public. Therefore, unrestricted access to the PLC database by amateurs would not be in the public interest.

Instead, if the FCC creates a secondary allocation for amateur operations, UTC offers a "quasi-coordination" process to reduce the risk of dangerous interference. The FCC should require that amateurs cooperate with utilities to avoid causing interference with PLC systems by submitting data to UTC about proposed amateur operations. UTC could then notify utilities about amateur operations that may impact their PLC systems. Utilities and amateur operators could then cooperate to avoid causing interference to each other in accordance with Section 2.106, U.S. footnote 294.[18] In this way, the potential for interference could be mitigated somewhat, while the security of the PLC database would be preserved.

[18] *See* 47 C.F.R. § 2.106, fn US294 (notifying users about the existence of PLC systems in the 9-490 kHz band and urging them to minimize potential interference to the degree practicable.) *See also* Amendment of Parts, 2, 15, and 90 of the Commission's Rules to Provide Recognition for Power Line Carrier Operations of Electric Utilities in the bands 10-490 kHz. Gen. Docket No. 82-9, *Report and Order*, 48 FR 5922 (1983).

IV. CONCLUSION

Although the Commission in the NPRM appears to downplay the number of PLC systems in the 135.7- 137.8 kHz range, the effect of any one of these systems receiving interference from amateur operations would be the same and could have devastating consequences that far outweigh any conceivable public interest benefit that may come from allowing amateurs to use the 135.7-137.8 kHz band on a secondary basis. Therefore, UTC urges the Commission to protect the reliability of PLC systems, and to decline the proposal to adopt a secondary allocation for amateur operations in the 135.7-137.8 kHz band. However, if the Commission does allocate this band to amateur operators, it must adopt technical rules that include limits that effectively protect PLC systems, and it should encourage amateur operators to cooperate with utilities through UTC to avoid causing harmful interference to each other.

Respectfully submitted,

1901 Pennsylvania Avenue, Fifth Floor
Washington, DC. 20006
(202) 872-0030

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Jill M. Lyon
Vice President & General Counsel

Brett W. Kilbourne
Director of Regulatory Services

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