

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Amendment of Parts 1, 2, 15, 25, 27, 74, 78, 80, 87, 90, 97 and 101 of the Commission’s Rules Regarding Implementation of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) (WRC-07), Other Allocation Issues, and Related Rule Updates)	ET Docket No. 12-338 (Proceeding Terminated)
)	
Amendment of Parts 2, 15, 80, 90, 97 and 101 of 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)	ET Docket No. 15-99
)	
Petition for Rulemaking of ARRL to Amend Parts 2 and 97 of the Commission’s Rules to Create a New Medium Frequency Allocation for the Amateur Radio Service)	
)	

To: The Commission

**REPLY COMMENTS OF ARRL, THE NATIONAL ASSOCIATION
FOR AMATEUR RADIO**

ARRL, the national association for Amateur Radio, formally known as the American Radio Relay League, Incorporated (ARRL), by counsel and pursuant to Section 1.415(c) of the Commission’s Rules [47 C.F.R. § 1.415(c)], hereby respectfully submits its reply comments relative to the *Notice of Proposed Rule Making* portion of the *Report and Order, Order, and Notice of Proposed Rulemaking*, FCC 15-50, 30 FCC Rcd. 41835, released April 27, 2015 (the

Notice).¹ Herein, ARRL replies only to the comments of the Utilities Telecom Council (UTC) filed on or about August 31, 2015. All other comments filed to date in this proceeding that are reflected in the ECFS database either express no view with respect to the Amateur Radio Service domestic allocations and service rules addressed in the *Notice*² or else support the allocation plan and some version of the service rules proposed for the three Amateur allocations³ addressed in the *Notice*. The comments of UTC, however, without the benefit of any technical component or argument, oppose the allocation of the 630-meter band to the Amateur Service, and suggest overly and unnecessarily conservative regulation of Amateur operation in the 2200-meter band. With respect to UTC's arguments, ARRL states as follows:

1. UTC begins by noting that its members operate communications systems for monitoring and controlling the delivery of utility services to the public which, UTC claims, are “built and maintained to standards far exceeding those of commercial networks in terms of reliability and resiliency.” Taking that generalized claim at face value, one might reasonably assume that these systems are constructed so as to withstand the presence of low-level nearby RF fields. Indeed, that would be good planning since Power Line Carrier (PLC) systems constructed and operated by utilities operate pursuant to an unlicensed regulatory structure that offers them no protection against interference from authorized services. However, UTC also claims that PLC systems are a “mainstay of utility protective relaying,” isolating a fault on the grid to prevent widespread outages. Interference to PLC systems, says UTC, could prevent them from actuating in time to isolate such faults. Noting the alleged importance of these deployed systems, however,

¹ These reply comments are timely filed. See the *Notice* publication in the Federal Register, 80 Fed. Reg. 38316 *et seq.* which specified a reply comment date of September 30, 2015.

² These included the 135.7-137.8 kHz (2200-meter) band; the 472-479 kHz (630-meter) band, and the 1900-2000 kHz (160-meter) band.

³ No comments filed to date in this proceeding, however, (save for those of ARRL) endorse the availability of the 1900-2000 kHz band for offshore fishing buoys. Therefore, these reply comments do not address that issue.

does nothing at all to further the discussion in this proceeding. The Commission, in the *Notice* has assumed at all times that there is value of PLC systems, notwithstanding the unprotected regulatory paradigm under which they operate.

2. Instead, there are several issues which are relevant, including (1) how prevalent the PLC systems which utilize the 2200-meter or the 630-meter bands are at the present time; (2) where those PLC systems are located and how they are to be identified relative to their proximity from co-channel Amateur Radio stations; (3) how, once geographic proximity is identified, interference potential can be determined and what notification requirements to utilities are necessary; and (4) how much protection PLCs actually need from co-channel Amateur station operation. In each of these respects, the UTC comments are distinctly unhelpful. They are not responsive at all to the plethora of questions asked by the Commission in the *Notice*, and those points that UTC makes are unsubstantiated. UTC simply repeats the non-technical arguments which it urged prior to the Docket 12-338 *Report and Order* which created the allocation of the 2200-meter band to the Amateur Service.

3. At page 4 of its comments, UTC notes that the Commission has requested “detailed comment” on the technical characteristics of both PLC systems and Amateur stations relative to a separation distance between the two, under consideration in the *Notice*. However, UTC’s comments are not responsive to the request. Instead, it summarily urges that no Amateur operation be permitted at all in the 630-meter band; that Amateur stations operating in the 2200-meter band be limited to fixed operation; that they should be prohibited from operating closer than 1 kilometer “from a PLC system;” and it urges that power be limited to 1 watt EIRP and antenna height to 200 feet or less. UTC argues that unlicensed, Part 15 PLC systems should be “elevated” in “operating status” to the extent that they are protected from interference “caused by

Amateur operations.” UTC urges on the other hand that PLC systems not have to make any accommodation if their operation causes interference to an Amateur station. Finally, UTC asks that there be coordination (apparently with UTC) required for Amateur station operation at 2200 meters prior to commencement of operation. UTC claims that it is ready to work with the Commission (but apparently not with ARRL) to “develop a process under which Amateur operations could notify utilities about proposed operation and work together to achieve the proper distance separation, power and antenna height based on parameters of Amateur operations and PLC systems.” UTC, however, makes no proffer as to how an Amateur station might know which transmission lines are carrying PLC which operates in an Amateur allocation, and which are not, and makes no offer to provide that information to ARRL or to Amateur radio operators generally.

4. With respect to the 630-meter band, UTC fails to enunciate any logical reason why 472-479 kHz should not be allocated to the Amateur Service. Its sole basis for arguing against the allocation is that there is “not sufficient understanding of the potential for interference between Amateur operations and PLC systems.” It claims without further explanation that the 2200-meter band “would provide sufficient opportunity for experimentation by Amateurs” and that “utilities need flexibility to be able operate (sic) PLC systems between 9-490 kHz.” This is a textbook example of spectrum warehousing and the Commission should not stand for it. UTC argues that the Commission should not overlay more than 2.1 kilohertz of Amateur operation *anywhere* in a band that is 481 kilohertz wide because some unspecified number of narrowband, unlicensed PLC systems require “flexibility” in operating in the remaining 478.9 kilohertz. UTC does not tell us how many PLC systems are operating in the 7 kilohertz of the 630-meter band or where they are located, *even though it has that information*. It does not explain why 630-meter

operation by Amateurs would be any more disruptive to PLCs than operation in the 2200-meter band would be. UTC does not even offer any comment on the proper operating parameters for the 630-meter band, even though it and its members presumably have interference immunity information about these systems in their possession. Finally, UTC has no idea whatsoever of the needs of the Amateur Service for experimentation, nor does it even attempt to explain why it believes (erroneously) that 2.1 kilohertz at low-frequency (LF) is sufficient in lieu of a unique medium-frequency (MF) allocation at 472-479 kHz. As a matter of fact, the two bands exhibit radically different propagation characteristics relative to long distance communications, and experimentation in both bands is necessary. That determination was agreed upon internationally at WRC-12 and the conclusion is deserving of deference. UTC's vague, unsupported allegation of some need for "flexibility" in PLC operation and its conclusion that the 2200-meter band is sufficient for Amateur Radio purposes are entitled to no credibility whatsoever.⁴

5. Nor does UTC's argument that more experience with Amateur operation at 2200 meters is necessary prior to allocating the 630-meter band to the Amateur Service have any rational basis. As ARRL established in its comments, there is apparently almost no PLC operation at all in the band 472-479 kHz. According to the 2002 article in *IEEE Transactions on Power Delivery* entitled *Evaluation of the Potential for Power Line Carrier (PLC) to Interfere With Use of the Nationwide Differential GPS Network* (Silva, Michael, Senior Member, IEEE and Whitney, Bruce, Member, IEEE),⁵ of the 28,816 PLC transmitters that existed in the United States in 1999, only 20 operated anywhere in the band 450-490 kHz.⁶ Of the 40 kHz-wide

⁴ Even if there was any substance to UTC's argument for "flexibility" in PLC deployment going forward, that luxury does not exist. The Commission has noted numerous times that there is an increasing need for sharing of the fully-deployed radio spectrum. Spectrum warehousing by an unlicensed spectrum user is no longer feasible.

⁵ Volume 17, No. 2, April, 2002.

⁶ By contrast, 1,169 transmitters operated at that time at 10-50 kHz; 5,986 operated at 50-100 kHz, 8,788 operated at 100-150 kHz, 8,897 operated at 150-200 kHz, and 989 operated at 250-300 kHz. Above 200 kHz, the number of PLC transmitters drops off very rapidly.

segment referred to in that article, only 7 kHz (approximately 1 percent of the entirety of the band 9-490 kilohertz) is proposed to be allocated domestically to the Amateur Service now. Therefore, even if any of those 20 PLC transmitters that operated *somewhere* in the 450-490 kHz band in 1999 are still operational 16 years later, and even if any of those which were operating in 1999 and which are still operational are presently operating in the small segment 472-479 kHz, it would surely be a simple matter indeed to retune those very few PLC transmitters less than 4 kilohertz.⁷ Given this, it would be poor spectrum management indeed to reserve the 472-479 kilohertz band, throughout the entire United States and territories regulated by the Commission, for some possible future use by PLCs. Whatever protection criteria are ultimately deemed to be necessary with respect to the 2200-meter band, those criteria would be applicable and sufficient as well with respect to the 630-meter band. There is no technical justification offered by UTC for withholding the 630-meter allocation. Although there are apparently⁸ more PLC systems operating in the 2200-meter allocation than in the 630-meter band, the Commission properly concluded that there was no reasonable basis on which to preclude Amateur utilization of the international 2200-meter allocation.

6. UTC asks, in view of the Commission's decision to allocate the 2200-meter band to the Amateur Service, and the proposal to allocate the 630-meter band as well, that PLC systems be "elevated" in (apparently domestic allocation) priority relative to the Amateur Service.⁹ The proposal reveals a disturbing lack of understanding of spectrum policy and Commission jurisprudence going back many years. UTC is asking no less than that an *unintentional* emitter be given an allocation status equivalent to a licensed user. This is untenable under the

⁷ The operating bandwidth of PLC transmitters (defined as that within 3 dB of the peak response) is generally less than 3.4 kilohertz, according to the IEEE article cited hereinabove.

⁸ Again, these are numbers that UTC knows or should know, but which it has failed for whatever reason to disclose.

⁹ UTC does not specify whether it proposes that PLC operation be "elevated" in allocation priority in the entirety of the 9-490 kilohertz band or only in the 2.1 kilohertz segment of the 2200-meter Amateur allocation.

Commission's regulatory paradigms. UTC cannot have it both ways: it cannot enjoy the benefits of unlicensed operation under Part 15 of the Commission's rules as a carrier-current, unintentional emitter and at the same time claim the protection afforded an allocated, licensed radio service. There is simply no way to do this unless UTC is proposing that a land mobile allocation be created for PLCs and that each PLC system become licensed. It is far too late in the game for UTC to be making that proposal; any such effort would have to have been initiated long prior to WRC-07, but UTC did not do so.

7. Radio spectrum is a finite resource, and multiple users of spectrum can interfere with each other. Recognizing this, in 1934 Congress charged the Commission with refereeing competing uses of spectrum for communications.¹⁰ The principal tool for that control is the requirement in Section 301 of the Communications Act of 1934 that anyone who wishes to operate a device that emits radio frequency (RF) energy first obtain a license from the Commission. 47 U.S.C. § 301. Section 301's licensing requirement contains no exceptions. It forbids the "use or operat[ion of] any apparatus for the transmission of energy or communications or signals by radio [in or affecting interstate commerce], except . . . with a license[.]" Nevertheless, since 1938 the Commission has permitted the use without a license of certain devices that utilize and/or radiate, *intentionally or unintentionally*, extremely low levels of RF energy, as long as that use does not cause harmful interference to licensed operations.¹¹ The Commission's rationale for allowing unlicensed operations is that a device that transmits too little RF energy to interfere with licensed uses does not constitute an "apparatus for the transmission of energy" under section 301.¹² The Commission's Part 15 rules prescribe technical

¹⁰ See 47 U.S.C. §§ 152, 301. Prior to 1934, this responsibility rested in the Federal Radio Commission. See Radio Act of 1927 § 4(c). Pub. L. No. 632 (1927).

¹¹ See Certain Low Power Radio Frequency Electrical Devices, 3 Fed. Reg. 2999 (December 14, 1938).

¹² See Ultra-Wideband Transmission Systems, 19 F.C.C.R. 24,558, at ¶ 68.

standards for particular types of unlicensed devices.¹³ These are prefaced by the overarching command that unlicensed devices may be operated *only* to the extent that they do not harmfully interfere with licensed operations. This command is embodied in three rules. First, “operation of a [Part 15] device is subject to the condition[] that no harmful interference is caused.” 47 C.F.R. § 15.5(b). Second, and relevant here, Part 15 devices operate on an at-sufferance basis: their operators must accept any interference “that may be caused by the operation of an authorized radio station.” *Id.* Finally, “[t]he operator of a [Part 15] device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference.” *Id.* at § 15.5(c).

8. It is well-established that PLCs operate as unlicensed devices and without allocation status. Footnote US2 currently reads as follows:

In the band 9–490 kHz, electric utilities operate Power Line Carrier (PLC) systems on power transmission lines for communications important to the reliability and security of electric service to the public. These PLC systems operate under the provisions of 47 CFR part 15, or Chapter 8 of the *NTIA Manual*, on an unprotected and non-interference basis with respect to authorized radio users. Notification of intent to place new or revised radio frequency assignments or PLC frequency uses in the band 9–490 kHz is to be made in accordance with the Rules and Regulations of the FCC and NTIA, and users are urged to minimize potential interference to the extent practicable. This footnote does not provide any allocation status to PLC radio frequency uses.

Footnote US2 is quite clear that PLC systems operating in this band are unprotected as against any licensed service, and their regulatory status is and has been firmly established for many years. The Commission has clearly stated its intention to not confer any allocation status on PLCs.

9. UTC expresses generalized but unsupported apprehension about interaction between *existing* PLCs and the relatively few Amateur stations that predictably will operate at 2200

¹³ *e.g.*, 47 C.F.R. Part 15.B (unintentional radiators); *id.* Part 15.C (intentional radiators).

meters and/or 630 meters. However, the proper response to that concern is not to upend the entire regulatory paradigm for unintentional emitters or to bypass the international or domestic allocation process. Instead, it is a relatively simple matter to impose distance separation criteria and, in those few instances in which an Amateur station may wish to operate in one of the two small subject bands within close proximity to a PLC-carrying transmission line using either of those subject bands, a notification process. The combination of those two provisions will address all compatibility issues in the private sector without any necessary Commission involvement. However, the process calls for some good-faith participation by UTC which has not heretofore been forthcoming. A summary of ARRL's plan for compatibility between Amateur stations and incumbent¹⁴ PLC systems using the 2200-meter or 630-meter bands is as follows:

A. It is readily apparent to begin with that PLCs and Amateur stations do not in general operate in the same geographic areas. PLCs are restricted to operating only on transmission lines [per 47 C.F.R. § 15.3(t)] and, as the *Notice* states, "therefore, in general, do not operate in residential areas." Because the Amateur Service is expected to use the 2200-meter and 630-meter bands principally for experimental purposes (and thus non-intensively) from the licensee's residences in most cases, there is an inherent geographic separation between the two uses.

B. There is no evidence anywhere in the record in this proceeding, or in Docket 12-338, or otherwise to ARRL's knowledge that Amateur stations operating further than 1 kilometer from PLC-carrying transmission lines have any co-channel interference potential whatsoever. The NTIA TR-85-181 Study¹⁵ evaluated the compatibility of PLC systems and relatively high-powered licensed transmitters operating in the same frequency range as PLC systems. This study indicates that the potential for interference to PLCs is very low overall, and the only area for any concern whatsoever is those Amateur stations that may be located closer than 1 km to an existing transmission line carrying PLC signals *in that frequency range*.

C. The likelihood of an Amateur station conducting operations in the 2200- or 630-meter bands from a fixed station located less than 1 kilometer from a PLC-carrying

¹⁴ For reasons discussed further below, ARRL urges that PLC systems installed in either the 2200-meter or 630-meter bands *after the effective date of a Report and Order in this proceeding* not be entitled to protection from Amateur stations operating in accordance with adopted technical rules in those segments.

¹⁵ Andrew Farrar et al., Evaluation Techniques—Fixed Service Systems to Power-Line-Carrier Circuits; NTIA Report 85-181 (1985).

transmission line upstream from a distribution substation is exceptionally low.¹⁶ Many transmission power lines do not carry PLC at all. Most PLC systems do not use the very small Amateur allocations at 2200 or 630 meters. And finally, the experimental purpose of these bands for radio amateurs and the concomitant fact that all equipment and antennas must be constructed by the licensees themselves leads to the conclusion that Amateur use of the small frequency bands for the foreseeable future will be relatively low compared to other Amateur allocations.

D. Contributing to the level of compatibility is the fact that PLC systems are required by Commission rule to “adhere to industry approved standards designed to enhance the use of power line carrier systems.”¹⁷ PLC systems are or can be frequency agile (either using software-defined radio equipment or by simply notching small segments of the 9-490 kHz band). PLC system design in compliance with the immunity standard IEEE-1613-2009 ensures no interaction between Amateur Stations and PLC systems in this range, even if the latter were operated on a co-channel basis. PLC devices sold to utilities and placed within substations since 2002 have been subject to this standard.

10. As to the exceptionally rare and few instances in which an Amateur 2200-meter or 630-meter station might plan to operate within a kilometer of a PLC-carrying transmission line which makes some use of either Amateur allocation, ARRL urges a simple notification procedure which is not completely dissimilar to the so-called “quasi-coordination” procedure envisioned by UTC in its comments. The recipients of any notification, however, must be limited to those utilities which are, as of the effective date of a Report and Order in this proceeding, actually operating PLC systems on transmission lines that pass nearer than one kilometer from the planned fixed or temporary fixed operating site of the Amateur station, on frequencies such that the occupied bandwidth of the PLC signal actually overlaps either the 2200-meter band or the 630-meter band. Even though ARRL has established in its comments

¹⁶ Amateur stations must avoid high ambient noise areas in order to make use of the LF, MF or HF bands generally. They will therefore not locate LF stations near transmission lines, because the noise from the lines (whether or not related to PLC) will inhibit or preclude two-way Amateur communications or reception of propagation beacons in the LF allocation in close geographic proximity to the line. Electrical noise on transmission lines is radiated more efficiently than is the PLC signal, generally making the noise environment near the lines high enough that Amateur operation in the immediate vicinity of the power lines is unlikely due to preclusive noise at the Amateur receiver.

¹⁷ See, 47 C.F.R. §15.113(e).

that the only likely interaction between Amateur stations and PLC systems on a co-channel basis is on the order of 300 meters, and that in that range there is an exceptionally low chance that the Amateur Station would operate at LF or MF in the RF environment that inevitably exists under that condition, it is reasonable for the Amateur station to provide notification of the intent to operate under those circumstances.

11. The problem with the so-called “quasi-coordination” requirement¹⁸ as UTC terms it, and with ARRL’s closely related notification proposal as well is that each calls for some information to be made available to either ARRL or to the Amateur Radio community as a whole as to which utilities are operating PLC systems in either subject band, and on which transmission lines the PLC is carried. It is completely unnecessary and unhelpful to impose a utility notification requirement on an Amateur licensee if the transmission line that the Amateur identifies as being nearer to the Amateur station than one kilometer either is (1) not carrying PLC at all, or (2) carrying PLC but makes no use of either 135.7-137.8 kilohertz or 472-479 kilohertz. It is only where all three elements (less than 1 kilometer separation, transmission line carrying

¹⁸ It bears reiteration that the Commission has found that notification is appropriate in this band relative to unlicensed PLCs versus formal advance coordination. In 1982, in General Docket 82-9, which was initiated to consider establishment of what is now Footnote US2 (formerly US294) in the Table of Allocations (for the purpose of recognition of PLC systems and to provide for notification by other users of the LF and MF spectrum to utilities), the Commission stated as follows:

Based on several comments in the proceeding [which] incorrectly speak of coordination rather than notification and of maintaining existing status of PLC relative to other Part 15 users, the Commission seeks to dispel any misunderstanding concerning the intent of this proceeding. Accordingly, the Commission wants to reaffirm its position that this proceeding does not elevate the status of PLCs in any way and that their operation in the band must be on an unprotected, noninterference basis to authorized users operating under Part 15 provisions. Cooperation between parties to the extent practicable is expected but, in any event, the PLC users must realize that in the event conflicts on spectrum usage cannot be resolved on a cooperative basis, their operation on an unprotected, non-interference basis must adjust to meet the requirements of the authorized radio users.

The language in the footnote was intended to urge, but not require, cooperation in preventing potential interference. The admonition was in the nature of a notification action. The Commission eschewed mandatory language requiring cooperation/coordination because “the stricter ... language could be misinterpreted to convey that Commission or NTIA intervention for enforcement purposes is expected if parties will not cooperate, a situation which would implicitly elevate the status of PLC operators in an unintended manner.”

PLC, PLC use of 2200 or 630 meters) are present that there is any chance at all of any interaction.¹⁹ So UTC, because it has (or is supposed to have)²⁰ information as to which transmission lines are now carrying PLC and on what frequencies, should make available to ARRL or to the general public a list of the transmission lines carrying PLC in these two frequency ranges. If that is done, the Commission might reasonably require that an Amateur station notify the relevant utility if an Amateur station wishes to operate in either of the two bands within one kilometer of a PLC-carrying transmission line where either band is in use by that PLC system.

12. It is anomalous for the Commission to require notification of a licensed service's operations to a representative of, or directly to users of unlicensed, unallocated low power RF devices, and especially unintentional radiators. However, it could be practical in this unique instance to implement a limited notification plan due to the exceptionally low likelihood of an Amateur Station experimenting with LF communications being located at distances of less than 1 kilometer from a power line carrying PLC in these small frequency segments.

13. Once that notification is made, however, as ARRL noted in its comments, the burden should shift to the utility to establish that there will be harmful interference to PLC operations that existed before the effective date of any Report and Order in this proceeding from the

¹⁹ Actually, UTC is in agreement with ARRL that it is not necessary to impose any distance restrictions on Amateur stations proximate to PLC-carrying transmission lines where Amateur allocations are not used or overlapped by the PLCs. At page 6 of its comments, UTC states as follows: "UTC also supports restrictions on Amateur operations in the 135.7-137.8 kHz band, as proposed by the Commission. Specifically, UTC supports restricting Amateur operations in the 135.7-137.8 kHz band from a distance of at least 1 km *from a PLC system operating in the 135.7-137.8 kHz band.*" (emphasis added).

²⁰ A power utility operating a PLC system is required to submit the details of all existing systems plus any proposed new PLC systems or changes to PLC existing systems to an "industry-operated entity." 47 C.F.R. §§ 15.113(a), 90.35(g). Currently, UTC acts in this capacity. The provisions of 47 C.F.R. § 90.35(g) are repeated in the *NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management* (the "NTIA Redbook"), at § 8.3.27. Assuming that these procedures are followed by utilities operating PLC systems and that the database is current as per the Commission's Rules, it can be concluded that the location and characteristics, operating frequency, and bandwidth of each and every PLC system in the United States is known to UTC and knowable by others and it can and should be used for notification purposes.

operation of the properly operating Amateur station. The parties can resolve any interference concerns cooperatively thereafter. That burden should include a showing of the expense to the utility, if any, of a frequency change by the utility of the PLC system, a solution which would avoid the issue entirely.

14. Because of its untenable proposal to “elevate” the status of PLCs relative to (at least) Amateur stations operating in the 2200-meter or 630-meter bands, it can be assumed that UTC does not anticipate that PLC systems being constructed or modified after the effective date of a Report and Order in this proceeding so as to make use for the first time of either of those bands should be subject to the normal Part 15 obligation to withstand interference from properly operating Amateur stations. If the entire 9-490 kilohertz band was being made available for Amateur use, UTC may have a more sympathetic position in this regard. However, the fact is that a total of 9.1 kilohertz is subject to Amateur use in a band of 481 kilohertz in this proceeding. Because of the small aggregate size of the Amateur allocations, and because all current PLC equipment is frequency-agile, (either through use of software-defined technology or through notching of certain frequency segments) it is impossible for UTC to argue rationally that any future initial use of the subject allocations is necessary for any given PLC operation.

15. UTC’s comments discuss operating parameters only for the 2200-meter band. It is silent with respect to operating parameters for the 630-meter band because it opposes any Amateur operation in the latter band. Suffice it to say that ARRL does not oppose the 1 watt EIRP limitation proposed by the Commission for the 2200-meter band and endorsed by UTC. Nor does ARRL oppose a 200-foot antenna *height* limit (as long as it is only height and not antenna length that is being restricted) as UTC suggests. Other than these operating parameters,

UTC's comments are unhelpfully silent as to the technical questions asked by the Commission in the Notice.

15. Given the foregoing, ARRL again urges that the Commission proceed with the allocation for the 630-meter band as proposed in the Notice; it urges the Commission to reject UTC's inchoate proposal to "elevate" the status of PLC's in the 9-490 kilohertz band; and the Commission should implement a notification procedure for those Amateur stations which are to be located within one kilometer of a transmission line carrying PLC and where the PLC system is operating on frequencies which are within or which overlap the Amateur 2200-meter or 630-meter bands. In order to implement this, UTC should be called upon to provide to ARRL or to the general public a list of transmission lines carrying PLC which make use of either of the two subject bands, thus to facilitate notification. This would have the double benefit of encouraging a complete PLC database while permitting accurate determinations of which transmission lines are carrying PLC which have any potential at all of adverse interaction with Amateur stations.

Therefore, the foregoing and ARRL's prior comments in this proceeding considered, ARRL, the national association for Amateur Radio requests that the Commission timely issue a Report and

Order making the LF and MF allocation changes in Part 2 and the Part 97 service rule changes, as proposed by ARRL and not otherwise.

Respectfully submitted,

**ARRL, THE NATIONAL ASSOCIATION FOR
AMATEUR RADIO**

225 Main Street
Newington, CT 06111-1494

By: *Christopher D. Imlay*
Christopher D. Imlay
Its General Counsel

BOOTH, FRERET & IMLAY, LLC
14356 Cape May Road
Silver Spring, MD 20904-6011
(301) 384-5525

September 30, 2015