

**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

To: The Commission

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

ARRL, the National Association for Amateur Radio, also known as the American Radio Relay League, Incorporated (ARRL), by counsel and pursuant to Section 1.415(c) of the Commission's Rules, hereby respectfully submits its reply comments in response to the *Notice of Proposed Rule Making*, FCC 02-136, released May 15, 2002 (the Notice). The comments filed in response to the Notice address the Commission's proposals to allocate two new frequency bands, one at 135.7-137.8 kHz, and another at 5250-5400 kHz, to the Amateur Radio Service under certain conditions; to upgrade the Amateur Service allocation at 2400-2402 MHz from secondary status to primary status; and to add a primary allocation in that segment for the Amateur-Satellite Service, also regulated

under Part 97. In response to the comments filed in this proceeding to date, ARRL states as follows.

I. Introduction

1. The comments filed in this proceeding, of which there were more than two hundred, fall into several categories. The overwhelming majority of them were filed by individual Amateur Radio licensees and Amateur groups supportive of the Commission's proposals for new allocations. Many of those comments asserted the need for certain Part 97 Service rules, especially relative to the need for mode sub-bands within the proposed 5 MHz allocation. ARRL has addressed those issues in its Comments filed in this proceeding July 29, 2002, and will not reiterate those points herein.

2. The second group consists of approximately 8 comments¹ of representatives of the power utility industry. These comments object to the Commission's proposal to allocate the 135.7-137.8 kHz band to the Amateur Service. Those comments are rife with mistaken assumptions and outright misrepresentations about the interference potential to unlicensed, unprotected Power Line Carrier (PLC) systems in the band.

3. The remainder of the comments include two which address the effect of the proposed 5 MHz amateur HF allocation on Part 15 devices² and one which is concerned about the effect on Part 15 devices of the Amateur allocation upgrade from secondary to

¹ See, the comments of the United Telecom Council (UTC); Public Service Electric and Gas Company (PSEGC); Pinnacle West Capital Corporation (PWCC); Oncor Electric Energy Delivery Company (OEEDC); New York Independent System Operator, Inc. (NYISO); IEEE/Power System Relaying Committee (IEEE/PSRC); and Central Iowa Power Cooperative (CIPC); and Energy Corporation (EC).

² See, the comments of the Homeplug Powerline Alliance (HPA) and of the Power Line Communications Association (PLCA).

primary in the 2400-2402 MHz band.³ None of these comments offers a compelling reason for the Commission to depart from its proposed allocation proposal contained in the Notice. The non-Amateur comments in this proceeding have two characteristics in common, however, regardless of the frequency band at issue. First, they each attempt to assert protected status for unlicensed RF devices regulated by Part 15 rules, as against a licensed radiocommunication service. Second, not one of these comments (notably including those filed by representatives of IEEE Committees) offers any technical support for the concerns raised. Especially with respect to the 135 and 160 kHz allocation proposals, ARRL submitted extensive technical interference studies, which were un rebutted. The comments in this proceeding in opposition to the Notice proposals are devoid of such studies, and as such the Commission should disregard them outright. ARRL urges the Commission to stop listening to the marketers and make technical judgments about interference and RF compatibility on the basis of technical evidence. It is on those criteria alone that these allocation proposals should be debated.

II. The 135.7-137.8 kHz and 160-190 kHz Bands

4. The Commission proposes to allocate the 135.7-137.8 kHz segment (herein referred to as the 135 kHz band) to the Amateur Service on a secondary basis with operating parameters selected so as to avoid interference to incumbent licensees and unlicensed PLC systems which operate in bands up to 490 kHz. Opponents, representatives of the utility industry, however, suggest that the interference potential is substantial. Of the eight oppositions to the allocation, UTC's comments are typical. UTC, with nary a paragraph of engineering evidence, claims that if the 135 kHz allocation is

³ See, the comments of the IEEE Local and Metropolitan Area Network Standards Committee.

made, the “interests” of UTC’s electric utility members would be “directly and adversely” affected by “widespread” Amateur operations “that would likely” interfere with “nearby” co- and “adjacent-channel” PLC system operations. UTC claims that PLC systems are components of “homeland security” and therefore it cannot disclose any detail about PLC operation in the proposed Amateur 135 kHz band (which will be 2.1 kHz wide). So, the Commission is asked to simply take UTC’s word for the fact that there would be interference in this segment. UTC claims that the allocation proposed in this proceeding would “open the floodgates to unrestricted Amateur operations”. It claims that though EIRP, bandwidth and operating power are proposed to be limited, “these technical rules would not reduce the potential for interference at all unless limits on antenna size and design were imposed as well.”

5. So, to recap, UTC believes, without providing any evidentiary support, that Amateur experimentation in this 2.1 kHz segment would be “widespread”. It does not inform us why it believes that these “widespread” Amateur operations would “likely interfere” with PLC systems, or how “nearby” they must be in order to interfere. ARRL has shown that, in order for any interference to occur, using extremely conservative assumptions regarding ground loss and Amateur antenna height, the required distance separation between Amateur stations and PLC-carrying power lines is between 120 feet and 980 feet, depending on the voltage of the power line. This is simply not going to occur in the real world, because interference to Amateur receivers at those distances

would preclude Amateur operation in the band.⁴ Therefore, the likelihood of interference is actually extremely low or nonexistent. Furthermore, occupancy of this band by radio amateurs is certainly not, in the near term, going to be “widespread”.

6. As to UTC’s claim that PLCs would be interfered with on not only a co-channel, but also an adjacent channel basis, PLCs are Part 15 devices which have no co-channel interference protection, much less adjacent-channel protection. There is no indication anywhere in the record in this proceeding that adjacent-channel interference to PLCs is even possible, much less likely, and even if it were, that is simply not a regulatory consideration. UTC, in asserting (incorrectly) a sensitivity of PLCs to interference, fails to take into account the fact that these systems were, until recently, forced to operate in the presence of Air Force GWEN transmitters operated at more than 2000 Watts ERP at numerous locations. UTC suggests that, because PLCs operate on 4 kHz bandwidth channels, a 2 kHz allocation for the Amateur Service would “impact systems as low as 131.7 kHz and as high as 141.8 kHz.” However, UTC offers no analysis beyond that bare assertion of the interference potential to a 10 kHz segment. Nor does UTC offer any rebuttal to the showing of a miniscule interference range provided in ARRL’s technical studies. Considering in any case that PLCs can operate on bands below 490 kHz (See, U.S. Footnote 294, 47 C.F.R. §2.106), avoidance of a 2.1 kHz segment at 135 kHz by an unlicensed device is not much of a constraint.

⁴ The Amateur Service will receive interference from PLC systems at far longer ranges than PLC systems would be able to receive Amateur signals. The PLC typically needs a received signal of -30dBm to overcome all expected levels of atmospheric noise. However, an Amateur receiver may, on quiet days, be able to receive transmitted signals at the receiver threshold of -120 dBm. As the result, the PLC radiation would make a channel unusable to an Amateur miles distant from the Amateur station, while any interference potential to a PLC receiver from an Amateur station would be at a few hundred feet, if any existed at all.

7. UTC's statement that this allocation would open the "floodgates" to "unrestricted" Amateur operation is obviously untrue. The proposed restrictions on Amateur operation, 100 Watts transmitter output power and 1 Watt EIRP are, in fact, far too conservative. The most telling of UTC's arguments is that the proposed EIRP and power output proposed in the Notice are not sufficient without limits on "antenna size and design."⁵ UTC apparently does not realize that EIRP limits take into account antenna gain and efficiency. Any regulation of Amateur antenna systems in terms of their "design or placement" (which could only affect antenna efficiency) beyond an EIRP limit is surplusage.⁶ Other technical errors in UTC's comments include a citation to ARRL's original Petition for Rule Making regarding the 135 and 160 kHz allocations regarding emissions that Amateurs would utilize in these bands, including "telegraphy, RTTY, data, SSB telephony" and image emissions. This concerns UTC because, it asserts, data emissions are not capable of listen-before-transmit (LBT) protocols. That is nonsense. Data communications protocols are most certainly capable of LBT. More to the point, however, the bandwidth of the 2.1 kHz available at 135 kHz is too narrow for any emission other than telegraphy and slow-speed data communications. The wider bandwidth emissions would be possible only if the Commission also allocated the 160-

⁵ This is a recurring theme in the comments. Somehow, the utilities share a misconception regarding the concept of EIRP, and suggest that some unspecified antenna design limitations would, in addition to EIRP limits, assist in interference avoidance. Equivalent Isotropically Radiated Power, as defined at 47 C.F.R. §2.1(c) is the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

⁶ IEEE/PSRC makes vague references to Amateur signals coupling RF energy with power lines. It suggests that, absent antenna restrictions, Amateurs could use antennas over 100 miles long, and asks for a limitation on antenna length of $\frac{1}{4}$ wavelength. There is no support for this requested restriction, which would largely negate the benefits of this allocation to the Amateur Service. IEEE/PSRC should have submitted some calculations showing that this restriction is necessary for interference avoidance. It did not do so. The ARRL has done a complete analysis of the potential of interference from an Amateur station to a PLC system. The analysis method was the most conservative of three analysis methods approved by representatives of UTC and published by NTIA. See, *NTIA, Evaluation Techniques – Fixed Service Systems*

190 kHz band to the Amateur Service as well as 135 kHz. ARRL reiterates that the 160-190 kHz allocation should be made as well as the 135 kHz allocation in this proceeding.

8. As to the “homeland security” issue that UTC raises (to the effect that interference to PLC systems would jeopardize the power grid in the United States), the concept is difficult to understand. If PLC systems are as subject to disruption as UTC claims, and at the same time as critical to the power delivery infrastructure, why would they be operated on an unlicensed, unprotected basis? Why would they be configured such that over-the-air signals of 2 watts EIRP would jeopardize the integrity of power distribution? The simple answer is that they are not as fragile as UTC would have the Commission believe. ARRL established such in its Petition, and in subsequent submissions to the Commission since then.

9. UTC next suggests that Amateurs should not have access to the PLC database which UTC maintains. UTC asserts that it is not clear that Amateurs would make “effective use of the data” because, first, Amateurs “do not have experience coordinating with other users” and second, Amateurs would not know where the electric transmission lines that carry the signal to the receivers are located. Frankly, ARRL does not care whether or not the UTC database is disclosed to Amateurs. The coordination suggestion by the Commission is well-taken, and ARRL would be pleased to coordinate LF Amateur operation to the extent that the Commission believes it necessary. Coordination in this context, however, inures to the benefit of unprotected PLC operations, not Amateur Radio, which are not proposed to displace PLC systems. Coordination is in any case not critical to interference avoidance. ARRL’s position, bolstered by its technical studies, is

to Power-Line-Carrier Circuits, NTIA Report 85-181, September 1985. IEEE offers nothing that would invalidate those calculations.

that PLC systems will not be interfered with unless an Amateur station is within several hundred feet of power lines carrying PLC signals, in which case that Amateur station will not be able to receive LF signals due to received interference and will not operate in that environment. The problem therefore will never exist. ARRL takes strong exception, however, to the unsupported assertion that Amateurs do not have experience coordinating with other users. Amateurs have successfully coordinated operations in numerous bands for years with fixed and mobile users in other services, and as well with government services. The disparaging remark of UTC reflects either ignorance or misrepresentation.

10. UTC offers what it terms “quasi-coordination” instead, whereby Amateurs would be required to submit data to UTC about proposed Amateur operations, and UTC would then notify utilities. This supposedly would be “in accordance with U.S. Footnote 294 of the table of Allocations.” However, the proposal stands the entire concept of frequency allocations on its head. UTC’s concept places the allocated, licensed service in the posture of having to configure its operations on a case-by-case basis to suit an unlicensed, unprotected RF user. Furthermore, based on the comments of UTC and the other PLC entities in this proceeding, it is unclear whether a technical determination can or would be fairly made in a given case, under the unilateral coordination procedure proposed by UTC.

11. UTC, in the last analysis, should be required to review the Footnote, US 294, that it cites at page 9 of its comments. Therein, it is readily apparent that PLC systems operate below 490 kHz “on an unprotected and noninterference basis with respect to authorized radio users.” Further, the Footnote specifically states that it “does not provide any allocation status to PLC radio frequency users.” The Footnote does call for users to

minimize potential interference to the degree practicable. ARRL's petition, which would limit transmitter power to 200 Watts PEP output and EIRP to 2 Watts, would accomplish exactly that. UTC and the other representatives of power utilities are entitled to nothing more, nor is any additional protection necessary at all. Furthermore, Section 15.113 of the Commission's rules requires that PLC users configure PLC operating parameters, including the operating frequency, "to achieve the highest practical degree of compatibility with authorized or licensed users of the radio spectrum." What the comments in the instant proceeding reveal is that PLC users believe that authorized or licensed users of the radio spectrum must configure their systems to achieve the highest practical degree of compatibility with PLCs (exactly the opposite of the regulatory condition of operation). ARRL suggests that the situation is not as UTC would have the Commission believe; that the use of the LF bands does not have to be as inefficient as UTC suggests; and that, while the utilities understandably would wish that they had exclusive use of the LF bands below 490 kHz, their systems are in fact configured such that interaction with licensed, over-the-air users at 135 kHz is quite unlikely.

12. As stated above, UTC's comments are essentially representative of the arguments of the other seven utility representatives in this proceeding. Indeed, it is likely that the remaining comments were filed by UTC members, given their similarity to those of UTC. However, in addition, PSEGC asserts that Amateur operations are unpredictable and uncoordinated, and that "even under the best of circumstances, interference from Amateur operations would be difficult, if not impossible, to avoid or to locate." This again reflects serious misunderstanding of Amateur operations. There is *nothing* difficult about locating the source of an Amateur LF signal. While this would not be necessary,

because interference potential is virtually nonexistent, as ARRL has shown, the alarmist statements of PSEGC do not indicate that the PLC users are in compliance with Section 15.113. PSEGC states concerns about unplanned “trips” of a transmission line, and other consequences of RF interference, but provides nothing which indicates that such an event is likely under the technical parameters proposed either by ARRL in its Petition, or in the Commission’s Notice proposal. Finally, PSEGC states that if the allocation proposal is adopted, it will be required to retune its PLC systems, or to use a different form of communication service, the cost of which would be borne by ratepayers. We are not told, however, how many transmitters PSEGC has in this 2.1 kHz-wide band, or what the retuning costs would be per transmitter. Not even an estimate is provided. ARRL suggests that no retuning would be required in order to protect PLC system integrity. However, if PSEGC contends that it has failed to configure its system to promote compatibility with even the minimum operating parameters of an Amateur station as proposed, (which places PSEGC squarely in violation of Section 15.113), then it is at least incumbent on PSEGC to provide some estimate of the cost. Instead, it has made a vague claim, impossible of rebuttal, which it apparently cannot back up.

13. PWCC’s comments add to UTC only the suggestion that the Commission should, if it makes the 135 kHz allocation to the Amateur Service, create a secondary allocation for PLCs as well. PWCC’s suggestion for an allocation for these systems is rather novel, and ARRL takes no position in this proceeding with respect to it. However, should that be done, all such PLC systems would have to be licensed, and their operating parameters specified, which seems at variance with the security concerns claimed by the other utility commenters. Such a proposal is, however, exactly consistent with an entity

which demands interference protection for its RF devices, and points up the flaw in the reasoning of the remaining utilities in this proceeding: they have chosen a medium which enjoys the flexibility of unlicensed operation, but no protection from interference. They want both, but without the obligations inherent in licensed operation. Section 301 of the Communications Act does not permit such. There is, by definition, no interference protection available for unlicensed devices. That is available only for allocated radiocommunication services.

14. Each of the comments filed by utility representatives raises the specter of interference, and suggests the difficulties that such would cause, but nothing at all about the interference potential. As another example, NYISO, which claims to have seven PLCs in the State of New York that operate in the 135 kHz range, states that “allocation of this band to Amateur Radio Service introduces the *potential for interference* with PLC operation, which *could result* in the unnecessary tripping of transmission lines when there is no fault, or the failure to trip when there is a fault. In either case, this *could result* in unnecessary disruptions in electric power service” (emphasis added). ARRL cannot substantively respond to these vague claims, other than (1) to note that ARRL’s interference studies, filed in the Petition stage of this proceeding, show them to be baseless, and (2) to suggest that if interference potential is that critical, and the interference susceptibility of PLCs is an acute issue, they should not be operated as Part 15 devices; and (3) if they are, they are not in compliance with Section 15.113 of the Commission’s rules.

15. The comments of IEEE/PSWC, other than as discussed above, maintain that the proposed allocation should not be made, but admit that “(r)equirements in the NPRM

for amateur licensing in the 135.7-137.8 kHz band indicating the power level, antenna EIRP, and bandwidth will minimize the risk of interference.” That should end the matter. However, IEEE/PSWC asks for other concessions, such as inclusion of LF operation questions on Amateur examinations. At such time as the allocation is made, ARRL, as a principal contributor to the question pools for Amateur Radio examinations, can assure IEEE/PSWC that questions concerning relevant operating privileges will be placed in the examination pools. IEEE/PSWC claims, based on comments filed in the proceeding, that there is little Amateur interest in this allocation, and that use of experimental licenses would be a preferred means of accommodating Amateur experimentation. It is suggested that individual experimental licensing of radio Amateurs is not at all an efficient use of Commission resources in this application, and that ARRL has noted extensive Amateur interest in LF operation among its members. IEEE/PSWC is simply incorrect. There is currently no Amateur LF allocation, and this proceeding is long overdue. There were only eight comments filed in this proceeding by utilities. Using the same logic applied by IEEE/PSWC, ARRL would suggest that there is very little opposition from the power utility industry to the Commission’s proposal.

16. In summary, ARRL is unwilling to merely accept, without technical support, the bare allegation that there may be interference to the relatively few unlicensed, unprotected PLCs that are operational in the proposed 2.1 kHz segment, or for that matter in the 160-190 kHz band. The mystery surrounding the operational parameters of these systems claimed to be necessary for security purposes makes any technical response to non-technical interference assertions impossible. If the utilities claim that interference susceptibility of their systems is high, it is incumbent on them to explain how they could

have been operating in the same environment as the GWEN system formerly employed by the Air Force, and why such an important function is dependent on the absence of nearby RF sources on the same or adjacent frequencies. Finally, it is incumbent on the utilities to explain how it is that they are in compliance with the requirement of Section 15.113 of the Commission's rules, which compels them to design PLCs so as to "*achieve the highest practical degree of compatibility with authorized or licensed users of the radio spectrum.*" With respect to this requirement in particular, the comments of the utility industry indicate a failure of compliance.

III. The 5250-5400 kHz Band

17. As ARRL asserted in its Comments in this proceeding, the proposed allocation of the 5250-5400 kHz band is, by contrast to the low-frequency allocation issue, essentially uncontested. There is extensive support in the comments filed by Amateurs for this allocation. ARRL's review of the ECFS, however, reveals two comments filed by non-Amateur entities concerning this HF allocation proposal.

18. The HomePlug Powerline Alliance (HPPA) submitted brief comments stating that it does not oppose the Amateur allocation at 5 MHz. However, it requests that "home consumer equipment meeting Part 15 standards be permitted to continue to be sold and used in the United States free from Amateur Radio user complaint for a period of ten years after re-allocation of this spectrum to the Amateur Radio Service." HPPA asserts that it is an industry organization of some 65 companies that make consumer products which communicate using home electric wiring. As such, they are unintentional radiator devices operating pursuant to Section 15.109 of the Commission's Rules, in the 4 to 21

MHz range. HomePlug devices have in the past caused significant interference to Amateur Radio stations, and HPPA states that since that time, it has notched out existing Amateur Radio bands between 4 and 21 MHz in order to reduce interference potential from its products. HPPA states that there are existing products that operate in the 5 MHz range, and asks for a presumption that its devices do not cause interference to Amateur stations and that they not have to cease operation if interference is alleged.

19. This is an absurd request. HPPA asks, essentially, that its RF devices be elevated to protected status, and that they be exempt from the non-interference requirement applicable to all Part 15 unlicensed devices contained in Section 15.5 of the Commission's Rules. It also, presumably, is asking that it be exempt from the labelling requirement for Part 15 devices required by Section 15.19, which warn consumers of their obligation to not cause interference to licensed radio services. The design of RF devices which operate in the High Frequency (HF) range is questionable under any circumstances. HPPA is attempting here to elevate the status of its consumer RF devices to a protected status that is not available to any Part 15 devices. HPPA is not entitled, by virtue of its choice of operating frequencies for its unlicensed devices, to dictate spectrum allocation policy for licensed services. That is the tail wagging the dog.

20. HPPA claims that radio Amateurs are frequency-agile. This is of course true. But licensed radio services are not obligated to avoid interference from unlicensed Part 15 devices by changing frequency. The most fundamental condition of unlicensed operation is that the devices not cause interference to licensed radiocommunication services. ARRL strenuously objects to HPPA's request and urges the Commission to disregard it entirely. HPPA also falsely claims that Amateur use of the 5 MHz band will

have to be "ramped up" over a period of years, and that equipment will have to be redesigned and marketed. Not so. Virtually all amateur equipment is simply modified to permit immediate operation on 5 MHz, and the band will be used immediately upon making the allocation. Antennas for the new band are as simply made as cutting wire dipoles, which can be prepared and installed in an hour's time. HPPA full well knows this, but has represented otherwise to the Commission. There will be no delay in the use of this allocation by Amateurs when the Commission's Report and Order in this proceeding becomes final.

21. The other non-Amateur comments in this proceeding relative to 5 MHz were filed by the Power Line Communications Association (PLCA). These comments suggest that the Amateur allocation at 5 MHz should not be made at all, because PLCs use the high frequency bands, including 5 MHz, and therefore it would be "premature and ill-advised" to make any HF allocations until the Commission completes review of carrier current system rules. This argument is even worse than that of HPPA. PLCA, which is made up of utilities, was not even formed until the end of last year, and it plans some future unlicensed Part 15 use of power lines in the HF range for broadband service. PLCA states that there are "trials" of HF PLC operation, and that this somehow should dictate allocation decisionmaking regarding licensed services operating at HF. PLCA does not deny that it could notch out any given HF bands, but claims it doesn't want to, because cumulatively, this would disrupt its deployment of Part 15 PLC devices in the HF bands. This entire proposal turns the spectrum allocation procedure on its ear. *No Part 15 device manufacturer is entitled to oppose an allocation to a licensed radio service based on future deployment of an unlicensed device, period.* PLCA's comments

offer no valid justification for delaying this allocation whatsoever. They should be disregarded, and the Amateur allocation made immediately.

IV. The 2400-2402 MHz Band

22. The Notice proposes to upgrade the allocation status of the Amateur Service at 2400-2402 MHz from secondary to primary and to create a primary allocation there for the Amateur-Satellite Service, which is now permitted to operate in that segment by footnote. This takes into account the fact that the segment is a part of the spectrum reserve for future applications established in the *Spectrum Policy Statement*, 14 FCC Rcd. 19868 (1999). There was only one comment in opposition to this allocation. This was filed by the IEEE Local and Metropolitan Area Network Standards Committee (LMANSC). This objection is logically flawed, and further is based on a false premise.

23. LMANSC attributes to ARRL a position that ARRL has never taken: it claims that ARRL argued that Part 15 devices which "might possibly" cause interference to licensed radio services cannot be authorized by the Commission. From this false premise, LMANSC concludes that, should the subject allocation be made, ARRL would assert at a later date that Part 15 devices now deployed in the 2400-2402 MHz segment should be restricted or precluded. It claims that this segment is critical to Part 15 device deployment and that the Commission should not remove the band from the Spectrum

Reserve and allocate it to the Amateur Service.⁷

24. LMANSC is entitled to speculate as wildly as it wishes, but it is not entitled to misrepresent ARRL's arguments. ARRL never, at any time, took the position that LMANSC attributes to it. ARRL has taken, and does take the position that the Commission must license any devices which have a significant interference potential to licensed radio services, based on a straightforward interpretation of Section 301 of the Communications Act. That, however, is not relevant to this proceeding at all. What *is* relevant is that the Amateur Service already has a secondary allocation in the 2400-2402 MHz band. This proceeding, therefore, has absolutely no effect on Part 15 devices, except to add the Amateur-Satellite Service, which is allocated by Footnote, as a primary user. Whether Amateur stations are primary or secondary relative to other licensed services in this band is irrelevant to the posture of Part 15 unlicensed devices. As ARRL's comments noted, the band 2400-2450 MHz is seriously compromised in terms of Amateur use by virtue of the explosive increase in noise from unlicensed devices. However the problem is less pronounced at the lower end of the band. As such, the Amateur-Satellite service in particular can continue to make use of the band. ARRL understands the Commission's admonition that this allocation will not result in *removal* of Part 15 devices from this segment. This does not, however, mean that the conditions of

⁷ Actually, LMANSC's position is difficult to understand. It concedes at paragraph 11 of its comments that "unlicensed Part 15 operations and amateur operations have, as the Commission recognizes, successfully coexisted in the subject band for many years." In the next paragraph, it asserts, in response to the Commission's question "whether the proposed primary Amateur Radio Service and Amateur Satellite Service allocations would conflict with unlicensed use of the band, our view is that there need not be a conflict in a purely technical sense, but conflicts of a more fundamentally political nature may, in fact, arise in the future..." What is LMANSC's point? Amateur and Amateur Satellite Services have occupied this band for years. What will change in the relationship with unlicensed services? The Commission's question is not relevant to this proceeding in light of the present allocation status of the band, and LMANSC's comments contain no consistent argument.

operation of Part 15 devices in this or any other band allocated to the Amateur Service have changed. ARRL does not request that Part 15 devices be removed from this band, but it does expect, as is the case today, that Part 15 devices are not entitled to cause interference to licensed services, including the Amateur Service, and they must suffer any interference received.

25. For that reason, the suggestion of LMANSC that Amateur-Satellite Service stations be limited to downlink only is not well-taken. Once again, the Commission cannot make allocation decisions based on unsupported allegations of future development of unlicensed RF devices. Furthermore, that restriction does not exist now. Third, it would have no effect at all on the aggregate interference potential of RF devices to sensitive Amateur receivers used for terrestrial operation. Fourth, it fails to recognize existing and future Amateur Satellite operation in this band, which is explained in detail in the comments filed in this proceeding by the Radio Amateur Satellite Corporation (AMSAT). No restriction on Amateur operation is proper in this instance, and the Commission is reminded that this band was reallocated from Federal government use with the specific Congressional caveat that Amateur operations not be unnecessarily disrupted.

26. The final conceptual error of LMANSC is its rather absurd suggestion that Part 15 devices should have a "safe harbor" of operation in this band, in which such devices would not be deemed to cause interference to licensed services, and that the "secondary status" of Part 15 devices relative to the Amateur Services should be so modified. Part 15 devices are not "secondary" to the Amateur service. Those devices have *no* allocation status at all. The Amateur Service is a licensed radio service which now has

allocation status in the 2400-2402 MHz band. Part 15 devices operate there *without any* allocation status. Part 15 devices cannot continue to operate (on an individual device basis) where interference is caused by that device to any licensed station, by rule. The change in the allocation status of the Amateur Service or Amateur-Satellite Service from secondary to primary can therefore have no effect on the unlicensed use of the band, because the root obligation of unlicensed Part 15 devices to both accept and not cause any interference does not change. LMANSC's argument is conceptually meritless and must be denied.

V. Conclusions

26. The three allocation proposals in this proceeding should be implemented immediately. The Commission cannot make allocation decisions based on non-technical assertions of Part 15 users or user groups, or manufacturers of such devices. The Commission has adequately addressed the concerns of unlicensed Part 15 operations in the Notice in this proceeding, and is now obligated to disregard those spurious suggestions which are, in every case, intended to allow Part 15 device users to disregard the fundamental conditions of operation of such devices. The Amateur Service is indeed flexible, but it cannot survive the constraints that would be imposed if unlicensed devices are not required to accept interference from licensed services, or in they are not required to cease operation if interference is caused to licensed services. Allocation decisionmaking should be a simple matter where the technical arguments of unlicensed device proponents are unsupported. ARRL contends that compatibility between Amateur uses in the subject bands and those of incumbents is not a substantial concern in any of the three cases.

Therefore, the foregoing considered, ARRL, the National Association for Amateur Radio, respectfully requests that the Commission implement the allocations as proposed in the Notice, with the operating parameters and service rules as discussed in the ARRL's comments filed earlier in this proceeding.

Respectfully submitted,

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