Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Request by Progeny LMS, LLC for Waiver of	)	
Certain Multilateration Location and	)	
Monitoring Service Rules	)	WT Docket No. 11-49
	)	
Progeny LMS, LLC Demonstration of	)	
Compliance with Section 90.353(d) of the	)	
Commission's Rules	)	

PETITION FOR RECONSIDERATION OF THE PART 15 COALITION

THE PART 15 COALITION

Henry Goldberg
Laura Stefani
Goldberg, Godles, Wiener & Wright LLP
1229 Nineteenth Street, N.W.
Washington, DC 20036
(202) 429-4900
Its Attorneys

July 8, 2013

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The FCC decision allowing Progeny to commence commercial operations represents an abandonment of the prior Commission policy, established in the mid-1990s, of seeking to balance the interests of unlicensed users and M-LMS licensees in the 902-928 MHz band. It ignores the investments made, with unprecedented success, by many companies and consumers in reliance on the regulatory regime existing prior to the adoption of the Order, which is surprising given the Commission's recent re-emphasis on the importance of unlicensed spectrum.[1] Thus, contrary to the Commission's "straw man fallacy," while the Coalition does not seek to have unlicensed use elevated to co-equal status with M-LMS, it does seek reconsideration of the Progeny order so that the rules the FCC adopted in 1995 to protect unlicensed users from unacceptable interference are properly applied.[2]

With undue haste and without adequate notice and comment, the Commission has adopted a new regulatory regime for M-LMS licensees. The Commission now has determined that the Section 90.353(d) license conditions may be met by examining the technical merits of a licensee's system and the "overall effect" on the band, as opposed to what is required by the rule – engaging in joint field tests cooperatively with Part 15 users to determine the actual effects that an M-LMS system imposes on such users. This new regulatory scheme directly conflicts with FCC precedent, violates the notice and comment requirements of the Administrative Procedure Act, and transfers the burden from M-LMS licensees to unlicensed users, who, contrary to their reasonable expectation that the Commission would follow its own rules, now must redesign their systems or suffer unacceptable levels of interference to accommodate Progeny's high –powered operations.

The Commission additionally erred by failing to provide a clear and objective definition of "unacceptable levels of interference," instead tying the standard to the Commission's general rule for unlicensed devices.

---

[1] *See* Comments of the Part 15 Coalition, WT Docket No. 11-49, at 3 (filed Dec. 21, 2012).

[2] "The Straw Man fallacy is committed when a person simply ignores a person's actual position and substitutes a distorted, exaggerated or misrepresented version of that position." *See* http://www.nizkor.org/features/fallacies/straw-man.html

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Request by Progeny LMS, LLC for Waiver of	)	
Certain Multilateration Location and	)	
Monitoring Service Rules	)	WT Docket No. 11-49
	)	
Progeny LMS, LLC Demonstration of	)	
Compliance with Section 90.353(d) of the	)	
Commission's Rules	)	

PETITION FOR RECONSIDERATION OF THE PART 15 COALITION

Pursuant to 47 C.F.R. § 1.106, the Part 15 Coalition ("Coalition"), through counsel, submits this petition for reconsideration of the Federal Communications Commission ("Commission" or "FCC") order allowing Progeny LMS, LLC ("Progeny") to begin commercial service ("Order").[3]

In that Order, the Commission determined that Progeny had met the conditions of its license by demonstrating that it will not cause "unacceptable levels of interference" to unlicensed users in the 902-928 MHz band. The Commission rejected concerns by the Coalition and many other parties that the limited field tests Progeny conducted in cooperation with some members of the Coalition showed that the Progeny system causes unacceptable interference and cannot successfully co-exist with many unlicensed users. In doing so, the Commission improperly crafted a new standard for multilateration location and monitoring service ("M-LMS") licensees, one that changes Section 90.353(d) without legally-required notice and comment. Additionally, the Commission failed to articulate a clear and objective definition of "unacceptable levels of

[3] *In the Matter of Request by Progeny LMS, LLC for Waiver of Certain Multilateration Location and Monitoring Service Rules; Progeny LMS, LLC Demonstration of Compliance with Section 90.353(d) of the Commission's Rules*, Order, WT Docket No. 11-49 (rel. June 6, 2013) ("Order").

interference," and erred in concluding that the Progeny system be allowed to operate as is.

Accordingly, the Commission should reconsider its order allowing Progeny to commence commercial operations of its system, pending additional testing, and follow an objective definition of "unacceptable levels of interference."

I. BACKGROUND

The Order in this proceeding is the culmination of nearly twenty years of efforts by the Commission to attempt to fit a high-power M-LMS service in a band heavily occupied by low-power unlicensed users. The Commission's "solution" now is to abandon its prior policy that created balance between M-LMS interests and unlicensed interests and simply – and unlawfully when discussing the 902-928 MHz band – implement the requirement that Part 15 users must accept interference from licensed services irrespective of the additional protection existing in the Commission's rule.

A. The Coalition and Unlicensed Use of 902-928 MHz Band.

The Part 15 Coalition ("Coalition") is composed of entities that manufacture, use, and/or represent users of unlicensed devices that operate in the 902-928 MHz band.[4] The Coalition's supporters include those who represent the public interest as well as licensed various users of the band impacted by Progeny.

As the Coalition has established in this proceeding, unlicensed use of this band is vital to our national critical infrastructure.[5] Hundreds of millions of 902-928 MHz unlicensed devices are used in numerous critical infrastructure operations on which the safety of the public depends, such as energy production and delivery, industrial, commercial and home security systems, and water, gas and electric utility systems, and

[4] *See* Part 15 Coalition Members and Ssupporters, attached.

[5] *See* Letter from Laura Stefani, Counsel to the Part 15 Coalition, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at 3-4 (filed March 30, 2013); Comments of the Utilities Telecom Council, WT Docket No. 11-49, at 1 and 2 (filed Dec. 21, 2012).

RFID tags.[6] When a storm hits and the electric grid goes out, when a panic alarm button is pressed, or when a gas leak occurs, 902-928 MHz critical infrastructure entities work side-by-side with public safety in responding to these emergencies. Additional unlicensed uses include technologies that better the daily lives of many Americans, such as broadband access, wireless headphones, devices for the hearing impaired, emergency alert devices for people at risk, and medical devices.

B. The 902-928 MHz Band Plan and the M-LMS License Condition.

As the Commission notes,[7] unlicensed operations in this band were well-established when the M-LMS was created, and for this reason the Commission adopted special provisions to promote a balance of interests and co-existence between unlicensed users and the new M-LMS licensees, protection designed to "provide certainty to all users of the band."[8] Specifically, the Commission designed a band plan that "continues to permit secondary operations by unlicensed Part 15 [ ] across the entire band, but affords users in these services a greater degree of protection to their operations."[9]

To this end, to ensure that co-existence "is as successful as possible" and "to identify whether further refinements in our rules are necessary," the Commission adopted a rule and further required as a condition of their licenses that M-LMS licensees "demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to Part 15 devices."[10] It further explained that "[t]o provide such protection and to facilitate band sharing and minimize interference to Part 15 operations" a licensee may make refinements to its system.[11] While the Commission refrained from setting specific test requirements, it did state that the purpose of field

---

[6] Letter from Laura Stefani, Counsel for the Part 15 Coalition, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (filed May 1, 2013) ("Coalition May 1 Ex Parte").
[7] Order at ¶ 8.
[8] *In the matter of Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems*, Order, 10 FCC Rcd 4695, 4695 (1995) ("M-LMS R&O").
[9] M-LMS R&O at 4701.
[10] *Id*. at 4737.
[11] *Id*.

testing was to ensure "that LMS systems are not operated in such a manner as to degrade, obstruct, or interrupt Part 15 devices to such an extent that Part 15 operations will be negatively affected."[12] It explained, moreover, that testing should be a cooperative effort among the parties.[13] More recently, the Commission explained that its goal was to "avoid any significant increase in interference to unlicensed users in the [902-928 MHz] band."[14]

Thus, the Commission squarely imposed two requirements on M-LMS licensees as a condition of their licenses: 1) to engage in cooperative field testing; and 2) to demonstrate through these tests that they do not cause "unacceptable levels of interference" to unlicensed users.[15] Yet, it has not held Progeny to either requirement.

C. The Progeny System and Waiver.

On December 20, 2011, the FCC granted Progeny waiver of two M-LMS rules to allow Progeny to deploy its M-LMS system.[16] The waiver eliminated some of the M-LMS construction requirements.[17] Additionally, the waiver allowed Progeny to perform location services on a co-equal basis as, rather than incidental to, vehicle location services.[18] This allowed Progeny to offer indoor location services, such as its planned mobile advertising and E911 location services. Consistent with Section 90.353(d), the Progeny Waiver reiterated the M-LMS field testing requirements, noting

---

[12] *In the Matter of Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems*, Order on Reconsideration, 11 FCC Rcd 16905, 16912 (1996) ("M-LMS Reconsideration Order").
[13] M-LMS R&O at ¶ 82 ("It is our expectation that such testing be accomplished through close cooperation between multilateration systems users and operators of Part 15 systems.").
[14] *In the Matter of Request by Progeny LMS, LLC for Waiver of Certain Multilateration Location and Monitoring Service Rules*, Order, 26 FCC Rcd 16878 at ¶ 6 (2011) ("Progeny Waiver").
[15] Unlike some FCC license conditions, these were incorporated into the service rules. 47 C.F.R. § 90.353(d).
[16] Progeny Waiver.
[17] *Id*.
[18] *Id*.

"[i]f, however, significant interference concerns are raised, we will determine what additional steps may be appropriate."[19]

D. Joint Testing, Test Results and Requests for Additional Testing.

Notwithstanding the Commission's direction that field testing take place in cooperation with Part 15 interests, Progeny conducted unilateral tests of a small number of devices, and submitted its report of the unilateral testing as its only showing that it had complied with Section 90.353(d). A number of interested parties submitted detailed filings indicating the many flaws in this unilateral testing, such as not testing a representative sample of devices and testing devices in ways that did not represent "real world" environments.[20] The parties also explained that the testing was inadequate to show, with any statistical significance, the impact of Progeny's system.[21]

Upon the request of Commission staff, in the summer of 2012, Itron, WISPA, and Landis+Gyr each conducted cooperative testing with Progeny to determine the effects of the Progeny system on certain devices. There was no public notice of this testing, so other interested parties did not have the opportunity to request that the Commission require Progeny to test against their systems. Results of this testing were filed with the Commission on October 31, 2012,[22] and the Commission subsequently issued a Public Notice seeking comment on the test results.[23]

---

[19] Progeny Waiver at ¶ 29; s*ee also* 47 C.F.R. § 90.353(d). The Coalition is baffled by the Commission's several statements that the Progeny Waiver created "a transparent *process* for ensuring that Progeny meets the Commission's field testing requirement," Order at ¶ ¶ 5 and 13 (emphasis added), as it sees nothing in the Order regarding a test process.

[20] *See* RKF Engineering Analysis of Progeny Part 15 Test Report, WT Docket No. 11-49 (filed March 15, 2012 as an attachment to Itron Comments) ("RKF Analysis"). For example, some devices designed for outdoor use were tested indoors, and some devices were not set up or operated properly by the test firm.

[21] *Id*.

[22] *In the Matter of Request by Progeny LMS, LLC for Waiver of Certain Multilateration Location and Monitoring Service Rules*, Joint Itron-Progeny Testing, WT Docket No. 11-49 (filed Oct. 31, 2012) ("*Itron Test Report*"); *In the Matter of Request by Progeny LMS, LLC for Waiver of Certain Multilateration Location and Monitoring Service Rules*, Joint Landis+Gyr-Progeny Testing, WT Docket No. 11-49 (filed Oct. 31, 2012) ("*L+G Test Report*"); *In the Matter of Request by Progeny*

Test results showed that when Progeny uses multiple beacons, as is the case in the San Jose area and must be the case in any Progeny market, the Progeny system has an effective "duty cycle" of at least 80%. That is, due to Progeny's deterministic, synchronized duty cycle, beacons occupy the spectrum to be used by Progeny in its spectrum 80% of the time. Moreover, because Progeny operates at a much higher power (30 W ERP), versus 0.001-4 W EIRP for unlicensed devices, Progeny's signal will block the transmissions from unlicensed devices. As a result, the test results show that, for single-channel and frequency hopping devices, the portion of spectrum occupied by Progeny is not available for unlicensed use at least 80% of the time.[24]

Additionally, testing showed that wireless broadband devices were able to operate without significant impairment in service on only one of the three broadband channels due to the presence of Progeny's signals.[25] The measured throughput reduction was up to 60%, a demonstrably significant degradation in its own right – even in the presence of the ambient, real world noise environment of other band users.[26] And initial tests by Plantronics found that wireless headsets would suffer "significant reduction in usable range" as well as diminished audio quality in the presence of the Progeny signal.[27]

Based in large part on the results of the limited joint tests, several Coalition members, as well as other interested parties, requested that Progeny engage in additional joint testing. Specifically, General Electric Digital Energy, Plantronics,

---

LMS, LLC for Waiver of Certain Multilateration Location and Monitoring Service Rules, Joint WISPA-Progeny Testing, WT Docket No. 11-49 (filed Oct. 31, 2012) ("*WISPA Test Report*").

[23] Public Notice, Comments Sought For Progeny M-LMS Joint Field Testing Reports, WT Docket No. 11-49 (rel. Nov. 20, 2012).

[24] *See Itron Second Round Test Results*, WT Docket No. 11-49, at 10-11 and throughout (filed Dec. 17, 2012).

[25] Comments of the Wireless Internet Service Providers Association, WT Docket No. 11-49, at 7 (filed Dec. 21, 2012) ("WISPA Comments").

[26] *Id*. at 4-6.

[27] Letter from Steve Cahill, Principal RF Engineer, Plantronics, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at 2 and 6 (filed Dec. 20, 2012) ("Plantronics Test Report"). Plantronics was not afforded the opportunity to test with Progeny, but in response to a customer complaint conducted some initial tests in the San Jose area.

Inovonics, and Taggle Systems sought to participate in joint testing,[28] while the National Association of Regulatory Utility Commissioners ("NARUC") submitted a resolution to the Commission seeking the testing of SCADA and other critical infrastructure systems.[29] Although Progeny's CEO stated during a public engagement that the requests for additional testing were reasonable and would take only six months of time to complete,[30] Progeny did not respond.

Notwithstanding these demonstrations of the clear and damaging effects of the Progeny system on unlicensed devices, the Commission ignored these facts and issued the Order allowing Progeny to proceed with commercial service.

II. DISCUSSION

The Commission's Order in this proceeding reads like a series of *post hoc* rationalizations to explain why it is allowing Progeny to move forward without a supporting record or a sound reason for exigency. The Commission has changed the rules regarding an M-LMS licensee's showing and has failed to hold Progeny to the burden that the Commission's own rules placed on it.

A. The Commission Should Have Provided Prior Notice and the Opportunity to Comment on Its Modification of Section 90.353(d).

The Administrative Procedure Act ("APA") requires agencies to publish notice of rulemakings, and allow the opportunity for the public to participate in the proceeding.[31]

---

[28] *See* Order at n.65 (listing some of the parties seeking additional testing).
[29] Letter from James Bradford Ramsay, NARUC General Counsel, to Hon. Julius Genachowski, Chairman, Federal Communications Commission, WT Docket No. 11-49 (filed Feb. 21, 2013). Because a message failure in a SCADA or similar system has a cascading effect on the latency rates of subsequent transmissions, the testing of single RF devices such as those manufactured by Itron and Landis+Gyr does not show the effect of Progeny on a critical infrastructure system.
[30] Letter from Brett Kilbourne, Utilities Telecom Council, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at 2 (filed March 5, 2013).
[31] 5 U.S.C. § 553.

Moreover, an agency generally may not reissue or repeal a substantive rule without providing for public notice and comment.[32]

In this instance, the Commission has modified, without notice and comment, the Section 90.353(d) M-LMS testing requirement.[33] Until now, this rule meant that unlicensed users would receive "protection,"[34] which "minimiz[es] interference,"[35] "maintain[s] the existing accessibility of the band for unlicensed devices,"[36] and is "verified" through cooperative testing.[37] In sum, it was designed to create a level of interference protection for 902-928 MHz unlicensed operations greater than the general Part 15 standard that requires unlicensed devices to accept harmful interference. If this were not the case, there would have been no purpose in the Commission adopting the Section 90.353(d) license condition.

The Commission now has determined that an M-LMS licensee satisfies its license condition even if it precludes the operations of entire systems of unlicensed devices.[38] In making up standards as it goes along, the Commission will now look at the "overall" impact of the licensee, stating that the Section 90.353(d) license conditions can be met so long as some unlicensed devices can continue to function to some undefined degree. And it gives greater weight to the claimed intent in designing an M-LMS system, rather than on the interference presented in the joint field test reports.

The Commission thus has shifted the burden from the M-LMS licensee needing to show through cooperatively-conducted field tests that it does not cause "unacceptable levels of interference to [unlicensed] devices," to a lesser standard, one where it can meet its burden by showing through its system design, rather than through actual joint

---

[32] 5 U.S.C. § 551(5) and § 553. *See e.g. Mobile Oil Corp. v. EPA*, 35 F.3d 579 (D.C. Cir. 1994) (agency seeking to reenact rule must comply with APA rulemaking procedures); *AFL-CIO v. Chao*, 496 F.Supp.2d 76 (D.D.C. 2007) (same).
[33] 47 C.F.R. § 553(c)
[34] *See* Section I(B).
[35] M-LMS R&O at 4737.
[36] *In the Matter of Amendment of the Commission's Part 90 Rules in the 904-909.75 and 919.75-928 MHz Bands*, Notice of Proposed Rulemaking, 21 FCC Rcd 2809, 2810 (2006) ("2006 NPRM")
[37] Order at ¶ 11.
[38] *See* Order at ¶ 19 and n. 59.

testing, that it "reasonably minimizes the potential for interference."[39] In no previous proceeding has the Commission stated that the wholesale removal of channels from unlicensed use, or the inability of some unlicensed systems to operate, is acceptable.

Thus, the Order represents a significant shift in policy from "maintaining the existing accessibility of the band for unlicensed devices,"[40] to requiring unlicensed devices to move out of the way, whether by adjusting their systems, replacing devices, or simply leaving the band. And it erroneously shifts the burden to unlicensed users after the fact, leaving no opportunity for interested parties to put countervailing evidence or arguments into the record. The Commission provided no public notice or opportunity to respond to this new rule.[41] And it expressed no concern to what this new rule does to the installed base of hundreds of millions of devices representing billions of dollars of investment by consumers, ratepayers and tax payers.

B. The Commission Erred in Its Legal Determination That Progeny Met Its License Conditions.

The Commission has issued this Order notwithstanding the fact that it has refused more than fifteen years of requests by the Coalition and others to provide a standard for determining an M-LMS licensee's burden in meeting the Section 90.353(d) requirements.[42] This "know it when we see it" approach, while providing the opportunity for *post hoc* rationalization, has also allowed for a substantial number of legal and factual errors in the Order, as detailed below.

---

[39] Order at ¶ 20..
[40] 2006 NPRM at 2180.
[41] The Commission did not invoke a good-cause exception to the notice and comment requirement. *See* 5 U.S.C. § 553(b)(B); *AFL-CIO v. Chao* at 83. Its decision also did not involve a rule interpreting a statute, and was not a general statement of policy. *See Am. Hosp. Assoc. v. Bowen*, 834 F.2d 1037 at 1044 (D.C. Cir. 1987).
[42] *See e.g.* Order at ¶ 18.

1. The Commission Failed to Provide a Clear and Objective Definition of "Unacceptable Levels of Interference."

The Commission states that "[i]n evaluating Progeny's request, we implement the section 90.353(d) standard regarding 'unacceptable levels' of interference that the Commission established."[43] The Order creates confusion as to what that standard is, however, and effectively renders the rule meaningless because it links the definition to the general standard, applied to unlicensed devices operating in other bands, which requires them to accept harmful interference without any protection. In doing so, the FCC eviscerates the Section 90.535(d) standard.

For nearly twenty years, unlicensed users relied reasonably on the Commission's rule and its explanation of the rule that, whatever "unacceptable interference" meant precisely, it must include the idea that M-LMS systems could not "degrade, obstruct, or interrupt Part 15 devices to such an extent that Part 15 operations will be negatively affected."[44] In the Order, however, the Commission now abruptly backtracks and states that the meaning:

- Must be "consisten[t] with the Commission's clear and repeated pronouncements that unlicensed devices in the band operate under the Part 15 rules that offer no protection to harmful interference."[45]
- Means that there is no "significant detrimental impact" *overall* on unlicensed operations;[46]
- Can be demonstrated even in light of the inability of "a particular model of an unlicensed device" to function;[47]
- Is shown when "the band therefore can continued to be used" for some or certain unlicensed operations;[48]

---

[43] Order at ¶ 18.
[44] *M-LMS Reconsideration Order* at ¶ 15. Progeny even agrees with this. *See* Letter from Bruce A. Olcott, Counsel to Progeny LMS, LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (filed Feb. 19, 2013).
[45] Order at ¶ 19.
[46] Order at ¶ 19 and ¶ 21.
[47] Order at n59 and n62.

- Can be met when some number of "data packets [get] through over time" and an unspecified number of devices "continue[] to function;"[49] and
- Includes "the continuing existence of some interference to some Part 15 devices in some circumstances."[50]

By wrapping the definition around the general Part 15 standard that devices must accept harmful interference, the Commission renders meaningless the term "unacceptable interference" and removes the protections afforded unlicensed users in the 902-928 MHz band pursuant to Section 90.353(d).

In fact, the Commission leaves entirely unclear what "unacceptable interference" means by any quantitative or qualitative measure, with its vague "overall" standard. For example, if none of the M-LMS spectrum is available to unlicensed use, is that "unacceptable interference?" What if an unlicensed device receives only one in twenty transmissions sent? What if 20% of unlicensed devices can no longer function? 50%? The Commission's "definitions" leave no means for unlicensed users to determine what the operating conditions of the band will be, but make clear that they will no longer be given the protection established in 1995, upon which they have relied.

2. The Commission Erred in Concluding That the Number and Types of Devices Tested Was Sufficient.

Despite requests by numerous parties for additional testing,[51] the Commission concluded that doing so was "unnecessary" because the testing conducted involved "an appropriate representative cross-section of Part 15 devices and systems" operating on the band.[52] This conclusion is incorrect and ignores the record of this proceeding. It also relies on a straw man argument, finding that, because of the impossibility of testing all devices, it should rely on what Progeny unilaterally decided to test.

---

[48] Order at ¶ 21.
[49] Order at ¶ 25 and ¶ 26.
[50] Order at ¶ 28.
[51] *See* Order at n.65 and discussion *supra*.
[52] Order at ¶ 21 and ¶ 22.

First, most of the devices tested were tested by Progeny unilaterally, even though all prior Commission decisions made clear that it expected testing to be conducted on a cooperative basis with Part 15 users. Without explanation or analysis, the Commission accepted the results of unilateral testing, even though many parties showed that these tests were flawed.[53]

Second, the Commission has not articulated any reason for not requiring additional testing. It has ignored the showings in the record that testing of additional devices would not be repetitive of earlier testing, and is necessary. For example:

- With regard to devices providing voice communications where any "retry" algorithms are not acceptable due to latency or loss of voice communication, loss of voice communication temporarily may be considered a nuisance in some uses but in others, such as emergency voice pendants and enterprise telephony devices, retry may not be practical or possible. Thus, testing to determine the impact of Progeny on these types of operations is necessary.[54] Testing of indoor cordless phones does not provide this information.
- As the Coalition also previously explained, battery-assisted RFID applications differ from the one passive RFID device that was tested, and thus the testing does not provide information regarding these RFID devices, which are more susceptible to interference.[55]
- Numerous parties have explained that SCADA and other critical infrastructure systems differ greatly from meter-reading devices, as with these systems there is a domino effect with the failure of one device causing the failure of additional devices, something that would impact system in a much different way from a

---

[53] *See e.g.* RKF Analysis; SkyTel Comments Attached Technical Review, WT Docket No. 11-49 (filed March 15, 2012).

[54] *See* Petition for Reconsideration of Plantronics, Inc., filed concurrently with this, for a detailed discussion of the Commission's error in this regard.

[55] *See* Comments of the Part 15 Coalition, WT Docket No. 11-49, at 6 (filed Dec. 21, 2013) (explaining that the RFID tags are more sensitive, with a sensitively down to 40 dBm, and are often embedded in products).

meter reading device needing to retransmit a message more often.[56] The Commission ignored these concerns.

- Similarly, with regard to emergency duress and alarm systems, because time and frequency diversity enhances alarm capture in commercial settings where multipath is the greatest issue, and information about Relative Signal Strength Indication ("RSSI") is embedded in each message to aid in the determination of a mobile alarm initiating pendant's location within a facility, the impact of Progeny must be studied in an environment where multipath effects will cause missed signals, which will null and manifest partial information.[57] Further, these systems employ multiple transceiver nodes operating together as a network for complete building coverage. Not testing the effects of possible interference on a network of repeater nodes, typically mounted throughout a complex and including high-rise multi-floor locations, is in no way testing a sufficient number of representative devices.

For these reasons, the Commission should have addressed beforehand what testing would be considered sufficient, instead of declaring that testing of all devices is impossible and determining that Progeny's discretionary selection of devices to test is sufficient. It also should have required Progeny to engage in additional cooperative testing prior to the Commission's determination that it had met its license condition.

---

[56] *See* Letter from Brett Kilbourne, Utilities Telecom Council, to Marlene H. Dortch, Secretary, Federal Communications Commission, at 2 (filed Feb. 20, 2013); Letter from David Malkin, Director, Government Affairs and Policy, GE Digital Energy, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (filed Mar. 13, 2013).

[57] *See* Letter from Laura Stefani, Attorney for Inovonics, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at attachment (filed April 16, 2013). Had Inovonics understood that the Commission would so easily dismiss requests for further testing, it would have submitted more specific details on testing. 47 C.F.R. § 1.106(c).

3. The Commission Erred in Focusing on the Design of Progeny's System, Rather Than the Effects of That Design, as Measured by the Test Results.

The Commission repeatedly and erroneously focuses on the design of Progeny's system, rather than the actual effects of that design on the interference environment to which unlicensed users will be exposed by Progeny's system.[58] As the Commission explains, the testing requirement serves "to ensure that M-LMS licensees, when designing and constructing their systems, take into consideration a goal of minimizing interference to existing deployments or systems of Part 15 devices, *and to verify this through cooperative testing*."[59] The Coalition agrees, and indeed the Progeny waiver was granted on the premise that the Progeny system was designed to minimize the potential for interference to unlicensed users "so as to maintain the coexistence of the many varied users in the band."[60] Where the Commission has erred, however, is in ignoring the field test results that show that Progeny's system does not meet this standard, as it not only fails to facilitate band sharing but in fact effectively removes 4 MHz, and for some a much greater amount, of spectrum from unlicensed use.[61]

The APA requires agencies to "resolve factual issues to arrive at a decision that is supported by the administrative record."[62] Thus, the Commission must "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made."[63] For this reason, the Commission should not have looked only at the efforts Progeny made in designing its system, but at the actual test results. System design is not an end in itself; the proof of

---

[58] *See* Order at ¶ ¶ 13, 20 and 21.
[59] Order at ¶ 11 (emphasis added).
[60] Progeny Waiver at ¶ 26. *See also In the Matter of Amendment of the Commission's Part 90 Rules in the 904-909.75 and 919.75-928 MHz Bands*, Notice of Proposed Rulemaking, 21 FCC Rcd 2809, 2810 (2006) ("2006 NPRM ") ("[w]e recognize the importance of maintaining the existing accessibility of the band for unlicensed devices.").
[61] For example, for the fixed wireless broadband devices tested, Progeny takes away two 8 MHz Cambium channels and two 10 MHz Ubiquiti channels. WISPA Comments at 7.
[62] *AFL-CIO v. Chao*, 496 F.Supp.2d at 81.
[63] *Burlington Truck Lines v. U.S.*, 371 U.S. 156, 168 (1962).

the design is whether operation of the system as designed would cause unacceptable levels of interference to unlicensed users. Here, the Commission ignored this data.

That some unlicensed devices can frequency hop, and that all must be designed to deal with interference from others, are red herrings.[64] As the Coalition previously has noted, while unlicensed users are accustomed to working within the present Part 15 environment, and are generally successful in co-existing with other unlicensed users, the huge power and duty cycle differential of the Progeny system makes co-existence impossible, at least on Progeny's frequencies, even considering Part 15 interference avoidance techniques.[65] Given that the Commission has not conducted a rulemaking to consider the effect on the public interest in precluding use of these frequencies by unlicensed users, it cannot determine that such preclusion is "acceptable" interference.

Moreover, the Commission issued this Order without making specific findings as to the level of impact that the Progeny system caused the tested devices. It "found," on the basis of no objective analysis, that most devices "will continue to work as intended."[66] For instance, with regard to frequency hopping devices, the Commission determined that there is be "some reduction" in packets transmitted, but does not come to a technical conclusion as to how much of a reduction or how much of a time delay will occur in getting a message sent, or the overall effects on a system.[67] Similarly, it determined that the digitally modulated wireless devices "continued to function," but did not address the fact that there would be up to a 60% loss in throughput. It also notes that Progeny uses only 4 MHz of the band, but failed to address the test results showing that wideband unlicensed devices would lose a much greater percentage of the spectrum.[68] In short, in place of the requisite objective analysis required of the agency, the Commission in the Order merely repeats the general rule that Part 15 offers no

---

[64] *See* Order at ¶ 20.
[65] *See* Comments of the Part 15 Coalition, WT Docket No. 11-49 at 5 (filed Dec. 21, 2012).
[66] Order at ¶ 24.
[67] Order ¶ 25.
[68] *See* Comments of the Part 15 Coalition at 6 (filed Dec. 21, 2013); WISPA Comments at 4-7.

interference protection to unlicensed users, and neglects the special protection afforded to unlicensed users by Section 90.535(d) and by the conditions of Progeny's waiver.

4. The Commission's Decision Relies on Erroneous Conclusions of Law and Findings of Fact Regarding Progeny's System, Build Out and Interference Potential.

The Commission has failed to make a reasoned, informed decision, as required by law.

The Commission first wrongly concludes that Progeny's system "is designed in a manner that would reduce the number of transmissions"[69] and Progeny's waiver "lowered the potential for interference from Progeny's operations."[70] The Commission, while noting that Progeny uses a direct sequencing technology,[71] ignores the fact that because the waiver allows Progeny to provide indoor service, its signals will need to get into buildings, as opposed to merely tracking vehicles outdoors. The Coalition is unclear how the Commission can conclude that this change, "would have no appreciable effect on the number or deployment of Progeny's transmitters,"[72] as it is basic engineering that more transmitters, and greater signal strength, are required in urban environments to transmit into buildings.

Moreover, while the undisputed results of cooperative testing show that the Progeny signal is "seen" 80% of the time,[73] the Commission wrongly concludes that "[e]ach beacon in the Progeny network will not be transmitting continuously, thus providing opportunities for other spectrum users to access the spectrum."[74] The

---

[69] Order at ¶ 13.
[70] Order at ¶ 5.
[71] Order at ¶ 2.
[72] Order at ¶ 14.
[73] *See* Itron Test Report at p. 15 and throughout (Progeny System Beacon Timing waterfall spectrum analyzer screen shots).
[74] Order at ¶ 23; *see also* n.45 (adopting without comment Progeny's claims that it only has a 20% duty cycle). The Commission further errs in stating that "Progeny's network transmits using two beacons." *Id*. The Progeny system must use at least three beacons, Progeny Waiver at ¶ 16, and "[p]osition accuracy is increased further when four or more beacons are visible to

Commission also wrongly concluded that interference to broadband devices would be more likely to occur from those Progeny beacons located near broadband signal transmitters, but WISPA and Progeny conducted testing with all of the Progeny beacons "on" and "off," and did not test the interference impact of any one Progeny beacon on a standalone basis. The Commission fails to provide any explanation as to why it makes these statements in the face of undisputed technical reports showing otherwise,[75] and not address Plantronics' evidence that Progeny's choice of system architecture increases the risk of interference to Part 15 devices that rapidly search for and utilize vacant frequencies.[76]

The Commission also errs in its "facts" regarding the level of Progeny's deployment, finding that it "deployed and operated" its network in the San Jose area "for the past three years."[77] Even Progeny's own filing states that it obtained an experimental license to operate on both of its spectrum blocks just two years ago.[78] As well, engineers on the ground in San Jose during the summer of 2012 reported that the system then "was still very much in an initial test stage, as staff was dealing with bugs and software changes and Progeny did not yet have its indoor beacons deployed," and

---

the receiver." *Demonstration of Compliance with Section 90.353(d) of the Commission's Rules*, WT Docket No. 11-49, at 6 of attachment (filed Jan. 26, 2012).

[75] *See* Itron Test Report.

[76] Plantronics Test Report at 3; Letter from Steve Cahill, Principal RF Engineer, Plantronics, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at 3-4 (filed Jan. 28, 2013)("As noted in the Plantronics Comments, a strong interferer that is present for a short duty cycle will present an attractive "empty channel" when a wireless headset checks for available options during the portion of the duty cycle when the strong interferer transmitter is inactive. In a density ensemble operating at capacity, the headset will begin to use that channel if it happens to do its check when the Progeny system is not transmitting, and then will drop audio, and reselect a different channel when the interference pops up. Other systems from the ensemble will shift in, ad infinitum, resulting in degraded audio quality for all.").

[77] Order at ¶ 16.

[78] Letter from Bruce Olcott, Counsel for Progeny, to Marlene H. Dortch, Secretary, Federal Communications Commission, at 1 (filed Feb. 19, 2013) ("On June 17, 2011, the experimental license was modified to authorize additional test operations in Progeny's B-block spectrum and near continuous operations began on that spectrum immediately thereafter.").

that in October, additional build out and use of a higher duty cycle was observed.[79] The Commission does not explain why it ignored these facts.

Similarly, the Commission mistakenly claims that it has "not received interference complaints that suggest that Progeny's system is causing significant impact upon Part 15 operations."[80] Numerous statements in the record indicate that this is not accurate. For instance, Taggle Systems reported that, when testing its system, its system received "constant Electoromagnetic Interference in [Progeny's] two x 2MHz bands that are in the middle of the 10MHz band used by Taggle's equipment," which "renders 40% of the spectrum that Taggle uses commercially not viable" and "makes it impossible for Taggle to operate commercially in the presence of [] Progeny."[81] As well, Plantronics noted that it conducted its own testing after receipt of a customer complaint of interference from Progeny.[82] And Pacific Gas & Electric ("PG&E") filed a notice regarding an instance of interference with Progeny.[83] While this occurred on an adjacent frequency, as PG&E explains: "The time it took to make this adjustment and the fact that similar incidents could occur throughout our system is of significant concern."[84] These reports and incidents, all occurring within a few months, make clear that the Commission's conclusions about Progeny's system are wrong.

Finally, the Commission concludes that Progeny "plans to deploy a highly accurate location service" which "can bring significant public safety benefits."[85] While the Coalition has stated publicly its full support for the development and adoption of an accurate E911 location system, the record does not support these conclusions regarding

---

[79] Comments of Itron, Inc., WT Docket No. 11-49, at 5 (filed Dec. 21, 2012).
[80] Order at ¶ 16.
[81] Letter from Gordon Foster and Chris Andrews, Taggle Systems, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 at 2-3 (filed 2013).
[82] Letter from Steve Cahill, Principal RF Engineer, Plantronics, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at 2 (filed Feb. 25, 2013).
[83] Letter from Melissa A. Lavinson, Vice President, Federal Affairs, PG&E, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (filed May 17, 2013).
[84] *Id*. at 2.
[85] Order at ¶ 1.

the Progeny system.[86] As TruePosition explained, there are other similar location technologies that are more readily able to be deployed, and Progeny's system would require years to be accepted and fully deployed.[87] Yet the Commission offers no explanation as to why it seems to have selected a nascent, unproven technology over established user with billions of dollars of investment in the 902-928 MHz band.

IV. CONCLUSION

For the reasons stated above, the Commission should reconsider its legal determination that Progeny met its burden of demonstrating that its system does not cause unacceptable levels of interference to unlicensed users. The Commission additionally must provide an objective definition of "unacceptable levels of interference," one that is consistent with precedent. And once this occurs, it should require additional testing to determine how Progeny can co-exist successfully with unlicensed devices.

Respectfully submitted,

THE PART 15 COALITION

By: /s/
Henry Goldberg
Laura Stefani

Goldberg, Godles, Wiener & Wright LLP
1229 Nineteenth Street, N.W.
Washington, DC 20036
(202) 429-4900
Its Attorneys

July 8, 2013

[86] Letter from Laura Stefani, Counsel to the Part 15 Coalition, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at 2-3 (filed March 20, 2013).
[87] Letter from Steve Stuut, CEO, TruePosition, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (filed April 22, 2013).

CERTIFICATE OF SERVICE

I, Deborah Wiggins, hereby certify that on this 8th day of July, 2013, I served a copy of the foregoing Petition for Reconsideration of the Part 15 Coalition, by U.S. mail, postage pre-paid, on the following:

Bruce A. Olcott
Squire Sanders (US) LLP
1200 19th Street, NW
Suite 300
Washington, DC 20036

Counsel to Progeny LMS, LLC

_____/s/_____
Deborah Wiggins

Part 15 Coalition Members

American Petroleum Institute

Association of American Railroads

FreeWave Technologies, Inc.

GE Digital Energy

Inovonics Wireless Corporation

Itron, Inc.

Landi+Gyr Company

MJ Lynch & Associates LLC

Notor Research

Plantronics

Qualcomm Incorporated

Silver Spring Networks

Starkey Laboratories, Inc.

Utilities Telecom Council

Wireless Internet Service Providers Association

Part 15 Coalition Supporters

Cisco

Elster Solutions

E-Z Pass Group

Kapsch TrafficCom IVHS, Inc.

New America Foundation

Public Knowledge