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March 4, 2013

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Written Ex Parte Presentation
WT Docket No. 11-49

Dear Ms. Dortch:

The Wireless Internet Service Providers Association ("WISPA"), by counsel, hereby responds to the false and misleading technical statements presented throughout the record in this proceeding by Progeny LMS, LLC ("Progeny").[1] Given Progeny's continuing litany of fabrications, WISPA is compelled to set the record straight on a large number of technical issues.

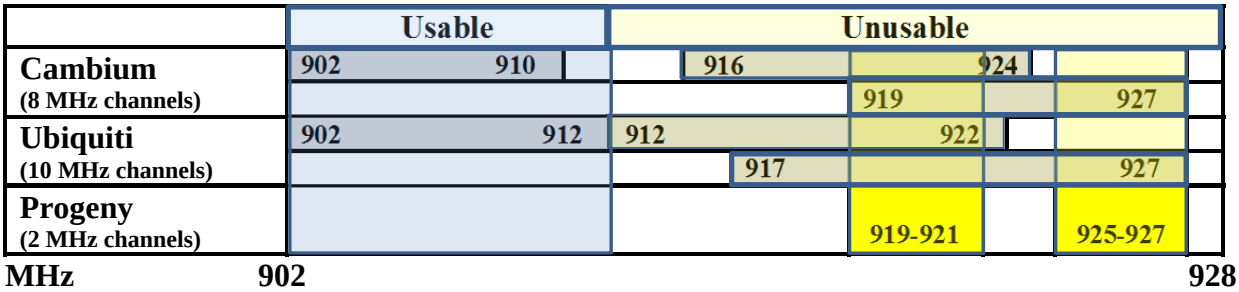
Unless examined and exposed, Progeny's pattern of technical falsehoods may lead the Commission to make a decision that it would regret, one that would cause irreparable harm to the operation of fixed wireless broadband ("FWB") and other Part 15 devices that have flourished in the 902-928 MHz band for the last 20 years. Moreover, WISPA is acutely aware that the spectrum-sharing ramifications of the Commission's decision will be far-reaching and will set a course for other bands that are shared among multiple users.

An inescapable conclusion from the October 31, 2012 Joint Test Report[2] is that Progeny's high-power operations would substantially degrade throughput and render useless 15 megahertz of *existing* unlicensed spectrum used every day for FWB services. Even though Progeny may be occupying only 4 megahertz of spectrum in the 902-928 MHz band (two channels of 2 megahertz each), its high-power operations effectively preclude use of the middle and upper part of the band by blocking use of 916-927 MHz for Cambium equipment and 912-

[1] *See, e.g.*, Response of Progeny LMS, LLC, WT Docket No. 11-49 (Jan. 11, 2013) ("Progeny Response")
[2] *See* Letter from Bruce A. Olcott, Counsel to Progeny, and Stephen E. Coran, Counsel to WISPA, to Marlene H. Dortch, FCC Secretary, WT Docket No. 11-49, Progeny LMS, LLC & Wireless Internet Service Providers Association Part 15 Joint Test Report (Oct. 31, 2012) ("Joint Test Report").

927 MHz for Ubiquiti equipment, the two predominantly used manufacturers. The following table depicts the preclusive effect of Progeny's operations.

Available 900 MHz Equipment Channels (MHz)



Progeny's 30-Watt transmitters between 919-921 MHz and 925-927 MHz effectively force all 4-Watt FWB users into the bottom one-third of the band – 902-910 MHz for Cambium and 902-912 MHz for Ubiquiti.[3] Instead of three channels to deliver FWB services, only one channel (the blue-shaded area) remains usable.

To distract from the catastrophic effect that Progeny's operations have on low-power Part 15 FWB equipment operations, from the time it filed its initial, biased unilateral test report in January 2012[4] until the present, Progeny has contrived a series of false technical arguments that, when properly examined, simply do not overcome the simple and incontrovertible joint test conclusion – massive throughput losses to FWB operations in the 902-928 MHz band that will evict wireless Internet service providers ("WISPs") and consumers from two-thirds of the band.

Progeny thus fails to meet its burden of demonstrating the lack of "unacceptable levels of interference" even under the standard it proposes. Citing a 1996 order in the underlying rulemaking proceeding, Progeny states that "unacceptable levels of interference" is defined as follows:

> to ensure that M-LMS networks "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." In other words, unacceptable levels of interference means harmful interference that Part 15 devices are incapable of withstanding or avoiding using the various interference mitigation techniques typically employed

[3] Part 15 devices are authorized to operate with a maximum of 4 Watts EIRP (equivalent isotropic radiated power). Progeny is authorized to transmit with 30 Watts ERP (effective radiated power). Progeny thus transmits at 49.2 Watts EIRP, more than 12 times the maximum authorized power for Part 15 devices.

[4] *See* Coexistence of M-LMS Network and Part 15 Devices, Spectrum Management Consulting Inc. (Jan. 27, 2012) (included as attachment to Letter from Bruce A. Olcott, Counsel to Progeny, to Marlene H. Dortch, FCC Secretary, WT Docket No. 11-49 (Jan. 27, 2012) (collectively, "Progeny Test Report").

> by Part 15 devices to withstand or avoid harmful interference from other such devices and from other authorized users of the 902-928 MHz band.[5]

Although WISPA neither accepts nor rejects this proposed interpretation, the record shows that FWB operations would be "negatively affected" and that interference mitigation techniques "typically employed" by WISPs will not be successful in reducing interference to acceptable levels. The following paragraphs provide detailed support for these conclusions and point out the lengths Progeny has taken to obfuscate and hide the unavoidable truth.

Throughput Reductions Will Severely Harm Customers' Broadband Service

In its Second Comments,[6] WISPA explained that cooperative field testing demonstrated that co-frequency operation of Progeny's transmitter beacons resulted in bi-directional throughput reductions of 60 percent on the most commonly deployed FWB operations. WISPA, along with approximately 35 WISPs, commented on the devastating consequences that would result from such a significant loss of throughput – substantially slower download and upload speeds and/or a loss of half of a WISP's customers. The record demonstrates that the 900 MHz band is used by many WISPs in wooded and terrain-obstructed areas to provide FWB service where other terrestrial options are not available.[7]

Progeny challenges WISPA's assertion that the throughput reductions would be as much as 62.2 percent, arguing that the downstream and upstream losses should not be aggregated.[8] In so doing, Progeny erroneously employs a one-way, broadcast-mentality analysis that considers only a single path (*i.e.*, the end user to the Internet *or* the Internet to the end user). Far from being a "fictitious statistic" as Progeny alleges,[9] end users will experience the *combined effect* of throughput reductions in both directions. FWB links are bi-directional, both downloading data from and uploading data to the Internet. In the test of the Canopy system at 923 MHz where it overlaps both the Progeny B block and the Progeny C block, the Joint Test Report shows that WISP customers would experience a 49 percent throughput loss in the downstream direction and *simultaneously* a 13.2 percent throughput loss in the upstream direction, for a total throughput loss of 62.2 percent.[10] In the test of the Ubiquiti system at 917 MHz where it overlaps the Progeny B block, the Joint Test Report shows that WISP customers would experience a 47.9 percent throughput loss in the downstream direction and *simultaneously* a 41.5 percent throughput loss in the upstream direction, for a total throughput loss of 89.4 percent.[11] Thus,

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[5] Progeny Response at 9, *citing 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) (emphases in original) (footnote omitted).
[6] Comments of WISPA, WT Docket No. 11-49 (Dec. 21, 2012), at 5-8 ("Second Comments").
[7] *See generally* Reply Comments of WISPA, WT Docket No. 11-49 (Jan. 11, 2013) ("Reply Comments").
[8] *See* Progeny Response at 46.
[9] *Id.*
[10] *See* Joint Test Report at 18, Figure 14.
[11] *See id.* at 20, Figure 16.

each of the two most commonly deployed FWB equipment products would suffer staggering losses in throughput due to Progeny's interference.

Even accepting Progeny's flawed view that considers only a uni-directional throughput loss, Progeny acknowledges that the throughput losses were as high as 49 percent. This is an unacceptable loss percentage, the effects of which were clearly conveyed by the 35 WISPs that filed Comments in response to the Joint Test Report. Not only will end users see their download speed drop in half but some of them will lose their Internet connection completely. Far from being "relatively modest," as Progeny has proclaimed,[12] such drastic throughput reductions have severe consequences.

Progeny also clings to its technically meaningless claim that the throughput reductions across all the co-frequency channels *averaged* 24.4 percent.[13] Progeny's stubborn insistence on using an overall "average" throughput loss metric is perhaps one of the most egregious of its technical misstatements. An average of uni-directional throughput losses fails to indicate the extent to which a bi-directional data channel is impacted by interference. Instead, the *aggregate bi-directional* (both directions) losses on each broadband channel must be calculated. Only then can the impact of Progeny's interference on the throughput of each channel be properly evaluated. Instead, Progeny's uni-directional averaging metric incorrectly co-mingles uni-directional test data across multiple bi-directional channels. By this sleight of hand, Progeny attempts to hide the data losses, mask the interference impacts on each channel and reduce the egregious level of its interference to only an "average" value. Under Progeny's argument, a person with one foot in boiling water and another foot in ice water would, on average, be comfortable. Progeny's reliance on fuzzy math and tortured reasoning clearly demonstrates the desperate nature of its argument.

Inability of Progeny to Share Spectrum with Part 15 Devices

Existing Part 15 users are able to co-exist in the 902-928 MHz band for three primary reasons. First, all users are unlicensed such that no particular user can claim a higher status of interference protection. Second, all devices are authorized to operate at the same low power of 4 Watts EIRP. Third, all devices are designed to operate within these same requirements. Together, these factors create a healthy environment for spectrum sharing among a variety of FWB, consumer, utility, railroad and other devices and users.

Though it claims that the noise that its beacon transmitter network introduces is "only a small fraction of the overall degradation that the tested Part 15 devices experience from other

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[12] Written *Ex Parte* Letter from Bruce A. Olcott, Counsel to Progeny, to Marlene H. Dortch, FCC Secretary, WT Docket No. 11-49 (Nov. 19, 2012), at 3.
[13] *See* Progeny Response at 46. *See also* Progeny Ex Parte Presentation at 19.

sources and natural conditions in the 902-928 MHz band,"[14] Progeny's operation would upset the careful balance that currently exists. In each geographic area, Progeny would operate networks containing 20 or more licensed high-power 30-Watt transmitters in the same band as low-power 4-Watt devices that are not designed to withstand simultaneous interference from Progeny's multiple 30-Watt transmitters. Progeny's implication that Part 15 devices should be equally as noise resistant to Progeny's network of multiple 30-Watt transmitters as Part 15 devices are to 4-Watt Part 15 devices is profoundly incorrect.[15] Every Part 15 device has practical engineering and noise tolerance design limits that are incorporated into the devices in the expectation that other devices in the band will operate at the same, or in some cases, lower power levels. Part 15 devices are not designed to co-exist with densely-deployed 30-Watt transmitter networks. No Part 15 device can continue to operate at full capacity in the presence of an unlimited and increasing number of high-powered interfering transmitters. Part 15 device receivers are simply overpowered by the interference caused by the unlimited number of high-power, 30-Watt beacon transmitters deployed in the Progeny network.

Progeny Interference Mitigation Techniques

Progeny makes much of its attempt to design its M-LMS system to mitigate the potential interference effects its network would cause.[16] The test results show that Progeny has not succeeded in its efforts with respect to FWB devices. In particular, Progeny's elimination of return paths is of little consequence because the forward path operates at significantly higher power than FWB devices, contributing to the severe throughput losses of Part 15 devices.

FWB Interference Mitigation

Progeny lets hold of its prior claims that FWB devices can rely on mitigation techniques to eliminate interference, but contends that "minor adjustments to the configuration of an FWB network can have a tremendous impact on its ability to withstand interference from other noise sources, including the presence of Progeny's network."[17] Progeny's argument compares a Ubiquiti link operating with a center frequency of 917 MHz (which suffered a 47.9 percent throughput reduction) with a Ubiquiti link operating with a center frequency of 922 MHz (which suffered a throughput reduction of 2.5 percent).[18] Progeny asserts that WISPs can simply move from one frequency block to another to reduce interference levels.

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[14] Written Ex Parte Letter from Bruce A. Olcott, Counsel to Progeny, to Marlene H. Dortch, FCC Secretary, WT Docket No. 11-49 (Oct. 31, 2012), at 2.

[15] For Progeny's claim to be valid, both the Cambium and the Ubiquiti equipment would first need to be tested under laboratory conditions in a completely shielded and enclosed screen room. No such tests were included in the joint test regimen.

[16] *See* Progeny Response at 18-21

[17] *See id.* at 44.

[18] Even this comparison is faulty. To make its point less disingenuously, Progeny should have compared the bi-directional throughput loss of 89.4 percent (for the Ubiquiti test centered at 917 MHz) and 20.1 percent (for the

There are a number of flaws in this analysis. First, moving frequencies has a domino effect on the ability of WISPs to efficiently share the 900 MHz band. WISPs typically use all three of the available broadband channels in the 902-928 MHz band simultaneously, and removing customers from two unusable channels to crowd them all together on the one remaining already-occupied channel may render all the radios on the remaining channel unusable. Second, Progeny's one example does not prove the general case that "minor adjustments" are all that are needed to mitigate interference. In fact, the Joint Test Report demonstrated that when the similar "relatively minor adjustment" was made with the Canopy equipment, the aggregate throughput loss *increased* from 23.2 percent to 62.2 percent. In the real world, Progeny's proposed "minor adjustments" are entirely insufficient to mitigate the tremendously damaging effect that Progeny's high-power transmitter network has on the operation of Part 15 FWB equipment.

Progeny claimed in the initial Progeny Test Report that "commercial devices are more tolerant of other signals in the band because the transmitted data can be encoded or retransmitted if necessary."[19] Progeny's claim is irrelevant. Throughput loss is the key metric in broadband delivery. Neither encoding nor retransmitting compensates for the data throughput loss caused by Progeny interference.[20]

Progeny appears to have dropped its argument that automatic frequency selection capabilities will prevent interference from its network of transmitters and that many Part 15 devices utilize automatic frequency selection capabilities. As WISPA made clear, Progeny's claim is not relevant to FWB devices because no 900 MHz FWB equipment employs automatic frequency selection capabilities.[21]

In sum, there are no interference mitigation techniques that WISPs "typically employ" that will remedy the unacceptable levels of interference that Progeny causes.

"Worst Case" Circumstances

Grasping at straws, Progeny alleges that the results in the Joint Test Report "are arguably irrelevant because they involved very worst case conditions that are unlikely to exist in real life."[22] It then concludes that WISPs use the 900 MHz band "only in very rural environments with non-line-of-sight conditions."[23]

Ubiquiti test centered at 922 MHz). Even the 20.1 percent aggregate loss that remained because of Progeny's high-power use of the spectrum is catastrophic to Part 15 FWB operations.

[19] Progeny Test Report at 12.

[20] *See* Comments of WISPA, WT Docket No. 11-49 (Mar. 15, 2012) ("Initial Comments") at 6.

[21] *See id.*

[22] Progeny Response at 46.

[23] *Id.* at 46-47.

Both of these statements are patently false. The test conditions were not worst case. Indeed, as Progeny is well aware, the tested link distances were much shorter than the distances used in a typical WISP operation and were chosen for convenience.[24] The tests did not represent the *maximum* distance of Canopy and Ubiquiti links, but rather the distances that resulted when *conveniently-available* and quickly-identifiable, line-of-sight test sites were selected. During testing, the fade margin on the Canopy link was measured at 12 dB, indicating that the link test distance could have been increased by a factor of four (doubled for each 6 dB of fade margin) from 2.3 miles to 9.2 miles. Longer-distance links, representing "real-world" WISP configurations, could have been established and tested, if Progeny had agreed to allow more test time. In all likelihood, the throughput reduction results due to Progeny interference over these longer links would have been even greater than the already-unacceptable throughput reductions measured over the shorter test links.

Moreover, it is a gross misstatement for Progeny to suggest that 900 MHz FWB operations are limited to only "very rural" areas. Although the propagation characteristics of the 900 MHz band make it conducive for use in wooded and terrain-obstructed areas, the Comments filed by both WISPA and individual WISPs are true – the 900 MHz band is used in all kinds of environments. Further, Progeny incorrectly asserts that the reason WISPs supposedly only use 900 MHz in very rural areas is because "900 MHz WISP equipment is exceedingly intolerant" to interference.[25] In fact, 900 MHz equipment is no more intolerant to interference than any other wideband bi-directional wireless equipment. The "bad actor" here is not the purported intolerance to noise of FWB equipment, but rather Progeny's network of licensed high-level, high-power transmitters that cannot co-exist with unlicensed low-power Part 15 devices without driving the Part 15 devices out of two-thirds of the band.

Offer to Work with WISPs

Progeny suggests a willingness to "work closely with WISP service providers in any *rural* community in which it eventually seeks to operate."[26] This purported olive branch is but a mere fig leaf. If Progeny were truly interested in resolving its interference problems so it could co-exist with WISPs, it would extend its offer to all areas and at all times and propose significant

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[24] The initial Progeny Test Report claims that testing broadband equipment at only .43 mile (4/10 of a mile) link distance is sufficient for equipment that has a 40 mile link distance capability. *See* Initial Comments at 8-9; Ex Parte Letter from Stephen E. Coran, Counsel to WISPA, to Marlene H. Dortch, FCC Secretary, WT Docket No. 11-49 (Apr. 26, 2012) ("Ex Parte Letter") at 2; Notice of Oral Ex Parte Presentation, Letter from Stephen E. Coran, Counsel to WISPA, to Marlene H. Dortch, FCC Secretary, WT Docket No. 11-49 (May 1, 2012) ("First Oral Ex Parte Letter"), Presentation at 2; Notice of Oral Ex Parte Presentation, Letter from Stephen E. Coran, Counsel to WISPA, to Marlene H. Dortch, FCC Secretary, WT Docket No. 11-49 (May16, 2012) ("Second Oral Ex Parte Notice") at 6. Progeny's link test distance was too short and skewed the test results in its favor. By testing at too-short link distances, the throughput losses caused by Progeny's interference were masked, as the Joint Test Report clearly showed.

[25] Progeny Response at 47.

[26] *Id.* at 47 (emphasis added).

changes to its operating characteristics to actually mitigate its interference. Progeny's disingenuous and limited "offer" speaks volumes about its true motives. Even so, a promise to "work closely" has no specificity associated with it and, given Progeny's abundant and disingenuous prevarications in this docket, Progeny's offer lacks all credibility.

Claims of No Reported Interference

Progeny claims that it is operating a "fully deployed" M-LMS network in the San Francisco Bay Area and initial operations in 39 other Economic Areas without receiving interference complaints.[27] While this may or may not be true, it is also meaningless. First, Progeny has not agreed to permanently freeze installation of any additional beacon transmitters in the San Francisco Bay Area, so its "fully deployed" network may not, in fact, be complete. In the other 39 markets, construction to meet an initial Commission build-out milestone can hardly be predictive of the interference environment that may exist months or years in the future when the systems are more fully deployed. Second, Progeny has not provided one shred of evidence that it ever instituted an interference measuring and reporting program. In its typically disingenuous way, it is not surprising that Progeny would state that it received no interference complaints when in fact no interference-gathering program was ever put in place.

Suffice to say, Progeny's past limited operations are not predictive of the future environment. Though the results of the Joint Test Report likely *understate* the potential for interference in "real-world" situations where links of greater distances are common, the test results reliably measure and predict the harmful and unacceptable effects that WISPs would suffer. For WISPA, the WISPs and the communities and people they serve, the consequences are far-reaching and, most importantly, permanent. Once the Progeny "genie" is out of the bottle, there is no putting it back in again.

Progeny's Record of Additional Technical Failure

Progeny's litany of technical failings and falsehoods include the following additional items. Many of these misstatements stem from the initial Progeny Test Report and have been perpetuated in subsequent Progeny filings. Beginning with the test process itself, these flaws contributed to Progeny's false and deceptive claim that its network would not cause unacceptable levels of interference.

Progeny's Initial Failure to Perform Cooperative Testing

Progeny initially failed to participate in cooperative testing as requested by the Commission. Instead, Progeny decided to hire an "outside, independent" engineering firm to conduct unilateral testing. Unfortunately, that unilateral testing was technically skewed to deliver the results that Progeny desired. Later, when the Commission again requested Progeny to

[27] *Id.* at 2.

engage in actual cooperative testing, the test results conclusively demonstrated massive and unacceptable levels of interference from Progeny's transmitter network.[28]

Incomplete Progeny Initial Test Process Because of Invalid Equipment Assumptions

By testing and reporting results for only one make and model of WISP equipment, Progeny assumed that testing equipment from only one manufacturer would be sufficient to represent all FWB equipment in the 900 MHz band. Progeny's testing of equipment from only one equipment manufacturer is not representative of other commonly-used 900 MHz broadband equipment. Specifically, Progeny's selection of the most robust WISP equipment modulation mode – the binary frequency shift keying (BFSK) technology used by the Cambium equipment – is insufficient to represent other commonly-used WISP equipment.[29] Progeny's assumptions were invalid, as the results in the Joint Test Report confirmed.

Progeny's Initial Use of a Non-Representative Test Environment

Progeny's test environment was incorrectly chosen to skew the test results. WISPA has long pointed out that testing in the Santa Clara Valley, which is populated primarily with low, height-limited, non-brick buildings, is not representative of real-world conditions in many other areas. More Progeny beacon transmitters will be needed in other areas leading to even higher levels of interference than in the Santa Clara Valley.[30]

Progeny's Performance of Non-Representative Uni-directional Testing

Progeny initially represented that its unilateral, uni-directional (one-way) throughput testing of Part 15 FWB equipment was sufficient to properly test and measure bi-directional (two-way) equipment throughput. Progeny's one-way test claims are false. Broadband equipment is, by nature, bi-directional. It carries data in two directions (downstream and upstream). Testing in one direction represents only one-half of the whole test process. Subsequent joint testing revealed the flaws in Progeny's initial test approach and the interference that it causes in both the upstream and the downstream directions.

Progeny's Claim that Partial-Capacity Throughput Testing is Sufficient

In the initial Progeny Test Report, Progeny claimed that testing Part 15 FWB equipment at only partial capacity is sufficient to model the effect of Progeny's interference on full-capacity links. Progeny tested 3 Mbps throughput equipment at only partial capacity (500 Mbps, 750

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[28] *See also* Initial Comments at 9-10; Ex Parte Letter at 3-4; First Oral Ex Parte Notice at 2; Second Oral Ex Parte Notice at 9.
[29] *See* Initial Comments at 5-6; Ex Parte Letter at 2; First Oral Ex Parte Notice at 2; Second Oral Ex Parte Notice at 4.
[30] *See* Initial Comments at 7-8; Ex Parte Letter at 1-2; Second Oral Ex Parte Notice at 4.

Mbps and 1 Mbps). By testing at less than full capacity, Progeny's throughput test conditions were faulty and skewed the test results in its favor. Progeny's failure to test at full throughput masked the throughput losses caused by their interference. As the later-filed Joint Test Report showed, testing at full throughput revealed the substantial interference that Progeny causes.

Progeny's Interference Potential from the Use of "High Site" Transmitter Locations

Progeny claims that its practice of "preferentially placing its transmitters on high sites such as existing broadcast and paging towers" will reduce interference to Part 15 devices.[31] Progeny apparently fails to understanding the impact of larger coverage areas and the resulting larger interference footprint caused by high transmitter sites. Although high transmitter sites will physically move Progeny's transmitters further away from some Part 15 devices, the high sites will also eliminate the attenuation caused by terrain, trees and structural obstructions to Progeny's signal thereby greatly increasing the interference potential and the interference footprint caused by Progeny's transmitters. Wireless engineers use "high sites" to increase wireless coverage, not to decrease coverage. Progeny's use of "high sites" will increase the interference potential to indoor Part 15 devices and be devastating to the operation of outdoor Part 15 devices.

Progeny's Claimed Use of a "Low" Transmit Duty Cycle

Progeny claims that its use of a "low" duty cycle of "only 10 percent" and "no more than 20 percent" means that "many if not most Part 15 devices will not require the use of interference avoidance techniques in order to continue to operate in the presence of Progeny's M-LMS signal.[32] During actual cooperative testing during the summer of 2012, Progeny's aggregate duty cycle was measured with a spectrum analyzer to be a minimum of 80 percent. Although each individual Progeny beacon transmitter *may* have a lower duty cycle, its transmitters transmit in different time slots resulting in a measured aggregate duty cycle of 80 percent. This high aggregate duty cycle creates a high probability of interference to Part 15 devices, as demonstrated during the 2013 cooperative testing ordered by the Commission.

Proposed Remedy

Progeny has failed to meet the burden the Commission established. WISPA respectfully requests that the Commission deny Progeny permanent authorization to operate on the grounds that Progeny's operation causes unacceptable interference to Part 15 devices and will cause increasingly higher levels of unacceptable interference going forward. If the Commission instead decides to allow Progeny to operate permanently, WISPA respectfully requests that the Commission impose operating conditions on Progeny in order to substantially mitigate the

[31] Progeny Reply Comments, WT Docket No. 11-49 (Mar. 31, 2012) at 10 ("Progeny Reply Comments").
[32] Progeny Reply Comments at 11.

unacceptable levels of interference that Progeny generates. WISPA suggests that the following conditions may reduce interference to acceptable levels:[33]

- Limit the aggregate Progeny beacon duty cycle to **no more than 25%** in every market area, and
- Limit each Progeny beacon transmitter to **8 Watts peak EIRP**, and
- Limit the number of Progeny M-LMS beacon transmitters to **no more than ten** in any one pre-defined urban area.

The Commission should consider requiring additional testing to determine whether these proposed remedies will reduce interference to acceptable levels, or if unacceptable levels of interference will remain.

Conclusion

Progeny's grand experiment in spectrum sharing is a clear failure. No amount of creative lawyering or tortured and invalid technical arguments can overcome the laws of physics that have demonstrated unacceptable levels of interference to FWB devices. Progeny has failed to meet its burden.

Please contact undersigned counsel if there are any questions concerning this matter.[34]

Respectfully submitted,

/s/ Stephen E. Coran

Stephen E. Coran

cc: Renee Gregory
Julius Knapp
Ruth Milkman
Paul Murray
Geraldine Matise

[33] WISPA makes no claim about whether these potential remedies would also resolve the interference that Progeny would cause to other Part 15 devices.
[34] This letter is being filed electronically in referenced docket pursuant to Section 1.1206 of the Commission's Rules.