March 11, 2013

By Electronic Filing

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

Re: In the Matter of Progeny LMS, LLC
WT Docket No. 11-49
Plantronics Request for Confidentiality for Portion of Ex Parte Letter

Dear Ms. Dortch,

Pursuant to FOIA Exemption 4, 5 U.S.C. §552(b)(4), and Sections 0.457 and 0.459 of the Commission's Rules, 47 C.F.R. §§ 0.457, 0.459, Plantronics hereby requests that the redacted portion of the attached ex parte letter be treated as confidential and be withheld from public inspection. A confidential, unredacted version of the attached ex parte letter from Plantronics is being filed by hand delivery with the Commission on this same date. This request relates to that filing. Plantronics requests that this letter and the attached redacted version of ex parte letter be included in the public record.

The redacted portion of the ex parte letter is limited to a chart summarizing proprietary Plantronics research about the number of variously-sized call centers within the United States. Plantronics has no objection to disclosing this information to Progeny upon execution of an appropriate non-disclosure agreement.

In support of this request, the Company provides the following information, as required by Sections 0.457(d)(2) and 0.459(b) of the Commission's Rules.

1. Information for Which Confidentiality is Requested. As noted above, Plantronics is requesting confidential treatment for a chart summarizing proprietary Plantronics research about the number of variously-sized call centers within the United States.

2. Circumstances Giving Rise to Submission of Materials. Plantronics submits the ex parte letter and chart to respond to claims made by Progeny about the size and operation of call centers that might be affected by Progeny's system.

3. Degree to Which Information is Commercial or Financial, or Contains a Trade Secret or is Privileged. The chart contains commercially-sensitive, proprietary, and confidential information about Plantronics' target customers. The Company closely guards this information against disclosure to competitors and the public. Such proprietary and confidential information may be withheld from public disclosure under FOIA Exemption 4.

to competitors and the public. Such proprietary and confidential information may be withheld from public disclosure under FOIA Exemption 4.

4. Degree to Which Information Concerns a Service That is Subject to Competition. The business of serving call centers is highly competitive.

5. Substantial Competitive Harm That Would Result from Disclosure of Information. Public disclosure of the commercially-sensitive, proprietary, and confidential information subject to redaction would cause competitive harm to the Company by alerting its competitors to the magnitude of the potential customer base. Parties do not have to "'show actual competitive harm'" to justify confidential treatment. Rather, "'[a]ctual competition and the likelihood of substantial competitive injury' is sufficient to bring commercial information within the realm of confidentiality." *Public Citizen Health Research Group*, 704 F.2d at 1291, quoting *Gulf & Western Industries v. U.S.*, 615 F.2d 527, 530 (D.C. Cir. 1979).

6. Measures Taken to Prevent Unauthorized Disclosure. Plantronics treats the commercially-sensitive, proprietary information as confidential and does not publicly disclose this information.

7. Previous Disclosure. The information in the redacted chart has not previously been disclosed to the public.

8. Requested Duration of Nondisclosure. The redacted chart should not be released for public inspection for a minimum of ten years because its release might adversely affect the Company's competitive position.

For the foregoing reasons, Plantronics respectfully requests that the Commission withhold from public inspection the unredacted version of the attached ex parte letter.

Respectfully submitted,

/s/ Steve Cahill

Steve Cahill
Principal RF Engineer
Plantronics
345 Encinal St.
Santa Cruz, CA 95060

(steve.cahill@plantronics.com,
831-458-7512)

Attachment

REDACTED – FOR PUBLIC INSPECTION

March 11, 2013

Via ECFS

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

Re: In the Matter of Progeny LMS, LLC, Petition for Waiver of the Rules and Request for Expedited Treatment
WT Docket No. 11-49
Ex Parte Notice

Dear Ms. Dortch:

Plantronics contributes additional technical information to the record in the above-referenced matter, and addresses points that were made in a recent filing by Progeny LMS LLC.

Plantronics believes that the particular difficulty in selecting the least interfered channel in the relative proximity to very high powered but intermittent interference sources, the 30W effective transmit power Progeny beacons, is an important issue for spectrum sharing in the 902 – 928MHz band. Progeny does not effectively address this issue in any of its replies.

Progeny discounts interference from cochannel operation, referring to "in most urban-based user conditions … closest Progeny beacon several miles away …"[1] and so forth. Plantronics concern is that there are many call centers, that Progeny beacons will frequently be close enough to dense installations of wireless headsets in contact centers, that unwanted interference to communications over those wireless headsets will not be uncommon.

In support of this argument, Plantronics provides the following market research information about the number of variously-sized call centers in the USA during 2012.

[1] Progeny February 6th letter at 4.

The following material is confidential and proprietary information of Plantronics subject to a request for confidentiality. It is redacted in the public version of this document.

Market research:

Contact centers by size group	**Calendar year 2012**
10–30 seats	**REDACTED**
31–100 seats	**REDACTED**
101–250 seats	**REDACTED**
>250 seats	**REDACTED**

Progeny headlines its argument "Progeny's Network Will Not Reduce the Spectrum Available for Part 15 Operations"[2] and makes *qualitative* statements in defense of their position in this matter:

… most urban-based user conditions …
… closest beacon several miles away …
… significant distance …
… most operating conditions …
… only when the call center is very close …
… unlikely circumstances …

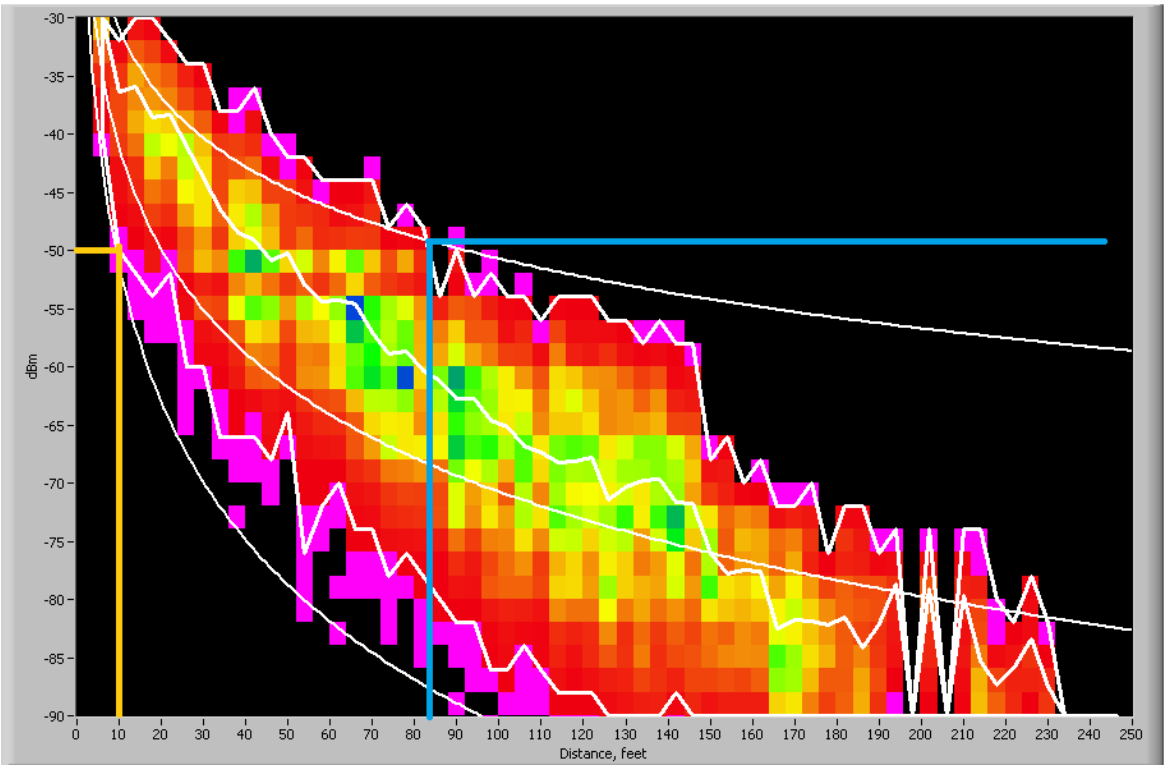
Progeny concludes with *quantitative* absolutes:
"… the headsets will still be able to use all of the channel capacity in the 902 – 928 MHz band without degradation and the total number of headsets that can be used in the call center will not decrease."[3]

Plantronics believes that quantitative conclusions need to be supported by quantitative analysis, and that Progeny's cited conclusions are unsupported by data. Progeny's repetitive claims to have performed adequate testing and observed no negative effects, on inspection, reveal incomplete testing and a lack of understanding of the actual ambient deployment environment.

In support of a quantitative discussion, Plantronics references the previously reported measured data for a similar wireless headset test system[4], restated, with notations added:

---

[2] Progeny February 6th letter at 1.
[3] Progeny February 6th letter at 4 into 5.
[4] Plantronics Comment filed December 20th, 2012 at 5.



Measured in-building desired signal-level data collected for the UPCS band for a 0.05W transmitter (fixed transmit power level), and diversity reception; multipath and random antenna copolarization loss effects for wireless headset and base in typical user orientations. Correct upwards by 6dB to account for antenna aperture in the 902 – 928MHz band.

Orange traces mark the point where fading minimums to -50dBm occur at 10ft range. Blue traces highlight the point at 83ft range where fading maximums (as a source of interference) no longer cross the -50dBm threshold.

Even at relatively short ranges and at high transmit power (+17dBm) used for this data-collection, the propagation path experienced multipath fading, shadowing and non-copolarization effects such that bottom-of-fade desired received signal events at short range (10ft, -50dBm corrected to -44dBm for the antenna factor, notated in orange) occurred. For a receiver needing 13dB static C/I, static interference signals above -57dBm would cause audio artifacts. For an urban-canyon deployment of the Progeny network, where interference signals from multiple beacons would be similar to that level (the downtown San Jose deployment, for example, where (contrary to Progeny's claims) several beacons, not just one, were at such signal levels), this analysis predicts that interference artifacts would occur.

Progeny makes various simplifying assumptions in its analysis of the path loss and signal levels between a wireless headset and base.[5] The analysis makes the assumption that indoor path loss specific to the communications problem at hand has a 3rd-law exponent, and ignores multipath, shadowing, and non-copolarization effects which make actual instantaneous signal level a statistical phenomenon.

It would be best to instead use the measured data, as above, which gives us the means to determine actual received power levels for a +17dBm transmitter in an office environment using the same modulation system and antenna selection algorithm as the actual susceptors, and with the same kind of user-positioning and head-shadowing effects and antenna copolarization losses as are to be expected in the actual use-case. Such a review of the measured data shows that problems are to be expected with clicks and pops even at typical in-office usage range, for call centers located in the urban-canyon environment where Progeny beacons are at less than the "several miles away" distance cited by Progeny as typical.

We further note that unlike the cited test system and referenced data, fixed at +17dBm, automatic power level adjustment and operating at the lowest possible power level is a feature of modern Plantronics headsets, in order to save headset battery life, to improve the achievable density for the deployment, and also to be a good-neighbor user of shared spectrum. For a headset/base system operating at -4dBm transmit power, the headset/base range at which an ambient -50 or -55dBm Progeny interferer would cause difficulties is then substantially less than 10ft headset-to-base separation. The wireless headset and base system would automatically increase its transmit power to attempt to compensate for the interference; and in a density deployment where such a non-cooperating interference source is present, a race-to-the-top for transmit power and resulting increased self-interference for the density ensemble is an issue.

Progeny makes certain assumptions about the signal level from its beacons,[6] claiming that an appropriate path loss is 2.8th power, and including further attenuation due to building penetration losses. These assumptions are not defensible, for three reasons:

1) A signal path which is being analyzed from the perspective of interference effects should use the signal levels at the tops of any fades, not the signal

[5] Progeny February 6th letter at 4.
[6] Progeny February 6th letter at 5.

levels appropriate for communications. The literature is full of analyses which attempt to reduce measured data to simplifying equations which then nominally allow engineers to predict distances and signal levels suitable for communications. Less common are analyses suitable for predicting path loss for interference. Note that the path loss for the tops of the fades, where the interference has its effects, is much less than that for the bottoms of the fades. Illustrative of this is the blue trace on the presented graph, above, showing the top of the signal level for which interference would occasionally touch -50dBm at 83ft base-to-headset range, whereas the range at which a minimum of -50dBm is assured is only 10ft. Interference effects occur at much longer range than communications can occur.

In the exemplary Plantronics measured data presented above, even for indoor communications, the tops of the fades extend significantly above the level predicted by a 2.0th power path loss model for some portions of the indoor range; the top smooth curve is the predicted square-law loss. This increase in received signal level above square-law path loss is consistent with capture instants where vector-addition of multipath rays was occurring.

2) The largest portion of the radiating path from the emitting antenna at the beacon to the susceptor will be through free space. Only after encountering the first scattering surfaces can any argument be made for an increase in the path loss exponent beyond square-law. Where a ground-bounce from an elevated antenna is a factor, Fresnel effects must include the vector phase summation points as well cancellation points, and the summed levels are the limit to interference.

3) Progeny, without further comment, claims "… a minimum building attenuation of 20 dB for an urban structure…"[7] In fact, ordinary window glass has negligible attenuation for radio signals in this band. The matter of substance here is not the path loss necessary to be overcome to attain communications (which is the usual approach taken in research studies) but rather the path loss experienced to an interference susceptor. And so, in this case, a susceptor dense call-center installation in a building with significant windows facing a Progeny beacon that is 800ft away, three typical city blocks, and line-of-sight from the Progeny antenna through the

[7] Progeny February 6th letter at 5.

building's windows, would experience -35dBm interference signals from the Progeny system.

The measured results in the Plantronics field trial done on Dec. 14th in downtown San Jose[8] show that the four channels (of 15 available to the modern Plantronics wireless headset system family) which straddle the two Progeny transmission channels will not be available for wireless headset systems to use with audio clarity, either at long range where the beacons completely block reception during transmission (consistent with Progeny's fallacious argument about wireless headset users only needing short range service) or in fact at short range, in this urban-canyon environment, contrary to Progeny's headlining assertions in its filing of February 6th.

During the Plantronics' field testing, even with the wireless headset and base in some proximity, the wireless headset audio experienced clicks and pops[9] due to the presence of the relatively strong signals[10] from the beacons (note plural, beacons, not just the closest beacon) of the Progeny network deployed in the field test area.

In the referenced filing, Progeny's "no harm" argument makes the following subjective and unquantified assertions:

a. "most of Plantronics' headsets will be used at individual workstations in relatively close proximity to their intended base stations. In such conditions, the close proximity between the headset and its base station will yield a strong enough signal to maintain significant carrier to interference ("C/I") margins and essentially "block out" all external noise sources (including transmissions from Progeny's beacons) and as a result will continue to use every channel in the 902 – 928 MHz band, including those that are shared with Progeny's service."[11] And:

b. Progeny asserts that only a small portion of wireless users will be away from their desks concurrently, and that performance in sufficient proximity between base and wireless headset will be adequate.

---

[8] Plantronics Comment filed December 20th, 2012 at 6.
[9] Plantronics Letter filed January 28th, 2013 at 3.
[10] Plantronics Comment filed December 20th, 2012 at 4.
[11] Progeny February 6th letter at 2.

c. Progeny characterizes[12] Plantronics test results as in support of a claim that Progeny's service will not be detected unless the headsets are separated from their intended base stations by some distance.

Plantronics reply:

Plantronics notes that Progeny appeals to "common sense"[13] in stating that "most" (otherwise unquantified) users will be in such range of their bases that the interfered channels can be used. Progeny's repetitious argument about usage models for modern wireless headsets in dense call-center installations lacks foundation. The usage model for modern call-centers with wireless headset deployment is specifically to allow the users to move around, collaborate with co-workers, visit various physically-disparate locations in their work area, and so forth. Sites which do not require these capabilities typically use wired headsets.

For an example video tour of a typical modern urban-canyon density call center, an environment with users often at some distance between their base and headset, see:
http://www.youtube.com/watch?feature=player_embedded&v=HW9GMqlO9bI
[14]

The ability to use a wireless headset at other than arm's-length proximity to its base unit is a core benefit of the wireless headset.

Progeny's argument that, at sufficient proximity between "most" wireless headsets and bases, Progeny's beacons have no effect is flawed. In fact, the range at which "no effect" occurs is unreasonably small for operation of such a wireless headset density deployment in an urban canyon area shared with Progeny beacons.

There are many matters of technical significance in this discussion that Plantronics and Progeny do not agree on. These matters are subject to being settled by thorough technical analysis; Plantronics is confident that our presentation of these matters is technically sound. More challenging in settling the larger question is that Progeny appears to view the matter of "harm" against which its proposals will be judged more lightly than Plantronics and other users of the band do. Progeny consistently cites typical cases and a low standard for performance of wireless headsets in dense call center deployments, whereas

---

[12] Progeny February 6th letter at 2.
[13] Progeny February 6th letter at 3.
[14] The Qube, Quicken Loan Building Tours, posted March 7, 2012, http://www.youtube.com.

Plantronics is concerned about the degradation in audio quality or usability for more than just the minimal use-cases, for those call centers in urban areas where some proximity to Progeny beacons will occur.

Plantronics has provided herein data (see section redacted for public filing) showing the prevalence of large call centers. Amongst the interested parties in this matter, Plantronics is particularly affected due to the technical constraints of its products - no repeat-retry is possible so as to avoid delayed sidetone, stringent battery size and user-comfort requirements are paramount, and the battery life requirements force a wide receiver bandwidth and minimum duty cycle. Plantronics has significant legacy product in existing installations, as well as ongoing new business.

Plantronics' perspectives in the matter of the Progeny's proposal to avoid the well-considered conditions on its original licenses are as stated in our previous filings. The contemplated deployment of pervasive and much-higher-powered transmitters sharing the 902 – 928 MHz band than has previously been the case will impose unjustifiable performance constraints on other users.

Sincerely,

Steve Cahill
Principal RF Engineer
Plantronics
345 Encinal St.
Santa Cruz, CA 95060

steve.cahill@plantronics.com
831-458-7512