

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

In the Matter of	)	
	)	
Request of Progeny LMS, LLC for Waiver of	)	WT Docket No. 11-49
Certain Multilateration Location and Monitoring	)	
Service Rules	)	
	)	
	)	

**COMMENTS OF CELLNET TECHNOLOGY, INC.,  
A LANDIS+GYR COMPANY**

Cellnet Technology, Inc., a Landis+Gyr company (“L+G”),<sup>1</sup> submits these comments in response to the Public Notice issued in the above-referenced docket on February 14, 2012.<sup>2</sup> The Public Notice solicits comments on the report filed by Progeny LMS, LLC (“Progeny”),<sup>3</sup> seeking to demonstrate, pursuant to 47 C.F.R. § 90.353(d) of the Commission’s rules, that its proposed Multilateration Location and Monitoring Service (“M-LMS”) network system will not cause unacceptable levels of interference to unlicensed Part 15 devices in the 902-928 MHz band. Because L+G extensively utilizes the 902-928 MHz band for its unlicensed advanced metering infrastructure (“AMI”) local area network, connecting the endpoint (meter) devices to

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<sup>1</sup> L+G is a leading provider of integrated energy management solutions tailored to energy company needs. With a global presence and a reputation for quality and innovation, L+G is unique in its ability to deliver true end-to-end advanced metering solutions. Using a combination of Part 101 Multiple Address System licenses held by its subsidiary Cellnet Technology, Inc. and unlicensed spread spectrum Part 15 devices, L+G has deployed a low-cost, private internal telemetry services network that allows it to transmit and receive data for the remote monitoring and control of devices, primarily utility meters.

<sup>2</sup> *Public Notice: The Wireless Telecommunications Bureau and the Office of Engineering and Technology Seek Comment on Progeny’s M-LMS Field Testing Report*, WT Docket No. 11-49, DA 12-209 (February 14, 2012).

<sup>3</sup> Letter from Bruce A. Olcott, Counsel to Progeny LMS, LLC to Marlene H. Dortch, Secretary, FCC, WT Docket No. 11-49 (filed January 27, 2012) (“*Progeny January 2012 Report*”) at 2.

its private backbone network, L+G has a wealth of first-hand experience in the successful operation of devices sharing the 902-928 MHz spectrum band and a significant interest in this proceeding.

As the Commission and Progeny are well aware, the 902-928 MHz band has been a fertile proving ground for an enormous number of different types of Part 15 products, ranging in nature from hugely successful consumer products like cordless telephones, baby monitors, wireless audio and video equipment, and home security systems, to medical implant products, to devices that have been integrated into critical infrastructure operations involved in the nation's energy, transportation and utility industries, including AMI and automated meter reading (“AMR”) devices. This band also has been used for RFID products, fork lift and crane control systems, and for the provision of wireless broadband connectivity. The number of Part 15 devices operating in the band today likely is in the hundreds of millions.<sup>4</sup>

The Commission has recognized the importance of unlicensed Part 15 operations in the 902-928 MHz band, and the currently effective M-LMS rules are designed to foster the co-existence of M-LMS systems with Part 15 devices and other users of the band.<sup>5</sup> On December 20, 2011, the Wireless Telecommunications Bureau and the Office of Engineering and Technology released an Order (“*Waiver Order*”) in WT Docket No. 11-49, which granted

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<sup>4</sup> As long ago as 1995, when the FCC was considering rules for the use of this band by licensed automatic vehicle monitoring systems, the FCC estimated the number of unlicensed devices operating pursuant to Part 15 then to be in excess of four million. *See* Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, *Report and Order*, 10 FCC Rcd 4695, 4712 ¶ 30 (1995) (*LMS Report and Order*). Since that time, a number of changes have been made in the rules governing the use of this band in order to further encourage the use of advanced technologies and the development of unique and innovative devices and uses. *See e.g.*, Amendment of Part 15 of the Commission's Rules Regarding Spread Spectrum Devices, *Second Report and Order*, 17 FCC Rcd 10755 (2002).

<sup>5</sup> *See LMS Report and Order*, 10 FCC Rcd at 4699-4702 ¶¶ 8-12.

Progeny’s request for limited waiver of two rules; but the *Waiver Order* did not revise other interference-related requirements applicable to M-LMS licensees.<sup>6</sup> The *Waiver Order* noted in particular that Section 90.353(d) of the rules requires that Progeny demonstrate through actual field tests that its M-LMS system will not cause unacceptable levels of interference to Part 15 devices in the 902-928 MHz band.<sup>7</sup> As the *Waiver Order* noted, the purpose of the testing condition “is to insure that multilateration 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 in their area, and to *verify through cooperative testing* that this goal has been served.”<sup>8</sup>

As an additional condition, the *Waiver Order* required Progeny, once it had completed design of its M-LMS system but prior to commencing commercial operations, to file a report that provides details of the proposed M-LMS system design, describes the process by which Progeny carried out the field testing, including the particular types of Part 15 devices tested, and demonstrates that its M-LMS system will not cause unacceptable levels of interference to Part 15 devices that operate in the 902-928 MHz band.<sup>9</sup> As the *Waiver Order* indicated, “the testing requirement will require Progeny to take the goal of minimizing interference to existing users,

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<sup>6</sup> Request by Progeny LMS, LLC for Waiver of Certain Multilateration Location and Monitoring Service Rules, WT Docket No. 11-49, *Order*, DA 11-2036, 26 FCC Rcd 16878 ¶ 25 (“*Waiver Order*”).

<sup>7</sup> *Id.*

<sup>8</sup> *Id.* at ¶ 25, *citing* Amendment of Part 90 of the Commission’s Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, PR Docket No. 93-61, *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 12 FCC Rcd 13942 (1997) (“*M-LMS MO&O*”) at 13968 ¶ 69 (emphasis supplied).

<sup>9</sup> *Waiver Order* at ¶ 29.

including Part 15 users, into consideration and to verify *through cooperative testing* that this goal is being served.”<sup>10</sup>

Despite the *Waiver Order’s* multiple references to the requirement for “cooperative testing,” Progeny did not contact L+G to participate in Progeny’s Part 15 tests.<sup>11</sup> This failure is remarkable because L+G was one of just two Part 15 users that had expressed concerns in comments filed on Progeny’s request for waiver.<sup>12</sup> In fact, Progeny’s test report is flawed to the extent that Progeny included only one type of AMI device in its test,<sup>13</sup> despite the millions of automatic meter reading (“AMR”) devices already deployed; and the particular water meter device tested is not representative of the quantity and operation of typical AMR/AMI solutions that operate in the band. Progeny thus did not satisfy the requirement for “cooperative testing.”

The Progeny report also fails to demonstrate that its “M-LMS system will not cause unacceptable levels of interference to Part 15 devices.”<sup>14</sup> The Progeny tests focus primarily on Part 15 consumer devices and devices used in indoors;<sup>15</sup> and the results from those tests cannot be extrapolated to extend to the millions of outdoor AMR/AMI devices already deployed and rendering service to our nation’s critical infrastructure companies. Indeed, consumer devices for human-to-human interactions are more tolerant of interference, as humans can adjust. Machine-

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<sup>10</sup> *Id.* at ¶ 26 (emphasis supplied).

<sup>11</sup> Progeny’s failure to contact L+G belies Progeny’s claim that “[d]evices intended for utility applications could not easily be procured.” *Progeny January 2012 Report, Attachment 2 (Part 15 Test Report)*, page 16.

<sup>12</sup> Itron, Inc., another AMI/AMR provider, was the other Part 15 user to comment on the Progeny waiver petition. See *Waiver Order* at ¶¶ 9-10.

<sup>13</sup> *Progeny January 2012 Report, Attachment 2 (Part 15 Test Report)*, Table 1, page 17.

<sup>14</sup> *Waiver Order* at ¶ 29.

<sup>15</sup> *Progeny January 2012 Report, Attachment 2 (Part 15 Test Report)*, Table 1, page 17.

to-machine (“M2M”) communications such as by AMI/AMR devices, on the other hand, are less tolerant of interference and their performance will be degraded in one or more respects.

Progeny’s proposal to install its beacons “at the highest available points on existing broadcast or cellular towers”<sup>16</sup> also is not conducive to co-existence with Part 15 devices. Because the Progeny beacons will be located as high as possible on the most visible sites, the beacons when transmitting likely will overwhelm lower power Part 15 devices over a larger territory, including AMR/AMI devices operating within range of the Progeny transmitters. Progeny’s claimed “break case” (where the test device is in the same building as the beacon transmitter and within 50 feet)<sup>17</sup> does not address the actual “worst case scenario” of an outdoor AMI/AMR meter that is within line of sight and 50 feet of the beacon location.

Additionally, Progeny states that its signal is divided into 100 ms time slots, and each transmitter may use up to two slots in a given second.<sup>18</sup> Although Progeny proposes a 20 percent duty cycle on every 1 second period (which L+G acknowledges is much preferred over a system that is always transmitting), the possible division of the beacon signal into two 100 ms time slots provides two instances of potential interference per second to an AMR/AMI device.<sup>19</sup> Any

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<sup>16</sup> *Progeny January 2012 Report*, Attachment 1 (Wide Area Positioning System Network Description), at 1.

<sup>17</sup> *Id.*, Attachment 2 (Part 15 Test Report), at 10-11.

<sup>18</sup> *Id.*, Attachment 1 (Wide Area Positioning System Network Description,) at 5.

<sup>19</sup> For purposes of illustration, if an AMR/AMI device utilizes packets with short bursts of 25 ms, the window of interference is (a) 250 ms in the case of a single 200 ms slot of Progeny’s beacon transmission and (b) 300 ms when two 100 ms slots are used by Progeny’s beacons. As a result, the average packet success rate (“PSR”) at best is 75 percent (70 percent if two 100 ms beacons are used) because the channel at best will be free of Progeny transmissions only 75 percent of the time (70 percent if two 100 ms beacons are used).

interference to packets may cause the loss of the entire packet. M2M data interfered with will likely need to be retransmitted, reducing overall performance.

Questions remain also even with the consumer and other devices that Progeny did test. In describing the test results, the Progeny submission suggests that interference to Part 15 devices will occur, as its submission apparently acknowledges but tries to deemphasize instances of interference with phrasing using qualifiers such as “the *vast majority* of cases,” “*some* of the Part 15 devices still could not detect the M-LMS transmissions,”<sup>20</sup> “*most* Part 15 devices did not detect the WAPS beacon in *most* of the test environments,” etc.<sup>21</sup> Progeny also relies on its assertion that “*many* Part 15 devices employ automatic frequency selection capabilities,” thereby allowing them to switch channels to ones not used by M-LMS.<sup>22</sup> When establishing the waiver condition that Progeny demonstrate that its system will not cause unacceptable interference to Part 15 devices, however, the FCC did not limit the Part 15 devices that need to be protected to those employing automatic frequency selection capabilities. “Many” AMI/AMR devices have been in the field for many years and may be designed for single frequency use. If the Progeny system operates close to the single AMI/AMR center frequency, the latter can become non-operational. The expense of replacing AMI/AMR devices rendered inoperable or unreliable by the Progeny system could be significant.

In sum, serious questions remain concerning whether the proposed Progeny system will cause unacceptable interference to Part 15 users in the 902-928 MHz band. At a minimum, the Commission should enforce the waiver condition mandating “cooperative testing” and require

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<sup>20</sup> *Progeny January 2012 Report*, Letter from Bruce A. Olcott, at 2 (emphasis supplied).

<sup>21</sup> *Id.*, Attachment 2 (Part 15 Test Report), page 7 (emphasis supplied).

<sup>22</sup> *Id.*, Letter from Bruce A. Olcott, at 2 (emphasis supplied).

