September 28, 2011

FILED ELECTRONICALLY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th St., S.W.
Washington, DC 20554

Re: IB Docket No. 11-109 and FCC File No. SAT-MOD-20101118-00239
Ex Parte

Dear Ms. Dortch:

On August 22, 2011, Deere & Company (“Deere”) submitted an ex parte filing (the “Deere Filing”) in the above-referenced proceeding that included a copy of a Powerpoint presentation Deere had made to FCC staff.¹ LightSquared Subsidiary LLC (“LightSquared”) hereby replies to certain positions taken in the Deere Filing.²

LightSquared demonstrates in this reply that:

- Deere’s criticisms of the TWG test methodology lack credibility, because Deere was a principal architect of the methodology and sang the test result’s praises when the TWG report was issued.

- The Department of Defense’s GPS receiver performance standards, which explicitly tie GPS receiver performance to compliance with the standards, refute Deere’s contention that the standards have no bearing on GPS receiver design.

- Although Deere objects to LightSquared’s complaint that Deere and other GPS manufacturers are being uncooperative, the evidence shows that the GPS manufacturers have made no concessions, have offered no suggestions, and have rejected out of hand every suggestion LightSquared has made for creating an RF

¹ Letter from Catherine Wang, counsel for Deere to Marlene H. Dortch, Secretary, Federal Communications Commission, IB Docket No. 08-184 and FCC File No. SAT-MOD-20101118-00239 (Aug 22, 2011).
² LightSquared already has addressed, in its Reply Comments submitted on August 15, 2011 in this proceeding, other issues raised in the Deere Filing. LightSquared hereby incorporates by reference its previously-filed Reply Comments.
environment in which GPS devices can co-exist with LightSquared’s network.

- GPS manufacturers were well aware of the likelihood that there would be widespread deployment of ATC base stations, but the manufacturers nevertheless did not prepare for the deployment.

- If Deere wishes to develop and manufacture wideband GPS receivers, the receivers need to be capable of performing in an environment in which LightSquared operates ATC stations that are compliant with the power levels and other technical parameters specified in the Commission’s rules.

**Adequacy of testing.** One of the areas of disagreement between itself and LightSquared, according to Deere, is the “[a]dequacy of TWG testing.” Deere lists several items, under the heading “adequacy of TWG testing,” that are critical of how the TWG tests were conducted.

Deere’s criticisms lack credibility and should be disregarded. Deere was a principal architect of the methodology it now is criticizing; Deere made statements when the TWG completed its work praising the test procedures; and other GPS manufacturers and representatives also praised the test design. It is only now, as elements of the GPS industry are doing everything they can to delay a final Commission determination on the technical issues in this matter, that Deere has changed its tune.

Deere’s GPS products are high precision devices. Deere personnel, it estimates, “devoted thousands of hours” to testing and analysis while they “headed up the High Precision Sub-team” of the TWG. As such, Deere’s representatives were front and center in developing the test design for high precision products. Given its position, Deere should be the last one to be questioning the TWG’s test methodology.

When the TWG report was released, Deere had only positive things to say about TWG’s test procedures for high precision products. Deere stated in its comments on the TWG report that the test methodology was “sound” and “developed by consensus.” In its reply comments, Deere characterized the

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3 Deere Filing, slide 21.
4 Deere Filing, slide 30.
6 Deere Comments at 10.
7 Deere Comments at 19.
technical data developed using the TWG methodology as “conclusive,” and stated that it did “not see the utility” of additional testing.

Deere had plenty of company from the GPS industry in praising the TWG’s test design. The U.S. GPS Industry Council (“USGIC”), for example, was laudatory in describing what the TWG had done. USGIC, which holds itself out as a representative of the “interests of the satellite navigation industry manufacturers and users,” stated in its comments that the TWG’s test results reflected “solid scientific methodology, analysis, and results” based on “specific and comprehensive tests.” The comments also emphasized that USGIC and its members “were instrumental in developing and executing the work plan established by” the TWG.

Viewed against this background, Deere’s belated criticisms of the TWG’s methodology lack credibility. Deere cannot develop test procedures, praise them, and then expect anyone to believe months later that it sincerely believes the procedures were inadequate. Deere’s criticisms should be dismissed as an effort to delay a final Commission determination.

**DoD receiver standards.** Deere claims that the GPS performance standards published by the Department of Defense (“DoD”) bear only upon the GPS signal in space and denies that the standards are relevant to GPS receiver design. The DoD standards refute Deere’s contentions, because they explicitly tie receiver performance to compliance with the standards.

Although DoD, like the FCC, does not mandate receiver performance - a point as to which LightSquared has been quite clear - DoD has cautioned that the receiver standards set forth in the SPS comprise “Minimum Usage Assumptions” that “are necessary attributes to achieve the SPS performance described therein,” *i.e.*, GPS performance is “conditioned upon … [these] assumptions.”

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9 Deere Reply Comments at 6.
11 USGIC Comments at 6.
12 USGIC Comments at 7.
13 USGIC comments at 3-4.
14 Deere also questions whether TWG testing of the lower 10 MHz was complete and whether there was sufficient time to conduct the lower 10 MHz testing. See Deere Filing, slide 30. Deere’s objections are without merit. All sub-teams tested every device against a Lower 10 MHz deployment. The test plan of the High Precision team, which Deere led, included testing of the lower 10 MHz channel from the outset and included that channel in every test suite it conducted.
16 See Deere Filing, slide 35.
17 Id. at 7.
One of DoD’s assumptions is that the GPS receiver will have a “sharp-cutoff filter.” Cut-off filters are used to block reception of transmissions from adjacent bands, including the adjacent L-band frequencies used by LightSquared. DoD effectively put GPS manufacturers on notice, therefore, that unless they employed sharp cut-off filters their devices might not function properly in the presence of transmissions on frequencies outside the GPS band.

Had GPS manufacturers paid heed to DoD’s receiver specifications, the issue of overload could have been avoided. The manufacturers, however, chose to disregard DoD’s minimum usage assumptions. Having done so, they need to take responsibility for their design decisions.

**Failure to Cooperate.** Deere objects to LightSquared’s complaint that Deere and other GPS manufacturers are being uncooperative. Virtually all of the facts Deere presents to defend itself, however, relate to Deere’s conduct in the TWG, and LightSquared never has taken issue with Deere’s participation in the TWG. Rather, LightSquared’s concern relates to Deere’s actions since the TWG report was completed.

The facts tell the story. For its part, LightSquared has made major concessions. Among other things:

- LightSquared volunteered to underwrite the expense of the TWG testing, even though the commercial GPS industry should have performed these tests years ago if it had been serious about assessing the interference environment back when the Commission was developing rules for ATC.

- LightSquared agreed to forgo the higher power level for its terrestrial base stations it had applied for in 2009 and the Commission had authorized in 2010, without opposition from the GPS industry.

- LightSquared committed to a standstill during which it will initiate service using only the lower half of its L-band spectrum, thereby leaving a guard band of 23 MHz between LightSquared and GPS – a guardband that comprehensive testing shows will protect all mobile phones and personal navigation devices using any reasonable measure of harmful interference.

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18 Id. at 13.
19 Id. at 13.
20 See Deere Filing, slide 38.
21 See Deere Filing, slide 38.
• To implement the standstill, LightSquared had to shift the timing of its access to portions of the frequency bands it shares with Inmarsat, which already has cost LightSquared over a hundred million dollars.

• To address the GPS industry’s oft-repeated concerns about precision devices, LightSquared pledged to coordinate and share the cost of underwriting a workable solution for legacy precision measurement devices, coordinate its rollout, and put augmented precision devices on a more stable contractual basis than currently applies.

The GPS manufacturers, on the other hand, have made no concessions, have offered no suggestions, and have rejected out of hand every suggestion LightSquared has made for creating an RF environment in which GPS devices can co-exist with LightSquared’s network. That is not cooperation; it is insistence that the other side capitulate.

**GPS manufacturers’ knowledge that there would be widespread ATC base station deployment.** In response to LightSquared’s showings that GPS manufacturers have known for years of LightSquared’s plans to deploy ATC base stations extensively, Deere offers what can fairly be characterized as a “stupidity defense.” Deere maintains that GPS manufacturers must not have known of LightSquared’s plans, because if they had known they would not have been stupid enough to design and market GPS receivers that inadequately discriminate between LightSquared’s adjacent-band transmissions and the in-band signals transmitted by the federal government’s GPS satellite system.22

Deere’s argument overlooks a more plausible explanation, *i.e.*, the possibility that the GPS industry believed LightSquared’s efforts to create a wireless broadband network would not succeed and took a calculated risk that GPS would always have free rein over LightSquared’s spectrum. When in 2010 it became apparent that LightSquared could and would deploy the ground network it had been authorized to deploy for years, the GPS industry initiated a massive lobbying campaign designed to force LightSquared off its authorized spectrum.

In any event, regardless of whether the GPS industry took a calculated gamble or simply was incompetent, the industry needs to take responsibility for not having raised the overload issue sooner. The GPS receiver manufacturers such as Deere are the ones who are in a position to perform tests on their proprietary equipment, and if they fail to bring test-based evidence forward in a timely manner, they should bear the consequences.

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22 See Deere Filing, slide 33.
It strains credulity, moreover, to suggest that GPS manufacturers were unaware of the prospect that there would be widespread deployment of ATC base stations, because the evidence that they were aware is overwhelming. The USGIC and Deere itself participated in the ATC rulemaking. The technical elements of LightSquared’s ATC network have been in place since 2005. That same year, the Commission eliminated all numerical limits for L-band ATC base stations. USGIC, in a 2003 filing asking that the Commission approve its coordination agreement with LightSquared, acknowledged that under the agreement there could be “potentially tens of thousands of ATC wireless base stations.” And statements by LightSquared in its SEC filings; the Commission in its orders; and a senior NTIA official in a meeting in which GPS representatives participated all put GPS manufacturers on notice that ubiquitous ATC deployment was in the cards.

This history establishes that GPS manufacturers were well aware of the likelihood there would be widespread deployment of ATC base stations, but the manufacturers nevertheless did not prepare for the deployment. LightSquared should not have to pay for the GPS industry’s failures.

Wideband signals. In its filing, Deere claims there is a growing need for wideband GPS receivers and expresses dissatisfaction at the prospect of having to develop filters for these wideband receivers so that they can co-exist with LightSquared’s transmissions. Wideband GPS receivers, however, are no different from any other devices that have adjacent-band issues. The proponents of such devices must endeavor to develop equipment that can co-exist with adjacent band transmissions that are made consistent with existing technical rules.

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23 See LightSquared’s Reply Comments at 10-21.
24 Flexibility for Delivery of Communications by Mobile Satellite Service Providers, Memorandum Opinion and Order and Second Order on Reconsideration, 20 FCC Rcd 4616 (2005), ¶ 50.
25 Reply Comments of USGIC, IB Docket No. 01-185, at 2 (Sep. 4, 2003) (emphasis added). See also Letter from Bruce D. Jacobs, Counsel for Mobile Satellite Ventures L.P., and Raul R. Rodriguez, Counsel for the U.S. GPS Industry Council to Marlene H. Dortch, Secretary, Federal Communications Commission, IB Docket No. 01-185 (July 17, 2002) (attaching an agreement relating to OOBReached between USGIC and LightSquared and stating that the OOB limits agreed to are appropriate because MSS’s “technical characteristics, operational interference scenarios, and expected density are published and understood” and LightSquared’s “proposed terrestrial augmentations also are well known”).
26 See LightSquared’s Reply Comments at 15-18.
27 See, e.g., Deere Filing, slides 11, 27-28. Some of Deere’s wideband points are based on an assumption that LightSquared will be operating in its upper 10 MHz (see slide 27), and should be disregarded because LightSquared has proposed to initiate commercial service using only the lower 10 MHz of its uplink band.
In Deere’s case, this means its wideband GPS receivers need to be capable of performing in an environment in which LightSquared operates ATC stations that are compliant with the power levels and other technical parameters specified in the Commission’s rules.28 Failing that, Deere needs to seek rule changes or to coordinate with LightSquared. The Commission’s rules do not give Deere a blank check to design GPS receivers however it likes without regard to adjacent-band operations.

For the reasons stated above, the arguments made in the Deere Filing should be rejected.

Respectfully submitted,

/s/Jeffrey Carlisle
Executive Vice President
Regulatory Affairs & Public Policy

703-390-2001 (office)
571-296-7780 (mobile)
jeff.carlisle@lightsquared.com

cc: IB-SATFO@fcc.gov

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28 As discussed above, Deere already is on notice that it needs to incorporate sharp cut-off filters into its receiver design.