

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Application of Deere & Co.)	IBFS File No. SES-MOD-20141030-00835
)	
For Authority to Receive Transmissions from Non-U.S.-licensed Spacecraft)	Call Sign E010011
)	

REPLY TO OPPOSITION TO PETITION TO DENY

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I. INTRODUCTION AND SUMMARY

LightSquared Inc., Debtor-in-Possession, together with its affiliates (collectively, “LightSquared”), replies to the Opposition of Deere & Company (“Deere”) submitted on April 13, 2015 in this proceeding.

The dispute between LightSquared and Deere goes back to 2010, and includes not just the pending proceeding but also LightSquared’s Petition for Reconsideration of Deere & Company, IBFS File No. SAT-MOD-20101118-00239, at 6 (Feb. 25, 2011).

After nearly five years of business conflict, punctuated by requests for agency action, the Commission now has before it an undisputed record of facts on which at last it can make a decision based on a clear issue of law.

On the one side we have Deere’s claim, which they have asserted at the Department of Transportation, that a license to use a narrow slice of satellite spectrum gives it a right to curtail any use of spectrum licensed to others stretching up to 70 MHz away from its

licensed spectrum. Unresolved by the Commission, this legally groundless assertion thwarts the public's ability to put LightSquared's spectrum to its highest and best use, resulting in the loss of billions of dollars of social value while the spectrum is restricted and underutilized.

On the other side, LightSquared requests the Commission choose between two courses of action:

(1) Grant Deere the license to spectrum which it seeks with the express condition that such license does not in fact give Deere the right that it claims: namely, that by making and selling devices that receive slivers of spectrum it must be protected across not just its licensed frequencies but across electromagnetic waves on a vast swath of spectrum, apparently ranging from 1525 MHz to 1680 MHz, and therefore has a right to curtail licensed uses of all that other spectrum to which it has no license, or

(2) Simply deny Deere the license it seeks, on the ground that it has for over five years misconstrued the attributes of an FCC license, or designate the matter for hearing.

II. UNDISPUTED FACTS

Deere makes tractors that contain devices that use satellite signals in order to ascertain the latitude and longitude occupied by the vehicle. Deere uses three such signals: one is at 1575.42 MHz, the signal broadcast in the Radio Navigation Satellite Services ("RNSS") band for civilian use by the United States Government's GPS satellite constellation. The other two signals are currently a pair of 2.5 kHz channels located at 1545.545 and 1535.1525 MHz, both

signals provided in the L Band by satellites owned and operated by Inmarsat.¹ The instant application seeks to move these channels to 1545.9775 and 1545.9875 MHz.

Inmarsat is a foreign satellite operator. For compelling reasons of spectrum management and trade policy, the United States government does not permit anyone in the United States to use a foreign satellite signal without getting a license.² The rules requiring a license for such use were established almost 20 years ago to protect reciprocity of trade: the rules were intended to “facilitate competitive entry in the U.S. satellite services market by foreign-licensed satellites . . . and afford greater opportunities for U.S. companies to enter previously closed foreign markets.”³

Deere, therefore, did not need an FCC license in order to make use, for free, of the Government-provided GPS signal. It would not have needed an FCC license to obtain other location signals from American satellite operators. But choosing for business reasons to obtain its extra signals from Inmarsat, it needed and obtained an FCC license in 2001.

At some point before or after obtaining that license, Deere apparently equipped tractors with devices capable of receiving signals from two distinct spectrum bands – the GPS signal located in the RNSS band and Inmarsat’s signals in the L Band. However, it appears that Deere

¹ See IBFS File No. SES-LIC-20010112-00051, Call Sign E010011 (granted Oct. 9, 2001).

Note that Deere apparently also operates at 1537 MHz, even though it has never been licensed to do so. See *In the Matter of Application of Deere & Co. For Renewal of Earth Station License*, IBFS File No. SES-MOD-20141030-00835, LightSquared Petition to See 47 C.F.R. § 25.131(j). See also, e.g., *National Telecommunications and Information Administration Provides Information Concerning Executive Branch Recommendations for Waiver of Part 25 Rules Concerning Licensing of Receive-Only Earth Stations Operating with Non-U.S. Radionavigation Satellites*, Public Notice, DA 11-498 (Mar. 14, 2011) (“The Federal Communications Commission’s (FCC) rules require licensing of non-Federal receive-only equipment operating with foreign satellite systems, including receive-only earth stations operating with non-U.S. licensed radionavigation-satellite service (RNSS) satellites.”).

³ Amendment of the Commission’s Regulatory Policies to Allow Non-U.S. Licensed Satellites Providing Domestic & International Service in the U.S., Report & Order, 12 FCC Rcd. 24094, at para. 10 (1997).

elected to use a receiver design involving only one set of components for managing signals from both bands – these components are referred to as the “front end” of a receiver. (A generic representation of a front end is depicted below at Figure 1.) Moreover, Deere’s receivers were capable of receiving signals from across the entirety of the L Band.

But Deere had alternative design options, which it could have elected at any time between 2001 and the present. First, Deere could have used a single front end for both bands by asking for L Band signals at approximately 1558-1559 MHz. These signals would have been near the GPS signal in the RNSS band. Second, Deere could have used a separate front end for each band. This kind of design can be found in millions of smartphones, which receive multiple different bands in a crowded spectrum environment without suffering interference or overload.⁴ This design allows for flexibility – that is, the receiver can be retuned to different frequencies – but minimizes exposure of the receiver to interference and overload.

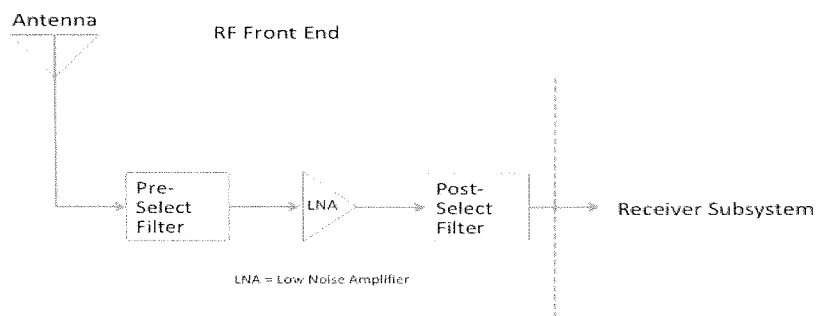


Figure 1. Front End Illustration

⁴ See, e.g., <http://www.chipworks.com/en/technical-competitive-analysis/resources/blog/apple-iphone-5-the-rf/> (showing multiple front ends for the iPhone 5).

Instead, Deere intentionally configured its two receivers to share a single front end with apparently no filtering between the two bands. This design choice allegedly left their GPS receivers open to receiving signals from across the L Band. Although Deere has not disclosed exactly how much spectrum its receivers allegedly cover, on April 15, 2015 a group called the GPS Innovation Alliance sent a letter to the Department of Transportation signed by Deere, Trimble Navigation Limited and Garmin International, Inc.⁵ This letter asked the Department to, among other things, expand its study of adjacent band interference from not just 1525-1675 MHz, but to stretch it further, all the way to 1680 MHz.⁶

Deere, in other words, knowingly installed in its tractors positioning devices that would (at least allegedly) run the risk of receiving electromagnetic waves to which Deere had no license and Deere, through its design choice, purportedly left its GPS receivers open to these adjacent band signals. Deere now claims this business decision exposes those receivers to a risk of overload, meaning some increased uncertainty in ascertaining the position of a tractor arising from the receiver's openness to frequencies outside Deere's license.

Deere claimed as early as 2010 that by choosing to install receivers with zero to little filtering capability and concomitant capability to receive signals across a broad range of spectral frequencies, it therefore had a cognizable claim to limit other licensees' use of adjacent spectrum. Now we are told that this adjacent spectrum stretches, in Deere's view, from at least 1525 MHz to 1680 MHz. In colloquial terms, Deere asserts that its knowing selection of receivers with "big ears" so as to permit "listening" to many other frequencies gives it a right to deny to other FCC license holders any and all uses of these other frequencies.

⁵ Letter from the GPS Innovation Alliance to Stephen Mackey, Volpe, The Nat'l Transp. Systems Center, U.S. Dep't. of Transp., (Apr. 14, 2015) ("GPSIA Letter").

⁶ *Id.* at Attachment, Slide 1.

In 2011, the Deere License expired. It needed a new license. It filed for renewal on September 8, 2011. The Commission's International Bureau had no basis to know Deere's unprecedented and groundless interpretation of the scope of the license. Seeing nothing unusual about the situation, it did not put the Deere filing out for comment, and granted the renewal, effective September 13, 2011.

But LightSquared knew, of course, that Deere's understanding of the license, or at least its assertions based on the license, had the purpose and/or effect of throwing into doubt the most economically productive use of five blocks of spectrum⁷ to which LightSquared had acquired licensed rights. Therefore, on October 14, 2011, only 31 days after the Bureau granted the new Deere license, LightSquared asked the Commission to reconsider that grant. The Commission did not act on that request and it remains pending. Since 2011, LightSquared has in various ways asked the Commission as well as other agencies of the federal government to apply to the vitally important topic of the 200 MHz stretching between 1500 MHz and 1700 MHz at least four basic principles:

- (1) A license to use any part of the subject spectrum, and an entity that relies on a service provided by such spectrum usage, does not give the licensee or any such entity rights to curtail in any way the use of other spectrum by other entities, including Commission licensees.⁸

⁷ LightSquared currently has permission to use the following blocks of spectrum: 1670–1675 MHz; 1646.7–1656.7 MHz; 1627.5–1637.5 MHz; 1545.2–1555.2 MHz; and 1526–1536 MHz.

⁸ Commission precedent has held for decades that a licensee's authority is necessarily limited to the authority requested in its application. *See Graphnet Systems, Inc.*, 67 FCC 2d 1043, at ¶ 6 (1978). As LightSquared has pointed out, Deere did not ask for any such authority in any of its applications, and in fact stated that for its authorized signals it

- (2) A decision by a licensee or a user of a service to design or buy or sell or install receivers that are open to radio signals on spectrum not within the scope of the license or the service does not give the licensee or service user any right to curtail the use of that other spectrum. Moreover, under FCC precedent and indeed in accordance with FCC's time-tested goal of maximizing value-creating use of all spectrum, parties designing receivers should bear the cost of designing devices that exclude signals to which they have no license.
- (3) Any party may assert any view about spectrum use to any agency of the federal government, but the Commission and only the Commission can regulate the use of non-federal spectrum.⁹ Typically, the Commission does define in a license the standards for transmitting radio waves on the licensed frequency. For example, the Commission regularly limits a transmitter's power, as well as the strength of the signal that can reach adjacent bands (out of band emissions). The Deere License gives it the right to receive the signals it is authorized to receive, but nothing in the Deere

accepted a license condition to accept interference. *See* Petition to Deny, Exhibit A, at 11.

⁹ Section 303 of the Act empowers the FCC too “[p]rescribe the nature of the service to be rendered by each class of licensed station,” “[a]ssign bands of frequencies to the various classes of stations,” “[r]egulate the kind of apparatus to be used with respect to its external effects and the purity and sharpness of the emissions from each station and from the apparatus therein,” and regulate as necessary “to prevent interference between stations.”[1] 47 U.S.C. § 303(a)–(c), (e)–(f). Section 305 of the Act then specifically exempts only radio stations “belonging to and operated by the United States”—*i.e.*, spectrum used for Federal purposes—from the provisions of Section 303. *See id.* at § 305. *See also* *Head v. New Mexico Bd. of Examiners in Optometry*, 374 U.S. 424, 430 n.6 (1963) (noting that the jurisdiction of the FCC over technical matters associated with the transmission of radio signals “is clearly exclusive”); *New York SMSA Ltd. P’ship v. Town of Clarkstown*, 612 F.3d 97, 100 (2d Cir. 2010) (Congress “intended the FCC to possess exclusive authority over technical matters related to radio broadcasting”); *Broyde v. Gotham Tower, Inc.*, 13 F.3d 994, 997 (6th Cir. 1994) (discussing “the FCC’s exercise of exclusive jurisdiction over the regulation of radio frequency interference”).

License gives it the right to build any receiver it chooses and have that design protected under any circumstance and regardless of the impact on other licensees.

(4) In general, other Federal agencies that have missions that intersect with spectrum usage and Commission authority should work in a cooperative manner with stakeholders and the Commission to address any issues that arise.¹⁰ The FAA, for example, has worked well with businesses and technologists to assure that receivers work as intended on certain frequencies, even if adjacent bands are also being used for radio transmission. But it is unusual for another agency to deem itself to be as expert as the Commission in addressing interference issues, much less purporting to supplant the Commission by means of crafting transmission standards.

On October 30, 2014, Deere asked the Commission to grant it another license. In this instance, Deere wanted to move to new frequencies within the L Band. But now the Commission, like LightSquared, has notice that Deere contends that any license empowers Deere to seek restrictions on other licensees' use of adjacent bands, even if any alleged overload problems in Deere's receivers stem from its continued unwillingness to choose either to use signals located at 1558-1559 or dual front ends.

¹⁰ See, e.g., *In the Matter of Investigation of the Spectrum Requirements for Advanced Med. Technologies*, 21 FCC Rcd. 8164, 8166 (2006). Responding to input from FDA, the FCC sought, among other things, detailed comment on how the Commission could anticipate and proactively address the challenging array of radiofrequency spectrum sharing issues raised by the increasing use of new implant and body-worn medical radiocommunication technologies. The FCC noted its "long history of providing for the reliability of communications related to medical care." *Id.* at 8166.

III. ARGUMENT

As Deere acknowledges,¹¹ the Commission recently expressed serious concerns about firms choosing to open its receivers in the way Deere has done. The Commission’s recent *E911 Location Accuracy Order* states that the use of “technologies used to augment GPS may increase the potential exposure of devices to interference by increasing the number of unwanted signals and the number of signals that can introduce data integrity problems” and directs applicants seeking to utilize such augmentation technologies to “conduct testing to ensure that operation with these signals does not inadvertently introduce vulnerabilities to the devices that could impair . . . performance or compromise data integrity.”¹²

Moreover, the Commission has never allowed licensees to assert extraordinary rights to “clear cut” a whole band, and thus create what amounts to an unimaginably large “guard band,” simply because they have received authorization to use a few slivers of spectrum.¹³ In an increasingly crowded spectrum environment, the Commission’s response must be to prevent misuse of license rights and demand that licensees make responsible design decisions that protect

¹¹ See *In the Matter of Application of Deere & Co. For Renewal of Earth Station License*, IBFS File No. SES-MOD-20141030-00835, Deere Opposition to Petition for Reconsideration (Oct. 27, 2011), at 4 (“2011 Opposition”). LightSquared raised this issue in its Petition to Deny. See Petition to Deny at 4.

¹² *Wireless E911 Location Accuracy Requirements*, Fourth Report and Order, FCC 15-9, PS Docket No. 07-114, at ¶ 40 (Feb. 3, 2015). Deere acknowledges that these requirements exist, but it suggests that they should be ignored in this case because the Deere License already lists Inmarsat satellites as points of communication. But nothing in the *E911 Location Accuracy Order* suggests that existing licensees are somehow “grandfathered” in perpetuity, or that the Commission should not consider the impact of requests for *new* authority—particularly where, as here, a request is made for authority to communicate with non-U.S. spacecraft on frequencies different than those previously specified in a license. Indeed, any “grandfathering” would severely undermine the data integrity goal that the Commission was trying to achieve in the *E911 Location Accuracy Order*.

¹³ See *supra* note 8 (decades old Commission precedent limits licensee rights to authority sought in the application).

long authorized uses. Otherwise, the Commission will encourage others to act exactly as Deere has done, making it effectively impossible to reliably auction and deploy spectrum.

These points lie at the heart of Deere's qualification to hold a license and whether it is in the public interest to grant it. Deere does not, however, address any of them. Rather, it spends the lion's share of its Opposition arguing that LightSquared lacks standing, and that LightSquared is somehow infringing Deere's First Amendment rights.¹⁴ But in property law, when someone occupies a property owner's land for long enough, the victim must protest or else suffer adverse possession.¹⁵ In tort, if a property owner uses his or her property in such a way as to limit a neighbor's enjoyment or use of adjacent property, the neighbor must protest or risk being considered to have consented.¹⁶ When Deere sought to renew the Deere License in 2011 and now when it seeks to change it, LightSquared appropriately and necessarily spoke up to protect its rights. Deere's continued misuse of the Deere License undoubtedly causes harm to LightSquared and thus gives LightSquared standing,¹⁷ and the courts have long recognized that exercise of rights to petition does not violate the First Amendment.¹⁸

¹⁴ See *In the Matter of Application of Deere & Co. For Renewal of Earth Station License*, IBFS File No. SES-MOD-20141030-00835, Deere Opposition to Petition to Deny (Apr. 13, 2015), at 4.

¹⁵ See 3 AM. JUR. 2D Adverse Possession § 2, 10 (2011); See also, e.g., *Senez v. Collins*, 182 Md. App. 300, 335 (2008) (noting that an owner must assert his claim to land to defeat a claim of adverse possession); *Prestwood v. Hunt*, 234 So. 2d 545, 549 (1970) (noting that adverse possession is targeted toward owners who fail to assert their rights against adverse claimants).

¹⁶ Consent may be a defense to an action for private nuisance. 26 Causes of Action 2d, 277 (2004). See also, e.g., *Beck Development Co. v. Southern Pacific Transportation Co.*, 44 Cal. App. 4th 1160, 1214 (holding no recovery in nuisance for plaintiff where defendant operated with defendant's consent); *Mangini v. Aerojet-General Corp.*, 230 Cal. App. 3d, 1125, 1138 (holding that consent is a factual defense in a nuisance action against a former occupier of land).

¹⁷ Notably, Deere itself asserted that *it* had standing to challenge a LightSquared modification application because LightSquared's *authorized* operations allegedly had the

* * * * *

As LightSquared explained in its Petition, Section 309(d) of the Communications Act, as amended, *requires* the Commission to deny a license modification application or designate it for hearing where any “substantial and material question of fact” exists, or if the Commission is unable to find that grant of the application would serve the public interest. Deere does not contest this requirement or its applicability to the instant proceeding. Deere does not contest that any interference protection it might have is automatically terminated if it is operating its receivers outside of the limits of their requested license.¹⁹ Nor does Deere refute the significant evidence submitted by LightSquared in this proceeding.

For the reasons set forth herein and in LightSquared’s Petition to Deny, the Bureau should explicitly grant the Deere Application if and only if the license expressly states that Deere has no rights to curtail uses of any adjacent spectrum because it has chosen to make

potential to “cause severe disruption to the StarFire system used nationwide which relies on GPS signals as well as transmissions in the MSS band pursuant to Deere’s FCC license.” *See* Deere Petition for Reconsideration, IBFS File No. SES-MOD-20101118-00239, at 5 (Feb. 25, 2011). Deere therefore is estopped from taking a contrary position in the instant proceeding. *See also Commco Technology, L.L.C.*, Memorandum Opinion and Order, 16 FCC Rcd. 19485, at ¶ 6 (2001); *see also AMTS Consortium, LLC*, DA 05-2951, at ¶ 5 (Nov. 9, 2005) (a party has standing to challenge any grant of authority that would require a party to protect a licensee from interference).

¹⁸ *See, e.g., Meratus Group LLC v. Lake Forest Hosp.*, 528 F. Supp. 797, 803 (N.D. Ill. 2007) (“Under the First Amendment, ‘parties may petition the government for official action favorable to their interests without fear of suit, even if the result of the petition, if granted, might harm the interests of others.’”), *cited in* 2011 Opposition at 6, n.6.

¹⁹ 47 C.F.R.25.162; *See Satellite Network Earth Stations*, 20 FCC Rcd 5666, at ¶ 115 (2005) (interference protection otherwise enjoyed by a receive-only earth station “shall be automatically terminated” in such cases); *Maritime Telecommunications Network, Inc.*, 16 FCC Rcd 11615, at ¶ 32 (2001).

use of receivers that allegedly receive radio waves from spectrum outside the license, or it should designate the Deere Application for hearing.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. Carlisle', with a long horizontal flourish extending to the right.

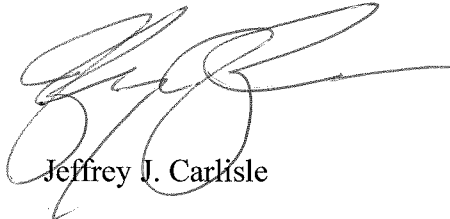
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April 23, 2015

DECLARATION OF JEFFREY J. CARLISLE

I, Jeffrey J. Carlisle, hereby make the following declarations under penalty of perjury.

1. I am Executive Vice President, Regulatory Affairs and Public Policy of LightSquared Inc. ("LightSquared"). In that capacity, I am responsible for all domestic and international regulatory and policy matters on behalf of LightSquared, including those at the FCC.
2. I have reviewed the foregoing Reply and certify that, to the best of my knowledge and belief, the factual assertions in the Petition are truthful and accurate.



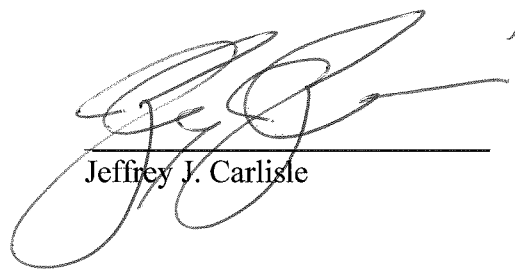
Jeffrey J. Carlisle

Executed: April 23, 2015

CERTIFICATE OF SERVICE

I, Jeffrey J. Carlisle, hereby certify that on this 23rd day of April, 2015, I caused a true copy of the foregoing "Reply" to be served by first class mail, postage pre-paid, upon the following:

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Jeffrey J. Carlisle