

TESTIMONY

OF

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EXECUTIVE VICE PRESIDENT, REGULATORY AFFAIRS & PUBLIC POLICY
LIGHTSQUARED

HOUSE COMMITTEE ON SMALL BUSINESS

2360 RAYBURN HOUSE OFFICE BUILDING

OCTOBER 12, 2011

My testimony today will explain how LightSquared is helping small businesses across the country by investing \$14 billion in a wholesale nationwide wireless broadband network. My testimony will also address the steps LightSquared has proposed to deploy this network safely, in a way that protects the use of GPS by small business, government, and everyday consumers. As we have stated before, and as has been clearly shown in recent weeks, the interference issue is a question of engineering choice by GPS manufacturers, and can be addressed through proper design. My testimony will also address the issue of cost. LightSquared's proposals have the effect of assuming the cost of accommodating hundreds of millions of receivers, meaning GPS manufacturers do not need to replace receivers now in consumers' hands. Some portion of the relatively small number of remaining high precision receivers will need to be either replaced or retrofitted, but it is wrong for the GPS manufacturers to scare their users by arguing that this cost will fall on them. The manufacturers themselves should step up to cover this cost, as it was their technology choice that created the situation.

I. LIGHTSQUARED IS BUILDING CRITICAL INFRASTRUCTURE FOR SMALL BUSINESS

LightSquared shares the commitment of the members of this Committee to bring the sorely needed benefits of broadband investment to small business and rural America. As Chairman Graves said in May 2010,

There is a severe lack of appropriate infrastructure that limits many American communities, businesses, and families from gaining full access to these services. Rural areas in many states are particularly likely to lack the infrastructure needed to allow them to benefit from this vital technology. Without access to affordable broadband services, the economies and development of these communities can suffer.

Whatever policies this government adopts with regard to technology and broadband, we must first make a commitment to ensuring that small businesses and rural communities will benefit from this infrastructure investment. Regulatory policies that diminish the incentive for such private sector investment will benefit neither small businesses nor the economy that will rely on them for growth needed to create jobs.

Further, we applaud the Committee's bipartisan letter to the NTIA and the Rural Utilities Service on November 19, 2009 about broadband stimulus funding, acknowledging "the role of broadband in stimulating the economy and creating jobs" and asking for steps that would make it easier for small business to receive such funding.

LightSquared is making a private investment in broadband infrastructure, and by doing so it will support over 15,000 jobs a year for each of the five years that it will take to construct this network, many of which will be with the contractors and small businesses across the country that support wireless infrastructure.

When completed, our ground network will provide over 260 million people with access to wireless broadband service at expected speeds of 5 to 10 megabits per second. We will provide service on a wholesale basis, meaning that we will significantly reduce the costs of network access for wireless providers across the country, enabling them to lower bills by hundreds of dollars a year for the average consumer. We will reach people in rural and remote areas outside of our initial footprint through partnerships with rural providers such as Cellular South and Southern Illinois Wireless. Indeed, our network is particularly important for Americans in these areas because of our integrated satellite/ground network, which allows a customer to have a network connection for voice and data no matter where they are in the country. This is particularly crucial at a time when the United States ranks 15th in the world in broadband adoption, and 28% of rural Americans who have no access at all to broadband.

LightSquared's network will lower prices, increase competition in the marketplace, give consumers new choices, broaden access to broadband, and increase public safety and emergency response.

The LightSquared network will benefit U.S. small business in multiple ways:

- As mentioned above, small businesses will be involved in the building and operation of the network.
- Many of LightSquared's business partners are themselves small business, who will provide valuable broadband services to their customers and support new jobs. I have attached a list of our current partners to my testimony, and included statements from our partners about the opportunities provided by the LightSquared network. I have also attached an open letter from one of our partners, Power Net Global.
- As the Committee has recognized, small businesses have a desperate need for reliable and affordable broadband. Over 150 letters have been filed with the FCC from across the country emphasizing the benefits to small business of the LightSquared network. I have attached excerpts from these letters to my testimony.
- As you know, many small businesses are in rural parts of the country, and as I mentioned above, the LightSquared integrated service is particularly well suited for these customers. I have also attached a copy of a letter sent last month to the House and Senate Agriculture Committees from the American Farm Bureau Federation, the American Sugar Alliance, the National Association of Wheat Growers, the National Farmers Union, the National Potato Council and the Western Growers Association. This letter emphasizes the importance of broadband to rural economic developments, and urged the committees "to communicate to the [FCC] the benefit farmers and ranchers will receive from expanded broadband access and precision agriculture. The FCC must ensure that accurate GPS will continue to be available for precision agriculture and also ensure that broadband access be made available for all of rural America."

While my testimony emphasizes the importance of broadband to small businesses and rural America, I also want to make absolutely clear that we know how important GPS is to many small businesses and to farmers. Certainly, we understand the extent to which people across the country have placed their trust in GPS manufacturers and expect their devices to continue to work the way they were supposed to work. That's why we've made a comprehensive set of proposals to address the problem of GPS receivers looking into our spectrum.

II. LIGHTSQUARED HAS ABSORBED THE COST OF SOLUTIONS FOR HUNDREDS OF MILLIONS OF GPS DEVICES

Contrary to what the GPS manufacturers have told many of their users, at no time has LightSquared ever said GPS users should bear the cost of fixing their receivers. GPS manufacturers created this problem, GPS manufacturers should bear the cost of fixing it. The GPS manufacturers would like to confuse their users in order to avoid responsibility for fixing a problem they ignored.

In order to understand the proposals LightSquared has made, it is important for the Committee to understand how the current interference issue arose. In September 2010, the US GPS Industry Council (USGIC) raised the possibility that the LightSquared network could overload GPS receivers because many GPS receivers are designed to not only capture GPS signals, but also capture signals from our spectrum, which is directly adjacent to GPS spectrum.

The USGIC raised this issue years after LightSquared had been authorized to build a ground network. The FCC wrote rules allowing satellite companies to use their spectrum to build ground networks in 2003, and issued LightSquared's predecessor an authorization to do so in 2004. In 2005, the FCC removed any limits on the number of base stations (the transmitters in cell towers) that we could build, and established the power levels we plan to use today. I have attached a chronology, with citations to the public record, to my testimony.

The GPS manufacturers were not absent from these proceedings – far from it. GPS interests participated extensively in these original rulemaking proceeding, and the Departments of Defense and Transportation reviewed all the FCC’s orders through the NTIA’s interdepartmental review process. Indeed, USGIC asked LightSquared’s predecessor to limit our energy that could bleed over into the GPS band. If we did nothing, comparatively powerful base stations used in cell sites would drown out faint GPS signals. In 2002, we agreed to limits on emissions out of our band into GPS that were 1000 times stricter than what the FCC required, and designed our network around this agreement. I have attached a chart showing this effect.

Subsequent entries in the public record show that GPS manufacturers were fully aware that we could build an extensive ground network. In 2003, the USGIC stated in a filing with the FCC that its rules allowed us to deploy “tens of thousands” of base stations. In 2004, the USGPSIC supported our application for authorization to build a ground network. After the 2005 order that set our network’s power levels, public disclosures to the SEC by GPS companies acknowledged the possibility that use of spectrum could materially and adversely affect the utility and reliability of GPS receivers.

Yet, the GPS manufacturers said nothing about the susceptibility of their receivers to overload until September 2010. They did not appeal or ask for reconsideration of the FCC’s rules, nor did they ask for an amendment to our existing agreement.

The GPS community has tried to maintain that we caused the problem because we asked for a modification to the types of end user devices that could be brought to our network. This is easily demonstrated to be false. First, we asked for the modification in November 2010, *two months after* USGIC identified their receiver overload issue. Raising it in our modification process was nothing more than taking advantage of an available FCC proceeding. Second, end

user devices have nothing to do with the overload effect the GPS community identified – it is entirely a function of the number and power of our base stations, which as I stated above was established in 2005. Third, the USGIC did acknowledge, 8 years ago, that we would operate tens of thousands of base stations in our band. The possible scale and scope of our use of the network was well known by, or at least obvious to, any of the large companies that manufacture GPS receivers, all with presences in Washington, and they did nothing. This, despite the fact that the Department of Defense’s standards for use of the GPS constellation specify that manufacturers should use a receiver that filters out signals from adjacent bands if they expect to have full performance.

In the end, the GPS manufacturers either failed to understand the vulnerability of their own receivers or took the calculated risk that LightSquared would not be able to complete its network. Either way, they did nothing to prepare their receivers or their users for the planned changes in the spectrum environment.

Despite the history of this issue, the fact remains that many receivers were placed into the stream of commerce that were not going to be compatible with the uses established by the FCC in 2003 and 2005. If LightSquared were to be able to move forward with its network within any reasonable period of time, the responsible thing to do would be to test to determine the scope of the issue and possible mitigation. This is exactly what the FCC did when, in January of this year, it ordered us to work with the GPS community and federal agencies on joint testing.

As a result of that testing – which was perhaps the most extensive study of interference ever conducted – we now know how to mitigate the problem.

Key to understanding mitigation options understands that the vast majority of GPS receivers look only at LightSquared’s spectrum that is immediately adjacent to GPS.

LightSquared's original plan, before USGIC advised of the overload issue in September 2010, was to use this spectrum first, and then bring additional spectrum online later, when it needed further spectrum to serve capacity needs. This additional spectrum is on the other end of LightSquared's band, as far away as possible from the border with GPS. Indeed, the frequencies LightSquared planned to use far away from GPS are a full 23 MHz removed from the bottom of the GPS frequency,

Unsurprisingly, then, testing shows that LightSquared's *planned* deployment would cause interference with a broad range of different types of GPS receivers, because the planned deployment would have started close to GPS. Much of the alarming reports of loss of GPS functionality continue to focus on this original planned deployment. The tests also show, however, that use of the spectrum far away from GPS does not cause interference for the vast majority of GPS receivers.

These results were consistent with testing and analysis performed by other entities. Among the recommendations of the government engineer-led NPEF report was a recommendation to conduct further testing of the 10 MHz furthest away from GPS, as the testing conducted by the federal government agencies on receivers so far has shown minimal or no interference. Similarly, a report by RTCA, the aviation standards organization, stated that the 5 MHz furthest away from GPS does not cause a problem for aviation receivers under worst case analyses, and that further analysis is needed to confirm that the next 5 MHz is similarly clear. Notably, the RTCA also noted that aviation receivers tested performed significantly better than the minimum performance standards. LightSquared is optimistic that this further analysis will not change the report's conclusion.

LightSquared has developed its position in response to the actual testing data, and has made the following proposals to resolve GPS interference issues:

- First, LightSquared will operate at lower power than permitted by its existing FCC authorization, staying at the power level authorized in 2005.
- Second, LightSquared will agree to a standstill in the terrestrial use of its upper 10 MHz of its frequencies immediately adjacent to the GPS band.
- Third, LightSquared will commence terrestrial commercial operations only on those portions of its spectrum that pose no risk to the vast majority of GPS users.
- Fourth, LightSquared will work with Inmarsat to find a place in our band where precision manufacturers can be placed over the long term that is isolated from terrestrial operations.
- Fifth, LightSquared will limit the power reaching the ground to levels that would, based on actual testing data, definitely eliminate interference issues for the vast majority of receivers. This proposal was developed using the much stricter definitions of harmful interference proposed by the GPS community.
- Sixth, LightSquared will fund research and development for precision GPS receivers and make \$50 million available to replace or retrofit federal precision receivers.

The net result of these proposals is that LightSquared will eliminate any need to replace or retrofit cellular phones, personal navigation devices, timing devices or aviation devices, which together account for somewhere between 400 million and 500 million GPS-enabled devices in the United States. These proposals will cost LightSquared over \$150 million to implement – a significant cost given that it could have been prevented years ago through responsible GPS receiver design. Nevertheless, this is a cost LightSquared is willing to bear in order to move forwards with deployment of its network.

III. GPS MANUFACTURERS ARE RESPONSIBLE FOR THE COMMERCIAL PRECISION RECEIVERS THEY SOLD TO THEIR CUSTOMERS

As LightSquared has stated before, while its proposals will allow the vast majority of consumers to continue to use their receivers without having to replace them, there will be some segment of precision receivers that will need to be replaced or retrofitted. Precision receivers are accurate to within a few inches, and are primarily used in agriculture, surveying and construction. Although we have estimated the number of precision receivers in the United States as approximately 500,000, other estimates have placed the number as high as 750,000 to 1 million devices – at most a quarter of one percent of all devices in the United States, though used in important functions.

Not all of these devices will need to be replaced or retrofitted. Testing showed that 10 out of 38 tested receivers could coexist with our operations in the spectrum farthest from GPS. This proved that for precision receivers the interference issue is not a physics issue. It is a technology design issue and can be addressed through proper design. Moreover, not all precision devices will be used in close enough proximity to the LightSquared network to ever suffer interference. Finally, as it will take until 2015 to fully deploy LightSquared's network, some of these precision receivers would have been replaced in the ordinary course of business. Accordingly, the total number of devices that would have to be replaced or retrofitted is only a portion of the total embedded base.

LightSquared has proposed to bear the research and development costs for developing filters that would allow precision receivers to coexist with its network. Indeed, it partnered with Javad, a respected precision GPS manufacturer, and Javad has already developed a prototype and is rapidly moving to production models. Other GPS manufacturers are also stepping forward with precision GPS solutions, showing that where there's a technical fix, the market can and will

step forward to deploy it. LightSquared has also committed to coordinate the rollout of its network in order to allow the trade out of federal precision receivers, and so that users of precision receivers will know where we are building in advance.

It remains the case, however, that even with all of LightSquared's commitments, there will be some portion of commercial GPS receivers that will need to be replaced or retrofitted. Having solved the interference issue for the vast majority of users at considerable expense, and done everything it could to operate within its spectrum in a way that protects GPS receivers, it is the responsibility of the GPS manufacturers to fund the replacement or retrofit of the remaining portion of GPS receivers. This is the only fair resolution of the issue given the GPS industry's knowledge of the possible interference issue raised by the design of their receivers and their failure to address it when the rules were finalized in 2005.

In order to continue to avoid this responsibility, the GPS industry has wrongly tried to shift the focus from the precision receivers it sold to its customers to LightSquared – using intentionally inflammatory language to scare GPS users and make it appear that LightSquared wants them to bear the cost of equipment replacement. LightSquared does not believe that placing the burden of cost on GPS users is fair. Manufacturers regularly bear the cost of voluntary recalls and fixes to their devices, and this case should be no different, particularly in this case where (1) LightSquared has absorbed the cost of fixing the problem for over 99% of the other receivers, (2) the GPS industry's knowledge of the issue, and (3) the manifest ability of the GPS industry to bear the cost of fixing this last portion of devices. On this last point, not only do GPS manufacturers enjoy the use of government spectrum for free, but they are well funded, with John Deere alone carrying over \$3 billion in cash, Garmin over \$1.5 billion, and Trimble over \$250 million.

IV. CONCLUSION

LightSquared has never dismissed or made light of the sincere concerns expressed by the GPS community over the interference issues raised by the design of GPS receivers. Nor has LightSquared ever said that, because it is a receiver issue, GPS users have to bear the any part of the cost. LightSquared has committed to be a good neighbor. By taking the steps I've outlined in my testimony, LightSquared will address this issue for over 99% of the receivers currently used. These steps are not inexpensive to us, and they are not easy, but they can and must be done. We are stepping up to this commitment so that all Americans – and particularly individual consumers and small businesses -- can get the benefit of our significant investment in critical infrastructure, and continue to have all the benefits of a robust GPS system.

Jeff Carlisle is Executive Vice President for Regulatory Affairs and Public Policy for LightSquared, where he is responsible for all domestic and international regulatory and policy matters including those at the FCC, Congress, the Executive Branch, the ITU, and in foreign markets.

Before joining LightSquared, Jeff served as Vice President of Regulatory Affairs for SkyTerra Communications. Before joining SkyTerra, he served as Vice President, International Public Policy and Government Relations of Lenovo, the global computer manufacturer. Jeff headed Lenovo's Washington office from 2005 until 2008.

From 2001 to 2005, Jeff served as Deputy Chief and then Chief of the FCC's Wireline Competition Bureau. At the FCC, he managed the development of the Commission's policies on broadband and competitive entry into the local exchange market, and he was the architect of the Commission's policies on Voice over Internet Protocol (VoIP) and bankruptcy of common carriers. From 1995 to 2001, he practiced law at O'Melveny & Myers and independently, starting as a transactional attorney and then specializing in broadcast and telecommunications law.

Jeff recently taught about regulation of the Internet at the Columbus School of Law at the Catholic University of America, and has spoken at numerous events on telecommunications, trade and security policy issues. He received a B.A. in History, magna cum laude and with honors, from UCLA; a J.D. from Boalt Hall at the University of California, Berkeley; and an M.A. in Law and Diplomacy from The Fletcher School.



HOUSE COMMITTEE ON SMALL BUSINESS
Witness Disclosure Statement
Required by House Rule XI, Clause 2(g)

Your Name: <u>JEFFREY CARLISLE</u>		
1. Are you testifying on behalf of a Federal, State, or Local Government entity?	YES	NO <input checked="" type="checkbox"/>
2. Are you testifying on behalf of an entity other than a Government entity?	YES <input checked="" type="checkbox"/>	NO
3. Other than yourself, please list what entity or entities you are representing: <u>LIGHTSQUARED</u>		
4. Please list any offices or elected positions held or briefly describe your representational capacity with the entities disclosed in question 3. <u>EXECUTIVE VICE PRESIDENT, REGULATORY AFFAIRS</u>		
<i>(For those testifying on behalf of a Government entity, ignore these questions below)</i>		
5. a) Please list any Federal grants or contracts (including subgrants or subcontracts), including the amount and source (agency) which <u>you</u> have received and/or been approved for since October 1, 2006: <u>PLEASE SEE ATTACHMENT A</u>		
b) If you are testifying on behalf of a non-governmental entity, please list any federal grants or contracts (including subgrants or subcontracts) and the amount and source (agency) received by the <u>entities listed under question 3</u> since October 1, 2006, which exceeded 10% of the entities' revenues in the year received: <u>NONE</u>		
6. If you are testifying on behalf of a non-governmental entity, does it have a parent organization or an affiliate who you specifically do not represent? If so, list below:	YES <input checked="" type="checkbox"/>	NO
<u>HARBINGER CAPITAL FUNDS</u>		

Signature: _____

Date: 10/11/11

**ATTACHMENT A TO
TRUTH IN TESTIMONY DISCLOSURE**








Since October 1, 2006, LightSquared received the following Federal contract, which included two separate amounts for equipment and service:

\$1,756,501.23 Federal Bureau of Investigation, Department of Justice
MSS receivers

\$367,092.00 Federal Bureau of Investigation, Department of Justice
Annual amounts for voice and data service for above receivers

Neither this contract, nor any contracts predating October 1, 2006, relate to the subject matter of Mr. Carlisle's testimony.




LIGHTSQUARED CUSTOMERS

Customer Profile	
ATC Wholesale Customers	
	<p>InterGlobe Communications is an experienced Competitive Local Exchange Carrier founded in 1992 and headquartered in New York City that provides integrated services for businesses primarily located in New York, New Jersey and Pennsylvania.</p>
	<p>Best Buy is a multinational retailer of technology and entertainment products and services with operations in the United States, Canada, Europe, China and Mexico. The Best Buy family of brands and partnerships collectively generates more than \$50 billion in annual revenue and includes brands such as Best Buy, Audiovisions, Best Buy Mobile, The Carphone Warehouse, Five Star, Future Shop, Geek Squad, Magnolia Audio Video, Napster, Pacific Sales, and The Phone House. Best Buy supports these brands through retail locations, multiple call centers and Web sites, in-home solutions, and product delivery activities.</p>
	<p>Sprint Nextel offers a comprehensive range of wireless and wireline communications services to consumers, businesses and government users. Sprint Nextel served more than 52 million customers at the end of 2Q 2011.</p>
	<p>netTALK, Inc is a publicly traded company engaged in the distribution and sale of products supported by its digital voice service. The netTALK DUO, now sold by many retailers including Dell and Walmart, is a communications device that has the ability to connect directly to a router or modem (no computer needed) or the computer's USB port, offering consumers free local and long distance calls to any landline or mobile phone in the U.S. and Canada from anywhere in the world.</p>
	<p>Flat Wireless was organized in November of 2007 to offer products and services under the ClearTalk Brand. The company offers unlimited wireless service with no credit check, no deposit, no annual contract and unlimited anytime minute flat-rate pricing plans. Flat Wireless has approximately 2 million licensed pops and approximately 1.9 million covered pops in all its market areas.</p>
	<p>PowerNet Global (PNG), a company with CLEC authorizations in 42 states and a 20 year history of operations, provides high quality voice, data, SIP and managed communications services to business and residential customers nationwide.</p>
	<p>Leap is a communications provider headquartered in San Diego that offers unlimited access to wireless voice and data services for a flat rate without requiring a fixed-term contract. The Company and its joint ventures operate in 35 states</p>

LIGHTSQUARED CUSTOMERS

	and the District of Columbia and hold licenses in 35 of the top 50 U.S. markets.
	CareConnect™ by ESCO Technologies, is the leading communications solution for Senior Living Communities across America. At no capital cost to a community, CareConnect™ will install and maintain its state-of-the-art communications equipment and network to support Nurse/Emergency Call, Telephone, Internet, and TV services. CareConnect saves Senior Housing Community clients the enormous expense of updating their communications infrastructure while, simultaneously, providing their staff and residents with better services at a lower monthly rate than they are currently paying.
	C Spire Wireless, headquartered in Ridgeland, Mississippi, is the nation's largest privately held wireless provider with approximately 1,100 employees residing in the Southeastern United States. C Spire Wireless provides wireless services and support through 85 retail locations, corporate sales teams, a Telesales group, customer contact call centers and online at cspire.com.
SI Wireless	SI Wireless provides the latest voice and data services to underserved areas of rural America. As a member of the Sprint(r) Rural Alliance, SI Wireless offers customers 3G services throughout the U.S. SI Wireless also extends the use of its network to other wireless carriers whose customers may further benefit from a 3G network in areas not covered by their carrier's network footprint.
	Earthcomm Solutions is a privately held telecom and internet service provider located in Corpus Christi, Texas. The company serves consumers and small business enterprises primarily in Texas, and has distribution channel arrangements with a number of independent computer stores.
	Simplexity is the Internet's leading authorized seller of cell phones and wireless services. Based in Reston, Virginia, the company operates proprietary e-commerce platforms, providing affiliates and marketing partners with integrated solutions for cell phone and wireless product merchandising, activation, logistics and fulfillment. Simplexity's business and technology solutions include comprehensive inventory and rate plan management, order processing, automated activation, online merchandising, high-level customer care and customer relationship marketing.
	Advanta is a private company that delivers dial tone and other telecom services to over 3000 business customers (most of whom are based in Texas) including Prudential, Gulf States Toyota and KKR. The company plans to include wireless enterprise routers in its product mix and is working with the likes of Ruckus and CradlePoint to deliver fixed and mobile broadband wireless solutions into the SME market.
	VoX Communications is a provider of wholesale and retail Voice over Internet Protocol (VoIP) services located in Orlando, Florida. Using their own nationwide VoIP network, VoX offers wholesale broadband voice, origination and termination services to cable operators, carriers, ISPs, CLECs, resellers and other wireless and wireline operators, as well as enhanced VoIP telephone service to the small business and residential marketplaces. VoX provides a feature-rich, low-cost and high-quality alternative to traditional wireline phone service

LIGHTSQUARED CUSTOMERS

 The logo for YourTel America features the text "YOUR TEL" in a stylized, bold, red font with a white outline, and "AMERICA" in a smaller, red font below it. To the right of the text is a small graphic of a person holding a large red telephone receiver.	<p>YourTel America is a privately owned CLEC founded in Missouri in 1995 that serves wireline and wireless customers through 14 branded retail outlets, online centers and network operations in Kansas, Missouri, Illinois and Oklahoma. They are approved as an Eligible Telecommunications Carrier (ETC) with wireline and wireless certificates granted by each state commission where they operate and authorized under the FCC's Universal Service (US) Program for Low-Income Consumers.</p>
 The AirTouch logo consists of a black, curved, arch-like shape above the word "AIRTOUCH" in a bold, black, sans-serif font.	<p>AirTouch Communications, Inc. is engaged in the development and marketing of patented telecommunications devices capable of converging multiple services and applications such as voice, data, WiFi bridging, video, security and entertainment into one hardware platform. AirTouch holds several patents that enable its products to enhance cellular signals within the home and office.</p>
 The Aircado logo features a stylized green leaf-like shape on the left and a white signal tower icon on the right, both set against a dark brown background. Below the icon is the word "AIRCADO" in a gold, serif font.	<p>Headquartered in Redmond, WA, Aircado is a privately held wireless broadband service provider. The company's goal is to expand its offering of affordable, reliable, secure community-based wireless internet services for smaller towns and communities.</p>

What LightSquared's Partners Are Saying

Businesses large and small around the United States are partnering with LightSquared to offer affordable wireless services to their customers. These partnerships will help them stay competitive, enter into new markets and offer more choices to their customers. Visit our partners' page to learn more.

Advanta Technologies: LightSquared to Enable Our Nationwide Wireless Broadband Offering

"We now have the opportunity to provide nationwide wireless services to our customers," said Sjon Stevens, vice president of operations of Advanta. "Only LightSquared's unique business model combined with advanced 4G-LTE technology will enable Advanta to offer our customers an innovative, yet affordable, portfolio of products and services that deliver a real business advantage." (9/6/2011)

Simplexity MVNO Services: LightSquared Allows Us to Offer Customized Service at Fraction of Cost and Time

"Our operational scale and experience will give our partner companies the ability to provide customized wireless offerings to their customers at a fraction of the time and cost normally required to launch a full scale MVNO," said Terry Hsu, president of Simplexity MVNO Services. "We look forward to utilizing LightSquared's nationwide network and wholesale business model to enable businesses and organizations of all shapes and sizes to offer wireless solutions tailored to their customers' needs." (8/30/2011)

Inmarsat: LightSquared and Inmarsat Collaborate to Support Hurricane Irene Emergency Responders

"During emergencies such as Hurricane Irene, reliable satellite communications is essential for emergency responders and government agencies," said Andrew Sukawaty, chairman and chief executive officer of Inmarsat. "Together with LightSquared we have moved rapidly to ensure that we have sufficient capacity to support emergency management agencies and first responders." (8/29/2011)

InterGlobe Communications: LightSquared Allows Us to Offer Customized Mobile Data Services

"The partnership with LightSquared helps fulfill our commitment to provide customized solutions that are tailored to the very demanding needs of our clients," said Al Mayerhoff, president of InterGlobe Communications. "With access to LightSquared's 4G-LTE and satellite services, we have an opportunity to offer competitive mobile data service options that meet our clients' need for speed, mobility and network resiliency." (8/23/2011)

EarthComm Solutions: LightSquared Partnership Supports Mission of Affordable and Advanced Communications

"At EarthComm Solutions, our mission is to provide the most affordable and advanced communications services available in the market to our customers," said Russell McNorton, chief executive officer of EarthComm Solutions. "With LightSquared, we have found a superb wholesale 4G-LTE network provider and we are very excited to enter this partnership." (8/15/2011)

ClearTalk Wireless: Our Customers Deserve Great Broadband Service

"ClearTalk is committed to providing our customers with the latest in high-speed broadband services," said ClearTalk chief executive officer Kevin Beierschmitt. "This agreement extends a national, reliable, state-of-the-art 4G-LTE network throughout the ClearTalk service area. Our customers deserve great broadband services, and we are delivering these services to them." (8/8/2011)

PowerNet Global: LightSquared's Wholesale Model Enables Delivery of Advanced Services to New Markets



“The partnership with LightSquared helps fulfill our goal of delivering an expanding array of advanced communications services to our customers across the country,” said Bernie Stevens, president and chief executive officer of PowerNet Global. “LightSquared’s nationwide network and wholesale business model give us the opportunity to deepen our existing customer relationships and expand into new markets.” (8/4/2011)

Sprint Nextel: LightSquared Allows Flexibility in Meeting Consumer Needs and More Efficient Use of Network

“This spectrum hosting agreement with LightSquared allows Sprint to more efficiently use its Network Vision platform,” said Steve Elfman, president of Network Operations and Wholesale for Sprint. “In addition to improving our cash flow, it provides additional options and flexibility in how we meet our customers’ future capacity needs.” (7/28/2011)

netTALK: LightSquared Helps Fulfill Vision of Delivering New Services Throughout America

“Our partnership with LightSquared helps fulfill our vision of delivering the most advanced communications services to customers throughout America,” said Anastasios ‘Takis’ Kyriakides, president of netTALK. “With LightSquared’s wholesale business model, we also now have an opportunity to serve new customer segments with very competitive services.” (6/28/2011)

SI Wireless: Rural Carriers Can Now Compete with Larger Competitors

“This agreement is key to our vision of delivering the most advanced communications services to our customers,” said SI Wireless Chief Executive Officer, Terry Addington. “We understand that subscribers of Tier 2 and 3 carriers expect access to the most advanced technology nationwide and LightSquared’s business model is completely aligned with the coverage and capacity needs of rural operators, allowing them to compete with their larger competitors.” (4/21/2011)

Cellular South: LightSquared Gives Rural Customers Access to Most Advanced Technology and Reliable Coverage

“LightSquared’s wholesale-only, integrated 4G-LTE wireless broadband and satellite network, makes them a valuable partner because it enables us to provide our customers, including those in rural locations, with nationwide access to the most advanced technology and reliable coverage available,” said Hu Meena, president and CEO of Cellular South. (4/20/2011)

Cricket (Leap Wireless): LightSquared’s Network Allows Us to Expand Coverage and Add Capacity

“This new roaming arrangement will allow us to offer customers an even-greater 4G service area as LightSquared expands its own network,” said Doug Hutcheson, Leap’s President and CEO. “We believe that the broad coverage resulting from this business agreement will enhance our ability to offer compelling products and services and allow us to strengthen our retail relationships and distribution capabilities. It will also give us flexibility to access additional 4G capacity where needed as data-centric devices become more popular and require more and more bandwidth.” (3/22/2011)

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PowerNet Global's Open Letter to FCC

September 26, 2011

PowerNet Global, a leader in the telecommunications industry for nearly two decades and multi-award winning company, is a premier provider of voice, data, SIP, and managed services. Headquartered in Cincinnati, Ohio, PowerNet Global has achieved consistent growth by developing and marketing an expanding array of competitive products and maintaining a clear focus on delivering unrivaled service to its partners and customers.

In order to stay competitive in our target markets and better serve our customers, we offer wireless services to complement our other communications services. However, we have found this to be a very challenging task, given the extraordinarily dominant position held by a few national carriers.

That's why we are very excited about our new partnership with LightSquared. Their wholesale model of 4G-LTE network presents our company with the opportunity to enter the wireless marketplace and have a fair chance at winning business.

Our partnership with LightSquared will also allow us to offer lower prices, innovative product offerings, and expanded capacity to not only our current markets, but also to rural and underserved markets that are in dire need of these types of services.

For the matter of GPS interference, PowerNet Global urges the Federal Communications Commission to find a technical solution that will allow LightSquared to move forward with its 4G-LTE network as soon as possible, as their network presents a real solution to the need for affordable advanced wireless broadband service in the U.S.

As decisions about this matter are being made in Washington, PowerNet Global will continue to work hard to serve its customers and be a good employer. However, we urge regulators in Washington to be mindful of the interests of GPS, LightSquared, and service providers like PowerNet Global, so that we can all bring better communications service to the public.

Thank you for your time and attention to this letter.

Sincerely,

Bernie Stevens, CEO

Excerpts from Letters to the FCC Regarding Small Businesses

The FCC received over 150 letters from small business owners, mayors, state legislators and others who state that LightSquared's network will significantly boost small businesses and economies in towns and cities across the country.

Selected quotes:

Oregon State Representative Mike Schaufler

"As Co-Chair of the House Committee on Business and Labor and the Representative for Oregon House District 48, I am writing to express support for LightSquared's plans to bring a much-needed 4G-LTE wireless network to Oregon.

At a time when demand for mobile broadband is driving prices and congestion through the roof, expanding next-generation wireless capacity should be a top priority of Congress. The U.S. is lagging when it comes to broadband speed, relegating some communities to second-class status in the Information Age and holding back economic recovery. Improving wireless broadband speed and reliability is especially important in rural Oregon, where it can help revitalize the economy and create jobs."

West Virginia: Jack Roop (Beckley)

"Southern West Virginia desperately needs more high-speed broadband wireless capacity. The lack of reliable service in our area threatens public safety, discourages business development and inconveniences the many tourists to our area. If Raleigh County and Beckley are to experience continued growth, it is vitally important to improve our wireless networks infrastructure."

Virginia: William J. Panele (Richmond)

"There have been long-standing efforts to promote telecommuting and small businesses development built around ubiquitous broadband to provide economic growth and a better quality of life outside of the dense urban or suburban markets. Because LightSquared will make its technology and network available on a wholesale basis, the rural and underserved localities where these services will be sold will benefit by more jobs, more local and state revenue, more small business opportunities and more access to information and education."

California: Mayor Eduardo Garcia (Coachella)

"Rural businesses are fast falling behind in today's rapidly changing global economy. Coachella business owners must gain more access to dependable telecommunications technology, and we need the Federal Communications Commission to fight on our behalf. Increased broadband coverage will serve as an economic stimulant for growing businesses in rural communities, and will be integral to Coachella's and the nation's economic recovery.

LightSquared's model will specifically help rural business owners in Coachella because it will allow more competitors to enter the broadband market, making broadband not only more

accessible for business owners, but also more affordable. This new network will allow for greater innovation, and will ultimately help shrink the “digital divide”. Competition means better service and lower prices.”

Minnesota State Representative Rod Hamilton, Majority Whip and Chairman of the Agriculture and Rural Development Policy and Finance Committee

“LightSquared’s low-cost 4G network will allow more telecomm companies to provide services in rural communities like those in our districts. This is good for rural organic farmers seeking to market on-line. This is good for rural EMS and law enforcement personnel needing to contact hospitals or families during a crisis. This is good for entrepreneurs that may want to start an Internet-based business in rural Minnesota.”

September 26, 2011

The Honorable Debbie Stabenow, Chairwoman
Senate Committee on Agriculture
328-A Russell Senate Office Building
Washington, DC 20510

The Honorable Frank Lucas, Chairman
House Committee on Agriculture
1301 Longworth House Office Building
Washington, DC 20515

The Honorable Pat Roberts, Ranking Member
Senate Committee on Agriculture
328-A Russell Senate Office Building
Washington, DC 20510

The Honorable Collin Peterson, Ranking Member
House Committee on Agriculture
1301 Longworth House Office Building
Washington, DC 20515

Dear Chairwoman Stabenow, Chairman Lucas, Ranking Member Roberts and Ranking Member Peterson:

As agricultural organizations that represent farmers and ranchers, we seek to improve the economic viability of rural America. A conflict over the use of spectrum has arisen between LightSquared, a company that can provide wireless broadband access throughout rural America, and the providers and users of Global Positioning System (GPS) technology, which is a key component of advances in precision agriculture. We believe that both of these technologies have great potential to drive economic development in rural America and a reasonable agreement should be reached to allow for their future success.

We support the expanded use of precision agriculture, which allows farmers and ranchers to run more efficient, economical and environmentally conscious operations. Disruption to GPS has the potential to reduce farm and ranch profitability by raising production costs. We also support robust and competitively priced broadband deployment in rural America to better serve farmers and ranchers. The full deployment of broadband access will drive economic development, better education and improved health services in rural America.

We urge your committees to communicate to the Federal Communications Commission (FCC) the benefit farmers and ranchers will receive from expanded broadband access and precision agriculture. The FCC must ensure that accurate GPS will continue to be available for precision agriculture and also ensure that broadband access be made available for all of rural America.

Thank you for your efforts to allow for the continued development of both technologies.

Sincerely,

*American Farm Bureau Federation
American Sugar Alliance
National Association of Wheat Growers
National Farmers Union
National Potato Council
Western Growers Association*

cc:

*Members of the House Committee on Agriculture
Members of the Senate Committee on Agriculture*

LIGHTSQUARED AND GPS - THE FACTS

For the last decade, LightSquared has planned to deploy a terrestrial network, and worked with the GPS community to make sure its network would not interfere with GPS.

LIGHTSQUARED'S SERVICE HAS BEEN EXPECTED FOR ALMOST TEN YEARS

- In 2001, LightSquared proposed using satellite spectrum for a fully-capable ground network. In 2002, after discussions with the GPS industry representatives, LightSquared agreed (<http://fjallfoss.fcc.gov/ecfs/document/view?id=6513283601>) to curtail any portion of its signal that crossed into GPS frequencies. This agreement imposed restrictions that were 1000 times stricter than what the FCC rules eventually required. http://edocket.access.gpo.gov/cfr_2010/octqtr/pdf/47cfr25.253.pdf.
- In 2003, the FCC adopted initial rules allowing LightSquared's ground network to operate near GPS. http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-15A1.pdf. These rules were adopted after a full review by DoD, FAA and all other interested government agencies. As the FCC said recently, "extensive terrestrial operations have been anticipated in [LightSquared's spectrum band] for at least 8 years." *FCC MSS Flexibility Order*, ¶ 27 (Apr. 6, 2011). http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-57A1.pdf.

THE GPS INDUSTRY UNDERSTOOD THE SCOPE OF LIGHTSQUARED'S NETWORK

- When the rules were first written in 2003, the FCC had an explicit limit in the technical characteristics as to the number of base stations LightSquared could build - 1,750 per 200 KHz channel, which, when applied to the company's network, would equal a little over 10,000 base stations. ATC Report and Order, FCC 03-15, at ¶¶ 144-47 (February 10, 2003). http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-15A1.pdf.
- In 2003, the U.S. GPS Industry Council ("USGIC") stated that the restrictions of the 2002 agreement were necessary to protect GPS against "[t]he increased user density from potentially millions of MSS mobile terminals operating in ATC mode . . . [and] *potentially tens of thousands of ATC wireless base stations.*" Reply Comments of USGIC, IB Docket No. 01-185, at 2 (Sept. 4, 2003) (emphasis added). <http://fjallfoss.fcc.gov/ecfs/document/view?id=6515082621>.
- In 2004, the USGIC supported the LightSquared application for authority to operate a ground network under the 2003 rules, stating that the 2002 agreement was "intended to protect GPS receivers and at the same time allow [LightSquared] to maximize the utility of its ATC [ground network] service to its users." Letter from USGIC to FCC (Mar. 24, 2004). http://licensing.fcc.gov/myibfs/download.do?attachment_key=366878.
- In 2005, the FCC removed all limits on the number of base stations LightSquared could build and increased their permissible power to 1.6 kw, the level at which LightSquared now plans to operate. *ATC Order on Reconsideration*, FCC 05-30, at ¶¶ 48-50, 53 (February 25,

2005). http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-30A1.pdf. Again, this decision was reviewed by all interested government agencies and was not challenged by USGIC.

- Beginning in 2006 and continuing to 2010, LightSquared disclosed its intent to build a wireless network using tens of thousands of base stations in its annual filings with the SEC <http://www.sec.gov/Archives/edgar/data/756502/000119312506067030/d10k.htm> and <http://www.sec.gov/Archives/edgar/data/756502/000119312510041110/d10k.htm>.

THE GPS INDUSTRY KNEW ABOUT LIGHTSQUARED'S PLANNED POWER LEVELS AND DID NOT OBJECT

- In 2009, LightSquared asked the FCC to increase the power levels of its base stations by approximately 10 times to 15 kw, to match the power levels at which other wireless networks are permitted to operate. http://licensing.fcc.gov/myibfs/download.do?attachment_key=-164606.
- USGIC did not object to even those higher power levels. It objected only to the possibility of interference into the GPS band from low-power indoor femtocells, an objection it withdrew (http://licensing.fcc.gov/myibfs/download.do?attachment_key=738501) in August 2009 after reaching agreement with LightSquared. http://licensing.fcc.gov/myibfs/download.do?attachment_key=731265.
- In March 2010, the FCC approved LightSquared's increased power levels. http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-10-534A1.pdf. As with all previous FCC proceedings, the order was issued after a public proceeding and was fully coordinated with all interested federal government agencies. Neither GPSIC, nor any other party, filed for reconsideration or review of this order.
- Also in March 2010, the FCC required LightSquared to build a ground network reaching 260 million people by the end of 2015. http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-10-535A1.pdf. Neither GPSIC, nor any other party, filed for reconsideration or review of this requirement.

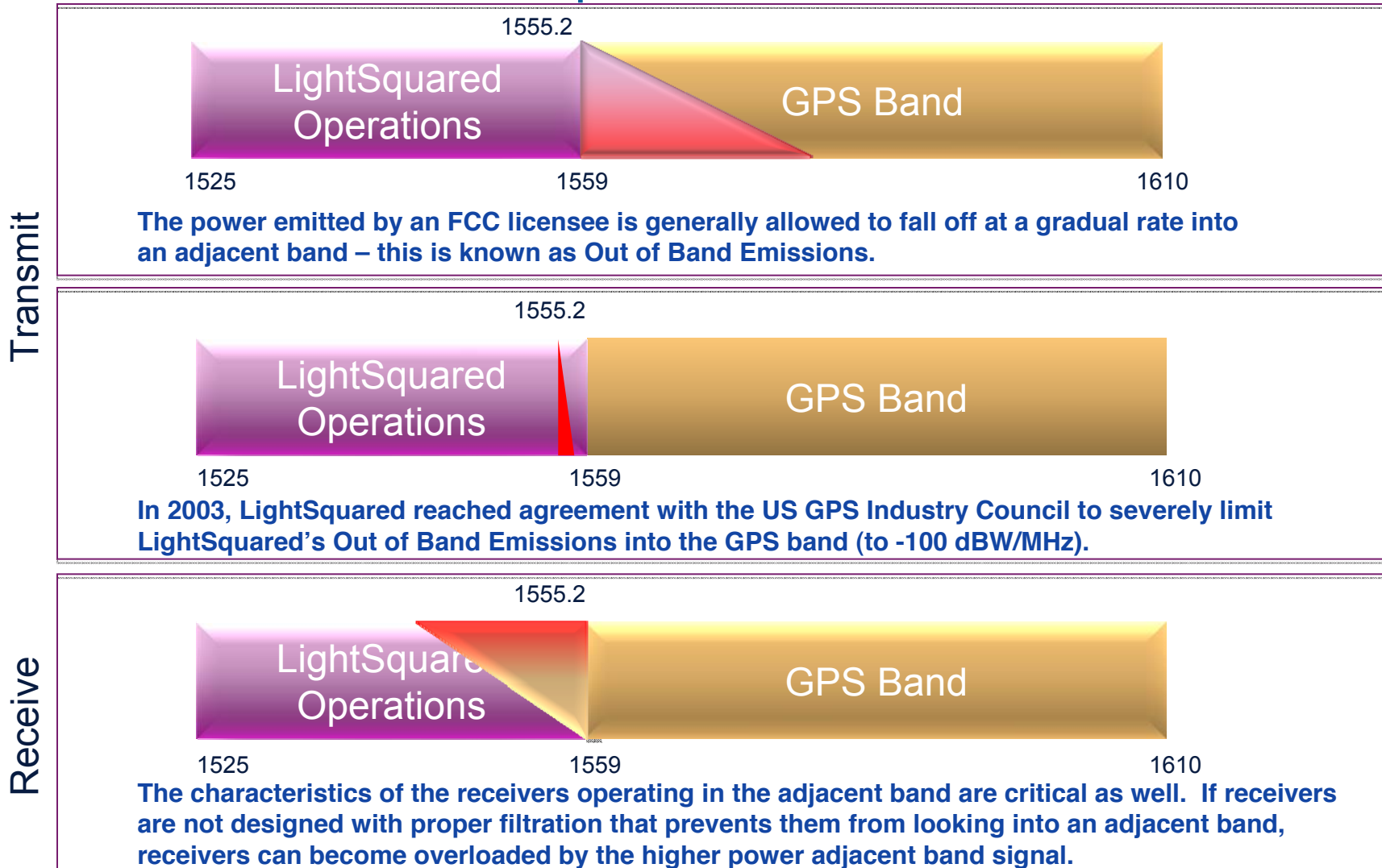
LIGHTSQUARED IS DOING EVERYTHING IT CAN TO WORK WITH GPS TO ADDRESS ISSUES RAISED ONLY A FEW MONTHS AGO

- In September 2010, USGIC raised for the first time (<http://fjallfoss.fcc.gov/ecfs/document/view?id=7020912452>) – in a general mobile satellite proceeding -- the possibility that some GPS receivers may be subject to interference because they can be overpowered by signals transmitted by LightSquared inside the spectrum the FCC licensed to LightSquared.
- In November 2010, LightSquared applied (http://licensing.fcc.gov/myibfs/download.do?attachment_key=852869) to allow devices onto its ground network that do not also communicate with its satellite. This application did not change the power, number, deployment or any other technical characteristic of

LightSquared's base stations. USGIC raised the same objection it raised in September.
http://licensing.fcc.gov/myibfs/download.do?attachment_key=854795.

- Although the interference issue was irrelevant to this application, LightSquared, in January 2011, proposed a rigorous program of testing to determine the extent of the susceptibility of GPS receivers to LightSquared's transmissions, which the FCC made a condition of granting LightSquared's application on Jan. 26, 2011.
http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-11-133A1.pdf.
- The FCC validated the GPS testing process in April, 2011 by unanimous Commission vote, noting USGIC's September 2010 comments and the cooperative testing program, and stating that "responsibility for protecting services rests not only on new entrants but also on incumbent users themselves, who must use receivers that reasonably discriminate against reception of signals outside their allocated spectrum." *FCC MSS Flexibility Order*, ¶ 27 (Apr. 6, 2011). http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-57A1.pdf.

The Two Sides of the Equation: Transmitters and Receivers



Images are for illustration and are not drawn to scale