

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

In the Matter of)	
)	
Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012)	PS Docket No. 12-94
)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band)	PS Docket No. 06-229
)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands)	WT Docket No. 06-150
)	
)	

COMMENTS OF IRIDIUM SATELLITE LLC

Iridium Satellite LLC (“Iridium”) hereby responds to the Federal Communications Commission’s (“Commission”) Notice of Proposed Rulemaking seeking comment on implementation of the public safety broadband provisions of the Middle Class Tax Relief and Job Creation Act of 2012.¹ Since its inception, Iridium’s robust mobile satellite service (“MSS”) system has time and time again delivered essential public safety communications services during national and international emergencies. When other communications networks and services have failed, Iridium remained operating and delivering essential communications services to first responders, U.S. Government, Non-Governmental Organizations (“NGOs”), and emergency medical teams. Due to its unique combination of coverage, resiliency, and innovation with a dedicated focus on serving the public safety community, Iridium is well suited to assist the First Responder Network Authority (“FirstNet”) in fulfilling its critically important mission.

¹ Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012, PS Docket No. 12-94, *Notice of Proposed Rulemaking*, FCC 13-31 (rel. Mar. 8, 2013) (“*Notice*”).

Accordingly, the Commission's rules and policies should accommodate and facilitate the integration of Iridium's MSS in the FirstNet network.

I. INTRODUCTION.

As the Commission considers the future of the nationwide public safety broadband network, it should recognize the critical and indispensable role that MSS can play in support of the mission of FirstNet. In particular, the Commission should recognize that Iridium's unique MSS capabilities can play an indispensable role in meeting the communications needs of first responders in three material respects. First, Iridium is the only communications system that provides coverage of the entire world—it is truly ubiquitous. Second, Iridium is the only MSS system that operates free from a dependency on local terrestrial facilities—it is immune from nearly any outage due to terrestrial damage during disasters. Third, Iridium historically has focused on government and first responders as part of its customer base, and its advances and innovations (as discussed below) have focused on the types of public safety needs underlying FirstNet's mission. For the reasons summarized above and detailed below, the Commission should ensure that its regulatory and licensing framework accommodates the full integration of Iridium's MSS in the FirstNet network.

II. IRIDIUM'S MSS CAN PROVIDE ESSENTIAL CONNECTIVITY IN SUPPORT OF FIRSTNET'S PUBLIC SAFETY MISSION.

The FirstNet Board of Directors ("Board") has, from the start, expected MSS to be a crucial component of the nationwide interoperable public safety communications system.² Iridium's MSS system, in particular, can assist FirstNet in achieving its communications goals through all phases of its network deployment and operation, particularly in remote environments

² See F. Craig Farrill, First Responders Network Authority Presentation to the Board (Sept. 25, 2012), available at http://www.ntia.doc.gov/files/ntia/publications/firstnet_fnn_presentation_09-25-2012_final.pdf.

and under circumstances where terrestrial networks—even those built to public safety specifications—might fail. More than any other provider, Iridium has experience providing mission-critical satellite communications to public safety and government users.³ Three of the main characteristics of Iridium’s system—ubiquity, resiliency, and its emphasis on providing innovative advanced communications services designed specifically for public safety and government users—make it an ideal solution for FirstNet’s public safety mission.

Ubiquitous. Iridium’s mobile satellite system uniquely covers every square inch of the earth—no other communications network in the world can match that capability. Because of its ubiquity, Iridium’s MSS can help fill in service gaps, ensuring that FirstNet network users retain access to some essential communications services even when they enter an area where no terrestrial network has coverage. Iridium’s unique network architecture, a fully-meshed network of 66 satellites with in-orbit spares, allows Iridium to provide communication from anywhere in the U.S. including Alaska, Hawaii and rural America. Indeed, Iridium serves anywhere on the planet, including the poles. Iridium’s ubiquity is one of the reasons Iridium provides vital services to the Department of Defense and supports many other federal bureaus, agencies and departments. Building the nationwide FirstNet system will take significant time and resources, and the network will not be deployed across the entire nation simultaneously. Iridium’s existing satellite services will be an easy, affordable solution for providing data and voice services to FirstNet users in areas where the FirstNet network does not yet reach.

Resilient. Iridium is the only satellite system that uses inter-satellite links and thus is not dependent on local infrastructure. As a result of this key feature, Iridium’s system is essentially

³ Attachment A to these Comments highlights Iridium’s experience providing critical communications services to first responders, the Federal Government, aid organizations, medical care providers, and private users.

not susceptible to outages during terrestrial disasters. Such resiliency enables the system to keep operating even when extreme events have compromised other forms of communication. Even public safety-grade wireless infrastructure may not be impervious to physical damage, disruption to commercial backhaul facilities, or long-term power outage. However, experience demonstrates that public safety communications are needed most during these events. Due to its inter-satellite links, Iridium is able to provide reliable communication links where landline or mobile phone connections are unavailable, unreliable, or overburdened. Whether it was Hurricane Katrina, the 2010 oil spill in the Gulf of Mexico, Hurricane Sandy, the earthquakes in Haiti, Chile or Japan, or many others, due to the unparalleled reliability of Iridium's network, its services were operating and available when terrestrial systems failed. Accordingly, Iridium has played a key role in recovery and response efforts in nearly every major natural or manmade disaster in recent history. This reliability will help ensure that FirstNet users are not cut off from communication at the most critical moments.

Customizable and Innovative Advanced Capability. Iridium is continually developing and deploying technologies that meet the needs of government and public safety. The U.S. government has long been considered a key Iridium customer, and Iridium has built its business on being attentive and adaptive to its needs. Iridium's services also are of particular value to the larger public safety community. Because of its focus on supporting public safety communities, Iridium is a leader in providing innovative voice and data solutions for mission-critical communications. And with the Iridium NEXT system, which will begin launching in 2015, Iridium will have the ability to provide even greater data performance and advanced functionality.

One of the best illustrations of how Iridium works closely with its customers to develop products specifically designed to serve their unique communications needs is the Distributed Tactical Communication System (“DTCS”). DTCS, also known as Netted Iridium[®], is an interoperable push-to-talk (“PTT”) solution providing instant over-the-horizon group communications. Though originally developed in cooperation with the U.S. military to meet their longstanding need for secure, reliable, beyond line-of-sight tactical communications, Netted Iridium is now being adapted and improved as Iridium PTT for the non-military first responder community and is expected to be brought to market in 2014.

Netted Iridium provides a group PTT that is user-configured and highly customizable. Netted Iridium has extremely low latency, with talk times from a cold start of as low as three seconds and latency within a group call of around 500 ms. Talk groups can range from two to thousands. Moreover, Iridium PTT, unlike traditional Land Mobile Radio (“LMR”) solutions with geographic limitations, can connect users within the same area or across the globe, allowing real-time coordination on a scale previously impossible.

The operational features of Netted Iridium were designed specifically with the tactical communications needs of public safety in mind. With 256 bit AES encryption and the ability to transmit precise geolocation data about each connected device, Netted Iridium allows for delivery of secure, situational awareness information to a closed user group. Dispatch can send both voice and moderate-sized data messages to the talk group.

Most significantly for public safety, however, is the demonstrated ability to interoperate with existing LMR service, effectively allowing users to expand the geographic scope of their existing mission critical voice services. Iridium’s PTT technology can be incorporated inside an LMR handheld radio, giving the FirstNet system user unrestricted mobility and use of the

satellite PTT functionality completely integrated into the user interface and group structure used by the LMR radio. Additionally, an Iridium module can be integrated into the communications hub of an emergency vehicle, allowing that vehicle to act as a base station for existing LMR handsets while relying on Iridium's network where normal LMR coverage is not available. Importantly, the switchover between LMR and Iridium is automatic, allowing a positive user experience without widespread training or the need to remember to switch between LMR and satellite in stressful situations.

Iridium's innovative PTT solution is just one example of the many ways that Iridium customizes its services for public safety needs. Iridium's emphasis on innovation ensures subscribers have the latest cutting-edge technology in emergency response. For example, Iridium currently provides critical backup and support services to MedSTAR Health with satellite phones and airtime for MedSTAR Health's facilities in the Washington, DC region, enabling existing systems to be used even when traditional phone service is unavailable. Iridium's automated tracking and voice services were also installed in MedSTAR Health's transport helicopter fleet, enabling MedSTAR Health to view the location and status of its fleet and allowing its helicopters to communicate with hospitals.

Iridium offers or has definitive plans to offer soon many other products that could provide essential functionality to FirstNet in both the early and advanced stages of the network deployment. Among these are:

- Smartphone hotspots that provide voice and data services in remote locations over devices users already carry;
- Advanced geolocation/geoauthentication applications that can penetrate indoors;
- Innovative global data broadcast services that will facilitate emergency alerting, group messaging and other new applications;

- Remote monitoring of biosensitive information; and
- Machine-to-machine solutions connecting large numbers of geographically diverse points simultaneously.

In addition, the Iridium Force[®] initiative is spurring increased innovation through the partnering and licensing of Iridium's core technologies and network. Under Iridium Force, Iridium has opened and licensed its core technologies and network to extend its communications reach. For example, Wi-Fi products and services launched last year allow Blackberry, Android, iPhone, iPad and laptop users to connect to their devices to the Iridium network when using particular models of Iridium handsets.⁴ Through initiatives like Iridium Force, Iridium will partner with other public safety equipment manufacturers to leverage Iridium's ubiquitous and reliable connectivity in creative ways to serve FirstNet's needs.

⁴ Press Release, Iridium, Iridium Force - A New Vision for Global Communications - Designed to Enhance and Expand the Way People and Organizations Connect Everywhere (Sept. 7, 2011), <http://investor.iridium.com/releasedetail.cfm?releaseid=609735>.

IV. CONCLUSION.

As an American headquartered and licensed satellite company, Iridium is proud to serve the critical communications needs of the nation's public safety, first responder, and government communities. Iridium's unique MSS system provides ubiquitous and resilient communications, and the company is focused on delivering innovative, advanced solutions tailored to public safety needs. As the Commission fulfills its statutory duties as the licensing authority for the FirstNet network, it should ensure that its regulatory framework accommodates the integration of Iridium's unique MSS capabilities in the nationwide public safety communications system.

Respectfully submitted,

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Attachment A

Iridium's robust MSS system provides critical communications services to first responders, the Federal Government, aid organizations, medical care providers, and private users. In addition, Iridium's unique MSS system provides indispensable communications to the U.S. military and other federal agencies both at home and abroad.

Here, we present specific examples of the essential communications capabilities of Iridium's MSS:

- **Military and U.S. Government Use.** Iridium provides vital services to the Department of Defense and many federal U.S. bureaus, agencies and departments. Iridium's voice and data solutions improve situational awareness for military personnel and track critical assets in tough environments around the globe, providing a unique value proposition that is not easily duplicated. The Company has a strategic relationship with its U.S. Government customers supported by differentiated and robust product offerings.
- **Tsunami Warning.** Iridium's services have also played a vital role in preparing for domestic emergencies. For instance, since 2003, the U.S. National Oceanic and Atmospheric Administration ("NOAA") has depended on Iridium's services to operate its tsunami warning system, which utilizes satellite data links to transmit real-time data from deep ocean buoys. This warning system allowed NOAA to monitor the tsunami heading towards Hawaii after the Chilean earthquake as well as the aftereffects of the Japanese earthquake.
- **Hurricane Relief.** In the aftermath of Hurricane Katrina, Iridium worked quickly to get mobile satellite communications equipment into the hands of first responders at the federal, state and local levels. To meet the skyrocketing demand and ensure that equipment was delivered to critical service providers in a timely fashion, Iridium immediately adopted an around-the-clock manufacturing schedule. Within the first seventy-two (72) hours of the disaster, Iridium traffic in the affected region increased more than 3,000 percent, while the number of Iridium subscribers increased more than 500 percent. Brigadier General Mark A. Graham recognized the critical importance of Iridium satellite communications when he noted that in the aftermath of Katrina, "All of our command and control nodes were used to coordinate and synchronize our 24-hour evacuation operations. We provided our own communications using Iridium satellite phones and intermittent Blackberry coverage. During the evening of Thursday, September 1, the OCP was augmented with an additional 28 soldiers and Department of the Army civilians from Fifth U.S. Army. This allowed us to better maintain 24-hour operations. Utilizing this network, by the end of the day on September 1, we had evacuated approximately 15,000 displaced persons out of the City of New Orleans." *Hurricane Katrina: Managing the Crisis and Evacuating New Orleans: Hearing Before the United States Senate Committee on Homeland Security and Government Affairs*, Testimony of Brigadier General Mark A. Graham, 109th Congress (February 1, 2006). Iridium's network also played a key role in Hurricane Sandy recovery and response efforts.

- **Gulf Cleanup.** Iridium's satellite communications network was also deployed in innovative ways to assist in the cleanup and recovery effort after the April 2010 explosion of the Deepwater Horizon oil rig and the subsequent oil spill in the Gulf of Mexico. By incorporating Iridium satellite transceivers into robots and buoys that can be deployed on site, researchers and other relief workers were able to monitor and track the movements of the oil spill in real time, greatly improving the efficiency of cleanup efforts.
- **Earthquakes.** On the international stage, after the devastating earthquake in Haiti, Iridium and its partners delivered communications services critical to the coordination of relief and rescue efforts. Relief organizations—including United Nations agencies, the American Red Cross, FEMA, the U.S. Department of Defense, the U.S. State Department, the Mexican Red Cross and others—relied on Iridium handsets and equipment for their communications needs in Haiti. Similarly, in the aftermath of the earthquake in Chile in February 2010, Iridium's services proved to be essential. Indeed, Secretary of State Hillary Clinton personally delivered twenty (20) satellite phones to Chile within days of the earthquake. Iridium also assisted in reestablishing domestic and international communications in Japan following the devastating earthquake and tsunami in March 2011. To ensure that Iridium services reached critical government, military, and first responder users as quickly as possible, Iridium worked directly with major Japanese telecom company KDDI to ship thousands of new handsets to appropriate personnel and ensure accelerated activation of those Iridium systems.
- **MedSTAR Services.** Iridium's emphasis on innovation ensures subscribers have the latest cutting-edge technology in emergency response. Iridium currently provides critical backup and support services to MedSTAR Health with satellite phones and airtime for MedSTAR Health's facilities in the Washington, DC region, enabling existing systems to be used even when traditional phone service is unavailable. Iridium's automated tracking and voice services were also installed in MedSTAR Health's transport helicopter fleet, enabling MedSTAR Health to view the location and status of its fleet and allow its helicopters to communicate with hospitals.
- **Truly Global Coverage.** The distinctive architecture of Iridium's system allows it to provide truly global coverage. More than 620,000 worldwide customers utilize Iridium's Big LEO MSS. For example, Iridium is the only provider of critical flight, maritime and worker safety applications in the polar regions.
- **Diverse Commercial Use.** Iridium's diverse commercial customer base, which includes markets such as oil and gas, mining, recreation, forestry, construction, transportation, and emergency services, rely on Iridium's products and services as critical to their daily operations. For example, the Iridium OpenPort[®] service offers a suite of capabilities for maritime vessel telecommunications optimization and its transceivers are engineered for enhanced durability to withstand the harshest maritime conditions.