June 2, 2016

Attn: IOT RFC 2016
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue NW, Room 4725
Washington, D.C. 20230
iotrfc2016@ntia.doc.gov

Subject: Comments of Hughes on the Benefits, Challenges and Potential Roles for the Government in Fostering the Advancement Of the Internet of Things, Docket No. 160331306-6306-01

Dear Sir/Madam:

Hughes Network Systems, LLC (Hughes) hereby submits these comments in the above-referenced proceeding.[1] Hughes is the largest U.S. satellite internet service provider with over 1 million customers and today provides a variety of internet of things (IOT) services to U.S. consumers, industry and the government in a variety of areas including oil and gas management and smart grid. Hughes' broadband satellite service provides reliable, quality services for IOT in the most hard to reach areas of the United States and when the terrestrial infrastructure is not available.

Question 3: With respect to current or planned laws, regulations, and/or policies that apply to IOT, are there examples that, in your view, unnecessarily inhibit IOT development and deployment?

It is critical that the U.S. government ensure that inputs to provide IOT services, such as special access, are available to IOT service providers on a fair and cost-based basis. Without such access, IOT providers, such as Hughes, will be disadvantaged in the marketplace when competing against service providers who have access to such capabilities. In addition, increased costs will ultimately negatively impact consumers, who must bear the brunt of such costs.

In addition, to the extent that the U.S. government adopts any programs, such as a subsidy program, to support IOT, it should ensure that any such program is not defining technology. Technology and needs change over time. The U.S. government should not lock itself into definitions that are not flexible to qualify for certain government programs.

Question 6: What technological issues may hinder the deployment of IOT, if any?

Future IOT deployments will include terrestrial and space-based infrastructure. Satellite broadband service providers will play an important role in enabling the widespread dissemination of IOT services. Satellite providers have different physical infrastructure needs than terrestrial services that can allow them to deploy IOT services quickly, even when terrestrial services have been compromised by natural disasters or other

[1] *The Benefits, Challenges, and Potential Roles for the Government in Fostering the Advancement of the Internet of Things*, Notice, 81 Fed. Reg. 19956 (Apr. 6, 2016) ("*Notice*").

Hughes Network Systems 11717 Exploration Lane • Germantown, MD 20876 • Tel: 301.428.5500 • www.hughes.com

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emergencies. Satellite broadband services are able to ensure that even the most remote portions of the country are able to receive the benefits of the IOT.[2] Today, Hughes provides reliable, satellite-delivered connectivity capable of supporting IOT—including critical backhaul—everywhere across the United States.[3] It is for this reason, as discussed below, that it is critical that any policies the U.S. government enacts to facilitate the deployment of IOT ensure that satellite is a critical component.

Hughes agrees with the observation in the notice that the number of connected devices will continue to grow exponentially and the economic impact of these devices will continue to increase.[4] In this regard, as Hughes has seen with its own broadband business, the number of users relying on IOT and the need for connectivity will only continue to grow in almost all sectors, including oil and gas, transportation, and smart grid, among others.[5] In addition, because of the national and international needs of IOT, it is critical that a holistic approach to IOT be considered.[6]

To best ensure deployment, Hughes supports a technologically neutral and harmonized approach to the IOT policy framework that encompasses all technologies and does not hinder the development or use of a single technology. Each technology (e.g., wireline, wireless, and satellite) can bring many important benefits to the delivery of IOT services to consumers, businesses and the government. Accordingly, it is critical that the U.S. government not adopt any rules or regulations favoring one technology or another with regard to a variety of areas including access to the spectrum resource, network infrastructure, funding or the like. By taking a technology neutral approach to IOT regulation, the government can ensure that the best technology or technologies are utilized for the specific purpose.

In addition, as much of IOT will be spectrum-based, it is critical that the U.S. government ensure there is sufficient spectrum available for all spectrum-based technologies to meet the growing demands for IOT.[7] However, Hughes urges the U.S. government not to allocate specific frequency bands for IOT services, but instead enable service providers to determine which spectrum is most appropriate to meet the needs of their customers. To best support spectrum use for IOT, it continues to be important that the U.S. government seek, to the extent possible, harmonized spectrum allocations for the services that support IOT. This is especially important to enable the use of satellite services for IOT, whose reach and services are truly global in nature.

Hughes appreciates the opportunity to comment in this important proceeding. As a leading provider of IOT services, Hughes looks forward to working with NTIA and the U.S. government on the important issues in this proceeding.

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[2] "Internet of Things: Prime Time for Satellite?" NSR.com, http://www.nsr.com/news-resources/the-bottom-line/internet-of-things-prime-time-for-satellite/ (nothing the importance of satellite technologies for backhaul when terrestrial networks fail, especially in rural or developing areas where cellular networks are less reliable and in mission-critical applications such as healthcare).

[3] HughesNet, http://www.hughesnet.com/learn-more/coverage.

[4] *Notice* at 19957. Analysts predict that global spending on IOT will reach $448 million in 2016 and $1.7 trillion by 2020; by 2024 the satellite industry's market share of the IOT and machine-to-machine (M2M) sector will be more than $2.4 billion. John Egan, "How Will Satellite and Wireless Connect to the Internet of Things," NABshow.com, http://www.nabshow.com/thought-gallery-thought-leaders/how-will-satellite-and-wireless-connect-internet-things; "Gartner Says Worldwide IOT Security Spending to Reach $348 Million 2016," Gartner.com (Apr. 25, 2016), http://www.gartner.com/newsroom/id/3291817 ("Gartner Analysis"). By 2018 there could be as many as 11.4 billion connected devices worldwide, and by 2023, there will be an estimated 5.8 million satellite-delivered M2M and IOT connections globally. Alan Crisp, "Internet of Things: Prime Time for Satellite?" NSR.com, http://www.nsr.com/news-resources/the-bottom-line/internet-of-things-prime-time-for-satellite/; Gartner Analysis.

[5] For a discussion of the applications for IOT in various sectors *see, e.g.*, State of the Market: Internet of Things 2016, Verizon, http://www.verizon.com/about/sites/default/files/state-of-the-internet-of-things-market-report-2016.pdf.

[6] The United States is already a leader internationally in overall measurements of IOT connectivity. Chuck Martin, "100 Billion Connected Devices Coming; U.S. Tops in Connectivity," MediaPost.com (Apr. 13, 2016), http://www.mediapost.com/publications/article/273431/100-billion-connected-devices-coming-us-tops-in.html.

[7] *See, e.g.*, "Spectrum Requirements and Technology Developments for M2M," ECC (Electronics Communications Committee) Newsletter (April 2016), http://apps.ero.dk/eccnews/april-2016/spectrum_requirements_and_technology_developments_for_m2m.html (noting increasing need for spectrum to accommodate M2M communications, which are expected to quadruple between 2015 and 2022).

Please contact us if you have any questions or need additional information.

Sincerely,

/s/ Jennifer A. Manner

Jennifer A. Manner
Senior Vice President, Regulatory Affairs
Deborah Broderson
Communications Regulatory Counsel and Director
Hughes Network Systems, LLC
11717 Exploration Lane
Germantown, MD 20876