

**Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, DC 20230**

In the Matter of)	
)	
Spectrum Monitoring Pilot Program)	Docket No. 130809703-3703-01
)	RIN 0660-XC007

COMMENTS OF T-MOBILE USA, INC.

T-Mobile USA, Inc. (“T-Mobile”)^{1/} submits these comments in response to the Notice of Inquiry (“*NOI*”) issued by the National Telecommunications and Information Administration (“NTIA”) in the above-referenced proceeding.^{2/} The *NOI* seeks comment on a proposed spectrum monitoring pilot program under which NTIA would develop and deploy a prototype system to monitor spectrum usage in up to ten metropolitan areas. T-Mobile applauds NTIA’s efforts, which constitute an important step toward giving the agency a tool to evaluate additional spectrum for potential commercial use. In order to maximize the benefits of the program, NTIA should design the monitoring program to consider a wide range of federal uses, correspond with and update NTIA’s Government Master File (“GMF”), and produce data that may be shared with industry stakeholders.

I. INTRODUCTION AND BACKGROUND

As the fourth largest wireless carrier in the United States, T-Mobile offers nationwide wireless voice, text, and data services to approximately 44 million subscribers,^{3/} employs almost 38,000 people with a payroll of more than \$2 billion, and has invested more than \$3.5 billion last

^{1/} T-Mobile USA, Inc. is a wholly-owned subsidiary of T-Mobile US, Inc., a publicly traded company.

^{2/} See *Spectrum Monitoring Pilot Program*, Notice of Inquiry, Docket No. 130809703-3703-01, 78 Fed. Reg. 50399 (dated Aug. 19, 2013) (“*NOI*”).

^{3/} See T-Mobile News Release, *T-Mobile US Reports Second Quarter 2013 Results* (Aug. 8, 2013) (“T-Mobile Q2 Press Release”), available at <http://newsroom.t-mobile.com/phoenix.zhtml?c=251624&p=irol-newsArticle&ID=1845964&highlight=> .

year in the U.S.^{4/} T-Mobile has been busy reinvigorating its brand in recent months^{5/} and is making substantial progress in its network modernization and 4G Long-Term Evolution (“LTE”) effort, recently announcing the launch of 4G LTE in 154 metropolitan areas covering 180 million people.^{6/} T-Mobile is on pace to meet its previously stated goal of reaching 200 million people with 4G LTE by the end of this year.^{7/}

As Congress, the FCC, and President Obama have recognized, there is a growing need for spectrum for commercial services and limited sources to satisfy this demand.^{8/} The FCC is currently in the process of effectuating the authority Congress gave it under the Middle Class Tax Relief and Job Creation Act of 2012 (“Spectrum Act”)^{9/} to make broadcast spectrum available for

^{4/} See *Oversight of Incentive Auction Implementation*, 113th Cong. 1 (July 23, 2013) (written testimony of Kathleen O’Brien Ham, Vice President, Federal Regulatory Affairs, T-Mobile), available at <http://docs.house.gov/meetings/IF/IF16/20130723/101177/HHRG-113-IF16-Wstate-HamK-20130723.pdf>.

^{5/} On May 1, 2013, T-Mobile announced the completion of its merger with MetroPCS Communications Inc. (“MetroPCS”) and now represents the interests of both the T-Mobile and MetroPCS brands. See T-Mobile News Release, *T-Mobile and MetroPCS Combination Complete – Wireless Revolution Just Beginning* (May 1, 2013), available at <http://phx.corporate-ir.net/phoenix.zhtml?c=251624&p=irol-newsArticle&ID=1813495&highlight=>.

^{6/} See T-Mobile News Release, *T-Mobile to Offer iPhone 5s and iPhone 5c* (Sept. 12, 2013), available at <http://newsroom.t-mobile.com/phoenix.zhtml?c=251624&p=irol-newsArticle&ID=1854553&highlight=>.

^{7/} T-Mobile Q2 Press Release.

^{8/} See *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services*, Sixteenth Report, 28 FCC Rcd 3700, ¶ 87 (2013) (noting that “the spectrum currently allocated to wireless is not sufficient to handle the projected growth in demand, even with technological improvements allowing for more efficient use of existing spectrum and significant investment in new facilities”) (*internal citation omitted*); *NOI* at 50399 (“The continued growth in demand for spectrum for commercial wireless services, unlicensed devices, and government operations . . . focuses attention on the ability of spectrum policy-makers, researchers, and industry stakeholders to identify relocation or spectrum sharing opportunities and approaches.”).

^{9/} See Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (2012) (“Spectrum Act”).

wireless broadband.^{10/} Similarly, in 2010, President Obama directed NTIA to collaborate with the Commission “to make available a total of 500 megahertz of Federal and non-Federal spectrum over the next ten years, suitable for both mobile and fixed wireless broadband use.”^{11/}

More recently, the President released a memorandum finding that although existing efforts will almost double the amount of spectrum available for wireless broadband, even more spectrum must be made available.^{12/} Toward this end, the *2013 Presidential Memorandum* directs NTIA to “design and conduct a pilot program to monitor spectrum usage in real time in selected communities throughout the country to determine whether a comprehensive monitoring program in major metropolitan areas could disclose opportunities for more efficient spectrum access, including via sharing.”^{13/} The *2013 Presidential Memorandum* recognizes that while NTIA has taken important steps based on Presidential and Congressional directives to make spectrum available, more work is necessary.^{14/} The *2013 Presidential Memorandum* correctly

^{10/} See *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Notice of Proposed Rulemaking, 27 FCC Rcd 12357 (2012).

^{11/} *Unleashing the Wireless Broadband Revolution*, 75 Fed. Reg. 38385, 38388 (July 1, 2010) (“*2010 Presidential Memorandum*”).

^{12/} See *Expanding America’s Leadership in Wireless Innovation*, 78 Fed. Reg. 37431, 37431 (June 20, 2013) (“*2013 Presidential Memorandum*”), available at <http://www.whitehouse.gov/the-press-office/2013/06/14/presidential-memorandum-expanding-americas-leadership-wireless-innovation>.

^{13/} *Id.* at 37433.

^{14/} NTIA has already identified some spectrum used by federal agencies for potential employment in commercial networks. In particular, pursuant to the *2010 Presidential Memorandum*, NTIA identified the 1695-1710 MHz band as available for transition to non-federal operations, subject to geographic sharing requirements. See U.S. Dep’t of Commerce, *An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz Bands* (Oct. 2010), available at http://www.ntia.doc.gov/files/ntia/publications/fastrackevaluation_11152010.pdf. NTIA also concluded that it is possible to make the 1755-1850 MHz band available for commercial use and directed its Commerce Spectrum Management Advisory Committee (“CSMAC”), in which T-Mobile played a leading role, to evaluate how to free up federal spectrum while protecting federal operations. See U.S. Dep’t of Commerce, *An Assessment of the Viability of Accommodating Wireless Broadband in the 1755-1850 MHz Band*, at 45-47 (March 2012), available at http://www.ntia.doc.gov/files/ntia/publications/ntia_1755_1850_mhz_report_march2012.pdf. In addition, the Spectrum Act has directed NTIA, “[i]n evaluating a band of frequencies for possible

recognizes that other spectrum designated for federal use may be appropriate for commercial operations, either on a shared or reallocated basis.

Monitoring spectrum usage will be, as the *2013 Presidential Memorandum* recognizes, an important tool to determine spectrum that may be underutilized and potentially made available for commercial use. If successful, the initiative could help NTIA develop a more comprehensive monitoring program to evaluate potential spectrum relocation and sharing opportunities between federal agencies and commercial users. Monitoring has already played an important part of assessing the use of the 1755-1780 MHz band. As NTIA is aware, T-Mobile obtained authority from the FCC to test in that band with the cooperation of federal users permitting it and other wireless carriers to evaluate the potential co-existence of commercial operations.^{15/} With even a limited number of incumbent federal operations, the testing yielded significant results and provided great insight into use of the bands.^{16/} The results of this testing informed the development of the Department of Defense's proposal to make the 1755-1780 MHz

reallocation for exclusive non-Federal use or shared use," to give priority to options involving relocation over sharing. See Spectrum Act § 6701(a), codified at 47 U.S.C. § 923(j)(1).

^{15/} See T-Mobile License LLC, Application for Experimental Special Temporary Authority, ELS File No. 0373-EX-ST-2012 (filed May 4, 2012); see also U.S. Dep't of Commerce, *Third Interim Progress Report on the Ten-Year Plan and Timetable*, at 6 (Nov. 2012), available at http://www.ntia.doc.gov/files/ntia/publications/third_interim_progress_report_final.pdf (noting that "carriers [have] requested special temporary experimental authority from the FCC to conduct tests in the 1755-1780 MHz and 2155-2180 MHz bands for commercial mobile broadband services, and to examine technical co-existence with a limited number of incumbent federal operations, in a defined number of geographic locations that may remain in the band indefinitely, consistent with the CSMAC working groups' efforts").

^{16/} See Letter from Teresa M. Takai, Chief Information Officer, Dep't of Defense, to Lawrence E. Strickling, Assistant Secretary for Communications and Information, NTIA, U.S. Dept. of Commerce, at 1 (July 17, 2013) (noting that the Department of Defense considered the results of joint Department of Defense/Industry spectrum monitoring efforts in formulating its proposal).

band available for auction in the near-term while protecting critical government capabilities.^{17/} More testing and monitoring can produce similarly useful results.

II. COMMENTS

A. Monitoring Should Be Designed to Capture the Entire Range of Federal Use.

The *NOI* seeks input on all aspects of the proposed pilot program, including how the measurement system should be designed.^{18/} Through the recent CSMAC process, it became apparent that any monitoring program should consider a wide range of incumbent scenarios. NTIA established five Working Groups within CSMAC to evaluate making the 1695-1710 MHz and 1755-1850 MHz bands available for commercial broadband operations. Four of those Working Groups evaluated different aspects of the 1755-1850 MHz band, taking into consideration industry priority access to the 1755-1780 MHz band: Working Group 2 focused on relocation of video surveillance systems;^{19/} Working Group 3 studied the sharing between satellite control systems and LTE as well as LTE and Electronic Warfare;^{20/} Working Group 4 was tasked with assessing Fixed Point-to-Point, Microwave, Tactical Radio Relay, and ground-

^{17/} *Id.*

^{18/} *See NOI* at 50400.

^{19/} *See CSMAC, Final Report: Working Group 2: 1755-1850 MHz Law Enforcement Surveillance, Explosive Ordnance Disposal, and other Short Distance Links*, at 6 (Jan. 4, 2013), available at http://www.ntia.doc.gov/files/ntia/publications/csmac_wg-2_final_report_jan-4-2012.pdf.

^{20/} *See CSMAC, Final Report: Working Group 3 (WG3) Report on 1755-1850 MHz Satellite Control and Electronic Warfare*, at 2 (July 19, 2013), available at http://www.ntia.doc.gov/files/ntia/Working_Group_3_Final.pdf.

based Joint Tactical Radio Systems ;^{21/} and Working Group 5 focused on assessing the feasibility of commercial LTE mobile systems sharing the band with federal airborne systems.^{22/}

The spectrum monitoring pilot program should likewise evaluate a wide array of federal uses, including low-power and high-power use, airborne and satellite use, and intermittent as well as constant operations. The more comprehensive the evaluation, the more useful the data the monitoring program will yield. Federal users should be queried about the types of operations they conduct before monitoring protocols are designed, in order to capture the broadest range of potential federal operations and to ensure those protocols are appropriate for such federal uses.

T-Mobile recognizes that there are challenges with using monitoring equipment to capture a wide range of federal uses, which can range from very broad high-power uses to low-power transient uses, extremely wideband signals to narrowband signals, and can include a wide variety of pulse widths and timing. Accordingly, to ensure accurate results, it will likely be necessary for NTIA to develop a list of bands that can be reviewed based on existing information and to work with federal agencies and the public to ensure that the equipment is configured in a manner that will capture the relevant signals if they are present.

B. Monitoring Should Be Correlated With, and Ultimately Used to Update, the Government Master File.

The *NOI* notes that obtaining reliable spectrum usage data could allow NTIA to verify other quantitative usage assessments and enable federal agencies to support regular frequency

^{21/} See CSMAC, *Final Report: Working Group 4: 1755-1850 MHz Point-to-Point Microwave Tactical Radio Relay (TRR) Joint Tactical Radio System / Software Defined Radio (JTRS/SDR)*, at 3 (July 24, 2013), available at http://www.ntia.doc.gov/files/ntia/publications/wg4_final_report_072413.pdf.

^{22/} See CSMAC, *Final Report: Working Group 5 (WG-5) 1755-1850 MHz Airborne Operations (Air Combat Training System, Small Unmanned Aircraft Systems, Precision-Guided Munitions, Aeronautical Mobile Telemetry)*, at 1-2 (July 23, 2013), available at http://www.ntia.doc.gov/files/ntia/publications/wg5_final_report_7-22_dfo.pdf.

assignment reviews.^{23/} T-Mobile agrees and suggests that spectrum monitoring under the pilot program be used to ensure and update the accuracy of the federal spectrum data in the Government Master File (“GMF”).

The GMF contains all government frequency assignments made by NTIA.^{24/} Federal agencies initially determine the frequencies they may need and then coordinate and apply for their use.^{25/} The GMF is updated weekly to reflect frequency assignments that have been approved by NTIA. However, like the FCC’s records, certain GMF records may be inaccurate as some stations in the GMF that appear to be licensed may no longer be in operation. As the Government Accountability Office (“GAO”) has recognized, NTIA’s data management system in general “is antiquated and lacks transparency.”^{26/} The GMF in particular is “an outdated legacy system that was developed primarily to store descriptive data” and “does not meet the current analytical needs of NTIA or other federal users.”^{27/}

Updating the GMF with information derived through the monitoring program will allow NTIA to begin to make appropriate corrections in areas where spectrum is monitored. If monitoring does not show use of an assignment reflected in the GMF, NTIA should follow up with the affected agency to determine if the assigned frequency is actually in operation. If the frequency is not in operation, NTIA should update the GMF accordingly. This exercise will

^{23/} See *NOI* at 50400.

^{24/} See NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management (Redbook)*, at 8-1 (May 2013), available at http://www.ntia.doc.gov/files/ntia/publications/redbook/2013/May_2013_Edition_of_the_NTIA_Manual.pdf.

^{25/} See *id.*

^{26/} U.S. Government Accountability Office, Report to Congressional Committees, *Spectrum Management NTIA: Planning and Processes Need Strengthening to Promote the Efficient Use of Spectrum by Federal Agencies*, GAO 11-352, at 17 (April 2011) (“GAO Report”), available at <http://www.gao.gov/new.items/d11352.pdf>.

^{27/} *Id.*

enable NTIA to begin to draw conclusions about the relationship between spectrum that is assigned and spectrum that is actually in use. Those conclusions can help inform an NTIA strategy for identifying spectrum that may be available when GMF suggests it might not and evaluating whether such spectrum can be put to use for other operations, ultimately ensuring that valuable spectrum resources are not lying fallow.

C. Monitoring Output Should Be Made Available as Transparently as Possible.

As NTIA suggests, the data developed from the monitoring program may be made available to industry stakeholders, who could use the data to evaluate spectrum availability and to develop commercially viable spectrum sharing technologies and approaches.^{28/} The *2013 Presidential Memorandum* directs NTIA to ensure that the monitoring program will not reveal sensitive or classified information. Accordingly, NTIA asks about the steps that can be taken to ensure that sensitive or classified information will not be revealed to unauthorized parties.^{29/}

T-Mobile recognizes the importance of protecting critical government information and agrees that the distribution of classified or sensitive data should be restricted. However, in order to facilitate the exchange of important information between government and industry stakeholders, NTIA should sponsor appropriate industry representatives to receive classified or sensitive information through expansion of its trusted agent program.^{30/} Adopting a workable

^{28/} See *NOI* at 53400; *id.* at 50399 (“Spectrum policy-makers, researchers, and other stakeholders would have access to the data and analysis to corroborate other quantitative assessments and investigate the feasibility of supporting new and innovative spectrum access capabilities.”).

^{29/} See *id.* at 53401.

^{30/} See *Common Format for Federal Entity Transition Plans*, Comments of T-Mobile USA, Inc., AT&T Inc., and Verizon Wireless, Docket No. 130809701-3701-01, at 9, 11 (filed Sept. 18, 2013) (discussing that establishing a mechanism by which classified and sensitive information may be shared between federal agencies and industry representatives would facilitate spectrum transition planning and sharing efforts).

framework to enable information-sharing of otherwise restricted data would allow better collaboration between government and industry in identifying ways to maximize spectrum use.

NTIA also should develop a mechanism as part of the pilot program to make available to the public all non-classified and non-sensitive information. Not all agency communications involve classified or sensitive information, and NTIA should ensure that it protects only classified or sensitive components while making available as much information about the operations as possible. For example, NTIA could indicate when during the day spectrum is being used, or even how often it is being used, without revealing the nature of the communications. As the GAO has recognized, lack of information from federal agencies as well as NTIA's limited oversight "has led to decreased accountability and transparency in how federal spectrum is actually being used and whether the spectrum-dependent systems the agencies have in place are necessary."^{31/} Better sharing of information would increase transparency and facilitate industry efforts to evaluate federal spectrum uses and ultimately determine whether relocation or sharing spectrum may be possible, without risking important federal operations.

^{31/} *GAO Report at 37.*

III. CONCLUSION

NTIA has been directed under the *2013 Presidential Memorandum* with developing a program to monitor spectrum usage, in order to create additional opportunities for more efficient spectrum use. T-Mobile supports NTIA's efforts. The monitoring program could also be used to make more spectrum available for commercial mobile broadband services. In implementing the program, T-Mobile therefore suggests that NTIA consider the proposals set forth above in order to ensure that the benefits of the program are fully realized.

Respectfully submitted,

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October 3, 2013