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June 17, 2013

EX PARTE PRESENTATION

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Ex Parte Presentation in WT Docket No. 12-357, *Service Rules for the Advanced Wireless Services H Block—Implementing Section 6401 of the Middle Class Tax Relief and Job Creation Act of 2012 Related to the 1915-1920 MHz and 1995-2000 MHz Bands*

Dear Ms. Dortch:

Pursuant to Section 1.1206 of the Commission's rules, 47 C.F.R. § 1.1206, DISH Network Corporation ("DISH") submits this letter summarizing a meeting on Thursday, June 13, 2013 with Julius Knapp, Chief, Office of Engineering and Technology; Tom Peters, Chief Engineer, Wireless Telecommunications Bureau (by telephone); Renee Gregory, Chief of Staff, Office of Engineering and Technology; John Leibovitz, Deputy Chief, Wireless Telecommunications Bureau; Charles Mathias, Associate Bureau Chief, Wireless Telecommunications Bureau; Susan Singer, Chief Economist, Wireless Telecommunications Bureau; Blaise Scinto, Chief, Broadband Division, Wireless Telecommunications Bureau; David Hu, Associate Chief, Broadband Division, Wireless Telecommunications Bureau; Gary Michaels, Deputy Chief, Auctions and Spectrum Access Division, Wireless Telecommunications Bureau; Brian Regan, Legal Advisor, Wireless Telecommunications Bureau; Joel Taubenblatt, Attorney, Spectrum and Competition Policy Division, Wireless Telecommunications Bureau; Kevin Holmes, Attorney, Broadband Division, Wireless Telecommunications Bureau; Janet Young, Engineer, Broadband Division, Wireless Telecommunications Bureau; Matthew Pearl, Attorney, Broadband Division, Wireless Telecommunications Bureau; and Michael Ha, Engineer, Office of Engineering and Technology. Present on behalf of DISH were Jeffrey Blum, Senior Vice President and Deputy General Counsel; Mariam Sorond, Vice President, Technology Development; Alison Minea, Director and Senior Counsel; Hadass Kogan, Associate Corporate Counsel; and John Kim, Technology Development Principal.

During the meeting, DISH discussed its previously-filed technical proposals for the H Block.[1] DISH explained that the service rules adopted for the H Block, unless properly

[1] *See* DISH Network Corporation Comments, WT Docket. No. 12-357, pp. 2-3, 4-13 (February 6, 2013); DISH Network Corporation Reply Comments, WT Docket No. 12-357, pp. 6-12 (March 7, 2013).

balanced, could further impair DISH's recently acquired adjacent AWS-4 spectrum. The technical rules proposed by DISH for the upper H Block serve the public interest by maximizing the terrestrial and MSS use of the adjacent AWS-4 band, while maintaining the efficient use of the H Block. Adopting the rules proposed by DISH will thus provide greater certainty to potential bidders that the H Block will be readily approved as a new 3GPP band, spurring innovation and unleashing the accompanying economic benefits of bringing new spectrum to market. No party in the record has refuted the technical analysis provided by DISH, which demonstrates that the out-of-band emissions ("OOBE") levels DISH proposed will provide adequate protection to the AWS-4 base stations, *without* placing a burden or additional cost on the future H Block licensee.[2]

***Emissions Limit at 2000-2005 MHz*:** To protect operations in 2000-2005 MHz, DISH has proposed an OOBE H Block level of 55 + 10 log (P) dB (-25 dBm/MHz) between 2000 and 2005 MHz.[3] DISH intends to utilize the full 20 MHz of AWS-4 uplink spectrum at 2000-2020 MHz by leveraging advanced techniques and unique deployment opportunities (e.g. small cells) in the 2000-2005 MHz span. The Commission envisioned this type of usage in the *AWS-4 Order*, noting that "a base station scheduler using a 10 megahertz carrier in 2000-2010 MHz could assign mobiles in good signal conditions (and therefore requiring less power to close the link) to the lower 5 megahertz, and mobiles in poor signal conditions (requiring higher power) to the upper 5 megahertz, thereby making use of all of the spectrum."[4] However, Sprint has indicated that the 2000-2005 MHz span should be used as a guard band.[5] This appears to be an attempt by Sprint to ignore DISH's right to utilize the full 20 MHz of the AWS-4 uplink and to help future H Block licensee(s) abdicate interference responsibility. The Commission should reject Sprint's claims that 2000-2005 MHz should be used as a guard band claim and affirm DISH's right to transmit within the 2000-2005 MHz span.

Emissions Limit Above 2005 MHz: DISH has proposed an OOBE limit for the H Block of 79 + 10 log (P) dB (-49 dBm/MHz) above 2005 MHz as a general rule to ensure coexistence of the H Block and AWS-4, and a further limit of -86 dBm/MHz above 2005 MHz on the H Block OOBE at co-located sites.[6] These emissions limits are necessary to reduce the level of in-

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[2] *See* DISH Network Corporation Comments, WT Docket. No. 12-357, pp. 4-10 (February 6, 2013).

[3] *See id*. pp. 2-3, 4-13.

[4] *See* Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands, WT Docket No. 12-70, Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz, ET Docket No. 10-142, Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands, WT Docket No. 04-356, *Report and Order and Order of Proposed Modification*, FCC 12-151, ¶89 (rel. Dec. 17, 2012) ("*AWS-4 Order*").

[5] *See* Letter from Richard B. Engelman, Sprint, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 12-357, Attachment: Simulated Performance a G+H Block Duplexer, at 3 (May 17, 2013) (designating 2000-2005 MHz as "5 dBm Po max ('GB')").

[6] *See* DISH Network Corporation Comments, WT Docket. No. 12-357, pp. 2-3, 4-13 (February 6, 2013); DISH Network Corporation Reply Comments, WT Docket No. 12-357, pp. 6-12 (March 7, 2013).

band power present within the AWS-4 receive frequencies. In-band interference cannot be filtered at the receiver; the only mitigation methods available require increasing the distance (or isolation) between the two base stations, or installing a more stringent filter on the interfering transmitter. DISH has also provided technical data demonstrating that meeting its proposed levels at a 5 MHz separation for the H Block is easily achieved through existing equipment.[7]

These emissions limits are appropriate and in the public interest, because the H Block otherwise poses a heightened interference concern to DISH. The H Block likely will be brought into service *after* DISH has completed a portion of its nationwide deployment. Mitigation techniques such as site location, antenna selection, and orientation, etc., will already be locked down for the DISH deployed sites. New H Block sites entering the marketplace may be built in close proximity to DISH base station receivers. Attempting to alter established DISH sites for newly entered interferers would be an extremely costly process. Without proper safeguards such as reasonable emissions limits, the H Block transmitters could significantly degrade the AWS-4 uplink.

DISH further explained that the Commission should reject Sprint's proposed limit of -30 dBm/MHz, because it is based on flawed technical and policy grounds. Sprint's filings fail to demonstrate why the suggested -30 dBm/MHz OOBE limit would adequately protect DISH's uplink operation above 2005 MHz. In addition, the 3GPP specification Sprint cites as justification for this limit is actually based on specifications for Band 25 (the PCS G Block) and Sprint fails to demonstrate why it can be applied to the H Block. The Commission should dismiss Sprint's proposed OOBE levels, because they are not supported by technical justification. DISH's proposal, on the other hand, is backed by technical and policy justifications that provide a balance between protecting the 2005-2020 MHz uplink, while placing no additional burden or cost on the future H Block licensee.

Emissions Data for PCS C Block: During the meeting, DISH and Bureau staff discussed possible sources for data on emissions from PCS C Block base stations into the AWS-4 uplink. DISH evaluated a number of PCS base station test reports and found two types of tests relevant to this topic: 1) tests that examine emissions within a few MHz of the PCS C Block band edge; and 2) spurious emissions tests that provide data over a wide range of frequencies (up to 25 GHz). However, none of the test reports DISH examined provided specific data on PCS C Block emissions into AWS-4. The Commission may wish to consider seeking further public comment on PCS C Block emissions to the extent this information is necessary to complete the H Block proceeding.

1. Band Edge: The PCS C Block band edge test plots DISH reviewed provide a clear view of base station emissions near the band edge, but do not provide data for distances greater than 5 MHz away from the upper edge of the C Block.[8] Thus, the band edge test plots do not provide an indication of

[7] *See* DISH Network Corporation Reply Comments, WT Docket No. 12-357, pp. 7-10 (March 7, 2013).

[8] *See* Alcatel-Lucent, Power Amplifier FCC ID: AS5CMP-42, Listing of Required Measurements, p. 127, *available at*

duplexer filter attenuation for frequencies greater than 1995 MHz, which is below the AWS-4 uplink band of 2000-2020 MHz.

2. Spurious Emissions: The spurious emissions plots capture such a wide range of frequencies that the data is not useful in quantifying emissions from the PCS C Block above 2000 MHz. The plots demonstrate compliance with the Commission's spurious emissions rules, but the overall sensitivity of the measurements are limited by the spectrum analyzer's dynamic range. The actual PCS C Block emissions would fall well below the analyzer floor displayed in the spurious emissions plots. An Alcatel-Lucent Study Report (testing the Alcatel Lucent Flexent CDMA base station) provides an illustration of this relationship.[9] The plot shows a CDMA carrier within the lowest 5 MHz of the PCS C Block (denoted as "C-3" in the Commission's PCS Broadband Band Plan). The emissions roll off steadily within the 5 MHz of the C-3 block. Directly above 1980 MHz, the emissions attenuate much more sharply, indicating that the RF duplexer filter is providing significant attenuation to the emissions above 1982 MHz. However, above 1982.5 MHz, the emissions unnaturally flatline at a level of about -51 dBm/30 kHz, approximately 78 dB below the in-band base station power level. Since many commercial spectrum analyzers have a dynamic range limitation in the vicinity of 75 dB, DISH suggests that the emissions level beyond 1982.5 MHz is actually limited by the noise floor of the spectrum analyzer. The actual emissions would be significantly lower than the level shown.

H Block Auction Timing: DISH also noted that it believes Commissioner Rosenworcel's proposal to auction off the H Block along with the other bands identified in the Spectrum Act deserves serious consideration.[10] Given the unresolved interference issues, DISH believes there is merit to waiting for more certainty before auctioning the H Block. DISH also believes that the Commission will likely increase participation and public safety funding by auctioning all the spectrum together. This will give potential bidders clarity and ample time to plan for their spectrum needs.

Respectfully submitted,

/s/ Jeffrey H Blum
Jeffrey H. Blum

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https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=N&application_id=100041&fcc_id=AS5CMP-42 ("Alcatel-Lucent Study Report").

[9] *See id.*

[10] *See* Remarks of Commissioner Jessica Rosenworcel, CTIA 2013 – The Mobile Marketplace, Las Vegas, Nevada, May 22, 2013, *available at* http://www.fcc.gov/document/commissioner-rosenworcels-speech-ctia-2013.

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