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VIA ELECTRONIC FILING – VIA ULS

Mr. Donald Stockdale
Chief, Wireless Telecommunications Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: DISH Network Corporation’s Build Out Plans

Dear Mr. Stockdale:

DISH Network Corporation’s (“DISH”) most recent letter merely confirms that it is doing as little as possible with its spectrum in the hope that its hoarding will deliver a payday in the future.^{1/} The Commission should not allow DISH to pursue that goal, which is contrary to the public interest. That is why T-Mobile USA, Inc.^{2/} reiterates its request that you notify DISH that its planned build out will not meet the company’s obligations under the Commission’s rules and that the Commission should take swift action to recover and relicense the spectrum if DISH follows its announced plans. The Commission should also decline to act on DISH’s pending out-of-band emissions (“OOBE”) waiver request until issues related to the sufficiency of its build out are resolved.^{3/}

DISH’s announced plans for a narrowband Internet of Things (“NB-IoT”) network do not make sufficient use of the valuable spectrum for which it is licensed and are not intended to result in the provision of meaningful commercial service. DISH is merely attempting to forestall the

^{1/} Letter from Jeffrey H. Blum, Senior Vice President & Deputy General Counsel, DISH Network Corp., to Donald K. Stockdale, Chief, Wireless Telecommunications Bureau, FCC (filed Nov. 27, 2018) (“*DISH Response to T-Mobile Letter*”); see also Letter from Jeffrey H. Blum, Senior Vice President & Deputy General Counsel, DISH Network Corporation, to Donald Stockdale, Chief, Wireless Telecommunications Bureau (filed Sept. 21, 2018) (“*DISH Response*”). These letters relate to AWS-4, Lower 700 MHz E Block, and H Block spectrum held respectively by DBSD Corporation, Lead Call Sign T070272001; Gamma Acquisition L.L.C., Lead Call Sign T060430001; Manifest Wireless L.L.C., Lead Call Sign WQJY944; and American H Block Wireless L.L.C., Lead Call Sign WQTX200.

^{2/} T-Mobile USA, Inc. is a wholly owned subsidiary of T-Mobile US, Inc., a publicly traded company.

^{3/} See Letter from Alison A. Minea, Director and Senior Counsel, Regulatory Affairs, DISH Network Corp., to Blaise A. Scinto, Chief, Broadband Division, Wireless Telecommunications Bureau, FCC (filed May 17, 2018) (“*OOBE Request*”).

Commission’s recapture of its licenses. DISH’s purported future plans to upgrade its NB-IoT network to a Fifth Generation (“5G”) wireless mobile broadband network after July 2020^{4/} do not excuse its failure to satisfy upcoming performance requirements – performance requirements for these bands that it has already missed once.^{5/} These misses are part of a clear pattern of DISH’s lack of commitment to use its wireless spectrum.^{6/} The Commission should not permit that behavior to continue.

DISH’s Recent Statements Confirm That Its Build Out Plans Are Not Intended to Produce a Commercially Viable Network

On November 6, 2018, DISH announced, among other things, that it selected Ericsson to supply its NB-IoT radio access and core network.^{7/} Instead of validating DISH’s claims, this announcement demonstrates that DISH plans to build a network only to meet its performance requirements, not to provide a robust commercial service. Its announcement reveals that DISH’s proposed service will use multiple 3rd Generation Partnership Project (“3GPP”) band classes^{8/} in a way that is not aligned with standards and that no other provider is likely to use and relies on a network that stretches the bounds of any credible coverage claim.

Non-Standard 3GPP Pairing

In particular, DISH would use: AWS-4 Block A downlink (3GPP band class 23) paired with H Block uplink (3GPP band class 15); AWS-4 Block B downlink (3GPP band class 23) paired with H Block uplink (3GPP band class 15); and 700 MHz E Block downlink (3GPP band class 29) paired with H Block uplink (3GPP band class 15). But no other provider is expected to employ devices with that unique combination of band classes. Therefore, DISH’s products will not have the mass-market benefits generally attributed to standardized technologies.

^{4/} Letter from Jeffrey H. Blum, Senior Vice President & Deputy General Counsel, DISH Network Corp., to Marlene H. Dortch, Secretary, FCC (filed June 7, 2018); *see also DISH Response*.

^{5/} *See* Letter from Donald K. Stockdale, Jr., Chief, Wireless Telecommunications Bureau, FCC, to Jeffrey H. Blum, Senior Vice President & Deputy General Counsel, DISH Network Corp. (filed July 9, 2018) (“Previously, DISH and several of its wholly owned subsidiaries notified the Commission that they had failed to meet several interim construction deadlines for their FCC licenses, and that they would therefore need to meet several accelerated final coverage and service construction deadlines.”). *DISH Network Corp., Petition for Waiver of Sections 27.5(j) and 27.53(h)(2)(ii) of the Commission’s Rules and Request for Extension of Time*, Memorandum Opinion and Order, 28 FCC Rcd 16787, ¶ 23 (2013); *Promoting Interoperability in the 700 MHz Commercial Spectrum, et al.*, Report and Order and Order of Proposed Modification, 28 FCC Rcd 15122, ¶ 56 (2013).

^{6/} *See, e.g., DISH Network Corporation, Petition for Waiver of Sections 27.5(j) and 27.53(h)(2)(ii) of the Commission’s Rules and Request for Extension of Time*, Memorandum Opinion and Order, 28 FCC Rcd 16787, ¶ 23 (2013); *Promoting Interoperability in the 700 MHz Commercial Spectrum, et al.*, Report and Order and Order of Proposed Modification, 28 FCC Rcd 15122, ¶ 56 (2013).

^{7/} Press Release, *DISH Selects Ericsson for NB-IoT Radio Access and Core Network, Including Radio Frequency Design*, DISH (Nov. 6, 2018), <http://about.dish.com/DISH-selects-Ericsson-for-NB-IoT-radio-access-and-core-network-including-radio-frequency-design> (“*DISH Nov. 6 Press Release*”).

^{8/} *See id.*

DISH has also said that it may explore “non-traditional business models,” which consist of “new partnerships and sharing models, including the potential to serve as a highly secure open source or neutral host to support industry verticals,” and it stated that it could operate “a highly secure open source, neutral host, or other shared 5G architecture.”^{9/} Yet, DISH’s plan to serve as a neutral host network is inconsistent with its non-standard implementation and custom-made devices. To the contrary, it appears that DISH has contracted with Ericsson, and potentially other manufacturers, for the production of a limited number of devices that are being produced only to meet DISH’s performance obligations and will not be broadly available commercial products.

Use of Unrealistic Coverage Footprints

DISH’s announcement also confirms that its system design relies on 100-kilometer coverage from a tower site.^{10/} The proposed network would require infrastructure that is simply not generally available. A DISH NB-IoT base station with a radius of 62 miles (100 kilometers) would cover approximately 12,100 square miles and, based on the curvature of the Earth, would require a tower over 2,000 feet high.^{11/} The curvature of the earth simply prevents 100-kilometer coverage for shorter towers. While DISH has not provided details on the type of infrastructure that would be necessary to achieve this coverage, a published test of this technology in Australia relied on a tower located on the Great Dividing Range mountains, more than 1,500 feet above much of the surrounding terrain.^{12/} The assumptions on which those tests and DISH’s predicted coverage are based are not realistic for U.S. deployment. In urban areas, building obstruction will create urban canyons, limiting coverage or making it unreliable. In suburban and rural areas, trees and other vegetation create a cluttered environment that significantly attenuates

^{9/} See Mike Dano, *Dish’s First Wireless Partners Revealed: Ericsson and SBA*, FIERCEWIRELESS (Nov. 6, 2018, 10:32 AM), <https://www.fiercewireless.com/iot/dish-s-first-wireless-partners-revealed-ericsson-and-sba> (“*Dano Article*”).

^{10/} See *DISH Nov. 6 Press Release*.

^{11/} DISH inexplicably and without regard to fact attempts to divert the Commission’s attention from its unrealistic coverage predictions by arguing in its November 27 letter that its proposal for a base station with a radius of 100 kilometers is similar to coverage that T-Mobile expects to achieve from its base stations. But this is a false comparison. For example, a 600 MHz base station with a radius of 15 miles would cover approximately 700 square miles. There is no valid comparison between T-Mobile’s real deployment and DISH’s unrealistic and inefficient proposed deployment, which would cover 12,100 square miles from a single tower and require a 2,000-foot tower.

^{12/} See Julia Talevski, *Telstra and Ericsson Deploy Long Range NB-IoT Connections*, ARN (Sept. 27, 2018, 12:54 PM), <https://www.arnnet.com.au/article/647388/telstra-ericsson-deploy-long-range-nb-iot-connections/> (placing the base station on a site located on Mount Cenn Cruaich, in New South Wales, Australia, and the equipment 94 kilometers away).

radiofrequency signals.^{13/} As the Commission is aware, attenuation due to vegetation is particularly pronounced at mid-band frequencies like the AWS-4 spectrum.^{14/}

Instead of designing a realistic and commercially viable network, DISH has apparently worked with Ericsson and SBA Communications Corporation to *theoretically* stretch its proposed base station coverage to 100 kilometers solely to meet its license build out requirements. Stretching the connections “for the first time in the United States” to an “extended range [] up to 100km from a base station”^{15/} is a crucial part of DISH’s plan because it allows the company to cover huge areas with minimal site costs, without regard to actually delivering service to customers.^{16/} But communications infrastructure is densifying and relying on lower towers, not towers – even if they existed and were readily available – of extreme height. The universe of towers in the 1,500-2,000 foot range is very small, making it unlikely that DISH will achieve reliable coverage at such extreme distances.^{17/} Further, this plan both significantly underutilizes the network and reduces its capacity, in an attempt to meet build out requirements. This kind of build out is the epitome of a license-saving strategy,^{18/} and the Commission should call DISH’s bluff.

DISH’s Attempts to Justify Its Insufficient Build Out Plans Fail

In its recent attempts to justify building a network not designed to support a commercial service, DISH offers explanations that are ineffective and misinterpret the Commission’s rules.

A Bridge Build Out Is an Impermissible License-Save Build Out

DISH describes its NB-IoT deployment as a “bridge” to a rollout of a 5G network in Phase 2.^{19/} But building out just to “bridge” to the next technology is precisely the type of “save-build” that the Commission has previously rejected.^{20/} DISH asserts that its proposed NB-IoT offerings are

^{13/} See *Recommendation ITU-R P.8339-9, Attenuation in Vegetation*, ITU-R (Sept. 2016), https://www.itu.int/dms_pubrec/itu-r/rec/p/R-REC-P.833-9-201609-I!!PDF-E.pdf.

^{14/} See *id.* Table 1 shows experimental observations of vegetation attenuation increasing between low band (approximately 900 MHz) and mid-band frequencies (approximately 2,100 MHz).

^{15/} See *DISH Nov. 6 Press Release*.

^{16/} See *Dano Article*.

^{17/} See Letter from Steve Sharkey, Vice President, Government Affairs, Technology and Engineering Policy, T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268, *et al.* (filed Feb. 17, 2016), Attachment 2 at 32 (the Broadcast Structure Height pie chart).

^{18/} Others are catching on, too. See *Dano Article* (“The Wells Fargo analysts added they still believe Dish’s NB-IoT network build-out efforts are a ‘license saver’ strategy by the carrier—meaning, Dish is building an NB-IoT network mainly to meet the FCC’s spectrum license build-out requirements and not to actually create a commercial, revenue-generating service.”).

^{19/} *DISH Response to T-Mobile Letter* at 1.

^{20/} *JSM Holding LLC Petition for Reconsideration of Termination Pending status; and Supplemental Substantial Service Showings for Call Signs WPVF722, WPVF725, WPVF737, WPVF739, WPVF741, WPVF742, WPVF752, and WPVF754*, 27 FCC Rcd 5864, 5866 (2012) (“JSM Holdings LLC”) (“JSM is operating a single manual dispatch transmitter under each call sign functioning as a ‘licens[e]-saving

“very different from” the license saving and channel keeper deployments the Commission has rejected in the past,^{21/} but offers no explanation of why. As T-Mobile previously explained, the fact remains that DISH plans to offer a service using only the *de minimis* amount of 2% of its spectrum, in an effort to *keep* the rights to the remaining 98%.^{22/} While the rules are flexible about the type of service that can be offered, they do not allow the spectrum to remain almost wholly fallow only as a way to buy time in hopes of another service developing.^{23/} The next new technology will always be around the corner, but millions of rural Americans remain without reliable mobile wireless service *today*.

Spectrum Under-Utilization Cannot Support Build Out Obligations

DISH argues that the AWS-4, Lower 700 MHz E Block, and H Block rules do not require use of a particular portion of the licensed spectrum in order to satisfy the Commission’s construction requirements.^{24/} Similarly, Ergen said, “[w]hen we build a network that’s 10 times more efficient than the current networks, that means we’re going to use spectrum more efficiently. That’s the opposite of hoarding. That’s using spectrum more efficiently.”^{25/} But that is not what DISH is doing. DISH is using 2% of DISH’s assigned spectrum with an inefficient implementation while the remaining 98% percent lies fallow.^{26/} Under DISH’s paradigm, a *de minimis* amount of spectrum could be used to meet the build out requirements (just as DISH has proposed) leaving 98% – the vast majority of the licensed spectrum – vacant. That result is contrary to the public interest and inconsistent with the Commission’s statutory obligation to

build..., designed to comply with government mandates.’ This assertion conflicts with JSM’s prior assertion that the licenses were “for use as link frequencies’ and ‘are used as an integral part of the over all paging system.’ As we have noted, Section 22.503(k)(3) defines ‘substantial service’ as service that is ‘sound, favorable, and substantially above a level of mediocre service that would barely warrant renewal.’”).

^{21/} *DISH Response to T-Mobile Letter* at 3.

^{22/} Letter from Kathleen O’Brien Ham, Senior Vice President, Government Affairs, T-Mobile USA, Inc., to Donald K. Stockdale, Chief, Wireless Telecommunications Bureau, FCC, at 2-4 (filed Oct. 25, 2018) (“*T-Mobile Oct. 25 Letter*”).

^{23/} *Id.*

^{24/} *DISH Response to T-Mobile Letter* at 2.

^{25/} Mike Dano, *Dish’s Ergen Hints at Cable Interest in its Planned 5G Network*, FIERCEWIRELESS (Nov. 7, 2018, 1:53 PM), <https://www.fiercewireless.com/5g/dish-s-ergen-hints-at-cable-interest-its-planned-5g-network>.

^{26/} To the contrary, and as noted in T-Mobile’s October 25 Letter, T-Mobile and other providers have demonstrated that it is possible to provide robust NB-IoT services while efficiently utilizing their licensed spectrum. For example, T-Mobile’s NB-IoT does not waste a large block of valuable spectrum, but rather, utilizes the guard band of spectrum otherwise used for wireless broadband to provide this service. *Internet of Things*, T-MOBILE, <https://iot.t-mobile.com/network/#nbiot> (last visited Jan. 29, 2019) (“Our NB-IoT operates on a dedicated guard band of existing networks, so it can efficiently carry data without competing against other network traffic. It’s an excellent solution for smart buildings, connected cities, asset tracking, and more.”).

“prevent stockpiling or warehousing of spectrum by licensees.”^{27/} This plan both massively underutilizes the spectrum and reduces its capacity, and the Commission should call DISH’s bluff.

DISH also now asserts that it will add additional NB-IoT carriers in the future based on its partnerships^{28/} and that it plans to act as a neutral host system.^{29/} But these statements only prove the point that its anticipated use of the spectrum at the performance deadline will be a thin veil that is designed just to attempt to meet the Commission’s requirements. A neutral host network assumes that others will be able to bring widely available equipment onto the network. But, as discussed above, DISH is designing a network that will not support widely available equipment because the network is not standardized.

Flexible Use Still Requires Use

DISH justifies its build out plans by noting that the Commission designated the AWS-4, Lower 700 MHz E Block, and H Block spectrum as flexible use spectrum.^{30/} The Commission’s rules regarding flexible use licensees, however, cannot shield DISH from its build out obligations. Flexible use relates only to the *type* of services that the licensee can deploy in the band, meaning that a variety of terrestrial use services can be offered in the spectrum.^{31/} So, as T-Mobile noted previously, DISH can certainly use its spectrum for NB-IoT under the flexible use construct.^{32/} But using only one carrier to do so and leaving 98% of the spectrum unused is not what the Commission intended when it provided licensees flexibility. It is not the type of service proposed by DISH that runs afoul of the rules, but the lack of deployment. Licensees granted flexible use spectrum must actually use the spectrum for which they are licensed.

DISH’s Sub-Optimal Spectrum Configuration Is of Its Own Design

DISH argues that it is required to build out a NB-IoT network because it only holds 5 megahertz of uplink spectrum. But the configuration of DISH’s spectrum holdings are a result of its business decisions and does not excuse its failure to meet its build out obligations. In 2013, DISH specifically sought, and was granted, waiver of the Commission’s rules which specified

^{27/} 47 U.S.C. § 309(j)(4)(B)-(C).

^{28/} *DISH Response to T-Mobile Letter* at 2.

^{29/} *Id.* at 3-4.

^{30/} *Id.* at 4-5.

^{31/} See *Service Rules for Advanced Wireless Services in the 2000-2020/2180-2200 MHz Bands (AWS-4)*, et al., Report and Order, 27 FCC Rcd 16102, ¶ 222 (2012) (“In order to promote innovative broadband services and encourage the flexible and efficient use of the AWS-4 band, we will allow a licensee of AWS-4 authority to utilize the spectrum for any terrestrial use permitted by the United States Table of Frequency Allocations.”).

^{32/} *T-Mobile Oct. 25 Letter* at 4.

that the Lower AWS-4 Band be used for uplink operation.^{33/} DISH's perceived lack of uplink spectrum is a business result that *it pursued*. The Commission has routinely rejected business decisions like this in the face of requests for relief of build out requirements.^{34/}

DISH Mischaracterizes T-Mobile's Position

DISH tries to distort and misrepresent T-Mobile's position by providing outlandish, inaccurate, and misleading statements, and it attempts to compare its actions here to T-Mobile's growth from a startup.^{35/} There is no comparison. T-Mobile's growth and success throughout its decades in business is due, in large part, to doing exactly what DISH is not – rapidly putting its spectrum to use to provide competitive service to consumers. DISH, on the other hand, is proposing to leave its spectrum fallow while it desperately searches for a future business case or potential buyer.

DISH complains that T-Mobile should have objected to DISH's build out plans earlier because its plans have been known since March 2017.^{36/} But the level of detail that makes its network objectionable (a single carrier, for example) were not known then. In any case, neither T-Mobile nor any other party was under any obligation to note the limitations of DISH's build out then or now. T-Mobile and others could have waited until DISH formally reports on its build out.^{37/} But the public interest favors Commission direction now so that DISH can either conform its build out plans to the Commission's rules and policies or surrender the spectrum to others that will.

^{33/} See *DISH Network Corporation; Petition for Waiver of Sections 27.5(j) and 27.53(h)(2)(ii) of the Commission's Rules and Request for Extension of Time*, Memorandum Opinion and Order, 28 FCC Rcd 16787 (2013).

^{34/} See, e.g., *In the Matter of DISH Network Corporation*, Memorandum Opinion and Order, 28 FCC Rcd 16787, ¶ 13 (2013); *In the Matter of FiberTower Spectrum Holdings LLC*, Memorandum Opinion and Order, 28 FCC Rcd 6822, ¶ 16 (2013) (affirming the Wireless Telecommunications Bureau's Decision, "[T]he [Application for Review ("AFR")] fails to acknowledge or address significant aspects of the FiberTower MO&O. Third, the AFR attributes to the Bureau's decision harms that are in fact attributable to business decisions made by FiberTower. We thus conclude that the Bureau correctly held that: (1) FiberTower was not entitled to an extension because its failure to construct was caused by factors within its control; (2) FiberTower did not justify a waiver of the substantial service requirements; and (3) the Bureau correctly rejected FiberTower's attempts to demonstrate substantial service based on "antecedent activities."); *In the Matter of Redwood Wireless Minnesota, LLC*, Order, 17 FCC Rcd 22416 (2002) (construction delays resulting from business disputes were exercise of business judgment and were not outside Petitioner's control); *In the Matter of Business Radio Communications Systems, Inc.*, 102 FCC 2d 714 (1985) (construction delay caused by zoning challenge not a circumstance beyond licensee's control).

^{35/} *DISH Response to T-Mobile Letter* at 2-3.

^{36/} *Id.* at 6.

^{37/} 47 CFR § 27.14.

Contrary to DISH’s baseless assertion, T-Mobile’s letter is not an attempt to stifle competition.^{38/} T-Mobile is trying to ensure that spectrum is put to use, providing a competitive service, whether IoT, mobile broadband, or some other service that meets the build out obligations.

The Commission Should Not Act on DISH’s Pending OOB Request

Because of the uncertainty regarding the sufficiency of DISH’s build out, the Commission should not act on its pending OOB waiver request.^{39/} The request is potentially unique to its proposed network architecture. But if the Commission determines that its proposed network will not meet the performance requirements, it need not address the waiver request. Holding that request in abeyance will preserve Commission resources and maintain the OOB protections, which the Commission originally built into the technical requirements for the bands at issue. As NTCH, Inc. argued in its opposition, acting on DISH’s waiver request now would “effectively entangle the two licensees together permanently,” and leave potential new licensees of either the H Block or AWS-4 band with a “highly impaired band” lacking OOB protections.^{40/} Given the uncertainty regarding the sufficiency of DISH’s build out, and thus, its ability to retain its licenses in whole or in part, the Commission should refrain from acting on DISH’s pending OOB waiver request at this time.

Conclusion

DISH continues to make it clear that it is only building an NB-IoT network to preserve its spectrum holdings, not to provide commercial service. Building to preserve spectrum is directly contrary to the purpose of performance requirements. The Commission must take steps now to put DISH on notice that if it proceeds with its plan, the spectrum will be made available to others that will put it to use.

Respectfully submitted,

/s/ Steve B. Sharkey

Steve B. Sharkey
Vice President, Government Affairs,
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^{38/} *T-Mobile Oct. 25 Letter.*

^{39/} *See OOB Request.*

^{40/} Letter from NTCH, Inc. to Blaise A. Scinto, Chief, Broadband Division, Wireless Telecommunications Bureau, FCC (filed Aug. 20, 2018).