

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

In the Matter of)	
)	
Service Rules for Advanced Wireless Services)	WT Docket No. 04-356
in the 1915-1920 MHz, 1995-2000 MHz, 2020-)	
2025 MHz and 2175-2180 MHz Bands)	
)	
Service Rules for Advanced Wireless Services)	WT Docket No. 02-353
in the 1.7 GHz and 2.1 GHz Bands)	
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COMMENTS OF T-MOBILE USA, INC.

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T-Mobile USA, Inc. (“T-Mobile”) respectfully submits these comments in response to the Commission’s *Notice of Proposed Rulemaking* in the above-captioned proceeding.¹

T-Mobile applauds the Commission’s continued support for allocating and licensing additional spectrum for Advanced Wireless Services (“AWS”), a goal T-Mobile strongly encourages as one of the fastest growing U.S. operators. Although the allocation of these bands for AWS is an important step towards ensuring the effective and timely deployment of AWS, it is critical that the Commission adopt appropriate protections for incumbent operations in this proceeding as well as flexible service rules.

I. INTRODUCTION AND SUMMARY

The allocation of the 1915-1920/1995-2000 MHz (“H block”) and 2020-2025/2175-2180 MHz (“J block”) bands for Advanced Wireless Service (“AWS”) will provide tremendous opportunities for expansion of existing and new services to wireless customers. Although

¹ *Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands*, Notice of Proposed Rulemaking, 19 FCC Rcd 19263 (2004) (“NPRM”).

T-Mobile is the newest of the national carriers, it is also experiencing the fastest rate of growth in subscribership among the national operators. The availability of new spectrum is critical to T-Mobile maintaining this rate of growth. Consumers are increasingly demanding larger footprints, better service quality, and new advanced services. Without additional spectrum, many wireless carriers, including T-Mobile, will be constrained in responding to this demand and remaining competitive with the largest wireless providers. To that end, the allocation of these additional bands for AWS will facilitate this growth across the industry, thereby benefiting consumers with wider coverage areas, better service quality, and new, innovative advanced service offerings.

The wireless industry, however, has raised numerous concerns regarding the effect this allocation would have on incumbent operations. In the proceeding allocating these bands for AWS, CTIA – The Wireless Association™ (“CTIA”) provided detailed, technical arguments regarding the potential for interference to incumbent operations from both out-of-band emissions (“OOBE”) and in-band overload.² In particular, CTIA argued that absent the imposition of the Personal Communications Service (“PCS”) industry’s standards for OOBE on H block devices, “substantial and unacceptable interference” would occur to incumbent PCS operations.³ CTIA moreover argued that the filter technology used in existing PCS receivers will not sufficiently attenuate in-band H block emissions and as a result these existing handsets will be subject to

² See CTIA – The Wireless Association™, Presentation to Jonathan S. Adelstein and Barry Ohlson, H block (1915-1920/1995-2000) MHz Issues, ET Docket No. 00-258, 3 (filed Aug. 31, 2004). Overload occurs when a nearby transmitter is transmitting a strong, interfering signal that is received at the victim receiver and overpowers the receiver, preventing signals from being processed.

³ See Letter from Paul W. Garnett, CTIA – The Wireless Association™, to Ms. Marlene H. Dortch, Secretary, FCC, ET Docket No. 00-258, 1 (filed Aug. 13, 2004).

“overload” interference from H block devices under certain conditions.⁴ Multiple incumbent wireless operators, including T-Mobile, endorsed these same concerns.⁵

To ensure that these interference concerns do not become a reality, T-Mobile believes the Commission must establish service and technical rules for the H and J blocks that will adequately protect incumbent PCS licensees in the A-F blocks and Mobile Satellite Service (“MSS”) incumbents in the 2000-2020 MHz band. In particular, T-Mobile believes a power limit of 200 mW EIRP for H block handsets, as measured on an average basis, should protect its incumbent GSM PCS operations. In addition, the Commission should mandate H block handset compliance with the industry standard OOB limits for PCS handsets of -76 dBm/MHz. Similarly, the Commission must give serious consideration to OOB limits on MSS/ATC mobiles operating in the 2000-2020 MHz band in order to protect H block base station receivers. Finally, T-Mobile acknowledges that some additional protection from H block base station transmissions to MSS/ATC base station receivers in the 2000-2020 MHz band may be necessary.

Interference protection alone, however, will not ensure the efficient rollout of advanced services in these bands. To do this, the Commission should establish BTA service areas for the H block, with larger geographic areas more appropriate for the J block. Moreover, the

⁴ *Id.* at 2.

⁵ *See, e.g.*, Letter from Thomas J. Sugrue, Vice President, Government Affairs, T-Mobile USA, Inc., to Ms. Marlene H. Dortch, Secretary, FCC ET Docket No. 00-258, 1 (filed Aug. 20, 2004) (indicating acceptance of an H block allocation “only on the condition that strict protections to safeguard incumbent PCS operations from the real possibility of degrading interference from H block operations are established”); Letter from Luisa L. Lancetti, Vice President, Wireless Regulatory Affairs, Sprint Corporation, to Ms. Marlene H. Dortch, Secretary, FCC, ET Docket No. 00-258, 1 (filed Sept. 1, 2004) (indicating that “millions of handsets...would experience significant ‘overload’ interference from H block transmissions”); Nextel Communications, Presentation to the Federal Communications Commission, H Block: Alleviating Spectrum Scarcity While Protecting Incumbent Licensees, ET Docket No. 00-258, 4 (filed Sept. 2, 2004) (noting that “service rules are necessary to ensure incumbents are protected from potential interference”).

Commission should license this spectrum in 10 MHz blocks for a term of 15 years. This licensing scheme will promote the most vigorous competition for these licenses while ensuring that the winning bidders receive spectrum that will adequately fulfill their needs. Similarly, to ensure the timeliest relocation of incumbent licensees in the H and J blocks, cost-sharing may be appropriate. Finally, the Commission should reconsider its decision to establish a 30 MHz E block license in the initial AWS allocation proceeding, and instead reconfigure the 30 MHz of available spectrum into two licenses, one with 20 MHz of paired spectrum and one with 10 MHz of paired spectrum.

II. INCUMBENT PCS LICENSEES IN THE 1850-1910/1930-1990 MHZ BANDS MUST BE FULLY PROTECTED FROM INTERFERENCE.

As discussed herein, T-Mobile is the fastest growing of the national operators in the United States. T-Mobile operates its network exclusively in the Broadband PCS bands of 1850-1910 MHz paired with 1930-1990 MHz. To deploy its system, T-Mobile has selected the Global System for Mobile (“GSM”) communications air interface. Cingular also has implemented a nationwide GSM network while Verizon Wireless and Sprint PCS have selected Code Division Multiple Access (“CDMA”) for their PCS air interfaces. T-Mobile does not opine on the technical limitations and requirements necessary to protect CDMA networks; rather, its comments are limited to the effects that use of the H block spectrum for PCS-like services will have on its existing GSM network. Due to its rapid growth in subscribers and services, T-Mobile believes new sources of spectrum, particularly in the 1.9 GHz PCS band where its operations are contained, will be critical to T-Mobile’s ability to continue to compete in the market and provide voice, data, and new advanced services that consumers are increasingly demanding. However, licensing and use of the H block spectrum would be beneficial only if adequate safeguards are placed in the Commission’s rules to protect incumbent PCS operations from the very real

potential for harmful interference. The Commission's tentative technical conclusions for protecting PCS licensees are inadequate and should be tightened to ensure that T-Mobile's rapidly growing subscriber base of better than 16 million subscribers is not adversely affected.

A. Limits on OOBE and Power Are Required to Protect Existing Operations

Through technical comments and testing results, the wireless industry has consistently demonstrated that overload interference to PCS A-F block handsets as well as harmful adjacent channel interference from H block out-of-band emissions is highly probable without significant, stringent technical protections.⁶ In addition, the Commission noted in the *NPRM* that stricter OOBE limitations on 1915-1920 MHz transmissions would likely be necessary (-60 to -66 dBm/MHz)⁷ and suggested a peak EIRP of 200 mW for 1915-1920 MHz handsets to prevent overload of PCS A-F mobile receivers.⁸ The Commission invited commenters to provide test data and specific technical analyses in support of the OOBE and power limits appropriate for CDMA and GSM/TDMA handsets operating in the 1915-1920 MHz band.⁹

1. The Commission's proposed power limits for H block handsets should be modified.

T-Mobile has performed a variety of internal technical analyses and has reviewed the test measurements and data provided by CTIA and the wireless industry. In reviewing this testing information, it is clear that limitations on the transmission power of H block handsets is

⁶ See, e.g., *id.*; Letter from Paul W. Garnett, CTIA – The Wireless Association™, to Ms. Marlene H. Dortch, Secretary, FCC, ET Docket No. 00-258, 1 (filed Aug. 13, 2004); Letter from Steve B. Sharkey, Director, Motorola, to Ms. Marlene H. Dortch, Secretary, FCC, ET Docket No. 00-258, 1 (filed July 20, 2004).

⁷ *NPRM* at ¶ 91.

⁸ *Id.* at ¶ 107.

⁹ *Id.*

necessary to protect incumbent PCS operations from overload interference. Overload interference would be caused by new handset operations in the H block due to the duplex filtering configuration of existing PCS handsets.¹⁰ When PCS handsets were manufactured and developed, it was understood that unlicensed PCS would occupy the 1910-1930 MHz band. As such, the duplex filtering of the PCS handsets considered the 1910-1930 MHz band between the transmit and receive frequencies as a guard band that did not require extensive filtering for proper operation of the system.¹¹ Recognizing the potential harm to PCS operations that H block mobile transmissions might have, the Commission proposed to limit the power level of handsets transmitting in the 1915-1920 MHz band to 200 mW peak EIRP.¹² Additionally, the Commission sought comment on whether different limitations for different technologies (*i.e.*, CDMA vs. GSM/TDMA) on handset transmit power would be appropriate for the 1915-1920 MHz band.¹³

After its initial review, T-Mobile believes that a handset transmit power limitation of 200 mW *average* EIRP for operations in the 1915-1920 MHz band should adequately protect its existing GSM PCS handsets. Similar to the test results previously provided to the Commission

¹⁰ A duplex filter is needed in a PCS handset in order to pass the receive signal while blocking the transmitting signal. In a PCS system, the base and mobile station is transmitting and receiving at the same time. If the system fails to block the transmitting signal (which in this case would only be 10 MHz from the received signal) then the system will potentially self-interfere. The purpose of a duplex filter is to perform the task of blocking the transmitting signal while permitting the reception of the desired signal into the receiver.

¹¹ For example, an A block PCS system would have a handset that received at 1930-1945 MHz and was manufactured to filter emissions below 1910 MHz. By permitting H block handsets to transmit in the 1915-1920 MHz band, interference to existing PCS handsets would occur, in-band, as the filtering does not exclude the transmissions in the 1915-1920 MHz band.

¹² *NPRM* at ¶ 107.

¹³ *Id.*

by Sprint, T-Mobile believes that GSM handsets in the PCS band can tolerate an H block handset interfering signal of between -20 and -23 dBm without experiencing degradation.¹⁴ Thus, if the H block mobile transmit output power is limited to 23 dBm, then at approximately 1 meter away from the interfering H block handset, H block operations should in most cases not interfere with its GSM PCS handsets.¹⁵ In addition, T-Mobile's analysis of the interference effects to existing PCS handsets from H block handsets was extremely conservative, with GSM handsets assumed to be operating at a low receive signal (-97 to -102 dBm). Moreover, T-Mobile, for purposes of its evaluation, considered the H block interferer to be operating at its maximum power (23 dBm) per the Commission's proposal and at a distance of 1 meter away. Any adjustments to these assumptions would allow for significant decreases in the amount of power received by the PCS handset.¹⁶ Furthermore, this analysis and testing only accounts for the current state of technology, not the state of technology at the time that H block operations would commence. T-Mobile expects that H block operations would not be initiated in the near term, providing equipment manufacturers and carriers time to take into consideration the effects of H block operations and develop and market handsets with additional interference mitigation abilities. Furthermore, these handsets could enter the marketplace and be rapidly adopted by existing

¹⁴ See Sprint/Nokia Lab Test Results, H Block Overload Test Results, Single Tone Desensitization (Overload) and Duplexer Testing Over Temperature, ET Docket 00-258 (filed Aug. 31, 2004).

¹⁵ At 1 meter from the handset, the free space path loss at 1900 MHz is 38 dB. Losses due to body absorption, cable losses and blockage can range from 1-3 dB. The receiver antenna gain would be approximately -3 dB. Therefore, the RF power at the antenna port (when the handset is operated at the maximum power of 23 dBm) ranges from -19 to -21 dBm (23 dBm $- 38$ dB $- (1$ or 3 dB) $- 3$ dB) or well within the scope of the -20 to -23 dBm range.

¹⁶ For example, an additional 1 meter of separation would provide an additional 6 dB of free space path loss. Additionally, any lowering of the H block transmitter power (if the mobile is closer to the base station and therefore does not require full power operations) would reduce the interference effects of the handset by a corresponding amount.

customers, given the plethora of new services and technologies being deployed by wireless service providers (*e.g.*, EvDO, UMTS/HSDPA, WiFi, Bluetooth, etc.) that should incent customers to purchase new handsets. Therefore, T-Mobile believes that GSM handsets in the PCS spectrum should be protected from H block mobiles if the transmit power is limited to 200 mW *average* EIRP.

T-Mobile, per the Commission's request for comment, believes that the EIRP value should be an average rather than a peak value. Recognizing that there are significant differences between GSM and CDMA RF transmission characteristics, T-Mobile believes that measurement of average EIRP is most appropriate. For CDMA, each carrier is spread over the entire channel bandwidth (*i.e.*, 1.23 MHz) and the power of the emission, whether measured in a peak or average fashion, will be the same. In contrast, GSM divides the carrier bandwidth into 8 timeslots and cycles carriers through the bandwidth in a time division fashion. Therefore, when measuring power for GSM, the peak value will differ from the average value. As such, GSM utilizes higher peak power values when compared to CDMA. T-Mobile believes that the Commission should therefore either adopt an average value for EIRP or, at a minimum, allow for GSM technology handsets in the H block to measure EIRP on an average basis.

T-Mobile is cognizant of the effects that H block operations, regardless of technology utilized, may potentially have for CDMA and UMTS PCS handsets under worst-case scenarios.¹⁷

¹⁷ Indeed, Sprint and Verizon have noted that the H block spectrum may be better suited for use as Air-to-Ground ("ATG") spectrum. *See* Letter from Luisa L. Lancetti, Vice President, Sprint, to Ms. Marlene H. Dortch, Secretary, FCC, WT Docket 03-103, 1 (filed Dec. 3, 2004); Verizon Airfone, Presentation to the Federal Communications Commission, Air-to-Ground Service Rules, WT Docket 03-103, 6 (filed Oct. 13, 2004). T-Mobile notes that the H and J block spectrum bands already have primary Mobile and Fixed allocations, which would permit the use of the spectrum by auction winners to provide ATG service. T-Mobile believes what is needed are sufficient protections and limitations on handset transmit power and OOB to permit the provision of terrestrial mobile services.

T-Mobile is not a designer or manufacturer of handset or filtering technology and cannot accurately predict the cost, time to market, or availability of more robust handsets and filtering technology. T-Mobile concurs with the wireless industry concerns and efforts to ensure that all existing incumbent operations are adequately protected from harmful interference. T-Mobile urges the Commission to seek specific and detailed comment from handset and filter manufacturers on the availability and feasibility of developing more robust, market competitive handsets for CDMA and UMTS technology that are more resistant to potential H block interference. T-Mobile does not believe that the answer to resolving the interference effects from H block handsets operating in the 1915-1920 MHz band is the establishment of rigid power controls on such handsets. Rather, T-Mobile believes that the better answer lies in the continued development of industry standards-based solutions that integrate better filtering and interference rejection characteristics. In the PCS context, such market-based solutions have been enormously successful in establishing interference protection criteria that is significantly more stringent than Commission requirements.¹⁸ T-Mobile, therefore, strongly recommends that the Commission gather additional information from parties who are knowledgeable about such matters in an expeditious fashion. Even as the Commission is collecting this information, however, the Commission should move expeditiously to license this spectrum.

2. OOBE limits should be established consistent with industry standards.

In the *NPRM*, the Commission concluded that in order to protect mobile receivers operating in the 1930-1990 MHz band, stricter out-of-band emission limitations on 1915-1920 MHz transmissions should be imposed.¹⁹ The Commission sought comment on this conclusion

¹⁸ For example, the industry established OOBE limits for PCS handsets are 50 to 60 dB more protective than the OOBE limits found in the Commission's rules, as discussed *infra*.

¹⁹ *NPRM* at ¶ 91.

and asked whether –60 dBm/MHz or –66 dBm/MHz OOB restrictions would be sufficient to prevent harmful interference between PCS and H block handsets.²⁰

T-Mobile strongly agrees with the Commission’s conclusion that OOB from H block handsets must be significantly restricted. T-Mobile believes that OOB from H block handsets must be in conformance with industry standards (*i.e.*, –76 dBm/MHz) to ensure that PCS handsets are not subject to desensitization from H block operations. Previous filings of CTIA support this conclusion.²¹ In CTIA’s analysis, it was demonstrated that with an OOB limit of –76 dBm/MHz, an H block handset approximately 1 meter away from a PCS handset would cause approximately 1/3 of a decibel (“dB”) of desensitization to the PCS mobile.²² The impact of 1/3 of a dB of degradation would be a 5% reduction of coverage, a 5% increase in the number of cell sites required to maintain service coverage, and an increase in total costs of 18% (assuming a suburban market of 32 dB/dec).²³

T-Mobile believes that all existing CDMA and GSM PCS handsets fully comply with OOB limits of –76 dBm/MHz, confirming that such OOB restrictions are eminently achievable and commercially viable. In light of the harmful interference effects of not promulgating such an OOB limit and the fact that existing handsets already comply with such restrictions, T-Mobile encourages the Commission to adopt the more stringent OOB requirement of –76 dBm/MHz for H block handsets, rather than the proposed –60 or –66 dBm/MHz limits proposed in the *NPRM*.

²⁰ *Id.*

²¹ *See* CTIA – The Wireless Association™, Ex Parte Meeting, Potential Expansion of PCS Band to Include H Block, ET Docket No. 00-258, 7-8 (filed July 30, 2004).

²² *Id.*

²³ *Id.* at 8.

III. PROTECTION OF MSS OPERATIONS ADJACENT TO H AND J BLOCK SPECTRUM BANDS

The MSS industry (and its ancillary terrestrial component (“ATC”) services) has licensed mobile transmit (or uplink) operations in the spectrum band 2000-2020 MHz. The proposed H block base station transmit band would reside at 1995-2000 MHz and the J block mobile transmit band would be 2020-2025 MHz (both bands directly adjacent to the MSS/ATC band). As recognized by the Commission in the *NPRM*, the interference concerns for the H block arise from base stations operating in the 1995-2000 MHz band to ATC base stations receiving in the 2000-2020 MHz band, and from interference from MSS/ATC mobiles to H block mobiles receiving in the 1995-2000 MHz band.²⁴ For the J block, as identified by the Commission, the adjacent MSS/ATC transmissions will be solely mobile and, as such, compatible with the J block mobile operations.²⁵

Similar to the situation addressed in detail above, MSS/ATC mobile operations in the 2000-2020 MHz band will overload base station receivers for the H block in the 1995-2000 MHz band unless significant out-of-band emission restrictions are placed on MSS/ATC transmissions. However, the FCC has not proposed to modify OOB limits on MSS/ATC, which are insufficient to protect against harmful interference to new H block operations.²⁶ T-Mobile believes that the Commission must study and address the potential for deleterious interference in this scenario. Additionally, T-Mobile assumes that ATC base station receivers in the 2000-2020 MHz band may require some added protection from H block base station operations in the 1995-

²⁴ *NPRM* at ¶ 94.

²⁵ *Id.* at 98.

²⁶ Current MSS/ATC OOB limits require, on spectrum between 1995 and 2000 MHz, an OOB attenuation defined by the linear interpolation of $70 + 10 \log P$ dB and $43 + 10 \log P$ dB. *See* 47 C.F.R. § 25.252(c)(2).

2000 MHz band. T-Mobile will continue to study this situation, especially any detailed comments concerning ATC base station receiver protections offered by MSS licensees, and provide the Commission its conclusions at that time. This ongoing review by the Commission and the industry, however, should not delay the Commission's actions to license this spectrum in an expeditious manner.

IV. LICENSING/SERVICE RULE ISSUES

A. BTA Service Areas Should Be Adopted For The H Block Spectrum, With Larger Service Areas For The J Block.

As previously indicated by the Commission, the H block spectrum will most likely be used to support the growth and development of advanced services by *existing* PCS and cellular carriers.²⁷ Accordingly, the winning bidders will be using these licenses to fill out their existing spectrum holdings rather than to initiate an entirely new service. The wireless industry's spectrum holdings and capacity requirements vary greatly throughout the United States, and not all carriers need spectrum over an entire large geographic area. Indeed, many carriers may need spectrum in a single Basic Trading Area ("BTA") or in a few discreet areas. Although these carriers could bid on a larger geographic service area and then dispose of the unneeded spectrum through the secondary market, this would create financial barriers to acquiring spectrum, add transaction costs, and delay deployment of services over this spectrum. Instead, as indicated in the *NPRM*, the size of the initial geographic license areas should match the business plans of the initial licensees.²⁸ BTA service areas for this spectrum are also very appropriate given the past

²⁷ *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, Second Report and Order, 17 FCC Rcd 23193, ¶ 12 (2002) ("AWS Second Report and Order").

²⁸ *NPRM* at ¶ 22.

licensing practices for Broadband PCS. The PCS C-F blocks were licensed on a BTA basis. Existing PCS licensees can further supplement the services provided under those licenses more straightforwardly if the additional H block spectrum is licensed for the same geographic service area as their existing license holdings. Moreover, the PCS A-B block licenses, while licensed on an Major Trading Area (“MTA”) basis, are made up of BTA service areas. Therefore, BTAs, as building blocks for MTAs, are most appropriate for all existing PCS license holders in extending and integrating their service offerings. Consequently, the Commission should license this spectrum in BTA service areas so as to meet the needs of the majority of licensees that will be bidding on this spectrum.

Furthermore, multiple opportunities are currently available for wireless providers to obtain larger licenses. In particular, the FCC has provided for Regional Economic Area Grouping (“REAG”) and Economic Area (“EA”) service areas in the 90 MHz of AWS spectrum already allocated.²⁹ Moreover, licensees can easily aggregate BTA license areas at auction to create larger geographic license areas if desired without incurring the additional transaction costs associated with acquiring these licenses through the secondary market. These opportunities address the needs of wireless providers desiring larger geographic licenses.

Similarly, the use of Metropolitan Statistical Areas (“MSAs”) and Rural Service Areas (“RSAs”) for the H block would be inappropriate. As an initial note, given that the A-F blocks are licensed on a BTA basis, it would be difficult to incorporate H block spectrum into providers’ existing networks if it were licensed on an MSA/RSA-level. Moreover, as indicated in detail above, the potential for interference to incumbent PCS and MSS/ATC operations is

²⁹ *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, Report and Order, 18 FCC Rcd 25162, ¶ 37 (2003), *recons pending* (“1.7/2.1 GHz Report and Order”) (establishing REAG and EA license areas for the 1710-1720 MHz/2110-2120 MHz, 1720-1730/2120-2130 MHz, 1730-1735/2130-2135 MHz, and 1740-1755/2140-2155 MHz bands).

significant. Thus, regardless of the technical rules that are adopted in this proceeding, significant coordination between H and J block licensees and these incumbents will be required. This coordination, while manageable at the BTA-level, becomes increasingly difficult at the MSA/RSA-level. Limiting in part the number of licenses available by licensing this spectrum at the BTA-level will help alleviate the coordination required for this spectrum. AWS spectrum has also already been allotted for licensing on an MSA/RSA basis and those parties interested in such smaller markets will have ample opportunity to bid for those licenses, based on MSA/RSA regions, in this context.³⁰ Accordingly, the Commission should license the H block spectrum on a BTA basis.

In contrast to the H block, the J block spectrum is not spectrally adjacent to incumbent PCS operations. As such, it is spectrum that is likely to be allocated in this fashion only in the United States and of less immediate value to existing PCS operations. As the fundamental nature of this spectrum allocation is different from the H block, the service area licensing should also be different. With economies of scale and scope not as present for the J block, the Commission should strive to provide large geographic licensing areas to enable auction winners to have some level of scale and scope to attract equipment manufacturer interest in the spectrum. Additionally, use of MTAs or BTAs, given the difficulties associated with the Rand McNally copyright issues identified by the Commission,³¹ would not be appropriate for the J block. Furthermore, with the availability of licenses on an MSA/RSA basis already identified in other AWS bands, the need for local area licensing for AWS has been addressed. Therefore, T-Mobile urges the Commission to adopt large, regional licenses based on REAGs or MEAs for the J block. Such

³⁰ *Id.* at ¶ 39 (establishing 734 RSA/MSA-based licenses for the 1735-1740 MHz and 2135-2140 MHz bands).

³¹ *NPRM* at ¶ 24.

license area sizes will permit entities with large regional needs to attain the scale necessary for equipment development while also enabling parties interested in aggregating a nationwide license an adequate opportunity to do so through the auction process.

B. The Commission Should Adopt a License Term of 15 Years with a High Expectancy of Renewal, but Should Not Impose any Service Requirement on New Licensees.

Historically, the Commission has adopted a minimum of a ten-year license term for PCS spectrum.³² For other AWS bands, however, the FCC adopted a 15-year license term.³³

T-Mobile believes the new AWS spectrum identified in the *NPRM* is directly comparable to the 90 MHz made available previously for AWS. As such, the Commission should similarly adopt a 15-year license term for this additional 20 MHz of AWS spectrum. Alternatively, as is consistent with the PCS rules, the license term should, at a minimum, be 10 years.

Moreover, as the Commission proposes, the rules should provide for a renewal expectancy at the end of the 15-year term.³⁴ The Commission has regularly determined that a renewal expectancy should be afforded a licensee if (1) the applicant has provided substantial service during its past license term and (2) has complied with the Communications Act and applicable Commission rules and policies.³⁵ Indeed, the Commission has determined in multiple

³² See, e.g., 47 C.F.R. §§ 24.15, 27.13(a).

³³ *1.7/2.1 GHz Report and Order* at ¶ 70 (finding that a 15-year license term “will provide investors with the necessary assurances that a sufficient amount of time will be available to recoup the initial costs of developing and deploying advanced wireless networks in...these bands”).

³⁴ See *NPRM* at ¶ 70.

³⁵ See, e.g., *Implementation of Sections 3(n) and 332 of the Communications Act*, Third Report and Order, 9 FCC Rcd 7988, ¶ 386 (2004); *Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies to Provide Spectrum-Based Services*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 19078, ¶ 145 (Sept. 27, 2004). Substantial service is defined as

contexts that a renewal expectancy when combined with a 10-15 year license term will promote stability, licensee investment, and long-term planning.³⁶ As was the case in these other contexts, a longer license term and renewal expectancy here will allow AWS licensees sufficient time to relocate incumbents, deploy infrastructure, and receive a reasonable return on their investment before the license must be renewed.

Regardless of the license term adopted, no performance requirement is needed.³⁷ Many wireless providers are currently working to expand their service areas and offerings while also improving service quality. As a result, there is substantial demand for this spectrum and licensees are under significant pressure to deploy infrastructure and start providing services over this spectrum in order to recoup their investments. Further, the tight protection levels needed to protect incumbent PCS operations will require some time to be developed and deployed, further arguing against performance requirements that might make the H block less appealing to industry.³⁸ Finally, strict performance requirements might constrain carriers wanting to deploy

(Continued . . .)

“service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal.” *See, e.g.*, 47 C.F.R. § 27.14(a).

³⁶ *See, e.g., 1.7/2.1 GHz Report and Order* at ¶ 71 (establishing a renewal expectancy for AWS licensees); *Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands*, Report and Order, 17 FCC Rcd 9980, ¶69 (2002) (establishing a renewal expectancy for licensees operating in the spectrum transferred from Government to non-Government use); *Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, Report and Order and Second Notice of Proposed Rulemaking, 12 FCC Rcd 18600 ¶49 (1997) (establishing a renewal expectancy for 39 GHz licensees); *Amendment of the Commission's Rules to Establish New Personal Communications Services*, Second Report and Order, 8 FCC Rcd 7700, ¶130 (1993) (establishing a renewal expectancy for PCS licensees).

³⁷ *See NPRM* at ¶ 74 (seeking comment on whether H and J block licensees should be subject to any performance requirements).

³⁸ *See Amendment of the Commission's Rules to Establish Part 27, the Wireless*

services in the H block while striving to avoid interference to existing PCS subscribers in particular geographic regions of the country. At most, therefore, T-Mobile would argue that a “substantial service” performance requirement is all that is required.

C. The H and J Block Spectrum Should Be Licensed in 10 MHz Blocks.

Substantial bandwidth is required for the provision of AWS. Indeed, wireless carriers require a minimum of 10 MHz of dedicated spectrum for the provision of AWS. In the Commission’s *1.7/2.1 GHz Service Rules Report and Order*, the Commission acknowledged that “[f]ive megahertz blocks [of paired spectrum] can be used for new technologies and can be used for some data services...larger ten...megahertz blocks [will] enable a broader range of broadband services.”³⁹ Moreover, 10 MHz has “always been one of the principal license sizes used in broadband PCS.”⁴⁰ Thus, the Commission should license this spectrum in 10 MHz spectrum blocks.

D. Cost-Sharing of Relocation Expenses may be Appropriate in these Bands.

With geographic service area licensing, multiple parties will benefit from the relocation of incumbent licensees in the H and J blocks. However, the complexity of relocating incumbents from these bands may also be increased as a result of a decision to license on a regional basis. Incumbents will face increased coordination costs, and thereby relocation costs, due to the multiple new licensees with whom they will be working. It would be unduly burdensome and

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Communications Service, Report and Order, 12 FCC Rcd 10785, ¶¶ 111-115 (1997) (adopting “very flexible build-out requirements for WCS” because of the strict technical requirements that were necessary to prevent interference).

³⁹ *1.7/2.1 GHz Report and Order* at ¶ 44.

⁴⁰ *Amendment of the Commission’s Rules Regarding Installment Payment Financing for Personal Communications Services Licenses*, Sixth Report and Order on Reconsideration, 15 FCC Rcd 16266, ¶ 14 (2000).

inequitable to require a single licensee or the incumbents to bear this entire cost. Accordingly, cost-sharing of this relocation may be appropriate for these spectrum blocks.

In particular, T-Mobile supports the Commission's proposal to require cost-sharing of the relocation expenses for the 1915-1920 MHz band. As decided in the *Sixth Report and Order*, the new licensees should reimburse UTAM for 25 percent of the costs it incurred in relocating incumbents from this band.⁴¹ However, although the incumbents in this band have already been relocated at the expense of UTAM, the new entrants should not be required to reimburse UTAM for these expenses until they commence operations.⁴² The Commission has previously stated that a licensee should not be required to pay reimbursement obligations until it has "benefited" from the spectrum-clearing efforts of another party.⁴³ Had these incumbents not already been relocated, they would have been permitted to continue operations in this band until the new party commenced operations. Accordingly, the new licensee would not receive any benefit from the incumbents' relocation until it commenced operations. Consistent with the Commission's prior determination, these licensees should not be required to reimburse UTAM for its expenses prior

⁴¹ *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, Sixth Report and Order, Third Memorandum Opinion and Order, and Fifth Memorandum Opinion and Order, 19 FCC Rcd 20720, ¶ 53 (2004).

⁴² See *NPRM* at ¶ 42 (seeking comment on whether reimbursement should be required as a precondition to the granting of a license, at the first act of installing or activating a wireless station, at the commencement of operations, or at some other date).

⁴³ *Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation*, First Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 8825, ¶ 71 (1996) (stating that new "licensees will be required to pay reimbursement obligations *only* when they have benefited from the spectrum-clearing efforts of another party") (emphasis added).

to their receipt of any benefit for that relocation. Instead, this reimbursement should be due when the new licensees commence operations.

V. THE COMMISSION SHOULD RECONSIDER ITS DECISION TO ESTABLISH A 30 MHZ E BLOCK LICENSE.

The Commission established two 10 MHz A and B block licenses (paired blocks of 5 MHz), two 20 MHz C and D block licenses (paired blocks of 10 MHz), and one 30 MHz E block license (paired blocks of 15 MHz) in the *1.7/2.1 GHz Report and Order* to allegedly promote competition, innovation, and economic opportunity in the provision of wireless services.⁴⁴ The establishment of the 30 MHz E block, however, inhibits the Commission's goals of promoting flexible and efficient use and as such the Commission should grant T-Mobile's Petition for Reconsideration proposing to reconfigure the 30 MHz license into a 20 MHz license and a 10 MHz license.⁴⁵

The Commission has acknowledged that license blocks should match the business plans of initial licensees.⁴⁶ AWS spectrum will most likely be used to support the growth and development of advanced services provided by existing PCS and cellular carriers.⁴⁷ Individual carriers' needs for AWS spectrum, however, vary greatly depending on the market. As such, carriers should be permitted to tailor their acquisition of spectrum to meet their individual business plans.⁴⁸ The majority of carriers, however, do not need large swaths of spectrum in all

⁴⁴ See *1.7/2.1 GHz Report and Order*.

⁴⁵ Petition for Reconsideration, T-Mobile USA, Inc., WT Docket No. 02-353 (filed Mar. 8, 2004).

⁴⁶ *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, Notice of Proposed Rulemaking, 17 FCC Rcd 24135, ¶ 20 (2002) ("*1.7/2.1 GHz NPRM*").

⁴⁷ *AWS Second Report and Order* at ¶ 12.

⁴⁸ *1.7/2.1 GHz Report and Order* at ¶ 42 (acknowledging carriers' need to "tailor their

geographic areas. As a result, the establishment of a 30 MHz license will effectively preclude substantial competition at auction for this license. In contrast, a wide variety of carriers, including not only incumbent PCS and cellular providers but also new entrants and smaller, rural wireless providers, need smaller spectrum blocks to effectively deploy advanced services, increase their footprint, and improve service quality. Through the adoption of smaller spectrum blocks, licensees will not be forced to acquire more spectrum than they need, only to subsequently divest it through partitioning or disaggregation. Although these secondary market mechanisms can be effective spectrum management tools for licensees, they create financial barriers to acquiring spectrum, add unnecessary transaction costs, and delay deployment of services to the public when used soon after an auction.

Moreover, wireless providers that do need larger spectrum blocks will be able to aggregate licenses at auction. By licensing more spectrum blocks, licensees will have greater opportunity to tailor their spectrum acquisition to their precise business needs. Indeed, the Commission has noted that aggregation of spectrum at auction provides bidders with greater flexibility to implement their business plans.⁴⁹ As such, aggregation of licenses during an auction is the most flexible, efficient, and effective way to ensure carriers can acquire the spectrum they need.

Accordingly, the Commission should reconsider its *Report and Order* in the 1.7/2.1 GHz proceeding and reconfigure the 30 MHz license into a 20 MHz license composed of the 1740-1750 MHz and 2140-2150 MHz spectrum blocks and a 10 MHz license composed of the 1750-1755 MHz and 2150-2155 MHz spectrum blocks.

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acquisition of spectrum...to meet their individual business plans”).

⁴⁹ 1.7/2.1 GHz NPRM at ¶ 21.

VI. CONCLUSION

In conclusion, T-Mobile commends the Commission for its continued commitment to facilitating the deployment of AWS. In adopting service rules for this spectrum, however, the Commission must adopt rules that will facilitate the swift deployment of services over this spectrum while also ensuring the provision of services on adjacent spectrum is not jeopardized. To this end, the Commission should adopt the service and licensing rules suggested by T-Mobile herein for this spectrum and should provide adequate safeguards to protect incumbent PCS and MSS/ATC providers from interference.

Respectfully submitted,

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