

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)
)
Innovation in the Broadcast Television Bands:)
Allocations, Channel Sharing and) ET Docket No. 10-235
Improvements to VHF)

COMMENTS OF T-MOBILE USA, INC.

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I. INTRODUCTION AND SUMMARY

T-Mobile USA, Inc. (“T-Mobile”) submits these comments in response to the Federal Communications Commission’s (“FCC” or “Commission”) Notice of Proposed Rulemaking (“*Notice*”) in the above-captioned proceeding.¹ In the *Notice*, the Commission seeks comment on several proposals to facilitate wireless broadband use of TV Channels 2-36 and 38-51 (the “U/V Bands”), including: adding new allocations for fixed and mobile services in the U/V Bands that would be co-primary with the existing TV broadcasting allocation; establishing a framework that would allow two or more television stations to share a single six-megahertz channel; and considering ways to increase the utility of the VHF bands for broadcast television.²

As discussed below, T-Mobile enthusiastically supports the Commission’s efforts to make additional spectrum available to meet the burgeoning demand for mobile broadband services, including adding co-primary allocations for fixed and mobile services in the U/V

¹ *Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF*, Notice of Proposed Rulemaking, 25 FCC Rcd 16498 (2010) (“*Notice*”).

² *Id.* ¶ 2.

Bands. Doing so would provide enhanced flexibility, spur investment and innovation, promote more intensive use of the U/V Bands, and facilitate increased deployment of wireless broadband services. While these technical rule changes are a necessary first step to help ensure the broadcast spectrum is put to its highest and best use, T-Mobile believes the Commission should also move forward with additional measures, including implementing voluntary incentive auctions for the U/V Bands, to ensure the supply of spectrum for mobile broadband services is not further outstripped by the demand for those services. Although the Commission has requested express authority from Congress to conduct voluntary incentive auctions, it could speed up the process for redeploying U/V Band spectrum by launching proceedings now on incentive auction implementation and TV channel repacking issues. In addition, the Commission should consider a variety of other approaches to repurpose TV broadcast spectrum, such as refarming, the modification of service and technical rules, and transferrable bidding credits or vouchers, that could rely on existing authority.

The Commission should also adopt its proposal to provide continued must carry rights to TV broadcasters that agree to share a single 6 MHz channel. Before they agree to share channel assignments or relocate facilities, TV broadcasters will need assurances that their primary signal will continue to be delivered to audiences by multichannel video programming distributors (“MVPDs”).

Finally, the Commission should mandate minimum performance standards for indoor VHF television antennas. Instead of formulating new performance standards, the Commission can rely on existing industry standards (as it proposes to do). Adopting such standards would improve VHF reception for viewers and help VHF TV broadcasters maintain their pre-transition audience share.

II. THERE IS A CRITICAL NEED FOR ADDITIONAL SPECTRUM FOR MOBILE BROADBAND

A. The Growth in Demand for Mobile Broadband Has Far Outpaced the Release of New Spectrum.

The demand for mobile broadband services has grown exponentially in the past few years, with no signs of slowing down. As the Commission recognized in the *Notice*, “[w]ireless broadband services are in high demand by the public and that demand is expected to grow significantly in the coming years.”³ Yet the limited amount of spectrum allocated for such services – the “invisible infrastructure” – is insufficient even to meet current demand, much less the burgeoning demand expected for such services in the near future. Accordingly, the Commission should pursue every opportunity to make available expeditiously the maximum amount of spectrum for mobile broadband services.

Mobile broadband is perhaps the most quickly adopted technology in history.⁴ The FCC’s *2008 High-Speed Services Report* found that between June 2007 and June 2008, total mobile wireless high-speed lines more than doubled, increasing from 25.3 million to 59.7 million, and accounted for more than 45% of all U.S. broadband connections.⁵ That growth continued throughout 2009 and 2010, as a report by the FCC’s Omnibus Broadband Initiative (“OBI”) found that subscriptions to mobile data services increased by a staggering 40% during a six-month period in 2010, and that the amount of data consumed per line by mobile broadband

³ *Id.* ¶ 11.

⁴ See, e.g., Julius Genachowski, Chairman, FCC, *Prepared Remarks at the 2011 International Consumer Electronics Show 1* (Jan. 7, 2011), available at <http://www.fcc.gov/commissioners/genachowski/speeches.html> (“CES Remarks”) (“[M]obile broadband is being adopted far faster than any computing technology in history.”); see also Morgan Stanley, *The Mobile Internet Report* 83 (Dec. 15, 2009) available at http://www.morganstanley.com/institutional/techresearch/pdfs/mobile_internet_report.pdf (reporting that the rate of mobile Internet adoption has outpaced the rate of desktop Internet adoption, and is continuing to accelerate) (last visited Mar. 11, 2011).

⁵ See FCC, *High-Speed Services for Internet Access: Status as of June 30, 2008*, at Tables 1, 6 (rel. July 2009) (“2008 High-Speed Services Report”).

customers ballooned over 450% between the first quarter of 2009 and the second quarter of 2010.⁶ The FCC's OBI further observed that the number of consumers who owned a smartphone had nearly tripled from 16% in 2007 to 42% in 2010.⁷ Similarly, an industry report found a 27% increase in the number of mobile 3G subscribers in the United States between the third quarter of 2009 and the third quarter of 2010, and CTIA reported that data traffic jumped 50% from the end of 2009 to the first half of 2010.⁸ As of December 2010, there were 119 million unique 3G and 4G subscribers in the country.⁹

T-Mobile has been on the front lines of this explosion. The volume of data traffic on the T-Mobile network has doubled every seven months.¹⁰ Customers using premier 4G devices, such as the My Touch 4G and the G2, are now using on average more than 1 GB of data per month, while just a few years ago, data usage on a typical data capable handset was more on the order of 20 to 40 MB per month.¹¹

⁶ FCC, OBI Technical Paper Series, *Mobile Broadband: The Benefits of Additional Spectrum 4* (Oct. 2010) available at http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db1021/DOC-302324A1.pdf (“OBI Technical Paper”).

⁷ *Id.*

⁸ Matt Murphy & Mary Meeker, *Top Mobile Internet Trends*, Kleiner Perkins Caufield & Byers, Slide 10 (Feb. 10, 2011) available at <http://www.slideshare.net/kleinerperkins/kpcb-top-10-mobile-trends-feb-2011> (last visited Mar. 9, 2011) (“*Mobile Internet Trends*”); The Hill, *CTIA: Wireless data use increased by 50 percent* (Oct. 6, 2010), available at <http://thehill.com/blogs/hillicon-valley/technology/122991-ctia-wireless-data-use-increased-by-50-percent> (last visited Mar. 9, 2011); Amy Storey, *2010 in Review: Mobile Data Usage Continues to Increase Dramatically*, CTIA Blog (Dec. 28, 2010) available at <http://blog.ctia.org/2010/12/28/2010-in-review-mobile-data-usage-continues-to-increase-dramatically/> (last visited Mar. 9, 2011).

⁹ See *Ex Parte* filing by CTIA-The Wireless Association®, WC Docket No. 07-245, Attachment at Slide 7 (filed Mar. 10, 2011); see also see *Mobile Internet Trends* at Slide 10 (finding that as of the third quarter of 2010, there were 141 million 3G subscribers in the country).

¹⁰ See, e.g., Sam Churchill, *T-Mobile Announces 7” Dell Streak*, DAILYWIRELESS.ORG, Jan. 6, 2011, available at <http://www.dailywireless.org/2011/01/06/t-mobile-announces-7-dell-streak/> (last visited Mar. 11, 2011).

¹¹ See *Ex Parte* filing by T-Mobile USA, Inc., WT Docket No. 05-265, 2 (filed Mar. 10, 2011).

This is just the beginning of the mobile broadband revolution. As more consumers purchase smartphones, tablet PCs, laptops, e-readers, and other mobile devices,¹² and as more devices are connected for machine-to-machine (“M2M”) communications,¹³ the demand for mobile broadband will rise dramatically. FCC Chairman Julius Genachowski recently stated that mobile broadband traffic is expected to increase 35-fold over the next five years.¹⁴ And the Commission’s OBI estimates that mobile data demand could increase as much as 50-fold over the same period.¹⁵ In addition, CTIA reported that smart phone data is expected to increase from 58.5 billion MBs today to 1.952 trillion MBs in 2015.¹⁶ Even “conservative” industry estimates project a 26-fold growth in demand over the next five years.¹⁷

¹² See, e.g., *OBI Technical Paper* at 5; International Telecommunication Union, *Network congestion set to worsen: ITU calls for international broadband commitment* (Feb. 11, 2011) available at http://www.itu.int/net/pressoffice/press_releases/2011/01.aspx (“Smartphone users already consume on average five times more data capacity than users of ordinary mobile phones. With the number of smartphones set to rise from today’s global estimate of 500 million handsets in use, to almost two billion by 2015, operators are already having to employ multi-pronged strategies to keep up with demand.”) (last visited Mar. 9, 2011); TR Daily, *Industry Urges Different Neutrality Treatment for Wireless Services*, TR Daily (Sept. 15, 2010), statement by Paul Jacobs, Qualcomm, Inc. Chairman and CEO (indicating that, by 2014, three-quarters of all global broadband subscribers are expected to be using mobile devices).

¹³ See, e.g., Steve Hilton, *Imagine an M2M world with 2.1 billion connected things*, Analysys Mason (Jan. 27, 2011) available at http://www.analysismason.com/About-Us/News/Insight/M2M_forecast_Jan2011/ (forecasting that “the number of M2M device connections will grow from 62 million in 2010 to 2.1 billion devices in 2020, at a 36% year-on-year growth rate”) (last visited Mar. 11, 2011).

¹⁴ *CES Remarks* at 4; Julius Genachowski, Chairman, FCC, *Prepared Remarks at the Minority Media & Telecom Council Broadband and Soc. Justice Summit 3* (Jan. 20, 2011) available at <http://www.fcc.gov/commissioners/genachowski/speeches.html> (“MMTC Remarks”).

¹⁵ *OBI Technical Paper* at 5.

¹⁶ Christopher Guttman-McCabe, *Global Spectrum Conspiracy...Really!?!*, CTIA Blog (Feb. 3, 2011) available at <http://blog.ctia.org/2011/02/03/global-spectrum-conspiracy-really/> (last visited Mar. 9, 2011).

¹⁷ *Mobile Internet Trends* at Slide 20.

Spectrum is the invisible infrastructure that supports mobile broadband.¹⁸ Yet the current spectrum allocated for mobile broadband is far short of what is needed to keep pace with demand.¹⁹ The Commission’s OBI estimates a “spectrum deficit” of nearly 300 MHz by 2014.²⁰ Recognizing this impending spectrum crunch, the National Broadband Plan (“NBP”) recommended the release of an additional 500 MHz of spectrum for wireless broadband over the next ten years.²¹ In addition, President Obama has instructed Executive branch agencies to work with the Commission to identify and reallocate spectrum in order to reach that goal, and has proposed that the Commission be authorized to conduct voluntary incentive auctions of currently underutilized spectrum.²²

The importance of allocating sufficient spectrum to support mobile broadband cannot be overstated. OBI estimates that “the benefit of releasing additional spectrum is likely to exceed \$100 billion.”²³ One analyst has estimated that “up to \$62 billion of spectrum could be made available for the cost of \$9 billion to \$12 billion,” and that the “[c]onsumer benefits from the

¹⁸ *MMTC Remarks* at 3 (“Our mobile networks rely on spectrum – what we call our invisible infrastructure. Spectrum is finite, and with the explosion in demand for mobile, we’re heading toward a wall that could cost America its lead in mobile innovation.”); *CES Remarks* at 1 (stating that spectrum is “the oxygen that sustains our mobile devices”).

¹⁹ *MMTC Remarks* at 4 (stating that “we need to make more spectrum available for broadband” and “we need to encourage more innovative and efficient uses of spectrum”); see also Coleman D. Bazelon, *The Need for Additional Spectrum for Wireless Broadband: The Economic Benefits and Costs of Reallocations* (Oct. 23, 2009) (“Clearly, insufficient spectrum is used for wireless broadband deployments.”).

²⁰ *OBI Technical Paper* at 26.

²¹ See FCC, *Connecting America: The National Broadband Plan*, Recommendation 5.8, 84-93 (rel. Mar. 16, 2010), available at www.broadband.gov (“NBP”).

²² See, e.g., Press Release, The White House, Office of the Press Secretary, *President Obama Details Plan to Win the Future Through Expanded Wireless Access* (Feb. 10, 2011) available at <http://www.whitehouse.gov/the-press-office/2011/02/10/president-obama-details-plan-win-future-through-expanded-wireless-access>.

²³ *OBI Technical Paper* at 26.

wireless sector would likely be between \$500 billion and \$1.2 trillion.”²⁴ Insufficient spectrum availability, on the other hand, would cause network congestion, network quality losses, application failures, and lost data packets. This would, in turn, erode recent gains in broadband adoption, especially among minorities and low-income consumers who disproportionately use wireless to access the Internet,²⁵ and “adversely affect multiple industries, including finance, telemedicine, education, social networking, research, M2M, online gaming, and entertainment.”²⁶ Failure to allocate more spectrum for mobile broadband would thus undermine U.S. economic competitiveness and put many current and future U.S. jobs at risk.²⁷

B. Adding Co-Primary Fixed and Mobile Wireless Allocations is a Necessary First Step to Making TV Broadcast Spectrum Available for Mobile Broadband Services.

In the *Notice*, the Commission proposes to add allocations for fixed and mobile services in the U/V Bands (*i.e.*, excluding Channel 37) for non-Federal use, to be co-primary with that for television broadcast services.²⁸ Adding co-primary mobile and fixed allocations is a critical first step to meeting the demand for wireless broadband services, and T-Mobile strongly supports this proposal.

²⁴ Bazon, *The Need for Additional Spectrum for Wireless Broadband* at 22.

²⁵ See Aaron Smith, Pew Internet & American Life Project, *Mobile Access 2010*, 3, 16 (July 7, 2010), available at http://www.pewinternet.org/~media/Files/Reports/2010/PIP_Mobile_Access_2010.pdf. (finding that 46 percent of African Americans and 51 percent of English-speaking Hispanic Americans use their cell phones and other mobile devices to access the Internet, compared to only 33 percent of white Americans; also finding that cell phone ownership among African Americans and Hispanic Americans is higher than among whites (87% vs. 80%)) (last visited Mar. 9, 2011).

²⁶ Rysavy Research, *Engineering Analysis of the Effects of Failure to Allocate Additional Spectrum for Mobile Broadband*, 16-19 (Feb. 1, 2011).

²⁷ See *Notice* ¶ 11; *CES Remarks* at 3-4 (“This coming spectrum crunch is . . . a vital strategic issue for the future of our economy and job creation, our global competitiveness, and our quality of life. Failure to tackle the spectrum challenge could have disastrous consequences. . . . If we don’t act, we’ll put our country’s economic competitiveness at risk.”).

²⁸ *Notice* ¶ 16.

As discussed in the *Notice*, such allocations “will provide maximum flexibility in planning for the future assignment of a portion of the U/V Bands for flexible use, including new broadband services.”²⁹ The Commission similarly recognized in the NBP that co-primary mobile and fixed allocations “lay the groundwork for future flexibility.”³⁰ Enhanced flexibility would spur investment and innovation, thereby maximizing intensive use of spectrum and facilitating increased deployment of wireless broadband services.³¹ Thus, to encourage intensive and efficient use of spectrum and keep pace with the demand for mobile broadband, the Commission should add a fixed and mobile wireless allocation for the U/V Bands to the Table of Frequency Allocations.

C. The Commission Should Take Additional Steps Now to Promote Voluntary Incentive Auctions and Facilitate Wireless Use of the U/V Bands.

Although T-Mobile supports and appreciates the Commission’s efforts to address the technical issues raised in the *Notice*, it encourages the Commission to work also on developing the framework for voluntary incentive auctions, perhaps via a separate Notice of Inquiry on auction implementation issues. Moving forward now to implement incentive auctions is another “important opportunity” for the Commission “to provide more flexibility and greater efficiency in the use of the U/V Bands spectrum.”³²

As the Chairman recently observed, “[v]oluntary incentive auctions are an essential tool to unleash spectrum, and a vital part of seizing the opportunities of mobile,” and they would

²⁹ *Id.*

³⁰ *See NBP* at 88.

³¹ *See id.*

³² *Notice* ¶ 12; *MMTC Remarks* at 4 (“One of the biggest ideas that’s been proposed is voluntary incentive auctions, which would incentivize reallocation of spectrum to more efficient uses, giving broadcasters, for example, the choice to contribute their licensed spectrum to the auction and participate in the upside.”).

“unlock substantial value that’s now untapped because of outdated policies.”³³ Moreover, because TV broadcasters would receive a portion of the auction proceeds, market-based voluntary incentive auctions may be able to “shift[] a contentious process to a cooperative one” by avoiding the time-consuming procedural hurdles raised by incumbent licensees “that can make it difficult, in practice, for the FCC to reclaim and relicense . . . spectrum for other purposes.”³⁴

Although the Commission has sought explicit authority from Congress to conduct incentive auctions, steps can be taken now in anticipation of receiving that authority that would reduce the time it takes for the U/V Bands to be used for mobile broadband. For example, the Commission should consider launching a proceeding soon on incentive auction implementation issues. Such a proceeding could elicit valuable information to assist Congress in its development of incentive auction authority and reduce the amount of time that would be needed to implement any legislation, should it be enacted. The Commission could also take steps now to further explore the TV channel repacking issues that will have to be resolved in order to free up sufficient contiguous U/V Band spectrum.

D. The Commission Should Consider Using Existing Authority in Addition to Voluntary Incentive Auctions to Repurpose TV Broadcast Spectrum.

As T-Mobile has noted previously, the Commission has a number of tools available to facilitate mobile broadband use of underutilized spectrum bands beyond potential incentive auction authority.³⁵ Although T-Mobile strongly supports the Commission’s incentive auctions proposal, the Commission should not foreclose the use of existing tools that have been

³³ *CES Remarks* at 2, 6.

³⁴ *See NBP* at 81.

³⁵ Comments of T-Mobile USA, Inc., ET Docket No. 10-142, 8-10 (filed Sept. 15, 2010); Reply Comments of T-Mobile USA, Inc., ET Docket No. 10-142, 2-6 (filed Sept. 30, 2010) (“T-Mobile MSS Flexibility Reply Comments”).

successfully employed in the past to facilitate the repurposing of underutilized spectrum to its highest and best use, including spectrum refarming and the modification of service and technical rules.³⁶ The Commission also should consider other measures that may fall within its existing authority, such as the use of transferrable bidding credits or vouchers to compensate TV broadcast licensees that return some or all of their spectrum licenses. The Commission has repeatedly recognized its ability to offer bidding credits (along with “bidding offset credits” and “auction discount vouchers”), pursuant to Sections 4(i), 303(r), and 309(j) and its authority to manage use of the radio spectrum and assign spectrum licenses.³⁷

III. BROADCAST TELEVISION CHANNEL SHARING COULD BE AN EFFECTIVE WAY TO RECOVER SPECTRUM FROM THE UHF BAND FOR MOBILE BROADBAND USE WHILE PROTECTING TV BROADCASTERS’ MUST CARRY RIGHTS

T-Mobile agrees with the *Notice*’s proposal to provide continued must carry rights to television broadcasters who agree to share a single 6 MHz channel.³⁸ For a TV broadcaster to agree to relinquish its current spectrum holdings voluntarily, it must be assured, as much as is practicable, that reception of its content will continue to be available to its current audience.

³⁶ See T-Mobile MSS Flexibility Reply Comments at 3.

³⁷ See, e.g., *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 14165 ¶¶ 303-04 (2004) (proposing bidding offset credits to incumbent licensees as part of the Educational Broadband Service and Broadband Radio Service band restructuring); *Extending Wireless Telecommunications Services To Tribal Lands*, Report and Order and Further Notice of Proposed Rulemaking, 65 FCC Rcd 47366 ¶ 18 (2000) (“*Tribal Lands R&O and FNPRM*”); *Qualcomm Incorporated Petition for Declaratory Ruling Giving Effect to the Mandate of the District of Columbia Circuit Court of Appeals*, Order, 16 FCC Rcd 4042 (2000) (granting a transferable auction discount voucher); see also 47 U.S.C. §§ 154(i), 303(r), 309(j).

³⁸ *Notice* ¶ 31.

As the *Notice* indicates, sharing the facilities of another station could lead to prospective loss of service to persons presently able to receive a broadcaster's over-the-air signal.³⁹ Some of that over-the-air audience loss may be reduced by permitting facility modifications or by offering on-channel Distributed Transmission Systems or other technical measures.

In the vast majority of cases, however, viewers receive TV broadcast signals from MVPDs – cable and DBS, primarily – who carry the signals pursuant to a must carry duty⁴⁰ or, at the TV broadcaster's election, pursuant to contract under the Communications Act's retransmission consent provisions.⁴¹ TV stations have the right to elect either must carry or retransmission consent every three years. Must carry serves as a backstop for those broadcasters who believe MVPDs will not compensate them for their signals under retransmission consent; they therefore have statutory assurance that pay TV subscribers – whose TVs usually are not equipped to receive over-the-air broadcast transmissions – will receive their content.

This backstop protection needs to continue for TV stations that agree to share a six megahertz channel with another broadcaster. Changing a station's transmitter location or channel of operation has never been a basis for annulling the must carry right. Indeed, in the analog-to-digital transition, nearly every TV broadcaster changed its channel of operation, with many going from a VHF channel (which was more desirable in the analog broadcast world) to a UHF channel (which is more desirable in the digital broadcast world). And since the inception

³⁹ *Id.* ¶ 25 (“Since stations sharing a single television channel must operate from a single transmission facility, changes to one or more of the stations’ existing facilities will be necessary for sharing to occur.”).

⁴⁰ 47 U.S.C. §§ 338, 534, 535.

⁴¹ *Id.* § 325(b).

of TV broadcasting, the FCC has permitted licensees to modify transmitter location, power, and other characteristics without removing the must carry right.⁴²

Relocating to a new transmitter location should have no effect on which cable systems are required to carry the signal. For full power commercial stations, so long as the new location continues to serve the same Designated Market Area (“DMA”) as it did previously, there should be no change as to which cable systems must carry the migrating station.⁴³

The requirements for the exercise of must carry rights for noncommercial educational (“NCE”) stations and low power (“LPTV”) stations, in contrast, depend on the location of the station in relation to a cable system’s headend; and for NCE’s, must carry also applies if the headend is located within the “digital noise limited contour” (the digital world version of the analog world Grade B contour) of the station. When a NCE or qualified LPTV station voluntarily locates to another transmitter as part of a sharing arrangement, it is possible that the mileage or signal quality test may no longer be met. While this may occur rarely, T-Mobile proposes that existing MVPD must carry obligations continue after a station voluntarily moves to share frequencies with another TV broadcaster. That way, the expectations of viewers, TV broadcasters, and the MVPDs would remain as they were before the move.

TV broadcasters would, as before, be required to provide MVPDs with a “good quality signal” (defined as providing at least -61 dBm) to the headend or receiving point. This might require additional effort by TV broadcasters if their transmitted signal does not meet this threshold once moved to a new location. But it is also common for TV broadcasters, since the

⁴² 47 C.F.R. § 73.1690 (modification of transmission systems).

⁴³ The FCC recognized some signal loss as a result of the switch from analog to digital. *See, e.g., Commission Updates DTV Coverage Maps And List Of Stations With 2 Percent Or Greater Service Loss*, Public Notice, DA 09-1274 (rel. June 5, 2009).

1992 Cable Act's adoption of must carry, to provide a direct feed of their signal to the cable system headend, regardless of whether it can be adequately received over-the-air by an antenna at the headend.

The sharing proposal will significantly benefit the public interest by providing additional spectrum to facilitate broadband uses in the U/V Bands. It will not materially disadvantage video viewers. This is because, while some stations (particularly NCE) provide a significant amount of multicast standard definition ("SD") channels, other broadcasters who avail themselves of must carry (as opposed to retransmission consent) more frequently offer just a few single SD channels or one HD channel, which can ordinarily be accommodated through sharing a 6 MHz allocation.⁴⁴ Such stations are good candidates for channel sharing, as there would be no significant interruption of service.

For stations that provide substantial multicast broadcast services, whether as retransmission consent or must carry stations, and therefore need the capacity provided by a 6 MHz channel, there is nothing in the *Notice* that requires them to relinquish their 6 MHz license. Further, such stations could still offer a single HD stream and/or multicast a reduced number of SD streams if they elected to share. Given the dynamic changes in the video market,

⁴⁴ A non-NCE must carry station is entitled to carriage of only one primary signal. *See Carriage of Digital Television Broadcast Signals: Amendment to Part 76 of the Commission's Rules*, Second Report and Order and First Order on Reconsideration, 20 FCC Rcd 4516 (2005) (rejecting mandatory multicast carriage). Most NCE stations have the option of multicast carriage under certain conditions under a private agreement with the cable industry. *See* "Public Television and Cable Announce Major Digital Carriage Agreement" (Jan 31, 2005), *available at* <http://www.ncta.com/ReleaseType/MediaRelease/358.aspx?hiddenavlink=true&type=reltyp1> (last visited Mar. 9, 2011). Thus, with MVPD penetration as high as 80-90 percent nationwide, a commercial must carry station would find it difficult to obtain a sustainable over-the-air audience for its multicast signals, given that carriage of its primary (and therefore most popular) signal itself must rely on must carry, as opposed to retransmission consent. Most multicast services feature reruns of old programs, weathercasts, or repeats of local news programs.

today's multicast services, with their relatively small audiences, may well migrate to nonbroadcast or online platforms.

The *Notice* also asks whether an NCE television station sharing a channel with a commercial television station could affect the NCE's station's continued eligibility for carriage.⁴⁵ T-Mobile agrees with the *Notice* that such sharing should not cause a NCE station to lose its NCE status or eligibility for must carry. The Commission's policy should permit maximum flexibility to promote sharing. Thus, so long as the NCE station delivers a "good quality signal" to the headend or receive point of an MVPD on which it had previously been carried, it should continue to be eligible for carriage on that MVPD's system.

IV. THE COMMISSION SHOULD MANDATE MINIMUM STANDARDS FOR TELEVISION ANTENNAS

The Commission is right to address the problems that consumers have experienced in receiving good quality TV broadcast signals in the VHF band since the transition to digital. Based on the two technical studies cited in the *Notice*, poor quality indoor antennas are widespread in the marketplace and are undoubtedly contributing to viewers' reception problems.⁴⁶ Introducing minimum performance standards for indoor TV antennas would be a logical step to improve VHF reception for viewers and would help VHF broadcasters maintain their pre-transition audience share. Moreover, as the NBP recognized, if antenna standards are not introduced, "VHF stations may continue to request channel reassignments to the UHF band, complicating efforts to reallocate spectrum from that band to mobile broadband use."⁴⁷

Choosing a good quality indoor antenna can be a complicated exercise for consumers. AntennaWeb.org, a site sponsored by the Consumer Electronics Association ("CEA") and the

⁴⁵ *Notice* ¶ 35.

⁴⁶ *Id.* ¶ 44.

⁴⁷ NBP at 92.

National Association of Broadcasters, tells consumers that it cannot recommend specific models, but explains that omni-directional indoor antennas generally “are not good at pulling in low-level signals and do not reject unwanted signals,” while many directional indoor antennas “are designed for UHF only and do not work well, or at all, on VHF.”⁴⁸ While consumer reviews of indoor antennas can be found on websites, individual experience can vary widely based on the viewer’s specific location, and these websites do not provide objective performance measurements.⁴⁹ Given the lack of helpful comparative information in the marketplace, antenna manufacturers have little incentive to design high performance antennas. This is especially true if viewers follow the advice of a Consumer Reports blog which simply suggests that consumers “start first with the lowest-cost option” in selecting an antenna.⁵⁰ Establishing minimum standards will benefit consumers by ensuring that *any* antenna they purchase performs at least adequately.

The Commission has traditionally refrained from regulating receive-only antennas, opting instead “to regulate other characteristics shaping the interference environment.”⁵¹ However, it has chosen to regulate antennas in unique operating environments that “may not be as satisfactorily managed by the Commission’s more traditional approach,” and where the antenna’s “performance will affect the interference experienced by . . . subscribers.”⁵² The VHF band presents such a situation. As the *Notice* indicated, limiting the existing noise in the VHF band is

⁴⁸ See <http://www.antennaweb.org/aw/info.aspx?page=indoor> (last visited March 9, 2011).

⁴⁹ See <http://www.hdtvantennalabs.com/indoor.php> (last visited March 9, 2011).

⁵⁰ See “DTV tips: Choosing and using an antenna,” (Feb. 25, 2009), *available at* <http://blogs.consumerreports.org/electronics/2009/02/dtv-tips-choosing-and-using-an-antenna--1.html> (last visited March 9, 2011). Other than suggesting a physical relocation of the antenna, the posting does not indicate what consumers should do if the low cost antenna is not adequate.

⁵¹ See *Establishment of Policies and Service Rules for the Broadcasting-Satellite Service*, Report and Order, 22 FCC Rcd 8842 ¶ 77 (2007) (“*Broadcast Satellite Order*”).

⁵² *Id.* ¶¶ 77, 80.

not a practical option, given that much of the noise results from emissions from consumer products already in viewers' homes, incidental emitters (*e.g.*, electric motors), atmospheric disturbances, and long distance propagation effects inherent in the VHF band.⁵³ Thus, introducing antenna standards is a reasonable alternative solution for overcoming the interference experienced by many VHF viewers with indoor antennas.

Rather than formulating its own performance standards, the Commission proposes to adopt an existing industry standard developed jointly by the widely recognized American National Standards Institute (“ANSI”) and CEA.⁵⁴ This reinforces the reasonableness of the Commission’s approach. The Commission has relied on the adoption of industry standards in a wide variety of contexts, and the broadcast industry in particular should be accustomed to Commission-adopted industry standards.⁵⁵

Finally, the *Notice* is correct that the Commission has authority to set performance standards for indoor antennas.⁵⁶ Section 303(s) of the Communications Act states that the Commission has “authority to require that apparatus designed to receive television pictures broadcast simultaneously with sound be capable of adequately receiving all frequencies allocated by the Commission to television broadcasting”⁵⁷ A TV antenna is unquestionably an

⁵³ *Notice* ¶ 47. Although the *Notice* proposes to ameliorate noise to some extent by permitting higher transmit powers, it recognizes that expectations for improvement are limited. *Id.* ¶ 48.

⁵⁴ *Id.* ¶ 55.

⁵⁵ *See, e.g.*, 47 C.F.R. § 73.682(d) (requiring all DTV signals to comply with three standards developed by the Advanced Television Systems Committee (“ATSC”)); 47 C.F.R. § 15.120 (requiring TV receivers to decode information transmitted in an industry standard format developed for V-Chip compliance); *see also* Letter from William T. Lake, Chief, Media Bureau, to Gregory Herman, President, WatchTV, Inc., DA 11-260 (rel. Feb. 10, 2011) (“Where a new service would employ technology inconsistent with the existing ATSC standard, any rulemaking most likely would be accompanied by industry standards development.”). Moreover, ANSI standards alone already appear throughout the Commission rules, including in Parts 1, 2, 11, 15, 20, 22, 24, 68, 73, 76, 80, 90 and 94.

⁵⁶ *Notice* ¶ 54.

⁵⁷ 47 U.S.C. § 303(s).

apparatus, or part of an apparatus,⁵⁸ designed to receive broadcast pictures and sound, and the proposed performance standards are intended to do nothing more than ensure that antennas “adequately” receive all TV frequencies.⁵⁹ Thus, the plain language of the statute supports the Commission’s authority to impose antenna standards. Where the plain language of a statute is unambiguous, resort to legislative history is unnecessary.⁶⁰ Nevertheless, it is notable that Congress’s broad purpose behind the passage of Section 303(s) was to “permit maximum efficient utilization of the broadcasting spectrum”⁶¹ The instant proposal is consistent with this intent.

V. CONCLUSION

The Commission should pursue every opportunity to make available expeditiously the maximum amount of spectrum for mobile broadband services. Thus, for the foregoing reasons, T-Mobile encourages the Commission to add co-primary allocations for fixed and mobile services in the U/V Bands and take additional steps to develop and implement voluntary incentive auctions in the U/V Bands. It should also provide for continued must carry rights to television broadcasters that agree to share a single 6 MHz channel. Finally, the Commission

⁵⁸ “Apparatus” is defined as “a *set of* materials or equipment designed for a particular use.” Merriam-Webster, *available at* <http://www.merriam-webster.com/dictionary/apparatus> (emphasis added). Thus, the statutory language suggests that there could be multiple physical pieces of equipment covered by Section 303(s), consistent with the *Notice*’s statement that the antenna “is a component of a TV receive system.” *Notice* ¶ 54.

⁵⁹ To the extent that any argument remains that antennas do not fall under the ambit of Section 303(s), the D.C. Circuit has previously held that “Congress did not . . . affirmatively state what sorts of devices fall into the television broadcast receiver category, leaving that gap-filling task instead to the agency.” *Ass’n of Maximum Serv. Telecasters v. FCC*, 853 F.2d 973, 978 (D.C. Cir. 1988) (“*AMST*”) (citing *Chevron USA, Inc. v. NRDC*, 467 U.S. 837, 843-44 (1944) (“*Chevron*”). Likewise, *Chevron* deference would be afforded to the determination of what constitutes “adequate” reception.

⁶⁰ *See Beach Communications, Inc. v. FCC*, 959 F.2d 975, 981 (D.C. Cir. 1992). The fact that Congress was, in 1962, primarily concerned with improving utilization of the UHF band (*see AMST*, 853 F. 2d at 978) is immaterial given that the actual statutory language is not limited to the UHF band.

⁶¹ *AMST*, 853 F. 2d at 978 (citing S.Rep. No. 1526, 87th Cong., 2d Sess. 2 (1962), U.S. Code Cong. & Admin. News 1962, pp. 1873-74).

should mandate minimum performance standards for indoor VHF television antennas, based on existing industry standards.

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