

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20054**

Office of Engineering and Technology)
Requests Information on)
Use of 1675 – 1710 MHz Band) ET Docket No. 10-123

COMMENTS OF AT&T INC.

AT&T Services, Inc. (“AT&T”) files these comments in response to the Public Notice released by the Federal Communications Commission (the “Commission”) seeking comment on the steps the Commission could take “to best promote wireless broadband deployment” in the 1695-1710 MHz and 3550-3650 MHz bands recently identified by the National Telecommunications and Information Administration (NTIA) as government bands that could be reallocated for commercial use, as well as the 1755-1780 MHz, 4200-4220 MHz and 4380-4400 MHz bands, which also were identified by the NTIA as potential candidates for commercial mobile broadband use.¹

The reallocation of bands currently limited to government use will be crucial to help meet the Commission’s National Broadband Plan goals of making 500 MHz of spectrum available for broadband use by 2020, and 300 MHz between 225 MHz and 3.7 GHz for mobile use by 2015.² In October, 2010, NTIA identified the 1695-1710 MHz and 1755-1780 MHz, 3550-3650 MHz, 4200-4220 MHz, and 4380-4400 MHz bands in its “fast track” review for possible reallocation for commercial use in the next five years.³ NTIA further recommended that the Commission make 115 MHz (at 1695-1710 MHz and 3550-3650 MHz) available for commercial mobile

¹ Public Notice, *Spectrum Task Force Requests Information on Frequency Bands Identified by NTIA as Potential Broadband Spectrum*, ET Docket No. 10-123, DA 11-444 (March 8, 2011) (“Public Notice”).

² Connecting America: The National Broadband Plan, Recommendation 5.8, p.84 (FCC, 2010) (available at <http://www.broadband.gov/plan/>).

³ *An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, 4200-4220 MHz, 4380-4400MHz Bands*, U.S. Department of Commerce, (October 2010) (http://www.ntia.doc.gov/reports/2010/FastTrackEvaluation_111520.pdf)(“Fast Track Report”).

broadband within the next 5 years.⁴ In this Public Notice, the Commission seeks comment on whether and to what extent these bands could be made available for broadband deployment.

AT&T's supports the spectrum allocation goals outlined in the National Broadband Plan. To continue to lead the world in mobile broadband innovation and to accommodate the explosive growth in demand for mobile broadband usage, it will be critical for the Commission to meet its Plan's targets. The NTIA's efforts in clearing spectrum for commercial mobile use will be equally critical to meeting this goal, and AT&T applauds the efforts of both agencies in moving forward to achieve this crucial national objective. While identifying and allocating government spectrum to meet the widely acknowledged spectrum crunch must be done rapidly, it is equally important to carefully evaluate and select the spectrum to be allocated to optimally achieve this crucial objective. In the course of allocating additional spectrum for mobile broadband use, AT&T recommends that the Commission be guided by certain spectrum allocation principles.

- First, spectrum should be allocated in large bands, to accommodate multiple competitors.
- Second, within those bands, spectrum should be licensed in large blocks. 20 MHz pairs (2 X 10 MHz) are needed to achieve the optimal increases in data rates and capacity that advanced mobile broadband technologies like LTE make possible.
- Third, bands that are contiguous to existing mobile bands are advantageous because they allow (through secondary market transactions) the aggregation of large, contiguous blocks, and produce efficiencies in network equipment and mobile devices.

⁴ "U.S. Department of Commerce takes Major Steps towards Unleashing the Wireless Broadband Revolution," rel. Nov. 15, 2010 (http://www.ntia.doc.gov/press/2010/SpectrumReports_11152010.html)

- Fourth, to the extent possible, allocations should be internationally harmonized, to facilitate roaming, and reduce complexity and achieve scale efficiencies in equipment and device development and procurement.
- Fifth, spectrum should be licensed through open auctions, to ensure that spectrum markets are competitive, to maximize auction revenue, and so that spectrum will be put to its best and highest use.
- Sixth, spectrum should be allocated by exclusive licenses that permit flexible use. Together with clear rules governing build out, power, out of band emissions and interference, exclusive, flexible licenses will provide mobile broadband providers with the certainty needed to incent investment as well as the flexibility to allow innovative new technologies and business models.

In keeping with these principles, the Commission should continue working with the NTIA to accelerate the consideration of the 1755-1780 MHz band for allocation. The 1755-1780 MHz band is the best candidate for reallocation for mobile broadband use. It is harmonized internationally to leverage global economies of scale and would be the most effective pairing with the AWS-3 band to enable the use of that band for advanced mobile broadband services such as LTE.⁵ Such a pairing would be ideal for mobile broadband use. Thus, NTIA and the Commission should focus on reallocating this band first, prior to moving forward with auctioning the 1695-1710 MHz band, to ensure that this pairing is taken into account as other candidate bands are reallocated.

A. Accelerate Completion of the Review of the 1755-1780 MHz Spectrum Band.

⁵ Comments of AT&T, Inc., *In the Matter of the Use of the 1675-1710 MHz Band*, ET Docket No. 10-123 (June 28, 2010)(“AT&T Comments”)

The Commission and the NTIA have been tasked with trying to head off a spectrum shortage that would arrest the broadband revolution in the United States and threaten the economic and educational health of the nation. Of the bands NTIA identified in the Fast Track Report, none would do more to achieve the Commission's goals than allocation of the 1755-1780 MHz band. For reasons that will be explained in more detail below, each of the other bands under consideration would be far less effective in treating the spectrum crunch, while allocating the 1750-1780 MHz band would be just what the doctor ordered.

Allocating this band would serve as an extension of bands being used today in the United States to provide mobile broadband services. It is contiguous to the AWS 1 band. The 25 MHz at 1755-1780 MHz could be paired with the AWS 3 block (2155-2175 MHz) plus the upper "J" block (2175-2180 MHz) to form 50 MHz of spectrum contiguous with the AWS band. Such an allocation would allow for pairs of 2 X 10 MHz, ideal for LTE and other advanced mobile broadband technologies. Moreover the band is internationally harmonized. It is part of the AWS allocation in Europe, Africa, Asia and Australia.

As a result of international harmonization and its contiguity to existing AWS allocations in the U.S., the allocation of 1755-1780 MHz (paired with AWS 3) would result in more rapid deployments at lower costs with substantial efficiencies compared with other bands identified in the Fast Track Report. Moreover, international roaming would be facilitated, both for U.S. subscribers while abroad and for foreign subscribers when traveling to the U.S. Indeed, roaming within the U.S. would be facilitated by effectively expanding the AWS band in this manner, increasing device interoperability and facilitating spectrum band compatibility among U.S. mobile broadband providers.

None of the other bands identified by NTIA come close to providing the same bang for the buck. None of the other bands is contiguous with bands used today in the United States for mobile broadband. None could be as efficiently paired with the AWS 3 band. None could be deployed as rapidly, or at a lower cost. None would provide the same opportunity for nationwide coverage, without the substantial exclusion zones that characterize other blocks. While AT&T understands that important government uses currently exist in 1755-1780 MHz, given the spectrum crisis our nation faces, and the unique opportunity this band offers to help address that challenge, the NTIA should complete its review of this band as soon as possible and the Commission should allocate this band for commercial use at the earliest possible date.

B. Other Bands Identified in the Fast Track Report are Less Well Suited to Mobile Broadband Use than 1755-1780 MHz.

Each of the other bands identified by the NTIA in the Fast Track Report has some potential for helping to meet the Commission's objective to make available 500 MHz of spectrum for broadband within 10 years. However, the allocation of all of the remaining spectrum identified in the Fast Track Report would be unlikely to yield the same benefit that could be gained from making 1755-1780 MHz available. While NTIA and the Commission should continue to evaluate these bands, the 1755-1780 MHz band deserves first priority in this process.

1. 1695-1710 MHz

Like the 3550-3650 MHz band, this band would require substantial exclusion zones. In particular, NTIA identified 18 weather satellite earth stations that would require protection in the form of exclusion zones. The 18 exclusion zones are in or near major metropolitan areas and would be anywhere from 144 to 242 km in diameter.⁶ This would make it impossible to offer a

⁶ Public Notice at 2-3.

nationwide footprint of licenses in the band and the inability to use the spectrum in many metropolitan areas would make it unsuitable to support new entry into mobile broadband, and likely would drive up the costs required to develop and procure equipment and devices.

The Commission should consider the usefulness of this spectrum as an adjunct to mobile broadband providers using other bands, on a shared basis with government users, or potentially as an unlicensed band. However, no decision should be made on this band until such time as NTIA determines the viability of reallocating the 1755-1780 MHz band. Pairing 1695-1710MHz with the AWS 3 band would result in an asymmetrical pairing (leaving 15 MHz for uplink, and 25 MHz for downlink) that would require advanced LTE capabilities to take advantage of the asymmetrical pairing. In addition, such a pairing would require a different duplex separation than AWS 1, which would require a separate band in each device to support the pairing. Not surprisingly, at least one analyst predicts that when compared with a pairing of 1755-1780 with the AWS 3 block, a pairing with 1695-1710 MHz would reduce expected auction receipts by more than \$6 billion.⁷

To be sure, the 1695-1710 MHz band could be very useful for mobile broadband, and the Commission and NTIA should continue to consider how it might be put to use. Provided the 1755-1780 MHz band is paired with AWS 3 and allocated, the potential utility of this band would only increase, as it is contiguous to the AWS band and other pairing opportunities may be present.

2. 3550-3650 MHz and 4 GHz proposals.

⁷ See, The Brattle Group, *The Economic Basis of Spectrum Value: Pairing AWS 3 with the 1755 Band is More Valuable than Pairing it with Frequencies from the 1690 Band*, at 2-3 (Attachment to Letter of Coleman Bazelon to Marlene Dortch dated April 11, 2001), *In the Matter of the Use of the 1675-1710 MHz Band*, ET Docket No. 10-123 (April 11, 2011).

Both of these bands are likely to be of limited utility for mobile broadband. That said, they might prove quite useful for fixed broadband or for unlicensed use. In addition, they might potentially serve as spectrum to which government uses could be relocated to free up other spectrum for commercial allocation.⁸

Under the NTIA proposal for the 3550-3650 bands, non-Federal users would be excluded from the bands over areas extending as far as 570 km from U.S. coastlines inland, as well as in 10 additional exclusion zones.⁹ Accordingly, this band would also likely be allocated over a non-nationwide footprint. Given the number of people, highways and metropolitan areas, that such extensive exclusion zones would cover, whether providers of mobile broadband services would be able to effectively offer mobile services in these bands is subject to question. Indeed, allocation of this band to commercial services would not move the Commission any closer to its National Broadband Plan objectives in areas within exclusion zones.

We note, however, that NTIA selected the band because WiMAX equipment already has been developed for the band. Accordingly, should the Commission move to allocate this spectrum for broadband, WiMAX equipment likely could be rapidly deployed. Accordingly, this spectrum could be a key contribution toward the Commission's goals of allocating an additional 500 MHz for broadband service over 10 years (at least in areas beyond the exclusion zones), and could provide a cost-effective way to bring broadband to unserved or underserved areas. Still, we believe that given the substantial areas covered by exclusion zones, the most likely deployments would be fixed, rather than mobile.

⁸ For example, the 1780-1850 MHz band (internationally identified as the WRC 2000 band), currently allocated to the Department of Defense, might be paired with 70 MHz of federal spectrum at 2200-2290 MHz. (adjacent to the WRC 07 band). The 1780-1850 MHz band is adjacent to the PCS band, which would allow sharing of device components such as front end filters, antennas and power amplifiers.

⁹ Public Notice at 3.

The NTIA also proposed consideration of 40 MHz of spectrum above 4 GHz (4200-4220 MHz and 4380-4400 MHz). The spectrum currently is used internationally by the aviation industry (for radio altimeters).¹⁰ While it may be useful to continue to consider this spectrum, we note that it is outside the range (up to 3.7 GHz) the National Broadband Plan considers usable for mobile broadband, and therefore likely would not be helpful in meeting the Plan's objective of making an additional 300 MHz of mobile spectrum available by 2015.

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We applaud the NTIA for its efforts to identify additional spectrum for commercial use. Reallocating spectrum to commercial use is critical to address the nation's urgent need for additional mobile broadband spectrum. Making the 1755-1780 MHz band available will move the Commission and NTIA further toward that goal than all of the other bands under consideration. Accordingly, NTIA should rapidly complete its review of the band so that it may be allocated as soon as possible.

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Respectfully submitted,

/s/ Michael P. Goggin

Michael P. Goggin
Gary L. Phillips
Paul K. Mancini

AT&T Services, Inc.
1120 20th Street, N.W.
Suite 1000
Washington, D.C. 20036
(202) 457-2055 – phone
(202) 457-3073 – facsimile

Its Attorneys

¹⁰ Public Notice at 4.