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**By Electronic Filing**

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street S.W.
Washington, D.C. 20554

Re: WT Docket No. 11-18; RM-11592; RM-11626

Dear Ms. Dortch:

AT&T submits this letter in response to two recent submissions by Vulcan Wireless LLC ("Vulcan") in the above-captioned dockets.[1] Vulcan, which holds 700 MHz spectrum licenses in the Lower A Block in Oregon and Washington, urges the Commission to override the open, evidence-based, consensus-driven 3GPP international standards-setting process involving handset, chipset, and infrastructure vendors and carriers all over the world with the imposition of a new regulatory mandate. Years after the 700 MHz auction ended, Vulcan seeks regulation requiring that any wireless device manufactured after June 2013 operating in the Lower 700 MHz band operate on *all* paired spectrum in the Lower 700 MHz band. AT&T and others have demonstrated in the rulemaking proceeding the Commission established to consider this issue the many ways in which such a mandate would harm the public interest. During the 3GPP standard setting process, handset manufacturers raised concerns about potential interference to Lower A Block mobile reception due to high power transmissions on the Lower E block. As a result, the standards-setting body adopted the existing band plan – with a Band 17 covering the Lower B and C Blocks and a Band 12, including the Lower A, B and C Blocks – and handset, chipset, and infrastructure manufacturers, wireless providers, and the rest of the industry have been investing in and developing infrastructure and devices that meet the Band 17 standards for years. Imposing the mandate that Vulcan seeks would, among other things, raise carrier costs and consumer prices, degrade service quality, and relegate consumers to costlier and less feature-rich LTE devices.[2]

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[1] *See* Letter from M. Farquhar on behalf of Vulcan Wireless LLC to Marlene H. Dortch (FCC), WT Docket No. 11-18; RM-11592 (June 17, 2011) ("*June 17 Vulcan Letter*"); Letter from M. Farquhar on behalf of Vulcan Wireless LLC to Marlene H. Dortch (FCC), WT Docket No. 11-18; RM-11592; RM-11626 (July 27, 2011) ("*July 27 Vulcan Letter*").

[2] *See generally* Letter from J. Marx, AT&T Services Inc., to Marlene H. Dortsch (FCC), WT Docket No. 06-150; PS Docket No. 06-229; GN Docket No. 09-51; RM Docket No. 11592 (Nov. 2, 2010); Letter from J. Marx, AT&T Services Inc., to Marlene H. Dortsch (FCC), WT Docket

Vulcan now claims that AT&T's proposed acquisition of Lower D and E block spectrum from Qualcomm would simultaneously (i) increase the interference to Lower A Block spectrum that led the 3GPP standards-setting body to establish separate Bands 12 and 17, thereby warranting conditions on the license transfer, and (ii) *solve* all Band 12 interference problems, thereby removing any obstacle to a regulatory mandate that effectively abolishes Band 17. The two claims are patently inconsistent, and neither has merit.

Vulcan's first claim fails because it ignores AT&T's repeated statements that it will use the Lower D and E block spectrum for supplemental downlink and will bond the spectrum to PCS, AWS, or cellular spectrum. AT&T's use of the Lower D and E block spectrum will be at base station power levels far below the 50,000 watt limit permitted under the Commission's rules and used by Qualcomm in its MediaFLO deployment on Channel 55. Indeed, it is indisputable that AT&T's operations on the Lower D and E block in the five markets in which AT&T will acquire Lower E block licenses from Qualcomm will actually reduce the interference risk to the Lower A block licensees. In those markets, the interference situation between AT&T's operations on the Lower E block and other carriers' Lower A block mobile receive operations on the adjacent band will be similar to what would be experienced by any two cellular operators operating compatibly on adjacent bands. Thus, to improve the interference situation in the five markets at issue, the Lower A block licensees should actually be urging the Commission to approve the AT&T-Qualcomm transaction as quickly as possible.

Vulcan's second claim fails because AT&T is acquiring only five of the 176 Lower E block licenses from Qualcomm. Thus, the Band 12 interference issues will not be solved in their entirety as a result of the transaction. To the contrary, the serious interference issues that led the 3GPP international standards-setting body to establish separate Bands 12 and 17 will remain unchanged upon approval of the AT&T-Qualcomm transaction. The vast majority of the Lower E block licenses (171 of the 176 licenses) for Channel 56 could still be used for high power operations that would cause harmful interference to the Lower A block mobile receivers on Channel 57, and the incompatibility between DTV stations operating at 1 million watts on Channel 51 and mobile devices transmitting on the Lower A block (Channel 52) will remain. Accordingly, there is no basis for the mandate Vulcan seeks, either as a merger condition or as a general rule.

The remainder of this letter explains in more detail why Vulcan's inconsistent claims fail.

As noted above, it is important to emphasize that Vulcan's arguments have nothing at all to do with the proposed transfer of Lower 700 MHz D and E Block licenses from Qualcomm to AT&T. Vulcan hypothesizes several uses by AT&T of the Qualcomm Lower D and E block that it claims could negatively impact Lower A Block licensees. There is no such issue in the real world. Three of Vulcan's four hypothetical configurations involve integration of Lower D and E Block spectrum with Lower B and C Block spectrum. As AT&T has made clear from the outset, it has no intention – or ability – to use the Lower D and E block spectrum acquired from Qualcomm in this manner,

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No. 06-150; PS Docket No. 06-229; GN Docket No. 09-51; RM Docket No. 11592 (June 3, 2010).

because any such combination "would create an unacceptable level of self-interference within a device if used simultaneously."[3] There would not be "enough frequency separation between the uplink and downlink to prevent the mobile device transmitter from interfering with its own receiver," and the "receiver filter would not provide sufficient rejection of the transmitting signal."[4] Vulcan's speculation that AT&T might use the Lower D and E block spectrum as "CMRS TDD" to "negatively impair A block license holders," is equally baseless. AT&T has repeatedly explained that it will use the spectrum acquired from Qualcomm for supplemental downlink in conjunction only "with AWS, 850 MHz or 1900 Mhz spectrum."[5] Accordingly, Vulcan's attempts to conjure a link between this transaction and some competitive harm to Lower A and B Block spectrum holders fails.

Indeed, Vulcan's own submission confirms that the transfer of Qualcomm's Lower D and E Block spectrum to AT&T can only *benefit* Vulcan and other Lower A and B Block spectrum holders. AT&T will use the Lower E block spectrum it obtains in this transaction in mobile broadband wireless deployments at significantly lower power levels than the video service for which Qualcomm used the spectrum.[6] Thus, in the five markets in which AT&T will obtain Lower E Block spectrum, there will likely be far less, not more, interference as a result of the proposed AT&T-Qualcomm transaction. Vulcan actually concedes this point.[7]

In short, the proposed license transfer will *reduce* interference – and will not cause any other harm – to holders of Lower A and B Block spectrum. The transaction should be approved as soon as possible, and there is no basis for any merger condition.

Nor will the proposed license transfer in any way resolve the broader interference issues that led to the adoption of Band 17 by 3GPP. The first such issue is high power transmissions on the Lower E block by parties other than AT&T causing interference to mobile receivers operating on Channel 57 (the downlink portion of the Lower A block). Other parties would still control 171 of 176 Lower E block licenses (and, as Vulcan admits, it is the E Block, not the D Block, that raises interference concerns), and they may be used for precisely the kind of high-powered transmissions that pose the risk of interference to users of Lower A block spectrum that made Band Class 17 necessary. High power transmissions on the Lower E block (Channel 56) pose a substantial interference risk to mobile receivers operating on the Lower A, B, and C blocks (Channels 57, 58, and 59). Band 17, with 6 MHz of separation from the Lower E Block (since Band 17 starts at Channel 58), was created to enable a transition for the filter in a wireless device so that the filter can provide sufficient attenuation of the E block interference. The Band 12 technical specifications

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[3] Declaration of Kristin Rinne, at 5 (attached to AT&T/Qualcomm license transfer application).

[4] *Id.*

[5] *Id.*

[6] *See June 17 Vulcan Letter*, attached "Analysis and Recommendation," at 5, 12 (interference scenario 3); *id.*, attached "Briefing" paper, at 2-4.

[7] *Id.*, attached "Briefing" paper, at 4 ("AT&T's proposed use of the Lower D and E Block spectrum implies that the Lower D and E-Block will be operating at typical cellular power levels and not the 50 kW" allowed in the E Block).

adopted in 3GPP include sub-optimal filtering due to the lack of sufficient frequency separation between the Lower E block (Channel 56) and the Band 12 frequencies (starting with Channel 57), and as a result, a Band 12 filter will not mitigate the interference from high power operations on the Lower E block. This is a risk that the Lower A block licensees who participated in 3GPP were willing to accept in order to get on the air (in markets in which there is not a DTV station on Channel 51).

The proposed AT&T-Qualcomm transaction will also have no impact on the other major interference issue: the incompatibility between extremely high power broadcasts by DTV stations on Channel 51 and mobile transmissions on Channel 52, the uplink portion of the Lower A block. The high power broadcasts from Channel 51 DTV stations will pose the same risks of interference with Lower block A spectrum after the AT&T-Qualcomm transaction is consummated as they do today.[8] In addition, out of band emissions interference from Band 12 device transmissions to channel 51 DTV receivers will be the same after the transaction as before. Again, Band 17 operations do not face this interference issue due to the additional 6 MHz of frequency separation between Channel 51 and Channel 53 (the beginning of the uplink portion of Band 17).

Accordingly, the AT&T-Qualcomm transaction does not resolve any of the sources of interference that led the 3GPP standards-setting body to protect consumers through the segregation and creation of Band 17. There is no basis for Vulcan's proposed mandate, and, in particular, the proposed transaction does not warrant imposition of any condition containing such a mandate. Vulcan seeks to undermine years of planning and investment by handset, chipset, and infrastructure manufacturers and carriers based on the band plan in existence.

Vulcan suggests, without support, that the interference problems that led the standards-setting body to create two bands would be alleviated by a 1 MHz A Block guard band in Band 12. That is plainly wrong. Within 3GPP, creation of such a guard band was discussed, but no one contended that a guard band would solve the interference problems. Rather, the contention was that a guard band would merely provide some help, or, in the words of one equipment manufacturer, the

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[8] Indeed, Vulcan concedes that a unified Band 12 that includes Lower A, B and C blocks would import the Channel 51 interference that A Block licensees experience to the B and C block licensees. *See June 17 Vulcan Letter*, attached "Analysis and Recommendation," at 10. As Vulcan has explained in its comments supporting limitations on new Channel 51 stations, "the mounting interference [from Channel 51] and technical challenges from new [Channel 51] operations could increase the costs and difficulty of network design, hindering significantly the deployment of new mobile wireless broadband systems . . . and threatening their economic viability." Comments of Vulcan Wireless LLC and The Rural Telecommunications Group, Inc., *Petition for Rulemaking and Request for Licensing Freezes*, RM-11626, at 4 (April 27, 2011). *See also July 27 Vulcan Letter*, attached "Recommendations" presentation at 12 ("[c]hanges regarding new stations, changes in power, changes in transmitter locations, etc. create an ever-shifting interference environment, impacting A-Block licensees' ability to plan or deploy"). Vulcan's concession that its proposal would import the difficult Channel 51 interference issues to Lower B and C block licenses conclusively confirms that Vulcan's proposals here would be contrary to the public interest.

guard band, "can provide some room for filter design."[9] At most, the Band 12 filters could get a little bit more rejection – perhaps 2 to 5 dB according to some accounts.[10] Thus, the filters for Band 12 devices would still be unable to prevent blocking from high powered E Block transmissions, even if the 1 MHz of A Block adjacent to the E Block is used for guard band. Moreover, Vulcan's contention here that all of the interference concerns can be alleviated simply by employing 1 MHz guard bands is belied by efforts by Vulcan and other Lower A block licensees to freeze any further Channel 51 deployments.[11]

Vulcan also contends that AT&T's plan to use Lower D and E Block spectrum for supplemental downlink deployments somehow proves that Lower E Block interference with Band 12 is "tolerable," because the Lower E block interference would also impair use of Lower D block spectrum.[12] This is a complete *non sequitur*. AT&T plans to use the Lower D and E Block spectrum for *supplemental* downlink only in conjunction with AWS, 850 MHz, or 1900 MHz spectrum as primary carriers. Thus, even if Lower E block interference were to reduce or even eliminate the *additional* downlink throughput provided by the supplemental downlink below levels that would be achieved absent the interference, it would not affect the primary uplink and downlink carriers in AWS, 1900 or 850.

By contrast, interference from high power operations on the E block and Channel 51 to Band 12 would impair service in the primary uplink and downlink, potentially both for voice and data throughput and for mobility management. And, for reasons discussed previously stemming from the additional frequency separation and the greater filtering that is available for Band 17, high power E block operations will not cause harmful interference to the primary carrier frequencies in Band 17. Thus, under Vulcan's proposal, AT&T would be directed to reconfigure its 700 MHz deployments for Band 12, subjecting its customers to performance degradation from Lower E Block (and channel 51) interference in the *primary* Lower 700 MHz B and C block spectrum used to carry voice and data (both uplink and downlink) – without any offsetting benefits.

Vulcan's focus on "integrated" versus "federated" combinations of Lower B and C Block spectrum with Lower D and E Block spectrum is equally misleading. Regardless what meaning Vulcan places on those labels (neither of which has any basis in the 3GPP standard-setting process), in a Band 12 deployment, the Lower B and C blocks will suffer interference from the Lower E block, and such a deployment will be completely incompatible with the existing operations on Channel 51. It is ridiculous to argue, as Vulcan does, that because AT&T is willing to invest in Lower D block spectrum to improve the performance of its primary carriers (even if the potential

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[9] Huawei, R4-102959: The Determination of Band 12 Filter Requirements, 3GPP TSG RAN WG4 Meeting #56, (August 2010).

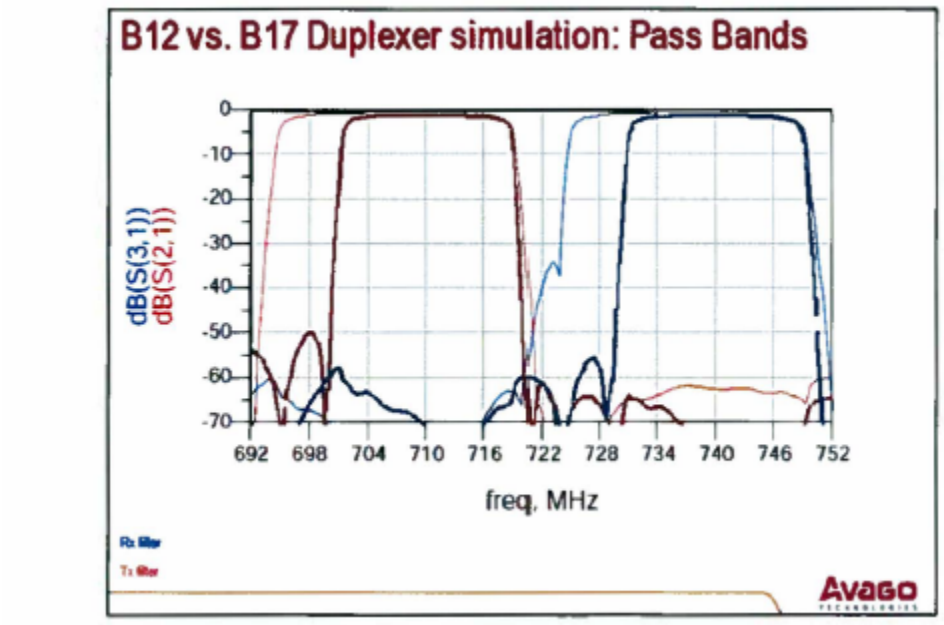
[10] *Id.*, at Table 1.

[11] There is likewise no filter or device component redesign that can adequately address the interference issues, as confirmed by Vulcan's failure to specify any such design. So long as adjacent high power transmissions exist, interference will be a very real issue for Band 12, regardless of device design.

[12] *June 17 Vulcan Letter*, attached "Analysis and Recommendation," at 7.

improvement might be limited by interference in some cases), AT&T should not object to being required to degrade the performance of its primary LTE carriers by installing filters for a different band class that would subject its primary frequencies to interference from adjacent broadcasters (not to mention making its customers purchase new devices).[13]

The following chart, originally produced by Wireless Strategies, a consulting firm that represents companies advocating a regulatory mandate, vividly illustrates this fact. As the chart shows, the Band 12 filters can exclude almost none of the high power E Block transmissions, while the Band 17 filters can exclude almost all of those transmissions.




Vulcan's suggestion that the "solution" of mandating use of Band 12 will not be onerous is also clearly incorrect.[14] It would prevent holders of Lower B and C block spectrum from using Band 17 filters that protect against interference from the Lower E Block and Channel 51 and require them instead to use Band 12 filters that would allow such interference. Moreover, as a practical matter, it would require carriers to retool Band 17 deployments to move base stations to Band 12. And because base stations could only communicate using Band 12 *or* Band 17 signaling ID, not both, it would require consumers with Band 17 devices (that are free of interference risk from Channel 51 and the E Block) to obtain new devices with Band 12 radios that expose them to such interference. Thus, even under the "prospective" approach Vulcan proposes here, mandating Band 12 would be extremely onerous to consumers and wireless service providers, raising costs and prices, reducing service quality, and rendering customer handsets obsolete.

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[13] *June 17 Vulcan Letter*, attached "Analysis and Recommendation," at 7 (conceding that there would be "interference from E-Block into D-Block" and that there would be "interference event[s] from E-Block into Band 12").

[14] *Id.*, attached "Analysis and Recommendation," at 8.

Vulcan's unsubstantiated claims regarding 911 capabilities and public safety interoperability are completely specious. In the first place, all of Qualcomm's LTE chipsets are multi-mode (support 4G/3G/2G) and multi-band (support cellular, PCS, AWS, etc., in addition to a 700 MHz band). Thus, devices with such chipsets can easily and seamlessly roam to another frequency band, such as cellular, PCS, or AWS, if necessary to make a call to 911 or for other public safety use. Getting access to 911 is far more likely if a device includes the ability to communicate with PCS and 850 bands, particularly in rural areas, as 2G and 3G networks in these bands cover 98 percent of the U.S. population today.[15] Moreover, given the nascent state of LTE in 700 MHz, customers likely will prefer devices with such backward compatibility to ensure nationwide coverage and access to voice services. Mandating Band 12 has nothing to do with access to 911 or public safety. Rather, such a mandate will simply subject Lower B and C block licensees (and their customers) to the same interference risks that Lower A band licensees voluntarily assumed. Indeed, public safety officials have *opposed* conditions that would mandate use of Band 12, in part because they, too, want devices with backward compatibility, and 700 MHz interoperability requirements would increase their device costs and limit their options for backward compatibility, which in turn would limit choice and coverage.

In this regard, the Vulcan Presentation's reliance on a recent Congressional Research Service report ("CRS") has the point exactly backwards. Vulcan points to the CRS's prediction that the price of interoperable public service radios will fall considerably compared to the current price of narrowband interoperable radios.[16] As the report makes clear, this is a function of the transition to LTE from narrowband devices, not any particular form of interoperability.[17] The report says nothing about the use of Band 12 rather than Band 17, and indeed identifies "[a] well-grounded but flexible governance structure," including "collaboration with commercial partners," as "critical to the future of public safety communications."[18] Vulcan would have the Commission move in precisely the opposite direction by mandating a less flexible structure and requiring that handsets be devoted to satisfying the commercial requirements of Lower A block license holders rather than remaining available to meet the requirements of consumers and, potentially, public safety officials.

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[15] *See, e.g., Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services,* WT Docket No. 10-133, Fifteenth Report, FCC 11-103 (rel. June 27, 2011), at ¶ 46.

[16] *June 17 Vulcan Letter*, attached "Analysis and Recommendation," at 14 ("The Congressional Research Service predicts that carriers with common radio interfaces are expected to put the cost of public safety radios within the same price range as commercial high-end mobile devices ($500).").

[17] *See* L. Moore, Cong. Res. Serv., Public Safety Communications and Spectrum Resources: Policy Issues for Congress, at 8 (Sept. 1, 2010).

[18] *Id*. at 12.

At bottom, Vulcan's submission presents no transaction-specific arguments and no basis to ignore the interference issues reflected in the existing 700 MHz band plan.[19] Vulcan's advocacy here is simply a reprise of its efforts to have the Commission overturn the technical decisions of the 3GPP – and to do so many years after the determinations that formed the basis for enormous investments in LTE service development and deployment. But Vulcan's arguments ignore the Commission's traditional reliance on and non-interference with the standard-setting process and the public interest benefits arising from the resulting technological and commercial certainty, the participation of a broad range of industry participants in the 3GPP and other standard-setting bodies, and the extensive technological basis and origin (in a proposal by Motorola) of the Band 17 standard itself.[20] All of the benefits of the Commission's policy of non-interference and the industry's continued use and reliance on Band 17 – from superior service to faster LTE roll-out, from greater investment incentives to preserving the conditions for optimal future spectrum auctions – still apply. Nothing in the Vulcan submission undermines the basis for concluding that those public interest benefits exist or suggests any reason to undermine them by mandating that carriers use Band 12 rather than continue to use Band 17.

For all of these reasons, AT&T urges the Commission to approve the AT&T-Qualcomm transaction as soon as possible and without the imposition of the condition requiring AT&T to use Band 12 in its devices.

Sincerely,

/s/ Michael Goggin

[19] Vulcan concedes that Band 17 was adopted to address interference concerns. *See June 17 Vulcan Letter*, attached "Analysis and Recommendation," at 2 ("Interference concerns with these higher-power wireless licenses prompted the formation of Band 17, a subset of Band 12").

[20] On Motorola's proposal, *see* Motorola, RA 081108: Lower 700 MHz Band 15 [now Band 17], 3GPP TSG RAN WG4 Meeting #47, (April 2008). On the 3GPP process, the origins of Band 17, and the public interest benefits of not over-ruling the standard-setting body, *see* June 3, 2010 Letter of J. Marx, *supra*; *see also* Nov. 2, 2010 Letter of J. Marx, *supra*.