

Via Overnight Mail

June 11, 2010

Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

**Re: LG Opinion on 700 MHz Block A Good Faith Purchasers Alliance petition**

To Whom it May Concern:

LG Electronics MobileComm U.S.A., Inc. d/b/a LG Mobile Phones (“LG”) hereby submits this letter addressing the petition filed by the 700 MHz Block A Good Faith Purchasers Alliance (“Alliance”), which seeks an FCC mandate that mobile devices operating in the 700 MHz band be capable of operating on all paired commercial 700 MHz blocks and seeks an immediate freeze of all commercial 700 MHz equipment authorizations by the Commission until such interoperability is mandated.<sup>1</sup> The Petition should be denied because the requested regulatory intervention would, at minimum, delay mobile broadband deployment at 700 MHz and reduce the ultimate utility of 700 MHz-capable devices with respect to interoperability and roaming. More seriously, it would also threaten the long term viability of the 700 MHz band for new broadband services by unnecessarily complicating the design of 700 MHz devices and rendering such devices commercially unattractive. Additionally, LG urges the Commission to recognize that the 3<sup>rd</sup> Generation Partnership Project (“3GPP”) developed the LTE band classes in question through an open and collaborative process.

A global technology innovator, LG Electronics is the second-largest manufacturer of cellular phone handsets for the U.S. market and a major manufacturer of high-

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<sup>1</sup> See 700 MHz Block A Good Faith Purchasers Alliance, Petition for Rulemaking Regarding the Need for 700 MHz Mobile Equipment To Be Capable of Operating on All Paired Commercial 700 MHz Frequency Blocks, RM No. 11592 (filed Sept. 29, 2009) (“Petition”).

definition televisions and other consumer electronics and appliances. LG submits this letter to provide its perspective as a future manufacturer of 700 MHz mobile broadband devices and LTE innovator. LG stands ready and willing to work with any and all carriers, including members of the Alliance, to develop devices for operation on any of the 700 MHz mobile broadband blocks.

**I. Granting the Petition Would Delay the Availability and Reduce the Utility of Mobile Broadband Devices.**

The Commission should deny the petition because grant of the relief requested would hinder the development and slow the deployment of mobile broadband devices operating in the 700 MHz bands. Based on the record in this proceeding, there are no devices currently available, in production or even in development, that are capable of operation over all paired 700 MHz bands. Thus, LG agrees with the nearly unanimous opinion of the commenters that developing devices in conformity with the petition would require a significant amount of time, if it were possible at all.<sup>2</sup> At a time when the Commission has made unleashing the potential of mobile broadband a primary policy objective, granting the Alliance petition would be counterproductive. Furthermore, grant of the petition may preclude the manufacture of devices that are interoperable with legacy bands and capable of robust national and international roaming, harming the overall utility and consumer desirability of mobile broadband devices. Even the initiation of a rulemaking to examine these issues will have a chilling effect on equipment development by creating uncertainty as to the future legality of planned devices.

Regulatory intervention of the kind requested by the Alliance could potentially mandate a complete redesign of currently planned 700 MHz devices. If the significant technical challenges inherent in the petition are able to be overcome, the costs of both the original development effort and the Commission-mandated redesign would have to be recouped by manufacturers in the marketplace. Ultimately, the result of the petition could be the creation of 700 MHz mobile broadband devices that are too big, too expensive, have insufficient roaming capabilities and experience too much interference. When placed in the context of the wide range of choices consumers have for 3G and soon 4G mobile broadband services, this could seriously jeopardize the commercial viability of mobile broadband services on the 700 MHz band.

**A. The Petition Would Unacceptably Delay and Complicate the Development of 700 MHz Mobile Broadband Devices.**

As Qualcomm and Motorola explained in their comments,<sup>3</sup> manufacturers are not currently producing devices that are compliant with the Alliance's proposed rules, and to do so would mean unreasonable constraints and barriers for device developers. In

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<sup>2</sup> Even Alliance member Cellular South itself estimated that consumer equipment has a production cycle of 18-24 months. *See* Cellular South Comments at 5.

<sup>3</sup> *See* Qualcomm Comments at 4-5; Motorola Comments at 6-8.

developing mobile broadband devices, manufacturers make design decisions and trade-offs related to the number of bands on which the device can operate, reception quality, power consumption, size, heat produced and countless other factors. Simply put, granting the Alliance's petition would negatively affect all of these variables and would result in more expensive and lower quality devices that would not meet the demands of wireless consumers.

Additionally, grant of the petition may increase the susceptibility of 700 MHz band mobile broadband devices to harmful interference. The interference potential in the 700 MHz band is already a matter of concern due to the lack of guardbands between the various frequency blocks and the relatively narrow duplex spacing and duplex gap within the Lower and Upper 700 MHz bands. The Lower 700 MHz A Block itself has special interference concerns due to its proximity to high-powered transmissions from the Lower 700 MHz E Block and to DTV channel 51 operations. The A Block is also subject to a special regulatory restriction on desired to undesired signal ratios (D/U) to protect DTV channel 51.<sup>4</sup> All of these factors represent added engineering challenges that would need to be resolved, and that would likely require various design compromises, before any devices could be produced in compliance with the requested relief. LG respectfully disagrees with the conclusion of Wireless Strategy report that the primary interference concerns with respect to the Lower 700 MHz band can be addressed through simple base station coordination.<sup>5</sup> To the contrary, it is clear that resolving these issues may require substantial modification to device manufacture and network infrastructure plans, ultimately harming the speed and commercial viability of 700 MHz broadband deployments.

Various commenters have explained that interference in the 700 MHz band can be mitigated through the use of narrower duplex filters. However, grant of the Alliance petition would require wider, and thus less discriminating, duplex filters.<sup>6</sup> At a minimum, adoption of the requested rules would require the use of additional filters and other front-end components in currently planned mobile broadband devices. Notwithstanding the fact that some of these components may not even exist at this time, their addition would also essentially make some device form factors impossible and would render some other devices virtually unmarketable. For example, the additional components that would be required might make it difficult to offer mobile broadband USB dongles and PC Cards of size that would appeal to consumers. All of these factors would lead to significant delays in the introduction of 700 MHz devices.

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<sup>4</sup> See 47 C.F.R. § 27.60.

<sup>5</sup> See Wireless Strategy, LLC, *700 MHz Band Analysis* (May 6, 2010), attached to Letter from Mark A. Stachiw, Executive Vice President, General Counsel and Secretary, Metro PCS Communications, Inc. *et al.* to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 06-150, PS Docket No. 06-229, GN Docket No. 09-51, RM-11592 (filed May 10, 2010).

<sup>6</sup> See, e.g., Qualcomm Comments at 6.

Moreover, currently available and planned 700 MHz devices would be largely prohibited by a grant of the petition – effectively wasting tens of millions of dollars and countless hours of development efforts by manufacturers and wireless carriers. As Qualcomm noted, its most advanced 700 MHz chipsets, expected to be implemented in many of the first wave of 700 MHz enabled mobile broadband devices to come to market, would not even be capable of handling all of the 3GPP band classes that would be necessary to comply with the petition’s requested relief.<sup>7</sup>

**B. Granting the Petition Would Have Negative Consequences with Respect to Roaming and Legacy Band Interoperability.**

In addition to the delays and interference concerns discussed above, granting the petition may also hinder the manufacture of 700 MHz mobile broadband devices that provide support for legacy bands and for national and international roaming. Consumers, rightfully, have come to expect nearly seamless mobile communications, especially when they purchase a “nationwide” service plan. However, no carrier expects to deploy a nationwide 700 MHz mobile broadband network simultaneously and overnight, so the only way to meet consumer expectations is through device interoperability with legacy frequency bands. Thus, in addition to the 700 MHz band, it is expected that devices would require compatibility with legacy bands such as the 850 MHz cellular band, the AWS bands and the 1.9 GHz Broadband PCS band. And, in order to provide international roaming, additional bands will require support.

Each new band requires a complete transmit/receive chain and adds complexity and cost to the device. Contemporary chipsets are limited in the number of band classes with which they can be compatible, and even if a device could be developed that was compatible with all 700 MHz bands as well as numerous legacy and international bands, it is possible that compromises made in terms of size, power consumption and cost would make such a device undesirable to consumers.

The Commission should not take an action that might prevent carriers from offering the most desirable and valuable devices to their subscribers. Even the Alliance concedes in its Reply Comments that “it may not be feasible” for Verizon Wireless to create devices that are interoperable with its legacy network and provide for international roaming if it also had to abide by this request.<sup>8</sup> If devices that operate over all 700 MHz bands at the expense of legacy band interoperability and international roaming are indeed technologically viable and appealing to consumers, there is nothing stopping carriers from working with equipment developers to produce such devices. It does not, however, serve the public interest to compel the manufacture of devices to the specifications proposed in the Alliance petition if the consequence could be consumer rejection of 700 MHz devices as too expensive or insufficiently useful.

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<sup>7</sup> See Qualcomm Comments at 5.

<sup>8</sup> Alliance Reply Comments at ix.

## **II. The 3GPP Development Process Is Open and Participatory and Is Based on Engineering Realities.**

At the heart of the Alliance petition is a critique of the 700 MHz LTE band classes developed by the 3GPP. However, the fact is the 3GPP has been an open and collaborative organization in which development decisions are made based upon engineering realities. In the case of Bands 12 and 17, distinctions were made due to regulatory and interference limitations on the Lower 700 MHz A Block that were well known in advance of Auction 73. Grant of the requested relief would undermine the legitimacy of such development efforts, potentially hindering the goal of interoperability and reducing the rate of innovation.

The 3GPP band classes at issue in this petition, band classes 12, 13, 14 and 17, were designed based upon the unique characteristics of the 700 MHz band and its neighboring services. As Motorola explained in its comments,<sup>9</sup> in the case of band class 17, the decision to exclude the A Block was made in light of the potential for interference to and from other 700 MHz operations and DTV operations in channel 51, which would be heightened with the inclusion of the A Block. Interference is a particular challenge in the Lower 700 MHz A Block because of its adjacency to high powered Lower 700 MHz D Block transmitters on the device receive side, and to DTV channel 51 operations on the device transmit side. In addition to requiring heightened filtering to protect against D Block transmissions—which, as discussed above, would be made more difficult with a requirement that all 700 MHz bands be supported in devices—A Block operations must also meet with special regulatory obligations to protect DTV channel 51, and be able to tolerate interference from channel 51 transmitters.

The requested relief would undermine the legitimacy and financial viability of ongoing, consensus-based development efforts in favor of technology mandates—an approach the FCC rightly disfavors. Consumers have long benefited from the efforts of development bodies like 3GPP, which are able to dynamically harness expertise and effort from around the developer community to speed innovations to market. Development bodies, which include participation from all aspects of the industry, move more quickly and are more sensitive to shifts in consumer demand and technological capability than regulators could ever be.

The Commission appropriately deferred to standards organizations and other industry members to develop technical protocols and to address engineering challenges in the 700 MHz mobile broadband spectrum. There is no evidence that 3GPP was improperly influenced in developing the LTE band classes. In fact, as numerous parties have indicated, the decisions being made in the marketplace and by industry are engineering-driven. If the Commission supersedes the efforts of 3GPP in this case, it may have the effect of discouraging further industry participation in standards development bodies, ultimately slowing the pace of innovation in mobile communications.

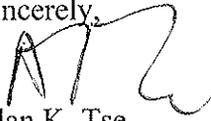
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<sup>9</sup> See Motorola Comments at 4-6.

### III. Conclusion

LG Mobile Phones supports efforts to stimulate the deployment of mobile broadband services through technology neutral policies and flexible service rules in the 700 MHz band. LG also shares the stated goal of the Alliance: to promote access to 700 MHz mobile broadband services for all consumers. However, as explained above, LG believes that the Alliance petition would actually slow the development of 700 MHz mobile broadband devices, may make those devices less useful and appealing to consumers overall, and could threaten the overall viability of commercial mobile broadband services on the 700 MHz band. Finally, the petition potentially could undermine standards development processes in mobile communications for the future. For these reasons, LG strongly urges the Commission to deny the petition.

Sincerely,

A handwritten signature in black ink, appearing to read 'ATse', written over a horizontal line.

Alan K. Tse  
Vice President, General Counsel