Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Notice of Proposed Rulemaking: Promoting Interoperability in the 700 MHz Commercial Spectrum; Interoperability of Mobile User Equipment Across Paired Commercial Spectrum Blocks in the 700 MHz Band	)	WT Docket No. 12-69

To: The Commission

COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

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I. INTRODUCTION

The Telecommunications Industry Association ("TIA") hereby submits comments to the Federal Communications Commission ("Commission") in the above-captioned proceeding.[1] TIA appreciates the opportunity to discuss the efficient use of spectrum in the commercial 698-746 MHz band ("Lower 700 MHz band") and to address the issues associated with the proposed technology mandate that a single band class of devices be required in order to utilize the Lower 700 MHz band. TIA urges the Commission to reject such a mandate, as it will present significant technical and interference problems, severely delay the availability of wireless devices in the 700 MHz spectrum, and violate the Commission's policy of technology neutrality.

TIA represents the global information and communications technology ("ICT") industry through standards development, advocacy, tradeshows, business opportunities, market intelligence and world-wide environmental regulatory analysis. Its hundreds of member companies manufacture or supply the products and services used in the provision of broadband and broadband-enabled applications. Since 1924, TIA has enhanced the business environment for broadband, mobile wireless, information technology, networks, cable, satellite and unified communications. TIA's standards committees create consensus-based voluntary standards for numerous facets of the ICT industry, for use by both private sector interests and government,

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[1] Promoting Interoperability in the 700 MHz Commercial Spectrum; Interoperability of Mobile User Equipment Across Paired Commercial Spectrum Blocks in the 700 MHz Band, *Notice of Proposed Rulemaking*, FCC 12-31, WT Docket No. 12-69 (Mar. 21, 2012) ("NPRM").

which fall within the purview of the Petition.[2] Among other areas, TIA's standards committees develop protocols and interface standards relating to current U.S. Government technology priorities such as Smart Grid,[3] health care ICT,[4] and emergency communications infrastructure[5] in such areas as fiber optics, public and private interworking, telecommunications cable infrastructure, wireless and mobile communications, multimedia and voice over internet protocol ("VoIP") access.

II. CONSTRAINTS TO ACHIEVING INTEROPERABILITY

The NPRM seeks comment on the 700 MHz Good Faith Purchasers' and other proponents' argument that an interoperability mandate in the 700 MHz band is necessary to obtain affordable, advanced mobile devices to deploy service to consumers in smaller, regional, and rural service areas, and seeks to determine if an interoperability requirement would help

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[2] TIA publishes an annual report that includes the latest actions taken by each respective TIA engineering committee toward the development of standards for the advancement of global communications. *See* TIA, Standards & Technology Annual Report (September 2010), *available at* http://tiaonline.org/standards/about/documents/StarReport_09-10.pdf.

[3] TIA's TR-50 (Smart Device Communications) is responsible for the development and maintenance of access agnostic interface standards for the monitoring and bi-directional communication of events and information between smart devices and other devices, applications or networks. *See* http://tr50.tiaonline.org.

[4] TIA's TR-49 (Healthcare ICT) is responsible for development and maintenance of standards for the healthcare ICT applications which involve medical devices, network infrastructure, applications, and operations support. *See*http://tr49.tiaonline.org.

[5] Engineering Committee TR-8 formulates and maintains standards for private radio communications systems and equipment for both voice and data applications. TR-8 addresses all technical matters for systems and services, including definitions, interoperability, compatibility, and compliance requirements. The types of systems addressed by these standards include business and industrial dispatch applications, as well as public safety (such as police, ambulance and firefighting) applications. *See* http://tr8.tiaonline.org. (is this paragraph font different?)

enable Lower A Block licensees to benefit from economies of scale with respect to mobile devices, and what the benefits would be to consumers.[6]

Device manufacturers face significant technical hurdles to create devices that can operate across all 700 MHz bands. For example, additional components such as filters, power amplifiers, and switches, would need to be inserted into wireless devices. This concern is exacerbated by the fact that, in order to ensure compliance with an interoperability mandate, handsets may be unable to roam onto other bands for national and international service. The number of bands which can be supported by a wireless device are limited, and a handset likely cannot support both roaming and operation across all 700 MHz bands. As Commenters have previously made clear, technical and market-based concerns will result in stifled innovation, slowed introduction of devices capable of operating in the 700 MHz block, and increased cost to consumers.[7]

As a result of these factors, an interoperability mandate will delay production of 700 MHz wireless devices. Moreover, the development of new designs and technical attributes of such devices will dramatically escalate the cost of these devices and significantly delay introducing them into the market. As AT&T has made clear, improved handset technologies cannot evolve under a strict regulatory regime: "designing, manufacturing, and deploying

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[6] *See* NPRM at ¶ 21.

[7] *See, e.g.,* Comments of Qualcomm, Inc., RM-11592 (filed Mar. 31, 2010) at 1-2; *see also* Comments of Motorola, RM-11592 (filed Mar. 31, 2010) at 2-3 (noting that the "Alliance petition, by increasing the complexity of these devices and potentially nullifying efforts that are well underway, would delay the development of mobile broadband devices and would threaten mobile broadband network deployment.") ("Qualcomm Comments"); *see also* Comments of Verizon Wireless, RM-11592 (filed Mar. 31, 2010) at ii ("There would be no better way to frustrate and delay the development of wireless broadband, and drive up costs of devices to consumers, than by taking up the Alliance's Petition.").

handsets is not a process that is conducive to regulatory mandates, as it requires a balancing of many factors, such as a carrier's business plans, spectrum holdings, desired handset form and size, and cost."[8]

The NPRM appropriately identifies a number of technical and operational factors that should be taken into consideration in any transition to an interoperable Lower 700 MHz band:

- That Band Class 12 devices (as opposed to Band Class 17 devices) would force customers to use devices that would expose them to interference risks (from Channel 51 and the E Block). [9]
- That reverse intermodulation interference could happen when Band Class 12 devices are close to high-powered Channel 51 transmission towers, which could result in in-band interference due to the limited radio frequency (RF) filtering capability of Band Class 12 filters.)[10]
- That solutions exist to mitigate Channel 51 interference concerns to Band Class 12 devices operating in the B and/or C Blocks. For example, power amplifier linearity in a mobile device improves considerably when it is not transmitting at full power, or if the device transmitted bandwidth is less than five megahertz, then intermodulation products resulting from the combination of Channel 51 and Lower 700 MHz band C Block transmit frequencies would not cause intermodulation interference. Additionally, if intermodulation interference is experienced, wireless operators may deploy an LTE base station several hundred meters away from the Channel 51 station to control device transmit power and provide a stronger downlink desired signal. [11]

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8 Comments of AT&T, RM-11592 (filed Mar. 31, 2010) at 8.

9 *See* NPRM ¶ 33.

10 *See* NPRM ¶ 34.

11 *See* NPRM ¶ 35.

It is also possible that interference will result from requiring handsets to operate in all 700 MHz bands, as there are almost no guard bands between any of the individual frequency blocks in the Lower and Upper 700 MHz bands.[12] Furthermore it has been noted that "…the duplex spacing and gap within the Lower and Upper 700 MHz bands is relatively narrow. This interference can be mitigated through the use of narrower filters in the duplexer(s)."[13] Such filters will be used to support the Lower and Upper 700 MHz band operations. However, the requirements of the Alliance Petition necessitate using wider filters, which only increase the potential for interference. These concerns, and the resulting required redesign of wireless devices, make the Alliance Petition's proposed relief and any mandate of interoperability in the Lower 700 MHz band impractical and costly.

The Commission should not assume that the current handset technology can, on its own, resolve these interference limitations in a meaningful way. While technology will evolve, it takes considerable time for new technology to be proven and designed into products ready for sale. At the same time, new demands are constantly being put on technology to solve new challenges. Mitigating these limitations, including the potential harmful interference that the Commission acknowledges, is an essential precondition to making inoperable devices available.

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12 Qualcomm Comments at 6.

13 *Id*.

III. THE PROPOSED MANDATES VIOLATE THE COMMISSION'S POLICY OF TECHNOLOGY NEUTRALITY.

If the Commission were to impose a device interoperability mandate in the 700 MHz band, it would be reversing its policy of technology neutrality. By requiring all wireless devices to operate in all of the 700 MHz bands, licensees will be limited in their ability to change air interfaces. Under this proposal, should a licensee of a paired 700 MHz block change its air interface, thereby precluding the use of devices not compatible with the air interface of another band, those devices would become unlawful, and the technology-neutral policy of allowing carriers to change air interfaces would be thwarted.[14] Thus, requiring a device interoperability mandate would restrict the ability of manufacturers and carriers to create innovative products for the benefit of consumers.

The FCC's continued light-touch approach to regulations will ensure continued investment in a technology neutral manner, as well as provide certainty in the marketplace. As TIA has long advocated, technology mandates undermine investment incentives, hamstring innovation, and increase consumer costs, resulting in such negative outcomes as forcing providers to deploy least-common denominator solutions.[15]

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[14] *See* Comments of Qualcomm at 6-7.

[15] *See, e.g.*, Comments of TIA, CS Docket No. 97-80, PPC Docket No. 00-67 (Jun. 14, 2010).

IV. CONCLUSION

For the foregoing reasons, we urge the Commission to adopt policies consistent with the above recommendations.

Respectfully submitted,
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