



Competitive Carriers Association
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June 7, 2016

BY ELECTRONIC FILING

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

Re: NOTICE OF EX PARTE

GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95: *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*; WC Docket No. 16-70: *Applications of XO Communications, LLC and Verizon Communications Inc. for Transfer of Control of Licenses and Authorizations*; WC Docket No. 16-143, WC Docket No. 15-247, WC Docket No. 05-25, RM-10593: *Business Data Services in an Internet Protocol Environment*; GN Docket No. 12-354: *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*

Dear Ms. Dortch:

In light of the Chairman's statements that he intends to release an order in the *Spectrum Frontiers* proceeding by the end of the summer,¹ Competitive Carriers Association ("CCA") seeks to expand its advocacy with respect to several recent developments relevant to this proceeding. CCA is the nation's leading association for competitive wireless providers and stakeholders across the United States. CCA's membership includes nearly 100 competitive wireless providers ranging from small, rural carriers serving fewer than 5,000 customers to regional and national providers serving millions of customers. CCA also represents approximately 200 associate members including vendors and suppliers that provide products and services throughout the mobile communications supply chain. Additional spectrum opportunities and a competitive business data services landscape are critical to developing and deploying new technologies for all members of the wireless ecosystem.

The *Spectrum Frontiers* NPRM identified spectrum bands above 24 GHz mobile service (referred to as the "above 24 GHz bands"), and sought comment on proposed service rules in those bands.² In reply comments to the NPRM, CCA encouraged the Federal Communications Commission ("FCC" or "Commission") to: (1) create a flexible and evolving standard of aggregation

¹ See *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, Notice of Proposed Rulemaking, FCC 15-138, 30 FCC Rcd. 11,878, (rel. Oct. 23, 2015) ("*Spectrum Frontiers* NPRM" or "NPRM"); see also Monica Allevan, *Wheeler: U.S. will allocate 5G spectrum 'faster than any nation on the planet,'* FIERCE WIRELESS TECH (Mar. 2, 2016), available at <http://www.fiercewireless.com/tech/story/wheeler-us-will-allocate-5g-spectrum-faster-any-nation-planet/2016-03-02>.

² NPRM at 3.

for higher band frequencies to prevent further consolidation in all bands; (2) license spectrum in small geographic sizes (county-size, or, in the alternative, Partial Economic Areas); and, (3) require interoperability across contiguous blocks of spectrum.³ Particularly, CCA espoused licensing the 37 and 39 GHz bands under a single licensing regime and a ten-year license period with a renewal expectancy for all licenses in the 28, 37, and 39 GHz bands.⁴ CCA also opposed a “use it or share it model” for the 28, 37, and 39 GHz bands, in favor of a “substantial service” standard and flexible construction requirements.⁵

Since then, carriers, vendors, and the FCC have more closely examined the technical parameters of 5G networks and Internet of Things (“IoT”) deployments through special temporary authorities (“STAs”), experimental licenses, and other testing. This greater understanding of 5G and IoT and new industry priorities since the close of the FCC’s *Spectrum Frontiers* comment cycle have shed further light on issues the Commission raised in its *NPRM*.

In particular, the pending *Verizon-XO Communications* transaction raises concerns about aggregation of key high-bandwidth spectrum in the 39 GHz bands.⁶ Given a history of consolidation at lower bands, the FCC should proceed cautiously by imposing a separate spectrum screen for each of the above 24 GHz bands. Moreover, the proposed business data services (“BDS”) reforms and the FCC’s treatment of backhaul are instrumental to the success of 5G network deployment in the above 24 GHz bands.⁷ To ensure the success of 5G deployment in these bands, the FCC must conclude the *BDS* proceeding with actions that make BDS available at competitive rates, terms and conditions.

Finally, the FCC recently finalized rules that create a hybrid sharing regime for the Citizens’ Broadband Radio Service (“CBRS”) in the 3.5 GHz band.⁸ However, the rules adopted to govern 3.5 GHz would not optimize use of the above 24 GHz bands given their technical parameters. CCA therefore cautions the Commission against applying similar rules in the *Spectrum Frontiers* proceeding.⁹ Instead, the FCC should develop clear and flexible license terms and conditions to promote the most productive use of this promising spectrum.

³ Reply Comments of Competitive Carriers Association at 9 and 12, GN Docket No. 14-177, WT Docket No. 10-112 (filed Feb. 26, 2016) (“CCA Reply Comments”).

⁴ *See id.* at 3, 8.

⁵ *Id.* at 11.

⁶ *See* Comments of Competitive Carriers Association at 5, ULS File No. 0007162285 (filed May 3, 2016) (“CCA Comments in Verizon-XO Spectrum Lease”).

⁷ *See, e.g.*, Petition to Deny of Dish Network Corporation at 11-12, WC Docket No. 16-70 (filed May 3, 2016) (“Dish Petition”).

⁸ *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band, Order on Reconsideration and Second Report and Order*, FCC 16-55, (rel. May 2, 2016) (“3.5 GHz *Second Report and Order*”).

⁹ *See* Comments of Competitive Carriers Association, WT Docket No. 16-137 at 14-17 (filed May 31, 2016) (“CCA 19th Mobile Competition Report Comments”).

I. The FCC Must Prevent Aggregation of High-Band Spectrum.

CCA urges the Commission to implement a separate spectrum screen for each band in the *Spectrum Frontiers* proceeding to avoid harmful aggregation.¹⁰ This action is critical to prevent dominant providers from edging out competitive providers in the high-band spectrum market. Indeed, Verizon Wireless already has taken steps to obtain use of—and potentially acquire—valuable local multipoint distribution service (“LMDS”) spectrum and 39 GHz spectrum through its proposed transaction with XO Communications (“XO”). Recent announcements that carriers are using these high frequency bands for testing to deploy 5G make it even more important for the FCC to prevent ownership consolidation that occurred in lower bands.

The pending Verizon-XO transactions demonstrate the need to monitor consolidation of high-band spectrum.

Through both auctions and the secondary market, dominant carriers have amassed the vast majority of “greenfield” spectrum.¹¹ Secondary market transactions threaten early ownership consolidation of key high-band spectrum and critical wireline resources. The proposed *Verizon-XO* transactions could result in early consolidation of key spectrum.¹² Verizon and XO are seeking approval to transfer control of both wireline and spectrum assets through two separate proceedings: a *de facto* lease of LMDS and 39 GHz licenses, and a transfer of control of XO’s wireline business. CCA filed comments in both proceedings, emphasizing the need for careful review of these transactions together.¹³

As CCA explained, this transaction, if approved, would give Verizon control over the lion’s share of LMDS spectrum, as well as the option to purchase that spectrum.¹⁴ Currently, XO holds licenses covering 65% of the POPs for 28 GHz spectrum in the top 60 markets nationwide.¹⁵ This spectrum is key to testing 5G applications and IoT technologies. Further, as DISH explained in its Petition to Deny the transaction:

¹⁰ CCA Reply Comments at 13–14.

¹¹ See CCA Reply Comments at 18 (citing to *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. 15-125, Eighteenth Mobile Competition Report, DA 15-1487, ¶ 21 (rel. Dec. 23, 2015)).

¹² *Applications Filed for the Transfer of Control of XO Communications, LLC to Verizon Communications Inc., Pleading Cycle Established*, Public Notice, DA 16-393, WC Docket No. 16-70 (2016) (“Verizon-XO Transaction”); *Cellco Partnership d/b/a Verizon Wireless and Nextlink Wireless, LLC, a Subsidiary of XO Holdings, Seek FCC Consent to a Long-Term De Facto Transfer Spectrum Leasing Arrangement Involving Local Multipoint Distribution Service and 39 GHz Spectrum*, Public Notice, DA 16-394 (Apr. 12, 2016) (“Verizon-XO Spectrum Lease”).

¹³ See Comments of Competitive Carriers Association, WC Docket No. 16-70 (filed May 12, 2016) (commenting on Verizon and XO Communications’ transfer of control application); CCA Comments in Verizon-XO Spectrum Lease (commenting on Verizon and Nextlink Wireless’ *de facto* transfer leasing application).

¹⁴ CCA Comments in Verizon-XO Spectrum Lease at 5.

¹⁵ See *id.* at 5 and Attachment A.

[t]he LMDS and 39 GHz bands are already being considered for [...] 5G applications. In fact, these bands could be important for early 5G deployments by existing operators looking to augment their networks anchored by sub-3 GHz spectrum. Recent experimental testing has demonstrated the high-speed capabilities of a 5G network that incorporates the LMDS band.¹⁶

Whether through lease or purchase, the timing of Verizon’s acquisition of this valuable spectrum in the LMDS and 39 GHz bands is no coincidence. Dish rightly recognized that:

[b]y acquiring control over these wireless assets, Verizon can apply them to its own (and potentially exclusively to its own) 5G business plans—indeed, the company already has plans to test the LMDS and 39 GHz bands for 5G applications, and has already secured the testing authority from the FCC for the LMDS band.¹⁷

Verizon’s *de facto* control over the LMDS and 39 GHz spectrum not only “eliminate[s] XO as a separate user of these bands, but also would make it hard for anyone else to gain sufficient access to that spectrum to compete with Verizon.”¹⁸ LMDS spectrum is a valuable resource that should not be monopolized by one carrier, especially before the *Spectrum Frontiers* proceeding has concluded.

Concerns with Verizon’s acquisition of XO’s LMDS and 39 GHz spectrum are compounded by the transfer of control of XO’s wireline business, which will eliminate yet another competitive wireline provider from the marketplace.¹⁹ CCA agrees with the concern Dish has flagged regarding the potential problems if these two transactions proceed together: “The transactions would cause significant vertical effects by allowing Verizon to gain control of many inputs needed by Verizon itself as well as its competitors for the provision of CMRS service.”²⁰ As Dish notes, Verizon is a major provider of backhaul and transit services, but it also leases fiber capacity in markets it does not serve.²¹ Verizon’s two transactions—“acquiring XO and obtaining control over Nextlink’s spectrum authorizations,” will reduce Verizon’s “dependence on leased fiber and wireless backhaul from competitors, and conversely would increase its competitors’ dependence on Verizon.”²² This could

¹⁶ Dish Petition at 15. *See also* Press Release, Samsung Electronics Sets 5G Speed Record at 7.5Gbps, Over 30 Times Faster Than 4G LTE, Samsung (Oct. 15, 2014), *available at* <http://www.samsung.com/global/business/networks/insights/news/samsung-electronics-sets-5g-speed-record-at-7-5gbps-over-30-times-faster-than-4g-lte>; Press Release, Verizon and Nokia Conduct Live 5G Pre-Commercial Trial in Dallas-Fort Worth, Nokia (Feb. 22, 2016), *available at* <http://networks.nokia.com/newsevents/press-room/press-releases/verizon-and-nokia-conduct-live-5g-pre-commercial-trial-indallas-fort-worth-mwc16>.

¹⁷ Dish Petition at 16.

¹⁸ *Id.*

¹⁹ *See* Dish Petition at 11-12. The competitive effect of equitably-allocated above 24 GHz spectrum likely will be diminished if the backhaul market is consolidated and uncompetitive. Because the Verizon-XO transfer of control will eliminate another wireline competitor, the transaction could negatively impact the BDS market.

²⁰ *Id.* at 11.

²¹ *Id.*

²² *Id.* at 11-12.

give Verizon “substantial market power, permitting it to increase the cost of backhaul for mobile carriers.”²³

Competitive access to high-band spectrum is necessary for 5G development.

Verizon and XO claim their spectrum leasing arrangement will serve the public interest by “jump-starting testing and research of 5G technologies.”²⁴ While Verizon certainly has vast resources at its disposal with which to conduct 5G research, this should not justify aggregated ownership of LMDS spectrum, much less other high-frequency bands. Instead, failure to protect against spectrum aggregation is harmful to competitive carriers who need access to upper centimeter and millimeter waver (“mmW”) bands to deploy competitive offerings to consumers. This, in turn, could have the unfortunate impact of diminishing competition for 5G development.

Competitive carriers also are currently investing in and testing 5G applications, and action taken in the *Spectrum Frontiers* proceeding should support further testing, not deter it. Many of these competitive carriers have recently filed applications with the Commission seeking STAs to test prototype 5G equipment in limited areas. For example, Nokia recently filed an experimental application to test at C Spire headquarters in Mississippi. The tests will begin in July and will use Nokia prototype equipment to conduct 5G tests between 68 GHz and 76 GHz spectrum.²⁵ T-Mobile also has filed requests seeking FCC permission to test 5G technologies on 28 GHz spectrum.²⁶ Similarly, Sprint has paired with Nokia and Ericsson to perform 5G demonstrations in Santa Clara, California and Philadelphia, Pennsylvania in June.²⁷ Sprint’s demonstration with Nokia will take place on the 68 to 76 GHz spectrum bands, while its demonstration with Ericsson will take place in the 14.5 to 15.35 GHz bands.²⁸ Finally, AT&T has announced plans to conduct 5G tests with Ericsson on 14.5 to 15.35 GHz bands in Austin, Texas.²⁹

²³ *Id.* at 20.

²⁴ Joint Opposition of Verizon and Nextlink Wireless to Petitions to Deny and Comments at 1, ULS File No. 0007162285 (filed May 13, 2016).

²⁵ See Diana Goovaerts, *C Spire, Nokia Team Up on 5G Tests in Mississippi*, WIRELESS WEEK (May 11, 2016 11:42 AM), available at <http://www.wirelessweek.com/news/2016/05/c-spire-nokia-team-5g-tests-mississippi>.

²⁶ See Diana Goovaerts, *Verizon, T-Mobile Seek Permission to Test 5G Tech at 28 GHz*, WIRELESS WEEK (Mar. 29, 2016 12:47 PM), available at <http://www.wirelessweek.com/news/2016/03/verizon-t-mobile-seek-permission-test-5g-tech-28-ghz>.

²⁷ See Diana Goovaerts, *Sprint Hops on 5G Trial Train with Tests at Soccer Events in Philly, Santa Clara*, WIRELESS WEEK (May 5, 2016 11:22 AM), available at <http://www.wirelessweek.com/news/2016/05/sprint-hops-5g-trial-train-tests-soccer-events-philly-santa-clara>.

²⁸ *Id.*

²⁹ See Diana Goovaerts, *AT&T Seeks License for 5G Field Testing*, WIRELESS WEEK (Feb. 4, 2016 6:26 PM), available at <http://www.wirelessweek.com/news/2016/02/t-seeks-license-5g-field-testing>; see also, Andrew Berg, *AT&T Announces 5G Field Trials in Austin*, WIRELESS WEEK (Feb. 2016), available at <http://www.wirelessweek.com/news/2016/02/t-announces-5g-field-trials-austin>.

The Commission should reward competitive carriers for their investment, instead of allowing dominant carriers to secure an outsized share of mmW spectrum. Recent activity in these higher bands demonstrates that the above 24 GHz spectrum will be essential for 5G deployment. To ensure a competitive landscape for 5G deployment, the Commission should prevent consolidation of this valuable spectrum by dominant carriers.³⁰

II. The Outcome of the Commission’s BDS Proceeding Will Impact the Success of 5G Deployment in Spectrum Frontiers Bands.

The success of the *Spectrum Frontiers* proceeding is inextricably tied to the outcome of the *BDS* proceeding. As Chairman Wheeler has recognized, “access to competitive backhaul is important to the buildout of wireless networks, to investment in wireless networks and to the creation of 5G – the next step in wireless innovation.”³¹ Likewise, Commissioner Clyburn rightly noted that:

[BDS is] a necessary input for mobile broadband service as these networks are only wireless until they hit the cell tower at which point they become reliant on wireline backhaul. A fast wireless network needs high capacity wireline connectivity when it reaches that tower. If such facilities are not in place, service could slow as soon as it reaches those backhaul facilities. And if rates for backhaul connectivity are unreasonable, providers must either pay more or offer consumers slower speeds. Either way, consumers and their communities are disadvantaged.³²

As the telecommunications industry moves toward 5G network implementation by allocating and licensing high-band spectrum, it is essential that the Commission lay the foundation for the wide-scale, cost-effective delivery of even greater swaths of data.

In its latest *BDS Order*, the Commission recognized that backhaul “is critical to the ability of wireless carriers to expand and operate their networks today and will be even more critical as the advent of 5G wireless drives the creation of the dense thicket of cell sites that will be needed to deliver high bandwidth wireless services.”³³ Sprint has provided further detail explaining that:

as mobile broadband networks transform into a video platform, Ethernet backhaul will continue to grow in importance. The mobile broadband network of the future will require large network ‘densification’ investments to address exploding consumer demand for wireless data services. Densification will require Sprint to deploy tens of thousands of new cell sites. Every one of these sites will require additional backhaul—and Sprint and other

³⁰ See CCA 19th Mobile Competition Report Comments at 22.

³¹ *Business Data Services in an Internet Protocol Environment*, Tariff Investigation Order and Further Notice of Proposed Rulemaking, FCC 16-54, Statement of Chairman Tom Wheeler at 1 (2016) (“*BDS Order*”).

³² *Id.*, Statement of Commissioner Mignon L. Clyburn at 1.

³³ *BDS Order* at 3 ¶ 5.

competitors will depend on both TDM and Ethernet special access more than ever to be able to compete.³⁴

As data demands on competitive carriers grow so too does carrier backhaul capacity demands. Indeed, wireless backhaul with capacities at and above 50 Mbps—and rapidly increasing—is necessary to meet growing wireless usage.

Importantly, the benefits of 5G technology will not be realized without competitive backhaul pricing. Backhaul costs constitute roughly 30 percent of the operating costs of a wireless service.³⁵ Dish has highlighted “[t]he difficulty of identifying affordable backhaul has been a key obstacle to small cell deployment.”³⁶ And as Sprint has explained, “competitive wireless carriers rely on special access for the backhaul links that connect cell sites to the Internet and the switched telephone network. For competitive carriers, backhaul is already an enormous cost factor and will be well into the future.”³⁷ Access to backhaul that is effective and financially-viable is critical as competitive carriers look toward deploying 5G.³⁸

Carriers and policy makers already are planning ahead for 5G, which is expected to debut in 2020.³⁹ In recent months, due in large part to the efforts of certain industry stakeholders and the Commission itself, the importance of backhaul and other BDS resources has been duly highlighted as the core of next generation technology implementation, particularly IoT. CCA urges the Commission to act quickly to resolve the *BDS* proceeding and to ensure that high-capacity BDS services, including wireless backhaul, are available at competitive prices and with reasonable terms and conditions.

III. License Terms and Conditions for Above 24 GHz Spectrum Bands Must Promote Productive Use of this Promising Spectrum.

To optimize investment and development in the above 24 GHz spectrum bands, licensees need terms and conditions that will ensure flexibility for productive development of technology and full use of the bands. CCA urges the Commission to utilize a traditional licensing scheme for this spectrum that will give licensees assurance of their rights to fully use the spectrum. CCA also

³⁴ See *Ex Parte* Letter from Paul Margie, Walter Anderson, and V. Shiva Goel, Counsel to Sprint Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission, at 1, WC Docket No. 05-25 (filed Sept. 23, 2015) (“Sprint Letter”).

³⁵ *Annual Report of Competitive Market Conditions For Commercial Mobile Wireless*, DA 15-1487, 30 FCC Rcd. 14, 515, 14,564 ¶ 69 (2015).

³⁶ Dish Petition at 19.

³⁷ Sprint Letter at 1.

³⁸ See *Ex Parte* Letter from Jennifer P. Bagg, Counsel to Sprint Corporation, Harris Wiltshire & Grannis, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25 at 1 (filed May 26, 2016) (describing a Sprint-initiated Ethernet pricing model to evaluate offers for fiber-based BDS backhaul to cellular sites, and finding that the pricing model “clearly establish[es] that competition is not adequately disciplining incumbent prices for Ethernet-based BDS at and above 50 Mbps, and illustrat[es] how the broken marketplace for BDS diminishes wireless competition...”).

³⁹ *BDS Order* at 35 ¶ 78.

reiterates that rules that provide for interoperability and flexible, technology-neutral innovation are needed to enable full utilization of this spectrum.

The FCC should establish a traditional licensing scheme.

CCA explained in reply comments to the *Spectrum Frontiers* proceeding that clear and flexible rules are necessary to encourage investment and development in the high-band spectrum.⁴⁰ To date, the industry and the Commission cannot yet predict how technology will develop for these bands. To ensure innovation is not stymied in these spectrum bands, licensees need a clear regime within which to create. As noted above, CCA applauds the Commission for its work in the *3.5 GHz* proceeding.⁴¹ That band required accommodating federal incumbents and many other existing licensees, which is no small task. CCA always welcomes increased spectrum licensing opportunities for competitive carriers. Nonetheless, the Commission should recognize that many rules adopted governing the CBRS on the 3.5 GHz band would not optimize use of the above 24 GHz spectrum in this proceeding and should not be applied to these bands. In particular, while CCA does not object to innovative sharing mechanisms as a matter of principle, the most productive use of spectrum bands above 24 GHz is a mix of both exclusive licenses and completely unlicensed bands.⁴²

The FCC should not adopt a hybrid sharing regime styled after the CBRS for the above 24 GHz bands.⁴³ Because of the propagation characteristics of the upper centimeter and mmW bands, licensees and stakeholders will need to develop and apply unique technology to fully access and use those bands. These characteristics are not present to the same extent for the 3.5 GHz band and, therefore, different treatment is warranted. In addition, the spectrum bands above 24 GHz do not raise the same sharing concerns as the 3.5 GHz band. As T-Mobile notes in its *Spectrum Frontiers* reply comments,

[u]nlike the rationale for use of an [Spectrum Access System Administrator] (“SAS”) in the 3.5 GHz band, there is no need to protect incumbent federal radar operations in millimeter wave bands. Moreover, the type of protection that may be required in the millimeter bands – for fixed operations – can be achieved with a far less burdensome and complicated approach than SAS.⁴⁴

As a practical matter, the SAS administrators and Environmental Sensing Capability (“ESC”) operators developed in the *3.5 GHz* proceeding is not a proven concept, and should not be included in above 24 GHz spectrum management rules, particularly where the same sharing concerns do not exist.

⁴⁰ CCA Reply Comments at 3.

⁴¹ See, e.g., *3.5 GHz Second Report and Order*, see also CCA 19th Mobile Competition Report Comments at 15-17.

⁴² CCA Reply Comments at 6.

⁴³ See *3.5 GHz Second Report and Order* at ¶ 1.

⁴⁴ Reply Comments of T-Mobile USA, Inc. at 12–13, GN Docket No. 14-177, WT Docket No. 10-112 (filed Feb. 26, 2016).

Clear terms and practical performance obligations are needed.

Perhaps most importantly, licensees need assurance that they will have licenses for a sufficient amount of time and will not lose access to this spectrum due to undefined usage terms. Many members are discouraged from investing heavily in the 3.5 GHz band as a result of the three-year license term offered to Priority Access Licensees (“PALs”).⁴⁵ For this reason, CCA maintains that a ten-year license term with renewal expectancy for above 24 GHz spectrum is appropriate, and will result in the most productive use of this promising spectrum.⁴⁶

It is important that the Commission adopt performance requirements that licensees can practically implement. In the latest *3.5 GHz Second Report and Order*, the definition and application of the “use” requirement has led to uncertainty among CCA members.⁴⁷ More certainty in the *Spectrum Frontiers* proceeding is needed to encourage investment in higher spectrum bands, particularly where a vast majority of the spectrum will require research and development of new technology to fully implement the bands. CCA therefore continues to oppose the “use or share it” approach, which discourages investment and reduces certainty and flexibility.⁴⁸

Interoperability is critical to supporting new technologies for 5G deployment and IoT development.

As various working groups examine the future of technology and IoT, interoperability increasingly is recognized as a key consideration to ensure IoT viability.⁴⁹ CCA commends the Commission for steps it has taken in other proceedings to mandate interoperability.⁵⁰ CCA continues to support the Commission’s proposal to require interoperability across the 28 GHz band, and the 37 and 39 GHz bands.⁵¹

5G policies should enable flexible and technology-neutral innovation.

The Commission should resist prioritizing a certain category or application of technology over another, at least until 5G’s contours are more firmly defined. In the coming years, 5G technology will no doubt evolve as testing and development continue. Technologies and applications that look promising today may ultimately be laid aside in favor of better options. Any

⁴⁵ See e.g., *3.5 GHz Second Report and Order* at ¶¶ 39-40 (noting CTIA’s petition for reconsideration to extend the PAL license terms because the three-year term “does not provide operators sufficient time or assurance to realize a return on investment”).

⁴⁶ CCA Reply Comments at 8.

⁴⁷ See e.g., *3.5 GHz Second Report and Order* at ¶¶ 164-173, 180.

⁴⁸ CCA Reply Comments at 11.

⁴⁹ See, e.g., Dibya Sarkar, *Rapid IoT Changes Need Light Regulatory Touch, Industry, Government Officials Say*, COMMUNICATIONS DAILY (May 12, 2016) (noting remarks of Representative Suzan DelBene, D-Wash, made at Wiley Rein-McBee policy roundtable on regulating IoT, that Congress must look at interoperability when addressing IoT implementation).

⁵⁰ See, e.g., Promoting Interoperability in the 700 MHz Commercial Spectrum, Small Entity Compliance Guide, DA 14-397, 29 FCC Rcd. 3098 (rel. Mar. 24, 2014).

⁵¹ NPRM at ¶¶ 295-96; CCA Reply Comments at 12.

attempt by the FCC to pick winners and losers at this early stage in 5G's development would hinder innovation and remove incentives to push 5G to its full potential.

For example, CCA members have carefully monitored developments in the upper 5 GHz band, which largely has been cordoned off for use by the automotive industry. Early research into “intelligent transportation” services in the late 1990s had focused on the potential of dedicated short range communications (“DSRC”) to facilitate vehicle-to-vehicle signaling for safety applications. In 1999, the FCC allocated 75 MHz of spectrum (from 5850 to 5925 MHz) for licensed use by DSRC technology.⁵² That spectrum then lay fallow for more than a decade, even as new safety technologies were developed that could replicate or surpass DSRC's capabilities.⁵³ Large-scale, real-world testing of DSRC did not begin until late 2012, and the technology still has not been deployed. While CCA welcomes the rise of “connected cars” utilizing spectrum to relay information, CCA encourages the Commission to release new spectrum licenses on a technology-neutral basis. Had the Commission taken that approach in 1999, the spectrum dedicated to DSRC might already be in use for other important applications and still available for DSRC implementations when ready for public consumption.

The Commission can draw lessons from the DSRC experience as it considers how best to facilitate the expansion of IoT. IoT has already grown beyond the confines of smart appliances to encompass a broad range of applications, including connected health, distance education, industrial sensors, and precision agriculture.⁵⁴ While the Commission surely can envision a world where IoT applications demand vast spectrum resources, it cannot predict what (or when) particular new technology and applications will generate that demand. To avoid setting aside spectrum for IoT technologies that later may be surpassed or altered, or those that are not yet ready for deployment, the Commission should license new spectrum based on technical parameters and interference risk instead of targeting a particular industry sector or application.

The *Spectrum Frontiers* proceeding is key to laying the groundwork for 5G deployment in the United States. Recent developments in the industry make clear that the FCC should carefully consider the importance of implementing a spectrum screen for high frequency bands, the significance of the *BDS* proceeding on the successful deployment of 5G services, and the need for license certainty and flexible terms. We look forward to working with the Commission on these issues as it moves toward a final *Spectrum Frontiers* order.

⁵² See *Amendment of Parts 2 and 90 of the Commission's Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent Transportation Services*, Press Release, ET Docket No. 98-95 (rel. Oct. 21, 1999), available at <http://transition.fcc.gov/oet/dockets/et98-95/>.

⁵³ See Open Technology Institute, *Spectrum Silos to Gigabit Wifi*, at 25 (Jan. 2016), available at <https://www.newamerica.org/oti/policy-papers/spectrum-silos-to-gigabit-wi-fi/>.

⁵⁴ See, e.g., Steve Lohr, *The Internet of Things and the Future of Farming*, N.Y. TIMES BITS BLOG (Aug. 3, 2015), available at http://bits.blogs.nytimes.com/2015/08/03/the-internet-of-things-and-the-future-of-farming/?_r=0.

This *ex parte* notification is being filed electronically with your office pursuant to Section 1.1206 of the Commission's Rules. Please do not hesitate to contact me with any questions or concerns.

Sincerely,

/s/ Rebecca Murphy Thompson

Rebecca Murphy Thompson
EVP & General Counsel
Competitive Carriers Association

cc (via email): Jon Wilkins
Matt DelNero
Edward Smith
Stephanie Weiner
Daudeline Meme
Rebekah Goodheart

Johanna Thomas
Travis Litman
Brendan Carr
Nicholas Degani
Erin McGrath
Amy Bender