

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Expanding the Economic and Innovation
Opportunities of Spectrum Through
Incentive Auctions

Docket No. 12-268

**OPPOSITION OF GOOGLE INC. AND MICROSOFT CORPORATION TO
PETITIONS FOR RECONSIDERATION**

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I. INTRODUCTION AND SUMMARY.

The Commission is taking a judicious approach in allowing unlicensed operations in the reorganized UHF band and the repurposed 600 MHz spectrum. Consistent with the Spectrum Act, the *Report and Order* in this proceeding resolved that unlicensed devices will be allowed to operate on

- a channel in the duplex gap,
- guard bands separating LTE from incumbent licensed services, and
- channel 37, sharing with existing users,¹

all on a non-interfering basis.

As a next step, the FCC has opened a proceeding in which it will establish technical rules to govern these uses of unlicensed technologies.² While Google and Microsoft are confident that unlicensed devices present little risk of harmful interference to licensees, we nonetheless commend the Commission for its deliberate multiple-step approach given the complexity of the incentive auction.

Several petitioners for reconsideration, however, have asked the Commission to abandon its steady course, and instead rewrite its *Report and Order* to reach the premature and

¹ *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, FCC 14-50, 29 FCC Rcd. 6567 (2014) ¶¶ 273-4 (“*Report and Order*”). We have focused on issues related to the repurposed 600 MHz band. But, importantly, the *Report and Order* also provides a path for unlicensed devices to access at least one unused channel in the remaining television band in each geographic area of the country, to be shared with wireless microphones.

² *See Amendment of Part 15 of the Commission’s Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and Amendment of Part 74 of the Commission’s Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap*, Notice of Proposed Rulemaking, FCC 14-144 (2014) (“600 MHz TVWS NPRM”).

unsupportable conclusion that unlicensed devices would cause harmful interference to other services in the 600 MHz band. These petitions, filed by Qualcomm, Inc., GE Healthcare, the WMTS Coalition, the Advanced Television Broadcasting Alliance, and Free Access & Broadcast Telemedia, LLC, fail to present any significant issues that the Commission has not already considered and addressed. That defect alone warrants their dismissal.

Moreover, several of these parties base their petitions on the claim that unlicensed services cannot coexist alongside licensed services under *any set of technical rules*. This is plainly incorrect. It is always possible to avoid harmful interference by adjusting operating parameters such as transmit power, signal timing, spectral separation, and physical separation, and unlicensed devices in the 600 MHz band are no exception. In fact, some petitioners have already conceded that the technical rules can protect LTE and WMTS against harmful interference. Furthermore, the petitioners complain that the Commission has not thoroughly considered harmful interference when, in fact, the FCC is actively considering these very issues in its *Notice of Proposed Rulemaking* on Part 15 devices. Even overlooking these threshold defects, the petitions are incorrect on their merits. For each of these reasons, the Commission should reject the petitions.

II. QUALCOMM’S OBJECTIONS TO UNLICENSED OPERATIONS IN THE 600 MHz BAND ARE PROCEDURALLY AND SUBSTANTIVELY FLAWED.

Qualcomm’s petition for reconsideration relies on a single flawed premise: unlicensed broadband devices supposedly are incapable of operating in a channel near LTE operations—under any set of technical standards—without causing harmful interference.³ Accordingly,

³ See Petition for Reconsideration of Qualcomm, Inc. at ii, GN Docket No. 12-268 (filed Sept. 15, 2014) (“Qualcomm Petition”).

Qualcomm suggests, the Commission should reconsider its decision to develop rules enabling such operations. Qualcomm's petition is procedurally improper and substantively baseless.

A. Qualcomm's Objections Are Premature.

Qualcomm's arguments for reconsideration stem, primarily, from a basic error about what the Commission has and has not decided. Qualcomm argues that the Commission disregarded Qualcomm's technical submissions which, it asserts, show "that allowing unlicensed devices to operate within the 600 MHz duplex gap or guard bands at levels permitted under the Commission's [Television White Space ("TVWS")] rules . . . will result in harmful interference."⁴ It then derides the Commission for deciding otherwise based on "confidence."⁵

Qualcomm's arguments are misdirected for the fundamental reason that the FCC has not, in fact, concluded its examination of the technical rules that will govern unlicensed devices operating within the 600 MHz duplex gap or guard bands. To be sure, the Commission has expressed well-founded "confiden[ce] that unlicensed devices can operate in the duplex gap under existing TVWS rules without causing [harmful] interference."⁶ But the Commission explicitly indicated that "a further record is necessary to establish the technical standards to govern [unlicensed] use"⁷ of TVWS devices and it "intend[s] to adopt technical rules governing unlicensed use of the 600 MHz Band guard bands in the 600 MHz and TVWS Part 15 Proceeding prior to the incentive auction."⁸

⁴ Qualcomm Petition at 4.

⁵ Qualcomm Petition at ii, 2, 7.

⁶ *Report and Order*, ¶ 273.

⁷ *Id.*

⁸ *Id.*

The FCC has initiated the process of doing just that by opening a proceeding in ET Docket No. 14-165, captioned “Amendment of Part 15 of the Commission’s rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37.” Just as the Commission noted in the *Report and Order*, this new *Notice of Proposed Rulemaking* includes proposed modifications to the TVWS rules and seeks comment on the very issues contained in Qualcomm’s earlier technical submission.⁹ Thus, while the Commission’s expression of “confidence” in the *Report and Order* is well-founded, it cannot be challenged in a petition for reconsideration because it is not a final action. It is well-settled that reconsideration is reserved exclusively for “final actions,”¹⁰ i.e., actions that “implement [a] rule”¹¹ or “establish or deny rights.”¹²

Qualcomm makes the more specific argument that the Commission “ignored” portions of Qualcomm’s submissions purporting to show that mobile receivers might suffer harmful interference from unlicensed transmitters operating at 40 mW. But although the Commission has “tentatively conclude[d] that devices operating at a level of 40 mW and having a bandwidth of six megahertz will be viable in this spectrum,”¹³ a “tentative conclusion” is not a “final action.”

⁹ See, e.g., 600 MHz TVWS NPRM, ¶¶ 14-129.

¹⁰ 47 C.F.R. §1.429(a).

¹¹ *Streamlining Broad. EEO Rule & Policies, Vacating the EEO Forfeiture Policy Statement & Amending Section 1.80 of the Comm’n’s Rules to Include EEO Forfeiture Guidelines*, Order, FCC 96-198, 11 FCC Rcd. 17185 ¶ 4 (1996).

¹² *Petition for Reconsideration of Various Auction 87 Pub. Notices*, Memorandum Opinion and Order, DA 12-676, 27 FCC Rcd. 4374, 4380 ¶ 16 (2012).

¹³ *Report and Order*, ¶ 273 (emphasis added).

Indeed, a final action is, by definition, “not . . . tentative.”¹⁴ Thus, in this instance as well, Qualcomm improperly seeks reconsideration of a decision the Commission has yet to make.

B. Qualcomm’s Objections Are Meritless.

In addition to attacking decisions the Commission has not made, Qualcomm mistakenly maintains that the Commission overlooked various issues raised in the company’s filings. Moreover, even if Qualcomm were correct, the allegedly overlooked filings are not inconsistent with the Commission’s decision.

Far from overlooking Qualcomm’s technical submissions, the Commission specifically discussed them in the *Report and Order*. The Commission also detailed other parties’ technical and policy submissions. Qualcomm claims that the Commission failed to address conflicting evidence relating to path losses, body loss, the appropriate propagation model, filter properties, performance of consumer devices relative to 3GPP specifications, operating variability, and the signal levels of unlicensed devices in comparison to LTE. On the contrary, the Commission identified these contested issues—“factors such as the assumed characteristics of the filters in the wireless broadband devices, propagation loss, and body loss.”¹⁵ The Commission explained that “appropriate assumptions for the technical analyses will be considered in the forthcoming 600 MHz and TVWS Part 15 proceeding.”¹⁶ The *Notice* in that proceeding indeed includes a substantial discussion of appropriate operating parameters for unlicensed devices in the 600 MHz

¹⁴ *Bennett v. Spear*, 520 U.S. 154, 178 (1997); see also THE AMERICAN HERITAGE DICTIONARY, <https://ahdictionary.com/word/search.html?q=tentatively&submit.x=59&submit.y=26> (last visited Oct. 31, 2014) (defining “tentative” as “Not fully worked out, concluded, or agreed on; provisional”).

¹⁵ *Report and Order*, ¶ 272.

¹⁶ *Report and Order*, ¶ 273.

guard bands and duplex gap, including the power limits and frequency separation needed to protect Part 27 licensees.¹⁷

As Broadcom has explained, moreover, Qualcomm based its technical submissions on wholly unrealistic assumptions. Qualcomm assumes, for example, that LTE devices will have in-band blocking performance that is vastly inferior to the performance delivered by actual devices.¹⁸ In addition, as the Commission pointed out, many of Qualcomm's analyses assume that unlicensed devices will operate at power levels higher than those currently permitted under the TVWS rules.¹⁹

Meanwhile, the record includes ample support for the Commission's conclusion that, under appropriate rules, unlicensed devices can operate in the guard bands and duplex gap without causing harmful interference to LTE operations.²⁰ In addition, as the Commission

¹⁷ See 600 MHz TVWS NPRM, ¶¶ 78-96.

¹⁸ See Letter from S. Roberts Carter, Counsel, Broadcom Corp., to Marlene H. Dortch, Secretary, Fed. Commc'ns Comm'n, at 1-2, GN Docket No. 12-268 (filed Apr. 23, 2014) ("April 23 Broadcom Letter").

¹⁹ *Report and Order*, ¶ 272. This criticism is equally applicable to the technical reports filed by the Consumer Electronics Association. See Letter from Julie M. Kearney, Vice President, Regulatory Affairs, Consumer Electronics Association, *et al.*, to Marlene H. Dortch, Secretary, Fed. Commc'ns Comm'n, at 30, 33, 43, GN Docket No. 12-268 (filed Dec. 16, 2013) (assuming that unlicensed devices will transmit at a maximum radiated power of 4 W) ("December 16 CEA Letter"). In addition to assuming in portions of the report that TVWS devices will operate at 4 W, CEA itself points out that "there is a distance from the LTE mobile device where the effects of power and OOB will be below the impact threshold." *Id.* at 34.

²⁰ Indeed, Broadcom has submitted numerous, detailed technical reports showing that unlicensed devices can operate in the guard bands and duplex gap at 40 mW without causing harmful interference to licensed LTE operations. See Letter from Paul Margie, Counsel, Broadcom Corp., to Marlene H. Dortch, Secretary, Fed. Commc'ns Comm'n, GN Docket No. 12-268 (filed Jan. 30, 2014); Letter from Jennifer K. Bush, Assoc. Gen. Counsel, Broadcom Corp., to Marlene H. Dortch, Secretary, Fed. Commc'ns Comm'n, GN Docket No. 12-268 (filed Mar. 4, 2014); April 23 Broadcom Letter; Letter from Paul Margie, Counsel, Broadcom Corp., to Marlene H. Dortch, Secretary, Fed. Commc'ns Comm'n, GN Docket No. 12-268 (filed July, 22, 2014).

recognized, licensed wireless service providers—the very entities that would be harmed by interference from unlicensed devices—support unlicensed use in guard bands, so long as that use is subject to technical rules to prevent harmful interference.²¹

The Commission also explained that its decision was informed by its prior regulatory experience. In particular, the Commission noted that it has authorized unlicensed devices to operate in the PCS duplex gap from 1920 to 1930 MHz, and that unlicensed devices today coexist with PCS uplink and downlink operations in the adjacent channels.²² Qualcomm observes that the U-PCS rules governing operations in that duplex gap differ from existing TVWS rules, but that observation misses the point: the Commission has not to date adopted the existing TVWS operating parameters for unlicensed devices in the duplex gap. Qualcomm does

²¹ See, e.g., Reply Comments of CTIA–The Wireless Association at 8 (filed June 28, 2013) (“CTIA and others continue to support the presence of qualifying unlicensed operations in guard bands, so long as they do not cause harmful interference to licensed services.”); Comments of CTIA–The Wireless Association at 8 (filed June 14, 2013) (“[T]he Commission should adopt a band plan that includes interference-preventing guard bands that can serve as a home to qualifying unlicensed operations.”); Letter from Leora Hochstein, Executive Director, Regulatory Affairs, Verizon, to Marlene H. Dortch, Secretary, Fed. Commc’ns Comm’n, at 1 (filed May 6, 2013) (“[reiterating] support for unlicensed operations in the guard bands (including duplex gap)”); Reply Comments of CTIA–The Wireless Association at 12 (filed Mar. 12, 2013) (“CTIA is a strong supporter of unlicensed operation in the ‘technically reasonable’ 600 MHz guard bands”); Letter from Leora Hochstein, Executive Director, Regulatory Affairs, Verizon, to Marlene H. Dortch, Secretary, Fed. Commc’ns Comm’n, at 2 (filed Jan 27, 2013) (“Verizon supports authorizing low-powered unlicensed operations that do not cause interference with licensed operations”); Comments of Verizon and Verizon Wireless at 20 (filed Jan. 25, 2013) (“Part-15 type devices could operate in the guard band and the duplexer gap”); Comments of CTIA–The Wireless Association at 3 (filed Jan. 25, 2013) (“spectrum in the guard bands should be identified for unlicensed use, to the extent technically feasible”); Reply Comments of Verizon and Verizon Wireless at 8 (filed Mar. 12, 2013) (“Verizon supports making both the duplex gap and the guard bands available for unlicensed use.”); Comments of Sprint Nextel at 23 n.46 (filed Jan. 25, 2013) (“Sprint supports the use of unlicensed white space devices in these guard bands.”) [All of the above-referenced cites can be found in GN Docket No. 12-268].

²² *Report and Order*, ¶ 273.

not dispute—because it cannot—that the Commission is entitled to rely upon its experience with unlicensed operation in the PCS duplex gap in its consideration of unlicensed operations in the LTE duplex gap.²³

Furthermore, the Commission’s decision to permit unlicensed operation in the guard bands and duplex gap subject to appropriate technical rules involves only a finding that it will be possible to operate unlicensed devices in such a way that they will not cause harmful interference to licensed services. Even taking Qualcomm’s technical submissions at face value, they would show—at most—only that unlicensed device operations might result in interference under a particular set of operating parameters and technical assumptions. They do not demonstrate that unlicensed devices will cause interference under *every* set of operating parameters. In fact, Qualcomm itself has conceded that the opposite is true: it agrees that technical rules *can* effectively prevent harmful interference between unlicensed devices and LTE operations in these bands.²⁴ As Qualcomm has explained, sufficient spectral separation and power restrictions can avoid harmful interference. While we disagree with Qualcomm about the specific spectral separation and power restrictions that will best enable the Commission to achieve its goal of enabling access to additional broadband spectrum in the 600 MHz band, there is no dispute that, by considering such parameters, the Commission could establish a workable set of rules for unlicensed operations.

²³ See *Consumer Electronics Ass’n v. FCC*, 347 F.3d 291, 300 (D.C. Cir. 2003) (“the Commission is entitled to ‘appropriate deference to predictive judgments that necessarily involve the expertise and experience of the agency.’”(internal quotation marks omitted)).

²⁴ See, e.g., Letter from Dean R. Brenner, Senior Vice President, Government Affairs, Qualcomm, Inc., to Marlene H. Dortch, Secretary, Fed. Commc’ns Comm’n, at 1, GN Docket No. 12-268 (filed Apr. 3, 2014).

Qualcomm's remaining arguments for reconsideration all depend on the company's unsupportable assumption that unlicensed devices in the guard bands and duplex gap necessarily will interfere with LTE operations. Each, accordingly, fails in the face of the Commission's stated intent to adopt technical rules to avoid harmful interference. Qualcomm claims, for instance, that permitting unlicensed use will frustrate the goals of the forward auction by reducing the fungibility of spectrum blocks. But the only asserted effect of unlicensed use on the ultimate fungibility of spectrum blocks is that, according to Qualcomm, unlicensed operations will cause interference in the adjacent blocks, but not in others. Similarly, Qualcomm argues that the Commission's *Report and Order* violates the Spectrum Act. Again, this would only be true if the unlicensed operations resulted in harmful interference to licensed services, notwithstanding the technical rules that the FCC is now considering. The Commission should adhere to its logically sequenced rulemaking process, and dismiss Qualcomm's petition.

III. GE HEALTHCARE AND THE WMTS COALITION MISUNDERSTAND BOTH THE COMMISSION'S DECISION AND THE RECORD.

The petitions for reconsideration submitted by GE Healthcare and the WMTS Coalition (collectively, "WMTS interests") with respect to channel 37 unlicensed operations are similarly flawed. Like Qualcomm, these petitioners attack decisions the Commission has not made, and assert that the Commission overlooked issues the *Report and Order* specifically addresses.

A. The WMTS Interests' Petitions for Reconsideration Are Premature.

As with the Commission's decision to permit unlicensed devices to operate in the guard bands and duplex gap, its decision to permit unlicensed devices to operate in channel 37 remains subject to the development of technical rules to prevent harmful interference with other services. The *Report and Order* specifically indicates that the Commission will permit unlicensed operations only under operating parameters and "in locations that are sufficiently removed from

WMTS users and radio-astronomy-service sites to protect those incumbent users from harmful interference.”²⁵ Indeed, the recently opened Part 15 rulemaking proceeding devotes several pages to this issue alone, seeking comment on appropriate power limits, separation distances, and other technical requirements to avoid harmful interference to incumbent operations.²⁶ Thus, the WMTS interests’ central procedural contention—that the Commission’s decision to permit unlicensed operations in channel 37 is impermissible because doing so will result in harmful interference—is simply incorrect.²⁷ This objection is all the more puzzling given that, like Qualcomm, GE Healthcare has previously acknowledged that unlicensed devices can coexist with incumbent operations provided that unlicensed devices maintain adequate separation distance.²⁸

For similar reasons, the WMTS interests’ more specific arguments taking issue with the Commission’s approach to preventing interference are premature. The petitioners attempt to cast doubt on the efficacy of the TVWS database in maintaining separation distances²⁹ and the Commission’s technical analysis of the appropriate protective criteria for WMTS. But these arguments are directed towards the Commission’s general analyses of how to avoid harmful interference to WMTS, not a final action on rules that will implement these protections. As the Commission’s discussion in the just-opened Part 15 rulemaking underscores, it has taken no final

²⁵ *Report and Order*, ¶ 274.

²⁶ 600 MHz TVWS NPRM, ¶¶ 97-128.

²⁷ *See, e.g.*, Petition for Reconsideration of the WMTS Coalition at 9-11, 14, GN Docket No. 12-268 (filed Sept. 15, 2014) (“WMTS Petition”); Petition for Reconsideration of GE Healthcare at 9, GN Docket No. 12-268 (filed Sept. 15, 2014) (“GE Healthcare Petition”).

²⁸ *See* Comments of GE Healthcare at 32, GN Docket No. 12-268 (filed Jan. 25, 2013) (“GE Healthcare Comments”).

²⁹ WMTS Petition at 10-14.

action regarding the separation distances necessary to protect WMTS deployments, nor has it taken final action regarding how the TVWS databases will operate in this context. Because the Commission will consider only petitions to reconsider “final actions,”³⁰ the technical rulemaking proceeding is the appropriate forum for the WMTS interests’ contentions.

B. The Commission Adequately Explained its Decision to Allow Unlicensed Operation in Channel 37.

The arguments advanced by the WMTS interests that the Commission did not sufficiently justify its decision to enable unlicensed operations are incorrect. As with unlicensed operations in the guard bands and duplex gap, the Commission determined that, under the right technical rules, unlicensed devices can share channel 37 with WMTS without causing harmful interference. Accordingly, the Commission decided to open a proceeding to establish these rules. Far from resisting this approach, GE Healthcare itself submitted in this proceeding that such coexistence is possible, given an adequate separation distance.³¹ But now GE Healthcare’s petition for reconsideration hinges on repudiating its previous position: for it to object to the FCC’s action, it must object to the conclusion that sharing without harmful interference is possible under some set of technical rules. This contradiction alone warrants dismissal of the petition.³²

Even setting aside GE Healthcare’s contradictory advocacy, the Commission has adequately explained its basis for concluding that unlicensed devices can coexist with WMTS in channel 37. It explained specifically that:

³⁰ 47 C.F.R. 1.429(a).

³¹ See GE Healthcare Comments at 32.

³² See 47 C.F.R. § 1.429(b) (requiring arguments relied upon in a petition for reconsideration to have been previously raised); *Airadigm Commc’ns, Inc.*, Order on Reconsideration, 06-830, 21 FCC Rcd. 3893, 3896 (2006).

[i]t is appropriate to revisit the Commission’s previous decision to prohibit unlicensed operation on channel 37 . . . [because t]he repurposing of spectrum for wireless services will reduce the number of channels available for TVWS use, and channel 37 could provide additional spectrum for such use in those areas where it is not used for the WMTS and RAS.³³

WMTS sites, the Commission noted, are stationary, and their locations are already recorded in a national database.³⁴ Thus, database technologies can ensure that unlicensed devices maintain a sufficient separation distance from WMTS sites. As the Commission explained, it “has extensive experience permitting unlicensed device operation, while protecting authorized incumbent services from harmful interference,” including through the use of databases to coordinate unlicensed device operations.³⁵

The WMTS Coalition argues that this experience is inadequate to support the FCC’s actions. But this assertion fails for two reasons. First, the WMTS Coalition maintains that the Commission has improperly relied on the TVWS database *administrators’* experience in the absence of information about that experience in the record.³⁶ This is simply wrong. Contrary to WMTS Coalition’s assertions, the Commission based its conclusion that unlicensed devices could access channel 37 “[s]ubject to the adoption of appropriate technical rules,” in part on the FCC’s *own* extensive experience working with TVWS databases as part of the rigorous process

³³ *Report and Order*, ¶ 276.

³⁴ *Id.*

³⁵ *Id.* ¶ 277.

³⁶ *See* WMTS Petition at 10.

of designating administrators.³⁷ The Commission did not base its decision on the rationale that the WMTS Coalition criticizes. The WMTS Coalition's argument, therefore, cannot be a ground for reconsideration.

Second, the WMTS Coalition argues that it is impossible for experience with databases to be "extensive," since there have been limited white spaces deployments to date.³⁸ But as the Coalition concedes, there have now been multiple commercial TVWS databases in operation for several years, coordinating the operation of TVWS deployments, many with the explicit purpose of testing the TVWS database system.³⁹ As the Commission noted, it did not have the benefit of this experience when it last concluded not to permit unlicensed operations in channel 37 in 2008.⁴⁰ The Commission has met its obligation to provide a "reasoned explanation" for its

³⁷ See *Report and Order*, ¶ 276. The WMTS Coalition's mistake is based on a misunderstanding of the FCC's *Order*, which led it to insert the bracketed words shown below that incorrectly change the meaning of the relevant passage of the *Order* as follows: "The Commission states that 'since the time the Commission made its decision to prohibit unlicensed use of channel 37, we have designated multiple TV bands database administrators, [who] have had extensive experience working with their databases.' Without any technical analysis or further discussion of the actual experience of these TV bands database administrators, or any evidence in the record that actually quantifies their 'extensive experience,' the Commission then indicates 'a high degree of confidence that [these TV band database administrators] can reliably protect fixed operations.'" WMTS Petition at 10. (emphasis added). The actual quote is: "since the time the Commission made its decision to prohibit unlicensed use of channel 37, we have designated multiple TV bands database administrators, have had extensive experience working with their databases, and have a high degree of confidence that they can reliably protect fixed operations." *Report and Order*, ¶ 276. The FCC here refers to its experience, not to the experience of the database administrators.

³⁸ WMTS Petition at 11.

³⁹ *Id.* at 10-11.

⁴⁰ See *Report and Order*, ¶ 276.

decision to move forward with a new proceeding to establish technical rules for unlicensed operations in channel 37.⁴¹

The WMTS interests also accuse the Commission of overlooking issues that were, in fact, considered. The WMTS interests contend that the Commission failed to consider the safety-of-life role of WMTS.⁴² The Commission addressed this consideration in paragraph 275 of the *Report and Order*. The WMTS Coalition contends that the Commission has not addressed the possibility that the geolocation data upon which the database will rely might not be complete or accurate.⁴³ The Commission addressed this consideration in paragraphs 275 and 277 and in footnote 832 of the *Report and Order*.

Finally, GE Healthcare maintains that the Commission's decision to authorize unlicensed operation in channel 37—subject to implementing rules—before moving forward to create rules to avoid harmful interference, was procedurally improper. Contrary to GE Healthcare's claims, this method of enabling additional spectrum access is not only permissible, it is routine.⁴⁴ The Commission regularly decides that the record before it is sufficient to conclude that a particular use of spectrum will be possible, and then seeks comment to establish precisely what rules will be necessary to prevent harmful interference. In such a situation, the Commission may make the

⁴¹ See *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 516 (2009).

⁴² See, e.g., WMTS Petition at 9-11, 14; GE Healthcare Petition at 9.

⁴³ WMTS Petition at 13-14.

⁴⁴ See, e.g., *Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, First Report and Order, 21 FCC Rcd. 12266 ¶ 14 (2006); *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile & Fixed Servs. to Support the Introduction of New Advanced Wireless Servs., Including Third Generation Wireless Sys.*, 20 FCC Rcd. 15866 ¶ 10 (2005); *Amendment of Parts 2, 15, & 97 of the Comm'n's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications*, FCC 97-153, 12 FCC Rcd. 10571 ¶ 79 (1997).

decisions that are supported by the record before it: deciding to permit the use, but waiting to make the technical rules until a further record can be developed. That GE Healthcare is able to cite instances where the Commission took a different approach demonstrates only that the Commission has substantial procedural flexibility. What GE Healthcare does not and cannot cite is any authority for the proposition that the Administrative Procedure Act requires all-or-nothing decision-making when the record supports an incremental approach.

This is not surprising, since it is well-established that “agencies need not address all problems in one fell swoop.”⁴⁵ This allowance reflects the practical realities of the regulatory task: it will often be the case that the record before an agency gives it good reason to reach a general provisional decision, but is not so exhaustive as to allow it to finalize every technical rule. In such a situation, as in this proceeding, the APA allows the Commission the flexibility to make rules “one step at a time, addressing itself to the phase of the problem which seems most acute to the [regulatory] mind.”⁴⁶

IV. LPTV INTERESTS MISINTERPRET THE SPECTRUM ACT.

Advanced Television Broadcasting Alliance and Free Access & Broadcast Telemedia, LLC (collectively, “LPTV interests”) contend that the guard bands and duplex gap the Commission has decided to create after the incentive auction are too large. In the LPTV interests’ view, these bands are a few megahertz wider than is “technically reasonable,” and

⁴⁵ *U.S. Cellular Corp. v. FCC*, 254 F.3d 78, 86 (D.C. Cir. 2001) (internal citations and quotation marks omitted).

⁴⁶ *Nat’l Ass’n of Broadcasters v. FCC*, 740 F.2d 1190, 1207 (D.C. Cir. 1984) (internal citations and quotation marks omitted); *see also Massachusetts v. EPA*, 549 U.S. 497, 499 (2007); *Personal Watercraft Indus. Assoc. v. Dept. of Commerce*, 48 F.3d 540, 544 (D.C. Cir. 1995) (“An agency does not have to ‘make progress on every front before it can make progress on any front.’”) (quoting *United States v. Edge Broadcasting Co.*, 509 U.S. 418, 434 (1993)).

therefore run afoul of the Spectrum Act.⁴⁷ But while the LPTV interests cite the “technically reasonable” requirement, their argument is that the bands are larger than absolutely “technically necessary,”⁴⁸ a standard that appears nowhere in the Spectrum Act. The Commission’s decision satisfies the former standard, and the latter is irrelevant. Indeed, the Commission has already specifically considered and rejected the argument that “technically reasonable” really means “technically necessary.”⁴⁹ This decision cannot be re-litigated in a petition for reconsideration.⁵⁰

Under the “technically reasonable” standard actually prescribed by the statute, the Commission’s decision is unassailable. The Commission provided an extensive, technical explanation that accounted for the unique complexities of the world’s first incentive auction. Most fundamentally, the band plan accommodates a number of spectrum recovery scenarios and, by necessity, “[t]he guard bands are tailored to the technical properties of the 600 MHz Band under each scenario.”⁵¹ The Commission further explained that “[i]n some scenarios, converting six megahertz television channels to paired five megahertz blocks would leave ‘remainders’ of

⁴⁷ *Middle Class Tax Relief and Job Creation Act of 2012*, 126 Stat. 156, § 6407(b) at 231-32 (2012) (“Spectrum Act”).

⁴⁸ Petition for Reconsideration of Free Access & Broadcast Telemedia at 8, GN Docket No. 12-268 (filed Sept. 15, 2014); *see also* Petition for Reconsideration of Advanced Television Broadcasting Alliance at 8, GN Docket No. 12-268 (filed Sept. 15, 2014) (“The FCC did not offer any reasonable technical analysis showing that the guard bands set at 11 MHz are necessary.”).

⁴⁹ *Report and Order*, ¶ 92.

⁵⁰ 47 C.F.R. § 1.429(1)(3) (“Petitions for reconsideration of a Commission action that plainly do not warrant consideration by the Commission . . . include . . . petitions that [r]ely on arguments that have been fully considered and rejected by the Commission within the same proceeding.”).

⁵¹ *Report and Order*, ¶ 90.

spectrum smaller than six megahertz,” the auctioning of which “would needlessly complicate the auction design.”⁵²

Furthermore, interference protection is probabilistic and therefore, a matter of degree. Thus, as the Commission concluded, “[i]ncorporating the ‘remainder’ spectrum into the guard band between television and wireless operations enhances the protection against harmful interference to licensed services.”⁵³ The Commission devoted an entire section of its comprehensive technical appendix to this very question. Moreover, the record reflects widespread support for guard bands and a duplex gap as large as—and in many cases larger than—those the Commission established.⁵⁴ This support is especially strong among parties that

⁵² *Id.*

⁵³ *Report and Order*, ¶ 93.

⁵⁴ *See* Comments of AT&T at 22, Exhibit A at 27 (filed Jan. 25, 2013) (stating that a 6 MHz guard band would be insufficient to protect LTE downlink from a 1 MW television station and recommending a guard band of 14 MHz); Reply Comments of AT&T at 23-24 (filed Mar. 12, 2013) (stating that a guard band of between 10-12 MHz would be necessary to protect LTE downlink from 1 MW television station operations); Comments of Verizon at 19-20 (filed Jan. 25, 2013) (recommending a minimum guard band of 10 MHz to protect LTE downlink from adjacent high-power television operations); *see also* Reply Comments of Verizon at 3 (filed Mar. 12, 2013); Comments of Qualcomm Corporation at 21-22 (filed Jan. 25, 2013) (recommending a guard band of 10 MHz between full-power television stations and LTE downlink); *see also* Reply Comments of Qualcomm Corporation at 14 (filed Mar. 12, 2013); Comments of Qualcomm Corporation at 4 (filed June 14, 2013); Letter from Kathleen Ham, Vice President, Federal Regulatory, T-Mobile USA, Inc. and Kathleen Grillo, Senior Vice President, Verizon, to Ruth Milkman, Chief, Wireless Telecommunications Bureau, and Gary Epstein, Chief, Incentive Auction Task Force, Fed. Commc’ns Comm’n, Attachment (filed Sept. 16, 2013) (proposing a joint band plan, including a 10 MHz duplex gap and a guard band of between 7 and 11 MHz between 1 W television and supplemental downlink); Letter from Kevin Krufky, Vice President, Public Affairs, Americas Region, Alcatel-Lucent, *et al.*, to Ruth Milkman, Chief, Wireless Telecommunications Bureau, Gary Epstein, Chief, Incentive Auction Task Force, and William Lake, Chief, Media Bureau, Fed. Commc’ns Comm’n, at 1-2 (filed May 3, 2013) (proposing a duplex gap of 10-12 MHz and a guard band of up to 10 MHz between LTE downlink and television broadcasters); Letter from Dean R. Brenner, Senior Vice President, Government Affairs, Qualcomm Incorporated, to Marlene Dortch, Secretary, Fed. Commc’ns Comm’n, at 2, Attachment at 19 (Apr. 3, 2014) (stating that a minimum guard band of 10 MHz is necessary between LTE downlink and broadcast television, and a duplex gap of 10-12 MHz is necessary between LTE uplink

are likely to participate in the forward auction and deploy licensed services in the 600 MHz band.

Finally, contrary to the LPTV interests' assertions, the Spectrum Act does not require the Commission to auction every vacant broadcast television channel that remains after repacking. Rather, the Spectrum Act directs the Commission to "evaluate the broadcast television spectrum" and then provides that the Commission "*may . . . make such reassignments of television channels as the Commission considers appropriate [and] reallocate such portions of such spectrum as the Commission determines are available for reallocation.*"⁵⁵ The Spectrum Act requires the Commission to auction those channels that it decides to reallocate,⁵⁶ but it does *not* require that the Commission reallocate every currently unused broadcast television channel. To the contrary,

and downlink); Letter from Peter K. Pitsch, Executive Director, Communications Policy, Intel Corporation, to Marlene H. Dortch, Secretary, Fed. Commc'ns Comm'n, at 1 (filed Feb. 5, 2014) (stating Intel's support for a guard band and duplex gap of 10-12 MHz); December 16 CEA Letter, Attachment at 52 (concluding that a 10 MHz guard band between television and LTE is sufficient); Letter from Rick Kaplan, Executive Vice President, Strategic Planning, National Association of Broadcasters, to Marlene H. Dortch, Secretary, Fed. Commc'ns Comm'n, Attachment at 28 (filed Nov. 27, 2013) (suggesting a band plan with a duplex gap of 10-20 MHz and a guard band of 7-11 MHz); Letter from Müge Ayşe Kiy, Government Relations Mananger, BlackBerry Corporation, to Marlene H. Dortch, Secretary, Fed. Commc'ns Comm'n, Attachment at 4 (filed Aug. 13, 2013) (suggesting a band plan with a 13 MHz duplex gap); Comments of Alcatel-Lucent at 3 (filed June 14, 2013) (assuming a duplex gap and guard band of 10 MHz each); Reply Comments of Alcatel-Lucent at 3 (filed Mar. 12, 2013) (asserting that a duplex gap of 10-12 MHz is appropriate); Comments of CTIA–The Wireless Association at 8, n.21 (filed June 14, 2013) (noting agreement among commenters that a duplex gap must be 10 MHz or more) [All of the above-referenced cites can be found in GN Docket No. 12-268].

⁵⁵ Spectrum Act, § 6403(b) at 226 (emphasis added).

⁵⁶ *Id.* § 6403(c)(1) at 205. If Congress intended for the Commission to reallocate and auction every vacant channel in the television band, it knows how to make this intention clear. Compare the flexible, permissive language of § 6403 described above with § 6103, which dictates that the Commission "shall . . . reallocate the spectrum in the 470-512 MHz band . . . and begin a system of competitive bidding to . . . grant new initial licenses for the use of [that] spectrum."

it explicitly contemplates that these white spaces may remain after the repack and forward auction, and that these channels may be used by TVWS devices.⁵⁷

V. CONCLUSION.

Google and Microsoft recognize that the issues surrounding unlicensed use of the guard bands, the duplex gap, and channel 37 are complex. That is why we support the Commission’s decision to proceed deliberately, and in stages, in determining how best to ensure that unlicensed devices coexist safely with licensed services. As the Commission has determined—and as the record in this proceeding makes clear—it is possible for unlicensed devices to operate under a set of rules that will avoid harmful interference to incumbent operations. The FCC has issued an NPRM to establish those rules. We urge the Commission to reject petitioners’ efforts to derail

⁵⁷ See *id.* § 6403(i)(2).

the rulemaking process and thereby prevent consumers from obtaining expanded unlicensed access to 600 MHz band spectrum on a non-interfering basis.

Respectfully submitted,



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I, April Smith, certify that on this 12th day of November 2014, I have caused a true and correct copy of the foregoing Opposition to Petitions for Reconsideration to be served via first class mail, postage paid, upon:

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