

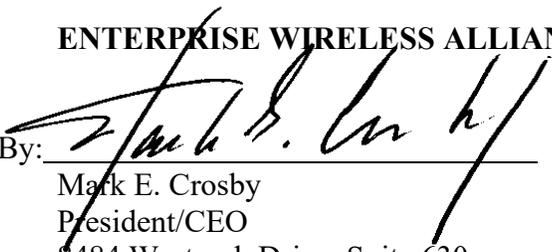
Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Reallocation of 470-512 MHz) PS Docket No. 13-42
(T-Band) Spectrum)

**JOINT COMMENTS
OF THE
ENTERPRISE WIRELESS ALLIANCE AND
AMERICAN PETROLEUM INSTITUTE**

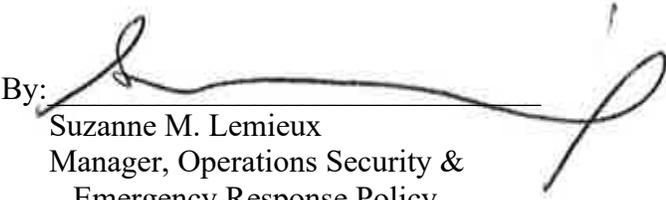
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EXECUTIVE SUMMARY

The Enterprise Wireless Alliance (“EWA”) and the American Petroleum Institute (“API”) jointly submit comments in this proceeding that are entirely consistent with the position of the Federal Communications Commission (“FCC”). Section 6103 of the Spectrum Act requires the FCC to expend time and resources on a legislative directive that all knowledgeable parties expect to end in failure. While the FCC has no choice but to begin the competitive bidding process dictated by that provision, nothing in the record to date supports the possibility that an auction of T-Band (470-512 MHz) channels will generate enough money to pay for the relocation of public safety incumbents, that there is replacement spectrum to which public safety systems could be moved, or that such an auction should even be attempted without also providing for the relocation of Industrial/Business (“I/B”) incumbents, thereby adding more cost and the need for more replacement channels to the undertaking. Furthermore, the usefulness of T-band being converted to a broadband allocation is suspect from a technological perspective. It is a Fool’s Errand that only Congress can halt by repealing the T-Band Mandate in Section 6103. EWA and API, like the FCC, urge them to do so at the earliest opportunity.

The intensive use of T-Band spectrum by I/B licensees and the many obstacles to their relocation from the band are detailed in these Comments and in API’s and EWA’s previous filings in this proceeding. Many of these systems support services that are essential to the day-to-day activities of the American public. They are used in facilities that deliver electricity, oil and gas, manufacturing, transportation, and medical services. The most critical obstacle is the fact that there is no non-T-Band spectrum that would provide comparable functionality. Therefore, if the FCC is compelled to finalize rules in this proceeding that contemplate auctioning this spectrum, EWA and API urge them to specify that any mandatory relocation of

I/B incumbents be conditioned on providing them with replacement T-Band channels in a contiguous portion of the auctioned channel(s) dedicated for that purpose. “Repacking” I/B T-Band incumbents within a discrete segment of that spectrum is the only approach that will not compromise the communications of vital components of the American economy.

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The Enterprise Wireless Alliance (“EWA” or “Alliance”) and the American Petroleum Institute (“API”) (EWA and API, jointly, the “Commenters”), in accordance with Section 1.415 of the Federal Communications Commission (“FCC” or “Commission”) rules, respectfully submit their comments in the above-identified proceeding.¹ The Commission was obligated to initiate this proceeding in response to Section 6103 of the Middle Class Tax Relief and Job Creation Act of 2012.² This provision directs the Commission to (i) reallocate T-Band spectrum used by public safety (“PS”) eligibles; (ii) begin a system of competitive bidding (auction) to issue new licenses for the use of this spectrum by February 22, 2021; (iii) relocate the displaced PS entities within two years after completion of the auction; and (iv) make the auction proceeds available to the National Telecommunications and Information Administration (NTIA) for distribution as grants to cover the relocation costs of the displaced PS licensees (“T-Band Mandate”). The NPRM seeks comment on the many challenging issues raised by this legislative directive.

¹ *Reallocation of 470-512 MHz (T-Band) Spectrum*, PS Docket No. 13-42, Notice of Proposed Rulemaking, 35 FCC Rcd 6896 (2020) (“NPRM”).

² Middle Class Tax Relief and Job Creation Act of 2012, Publ. L. No. 112-96, § 6103, 126 Stat. 156, 205-206 (2012), (codified at 47 U.S.C. § 1413) (“Spectrum Act”).

The Commenters have been active participants in this proceeding both individually and as members of the Land Mobile Communications Council (“LMCC”). Their views on the T-Band Mandate from the outset are entirely consistent with the position of Chairman Pai:

An FCC auction of the T-band is a bad idea. But...the law mandates that we do it. It’s unfortunate that Commission resources must be dedicated to laying the groundwork for an auction that likely will fail....

- The FCC has compiled a record on the T-band that demonstrates that an auction is unlikely to yield sufficient revenue to cover the costs to move public safety users out of the band.
- The Government Accountability Office [“GAO”] reported to Congress that the T-band mandate is unworkable and could deprive first responders of their current ability to communicate by radio.³

Moreover, while the T-Band Mandate, and therefore the Chairman, address only PS users operating on this spectrum, many EWA and API Industrial/Business (“I/B”) members have relied on T-Band for critical communications for decades. Operations such as petrochemical manufacturing facilities, oil refineries, and major transportation hubs cannot function safely or efficiently without reliable communications delivered via private systems designed and operated to meet demanding technical standards, often in extremely challenging physical environments. Seemingly unbeknownst to the drafters of Section 6103 of the Spectrum Act, this legislation threatens to disrupt not only PS communications, but the radio networks of core industrial companies on whose services the nation depends.

While the Commenters, like the FCC, have no choice but to consider how this ill-conceived legislation might be implemented, their position is clear: the T-Band Mandate must be repealed and this wasteful regulatory proceeding terminated. The Commenters are

³ Chairman Pai Calls on Congress to Protect Public Safety and Repeal T-Band Mandate, Dec. 2, 2019: <https://www.fcc.gov/document/chairman-pai-calls-congress-repeal-t-band-mandate>; *Required Auction of Public Safety Spectrum Could Harm First Responder Capabilities*, GAO 19-508 (June 21, 2019) (“GAO Report”).

encouraged by recent legislative efforts to repeal Section 6103.⁴ However, time is now short and Congressional action cannot be assumed. If those efforts are not successful and the Commission adopts rules for an overlay auction, the Commenters urge the FCC to specify that only alternative T-Band channels in a contiguous portion of a T-Band channel(s) will qualify as “comparable facilities” for purposes of any mandatory relocation of I/B systems.

I. INTRODUCTION

EWA is a national trade association representing business enterprises, wireless sales and service providers, hardware and software system vendors, and technology manufacturers. Members of the Alliance hold FCC authorizations in numerous spectrum bands and in various radio services. The T-Band is a key component of the very limited spectrum inventory available for EWA members. It has been intensively used by them for decades and its loss would be devastating for their communications capabilities. Thus, the Commission’s decisions in this proceeding will have a profound impact on many of EWA’s members, on their customers, and, therefore, on the Alliance.

API is a national trade association representing more than 600 companies involved in all phases of the petroleum and natural gas industries, including exploration, production, refining, marketing and transportation of petroleum, petroleum products and natural gas. Among its many activities, API acts on behalf of its members before federal and state regulatory agencies. Many of API’s members rely on private T-Band systems to support safe and effective operations at refineries and chemical manufacturing plants. API’s members also use T-Band spectrum on offshore oil and natural gas platforms in the Gulf of Mexico.

⁴ See NPRM at n. 29-33.

II. BACKGROUND

The history of Private Land Mobile Radio (“PLMR”) use of T-Band spectrum, both I/B and PS, and the T-Band Mandate is detailed in EWA’s Comments in the earlier stage of this proceeding⁵ and in the NPRM. In 1971, the Commission reallocated certain television channels in 11 major markets in the country to address a growing need for private land mobile radio (“PLMR”) spectrum in highly congested areas: Boston, Chicago, Dallas/Fort Worth, Houston, Los Angeles, Miami, New York/Northeastern NJ, Philadelphia, Pittsburgh, San Francisco/Oakland, and Washington DC/MD/VA.⁶ Two 6 MHz channels were allocated in most markets, although Dallas/Fort Worth, Houston, and Miami received only a single 6 MHz allocation. Subsequently, the FCC assigned additional television channels in both New York and Los Angeles exclusively for public safety use.

There is no question that this spectrum has been used extensively by I/B and PS licensees for almost 50 years. The markets in which it is available remain among the most heavily populated communities in the nation and the growth in wireless communications continues unabated. EWA’s 2013 Reply Comments in response to the earlier Public Notice in this proceeding included a report from Televate, LLC that identified 764 I/B licensees operating on 3,577 channels with almost 250,000 subscriber units.⁷ That 2013 report estimated I/B relocation costs as \$449,200,000. The accompanying Reply Comments emphasized the lack of comparable spectrum to which these systems could be relocated, except to “repacked” T-Band spectrum, a problem at least as critical as the cost component. API’s Reply Comments adopted the same position:

⁵ EWA Comments, PS Docket No. 13-42 (filed May 13, 2013).

⁶ The FCC also allocated spectrum in Cleveland and Detroit, but it was never made available for use by PLMR licensees because of issues with Canada’s use of the spectrum. *See* 47 C.F.R. § 90.303.

⁷ EWA Reply Comments, PS Docket No. 13-42 (filed June 11, 2013).

If other comparable replacement [spectrum] cannot be made available, and the auction requirements of the Act are not repealed, repacking existing Business/Industrial licensees into a portion of the 470-512 MHz band – although far from ideal – would be preferable to requiring them to vacate the band entirely.⁸

For I/B licensees in these markets, T-Band is absolutely essential. The FCC has not allocated additional spectrum for the non-PS PLMR community for over 35 years.⁹ While the introduction of digital equipment has allowed for improved efficiency and enhanced capabilities, the benefits of digital technology are optimized when deployed on systems with at least some control channels that are exempt from monitoring requirements under FCC Rule Section 90.187. It is effectively impossible to find such frequencies in the 450-470 MHz range in these populated markets. Instead, UHF channels in cities like Los Angeles, New York, and even Pittsburgh have multiple co-channel licensees that are required to implement monitoring capabilities to allow shared use of the channels. A failure to comply with those requirements can result in significant forfeitures.¹⁰ T-Band spectrum is the only Part 90 allocation below 800 MHz where frequencies are not heavily shared and can qualify for a monitoring exemption. The I/B community was well on its way in a migration from analog to digital technology in these spectrum-scarce markets when the T-Band Freeze was adopted.¹¹ The impact of the freeze and the overall uncertainty regarding the future of I/B T-Band spectrum on that migration and on the ability of I/B licensees to meet critical communications needs cannot be overstated.

⁸ API Reply Comments, PS Docket No. 13-42 at 6 (filed June 11, 2013).

⁹ The 900 MHz band was the last such allocation.

¹⁰ *Mobile Relay Associates*, Memorandum Opinion and Order, DA 20-834 (rel. Aug. 4, 2020).

¹¹ The FCC waived the narrowband requirement for this spectrum at the same time. *See* Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies, *Order*, WT Docket No. 99-87, 27 FCC Rcd 4213 (WTB/PSHSB/OET 2012).

III. IF CONGRESS FAILS TO REPEAL THE T-BAND MANDATE, THE FCC MUST ENSURE THAT I/B SPECTRUM REQUIREMENTS ARE NOT COMPROMISED AND THAT ALL RELOCATION COSTS ARE PAID BY AUCTION WINNERS

A. The T-Band Mandate Cannot be Implemented Rationally Without Adopting a Transition Process for I/B Incumbents

Congress' failure to recognize that I/B and PS T-Band channels are interleaved in all markets requires the FCC to determine how to implement Congressional intent. While adopting a process to auction only PS channels would satisfy – literally – the directive of Section 6103, the result would be nonsensical. The FCC explains this in clear, albeit understated, terms when it concludes that “Allowing non-public safety incumbents to remain in the T-Band would result in continued co-channel use of spectrum in a limited geographic area, which likely will prevent broadcast or wireless use by an overlay licensee.”¹² In fact, it would mean auctioning individual 20 kHz channels that might have immediately adjacent I/B systems that would be entitled to interference protection. While the Commenters, like Chairman Pai and the GAO, doubt that a T-Band auction would be attractive to prospective bidders even if the T-Band Mandate resulted in unencumbered 6 MHz bandwidth channels,¹³ an auction cannot succeed if I/B incumbents remain interspersed throughout each 6 MHz channel.

B. The I/B Transition Process

1) The FCC's Proposed Overlay Auction is the Most Reasonable Solution for this Legislative Gordian Knot

By failing to consider the significant I/B presence on T-Band spectrum, Congress has directed the FCC to conduct an auction that, as statutorily defined, cannot be expected to

¹² NPRM at ¶ 39.

¹³ The LMCC filed a Request for Relief from Interference from Digital Television Stations with the FCC on August 28, 2020 in which it detailed ongoing co-channel harmful interference between certain digital television stations and long-standing PLMR T-Band systems. Potential bidders in an auction for this spectrum would be well-advised to examine these situations and the difficulty PLMR licensees have encountered in seeking relief, even when the FCC rules specifically provide for their protection before participating in a spectrum auction.

succeed. Given this conundrum, the Commission has proposed the only rational approach – an overlay auction of six megahertz spectrum blocks.¹⁴ The NPRM specifies that an overlay auction licensee would be permitted to operate within the channel block provided that: (i) a frequency is not assigned to an I/B or PS incumbent; (ii) the incumbent(s) has vacated the frequency either pursuant to the T-Band Mandate [for PS incumbents] or because of a voluntary transition or acquisition agreement, a failure to renew, or the permanent discontinuance of operation; or (iii) the incumbent and overlay licensee agree to allow the auction licensee to operate despite the incumbent’s continued presence.¹⁵

The FCC has conducted many successful overlay auctions since it was granted authority to assign spectrum using a competitive bidding process. However, this Congressionally dictated auction has serious complicating factors not heretofore encountered. The legislation states that the auction proceeds are to be made available to NTIA, which is to use them to make grants to cover PS relocation costs.¹⁶ It is silent as to what happens if the auction proceeds are not enough to cover those costs, a realistic, indeed highly probable, outcome according to the GAO. It does not address whether the costs are to be considered on a nationwide, market-wide, or individual channel basis. Because the legislation did not recognize the presence of I/B incumbents on the spectrum, it offers no guidance as to whether all the auction proceeds for a particular channel should be made available for PS relocation costs or only the portion attributable to PS’s *pro rata* use of the channel. If the latter, the Communications Act requires that the balance be deposited

¹⁴ NPRM at ¶¶ 17-20. While the channels would be auctioned in six megahertz blocks, as discussed below a contiguous portion of certain blocks would be needed as replacement spectrum for relocated I/B incumbents. This certainly would be the case in Dallas/Fort Worth, Houston, and Miami, markets assigned only a single T-Band channel, the majority of which is used by I/B licensees.

¹⁵ *Id.* at ¶ 19.

¹⁶ The estimated cost of relocating PS systems was reported to the FCC. See National Public Safety Telecommunications Council (“NPSTC”), T-Band Report, PS Docket No. 13-42 (filed Mar. 15, 2013); NPSTC, T-Band Update Report, PS Docket No. 13-42 (filed May 31, 2016) (“NPSTC Cost Reports”).

with the U.S. Treasury.¹⁷ In either case, auction winners must be obligated to assume I/B relocation costs as a separate expense.

The NPRM proposes to address the possibility of insufficient auction proceeds by issuing licenses only when those proceeds exceed the total estimated PS relocation costs. The Commenters recommend instead that the FCC establish a reserve price for each six megahertz channel block in each market based on those estimated costs,¹⁸ that it assign very substantial upfront payments for each block, and that licenses be issued only if the reserve price is reached for all channels in a market. This will help to avoid the expense and uncertainty of conducting auctions that will not be successful. Prospective bidders will know in advance the minimum cost of each license and will demonstrate a willingness to reach at least the reserve price by committing a large amount of money for the right to participate in the auction, thereby deterring speculative bidders to the extent possible. Auction licenses should be awarded only on a market-wide, not individual channel, basis. Many T-Band incumbents, both I/B and PS, use frequencies from different T-Band channels in their systems. If these systems must be relocated, each entire system must be moved, not peeled apart on an individual channel basis.

Assuming the FCC can overcome these challenges, it will be left with the most formidable of obstacles: To what spectrum can T-Band incumbents be moved? The NPRM states that “the Commission is committed under any scenario to ensuring the continuity of [PS] licensees’ public safety mission-critical communications.”¹⁹ It notes that options mentioned in

¹⁷ 47 U.S.C. § 309(j)(8). Section 6103 does not empower NTIA to use auction proceeds for grants that exceed the value attributable to spectrum used by PS, or to issue grants that would cover the relocation costs of non-PS entities, nor would the Commenters support such a process.

¹⁸ The FCC defines establishes prices for all auctioned spectrum. It set the figure at \$1.3B for the Upper 700 D Block allocation in Auction 73.

¹⁹ NPRM at ¶ 25.

the record in this proceeding include the First Net public safety broadband network, as well as 450-470 MHz, 700 MHz, 800 MHz, and 900 MHz spectrum.²⁰

While there is no comparable express commitment to the continued operations of I/B incumbents,²¹ many of which provide critical services such as the delivery of electricity, fuel, transportation, and other vital services to the American public, the overlay auction criteria outlined in the NPRM would require auction winners to reach voluntary agreements to clear I/B incumbents from T-Band spectrum. The NPRM also questions whether I/B licensees should be subject to a mandatory relocation process, subject to the payment of relocation costs and the provision of comparable facilities by the auction winner.²² If the FCC adopts a mandatory relocation provision for I/B incumbents, the Commenters urge it to define “comparable facilities” as replacement T-Band channels in a contiguous portion of a six megahertz channel. Incumbents would be free to accept other alternatives voluntarily, but could not be required to relocate except to other T-Band channels.

2) “Repacking” T-Band to Accommodate Continued I/B Utilization Is the Only Alternative that Would Provide I/B Incumbents With Comparable Facilities on a Mandatory Basis.

As noted above, the I/B Part 90 user community has received no new spectrum allocation in more than 35 years. The 800 MHz²³ and 900 MHz frequencies²⁴ available to I/B licensees in

²⁰ *Id.* at ¶ 37.

²¹ As noted in the NPRM, in 2018 the FCC did authorize priority access to 800 MHz interstitial channels for T-Band licensees. NPRM at ¶ 8. That spectrum has not yet been made available and for the reason detailed in Section B.2 below, 800 MHz channels could not replace T-Band spectrum in a hybrid trunked system that also uses Part 90 UHF spectrum. It is possible that this 800 MHz spectrum could be a viable alternative for some T-Band incumbents, but on a very limited basis.

²² *Id.* at ¶ 39.

²³ The 800 MHz spectrum being vacated by Sprint Nextel Corporation (“Sprint”) as part of 800 MHz rebanding will be substantial given Sprint’s very deep spectrum position in all of these markets. But it is reserved for the first three years of availability for public safety and for two years thereafter for public safety and critical infrastructure industries. *See* 47 C.F.R. § 90.617(g). EWA members in T-Band markets other than CII entities have found few available channels once those exclusivity periods have expired.

these 11 markets all are fully assigned and have been for many years. The situation is further complicated by the fact that a very significant percentage of I/B T-Band systems use a combination of exclusive T-Band and shared UHF frequencies, with the exclusive frequencies functioning as control channels in a hybrid trunked configuration. This combination greatly improves trunking efficiency and supports deployment of more advanced digital technologies with the features and functionalities needed by American businesses. Even if exclusive 800 MHz or 900 MHz channels were available in these markets, which they are not, they are not technically substitutable for T-Band frequencies in existing hybrid trunked systems.

The VHF and UHF channels available under FCC Rule Section 90.35 are not in any way comparable to T-Band frequencies. Those two bands have been used by I/B entities for more than a half-century. As described above, they are intensively utilized throughout the nation, especially in these 11 densely populated markets, and cannot function as exclusive control channels.

For these reasons, repacking I/B incumbent into a contiguous portion of T-Band spectrum is the only option that should qualify as comparable under a mandatory relocation process. Assuming the incumbent is provided with an equivalent number of T-Band channels, either exclusive or shared consistent with its current license(s), they would satisfy the four elements typically used by the FCC to define comparability: (i) system; (ii) capacity; (iii) quality of service; and (iv) operating costs.²⁵ Of course, again, I/B incumbents would be free to negotiate a different solution for their communications needs with the auction winner. However, if the

²⁴ PS is not eligible for 900 MHz Band frequencies and the band currently is frozen. Wireless Telecommunications Bureau Announces Temporary Filing Freeze on the Acceptance of Certain Part 90 Applications for 896-901/935-940 MHz (900 MHz Band) Spectrum, *Public Notice*, DA 18-949 (rel. Sept. 13, 2018). The freeze subsequently has been modified to facilitate the broadband transition process.

²⁵ See, e.g., 47 C.F.R. § 90.699(d).

relocation were mandatory, no spectrum other than alternative T-Band channels should qualify as comparable.

The NPRM requests comment on the repacking approach but appears to suggest that this realignment could take place prior to the auction, thereby creating more contiguous spectrum on which parties might be willing to bid.²⁶ If the Commission is contemplating a pre-auction analysis that would identify repacked T-Band channels for incumbents so auction participants could be assured that there was a T-Band replacement for each vacated channel, the Commenters support that approach. They would not agree to rules that require I/B incumbents to actually relocate their systems to other T-Band channels in advance of an auction, and it is unclear how, when, or by whom the associated costs would be paid.

3) I/B Relocation Costs

For the reasons addressed above, the Commenters do not believe that the winning bids of the auction required by the T-Band Mandate can be used to fund the relocation of I/B systems. Section 6103 specifies that the proceeds of auctioned PS spectrum must be made available to NTIA to cover PS relocation costs. Using the auction proceeds to pay for I/B relocation would be inconsistent, first, with the directive that the monies come from the auctioning of spectrum currently used by PS and, second, with the requirement that NTIA issue grants of those funds for PS relocation. As also noted, if the FCC elects to divide the auction proceeds based on the percentage of PS versus I/B use of an auctioned T-Band channel, the I/B portion must be delivered to the U.S. Treasury.

Fortunately, the FCC and the telecommunications industry have extensive experience with overlay auctions in which winning bidders clear spectrum for new uses by negotiating

²⁶ NPRM at ¶ 41.

relocation costs directly with the displaced incumbents. These matters overwhelmingly have been resolved in the marketplace with no need for FCC oversight or involvement. The Commenters expect the same would happen in this instance. I/B incumbents would engage in good faith negotiations with T-Band Block auction winners to move their systems to replacement T-Band spectrum in a “repacked” contiguous block or would voluntarily elect a different solution for their communications requirements. Consistent with overlay auctions, incumbents would not be required to relocate if they were not provided with comparable facilities or if their relocation costs were not paid by the winning bidder.

4) T-Band Narrowband Requirements

The Commenters fully support FCC efforts to promote the deployment of more efficient, digital equipment on PLMR systems. This equipment not only provides superior capabilities, but occupies less bandwidth for each transmission path and thereby maximizes spectrum utilization. Both organizations were actively involved in ensuring their members’ systems met the requirements of Rule Sections 90.203(j) and 90.209(b). They agree that the FCC should sunset the 2012 waiver of the narrowbanding requirement for T-Band licensees²⁷ after the systems have been relocated to replacement T-Band channels. It would be unreasonable and inequitable for the FCC to require T-Band licensees to invest in more advanced equipment and undertake the disruption of narrowbanding without knowing the future of their systems.

IV. REALLOCATING T-BAND WILL NOT ENHANCE ITS UTILIZATION

The Commenters appreciate that the T-Band Mandate is a creation of Congress, not the FCC, and that the FCC supports the repeal of this ill-advised statute. To the extent that the

²⁷ *Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies*, WT Docket No. 99-87, RM-9332, Order, 27 FCC Rcd 4213 (WTB/PSHSB/OET 2012).

NPRM proposes rules intended to make more efficient use of the spectrum post-auction, that objective is misplaced. T-Band channels are already intensively used as documented in the Televate Report submitted by EWA and by the reports filed by NPSTC.²⁸ Moreover, utilization in the public interest is not necessarily measured by the number of devices in the hands of consumers or their duty cycles, however high, but by the public benefit derived from the services provided. The Commenters submit that both PS use of T-Band channels for police, fire, emergency medical, and other activities and I/B use to manage refineries, pipelines, air transportation, school buses, and myriad other industrial activities, all of which contribute to the American economy and the well-being of its citizens, provide immeasurable public interest benefits. If this spectrum is auctioned successfully with sufficient proceeds to relocate PS, and if the auction winners also are prepared to fund I/B relocation costs, and if comparable replacement spectrum can be found for both user categories, none of which the Commenters consider probable, it still is unlikely that the subsequent use of this T-Band spectrum will provide a greater benefit to the public than its current utilization.

The NPRM suggests that I/B entities, for example electric utilities, might be successful bidders for T-Band spectrum with the intention of deploying Internet of Things-type fixed or mobile devices on it.²⁹ The Commenters do not think that will be the case. The limited geographic area of the auction licenses in addition to the channel clearing costs involved would make T-Band channels an unlikely target for such operations. However, they do agree with that possibility, however unlikely, the rules should include performance requirements tailored to the operational characteristics of private internal networks rather than the standard geographic or population coverage required for commercial networks. This has already been recommended by

²⁸ See n. 7 and 16 *supra*.

²⁹ NPRM at 56-7.

the Industrial Internet of Things (“IIoT”) Coalition in WT Docket No. 19-38.³⁰ Those recommendations should guide the FCC’s performance requirements in this and other spectrum allocation proceedings.

Finally, while the FCC proposes a variety of potential uses of this spectrum, including broadcast, IIoT, and other applications in a flexible use environment, this would essentially be a conversion of spectrum from multiple narrowband to a smaller number of broadband allocations. As such, the economics make it extremely likely that any uses for the spectrum will be implemented by broadband RF protocols such as Long Term Evolution (“LTE”). API and EWA believe that this is technologically not an optimum result from an RF perspective. At 470-512 MHz, RF energy in most cases is subject to less propagation loss in an outdoor environment, versus the higher frequencies used by current LTE operations, thereby limiting its data capacity substantially. Further, integrating T-Band-based LTE with current LTE systems operating on multiple frequencies between 600 MHz and 6 GHz, will not be efficient in higher density urban and suburban locations where this spectrum is located. Current systems tend to be noise-limited, and that increased noise propagation at lower frequencies makes the re-use of the spectrum only possible over much larger distances than higher frequency spectrum. Also, efficiently built antenna and handsets that would support these lower frequencies tend to be larger and offer less beam control, which goes against public preferences for smaller handsets and trends for more efficient and compact base station installations. Consequently, the suitability of T-Band being converted to broadband use is not based on sound RF principals.

³⁰ See, e.g., IIoT Coalition Notice of *Ex Parte* Meeting, WT Docket No. 19-38 (filed June 26, 2020).

V. CONCLUSION

The Commenters continue to hope that Congress will undo this legislative mistake and repeal Section 6103 of the Spectrum Act before the FCC and the T-Band community are required to expend additional resources on this feckless reallocation initiative. If that is not the case, they urge the FCC to adopt the positions set forth above. In particular, any mandatory relocation of I/B incumbents must specify that only replacement T-Band channels in a contiguous portion of a T-Band channel will be considered comparable spectrum.