Before the
FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

In the Matter of:

LICENSING MODELS AND TECHNICAL REQUIREMENTS IN THE 3550-3650 MHz BAND	)	GN Docket No. 12-354

To: The Commission

COMMENTS OF THE

TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Telecommunications Industry Association (TIA)[1] hereby submits comments to the Federal Communications Commission (Commission) in the above-captioned proceeding.[2] TIA strongly supports the FCC's initiatives to implement the recommendations of the National Broadband Plan calling for the availability of 300 MHz of spectrum by 2015 and a total of 500

[1] TIA is the leading trade association for the information and communications technology ("ICT") industry, representing companies that manufacture or supply the products and services used in global communications across all technology platforms. TIA represents its members on the full range of policy issues affecting the ICT industry and forges consensus on industry standards. Among their numerous lines of business, TIA member companies design, produce, and deploy a wide variety of devices with the goal of making technology accessible to all Americans.

[2] Commission Seeks Comment on Licensing Models and Technical Requirements in the 3550-3650 MHz BAND, GN Docket No. 12-354(rel. November 1, 2013) ("PN").

MHz available by 2020.[3] The initial round of comments in this proceeding provides a constructive record for the Commission.

I. STRKIKING A BALANCE BETWEEN CERTAINTY AND FLEXIBILITY IN SPECTRUM MANAGEMENT

Perhaps the central challenge facing the Commission in this proceeding is in striking an appropriate balance between providing sufficient certainty to encourage investment in technologies using this spectrum, with the need to allow enough flexibility to allow potential use cases to evolve. This challenge is further complicated by the presence of incumbent uses, necessitating exclusion zones covering large, densely populated areas. This inevitably creates barriers to investments in this spectrum. As the Commission notes, multiple commenters have advocated approaches generally reflecting the Priority Access Licenses "PAL" model proposed in the PN.[4] The PAL model represents an approach towards implementing the next generation of spectrum management systems in light of the proposals and alternative proposals set forth in this proceeding.

TIA also shares the Commission's interest in encouraging small cell technology -- outdoor femto cells, metro cells and pico cells, in addition to small cells that use Wi-Fi technology.

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[3] *See* Comments of TIA, GN Docket No. 12-354 (filed February 20, 2013) at 2.

[4] Other commenting parties also point to ASA or LSA as a potential SAS for enabling effective use of this band. Implementing ASA as the SAS should increase the attractiveness of the 3.5 GHz Band to a broad range of users with QoS requirements, including mobile operators, which in turn will help drive the scale necessary for the development of an end-to-end ecosystem.

Heterogeneous networks" or "hetnets" promise a network architecture that manages high demand growth without new CMRS spectrum by diverting traffic at the edge of the network. This band, even encumbered, might be a helpful addition to the inventory of spectrum that could support such heterogeneous networks. Collectively these technologies present potential options for addressing wireless network capacity issues by shifting traffic away from mobile networks.

Cellular small cells, to be clear, depend on licensed spectrum, while Wi-Fi small cells can operate in unlicensed spectrum. Where small cell technologies are appropriate under an exclusive licensed regime, market participants will deploy them. Indeed, it may be most appropriate to deploy a mix of small cell and macro cell technologies in a band like 3.5 GHz and that partitioning may be different for different regions or for different network operators. The Commission should not require small cells, it should simply permit them.

TIA has not taken a specific position regarding a particular access or usage control method, such as the Authorized Shared Access approach advanced by Qualcomm and Nokia, or the Licensed Shared Access approach being standardized by European Telecommunications Standards Institute (ETSI) and the European Conference of Postal and Telecommunications Administrations (CEPT).[5] Licensed shared access offers a number advantages for promoting the efficient use of spectrum. TIA encourages the Commission to actively consider these potential alternatives and to not act prematurely in a manner that would foreclose their eventual adoption.

[5] *See* "Digital Europe" at 7. The EU Radio Spectrum Policy Group defines LSA as follows: "An individual licensed regime of a limited number of licensees in a frequency band, already allocated to one or more incumbent users, for which the additional users are allowed to use the spectrum (or part of the spectrum) in accordance with sharing rules included in the rights of use of spectrum granted to the licensees, thereby allowing all the licensees to provide a certain level of QoS."

This is particularly true if PAL/ASA/LSA is implemented as envisioned to enable a two-tier spectrum access approach.

TIA is broadly supportive of the FCC's "Revised Framework" as reflected with the Priority Access Licenses proposal, which applies an integrated approach to authorizing access to the Priority Access and General Authorized Access (GAA) tiers. For example, a PAL framework could facilitate the use spectrum for backhaul. Additionally the "PAL approach could enhance the 3.5 GHz Band's attractiveness to a broad range of users with QoS requirements, including mobile operators, which in turn will help drive the scale necessary for the development of an end-to-end ecosystem.

However, more clarification is required regarding the extent to which a PAL approach would permit underutilized spectrum to be employed for unlicensed uses. For example, a key question is, how would Priority Access Licenses co-exist with microcell solutions using unlicensed spectrum within a building or operating at short distances.

TIA believes that the FCC should permit long term evolution of the 3.5 GHz band and not depend solely on current technology assumptions, especially assumptions about future technology or regarding potential unlicensed use. The Commission must maintain its longstanding position in favor of technology neutrality, and must not create rules which inflexibly limit deployable technologies and/or various forms of sharing in the time, frequency, and spatial domains.

II. MARKETPLACE CONSIDERATIONS

As TIA has previously noted, policymakers should not divorce the operational, effective, and economic case from an evaluation of technical capabilities; the existence of a sharing technology should not, by itself, justify regulatory action, but should be one of multiple factors for each specific service and band.[6]

1. License Structure

The Commission asks critical questions in the PN regarding the requirements necessary for attracting investment to a PAL model.[7] In general, in order to encourage investment, license time frame should be long enough to permit an attractive return on investment. The Commission also seeks comment on whether to accommodate the ability of licensees to aggregate consecutive one-year terms, and whether to offer multiple consecutive years of PAL rights simultaneously.

As noted above, the Commission must balance providing enough certainty to attract investment with enough flexibility to allow potential use cases to evolve. In addition to allowing licensee aggregation and extended terms, the Commission could make incumbents subject to a "right of first refusal" regime, requiring them to either match a competing bids or else relinquish spectrum to a competing bid to pay a higher annual fee. [8]

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[6] *See* TIA Comment Promoting More Efficient Use of Spectrum Through Dynamic Spectrum Use Technologies, ET Docket No. 10-237, Feb 28 2011 p 8 ("TIA")

[7] PN at 23

[8] PN at 24

In TIA's initial comment we observed that although the Commission appropriately requests cost/benefits analysis for alternatives to its 3-Tier Proposal, no comparable cost/benefit analysis for the proposed 3-Tier approach exists with which to enable comparisons among alternatives.[9] In view of the concern raised regarding the proposed 3-Tier approach, substantive data on both the General Access and Priority tiers seems all the more imperative.

Multiple factors need to be considered, including impact on licensed users to continue to provide services to its customers. Flexibility should permit market forces, rather than often archaic regulations, to determine how spectrum will be used. Thus, if there is demand for wireless broadband, spectrum subject to a flexible use regime can be easily repurposed for that use without the need for a lengthy, contentious rulemaking.

2. Wireless backhaul

The 3.5 GHz band could be utilized for fixed wireless broadband access in rural and semi-urban areas, leveraging outdoor small cells, for small cells, indoor small cells, or perhaps even macrocellular use. Where technologies such as DSL or Fiber-to-the-Node, Curb, or Home ("FTTx") may not be cost-effective or feasible, wireless solutions offer another tool for bolstering broadband access. Any strategy for the 3.5 GHz Band, including one using a PAL approach, needs to be consistent with facilitating this use case.

[9] *See* Comments of TIA at 4 and NPRM at 51.

4. Localized Critical Access Use

The Commission seeks comment on the proposal that supports localized, protected spectrum access by entities with a specialized needs for reliable, interference protected spectrum access. These qualified critical access facilities (*e.g.*, hospitals) generally only need access within specific buildings and may not require a full census tract. A targeted, "geography specific" approach has appeal over a separate special privileged accessing approach. The Commission should not prescribe an arbitrary class of entities that are eligible for "priority" use of the band, but rather should permit any entity that desires a higher-quality of service in the band to seek that priority access.

The Commission should allow the market to unfold without placing undue restrictions on uses of the band and formulate rules that allow experimentation with multiple use cases.[10]

5. Band Plan

The Commission's PN proposes 10 MHz unpaired channels as a PAL standard. TIA notes that other commenters[11] suggest that the 3.5 GHz band use 20 MHz-wide channels and that, because of unique factors arising from the presence of government incumbents, TDD ("Time-Division-Duplex") technology would be preferred for this band. This approach may have has potential to the extent that 10 MHz channels can be readily aggregated into larger blocks. As previously noted, the presence of incumbent operations in this band, such as the Department of

[10] *See* Comments of Alcatel-Lucent, WT Docket No. 12-354 (filed Feb. 20, 2013) at 3.

[11] *See* Comments of QUALCOMM, WT Docket No. 12-354 (filed Feb. 20, 2013) at IV.

Defense and FSS incumbents, complicates the development of a framework or system to permit additional uses.

As the Commission notes, beyond the "worst-case exclusion zones" proposed by NTIA in their macrocell analysis, large geographic areas of the country remain available. These areas could all be exclusively licensed by geographic area as they would not have any encumbrances.

6. **Secondary Markets.**

The Commission should apply the Secondary Market rules to the 3550-3650 bands and permit the market to decide on the value of various leasing arrangements defined by those rules. Further, the Commission should clarify if changes need to be made to the incumbent's service classification (in particular, federal incumbents) in order for mobile broadband to be deployed under such leasing arrangements, and make such changes as required. Secondary leasing arrangements, using the Commission's Secondary Market rules, will allow providers to adjust to changing market circumstances in order to enhance their service quality. Markets can efficiently allocate spectrum in response to emerging technology, and spectrum rights should be flexible.

TIA notes that in general, exclusive licensed spectrum models offer a superior user experience based on predictable service quality, c**o**mpared to the proposed license-by-rule approach. We note that generally these types of services can only be considered a complement to licensed spectrum. For example, best efforts services are unable to support Commission service expectations, as envisioned by the National Broadband Plan.

II. CONCLUSION

For the foregoing reasons, TIA urges the Commission to adopt policies consistent with the recommendations above.

Respectfully submitted,

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