August 2017 FCC Meeting Recap: FCC Commences Major Study of Spectrum Management Issues Involving "Mid-Band" Frequencies

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At its August Open Meeting, the Federal Communications Commission ("Commission" or "FCC") unanimously initiated a major inquiry proceeding into what it labels "mid-band spectrum," namely the frequencies between 3.7 GHz and 24 GHz. The proceeding has major potential spectrum management ramifications for the coming years as the record developed could serve as a catalyst for future allocation and rule proceedings in a number of bands. Recall that in late 2014, the Commission launched its *Spectrum Frontiers* inquiry proceeding into spectrum above 24 GHz, which led to an order adopting rules for flexible licensed and unlicensed use of almost eleven (11) gigahertz of spectrum in July 2016, and a further notice which may lead to as much as another eighteen (18) gigahertz becoming available in the near future.

In adopting its Notice of Inquiry ("NOI"), the Commission cited the need to meet "future demand" and the desire to "evaluate spectrum bands in all ranges." According to the Commission, in extremely general terms given the more than six-fold increase in wavelength between the bottom and top of the so-called "mid-band" range and the many pre-existing allocations throughout the range, these bands have better propagation characteristics (at least in some regards) than higher frequencies and hold out the promise for greater channel bandwidths than lower frequencies.

The NOI seeks information on three specific bands – the 3.7-4.2 GHz, 5.925-6.425 GHz, and 6.425-7.125 GHz bands – but also asks interested parties to identify other non-Federal frequencies in the mid-band range that may be suitable for expanded flexible use, including wireless broadband, on both a licensed and unlicensed basis. The NOI suggests commenters – both prospective new entrants and incumbent users – focus on bands with exclusive non-Federal allocations without ignoring those with shared Federal and non-Federal allocations. Given the existing uses in the three specifically identified bands, the inquiries about potential new uses can be expected to generate some contentious debate – indeed, intensify debates which have already begun – about the best ways to manage these bands going forward.

3.7-4.2 GHz

The 3.7-4.2 GHz band, which is already used by several groups of incumbents, is subject to several recent competing proposals. The band is currently allocated in the United States exclusively for non-federal use. Geostationary orbit satellite systems ("GSOs") (namely, Fixed-Satellite Service ("FSS") (space-to-Earth)) and Fixed Services are co-primary in this band. The predominant GSO uses are

media broadcast and communications backhaul. Although historically the band has been used by the Fixed Services for similar functions, over time, carriers have turned to alternative solutions, resulting in what the NOI calls a "steep decline" in Fixed Services use of the band. This past October, the Fixed Wireless Communications Coalition ("FWCC") filed a petition for rulemaking seeking with the Commission to foster increased use of the 3.7-4.2 GHz band by the Fixed Services, which the Commission put out for public comment late last year.

The Commission invites ideas how existing service rules governing GSO FSS and Fixed Services could be modified to further promote flexible use in this band, stimulate investment, and encourage more intensive deployment. In recent months, the 3.7-4.2 GHz band has drawn interest from other prospective users ranging from commercial mobile carriers, equipment manufacturers, Wireless ISPs, and the Wi-Fi community leading to other proposals. An *ad hoc* coalition of equipment manufacturers and mobile carriers seek access to the 3.7-4.2 GHz band for licensed mobile services (and to the 5.925-7.125 GHz band for unlicensed usage). They still have yet to formally file their petition for rulemaking. In a blog post published on the FCC's website on July 10, Commissioner Mike O'Rielly expressed support for the *ad hoc* proposal.

The 3.7-4.2 GHz band is adjacent to the 3.55-3.7 GHz Citizens Broadband Radio Service ("CBRS") band, aka the 3.5 GHz band, which makes it particularly attractive to prospective licensees also interested in some of the CBRS spectrum. Two petitions for rulemaking, by CTIA and T-Mobile, for liberalization of certain licensing rules in the 3.5 GHz CBRS band to make operations in that spectrum more attractive to investors and deployment friendly were recently put on public notice. Proponents smell an opportunity for a larger contiguous band which could bring equipment costs down and harmonize with international initiative in this same portion of the radio frequency spectrum.

In June, another group, the Broadband Access Coalition ("BAC"), filed a petition for rulemaking encouraging the Commission to create a new licensed, point-to-multipoint ("P2MP") fixed wireless service in the 3.7-4.2 GHz band. BAC is comprised of wireless ISPs, educational interests (e.g. the American Library Association), and technology advocacy organizations (e.g. Public Knowledge). Under the BAC proposal, spectrum in the 3.7-4.2 GHz band would be licensed through the FCC's Part 101 Operational Fixed Microwave rules rather than via auction.

5.925-6.425 GHz

Like the 3.7-4.2 GHz band, the 5.925-6.425 GHz band is allocated in the U.S. only for non-Federal use on a primary basis for FSS (Earth-to-space) and Fixed Service operation. Unlike the first band, the 5.925-6.425 GHz band is heavily utilized by Fixed Service licensees "support[ing] a variety of critical services such as public safety (including backhaul for police and fire vehicle dispatch), coordination of railroad train movements, control of natural gas and oil pipelines, regulation of electric grids, and backhaul for commercial wireless traffic."

The NOI asks for input on potential unlicensed use of the 5.925-6.425 GHz band, especially how it might be combined with operations in nearby spectrum designated for Unlicensed National Information Infrastructure ("U-NII"). Perhaps U-NII devices in the 5.15-5.35 GHz and 5.47-5.725 GHz bands, the NOI muses, could use the 5.925-6.425 GHz band as well to achieve wider channel bandwidths and higher data rates. But the NOI is also open to possible *licensed* wireless broadband usage, including possible paired use with the 3.7-4.2 GHz band that coexists with existing categories of Fixed Services licensees and transmitting satellite earth stations. The Commission also inquires about whether there would be value in pairing this band with the 3.7-4.2 GHz band.

6.425-7.125 GHz

The 6.425-7.125 GHz band is currently domestically allocated for non-Federal use only for a number of services, namely Fixed and Mobile Services and FSS, none of which currently has access to the entire band. The Commission reveals that the FSS usage is less than in the band just described above, whereas the Fixed and Mobile Services include Broadcast Auxiliary Services ("BAS"), Cable Television Radio Services ("CARS"), and Part 101 Operational Fixed Microwave operations. The Commission observes that "[t]he Fixed Services and BAS operations in these bands support a variety of critical services such as public safety (including police and fire vehicle dispatch), coordination of railroad train movements, control of natural gas and oil pipelines, regulation of electric grids, backhaul for wireless traffic, television studio-transmitter links ("STLs"), television relay, and television translator relay stations." Yet, at the same time, the FCC sees "the potential for more intensive [fixed] or mobile use" of the band, especially since none of the current allocations span the entire band individually, while there is already overlap in some portions of the band. The Commission's focus appears to be on taking the temperature for potential sharing on a flexible basis between mobile uses and incumbent operations, rather than on transplanting current FSS, FS, and mobile users of the band.

Other Potential Bands for Flexible Wireless Services

In addition to the bands discussed above, the Commission invites comment on "other potential opportunities for expanded flexible broadband use, on a licensed or unlicensed basis, particularly in non-Federal and shared bands between 3.7 and 24 GHz." The FCC wants details, asking commenters to focus on the circumstances they would expect to encounter in the bands they identify, such as deployment costs, the required technology, the desired timeframe for licensing and initiation of service, and methods for balancing the needs for licensed and unlicensed access. The NOI also seeks to focus attention on current non-Federal users of any candidate bands, the intensity of such uses, anticipated growth of such uses, and options for coexisting with or relocating them. The Commission suggests it will give priority to requests which target exclusive non-Federal bands and request input from both prospective entrants and existing incumbents. This part of the NOI, while not focused on specific bands, is prospectively a valuable opportunity for parties developing innovative flexible use services in the "mid band" spectrum to grab the regulator's attention and potentially influence the scope and nature of subsequent rulemaking proceedings.

The Commission also encourages parties to explain what (if any) service rules applicable in the existing bands between 3.7 and 24 GHz could be modified or eliminated to promote more intensive and efficient non-federal use of other spectrum, including sharing. Again, the Commission does not hide its apparent intentions to manage the spectrum through the "mid band" range, if possible, in a way to promote innovation and flexible use.

Finally, the Commission invites general or band-specific feedback on a variety of significant spectrum management issues: how (and what) emerging technologies can improve spectrum utilization, whether incentive auctions should be used in other bands, what opportunities exist to relocate non-Federal incumbent users, and what are appropriate "long-term strategies" for promoting flexible use in non-Federal shared bands between 3.7 and 24 GHz.

Comments on the NOI are due on **October 2, 2017**, and reply comments on **November 1, 2017** in Docket No. 17-183.