

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of:)
)
Expanding Flexible Use of the 3.7 to 4.2) GN Docket No. 18-122
GHz Band)
)

**REPLY COMMENTS OF
THE NATIONAL ASSOCIATION OF BROADCASTERS**

I. INTRODUCTION

The National Association of Broadcasters (NAB)¹ hereby replies to comments submitted in response to the Public Notice issued by the Office of Engineering and Technology and the International and Wireless Bureaus seeking comment for an upcoming Commission report on the feasibility of allowing commercial wireless services to use or share use of the 3.7-4.2 GHz band.² NAB agrees with those commenters stressing the importance of existing operations in the C-band, and the limits of proposed alternatives. Accordingly, the Commission should exercise caution in considering any proposal to allow expanded operations in the C-band. In particular, the Commission should acknowledge in its report that it is generally

¹ The National Association of Broadcasters is a nonprofit trade association that advocates on behalf of free local radio and television stations and broadcast networks before Congress, the Federal Communications Commission and other federal agencies, and the courts.

² *Office of Engineering and Technology, International, and Wireless Telecommunications Bureaus Seek Comment for Report on the Feasibility of Allowing Commercial Wireless Services, Licensed or Unlicensed, to Use or Share Use of the Frequencies Between 3.7-4.2 GHz*, Public Notice, GN Docket No. 18-122, DA 18-446 (May 1, 2018) (Public Notice).

unworkable for terrestrial users to share C-band frequencies with satellite users based on geographic separation alone.

II. THE RECORD REFLECTS THE IMPORTANCE OF PROTECTING INCUMBENT USERS OF THE C-BAND

The initial comments in this proceeding, as well as comments in related proceedings, underscore the critical role the satellite C-band plays in content distribution across the country. Virtually every American who listens to the radio or watches television relies on the ubiquitous, reliable coverage the C-band provides.³ Changes to the way the C-band is used may have significant unintended consequences for the content distribution architecture on which consumers currently rely.

NAB agrees with commenters stating that the availability and suitability of alternative means of content distribution have been overstated. Alternative satellite spectrum bands lack the capacity and reliability of the C-band that make it so well-suited for nationwide content distribution. Numerous commenters point out that the Ku- and Ka-bands are subject to rain fade, rendering them poor substitutes for the C-band in many parts of the country.⁴ Moreover, the Ku- and Ka-bands may simply lack capacity to accommodate relocated C-band operations.⁵

³ Comments of the Content Companies at 2-3, GN Docket No. 18-122 (May 31, 2018); Comments of National Public Radio at 2-3, GN Docket No. 18-122 (May 31, 2018); Comments of Comcast Corporation and NBCUniversal Media, LLC at 3-5, GN Docket No. 18-122 (May 31, 2018).

⁴ Content Companies Comments at 3; Comcast Comments at 7.

⁵ Comcast Comments at 14, citing Reply Comments of the Satellite Industry Association at 20, GN Docket No. 17-183 (Nov. 15, 2017) and Reply Comments of SES Americom, Inc. at 13 (Nov. 15, 2017).

Similarly, fiber and other ground-based systems are unlikely to be a viable alternative for all incumbent operations. In many parts of the country, particularly more rural locations, fiber is simply not available, or is prohibitively expensive.⁶ Non-fiber systems, such as xDSL, do not offer sufficient bandwidth. Fiber and other ground-based options can be subject to lengthy outages, and generally lack the ubiquity and reliability that make the C-band an integral part of the content distribution architecture on which virtually every radio listener and television viewer relies today.⁷

Accordingly, the Commission's report should reflect that any effort to allow expanded terrestrial operations in the C-band must take care to ensure that incumbent operations are fully protected and compensated for any expenses associated with relocation or interference remediation. NAB urges the Commission to address in its report the questions commenters raise concerning how incumbent users can be protected or relocated if the Commission authorizes expanded operations in the C-band, including whether proposed options will provide the reliability and ubiquity that viewers and listeners rely on today, as well as how relocation will be funded and increased operating costs will be addressed.⁸

III. THE RECORD REFLECTS THE INFEASIBILITY OF ALLOWING SHARED CO-CHANNEL OPERATIONS IN THE C-BAND

The initial comments in this proceeding, as well as comments in related proceedings, amply demonstrate the serious technical challenges associated with co-channel sharing in the C-band. Comments from a wide variety of stakeholders, including broadcasters, the cable

⁶ Comments of National Public Radio at 7, GN Docket No. 18-122 (May 31, 2018).

⁷ Content Companies Comments at 3-4; NPR Comments at 7; Comcast Comments at 15-17.

⁸ Comcast Comments at 11-17; NPR Comments at 7.

industry, the wireless industry, satellite operators and device manufacturers all caution that, as a practical matter, terrestrial users cannot share C-band frequencies based on geographic separation alone.⁹ Very large separation distances would be required, and mobile operations pose a particular challenge because there is no reliable means of geofencing mobile users or mobile handsets from operation in exclusion zones.

Motorola Solutions, however, suggests that sharing may be possible through database-driven mechanisms.¹⁰ The Commission should exercise caution in considering further spectrum sharing based on its experience with existing sharing regimes. Spectrum sharing on a large scale remains unproven or, at best, unreliable. Well-documented inaccuracies in the white spaces database thoroughly demonstrate the inadequacy of such an approach to spectrum sharing without significantly expanded safeguards.¹¹ Given the ongoing failure of the white spaces database, and the fact that the Commission has yet to act on an industry-brokered compromise to resolve these issues,¹² there is no basis to believe a database approach can be successfully implemented.

⁹ Joint Comments of Intel Corporation, Intelsat License, LLC, and SES Americom, Inc. at 4-6, GN Docket No. 18-122 (May 31, 2018); Comments of Ericsson at 4-7, GN Docket No. 18-122 (May 31, 2018); Comments of CTIA at 5-6, GN Docket No. 18-122 (May 31, 2018); NPR Comments at 11-12; Content Companies Comments at 4-7; SIA Comments at 6-8; Comments of NCTA – The Internet & Television Association at 8-9, GN Docket No. 18-122 (May 31, 2018).

¹⁰ Comments of Motorola Solutions, Inc., GN Docket No. 18-122 (May 31, 2018).

¹¹ Emergency Motion for Suspension of Operations and Petition for Rulemaking, RM-11745 (March 19, 2015); Letter from Patrick McFadden to Marlene H. Dortch, RM-11745, ET Docket No. 14-165 (June 25, 2015); Letter from Patrick McFadden to Marlene H. Dortch, ET Docket No. 16-56 (July 15, 2016); Letter from Patrick McFadden to Marlene H. Dortch, ET Docket Nos. 16-56, 14-165 (Nov. 17, 2016).

¹² Letter from Haiyun Tang, Adaptrum, Inc.; James Carlson, Carlson Wireless Technologies, Inc.; Larry W. Koos, Koos Technical Services, Inc.; Jordan Du Val, MELD Technology, Inc.; and Rick Kaplan, National Association of Broadcasters, to Julius P. Knapp, Chief, Office of

Further, complaints of interference to FAA and other radar systems have been reported from malfunctioning or mis-configured U-NII systems.¹³ Based on these experiences, it seems highly unlikely that any spectrum-sensing based sharing mechanism could be practical without a substantial risk of interference. In any case, the burden must be on the new user to conclusively demonstrate by actual field testing and rigorous technical analysis that database schemes will adequately protect all incumbent users.

NAB is also concerned that beam-forming and other adaptive antenna techniques are unlikely to be practical for user equipment devices and that base stations utilizing such techniques can still present strong signals at Earth Station locations (relative to the weak satellite signals) due to reflections off of buildings and terrain. NAB disagrees that morphology, clutter effects and signal reflections can be accurately modeled using existing data, and Motorola Solutions has recommended no alternative propagation model that can be utilized “for more accurate interference prediction.”¹⁴

NAB is particularly concerned about Motorola Solutions’ suggestion that incumbent users should be divided between those that are “critical” and “non-critical.”¹⁵ The distribution of radio and television programming is certainly critical to broadcast radio and television stations, cable systems and their listeners and viewers, and is often used for the dissemination of emergency alerts and weather information. If the Commission does choose

Engineering and Technology, RM-11745 (filed Jul. 17, 2015); see also *Amendment of Part 15 of the Commission’s Rules for Unlicensed White Space Devices*, Notice of Proposed Rulemaking and Order, 31 FCC Rcd 1657 (Feb. 26, 2016).

¹³ Reply Comments of the National Association of Broadcasters, ET Docket No. 13-49 (July 22, 2016).

¹⁴ Comments of Motorola Solutions at 2-3

¹⁵ *Id.* at 2, 4.

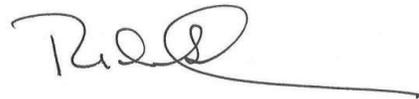
to experiment with some form of spectrum sharing in the C-band, it must take care to protect incumbent operations without making artificial distinctions based on Motorola Solutions' opinions of the importance of those operations.

IV. CONCLUSION

The Commission's report to Congress should begin with an acknowledgment of the critical role the C-band plays in the content distribution system. Proposals to allow expanded operations in the band should include a realistic analysis of the viability of alternative methods of distribution as well as plans to fully reimburse incumbent operations for expenses associated with relocation or replacement of service. The Commission should also proceed with caution in considering proposals for shared operations in the C-band. Any such proposal should be based on detailed technical analysis that shared operations can protect incumbent operations and should acknowledge that terrestrial users cannot share C-band frequencies based solely on geographic separation.

Respectfully submitted,

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June 15, 2018