

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of:)
)
Unmanned Aerial System Operations in the)
5030-5091 MHz Bands) WT Docket No. 22-323
)
)

**COMMENTS OF
THE NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL**

The National Public Safety Telecommunications Council (NPSTC) submits these comments in response to the Notice of Proposed Rulemaking (NPRM) in the above captioned proceeding.¹ The NPRM seeks comment on proposed rules for unmanned aerial system (UAS) operations in the 5030-5091 MHz bands, and raises questions about UAS operations in other types of spectrum, e.g., “flexible use” bands. In these comments, NPSTC supports many of the Commission’s proposals and recommends actions that would help position the band to serve public safety operational requirements.

¹*Notice of Proposed Rulemaking*, WT Docket No. 22-323, released January 4, 2023, and published in the Federal Register on February 7, 2023.

The National Public Safety Telecommunications Council

The National Public Safety Telecommunications Council is a federation of public safety organizations whose mission is to improve public safety communications and interoperability through collaborative leadership. NPSTC pursues the role of being a resource and providing advocacy for public safety organizations in the United States on matters relating to public safety telecommunications. NPSTC has promoted implementation of the Public Safety Wireless Advisory Committee (PSWAC) and the 700 MHz Public Safety National Coordination Committee (NCC) recommendations. NPSTC explores technologies and public policy involving public safety telecommunications, analyzes the ramifications of particular issues and submits comments to governmental bodies with the objective of furthering public safety telecommunications worldwide. NPSTC serves as a standing forum for the exchange of ideas and information for effective public safety telecommunications.

The following 14 organizations serve on NPSTC's Governing Board:²

- American Association of State Highway and Transportation Officials
- American Radio Relay League
- Association of Fish and Wildlife Agencies
- Association of Public-Safety Communications Officials-International
- Forestry Conservation Communications Association
- International Association of Chiefs of Police
- International Association of Fire Chiefs
- International Municipal Signal Association
- National Association of State Emergency Medical Services Officials
- National Association of State Foresters
- National Association of State Technology Directors
- National Council of Statewide Interoperability Coordinators
- National Emergency Number Association
- National Sheriffs' Association

² These comments represent the views of the NPSTC Governing Board member organizations.

Several federal agencies are liaison members of NPSTC. These include the Department of Homeland Security (the Federal Emergency Management Agency, the Emergency Communications Division, the Office for Interoperability and Compatibility, and the SAFECOM Program); Department of Commerce (National Telecommunications and Information Administration); Department of the Interior; and the Department of Justice (National Institute of Justice, Communications Technology Program). Also, Public Safety Europe is a liaison member. NPSTC has relationships with associate members: The Canadian Interoperability Technology Interest Group (CITIG) and the Utilities Technology Council (UTC), and affiliate members: The Alliance for Telecommunications Industry Solutions (ATIS), Open Mobile Alliance (OMA), Telecommunications Industry Association (TIA), TETRA Critical Communications Association (TCCA), Project 25 Technology Interest Group (PTIG) and the Government Wireless Technology & Communications Association (GWTCA).

NPSTC Comments

In 2017, FCC allocated the 5030-5091 MHz band to support terrestrial control links for UAS. The current Notice of proposed Rulemaking (NPRM) proposes specific service rules for this band. While this NPRM is not limited to public safety needs, the Commission appears to envision this band as supporting UAS control operations for public safety and other critical uses, not only commercial operations such as package delivery. The NPRM notes that the Commission “seek(s) comment on service rules for the 5030-5091 MHz band that will provide UAS operators with access to licensed spectrum with the reliability necessary to support safety-critical UAS communications links.”³ The NPRM also specifically mentions public safety and other critical use cases in proposing a band plan that incorporates spectrum both for non-network and network supported operations.⁴

³ NPRM at paragraph 2.

⁴ NPRM at paragraph 13.

In proposing rules for the 5030-5091 MHz band, the Commission notes that this band is not intended to be the sole solution for UAS:

In addressing the 5030-5091 MHz service rules, we do not propose to mandate that all CNPC [control-and-non-payload communications] occur within the band, nor do we intend that the future rules adopted in this proceeding for 5030-5091 MHz will necessarily govern any UAS operations in other bands. Rather, through this proceeding, we seek to provide UAS operators with access to an additional spectrum resource that may complement other spectrum resources that are currently available or in development. The 5030-5091 MHz band is a limited resource, and the demand for protected UAS CNPC may well exceed the capacity of the band as UAS operations increase over time. [footnote eliminated] Further, while existing networks operating in other bands such as flexible-use bands may provide sufficient reliability for many UAS use cases, authorization of the 5030-5091 MHz band for UAS use offers an opportunity to apply standards and rules designed to meet even the most safety-critical communications needs.⁵

NPSTC agrees. The allocation made in 2017, and the rules proposed in this NPRM both seem to limit use of the band to control of UAS. Sufficient spectrum to support reliable and secure control of UAS is extremely important. In addition, so is spectrum for a payload link over which information gathered by a UAS can be communicated back to a ground based receiver. Otherwise, launching a UAS for search and rescue, assessment of a wildland fire, support of a hostage incident or for numerous other operations provides little benefit. To the extent the Commission maintains the 5030-5091 MHz band for control and non-payload communications only, it is clear additional spectrum will be required.

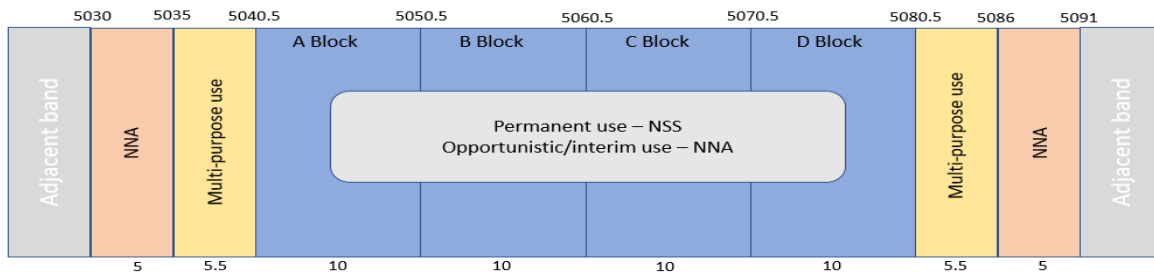
For the 5030-5091 MHz band, FCC proposes licensed operations with two overall generic use cases. Non-Networked Access (NNA) would rely on radio line of sight between the UAS and its

⁵ NPRM at paragraph 12.

operator. The second generic use case proposed is designated as Network Supported Services (NSS), where a wider area of operation beyond radio line of sight is required and would be supported by network infrastructure.

The Commission has proposed the following band plan at 5030-5091 MHz for NNA and NSS UAS control operations:

Figure 1. UAS 5030-5091 MHz Band Plan



The NPRM proposes to authorize NNA as non-exclusive, licensed by rule operations, i.e., an individual license application would not be required. Interference would be controlled by use of dynamic frequency management system (DFMS). For NSS, the Commission proposes exclusive geographic-area licenses, with the NSS spectrum licensees determined by an auction, in the event of mutually exclusive applications.

Both NNA and NSS generic use cases are important for public safety operations. Initially, most nascent public safety UAS operations were primarily line-of-sight over mostly unlicensed spectrum, as that was the only spectrum available. However, the benefits of UAS as a force multiplier for public safety operations increasingly include situations that require beyond line-of-sight communications. These include assessment of expansive wildland fires, planning for and responding to disaster situations, and search and rescue operations.

Accordingly, NPSTC agrees that spectrum for both NNA and NSS operations is an important part of the service rules for the band. However, we believe that several adjustments to the proposal are needed to support public safety and other critical operations.

For NSS operations, NPSTC strongly recommends designating the D block of spectrum in the proposed band plan for public safety operations and critical infrastructure uses. For that block, a network operator could be chosen, or other licensing rules defined, specifically to provide UAS network supported services to meet the needs of public safety and critical infrastructure. NPSTC believes this approach could be very beneficial to public safety, other critical services and possibly some Federal level operations conducted in cooperation with state and local entities. These situations may include FEMA in disaster response missions, the FBI when it provides assistance in hostage situations, and/or Federal agencies that work cooperatively with state and local fire departments in battling wildland fires.

NPSTC understands that a subsequent NPRM may be needed to determine the requirements for such a designated spectrum block. If so, NPSTC recommends that a Further NPRM be developed as soon as possible following a decision to dedicate the D block in the 5030-5091 MHz band. NPSTC notes that designating a block within the 5030-5091 MHz band for safety-related operations would still leave three blocks within which nationwide operators and/or commercial services could compete to obtain licenses.

At minimum, if the Commission chooses not to designate a block of spectrum in this band as described above, it should adopt a rule that requires any commercial operators chosen within all 4 proposed NSS spectrum blocks to provide public safety priority and preemption. UAS operations in support of Critical Infrastructure should be provided prioritization immediately below that of public safety and above that of other more general uses. For this option to be useful, operators would also

need to provide coverage when and where needed, capacity, capabilities, control and cost factors all that meet public safety requirements.

For NSS licensees, FCC proposes 10-year licenses and to require population coverage in the licensed area of 45% or within 6 years and 80% or greater in 12 years. NPSTC recognizes that population coverage is the approach normally chosen for buildout of licenses held by a commercial operator. As addressed in Docket No. WT 19-38, population coverage is not an applicable buildout benchmark for a number of other types of operations. NPSTC recommends the Commission broaden the buildout perspective to include approaches such as those being discussed in that docket.

As noted previously, the NPRM proposes to require the use of a dynamic frequency management system (DFMS) to minimize interference for NNA operations. Under such an approach, a DFMS provider would make specific frequency assignments on a temporary basis to an NNA licensee, according to its need for UAS operation in a given area for a given duration of time. Public safety UAS operations are normally NOT limited to some pre-defined time periods as the NPRM envisions for the DFMS system. In contrast, public safety operations would require UAS use, and correspondingly, availability and protection of given frequency(ies) immediately upon need and for the duration of an incident, however long that may be. For example, there is no way to predict up-front how long a hostage situation may last. Therefore, any rules adopted for NNA need to be well thought out and broad enough to accommodate public safety use cases and operational requirements.

The Commission proposes technical rules to apply in the 5030-5091 MHz band, including power limits, allowable bandwidths, types of emissions, and transmitter conformance with technical standard *RTCA-DO-362A*. NPSTC will defer comment on these technical issues at this time and looks forward to input from applicable UAS equipment providers. NPSTC does note that the

bandwidths proposed are based on using the band for control operations, as the relatively narrow bandwidths are clearly inadequate to support video payload communications.

The NPRM seeks input on the possible role(s) for a Multi-Stakeholder Group, including development of the DFMS requirements and to study standards and interference issues associated with UAS operations in the band. Given the realities as played out in the 6 GHz band Multi-Stakeholder initiative, NPSTC is skeptical that such a process could reach important decisions. The Multi-Stakeholder initiative for the 6 GHz band failed to reach any agreement on identifying or resolving potential interference from newly authorized secondary unlicensed operations to primary licensed fixed or mobile public safety, CII, commercial carrier or broadcast auxiliary operations in the band. Accordingly, the experience with the Multi-Stakeholder Group in the 6 GHz band was negative. Reliance on any Multi-Stakeholder Group in this UAS proceeding would require clear direction up-front and throughout the process as required to ensure that the needs of public safety are taken into account fully.

Conclusion

NPSTC thanks the Commission for proposing service rules to govern control of UAS in the 5030-5091 band and makes recommendations on those rules in these comments. NPSTC also agrees with the Commission that spectrum beyond the 5030-5091 MHz band is required. In particular, for UAS operations to be successful, sufficient spectrum is needed both for control and for payload communications.

NPSTC supports provisions for both non-network line-of sight (NNA) and longer-range network supported service (NSS) UAS operations as proposed. Both are important to public safety. Public safety entities increasingly need to utilize UAS to help speed response to multiple situations including, but not limited to, accident investigations, wildland and structure fires, search

and rescue operations, disasters, hostage crises and advanced emergency medical service operations including rapid delivery of medical supplies and medical devices.

Given the growing need for reliable and secure UAS communications, NPSTC strongly recommends designating the D block in the proposed 5030-5091 MHz band plan for NSS operations to support public safety, critical infrastructure needs and possibly some Federal agencies if there is a cooperative local/state/Federal operation. In the event the Commission decides not to reach such a decision, at minimum it should require by rule that commercial licensees within any of the four proposed NSS spectrum blocks provide public safety operations with priority and pre-emption. For this option to be useful, operators would also need to provide service that meets public safety requirements. Critical Infrastructure operations should be provided priority just below that of public safety and above that of other more general uses.

For line-of sight NNA operations, the proposed use of a dynamic frequency management system (DFMS) to select and protect frequencies needs to account for public safety use cases and operational requirements. Public safety cannot predict up front some defined temporary time period for use of UAS frequencies as envisioned for proposed DFMS implementation. The spectrum resource for UAS is needed right away and for the duration of an event, however long that may be.

In response to the use of population benchmarks for buildout requirements of NSS licenses, NPSTC recommends the Commission broaden the buildout perspective to include alternative approaches such as those being discussed in that WT Docket No. 19-38. At this time, NPSTC defers comment on proposed power, bandwidth, emission and technical performance standards for the 5030-5091 UAS band to entities that provide UAS equipment. The NPRM

also includes questions about potential use of a Multi-Stakeholder Group to address issues in this proceeding. The failure of the 6 GHz Multi-Stakeholder Group to address key issues of interference identification and resolution was a negative outcome and certainly creates skepticism that such a process would be fruitful here without more specific up-front requirements to meet public safety needs.

NPSTC looks forward to working cooperatively with the Commission to implement spectrum, policies and rules that support the growing needs of the public safety and other critical communities for reliable and secure UAS communications.

Ralph A. Haller, Chairman

A handwritten signature in black ink, appearing to read "Ralph A. Haller", written over a light gray horizontal line.

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