

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

In the Matter of)
)
Spectrum Rules and Policies for the) WT Docket No. 22-323
Operation of Unmanned Aircraft Systems)
)

**Joint Comments of the Regulatory and Technology Committee of the
Energy Telecommunications and Electrical Association and the Telecommunications
Subcommittee of the American Petroleum Institute**

The Regulatory and Technology Committee of the Energy Telecommunications and Electrical Association (“ENTELEC”) and the Telecommunications Subcommittee of the American Petroleum Institute (“API”) jointly submit these comments in response to the Federal Communications Commission’s Notice of Proposed Rulemaking (“NPRM”) concerning spectrum service rules for the operation of Unmanned Aircraft Systems (“UAS”).¹ The NPRM includes service rules for the 5030-5091 MHz band, reducing prohibitions on aerial uses in other frequency bands, and a process for licensing UAS operators in the aeronautical VHF band.

Background

ENTELEC is a user association focusing on communications and control technologies used by petroleum, natural gas, pipeline, and electric utility companies. The Regulatory and Technology Committee is comprised of ENTELEC’s members and provides policy advocacy and targeted educational opportunities and resources on behalf of those members.

¹ *In the Matter of Spectrum Rules and Policies for the Operation of Unmanned Aircraft Systems*, WT Docket No. 22-323, Notice of Proposed Rulemaking, 88 FR 7910 (2023).

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. The API Telecommunications Subcommittee evaluates and develops responses to state and federal proposals affecting telecommunications facilities used in the oil and gas industries. API is supported and sustained by companies that make use of a wide variety of wireline, wireless, and satellite communications services on both a private and commercial basis. All wireless services used by our membership require RF spectrum resources of both narrowband and broadband varieties.

As such, our memberships overwhelmingly support an allocation for UAS operations in the 5030-5091 MHz band and offer the following input in response to various items within the NPRM.

Comments

Our comments offer a Critical Infrastructure Industry (“CII”) perspective on several proposed items within the NPRM that, if adopted, will significantly improve the utility of the 5030-5091 MHz band. Critical infrastructure companies have an important need for UAS operations. We believe our response to this NPRM will enhance the ability of this dedicated radio spectrum allocation to support UAS operations.

The following key points address several specific areas that were included in this NPRM:

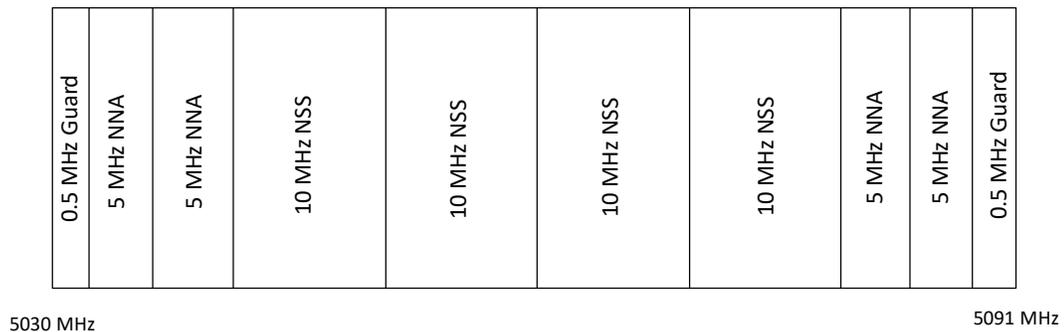
A. Exclusivity for “Control-and-Non-Payload Communication” (“CNPC”)

ENTELEC and API support the Commission’s proposal that all CNPC communications should not be required to fall exclusively into the 5030-5091 MHz band.

B. Band Plan for 5030-5091 MHz

ENTELEC and API support a band plan consisting of a 20 MHz Non-Networked Access (“NNA”) portion and a 40 MHz Network Supported Services (“NSS”) portion, with the remaining 1 MHz serving as two guard bands. The following chart illustrates the ENTELEC and API proposal for both NNA and NSS services:

5030 – 5091 MHz Proposal



In essence, while we agree with proposals to license four 10-MHz NSS channels,² we recommend that NNA access have a 20 MHz allocation and be segmented into four 5 MHz blocks. ENTELEC and API believe that, given potential interference concerns inherent in aerial use cases, a band plan consisting of a greater number of lower bandwidth channels has the advantage of offering a better ability to avoid interference as compared to a band plan consisting of fewer higher bandwidth channels.

C. NSS Licensee Area

Many ENTELEC and API members have aviation departments for manned flights and every one of those groups has a deep respect for aviation safety. Therefore, we strongly encourage the Commission to align with the Federal Aviation Administration (“FAA”)

² *NPRM* at para. 24.

on the license boundaries in order to promote simple and efficient Air Traffic Control (“ATC”) communications and operations. Thus, in absence of the FAA recommending a more acceptable solution, ENTELEC and API strongly support NSS area licensing being issued in alignment with the Air Route Traffic Control Center (“ARTCC”) boundaries, and not on any other basis otherwise used by the FCC.

D. Channel Bandwidth to Include Emission Limits

ENTELEC and API believe that no guard band should be necessary between NSS or NNA blocks because the filtering/mask requirements for each service shall ensure the proper adjacent channel. Actual adjacent channel limits should be left to system hardware designers to suggest.

E. Exclusive Use of CNPC with Reservations for Other Data

ENTELEC and API members need a reliable method to provide limited video or data feeds for real-time monitoring of ground-based assets and other mission objectives by UAS. Currently, the data is stored on-board and retrieved after flight. While tethered UAS have been created to help provide real-time monitoring, as well as utilize unlicensed frequencies at low enough heights to allow for reliable payload transmission, having a dedicated licensed spectrum to use for aerial payload is a key need. Thus, ENTELEC and API ask the FCC to consider the following:

- NSS Spectrum: Limited video feeds for flight guidance and safety of flight as suggested in the NPRM for § 88.103, to the limits listed.
- NNA Spectrum: Limited video feeds for flight guidance and safety of flight as suggested in the NPRM for § 88.103, to the limits listed, plus an additional limit of up to 1.5 MHz of additional bandwidth for video or data reporting.

In essence, ENTELEC and API feel that NNA spectrum should allow for ancillary uses in addition to CNPC. NNA can be used separately, or in conjunction with NSS use as a “side channel” for various targeted data reporting, or UAS to UAS communications at lower altitudes.

F. Altitude Restrictions for Licensing

ENTELEC and API believe that NSS spectrum will cater predominantly to Beyond Visual Line-of-Sight (“BVLOS”) operations that will be subject to FAA altitude restrictions. Thus, ENTELEC and API do not believe a vertical limit for NSS operation is necessary, as this should be governed by the operational limits of the UAS.

However, for NNA operations, given that our proposal is to allow a total of 2 MHz of communications including either video or a combination of video/payload data, we feel that the 400-foot altitude limit currently associated with UAS operation should be established. This 400-foot NNA limit will help minimize interference potential by allowing frequency re-use at closer distances than might be possible if a higher altitude limit were established.

G. Station and Operator Licensing for NNA and NSS

The FCC has raised questions on how licensing in the 5030-5091 MHz range should be handled.³ Based on the ENTELEC and API proposal, we recommend the following:

- NSS Station Licenses: ENTELEC and API feel that NSS Station licenses should be limited to a 10-year license term with an expectation of renewal provided suitable performance goals are met. Such performance goals should be tiered

³ Note that since the FCC is proposing this be part of an auction, there will be far fewer NSS licensees than NNA licensees.

based on area coverage and altitude, as it is naturally easier to provide coverage at higher altitudes than at lower ones.

ENTELEC and API agree that an NSS station license may be issued to any entity other than those which are precluded by Section 310 of the Communications Act, those barred under 47 U.S.C. §1404, and those that do not meet the NTIA suggestion that all entities “have the requisite FAA remote pilot certification, or in case of an organization, to certify that it will only utilize individuals with this qualification for its UAS operations in this band.”⁴ In effect, an NSS station licensee would have to list a “Chief UAS Pilot” who is licensed and responsible for the NSS network’s compliance.

- NSS Operational Licenses: ENTELEC and API agree that all NSS operations are to be conducted under the authority of a UAS Part 107 certificated remote pilot. ENTELEC and API support this operation by rule by applying 47 U.S.C. § 307. To ensure the safety of communications, we believe the current Part 107 remote pilot certification should have added requirements added to include training on the use of NSS and NNA spectrum along with ATC communications.
- NNA Station and Operational Licenses: ENTELEC and API support all NNA operations being conducted under the authority of a UAS Part 107 certificated remote pilot. ENTELEC and API support this operation by rule by applying 47 U.S.C. § 307. To ensure the safety of communications, we believe the current Part 107 remote pilot certification shall have added requirements to include training on

⁴ NPRM, at para. 55.

the use of NSS and NNA spectrum along with ATC communications. We believe this authority should extend to both the aircraft and the ground station operation.

H. Dynamic Frequency Management System (“DFMS”)

The establishment of a DFMS system for the NNA UAS frequency coordination and assignment appears challenging to ENTELEC and API. Unlike the Spectrum Allocation System (“SAS”) within the Citizen’s Broadband Radio Service (“CBRS”), safety of flight may require consideration if there are multiple spectrum assignments from different DFMS awaiting coordination of spectrum grants. The FCC should recognize that the command-and-control aspect of much of this spectrum increases the criticality of the DFMS function. Thus, ENTELEC and API suggest that a single regulated DFMS be chosen for this function to maximize simplicity and minimize risk. Such a DFMS should be engineered with funding provided by auction proceeds, and operational costs could be funded through a combination of Federal UAS registration fees and/or reasonable access fees.

Further, ENTELEC and API believe that the DFMS should be required to tie into the FAA’s Low-Altitude Authorization and Notification Capability (“LAANC”) system. This will permit authorizations from the DFMS to seamlessly align with flight plan acceptance within airspace covered by LAANC.

Finally, in terms of selection of the proper DFMS provider, we feel that this should be accomplished by competitive bidding based on a Request for Proposal (“RFP”) co-authored by the FAA and the Commission. The RFP should embody the requirements set forth in the associated rules and consider the lowest cost/highest return proposition to

UAS operators. The selection committee should follow Federal guidelines and consist of the Commission and the FAA.

I. Use of RemoteID

ENTELEC and API feel that a RemoteID should be a requirement for any UAS to access the spectrum covered by this NPRM, especially in securing an NNA grant from a DFMS. RemoteID transmission as an identifier would facilitate the identification, compliance, and in the case of a private NSS, billing or other items for service access.

J. Microwave Landing System (“MLS”) and the National Radio Quiet Zone (“NRQZ”)

API supports exclusion zones as appropriate for accommodation of incumbent uses, including for operational MLS installations and the NRQZ.

K. ATC Relay and Unmanned Aircraft Operator VHF Ground Station

ENTELEC and API support the new category of “Unmanned Aircraft Operator VHF Ground Station” (“UAOVGS”) to refer to ground stations as described in the NPRM.⁵ ENTELEC and API further support that a UAOVGS licensee be allowed to transmit on any authorized aviation frequency to the extent necessary between 118.0 and 136.0 MHz and include mobile use and non-mobile “ATC Relay” uses along the route. The existence of a UAOVGS should not preclude the use of “Licensing by Rule” for UAS aircraft stations, including VHF stations used for aircraft relay.

ENTELEC and API suggest, as in part (G) of this NPRM response, that the FAA incorporate ATC communication training into the Part 107 remote pilot certification and believe this will adequately address the Commission’s need for FAA endorsement. In

⁵ NPRM, at para. 156.

effect, the applicant's status as a Part 107 certificated pilot will serve as having met the de facto rules and ATC training. For current Part 107 certificated pilots who have been issued Part 107 authorizations prior to this requirement, they would be required to complete a refresher/renewal training prior to be qualified for issuance of a UAOVGS license.

Conclusion

ENTELEC and API firmly believe that the 5030-5091 MHz band, if enabled with an eye towards the future, can support upcoming needs for UAS in both CNPC and a reasonable amount of data and/or video payload telemetry. We hope the Commission will consider our input, as we feel the technical viability of this band to support multiple use cases, including those of CII, will enhance safe, efficient, and effective co-existence within the US airspace.

Respectfully submitted,

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