



PUBLIC NOTICE

Federal Communications Commission
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**WIRELESS TELECOMMUNICATIONS BUREAU AND
OFFICE OF ENGINEERING AND TECHNOLOGY
SEEK COMMENT ON UNMANNED AERIAL SYSTEM OPERATIONS
IN THE 960-1164 MHZ AND 5030-5091 MHZ BANDS, PURSUANT TO
SECTION 374 OF THE FAA REAUTHORIZATION ACT OF 2018**

GN Docket No. 19-356

Comment Date: December 26, 2019

Reply Comment Date: January 27, 2020

By this *Public Notice*, the Wireless Telecommunications Bureau and the Office of Engineering and Technology seek comment on issues related to unmanned aerial (or aircraft) system (UAS) operations in the 960-1164 MHz and 5030-5091 MHz bands pursuant to a reporting requirement mandated by Congress in the FAA Reauthorization Act of 2018.¹

The FAA Reauthorization Act of 2018 requires the Administrator of the Federal Aviation Administration (FAA), the National Telecommunications and Information Administration (NTIA), and the Commission, to submit to specified committees of Congress a report that examines whether to allow the provision of certain UAS communications on the spectrum bands identified in the Act (or others, if necessary). The Act specifically requires the FAA, the NTIA, and the Commission, after consultation with relevant stakeholders, to submit a report:

- (1) on whether unmanned aircraft systems operations should be permitted, but not required, to operate on spectrum that was recommended for allocation for [Aeronautical Mobile Route (R) Service]² and control links³ for UAS by the World Radio Conferences in 2007 (L-band, 960-1164 MHz)⁴ and 2012 (C-band, 5030-5091 MHz),⁵ on an

¹ FAA Reauthorization Act of 2018, § 374, Pub. L. No. 115-254, 132 Stat. 3185, 3313-14 (the Act).

² Aeronautical Mobile Route (R) Service (AM(RS)) is an aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes. 47 CFR § 2.1

³ The International Telecommunications Union (ITU) defines “control link subsystem” as the communication link between the unmanned aerial vehicle (UAV) and the remote control station that carries telecommands (from the pilot to the UAV) and telemetry (from the UAV to the pilot). Report ITU-R M.2171 (12/2009) Characteristics of Unmanned Aircraft Systems and Spectrum Requirements to Support Their Safe Operation in Non-Segregated Airspace.

⁴ The Commission amended the Table of Frequency Allocations (47 CFR § 2.106) to reflect this allocation in 2015. *Implementation of World Radiocommunication Conferences WRC 07 and WRC 12*, ET Docket Nos. 06-123, 12-338, and 15-99, Report and Order, 30 FCC Rcd 4183 (2015).

- unlicensed, shared, or exclusive basis, for operations within the [UAS Traffic Management] system or outside of such a system;
- (2) that addresses any technological, statutory, regulatory, and operational barriers to the use of such spectrum; and
- (3) that, if it is determined that some spectrum frequencies are not suitable for beyond-visual-line-of-sight operations by unmanned aircraft systems, includes recommendations of other spectrum frequencies that may be appropriate for such operations.⁶

Accordingly, we invite interested parties to provide comments on the issues identified above as the Commission prepares its contribution to this report. We seek specific comment on how various spectrum access methods and existing and planned infrastructure might overcome any technological or operational barriers to UAS operations in such spectrum. We note that a Petition for Rulemaking recommending service rules for the 5030-5091 MHz allocation is currently pending before the Commission.⁷ The record in that proceeding, including the Aerospace Industries Association's Petition for Rulemaking and comments in response, may provide useful background to interested parties.

To inform our Section 374 efforts, we also seek comment on additional actions we might take to promote the safe and robust use of licensed, commercial spectrum for UAS operations. Numerous studies are currently underway to determine how existing flexible use mobile networks can be leveraged to safely and reliably support UAS command and control systems as well as other uses such as payload applications. While it appears that such spectrum has the potential to support low-altitude UAS, studies—such as those being conducted by 3GPP—indicate that the use of flexible use spectrum to support unmanned aircraft may increase the risk of interference to adjacent spectrum bands and geographic markets, particularly in circumstances where high densities of unmanned aircraft are involved.⁸

We request information on the UAS applications (e.g. command and control, payload, or telemetry) and deployment scenarios under consideration by wireless service providers and equipment manufacturers at this time, as well as on the technical issues, including potential interference concerns, they are encountering in direct studies and testing. What are the altitude limits (above ground level) in using conventional mobile network infrastructure, and what are the infrastructure and spectrum options for serving unmanned aircraft at higher altitudes (in controlled airspace)? Additionally, what technical issues or interference concerns might arise from dissimilar uses of the same frequencies in a relevant geographic area or in adjacent areas? We also request comment on solutions under consideration to mitigate interference issues.

Comments and Reply Comments: Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document.⁹ All pleadings are to reference GN Docket No. 19-356. (Continued from previous page)

⁵ The Commission amended the Table of Frequency Allocations (47 CFR § 2.106) to reflect this allocation in 2017. *Amendment of Part 2, 15, 80, 90, 97, and 101 of the Commission's Rules Regarding Implementation of the Final Acts of the World Radiocommunication Conference (Geneva, 2012) (WRC-12), Other Allocation Issues, and Related Rule Updates*, ET Docket No. 15-99, Report and Order, 32 FCC Red 2703 (2017).

⁶ FAA Reauthorization Act of 2018, § 374, Pub. L. No. 115-254, 132 Stat. 3185, 3313-14.

⁷ The Aerospace Industries Association's Petition for Rulemaking, RM-11798, and associated record are available at [https://www.fcc.gov/ecfs/search/proceedings?q=name:\(\(RM%5C-11798\)\)%20OR%20description:\(\(RM%5C-11798\)\)&sort=date_proceeding_created_DESC](https://www.fcc.gov/ecfs/search/proceedings?q=name:((RM%5C-11798))%20OR%20description:((RM%5C-11798))&sort=date_proceeding_created_DESC). AIA has supplemented its petition and the record to clarify its position pursuant to active discussions with interested stakeholders, such as CTIA and the Small UAV Coalition.

⁸ See e.g. 3rd Generation Partnership Project, 3GPP TR 36.777, Enhanced LTE support for aerial vehicles. (Release 15).

⁹ 47 C.F.R. §§ 1.415, 1.419.

Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998). You may submit comments, identified by GN Docket No. 19-356, by any of the following methods:

- *Electronic Filers:* Comments may be filed electronically using the Internet by accessing the ECFS: <http://apps.fcc.gov/ecfs/>.
- *Paper Filers:* Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

Comments and reply comments filed in response to this Public Notice will be available via ECFS. These documents also will be available for public inspection during regular business hours in the FCC Reference Information Center, Portals II, 445 12th Street S.W., Room CY-A257, Washington, D.C. 20554.

Ex Parte Presentations: This proceeding shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.¹⁰ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with section 1.1206(b).¹¹ In proceedings governed by section 1.49(f)¹² or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex*

¹⁰ 47 C.F.R. § 1.1200 *et seq.*

¹¹ 47 C.F.R. § 1.1206(b).

¹² 47 C.F.R. § 1.49(f).

parte rules. We note that our *ex parte* rules provide for a conditional exception for all *ex parte* presentations made by NTIA or other Federal representatives.¹³

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

Additional Information: For further information regarding this Notice, please contact Tim Maguire, Mobility Division, Wireless Telecommunications Bureau, at (202) 418-2155, or by email to tim.maguire@fcc.gov or Brian Butler, Office of Engineering and Technology at (202) 418-2702, or by email to brian.butler@fcc.gov.

By the Chiefs, Wireless Telecommunications Bureau and Office of Engineering and Technology.

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¹³ See 47 C.F.R. § 1.1204.