

SUPPORTING STATEMENT

A. Justification:

1. *Circumstances that make collection necessary.* The Federal Communications Commission (“Commission”) requests that the Office of Management and Budget (OMB) approve a revision of the information collection titled “Mitigation of Orbital Debris,” under OMB Control No. 3060-1013, as a result of changes adopted in the Commission’s Report and Order, FCC 20-54, IB Docket No. 18-313, titled “Mitigation of Orbital Debris in the New Space Age” (*Orbital Debris Report and Order*), and released on April 24, 2020.

In the *Orbital Debris Report and Order*, the Commission updated its rules related to orbital debris mitigation, including application requirements. The new rules are designed to ensure that the Commission’s actions concerning radio communications, including licensing U.S. spacecraft and granting access to the U.S. market for non-U.S. spacecraft, mitigate the growth of orbital debris, while at the same time not creating undue regulatory obstacles to new satellite ventures. The action will help to ensure that Commission decisions are consistent with the public interest in space remaining viable for future satellites and systems and the many services that those systems provide to the public. The rule revisions also provide additional detail to applicants on what information is expected under the Commission’s rules, which can help to increase certainty in the application filing process. While this information collection represents an overall increase in the burden hours, the information collection serves the public interest by ensuring that the Commission and public have necessary information about satellite applicants’ plans for mitigation of orbital debris.

Specifically, FCC 20-54 contains the new or modified information collection requirements listed below, applicable to applicants seeking experimental licenses for satellite operations under part 5 of the Commission’s rules, as well as to license grantees under part 97 submitting notifications to the Commission prior to launch of a satellite amateur station¹:

(1) Existing disclosure requirements have been revised to include specific metrics in several areas, including: probability that the space stations will become a source of debris by collision with small debris and meteoroids that would cause loss of control and prevent disposal; probability of collision between any non-geostationary orbit (NGSO) space station and other large objects; and casualty risk associated with any individual spacecraft that will be disposed by atmospheric re-entry.

(2) Where relevant, the disclosures must also include the following: use of separate deployment devices, distinct from the space station launch vehicle, that may become a source of orbital debris; potential release of liquids that will persist in droplet form; and any planned proximity operations and debris generation that will or may result from the proposed operations, including any planned release of debris, the risk of accidental explosions, the risk of accidental collision, and measures taken to mitigate those risks.

(3) The existing disclosure requirement to analyze potential collision risk associated with space station(s) orbits has been modified to specify that the disclosure identify characteristics of the space station(s)’ orbits that may present a collision risk, including any planned and/or operational space stations in those orbits, and indicate what steps, if any, have been taken to coordinate with the other spacecraft or system, or what other measures the operator plans to use to avoid collision.

¹ FCC 20-54 also added new and modified information collection requirements for satellite applicants under part 25 of the Commission’s rules, which are addressed in an update to the information collection under OMB Control No. 3060-0678.

(4) For NGSO space stations that will transit through the orbits used by any inhabitable spacecraft, including the International Space Station, the disclosure must include the design and operational strategies, if any, that will be used to minimize the risk of collision and avoid posing any operational constraints to the inhabitable spacecraft.

(5) The disclosure must include a certification that upon receipt of a space situational awareness conjunction warning, the operator will review and take all possible steps to assess the collision risk, and will mitigate the collision risk if necessary. As appropriate, steps to assess and mitigate the collision risk should include, but are not limited to: contacting the operator of any active spacecraft involved in such a warning; sharing ephemeris data and other appropriate operational information with any such operator; and modifying space station attitude and/or operations.

(6) For NGSO space stations the disclosure must describe the extent of satellite maneuverability.

(7) The disclosure must address trackability of the space station(s). For NGSO space stations, the disclosure must also include: (a) how the operator plans to identify the space station(s) following deployment and whether the space station tracking will be active or passive; (b) whether, prior to deployment the space station(s) will be registered with the 18th Space Control Squadron or successor entity; and (c) the extent to which the space station operator plans to share information regarding initial deployment, ephemeris, and/or planned maneuvers with the 18th Space Control Squadron or successor entity, other entities that engage in space situational awareness or space traffic management functions, and/or other operators.

(8) For NGSO space stations, additional disclosures must be provided regarding spacecraft disposal, including, for some space stations, a demonstration that the probability of success of the chosen disposal method is 0.9 or greater for any individual space station, and for multi-satellite systems, a demonstration including additional information regarding efforts to achieve a higher probability of success.

The information collection requirements are contained in 47 CFR 5.64 and 47 CFR 97.207.

Information collected during the Commission's authorization process will be used by Commission staff in carrying out the agency's duties concerning satellite communications, pursuant to Sections 1, 4(i), 301, 303, 307, 308, 309, and 310 of the Communications Act, 47 U.S.C. Sections 151, 154(i), 301, 303, 307, 308, 309, and 310.

This information collection does not affect individuals or households; thus, there are no impacts under the Privacy Act.

2. *Use of Information.* Notification of debris mitigation plans as part of requests for FCC authorization will help preserve the United States' continued affordable access to space and the continued provision of experimental and amateur services. Notification of debris mitigation plans will allow the Commission and potentially affected third parties to evaluate operators' debris mitigation plans prior to the issuance of an FCC approval for communications activities. Notification may also aid in the wider dissemination of information concerning debris mitigation techniques and may provide a baseline of information that will aid in analyzing and refining those techniques. Without notification of orbital debris mitigation plans as part of applications for FCC authority, the Commission would be denied any opportunity to ascertain whether experimental and amateur operators are in fact considering and adopting reasonable debris mitigation practices, which could result in an increase in orbital debris and a decrease in the utility of space for communications and other uses.

3. *Technological collection techniques.* Applicants seeking experimental space station licenses under

part 5 may do so using the Experimental Licensing Branch Electronic Filing System, an Internet-based electronic filing system. Amateur applicants under part 97 can submit information to the Commission for review via e-mail. In all cases, orbital debris mitigation plans can be included as part of the applicant's electronic filing through commercially available software such as Microsoft Word or Excel, or Adobe Acrobat. As a result, a total of 100 percent of all information collections are submitted to the Commission electronically.

4. *Efforts to identify duplication.* The Commission does not impose similar information collection requirements on the respondents elsewhere.

5. *Impact on small entities.* The Commission has made an effort to minimize the burden on all respondents regardless of size by limiting the information collected under this collection to that which is necessary to evaluate the orbital debris mitigation plans of satellite operators.

Most applicants prepare orbital debris mitigation plans using the National Aeronautics and Space Administration (NASA) Debris Assessment Software identified in the revised rules as an acceptable assessment tool. This assessment tool is available at no cost and documentation on how to use the software is made available online by NASA. The additional disclosure and certification requirements adopted in the *Orbital Debris Mitigation Report and Order* not otherwise addressed by the NASA assessment tool are consistent with the types of legal and technical requirements already specified in the Commission's application or notification rules, and therefore we expect that all parties, including small entities, will have the resources to prepare and disclose orbital debris mitigation plans in accordance with the revised rules. The Commission concluded that the costs of providing this information as part of the application and notification processes are not unduly burdensome when balanced against the public interest benefits of preserving safe and affordable access to space.

6. *Consequences if information is not collected.* The information collection requirements accounted for in this collection are necessary to mitigate the potential harmful effects of orbital debris accumulation. Without such information collection requirements, the growth in the orbital debris population may limit the usefulness of space for communications and other uses in the future by raising the costs and lowering the reliability of experimental and amateur systems. Furthermore, the effects of collisions involving orbital debris can be catastrophic and may cause significant damage to functional spacecraft or to persons or property on the surface of the Earth, if the debris re-enters the Earth's atmosphere in an uncontrolled manner.

Notification of orbital debris mitigation plans is not a frequent information collection. It occurs as part of an application for an FCC experimental license or notification of amateur satellite information. Notification of debris mitigation plans is an on occasion (not an annual or otherwise periodic) reporting requirement.

7. *Special circumstances.* The collection of information is not being conducted in any manner known to be inconsistent with the guidelines 5 CFR 1320.

8. *Federal register notice; efforts to consult persons outside the Commission.* On March 31, 2021, the Commission published a 60-day notice in the Federal Register 86FR 16722 to solicit comments from the public. No comments were received from the public with regard to the notice.

9. *Payments or gifts to respondents.* The Commission will not provide any payment or gift to respondents in connection with these information collection requirements.

10. *Assurance of confidentiality.* We foresee no need for confidentiality of information contained in the applications filed with the Commission. However, to the extent information submitted pursuant to this information collection is determined to be confidential, it will be protected by the Commission. If a respondent seeks to have information collected pursuant to this information collection withheld from public inspection, the respondent may request confidential treatment pursuant to section 0.459 of the Commission's rules for such information. See 47 C.F.R. § 0.459. Certain information collected regarding international coordination of satellite systems is not routinely available for public inspection pursuant to 5 U.S.C. § 552(b) and 47 C.F.R. § 0.457(d)(vii).

11. *Questions of a sensitive nature.* This collection of information does not address any matters of a private or sensitive nature.

12. *Estimates of the hour burden of the collection to respondents.* To estimate the number of respondents, we reviewed filings with the Commission over the last several years for experimental licenses requesting satellite operations as well as for amateur satellites. The number of these filings has fluctuated over the past several years. Based on review of these filings, we estimate that there are approximately 40 such filings under the experimental licensing process and approximately 6 amateur satellites per year, for a total of 46 associated with experimental licenses/amateur authorizations. We note that this is an estimate, and given our experience over the last several years, the actual number of applications may be substantially greater or less in any given year. We also estimated the number of additional burden hours as a result of the program changes adopted in FCC 20-54. Taking this into consideration, the following represents the frequency of response, time per response, total annual burden hours, and an explanation for the estimated 46 respondents and 46 responses to this information collection.

Orbital Debris Mitigation Plan Disclosures: 47 CFR §§ 5.64, 97.207:

Annual Respondents: 46 (40 experimental, 6 amateur)

Annual Responses: 46

Frequency of Response: One time.

Annual hour burden per respondent: The total annual hour burden is 368 hours (46 responses x 8 hours/response = 368 hours).

Totals:

Total number of respondents: **46**

Total number of responses: **46**

Range of hours per response: **8**

Total number of burden hours: **368**

TOTAL "In-house Cost" – In-house staff who are working on the information collection requirements are estimated to have an hourly salary of \$60/hour. Therefore, the in-house costs to respondents are **368** (total burden hours) x \$60/hour = **\$22,080**.

13. *Estimates of the cost burden of the collection to respondents:*

Total capital and start-up costs: None. We do not believe that the collection requirements impose significant additional capital and start up costs on respondents. The collection of information regarding each

applicant's orbital debris mitigation plan will not require the purchasing of additional computers, software, or other equipment because the debris mitigation plans can be prepared using computers and software already used in satellite system design and in preparing existing applications for space station authorization. In addition, many software tools useful in preparing orbital debris mitigation plans are available for free via the Internet, such as via the orbital debris mitigation website of NASA's Johnson Space Center.

Total operation and maintenance and purchase of services component: We estimate that the hourly rates for outside legal and engineering assistance are \$300/hour and \$250/hour, respectively. These figures are based on a small survey of local firms in the Washington, D.C. area and are conservative estimates. Because outside attorneys and engineers are used in approximately equal proportions, we use an average rate of \$275/hour to arrive at the cost burden for outside assistance. The amount of hourly work performed by outside parties varies with the type and complexity of the application, but we estimate an average of 7 hours spent per response. Consequently, the total cost burden for outside assistance is **\$88,550** (\$275 x 46 responses x 7 hours per response).

Total Annual Cost Burden = \$88,550.

14. *Estimates of Annualized Cost to the Federal Government.* Annualized costs for work activities performed by Commission staff are expected to be minimal. Costs include the time of Commission staff, including attorneys and engineers, to review information collected from respondents and to consider possible comments on these plans from other potentially interested parties. No additional overhead or support staff will be required that would not have been already incurred without this collection of information. Minimal additional printing and publication expenses will be required to provide public notice of the collected information, where appropriate.

The core Commission staff reviewing the information collected consists of 1-2 Attorney Advisors (GS 14 to GS 15) and 1-2 Engineers (GS 14 - GS 15) at an average rate of \$72.41 per hour. We anticipate that information collected from respondents will be reviewed by at least one GS 14 - GS 15 Attorney for 3 hours and at least one GS 14 - GS 15 Engineer for 4.0 hours. The time of review is an estimate of the average number of hours of review and may be substantially greater or less depending on the particular collection.

We estimate our costs as follows: Submissions per year = 46. Number of average hours per submission = 7. Total number of hours = 322 hours per year. Average hourly rate = \$72.41.

Total annual cost to the Federal Government = 322 hours x \$72.41 per hour = \$ 23,316.

15. *Program changes or adjustment.* The Commission has made the following program changes to this collection as a result of the information collection requirements adopted or revised in FCC 20-54. Therefore, this collection reflects program changes resulting in +36 respondents, +36 responses, +338 burden hours, and + \$69,300 total annual costs.

There are no adjustments to this collection.

16. *Collections of information whose results will be published.* The results of this collection of information will not be published for statistical use.

17. *Display of expiration date for OMB approval of information collection.* The Commission seeks an exemption from the requirement to display the OMB expiration date for this information collection. The Commission publishes a list of all OMB-approved information collections and their corresponding expiration dates in section 0.408 of the Commission's rules, 47 CFR § 0.408, and will publish the OMB control number and OMB expiration date for this collection in the list contained in section 0.408 of its rules.

18. *Exception to certification statement for Paperwork Reduction Act submissions.* There are no exceptions to the certification statement.

B. Collections of Information Employing Statistical Methods:

This information collection does not anticipate the use of statistical methods, and use of such methods would not reduce the burden or improve accuracy of results.