

(c) For conventional and broadcast experimental radio licenses, each application must include:

(1) A narrative statement describing in detail the program of research and experimentation proposed, the specific objectives sought to be accomplished; and how the program of experimentation has a reasonable promise of contribution to the development, extension, or expansion, or use of the radio art, or is along lines not already investigated.

(2) If the authorization is to be used for the purpose of fulfilling the requirements of a contract with an agency of the United States Government, a narrative statement describing the project, the name of the contracting agency, and the contract number.

(3) If the authorization is to be used for the sole purpose of developing equipment for exportation to be employed by stations under the jurisdiction of a foreign government, a narrative statement describing the project, any associated contract number, and the name of the foreign government concerned.

(4) If the authorization is to be used with a satellite system, a narrative statement containing the information required in § 5.64.

(d) For program experimental radio licenses, each application must include:

(1) A narrative statement describing how the applicant meets the eligibility criteria set forth in subpart E of this part.

(2) If the authorization is to be used for the purpose of fulfilling the requirements of a contract with an agency of the United States Government, a narrative statement describing the project, the name of the contracting agency, and the contract number.

(3) If the authorization is to be used for the sole purpose of developing equipment for exportation to be employed by stations under the jurisdiction of a foreign government, a narrative statement describing the project, any associated contract number, and the name of the foreign government concerned.

(e) For medical testing and compliance testing experimental radio licenses, each application must include a

narrative statement describing how the applicant meets the eligibility criteria set forth in §§ 5.402(a) and 5.502 respectively.

[78 FR 25162, Apr. 29, 2013]

**§ 5.64 Special provisions for satellite systems.**

(a) Construction of proposed experimental satellite facilities may begin prior to Commission grant of an authorization. Such construction is entirely at the applicant's risk and does not entitle the applicant to any assurances that its proposed experiment will be subsequently approved or regular services subsequently authorized. The applicant must notify the Commission's Office of Engineering and Technology in writing that it plans to begin construction at its own risk.

(b) Except where the satellite system has already been authorized by the FCC, applicants for an experimental authorization involving a satellite system must submit a description of the design and operational strategies the satellite system will use to mitigate orbital debris, including the following information:

(1) A statement that the space station operator has assessed and limited the amount of debris released in a planned manner during normal operations. Where applicable, this statement must include an orbital debris mitigation disclosure for any separate deployment devices, distinct from the space station launch vehicle, that may become a source of orbital debris;

(2) A statement indicating whether the space station operator has assessed and limited the probability that the space station(s) will become a source of debris by collision with small debris or meteoroids that would cause loss of control and prevent disposal. The statement must indicate whether this probability for an individual space station is 0.01 (1 in 100) or less, as calculated using the NASA Debris Assessment Software or a higher fidelity assessment tool;

(3) A statement that the space station operator has assessed and limited the probability, during and after completion of mission operations, of accidental explosions or of release of liquids that will persist in droplet form.

This statement must include a demonstration that debris generation will not result from the conversion of energy sources on board the spacecraft into energy that fragments the spacecraft. Energy sources include chemical, pressure, and kinetic energy. This demonstration should address whether stored energy will be removed at the spacecraft's end of life, by depleting residual fuel and leaving all fuel line valves open, venting any pressurized system, leaving all batteries in a permanent discharge state, and removing any remaining source of stored energy, or through other equivalent procedures specifically disclosed in the application;

(4) A statement that the space station operator has assessed and limited the probability of the space station(s) becoming a source of debris by collisions with large debris or other operational space stations.

(i) Where the application is for an NGSO space station or system, the following information must also be included:

(A) A demonstration that the space station operator has assessed and limited the probability of collision between any space station of the system and other large objects (10 cm or larger in diameter) during the total orbital lifetime of the space station, including any de-orbit phases, to less than 0.001 (1 in 1,000). The probability shall be calculated using the NASA Debris Assessment Software or a higher fidelity assessment tool. The collision risk may be assumed zero for a space station during any period in which the space station will be maneuvered effectively to avoid colliding with large objects.

(B) The statement must 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.

(C) If at any time during the space station(s)' mission or de-orbit phase the space station(s) will transit through the orbits used by any inhabitable spacecraft, including the Inter-

national Space Station, the statement must describe 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.

(D) The statement must disclose the accuracy, if any, with which orbital parameters will be maintained, including apogee, perigee, inclination, and the right ascension of the ascending node(s). In the event that a system will not maintain orbital tolerances, *e.g.*, its propulsion system will not be used for orbital maintenance, that fact should be included in the debris mitigation disclosure. Such systems must also indicate the anticipated evolution over time of the orbit of the proposed satellite or satellites. All systems must describe the extent of satellite maneuverability, whether or not the space station design includes a propulsion system.

(E) The space station operator must certify 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.

(ii) Where a space station requests the assignment of a geostationary orbit location, it must assess whether there are any known satellites located at, or reasonably expected to be located at, the requested orbital location, or assigned in the vicinity of that location, such that the station keeping volumes of the respective satellites might overlap or touch. If so, the statement must include a statement as to the identities of those parties and the measures that will be taken to prevent collisions.

(5) A statement addressing the trackability of the space station(s). Space station(s) operating in low-Earth orbit will be presumed trackable if each individual space station is 10 cm

or larger in its smallest dimension, exclusive of deployable components. Where the application is for an NGSO space station or system, the statement shall also disclose the following:

(i) How the operator plans to identify the space station(s) following deployment and whether space station tracking will be active or passive;

(ii) Whether, prior to deployment, the space station(s) will be registered with the 18th Space Control Squadron or successor entity; and

(iii) 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.

(6) A statement disclosing planned proximity operations, if any, and addressing 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.

(7) A statement detailing the disposal plans for the space station, including the quantity of fuel—if any—that will be reserved for disposal maneuvers. In addition, the following specific provisions apply:

(i) For geostationary orbit space stations, the statement must disclose the altitude selected for a disposal orbit and the calculations that are used in deriving the disposal altitude.

(ii) For space stations terminating operations in an orbit in or passing through the low-Earth orbit region below 2,000 km altitude, the statement must disclose whether the spacecraft will be disposed of either through atmospheric re-entry, specifying if direct retrieval of the spacecraft will be used. The statement must also disclose the expected time in orbit for the space station following the completion of the mission.

(iii) For space stations not covered by either paragraph (b)(7)(i) or (ii) of this section, the statement must indicate whether disposal will involve use of a storage orbit or long-term atmos-

pheric re-entry and rationale for the selected disposal plan.

(iv) For all NGSO space stations under paragraph (b)(7)(ii) or (iii) of this section, the following additional specific provisions apply:

(A) The statement must include a demonstration that the probability of success of the chosen disposal method will be 0.9 or greater for any individual space station. For space station systems consisting of multiple space stations, the demonstration should include additional information regarding efforts to achieve a higher probability of success, with a goal, for large systems, of a probability of success for any individual space station of 0.99 or better. For space stations under paragraph (b)(7)(ii) of this section that will be terminating operations in or passing through the low-Earth orbit region below 2000 km altitude, successful disposal is defined, for the purposes of this paragraph (b)(7)(iv)(A), as atmospheric re-entry of the spacecraft as soon as practicable, but no later than five years following completion of the mission. For space stations under paragraph (b)(7)(iii) of this section, successful disposal will be assessed on a case-by-case basis.

(B) If planned disposal is by atmospheric re-entry, the statement must also include:

(1) A disclosure indicating whether the atmospheric re-entry will be an uncontrolled re-entry or a controlled targeted reentry.

(2) An assessment as to whether portions of any individual spacecraft will survive atmospheric re-entry and impact the surface of the Earth with a kinetic energy in excess of 15 joules, and demonstration that the calculated casualty risk for an individual spacecraft using the NASA Debris Assessment Software or a higher fidelity assessment tool is less than 0.0001 (1 in 10,000).

[78 FR 25162, Apr. 29, 2013, as amended at 85 FR 52449, Aug. 25, 2020; 86 FR 52101, Sept. 20, 2021; 89 FR 65223, Aug. 9, 2024]

#### § 5.65 Defective applications.

(a) Applications that are defective with respect to completeness of answers to required questions, execution or other matters of a purely formal