# FCC Regulations Concerning Orbital Debris Mitigation

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# FCC Orbital Debris Rules Overview

## FCC Rules adopted in 2004

- A debris mitigation plan must address collision risk, measures to avoid accidental explosions, and end-of-life disposal, including the “25 year” requirement.
- If a plan is inadequate, the FCC may require modification of the plan prior to licensing, impose conditions, or deny the license.
- FCC debris mitigation rules apply to all non-Federal satellites, including cubesats and other small satellites.

## FCC 2020 update

- Updates to incorporate new assessment methods and criteria.
- Updates to codify licensing practices since 2004.
- Examine suitability of current criteria for large constellations.
- Report and Order and Further Notice of Proposed Rule Making released 4/24/20: https://www.fcc.gov/document/fcc-updates-orbital-debris-mitigation-rules-new-space-age-0

# April 2020 Report and Order

- The revisions to the Commission's coincide with revisions to the U.S. Government Orbital Debris Mitigation Standard Practices (ODMSP).

- The new rule updates add numerical values to several existing requirements – including collision risk per satellite and casualty risk assessments. These values now included in the rules track those specified in the ODMSP:
  - Large object collision risk less than .001 (1 in 1,000) over the satellite orbital lifetime
  - Risk of small object collisions that would prevent post-mission disposal less than .01 (1 in 100)
  - Probability of successful post-mission disposal no less than .9
  - Re-entry casualty risk no greater than .0001 (1 in 10,000)

# Orbital Debris Rules Update (Cont'd.)

- Applicants 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 mitigate the collision risk if necessary.
- Applications must include statements related to protecting inhabitable spacecraft, maneuverability, trackability and identification, and information sharing for space situational awareness.
- Other disclosure adopted for subsets of satellite operations, including use of deployment devices, release of liquids that may persist in space, and proximity operations.

**STATUS:**

- Two rule updates became effective on September 24, 2020 ( § 25.271 – clarification on control of transmitting stations and § 25.282 – regarding coordination of orbit raising maneuvers for geostationary satellites); other updates are subject to Paperwork Reduction Act requirements and will become effective at a later date.
- Three petitions for reconsideration filed on September 24, 2020. Pleading cycle closed.

# Orbital Debris Rules Update FNPRM

- The Further Notice of Proposed Rulemaking invited additional comment on:
  - orbital debris mitigation measures related to the probability of accidental explosions (propose to implement the ODMSP metric of .001)
  - approaches to addressing collision risk (related to ODMSP provisions on reliability of post-mission disposal)and casualty risk for satellite constellations on a system-wide basis
  - requiring maneuverability for space stations located above a certain altitude in the low earth orbit region and/or other possible limits on post-mission orbital lifetime.
  - adoption of an indemnification requirement similar to one used in some other countries and on the use of a surety bond tied to successful post-mission disposal.

- **Status:** Approximately 40 comments filed at the October 9, 2020 deadline. Reply comments filed November 9.