INTERNATIONAL TELECOMMUNICATIONS UNION (ITU): RECOMMENDATION ITU-R S.1003.2

International mechanism:

International Telecommunications Union (ITU) Recommendation ITU-R S.1003.2 (12/2010) Environmental protection of the geostationary-satellite orbit

Description:

ITU-R S.1003.2 provides guidance about disposal orbits for satellites in the geostationary-satellite orbit (GSO). In this orbit, there is an increase in debris due to fragments resulting from increased numbers of satellites and their associated launches.

Given the current limitations (primarily specific impulse) of space propulsion systems, it is impractical to retrieve objects from GSO altitudes or to return them to Earth at the end of their operational life. A protected region must therefore be established above, below and around the GSO which defines the nominal orbital regime within which operational satellites will reside and manoeuvre. To avoid an accumulation of non-functional objects in this region, and the associated increase in population density and potential collision risk that this would lead to, satellites should be manoeuvred out of this region at the end of their operational life. In order to ensure that these objects do not present a collision hazard to satellites being injected into GSO, they should be manoeuvred to altitudes higher than the GSO region, rather than lower.

The recommendations embodied in ITU-R S.1003.2 are:

- Recommendation 1: As little debris as possible should be released into the GSO region during the placement of a satellite in orbit.
- Recommendation 2: Every reasonable effort should be made to shorten the lifetime of debris in elliptical transfer orbits with the apogees at or near GSO altitude.
- Recommendation 3: Before complete exhaustion of its propellant, a geostationary satellite at the end of its life should be removed from the GSO region such that under the influence of perturbing forces on its trajectory, it would subsequently remain in an orbit with a perigee no less than 200 km above the geostationary altitude.
- Recommendation 4: The transfer to the graveyard orbit removal should be carried out with particular caution in order to avoid radio frequency interference with active satellites.

Applicability:

ITU-R S.1003.2 is addressed to member states of the ITU and applies to the operation of satellites in the GSO. Due to its character as a recommendation of the ITU Radiocommunication Assembly, it is not legally binding.

Relation to international mechanisms:

None.

References:

- http://www.itu.int/rec/R-REC-S.1003/_page.print