



Recommendation ITU-R SA.364-6
(12/2018)

**Preferred frequencies and bandwidths for
manned and unmanned near-Earth satellites
of the space research service**

SA Series
Space applications and meteorology



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Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

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RA	Radio astronomy
RS	Remote sensing systems
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SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.

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RECOMMENDATION ITU-R SA.364-6

Preferred frequencies and bandwidths for manned and unmanned near-Earth satellites of the space research service

(1963-1966-1970-1978-1986-1992-218)

Scope

This Recommendation provides guidance for the selection of frequencies and bandwidths for manned and unmanned near-Earth satellites of the space research service from a preferred list of frequencies and bandwidths.

Keywords

Preferred frequencies and bandwidth, the space research service (SRS), near-Earth, manned, unmanned

Related Recommendations and Reports

Recommendations ITU-R SA.363, ITU-R SA.1019, ITU-R SA.1863

The ITU Radiocommunication Assembly,

considering

- a) that suitable frequencies and required radio-frequency bandwidths for near-Earth space research missions are determined by radiowave propagation factors and technical requirements;
- b) that two-way communication is required for many near-Earth missions, and is vital for manned missions;
- c) that it is necessary to satisfy requirements for radiocommunication reliability during periods of adverse atmospheric conditions;
- d) that it is practical and desirable to effect radiocommunication functions on a single link;
- e) that to effect precision tracking, a pair of coherently related Earth-to-space and space-to-Earth links' frequencies is desirable;
- f) that for simultaneous transmit/receive operations involving a single antenna, the paired Earth-to-space and space-to-Earth links' frequencies should be separated by at least 6%;
- g) that space-to-space and Earth-to-space relay satellite radiocommunication links are necessary to accommodate the growth and development of near-Earth explorations in the space research service;
- h) that particular modulation and channel coding techniques may be required for some links in order to comply with power flux-density (pfd) limits or to guard against multipath and/or interference effects,

recommends

- 1 that frequency bands for near-Earth missions in the space research service be selected, with due regard to the purpose of the link and to the feasibility of sharing, in the preferred frequency ranges listed in Table 1;