



Recommendation ITU-R S.1782-1
(09/2019)

**Guidelines on global broadband Internet
access by fixed-satellite service systems**

S Series
Fixed-satellite service



International
Telecommunication
Union
Documents
Document Sharing Hub

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.

Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Resolution ITU-R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from <http://www.itu.int/ITU-R/go/patents/en> where the Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the ITU-R patent information database can also be found.

Series of ITU-R Recommendations

(Also available online at <http://www.itu.int/publ/R-REC/en>)

Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M	Mobile, radiodetermination, amateur and related satellite services
P	Radiowave propagation
RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
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.

Electronic Publication
Geneva, 2019

© ITU 2019

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without written permission of ITU.

RECOMMENDATION ITU-R S.1782-1

**Guidelines on global broadband Internet access
by fixed-satellite service systems***

(2007-2019)

Scope

In order to address issues raised by previous World Radiocommunication Conferences and Radiocommunication Assemblies, this Recommendation provides guidelines on global broadband Internet access by fixed-satellite service systems. A first Annex covers a number of general issues on the consideration of suitable frequency bands and a general description of broadband satellite architecture. A second Annex describes both existing and future satellite systems to provide global broadband access directly to small earth station antenna, and includes descriptions of systems characteristics and satellite capacities. It should be noted that fixed-satellite service comprises both GSO and non-GSO networks and systems and are thus both in the scope of this Recommendation.

Keywords

Broadband, Internet access, fixed-satellite service systems

Abbreviations/Glossary

ACM	Adaptive coding and modulation
DVB	Digital video broadcasting
DVB-S2	Second generation digital video broadcasting via satellite
DVB-S2X	Extension of second generation digital video broadcasting via satellite
ETSI	European telecommunications standards institute
FSS	Fixed-satellite service
GSO	Geostationary-satellite orbit
HDFSS	High-density fixed-satellite service
HTS	High-throughput satellite
VHTS	Very high-throughput satellite

Related ITU Recommendations, Reports and Resolutions

Recommendation ITU-R S.1709-1	Technical characteristics of air interfaces for global broadband satellite systems
Recommendation ITU-R S.1783-0	Technical and operational features characterizing high-density applications in the fixed-satellite service
Resolution ITU-R 69	Development and deployment of international public telecommunications via satellite in developing countries

* It is expected that there will be no discrimination to have access to global broadband Internet systems described in this Recommendation.

The ITU Radiocommunication Assembly,

considering

- a) that satellite technology has the potential to accelerate the availability of high-speed Internet services to all countries;
- b) that Radiocommunication Assembly 2015 (RA-15) adopted Resolution ITU-R 69 and noted the contribution broadband satellite technologies could make toward achievement of the United Nations Sustainable Development Goals as well as reduction in the digital divide, particularly in rural and remote areas;
- c) that it is desirable to determine the technical and operational characteristics of fixed-satellite service (FSS) systems that could facilitate the mass-production of user terminal equipment at affordable prices;
- d) that it is desirable to assess the global capacity that could be provided in FSS frequency allocations by systems having the characteristics determined in *considering c)*;
- e) that the determinations in *considering c)* should take into account both the possibility of designing systems specifically for Internet access at high data-rates via user terminals, and also the fact that some existing systems already include broadband Internet access facilities;
- f) that a variety of earth station sizes are being employed for broadband Internet access via existing FSS systems designed to cater also for other applications and using several frequency bands;
- g) that development of standards for the satellite technology mentioned in *considering a)* for Internet applications facilitates the wider use of satellite for Internet access;
- h) the need to assist developing countries in deploying and using satellite telecommunications to enable sustainable and affordable access to international public telecommunication services, bearing in mind the RA-15 Resolution ITU-R 69,

noting

- a) that Recommendation ITU-R S.1783 describes the characteristics of high-density fixed-satellite service (HDFSS) systems;
- b) that Recommendation ITU-R S.1709 describes the technical characteristics of air interfaces of global broadband satellite systems,

noting further

- a) that the FSS frequency allocations can be used in the short, medium and long term for the global provision of high-speed Internet services;
- b) that the expansion of broadband satellite services is generating growth in developing countries through e-applications such as e-health, e-learning, e-government, teleworking and residential and community Internet access, which can be used as tools for achieving ICT policy objectives,

recommends

- 1 that the information in the Annexes may be used as guidelines in order to implement global access to the Internet at high data-rates via the FSS;
- 2 that the information in the Annexes may be considered as guidelines in order to assist developing countries with the development and deployment of global broadband services via satellite in response to *resolves 1 and 2* of the RA-15 Resolution ITU-R 69.