International Telecommunication Union

ITU-R

Radiocommunication Sector of ITU

Recommendation ITU-R S.1001-2

(01/2010)

Use of systems in the fixed-satellite service in the event of natural disasters and similar emergencies for warning and relief operations

S Series

Fixed-satellite service

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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ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Annex 1 of 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.

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SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
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SNG	Satellite news gathering
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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 S.1001-2*

Use of systems in the fixed-satellite service in the event of natural disasters and similar emergencies for warning and relief operations

(1993-2006-2010)

Scope

This Recommendation provides information about the range of frequencies used by fixed-satellite service (FSS) systems that could be identified by Member States for early warning and disaster relief telecommunications to facilitate implementation of Resolutions ITU-R 53 (RA-07), ITU-R 55 (RA-07) and 644 (Rev.WRC-07), 646 (WRC-03) and 647 (WRC-07).

The ITU Radiocommunication Assembly,

considering

a) that reliable and rapid deployment of telecommunication equipment is essential for relief operations in the event of natural disasters and similar emergencies;

b) that inherent to natural disaster events is the unpredictability of the site location thus implying the need for prompt on-site transportation of the telecommunication equipment;

c) that satellite transmission using small aperture earth stations, such as fixed VSATs, vehicle-mounted earth stations (VMES) and transportable earth stations is one of the most viable solutions to provide emergency telecommunication services for relief operations;

d) that the telecommunication equipment might perform a variety of functions including, but not limited to, voice telecommunication, field reporting, data collection and video transmission;

e) that it would be useful to provide technical parameters of small aperture earth stations and give examples of systems for emergency purposes as guidelines to plan the use of systems for warning and relief operations (see Report ITU-R S.2151);

f) that a typical impact of disaster events is the loss of the local terrestrial-based telecommunication infrastructure;

g) that, in view of its independence from the local infrastructure, wide-area coverage, and ease of deployment, the fixed-satellite service (FSS) can provide immediate means of telecommunication to help in contacting the public and relief operations, and was used efficiently by the ITU Secretariat interventions in support of relief operations;

h) that the unpredictability of the location and time of occurrence of a disaster event implies the need for pre-planning of spectrum and equipment to be used;

j) that FSS earth stations may be ubiquitously deployed to provide emergency telecommunication services for relief operations, and authorization may be required from the administrations on spectrum to be used,

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* See Recommendation ITU-R SNG.1421 for information on using small earth stations for the transmission of television signals.

recognizing

a) that Resolution 136 (Antalya, 2006) of the Plenipotentiary Conference on the use of telecommunications/information and communication technologies for monitoring and managing emergency and disaster situation for early warning, prediction, mitigation and relief, resolved mainly to instruct the Directors of the Bureaux:

– to continue their technical studies in order to develop technical and operational implementation, as necessary, of advanced solutions to meet the needs of public protection and disaster relief telecommunications/ICT;

– to support the development of robust, comprehensive, all-hazards emergency and disaster early warning and relief systems, at national, regional and international levels;

b) Resolution ITU-R 53 (RA-07) on the use of radiocommunications in disaster response and relief, which resolved "that, given the importance of the effective use of the radio-frequency spectrum for radiocommunications in disaster situations, the concerned Radiocommunication Study Groups undertake studies and develop guidelines related to the management of radiocommunications in disaster prediction, detection, mitigation and relief collaboratively and cooperatively within ITU and with organizations external to the Union";

c) Resolution ITU-R 55 (RA-07) on ITU studies for disaster prediction, detecting, mitigation and relief which resolves to invite all Study Groups to take into consideration the scope of ongoing studies/activities, outlined in Annex 1 attached to this Resolution, based on the scope of each Study Group prior to the Radiocommunication Assembly, in particular former Study Groups SG 4 and SG 8, referencing both FSS and MSS, as called for in Questions ITU-R 286/4 (formerly ITU-R 209-3/8) and ITU-R 227/4 (formerly ITU-R 227/8);

d) Resolution 644 (Rev.WRC-07) on radiocommunication resources for early warning disaster mitigation and relief operations, Resolution 646 (WRC-03) on spectrum for public protection and disaster relief, and Resolution 647 (WRC-07) on spectrum management guidelines for emergency and disaster relief radiocommunications, which clarifies the objectives and the work to be carried out by the Radiocommunication Sector (ITU-R) on the issues relevant to these Resolutions, to accelerate the studies, to prevent overlaps, and to collaborate with relevant partners in this domain (see http://www.itu.int/ITU-R/space/res647/index.asp);

e) the ITU Global Forum on effective use of telecommunications/ICT for disaster management and the Telecommunications for Disaster Relief and Mitigation – Partnership Coordination Panel (PCP-TDR), concentrating on identification of global and/or regional frequency bands/ranges for emergency and disaster relief, when undertaking their national planning and to communicate this information to the Bureau, as well as to invite ITU-R to conduct studies as necessary, and as a matter of urgency, in support of the establishment of appropriate spectrum management guidelines in emergency and disaster relief operations;

f) the adoption by ITU-T in October 2007 of ITU-T Recommendation X.1303 on the common alerting protocol (CAP1.1) and its implementation, which is a simple and general format exchanging all-hazard emergency alerts and public warning over all kinds of networks;

g) the successful results of the ITU global forum on effective use of telecommunications/ICT for disaster management: Saving Lives, which took place in Geneva, 10-12 December 2007, and resulted in launching two important initiatives, the ITU framework of cooperation in emergencies (IFCE) and ITU Network of Volunteers for Emergency Telecommunications (VET), and the establishment by the ITU Secretary-General of the High-Level Panel for Emergency Telecommunications (for more details, see the Compendium of ITU's work on Emergency Telecommunications, edition 2007) in which a number of bilateral partnership agreements and memoranda of understanding were also signed between ITU and relevant partners,

noting

a) that the characteristics, operational aspects and ground segment deployment considerations for FSS systems are detailed in the ITU-R Fixed-satellite service Handbook;

b) that there are agreements between ITU and a number of agencies and organizations on the use of systems, including FSS systems, for disaster-related telecommunications (see http://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/PartneringforDisasterReduction.aspx);

c) that Recommendation ITU-R M.1854 contains information on the use of systems in the mobile-satellite service in the event of natural disasters and similar emergencies for warning and relief operations;

d) the activities of the ITU Telecommunication Development Bureau (BDT) as coordinator in the management and field operations of satellite telecommunications for disasters and emergencies among the ITU Secretariats,

recommends

1 that administrations are encouraged to consider the global and/or regional frequency bands/ranges identified in Table 1 for emergency and disaster relief in their national planning, and advise the Radiocommunication Bureau of this information when implementing Resolution 647 (WRC-07);

TABLE 1*

Frequency (GHz)	Frequency allocation			Number of networks (as of 2009)(1)
	Region 1	Region 2	Region 3	
3.4-4.2	(space-to-Earth)	(space-to-Earth)	(space-to-Earth)	Approx. 160
5.725-5.85	(Earth-to-space)			
5.85-6.7	(Earth-to-space)	(Earth-to-space)	(Earth-to-space)	
10.95-11.2	(space-to-Earth)	(space-to-Earth)	(space-to-Earth)	Approx. 200
11.45-11.7	(space-to-Earth)	(space-to-Earth)	(space-to-Earth)	
11.7-12.2		(space-to-Earth)		
12.2-12.5			(space-to-Earth)	
12.5-12.75	(space-to-Earth)		(space-to-Earth)	
13.75-14.5	(Earth-to-space)	(Earth-to-space)	(Earth-to-space)	
17.7-21.2	(space-to-Earth)	(space-to-Earth)	(space-to-Earth)	Approx. 30
27.5-31	(Earth-to-space)	(Earth-to-space)	(Earth-to-space)	

* Other FSS frequency bands may also be utilized in the future.

(1) See also *noting* b). Furthermore, the number of networks referred to in Table 1 is an estimation of the number of networks operating across all or part of the frequency bands listed in the first column.

2 that operators of FSS systems are invited to use the common alerting protocol (CAP1.1) described in ITU-T Recommendation X.1303 and to follow up on the developments in this matter;

3 that the use of FSS capabilities for emergencies and disaster relief operations should be pre-planned between administrations and FSS operators/service providers to ensure prompt availability of FSS services in the event of disaster, taking account of the Resolutions referred to in *recognizing* d);

4 that operators of FSS systems are encouraged to continue working with the ITU in relation to emergencies and disaster relief.

5 that the following Notes should be regarded as part of this Recommendation:

NOTE 1 – When planning the use of systems in the FSS for warning and relief operations in the event of natural disasters and similar emergencies, the material in Report ITU-R S.2151 should be taken into consideration.

NOTE 2 – The logistics of the transportation, installation and operation of the telecommunication equipment requires careful consideration in order to maximize the system performance in terms of reliability and deployment rapidity.

NOTE 3 – Although the use of transportable earth stations for disaster management makes it impractical to undertake detailed prior coordination and interference assessment, attention should be paid to these aspects when using shared frequency bands.