



*Radiocommunication Bureau*  
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**Administrative Circular**  
**CAR/263**

24 November 2008

**To Administrations of Member States of the ITU**

**Subject: Radiocommunication Study Group 7**

- **Proposed approval of 5 draft new ITU-R Questions**
- **Proposed suppression of 1 ITU-R Question**

At the meeting of Radiocommunication Study Group 7 held on 6 and 14 October 2008, 5 draft new ITU-R Questions were adopted and it was agreed to apply the procedure of Resolution ITU-R 1-5 (see § 3.4) for approval of Questions in the interval between Radiocommunication Assemblies. Furthermore, the Study Group proposed the suppression of 1 ITU-R Question.

Having regard to the provisions of § 3.4 of Resolution ITU-R 1-5, you are requested to inform the Secretariat ([brsgd@itu.int](mailto:brsgd@itu.int)) by 24 February 2009, whether your Administration approves or does not approve the proposals above.

After the above-mentioned deadline, the results of this consultation will be notified in an Administrative Circular. If the Questions are approved, they will have the same status as Questions approved at a Radiocommunication Assembly and will become official texts attributed to Radiocommunication Study Group 7 (see: <http://www.itu.int/publ/R-QUE-SG07/en>).

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Director, Radiocommunication Bureau

**Annexes: 6**

- 5 draft new ITU-R Questions and proposed suppression of 1 ITU-R Question

**Distribution:**

- Administrations of Member States of the ITU
- Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 7
- ITU-R Associates participating in the work of Radiocommunication Study Group 7

## **Annex 1**

(Source: Document 7/5(Rev.1))

### **DRAFT NEW QUESTION ITU-R [SRS DEEP SPACE BW]/7**

#### **Future bandwidth requirements for the space research service (deep space)**

The ITU Radiocommunication Assembly,

*considering*

- a) that there will be continuous growth in the number of deep-space missions and in bandwidth requirements per mission in the future, as a result of the application of new higher data rate technologies;
- b) that development of large arrays of antennas on Earth and of higher power transmitters on board may enable a single mission to increase its data rate requirement by two orders of magnitude;
- c) that, consequently, total spectrum requirements for deep-space research in the foreseeable future may exceed the total spectrum that is currently allocated for deep-space research;
- d) that frequency and bandwidth availability affect the performance of a telecommunication link;
- e) that many factors affect the selection of a technically-preferred frequency band, including propagation characteristics, technology maturity, availability of ground and space segment equipment, and interference environment;
- f) that wideband signals in deep-space research carrying high-rate science data around 100 Mbps or higher may require a less stringent interference criterion than those protecting deep-space downlinks in the existing allocations,

*decides* that the following Questions should be studied

- 1** What is the total bandwidth required for deep-space research missions through the year 2030?
- 2** How does the total bandwidth requirement identified in *decides* 1 compare with the currently allocated total bandwidth for deep-space research?
- 3** Can the existing space research service allocations support the requirements identified in *decides* 2?
- 4** What are the interference criteria required for wideband deep-space downlinks (space-to-Earth)?
- 5** What are the general constraints on sharing with other services and their systems that may be imposed by the telecommunication characteristics of the new deep-space wideband systems?

**6** What are the bandwidth requirements for the related uplinks (Earth-to-space)?

*further decides*

**1** that the results of the above studies be included in one or more Recommendations or Reports;

**2** that the studies should be completed by 2012.

Category: S2

## **Annex 2**

(Source: Document 7/38)

### **DRAFT NEW QUESTION ITU-R [EMER COMM]/7**

#### **Emergency radiocommunications for human space flight**

The ITU Radiocommunication Assembly,

*considering*

- a) that manned space exploration spacecraft and space stations require continuous radiocommunication with earth stations;
- b) that human space flight may require provisions for emergency radiocommunications for the entire duration of the manned missions;
- c) that the technical characteristics and operational requirements of emergency space radiocommunication channels may be different from those of routine links between earth stations and manned vehicles in space flight, including for near-Earth, lunar, and planetary missions;
- d) that there are many advantages in the use of predefined sets of frequency pairs with specific channels for manned space exploration emergency radiocommunications;
- e) that existing space research service allocations for radiocommunications could be used for emergency radiocommunication channels for human space flight; and
- f) that a number of administrations are either directly involved in human space flights, or have space-faring interests, and may be able to operationally contribute to radiocommunications that have an emergency nature,

*noting*

- a) that it is desirable to promote and encourage multinational monitoring capability and assistance if emergency conditions occur during human space flights;
- b) that a low-rate/low-power reliable radiocommunications link during human space flight is needed to provide backup capability in the event of a failure of the primary spacecraft radiocommunication systems;
- c) that an emergency radiocommunications link should be independent of the launch and ascent radiocommunications link, and should contain channels in the Earth-space, space-Earth, and possibly space-space directions;
- d) that the use of space research service channels for emergency radiocommunication is not considered to be a safety application and should not result in additional protection requirements for the space research service with respect to other radiocommunication services operating in the same or adjacent bands,

*recognizing*

- a) that Article V of the United Nations Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, provides that, “States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas”, and
- b) that this Article further provides that, “In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties”,

*decides* that the following Questions should be studied, taking particular account of noting d) above

- 1** What are the possible operational scenarios and operational requirements for emergency radiocommunication channels among manned spacecraft, earth stations, and space stations?
- 2** What are the technical characteristics of emergency radiocommunication channels among manned spacecraft, earth stations, and space stations?
- 3** What are the suitable radio frequency channels within existing space research service frequency allocations and the appropriate channel bandwidths for emergency radiocommunication, including for data and voice, during human space flight?

*further decides*

- 1** that the results of the above studies should be included in one or more Recommendations and/or Reports;
- 2** that the above studies should be completed by 2012.

Category: S2

### **Annex 3**

(Source: Document 7/40)

#### **DRAFT NEW QUESTION ITU-R [GNSS TIMING]/7**

### **Timing Information from Global Navigation Satellite Systems (GNSS) and their augmentations**

The ITU Radiocommunication Assembly,

*considering*

- a) that the number of Global Navigation Satellite Systems (GNSS) and their augmentations are increasing;
- b) that these systems rely on precise time to meet operational requirements;
- c) that these systems provide radio signals that will serve as sources of precise time and frequency for their users,

*decides* that the following Questions should be studied

- 1** How are time signals from GNSS systems inter-related?
- 2** How are time signals from GNSS systems traceable to national and international timing standards?

*further decides*

- 1** that the results of the above studies be included in a report;
- 2** that the above studies should be completed by 2012.

Category: S2

## **Annex 4**

(Source: Document 7/41)

### DRAFT NEW QUESTION ITU-R [eLORAN]/7

#### **Time and frequency information from “enhanced” LORAN (eLORAN)**

The ITU Radiocommunication Assembly,

*considering*

- a) that eLORAN is the primary Position Navigation and Timing (PNT) backup to the Global Positioning System for some countries;
- b) that LORAN is available in many areas of the world;
- c) that eLORAN will be a source for precise time and frequency information;
- d) that user equipment specific to time and frequency users may soon be widely available,

*decides* that the following Questions should be studied

- 1** What is the geographical coverage for time and frequency use of eLORAN?
- 2** Can eLORAN provide similar backup to users of other GNSS services?
- 3** What is the time and frequency performance of eLORAN?
- 4** Will time and frequency information from eLORAN be traceable to National Metrology Institutes and to Coordinated Universal Time (UTC)?

*further decides*

- 1** that the results of the above studies should be included in one or more Recommendations and/or Reports;
- 2** that the above studies should be completed by 2012.

Category: S2

## Annex 5

(Source: Document 7/42)

### DRAFT NEW QUESTION ITU-R [TWSTFT]/7

#### **Application and improvement of two-way satellite time and frequency transfer (TWSTFT)**

The ITU Radiocommunication Assembly,

*considering*

- a) that the two-way exchange of timing signals through communication satellites has proven to yield excellent results in terms of accuracy and stability;
- b) that the experimental results on the short-term time stability are consistent with theory;
- c) that long-term time stability studies are now being made;
- d) that systematic variations in the delays of the transmitting and receiving elements for this technique need to be better understood and documented;
- e) that telecommunication and timing authorities are using TWSTFT in operational systems to synchronize various elements of their services,

*decides* that the following Questions should be studied

**1** What is the dependence of the performance levels that can be achieved using TWSTFT with respect to:

- the time transfer accuracy; and
- the frequency transfer accuracy;

on the operational parameters:

- IF modulation characteristics;
- RF carrier frequency;
- available frequency bandwidth on the transponder?

**2** What are the causes and cures for systematic delay variations that may be perturbing this technique?

**3** What are the optimum methods to monitor and calibrate the propagation delays?

**4** What are the best ways to ensure efficient use of available satellite transponder capacity?

**5** How can the optimum data evaluation and reporting strategy be provided?



*further decides*

- 1** that the results of the above studies should be used to update the existing Recommendation ITU-R TF.1153 and to be included in one or more Recommendations;
- 2** that the above studies should be completed by 2012.

Category: S2

## Annex 6

### Question proposed for suppression

<b>Question ITU-R</b>	<b>Title</b>
229/7	Frequency sharing between the Earth exploration-satellite service (passive) and airborne altimeters in the aeronautical radionavigation service in the band 4 200-4 400 MHz

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