INTERNATIONAL TELECOMMUNICATION UNION

Radiocommunication Bureau
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Administrative Circular
CAR/231

22 November 2006

To Administrations of Member States of the ITU

Subject: **Radiocommunication Study Group 1**

- **Proposed approval of 2 draft new Questions**

At the meeting of Radiocommunication Study Group 1 held on 16 and 17 October 2006, 2 draft new Questions were adopted and it was agreed to apply the procedure of Resolution ITU-R 1-4 (see § 3) for approval of Questions in the interval between Radiocommunication Assemblies.

Having regard to the provisions of § 3.4 of Resolution ITU-R 1-4, you are requested to inform the Secretariat (brsgd@itu.int) by 22 February 2007, whether your Administration approves or does not approve these Questions.

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 1 (see: http://www.itu.int/pub/R-QUE-SG01/en).

Valery Timofeev
Director, Radiocommunication Bureau

Annexes: 2

– 2 draft new ITU-R Questions

Distribution:
- Administrations of Member States of the ITU
- Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 1
- ITU-R Associates participating in the work of Radiocommunication Study Group 1

Annex 1

(Source: Document 1/126)

EVALUATION OF THE DRAFT NEW QUESTION IN ACCORDANCE WITH RESOLUTION ITU-R 51

The result of spectrum occupancy measurements depend not only on accuracy but also on the fact of how occupancy is defined. When new radio applications emerge it is often required to redefine the definition of occupancy for these applications. For this reason it is desired to have different occupancy measurement methods available. Recommendations are the proper means of defining the method because the measurement results are often used in international coordination processes.

DRAFT NEW QUESTION ITU-R [SPEC.OCC]

Measurement of spectrum occupancy

The ITU Radiocommunication Assembly,

considering

a) that frequency management is providing theoretical values, retrieved from planning software regarding field strength values, produced by users of the frequency spectrum;

b) that monitoring services are tasked to measure the frequency spectrum and compare those values with the theoretical values from the frequency management;

c) that different types of occupancy measurements are performed worldwide and that it is often difficult to compare the results of those different methods,

decides that the following Question should be studied

1 What techniques could be used to perform frequency channel occupancy measurements, including processing and presentation methods?

2 What techniques could be used to perform frequency band occupancy measurements, including processing and presentation methods?

3 How can “occupancy” defined for both, frequency channel as well as for frequency band measurements, also taking into account, the size of the used filter and the values measured in adjacent channels?

4 How can threshold levels be defined and applied in practical situations including dynamic threshold levels?

further decides

1 that the above studies should be included in Recommendation(s);

2 that the above studies should be completed by 2009.

Category: S2

Annex 2

(Source: Document 1/130)

EVALUATION OF THE DRAFT NEW QUESTION IN ACCORDANCE WITH RESOLUTION ITU-R 51

The availability of powerful computers and high precision time signals at reasonable cost may allow radiolocation systems utilising the time difference of arrival of an emission emanating from one transmitter to multiple receivers. The utilisation of frequency difference of arrival effects and similar effects may be appropriate in order to increase the precision of radiolocation by reducing the cost.

The Question is necessary because up to now there is not enough information available on this issue except of applications within cellular mobile radio systems.

DRAFT NEW QUESTION ITU-R [RAD.LOC]

Alternative techniques for radiolocation determination

The ITU Radiocommunication Assembly,

considering

a) that the current 2002 edition of the Spectrum Monitoring Handbook describes direction-finding as the only terrestrial technique to locate transmitters and harmful interference;

b) the trends in wireless communications towards higher frequencies, wider bandwidths, more complex modulation schemes and lower power levels are making radiolocation determination more problematic;

c) that new alternative techniques and solutions for radiolocating transmitters (such as time difference of arrival (TDOA)) are now becoming available;

d) that said techniques may offer advantages in accuracy and capability over direction finding in some situations,

recognizing

a) that the Radio Regulations provides definitions for *radiodetermination, radiolocation* and *radio direction-finding*;

b) that the current 2002 edition of the Spectrum Monitoring Handbook describes radiolocation of transmitters on Earth using time and frequency difference measurements from two GSO satellites to locate interference to communication satellites;

c) that Recommendation ITU-R SM.1598 describes alternative techniques for direction-finding and location specifically for time division multiple access and code division multiple access signals;

d) that Recommendation ITU-R SM.854-1 describes an alternative direction-finding and location determination technique of signals below 30 MHz using single site location (SSL),

noting

a) that Question ITU-R 28-3/1 proposed that methods to improve the accuracy of direction-finding and related digital signal processing be studied, but did not specifically address using TDOA or frequency difference of arrival (FDOA) methods for radiolocation,

decides that the following Question should be studied

1 What alternative radiolocation technologies, such as TDOA and FDOA, are available and how do they compare to DF in different scenarios for a broad range of emission types?

2 What are the considerations and requirements for the specification, deployment and operation of such systems that effect geographical coverage, signal detection ability and location determination accuracy?

further decides

1 that the results of the above studies should be included in an Addendum for the Spectrum Monitoring Handbook and/or Report(s);

2 that the above study should be completed by 2009.

Category: S2