

Electronic Communications Committee **CPG****CPG19 PTA-7****Prague, Czech Republic / 17-21 June 2019****Date issued: 5 June 2019****Source: France****Subject: WRC-23 Agenda Item on the protection of RNSS from amateur emissions in the band 1240-1300 MHz**

Group membership required to read? (Y/N)

 N**Summary:**

Contributions submitted at the April 2019 meeting of CPG PTA provided measurement results that examined the effect of interference from the amateur service to Galileo receivers in the band 1260-1300 MHz.

In view of :

- the geographical extent of interference cases already met, with amateur stations distant from Galileo receivers by several tens of kilometres, despite very limited Galileo test receiver deployment
- the planned ubiquitous deployment of Galileo receivers using the E6 signal,
- the use of the band by other RNSS systems such as QZSS (Japan) and Compass (China), and Glonass in the band 1240-1260 MHz

France shares the European Commission view that a WRC-23 agenda item is necessary to address the issue to avoid undue burden on administrations that would otherwise have to deal with each interference case individually.

The new agenda item focuses on the review of the usage of the band 1240-1300 MHz by the amateur service and the RNSS, and proposes that technical, regulatory or operational measures are determined and then decided by WRC-23 to ensure protection of RNSS receivers.

Proposal:

CPG PTA is requested to consider the attached proposal, and to take it into account in its work on a European Common Proposal for WRC-19 Agenda Item 10.

Background:

WRC-2000 allocated the band 1260-1300 MHz to RNSS (space-to-Earth), and WRC-03 decided the complete regulatory framework. Today, the RNSS systems: Galileo, Glonass, Compass, and QZSS share the band 1240-1300MHz with amateur radio.

Although Galileo receivers are not yet widely deployed, several cases of interference into Galileo receivers from the Amateur Service have been identified at a number of sites. The interfering amateur stations were located and shutdown, but significantly in one case, the interfering amateur station was 60 km away, and all cases took several hours or even days to be identified.

Galileo is close to full operational capability and the E6 signals will support new services such as the free-to-use Galileo High Accuracy Service and authentication, expected to be used by a variety of applications including autonomous vehicles and Internet of Things (IOT). There is therefore a serious concern that cases of interference by amateur stations will rapidly grow in number, and it is hence necessary that this issue be addressed in a timely manner at WRC-23.

Note that this proposal was discussed recently at the CPG19-8 meeting in Stockholm (20-24 May 2019), which tasked CPG PTA to consider it further, together with other possible contributions on the same subject. In parallel, a new work item on this RNSS-Amateur coexistence issue was recently discussed by WG FM in view of the development of an ECC Decision, and WG SE would be requested to initiate technical work.

ANNEXES:

ANNEX1 : AS-RNSS PROPOSAL, USING TEMPLATE IN ANNEX 2 TO RESOLUTION 804 (REV. WRC-12)



AS-RNSS Annex 2
Res 804.docx

ANNEX2 : DRAFT WRC RESOLUTION [AS-RNSS]



AS-RNSS Draft
Resolution.docx

ANNEX 2 TO RESOLUTION 804 (REV.WRC-12)

Template for the submission of proposals for agenda items

Subject: *Proposal for WRC-23 Agenda Item to review the amateur service secondary allocation in the 1 240-1 300 MHz frequency band to ensure the protection of RNSS*

Origin: *France*

Proposal:

to review the amateur service secondary allocation in the 1 240-1 300 MHz frequency band to determine if additional measures are required to ensure the protection of the radionavigation-satellite (space-to-Earth) service operating in the same band.

Background/reason:

In the Radio Regulations, the amateur service is currently allocated as a secondary user in the band 1 240-1 300 MHz (known as the '23 cm band' by the amateur community) and it is currently used for amateur voice, data and image transmission in several countries in Europe and around the globe. The band is also allocated on a primary basis to the Earth exploration-satellite service, the radiolocation service, the radionavigation-satellite service (RNSS) and the space research service.

RNSS systems using the band 1 240-1 300 MHz are operational, or becoming operational, in various parts of the world with the aim of supporting wide range of new satellite positioning services, for example enhanced accuracy and position authentication. Administrations wishing to support the development of these new services within their territory should consider if additional national measures are required in order to prevent potential harmful interference to specific RNSS systems, and taking into account the ubiquitous nature of the deployment of RNSS receivers. Those measures may also need to be considered between neighbouring administrations.

In addition, the case of the secondary allocation to the Amateur service calls for a particular attention since cases of harmful interference have already been met, although RNSS users can claim protection from interference caused by the radio amateur transmissions and individual transmitting stations have been shut down when required. The difficulty is that there are many radio amateurs using this band in unspecified locations and therefore identifying and resolving each individual interference case will be a burden on regulators, RNSS service providers and users as the number of deployed RNSS receivers grows. The gradual increase in the use of the 1 240-1 300 MHz band by RNSS systems, including the E6 signals of the EU's Galileo system, and the fact that RNSS receivers are not, most of the time, in a fixed location, makes the sharing situation very challenging.

RNSS and Amateur service allocations are global, and the potential interference from secondary Amateur service to primary RNSS can be of an international nature. It is therefore appropriate that a WRC agenda item addresses this issue at global level. For these reasons it is proposed to review the amateur service secondary allocation in the band 1 240-1 300 MHz to ensure the protection of the radionavigation-satellite (space-to-Earth) service.

Radiocommunication services concerned:

Amateur, amateur-satellite, radiolocation, aeronautical radionavigation, radionavigation-satellite (Earth-to-space), services adjacent to the band 1 240-1 300 MHz.

Indication of possible difficulties:

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Previous/ongoing studies on the issue:

Study by the Joint Research Centre (JRC) of the European Union, performed in 2015

German study presented at April 2019 PTA meeting

Studies to be carried out by:

ITU-R WP4C

with the participation of:

ITU-R WP5A

ITU-R Study Groups concerned:

SG4, SG5

ITU resource implications, including financial implications (refer to CVI26):

None

Common regional proposal: Yes/No

Multicountry proposal: Yes/No

Number of countries:

Remarks

RESOLUTION [AS-RNSS] (WRC-19)

Review of the amateur service and the amateur-satellite service allocations to ensure the protection of the radionavigation-satellite service (space-to-Earth) in the frequency band 1 240-1 300 MHz

The World Radiocommunication Conference (Sharm el-Sheik Egypt, 2019),

considering

- a) that the frequency band 1 240-1 300 MHz is allocated worldwide to the amateur service on a secondary basis;
- b) that the amateur-satellite service (Earth-to-space) may operate in the band 1 260-1 270 MHz under No. **5.282** of the Radio Regulations;
- c) that the frequency band 1 240-1 300 MHz is also allocated worldwide to the radionavigation-satellite service (RNSS) in the space-to-Earth direction on a primary basis;
- d) that RNSS systems using the band 1 240-1 300 MHz are operational, or becoming operational, in various parts of the world, with the aim of supporting a wide range of new satellite positioning services, for example enhanced accuracy and position authentication;

noting

- a) that Recommendation ITU-R M.1732 contains the characteristics of systems operating in the amateur and amateur-satellite services for use in sharing studies;
- b) that Recommendation ITU-R M.1044 should be used as a guide in studies of the compatibility between systems operating in the amateur and amateur-satellite services and systems operating in other services;
- c) that Recommendation ITU-R M.1787 contains the description of RNSS systems and the technical characteristics of space stations operating in the frequency band 1 240-1 300 MHz;
- d) that Recommendation ITU-R M.1902 contains the characteristics and protection criteria for RNSS (space-to-Earth) receivers operating in the frequency band 1 240-1 300 MHz;

recognizing

- a) that some cases of harmful interference caused by emissions in the amateur service into RNSS (space-to-Earth) receivers have occurred, and resulted in investigations and in instructions to the operator of the interfering station to cease transmissions;
- b) that the number of RNSS receivers in the band 1 240-1 300 MHz is currently limited in certain regions, but will increase dramatically in the near future with the ubiquitous deployment of receivers used in mass-market applications;

- c) that according to No. **5.29** of the Radio Regulations, stations of a secondary service shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date;
- d) that administrations may benefit from the availability of studies and guidelines about the protection of the RNSS (space-to-Earth) by the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz;
- e) that some RNSS receivers in the band 1 240-1 300 MHz may be equipped with pulse-blanking, which may facilitate sharing with certain amateur service applications;
- f) that the amateur service in the band 1 240-1 300 MHz is currently used for amateur voice, data and image transmission in several countries in Europe and around the globe and may transmit a variety of emission types including wideband, continuous and/or high EIRP transmissions;

resolves to invite the 2023 World Radiocommunication Conference

to consider the results of the studies below and take appropriate actions,

invites ITU-R

- 1 to perform the detailed review of the different systems and applications used in the amateur service and amateur-satellite service allocations within the band 1 240-1 300 MHz;
 - 2 taking into account the results of the above review, to conduct, in time for WRC-23, the necessary studies leading to technical, regulatory and operational recommendations to the Conference, enabling that Conference to decide on effective measures to ensure the protection without undue constraints of RNSS (space-to-Earth) receivers by the amateur and amateur-satellite services.
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