Radiocommunication Study Groups

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International Amateur Radio Union

PRELIMINARY DRAFT NEW REPORT ITU-R M.[AMATEUR-RNSS]

Amateur and amateur-satellite services characteristics and usage in the 1 240-1 300 MHz frequency band

Currently Working Party (WP) 4C is developing the Report ITU-R M.[AMATEUR-RNSS]. It contains the studies of potential interference from the amateur and amateur-satellite services to RNSS receivers in the frequency band 1 240-1 300 MHz.

The studies make use of technical and operating characteristics of the amateur and amateur-satellite services supplied by WP 5A in response to *resolves to invite* 1 of Resolution **774 (WRC-19)**. At the last ITU-R WP 5A meeting, updates were included in section 5.5 of the draft Report in Annex 10 of the WP 5A Chairman's Report Document 5A/597.

Those updates provide useful information concerning the low duration of amateur service usage patterns and should be included in the set of information relating to the amateur and amateur-satellite services.

Working Party 4C is invited to include and take into account the proposals shown in track changes in the Annex, to update section 6.5 of the preliminary draft new Report ITU-R M.[AMATEUR-RNSS] (Annex 1 to Doc. 4C/333 the Chairman's Report).

The IARU believes the low duration of 'busy hour' activity is important to understand when considering the study results and implies a low likelihood of interference occurring to RNSS users in the E6 band. This low likelihood decreases further when other factors are taken into account such as, for example, the activity factor and probability of antenna main beam pointing.

Annex: 1

ANNEX

Section 6.5 from preliminary draft new Report ITU-R M.[AMATEUR-RNSS]

(Annex 1 to Doc. 4C/333)

Amateur station 1 240-1 300 MHz band usage patterns

For all home and temporary "portable" station applications, narrow-band or wideband, the highest number of actively transmitting amateur stations can be found during the scheduled operating and "radiosport" contest periods. TABLE 1 summarises the total scheduled operating and contest periods scheduled in one region for a typical year. As these activities are usually formalised in the amateur operator calendars, the published national results[1] can be consulted to determine the number of transmitting stations that were active during any one activity or contest period.

TABLE 1

Scheduled operating periods and active operating station numbers

Usage type	Annual scheduled operating periods	Total active stations per scheduled operating period	Active temporary stations per scheduled operating period
Narrow-band activity period and radiosport (in the 1 296-1 297 MHz portion)	Total, on average 108 hours over a year	From 9 to 140 maximum, depending on the country reviewed.	15 to 20 maximum, depending on the country reviewed.
EME activity (in the 1 296-1 297 MHz portion)	5 × 24-hour contest periods	Up to 10 maximum, depending on the country reviewed. (Maximum < 70 across the European area)	None
Wideband (typically ATV) activity period and radiosport (in any portion identified for ATV applications)	Total, on average 120 hours over a year	From 1 to 24 maximum, depending on the country reviewed. (Maximum < 100 across the European area)	10 maximum, depending on the country reviewed.

The figures presented in Table 7 can be used to estimate the amount of time over a one-year period when certain parts of the band (depending on the activity) are at their busiest with the highest number of actively transmitting amateur stations. For those activities concentrated in the 1 296-1 297 MHz portion of the band and assuming the moon is visible for 24 hours (an over estimation) then the following can be deduced:

Total narrowband 'busy hour' activity period = 108 hours (1.2% of a year).

Total EME 'busy hour' activity period = 120 hours (1.4% of a year).

[1] The analysed results were published by the national radio amateur societies in several European countries.

For the wideband activities taking place in the identified parts of the band plan, the following can be deduced:

Total wideband 'busy hour' activity period = 120 hours (1.4% of a year).

Table 7 also shows that the number of active stations involved in the EME and wideband activities is considerably lower than those active in the narrow--band activities.

The number of activity periods in the Table 7 reflects activity in several European countries with well–developed amateur communities. The densities and numbers are likely to be lower in many other countries, further reducing the probability of harmful interference.

Permanent installation stations present a different scenario when considering the operational time. Unmanned amateur radio stations are more or less in continuous operation, while manned stations only transmit intermittently. Propagation beacon and repeater station directories from a representative region can be consulted to develop the summary presented in TABLE 2.

TABLE 2

Permanent Installation station operating periods in a typical year

Usage type	Annual operation	Active installations
Narrow-band propagation beacons	Transmitting continuously usually.	From 4 to 20 depending on the country reviewed. Region 1 = 88 in total.
Narrow-band repeaters	Low and only when activated on the input frequency by a user station. May transmit more regularly if a beacon mode is present.	From 9 to 19 depending on the country reviewed.
ATV repeaters (the users are usually home stations)	Low and only when activated on the input frequency by a user station in a random and sporadic manner. May transmit more regularly if a beacon mode is present.	From 10 to 18 depending on the country reviewed. 5 to 10 users within the local coverage area transmitting one at a time.