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| **Radiocommunication Study Groups** |  |
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| Source: Document 5A/TEMP/214 | **Annex 11 toDocument 5A/597-E** |
| **3 June 2022** |
| **English only** |
| Annex 11 to Working Party 5A Chairman’s Report |
| Working document towards A preliminary draft new Recommendation ITU-R M.[AS Guidance][[1]](#footnote-1) |
| Guidance on technical and operational measures for the use of the frequency band 1 240-1 300 MHz by the Amateur and Amateur-satellite service in order to protect the RNSS (space-to-Earth) |

(…)

R19-WP5A-C-0543!!MSW-E RUS

R19-WP5A-C-0545!!MSW-E F

R19-WP5A-C-0577!!MSW-E D

IARU

Scope

This Recommendation provides guidance on technical and operational measures to be implemented by stations operating in the Amateur and Amateur-satellite services to protect the Radionavigation Satellite Service (space-to-Earth) in the frequency band 1 240-1 300 MHz. The relevant measures are contained in the Annexes to this Recommendation.

Keywords

Radionavigation satellite-service (RNSS), Amateur and Amateur-satellite service, IARU, …

Abbreviations/Glossary

RNSS Radionavigation satellite-service

IARU International Amateur Radio Union

ATV Amateur Television

…

Related ITU Recommendations / Reports

Report ITU-R M.[Amateur-RNSS] Studies [and guidelines] regarding the protection of the primary RNSS(space‑to-Earth) ~~by/[~~from] the secondary Amateur and Amateur-Satellite Services in the frequency band 1 240-1 300 MHz.

Report ITU-R M.[AMATEUR.CHARACTERISTICS] - Amateur and amateur-satellite services characteristics and usage in the 1 240-1 300 MHz frequency band.

Report ITU-R [M.2458](https://www.itu.int/pub/R-REP-M.2458) - RNSS applications in the 1 164-1 215 MHz, 1 215-1 300 MHz and 1 559-
1 610 MHz frequency bands.

Recommendation ITU-R [M.1902](https://www.itu.int/rec/R-REC-M.1902/en) - Characteristics and protection criteria for receiving earth stations in the RNSS (space-to-Earth) operating in the band 1 215-1 300 MHz.

Recommendation ITU-R [M.1787](https://www.itu.int/rec/R-REC-M.1787/en) - Description of systems and networks in the RNSS (space-to-Earth and space-to-space) and technical characteristics of transmitting space stations operating in the bands 1 164-1 215 MHz, 1 215-1 300 MHz and 1 559-1 610 MHz.

Recommendation ITU-R [M.2030](https://www.itu.int/rec/R-REC-M.2030/en) - Evaluation method for pulsed interference from relevant radio sources other than in the RNSS to the RNSS systems and networks operating in the 1 164-
1 215 MHz, 1 215 1 300 MHz and 1 559-1 610 MHz frequency bands.

Recommendation ITU-R [M.1732](https://www.itu.int/rec/R-REC-M.1732/en) - Characteristics of systems operating in the amateur and amateur-satellite services for use in sharing studies.

Handbook [ITU-R 52](https://www.itu.int/pub/R-HDB-52) - Amateur and amateur-satellite services.

The ITU Radiocommunication Assembly,

considering

*a)*that the IARU develops, maintains and publishes detailed band plans for the operation of the Amateur and Amateur-satellite service in all three Regions;

*b)* thatReport ITU-R M.[Amateur-RNSS] provides studies and measurements regarding the amateur and amateur-satellite services transmissions and their potential to cause harmful interference to RNSS (space-to-Earth), that exceeds the protection criteria given in Recommendation ITU-R [M.1902](https://www.itu.int/rec/R-REC-M.1902/en);

*c)*that RNSS systems using the frequency band 1 240-1 300 MHz are operational, or becoming operational, worldwide, with the aim of supporting a wide range of new satellite positioning applications;

[*d)* that the administrations and the amateur and amateur satellite services [will][may] need a transition period [TBD] to roll out the changes and alterations needed to both band usage and band plans as well as equipment modifications, ]

recognizing

*a)* that the frequency band 1 240-1 300 MHz is allocated to the Radionavigation satellite-service (space-to-Earth) on a primary basis;

*b)* that the frequency band 1 240-1 300 MHz is allocated to the Amateur and Amateur-satellite service on a secondary basis;

[*c)* that the relation between the services mentioned in *recognizing* a) and b) above is stipulated in RR Nos. **5.xx** to **5.yy**;]

*d)*  that the frequency band 1 240-1 300 MHz is also allocated worldwide to the Earth Exploration-Satellite Service (active), Radiolocation Service (RR No. **5.329** applies) and the Space Research Service on a primary basis;

*e)* that additional services are allocated in some countries by footnotes RR No. **5.330** (fixed and mobile) and RR No. **5.331** (radionavigation) in the frequency band 1 240-1 300 MHz;

*f)* that the amateur and amateur-satellite services continually develop their use of the frequency band 1 240-1 300 MHz in accordance with the RR **1.56** and **1.57**,

*[{20220601 ed: Find somewhere else for this text here so that it is not lost, we need to be careful about making sure the text reflects the sentiment and is* ***possible to do*** *because it’s different in various countries}*

recommends

[that Administrations wishing to protect RNSS services across their territory]

[Due to the known interference cases and the immediate roll-out of dedicated mass-market RNSS receivers in the band 1 240-1 300 MHz, Administrations should also consider retro-active changes to the assignments of domestic broadband ATV stations, already in operation. ]]

1 that, in order to facilitate compatibility with RNSS (space-to-Earth), technical and operational measures as described in Annexes 1 to 3 should be considered and could be implemented in the frequency band 1 240-1 300 MHz by the amateur and amateur satellite services.

Annex 1

Guidelines for the use of broadband applications in the amateur service
in the frequency band 1 240-1 300 MHz

In order to avoid harmful interference from broadband applications in the amateur service, including Amateur Television (ATV) into the RNSS (space-to-Earth), the following measures are proposed:

a) discourage the use of amateur national assignments of broadband applications including ATVs from the frequency bands [Proposal 1:1 263,75-1 293,75 MHz and 1 259,25-1 277,25] [Proposal 2: 1 240-1 254 MHz and 1 258-1 298] MHz , , and

b) limit the allowed output power for broadband applications at [100 W] in the bands [1 254-1 258] MHz and [1 298-1 300] MHz in the 3 Regions

{20220601 Ed: Finished here in June 2022, start from annex below at the next WP5A meeting. Noting the agreement on the general format of each annex in respect to the title and way the proposals are made. Text in [] are subject to further consideration and the outcome of relevant studies in WP 4C }

Annex 2

Guidelines for the use of narrow band applications in the amateur service in the frequency band 1 240-1 300 MHz

In order to avoid harmful interference from narrow band applications in the amateur service into the RNSS (space-to-Earth), the following measures are proposed:

a) restrict the operation of transmitting stations to the frequency band [1 293.845-1 294.345] 1 293-1 293.5] MHz with a maximum allowed EIRP of [10]W, and

a) limitation of the allowed output power for narrowband amateur applications at [5 mW] in the bands [1 240-1 254] MHz, [1 258-1 298] MHz in the This is very restrictive and in effect closes 90% of the allocation. *The IARU would request considering a different approach where such low power is needed, for protection e.g.:* restrict operation for all amateur applications in the ranges[1 240-1 254] MHz and [1 258-1 298] MHz to a maximum [3dBW/MHz EIRP].;

b) limitation of the national licensing and assignments to narrowband repeater (permanent) stations to the frequency band [1 298-1 300] MHz with a maximum allowed EIRP of [100]W.

b) limitation of the allowed output power for narrowband amateur applications at [100 W] in the [1 254-1 258 MHz and 1 298-1 300 MHz] in the ;

c) the technical and operational requirements specified at point a) above have been determined using an RNSS protection criteria of [x dBW] in the bands [1 240-1 254] MHz and [1 258-1 298] MHz in the 3 Regions.

[TBD, subject to further consideration and the outcome of relevant studies in WP 4C]

{Editor’s Note: [ ] are subject to further consideration and the outcome of relevant studies in WP4C}

Due to the assumed interference cases and immediate roll-out of dedicated mass-market RNSS receivers in the bands 1 240-1 300 MHz, Administrations should also consider retro-active changes to the assignments of amateur satellite earth stations, already in operation.

**Note:** Due to the known interference cases and the starting roll-out of dedicated mass-market RNSS receivers in the bands 1 240-1 300 MHz, Administrations are invited to also consider the retro-active changes to the assignments of amateur narrowband applications, already in place.

Annex 3

Guidelines for the use of applications in the amateur-satellite service in the frequency band 1 260-1 270 MHz

In order to avoid harmful interference from applications in the amateur-satellite service into the RNSS (space-to-Earth), the following measures are proposed:

limitation of the licensing and national assignments for satellite uplink stations in the frequency band [1 260-1264] MHz with an allowed EIRP of [100] W, with a minimum antenna gain of [30]dBi. .[comment: to require antenna gain > 30dBi is not practical operationally in the amateur sat service (faster moving LEO satellites). A yagi antenna would be nearly 12 m long! A dish antenna would be around 3m in diameter!]

1. exclusion of amateur-satellite uplink applications from the frequency bands [1 262-1 270] MHz,;
2. limitation of the allowed output power for amateur satellite uplink applications at [20] W in the [1 260-1 262 MHz]

[TBD, subject to further consideration and the outcome of relevant studies in WP 4C]

{Editor’s Note: [ ] are subject to further consideration and the outcome of relevant studies in WP 4C}

Due to the assumed interference cases and immediate roll-out of dedicated mass-market RNSS receivers in the bands 1 240-1 300 MHz, Administrations should also consider retro-active changes to the assignments of amateur satellite earth stations, already in operation.

**Note:** Due to the known interference cases and the starting roll-out of dedicated mass-market RNSS receivers in the bands 1 240-1 300 MHz, Administrations are invited to also consider the retro-active changes to the assignments of amateur satellite uplink applications, already in place.

Guidelines for using stations in amateur and amateur-satellite
in the frequency band 1 240‑1 300 MHz

The following measures should be taken to avoid interference to RNSS from applications in the amateur and amateur-satellite service:

1 limitation of allowable e.i.r.p. for stations to no more than −1 dBW/MHz; ;[This in effect closes the band to any realistic amateur service operation and is against the spirit of the AI which is to not remove the amateur services allocations]]

*Comment: It is severe limitation in terms of power and if it is applied for all frequency range 1 240-1 300 MHz, the operation of amateur service is severely limited.*

*[*

2 avoid pointing of the station antenna pattern peak in the direction of airports and air corridors for aircraft flights [Unworkable – e.g. which airports? Large/small/airfields/]

*Comment: It seems to be a vague requirement. Protection area to apply this limitation should be defined. It might be more suitable to leave this kind of limitation to each administration.*

 *or*

3 discourage the use the frequency bands [1 240-1 255.76] MHz, [1 263.75-1 293.75] MHz and [1 259.25-1 277.25] MHz for national assignments to stations in the amateur and amateur‑satellite services. Could some elements of this be combined with the French proposal for 1254 to 1258MHz? e.g. 1254-1259.25?]

1. This Recommendation should be brought to the attention of the International Amateur Radio Union (IARU). [↑](#footnote-ref-1)