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| SE40 | | Doc. SE40(22)003 |
| SE40 (meeting #76) | | |
| Web meeting, 11-13 April 2022 | | |
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| Date issued: | 3rd April 2022 | |
| Source: | IARU R1 | |
| Subject: | Amateur vs RNSS WI39 | |
| Group membership required to read? (Y/N)  N | | |
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| Summary: | | |
| This document provides an update of the initial analysis of the results from the study to evaluate the potential interference areas reported in Annex 8 of the draft ECC Report <RNSS\_AS>. Reference document SE40(21)049\_A5\_A5 Working document draft ECC Report WI\_39. It considers the results of a discussion about a range of values for amateur station density that is higher (and lower) than the currently derived single country wide average figure. | | |
| Proposal:  See the Annex 1 for the propos**ed update with a revised Table 22 for section 8.1.1 and 8.1.2 of the working document** SE40(21)049\_A5\_A5 Working document draft ECC Report WI\_39**.** | | |
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| Background: | | |
| As explained in another IARU contribution to this meeting a range of values from 0.00006/km2 to 0.0016/km2 is proposed for the amateur station density. (Home Station 1 in narrowband activities). Narrowband radiosport activities always attract the highest number of active stations onto the air. | | |

**ANNEX 1:**

Replace Table 22 in the working document with these two tables:

**Table 22a: Home Station 1 - Narrowband**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Power (Watts) | Location  Probability % | Narrowband  Interfered Area km2 | % Area – CEPT average density | % Area – Highest user density | % Area – Lowest user density |
| 1 | 50 | 42 | 0.83 | 6.68 | 0.25 |
| 1 | 69 | 1.38 | 11.03 | 0.41 |
| 100 | 50 | 280 | 5.6 | 44.77 | 1.68 |
| 1 | 438 | 8.77 | 70.16 | 2.63 |
| 300 | 50 | 433 | 8.67 | 69.33 | 2.6 |
| 1 | 740 | 14.79 | 118.3 | 4.44 |

**Table 22b: Home Station 1 - Wideband**

|  |  |  |  |
| --- | --- | --- | --- |
| Power (Watts) | Location  Probability % | Wideband Interfered Area km2 | % Area |
| 1 | 50 | 31 | 0.31 |
| 1 | 42 | 0.42 |
| 100 | 50 | 254 | 2.54 |
| 1 | 305 | 3.05 |
| 300 | 50 | 433 | 4.33 |
| 1 | 814 | 8.15 |

Replace the section 8.1.2 text in the working document with the following updated section [Updated text shown in highlight]:

### Likelihood of Interference from a Home Station 1, 100W narrowband application example:

The data in section 2.1.7 on amateur station usage patterns enables the percentage of time that interference might occur to be estimated over the “interfered area” estimated by propagation model prediction.

Taking the example of a Home Station 1 operating with a maximum transmitter power of 100W during narrow-band activity periods and radiosport over a one-year cycle:

* Total hours of active operation: 108 hours = 1.23% of time p.a.
* 50% active transmitting time = 0.62% of time p.a.

Assuming the most stringent propagation model setting (1% location probability) from a single Home Station 1, the predictions estimate that interference exceeding the RNSS receiver protection threshold could be observed across 70% of the area between active stations in the busiest locations (see Table 22a). For the average and lowest user density locations the area is considerably less (<10%).

However, such a level of potential interference from a Home Station is likely to be very short lived. Consideration of operating data indicates this might occur for just 0.62% of time during a year and in any case amateur stations are operated with a wide range of transmitter power levels with only around a quarter of active stations having the capability to operate at a power level between 26W and 100W.