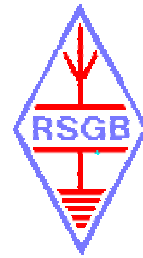


Radio Society of Great Britain



DRAFT ECC REPORT 98

Studying the compatibility issues of the UIC Euroloop system with other systems in the frequency band 9.5 to 17.5MHz.

Formal input from the Radio Society of Great Britain

1. About the Radio Society of Great Britain

The Radio Society of Great Britain (RSGB) is the recognised national organisation that represents the interests of the UK's 60,000 licensed radio amateurs. The Society was formed in 1913. The Society is recognised as one of the leading organisations in the world in the field of amateur radio.

2. What is Amateur Radio?

Amateur radio is a science based technical hobby enjoyed by over three million people worldwide. Amateur radio is recognised by the International Telecommunication Union (ITU) as a service and is listed in the ITU Radio Regulations as the Amateur Service and the Amateur-Satellite Service.

3. The RSGB and Spectrum Management

The RSGB has been actively involved in discussions at an international level over many years with the issues of spectrum management, and is thus well aware of the current aims of maximising the utilisation of the radio spectrum through attention to issues such as spectrum re-use and technology and spectrum neutrality. The society is also aware of the need to provide better management systems for our railways, so that we can get better efficiency and punctuality from our existing rail networks, improving the integration with, and taking pressure off, other parts of the transport infrastructure

However, a solution such as the one proposed in the paper under consideration does not, in the view of the RSGB, meet the needs of maintaining appropriate stewardship of the spectrum, as the compatibility calculations and validation tests indicate significant worsening of the noise floor over quite a wide area surrounding the proposed installations. Although provisional estimates of countries that might have Euroloop installations do not include any of the countries within the UK¹, we consider that it is important to raise concern on behalf of those countries that may have Euroloop installations as the modelling in the report indicates that we facing several hundred radio amateurs suffering some form of interference from the proposed system.

For the more complex case of ionospheric propagated signals from Euroloop installations combining and thus raising the noise-floor the Society notes that this is unlikely to be a problem, with the H-field limits proposed. However, we would be concerned if this limit was exceeded. This could be in order to conform to the levels for Inductive Loop SRDs, table 2.12 [1], as might be the case for the recently amended IR2030 specification here in the UK, which is based upon ETSI EN 300 330 [2] and ERC REC 70-03 [3]. The other scenario is where the actual aggregated power level from the overall installation turned out to be greater than that envisaged and modelled. This could be on account of more than 5,000 loops being installed across Europe, or actual propagation

¹ Our understanding is that Network Rail plans to install GSM-R

from the leaky coax “loops” being significantly higher than the modelling and limited trials in this report have predicted.

4. Discussion

As is detailed in the report’s Annex D, like the Military Service the Amateur Service relies much of the time on the ability to work at or close to the ambient noise floor. We thus take care to construct our radio stations to gain the lowest noise floor level and at the same time allow efficient radiation from our aerials. It is therefore difficult to accept any incursion on ITU agreed primary user spectrum-allocations for the Amateur Service. The modelling in the report suggests that a minimum separation distance of between 25 and 500m would be required for interference from Euroloop to be avoided. This is possibly an underestimate for the Amateur Service, given the statement in Annex D1 that we generally operate at signal levels significantly below the median levels used in the report’s calculations.

Whilst the new levels in ERC/REC 70-03 have not been explicitly used we are concerned at the new set of conditions that now exist whereby the aerials in this part of the spectrum for inductive SRD systems do not have to be closed loops. The report gives a useful discussion of the likely radiation from the Euroloop’s linear leaky-coax radiator in Annex C, and whilst on-site tests were somewhat inconclusive we are concerned that a relationship between the open-loop “Inductive Application” levels in and the need for this new level for “Railway Applications” might be drawn. The work undertaken in preparing the report does indicate a complex radiation scenario is occurring for the Euroloop leaky-coax within the railway environment. Thus, it should be noted that leaky coax of 1km, or multiple wavelengths long, should not be considered a SRD in this particular application. The RSGB is concerned that generic limits based upon ERC/REC 70-03 and ETSI EN 300 330, which are much higher, are likely to be adopted by some administrations. The RSGB’s view is that these generic limits are probably quite acceptable for the majority of inductive applications, but could well produce an enhanced noise-floor for systems such as Euroloop, where the transmit aerial is extremely large relative to the wavelength, and in close proximity to potential parasitic radiators.

Overall, the RSGB feels that alternative technological solutions exist that avoid the spectrum compatibility issues related to Euroloop identified in this report.

References

[1] IR2030 page 48-89 of Ofcom’s consultative document Wireless Telegraphy Licence Exemption, <http://www.ofcom.org.uk/consult/condocs/wtexemption/exemption.pdf>

[2] ETSI EN 300 330: Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9kHz to 25MHz and inductive loop systems in the frequency range 9kHz to 20MHz; Part 1: Technical Characteristics and test methods & Part 2: Harmonisation EN under article 3.2 of the R&TTE Directive.

[3] ERC/REC 70-03 Relating to the use of Short Range Devices (SRD). ERO Website.

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