Deutsche Telekom Comments on the Draft RSPG Opinion on Spectrum aspects of Intelligent Transport Systems

Deutsche Telekom (DT) highly appreciates the opportunity to comment on the draft RSPG opinion on Spectrum aspects of Intelligent Transport Systems (RSPG16-044).

Recommendations on ITS for roads

1. **The spectrum at 5875-5905 MHz is designated for safety-related ITS. A designation is not an exclusive allocation. But the fact that the band is harmonized is fundamentally important to the continued development and deployment of ITS and safety-related ITS applications in the European Union.**

2. **The spectrum designation in 5875-5905 MHz is technology neutral. The RSPG cannot take a view on the choice of technology since this is not a matter of spectrum regulation. However, we note that the co-existence between different ITS technologies is not guaranteed by the designation. There is a risk that the development of potentially competing technologies for ITS in the same band could impact on the robust and safe operation within 5875-5905 MHz. It is important that in-band co-existence and cross-border operation of ITS is ensured, especially for safety-related ITS.**

   DT agrees that a harmonized designation of spectrum for safety-related ITS based on technology neutrality is an important element for a timely deployment of car-2-car communication in Europe. DT fully supports the opinion of RSPG that the choice of technology is not a matter of spectrum regulation. The designation of spectrum for ITS should follow the established technology neutrality approach in Europe which has been successfully applied to spectrum designation for ECN. It is up to the market to decide which technology suits best to certain use cases. Coexistence of different technologies will be achieved by the respective standards.

3. **There is no evidence that spectrum availability is currently a constraint on the development of ITS, and there is no immediate need to take regulatory action in this regard. But we recommend that the options for ITS (in particular non-safety related ITS) to expand to share spectrum in the 2x20 MHz above and below the existing designation should be kept available for the time being. We recognize the risk that this could constrain other potential future uses of this spectrum, and recommend that this risk is kept under review.**

4. **Given the potential future use of the spectrum for ITS, the RSPG recommends that the impact on current and potential future ITS in 5855-5875, 5875-5905 and 5905-5925 MHz should be taken account of when considering changes to spectrum use in these and adjacent bands.**

   DT agrees that there is currently no spectrum bottleneck hindering the deployment of ITS services. There is no immediate action needed, however, it has to be noted that the penetration of ITS services in Europe is currently very low. Therefore DT fully supports the recommendation of RSPG to keep the option to extend the spectrum for ITS by 2x20 MHz above and below the existing allocation and to take this into consideration when deciding on changes in these respective bands. This would also imply a respective positioning of Europe for WRC-19 agenda item 1.16 (RLAN spectrum). Based on the finalized LTE-V2X standards it is predicted that first V2X services will be launched 2019/2020. The success of V2X is heavily based on global harmonization of standards and the establishment of local environmental conditions. RSPG should keep their engagement for global harmonization.

5. **RSPG notes that mobile networks may provide opportunities for services to complement ITS, in particular using 5G features.**

   DT confirms that there are more aspects than pure car-2-car communication. In addition to communication between cars and infrastructure or car and backendservices increased automation of car operation offers timely opportunities for both drivers and passengers to make use of usual private communication or entertainment services. The usage of a common platform such as LTE for all these applications will provide benefits for car manufacturing since it reduces the number of modules to be installed in a car. In addition the customer will also benefit by getting consistent services also during their journey.

6. **RSPG notes that 63-64 GHz is designated for ITS by ECC/DEC/(09)01 in order to enable development and implementation of ITS applications in this frequency band. RSPG fully supports the continued use of this band for ITS on a shared basis.**

   DT supports the RSPG recommendation to continue the designation of 63-64 GHz for ITS.

Recommendations on spectrum for next -generation of railway communication

1. **The European spectrum arrangement for the railway communications system (GSM-R) should remain in place for the foreseeable future as this provides Member States with a harmonized allocation of 2x4 MHz (876-880/921-925 MHz) for GSM-R and its potential successor. Additionally, member States may also allocate up to 2x3 MHz within the band 873-876/918-921 MHz by using the GSM-R bands and the Extension bands on a national basis where needed.**

   The current spectrum management for railway communication creates a number of coexistence problems with the public mobile networks. In particular the very slow deployment of the improved GSM-R radio equipment hinders the deployment of state-of-the-art broadband technologies in the 900 MHz band by public operators. DT supports the allocation of the GSM-R extension band to provide an opportunity to improve the current coexistence situation to facilitate the fast implementation of new broadband technologies for railways.

2. **RSPG notes that the current railway communication system (GSM-R) will need to be replaced in due course and that the railways community considers that access to more spectrum may facilitate the transition from one system to another, depending on the options for new systems. The railway community is raising this now, as the transition will be a long a complex process.**

   The current railway communication system is based on a more than 25 years technology which is not suited to fulfill the requirement for broadband communication which today is ubiquitous. DT supports the view of RSPG that there is the need to replace these systems in due course. For the transition phase railway operators it would be beneficial for the railway operators to use additional spectrum in particular the 2x3 MHz in the so called GSM-R extension band.

3. **RSPG notes that there is a wide range of options for the future of railway communications, but that the suitability of these options varies across Member States. These options include but are not limited to**
   a. **using the GSM-R band and the extension (E-GSM-R) band (or a part thereof) during the transition or permanently**
   b. **using commercial networks**
   c. **using other bands**
   d. **sharing networks with other users (e.g. PPDR in 700 MHz or 400 MHz)**

4. **Rail operators are invited to consider the options for the future of railways communications, including those outlined above, with the relevant administrations.**

   DT agrees that the replacement of GSM-R by another technology is not the only option to fulfill the requirements for railway communications. The mentioned option has to be discussed on a national level but have to guarantee European interoperability. Except the extension of the dedicated frequency resources there are no spectrum management measures needed to enable these options.

5. **In addition, RSPG notes that some Member States have implemented and some may need to implement solutions that allow for cross-border co-operation to address possible spectrum inefficiencies and spectrum shortages, for example in the transition period when GSM-R is being replaced by another system, and in areas where the density of use of railways communications is very high.**

   DT is not involved in discussions concerning cross-border co-operation related to GSM-R. Nevertheless, DT will be sensitive to co-operate with member states or other MNOs or GSM-R operators to solve problems in the field of cross-border co-operation

6. **RSPG notes that the spectrum demand for future rail systems remains uncertain, and will depend on the traffic to be accommodated and on national situations (ie, only train/track signaling and voice, or train/track video communications, rail network density, cross border corridors).**

   Due to the uncertain demand there is no need for further spectrum designations for railway communication.