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| Working Group FM | SE(18)049Doc. FM(18)059 Annex 021 |

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| To |  |
| Mr Steve GreenChairman of ECC PT1Mail: steve.green@ofcom.org.uk**CC:**Mr Karl LoewChairman of WG SEMail: karl.loew@bnetza.de |
| Date | Enclosures |
| 09 February 2018 | --- |
| Our reference | Your reference |
| WGFM#90 | --- |
| Subject |  |
| Study needed on coexistence between RMR base stations transmitting and MFCN base stations receiving in the 900 MHz range as well as in the 1900 - 1920 MHz band |  |

Dear Steve,

During its 87th meeting in February 2017, WG FM established the new project team FM56 to work on spectrum issues related to railway applications, especially GSM-R and its successor.

Further to the progress of the group's work, WG FM seeks assistance from PT1 to define the least restrictive technical conditions (BEM) required on Railway Mobile Radio (RMR)[[1]](#footnote-1) base stations, based either on GSM-R or LTE/5G, in an uncoordinated deployment, including potential EIRP restrictions, to ensure coexistence with MFCN base stations receiving below 915 MHz.

According to current available ETSI standard (TS 145 005), there is no restriction on GSM-R base stations transmitting in the 921-925 MHz band. Thus PT1 is invited to include in the studies the following cases:

* RMR system based on GSM-R in 918-921 MHz
* RMR system based on LTE/5G using a 3 MHz channel in 918-921 MHz
* RMR system based on LTE/5G using a 1.4 MHz channel in 918-919.4 MHz
* RMR system based on LTE/5G using a 1.4 MHz channel in 919.5-920.9 MHz
* RMR system based on LTE/5G using a 1.4 MHz or 3 MHz channel in 921-925 MHz
* RMR system based on LTE/5G using a 5 MHz channel in 920-925 MHz

From the studies, it should also be possible to derive a result for any lower band edge ranging from 918 MHz to 921 MHz and for any channel width (GSM-R and LTE/5G 1.4 MHz, 3 MHz and 5 MHz).

When defining the harmonised technical conditions for RMR, WG FM is going to consider the results from PT1, also taking into account other aspects such as defence usage. With this respect, the outcome of WG SE related to RMR will also be considered.

FM56 already received several [contributions](https://cept.org/ecc/groups/ecc/wg-fm/fm-56/client/meeting-documents/) on this topic which may be of interest for PT1:

* FM56(17)020 from Ericsson
* FM56(17)047 from Kapsch (KCC)
* FM56(17)042rev1 from ANFR
* FM56(17)044rev1 from Qualcomm

The document FM56(17)052 also provides a comparison table gathering the results of these contributions.

Noting that ECC at its 46th meeting agreed on a process to withdraw ECC/DEC/(15)02 on BB-DA2GC in 1900-1920 MHz, WG FM also seeks assistance from PT1 to define the least restrictive technical conditions (BEM) required on LTE/5G-based RMR base stations in an uncoordinated deployment to ensure coexistence with MFCN base stations receiving above 1920 MHz. A 5 MHz channel and a 10 MHz channel should be considered.

Two scenarios should be considered: a macro coverage rollout of RMR as well as a local coverage rollout (e.g. in railway stations and shunting yards). The feasibility of a LTE/5G-based RMR UE having a transmit power of up to 31 dBm should be assessed.

PT1 would be very kind to inform WG FM on the follow up action resulting from this LS, on the timeframe and on progress of its work. Results would be needed by end 2018 so that WG FM can make further development on the basis of PT1 results. Furthermore, WG FM invites PT1 to keep WG SE informed on the progress of their studies so that they can be taken into account in WG SE work.

Yours sincerely,

Thomas Weilacher

WG FM Chairman

Mail: thomas.weilacher@bnetza.de

1. RMR is an umbrella term used for any railway mobile radio system, including GSM-R and FRMCS. [↑](#footnote-ref-1)