

# **TECHNICAL ARRANGEMENT**

**between the Frequency Management Authorities of**

**CROATIA,  
HUNGARY,  
and SERBIA**

**on the frequency coordination in the frequency bands  
876 – 880 / 921 – 925 MHz  
(GSM-R core band)**

agreed by correspondence in  
May 2022

## 1 Preamble

In the framework of the bi- or multilateral agreements dealing with frequency coordination in general the Croatian Regulatory Authority for Network Industries (Croatia), the National Media and Infocommunications Authority (Hungary) and Regulatory Agency for Electronic Communications and Postal Services (Serbia) – hereinafter Signatory Administrations – concluded this Technical Arrangement in order to avoid minimize interference and achieve efficient spectrum usage of GSM-R systems in the frequency band 876 – 880/921 – 925 MHz (GSM-R core band) in border areas.

## 2 Principles – background

- 2.1 The Administrations mentioned above deemed it necessary to conclude this Technical Arrangement on the partitioning of the preferential frequencies for GSM-R systems in the frequency band 876 – 880/921 – 925 MHz.
- 2.2 The channel arrangement used in this Technical Arrangement is according to ECC/DEC/(02)05 amended 8 March 2013.
- 2.3 The relevant provisions of the “HCM Agreement<sup>1</sup>” and ECC/REC/(05)08 amended 03 February 2017 shall be applied unless otherwise laid down in this Technical Arrangement.
- 2.4 Operators shall have the possibility to cooperate in order to minimize interference and to achieve more efficient use of the available spectrum.

## 3 Technical provisions

- 3.1 The preferential frequency partitioning is given in the Annex. Continuous series of all adjacent preferential frequencies belonging to a country constitutes a block or a preferential block.
- 3.2 Preferential frequencies may be used if the field strength of each carrier produced by the base station does not exceed 19 dB $\mu$ V/m/200 kHz (*10% of time, 50% of locations*) at a height of 3 m above ground at a distance of 15 km inside the neighbouring country.
- 3.3 Non-preferential frequencies may be used if the field strength of each carrier produced by the base station does not exceed 19 dB $\mu$ V/m/200 kHz (*10% of time, 50% of locations*) at a height of 3 m above ground at the border line.
- 3.4 All block-end frequencies in the preferential blocks shall be considered as preferential frequencies with preferential right given in section 3.2 until harmful interference is reported. In the case of harmful interference the procedure according to Section 5 shall be followed.

## 4 Exchange of information

Notifications of base stations will be exchanged on explicit request of any Signatory Administration. The exchange format is defined in Annex 2 A of the HCM Agreement.

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<sup>1</sup> In this document, the „HCM Agreement” means the agreement in force

## **5 Procedure in case of harmful interference**

In case of harmful interference the Administrations affected shall inform each other and endeavour to achieve mutually acceptable solutions.

- 5.1 As a first step, for non-preferential and preferential frequencies (including block-end frequencies too), the field strength calculation shall be checked and the radiation parameters of the base station causing harmful interference shall be adjusted accordingly. The calculation shall be based on the method defined by the "HCM Agreement" and the field strength limits given in sections 3.2 and 3.3 shall be kept regarding the preferential and non-preferential frequencies respectively.
- 5.2 In the case where harmful interference is still experienced despite the measures given in section 5.1, the radiation parameters of the base station causing harmful interference shall be adjusted according to the result of field strength measurements.
- 5.3 If harmful interference is still experienced -- despite the measures given in section 5.1 and 5.2 -- between two adjacent block-end frequencies allocated to two neighbouring countries, both operators of the two countries should mutually agree on the solution for eliminating harmful interference

## **6 Operator Arrangement**

Operators may make arrangements to use frequencies in a different way according to the respective "Agreement between Administrations concerning the approval of arrangements between operators of radiocommunications networks" with prior consent of the Administrations concerned.

## **7 Revision of this Technical Arrangement**

This Technical Arrangement can be revised in the light of administrative, regulatory or technical developments at the proposal of any Signatory Administration with the agreement of all other Signatory Administrations.

## **8 Withdrawal from this Technical Arrangement**

Any Administration may withdraw from this Technical Arrangement by the end of a calendar month by giving notice of its intention at least six months in advance. Frequency assignments of Administrations not withdrawing from this Technical Arrangement made within the framework of this Technical Arrangement prior to the date of entry into force of the withdrawal shall remain valid and be protected according to their status. In this case, exchange of information according to Section 4 is needed.

## **9 Language of the Technical Arrangement**


This Technical Arrangement has been concluded in English in three originals.

## 10 Date of entry into force of the Technical Arrangement

This Technical Arrangement enters into force for the two- and three-country border areas in which all the affected Administrations have signed it.


For Croatia

on 31.05/2022

  
HRVATSKA REGULATORNA AGENCIJA  
ZA MREŽNE DJELATNOSTI  
Roberta Frangeša Mihanovića  
Miran Gosta M.Sc. A G R E B

For Hungary

on 05.05/2022

  
Péter VÁRI Ph.D.

For Serbia

on 16.05/2022

  
Dragan Pejović

### Preferential frequency partitioning in the GSM-R bands

Center freq. (MHz)	GSM ARFCN	Block nr	HNG/HRV*	HNG/HRV/SRB	HRV/SRB	HNG/SRB	Duplex freq. (MHz)
876.2000	955	1	HRV	HRV	HRV	SRB	921.2000
876.4000	956	2	HRV	HRV	HRV	HNG	921.4000
876.6000	957	3	HNG	HNG	SRB	HNG	921.6000
876.8000	958	4	HRV	HRV	HRV	SRB	921.8000
877.0000	959	5	HNG	HNG	SRB	HNG	922.0000
877.2000	960	6	HRV	SRB	SRB	SRB	922.2000
877.4000	961	7	HRV	HRV	HRV	SRB	922.4000
877.6000	962	8	HNG	HNG	HRV	HNG	922.6000
877.8000	963	9	HNG	SRB	SRB	SRB	922.8000
878.0000	964	10	HRV	HRV	HRV	HNG	923.0000
878.2000	965	11	HNG	HNG	HRV	HNG	923.2000
878.4000	966	12	HRV	SRB	SRB	SRB	923.4000
878.6000	967	13	HNG	HNG	HRV	HNG	923.6000
878.8000	968	14	HNG	SRB	SRB	SRB	923.8000
879.0000	969	15	HNG	HNG	HRV	HNG	924.0000
879.2000	970	16	HNG	SRB	SRB	SRB	924.2000
879.4000	971	17	HRV	HRV	HRV	HNG	924.4000
879.6000	972	18	HRV	SRB	SRB	SRB	924.6000
879.8000	973	19	HRV	SRB	SRB	SRB	924.8000

\* existing agreement (Technical Agreement between the Administrations of Austria, Croatia, Hungary and Slovenia on the frequency coordination in the frequency bands 876 – 880/921 – 925 MHz (GSM-R), 2007)