Technical Agreement
between
the Telecommunication Administration of Romania and the Telecommunication Administration of Ukraine
on technical criteria and principles for coordination of use of the frequency band 790-862 MHz by the mobile communications networks with respect to the aeronautical radionavigation and fixed services

Geneva, February 2012

Preamble

According to Article 6 of the Radio Regulations, the representatives of the Telecommunication Administration of Romania and of the Telecommunication Administration of Ukraine (hereinafter referred to as Parties) have agreed the present Technical Agreement concerning the use of the frequency band 790-862 MHz with the purpose of avoiding mutual interference and optimizing the use of the above-stated frequency band on a mutually coordinated basis.

Based on EU Decision 2010/267/EU the Romanian Administration intends to introduce the mobile service in the band 790-862 MHz before 2015. Therefore Romanian Administration initiated that its name be added to the footnote 5.316A, which ensures the usage of "Digital dividend" band for mobile service.

1. PRINCIPLES

1.1. This Technical Agreement is based on the concept of coordination threshold and the idea of symmetrical conditions for both Parties.

1.2. This Technical Agreement covers the coordination[1] of frequency assignments of land mobile service (MS) of Romania and frequency assignments of aeronautical radionavigation service (ARNS) and fixed service (FS) of Ukraine.

1.3. The frequency arrangement for land mobile service conforms to the FDD frequency arrangement and parameters of transmission for base and user terminal stations in accordance with ECC/DEC(09)03. TDD frequency arrangement of mobile service is not covered by this Technical Agreement.

1.4. This Technical Agreement applies to stations of the services listed in item 1.2 and brought into use after the date of signing of this Agreement, mentioned in Article 6 of this document.

2. USE OF FREQUENCIES

2.1. The frequency bands 791-821 MHz and 832-862 MHz will be used in Romania for land mobile service. The mode of operation shall be frequency division duplex (FDD) for land mobile service with the following preferred harmonized frequency arrangement, in accordance with Annex 1 of ECC/DEC(09)03:

- The duplex spacing shall be 41 MHz;
- Base stations transmission (downlink) located in the lower part of the band from 791 MHz to 821 MHz;
- Terminal stations transmission (uplink) located in the upper part of the band from 832 MHz to 862 MHz.

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[1] The term «coordination» should be understood as bilateral coordination between Parties without involving BR in this process. The document concluded under this bilateral coordination shall be considered by Parties as agreed under relevant RR procedure.

2.2. Technical characteristics of existing ARNS frequency assignments of Ukraine requiring protection and considered as coordinated by Administration of Romania, are given in Annex 2 of this Technical Agreement. The frequency bands 791-821 MHz and 832-862 MHz are not currently used in Ukraine for land mobile service in FDD mode with transmission parameters for base stations and terminal stations in accordance with ECC/DEC(09)03.

2.3. Romania may use the frequency band 791-821 MHz for base stations of land mobile service without coordination with Ukraine if the following conditions are met:
a) if the predicted mean field strength produced by a base station does not exceed 46 dB(μV/m)/1 MHz and 53 dB(μV/m)/5 MHz at a height of 10 m above the ground at the border;
b) if the base stations are located at a distance from the border not less than 10 km and service radius for base station should not cover areas which are closer than 2 km from the border;
c) if the base stations are located outside of the area with radius 20 km from the point of location RLS1, type 2 in IZMAIL, indicated in Annex 2.

2.4. Romania may use the frequency band 832-862 MHz for user equipment of the land mobile service without coordination with Ukraine if compliance with item 2.3 is ensured.

2.5. Stations of the aeronautical radionavigation service of Ukraine to be deployed after the date of signing this Technical Agreement may use the frequency band 832-862 MHz without coordination with Romania if the predicted field strength produced by a station does not exceed 26 dB(μV/m)/1 MHz at a height of 10 m above ground at the border.

2.6. Fixed and mobile stations of CDMA networks of Ukraine may use the frequency band 824-843 MHz without coordination with Romania if the mean field strength produced by a station does not exceed 26 dB(μV/m)/5 MHz at a height of 3 m above the ground at the border.

2.7. The Annex 1 of this Technical Agreement contains the scenarios of mutual interference for Romanian and Ukrainian radio services in the frequency band 790-862 MHz.

2.8. The ARNS stations mentioned in Annex 2 of this Technical Agreement use the frequency band 790-862 MHz with technical characteristics indicated in Rec. ITU-R M.1830.

3. GENERAL

3.1. A new frequency assignment exceeding the above-mentioned coordination threshold values shall be coordinated with the other Party.

3.2. The coordination procedure shall be performed in accordance with Article 4 of this Technical Agreement.

3.3. In the presence of interference produced by a station covered by this Technical Agreement and put into operation after entering into force of this Technical Agreement, the Report of harmful interference shall be presented in accordance with Appendix 10 of the Radio Regulations. The Parties shall take all possible measures in order to eliminate the interference in due time.

3.4. The field strength specified in the Report of harmful interference (see item 3.3) shall be based on the median values of measurements of field strength performed at antenna height stipulated in Article 2 of this Technical Agreement at least in two different points over a range of at least 100 m along the border.

3.5. The predicted field strength values in this Technical Agreement calculated with the ITU-R Recommendation P.1546-4 are based on antenna heights corresponding to those in Article 2 of this Technical Agreement with 10% time and 50% locations.

3.6. The ITU-R Recommendation P.1546-4 "Method for point-to-area predictions for terrestrial services in the frequency range 30-3000 MHz" shall be used for calculations of the field strength value produced by ground stations. The use of updated versions of this Recommendation is to be mutually agreed.

3.7. The ITU-R Recommendation P.525-2 "Calculation of free space attenuation" shall be used for calculations of the field strength value produced by or to airborne station.

4. COORDINATION PROCEDURE

4.1. The Party wishing to initiate the use of a frequency assignment to the station covered by this Technical Agreement that does not correspond to the terms specified in Article 2 of this document shall send to the other Party a request to coordinate such frequency assignment. A request can be sent by mail, fax or e-mail. In case if a request is sent by e-mail the requesting Party shall send by fax a covering letter to the affected Party and to receive a confirmation of its receipt.

4.2. The affected Party shall provide a feedback in respect of the request to coordinate assignments within 10 weeks from the date of the request receipt. If no feedback was received, an urgent reminder shall be sent by fax. Party that failed to respond within 2 weeks from the date of an urgent reminder receipt shall be deemed agreeing if the Party, a consent of which is sought, did not ask for extra time needed to evaluate the coordination request.

4.3. In case of a refusal of the affected Party to satisfy the request for coordination the requesting Party shall provide to the affected Party results of its calculations, or any new technical characteristics of the assignment.

4.4. If no response from the affected Party to the proposals provided in item 4.3 was received within 10 weeks from the date of proposals receipt, an urgent reminder shall be sent. Party that failed to respond within 2 weeks from the date of receipt of an urgent reminder shall be deemed agreed to the provided proposals on coordination.

4.5. The Party objecting to the received request for coordination according to item 4.3 shall provide results of its calculation and a proposal for reasonable changing of the request that shall not only provide for adequate protection for its available and planned services, but to the maximal possible extent shall preserve an initial objective of the request for coordination.

4.6. In case of controversies originating from applying of this Technical Agreement, Parties shall be governed by provisions and procedures of the Radio Regulations, as well as applicable international and bilateral agreements.

5. REVISION AND CANCELLATION

5.1. This Technical Agreement may be cancelled as desired by one of the Parties with a notice of at least one year. This does not affect the operation of stations already brought into use or coordinated under this Agreement.

5.2. After such cancellation, Parties will exchange the list of stations already brought into use or coordinated under this Technical Agreement.

5.3. This Technical Agreement may be revised or cancelled without previous notice, if mutual understanding is reached between the Parties.

5.4. This Technical Agreement may be revised after Ukraine decides to implement LTE systems.

5.5. The appropriate part of this Technical Agreement shall be revised in case one of the Parties decides to suspend the use of the frequency band 790-862 MHz in the border area by any service indicated in item 1.2.

5.6. In case the compatibility study and tests results on the usage of the frequency band 790-862 MHz by radio services indicated in item 1.2 are agreed by both Parties, this Technical Agreement should be revised in order to take into account these results.

6. COMING INTO FORCE

6.1. This Technical Agreement shall come into force on the date of the signing.

This document has been drawn up in two identical copies, one for Romania and one for Ukraine.

Done at Geneva on 14 February 2012

For the Telecommunication Administration of Romania

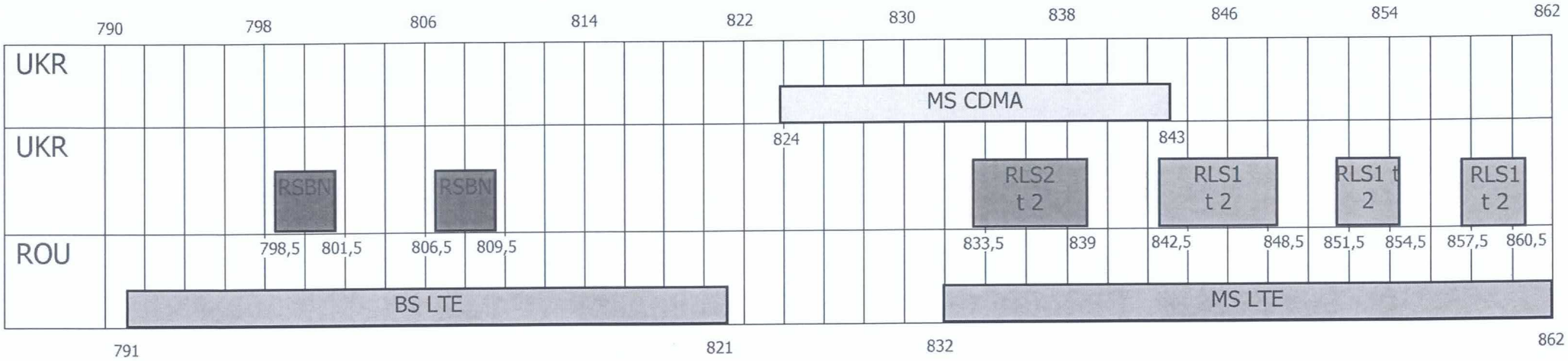
Bogdan Cristian IANA
National Authority for Management and Regulation in Communications of Romania

For the Telecommunication Administration of Ukraine

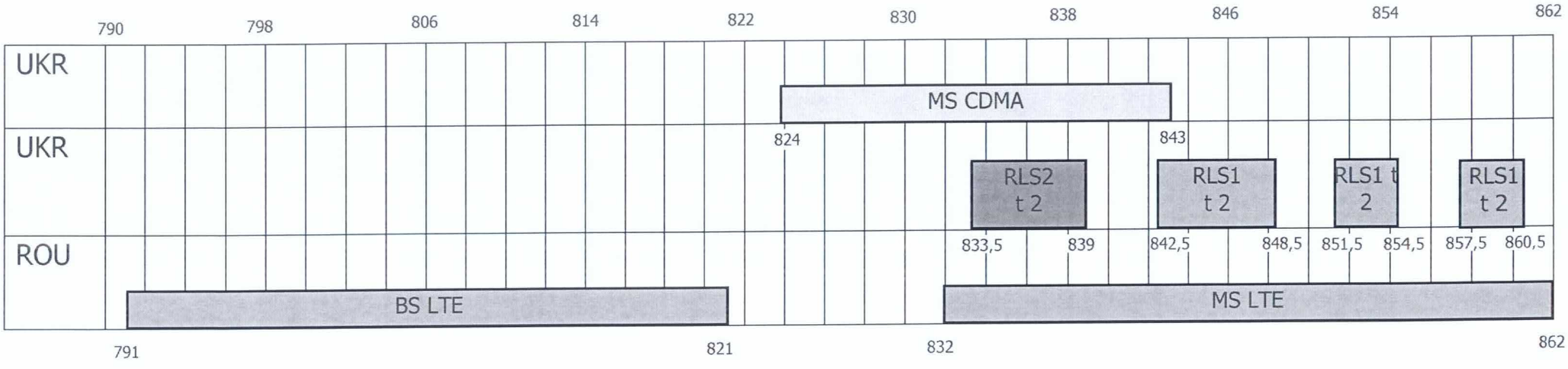
Ievgen KHAIROV
Ukrainian State Centre of Radio Frequencies

Annex 1

Scenarios of mutual interference for radio services in 790-862 MHz band (North)



Scenarios of mutual interference for radio services in 790-862 MHz band (South)



Annex 2

The frequency assignments to aeronautical radionavigation service of Ukraine

"North"

Notice type	Assigned frequency, MHz	Name of station	Administr-ation	Geographical coordinates		Class of station	Type of service	Service	Code of emission	ERP max (dBW)	Antenna directivity	Distance to border, km
				longitude, ddmmss	latitude, ddmmss							
G12	844, 847,853, 859	MUKACHEVO RLS1_2	UKR	22E4100	48N2300	AL	AB	OT	3M00P0N	82	ND	44
G12	837,5	MUKACHEVO RLS2_2	UKR	22E4100	48N2300	AL	BC	OT	3M00M1X	69,5	ND	44
G12	844, 847,853, 859	MOLOCHA RLS1_2	UKR	22E3800	48N1000	AL	AB	OT	3M00P0N	82	ND	26
G12	844, 847,853, 859	VYNOGRADIV RLS1_2	UKR	23E0200	48N1000	AL	AB	OT	3M00P0N	82	ND	10
G12	835, 836, 837,5	CHERNIVTSI RLS2_2	UKR	25E5800	48N1500	AL	BC	OT	3M00M1X	69,5	ND	28
G12	844, 847,853, 859	CHERNIVTSI RLS1_2	UKR	25E5800	48N1500	AL	AB	OT	3M00P0N	82	ND	28
G12	835, 836, 837,5	KOLOMYA RLS2_2	UKR	25E0300	48N3300	AL	BC	OT	3M00M1X	69,5	ND	73
G13	800	IVANO-FRANKOVS'K RSBN	UKR	24E4100	48N5300	AM	AA8	OT	3M00P0X	30,5	ND	113
G13	808	KOLOMYA RSBN	UKR	25E0300	48N3300	AM	AA8	OT	3M00P0X	30,5	ND	72

"South"

Notice type	Assigned frequency, MHz	Name of station	Administr-ation	Geographical coordinates		Class of station	Type of service	Service	Code of emission	ERP max (dBW)	Antenna directivity	Distance to border, km
				longitude, ddmmss	latitude, ddmmss							
G12	844, 847,853, 859	IZMAIL RLS 1_2	UKR	28E4800	45N2300	AL	AB	OT	3M00P0N	82	ND	5
G12	835, 836, 837,5	IZMAIL RLS2_2	UKR	28E4800	45N2300	AL	BC	OT	3M00M1X	69,5	ND	5
G12	844, 847,853, 859	ARTSYZ RLS1_2	UKR	29E2300	45N5700	AL	AB	OT	3M00P0N	82	ND	57
G12	835, 836, 837,5	ARTSYZ RLS2_2	UKR	29E2300	45N5700	AL	BC	OT	3M00M1X	69,5	ND	57
G12	844, 847,853, 859	BOLGRAD RLS1_2	UKR	28E4000	45N4000	AL	AB	OT	3M00P0N	82	ND	38
G12	835, 836, 837,5	BOLGRAD RLS2_2	UKR	28E4000	45N4000	AL	BC	OT	3M00M1X	69,5	ND	38