

TECHNICAL ARRANGEMENT

concerning the use of the frequency band 694-790 MHz
for terrestrial systems in the border areas of Romania and Ukraine

October 2015

Preamble

In accordance with Article 6 of the International Telecommunication Union Radio Regulations, the Technical Arrangement concerning the use of the frequency band 694-790 MHz for terrestrial systems in the border areas of Romania and Ukraine is concluded on behalf of the Telecommunication Administration of Romania (hereinafter referred to as “Romanian Party”), on the one part and the Telecommunication Administration of Ukraine (hereinafter referred to as “Ukrainian Party”), on the other part and jointly referred to as “Parties”.

The principles, conditions, procedure and technical parameters specified in this Technical Arrangement are used in the border coordination¹ between Land Mobile Service (LMS) stations in Romania and Aeronautical Radionavigation Service (ARNS) stations in Ukraine in the frequency band 694-790 MHz.

The coordination of the LMS and ARNS stations with the broadcasting service is outside the scope of this Technical Arrangement.

This Technical Arrangement does not cover the border coordination between LMS stations.

1. Principles

1.1 This Technical Arrangement applies to LMS usage in accordance with ECC Decision (15)01 and ARNS stations usage in accordance with Footnote No. 5.312 of the ITU Radio Regulations.

1.2 This Technical Arrangement covers LMS stations:

1.2.1 using Frequency Division Duplex (FDD) mode, where the frequency band 703-733 MHz is used by terminal stations (TS) (Uplink), and the frequency band 758-788 MHz is used by base stations (BS) (Downlink);

1.2.2 BS transmitting in 738-758 MHz band in Supplemental Downlink (SDL) mode;

1.2.3 LMS stations in the Time Division Duplex (TDD) mode are not covered by this Technical Arrangement.

1.3 This Technical Arrangement applies to ARNS stations with parameters specified in Rec. ITU-R M.1830 i.e.:

1.3.1 RLS 2, Type 2 stations (ground receiver) in the band 736-744 MHz;

1.3.2 RSBN stations (ground receivers) in the band 770.5-789.5 MHz.

¹ The term <<coordination>> should be understood as bilateral coordination between Parties without involving BR in this process. The bilateral coordination concluded under this Technical Arrangement should be considered by Parties as agreed under relevant ITU Radio Regulations procedure.

1.4 The frequency plan for radio services of both Parties in the band 694-790 MHz is provided in Annex 1.

1.5 List of the ARNS stations of Ukraine covered by this Technical Arrangement, which are brought into use and must be protected from unacceptable interference from the LMS stations of Romania, is presented in Annex 2 to this Technical Arrangement.

1.6 If the Romanian Party plans to use the mobile service in the frequency band 694-790 MHz, it shall send a notice by mail to the Ukrainian Party about the relevant date of such use 3 months in advance.

1.7 From the date on which the Ukrainian Party receives the notice mentioned in paragraph 1.6 above, new ARNS stations of Ukraine and the LMS stations of Romania shall be coordinated in accordance with the procedures in this Technical Arrangement.

1.8 At the same time, from the date mentioned in paragraph 1.6 above the coordination of the ARNS stations of Ukraine with the broadcasting service of Romania in accordance with the GE-06 Regional Agreement in the frequency band in which this Technical Arrangement applies is not required and shall be deemed as completed under relevant procedure of the GE-06 Regional Agreement.

1.9 If the Ukrainian Party plans to use the LMS in the frequency band 694-790 MHz, it shall inform the Romanian Party and the Parties shall consider revision of this Technical Arrangement taking into account future LMS use by both Parties based on the relevant CEPT decisions and recommendations in such a way that equitable access to the spectrum is assured.

2. Technical conditions for coordination of the stations in the LMS with the stations in the ARNS.

2.1 In Romania the frequency band 736-744 MHz may be used by the LMS stations without coordination with the ARNS stations of Ukraine if the mean field strength produced by a cell of a BS does not exceed 28 dB μ V/m/5 MHz at the height of 10 meters above ground at the north part of common border line and does not exceed 19 dB μ V/m/5 MHz at the height of 10 meters above ground at the south part of common border line.

2.2 In Romania the frequency band 770.5-789.5 MHz may be used by the LMS stations without coordination with the ARNS stations of Ukraine if the mean field strength produced by a cell of a BS does not exceed 59 dB μ V/m/5 MHz at the height of 10 meters above ground at the border line and does not exceed 33 dB μ V/m/5 MHz at the height of 10 meters above ground at the distance 9 km from border line inland Ukraine.

2.3 In Romania the frequency bands 703-733 MHz and 744-770.5 MHz may be used by the LMS stations without coordination with the ARNS stations of Ukraine

if the stations fulfill the principles and the field strength levels defined in the relevant CEPT decisions and recommendations (e.g. ECC/REC/(11)04).

2.4 In case of frequency block sizes for LMS stations other than 5 MHz the value of:

$$10 \times \lg (\text{frequency block size in MHz}/5 \text{ MHz})$$

should be added to the field strength values specified in paragraphs 2.1 and 2.2 above.

2.5 If carrier aggregation is used in such a way that the downlink in the frequency band 791-821 MHz band is aggregated with downlink in the frequency band 738-788 MHz (DL+SDL), the BS conditions of paragraphs 2.1 to 2.4 of this Technical Arrangement should be applied as follows:

2.5.1 In case of aggregation of the downlink in the frequency band 791-821 MHz with the downlink in the frequency subband 770.5-788 MHz, the BS conditions of paragraph 2.2 and 2.4 should be applied;

2.5.2 In case of aggregation the downlink frequency band 791-821 MHz with the downlink in the frequency subband 744-770.5 MHz, the BS conditions of paragraph 2.3 and 2.4 should be applied;

2.5.3 In case of aggregation the downlink frequency band 791-821 MHz with the downlink in the frequency subband 738-744 MHz, the BS conditions of paragraph 2.1 and 2.4 should be applied.

3. Technical conditions for coordination of the stations in the ARNS with the stations in the LMS.

3.1 In Ukraine the frequency bands 736-744 MHz and 770.5-789.5 MHz may be used for new ARNS stations without coordination with Romania if the predicted mean field strength level produced by a reference transmitter with ERP 13 dBW which has to be increased by the antenna gain of the ARNS receiver located at the site with the height of the ARNS receiver concerned, does not exceed 26 dB μ V/m/5 MHz at a height of 10 meters above the ground at the border line, and if the station is located at a distance not less than 30 km from the border line.

3.2 No protection for new ARNS receivers can be claimed against LMS stations of Romania complying with criteria specified in Section 2.

4. General provisions for coordination

4.1 The fulfillment of the field strength levels in paragraphs 2.1 and 2.2 should be verified with recalculation and periodic monitoring measurements by the Romanian Party and LMS operators of Romania in case of modification of LMS network or putting into operation of new BSs.

4.2 A new frequency assignment to a BS of LMS which is not in compliance with the conditions indicated in Section 2 of this Technical Arrangement is subject to coordination. Technical characteristics of the BS of LMS should be sent for coordination in the format described in BR ITU Circular Letter CR/261 of 03.08.2006.

4.3 The Romanian LMS BS coordination requests should be accepted if the calculated mean field strength values produced by a cell of a BS do not exceed:

- 17 dB μ V/m/8MHz in the band 736-744 MHz (15 dB μ V/m/5MHz)
- 35 dB μ V/m/3MHz in the band 770.5-789.5 MHz (37 dB μ V/m/5MHz)

at the location of the coordinated ARNS receivers, at the height of 10 meters above the ground.

4.4 A new frequency assignment to an ARNS station which is not in compliance with the conditions indicated in Section 3 of this Technical Arrangement is subject to coordination. Technical characteristics of the ARNS station should be sent for coordination in the format described in BR ITU Circular Letter CR/261 of 03.08.2006.

4.5 The request for coordination of receiver of a new ARNS station should be accepted if the calculated mean field strength values produced by each cell of a BS complying with conditions indicated in Section 2 of this Technical Arrangement or by each cell of a coordinated LMS BS under Section 5 do not exceed:

- 17 dB μ V/m/8MHz in the band 736-744 MHz (15 dB μ V/m/5MHz)
- 35 dB μ V/m/3MHz in the band 770.5-789.5 MHz (37 dB μ V/m/5MHz)

at the location of the ARNS receiver under coordination, at the height of 10 meters above ground.

4.6 The coordination procedure shall be performed in accordance with Section 5 of this Technical Arrangement.

4.7 In the presence of interference caused by a station covered by this Technical Arrangement, a Report of harmful interference shall be presented in the form indicated in Appendix 10 to the ITU Radio Regulations. Upon receipt of the Report of harmful interference the Party which is responsible for such station shall take all possible measures in order to eliminate the interference and to inform the other Party.

4.8 The latest version of the Recommendation ITU-R P.1546 "Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz" shall be used for calculation of the field strength values created by the terrestrial stations. The field strength values in this Technical Arrangement are calculated for 10% of the time and 50% of the locations.

4.9 In case of harmful interference to the ARNS receivers, the aggregate field strength of LMS BSs should be calculated by using the power sum method

indicated in paragraph 3.5 of the Chapter 3 to Annex 2 of GE-06 Regional Agreement. In this case, the trigger field strength values specified in paragraph 4.3 should be increased by 7 dB.

5. Procedure of coordination

5.1 The Party wishing to initiate use of a frequency assignment to the station covered by this Technical Arrangement that does not correspond to the terms specified in Sections 2 and 3 above shall send to the other Party a request to coordinate such frequency assignment. A request can be sent by mail, fax or e-mail, with technical characteristics of the stations to be sent by e-mail in electronic form in the format specified in Section 4 of this Technical Arrangement. In case if a request is sent by e-mail the requesting Party shall send by mail or fax a covering letter to the affected Party which should send a confirmation of its receipt.

5.2 The affected Party shall provide an answer in respect of the request to coordinate assignments within 10 weeks from the date of the request receipt. The request for coordination shall be evaluated according to the relevant paragraphs of Section 4. If no feedback was received, an urgent reminder shall be sent by fax. The Party that failed to respond within 2 weeks from the date of an urgent reminder receipt shall be deemed as agreed on the coordination request if this Party did not ask for extra time needed to coordinate the request.

5.3 In case of a refusal of the coordination request by the affected Party, the requesting Party may provide to the affected Party the results of its calculations, or any new technical characteristics of the assignment. If, in seeking agreement, the Party modifies its initial request, this modification shall be sent by applying the procedure of paragraph 5.1 above.

5.4 If no response from the affected Party to the proposals provided in paragraph 5.3 above was received within 10 weeks from the date of proposals receipt, an urgent reminder shall be sent by fax. The Party that failed to respond within 2 weeks from the date of receipt of the urgent reminder shall be deemed as agreed to the provided proposals on coordination.

5.5 The Party objecting to the received request for coordination shall provide a proposal for reasonable changing of the request that shall not only provide for adequate protection for its existing services and services applied by this Party earlier in time, but to the maximal possible extent shall preserve an initial objective of the request for coordination.

5.6 In case of controversies originating from the application of this Technical Arrangement, the Parties shall be governed by provisions and procedure of the ITU Radio Regulations.

6. Revision and cancellation

6.1 This Technical Arrangement may be cancelled as desired by one of the Parties with a notice sent by mail. Cancellation shall become effective one year after the date on which the Party receives the notice of cancellation.

6.2 On the date on which such cancellation becomes effective, the Parties shall exchange their lists of stations already brought into use or coordinated under this Technical Arrangement. The cancellation does not affect the operation of stations already brought into use or coordinated under this Technical Arrangement.

6.3 This Technical Arrangement may be revised or cancelled without notice, if mutual understanding is reached between the Parties in written form.

6.4 This Technical Arrangement shall be revised within 3-month period after the Romanian Party receives a notice of the Ukrainian Party to be sent by mail in accordance with provisions of paragraph 1.9 of this document.

7. Coming into force

7.1 This Technical Arrangement shall come into force immediately after WRC-15 on 28 November 2015.

7.2 This Technical Arrangement has been drawn up in English in two identical copies, one for the Telecommunication Administration of Romania and one for the Telecommunication Administration of Ukraine.

Done in Bucharest on the 22nd of October 2015 and signed by correspondence.

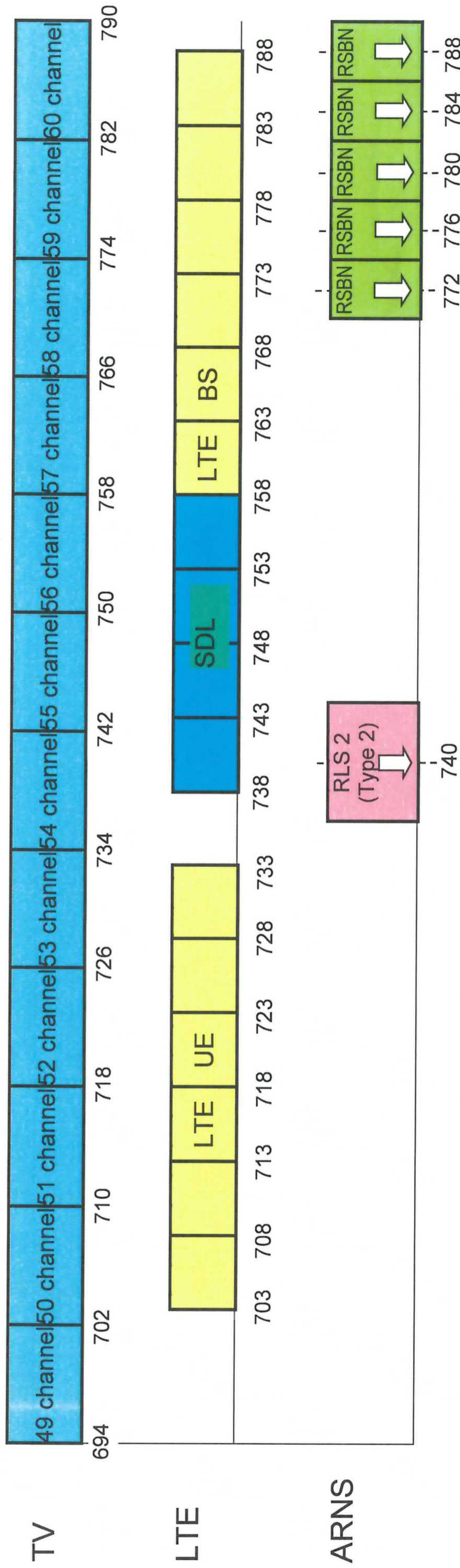
On behalf of the Telecommunication
Administration of Romania

On behalf of the Telecommunication
Administration of Ukraine

Marius Cătălin MARINESCU
President
National Authority for Management
and Regulation in Communications
of Romania
on 22 October 2015

Volodymyr KORSUN
Director General
Ukrainian State Centre of Radio
Frequencies
on 28 October 2015

Frequency plan for radio services in the band 694-790 MHz



Legend:

- ↕ - direction of transmission (air to ground)
- ARNS – aeronautical radionavigation service
- RSBN – radio systems for short-range navigation
- RLS – radio location systems
- LTE – Long Term Evolution
- BS – base station transmission band
- UE – user equipment transmission band
- TV – TV channels
- SDL – Supplementary Down Link

**The frequency assignments
to aeronautical radionavigation service of Ukraine**

Notice type	Assigned Frequency, MHz	Name of station	Admini- stration	Geographic Coordinates		Class of Station	System type code	Service	Code of Emission	ERP max (dBW)	Antenna directivity
				longitude, ddmss	latitude, ddmss						
T13	740,0	ODESA	UKR	303000	462500	AM		OT	8M00M1X		ND
G13	740,0	UZHGOROD RLS2 2	UKR	221500	483800	AM	AA2	OT	8M00M1X		ND
G13	740,0	MUKACHEVO RLS2 2	UKR	224100	482300	AM	AA2	OT	8M00M1X		ND
G13	740,0	IZMAIL RLS2 2	UKR	284800	452300	AM	AA2	OT	8M00M1X		ND
G13	740,0	ARTSYZ RLS2 2	UKR	292300	455700	AM	AA2	OT	8M00M1X		ND
G13	740,0	BOLGRAD RLS2 2	UKR	284000	454000	AM	AA2	OT	8M00M1X		ND
G13	740,0	ODESA RLS2 2	UKR	304000	462500	AM	AA2	OT	8M00M1X		ND
G13	740,0	LYMANS KE RLS2 2	UKR	300100	464000	AM	AA2	OT	8M00M1X		ND
G13	740,0	NEMYRIV RLS2 2	UKR	232600	500600	AM	AA2	OT	8M00M1X		ND
G13	740,0	VINNYTSA RLS2 2	UKR	283600	491400	AM	AA2	OT	8M00M1X		ND
G13	740,0	BAR RLS2 2	UKR	274400	490700	AM	AA2	OT	8M00M1X		ND
G13	740,0	VAPNYARKA RLS2 2	UKR	284200	483300	AM	AA2	OT	8M00M1X		ND
G13	800,0	VINNYTSA RSBN	UKR	283600	491400	AM	AA8	OT	3M00P0X	28,3	ND
G13	800,0	VINNYTSA RSBN	UKR	283600	491400	AM	AA8	OT	700KPXX	28,3	ND