

## **TECHNICAL ARRANGEMENT**

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

September 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 Poland and Ukraine is concluded on behalf of the Telecommunication Administration of Poland (hereinafter referred to as "Polish Party") on the one part, and the Telecommunication Administration of Ukraine (hereinafter referred to as "Ukrainian Party") on the other part, jointly referred to as "Parties".

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

The coordination of the LMS with the broadcasting service is outside the scope of this Arrangement and shall be carried out in accordance with Radio Regulations and the GE-06 Regional Agreement.

This Technical Arrangement does not cover 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 applies to 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 the 738-758 MHz band in Supplemental Downlink (SDL) mode.

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

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

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

1.4 The frequency plan for radio services of Parties, covered by this Technical Arrangement, 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 Poland, is presented in Annex 2 to this Technical Arrangement.

- 1.6 If carrier aggregation is used in such a way that the uplink in the frequency band 790-862 MHz band is aggregated with downlink in the frequency band 694-790 MHz, the BS conditions of item 2.2 of the Arrangement between the Parties in the frequency band 790-862 MHz shall apply to BS operating in the frequency band 694-790 MHz with such carrier aggregation.
- 1.7 If the Polish 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.
- 1.8 From the date on which the Ukrainian Party receives the notice mentioned in paragraph 1.7 above, new ARNS stations of Ukraine and the LMS stations of Poland shall be coordinated in accordance with the procedures defined in this Technical Arrangement.
- 1.9 At the same time, from the date mentioned in paragraph 1.7 above the coordination of the ARNS stations of Ukraine with the broadcasting service of Poland 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.
- 1.10 If the Ukrainian Party plans to use the LMS in the frequency band 694-790 MHz, it shall inform the Polish Party. Then 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 The Polish Party may use a LMS station operating in the frequency band 736-744 MHz without coordination with the ARNS stations of Ukraine if the mean field strength produced by this LMS station does not exceed:
  - 2.1.1. 38 dB $\mu$ V/m/5 MHz at the height 10 meters above ground at the part of the borderline south from the 50° 38' 15" N;
  - 2.1.2. 22 dB $\mu$ V/m/5 MHz at the height 10 meters above ground at the part of the borderline north from 50° 38' 15" N.
- 2.2 The Polish Party may use a LMS station operating in the frequency band 770.5-789.5 MHz without coordination with the ARNS stations of Ukraine if the mean field strength produced by this LMS station does not exceed 59 dB $\mu$ V/m/5 MHz at the height 10 meters above ground at the borderline and does not exceed 33 dB $\mu$ V/m/5 MHz at the height 10 meters above ground at the distance 9 km from borderline inland Ukraine.

- 2.3 The Polish Party may use a LMS station operating in the frequency bands 744-758 MHz and 758-770.5 MHz without coordination with the ARNS of Ukraine if the station fulfills principles and the field strength levels defined in the ECC/REC/(11)04.

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

- 3.1 The Ukrainian Party may use the frequency bands 736-744 MHz and 770.5-789.5 MHz for new ARNS stations without coordination with the Polish Party if the predicted mean field strength level produced by a reference transmitter with ERP 13 dBW, located at the site and the height of the ARNS receiver concerned and with accounting ARNS antenna gain, generates a field strength which does not exceed 26 dB $\mu$ 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 15 km from the border line.

### **4. General provisions for coordination**

- 4.1 The fulfilment of the field strength levels in items 2.1 and 2.2 should be verified with recalculation and periodic monitoring measurements by the Telecommunication Administration and LMS operators of Poland 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 Article 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 Annex 2A of HCM Agreement.
- 4.3 A new frequency assignment to an ARNS station which is not in compliance with the conditions indicated in Article 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.
- 4.4 The coordination procedure shall be performed in accordance with Article 5 of this Technical Arrangement.
- 4.5 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.

- 4.6 Recommendation ITU-R P.1546-5 "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.
- 4.7 The aggregate average field strength of BSs should be calculated by using power sum method indicated in paragraph 3.5 of the Chapter 3 to Annex 2 of the GE-06 Regional Agreement.
- 4.8 The Polish Party, while putting into operation new BS, is responsible for calculations of aggregated interference field strength and monitoring of interference field strength at the border line.

## **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 Articles 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. 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 and to receive a confirmation of its receipt.
- 5.2 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 or e-mail. 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 affected Party to satisfy the request for coordination, the requesting Party shall 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 Parties that failed to respond within 2 weeks from the date of receipt of the urgent reminder shall be deemed 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 this application of this Technical Arrangement the Parties shall be governed by provisions and procedure of the ITU Radio Regulations.

## 6. Revision and cancellation

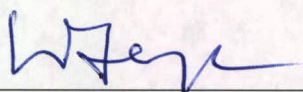
- 6.1 This Technical Arrangement may be cancelled as desired by one of the Parties with a notice sent by mail. Cancellation shall become effective two years after the date on which the Party receives the notice of cancellation.
- 6.2 On the date on which such cancellation becomes effective, the Parties 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 Polish Party receives a notice of the Ukrainian Party to be sent by mail in accordance with provisions of paragraph 1.10 of this Technical Arrangement.

## 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 Poland and one for the Telecommunication Administration of Ukraine.

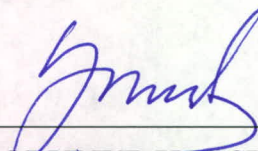
Agreed by correspondence on 23 September 2015

On behalf of the Telecommunication  
Administration of Poland



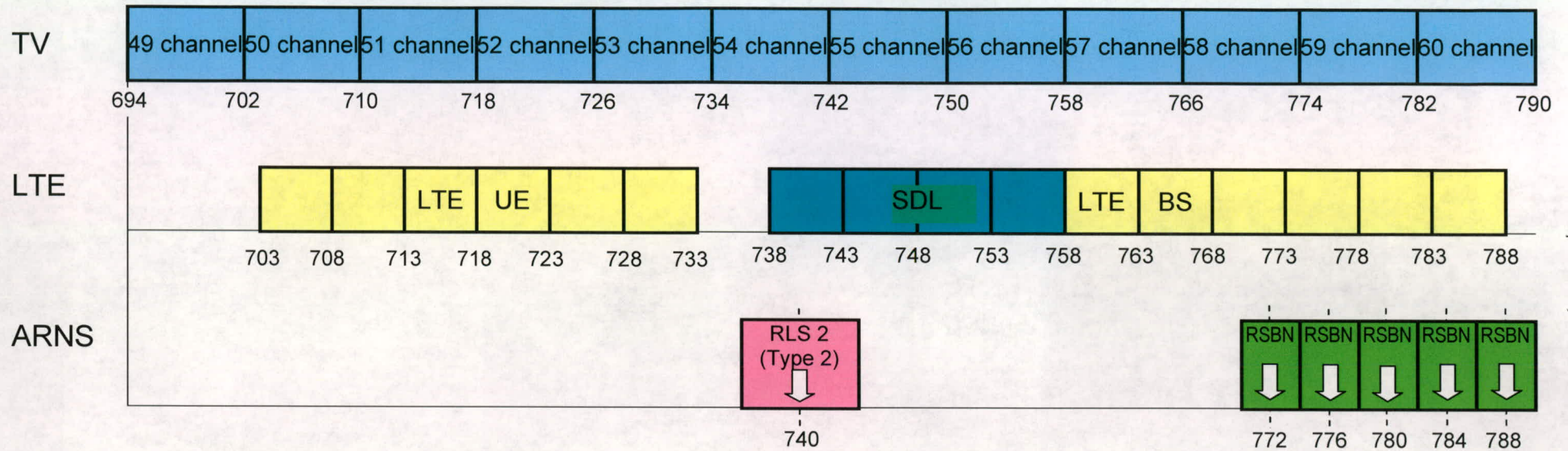
**WIKTOR SEGA**  
Director of the Frequency Resources  
Management Department,  
Office of Electronic Communications

On behalf of the Telecommunication  
Administration of Ukraine



**VOLODYMYR KORSUN**  
Director General of the Ukrainian State  
Centre of Radio Frequencies

### 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

*W. J. ...*

*[Signature]*

**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	GIDACHIV	UKR	241200	492600	AM		OT	8M00M1X		ND
G13	740,0	RICHKY RLS2 2	UKR	233800	501600	AM	AA2	OT	8M00M1X		ND
G13	740,0	STARY SAMBIR RLS2 2	UKR	225900	492600	AM	AA2	OT	8M00M1X		ND
G13	740,0	LYUBOML RLS2 2	UKR	240200	511400	AM	AA2	OT	8M00M1X		ND
G13	740,0	ZHABOLOTNE RLS2 2	UKR	241500	513800	AM	AA2	OT	8M00M1X		ND
G13	740,0	LVIV RLS2 2	UKR	235700	494800	AM	AA2	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
T13	792,0	DUBNO	UKR	255000	502600	AM			3M00P0X		ND
T13	792,0	DUBNO	UKR	255000	502600	AM			700KPXX		ND
T13	796,0	KAMIANKA BUZ'KA	UKR	243000	500700	AM			3M00P0X		ND
G13	796,0	LUTSK RSBN	UKR	252000	504700	AM	AA8	OT	3M00P0X	28,3	ND
G13	796,0	LUTSK RSBN	UKR	252000	504700	AM	AA8	OT	700KPXX	28,3	ND
G13	800,0	POVORSK RSBN	UKR	250700	511600	AM	AA8	OT	3M00P0X	28,3	ND
G13	808,0	LVIV RSBN	UKR	235600	494800	AM	AA8	OT	3M00P0X	28,3	ND