

Disclaimer: This is a Romanian to English translation meant to facilitate the understanding of these Terms of Reference. Should differences appear between the Romanian and the English version, following translation, the Romanian version shall prevail.

TERMS OF REFERENCE
FOR THE ORGANISATION OF THE COMPETITIVE SELECTION PROCEDURE
FOR AWARDING FREQUENCY USAGE RIGHTS IN THE
700 MHz, 800 MHz, 1500 MHz, 2600 MHz AND
3400-3800 MHz BANDS

= DRAFT =

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Chapter 1 – INTRODUCTION

1.1. Legal framework applicable in the selection procedure

The national legislation applicable in awarding the frequency usage rights licences, hereinafter referred to as *licences*, consists of:

- Government Emergency Ordinance no.22/2009 on the establishment of the National Authority for Management and Regulation in Communications, approved by Law no. 113/2010, with the subsequent amendments and completions;
- Government Emergency Ordinance no.111/2011 on electronic communications, approved with amendments and completions by Law no.140/2012, with the subsequent amendments and completions;
- Government Emergency Ordinance no. 18/2008 establishing certain measures for reforming the use of the radio spectrum in the 3600-3800 MHz frequency band, approved, with amendments, by Law no. 259/2008, with the subsequent amendments;
- Government Decision ___/2019 on setting the amount of the minimum licence fee for awarding frequency usage rights;
- ANCOM President's Decision no. ___/2019 on the selection procedure for awarding frequency usage rights;
- ANCOM President's Decision no. 551/2012 on setting the tariff for the use of the radio spectrum, with the subsequent amendments and completions;
- ANCOM President's Decision no. 390/2015 on the approval of the Strategy and of the action plan for the implementation and development of broadband communications systems in the 3400-3800 MHz band, on a national level, for 2015-2025 (hereinafter referred to as *The 3400-3800 MHz Strategy*);
- ANCOM President's Decision no. 353/2015 on the procedure for awarding frequency usage rights.

The main legal provisions on awarding frequency usage rights are laid down in Government Emergency Ordinance no. 111/2011 on electronic communications¹ (hereinafter referred to as *the Framework Ordinance*).

In accordance with the provisions of Art. 26(1) of the Framework Ordinance, licences are awarded by means of an open, objective, transparent, non-discriminatory and proportionate procedure.

According to Article 25 of the Framework Ordinance, The National Authority for Management and Regulation in Communications (hereinafter referred to as *ANCOM*) may decide to limit the number of licences to be granted in a radio frequency band, when it is necessary to ensure the efficient use of radio frequencies or to avoid the occurrence of harmful interferences. This measure may be adopted only upon the fulfilment of three conditions: ANCOM must consider the need that this measure should bring the users maximum benefits and foster competition; give all stakeholders - including users and consumers - the opportunity to express their views on this measure; a decision limiting the number of licenses must be published along with the reasons therefor.

In the case of licenses whose number has been limited, ANCOM awards usage rights through a procedure that must fulfil – as well – a number of conditions, set out in Article 26(2) of the Framework Ordinance. Thus:

- a) the procedure type must be competitive or comparative selection;
- b) the procedure must be objective, transparent, non-discriminatory and proportionate;
- c) the procedure must not result into restricting, preventing or distorting competition;

¹ Published in the Romanian Official Journal, Part I, no. 925/27.12.2011.

- d) the granting of rights of use must normally take place within eight months from the receipt of a request therefor, a term which may be amended if necessary to comply with an international agreement on the use of the radio spectrum or of the orbital positions in which Romania is a party.

According to Art. 26(4) of the Framework-Ordinance, - within a procedure for awarding the licence for the use of radio frequencies - ANCOM may decide to preclude the participation of certain persons in the selection procedure, out of reasons related to promoting competition in the electronic communications field, with the prior consultation of the Competition Council and after undergoing the consultation procedure described in Article 135 of the Framework-Ordinance.

Paragraph (3¹) of Art. 28 of the Framework-Ordinance defines the competitive selection procedure as a "[...] procedure of awarding the licence for the use of radio frequencies whereby the usage right is granted to the winner/winners of an auction, that – having fulfilled certain pre-qualification criteria of a technical, administrative or financial nature, as applicable – offer the highest amount as a licence fee, starting from the minimum licence fee amount set by Government decision according to paragraph (1)".

According to Art. 28(4), the detailed regulation for conducting the competitive or comparative selection procedures are adopted by ANCOM President's decision².

The organisation of the competitive selection procedure will also take into account the legislation or the documents adopted on an international and/or a European level mentioned in the "ANCOM Position on awarding rights of use for the spectrum resources available in the frequency bands 694-790 MHz, 790-862 MHz, 1427-1517 MHz, 2500-2690 MHz, 3400-3800 MHz and 24.25-27.5 GHz", debated in the Consultative Council of 7 June 2019.

² ANCOM President's Decision no. ____/2019 on the selection procedure for awarding frequency usage rights has been published in the Romanian Official Journal no. ____ of __ June ____.

1.2. Definitions and terminology clarifications

For the purposes of this document:

- *the Commission* is the auction commission designated by decision of the ANCOM president;
- *a participant* is a candidate or bidder in the selection procedure;
- *national roaming* means the possibility granted to a subscriber to use a handset or another device to make and receive calls on Romania's territory when the respective subscriber is outside the coverage area of the network to which he/she subscribes, by due to certain agreements concluded between the operator of the network to which he/she subscribes and the other mobile network operators in Romania;
- *a national roaming agreement* is an access agreement which regulates the making available to a third party - holder of a licence for the use of radio frequencies with a view to providing public electronic communications networks and mobile electronic communications services - of facilities or services which are necessary for the provision of electronic communications services at mobile locations in geographic areas outside the coverage of the respective party;
- the syntagma "*to acquire/obtain/buy/win/be awarded frequency blocks/frequencies*" are used exclusively for the sake of easier wording, to express the gaining of usage rights for those radio frequencies in the frequency blocks submitted to the selection procedure, together with the technical and operational usage conditions associated to the respective blocks (included in the Terms of Reference and in the applicable technical regulations), and are a simple language convention, without having regard to other legal operations related to the respective radio frequencies;
- *the 700 MHz band* is the 694-790 MHz band;
- *the 800 MHz band* is the 790-862 MHz band;
- *the 1500 MHz band* is the 1427-1517 MHz band;
- *the 2600 MHz band* is the 2500-2690 MHz band;
- *UMTS system* is a system complying with UMTS standards, as published by ETSI, in particular EN 301 908-1, EN 301 908-2, EN 301 908-3 and EN 301 908-11;
- *LTE system* is an electronic communications system complying with LTE standards, as published by ETSI, in particular EN 301 908-1, EN 301 908-13, EN 301 908-14 and EN 301 908-11;
- *5G NR system* is a system in the IMT-2020 (5G) technology family complying with the ETSI relevant standards (adoption pending);
- *frequency sub-band/sub-bands allotted in a certain frequency band* means the total amount of frequency spectrum acquired by a participant in the respective band, specified in the licence issued to the winner of the selection procedure;
- *MFCN* is the acronym for Mobile/Fixed Communications Networks as defined by the Electronic Communications Committee of the European Conference of Postal and Telecommunications Administrations, including IMT (International Mobile Telecommunications)³ networks, as well as other communications networks in the fixed and mobile services;
- *MFCN network in the 3400-3800 MHz band* is an electronic communications network complying with the sections relevant for the 3400-3800 MHz band of the standard EN 301 908, as published by ETSI, as well as with subsequent ETSI standards that are relevant for the usage of the 3400-3800 MHz band;
- *ITU RR* is the 2016 release of the Radio Regulations of the International Telecommunication Union (UIT);

³ IMT – according to RR-UIT, it includes IMT-2000, IMT-Advanced, IMT-2020 (5G New Radio – 5G NR) systems.

- *ECA* is the acronym for the European Common Table of Frequency Allocations in ERC Report 25 (release of October 2018) of the Electronic Communications Committee of the European Conference of Postal and Telecommunications Administrations;
- *NTFA* is the acronym for the National Table of frequency Allocations, the Table currently in force being approved by the Order of the Ministry of Communications and Information Society no. 789/2009, amended by the Order of the Ministry of Communications and Information Society no. 701/2010 and by ANCOM President's Decision no. 1640/2011;
- *Position Paper* is the document *ANCOM Position on awarding rights of use for the spectrum resources available in the frequency bands 694-790 MHz, 790-862 MHz, 1427-1517 MHz, 2500-2690 MHz, 3400-3800 MHz and 24.25- 27.5 GHz.*

Chapter 2 – FREQUENCY BANDS IN THE SELECTION PROCEDURE

2.1. Overview

The Authority awards usage rights in the frequencies available in the following bands:

- a) 694-790 MHz (the 700 MHz band);
- b) 790-862 MHz (the 800 MHz band);
- c) 1427-1517 MHz (the 1500 MHz band);
- d) 2500-2690 MHz (the 2600 MHz band);
- e) 3400-3800 MHz.

The frequency sub-bands envisaged for awarding usage rights by selection procedure are the following:

- a) 703-733 MHz/758-788 MHz;
- b) 738-753 MHz;
- c) 791-796 MHz/832-837 MHz;
- d) 1452-1492 MHz;
- e) 2530-2570 MHz/2650-2690 MHz;
- f) 3400-3490 MHz (from 01.01.2020 to 31.12.2025);
- g) 3400-3800 MHz (from 01.01.2026 to 31.12.2035).

The frequency spectrum available in the selection procedure is briefly presented in the table below:

Table 1 – Frequency resources available in the selection procedure

Frequency band	Available frequencies	Bandwidth	Validity of usage rights
700 MHz	703-733 MHz / 758-788 MHz • 2 x 30 MHz FDD 738-753 MHz • 1 x 15 MHz SDL	60 MHz FDD 15 MHz SDL	01.01.2021 – 31.12.2035 01.01.2021 – 31.12.2035
800 MHz	791-796 MHz / 832-837 MHz • 2 x 5 MHz FDD	10 MHz FDD	01.01.2020 – 31.12.2029
1500 MHz	1452-1492 MHz • 1 x 40 MHz SDL	40 MHz SDL	01.01.2020 – 31.12.2034
2600 MHz	2530-2570 MHz / 2650-2690 MHz • 2 x 40 MHz FDD	80 MHz FDD	01.01.2020 – 31.12. 2029
3400-3600 MHz	• 3400-3490 MHz TDD	90 MHz TDD	01.01.2020 – 31.12.2025
3400-3800 MHz	• 3400-3800 MHz TDD	400 MHz TDD	01.01.2026 – 31.12.2035

The frequencies available in the above-mentioned bands will be awarded exclusively for national usage, for providing MFCN public electronic communications networks and broadband wireless electronic communications services.

The frequency spectrum under the selection procedure is organized by frequency blocks (blocks). The table below indicates the block width available in each category.

Table 2 – Frequency organisation by categories and blocks

Category	Frequency band	Block width	Number of blocks
A	700 MHz FDD	2 x 5 MHz	6
B	700 MHz SDL	1 x 5 MHz	3
C	800 MHz FDD	2 x 5 MHz	1
D	1500 MHz SDL	1 x 5 MHz	8
E	2600 MHz FDD	2 x 5 MHz	8
F	3400-3600 MHz TDD (01.01.2010 – 31.12.2025)	5 MHz	18
G	3400-3800 MHz TDD (01.01.2026 – 31.12.2035)	10 MHz	40

The allotment of frequencies (blocks) within each category is detailed in section 4.1.1 of Chapter 4.

2.2. The 700 MHz band

2.2.1. International regulations

2.2.1.1. Regulations of the International Telecommunication Union

In accordance with the provisions of Art. 5 of the Radio Regulations of the International Telecommunication Union - release 2016 (ITU RR), in Region 1 of the ITU (which includes Romania) the 694-790 MHz band is allocated on a primary basis to the broadcasting service and to the mobile service, except aeronautical mobile.

In accordance with No. 5.312 of Art. 5 in the ITU RR, in certain countries – among which Ukraine and Bulgaria – the frequency band 694-790 MHz or portions of it are also allocated to the aeronautical radionavigation service on a primary basis

5.312 - *Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 645-862 MHz, in Bulgaria the frequency bands 646-686 MHz, 726-758 MHz, 766-814 MHz and 822-862 MHz, and in Poland the frequency band 860-862 MHz until 31 December 2017, are also allocated to the aeronautical radionavigation service on a primary basis.* (WRC-15)

The usage of the 694-790 MHz band for broadcasting has been regulated by the Agreement and the corresponding frequency plan approved in Geneva, in 2006 (GE064). In addition to the Plan on the use of frequencies for broadcasting, GE06 also provides the procedures to be followed in international coordination with services other than broadcasting.

At the World Radiocommunication Conference of 2015 (WRC-15), the 694-790 MHz band was identified for use by IMT⁵ systems.

The usage of the band for the mobile service (except aeronautical mobile) and, respectively, for IMT systems, is regulated by the provisions of No. 5.312A and No. 5.317A:

5.312A - *In Region 1, the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution **760 (WRC-15)**⁶. See also Resolution **224 (Rev.WRC-15)**⁷.* (WRC-15)

5.317A – *The parts of the frequency band 698-960 MHz in Region 2 and the frequency bands 694-790 MHz in Region 1 and 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions **224 (Rev.WRC-15)**, **760 (WRC-15)** and **749 (Rev.WRC-15)**, where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations.* (WRC-15)

⁴ GE06 – Final Acts of the Regional Radiocommunication Conference for planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz (RRC-06), Geneva, 2006.

⁵ IMT – International Mobile Telecommunications, according to ITU RR.

⁶ REZOLUȚIA 760 (WRC-15) Prevederi referitoare la utilizarea benzii de frecvențe 694-790 MHz în Regiunea 1 de către serviciul mobil, cu excepția mobil aeronautic, și de către alte servicii.

⁷ REZOLUȚIA 224 (REV. WRC-15) Benzi de frecvențe pentru componenta terestră a IMT sub 1 GHz.

Regarding the protection of the broadcasting service, WRC-15 decided that no additional regulations are needed, the GE06 Agreement providing all the necessary procedures for international coordination between IMT and the broadcasting service.

2.2.1.2. European Union regulations

Decision (EU) 2017/899 of the European Parliament and of the Council on the use of the 470-790 MHz frequency band in the Union, published on 17 May 2017, regulates making available the 694-790 MHz band for use by terrestrial systems capable of providing wireless broadband electronic communications services, and lays down a series of obligations thereon for the EU Member States, as follows:

1. By 30 June 2020, Member States shall allow the use of the 700 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services under the harmonised technical conditions established by the Commission pursuant to Article 4 of Decision No 676/2002/EC on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision). Member States may, however, extend the above-mentioned term for up to two years based on duly justified reasons set out in the Annex to the Decision. The justified reasons for such a delay are limited to:
 - unresolved cross-border coordination issues resulting in harmful interferences;
 - the need to ensure, and the complexity of ensuring, the technical migration of a large amount of the population to advanced broadcasting standards;
 - the financial costs of transition exceeding the expected revenue generated by award procedures;
 - *force majeure*.
2. To allow the use of the 700 MHz frequency band, Member States shall conclude all the necessary cross-border frequency-coordination agreements within the Union.
3. Member States will conduct cross-border coordination activities with third countries (non-EU countries) on the use of frequencies in the 470-790 MHz band both for terrestrial broadcasting services and for wireless broadband electronic communications services.
4. When authorising the use of the 700 MHz band, Member States shall take due account of the need to achieve the target speed (at least 30 Mbp/s both indoors and outdoors) and the quality objectives set out in Article 6(1) of Decision No. 243/2012/EU of the European Parliament and of the Council establishing a multiannual radio spectrum policy programme, including coverage in predetermined national priority areas, such as along major land transportation corridors.

Decision (EU) 2017/899 of the European Parliament and of the Council also set out the EU Member States' obligation to adopt and make public, no later than 30 June 2018, their national plan and schedule (*national roadmap*), including detailed steps for fulfilling their obligations on allowing the use and making available the frequency spectrum in the 470-790 MHz band in accordance with the Decision provisions, after consulting all relevant stakeholders.

On EU level, the applicable regulatory framework includes Commission Implementing Decision **(EU) 2016/687** on the harmonisation of the 694-790 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services and for flexible national use in the Union, adopted, pursuant to the Radio Spectrum Decision, on 28 April 2016.

Decision (EU) 2016/687 harmonises the technical conditions for the availability and efficient use of the 694-790 MHz frequency band in the Union for terrestrial systems capable of providing wireless broadband electronic communications services.

Thus, Decision (EU) 2016/687 designates the frequency bands 703-733 MHz and 758-788 MHz (2x30 MHz) for harmonised usage for terrestrial systems capable of providing wireless broadband

electronic communications services in the Union, on a non-exclusive basis. The decision also provides that such designation should be without prejudice to the right of Member States to organise and use their spectrum for public safety and public security purposes and for defence. The frequency bands 703-733 MHz and 758-788 MHz, or a subset thereof, may also be used for PPDR⁸ radio communications. If PPDR radio communications are implemented in the above-mentioned bands, the relevant technical conditions for wireless broadband electronic communications services in the annex to the Decision will be used.

For the other parts of the 700 MHz band, the Commission Implementing Decision (EU) 2016/687 lays down several options for use which the Member States may choose based on their national needs:

- the 738-758 MHz frequency band (up to 20 MHz of spectrum) may be allotted in full or in part for use by terrestrial systems capable of providing wireless broadband electronic communications services, as a supplementary downlink band (limited to base station transmission);
- the paired frequency bands 698-703 MHz and 753-758 MHz (2x5 MHz) and the paired frequency bands 733-736 MHz and 788-791 MHz (2x3 MHz) may be allotted for use in full or in part for PPDR radio communications;
- the paired frequency bands 733-736 MHz and 788-791 MHz (2x3 MHz) may be allotted for use for M2M radio communications, as well;
- the paired frequency bands 694-703 MHz and 733-758 MHz may be allotted for use in full or in part for wireless audio PMSE equipment (such as radio microphones).

Figure 1 - Harmonised plan of the 700 MHz band according to Decision (EU) 2016/687

Bands	694-698	698-703	703-733	733-736	736-738	738-743	743-748	748-753	753-758	758-788	788-791	
PPDR 2x3 MHz			UL MFCN	UL PPDR						DL MFCN	DL PPDR	
PPDR 2x5 MHz		UL PPDR									DL PPDR	
M2M 2x3 MHz				UL M2M								DL M2M
SDL 4x5 MHz							DL MFCN SDL					
PMSE	PMSE			PMSE								
Bandwidth (MHz)	4	5	30	3	2	5	5	5	5	30	3	

2.2.1.3. Regulations of the European Conference of Postal and Telecommunications Administrations (CEPT)

On the level of the European Conference of Postal and Telecommunications Administrations (CEPT), the usage of the 700 MHz band is regulated by the following CEPT/ECC⁹ Decisions, Recommendations and Reports:

- Decision ECC/DEC/(15)01: Harmonized technical conditions for mobile/fixed communications networks (MFCN) in the band 694-790 MHz including a paired channelling arrangement (2x30 MHz FDD) and an unpaired channelling arrangement (supplementary downlink), approved on 6 March 2015
- Report CEPT 53: Report A from CEPT to the European Commission in response the EC Mandate "to develop harmonised technical conditions for the 694-790 MHz ('700 MHz') frequency band

⁸ PPDR – communications for Public Protection and Disaster Relief.

⁹ Electronic Communications Committee

in the Union for the provision of wireless broadband and other uses in support of EU spectrum policy objectives”, approved on 28 November 2014 by ECC;

- Report CEPT 60: Report B from CEPT to the European Commission in response the EC Mandate “to develop harmonised technical conditions for the 694-790 MHz ('700 MHz') frequency band in the Union for the provision of wireless broadband and other uses in support of EU spectrum policy objectives”, approved on 1 March 2016 by ECC;
- Report CEPT 29: Report from CEPT to the European Commission in response to the Mandate on “Technical considerations regarding harmonisation options for the digital dividend in the European Union” - “Guideline on cross border coordination issues between mobile services in one country and broadcasting services in another country” (Adoption of methodology) (Final report of 26 June 2009);
- Recommendation ECC/REC/(15)01: Cross-border coordination for mobile/fixed communications networks (MFCN) in the frequency bands: 694-790 MHz, 1452-1492 MHz, 3400-3600 MHz and 3600-3800 MHz (approved on 13 February 2015, amended on 5 February 2016).

The harmonised frequency arrangement and the harmonised technical conditions for the usage of frequencies in the 700 MHz band for MFCN networks are laid down in Decision ECC/DEC/(15)01.

2.2.2. National regulations

According to the NTFA provisions in force, the 694-790 MHz frequency band is allocated to the broadcasting service on a primary basis. Taking into account that the band was allocated in the ITU Region 1 (of which Romania is part) also to the land mobile service on a primary basis, by No. 5.312A of Article 5 of the ITU Radiocommunication Regulation – release 2016 (ITU RR), being identified at the World Radiocommunication Conference of 2015 (WRC-15) for IMT systems, according to the provisions of No. 5.317A, the band allocation in Romania will be updated by amending the NTFA in accordance with ITU RR.

ANCOM will propose to amend the NTFA by allocating the 694-790 MHz frequency band to the land mobile service, on a primary basis, and designating the 703-733 MHz and 758-788 MHz bands for usage in FDD¹⁰ mode by terrestrial systems capable of providing wireless broadband electronic communications services (IMT - International Mobile Telecommunications), as well as the 738-753 MHz band for usage in SDL¹¹ mode, by IMT systems.

In accordance with the provisions of Decision (EU) 2017/899 of the European Parliament and of the Council, ANCOM a developed and adopted “*The National Roadmap for The Allotment and Future Use of The 470-790 MHz Frequency Band*”¹², a document containing detailed measures planned for the management of the radio spectrum with a view to allotting the 470-790 MHz band, and especially the 694-790 MHz band, as well as the associated regulatory measures.

In this document, ANCOM set out making available 2 x 30 MHz (6 blocks of 2x5 MHz) in the 700 MHz band, respectively the paired frequency bands 703-733 MHz and 758-788 MHz for the provision of MFCN networks in FDD operation mode, as well as 15 MHz (3 blocks of 5 MHz), i.e. the 738-753 MHz sub-band, for SDL MFCN, through a competitive selection procedure for awarding the frequency usage rights in these bands, which will provide for the use of these frequency bands by technologically neutral MFCN networks starting from 30 June 2020.

¹⁰ FDD: Frequency Division Duplex

¹¹ SDL: Supplemental Downlink

¹² http://www.ancom.org.ro/en/uploads/links_files/Foia_de_parcuri_pentru_banda_UHF_470-790_MHz_en.pdf

Furthermore, ANCOM set out allotting the paired sub-bands 698-703 MHz and 753-758 MHz (2x5 MHz) and the paired sub-bands 733-736 MHz and 788-791 MHz (2x3 MHz), for the deployment of a dedicated BB-PPDR communication network, in addition to the 2x30 MHz available for MFCN networks in the 700 MHz range, which can be partially used to provide BB-PPDR services through the public electronic communications network infrastructure.

Since the process of bilateral coordination with Ukraine with a view to releasing the 700 MHz band from DTT has not been completed yet, the deadline for making available the frequency bands designated for MFCN networks will be extended to 31 December 2020, so that the rights of frequency usage for MFCN networks in the 700 MHz band will enter into force starting from 1 January 2021.

The harmonised frequency arrangement for MFCN networks in the 694-790 MHz band, in accordance with the harmonised arrangement set out in Commission Implementing Decision (EU) 2016/687 is flexible and includes:

- a) a paired frequency arrangement (2x30 MHz FDD):
 - the 703-733 MHz and 758-788 MHz sub-bands will be used in frequency division duplex mode (FDD);
 - the 703-733 MHz sub-band will be used for terminal station emission (uplink);
 - the 758-788 MHz sub-band will be used for base station emission (downlink);
 - the duplex spacing is 55 MHz;
 - the assigned block sizes shall be in multiples of 5 MHz;
 - the lower frequency limit of an assigned block shall be aligned with or spaced at multiples of 5 MHz from the lower band edge of the sub-band, of 703 MHz.
- b) an unpaired frequency arrangement (supplemental downlink – SDL) on optional basis:
 - the 738-753 MHz sub-band will be used additionally for the base station emission (for the downlink only);
 - the assigned block sizes shall be in multiples of 5 MHz;
 - the upper frequency limit of an assigned block shall be aligned with or spaced at multiples of 5 MHz from the upper band edge of the sub-band, of 753 MHz.

The 753-758 MHz sub-band will be reserved for the emission of base stations of the PPDR systems operating in the FDD 698-703 MHz/753-758 MHz sub-bands.

Base stations and terminal stations shall comply with the relevant harmonized technical conditions contained in Sections B and C of the Annex to Decision 2016/687/EU.

The frequency arrangement layout for the 700 MHz band harmonized at European level is set out in Annex 1 to Decision ECC/DEC/(15)01 on the harmonised technical conditions for mobile/fixed communications networks (MFCN) in the 694-790 MHz band and is represented below.

All the six 2x5 MHz (FDD) blocks and the three 5 MHz (SDL) blocks in the 738-753 sub-band will be available for assignment for MFCN networks.

Figure 2 - Harmonised frequency arrangement in the 694 – 790 MHz band, in 5 MHz blocks

694-703	703-708	708-713	713-718	718-723	723-728	728-733	733-738	738-743	743-748	748-753	753-758	758-763	763-768	768-773	773-778	778-783	783-788	788-791
Guard band	5 MHz (1)	5 MHz (2)	5 MHz (3)	5 MHz (4)	5 MHz (5)	5 MHz (6)		5 MHz (1)	5 MHz (2)	5 MHz (3)		5 MHz (1)	5 MHz (2)	5 MHz (3)	5 MHz (4)	5 MHz (5)	5 MHz (6)	Guard band
9 MHz	Uplink 30 MHz (6 blocks of 5 MHz) FDD						5 MHz	SDL 15 MHz			5 MHz	Downlink 30 MHz (6 blocks of 5 MHz) FDD						3 MHz

The block-edge masks (BEM) to be observed for a 5 MHz block in the 694-790 MHz band have been defined in sections B and C of the Annex to Commission Implementing Decision (EU) 2016/687.

The harmonised frequency arrangement for MFCN in the 700 MHz is detailed in the table below.

Table 3 – Harmonised frequency arrangement for MFCN in the 700 MHz band

Frequencies (MHz)	Destination	Operation mode
694 – 703	Guard band + PPDR UL	Guard band
703 – 708	Uplink (block 1) – 5 MHz	(30 MHz) MFCN FDD uplink
708 – 713	Uplink (block 2) – 5 MHz	
713 – 718	Uplink (block 3) – 5 MHz	
718 – 723	Uplink (block 4) – 5 MHz	
723 – 728	Uplink (block 5) – 5 MHz	
728 – 733	Uplink (block 6) – 5 MHz	
733 – 738	PPDR UL + Guard band	Guard band
738 - 743	SDL link (block 1)	(15 MHz) MFCN SDL
743 - 748	SDL link (block 2)	
748 - 753	SDL link (block 3)	
753 - 758	PPDR DL	(5 MHz) PPDR FDD downlink
758 – 763	Downlink (block 1) – 5 MHz	(30 MHz) MFCN FDD downlink
763 – 768	Downlink (block 2) – 5 MHz	
768 – 773	Downlink (block 3) – 5 MHz	
773 – 778	Downlink (block 4) – 5 MHz	
778 – 783	Downlink (block 5) – 5 MHz	
783 – 788	Downlink (block 6) – 5 MHz	
788 - 791	PPDR DL	Guard band

Other relevant technical regulations on the use of frequencies in the 700 MHz for MFCN networks are mentioned in section 3.3.3.2 of Chapter 3, regarding the technical conditions on the use of frequencies for which usage rights will be awarded in this band.

2.2.3. Status of frequency usage in the 700 MHz band

The 700 MHz band is already available in Romania, but its use by MFCN networks on the national territory without major restrictions depends on the actual usage of broadcasting services in the neighbouring countries and of other radiocommunications services to which the band is allocated in these countries (both EU Member States and non-EU countries).

Since the 700 MHz band is allotted for digital terrestrial television (DTT) in the neighbouring countries, in line with the provisions of Geneva Agreement 2006, if some of these countries will keep using DTT services in the 694-790 MHz frequency band after 30 June 2020, the usage of the band by the land mobile service and, respectively, by IMT systems in Romania would be severely restricted by the technical conditions of coexistence with the broadcasting service, in order to ensure mutual protection against harmful interference.

Although the EU Member States have the obligation to release the 694-790 MHz band and to make it available for the provision of wireless broadband electronic communications services by 30 June 2020, with the possibility of extending the deadline by up to two years, on the basis of duly justified reasons set out in the Annex to the Decision (EU) 2017/899 of the European Parliament and of the Council, 70% of the Romanian border is with non-EU countries, which are not bound by this obligation.

According to the Geneva Agreement of 2006, after 17 June 2015 analogue terrestrial television assignments no longer benefit from protection and cannot claim protection from radiocommunications services allocated on a primary basis in the band planned for digital terrestrial television, including the 694-790 MHz band.

Therefore, although EU Member States have the obligation to make available the 700 MHz band for MFCN, in non-EU member countries this band may be used by the broadcasting service on a primary basis, but only for digital terrestrial television (analogue terrestrial television can no longer benefit from protection).

2.2.3.1. Agreements concluded and usage in neighbouring countries

The goal of releasing the 700 MHz band from digital terrestrial television has been approached in several regional groups set up at European level, of which Romania participated in SEDDIF (South European Digital Dividend International Forum) and BSDDIF (Black Sea Digital Dividend International Forum). These groups have aimed at replanning the digital terrestrial television service in a narrower band than that provided in the Geneva Agreement of 2006, i.e. the 470-694 MHz band. In addition to the criteria of efficiency and fair access to spectrum usage and considering the different degrees of usage of the 700 MHz band in their member countries, these groups have also aimed at ensuring transition to the new plan and releasing the 700 MHz band within a shorter term than that stipulated by Decision (EU) 2017/899 of the European Parliament and of the Council.

This objective has been achieved by the signing of bilateral agreements, alongside the Multilateral Framework Agreement, signed by all the participating countries. In 2017, Romania signed the SEDDIF Multilateral Framework Agreement on the re-planning of digital terrestrial television in the 470-694 MHz band, together with the other 13 member countries, among which Bulgaria, Hungary, Serbia, Turkey and Ukraine. We also signed bilateral agreements with Bulgaria, Hungary and Serbia (countries using digital television in the 700 MHz band), who undertook to release the 700 MHz band before 30 June 2020 and, respectively, 6 September 2020 (Hungary). Turkey is using the band for analogue television and will implement the new plan in the 470-694 MHz band, therefore a bilateral agreement was not necessary.

With Ukraine, negotiations continued in the BSDDIF, since – despite having signed the SEDDIF Multilateral Framework Agreement – this administration could not provide a certain deadline for the release of the 700 MHz band. Recently, according to the competent authority in Ukraine (The Ukrainian Center of Radio Frequencies), the Government of Ukraine has adopted a decision on the implementation of the 5G mobile communications system, including in the 700 MHz band, and a plan for the migration of digital terrestrial television assignments from the 700 MHz band envisages the 2019-2020 period. This plan is to be carried out upon the approval of the competent authorities in the neighbouring country. Along with the above-mentioned plan, a calendar of the transition steps will be established.

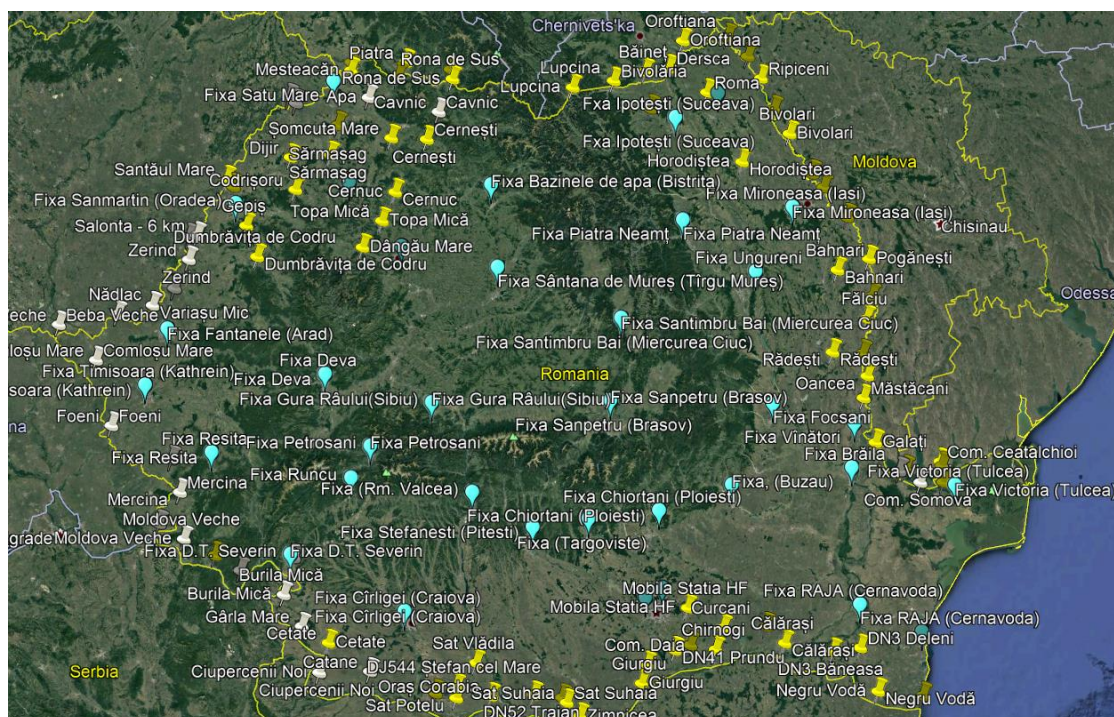
Moreover, at every bilateral meeting, Ukraine’s representatives reiterate that no new digital terrestrial television stations will be installed in the 700 MHz band. The status of the existing ones is presented below.

Regarding the situation in the Republic of Moldova, during a bilateral meeting in 2018, the Moldavian representatives stated that the 700 MHz band is currently used for analogue television, in principle until 1 March 2020, only a few channels being used for digital terrestrial television, on a temporary basis. According to the “Programme for the digital switch-over”¹³, the 700 MHz band will be used for the land mobile service.

2.2.3.2. Status of the 700 MHz band assessed by spectrum monitoring

During 12 February - 15 April 2019, ANCOM organised a national campaign for monitoring the radio spectrum envisaged in the licencing process for MFCN, including the 700 MHz band. The measurements were performed using both fixed and transportable stations and mobile stations, at the locations marked in the figure below.

Figure 3



¹³ http://www.legis.md/cautare/getResults?doc_id=109711&lang=ro.

ANCOM identified analogue terrestrial television broadcast emissions coming from Turkey, Bulgaria, the Republic of Moldova and Ukraine, but - as specified in paragraph 4 of section 2.2.3 – these stations do not benefit from protection, so they have the obligation to stop transmission where harmful interference complaints arise. Concerning the digital television broadcast emissions in the 700 MHz band received from the Republic of Moldova, Hungary, Serbia and Bulgaria, they will cease in September 2020 at the latest, in accordance with the agreements concluded (see paragraph 2 of section 2.2.3.1.)

We also identified weak digital terrestrial television broadcast emissions coming from Turkey, but only with the fixed monitoring station in Constanta, at a 55 m height of reception antenna, with insignificant values in terms of their harmful interference effect.

Concerning Slovakia, the only emissions worth mentioning are on channels 57 and 59, from the Kosice transmitter, measured in the Carei area with values of 52 dB μ V/m and 47 dB μ V/m, respectively, 10 m above the ground. As an EU member country, through its national roadmap, Slovakia has undertaken that it will release the 700 MHz band by 30.06.2020.

In view of the above, the most difficult situation is that of digital terrestrial television broadcast emissions originating from Ukraine. At the latest bilateral meeting, held in Riga in December 2018, ANCOTM asked Ukraine for the current situation of the actual use of the 700 MHz band by the digital TV transmitters in the areas near the border with Romania. The corroboration of the received data with the status of the stations' notification in BRIFIC¹⁴, and the data resulting from ANCOTM's measurements show that the digital terrestrial television transmitters in Ukraine that can affect the operation of the land mobile service in the 700 MHz band are the ones presented in Table 4.

Table 4 – Relevant digital terrestrial television transmitters in Ukraine

BR ID	Country	Channel	Frequency	Location	Geographical coordinates	E.R.P.max (dBW)	Hant (m)
112138651	UKR	49	698 MHz	CHERNIVTSI	25°50'39"E - 48°17'47"N	34.7	108
112138670	UKR	51	714 MHz	KULCHYIVTSI 1	26°45'32"E - 48°40'30"N	33	250
115101905	UKR	51	714 MHz	MYKOLAIVKA	30°20'45"E - 46°19'07"N	29.3	75
115101907	UKR	51	714 MHz	SARATA-0	29°39'19"E - 46°00'26"N	28.4	105
115101908	UKR	51	714 MHz	TARUTYNE	29°09'45"E - 46°11'26"N	17.8	100
112183578	UKR	53	730 MHz	KHUST	23°14'33"E - 48°13'24"N	20	185
112138691	UKR	53	730 MHz	MUKACHEVO	22°45'41"E - 48°25'34"N	26.6	30
112138690	UKR	53	730 MHz	SVALIAVA	22°56'27"E - 48°30'58"N	26.2	48
112138689	UKR	53	730 MHz	UZHGOROD 01	22°17'42"E - 48°39'08"N	29.6	27
112138645	UKR	55	746 MHz	KAMIANSKE 0	29°17'23"E - 45°49'19"N	30.4	180
112107571	UKR	55	746 MHz	MUKACHEVO	22°45'41"E - 48°25'34"N	26.6	30
112138664	UKR	55	746 MHz	MYKOLAIVKA	30°20'45"E - 46°19'07"N	31	75
112107572	UKR	55	746 MHz	RAKHIV	24°12'30"E - 48°06'32"N	23	99

¹⁴ <https://www.itu.int/en/ITU-R/terrestrial/brific/Pages/default.aspx>.

112138665	UKR	55	746 MHz	SARATA	29°39'11"E - 46°02'00"N	34	100
112183579	UKR	56	754 MHz	KHUST	23°14'33"E - 48°13'24"N	34.3	185
112138692	UKR	56	754 MHz	MUKACHEVO	22°45'41"E - 48°25'34"N	26.6	30
112138693	UKR	56	754 MHz	UZHHOROD 01	22°17'42"E - 48°39'08"N	29.6	27
113028829	UKR	59	778 MHz	CHERNIVTSI-0	25°50'32"E - 48°17'44"N	35	108
108119212	UKR	59	778 MHz	BOLGRAD	28°37'50"E - 45°41'33"N	21.6	100
108119213	UKR	59	778 MHz	VILKOVE	29°33'04"E - 45°25'05"N	10	75
108119214	UKR	59	778 MHz	KILIA	29°17'28"E - 45°25'51"N	10	50
108119215	UKR	59	778 MHz	RENI-0	28°17'18"E - 45°28'17"N	22.4	100
108119216	UKR	59	778 MHz	HORODNE	28°50'27"E - 45°52'44"N	13.3	50
112107575	UKR	60	786 MHz	RAKHIV	24°12'30"E - 48°06'32"N	22.8	99

Annex 5 presents, for information purposes, the situation of the broadcast emissions from Ukraine in each TV channel/frequency block in the band 694-790 MHz, in terms of the theoretical coverage (service area) of the digital television transmitters.

The maps in the annex show the locations and the coverage areas of the digital terrestrial television transmitters in Ukraine, highlighting the border segment where they may require protection. The calculation of the coverage area took into consideration the synchronization of the transmitters on the same channel and the minimum usable fieldstrength corresponding to the television system and to the technical parameters of the transmitters.

The monitoring campaign revealed the existence of the digital terrestrial television transmitters presented in Table 4. A detailed account of the measured fieldstrength values generated by these stations in the frequency blocks envisaged for MFCN is presented in the Monitoring Report on the usage degree of the frequency spectrum in the bands subject to the selection procedure (a document registered within ANCOM under no.DEMC/2418/24.04.2019), published on the ANCOM website along with these Terms of Reference.

2.3. The 800 MHz band

2.3.1. International regulations

2.3.1.1. Regulations of the International Telecommunication Union

In accordance with the provisions of Art. 5 of ITU RR in force, in Region 1 of ITU the band 790-862 MHz is allocated on a primary basis to the fixed service, to the mobile service - except aeronautical mobile – and to the broadcasting service.

In accordance with No. 5.312 of Art. 5 in the ITU RR, in certain countries – among which Ukraine and Bulgaria – the frequency band 790-862 MHz or portions of it are allocated to the aeronautical radionavigation service, on a primary basis.

5.312 - *Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 645-862 MHz, in Bulgaria the frequency bands 646-686 MHz, 726-758 MHz, 766-814 MHz and 822-862 MHz, and in Poland the frequency band 860-862 MHz until 31 December 2017, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-15)*

According to No. 5.319 of Art. 5 in the RR-UIT, portions of the 790-862 MHz band are additionally allocated in Ukraine to the mobile-satellite service, except aeronautical mobile-satellite service.

5.319 - *Additional allocation: in Belarus, the Russian Federation and Ukraine, the bands 806-840 MHz (Earth-to-space) and 856-890 MHz (space-to-Earth) are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service. The use of these bands by this service shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations and is subject to special agreements between the administrations concerned.*

Furthermore, on the territory of Ukraine, terrestrial systems of the fixed service in CDMA technology are in operation in the 824-843 MHz sub-band (uplink).

The usage of the 790-862 MHz band for the mobile service, except aeronautical mobile, and for IMT systems, respectively, is regulated by the provisions of No. 5.316B and No 5.317A:

5.316B - *In Region 1, the allocation to the mobile, except aeronautical mobile, service in the frequency band 790-862 MHz is subject to agreement obtained under No. **9.21** with respect to the aeronautical radionavigation service in countries mentioned in No. **5.312**. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions **224 (Rev.WRC-15)** and **749 (Rev.WRC-15)** shall apply, as appropriate.*

5.317A - *The parts of the frequency band 698-960 MHz in Region 2 and the frequency bands 694-790 MHz in Region 1 and 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions **224 (Rev.WRC-15)**, **760 (WRC-15)** and **749 (Rev.WRC-15)**, where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)*

2.3.1.2. European Union regulations

At EU level, the provisions of Commission Decision no. **2010/267/EU** on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union¹⁵, adopted on 6 May 2010, shall apply.

According to the European Commission Decision, Member States designate and make available the 800 MHz band for terrestrial systems capable of providing electronic communications services in compliance with the parameters set out in the Annex to this Decision, on a non-exclusive basis.

Any available technology that complies with the harmonized technical conditions established by the above-mentioned Decision may be used.

According to Commission Decision no. 2010/267/EU, within the band 790-862 MHz the frequency arrangement shall be as follows:

- the 790-791 MHz sub-band is reserved as a guard band as to the adjacent band and will not be used;
- the mode of operation in the 790-862 MHz shall be frequency division duplex (FDD);
- the sub-band 791-821 MHz is used for base station emission (downlink);
- the sub-band 832-862 MHz is used for terminal station emission (uplink);
- the duplex spacing is 41 MHz;
- the assigned block sizes shall be in multiples of 5 MHz.

The block-edge masks (BEM) are defined in Annex B to Commission Decision 2010/267/EU.

2.3.1.3. Regulations of the European Conference of Postal and Telecommunications Administrations (CEPT)

On CEPT level, concerning the frequencies in the 800 MHz band, the provisions of the following EC decisions, and CEPT/ECC decisions, recommendations and reports will apply:

- Decision ECC/DEC/(09)03 on harmonised conditions for mobile/fixed communications networks (MFCN) operating in the band 790 - 862 MHz;
- CEPT Report 030: Identification of common and minimal (least restrictive) technical conditions for 790 - 862 MHz (the digital dividend) in the European Union;
- CEPT Report 031: Frequency (channelling) arrangement for the 790-962 MHz band;
- CEPT Report 019: Least restrictive technical conditions for WAPECS bands, with the subsequent amendments;
- Recommendation ECC/REC/(11)04 on cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz (amended on 3 February 2017),
- CEPT Report 29 on Technical considerations regarding harmonisation options for the Digital Dividend in the European Union - "Guideline on cross border coordination issues between mobile services in one country and broadcasting services in another country" (of 26 June 2009).

The harmonized frequency arrangement and the harmonized technical conditions for the usage of frequencies in the 800 MHz band for MFCN networks is set out in Decision ECC/DEC/(09)03.

¹⁵ The European Commission Decision has been adopted on grounds of the Radio Spectrum Decision.

2.3.2. National regulations

According to the provisions of the NTFA, corroborated with the provisions of Government Emergency Ordinance no. 11/2012 on setting out measures for the release of the frequency bands 830-862 MHz, 1747.5-1785 MHz, 1842.5-1880 MHz and 2500-2690 MHz, approved by Law no. 165/2012, the 790-862 MHz frequency band has a non-governmental usage status and is allocated in Romania to the land mobile service, except aeronautical mobile, according to Art. 5 of ITU RR and to the relevant No. 5.316B and No. 5.317A.

Concerning the applications allowed in the 790-862 MHz band and the harmonized technical conditions for the use of this band, the provisions of the Commission Decision no. 2010/267/EU on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union (TRA-ECS) shall apply.

Any technology available for systems capable of providing wireless broadband electronic communications services that complies with the harmonized technical conditions (block edge masks and technical parameters) established by the above-mentioned Commission Decision may be used.

The frequency arrangement in the 790-862 MHz band for MFCN networks corresponds to the harmonised arrangement laid down in the Commission Decision 2010/267/EU.

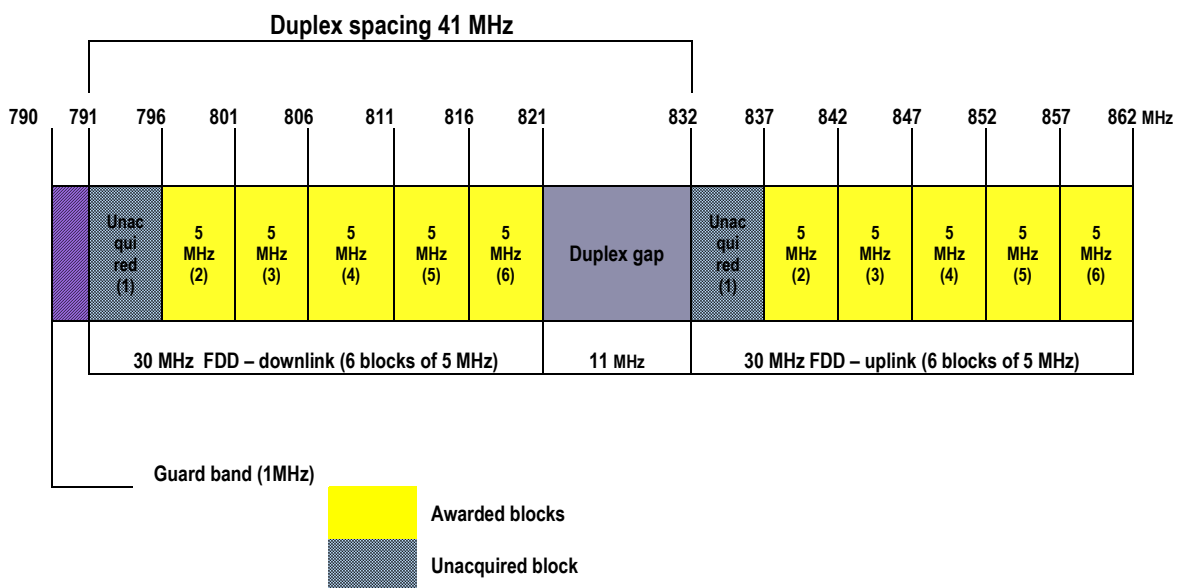
Block edge masks (BEM) as to a 5 MHz block in the 790-862 MHz band are the ones defined in the annex to the Commission Decision 2010/267/EU.

The provisions of Decision ECC/DEC/(09)03 on the harmonised conditions for mobile/fixed communications networks (MFCN) operating in the 790 - 862 MHz band are also applicable.

The layout of the frequency arrangement harmonised at European level for the 800 MHz band is the one set out Annex 1 of Decision ECC/DEC/(09)03 on the harmonised conditions for systems operating in the 790 - 862 MHz band and is presented in the figure below.

The figure also highlights the 5 MHz blocks awarded, and the block unacquired in the 2012 auction and available for allotment, for MFCN networks.

Figure 4 - Harmonised frequency arrangement in the 790-862 MHz band, by 5 MHz blocks



The harmonised frequency arrangement for MFCN in the 800 MHz band, detailed by assigned and available blocks, is presented in the table below.

Table 5 – Harmonised frequency arrangement for MFCN in the 800 MHz band

Frequencies (MHz)	Destination	Operation mode
790 – 791	Guard band – 1 MHz	Guard band
791 – 796	Downlink (block 1) – 5 MHz (available)	(30 MHz) FDD downlink
796 – 801	Downlink (block 2) – 5 MHz (assigned)	
801 – 806	Downlink (block 3) – 5 MHz (assigned)	
806 – 811	Downlink (block 4) – 5 MHz (assigned)	
811 – 816	Downlink (block 5) – 5 MHz (assigned)	
816 – 821	Downlink (block 6) – 5 MHz (assigned)	
821 – 832	Duplex gap – 11 MHz	Duplex gap
832 – 837	Uplink (block 1) – 5 MHz (available)	(30 MHz) FDD uplink
837 – 842	Uplink (block 2) – 5 MHz (assigned)	
842 – 847	Uplink (block 3) – 5 MHz (assigned)	
847 – 852	Uplink (block 4) – 5 MHz (assigned)	
852 – 857	Uplink (block 5) – 5 MHz (assigned)	
857 – 862	Uplink (block 6) – 5 MHz (assigned)	

Other relevant technical regulations on the use of frequencies in the 800 MHz band for MFCN networks are specified in section 3.3.3.3 of Chapter 3, concerning the technical conditions on the use of frequencies corresponding to the usage rights to be awarded in this band.

2.3.3. Status of frequency usage rights in the 800 MHz band

In the 800 MHz band, three operators hold frequency usage licences, as follows:

- Telekom Romania Mobile Communications S.A. (former Cosmote Romanian Mobile Telecommunications), hereinafter referred to as *Telekom Mobile*, holds usage rights for a 2 x 5 MHz frequency block;
- Orange Romania S.A. (*Orange*) holds usage rights for 2 blocks of 2 x 5 MHz each, i.e. a total 2 x 10 MHz bandwidth;
- Vodafone Romania S.A. (*Vodafone*) holds usage rights for 2 blocks of 2 x 5 MHz each, i.e. a total 2 x 10 MHz bandwidth.

The above-mentioned usage rights have been acquired following the competitive selection procedure organised by ANCOM in 2012 for awarding frequency usage rights in the 800 MHz, 900 MHz, 1800 MHz and 2600 MHz band.

The licences awarded to Telekom Mobile, Orange and Vodafone are valid for 15 years, from 06 April 2014 to 05 April 2029.

The status of the frequency usage rights in the 800 MHz band is presented in the table below.

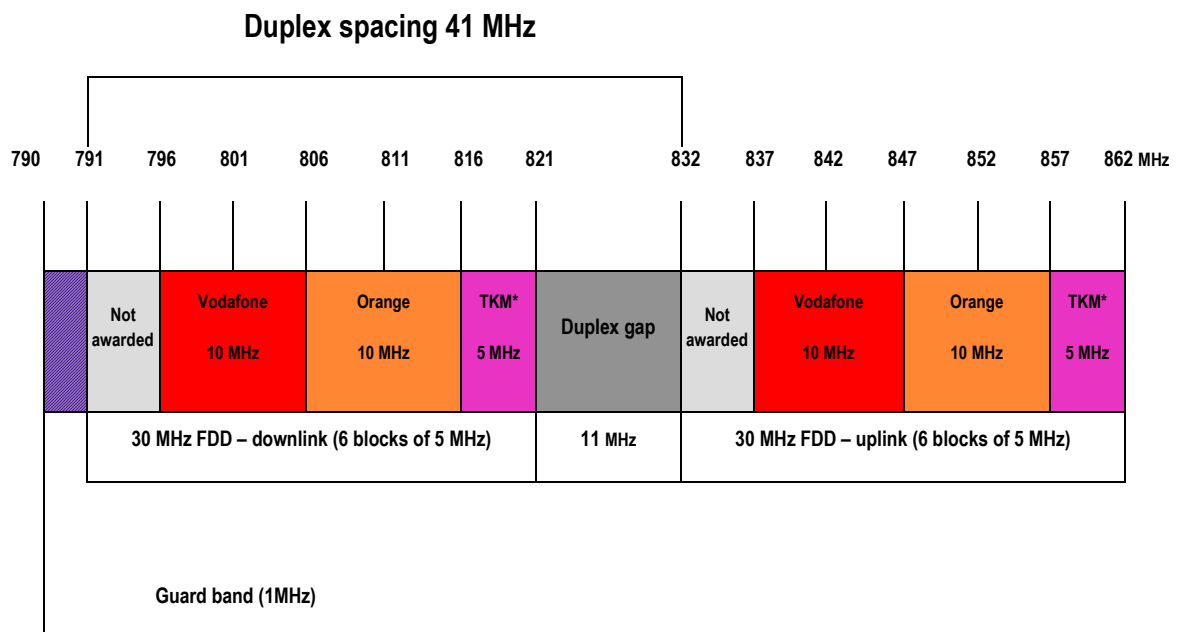
Table 6 – Current status of the frequency usage rights in the 800 MHz band

Licence holder	Spectrum amount awarded by licence	Assigned sub-bands	Licence validity
VODAFONE	2 x 10 MHz	796-806 MHz/837-847 MHz	06.04.2014 – 05.04.2029
ORANGE	2 x 10 MHz	806 -816 MHz/847-857 MHz	06.04.2014 – 05.04.2029
TELEKOM MOBILE	2 x 5 MHz	816-821 MHz/857-862 MHz	06.04.2014 – 05.04.2029

Therefore, 5 of the 6 duplex blocks of 2 x 5 MHz auctioned off in the 800 MHz band were awarded, while **one 2 x 5 MHz block** was not acquired in the auction. The paired sub-bands corresponding to the frequency block not awarded in the 800 MHz band are: **791-796 MHz/832-837 MHz**.

The status of frequency usage in the 800 MHz band, with allotments highlighted by mobile communications operator, is detailed in the figure below:

Figure 5 – Status of frequency usage in the 800 MHz band
- allotments valid during 06.04.2014 – 05.04.2029 -



*TKM – Telekom Mobile

In Romania, the frequency spectrum for which usage rights are awarded in the 800 MHz band consists of two 5 MHz blocks in the paired sub-bands **791-796 MHz/832-837 MHz**, i.e. 1 duplex block (FDD) of **2 x 5 MHz**.

The operation mode used will be exclusively FDD in the paired sub-bands 791-796 MHz/832-837 MHz. The duplex spacing (the frequency spacing between the uplink and the downlink) is 41 MHz.

The frequency sub-bands will be used according to the harmonised arrangement:

- the 791-796 MHz band for base station emission/uplink;
- the 832-837 MHz band for base station reception/downlink.

2.4. The 1500 MHz band

2.4.1. International regulations

2.4.1.1. Regulations of the International Telecommunication Union

In accordance with Art. 5 of the ITU RR in force, in Region 1 of the ITU the 1452-1492 MHz band is allocated on a primary basis to the fixed service, to the mobile service, except aeronautical mobile, to the broadcasting service and to the broadcasting-satellite service.

According to No. 5.342, in certain countries of Region 1 – Ukraine included –, the frequency band 1429-1535 MHz is allocated also to the aeronautical mobile service on a primary basis, exclusively for aeronautical telemetry purposes on the national territory. After 1 April 2007, the use of the frequency band 1452-1492 MHz for aeronautical telemetry is subject to agreement between the administrations involved.

Note 5.342 - *Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the frequency band 1 429-1 535 MHz is also allocated to the aeronautical mobile service on a primary basis, exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the frequency band 1 452-1 492 MHz is subject to agreement between the administrations concerned. (WRC-12)*

The WRC-15 Agenda included the global identification of the 1427-1518 MHz band, and respectively of the 1452-1492 MHz sub-band, for IMT systems in the mobile service.

WRC-15 identified the frequency bands 1427-1452 MHz and 1492-1518 for IMT systems on a global level. In ITU Region 1, including the European Union, bands these frequency bands are allocated, on a primary basis, to the mobile service - except aeronautical mobile - and to the fixed service, as well as to the Earth exploration service (Earth-to-space) (in the band 1427-1429 MHz).

In accordance with the provisions of No. 5.341A of Art. 5 in the ITU RR, in Region 1, the frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by IMT. This identification does not preclude the use of these frequency bands by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations.

The use of IMT stations is subject to agreement obtained under No. 9.21 of ITU RR with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. 5.342 of Art. 5 in the ITU RR.

The 1452-1492 MHz band was not identified at WRC-15 for IMT systems in the CEPT countries because of opposition from the countries of the Regional Commonwealth in the field of Communications (RCC), which laid down certain conditions for the usage of this band by IMT, for reasons related to the protection of the aeronautical mobile service used for aeronautical telemetry in these countries (in accordance with No. 5.342 of Art. 5 of ITU RR, providing an additional allocation for the aeronautical mobile service in these countries). Consequently, the identification of the 1452-1492 MHz band for IMT in Region 1 of the ITU is limited to some countries in Africa and the Middle East (according to No 5.346 of Art. 5 of the ITU RR).

Report ITU-R M.2324¹⁶ contains the results of the sharing studies between potential International Mobile Telecommunication systems and aeronautical mobile telemetry systems in the frequency band 1429-1535 MHz.

The usage of the band 1452-1492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting (DAB), in accordance to the provisions of No. 5.345 of ITU RR.

Note 5.345 *Use of the band 1 452-1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (WARC-92)¹⁷.*

2.4.1.2. European Union Regulations

At European level, the usage of the 1500 band is harmonised in accordance with the provisions of Commission Implementing Decision **(EU) 2015/750** on the harmonisation of the 1452-1492 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Union, amended by Commission Implementing Decision **(EU) 2018/661**, of 26 April 2018¹⁸.

Commission Implementing Decision (EU) 2018/661, of 26 April 2018 amends Commission Implementing Decision (EU) 2015/750 by extending the harmonisation of the 1452-1492 MHz band in the 1427-1452 MHz and 1492-1517 MHz frequency bands. It also sets out harmonised conditions for making available and efficiently using the whole 1427-1517 MHz band for terrestrial systems capable of providing electronic communications services in the Union.

According to the above-mentioned Decision, Member States designate and make available the 1427-1517 MHz band for terrestrial systems capable of providing electronic communications services, on a non-exclusive basis, in accordance with the technical parameters laid down in the Annex to the Decision.

The harmonised frequency arrangement in the 1427-1517 MHz band is presented below:

- the usage the 1427-1517 MHz band is limited to base station emission (downlink);
- the allotted block sizes in the 1427-1517 MHz band will be multiple of 5 MHz.

The base station emission must comply with the harmonized technical conditions on block edge masks provided in Section B of the Annex to the Commission Implementing Decision 2015/750/EU amended by Commission Implementing Decision (EU) 2018/661.

2.4.1.3. Regulations of the European Conference of Postal and Telecommunications Administrations

According to CEPT regulations, the sub-band 1452-1492 MHz in the 1500 MHz band may be used for the supplemental downlink (SDL) of MFCN networks, whereas terrestrial digital audio broadcasting (T-DAB) and DAB-compatible terrestrial multimedia systems may also operate in the 1452-1479.5 MHz sub-band, on grounds of the Special Arrangement of Maastricht, signed in 2002

¹⁶ Report ITU-R M.2324: Sharing studies between potential International Mobile Telecommunication systems and aeronautical mobile telemetry systems in the frequency band 1 429-1 535 MHz.

¹⁷ This Resolution was revised by WRC-03 and WRC-15.

¹⁸ Actele Comisiei Europene sunt adoptate în temeiul Deciziei privind spectrul de frecvențe radio.

and reviewed in 2007. This arrangement also sets out the procedures necessary in the cross-border coordination between T-DAB and wireless broadband electronic communications systems.

The 1452-1479.5 MHz band has been made available for T-DAB in most European countries, in accordance with the CEPT regulations, but T-DAB uptake is poor, and the band is not used in many of these countries.

Therefore, at EU level, the 1452-1492 MHz band was decided to be brought in line with the objective stated in Decision 243/2012/EU of the European Parliament and of the Council, by making available the band for wireless broadband communications services. Nevertheless, the existing terrestrial digital audio broadcasting systems must be protected in the long run, including after the licence renewal.

In response to the European Commission Mandate of 19 March 2014, CEPT issued Report CEPT 54 of 28 November 2014, recommending the harmonisation of the 1452-1492 MHz band for ensuring the supplemental downlink for MFCN, and enabling the Member States to use parts of the band according to their domestic specificities (e.g. 1452-1479.5 MHz for terrestrial digital audio broadcasting).

The Report CEPT 54 lays down the fundamental technical conditions and principles necessary in cross-border coordination – including the European Union borders – between wireless broadband electronic communications systems and T-DAB, and aeronautical telemetry services in the 1452-1492 MHz band.

Taking into account the fact that the restrictions that should be imposed on IMT systems to ensure coexistence with aeronautical telemetry systems in the 1429-1535 MHz band, based on ITU-R Report M.2324, seriously limit the development of IMT systems on the territory of countries neighbouring those in which aeronautical telemetry systems operate, on 8 March 2019, CEPT/ECC developed and adopted the ECC Report 295 on the technical criteria for the cross-border coordination of the use of the 1427-1518 MHz band by the IMT systems in the land mobile service and the aeronautical telemetry systems in the aeronautical mobile service installed on the territory of the countries under Note 5.342 of Art. 5 of the ITU RR. The purpose of the technical report is to provide guidance to administrations with a view to concluding bilateral technical agreements between the countries involved.

At CEPT level, the following CEPT/ECC Decisions, Recommendations and Reports apply as regards the usage of the 1452-1492 MHz band:

- Decision ECC (13)03 on the harmonised use of the frequency band 1452-1492 MHz for Mobile/Fixed Communications Networks Supplemental Downlink (MFCN – SDL), approved on 8 November 2013, amended on 2 March 2018 (ECC/DEC/(13)03);
- ECC Report 202: Out-of-Band emission limits for Mobile/Fixed Communication Networks (MFCN) Supplemental Downlink (SDL) operating in the 1452-1492 MHz band (September 2013);
- ECC Report 227: Compatibility Studies for Mobile/Fixed Communication Networks (MFCN) Supplemental Downlink (SDL) operating in the 1452-1492 MHz band (approved in January 2015);
- ECC Report 269: Least restrictive technical conditions for Mobile/Fixed Communications Networks in 1427-1518 MHz (approved on 17 November 2017, corrected on 2 March 2018);
- CEPT Report 54 – Report from CEPT to the European Commission in response to the Mandate “To develop harmonised technical conditions in the 1452-1492 MHz frequency band for wireless broadband electronic communications services in the EU” (approved on 28 November 2014 by the ECC);

- ECC Report 295 – Guidance on Cross-border coordination between MFCN and Aeronautical Telemetry Systems in the 1429-1518 MHz band, approved on 8 March 2019;
- ECC Recommendation (15)01 ECC Recommendation of 13 February 2015 on cross-border coordination for mobile/fixed communications networks (MFCN) in the frequency bands: 694-790 MHz, 1452-1492 MHz, 3400-3600 MHz and 3600-3800 MHz (adopted on 13 February 2015, amended on 5 February 2016) (ECC/REC/(15)01).

The harmonised frequency arrangement and the harmonised technical conditions for the usage of radio frequencies in the 1500 MHz band for MFCN networks, respectively block edge masks (BEM) and maximum effective isotropic radiated power (EIRP) are provided in Annex 2 of Decision ECC/DEC/(13)03.

2.4.2. National regulations

ANCOM will update the NTFA so as to designate the 1452-1492 MHz band for terrestrial systems capable of providing electronic communications services in accordance with the provisions of the Commission Implementing Decision (EU) 2015/750 of 8 May 2015 on the harmonisation of the 1452-1492 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Union, amended by Commission Implementing Decision no. (EU) 2018/661.

The provisions of Decision ECC/DEC/(13)03 on the harmonised use of the frequency band 1452-1492 MHz for Mobile/Fixed Communications Networks Supplemental Downlink (MFCN – SDL) will also be applicable.

The frequency arrangement in the 1452-1492 MHz band for MFCN networks is set in accordance with the arrangement harmonized by the Commission Implementing Decision (EU) 2015/750, amended by European Commission Decision no. (EU) 2018/661.

The base station emission must comply with the harmonized technical conditions on block edge masks provided in Section B of the Annex to the Commission Implementing Decision 2015/750/EU amended by Commission Implementing Decision (EU) 2018/661.

The layout of the 1452-1492 MHz frequency band arrangement corresponding to the one harmonized at European level - set out in Annex 1 to ECC/DEC/(13)03 Decision - is presented below.

Figure 9

Harmonised frequency arrangement in the 1452-1492 MHz band for SDL, by 5 MHz blocks

52-1457	1457-1462	1462-1467	1467-1472	1472-1477	1477-1482	1482-1487	1487-1492
5	5	5	5	5	5	5	5
MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SDL (base station emission)							
40 MHz (8 blocks of 5 MHz)							

The harmonised frequency arrangement for MFCN in the 1452-1492 MHz band is also detailed in the table below.

Table 7 – Harmonised frequency arrangement for MFCN in the 1500 MHz band

Frequencies (MHz)	Destination	Operation mode
1452 - 1457	Downlink (block 1) – 5 MHz	(40 MHz) MFCN SDL
1457 - 1462	Downlink (block 2) – 5 MHz	
1462 - 1467	Downlink (block 3) – 5 MHz	
1467 - 1472	Downlink (block 4) – 5 MHz	
1472 - 1477	Downlink (block 5) – 5 MHz	
1477 - 1482	Downlink (block 6) – 5 MHz	
1482 - 1487	Downlink (block 7) – 5 MHz	
1487 - 1492	Downlink (block 8) – 5 MHz	

Other relevant technical regulations are mentioned in section 3.3.3.4 of Chapter 3.

2.4.3. Status of frequency usage in the 1452-1492 MHz band

In Romania, the 1452-1492 MHz band is not used by the broadcasting service, nor by the broadcasting-satellite service, being available for use by the IMT systems.

The spectrum resources available for which usage rights are to be awarded in the 1452-1492 MHz band consist of 8 unpaired blocks of 5 MHz each, SDL operation mode.

However, aeronautical telemetry systems operate in the 1429-1535 MHz band on the territory of Ukraine, in accordance with No. 5.342 of Art. 5 of the ITU RR, therefore the use of this frequency band for future IMT systems on the territory of Romania is subject to cross-border coordination between the administrations concerned.

Based on the ECC Report 295 mentioned in section 2.4.1.3, the frequency spectrum management authority of Ukraine (UCRF) has prepared and submitted to ANCOM a proposal for a bilateral Technical Arrangement on the use of the 1427-1518 MHz band by terrestrial systems in the border areas of Romania and Ukraine.

According to the Technical Arrangement proposal, the aggregated fieldstrength generated by the MFCN base stations operating in the 1452-1492 MHz band would be limited to 30 dB μ V/m/5 MHz, at the border line, 10 m above ground level.

The ANCOM decision on the opportunity to conclude the Technical Arrangement under the conditions proposed by the Ukrainian side has not been taken yet, but the bilateral arrangement might be concluded after the selection procedure.

The draft Technical Arrangement submitted by the Ukrainian side will be published on the ANCOM website, along with these Terms of Reference.

2.5. The 2600 MHz band

2.5.1. International regulations

2.5.1.1. Regulations of the International Telecommunication Union

In accordance with the provisions of Art. 5 of the ITU RR in force, the 2500-2690 MHz band is allocated in Region 1 of the ITU on a primary basis to the fixed service, to the mobile service - except aeronautical mobile - and to the broadcasting-satellite service (the 2520-2690 MHz band).

The 2655-2670 MHz and 2670-2690 MHz sub-bands are also allocated to the Earth exploration-satellite (passive), radio astronomy and to the Space research (passive) services, on a secondary basis.

The use of the 2500-2690 MHz band for the mobile service – except aeronautical mobile – and respectively for IMT systems is regulated by the provisions of No. 5.384A:

Note 5.384A - *The frequency bands 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, or portions thereof, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)*

2.5.1.2. European Union Regulations

At EU level, the provisions of Commission Decision **2008/477/EC** on the harmonisation of the 2500-2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community, adopted on 13 June 2008¹⁹, are applicable.

According to the above-mentioned decision, Member States designate and make available, on a non-exclusive basis, the 2500-2690 MHz band for terrestrial systems capable of providing electronic communications services, with due regard to the parameters set out in the Annex to the respective decision.

The frequency arrangement in the 2500-2690 MHz band, in accordance with Decision 2008/477/EC, is the following:

- the duplex spacing for FDD operation shall be 120 MHz, as follows:
 - (i) the frequencies used for terminal station emission (uplink) are situated in the lower part of the band (from 2500 MHz to maximum 2570 MHz);
 - (ii) the frequencies used for base station emission (downlink) are situated in the higher part of the band, from 2620 MHz to 2690 MHz.
- the 2570-2620 MHz sub-band may be used in TDD mode or in other operation modes in compliance with the BEM masks, to avoid harmful interference.
- the allotted blocks shall be multiple of 5 MHz.

BEM emission masks for a 5 MHz block are defined in annexes B, C, D and E of Commission Decision 2008/477/EC.

¹⁹ The Commission Decision was adopted on grounds of the Radio Spectrum Decision.

2.5.1.3. Regulations of the European Conference of Postal and Telecommunications Administrations

At CEPT level, the provisions of the following CEPT/ECC decisions, recommendations and reports are applicable in the utilization of the 2600 MHz band:

- Decision ECC/DEC/(05)05: Harmonised utilization of spectrum for Mobile/Fixed Communications Networks (MFCN) operating in the 2500-2690 MHz band (approved on 18 March 2005, amended on 3 July 2015);
- ECC Report 045: Sharing and adjacent band compatibility between UMTS/IMT-2000 in the band 2500-2690 MHz and other services (February 2004);
- ECC Report 119: Coexistence between mobile systems in the 2.6 GHz frequency band at the FDD/TDD boundary (June 2008);
- CEPT Report 019: Report from CEPT to the European Commission in response to EC Mandate "to develop least restrictive technical conditions for frequency bands addressed in the context of WAPECS" (approved on December 2007, reviewed in October 2008).
- Recommendation ECC/REC/(11)05 on cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 2500-2690 MHz (approved on 26 May 2011, amended on 3 February 2017).

The harmonized frequency arrangement and the harmonised technical conditions on the usage of the 2600 MHz band for MFCN networks, respectively the BEM masks per 5 MHz block is set out in Annexes 1 and 2 of Decision ECC/DEC/(05)05.

2.5.2. National regulations

According to the provisions of the NTFA, corroborated with the provisions of Government Emergency Ordinance no. 11/2012, in Romania, the frequency band 2500-2690 MHz band is allocated for non-governmental use, to the mobile service – except aeronautical mobile – on a primary basis.

Concerning the applications allowed in the 2500-2690 MHz band and the harmonized technical conditions for the use of this band, the provisions of the Commission Decision 2008/477/EC on the harmonisation of the 2500-2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community shall apply.

The electronic communications systems that can use the 2500-2690 MHz band are terrestrial systems that comply with the block edge masks (BEM) set out in the Annex to Decision 2008/477/EC. Any available technology that complies with the harmonized technical conditions established by the above-mentioned Decision may be used.

The frequency arrangement in the 2500-2690 MHz band for MFCN networks, in accordance with Decision 2008/477/EC, is the following:

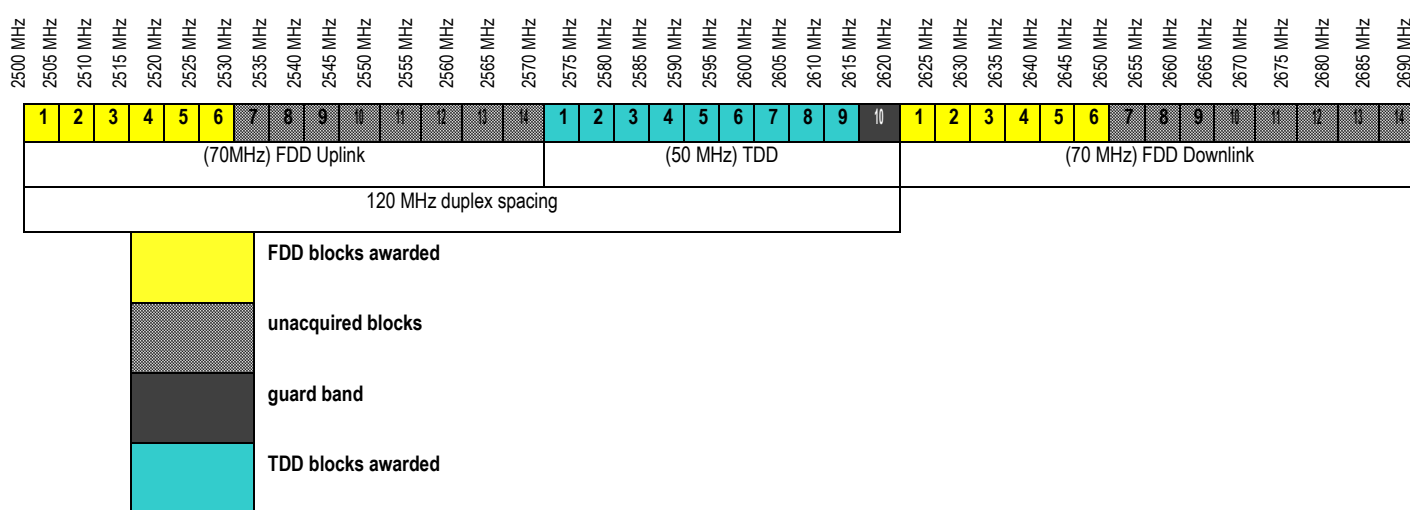
- the 2500-2570 MHz/2620-2690 MHz sub-bands are intended for Frequency Division Duplex (FDD) operation mode;
- the 2500-2570 MHz sub-band is used for terminal station emission and base station reception (uplink);
- the 2620-2690 MHz sub-band is used for base station emission and terminal station reception (downlink);
- the duplex spacing is 120 MHz;
- the 2570-2620 MHz sub-band is intended for Time Division Duplex (TDD) operation mode;
- the allotted blocks shall be multiple of 5 MHz.

Moreover, the provisions of Decision ECC/DEC/(05)05 on the harmonised utilization of spectrum for Mobile/Fixed Communications Networks (MFCN) operating in the 2500-2690 MHz band, approved on 18 March 2005, amended on 3 July 2015 are applicable for this band.

The layout for European harmonized frequency arrangement in the band 2600 MHz is set out in Decision ECC/DEC/(05)05 on harmonised utilization of spectrum for Mobile/Fixed Communications Networks (MFCN) operating in the 2500-2690 MHz band and is represented in the figure below.

The diagram also highlights the 5 MHz blocks awarded and the blocks remaining unacquired in the 2012 auction.

Figure 7 - Harmonised frequency arrangement in the 2500 – 2690 MHz band, by 5 MHz blocks



In using the FDD 2650-2690 MHz sub-band, BEM conditions for unrestricted blocks shall apply, as defined in the Annex to the Commission Decision 2008/477/EC, to all FDD 5 MHz blocks.

The harmonised frequency arrangement for MFCN in the 2600 MHz band, detailed by the awarded and respectively the still unacquired blocks, available on a national level, is presented in the table below:

Table 8 – Frequency arrangement harmonised for MFCN in the 2600 MHz band

Frequencies (MHz)	Destination	Operation mode
2500 – 2505	Uplink (block 1) – 5 MHz (awarded)	(70 MHz) FDD uplink
2505 – 2510	Uplink (block 2) – 5 MHz (awarded)	
2510 – 2515	Uplink (block 3) – 5 MHz (awarded)	
2515 – 2520	Uplink (block 4) – 5 MHz (awarded)	
2520 – 2525	Uplink (block 5) – 5 MHz (awarded)	
2525 – 2530	Uplink (block 6) – 5 MHz (awarded)	
2530 – 2535	Uplink (block 7) – 5 MHz (available)	

Frequencies (MHz)	Destination	Operation mode
2535 – 2540	Uplink (block 8) – 5 MHz (available)	
2540 – 2545	Uplink (block 9) – 5 MHz (available)	
2545 – 2550	Uplink (block 10) – 5 MHz (available)	
2550 – 2555	Uplink (block 11) – 5 MHz (available)	
2555 – 2560	Uplink (block 12) – 5 MHz (available)	
2560 – 2565	Uplink (block 13) – 5 MHz (available)	
2565 – 2570	Uplink (block 14) – 5 MHz (available)	
2570 – 2585	Block 1 TDD – 15 MHz (awarded)	(45 MHz) TDD
2585 – 2600	Block 2 TDD – 15 MHz (awarded)	
2600 – 2615	Block 3 TDD – 15 MHz (awarded)	
2615 – 2620	Guard band – 5 MHz	Guard band
2620 – 2625	Downlink (block 1) – 5 MHz (awarded)	(70 MHz) FDD downlink
2625 – 2630	Downlink (block 2) – 5 MHz (awarded)	
2630 – 2635	Downlink (block 3) – 5 MHz (awarded)	
2635 – 2640	Downlink (block 4) – 5 MHz (awarded)	
2640 – 2645	Downlink (block 5) – 5 MHz (awarded)	
2645 – 2650	Downlink (block 6) – 5 MHz (awarded)	
2650 – 2655	Downlink (block 7) – 5 MHz (available)	
2655 – 2660	Downlink (block 8) – 5 MHz (available)	
2660 – 2665	Downlink (block 9) – 5 MHz (available)	
2665 – 2670	Downlink (block 10) – 5 MHz (available)	
2670 – 2675	Downlink (block 11) – 5 MHz (available)	
2675 – 2680	Downlink (block 12) – 5 MHz (available)	
2680 – 2685	Downlink (block 13) – 5 MHz (available)	
2685 – 2690	Downlink (block 14) – 5 MHz (available)	

Other relevant technical regulations are mentioned in section 3.3.3.4 of Chapter 3.

2.5.3. Status of frequency usage licencing in the 2600 MHz band

In the 2600 MHz band, the frequency usage rights were awarded as follows:

- a) in the **2500-2570 MHz/2620-2690 MHz (FDD)** sub-bands:
 - Telekom Mobile acquired 2 blocks of 2 x 5 MHz each, i.e. 2 x 10 MHz bandwidth;
 - Orange acquired 4 blocks of 2 x 5 MHz each, i.e. 2 x 20 MHz bandwidth;

b) in the 2570-2615 MHz (TDD) sub-band:

- 2K Telecom S.R.L. (*2K Telecom*) acquired 2 blocks of 15 MHz each, i.e. 30 MHz bandwidth;
- Vodafone acquired one 15 MHz block.

The above-mentioned usage rights were acquired following the competitive selection procedure for awarding frequency usage rights in the 800 MHz, 900 MHz, 1800 MHz and 2600 MHz bands organised by ANCOM in 2012.

The validity period of the licences issued for Telekom Mobile, Orange, 2K Telecom and Vodafone is 15 years, from 06 April 2014 to 05 April 2029.

The usage rights awarded to 2K Telecom in the 2570-2615 MHz sub-band were transferred to RCS&RDS S.A. (*RCS&RDS*) in 2015.

The spectrum portfolios currently held by the mobile communications network operators in the 2600 MHz band are presented in the table below.

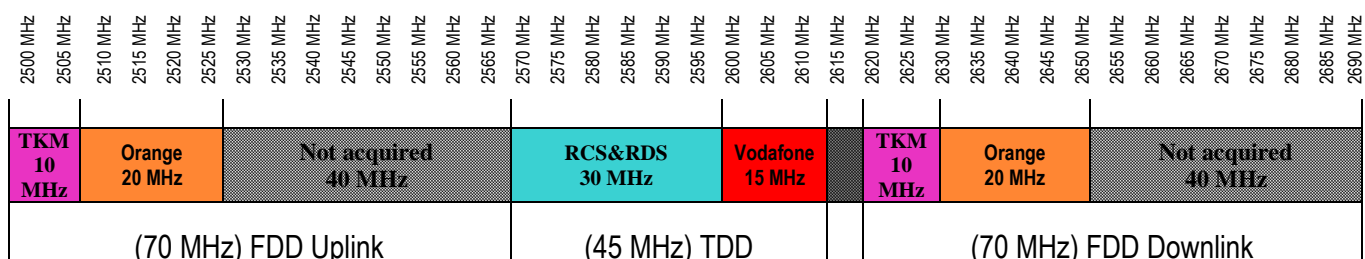
Table 9 – Current status of the licenced frequency spectrum in the 2600 MHz band

Licence holder	Amount of spectrum awarded by licence	Frequency sub-bands awarded	Validity period
TELEKOM MOBILE	2 x 10 MHz	2500-2510 MHz/2620-2630 MHz	06.04.2014 – 05.04.2029
ORANGE	2 x 20 MHz	2510-2530 MHz/2630-2650 MHz	06.04.2014 – 05.04.2029
RCS&RDS	1 x 30 MHz	2570-2600 MHz	06.04.2014 – 05.04.2029
VODAFONE	1 x 15 MHz	2600-2615 MHz	06.04.2014 – 05.04.2029

Therefore, in the 2600 MHz band, ANCOM awarded 6 blocks of 2 x 5 MHz out of the 14 blocks available, **8 blocks of 2 x 5 MHz** remaining unacquired. The paired frequency sub-bands corresponding to the remaining 8 blocks of 2 x 5 MHz in the 2600 MHz FDD band are **2530-2570 MHz/2650-2690 MHz**.

The status of the frequency usage rights in the 2600 MHz band, highlighting the licence holders in each band, is presented below:

Figure 8 – Current status of the frequency usage rights in the 2600 MHz band - as valid from 06.04.2014 to 05.04.2029 -



*TKM – Telekom Mobile

In Romania, the frequency spectrum available for which usage rights are awarded in the 2600 MHz band consists of two contiguous blocks of 40 MHz (2 x 40 MHz) in the paired frequency sub-bands **2530-2570 MHz/2650-2690 MHz**, i.e. **8 duplex channels** (FDD) of **2 x 5 MHz** each.

The operation mode will be exclusively FDD in the paired 2530-2570 MHz/2650-2690 MHz sub-bands. The duplex spacing is 120 MHz.

The paired FDD sub-bands will be used according to the harmonised arrangement:

- the 2530-2570 MHz sub-band for base station reception;
- the 2650-2690 MHz sub-band for base station emission.

2.6. The 3400-3800 MHz band

2.6.1. International regulations

2.6.1.1. Regulations of the International Telecommunication Union

For the frequency band 3400-3600 MHz, in Region 1 (where Romania is included), Art. 5 of ITU RR provides the following:

- allocations on a primary basis for the radiocommunication services: fixed, fixed-satellite (space-to-Earth) and mobile (except aeronautical mobile);
- allocations on a secondary basis for the radiolocation service.

Footnote No. 5.430A - relevant for the above-mentioned mobile service - provides that the allocation of the frequency band 3400-3600 MHz to the mobile, except aeronautical mobile, service is subject to prior cross-border coordination on the use of frequencies with the potentially affected administrations. Within the same footnote, the 3400-3600 MHz frequency band is identified for systems in the International Mobile Telecommunications (IMT) family.

The footnote also includes a set of restrictive technical conditions for base stations or mobile stations (operating in the mobile service), relevant conditions in the process of coordination with Earth stations of other potentially affected administrations, aimed at protecting Earth stations in satellite communications services. In addition, stations operating in the mobile service in this band benefit from limited protection from space stations of satellite communications services.

For the 3600-4200 MHz frequency band (which includes the 3600-3800 MHz band, relevant for this document), in Region 1 (where Romania is included), Art. 5 of ITU RR provides the following:

- allocations on a primary basis for the radiocommunication services: fixed, fixed-satellite (space-to-Earth);
- allocation on a secondary basis for the mobile service.

2.6.1.2. European Union Regulations

The European Commission issued Decision 2008/411/EC of 21 May 2008 on the harmonisation of the 3400 - 3800 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community, which was implemented in Romania's NTFA.

Commission Implementing Decision 2014/276/EU of 2 May 2014 amends Decision 2008/411/EC, updating its Annex (containing technical provisions on the usage of the said band). Based on Commission Implementing Decision 2014/276/EU, ANCOM organised the selection procedure for the 3400-3800 MHz band in 2015 and awarded the usage rights currently in force in this frequency band.

This year, Commission Implementing Decision (EU) 2019/235 of 24 January 2019 on amending Decision 2008/411/EC as regards an update of relevant technical conditions applicable to the 3400-3800 MHz frequency band has been adopted. This new decision amends, once again, the annex to the initial decision. The most important amendments provide the mandatory character of the TDD arrangement in the 3400-3600 MHz, as well, thus removing the possibility of choosing among two channel arrangements (FDD and TDD) for this frequency band, which had been previously allowed (by Decision no. 2008/411/EC, amended by Commission Implementing Decision 2014/276/EU).

Moreover, Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code sets out the deadline of 31 December 2020 for implementing the new technical provisions on the usage of the 3400-

3800 MHz frequency band, as laid down in Annex to Commission Implementing Decision (EU) 2019/235.

Commission Implementing Decision (EU) 2019/235 has been implemented in Romania by an already adopted Position Paper and by these Terms of Reference (drawn up based on the above-mentioned Position Paper).

2.6.1.3. Regulations of the European Conference of Postal and Telecommunications Administrations

According to the European Common Table of Frequency Allocations (ECA), the allocations harmonized at CEPT level for the 3400-3600 MHz band are as follows:

- primary allocations for the following radiocommunications services: fixed, fixed-satellite (space-to-Earth), mobile (except aeronautical mobile),
- allocations on a secondary basis for the amateur and radiolocation services.

The ECA stipulates that the allocations for the two services with secondary status are limited, at the upper edge, to 3410 MHz. Thus, in the 3400-3410 MHz sub-band, the ECA accepts, on a secondary basis, civilian and military radiolocation applications (as an extension of the primary allocation for the radiolocation service in the 3300-3400 MHz band) and amateur applications.

Concerning the 3400-3410 MHz band, its secondary allocation by the ECA for civil or military radiocommunications applications does not imply that the respective (civil or military) radiolocation equipment is actually in operation in the above-mentioned band, the carrier frequencies for such applications being situated below 3400 MHz.

For the entire 3400-3600 MHz band, the ECA recommends the following harmonised applications, according to the options of the CEPT member countries and to their national context:

- MFCN (mobile/fixed communications networks) applications, based on ECC/DEC/(11)06 (amended in 2014 and 2018) and ECC/REC/(15)01; the ECA also recognizes the use of this band for IMT applications, based on the ITU RR (footnote above);
- fixed-satellite applications (Earth stations);
- generic UWB applications, based on the following CEPT regulations: ECC/DEC/(06)04, ECC/REC/(11)09, ECC/REC/(11)10;
- PMSE applications; these applications consist of occasional broadcasts for the production of audio-visual materials for radio and TV (outside studios) and include ENG-OB applications (consisting of temporary, occasional broadcasts to studios, reportages, news, shows, cultural/sports events and other audio-visual materials produced outside studios).

According to the European Common Table of Frequency Allocations (ECA), contained in the ERC 25 Report (October 2018 edition), the allocations harmonized at CEPT level for the 3600-3800 MHz frequency band are as follows:

- allocations on a primary basis for radiocommunication services: fixed, fixed-satellite (space-to-Earth), mobile;
- there are no secondary allocations in this frequency band.

For the 3600-3800 MHz band, the ECA recommends the following harmonized applications, according to the options of CEPT member countries and their national context:

- MFCN (mobile/fixed communications networks) applications, based on Decision no. ECC/DEC/(11)06 (amended in 2014 and 2018) and ECC/REC/(15)01;
- medium/high capacity point-to-point fixed links (based on Recommendation ERC/REC 12-08), within the 3600-4200 MHz band;

- fixed satellite applications (Earth stations), with priority for civil networks, within the 3600-4200 MHz band;
- Earth Stations on Vessels (ESV) (based on Decision No. ECC/DEC/(05)09) within the 3700-4200 MHz band;
- generic UWB applications based on the following CEPT regulations: ECC/DEC/(06)04, ECC/REC/(11)09, ECC/REC/(11)10.

Regarding the applications of interest for this position paper, for the entire 3400-3800 MHz band, CEPT Decision ECC/DEC/(11)06 on Harmonised frequency arrangements and least restrictive technical conditions (LRTC) for mobile/fixed communications networks (MFCN) operating in the band 3400-3800 MHz is applicable, as adopted on 09 December 2011 and modified (the second time) on 26 October 2018.

2.6.2. National regulations

In the NTFA currently in force, the allocations for the 3400-3600 MHz and 3600-3800 MHz bands coincide with those in the ECA Table.

Concerning the applications allowed by the NTFA in the 3400-3800 MHz band, it is worth mentioning that at present ANCOM is updating this Table, considering the most recent releases of the ITU RR and ECA Table.

Regarding the ECA recommendations on the possible applications in the 3400-3800 MHz band, to be implemented in our country, we mention that the next edition of the NTFA will not provide, as possible in Romania, either PMSE type applications or applications in the amateur service.

Under the current NTFA, the entire 3400-3600 MHz band is allocated for non-governmental use (NG status). Concerning the 3400-3410 MHz band, its current secondary allocation for radars does not imply that the respective (civil or military) radiolocation equipment is actually in operation in the above-mentioned sub-band, the carrier frequencies for such applications being situated below 3400 MHz.

In accordance with the NTFA in force, the 3600-3800 MHz band is allocated as follows:

- the 3600-3685 MHz sub-band for non-governmental (NG) use,
- the 3685-3700 MHz sub-band for shared governmental/non-governmental use (G/NG), as it has switched from non-governmental (NG) use as of September 2010, according to MCIS Order no. 701/2010;
- the 3700-3800 MHz sub-band for non-governmental (NG) use.

As mentioned above, the NTFA is currently under review, with the 3600-3800 MHz band allocation to be updated as follows:

- the 3600-3645 MHz sub-band will remain allocated for NG use;
- the 3645-3655 MHz sub-band will be allocated for shared G(A)/NG use;
- the 3655-3700 MHz sub-band will be allocated for shared G/NG use;
- the 3700-3800 MHz sub-band will remain allocated for NG use.

The allocations of the different frequency sub-bands in the 3600-3800 MHz band (specified above) will be valid until 31.12.2025. After that date, the entire 3600-3800 MHz band will be allocated for NG use.

2.6.3. Status of frequency usage in the band

The status of frequency usage in the band – until 31 December 2019 – is presented below.

The usage of the 3400-3800 MHz band in Romania is currently regulated by the CEPT Decision ECC/DEC/(11)06 on Harmonised frequency arrangements and least restrictive technical conditions (LRTC) for mobile/fixed communications networks (MFCN) operating in the band 3400-3800 MHz is applicable, as adopted on 09 December 2011 and modified (the second time) on 26 October 2018.

At EU level, Commission Implementing Decision (EU) 2019/235 of 24 January 2019 on amending Decision 2008/411/EC as regards an update of relevant technical conditions applicable to the 3400-3800 MHz frequency band is in force.

Prior to 08 February 2019, Decision 2014/276/EU amending Decision 2008/411/EC2008 on the harmonisation of the 3400 - 3800 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community had been in force. This document allowed both channel arrangement options (based on FDD, respectively on TDD technology) in the 3400-3600 MHz band and provided only for TDD arrangement in the 3600-3800 MHz band.

At present, the 3400-3800 MHz band is used in Romania in accordance with the provisions of the Strategy on the use of the 3400-3800 MHz band, developed based on Decision 2014/276/EU. Thus, in Romania, the channel arrangement currently in use in the 3400-3600 MHz band is FDD type, while a TDD channel arrangement is in force in the 3600-3800 MHz band.

The terrestrial electronic communications systems that can currently use the 3400-3800 MHz band are systems that comply with the following:

- the provisions of the Strategy on the use of the 3400-3800 MHz band regarding the channel arrangements valid in the 3400-3600 MHz and 3600-3800 MHz bands,
- the block edge masks (BEM) in respect of the awarded block, set out in the Annex to Decision 2008/411/EC as amended by Commission Implementing Decision 2014/276/EU.

One can use any available technology that observes the Strategy on the use of the 3400-3800 MHz band and the harmonised technical conditions set out by the above-mentioned Decisions.

According to the above-mentioned regulations, the FDD arrangement in the 3400-3600 MHz band consists of 2x5 MHz duplex channels. Larger radio channels can also be used by joining adjacent 2x5 MHz channels.

The sub-bands 3410-3490 MHz / 3510-3590 MHz are available for use, the useful bandwidth of the respective spectrum being 2x80 MHz (16 duplex channels of 2x5 MHz).

The duplex spacing is 100 MHz. The duplex gap is 20 MHz (3490-3510 MHz) and the two side guard bands are 10 MHz (3400-3410 MHz and 3590-3600 MHz).

Base station (downlink) emissions are in the upper sub-band while subscriber terminal (uplink) emissions are in the lower sub-band.

According to the above-mentioned regulations, the TDD arrangement in the 3600-3800 MHz band consists of 5 MHz channels. Larger radio channels can also be used by joining adjacent 5 MHz channels.

The entire 3600-3800 MHz band is available for use, the useful bandwidth of the band being 200 MHz (40 unpaired 5 MHz channels), since the TDD arrangement does not require a middle guard band and side guard bands as to the adjacent - lower and upper - bands is not ensured within this frequency band, according to CEPT Decision ECC/DEC/(11)06 (2014 edition) and to Commission Implementing Decision 2014/276/EU.

The alternative channelling scheme in the 3400-3600 MHz band currently available in Romania is the one presented in Annex 2 of Decision ECC/DEC/(11)06 (2014 edition) and in Chapter III section 2.5/2.5.1 of the Public consultation document developed by ANCOM in 2017.

The channel arrangement scheme in the 3600-3800 MHz band currently available in Romania and harmonized at European level is the one presented in Annex 3 of Decision ECC/DEC/(11)06 (2014 edition) and in Chapter III section 2.5/2.5.2 of the Public consultation document developed by ANCOM in 2017.

In the 3400-3800 MHz band, the usage rights are in force enable only the provision of national public electronic communications networks.

The current usage status of this band, following the results of the 2015 selection procedure and the subsequent transfer of usage rights, is presented below:

- a) in the 3400-3600 MHz band, two operators hold allocations, under national licences, until 31 December 2025, as follows:
 - one operator holds 2x20 MHz (four duplex adjacent channels of 2x5 MHz),
 - another operator holds 2x35 MHz (two duplex adjacent channels of 2x5 MHz – adjacent to those held by the first operator – and, separately, five more duplex adjacent channels of 2x5 MHz).
- b) in the 3600-3800 MHz band:
 - three operators hold allocations, under national licences, until 31 December 2025, as follows:
 - one operator holds 45 MHz (nine unpaired adjacent channels of 5 MHz),
 - two other operators hold 50 MHz each (each of them holds ten unpaired adjacent channels of 5 MHz).
 - government networks use 55 MHz (11 unpaired adjacent channels of 5 MHz), until 31 December 2025.

All the licences were granted for the provision of public MFCN networks and electronic communications services at national level. The licences were issued with the observance of the principles of technological neutrality as regards both the services provided and the technology used for MFCN applications.

A snapshot of the usage status is presented in the tables below:

- current licences in the 3400-3600 MHz band, with a comparative display of existing allotments are the following:

Table 10 – Licences currently in force in the 3400-3600 MHz band

HOLDER	APPLICATIONS	Spectrum amount awarded by licence	Validity term	Total spectrum held
VODAFONE	MFCN	2 x 20 MHz	31.XII.2025	2 x 20 MHz
ORANGE	MFCN	2 x 10 MHz	31.XII.2025	2 x 35 MHz
	MFCN	2 x 25 MHz	31.XII.2025	

- current licences/uses in the 3600-3800 MHz band, with a comparative display of existing allotments are the following:

Table 11 – Licences currently in force/ current uses in the 3600-3800 MHz band

HOLDER	APPLICATIONS	Spectrum amount awarded by licence	Validity term	Total spectrum held
ORANGE	MFCN	45 MHz	31.XII.2025	45 MHz
RCS&RDS	MFCN	50 MHz	31.XII.2025	50 MHz
SN Radiocomunicații	MFCN	50 MHz	31.XII.2025	50 MHz
government networks	MFCN	---	31.XII.2025	55 MHz

The status of the so far unawarded and of the currently available spectrum is presented below:

- a) in the 3400-3600 MHz band, the following (not adjacent) bands are available:
 - 2x10 MHz (two duplex adjacent channels of 2x5 MHz),
 - 2x15 MHz (three duplex adjacent channels of 2x5 MHz),
- b) in the 3600-3800 MHz band there is no spectrum available.

The tables below show a detailed status of the current frequency usage:

- the actual position of the frequency sub-bands that are currently assigned to licence holders in the 3400-3600 MHz band, including unawarded spectrum resources, is as follows:

Table 12 – Actual position of the frequency channels awarded by the licences in force in the 3400-3600 MHz band, valid until 31 December 2019

Lower half-band channel limits (MHz)	Upper half-band channel limits (MHz)	Licence holder or usage
3400-3410	----	side guard band – 10 MHz
3410-3415	3510-3515	available at national level
3415-3420	3515-3520	available at national level
3420-3425	3520-3525	VODAFONE
3425-3430	3525-3530	VODAFONE
3430-3435	3530-3535	VODAFONE
3435-3440	3535-3540	VODAFONE
3440-3445	3540-3545	ORANGE
3445-3450	3545-3550	ORANGE
3450-3455	3550-3555	available at national level
3455-3460	3555-3560	available at national level
3460-3465	3560-3565	available at national level
3465-3470	3565-3570	ORANGE
3470-3475	3570-3575	ORANGE
3475-3480	3575-3580	ORANGE
3480-3485	3580-3585	ORANGE
3485-3490	3585-3590	ORANGE
3490-3510	----	duplex gap – 20 MHz
----	3590-3600	side guard band – 10 MHz

- the actual position of the frequency sub-bands that are currently assigned to licence holders in the 3600-3800 MHz band, including the spectrum amounts held by government users is as follows:

Table 13 – Actual position of the frequency channels awarded by the licences in force in the 3600-3800 MHz band

Channel limits (MHz)	Licence holder or usage
3600-3605	ORANGE
3605-3610	ORANGE
3610-3615	ORANGE
3615-3620	ORANGE
3620-3625	ORANGE
3625-3630	ORANGE
3630-3635	ORANGE
3635-3640	ORANGE
3640-3645	ORANGE
3645-3650	government networks

3650-3655	government networks
3655-3660	government networks
3660-3665	government networks
3665-3670	government networks
3670-3675	government networks
3675-3680	government networks
3680-3685	government networks
3685-3690	government networks
3690-3695	government networks
3695-3700	government networks
3700-3705	RCS&RDS
3705-3710	RCS&RDS
3710-3715	RCS&RDS
3715-3720	RCS&RDS
3720-3725	RCS&RDS
3725-3730	RCS&RDS
3730-3735	RCS&RDS
3735-3740	RCS&RDS
3740-3745	RCS&RDS
3745-3750	RCS&RDS
3750-3755	SN Radiocomunicații
3755-3760	SN Radiocomunicații
3760-3765	SN Radiocomunicații
3765-3770	SN Radiocomunicații
3770-3775	SN Radiocomunicații
3775-3780	SN Radiocomunicații
3780-3785	SN Radiocomunicații
3785-3790	SN Radiocomunicații
3790-3795	SN Radiocomunicații
3795-3800	SN Radiocomunicații

The FDD arrangement in the 3400-3600 MHz band can be used in Romania until 31 December 2019 only.

As presented in the section below, starting from 1 January 2020 (when the new usage rights to be acquired in the band following this selection procedure will enter into force), only the TDD arrangement will be available in the 3400-3600 MHz band, (similarly to the existing one in the 3600-3800 MHz band).

Therefore, a transition period is necessary in order to ensure the switch from the FDD arrangement to the TDD one in the 3400-3600 MHz band.

In this context, ANCOM has undertaken and – from the Authority’s standpoint – has already completed the process of refarming the frequencies in the respective band, taking preliminary steps for a smooth, effective and timely transition from one channel arrangement to another, while ensuring the uninterrupted provision of services to the end-users through the networks operated in the 3400-3600 MHz band by the affected licence holders.

Therefore, the whole year 2019 is a transition period, i.e. the holders of the valid licences for the usage of frequencies in the 3400-3600 MHz band will be able to use - under the restrictive conditions in the licences amended by ANCOM as part of the above-mentioned process – the allotted frequency sub-bands in both channel arrangements, and from 1 January 2020 they are to use only frequency sub-bands in TDD arrangement, as resulted from the frequency spectrum refarming.

Therefore, the 3400-3600 MHz and 3600-3800 MHz bands will become equivalent from the point of view of the usage rules and applicable technical regulations. Therefore, they will be treated as

one in terms of radio spectrum management, including during the transition period, starting from 2019.

The spectrum amount unawarded in the 3400-3600 MHz band, to be auctioned off in the selection procedure – and resulted once the usage reorganisation has been completed in the networks of the two operators holding valid licences in the 3400-3600 MHz band – is of 90 MHz.

2.6.4. Future frequency usage in the band

The future usage of the frequencies in this band – starting from 1 January 2020 – is presented below.

In the competitive selection procedure, in order to award frequency usage rights in multiple bands (including for the frequencies still available in the 3400-3600 MHz band), for the provision of broadband electronic communications networks and services, two types of usage rights will be awarded in the 3400-3800 MHz band:

- a) six-year rights, with sub-band allotments in the unawarded portions within the 3400-3800 MHz band (the 3400-3490 MHz band, as mentioned above), from 1 January 2020 to 31 December 2025;
- b) ten-year rights, with sub-band allotments that may be situated anywhere in the 3400-3800 MHz band, from 1 January 2026 to 31 December 2035.

In accordance with the provisions of the 3400-3800 MHz Strategy and of the Position Paper, in the 3400-3800 MHz band, frequency usage rights will be awarded for the provision of public electronic communications networks at a national level. Therefore, the frequency sub-bands acquired by the participants in the selection procedure will be allotted at a national level only.

Licence holders will take due account of the fact that ANCOM will allot the sub-bands by adjacency, without providing for dedicated guard bands, these being included in the sub-bands to be awarded to license holders. Moreover, all licence holders must ensure radioelectric compatibility with the networks operating in sub-bands that are adjacent to those in their licence.

Therefore, ANCOM highlights for those who intend to participate in the selection procedure that due account should be taken of the mentions stated above when deciding the amount of spectrum, they intend to acquire in the 3400-3800 MHz frequency band.

The frequency usage licences to be awarded in the 3400-3800 MHz band following the selection procedure will contain provisions regarding:

- a) the inclusion of guard bands - within the sub-bands in the licence - as to the networks operating in adjacent bands;
- b) flexibility in the holders' management of the frequency sub-bands under their licence, i.e. within such a sub-band – with a view to setting central frequencies for channels of various bandwidth – a licence holder may derogate from the licence provisions regarding channel arrangements, on the condition that they observe the limits of the sub-bands awarded by licence;
- c) technological neutrality, the only limitation regarding the application type allowed for implementation, i.e. MFCN networks for the provision of wireless broadband electronic communications services (WBB ECS).

Regarding MFCN networks - considered in this selection procedure -, for the entire 3400-3800 MHz band, Decision ECC/DEC/(11)06 on Harmonised frequency arrangements and least restrictive technical conditions for mobile/fixed communications networks (MFCN) operating in the 3400-3800

MHz band is applicable at CEPT level, as adopted on 09 December 2011 and modified (for the second time) on 26 October 2018.

At EU level, on 08 February 2019 Commission Implementing Decision (EU) 2019/235 of 24 January 2019 on amending Decision 2008/411/EC as regards an update of relevant technical conditions applicable to the 3400-3800 MHz frequency band was published.

This new decision amends, once again, the annex to the initial decision, containing technical provisions on the usage of the above-mentioned band.

Starting from 1 January 2020, the harmonised technical conditions on the usage of the 3400-3800 MHz band are those adopted by the above-mentioned Commission Implementing Decision (EU) 2019/235.

In accordance with the provisions of the Position Paper, the channel arrangement to be used in Romania in the 3400-3800 MHz band, from 1 January 2020, is TDD arrangement.

Starting 2020, the electronic communications systems allowed to operate in the 3400-3800 MHz band will be those systems that comply with the following provisions:

- the provisions of the Position Paper regarding the channel arrangement for the respective band,
- the block edge masks (BEM) as to the respective block, set out in the Annex to the Commission Decision 2008/411/EC amended by Commission Implementing Decision 2014/276/EU and by Commission Implementing Decision (EU) 2019/235.

Any available technology in compliance with the Position Paper and with the technical conditions stipulated in the above-mentioned decisions may be used.

The TDD arrangement in the 3400-3800 MHz band consists of 5 MHz channels. Larger radio channels can also be used by joining adjacent 5 MHz channels.

The entire 3400-3800 MHz band will be available for use, the useful bandwidth of the band being up to 400 MHz (80 unpaired 5 MHz channels), since - within this frequency band - the TDD arrangement does not require a duplex gap and side guard bands as to the adjacent (lower and upper) bands, according to CEPT Decision ECC/DEC/(11)06 (2018 release) and to Commission Implementing Decision (EU) 2019/235.

The channel arrangement valid in the 3400-3800 MHz band, currently in force at European level and to enter into force in Romania from 1 January 2020 is available in Annex 1 to ECC/DEC/(11)06 (2018 release).

The channel arrangement in force in the 3400-3800 MHz band, starting from 1 January 2020, is presented in the table below:

Table 14 – Channel arrangement for the 3400-3800 MHz band, valid from 1 January 2020

Channel limits (MHz)	Destination
3400-3405	TDD channel (channel 1) – 5 MHz
3405-3410	TDD channel (channel 2) – 5 MHz
3410-3415	TDD channel (channel 3) – 5 MHz
3415-3420	TDD channel (channel 4) – 5 MHz
3420-3425	TDD channel (channel 5) – 5 MHz
3425-3430	TDD channel (channel 6) – 5 MHz
3430-3435	TDD channel (channel 7) – 5 MHz
3435-3440	TDD channel (channel 8) – 5 MHz
3440-3445	TDD channel (channel 9) – 5 MHz
3445-3450	TDD channel (channel 10) – 5 MHz

3450-3455	TDD channel (channel 11) – 5 MHz
3455-3460	TDD channel (channel 12) – 5 MHz
3460-3465	TDD channel (channel 13) – 5 MHz
3465-3470	TDD channel (channel 14) – 5 MHz
3470-3475	TDD channel (channel 15) – 5 MHz
3475-3480	TDD channel (channel 16) – 5 MHz
3480-3485	TDD channel (channel 17) – 5 MHz
3485-3490	TDD channel (channel 18) – 5 MHz
3490-3495	TDD channel (channel 19) – 5 MHz
3495-3500	TDD channel (channel 20) – 5 MHz
3500-3505	TDD channel (channel 21) – 5 MHz
3505-3510	TDD channel (channel 22) – 5 MHz
3510-3515	TDD channel (channel 23) – 5 MHz
3515-3520	TDD channel (channel 24) – 5 MHz
3520-3525	TDD channel (channel 25) – 5 MHz
3525-3530	TDD channel (channel 26) – 5 MHz
3530-3535	TDD channel (channel 27) – 5 MHz
3535-3540	TDD channel (channel 28) – 5 MHz
3540-3545	TDD channel (channel 29) – 5 MHz
3545-3550	TDD channel (channel 30) – 5 MHz
3550-3555	TDD channel (channel 31) – 5 MHz
3555-3560	TDD channel (channel 32) – 5 MHz
3560-3565	TDD channel (channel 33) – 5 MHz
3565-3570	TDD channel (channel 34) – 5 MHz
3570-3575	TDD channel (channel 35) – 5 MHz
3575-3580	TDD channel (channel 36) – 5 MHz
3580-3585	TDD channel (channel 37) – 5 MHz
3585-3590	TDD channel (channel 38) – 5 MHz
3590-3595	TDD channel (channel 39) – 5 MHz
3595-3600	TDD channel (channel 40) – 5 MHz
3600-3605	TDD channel (channel 41) – 5 MHz
3605-3610	TDD channel (channel 42) – 5 MHz
3610-3615	TDD channel (channel 43) – 5 MHz
3615-3620	TDD channel (channel 44) – 5 MHz
3620-3625	TDD channel (channel 45) – 5 MHz
3625-3630	TDD channel (channel 46) – 5 MHz
3630-3635	TDD channel (channel 47) – 5 MHz
3635-3640	TDD channel (channel 48) – 5 MHz
3640-3645	TDD channel (channel 49) – 5 MHz
3645-3650	TDD channel (channel 50) – 5 MHz
3650-3655	TDD channel (channel 51) – 5 MHz
3655-3660	TDD channel (channel 52) – 5 MHz
3660-3665	TDD channel (channel 53) – 5 MHz
3665-3670	TDD channel (channel 54) – 5 MHz
3670-3675	TDD channel (channel 55) – 5 MHz
3675-3680	TDD channel (channel 56) – 5 MHz
3680-3685	TDD channel (channel 57) – 5 MHz
3685-3690	TDD channel (channel 58) – 5 MHz
3690-3695	TDD channel (channel 59) – 5 MHz
3695-3700	TDD channel (channel 60) – 5 MHz
3700-3705	TDD channel (channel 61) – 5 MHz
3705-3710	TDD channel (channel 62) – 5 MHz
3710-3715	TDD channel (channel 63) – 5 MHz
3715-3720	TDD channel (channel 64) – 5 MHz
3720-3725	TDD channel (channel 65) – 5 MHz
3725-3730	TDD channel (channel 66) – 5 MHz
3730-3735	TDD channel (channel 67) – 5 MHz
3735-3740	TDD channel (channel 68) – 5 MHz
3740-3745	TDD channel (channel 69) – 5 MHz
3745-3750	TDD channel (channel 70) – 5 MHz

3750-3755	TDD channel (channel 71) – 5 MHz
3755-3760	TDD channel (channel 72) – 5 MHz
3760-3765	TDD channel (channel 73) – 5 MHz
3765-3770	TDD channel (channel 74) – 5 MHz
3770-3775	TDD channel (channel 75) – 5 MHz
3775-3780	TDD channel (channel 76) – 5 MHz
3780-3785	TDD channel (channel 77) – 5 MHz
3785-3790	TDD channel (channel 78) – 5 MHz
3790-3795	TDD channel (channel 79) – 5 MHz
3795-3800	TDD channel (channel 80) – 5 MHz

Since the transition process provided for 2019 does not involve the 3600-3800 MHz band, the frequency sub-bands currently allotted in this band (and presented above) will not be modified after 1 January 2020.

On the other hand, the 3400-3600 MHz, being reformed in the transition from FDD to TDD arrangement, the currently allotted sub-bands in this band will be modified after 1 January 2020, as follows:

Table 15 – Detailed allotment of radio frequency channels awarded by the licences in force in the 3400-3600 MHz band, as from 1 January 2020 until 31 December 2025

Channel limits (MHz)	Licence holder or usage
3400-3405	available, at national level
3405-3410	available, at national level
3410-3415	available, at national level
3415-3420	available, at national level
3420-3425	available, at national level
3425-3430	available, at national level
3430-3435	available, at national level
3435-3440	available, at national level
3440-3445	available, at national level
3445-3450	available, at national level
3450-3455	available, at national level
3455-3460	available, at national level
3460-3465	available, at national level
3465-3470	available, at national level
3470-3475	available, at national level
3475-3480	available, at national level
3480-3485	available, at national level
3485-3490	available, at national level
3490-3495	VODAFONE
3495-3500	VODAFONE
3500-3505	VODAFONE
3505-3510	VODAFONE
3510-3515	VODAFONE
3515-3520	VODAFONE
3520-3525	VODAFONE
3525-3530	VODAFONE
3530-3535	ORANGE
3535-3540	ORANGE
3540-3545	ORANGE
3545-3550	ORANGE
3550-3555	ORANGE
3555-3560	ORANGE
3560-3565	ORANGE
3565-3570	ORANGE
3570-3575	ORANGE

3575-3580	ORANGE
3580-3585	ORANGE
3585-3590	ORANGE
3590-3595	ORANGE
3595-3600	ORANGE

2.6.5. Other provisions regarding the 3400-3800 MHz band

At present, there are no licences containing frequency assignments for radiocommunications stations in the fixed satellite service in this frequency band in Romania.

ANCOM recognizes the primary allocation of the 3400-3800 MHz band for the fixed and for the mobile services, for MFCN networks - on the one hand - and for fixed-satellite (space-to-Earth) service on the other hand.

ANCOM issues licences for Earth stations in the fixed-satellite service (space-to-Earth) upon the grounded request of the interested entities. However, given the limited development of satellite applications on the territory of Romania (according to the data currently held by ANCOM), the Authority will act towards protecting the operation of satellite communications equipment (receiving signals from satellites in the respective band) only to the extent that:

- a) the Authority receives written complaints, in accordance with the relevant regulations in force, on harmful interference produced by MFCN networks on satellite communications equipment,
- b) the users or beneficiaries of the applications in the fixed-satellite service request the issuance of the frequency usage license for the frequency assignments of the satellite receiver equipment in the 3400-3800 MHz band (the Authority does not charge a spectrum usage fee for any reception frequencies, irrespective of the radiocommunication service where they are allocated).

There is an exclusion geographical area on the national territory, applicable to the 3400-3600 MHz band, as per the provisions of Law no. 73/2013 on special measures for the protection of military objectives within the national system of defence against ballistic rockets.

The limits of the exclusion geographic area are determined in accordance with the provisions of the *Order of the Ministry of National Defence no. M.49 of 20.V.2013*, whereas the maximum height regime allowed for constructions is determined in accordance with the *Order of the Minister of National Defence no. M50 of 20.05.2013 on the administrative-territorial units on the territory of which restrictions are applied for raising constructions, as well as the exact parameters of the maximum height regime allowed for constructions in each of the administrative-territorial units*.

The winners of the selection procedure under these Terms of Reference will operate the public electronic communications networks, for which they are to receive licences, in compliance with the provisions of Law no. 73/2013.

With a view to ensuring the coexistence of the electronic communications networks envisaged by these Terms of Reference with the special objectives provided by Law 73/2013, for protecting the operation of the above-mentioned networks, the following measures are recommended:

- a) the base stations should be installed, if possible, at over 5 km away from the reference point with the geographic coordinates (in WGS84 system): 44°04'35.853"N/24°25'06.1674"E;
- b) the subscriber terminal antennas should not be oriented, if possible, towards the reference point indicated under letter a), if terminals are situated at less than 35 km from the respective reference point;

- c) base station sector antennas should not be oriented, if possible, towards the reference point under letter a), if these base stations are situated at less than 35 km from the respective reference point; the respective base station antennas are recommended to have an elevation below or equal to -5° ;
- d) the base stations situated in the special protection area, defined in the above-mentioned law, should be placed, if possible, in areas without direct visibility towards the reference point indicated under letter a);
- e) receiver notch filters should be used for out-of-band emissions, with an attenuation of at least 50 dB, for preventing possible receiver saturation, caused by the emissions performed in the reference point under letter a) on the base stations in the special protection area defined in the above-mentioned law.

Chapter 3 – LEGAL REGIME OF THE LICENCES

3.1. Licence duration

In accordance with the provision of Article 31(1) of the Framework-Ordinance, the usage rights granted by means of selection procedures, are awarded for a maximum 10-year period. By way of exception, under the conditions set out in Article 31(2), these rights may be granted for a maximum 15-year period, if such a longer period is adequate for the electronic communication services provided, considering the pursued goal, and takes into account the duration necessary for the investment amortization.

With a view to consolidating the validity terms of the usage rights already in force²⁰ at the moment of this selection procedure, ANCOM awards the usage rights under these Terms of Reference for the validity periods presented below:

Table 16 – Frequency spectrum available and duration/validity period of the licences to be awarded

Frequency band	Available spectrum	Bandwidth	Validity period
700 MHz	703-733 MHz/758-788 MHz: • 2 x 30 MHz FDD	60 MHz FDD	01.01.2021 – 31.12.2035
	738-753 MHz: • 1 x 15 MHz SDL	15 MHz SDL	01.01.2021 – 31.12.2035
800 MHz	791-796 MHz/832-837 MHz: • 2 x 5 MHz FDD	10 MHz FDD	01.01.2020 – 31.12.2029
1500 MHz	1452-1492 MHz: • 1 x 40 MHz SDL	40 MHz SDL	01.01.2020 – 31.12.2034
2600 MHz	2530-2570 MHz/2650-2690 MHz: • 2 x 40 MHz FDD	80 MHz FDD	01.01.2020 – 31.12. 2029
3400-3600 MHz	3400-3490 MHz TDD • 90 MHz TDD	90 MHz TDD	01.01.2020 – 31.12.2025
3400-3800 MHz	3400-3800 MHz TDD • 400 MHz TDD	400 MHz TDD	01.01.2026 – 31.12.2035

²⁰ Usage rights awarded by the selection procedures organised in 2012, respectively in 2015.

3.2. Rights conferred by the licences

The holders of the licences to be awarded through the selection procedure will have the right to use the radio frequencies for providing wireless publicly available electronic communications services.

Licence holders will have the right to use any available technology, if such usage does not breach the obligations regarding the observance of certain technical and operational conditions set out under Section 3.3.3 herein.

The holders will have the obligation to exercise their rights arising from the licence under such conditions as to ensure the effective, rational and efficient use of the radio frequencies, and to avoid harmful interferences.

3.3. Obligations

3.3.1. Coverage obligations

3.3.1.1. Obligations attached to the usage rights for frequencies below 1 GHz

Holders of the rights to use frequencies below 1 GHz (in the 700 MHz and/or 800 MHz band/s) have the obligation to ensure coverage with mobile services as follows:

- a) For the existing operators that hold public electronic communications networks (2G, 3G or 4G):
 - (i) uninterrupted coverage with voice services of all the inhabited areas within housing districts, along national and county roads and railways, including coverage achieved by means of the existing networks, from 31 December 2022 at the latest.
For ensuring uninterrupted coverage with voice services, operators may conclude roaming agreements, while notifying the stations for which an agreement has been concluded; the coverage achieved in this way is taken into account in verifying the fulfilment of the coverage obligations;
 - (ii) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 2 Mbit/s and 95% probability of indoor reception, of areas inhabited by at least 95% of the population, by way of their own wireless access network, including the coverage achieved by means of the existing networks, from 31 December 2022 at the latest;
 - (iii) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 30 Mbit/s and 95% probability of indoor reception, of areas inhabited by at least 80% of the population, by way of their own wireless access network, including the coverage achieved by means of the existing networks, from 31 December 2023 at the latest;
 - (iv) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 100 Mbit/s and 95% probability of indoor reception, of all municipalities and cities with more than 10000 inhabitants, by way of their own wireless access network, including the coverage achieved by means of the existing networks, from 31 December 2025;
 - (v) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 100 Mbit/s and 95% probability of indoor reception, of all international airports (according to TEN-T²¹ in force), by way of their own wireless access network, including the coverage achieved by means of the existing networks, from 31 December 2025; the holder has the obligation to ensure, upon request, machine-type communications as well.
 - (vi) coverage with machine-type communications of maritime ports (according to TEN-T) from 31 December 2025;

²¹ https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/maps_upload/annexes/annex1/Annex%20I%20-%20VOL%2020.pdf

- (vii) uninterrupted coverage, all along the highways, expressways and modernized railways completed on the adoption date of the *5G for Romania* Strategy, according to the MPGT²² and TEN-T²³ in force, and along the European transport corridors, with a downlink data transfer speed of at least 100 Mbit/s, 95% probability of reception and a latency of less than 10 ms, by way of their own wireless access network, including the coverage achieved by means of the existing networks, from 31 December 2025;
- (viii) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 50 Mbit/s and 95% probability of reception, of all national roads and main railway routes, by way of their own wireless access network, including the coverage achieved by means of the existing networks, from 31 December 2026.

b) For new entrants (if applicable):

- (i) uninterrupted coverage with voice services of all the inhabited areas within housing districts, along national and county roads and railways, from 31 December 2027 at the latest.
For ensuring uninterrupted coverage with voice services, operators may conclude roaming agreements, while notifying the stations for which an agreement has been concluded; the coverage achieved in this way is taken into account in verifying the fulfilment of the coverage obligations;
- (ii) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 2 Mbps and 95% probability of indoor reception, of areas inhabited by at least 80% of the population, by way of their own wireless access network, from 31 December 2027;
- (iii) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 30 Mbit/s and 95% probability of indoor reception, of areas inhabited by at least 25% of the population from 31 December 2025 and by at least 50% of the population from 31 December 2027, by way of their own wireless access network;
- (iv) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 100 Mbit/s and 95% probability of indoor reception, of all international airports, by way of their own wireless access network, from 31 December 2027; the holder has the obligation to ensure, upon request, machine-type communications as well.
- (v) coverage with machine-type communications of maritime ports (according to TEN-T) from 31 December 2027;
- (vi) uninterrupted coverage, all along the highways, expressways and modernized railways completed on the adoption date of the *5G for Romania* Strategy, according to the MPGT and TEN-T in force, and along the European transport corridors, with a downlink data transfer speed of at least 100 Mbit/s, 95% probability of reception and a latency of less than 10 ms, by way of their own wireless access network, from 31 December 2027;

²² General Transport Master Plan of Romania, <http://mt.gov.ro/web14/strategia-in-transporturi/master-plan-general-transport/documente-master-plan1/1379-master-planul-general-de-transport>

²³ https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/maps_upload/annexes/annex1/Annex%20I%20-%20VOL%2020.pdf

- (vii) coverage with broadband mobile communications services, with a downlink data transfer speed of at least 50 Mbit/s and 95% probability of reception, of all national roads and main railway routes, by way of their own wireless access network, from 31 December 2029.

3.3.1.2. Obligations attached to the usage rights for frequencies in the 3400-3800 MHz band

All the holders of frequency usage licences in the 3400-3800 MHz band have the following deployment obligations:

A. The winners of the selection procedure acquiring short-term usage rights (2020-2025) in the 3400-3600 MHz band (and holding usage rights in the 3400-3800 MHz band prior to the selection procedure), will have their licenses in force modified following the selection procedure, to include - in addition to the existing deployment obligations – the obligation to install a certain number of base stations, as follows:

- a)** 250 base stations in operation, installed anywhere on the national territory, within five years and six months from the entry into force of the licence.

B. The winners of the selection procedure acquiring short-term usage rights (2020-2025) in the 3400-3600 MHz band (and holding no usage rights in the 3400-3800 MHz band prior to the selection procedure) - following the selection procedure - will be issued licences providing the obligation to install a certain number of base stations, as follows:

- a)** 25 base stations in operation, installed anywhere on the national territory, within one year from the entry into force of the licence,
- b)** 50 base stations in operation, installed anywhere on the national territory, within two years from the entry into force of the licence,
- c)** 100 base stations in operation, installed anywhere on the national territory, within four years from the entry into force of the licence,
- d)** 250 base stations in operation, installed anywhere on the national territory, within five years from the entry into force of the licence.

C. The winners of the selection procedure acquiring long-term usage rights (2026-2035) in the 3400-3800 MHz band (and holding usage rights in the 3400-3800 MHz band prior to the selection procedure, or acquiring short-term usage rights in the selection procedure) - following the selection procedure - will be issued licences providing the obligation to install a certain number of base stations, as follows:

- a)** 400 base stations in operation, installed anywhere on the national territory, within one year from the entry into force of the licence,
- b)** 500 base stations in operation, installed anywhere on the national territory, within two years from the entry into force of the licence,
- c)** 700 base stations in operation, installed anywhere on the national territory, within four years from the entry into force of the licence,
- d)** 800 base stations in operation, installed anywhere on the national territory, within five years from the entry into force of the licence,
- e)** 900 base stations in operation, installed anywhere on the national territory, within six years from the entry into force of the licence.

D. The winners of the selection procedure acquiring long-term usage rights (2026-2035) in the 3400-3800 MHz band (and holding no usage rights in this band prior to the selection procedure, nor acquiring short-term usage rights in the selection procedure) - following the selection procedure - will be issued licences providing the obligation to install a certain number of base stations, as follows:

- a) 50 base stations in operation, installed anywhere on the national territory, within one year from the entry into force of the licence,
- b) 100 base stations in operation, installed anywhere on the national territory, within two years from the entry into force of the licence,
- c) 300 base stations in operation, installed anywhere on the national territory, within four years from the entry into force of the licence,
- d) 400 base stations in operation, installed anywhere on the national territory, within five years from the entry into force of the licence,
- e) 600 base stations in operation, installed anywhere on the national territory, within seven years from the entry into force of the licence,
- f) 800 base stations in operation, installed anywhere on the national territory, within eight years from the entry into force of the licence,
- g) 900 base stations in operation, installed anywhere on the national territory, within nine years from the entry into force of the licence.

E. The winners of the selection procedure acquiring exclusively long-term usage rights (2020-2025) in the 3400-3800 MHz band (and holding usage rights in this band prior to the selection procedure) will be issued modified licences following the selection procedure, providing - in addition to the existing deployment obligations - the obligation to install a certain number of base stations, as follows:

- a) 250 base stations in operation, installed anywhere on the national territory, within five years and six months from the entry into force of the licence.

The deployment obligations described above are accompanied by other associated provisions, as follows:

1) The values indicated under letters **A, B, C, D** and **E** above, corroborated (where applicable) with the values under indent **5)** below - for the number of base stations installed and in operation at a certain moment - are minimum obligations incumbent on any holder of usage rights in the 3400-3800 MHz band, for the whole validity period of the usage rights, irrespective of the width of the frequency sub-band awarded through the licence issued in this frequency band.

2) For the purposes of this section, one base station is considered to be all the antennas and equipment installed in a given location and operating in the 3400-3800 MHz band, under the technical and operational conditions established by the current licence awarded (or, as the case may be, modified) in the respective band following the selection procedure, irrespective of the number of sectors installed on the base station and of the installation configuration of the sectoral antennas of the base station – may they be installed on the same pillar (or similar physical infrastructure element) or at a certain distance from each other (e.g. on the same building, including at different heights above the ground).

In the situation provided as an example, any two sectoral antennas belong to one base station if the distance between their installation points (where they are located on the same horizontal level) or between the ground projections of these points (if they are located at different heights above the ground, based on the actual installation configuration) is maximum 50 meters.

3) The minimum obligations provided in this section are deemed fulfilled if the cumulated value of all the base stations installed by the licence holder - and in operation - at the end of an implementation term, is greater than (or equal to) the relevant value for that implementation term, according to indents **A, B, C, D** or **E** above and comply also with the applicable provisions of indent **5)**, as the case may be, regardless of the total amount of radio spectrum assigned for each base station, within the frequency sub-band awarded by licence.

4) The base stations considered for the evaluation of the minimum obligations provided in this section are only those whose frequency assignments comply with the channel arrangement valid from 1 January 2020, according to the provisions of the *Position Paper*, as well as with the provisions of section 2.6.4 of these Terms of Reference.

5) For the licence holders who have been assigned by licence a frequency sub-band of less than (including) 50 MHz in the 3400-3800 MHz band, the distribution of base stations on the national territory will comply with a set of rules, as follows:

a) in the situations provided under **C.a)** and **D.d)**, by the respective deadlines, there will be installed (within the administrative territory of the localities mentioned below), all of the following:

- i)** 45 base stations in operation in Bucharest,
- ii)** 7 base stations in operation in the localities within Table 17,
- iii)** 2 base stations in operation in the localities within Table 18,
- iv)** 1 base station in operation in the localities within Table 19;

b) in the situations provided under **C.d)** and **D.f)**, by the respective deadlines, there will be installed (within the administrative territory of the localities mentioned below), all of the following:

- i)** 90 base stations in operation in Bucharest,
- ii)** 15 base stations in operation in the localities within Table 17,
- iii)** 5 base stations in operation in the localities within Table 18,
- iv)** 2 base stations in operation in the localities within Table 19;

c) for the base stations to be considered in the assessment of compliance with the deployment obligations under indents **a)** and **b)**, as well as with the obligations under indents **6** and **7**, they will be installed anywhere on the administrative territory of the respective localities (within built-up areas or within the incorporated area outside built-up areas).

Table 17 (mentioned at indents **5.a.ii)** and **5.b.ii)** above)

No.	Locality category	Locality name	County (code)
1	municipality	Pitesti	AG
2	municipality	Arad	AR
3	municipality	Bacau	BC
4	municipality	Oradea	BH
5	municipality	Brasov	BV
6	municipality	Braila	BR
7	municipality	Cluj-Napoca	CJ
8	municipality	Constanta	CT
9	municipality	Craiova	DJ
10	municipality	Galati	GL
11	municipality	Iasi	IS
12	municipality	Ploiesti	PH
13	municipality	Sibiu	SB
14	municipality	Timisoara	TM

Table 18 (mentioned at indents **5.a.iii)** and **5.b.iii)** above)

No.	Locality category	Locality name	County (code)
1	municipality	Alba Iulia	AB
2	municipality	Bistrita	BN

3	municipality	Botosani	BT
4	municipality	Buzau	BZ
5	municipality	Resita	CS
6	municipality	Calarasi	CL
7	municipality	Sfantu Gheorghe	CV
8	municipality	Targoviate	DB
9	municipality	Giurgiu	GR
10	municipality	Targu Jiu	GJ
11	municipality	Deva	HD
12	municipality	Hunedoara	HD
13	municipality	Baia Mare	MM
14	municipality	Drobeta-Turnu Severin	MH
15	municipality	Targu Mures	MS
16	municipality	Piatra-Neamt	NT
17	municipality	Roman	NT
18	municipality	Slatina	OT
19	municipality	Satu Mare	SM
20	municipality	Zalau	SJ
21	municipality	Suceava	SV
22	municipality	Tulcea	TL
23	municipality	Vaslui	VS
24	municipality	Barlad	VS
25	municipality	Ramnicu Valcea	VL
26	municipality	Focsani	VN

Table 19 (mentioned at indents **5.a.iv**) and **5.b.iv**) above)

No.	Locality category	Locality name	County (code)
1	municipality	Campulung	AG
2	municipality	Curtea de Arges	AG
3	town	Mioveni	AG
4	municipality	Onesti	BC
5	municipality	Fagaras	BV
6	municipality	Ramnicu Sarat	BZ
7	municipality	Dej	CJ
8	municipality	Turda	CJ
9	municipality	Mangalia	CT
10	municipality	Medgidia	CT
11	town	Navodari	CT
12	municipality	Tecuci	GL
13	municipality	Miercurea-Ciuc	HR
14	municipality	Odorheiu Secuiesc	HR
15	municipality	Petrosani	HD
16	municipality	Lupeni	HD
17	municipality	Pascani	IS
18	municipality	Slobozia	IL
19	town	Voluntari	IF
20	municipality	Sighetu Marmatiei	MM
21	municipality	Sighisoara	MS
22	municipality	Caracal	OT
23	municipality	Campina	PH
24	municipality	Medias	SB
25	municipality	Alexandria	TR

26	municipality	Rosiori de Vede	TR
27	municipality	Turnu Magurele	TR
28	municipality	Lugoj	TM

6) Licence holders in the situation under indent **C** and concerned by the obligations under indent **5)** benefit from the following:

a) where the obligations under indents **C.a)** and **5.a)** have been fulfilled within the due term, the implementation terms provided under **C.b)**, **C.c)** and **C.d)** may be postponed by one year, if – on the above-mentioned deadline/term – all of the following will be installed (within the administrative territory of the localities mentioned below):

i) an overall number of 50 base stations in operation in various localities among those mentioned in Table 20,

ii) an overall number of 25 base stations in operation in various localities among those mentioned in Table 21;

b) where the obligations under indents **C.d)** and **5.b)** have been fulfilled within the due term (including following the fulfilment of the provisions under **6.a)**, if applicable), the implementation terms provided under **C.e)** may be postponed by one year if they hold (within the administrative territory of the localities mentioned below), all of the following:

i) an overall number of 100 base stations in operation in various localities among those mentioned in Table 20,

ii) an overall number of 50 base stations in operation in various localities among those mentioned in Table 21.

7) Licence holders in the situation under indent **D** and concerned by the obligations under indent **5)** benefit from the following:

a) where the obligations under indents **D.d)** and **5.a)** have been fulfilled within the due term, the implementation terms provided under **D.e)** and **D.f)** may be postponed by one year, if – on the above-mentioned deadline/term – all of the following will be installed (within the administrative territory of the localities mentioned below):

i) an overall number of 50 base stations in operation in various localities among those mentioned in Table 20,

ii) an overall number of 25 base stations in operation in various localities among those mentioned in Table 21;

b) where the obligations under indents **D.f)** and **5.b)** have been fulfilled within the due term (including following the fulfilment of the provisions under **7.a)**, if applicable), the implementation terms provided under **D.g)** may be postponed by one year if they hold (within the administrative territory of the localities mentioned below), all of the following:

i) an overall number of 100 base stations in operation in various localities among those mentioned in Table 20,

ii) an overall number of 50 base stations in operation in various localities among those mentioned in Table 21.

Table 20 (mentioned at indents **6.a.i)**, **6.b.i)**, **7.a.i)** and **7.b.i)** above)

No.	Locality category	Locality name	County (code)
1	municipality	Aiud	AB
2	town	Cugir	AB
3	municipality	Sebes	AB

4	town	Buhusi	BC
5	town	Comanesti	BC
6	municipality	Moinesti	BC
7	town	Marghita	BH
8	town	Salonta	BH
9	municipality	Codlea	BV
10	town	Rasnov	BV
11	municipality	Sacele	BV
12	town	Zarnesti	BV
13	municipality	Dorohoi	BT
14	town	Bocsa	CS
15	municipality	Caransebes	CS
16	municipality	Oltenita	CL
17	municipality	Campia Turzii	CJ
18	municipality	Gherla	CJ
19	town	Cernavoda	CT
20	municipality	Targu Secuiesc	CV
21	town	Gaesti	DB
22	municipality	Moreni	DB
23	municipality	Bailesti	DJ
24	municipality	Motru	GJ
25	municipality	Gheorgheni	HR
26	municipality	Orastie	HD
27	town	Petrla	HD
28	municipality	Vulcan	HD
29	municipality	Fetesti	IL
30	municipality	Urziceni	IL
31	town	Buftea	IF
32	town	Pantelimon	IF
33	town	Popesti-Leordeni	IF
34	town	Borsa	MM
35	town	Viseu de Sus	MM
36	municipality	Reghin	MS
37	municipality	Tarnaveni	MS
38	town	Targu-Neamt	NT
39	town	Bals	OT
40	town	Corabia	OT
41	town	Mizil	PH
42	municipality	Carei	SM
43	town	Cisnadie	SB
44	municipality	Campulung Moldovenesc	SV
45	municipality	Falticeni	SV
46	municipality	Radauti	SV
47	municipality	Vatra Dornei	SV
48	town	Zimnicea	TR
49	municipality	Husi	VS
50	municipality	Dragasani	VL

Table 21 (mentioned at indents **6.a.ii)**, **6.b.ii)**, **7.a.ii)** and **7.b.ii)** above)

No.	Locality category	Locality name	County (code)
--	municipality	all the municipalities in Romania (excluding the county capital) that are not included in	--

		Tables 17, 18, 19 and 20.	
--	town	all the tables in Romania that are not included in Tables 19 and 20.	--

8) As far as flexibility is concerned, licence holders may replace certain localities in a table by other localities in another table, in order to fulfil their obligations, while observing a set of rules, as follows:

a) localities in Table 17 are not replaceable;

b) any replacement will result in increasing the number of base stations to be installed, according to indents **5**, **6** and **7**, in the locality envisaged by the licence holder, thus: the localities in Table 21 may replace localities in Table 20, the localities in Tables 20 or 21 may replace localities in Table 19, while localities in Table 19 may replace localities in Table 18;

c) concerning the types of localities that may be replaced by one another, the following rules will apply:

- i)** a town may replace another town,
- ii)** a municipality may replace another municipality,
- iii)** a municipality that is a county capital can be replaced only by another county capital;

d) concerning the number of possible replacements, the following rules will apply:

- i)** maximum 20 % of all the localities in Table 19 may be replaced by localities in Table 20,
 - ii)** maximum 10 % of all the localities in Table 19 may be replaced by localities in Table 21,
 - iii)** maximum 50 % of all the localities in Table 20 may be replaced by localities in Table 21,
- keeping in mind that, for each instance, the actual value will be determined by rounding up to the nearest integer;

e) any replacement will be notified to the Authority, once with the notifications sent regarding the frequency assignments of the base stations operating in the 3400-3800 MHz band, when an operator takes such a decision.

9) Concerning the localities, the following clarifications apply:

a) the list of localities in Romania and their type (municipality, town, commune, village, localities within the territory of towns, localities within the territory of municipalities) is the one provided by Law no. 2/1968 on the administrative organisation of the territory of Romania, with the subsequent amendments and completions;

b) for the purposes of the assessment of compliance with the obligations under indents **5a)** and **5b)**, with the deployment obligations under indents **6** and **7**, localities are deemed the following:

- i)** municipalities (including the localities that are part of them and, as applicable, the subordinated villages),
- ii)** towns (including the localities that are part of them and, as applicable, the subordinated villages),
- iii)** communes (with all the subordinated villages).

3.3.2. Requirements concerning the provision of emergency communications

Considering the Government Emergency Ordinance no. 34/2008 regarding the organization and functioning of the single national system for emergency calls, approved, with amendments and completions, by Law no. 160/2008, the holders of licences to be granted following this selection procedure will have the obligation to negotiate in good faith and conclude national roaming

agreements on access to the single number for emergency calls 112 and to the single number for messages associated to emergency calls 113 with the other holders of frequency usage licences for the provision of mobile public electronic communications networks and publicly available electronic communications services. These agreements will be concluded within a maximum of 2 months from the date of entry into force of the licences and will be valid throughout the licence validity period.

Considering the Government Emergency Ordinance no. 46/2019 regarding the operation of the system for warning the population in emergency situations "RO-ALERT", the holders of frequency usage licences have the obligation to connect their mobile public networks with the RO-ALERT System.

Failure to comply with the obligations referred to in the preceding paragraphs is subject to the rules established in the above-mentioned normative acts.

Where PPDR²⁴ radio communications are provided on a contractual basis - a relationship established between the provider/providers and the beneficiary/beneficiaries of the services - a series of specific technical requirements that lead to ensuring an adequate quality of the service provided become applicable. Thus, when PPDR services are provided by public providers of electronic communications networks and services, on a contractual basis (the parties have agreed on their objectives), a set of specific technical obligations apply, in order to ensure the adequate quality of the service provided.

Therefore, with a view to providing PPDR services, when a contractual basis has been established, the holder/holders of frequency usage rights acquired following this procedure will also pursue the fulfilment of the following requirements in relationship with the designated integrator of PPDR communications and services:

- a) implementation within the network of the possibility to provide service classes and network access for the national PPDR communications integrator;
- b) the possibility to ensure, and granting priority to, the services destined for the beneficiary of the national PPDR communications integrator. Priority is understood as the service feature that enables the prioritization of a user, application, traffic flow, or individual packet over the rest of the operator's customers, in setting up a data session and processing the respective session;
- c) the possibility to ensure pre-emption in the provision of PPDR services. Pre-emption is understood as the service feature that enables priority allocation of communication resources to the respective service beneficiaries, even if - during periods of network congestion - this allocation of resources is may be also performed by closing active sessions for other operator's customers.

A more detailed technical description is provided in the 3GPP Technical Specifications (TS):

- TS 22.280 Mission Critical Services Common Requirements;
 - TS 23.379 Mission Critical Push To Talk call control; Protocol Specifications;
 - TS 23.281 Functional architecture and information flows to support Mission Critical Video (MCVideo);
 - TS 23.282 Functional architecture and information flows to support Mission Critical Data (MCData).
- d) the possibility of providing services for PPDR communications beneficiaries, under national roaming conditions, upon the negotiation in good faith and following the

²⁴ PPDR – comunicații radio pentru protecție publică și intervenție la dezastre (Conform Recomandării CE nr. 2003/558/CE (notificată prin documentul nr. C(2003)2657).

conclusion of national roaming agreements with other holders of frequency usage licenses for the provision of mobile public electronic communications networks.

“National roaming” – is the possibility granted to a subscriber to use a mobile handset or other mobile electronic communications device on the territory of Romania when he/she is outside the coverage area of the subscriber’s network, due to the conclusion of agreements between the network operator to which he/she subscribes and the other mobile network operators in Romania.

“National roaming agreement” – is an access agreement whereby another holder of a frequency usage licence for the provision of public mobile electronic communications networks and publicly available services makes available facilities or services required for providing electronic communications services at mobile locations outside the geographical area covered by one’s own network.

3.3.3. Obligations of compliance with certain technical and operational requirements

3.3.3.1. General requirements

The holders of frequency usage licences have the obligation to observe, during the entire validity of the usage rights, the requirements of the regulations in force regarding the limitation of the effects of the electromagnetic fields generated by electronic communications networks, according to the law²⁵. When installing their own equipment, the holders of frequency usage licences will take into account compliance with the limits established according to the regulations in force, as well as the reference to a value of the cumulated electromagnetic field determined according to the recommendations of the Electronic Communications Committee of the European Conference of Postal and Telecommunications Administrations.

The holders of frequency usage licenses have the obligation to ensure compliance with the security requirements of the networks and services, throughout the duration of the usage rights.

To ensure the cyber security requirements, the rights holders have the obligation to carry out, annually, a security audit of the networks and services. The audit is performed by an independent auditor and includes, in case of non-compliance, a plan of measures designed to correct non-conformities. Subsequently, the audit report is submitted to ANCOM for the approval of this report and of the proposed measures plan. The rights holders will respond to requests for information sent by ANCOM for an accurate understanding of the content and conclusions of the audit report.

3.3.3.2. Technical conditions for frequency usage in the 700 MHz band

- a) Concerning the frequencies in the 700 MHz band, the provisions of the latest versions of the following EC decisions, and CEPT/ECC decisions, recommendations and reports will apply:
 - Commission Implementing Decision 2016/687/EU on the harmonisation of the 694-790 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services and for flexible national use in the Union;
 - Decision ECC/DEC/(15)01: Harmonized technical conditions for mobile/fixed communications networks (MFCN) in the band 694-790 MHz including a paired

²⁵ At the moment of drawing up these Terms of Reference, the applicable limits in force are those set by Order of the Minister of Public Health no.1193/2006 approving the Rules on limiting the exposure of population to electromagnetic fields ranging from 0Hz to 300GHz, which may be subsequently amended and/or completed.

channelling arrangement (2x30 MHz FDD) and an unpaired channelling arrangement (supplementary downlink), approved on 6 March 2015;

- Report CEPT 53: Report A from CEPT to the European Commission in response the EC Mandate “to develop harmonised technical conditions for the 694-790 MHz ('700 MHz') frequency band in the Union for the provision of wireless broadband and other uses in support of EU spectrum policy objectives”, approved on 28 November 2014 by ECC;
- Report CEPT 60: Report B from CEPT to the European Commission in response the EC Mandate “to develop harmonised technical conditions for the 694-790 MHz ('700 MHz') frequency band in the Union for the provision of wireless broadband and other uses in support of EU spectrum policy objectives”, approved on 1 March 2016 by ECC;
- Report CEPT 29: Report from CEPT to the European Commission in response to the Mandate on “Technical considerations regarding harmonisation options for the digital dividend in the European Union” - “Guideline on cross border coordination issues between mobile services in one country and broadcasting services in another country” (Adoption of methodology) (Final report of 26 June 2009).
- Recommendation ECC/REC/(15)01: Cross-border coordination for mobile/fixed communications networks (MFCN) in the frequency bands: 1452-1492 MHz, 3400-3600 MHz and 3600-3800 MHz (approved on 13 February 2015, amended on 5 February 2016).

The above-mentioned documents may be amended or updated. Furthermore, similar regulations may be adopted to influence the technical usage conditions.

- b) The 703-733 MHz and 758-788 MHz sub-bands will be used in frequency division duplex mode (FDD) in the 700 MHz band. The 703-733 MHz sub-band will be used for terminal station emission (downlink), while the 758-788 MHz sub-band will be used for base station emission (uplink);
 - c) The duplex spacing in the 700 MHz band is 55 MHz;
 - d) The 738-753 MHz sub-band will be used exclusively for SDL (base station emission only);
 - e) Terrestrial systems allowed to use the 703-733 MHz/758-788 MHz band and respectively the 738-753 MHz band are systems that comply with Commission Implementing Decision (EU) 2016/687;
 - f) The main systems and applications that could use the 700 MHz band at the moment of this selection procedure are the following: LTE and NR²⁶ with non-active antenna systems, LTE-MTC²⁷ and LTE-eMTC²⁸ in this band, IB-NB-IoT²⁹ and GB-NB-IoT³⁰;
 - g) Channel bandwidth:
 - for LTE systems: 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz;
 - for LTE-MTC, NB-IoT³¹ systems: 180 kHz;
 - for LTE-eMTC systems: minimum 180 kHz, maximum 1080 kHz;
 - for NR systems: 5 MHz, 10 MHz, 15 MHz, 20 MHz.
- Operation mode of IoT systems:
- LTE-MTC, LTE-eMTC: in-block, within LTE carrier;
 - NB-IoT: in-block, in the guard band³².
- h) Block edge masks for base stations and respectively for terminal stations are defined in Annexes B and C of Commission Implementing Decision (EU) 2016/687;

²⁶ NR – New Radio

²⁷ LTE-MTC - LTE Machine Type Communications

²⁸ LTE-eMTC - LTE evolved Machine Type Communications

²⁹ IB-NB-IoT - In-band NB-IoT

³⁰ GB-NB-IoT - Guard-band NB-IoT

³¹ NB-IoT - Narrowband IoT

³² “Guard band” – shall not be read as an actual guard band, but is applicable in the case of NB-IoT used in frequencies at the edge of a wideband carrier (LTE channel), where the block edge mask complies with the out-of-block requirements.

- i) The maximum value of the average equivalent isotropic radiated power (EIRP) for a base station within the 5 MHz block awarded to a licence holder cannot exceed 64 dBm/5 MHz/antenna, where EIRP is the total radiated power in all directions, at one point, irrespective of the base station configuration;
- j) The out-of-block requirements for a base station to be observed by a licence holder are defined by out-of-block BEM specified in tables 22 - 26:

Table 22 – Basic requirements – Limits of the average EIRP for a base station, out-of-block (out-of-block BEM for a base station)

Out-of-block emissions frequency range	Protected block bandwidth	Maximum value of the average EIRP, out-of-block	(reference) bandwidth
Frequencies below 694 MHz	8 MHz	-23 dBm per cell ⁽¹⁾	8 MHz
698-736 MHz (uplink frequencies in the 698-736 MHz range)	≥5 MHz	-50 dBm per cell ⁽¹⁾	5 MHz
	3 MHz	-52 dBm per cell ⁽¹⁾	3 MHz
	≤3 MHz	-64 dBm per cell ⁽¹⁾	200 kHz
738-791 MHz (downlink frequencies in the 738-791 MHz range)	≥5 MHz	16 dBm per antenna	5 MHz
	3 MHz	14 dBm per antenna	3 MHz
	<3 MHz	2 dBm per antenna	200 kHz
791-821 MHz (downlink FDD frequencies defined in Decision 2010/267/EU)	≥5 MHz	16 dBm per antenna	5 MHz
832-862 MHz (uplink FDD frequencies defined in Decision 2010/267/EU)	≥5 MHz	-49 dBm per cell ⁽¹⁾	5 MHz

⁽¹⁾ in a multi-sector site, the per-"cell" value will be the value for one sector.

Table 23 – Transition requirements – Limits of the average EIRP for a base station, out-of-block, in the 733-788 MHz range (out-of-block BEM for a base station, in the 733-788 MHz range)

Out-of-block emissions frequency range	Maximum value of the average EIRP, out-of-block	(reference) bandwidth
from -10 to -5 MHz as to the lower block edge	18 dBm per antenna	5 MHz
from -5 MHz to 0 MHz as to the lower block edge	22 dBm per antenna	5 MHz
from 0 to +5 MHz as to the upper block edge	22 dBm per antenna	5 MHz
from +5 to +10 MHz as to the upper block edge	18 dBm per antenna	5 MHz

Table 24 – Transition requirements –EIRP limits for a base station, out-of-block, above 788 MHz (out-of-block BEM for a base station above 788 MHz)

Out-of-block emissions frequency range	Maximum value of the average EIRP, out-of-block	(reference) bandwidth
788-791 MHz for a block with the upper edge at 788 MHz	21 dBm per antenna	3 MHz
788-791 MHz for a block with the upper edge at 783 MHz	16 dBm per antenna	3 MHz
788-791 MHz for a block with the upper edge at 788 MHz, for protecting systems with a bandwidth <3 MHz	11 dBm per antenna	200 kHz
788-791 MHz for a block with the upper edge at 783 MHz, for protecting systems with a bandwidth <3 MHz	4 dBm per antenna	200 kHz
791-796 MHz for a block with the upper edge at 788 MHz	19 dBm per antenna	5 MHz
791-796 MHz for a block with the upper edge at 783 MHz	17 dBm per antenna	5 MHz
796-801 MHz for a block with the upper edge at 788 MHz	17 dBm per antenna	5 MHz

Transition requirements are defined for the transition portion of the frequency spectrum, respectively frequencies between 0 and 10 MHz below the lower limit of the block awarded to an operator and frequencies between 0 and 10 MHz above the upper limit of the block awarded to an operator. Where the transition spectrum and the frequencies used for FDD uplink, PPDR uplink or M2M uplink overlap, the power limits defined by the transition requirements will not apply.

Table 25 – Requirements concerning EIRP limits for a base station, out-of-block, in portions of the duplex spacing not used for SDL, PPDR or M2M

Out-of-block emissions frequency range	Maximum value of the average EIRP, out-of-block	(reference) bandwidth
from -10 to -5 MHz as to the lower edge of the downlink FDD band or as to the lower edge of the block used exclusively for downlink that is situated lowest in the respective frequency range, yet above the upper edge of the uplink FDD band	16 dBm per antenna	5 MHz
over 10 MHz as to the lower edge of the downlink FDD band or as to the lower edge of the block used exclusively for downlink that is situated lowest in the respective frequency range, yet above the upper edge of the uplink FDD band	-4 dBm per antenna	5 MHz

Where the transition spectrum and the frequencies not used SDL, PPDR or M2M uplink overlap, the power limits defined by the transition requirements will apply.

Table 26 – Requirements concerning EIRP limits for a base station, out-of-block, in portions of the guard bands not used for PPDR or M2M

Out-of-block emissions frequency range	Maximum value of the average EIRP, out-of-block	(reference) bandwidth
Frequencies between the lower edge of the 700 MHz band and the lower edge of the uplink FDD band (i.e. 694-703 MHz)	-32 dBm per cell ⁽¹⁾	1 MHz
Frequencies between the lower edge of the downlink FDD band and the lower edge of the downlink FDD band as defined in Decision 2010/267/EU (i.e. 788-791 MHz)	14 dBm per cell	3 MHz

Where the transition portion of the spectrum and a guard band overlap, the power limits defined in the transition requirements will apply. Where the spectrum is used for PPDR or M2M radiocommunications, the power limits defined in the basic requirements or in the transition requirements will apply.

Frequency usage rights holders may also use BEM technical parameters that are less restrictive than those specified in Tables 22-26, if an agreement thereon has been concluded between the operators or administrations involved, where these parameters comply with the applicable technical conditions for the protection of other services or applications, including those in the adjacent bands or those which are subject to cross-border obligations.

- k) BEM Requirements for terminal stations are presented in tables 27-30. Power limits are set as EIRP for terminal stations designed to be mounted or installed and as total radiated power (TRP)³³ for terminal stations designed to be mobile or nomadic.

Table 27 – In-block emission requirements for terminal stations – in-block power limits, for terminal stations

Maximum value of the in-block average power	23 dBm ⁽²⁾
⁽²⁾ This value has a maximum tolerance of up to + 2 dB, to take into account operation in extreme weather conditions and manufacturing standard deviation.	

Table 28 – Out-of-block emission requirements for terminal stations – out-of-band power limits, for terminal stations, for the guard band 694-703 MHz

³³ TRP – Total Radiated Power is a measure of how much power is actually radiated by an antenna. TRP is defined as the sum of all power radiated by an antenna over all possible angles.

Out-of-block emissions frequency range	Maximum value of the average EIRP, out-of-block	(reference) bandwidth
694-698 MHz	- 7 dBm	4 MHz
698-703 MHz	2 dBm	5 MHz

Table 29 – Out-of-block emission requirements for terminal stations – out-of-block power limits, for terminal stations, for the duplex gap

Out-of-block emissions frequency range	Maximum value of the average EIRP, out-of-block	(reference) bandwidth
733-738 MHz	2 dBm	5 MHz
738-753 MHz	- 6 dBm	5 MHz
753-758 MHz	- 18 dBm	5 MHz

Table 30 – Out-of-block emission requirements for terminal stations – power limits for terminal stations, for the frequencies below 694 MHz used for terrestrial broadcasting (unwanted emissions)

Out-of-block emissions frequency range	Maximum value of the average EIRP, out-of-block	(reference) bandwidth
470-694 MHz	- 42 dBm	8 MHz

- l) Separation between the channel limits situated at the edge of adjacent blocks in the 703-733 MHz/758-788 MHz bands:
- Separation between the channel limits situated at the edge of adjacent blocks used by two networks ("A" and "B") operated by different licence holders – depending on the technologies used – will be ensured according to the rules specified below, unless otherwise agreed by the licence holders involved:
 - (i) Separation between block edge channel limits:

	A	B	C
1	Network "B"	Network "A"	
2		LTE, NR without an active antenna system (AAS)	GB-NB-IoT
3	LTE, NR without AAS	0 kHz	200 kHz
4	GB-NB-IoT	200 kHz	200 kHz

- (ii) When the GB-NB-IoT technology is used, the obligation to ensure a 200 kHz bandwidth for separation between the limits of frequency channels situated at the edge of adjacent blocks belonging to different licence holders is incumbent on the holder using the GB-NB-IoT system.
- (iii) Where two different holders using adjacent frequency blocks implement GB-NB-IoT systems, each of the two frequency usage rights holders will ensure the 200 kHz bandwidth for separation between the limits of frequency channels situated at the edge of adjacent blocks, unless otherwise agreed by the rights holders involved.

- (iv) Where any of the rights holders using adjacent frequency blocks implements systems with AAS, the holder using AAS has the obligation to coordinate with the holder of the adjacent block and to ensure separation between the limits of frequency channels situated at the edge of adjacent blocks, unless otherwise agreed by the frequency usage rights holders involved.
 - (v) In defining the frequency band necessary for separating the channels at the edge of adjacent blocks, the values of the nominal spacing between adjacent channels used for the systems specified under item g) shall be considered, unless otherwise agreed by the frequency usage rights holders involved.
 - (vi) Where harmful interference occurs, the network configuration will be coordinated by the operators involved and/or mitigation techniques will be applied.
 - (vii) For reducing or avoiding harmful interference, in addition to the provisions of item l) of this section, the frequency usage rights holders involved have the obligation to coordinate and mutually agree on amending the technical characteristics of the stations concerned, irrespective of which one was the first to install a station.
- m) Based on bilateral or multilateral agreements concluded between the frequency usage rights holders in the 700 MHz frequency band, and upon the agreement of all the parties involved, the rights holders may diverge from the technical requirements provided in this section, excepting those under item n), and may also use other applications than those mentioned under items f) and g) in this section (such as NR and LTE with AAS). In such cases, frequency usage rights holders will have to comply with the requirements for the protection of other services, applications and networks, to observe the technical conditions resulting from cross-border coordination and to tolerate any interference that may occur in the modified usage conditions.
- n) A frequency block usage rights holder cannot diverge from the following frequency usage conditions:
- the operation mode defined under items b) and d) within this section;
 - the frequency band usage mode for the uplink and for the downlink defined under items b) and d) within this section;
 - the duplex spacing defined under item c) within this section.

3.3.3.3. Technical conditions on the usage of the 800 MHz band

- a) The provisions of the following EC decisions, CEPT/ECC decisions, recommendations and reports apply with regard to the use of frequencies in the 800 MHz band:
- European Commission Decision 2010/267/EU on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union;
 - ECC/DEC/(09)03: Harmonised conditions for mobile/fixed communications networks (MFCN) operating in the 790-862 MHz band;
 - CEPT Report 030: The identification of common and minimal (least restrictive) technical conditions for 790-862 MHz for the digital dividend in the European Union;
 - CEPT Report 031: Frequency (channelling) arrangements for the 790-862 MHz band;
 - CEPT Report 019: Least restrictive technical conditions for WAPECS frequency bands;
 - ECC/REC/(11)04: Frequency planning and frequency coordination for terrestrial systems for Mobile/Fixed Communication Networks (MFCN) capable of providing electronic communications services in the frequency band 790-862 MHz (amended on 3 February 2017);
 - CEPT Report 29 on Technical considerations regarding harmonisation options for the Digital Dividend in the European Union - "Guideline on cross border coordination issues

between mobile services in one country and broadcasting services in another country” (of 26 June 2009).

The aforementioned documents may be subject to amendments or new versions. As well, further similar documents may be adopted and influence the technical usage conditions.

- b) The operation mode in the 800 MHz band will be Frequency Division Duplex (FDD). The 791-821 MHz band will be used for the base station transmission (downlink), and the 832-862 MHz band will be used for the terminal station transmission (uplink);
- c) the duplex spacing in the 800 MHz band is 41 MHz;
- d) the terrestrial systems which may be deployed in the 791-796 MHz/832-837 MHz sub-bands of the 800 MHz band are those compliant with Decision 2010/267/EU;
- e) the channel bandwidth will be:
 - 5 MHz, for UMTS systems;
 - 1,4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz, for LTE systems;
 - 5 MHz, 10 MHz, 15 MHz, 20 MHz, for NR systems;
- f) the block edge mask for a 5 MHz block in the 790-862 MHz band is defined in the Annex to Decision 2010/267/EU and in ECC/DEC(09)03 (Annex 3);
- g) the maximum average EIRP value for a base station within a 5 MHz block awarded to a licence holder will not exceed 64 dBm/5 MHz;
- h) out-of-band emission requirements for a base station, a holder must comply with, are defined by the out-of-block block edge masks (out-of-block BEM) specified in Tables 31 - 33.

Table 31 – Basic requirements – Limits of the average EIRP, out-of-block, for a base station (out-of-block BEM, for a base station)

Out-of-block emissions frequency range	Maximum value of the out-of-block average EIRP	(reference) bandwidth
832 – 862 MHz (frequencies used for uplink FDD)	-49.5 dBm	5 MHz

Table 32 – Transition requirements – Out-of-block EIRP limits for a base station, per antenna⁽¹⁾, for the down FDD in the 791-821 MHz band (out-of-block BEM, for a base station, in the 791-862 MHz band)

Out-of-block emissions frequency range	Maximum value of the out-of-block average EIRP	(reference) bandwidth
from -10 to -5 MHz as to the lower block edge	18 dBm	5 MHz

from -5 MHz to 0 MHz as to the lower block edge	22 dBm	5 MHz
from 0 to +5 MHz as to the upper block edge	22 dBm	5 MHz
from +5 to +10 MHz as to the upper block edge	18 dBm	5 MHz
the remaining downlink FDD frequencies	11 dBm	1 MHz

⁽¹⁾ for 1 – 4 antenna/s

Table 33 – Transition requirements – Out-of-block EIRP limits for a base station, per antenna (for 1 – 4 antenna/s), in the frequencies used as guard bands (out-of-block BEM for a base station in the 790-791 MHz and 821-832 MHz bands, when used as guard bands)

Out-of-block emissions frequency range	Maximum value of the out-of-block average EIRP	(reference) bandwidth
the guard band between 790 MHz and 791 MHz	17.4 dBm	1 MHz
the guard band between FDD bands 821-832 MHz	15 dBm	1 MHz

i) the BEM requirements for terminal stations are presented in Table 34.

Table 34 – In-block emission requirements, for a terminal station – in-block power limits, for a terminal station, in the uplink FDD band

Maximum value of the in-block average power	23 dBm ⁽²⁾
⁽²⁾ This power limit is set as EIRP for terminal stations designed to be mounted or installed and as total radiated power (TRP) for terminal stations designed to be mobile or nomadic. EIRP are TRP are equivalent for isotropic antennas. This value has a maximum tolerance of up to + 2 dB, to take into account operation in extreme weather conditions and manufacturing standard deviation.	

3.3.4.4. Technical conditions on the usage of the 1452-1492 MHz band

- a) The provisions of the following EC decisions, CEPT/ECC decisions, recommendations and reports apply with regard to the use of frequencies in the 1452-1492 MHz band:
- Commission Implementing Decision (EU) 2015/750 on the harmonisation of the 1452-1492 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Union, amended by Commission Implementing Decision (EU) 2018/661;
 - Decision ECC (13)03 on the harmonised use of the frequency band 1452-1492 MHz for Mobile/Fixed Communications Networks Supplemental Downlink (MFCN – SDL), approved on 8 November 2013, amended on 2 March 2018 (ECC/DEC/(13)03);

- ECC Report 202: Out-of-Band emission limits for Mobile/Fixed Communication Networks (MFCN) Supplemental Downlink (SDL) operating in the 1452-1492 MHz band (September 2013);
- ECC Report 227: Compatibility Studies for Mobile/Fixed Communication Networks (MFCN) Supplemental Downlink (SDL) operating in the 1452-1492 MHz band (approved in January 2015);
- ECC Report 269: Least restrictive technical conditions for Mobile/Fixed Communications Networks in 1427-1518 MHz (approved on 17 November 2017, corrected on 2 March 2018);
- CEPT Report 54 – Report from CEPT to the European Commission in response to the Mandate “To develop harmonised technical conditions in the 1452-1492 MHz frequency band for wireless broadband electronic communications services in the EU” (approved on 28 November 2014 by the ECC);
- ECC Report 295 – Guidance on Cross-border coordination between MFCN and Aeronautical Telemetry Systems in the 1429-1518 MHz band, approved on 8 March 2019;
- ECC Recommendation (15)01 ECC Recommendation of 13 February 2015 on cross-border coordination for mobile/fixed communications networks (MFCN) in the frequency bands: 694-790 MHz, 1452-1492 MHz, 3400-3600 MHz and 3600-3800 MHz (adopted on 13 February 2015, amended on 5 February 2016) (ECC/REC/(15)01).

The aforementioned documents may be subject to amendments or new versions. As well, further similar documents may be adopted and influence the technical usage conditions.

- b) The operation mode of the 1452-1492 MHz band is exclusively SDL (limited to base station emission);
- c) the terrestrial systems which may be deployed in the 1452-1492 MHz band are those compliant with Commission Implementing Decision (EU) 2015/750, amended by Commission Implementing Decision (EU) 2018/661;
- d) the channel bandwidth will be:
 - 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz, for LTE systems;
 - 5 MHz, 10 MHz, 15 MHz, 20 MHz, for NR systems.
- e) The block edge mask (BEM) for a base station is defined in the annex of Commission Implementing Decision (EU) 2018/661 amending decision (UE) 2015/750; The base station emission must comply with the harmonized technical conditions on block edge masks contained in Section B of the Annex to the Commission Implementing Decision 2015/750/EU amended by Commission Implementing Decision (EU) 2018/661
- f) The maximum average EIRP value for a base station within a 5 MHz block awarded to a licence holder will not exceed 68 dBm/5 MHz; this limit may be higher in special cases, e.g. the aggregated use of frequencies in this band and frequencies in lower bands;
- g) Out-of-band emission requirements for a base station, a holder must comply with, are defined by the out-of-block block edge masks (out-of-block BEM) specified in Tables 35 and 36.

Table 35 – Limits of the out-of-block EIRP, for a base station, per antenna, in the 1452-1492 MHz band

Out-of-block emissions frequency range	Maximum value of the out-of-block average EIRP	(reference) bandwidth
from -10 to -5 MHz as to the lower block edge	11 dBm	5 MHz
from -5 MHz to 0 MHz as to the lower block edge	16.3 dBm	5 MHz
from 0 to +5 MHz as to the upper block edge	16.3 dBm	5 MHz
from +5 to +10 MHz as to the upper block edge	11 dBm	5 MHz
Frequencies in the 1452-1492 MHz band situated at a spacing wider than 10 MHz as to the lower or upper block edge	9 dBm	5 MHz

Table 36 – Limits of out-of-block EIRP, for a base station, per cell, below 1452 MHz and above 1492 MHz, for base stations operating in the 1452-1492 MHz band

Out-of-block emissions frequency range	Maximum value of the out-of-block average EIRP	(reference) bandwidth
below 1449 MHz	-20 dBm	1 MHz
1449 - 1452 MHz	14 dBm	3 MHz
1492 - 1495 MHz	14 dBm	3 MHz
above 1495 MHz	-20 dBm	1 MHz

- h) Holders of frequency usage rights in the 1452-1492 MHz band may use technical parameters that are less restrictive than those under item g) within this section, where the operators or the administrations involved have agreed thereon, on the condition that the respective parameters comply with the technical requirements for the protection of services or applications in the adjacent bands or subject to cross-border obligations.

3.3.3.5. Technical conditions on the usage of the 2600 MHz band

- a) The provisions of the following EC decisions, CEPT/ECC decisions, recommendations and reports apply with regard to the use of the 2600 MHz band:
- Commission Decision 2008/477/EC on the harmonisation of the 2500-2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community, adopted on 13 June 2008;

- Decision ECC/DEC/(05)05: Harmonised utilization of spectrum for Mobile/Fixed Communications Networks (MFCN) operating in the 2500-2690 MHz band (approved on 18 March 2005, amended on 3 July 2015);
- ECC Report 045: Sharing and adjacent band compatibility between UMTS/IMT-2000 in the band 2500-2690 MHz and other services (February 2004);
- ECC Report 119: Coexistence between mobile systems in the 2.6 GHz frequency band at the FDD/TDD boundary (June 2008);
- CEPT Report 019: Report from CEPT to the European Commission in response to EC Mandate "to develop least restrictive technical conditions for frequency bands addressed in the context of WAPECS" (approved on December 2007, reviewed in October 2008).
- Recommendation ECC/REC/(11)05 on cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 2500-2690 MHz (approved on 26 May 2011, amended on 3 February 2017).

The aforementioned documents may be subject to amendments or reviews. As well, further similar documents may be adopted and influence the technical usage conditions.

- b) The operation mode in the 2600 MHz will be:
- Frequency division duplex (FDD) in the paired 2500-2570/2620-2690 MHz bands. The 2620-2690 MHz sub-band will be used for base station emission (downlink), while the 2500-2570 MHz sub-band will be used for terminal station emission (uplink).
- c) The duplex spacing for the FDD mode: 120 MHz;
- d) The main systems and applications that are representative for the usage of the 2600 MHz band at the moment of organising this selection procedure are the following: UMTS, LTE, LTE-MTC, LTE-eMTC, NB-IoT, NR.
- e) the channel bandwidth will be:
- 5 MHz, for UMTS systems;
 - 5 MHz, 10 MHz, 15 MHz, 20 MHz, for LTE systems;
 - 180 kHz, for LTE-MTC, NB-IoT systems;
 - minimum 180 kHz, maximum 1080 kHz, for LTE-eMTC systems;
 - 5 MHz, 10 MHz, 15 MHz, 20 MHz, for NR systems;

The operation mode for IoT systems:

- LTE-MTC, LTE-eMTC: in-block, within LTE carrier;
 - NB-IoT: in-block, in the guard band³⁴;
- f) Terrestrial systems that can use the sub-bands 2530-2570 MHz/2650-2690 MHz are systems that observe the Commission Decision 2008/477/EC;
- g) Terrestrial systems to be used in the 2600 MHz band must comply with the relevant BEM requirements in the Annex to Decision 2008/477/EC, in the absence of bilateral or multilateral agreements between the licence holders in adjacent blocks. Less restrictive technical parameters may be used where an agreement has been concluded thereon by the licence holders in the respective blocks;

³⁴ "Guard band" – shall not be read as an actual guard band, but is applicable in the case of NB-IoT used in frequencies at the edge of a wideband carrier (LTE channel), where the block edge mask complies with the out-of-block requirements.

- h) The block edge mask (BEM) for a 5 MHz block in the 2620-2690 MHz band is defined by two types of usage conditions:
- BEM that are not restricted for the base station: maximum in-block EIRP = 61 dBm/5MHz;
 - BEM restricted for the base station: maximum in-block EIRP = 25 dBm/5MHz.

Regarding the usage of the FDD sub-band 2650-2690 MHz (downlink), the conditions for unrestricted blocks will apply to all FDD blocks (E1 – E8);

- i) The BEM for an unrestricted frequency block results from combining the power limit conditions in the tables under items j) and k) (Tables 37 and 38) so that the limit for each frequency should be given by the highest value among the basic requirement values and block-specific values.
- j) The maximum average EIRP value for a base station within a 5 MHz block awarded to a licence holder will not exceed 61 dBm/5 MHz; this limit may be increased to 68 dBm/5 MHz in special usage cases, e.g. in sparsely populated areas, on the condition that this usage should not considerably increase the risk of blocking the terminal's receiver;
- k) Out-of-block emission requirements for a base station, a holder of usage rights in the 2650-2690 MHz sub-band must comply with, are defined by the unrestricted out-of-block BEM specified in Tables 37 and 38:

Table 37 – Basic requirements – Out-of-block EIRP limits, for a base station (out-of-block BEM, for a base station)

Out-of-block emissions frequency range	Maximum value of the out-of-block average EIRP	(reference) bandwidth
Downlink FDD frequencies and frequencies situated within a +/- 5 MHz interval outside the downlink FDD blocks	+4 dBm/MHz	1 MHz
Frequencies in the 2500-2690 MHz band that are not covered by the definition above	-45 dBm/MHz	1 MHz

Table 38 – Transition requirements – Out-of-block EIRP limits, for a base station

Out-of-block emissions frequency range	Maximum value of the out-of-block average EIRP
from the edge of the band (2500 MHz) to -5 MHz as to the lower block edge	Basic requirements level
from -5 MHz to -1 MHz as to the lower block edge	+4 dBm/MHz
from 1 MHz to -0.2 MHz as to the lower block edge	+ 3 +15($\Delta_f + 0,2$) dBm/30 kHz
from -0.2 MHz to 0 MHz as to the lower block edge	+ 3 dBm/30 kHz

from 0 to +0.2 MHz as to the upper block edge	+ 2 dBm/30 kHz
from +0.2 to + 1 MHz as to the upper block edge	+ 3 – 15($\Delta_F - 0,2$) dBm/30 kHz
from +1 to + 5 MHz (as to the upper block edge)	+ 4 dBm/MHz
from +5 MHz (as to the upper block edge) to the band limit (2690 MHz)	Basic requirements level
where: Δ_F is the frequency spacing as to the relevant block edge (MHz)	

l) BEM requirements for terminal stations are presented in Table 39.

Table 39 – Emission requirements for the terminal station – in-block power limits, for the terminal station

	Maximum value of the in-block average power (including the tuning range of transmitter power (ATPC))
Total radiated power (TRP)	31 dBm/5 MHz
Equivalent isotropic radiated power (EIRP)	35 dBm/5 MHz
NB: EIRP should be used for fixed or mounted terminal stations, while TRP should be used for mobile or nomadic terminal stations. TRP is a measure of how much power is actually radiated by an antenna. TRP is defined as the sum of all power radiated by an antenna over all possible angles.	

- m) Holders of frequency usage rights in the 2530-2570 MHz/2650-2690 MHz sub-bands may use technical parameters that are less restrictive than those under items j) and k) within this section, where the operators or the administrations involved have agreed thereon, on the condition that the respective parameters comply with the technical requirements for the protection of services or applications in the adjacent bands or subject to cross-border obligations.
- n) Equipment operating in the 2600 MHz band may use, as well, different power limits than those set within this section, on the condition of applying adequate mitigation techniques, that observe Directive 1999/5/EC and that ensure a protection level at least equivalent to that envisaged by these technical parameters.
- o) Where harmful interference occurs, in addition to the provisions of items j), k), l), the licence holders involved have the obligation to coordinate and to apply mutually agreed mitigation techniques by amending the technical characteristics of the stations concerned, irrespective of which one was the first to install a station.
- p) Based on bilateral or multilateral agreements concluded between the frequency usage rights holders in the 2600 MHz band, and upon the agreement of all the parties involved, the rights holders may use further applications than those mentioned under items d) and e) within this section (such as NR and LTE with AAS) diverge from the main applications and technical requirements provided in this section, excepting the operation mode defined under items b) and c). In such cases, frequency usage rights holders will have to comply with the requirements for the protection of other services, applications and networks, to observe the technical conditions resulting from cross-border coordination and to tolerate any interference that may occur in the modified usage conditions.

3.3.3.6. Technical conditions on the usage of the 3400-3800 MHz band

The provisions of the following EC decisions, CEPT/ECC decisions, recommendations and reports apply with regard to the use of the 3400-3800 MHz band:

- Decision 2008/411/EC of 21 May 2008 on the harmonisation of the 3400 - 3800 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community, amended by Commission Implementing Decision 2014/276/EU and by Commission Implementing Decision (EU) 2019/235;
- CEPT Decision ECC/DEC/(11)06 on Harmonised frequency arrangements and least restrictive technical conditions (LRTC) for mobile/fixed communications networks (MFCN) operating in the band 3400-3800 MHz, adopted on 09 December 2011 and modified on 14 March 2014 and 26 October 2018;
- CEPT Recommendation ECC/REC/(15)01 on Cross-border coordination for mobile/fixed communications networks (MFCN) in the frequency bands: 694-790 MHz, 1452-1492 MHz, 3400-3600 MHz and 3600-3800 MHz (approved on 13 February 2015, amended on 5 February 2016).
- CEPT report 67 containing the CEPT response to the EC Mandate to develop harmonised technical conditions for spectrum use in support of the introduction of next-generation (5G) terrestrial wireless systems in the Union, the section on the examination of harmonized technical conditions for the 3400-3800 MHz band;
- ECC Report 296, aimed at providing options for the national regulatory framework on synchronizing in the 3400-3800 MHz band (a toolbox for administrations regarding the coexistence of MFCNs in synchronised, unsynchronised and semi-synchronised operation in 3400-3800 MHz band);
- ECC Report 281 on the Analysis of the suitability of the regulatory technical conditions for 5G MFCN operation in the 3400-3800 MHz band;
- ECC Report 278 on Specific UWB applications in the bands 3.4-4.8 GHz and 6.0-8.5 GHz.
- ECC Report 254 on operational guidelines for sharing radio frequencies with a view to support the current ECC implementation framework in the 3600-3800 MHz band;
- ECC Report 100 on compatibility studies in the 3400-3800 MHz between broadband wireless systems and other radiocommunications services.

The aforementioned regulations may be subject to amendments or reviews. As well, further documents with a similar status may be adopted and influence the technical usage conditions in the 3400-3800 MHz band. Moreover, some of the above-mentioned regulations are not relevant as a whole for the scope of these Terms of Reference.

Within this section, the technical provisions regarding the channel arrangement available in the 3400-3800 MHz band will apply, as mentioned in section 2.6.4 of these Terms of Reference.

Both in the frequency sub-bands for which a licence has been issued, and outside these sub-bands (i.e. beyond the limits of the frequency blocks at the two ends of the allotted sub-bands), the licence holder must observe, for the base station transmission and for the subscriber's terminal station, in the 3400-3800 MHz band, the block edge mask (BEM) described in subsections 3.3.3.6.1 and 3.3.3.6.2.

Holders of frequency usage rights may use technical parameters that are less restrictive than those under subsection 3.3.3.6.1, where they have concluded bilateral or multilateral agreements thereon, including in the case of adjacent frequency blocks awarded to different holders. The conclusion of such bilateral or multilateral agreements and the content of the respective agreements will be notified to the Authority.

For the purposes of this section, the following definitions apply:

a) active antenna system (AAS) - a base station and an antenna system where the amplitude and/or phase between antenna elements is continually adjusted resulting in an antenna pattern that varies in response to short term changes in the radio environment.

This excludes long-term beam shaping such as fixed electrical down tilt (possible in the case of a negative elevation angle) of the main beam of an antenna, which is obtained by electrical means (not by mechanical means i.e. by physically tilting the antenna).

In AAS base stations the antenna system is integrated as part of the base station system or product.

b) *synchronised* operation - the operation of two or more different time division duplex (TDD) networks, where simultaneous uplink (UL - from the end-user terminal equipment to the base station of the network), and downlink (DL - from the base station of the network to the terminal equipment of the end user) transmissions do not occur. That is, at any given moment in time either all networks transmit in downlink or all networks transmit in uplink.

This requires the alignment of all DL and UL transmissions for all TDD networks involved as well as synchronising the beginning of the frame across all networks.

c) *unsynchronised* operation - operation of two or more different TDD networks, where at any given moment in time at least one network transmits in downlink (DL - from the base station of the network to the terminal equipment of the end user), while at least one network transmits in uplink (UL - from the end-user terminal equipment to the base station of the network).

This might happen if the TDD networks either do not align all DL and UL transmissions or do not synchronise at the beginning of the frame.

d) *semi-synchronised* operation - operation of two or more different TDD networks in a mixed mode, where part of the frame is consistent with synchronised operation, while the remaining portion of the frame is consistent with unsynchronised operation.

This requires the adoption of a frame structure for all TDD networks involved, including slots where the UL/DL direction is not specified, as well as synchronising the beginning of the frame across all networks.

e) *total radiated power* (TRP) - is a measure of how much power a composite antenna (AAS included) radiates. By definition, TRP means the integral of the power transmitted in different directions over the entire radiation sphere as shown in the formula:

$$TRP \cong \frac{1}{4\pi} \int_0^{2\pi} \int_0^{\pi} P(\theta, \varphi) \sin(\theta) d\theta d\varphi$$

where

- TRP equals the total conducted power input into the antenna array system less any losses in the antenna array system,
- $P(\theta, \varphi)$ is the power radiated by an antenna array system in direction (θ, φ) . This is given by the formula:

$$P(\theta, \varphi) = P_{Tx} g(\theta, \varphi)$$

where

- P_{Tx} denotes the conducted power (measured in Watts), which is input to the array system, and

- $g(\theta, \varphi)$ denotes the array systems directional gain along the (θ, φ) direction.

3.3.3.6.1. Technical conditions on the usage of the 3400-3800 MHz band by base stations

This section defines the block edge mask (BEM) by establishing the technical parameters for base stations, which – adequately aggregated – result in the respective mask.

BEM are an essential component of conditions necessary to ensure coexistence between networks exploited by different licence holders using adjacent frequency blocks, in the absence of bilateral or multilateral agreements between the operators of such neighbouring networks.

The BEM for a certain frequency block consists of several elements indicated in Table no. 37. The BEM is made up of an in-block element (for which a power limit is defined within the block) and the out-of-block elements – i.e. unwanted emissions such as out-of-band radiation - for which corresponding power limits are defined as follows:

- the baseline power limit, designed to protect the spectrum of other operators,
- the transitional region power limit, enabling filter roll-off from the in-block to the baseline power limit,
- the additional baseline power limit is used for protecting radiocommunications equipment that works in the frequency band below 3.4 GHz or above 3.8 GHz,
- the restricted baseline power limit, which applies only for protecting frequency blocks of other networks, in cases of unsynchronised or semi-synchronised operation (for which BEM is defined).

Table 40 – Definitions of BEM elements

BEM element	Definition
in-block	Refers to a block for which the BEM is derived.
baseline	includes the whole frequency spectrum in the 3.4-3.8 GHz band used in TDD mode by MFCN networks (i.e. networks providing wireless broadband electronic communications services – WBB ECS), except for the concerned block (assigned to the operator and for which the BEM is derived) and the corresponding transitional regions.
transitional region	the 0 - 10 MHz segment below and the 0 - 10 MHz segment above the block assigned to the operator. Note 1: Transitional regions do not apply to adjacent TDD blocks assigned to other operators, unless networks are synchronised. In such a situation, the baseline starts directly at the edge of the concerned block. Note 2: Transitional regions are not defined below 3400 MHz or above 3800 MHz.
additional baseline	spectrum below 3400 MHz and above 3800
restricted baseline	spectrum used for WBB ECS by networks unsynchronised or semi-synchronised with the operator's block in question

Explanatory note to Table 40:

The BEM elements are applicable to base stations with different power levels, typically referred to as macro, micro, pico, and femto³⁵ base stations.

To obtain the BEM for a specific block, the BEM elements defined in Table no. 40 are combined as follows:

1. The in-block power limit will be used for the specific block assigned to an operator, for which the BEM mask is derived;
2. Transitional regions are determined, and corresponding power limits are used.
3. For the rest of the spectrum actually designated for use by the MFCN networks providing WBB ECS, except for the concerned block (assigned to the operator and for which the BEM is derived) and the corresponding transitional regions, baseline power limits will be used;
4. Restricted baseline power limits corresponding to the restricted baseline will be used for frequency blocks of other MFCN networks providing WBB ECS and operating in unsynchronised or semi-synchronised mode with the respective operator's network;
5. For the spectrum situated below the 3400 MHz limit, the additional baseline power limit corresponding to the additional baseline will be used;
6. For the spectrum situated above the 3800 MHz limit, the additional baseline power limit corresponding to the additional baseline will be used.

Tables 41-45 contain the power limits corresponding to the various BEM elements.

In Tables 42 and 43, parameter P_{Max} is the maximum carrier power (dBm) for the concerned base station, defined and measured differently, based on the radiating system type - as described below:

P_{Max} is defined and measured as EIRP (effective isotropic radiated power, e.i.r.p) per carrier per antenna, for base stations with a radiating system with non-active antenna system (non-AAS).

P_{Max} is defined as maximum average power per carrier of a base station and is measured as TRP per carrier in a certain cell, for base stations with a radiating system with active antennas (AAS).

In tables 42, 43 and 46 the power limits are considered as the strictest (lowest) among two comparing requirements (limits): a limit obtained by a relative attenuation as to the maximum power per carrier, and a fixed upper limit.

Table 41 - In-block power limit

BEM element	frequency band	Power limit for non-AAS and AAS base stations
in-block range	operator's block limits	62 dBm/5 MHz per antenna

Explanatory note to Table 41:

The value in the table above is a recommended one. The value of the respective parameter will be chosen with a view to avoiding the occurrence of harmful interference and with due regard to the relevant provisions in section 2.6. and to all the provisions of subsection 3.3.3.6.1 of the Terms of Reference, to the provisions of the 3400-3800 MHz Strategy and to the regulations in force regarding the limitation of population exposure to electromagnetic fields, as well as to the obligations regarding the radio frequency usage in border areas.

³⁵ These terms are not uniquely defined and refer to cellular base stations with different power levels, which decrease in the following order: macro, micro, pico, femto. In particular, femto cells are small base stations with the lowest power levels, which are typically used indoors.

For femto base stations, the radiated power control will be applied, to minimise interference with adjacent channels. The requirement regarding power control for the femto base stations is triggered by the necessity to reduce interference with the equipment the consumers may use and which, therefore, may not be coordinated with the neighbouring networks.

Table 42 – Power limits in baseline ranges, where the networks operate in synchronised mode

BEM element	frequency band	Power limit
base range	In the 3400-3800 MHz band, the segment lower than -10 MHz below the lower limit of the block concerned	EIRP (for non-AAS): min ($P_{Max}-43$, 13) dBm / 5 MHz per antenna
	In the 3400-3800 MHz band, the segment higher than 10 MHz above the higher limit of the block concerned	TRP (for AAS): min ($P_{Max}-43$, 1) dBm / 5 MHz per cell *
* For a multi-sector base cell, the TRP limit is applied individually, per sector.		

Explanatory note to table 42:

Fixed comparison level – i.e. 13 dBm/5 MHz for non-AAS or 1 dBm/5 MHz for AAS – ensure an upper limit for harmful interference generated by a base station. When two TDD blocks are synchronised, no interference will occur between base stations.

Table 43 - Transitional region power limits, for networks operating in synchronised mode

BEM element	Frequency band	Power limit
transitional region	the 0 to 5 MHz segment below the lower limit of the concerned block	EIRP (for non-AAS): min ($P_{Max}-40$, 21) dBm / 5 MHz per antenna
	the 0 to 5 MHz block above the upper limit of the concerned block	TRP (for AAS): min ($P_{Max}-40$, 16) dBm / 5 MHz per cell *
transitional region	the 10 to 5 MHz segment below the lower limit of the concerned block	EIRP (for non-AAS): min ($P_{Max}-43$, 15) dBm / 5 MHz per antenna
	the -10 to -5 MHz segment above the upper limit of the concerned block	TRP (for AAS): min ($P_{Max}-43$, 12) dBm / 5 MHz per cell *
* For a multi-sector base station, the TRP limit is applied individually, per sector.		

Table 44 – Restricted baseline power limits, for networks operating in unsynchronised or semi-synchronised mode

BEM element	Frequency band	Power limit
restricted baseline	For the 3400-3800 MHz band, unsynchronised or semi-synchronised blocks below the lower limit of the concerned block	EIRP (for non-AAS)*: -34 dBm / 5 MHz per cell **
	For the 3400-3800 MHz, unsynchronised or semi-synchronised blocks above the upper limit of the concerned block	TRP (for AAS): -43 dBm / 5 MHz per cell **
* Where there is no risk of harmful interference on macro base stations, operators of femto base stations in adjacent channels may negotiate an exception for this value of the baseline power limit. In such cases, the value -25 dBm / 5 MHz (EIRP per cell) may be used.		
** For a multi-sector base station, the TRP limit is applied individually, per sector.		

Explanatory note to Table 44:

These restricted baseline power limits are used for operation in unsynchronised or semi-synchronised mode of base stations in different networks, if geographical separation is not possible.

Table 45 – Additional baseline power limits (for protecting radiocommunications systems below 3400 MHz)

BEM element	Frequency band	Power limit
additional baseline	below 3380 MHz	EIRP (for non-AAS): -50 dBm/MHz per antenna TRP (for AAS): -52 dBm / MHz per cell *
* For a multi-sector base station, the TRP limit is applied individually, per sector.		

Explanatory note to Table no. 45

The additional baseline power limits indicated in table no. 45 will apply only to outdoor cells.

Table 46 – Additional baseline power limit (for protecting radiocommunications systems above 3800 MHz)

BEM element	Frequency band	Power limit
additional baseline range	3800 – 3805 MHz	EIRP (for non-AAS): min ($P_{Max}-40, 21$) dBm / 5 MHz per antenna TRP (for AAS): min ($P_{Max}-40, 16$) dBm / 5 MHz per cell *
additional baseline	3805 – 3810 MHz	EIRP (for non-AAS):

		min ($P_{Max}-43, 15$) dBm / 5 MHz per antenna TRP (for AAS): min ($P_{Max}-43, 12$) dBm / 5 MHz per cell*
additional baseline	3810 – 3840 MHz	EIRP (for non-AAS): min ($P_{Max}-43, 13$) dBm / 5 MHz per antenna TRP (for AAS): min ($P_{Max}-43, 1$) dBm / 5 MHz per cell *
additional baseline	above 3840 MHz	EIRP (for non-AAS): -2 dBm / 5 MHz per antenna TRP (for AAS): -14 dBm / 5 MHz per cell *
* For a multi-sector base station, the TRP limit is applied individually, per sector.		

Explanatory note to Table 46:

The additional reference power limits in table no. 46 are indicated for information purposes only and will apply only upon the Authority’s request, if the case arises.

3.3.3.6.2. Technical conditions for the use of the 3400 – 3800 MHz band by terminal stations

This section defines the in-block power limit for the terminal station, according to Table 44.

Table 47 – In-block power limit

BEM element	Frequency band	Power limit
in-block range	operator’s block limits	maximum 25 dBm *
* This power limit is expressed as EIRP for the terminal stations designed as fixed or installed and as total radiated power (TRP) for terminal stations designed as mobile or nomadic. EIRP and TRP are equivalent for isotropic antennas. This value includes a tolerance (of up to 2 dB), defined in the harmonised standards, to take into account operation under extreme weather conditions and production dispersion.		

Explanatory note to table no. 47:

The value in the table is recommended only. This value will be adjusted accordingly, on a case-by case basis, if harmful interference occurs or to ensure compliance with the relevant provisions of sections 2.6., and with all the provisions of section 3.3.3.6.2. of the Terms of Reference, of the 3400-3800 MHz Strategy, and of the Position Paper, with the regulations in force on limiting human exposure to electromagnetic fields, as well as with the obligations regarding frequency usage in border areas.

3.3.3.7. Technical conditions on frequency usage in border areas

In border areas, licence holder will use the assigned frequency blocks upon coordination with the communications administrations of the neighbouring countries, with due regard to the requirements arising from the application of international agreements in which Romania is a party or from the applicable international regulations regarding frequency coordination.

Future agreements or subsequent amendments of the existing agreements may complete or replace some of the provisions under section 3.3.3.7 and of its subsections.

Where so-called "arrangements" are concluded between the operators and approved by the authorities of the neighbouring countries involved, the frequencies may be used under different conditions than those specified in the following subsections. An arrangement concluded between operators may preclude the usage of frequencies in shared bands in accordance with the provisions stipulated in the agreements concluded between Authorities.

The Authority will make available to the bidders the bilateral or multilateral agreements that are relevant for the frequency spectrum being auctioned off, in English, as PDF folders.

3.3.3.7.1. Technical conditions on the usage of the 700 MHz band in border areas

a) Coexistence between MFCN networks in border areas

- For the coexistence of MFCN networks to be operated on the territory of Romania and the MFCN networks to be operated on the territory of Hungary in the 700 MHz band, in border areas, the provisions of the following multilateral technical agreement are applicable:
 - *"Technical Agreement between the national authorities for the management of frequencies of Austria, Croatia, Hungary, Romania, The Slovak Republic and Slovenia on border coordination for terrestrial systems capable of providing electronic communications services and national options in the 700 MHz frequency band, concluded in Budapest, on 15 February 2018".*
- A similar bilateral technical agreement will be concluded with the Republic of Moldova;
- Where no bilateral agreements were concluded with the neighbouring countries, the provisions of No. 5.312A and 5.317A of Art. 5 of ITU RR and the relevant provisions of ECC Recommendation ECC/REC/(15)01 on Cross-border coordination for mobile/fixed communications networks (MFCN) in the frequency bands: 694-790 MHz, 1452-1492 MHz, 3400-3600 MHz and 3600-3800 MHz (approved on 13 February 2015, amended on 5 February 2016) will apply.

b) Protection of aeronautical radionavigation systems:

As previously shown in section 2.2.1.1, in accordance with Note 5.312 of Art. 5 of ITU RR, in Ukraine, the frequency band 694-790 MHz is allocated to the aeronautical radionavigation service on a primary basis.

In accordance with the provisions of 5.312A and 5.317A of Art. 5 of the ITU RR, the mobile service - except aeronautical mobile - and IMT systems can use the 694-790 MHz band in Romania, on a primary basis, subject to the agreement achieved based on 9.21 of ITU RR as regards the protection of systems in the aeronautical radionavigation service in the countries mentioned in Note 5.312, which may be affected. The criteria for identifying the affected administration according to 9.21, for the mobile service as to the aeronautical radionavigation service in the 694-

790 MHz band, are set in the Annex to Resolution 760 of ITU RR. [See Resolution 760 (WRC-15) of the above-mentioned regulation].

For the implementation of the above-mentioned regulations, on grounds of Art. 6 of ITU RR, the telecommunications administrations of Romania Ukraine have concluded the following bilateral technical arrangement:

- *"Technical arrangement on the use of the 694-790 MHz frequency band for terrestrial systems in the border areas of Romania and Ukraine, concluded in Bucharest, in October 2015";*

To ensure protection to harmful interference of the systems in Ukraine's aeronautical radionavigation service, the base stations in the land mobile service installed on the territory of Romania may operate in the conditions set by the above-mentioned agreement.

c) Compatibility with the analogue and digital television stations in the neighbouring countries

The table below contains information on the current usage of the 700 MHz band and the anticipated deadlines for the switch-off of television stations in this band, in the neighbouring countries:

Table 48

Country	Current usage	Deadline for the switch-off of television stations in the 694-790 MHz band	Note
Hungary (HNG)	digital television	5 September 2020	<p>The HNG administration has planned, in the National Roadmap issued based on the Decision (EU) 2017/899 of the European Parliament and of the Council, to grant frequency usage rights in the 700 MHz band for MFCN in 2019, with the actual usage of the band to start on 6 September 2020. http://english.nmhh.hu/document/190192/uhf_vhf_3_national_roadmap_eng.pdf</p> <p>The documentation for organising the auction with a view to awarding usage rights in several frequency bands, among which the 700 MHz band, is under public consultation on the website of the regulatory authority in HNG (NMHH).</p>
Bulgaria (BUL)	Digital television	According to the bilateral agreement concluded with the authority in Bulgaria, the deadline for switching off DTT in the 700 MHz band is 30 June 2020.	
Serbia (SRB)		According to the bilateral agreement concluded with the Authority in Serbia, the deadline for switching off DTT stations in the 700 MHz band is 30	The regulations regarding the 700 MHz band are in progress, the SRB administration planning to introduce MFCN networks in this band. One DTT station is currently in operation on the territory of Serbia in the 700 MHz band (channel 55 – 742-750 MHz).

		June 2020.	
Republic of Moldova (MDA)	Analogue television	1 March 2020	According to the "Programme regarding the transition to Digital Terrestrial Television" (annex to GD no. 240 of 08.05.2015), the 700 MHz will be used for the land mobile service.
	Digital television	no later than 30 June 2019	
Ukraine (UKR)	Analogue television	31 December 2019	The DTT transmitters in operation in the 700 MHz band and the corresponding technical parameters are presented in Table 4 of section 2.2.3.2. The Authority in Ukraine has officially informed ANCOM that the Government of Ukraine adopted a Decision on the implementation of 5G mobile communications, including in the 700 MHz band, a plan for the migration of DTT transmitters from the 700 MHz band being provided for the period 2019-2020. The deadline for the switch-off of DTT stations in the 700 MHz band has not been officially set.
	Digital television	The deadline planned for switching off DTT stations is not available yet. (*)	

(*) The Authority will notify the holders that acquire frequency usage rights in the 700 MHz band, after the selection procedure, on the DTT switch off deadline for the 700 MHz band on the territory of Ukraine.

- In the absence of bilateral agreements with the neighbouring countries, in relationship with the countries using the 700 MHz band for DTT, the applicable provisions are those of No. 5.312A and 5.317A of Art. 5 of ITU RR and the technical criteria in the CEPT Report 29 on Technical considerations regarding harmonisation options for the Digital Dividend in the European Union - "Guideline on cross border coordination issues between mobile services in one country and broadcasting services in another country" (of 26 June 2009).

3.3.3.7.2. Technical conditions on the usage of the 800 MHz band in border areas

a) Coexistence between MFCN networks in border areas

- For the coexistence of MFCN to be implemented on the territory of Romania and the MFCN networks to be deployed on the territory of Ukraine and of Serbia in the 800 MHz band, in border areas, the provisions of the following multilateral agreement will apply:
 - *"Technical Agreement between the national authorities for the management of frequencies of Austria, Croatia, Hungary, Romania, Serbia, The Slovak Republic and Slovenia on border coordination for terrestrial systems capable of providing electronic communications services in the 790-862 MHz frequency band, concluded in Budapest, on 14 February 2018".*
- A bilateral agreement similar to the above-mentioned one is to be concluded with the Republic of Moldova, as well;
- In the absence of bilateral agreements with the neighbouring countries, the applicable provisions are those of No. 5.316B and 5.317A of Art. 5 of ITU RR and, where usage is harmonised for MFCN on both sides of the border, the relevant provisions of Recommendation ECC/REC/(11)04 on cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz (amended on 3 February 2017) shall apply.

b) Protection of aeronautical radionavigation systems

As previously shown in Section 2.3.1.1, in accordance with No. 5.312 of Art. 5 in the ITU RR, the frequency band 790-862 MHz or portions thereof are allocated to the aeronautical radionavigation service on a primary basis, in Ukraine and Bulgaria.

In accordance with the provisions of No. 5.316B, the allocation to the mobile, except aeronautical mobile, service in the frequency band 790-862 MHz is subject to agreement obtained under No. 9.21 with respect to the aeronautical radionavigation service in countries mentioned in No. 5.312. According to the provisions of Resolution 749 (Rev.WRC-15), based on the criteria in Annex 1 to the resolution, administrations intending to implement mobile service in Region 1 must obtain the prior agreement under No. 9.21 of the ITU RR as to the radionavigation service in the countries mentioned in No. 5.312 of ITU RR.

Moreover, in accordance with No. 5.317A, the usage of the 790-862 MHz band allocated to the mobile service, on a primary basis, in Region 1, for the implementation of IMT systems, is subject to the provisions of Resolutions 224 (Rev.WRC-15) and 749 (Rev.WRC-15).

With a view to implementing the above-mentioned regulations, on grounds of Art. 6 of ITU RR, the telecommunications administrations of Romania and Hungary have concluded the following bilateral agreement:

- *"Technical Agreement between the telecommunications administrations of Romania and Ukraine on the coordination of the use of the 790-862 MHz frequency band by mobile radiocommunications networks with radio navigation and fixed services, concluded at Geneva in February 2012";*

With a view to ensuring Ukraine's aeronautical radionavigation systems protection from harmful interference, the base stations of the land mobile service in Romania operating in border areas must comply with the conditions in the above-mentioned arrangement.

c) Compatibility with DTT stations in the neighbouring countries

DTT in neighbouring countries

For all the countries in Region 1 of the International Telecommunication Union (ITU) participating in the Geneva 2006 Conference, the 790-862 MHz band was planned for digital terrestrial television (DTT). The Plan associated to Geneva 2006 Agreement entered into force starting from 17 June 2015.

Concerning the use of the 790-862 MHz band by the mobile service, except aeronautical mobile, respectively by IMT systems, the provisions of No. 5.316B and No. 5.317A of Art. 5 of ITU RR will apply.

Currently, all the neighbouring countries, except Ukraine, use this band for the land mobile service.

In relationship with Ukraine, in February 2012, a bilateral agreement has been concluded to ensure the protection of the mobile service in Romania from the digital terrestrial television in Ukraine:

- *"Technical Agreement between the telecommunications administrations of Romania and Ukraine on the coordination of DVB-T frequency assignments in the 470-790 MHz band and the technical criteria for the coordination of the broadcasting service in Ukraine in the 790-862 MHz band with the land mobile service in Romania, concluded in Geneva in February 2012".*

In Ukraine, channel 61 (790-798 MHz) is still used by DVB-T transmitters in Khust and Rakhiv, according to the GE-06 Plan, with the following technical characteristics:

Location	TV channel	Geographical coordinates	ASL (m)	AGL (m)	ERP max (dBW)	Polarisation	Hef max (m)	Directivity	System
KHUST	61	23°E14'33"/ 48°N13'24"	800	110	42	V	749	D	C2
RAKHIV	61	24°E12'30"	1360	100	42	V	845	ND	C2

Once with the implementation of the new DTT plan in the 470-694 MHz band, this channel will be replaced by one below 694 MHz.

3.3.3.7.3 Technical conditions on the usage of the 1500 MHz band in border areas

a) Coexistence between MFCN networks in border areas:

- Concerning the coexistence between MFCN networks to be operated on the territory of Romania with the MFCN networks to be operated on the territory of Hungary in the 1452-1492 MHz band in border areas, the provisions of the following bilateral technical agreement are applicable:
 - *"Technical Agreement between the national authorities for the management of frequencies of Austria, Croatia, Hungary, Romania, The Slovak Republic and Slovenia on border coordination for terrestrial systems capable of providing electronic communications services in the 1452-1492 MHz frequency band, concluded in Budapest, on 14 February 2018".*
- A bilateral agreement similar to the above-mentioned one is to be concluded with the Republic of Moldova, as well;
- In the absence of bilateral agreements with the neighbouring countries, the relevant provisions of Article 5 of the ITU RR (see section 2.4.1.1) and – where frequency usage is harmonised for MFCN on both sides of the border – the relevant provisions of Recommendation ECC/REC/(15)01 on cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands 694-790 MHz, 1452-1492 MHz, 3400-3600 MHz and 3600-3800 MHz (approved on 13 February 2015, amended on 5 February 2016) shall apply.

3.3.3.7.4. Technical conditions on the usage of the 2600 MHz band in border areas

a) Coexistence between MFCN networks in border areas:

- Concerning the coexistence between MFCN networks to be operated on the territory of Romania with the MFCN networks to be operated on the territory of Hungary in the 2530-2570 MHz/2650-2690 MHz bands, in border areas, the provisions of the following bilateral technical arrangement are applicable:
 - *"Technical arrangement between the national authorities for the management of frequencies of Hungary and Romania concerning the coordination in border areas for terrestrial systems capable of providing electronic communications services in the 2500-2690 MHz band, concluded in 2013".*

The above-mentioned arrangement is to be reviewed with a view to applying updated Recommendation ECC (11)05 on cross-border coordination for Mobile/Fixed

Communications Networks (MFCN) in the frequency band 2500-2690 MHz (approved on 26 May 2011, amended on 3 February 2017).

- A bilateral agreement similar to the above-mentioned one is to be concluded with the Republic of Moldova, as well.
- In the absence of bilateral or multilateral agreements with the neighbouring countries, the provisions of No. 5.384A of Article 5 of the ITU Radio Regulations and – where frequency usage is harmonised for MFCN on both sides of the border – the relevant provisions of Recommendation ECC/REC/(11)05 on cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 2500-2690 MHz (approved on 26 May 2011, amended on 3 February 2017) shall apply.

3.3.3.7.5. Technical conditions on the usage of the 3400-3800 MHz band in border areas

As previously mentioned both in the 3400-3800 MHz Strategy and in the Position Paper, currently there are no bilateral and trilateral technical arrangements regarding the preferential channelling in the 3400-3800 MHz band to be used by the operators in Romania and in the neighbouring countries that take into account of the provisions of Decisions 2014/276/EU or (EU) 2019/235.

Two of the countries neighbouring Romania are EU member states and therefore they are the only neighbours subject to the obligation to implement the provisions of Decision (EU) 2019/235.

Moldova, Serbia and Ukraine are not bound to implement the provisions of the EU Decision, however they are members of the European Conference of Postal and Telecommunications Administrations (CEPT), therefore they must take into account Decision ECC/DEC/(11)06, as amended in October 2018. Nevertheless, within CEPT, the decisions adopted by the bodies of this international organisation have a different status than those adopted at EU level.

Therefore, the three countries mentioned above have no constraints on choosing a certain channelling arrangement or on the deadline for deploying broadband MFCN systems in the 3400-3800 MHz band.

In this context, the conclusion of bilateral/multilateral agreements with the neighbouring countries on the usage of the respective frequencies in border areas proves to be a complex proceeding, with technical and operational difficulties.

The steps taken by ANCOM in this regard are ongoing, such draft agreements being under analysis and negotiation only with the authorities of Hungary and the Republic of Moldova, for the time being. Romania is considering the possibility of joining a multilateral technical agreement in the 3400-3800 MHz band already signed by several European states (including Hungary and Serbia). Hungary and Romania intend to extend the debate on this topic with the Ukrainian authorities, but discussions thereon are still at an early stage.

ANCOM takes due diligence for the conclusion of bilateral or - as the case may be - multilateral agreements in the 3400-3800 MHz band with the communications administrations of all the neighbouring countries, in due time.

ANCOM will take into account the interests of the Romanian operators in the process of elaborating the above-mentioned technical agreements and of negotiating with the countries involved. Moreover, before finalizing and concluding the aforementioned international agreements, ANCOM will invite the involved operators' views thereon.

In border areas, licence holders will use the assigned frequency sub-bands in compliance with due regard to the requirements resulting from the international agreements in which Romania is a part and from the international regulations on frequency usage coordination that are relevant for the respective sub-bands.

Thus, where no bilateral or multilateral agreements have been concluded with the neighbouring countries on the operation of MFCN networks:

- in the 3400-3600 MHz band, in border areas, the provisions of No. 5.430A of Art. 5 of ITU RR apply;
- in the 3600-3800 MHz band, in border areas, the general provisions of Art. 5 of ITU RR on the operation of radiocommunication services on a secondary basis will apply.

In both of the above-mentioned cases - where the neighbouring countries reach consensus thereon - the relevant provisions of CEPT Recommendation ECC/REC/(15)01 on Cross-border coordination for mobile/fixed communications networks (MFCN) in several frequency bands, among which: 3400-3800 MHz (amended on 5 February 2016) shall apply.

Concerning Romania's bilateral or trilateral border areas for which no relevant bilateral/multilateral technical agreements (on the use of the 3400-3800 MHz band in the respective border areas) have been concluded with the parties involved - while the respective countries have not otherwise negotiated the implementation of Recommendation ECC/REC/(15)01 -, the assigned frequency sub-bands will be used in compliance with the technical conditions for which cross-border frequency coordination is not necessary, in accordance with the relevant specifications in Recommendation ECC/REC/(15)01.

Upon the conclusion of the above-mentioned bilateral/multilateral agreements, the licence holders will do the planning for and use the assigned frequency sub-bands in the border areas of Romania within the scope of the respective agreements only in compliance with these technical agreements, which prevail over all the other provisions mentioned above.

Under the conditions of such "arrangements" concluded between operators and approved by the relevant administrations of the neighbouring countries involved, the assigned frequencies may be used under different conditions than those specified in the above-mentioned bilateral/multilateral technical agreements. Thus, under such an "arrangement" concluded between the operators on both sides of the border, frequency usage conditions may diverge from the requirements stipulated in the technical agreements concluded between the communications administrations of the respective countries.

3.4. Transfer of usage rights

The usage rights to be granted may be transferred in accordance with Article 35 of the Framework-Ordinance.

Any agreement – irrespective of the form of concluding it – by which the frequency usage rights are alienated is forbidden.

At any transfer of rights, the Authority will watch the observance of the objectives considered when those rights were initially granted. A series of limitations are to be therefore considered, as follows:

- the usage rights may be transferred to a third party, fully or partially, only upon ANCOM's prior agreement, along with the commitment to fulfilling all the accompanying obligations;
- the conditions and objectives set or envisaged in awarding the usage right/rights will be considered;
- the transfer of the usage rights must not result in competition constraints, hindering or distortion; especially, the transfer of the usage rights must not be a way for eluding the limitations regarding the gaining of the usage rights or the rules regarding the participants' independence established during the selection procedure;
- in cases where the use of radio frequencies is harmonised at the European level, the transfer of the usage rights must not lead to changing the usage destination of the frequencies that are subject to the licence in such a way as to breach this harmonised usage.

3.5. Amounts to be paid by the licence holders

The persons participating in the selection procedure organised in view of awarding the usage rights for the radio frequencies will take into consideration the following:

- the payment of the licence fee established during the competitive selection procedure under the conditions stipulated in Article 28 paragraph (2) of the Framework-Ordinance and in Government Decision no./..... establishing the minimum amounts of the licence fees for the award of frequency usage rights;
- the payment of the spectrum usage tariff collected annually in accordance with Article 30 of the Framework-Ordinance and with Decision of the president of the National Authority for Management and Regulation in Communications no. 551/2012 establishing the spectrum usage tariff, with the subsequent amendments and completions.

3.6. Monitoring and control of compliance with the obligations

With a view to ANCOM's verifying the fulfilment of the coverage obligations, the licence holder will submit a set of documents presenting the coverage of the network within maximum 10 working days from the fulfilment of each deadline established according to section 3.3.1. The documents must include at least the following:

- Notifications according to the standard format, specifying information on locations, the values of the technical parameters for all the base stations through which the coverage with voice and data services is ensured at a downlink data transfer rate of at least 2 Mbps, 30 Mbps, 50 Mbps, 100 Mbps;
- Coverage maps of voice services, considering the notified stations, for each technology, and at consolidated level, considering all the technologies used to provide the voice service;
- Coverage maps of data services at a downlink data transfer speed of at least 2 Mbps, considering the notified stations, for each technology, and at consolidated level,

- considering all the technologies used to provide the data service at a speed of at least 2 Mbps;
- Coverage maps of data services at a downlink data transfer speed of at least 30 Mbps, considering the notified stations, for each technology, and at consolidated level, considering all the technologies used to provide the data service at a speed of at least 30 Mbps;
- Coverage maps of data services at a downlink data transfer speed of at least 50 Mbps, considering the notified stations, for each technology, and at consolidated level, considering all the technologies used to provide the data service at a speed of at least 50 Mbps;
- Coverage maps of data services at a downlink data transfer speed of at least 100 Mbps, considering the notified stations, for each technology, and at consolidated level, considering all the technologies used to provide the data service at a speed of at least 100 Mbps;
- Explanatory note on the manner of fulfilling the obligations, the total coverage percentage, respectively the coverage percentage for each locality/road, per coverage obligation, pointing out the calculation method and the technical parameters considered in achieving the coverage;
- Data regarding the equipment used in the measurements, the software and the maps used for prediction, the settings of the propagation model, the technologies used in achieving the coverage with voice/data services and other variables that could influence the final results.

Moreover, upon the Authority's request, the holder must provide, within 30 calendar days, a written report regarding the stage of fulfilment of the coverage obligations, the coverage with services achieved at national level, respectively specific reports regarding localities or areas where the Authority is notified of the lack or poor quality of the services provided.

The verification methodology will be established by ANCOM, and the holder will provide, upon the Authority's request, the SIM cards necessary for access to the network and will provide a test server to prevent any limitations regarding delays, speed, etc.

The measurement methodology will be prepared in accordance with the applicable IMT standards and international practice.

In principle, the coverage will be verified by simulations and/or measurements at a fixed location or in drive-test sessions, performed with a view to validating the provided coverage maps and/or the simulations performed.

For performing the measurements in drive-test sessions, an assembly consisting of one or more universal analysers of radio networks (scanners) controlled by a computer running a dedicated software, reception antennas mounted outside the vehicle, GPS, etc., will be used.

For checking the transfer speed, the Netograf computer platform and/or a computer (running a dedicated software) with a data modem that allows a data transfer at a higher speed than the one to be measured, and a GPS, will be used.

3.7. Licence amendment and revoking

The licences for the use of radio frequencies awarded through the selection procedure may be amended, upon ANCOM's initiative, in accordance with the provisions under Article 24(3) of the Framework-Ordinance, in the following situations:

- to meet the requirements regarding the effective, rational and efficient use of the radio frequencies;
- to avoid harmful interferences;
- to implement the European harmonisation and international cooperation objectives regarding the use of radio spectrum;
- to observe the international agreements regarding the use of radio spectrum, in which Romania is a party;
- with a view to settling the situations of limited availability of the spectrum resources, in certain geographic areas and under specified technical conditions, in the radio frequency bands designated for the type of application destined to the provision of the network subject to the licence;
- for implementing the strategy on the development of electronic communications and management of the radio frequency spectrum;
- the NTFA has been amended.

Where one of the situations above occurs, ANCOM will notify the holder of the usage rights regarding the amendments to be made and will grant a term for the implementation of these amendments, a term that is proportionate to the qualitative or quantitative nature of the necessary amendments.

Moreover, ANCOM will also amend the licences for the use of the radio frequencies due to the occurrence of any of the circumstances below:

- transfer of the rights;
- partial waiver of the rights
- partial withdrawal of the rights, as the case may be, under the provisions of Article 27, Article 147 indent b) corroborated with Article 141(1) or of Article 148 of the Framework-Ordinance.

ANCOM may revoke the licences awarded through the selection procedure in the following cases:

- the total withdrawal of the frequency usage rights, in accordance with Article 27, Article 147 indent b), corroborated with Article 141(1) or of Article 148 of the Framework-Ordinance;
- revoking of the right to use radio spectrum, in accordance with Article 6(6) of the Framework-Ordinance.

Chapter 4 – THE SELECTION PROCEDURE

4.1. Available blocks and applicable restrictions

4.1.1. Description of the blocks offered during the procedure

The amount of radio spectrum and the position within the band corresponding to each licence are not fixed in advance but are the result of a two-stage competitive allocation mechanism:

- a first stage in which the participants compete for obtaining abstract frequency blocks, in one or in several bands, following which the amount of radio spectrum to be awarded to each participant will be determined (the primary rounds and, if applicable, an additional round of the auction stage, see Sections 4.7.1 and 4.7.2); and
- a second stage, at the end of which the allocation of concrete frequency blocks to the individual participants will take place, by specifically positioning within the band the abstract blocks obtained in the previous stage (the assignment round of the auction stage, see Section 4.7.3).

The abstract and the concrete frequency blocks are presented in greater detail below.

A total of 84 frequency blocks will be put out for auction, of which 83 abstract (generic blocks) and one concrete (with its position clearly specified within the band), sub-divided into 7 categories (A-G). A description of these categories, the corresponding frequency bands and the block sizes are given in the table below.

Table 49 – Description of the abstract frequency blocks available within the selection procedure

Category	Band	Block size	Number of blocks	Usage rights validity
A	703-733/758-788 MHz FDD	2 x 5 MHz	6	01.01.2021 - 31.12.2035
B	738-753 MHz SDL	1 x 5 MHz	3	01.01.2021 - 31.12.2035
C	791-821/832-862 MHz FDD	2 x 5 MHz	1	01.01.2020 - 31.12.2029
D	1452-1492 MHz SDL	1 x 5 MHz	8	01.01.2020 - 31.12.2034
E	2530-2570 /2650-2690 MHz FDD	2 x 5 MHz	8	01.01.2020 - 31.12.2029
F	3400-3490 MHz TDD	1 x 5 MHz	18	01.01.2020 - 31.12.2025
G	3400-3800 MHz TDD	1 x 10 MHz	40	01.01.2026 - 31.12.2035

The exact bandwidths and band limits of the assigned frequency blocks will be determined in the assignment round. During this round, the concrete frequency blocks (A1-A6, B1-B3, D1-D8, E1-E8, F1-F18, G1-G40, according to the table below), whose abstract allocation took place in the primary and/or additional rounds, will be assigned to each successful bidder.

Description of the frequency blocks available within the selection procedure

Table 50 - 700 MHz FDD

Frequency band	Band code	Frequency block code	Bandwidth	Frequency range from..... to..... (uplink/downlink)	Use
703-733/758-788 MHz (FDD)	A	A1	2 x 5 MHz	703.0 – 708.0 MHz/ 758.0 – 763.0 MHz	01.01.2021 - 31.12.2035
		A2	2 x 5 MHz	708.0 – 713.0 MHz/ 763.0 – 768.0 MHz	01.01.2021 - 31.12.2035
		A3	2 x 5 MHz	713.0 – 718.0 MHz/ 768.0 – 773.0 MHz	01.01.2021 - 31.12.2035
		A4	2 x 5 MHz	718.0 – 723.0 MHz/ 773.0 – 778.0 MHz	01.01.2021 - 31.12.2035
		A5	2 x 5 MHz	723.0 – 728.0 MHz/ 778.0 – 783.0 MHz	01.01.2021 - 31.12.2035
		A6	2 x 5 MHz	728.0 – 733.0 MHz/ 783.0 – 788.0 MHz	01.01.2021 - 31.12.2035

Table 51 - 700 MHz SDL

Frequency band	Band code	Frequency block code	Bandwidth	Frequency range from..... to..... (downlink)	Use
738-753 MHz (SDL)	B	B1	1 x 5 MHz	738.0 – 743.0 MHz	01.01.2021 - 31.12.2035
		B2	1 x 5 MHz	743. – 748.0 MHz	01.01.2021 - 31.12.2035
		B3	1 x 5 MHz	748.0 – 753.0 MHz	01.01.2021 - 31.12.2035

Table 52 - 800 MHz FDD

Frequency band	Band code	Frequency block code	Bandwidth	Frequency range from..... to..... (downlink/uplink)	Use
791-821/832-862 MHz (FDD)	C	C1	2 x 5 MHz	791.0 – 796.0 MHz/ 832.0 – 837.0 MHz	01.01.2020 – 31.12.2029

Table 53 - 1500 MHz SDL

Frequency band	Band code	Frequency block code	Bandwidth	Frequency range from..... to..... (downlink)	Use
1452-1492 MHz (SDL)	D	D1	1 x 5 MHz	1452 – 1457 MHz	01.01.2020 – 31.12.2034
		D2	1 x 5 MHz	1457 – 1462 MHz	01.01.2020 – 31.12.2034
		D3	1 x 5 MHz	1462 – 1467 MHz	01.01.2020 – 31.12.2034
		D4	1 x 5 MHz	1467 – 1472 MHz	01.01.2020 – 31.12.2034
		D5	1 x 5 MHz	1472 – 1477 MHz	01.01.2020 – 31.12.2034

Frequency band	Band code	Frequency block code	Bandwidth	Frequency range from..... to..... (downlink)	Use
		D6	1 x 5 MHz	1477 – 1482 MHz	01.01.2020 – 31.12.2034
		D7	1 x 5 MHz	1482 – 1487 MHz	01.01.2020 – 31.12.2034
		D8	1 x 5 MHz	1487 – 1492 MHz	01.01.2020 – 31.12.2034

Table 54 - 2600 MHz FDD

Frequency band	Band code	Frequency block code	Bandwidth	Frequency range from..... to..... (uplink / downlink)	Use
2500 – 2570 / 2620 – 2690 MHz (FDD)	E	E1	2 x 5 MHz	2530.0 – 2535.0 MHz/ 2650.0 – 2655.0 MHz	01.01.2020 – 31.12.2029
		E2	2 x 5 MHz	2535.0 – 2540.0 MHz/ 2655.0 – 2660.0 MHz	01.01.2020 – 31.12.2029
		E3	2 x 5 MHz	2540.0 – 2545.0 MHz/ 2660.0 – 2665.0 MHz	01.01.2020 – 31.12.2029
		E4	2 x 5 MHz	2545.0 – 2550.0 MHz/ 2665.0 – 2670.0 MHz	01.01.2020 – 31.12.2029
		E5	2 x 5 MHz	2550.0 – 2555.0 MHz/ 2670.0 – 2675.0 MHz	01.01.2020 – 31.12.2029
		E6	2 x 5 MHz	2555.0 – 2560.0 MHz/ 2675.0 – 2680.0 MHz	01.01.2020 – 31.12.2029
		E7	2 x 5 MHz	2560.0 – 2565.0 MHz/ 2680.0 – 2685.0 MHz	01.01.2020 – 31.12.2029
		E8	2 x 5 MHz	2565.0 – 2570.0 MHz/ 2685.0 – 2690.0 MHz	01.01.2020 – 31.12.2029

Table 55 - 3400-3600 MHz TDD (short-term usage rights)

Frequency band	Band code	Frequency block code	Bandwidth	Frequency range from..... to..... (uplink/downlink)	Use
3400-3600 MHz (TDD)	F	F01	5 MHz	3400 – 3405 MHz	01.01.2020 – 31.12.2025
		F02	5 MHz	3405 – 3410 MHz	01.01.2020 – 31.12.2025
		F03	5 MHz	3410 – 3415 MHz	01.01.2020 – 31.12.2025
		F04	5 MHz	3415 – 3420 MHz	01.01.2020 – 31.12.2025
		F05	5 MHz	3420 – 3425 MHz	01.01.2020 – 31.12.2025
		F06	5 MHz	3425 – 3430 MHz	01.01.2020 – 31.12.2025
		F07	5 MHz	3430 – 3435 MHz	01.01.2020 – 31.12.2025
		F08	5 MHz	3435 – 3440 MHz	01.01.2020 – 31.12.2025

		F09	5 MHz	3440 – 3445 MHz	01.01.2020 – 31.12.2025
		F10	5 MHz	3445 – 3450 MHz	01.01.2020 – 31.12.2025
		F11	5 MHz	3450 – 3455 MHz	01.01.2020 – 31.12.2025
		F12	5 MHz	3455 – 3460 MHz	01.01.2020 – 31.12.2025
		F13	5 MHz	3460 – 3465 MHz	01.01.2020 – 31.12.2025
		F14	5 MHz	3465 – 3470 MHz	01.01.2020 – 31.12.2025
		F15	5 MHz	3470 – 3475 MHz	01.01.2020 – 31.12.2025
		F16	5 MHz	3475 – 3480 MHz	01.01.2020 – 31.12.2025
		F17	5 MHz	3480 – 3485 MHz	01.01.2020 – 31.12.2025
		F18	5 MHz	3485 – 3490 MHz	01.01.2020 – 31.12.2025

Table 56 – 3400-3800 MHz TDD (long-term usage rights)

Frequency band	Band code	Frequency block code	Bandwidth	Frequency range from..... to..... (uplink/downlink)	Use
3400-3800 MHz (TDD)	G	G01	10 MHz	3400 – 3410 MHz	01.01.2026 – 31.12.2035
		G02	10 MHz	3410 – 3420 MHz	01.01.2026 – 31.12.2035
		G03	10 MHz	3420 – 3430 MHz	01.01.2026 – 31.12.2035
		G04	10 MHz	3430 – 3440 MHz	01.01.2026 – 31.12.2035
		G05	10 MHz	3440 – 3450 MHz	01.01.2026 – 31.12.2035
		G06	10 MHz	3450 – 3460 MHz	01.01.2026 – 31.12.2035
		G07	10 MHz	3460 – 3470 MHz	01.01.2026 – 31.12.2035
		G08	10 MHz	3470 – 3480 MHz	01.01.2026 – 31.12.2035
		G09	10 MHz	3480 – 3490 MHz	01.01.2026 – 31.12.2035
		G10	10 MHz	3490 – 3500 MHz	01.01.2026 – 31.12.2035
		G11	10 MHz	3500 – 3510 MHz	01.01.2026 – 31.12.2035
		G12	10 MHz	3510 – 3520 MHz	01.01.2026 – 31.12.2035
		G13	10 MHz	3520 – 3530 MHz	01.01.2026 – 31.12.2035
		G14	10 MHz	3530 – 3540 MHz	01.01.2026 – 31.12.2035
		G15	10 MHz	3540 – 3550 MHz	01.01.2026 – 31.12.2035

		G16	10 MHz	3550 – 3560 MHz	01.01.2026 – 31.12.2035
		G17	10 MHz	3560 – 3570 MHz	01.01.2026 – 31.12.2035
		G18	10 MHz	3570 – 3580 MHz	01.01.2026 – 31.12.2035
		G19	10 MHz	3580 – 3590 MHz	01.01.2026 – 31.12.2035
		G20	10 MHz	3590 – 3600 MHz	01.01.2026 – 31.12.2035
	G	G21	10 MHz	3600 – 3610 MHz	01.01.2026 – 31.12.2035
		G22	10 MHz	3610 – 3620 MHz	01.01.2026 – 31.12.2035
		G23	10 MHz	3620 – 3630 MHz	01.01.2026 – 31.12.2035
		G24	10 MHz	3630 – 3640 MHz	01.01.2026 – 31.12.2035
		G25	10 MHz	3640 – 3650 MHz	01.01.2026 – 31.12.2035
		G26	10 MHz	3650 – 3660 MHz	01.01.2026 – 31.12.2035
		G27	10 MHz	3660 – 3670 MHz	01.01.2026 – 31.12.2035
		G28	10 MHz	3670 – 3680 MHz	01.01.2026 – 31.12.2035
		G29	10 MHz	3680 – 3690 MHz	01.01.2026 – 31.12.2035
		G30	10 MHz	3690 – 3700 MHz	01.01.2026 – 31.12.2035
		G31	10 MHz	3700 – 3710 MHz	01.01.2026 – 31.12.2035
		G32	10 MHz	3710 – 3720 MHz	01.01.2026 – 31.12.2035
		G33	10 MHz	3720 – 3730 MHz	01.01.2026 – 31.12.2035
		G34	10 MHz	3730 – 3740 MHz	01.01.2026 – 31.12.2035
		G35	10 MHz	3740 – 3750 MHz	01.01.2026 – 31.12.2035
		G36	10 MHz	3750 – 3760 MHz	01.01.2026 – 31.12.2035
		G37	10 MHz	3760 – 3770 MHz	01.01.2026 – 31.12.2035
		G38	10 MHz	3770 – 3780 MHz	01.01.2026 – 31.12.2035
		G39	10 MHz	3780 – 3790 MHz	01.01.2026 – 31.12.2035
		G40	10 MHz	3790 – 3800 MHz	01.01.2026 – 31.12.2035

4.1.2. Reserve price for the blocks (minimum licence fee) and eligibility points

There is a reserve price attached to each block, as well as a set of eligibility points.

The reserve price is equal to the minimum licence fee for each block.

The eligibility points are quotations of the frequency blocks subjected to the procedure, fulfilling the role of "circulating medium" at the time of gaining the usage rights for the respective blocks. Once with the submission of the initial bid form and of the participation bond, the bidders "acquire" a certain budget of eligibility points, which corresponds to a maximum amount of abstract (non-individualised) frequencies, in any band, for which a bidder may submit a bid during the auction. Eligibility is therefore a vocation for gaining usage rights over an amount of frequencies and may be amended during the auction, according to the activity rules (Section 4.7.1). A bidder's eligibility in a certain round means the number of eligibility points the bidder holds in that round, defining that bidder's vocation for gaining the amount of abstract frequencies corresponding to that number of points, should the auction end in the respective round.

The table below summarizes the reserve prices and the eligibility points for the A to G categories.

Table 57 – Reserve prices and eligibility points for the frequency blocks available within the selection procedure

Category	Band	Block size	Validity	Reserve price/block (minimum licence fee) (euro)	Eligibility points/block
A	700 MHz FDD	2 x 5 MHz	01.01.2021 - 31.12.2035 (15 years)	_____	6
B	700 MHz SDL	1 x 5 MHz	01.01.2021 - 31.12.2035 (15 years)	_____	3
C	800 MHz FDD	2 x 5 MHz	01.01.2020 - 31.12.2029 (10 years)	_____	6
D	1500 MHz SDL	1 x 5 MHz	01.01.2020 - 31.12.2034 (15 years)	_____	3
E	2600 MHz FDD	2 x 5 MHz	01.01.2020 - 31.12.2029 (10 years)	_____	2
F	3400-3600 MHz TDD	1 x 5 MHz	01.01.2020 - 31.12.2025 (6 years)	_____	1
G	3400-3800 MHz TDD	1 x 10 MHz	01.01.2026 - 31.12.2035 (10 years)	_____	2

4.1.3. Limitations to the acquirement of usage rights

The usage rights a bidder will be able to gain during the selection procedure are limited as follows:

- a) The total maximum amount of radio frequencies in the FDD bands below 1 GHz (cumulated, including the spectrum already owned in the 800 MHz and 900 MHz bands) for

which a bidder may acquire usage rights following the selection procedure, in Romania, is 2x30 MHz;

- b) The maximum amount of radio frequencies in the 3400-3800 MHz band for which a bidder may acquire usage rights following the selection procedure for the period 01.01.2020 – 31.12.2025 (short-term), in Romania, is 120 MHz;
- c) The maximum amount of radio frequencies in the 3400-3800 MHz band for which a bidder may acquire usage rights following the selection procedure for the period 01.01.2025 – 31.12.2035 (long-term), in Romania, is 150 MHz.

In the calculation of the aforementioned maximum radio spectrum amounts, the spectrum amounts for which the bidders have usage rights valid on the date foreseen for the entry into force of the licences awarded during this selection procedure, regardless of how these were obtained (previous licensing procedures or licence transfer), are included.

To verify the observance of the limitations imposed by the provisions of this Section, the usage rights held by the persons from the same group with the bidder are also taken into consideration, the group notion having the meaning provided for in Section 4.3.1.

In the event of holding the additional round, if there are unassigned frequency blocks following the primary rounds, the rules cited above on the limitation of the maximum amount of spectrum that an operator can obtain shall no longer apply.

4.2. Overview of the procedure

4.2.1. Launching of the procedure

The selection procedure will be launched upon the publication of an auction notice on the ANCOM website (www.ancom.org.ro). The form and content of the notice are established by ANCOM.

4.2.2. Stages of the procedure

The competitive selection procedure is structured in four stages:

- application stage;
- qualification stage;
- auction stage;
- licence awarding stage.

4.2.3. Calendar of the selection procedure

A guiding calendar of the selection procedure is provided for in Table 55 below.

Table 58 – Guiding calendar of the selection procedure

The terms provided for in this table may be extended by ANCOM depending on the needs or may be outrun in case the term reserved for one of the ANCOM activities may be reduced. The time intervals corresponding to bidders' activities may not be reduced.

Activity	Term	Date
Publication on the website of the auction notice and of the Terms of Reference (final version)	X	_____
Deadline for the submission of clarification requests concerning the selection procedure	X+1 week	_____
Publication of the answers to the clarification requests	7 days from each request	Maximum _____
Deadline for receiving the applications (including the participation bond)	X+5 weeks	_____
Presentation of the qualified/not-qualified applications	X+6 weeks	_____
Lodging of complaints	2 days from the qualification notice	_____
Settlement of complaints	3 days from the lodging of complaints	_____
Announcement concerning the need to hold the auction stage, as well as the starting dates of the primary rounds or Announcement of the fact that the primary rounds of the auction are not required, as well as announcement of the successful bidders of the abstract blocks and of the starting dates of the additional round or Announcement of the fact that the primary and/or additional	X+7 weeks	_____

Activity	Term	Date
rounds of the auction are not required, as well as announcement of the successful bidders of the abstract blocks and of the date of the assignment round		
Information session on the auction rules, dedicated to bidders		_____
Auction stage	X+7 weeks + 3 days	_____
Closing of the primary rounds and/or of the additional primary round	Y (\geq X+8 weeks)	-
Assignment round	Y+3 days	-
Presentation of the outcomes of the procedure	Y+1 week	-
Deadline for awarding the licences	31.12.2019	-

" \leq " – "smaller or equal"

" \geq " – "higher or equal"

4.3. Rules concerning the participation in the selection procedure

Only the persons who purchased the present Terms of Reference may participate in the selection procedure. The price of the Terms of Reference is 4,500 lei. The Terms of Reference may be obtained from the ANCOM headquarters in 2 Delea Noua Street, Sector 3, Bucharest or, upon buyer's request, may be sent to that buyer in physical or electronic format, upon presentation by the interested person of:

- the document certifying the payment of the non-reimbursable amount of 4,500 lei, representing the countervalue for the Terms of Reference, either at the ANCOM pay desk in 2 Delea Noua Street, Sector 3, Bucharest or in the ANCOM account no. RO03TREZ7005025XXX000274 opened with the Activity of Treasury and Public Accountancy of Bucharest, whereas the payment order must specify ANCOM as the **Beneficiary** and that the payment represents the countervalue for the Terms of Reference;
- the mandate, in original, of the person delegated to take the Terms of Reference.

Should the payment for the Terms of Reference be made from abroad, the interested person can pay the amount mentioned above, in euro, at the exchange rate communicated by the National Bank of Romania, valid on the date of payment, in the account RO86RNCB0082044181470003 opened with the Romanian Commercial Bank – Unirea Branch.

A participant in the selection procedure may submit only one bid.

By submitting the frequency allocation application, the participant unconditionally and irrevocably accepts the rules concerning the participation in the selection procedure described in Sections 4.3.1-4.3.5, as well as the applicable sanctions in the event of breaching these rules, specified in Section 4.3.6.

4.3.1. Rules on the participants' independence

A candidate/bidder that is a member of the group of another candidate/bidder may not participate in the selection procedure.

In view of enforcing this rule, the notion "group of the candidate/bidder" has the meaning set, for the purposes of verifying the economic concentrations, in the Instructions of 5 August 2010 on the concepts of economic concentration, involved company, full operation and turnover approved by Order no. 386/2010 of the Competition Council's president. In this respect, the notion "group of the candidate/bidder" is defined as including the following entities:

- a) the candidate/bidder;
- b) the companies in which the candidate/bidder, directly or indirectly:
 - (i) holds more than half of the social capital or of the operating capital; or
 - (ii) has the competence to exercise more than half of the voting rights; or
 - (iii) has the competence to name more than half of the members of the supervision board or of the management board; or
 - (iv) has the competence to name more than half of the members of the bodies which legally act on behalf of the respective companies or has the right to lead the activities of the respective companies;
- c) the companies which hold within the candidate/bidder the rights or competences specified under letter b);

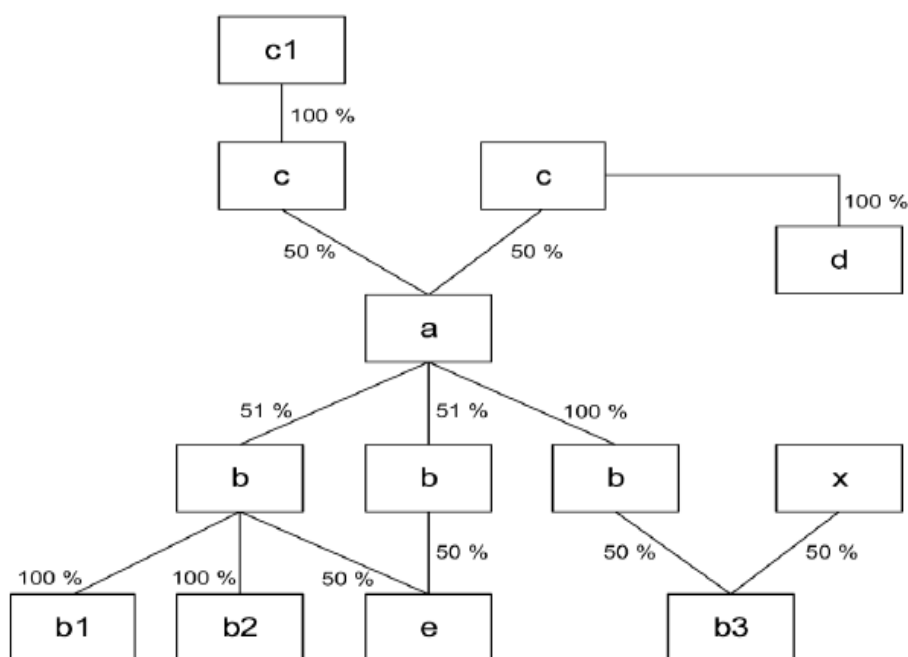
- d) the companies in which a person holds within the candidate/bidder the rights or competences specified at letter b);
- e) the companies within which two or more of the persons provided for under letters a)-d) hold together the rights or competences specified at letter b).

The competences specified under letter b), on the exercise of voting rights or naming of members, may derive from a *de jure* situation (constitutive act, contractual agreements etc.) or a *de facto* situation (the competences are exercised *de facto*, in the absence of certain provisions). The exercise of competences as a result of a *de facto* situation are determined according to the Instructions of 5 August 2010 on the concepts of economic concentration, involved company, full operation and turnover, approved by Order no. 386/2010 of the Competition Council's president.

The right to lead the activity of the company may result, among others, from holding the voting rights (standalone or in combination with contractual agreements, such as the shareholders' agreement) which allows for establishing the strategy of a company, based on certain rightful stable elements. The right to lead also includes the situations where the candidate/bidder holds, alongside third parties, the right to jointly manage the activity of a company.

The figure below provides a graphical exemplification of the notion "group of the candidate/bidder".

Figure 9 – Example of structure of the group of a candidate/bidder



Legend of the represented categories:

- a = candidate/bidder;
- b = subsidiaries of the candidate/bidder;
 - b1, b2 = subsidiaries of the companies in category "b";
 - b3 = companies jointly held by the "b" category companies with third parties;
- c = parent companies of the candidate/bidder;
 - c1 = parent companies of the companies in category "c";
- d = other subsidiaries of the companies in category "c";

e = companies jointly held by two or more companies in a group;
x = third party.

4.3.2. Rules relating to agreements between the participants

The conclusion of, or the attempt to conclude, any agreements between the participants in relation to the selection procedure, during the procedure or previously to the procedure being held, is forbidden.

The scope of this interdiction covers the agreements between the candidates/bidders themselves and the agreements involving members of the groups of different candidates/bidders.

4.3.3. Rules relating to the confidentiality of information

The participants are forbidden to disclose confidential information to other participants or third parties, during the procedure or previously to the procedure being held.

The scope of this interdiction covers:

- a) the disclosure of confidential information by the candidates/bidders themselves and by members of the group of a candidate/bidder;
- b) the disclosure of confidential information to the candidates/bidders themselves and to members of the group of a candidate/bidder.

This interdiction does not apply to the disclosure of information to companies within the same group, to the candidate's/bidder's employees or to the candidate's/bidder's lawyers or consultants.

For enforcing this rule, "confidential information" means the information of any kind which concerns, directly or indirectly, the strategy of a participant within the selection procedure or any bid which a participant submitted or intends to submit within the procedure, regardless of the support of such information.

4.3.4. Rules relating to the participants' conduct

During the selection procedure, the participants will refrain from any actions that might affect the procedure holding or its outcomes, including, for instance:

- a) the attempt to influence the members of the Commission, to hinder in any way the decisions of the Commission, or to influence or hinder the actions of other participants in the procedure;
- b) the attempt to contact the members of the Commission in other way or on other issues than those specified in Sections 5.1.3, 5.1.4 and 5.1.5, from the moment when the envelopes containing the application files are opened and until the moment the licences are issued;
- c) any conduct which constitutes a threat for, or an intimidation to, the other participants or the members of the Commission, irrespective of the pursued goal;
- d) the attempt to have contact with the other bidders, directly or indirectly, in any of the locations made available to them or sited in the premises where the selection procedure is being held;
- e) the transmission of communications on the holding of the selection procedure, the participants in this selection procedure or any other details that may arise during the procedure;

- f) the perturbation of the holding in good conditions of the bidding rounds during the auction stage etc.

4.3.5. Rules relating to the submission of information to the Commission

At any time during the selection procedure, the Commission may request any participant any clarifications, documents or information, indicating as well the deadline by which these must be submitted, in view of establishing or clarifying the actual situation which:

- a) grounds or grounded the qualification of a candidate; or
- b) might lead to the finding of certain breaches by one or more participants of the rules provided for in Sections 4.3.1-4.3.4 above.

The participants have the obligation to comply with the information requests addressed by the Commission, within the term established by the latter.

Considering the importance of ensuring the integrity of the selection process, the terms granted by the Commission may sometimes be very short, to allow maintaining or rapidly re-establishing the normal course of the procedure and/or to prevent the destruction of certain evidence, especially if there are indications concerning the breach of the rules laid down in Sections 4.3.1-4.3.5.

Furthermore, the participants have the obligation to provide truthful, accurate and complete information in the application file as well as anytime during the procedure. In the event of changes in the information grounding the qualification, occurred subsequently to a candidate's qualification, the candidate/bidder concerned, as well as any other participant to the procedure aware of the respective changes, has the obligation to notify at once the Commission on the respective changes. The Commission has the obligation to analyse the respective changes and to reconsider the decision on the participant's admission, if the respective changes involve an alteration of the actual situation which grounded the qualification decision to such extent that the qualification criteria are not fulfilled anymore.

4.3.6. Applicable sanctions

If, during the selection procedure, the Commission discovers breaches of the rules specified in Sections 4.3.1-4.3.5 above, the Commission will disqualify from the procedure all the participants involved and will withhold the participation bond submitted by these participants. If the breach of the rules under Section 4.3.1 is discovered during the qualification stage, then the rules mentioned in Section 4.6.2 will apply.

If the breach of the aforementioned rules is discovered after the issuance of the licences for the use of radio frequencies, ANCOM may revoke the licences awarded to the participants involved and/or may withhold the participation bonds they submitted, as applicable.

4.4. Participation bond

4.4.1. Form of the bond

The participation bond is set up as a letter of bank guarantee issued by a banking company and is submitted in original within the application file, in the amount provided for in Section 4.4.2 and for the period specified in Section 4.4.3.

The bond must be irrevocable and unconditional.

The letter of bank guarantee must provide that the payment of the bond will be executed unconditionally, respectively upon the first and plain request of ANCOM, based on the latter's declaration regarding the bidder's classification in one of the bond execution cases presented in Section 4.4.4.

The participation bond can be set up under the form of several letters of bank guarantee that can be issued by different companies, each such letter or tool having to observe all the form requirements stipulated in this Section.

The participation bond will be set up in the format available under Annex no.4. The submission of the letter of bank guarantee in another format is not allowed.

4.4.2. Value of the bond

The value of the bond is 50% of the price of the initial bid, established according to Section 4.5.3. The participation bond will be included in the frequency allocation application and submitted as part of the application file.

During the selection procedure, if the offered price exceeds the threshold of 150% of the initial bid, the Commission may ask the bidders to increase the value of the letter of bank guarantee submitted within the application file so that the total value of the submitted bond/bonds could stand for at least 50% of the price offered at the respective time. In such case, the letter of bank guarantee must observe all the requirements specified in Sections 4.4.1, respectively 4.4.3.

4.4.3. Validity of the bond

The participation bond will be valid at least between the date when the application file is submitted and _____³⁶.

4.4.4. Cases of bond withhold

The purpose of the participation bond is to protect ANCOM in the event of an improper conduct of the participants during the procedure and to ensure, in particular, that:

- a) the licence fee owed by the winning bidders is paid for all the frequency blocks awarded following the selection procedure, and the corresponding licences are issued;
- b) the candidates/bidders observe the rules concerning the participation in the selection procedure.

The participation bond is withheld in the following cases:

³⁶ ANCOM may ask the bidders to extend the validity of the letter of bank guarantee if the timeframe for the holding of the auction stage exceeds the date of _____.

The deadline for submitting the letters of bank guarantee whose validity was extended acc. to the previous paragraph may not be longer than 10 calendar day from ANCOM's request date.

- a) if the winning bidder does not pay in due time the owed final price representing the licence fee, under the law;
- b) if the winning bidder waives the right to be awarded the licence for the use of radio frequencies;
- c) if a candidate/bidder breaches the rules concerning the participation in the selection procedure, set out in Sections 4.3.1-4.3.5 herein.

4.4.5. Return of the bond

The participation bond is returned to the participants in the selection procedure, to the extent no withholds in the sense of Section 4.4.4 were made, as follows:

- a) to the candidates that did not qualify to the superior stages of the selection procedure, within 30 days from the communication on the candidature rejection;
- b) to the bidders that did not gain radio frequency usage rights following the procedure, within 30 days from the date when the Commission communicates the closing of the auction stage;
- c) the bidders that gained radio frequency usage rights following the procedure for those blocks whose reserve prices, taken together, are below the price of the initial bid, may obtain, upon request, after the final price according to Section 4.8.1 letter a) is communicated, the reduction of the participation bond to 50% of the reserve price for the blocks won;
- d) to the bidders that gained radio frequency usage rights following the procedure, within 30 days from the payment of the licence fees;
- e) if the selection procedure is cancelled in accordance with the provisions of Section 6.3, the participation bond will be returned to all the candidates/bidders, within 30 days from the communication on the cancellation of the selection procedure.

In view of enforcing the provisions under letter c) above, the bidders will need to present, alongside the mentioned request, a letter of bank guarantee for the reduced value indicated at the specified point, and the initial bond will be returned within 30 days from the date when ANCOM receives the request. Where the bond was set up under the form of several letters of bank guarantee or guarantee tools, the partial return of the bond will be made by returning some of the letters of bank guarantee or guarantee tools if thus the provisions under letter c) may be enforced.

The participation bond will be returned by returning the letter/letters of bank guarantee, in original, upon signature. At the express request of the participant in the selection procedure, ANCOM may issue a letter whereby to express its agreement to cancel the letter of bank guarantee, a document exclusively meant for the bank which issued the letter of bank guarantee.

4.5. Application submission stage

4.5.1. Application file

During this stage, the interested persons must submit to ANCOM an application file. Once the file submitted, the person concerned becomes a *candidate*, a quality which the respective person keeps until the decision on the admission to the superior stages of the selection procedure (when the candidate becomes a *bidder*) is communicated, or until the decision on the rejection of the candidature (when the respective person is eliminated from the procedure) is communicated.

The application file must contain the following documents:

- a) documents presenting the candidate's situation;
- b) the frequency allocation application (the initial bid);
- c) the participation bond.

These documents will be presented in detail in Sections 4.5.2-4.5.5 below.

4.5.2. Documents presenting the candidate's situation

The application file will contain the following documents presenting the candidate's situation:

- a) the authenticated power-of-attorney granted to maximum 3 natural persons acting on behalf of the candidate, which is to certify that the respective persons are authorised to engage the candidate during the selection procedure and is to show the limits of each of the respective power-of-attorney, without a limitation concerning the joint signature of the mandated persons; the authenticated power-of-attorney is not required in the case of the person mandated to legally represent the candidate;
- b) the acknowledging certificate (in original) issued by the National Trade Register Office at most 30 days before the date of submitting the application file, which shows at least:
 - (i) the legal identification attributes;
 - (ii) the company life duration;
 - (iii) the main and secondary (if applicable) object of activity;
 - (iv) the social capital (subscribed and paid-in);
 - (v) the administrators/members of the Management Board and Managers (in unitary system)/members of the Supervision Council and members of the Directorate (in dual system), the identification data and the length of the mandate with the conferred powers;
 - (vi) the indicators from the annual financial statements;
 - (vii) the non-existence of a dissolution procedure either voluntary, judicial or following the enforcement of the insolvency procedures;
 - (viii) the status of the company.
- c) the registration certificate issued by the National Trade Register Office;
- d) the candidate's constitutive act (company contract and/or statute), in a consolidated updated form (including all changes to date);
- e) the structure of the candidate's group, valid at the time of submitting the application file, which must include the names and addresses of all the companies enlisted at letters a)-e) in Section 4.3.1, as well as the connections between them;
- f) the certificate of fiscal acknowledgement of the compliance with the outstanding payment obligations to the state budget, the social insurance budgets and special tax funds, contributions and other revenues, issued according to the legal regulations in force (in original);
- g) the financial statements for the last year, approved under the law, according to the accounting standard applied; in the case of a newly established company, it is not

- necessary to submit this information, but it is necessary to observe the requirements concerning the subscribed and paid-in social capital;
- h) the statement of the candidate's legal representative regarding the capacity as a participant in the selection procedure (in original), drawn up according to the format set in Annex 1.

As for associations, each member of the association must submit the documents enlisted at letters b)-h) above. The document under letter a) will be submitted by the representative of the association.

The associations must present an association agreement concluded between all the members of the association. This agreement will be presented, in original, in an authentic form and will contain at least the following elements:

- a) the names of the members of the association and the share of each of the members within the association;
- b) the legal person, member of the association, which represents the association within the present procedure;
- c) the firm engagement of all the association's members to submit a joint bid during the selection procedure and grant unconditional financial and/or technical support to the legal person that will be issued the licence and represents the association;
- d) the validity period of the association agreement; this is not to cease before _____.

In the cases where the original documents are not requested, the candidate will present a legalised copy or a copy of the documents certified by the candidate for the conformity with the original. The person making the conformity certification from the candidate must be one of the persons mandated to represent the candidate according to letter a) of the first paragraph in this Section.

4.5.3. The frequency allocation application (the initial bid)

The frequency allocation application will be necessarily completed by one of the persons mandated to represent the candidate according to Section 4.5.2 letter a) or by the candidate's legal representative, in the form provided for in Annex 2 hereto, without deletions and/or additions, and represents the initial bid of the candidate, should the latter be admitted to the superior stages of the selection procedure, following the qualification stage.

In view of completing the frequency allocation application, the candidate will select the number of blocks it wishes to acquire in each of the A to G categories, using the multiple answer boxes available in the table included in the frequency allocation application. The candidate must observe the limitations on the acquiring of the usage rights laid down in Section 4.1.3, as well as the conditions cited in Section 4.7.1; its candidature is otherwise rejected.

The price of the initial bid is established as follows:

- a) for each category, the number of blocks in that category included in the bid will be multiplied by the reserve price for that category (minimum licence fee), specified under Section 4.1.2; and
- b) the values determined according to letter a) will be summed up for all the block categories.

The initial bid must be firm, final, irrevocable, unconditional and valid at least until _____.

Alternative bids are not accepted.

4.5.4. Letter of bank guarantee

The application file will contain the letter of bank guarantee, in original, in the form and amount provided for in Section 4.4, according to the model in Annex 4. The submission of a letter of bank guarantee in another form is not allowed.

4.5.5. Elaboration and submission of the application file

4.5.5.1. Language of the documents

All the application documents will be elaborated in Romanian, including the annexes. Nevertheless, in the case of the annual financial statements, although the provision of a version in Romanian is preferable, the candidates may present only a version in English, if available.

4.5.5.2. Form of the documents

The representative authorised to engage the candidate has the obligation to sign each page of the application file (original and copies), as well as to attach a contents of the documents submitted. As for the documents issued by official institutions/bodies authorised therefor, the respective documents must be signed and sealed according to the legal provisions. Any deletion, addition, interlining/underlining or overwriting are valid only if endorsed by the person authorised to sign the documents. These documents shall not be signed by the candidate's authorised representative.

The application file will be submitted in original and in one hardcopy, certified by the candidate for conformity with the original, as well as in electronic format, on CD with full rights over the use of files, in Microsoft Word, Microsoft Excel and/or Adobe Acrobat format. The original copy will be signed by the representative authorised to engage the candidate.

If the application file contains confidential information, the contents of this information will be provided in a separate annex, the candidate explicitly signalling that the respective information is confidential. ANCOM will keep confidential this information to the extent the information is not considered public under the law.

4.5.5.3. Envelope sealing and marking

The candidate must seal the original and the copy in separate envelopes, marking the envelopes correspondingly with the wordings "ORIGINAL" and, respectively, "COPY". The envelopes will be introduced in a non-transparent and adequately closed exterior envelope. The exterior envelope must bear the inscription "**APPLICATION FILE FOR THE PARTICIPATION IN THE 2019 SELECTION PROCEDURE**", the ANCOM address, the name and address of the candidate. If the exterior envelope is not marked according to the aforementioned provisions, ANCOM is not liable for the mislaid documents or for the delayed reception of the documents.

The candidate will cover all the costs incurred by the elaboration and submission of its application file, and ANCOM will not be in any way liable for the payment of these costs, irrespective of the development or outcome of the selection procedure.

4.5.5.4. Transmission and reception of the application file

The application file will be sent by post with confirmation of receipt or will be submitted personally to the ANCOM headquarters in 2 Delea Noua Street, Sector 3, Bucharest, and must be received by ANCOM until _____, 17.00 hours ("deadline for receiving the applications"), Romania's time. The files received by ANCOM after the deadline set for receiving the applications will not be taken into consideration and are to be returned unopened to the address written on the envelope. The candidate must take all measures to make sure that its file is received by ANCOM no later than the deadline set for receiving the applications and will assume all the risks related to the transmission of the dossier, including force majeure.

ANCOM reserves the right to extend the deadline set for receiving the applications and, correspondingly, the date set for opening the envelopes containing the application files, case in which it will communicate the new deadline set for receiving the applications and, respectively, the new date set for opening the envelopes containing the application files, on its website (www.ancom.org.ro), at least 10 days before the initial deadline.

4.5.5.5. Modification of the application file

Any bidder has the right to modify or withdraw its application file only prior to the deadline set for receiving the applications and only by submitting a written request therefor, received by ANCOM before the deadline set for receiving the applications. While elaborating and submitting the modified documents, the candidate will need to observe the instructions provided for in Sections 4.5.6.1-4.5.6.4, with the amendment that the exterior envelope will necessarily be marked with the wording "**MODIFICATIONS TO THE APPLICATION FILE FOR THE PARTICIPATION IN THE 2019 SELECTION PROCEDURE**". If the candidate withdraws its application file after the deadline set for reception, the participation bond will not be returned.

4.5.5.6. Opening of the envelopes containing the application file

The envelopes containing the application files will be opened by the Commission, on the first working day following the deadline set for their submission.

4.5.5.7. Clarification requests

Only the persons who bought the Terms of Reference may request for clarifications.

The clarification requests will be addressed to ANCOM in writing, to its headquarters in 2 Delea Noua Street, sector 3, Bucharest, for the attention of the **Auction Commission for the 2019 selection procedure**, or in electronic format, having included, attached or logically associated, an extended electronic signature based upon a qualified certificate that has not been invalidated or revoked at the respective moment, generated using a secured device for creating electronic signature, to licitatie2019@ancom.org.ro, until _____. ANCOM is to answer to the clarification requests until _____, at the latest.

The candidates will indicate, within the application file, a fax number and a valid e-mail address to which ANCOM may send its messages.

The ANCOM fax messages will be deemed transmitted when ANCOM receives the transmission confirmation generated by the fax upon sending the message.

The questions received and the answers to these questions will be communicated to all the persons who purchased the Terms of Reference and will be published on the ANCOM website, without revealing the identity of the person who asked for the respective clarifications.

4.6. The qualification stage

In the qualification stage, the Commission evaluates the compliance of the candidates that submitted files during the application submission stage with a set of qualification criteria (Section 4.6.1) and, following evaluation, decides either the admission of the candidate to the superior stages of the selection procedure or the rejection of the application.

4.6.1. Qualification criteria

In order to be admitted to the superior stages of the selection procedure, the candidate must cumulatively fulfil the following qualification criteria:

- a) the candidate must be a legal person (company) registered according to the law³⁷, as applicable;
- b) the candidate must have submitted all the documents provided in Sections 4.5.2-4.5.4, completely and correctly prepared, no later than the deadline set for receiving the applications;
- c) the life duration of the candidate company provided in its constitutive act must run at least until 31 December 2035;
- d) the average turnover of the candidate for the last year must be the equivalent in lei of minimum 10,000,000 euros; in the case of a newly established company, the subscribed and paid-in social capital must be the equivalent in lei of minimum 1,000,000 euros;
- e) the candidate must not be in a state of insolvency or liquidation, its business must not be managed by a syndic judge, its commercial activities, in their entirety, must not be suspended or the candidate must not be in a situation similar to those previously mentioned, regulated by the law;
- f) the candidate must not be subject to a legal procedure launched upon its initiative and aimed at declaring it in one of the situations provided for at letter e);
- g) the candidate must have submitted the participation bond (in original) in the form and amount specified under Section 4.4;
- h) the bidder must have fulfilled the standing payment obligations to ANCOM, the state budget, the budgets of social insurance and special tax funds, contributions and other revenues; the taxes, contributions and other revenues which benefited from payment facilitation (postponements, phasing etc.) granted by the competent bodies are not deemed standing payment obligations, to the extent the conditions imposed at the facilitation granting were observed;
- i) the candidate must not be a member of another candidate's group;
- j) the candidate must have purchased the Terms of Reference;
- k) the candidate must observe in the frequency allocation application the limitations set in Section 4.1.3, as well as the conditions laid down in Section 4.7.1.

As for the associations, each of the association members must fulfil all the criteria mentioned above, with the following exceptions:

- the criterion under letter c), which is to be fulfilled by at least one member of the association and by the person to whom the licence will be issued; and
- the criteria specified at letters g) and j), which are to be fulfilled by the designated representative of the association.

³⁷ Law no. 26/1990 on Trade register, republished, with the subsequent amendments and completions and Companies' Law no. 31/1990, republished, with the subsequent amendments and completions.

4.6.2. Evaluation of the application files

After the deadline set for receiving the applications, the Commission will evaluate all the submitted application files, based on the qualification criteria (Section 4.6.1), and will decide on the admission of the candidate to the superior stages of the selection procedure or on the rejection of the application.

At any time during the evaluation of the application files, the Commission may request any specifications, documents and/or additional information and/or clarifying documents, in view of establishing or clarifying the actual situation based on which a candidate's qualification is determined, while the rules under Section 4.3.5 and the sanctions under Section 4.3.6 will apply.

As regards the criterion under Section 4.6.1 letter i), if it finds that there is a connection of the type envisaged by this criterion between two or more candidates, the Commission informs all the involved candidates on the situation found, requesting them to express in writing, within a certain term, the option for only one of the applications, to be maintained within the procedure. The non-expression of an option or the expression of several different options triggers the rejection of all envisaged applications. To avoid any doubt, in accordance with the provisions under Section 4.3.1, corroborated with Section 4.3.6, in case the abovementioned situation is discovered subsequently to the qualification stage, all the involved bidders will be excluded from the procedure.

4.6.3. Determining and presenting the candidates qualified for participation in the superior stages of the selection procedure

Following the evaluation of each application file, the Commission may take one of the following decisions:

- a) to admit the application, if all the qualification criteria are met; or
- b) to reject the application, if at least one of the qualification criteria is not met.

After completing the evaluation of the application files, the Commission will communicate to each candidate the admission or the rejection of its application within the procedure, and implicitly, the participation in the subsequent stages of the selection procedure for the qualified candidates.

Alongside the communication on the application admission, the candidate will be informed on the change of its status within the selection procedure into *bidder*.

Alongside the communication on the candidature rejection, the candidate will be informed that it is eliminated from the procedure and the reasons which grounded this decision. The candidate will also be informed on the term within which the participation bond will be returned in accordance with the provisions of Section 4.4.5, letter a).

The Commission will not communicate to the qualified candidates the initial eligibility of the other qualified candidates or the identity of the candidates who did not qualify for participation in the superior stages of the selection procedure.

The participation bond will be returned to the candidates who did not qualify to the superior stages of the selection procedure within 30 working days from the candidature rejection date. These candidates are further subject to the rules on information confidentiality provided for in Section 4.3.3, for the entire duration of the selection procedure.

4.6.4. Establishing and announcing the procedure continuation

During the qualification stage, the Commission evaluates the level of the aggregated (initial) demand of frequency blocks within each of the A to G categories, based on the frequency allocation applications submitted by the qualified candidates (bidders), and may take one of the following decisions:

- a) to organise the auction stage starting with the primary rounds, if the aggregated demand exceeds the number of frequency blocks available in the selection procedure in at least one category; in this situation, the Commission will communicate each bidder the identity of all the other bidders, the fact that the auction stage is required, as well as the date of starting the primary rounds;
- b) to organise the auction stage starting with the additional primary round, if the aggregated demand does not exceed the number of frequency blocks available in the selection procedure in any category and there are blocks for which there is no demand; in this case, the Commission:
 - (i) will communicate each bidder the identity of the other bidders, as well as the fact that the primary rounds of the auction stage are not required;
 - (ii) will declare as winning all the initial bids of the bidders, which will thus be designated winning bidders, and will communicate each bidder the number of abstract blocks won by the respective bidders in each of the A to G categories; and
 - (iii) will communicate each bidder: (i) the basic price of its winning bid, which is the total price for the ensemble of abstract frequency blocks in the initial bid, and (ii) the specific basic prices for each of the blocks included in its winning bid, for the purpose of enforcing the provisions of Section 4.8.2 herein, which are equal to the reserve prices for the categories to which these blocks belong;
 - (iv) will communicate each bidder the commencement date of the additional primary round.
- c) to organise only the assignment round of the auction stage, if the aggregated demand does not exceed the number of frequency blocks available in the selection procedure in any category and there are no blocks for which there is no demand; in this case, the Commission:
 - (i) will communicate each bidder the identity of the other bidders, as well as that the primary rounds of the auction stage are not required;
 - (ii) will declare as winning all the initial bids of the bidders, which will thus be designated winning bidders, and will communicate each bidder the number of abstract blocks won by the respective bidders in each of the categories A, B, D, E, F, G and/or of the concrete block in category C; and
 - (iii) will communicate each bidder: (i) the basic price of its winning bid, which is the total price for the ensemble of abstract frequency blocks in the initial bid, and (ii) the specific basic prices for each of the blocks included in its winning bid, for the purpose of enforcing the provisions of Section 4.8.2 herein, which are equal to the reserve prices for the categories to which these blocks belong;
 - (iv) will communicate each bidder the commencement date of the assignment round.

The auction stage will be held in all cases, even if only the assignment round will take place. Given the limits as to the acquirement of the usage rights, most likely that there will be at least 2 or more winners in certain categories if the aggregated demand does not exceed the number of frequency blocks available in the selection procedure in any category and there are no blocks for which there is no demand.

4.6.5. Complaints

A participant in the procedure may challenge the rejection of its application within 2 days from receiving the communication sent by the Commission in this regard, in accordance with the provisions under Section 4.6.3. The complaint must be made in writing and submitted to the

ANCOM headquarters in 2 Delea Noua Street, Sector 3, Bucharest, by the mandated representative of the candidate, upon signature, or sent by mail, with confirmation of the receipt.

Within 3 days from the lodging of the complaints, a commission designated by decision of the ANCOM president (the "Commission for settling the complaints"), composed of other persons than those who were members of the Commission, will examine the lodged complaints. The Commission for settling the complaints may extend the 3-day term, if the examination of the complaints involves the processing of a large volume of information. The complaints lodged within the due term will be settled in the sense of admission or rejection, while the complaints lodged after the due term will be rejected. The Commission for settling the complaints will conclude a minute, approved by the president of ANCOM, and will communicate each complainant the outcome of the lodged complaint, as comprised in the minute.

The Commission will establish and announce the continuation of the procedure in line with Section 4.6.4 only after the expiry of the period for lodging the complaints set in this Section, and if complaints are lodged within the aforementioned period, only after the approval of the minute on the settlement of complaints, in accordance with the provisions of this Section.

4.7. Auction stage (main stage)

The main stage consists of one or several primary rounds, followed by one additional primary round (if required) and one assignment stage.

All bids submitted during the main stage are package bids. This means that a bid submitted in a round may only be a winner in its entirety and bidders cannot win a combination of blocks for which they did not place a bid.

The maximum amount of spectrum for which a bidder may acquire usage rights is limited by the total number of eligibility points (Section 4.1.2), by the established spectrum caps (Section 4.1.3) and by the conditions set in Section 4.7.1.

4.7.1. Primary bid rounds

At the beginning of each primary round, the Commission communicates the bidders the price for a block of frequencies in each of the A to G categories. In the first primary round, the initial price for each of the A to G categories will be set equal to the reserve price (minimum licence fee) for that category.

Each bidder is invited to submit one bid stating the category and number of blocks in each category it wishes to bid at the given price, subject to the activity rule described below and to the overall spectrum caps. When each primary round is closed, demand is aggregated across all bidders. If, in the respective primary round, demand (represented by the total number of blocks requested according to the bids) exceeds the number of frequency blocks available in one or several categories, another primary round is scheduled.

In the next primary round, the Commission will increase the price only for the blocks in the category or categories for which the demand exceeded the supply in the previous round. The increase will be made by adding a bid increment to the price of the previous round, expressed as a percentage, in a pre-established share.

Thus, for the categories for which there is excess demand, the Commission will set in the next primary round prices higher than the prices from the previously completed round, with a bid increment ranging between:

- 5% of the reserve price, starting with the second primary round until the round where the price will be equal or will exceed 125% of the reserve price;
- 2% of the reserve price, starting with the round immediately following the one in which the value set in the previous bullet was reached and until the round in which the price will reach or will exceed 150% of the reserve price;
- 1% of the reserve price, starting with the round immediately following the one in which the value set in the previous bullet was reached or exceeded.

The primary rounds end after a round in which there is no excess demand for blocks in any of the categories.

During the primary rounds, bidders are subject to activity rules whose purpose is to prevent the pointless extension of the procedure. As shown before, each frequency block has attached a number of eligibility points (Section 4.1.2). A bidder's activity in a certain round is measured as the sum of eligibility points over all the blocks included in its bid in that round. In any round, a bidder's eligibility is equal to that bidder's activity in the previous round.

Prior to beginning the auction, upon the set up of the participation bond, each bidder holds a budget of eligibility points (initial eligibility), which defines its vocation (maximum) for acquiring the frequency usage rights. A bidder's initial eligibility is determined by the sum of the eligibility points in all the blocks included in its frequency allocation application. A bidder's activity in the first primary round cannot exceed its initial eligibility, and its activity in each subsequent primary round may not exceed its eligibility in the previous round. This means that a bidder's eligibility may remain constant or decrease throughout the primary rounds; it cannot increase. Therefore, the bidders are stimulated to bid in every round at a level that would enable them to gain the desired usage rights while avoiding the loss of vocation for their acquiring.

The winning bids, respectively the winning bidders (see Section 5.3.6) and the basic prices they must pay (see Section 5.3.7) are determined following the primary rounds.

4.7.2. Additional bid round

If, upon aggregating the initial bids or following the primary rounds, there will be unawarded (abstract) frequency blocks, ANCOM may decide to organise an additional primary bid round, according to the additional specific rules laid down below.

In this round, each bidder will be able to submit a bid indicating one or several packages containing one or more blocks, as well as the amount it is willing to pay for acquiring each such package. There are no maximum caps as to the bid amount, there are however minimum caps, pursuant to specific rules stated in Section 5.4.3.

All bidders are allowed to participate in the additional primary round, regardless of their eligibility at the closing of the primary rounds and regardless of whether they acquired or not frequency blocks during the primary rounds.

The winning bids for the blocks remained unawarded after the primary rounds, respectively the winning bidders (see Section 5.4.5) and the basic prices they must pay (see Section 5.4.6) will be determined following the additional primary round.

4.7.3. Assignment round

The initial bids, the primary rounds and the additional primary round allow for determining the number of generic blocks the winning bidders will receive in each category, as well as the basic

prices for the respective frequency blocks, but not the specific frequencies these bidders are to be assigned. The only exception is the concrete block C1, which is awarded upon placing a winning bid in either the primary rounds or in the additional primary round.

The purpose of the assignment round is to determine how the available frequencies in the A, B, D, E, F, G categories are to be distributed in the relevant frequency bands amongst the winners of the primary and additional rounds, and any additional prices to be paid by each winning bidder for obtaining a specific assignment.

All bidders that have won two or more blocks in the same category will receive adjacent frequency assignments within the respective frequency band/sub-band available within the procedure.

The assignment round takes place separately for each category of blocks, successively, by descending price per MHz resulted following the primary rounds or the additional primary round, weighed by the validity period of the licences.

The assignment rounds for the 3400-3800 MHz band will take place after the assignment rounds for all the other frequency bands put out for auction.

Each bidder that has won frequency blocks based upon the initial bid or in the primary and additional rounds will express its options, based on a list of pre-defined options regarding the specific assignments in each band of the obtained frequency blocks, provided for by the Commission. In this regard, each winning bidder has the opportunity to bid the amount that it would be willing to pay for a given specific assignment in each band, in addition to the overall basic price it has to pay, as resulted from the primary and/or additional rounds.

Winners who do not have specific requirements as regards the assignment options do not have to make any assignment bids. The combination of bids with the highest total value for each category of blocks is the winning combination for the respective category, and the bids compounding it are declared winners for that category.

If, following the primary and additional (if required) rounds, there is only one winning bidder in a certain category, an assignment bid for the frequencies in that category is not necessary. In such case, the sole bidder will be assigned the frequencies obtained according to the rules on the positioning of the unawarded blocks, described in Section 5.5.6. No additional price will be paid for the assignment of frequencies in a band which has only one winning bidder.

The additional prices will be established according to Section 5.5.7.

4.7.4. Determining the winners and setting the licence fees

The bidders which submitted valid bids during the last primary round and/or those that compose the winning combination resulted from the additional primary round, if such is the case, are designated as the winning bidders. These bidders will obtain the usage rights for the radio frequencies corresponding to the winning bids, provided that they pay a licence fee, the amount of which is established by summing up the basic price determined according to Sections 5.3.7 and, as the case may be, 5.4.6, to which the additional price determined according to Section 5.5.7 will be added, if applicable.

4.8. Licence awarding stage

4.8.1. Presentation of the procedure results

At the beginning of the licence awarding stage, the Commission will communicate each winning bidder:

- a) the final price standing for the licence fee that the winning bidder will have to pay for obtaining the usage rights for the frequency blocks it acquired during the procedure, which represents the sum between the basic price determined, as the case may be, following the qualification stage or/and the primary rounds and/or the additional primary round, if applicable, and the additional price determined following the assignment round;
- b) the price payment conditions provided for in Section 4.8.2 and the conditions relating to the issuance of the licences.

4.8.2. Payment of the licence fees

The licence fees owed by the winning bidders following the bids they submitted within the selection procedure will be paid according to the Government Decision no. ___/_____ setting the minimum amount of the licence fee for awarding radio frequency usage rights.

The return of the bond upon the payment of the licence fee will be made according to the provisions of Section 4.4.5.

4.8.3. Award of the licences

The licences, new or amended, are awarded to the winning bidders after the payment of the licence fee as resulted from the selection procedure.

In the case of the 3400-3800 MHz band, the following rules will apply for the winners of the selection procedure who acquire short-term usage rights (2020-2025 timeframe):

- if they did not hold rights in the 3400-3800 MHz band prior to the selection procedure, they will be issued new licences for the usage rights won in the 3400-3600 MHz band,
- if they held usage rights in the 3400-3800 MHz band prior to the selection procedure, they will be issued amended licences which will include the usage rights won in the 3400-3600 MHz band.

The provision of electronic communications networks and services is bound by the observance of Article 6 of the Framework-Ordinance.

Chapter 5 – AUCTION RULES

5.1. General rules for the auction stage

5.1.1. Auction location

The auction will take place at the headquarters of ANCOM-Bucharest Regional Division in 4 Lucian Blaga Street, block M110, Sector 3, Bucharest, where each bidder will be provided a room endowed with wireless internet access connection. Also, in accordance with the rules under Sections 5.1.3, 5.1.4 and 5.1.5, the bidders will have access in the room where the Commission is to activate, located in the proximity of the rooms made available to the bidders.

During the auction, the bidders' representatives will be able to use their own technical means in view of communication.

The bid rounds may take place during one or several working days, as necessary, between 9.00 hours and 18.00 hours.

Access of the bidders' representatives within the premises of the auction will be allowed only as follows:

- the persons mandated according to Section 4.5.2. letter a); the maximum number of three mandated persons includes the legal representative, if the latter attends;
- two representatives without right of signature, expressly appointed, in writing, by the bidders;
- the persons mandated under the same conditions specified in Section 4.5.2. letter a), designated to replace the initial representatives mentioned in the first bullet.

5.1.2. Informing the bidders

The Commission will provide the bidders with several pieces of information prior to each bid round, at the end of each type of round, as well as at any time the auction process requires it. The communication of the information at the closing of the bid rounds will be made as soon as this become available and is properly verified by the Commission. The general rules on the provision of such information are depicted under this Section, while specific rules are mainly provided under Sections 5.2.2, 5.3.2, 5.3.8, 5.4.2 and 5.4.7.

Information is to be made by a representative of the Commission. The information forms will be drawn up in two original copies, signed by the representatives of both parties, and each of these parties is to keep their copy. The form must be signed by only one representative of a bidder. Where no representative of the bidder can be reached until the next round begins or where the representatives of the bidder refuse to sign the information form, it will be considered that the respective bidder has waived its participation in the auction and therefore the rules under Section 4.4.4 will apply.

5.1.3. Bid submission

In view of submitting the bid during a certain round, a representative of each bidder will fill in and sign a specific bid form within the timeframe established for the respective round, except if the bidder makes use of one of its extension rights (Sections 5.1.4 and 5.1.5). The bid will not be submitted before the expiry of the time allotted for exercising the extension right according to Section 5.1.4.

The form will be filled in by hand. The form must bear the handwritten signature of a representative of the bidder in order to be valid. In view of ensuring the filling in of the bid form,

the Commission will provide each bidder with enough bid forms to enable the submission of bids within a certain ongoing round, and these forms will be filled in using a blue-coloured pen.

After or before the bid submission, if the Commission is in the middle of receiving another bid, the bidder's representative can partake at the bid submission by the other bidders, in the location reserved therefor (the room reserved for the Commission).

After each round, the chairman of the Commission (or the member of the Commission replacing the chairman) will sign the form submitted by the bidder for proof of non-alteration, will send the bidder a copy of the form and will note the receipt of the bid in the synoptic table of the respective round.

5.1.4. Extension rights

During the auction stage, each bidder may exercise two extension rights, in two distinct rounds, irrespective of their type (primary or assignment).

An extension right confers the bidder additional time for submitting a bid during a certain round. The extension rights are granted to the bidders in order to protect them in the event of certain circumstances which might prevent them from submitting a bid during a certain round.

On the first day of the auction stage, before starting the first primary round, the Commission will give each bidder two personalized cards to be used as a currency in exchange for requesting and being awarded an extension right.

The extension right may be exerted only during one round and by maximum 10 minutes before the ending of the respective round. Failure to observe the term for exercising the extension right triggers the refusal to grant this right for the respective round.

The extension right may be exercised only actively and only if it has not been exerted previously by one of the bidders.

In case of exercising its extension right, the bidder will announce the Commission, during a certain round, on the occurrence of a situation that prevents it from submitting a bid in the timeframe set therefor during the respective round, and will require the granting of an extension period in order to submit the bid. The extension period is of 30 minutes from the scheduled closing time of the round. The extension may be required only during a round [with the observance of the specifications laid down in paragraph (4) of this Section], and not during the recess between rounds or at another time.

The extension period has effects towards all bidders, regardless of whether they hold or not extension rights at the time when the extension is granted.

To request the extension right, one of the bidder's representatives will go to the room reserved to the Commission and will hand in to one of the Commission's members one of the cards it has at its disposal.

Upon receiving the request for exerting an extension right, a member of the Commission or a representative of ANCOM, a person that ensures the logistical support at the auction premises, will go to each of the rooms reserved to the bidders and will inform them on the exercise of the extension right.

Only one extension right may be exerted during one round, irrespective of the bidder that understands to exert this right.

If more than 20 rounds are held during the auction, the Commission may decide to grant each bidder an additional extension right.

5.1.5. Exceptional circumstances

Should exceptional circumstances occur during the auction, the Commission may take one of the following decisions:

- a) postpone the scheduling of a round, the closing of an ongoing round, or the announcement of the results of a round;
- b) cancel an ongoing round or a round whose results have not yet been announced and reschedule the respective round;
- c) cancel one or several rounds and the bids submitted during these rounds and restart the auction stage from a previous round;
- d) suspend the auction stage, cancel the auction stage and/or restart the auction stage.

The occurrence of an exceptional circumstance is assessed by the Commission. Such circumstances may include, for example, the occurrence of natural catastrophes, demonstrations, strikes, violent conflicts or incidents of any kind, technical faults or any other exceptional events that may disturb or hinder the activities carried out at ANCOM headquarters, the existence of indications or acknowledgements of breaches of the rules regarding the participation in the selection procedure by one or several bidders, as well as any other exceptional circumstances that may in any way endanger the carrying out of the auction.

The bidders are obliged to immediately announce the Commission on the occurrence or imminence of an exceptional situation, and a representative of the bidder that announced this situation will go therefor to the room reserved for the Commission.

5.2. Other rules for the auction stage

5.2.1. Security measures

Only the bidders' mandated representatives pursuant to Section 4.5.2 letter a) of these Terms of Reference will have access to the premises of the auction.

The access of the bidders' representatives in the premises of the auction is only allowed as long as the rounds are being held and only upon the representatives are identified in accordance with the provisions of the first paragraph. The identification will be made based upon the submission of the identity act.

Where a bidder is legally represented by two or more persons (as resulted from the information available in the acknowledging certificate provided for in Section 4.5.2 letter b), indent (v) of these Terms of Reference), the access into the premises where the selection procedure is being held will be allowed only to one of these representatives. The person in question is to be expressly nominated by the bidder. The provisions of this paragraph apply in view of reasonably limiting the number of persons that can access the auction premises and the locations that are to be allocated to each bidder.

Upon verifying the identity of the bidders' mandated representatives, ANCOM will distribute badges to each person. The badges will be worn at sight in the premises of the auction throughout the auction stage.

In the location allocated to each bidder will only have access the representatives of that bidder.

The intervention of any type on the supporting means (e.g. cables, extension cords) found in the locations reserved for each bidder and made available to the bidders is forbidden. In case of necessity, the intervention can only be performed by the ANCOM staff, upon the prior notice of the Commission.

It is forbidden to connect electrical accessories (extension cords, plug, plug adapters etc.) to the electrical network in the premises of the selection procedure. If the bidders intend to use their own equipment, this will be connected directly to the electrical network or the electrical accessories made available by ANCOM. The rooms reserved to the bidders will be endowed with extension cords with minimum 3 shucko alternative power ports-220 V 50 Hz.

During the auction, the Authority reserves the right to monitor, through an audio-video system, the common spaces (including the ways of access to the rooms reserved to the bidders) and the room of the Commission. The registrations will be used in view of monitoring the observance of the auction rules and will be archived by ANCOM at the end of the procedure. The monitoring will not concern the interior of the rooms reserved to each bidder.

5.2.2. Rules on the bidders' communication with the Commission

To ensure the bidders' communication with the Commission, each bidder will nominate a person who will facilitate the bidders' connection with the Commission.

In view of the bidders' communication with the Commission, the nominated person will go to the room reserved to the Commission.

The nominated person will go to the room reserved to the Commission exclusively for the following purposes:

- a) submit a bid within a certain round;
- b) announce the exertion of the extension right;
- c) communicate the clarifications, documents or information requested by the Commission in accordance with the provisions of Section 4.3.5 herein;
- d) inform the Commission on the occurrence of unforeseen circumstances which make it impossible to submit a bid within a round.

5.2.3. Rules on the Commission's communication with the bidders

To ensure the Commission's communication with the bidders, one of the Commission's members will go therefor to the rooms reserved to each bidder.

The Commission's member will go to the room reserved to the bidder/bidders for the following purposes:

- a) communicate the announcement on the exercise of the extension right by one of the bidders;
- b) inform on the occurrence of an exceptional situation in accordance with the provisions of Section 5.1.5 of these Terms of Reference;
- c) inform each bidder in line with the provisions of Sections 4.3.5, 5.3.2, 5.3.8, 5.4.2, 5.4.7, 5.5.2 and 5.5.8 of these Terms of Reference.

The Commission will inform the bidders in accordance with the provisions of Section 5.1.2 of these Terms of Reference.

5.2.4. Language used

The language used throughout the selection procedure is Romanian.

5.3. Rules for the primary bid rounds

5.3.1. Scheduling of the primary rounds

The primary rounds are scheduled by the Commission.

Rounds are exclusively scheduled one by one, and not several rounds simultaneously, considering that, depending on the result, the scheduled round may be the last one during the auction. The Commission sets the beginning date and time of the round as well as its duration (closing date and time). In principle, the duration of a round may not be shorter than 30 minutes and may not exceed two hours.

All primary rounds will be scheduled to take place between 9.00 and 18.00 hours, on the working days. Each bidder must ensure daily the permanent presence of its representatives at the location chosen for the holding of the auction procedure, starting 9.00 hours and until 18.00 hours or until the receipt of the Commission's notification regarding the completion of the rounds for that respective day. The Commission will communicate the beginning time of a round at least 15 minutes and at most 30 minutes in advance.

One or several rounds may be scheduled during the same day, and the duration of the recess between rounds is to be established by the Commission (but it cannot be less than 30 minutes). The rounds must begin and end during the same day, while round interruption by the end of the

day and resumption during the next morning are not accepted. By the end of the last round of the day, the Commission will announce the bidders that no other rounds are to be organised during that respective day. Also, in case exceptional circumstances occur and justify the interruption of the auction for the rest of the day or for a longer period, the Commission will immediately announce the bidders thereon.

5.3.2. Informing the bidders prior to the primary rounds

Once the beginning time of a primary round is announced, the Commission will inform each bidder with respect to:

- a) the duration of the respective round (hours, minutes), specifying its closing time;
- b) the prices for each category, applicable to the respective round;
- c) the type of category for which excess demand was registered;
- d) its eligibility for submitting bids during the respective round (expressed as number of eligibility points); and
- e) the number of remaining extension rights.

5.3.3. Bid prices

In the first primary round, the price for each of the A to G categories will be equal to the reserve price (minimum licence fee) for the respective category. Starting with the next primary round, for the blocks for which an excess demand has been recorded, the Commission will set prices applicable in this round that are higher than the reserve prices with a percentage (bid increment) set pursuant to Section 4.7.1.

The same rules for setting the prices will apply to the following primary rounds. Thus, in case the block demand exceeds the supply during a certain round, the price for the respective category will be increased during the next round.

The price will remain unchanged during the next round for those categories for which no excess demand exists.

Excess demand exists during a certain round when the total number of blocks in the category indicated in the valid bids submitted during the respective round exceeds the number of blocks available in that category.

5.3.4. Bid rules

All blocks in the A to G categories are available for the submission of bids during the primary rounds.

In each primary round, a bidder may submit only one bid.

Each bid will specify the number of blocks in each category the bidder wishes to acquire at the price communicated by the beginning of the round. A bid may include any combination of blocks, while observing the limitations regarding the gaining of usage rights (Section 4.1.3), as well as the conditions provided for in Section 4.7.1.

To submit a bid, the bidders fill in, by hand, the dedicated bid form indicating the number of blocks they wish to acquire in each of the categories. The bidders may choose to submit a "zero" bid that does not include any block within the A to G categories. In such a case, the current amount of the eligibility points for the respective bidder will be considered "zero". In case a bidder

does not submit a bid during the round or during the extension period granted to that bidder (see Section 5.1.4), the Commission will record *ex officio* a zero bid for that bidder.

The price of the bid is determined as follows:

- a) for each category, the number of blocks in that category that have been included in the bid will be multiplied by the price communicated by the Commission; and
- b) the values determined according to letter a) will be summed up for all block categories.

The bid will be submitted according to the rules set out under Section 5.1.3.

Each submitted bid is considered valid and represents a firm, final, irrevocable and unconditional commitment to acquire the frequency block or the package of blocks specified in the respective bid, at the bid price determined in accordance with the rules set out in this Section.

A bid remains valid until:

- a) it is replaced by a higher bid for the same package of frequency blocks, submitted by the same bidder during one of the subsequent rounds or during the additional round; or
- b) it is cancelled as a result of the Commission cancelling one or several rounds and the bids submitted during those rounds; or
- c) the winning bidders are granted licences for the rights of use gained as a result of the selection procedure.

5.3.5. Activity rules

The activity associated with a bid submission represents the total amount of eligibility points for all the blocks included in the bid and is calculated as follows:

- a) for each category between A and G, the number of blocks in that category, included in the bid, will be multiplied by the eligibility points per block for that category; and
- b) the values determined according to letter a) will be summed up for all block categories.

In each primary round, a bidder may submit a bid with an activity level lower than or equal to its current eligibility (corresponding to the respective round) for the A to G categories, while observing the limitations regarding the gaining of usage rights (Section 4.1.3), as well as the conditions provided for in Section 4.7.1.

The eligibility of a bidder for the first primary round is its initial eligibility. The initial eligibility represents the sum of the eligibility points for all the blocks in the A to G categories included in the application form, submitted by the respective bidder as part of its application file, and is calculated as follows:

- a) for each of the A to G categories, by multiplying the number of blocks specified in the bid form with the eligibility points associated to each block; and
- b) by summing up the value determined according to letter a) for all block categories.

For each of the following primary rounds, the eligibility of each bidder is equal to the activity of that bidder during the previous primary round. Thus, after a certain number of successive primary rounds, a bidder's eligibility may remain constant or may decrease, but it can never increase. However, during the primary rounds, a bidder's eligibility may fluctuate between the different block categories, considering that, from one round to another, the bidder may change the package of blocks included in its bid, including by renouncing at certain blocks in certain categories and selecting blocks from other categories.

5.3.6. Determining the winning bidders

The valid bids submitted during the last primary rounds will be declared as winning bids, and their holders will be designated as winning bidders. These persons will be awarded the rights to use radio frequencies upon the payment of the corresponding licence fees.

After the completion of the primary round and/or of the additional primary round (should it be the case) and of the assignment round, the winning bidders will be granted the rights to use the frequencies corresponding to the blocks included in the winning bids.

5.3.7. Determining the basic price

Each winning bid has an associated basic price. This basic price is the total price for the aggregate of abstract frequency blocks in the winning bid.

5.3.8. Completion of the primary rounds

The primary rounds end after a round where no excess demand exists for blocks in any category. From this moment on, the Commission establishes the winning bids in the primary round, the winning bidders and the basic prices, announces that the primary rounds have ended and, as the case may be, that the auction continues with the additional primary round or directly with the assignment round.

Moreover, the Commission communicates to each bidder a series of pieces of information on the results of the primary rounds, as follows:

- a) each bidder will be informed on the number of abstract blocks won by the respective bidder in each of the categories A, B, D, E, F, G and/or of the concrete block in category C;
- b) each winning bidder will be informed on:
 - (i) the basic price corresponding to its bid declared as a winning bid;
 - (ii) the specific basic prices for each of the blocks included in its winning bid, with a view to enforcing the provisions of Section 4.8.2 herein, which are equal to the prices against which the bidder gained the respective block/blocks.
- c) if the additional round is not organised, each bidder will be communicated the identity of the winning bidders after the closing of all the primary rounds, as well as the number of blocks won by each of them in each category from A to G.

Information mentioned under letters a) and b) above will not be communicated to other bidders.

5.4. Rules for the additional bid round

5.4.1. Scheduling the additional round

Rules laid down in Section 5.3.1 will apply.

5.4.2. Informing the bidders before the additional round

At the same time with the announcement of the beginning time of the additional round, the Commission must inform each bidder with respect to:

- a) the number of frequency blocks remained available in each category;
- b) the duration of the respective round (hours, minutes), specifying its closing time;
- c) the minimum applicable price for the respective round, for each category; and
- d) the number of remaining extension rights.

5.4.3. Bid prices

During the additional primary round, each bidder may bid for a package consisting of one or several frequency blocks available in this round by submitting a bid and indicating therein the price it is willing to pay for acquiring the respective package, with the caps specified below.

Thus, during the additional primary round, the bid price may not be less than the prices which represent:

- a) the prices applicable in the last primary round in the case of those categories for which an excess demand has been recorded during the primary rounds; and
- b) the reserve prices (minimum licence fee) for the categories where no demand existed for all the available blocks, during any of the primary rounds.

The bid price in the additional round must be expressed in euro.

5.4.4. Bid rules

Rules laid down in Section 5.3.4 will apply, with the exceptions provided below.

The blocks in the A to G categories that remained unassigned following the initial bids or following the primary rounds will be the only ones available for the submission of bids during the additional primary round.

Each bid may be submitted for one or several packages, each including one or several frequency blocks. Each package represents itself a bid. For each package, the bid will specify the number of blocks in each category the bidder wishes to acquire, as well as the total package price.

As well, for each package, the bidder will indicate an individual price for each of the blocks composing the respective package, which, if the respective package will be a part of the winning combination, will represent the specific basic price for those blocks, exclusively for the purpose of enforcing the provisions of Section 4.8.2.

A package may include any combination of blocks, with the observance of the conditions provided for in Section 5.4.3.

During the additional primary round, the bidders may bid irrespective of their eligibility at the time of completion of the primary rounds.

5.4.5. Determining the winning bidders

After the completion of the additional round, the Commission will establish the winning combination.

The winning combination is the combination of packages included in the valid bids submitted during the additional round that, taken together, have the highest value among all possible combinations, if the following conditions are met:

- a) in each category have been granted less blocks than the number of available blocks in the respective category;
- b) the combination contains no more than one package from each bidder;
- c) the combination ensures the assignment of the largest number of blocks from among those available in all categories.

In case two or several combinations of packages meeting the above conditions have equal value, the combination that includes packages from the largest number of bidders will be declared the winning combination. If this rule does not lead to identifying a single combination either, the Commission will choose the winning combination from among the potential winning combinations by draw.

The bids for the packages that are part of the winning combination will be declared winning bids and their holders will be declared winners.

After the completion of the auction stage, during the licence award stage, the bidders declared winners in the additional round will be granted the rights to use the frequencies from the blocks included in the packages that are part of the winning combination.

5.4.6. Determining the basic price

Each winning bid has an associated basic price. This basic price is the total price for the aggregate of abstract frequency blocks that are part of the winning combination.

5.4.7. Closing of the additional round

After the completion of the additional primary round, the Commission will communicate to each participating bidder a series of pieces of information on the results of the additional round, as follows:

- a) each bidder will be informed on the number of abstract blocks won by the respective bidder in the additional primary round;
- b) each winning bidder will be informed on:
 - (i) the basic price corresponding to its bid declared as a winning bid in the additional round;
 - (ii) the specific basic prices for each of the blocks included in its winning bid, for the purpose of enforcing the provisions of Section 4.8.2 herein, which are equal to the individual prices indicated by the bidder for the respective blocks in the package that was part of the winning combination, in accordance with the provisions of Section 5.4.5.

Information mentioned under letters a) and b) above will not be communicated to other bidders.

As well, upon the closing of the additional primary round, the Commission will communicate each bidder the identity of the winning bidders after the closing of all the primary rounds and/or of the additional primary round, as well as the number of blocks won by each of them in each category from A to G.

5.5. Rules for the assignment round

5.5.1. Scheduling the assignment round

The assignment round for each category in part is scheduled by the Commission, which sets the beginning date and time of the round as well as its duration (closing date and time). In principle, the duration of the assignment round may not be shorter than one hour.

The assignment round for each category will be scheduled to take place between 9.00 and 18.00 hours, on a working day, and assignments for several categories may take place on the same day. The bidders will be announced on the round date and time with at least one working day in advance.

The assignment round for one category must begin and end on the same day, as round interruption by the end of the day and resumption during the next morning are not accepted. If exceptional circumstances occur and justify the interruption of the auction for the rest of the day or for a longer period, the Commission will immediately announce the bidders thereon.

Regarding the 3400-3800 MHz band, the assignment round establishing the position in the band of the short-term usage rights will take place only if necessary (according to the provisions thereon under Section 5.5.4) and before the assignment round setting the position in the band of the long-term usage rights.

5.5.2. Informing the bidders prior to the assignment round

When announcing the assignment round date and time, the Commission will also inform each bidder with respect to:

- a) the duration of the respective round (hours, minutes), specifying its closing time; and
- b) whether the bidder still has or not an extension right available after the primary and additional rounds.

5.5.3. Bid prices

There is no minimum or maximum price cap as regards the assignment bids. These bids must be expressed in euro.

5.5.4. Bid rules

The gaining of a certain number of blocks in one of the A B, D, E, F, G categories, as the case may be, following the initial bid or the primary rounds and/or the additional primary round implies the winning bidder's right as well as obligation to acquire one of the frequency assignment options presented to that bidder by the Commission for each category during the assignment round.

The bidders are invited to submit bids for the specific options for frequency assignment, as set out by the Commission, in accordance with the rules below.

For each of the frequency bands where there are two or more winning bidders, the Commission will establish a set of options for frequency assignment, for each bidder separately. More specifically, for each bidder, for each block category, the Commission will identify an exhaustive list of adjacent frequency blocks that meet the following conditions:

- a) the number of blocks in each option is equal to the number of blocks won by the bidder during the primary rounds and/or the additional primary round;
- b) any option for assigning frequency blocks to a certain bidder is compatible with the options of all the other winners in that category receiving adjacent spectrum; and
- c) the unassigned frequency blocks in a certain band will be re-arranged in the respective band according to the rules under Section 5.5.6.

During the assignment round, the participating bidders will submit a bid form, in accordance with the rules described in Section 5.1.3.

For each bidder, the bid form will include a list of all the frequency assignment options available to the respective bidder in each of the bands for which it has won frequency blocks during the primary rounds and in the additional round. A member of the Commission will make available the bid form to the bidder at the beginning of the assignment round.

Each bidder may submit one assignment bid for each option listed in its bid form, indicating the amount it is willing to pay to acquire the respective assignment option.

Zero bids will be automatically recorded for those frequency assignment options for which no bid is submitted. In case a bidder does not submit a bid form during the allocated timeframe, it shall be considered as submitting a zero bid for each of the frequency assignment options in each band available to the respective bidder.

Each bid submitted during the assignment round represents a firm, definitive, irrevocable and unconditional commitment to pay the specified price for each assignment option, in view of obtaining the respective specific frequency assignments, as an additional price to the basic price the bidder must pay as a result of the primary rounds and/or of the additional round.

A bid stays valid until:

- a) it is cancelled as a result of the Commission's cancellation of the round and of the bids submitted during that round;
- b) the winning bidders are awarded the licences for the usage rights gained as a result of the selection procedure.

In the case of the 3400-3600 MHz band – affected by (main) refarming as a result of the switch from FDD arrangement to the TDD one (which becomes the only valid starting 1 January 2020), and found (because of this situation) in a transition period until the end of 2019 (a period within which the holders of licences in this band make all the necessary changes within the networks operating in the aforementioned band) – are applicable, additionally, the principle and the rules detailed below.

As a rule, the contiguity of all the usage rights held in the 3400-3600 MHz band must be ensured at any time, including after the announcement on the winners of the concrete spectrum blocks (after both assignment rounds, for the short-term, respectively long-term usage rights).

Thus, as a direct consequence of applying the principle above, the assignment round for the short-term usage rights will actually take place only if the situation so requires it, namely only if there will be at least two operators, new-entrants in the 3400-3800 MHz band, who have won short-term abstract spectrum blocks.

Furthermore, depending on the abstract spectrum blocks to be won, within the available 90 MHz, by the operators that already hold a licence in force in the 3400-3600 MHz band, a new refarming

in the band in question might become necessary (case in which it will be mandatory), in the new context resulted after the assignment of short-term rights before the assignment round.

The additional refarming of the frequency sub-bands assignments existing at this time in the 3400-3600 MHz band will take place while ensuring the total minimum number of channel permutations between the two operators (taken two by two), necessary so that both operators involved could enjoy the contiguity of the assigned frequency sub-bands.

The actual refarming of the concrete spectrum blocks, upon applying the above-mentioned rule, will be done before the actual holding of the assignment round for the short-term usage rights (to be held only in the situation already mentioned before).

Practically, the additional refarming will begin, if necessary, after the completion of the selection procedure and will have to end on the same date, namely 31 December 2019, set for the main refarming in the 3400-3600 MHz band.

If there is only one operator, new entrant in the 3400-3800 MHz band, which has won short-term abstract spectrum blocks, its concrete blocks will automatically result, by enforcing the aforementioned principle, in the 3400-3800 MHz band following the selection procedure (described in Section 5.5.6), taking into account the results of the additional refarming detailed above (specifically, the concrete blocks remaining unassigned following this procedure) and the rules on the positioning of the frequency blocks remained unassigned, if applicable.

If the assignment round for the short-term usage rights will not be required, the concrete blocks corresponding to these rights, as resulted from applying the rules above, will be announced (for all the envisaged winners of the selection procedure) before holding the assignment round for the long-term usage rights.

If there are at least two operators, new-entrants in the 3400-3800 MHz band, which have won short-term abstract spectrum blocks, an assignment round for the short-term usage rights will be held, and it will keep into account including the special rules for the 3400-3800 MHz band, specified in the next Section. These special rules apply to the assignment round for long-term usage rights too.

5.5.5. Determining the winning bids

After the completion of each assignment round for each category, the Commission will assess the bids and will establish the winning combination, representing the combination of submitted valid assignment bids that has the highest total value among all possible combinations, if the following conditions are met:

- a) the combination includes only one bid from each bidder;
- b) each bidder will be assigned in each category the amount of spectrum won by the respective bidder during the primary rounds and/or the additional round;
- c) each bidder is assigned adjacent frequencies in each category;
- d) the frequency ranges assigned to a bidder do not overlap with the frequency ranges assigned to another bidder; and
- e) any unassigned blocks must be positioned in accordance with the rules under Section 5.5.6.

Furthermore, special rules will apply for the 3400-3800 MHz band – valid for both assignment rounds (for short-, respectively long-term rights) – concerning the means of determining the maximum total value of all the possible combinations, described further on.

Thus, after the submission of the bids in each of the two rounds, the winning bids will be, in each of the two cases, those included in the bid combination that maximizes the value calculated upon the following formula:

$$\sum_{i=1}^n bidamount_i \times a_i$$

where

for the operators currently holding assignments in the band in question: $a_i = \frac{|x_i - y_i|}{\max(|x_i - z_i|, 2.5)}$

and for the operators that do not hold currently assignments in the respective band: $a_i = 1$

The parameters of the above formula have the following meaning:

- n = the number of winning bidders in the frequency band for which the assignment round is held;
- x_i = the value (in MHz) of the middle point of the assigned frequency sub-band (as a geometrical segment) currently held by the winning operator "i";
- y_i = the value (in MHz) of the middle point of the sub-band (as a geometrical segment) that would correspond to the assignment option farthest from x_i ;
- z_i = the value (in MHz) of the middle point of the sub-band (as a geometrical segment) that corresponds to the assignment option for the operator "i" from the analysed combination (assignment option).

As for the frequency sub-bands currently assigned to the licence holders in the 3400-3600 MHz band, the parameter x_i has the value determined in keeping with the way in which these sub-bands are positioned in the respective band, using the TDD channel arrangement (according to the provisions in Table 14).

After each assignment round, the Commission will provide the bidder information on:

- (i) the price of its winning bid;
- (ii) the concrete blocks resulted following the round.

Each bidder will have a winning assignment bid in each band where it has won blocks during the primary rounds and/or the additional round. The winning assignment bid may be a zero bid, automatically recorded on behalf of the bidder for an assignment option for which the respective bidder has not submitted an assignment bid.

In case several combinations of assignment bids meeting the above conditions have equal and the highest value, the Commission will select a combination by means of draw.

5.5.6. Positioning the unassigned frequencies

It is possible that certain blocks from certain bands remain unassigned following the primary rounds and the additional round. Any unassigned blocks will be positioned according to the rules in the table below.

Table 59 – Positioning the unassigned frequencies

Category	Number of blocks	Band	Block size	Positioning any unassigned blocks
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A	6	703-733/758-788 MHz FDD	2 x 5 MHz	Any unassigned blocks will be adjacent and positioned immediately above 703 MHz and respectively above 758 MHz
B	3	738-753 MHz SDL	1 x 5 MHz	Any unassigned blocks will be adjacent and positioned immediately above 738 MHz
C	1	791-821/832-862 MHz FDD	2 x 5 MHz	791-796/832-837 MHz
D	8	1452-1492 MHz	1 x 5 MHz	Any unassigned blocks will be adjacent and positioned immediately below 1492 MHz
E	8	2530-2570 /2650-2690 MHz FDD	2 x 5 MHz	Any unassigned blocks will be adjacent and positioned immediately below 2570 MHz and respectively below 2690 MHz
F	18	3400-3490 MHz	1 x 5 MHz	Any unassigned blocks will be adjacent and positioned immediately above 3400 MHz.
G	40	3400-3800 MHz	1 x 10 MHz	Any unassigned blocks will be adjacent and positioned immediately below 3800 MHz.

5.5.7. Determining the additional price

Each winning bid, in each band, has an associated additional price. This price corresponds to the assignment option belonging to the winning bid of each bidder in the respective band and represents the sum to be paid by the holder of the respective bid, in addition to the basic price determined as a result of the primary rounds and of the additional round (if such is the case), to obtain the said assignment.

5.5.8. Completion of the assignment round

After the completion of the assignment round for each category, the Commission will communicate to each participating bidder a series of pieces of information on the results of the round, as follows:

- a) each bidder will be informed on the assignment obtained within the category;
- b) each winning bidder will be informed on the additional price for the assignment obtained within the category.

Information under letters a) and b) above will not be communicated to other bidders.

5.6. Completion of the auction stage

At the completion of the auction stage, the Commission:

- a) will determine the final price each winning bidder must pay to gain the rights to use the frequency blocks awarded to the respective bidder, representing the sum between the basic price determined based upon either the initial bid or the primary rounds or the additional round (and which cannot be less than the reserve price for each category) and the additional price determined after the assignment round; this final price will be announced at the same time with the results of the procedure, in the licence award stage;
- b) will inform the bidders that did not gain usage rights during the procedure on the term within which the participation bond is to be returned to them, in accordance with the provisions of Section 4.4.5, letter b).

Chapter 6 – MISCELLANEOUS

6.1. Advertising the selection procedure

ANCOM may issue any public communication related to the selection procedure, as it deems necessary, without prior notification to the participants in the procedure. ANCOM may use any communications means, as it considers necessary, including written and online mass-media, its webpage (www.ancom.org.ro) etc.

Information publicly communicated by ANCOM may relate, *inter alia*, to:

- a) the identity of the participants (candidates) in the selection procedure, of the bidders in the auction stage and/or of the winning bidders upon the completion of the selection procedure;
- b) the frequency band/bands within which the winning bidders have gained usage rights following the procedure;
- c) the licence fees owed by the winning bidders;
- d) licences that will be awarded as a result of the selection procedure.

The candidates/bidders have the obligation to refrain from any communication concerning the selection procedure throughout the selection procedure.

6.2. Suspension of the selection procedure

In the event of occurrence of exceptional circumstances that may affect the procedure, ANCOM has the right to suspend the selection procedure at any time during its progress. The occurrence of an exceptional circumstance is assessed by the Commission. Such circumstances may include, for example, the occurrence of natural catastrophes, demonstrations, strikes, violent conflicts or incidents of any kind, technical faults or any other exceptional events that may disturb or hinder the holding of the selection procedure, the existence of indications or acknowledgements of breaches of the rules regarding the participation in the selection procedure by one or several bidders, as well as any other exceptional circumstances that may in any way endanger the carrying out of the auction.

In case of suspending the procedure, ANCOM has the obligation to request the candidates/bidders to extend the validity of their bids, as well as of their participation bond, if necessary.

6.3. Cancellation of the selection procedure

According to the provisions under art. 26 paragraph (6) of the Framework-Ordinance, ANCOM may cancel the started selection procedure, before the deadline for the submission of the last bid during the principal stage. The decision to cancel the selection procedure must be objectively justified or must represent a consequence of certain conditions that could not have been known at the time when the selection procedure had been initiated. ANCOM will communicate publicly the reasons for cancelling the selection procedure, within a 30 days' timeframe.

Annexes

Annex 1 – Statement on the capacity as a participant in the selection procedure

Annex 2 – Application form

Annex 3 – Model of a licence for the use of radio frequencies

Annex 4 – Model of a letter of bank guarantee/guarantee tool

Annex 5 – Status of the coverage areas with digital terrestrial television transmitters on the Ukrainian territory in the 694-790 MHz band

Annex 1

[*heading of the individual candidate/associate candidate*]

STATEMENT ON THE CAPACITY AS A PARTICIPANT IN THE SELECTION PROCEDURE

TO:

**National Authority for Management and Regulation in Communications
2 Delea Noua Street, Sector 3, Bucharest**

With reference to:

Participation in the competitive selection procedure held in view of awarding rights to use the radio frequencies

After examining the provisions of the *Terms of Reference for the competitive selection procedure held in view of awarding rights to use the radio frequencies*, as well as the provisions of the Decision of the president of the National Authority for Management and Regulation in Communications no. ___/2019 on the selection procedure for awarding rights to use the radio frequencies, the undersigned, [*name and first name*], legal representative of [*name and headquarters of the individual candidate/associate candidate*], under the sanction of being disqualified from the selection procedure and being aware of the sanctions applicable in case of false statements, declare on my own responsibility the following:

1. In the selection procedure, I participate and submit a bid in my capacity as (tick the corresponding option):

individual candidate;

associate candidate in the association led by [*name and address of the association leader*].

2. I do not submit more than one application, individually and/or in association with other legal person, being aware that breaching this rule triggers the rejection of all applications thus submitted.

3. The candidate on whose behalf I act (tick the corresponding option):

is not a member of a group of undertakings;

is a member of a group of undertakings whose names, addresses and links are presented in the document [*name of the document comprising the structure of the candidate's group*], which I submit as part of the application file.

4. All the documents and information presented and provided as part of the application file are complete, accurate in every detail and concordant with the reality, and the auction commission

appointed by decision of the president of ANCOM has the right to require any other justifying documents for verifying and confirming my statement.

5. I will immediately inform the auction commission appointed by decision of the president of ANCOM if any changes occur to the present declaration at any time during the selection procedure.

I, the undersigned, hereby authorise any institution, commercial company, bank, other legal persons to provide information to the authorised representatives of ANCOM on any commercial, technical and financial aspect related to the activity of the candidate I represent.

I also declare that I acknowledged the provisions of art.292 "False statements" of the Penal Code of Romania, stating that, "*A statement which does not correspond to the truth, delivered to a person from those provided for in article 175 or to an entity within which these carry out their activity, for the purpose of producing legal effects, on the own behalf or on somebody else's behalf, in such a case when, in accordance with the law or the circumstances, the delivered statement serves for generating the respective consequence, shall be sanctioned by 3 months to 2 years imprisonment or by fine*".

The present statement is valid until [*the date when the bid validity expires*].

Filled in as of

[*name of the individual candidate/associate candidate*]

(authorised signature)

Annex 2

[candidate's heading]
APPLICATION FORM

TO:

**National Authority for Management and Regulation in Communications
2 Delea Noua Street, Sector 3, Bucharest**

With reference to:

Participation in the competitive selection procedure held in view of awarding rights to use the radio frequencies

After examining the provisions of the *Terms of Reference for the competitive selection procedure held in view of awarding rights to use the radio frequencies (hereinafter referred to as the "Terms of Reference")*, as well as the provisions of the Decision of the president of the National Authority for Management and Regulation in Communications no. ___/2019 on the selection procedure for awarding rights to use the radio frequencies (hereinafter referred to as the "ANCOM Decision"), I, the undersigned, [name and first name], legal/mandated representative of [name and headquarters of the candidate], hereby firmly, irrevocably and unconditionally undertake:

1. To participate in the selection procedure and observe its rules (including the sanctions applicable in case of breaching the said rules), as these have been established by the Terms of Reference and the ANCOM Decision, during the entire duration of the procedure, until the licences are awarded, without causing any prejudice to the right of ANCOM to enforce certain sanctions after the licence award also (e.g. licence revoking);

2. To maintain valid the bid for the usage rights over the amounts of radio frequencies in each of the bands indicated in the table below, at the price specified therein (to which the possible additional price communicated by ANCOM by the closing of the primary round/rounds or assignment round may be added) until [the date when the bid validity expires] or until the date of the bid validity advance termination³⁸; I thereby acknowledge that the submission of this bid does not bring prejudice to my right to subsequently submit a bid for any other package of frequency blocks in the primary and/or assignment rounds of the auction stage, provided that the activity and eligibility rules, as well as the rules on the limitations as to the gaining of frequency usage rights established in the Terms of Reference and in the ANCOM Decision are observed.

3. In case the candidate I represent is designated winner in the selection procedure, I will ensure that the electronic communications networks, presently managed or which are to be developed, follow the requirements in the cybersecurity field in force or those that are to be adopted upon the actions carried out at a national and/or European level.

4. In case the candidate I represent is designated winner in the selection procedure, I will pay within the term and under the conditions established by ANCOM the basic price and, as the case may be, the additional price resulted from the procedure for the usage rights gained, and I will observe the provisions under Chapter 3 of the Terms of Reference and the ANCOM Decision.

³⁸ The date of the bid validity advance termination is the date when:

- a) the bid is replaced by a higher bid for the same package of frequency blocks, submitted by the same bidder during the primary round/rounds and/or the assignment rounds; or
- b) the bid is cancelled as effect of the Commission's cancelling of one round or several rounds, as well as of the bids submitted therein; or
- c) the winning bidders are awarded licences for the usage rights gained as a result of the selection procedure.

(Note: The candidate will fill in the following table and will indicate the number of blocks in each frequency band for which it submits the initial bid. If the candidate does not submit a bid for any of the blocks within a certain band, it will cross the respective sections. Pay attention! The candidate must observe the caps referring to the gaining of the usage rights imposed in Section 4.1.3, as well as the conditions specified at Section 4.7.1 under the Terms of Reference; its application will otherwise be rejected.)

Category	No. of available blocks	Frequency band (MHz)	Use (period)	Reserve price/block (euro)	Initial bid (no. of frequency blocks)	Total (euro)
A	6	700 (FDD)	01.01.2021-31.12.2035			
B	3	700 (SDL)				
C	1	800 (FDD)	01.01.2020-31.12.2029			
D	8	1500 (SDL)	01.01.2020-31.12.2034			
E	8	2600 (FDD)	01.01.2020-31.12.2029			
F	18	3400-3600 (TDD)	01.01.2020-31.12.2025			
G	40	3400-3800 (TDD)	01.01.2026-31.12.2035			
Total price of the initial bid						

5. I hereby expressly, unequivocally, irrevocably and unconditionally declare that, in case of any dispute/issue arising in relation with the present selection procedure and the granting of the radio frequency usage rights as a result of the said procedure, I understand to accept that the substantive and procedural rules under the Romanian law and the Romanian Court of Law jurisdiction are to be applied and I waive the applicability of any foreign jurisdiction that may be competent in solving the respective dispute/issue.

Filled in as of

[*name of the candidate*]
(*authorised signature*)

Annex 3

ANCOM
Autoritatea Națională pentru Administrare
și Reglementare în Comunicații

Str. Delea Nouă nr.2, Sector 3, 030925 București, România
Telefon: 0372 845 400 / 0372 845 454. Fax: 0372 845 402
E-mail: ancom@ancom.org.ro. Website: www.ancom.org.ro

On grounds of the Decree of the President of Romania no. 509/2009 on the appointment of the president of the National Authority for Management and Regulation in Communications,

On grounds of the provisions of art. 10 paragraph (2) points 12 and 13, art. 11 paragraph (1), art. 12 paragraph (1) of the Government Emergency Ordinance no. 22/2009 setting up of the National Authority for Management and Regulation in Communications, approved by Law no. 113/2010, with the subsequent amendments and completions, as well as of art. 23 paragraph (1), art. 24 paragraphs (1), (2) and (3), art. 31 paragraph (1) and (2) of the Government Emergency Ordinance no. 111/2011 on electronic communications,

Having regard to the provisions of the Decision of the president of the National Authority for Management and Regulation in Communications no. /2019 on the selection procedure for awarding rights to use the radio frequencies,

the president of the National Authority for Management and Regulation in Communications issues this

LICENCE³⁹

FOR THE USE OF RADIO FREQUENCIES

FOR THE PROVISION OF PUBLIC ELECTRONIC COMMUNICATIONS NETWORKS AND ELECTRONIC COMMUNICATIONS SERVICES

no. _____

Holder: _____

With headquarters in: _____

registered with the Trade Registry Office under no. _____,

unique registration code: _____,

³⁹ The Licence for the use of radio frequencies to be awarded to the winners of the usage rights will be drawn up by taking into consideration the requirements set under the Terms of Reference. The document "Licence" has a guiding character and is only drawn up for its presentation within the selection procedure, whereas the authorisation act is to contain specific conditions for each radio frequency band.

is authorised to exercise the right to use the radio frequencies specified in this licence to provide public electronic communications networks and mobile electronic communications services, in the following assigned frequency sub-bands:

1. in the frequency bands _____:
2. in the frequency bands _____;

I. Definitions

1. For the purposes of the present Licence, the relevant definitions provided for in the Radio Regulations adopted by the International Telecommunication Union (ITU) or in the national legislation in the electronic communications field apply.

II. Technical and operational conditions⁴⁰

1. The holder of the Licence may use any available technology for each type of application established in the National Table for Frequency Band Allocation (NTFA) and in accordance with the provisions of the European Union and national legislation, as the case may be.

2. The holder has the obligation to exercise its rights deriving from the present Licence under conditions that would ensure the effective, rational and efficient use of the radio frequencies and the prevention of harmful interferences.

3. The holder has the right to install, operate, control and make available to third parties a public electronic communications network, as well as the corresponding infrastructure, in view of providing publicly available mobile electronic communications services.

4. The frequency assignments for the network provision, the identification characteristics of the radiocommunication stations, the technical parameters that define the service area associated to the assigned frequencies and the characteristics of the radio signals transmitted within the network are comprised in the assignment authorisations which are an integral part of the present Licence.

5. The holder has the obligation to comply with the requirements deriving from the observance of all international agreements to which Romania is a party concerning the use of radio frequencies, including in the border areas.

6. In the border areas, the licence holder will use the allocated frequency blocks only based on coordination with the communications administrations from the neighbouring countries, in compliance with the requirements deriving from the enforcement of the international agreements to which Romania is a party or from the international regulations on frequency coordination applicable to the allocated spectrum. The technical conditions for the use of radio frequencies in border areas are provided for in Section 3.3.3.7 of the Terms of Reference.

7. The holder has the obligation to comply with the requirements deriving from the achievement of the objectives of European harmonisation and international cooperation in the electronic communications field and which may consist of the modification of the assigned radio frequencies or of the corresponding technical parameters set under the present Licence. The modifications specified at this point will be implemented within a reasonable term fixed by ANCOM, upon consulting the holder, in accordance with the provisions of art. 24 paragraphs (3) and (4) of the Government Emergency Ordinance no. 111/2011.

⁴⁰ The reference technical and operational conditions are provided in the Terms of Reference and are to be concretely mentioned depending on the outcomes of the selection procedure (the radio frequency bands to be gained by the interested parties).

8. The holder has the obligation to notify to ANCOM the location of the base stations, at least 30 days before starting the execution works. ANCOM may request the holder to change the location, in view of ensuring the electromagnetic compatibility. The holder has the obligation to notify to ANCOM the values of the technical parameters of the base stations (locations, proposed frequencies, emission power, antennae/equipment used etc.) at least 15 calendar days prior to the putting into operation.

9. The change of the notified base station locations in accordance with point 8 or the decommission of a notified location entails the obligation to notify the situation within 30 days.

10. The holder has the obligation to abide by the standards adopted by the European Telecommunications Standards Institute (ETSI), as well as by the regulations adopted by ANCOM.

11. With a view to prevent or remove the harmful interferences, the holder has the obligation to observe the technical and operational conditions for the use of radio frequencies established by ANCOM.

12. The holder will take the necessary actions, on its own expense, to remove the harmful interferences that are caused by or may be imputable to the holder, including but not limited to repairs, insertion of certain additional filters, the correction of errors owed to the improper or faulty installation of the network or to the improper operation of the equipment.

13. The equipment within the network will observe the essential requirements and the harmonised European standards applicable in Romania. The holder will not pretend – directly or indirectly – for the terminal equipment other requirements than those defined by the applicable standards adopted by ETSI.

III. Coverage and quality conditions⁴¹

IV. Monitoring and verification of the compliance with the obligations

1. The verification and evaluation methodology to be used to verify the compliance with the coverage obligations is laid down in Section 3.6 of the Terms of Reference.

V. Modification of the radio frequency usage rights

1. The radio frequency usage right may be amended, upon the ANCOM initiative, in accordance with the procedure established under the law, in the following situations:

- a) observance of the conditions on the effective, rational and efficient use of the radio frequencies;
- b) prevention of harmful interferences;
- c) implementation of the objectives of European harmonisation and international cooperation regarding the use of the radio frequencies;
- d) compliance with the international agreements to which Romania is a party relating to the use of the radio frequencies;
- e) resolution of the limited availability of the radio frequencies, in certain geographic areas and under specified technical conditions, in the radio frequency bands designated for the type of application intended for the provision of the network making the object of the licence;

⁴¹ The conditions set in the Terms of Reference will be specified.

- f) implementation of the strategy for the development of the electronic communications and management of the radio frequency spectrum;
- g) modification of the NTFA.

2. In the situation provided at point 1, ANCOM will inform the holder of the usage rights regarding the modifications which must be operated and grants the holder a corresponding term in view of implementing these modifications, proportionate to their qualitative or quantitative nature.

3. ANCOM will also modify the licences for the use of radio frequencies as a result of the occurrence of one of the following situations:

- a) transfer of the usage rights;
- b) partial waiver of the usage rights;
- c) partial withdrawal of the usage rights, if applicable, under the law.

VI. Transfer of the radio frequency usage rights⁴²

1. The radio frequency usage rights may be totally or partially transferred to a third party, under the law, only with the prior approval of ANCOM, with the observance of all the deriving obligations, as well as with the compliance with the conditions and/or objectives set or considered at the award of the right.

2. If the radio frequency usage rights conferred under the Licence are partially transferred, the holder of this Licence will be able to transfer only blocks of at least 5 MHz.

3. The transfer of the radio frequency usage rights must not result in the restriction, deterrence or distortion of competition and, where the use of the radio frequencies is harmonised at European level, must not lead to changing the usage destination of the frequencies that make the object of this Licence in a way that would contravene to this harmonised use.

4. If the usage rights are transferred, the change of the usage destination of the frequencies for which the Licence was awarded is not allowed.

VII. The spectrum usage tariff

The holder has the obligation to pay, for the entire validity period of the usage rights, the spectrum usage tariff, in the amount and within the terms set according to the normative acts in force.

VII. Validity period

XI. Revoking of the radio frequency usage rights

The radio frequency usage right may be revoked, totally or partially, in accordance with the procedure established under the law, in the following situations:

1. total withdrawal of the radio frequency usage rights, under the terms of art. 27, art. 147 letter b) in conjunction with art. 141 paragraph (1) or of art. 148 of the Government Emergency Ordinance no. 111/2011 on electronic communications;
2. revoking of the right to use radio frequencies, under the terms of art. 6 paragraph (6) of the Government Emergency Ordinance no. 111/2011 on electronic communications.

⁴² The transfer of the usage rights is also achieved in compliance with art. 35 of the Government Emergency Ordinance no. 111/2011 on electronic communications.

XI. Final provisions

- 1.** ANCOM may forbid for a limited period, at the reasoned request of the competent institutions within the system of national defence, public order and national safety, the partial or total use of the usage rights awarded under this Licence where the national safety, public order or national defence impose this measure, as well as where certain engagements assumed under international agreements must be observed.
- 2.** The holder has the obligation to provide ANCOM with all the information and materials the latter requests in view of fulfilling the incumbent duties on the supervision and control of the compliance with the obligations under the present Licence or in the legislation in the electronic communications field.
- 3.** The holder has the obligation to allow the access of the ANCOM control personnel in any location where equipment, apparatus and electronic communications installations are found, in view of their inspection for verifying the compliance with the conditions and obligations set under the Licence or in the legislation in the electronic communications field.
- 4.** The non-compliance with the technical and/or operational conditions, as well as with the obligations provided in this Licence, including in its annexes, or the non-observance of any other legal provisions and/or technical regulations applicable to this Licence lead to the enforcement of the sanctions provided for in the legislation in force, which consist of the application of contravention fines, suspension of the right to use the radio spectrum, for a specified term, or the revoking of the usage right, as applicable.
- 5.** The failure to pay in due term the spectrum usage tariff, according to the law, entails the enforcement of delay penalties, and, for exceeding the legal payment term determined under the terms of the normative acts in force, ANCOM may dispose the suspension and/or revoking of the Licence.
- 6.** The present Licence does not replace other agreements or approvals that are necessary, according to the national legislation in force from other fields than electronic communications, for the carrying out of the holder's activity in Romania during the validity period of the usage rights.
- 7.** The provisions of the present Licence are rightfully completed by the legal provisions in force in the electronic communications field.

Annex 4

[*heading of the issuer*]

**LETTER OF GUARANTEE
for the participation with a bid in the competitive selection procedure held for
awarding rights to use the radio frequencies**

To:

**National Authority for Management and Regulation in Communications
2 Delea Noua Street, Sector 3, Bucharest**

Regarding the competitive selection procedure held for awarding rights to use the radio frequencies, we [*name and headquarters of the bank*], unconditionally and irrevocably commit hereby toward the National Authority for Management and Regulation in Communications (ANCOM) to pay the amount of

[*amount in letters*] ([*amount in figures*]) euro,

Payable in lei, at the exchange rate valid on the date of payment, set by the National Bank of Romania, upon the first and simple written request of ANCOM, which does not have the obligation to justify the respective request provided that it specifies therein that the amount owed to, and requested by, ANCOM is thereby requested because of the existence of one of the situations described below:

- 1) [*name of the candidate*], being declared winner in the selection procedure, does not pay in due time the owed final price representing the licence fee;
- 2) [*name of the candidate*], being declared winner in the selection procedure, waives the right to be awarded the licence for the use of radio frequencies;
- 3) [*name of the candidate*] breaches the rules concerning the participation in the selection procedure, set out by ANCOM.

This guarantee is valid until [*day/month/year*].

This guarantee tool/guarantee letter is governed by the Romanian law.

The Romanian Courts of Law are competent to settle any disputes arising in relation to the present guarantee tool/guarantee letter.

Endorsed by the Issuer _____ on [*day/month/year*].
(authorised signature)

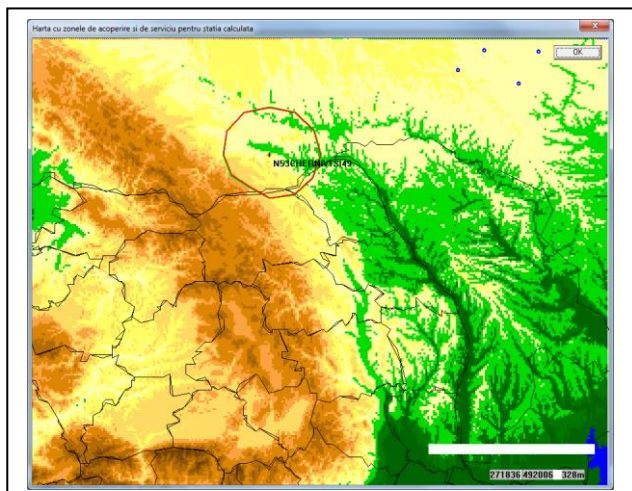
Annex 5

Status of the coverage areas with digital terrestrial television transmitters on the Ukrainian territory in the 694-790 MHz band

Channel 49 (694-702 MHz)

Block: 694-703 MHz - guard

Service area DVB-T transmitter Chernivtsi chan.49, Eutil=55.4 dB μ V/m



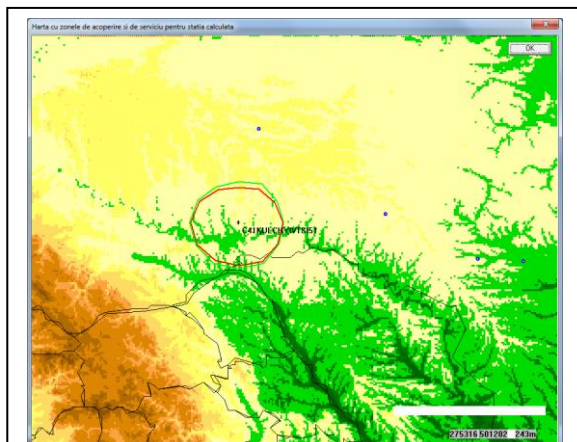
Protection sector: 25^o41'43"; 47^o56'44" - 26^o22'35"; 48^o11'44"

Channel 51 (710-718 MHz) – area BT-SV

Block: 708-713 MHz

713-718 MHz

Service area DVB-T transmitter Kulchyivtsi 1 chan.51, Eutil=55.6 dB μ V/m

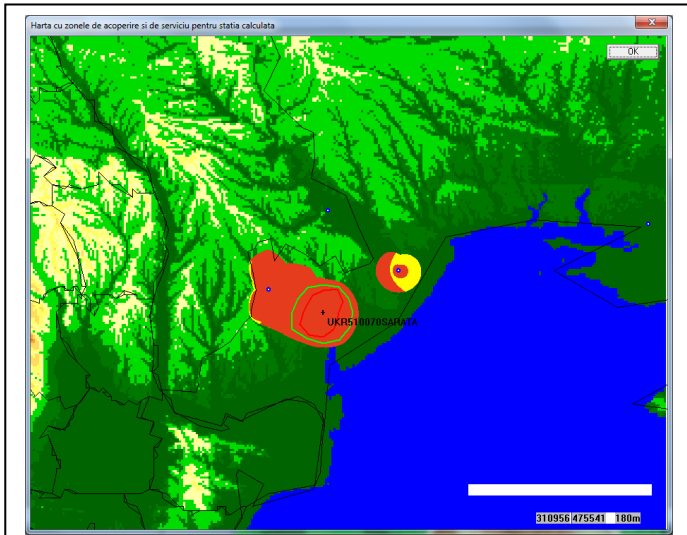


Protection sector: 26^o25'15"; 48^o11'05" - 26^o52'02"; 48^o12'15"

Channel 51 (710-718 MHz) – area GL-TL

**Bloc: 708-713 MHz
713-718 MHz**

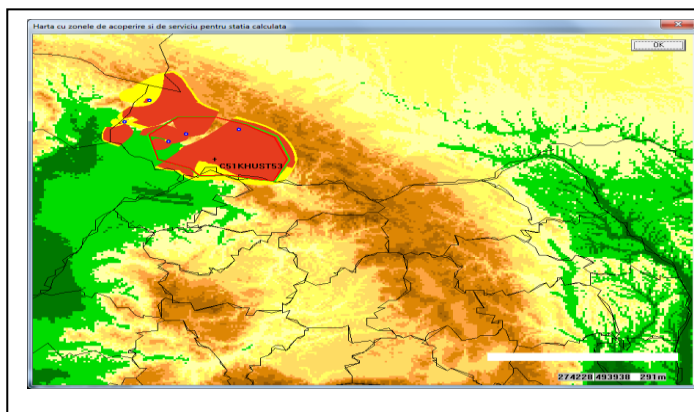
Service area SFN network (TARUTYNE, MYKOLAIVKA, SARATA -0) chan.51, Eutil=55.6 dB μ V/m



Channel 53 (726-734 MHz)

**Block: 723-728 MHz
728-733 MHz**

Service area SFN network chan.53, Eutil=55.8 dB μ V/m



Protection sector: 22°57'20"; 47°59'31" - 23°55'39"; 47°58'07"

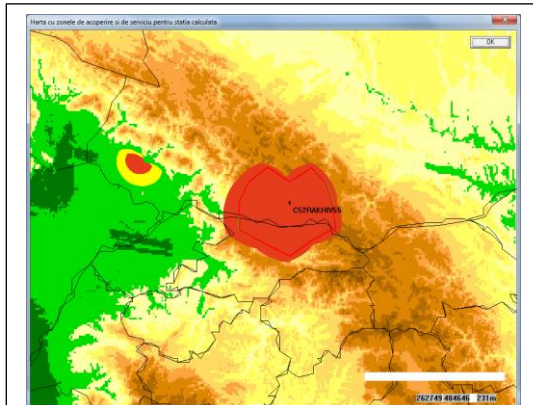
Channel 55 (742-750 MHz) – area SM-MM

Block: 738-743 MHz

743-748 MHz

748-753 MHz

Service areas of transmitters MUKACEVO and RAKHIV chan.55, Eutil=56 dB μ V/m



Protection sector: 23°30'24"; 47°59'55" - 24°40'35"; 47°51'42"

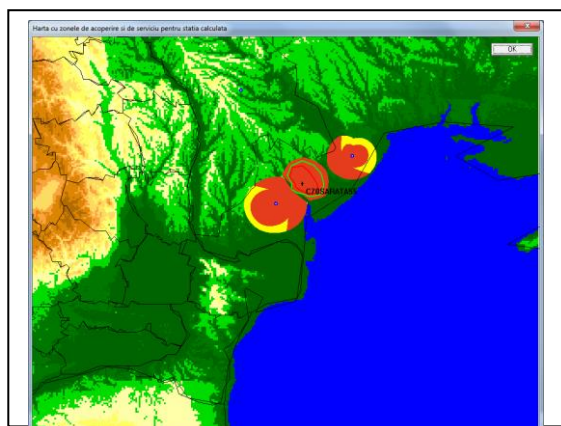
Channel 55 (742-750 MHz) – area GL-TL

Block: 738-743 MHz

743-748 MHz

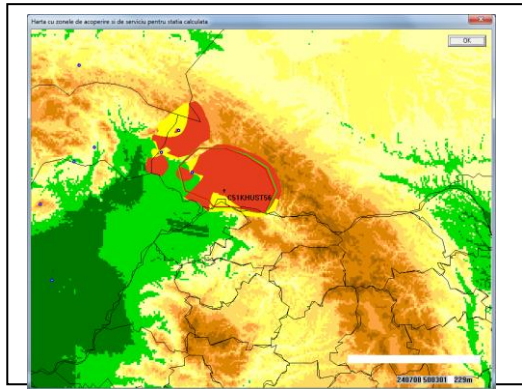
748-753 MHz

Service area of the SFN network (MIKOLAIVKA, SARATA, KAMIANSKE 0) chan.55, Eutil=56 dB μ V/m



Channel 56 (750-758 MHz)
Block: 748-753 MHz
753-758 MHz

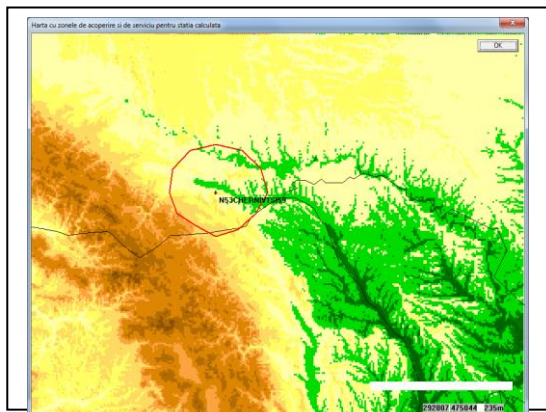
Service area SFN network chan.56, Eutil=56.1 dB μ V/m



Protection sector: 22°57'48"; 47°59'52" - 23°55'11"; 47°57'29"

Channel 59 (774-782 MHz) – area SV-BT
Block: 773-778 MHz
778-783 MHz

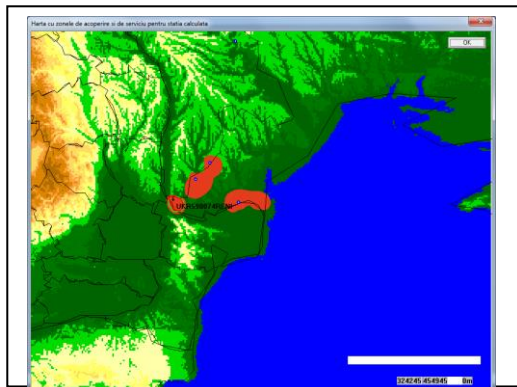
Service area CHERNIVTSI - 0 chan.59, Eutil=56.2 dB μ V/m



Protection sector: 25°44'19"; 47°56'16" - 26°16'04"; 48°06'09"

Channel 59 (774-782 MHz) – area GL-TL
Block: 773-778 MHz
778-783 MHz

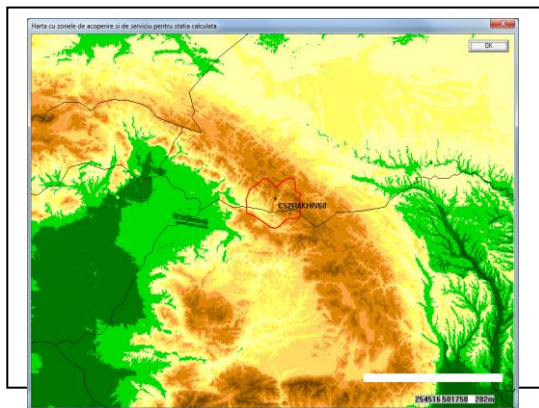
Service area SFN network chan.59, Eutil=56.2 dB μ V/m



Protection sectors: 28⁰08'11"; 45⁰28'28" - 28⁰21'30"; 45⁰18'42"
29⁰00'59"; 45⁰21'30" - 29⁰33'35"; 45⁰21'29"

Channel 60 (782-790 MHz)
Block: 778-783 MHz
783-788 MHz
788-791 MHz

Service area RAKHIV chan.60, Eutil=56.4 dB μ V/m



Protection sector: 23⁰40'44"; 47⁰59'36" - 24⁰38'07"; 47⁰53'56"