TECHNICAL AGREEMENT

BETWEEN THE NATIONAL FREQUENCY MANAGEMENT AUTHORITIES OF

SERBIA

and

MONTENEGRO

ON BORDER CO-ORDINATION OF IMT/UMTS SYSTEMS

IN THE FREQUENCY BANDS

1900 – 1980 / 2010 -2025 / 2110 - 2170 MHz

Belgrade, June 2011

1. INTRODUCTION

In the framework of Article 6 of ITU Radio Regulations, the Republic Agency for Electronic Communications (The Administration of Serbia) and the Agency for Electronic Communications and Postal Services (The Administration of Montenegro) (hereinafter called "Signatory Authorities") ***concluded this Technical Agreement on border co-ordination of IMT/UMTS systems*** in the frequency bands 1900 - 1980 MHz, 2010 - 2025 MHz and 2110 - 2170 MHz.

The frequency bands 1900 - 1980 MHz, 2010 - 2025 MHz and 2110 - 2170 MHz are designated for pan-European digital land mobile services International Mobile Telecommunications (IMT) / Universal Mobile Telecommunications Systems (UMTS) according to ECC/DEC/(06)01. The harmonised use of spectrum for terrestrial IMT/UMTS within the previously mentioned bands is defined in the same Decision.

Principles of border co-ordination for IMT/UMTS systems are laid down in Revised ERC/REC 01-01.

2. PRINCIPLES OF CO-ORDINATION

In order to assure in border areas equitable access to the spectrum and to enhance the efficiency of spectrum usage the principles of code co-ordination (according to Annexes 1 and 4 to Revised ERC/REC 01-01) shall be applicable to the IMT/UMTS frequency bands taking into account the provisions laid down in Revised ERC/REC 01-01 and in this Technical Agreement.

Preferential use of frequencies as laid down in Annex 3 of Revised ERC/REC 01-01 shall not be the subject of this Technical Agreement but may be subject to arrangements between operators.

These principles of co-ordination shall be applied in the frequency bands 1900 - 1920 MHz and 2010 – 2025 MHz for Time Division Duplex (TDD) systems and in the frequency band 1920 – 1980 / 2110 - 2170 MHz for Frequency Division Duplex (FDD) systems.

The use of the frequency band 1920 - 1980 MHz for Time Division Duplex (TDD) systems shall be subject to additional bilateral agreements.

3. PROVISION FOR CODE CO-ORDINATION

3.1 ALLOTMENT OF PREFERENTIAL CODES

The division of preferential codes shall be in accordance with Annex 4 to Revised ERC/REC 01-01. The division relevant to the Signatory Authorities is given in the Annex to this Technical Agreement.

3.2 TECHNICAL CHARACTERISTICS

3.2.1 Coordination in border areas between FDD systems

Frequencies in the band 2110-2170 MHz for IMT/UMTS FDD systems using preferential codes with centre frequencies aligned, or where centre frequencies are not aligned, or not using a IMT/UMTS radio interface, may be used without coordination with a neighbouring country if the predicted mean field strength of each carrier produced by the base station does not exceed a value of 37 dBμV/m/5MHz at a height of 3 m above

ground on a line at a distance of 6 km inside the neighbouring country and a value of 65 dBμV/m/5MHz at a height of 3 m above ground at the borderline between countries.

Frequencies in the band 2110-2170 MHz for IMT/UMTS FDD systems using non preferential codes with centre frequencies aligned may be used without coordination with a neighbouring country if the predicted mean field strength of each carrier produced by the base station does not exceed a value of 37 dBμV/m/5MHz at a height of 3 m above ground at and beyond the borderline between countries.

3.2.2 Coordination in border areas between TDD systems

Frequencies in the bands 1900-1920 MHz and 2010 – 2025 MHz for IMT/UMTS TDD systems using preferential codes with centre frequencies aligned, or where centre frequencies are not aligned, may be used without coordination with a neighbouring country if the predicted mean field strength of each carrier produced by the base station does not exceed a value of 37 dBμV/m/5MHz at a height of 3 m above ground at and beyond the borderline between countries.

Frequencies in the bands 1900-1920 MHz and 2010 – 2025 MHz for IMT/UMTS TDD systems using non-preferential codes with centre frequencies aligned may be used without coordination with a neighbouring country if the predicted mean field strength of each carrier produced by the base station does not exceed a value of 21 dBμV/m/5MHz at a height of 3 m above ground at and beyond the borderline between countries.

Trilateral cases shall be considered as three bilateral cases.

4. PREDICTION OF PROPAGATION

For the field strength calculations to be used to trigger coordination the site general method based on ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 3000 MHz", shall be applied. This model is to be employed for 50% locations, 10% time and using antenna height of receiver points of 3 m above ground.

5. PROCEDURE AND EXCHANGE OF INFORMATION

Frequencies using preferential code groups or preferential code group blocks which are intended to be assigned on conditions other than those laid down in this agreement shall be co-ordinated in accordance with Section 6.

Data exchange is not required in general. In the case of withdrawal from the agreement (see section 8), the list of the stations in operation shall be notified within two months taken from date of giving notice of the withdrawal.

The relevant provisions of the bi- or multilateral agreements, arrangements or protocols dealing with frequency coordination in general (e.g. the "HCM Agreement"), previously approved by both Signatory Authorities, shall be applied unless otherwise laid down in this Technical Agreement.

6. ARRANGEMENTS BETWEEN UMTS OPERATORS

Operators may make arrangements concerning deviations from this agreement.

Exchanges of information for co-ordination purposes shall be in accordance with Annex 5 to Revised ERC/REC 01-01.

7. REVISION OF THE TECHNICAL AGREEMENT

With the consent of the Signatory Authorities concerned, this Technical Agreement may be modified at the request of one of the Signatory Authorities when such a modification becomes necessary in the light of administrative, regulatory or technical developments.

8. WITHDRAWAL FROM THE TECHNICAL AGREEMENT

Any Signatory Authority may withdraw from this Technical Agreement by the end of a calendar month by giving notice of its intention at least six months in advance. Frequency assignments notified within the framework of this Technical Agreement prior to the date of entry into force of the withdrawal shall remain valid and be protected according to their status.

9. LANGUAGE OF THE TECHNICAL AGREEMENT

This Agreement exists in English in 2 originals.

10. DATE OF ENTRY INTO FORCE OF THE TECHNICAL AGREEMENT

This Technical Agreement will enter into force on 01.07.2011.

11. DATE OF IMPLEMENTATION OF THE TECHNICAL AGREEMENT

The date for implementation of this Technical Agreement shall be 01.10.2011.

Done at Belgrade, 07.06.2011.

For the Administration of Serbia

dr Milan Janković

For the Administration of Montenegro

Boris Jevrić

Preferential codes for UTRA

Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe the distribution of European countries:

Type country 1: BEL, CVA, CYP, CZE, DNK, E, FIN, GRC, IRL, ISL, LTU, MCO, SMR, SUI, SVN, UKR, AZE, SRB.

Type country 2: AND, BIH, BLR, BUL, D, EST, G, HNG, I, MDA, RUS(Exclave), GEO

Type country 3: ALB, AUT, F, HOL, HRV, POL, POR, ROU, RUS, S, MLT

Type country 4: LIE, LUX, LVA, MKD, MNE, NOR, SVK, TUR.

For each type of country, the following tables and figure show the sharing of the codes with its neighbouring countries, with the following conventions of writing:

	Preferential code
	non-preferential code

Type country 1: SRB

Type country 4: MNE

1. FDD case:

For the FDD mode ; 3GPP TS 25.213 defines 64 « scrambling code groups » in §5.2.3, numbered {0..63}, hereafter called « code groups ».

	Set A	Set B	Set C	Set D	Set E	Set F
Country 1	0..10	11..20	21..31	32..42	43..52	53..63
Border 1-2	■	■				■
Zone 1-2-3	■	■				
Border 1-3	■	■	■			
Zone 1-2-4	■					■
Border 1-4	■		■			■
Zone 1-3-4	■		■			

	Set A	Set B	Set C	Set D	Set E	Set F
Country 2	0..10	11..20	21..31	32..42	43..52	53..63
Border 2-1			■	■	■	
Zone 2-3-1			■	■		
Border 2-3		■	■	■		
Zone 2-1-4			■	■		
Border 2-4			■	■		■
Zone 2-3-4			■	■		

	Set A	Set B	Set C	Set D	Set E	Set F
Country 3	0..10	11..20	21..31	32..42	43..52	53..63
Border 3-2	■				■	■
Zone 3-1-2					■	■
Border 3-1				■	■	■
Zone 3-1-4					■	■
Border 3-4			■		■	■
Zone 3-2-4					■	■

	Set A	Set B	Set C	Set D	Set E	Set F
Country 4	0..10	11..20	21..31	32..42	43..52	53..63
Border 4-1		■		■	■	
Zone 4-1-2		■			■	
Border 4-2	■	■			■	
Zone 4-2-3	■	■				
Border 4-3	■	■		■		
Zone 4-3-1		■		■		

2. TDD case:

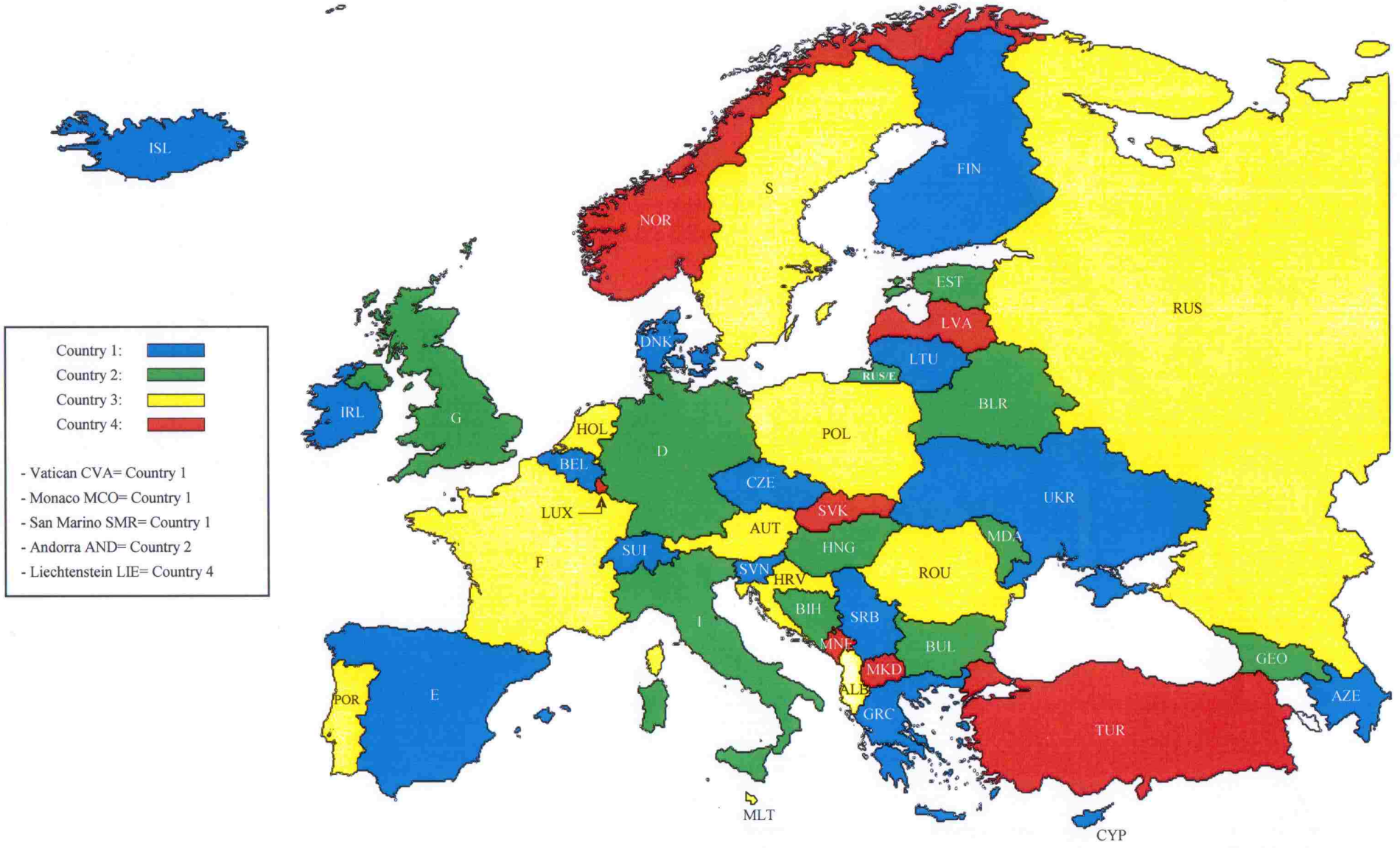
For the TDD mode, 3GPP TS 25.223 defines 32 « scrambling code groups » in §7.3, numbered {0..31}.

	Set A	Set B	Set C	Set D	Set E	Set F
Country 1	0..4	5..10	11..15	16..20	21..26	27..31
Border 1-2	■	■				■
Zone 1-2-3	■	■				
Border 1-3	■	■	■			
Zone 1-2-4	■					■
Border 1-4	■		■			■
Zone 1-3-4	■		■			

	Set A	Set B	Set C	Set D	Set E	Set F
Country 2	0..4	5..10	11..15	16..20	21..26	27..31
Border 2-1			■	■	■	
Zone 2-3-1			■	■		
Border 2-3		■	■	■		
Zone 2-1-4			■	■		
Border 2-4			■	■		■
Zone 2-3-4			■	■		

	Set A	Set B	Set C	Set D	Set E	Set F
Country 3	0..4	5..10	11..15	16..20	21..26	27..31
Border 3-2	■				■	■
Zone 3-1-2					■	■
Border 3-1				■	■	■
Zone 3-1-4					■	■
Border 3-4			■		■	■
Zone 3-2-4					■	■

	Set A	Set B	Set C	Set D	Set E	Set F
Country 4	0..4	5..10	11..15	16..20	21..26	27..31
Border 4-1		■		■	■	
Zone 4-1-2		■			■	
Border 4-2	■	■			■	
Zone 4-2-3	■	■				
Border 4-3	■	■		■		
Zone 4-3-1		■		■		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- Vatican CVA= Country 1
- Monaco MCO= Country 1
- San Marino SMR= Country 1
- Andorra AND= Country 2
- Liechtenstein LIE= Country 4