

## **AGREEMENT**

between the Administrations of  
Austria, Germany, Liechtenstein and Switzerland

on border co-ordination of  
UMTS/IMT-2000 Systems in the frequency bands  
1900 - 1980 MHz, 2010 - 2025 MHz  
and 2110 - 2170 MHz

Vienna, 27 February 2002

## **1 - INTRODUCTION**

The frequency bands 1900 - 1980 MHz, 2010 - 2025 MHz and 2110 - 2170 MHz are designated for pan-European digital land mobile services Universal Mobile Telecommunications Systems (UMTS)/ International Mobile Telecommunications 2000 (IMT-2000) according to ERC/DEC/(97)07 and ERC/DEC/(00)01. The harmonised use of spectrum for terrestrial UMTS within the bands 1900 - 1980 MHz, 2010 - 2025 MHz and 2110 - 2170 MHz is defined in ERC/DEC/(99)25.

Principles of border co-ordination for UMTS/IMT-2000 systems are laid down in ERC/REC/ (01)01 (Border Coordination of UMTS/IMT-2000 Systems).

The Administrations of Austria, Germany, Liechtenstein and Switzerland have agreed on the following co-ordination procedures.

## **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 ERC/REC/(01)01) shall be applicable to the UMTS/IMT-2000 frequency bands taking into account the provisions laid down in ERC/REC/(01)01 and in this Agreement.

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

These principles of co-ordination shall be applied in the frequency bands 1900 - 1920 MHz, 2020 - 2025 MHz and 2110 - 2170 MHz.

The band 2010 - 2020 MHz as identified in ERC/DEC(99)25 for self provided applications shall not be subject to this Agreement.

The use of the frequency band 1920 - 1980 MHz for 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 ERC/REC/(01)01. The division relevant to the signatories to this Agreement is given in the Annex to this Agreement.

## **3.2 - TECHNICAL CHARACTERISTICS**

- 3.2.1 Frequencies in the band 2110-2170 MHz for systems using preferential codes, or not using a CDMA IMT-2000 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 dB $\mu$ V/m/5MHz at a height of 3 m above ground on a line at a distance of 6 km inside the neighbouring country.
- 3.2.2 In the bands 1900-1920 MHz and 2020-2025 MHz TDD systems using preferential codes 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 dB $\mu$ V/m/5MHz at a height of 3 m above ground on a line at a distance of 6 km inside the neighbouring country.
- 3.2.3 Frequencies used at the border for systems using non preferential codes 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 dB $\mu$ V/m/5MHz at a height of 3 m above ground at the border line.

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 HCM tool of the Vienna Agreement, which is based on the site general model (see Annex 2 to ERC/REC/(01)01), shall be applied.

This provision for the prediction of propagation shall be revised when the new model developed by ITU-R TG3/2 and contained in a New Recommendation ITU-R P.1546 "Method for Point-to-Area Predictions for terrestrial Services in the Frequency Range 30 to 3 000 MHz" has been incorporated into the HCM program tool.

## **5 – PROCEDURE AND EXCHANGE OF INFORMATION FOR CO-ORDINATION PURPOSES**

Exchanges of information for co-ordination purposes shall be in the format set out in Annex 2 to the Vienna Agreement (Berlin 2001).

In case of coordination procedures the relevant provisions of the Vienna Agreement (Berlin 2001) shall be applied.

The notification in conformity with paragraph 4.5.4 of the Vienna Agreement (Berlin 2001) is not required.

## **6- ARRANGEMENTS BETWEEN OPERATORS INCLUDING UMTS/IMT-2000 OPERATORS**

The provisions laid down in the relevant Agreements between the administrations concerning the approval of arrangements between operators of radiocommunications networks shall be applied.

## **7 - REVISION OF THE AGREEMENT**

With the consent of the other Administrations, this Agreement may be modified at the request of one of the Signatory Administrations where such a modification becomes necessary in the light of administrative, regulatory or technical developments.

ERC/REC/(01)01 may be reviewed within 2 years of its adoption in the light of practical experience of its application and the operation of UMTS/IMT-2000 systems (recommends 11). The consequences for this agreement of such a review and of possible amendments to ERC/REC/(01)01 shall be discussed between the signatories to this Agreement.

The technical characteristics (Item 3.2) may be reviewed within 2 years after signature of this Agreement in the light of practical experience of its application and of the operation of UMTS/IMT-2000 systems.

## **8. WITHDRAWAL FROM THE AGREEMENT**

Any Administration may withdraw from this Agreement by the end of a calendar month by giving notice of its intention at least six months in advance. A declaration to that effect shall be addressed to the handling administration of the „Vienna Agreement (Berlin 2001)“. Frequency assignments made within the framework of this Agreement prior to the date of entry into force of the withdrawal shall remain valid and be protected according to their status.

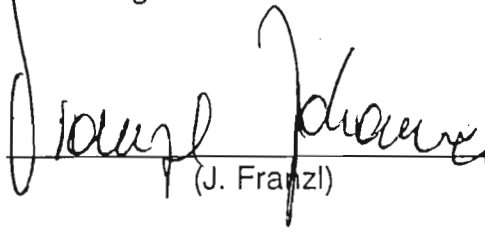
## **10 - LANGUAGE OF THE AGREEMENT**

This Agreement exists in English and is retained at the handling administration for the “Vienna Agreement (Berlin 2001)“.

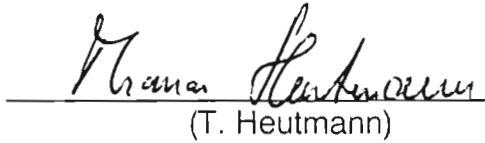
**11 - DATE OF ENTRY INTO FORCE**

This Agreement enters into force at the date of its signature.

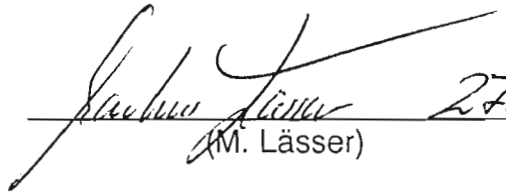
For the Austrian Administration

 27.02.2002  
(J. Franzl)

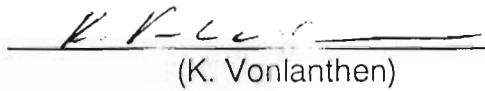
For the German Administration

 27.02.2002  
(T. Heutmann)

For the Administration of Liechtenstein

 27.02.2002  
(M. Lässer)

For the Administration of Switzerland

 27.2.2002  
(K. Vonlanthen)

## ANNEX

### Preferential codes for UTRA

Type country 1: SUI

Type country 2: D

Type country 3: AUT

Type country 4: LIE

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 |

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 |       |       |        |        |        |        |