TSG RAN Meeting #23 **RP-040043**
Phoenix, US, 10 - 12 March 2004

Title **CRs (Rel-6) to TS25.101, TS25.104, TS25.141 for reduction of channel numbers for UMTS800 (bandVI)**
Source **TSG RAN WG4**
Agenda Item **8.10**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-040086	25.101	331		F	Rel-6	6.3.0	Reduction of channel number for UMTS800(band VI)	RInImp-UMTS800
R4-040087	25.104	221		F	Rel-6	6.4.0	Reduction of channel number for UMTS800(band VI)	RInImp-UMTS800
R4-040088	25.141	342		F	Rel-6	6.4.0	Reduction of channel number for UMTS800(band VI)	RInImp-UMTS800

3GPP TSG RAN WG4 (Radio) Meeting #30 **R4-040086**

Munich, Germany 9 - 13 February 2004

CR-Form-v7

CHANGE REQUEST

⌘ **25.101** **CR** **331** ⌘ **rev** ⌘ Current version: **6.3.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Reduction of channel number for UMTS800(band VI)
Source:	⌘	RAN WG4
Work item code:	⌘	RInImp-UMTS800
Date:	⌘	23/02/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	Since channel arrangement was adjusted in Japan, unnecessary channel numbers are deleted in band VI.
Summary of change:	⌘	Additional 100kHz shifted carrier frequencies are deleted except 4 carrier frequencies (832.5MHz and 837.5MHz for Uplink, 877.5MHz and 882.5MHz for Downlink). Channel number definition is changed as follows. [Carrier frequency] UL; $832.5 \leq F_{UL} \leq 837.5$ is changed into 832.5 and 837.5 DL; $877.5 \leq F_{DL} \leq 882.5$ is changed into 877.5 and 882.5 [UARFCN] UL; 812 to 837 is changed into 812 and 837 DL; 1037 to 1062 is changed into 1037 and 1062
Consequences if not approved:	⌘	Unnecessary channel numbers which lead longer channel search period, would been left in the specification.

Clauses affected:	⌘	5.4.3, 5.4.4			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
		☐ / ☒			
		☒ / ☐	Test specifications		34.121, 34.108
		☐ / ☒	O&M Specifications		
Other comments:	⌘				

5 Frequency bands and channel arrangement

{Unchanged Sections are snipped here}

5.4 Channel arrangement

5.4.1 Channel spacing

The nominal channel spacing is 5 MHz, but this can be adjusted to optimise performance in a particular deployment scenario.

5.4.2 Channel raster

The channel raster is 200 kHz for all bands, which means that the centre frequency must be an integer multiple of 200 kHz. In addition a number of additional centre frequencies are specified according to table 5.1A, which means that the centre frequencies for these channels are shifted 100 kHz relative to the general raster.

5.4.3 Channel number

The carrier frequency is designated by the UTRA Absolute Radio Frequency Channel Number (UARFCN). The UARFCN values are defined as follows:

Table 5.1: UARFCN definition (general)

UPLINK (UL) UE transmit, Node B receive		**DOWNLINK (DL)** UE receive, Node B transmit	
UARFCN	**Carrier frequency [MHz]** (F_{UL}) (Note 1)	**UARFCN**	**Carrier frequency [MHz]** (F_{DL}) (Note 2)
$N_u = 5 * F_{UL}$	0.0 MHz ≤ F_{UL} ≤ 3276.6 MHz	$N_d = 5 * F_{DL}$	0.0 MHz ≤ F_{DL} ≤ 3276.6 MHz
Note 1 F_{UL} is the uplink frequency in MHz Note 2 F_{DL} is the downlink frequency in MHz			

Table 5.1A: UARFCN definition (additional channels)

Band	UPLINK (UL) UE transmit, Node B receive		DOWNLINK (DL) UE receive, Node B transmit	
	UARFCN	**Carrier frequency [MHz]** (F_{UL})	**UARFCN**	**Carrier frequency [MHz]** (F_{DL})
I	-	-	-	-
II	$N_u = 5 * (F_{UL} – 1850.1\ MHz)$	1852.5, 1857.5, 1862.5, 1867.5, 1872.5, 1877.5, 1882.5, 1887.5, 1892.5, 1897.5, 1902.5, 1907.5	$N_d = 5 * (F_{DL} – 1850.1\ MHz)$	1932.5, 1937.5, 1942.5, 1947.5, 1952.5, 1957.5, 1962.5, 1967.5, 1972.5, 1977.5, 1982.5, 1987.5
III	-	-	-	-
IV	$N_u = 5 * (F_{UL} – 1480.1\ MHz)$	1712.5, 1717.5, 1722.5, 1727.5, 1732.5, 1737.5 1742.5, 1747.5, 1752.5	$N_d = 5 * (F_{DL} – 1820.1\ MHz)$	2112.5, 2117.5, 2122.5, 2127.5, 2132.5, 2137.5, 2142.5, 2147.5, 2152.5
V	$N_u = 5 * (F_{UL} – 670.1\ MHz)$	826.5, 827.5, 831.5, 832.5, 837.5, 842.5	$N_d = 5 * (F_{DL} – 670.1\ MHz)$	871.5, 872.5, 876.6, 877.5, 882.5, 887.5
VI	$N_u = 5 * (F_{UL} – 670.1\ MHz)$	~~$832.5 \le F_{UL} \le 837.5$~~ 832.5, 837.5	$N_d = 5 * (F_{DL} – 670.1\ MHz)$	~~$877.5 \le F_{DL} \le 882.5$~~ 877.5, 882.5

5.4.4 UARFCN

The following UARFCN range shall be supported for each paired band

Table 5.2: UTRA Absolute Radio Frequency Channel Number

Band	Uplink (UL) UE transmit, Node B receive		Downlink (DL) UE receive, Node B transmit	
	General	**Additional**	**General**	**Additional**
I	9612 to 9888	-	10562 to 10838	-
II	9262 to 9538	12, 37, 62, 87, 112, 137, 162, 187, 212, 237, 262, 287	9662 to 9938	412, 437, 462, 487, 512, 537, 562, 587, 612, 637, 662, 687
III	8562 to 8913	-	9037 to 9388	-
IV	8562 to 8763	1162, 1187, 1212, 1237, 1262, 1287, 1312, 1337, 1362	10562 to 10763	1462, 1487, 1512, 1537, 1562, 1587, 1612, 1637, 1662
V	4132 to 4233	782, 787, 807, 812, 837, 862	4357 to 4458	1007, 1012, 1035, 1037, 1062, 1087
VI	4162 to 4188	~~812 to 837~~ 812, 837	4387 to 4413	~~1037 to 1062~~ 1037, 1062

3GPP TSG RAN WG4 (Radio) Meeting #30 **R4-040087**

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CHANGE REQUEST

⌘ **25.104** **CR** **221** ⌘ **rev** ⌘ Current version: **6.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Reduction of channel number for UMTS800(band VI)
Source:	⌘	RAN WG4
Work item code:	⌘	RInImp-UMTS800
Date:	⌘	23/02/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Since channel arrangement was adjusted in Japan, unnecessary channel numbers are deleted in band VI.
Summary of change:	⌘	Additional 100kHz shifted carrier frequencies are deleted except 4 carrier frequencies (832.5MHz and 837.5MHz for Uplink, 877.5MHz and 882.5MHz for Downlink). Channel number definition is changed as follows. [Carrier frequency] UL; $832.5 \leq F_{UL} \leq 837.5$ is changed into 832.5 and 837.5 DL; $877.5 \leq F_{DL} \leq 882.5$ is changed into 877.5 and 882.5
Consequences if not approved:	⌘	Unnecessary channel numbers which lead longer channel search period, would been left in the specification.

Clauses affected:	⌘	5.4.3			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
			X	Test specifications	25.141
		X		Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

5 Frequency bands and channel arrangement

{Unchanged Sections are snipped here}

5.4 Channel arrangement

5.4.1 Channel spacing

The nominal channel spacing is 5 MHz, but this can be adjusted to optimise performance in a particular deployment scenario.

5.4.2 Channel raster

The channel raster is 200 kHz for all bands, which means that the centre frequency must be an integer multiple of 200 kHz. In addition a number of additional centre frequencies are specified according to table 5.1A which means that the centre frequencies for these channels are shifted 100 kHz relative to the general raster.

5.4.3 Channel number

The carrier frequency is designated by the UTRA Absolute Radio Frequency Channel Number (UARFCN). The UARFCN values are defined as follows:

Table 5.1: UARFCN definition (general)

UPLINK (UL) UE transmit, Node B receive		**DOWNLINK (DL)** UE receive, Node B transmit	
UARFCN	**Carrier frequency [MHz]** (F_{UL}) (Note 1)	**UARFCN**	**Carrier frequency [MHz]** (F_{DL}) (Note 2)
$N_u = 5 * F_{UL}$	0.0 MHz ≤ F_{UL} ≤ 3276.6 MHz	$N_d = 5 * F_{DL}$	0.0 MHz ≤ F_{DL} ≤ 3276.6 MHz
Note 1: F_{UL} is the uplink frequency in MHz Note 2: F_{DL} is the downlink frequency in MHz			

Table 5.1A: UARFCN definition (additional channels)

Band	**UPLINK (UL) UE transmit, Node B receive**		**DOWNLINK (DL) UE receive, Node B transmit**	
	UARFCN	**Carrier frequency [MHz]** (F_{UL})	**UARFCN**	**Carrier frequency [MHz]** (F_{DL})
I	-	-	-	-
II	$N_u = 5 * (F_{UL} –$ 1850.1 MHz)	1852.5, 1857.5, 1862.5, 1867.5, 1872.5, 1877.5, 1882.5, 1887.5, 1892.5, 1897.5, 1902.5, 1907.5	$N_d = 5 * (F_{DL} –$ 1850.1 MHz)	1932.5, 1937.5, 1942.5, 1947.5, 1952.5, 1957.5, 1962.5, 1967.5, 1972.5, 1977.5, 1982.5, 1987.5
III	-	-	-	-
IV	$N_u = 5 * (F_{UL} –$ 1480.1 MHz)	1712.5, 1717.5, 1722.5, 1727.5, 1732.5, 1737.5 1742.5, 1747.5, 1752.5	$N_d = 5 * (F_{DL} –$ 1820.1 MHz)	2112.5, 2117.5, 2122.5, 2127.5, 2132.5, 2137.5, 2142.5, 2147.5, 2152.5
V	$N_u = 5 * (F_{UL} –$ 670.1 MHz)	826.5, 827.5, 831.5, 832.5, 837.5, 842.5	$N_d = 5 * (F_{DL} –$ 670.1 MHz)	871.5, 872.5, 876.6, 877.5, 882.5, 887.5
VI	$N_u = 5 * (F_{UL} –$ 670.1 MHz)	~~832.5 ≤ F_{UL} ≤ 837.5~~ 832.5, 837.5	$N_d = 5 * (F_{DL} –$ 670.1 MHz)	~~877.5 ≤ F_{DL} ≤ 882.5~~ 877.5, 882.5

3GPP TSG RAN WG4 (Radio) Meeting #30 **R4-040088**

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CHANGE REQUEST

⌘ **25.141** **CR** **342** ⌘ **rev** ⌘ Current version: **6.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Reduction of channel number for UMTS800(band VI)
Source:	⌘	RAN WG4
Work item code:	⌘	RInImp-UMTS800
Date:	⌘	23/02/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

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R98 (Release 1998)
R99 (Release 1999)
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Rel-5 (Release 5)
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Reason for change:	⌘	Since channel arrangement was adjusted in Japan, unnecessary channel numbers are deleted in band VI.
Summary of change:	⌘	Additional 100kHz shifted carrier frequencies are deleted except 4 carrier frequencies (832.5MHz and 837.5MHz for Uplink, 877.5MHz and 882.5MHz for Downlink). Channel number definition is changed as follows. [Carrier frequency] UL; $832.5 \leq F_{UL} \leq 837.5$ is changed into 832.5 and 837.5 DL; $877.5 \leq F_{DL} \leq 882.5$ is changed into 877.5 and 882.5
Consequences if not approved:	⌘	Unnecessary channel numbers which lead longer channel search period, would been left in the specification.

Clauses affected:	⌘	5.4.3, 5.4.4

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	25.104
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

3.5 Channel arrangement

3.5.1 Channel spacing

The nominal channel spacing is 5 MHz, but this can be adjusted to optimise performance in a particular deployment scenario.

3.5.2 Channel raster

The channel raster is 200 kHz for all bands, which means that the centre frequency must be an integer multiple of 200 kHz. In addition an number of additional centre frequencies are specified according to table 3.2, which means that the centre frequencies for these channels are shifted 100 kHz relative to the general raster.

3.5.3 Channel number

The carrier frequency is designated by the UTRA Absolute Radio Frequency Channel Number (UARFCN). The UARFCNvalues are defined as follows.

Table 3.1: UARFCN definition (general)

UPLINK (UL) UE transmit, Node B receive		**DOWNLINK (DL) UE receive, Node B transmit**	
UARFCN	**Carrier frequency [MHz]** (F_{UL}) (Note 1)	**UARFCN**	**Carrier frequency [MHz]** (F_{DL}) (Note 2)
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Note 1: F_{UL} is the uplink frequency in MHz Note 2: F_{DL} is the downlink frequency in MHz			

Table 3.2: UARFCN definition (additional channels)

Band	**UPLINK (UL) UE transmit, Node B receive**		**DOWNLINK (DL) UE receive, Node B transmit**	
	UARFCN	**Carrier frequency [MHz]** (F_{UL})	**UARFCN**	**Carrier frequency [MHz]** (F_{DL})
I	-	-	-	-
II	$N_u = 5 * (F_{UL} –$ 1850.1 MHz)	1852.5, 1857.5, 1862.5, 1867.5, 1872.5, 1877.5, 1882.5, 1887.5, 1892.5, 1897.5, 1902.5, 1907.5	$N_d = 5 * (F_{DL} –$ 1850.1 MHz)	1932.5, 1937.5, 1942.5, 1947.5, 1952.5, 1957.5, 1962.5, 1967.5, 1972.5, 1977.5, 1982.5, 1987.5
III	-	-	-	-
IV	$N_u = 5 * (F_{UL} –$ 1480.1 MHz)	1712.5, 1717.5, 1722.5, 1727.5, 1732.5, 1737.5 1742.5, 1747.5, 1752.5	$N_d = 5 * (F_{DL} –$ 1820.1 MHz)	2112.5, 2117.5, 2122.5, 2127.5, 2132.5, 2137.5, 2142.5, 2147.5, 2152.5
V	$N_u = 5 * (F_{UL} –$ 670.1 MHz)	826.5, 827.5, 831.5, 832.5, 837.5, 842.5	$N_d = 5 * (F_{DL} –$ 670.1 MHz)	871.5, 872.5, 876.6, 877.5, 882.5, 887.5
VI	$N_u = 5 * (F_{UL} –$ 670.1 MHz)	~~832.5 ≤ F_{UL} ≤ 837.5~~ 832.5, 837.5	$N_d = 5 * (F_{DL} –$ 670.1 MHz)	~~877.5 ≤ F_{DL} ≤ 882.5~~ 877.5, 882.5