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650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
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Foreword

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1 Scope

The present document is the overall technical specification for the support of the 7.68Mcps TDD option in UTRA.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 25.895 (V6.0.0): "Analysis of higher chip rates for UTRA TDD evolution".

[2] 3GPP TS 25.221: "Physical channels and mapping of transport channels onto physical channels (TDD)".

[3] 3GPP TS 25.222: "Multiplexing and channel coding (TDD)".

[4] 3GPP TS 25.223: "Spreading and modulation (TDD)".

[5] 3GPP TS 25.224: "Physical layer procedures (TDD)".

[6] 3GPP TS 25.225: "Physical layer; Measurements (TDD)".

[7] 3GPP TS 25.301: "Radio Interface Protocol Architecture".

[8] 3GPP TS 25.306: "UE Radio Access capabilities".

[9] 3GPP TS 25.321: "Medium Access Control (MAC) protocol specification".

[10] 3GPP TS 25.102: "User Equipment (UE) radio transmission and reception (TDD)".

[11] 3GPP TS 25.105 "UTRAN (BS) TDD; Radio transmission and reception".

[12] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [12] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [12].

(void)

3.2 Symbols

For the purposes of the present document, the following symbols apply:

(void)

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [12] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [12].

BCH	Broadcast Channel
CCPCH	Common Control Physical Channel
DCH	Dedicated Channel
DPCH	Dedicated Physical Channel
DSCH	Downlink Shared Channel
E-AGCH	E-DCH Absolute Grant Channel
E-DCH	Enhanced Dedicated Channel
E-HICH	E-DCH Hybrid ARQ Indicator Channel
E-PUCH	E-DCH Physical Uplink Channel
E-RUCCH	E-DCH Random Access Uplink Control Channel
FACH	Forward Access Channel
HS-DSCH	High Speed Downlink Shared Channel
HS-PDSCH	High Speed Physical Downlink Shared Channel
HS-SCCH	Shared Control Channel for HS-DSCH
HS-SICH	Shared Information Channel for HS-DSCH
P-CCPCH	Primary CCPCH
PCH	Paging Channel
PDSCH	Physical Downlink Shared Channel
PI	Paging Indicator (value calculated by higher layers)
PICH	Page Indicator Channel
PRACH	Physical Random Access Channel
PUSCH	Physical Uplink Shared Channel
RACH	Random Access Channel
S-CCPCH	Secondary CCPCH
SCH	Synchronisation Channel
TrCH	Transport Channel
USCH	Uplink Shared Channel

4 Background and introduction

The 7.68Mcps TDD option is an evolution of the 3.84Mcps TDD option to a higher chip rate. There exists a great degree of commonality between the 3.84Mcps TDD option and the 7.68Mcps TDD option. Nevertheless, there are many aspects of the 7.68Mcps TDD option that require separate specification to the 3.84Mcps TDD option. The following aspects are specified at a high level in this document:

- Physical layer structure;

- Physical layer procedures;

- UE capabilities;

- Layer 2/3 protocol aspects;

- Iub / Iur aspects;

- Radio aspects;

5 Requirements

- The 7.68Mcps TDD option shall provide significant enhancements in terms of user experience (throughput and delay) and/or capacity (at least to the extent shown in [1]).
- Full mobility shall be supported, i.e., mobility should be supported for high-speed UE cases also, but optimisation should be for low-speed to medium-speed scenarios.
- It is highly desirable for the 7.68Mcps TDD option to maintain commonality with the 3.84Mcps TDD option. New features shall therefore provide significant incremental gain for an acceptable complexity.
- The UE and network complexity shall be minimised for a given level of system performance.
- The impact on current releases in terms of both protocol and hardware perspectives shall be taken into account.

6 Physical layer structure

6.0 Services offered to higher layers

The 7.68Mcps TDD option supports an identical set of transport channels and indicators to the 3.84Mcps TDD option.

6.1 Frame structure

The 7.68Mcps TDD option frame is of length 10ms and consists of 15 timeslots of duration 5120 * T_c, where T_c is the chip duration ($T_c = 1 / 7.68 * 10^6 = 130.2$ns). Any timeslot in the frame can be either uplink or downlink. At least one timeslot in the frame is assigned to the uplink and at least one timeslot in the frame is assigned to the downlink. The frame structure is shown in Figure 6.1.1.

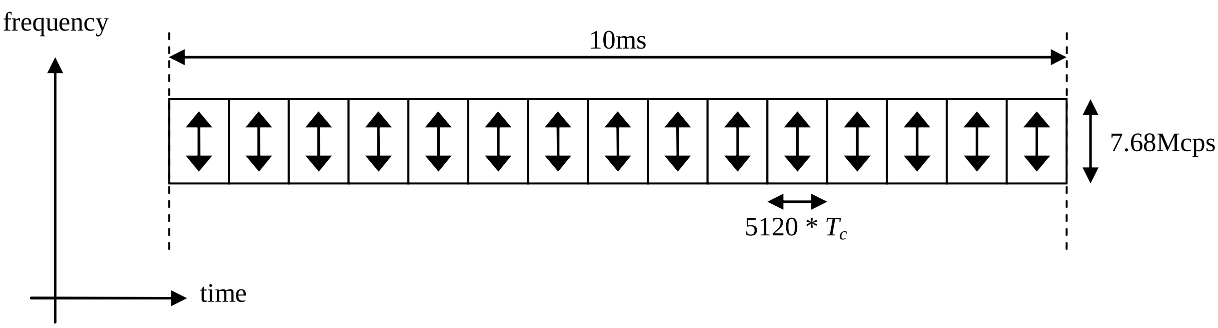

Figure 6.1.1: The 7.68Mcps TDD option frame structure

6.2 Burst structure

The 7.68Mcps burst consists of two data field portions, a midamble portion containing a training sequence and a guard period as shown in Figure 6.2.1. Several bursts can be transmitted at the same time where each burst uses a different OVSF channelisation code, but the same scrambling code.

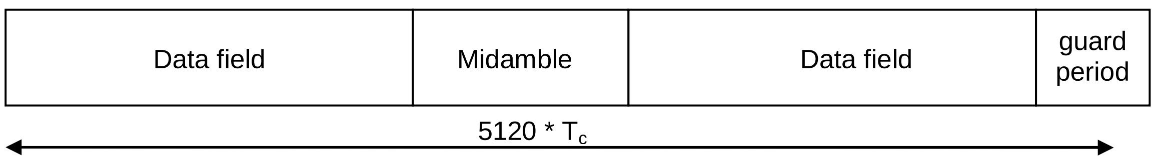

Figure 6.2.1: 7.68Mcps TDD option burst structure

Three burst types are specified: burst types 1, 2 and 3. The maximum number of training sequences supported in burst types 1 and 3 is either 4, 8 or 16 depending on cell configuration and either 4 or 8 for burst type 2 depending on cell configuration. The lengths of the fields within each burst are defined in Table 6.2.1.

Table 6.2.1: Number of chips within fields of the 7.68Mcps burst

Field	Burst Type 1	Burst Type 2	Burst Type 3
Data field 1	1952	2208	1952
Midamble	1024	512	1024
Data field 2	1952	2208	1760
Guard Period	192	192	384

On the downlink, a spreading factor of 32 is supported. Additionally for DPCH, PDSCH and HS-PDSCH, a spreading factor of 1 is supported on the downlink.

On the uplink, spreading factors of 1, 2, 4, 8, 16 and 32 are supported for DPCH, PUSCH and E-PUCH. PRACH and E-RUCCH only support spreading factors 16 and 32 and HS-SICH only supports spreading factor 32.

The spreading factors and burst types supported for different physical channels are defined in Table 6.2.2.

Table 6.2.2: Spreading factors and burst types supported by physical channels

Physical channel	Supported spreading factors	Supported burst types
UL DPCH	1, 2, 4, 8, 16, 32	1, 2, 3
DL DPCH	1, 32	1, 2
P-CCPCH	32	1
S-CCPCH	32	1, 2
PRACH	16, 32	3
PUSCH	1, 2, 4, 8, 16, 32	1, 2, 3
PDSCH	1, 32	1, 2
HS-PDSCH	1, 32	1, 2
HS-SCCH	32	1, 2
HS-SICH	32	1, 2
E-PUCH	1, 2, 4, 8 ,16, 32	1, 2, 3
E-AGCH	32	1, 2
E-HICH	32	1, 2
E-RUCCH	16, 32	3

Transmission of TPC and TFCI are performed in accordance with the general procedures used for the existing 3.84 Mcps TDD option. Due to the maximum spreading factor being increased from 16 (3.84Mcps) to 32 (7.68Mcps), usage of SF16 for TPC/TFCI is replaced with SF32 where appropriate.

6.3 Midambles

Midambles for burst types 1, 2 and 3 are created using the method applied for 3.84Mcps TDD. The basic midamble code for burst types 1 and 3 is of length 912; for burst type 2 the basic midamble code is of length 456.

Default, common and UE specific midamble modes are supported in the 7.68Mcps TDD option. The characteristics of these midamble allocations at 7.68Mcps are identical to their characteristics at 3.84Mcps. The number of active channelisation codes is signaled via midamble through an extension of the scheme applied at 3.84Mcps TDD (the extension accounts for the higher spreading factor supported at 7.68Mcps).

Midamble transmit powers are allocated as for 3.84Mcps TDD.

The association between midambles and channelisation codes for burst types 1, 2 and 3 are as shown in figure 6.3.1 for K_{cell} = 16, figure 6.3.2 for K_{cell} = 8 and figure 6.3.3 for K_{cell} = 4. Secondary channelisation codes are marked with a *. These associations apply both for UL and DL.

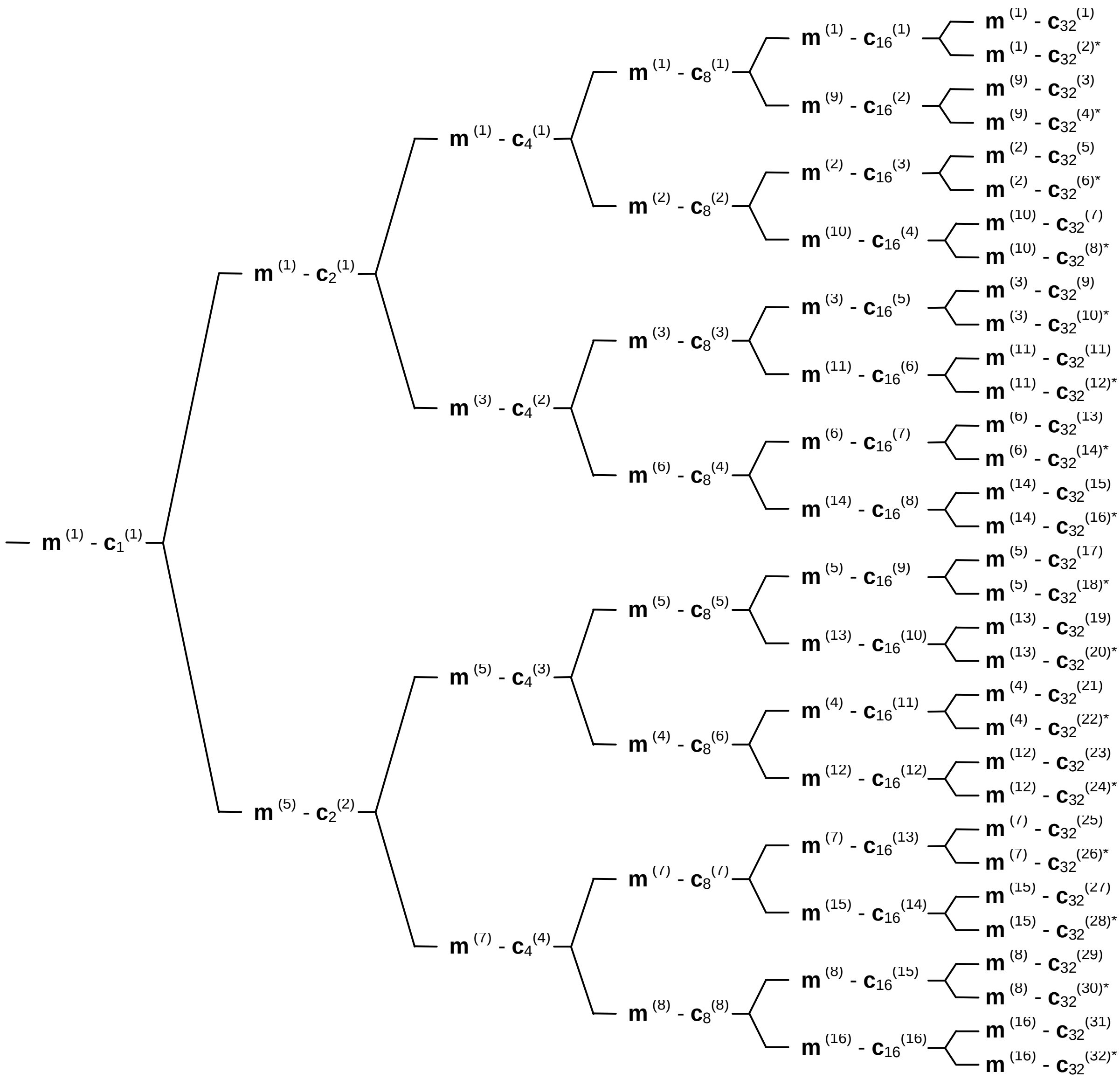

Figure 6.3.1: Association of Midambles to Spreading Codes for K_{Cell} = 16

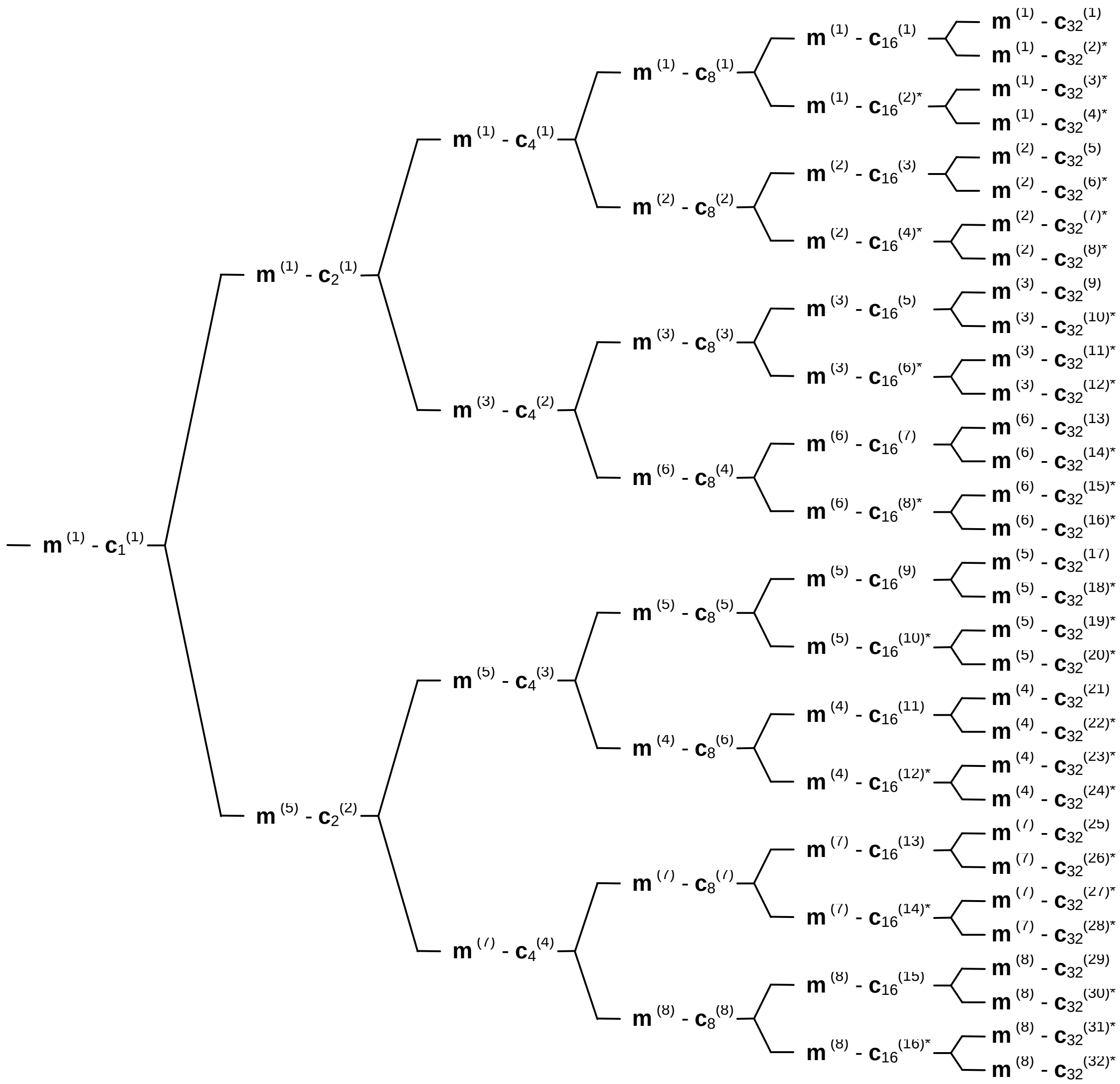

Figure 6.3.2: Association of Midambles to Spreading Codes for $K_{Cell} = 8$

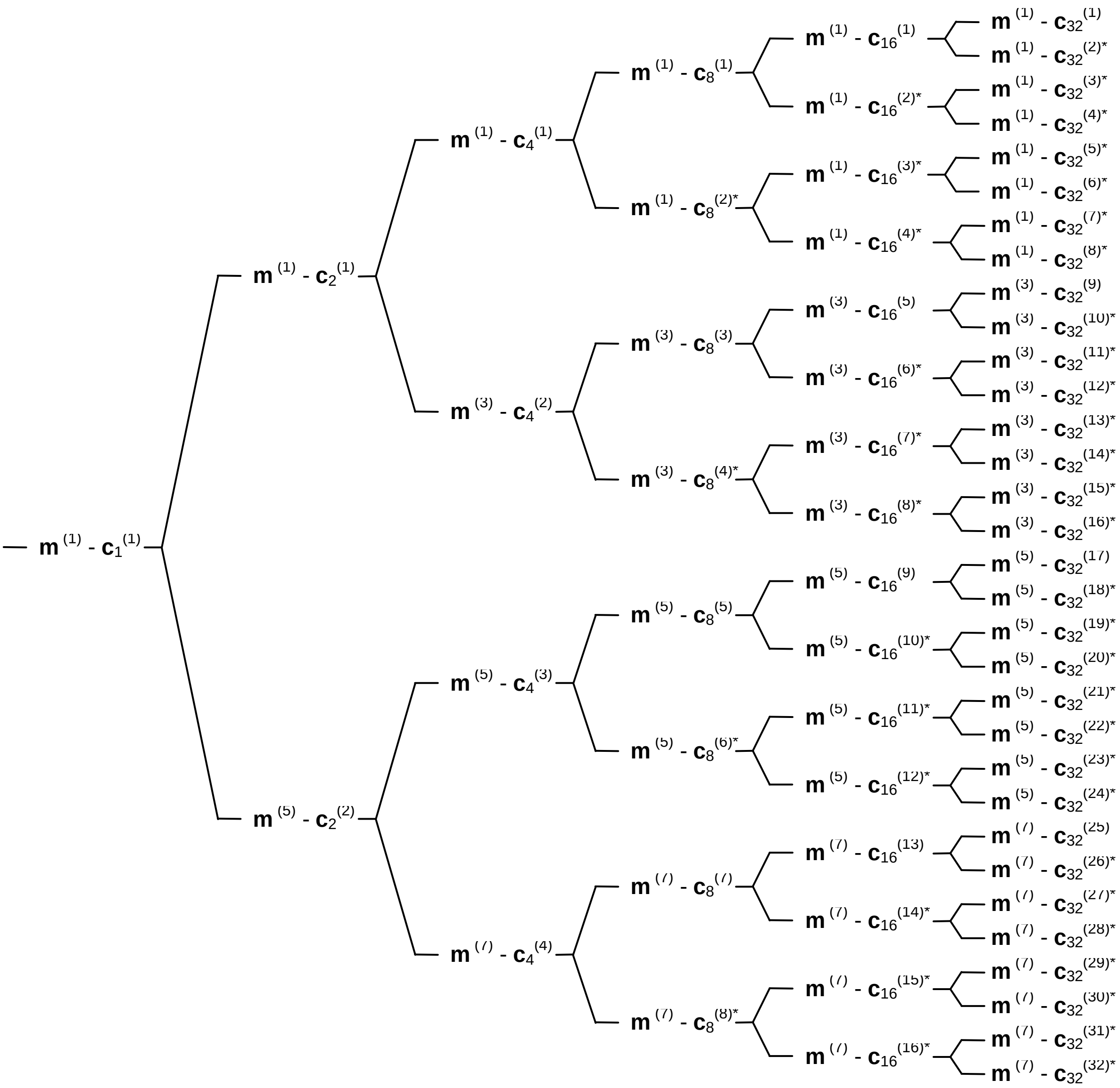

Figure 6.3.3: Association of Midambles to Spreading Codes for K_{Cell} = 4

For PRACH and E-RUCCH, up to 16 midambles and channelisation codes may be supported. The training sequences, i.e. midambles, of different users active in the same time slot are time shifted versions of a basic midamble code, m_1, or a second basic midamble code, m_2, which is a time inverted version of the basic midamble code m_1. A fixed association exists between PRACH/E-RUCCH midambles and channelisation codes.

6.4 Coding and Modulation

Multiplexing and channel coding is aligned with 3.84Mcps TDD with the exception that physical channel sequence numbering and the coding of the channelisation code set information on HS-SCCH and E-AGCH shall account for the support of SF32 at 7.68Mcps.

6.5 Scrambling Codes

The binary scrambling code, $c_{7.68}^{n}$, for cell parameter *n* in the 7.68Mcps TDD option is formed from the concatenation of the binary scrambling codes $c_{3.84}^{n}$ and $c_{3.84}^{(n+2)\mathrm{mod}128}$ shown in Annex A of [4].

6.6 Synchronisation Codes

The synchronisation codes for the 7.68Mcps TDD option are formed by repetition coding of the 3.84Mcps TDD synchronisation code words. Unique modulation sequences are applied to these code words that enable the UE to determine the code group, frame alignment and chip rate of the cell.

The synchronization channel (SCH) is constructed in an identical manner to the construction at 3.84Mcps. The relationship between code group, n, and $t_{offset,n}$ at 7.68Mcps is:

$$t_{offset,n} = \begin{cases} n \cdot 96 \cdot T_c & n < 16 \\ (1440 + n \cdot 96) \cdot T_c & n \geq 16 \end{cases}; \qquad n = 0,\ldots,31$$

6.7 Transmit diversity

Support for beamforming and transmit diversity are aligned with the 3.84Mcps TDD option.

6.8 Measurements

6.9 Indicator Channels

6.9.1 Paging Indicator Channel (PICH)

The paging indicator channel is spread at SF32, but in other respects is identical to the 3.84Mcps TDD PICH [2].

The PICH block may comprise up to N_{PICH} = 8 frames. The PCH block may comprise up to 2 × N_{PCH} = 2 × 16 frames.

6.9.2 MBMS Indicator Channel (MICH)

The MBMS indicator channel is spread at SF32, but in other respects is identical to the 3.84Mcps TDD MICH [2].

6.10 Mapping of transport channels to physical channels

In the 7.68Mcps TDD option, transport channels are mapped onto physical channels according to figure 6.10.1.

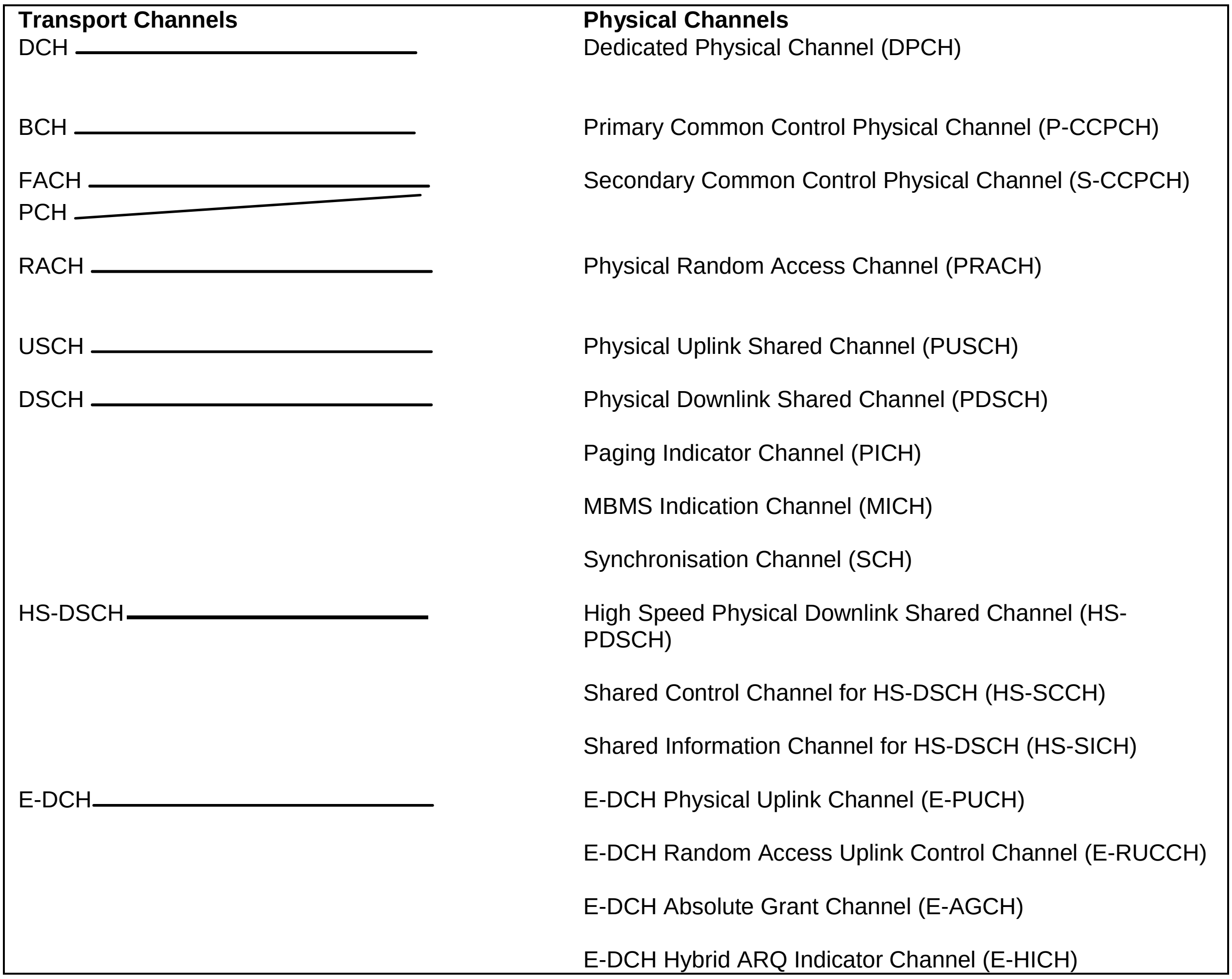

Figure 6.10.1: Transport channel to physical channel mapping

The mapping between DCH, BCH, FACH, USCH and DSCH transport channels to physical channels is identical to the mapping at 3.84Mcps TDD.

The mapping between the RACH transport channel and the PRACH physical channel is identical to the mapping at 3.84Mcps TDD.

The mapping between the HS-DSCH transport channel and HS-PDSCH physical channels is identical to the mapping at 3.84Mcps TDD. The association and timing between HS-SCCH, HS-DSCH and HS-SICH is identical to the association and timing at 3.84Mcps TDD with the exception that the UE must monitor up to a maximum of eight HS-SCCH (M=8).

The mapping between the E-DCH transport channel and E-PUCH physical channels is identical to the mapping at 3.84Mcps TDD. The association and timing between E-AGCH, E-PUCH and E-HICH is identical to the association and timing at 3.84Mcps TDD with the exception that up to two channelisation codes for E-HICH are supported for the 7.68Mcps option.

The mapping of E-DCH control information to E-RUCCH when E-PUCH resources are unavailable is identical to that for 3.84Mcps TDD.

7 Physical layer procedures

7.1 Power Control

Transmitter power control, both on the uplink and downlink, is aligned with that of 3.84Mcps TDD.

7.2 Timing Advance

The timing advance architecture is the same as for 3.84Mcps TDD. The required timing advance, 'UL Timing Advance' TA_{ul} will be represented as a 7 bit number (0-127) and shall be the multiplier of 4 chips which is nearest to the required timing advance.

PUSCH, UL DPCH and HS-SICH are timing advanced. PRACH and E-RUCCH are not timing advanced.

7.3 HSDPA procedures

The HS-DSCH procedure is aligned with 3.84Mcps TDD. When SCTD antenna diversity is applied to HS-PDSCH on the beacon channel, the presence of channelisation code $c_{32}^{(k=1)}$ shall implicitly indicate presence of channelisation code $c_{32}^{(k=2)}$.

7.4 Synchronisation procedures

The synchronization procedures are aligned with 3.84Mcps TDD.

7.5 RACH procedures

The RACH procedure is aligned with 3.84Mcps TDD. However, the use of higher layer signaling to indicate that in some frames a timeslot shall be blocked for RACH uplink transmission is not supported.

7.6 Discontinuous transmission (DTX) procedure

The DTX procedure is aligned with that of 3.84Mcps TDD.

7.7 Downlink transmit diversity procedure

The downlink transmit diversity procedure is aligned with that of 3.84Mcps TDD. In Space Code Transmit Diversity mode the data sequence is spread with the channelisation codes $c_{32}^{(k=1)}$ and $c_{32}^{(k=2)}$, the spread sequence on code $c_{32}^{(k=2)}$ is then transmitted on the diversity antenna.

7.8 DSCH procedure

Higher layer signaling is used to indicate to the UE the need for PDSCH detection. Physical layer signaling is not used to indicate to the UE the need for PDSCH detection.

7.9 Macrodiversity procedure

The macrodiversity procedure is aligned with that of 3.84Mcps TDD.

7.10 IPDL procedure

The IPDL procedure is aligned with that of 3.84Mcps TDD.

7.11 E-DCH procedures

The E-DCH procedures are aligned with those of 3.84Mcps TDD with modifications to accommodate SF32 for the E-PUCH code hopping procedure and the E-PUCH power control procedure.

8 UE capabilities

UE capabilities for the 7.68 Mcps TDD mode are based on those for 3.84 Mcps TDD. The capabilities for 7.68Mcps TDD account for the higher number of physical channels supported and additionally support higher peak bit rates. The minimum MBMS capability at 7.68Mcps is twice the minimum capability at 3.84Mcps. The detailed UE capabilities for 7.68Mcps TDD are described in [8].

9 Layer 2/3 protocol aspects

9.1 Protocol architecture

The protocol architecture for 7.68 Mcps TDD is the same as the protocol architecture for 3.84 Mcps TDD. Section 5.1 of [7] provides an overview of the radio interface protocol architecture.

9.2 Signalling

9.2.1 General

There are signalling differences between 7.68 Mcps TDD and 3.84 Mcps TDD. These differences concern L2/MAC and L3/RRC (see Section 5.1 of [7]) only. L2/RLC, L2/BMC, L2/PDCP and L3 U-plane information are not impacted.

9.2.2 L2/MAC differences

The L2/MAC differences between 7.68Mcps TDD and 3.84Mcps TDD are due to the support of a higher capability HSDPA UE at 7.68Mcps (20.4Mbps) and a higher capability E-DCH UE at 7.68Mcps (17.7Mbps). The L2/MAC differences concern:

- the maximum number of PDUs transmitted in a single TTI (636 at 7.68Mcps compared to 318 for3.84 Mcps TDD).
- HSPDA transport block size signalling. The maximum transport block size that can be signalled at 7.68Mcps is twice that at 3.84Mcps. A new table and formula for transport block size signalling for 7.68 Mcps TDD HS-DSCH is included in [9].
- E-DCH transport block size signalling. The maximum transport block size that can be signalled at 7.68Mcps is approximately twice that at 3.84Mcps. A new table and formula for transport block size signalling for 7.68 Mcps TDD E-DCH is included in [9].

9.2.3 L2/RRC differences

The L2/RRC differences concern:

Use of SF 32: The signalling is extended to include support for SF32. The 7.68 Mcps cell will be configured to use SF 16 or 32 for PRACH and E-RUCCH rather than SF 8 and 16 as 3.84 Mcps

Open Loop Power Control: Configuration of a cell for use of SF 16 or 32 with respect to the PRACH impacts calculation of the uplink transmit power for PRACH and requires the UE to add 3dB to the RACH Constant Value in the equation:

$$P_{PRACH} = L_{PCCPCH} + I_{BTS} + \text{PRACH Constant value}$$

for the case where RACH Spreading Factor = 16.

The same applies for open loop power control of E-RUCCH.

Capability Update Requirement: A new IE "UE radio access 7.68 Mcps TDD capability update requirement" is used.

Uplink Timing Advance: A different Uplink Timing Advance IE is required at 7.68Mcps to account for the number of bits used to signal timing advance at 7.68Mcps. A number of RRC messages are impacted due to the use of a different Uplink Timing Advance IE for 7.68 Mcps TDD to 3.84 Mcps TDD.

DL Physical Channel Capability: The physical channel capability at 7.68Mcps is extended in order to account for the greater number of physical channels supported at 7.68Mcps.

Burst Types and Midambles: Signalling related to burst types is modified since burst type 2 at 7.68Mcps supports K_{cell} of 4 or 8.

9.3 HSDPA related issues

The highest UE capability at 7.68Mcps is double that at 3.84Mcps, hence the maximum transport block size and the maximum number of PDUs that can be transmitted in a single TTI are double that of 3.84 Mcps. The range of UE capabilities is extended and the maximum UE capablitity for 7.68 Mcps is 20.4 Mbits/s.

9.4 Mobility

Inter RAT and intra RAT handover for 7.68 Mcps TDD is as for 3.84 Mcps TDD with handover between 3.84 Mcps TDD and 7.68 Mcps TDD cells also supported. Bands a), b), c), a + b), a + c), b + c) and a + b + c) can be configured for 7.68 Mcps TDD or 3.84 Mcps TDD or 1.28 Mcps TDD.

9.5 Idle Mode Procedures

Idle mode procedures are as for 3.84 Mcps TDD.

9.6 E-DCH related issues

The highest UE capability at 7.68Mcps is approximately double that at 3.84Mcps, hence the maximum transport block size and the maximum number of PDUs that can be transmitted in a single TTI are increasedwith respect to that of 3.84 Mcps. The range of UE capabilities is extended and the maximum UE capablitity for 7.68 Mcps is 17.7 Mbits/s.

10 Iub/Iur aspects

10.1 Impacts on Iub/Iur interfaces – general aspects

10.1.1 Timing advance and Rx Timing Deviation

The timing advance algorithm (in RRM, at the RNC) uses Rx Timing Deviation measurements made by the Node B and passed to the RNC in frame protocols. At 3.84 Mcps the resolution is 4 chips. The timing advance determined by RRM is signalled to the UE (RRC).

In addition, the Node B can be configured to take more accurate Rx Timing Deviation measurements of a UE, which are sent to the RNC as dedicated measurements. At 3.84 Mcps the resolution of these is 0.0625 chips. These accurate measurements can be used in location (they are passed to the location system using the PCAP protocol).

Strategy for 7.68 Mcps :

Timing advance & Rx Timing Deviation over FP

> 4 chip resolution

> same dynamic range as 3.84 Mcps (in secs)

Rx Timing Deviation, dedicated measurement

> 0.0625 chip resolution giving greater measurement accuracy

> same dynamic range as 3.84 Mcps (in secs)

10.1.2 Paging

For the 7.68Mcps option, the maximum number of paging indicators per paging block should be doubled to accommodate the greater number of users that may be supported by the 10 MHz carrier. To achieve this:

- the number of PICH blocks per paging block (NPICH) is extended from {2,4} to {2,4,8}
- the number of PCH blocks per paging block (NPCH) is extended from {1..8} to {1..16}.

Consequently, a unique value range for the PI-bitmap needs to be defined for 7.68 Mcps.

10.1.3 DSCH Power Control from the RNC

In 3.84 Mcps TDD, the PDSCH may be power controlled from the RNC by sending a transmit power level value in the DSCH DATA FRAME that carries DSCH transport blocks to the Node B. For 7.68 Mcps, the same method can be used and this has been agreed by RAN1. Since the transmit power level is expressed relative to the maximum transmit power, no changes are needed to accommodate 7.68Mcps.

10.2 Impacts on Iub/Iur control plane protocols

There are a number of changes to RNSAP, PCAP & NBAP protocols to incorporate:

- **Use of SF 32:** The signalling is extended to include support for SF32. The 7.68 Mcps cell will be configured to use SF 16 or 32 for PRACH and E-RUCCH rather than SF 8 and 16 as 3.84 Mcps
- **Burst Types and Midambles:** Signalling related to burst types is modified since burst type 2 at 7.68Mcps supports K_{cell} of 4 or 8.
- **Number of physical channels:** the SF32 change implies an increase in the number of physical channels that may be supported.
- **Measurements:** changes are introduced for Rx Timing Deviation and SFN-SFN measurements.
- **Cell Synchronisation:** this procedure is not supported.

10.3 Impacts on Iub/Iur user plane protocols

Specifications 25.425, 25.427 and 25.435 are modified to include 7.68Mcps operation in a similar fashion to 3.84 Mcps. Changes are also needed to accommodate the different rx timing deviation and timing advance signalling for 7.68Mcps compared to 3.84Mcps (see Section 10.1 above). The paging indicator bit-map is also revised (see Section 10.1 above).

11 Radio aspects

11.1 UE radio transmission and reception

11.1.1 Transmitter characteristics

11.1.1.1 Transmit power

Common with 3.84Mcps TDD option.

11.1.1.2 Output RF spectrum emissions

11.1.1.2.1 Occupied bandwidth

Occupied bandwidth is a measure of the bandwidth containing 99% of the total integrated power of the transmitted spectrum, centred on the assigned channel frequency. The occupied channel bandwidth shall be less than 10 MHz based on a chip rate of 7.68 Mcps.

11.1.1.2.2 Out of band emission

Out of band emissions are unwanted emissions immediately outside the nominal channel resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission limit is specified in terms of a spectrum emission mask and adjacent channel leakage power ratio (ACLR).

11.1.1.2.2.1 Spectrum emission mask

The spectrum emission mask of the UE applies to frequencies, which are between 5 MHz and 25MHz from the UE centre carrier frequency. The out of channel emission is specified relative to the RRC filtered mean power of the UE carrier. The power of any UE emission shall not exceed the levels specified in Table 11.1.1.

Table 11.1.1: Spectrum Emission Mask of higher chip rate reference configuration

Δf* in MHz	Minimum requirement	Measurement bandwidth
5.0 – 7.0	$\left\{-38-7.5\cdot\left(\frac{\Delta f}{MHz}-5.0\right)\right\}dBc$	30 kHz **
7.0 - 15	$\left\{-38-0.5\cdot\left(\frac{\Delta f}{MHz}-7.0\right)\right\}dBc$	1 MHz ***
15.0 – 17.0	$\left\{-42-5.0\cdot\left(\frac{\Delta f}{MHz}-15.0\right)\right\}dBc$	1 MHz ***
17.0 – 25.0	-53 dBc	1 MHz ***
*	Δf is the separation between the carrier frequency and the centre of the measuring filter.	
**	The first and last measurement position with a 30 kHz filter is at Δf equals to 5.015 MHz and 6.985 MHz	
***	The first and last measurement position with a 1 MHz filter is at Δf equals to 7.5 MHz and 24.5 MHz. As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.	
The lower limit shall be –47dBm/7.68 MHz or the minimum requirement presented in this table which ever is the higher.		

11.1.1.2.2.2 Adjacent Channel Leakage power Ratio (ACLR)

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the RRC filtered mean power centered on the assigned channel frequency to the RRC filtered mean power centered on an adjacent channel frequency.

If the adjacent channel RRC filtered mean power is greater than –50dBm measured with a 3.84 Mcps RRC filter then the ACLR shall be higher than the value specified in Table 11.1.2.

Table 11.1.2: UE ACLR of higher chip rate reference configuration

Power Class	adjacent channel	Chip Rate for RRC Measurement Filter	ACLR limit
2, 3	UE channel ± 7.5 MHz	3.84 MHz	33 dB
2, 3	UE channel ± 12.5 MHz	3.84 MHz	43 dB
2 ,3	UE channel ± 20.0 MHz	7.68 MHz	43 dB

NOTE:

1) The requirement shall still be met in the presence of switching transients.

2) The ACLR requirements reflect what can be achieved with present state of the art technology.

11.1.1.2.2.3 Spurious emissions

The spurious emissions limits shall be common with 3.84 Mcps TDD option and shall be applicable for offsets greater than 25 MHz from the UE centre frequency.

11.1.2 Receiver characteristics

11.1.2.1 Reference sensitivity level

The reference sensitivity level is the minimum mean power received at the UE antenna port at which the BIT Error Ratio BER shall not exceed a specific value.

11.1.2.1.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in Table 11.1.3.

Table 11.1.3: Test parameters for reference sensitivity (7.68 Mcps TDD Option)

Parameter	Level	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	dB
$\hat{I}_{or}$	-105	dBm/7.68 MHz

11.1.2.2 Adjacent Channel Selectivity (ACS)

Adjacent Channel Selectivity is a measure of a receiver's ability to receive a wanted signal at its assigned channel frequency in the presence of adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receiver filter attenuation on the adjacent channel(s).

11.1.2.2.1 Minimum Requirement

The ACS shall be better than the value indicated in Table 11.1.4 for the test parameters specified in Table 11.1.5 where the BER shall not exceed 0.001

Table 11.1.4: Adjacent Channel Selectivity (7.68 Mcps TDD Option)

Power Class	Unit	ACS
2	dB	33
3	dB	33

Table 11.1.5: Test parameters for Adjacent Channel Selectivity (7.68 Mcps TDD Option)

Parameter	Unit	Level
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	dB	0
$\hat{I}_{or}$	dBm/7.68 MHz	-91
I_{oac} mean power (modulated)	dBm	-52
F_{uw} offset (3.84 Mcps Modulated)	MHz	+7.5 or –7.5
F_{uw} offset (7.68 Mcps Modulated)	MHz	+10 or -10

11.1.2.3 Blocking characteristics

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at is assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

11.1.2.3.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in table 11.1.6 and table 11.1.7. For table 11.1.7 up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz step size.

Table 11.1.6: In-band blocking

Parameter	Level		Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0		dB
$\hat{I}_{or}$	-102		dBm/7.68 MHz
I_{ouw} mean power (modulated)	-53 (for F_{uw} offset ±20 MHz)	-41 (for F_{uw} offset ±30 MHz)	dBm

Table 11.1.7: Out of band blocking

Parameter	Band 1	Band 2	Band 3	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	0	0	dB
$\hat{I}_{or}$	–102	–102	–102	dBm/7.68 MHz
I_{ouw} (CW)	-44	-30	-15	dBm
F_{uw} For operation in frequency bands as definded in subclause 5.2(a) of TS25.102 [10]	1840 <f <1870 1950 <f <1980 2055 <f <2085	1815 <f <1840 2085 <f <2110	1< f <1815 2110< f <12750	MHz
F_{uw} For operation in frequency bands as definded in subclause 5.2(b) of TS25.102 [10]	1790 < f < 1820 2020 < f < 2050	1765 < f < 1790 2050 < f < 2075	1 < f < 1765 2075 < f < 12750	MHz
F_{uw} For operation in frequency bands as definded in subclause 5.2(c) of TS25.102 [10]	1850 < f < 1880 1960 < f < 1990	1825 < f < 1850 1990 < f < 2015	1 < f < 1825 2015 < f < 12750	MHz
1. For operation referenced in 5.2(a) of TS25.102 [10], from 1870 <f< 1900 MHz, 1920 <f< 1950 MHz, 1980 <f< 2010 MHz and 2025<f< 2055 MHz , the appropriate in-band blocking in table 11.1.6 or adjacent channel selectivity in section 11.1.4 shall be applied.				
2. For operation referenced in 5.2(b) of TS25.102 [10], from 1820 < f < 1850 MHz and 1990< f < 2020 MHz, the appropriate in-band blocking in table 11.1.6 or adjacent channel selectivity in section 11.1.4 shall be applied.				
3. For operation referenced in 5.2(c) of TS25.102 [10], from 1880 < f < 1910 MHz and 1930< f < 1960 MHz, the appropriate in-band blocking in table 11.1.6 or adjacent channel selectivity in section 11.1.4 shall be applied.				

11.1.2.4 Spurious response

Spurious response is a measure of the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the blocking limit is not met.

11.1.2.4.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in Table 11.1.8.

Table 11.1.8: Spurious Response

Parameter	Level	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	dB
$\hat{I}_{or}$	–102	dBm/7.68 MHz
I_{ouw} (CW)	-44	dBm
F_{uw}	Spurious response frequencies	MHz

11.1.2.5 Spurious emissions

The Spurious Emissions Power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector.

11.1.2.5.1 Minimum Requirement

The power of any spurious emission shall not exceed:

Table 11.1.9: Receiver spurious emission requirements

Band	Maximum level	Measurement Bandwidth	Note
30 MHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 1.9 GHz and 1.92 GHz – 2.01 GHz and 2.025 GHz – 2.11 GHz	-47 dBm	1 MHz	With the exception of frequencies between 25MHz below the first carrier frequency and 25MHz above the last carrier frequency used by the UE.
1.9 GHz – 1.92 GHz and 2.01 GHz – 2.025 GHz and 2.11 GHz – 2.170 GHz	-57 dBm	7.68 MHz	With the exception of frequencies between 25MHz below the first carrier frequency and 25MHz above the last carrier frequency used by the UE.
2.170 GHz – 12.75 GHz	-47 dBm	1 MHz	

11.2 Base station radio transmission and reception

11.2.1 Transmitter characteristics

11.2.1.1 Base station output power

Common with 3.84Mcps TDD option.

11.2.1.2 Output RF spectrum emissions

11.2.1.2.1 Occupied bandwidth

Occupied bandwidth is a measure of the bandwidth containing 99% of the total integrated power for transmitted spectrum and is centered on the assigned channel frequency. The occupied channel bandwidth is less than 10 MHz based on a chip rate of 7.68 Mcps.

11.2.1.2.2 Out of band emission

Out of band emissions are unwanted emissions immediately outside the channel bandwidth resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission requirement is specified both in terms of a spectrum emission mask and adjacent channel power ratio for the transmitter.

11.2.1.2.2.1 Spectrum emission mask

The mask defined in Table 11.2.1 to 11.2.4 below may be mandatory in certain regions. In other regions this mask may not be applied.

For regions where this clause applies, the requirement shall be met by a base station transmitting on a single RF carrier configured in accordance with the manufacturer's specification. Emissions shall not exceed the maximum level specified in tables 11.2.1 to 11.2.4 for the appropriate BS maximum output power, in the frequency range from Δf = 5 MHz to Δf_{max} from the carrier frequency, where:

- Δf is the separation between the carrier frequency and the nominal -3dB point of the measuring filter closest to the carrier frequency.

- f_offset is the separation between the carrier frequency and the center frequency of the measuring filter.- f_offset_{max} is either 25 MHz or the offset to the UMTS Tx band edge as defined in TS25.105 [11], whichever is the greater.

- Δf_{max} is equal to f_offset_{max} minus half of the bandwidth of the measurement filter.

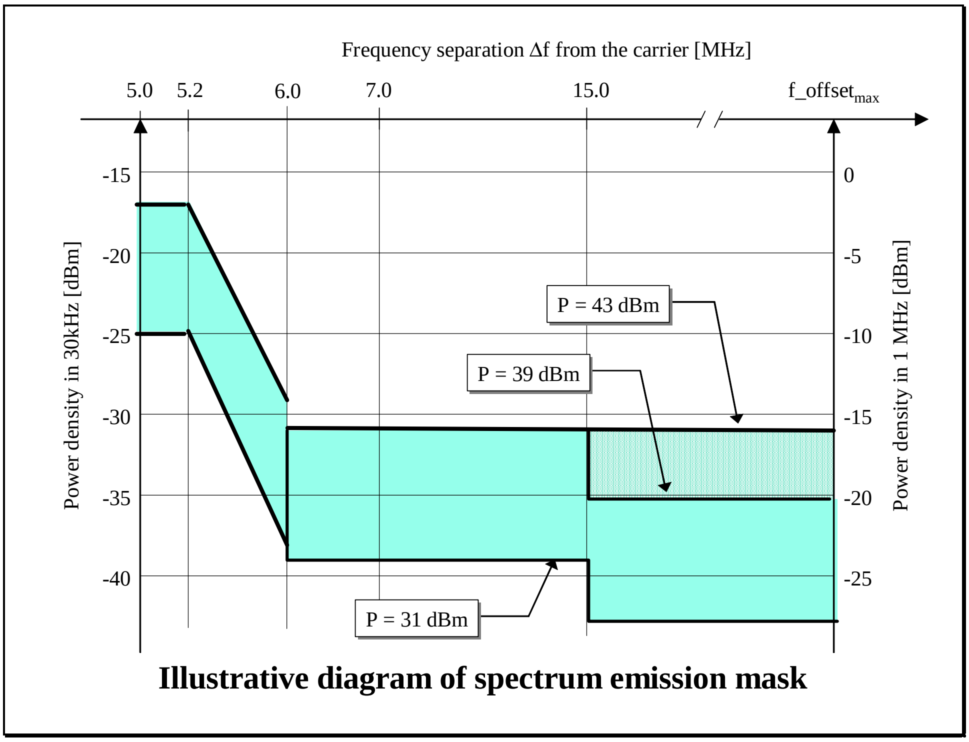

Figure 11.2.1: Spectrum emission mask

Table 11.2.1: Spectrum emission mask values, BS maximum output power P ≥ 43 dBm

Frequency offset of measurement filter –3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
5 MHz ≤ Δf < 5.2 MHz	5.015MHz ≤ f_offset < 5.215MHz	-17 dBm	30 kHz
5.2 MHz ≤ Δf < 6 MHz	5.215MHz ≤ f_offset < 6.015MHz	$-17dBm-15\cdot\left(\frac{f\_offset}{MHz}-5.215\right)dB$	30 kHz
(see note)	6.015MHz ≤ f_offset < 6.5MHz	-29 dBm	30 kHz
6 MHz ≤ Δf ≤ Δf_{max}	6.5MHz ≤ f_offset < f_offset_{max}	-16 dBm	1 MHz

Table 11.2.2: Spectrum emission mask values, BS maximum output power 39 ≤ P < 43 dBm

Frequency offset of measurement filter –3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
5 MHz ≤ Δf < 5.2 MHz	5.015MHz ≤ f_offset < 5.215MHz	-17 dBm	30 kHz
5.2 MHz ≤ Δf < 6 MHz	5.215MHz ≤ f_offset < 6.015MHz	$-17dBm-15\cdot\left(\frac{f\_offset}{MHz}-5.215\right)dB$	30 kHz
(see note)	6.015MHz ≤ f_offset < 6.5MHz	-29 dBm	30 kHz
6 MHz ≤ Δf < 15 MHz	6.5MHz ≤ f_offset < 15.5MHz	-16 dBm	1 MHz
15 MHz ≤ Δf ≤ Δf_{max}	15.5MHz ≤ f_offset < f_offset_{max}	P - 59 dB	1 MHz

Table 11.2.3: Spectrum emission mask values, BS maximum output power 31 ≤ P < 39 dBm

Frequency offset of measurement filter –3dB point,Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
5 MHz ≤ Δf < 5.2 MHz	5.015MHz ≤ f_offset < 5.215MHz	P - 56 dB	30 kHz
5.2 MHz ≤ Δf < 6 MHz	5.215MHz ≤ f_offset < 6.015MHz	$P-56dB-15\cdot\left(\frac{f\_offset}{MHz}-5.215\right)dB$	30 kHz
(see note)	6.015MHz ≤ f_offset < 6.5MHz	P – 68 dB	30 kHz
6 MHz ≤ Δf < 15 MHz	6.5MHz ≤ f_offset < 15.5MHz	P – 55 dB	1 MHz
15 MHz ≤ Δf ≤ Δf_{max}	15.5MHz ≤ f_offset < f_offset_{max}	P - 59 dB	1 MHz

Table 11.2.4: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter –3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
5 MHz ≤ Δf < 5.2 MHz	5.015MHz ≤ f_offset < 5.215MHz	-25 dBm	30 kHz
5.2 MHz ≤ Δf < 6 MHz	5.215MHz ≤ f_offset < 6.015MHz	$-25dBm-15\cdot\left(\frac{f\_offset}{MHz}-5.215\right)dB$	30 kHz
(see note)	6.015MHz ≤ f_offset < 6.5MHz	-37 dBm	30 kHz
6 MHz ≤ Δf < 15 MHz	6.5MHz ≤ f_offset < 15.5MHz	-24 dBm	1 MHz
15 MHz ≤ Δf ≤ Δf_{max}	15.5MHz ≤ f_offset < f_offset_{max}	-28 dBm	1 MHz

NOTE: This frequency range ensures that the range of values of f_offset is continuous.

11.2.1.2.2.2 Adjacent Channel Leakage power Ratio (ACLR)

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the RRC filtered mean power centered on the assigned channel frequency to the RRC filtered mean power centered on an adjacent channel frequency. The requirements shall apply for all configurations of BS (single carrier or multi-carrier), and for all operating modes foreseen by the manufacturer's specification.

In some cases the requirement is expressed as adjacent channel leakage power, which is the RRC filtered mean power for the given bandwidth of the victim system at the defined adjacent channel offset.

The requirement depends on the deployment scenario. Different deployment scenarios have been defined as given below.

11.2.1.2.2.2.1 Minimum requirement

The ACLR of a single carrier BS or a multi-carrier BS with contiguous carrier frequencies shall be higher than the value specified in Table 11.2.5.

Table 11.2.5: BS ACLR

BS adjacent channel offset below the first or above the last carrier frequency used	Chip Rate for RRC Measurement Filter	ACLR limit
7.5 MHz	3.84 Mcps	45 dB
12.5 MHz	3.84 Mcps	55 dB
10.0 MHz	7.68 Mcps	45 dB
20.0 MHz	7.68 Mcps	55 dB

If a BS provides multiple non-contiguous single carriers or multiple non-contiguous groups of contiguous single carriers, the above requirements shall be applied individually to the single carriers or group of single carriers.

11.2.1.2.2.3 Spurious emissions

Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions. This is measured at the base station RF output port.

The requirements shall apply whatever the type of transmitter considered (single carrier or multi carrier). It applies for all transmission modes foreseen by the manufacturer.

The requirement applies at frequencies within the specified frequency ranges which are more than 25 MHz under the first carrier frequency used or more than 25 MHz above the last carrier frequency used.

The mandatory requirements for Category A and Cateogry B shall be common with 3.84 Mcps TDD option.

11.2.2 Receiver characteristics

11.2.2.1 Reference sensitivity level

The reference sensitivity level is the minimum mean power received at the antenna connector at which the BER shall not exceed the specific value indicated in section 11.2.2.1.1.

11.2.2.1.1 Minimum requirement

The UL reference measurement channel used in the simulations of TR25.895 is the 12.2 kbps channel specified in Annex A.2.1 of TS25.105 [11] with twice the spreading factor (SF=16) and mid-amble (1024 chips). The reference sensitivity level and performance of the BS shall be as specified in Table 11.2.6.

Table 11.2.6: BS reference sensitivity level

BS Class	Reference measurement channel data rate	BS reference sensitivity level	BER
Wide Area BS	12.2 kbps	-109 dBm	BER shall not exceed 0.001
Local Area BS	12.2 kbps	-95 dBm	BER shall not exceed 0.001

11.2.2.2 Adjacent Channel Selectivity (ACS)

Adjacent channel selectivity (ACS) is a measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of a single code CDMA modulated adjacent channel signal at a given frequency offset from the center frequency of the assigned channel. ACS is the ratio of the receiver filter attenuation on the assigned channel frequency to the receiver filter attenuation on the adjacent channel(s).

11.2.2.2.1 Minimum requirement

The BER shall not exceed 0.001 for the parameters specified in table 11.2.7.

Table 11.2.7: Adjacent channel selectivity

Parameter		Level	Unit
Reference measurement channel data rate		12.2	kbps
Wanted signal mean power	Wide Area BS	-103	dBm
	Local Area BS	-89	dBm
Interfering signal mean power	Wide Area BS	–49	dBm
	Local Area BS	–35	dBm
Fuw offset (Modulated)		10	MHz

11.2.2.3 Blocking characteristics

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the adjacent channels. The blocking performance requirement applies to interfering signals with center frequency within the ranges specified in the tables below, using a 1MHz step size.

11.2.2.3.1 Minimum requirement

The static reference performance as specified in clause 11.2.2.1.1 shall be met with a wanted and an interfering signal coupled to BS antenna input using the parameters as specified in Table 11.2.8 to 11.2.10 for the Wide Area BS and as specified in Table 11.2.11 to 11.2.13 for the Local Area BS.

Table 11.2.8: Blocking requirements for Wide Area BS for operating bands defined in 5.2(a) of TS 25.105 [11]

Centre Frequency of Interfering Signal	Interfering Signal Mean Power	Wanted Signal Mean Power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1900 – 1920 MHz, 2010 – 2025 MHz	-40 dBm	-103 dBm	20 MHz	WCDMA signal with one code
1880 – 1900 MHz, 1990 – 2010 MHz, 2025 – 2045 MHz	-40 dBm	-103 dBm	20 MHz	WCDMA signal with one code
1920 – 1980 MHz	-40 dBm	-103 dBm	20 MHz	WCDMA signal with one code
1 – 1880 MHz, 1980 – 1990 MHz, 2045 – 12750 MHz	-15 dBm	-103 dBm	—	CW carrier

Table 11.2.9: Blocking requirements for Wide Area BS for operating bands defined in 5.2(b) of TS 25.105 [11]

Centre Frequency of Interfering Signal	Interfering Signal Mean Power	Wanted Signal Mean Power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1850 – 1990 MHz	-40 dBm	-103 dBm	20 MHz	WCDMA signal with one code
1830 – 1850 MHz, 1990 – 2010 MHz	-40 dBm	-103 dBm	20 MHz	WCDMA signal with one code
1 – 1830 MHz, 2010 – 12750 MHz	-15 dBm	-103 dBm	—	CW carrier

Table 11.2.10: Blocking requirements for Wide Area BS for operating bands defined in 5.2(c) of TS 25.105 [11]

Centre Frequency of Interfering Signal	Interfering Signal Mean Power	Wanted Signal Mean Power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1910 – 1930 MHz	-40 dBm	-103 dBm	20 MHz	WCDMA signal with one code
1890 – 1910 MHz, 1930 – 1950 MHz	-40 dBm	-103 dBm	20 MHz	WCDMA signal with one code
1 – 1890 MHz, 1950 – 12750 MHz	-15 dBm	-103 dBm	—	CW carrier

Table 11.2.11: Blocking requirements for Local Area BS for operating bands defined in 5.2(a) of TS25.105 [11]

Centre Frequency of Interfering Signal	Interfering Signal mean power	Wanted Signal mean power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1900 – 1920 MHz, 2010 – 2025 MHz	-30 dBm	–89 dBm	20 MHz	WCDMA signal with one code
1880 – 1900 MHz, 1990 – 2010 MHz, 2025 – 2045 MHz	-30 dBm	–89 dBm	20 MHz	WCDMA signal with one code
1920 – 1980 MHz	-30 dBm	–89 dBm	20 MHz	WCDMA signal with one code
1 – 1880 MHz, 1980 – 1990 MHz, 2045 – 12750 MHz	-15 dBm	–89 dBm	—	CW carrier

Table 11.2.12: Blocking requirements for Local Area BS for operating bands defined in 5.2(b) of TS 25.105 [11]

Centre Frequency of Interfering Signal	Interfering Signal mean power	Wanted Signal mean power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1850 – 1990 MHz	-30 dBm	–89 dBm	20 MHz	WCDMA signal with one code
1830 – 1850 MHz, 1990 – 2010 MHz	-30 dBm	–89 dBm	20 MHz	WCDMA signal with one code
1 – 1830 MHz, 2010 – 12750 MHz	-15 dBm	–89 dBm	—	CW carrier

Table 11.2.13: Blocking requirements for Local BS for operating bands defined in 5.2(c) of TS25.105 [11]

Centre Frequency of Interfering Signal	Interfering Signal mean power	Wanted Signal mean power	Minimum Offset of Interfering Signal	Type of Interfering Signal
1910 – 1930 MHz	-30 dBm	–89 dBm	20 MHz	WCDMA signal with one code
1890 – 1910 MHz, 1930 – 1950 MHz	-30 dBm	–89 dBm	20 MHz	WCDMA signal with one code
1 – 1890 MHz, 1950 – 12750 MHz	-15 dBm	–89 dBm	—	CW carrier

11.2.2.3.2 Collocation with GSM900 and/or DCS 1800

Common with 3.84 Mcps TDD option.

11.2.2.4 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the BS antenna connector. The requirements apply to all BS with separate RX and TX antenna port. The test shall be performed when both TX and RX are on with the TX port terminated.

11.2.2.4.1 Minimum requirement

The power of any spurious emission shall not exceed:

Table 11.2.14: Receiver spurious emission requirements

Band	Maximum level	Measurement Bandwidth	Note
30 MHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 1.9 GHz and 1.98 GHz – 2.01 GHz	-47 dBm	1 MHz	With the exception of frequencies between 25MHz below the first carrier frequency and 25MHz above the last carrier frequency used by the BS.
1.9 GHz – 1.98 GHz and 2.01 GHz – 2.025 GHz	-75 dBm	7.68 MHz	With the exception of frequencies between 25MHz below the first carrier frequency and 25MHz above the last carrier frequency used by the BS.
2.025 GHz – 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 25MHz below the first carrier frequency and 25MHz above the last carrier frequency used by the BS.

Annex A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2005-04	RAN1#40 bis	R1-050343			Frame Structure for 7.68Mcps TDD Option	-	0.0.1
2005-04	RAN1#40 bis	R1-050344			Timing Advance for 7.68Mcps TDD Option	-	0.0.1
2005-05	RAN1#41				V0.0.1 approved by RAN1.	0.0.1	0.1.0
2005-08	RAN1#41	R1-050455			Services offered to higher layers by 7.68Mcps TDD option	0.1.0	0.1.1
2005-08	RAN1#41	R1-050556			Spreading factors and burst types for 7.68Mcps TDD option	0.1.0	0.1.1
2005-09	RAN1#42	R1-050974			V0.1.1 approved by RAN1	0.1.1	0.2.0
2005-09	RAN1#42	R1-050858			7.68Mcps TDD: Mapping of transport channels to physical channels	0.2.0	0.2.1
2005-09	RAN1#42	R1-050859			7.68Mcps TDD: Paging aspects	0.2.0	0.2.1
2005-09	RAN1#42	R1-050860			7.68Mcps TDD: PRACH Aspects	0.2.0	0.2.1
2005-09	RAN1#42	R1-050861			7.68Mcps TDD: midamble aspects	0.2.0	0.2.1
2005-09	RAN1#42	R1-050862			7.68Mcps TDD: Transmission of TPC and TFCI	0.2.0	0.2.1
2005-09	RAN1#42	R1-050930			Synchronisation aspects for 7.68Mcps TDD option	0.2.0	0.2.1
2005-09	RAN1#42	R1-050931			7.68Mcps TDD: Transmitter power control	0.2.0	0.2.1
2005-10	RAN1#42 bis	R1-051251			V0.2.1 approved by RAN1	0.2.1	0.3.0
2005-10	RAN1#42 bis	R1-051223			7.68Mcps TDD option: HSDPA aspects of TS25.221	0.3.0	0.3.1
2005-10	RAN1#42 bis	R1-051224			SCH channel definition for the 7.68Mcps TDD option	0.3.0	0.3.1
2005-10	RAN1#42 bis	R1-051226			Physical layer procedures for the 7.68Mcps TDD option	0.3.0	0.3.1
2005-10	RAN1#42 bis	R1-051228			Tx diversity for the 7.68Mcps TDD option	0.3.0	0.3.1
2005-10	RAN1#42 bis	R1-051230			7.68Mcps TDD option: beacon channel aspects	0.3.0	0.3.1
2005-11	RAN1#43	R1-051564			V0.3.1 approved by RAN1	0.3.1	0.4.0
2005-11	RAN1#43	R1-051520			Transport channel processing for the 7.68Mcps TDD option	0.4.0	0.4.1
2005-11	RAN1#43	R1-051522			Spreading and modulation for the 7.68Mcps TDD option	0.4.0	0.4.1
2005-11	RAN1#43	R1-051620			Updated to v0.4.2	0.4.1	0.4.2
2005-11	TSG-RAN#30	RP-050829			v1.0.0 created for presentation to RAN plenary for information	0.4.2	1.0.0
2006-02	RAN1#44	R1-060628			MICH Aspects for the 7.68Mcps TDD option	1.0.0	1.1.0
2006-02	RAN1#44	R1-060629			IPDL Aspects for the 7.68Mcps TDD option	1.0.0	1.1.0
2006-02	RAN1#44	R1-060728			Response LS from RAN3 on input to TS25.202	1.1.0	1.1.1
2006-02	RAN1#44	R1-060744			Response LS from RAN2 on input to TS25.202	1.1.0	1.1.1
2006-02	RAN1#44	R1-060736			Response LS from RAN4 on input to TS25.202	1.1.0	1.1.1
2006-03	RAN_31	RP-060117			v2.0.0 created for presentation to RAN plenary for approval	1.1.1	2.0.0
20/03/06	RAN_31	RP-060117	-	-	Approved as v7.0.0 to put under change control	2.0.0	7.0.0
29/09/06	RAN_33	RP-060493	0001	-	Introduction of E-DCH for 7.68Mcps TDD	7.0.0	7.1.0
04/03/08	RAN_39	-	-	-	Creation of Release 8 further to RAN_39 decision	7.1.0	8.0.0
07/12/09	SP_46	-	-	-	Creation of Release 9 further to SA_46 decision	8.0.0	9.0.0
21/03/11	SP_51	-	-	-	Creation of Release 10 further to SA_51 decision	9.0.0	10.0.0
2012-09	SP_57	-	-	-	Update to Rel-11 version (MCC)	10.0.0	11.0.0
2014-09	SP_65	-	-	-	Update to Rel-12 version (MCC)	11.0.0	12.0.0
2015-12	SP_70	-	-	-	Update to Rel-13 version (MCC)	12.0.0	13.0.0

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2017-03	RP-75	-	-	-	-	Promotion to Release 14 without technical change (MCC)	14.0.0
2018-06	RP-80	-	-	-	-	Promotion to Release 15 without technical change (MCC)	15.0.0
2020-07	RP-88e	-	-	-	-	Upgrade to Rel-16 version without technical change	16.0.0
2022-03	RP-95e	-	-	-	-	Upgrade to Rel-17 version without technical change	17.0.0
2024-03	RP-103	-	-	-	-	Upgrade to Rel-18 version without technical change	18.0.0

History

Document history		
V18.0.0	May 2024	Publication