TSG RAN Meeting #18 **RP-020784**
New Orleans, US, 3 - 6 December, 2002

Title **CRs (Rel-4 and Rel-5 Category A) to TS 25.105**
Source **TSG RAN WG4**
Agenda Item **7.4.4**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-021645	25.105	128	1	F	Rel-4	4.5.0	Introduction of Rel-5 clarifications and small corrections in Rel-4	TEI4
R4-021574	25.105	129		F	Rel-4	4.5.0	Name correction of logical and transport channels	TEI4
R4-021575	25.105	130		A	Rel-5	5.2.0	Name correction of logical and transport channels	TEI4

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021645**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.105** **CR** **128** ⌘ **rev** **1** ⌘ Current version: **4.5.0** ⌘

*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:	⌘	Introduction of Rel-5 clarifications and small corrections in Rel-4
Source:	⌘	RAN WG4
Work item code:	⌘	TEI4
Date:	⌘	26/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

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: ⌘

1-Before RAN#17, CRs considered as *''non-essential''* were only agreed for Rel-5 in RAN4. It was agreed that such corrections could be introduced into Rel-4 as well.
This CR proposes to apply to Rel-4 all already agreed *''non-essential''* Rel-5 CRs that are applicable to Rel-4.

2-Adjacent channel leakage power definition is ambiguous in case that different systems are considered for the source and the victim systems (i.e 1,28 Mcps TDD option leaking on 3.84 Mcps TDD option).

Summary of change: ⌘

1-Corrections presented in the following CRs for Rel-5 are proposed for Rel-4:
- Update of reference to ITU-R recommendation SM.329-9 (CR126)
- Total power dynamic range definition (CR 125)
- Applicability of requirements in case of RF devices external to the BS (CR124)

2- It is clarified that for adjacent channel leakage power the measurement bandwidth and the adjacent channel offset are dependent of the considered scenarios and defined in the respective sections.

Consequences if not approved: ⌘

Rel-4 and Rel-5 specifications are not inlined with respect to issues that are covered in both releases. Adjacent channel leakage power definition remains ambiguous.

Isolated Impact Analysis:
This CR has no impact on UE-Node B interworking since the proposed corrections are clarification of the standard.

Clauses affected:	⌘	2, 3.1, 4.3, 6.1, 6.6.2.2, 6.6.3, 6.8.2, 7.2			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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] ITU-R Recommendation SM.329-9~~8~~ "Spurious emissions".

[2] ETSI ETR 273-1-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".

[3] IEC 60721-3-3 (1994): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weather protected locations".

[4] IEC 60721-3-4 (1995): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 4: Stationary use at non-weather protected locations".

[5] 3GPP TS 25.142: "Base station conformance testing (TDD)".

---NEXT SECTION---

3.1 Definitions

For the purposes of the present document, the following definitions apply.

Power Spectral Density: The units of Power Spectral Density (PSD) are extensively used in this document. PSD is a function of power versus frequency and when integrated across a given bandwidth, the function represents the mean power in such a bandwidth. When the mean power is normalised to (divided by) the chip-rate it represents the mean energy per chip. Some signals are directly defined in terms of energy per chip, (DPCH_Ec, Ec, and P-CCPCH_Ec) and others defined in terms of PSD (Io, Ioc, Ior and $\hat{I}$or). There also exist quantities that are a ratio of energy per chip to PSD (DPCH_Ec/Ior, Ec/Ior etc.). This is the common practice of relating energy magnitudes in communication systems.
It can be seen that if both energy magnitudes in the ratio are divided by time, the ratio is converted from an energy ratio to a power ratio, which is more useful from a measurement point of view. It follows that an energy per chip of X dBm/3.84 MHz (3.84 Mcps TDD option) or X dBm/1.28 MHz (1.28 Mcps TDD option) can be expressed as a mean power per chip of X dBm. Similarly, a signal PSD of Y dBm/3.84 MHz (3.84 Mcps TDD option) or Y dBm/1.28 MHz (1.28 Mcps TDD option) can be expressed as a signal power of Y dBm.

Mean power: When applied to a CDMA modulated signal this is the power (transmitted or received) in a bandwidth of at least (1+ α) times the chip rate of the radio access mode. The period of measurement shall be a transmit timeslot excluding the guard period unless otherwise stated.

NOTE: The roll-off factor α is defined in section 6.8.1.

RRC filtered mean power: The mean power as measured through a root raised cosine filter with roll-off factor α and a bandwidth equal to the chip rate of the radio access mode.

NOTE: The RRC filtered mean power of a perfectly modulated CDMA signal is 0.246 dB lower than the mean power of the same signal.

Code domain power: That part of the mean power which correlates with a particular (OVSF) code channel. The sum of all powers in the code domain equals the mean power in a bandwidth of (1+ α) times the chip rate of the radio access mode.

Output power: The mean power of one carrier of the base station, delivered to a load with resistance equal to the nominal load impedance of the transmitter.

Maximum output power: The mean power level per carrier of the base station measured at the antenna connector in a specified reference condition. The period of measurement shall be a transmit timeslot excluding the guard period.

Rated output power: Rated output power of the base station is the mean power level per carrier that the manufacturer has declared to be available at the antenna connector.

Total power dynamic range: The difference between the maximum and the minimum output power of the base station for a specified reference condition.

---NEXT SECTION---

4.3 Regional requirements

Some requirements in TS 25.105 may only apply in certain regions. Table 4.1 lists all requirements that may be applied differently in different regions.

Table 4.1: List of regional requirements.

Clause number	Requirement	Comments
5.2	Frequency bands	Some bands may be applied regionally.
6.2.1	Base station maximum output power	In certain regions, the minimum requirement for normal conditions may apply also for some conditions outside the range of conditions defined as normal.
6.6.2.1	Spectrum emission mask	The mask specified may be mandatory in certain regions. In other regions this mask may not be applied.
6.6.3.1.1	Spurious emissions (Category A)	These requirements shall be met in cases where Category A limits for spurious emissions, as defined in ITU-R Recommendation SM.329-~~8~~ 9 [1], are applied.
6.6.3.1.2	Spurious emissions (Category B)	These requirements shall be met in cases where Category B limits for spurious emissions, as defined in ITU-R Recommendation SM.329-9~~8~~ [1], are applied.
6.6.3.2.1	Co-existence with GSM900 – Operation in the same geographic area	This requirement may be applied for the protection of GSM 900 MS in geographic areas in which both GSM 900 and UTRA are deployed.
6.6.3.2.2	Co-existence with GSM900 – Co-located base stations	This requirement may be applied for the protection of GSM 900 BTS receivers when GSM 900 BTS and UTRA BS are co-located.
6.6.3.3.1	Co-existence with DCS1800 – Operation in the same geographic area	This requirement may be applied for the protection of DCS 1800 MS in geographic areas in which both DCS 1800 and UTRA are deployed.
6.6.3.3.2	Co-existence with DCS1800 – Co-located base stations	This requirement may be applied for the protection of DCS 1800 BTS receivers when DCS 1800 BTS and UTRA BS are co-located.
6.6.3.4.1	Co-existence with UTRA FDD – Operation in the same geographic area	This requirement may be applied to geographic areas in which both UTRA-TDD and UTRA-FDD are deployed.
6.6.3.4.2	Co-existence with UTRA FDD – Co-located base stations	This requirement may be applied for the protection of UTRA-FDD BS receivers when UTRA-TDD BS and UTRA FDD BS are co-located.
7.5	Blocking characteristic	The requirement is applied according to what frequency bands in Clause 5.2 that are supported by the BS.
7.5.1	Blocking characteristic Co-location with GSM900 and/or DCS 1800	This requirement may be applied for the protection of UTRA TDD BS receivers when UTRA TDD BS and GSM 900/DCS1800 BS are co-located.

---NEXT SECTION---

6 Transmitter characteristics

6.1 General

Unless ~~detailed~~ otherwise stated the transmitter characteristics are specified at the antenna connector~~.~~ (test port A) with a full complement of transceivers for the configuration in normal operating conditions. If any external apparatus such as a TX amplifier, a filter or the combination of such devices is used, requirements apply at the far end antenna connector. (port B).

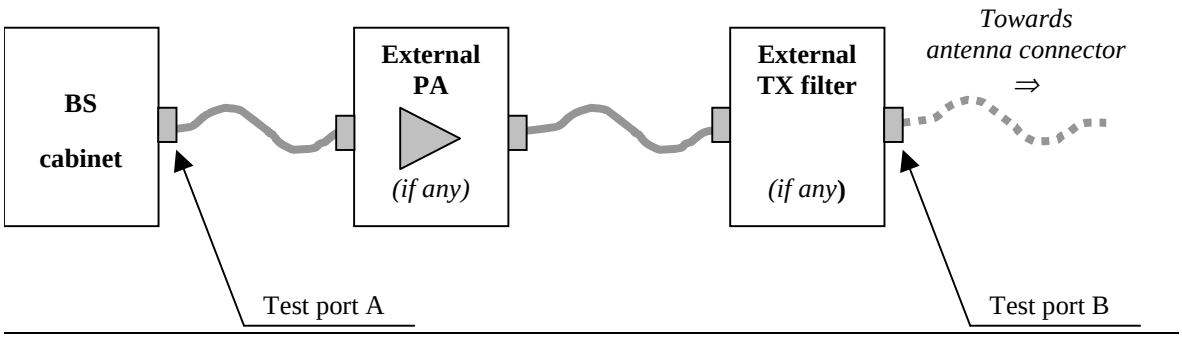

Figure X.X Transmitter test ports

---NEXT SECTION---

6.6.2.2 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 bandwith of the victim system at the defined adjacent channel offset. ~~the maximum absolute emission level on the adjacent channel frequency measured with a filter that has a Root Raised Cosine (RRC) filter response with roll-off α=0,22 and a bandwidth equal to the chip rate of the victim system.~~

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

---NEXT SECTION---

6.6.3 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's.

For 3.84 Mcps TDD option, either requirement applies at frequencies within the specified frequency ranges which are more than 12.5 MHz under the first carrier frequency used or more than 12.5 MHz above the last carrier frequency used.

For 1.28 Mcps TDD option, either requirement applies at frequencies within the specified frequency ranges which are more than 4 MHz under the first carrier frequency used or more than 4 MHz above the last carrier frequency used.

Unless otherwise stated, all requirements are measured as mean power.

6.6.3.1 Mandatory Requirements

The requirements of either subclause 6.6.3.1.1 or subclause 6.6.3.1.2 shall apply.

6.6.3.1.1 Spurious emissions (Category A)

The following requirements shall be met in cases where Category A limits for spurious emissions, as defined in ITU-R Recommendation SM.329-9~~8~~ [1], are applied.

6.6.3.1.1.1 Minimum Requirement

6.6.3.1.1.1.1 3,84 Mcps TDD Option

The power of any spurious emission shall not exceed:

Table 6.10: BS Mandatory spurious emissions limits, Category A

Band	Minimum requirement	Measurement Bandwidth	Note
9kHz – 150kHz	-13 dBm	1 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
150kHz – 30MHz		10 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
30MHz – 1GHz		100 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
1GHz – 12.75 GHz		1 MHz	Upper frequency as in ITU SM.329-9~~8~~, s2.5 table 1

6.6.3.1.1.1.2 1,28 Mcps TDD Option

The power of any spurious emission shall not exceed:

Table 6.10A: BS Mandatory spurious emissions limits, Category A

Band	Minimum requirement	Measurement Bandwidth	Note
9kHz – 150kHz	-13 dBm	1 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
150kHz – 30MHz		10 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
30MHz – 1GHz		100 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
1GHz – 12.75 GHz		1 MHz	Upper frequency as in ITU SM.329-9~~8~~, s2.5 table 1

NOTE: only the measurement bands are different according to the occupied bandwidth.

6.6.3.1.2 Spurious emissions (Category B)

The following requirements shall be met in cases where Category B limits for spurious emissions, as defined in ITU-R Recommendation SM.329-9~~8~~ [1], are applied.

6.6.3.1.2.1 Minimum Requirement

6.6.3.1.2.1.1 3,84 Mcps TDD Option

The power of any spurious emission shall not exceed:

Table 6.11: BS Mandatory spurious emissions limits, Category B

Band	Maximum Level	Measurement Bandwidth	Note
9kHz – 150kHz	-36 dBm	1 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
150kHz – 30MHz	- 36 dBm	10 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
30MHz – 1GHz	-36 dBm	100 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
1GHz ↔ Fc1-60 MHz or Fl -10 MHz *whichever is the higher*	-30 dBm	1 MHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
Fc1 - 60 MHz or Fl -10 MHz *whichever is the higher* ↔ Fc1 - 50 MHz or Fl -10 MHz *whichever is the higher*	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-9~~8~~, s4.3 and Annex 7
Fc1 - 50 MHz or Fl -10 MHz *whichever is the higher* ↔ Fc2 + 50 MHz or Fu +10 MHz *whichever is the lower*	-15 dBm	1 MHz	Specification in accordance with ITU-R SM.329-9~~8~~, s4.3 and Annex 7
Fc2 + 50 MHz or Fu + 10 MHz *whichever is the lower* ↔ Fc2 + 60 MHz or Fu + 10 MHz *whichever is the lower*	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-9~~8~~, s4.3 and Annex 7
Fc2 + 60 MHz or Fu + 10 MHz *whichever is the lower* ↔ 12,75 GHz	-30 dBm	1 MHz	Bandwidth as in ITU-R SM.329-9~~8~~, s4.3 and Annex 7. Upper frequency as in ITU-R SM.329-9~~8~~, s2.5 table 1

Fc1: Center frequency of emission of the first carrier transmitted by the BS

Fc2: Center frequency of emission of the last carrier transmitted by the BS

Fl : Lower frequency of the band in which TDD operates

Fu : Upper frequency of the band in which TDD operates

6.6.3.1.2.1.2 1,28 Mcps TDD Option

The power of any spurious emission shall not exceed:

Table 6.11A: BS Mandatory spurious emissions limits, Category B

Band	Maximum Level	Measurement Bandwidth	Note
9kHz – 150kHz	-36 dBm	1 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
150kHz – 30MHz	- 36 dBm	10 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
30MHz – 1GHz	-36 dBm	100 kHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
1GHz ↔ Fc1-19.2 MHz or Fl –10 MHz *whichever is the higher*	-30 dBm	1 MHz	Bandwidth as in ITU SM.329-9~~8~~, s4.1
Fc1 – 19.2 MHz or Fl -10MHz *whichever is the higher* ↔ Fc1 - 16 MHz or Fl –10 MHz *whichever is the higher*	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-9~~8~~, s4.1
Fc1 - 16 MHz or Fl –10 MHz *whichever is the higher* ↔ Fc2 + 16 MHz or Fu +10 MHz *whichever is the lower*	-15 dBm	1 MHz	Specification in accordance with ITU-R SM.329-9~~8~~, s4.1
Fc2 + 16 MHz or Fu + 10MHz *whichever is the lower* ↔ Fc2 +19.2 MHz or Fu + 10MHz *whichever is the lower*	-25 dBm	1 MHz	Specification in accordance with ITU-R SM.329-9~~8~~, s4.1
Fc2 + 19.2 MHz or Fu +10 MHz *whichever is the lower* ↔ 12,5 GHz	-30 dBm	1 MHz	Bandwidth as in ITU-R SM.329-9~~8~~, s4.1. Upper frequency as in ITU-R SM.329-9~~8~~, s2.5 table 1

Fc1: Center frequency of emission of the first carrier transmitted by the BS

Fc2: Center frequency of emission of the last carrier transmitted by the BS

Fl : Lower frequency of the band in which TDD operates

Fu : Upper frequency of the band in which TDD operates

---NEXT SECTION---

6.8.2 Modulation Accuracy

The Error Vector Magnitude is a measure of the difference between the reference waveform and the measured waveform. This difference is called the error vector. Both waveforms pass through a matched Root Raised Cosine filter with bandwidth corresponding to the considered chip rate and roll-off α =0,22. Both waveforms are then further modified by selecting the frequency, absolute phase, absolute amplitude and chip clock timing so as to minimise the error vector. The EVM result is defined as the square root of the ratio of the mean error vector power to the mean reference power expressed as a %. The measurement interval is one timeslot. The requirement is valid over the total power dynamic range as specified in subclause 3.1.~~6.4.3~~. See Annex C of TS 25.142 for further details.

6.8.2.1 Minimum Requirement

The Modulation accuracy shall not be worse than 12.5 %.

7 Receiver characteristics

7.1 General

The requirements in this clause 7 assume that the receiver is not equipped with diversity. For receivers with diversity, the requirements apply to each antenna connector separately, with the other one(s) terminated or disabled .The requirements are otherwise unchanged.

Unless otherwise stated, the receiver characteristics are specified at the BS antenna connector (test port A) with a full complement of transceivers for the configuration in normal operating conditions. If any external apparatus such as a RX amplifier, a filter or the combination of such devices is used, requirements apply at the far end antenna connector (port B).

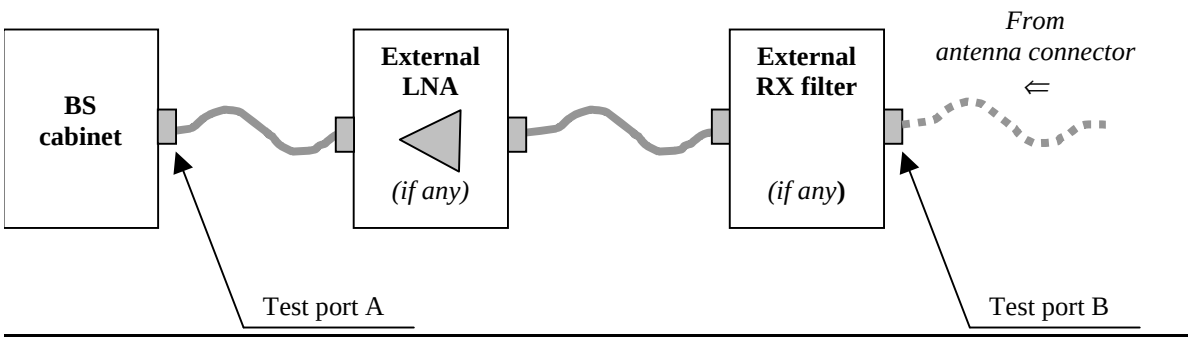

Figure X.X: Receiver test ports

7.2 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 7.2.1.

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021574**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.105** **CR** **129** ⌘ **rev** ⌘ Current version: **4.5.0** ⌘

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

Title:	⌘	Name correction of logical and transport channels
Source:	⌘	RAN WG4
Work item code:	⌘	TEI4
Date:	⌘	26/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

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R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	No clear distinction between logical and transport channels. Punctering levels and code rates are different for the data and control part of the transport channel.
Summary of change:	⌘	Referencing the DCH of the DTCH and the DCH of the DCCH instead of DCCH and DCH in general for punctering levels and coding rates.
Consequences if not approved:	⌘	Incorrect description and inconsistency with respect to WG1 specifications. **Isolated impact analysis:** The correction has no impact on UE-BS interworking.

Clauses affected:	⌘	A.2

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

Other comments:	⌘	Equivalent CRs in other Releases: CR130 cat. A to 25.105 v5.2.0

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

A.2 Reference measurement channel

A.2.1 UL reference measurement channel (12.2 kbps)

A.2.1.1 3,84 Mcps TDD Option

Table A.1

Parameter	Value
Information data rate	12.2 kbps
RU´s allocated	2 RU
Midamble	512 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate 1/3 : DCH of the DTCH / DCH of the DCCH	10% / 0%

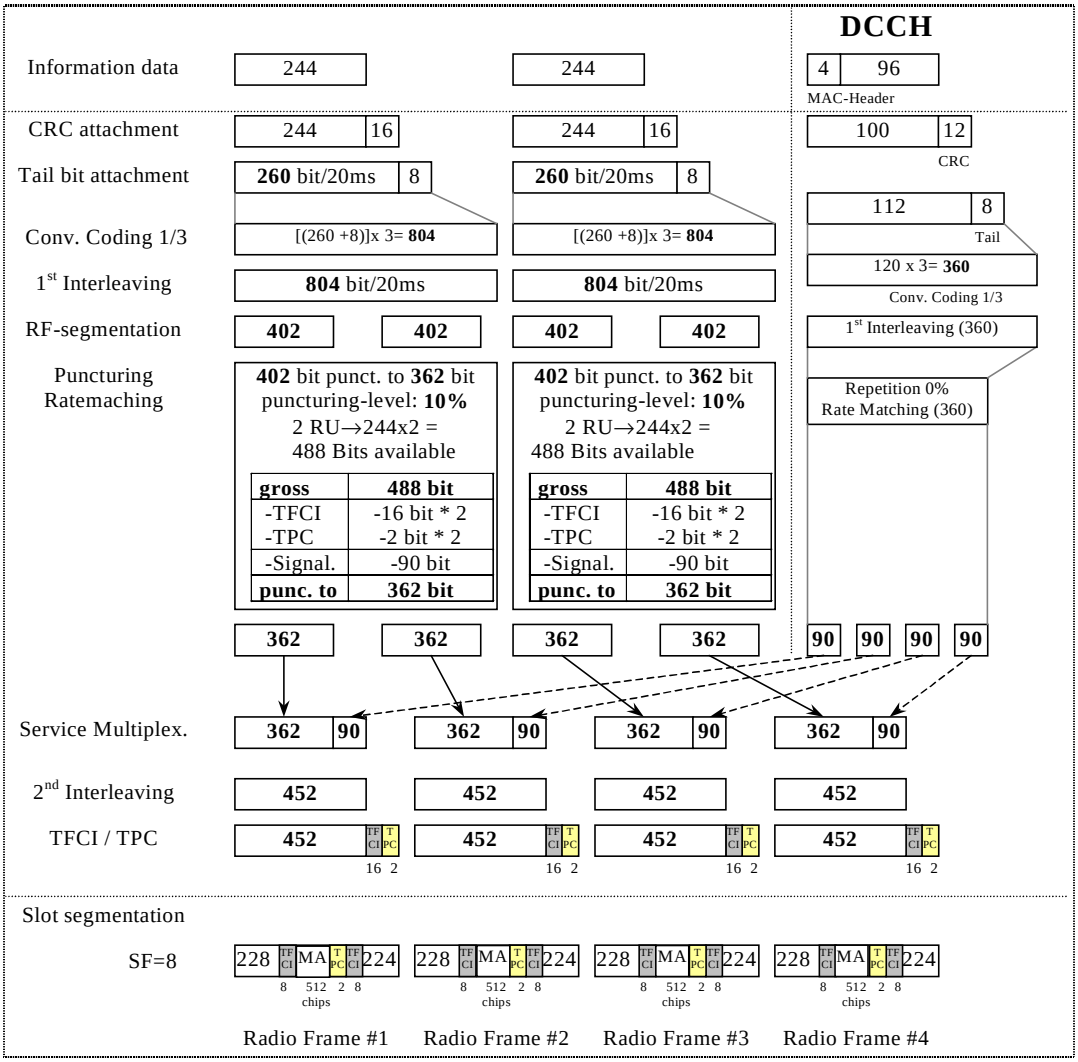

Figure A.1

A.2.1.2 1,28 Mcps TDD Option

Table A.1A

Parameter	Value
Information data rate	12.2 kbps
RU's allocated	1TS (1*SF8) = 2RU/5ms
Midamble	144
Interleaving	20 ms
Power control (TPC)	4 Bit/user/10ms
TFCI	16 Bit/user/10ms
Synchronisation Shift (SS)	4 Bit/user/10ms
Inband signalling DCCH	2.4 kbps
Puncturing level at Code rate 1/3: DCH of the DTCH / DCH of the DCCH	33% / 33%

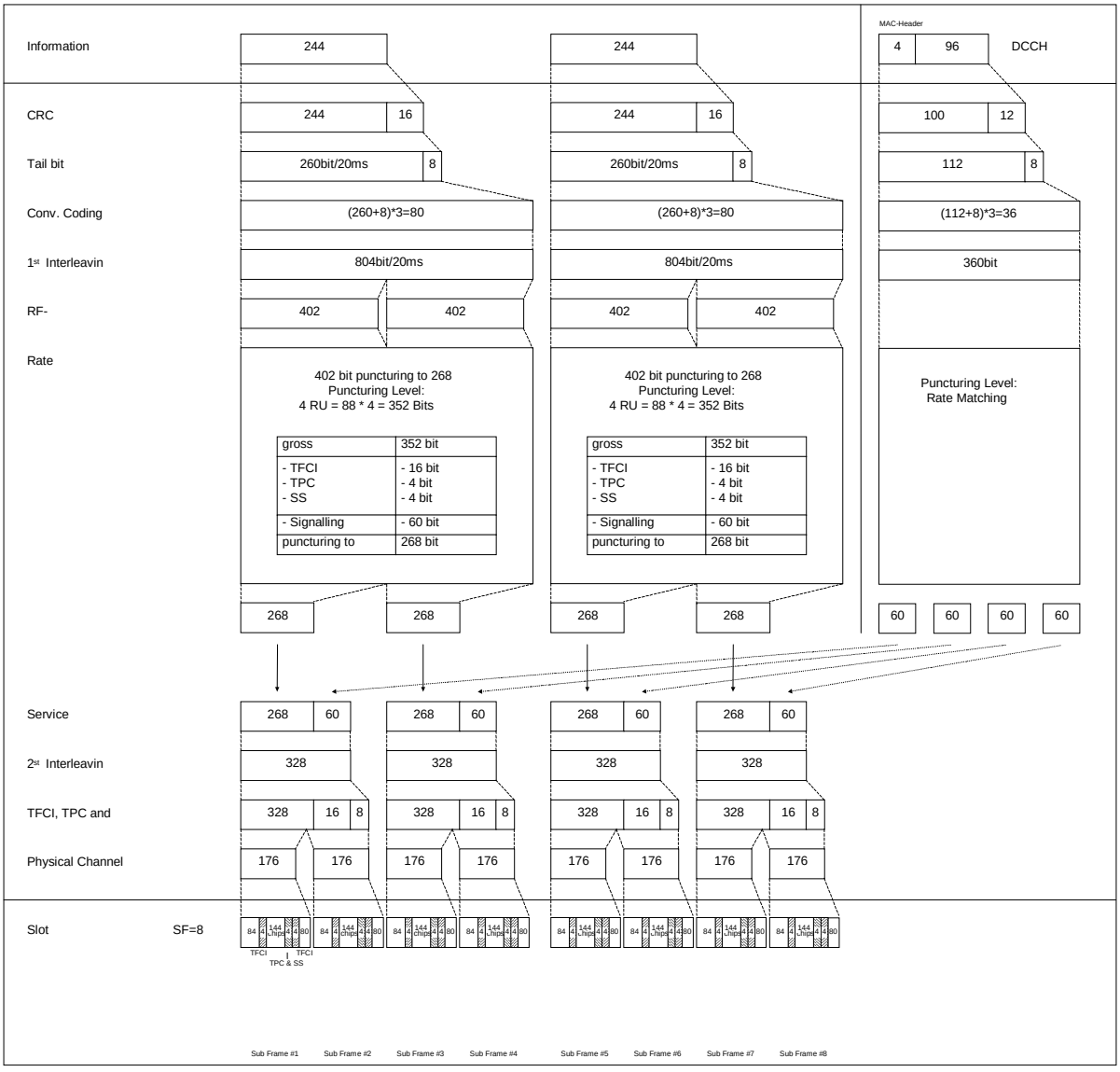

Figure A.1A

A.2.2 UL reference measurement channel (64 kbps)

A.2.2.1 3,84 Mcps TDD Option

Table A.2

Parameter	Value
Information data rate	64 kbps
RU´s allocated	1 SF4 + 1 SF16 = 5RU
Midamble	512 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH of the DTCH / ½ DCH of the DCCH	41.2% / 10%

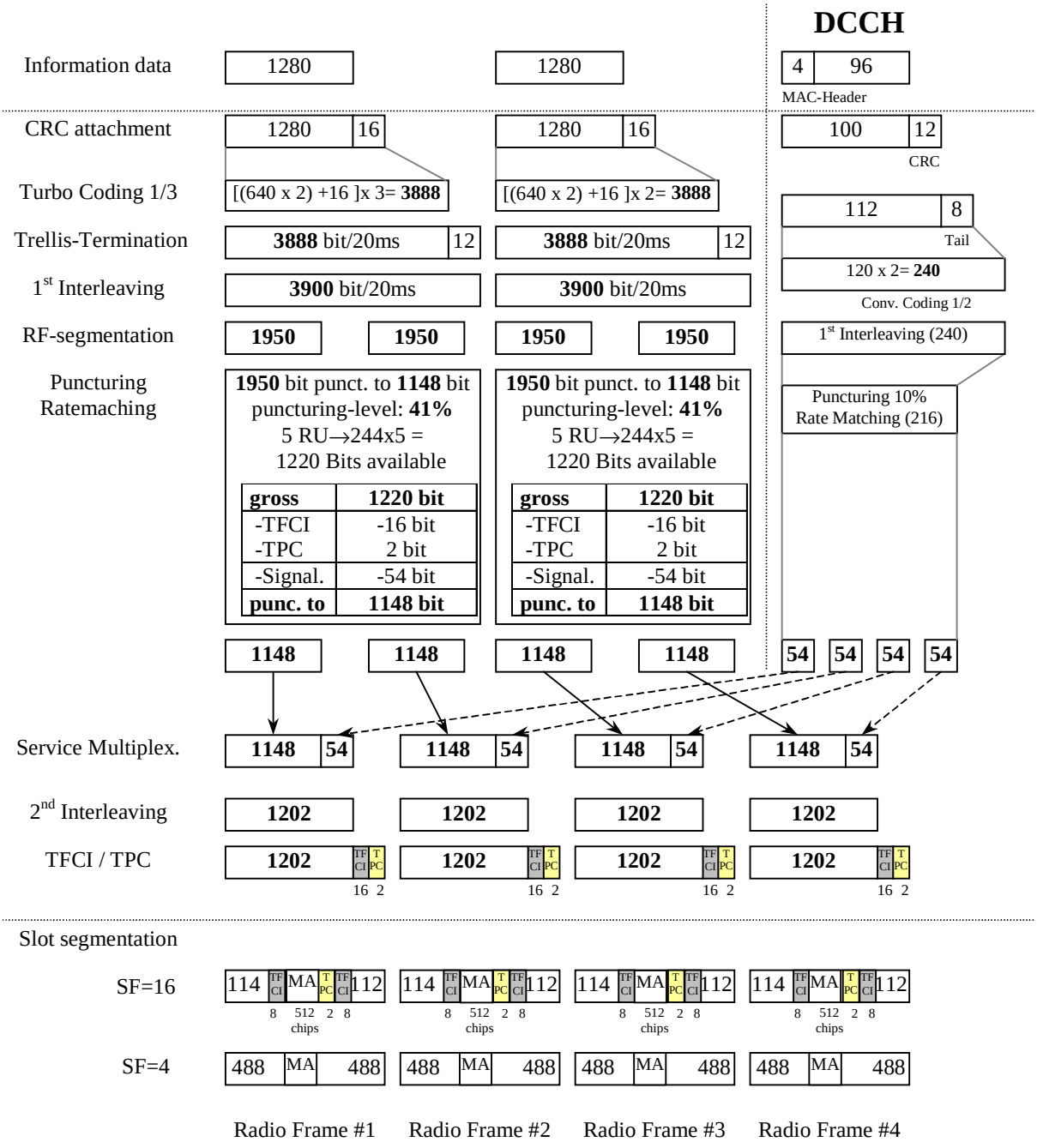
DCCH
Information data
1280
1280
4
96
MAC-Header
CRC attachment
1280
16
1280
16
100
12
CRC
Turbo Coding 1/3
[(640 x 2) +16]x 3= 3888
[(640 x 2) +16]x 2= 3888
112
8
Tail
Trellis-Termination
3888 bit/20ms
12
3888 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
3900 bit/20ms
3900 bit/20ms
RF-segmentation
1950
1950
1950
1950
1st Interleaving (240)
Puncturing
Ratemaching
1950 bit punct. to 1148 bit
puncturing-level: 41%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-TPC
-16 bit
2 bit
-Signal.
-54 bit
punc. to
1148 bit
1950 bit punct. to 1148 bit
puncturing-level: 41%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-TPC
-16 bit
2 bit
-Signal.
-54 bit
punc. to
1148 bit
Puncturing 10%
Rate Matching (216)
1148
1148
1148
1148
54
54
54
54
Service Multiplex.
1148
54
1148
54
1148
54
1148
54
2nd Interleaving
1202
1202
1202
1202
TFCI / TPC
1202
TFCI
TPC
16 2
1202
TFCI
TPC
16 2
1202
TFCI
TPC
16 2
1202
TFCI
TPC
16 2
Slot segmentation
SF=16
114
TFCI
MA
TPC
TFCI
112
8
512
chips
2
8
SF=4
488
MA
488
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

Figure A.2

A.2.2.2 1,28 Mcps TDD Option

Table A.2A

Parameter	Value
Information data rate	64 kbps
RU's allocated	1TS (1*SF2) = 8RU/5ms
Midamble	144
Interleaving	20 ms
Power control (TPC)	4 Bit/user/10ms
TFCI	16 Bit/user/10ms
Synchronisation Shift (SS)	4 Bit/user/10ms
Inband signalling DCCH	2.4 kbps
Puncturing level at Code rate: 1/3 DCH of the DTCH / ½ DCH of the DCCH	32% / 0

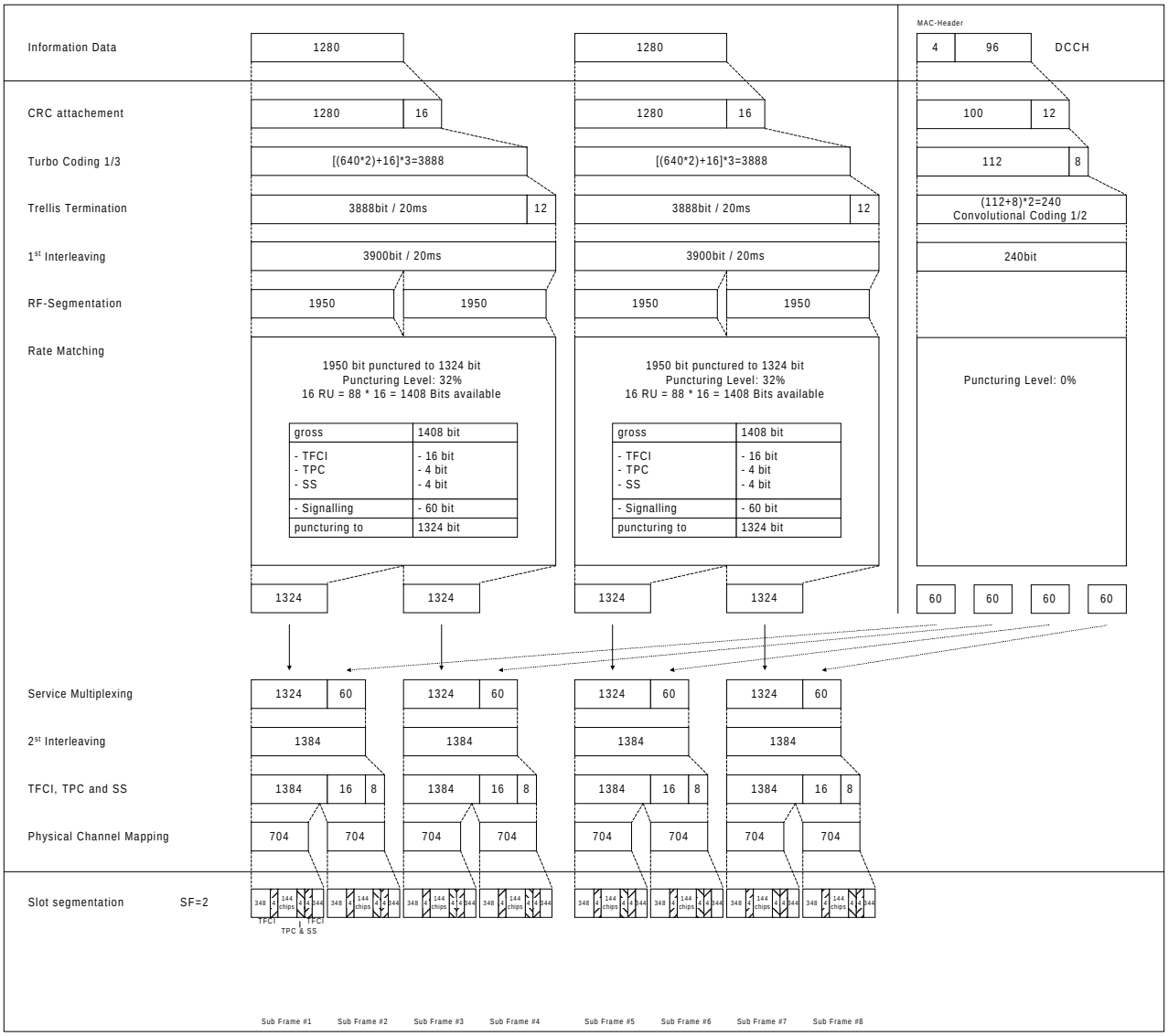

Figure A.2A

A.2.3 UL reference measurement channel (144 kbps)

A.2.3.1 3,84 Mcps TDD Option

Table A.3

Parameter	Value
Information data rate	144 kbps
RU´s allocated	1 SF2 + 1 SF16 = 9RU
Midamble	256 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH of the DTCH / ½ DCH of the DCCH	44.4% / 16.6%

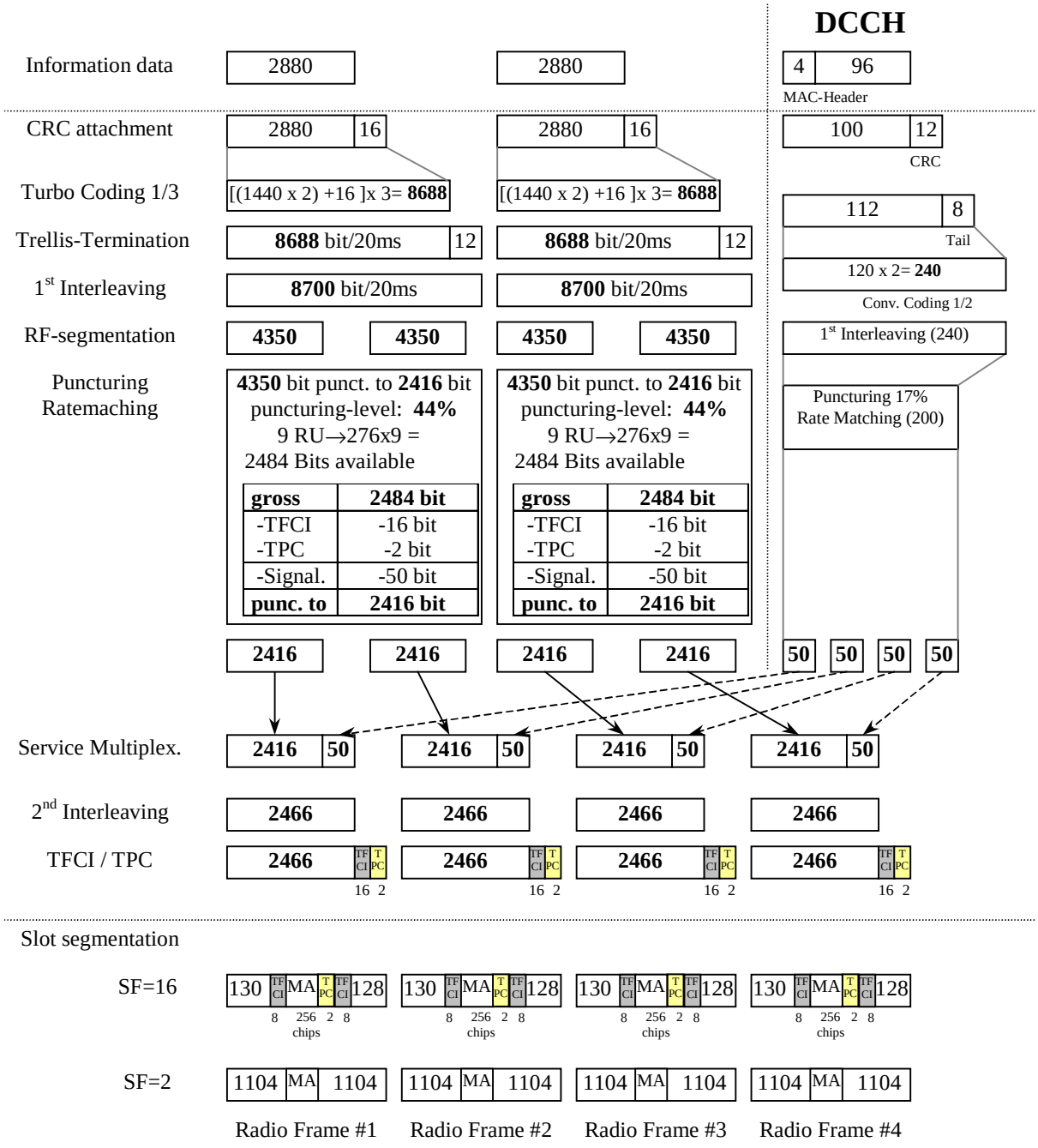
DCCH
Information data
2880
2880
4
96
MAC-Header
CRC attachment
2880
16
2880
16
100
12
CRC
Turbo Coding 1/3
[(1440 x 2) +16]x 3= 8688
[(1440 x 2) +16]x 3= 8688
112
8
Tail
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
8700 bit/20ms
8700 bit/20ms
RF-segmentation
4350
4350
4350
4350
1st Interleaving (240)
Puncturing
Ratemaching
4350 bit punct. to 2416 bit
puncturing-level: 44%
9 RU→276x9 =
2484 Bits available
gross
2484 bit
-TFCI
-TPC
-16 bit
-2 bit
-Signal.
-50 bit
punc. to
2416 bit
4350 bit punct. to 2416 bit
puncturing-level: 44%
9 RU→276x9 =
2484 Bits available
gross
2484 bit
-TFCI
-TPC
-16 bit
-2 bit
-Signal.
-50 bit
punc. to
2416 bit
Puncturing 17%
Rate Matching (200)
2416
2416
2416
2416
50
50
50
50
Service Multiplex.
2416
50
2416
50
2416
50
2416
50
2nd Interleaving
2466
2466
2466
2466
TFCI / TPC
2466
TFCI
TPC
16 2
2466
TFCI
TPC
16 2
2466
TFCI
TPC
16 2
2466
TFCI
TPC
16 2
Slot segmentation
SF=16
130
TFCI
MA
TPC
TFCI
128
8 256 2 8
chips
130
TFCI
MA
TPC
TFCI
128
8 256 2 8
chips
130
TFCI
MA
TPC
TFCI
128
8 256 2 8
chips
130
TFCI
MA
TPC
TFCI
128
8 256 2 8
chips
SF=2
1104
MA
1104
1104
MA
1104
1104
MA
1104
1104
MA
1104
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

Figure A.3

A.2.3.2 1,28 Mcps TDD Option

Table A.3A

Parameter	Value
Information data rate	144 kbps
RU's allocated	2TS (1*SF2) = 16RU/5ms
Midamble	144
Interleaving	20 ms
Power control (TPC)	8 Bit/user/10ms
TFCI	32 Bit/user/10ms
Synchronisation Shift (SS)	8 Bit/user/10ms
Inband signalling DCCH	2.4 kbps
Puncturing level at Code rate: 1/3 DCH of the DTCH / ½ DCH of the DCCH	38% / 7%

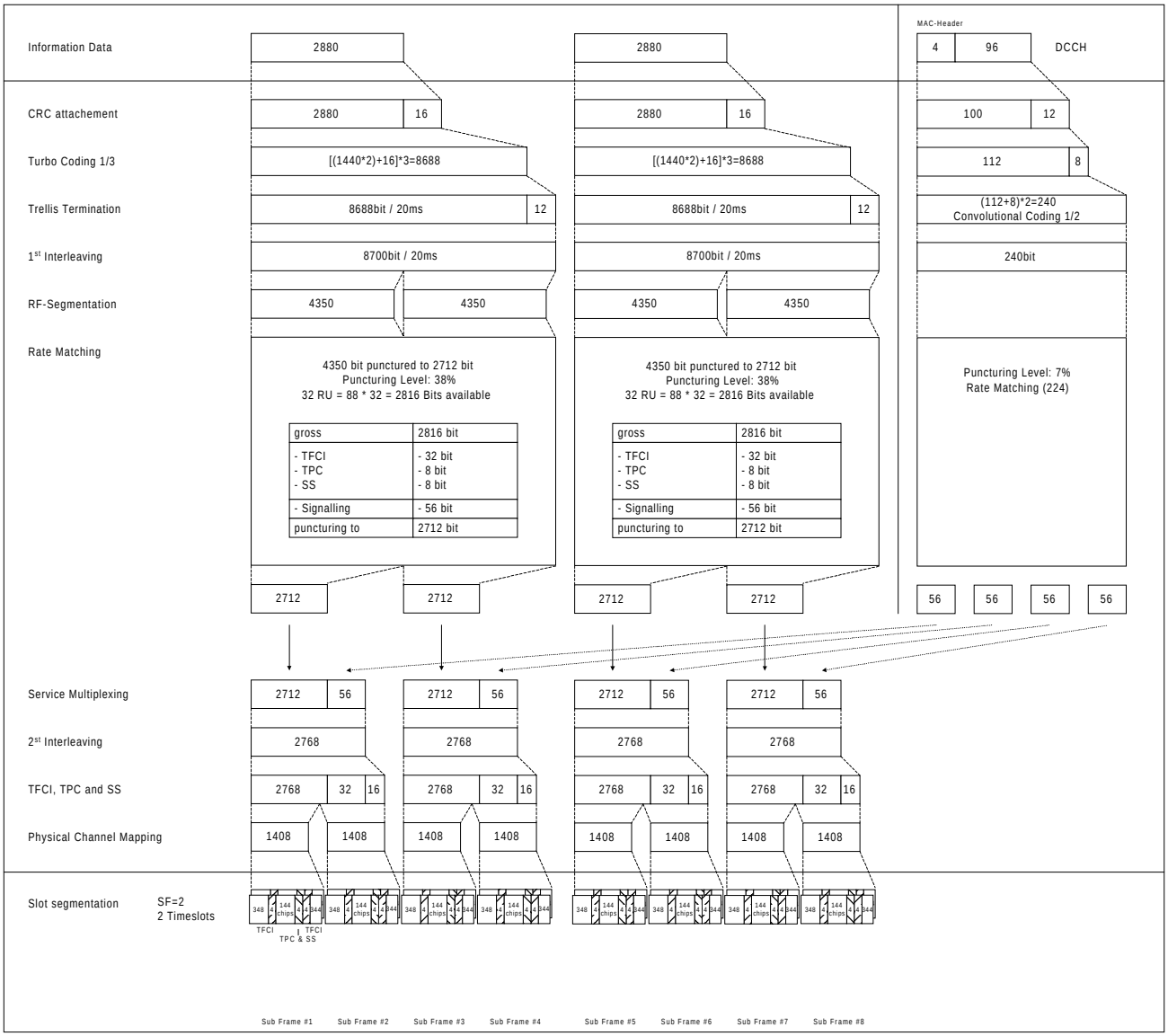

Figure A.3A

A.2.4 UL reference measurement channel (384 kbps)

A.2.4.1 3,84 Mcps TDD Option

Table A.4

Parameter	Value
Information data rate	384 kbps
RU´s allocated	8*3TS = 24RU
Midamble	256 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH of the DTCH / ½ DCH of the DCCH	43.4% / 15.3%

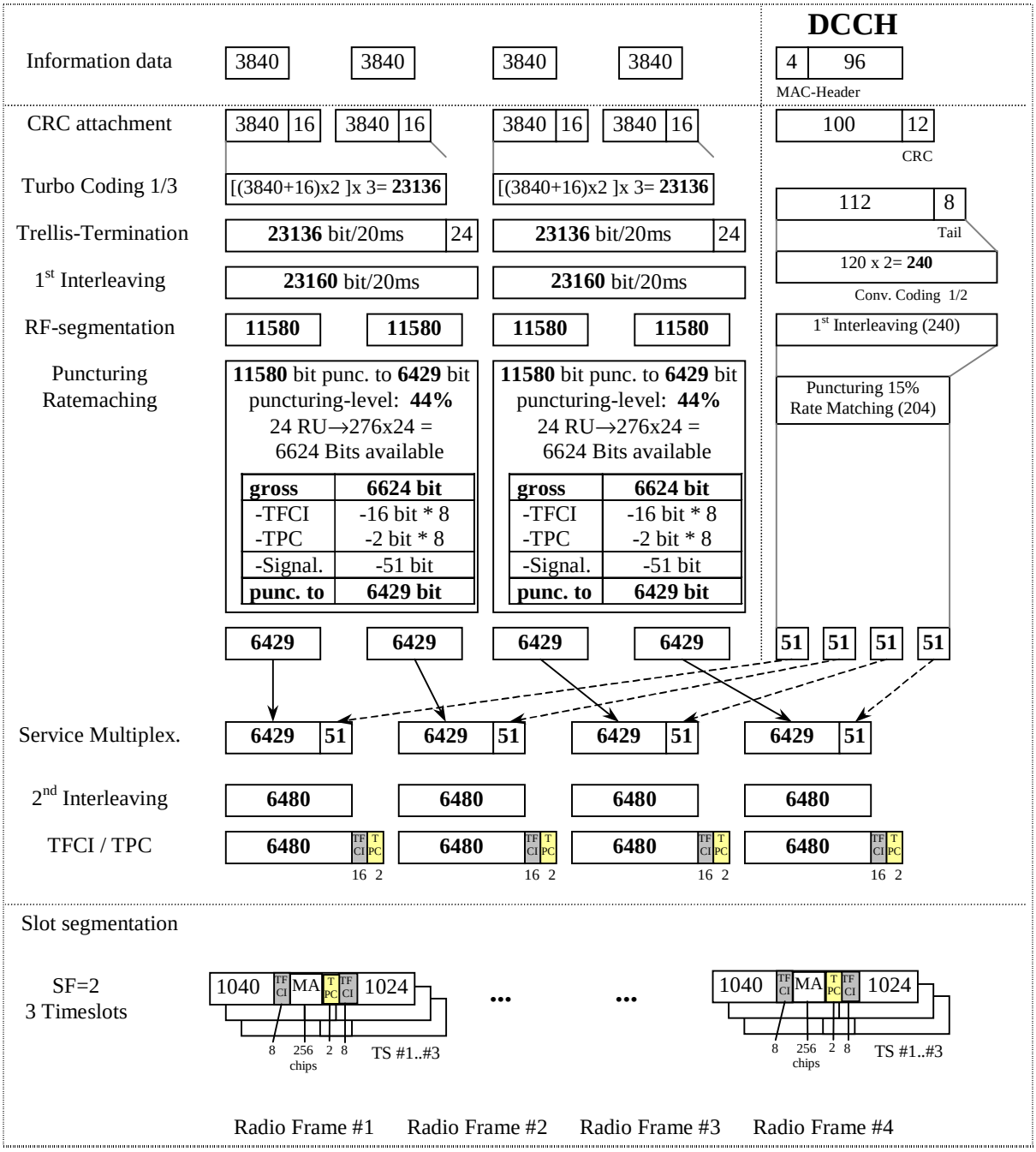
DCCH
Information data
3840
3840
3840
3840
4
96
MAC-Header
CRC attachment
3840
16
3840
16
3840
16
3840
16
100
12
CRC
Turbo Coding 1/3
[(3840+16)x2]x 3= 23136
[(3840+16)x2]x 3= 23136
112
8
Tail
Trellis-Termination
23136 bit/20ms
24
23136 bit/20ms
24
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
23160 bit/20ms
23160 bit/20ms
RF-segmentation
11580
11580
11580
11580
1st Interleaving (240)
Puncturing
Ratemaching
11580 bit punc. to 6429 bit
puncturing-level: 44%
24 RU→276x24 =
6624 Bits available
gross
6624 bit
-TFCI
-16 bit * 8
-TPC
-2 bit * 8
-Signal.
-51 bit
punc. to
6429 bit
11580 bit punc. to 6429 bit
puncturing-level: 44%
24 RU→276x24 =
6624 Bits available
gross
6624 bit
-TFCI
-16 bit * 8
-TPC
-2 bit * 8
-Signal.
-51 bit
punc. to
6429 bit
Puncturing 15%
Rate Matching (204)
6429
6429
6429
6429
51
51
51
51
Service Multiplex.
6429
51
6429
51
6429
51
6429
51
2nd Interleaving
6480
6480
6480
6480
TFCI / TPC
6480
TF CI
T PC
16 2
6480
TF CI
T PC
16 2
6480
TF CI
T PC
16 2
6480
TF CI
T PC
16 2
Slot segmentation
SF=2
3 Timeslots
1040
TF CI
MA
T PC
TF CI
1024
8
256 chips
2
8
TS #1..#3
...
...
1040
TF CI
MA
T PC
TF CI
1024
8
256 chips
2
8
TS #1..#3
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

Figure A.4

A.2.4.2 1,28 Mcps TDD Option

Table A.4A

Parameter	Value
Information data rate	384 kbps
RU's allocated	4TS (1*SF2 + 1*SF8) = 40RU/5ms
Midamble	144
Interleaving	20 ms
Power control (TPC)	16 Bit/user/10ms
TFCI	64 Bit/user/10ms
Synchronisation Shift (SS)	16 Bit/user/10ms
Inband signalling DCCH	max 2.0 kbps
Puncturing level at Code rate: 1/3 DCH of the DTCH / ½ DCH of the DCCH	41% / 12%

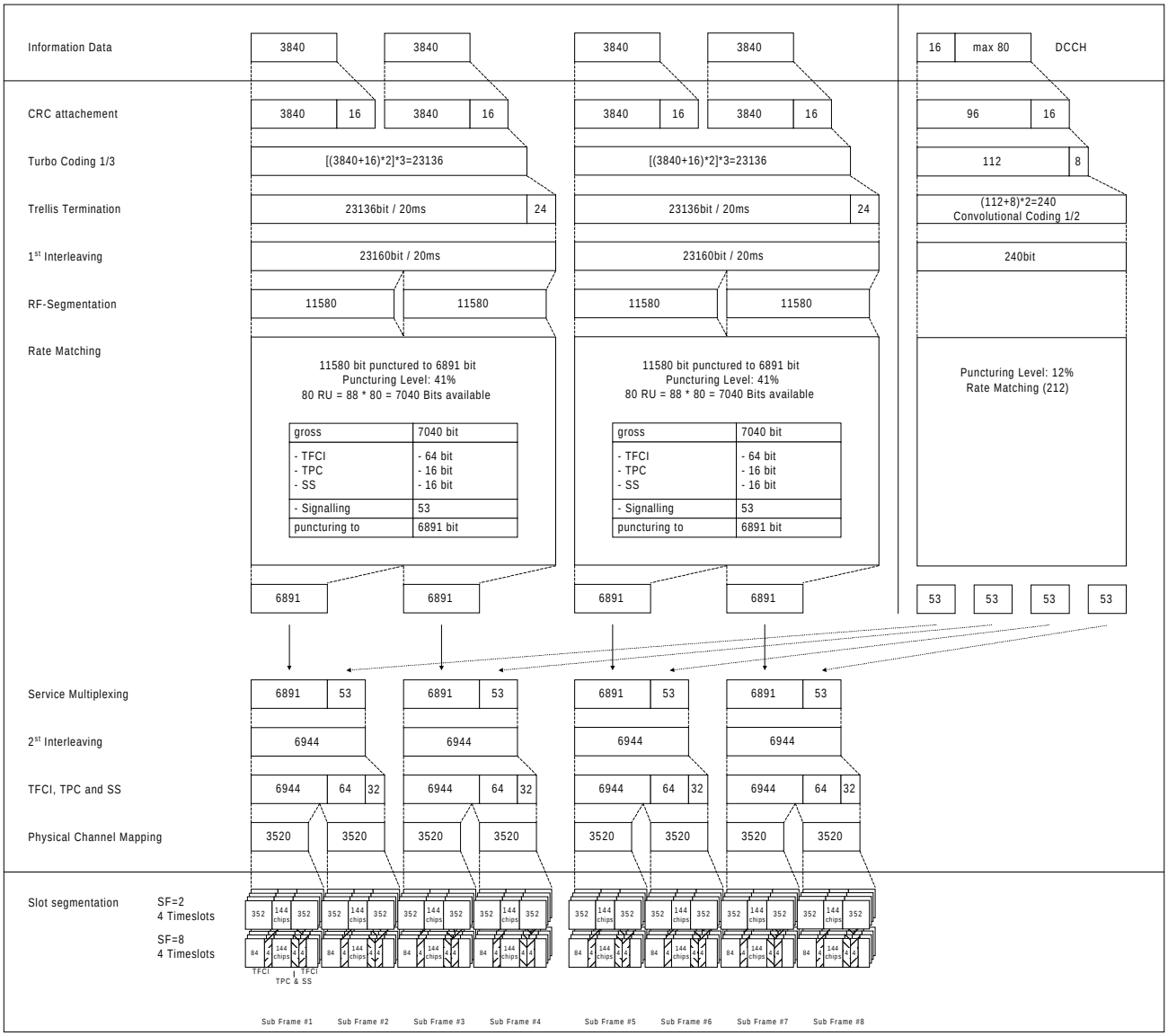

Figure A.4A

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021575**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.105** **CR** **130** ⌘ **rev** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	Name correction of logical and transport channels
Source:	⌘	RAN WG4
Work item code:	⌘	TEI4 ***Date:*** ⌘ 26/11/2002
Category:	⌘	**A** ***Release:*** ⌘ Rel-5

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:	⌘	No clear distinction between logical and transport channels. Punctering levels and code rates are different for the data and control part of the transport channel.
Summary of change:	⌘	Referencing the DCH of the DTCH and the DCH of the DCCH instead of DCCH and DCH in general for punctering levels and coding rates.
Consequences if not approved:	⌘	Incorrect description and inconsistency with respect to WG1 specifications. **Isolated impact analysis:** The correction has no impact on UE-BS interworking.

Clauses affected:	⌘	A.2

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

Other comments: ⌘ Equivalent CRs in other Releases: CR129 cat. F to 25.105 v4.5.0

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

A.2 Reference measurement channel

A.2.1 UL reference measurement channel (12.2 kbps)

A.2.1.1 3,84 Mcps TDD Option

Table A.1

Parameter	Value
Information data rate	12.2 kbps
RU´s allocated	2 RU
Midamble	512 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate 1/3 : DCH of the DTCH / DCH of the DCCH	10% / 0%

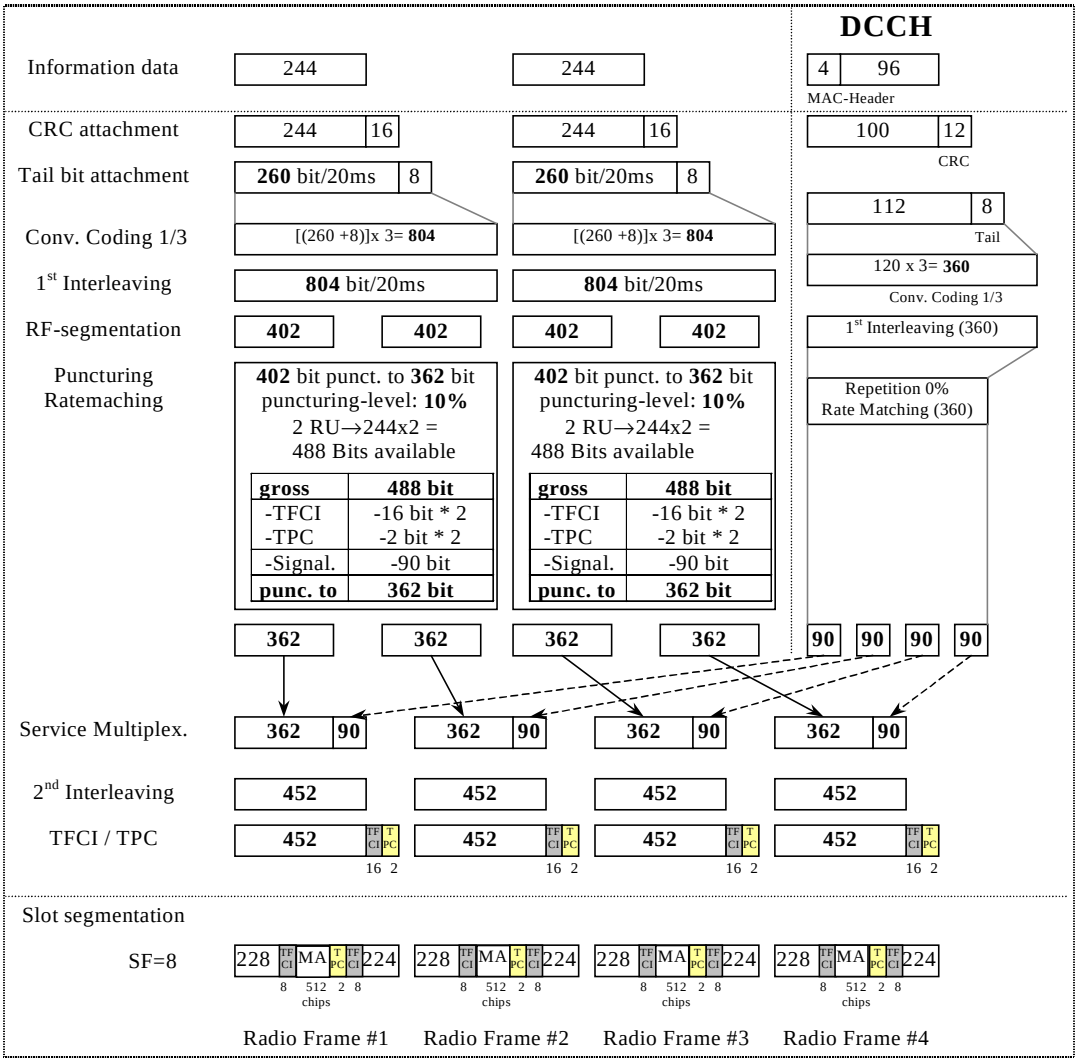

Figure A.1

A.2.1.2 1,28 Mcps TDD Option

Table A.1A

Parameter	Value
Information data rate	12.2 kbps
RU's allocated	1TS (1*SF8) = 2RU/5ms
Midamble	144
Interleaving	20 ms
Power control (TPC)	4 Bit/user/10ms
TFCI	16 Bit/user/10ms
Synchronisation Shift (SS)	4 Bit/user/10ms
Inband signalling DCCH	2.4 kbps
Puncturing level at Code rate 1/3: DCH of the DTCH / DCH of the DCCH	33% / 33%

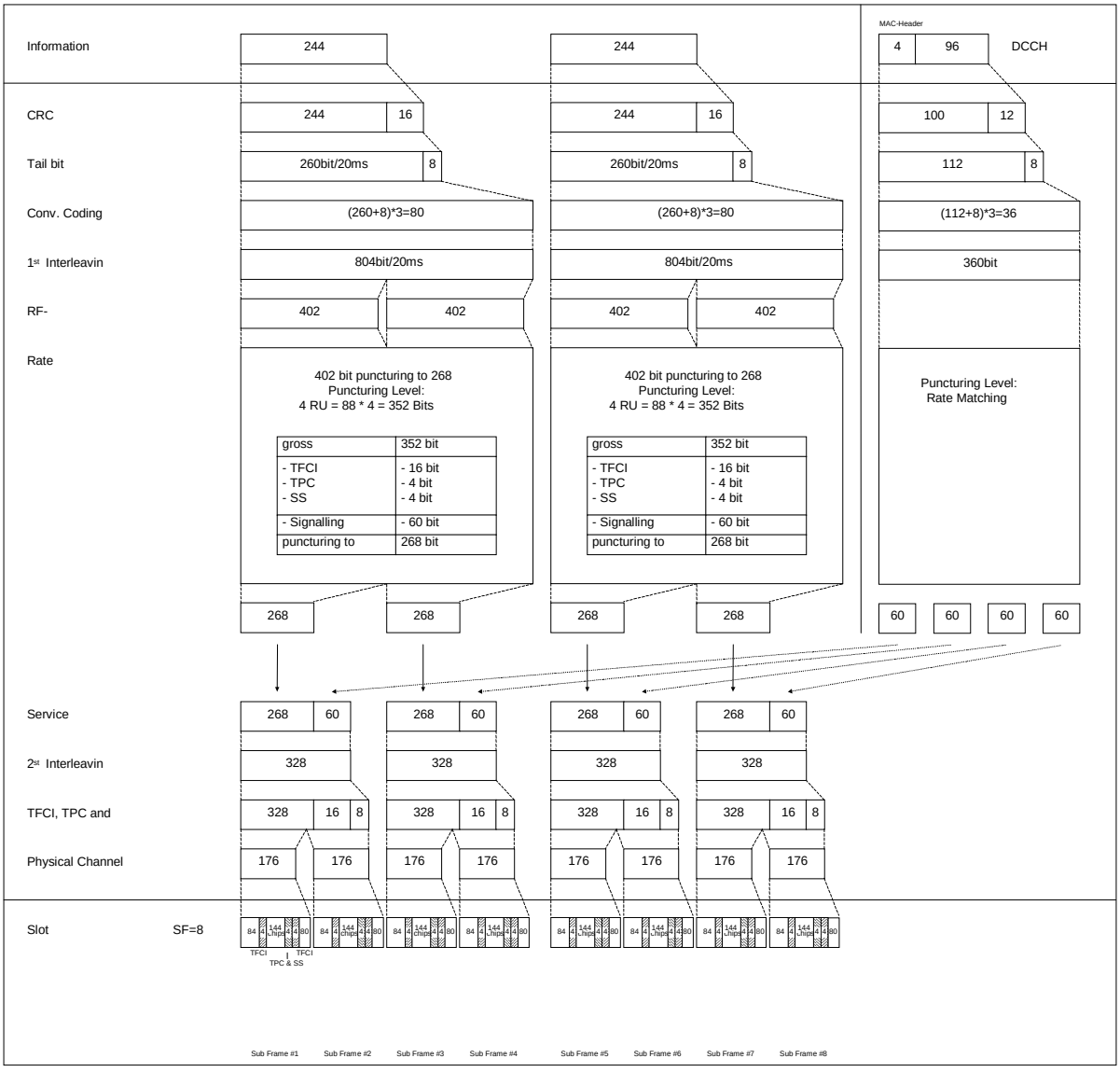

Figure A.1A

A.2.2 UL reference measurement channel (64 kbps)

A.2.2.1 3,84 Mcps TDD Option

Table A.2

Parameter	Value
Information data rate	64 kbps
RU´s allocated	1 SF4 + 1 SF16 = 5RU
Midamble	512 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH of the DTCH / ½ DCH of the DCCH	41.2% / 10%

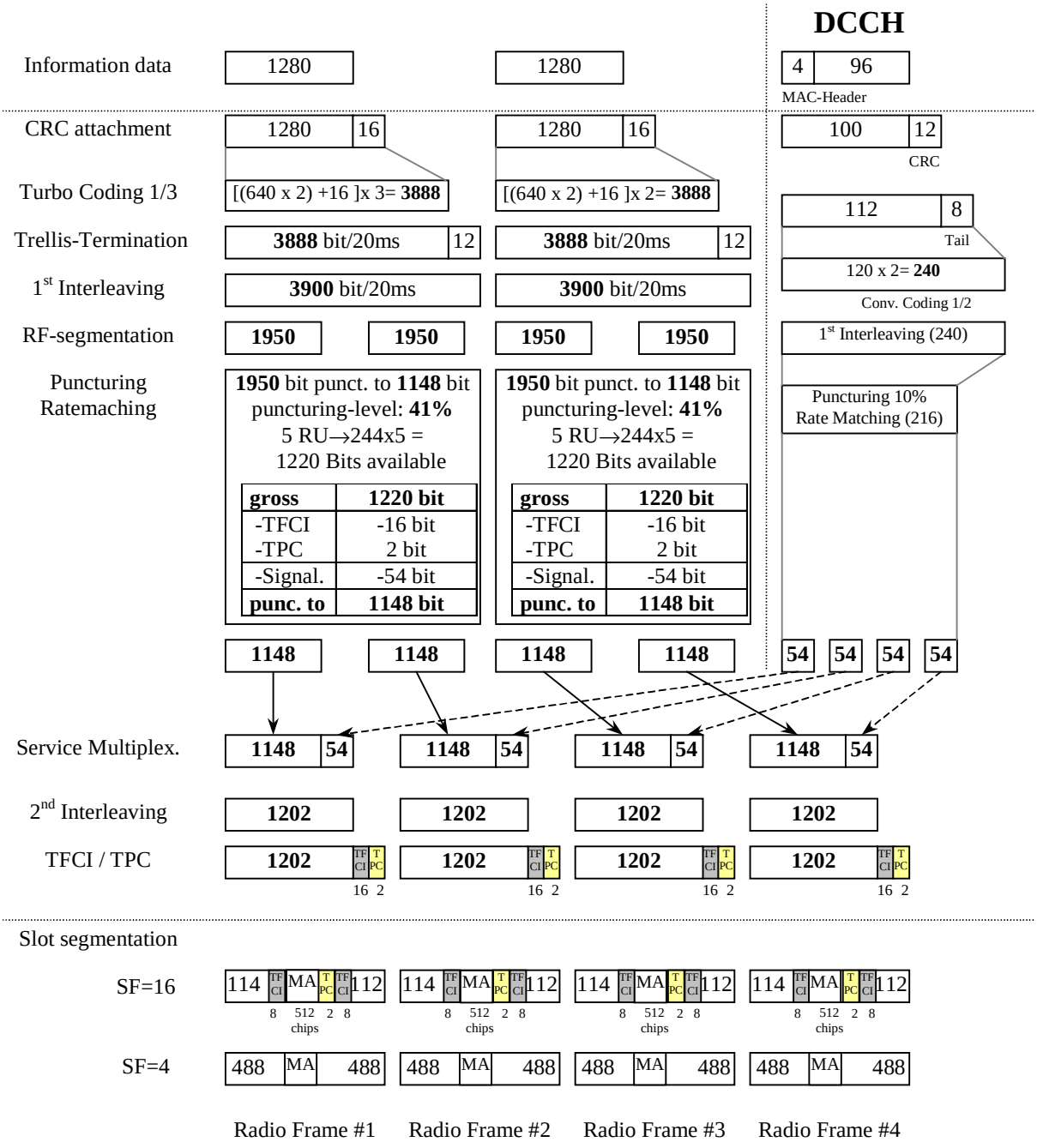
DCCH
Information data
1280
1280
4
96
MAC-Header
CRC attachment
1280
16
1280
16
100
12
CRC
Turbo Coding 1/3
[(640 x 2) +16]x 3= 3888
[(640 x 2) +16]x 2= 3888
112
8
Tail
Trellis-Termination
3888 bit/20ms
12
3888 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
3900 bit/20ms
3900 bit/20ms
RF-segmentation
1950
1950
1950
1950
1st Interleaving (240)
Puncturing
Ratemaching
1950 bit punct. to 1148 bit
puncturing-level: 41%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-TPC
-16 bit
2 bit
-Signal.
-54 bit
punc. to
1148 bit
1950 bit punct. to 1148 bit
puncturing-level: 41%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-TPC
-16 bit
2 bit
-Signal.
-54 bit
punc. to
1148 bit
Puncturing 10%
Rate Matching (216)
1148
1148
1148
1148
54
54
54
54
Service Multiplex.
1148
54
1148
54
1148
54
1148
54
2nd Interleaving
1202
1202
1202
1202
TFCI / TPC
1202
TFCI
TPC
16 2
1202
TFCI
TPC
16 2
1202
TFCI
TPC
16 2
1202
TFCI
TPC
16 2
Slot segmentation
SF=16
114
TFCI
MA
TPC
TFCI
112
8
512
chips
2
8
SF=4
488
MA
488
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

Figure A.2

A.2.2.2 1,28 Mcps TDD Option

Table A.2A

Parameter	Value
Information data rate	64 kbps
RU's allocated	1TS (1*SF2) = 8RU/5ms
Midamble	144
Interleaving	20 ms
Power control (TPC)	4 Bit/user/10ms
TFCI	16 Bit/user/10ms
Synchronisation Shift (SS)	4 Bit/user/10ms
Inband signalling DCCH	2.4 kbps
Puncturing level at Code rate: 1/3 DCH of the DTCH / ½ DCH of the DCCH	32% / 0

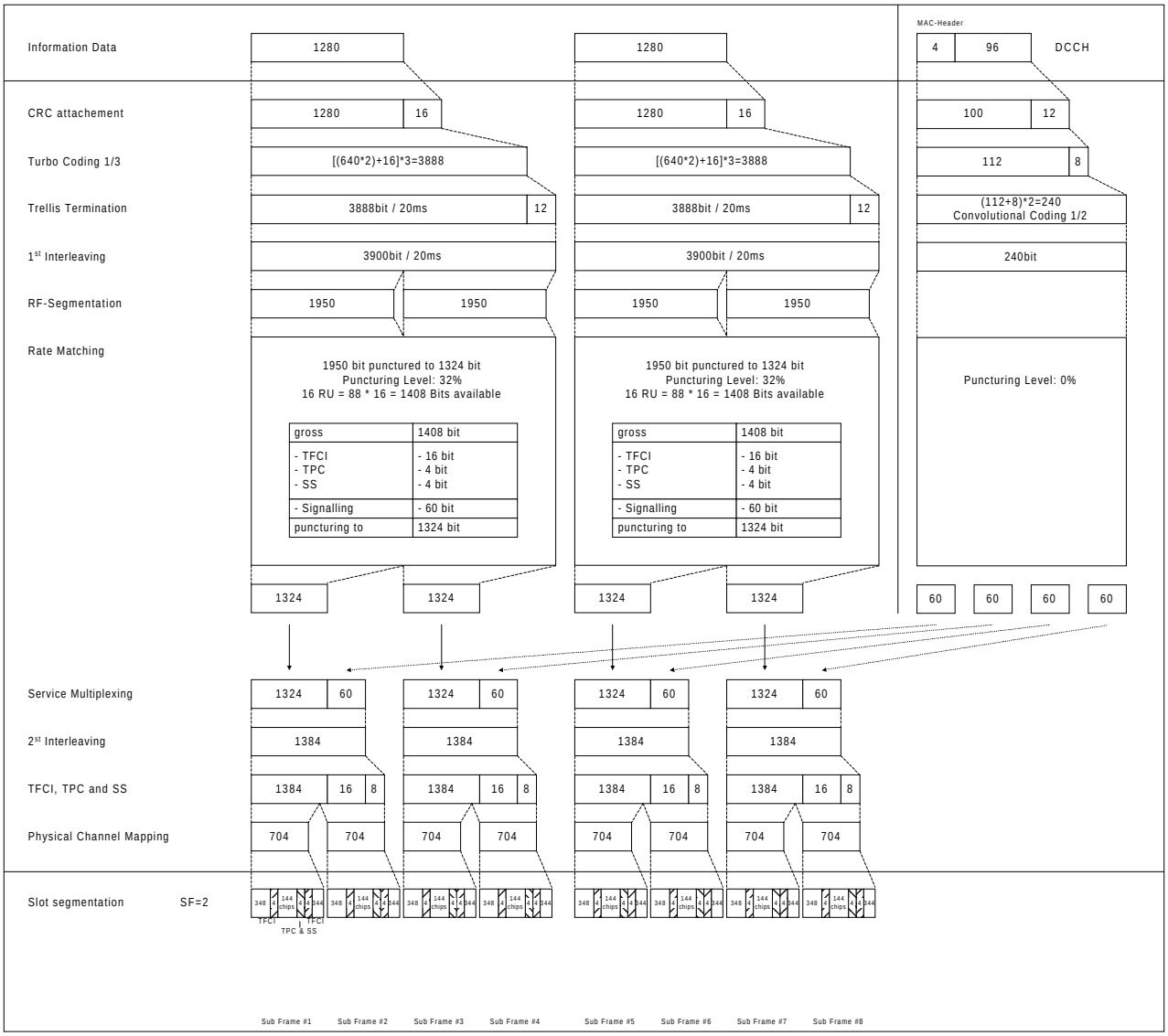

Figure A.2A

A.2.3 UL reference measurement channel (144 kbps)

A.2.3.1 3,84 Mcps TDD Option

Table A.3

Parameter	Value
Information data rate	144 kbps
RU´s allocated	1 SF2 + 1 SF16 = 9RU
Midamble	256 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH of the DTCH / ½ DCH of the DCCH	44.4% / 16.6%

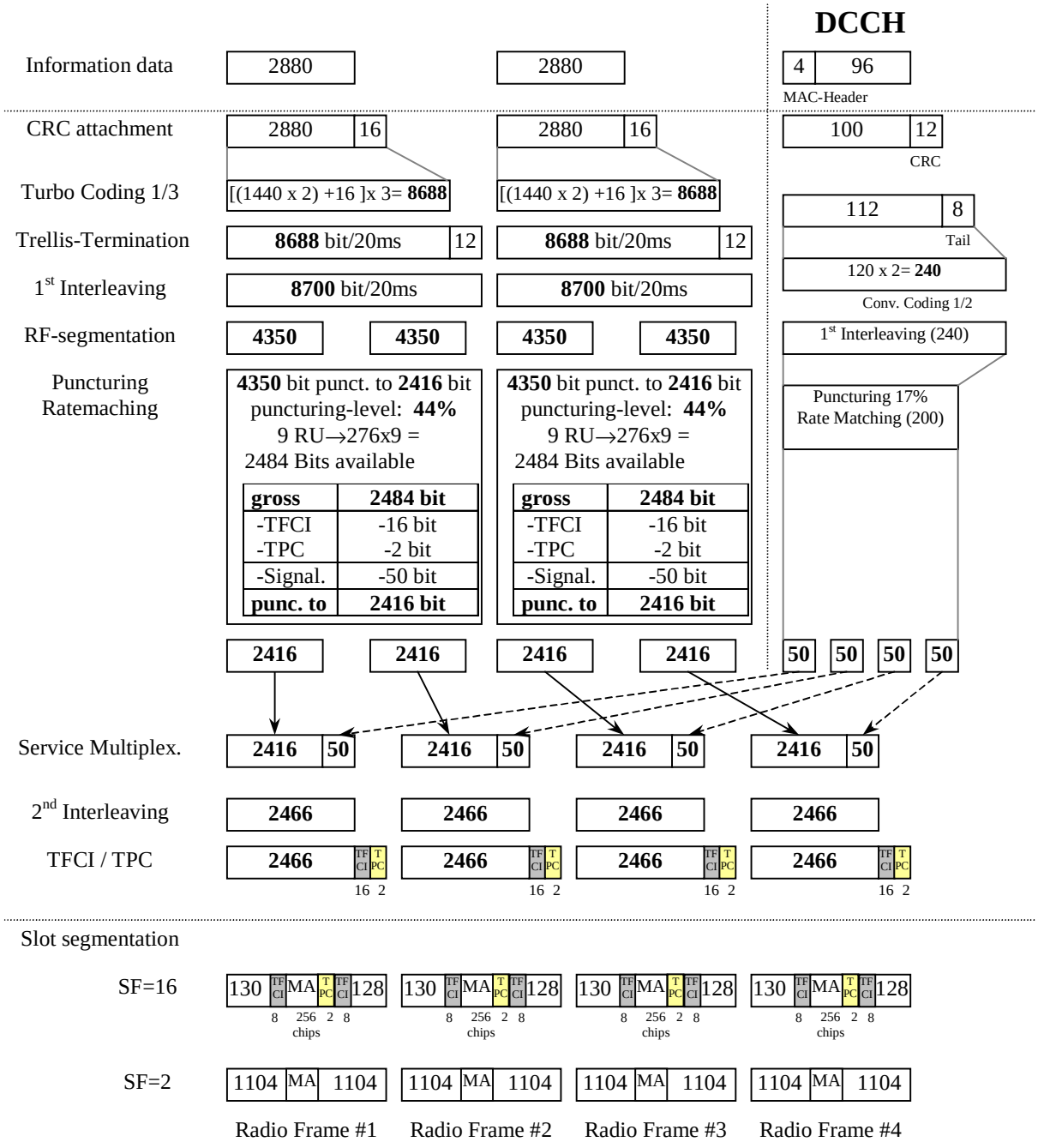
DCCH
Information data
2880
2880
4
96
MAC-Header
CRC attachment
2880
16
2880
16
100
12
CRC
Turbo Coding 1/3
[(1440 x 2) +16]x 3= 8688
[(1440 x 2) +16]x 3= 8688
112
8
Tail
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
8700 bit/20ms
8700 bit/20ms
RF-segmentation
4350
4350
4350
4350
1st Interleaving (240)
Puncturing
Ratemaching
4350 bit punct. to 2416 bit
puncturing-level: 44%
9 RU→276x9 =
2484 Bits available
gross
2484 bit
-TFCI
-TPC
-16 bit
-2 bit
-Signal.
-50 bit
punc. to
2416 bit
4350 bit punct. to 2416 bit
puncturing-level: 44%
9 RU→276x9 =
2484 Bits available
gross
2484 bit
-TFCI
-TPC
-16 bit
-2 bit
-Signal.
-50 bit
punc. to
2416 bit
Puncturing 17%
Rate Matching (200)
2416
2416
2416
2416
50
50
50
50
Service Multiplex.
2416
50
2416
50
2416
50
2416
50
2nd Interleaving
2466
2466
2466
2466
TFCI / TPC
2466
TFCI
TPC
16 2
2466
TFCI
TPC
16 2
2466
TFCI
TPC
16 2
2466
TFCI
TPC
16 2
Slot segmentation
SF=16
130
TFCI
MA
TPC
TFCI
128
8 256 2 8
chips
130
TFCI
MA
TPC
TFCI
128
8 256 2 8
chips
130
TFCI
MA
TPC
TFCI
128
8 256 2 8
chips
130
TFCI
MA
TPC
TFCI
128
8 256 2 8
chips
SF=2
1104
MA
1104
1104
MA
1104
1104
MA
1104
1104
MA
1104
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

Figure A.3

A.2.3.2 1,28 Mcps TDD Option

Table A.3A

Parameter	Value
Information data rate	144 kbps
RU's allocated	2TS (1*SF2) = 16RU/5ms
Midamble	144
Interleaving	20 ms
Power control (TPC)	8 Bit/user/10ms
TFCI	32 Bit/user/10ms
Synchronisation Shift (SS)	8 Bit/user/10ms
Inband signalling DCCH	2.4 kbps
Puncturing level at Code rate: 1/3 DCH of the DTCH / ½ DCH of the DCCH	38% / 7%

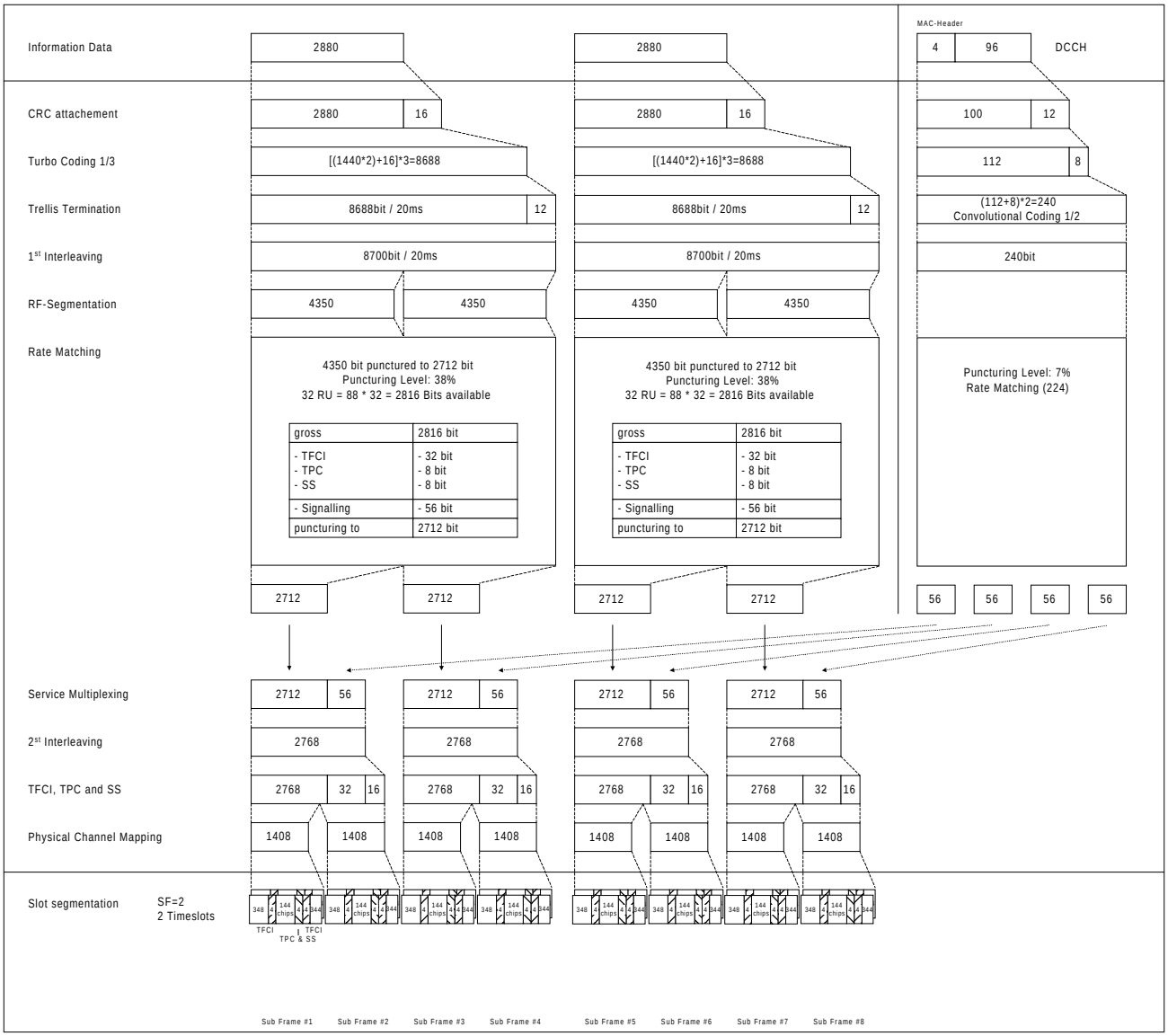

Figure A.3A

A.2.4 UL reference measurement channel (384 kbps)

A.2.4.1 3,84 Mcps TDD Option

Table A.4

Parameter	Value
Information data rate	384 kbps
RU´s allocated	8*3TS = 24RU
Midamble	256 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH of the DTCH / ½ DCH of the DCCH	43.4% / 15.3%

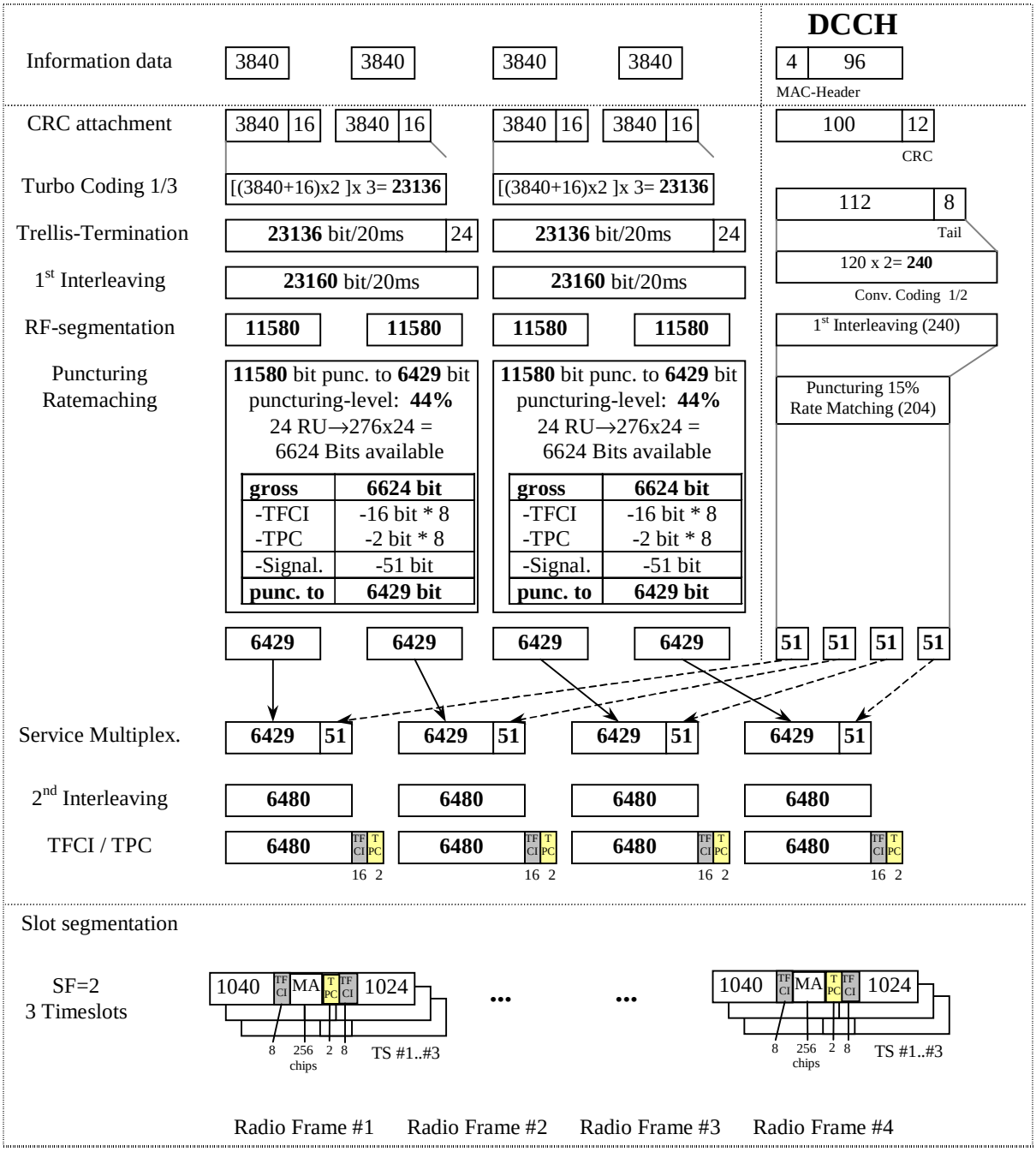
DCCH
Information data
3840
3840
3840
3840
4
96
MAC-Header
CRC attachment
3840
16
3840
16
3840
16
3840
16
100
12
CRC
Turbo Coding 1/3
[(3840+16)x2]x 3= 23136
[(3840+16)x2]x 3= 23136
112
8
Tail
Trellis-Termination
23136 bit/20ms
24
23136 bit/20ms
24
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
23160 bit/20ms
23160 bit/20ms
RF-segmentation
11580
11580
11580
11580
1st Interleaving (240)
Puncturing
Ratemaching
11580 bit punc. to 6429 bit
puncturing-level: 44%
24 RU→276x24 =
6624 Bits available
gross
6624 bit
-TFCI
-16 bit * 8
-TPC
-2 bit * 8
-Signal.
-51 bit
punc. to
6429 bit
11580 bit punc. to 6429 bit
puncturing-level: 44%
24 RU→276x24 =
6624 Bits available
gross
6624 bit
-TFCI
-16 bit * 8
-TPC
-2 bit * 8
-Signal.
-51 bit
punc. to
6429 bit
Puncturing 15%
Rate Matching (204)
6429
6429
6429
6429
51
51
51
51
Service Multiplex.
6429
51
6429
51
6429
51
6429
51
2nd Interleaving
6480
6480
6480
6480
TFCI / TPC
6480
TF CI
T PC
16 2
6480
TF CI
T PC
16 2
6480
TF CI
T PC
16 2
6480
TF CI
T PC
16 2
Slot segmentation
SF=2
3 Timeslots
1040
TF CI
MA
T PC
TF CI
1024
8
256 chips
2
8
TS #1..#3
...
...
1040
TF CI
MA
T PC
TF CI
1024
8
256 chips
2
8
TS #1..#3
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

Figure A.4

A.2.4.2 1,28 Mcps TDD Option

Table A.4A

Parameter	Value
Information data rate	384 kbps
RU's allocated	4TS (1*SF2 + 1*SF8) = 40RU/5ms
Midamble	144
Interleaving	20 ms
Power control (TPC)	16 Bit/user/10ms
TFCI	64 Bit/user/10ms
Synchronisation Shift (SS)	16 Bit/user/10ms
Inband signalling DCCH	max 2.0 kbps
Puncturing level at Code rate: 1/3 DCH of the DTCH / ½ DCH of the DCCH	41% / 12%

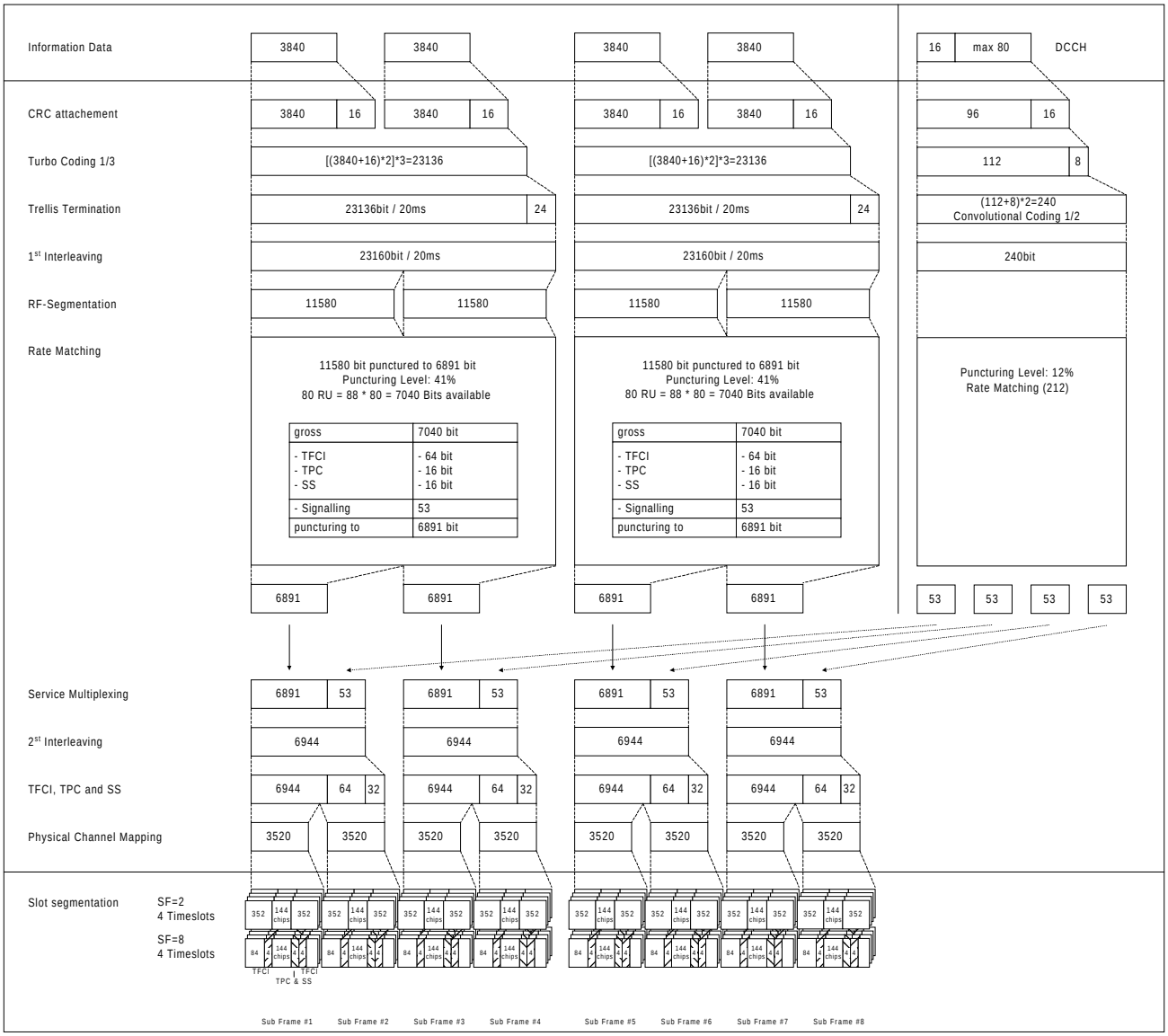

Figure A.4A