TSG RAN Meeting #18 **RP-020804**
New Orleans, US, 3 - 6 December, 2002

Title **CRs (R'99 and Rel-4/Rel-5 Category A) to TS 25.105 & TS 25.142 on "Corrections to reference measurement channels"**
Source **TSG RAN WG4**
Agenda Item **7.4.3**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-021722	25.105	135	1	F	R99	3.11.0	Corrections to 3.84 Mcps TDD reference measurement channels	TEI
R4-021701	25.105	136		A	Rel-4	4.5.0	Corrections to 3.84 Mcps TDD reference measurement channels	TEI
R4-021702	25.105	137		A	Rel-5	5.2.0	Corrections to 3.84 Mcps TDD reference measurement channels	TEI
R4-021723	25.105	138	1	F	Rel-4	4.5.0	Corrections to 1.28 Mcps TDD reference measurement channels	LCRTDD-RF
R4-021704	25.105	139		A	Rel-5	5.2.0	Corrections to 1.28 Mcps TDD reference measurement channels	LCRTDD-RF
R4-021724	25.142	151		F	R99	3.11.0	Corrections to TDD 3.84Mcps Reference Measurement Channels	TEI
R4-021725	25.142	152		A	Rel-4	4.6.0	Corrections to TDD 3.84Mcps Reference Measurement Channels	TEI
R4-021726	25.142	153		A	Rel-5	5.2.0	Corrections to TDD 3.84Mcps Reference Measurement Channels	TEI4
R4-021727	25.142	154		F	Rel-4	4.6.0	Corrections to TDD 1.28Mcps Reference Measurement Channels	LCRTDD-RF
R4-021728	25.142	155		A	Rel-5	5.2.0	Corrections to TDD 1.28Mcps Reference Measurement Channels	LCRTDD-RF

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021722**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.105** **CR** **135** ⌘ **rev** **1** ⌘ Current version: **3.11.0** ⌘

*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:	⌘	Corrections to TDD 3.84Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	26/11/2002
Category:	⌘	**F**
Release:	⌘	R99

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:	⌘	TFCI and TPC are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI and TPC are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects 64kbps and 144kbps UL channels for 3.84Mcps TDD. Rate matching changes are required in the 3.84Mcps case and these have been included. ISOLATED IMPACT ANALYSIS As this change only effects the configuration of the bearers defined for performance requirements, there are no changes required to current Node B specifications.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.2, A2.3			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
		X		Test specifications	TS25-142
			X	O&M Specifications	

Other comments:	⌘	Equivalent CRs in other Releases: CR136r1 cat. A to 25.105 v4.5.0, CR137r1 cat. A to 25.105 v5.2.0

How to create CRs using this form:

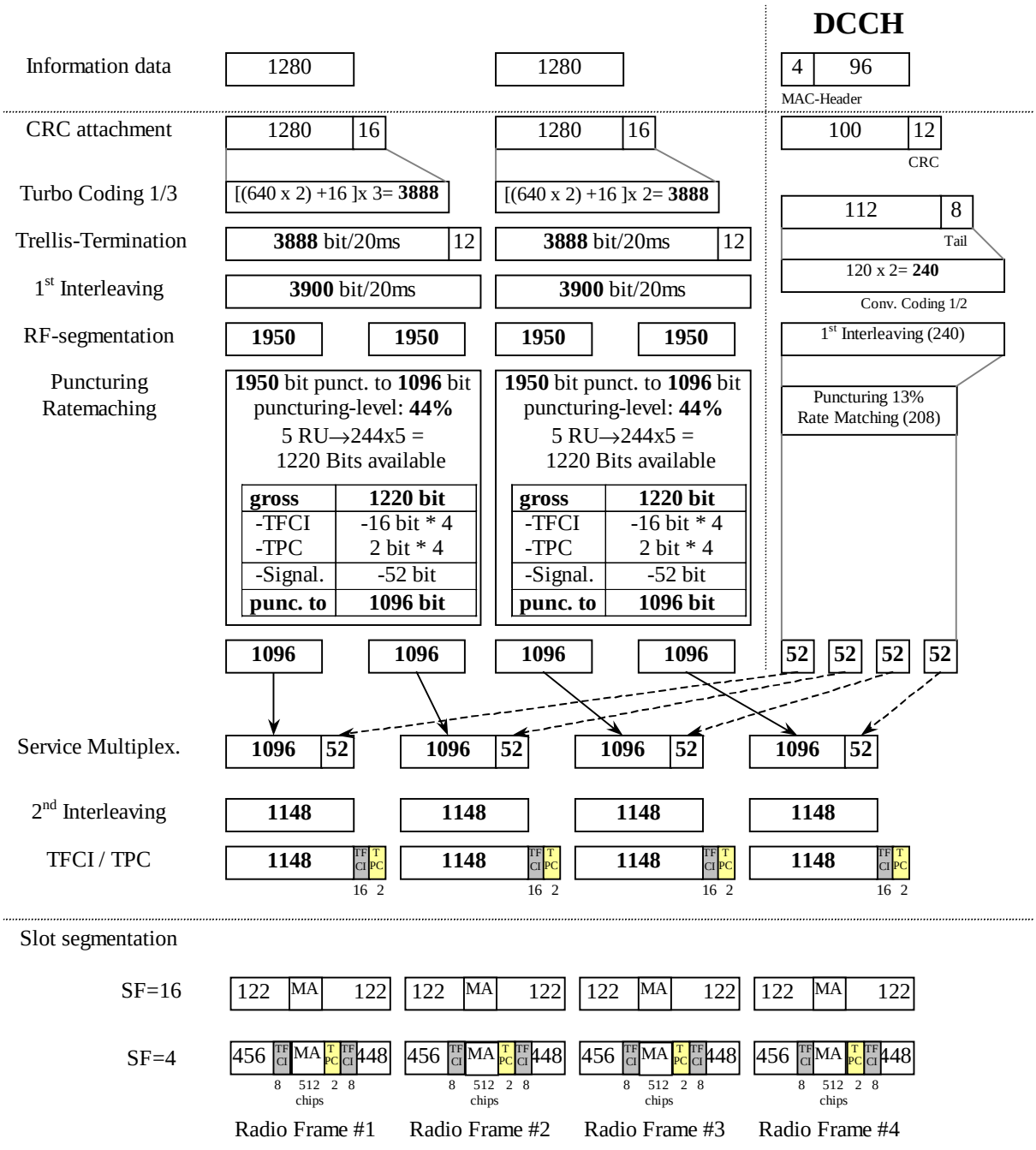
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

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.2.2 UL reference measurement channel (64 kbps)

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 / ½ DCCH	43.8~~41.2~~% / 13.3~~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
1st Interleaving
3900 bit/20ms
3900 bit/20ms
Conv. Coding 1/2
RF-segmentation
1950
1950
1950
1950
1st Interleaving (240)
Puncturing
Ratematching
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
Puncturing 13%
Rate Matching (208)
1096
1096
1096
1096
52
52
52
52
Service Multiplex.
1096
52
1096
52
1096
52
1096
52
2nd Interleaving
1148
1148
1148
1148
TFCI / TPC
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
Slot segmentation
SF=16
122
MA
122
122
MA
122
122
MA
122
122
MA
122
SF=4
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

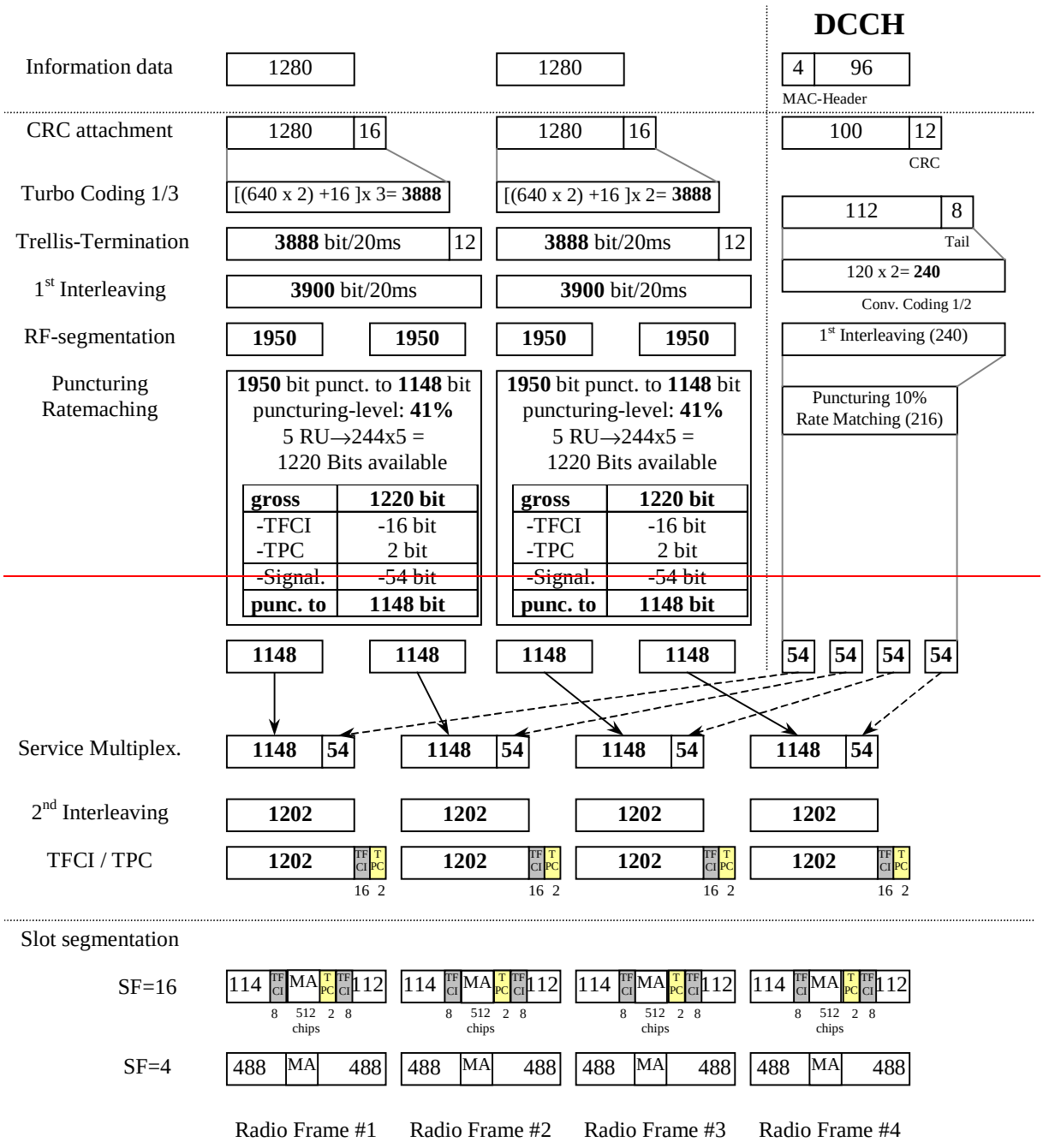
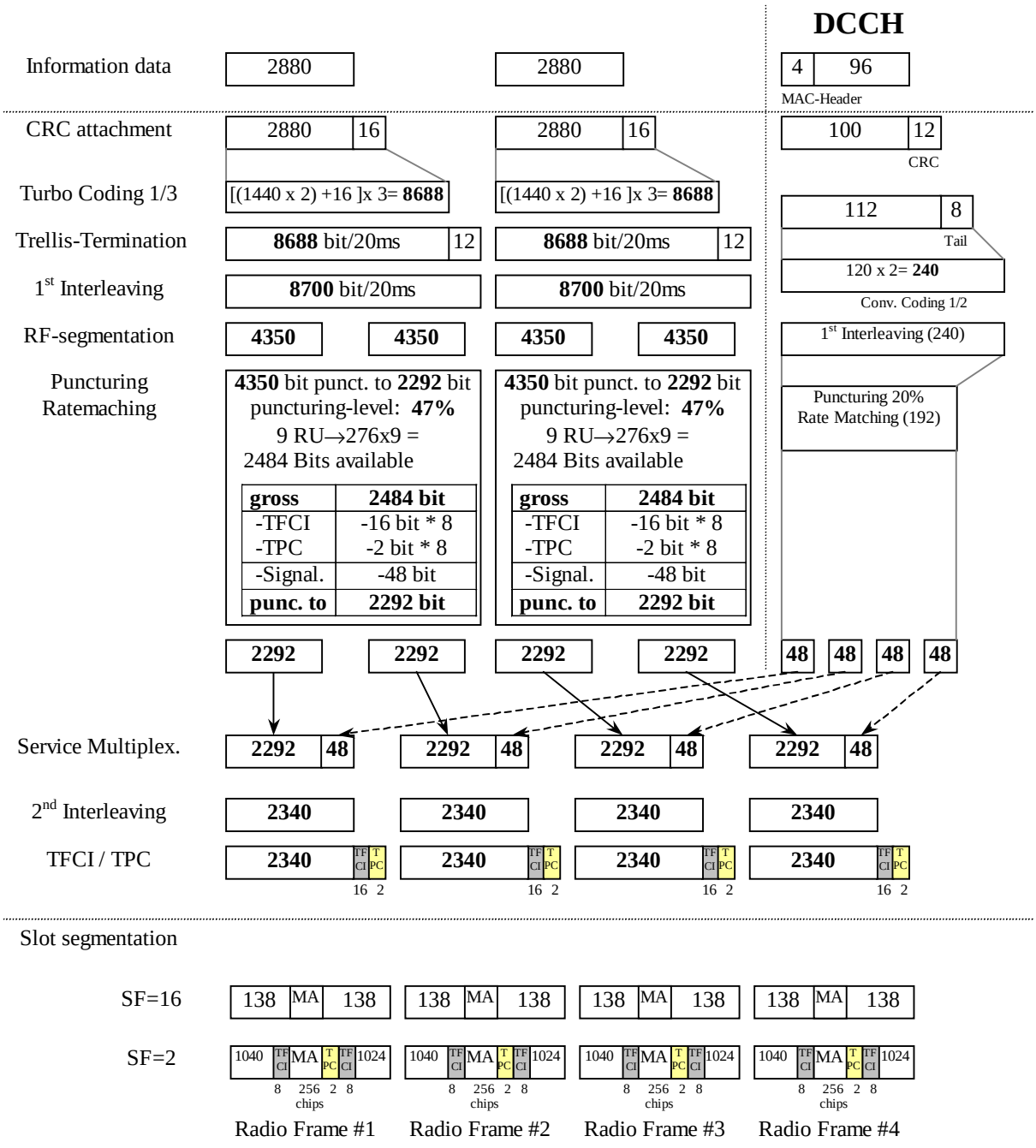

DCCH
Information data
1280
1280
4
96
MAC-Header
CRC attachment
1280
16
1280
16
100
12
CRC
Turbo Coding 1/3
[(640 x 2) +16]x 3= 3888
[(640 x 2) +16]x 2= 3888
112
8
Tail
Trellis-Termination
3888 bit/20ms
12
3888 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
3900 bit/20ms
3900 bit/20ms
RF-segmentation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

Figure A.3

A.2.3 UL reference measurement channel (144 kbps)

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 / ½ DCCH	47.344.4% / 2016.6%


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
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
112
8
Tail
120 x 2= 240
1st Interleaving
8700 bit/20ms
8700 bit/20ms
Conv. Coding 1/2
RF-segmentation
4350
4350
4350
4350
1st Interleaving (240)
Puncturing
Ratemaching
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
Puncturing 20%
Rate Matching (192)
2292
2292
2292
2292
48
48
48
48
Service Multiplex.
2292
48
2292
48
2292
48
2292
48
2nd Interleaving
2340
2340
2340
2340
TFCI / TPC
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
Slot segmentation
SF=16
138
MA
138
138
MA
138
138
MA
138
138
MA
138
SF=2
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

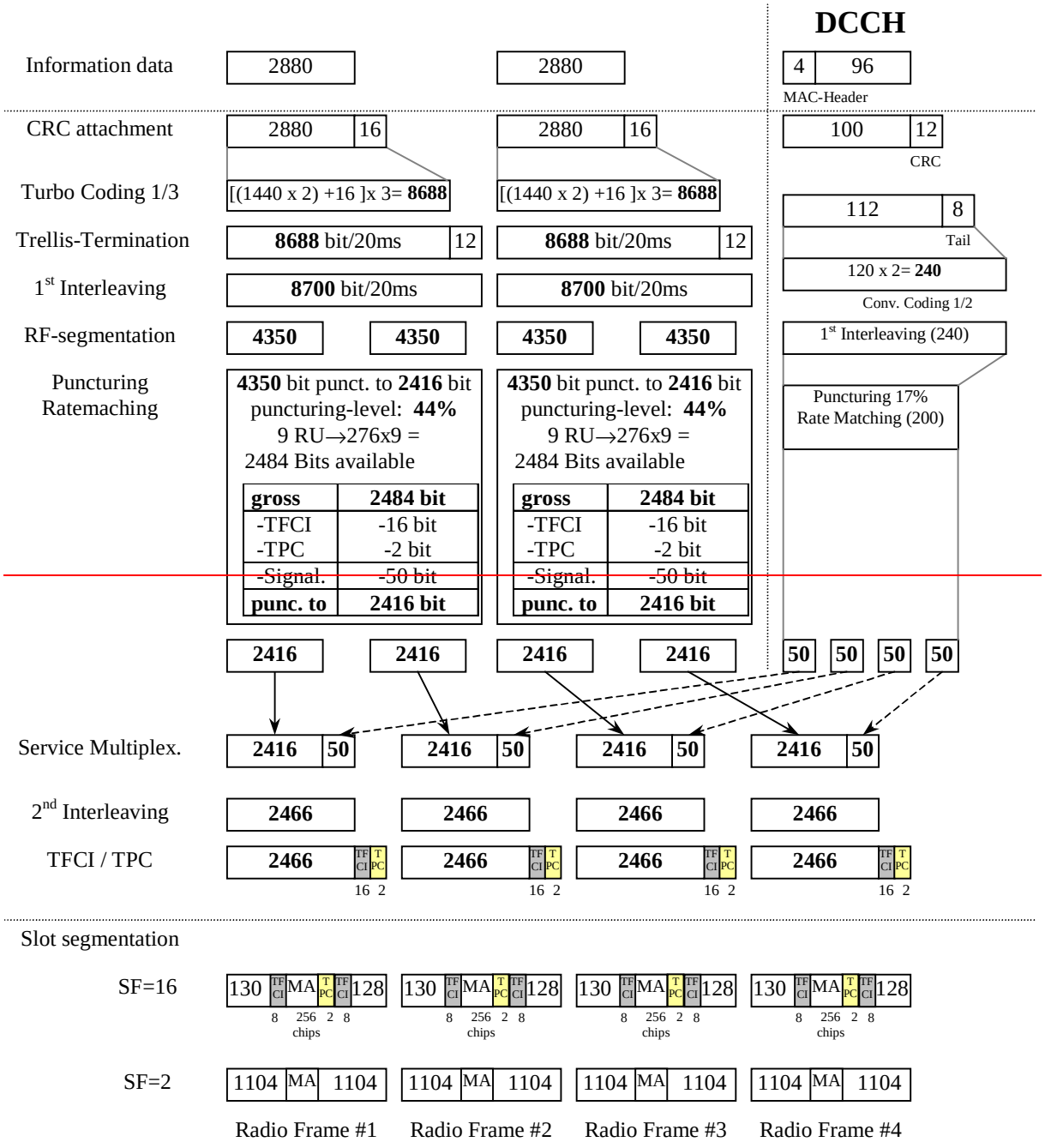

DCCH
Information data
2880
2880
4
96
MAC-Header
CRC attachment
2880
16
2880
16
100
12
CRC
Turbo Coding 1/3
[(1440 x 2) +16]x 3= 8688
[(1440 x 2) +16]x 3= 8688
112
8
Tail
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
8700 bit/20ms
8700 bit/20ms
RF-segmentation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

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021701**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.105** **CR** **136** ⌘ **rev** ⌘ 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:	⌘	Corrections to TDD 3.84Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	26/11/2002
Category:	⌘	**A**
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:	⌘	TFCI and TPC are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI and TPC are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects 64kbps and 144kbps UL channels for 3.84Mcps TDD. Rate matching changes are required in the 3.84Mcps case and these have been included.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.2.1, A2.3.1

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	TS25-142
	X		Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Equivalent CRs in other Releases: CR135 cat. F to 25.105 v3.11.0, CR137 cat. A to 25.105 v5.2.0

How to create CRs using this form:

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

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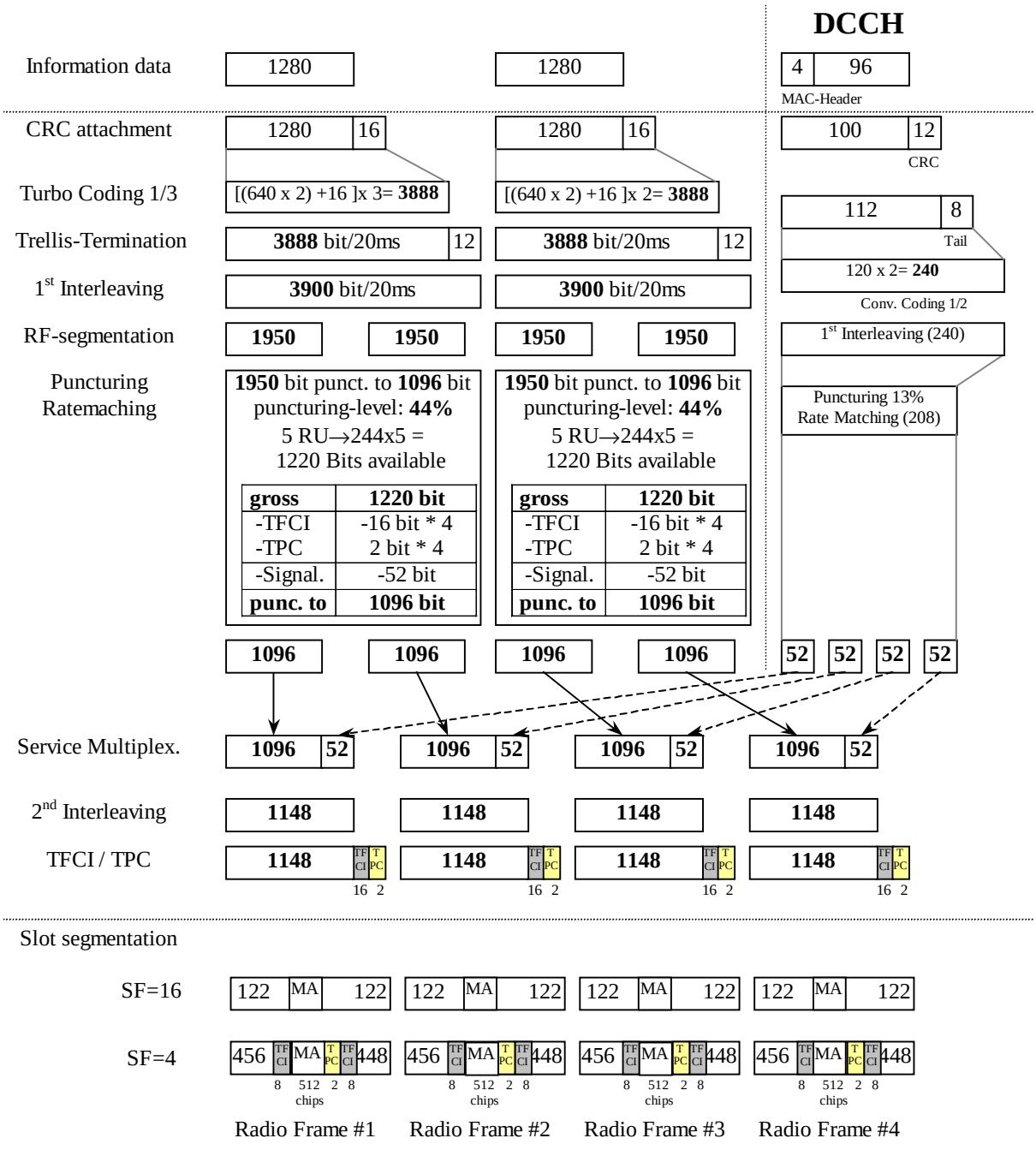
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

A.2.2 UL reference measurement channel (64 kbps)

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 / ½ DCCH	43.8~~41.2~~% / 13.3~~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
1st Interleaving
3900 bit/20ms
3900 bit/20ms
Conv. Coding 1/2
RF-segmentation
1950
1950
1950
1950
1st Interleaving (240)
Puncturing
Ratematching
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
Puncturing 13%
Rate Matching (208)
1096
1096
1096
1096
52
52
52
52
Service Multiplex.
1096
52
1096
52
1096
52
1096
52
2nd Interleaving
1148
1148
1148
1148
TFCI / TPC
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
Slot segmentation
SF=16
122
MA
122
122
MA
122
122
MA
122
122
MA
122
SF=4
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

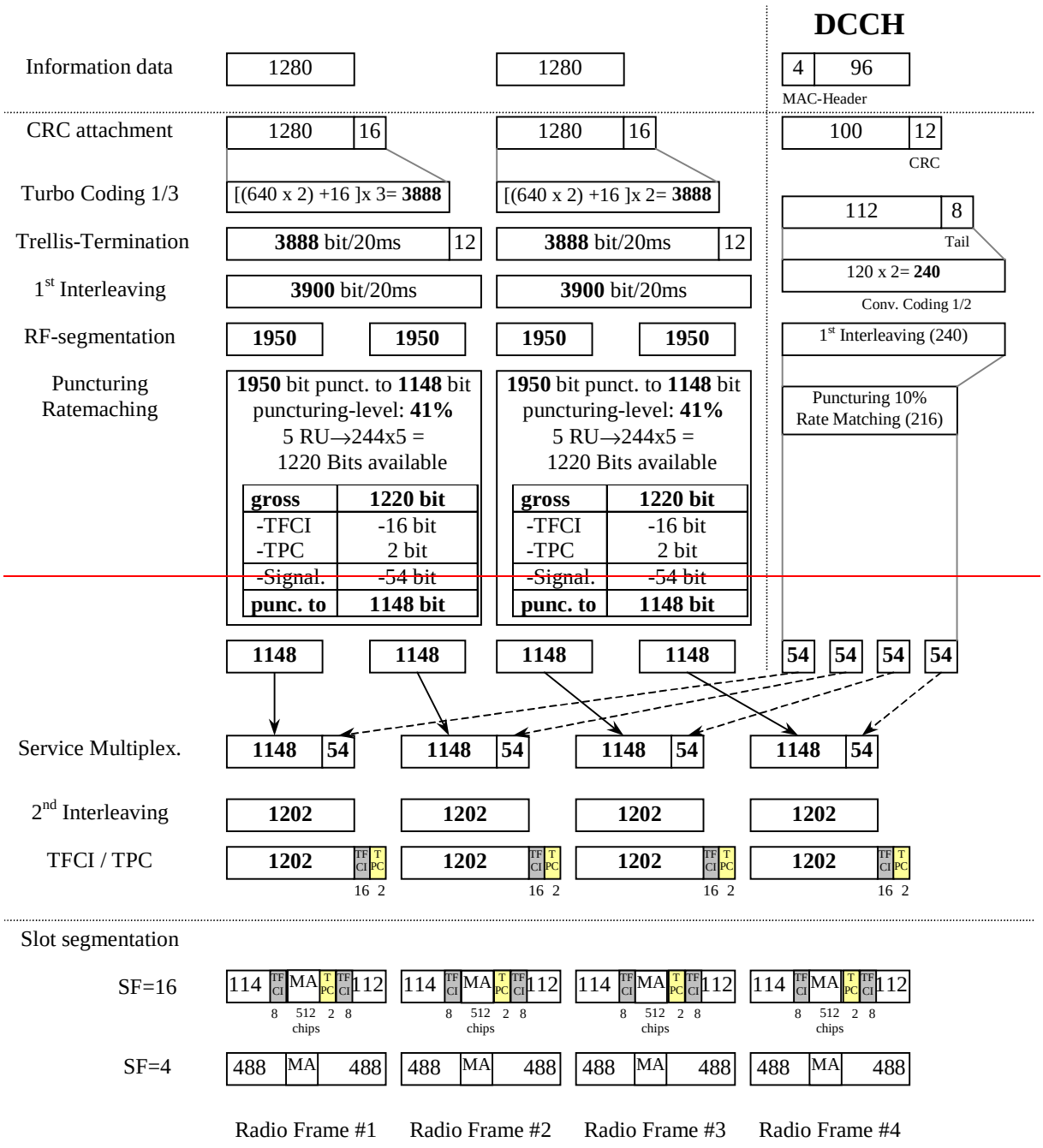
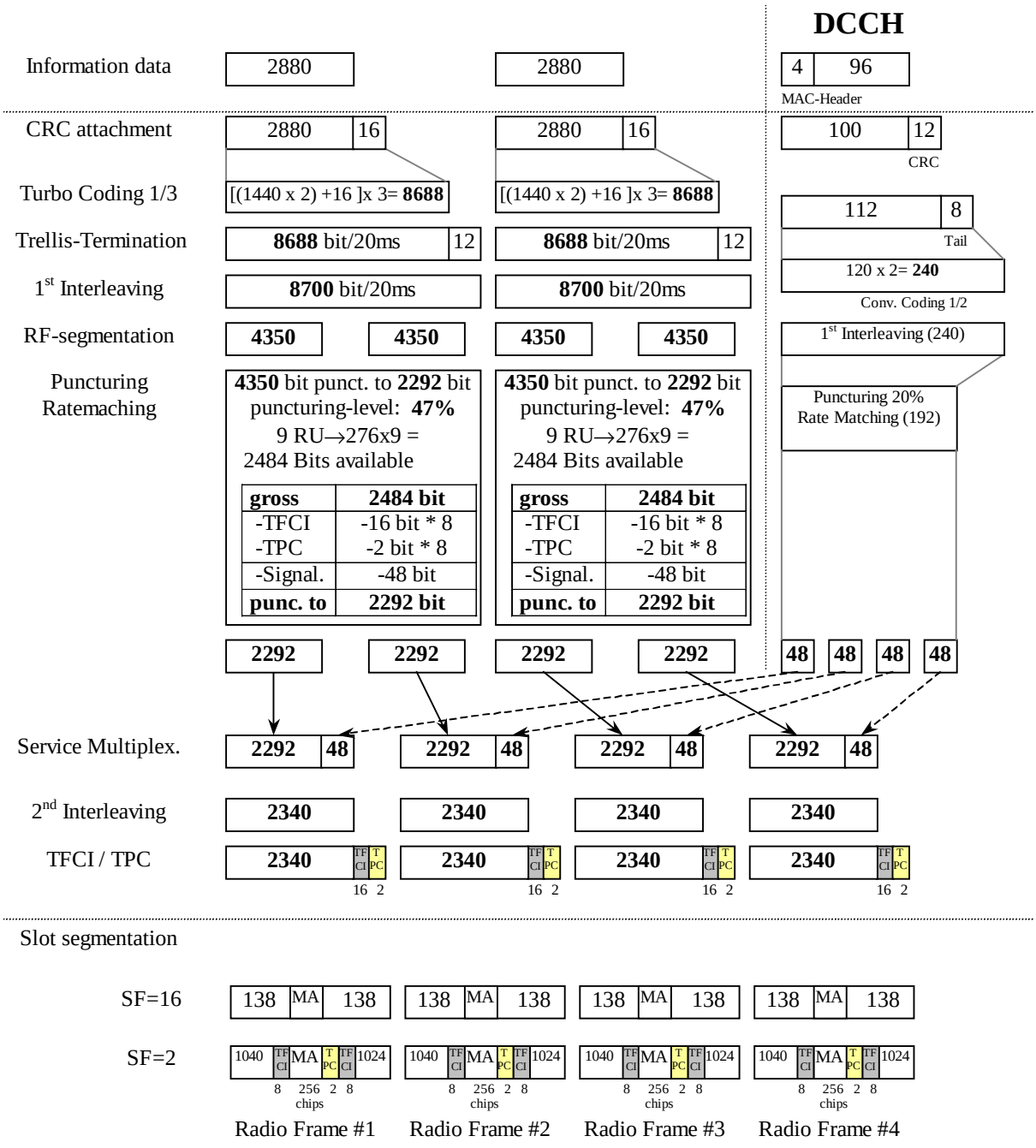

DCCH
Information data
1280
1280
4
96
MAC-Header
CRC attachment
1280
16
1280
16
100
12
CRC
Turbo Coding 1/3
[(640 x 2) +16]x 3= 3888
[(640 x 2) +16]x 2= 3888
112
8
Tail
Trellis-Termination
3888 bit/20ms
12
3888 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
3900 bit/20ms
3900 bit/20ms
RF-segmentation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

Figure A.3

A.2.3 UL reference measurement channel (144 kbps)

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 / ½ DCCH	47.344.4% / 2016.6%


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
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
112
8
Tail
120 x 2= 240
1st Interleaving
8700 bit/20ms
8700 bit/20ms
Conv. Coding 1/2
RF-segmentation
4350
4350
4350
4350
1st Interleaving (240)
Puncturing
Ratemaching
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
Puncturing 20%
Rate Matching (192)
2292
2292
2292
2292
48
48
48
48
Service Multiplex.
2292
48
2292
48
2292
48
2292
48
2nd Interleaving
2340
2340
2340
2340
TFCI / TPC
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
Slot segmentation
SF=16
138
MA
138
138
MA
138
138
MA
138
138
MA
138
SF=2
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

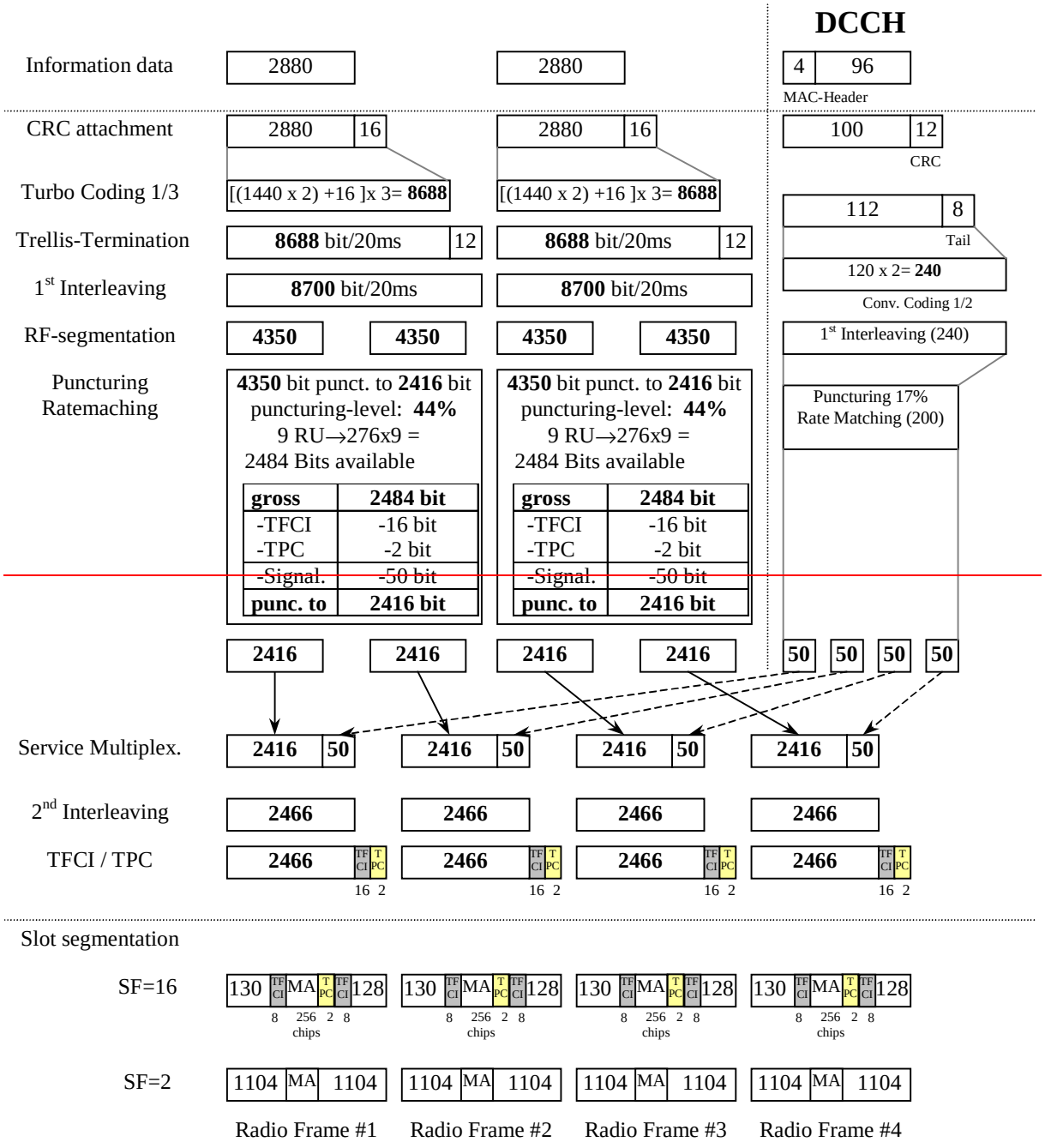

DCCH
Information data
2880
2880
4
96
MAC-Header
CRC attachment
2880
16
2880
16
100
12
CRC
Turbo Coding 1/3
[(1440 x 2) +16]x 3= 8688
[(1440 x 2) +16]x 3= 8688
112
8
Tail
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
8700 bit/20ms
8700 bit/20ms
RF-segmentation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

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021702**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.105** **CR** **137** ⌘ **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:	⌘	Corrections to TDD 3.84Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
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:	⌘	TFCI and TPC are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI and TPC are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects 64kbps and 144kbps UL channels for 3.84Mcps TDD. Rate matching changes are required in the 3.84Mcps case and these have been included.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.2.1, A2.3.1

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	TS25-142
	X		Test specifications	
		X	O&M Specifications	

Other comments: ⌘ Equivalent CRs in other Releases: CR135 cat. F to 25.105 v3.11.0, CR136 cat. A 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.

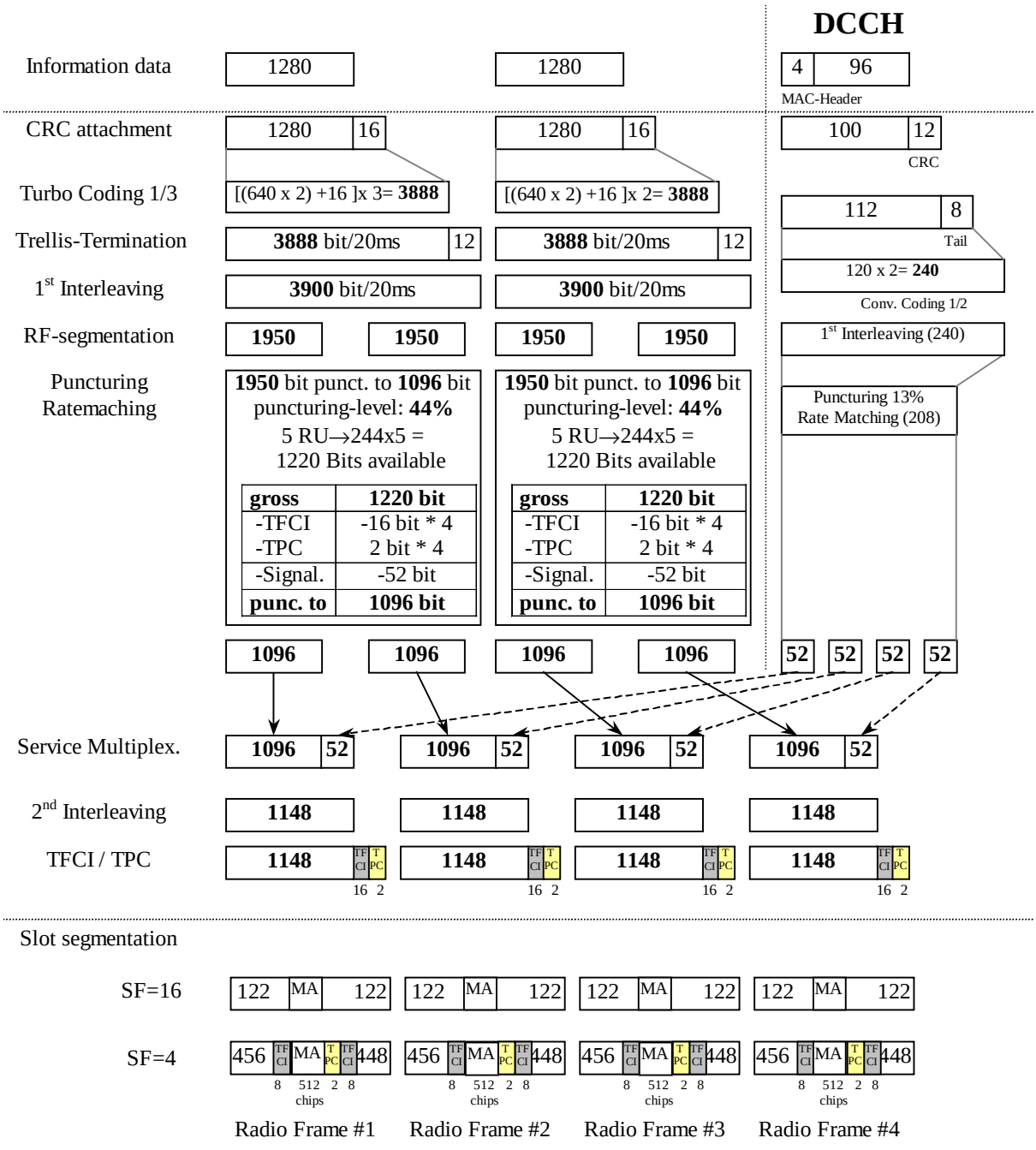
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest 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.2.2 UL reference measurement channel (64 kbps)

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 / ½ DCCH	43.8~~41.2~~% / 13.3~~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
1st Interleaving
3900 bit/20ms
3900 bit/20ms
Conv. Coding 1/2
RF-segmentation
1950
1950
1950
1950
1st Interleaving (240)
Puncturing
Ratematching
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
Puncturing 13%
Rate Matching (208)
1096
1096
1096
1096
52
52
52
52
Service Multiplex.
1096
52
1096
52
1096
52
1096
52
2nd Interleaving
1148
1148
1148
1148
TFCI / TPC
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
Slot segmentation
SF=16
122
MA
122
122
MA
122
122
MA
122
122
MA
122
SF=4
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

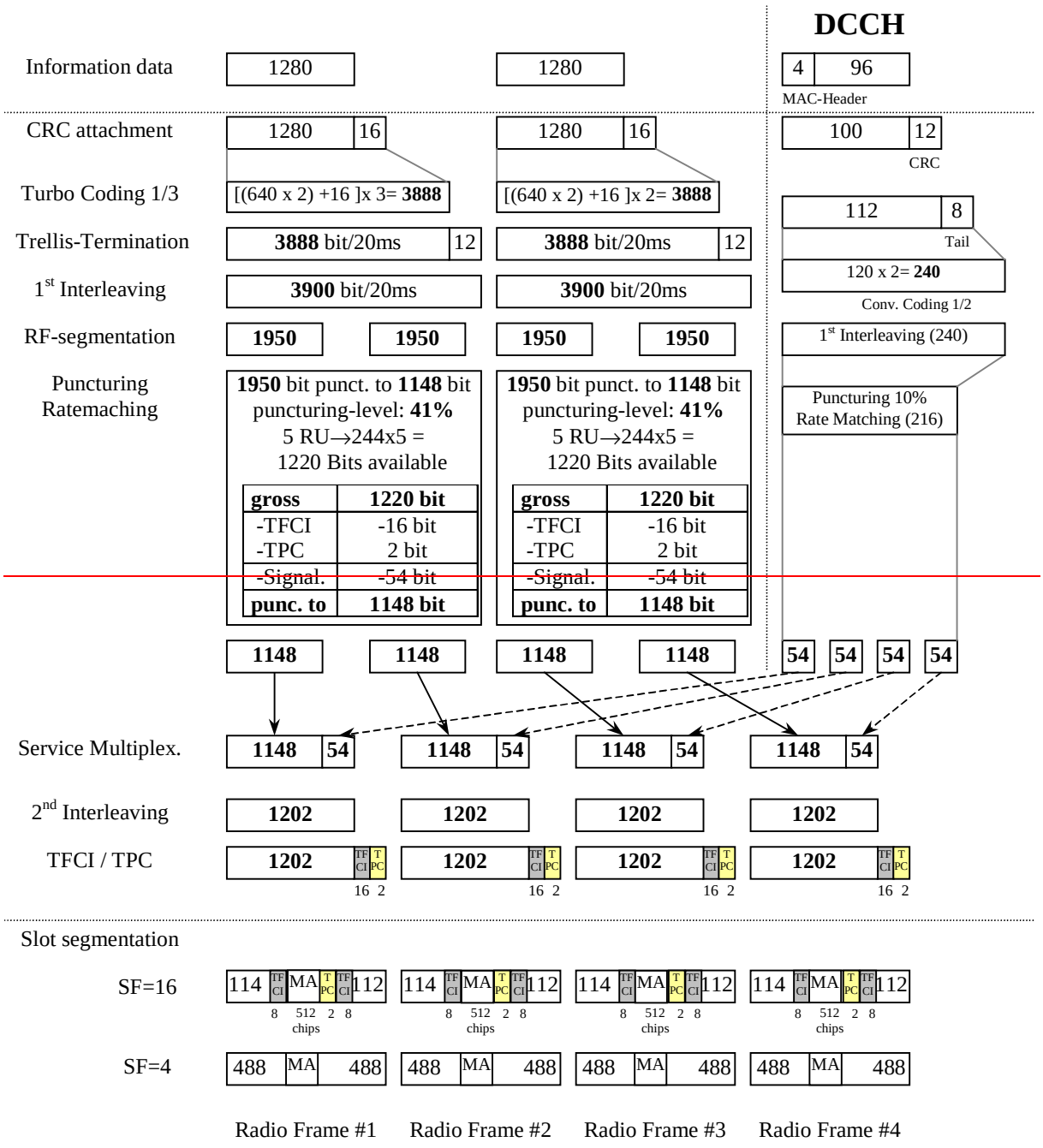
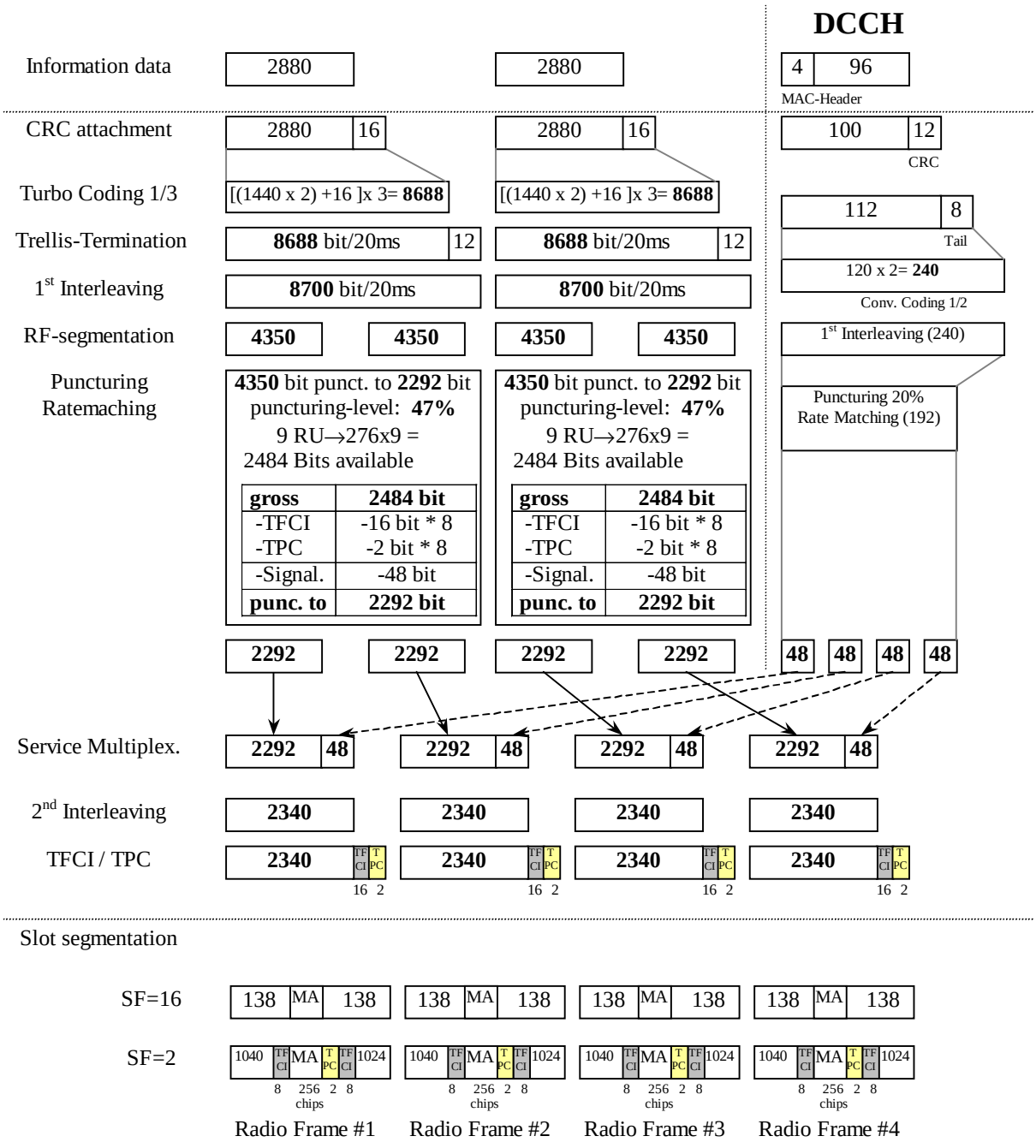

DCCH
Information data
1280
1280
4
96
MAC-Header
CRC attachment
1280
16
1280
16
100
12
CRC
Turbo Coding 1/3
[(640 x 2) +16]x 3= 3888
[(640 x 2) +16]x 2= 3888
112
8
Tail
Trellis-Termination
3888 bit/20ms
12
3888 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
3900 bit/20ms
3900 bit/20ms
RF-segmentation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

Figure A.3

A.2.3 UL reference measurement channel (144 kbps)

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 / ½ DCCH	47.344.4% / 2016.6%


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
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
112
8
Tail
120 x 2= 240
1st Interleaving
8700 bit/20ms
8700 bit/20ms
Conv. Coding 1/2
RF-segmentation
4350
4350
4350
4350
1st Interleaving (240)
Puncturing
Ratemaching
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
Puncturing 20%
Rate Matching (192)
2292
2292
2292
2292
48
48
48
48
Service Multiplex.
2292
48
2292
48
2292
48
2292
48
2nd Interleaving
2340
2340
2340
2340
TFCI / TPC
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
Slot segmentation
SF=16
138
MA
138
138
MA
138
138
MA
138
138
MA
138
SF=2
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

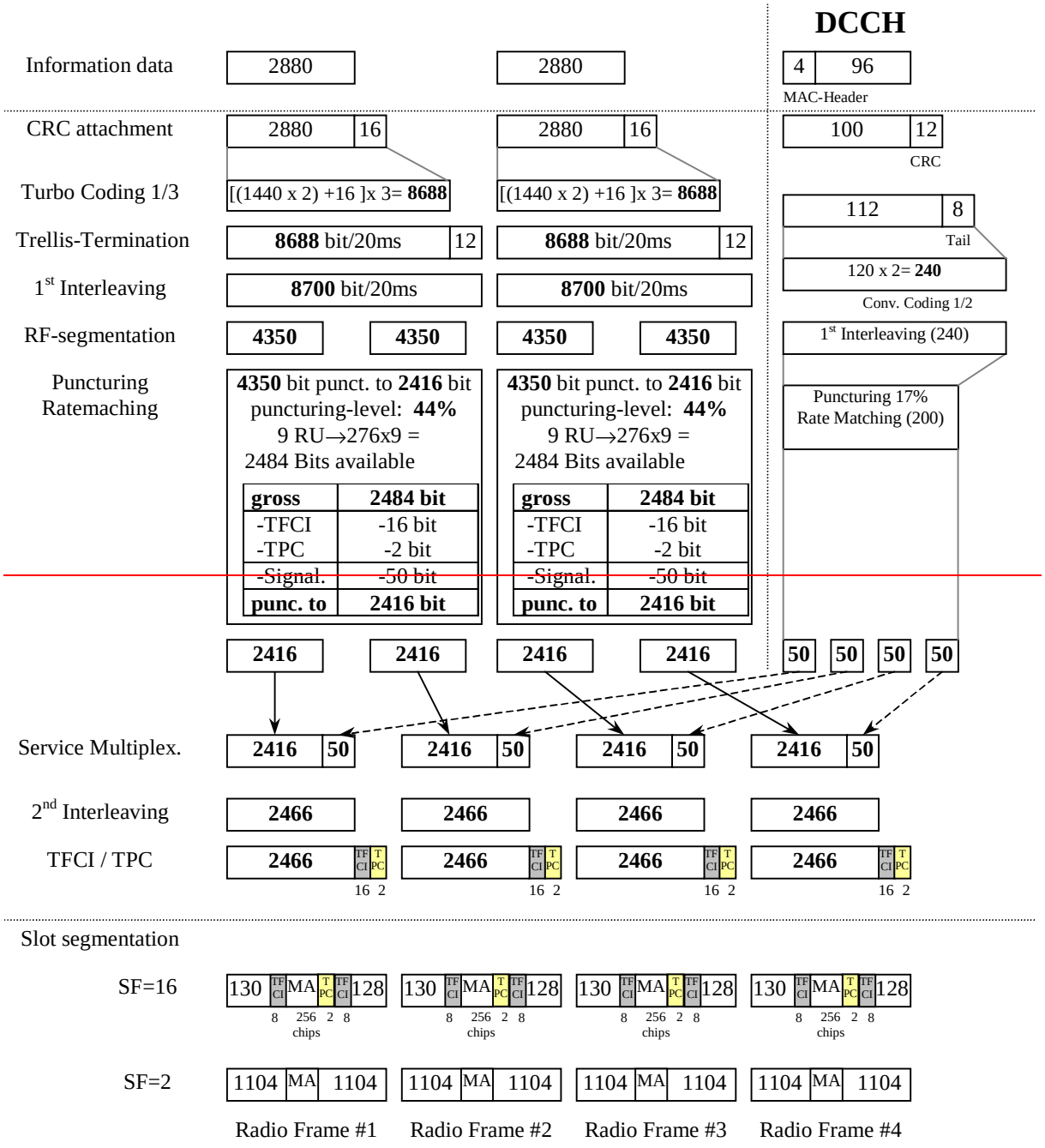

DCCH
Information data
2880
2880
4
96
MAC-Header
CRC attachment
2880
16
2880
16
100
12
CRC
Turbo Coding 1/3
[(1440 x 2) +16]x 3= 8688
[(1440 x 2) +16]x 3= 8688
112
8
Tail
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
8700 bit/20ms
8700 bit/20ms
RF-segmentation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

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021723**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.105** **CR** **138** ⌘ **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 [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Corrections to TDD 1.28Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
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:	⌘	TFCI, TPC and SS are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI, TPC and SS are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects the 384kbps UL channel for 1.28Mcps TDD. **ISOLATED IMPACT ANALYSIS** As this change only effects the configuration of the bearers defined for performance requirements, there are no changes required to current Node B specifications.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.4.2			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
		X		Test specifications	TS25-142
			X	O&M Specifications	

Other comments:	⌘	Equivalent CRs in other Releases: CR139r1 cat. A to 25.105 v5.2.0

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.

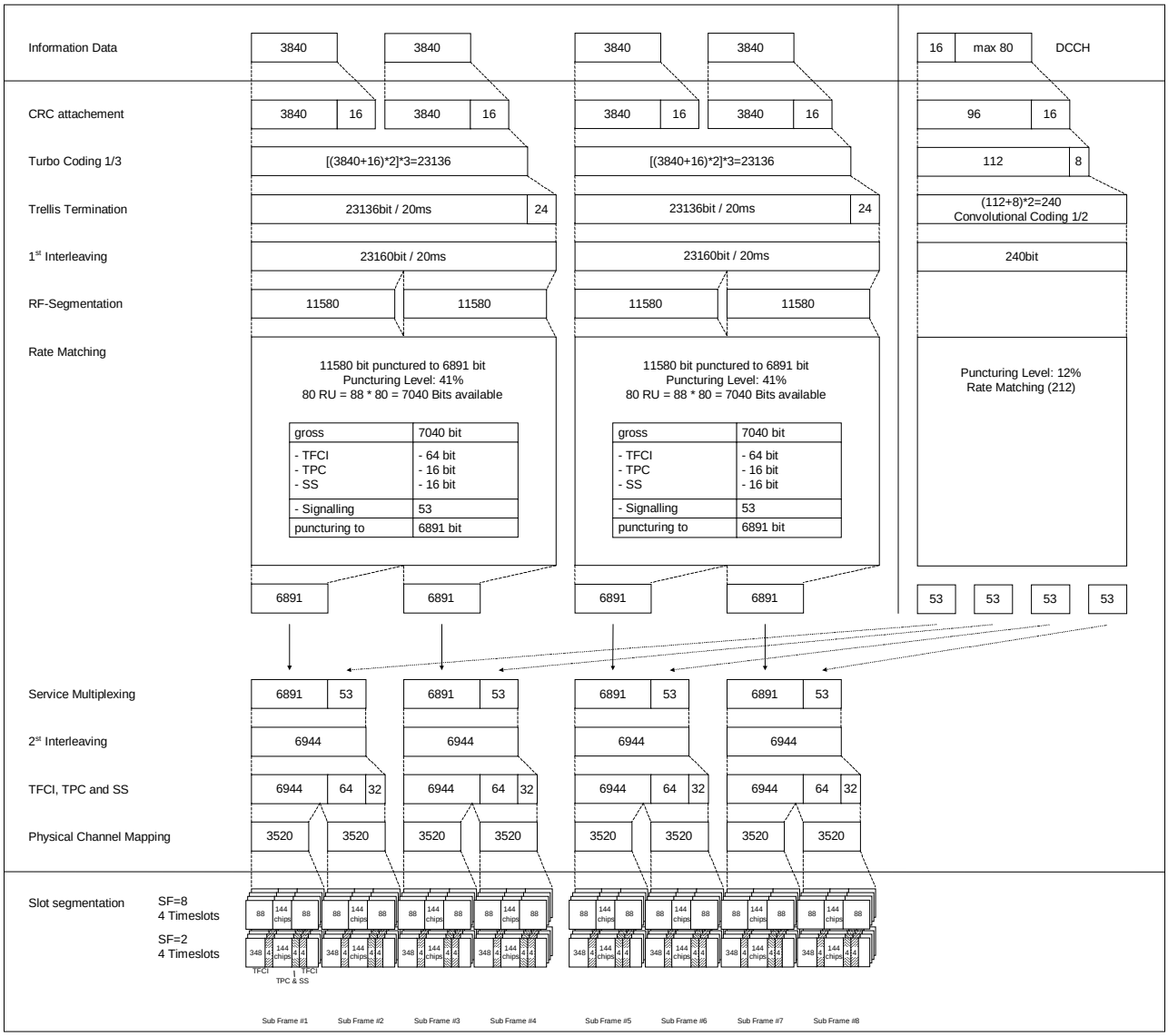
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest 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.2.4.2 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 / ½ DCCH	41% / 12%


Information Data
3840
3840
3840
3840
16
max 80
DCCH
CRC attachement
3840
16
3840
16
3840
16
3840
16
96
16
Turbo Coding 1/3
[(3840+16)*2]*3=23136
[(3840+16)*2]*3=23136
112
8
Trellis Termination
23136bit / 20ms
24
23136bit / 20ms
24
(112+8)*2=240
Convolutional Coding 1/2
1st Interleaving
23160bit / 20ms
23160bit / 20ms
240bit
RF-Segmentation
11580
11580
11580
11580
Rate Matching
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
Puncturing Level: 12%
Rate Matching (212)
6891
6891
6891
6891
53
53
53
53
Service Multiplexing
6891
53
6891
53
6891
53
6891
53
2st Interleaving
6944
6944
6944
6944
TFCI, TPC and SS
6944
64
32
6944
64
32
6944
64
32
6944
64
32
Physical Channel Mapping
3520
3520
3520
3520
3520
3520
3520
3520
Slot segmentation
SF=8
4 Timeslots
SF=2
4 Timeslots
88
144 chips
348
4
TFCI
TPC & SS
Sub Frame #1
Sub Frame #2
Sub Frame #3
Sub Frame #4
Sub Frame #5
Sub Frame #6
Sub Frame #7
Sub Frame #8

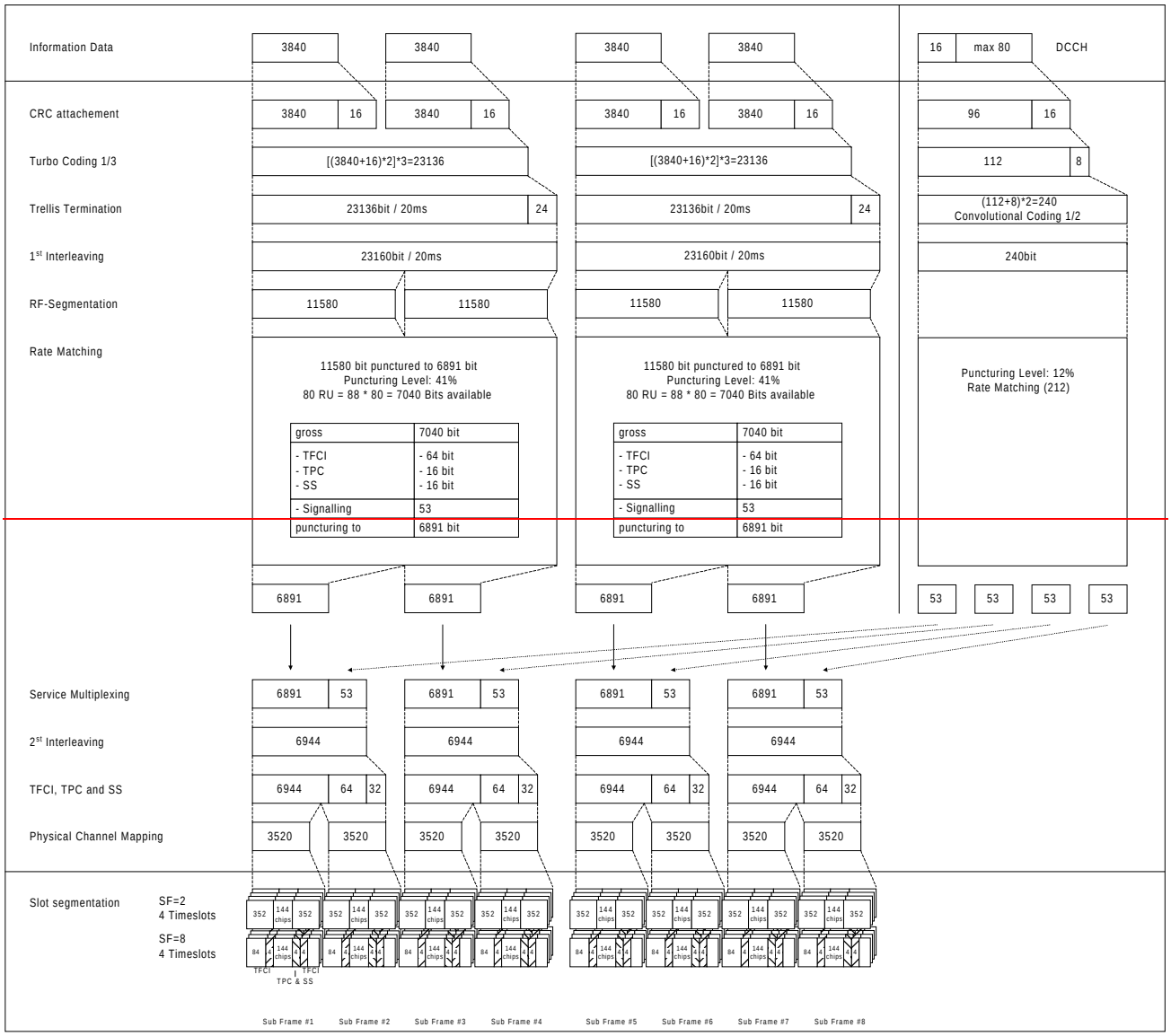

Information Data
3840
3840
3840
3840
16
max 80
DCCH
CRC attachement
3840
16
3840
16
3840
16
3840
16
96
16
Turbo Coding 1/3
[(3840+16)*2]*3=23136
[(3840+16)*2]*3=23136
112
8
Trellis Termination
23136bit / 20ms
24
23136bit / 20ms
24
(112+8)*2=240
Convolutional Coding 1/2
1st Interleaving
23160bit / 20ms
23160bit / 20ms
240bit
RF-Segmentation
11580
11580
11580
11580
Rate Matching
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
Puncturing Level: 12%
Rate Matching (212)
6891
6891
6891
6891
53
53
53
53
Service Multiplexing
6891
53
2nd Interleaving
6944
TFCI, TPC and SS
64
32
Physical Channel Mapping
3520
Slot segmentation
SF=2
4 Timeslots
SF=8
4 Timeslots
352
144 chips
84
4
TFCI
TPC & SS
Sub Frame #1
Sub Frame #2
Sub Frame #3
Sub Frame #4
Sub Frame #5
Sub Frame #6
Sub Frame #7
Sub Frame #8

Figure A.4A

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021704**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.105** **CR** **139** ⌘ **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:	⌘	Corrections to TDD 1.28Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
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:	⌘	TFCI, TPC and SS are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI, TPC and SS are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects the 384kbps UL channel for 1.28Mcps TDD.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.4.2

Other specs affected: ⌘	Y	N		⌘	
		X	Other core specifications		TS25-142
	X		Test specifications		
		X	O&M Specifications		

Other comments:	⌘	Equivalent CRs in other Releases: CR138 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.

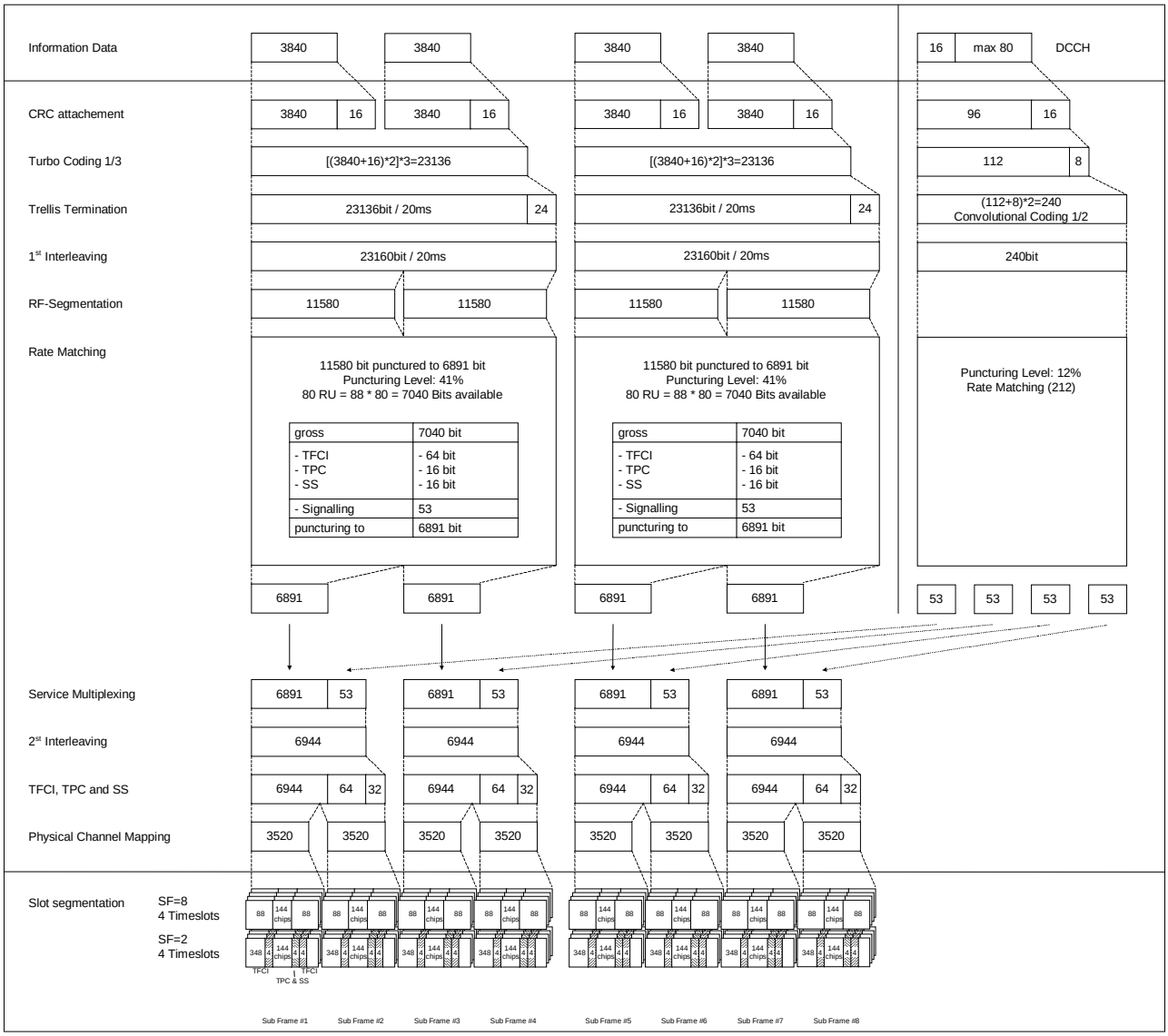
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest 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.2.4.2 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 / ½ DCCH	41% / 12%


Information Data
3840
3840
3840
3840
16
max 80
DCCH
CRC attachement
3840
16
3840
16
3840
16
3840
16
96
16
Turbo Coding 1/3
[(3840+16)*2]*3=23136
[(3840+16)*2]*3=23136
112
8
Trellis Termination
23136bit / 20ms
24
23136bit / 20ms
24
(112+8)*2=240
Convolutional Coding 1/2
1st Interleaving
23160bit / 20ms
23160bit / 20ms
240bit
RF-Segmentation
11580
11580
11580
11580
Rate Matching
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
Puncturing Level: 12%
Rate Matching (212)
6891
6891
6891
6891
53
53
53
53
Service Multiplexing
6891
53
6891
53
6891
53
6891
53
2st Interleaving
6944
6944
6944
6944
TFCI, TPC and SS
6944
64
32
6944
64
32
6944
64
32
6944
64
32
Physical Channel Mapping
3520
3520
3520
3520
3520
3520
3520
3520
Slot segmentation
SF=8
4 Timeslots
SF=2
4 Timeslots
88
144 chips
348
4
TFCI
TPC & SS
Sub Frame #1
Sub Frame #2
Sub Frame #3
Sub Frame #4
Sub Frame #5
Sub Frame #6
Sub Frame #7
Sub Frame #8

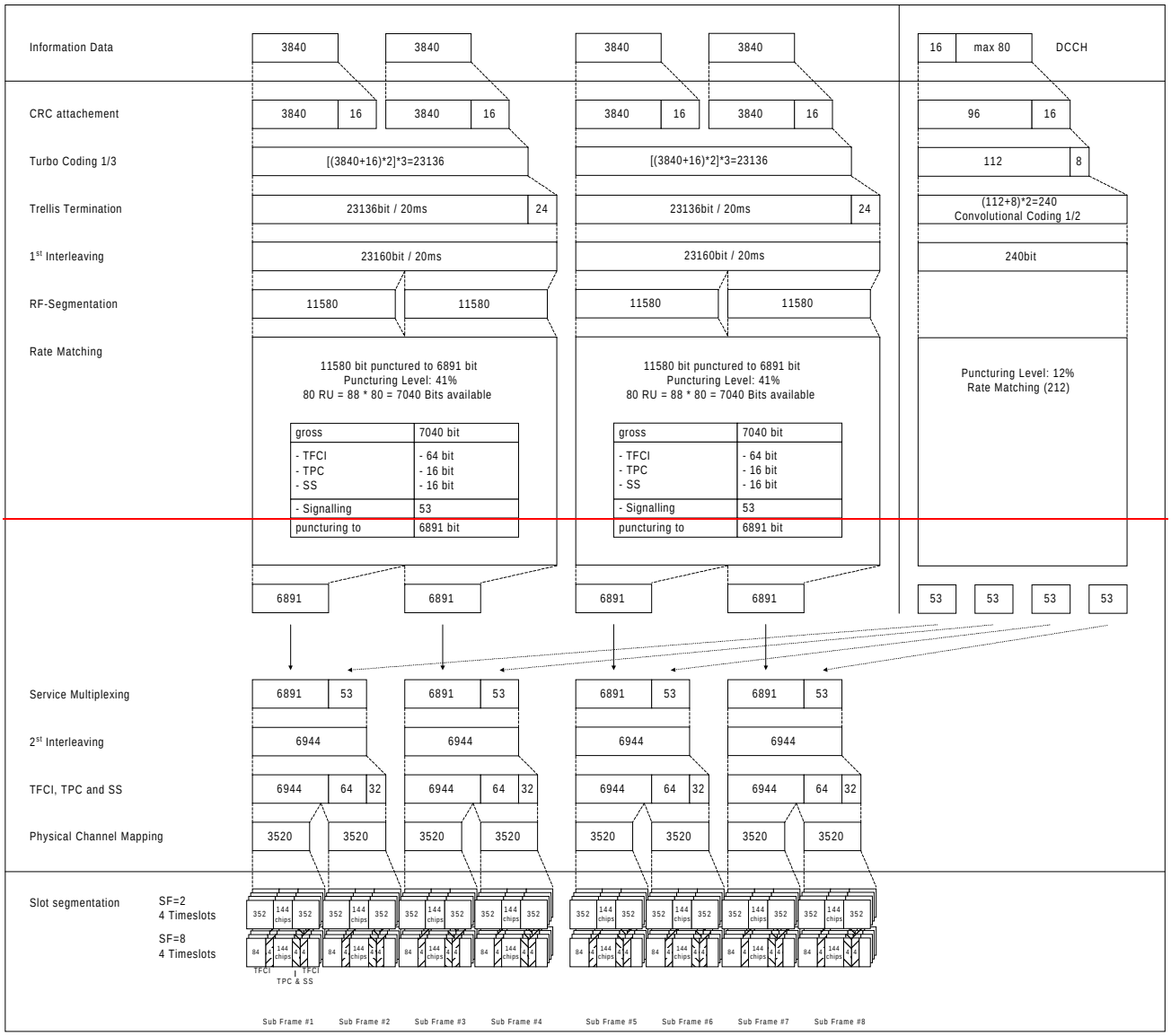

Information Data
3840
3840
3840
3840
16
max 80
DCCH
CRC attachement
3840
16
3840
16
3840
16
3840
16
96
16
Turbo Coding 1/3
[(3840+16)*2]*3=23136
[(3840+16)*2]*3=23136
112
8
Trellis Termination
23136bit / 20ms
24
23136bit / 20ms
24
(112+8)*2=240
Convolutional Coding 1/2
1st Interleaving
23160bit / 20ms
23160bit / 20ms
240bit
RF-Segmentation
11580
11580
11580
11580
Rate Matching
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
Puncturing Level: 12%
Rate Matching (212)
6891
6891
6891
6891
53
53
53
53
Service Multiplexing
6891
53
2nd Interleaving
6944
TFCI, TPC and SS
64
32
Physical Channel Mapping
3520
Slot segmentation
SF=2
4 Timeslots
SF=8
4 Timeslots
352
144 chips
84
4
TFCI
TPC & SS
Sub Frame #1
Sub Frame #2
Sub Frame #3
Sub Frame #4
Sub Frame #5
Sub Frame #6
Sub Frame #7
Sub Frame #8

Figure A.4A

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021724**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.142** **CR** **151** ⌘ **rev** ⌘ Current version: **3.11.0** ⌘

*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:	⌘	Corrections to TDD 3.84Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	26/11/2002
Category:	⌘	**F**
Release:	⌘	R99

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:	⌘	TFCI and TPC are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI and TPC are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects 64kbps and 144kbps UL channels for 3.84Mcps TDD. Rate matching changes are required in the 3.84Mcps case and these have been included. ISOLATED IMPACT ANALYSIS As this change only effects the configuration of the bearers defined for performance requirements, there are no changes required to current Node B specifications.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.2, A2.3

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

Other comments:	⌘	Equivalent CRs in other Releases: CR152 cat. A to 25.142 v4.6.0, CR153 cat. A to 25.142 v5.2.0

How to create CRs using this form:

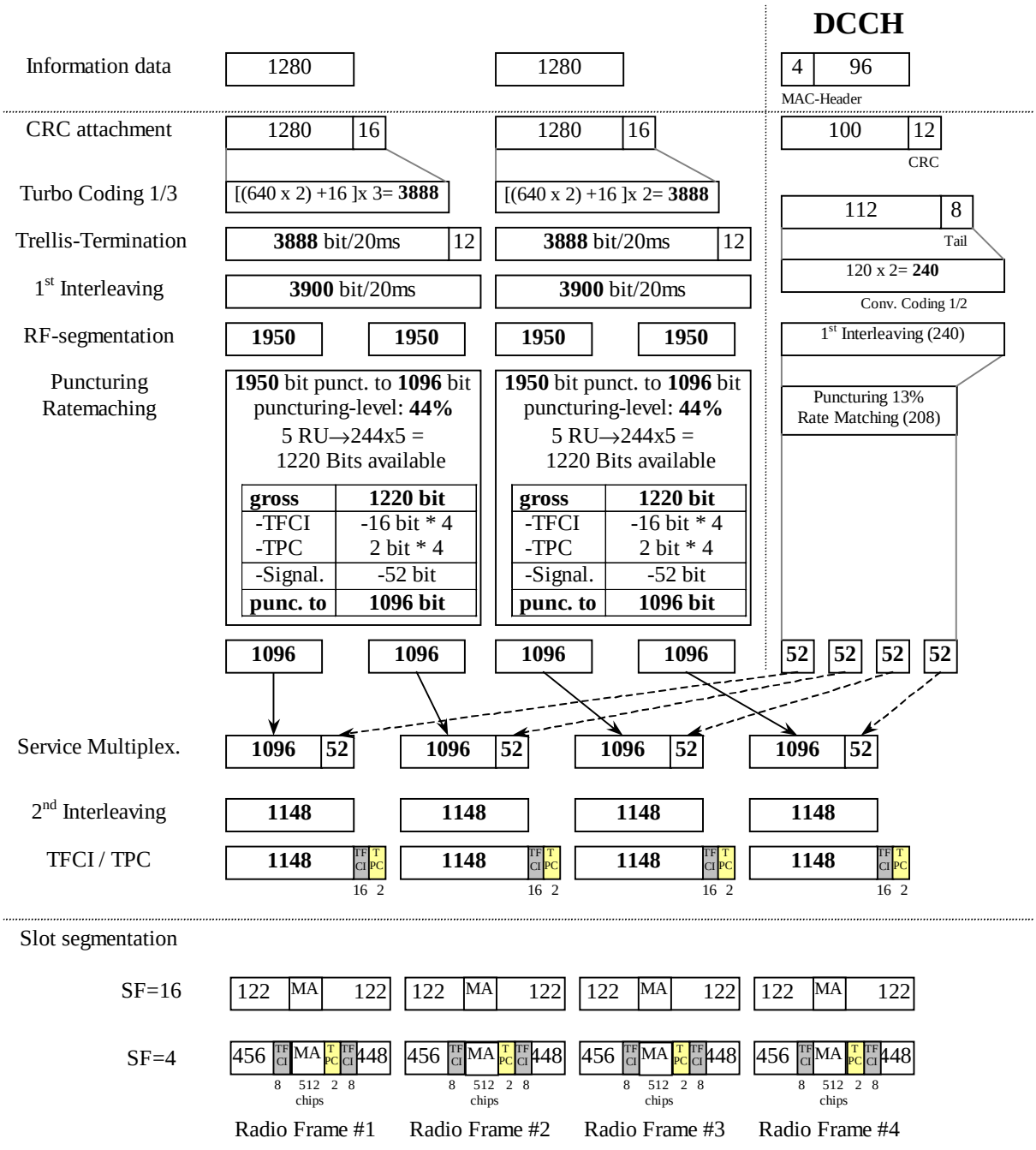
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

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.2.2 UL reference measurement channel (64 kbps)

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 / ½ DCCH	43.8~~41.2~~% / 13.3~~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
1st Interleaving
3900 bit/20ms
3900 bit/20ms
Conv. Coding 1/2
RF-segmentation
1950
1950
1950
1950
1st Interleaving (240)
Puncturing
Ratematching
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
Puncturing 13%
Rate Matching (208)
1096
1096
1096
1096
52
52
52
52
Service Multiplex.
1096
52
1096
52
1096
52
1096
52
2nd Interleaving
1148
1148
1148
1148
TFCI / TPC
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
Slot segmentation
SF=16
122
MA
122
122
MA
122
122
MA
122
122
MA
122
SF=4
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

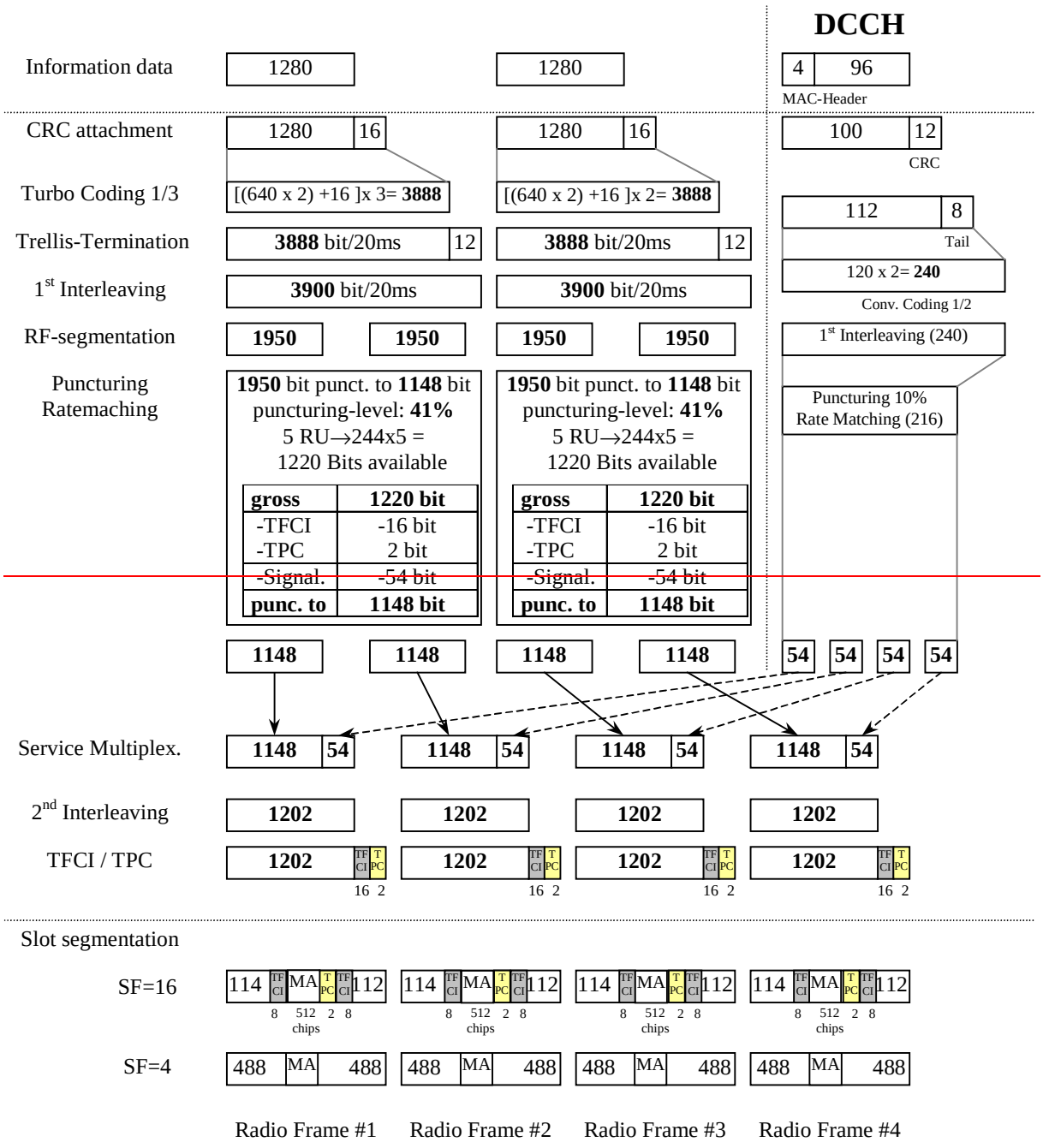
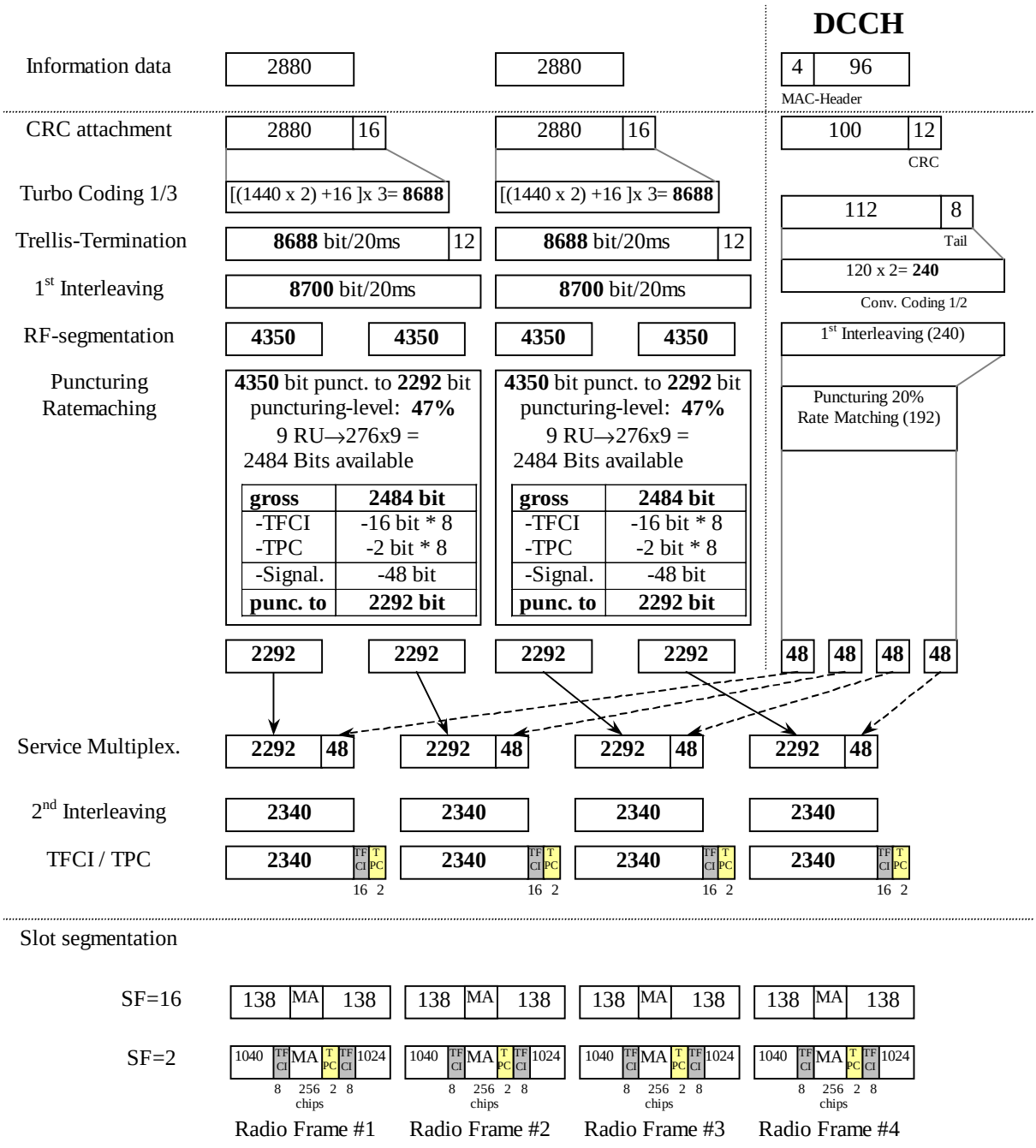

DCCH
Information data
1280
1280
4
96
MAC-Header
CRC attachment
1280
16
1280
16
100
12
CRC
Turbo Coding 1/3
[(640 x 2) +16]x 3= 3888
[(640 x 2) +16]x 2= 3888
112
8
Tail
Trellis-Termination
3888 bit/20ms
12
3888 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
3900 bit/20ms
3900 bit/20ms
RF-segmentation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

Figure A.3

A.2.3 UL reference measurement channel (144 kbps)

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 / ½ DCCH	47.344.4% / 2016.6%


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
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
112
8
Tail
120 x 2= 240
1st Interleaving
8700 bit/20ms
8700 bit/20ms
Conv. Coding 1/2
RF-segmentation
4350
4350
4350
4350
1st Interleaving (240)
Puncturing
Ratemaching
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
Puncturing 20%
Rate Matching (192)
2292
2292
2292
2292
48
48
48
48
Service Multiplex.
2292
48
2292
48
2292
48
2292
48
2nd Interleaving
2340
2340
2340
2340
TFCI / TPC
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
Slot segmentation
SF=16
138
MA
138
138
MA
138
138
MA
138
138
MA
138
SF=2
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

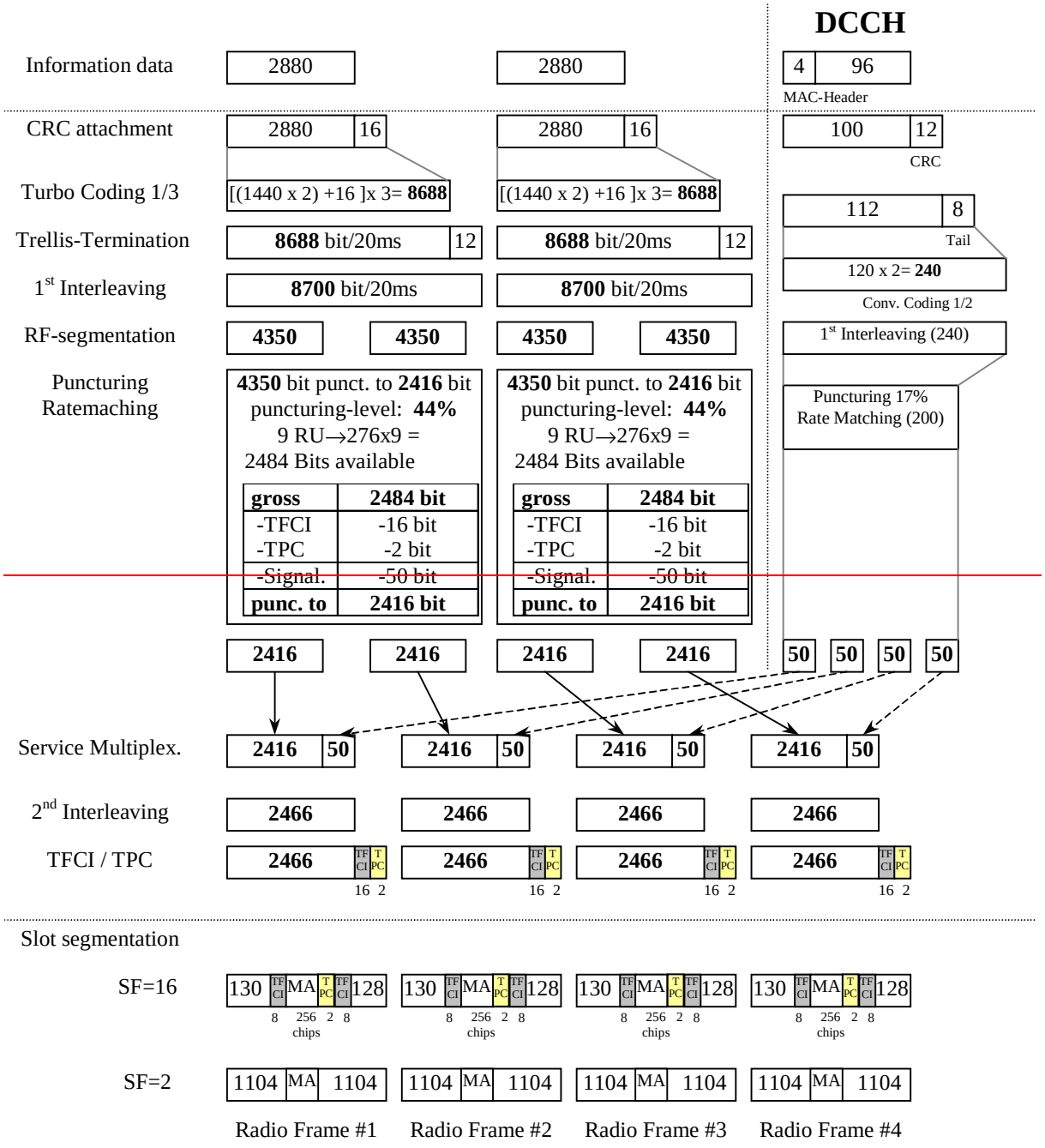

DCCH
Information data
2880
2880
4
96
MAC-Header
CRC attachment
2880
16
2880
16
100
12
CRC
Turbo Coding 1/3
[(1440 x 2) +16]x 3= 8688
[(1440 x 2) +16]x 3= 8688
112
8
Tail
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
8700 bit/20ms
8700 bit/20ms
RF-segmentation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

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021725**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.142** **CR** **152** ⌘ **rev** ⌘ Current version: **4.6.0** ⌘

*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:	⌘	Corrections to TDD 3.84Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	26/11/2002
Category:	⌘	**A**
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:	⌘	TFCI and TPC are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI and TPC are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects 64kbps and 144kbps UL channels for 3.84Mcps TDD. Rate matching changes are required in the 3.84Mcps case and these have been included.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.2.1, A2.3.1
Other specs affected:	⌘	Y / N ☐ / ☒ Other core specifications ☐ / ☒ Test specifications ☐ / ☒ O&M Specifications
	⌘	
Other comments:	⌘	Equivalent CRs in other Releases: CR151 cat. F to 25.142 v3.11.0, CR153 cat. A to 25.142 v5.2.0

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.

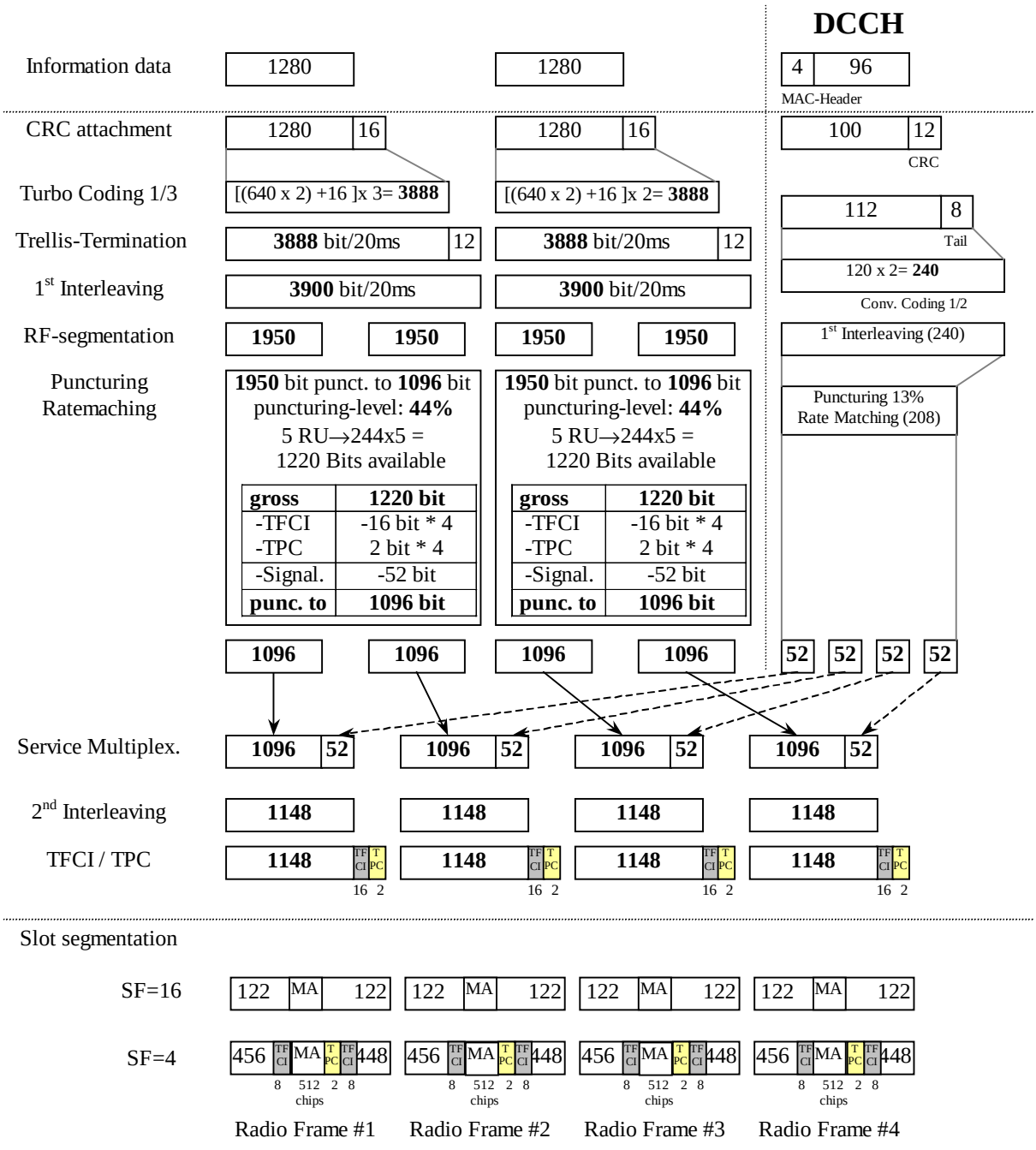
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest 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.2.2 UL reference measurement channel (64 kbps)

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 / ½ DCCH	43.8~~41.2~~% / 13.3~~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
1st Interleaving
3900 bit/20ms
3900 bit/20ms
Conv. Coding 1/2
RF-segmentation
1950
1950
1950
1950
1st Interleaving (240)
Puncturing
Ratematching
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
Puncturing 13%
Rate Matching (208)
1096
1096
1096
1096
52
52
52
52
Service Multiplex.
1096
52
1096
52
1096
52
1096
52
2nd Interleaving
1148
1148
1148
1148
TFCI / TPC
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
Slot segmentation
SF=16
122
MA
122
122
MA
122
122
MA
122
122
MA
122
SF=4
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

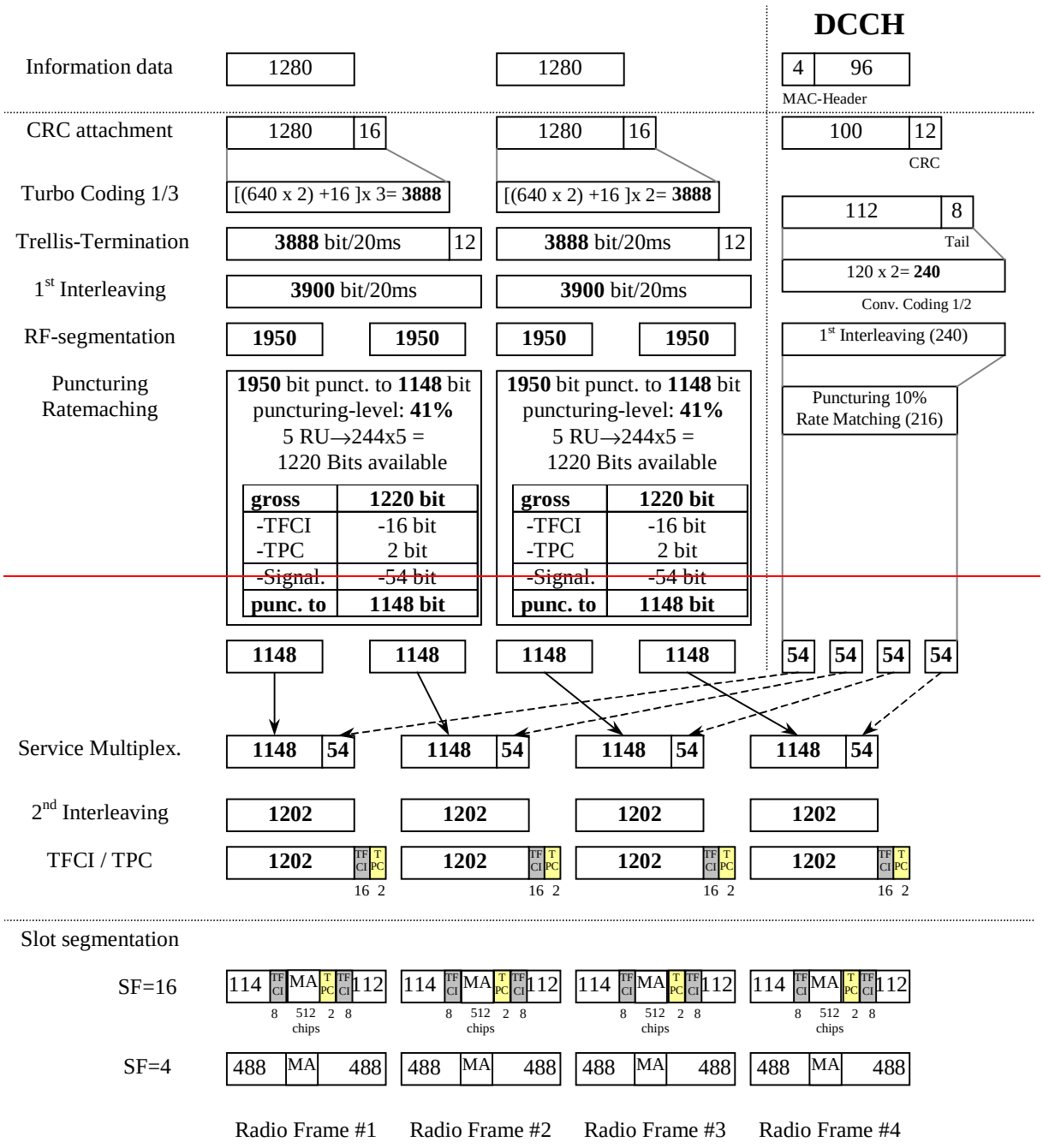
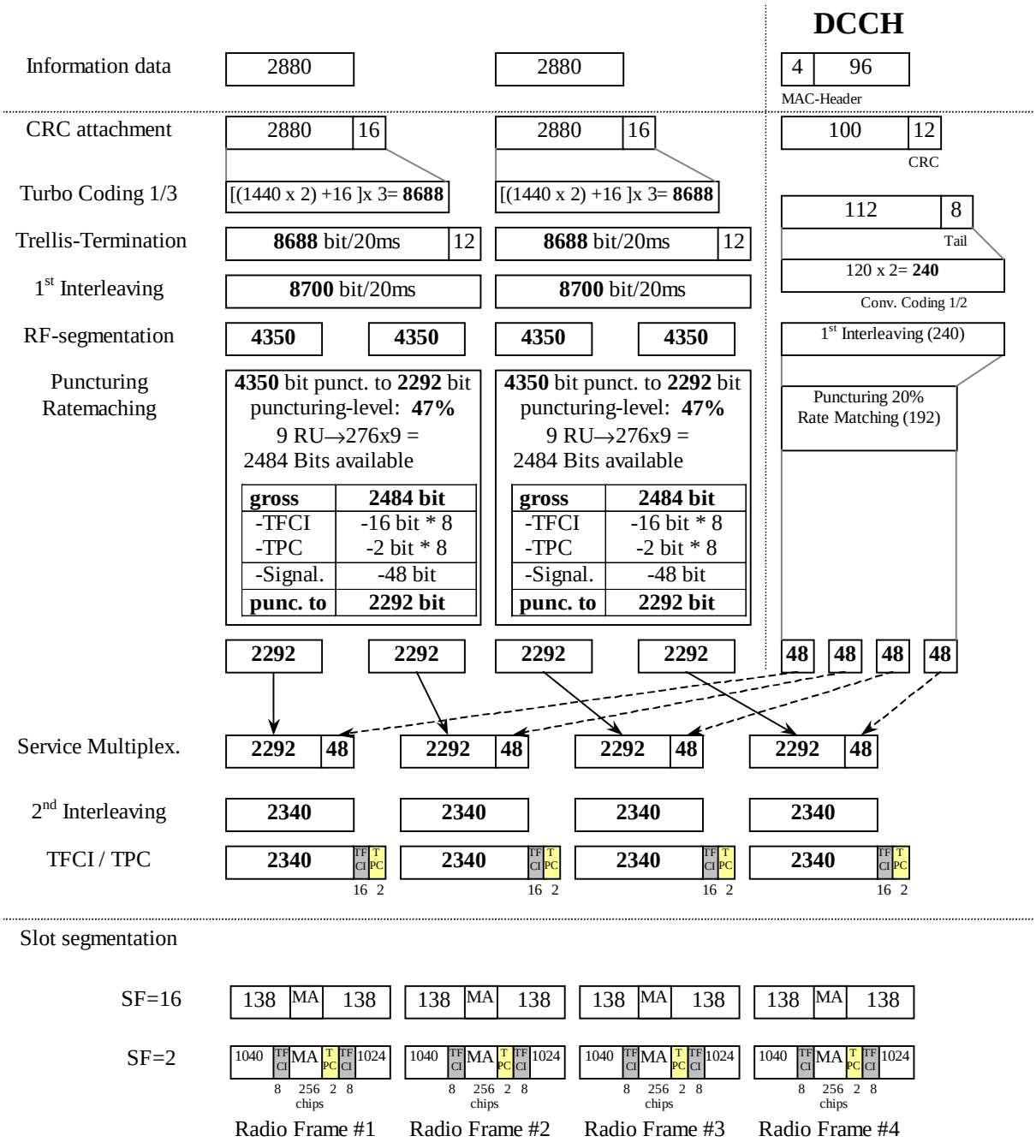

DCCH
Information data
1280
1280
4
96
MAC-Header
CRC attachment
1280
16
1280
16
100
12
CRC
Turbo Coding 1/3
[(640 x 2) +16]x 3= 3888
[(640 x 2) +16]x 2= 3888
112
8
Tail
Trellis-Termination
3888 bit/20ms
12
3888 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
3900 bit/20ms
3900 bit/20ms
RF-segmentation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

Figure A.3

A.2.3 UL reference measurement channel (144 kbps)

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 / ½ DCCH	47.344.4% / 2016.6%


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
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
112
8
Tail
120 x 2= 240
1st Interleaving
8700 bit/20ms
8700 bit/20ms
Conv. Coding 1/2
RF-segmentation
4350
4350
4350
4350
1st Interleaving (240)
Puncturing
Ratemaching
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
Puncturing 20%
Rate Matching (192)
2292
2292
2292
2292
48
48
48
48
Service Multiplex.
2292
48
2292
48
2292
48
2292
48
2nd Interleaving
2340
2340
2340
2340
TFCI / TPC
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
Slot segmentation
SF=16
138
MA
138
138
MA
138
138
MA
138
138
MA
138
SF=2
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

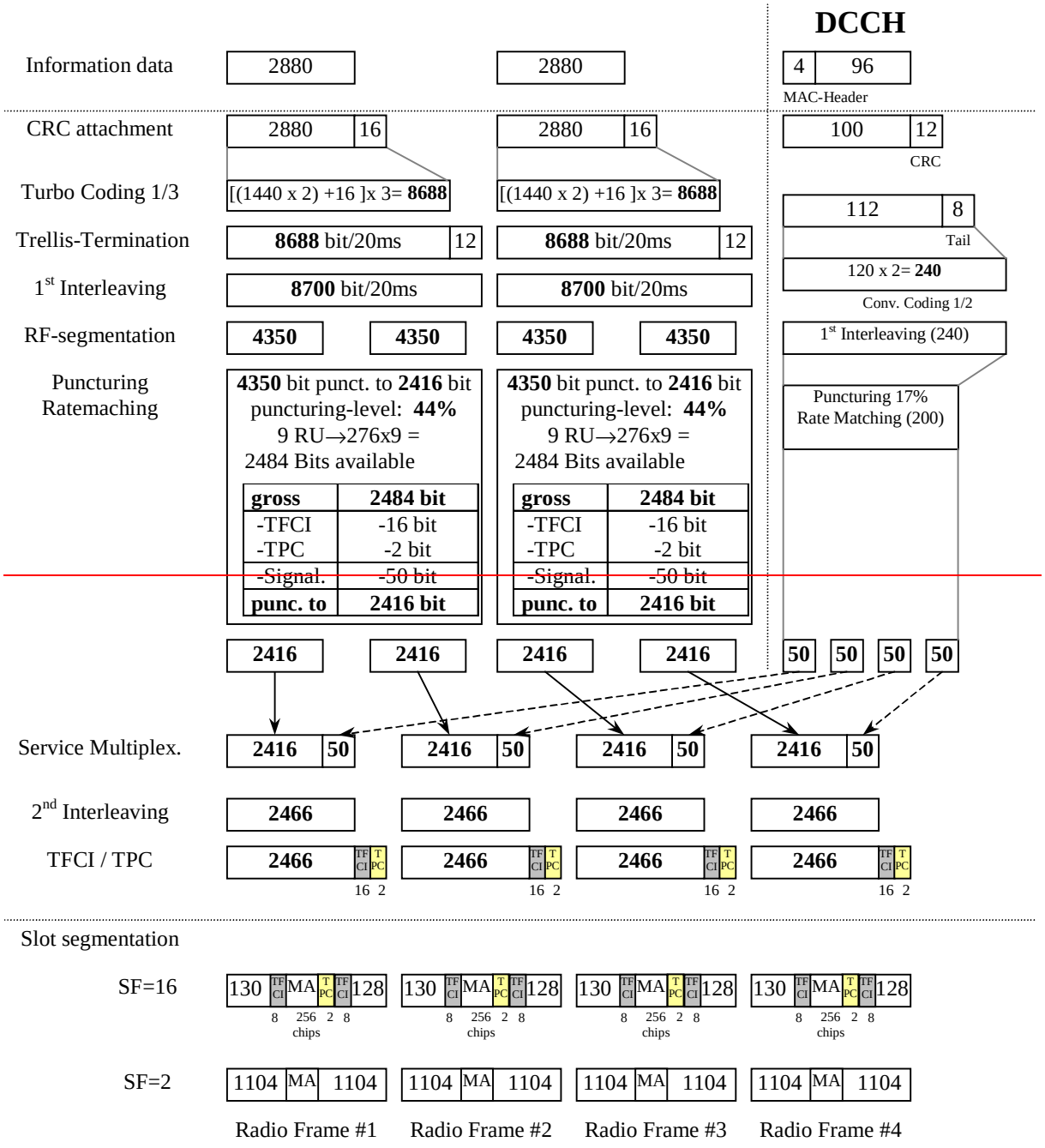

DCCH
Information data
2880
2880
4
96
MAC-Header
CRC attachment
2880
16
2880
16
100
12
CRC
Turbo Coding 1/3
[(1440 x 2) +16]x 3= 8688
[(1440 x 2) +16]x 3= 8688
112
8
Tail
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
8700 bit/20ms
8700 bit/20ms
RF-segmentation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

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021726**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.142** **CR** **153** ⌘ **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:	⌘	Corrections to TDD 3.84Mcps Reference Measurement 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:	⌘	TFCI and TPC are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI and TPC are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects 64kbps and 144kbps UL channels for 3.84Mcps TDD. Rate matching changes are required in the 3.84Mcps case and these have been included.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.2.1, A2.3.1

Other specs affected: ⌘

Y	N	
	X	Other core specifications
	X	Test specifications
	X	O&M Specifications

⌘

Other comments: ⌘ Equivalent CRs in other Releases: CR151 cat. F to 25.142 v3.11.0, CR152 cat. A to 25.142 v4.6.0

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.

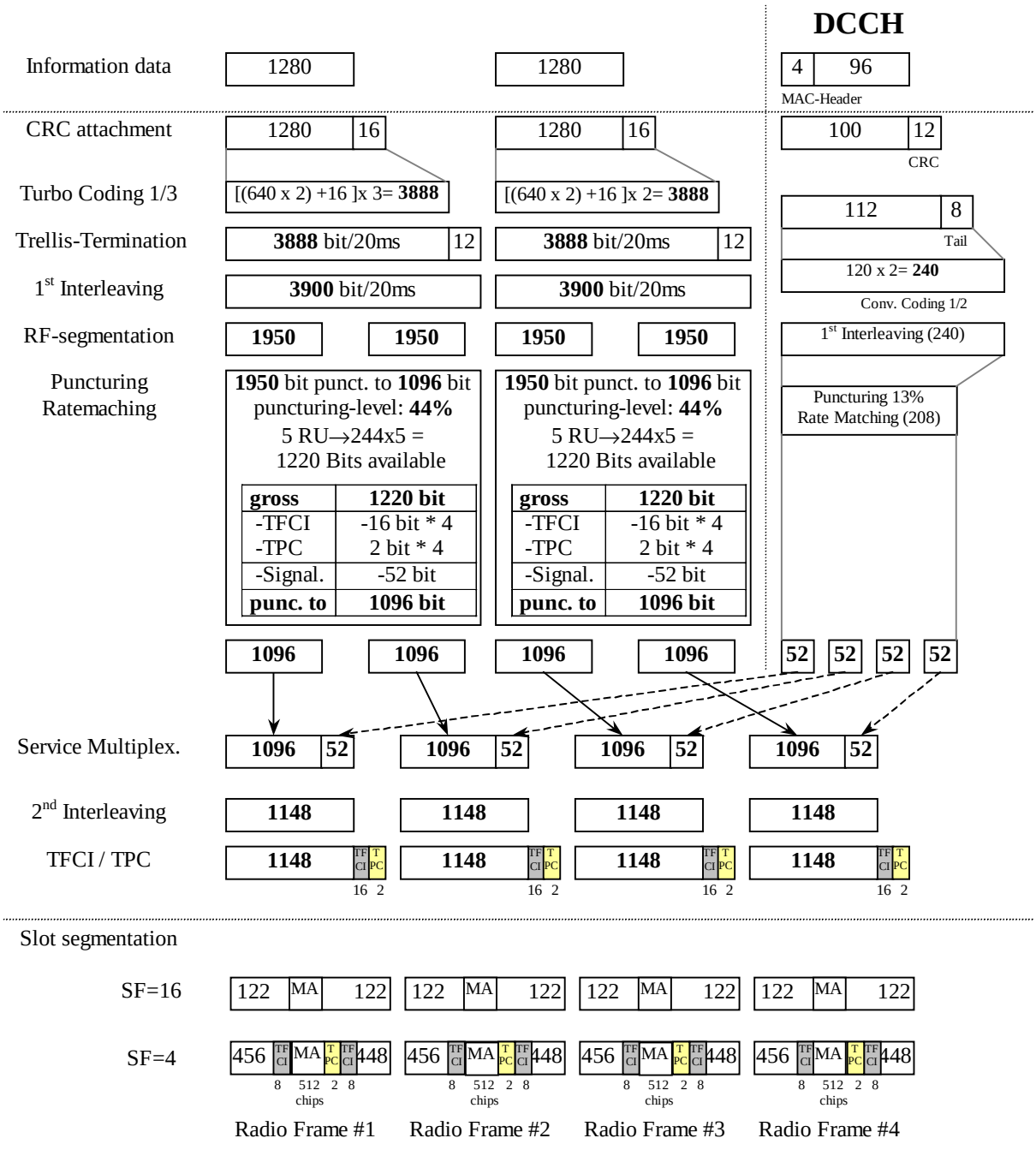
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest 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.2.2 UL reference measurement channel (64 kbps)

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 / ½ DCCH	43.8~~41.2~~% / 13.3~~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
1st Interleaving
3900 bit/20ms
3900 bit/20ms
Conv. Coding 1/2
RF-segmentation
1950
1950
1950
1950
1st Interleaving (240)
Puncturing
Ratematching
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
1950 bit punct. to 1096 bit
puncturing-level: 44%
5 RU→244x5 =
1220 Bits available
gross
1220 bit
-TFCI
-16 bit * 4
-TPC
2 bit * 4
-Signal.
-52 bit
punc. to
1096 bit
Puncturing 13%
Rate Matching (208)
1096
1096
1096
1096
52
52
52
52
Service Multiplex.
1096
52
1096
52
1096
52
1096
52
2nd Interleaving
1148
1148
1148
1148
TFCI / TPC
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
1148
TFCI
TPC
16 2
Slot segmentation
SF=16
122
MA
122
122
MA
122
122
MA
122
122
MA
122
SF=4
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
456
TFCI
MA
TPC
TFCI
448
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
8 512 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

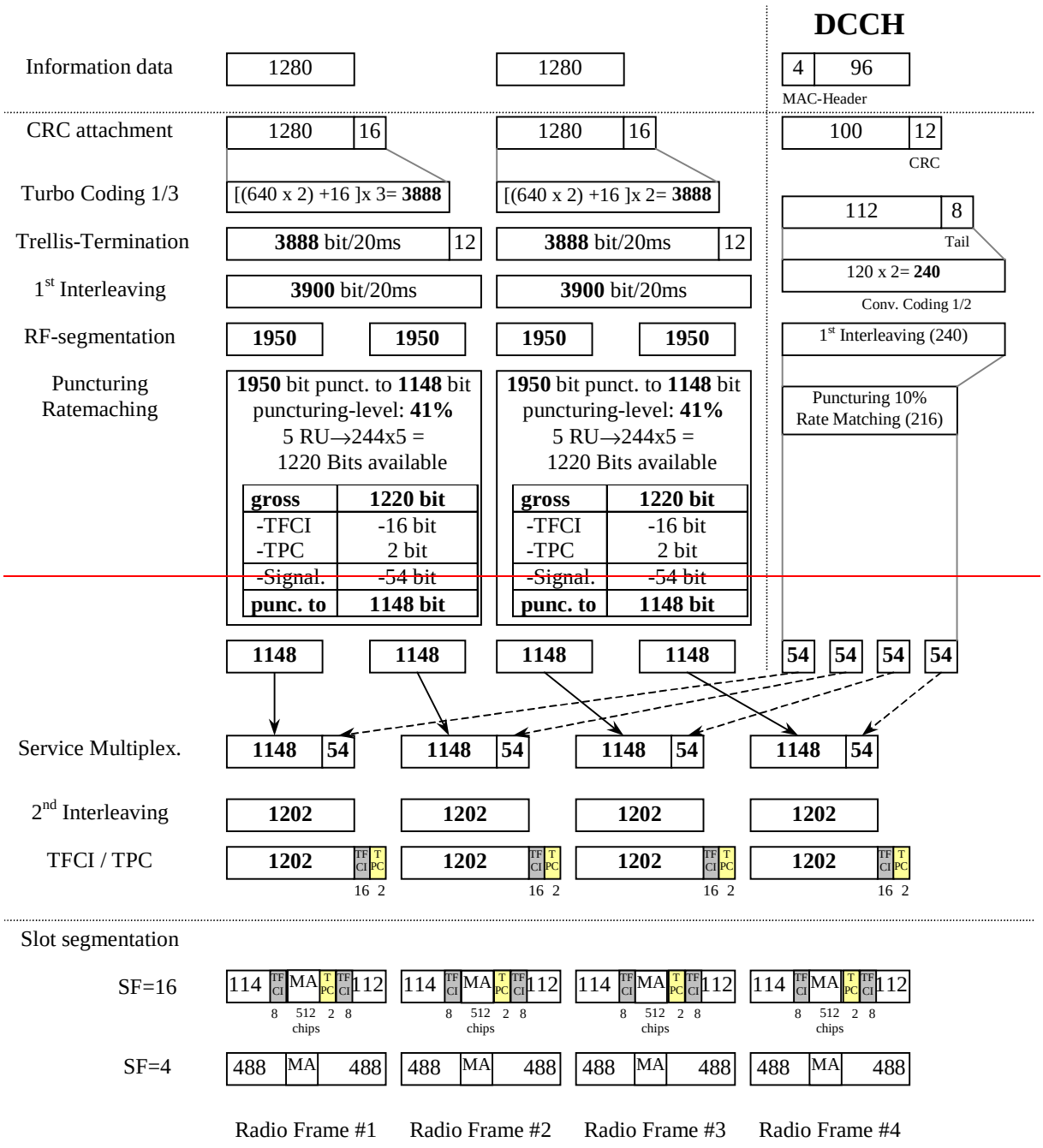
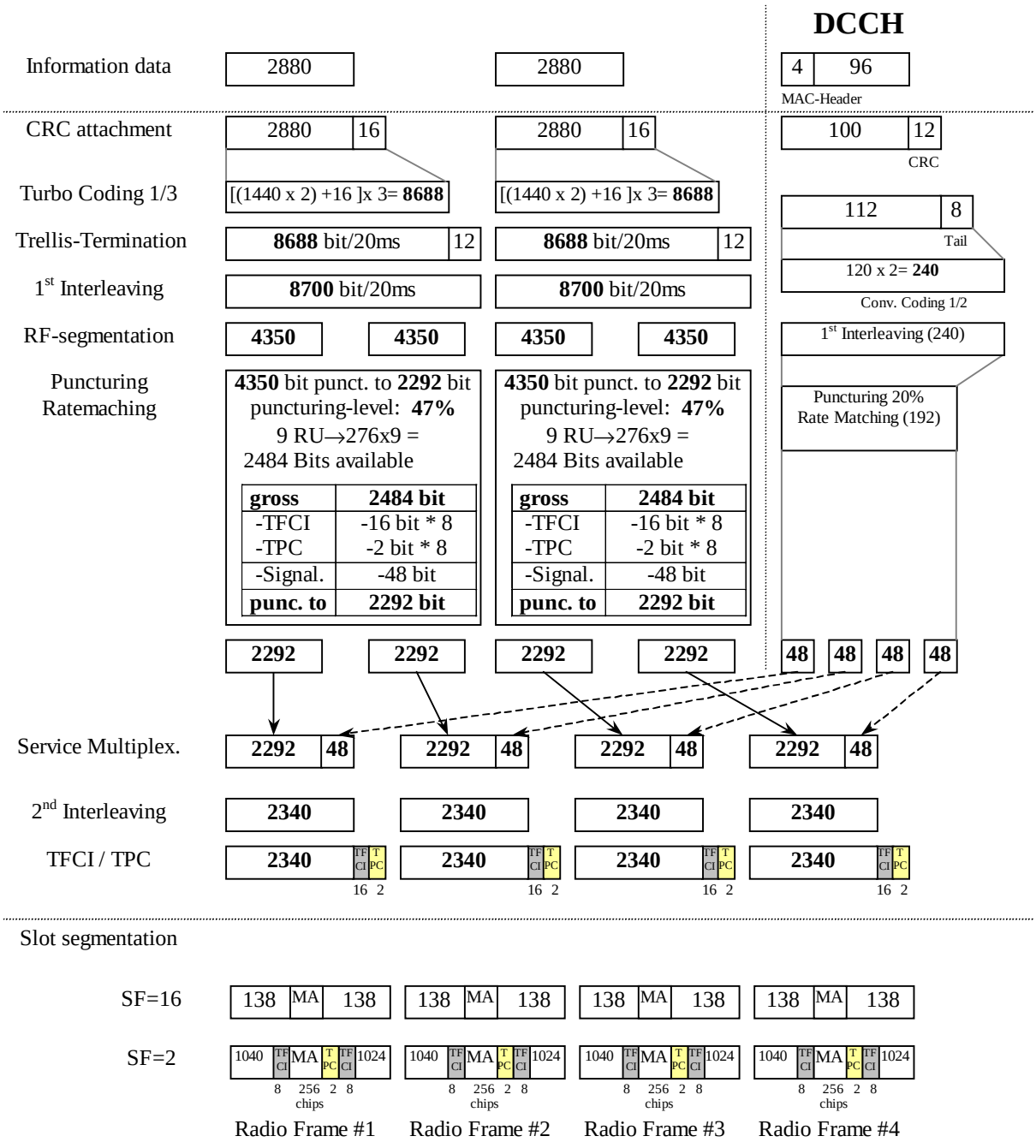

DCCH
Information data
1280
1280
4
96
MAC-Header
CRC attachment
1280
16
1280
16
100
12
CRC
Turbo Coding 1/3
[(640 x 2) +16]x 3= 3888
[(640 x 2) +16]x 2= 3888
112
8
Tail
Trellis-Termination
3888 bit/20ms
12
3888 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
3900 bit/20ms
3900 bit/20ms
RF-segmentation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

Figure A.3

A.2.3 UL reference measurement channel (144 kbps)

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 / ½ DCCH	47.344.4% / 2016.6%


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
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
112
8
Tail
120 x 2= 240
1st Interleaving
8700 bit/20ms
8700 bit/20ms
Conv. Coding 1/2
RF-segmentation
4350
4350
4350
4350
1st Interleaving (240)
Puncturing
Ratemaching
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
4350 bit punct. to 2292 bit
puncturing-level: 47%
9 RU→276x9 =
2484 Bits available
gross 2484 bit
-TFCI -16 bit * 8
-TPC -2 bit * 8
-Signal. -48 bit
punc. to 2292 bit
Puncturing 20%
Rate Matching (192)
2292
2292
2292
2292
48
48
48
48
Service Multiplex.
2292
48
2292
48
2292
48
2292
48
2nd Interleaving
2340
2340
2340
2340
TFCI / TPC
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
2340
TFCI
TPC
16 2
Slot segmentation
SF=16
138
MA
138
138
MA
138
138
MA
138
138
MA
138
SF=2
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
1040
TFCI
MA
TPC
TFCI
1024
8 256 2 8
chips
Radio Frame #1
Radio Frame #2
Radio Frame #3
Radio Frame #4

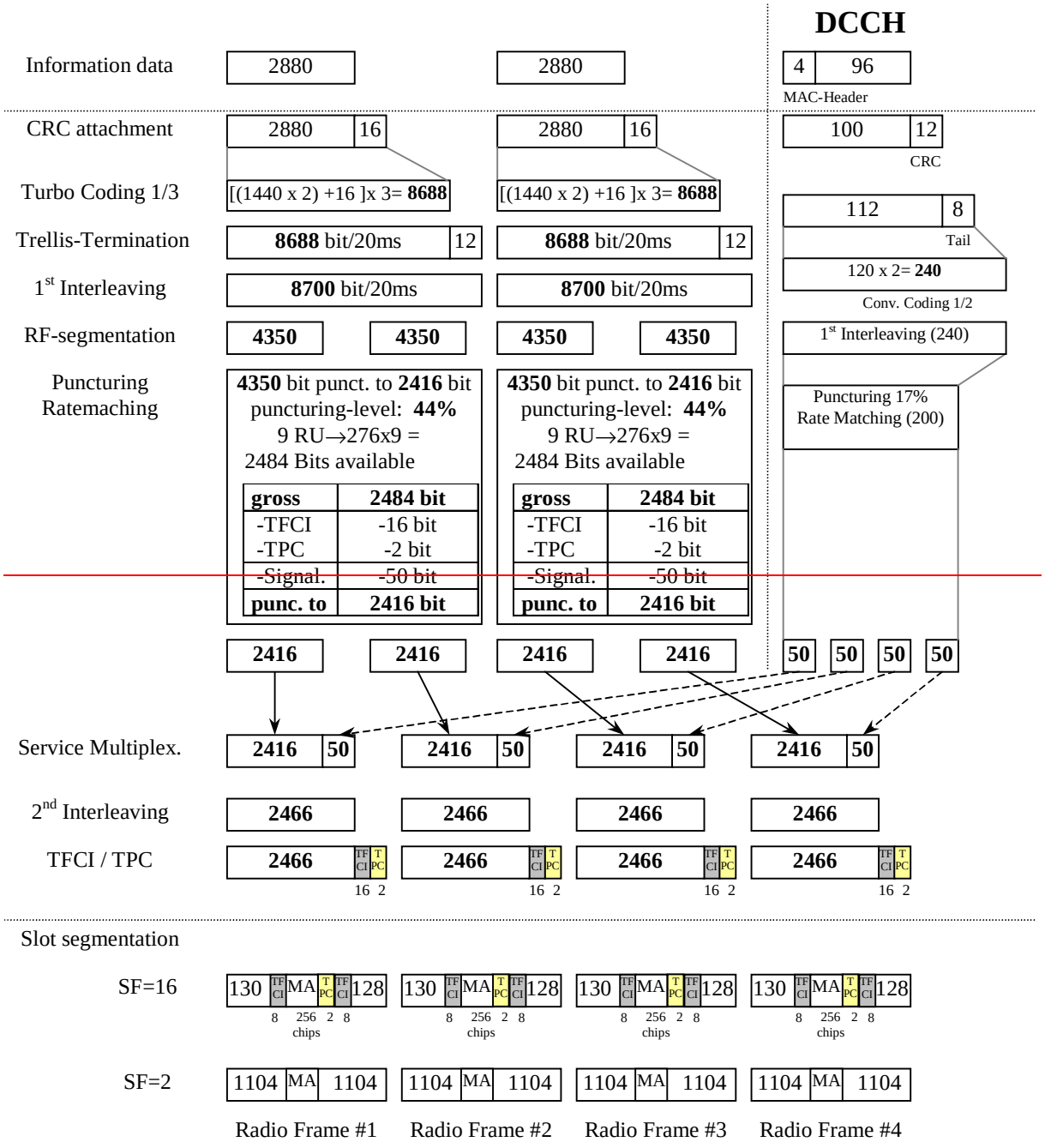

DCCH
Information data
2880
2880
4
96
MAC-Header
CRC attachment
2880
16
2880
16
100
12
CRC
Turbo Coding 1/3
[(1440 x 2) +16]x 3= 8688
[(1440 x 2) +16]x 3= 8688
112
8
Tail
Trellis-Termination
8688 bit/20ms
12
8688 bit/20ms
12
120 x 2= 240
Conv. Coding 1/2
1st Interleaving
8700 bit/20ms
8700 bit/20ms
RF-segmentation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

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021727**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.142** **CR** **154** ⌘ **rev** ⌘ Current version: **4.6.0** ⌘

*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:	⌘	Corrections to TDD 1.28Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
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:	⌘	TFCI, TPC and SS are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI, TPC and SS are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects the 384kbps UL channel for 1.28Mcps TDD. **ISOLATED IMPACT ANALYSIS** As this change only effects the configuration of the bearers defined for performance requirements, there are no changes required to current Node B specifications.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.4.2

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

Other comments:	⌘	Equivalent CRs in other Releases: CR155 cat. A to 25.142 v5.2.0

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.

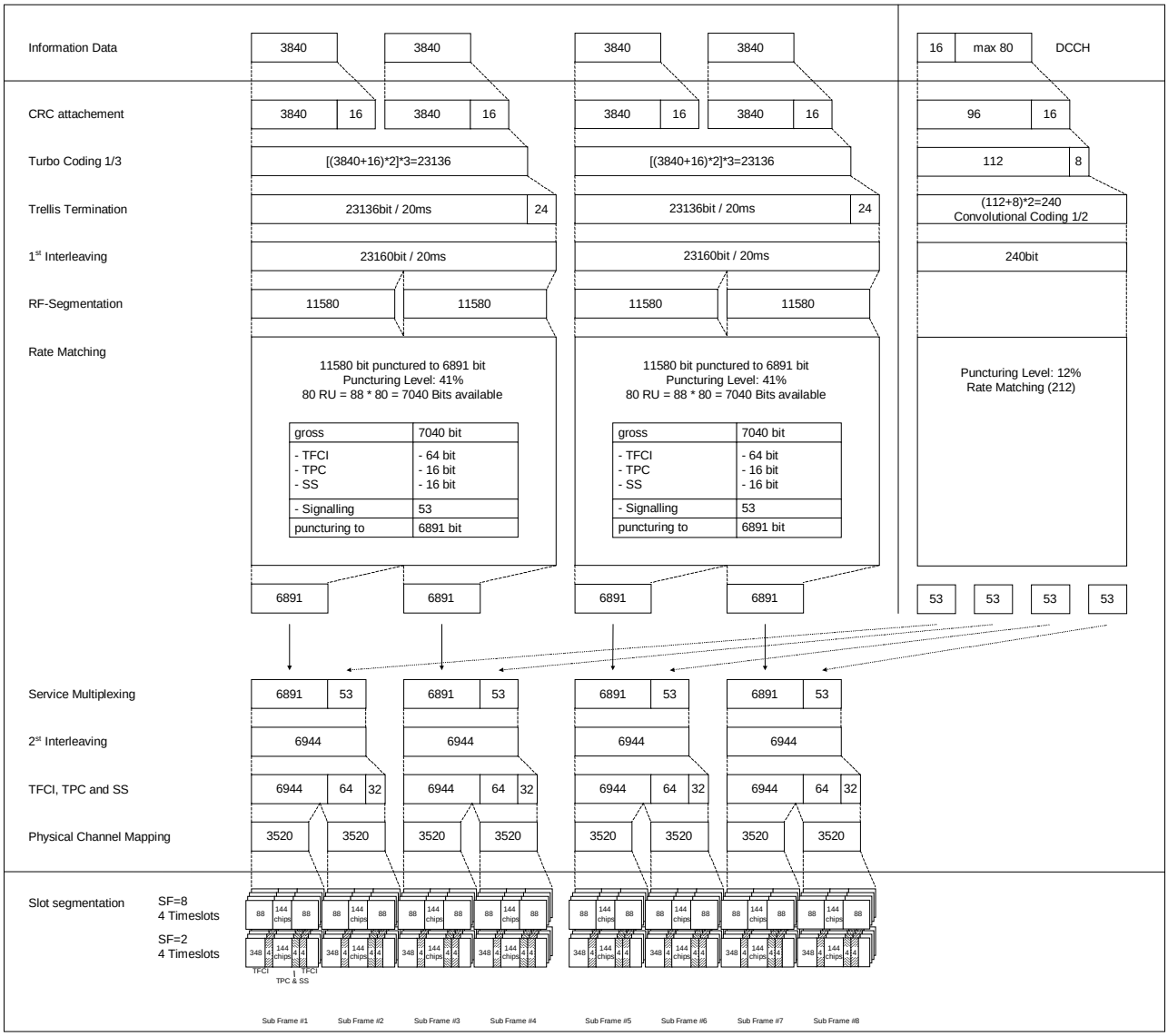
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest 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.2.4.2 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 / ½ DCCH	41% / 12%


Information Data
3840
3840
3840
3840
16
max 80
DCCH
CRC attachement
3840
16
3840
16
3840
16
3840
16
96
16
Turbo Coding 1/3
[(3840+16)*2]*3=23136
[(3840+16)*2]*3=23136
112
8
Trellis Termination
23136bit / 20ms
24
23136bit / 20ms
24
(112+8)*2=240
Convolutional Coding 1/2
1st Interleaving
23160bit / 20ms
23160bit / 20ms
240bit
RF-Segmentation
11580
11580
11580
11580
Rate Matching
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
Puncturing Level: 12%
Rate Matching (212)
6891
6891
6891
6891
53
53
53
53
Service Multiplexing
6891
53
6891
53
6891
53
6891
53
2st Interleaving
6944
6944
6944
6944
TFCI, TPC and SS
6944
64
32
6944
64
32
6944
64
32
6944
64
32
Physical Channel Mapping
3520
3520
3520
3520
3520
3520
3520
3520
Slot segmentation
SF=8
4 Timeslots
SF=2
4 Timeslots
88
144 chips
348
4
TFCI
TPC & SS
Sub Frame #1
Sub Frame #2
Sub Frame #3
Sub Frame #4
Sub Frame #5
Sub Frame #6
Sub Frame #7
Sub Frame #8

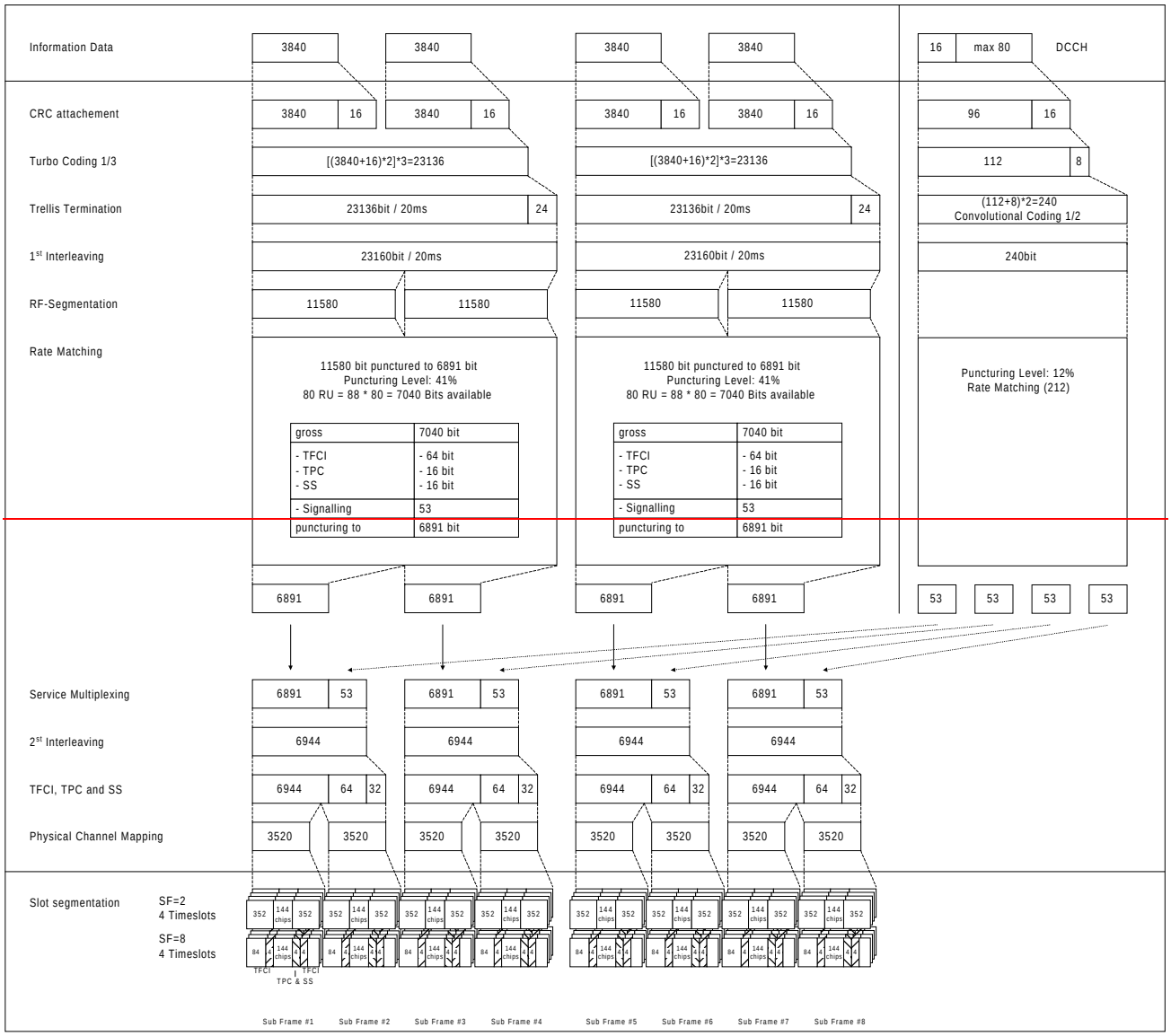

Information Data
3840
3840
3840
3840
16
max 80
DCCH
CRC attachement
3840
16
3840
16
3840
16
3840
16
96
16
Turbo Coding 1/3
[(3840+16)*2]*3=23136
[(3840+16)*2]*3=23136
112
8
Trellis Termination
23136bit / 20ms
24
23136bit / 20ms
24
(112+8)*2=240
Convolutional Coding 1/2
1st Interleaving
23160bit / 20ms
23160bit / 20ms
240bit
RF-Segmentation
11580
11580
11580
11580
Rate Matching
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
Puncturing Level: 12%
Rate Matching (212)
6891
6891
6891
6891
53
53
53
53
Service Multiplexing
6891
53
2nd Interleaving
6944
TFCI, TPC and SS
64
32
Physical Channel Mapping
3520
Slot segmentation
SF=2
4 Timeslots
SF=8
4 Timeslots
352
144 chips
84
4
TFCI
TPC & SS
Sub Frame #1
Sub Frame #2
Sub Frame #3
Sub Frame #4
Sub Frame #5
Sub Frame #6
Sub Frame #7
Sub Frame #8

Figure A.4A

3GPP TSG RAN WG4 (Radio) Meeting #25 **R4-021728**

Secaucus, NJ, USA 11 - 15 November, 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.142** **CR** **155** ⌘ **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:	⌘	Corrections to TDD 1.28Mcps Reference Measurement Channels
Source:	⌘	RAN WG4
Work item code:	⌘	LCRTDD-RF
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)*
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Use one of the following releases:

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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:	⌘	TFCI, TPC and SS are now always carried on the physical channel with lower spreading factor in the case of multicode transmission on uplink (recent change submitted by RAN WG1 – RP-02-0569)
Summary of change:	⌘	TFCI, TPC and SS are moved to the physical channel with lower spreading factor for any normative reference channel using multicode on uplink. This affects the 384kbps UL channel for 1.28Mcps TDD.
Consequences if not approved:	⌘	Normative uplink reference channels defined for uplink performance requirements are not valid bearer configurations for TDD. Resulting incompatibility between test channels and UE transport channel processing will cause test failure or necessitate changes to the UE to support this invalid bearer configuration.

Clauses affected:	⌘	A2.4.2

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

Other comments:	⌘	Equivalent CRs in other Releases: CR154 cat. F to 25.142 v4.6.0

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A.2.4.2 1,28 Mcps TDD Option

Table A.4A

Parameter	Value
Information data rate	384 kbps
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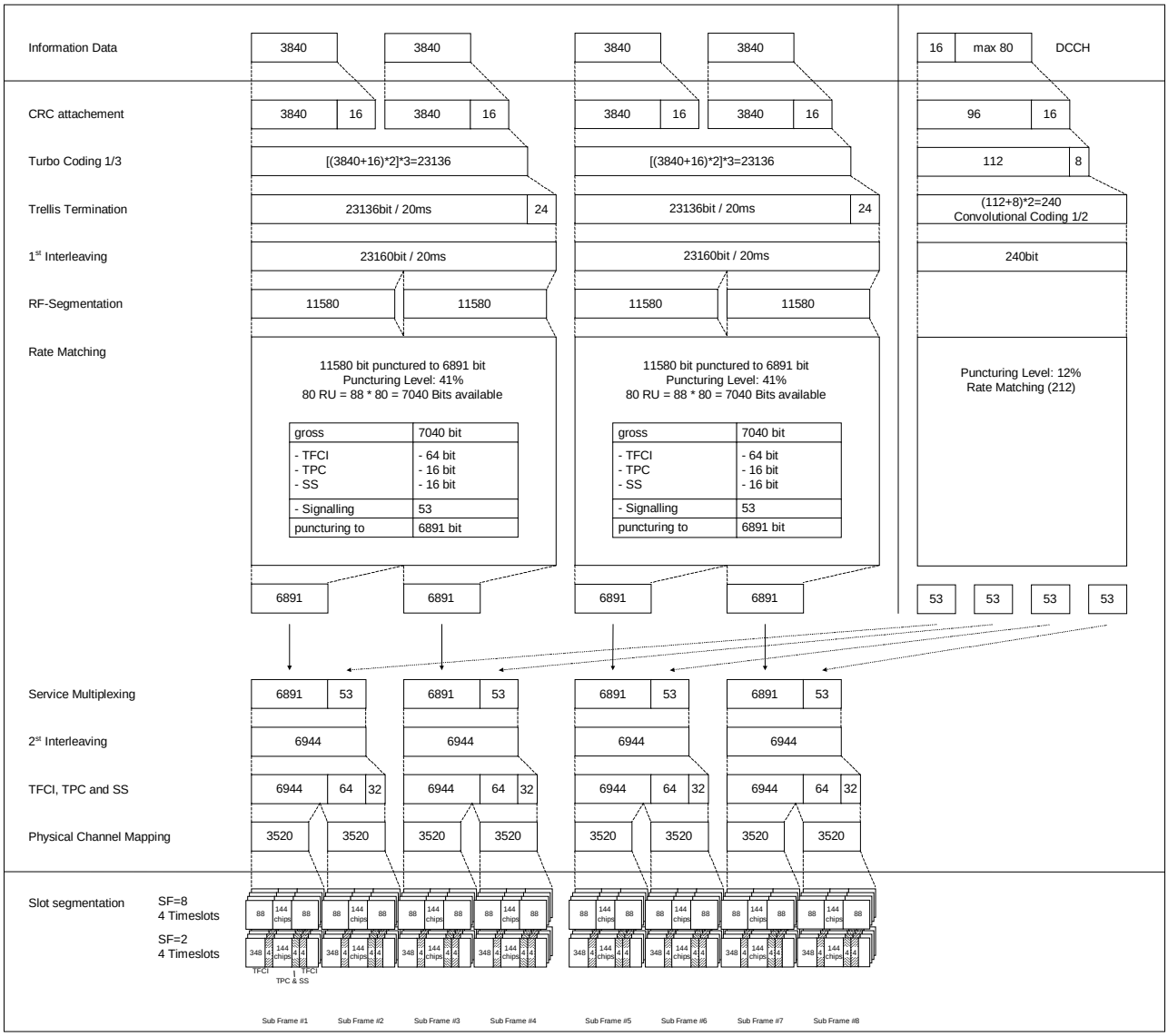
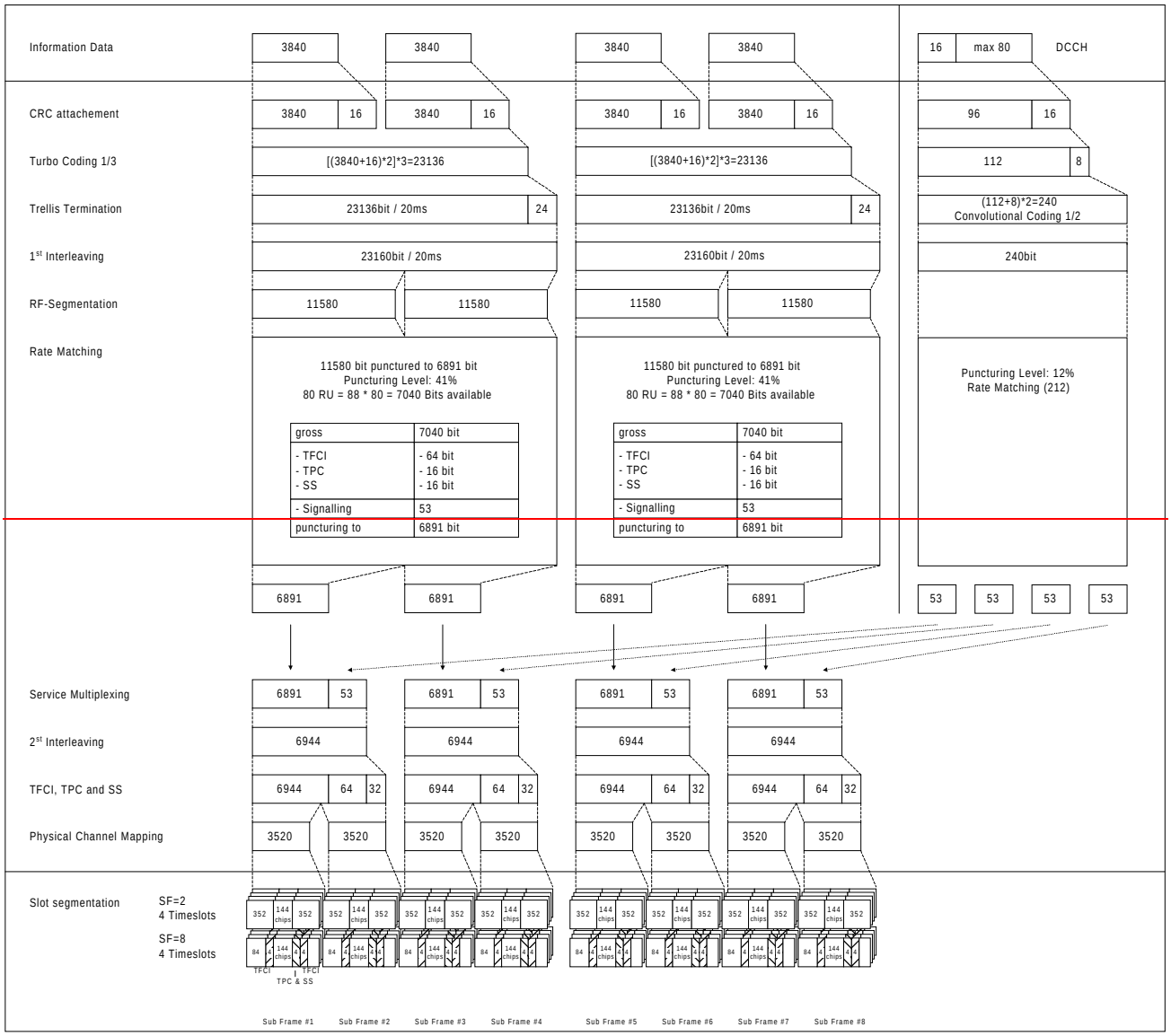
Interleaving	20 ms
Power control (TPC)	16 Bit/user/10ms
TFCI	64 Bit/user/10ms
Synchronisation Shift (SS)	16 Bit/user/10ms
Inband signalling DCCH	max 2.0 kbps
Puncturing level at Code rate: 1/3 DCH / ½ DCCH	41% / 12%


Information Data
3840
3840
3840
3840
16
max 80
DCCH
CRC attachement
3840
16
3840
16
3840
16
3840
16
96
16
Turbo Coding 1/3
[(3840+16)*2]*3=23136
[(3840+16)*2]*3=23136
112
8
Trellis Termination
23136bit / 20ms
24
23136bit / 20ms
24
(112+8)*2=240
Convolutional Coding 1/2
1st Interleaving
23160bit / 20ms
23160bit / 20ms
240bit
RF-Segmentation
11580
11580
11580
11580
Rate Matching
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
11580 bit punctured to 6891 bit
Puncturing Level: 41%
80 RU = 88 * 80 = 7040 Bits available
gross
7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
Puncturing Level: 12%
Rate Matching (212)
6891
6891
6891
6891
53
53
53
53
Service Multiplexing
6891
53
6891
53
6891
53
6891
53
2st Interleaving
6944
6944
6944
6944
TFCI, TPC and SS
6944
64
32
6944
64
32
6944
64
32
6944
64
32
Physical Channel Mapping
3520
3520
3520
3520
3520
3520
3520
3520
Slot segmentation
SF=8
4 Timeslots
SF=2
4 Timeslots
88
144 chips
348
4
TFCI
TPC & SS
Sub Frame #1
Sub Frame #2
Sub Frame #3
Sub Frame #4
Sub Frame #5
Sub Frame #6
Sub Frame #7
Sub Frame #8


Information Data
3840
3840
3840
3840
16
max 80
DCCH
CRC attachement
3840
16
3840
16
3840
16
3840
16
96
16
Turbo Coding 1/3
[(3840+16)*2]*3=23136
[(3840+16)*2]*3=23136
112
8
Trellis Termination
23136bit / 20ms
24
23136bit / 20ms
24
(112+8)*2=240
Convolutional Coding 1/2
1st Interleaving
23160bit / 20ms
23160bit / 20ms
240bit
RF-Segmentation
11580
11580
11580
11580
Rate Matching
11580 bit punctured to 6891 bit
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80 RU = 88 * 80 = 7040 Bits available
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7040 bit
- TFCI
- TPC
- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
11580 bit punctured to 6891 bit
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80 RU = 88 * 80 = 7040 Bits available
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- TFCI
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- SS
- 64 bit
- 16 bit
- 16 bit
- Signalling
53
puncturing to
6891 bit
Puncturing Level: 12%
Rate Matching (212)
6891
6891
6891
6891
53
53
53
53
Service Multiplexing
6891
53
2nd Interleaving
6944
TFCI, TPC and SS
64
32
Physical Channel Mapping
3520
Slot segmentation
SF=2
4 Timeslots
SF=8
4 Timeslots
352
144 chips
84
4
TFCI
TPC & SS
Sub Frame #1
Sub Frame #2
Sub Frame #3
Sub Frame #4
Sub Frame #5
Sub Frame #6
Sub Frame #7
Sub Frame #8

Figure A.4A