

**TSG-RAN Meeting #28**  
**Quebec, Canada, 01-03 June 2005**

**RP-050312**  
**agenda item 7.7.5**

**Source: TSG-RAN WG2.**

**Title: CRs (Rel-5 & Rel-6) to WG2 specifications for the removal of Tx diversity closed loop mode2**

The following CRs are in RP-050312:

<b>Spec</b>	<b>CR</b>	<b>Rev</b>	<b>Phase</b>	<b>Subject</b>	<b>Cat</b>	<b>Version-Current</b>	<b>Version-New</b>	<b>Doc-2nd-Level</b>	<b>Workitem</b>
25.331	2594	-	Rel-5	Feature Clean Up: Removal of TX diversity closed loop mode 2	C	5.12.1	5.13.0	R2-051638	TEI5
25.331	2595	-	Rel-6	Feature Clean Up: Removal of TX diversity closed loop mode 2	C	6.5.0	6.6.0	R2-051639	TEI5

## CHANGE REQUEST

# 25.331 CR 2594 # rev - # Current version: 5.12.1 #

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

<b>Title:</b>	# Feature Clean Up: Removal of TX diversity closed loop mode 2		
<b>Source:</b>	# RAN WG2		
<b>Work item code:</b>	# TEI5	<b>Date:</b>	# 09/05/2005
<b>Category:</b>	# <b>C</b>	<b>Release:</b>	# Rel-5
	<p>Use <u>one</u> of the following categories:</p> <p><b>F</b> (correction)</p> <p><b>A</b> (corresponds to a correction in an earlier release)</p> <p><b>B</b> (addition of feature),</p> <p><b>C</b> (functional modification of feature)</p> <p><b>D</b> (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a>.</p>		<p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> <p>Rel-7 (Release 7)</p>

<b>Reason for change:</b>	# At RAN Plenary #27 it was decided to remove feature:  TX Diversity closed loop mode2  from this version of protocol.
<b>Summary of change:</b>	# In clause 8.3.4.5: Closed loop mode 2 is removed from this section.  In clause 8.6.6.24: Closed loop mode 2 is removed from this section.  In clause 10.3.6.21: 'closed loop mode2' is removed from the the explanation for the TX Diversity Mode condition.  In clause 10.3.6.86 The code point for closed loop mode2 was deleted  In clause 11.3

The code point for closed loop mode2 was replaced by dummy and a comment was added.

**Isolated impact analysis:**

The CR has isolated impact as it only affects the feature TX Diversity closed loop mode2 itself by being removed and other features so that they cannot be used together with TX Diversity closed loop mode2

**Consequences if not approved:** ⌘ Inconsistency will remain in specifications.

**Clauses affected:** ⌘ 8.3.4.5, 8.6.6.24, 10.3.6.21, 10.3.6.86; 11.3

<b>Other specs Affected:</b>	<input type="checkbox"/>	<input type="checkbox"/>	Other core specifications	⌘ 25.101, 25.211, 25.214, 25.423, 25.433	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>			Test specifications
	<input type="checkbox"/>	<input checked="" type="checkbox"/>			O&M Specifications

**Other comments:** ⌘

**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.

### 8.3.4.5 Invalid configuration

If any of the following conditions are valid:

- a radio link indicated by the IE "Downlink DPCH info for each RL" in the IE "Radio link addition information" has a different spreading factor than the spreading factor for the radio links in the active set that will be established at the time indicated by the IE "Activation time"; and/or
- a radio link in the IE "Radio link addition information" is also present in the IE "Radio Link Removal Information"; and/or
- the IE "Radio Link Removal Information" contains all the radio links which are part of or will be part of the active set at the time indicated by the IE "Activation time"; and/or
- the IE "TX Diversity Mode" is not set to "none" and it indicates a diversity mode that is different from the one currently used (<STTD>; or <closed loop mode1>; ~~or <closed loop mode2>~~) in all or part of the active set; and/or
- a radio link indicated by the IE "Radio Link Removal Information" does not exist in the active set; and/or
- after the removal of all radio links indicated by the IE "Radio Link Removal Information" and the addition of all radio links indicated by the IE "Radio Link Addition Information" the active set would contain more than the maximum allowed number of radio links; and/or
- the variable INVALID\_CONFIGURATION is set to TRUE:

the UE shall:

- 1> keep the active set as it was before the ACTIVE SET UPDATE message was received;
- 1> transmit an ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC;
- 1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 1> clear that entry;
- 1> set the IE "failure cause" to "Invalid configuration";
- 1> When the ACTIVE SET UPDATE FAILURE message has been submitted to lower layers for transmission:
  - 2> the procedure ends on the UE side.

If the following condition is valid:

- the active set update procedure results in active sets that do not contain at least one common radio link before and after a DPCH frame boundary:

the UE behaviour is not specified.

\*\*\*Next modified Section\*\*\*

### 8.6.6.24 Tx Diversity Mode

If the IE "Tx Diversity Mode" is included the UE shall:

- 1> if the value of the IE "Tx Diversity Mode" is STTD:

2> configure the Layer 1 to use the Tx diversity mode indicated in the IE "Tx Diversity Mode" for the radio links for which the IE "Closed loop timing adjustment mode" is included, ignoring the actual value of IE "Closed loop timing adjustment mode".

1> if the value of the IE "Tx Diversity Mode" is closed loop mode 1 ~~or closed loop mode 2~~:

2> configure the Layer 1 to use the Tx diversity mode indicated in the IE "Tx Diversity Mode" for the radio links for which the IE "Closed loop timing adjustment mode" is included, using the actual value of the IE "Closed loop timing adjustment mode".

1> if the value of the IE "Tx Diversity Mode" is "none":

2> configure the Layer 1 not to use Tx diversity for all radio links in the active set.

If the IE "Tx Diversity Mode" is not included, the UE shall:

1> continue to use the already configured Tx diversity mode;

1> in case no Tx diversity mode has been configured:

2> do not apply Tx diversity.

For HS-SCCH, the UE shall:

1> if the DPCH associated with a HS-SCCH is using either open or closed loop transmit diversity on the radio link transmitted from the HS-DSCH serving cell:

2> use STTD for this HS-SCCH;

1> otherwise:

2> not use Tx diversity for this HS-SCCH.

\*\*\*Next modified Section\*\*\*

10.3.6.21 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
CHOICE <i>mode</i>	MP				
>FDD					
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.62		
>>DPCH frame offset	MP		Integer(0..38144 by step of 256)	Offset (in number of chips) between the beginning of the P-CCPCH frame and the beginning of the DPCH frame This is called $\tau_{DPCH,n}$ in [26]	
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.73		
>>DL channelisation code	MP	1 to <maxDPCH-DLchan		For the purpose of physical channel mapping [27] the DPCHs are numbered,	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
		>		starting from DPCH number 1, according to the order that they are contained in this IE.	
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.74	Default is the same scrambling code as for the Primary CPICH	
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-AndCodenumbr with "code number" in ASN.1	
>>>Code number	MP		Integer(0.. Spreading factor - 1)		
>>>Scrambling code change	CH-SF/2		Enumerated (code change, no code change)	Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'.	
>>TPC combination index	MP		TPC combination index 10.3.6.85		
>>Power offset $P_{TPC-DPDCH}$	OP		Integer (0..24)	Power offset equals $P_{TPC} - P_{DPDCH}$ , range 0..6 dB, in steps of 0.25 dB	REL-5
>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.76		
>>Closed loop timing adjustment mode	CH-TxDiversity Mode		Integer(1, 2)	It is present if Tx Diversity is used in the radio link.	
>TDD					
>>DL CCTrCh List	OP	1..<max CCTrCh >		DL physical channels to establish or reconfigure list.	
>>>TFCS ID	MD		Integer(1.. 8)	Identity of this CCTrCh. Default value is 1	
>>>Time info	MP		Time Info 10.3.6.83		
>>>Common timeslot info	MD		Common Timeslot Info 10.3.6.10	Default is the current Common timeslot info	
>>>Downlink DPCH timeslots and codes	MD		Downlink Timeslots and Codes 10.3.6.32	Default is to use the old timeslots and codes.	
>>>UL CCTrCH TPC List	MD	0..<max CCTrCH >		UL CCTrCH identities for TPC commands associated with this DL CCTrCH. Default is previous list or all defined UL CCTrCHs. This list is not required for 1.28 Mcps TDD and is to be ignored by the UE.	
>>>>UL TPC TFCS Identity	MP		Transport Format Combinati		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			on Set Identity 10.3.5.21		
>>DL CCTrCH List to Remove	OP	1..<max CCTrCH >		DL physical channels to remove list.	
>>>TFCS ID	MP		Integer(1..8)		

Condition	Explanation
SF/2	The information element is mandatory present if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2". Otherwise the IE is not needed.
TxDiversity Mode	This IE is mandatory present if any TX Diversity Mode is used on the radio link, i.e. if STTD, <u>or</u> "closed loop mode 1" <del>or "closed loop mode 2"</del> is used on the radio link. Otherwise the IE is not needed.

\*\*\*Next modified Section\*\*\*

### 10.3.6.86 TX Diversity Mode

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Tx diversity Mode	MP		Enumerated (none, STTD, closed loop mode1; <del>closed loop mode2</del> )	

\*\*\*Next modified Section\*\*\*

## 11.3 Information element definitions

[...]

```
-- Actual value TreconfirmAbort = IE value * 0.5 seconds
TreconfirmAbort ::= INTEGER (1..20)
```

```
TX-DiversityMode ::= ENUMERATED {
    noDiversity,
    sttd,
    closedLoopMode1,
    -- dummy is not used in this version of the specification, it should
    -- not be sent and if received it should be ignored.
    closedLoopMode2-dummy };
```

```
UARFCN ::= INTEGER (0..16383)
```





## CHANGE REQUEST

⌘ 25.331 CR 2595 ⌘ rev - ⌘ Current version: 6.5.0 ⌘

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

<b>Title:</b>	⌘ Feature Clean Up: Removal of TX diversity closed loop mode 2		
<b>Source:</b>	⌘ RAN WG2		
<b>Work item code:</b>	⌘ TEI5	<b>Date:</b>	⌘ 09/05/2005
<b>Category:</b>	⌘ <b>C</b>	<b>Release:</b>	⌘ Rel-6
Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:	
F (correction)		Ph2 (GSM Phase 2)	
A (corresponds to a correction in an earlier release)		R96 (Release 1996)	
B (addition of feature),		R97 (Release 1997)	
C (functional modification of feature)		R98 (Release 1998)	
D (editorial modification)		R99 (Release 1999)	
Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)	
		Rel-5 (Release 5)	
		Rel-6 (Release 6)	
		Rel-7 (Release 7)	

<b>Reason for change:</b>	⌘ At RAN Plenary #27 it was decided to remove feature:  TX Diversity closed loop mode2  from this version of protocol.
<b>Summary of change:</b>	⌘ n clause 8.3.4.5: Closed loop mode 2 is removed from this section.  In clause 8.6.6.24: Closed loop mode 2 is removed from this section.  In clause 10.3.6.21: 'closed loop mode2' is removed from the the explanation for the TX Diversity Mode condition.  In clause 10.3.6.86 The code point for closed loop mode2 was deleted  In clause 11.3

The code point for closed loop mode2 was replaced by dummy and a comment was added.

**Isolated impact analysis:**

The CR has isolated impact as it only affects the feature TX Diversity closed loop mode2 itself by being removed and other features so that they cannot be used together with TX Diversity closed loop mode2

**Consequences if not approved:** ⌘ Inconsistency will remain in specifications.

**Clauses affected:** ⌘ 8.3.4.5, 8.6.6.24, 10.3.6.21, 10.3.6.86, 11.3

<b>Other specs Affected:</b>	<input type="checkbox"/>	<input type="checkbox"/>	Other core specifications	⌘ 25.101, 25.211, 25.214, 25.423, 25.433
	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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.

### 8.3.4.5 Invalid configuration

If any of the following conditions are valid:

- a radio link indicated by the IE "Downlink DPCH info for each RL" in the IE "Radio link addition information" has a different spreading factor than the spreading factor for the radio links in the active set that will be established at the time indicated by the IE "Activation time"; and/or
- a radio link in the IE "Radio link addition information" is also present in the IE "Radio Link Removal Information"; and/or
- the IE "Radio Link Removal Information" contains all the radio links which are part of or will be part of the active set at the time indicated by the IE "Activation time"; and/or
- the IE "TX Diversity Mode" is not set to "none" and it indicates a diversity mode that is different from the one currently used (<STTD>; or <closed loop mode1>; ~~or <closed loop mode2>~~) in all or part of the active set; and/or
- a radio link indicated by the IE "Radio Link Removal Information" does not exist in the active set; and/or
- after the removal of all radio links indicated by the IE "Radio Link Removal Information" and the addition of all radio links indicated by the IE "Radio Link Addition Information" the active set would contain more than the maximum allowed number of radio links; and/or
- after the addition of all radio links indicated by the IE "Radio Link Addition Information" the active set would contain radio links indicated by the IE "Downlink DPCH info for each RL" and radio links indicated by the IE "Downlink F-DPCH info for each RL"; and/or
- the variable INVALID\_CONFIGURATION is set to TRUE:

the UE shall:

- 1> keep the active set as it was before the ACTIVE SET UPDATE message was received;
- 1> transmit an ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC;
- 1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and
- 1> clear that entry;
- 1> set the IE "failure cause" to "Invalid configuration";
- 1> When the ACTIVE SET UPDATE FAILURE message has been submitted to lower layers for transmission:
  - 2> the procedure ends on the UE side.

If the following condition is valid:

- the active set update procedure results in active sets that do not contain at least one common radio link before and after a DPCH or F-DPCH frame boundary:

the UE behaviour is not specified.

\*\*\*Next modified Section\*\*\*

### 8.6.6.24 Tx Diversity Mode

If the IE "Tx Diversity Mode" is included the UE shall:

- 1> if the value of the IE "Tx Diversity Mode" is STTD:
  - 2> configure the Layer 1 to use the Tx diversity mode indicated in the IE "Tx Diversity Mode" for the radio links for which the IE "Closed loop timing adjustment mode" is included, ignoring the actual value of IE "Closed loop timing adjustment mode".
- 1> if the value of the IE "Tx Diversity Mode" is closed loop mode 1-~~or closed loop mode 2~~:
  - 2> configure the Layer 1 to use the Tx diversity mode indicated in the IE "Tx Diversity Mode" for the radio links for which the IE "Closed loop timing adjustment mode" is included, using the actual value of the IE "Closed loop timing adjustment mode".
- 1> if the value of the IE "Tx Diversity Mode" is "none":
  - 2> configure the Layer 1 not to use Tx diversity for all radio links in the active set.

If the IE "Tx Diversity Mode" is not included, the UE shall:

- 1> continue to use the already configured Tx diversity mode;
- 1> in case no Tx diversity mode has been configured:
  - 2> do not apply Tx diversity.

For HS-SCCH, the UE shall:

- 1> if the DPCH associated with a HS-SCCH is using either open or closed loop transmit diversity on the radio link transmitted from the HS-DSCH serving cell:
  - 2> use STTD for this HS-SCCH;
- 1> if the F-DPCH associated with an HS-SCCH is using open loop transmit diversity on the radio link transmitted from the HS-DSCH serving cell:
  - 2> use STTD for this HS-SCCH.
- 1> otherwise:
  - 2> not use Tx diversity for this HS-SCCH.

\*\*\*Next modified Section\*\*\*

### 10.3.6.21 Downlink DPCH info for each RL

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
CHOICE <i>mode</i>	MP				
>FDD					
>>Primary CPICH usage for channel estimation	MP		Primary CPICH usage for channel estimation 10.3.6.62		
>>DPCH frame offset	MP		Integer(0..38144 by step of 256)	Offset (in number of chips) between the beginning of the P-CCPCH frame and the beginning of the DPCH frame This is called $\tau_{DPCH,n}$ in [26]	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>Secondary CPICH info	OP		Secondary CPICH info 10.3.6.73		
>>DL channelisation code	MP	1 to <maxDPCH-DLchan >		For the purpose of physical channel mapping [27] the DPCHs are numbered, starting from DPCH number 1, according to the order that they are contained in this IE.	
>>>Secondary scrambling code	MD		Secondary scrambling code 10.3.6.74	Default is the same scrambling code as for the Primary CPICH	
>>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256, 512)	Defined in CHOICE SF512-AndCodenummer with "code number" in ASN.1	
>>>Code number	MP		Integer(0.. Spreading factor - 1)		
>>>Scrambling code change	CH-SF/2		Enumerated (code change, no code change)	Indicates whether the alternative scrambling code is used for compressed mode method 'SF/2'.	
>>TPC combination index	MP		TPC combination index 10.3.6.85		
>>Power offset $P_{TPC-DPDCH}$	OP		Integer (0..24)	Power offset equals $P_{TPC} - P_{DPDCH}$ , range 0..6 dB, in steps of 0.25 dB	REL-5
>>SSDT Cell Identity	OP		SSDT Cell Identity 10.3.6.76		
>>Closed loop timing adjustment mode	CH-TxDiversity Mode		Integer(1, 2)	It is present if Tx Diversity is used in the radio link.	
>TDD					
>>DL CCTrCh List	OP	1..<max CCTrCH >		DL physical channels to establish or reconfigure list.	
>>>TFCS ID	MD		Integer(1.. 8)	Identity of this CCTrCh. Default value is 1	
>>>Time info	MP		Time Info 10.3.6.83		
>>>Common timeslot info	MD		Common Timeslot Info 10.3.6.10	Default is the current Common timeslot info	
>>>Downlink DPCH timeslots and codes	MD		Downlink Timeslots and Codes 10.3.6.32	Default is to use the old timeslots and codes.	
>>>UL CCTrCH TPC List	MD	0..<max CCTrCH >		UL CCTrCH identities for TPC commands associated with this DL CCTrCH. Default is previous list or all	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
				defined UL CCTrCHs. This list is not required for 1.28 Mcps TDD and is to be ignored by the UE.	
>>>>UL TPC TFCS Identity	MP		Transport Format Combination Set Identity 10.3.5.21		
>>DL CCTrCH List to Remove	OP	1..<max CCTrCH >		DL physical channels to remove list.	
>>>TFCS ID	MP		Integer(1..8)		

Condition	Explanation
SF/2	The information element is mandatory present if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2". Otherwise the IE is not needed.
TxDiversity Mode	This IE is mandatory present if any TX Diversity Mode is used on the radio link, i.e. if STTD, <del>or</del> "closed loop mode 1" <del>or "closed loop mode 2"</del> is used on the radio link. Otherwise the IE is not needed.

\*\*\*Next modified Section\*\*\*

### 10.3.6.86 TX Diversity Mode

NOTE: Only for FDD.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Tx diversity Mode	MP		Enumerated (none, STTD, closed loop mode1, <del>closed loop mode2</del> )	

\*\*\*Next modified Section\*\*\*

## 11.3 Information element definitions

[...]

```
-- Actual value TreconfirmAbort = IE value * 0.5 seconds
TreconfirmAbort ::= INTEGER (1..20)

TX-DiversityMode ::=          ENUMERATED {
                                noDiversity,
                                sttd,
                                closedLoopModel1,
                                -- dummy is not used in this version of the specification, it should
                                -- not be sent and if received it should be ignored.
                                closedLoopMode2-dummy }

UARFCN ::=                    INTEGER (0..16383)
```