TSG RAN Meeting #28 **RP-050246**
Quebec, Canada, 1 - 3 June 2005

Title **CRs (Rel-5 & Rel-6) to TS25.211 & TS25.214 for Feature clean up: Removal of dedicated pilot as sole phase reference**
Source **TSG RAN WG1**
Agenda Item **7.7.4**

RAN1 Tdoc	Spec	CR	Rev	Rel	Cat	Current Version	Subject	Work item	Remarks
R1-050526	25.211	220	-	Rel-5	C	5.6.0	Feature clean up: Removal of dedicated pilot as sole phase reference	TEI5	
R1-050526	25.211	221	-	Rel-6	C	6.4.0	Feature clean up: Removal of dedicated pilot as sole phase reference	TEI6	
R1-050526	25.214	390	1	Rel-5	C	5.10.0	Feature clean up: Removal of dedicated pilot as sole phase reference	TEI5	
R1-050526	25.214	391	1	Rel-6	C	6.5.0	Feature clean up: Removal of dedicated pilot as sole phase reference	TEI6	

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Athens, Greece, May 9-13, 2005

Tdoc ⌘R1-050526

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CHANGE REQUEST

⌘ **25.211** **CR** **220** ⌘ **rev** **-** ⌘ Current version: **5.6.0** ⌘

*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:	⌘	Feature Clean Up: Removal of dedicated pilot as sole phase reference
Source:	⌘	RAN WG1
Work item code:	⌘	TEI5
Date:	⌘	09/05/2005
Category:	⌘	**C**
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:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	At RAN#27 it was agreed to remove the support for dedicated pilots as sole phase reference from the specifications as part of a feature cleanup process.
Summary of change:	⌘	The support for dedicated pilots as sole phase reference is removed from the specification.
Consequences if not approved:	⌘	If the CR is not approved then decision taken in RAN#27 will not be applied to the specs. The redundant support for dedicated pilots as sole phase reference feature will remain in the specifications.

Clauses affected:	⌘	5.3.1.1.1, 5.3.3.1.2, 5.3.3.2

	Y	N			
Other specs Affected: ⌘	X		Other core specifications	⌘	25.214, 25.331, 25.306, 25.101
			Test specifications		
			O&M Specifications		

Other comments:	⌘	Table 17 has individual elements deleted in the dedicated pilot column to ensure that the change isn't missed. Suggest to remove the entire column in the final CR.

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.
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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.

----------[START OF MODIFIED SECTION]----------

5.3.1.1 Open loop transmit diversity

5.3.1.1.1 Space time block coding based transmit antenna diversity (STTD)

The open loop downlink transmit diversity employs a space time block coding based transmit diversity (STTD).

The STTD encoding is optional in UTRAN. STTD support is mandatory at the UE.

~~If higher layers signal that neither P-CPICH nor S-CPICH can be used as phase reference for the downlink DPCH for a radio link in a cell, the UE shall assume that STTD is not used for the downlink DPCH (and the associated PDSCH if applicable) in that cell.~~

A block diagram of a generic STTD encoder is shown in the figure 8 and figure 8A below. Channel coding, rate matching and interleaving are done as in the non-diversity mode. For QPSK, the STTD encoder operates on 4 symbols b_0, b_1, b_2, b_3 as shown in figure 8. For AICH, AP-AICH and CD/CA-ICH, the b_i are real valued signals, and $\overline{b_i}$ is defined as $-b_i$. For channels other than AICH, AP-AICH and CD/CA-ICH, the b_i are 3-valued digits, taking the values 0, 1, "DTX", and $\overline{b_i}$ is defined as follows: if $b_i = 0$ then $\overline{b_i} = 1$, if $b_i = 1$ then $\overline{b_i} = 0$, otherwise $\overline{b_i} = b_i$.

----------Text Omitted To End of Section----------

----------[END OF MODIFIED SECTION]----------

----------[START OF MODIFIED SECTION]----------

5.3.3.1.2 Secondary Common Pilot Channel (S-CPICH)

A Secondary Common Pilot Channel (S-CPICH) has the following characteristics:

- An arbitrary channelization code of SF=256 is used for the S-CPICH, see [4];
- A S-CPICH is scrambled by either the primary or a secondary scrambling code, see [4];
- There may be zero, one, or several S-CPICH per cell;
- A S-CPICH may be transmitted over the entire cell or only over a part of the cell;

A Secondary CPICH may be a phase reference for a downlink DPCH. If this is the case, the UE is informed about this by higher-layer signalling.

The Secondary CPICH can be a phase reference for a downlink physical channel using open loop TX diversity, instead of the Primary CPICH being a phase reference.

~~Note that it is possible that neither the P-CPICH nor any S-CPICH is a phase reference for a downlink DPCH.~~

5.3.3.2 Downlink phase reference

Table 17 summarizes the possible phase references usable on different downlink physical channel types.

Table 17: Application of phase references on downlink physical channel types "X" – can be applied, "–" – not applied

Physical channel type	Primary-CPICH	Secondary-CPICH	~~Dedicated pilot~~
P-CCPCH	X	–	~~–~~
SCH	X	–	~~–~~
S-CCPCH	X	–	~~–~~
DPCH	X	X	~~X~~
PICH	X	–	~~–~~
PDSCH*	X	X	~~X~~
HS-PDSCH*	X	X	~~X~~
HS-SCCH*	X	X	~~X~~
AICH	X	–	~~–~~
CSICH	X	–	~~–~~
DL-DPCCH for CPCH	X	–	~~–~~

Note *: The same phase reference as with the associated DPCH shall be used. ~~The support for dedicated pilots as phase reference for HS-PDSCH and HS-SCCH is optional for the UE.~~

Dedicated pilot bits are never the sole phase reference for any physical channel, but the UE may always use dedicated pilot bits as a phase reference for DPCH.

Furthermore, during a PDSCH frame, and within the slot prior to that PDSCH frame, the phase reference on the associated DPCH shall not change. During a DPCH frame overlapping with any part of an associated HS-DSCH or HS-SCCH subframe, the phase reference on this DPCH shall not change.

----------[END OF MODIFIED SECTION]----------

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CHANGE REQUEST

⌘ **25.211** **CR** **221** ⌘ **rev** **-** ⌘ Current version: **6.4.0** ⌘

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

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

Title:	⌘	Feature Clean Up: Removal of dedicated pilot as sole phase reference
Source:	⌘	RAN WG1
Work item code:	⌘	TEI6
Date:	⌘	09/05/2005
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	At RAN#27 it was agreed to remove the support for dedicated pilots as sole phase reference from the specifications as part of a feature cleanup process.
Summary of change:	⌘	The support for dedicated pilots as sole phase reference is removed from the specification.
Consequences if not approved:	⌘	If the CR is not approved then decision taken in RAN#27 will not be applied to the specs. The redundant support for dedicated pilots as sole phase reference feature will remain in the specifications.

Clauses affected:	⌘	5.3.1.1.1, 5.3.3.1.2, 5.3.3.2

Other specs Affected:	⌘	Y	N		⌘	
		X		Other core specifications		25.214, 25.331, 25.306, 25.101
				Test specifications		
				O&M Specifications		

Other comments:	⌘	Table 17 has individual elements deleted in the dedicated pilot column to ensure that the change isn't missed. Suggest to remove the entire column in the final CR.

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----------[START OF MODIFIED SECTION]----------

5.3.1.1 Open loop transmit diversity

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A block diagram of a generic STTD encoder is shown in the figure 8 and figure 8A below. Channel coding, rate matching and interleaving are done as in the non-diversity mode. For QPSK, the STTD encoder operates on 4 symbols b_0, b_1, b_2, b_3 as shown in figure 8. For AICH, E-RGCH, E-HICH, AP-AICH and CD/CA-ICH, the b_i are real valued signals, and $\overline{b_i}$ is defined as $-b_i$. For channels other than AICH, E-RGCH, E-HICH, AP-AICH and CD/CA-ICH, the b_i are 3-valued digits, taking the values 0, 1, "DTX", and $\overline{b_i}$ is defined as follows: if b_i = 0 then $\overline{b_i}$ = 1, if b_i = 1 then $\overline{b_i}$ = 0, otherwise $\overline{b_i}$ = b_i.

----------Text Omitted To End of Section----------

----------[END OF MODIFIED SECTION]----------

----------[START OF MODIFIED SECTION]----------

5.3.3.1.2 Secondary Common Pilot Channel (S-CPICH)

A Secondary Common Pilot Channel (S-CPICH) has the following characteristics:

- An arbitrary channelization code of SF=256 is used for the S-CPICH, see [4];
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- A S-CPICH may be transmitted over the entire cell or only over a part of the cell;

A Secondary CPICH may be a phase reference for a downlink DPCH or F-DPCH. If this is the case, the UE is informed about this by higher-layer signalling.

The Secondary CPICH can be a phase reference for a downlink physical channel using open loop or closed loop TX diversity, instead of the Primary CPICH being a phase reference.

~~Note that it is possible that neither the P-CPICH nor any S-CPICH is a phase reference for a downlink DPCH.~~

5.3.3.2 Downlink phase reference

Table 17 summarizes the possible phase references usable on different downlink physical channel types.

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"X" – can be applied, "–" – not applied

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SCH	X	–	~~–~~
S-CCPCH	X	–	~~–~~
DPCH	X	X	~~X~~
F-DPCH	X	X	~~–~~
PICH	X	–	~~–~~
MICH	X	–	~~–~~
PDSCH*	X	X	~~X~~
HS-PDSCH*	X	X	~~X~~
HS-SCCH*	X	X	~~X~~
E-AGCH*	X	X	~~X~~
E-RGCH*	X	X	~~X~~
E-HICH*	X	X	~~X~~
AICH	X	–	~~–~~
CSICH	X	–	~~–~~
DL-DPCCH for CPCH	X	–	~~–~~

Note *: The same phase reference as with the associated DPCH or F-DPCH shall be used. ~~The support for dedicated pilots as phase reference for HS-PDSCH, HS-SCCH, E-AGCH, E-RGCH and E-HICH is optional for the UE.~~

Dedicated pilot bits are never the sole phase reference for any physical channel, but the UE may always use dedicated pilot bits as a phase reference for DPCH.

Furthermore, during a PDSCH frame, and within the slot prior to that PDSCH frame, the phase reference on the associated DPCH shall not change. During a DPCH or F-DPCH frame overlapping with any part of an associated HS-DSCH or HS-SCCH subframe, the phase reference on this DPCH or F-DPCH shall not change.

----------[END OF MODIFIED SECTION]----------

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CHANGE REQUEST

⌘ **25.214** **CR** **390** ⌘ **rev** **1** ⌘ Current version: **5.10.0** ⌘

*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:	⌘	Feature Clean Up: Removal of dedicated pilot as sole phase reference
Source:	⌘	RAN WG1
Work item code:	⌘	TEI5
Date:	⌘	11/05/2005
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
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Rel-7	*(Release 7)*

Reason for change:	⌘	At RAN#27 it was agreed to remove the support for dedicated pilots as sole phase reference from the specifications as part of a feature cleanup process.
Summary of change:	⌘	The support for dedicated pilots as sole phase reference is removed from the specification.
Consequences if not approved:	⌘	If the CR is not approved then decision taken in RAN#27 will not be applied to the specs. The redundant support for dedicated pilots as sole phase reference feature will remain in the specifications.

Clauses affected:	⌘	4.3.2.1			
Other specs Affected:	⌘	**Y** / **N**	Other core specifications	⌘	25.211, 25.331, 25.306, 25.101
			Test specifications		
			O&M Specifications		
Other comments:	⌘				

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----------[START OF MODIFIED SECTION]----------

4.3.2.1 General

Two synchronisation procedures are defined in order to obtain physical layer synchronisation of dedicated channels between UE and UTRAN:

- Synchronisation procedure A : This procedure shall be used when at least one downlink dedicated physical channel and one uplink dedicated physical channel are to be set up on a frequency and none of the radio links after the establishment/reconfiguration existed prior to the establishment/reconfiguration which also includes the following cases :
    - the UE was previously on another RAT i.e. inter-RAT handover
    - the UE was previously on another frequency i.e. inter-frequency hard handover
    - the UE has all its previous radio links removed and replaced by other radio links i.e. intra-frequency hard-handover
    - after it fails to complete an inter-RAT, intra- or inter-frequency hard-handover [8], the UE attempts to re-establish [5] all the dedicated physical channels which were already established immediately before the hard-handover attempt. In this case only steps c) and d) of synchronisation procedure A are applicable.
- Synchronisation procedure B : This procedure shall be used when one or several radio links are added to the active set and at least one of the radio links prior to the establishment/reconfiguration still exists after the establishment/reconfiguration.

~~For existing radio links, the reconfiguration of downlink phase reference from P-CPICH or S-CPICH to dedicated pilots is not supported.~~ For all ~~other~~ physical layer reconfigurations not listed above, the UE and UTRAN shall not perform any of the synchronisation procedures listed above.

The two synchronisation procedures are described in subclauses 4.3.2.3 and 4.3.2.4 respectively.

----------[END OF MODIFIED SECTION]----------

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CHANGE REQUEST

⌘ **25.214** **CR** **391** ⌘ **rev** **1** ⌘ 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 ☐

Title:	⌘	Feature Clean Up: Removal of dedicated pilot as sole phase reference
Source:	⌘	RAN WG1
Work item code:	⌘	TEI6
Date:	⌘	11/05/2005
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
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A *(corresponds to a correction in an earlier release)*
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Rel-7	*(Release 7)*

Reason for change:	⌘	At RAN#27 it was agreed to remove the support for dedicated pilots as sole phase reference from the specifications as part of a feature cleanup process.
Summary of change:	⌘	The support for dedicated pilots as sole phase reference is removed from the specification.
Consequences if not approved:	⌘	If the CR is not approved then decision taken in RAN#27 will not be applied to the specs. The redundant support for dedicated pilots as sole phase reference feature will remain in the specifications.

Clauses affected:	⌘	4.3.2.1			
Other specs Affected:	⌘	**Y** / **N**	Other core specifications	⌘	25.211, 25.331, 25.306, 25.101
			Test specifications		
			O&M Specifications		
Other comments:	⌘				

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----------[START OF MODIFIED SECTION]----------

4.3.2.1 General

Two synchronisation procedures are defined in order to obtain physical layer synchronisation of dedicated channels between UE and UTRAN:

- Synchronisation procedure A : This procedure shall be used when at least one downlink dedicated physical channel (i.e. a DPCH or F-DPCH) and one uplink dedicated physical channel are to be set up on a frequency and none of the radio links after the establishment/reconfiguration existed prior to the establishment/reconfiguration which also includes the following cases :
  - the UE was previously on another RAT i.e. inter-RAT handover
  - the UE was previously on another frequency i.e. inter-frequency hard handover
  - the UE has all its previous radio links removed and replaced by other radio links i.e. intra-frequency hard-handover
  - after it fails to complete an inter-RAT, intra- or inter-frequency hard-handover [8], the UE attempts to re-establish [5] all the dedicated physical channels which were already established immediately before the hard-handover attempt. In this case only steps c) and d) of synchronisation procedure A are applicable.
- Synchronisation procedure B : This procedure shall be used when one or several radio links are added to the active set and at least one of the radio links prior to the establishment/reconfiguration still exists after the establishment/reconfiguration.

~~For existing radio links, the reconfiguration of downlink phase reference from P-CPICH or S-CPICH to dedicated pilots is not supported.~~ For all ~~other~~ physical layer reconfigurations not listed above, the UE and UTRAN shall not perform any of the synchronisation procedures listed above.

The two synchronisation procedures are described in subclauses 4.3.2.3 and 4.3.2.4 respectively.

----------[END OF MODIFIED SECTION]----------