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## Phase Reference for S-CCPCH carrying FACH

### Introduction

Based on the discussions in WG4 (see Tdoc R1-01-0199 for WG4 LS) it has become evident that the when using FACH beamforming is not usable and thus it seems that phase reference for S-CCPCH should be Primary CPICH regardless whether it is carrying PCH or FACH. This CR proposed to correct the TS 25.211 accordingly and removing the unnecessary phase reference option from the S-CCPCH.

### Summary of the proposed changes

The related sections in section 5.3.3 with respect to the phase reference are also aligned with handling S-CCPCH in the same way regardless on the payload on the channel, thus stating that phase reference is always as when PCH may be carried on S-CCPCH (i.e. always P-CPICH).

There is no need to modify the RRC specifications in WG2 since there the signalling is generic and can be provided to any of the channels.

The proposed CR to TS 25.211 is attached.

CR-Formv3

## CHANGE REQUEST

25.211 CR 095 rev - Current version: 3.5.0

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

**Proposed change affects:** (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	Phase Reference for Secondary CCPCH carrying FACH		
<b>Source:</b>	Nokia		
<b>Work item code:</b>		<b>Date:</b>	27.01.2001
<b>Category:</b>	<b>F</b>	<b>Release:</b>	Rel-99
	<i>Use <u>one</u> of the following categories:</i> <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification)		<i>Use <u>one</u> of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		

<b>Reason for change:</b>	FACH does not need another phase reference than Primary CPICH.
<b>Summary of change:</b>	The option of having Secondary CPICH or no CPICH at all as a phase reference for S-CCPCH carrying FACH is removed.
<b>Consequences if not approved:</b>	UEs need to implement the option of having Secondary CPICH as phase reference for FACH or no CPICH at all, even if it is not usable for any identified purpose in 3GPP specifications.

<b>Clauses affected:</b>	5.3.1 & 5.3.3	
<b>Other specs affected:</b>	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	
<b>Other comments:</b>		

### How to create CRs using this form:

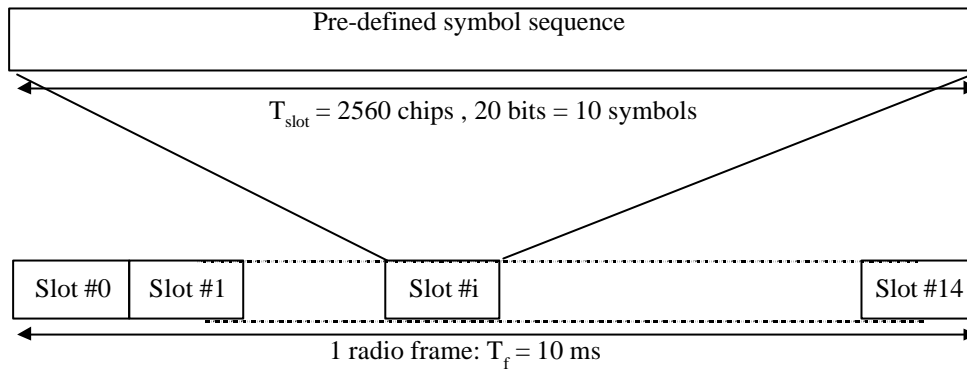
Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](http://www.3gpp.org/3G_Specs/CRs.htm). Below is a brief summary:

- 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://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

### 5.3.3 Common downlink physical channels

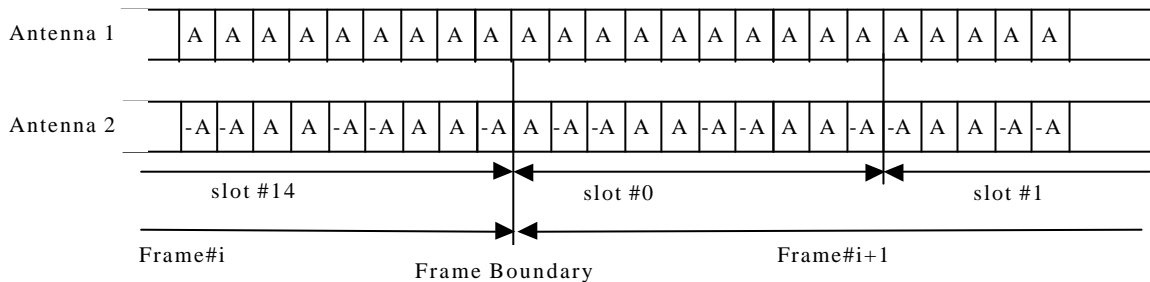
#### 5.3.3.1 Common Pilot Channel (CPICH)

The CPICH is a fixed rate (30 kbps, SF=256) downlink physical channel that carries a pre-defined bit/symbol sequence. Figure 13 shows the frame structure of the CPICH.



**Figure 13: Frame structure for Common Pilot Channel**

In case transmit diversity (open or closed loop) is used on any downlink channel in the cell, the CPICH shall be transmitted from both antennas using the same channelization and scrambling code. In this case, the pre-defined symbol sequence of the CPICH is different for Antenna 1 and Antenna 2, see figure 14. In case of no transmit diversity, the symbol sequence of Antenna 1 in figure 14 is used.



**Figure 14: Modulation pattern for Common Pilot Channel (with A = 1+j)**

There are two types of Common pilot channels, the Primary and Secondary CPICH. They differ in their use and the limitations placed on their physical features.

##### 5.3.3.1.1 Primary Common Pilot Channel (P-CPICH)

The Primary Common Pilot Channel (P-CPICH) has the following characteristics:

- The same channelization code is always used for the P-CPICH, see [4];
- The P-CPICH is scrambled by the primary scrambling code, see [4];
- There is one and only one P-CPICH per cell;
- The P-CPICH is broadcast over the entire cell.

The Primary CPICH is a phase reference for the following downlink channels: SCH, Primary CCPCH, AICH, PICH AP-AICH, CD/CA-ICH, CSICH, and the S-CCPCH ~~carrying PCH~~. By default, the Primary CPICH is also a phase reference for ~~S-CCPCH carrying FACH only and~~ downlink DPCH. The UE is informed by higher layer signalling if the P-CPICH is not a phase reference for ~~an S-CCPCH carrying FACH or~~ a downlink DPCH.

### 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 Secondary CCPCH carrying FACH only and/or~~ a downlink DPCH. If this is the case, the UE is informed about this by higher-layer signalling.

Note that it is possible that neither the P-CPICH nor any S-CPICH is a phase reference for ~~an S-CCPCH carrying FACH only or~~ a downlink DPCH.