

TSG-RAN Working Group 1 meeting #19
Las Vegas, USA
Feb. 27 – March 2, 2001

TSGR1#19(01)0350

Agenda item: AH 99
Source: InterDigital Comm. Corp.
Title: Corrections to SCH section.
Document for: Decision

This CR:

1. Corrects Figure 14 describing the synchronisation channel scheme, and clarifies the text in the section 5.3.4.
2. Adds indexing is to t_{offset} to indicate that it is cell dependent.
3. Clarifies the text in the section 6.2.1

CR-Formv3	
CHANGE REQUEST	
⚡ 25.221 CR 033 ⚡ rev 2 ⚡ 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

Title:	⚡ Correction to SCH section	
Source:	⚡ InterDigital Comm. Corp.	
Work item code:	⚡	Date: ⚡ February 20, 2001
Category:	⚡ F	Release: ⚡ R99
	Use one of the following categories: F (essential 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)

Reason for change:	⚡ The description of SCH codes power distribution is misleading
Summary of change:	⚡ Fig. 14 is redrawn to show correct power distribution of SCH codes. Indexing is added to t_{offset} to indicate that it is cell dependent.
Consequences if not approved:	⚡ Misleading information on SCH power distribution in the specification

Clauses affected:	⚡ 5.3.4, 6.2.1	
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input 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/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.

5.3.4 The synchronisation channel (SCH)

In TDD mode code group of a cell can be derived from the synchronisation channel. In order not to limit the uplink/downlink asymmetry the SCH is mapped on one or two downlink slots per frame only.

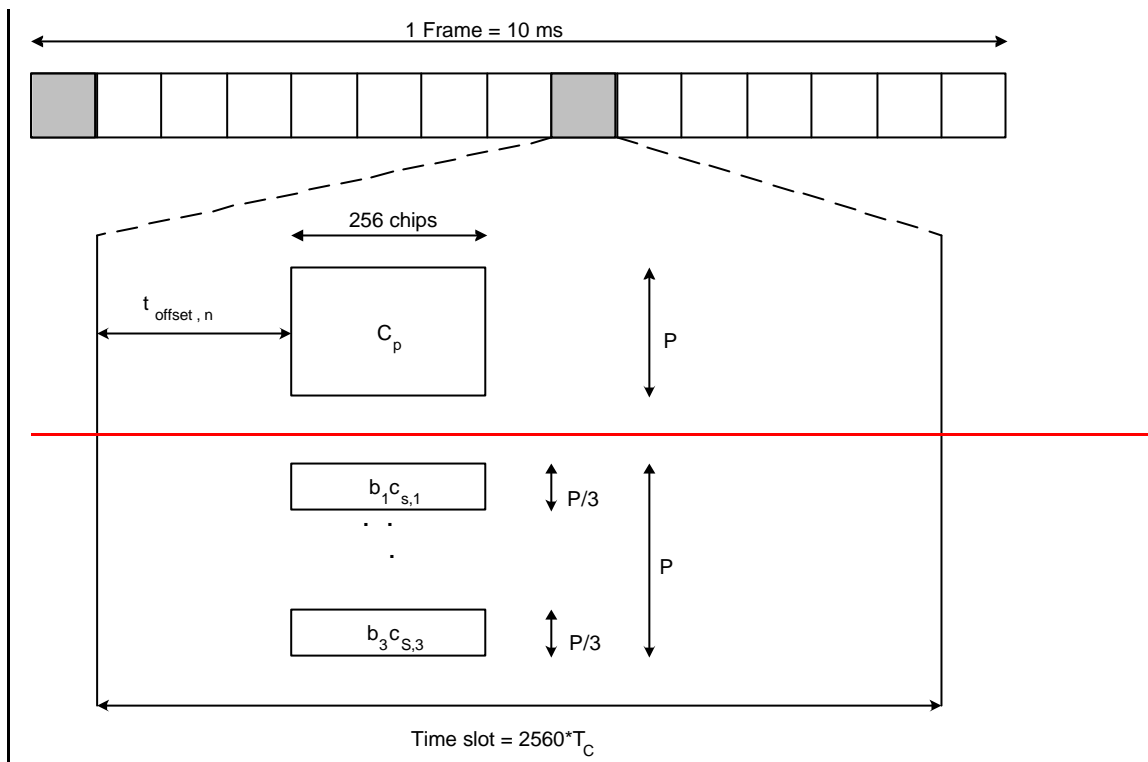
There are two cases of SCH and P-CCPCH allocation as follows:

Case 1) SCH and P-CCPCH allocated in TS#k, $k=0 \dots 14$

Case 2) SCH allocated in two TS: TS#k and TS#k+8, $k=0 \dots 6$; P-CCPCH allocated in TS#k.

The position of SCH (value of k) in frame can change on a long term basis in any case.

Due to this SCH scheme, the position of P-CCPCH is known from the SCH. Figure 14 is an example for transmission of SCH, $k=0$, of Case 2.



$C_{s,i} ? \{ C_0, C_1, C_3, C_4, C_5, C_6, C_8, C_{10}, C_{12}, C_{13}, C_{14}, C_{15} \}, i=1,2,3; \text{ see [8]}$

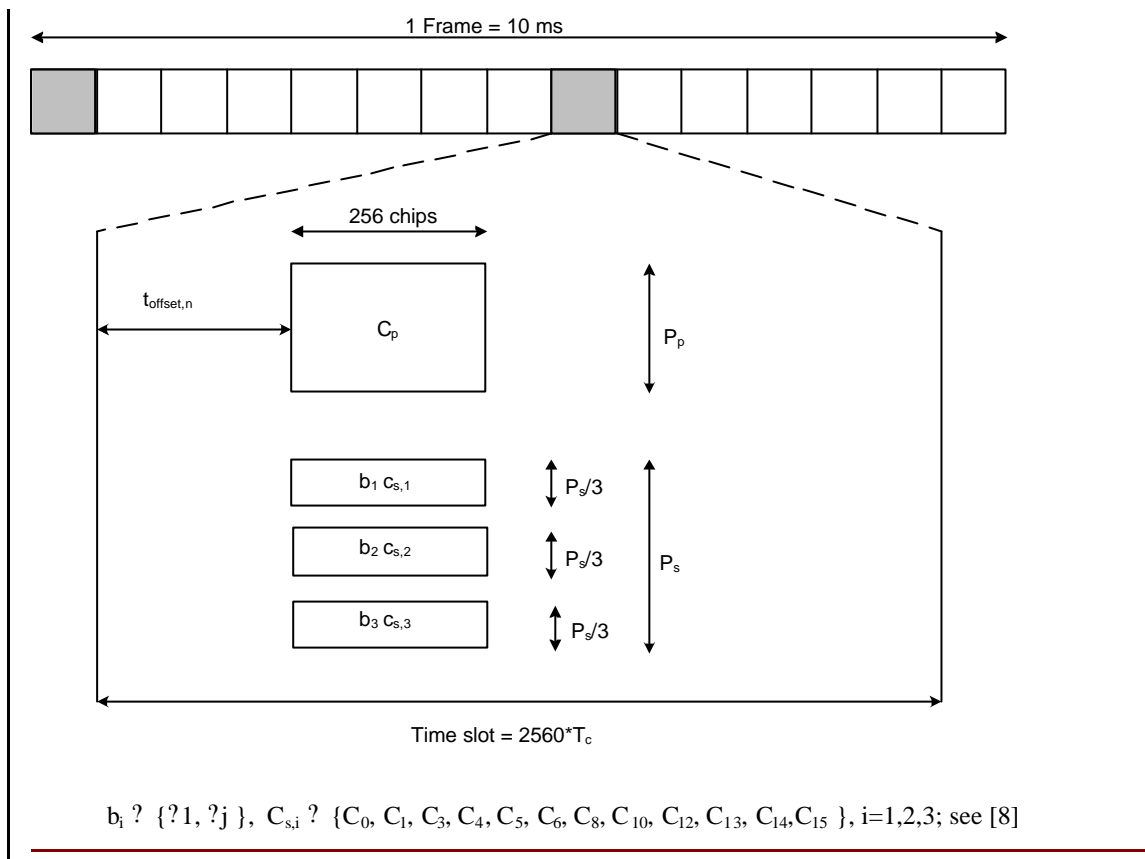


Figure 14: Scheme for Synchronisation channel SCH consisting of one primary sequence C_p and 3 parallel secondary sequences $C_{s,i}$ in slot k and $k+8$ (example for $k=0$ in Case 2)

As depicted in figure 14, the SCH consists of a primary and three secondary code sequences with each 256 chips length long. The primary and secondary code sequences are defined in [8] clause 7 'Synchronisation codes'.

Due to mobile to mobile interference, it is mandatory for public TDD systems to keep synchronisation between base stations. As a consequence of this, a capture effect concerning SCH can arise. The time offset $t_{\text{offset},n}$ enables the system to overcome the capture effect.

The time offset $t_{\text{offset},n}$ is one of 32 values, depending on the cell parameter, thus on the code group of the cell, n , cf. 'table 6 Mapping scheme for Cell Parameters, Code Groups, Scrambling Codes, Midambles and t_{offset} ' in [8]. Note that the cell parameter will change from frame to frame, cf. 'Table 7 Alignment of cell parameter cycling and system frame number' in [8], but the cell will belong to only one code group and thus have one time offset $t_{\text{offset},n}$. The exact value for $t_{\text{offset},n}$, regarding column 'Associated t_{offset} ' in table 6 in [8] is given by:

$$t_{offsetn} = n T_c \left\lceil \frac{2560 - 96 - 256}{31} \right\rceil$$

$$n = 0, \dots, 31$$

Please note that $\lceil x \rceil$ denotes the largest integer number less or equal to x and that T_c denotes the chip duration.

6.2.1 The Broadcast Channel (BCH)

| The BCH is mapped onto the P-CCPCH. The secondary SCH codes indicates in which timeslot a mobile can find the P-CCPCH containing BCH.