CR-Form-v4

CHANGE REQUEST

⌘ **25.213** CR **040** ⌘ ev **1** ⌘ 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 **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Clarification of DL channelization code alignment
Source:	⌘	Panasonic, QUALCOMM Europe
Work item code:	⌘	*Date:* ⌘ 18, May, 2001

Category: ⌘ **F**

Use <u>one</u> 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 <u>TR 21.900</u>.

Release: ⌘ R99

Use <u>one</u> 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 channelization code sequence is aligned to symbol boundary is not well described.
Summary of change:	⌘	To add following text: The channelization code sequence should be aligned in time with the symbol boundary.
Consequences if not approved:	⌘	Misunderstanding may happen to the channelization code phase.

Clauses affected:	⌘	5.1

Other specs affected:	⌘	☐ Other core specifications	⌘	
		☐ Test specifications		
		☐ 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.

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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.

5.1 Spreading

Figure 8 illustrates the spreading operation for all downlink physical channels except SCH, i.e. for P-CCPCH, S-CCPCH, CPICH, AICH, PICH, PDSCH,and downlink DPCH. The non-spread physical channel consists of a sequence of real-valued symbols. For all channels except AICH, the symbols can take the three values +1, -1, and 0, where 0 indicates DTX. For AICH, the symbol values depend on the exact combination of acquisition indicators to be transmitted, compare [2] Section 5.3.3.6.

Each pair of two consecutive symbols is first serial-to-parallel converted and mapped to an I and Q branch. The mapping is such that even and odd numbered symbols are mapped to the I and Q branch respectively. For all channels except AICH, symbol number zero is defined as the first symbol in each frame. For AICH, symbol number zero is defined as the first symbol in each access slot. The I and Q branches are then spread to the chip rate by the same real-valued channelization code $C_{ch,SF,m}$. The channelization code sequence shall be aligned in time with the symbol boundary. The sequences of real-valued chips on the I and Q branch are then treated as a single complex-valued sequence of chips. This sequence of chips is scrambled (complex chip-wise multiplication) by a complex-valued scrambling code $S_{dl,n}$. In case of P-CCPCH, the scrambling code is applied aligned with the P-CCPCH frame boundary, i.e. the first complex chip of the spread P-CCPCH frame is multiplied with chip number zero of the scrambling code. In case of other downlink channels, the scrambling code is applied aligned with the scrambling code applied to the P-CCPCH. In this case, the scrambling code is thus not necessarily applied aligned with the frame boundary of the physical channel to be scrambled.
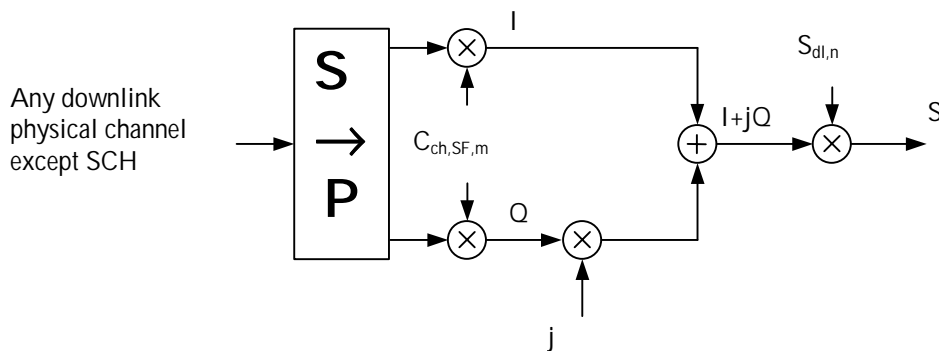

Figure 8: Spreading for all downlink physical channels except SCH

Figure 9 illustrates how different downlink channels are combined. Each complex-valued spread channel, corresponding to point S in Figure 8, is separately weighted by a weight factor G_i. The complex-valued P-SCH and S-SCH, as described in [2], section 5.3.3.4, are separately weighted by weight factors G_p and G_s. All downlink physical channels are then combined using complex addition.
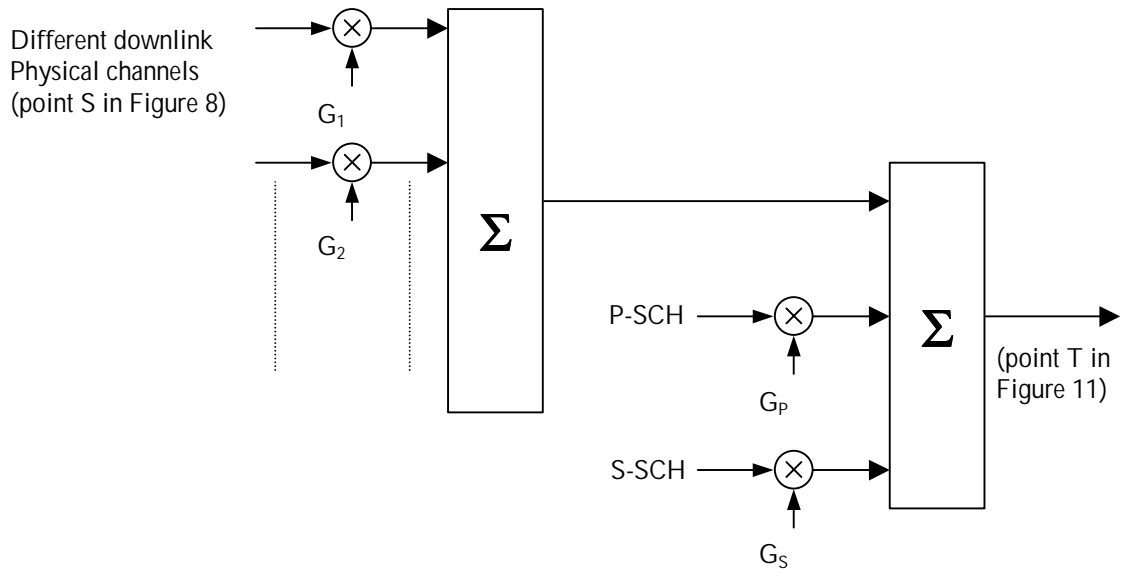
Figure 9: Spreading and modulation for SCH and P-CCPCH

3GPP TSG-RAN-WG1 Meeting #20   *R1-01-0566*
Busan, Korea, 21-25 May 2001

⌘   *CR-Form-v4*

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⌘   **25.213** CR **041**   ⌘   ev **1**   ⌘   Current version: **4.0.0**   ⌘

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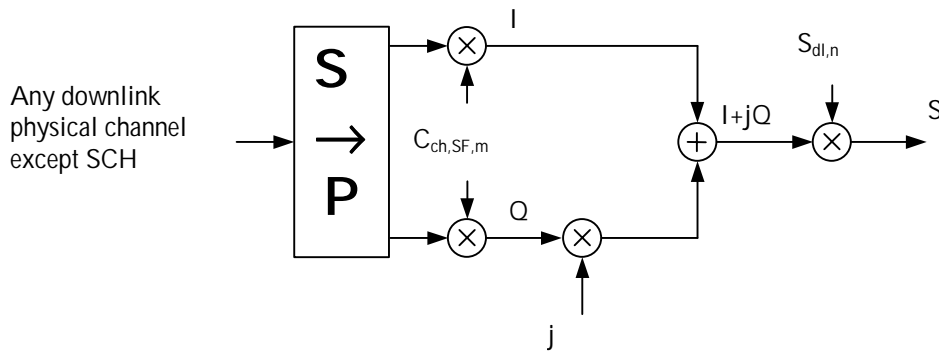

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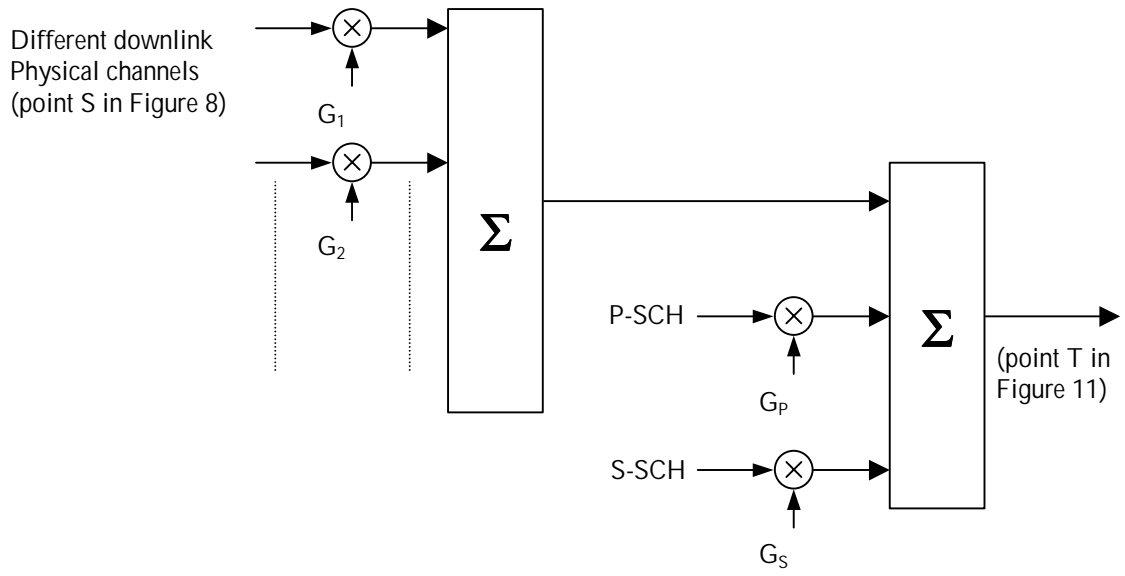
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