Agenda item:Source:PhilipsTitle:Correction on AP-AICHDocument for:Decision

Introduction

Clarification is required that only one positive AP-AICH can be sent at a time. Otherwise, there is an increased collision risk in the CPCH access procedure, plus the possibility of ambiguity in the service apparently requested by after UE, after progressing through the collision resolution stage.

It is proposed to add the restriction on AP-AICH transmission in 25.211 section 5.3.3.7

or for SMG, use the format P-99-xxx Please see embedded help file at the bottom of this CHANGE REQUEST page for instructions on how to fill in this form correctly. Current Version: 3.3.0 25.211 CR 073 GSM (AA.BB) or 3G (AA.BBB) specification number ↑ \uparrow CR number as allocated by MCC support team For submission to: RAN #9 for approval strategic (for SMG list expected approval meeting # here use only) for information non-strategic Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc UTRAN / Radio X Proposed change affects: (U)SIM ME Core Network (at least one should be marked with an X) Source: Philips Date: 2000-14-08 Subject: Correction on AP-AICH Work item: Correction Х Release: Phase 2 Category: F А Corresponds to a correction in an earlier release Release 96 (only one category B Addition of feature Release 97 shall be marked Functional modification of feature С Release 98 with an X) Editorial modification D Release 99 Х Release 00 Reason for Clarification is required that only one positive AP-AICH can be sent at a time during the CPCH access procedure. change: **Clauses affected:** 5.3.3.7 Other specs Other 3G core specifications \rightarrow List of CRs: affected: Other GSM core \rightarrow List of CRs: specifications MS test specifications \rightarrow List of CRs: BSS test specifications → List of CRs: **O&M** specifications \rightarrow List of CRs: Other comments:

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e.g. for 3GPP use the format TP-99xxx



<----- double-click here for help and instructions on how to create a CR.

where AI_s, taking the values +1, -1, and 0, is the acquisition indicator corresponding to signature s and the sequence $b_{s,0}$, ..., $b_{s,31}$ is given by table 20.

The real-valued symbols, a_j , are spread and modulated in the same fashion as bits when represented in $\{+1, -1\}$ form.

In case STTD-based open-loop transmit diversity is applied to AICH, STTD encoding according to subclause 5.3.1.1.1 is applied to each sequence $b_{s,0}$, $b_{s,1}$, ..., $b_{s,31}$ separately before the sequences are combined into AICH symbols a_0 , ..., a_{31} .

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S	b _{s,0} , b _{s,1} , b _{s,31}																															
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1
2	1	1	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1
3	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1
4	1	1	1	1	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	1	1	1	1	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1
5	1	1	-1	-1	1	1	-1	-1	-1	-1	1	1	-1	-1	1	1	1	1	-1	-1	1	1	-1	-1	-1	-1	1	1	-1	-1	1	1
6	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	1	1	1	1	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	1	1	1	1
7	1	1	-1	-1	-1	-1	1	1	-1	-1	1	1	1	1	-1	-1	1	1	-1	-1	-1	-1	1	1	-1	-1	1	1	1	1	-1	-1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
9	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1
10	1	1	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	1	1
11	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1
12	1	1	1	1	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	1	1	1	1	1	1	1
13	1	1	-1	-1	1	1	-1	-1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	1	1	-1	-1	1	1	-1	-1
14	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	1	1	1	1	1	1	-1	-1	-1	-1
15	1	1	-1	-1	-1	-1	1	1	-1	-1	1	1	1	1	-1	-1	-1	-1	1	1	1	1	-1	-1	1	1	-1	-1	-1	-1	1	1

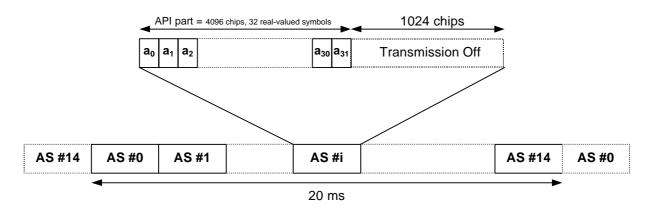
Table 20: AICH signature patterns

5.3.3.7 CPCH Access Preamble Acquisition Indicator Channel (AP-AICH)

The Access Preamble Acquisition Indicator channel (AP-AICH) is a fixed rate (SF=256) physical channel used to carry AP acquisition indicators (API) of CPCH. AP acquisition indicator API_s corresponds to AP signature *s* transmitted by UE.

AP-AICH and AICH may use the same or different channelisation codes. The phase reference for the AP-AICH is the Primary CPICH. Figure 22 illustrates the structure of AP-AICH. The AP-AICH has a part of duration 4096 chips where the AP acquisition indicator (API) is transmitted, followed by a part of duration 1024chips with no transmission that is not formally part of the AP-AICH. The part of the slot with no transmission is reserved for possible use by CSICH or possible future use by other physical channels.

The spreading factor (SF) used for channelization of the AP-AICH is 256.





The real-valued symbols $a_0, a_1, ..., a_{31}$ in figure 22 are given by

$$\mathbf{a}_{j} = \sum_{s=0}^{15} \mathbf{API}_{s} \times \mathbf{b}_{s,j}$$

where API_s, taking the values +1, -1, and 0, is the AP acquisition indicator corresponding to Access Preamble signature s transmitted by UE and the sequence $b_{s,0}$, ..., $b_{s,31}$ is given in Table 20. <u>The UTRAN shall not set more than one</u> positive API in any one API part.

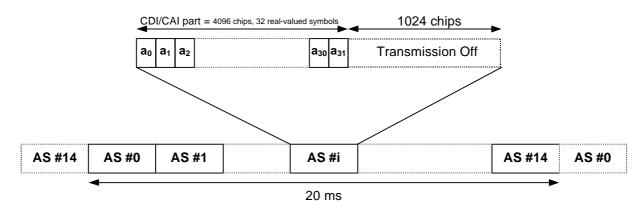
The real-valued symbols, a_i , are spread and modulated in the same fashion as bits when represented in { +1, -1 } form.

In case STTD-based open-loop transmit diversity is applied to AP-AICH, STTD encoding according to subclause 5.3.1.1.1 is applied to each sequence $b_{s,0}$, $b_{s,1}$, ..., $b_{s,31}$ separately before the sequences are combined into AP-AICH symbols a_0 , ..., a_{31} .

5.3.3.8 CPCH Collision Detection/Channel Assignment Indicator Channel (CD/CA-ICH)

The Collision Detection Channel Assignment Indicator channel (CD/CA-ICH) is a fixed rate (SF=256) physical channel used to carry CD Indicator (CDI) only if the CA is not active, or CD Indicator/CA Indicator (CDI/CAI) at the same time if the CA is active. The structure of CD/CA-ICH is shown in figure 23. CD/CA-ICH and AP-AICH may use the same or different channelisation codes.

The CD/CA-ICH has a part of duration of 4096chips where the CDI/CAI is transmitted, followed by a part of duration 1024chips with no transmission that is not formally part of the CD/CA-ICH. The part of the slot with no transmission is reserved for possible use by CSICH or possible future use by other physical channels.



The spreading factor (SF) used for channelization of the CD/CA-ICH is 256.



In case STTD-based open-loop transmit diversity is applied to CD/CA-ICH, STTD encoding according to subclause 5.3.1.1.1 is applied to each sequence $b_{s,0}$, $b_{s,1}$, ..., $b_{s,31}$ separately before the sequences are combined into CD/CA-ICH symbols a_0 , ..., a_{31} .

In case CA is not active, the real-valued symbols $a_0, a_1, ..., a_{31}$ in figure 23 are given by

$$a_{j} = \sum_{s=0}^{15} CDI_{s} \times b_{s,j}$$

where CDI_s , taking the values +1, and 0, is the CD indicator corresponding to CD preamble signature *s* transmitted by UE and the sequence $b_{s,0}, \dots, b_{s,31}$ is given in table 20.

The real-valued symbols, a_i , are spread and modulated in the same fashion as bits when represented in $\{+1, -1\}$ form.

In case CA is active, the real-valued symbols $a_0, a_1, ..., a_{31}$ in figure 23 are given by