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1 Introduction

The set of length 16 codewords transmitted on the AICH channel were chosen to correspond to the set of RACH preamble signatures sequences. Presently the codewords are a set of length 16 orthogonal Gold codes. In TSGR1#6(99)894 however, the RACH preamble signature sequences were changed from a set of orthogonal Gold codes to the set of length 16 Hadamard codes. This contribution proposes to change the AICH codewords to the set of length 16 Hadamard codes so that the correspondence between the AICH codewords and RACH signature sequences is restored. When demodulating the AICH channel, the UE need only correlate against the same sequence used during its preamble transmission. Additional storage in the UE for the set of 16 Orthogonal Gold codes is therefore not needed.

2 Text proposal for 25.211

The following text is proposed to replace the subclause 5.3.3.6 in 25.211:

5.3.3.6 Acquisition Indication Channel (AICH)

The Acquisition Indicator channel (AICH) is a physical channel used to carry Acquisition Indicators (AI). Acquisition Indicator AI_i corresponds to signature *i*, see further 25.213, Section 4.3.3.2

Figure 1 illustrates the frame structure of the AICH. One AICH frame of length 10 ms consists of 8 *access slots* (AS), each of length 20 symbols (1.25 ms). Each access slot consists of two parts, an *Acquisition-Indicator* (AI) part and an empty part.

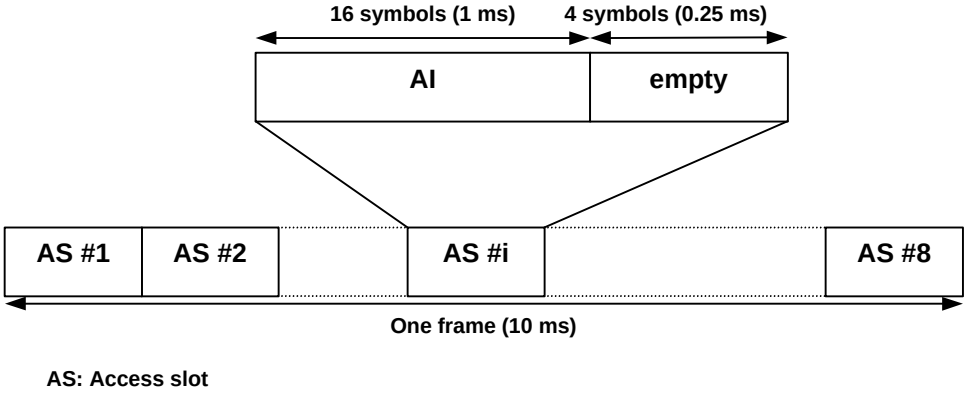

Figure 1: Structure of Acquisition Indicator CHanel (AICH)

Figure 2 illustrates the detailed generation of an AICH access slot. Note that Figure 2 shows an example implementation.

The AI-part of the access slot consists of the symbol-wise sum of 16 orthogonal code words w_1-w_{16}, multiplied by the value of the corresponding acquisition indicator AI_i. The orthogonal code words w_1,...,w_{16} are shown in Table 1.

The empty part of the access slot consists of 4 zeros.

The phase reference for the AICH is the pilot symbols of the downlink PCCPCH.

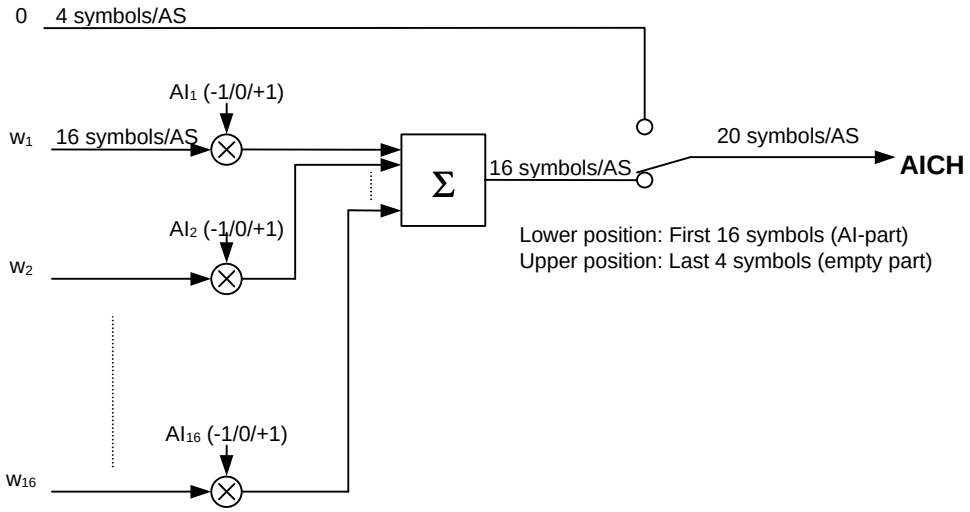

Figure 2:Schematic generation of AICH access slots.

Table 1: Definition of orthogonal vectors w_1-w_{16} used inFigure 2; A = (1+j)

i	w_i															
1	A	A	A	-A	-A	-A	A	-A	-A	A	A	-A	A	-A	A	A
2	-A	A	-A	-A	A	A	A	-A	A	A	A	-A	-A	A	-A	A
3	A	-A	A	A	A	-A	A	A	-A	A	A	A	-A	A	-A	A
4	-A	A	-A	A	-A	-A	-A	-A	-A	A	-A	A	-A	A	A	A
5	A	-A	-A	-A	-A	A	A	-A	-A	-A	-A	A	-A	-A	-A	A
6	-A	-A	A	-A	A	-A	A	-A	A	-A	-A	A	A	A	A	A
7	-A	A	A	A	-A	-A	A	A	A	-A	-A	-A	-A	-A	-A	A
8	A	A	-A	-A	-A	-A	-A	A	A	-A	A	A	A	A	-A	A
9	A	-A	A	-A	-A	A	-A	A	A	A	-A	-A	-A	A	A	A
10	-A	A	A	-A	A	A	-A	A	-A	-A	A	A	-A	-A	A	A
11	A	A	A	A	A	A	-A	-A	A	A	-A	A	A	-A	-A	A
12	A	A	-A	A	A	A	A	A	-A	-A	-A	-A	A	A	A	A
13	A	-A	-A	A	A	-A	-A	-A	A	-A	A	-A	-A	-A	A	A
14	-A	-A	-A	A	-A	A	A	A	A	A	A	A	A	-A	A	A
15	-A	-A	-A	-A	A	-A	-A	A	-A	A	-A	-A	A	-A	-A	A
16	-A	-A	A	A	-A	A	-A	-A	-A	-A	A	-A	A	A	-A	A

i	w_i															
1	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	A	-A	A	-A	A	-A	A	-A	A	-A	A	-A	A	-A	A	-A
3	A	A	-A	-A	A	A	-A	-A	A	A	-A	-A	A	A	-A	-A
4	A	-A	-A	A	A	-A	-A	A	A	-A	-A	A	A	-A	-A	A
5	A	A	A	A	-A	-A	-A	-A	A	A	A	A	-A	-A	-A	-A
6	A	-A	A	-A	-A	A	-A	A	A	-A	A	-A	-A	A	-A	A
7	A	A	-A	-A	-A	-A	A	A	A	A	-A	-A	-A	-A	A	A
8	A	-A	-A	A	-A	A	A	-A	A	-A	-A	A	-A	A	A	-A
9	A	A	A	A	A	A	A	A	-A	-A	-A	-A	-A	-A	-A	-A
10	A	-A	A	-A	A	-A	A	-A	-A	A	-A	A	-A	A	-A	A
11	A	A	-A	-A	A	A	-A	-A	-A	-A	A	A	-A	-A	A	A
12	A	-A	-A	A	A	-A	-A	A	-A	A	A	-A	-A	A	A	-A
13	A	A	A	A	-A	-A	-A	-A	-A	-A	-A	-A	A	A	A	A
14	A	-A	A	-A	-A	A	-A	A	-A	A	-A	A	A	-A	A	-A
15	A	A	-A	-A	-A	-A	A	A	-A	-A	A	A	A	A	-A	-A
16	A	-A	-A	A	-A	A	A	-A	-A	A	A	-A	A	-A	-A	A

The spreading/scrambling of the AICH is done is the same way as the spreading/scrambling of other DL channels, compare 25.213, Section 5.1. The AICH is spread by a channelization code of length 256 and subsequently scrambled by the cell-specific scrambling code.