TSG-RAN Working Group 1(Radio) meeting #4
Yokohama, Japan, 19 – 20 April 1999

TSGR1#3(99)397

Agenda Item: **5.5 Text proposal for S1.13**

Source: **Siemens**

Title: **Text Proposal for A new Hierarchical Correlation Sequence**

Document for: **Approval**

Abstract

In [1] we have proposed a slight modification to the first constituent sequence to be used for the hierarchical correlation sequence for the PSC. We have shown, that this selection will improve the performance for high initial frequency error without any degradation for low frequency error.

This proposal has been presented at the last meeting, and any objections should have been sent on the reflector. As we have not received any objections, we resubmit the text proposal to S1.13 ([2]).
Specifically, we proposed, that the constituent sequence X_1 = < +1,+1,-1,-1,-1,-1,+1,-1,+1,+1,-1,+1,+1,+1,-1,1 >
is replaced by X_1= < +1,+1,-1,-1,+1,-1,+1,-1,-1,-1,-1,-1,+1,+1,+1,-1 >. The following changes are proposed in S01.13:

Text Proposal for S01.13

5.2.3 Synchronisation codes

5.2.3.1 Code Generation

The Primary and Secondary code words, Cp and {C1,…,C17} are constructed as the position wise addition modulo 2 of a Hadamard sequence and a fixed so called hierarchical sequence. The Primary SCH is furthermore chosen to have good aperiodic auto correlation properties.

The hierarchical sequence y ~~sequence~~ is constructed from two constituent sequences x1 and x2 of length n1 and n2 respectively using the following formula:

y(i) = x2(i mod n2) + x1(i div n2) modulo 2, i = 0 ... (n1* n2) - 1

The constituent sequences x1 and x2 are chosen ~~to be identical and~~ to be the following length 16 (i.e. n1 = n2 =16) sequences:

x1 = < 0, 0, 1, 1, 0, 1, 0, 1, 1, 1, 1, 1, 0, 0, 0, 1 >

and

x2 = < 0, 0, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0, 0, 0, 1, 0 >

References

[1] 3GPP TSG RAN WG1 99/146; Siemens; A new Hierarchical Correlation Sequence with good Properties in Presence of a Frequency Error
[2] 3GPP (S1.13) V1.1.2 1999-04; 3GPP; Spreading and modulation (FDD);