TSG-RAN Working Group 1 meeting No. 7 TSGR1-b14/99
August 30 – September 3, Hannover, Germany

Agenda Item: **Adhoc 8, handover**

Source: **Mitsubishi, Nokia , Siemens**

Title: **Textproposal for Compressed Mode Parameters for GSM Search**

Document for: **Approval**

Abstract

This paper proposes some values to the parameters related to UTRA to GSM intersystem handover synchronisation which have been investigated in the accompanying contributions [1] and [2]. The patterns proposed in contribution [2] mainly focus on a very fast search speed. During the meeting in Yokohama "it was agreed that requirement is to have several GSM search speed, not only as good as in GSM, but also some faster and slower schemes should be specified" [3]. The patterns presented in contribution [1] address the case of the search performance as presently used in GSM and a half the speed, the other case is addressed in contribution [2]. It is therefore proposed to specify both sets of patterns. In the following we compile the search performance of the search patterns and provide a joint text proposal.

Simulation Results

Simulations in contribution [1] have been performed with similar assumptions as presented in [2] and are compared to the values obtained there. As can be seen, the proposed patterns from [1] are optimised for achieving as little capacity loss as possible while the search speed is lower. The patterns from [2] mainly focus on a very fast search speed.

TGL (slots)	TGD (frames)	TGP (frames)	Av. search time (ms)	Av. loss of channel capacity (slots)	Maximum search time (ms)
Patterns from [2]					
7	0	2	**106.4**	44.2	400
7	0	3	**142.8**	**40.3**	390
7	2	9	206.8	**40.2**	630
7	3	10	247.6	42.9	1030
7	4	11	257.5	41.5	580
7	4	13	329.8	44.7	1040
7	3	15	345.4	41.6	930
14	0	2	**38.1**	40.7	120
14	0	3	**56.8**	40.5	210
14	0	6	104.2	**38.3**	360
14	2	6	**56.1**	40.2	240
14	2	8	67.7	**39.3**	350
14	2	13	97.1	**38.3**	420
14	0	15	285.7	40.7	750
14	3	15	117.6	**39.0**	450
Patterns from [1]					
10	12	48	449.4	**31.0**	1080
10	0	48	988.2	**30.6**	2400

Text Proposal for Changes to Specification 25.231

Chapter 7.1.3.3.6.3 "Setting of Compressed Mode Parameters for First SCH Decoding without Prior Knowledge of Timing Information"

The following should be inserted instead of the empty table in this chapter:

---------- Start insertion ----------

	TGL	TGD	TGP	PD parallel search / serial search
Pattern 1	7	0	2	40/64
Pattern 2	7	0	3	39/63
Pattern 3	7	2	9	63/252
Pattern 4	7	3	12	99/123
Pattern 5	14	0	2	12/26
Pattern 6	14	2	6	24/48
Pattern 7	14	2	8	34/58
Pattern 8	14	2	12	60/84
Pattern 9	10	12	48	108/828
Pattern 10	10	0	48	240/1440

The pattern duration for the parallel search (time until a GSM FCCH or SCH burst is found) and for the serial search (time until a FCCH burst is found) is given.

The patterns 5…8 should mainly be used in such cases where the present signal level suddenly drops and very little time to execute the handover is available. Patterns 1…4 are significantly more optimal from the point of view of the transmission power control than the other ones, while patterns 5…8 consume less slots for the measurements on the average.

Patterns 1…4 may use any pattern described in specification 25.212 chapter 4.4.3.1. Patterns 5…10 must use the double frame method.

The patterns 9 and 10 are optimised for least consumption of slots for the measurements on the average using the parallel search. The patterns 9 and 10 achieve about the same or half the speed of the synchronisation to GSM from GSM. They must use the double frame method, the compression can be achieved by changing the coding rate from 1/3 to 1/2.

---------- End insertion ----------

References

[1] R1-99873; Espoo, Finland; 7-1999; Siemens; Complexity analysis for parallel GSM synchronisation

[2] R1-99810; Espoo, Finland; 7-1999; Nokia and Mitsubishi; Compressed Mode Parameters for UTRA to GSM Handovers

[3] R1-99653; Cheju, Korea; 6-1999; Minutes of 3GPP/RAN/WG1#4 meeting (Shin Yokohama); Temporary Secretary