

Agenda Item: 14.2
Source: Ericsson
Title: lub user plane support for long UE sleep modes
Document for: Decision

1. INTRODUCTION

During TSG-RAN WG3 #6, WG3 confirmed the WG1 liaison concerning a 12 bit SFN. WG1 motivated this length based on required support for longer sleeping periods in the UE (in case of CELL_PCH and URA_PCH states).

The CRNC will have to provide the concerning page indications/messages at the correct time to the node-B. For this reason, the CRNC will need to be aware of the complete 12-bit value of the SFN for scheduling the PCH FP and not only the last 8 bits as is the case for the other transport channels.

This contribution discusses two solutions to solve this problem. One solution is selected and the resulting consequences are indicated.

2. RATIONALE

Two solutions are identified:

- A) If the CRNC is informed about the value of the 4 MSB of the SFN at least once, and then keeps track of updates to these bits when the value of the lowest 8 bits loop, the CRNC can send the paging indications/messages at the correct time, while still using an 8 bit CFN in the PCH FP.

The synchronisation of the highest 4 bits could be obtained with a procedure like the node synchronisation procedure. When the CRNC has executed the node-sync at least once, and is aware of the full SFN, the CRNC can maintain an internal update of the 4 MSB's for each cell.

Note that in this case the node synchronisation procedure will have to be extended with SFN information in addition to the BFN info currently provided.

- B) A second solution is to use a 12 bit CFN in the PCH FP frames and also enable the node-B to indicate a corresponding TOA range. Since in this solution, the transport channel will always be synchronised on the full 12 bit SFN value, correct scheduling w.r.t. the full SFN is ensured.

It is expected that WG3 participants will object to mandating support for the node synchronisation procedure. Therefore it is proposed to mandate support for solution B) in the standard. This means a 12 bit CFN and corresponding TOA range.

3. PROPOSAL

Selecting solution B), it is proposed to add a remark in section 5.1.3 of ref [1] on PCH channels in line with the following sentence:

“In contrast to all other Common Transport Channel data frames, which use a CFN of length 8, the PCH Data Frame includes a CFN of length 12.”

In addition, it is proposed to have section 5.3. of ref [1] including a statement concerning the length of CFN and TOA in line with:

“In control frames transported on transport bearers used for transporting any other transport channel than the PCH transport channel, the CFN and TOA fields have a range corresponding to 2.55s (8 bit CFN; 14 bits TOA).

In control frames transported on the transport bearer used for transporting the PCH transport channel, the CFN and TOA fields have a range corresponding to 40.96s (12 bit CFN; 18 bit TOA)”.

4. REFERENCES

- [1]: TS 25.435 TSG RAN: “UTRAN Iub Interface User Plane Protocols for COMMON TRANSPORT CHANNEL Data Streams”