3GPP TSG RAN WG2#58 **R2-072183**
Kobe, Japan, 07-11 May 2007

Title: **System Information**
Response to:

Source: Samsung
To: TSG RAN1
Cc:
WI: SAE/LTE

Contact Person:

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Attachments: —

Introduction
During RAN2#58 RAN2 has taken several decisions w.r.t. the provisioning of system information in LTE. With this liaison we would like to inform RAN1 about this progress and request RAN1 to look into several questions that came up during these discussions.

Decisions made in RAN2#58
For the questions in this liaison, the following RAN2 decisions are relevant:

1. RAN2 confirmed the approach of having information on the P-BCH transport channel periodically. The information content of the P-BCH is now called “MIB”, and a periodicity/TTI of 40ms is currently assumed.
2. RAN2 also confirmed the approach that the remaining broadcast system information is provided on BCCH over DL-SCH. On the BCCH over DL-SCH, the information is structured in “Scheduling Units” (SU), where an SU consists of one or more System Information Blocks (SIBs).
3. One complete SU may be sent in one DL-SCH transmission (1 TB in 1 subframe), or an SU can be segmented in which case one segment is sent in 1 TB in a subframe, with different segments provided in consecutive subframe’s.
4. For the BCCH over DL-SCH, there will be 1 PDCCH allocation per SU or SU-segment in a subframe (using the BCCH RNTI). Further optimisations can be considered later.

For information, in the end of this liaison, the remaining RAN2 decisions made during RAN2#58 w.r.t. system information are indicated.

Questions
RAN2 assumes that it should be possible for an eNB to schedule BCCH over DL-SCH and DL-SCH-unicast transmissions in the same TTI. This will allow unicast transmissions to continue relatively normally even while BCCH over DL-SCH transmissions are provided during potentially quite many consecutive TTI’s.

Question 1: RAN2 was wondering whether it would be possible for a UE to receive in parallel a BCCH over DL-SCH transmission and a DL-SCH-unicast transmission provided in the same TTI ?

RAN2 assumes that when the situation arises that one SU (e.g. a last segment of an SU) is not completely filling a subframe, it might be preferable to schedule one or more other SU’s (or SU-segment) in the same subframe.

Question 2: RAN2 was wondering whether it would be possible for a UE to receive more than 1 SU (or SU-segment) i.e. different TB transmissions, if multiple SU (or SU-segments) are scheduled in the

same subframe ? If the answer is “yes”, how many SU’s (or SU-segments) could be received by a UE in parallel ?

Question 3: If the answers to the above questions 1) and 2) is “yes”, how many SU’s (or SU-segments) would a UE be able to receive in addition to a DL-SCH unicast transmission ?

Then w.r.t. the P-BCH:

Question 4: RAN2 was wondering whether it would be possible for a UE to receive in parallel a P-BCH transmission and a DL-SCH-unicast transmission provided in the same subframe (in the serving cell) ?

Actions

To RAN1: RAN2 would kindly like to ask RAN1 to answer the indicated questions.

Furthermore, RAN2 has realised that since the BCCH over DL-SCH transmissions have to be receivable for all UE classes, these transmissions should not exceed the minimum UE capabilities in this respect. RAN2 assumes it is the responsibility of RAN1 to define the minimum UE capability in this respect, and thus e.g. determine what can be the maximum rate on BCCH over DL-SCH ?

Dates of Next TSG-RAN2 Meetings:

TSG-RAN2 Meeting #58bis	25th – 29th June 2007	Orlando, USA
TSG-RAN2 Meeting #59	20th – 24th August 2007	Athens, Greece

BCCH over DL-SCH

Other RAN2 decisions made during RAN2#58 w.r.t. System Information

- The P-BCH is sent every 40ms (working assumption). If later studies show that this is too long, this will be revisited towards 20ms. The PLMN list is sent on D-BCH every 80ms. This will be captured in the stage 2
- SU1 is sent on the D-BCH
- No need for secondary BCH
- Periodicity of SU-1 is 80ms; it contains the PLMN list.
- SU1 contains a scheduling block providing the periodicity for all the SU-n>1.
- SU1 contains the mapping of SIBs into SUs, dynamic, or mapping of SIBs into SUs is fixed in the standard. This is FFS.
- SU1 contains a value tag for each individual SU or (MIB or SU1) contains a value tag for all the SUs (FFS which of the solutions is selected).
- SU-1 is in the following sub-frame of P-BCH.
- Unicast DL-SCH transmissions can take place in parallel to SUs transmission, using L1/L2 control channel.
- Maximum D-BCH rate = minimum UE capability; Maximum D-BCH rate has to be studied. => RAN1
- SUs can be segmented, in which case each segment is sent in the next sub-frame as the previous one i.e. continuous time transmission (RB can vary using L1/L2 control channel)
- Whether SUs are contiguous (in a row) is FFS (benefit of continuous transmission is UE battery saving)
- Information on P-BCH is called MIB