3GPP TSG-RAN2 Meeting #58
Kobe, Japan, 7th-11th May 2007

Tdoc ⌘R2-072205

Agenda Item:	**4.5**
Souce:	**Samsung**
Title:	**Draft text proposal capturing agreements on system information**
Document for:	**Discussion and decision**

Introduction

This paper includes a draft text proposal aiming to capture the agreements on system information reached during the RAN2#58 meeting.

Summary of agreements

The text proposal aims to capture the agreements listed in the following, as extracted from the draft minutes.

Decision: 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

Furthermore:

- 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)
- Can eNB send different SUs is the same sub-frame? We need to ask RAN1
- Information on P-BCH is called MIB

Furthermore, the attached text proposal captures the RAN1 assumptions regarding the physical layer parameters transmitted on (P-)BCH as included in R2-072105.

Conclusion & recommendation

RAN2 is requested to endorse the text proposal attached at the end of this document.

⌘*R2-072205*

CR-Form-v9.2

CHANGE REQUEST

| ⌘ | **36.300** | **CR** | **CRNum** | ⌘ | **rev** | **-** | ⌘ | Current version: | **x.y.z** | ⌘ |

For HELP on using this form look at the pop-up text over the ⌘ symbols. Comprehensive instructions on how to use this form can be found at http://www.3gpp.org/specs/CR.htm.

Proposed change affects: UICC apps⌘ ☐   ME ☐   Radio Access Network ☐   Core Network ☐

Title:	⌘	Draft text proposal capturing agreements on System Information
Source to WG:	⌘	Samsung
Source to TSG:	⌘	
Work item code:	⌘		**Date:** ⌘	dd/mm/yyyy
Category:	⌘		**Release:** ⌘	

Use <u>one</u> of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*
Rel-7 *(Release 7)*
Rel-8 *(Release 8)*

Reason for change:	⌘	
Summary of change:	⌘	
Consequences if not approved:	⌘	

| **Clauses affected:** | ⌘ | |

		Y	**N**		
Other specs affected:	⌘	☐	☐	Other core specifications	⌘	
		☐	☐	Test specifications		
		☐	☐	O&M Specifications		

| **Other comments:** | ⌘ | |

5.4.1.2   Broadcast Channel

The BCH transport channel is characterized by a fixed pre-defined transport format. The TTI (repetition rate) of the BCH is ~~FFS~~40ms. In case problems are discovered, e.g. w.r.t. the reading of BCH from neighbouring cells, a TTI of 20ms will be used. The BCH physical-layer model is described based on the corresponding BCH physical-layer-processing chain, see Figure 5.4.1.2:

- **Higher-layer data passed to/from the physical layer**

    - A single (fixed-size) transport block per TTI.

- **CRC and transport-block-error indication**

    - Transport-block-error indication delivered to higher layers.

- **FEC and rate matching**

    - Channel coding rate is implicitly given by the combination of transport block size, modulation scheme and resource assignment;

    - No BCH Hybrid ARQ, i.e. no higher-layer control of redundancy version.

- **Interleaving**

    - No control of interleaving by higher layers.

- **Data modulation**

    - Fixed modulation scheme (QPSK), i.e. not higher-layer control.

- **Mapping to resource blocks**

    - Fixed pre-determined transport format and resource allocation, i.e. no higher-layer control.

- **Physical-layer processing Step 6: Multi-antenna processing**

    - Fixed pre-determined processing, i.e. no higher-layer control.

- **Support for Hybrid-ARQ-related signalling**

    - No Hybrid ARQ.

Figure 5.4.1.2: BCH physical-layer model
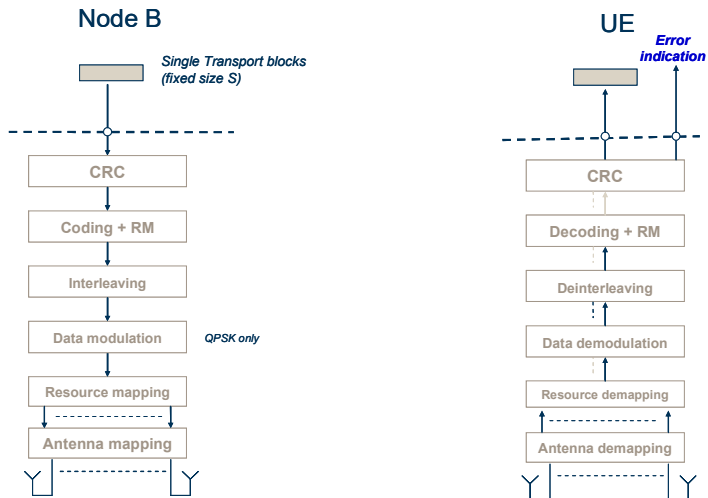
It is FFS whether the BCH needs to be extended, in which case the BCH would comprise a primary and a secondary BCH.

NOTE   In case the BCH is extended, the characteristics of the primary BCH (P-BCH) would be as defined in the above. The P-BCH would carry scheduling information of the secondary BCH (S-BCH). The S-BCH would apply a fixed coding while its carrier bandwidth may be limited

7.4   System Information

Scheduling information (indicating starting times) is provided for a group of system information blocks (SIBs) that have the same scheduling requirements (i.e. periodicity). Such a group of SIBs is referred to as a Scheduling Unit (SU). ~~An SU may cover multiple subframes.~~ It is expected that typically 3 or 4 SUs will be used. The mapping of SIBs on to SUs may be configurable or fixed in the specification (FFS).

NOTE   ~~The possibility to schedule segments of an SU into non-contiguous subframes (e.g. for very large SIBs without strong delay requirements) is FFS.~~

The following system information is carried on the BCH:

- Physical layer parameters:

    - Downlink system ~~(e.g.~~ bandwidth ~~)~~[4b];

    - Number of transmit antennas [1..2b];

    - Reference-Signal transmit power [0..6b];

    - MBSFN-related parameters [0..9b].

- System Frame Number (SFN [10b], unless provided otherwise);

- ~~Scheduling information of the most frequently repeated Scheduling Unit (SU-1);~~

- Cell re-selection and handover related parameters:

    - Offset [6b].

- Value tag(s) (FFS).

The system information carried on BCH is contained in a System Information Block called the Master Information Block (MIB).

The following system information is carried within the most frequently repeated Scheduling Unit (SU-1):

- One or more PLMN identities;

- Tracking Area Code;

- Cell identity;

- Cell barring status;

- Scheduling information i.e. the periodicity of the other Scheduling Units (other than SU-1);

- SIB mapping information i.e. indication in which SU the SIB~~s~~ is included (FFS).

The scheduling information within SU-1 is contained in a System Information Block called the Scheduling Block (SB). SU-1 should include all access restriction related parameters. SU-1 is carried on the DL-SCH and uses a fixed schedule with a periodicity of 80 ms~~, unless the BCH is extended. In the latter case, S-BCH may carry (part of) the SU-1 information~~.

It is FFS whether the SB includes a value tag for each SU, whether a common value tag is used. The common value tag could either be carried in the MIB or in the SB.

An SU may be segmented, in which case segments are scheduled in subsequent consecutive subframes. In this case, PDCCH is used for each segment i.e. each segement may use different PRBs. SU-1 is scheduled in the subframe following the one carrying BCH. It is FFS if further SUs are scheduled in subsequent consecutive subframes. The eNB may schedule DL-SCH transmissions concerning logical channels other than BCCH in the same subframe as used for BCCH. The minimum UE capability restricts the BCCH mapped to DL-SCH e.g. regarding the maximum rate. It is FFS if the eNB may schedule more than one SU in a subframe.

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