

**3GPP TSG-RAN2 Meeting #58  
Kobe, Japan, 7<sup>th</sup>-11<sup>th</sup> May 2007**

**Tdoc**  **R2-072205**

**Commented [H1]:** [Document numbers](#) are allocated by the Working Group Secretary.

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

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## Introduction

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

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## 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 in 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.

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## Conclusion & recommendation

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

3GPP TSG-??? Meeting #nn  
Location, Country, Date

⌘ 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 one of the following categories: Use one of the following releases:

<b>F</b> (correction)	<b>R97</b> (Release 1997)
<b>A</b> (corresponds to a correction in an earlier release)	<b>R98</b> (Release 1998)
<b>B</b> (addition of feature),	<b>R99</b> (Release 1999)
<b>C</b> (functional modification of feature)	<b>Rel-4</b> (Release 4)
<b>D</b> (editorial modification)	<b>Rel-5</b> (Release 5)
Detailed explanations of the above categories can be found in 3GPP <a href="http://www.3gpp.org/ftp/Information/3GPP/TS/21.900">TR 21.900</a> .	<b>Rel-6</b> (Release 6)
	<b>Rel-7</b> (Release 7)
	<b>Rel-8</b> (Release 8)

**Reason for change:** ⌘

**Summary of change:** ⌘

**Consequences if not approved:** ⌘

**Clauses affected:** ⌘

**Other specs affected:** ⌘

Y	N
<input type="checkbox"/>	<input type="checkbox"/>

Other core specifications ⌘

Test specifications ⌘

O&M Specifications ⌘

**Other comments:** ⌘

**Commented [H2]:** Document numbers are allocated by the Working Group Secretary.

**Commented [H3]:** Enter the specification number in this box. For example, 04.08 or 31.102. Do not prefix the number with anything . i.e. do not use "TS", "GSM" or "3GPP" etc.

**Commented [H4]:** Enter the CR number here. This number is allocated by the 3GPP support team. It consists of at least three digits, padded with leading zeros if necessary.

**Commented [H5]:** Enter the revision number of the CR here. If it is the first version, use a "-".

**Commented [H6]:** Enter the version of the specification here. This number is the version of the specification to which the CR was written and (normally) to which it will be applied if it is approved. Make sure that the latest version of the specification (of the relevant release) is used when creating the CR. If unsure what the latest version is, go to <http://www.3gpp.org/specs/specs.htm>.

**Commented [H7]:** For help on how to fill out a field, place the mouse pointer over the special symbol closest to the field in question.

**Commented [H8]:** Mark one or more of the boxes with an X.

**Commented [H9]:** SIM / USIM / ISIM applications.

**Commented [H10]:** Enter a concise description of the subject matter of the CR. It should be no longer than one line. Do not use redundant information such as "Change Request number xxx to 3GPP TS xx.xxx".

**Commented [H11]:** One or more organizations (3GPP Individual Members) which drafted the CR and are presenting it to the Working Group.

**Commented [H12]:** For CRs agreed at Working Group level, the identity of the WG. Use the format "x WgN" where  
x = "CT" for TSG CT, "RAN" for TSG RAN, "SA" for TSG SA, "GERAN" for TSG GERAN;  
n = digit identifying the Working Group; for CRs drafted during the TSG meeting itself, use "TSG x".  
Examples: "CT WG4", "RAN WGS", "GERAN WG3", "TSG SA".

**Commented [H13]:** Enter the acronym for the work item which is applicable to the change. This field is mandatory for category F, B & C CRs for release 4 and later. A list of work item acronyms can be found in the 3GPP work plan. See [http://www.3gpp.org/ftp/information/work\\_plan/](http://www.3gpp.org/ftp/information/work_plan/).

**Commented [H14]:** Enter the date on which the CR was last revised. Format to be interpretable by English version of MS Windows ® applications, e.g. 19/02/2002.

**Commented [H15]:** Enter a single letter corresponding to the most appropriate category listed below. For more detailed help on interpreting these categories, see the Technical Report [21.900](http://www.3gpp.org/ftp/information/3GPP/TS/21.900) "TSG working methods".

**Commented [H16]:** Enter a single release code from the list below.

**Commented [H17]:** Enter text which explains why the change is necessary.

**Commented [H18]:** Enter text which describes the most important components of the change. i.e. How the change is made.

**Commented [H19]:** Enter here the consequences if this CR were to be rejected. It is mandatory necessary to complete this field. [1]

**Commented [H20]:** Enter the number of each clause which contains changes.

**Commented [H21]:** Tick "yes" box if any other specifications are affected by this change. Else tick "no". You MUST fill in this field. [2]

**Commented [H22]:** List here the specifications which are affected or the CRs which are linked.

**Commented [H23]:** Enter any other information which may be needed by the group being requested to approve the CR. This field is optional. [3]

### 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 FFS40ms. 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.

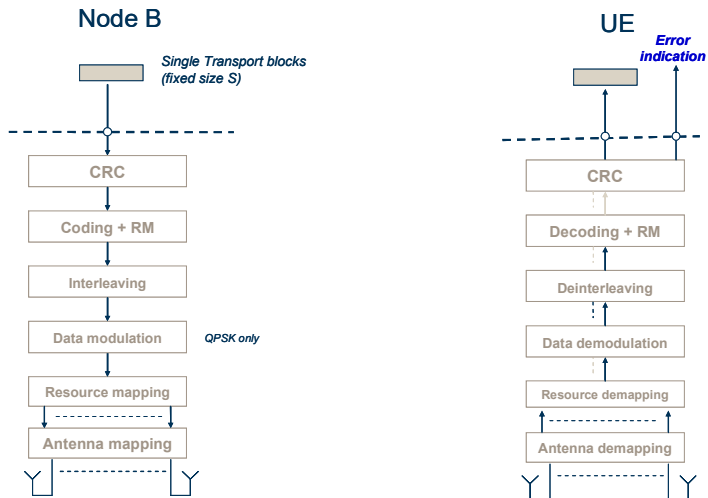


Figure 5.4.1.2: BCH physical-layer model

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 SIBs 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 segment 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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