**3GPP TSG RAN meeting #93e RP-211946**

**Electronic Meeting, Sep. 13-17, 2021**

## Status Report to TSG

**Agenda item:** 10.4.2

|  |  |
| --- | --- |
| **WI / SI Name** | New bands and bandwidth allocation for 5G terrestrial broadcast - part 1 |
| included in this status report | Study Item: No | Study Item: No | Study Item: No | Study Item: No |
| **Acronym** | LTE\_terr\_bcast\_bands\_part1 |
| **Unique ID** | 911020 |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-211144 |
| **Target Completion Date****(indicate if changed)** | Study Item: | Core part: 03/2021 | Performance part:  | Testing part: |
| **Overall Completion level** | Study Item: | Core part: 90% | Performance Part:  | Testing part: |

Note: Overall completion level percentage numbers should use one of the colors below:

* xx%: Normal progress, no RAN plenary action needed
* xx%: Progress behind schedule, may need RAN plenary intervention. If so, SR should clearly define requested action
* xx%: Progress critically behind, RAN plenary shall intervene. SR should define requested action

**Source:**

|  |  |
| --- | --- |
| **Leading WG** | RAN1 |
| **Rapporteur** | **Name** | Roland Beutler | Alberto RICO ALVARINO |
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## 1 Work plan related evaluation

|  |  |
| --- | --- |
| **Do you want to modify the time budget for this WI/SI compared to what was endorsed at the last RAN meeting?** | No |

*If you answered No: Then please remove the Excel file from the zip file of this status report.*

*If you answered Yes: Then please fill out the attached Excel template to request a modification of the time budgets for your WI /SI. The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI. The basis are the endorsed time budgets of the last RAN meeting. Please highlight all changes of the values.
 One time unit (TU) corresponds to ~ 2 hours in the meeting.
 If this status report covers a WI with Core and Performance part, then please have one line for each in the attached Excel table.
 Note: If no Excel table is attached, then this means no time budget change.*

## 2. Detailed progress in RAN WGs since last TSG meeting (for all involved WGs)

## 2.1 RAN1

#### 2.1.1 Agreements

The following agreements were reached in RAN1#106-e:

Agreement:

For supporting 6/7/8MHz PMCH:

* The bandwidth of CAS (system bandwidth indicated in MIB) is set to 25PRBs (5MHz).
	+ FFS: whether it can be set to 6 and/or 15 PRBs.
* The bandwidth for PMCH ($N\_{RB}^{PMCH})$ is indicated by another parameter in system information if the center frequency of bandwidth for CAS and bandwidth for PMCH is aligned.
	+ FFS: Details

Agreement:

It is supported that the center frequency of system bandwidth and center frequency of PMCH bandwidth are aligned

* FFS: Other cases (non-aligned center frequencies)

Agreement:

For PMCH allocation of 6/7/8 MHz on MBMS-dedicated cells, mapping the MBSFN reference signal to REs is based on the PMCH bandwidth of 6/7/8 MHz instead of .

Agreement:

For PMCH allocation of 6/7/8 MHz on MBMS-dedicated cells, the TBS determination is based on the PMCH bandwidth of 6/7/8 MHz instead of .

Conclusion:

It is RAN1’s understanding that 15kHz SCS is currently supported for MBMS dedicated cells.

* RAN1 to further discuss how to handle 15kHz SCS for 6/7/8 MHz PMCH bandwidth

Agreement:

The following PMCH bandwidth values are supported:

* 8MHz: $N\_{RB}^{PMCH}=40$
* 7MHz: $N\_{RB}^{PMCH}=35$
* 6MHz: $N\_{RB}^{PMCH}=30$

Agreement:

The signalling of PMCH bandwidth is to be selected to be one of the following:

* Alt 1: Per cell
* Alt 2: Per MBSFN area

Agreement:

For CAS bandwidth values, 25PRBs (5MHz) and 15 PRBs (3MHz) are supported.

Conclusion:

Non-aligned PMCH bandwidth and system bandwidth is not supported (this resolves an FFS item in a prior agreement).

Agreement:

For 6/7/8MHz PMCH bandwidth with 15 kHz SCS:

* Alt 1: The control region in MBSFN subframes with 15 kHz SCS has the same bandwidth as CAS. The UE is not required to process the control region.
* Alt 2: The MBSFN subframes with 15 kHz SCS do not have control region.
* Alt 3: The MBSFN subframes with 15 kHz SCS have a control region but its content is not defined

Agreement:

The signalling of PMCH bandwidth is per MBSFN area.

Agreement:

The UE is not required to process the control region in MBSFN subframes for 6/7/8MHz PMCH bandwidth with 15kHz SCS

* Note: This does not preclude future removal of the control region after completion of this WI.
* Note: The agreement is made with the intention to capture the agreement with minimal impact to the specifications.

#### 2.1.2 Remaining Open issues

* + Approve CRs for the corresponding agreements

## 2.2 RAN2

#### 2.2.1 Agreements

None

#### 2.2.2 Remaining Open issues

Approve changes to 36.331 to introduce signalling related to PMCH bandwidth

## 2.3 RAN3

#### 2.3.1 Agreements

None

#### 2.3.2 Remaining Open issues

Approve changes to 36.443 to introduce signalling related to PMCH bandwidth

## 3. Detailed progress in SA/CT WGs since last TSG meeting (for all involved WGs)

Not applicable

## 4. References

R1-2106762 Work Plan for New Bands and Bandwidth Allocation for LTE based 5G Terrestrial Broadcast Qualcomm Incorporated, EBU

R1-2106560 On PMCH allocation of 6/7/8 MHz and corresponding reference signals Huawei, HiSilicon

R1-2106752 Discussion on PMCH allocation and corresponding MBSFN reference signals ZTE

R1-2106763 PMCH allocation of 6/7/8MHz Qualcomm Incorporated

R1-2108211 Feature lead summary on New bands and bandwidth allocation for LTE based 5G terrestrial broadcast Moderator (Qualcomm)

R1-2108324 Feature lead summary #2 on New bands and bandwidth allocation for LTE based 5G terrestrial broadcast Moderator (Qualcomm)

R1-2108360 Feature lead summary #3 on New bands and bandwidth allocation for LTE based 5G terrestrial broadcast Moderator (Qualcomm)

R1-2106753 Considerations on bandwidth changing in MBSFN subframe for 15KHz subcarrier spacing ZTE

R1-2107685 Numerologies supported for MBMS-dedicated cell Huawei, HiSilicon