**3GPP TSG RAN WG1 #108-e R1-220xxxx**

**e-Meeting, February 21st – March 3rd, 2022**

**Agenda item:** 8.15.1

**Source:** Moderator (Qualcomm Incorporated)

**Title:** Summary of 108-e-R17-LTE-5G-Bcast-01

**Document for:** Discussion and Decision

# Introduction

In RAN1#108-e, the following contribution was submitted to propose updates to TR 36.976 and TS 36.300:

* [R1-2201655](file:///C:\Users\albertor\AppData\Local\Docs\R1-2201655.zip) Updates to 36.976 and 36.300 Qualcomm Incorporated

The objective of this email discussion is to agree on text proposals for the above specifications.

# Issue#1: Update to 36.976

In x1655, the following TP is provided:

======================================Start TP1======================================

4.3 Enhancements targeting LTE terrestrial broadcast

In Release 14, the following key RAN enhancements were made to the specifications to enable LTE terrestrial broadcast:

- MBMS-dedicated cell [3];

- MBSFN subframes using *Δf* = 1.25 kHz [8], with a cyclic prefix duration of 200µs and a symbol duration of 1ms;



- New information blocks on PBCH and PDSCH of CAS [3], [6]:

- *MIB-MBMS* is transmitted with a 40ms periodicity and updated every 160 ms; and

- *SIB1-MBMS* is transmitted with an 80ms periodicity and updated every 160 ms, containing information relevant for receiving MBMS service and, optionally, the scheduling of other system information blocks;

- *MBMSInterestIndication* RRC signalling procedure (see clause 4.1).

NOTE: For upper layer enhancements, see TS 23.246 [4] Annex D and E, TS 24.116 [7], TS 24.117 [12] and TS 26.346 [5] (ROM service aspects).

In Release 16, the following RAN enhancements were made to address the use cases described in clause 4.2:

- MBSFN subframes using *Δf* = 0.37 kHz, with a cyclic prefix duration of 300µs and a symbol duration of 3ms, for the support of large ISD;



- MBSFN subframes using *Δf* = 2.5 kHz, with a cyclic prefix duration of 100µs and a symbol duration of 0.5ms, for the support of high mobility;



- The following enhancements on the CAS:

- PDCCH enhancements:

- CFI indication in MIB [6] to avoid the need to decode PCFICH; and

- New aggregation level 16;



- Repetition of PBCH to increase its robustness.

In Release 17, the following RAN enhancement was introduced to enable deployment of LTE-based 5G terrestrial broadcast in broadcast UHF spectrum, where the channelization is 6/7/8MHz (depending on the geography):

- PMCH bandwidth of 30, 35 and 40 PRBs (corresponding to 6/7/8MHz), applicable for CAS bandwidth of 15 or 25 PRBs (corresponding to 3 and 5MHz).

======================================End TP1======================================

Table 1 Comments on TP1 (TR 36.976)

|  |  |
| --- | --- |
| Company | Comment |
| NTT DOCOMO | We support the proposed TP for TR36.976. |
| Huawei, HiSilicon | TR36.976 was created for Release 16 LTE-based 5G broadcast study item. The proposed TP is the feature introduced in Rel-17 starting from WI directly and the specification is complete. Why does this R16 TR need to update? Is it complying with 3GPP procedures? Is there precedent for that? |
| ZTE | We have similar question as Huawei. The motivation to update the TR is not clear. |

# Issue #2: Update to 36.300

In x1655, the following TP is provided:

======================================Start TP2======================================

5.1.1b (new) Basic transmission scheme based on OFDM for MBMS-dedicated cells

The downlink transmission scheme for MBMS-dedicated cells is as described in clause 5.1.1, with the differences that the PMCH bandwidth can be indicated to be larger than the carrier bandwidth. In particular, a PMCH bandwidth of 30, 35 and 40 PRBs (corresponding to 6/7/8MHz) can be indicated when the carrier bandwidth is 15 or 25 PRBs (corresponding to 3 and 5MHz).

======================================Start TP2======================================

Table 2 Comments on TP1 (TS 36.300)

|  |  |
| --- | --- |
| Company | Comment |
| NTT DOCOMO | We support the proposed TP for TS36.300. |
| Huawei, HiSilicon | There has been stage-2 description under clause 5.1.1 regarding the MBMS dedicated cell. The only difference is the bandwidth for PMCH. A couple of sentence under clause 5.1.1 might be sufficient and also compatible with the numerologies defined for MBMS under clause 5.1.1 |
| ZTE | We are ok with either the above TP or directly updating clause 5.1.1. |

# Conclusions

<To be filled after discussion is completed>