



**DECISION ISSUED BY THE  
INFO-COMMUNICATIONS MEDIA DEVELOPMENT AUTHORITY**

**REVISION OF TECHNICAL SPECIFICATIONS  
FOR  
CELLULAR MOBILE TERMINAL, BASE STATION AND REPEATER SYSTEM**

**30 June 2017**

# **REVISION OF TECHNICAL SPECIFICATIONS FOR CELLULAR MOBILE TERMINAL, BASE STATION AND REPEATER SYSTEM**

## **INTRODUCTION**

1. On 7 June 2017, IMDA posted the proposed revisions of the Technical Specification for Cellular Mobile Terminal (“IMDA TS CMT”) and the Technical Specification for Cellular Base Station and Repeater System (“IMDA TS CBS”) on IMDA’s website for public comments.
2. By the close of IMDA’s invitation for public feedback on 21 June 2017, comments were received from the following companies (referred to as “Respondents” in this document):
  - a. Sony Mobile Communications International AB;
  - b. Ericsson Telecommunications Pte Ltd;
  - c. Wideminds Pte Ltd; and
  - d. Singapore Telecommunications Ltd.
3. IMDA thanks the Respondents for their feedback. IMDA has reviewed the comments, and this document discusses the issues raised, sets out IMDA’s decision and summarises the changes made to the proposed revisions of the IMDA TS CMT and the IMDA TS CBS.

## **BACKGROUND**

4. The revision was prompted by the need to provide clarity of requirements for conformity assessment of Cellular Mobile Terminal (“CMT<sup>1</sup>”) and Cellular Base Station (“CBS<sup>2</sup>”) by equipment suppliers, in line with the development taking place in the International Mobile Telecommunications (“IMT<sup>3</sup>”) systems of the network operators. Proposed revision includes:
  - a. Support for Long Term Evolution – Advanced Time Division Duplex Radio Interface Technology (“LTE-Advanced TDD RIT”), also known as Evolved Universal Terrestrial Radio Access Technology (“E-UTRA RAT”);
  - b. Use of E-UTRA Band 38 (2570 MHz – 2620 MHz) and Band 40 (2300 MHz – 2400 MHz);
  - c. Revision of Checklist for clarity of CBS conformity assessment requirements for supporting LTE-Advanced TDD RIT (E-UTRA RAT); and
  - d. Safety testing of CMT to be performed according to the IEC 60950-1 safety standard.

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<sup>1</sup> CMT refers to the Cellular Mobile Terminals or user equipment, e.g. mobile phones.

<sup>2</sup> CBS refers to the Cellular Base Stations and Repeater Systems deployed by network operators.

<sup>3</sup> IMT systems refer to the International Mobile Telecommunications broadband systems, which encompass IMT-2000 (3G) and IMT-Advanced (4G) radio interface technologies (LTE-Advanced developed by 3GPP as LTE Release 10 and beyond).

## IMDA RESPONSES TO COMMENTS RECEIVED ON THE PROPOSED REVISION OF IMDA TS CMT AND IMDA TS CBS

5. IMDA noted the concern raised by Respondents relating to equipment conformity assessment based on the revised IMDA TS CMT and IMDA TS CBS that would place restrictions to the 3GPP/ETSI designated operating frequency ranges for E-UTRA Bands 38 and 40. This may pose a problem to the industry in ensuring compliance with IMDA's requirements, as CMT/CBS will be tested according to the 3GPP/ETSI defined frequency ranges despite Singapore's frequency spectrum allocation, e.g. CMT/CBS's out-of-band emissions will be measured with respect to the 3GPP/ETSI defined in-band frequency ranges.
6. IMDA accepts that the final revised IMDA TS CMT and IMDA TS CBS reflect 3GPP/ETSI's designated operating frequency range for E-UTRA Bands 38 and 40, but include notes indicating that CMT/CBS operating in these two bands shall only transmit and receive within the Singapore frequency spectrum allocation. Respondents may wish to note that 3GPP/ETSI standards have provided for manufacturers to declare support for all or any part of the designated operating frequency bands. The final revised IMDA TS CMT and IMDA TS CBS have been amended accordingly.
7. Regardless, IMDA clarifies that Singapore's frequency spectrum allocation has taken 3GPP/ETSI's requirement for out-of-band emission measurements into consideration, as measurements are performed with respect to carrier frequency and channel bandwidth, which may not necessarily span the defined operating frequency range.
8. Two Respondents suggested that electromagnetic compatibility ("EMC") of CBS could be specified briefly by requiring the use of Part 1 of the ETSI EN 301 489 series of EMC standards<sup>4</sup> in conjunction with Part 50<sup>5</sup>. It presupposes that declaration of conformity to these European EMC standards can be simplified, avoiding differences qualified in the proceeding phrase for use of Part 50 on CBS capable of supporting two or more radio transmitters of different technologies.
9. IMDA agrees with the Respondents that a concise statement for electromagnetic compatibility of CBS should suffice. The final revised IMDA TS CBS has been amended accordingly.
10. Nonetheless, IMDA clarifies that contrary to differences, the deleted proceeding qualifying phrase is intended for pointing out that Part 50 of the ETSI EN 301 489 series has been specified for EMC of CBS capable of supporting multiple types of RIT. Part 50 allows the EMC of CBS to be assessed according to type(s) of RIT it supports individually or in combination.

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<sup>4</sup> Part 1 of the ETSI EN 301 489 series contains the common requirements for radio equipment in respect of Electromagnetic Compatibility (EMC).

<sup>5</sup> Part 50 of the ETSI EN 301 489 series covers the specific requirements for CBS in respect of Electromagnetic Compatibility (EMC).

11. One Respondent suggested the replacement of Part 24<sup>6</sup> of the ETSI EMC standards that specifies conditions for testing EMC of the IMT-2000 CMT (UTRA and E-UTRA RITs) with the new Part 52<sup>7</sup> for CMT capable of supporting multiple types of RIT (IMT-2000 and IMT-Advanced). IMDA clarifies that it may not be necessary to replace Part 24 with Part 52. Part 24 has provisions for E-UTRA TDD RIT, and has not been slated for replacement. It is still applicable for assessing the EMC of all types of CMTs that deploy UTRA and E-UTRA, while Part 52 is a draft awaiting ETSI's approval as an addition to the ETSI EN 301 489 series of EMC standards. IMDA will keep this in view for the next revision of the IMDA TS CMT.
12. Citing the alternative for testing radio equipment to the less stringent EMC Class A limits given in Part 1 of the ETSI EMC standards, the Respondent requested for similar provision to be included in the IMDA TS CMT and the IMDA TS CBS.
13. IMDA understands that the less stringent alternative for EMC may be applicable for placing radio equipment in the European market exclusively for use in industrial environment. However, in the context of Singapore, CMTs are mainly consumer products widely used by the masses in any environment, and CBS are deployed island-wide by mobile operators in built-up areas, where residential, commercial and industrial areas are in close proximity. For cellular mobile products and services to coexist with other info-communications and media ("ICM") services, IMDA opines that CMT/CBS like any ICM equipment registered with IMDA for sale and use generally in Singapore, must comply with the more stringent EMC Class B requirements to avoid risk of interference.
14. To the newly added safety testing for CMT based on the prescriptive approach of the IEC 60950-1 safety standard, the Respondent proposed that the hazard-based IEC 62368-1 safety standard should also be added as an alternative. IMDA clarifies that the decision to include safety standard for CMT has been made in conjunction with SPRING Singapore, the Safety Authority, and the adoption of IEC 60950-1 safety standard is in line with SPRING Singapore's recommendation for consumer goods safety. The Respondent may wish to note that whilst IMDA requires registration of CBS before sale and use, CBS is network equipment, where sale of such equipment is not available on-the-shelf and accessible by consumers.

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<sup>6</sup> Part 24 of the ETSI EN 301 489 series together with Part 1, covers the assessment of "3rd generation" digital cellular IMT-2000 CDMA Direct Spread (UTRA and E-UTRA) mobile and portable (UE) radio terminal equipment and associated ancillary equipment in respect of Electromagnetic Compatibility (EMC).

<sup>7</sup> Part 52 of the ETSI EN 301 489 series (awaiting approval) covers the specific requirements for CMT in respect of Electromagnetic Compatibility (EMC).

## **SUMMARY OF IMDA'S DECISION**

15. IMDA has considered all the comments and incorporated the necessary changes to the revised IMDA TS CMT and the IMDA TS CBS for release as Issue 1 Rev 1 with effect from 1 July 2017. Necessary revisions have been discussed in this document, namely:
  - a. 3GPP/ETSI's designated operating frequency range for E-UTRA Band 38 and Band 40 are reflected in Table 1 of the IMDA TS CMT and the IMDA TS CBS. Notes are revised to indicate that CMT/CBS operating in Band 38 and/or Band 40 shall only transmit and receive within the frequency spectrum allocated to network operators.
  - b. For EMC assessment of CBS, ETSI EN 301 489-1 shall be used in conjunction with ETSI EN 301 489-50.