



# Hearing Aid Compatibility

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Updates to April, 2012 TCB Workshop HAC Presentation

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# HAC UPDATE<sup>1</sup>

- **KDB 285076 D01 HAC Guidance v03** was published 8/20/2012.
  - Major revisions to reflect new rule changes effective August 18, 2012 (DA 12-550, April 9, 2012).
  - Covered at the April 2012 TCB workshop.
- This Presentation will address:
  1. **PBA requirements** incorporated in the updated KDB.
    - KDB Item 30: All applications based on C63.19-2011 must be approved through a PBA procedure to address specific method used for the Modulation Index Factor (MIF).
    - KDB Item 31: Evaluation for T ratings for VoLTE using C63.19-2011 must be approved through a PBA procedure.
  2. **C63.19 July 2012 additional Interpretations** and Explanations.
  3. Reconfirm **Air interface and Operational Mode Table** (not a new requirement) to be included in the test report.

<sup>1</sup> April 2012 Presentations-

[http://transition.fcc.gov/oet/ea/presentations/presentations\\_tcb\\_2012.html?apr12#secapr12](http://transition.fcc.gov/oet/ea/presentations/presentations_tcb_2012.html?apr12#secapr12)



## Item 30: Modulation Index Factor (MIF) PBA

- I.  A description of the method and test equipment (manufacturer and model number) used to establish the Modulation Index Factor (MIF) .
  1. **EUT not measured:** MIF values used not tested and provided by HAC test equipment vendor, grantee or previous measured values for Air interface.
  2. Measured Values
    - Direct
    -  • indirect
- II. A validation test demonstrating measured results for sample pulse and sine wave modulations defined in C63.19-2011 Annex D.7, Tables D.3 and D.4.
  1. **EUT Not measured:** can be provided by the HAC test equipment vendor.
  2. Measured Values



## Item 30: Modulation Index Factor (MIF) PBA -continued

- III. Provide the margin, in dB, defined as the E-field transition value for the next lower rated category of the established HAC category minus the maximum steady-state RMS field strength (before adding the MIF).
- ✓ Flag how critical was your MIF.
- IV. Provide justification for MIF values that are less than the sample values expected in annex D.7 table D.5 and values approaching the margin.
- ★ ✓ MIF values provided by the HAC test equipment manufacture **not in line with C63.19-2011.**



## **Additional MIF PBA Justification Required in Test Report**

### **1. EUT MIF Not Measured:**

1. State clearly the MIF values used from the HAC test equipment vendor.
2. Confirm that the set up is according to the HAC test equipment vendor's requirements and C63.19 validation procedures.
3. Provide a description and/or reference to the test vendor's technical justification that established these MIF values.
4. Provide a description or reference to the test vendor's validation technical justification that established the values for sample pulse and sine wave modulations.
5. In the test report state that the grantee has confirmed the worst case operational modes used for this handset as reference in a separate attestation letter by the grantee that the MIF values represent worst case operational modes.



## **Additional MIF PBA Justification Required in Test Report - continued**

### **2. EUT MIF measured:**

1. State clearly the MIF values used from the vendor.
2. Confirm that the set up is according to the test vendor's and C63.19 validation requirements.
3. Provide test data demonstrating the values that established these MIF values.
4. Provide test data demonstrating validation of the values for sample pulse and sine wave modulations. Indicate if previous values used and confirm set up validation.
5. In the test report reference to an attestation by grantee that the MIF values represent the worst case operational values used for this handset.



## KDB Item 31: PBA Evaluation for T ratings for VoLTE using C63.19-2011.

- During the provisional period for VoLTE (KDB Item 4), it is not necessary to evaluate T rating for such operation
  - However, it is necessary to provide a disclosure [ § 20.19 (f) (2) (iii)].
- However an applicant can seek approval for VoLTE implementation for T-coil tests under the **PBA procedure**:
  - a. A description of the VoLTE T-coil test set up.
  - b. Identification of the manufacturer and model numbers.
  - c. Software used to simulate servers.
  - d. Voice Codec tested.
  - e. Soft code imbedded, soft code API, hardware, etc.
  - f. Justification for codex tested and not tested.
  - If approved disclosure is not required.



# C63.19 July 2012 additional Interpretations and Explanations

C63.19-2011	July 2012	SC8	<u>MIF and operating mode for LTE</u> : identify call states and modulations 3GPP TS 36.101 to determine worst case.
C63.19-2011	July 2012	SC8	<u>T coil audio levels for LTE</u> RLR shall not be $\geq$ (equal or quieter than) 18 dB.
C63.19-2011	July 2012	SC8	<u>Concurrent transmitters</u> Definition of concurrent connections vs. simultaneous transmissions.
C63.19-2011	July 2012	SC8	<u>Simultaneous transmitters</u> : No interpretation adopted at this time <sup>1</sup>

1. Until C63 19 defines or references a procedures, simultaneous transmissions, results for devices offering this capability are not required to be tested in the simultaneous transmission mode.

[http://c63.org/documents/misc/posting/new\\_interpretations.htm](http://c63.org/documents/misc/posting/new_interpretations.htm)



# Air interface and Operational Mode Table (In Test Report)

Air Interface	Bands	Type Transport	HAC Tested	Simultaneous But not tested	Concurrent HAC Tested or not tested	Voice over Digital Transport OTT Capability	WIFI Low Power	Additional GSM Power reduction
W-CDMA	850	VO	Yes	Yes WIFI/Bluetooth	Not tested <sup>1</sup>	NA	NA	NA
	1900	VO	YES	Yes WIFI/Bluetooth	Not tested <sup>1</sup>	NA	NA	NA
	EVDO	DT	No	Yes WIFI/Bluetooth	NA	YES	NA	NA
LTE	Band 5	VD	YES	Yes WIFI/Bluetooth	Not tested <sup>1</sup>	YES <sup>2</sup>	YES <sup>3</sup>	NA
	Band 24	VD	YES	Yes WIFI/Bluetooth	Not tested <sup>1</sup>	YES <sup>2</sup>	YES <sup>3</sup>	NA
WIFI	2.4 GHz	DT	No	LTE or CDMA	NA	YES	No	NA
Bluetooth	2.4 GHz	DT	No	LTE or CDMA	NA	NA	NA	NA

Type Transport  
 VO=Voice only  
 DT=Digital Data –Not indented for CMRS Service  
 VD=CMRS and Data transport ( HAC Tested)

1 Non concurrent mode was found to be the Worst Case mode  
 2. Supports VOLTE CMRS and OOT applications. HAC Rating only applicable to CMRS VOLTE.  
 3. Supports VOLTE CMRS over WIFI via user selectable best air interface available.