Hearing Aid Compatibility

Update to Oct, 2012 TCB Workshop HAC Presentation

TCB Workshop
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Update/Clarification for Testing under C63.19-2011

- Applications are subject to Permit-but-Ask
- MIF Values
  - Applicant must define the method used to obtain the MIF
    - Tested vs. not tested
    - Not tested using manufactures (SPEAG) MIF Files
      - Statement signed by from Manufacture that Values used worst case Air interfaces and Operation. Re-clarification to October 2012 Workshop
      - Define the manufactures Files and Version/Date used for MIF and the supporting documentation for the provided Values and version. Further Clarification to October 2012 Workshop

Update Testing under C63.19-2011

- VoLTE T-Coil provisional period (ends Aug 2013)
  - Not necessary to Test T-coil for VOLTE during provisional period
  - It is necessary to provide a disclosure [§ 20.19 (f) (2)]
  - C63.19 normally does not provide voice band loading factors for IP or other air interfaces.
    - However C63.19, in good faith, addressed this in July 2012 in SC8 - 2011 Interpretation for VoLTE.
  - Currently instrumentation and knowledge for setting up VoLTE test calls using Base Station simulators to determine audio volume (& T coil magmatic levels) is not well understood.
    - WTB is reviewing options for VoLTE T-Coil requirements
  - When TCoil VoLTE is not tested, There can not be an associated LTE VoLTE M test values in the M test reports. Tested or for low power exemption. (Clarification to Oct TCB workshop.)
  - Manufactures can submit T coils testing for VoLTE – with adequate explantion of test procedures used.

Further Clarification: Define the manufactures Files and Version/Date used for MIF and the supporting documentation for the provided Values.

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

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No Change

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**.

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Re-clarification Item 5 : Statement **signed** by from Manufacture that Values used worst case Air interfaces and Operation.

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 vales represent worst case operational modes.

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Further Clarification: Define the manufactures Files and Version/Date used for MIF and the supporting documentation for the provided Values.

Additional MIF PBA Justification Required in Test Report - continued

2. **EUT MIF measured:**
   1. State clearly the MIF vales 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 a attestation by grantee that the MIF vales represent the worst case operational values used for this handset.

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- Clarification: When TCoil VoLTE is not tested, There can not be an associated LTE VoLTE M test values in the M test reports. Tested or low power exemption.

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.

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Provide notes to clarify voice capability not tested for HAC

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[1]	NA	NA	NA
	1900	VO	YES	Yes WIFI/Bluetooth	Not tested[1]	NA	NA	NA
	EVDO	DT	No	Yes WIFI/Bluetooth	NA	YES	NA	NA
LTE	Band 5	VD	YES	Yes WIFI/Bluetooth	Not tested[1]	YES[2]	YES[3]	NA
	Band 24	VD	YES	Yes WIFI/Bluetooth	Not tested[1]	YES[2]	YES3	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 concurent 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.

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