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SAMM CIRCULAR 2/2018

POLICY ON SKIM AKREDITASI MAKMAL MALAYSIA (SAMM)

**ELECTROMAGNETIC COMPATIBILITY (EMC) TESTING UNDER
ASIA-PACIFIC ECONOMIC COOPERATION MUTUAL RECOGNITION
ARRANGEMENT FOR CONFORMITY ASSESSMENT OF TELECOMMUNICATIONS
EQUIPMENT (APEC-TEL MRA) / THE FEDERAL COMMUNICATIONS COMMISSION
OF THE UNITED STATES OF AMERICA (US FCC)**

This circular is to inform SAMM applicants and accredited laboratories on the implementation of accreditation of EMC testing for APEC-TEL MRA / US FCC by Standards Malaysia. This circular supersedes SAMM Circular 3/2016.

All applicants and accredited laboratories intending to apply for the above scope are required to comply with relevant requirements of MS ISO/IEC 17025, SAMM and US FCC. The laboratories are required to complete the ***Accredited Testing Laboratory FCC Technical Assessment Checklist (Appendix 1, KDB 853844)** publication date 2 March 2018. The checklist shall be submitted during application or prior to upcoming assessment, wherever applicable, and will be verified by Standards Malaysia assessors during the on-site assessment.

FCC policy generally allows for a transition period for the standards¹ of two years where the earlier version may continue to be used. The new standards identified can be used immediately. The previous standards may be used until **2 March 2020** which is two (2) years from the date of publication of the KDB 853844 unless a different transition for a specific standard or change is specified by the FCC.

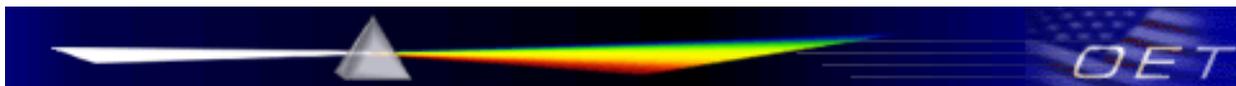
¹ Standards refer to ANSI C63.4-2014, ANSI C63.10-2013, TIA-102.CAAA-E, ANSI/TIA-603-E, ANSI C63.5-2017, ANSI C63.26-2015 and ISO/IEC 17025:2017.

In case the applicants and accredited laboratories decide to use external resources/subcontract its EMC Testing whether because of unforeseen reasons or on a continuing basis, the US FCC requires that the external resources/sub-contracted laboratories are US FCC recognised and appear on the list on the US FCC website. The list of FCC recognised list is at: <https://apps.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>

This circular will be implemented effective immediately.

***Note:** The latest edition of the checklist (including any amendments) applies and is accessible on the FCC website

<https://apps.fcc.gov/oetcf/kdb/forms/FTSSearchResultPage.cfm?id=44615&switch=P>



**Federal Communications Commission
Office of Engineering and Technology
Laboratory Division**

March 2, 2018

**ACCREDITED TESTING LABORATORY
FCC TECHNICAL ASSESSMENT CHECKLIST**

The following checklist identifies specific items to be evaluated during the technical assessment of a testing laboratory to determine the capability and competence of that laboratory to perform testing to show compliance with FCC equipment authorization requirements under the FCC Rules and Regulations contained in Title 47 of the Code of Federal Regulations (47 CFR). This checklist is intended to serve as a guide, and it provides a minimum list of items to be included in the technical evaluation of the test laboratory as part of a complete ISO/IEC 17025¹ assessment. This checklist is not intended to replace good engineering judgment of the technical assessor(s), or a thorough evaluation of the facility. As such, other related items not shown in this checklist may be evaluated and documented by the assessor(s). The accreditation body shall attest that all responses in this checklist are complete and accurate. The completed checklist for each laboratory is submitted to the FCC, and is made publicly available.

Basic requirements for measurement procedures for unintentional and intentional radiators are listed in Section 15.31. A list of measurement procedures is also found on the FCC equipment authorization measurements page at: <https://www.fcc.gov/oet/ea/eameasurements.html> or <https://www.fcc.gov/general/equipment-authorization-measurement-procedures>. Finally, the [FCC OET Knowledge Database](https://www.fcc.gov/kdb) (<https://www.fcc.gov/kdb>) provides additional guidance on testing devices subject to the FCC's rules.

A testing laboratory is not required to be assessed to all of the standards identified in this checklist, but for the testing laboratory to be recognized by the FCC they must be assessed and found competent to perform testing with all applicable parts of each standard for which FCC recognition is being requested. In cases where the FCC doesn't recognize all portions of a standard or different versions of a standard contain conflicting requirements, any deviations from full compliance with a standard [*e.g.*, site validation for radiated emission measurements above 1 GHz per 5.5.1 (a) of ANSI C63.4-2014 vs. 5.2 of ANSI C63.10-2013] should be noted in this checklist and by the accreditation body.

A testing laboratory is not required to be assessed and recognized for all of the scopes identified in [KDB Publication 974614](#), but the FCC does not recognize partial scopes; for a scope to be recognized by the FCC, an accredited testing laboratory must be capable of performing all tests covered within the scope. The FCC does allow an accredited testing laboratory to meet the full scope requirements using multiple testing locations of the same company at different locations within the same country.

The Equipment Authorization Report and Order FCC 14-208 has updated the incorporation-by-reference of the measurement procedures for unintentional radiators (ANSI C63.4-2014) and intentional radiators

¹ It is noted that a new edition of the ISO/IEC conformity assessment standards has been issued. The Commission will accept either ISO/IEC17025:2005 or ISO/IEC 17025:2017 at this time and is reviewing options to update the applicable FCC rules to specify the 2017 edition.

(ANSI C63.10-2013). These versions of the standards shall be used after July 12, 2016 for all part 15 device compliance testing.

When the procedures in ANSI C63.4-2014 or ANSI C63.10-2013 are used for radiated emission measurements, the test site used shall meet the following site validation requirements (see also [KDB Publication 414788](#)):

- After July 12, 2015 test facilities used to make radiated emission measurements from 30 MHz to 1 GHz are required to meet the site validation requirements in ANSIC63.4-2014.
- For radiated emission measurements in 1 GHz to 40 GHz, a test facility can use either of the two site validation options in 5.5 of ANSI C63.4-2014. On and after the transition date of July 13, 2018, each test facility is required to comply with the site validation requirements in CISPR 16-1-4:2010-04.

Validation of the test site acceptability criterion shall be confirmed no less than once every three years.

The version of each measurement procedure covered during the assessment shall be recorded under the scope of accreditation on the checklist.

The assessor(s) shall mark in the checklist all items observed and verified at the laboratory. Mark the letter "Y," representing "yes," to show conformance with the criteria. **Mark the letter "N," representing "No," to show a deficiency.** If the item is "Not Applicable," mark "N/A." As necessary, explanations of any deficiency, exception, or comments shall be recorded in the space provided.

REFERENCED KDB PUBLICATIONS

KDB Publication 285076, Equipment authorization requirements for hearing aid compatibility of mobile handsets.

KDB Publication 414788, Requirements for test sites used to make radiated emission measurements.

KDB Publication 447498, RF exposure requirements and procedures for mobile and portable devices.

KDB Publication 789033, Test procedures for measuring U-NII devices subject to the requirements in Part 15, Subpart E.

KDB Publication 865664, Guidance on SAR measurements for devices operating in the 100 MHz to 6 GHz range, and general RF exposure compliance reporting.

KDB Publication 905462, Test guidance for demonstrating compliance of U-NII devices subject to DFS requirements.

KDB Publication 935210, Guidance for the evaluation of signal boosters.

KDB Publication 971168, Procedures for compliance measurements on licensed wideband (> 1 MHz) digital transmission systems.

KDB Publication 974614, Guidance for FCC recognition of accredited testing laboratories that perform testing of RF devices subject to Declaration of Conformity (DoC) and Certification approval procedures and guidance for FCC recognition of test firm accrediting bodies.

**Accredited Testing Laboratory
FCC Technical Assessment Checklist**

Laboratory Name	
Laboratory Contact	
Accreditation Body	
Date of Assessment	
Completed by (Assessor name(s) printed)	
Scope of Accreditation (Indicate standards covered by assessment: <i>e.g.</i> , ANSI C63.4-2014, ANSI C63.10-2013, and FCC MP-5-1986.)	
Type of Assessment	
Date Checklist Completed	

I. SCOPE OF ASSESSMENT (<i>The laboratory shall possess or demonstrate access to appropriate FCC Rules, standards, and measurement methods, consistent with their scope of accreditation. Has the test laboratory been assessed and found to be capable and competent to perform testing to the standards listed below?</i>)				
Y	N	N/A	1. ANSI C63.4-2014, <i>American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.</i>	
Y	N	N/A	2. ANSI C63.10-2013, <i>American National Standard for Testing Unlicensed Wireless Devices.</i>	
Y	N	N/A	3. Is the testing laboratory familiar with KDB Publications 789033 and 905462, and capable of testing devices subject to all Unlicensed National Information Infrastructure requirements?	
Y	N	N/A	4. ANSI C63.17-2013, <i>American National Standard Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices.</i>	
Y	N	N/A	5. ANSI C63.19-2007, <i>American National Standard for Methods of Measurement of Compatibility Between Wireless Communication Devices and Hearing Aids.</i>	

Y	N	N/A	6. ANSI C63.19-2011, <i>American National Standard for Methods of Measurement of Compatibility Between Wireless Communication Devices and Hearing Aids.</i>	
Y	N	N/A	7. Is the testing laboratory familiar with KDB Publication 285076 and capable of testing devices subject to Hearing Aid Compatibility (HAC) requirements for mobile handsets?	
Y	N	N/A	8. ANSI/TIA-603-D-2010, <i>Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.</i>	
Y	N	N/A	9. ANSI/TIA-603-E-2016, <i>Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.</i>	
Y	N	N/A	10. TIA-102.CAAA-D, Digital C4FM/CQPSK Transceiver Measurement Methods, 2013	
Y	N	N/A	11. TIA-102.CAAA-E, Digital C4FM/CQPSK Transceiver Measurement Methods, 2016	
Y	N	N/A	12. ANSI C63.26-2015 American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	
Y	N	N/A	13. Is the testing laboratory familiar with KDB Publication 971168 and capable of testing wideband devices operating in Commercial Mobile (Radio) Services?	
Y	N	N/A	14. RF exposure KDB publications, in conjunction with the fundamental SAR concepts in IEEE Std 1528-2013, <i>IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.</i> KDB publication requirements take precedence over any variations in IEEE Std 1528-2013.	
Y	N	N/A	15. Is the testing laboratory familiar with KDB Publications 447498 and 865664 and capable of testing devices subject to general RF exposure guidance and SAR measurement guidance, respectively?	
Y	N	N/A	16. FCC MP-5-1986: <i>Methods of measurement of radio noise emissions from Industrial, Scientific and Medical (ISM) equipment.</i>	
Y	N	N/A	17. Does the testing laboratory <i>possess or can it demonstrate access</i> to all FCC Rules and Regulations (47 CFR) and standards for the scope of the assessment?	
Y	N	N/A	18. Are the measurement antennas properly calibrated in accordance with ANSI C63.5-2006?	

Y	N	N/A	19. Are the measurement antennas properly calibrated in accordance with ANSI C63.5-2017?	
Y	N	N/A	20. Is any measurement software used by the testing laboratory documented in the test report?	
Y	N	N/A	21. For each type and size of EUT to be measured, does each radiated emission test facility comply with the conditions and requirements of the appropriate test procedure?	
Y	N	N/A	22. Are LISN(s), filters, and isolation transformers, if used, properly installed? Is the LISN bonded to the ground reference plane?	
Y	N	N/A	23. Does the radiated emission test site(s) meet the site validation requirements of 5.4 of ANSI C63.4-2014 for the frequency range of 30 MHz to 1 GHz?	
Y	N	N/A	24. Does the radiated emission test site(s) meet the site validation requirements of 5.5 of ANSI C63.4-2014 for the frequency range of 1 GHz to 40 GHz?	
Y	N	N/A	25. Does the radiated emission test site(s) meet the site validation requirements of CISPR 16-1-4:2010-04 for the frequency range of 1 GHz to 40 GHz?	
Y	N	N/A	26. Was the test site validation for performing radiated emission measurements completed in the last three years?	
Y	N	N/A	27. Does the EMI receiver or spectrum analyzer cover the required frequency range per the scope of accreditation for the measurements to be performed by the testing laboratory? (Section 15.33)	
Y	N	N/A	28. Does the test laboratory have an up-to-date description of measurement facilities as required by Section 2.948?	
Y	N	N/A	29. Is the testing laboratory familiar with KDB Publication 935210 and capable of testing devices subject to signal booster requirements?	
II. EMISSION TESTS				
Y	N	N/A	30. Are the AC power-line conducted emission tests performed in accordance with the applicable parts of ANSI C63.4-2014 and Sections 15.31-15.35 and 15.107?	

Y	N	N/A	31. Are the guidelines in ANSI C63.4 and FCC MP-5 followed for large EUTs, including <i>in-situ</i> measurements, if appropriate?	
Y	N	N/A	32. Is the conducted emission test setup in accordance with ANSI C63.4-2014 with the required separation between the EUT and any conducting surfaces maintained?	
Y	N	N/A	33. Is the EUT connected to one LISN and all the peripherals connected to one or more LISNs or a power strip to one LISN; i.e., per ANSI C63.4-2014?	
Y	N	N/A	34. For each type of EUT, are measurements made over the correct frequency ranges and the correct detectors and bandwidth as required by Sections 15.33, 15.35, and 18.309?	
Y	N	N/A	35. Are the radiated emission tests performed in accordance with the proper standard?	
Y	N	N/A	36. Were radiated emission tests observed, and is the radiated emission test setup in accordance with proper standard?	
Y	N	N/A	37. Are unintentional radiators, other than ITE, tested in accordance with the requirements in Section 15.31 and the procedures in the appropriate standard?	
Y	N	N/A	38. Are intentional radiators tested in accordance with the requirements in Section 15.31 and the procedures in the appropriate standard?	
Y	N	N/A	39. Does the radiated emission measurement represent the maximized cable configuration and worst case mode of EUT operation?	
Y	N	N/A	40. For each type of EUT, are the correct frequency ranges investigated and the correct measurement detectors and bandwidth used per Sections 15.33 and 15.35?	
Y	N	N/A	41. If the laboratory has a TEM waveguide, are the requirements followed in making radiated emission measurements using TEM waveguides? (ANSI C63.4-2014, KDB Publication 414788)	
III. TEST REPORTS (<i>Assessor should request to review several sample test reports for various types of products.</i>)				
Y	N	N/A	42. Have several sample test reports for various types of products been reviewed for accuracy?	

Y	N	N/A	43. Does each of the test reports contain all the required information, and does the laboratory follow the report disposition procedure?	
Y	N	N/A	44. Does the test report reference the standard used and specify any deviations?	
Y	N	N/A	45. Is the rationale for selecting and arranging the EUT clearly stated, and are the components of the EUT system clearly identified?	
Y	N	N/A	46. Does the test report include photographs or detailed sketches of the EUT configuration?	
Y	N	N/A	47. Does the measurement report include a sample calculation with all conversion and correction factors used?	
Y	N	N/A	48. Does the testing laboratory use external resources/subcontractors to perform testing, and if so do they have procedures in place to ensure that the external resources are properly accredited and FCC recognized?	
Y	N	N/A	49. If external resources/subcontractors are used to perform testing, do the test reports clearly identify the work performed by the external resources/subcontractors and the results of the testing?	
<p>IV. PERSONNEL COMPETENCY <i>(The following is a list of general or lead-in questions, which are intended to be used as a guide to assess competency of laboratory personnel. Additional specific questions should be used to determine the technical competency of the personnel performing the measurement.)</i></p>				
Y	N	N/A	50. Are laboratory personnel able to find recent FCC Rules and appropriate KDB guidance?	
Y	N	N/A	51. Has each laboratory personnel responsible for testing been able to demonstrate performing a measurement of an applicable device?	
Y	N	N/A	52. Do the test personnel know how to determine if an emission is from the EUT or is an ambient signal? Do the test personnel know how to handle an emission that is close to, or coincident with, an ambient signal?	
Y	N	N/A	53. Can the test personnel explain the FCC requirements for testing a product in accordance with the requirements in Sections 15.31 to 15.35? Are the test personnel knowledgeable of the FCC testing conditions for different types of products?	

Y	N	N/A	54. Arrange for one of the laboratory personnel, at each type of site, replicate at least three frequency points on the horizontal site attenuation, and at least three frequency points on the vertical site attenuation. Is the test performed correctly, and is the site attenuation data at these frequencies consistent with the previously recorded data? <i>Note: Select frequencies from previous data that have both low and high deviations from the NSA.</i>	
Y	N	N/A	55. For equipment requiring RF exposure evaluation (SAR and MPE), are the test personnel knowledgeable of the test reduction, test exclusion, and measurement, or if applicable, numerical simulation procedures and requirements in KDB Publications?	
Y	N	N/A	56. For measurements of equipment requiring Hearing Aid Compatibility (HAC) testing, are the test personnel knowledgeable of the test setup and procedures?	

Change Notice

07/31/2015: 853844 D01 Accredited Lab Checklist v02 replaces 853844 D01 Accredited Lab Checklist v01. The checklist was updated to reflect changes related to FCC 14-208.

02/29/2016: 853844 D01 Accredited Lab Checklist v02r01 replaces 853844 D01 Accredited Lab Checklist v02. The checklist was updated to reflect changes related to partial scopes of accreditation and the addition of a separate scope for signalboosters.

03/02/2018: 853844 D01 Accredited Lab Checklist v02r02 replaces 853844 D01 Accredited Lab Checklist v02r01. The checklist was updated to reflect changes related to allowed standards including ANSI C63.4-2014, ANSI C63.10-2013, TIA-102.CAAA-E, ANSI/TIA-603-E, ANSI C63.5-2017, ANSI C63.26-2015 and ISO/IEC 17025:2017. A KDB publication reference table was added to the document.