**Date:** **NVLAP Lab Code:** Click or tap here to enter text.

**NIST HANDBOOK 150-11A CHECKLIST (ISO/IEC 17025:2017)**

**ECT: FCC Equipment Authorization Requirements for Recognition**

**Based on the FCC Technical Assessment Evaluation Checklist (KDB 853844 – March 2, 2018)**

**and FCC Accredited Testing Laboratory Program Roles and Responsibilities,**

**Appendix A Testing Laboratory Scopes of Accreditation (KDB 974614 – April 2, 2019)**

**Instructions to the Assessor:** This checklist addresses specific criteria relating to accreditation of a laboratory to determine the capability and competence of that laboratory to perform tests 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). It is intended for use during the assessment phase of the accreditation process as a guide to evaluate the capability of the applicant laboratory facility and to determine the competency of the laboratory personnel for performing the required measurements. It is not intended to replace the good engineering judgment of the technical assessor or a thorough evaluation of the facility. Other points may and should be added to this checklist as the onsite assessment progresses.

Place an "X" beside each checklist item that represents a nonconformity. Place a "C" beside each item on which you are commenting for other reasons. Record the nonconformity explanation and/or comment in assessment report created in the assessor portal under the laboratory’s assessment record. Place "OK" beside all other items you observed or verified as compliant at the laboratory.

|  |  |
| --- | --- |
| **Laboratory Name** |  |
| **Laboratory Contact** |  |
| **Accreditation Body** |  |
| **Date of Assessment** |  |
| **Completed by**  **(Assessor name(s) printed)** |  |

|  |  |
| --- | --- |
| **Scope of Accreditation**  (Indicate standards covered by assessment: e.g., ANSI C63.4-2014, ANSI C63.10-2013, and FCC MP-5-1986.) |  |
| **Type of Assessment** |  |
| **Date Checklist Completed** |  |

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| --- | --- | --- |
| **Requirement** | **Compliance**  **(OK, X, or C)** | **Objective Evidence** |

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| **I.** | **Scope of assessment** |
|  | **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?** |

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| --- | --- | --- | --- | --- |
|  | **1** | ANSI C63.4-2014, *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* | Choose an item. |  |
|  | **2** | ANSI C63.10-2013, *American National Standard for Testing Unlicensed Wireless Devices* | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **4** | ANSI C63.17-2013, *American National Standard Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices* | Choose an item. |  |
|  | **5** | ANSI C63.19-2007, *American National Standard for Methods of Measurement of Compatibility Between Wireless Communication Devices and Hearing Aids* | Choose an item. |  |
|  | **6** | ANSI C63.19-2011, *American National Standard for Methods of Measurement of Compatibility Between Wireless Communication Devices and Hearing Aids* | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **8** | ANSI/TIA-603-D-2010, *Land Mobile FM or PM Communications Equipment Measurement and Performance Standards* | Choose an item. |  |
|  | **9** | ANSI/TIA-603-E-2016, *Land Mobile FM or PM Communications Equipment Measurement and Performance Standards* | Choose an item. |  |
|  | **10** | TIA-102.CAAA-D, *Digital C4FM/CQPSK Transceiver Measurement Methods*, 2013 | Choose an item. |  |
|  | **11** | TIA-102.CAAA-E, *Digital C4FM/CQPSK Transceiver Measurement Methods*, 2016 | Choose an item. |  |
|  | **12** | ANSI C63.26-2015 *American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services* | Choose an item. |  |
|  | **13** | Is the testing laboratory familiar with KDB Publication 971168 and capable of testing wideband devices operating in Commercial Mobile (Radio) Services? | Choose an item. |  |
|  | **14** | RF exposure KDB publications, in conjunction with the fundamental SAR concepts in IEEE Std 1528-2013, *IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques*. KDB publication requirements take precedence over any variations in IEEE Std 1528-2013. | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **16** | FCC MP-5-1986: *Methods of measurement of radio noise emissions from Industrial, Scientific and Medical (ISM) equipment* | Choose an item. |  |
|  | **17** | Does the testing laboratory possess or can it demonstrate access to all FCC Rules and Regulations (47 CFR) and standards for the scope of the assessment? | Choose an item. |  |
|  | **18** | Are the measurement antennas properly calibrated in accordance with ANSI C63.5-2006? | Choose an item. |  |
|  | **19** | Are the measurement antennas properly calibrated in accordance with ANSI C63.5-2017? | Choose an item. |  |
|  | **20** | Is any measurement software used by the testing laboratory documented in the test report? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **22** | Are LISN(s), filters, and isolation transformers, if used, properly installed? Is the LISN bonded to the ground reference plane? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **26** | Was the test site validation for performing radiated emission measurements completed in the last three years? | Choose an item. |  |
|  | **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) | Choose an item. |  |
|  | **28** | Does the test laboratory have an up-to-date description of measurement facilities as required by Section 2.948? | Choose an item. |  |
|  | **29** | Is the testing laboratory familiar with KDB Publication 935210 and capable of testing devices subject to signal booster requirements? | Choose an item. |  |

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| **II.** | **Emissions tests** |

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|  | **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? | Choose an item. |  |
|  | **31** | Are the guidelines in ANSI C63.4 and FCC MP-5 followed for large EUTs, including in-situ measurements, if appropriate? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **35** | Are the radiated emission tests performed in accordance with the proper standard? | Choose an item. |  |
|  | **36** | Were radiated emission tests observed, and is the radiated emission test setup in accordance with proper standard? | Choose an item. |  |
|  | **37** | Are unintentional radiators, other than ITE, tested in accordance with the requirements in Section 15.31 and the procedures in the appropriate standard? | Choose an item. |  |
|  | **38** | Are intentional radiators tested in accordance with the requirements in Section 15.31 and the procedures in the appropriate standard? | Choose an item. |  |
|  | **39** | Does the radiated emission measurement represent the maximized cable configuration and worst-case mode of EUT operation? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **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) | Choose an item. |  |

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| **III.** | **Test Reports** |
|  | **Assessor should request to review several sample test reports for various types of products.** |

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|  | **42** | Have several sample test reports for various types of products been reviewed for accuracy? | Choose an item. |  |
|  | **43** | Does each of the test reports contain all the required information, and does the laboratory follow the report disposition procedure? | Choose an item. |  |
|  | **44** | Does the test report reference the standard used and specify any deviations? | Choose an item. |  |
|  | **45** | Is the rationale for selecting and arranging the EUT clearly stated, and are the components of the EUT system clearly identified? | Choose an item. |  |
|  | **46** | Does the test report include photographs or detailed sketches of the EUT configuration? | Choose an item. |  |
|  | **47** | Does the measurement report include a sample calculation with all conversion and correction factors used? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **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? | Choose an item. |  |

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| **IV.** | **Personnel competency** |

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|  | **(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.)** |

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|  | **50** | Are laboratory personnel able to find recent FCC rules and appropriate KDB guidance? | Choose an item. |  |
|  | **51** | Has each laboratory personnel responsible for testing been able to demonstrate performing a measurement of an applicable device? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **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? | Choose an item. |  |
|  | **54** | Arrange for one of the laboratory personnel, at each type of site, to 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? | Choose an item. |  |
|  |  | *Note: Select frequencies from previous data that have both low and high deviations from the NSA.* |  |  |
|  | **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? | Choose an item. |  |
|  | **56** | For measurements of equipment requiring Hearing Aid Compatibility (HAC) testing, are the test personnel knowledgeable of the test setup and procedures? | Choose an item. |  |

**TABLE 1-Technology in support of FCC Certification approval procedures**

Please include the upper frequency range for each technology in which the laboratory is requesting for recognition:

|  |  |  |
| --- | --- | --- |
| **Technology** | **Test Method(s)** | **Upper Frequency Range (MHz)** |
| Unintentional Radiators (FCC Part 15, Subpart B) | ANSI C63.4-2014 |  |
| Industrial, Scientific, and Medical Equipment (FCC Part 18)  • Consumer ISM equipment | FCC MP-5 (February 1986) |  |
| Intentional Radiators (FCC Part 15 Subpart C) | ANSI C63.10-2013 |  |
| UPCS (FCC Part 15, Subpart D)  • Unlicensed Personal Communication Systems devices | ANSI C63.17-2013 |  |
| U-NII without DFS Intentional Radiators (FCC Part 15, Subpart E)  • Unlicensed National Information Infrastructure Devices (U-NII without DFS) | ANSI C63.10-2013 |  |
| U-NII with DFS Intentional Radiators (FCC Part 15 Subpart E)  • Unlicensed National Information Infrastructure UNII) Devices with Dynamic Frequency Selection (DFS) | FCC KDB Publication 905462 D02 UNII DFS Compliance Procedures New Rules v02 (April 8, 2016) |  |
| UWB Intentional Radiators (FCC Part 15, Subpart F)  • Ultra-wideband Operation | ANSI C63.10-2013 |  |
| BPL Intentional Radiators (FCC Part 15, Subpart G)  • Access Broadband Over Power Line (Access BPL) | ANSI C63.10-2013 |  |
| White Space Device Intentional Radiators (FCC Part 15, Subpart H)  • White Space Devices | ANSI C63.10-2013 |  |
| Commercial Mobile Services (FCC Licensed Radio Service Equipment)  • Part 22 (cellular)  • Part 24  • Part 25 (below 3 GHz)  • Part 27 | ANSI/TIA-603-E-2016 [1], or  TIA-102.CAAA-E-2016 [1], or  ANSI C63.26-2015 |  |
| General Mobile Radio Services (FCC Licensed Radio Service Equipment)  • Part 22 (non-cellular)  • Part 90 (below 3 GHz)  • Part 95 (below 3 GHz)[3]  • Part 97 (below 3 GHz)   * Part 101 (below 3 GHz) | ANSI/TIA-603-E-2016 [1], or  TIA-102.CAAA-E-2016 [1], or  ANSI C63.26-2015 |  |
| **Technology** | **Test Method(s)** | **Upper Frequency Range (MHz)** |
| Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment)  • Part 96 | ANSI/TIA-603-E-2016 [1], or  TIA-102.CAAA-E-2016 [1], or  ANSI C63.26-2015 |  |
| Maritime and Aviation Radio Services (FCC Licensed Radio Service Equipment)  • Part 80  • Part 87 | ANSI/TIA-603-E-2016 [1], or  ANSI C63.26-2015 |  |
| Microwave and Millimeter Bands Radio Services (FCC Licensed Radio Service Equipment) 18[3]  • Part 25  • Part 30  • Part 74  • Part 90 (above 3 GHz)  • Part 95 (above 3 GHz)  • Part 97 (above 3 GHz)  • Part 101 | ANSI/TIA-603-E-2016 [1], or  TIA-102.CAAA-E-2016 [1], or  ANSI C63.26-2015 |  |
| Broadcast Radio Services (FCC Licensed Radio Service Equipment)  • Part 73  • Part 74 (below 3 GHz) | ANSI/TIA-603-E-2016 [1], or  TIA-102.CAAA-E-2016 [1], or  ANSI C63.26-2015 |  |
| RF Exposure  • Devices subject to SAR requirements | IEEE Std 1528™-2013 |  |
| Hearing Aid Compatibility (Part 20)  • HAC for Commercial mobile services | ANSI C63.19-2011 |  |
| Signal Boosters (Part 20)  • Wideband Consumer signal boosters  • Provider-specific signal boosters  • Industrial signal boosters  Signal Boosters (Section 90.219) | ANSI C63.26-2015 [2] |  |

[1] ANSI/TIA-603-D-2010 or ANSI/TIA-102.CAAA-D-2013 may continue to be used until March 2, 2020 which is two years from the date of the publication of this KDB.

[2] For Signal Boosters (Part 20) accreditation is required for Commercial Mobile Services (FCC Licensed Radio Service Equipment) and for Signal Boosters (Section 90.219) accreditation is required for General Mobile Radio Services (FCC Licensed Radio Service Equipment).

[3] Table updates for the scope General Mobile Radio Service to add text “above 3 GHz” and for the Microwave and Millimeter Wave Bands Radio Services for Parts 90, 95 and 97 above 3 GHz in version v05r01 are considered clarifications to the scope and therefore the two year transition period ends on March 2, 2020 and is not extended two year from the release date of v05r01.

I hereby attest that at the time of assessment, the laboratory’s technical capabilities met the aforementioned requirements based on a reasonable assessment sampling basis subject to effective corrective action for any nonconformities noted in the overall Accreditation Body (AB) reports of the assessment.

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| ***Assessor(s) Signature*** |  | ***Date*** |

The FCC has developed the questions contained in this checklist to be used by the AB to assist in the assessment of EMC testing laboratories. The FCC also requires the AB to provide them with a copy of the completed checklist revealing the technical competence of the laboratory for the specific tests required by the FCC, and to meet APEC TEL MRA obligations. Please be advised that all information provided to the FCC will be made publicly available, as directed by the Freedom of Information Act (FOIA), unless a confidentiality request is submitted to the FCC with the recognition request pursuant to 47 CFR 0.457 and 0.459. Please note that failure to authorize NVLAP to submit this document to the FCC may result in the FCC’s not recognizing your laboratory as an “Accredited” testing laboratory.

I hereby grant permission to NVLAP, providing this assessment, at the request of the FCC to release a copy of this completed checklist to the FCC.

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| ***Laboratory Authorized Representative Signature*** |  | ***Date*** |

**Continue to Annex A to complete site attenuation information.**

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| **Annex A: SITE ATTENUATION INFORMATION** |
| Please complete the Site Attenuation information below during the on-site assessment. |

|  |  |
| --- | --- |
| NSA measurement verification facility address: |  |
|  |  |
|  |  |
|  |  |
| Site Description (i.e., 3 m, 10 m, OATS, Chamber): |  |

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| --- |
| Transmit antenna height: |
| Test distance: |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Frequency (MHz)*** | ***Old Value (dB)***  ***(Deviation from Theoretical NSA)*** | ***New Value (dB)***  ***(Deviation from Theoretical NSA)*** | ***Polarization*** | ***Position*** |
|  |  |  | Horizontal |  |
|  |  |  | Horizontal |  |
|  |  |  | Horizontal |  |

|  |
| --- |
| Transmit antenna height: |
| Test distance: |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Frequency (MHz)*** | ***Old Value (dB)***  ***(Deviation from Theoretical NSA)*** | ***New Value (dB)***  ***(Deviation from Theoretical NSA)*** | ***Polarization*** | ***Position*** |
|  |  |  | Vertical |  |
|  |  |  | Vertical |  |
|  |  |  | Vertical |  |

**Note:** Acceptance value is +/- 4 dB from the theoretical value (*C63.4:2014, Clause 5.4.4.2 Site acceptability criterion*).