This document has been created and reviewed by the A2LA Electromagnetic Advisory Committee (EMAC). It provides a summary of consensus decisions voted on and approved by the EMAC and A2LA Criteria Council for use by laboratories and assessors.

I. A2LA Requirements

1.) Customer supplied operating equipment which the testing laboratory is not responsible for should be listed in the test report. ISO/IEC 17025:2005 Clause 5.10.2.f or ISO/IEC 17025:2017 Clause 7.8.2.1.g (2011 EMAC Meeting)

2.) Within ANSI C63.4, Normalized Site Attenuation (NSA) is not an in-house calibration and the requirements of Section T4 of P102 – A2LA Policy on Metrological Traceability do not apply. (2008 EMAC Meeting)

3.) Within IEC 61000-4-3, it is agreed that uniform field measurement is not considered a calibration, and T4 is not required when utilizing properly calibrated equipment. (2008 EMAC Meeting)

4.) Within IEC 61000-4-6, it is agreed that the test signal level measurement is not considered a calibration, and T4 is not required when utilizing properly calibrated equipment. (2008 EMAC Meeting)

5.) Power Meters and Bandwidths -When a laboratory is being assessed for RF power measurements; the lab needs to know the bandwidth of the power sensor and power meter display unit as a system. Depending on the application, the bandwidth of the power measuring system needs to be calibrated (traceable). ISO/IEC 17025:2005 Clause 5.5.2 or ISO/IEC 17025:2017 Clause 6.4.5 (2006 EMAC Meeting)

6.) Calibration of SAR reference dipoles is required (ISO/IEC 17025, sec 5.5.2/5.6.1 or ISO/IEC 17025:2017 Clause 6.4.5/7.4.7). Calibrations not meeting P102 - A2LA Policy on Metrological Traceability shall have a deficiency cited. FCC KDB 865664 D01 v01r04 (2010 EMAC Meeting)

7.) Where tolerances on parameters are not defined in contract review, or in the referenced documents (test methods), the tolerances listed in the following table shall apply ISO/IEC 17025:2005 Clause 5.5.2 or ISO/IEC 17025:2017 Clause 6.4.5 (2011 EMAC Meeting)

<table>
<thead>
<tr>
<th>Default Tolerances for EMC Testing</th>
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<tbody>
<tr>
<td>Supply voltage and current</td>
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<tr>
<td>Time interval, distance</td>
</tr>
<tr>
<td>Resistance, capacitance, inductance, impedance</td>
</tr>
<tr>
<td>Test parameters for RF field strength, Electrical or magnetic field strength, injected current, power, energy, transient voltage amplitude (if adjustable)</td>
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Any commercial measurement devices (ruler, tape measure, etc.) can be used for the distance measurement. No calibration is required for these devices.

8.) With the exception of NSA and SVSWR “Verification” for the purpose of determining that the test equipment complies with specifications does not exist for equipment used in EMC testing. The only options are P102-compliant in-house calibrations, or external calibrations. ISO/IEC 17025:2005 Clause
5.5.2 or ISO/IEC 17025:2017 Clause 6.4.5 (2012 EMAC Meeting – Revised 2016 EMAC Meeting – Revised 2017 EMAC Meeting)

9.) Test systems that focus on the evaluation of protocol content (i.e., syntax, semantics, and synchronization of communication) do not require calibration. Description of protocol testing per A2LA R214: Testing control to determine if a computer application or devices has the capability of accurately sending and receiving messages as defined in a documented specification. ISO/IEC 17025:2005 Clause 5.5.2 or ISO/IEC 17025:2017 Clause 6.4.5 (2012 EMAC Meeting)

10.) Per R101 – General Requirements – Accreditation of ISO-IEC 17025 Laboratories, for test methods to be listed on A2LA scopes of accreditation which were not originally published in English, the laboratory must meet one of the following conditions (2013 EMAC Meeting):

   a. Obtain an English translation of the test method.

   b. If an English translation is not obtained, the lab shall have an employee or contracted person who is/are fluent in both English and the “native” language that the test method is published in, and is technically competent and can explain the given test in both languages if required. This individual would need to be present during on-site assessments.

   c. Obtain a published document from an appropriate regulatory authority, or standards development organization, that identifies the foreign test method as equivalent to an alternate test method published in English.

11.) Per R101 – General Requirements – Accreditation of ISO-IEC Laboratories, laboratories performing Field Interoperability Testing (Coverage Testing) shall meet, and shall be assessed to the requirements defined in R104 – General Requirements – Accreditation of Field Testing and Calibration Laboratories. (2014 EMAC Meeting)

II. External Organizational Matters (FCC, NIST, VCCI, AEMCLR, etc.)

1.) FCC:

   a. All assessments of laboratories seeking to list testing activities in support of FCC Certification or FCC Declaration of Conformity on their scope of accreditation shall include completion of the C216 – Specific Checklist – FCC Technical Assessment Evaluation, R102 – Conditions for Accreditation, Item 1 (2015 EMAC Meeting)

III. Specific Test Methods

1.) ANSI C63.4:

   a. ANSI C63.4 requires verification of turntable position and verification of the antenna height (at 1 and 4 m). Azimuthal verification must be verified to be less than 22.5 degrees when used in a non-continuous process. If the test report contains specific height and angle measurements, the lab must have adequate verification on its numbers. (2003 EMAC Meeting)

   b. ANSI C63.4 pre-scan data, if done in a chamber which does not meet NSA requirements, must be clearly noted as not complying with C63.4 if used in an endorsed test report (per R105 – Rules for Making Reference to A2LA Accredited Status). ANSI C63.4, sec. 8.3.2.1, does allow pre-scan testing to be performed, but if the EUT is relocated to a final testing site (which meets NSA compliance requirements), the full frequency span must be re-checked. (2011 EMAC Meeting)

   c. Limited search heights are not permitted for testing to ANSI C63.4 during final measurements. (2017 EMAC Meeting)
2.) CISPR 16:
   a. Laboratories must provide objective evidence that their LISN meets the requirements of CISPR 16-1-2, clause 4.7.1, table 6 for isolation, and requirements of CISPR 16-1-2, clause 8 for voltage drops. Data sheets are acceptable for this purpose. (2010 EMAC Meeting)

3.) CISPR 22:
   a. Test Site Validation Above 1GHz Using SVSWR Measurement - CISPR 22, Version 5.2 clearly states that test site validation above 1 GHz is required. The committee was in agreement and as such, laboratories should be validating the test site and would be expected to provide this information for review during on-site assessments. (2008 EMAC Meeting)
   b. It was agreed that a deficiency would not be cited and an exception on the scope would not be required for a laboratory testing Class A or Class B devices at a distance of less than 10 Meters (2015 EMAC Meeting)

4.) IEC 61000-4-2:
   a. It was agreed that no deficiencies would be cited against a laboratory that does not use a 1 GHz instrument to verify the ESD equipment (per EN 61000-4-2). (2001 EMAC Meeting)
   b. A laboratory is not required to use a calibrated barometer for ESD testing in the test environment. Alternatively, a laboratory may use barometric pressure values reported by an off-site source, such as a local airport or weather station. If such information is used, the laboratory shall ensure that these barometric pressure values are converted to pressure values reflecting the actual elevation of the laboratory if the reported values are representing values measured at sea level by applying an appropriate correction factor. (2011 EMAC Meeting – revised 2017 EMAC Meeting)

5.) MIL-STD-461:
   a. An EMC bond requires low DC resistance (2.5 milliohms) and low RF impedance (length to width ratio of 5:1) according to MIL-STD-461. (2003 EMAC Meeting)
<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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| 11/20/2017 | Added reference to ISO/IEC 17025:2005 Clause 5.10.2.f under Part I Section 1  
Removed Part I Section 2  
Added “Within ANSI C63.4” to the beginning of Part I Section 3  
Added reference to ISO/IEC 17025:2005 Clause 5.5.2 and replaced “2008” with “2006” under Part I Section 6  
Added reference to FCC KDB 865664 D01 v01r04 under Part I Section 7  
Added reference to ISO/IEC 17025:2005 Clause 5.5.2 under Part I Section 8  
Added “With the exception of NSA and SVSWR” to the beginning of Part I Section 9  
Added reference to ISO/IEC 17025:2005, Clause 5.5.2 under Part I Section 9  
Added “Revised 2017 EMAC Meeting” under Part I Section 9  
Added reference to ISO/IEC 17025:2005 Clause 5.5.2 under Part I Section 10  
Added “Per R101 – General Requirements – Accreditation of ISO-IEC 17025 Laboratories” to the beginning of Part I Section 11 and removed transition period  
Added “Per R101 – General Requirements – Accreditation of ISO-IEC 17025 Laboratories” to the beginning of Part I Section 12  
Removed Part II Section 1 Items a-c  
Added reference to R102 – Conditions for Accreditation, Item 1 to Part II Section 1  
Removed Part II Sections 2 and 3  
Removed Part III Section 1 Item b  
Added “Limited search heights are not permitted for testing to ANSI C63.4 during final measurements. (2017 EMAC Meeting)” as an item under Part III Section 1  
Revised Part III Section 5 Item b from “A laboratory is not required to have any calibration on their barometric pressure meter for ESD testing, as the EMAC has decided that barometric pressure does not have a significant impact on the result of the testing. (Reference IEEE Standard 4) For example, the laboratory may use barometric pressure reporting from an off-site pressure reporting source, such as a local airport weather station” to “A laboratory is not required to use a calibrated barometer for ESD testing in the test environment. Alternatively, a laboratory may use barometric pressure values reported by an off-site source, such as a local airport or weather station. If such information is used, the laboratory shall ensure that these barometric pressure values are converted to pressure values reflecting the actual elevation of the laboratory if the reported values are representing values measured at sea level by applying an appropriate correction factor.” |
| 03/05/18   | Added “or ISO/IEC 17025:2017 Clause 7.8.2.1.g” to Part I Item 1  
Added “or ISO/IEC 17025:2017 Clause 6.4.5” to Part I Item 5  
Added “or ISO/IEC 17025:2017 Clause 6.4.5/7.4.7” to Part I Item 6  
Added “or ISO/IEC 17025:2017 Clause 6.4.5” to Part I Item 7  
Added “or ISO/IEC 17025:2017 Clause 6.4.5” to Part I Item 8  
Added “or ISO/IEC 17025:2017 Clause 6.4.5” to Part I Item 9 |
| 01/05/19   | Integrated into Qualtrax                                                                                                                                 |
| 10/11/19   | Updated Header/Footer to current version  
Updated format and font for consistency  
Added Qualtrax hyperlinks                                                                                             |