


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. *(2011 EMAC Meeting)*
- 2.) For a test chamber with a limited search height, requirements would not be met to allow for accreditation without a limitation being noted on the scope of accreditation. *(2007 EMAC Meeting)*
- 3.) 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)*
- 4.) 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)*
- 5.) 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)*
- 6.) 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). *(2008 EMAC Meeting)*
- 7.) Calibration of SAR reference dipoles is required (ISO/IEC 17025, sec 5.5.2/5.6.1). Calibrations not meeting P102 - A2LA Policy on Metrological Traceability shall have a deficiency cited. *(2010 EMAC Meeting)*
- 8.) 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 *(2011 EMAC Meeting)*:

Default Tolerances for EMC Testing	
Supply voltage and current	±5%
Time interval, distance	±5%
Resistance, capacitance, inductance, impedance	±5%
Test parameters for RF field strength, Electrical or magnetic field strength, injected current, power, energy, transient voltage amplitude (if adjustable)	+5% -0%

Any commercial measurement devices (ruler, tape measure, etc.) can be used for the distance measurement. No calibration is required for these devices.


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I. A2LA Requirements (continued)

- 9.) “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 (*2012 EMAC Meeting – Revised 2016 EMAC Meeting*)
- 10.) 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 (2012 EMAC Meeting)*
- 11.) 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 (transition period of this requirement to be applicable at next renewal assessment. For new applicants effective immediately) (*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
- 12.) 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, AEMCLRP, etc.)

- 1.) **FCC:**
 - a. No deficiencies are to be referenced directly against the FCC checklist. Deficiencies are to be referenced to a specific requirement in the test method (i.e. C63.4 requirement, not “question X” on FCC checklist). (*2009 EMAC Meeting*)
 - b. If a deficiency that is cited in conjunction with the FCC checklist cannot be traced to a specific test method, the “N” is to be marked on the checklist and in the comments section of the checklist, provide an explanation for why a deficiency was cited. (*2009 EMAC Meeting*)
 - c. A2LA will allow assessors to use their Assessor Master Code in lieu of their name for FCC checklist identification purposes. (*2010 EMAC Meeting*)
 - d. 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](#) (*2015 EMAC Meeting*)

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

2.) VCCI:

- a. Assessors shall clarify frequency range for VCCI V-3 on scopes, and Assessors shall verify SVSWR reports during the on-site assessment for labs testing over 1 GHz. Assessors shall notify laboratories prior to coming on site that the SVSWR reports (> 1 GHz) must be prepared for review – submitting the reports prior to coming on site would be beneficial. *(2010 EMAC Meeting)*

3.) ANSI ASC C63:

- a. A2LA recognizes the ANSI C63 committee’s published interpretations and explanations as “normative” requirements *(2013 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. Assessors will cite a deficiency against ANSI C63.4-2009 clause 8.3.2.2 (and ANSI C63.4-2003 clause 8.3.1.2) in reference to “keeping the EUT in the cone of radiation” if the antenna is not bore-sighted (automatically or using other means) during the measurement. *(Revised per ANSI Interpretation – “C63 4 - April 2011 - cone of radiation”, available at: http://c63.org/standards_development.htm) (2013 EMAC Meeting)*
- c. 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 A2LA Advertising Policy). 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)*

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)*

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III. Specific Test Methods (continued)

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.) 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)*

5.) 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 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. *(2011 EMAC Meeting)*

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DOCUMENT REVISION HISTORY

DATE	DESCRIPTION
08/10/2015	<ul style="list-style-type: none"> - Name changed from “Electro-Mechanical Advisory Committee” to “Electromagnetic Advisory Committee” - References to “T9” in Part I Items 3, 4, 5, and 9 were replaced with “T4” - Replaced “A2LA’s Traceability Policy” to “P102 – A2LA Policy on Metrological Traceability” in Part I Items 3 and 7 - Added EMAC Meeting dates to Part I Items 8, 10 and 11, Part II Items 2a and 3a, and Part III Item 1b - Added Item 1d (use of FCC Checklist) under Part II - Added Item 3b (CISPR 22) under Part III
10/19/2016	<ul style="list-style-type: none"> - Replaced “compliance” with “that the test equipment complies” under Part I Section 9 - Replaced “T4” with “P102” under Part I Section 9 - Removed “As of January 1, 2016” under Part II Section 1, Item d - Replaced “CFR 47 FCC Part 15 and/or Part 18” with “testing activities in support of FCC Certification or FCC Declaration of Conformity” under Part II Section 1, Item d