EMAC - A Summary of Critical Decisions

This document has been created and reviewed by the A2LA Electro-Mechanical 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.) NSA is not an in-house calibration and the requirements of Section T9 (of A2LA's Traceability Policy) 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 T9 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 T9 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 17025, sec 5.5.2/5.6.1). Calibrations not meeting A2LA's Traceability Policy Requirements 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:

Default Tolerances

Supply voltage and current	±5%
Time interval, length	±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.

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)*

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)*

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)*
- **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)*

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)*

III. Specific Test Methods – (continued)

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)*

DOCUMENT REVISION HISTORY

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