CISPR 11:2015+AMD1:2016+AMD2:2019
EN 61000-3-2:2014, BS EN 61000-3-2:2019+A1:2021
EN 61000-3-3:2013, BS EN 61000-3-3:2013+A2:2021
EN/BS EN 61000-6-2:2005, IEC 61000-6-2:2016
EN IEC/BS EN IEC 61000-6-2:2019

TEST REPORT

For

Etherdyne Technologies, Inc.

2933 Bunker Hill Lane, STE 210
Santa Clara, CA 95054

Model: Wire-Free PowerZone 2’ by 4’

Report Type: Original Report	**Product Type:** Magnetic Resonant Wireless Power Transfer Transmitter and Power Receivers for lighting
Prepared By	Felix Lugo Test Engineer
Report Number	R2506241-20
Report Date	2025-08-25
Reviewed By	Kai Chen Associate Project Engineer
Bay Area Compliance Laboratories Corp. 1274 Anvilwood Ave Sunnyvale, CA 94089, USA Tel: (408) 732-9162, Fax: (408) 732 9164	

ACCREDITED
CERTIFICATE #3297.02

* This test report may contain data and test methods that are not covered by BACL’s scope of accreditation as of the test report date shown above. These items are marked within the test report text with an asterisk “*”

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ATTESTATION OF TEST RESULTS

Date of Issue: 2025-08-25 Attestation Number: R2506241

Bay Area Compliance Laboratories Corp. (BACL) hereby declares that testing has been completed and is compliant for the product and standards below:

Product Name / Description:	Magnetic Resonant Wireless Power Transfer Transmitter and Power Receivers for lighting
Model:	Wire-Free PowerZone 2’ by 4’
Manufactured by:	Etherdyne Technologies, Inc.
Project Number:	R2506241

Standard	**Test Result**
CISPR 11:2015+AMD1:2016+AMD2:2019 EN 61000-3-2:2014 BS EN 61000-3-2:2019+A1:2021 EN 61000-3-3:2013 EN/BS EN 61000-6-2:2005 IEC 61000-6-2:2016 EN IEC/BS EN IEC 61000-6-2:2019	Compliant

BACL tested the above equipment in accordance with the requirement with the above Standards. The results were being documented in Test Report #R2506241-20 listed in above table apply only to the tested sample under the condition and modes of operation as described herein.

Attestation by: Kai Chen
Associate Project Engineer

Signature 2025-08-25
Date

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date
0	R2506241-20	Original Report	2025-08-25

1 General Information

1.1 General Statements

Bay Area Compliance Laboratories Corp. [BACL] hereby makes the following statements:

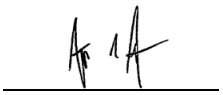
- The Unit(s) described in this Test Report were received at BACL's facilities on 24 June 2025. Testing was performed on the Unit(s) described in this Test Report during the period 30 June 2025 through 12 August 2025.
- The Test Results reported herein apply only to the Unit(s) actually tested, and to substantially identical Units.
- This Test Report must not be used to claim product endorsement by A2LA, or any agency of the U.S. Government, or by any other foreign government.
- This Test Report is the property of BACL, and shall not be reproduced, except in full, without prior written approval of BACL.

1.2 Purpose

This report was prepared on behalf of *Etherdyne Technologies, Inc.* and their product *Magnetic Resonant Wireless Power Transfer Transmitter and Power Receivers for lighting,* Model: *Wire-Free PowerZone 2' by 4'***,** in accordance with CISPR 11:2015+AMD1:2016+AMD2:2019, Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement, EN 61000-3-2:2014, BS EN 61000-3-2:2019+A1:2021, Limits for harmonic current emissions, EN 61000-3-3:2013, and BS EN 61000-3-3:2013+A2:2021, Limitation of voltage changes, voltage fluctuation and flicker in public low-voltage supply systems.

The objective is to determine compliance with EN/BS EN 61000-6-4:2007/A1:2011, IEC 61000-6-4:2018, EN IEC/BS EN IEC 61000-6-4:2019, EN/BS EN 61000-6-2:2005, IEC 61000-6-2:2016, and EN IEC/BS EN IEC 61000-6-2:2019 standards.

THE DATA CONTAINED IN THIS TEST REPORT WAS COLLECTED AND COMPILED BY:



Felix Lugo
[Test Engineer]

Jerry Wang
[Test Engineer]

1.3 Agent for the Responsible Party

None

1.4 Responsible Party

Company Name:	Etherdyne Technologies, Inc.
Contact:	Jeff Yen
Street Address:	2933 Bunker Lane, STE 210
City/State/Zip:	Santa Clara, CA, 95054
Country:	USA
Telephone:	+1 (415) 867-6966
Email:	jeffyen@etherdyne.net
Web:	www.etherdyne.net

1.5 Product Description of the Equipment under Test (EUT)

The "EUT" (Equipment under Test) was Magnetic Resonant Wireless Power Transfer Transmitter and Power Receivers for lighting, Model: Wire-Free PowerZone 2' by 4'. The highest frequency used and/or generated was 6.78 MHz.

1.6 Mechanical Description of the EUT

Dimensions: approximately 122.0 cm (L) x 61.0 cm (W) x 4.0 cm (H)
Weight: approximately 29.9 kg
Serial Number: None
EUT Photos: See Annex A of this Test Report.

1.7 EUT Input Power

The EUT was powered via an 100/230V, 50/60Hz AC power source.

1.8 Related Submittal(s)/Grant(s)

No related submittals.

1.9 Test Facility Registrations

BACLs test facilities that are used to perform Radiated and Conducted Emissions tests are currently recognized by the Federal Communications Commission as Accredited with NIST Designation Number US1129.

BACL's test facilities that are used to perform Radiated and Conducted Emissions tests are currently registered with Innovation, Science, and Economic Development Canada (ISED) a under Registration Numbers: 3062A.

BACL is a Chinese Taipei Bureau of Standards Metrology and Inspection (BSMI) validated Conformity Assessment Body (CAB), under Appendix B, Phase I Procedures of the APEC Mutual Recognition Arrangement (MRA). BACL's BSMI Lab Code Number is: SL2-IN-E-1002R

BACL's test facilities that are used to perform AC Line Conducted Emissions, Telecommunications Line Conducted Emissions, Radiated Emissions from 30 MHz to 1 GHz, and Radiated Emissions from 1 GHz to 6 GHz are currently recognized as Accredited in accordance with the Voluntary Control Council for Interference [VCCI] Article 15 procedures under Registration Number A-0428.

1.10 Test Facility Accreditations

Bay Area Compliance Laboratories Corp. (BACL) is:

A- ***An independent, 3rd-Party, Commercial Test Laboratory accredited to ISO/IEC 17025:2017 by A2LA (Test Laboratory Accreditation Certificate Number 3297.02),*** in the fields of: Electromagnetic Compatibility and Telecommunications. Unless noted by an Asterisk (*) in the Compliance Matrix (See Section 3 of this Test Report), BACL's ISO/IEC 17025:2017 Scope of Accreditation includes all of the Test Method Standards and/or the Product Family Standards detailed in this Test Report..

BACL's ISO/IEC 17025:2017 Scope of Accreditation includes a comprehensive suite of EMC Emissions, EMC Immunity, Radio/Wireless, RF Exposure, Safety, and Wireline Telecommunications test methods applicable to a wide range of product categories. These product categories include, but are not limited to: Central Office Telecommunications Equipment [including NEBS – Network Equipment Building Systems], Information Technology Equipment (ITE); Telecommunications Terminal Equipment (TTE); Medical Electrical Equipment; Industrial, Scientific and Medical Test Equipment; Professional Audio and Video Equipment; Industrial Equipment, Scientific Instruments and Laboratory Apparatus; Cable Distribution Systems, Railway Equipment, Marine Equipment, and Energy Efficient Lighting. Additionally, BACL offers comprehensive test capabilities for both Unlicensed and Licensed Wireless and RF Devices, per the requirements of the FCC (USA), ISED Canada (Canada), the EU/EEA/EFTA Nations (per the ETSI Standards applicable under the Radio Equipment Directive), Singapore, MIC (Japan), South Korea, Vietnam, and Taiwan ROC.

B- ***A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.03)*** to certify

- For the USA (Federal Communications Commission):
  - 1- All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
  - 2- All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
  - 3- All Telephone Terminal Equipment within FCC Scope C.
- For the Canada (Innovation, Science and Economic Development Canada):
  - 1 All Scope 1-Licence-Exempt Radio Frequency Devices;
  - 2 All Scope 2-Licensed Personal Mobile Radio Services;
  - 3 All Scope 3-Licensed General Mobile & Fixed Radio Services;
  - 4 All Scope 4-Licensed Maritime & Aviation Radio Services;
  - 5 All Scope 5-Licensed Fixed Microwave Radio Services
  - 6 All Broadcasting Equipment Technical Standards (BETS) in the Category I Equipment Standards List.
  - 7. RSS-HAC Radio Scope 6 Hearing Aid Compatibility and Volume Control
- For Singapore (Info-Comm Media Development Authority (IMDA)):
  - 1 All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2011, Annex 2 IMDA Phase I

2. All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2011, Annex 2 IMDA Phase II

- For the Hong Kong Special Administrative Region & (Office of the Communications Authority-OFCA) – APEC Tel MRA- Phase I and Phase II:

1 Radio Equipment, per KHCA 10XX-series Specifications; HKCA 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1010, 1015, 1016, 1019, 1020, 1022, 1026, 1033, 1034, 1035, 1036, 1037, 1039, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1052, 1053, 1054, 1056, 1057, 1061, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1080, 1081

2 GMDSS Marine Radio Equipment, per HKCA 12XX-series Specifications; HKCA 1218, 1223, 1224, 1225, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1277, 1281, 1282, 1283

3 Fixed Network Equipment, per HKCA 20XX-series Specifications; HKCA 2001, 2011, 2014, 2015, 2017, 2026, 2027, 2028, 2029, 2030, 2031

- For Japan:

1 MIC Telecommunication Business Law (Terminal Equipment):
- All Scope A1 - Terminal Equipment for the Purpose of Calls;
- All Scope A2 - Other Terminal Equipment

2 Radio Law (Radio Equipment):
- All Scope B1 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law
- All Scope B2 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
- All Scope B3 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law

C- ***A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.01)*** to certify Products to USA's Environmental Protection Agency (EPA) ENERGY STAR Product Specifications for:

1 Appliances:
- for Clothes Washers (ver. 8.1)
- for Residential Dishwashers (ver. 6.0)
- for Residential Refrigerators and/or Freezers (ver. 5.0)

2 Commercial Food Service Equipment:
- for Commercial Dishwashers (ver. 3.0)
- for Commercial Ice Machines (ver. 3.0)

3 Data Center Equipment:
- for Large Network Equipment (ver. 1.1)

4 Electronics and Office Equipment:
- for Audio/Video Equipment (ver. 3.0)
- for Computers (ver. 8.0)
- for Data Center Storage (ver. 2.1)
- for Displays (ver. 8.0)
- for Enterprise Servers (ver. 4.0)
- for Imaging Equipment (ver. 3.1)
- for Set-top Boxes & Cable Boxes (ver. 5.1)
- for Small Network Equipment (ver. 1.0)
- for Telephony (ver. 3.0)

- for Televisions (ver. 9.0), Title 10 Chapter II CFR Part 430 Subpart B –Appendix BB, Title 10 Chapter II CFR Part 430 Subpart B –Appendix DD

3 Lighting and Fans
- for Decorative Light Strings (ver. 1.5)
- for Downlights (ver. 1.0)
- for Lamps (Light Bulbs)(ver. 2.1)
- for Luminaires (including sub-components) (ver. 2.2)
- for Residential Ceiling Fans (ver. 4.0)
- for Residential Ventilating Fans (ver. 4.1)

4 Other
- for Residential Ceiling Fans (ver. 4.0)
- for Electric Vehicle Supply Equipment (ver. 1.2)(Electric Vehicle Supply Equipment Final Test Method for DC-output EVSE Rev March 2021)
- for Water Coolers (ver. 3.0)
- for Smart Home Energy Management Systems (ver. 1.1)

D- ***A NIST Designated Phase-I and Phase-II Conformity Assessment Body (CAB) for the following economies and regulatory authorities under the terms of the stated MRAs/Treaties:***

1. For the USA (Federal Communications Commission), as a Telecommunications Certification Body (TCB):
   - a. All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
   - b. All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
   - c. All Telephone Terminal Equipment within FCC Scope C.

2. Canada (ISED Canada) Foreign Certification Body – FCB – APEC Tel MRA -Phase I & Phase II:
   - a. Phase I Designation Letter
   - b. Phase II ISED Canada recognition as a Product Certification Body for unlicensed wireless devices, licensed radios, radars, etc.:

3. For Singapore (InfoComm Media Development Authority (IMDA)) APEC Tel MRA -Phase I & Phase II:
   - a. All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2011, Annex 2 IMDA Phase I
   - b. All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2011, Annex 2 IMDA Phase II

4. For the Hong Kong Special Administrative Region & (Office of the Communications Authority – OFCA) – APEC Tel MRA -Phase I & Phase II:
   - a. NIST Phase I Scope Recognition Letter from OFCA for BACL –US0057
   - b. OFCA Phase II Designation Letter

5. For Japan (Ministry of Communications):
   - a. NIST Japan Recognition
   - b. MIC Telecommunication Business Law (Terminal Equipment):
     1. All Scope A1 – Terminal Equipment for the Purpose of Calls;
     2. All Scope A2 – Other Terminal Equipment
   - c. Radio Law (Radio Equipment):
     1. All Scope B1 – Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law

2. All Scope B2 – Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
3. All Scope B3 – Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law

- d. Japan VCCI – Voluntary Control Council for Interference US-Japan Telecom Treaty (VCCI Side Letter)
  1. VCCI Certificate
- d. Japan Registered Certification Body
  1. RCB Recognition Letter

6. European Union:
   1. Radio Equipment Directive [RED] 2014/53/EU US-EU EMC & Telecom MRA CAB (NB)
   2. EMC Directive [EMCD] 2014/30/EU US-EU EMC & Telecom MRA CAB (NB):

7. Australia ACMA (Australian Communication and Media Authority) – APEC Tel MRA -Phase I:
   1.Phase I Designation Letter

8. Chinese Taipei (Republic of China – Taiwan):
   1. NCC (National Communications Commission) APEC Tel MRA -Phase I

9. Republic of Korea (Ministry of Communications – Radio Research Laboratory) APEC Tel MRA - Phase I:
   1. NIST Phase I Scope Update Notification Letter from Korea for BACL

10. Vietnam APEC Tel MRA -Phase I (page 13)
    1. Vietnam (MIC) NIST Phase I Scope

11. Indonesia SDPPI (page 6)
    1. Phase I Listing

12. Israel Phase I
    1. NIST Phase I Scope Update Recognition Letter from Israel for BACL –US0057

13. UK Radio and EMC NIST Designation Letters
    UK website: https://www.gov.uk/uk-market-conformity-assessment-bodies/bay-area-compliance-laboratories-corp-bacl
    1. Electromagnetic Compatibility Regulations (SI 2016/1091)
    https://assets.publishing.service.gov.uk/media/5fe1e344e90e07452fce4e5a/AB_1313_BACL_UK_EMC_Regs_NIST_Designation_Extended.pdf

    2. Radio Equipment Regulations 2017 (SI 2017/1206)
    https://assets.publishing.service.gov.uk/media/5fe1e351e90e074525bf7be6/AB_1313_BACL_UK_Radio_Regs_NIST_Designation_Extended.pdf

14. IFT Mexico Phase I
    1. NIST Phase I New Recognition Letter from Mexico for BACL – US0057

15. Taiwan (BSMI) Phase 1 Designation Letter and designation form.
    1. NIST Phase I Scope Update Designation Letter to BSMI for BACL – US0057
    2. NIST Phase I Scope Update Designation Form to BSMI for BACL – US0057

1.11 Measurement Uncertainties

All measurements involve uncertainties. In the case of EMC Emissions tests, the influence quantities (factors) that make a significant contribution to the measurement uncertainties for most types of Emissions measurements are detailed in the latest version of CISPR 16-4-2 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modelling – Measurement instrumentation uncertainty" (i.e., in CISPR 16-4-2:2011+AMD1:2014+AMD2:2018 CSV).

Based on the uncertainty models given in the latest version of CISPR16-4-2, and, based on the calibration uncertainties of the specific instruments and facilities used at BACL to perform the measurements documented in this Test Report, the following estimates have been made of BACL's Measurement Uncertainties for the measurements documented in this Test Report.

(Note: in the Tables below, the phrase "Typical U_{LAB} values" means that the U_{LAB} values presented are the Expanded Measurement Uncertainty values that resulted from the use of the ordinary test processes that are employed on a daily basis in our Test Laboratory. Note that the smaller the value of Expanded Measurement Uncertainty, the better (i.e., the "less uncertain") the measurement is.

Type of Measurement: **CISPR-type Conducted Emissions** **(on the BACL Ground Plane Test Site)** **Note: Measurements made using a n R&S ESCI EMI Receiver**	**BACL Typical U_{LAB} Value** **(for a k=2 Coverage Factor, equivalent to ~ 95% level of confidence)**	**U_{CISPR} Value** **worst-allowable values of the latest version of CISPR 16-4-2** **(for a k=2 Coverage Factor, equivalent to ~ 95% level of confidence)**
Conducted Disturbance (Mains Port) 150 kHz to 30 MHz (i.e., AC/DC Line Conducted Emissions measurements made with a Fischer FCC-LISN-50-25-2-10 LISN)	2.25 dB	3.44 dB

Type of Measurement: **CISPR-type Radiated Emissions** **(in the BACL 10 m - 1 SAC)** **Note: Measurements up to 1 GHz made using an R&S ESR3 EMI Receiver;** **Measurements from 1 GHz to 40 GHz made using an Keysight PXE N9048B Receiver**	**BACL Typical U_{LAB} Value** **(for a k=2 Coverage Factor, equivalent to ~ 95% level of confidence)**	**U_{CISPR} Value** **worst-allowable values of the latest version of CISPR 16-4-2** **(for a k=2 Coverage Factor, equivalent to ~ 95% level of confidence)**
Radiated Magnetic Disturbance – 9 kHz to 30 MHz (i.e., induced Current levels measured using a 2 m diameter 3-Axis Van Veen Loop Antenna System)	1.18 dB	3.30 dB * *Note: proposed value.
Radiated Electric Field Disturbance – Horizontal Polarization, 30 MHz – 200 MHz (i.e., Radiated Emissions measured at 10 meters distance)	3.81 dB	5.05 dB
Radiated Electric Field Disturbance – Vertical Polarization, 30 MHz – 200 MHz (i.e., Radiated Emissions measured at 10 meters distance)	3.92 dB	5.03 dB
Radiated Electric Field Disturbance – Horizontal Polarization, 200 MHz – 1000 MHz (i.e., Radiated Emissions at 10 meters distance)	3.81 dB	5.21 dB
Radiated Electric Field Disturbance – Vertical Polarization, 200 MHz – 1000 MHz (i.e., Radiated Emissions measured at 10 meters distance)	3.92 dB	5.22 dB

2 EN/BS EN/IEC 61000-6-2 Section 4: Performance Criteria

A functional description and a definition of specific performance criteria, during or as a consequence of immunity testing of equipment under test (EUT), shall be provided by the manufacturer and noted in the test report. They shall be consistent with one of the following general criteria for each test as specified in Table 1 to Table 4:

a) Performance criterion A: The EUT shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. If the performance level is not specified by the manufacturer, this may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

b) Performance criterion B: The EUT shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. However, during the test degradation of performance is allowed but no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

c) Performance criterion C: Temporary loss of function is allowed during the test, provided the function is self-recoverable or can be restored by the operation of the controls.

If, as a result of the application of the tests defined in this standard, the EUT becomes dangerous or unsafe, it shall be deemed to have failed the test.

3 EUT Test Configuration

3.1 Justification

The EUT was configured for testing in accordance with requirements of the CISPR 11:2015+AMD1:2016+AMD2:2019, EN 61000-3-2:2014, BS EN 61000-3-2:2019+A1:2021, EN 61000-3-3:2013, BS EN 61000-3-3:2013+A2:2021, EN/BS EN 61000-6-2:2005, IEC 61000-6-2:2016, and EN IEC/BS EN IEC 61000-6-2:2019 standards.

3.2 EUT Exercise Software

No exercising software was used during testing.

3.3 BACL EMI Measurement Software

The software used was EMISoft-Vasona 6.0and Audix e3 for EMI testing.

3.4 Equipment Modifications

No modifications were made to the equipment during testing.

3.5 Special Equipment

No special equipment was used during testing.

3.6 Mode of Operation

The EUT was tested on worst case mode: powered on and inductively powering four LED lights.

3.7 Method of Monitoring

The EUT was monitored visually via emitting light from the four LED lights receiving power. As long as the EUT continuously powered the lights without interruption than the EUT was functioning as intended.

3.8 Local Support Equipment

Manufacturer	Description	Model	Serial Number
ETI	Red LED Light	-	-
ETI	Blue LED Light	-	-
ETI	Orange LED Light	-	-
ETI	Green LED Light	-	-

3.9 Remote Support Equipment

None

3.10 EUT Internal Configuration Details

None

3.11 External I/O Cabling List and Details

Cable Description	Length (m)	From	To
AC Power Cable	1.0	AC/DC Adapter	AC Power Source
DC Power Cable	1.0	AC/DC Adapter	EUT

3.12 EUT Power Supply List and Details

Manufacturer	Description	Model	Serial Number
Mean Well	AC/DC Switching Adapter	GST90A48	-

4 Summary of Test Results

4.1 Emissions

Standards	Test Description	Test Method	Result
CISPR 11:2015+AMD1:2016+AMD2:2019 Section 6 Emissions Requirements	Radiated Emissions	CISPR 11	Compliant
	Conducted Emissions	CISPR 11	Compliant
EN/BS EN 61000-3-2	Harmonic Current Emissions	EN/BS EN 61000-3-2	Compliant
EN/BS EN 61000-3-3	Voltage Fluctuations and Flickers	EN/BS EN 61000-3-3	Compliant

4.2 Immunity

Standards	Test Description	Test Method	Result
EN/BS EN 61000-6-2:2005, IEC 61000-6-2:2016 EN IEC/BS EN IEC 61000-6-2:2019 Section 9 Immunity Requirements	Electrostatic Discharge	IEC 61000-4-2	Compliant
	Radiated RF Immunity	IEC 61000-4-3	Compliant
	Electrical Fast Transients	IEC 61000-4-4	Compliant
	Surges	IEC 61000-4-5	Compliant
	Conducted RF Immunity	IEC 61000-4-6	Compliant
	Power Frequency Magnetic Fields	IEC 61000-4-8	Compliant
	Voltage Dips and Interruptions	IEC 61000-4-11	Compliant

5 CISPR 11 Section 6 – Radiated Emissions

5.1 Applicable Standard

As per CISPR 11 Section 6: Limits of electromagnetic disturbances

For measurements at standardized test sites, the requirements specified hereafter constitute the requirements for type tests.

Class A Group 2 equipment may be measured either on a test site or in situ as preferred by the manufacturer.

NOTE 1 Due to size, complexity or operating conditions some equipment may have to be measured in situ in order to show compliance with the radiation disturbance limits specified herein.

Table 10 – Electromagnetic radiation disturbance limits for class A group 2 equipment measured on a test site

Frequency range MHz	OATS or SAC						FAR
	Limits for a measuring distance D in m						
	D = 30 m		D = 10 m		D = 3 m [a]		D = 3 m [a,b]
	Electric field Quasi-peak dB(μV/m)	Magnetic field Quasi-peak dB(μA/m)	Electric field Quasi-peak dB(μV/m)	Magnetic field Quasi-peak dB(μA/m)	Electric field Quasi-peak dB(μV/m)	Magnetic field Quasi-peak dB(μA/m)	Electric field Quasi-peak dB(μV/m)
0,15 – 0,49	–	33,5	–	57,5	–	82	–
0,49 – 1,705	–	23,5	–	47,5	–	72	–
1,705 – 2,194	–	28,5	–	52,5	–	77	–
2,194 – 3,95	–	23,5	–	43,5	–	68	–
3,95 – 11	–	8,5	–	18,5	–	68 decreasing linearly with logarithm of frequency to 28,5	–
11 – 20	–	8,5	–	18,5	–	28,5	–
20 – 30	–	−1,5	–	8,5	–	18,5	–
30 – 47	58	–	68	–	78	–	80 to 78
47 – 53,91	40	–	50	–	60	–	60
53,91 – 54,56	40	–	50	–	60	–	60
54,56 – 68	40	–	50	–	60	–	60 to 59
68 – 80,872	53	–	63	–	73	–	72
80,872 – 81,848	68	–	78	–	88	–	87
81,848 – 87	53	–	63	–	73	–	72 to 71
87 – 134,786	50	–	60	–	70	–	68 to 67
134,786 – 136,414	60	–	70	–	80	–	77
136,414 – 156	50	–	60	–	70	–	67 to 66
156 – 174	64	–	74	–	84	–	80
174 – 188,7	40	–	50	–	60	–	56
188,7 – 190,979	50	–	60	–	70	–	66
190,979 – 230	40	–	50	–	60	–	56 to 55
230 – 400	50	–	60	–	70	–	65
400 – 470	53	–	63	–	73	–	68
470 – 1 000	50	–	60	–	70	–	65

On an OATS or in a SAC, class A equipment can be measured at a nominal distance of 3 m, 10 m or 30 m. A measuring distance less than 10 m is allowed only for equipment which complies with the definition given in 3.17.

At the transition frequency, the more stringent limit shall apply. In certain frequency ranges, the limit for measurements in the FAR decreases linearly with the logarithm of frequency.

[a] In the frequency range 30 MHz to 1 GHz, the 3 m separation distance applies only to *small size equipment* meeting the size criterion defined in 3.17.

[b] The table-top equipment shall fit into the validated test volume of the FAR. In the range below 30 MHz, such group 2 equipment shall be measured at an OATS or in a SAC (see limits in the respective magnetic field column in this table).

5.2 EUT Setup

The radiated emissions tests were performed in the 10-meter test chamber, using the setup in accordance with CISPR 16 measurement procedures. The specifications used were in accordance with CISPR 11 limits.

If applicable, the spacing between the peripherals was 10 cm.

If applicable, the external I/O cables were draped along the test table and bundled as required.

The EUT was connected to AC power source.

5.3 Test Procedure

Maximization procedure was performed on the six (6) highest emissions readings to ensure the EUT is compliant with all installation combinations.

All data was recorded in the Quasi-Peak detection mode for below 1 GHz and Max Peak and Average detection mode for above 1 GHz.

The bandwidth on the receving device was set to as follows:

Below 1000 MHz, the Resolution Bandwidth was set to 120 kHz and the Video Bandwidth was set to 300 kHz for each sweep. The receiver automatically sets to these values.

Above 1000 MHz, the Resolution Bandwidth was set to 1 MHz and the Video Bandwidth was set to 3 MHz for the Max Peak. The Resolution Bandwidth was set to 1 MHz and the Video Bandwidth was set to 1 MHz for the Average measurement. The receiver automatically sets to these values.

5.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Correction Factor to the indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + Correction Factor

For example, the Corrected Amplitude (CA) of 40.3 dBµV/m = indicated Amplitude reading (Ai) 32.5 dBµV + Correction Factor 7.8 dB/m

The Correction Factor is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga). The calculation is done by the testing software, and the value is reported in the tabular results below. The basic equation is as follow,

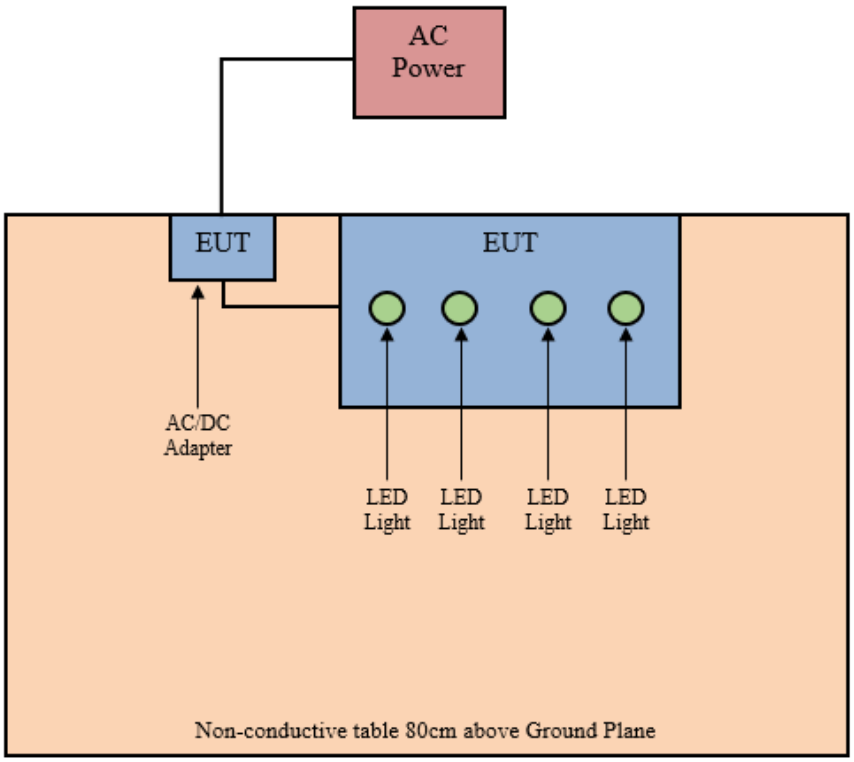
Correction Factor = AF + CL + Atten – Ga

For example, the Correction Factor of 7.8 dB/m = Antenna Factor (AF) 23.5 dB/m + Cable Loss (CL) 3.7 dB + Attenuator (Atten) 10 dB - Amplifier Gain (Ga) 29.4 dB

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit at the measured frequency. The equation for margin calculation is as follows:

Margin (dB) = Corrected Amplitude (dBµV/m) - Limit (dBµV/m)

5.5 Test Setup Block Diagram



5.6 Test Equipment List and Details

BACL Asset #	Manufacturers	Descriptions	Models	Serial Numbers	Calibration Date	Calibration Due Date
01413	Rohde & Schwarz	ESR EMI Test Receiver 10Hz to 3.6GHz	ESR3 1316.3003K03	103191	2025-02-26	2026-02-26
00311	Sunol Sciences	Controller, System	SC104V	113005-1	Calibration not Required	Calibration not Required
00393	Com-Power	Loop Antenna, Active	AL-130	17043	2025-05-06	2027-05-06
01200	Pasternack	N Shielded RF Cable	LMR 400 Coaxial Cable	1809041	2025-01-02	2025-07-02
01200	Pasternack	N Shielded RF Cable	LMR 400 Coaxial Cable	1809041	2025-07-02	2026-01-02
01297	Pasternack	N 18m RF Cable	PE 360-12	1809042	2025-01-02	2025-07-02
01297	Pasternack	N 18m RF Cable	PE 360-12	1809042	2025-07-02	2026-01-02
01359	Pasternack	PE3496LF-600	N 600in RF Cable	NA	2025-01-02	2025-07-02
01359	Pasternack	PE3496LF-600	N 600in RF Cable	NA	2025-07-02	2026-01-02
00445	Sonoma Instruments	Amplifier	315	303125	2025-01-22	2025-07-22
00445	Sonoma Instruments	Amplifier	315	303125	2025-07-24	2026-01-24
00811	Keysight Technologies	RF Limiter	11867A	MY42242932	2025-02-20	2025-08-20
00307	Sunol Sciences	Antenna, BiConiLog	JB3	A020106-3; 01182018A	2024-03-18	2026-03-18

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

5.7 Environmental Conditions

Testing Date:	2025-06-30	2025-07-31
Testing Site:	10m Chamber 1	10m Chamber 1
Temperature:	23.6 ºC	23.7 ºC
Relative Humidity:	52.4 %	53.6 %
ATM Pressure:	101.5 kPa	101.5 kPa
Testing Personnel:	Felix Lugo	Felix Lugo

5.8 Summary of Test Results

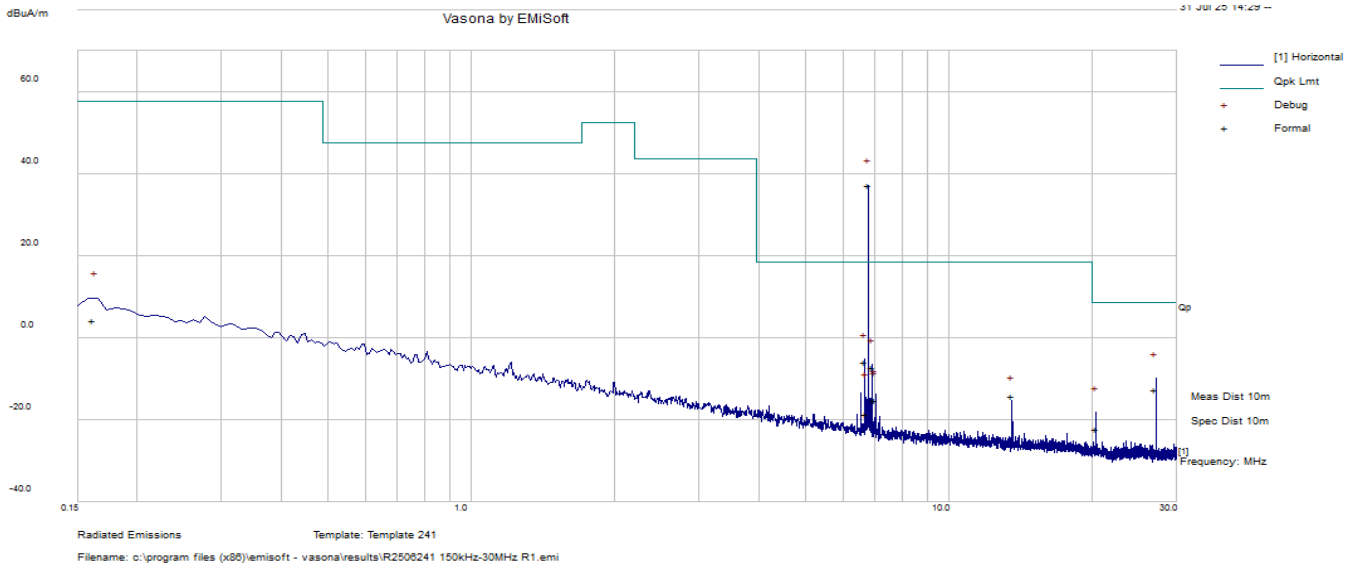
According to the recorded data, the EUT complied with CISPR 11 limits, and had the worst margin reading of:

Radiated Emissions Worst Case (150 kHz to 30 MHz)			
Frequency (MHz)	**Highest Peak Corrected Amplitude (dBµV/m)**	**Polarization (Parallel/Perpendicular)**	**Peak Margin (dB)**
6.658864	-5.86	Parallel	-24.36
Frequency (MHz)	**Highest Peak Corrected Amplitude (dBµV/m)**	**Polarization (Parallel/Perpendicular)**	**Average Margin (dB)**
27.120003	-7.86	Perpendicular	-16.36

Radiated Emissions Worst Case (30 MHz to 1000 MHz)			
Frequency (MHz)	**Highest Quasi-Peak Corrected Amplitude (dBµV/m)**	**Polarization (Horizontal / Vertical)**	**Quasi-Peak Margin (dB)**
196.60488	46.12	Horizontal	-3.88

5.9 Radiated Emissions Test Plots and Data

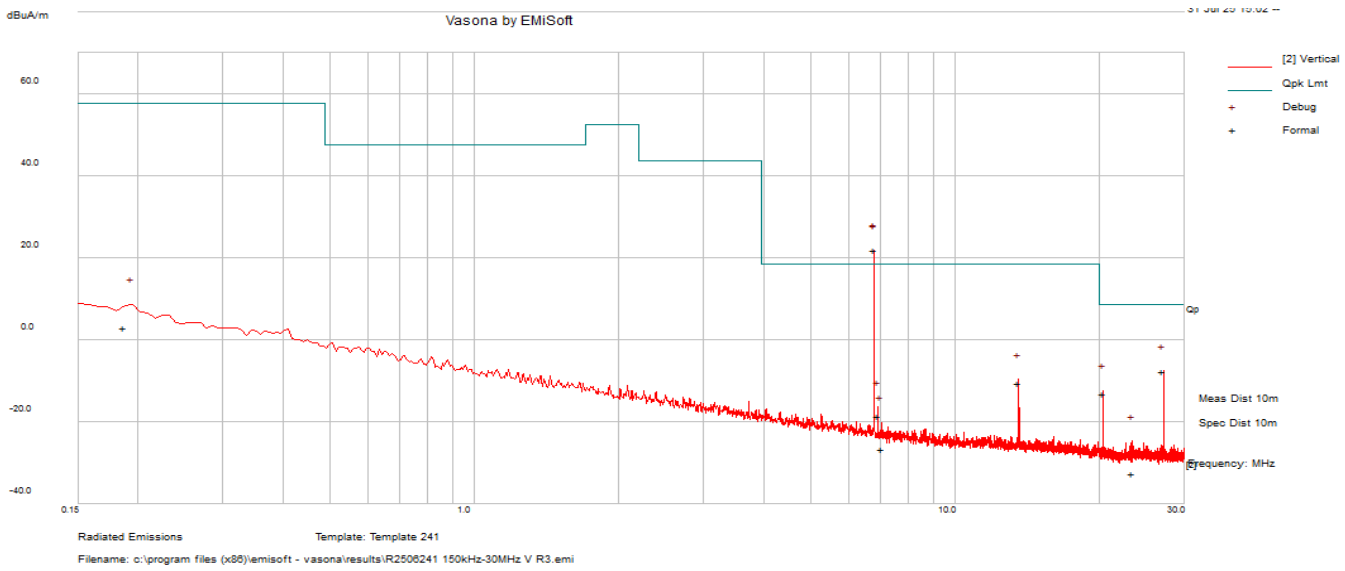
150 kHz to 30 MHz Parallel at 10 meter distance



Quasi-Peak Measurements

Frequency (MHz)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Antenna Height (cm)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
6.658864	-40.78	-5.86	H	150	3	18.5	-24.36
6.901031	-40.82	-7.13	H	150	21	18.5	-25.63
20.34072	-41.28	-22.26	H	150	308	8.5	-30.76
7.022216	-40.84	-15.27	H	150	316	18.5	-33.77
7.022399	-40.84	-15.41	H	150	303	18.5	-33.91
6.71919	-40.79	-18.72	H	150	352	18.5	-37.22

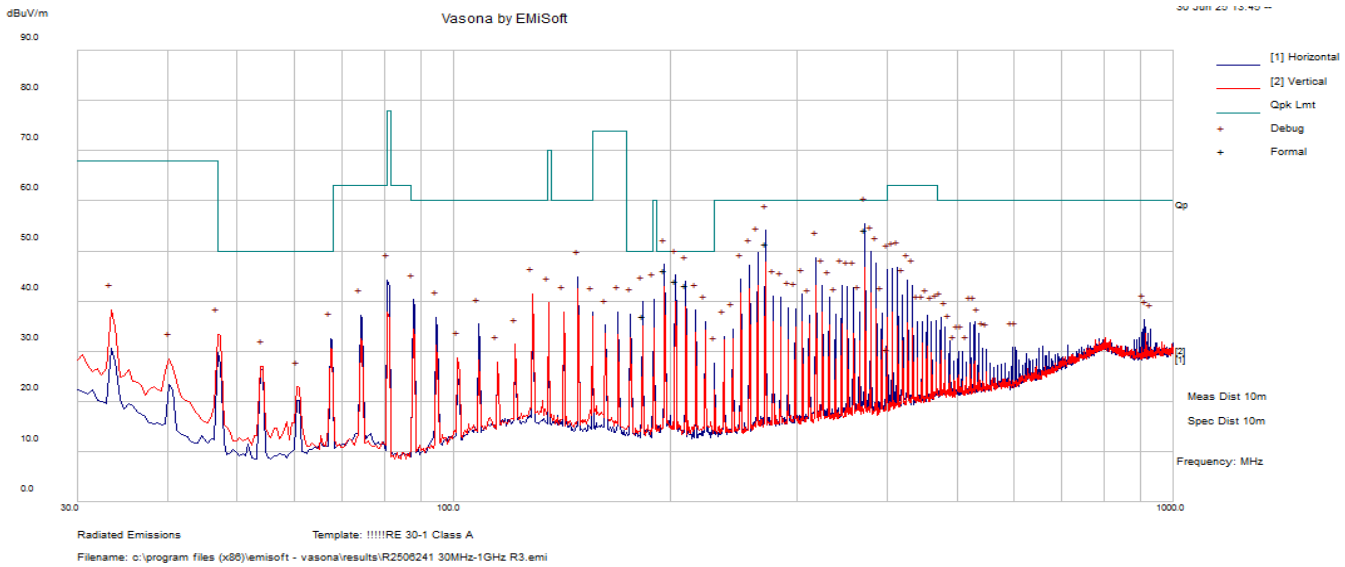
150 kHz to 30 MHz Perpendicular at 10 meter distance



Quasi-Peak Measurements

Frequency (MHz)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Antenna Height (cm)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
27.120003	-42.5	-7.86	V	150	153	8.5	-16.36
20.339889	-41.28	-13.23	V	150	37	8.5	-21.73
6.900402	-40.82	-18.72	V	150	290	18.5	-37.22
23.327042	-42.04	-32.78	V	150	52	8.5	-41.28
7.027444	-40.83	-26.82	V	150	337	18.5	-45.32
0.187199	-41.41	2.91	V	150	114	57.5	-54.59

30 MHz to 1000 MHz at 10 meter distance



Quasi-Peak Measurements

Frequency (MHz)	Correction Factor (dB/m)	Corrected Amplitude (dBµV/m)	Antenna Polarity (H/V)	Antenna Height (cm)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
196.60488	-19.23	46.12	H	397	318	50	-3.88
372.90275	-15.45	54.12	H	270	213	60	-5.88
203.39488	-20.45	43.95	H	397	317	50	-6.05
210.18413	-21.5	43.12	H	321	321	50	-6.88
271.20192	-18.25	51.44	H	399	34	60	-8.56
183.02488	-20.72	36.99	H	385	314	50	-13.01

6 CISPR 11 Section 6 – Conducted Emissions

6.1 Applicable Standard

As per CISPR 11 Section 6: Limits of electromagnetic disturbances

For measurements at standardized test sites, the requirements specified hereafter constitute the requirements for type tests.

Class A Group 2 equipment may be measured either on a test site or in situ as preferred by the manufacturer.

NOTE 1 Due to size, complexity or operating conditions some equipment may have to be measured in situ in order to show compliance with the radiation disturbance limits specified herein.

Table 8 – Disturbance voltage limits for class A group 2 equipment measured on a test site (a.c. mains power port)

Frequency range MHz	Rated power of ≤ 75 kVA [b]		Rated power of > 75 kVA [a, b]	
	Quasi-peak dB(μV)	Average dB(μV)	Quasi-peak dB(μV)	Average dB(μV)
0,15 – 0,50	100	90	130	120
0,50 – 5	86	76	125	115
5 – 30	90 decreasing linearly with logarithm of frequency to 73	80 decreasing linearly with logarithm of frequency to 60	115	105
At the transition frequency, the more stringent limit shall apply. For class A equipment with a rated power ≤ 75 kVA intended to be connected solely to isolated neutral or high impedance earthed (IT) industrial power distribution networks (see IEC 60364-1) the limits defined for group 2 equipment with a rated power > 75 kVA may be applied.				
[a] The manufacturer and/or supplier shall provide information on installation measures that can be used to reduce emissions from the installed equipment. [b] Selection of the appropriate set of limits shall be based on the rated a.c. power stated by the manufacturer.				

6.2 EUT Setup

The conducted emissions tests were performed on the Ground Plane Test Site, using the setup in accordance with CISPR 16 measurement procedures. The specifications used were in accordance with CISPR 11.

If applicable, the spacing between the peripherals was 10 cm.

If applicable, the external I/O cables were draped along the test table and bundled as required.

The EUT was connected (via LISN) to an EMI-filtered AC power source.

6.3 Test Procedure

During the conducted emissions test, the power cord of the EUT was connected to the LISN.

The bandwidth on the receving device was set to as follows:

The Resolution Bandwidth was set to 9 kHz and the Video Bandwidth was set to 30 kHz for each sweep. The receiver automatically sets to these values.

6.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) values listed in the following data tables were calculated by adding the LISN Insertion Loss (LL) to the Cable Loss (CL) to the High Pass Filter and Impulse Limiter Loss (HPLA) to the "raw" measured Amplitude (Am) reading. The basic equation is as follows:

CA = Am + LL + CL + HPIL

The Corrected Amplitude (CA) is calculated by adding the Total Loss to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + Total Loss

For example, a corrected amplitude of 46 dBµV = Indicated Reading (32.5 dBµV) + Total Loss (13.5 dB)

The Cable Loss, Attenuation (High-pass Filters, Impulse Limiters, Attenuators, etc.), and LISN calibration factors are referred to as Total Loss in the equation above and tabular data below. The basic equation is as follows:

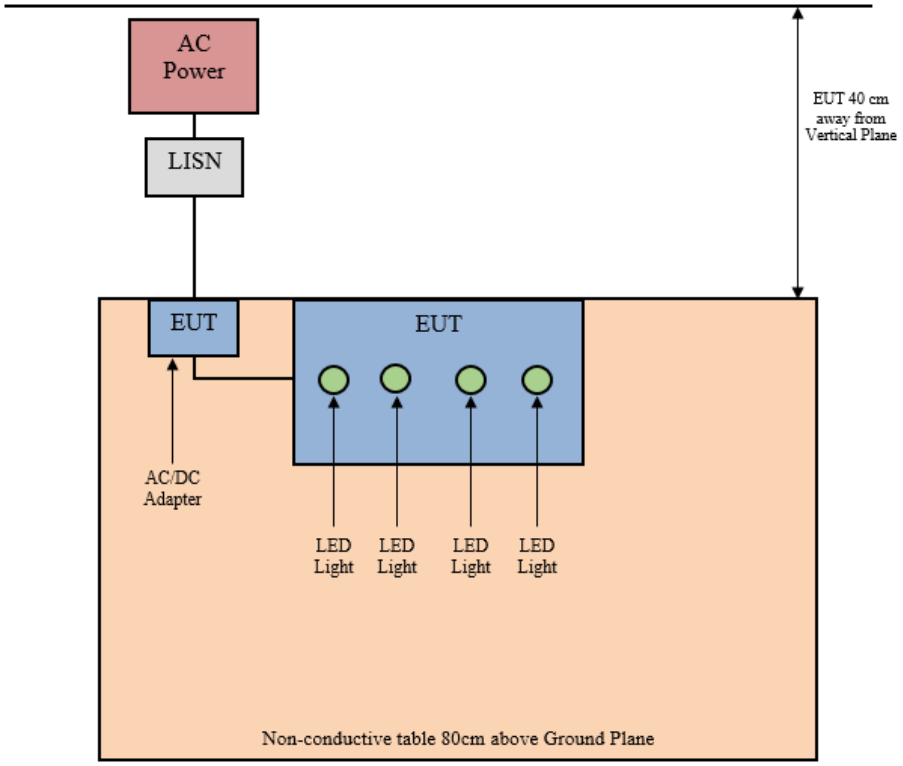
Total Loss (dB) = Cable Loss (dB) + Attenuation (dB) + LISN Factor (dB)

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit at the measured frequency. The equation for margin calculation is as follows:

Margin (dB) = Corrected Amplitude (dBµV) – Limit (dBµV)

6.5 Test Setup Block Diagram

AC Line



6.6 Test Equipment List and Details

BACL #	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
01413	Rohde & Schwarz	ESR EMI Test Receiver 10Hz to 3.6GHz	ESR3 1316.3003K03	103191	2025-02-26	2026-02-26
00681	Rohde & Schwarz	Impulse Limiter	ESH3-Z2	101962	2025-03-11	2025-09-11
00725	Solar Electronics Company	High Pass Filter	Type 7930-100	7930150203	2025-03-11	2025-09-11
01425	Pasternack	Ground Plane RG58 Coaxial Cable	PE3441-500CM	NA	2025-07-08	2026-01-08
00732	Fischer Custom Communications, Inc.	LISN	FCC-LISN-50-25-2-10-CISPR16	160129	2024-09-13	2025-09-13
01565	Ikonix	AC Power Source	EEC 8540	4280114	2025-05-09	2026-05-09

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

6.7 Environmental Conditions

Testing Date:	2025-07-31
Testing Site:	10m Chamber 1
Temperature:	23.7 ºC
Relative Humidity:	53.6 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

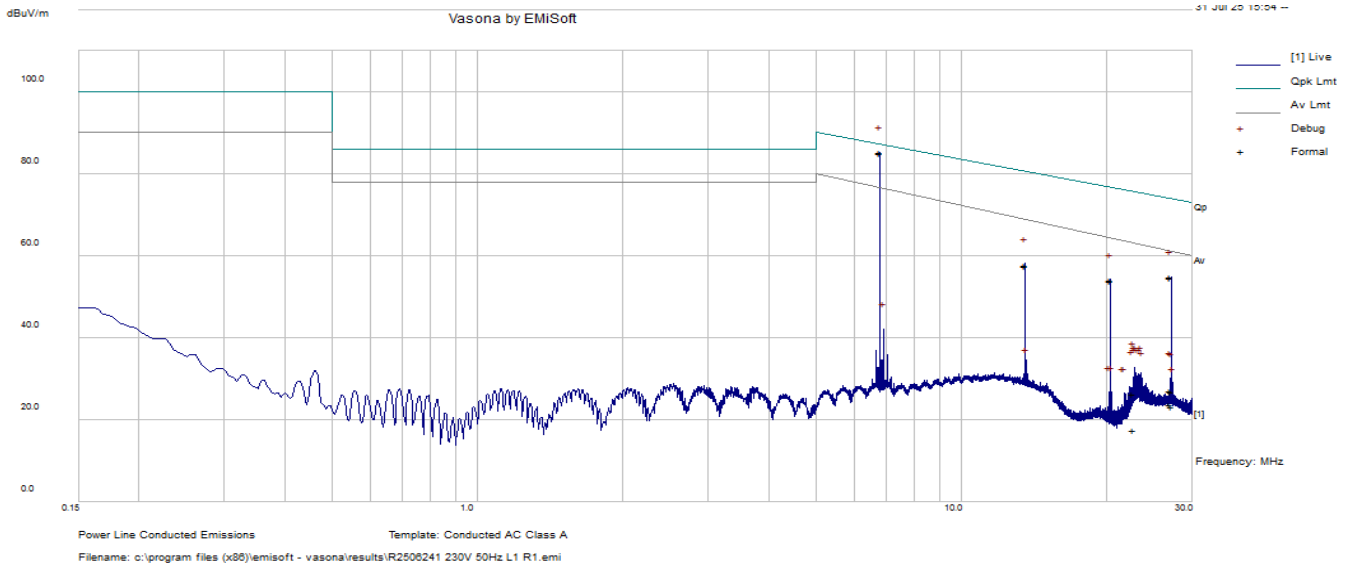
6.8 Summary of Test Results

According to the recorded data, the EUT complied with EN/BS EN/IEC 61000-6-4 Class A Group 2 limits, and had the worst margin reading of:

Worst Case: AC Line: 230V/50Hz						
Conductor (Hot/Neutral)	**Quasi- Peak Frequency (MHz)**	**Highest Quasi-Peak Corrected Amplitude (dBµV)**	**Worst-Case Quasi-Peak Margin (dB)**	**Average Frequency (MHz)**	**Highest Average Corrected Amplitude (dBµV)**	**Worst-Case Average Margin (dB)**
Hot	27.119992	54.82	-19.14	27.119992	54.53	-6.6
Neutral	27.119938	54.82	-19.14	27.119938	54.51	-6.62

6.9 Conducted Emissions Test Plots and Data

AC Line: 230V/50Hz – Hot Conductor



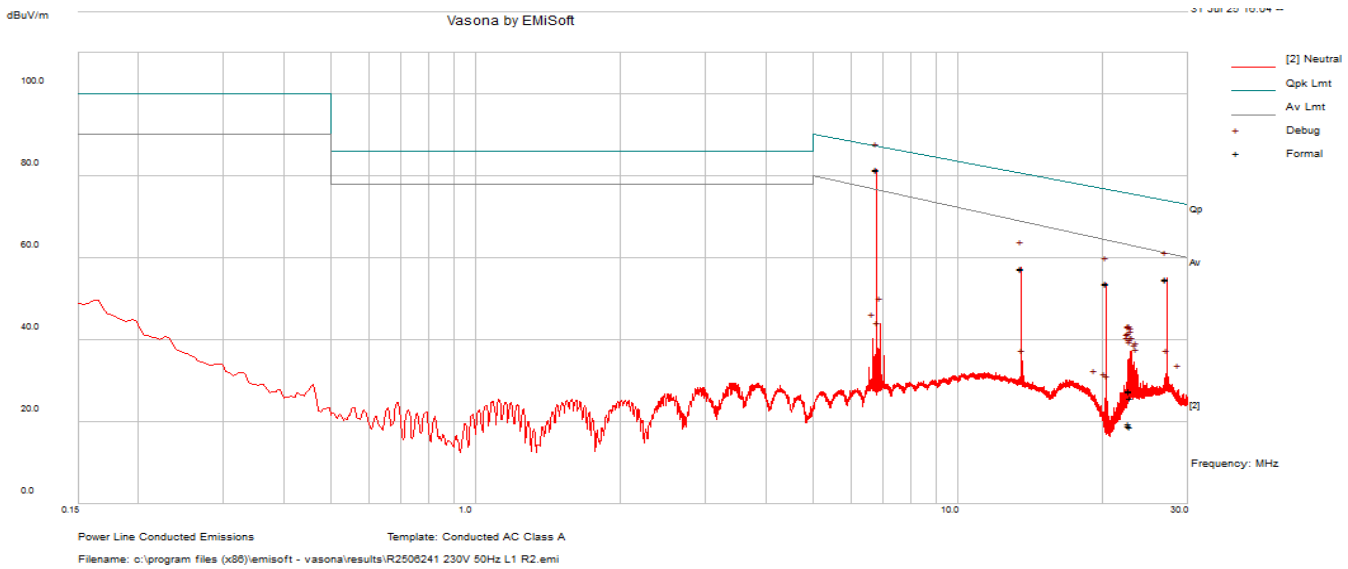
Quasi-Peak Measurements

Frequency (MHz)	Total Loss (dB)	Corrected Amplitude (dBµV)	Conductor	Limit (dBµV)	Margin (dB)
27.119992	13.2	54.82	Hot	73.96	-19.14
20.339949	12.76	54.06	Hot	76.69	-22.63
13.55998	12.21	57.77	Hot	80.53	-22.77
26.998549	13.2	26.98	Hot	74	-47.02
27.240283	13.22	26.68	Hot	73.92	-47.24
22.729414	12.94	26.2	Hot	75.63	-49.43

Average Measurements

Frequency (MHz)	Total Loss (dB)	Corrected Amplitude (dBµV)	Conductor	Limit (dBµV)	Margin (dB)
27.119992	13.2	54.53	Hot	61.13	-6.6
20.339949	12.76	53.78	Hot	64.34	-10.55
13.55998	12.21	57.47	Hot	68.86	-11.39
26.998549	13.2	23.79	Hot	61.18	-37.39
27.240283	13.22	23.28	Hot	61.08	-37.8
22.729414	12.94	17.33	Hot	63.1	-45.77

AC Line: 230V/50Hz – Neutral Conductor



Quasi-Peak Measurements

Frequency (MHz)	Total Loss (dB)	Corrected Amplitude (dBµV)	Conductor	Limit (dBµV)	Margin (dB)
27.119938	13.2	54.82	Neutral	73.96	-19.14
20.339985	12.76	53.76	Neutral	76.69	-22.93
13.559962	12.21	57.46	Neutral	80.53	-23.08
22.728454	12.94	27.47	Neutral	75.63	-48.16
22.765998	12.95	27.39	Neutral	75.62	-48.23
22.879014	12.95	25.8	Neutral	75.57	-49.77

Average Measurements

Frequency (MHz)	Total Loss (dB)	Corrected Amplitude (dBµV)	Conductor	Limit (dBµV)	Margin (dB)
27.119938	13.2	54.51	Neutral	61.13	-6.62
20.339985	12.76	53.47	Neutral	64.34	-10.87
13.559962	12.21	57.16	Neutral	68.86	-11.71
22.765998	12.95	19.53	Neutral	63.08	-43.55
22.728454	12.94	19.08	Neutral	63.1	-44.02
22.879014	12.95	18.81	Neutral	63.02	-44.21

7 EN/BS EN 61000-3-2 – Harmonic Current Emissions

7.1 Applicable Standard

As per EN/BS EN 61000-3-2 Section 7: Limits for Class A Equipment

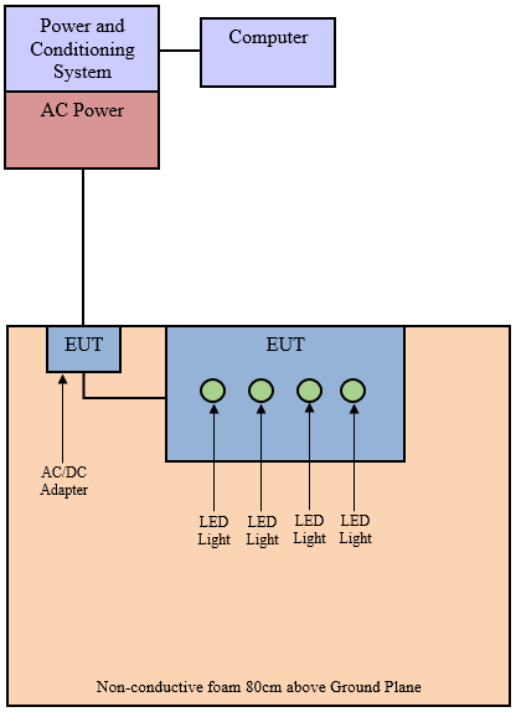
For Class A equipment, the harmonics of the input current shall not exceed the values given in Table 1.

Audio amplifiers shall be tested according to Clause C.3. Dimmers for incandescent lamps shall be tested according to Clause C.6.

Table 1 – Limits for Class A

Harmonic order n	Maximum permissible harmonic current A
Odd Harmonics	
3	2,30
5	1,14
7	0,77
9	0,40
11	0,33
13	0,21
$15 \leq n \leq 39$	0,15 15/n
Even Harmonics	
2	1,08
4	0,43
6	0,30
$8 \leq n \leq 40$	0,23 8/n

7.2 Test Setup Block Diagram



7.3 Test Equipment List and Details

BACL Asset #	Manufacturers	Descriptions	Models	Serial Numbers	Calibration Date	Calibration Due Date
00349	California Instruments	Analyzer , Power and Conditioning System	PACS-1	72448	2025-02-28	2027-02-28
00348	California Instruments	Source, AC/DC	5001iX	54024	2025-02-28	2027-02-28

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

7.4 Environmental Conditions

Testing Date:	2025-08-11
Testing Site:	Immunity Room 2B
Temperature:	24.6 ºC
Relative Humidity:	53.3 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

7.5 Harmonic Current Emissions Test Results (EN/BS EN 61000-3-2)

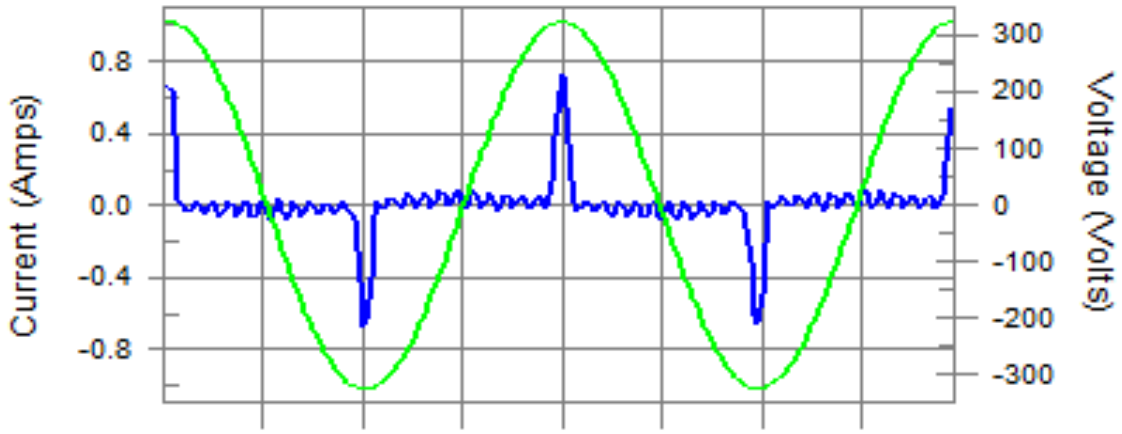
Harmonics – Class-A per IEC 61000-3-2:2018/AMD1:2020(Run time)

EUT: Wire-free PowerZone
Test category: Class-A (European limits)
Test date: 8/11/2025 Start time: 7:28:11 AM End time: 7:58:22 AM
Test duration (min): 30 Data file name: H-000442.cts_data
Comment: R2506241
Customer: Etherdyne Technologies, Inc.

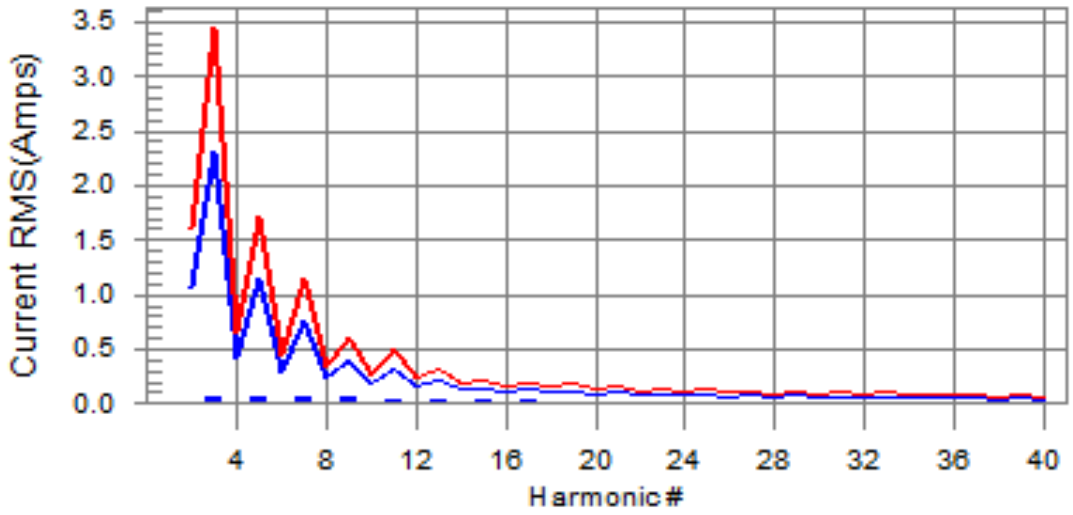
Tested by: Felix Lugo
Test Margin: 100

Test Result: Pass Source qualification: Distorted

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonics H15-15.4% of 150% limit, H15-22.3% of 100% limit

Current Test Result Summary (Run time)

EUT: Wire-free PowerZone
Test category: Class-A (European limits)
Test date: 8/11/2025 Start time: 7:28:11 AM End time: 7:58:22 AM
Test duration (min): 30 Data file name: H-000442.cts_data
Comment: R2506241
Customer: Etherdyne Technologies, Inc.

Tested by: Felix Lugo
Test Margin: 100

Test Result: Pass Source qualification: Distorted
THC(A): 0.142 I-THD[%]: 204.8 POHC(A): 0.020 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	230.27	Frequency(Hz):	50.00
I_Peak (Amps):	0.765	I_RMS (Amps):	0.251
I_Fund (Amps):	0.070	Crest Factor:	4.716
Power (Watts):	15.2	Power Factor:	0.413

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.002	1.620	N/A	Pass
3	0.064	2.300	2.8	0.065	3.450	1.9	Pass
4	0.001	0.430	N/A	0.002	0.645	N/A	Pass
5	0.061	1.140	5.4	0.062	1.710	3.6	Pass
6	0.001	0.300	N/A	0.002	0.450	N/A	Pass
7	0.057	0.770	7.4	0.058	1.155	5.0	Pass
8	0.001	0.230	N/A	0.002	0.345	N/A	Pass
9	0.052	0.400	13.0	0.053	0.600	8.9	Pass
10	0.001	0.184	N/A	0.002	0.276	N/A	Pass
11	0.046	0.330	14.0	0.047	0.495	9.5	Pass
12	0.001	0.153	N/A	0.002	0.230	N/A	Pass
13	0.040	0.210	19.0	0.041	0.315	12.9	Pass
14	0.001	0.131	N/A	0.001	0.197	N/A	Pass
15	0.033	0.150	22.3	0.035	0.225	15.4	Pass
16	0.001	0.115	N/A	0.001	0.173	N/A	Pass
17	0.027	0.132	20.4	0.028	0.198	13.9	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.021	0.118	17.5	0.022	0.178	12.2	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.015	0.107	14.0	0.016	0.161	10.1	Pass
22	0.000	0.084	N/A	0.001	0.125	N/A	Pass
23	0.010	0.098	10.3	0.011	0.147	7.4	Pass
24	0.000	0.077	N/A	0.001	0.115	N/A	Pass
25	0.006	0.090	6.5	0.006	0.135	4.7	Pass
26	0.000	0.071	N/A	0.001	0.107	N/A	Pass
27	0.003	0.083	N/A	0.004	0.125	N/A	Pass
28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.001	0.078	N/A	0.002	0.116	N/A	Pass
30	0.000	0.061	N/A	0.001	0.092	N/A	Pass
31	0.002	0.073	N/A	0.003	0.109	N/A	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.003	0.068	N/A	0.004	0.102	N/A	Pass
34	0.000	0.054	N/A	0.001	0.081	N/A	Pass
35	0.003	0.064	N/A	0.004	0.096	N/A	Pass
36	0.000	0.051	N/A	0.001	0.077	N/A	Pass
37	0.003	0.061	N/A	0.004	0.091	N/A	Pass
38	0.000	0.048	N/A	0.001	0.073	N/A	Pass
39	0.003	0.058	N/A	0.004	0.087	N/A	Pass
40	0.000	0.046	N/A	0.001	0.069	N/A	Pass

Voltage Source Verification Data (Run time)

EUT: Wire-free PowerZone
Tested by: Felix Lugo
Test category: Class-A (European limits)
Test Margin: 100
Test date: 8/11/2025
Start time: 7:28:11 AM
End time: 7:58:22 AM
Test duration (min): 30
Data file name: H-000442.cts_data
Comment: R2506241
Customer: Etherdyne Technologies, Inc.

Test Result: Pass
Source qualification: Distorted

Highest parameter values during test:

Voltage (Vrms):	230.27	Frequency(Hz):	50.00
I_Peak (Amps):	0.765	I_RMS (Amps):	0.251
I_Fund (Amps):	0.070	Crest Factor:	4.716
Power (Watts):	15.2	Power Factor:	0.413

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.183	0.460	39.66	OK
3	0.561	2.072	27.06	OK
4	0.099	0.460	21.50	OK
5	0.097	0.921	10.51	OK
6	0.095	0.460	20.67	OK
7	0.118	0.691	17.01	OK
8	0.099	0.460	21.50	OK
9	0.105	0.460	22.88	OK
10	0.123	0.460	26.70	OK
11	0.156	0.230	67.60	OK
12	0.155	0.230	67.20	OK
13	0.160	0.230	69.32	OK
14	0.146	0.230	63.43	OK
15	0.146	0.230	63.40	OK
16	0.113	0.230	48.96	OK
17	0.097	0.230	42.04	OK
18	0.082	0.230	35.70	OK
19	0.091	0.230	39.61	OK
20	0.085	0.230	36.77	OK
21	0.090	0.230	39.29	OK
22	0.098	0.230	42.77	OK
23	0.130	0.230	56.40	OK
24	0.138	0.230	59.87	OK
25	0.156	0.230	67.81	OK
26	0.150	0.230	65.26	OK
27	0.140	0.230	60.68	OK
28	0.125	0.230	54.44	OK
29	0.103	0.230	44.86	OK
30	0.077	0.230	33.66	OK
31	0.076	0.230	33.08	OK
32	0.077	0.230	33.57	OK
33	0.078	0.230	33.75	OK
34	0.075	0.230	32.70	OK
35	0.102	0.230	44.37	OK
36	0.124	0.230	53.96	OK
37	0.144	0.230	62.71	OK
38	0.148	0.230	64.13	OK
39	0.150	0.230	64.95	OK
40	0.139	0.230	60.16	OK

8 EN/BS EN 61000-3-3 – Voltage Fluctuations and Flicker

8.1 Applicable Standard

As per EN/BS EN 61000-3-3 Section 5: Limits

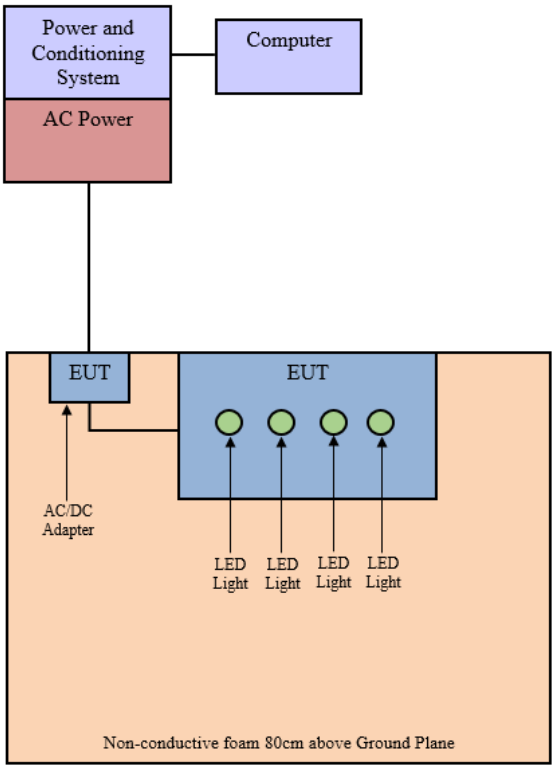
The limits shall be applicable to voltage fluctuations and flicker at the supply terminals of the equipment under test, measured or calculated according to clause **4** under test conditions described in clause **6** and Annex A. Tests made to prove the compliance with the limits are considered to be type tests.

The following limits apply:

- the value of *P*st shall not be greater than 1,0;
- the value of *P*lt shall not be greater than 0,65;
- the value of *d(t)* during a voltage change shall not exceed 3,3% for more than 500 ms;
- the relative steady-state voltage change, *d*c, shall not exceed 3,3%;
- the maximum relative voltage change, *d*max, shall not exceed;
  a) 4% without additional conditions;
  b) 6% for equipment which is:
  - switched manually, or
  - switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

NOTE: The cycling frequency will be further limited by the *P*st and *P*lt limit. For example: a *d*max of 6% producing a rectangular voltage change characteristic twice per hour will give a *P*lt of about 0,65.

8.2 Test Setup Block Diagrams



8.3 Test Equipment List and Details

BACL Asset #	Manufacturers	Descriptions	Models	Serial Numbers	Calibration Date	Calibration Due Date
00349	California Instruments	Analyzer , Power and Conditioning System	PACS-1	72448	2025-02-28	2027-02-28
00348	California Instruments	Source, AC/DC	5001iX	54024	2025-02-28	2027-02-28

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

8.4 Environmental Conditions

Testing Date:	2025-08-11
Testing Site:	Immunity Room 2B
Temperature:	24.6 ºC
Relative Humidity:	53.3 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

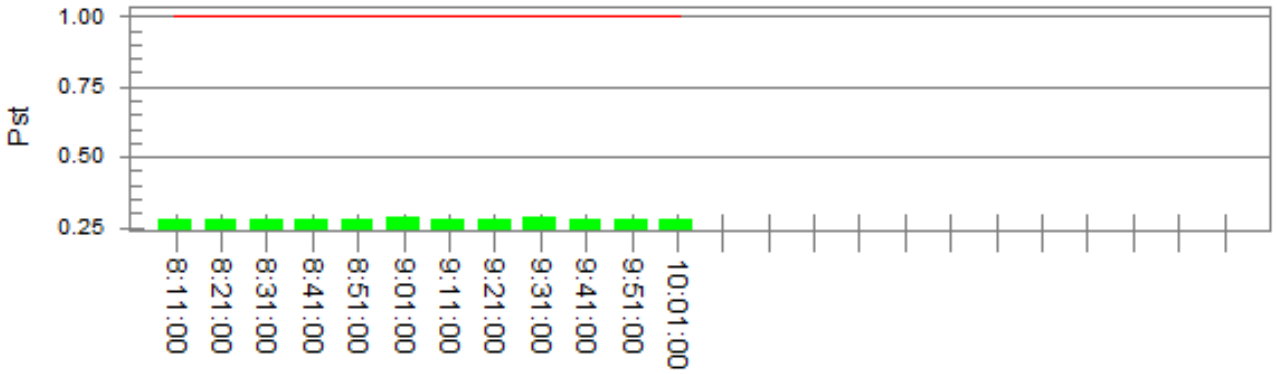
8.5 Voltage Fluctuations and Flicker Test Results (EN/BS EN 61000-3-3)

Flicker Test Summary per IEC61000-3-3:2013/AMD1:2017 (Run time)

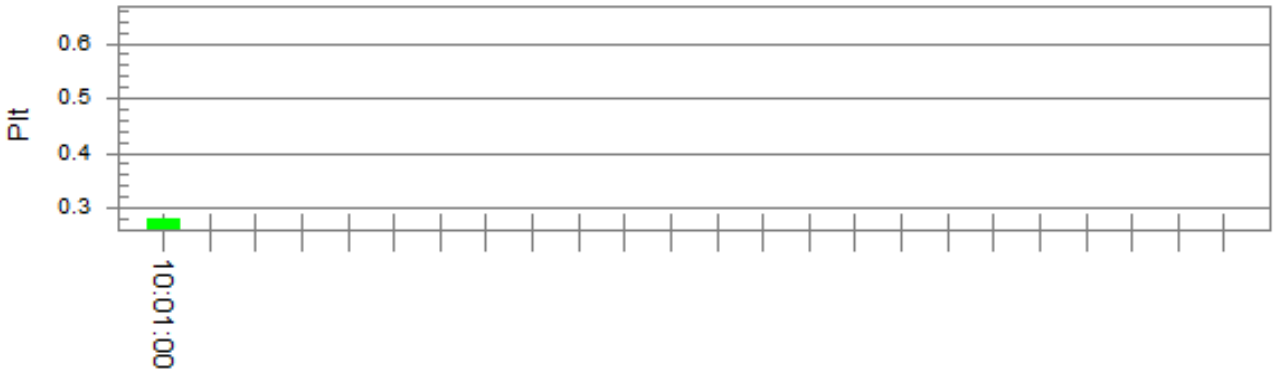
EUT: Wire-free PowerZone — Tested by: Felix Lugo
Test category: All parameters (European limits) — Test Margin: 100
Test date: 8/11/2025 — Start time: 8:00:39 AM — End time: 10:02:13 AM
Test duration (min): 120 — Data file name: F-000443.cts_data
Comment: R2506241
Customer: Etherdyne Technologies, Inc.

Test Result: Pass — Status: Test Completed

Pst_i and limit line — European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.03			
Highest dt (%):		Test limit (%):		
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.288	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.279	Test limit:	0.650	Pass

9 EN/BS EN/IEC 61000-6-2 Section 9 – Electrostatic Discharge (IEC 61000-4-2)

9.1 Applicable Standard

As per EN/BS EN/IEC 61000-6-2 Section 9 Table 1: Immunity requirements - Enclosure ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
1.4	Electrostatic Discharge	±4 kV (contact discharge) ±8 kV (air discharge)	IEC 61000-4-2	B

As per IEC 61000-4-2: Test Levels

The preferred range of test levels for the ESD test is given in Table 1.

Testing shall also be satisfied at the lower levels given in table l.

Details concerning the various parameters which may influence the voltage level to which the human body may be charged are given in clause A.2 of annex A. Clause **A.4** also contains examples of the application of the test levels related to environmental (installation) classes.

Contact discharge is the preferred test method. Air discharges shall be used where contact discharge cannot be applied. Voltages for each test method are given in tables la and 1b.
The voltages shown are different for each method due to the differing methods of test. It is not intended to imply that the test severity is equivalent between test methods.

Further information is given in clauses A.3, A.4 and A.5 of annex A.

Table 1- Test levels

Contact discharge		Air discharge	
Level	**Test voltage (kV)**	**Level**	**Test voltage (kV)**
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15
x[a]	Special	x[a]	Special
a "x" can be any level, above, below or in between the others. The level shall be specified in the dedicated equipment specification. If higher voltages than those shown are specified, special test equipment may be needed.			

9.2 Electrostatic Discharge Test System

The Teseq NSG 438 ESD used for testing, is capable of applying Electrostatic Discharges in both contact discharge modes from 2 kV up to 4 kV and air discharge modes from 2 kV through 8 kV in both positive and negative polarities, in accordance with IEC 61000-4-2 EMC testing standard and methods.

9.3 Test Procedure

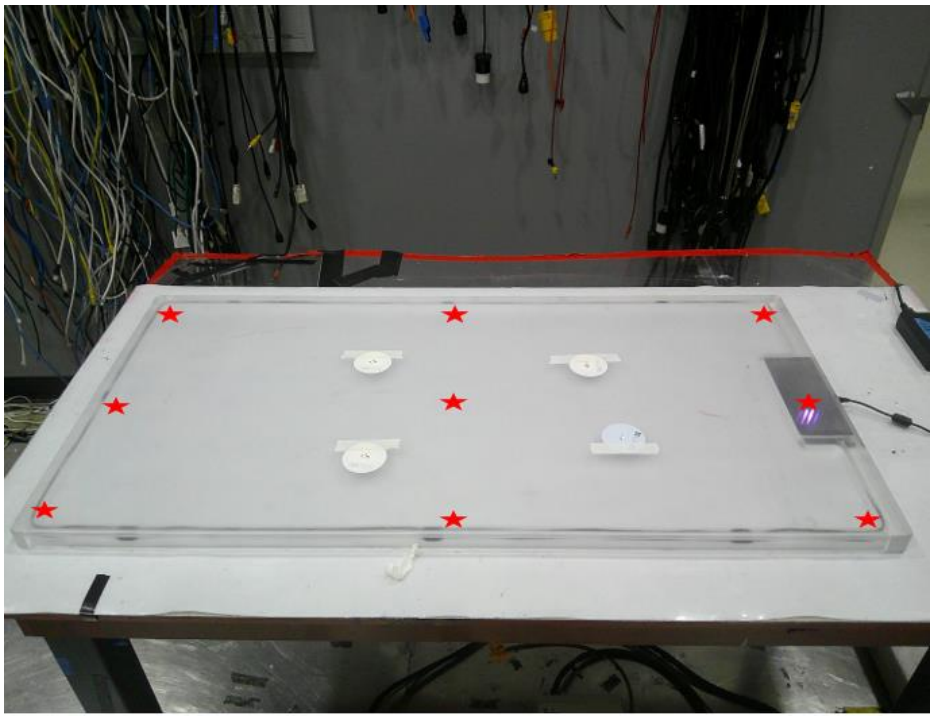
Contact discharges to the conductive surfaces and to coupling planes:
The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. For table-top equipment one of the test points shall be the centre front edge of the horizontal coupling plane, which shall be subjected to at least 50 indirect discharges (25 of each polarity). All other test points shall each receive at least 50 direct contact discharges (25 of each polarity). All areas normally touched by the user should be tested. If no direct contact test points are available, than at least 200 indirect discharges shall be applied in the indirect mode.

9.4 Application of Electrostatic Discharges

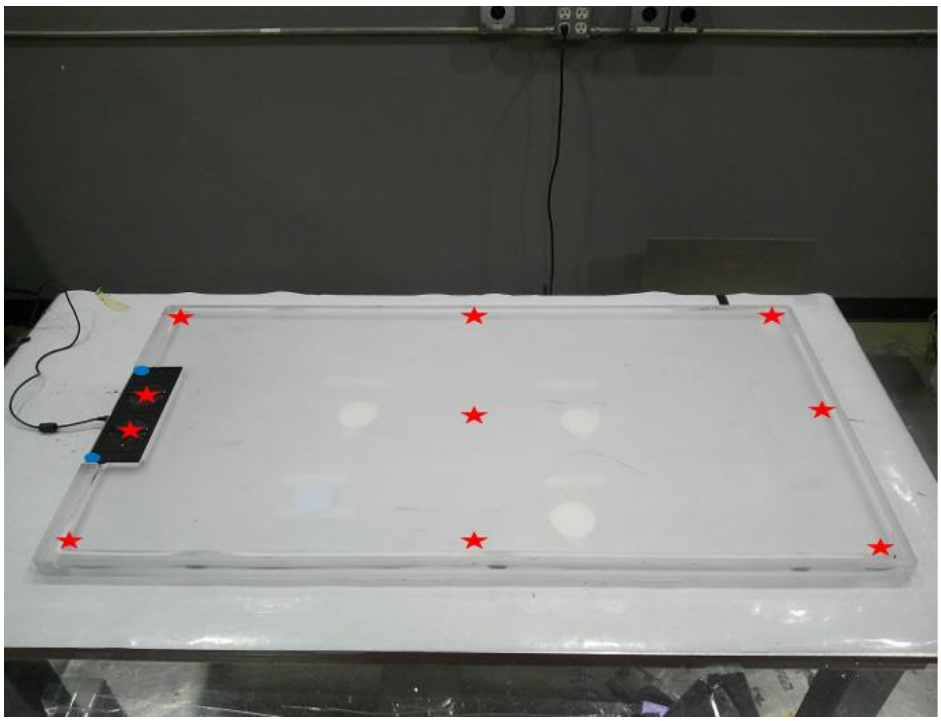
The test was conducted in the following order: Air Discharge, Direct Contact Discharge, Indirect Contact Horizontal Coupling Plane Discharge, and Indirect Contact Vertical Coupling Plane Discharge. The Electrostatic Discharge test levels were set and discharged appropriately. The Electrostatic Discharges are applied to the conductive surface of the EUT, and along all seams and control surfaces on the EUT. When a discharge occurs and an error is caused, the type of error, discharge level and location is recorded.

9.5 ESD Test Point View - Air: Red, Contact: Blue

EUT Top View

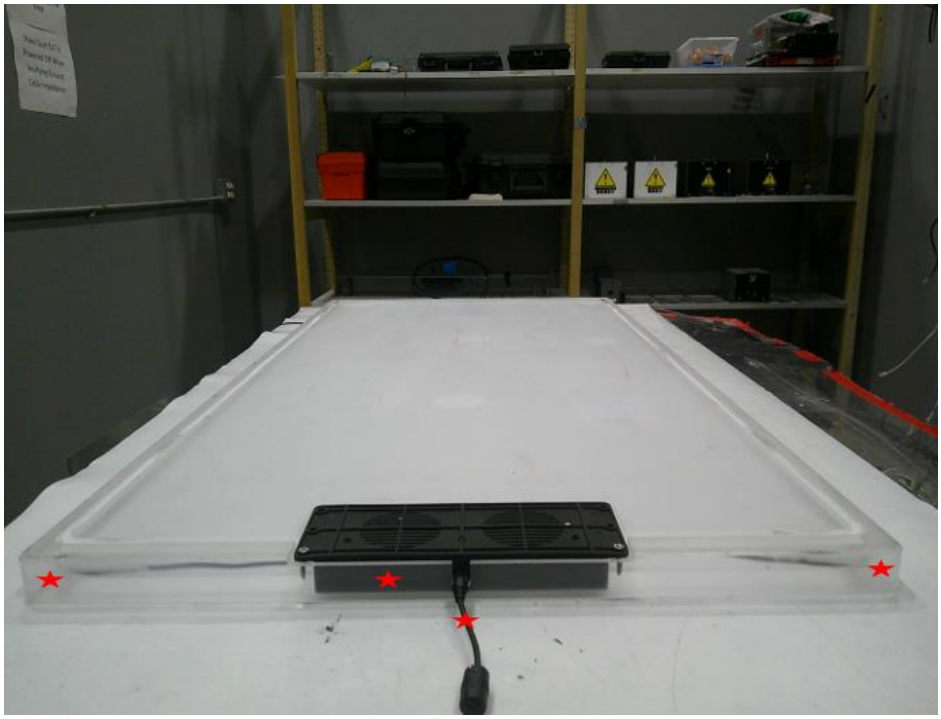


EUT Bottom View



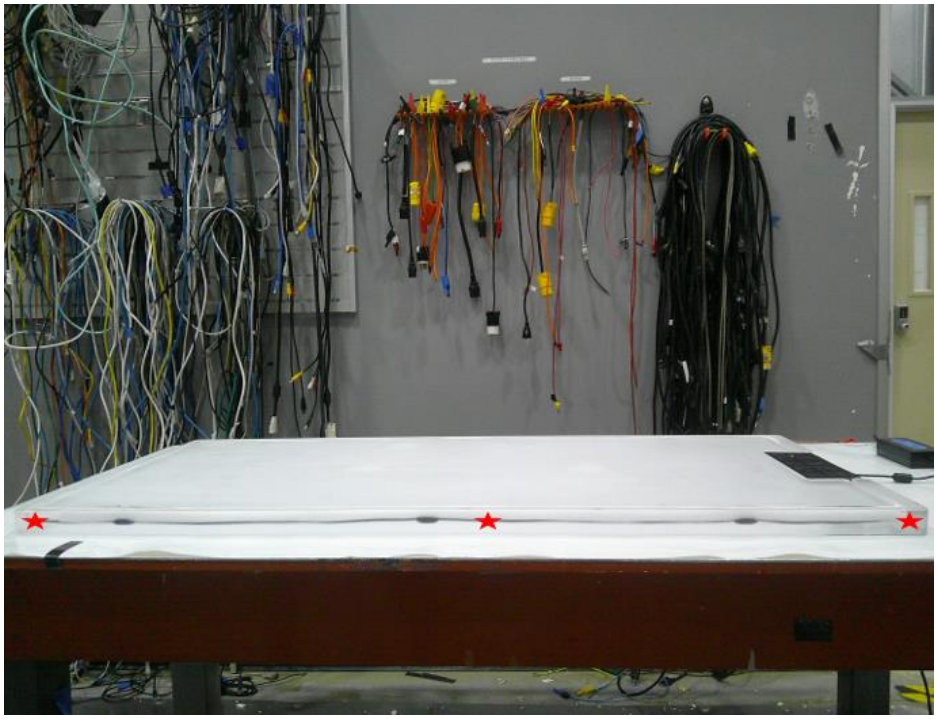
EUT Front View

EUT Rear View



EUT Right Side View

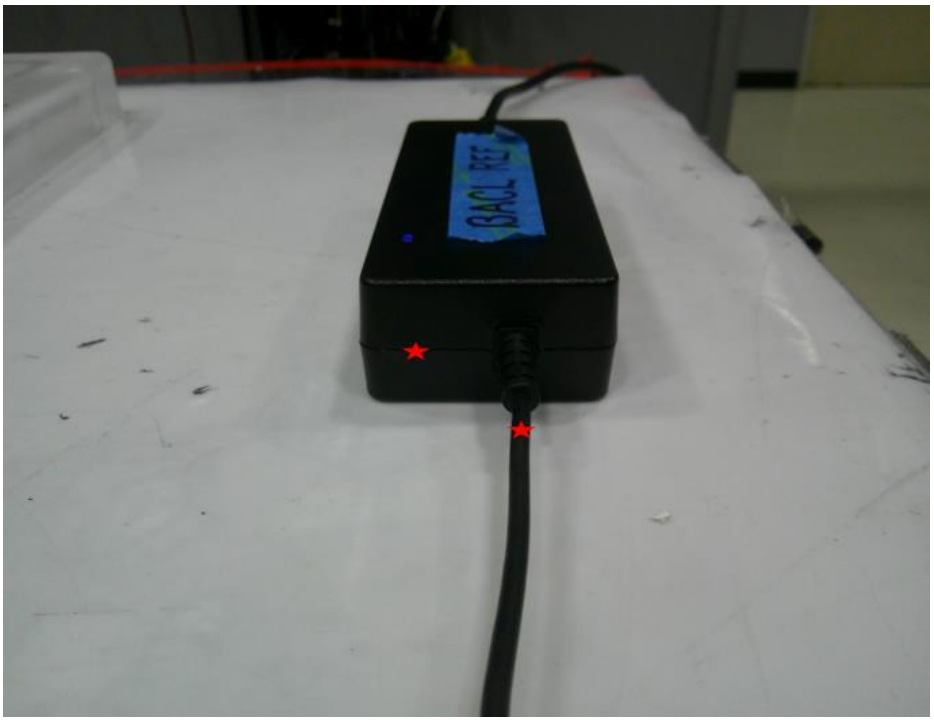
EUT Left Side View



AC/DC PSU Top View

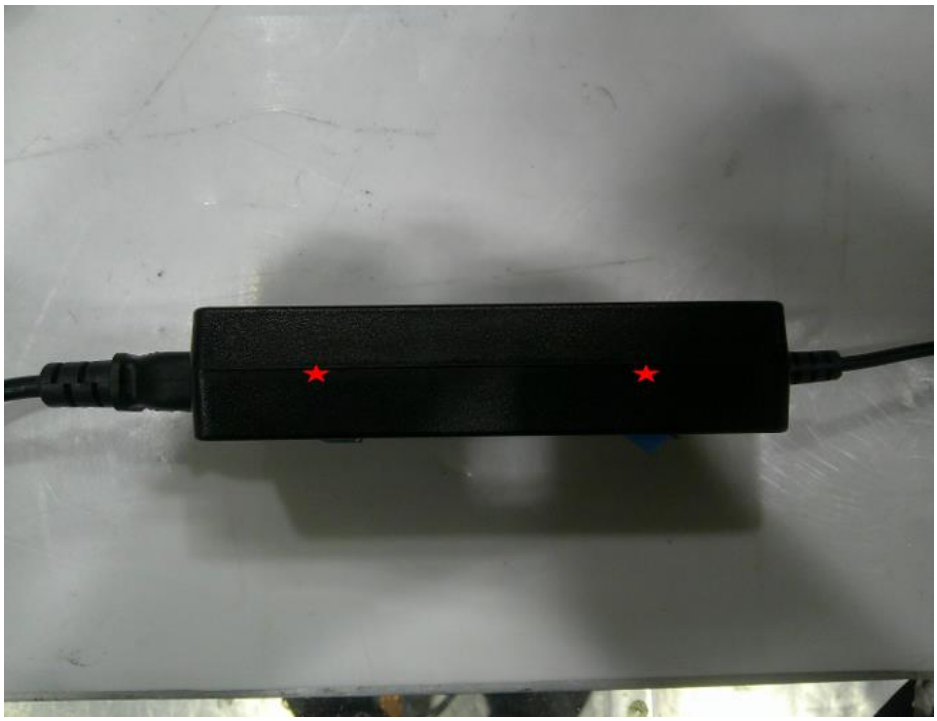
AC/DC PSU Bottom View

AC/DC PSU Front View



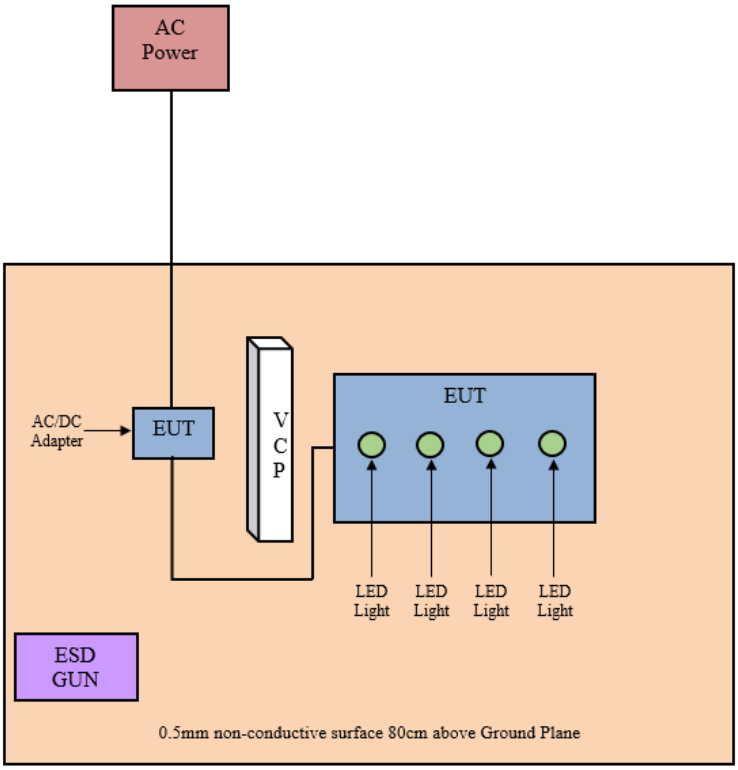
AC/DC PSU Rear View

AC/DC PSU Right Side View



AC/DC PSU Left Side View

9.6 Test Setup Block Diagrams



9.7 Test Equipment List and Details

BACL #	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
01404	TESEQ	ESD Gun	NSG 438	1889	2024-11-12	2025-11-12
00652	Fluke	Multimeter, DMM	287	24540057	2025-01-06	2026-01-06
00344	Behlman	Generator, Variable Voltage	BL12000C-1	6867	Calibration not Required	Calibration not Required

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

9.8 Environmental Conditions

Testing Date:	2025-08-12
Testing Site:	Immunity Room 1B
Temperature:	23.4 ºC
Relative Humidity:	53.8 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

9.9 Electrostatic Discharge Test Data (IEC 61000-4-2)

Note: The raised conductive ground plane caused interference by interrupting power transfer from EUT to LED Lights. The effects of the interference caused the LED lights to blink in 1 second intervals when the EUT was placed on the raised conductive ground plane. Testing commenced with a pre and post check to ensure essential performance of the EUT was not degraded during testing.

Table 1: Electrostatic Discharge (Contact Discharge)

IEC 61000-4-2 Test Point	Test Level (kV)											
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15	-20	+20
Bottom of EUT	A	A	A	A	-	-	-	-	-	-	-	-

Table 2: Electrostatic Discharge (Air Discharge)

IEC 61000-4-2 Test Point	Test Level (kV)											
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15	-20	+20
Top of EUT	A	A	A	A	-	-	A	A	-	-	-	-
Bottom of EUT	A	A	A	A	-	-	A	A	-	-	-	-
Front of EUT	A	A	A	A	-	-	A	A	-	-	-	-
Rear of EUT	A	A	A	A	-	-	A	A	-	-	-	-
Right Side of EUT	A	A	A	A	-	-	A	A	-	-	-	-
Left Side of EUT	A	A	A	A	-	-	A	A	-	-	-	-
Rear DC Input Cable	A	A	A	A	-	-	A	A	-	-	-	-

Table 3: Electrostatic Discharge (Indirect Contact HCP)

IEC 61000-4-2 Test Point	Test Level (kV)											
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15	-20	+20
Front of EUT	A	A	A	A	-	-	-	-	-	-	-	-
Rear of EUT	A	A	A	A	-	-	-	-	-	-	-	-
Right Side of EUT	A	A	A	A	-	-	-	-	-	-	-	-
Left Side of EUT	A	A	A	A	-	-	-	-	-	-	-	-

Table 4: Electrostatic Discharge (Indirect Contact VCP)

IEC 61000-4-2 Test Point	Test Level (kV)											
	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15	-20	+20
Top of EUT	A	A	A	A	-	-	-	-	-	-	-	-
Bottom of EUT	A	A	A	A	-	-	-	-	-	-	-	-
Front of EUT	A	A	A	A	-	-	-	-	-	-	-	-
Rear of EUT	A	A	A	A	-	-	-	-	-	-	-	-
Right Side of EUT	A	A	A	A	-	-	-	-	-	-	-	-
Left Side of EUT	A	A	A	A	-	-	-	-	-	-	-	-

A ----- Performance Criteria A
B ----- Performance Criteria B
C ----- Performance Criteria C
- ----- Not Applicable

The EUT was subjected to Electrostatic Discharge Test System required by EN/BS EN/IEC 61000-6-2 and all lower levels specified by IEC 61000-4-2.

10 EN/BS EN/IEC 61000-6-2 Section 9 – Radiated RF Electromagnetic Field (IEC 61000-4-3)

10.1 Applicable Standard

As per EN/BS EN/IEC 61000-6-2 Section 9 Table 1: Immunity requirements - Enclosure ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
1.2 & 1.3	Radiated RF Electromagnetic Field	80 ~ 1000 MHz 10 V/m 80 % AM (1 kHz)	IEC 61000-4-3	A
		1.4 ~ 6.0 GHz 3 V/m 80 % AM (1 kHz)		

As per IEC 61000-4-3: Test Levels

The test levels are given in Table 1.

Table 1- Test levels related to general purpose, digital radio telephones and other RF emitting devices

Level	Test field strength (V/m)
1	1
2	3
3	10
4	30
x	
NOTE x is an open test level and the associated field strength may be any value. This level may be given in the product specification.	

This standard does not suggest that a single test level is applicable over the entire frequency range. Product committees shall select the appropriate test level for each frequency range needing to be tested as well as the frequency ranges. See Annex E for guidance for product committees on the selection of test levels.

The test field strength column gives values of the unmodulated carrier signal. For testing of equipment, this carrier signal is 80 % amplitude modulated with a 1 kHz sine wave to simulate actual threats (see Figure 1). Details of how the test is performed are given in Clause 8.

NOTE 1 Product committees may decide to choose a lower or higher transition frequency than 80 MHz between IEC 61000-4-3 and IEC 61000-4-6 (see annex G).
NOTE 2 Product committees may select alternative modulation schemes for equipment under test.
NOTE 3 IEC 61000-4-6 also defines test methods for establishing the immunity of electrical and electronic equipment against radiated electromagnetic energy. It covers frequencies below 80 MHz

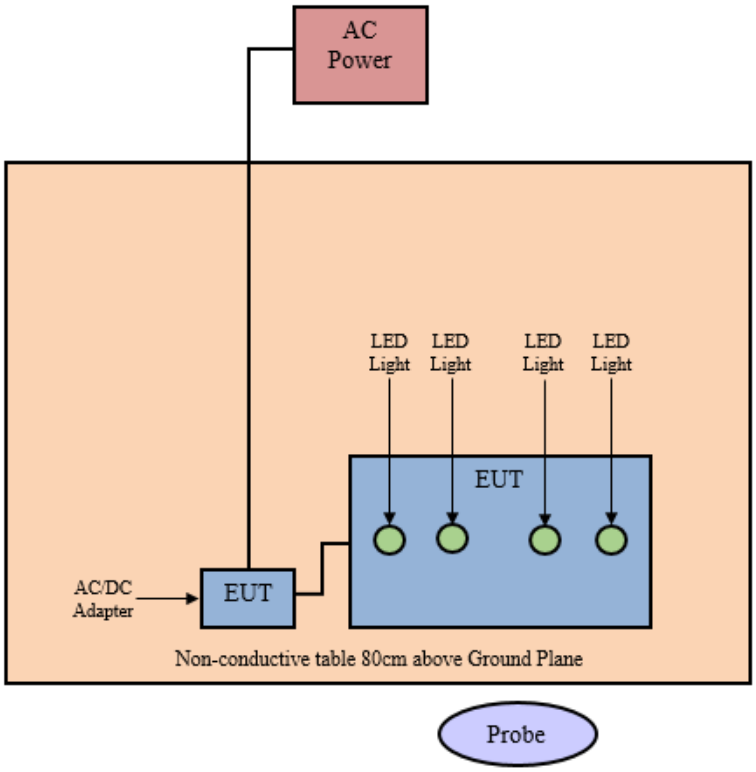
10.2 Radiated RF Electromagnetic Field Test System

Agilent N5182A signal generator, AR 100W1000M1 and Ophir RF 5293FE power amplifiers are used to provide a signal at the appropriate power and frequency to a BiConiLog and a Stacked Log-Periodice antenna to obtain the required electromagnetic field at the position of the EUT in accordance with the IEC 61000-4-3 EMC standard and methods.

10.3 Application of Radiated RF Electromagnetic Field

The electromagnetic field is established at the front edge of the EUT. The frequency range is swept from 80 to 1000 MHz and from 1400 to 6000 MHz using a power level necessary to obtain 10 and 3 volt/meter, 1 kHz AM sine wave modulated at 80% depth, field directed at the EUT. The test is performed with the most susceptible side of the EUT facing the field-generating antenna. If an error is detected, the field is reduced until the error is not repeatable; the field is then manually increased until the error begins to occur. At this threshold level, the frequency and error created are noted before continuing the scan.

10.4 Test Setup Block Diagrams



10.5 Test Equipment List and Details

BACL #	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
01129	Agilent	MXG Signal Generator	N5182A	MY501403905	2024-10-25	2025-10-25
00696	Amplifier Research	100 Watts 80-1000 MHz	100W1000M1	24880	Calibration not Required	Calibration not Required
00862	Ophir RF	700-6000 MHz RF Power Amplifier	5293FE	1057	Calibration not Required	Calibration not Required
00514	ETS	Antenna, BiConiLog	3140	1019	Calibration not Required	Calibration not Required
00820	Amplifier Research	Stacked Log-Periodic Antenna	ATS700M11G	345747	Calibration not Required	Calibration not Required
00665	Narda Safety Test Solutions	Field Meter	NBM 520	D0887	2025-02-21	2026-02-21
00731	Narda Safety Test Solutions	Field Probe	EF 1891	D-0375	2025-02-21	2026-02-21
01337	Pasternack	N Male to N male Cable 90in	PE330-90	NA	Calibration not Required	Calibration not Required
01117	-	2m N-SMA RF Cable	SMAJ-NJ-2m-6G	-	2025-07-02	2026-01-02
01464	UTiFLEX Micro-Coax	N-N RF cable	UFA240B-1-0240-504504	MFR 64639 205519-008	Calibration not Required	Calibration not Required
00312	Panasonic	Camera System Controller	WV-CU161C	EGR00083	Calibration not Required	Calibration not Required
00311	Sunol Sciences	Controller, System	SC104V	113005-1	Calibration not Required	Calibration not Required
00344	Behlman	Generator, Variable Voltage	BL12000C-1	6867	Calibration not Required	Calibration not Required

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

10.6 Environmental Conditions

Testing Date:	2025-08-11
Testing Site:	5m2 Chamber
Temperature:	24.6 ºC
Relative Humidity:	53.3 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Jerry Wang

10.7 Radiated RF Electromagnetic Field Test Data (IEC 61000-4-3)

Frequency Range (MHz)	V/m	Front Side		Rear Side		Left Side		Right Side	
		Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal
80-1000	10	A	A	A	A	A	A	A	A

The EUT was subjected to a 10 volt/meter, 80% Amplitude modulated, 1 kHz sine wave. The EUT was subjected to Radiated RF Electromagnetic Field test required by EN/BS EN/IEC 61000-6-2 and the level specified by IEC 61000-4-3. During testing a 3 seconds dwell time with 1% step from 80 MHz to 1000 MHz was used. The distance from the antenna to the EUT was 1.78 meters.

Frequency Range (MHz)	V/m	Front Side		Rear Side		Left Side		Right Side	
		Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal
1400-6000	3	A	A	A	A	A	A	A	A

The EUT was subjected to a 3 volt/meter, 80% Amplitude modulated, 1 kHz sine wave. The EUT was subjected to Radiated RF Immunity test required by EN/BS EN/IEC 61000-6-2 and the level specified by IEC 61000-4-3. During testing a 3 seconds dwell time with 1% step from 1400 MHz to 6000 MHz was used. The distance from the antenna to the EUT was 1.78 meters.

Note: A ----- Performance Criteria A
B ----- Performance Criteria B
C ----- Performance Criteria C
- ----- Not Applicable

11 EN/BS EN/IEC 61000-6-2 Section 9 – Fast Transients (IEC 61000-4-4)

11.1 Applicable Standard

As per EN/BS EN/IEC Section 9 Table 4: Immunity requirements – Input and output AC power ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
4.5	Fast Transients [f]	±2 kV 5/50 t_r/t_w ns 5 or 100 kHz	IEC 61000-4-4	B

As per EN/BS EN/IEC Section 9 Table 2: Immunity requirements – Signal/control ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
2.3	Fast Transients [b f]	±1 kV 5/50 t_r/t_w ns 5 or 100 kHz	IEC 61000-4-4	B

[b] Applicable only to ports interfacing with cables whose total length according to the manufacturer's functional specification may exceed 3 m.

[f] The test may be performed at one or at both repetition frequencies. The use of 5 kHz repetition frequency is traditional; however, 100 kHz is closer to reality.

As per IEC 61000-4-4: Test Levels

The preferred range of test levels for the electrical fast transient test, applicable to power, ground**,** signal and control ports of the equipment are given in Table 1.

Table 1- Test levels

Open circuit output test voltage and repetition rate of the impulses				
Level	On power port, PE		On I/O (input/output) signals, data and control ports	
	Voltage peak (kV)	Repetition rate (kHz)	Voltage peak (kV)	Repetition rate (kHz)
1	0.5	5 or 100	0.25	5 or 100
2	1	5 or 100	0.5	5 or 100
3	2	5 or 100	1	5 or 100
4	4	5 or 100	2	5 or 100
X[a]	Special	Special	Special	Special
NOTE 1 Use of 5 kHz repetition rates is traditional; however, 100 kHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types. NOTE 2 With some products, there may be no clear distinction between power ports and I/O ports, in which case it is up to product committees to make this determination for test purposes.				
"x" is an open level. The level has to be specified in the dedicated equipment specification.				

These open-circuit output voltages will be displayed on the EFT/B generator. For selection of levels, see Annex B.

11.2 Fast Transients Test System

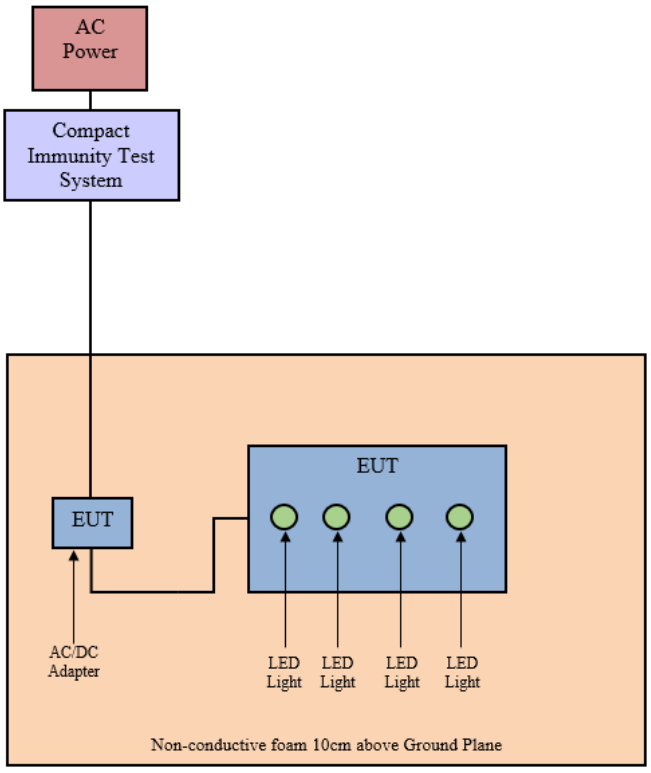
A Haefely AXOS5 tester system is used for all testing. It is capable of applying fast transients to the AC line at any phase angle with respect to the AC line voltage wave form and to attached cables via capacitive coupling clamp in accordance with the IEC 61000-4-4 EMC standard and methods.

11.3 Application of Fast Transients

The EUT was arranged for Power Line Coupling with a coupling/decoupling network and for I/O Line Coupling through a capacitive clamp, where applicable. (Note: The I/O coupling test using a capacitive clamp is performed on the I/O interface cables that are longer in length than 3 meters.) A metal ground plane 2.4 meter by 2.0 meter was placed between the floor and the table and is connected to the earth by a 2.0 meter ground rod. The ground rod is connected to the test facility's electrical earth. The distance between the CDN and any other conductive surface was 50 cm.

11.4 Test Setup Block Diagrams

AC Line



11.5 Test Equipment List and Details

BACL #	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
00801	Haefely	Compact Immunity Test System	AXOS5	182492	2025-07-31	2026-07-31
00348	California Instruments	Source, AC/DC	5001iX	54024	2025-02-28	2027-02-28

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

11.6 Environmental Conditions

Testing Date:	2025-08-11
Testing Site:	Immunity Room 1B
Temperature:	24.6 ºC
Relative Humidity:	53.3 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

11.7 Fast Transients Test Data (IEC 61000-4-4)

AC Line

IEC 61000-4-4 Test Point	Test Level (kV)							
	-0.25	+0.25	-0.5	+0.5	-1.0	+1.0	-2.0	+2.0
L1	-	-	A	A	A	A	A	A
L2	-	-	A	A	A	A	A	A
Earth	-	-	A	A	A	A	A	A
L1+L2	-	-	A	A	A	A	A	A
L1+Earth	-	-	A	A	A	A	A	A
L2+Earth	-	-	A	A	A	A	A	A
L1+L2+Earth	-	-	A	A	A	A	A	A

Note:
A ----- Performance Criteria A
B ----- Performance Criteria B
C ----- Performance Criteria C
- ----- Not Applicable

The EUT was subjected to the Fast Transient test required by EN/BS EN/IEC 61000-6-2 and all lower levels specified in IEC 61000-4-4.

12 EN/BS EN/IEC 61000-6-2 Section 9 – Surges (IEC 61000-4-5)

12.1 Applicable Standard

As per EN/BS EN/IEC Section 9 Table 4: Immunity requirements – Input and output AC power ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
4.4	Surges [d]	±2 kV line-to-earth ±1 kV line-to-line 1.2/50 (8/20) T_r/T_d µs	IEC 61000-4-5	B

[f] For supply voltages where no test equipment is commercially available (e.g. CDNs), this test is not required.

As per IEC 61000-4-5: Test Levels

The preferred range of test levels is given in Table 1.

Table 1- Test levels

Level	Open-circuit test voltage ±10 % (kV)
1	0.5
2	1.0
3	2.0
4	4.0
x	Special
NOTE x is can be any level, above, below or in between the other levels. This level can be specified in the product specification.	

The test levels shall be selected according to the installation conditions; classes of installation are given in B.3 of annex B.

All voltages of the lower test levels shall be satisfied (see 8.2).

For selection of the test levels for the different interfaces, see annex A.

12.2 Surges Test System

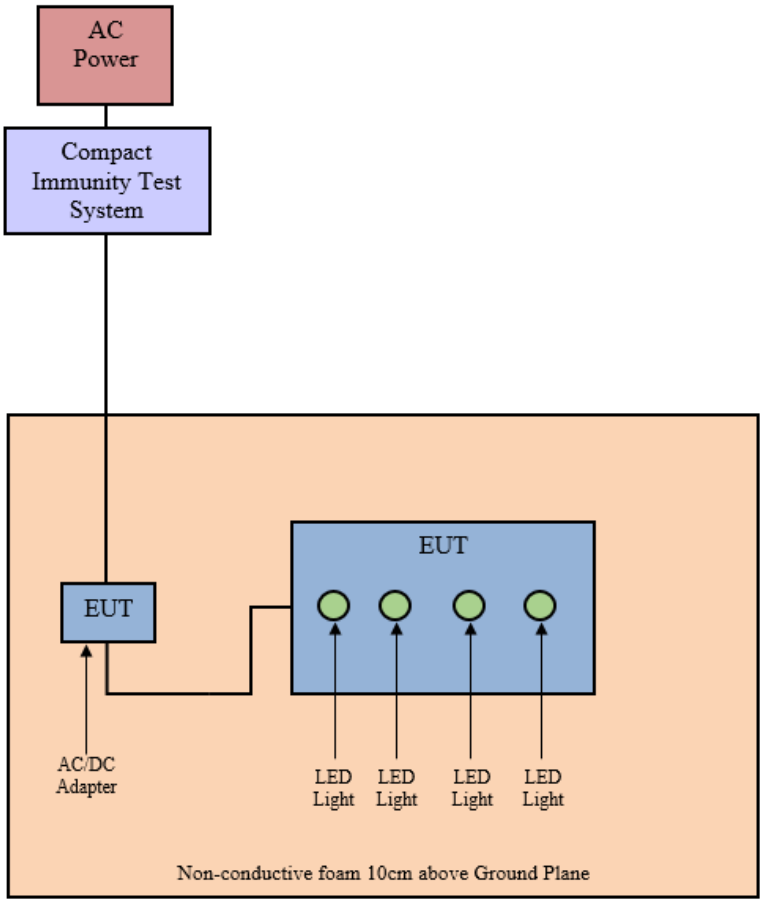
An AXOS5 Immunity test system is used for all testing. Both positive and negative polarities of voltage up to 2 kV were applied to the AC input lines.

12.3 Application of Surges

The EUT was setup in accordance with the setup described in IEC 61000-4-5 and the test was performed according to the procedures described in the standard.

12.4 Test Setup Block Diagrams

AC Line



12.5 Test Equipment List and Details

BACL #	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
00801	Haefely	Compact Immunity Test System	AXOS5	182492	2025-07-31	2026-07-31
00348	California Instruments	Source, AC/DC	5001iX	54024	2025-02-28	2027-02-28

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

12.6 Environmental Conditions

Testing Date:	2025-08-11
Testing Site:	Immunity Room 1B
Temperature:	24.6 ºC
Relative Humidity:	53.3 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

12.7 Surges Test Data (IEC 61000-4-5)

AC Line

Level	Voltage (kV)	Pole	Path	Pass	Fail
1	0.5	±	L-N, L-PE, N-PE	A	-
2	1	±	L-N, L-PE, N-PE	A	-
3	2	±	L-PE, N-PE	A	-

Note:
A ----- Performance Criteria A
B ----- Performance Criteria B
C ----- Performance Criteria C
- ----- Not Applicable

The EUT was subjected to the Surges test required by EN/BS EN/IEC 61000-6-2 and all lower levels specified in IEC 61000-4-5.

13 EN/BS EN/IEC 61000-6-2 Section 9 – Conducted RF Immunity (IEC 61000-4-6)

13.1 Applicable Standard

As per EN/BS EN/IEC Section 9 Table 4: Immunity requirements – Input and output AC power ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
4.1	Radio-frequency common mode [a]	0.15 ~ 80 MHz 10 V 80 % AM (1 kHz)	IEC 61000-4-6	A

As per EN/BS EN/IEC Section 9 Table 2: Immunity requirements – Signal/control ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
2.1	Conducted RF Electromagnetic Field [a b]	0.15 ~ 80 MHz 10 V 80 % AM (1 kHz)	IEC 61000-4-6	A

[a] The test level can also be defined as the equivalent current into a 150 Ω load.

[b] Applicable only to ports interfacing with cables whose total length according to the manufacturer's functional specification may exceed 3 m.

As per IEC 61000-4-6: Test Levels

No tests are required for induced disturbances caused by electromagnetic fields coming from intentional RF transmitters in the frequency range 9 kHz to 150 kHz.

Table 1- Test levels

Frequency range 150 kHz-80 MHz		
Level	Voltage level (e.m.f.)	
	U_0 [dB(μV)]	U_0 [v]
1	120	1
2	130	3
3	140	10
X[a]	Special	
[a] X is an open level.		

The open-circuit test levels (emf) of the unmodulated disturbing signal, expressed in rms, are given in Table 1. The test levels are set at the EUT port of the coupling and decoupling devices, see 6.4.1. For testing of equipment, this signal is 80% amplitude modulated with a 1 kHz sine wave to simulate actual threats. The effective amplitude modulation is shown in Figure 4. Guidance for selecting test levels is given in Annex C.

NOTE 1 IEC 61000-4-3 also defines test methods for establishing the immunity of electrical and electronic equipment against radiated electromagnetic energy. It covers frequencies above 80 MHz

13.2 Conducted RF Immunity Test

A Rohde and Schwarz SMY02 Signal Generator was used to perform the test. The EUT was subjected to 3 V RMS, AM modulated (1 kHz sinewave at 80% depth), conducted signals from 0.15 MHz to 80 MHz

CDN coupling and de-coupling networks were utilized to inject the signal onto the power line using the 6.2.1 method. The clamp injection method of 6.2.2 was used to inject the signal onto the I/O lines, where applicable.

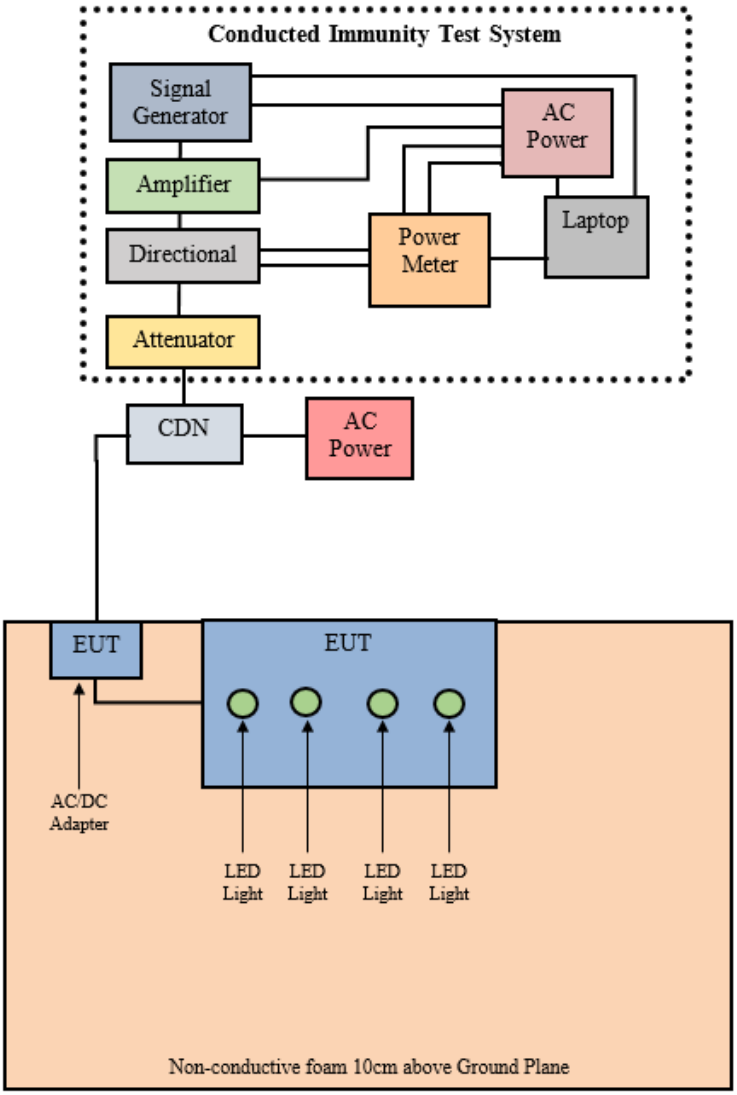
13.3 Application of Conducted RF Immunity

The EUT was setup according to the IEC 61000-4-6 and the test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn while the other non-excited RF input ports of the coupling devices are terminated by a 50 Ω load resistor. The frequency range is 150 kHz to 80 MHz

When a CDN is not applicable the injection method should be used and a monitor probe is used to monitor the current injected.

13.4 Test Setup Block Diagram

AC Line



13.5 Test Equipment List and Details

BACL #	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
00739	Rohde & Schwarz	Signal Generator	SMY 02	DE27364	2025-05-05	2026-05-05
01125	Amplifier Research	RF Amplifier	100A400A	0354086	Calibration not Required	Calibration not Required
00664	AR	Directional Coupler	DC2600A	0423135	Calibration not Required	Calibration not Required
00253	Weinshel	Attenuator	58-6-33	ML011	Calibration not Required	Calibration not Required
00797	Fischer Custom Communications, Inc.	Power Line CDN	FCC-801-M3-32A	161355	2025-06-23	2026-06-23
00348	California Instruments	Source, AC/DC	5001iX	54024	2025-02-28	2027-02-28

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

13.6 Environmental Conditions

Testing Date:	2025-08-11
Testing Site:	Immunity Room 1B
Temperature:	24.6 ºC
Relative Humidity:	53.3 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

13.7 Conducted RF Immunity Test Data (IEC 61000-4-6)

AC Line

Modulation: Amplitude, 80%, 1 kHz sine wave
Severity Level: 10 VRMS

Frequency (MHz)	Level	Voltage Level (e.m.f.) U_0	Pass	Fail
0.15 to 80	3	10	A	-

Note:
A ----- Performance Criteria A
B ----- Performance Criteria B
C ----- Performance Criteria C
- ----- Not Applicable

The EUT was subjected to the Conducted RF Immunity required by EN/BS EN/IEC 61000-6-2 and IEC 61000-4-6. The EUT was subjected to a 10-volt rms, 80% Amplitude modulated, 1 kHz sine wave field as required. During testing a 3 second dwell time with 1% step from 150 kHz to 80 MHz was used.

14 EN/BS EN/IEC 61000-6-2 Section 9 – Power Frequency Magnetic Fields (IEC 61000-4-8)

14.1 Applicable Standard

As per EN/BS EN/IEC 61000-6-2 Section 9 Table 1: Immunity requirements - Enclosure ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
1.1	Power Frequency Magnetic Field	50, 60 Hz 30 A/m	IEC 61000-4-8	A

As per IEC 61000-4-8: Test Levels

The preferential range of test levels, respectively for continuous and short duration application of the magnetic field, applicable to distribution networks at 50 Hz and 60 Hz, is given in Table 1 and Table 2. The magnetic field strength is expressed in A/m; 1 A/m corresponds to a free space magnetic flux of 1, 26 **µ**T.

Table 1-Test levels for continuous field

Level	Magnetic field strength A/m
1	1
2	3
3	10
4	30
5	100
x[a]	special
[a] x is can be any level, above, below or in between the other levels. This level can be given in the product specification.	

Table 2-Test levels for short duration; 1 s to 3 s

Level	Magnetic field strength A/m
1	n.a.[b]
2	n.a.[b]
3	n.a.[b]
4	300
5	1000
x[a]	special
a x is can be any level, above, below or in between the other levels. This level, as well the duration of the test, can be given in the product specification. b "n.a."= not applicable	

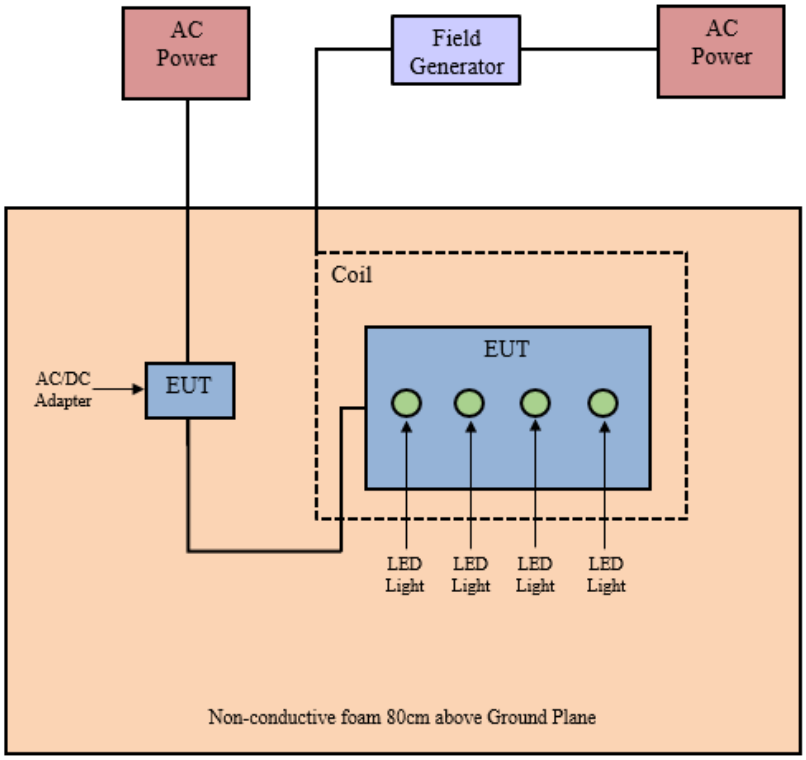
14.2 Power Frequency Magnetic Field Test

The test level as described in IEC 61000-4-8 titled "Table 1 – Test Levels for continuous field" was chosen. A single turn induction coil of 1m x 1m in size was used to generate the magnetic field.

14.3 Application of Magnetic Field

The EUT was setup according to the IEC 61000-4-8 and the test shall be done as the procedure described in the standard.

14.4 Test Setup Block Diagrams



14.5 Test Equipment List and Details

BACL Asset #	Manufacturers	Descriptions	Models	Serial Numbers	Calibration Date	Calibration Due Date
00346	Amplifier Research	Coil	BV113-97	25085	Calibration not Required	Calibration not Required
00147	Agilent	Analyzer, AC Power	6812B	US38390366	Calibration not Required	Calibration not Required
01217	AEMC	Power Clamp Meter	407	142084UDDV	2024-10-21	2025-10-21
00348	California Instruments	Source, AC/DC	5001iX	54024	2025-02-28	2027-02-28

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

14.6 Environmental Conditions

Testing Date:	2025-08-12
Testing Site:	Immunity Room 1B
Temperature:	23.4 ºC
Relative Humidity:	53.8 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

14.7 Power Frequency Magnetic Field Test (IEC 61000-4-8)

Frequency Range (Hz)	A/m	X	Y	Z
50	30	A	A	A
60	30	A	A	A

Note: A ----- Performance Criteria A
B ----- Performance Criteria B
C ----- Performance Criteria C
- ----- Not Applicable

The EUT was subjected to the Power Frequency Magnetic Field Test required by EN/BS EN/IEC 61000-6-2 and IEC 61000-4-8.

15 EN/BS EN/IEC 61000-6-2 Section 9 – Voltage Dips and Interruptions (IEC 61000-4-11)

15.1 Applicable Standard

As per EN/BS EN/IEC Section 9 Table 4: Immunity requirements – Input and output AC power ports

	Test Name	Test Level & Conditions	Test Standard	Performance criteria
4.2	Voltage Dips [b, e]	0% at 1 cycle 40% at 10/12 cycles 70% at 25/30 cycles	IEC 61000-4-11	B C C
4.3	Voltage Interruptions [b, e]	0% at 250/300 cycles		C

[b] Applicable only to input ports.

[e] The test shall be carried out at the frequencies appropriate to the power supply frequency. Equipment intended to be used in regions where only one of these frequencies is applied needs to be tested at this specific frequency only.

As per IEC 61000-4-11: Test Levels

Table 1 – Preferred test level and durations for voltage dips

Class[a]	Test level and durations for voltage dips (t_s) (50Hz/60Hz)				
Class 1	Case-by-case according to the equipment requirements				
Class 2	0 % during ½ cycle	0 % during 1 cycle	70 % during 25/30 cycle[C]		
Class 3	0 % during ½ cycle	0 % during 1 cycle	40 % during 10/12 cycle	70 % during 25/30 cycle	80 % during 250/300 cycle
Class X[b]	X	X	X	X	X

a Classes are per IEC 61000-2-4; SEE Annex B.
b To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.
c "25/30 cycles" means 25 cycles for 50 Hz test" and "30 cycles for 60Hz test"

Table 2 – Preferred test level and durations for short interruptions

Class[a]	Test level and durations for short interruptions (t_s) (50Hz/60Hz)
Class 1	Case-by-case according to the equipment requirements
Class 2	0% during 250/300[C] cycle
Class 3	0% during 250/300 [C] cycles
Class X[b]	X

a Classes are per IEC 61000-2-4; SEE Annex B.
b To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.
c "250/300 cycles" means "250 cycles for 50 Hz test" and "300 cycles for 60Hz test"

15.2 Voltage Dips and Interruptions Test System

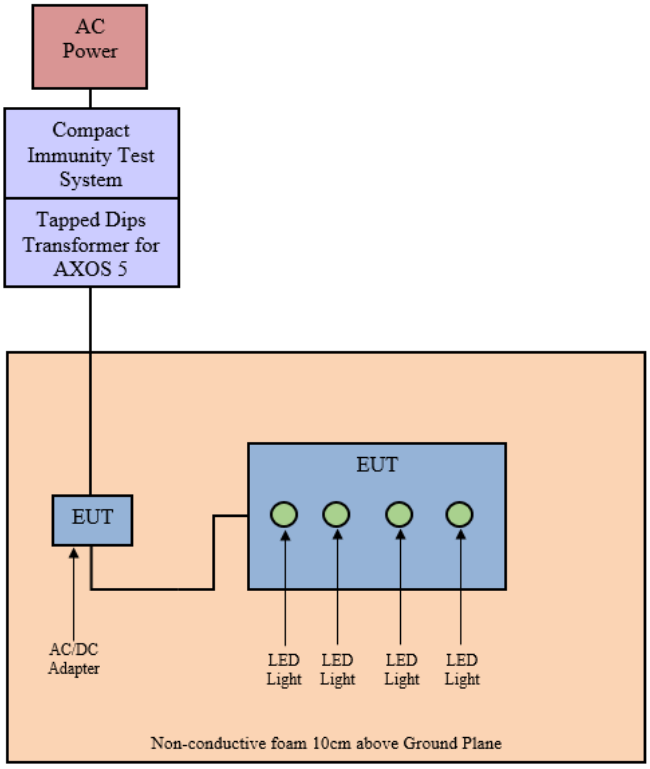
A Haefely AXOS5 system is used for all testing.

15.3 Application of Voltage Dips and Interruptions

The EUT was setup in accordance with the setup described in IEC 61000-4-11 and the test was performed according to procedures described in the standard.

15.4 Test Setup Block Diagrams

AC Line



15.5 Test Equipment List and Details

BACL #	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
00801	Haefely	Compact Immunity Test System	AXOS5	182492	2025-07-31	2026-07-31
00803	Haefely	Tapped Dips Transformer for AXOS 5	DIP 116	182339	2024-11-20	2025-11-20
00348	California Instruments	Source, AC/DC	5001iX	54024	2025-02-28	2027-02-28

***Statement of Traceability*:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA Policy P102 "A2LA Policy on Metrological Traceability".

15.6 Environmental Conditions

Testing Date:	2025-08-11
Testing Site:	Immunity Room 1B
Temperature:	24.6 ºC
Relative Humidity:	53.3 %
ATM Pressure:	101.5 kPa
Testing Personnel:	Felix Lugo

15.7 Voltage Dips and Interruptions Test Data (IEC 61000-4-11)

100V 60Hz

Phenomenon	% residual	Cycles	Phase Angle	Pass
Voltage Dip	0	1	0, 90, 180, 270	A
Voltage Dip	40	12	0, 90, 180, 270	B
Voltage Dip	70	30	0, 90, 180, 270	A
Short Interruptions	0	300	0, 90, 180, 270	B

230V 50Hz

Phenomenon	% residual	Cycles	Phase Angle	Pass
Voltage Dip	0	1	0, 90, 180, 270	A
Voltage Dip	40	10	0, 90, 180, 270	A
Voltage Dip	70	25	0, 90, 180, 270	A
Short Interruptions	0	250	0, 90, 180, 270	B

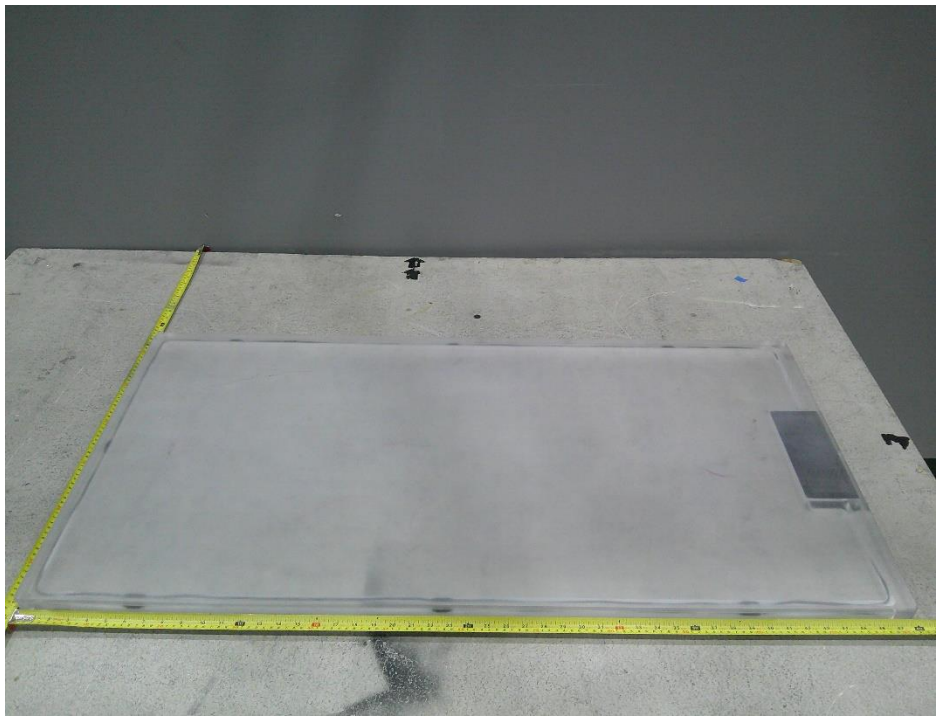
Note: B - EUT loses power during testing; however, once power is restored EUT continues to function as intended without test operator intervention.

A ----- Performance Criteria A
B ----- Performance Criteria B
C ----- Performance Criteria C
- ----- Not Applicable

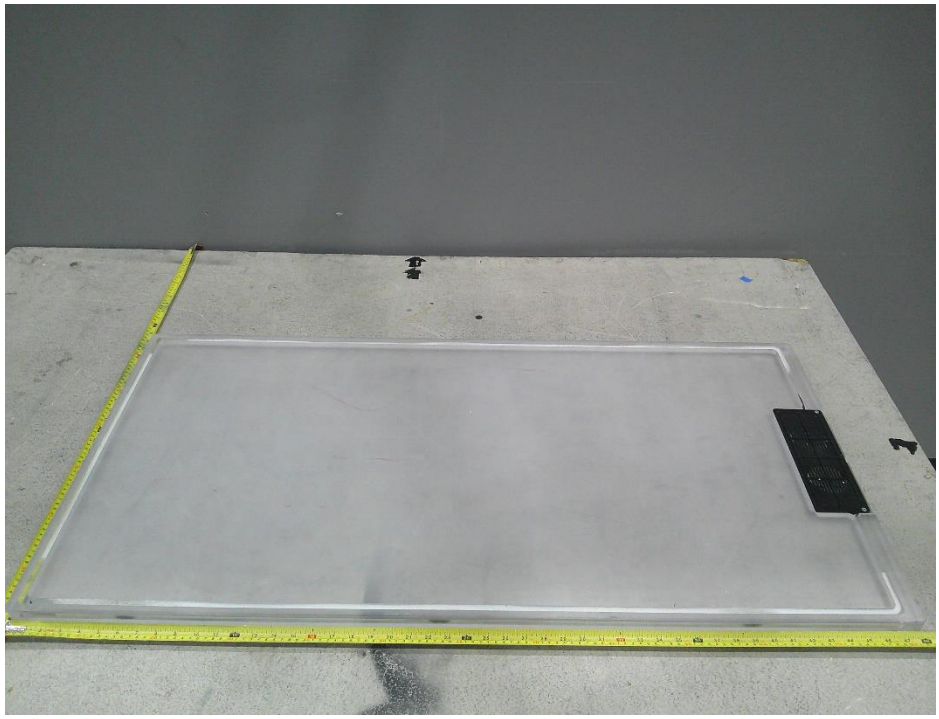
The EUT was subjected to the Voltage Dips and Interruptions test required by EN/BS EN/IEC 61000-6-2 and all lower levels specified in IEC 61000-4-11.

16 Annex A (Normative) – EUT Photographs

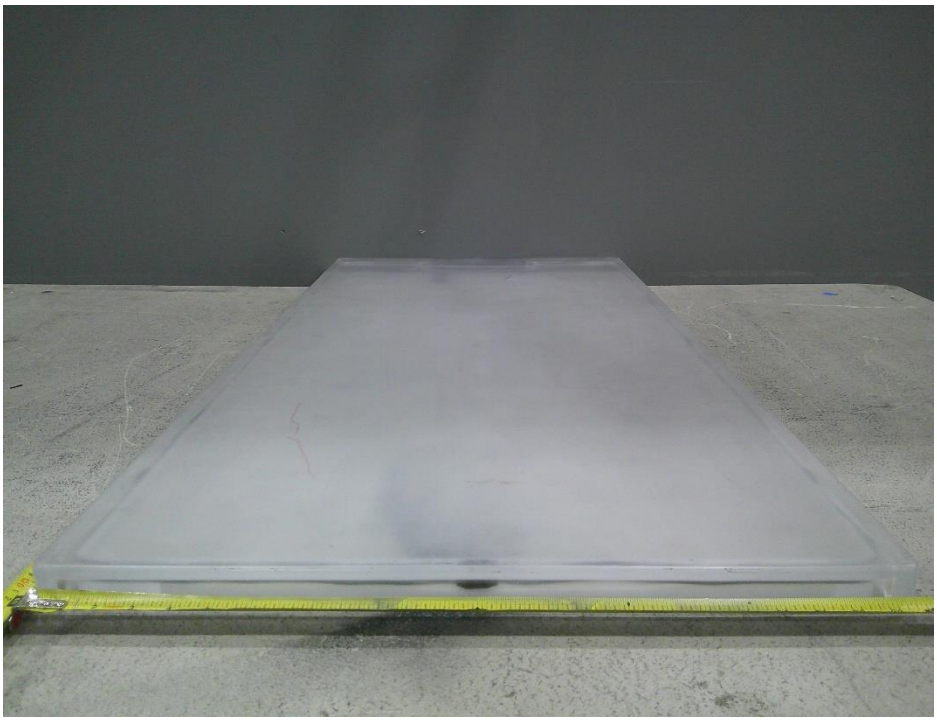
16.1 EUT – Top View



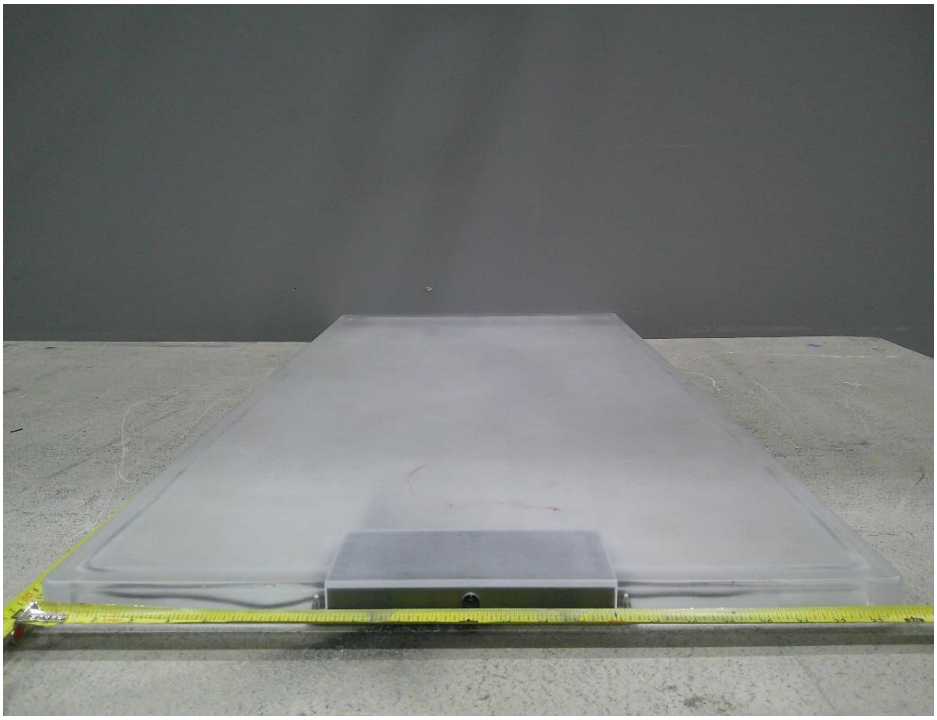
16.2 EUT – Bottom View



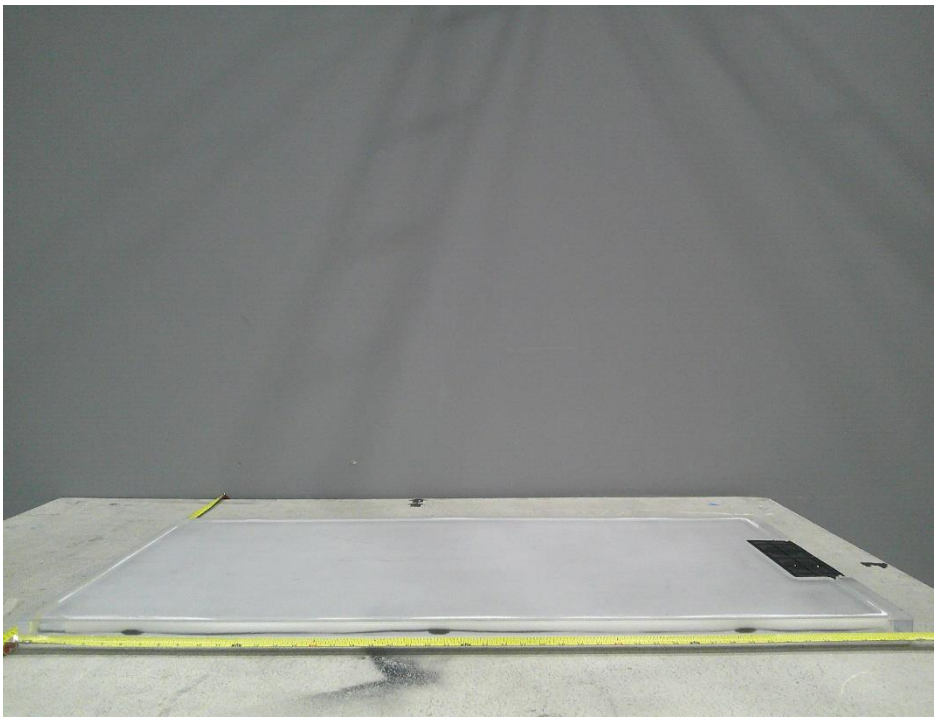
16.3 EUT – Front View



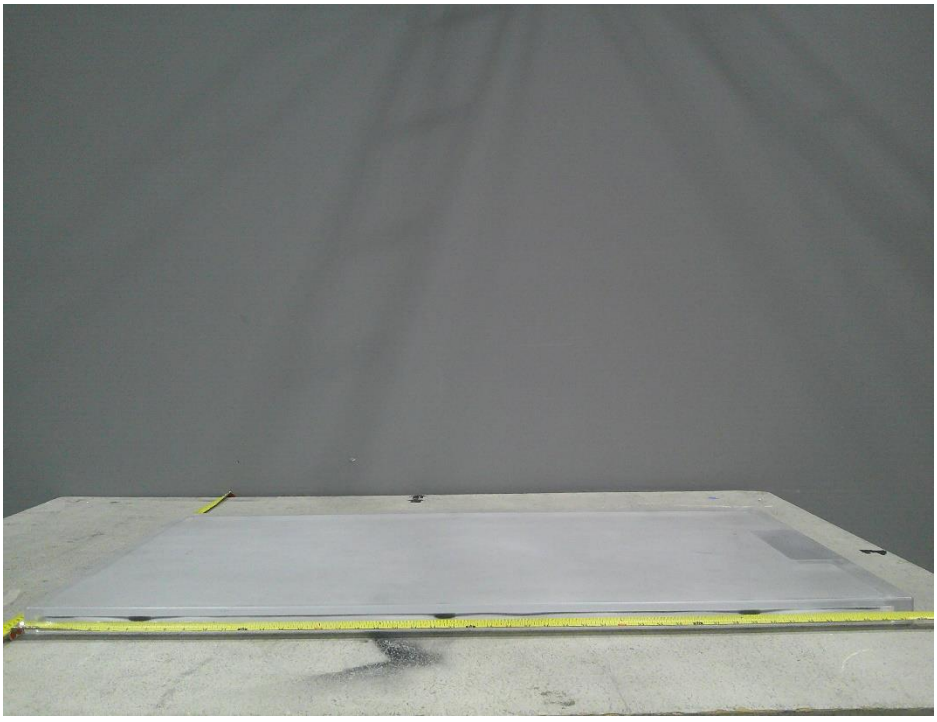
16.4 EUT – Bottom View



16.5 EUT – Right Side View

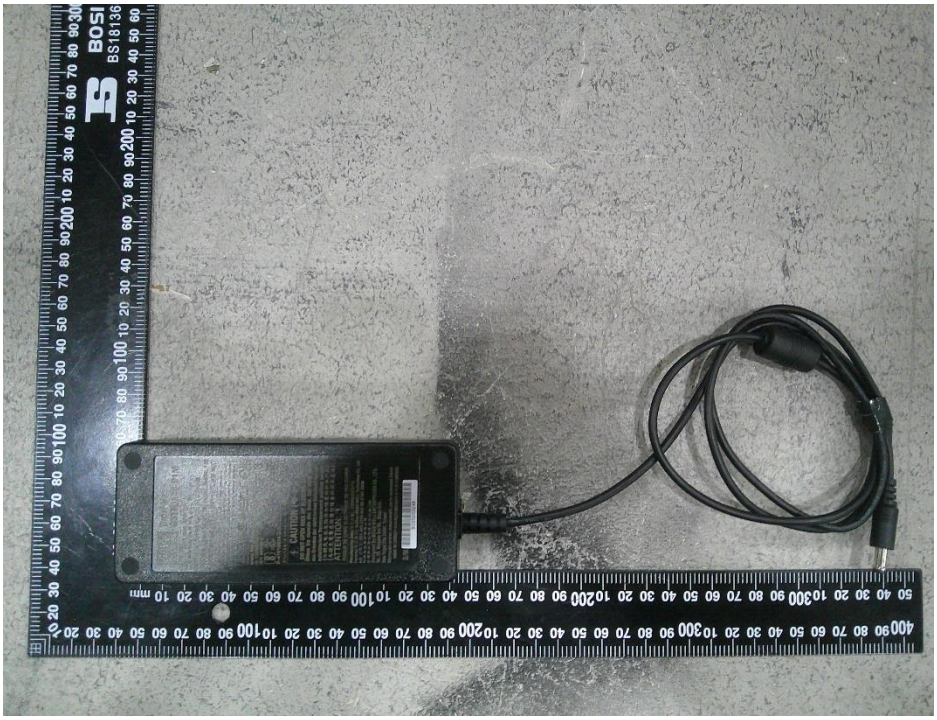


16.6 EUT – Left Side View

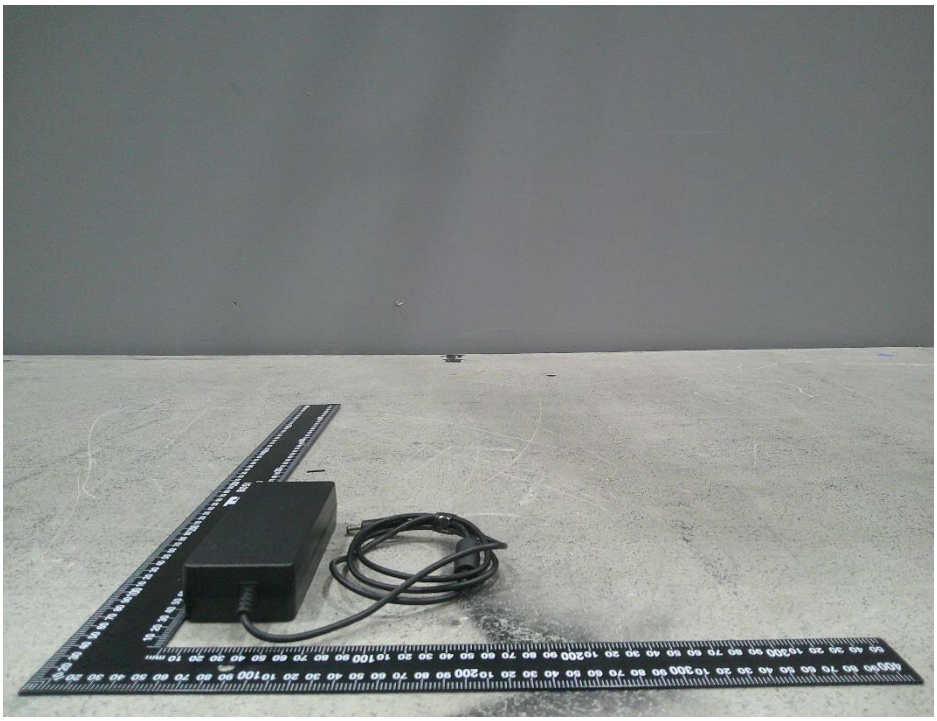


16.7 GST90A48 AC/DC Switching Power Supply – Top View

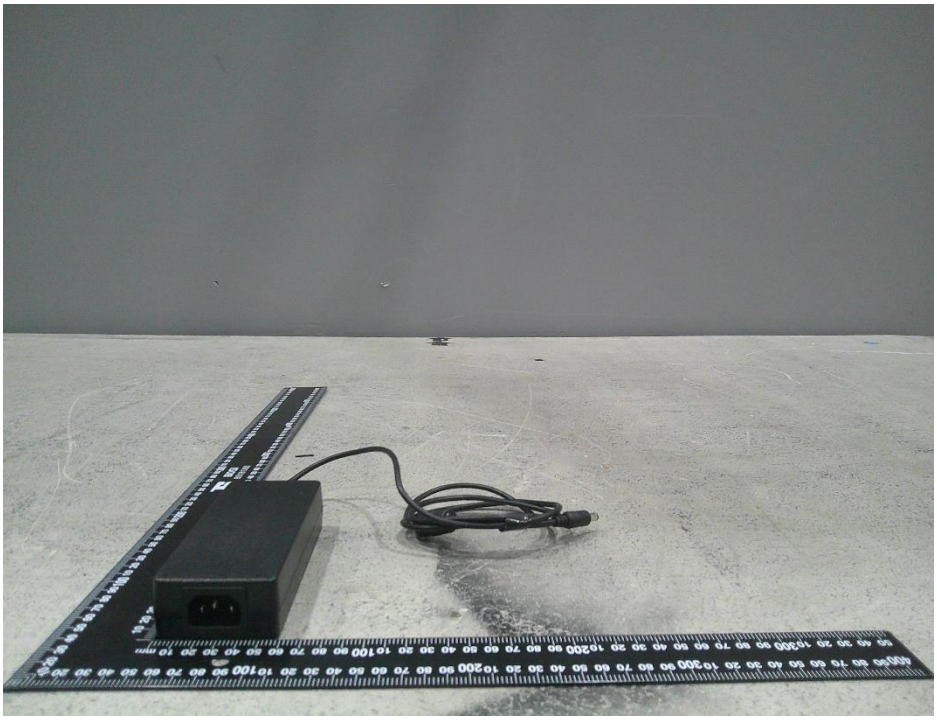
16.8 GST90A48 AC/DC Switching Power Supply – Bottom View



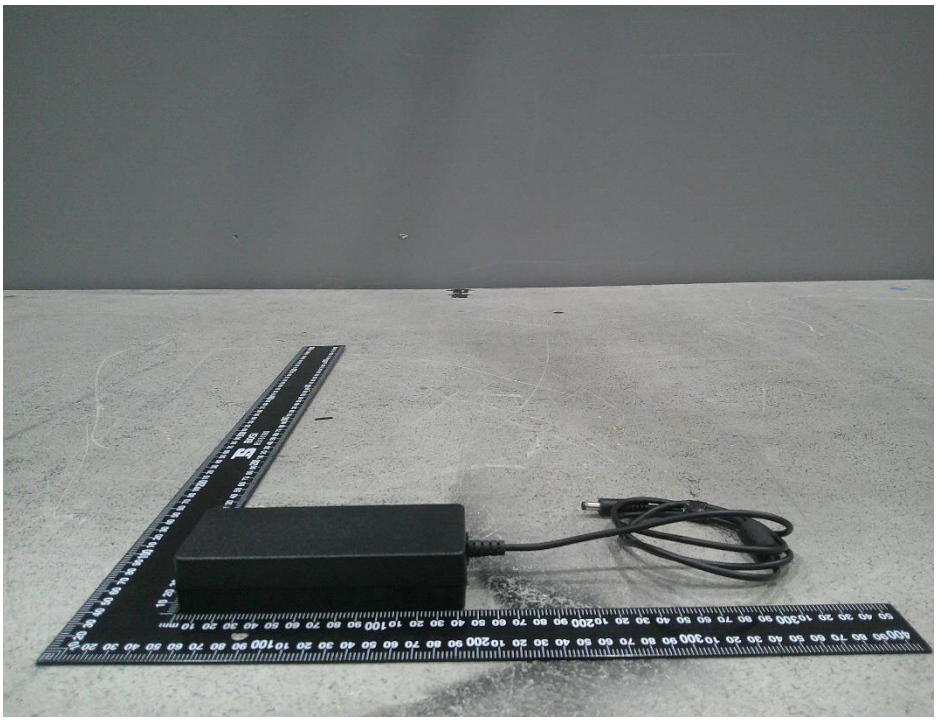
16.9 GST90A48 AC/DC Switching Power Supply – Front View



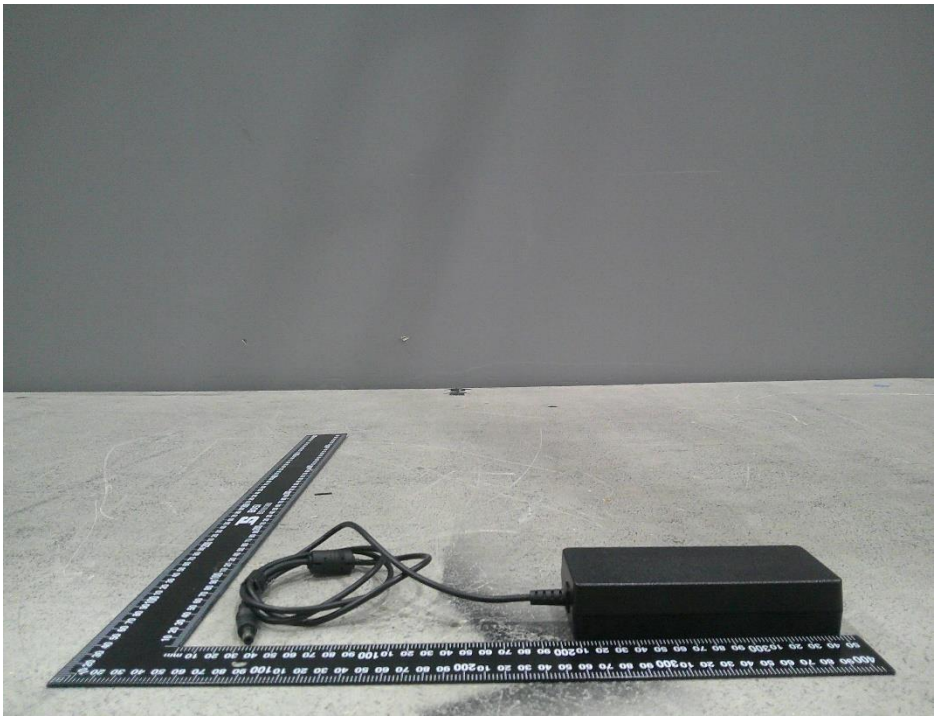
16.10GST90A48 AC/DC Switching Power Supply – Rear View



16.11GST90A48 AC/DC Switching Power Supply – Right Side View



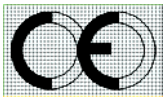
16.12GST90A48 AC/DC Switching Power Supply – Left Side View



17 Annex B (Normative) – Product Labeling Requirements

17.1 CE Label Information

1. The CE conformity marking must consist of the initials 'CE' taking the form below. If the CE marking is reduced or enlarged the proportions must be respected.



2. The CE marking must have a height of at least 5 mm except where this is not possible on account of the nature of the apparatus.

   The EMC Directive recognizes that there are circumstances where it is "not possible or warranted on account of the nature of the product" to have the marking affixed to the apparatus or to its data plate. In such cases it is allowed to have the CE marking' affixed on the packaging, refer to the Blue Guide when such exemptions are allowed.

3. The CE marking must be affixed to the product or to its data plate. Additionally it must be affixed to the packaging, if any, and to the accompanying documents, where the directive concerned provides for such documents.

4. The CE marking must be affixed visibly, legibly, and indelibly.

5. Other labeling requirements maybe required if the product(s) is/are subject to several directives.

Specifications: Text is black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing or silk-screened and shall be affixed at a conspicuous location on the EUT. The label cannot be positioned on a removable portion of the EUT (e.g. battery cover).

17.2 UKCA Label Information

Placing the UKCA marking

In most cases, you must apply the UKCA marking to the product itself or to the packaging. In some cases, it may be placed on the manuals or on other supporting literature. This will vary depending on the specific regulations that apply to the product.

The following general rules apply:

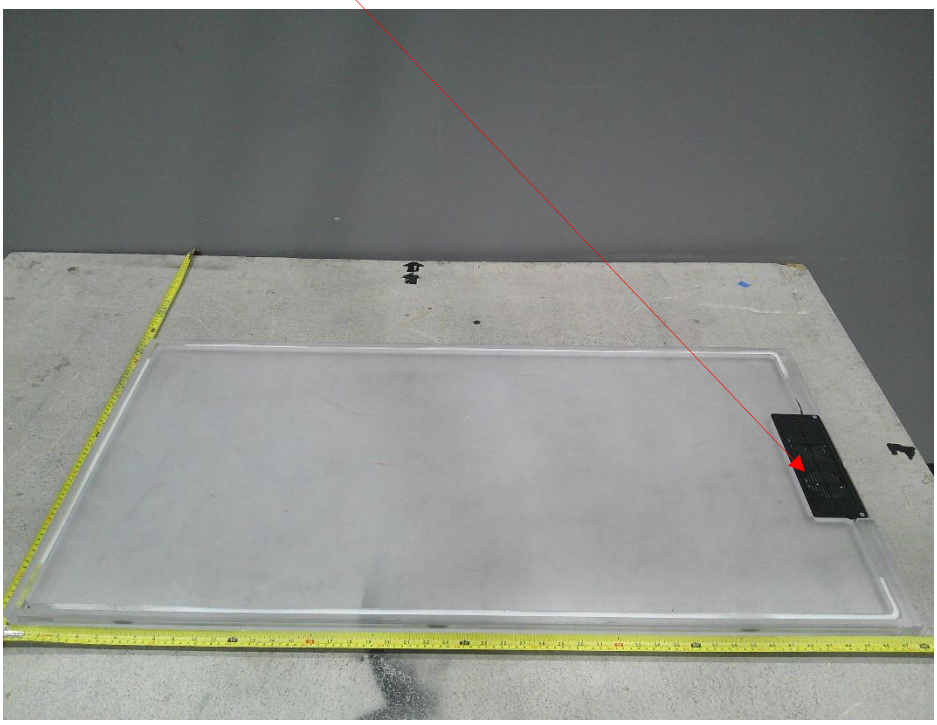
- UKCA markings must only be placed on a product by you as the manufacturer or your authorised representative (where allowed for in the relevant legislation)
- when attaching the UKCA marking, you take full responsibility for your product's conformity with the requirements of the relevant legislation
- you must only use the UKCA marking to show product conformity with the relevant UK legislation
- you must not place any marking or sign that may misconstrue the meaning or form of the UKCA marking to third parties
- you must not attach other markings on the product which affect the visibility, legibility or meaning of the UKCA marking
- the UKCA marking cannot be placed on products unless there is a specific requirement to do so in the legislation

Rules for using the UKCA image

You must make sure that:

- if you reduce or enlarge the size of your marking, the letters forming the UKCA marking must be in proportion to the version set out below
- the UKCA marking is at least 5mm in height – unless a different minimum dimension is specified in the relevant legislation
- the UKCA marking is easily visible, legible (from 1 January 2023 it must be permanently attached)

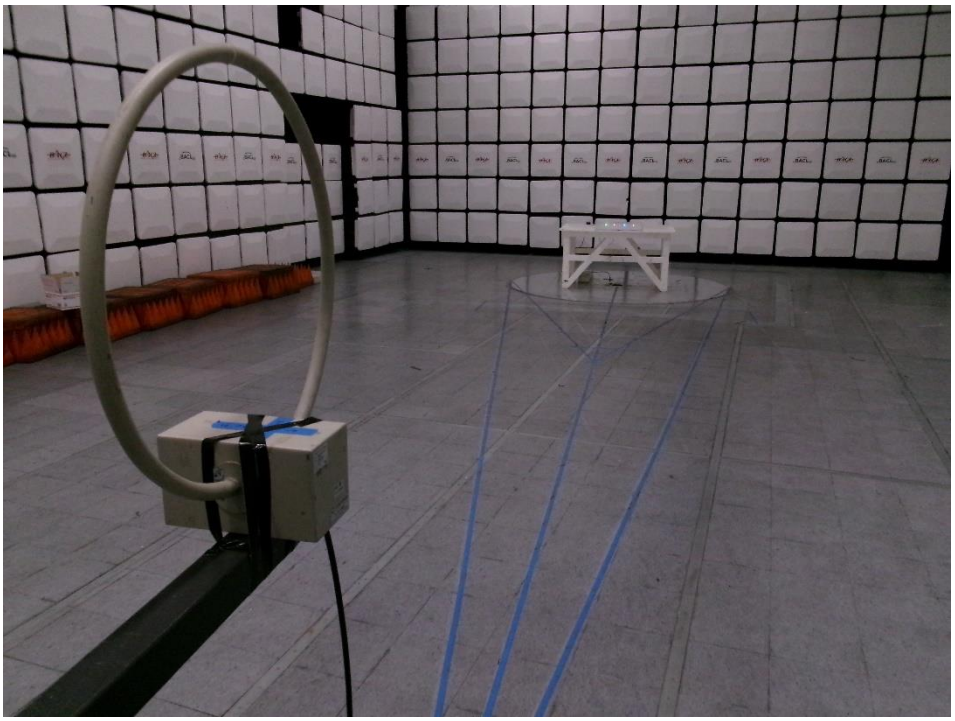
17.3 Suggested Label Location on EUT



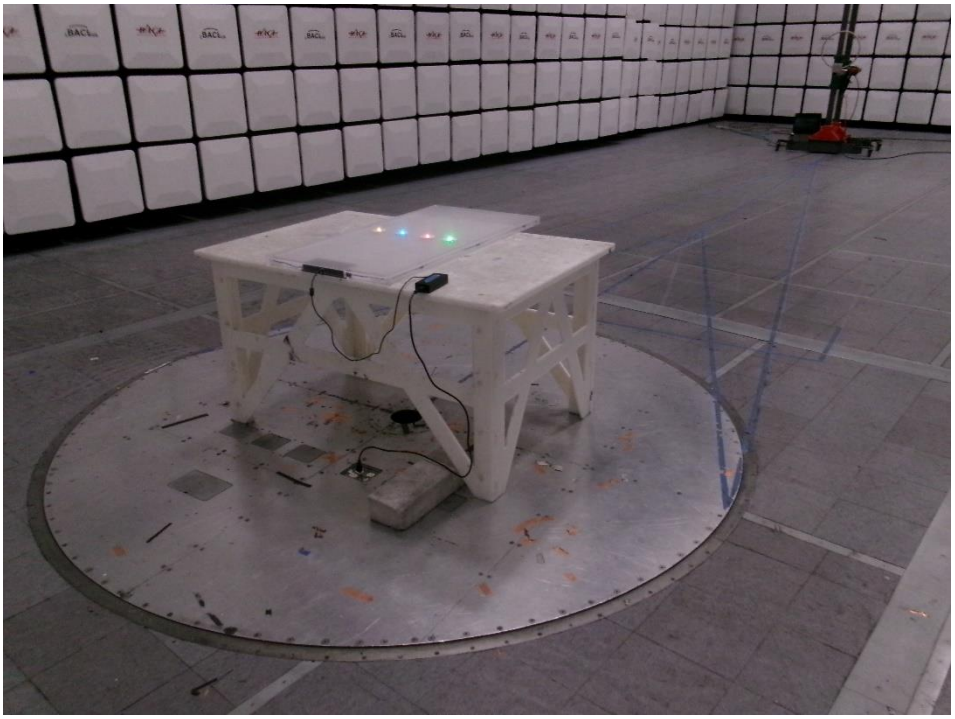
18 Annex C (Normative) – Test Setup Photographs

18.1 Radiated Emissions

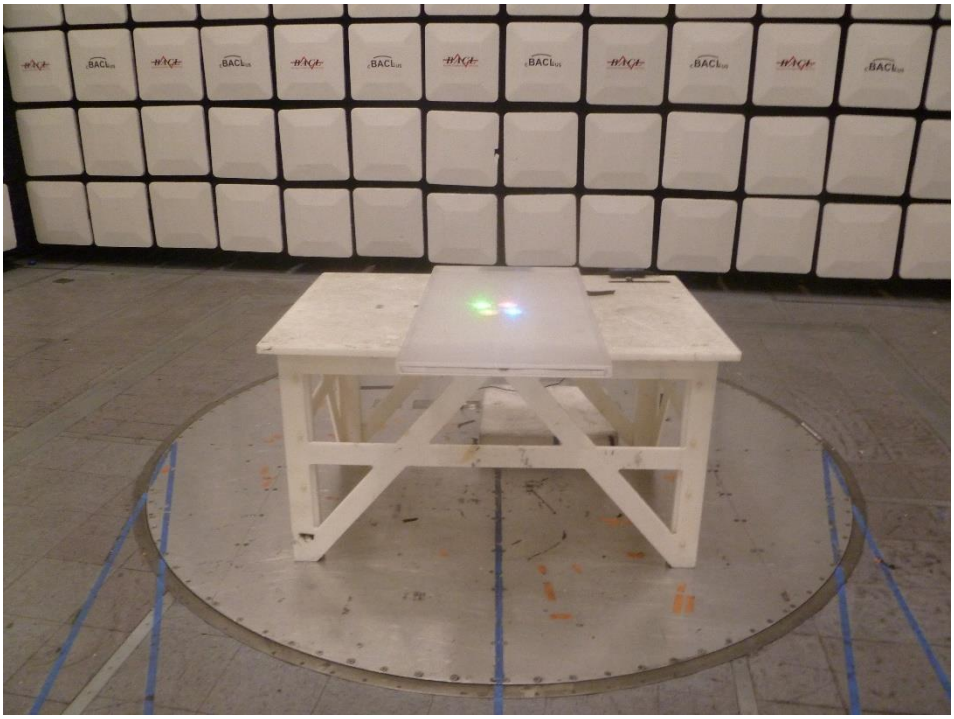
150 kHz to 30 MHz, Front View



150 kHz to 30 MHz, Rear View



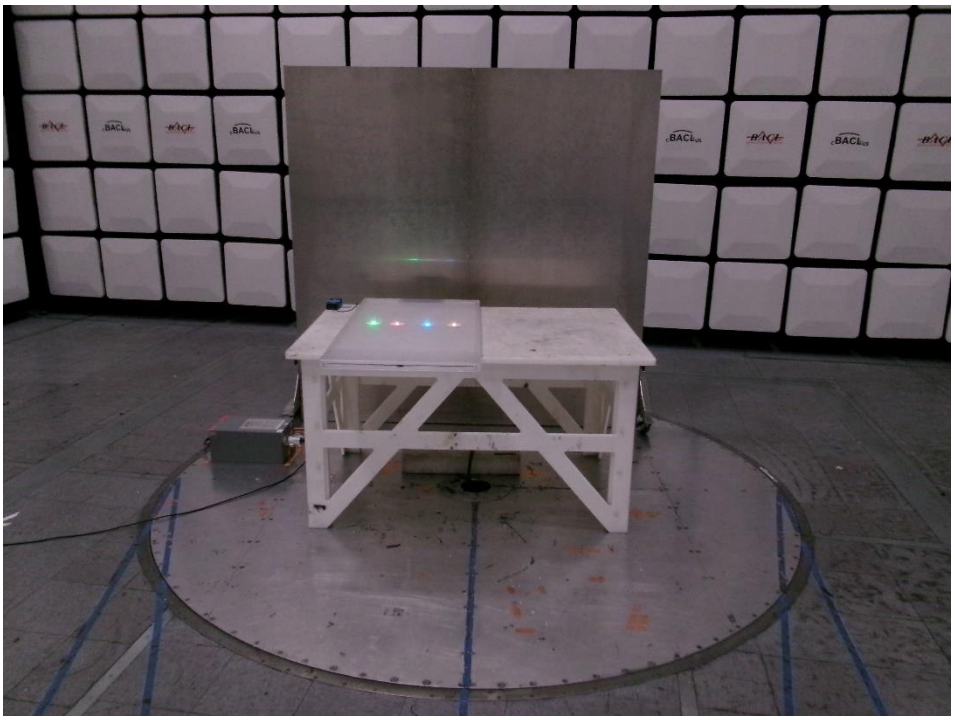
30 MHz to 1000 MHz, Front View



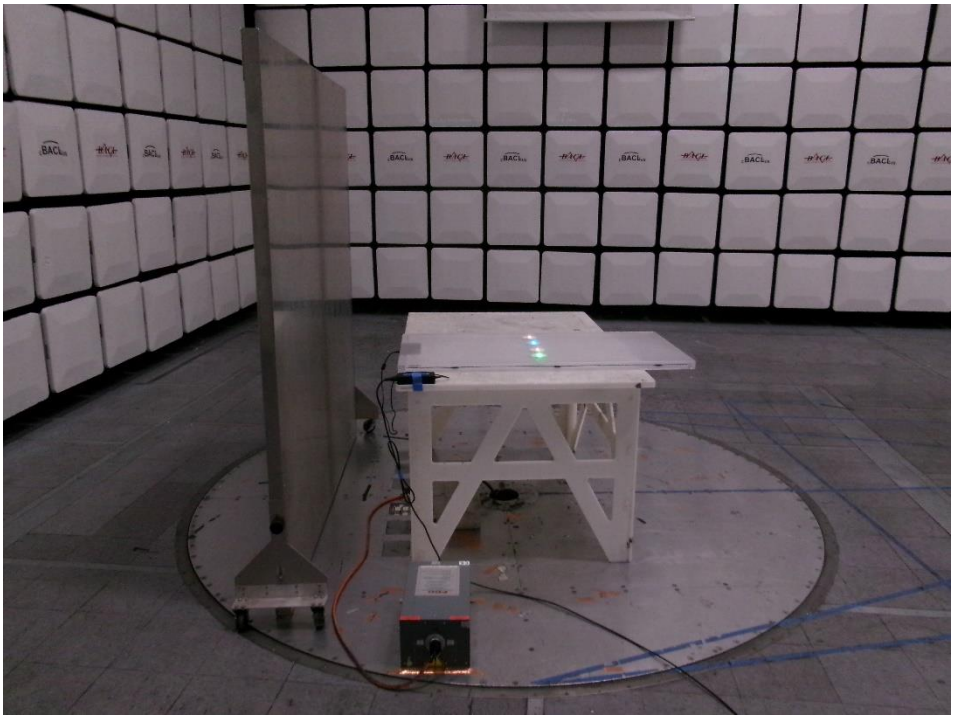
30 MHz to 1000 MHz, Rear View

18.2 Conducted Emissions

AC Line, Front View

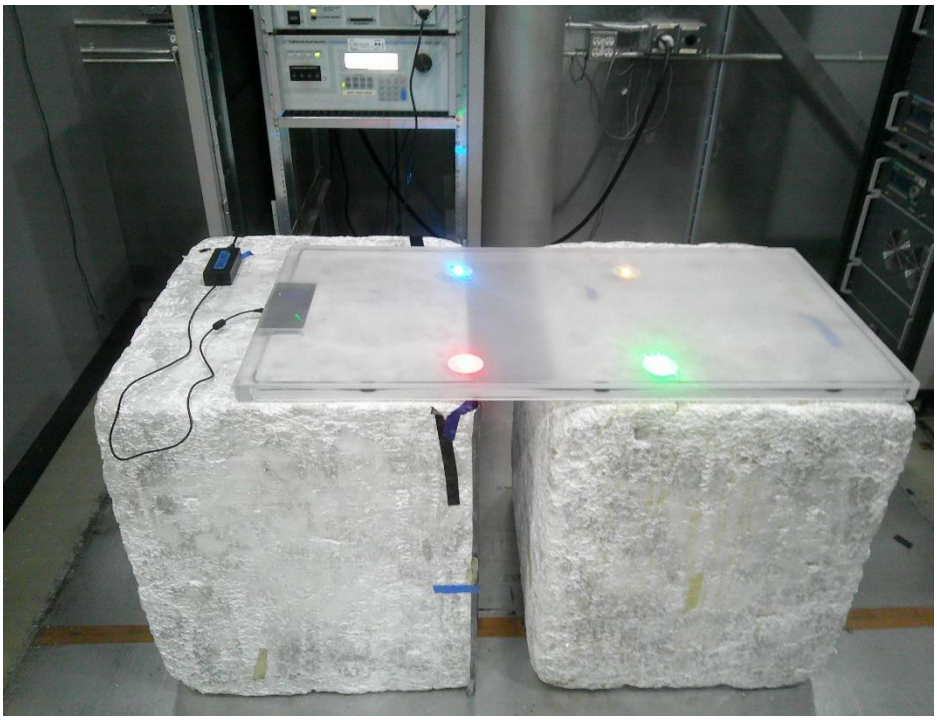


AC Line, Side View

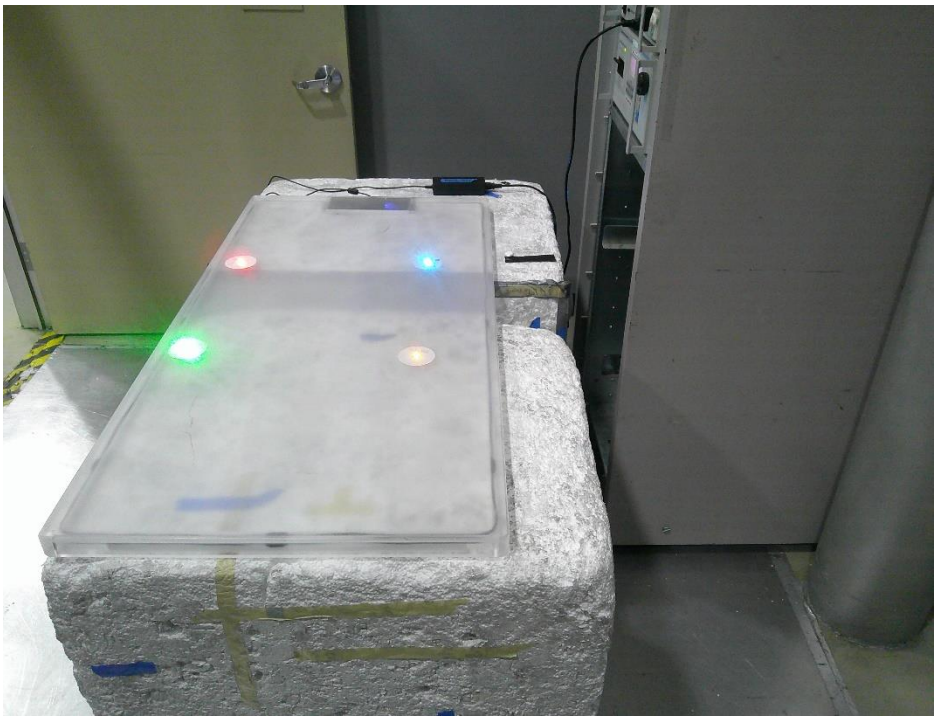


18.1 Harmonic Current Emission (EN/BS EN 61000-3-2)

Front View

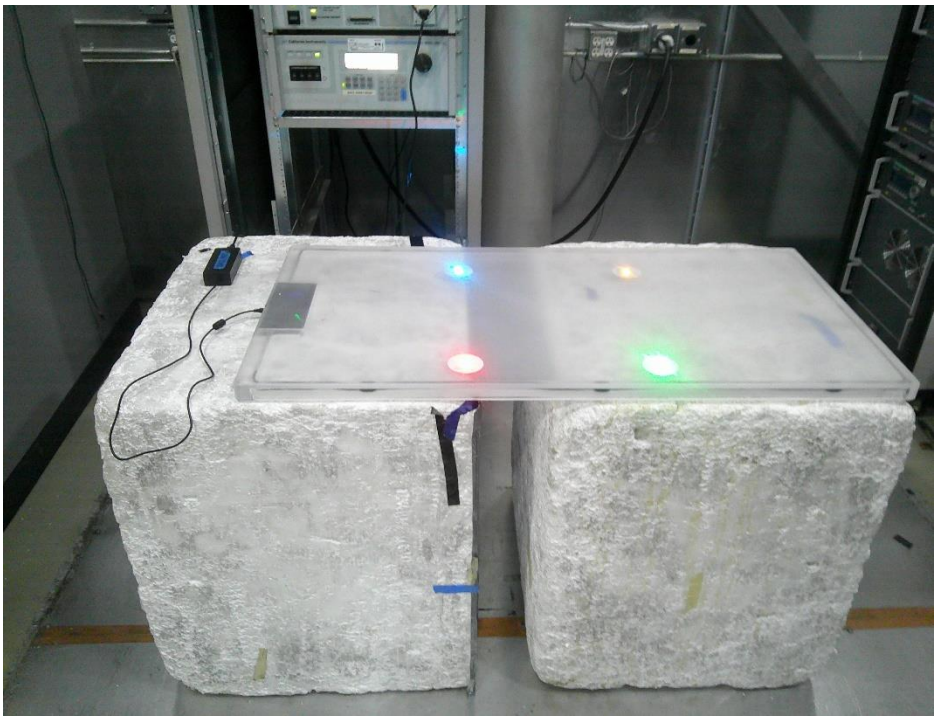


Side View

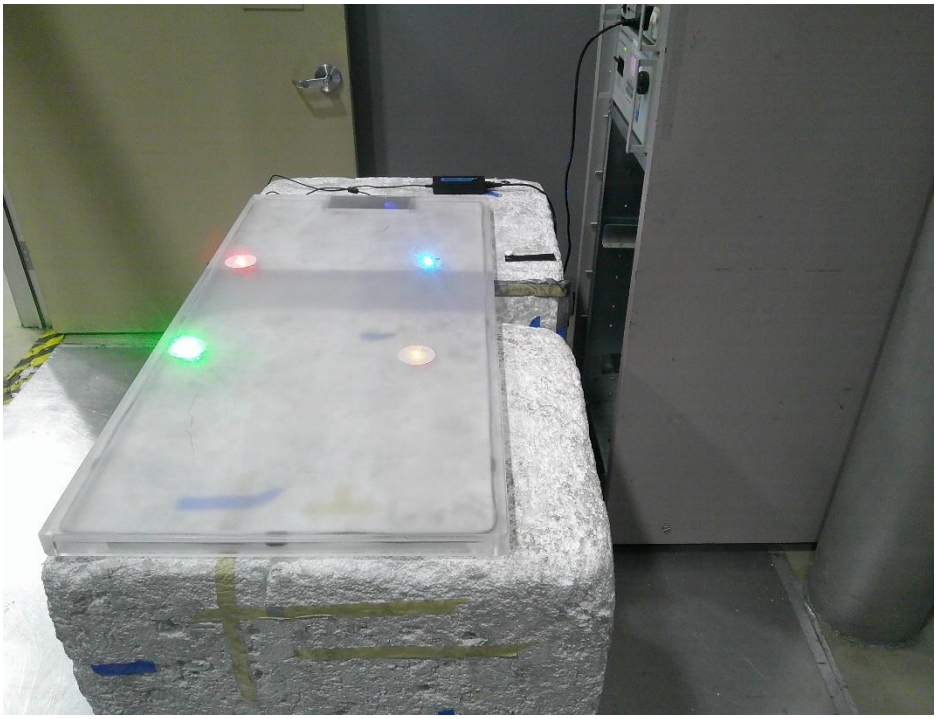


18.2 Voltage Fluctuations and Flicker (EN/BS EN 61000-3-3)

Front View



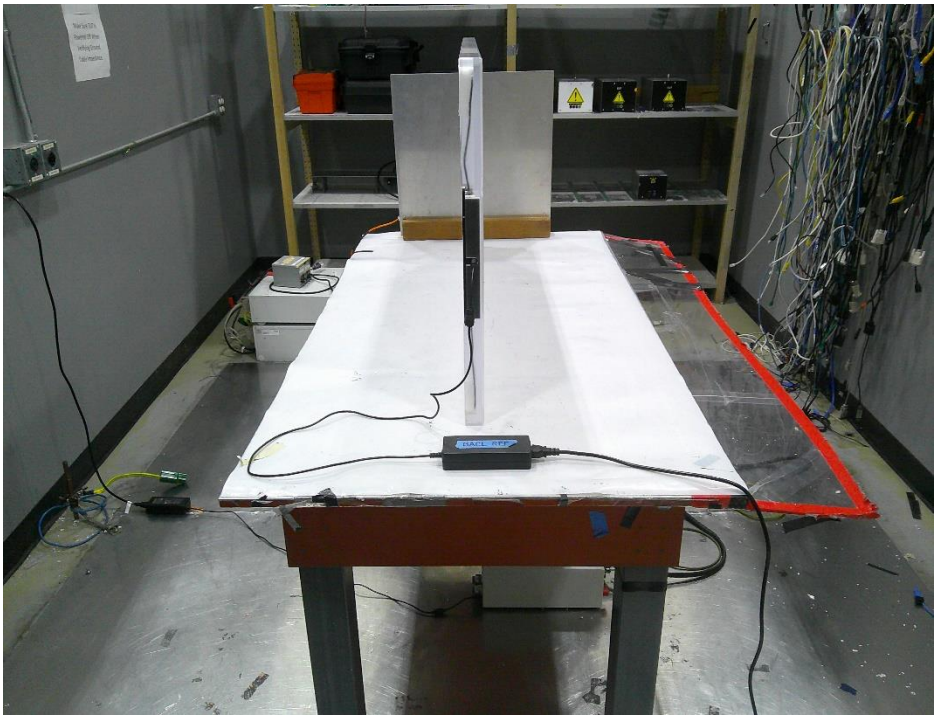
Side View



18.3 Electrostatic Discharge (IEC 61000-4-2)

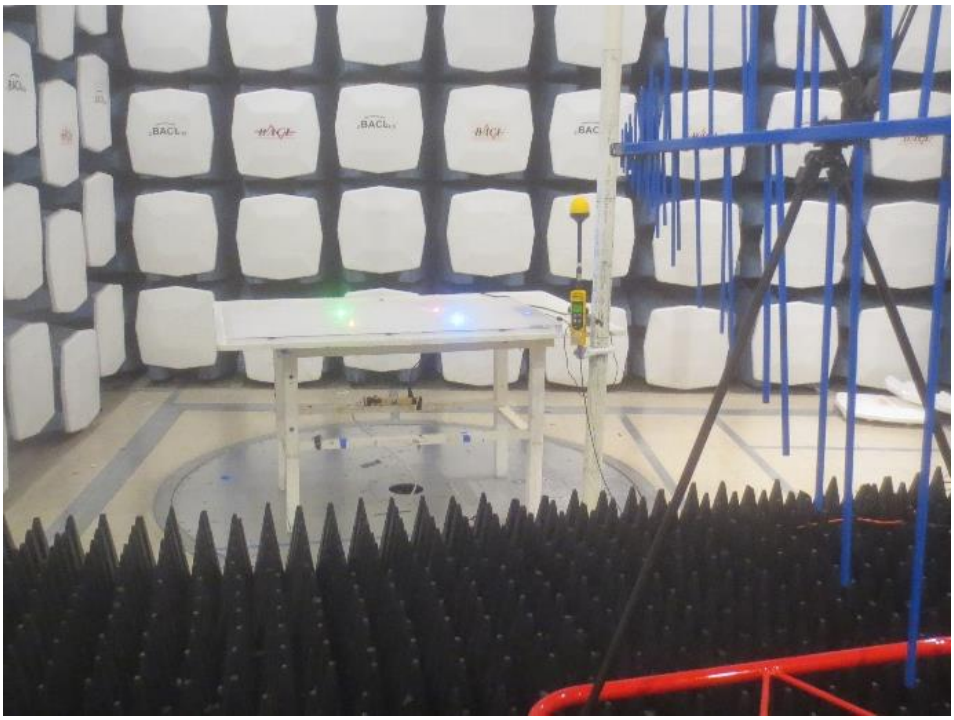
Front View

Side View

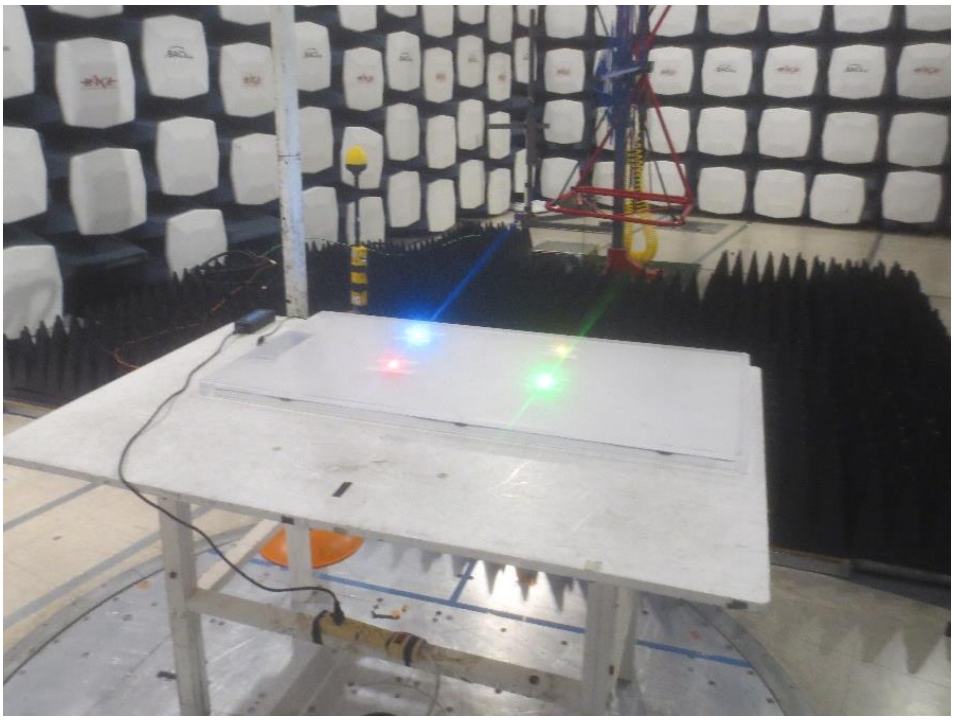


18.4 Radiated RF Immunity (IEC 61000-4-3)

80 MHz to 1000 MHz, Front View

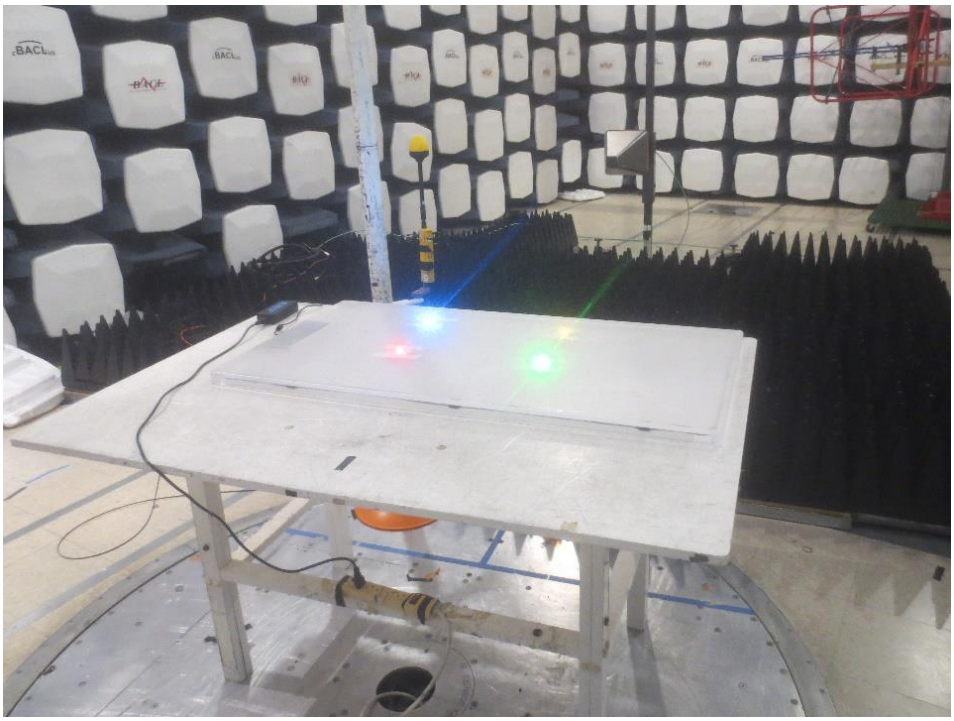


80 MHz to 1000 MHz, Rear View



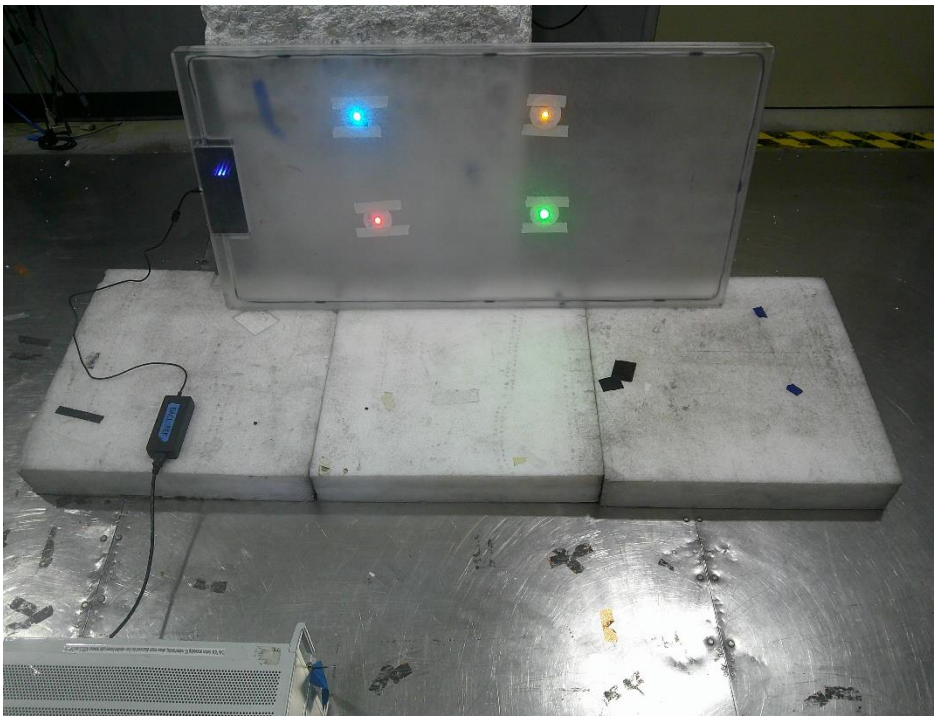
Above 1 GHz, Front View

Above 1 GHz, Rear View

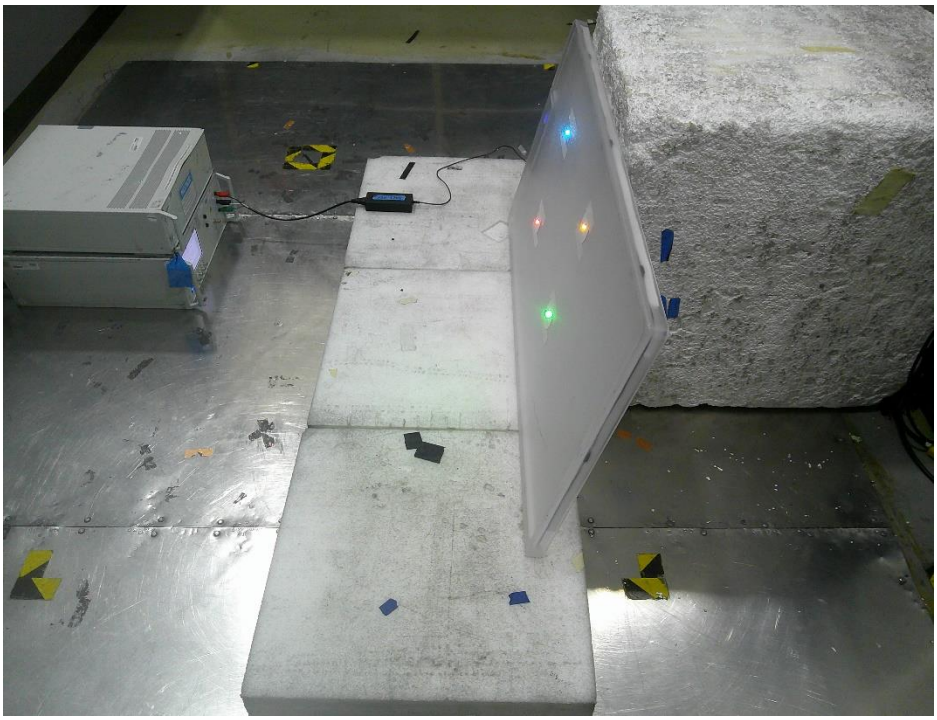


18.5 Electrical Fast Transients (IEC 61000-4-4)

AC Line, Front View

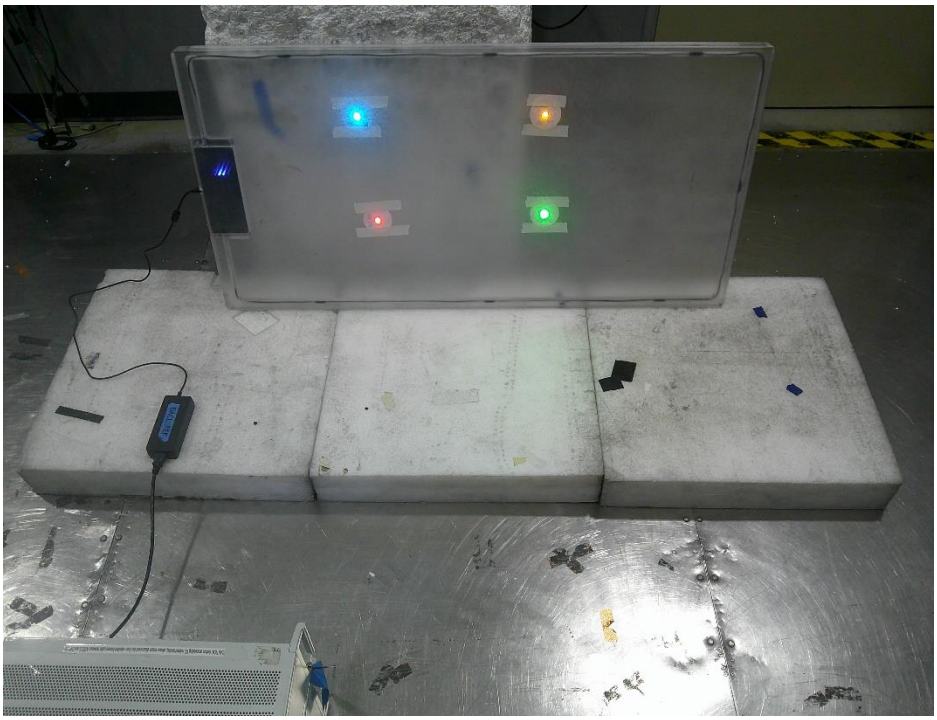


AC Line, Side View

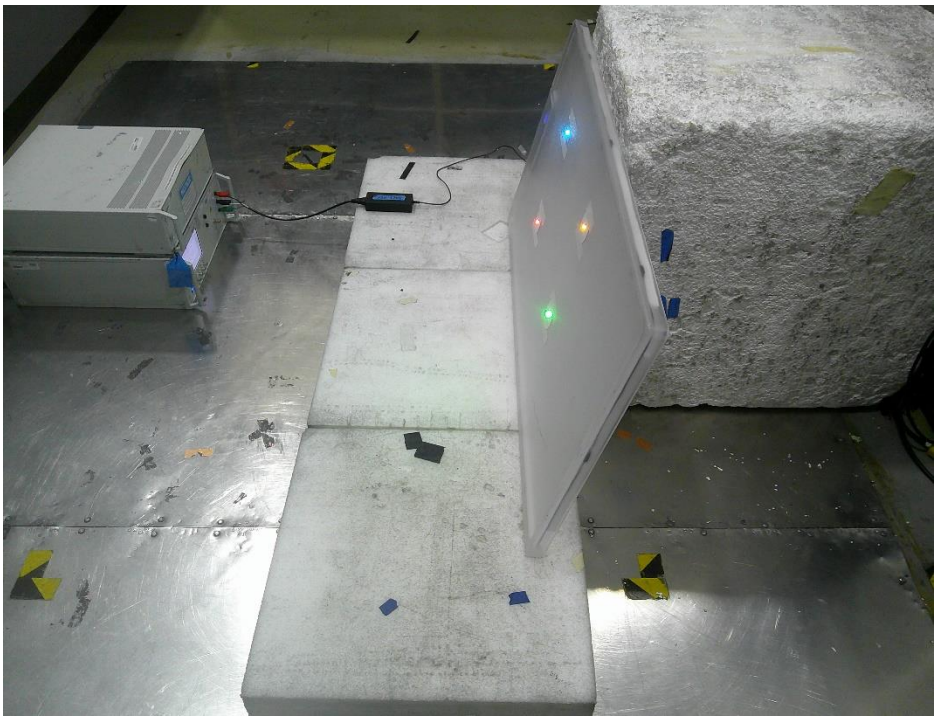


18.6 Surges (IEC 61000-4-5)

AC Line, Front View

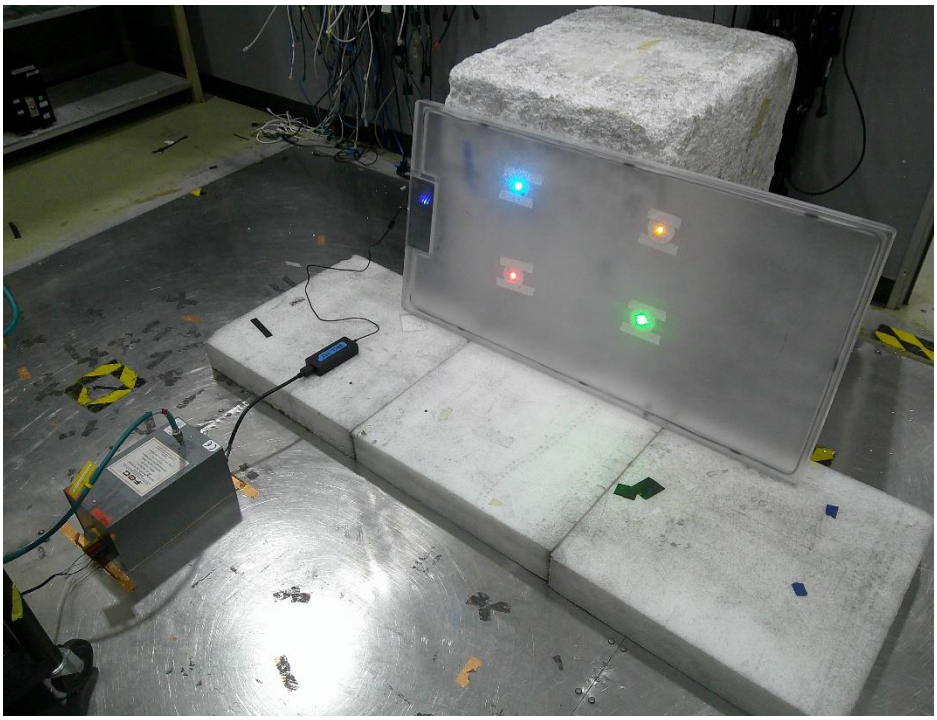


AC Line, Side View

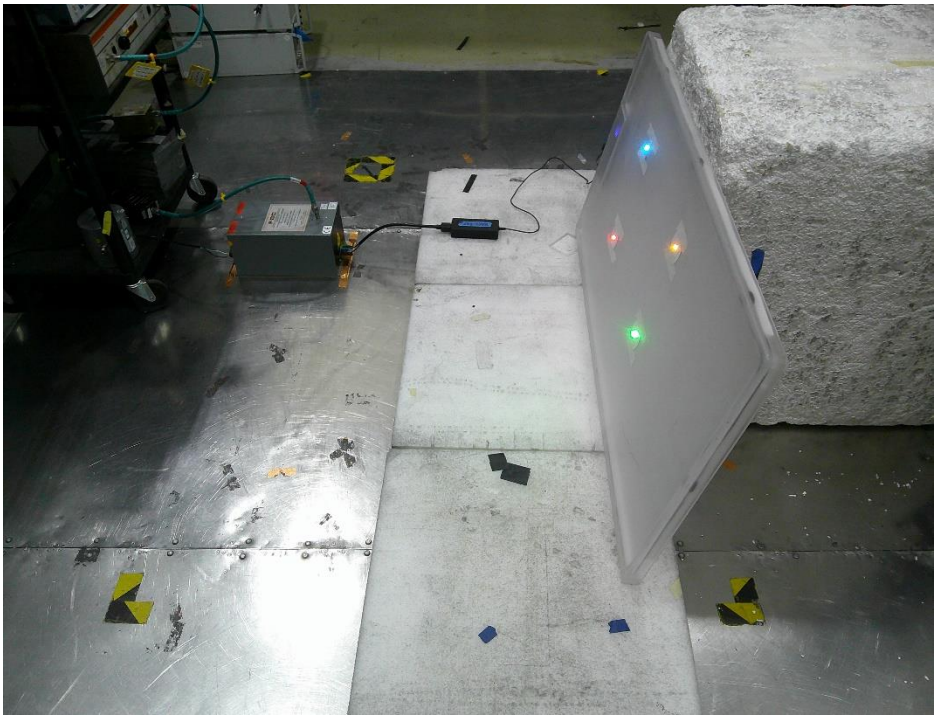


18.7 Conducted RF Immunity (IEC 61000-4-6)

AC Line, Front View

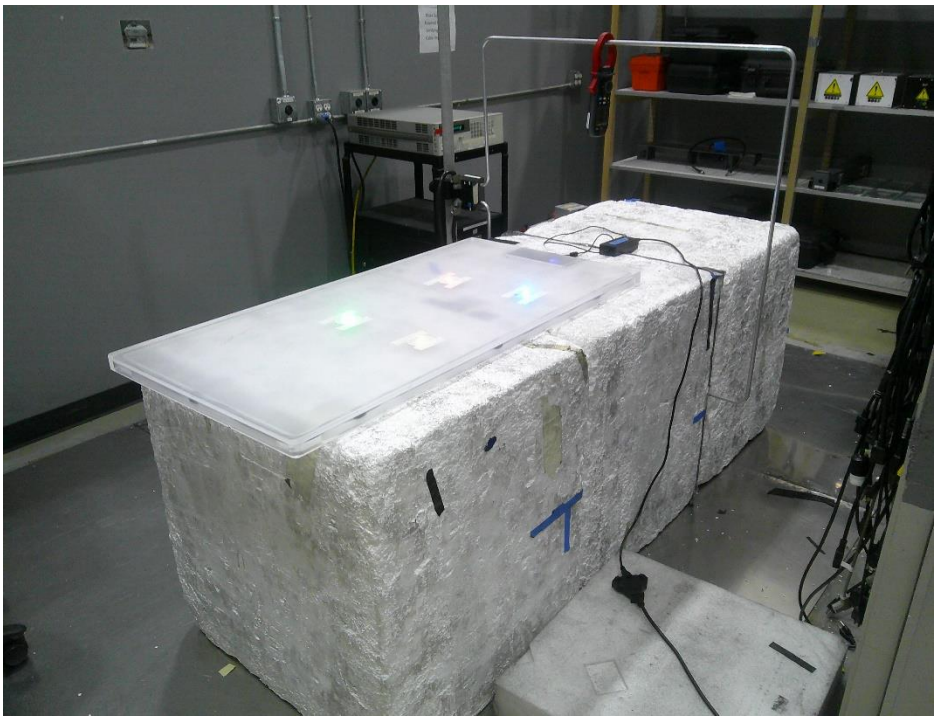


AC Line, Side View

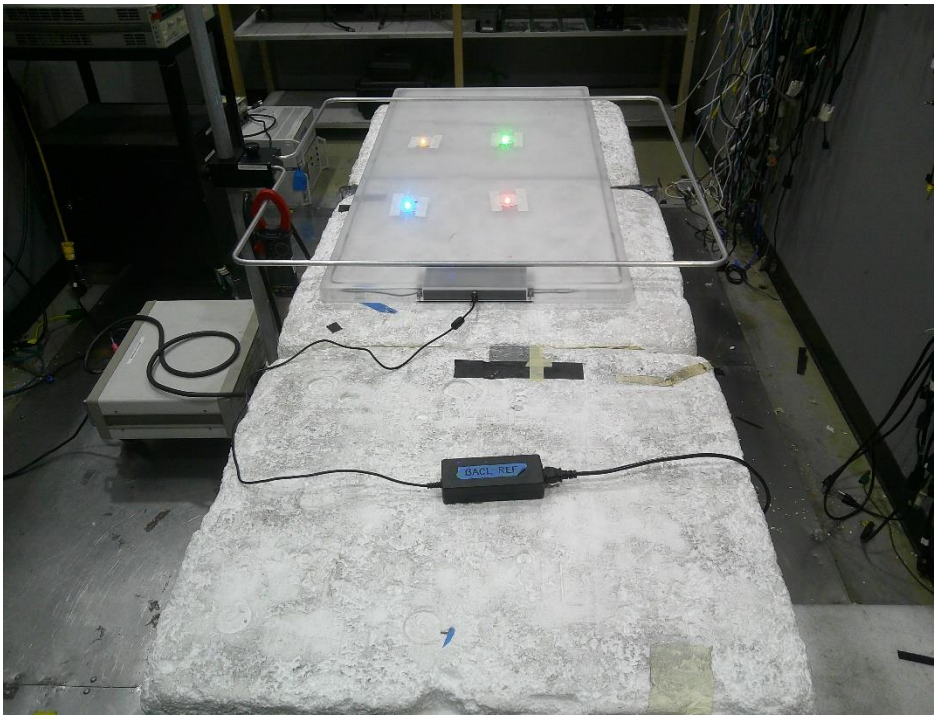


18.8 Power Frequency Magnetic Field (IEC 61000-4-8)

Front View

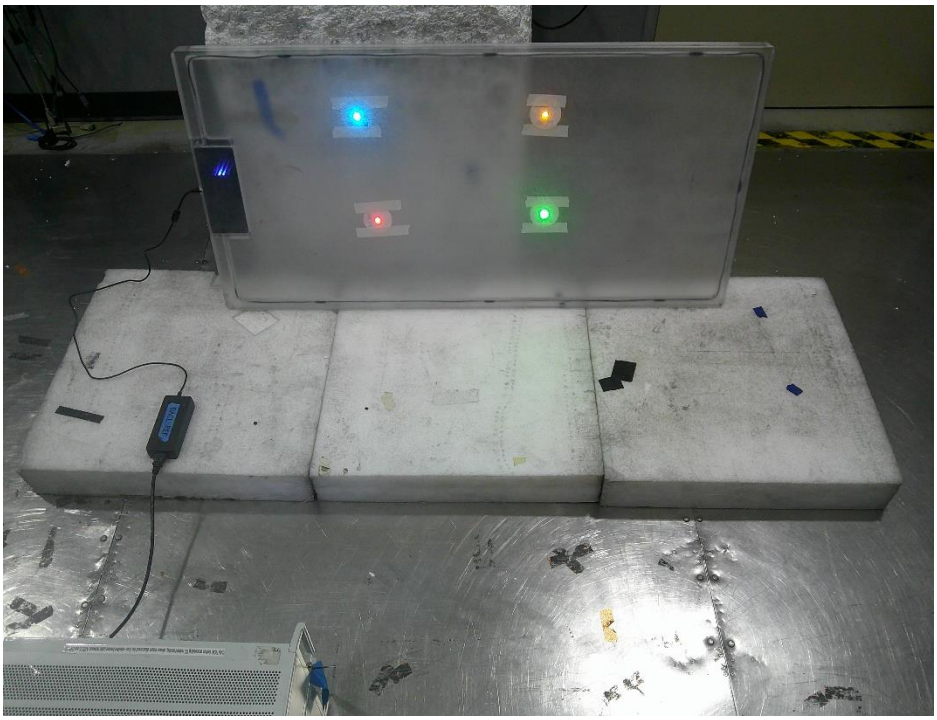


Side View

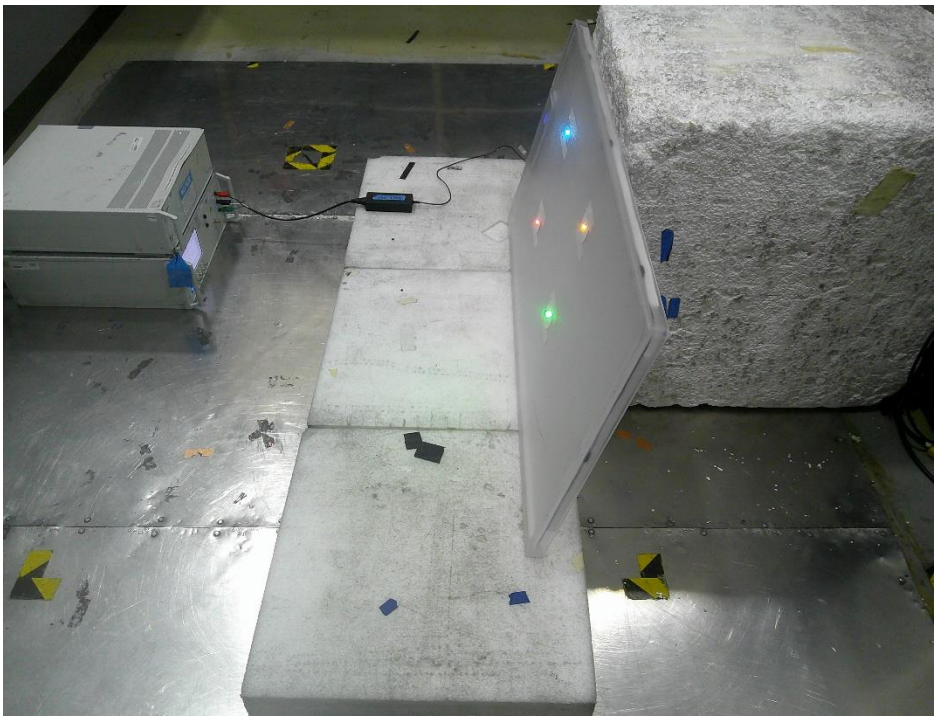


18.9 Voltage Dips and Short Interruptions (IEC 61000-4-11)

Front View



Side View



19 Annex D (Normative) – ISO/IEC 17025 Certificate and Scope of Accreditation

Accredited Laboratory

A2LA has accredited

BAY AREA COMPLIANCE LABORATORIES CORP.

Sunnyvale, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets A2LA R222 - Specific Requirements EPA ENERGY STAR Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 13th day of September 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3297.02
Valid to September 30, 2026

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

Please follow the web link below for a full ISO 17025 scope

https://www.a2la.org/scopepdf/3297-02.pdf

--- END OF REPORT ---