

TEST REPORT

Application No.: KSEM2606001806AT

Applicant: Qingdao MicroSense Intelligent Technology Co.,Ltd.

Address of Applicant: Room 803, Floor 8, Building F, InnovationPark II, No.1, Keyuan Wei 1st Road, Laoshan District, Qingdao, Shandong, China

Manufacturer: Qingdao MicroSense Intelligent Technology Co.,Ltd.

Address of Manufacturer: Room 803, Floor 8, Building F, InnovationPark II, No.1, Keyuan Wei 1st Road, Laoshan District, Qingdao, Shandong, China

Factory: Qingdao MicroSense Intelligent Technology Co.,Ltd.

Address of Factory: Room 803, Floor 8, Building F, InnovationPark II, No.1, Keyuan Wei 1st Road, Laoshan District, Qingdao, Shandong, China

Equipment Under Test (EUT):

EUT Name: 3D TOF CAMERA

Model No.: DS62, DS63

Trade Mark: Vzense

Standard(s) : EN IEC 61000-6-4: 2019
EN IEC 61000-6-2: 2019

Date of Receipt: 2026-06-24

Date of Test: 2026-07-08 to 2026-07-27

Date of Issue: 2026-07-28

Test Result:	Pass*
---------------------	--------------

* In the configuration tested, the EUT complied with the standards specified above.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Revision Record			
Version	Description	Date	Remark
00	Original	2026-07-28	/

Authorized for issue by:				
Prepared By		Lee Li		
		Lee Li /Project Engineer		
Approved By		Terry Hou		
		Terry Hou /Reviewer		

2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at DC Power Port (150kHz-30MHz)	EN IEC 61000-6-4: 2019	CISPR 16-2-1: 2014+A1:2017	Table A.1	Pass
Conducted Emissions at Wired Network Port (150kHz-30MHz)		CISPR 32:2015	Table 5	Pass
Radiated Emissions (30MHz-1GHz)		CISPR 16-2-3: 2016 +A1:2019+A2:2023	Table 3	Pass
Radiated Emissions (Above 1GHz)		CISPR 16-2-3: 2016 +A1:2019+A2:2023	Table 3	Pass

Immunity Part				
Item	Standard	Method	Requirement	Result
Electrostatic Discharge	EN IEC 61000-6-2: 2019	EN 61000-4-2:2009	±4kV Contact Discharge, ±8kV Air Discharge	Pass
Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)		EN IEC 61000-4-3: 2020	80MHz to 1GHz 10V/m, 80%, 1kHz Amp. Mod. 1.4GHz to 6GHz 3V/m, 80%, 1kHz Amp. Mod.	Pass
Electrical Fast Transients Burst at DC Power Port		EN 61000-4-4:2012	2kV 5/50ns Tr/Td 5kHz or 100kHz Repetition Frequency	Pass
Electrical Fast Transients Burst at Signal Port		EN 61000-4-4:2012	1kV 5/50ns Tr/Td 5kHz or 100kHz Repetition Frequency	Pass
Surge at DC Power Port		EN 61000-4-5:2014+A1:2017	1.2/50µs Tr/Td, 0.5kV Line to Line, 1kV Line to Ground	Pass
Surge at Signal Port		EN 61000-4-5:2014+A1:2017	1.2/50µs Tr/Td, 1kV Line to Ground	Pass
Conducted Immunity at DC Power Port (150kHz-80MHz)		EN IEC 61000-4-6: 2023	10Vrms (emf),80%,1kHz Amp. Mod.	Pass
Conducted Immunity at Signal Port (150kHz-80MHz)		EN IEC 61000-4-6: 2023	10Vrms (emf),80%,1kHz Amp. Mod.	Pass
Power Frequency Magnetic Field		EN 61000-4-8:2010	50Hz, 60Hz, 30A/m	Pass

3 Contents

	Page
1 COVER PAGE	1
2 Test Summary	3
3 Contents.....	4
4 General Information	5
4.1 Details of E.U.T.	5
4.2 Description of Support Units.....	5
4.3 Measurement Uncertainty & Decision Rule.....	5
4.4 Test Location	6
4.5 Test Facility	6
4.6 Deviation from Standards.....	6
4.7 Abnormalities from Standard Conditions.....	6
5 Equipment List	7
6 Emission Test Results.....	12
6.1 Conducted Emissions at DC Power Port (150kHz-30MHz).....	12
6.2 Conducted Emissions at Wired Network Port (150kHz-30MHz)	17
6.3 Radiated Emissions (30MHz-1GHz).....	20
6.4 Radiated Emissions (Above 1GHz).....	25
7 Immunity Test Results.....	30
7.1 Electrostatic Discharge.....	31
7.2 Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz).....	33
7.3 Electrical Fast Transients Burst at DC Power Port.....	35
7.4 Electrical Fast Transients Burst at Signal Port.....	36
7.5 Surge at DC Power Port.....	37
7.6 Surge at Signal Port	38
7.7 Conducted Immunity at DC Power Port (150kHz-80MHz)	39
7.8 Conducted Immunity at Signal Port (150kHz-80MHz).....	40
7.9 Power Frequency Magnetic Field	41
8 Test Setup Photo.....	42
9 EUT Constructional Details (EUT Photos).....	55

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12-24V
---------------	-----------

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	LENOVO	K27	EB24537655

4.3 Measurement Uncertainty & Decision Rule

Measurement Uncertainty:

No.	Item	Measurement Uncertainty (U_{LAB}) *	U_{CISPR}
1	Conducted Emission at mains port using AMN	2.4dB (9kHz to 150kHz)	3.8dB (9kHz to 150kHz)
		2.2dB (150kHz to 30MHz)	3.4dB (150kHz to 30MHz)
2	Conducted Emission at telecommunication port using AAN	4.0 dB (150kHz to 30MHz)	5.0dB (150kHz to 30MHz)
3	Radiated Power	3.2dB	4.5dB (30MHz to 300MHz)
4	Radiated Emission (10m)	4.1 dB	6.3dB (30MHz-1GHz)
5	Radiated Emission (3m)	4.6 dB (30MHz-1GHz)	6.3dB (30MHz-1GHz)
		5.0dB (1GHz-6GHz)	5.2dB (1GHz-6GHz)
		5.2dB (6GHz-18GHz)	5.5dB (6GHz-18GHz)
		5.3dB (18GHz-40GHz)	N/A
6	Radiated disturbance (disturbance current in a LLAS)	2.6dB (9kHz to 30MHz)	3.3dB (9kHz to 30MHz)

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Decision Rule:

- CISPR 16-4-2 for emission measurements is as below described.
Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.
- U_{LAB} less than U_{CISPR} , therefore:
 - compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit.
 - non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
- For immunity testing no decision rule is applicable.

4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

3. Sample source: sent by customer.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA).

- **FCC (Designation Number: CN1172)**

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

- **VCCI (Member No:1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Emissions at DC Power Port (150kHz-30MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI TEST RECEIVER	R&S	ESCI	KS301195	12/18/2025	12/17/2026
TWO-LINE V-NETWORK	R&S	ENV216	KS301197	01/08/2026	01/07/2027
V (V-LISN)	SCHWARZBECK	NNLK 8129	KS301091	01/08/2026	01/07/2027
Pulse LIMITER	R&S	ESH3-Z2	KUS1902E001	12/18/2025	12/17/2026
Software	Faratronic	E3 v 3A1	N/A	N/A	N/A

Conducted Emissions at Wired Network Port (150kHz-30MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI TEST RECEIVER	R&S	ESCI	KS301195	12/18/2025	12/17/2026
TWO-LINE V-NETWORK	R&S	ENV216	KS301197	01/08/2026	01/07/2027
V (V-LISN)	SCHWARZBECK	NNLK 8129	KS301091	01/08/2026	01/07/2027
Pulse LIMITER	R&S	ESH3-Z2	KUS1902E001	12/18/2025	12/17/2026
CISPR22 FOUR BALANCED TELECOM PARIS ISN	FCC	FCC-TLISN-T2-02	KS301144	01/08/2026	01/07/2027
COUPLING AND DECOUPLING NETWORK	TESEQ	ISN ST08	KS301171	01/08/2026	01/07/2027
IMPEDANCE STABILIZATION NETWORK	TESEQ	ISN T800	KS301185	09/28/2025	09/27/2026
IMPEDANCE STABILIZATION NETWORK	TESEQ	ISN T8-CAT6	KS301285	09/28/2025	09/27/2026
RF CURRENT PROBE	FCC	F-65A	CZ301012	12/17/2025	12/16/2026
Software	Faratronic	E3 v 3A1	N/A	N/A	N/A

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI Test Receiver	R&S	ESCI	KS301101	12/17/2025	12/16/2026
Antenna	TESEQ	CBL 6112D	KUS1806E006	01/19/2026	01/18/2027
Software	Faratronic	E3 v 3A1	N/A	N/A	N/A

Radiated Emissions (Above 1GHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Spectrum Analyzer	R&S	FSU26	KS301206	12/18/2025	12/17/2026
Preamplifier	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-2	12/17/2025	12/16/2026
Horn-antenna	SCHWARZBECK	BBHA9120D	KS301079	01/11/2026	01/10/2027

Software	Faratronic	E3 v 3A1	N/A	N/A	N/A
----------	------------	----------	-----	-----	-----

Electrostatic Discharge

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
ESD Simulator	EM TEST	DITO 509030	KS301147	01/13/2026	01/12/2027

Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Synthesized Signal Generator	AGILENT	N5182A	KUS2001M001-1	07/07/2026	07/06/2027
Laser probe interface	AR Worldwide	FI7000	KS301193-2	N.C.R	N.C.R
E-Field Sensor	AR Worldwide	FL7006 100K-6G	KS301193-1	01/08/2026	01/07/2027
Amplifier Research (80~1000MHz 150w)	AR Worldwide	150W1000M1	KS301139	07/07/2026	07/06/2027
Amplifier Research (1~6GHz 50w)	AR Worldwide	50S1G6M1	KS301231	N.C.R	N.C.R
Dual Directional Coupler (1-11G)	AR Worldwide	C1-A47NFNF 35dB	KS301193-5	N.C.R	N.C.R
Dual Directional Coupler (80~1000MHz 400w)	AR Worldwide	DC6180	KS301193-6	N.C.R	N.C.R
Antenna	AR Worldwide	ATR80M6G	CZ301029	N.C.R	N.C.R
Software	AR	emc ware-v 3.2.0.4	N/A	N/A	N/A
antenna	SCHWARZBECK	VHBD 9134+BBA 9106	KS301236	N.C.R	N.C.R
Amplifier	AR	1200A225A	KSEM018-1	12/18/2025	12/17/2026
Amplifier	AR	1000W1000G M1	KSEM018-2	07/07/2026	07/06/2027
Amplifier	AR	125S1G2Z5M1	KSEM018-3	07/07/2026	07/06/2027
Coupling	AR	DC2500AM2	KSEM018-4	12/18/2025	12/17/2026
Coupling	AR	DC6280AM1	KSEM018-5	07/06/2026	07/05/2027
Coupling	AR	DC7144A	KSEM018-6	07/06/2026	07/05/2027

Electrical Fast Transients Burst at DC Power Port

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMC Immunity Tester	EMC PARTNER	Transient2000	KS301188-1	07/06/2026	07/05/2027
Coupling Network	EMC PARTNER	CN-EFT1000	KS301188-3	07/06/2026	07/05/2027
Burst Generator	SANKI	EFT-0404S	KUS2009M002-7	07/06/2026	07/05/2027
Coupling and Decoupling Network	SANKI	CDN-4350	KUS2009M002-8	07/06/2026	07/05/2027

Electrical Fast Transients Burst at Signal Port					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMC Immunity Tester	EMC PARTNER	Transient2000	KS301188-1	07/06/2026	07/05/2027
Coupling Network	EMC PARTNER	CN-EFT1000	KS301188-3	07/06/2026	07/05/2027
Burst Generator	SANKI	EFT-0404S	KUS2009M002-7	07/06/2026	07/05/2027
Coupling and Decoupling Network	SANKI	CDN-4350	KUS2009M002-8	07/06/2026	07/05/2027

Surge at DC Power Port					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMC Immunity Tester	EMC PARTNER	Transient2000	KS301188-1	07/06/2026	07/05/2027
Coupling and Decoupling Network	EMC PARTNER	CDN-UTP8	KS301188-2	07/06/2026	07/05/2027
Surge Generator	SANKI	LSG-0506S	KUS2009M002-5	07/06/2026	07/05/2027
Coupling and Decoupling Network	SANKI	CDN-5350	KUS2009M002-6	07/06/2026	07/05/2027

Surge at Signal Port					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMC Immunity Tester	EMC PARTNER	Transient2000	KS301188-1	07/06/2026	07/05/2027
Coupling and Decoupling Network	EMC PARTNER	CDN-UTP8	KS301188-2	07/06/2026	07/05/2027
Surge Generator	SANKI	LSG-0506S	KUS2009M002-5	07/06/2026	07/05/2027
Coupling and Decoupling Network	SANKI	CDN-5350	KUS2009M002-6	07/06/2026	07/05/2027

Conducted Immunity at DC Power Port (150kHz-80MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Test System for Conducted and Radiated Immunity	TESEQ	NSG 4070B	KSZ201705E003	12/26/2025	12/25/2026
Amplifier	TESEQ	SCCXE75	KSZ201705E004	12/26/2025	12/25/2026
Attenuator	SHHX	TS2-6-1-A	CZ750027	12/26/2025	12/25/2026
Directional Coupler	HIGH POWER	C21A8	CZ750021	07/06/2026	07/05/2027
CDN (Coupling and Decoupling Network)	SCHAFFNER	CDN M216	CZ301085	12/17/2025	12/16/2026

CDN (Coupling and Decoupling Network)	SCHAFFNER	CDN M316	CZ301025	12/18/2025	12/17/2026
CDN (Coupling and Decoupling Network)	TESEQ	CDN M116	KS301184-1	12/17/2025	12/16/2026
CDN	TESEQ	CDN T2-10S	KS301286	12/18/2025	12/17/2026
CDN	TESEQ	CDN T4-10S	KS301287	12/18/2025	12/17/2026
CDN	3Ctest	CDNRJ45	KS301288	07/06/2026	07/05/2027
Current Clamp	SCHAFFNER	KEMZ-801	CZ301002	12/17/2025	12/16/2026
CDN	TESEQ	CDN M432	KUS2003M001-1	12/17/2025	12/16/2026
CDN	TESEQ	CDN M432-3LN	KUS2003M001-2	12/19/2025	12/18/2026
CDN	TESEQ	CDN M232	KSZ201706E001	12/17/2025	12/16/2026
CDN	TESEQ	CDN M332	KSZ201706E002	12/17/2025	12/16/2026
Software	TESEQ	NSG 4070-v 1.3.0.1	N/A	N/A	N/A

Conducted Immunity at Signal Port (150kHz-80MHz)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Test System for Conducted and Radiated Immunity	TESEQ	NSG 4070B	KSZ201705E003	12/26/2025	12/25/2026
Amplifier	TESEQ	SCCXE75	KSZ201705E004	12/26/2025	12/25/2026
Attenuator	SHHX	TS2-6-1-A	CZ750027	12/26/2025	12/25/2026
Directional Coupler	HIGH POWER	C21A8	CZ750021	07/06/2026	07/05/2027
CDN (Coupling and Decoupling Network)	SCHAFFNER	CDN M216	CZ301085	12/17/2025	12/16/2026
CDN (Coupling and Decoupling Network)	SCHAFFNER	CDN M316	CZ301025	12/18/2025	12/17/2026
CDN (Coupling and Decoupling Network)	TESEQ	CDN M116	KS301184-1	12/17/2025	12/16/2026
CDN	TESEQ	CDN T2-10S	KS301286	12/18/2025	12/17/2026
CDN	TESEQ	CDN T4-10S	KS301287	12/18/2025	12/17/2026
CDN	3Ctest	CDNRJ45	KS301288	07/06/2026	07/05/2027
Current Clamp	SCHAFFNER	KEMZ-801	CZ301002	12/17/2025	12/16/2026
CDN	TESEQ	CDN M432	KUS2003M001-1	12/17/2025	12/16/2026
CDN	TESEQ	CDN M432-3LN	KUS2003M001-2	12/19/2025	12/18/2026
CDN	TESEQ	CDN M232	KSZ201706E001	12/17/2025	12/16/2026
CDN	TESEQ	CDN M332	KSZ201706E002	12/17/2025	12/16/2026

Software	TESEQ	NSG 4070-v 1.3.0.1	N/A	N/A	N/A
----------	-------	-----------------------	-----	-----	-----

Power Frequency Magnetic Field					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMC Immunity Tester	EMC PARTNER	Transient2000	KS301188-1	07/06/2026	07/05/2027
Inductive Standard Coil	EMC PARTNER	MF1000-1	KS301188-4	07/06/2026	07/05/2027

General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Digital Pressure Meter	Mengde	DYM3	CZ750023	12/26/2025	12/25/2026
Temperature & Humidity Recorder	JDRK	RS-WS-N01-6J	KSEM024-1 KSEM024-2 KSEM024-3 KSEM024-6 KSEM024-7 KSEM024--8 KSEM024--9	12/26/2025	12/25/2026

6 Emission Test Results

6.1 Conducted Emissions at DC Power Port (150kHz-30MHz)

Test Requirement: EN IEC 61000-6-4: 2019

Test Method: CISPR 16-2-1: 2014+A1:2017

Limit:

0.15MHz -0.5MHz 89dB(μV) quasi-peak, 76dB(μV) average

0.5MHz -30MHz 83dB(μV) quasi-peak, 70dB(μV) average

Detector: Peak for pre-scan (9kHz resolution bandwidth) 150kHz to 30MHz

NOTE 1: The lower limit is applicable at the transition frequency.

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

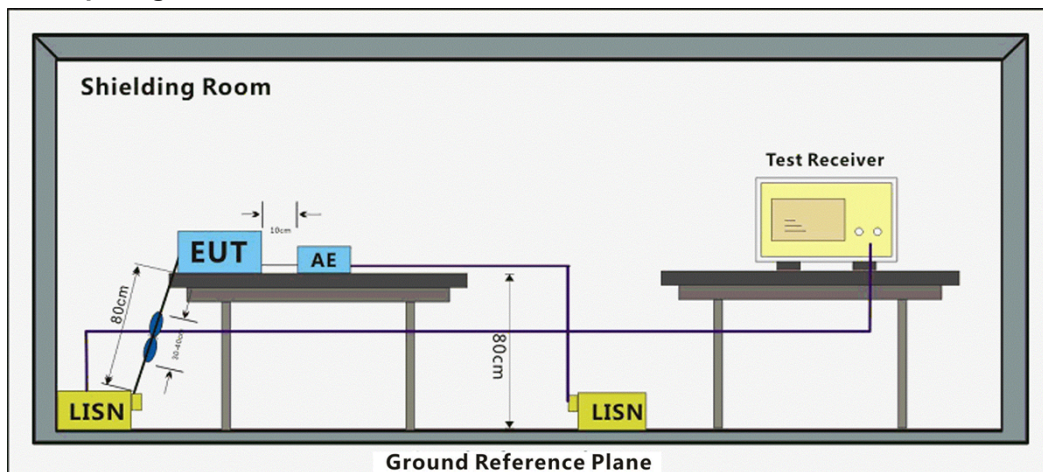
Humidity: 47.6 % RH

Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

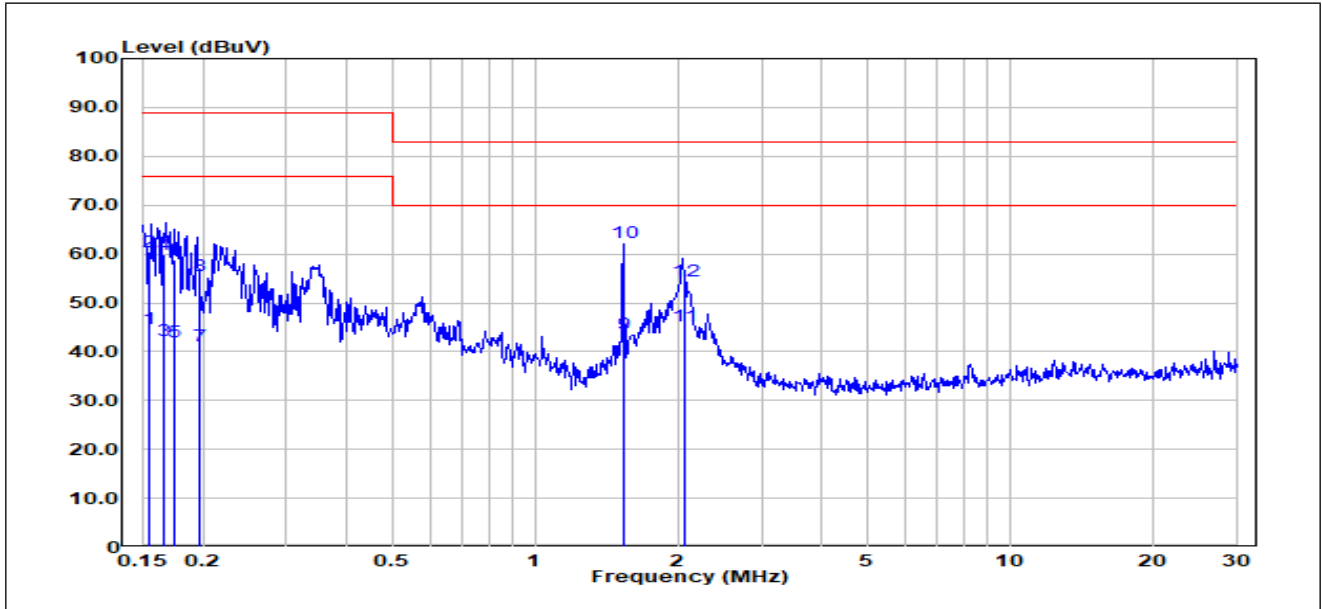
Frequency range: 150kHz-30MHz

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

The red line show in graphic is the limit in standard used in this section.

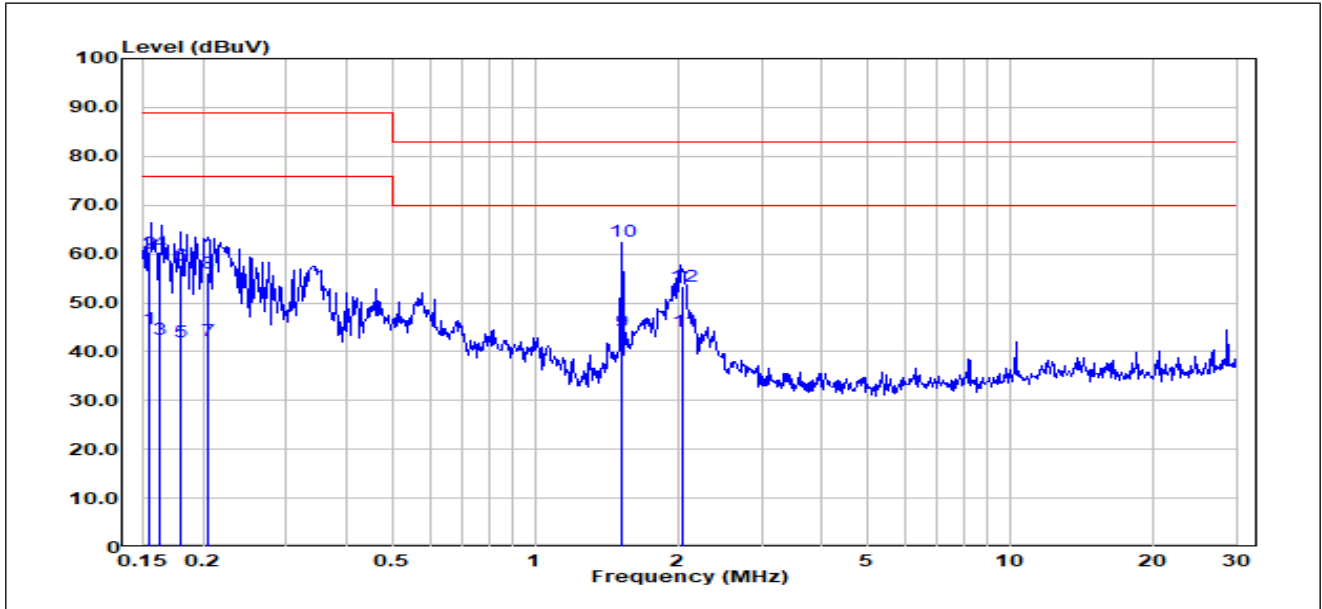
Measured Level = Read level + Cable Loss + LISN Factor

Test Mode: 00; Line: Live line



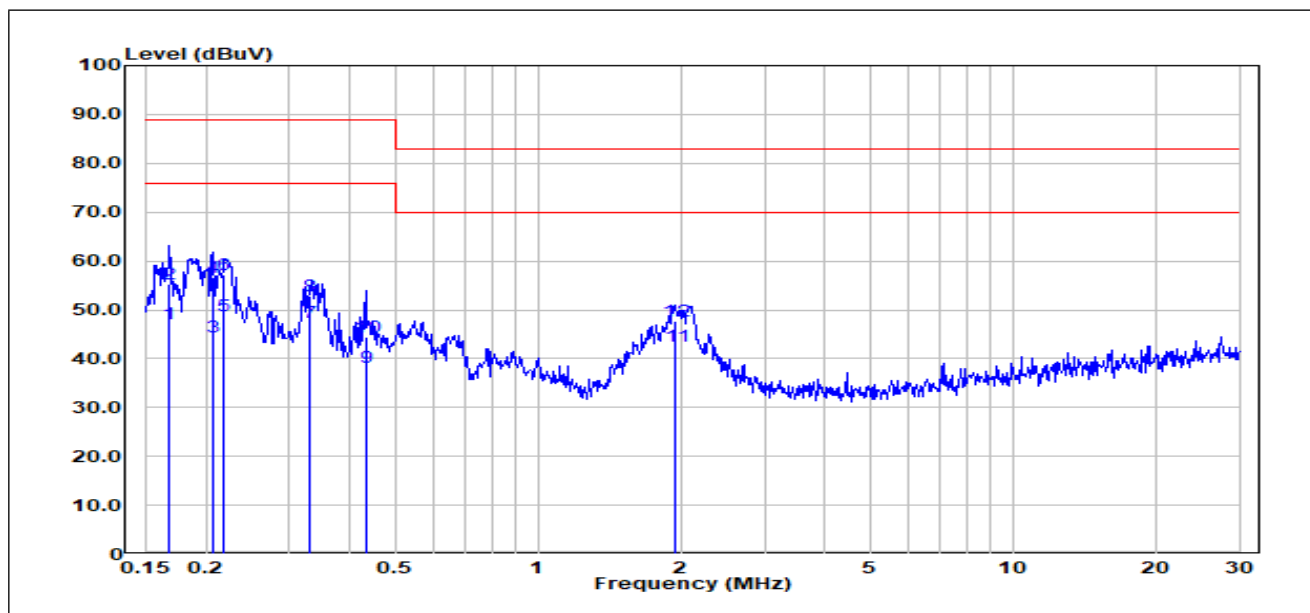
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1541	24.26	20.37	44.63	76.00	-31.37	Average
2	0.1541	39.97	20.37	60.34	89.00	-28.66	QP
3	0.1652	21.96	20.31	42.27	76.00	-33.73	Average
4	0.1652	39.60	20.31	59.91	89.00	-29.09	QP
5	0.1745	21.74	20.28	42.02	76.00	-33.98	Average
6	0.1745	38.54	20.28	58.82	89.00	-30.18	QP
7	0.1959	21.05	20.26	41.31	76.00	-34.69	Average
8	0.1959	35.35	20.26	55.61	89.00	-33.39	QP
9	1.5360	23.49	20.03	43.52	70.00	-26.48	Average
10	1.5360	42.27	20.03	62.30	83.00	-20.70	QP
11	2.0630	25.23	20.09	45.32	70.00	-24.68	Average
12	2.0630	34.50	20.09	54.59	83.00	-28.41	QP

Test Mode: 00; Line: Neutral Line



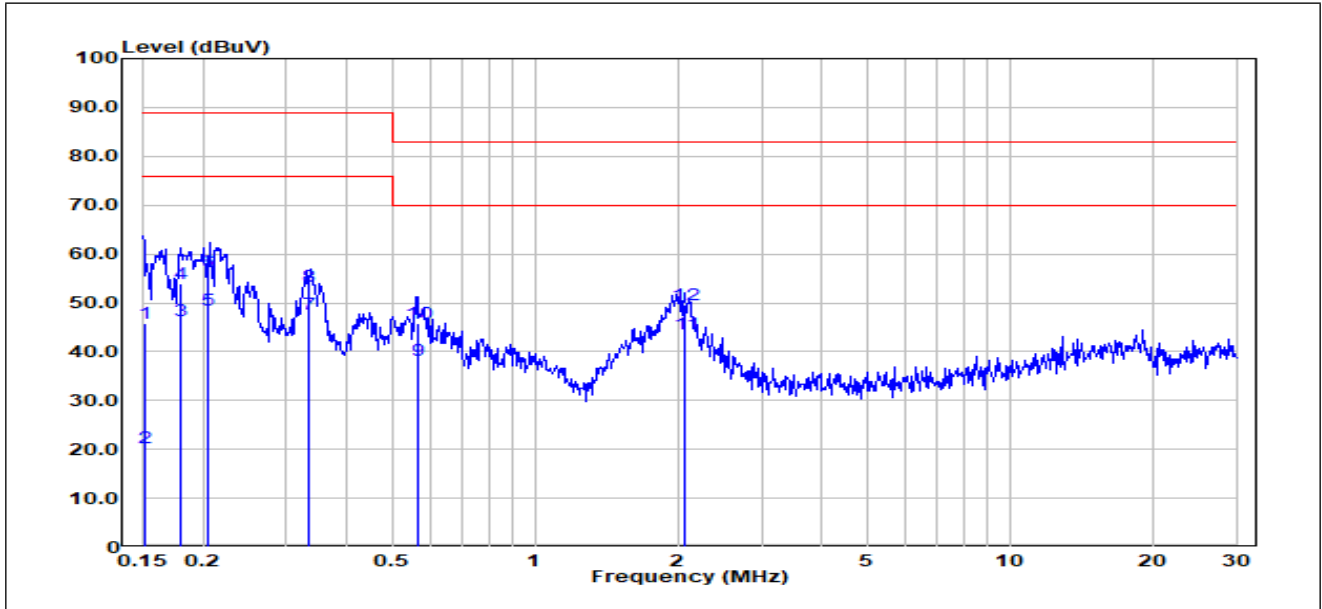
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1538	24.30	20.43	44.73	76.00	-31.27	Average
2	0.1538	39.68	20.43	60.11	89.00	-28.89	QP
3	0.1626	22.20	20.41	42.61	76.00	-33.39	Average
4	0.1626	39.94	20.41	60.35	89.00	-28.65	QP
5	0.1793	21.75	20.34	42.09	76.00	-33.91	Average
6	0.1793	37.39	20.34	57.73	89.00	-31.27	QP
7	0.2041	21.94	20.23	42.17	76.00	-33.83	Average
8	0.2041	35.89	20.23	56.12	89.00	-32.88	QP
9	1.5280	24.05	20.05	44.10	70.00	-25.90	Average
10	1.5280	42.66	20.05	62.71	83.00	-20.29	QP
11	2.0510	24.15	20.06	44.21	70.00	-25.79	Average
12	2.0510	33.41	20.06	53.47	83.00	-29.53	QP

Test Mode: 01; Line: Live line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1670	26.92	20.30	47.22	76.00	-28.78	Average
2	0.1670	35.04	20.30	55.34	89.00	-33.66	QP
3	0.2072	24.30	20.23	44.53	76.00	-31.47	Average
4	0.2072	36.37	20.23	56.60	89.00	-32.40	QP
5	0.2180	28.60	20.19	48.79	76.00	-27.21	Average
6	0.2180	37.00	20.19	57.19	89.00	-31.81	QP
7	0.3317	27.39	20.11	47.50	76.00	-28.50	Average
8	0.3317	32.72	20.11	52.83	89.00	-36.17	QP
9	0.4336	17.90	20.21	38.11	76.00	-37.89	Average
10	0.4336	24.26	20.21	44.47	89.00	-44.53	QP
11	1.9520	22.35	20.07	42.42	70.00	-27.58	Average
12	1.9520	27.70	20.07	47.77	83.00	-35.23	QP

Test Mode: 01; Line: Neutral Line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1512	25.35	20.44	45.79	76.00	-30.21	Average
2	0.1512	0.00	20.44	20.44	89.00	-68.56	QP
3	0.1796	26.01	20.34	46.35	76.00	-29.65	Average
4	0.1796	33.68	20.34	54.02	89.00	-34.98	QP
5	0.2042	28.29	20.23	48.52	76.00	-27.48	Average
6	0.2042	36.13	20.23	56.36	89.00	-32.64	QP
7	0.3346	27.71	20.10	47.81	76.00	-28.19	Average
8	0.3346	33.39	20.10	53.49	89.00	-35.51	QP
9	0.5685	17.91	20.19	38.10	70.00	-31.90	Average
10	0.5685	25.50	20.19	45.69	83.00	-37.31	QP
11	2.0760	23.48	20.07	43.55	70.00	-26.45	Average
12	2.0760	29.49	20.07	49.56	83.00	-33.44	QP

6.2 Conducted Emissions at Wired Network Port (150kHz-30MHz)

Test Requirement: EN IEC 61000-6-4: 2019

Test Method: CISPR 32:2015

Limit:

0.15MHz -0.5MHz 97 to 87dB(μV) quasi-peak, 84 to 74dB(μV) average

0.5MHz -30MHz 87dB(μV) quasi-peak, 74dB(μV) average

Detector: Peak for pre-scan (9kHz resolution bandwidth) 150kHz to 30MHz

NOTE 1: The lower limit is applicable at the transition frequency.

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

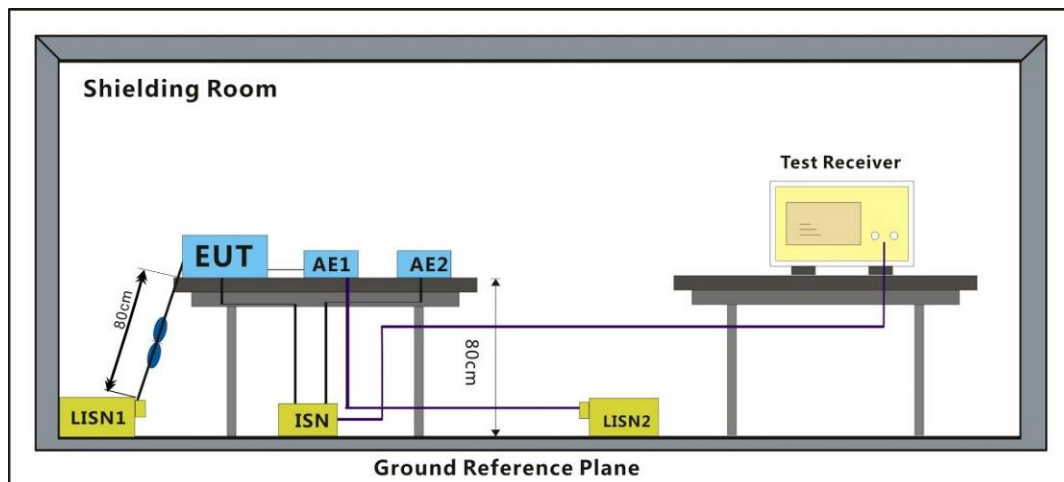
Humidity: 47.2 % RH

Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

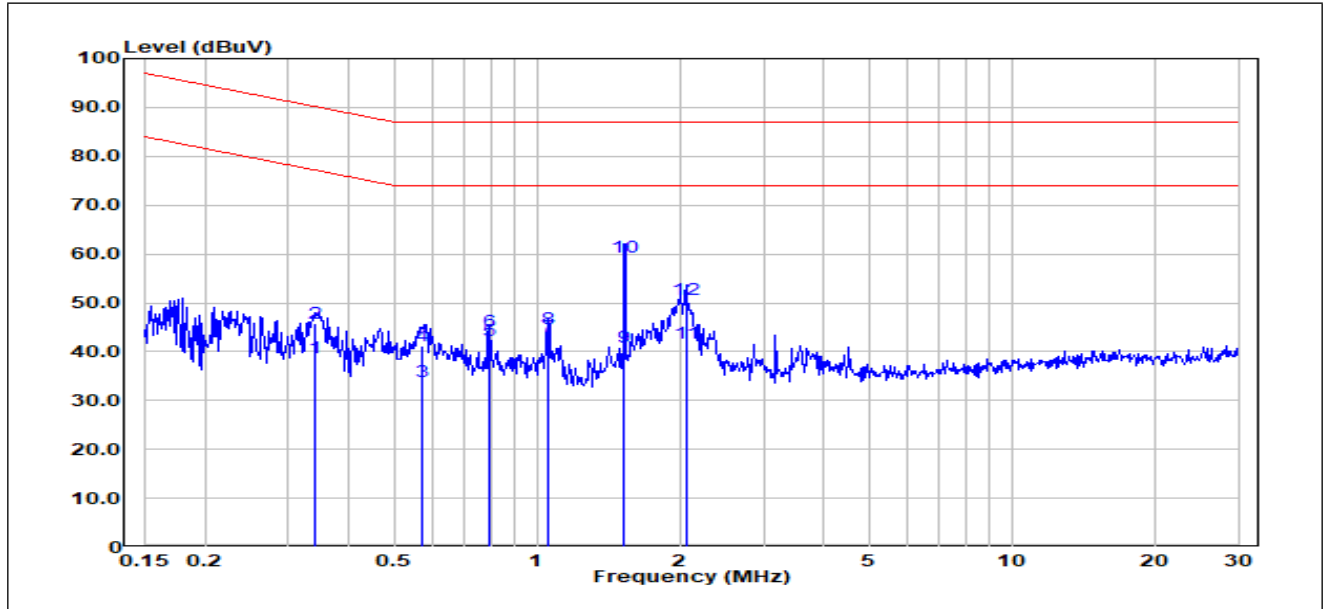
Frequency range: 150kHz-30MHz

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

The red line show in graphic is the limit in standard used in this section.

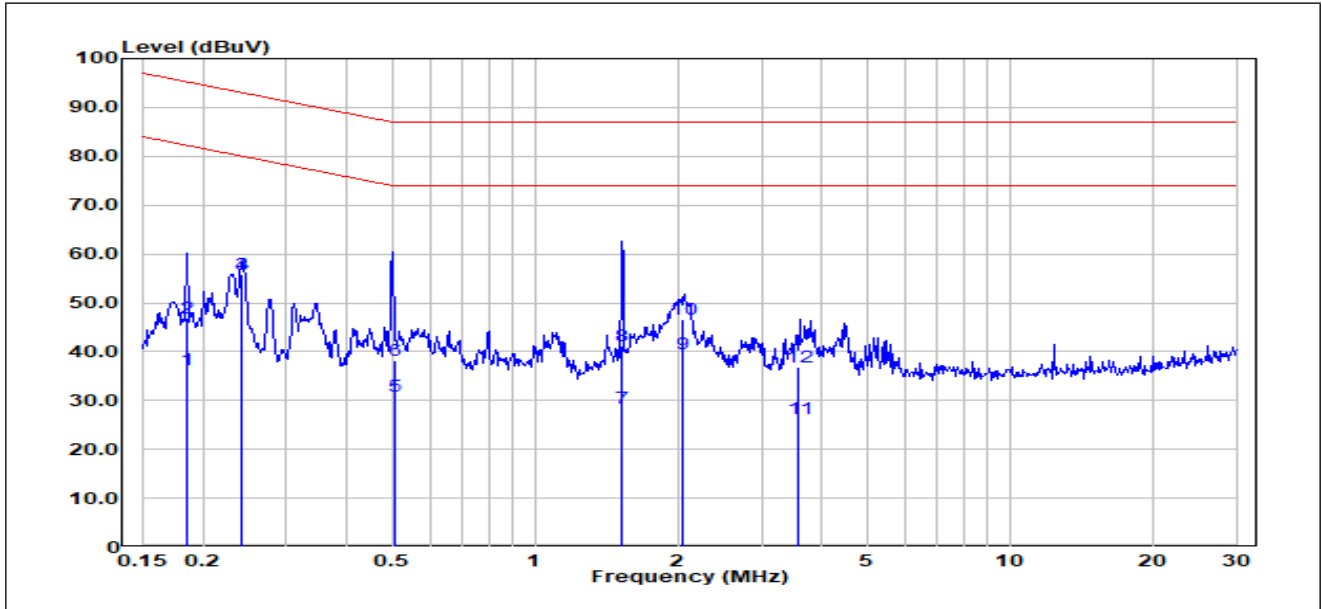
Measured Level = Read level + Cable Loss + ISN Factor

Test Mode: 00



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3397	19.25	19.62	38.87	77.21	-38.34	Average
2	0.3397	26.11	19.62	45.73	90.21	-44.48	QP
3	0.5732	14.31	19.63	33.94	74.00	-40.06	Average
4	0.5732	21.49	19.63	41.12	87.00	-45.88	QP
5	0.7926	22.59	19.68	42.27	74.00	-31.73	Average
6	0.7926	24.40	19.68	44.08	87.00	-42.92	QP
7	1.0560	23.40	19.76	43.16	74.00	-30.84	Average
8	1.0560	24.99	19.76	44.75	87.00	-42.25	QP
9	1.5310	21.01	19.80	40.81	74.00	-33.19	Average
10	1.5310	39.66	19.80	59.46	87.00	-27.54	QP
11	2.0590	21.85	19.85	41.70	74.00	-32.30	Average
12	2.0590	30.92	19.85	50.77	87.00	-36.23	QP

Test Mode: 01



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1859	16.17	20.06	36.23	82.22	-45.99	Average
2	0.1859	26.95	20.06	47.01	95.22	-48.21	QP
3	0.2402	35.09	19.82	54.91	80.09	-25.18	Average
4	0.2402	36.01	19.82	55.83	93.09	-37.26	QP
5	0.5061	11.38	19.62	31.00	74.00	-43.00	Average
6	0.5061	18.72	19.62	38.34	87.00	-48.66	QP
7	1.5240	8.63	19.80	28.43	74.00	-45.57	Average
8	1.5240	21.27	19.80	41.07	87.00	-45.93	QP
9	2.0500	19.77	19.84	39.61	74.00	-34.39	Average
10	2.0500	26.70	19.84	46.54	87.00	-40.46	QP
11	3.6020	6.56	19.86	26.42	74.00	-47.58	Average
12	3.6020	16.99	19.86	36.85	87.00	-50.15	QP

6.3 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN IEC 61000-6-4: 2019
 Test Method: CISPR 16-2-3: 2016+A1:2019+A2:2023

Limit:

Test Distance: 3m
 30MHz-230MHz 50 dB(μV/m) quasi-peak
 230MHz-1GHz 57 dB(μV/m) quasi-peak
 Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

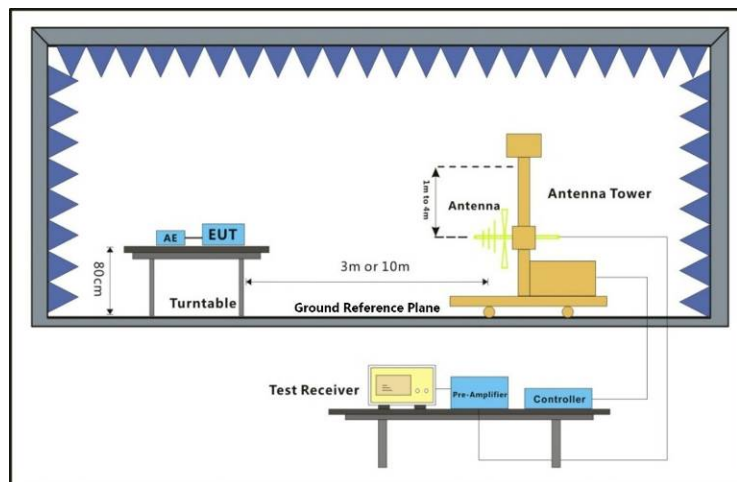
6.3.1 E.U.T. Operation

Operating Environment:
 Temperature: 25.5 °C Humidity: 49.2 % RH Atmospheric Pressure: 1010 mbar

6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

6.3.3 Test Setup Diagram



6.3.4 Measurement Procedure and Data

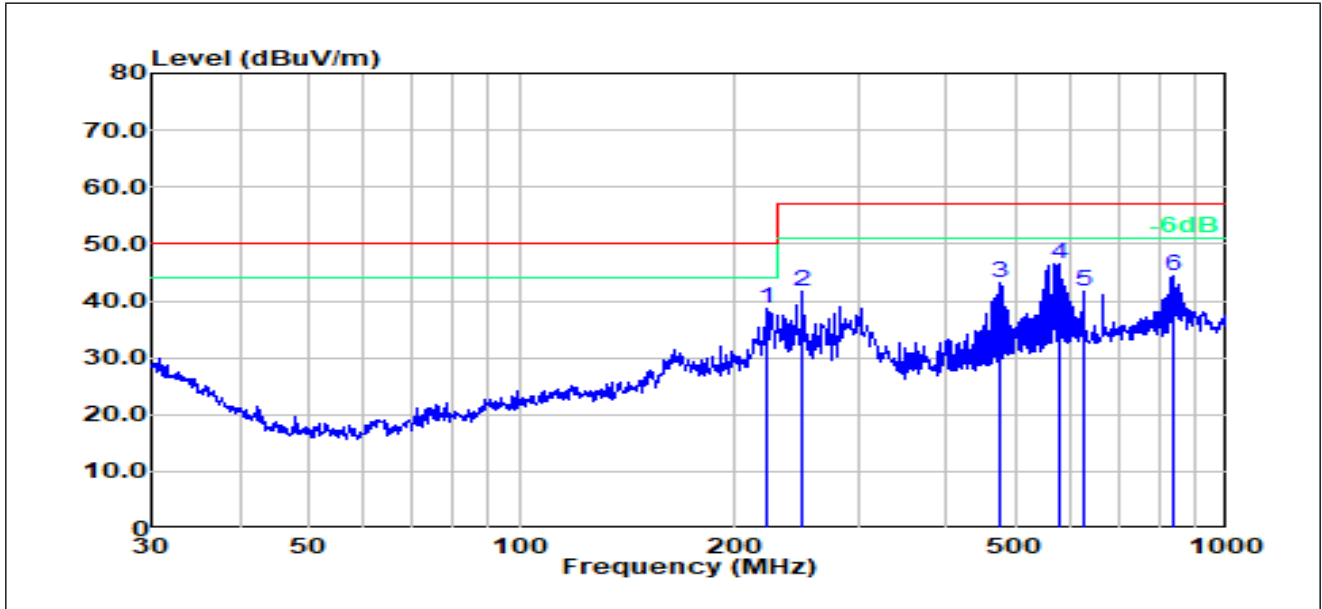
Frequency range: 30MHz-1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

The red line show in graphic is the limit in standard used in this section.

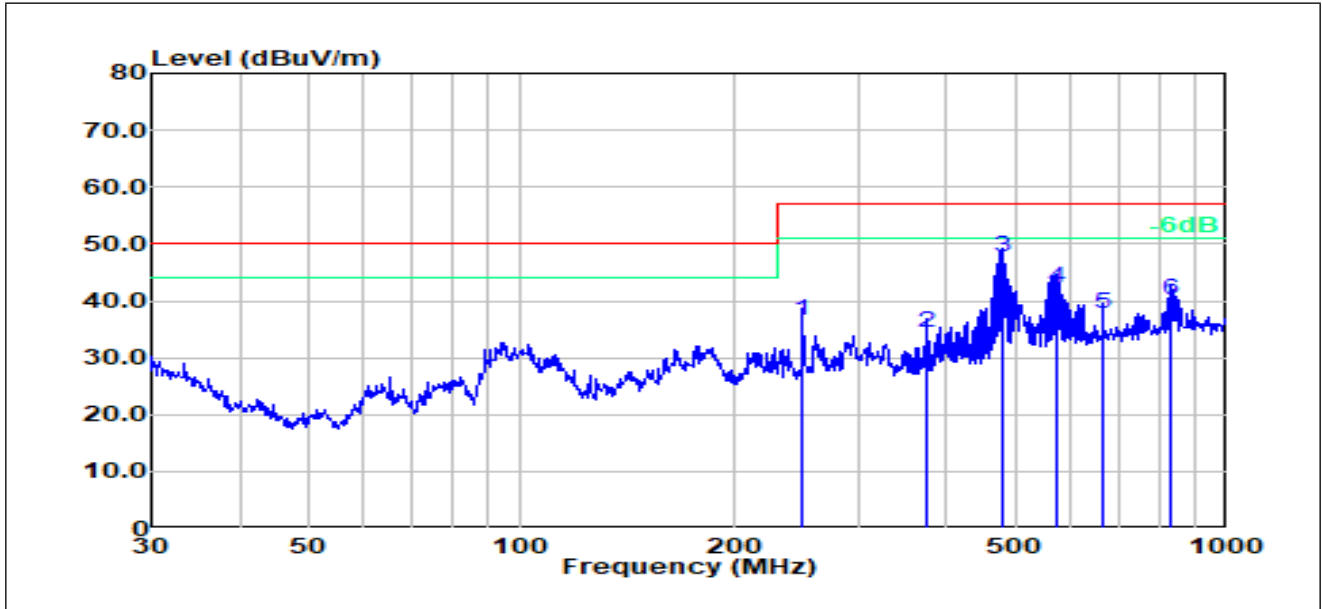
Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Test Mode: 00; Polarity: Horizontal



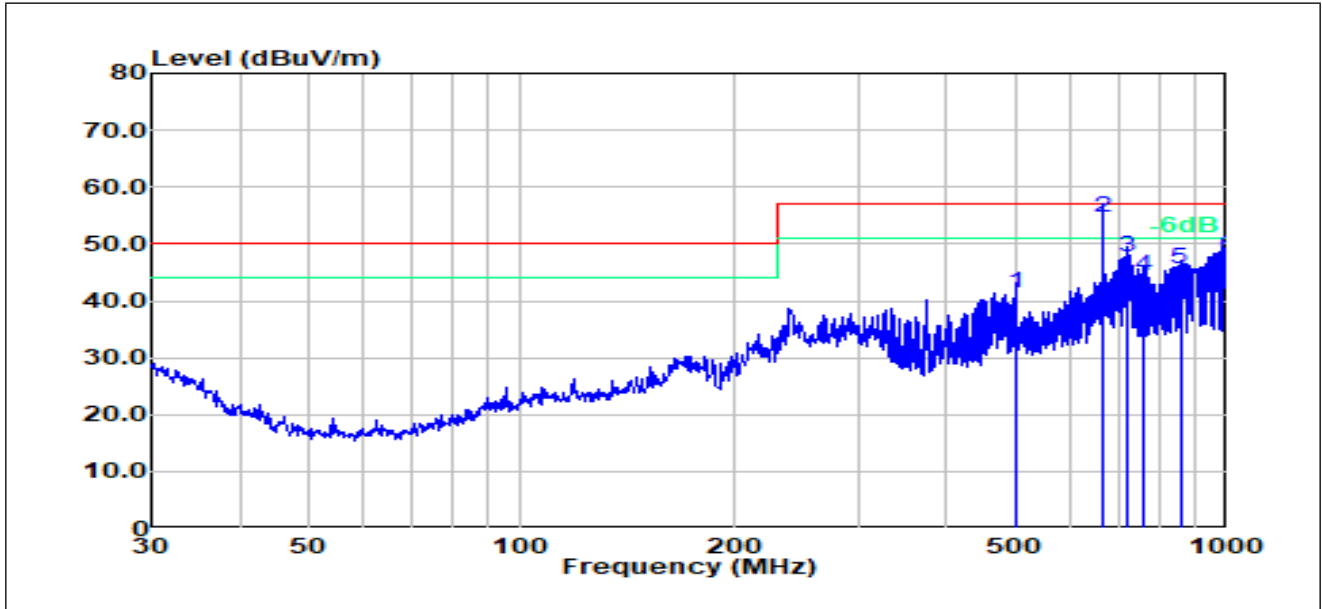
No.	Frequency (MHz)	Reading (dBUV)	Correct Factor(dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	222.170	20.08	18.41	38.49	50.00	-11.51	100	280	QP
2	250.301	21.41	20.24	41.65	57.00	-15.35	100	320	QP
3	475.499	17.27	25.77	43.04	57.00	-13.96	100	199	QP
4	576.644	18.34	28.22	46.57	57.00	-10.43	100	5	QP
5	625.078	12.98	28.71	41.69	57.00	-15.31	100	349	QP
6	836.244	13.71	30.56	44.27	57.00	-12.73	100	86	QP

Test Mode: 00; Polarity: Vertical



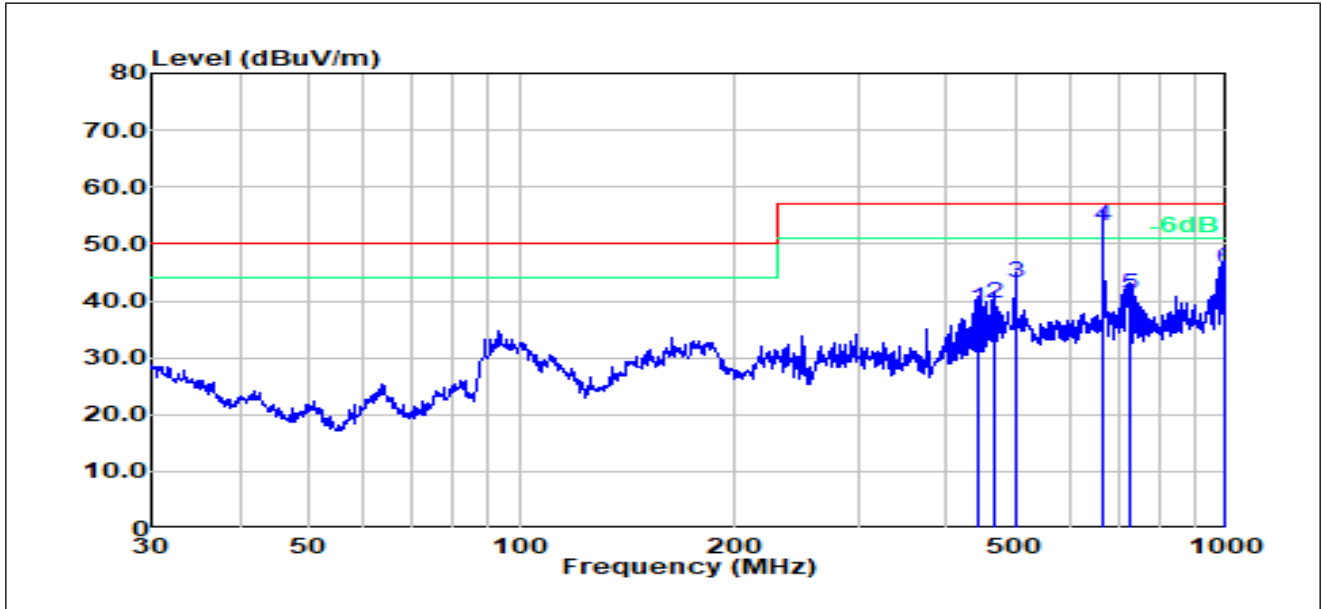
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	250.301	16.28	20.24	36.52	57.00	-20.48	100	196	QP
2	375.939	11.82	22.69	34.51	57.00	-22.49	200	355	QP
3	480.528	21.60	25.98	47.57	57.00	-9.43	100	215	QP
4	572.614	13.89	28.34	42.23	57.00	-14.77	100	355	QP
5	665.804	8.30	29.56	37.86	57.00	-19.14	200	5	QP
6	833.317	9.71	30.54	40.25	57.00	-16.75	100	34	QP

Test Mode: 01; Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBUV)	Correct Factor(dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	501.179	14.54	26.71	41.25	57.00	-15.75	100	180	QP
2	665.804	25.00	29.56	54.56	57.00	-2.44	100	334	QP
3	724.261	17.92	29.92	47.84	57.00	-9.16	100	360	QP
4	763.376	14.26	29.97	44.23	57.00	-12.77	200	0	QP
5	857.025	14.77	30.85	45.62	57.00	-11.38	200	132	QP
6	996.500	16.32	31.52	47.84	57.00	-9.16	100	274	QP

Test Mode: 01; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	443.294	13.75	24.77	38.52	57.00	-18.48	100	16	QP
2	467.235	13.79	25.77	39.56	57.00	-17.44	100	307	QP
3	501.179	16.55	26.71	43.26	57.00	-13.74	200	219	QP
4	665.804	23.70	29.56	53.26	57.00	-3.74	100	98	QP
5	726.805	11.45	29.70	41.15	57.00	-15.85	200	117	QP
6	989.536	14.15	31.37	45.52	57.00	-11.48	100	37	QP

6.4 Radiated Emissions (Above 1GHz)

Test Requirement: EN IEC 61000-6-4: 2019

Test Method: CISPR 16-2-3: 2016+A1:2019+A2:2023

Limit:

Test Distance: 3m

1GHz-3GHz: 76 dB(μV/m) peak; 56 dB(μV/m) average

3GHz-6GHz: 80 dB(μV/m) peak; 60 dB(μV/m) average

Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1GHz to 6GHz

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 26.5 °C

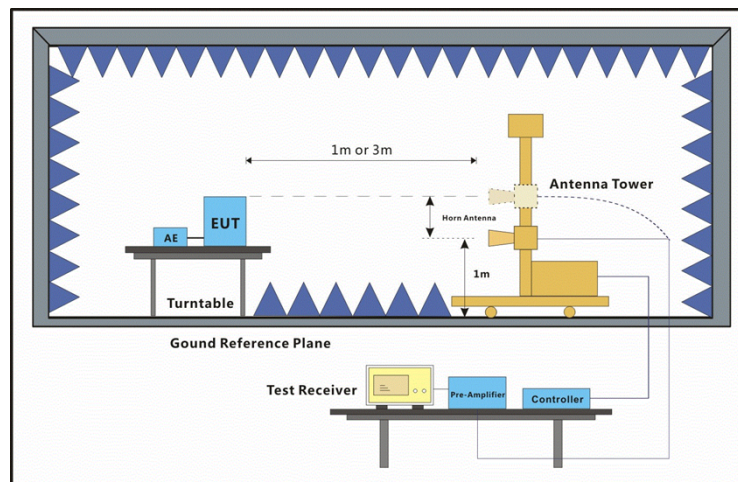
Humidity: 48.3 % RH

Atmospheric Pressure: 1010 mbar

6.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

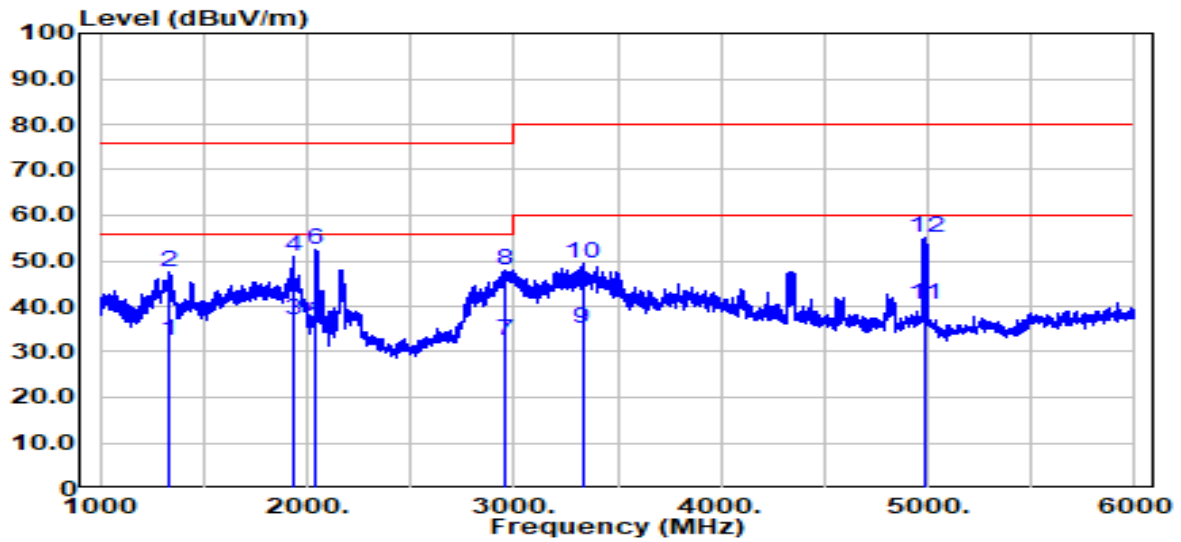
Frequency Range: Above 1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

The red line show in graphic is the limit in standard used in this section.

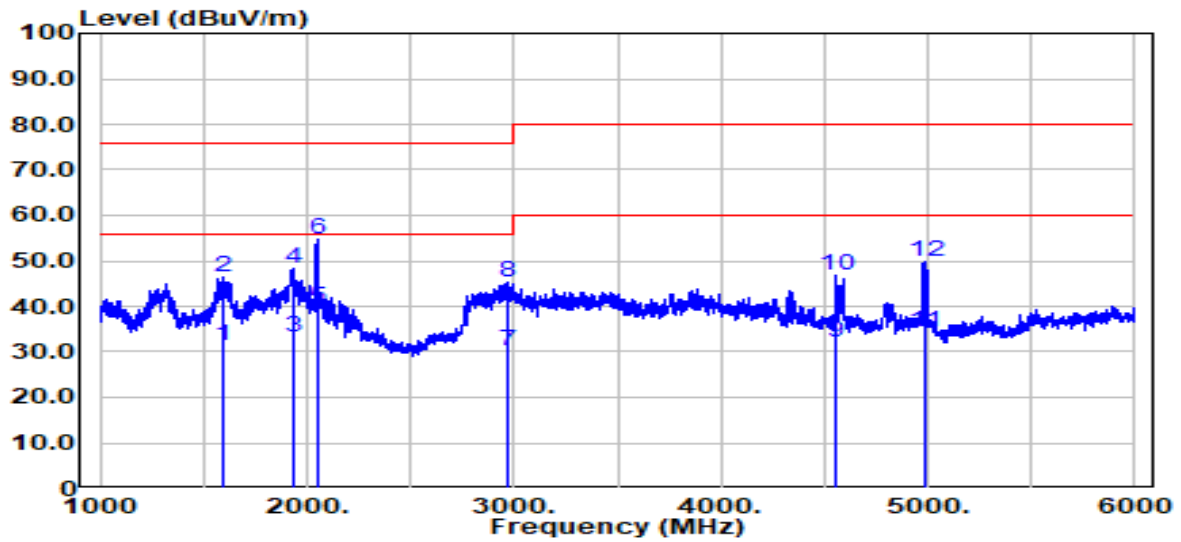
$$\text{Level} = \text{Read Level} + \text{Antenna Factor} + \text{Cable Loss} - \text{Preamp Factor}$$

Test Mode: 00; Polarity: Horizontal



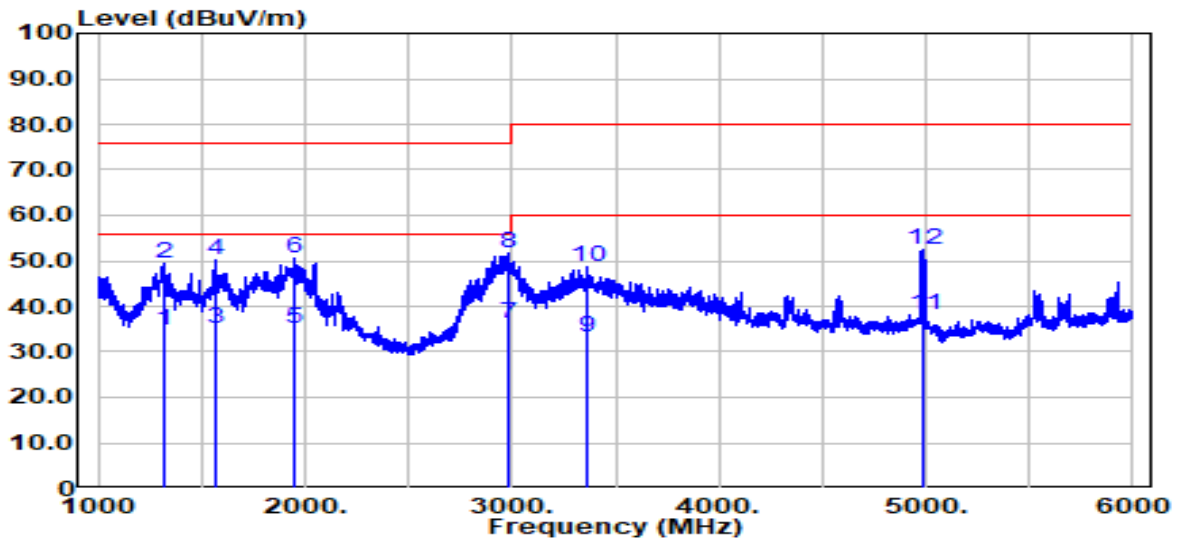
No.	Frequency (MHz)	Reading (dBUV)	Correct Factor(dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1331.25	53.52	-20.94	32.58	56.00	-23.42	200	358	Average
2	1331.25	68.47	-20.94	47.53	76.00	-28.47	200	358	Peak
3	1936.25	56.67	-19.71	36.96	56.00	-19.04	100	0	Average
4	1936.25	70.74	-19.71	51.03	76.00	-24.97	100	0	Peak
5	2038.75	55.48	-19.13	36.35	56.00	-19.65	100	163	Average
6	2038.75	71.42	-19.13	52.29	76.00	-23.71	100	163	Peak
7	2957.50	48.49	-16.13	32.36	56.00	-23.64	200	204	Average
8	2957.50	64.12	-16.13	47.99	76.00	-28.01	200	204	Peak
9	3330.00	50.97	-15.71	35.26	60.00	-24.74	100	204	Average
10	3330.00	65.05	-15.71	49.34	80.00	-30.66	100	204	Peak
11	4985.00	52.68	-12.32	40.36	60.00	-19.64	100	192	Average
12	4985.00	67.57	-12.32	55.25	80.00	-24.75	100	192	Peak

Test Mode: 00; Polarity: Vertical



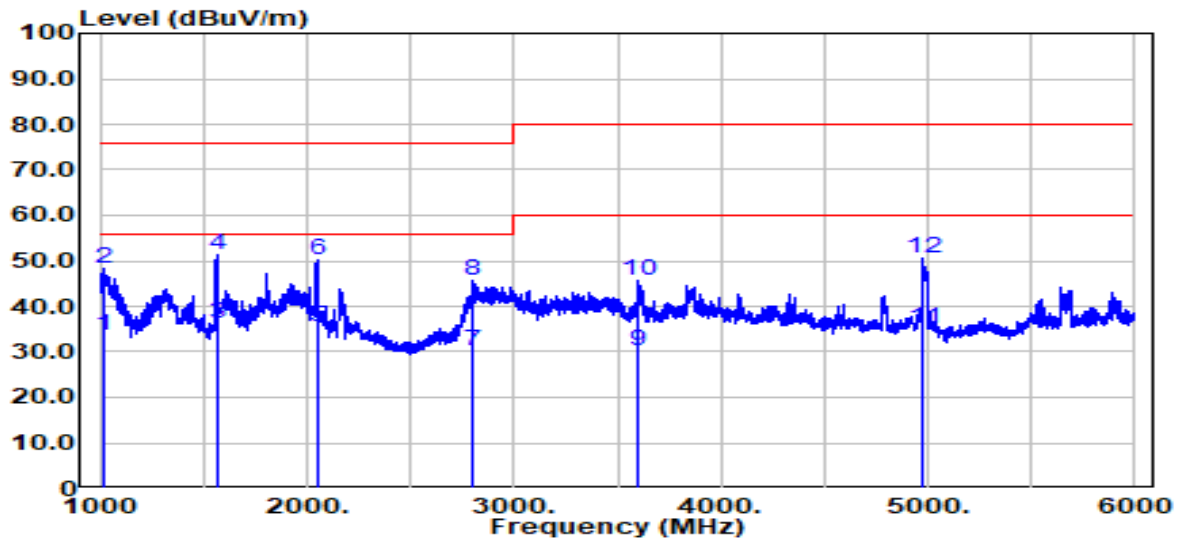
No.	Frequency (MHz)	Reading (dBUV)	Correct Factor(dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1593.75	52.19	-20.93	31.26	56.00	-24.74	200	20	Average
2	1593.75	67.18	-20.93	46.25	76.00	-29.75	200	20	Peak
3	1933.75	52.98	-19.72	33.26	56.00	-22.74	100	37	Average
4	1933.75	68.15	-19.72	48.43	76.00	-27.57	100	37	Peak
5	2052.50	58.70	-19.02	39.68	56.00	-16.32	100	15	Average
6	2052.50	73.74	-19.02	54.72	76.00	-21.28	100	15	Peak
7	2967.50	46.37	-16.11	30.26	56.00	-25.74	200	110	Average
8	2967.50	61.23	-16.11	45.12	76.00	-30.88	200	110	Peak
9	4558.75	44.92	-12.86	32.06	60.00	-27.94	100	304	Average
10	4558.75	59.66	-12.86	46.80	80.00	-33.20	100	304	Peak
11	4983.75	46.59	-12.33	34.26	60.00	-25.74	100	164	Average
12	4983.75	62.12	-12.33	49.79	80.00	-30.21	100	164	Peak

Test Mode: 01; Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1322.50	55.56	-21.00	34.56	56.00	-21.44	200	233	Average
2	1322.50	70.57	-21.00	49.57	76.00	-26.43	200	233	Peak
3	1572.50	56.10	-20.94	35.16	56.00	-20.84	100	207	Average
4	1572.50	71.01	-20.94	50.07	76.00	-25.93	100	207	Peak
5	1943.75	54.93	-19.67	35.26	56.00	-20.74	100	304	Average
6	1943.75	70.12	-19.67	50.45	76.00	-25.55	100	304	Peak
7	2985.00	52.37	-16.02	36.35	56.00	-19.65	100	207	Average
8	2985.00	67.69	-16.02	51.67	76.00	-24.33	100	207	Peak
9	3360.00	49.01	-15.75	33.26	60.00	-26.74	200	207	Average
10	3360.00	64.52	-15.75	48.77	80.00	-31.23	200	207	Peak
11	4990.00	50.58	-12.32	38.26	60.00	-21.74	100	183	Average
12	4990.00	64.93	-12.32	52.61	80.00	-27.39	100	183	Peak

Test Mode: 01; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBUV)	Correct Factor(dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1015.00	55.73	-22.25	33.48	56.00	-22.52	200	34	Average
2	1015.00	70.65	-22.25	48.40	76.00	-27.60	200	34	Peak
3	1563.75	57.30	-20.95	36.35	56.00	-19.65	100	329	Average
4	1563.75	72.29	-20.95	51.34	76.00	-24.66	100	329	Peak
5	2048.75	54.68	-19.05	35.63	56.00	-20.37	100	127	Average
6	2048.75	69.16	-19.05	50.11	76.00	-25.89	100	127	Peak
7	2801.25	46.60	-16.45	30.15	56.00	-25.85	100	83	Average
8	2801.25	62.22	-16.45	45.77	76.00	-30.23	100	83	Peak
9	3598.75	45.05	-14.79	30.26	60.00	-29.74	200	110	Average
10	3598.75	60.53	-14.79	45.74	80.00	-34.26	200	110	Peak
11	4980.00	47.59	-12.33	35.26	60.00	-24.74	100	127	Average
12	4980.00	62.83	-12.33	50.50	80.00	-29.50	100	127	Peak

7 Immunity Test Results

Performance Criteria Description in EN IEC 61000-6-2:2019

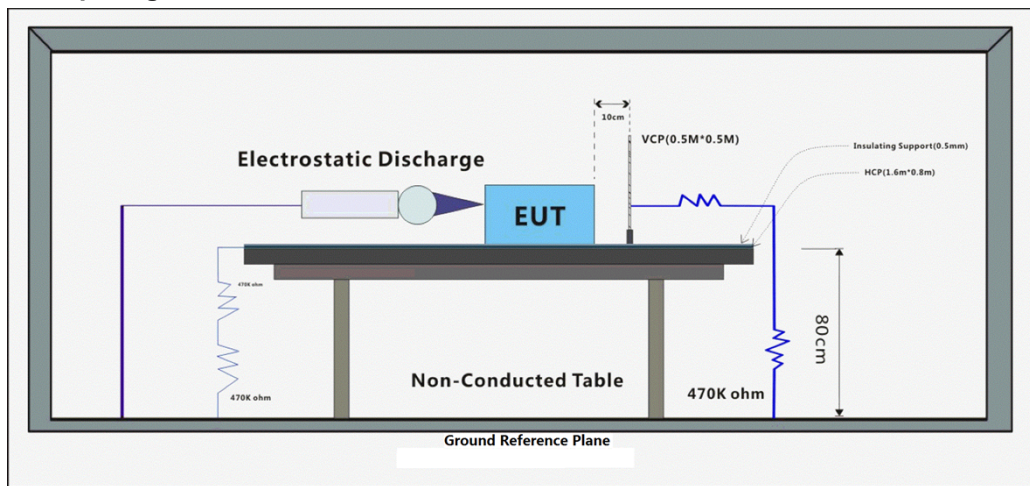
Criterion A	The EUT shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. If the performance level is not specified by the manufacturer, this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

7.1 Electrostatic Discharge

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN 61000-4-2:2009

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C

Humidity: 46.9 % RH

Atmospheric Pressure: 1010 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.1.4 Test Condition and Results:

Performance Criterion: B

Discharge Impedance: 330 Ω /150pF

Number of Discharge: Minimum 10 times at each test point

Discharge Mode: Single Discharge

Discharge Period: 1 second minimum

Test Point 1: All insulated enclosure & seams.

Test Point 2: All accessible metal parts of the enclosure.

Test Point 3: All sides.

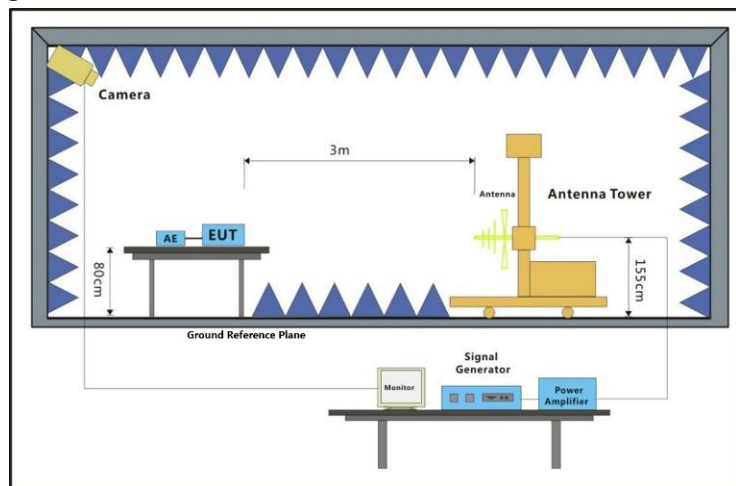
Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in the performance of the EUT was observed				

7.2 Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN IEC 61000-4-3: 2020

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 26.5 °C

Humidity: 48.3 % RH

Atmospheric Pressure: 1010 mbar

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.2.4 Test Condition and Results:

Performance Criterion: A

Antenna Polarisation: Vertical and Horizontal

Modulation: 1kHz,80% Amp. Mod,1% increment

Frequency Range: 80MHz to 1GHz, 1.4GHz to 6GHz

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	10	Front	3s	A
80MHz-1GHz	10	Back	3s	A
80MHz-1GHz	10	Left	3s	A
80MHz-1GHz	10	Right	3s	A
80MHz-1GHz	10	Top	3s	A
80MHz-1GHz	10	Underside	3s	A
1.4GHz-6GHz	3	Front	3s	A
1.4GHz-6GHz	3	Back	3s	A
1.4GHz-6GHz	3	Left	3s	A
1.4GHz-6GHz	3	Right	3s	A
1.4GHz-6GHz	3	Top	3s	A
1.4GHz-6GHz	3	Underside	3s	A

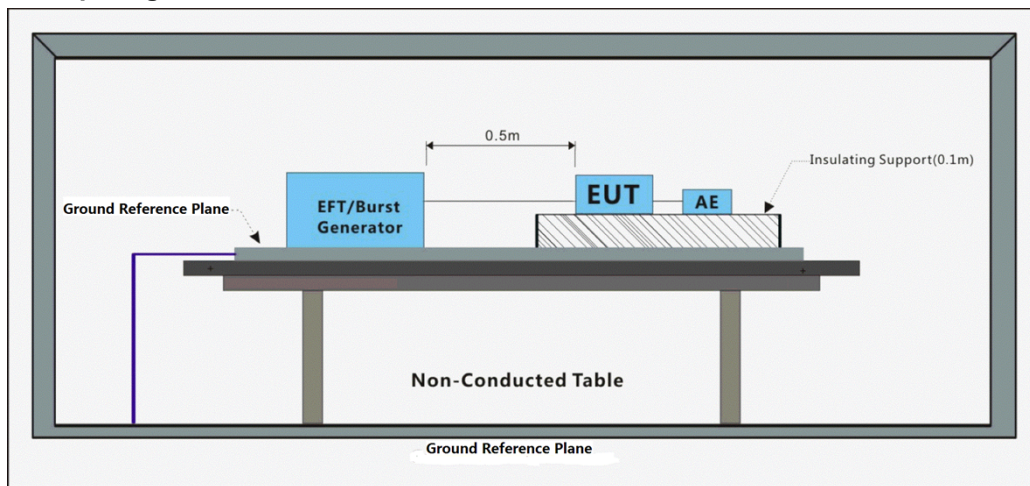
A: No degradation in the performance of the EUT was observed

7.3 Electrical Fast Transients Burst at DC Power Port

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN 61000-4-4:2012

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 22.6 °C

Humidity: 45.1 % RH

Atmospheric Pressure: 1010 mbar

7.3.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.3.4 Test Condition and Results:

Performance Criterion: B

Repetition Frequency: 5kHz or 100kHz

Burst Period: 300ms

Test Duration: 2 minute per level & polarity

Port	Level (kV)	Polarity	CDN/Clamp	Result / Observations
DC port	2	+	CDN	A
DC port	2	-	CDN	A

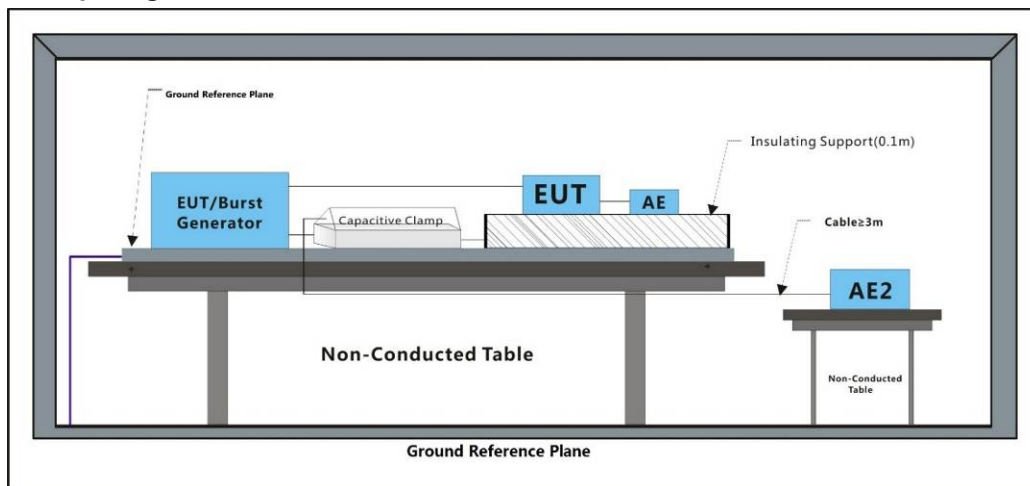
A: No degradation in the performance of the EUT was observed

7.4 Electrical Fast Transients Burst at Signal Port

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN 61000-4-4:2012

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 22.6 °C

Humidity: 45.1 % RH

Atmospheric Pressure: 1010 mbar

7.4.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.4.4 Test Condition and Results:

Performance Criterion: B

Repetition Frequency: 5kHz or 100kHz

Burst Period: 300ms

Test Duration: 2 minute per level & polarity

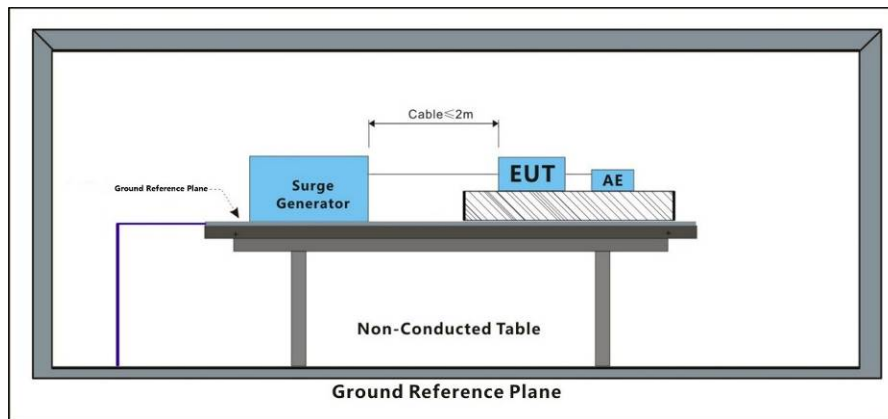
Port	Level (kV)	Polarity	CDN/Clamp	Result / Observations
Signal port	1	+	Clamp	A
Signal port	1	-	Clamp	A
A: No degradation in the performance of the EUT was observed				

7.5 Surge at DC Power Port

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN 61000-4-5:2014+A1:2017

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 22.6 °C

Humidity: 45.8 % RH

Atmospheric Pressure: 1010 mbar

7.5.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.5.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Generator source impedance: 2Ω

CDN coupling impedance(Line-to-ground):10Ω

No. of surges: 5 positive, 5 negative.

Test Line	Level (kV)	Polarity	Result / Observations
P-N	0.5	+	A
P-N	0.5	-	A
P-G	1	+	A
P-G	1	-	A
N-G	1	+	A
N-G	1	-	A

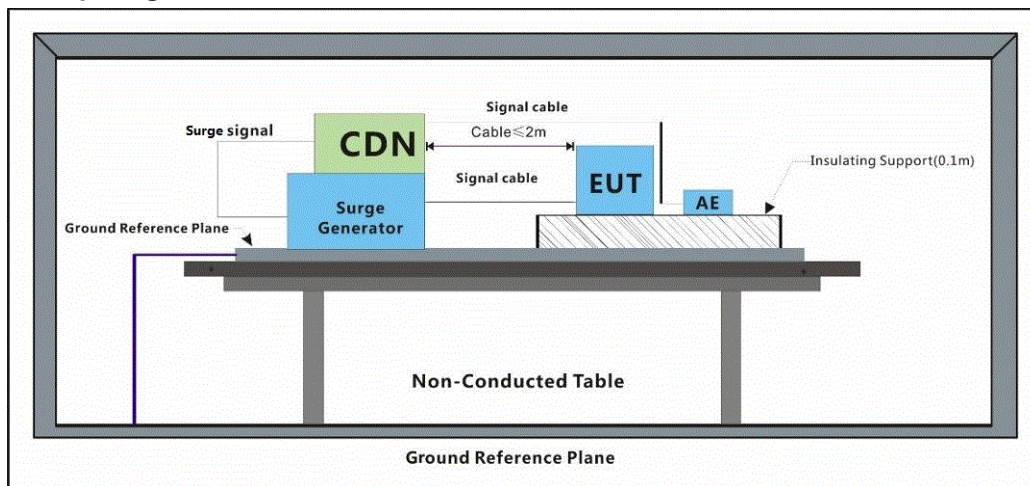
A: No degradation in the performance of the EUT was observed

7.6 Surge at Signal Port

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN 61000-4-5:2014+A1:2017

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 45.6 % RH

Atmospheric Pressure: 1010 mbar

7.6.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.6.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Generator source impedance: 2Ω

CDN coupling impedance: 40Ω

No. of surges: 5 positive, 5 negative

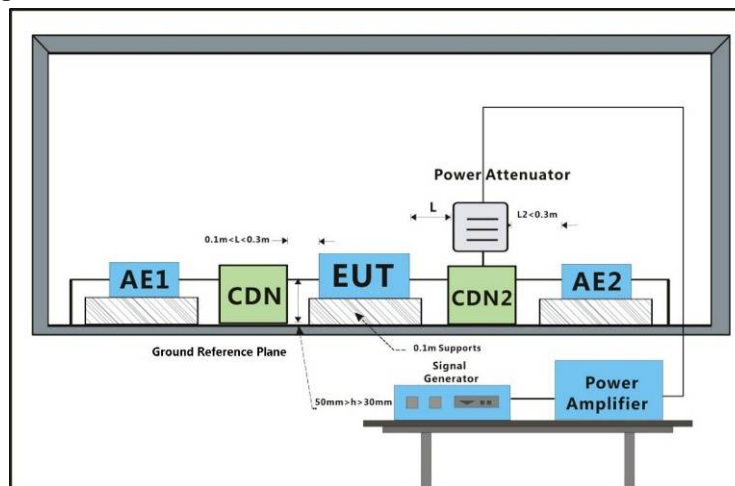
Port	Line	Level (kV)	Polarity	Result / Observations
Signal port	Line-Ground	0.5, 1	+	A
Signal port	Line-Ground	0.5, 1	-	A
A: No degradation in the performance of the EUT was observed				

7.7 Conducted Immunity at DC Power Port (150kHz-80MHz)

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN IEC 61000-4-6: 2023

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 45.1 % RH

Atmospheric Pressure: 1010 mbar

7.7.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.7.4 Test Condition and Results:

Performance Criterion: A

Frequency Range: 0.15MHz to 80MHz

Modulation: 80%, 1kHz Amplitude Modulation

Step Size 1%

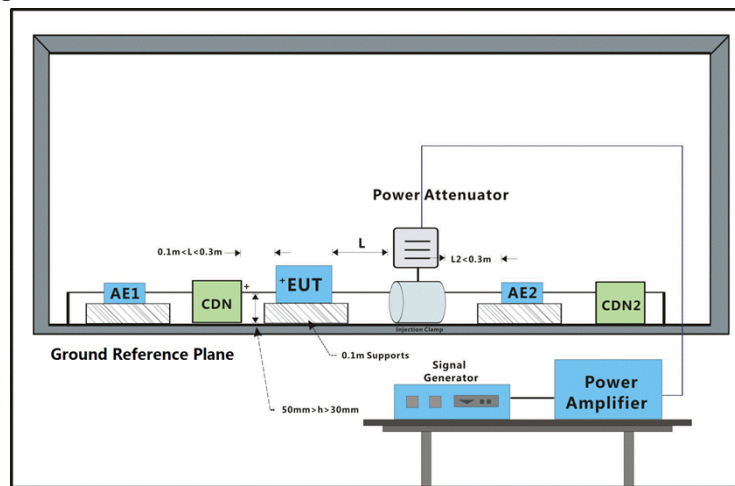
Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
DC Port	10	CDN	3s	A
A: No degradation in the performance of the EUT was observed				

7.8 Conducted Immunity at Signal Port (150kHz-80MHz)

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN IEC 61000-4-6: 2023

7.8.1 Test Setup Diagram



7.8.2 E.U.T. Operation

Operating Environment:

Temperature: 22.3 °C

Humidity: 45.1 % RH

Atmospheric Pressure: 1010 mbar

7.8.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.8.4 Test Condition and Results:

Performance Criterion: A

Frequency Range: 0.15MHz to 80MHz

Modulation: 80%, 1kHz Amplitude Modulation

Step Size 1%

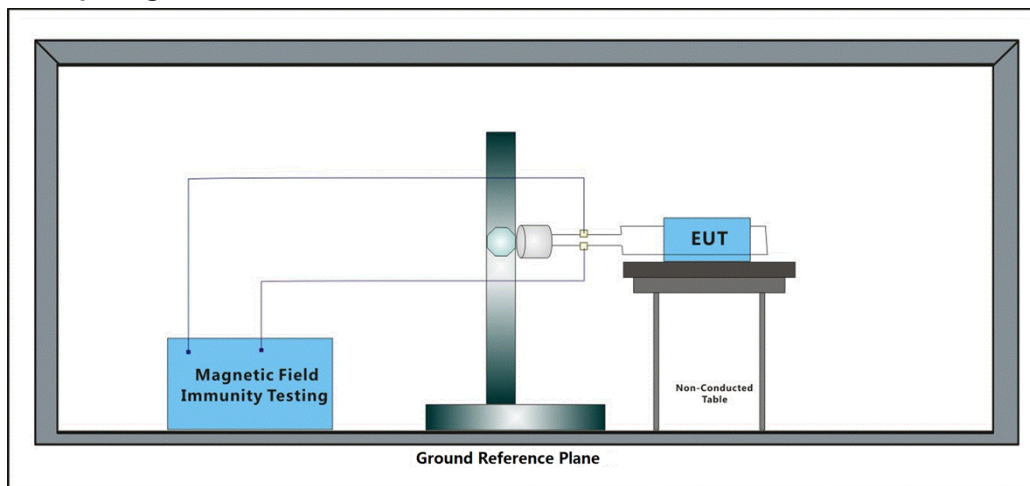
Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
Signal port	10	Clamp	3s	A
A: No degradation in the performance of the EUT was observed				

7.9 Power Frequency Magnetic Field

Test Requirement: EN IEC 61000-6-2: 2019

Test Method: EN 61000-4-8:2010

7.9.1 Test Setup Diagram



7.9.2 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 45.1 % RH

Atmospheric Pressure: 1010 mbar

7.9.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(DS62) working continuously with Auxiliary equipment-DC 24V
Final test	01	Keep EUT2_(DS63) working continuously with Auxiliary equipment-DC 24V

7.9.4 Test Condition and Results:

Performance Criterion:A

Power frequency magnetic field value of the laboratory:	Frequency	Level (A/m)	Axial	Magnetic Field Type	Result / Observations
0.05 A/m	50 Hz	30	X	Continue	A
0.05 A/m	50 Hz	30	Y	Continue	A
0.05 A/m	50 Hz	30	Z	Continue	A
0.05 A/m	60 Hz	30	X	Continue	A
0.05 A/m	60 Hz	30	Y	Continue	A
0.05 A/m	60 Hz	30	Z	Continue	A

A: No degradation in the performance of the EUT was observed

8 Test Setup Photo

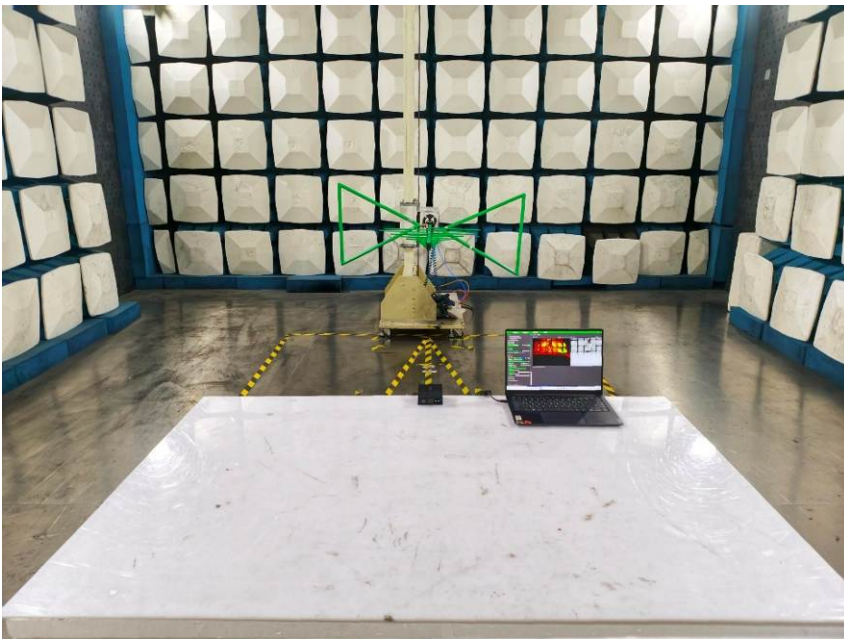
Conducted Emissions at DC Power Port (150kHz-30MHz)



Conducted Emissions at Wired Network Port (150kHz-30MHz)



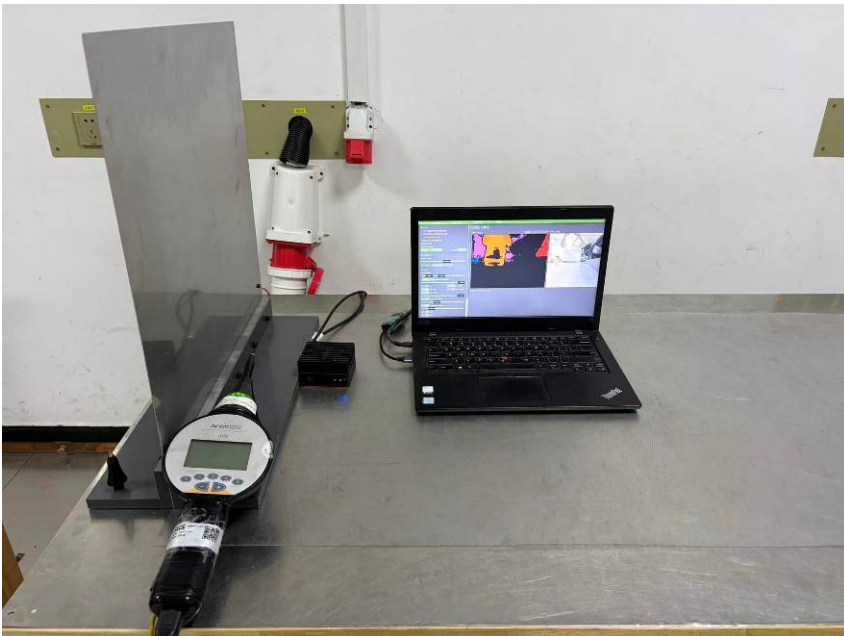
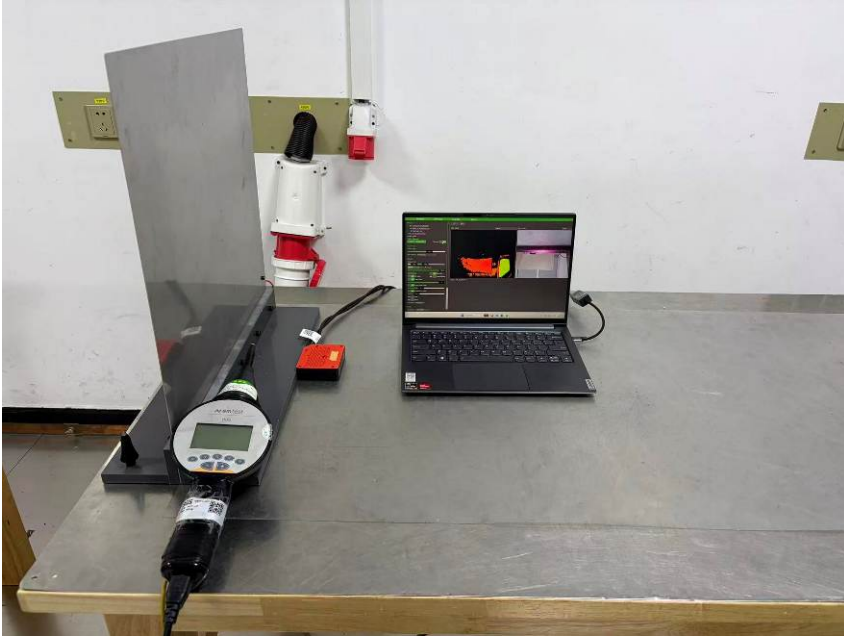
Radiated Emissions (30MHz-1GHz)



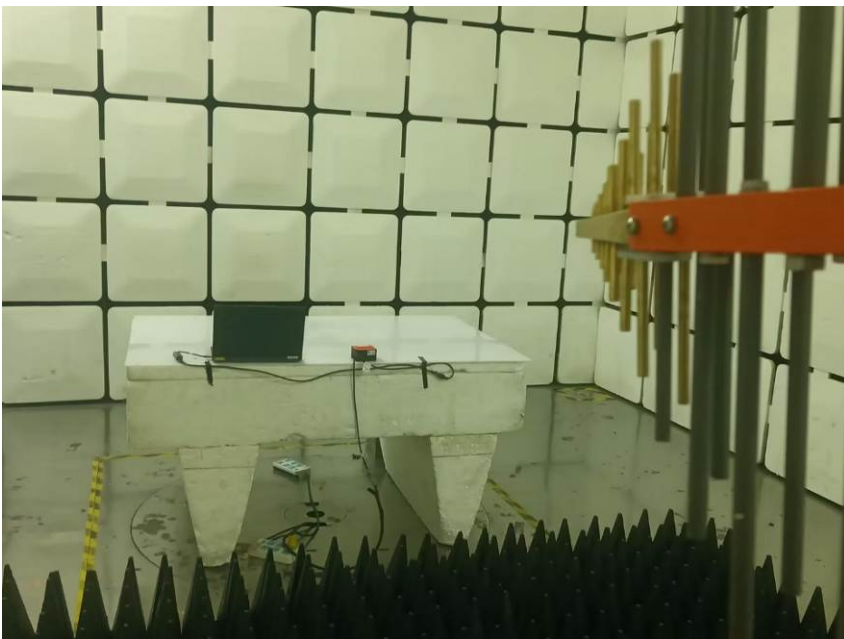
Radiated Emissions (Above 1GHz)



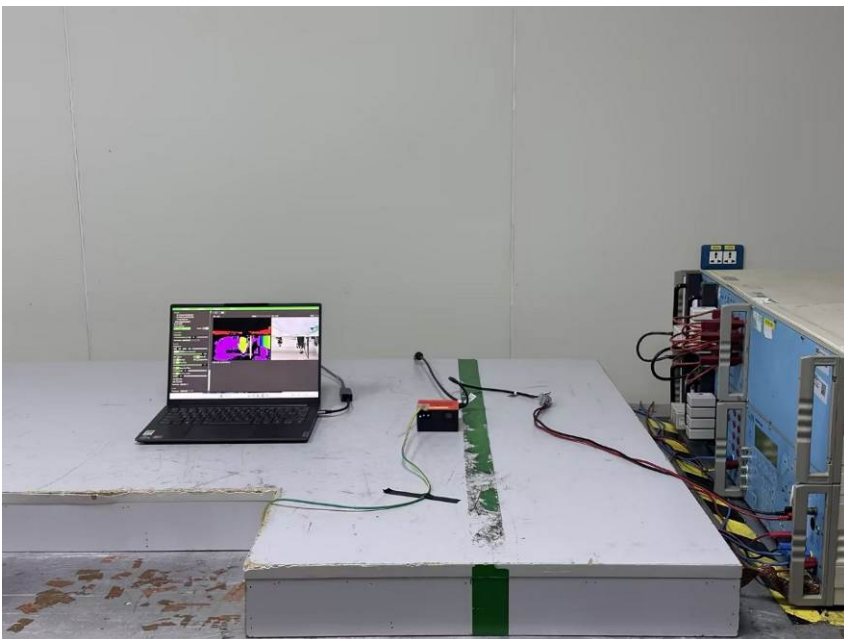
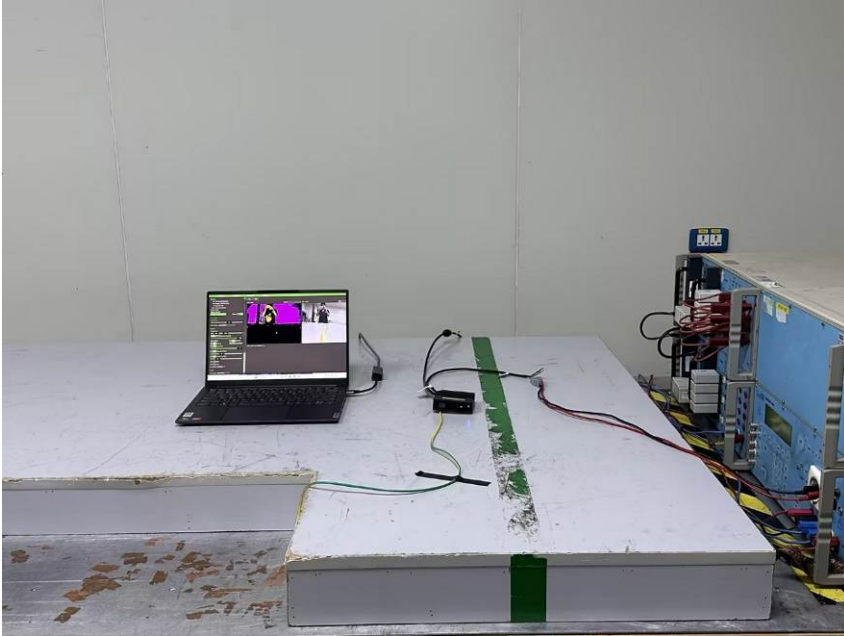
Electrostatic Discharge



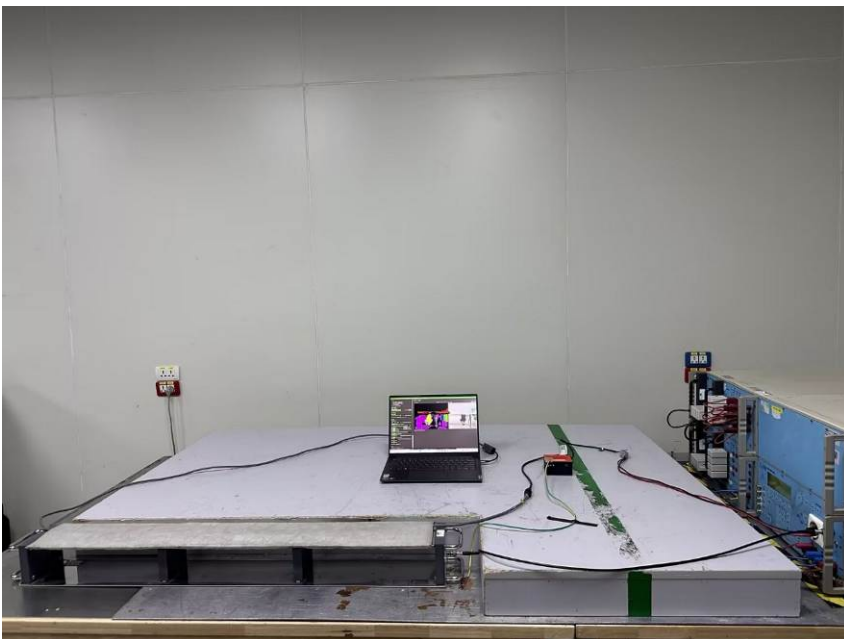
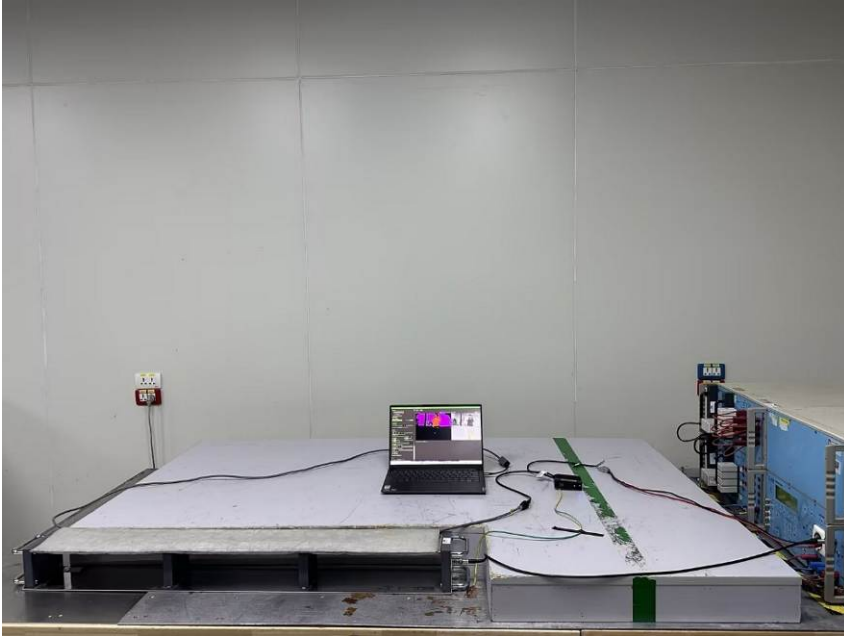
Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)



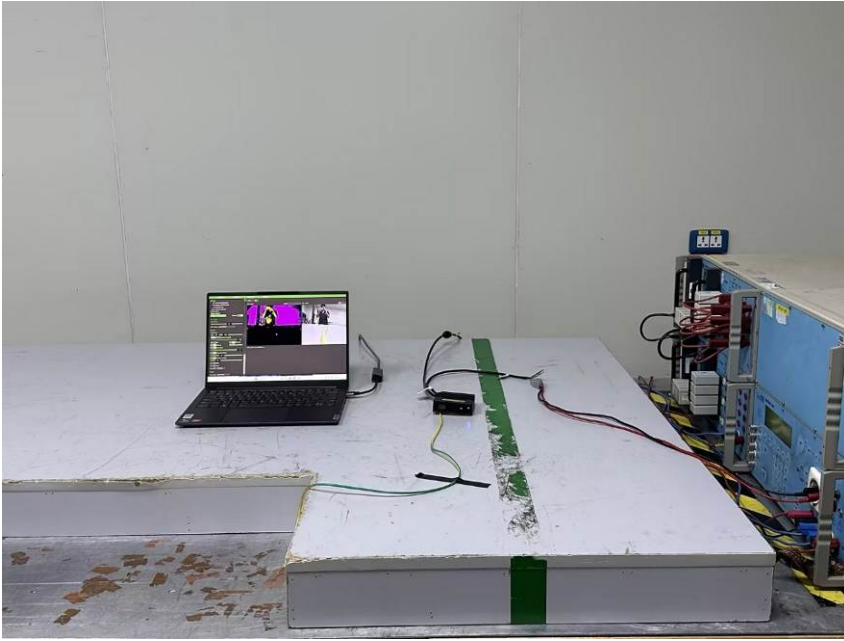
Electrical Fast Transients Burst at DC Power Port



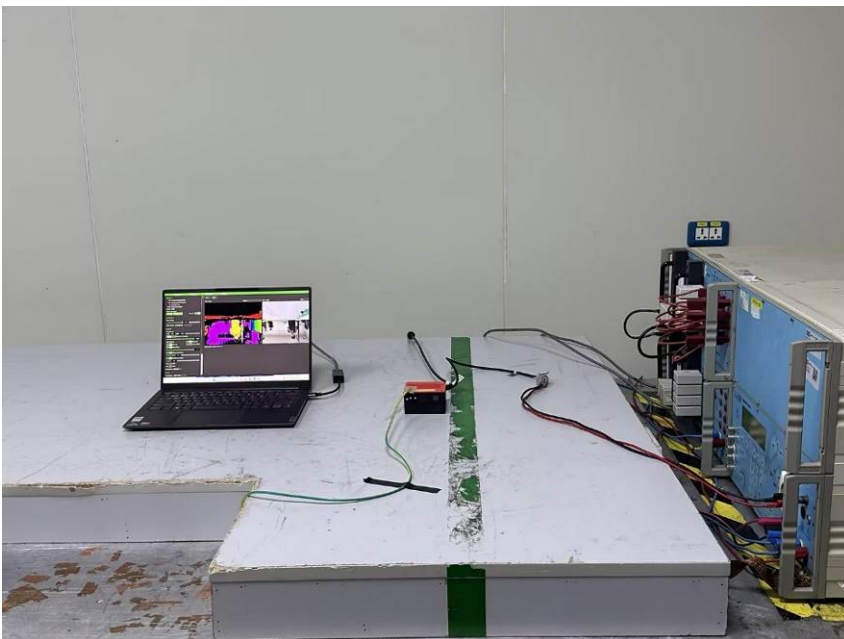
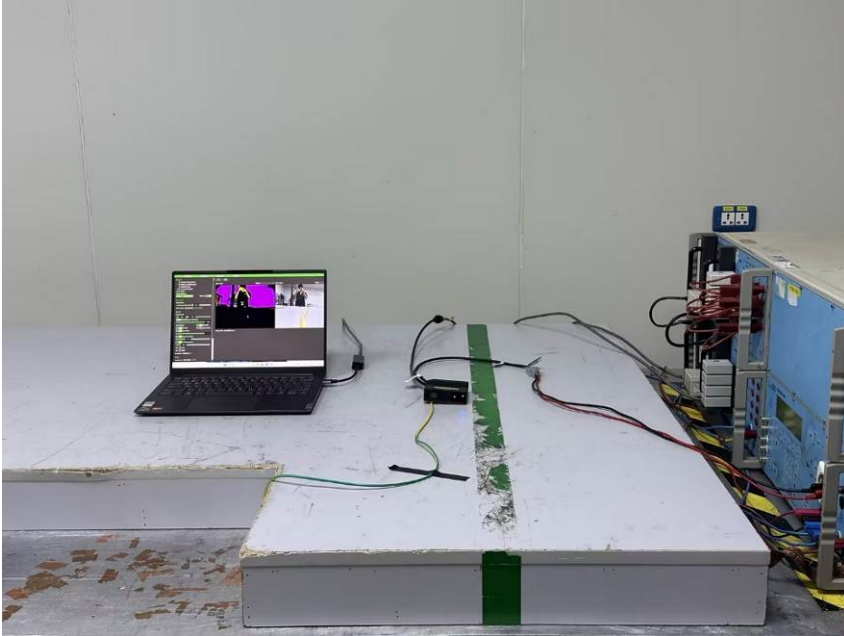
Electrical Fast Transients Burst at Signal Port



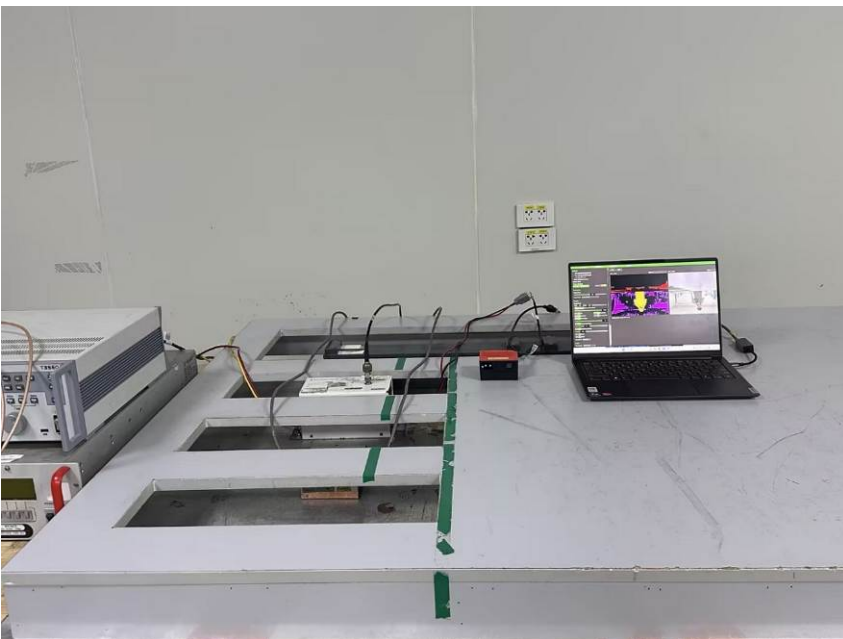
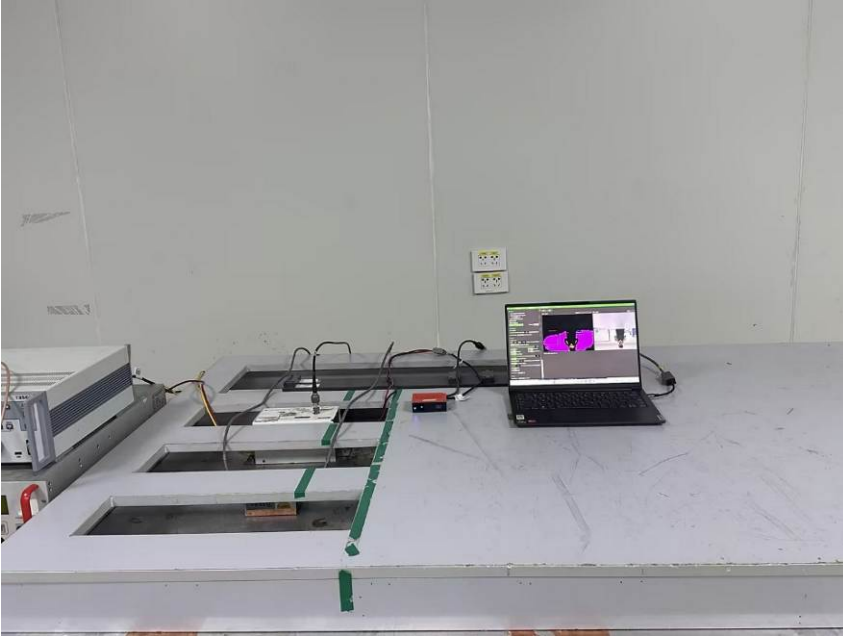
Surge at DC Power Port



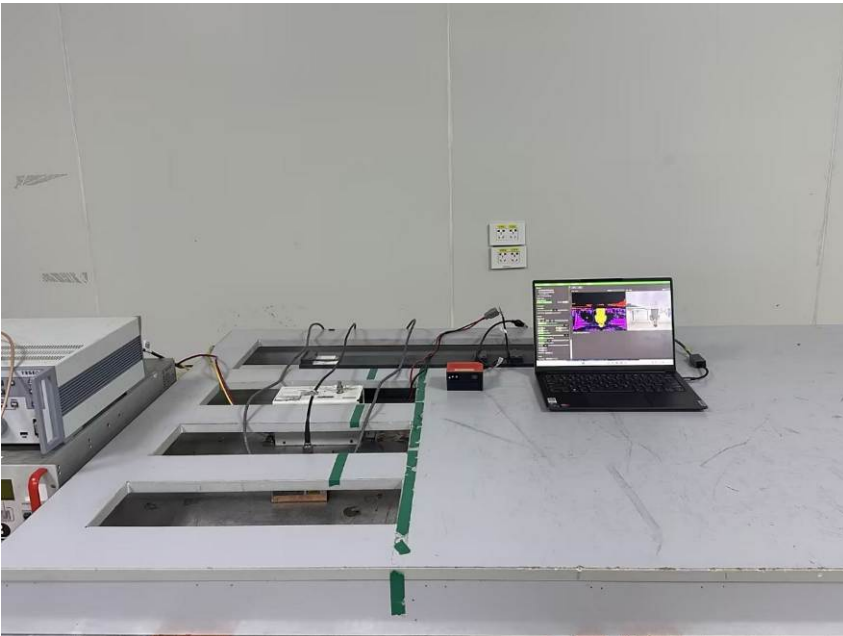
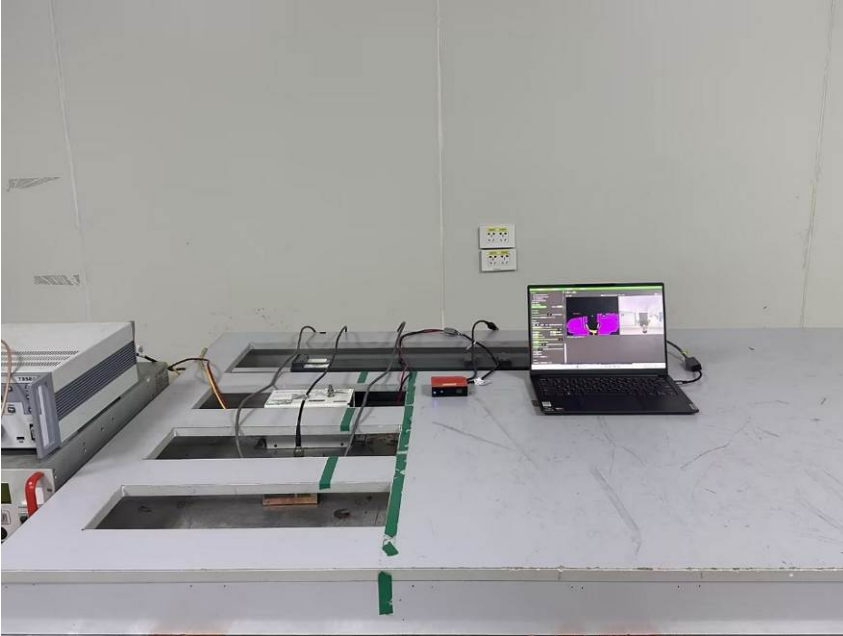
Surge at Signal Port



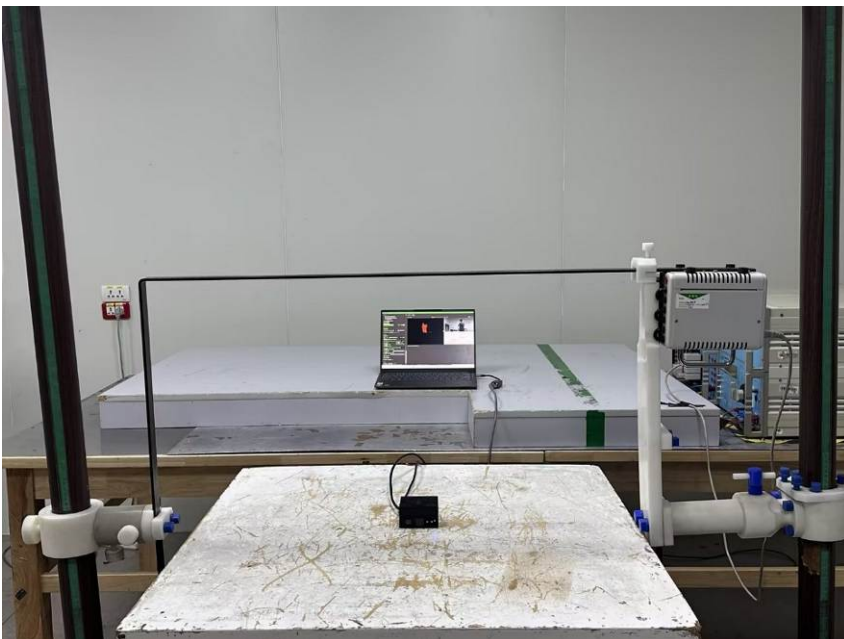
Conducted Immunity at DC Power Port (150kHz-80MHz)



Conducted Immunity at Signal Port (150kHz-80MHz)

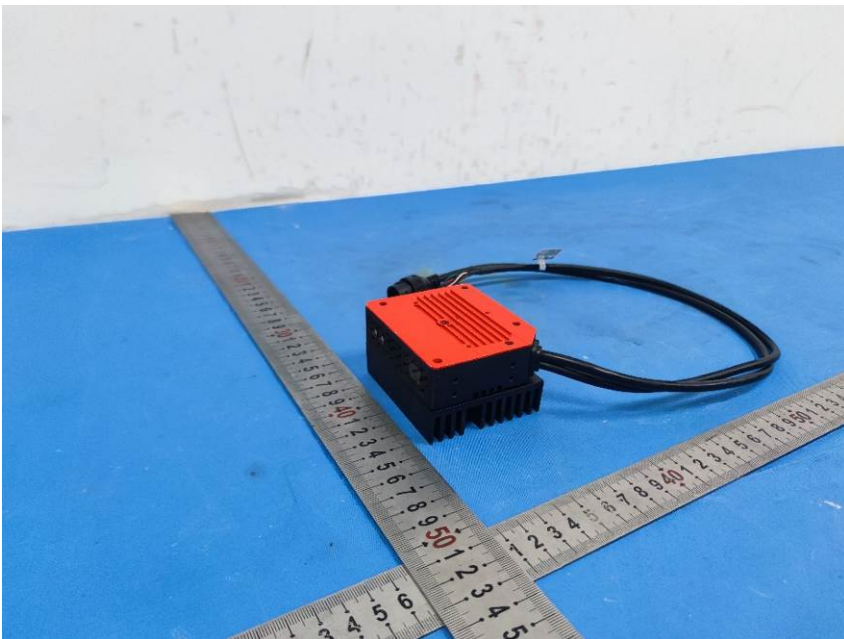


Power Frequency Magnetic Field



9 EUT Constructional Details (EUT Photos)







- End of the Report -