Audio Effetti S.r.l.

TEST REPORT

SCOPE OF WORK
EMC Testing – EasyCOB G2 P0.6, EasyCOB G2 PX
("X"=0.9/1.25/1.56/1.87)

REPORT NUMBER
250612020SZN-001

ISSUE DATE **[REVISED DATE]**
31 July 2025 [----------]

PAGES
48

DOCUMENT CONTROL NUMBER
EN55032/35_MMEa

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TEST REPORT

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Intertek Report No.: 250612020SZN-001

EMC VERIFICATION SUMMARY

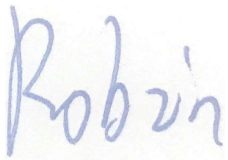
☒Displaying colour bars ☒Displaying white light

Model: EasyCOB G2 P0.6, EasyCOB G2 PX ("X"=0.9/1.25/1.56/1.87) Product Description: LED Display Sample Receipt Date: 15 November 2024	Applicant: Audio Effetti S.r.l. Via A. Manuzio, 57A, 16143 Genova (GE) Italy. Test Conducted Date: 15 November 2024 to 22 November 2024		
☒ 1st TEST ☐ 2nd TEST	ALL TESTS WERE CONDUCTED IN ACCORDANCE WITH: * EN 55032:2015+A11:2020 * EN IEC 61000-3-2:2019+A1:2021 * EN 61000-3-3:2013+A2:2021 * EN 55035:2017+A11:2020		
Test Site and Location:	Intertek Testing Services Shenzhen Ltd. No. 101&201, Building B, No. 308, Wuhe Avenue, Zhangkengjing, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China		
Test Result	Pass	Fail	See Remark
* EN 55032:2015+A11:2020	☒	☐	☐
* EN IEC 61000-3-2:2019+A1:2021	☒	☐	☐
* EN 61000-3-3:2013+A2:2021	☒	☐	☐
* EN 55035:2017+A11:2020	☒	☐	☐
When determining the test conclusion, the Measurement Uncertainty of test has been considered.			

Prepared and Checked By:

Tony Tang
Engineer

Approved By:



_____ ***Signature***

Robin Zhou
Senior Project Engineer
31 July 2025 ***Date***

EMC RESULT CONCLUSION (WITH JUSTIFICATION)

RE: EMC Testing Pursuant to Electromagnetic Compatibility Directive (2014/30/EU)
Performed on the LED Display.
Model: EasyCOB G2 P0.6, EasyCOB G2 PX (“X”=0.9/1.25/1.56/1.87)

The model: EasyCOB G2 PX (“X”=0.9/1.25/1.56/1.87) are the same as the model: EasyCOB G2 P0.6 in hardware aspect. The difference in spacing of LED and product model name serves as marketing strategy.

We chose the model EasyCOB G2 P0.6 of the same size with the smallest bead spacing, the max power for testing, and the worst test data was recorded in the report.

We tested the LED Display, Model: EasyCOB G2 P0.6 to determine if it was in compliance with the relevant EN standards as marked on the EMC Verification Summary. We found that the unit meet the requirement of EN 55032, EN IEC 61000-3-2, EN 61000-3-3, EN 55035 standards and Class A limit when tested as received.

This report is based on previous report with report number 250423027SZN-001 dated 13 May 2025 (original signatory: Tony Tang, Robin Zhou on file). Due to change of applicant, model and brand name, no tests were required after evaluation.

The production units are required to conform to the initial sample as received when the units are placed on the market.

LABORATORY MEASUREMENTS
CONFIGURATION INFORMATION

Equipment Under Test (EUT):	LED Display
Model:	EasyCOB G2 P0.6
Brand Name(s):	audio/effetti, ego DISPLAY
Serial No.:	Not Labelled
Support Equipment:	Portable computer (DELL Latitude 5420) (Provided by Intertek) LED Display Controller (Novastar MCTRL300) (Provided by Applicant)
Cables:	AC power line (Unshielded without ferrite core , Length 140cm) HDMI to DVI Cable (Shielded without ferrite core, Length 180cm) (Provided by Applicant) Signal Cable (Unshielded without ferrite core, Length 300cm) (Provided by Intertek)
Rated Voltage:	Input: 100-240Vac, 50/60Hz, 10A(max.)

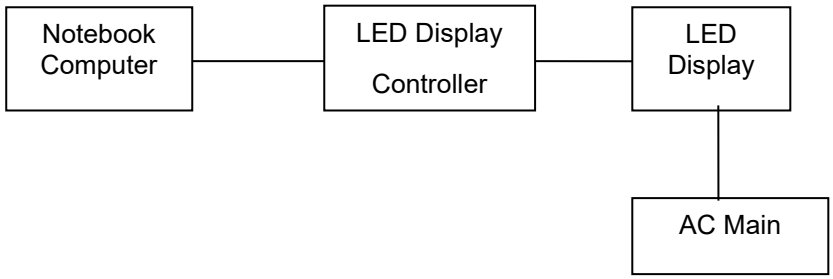
LABORATORY MEASUREMENTS

Test configuration

The Notebook computer and LED Display controller were located outside of 3m chamber, and the LED Display was located inside of 3m chamber, the Notebook computer run colour bars and white light as input of LED Display controller, and then LED Display runs colour bars and white light via signal port of LED Display Controller. Conducted disturbance and Radiated disturbance tests were performed on signal port mode with data transmitting (Displaying colour bars and displaying white light). Harmonic and Flicker tests displaying white light for max power. All the other tests were performed on signal port mode with data transmitting (Displaying colour bars and displaying white light). And the data of the worst-case mode will be recorded in this report.

Note: The test was performed at two voltages, AC 230V, 50Hz and AC 110V, 60Hz, and only the data of the worst voltage was reported.

Connection Diagram for Measurements



PERFORMANCE CRITERIA FOR IMMUNITY

The performance criteria are referred to the test standard: EN 55035

Performance criteria A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Evaluation of Video Quality

In the evaluation of picture interference, the wanted test signal produces a standard picture (in the case of video tape equipment on the screen of the test-TV-set) and the unwanted signal produces a degradation of the picture. The degradation may be in a number of forms, such as a superposed pattern, positional disturbance of synchronization, geometrical distortion, loss of picture contrast or brightness, artefacts, freezing or disturbance of motion, image loss, video data or decoding errors, etc.

Performance criteria B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance criteria C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

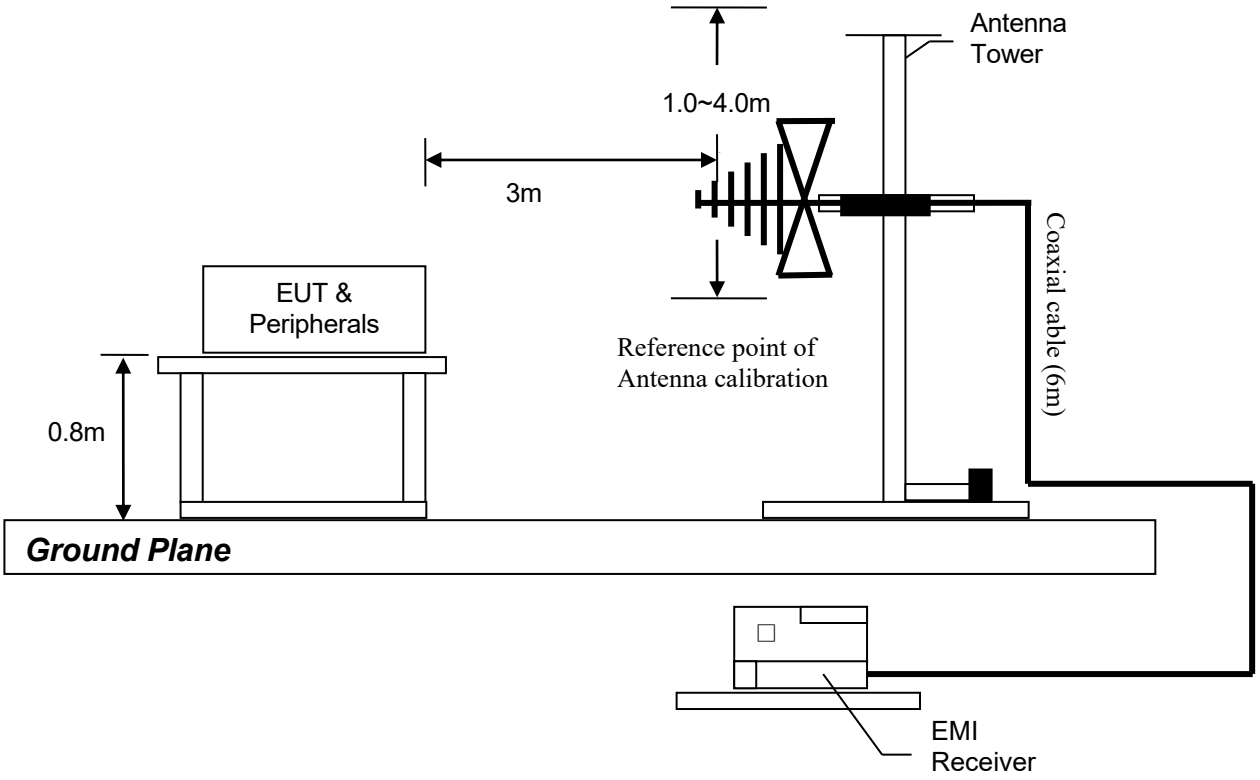
Radiated Emissions
Pursuant to EN 55032: Emissions Requirement

Used Test Equipment

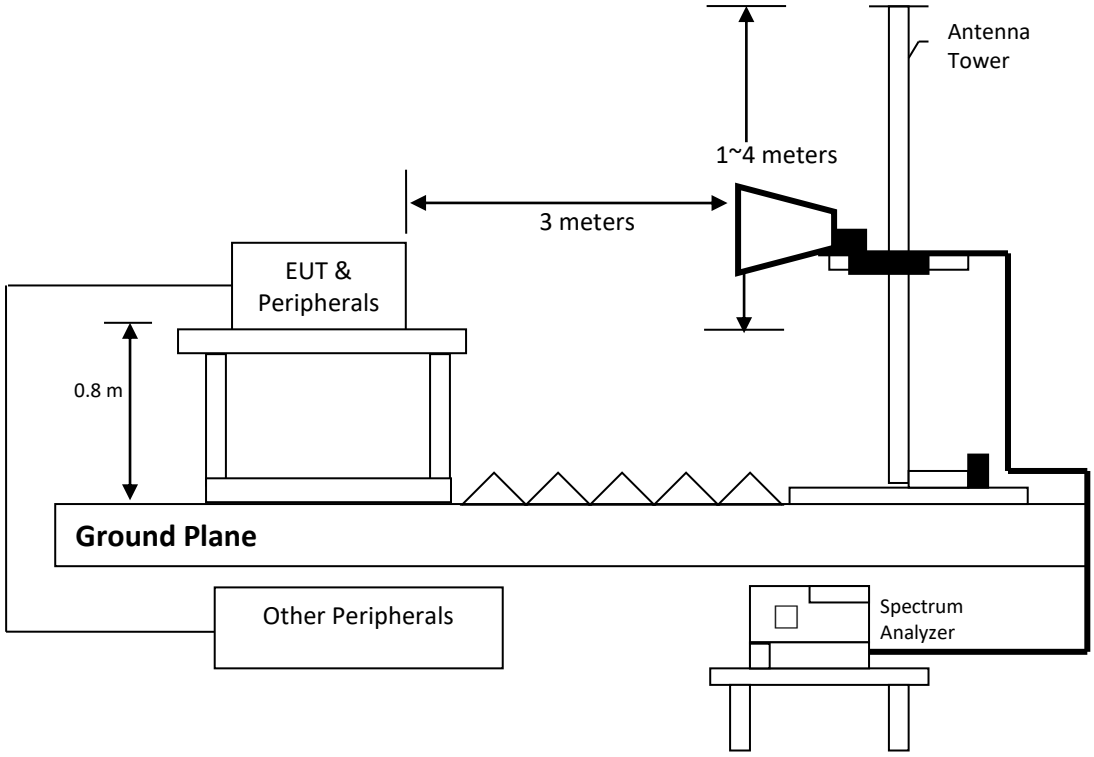
Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ185-04	EMI Receiver	R & S	ESR7	2024-11-10	2025-11-10
SZ056-03	Spectrum Analyzer	R & S	FSP30	2024-04-22	2025-04-22
SZ061-13	Biconilog Antenna	ETS	3142E	2022-07-13	2025-07-13
SZ061-09	Horn Antenna	ETS	3115	2022-10-14	2025-10-14
SZ181-04	Preamplifier	Agilent	8449B	2024-04-22	2025-04-22
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	2021-12-22	2024-12-22

Notes:
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Frequency range scanned: 30MHz to 6000MHz.
3. Only emissions significantly above equipment noise floor is reported.
4. Uncertainty: ±4.8dB at a level of confidence of 95%.
5. Only the worst-case is recorded in the following graph and table.

Test Setup Diagram:



(Radiated Emission Measurements Test Setup for 30MHz to 1GHz)

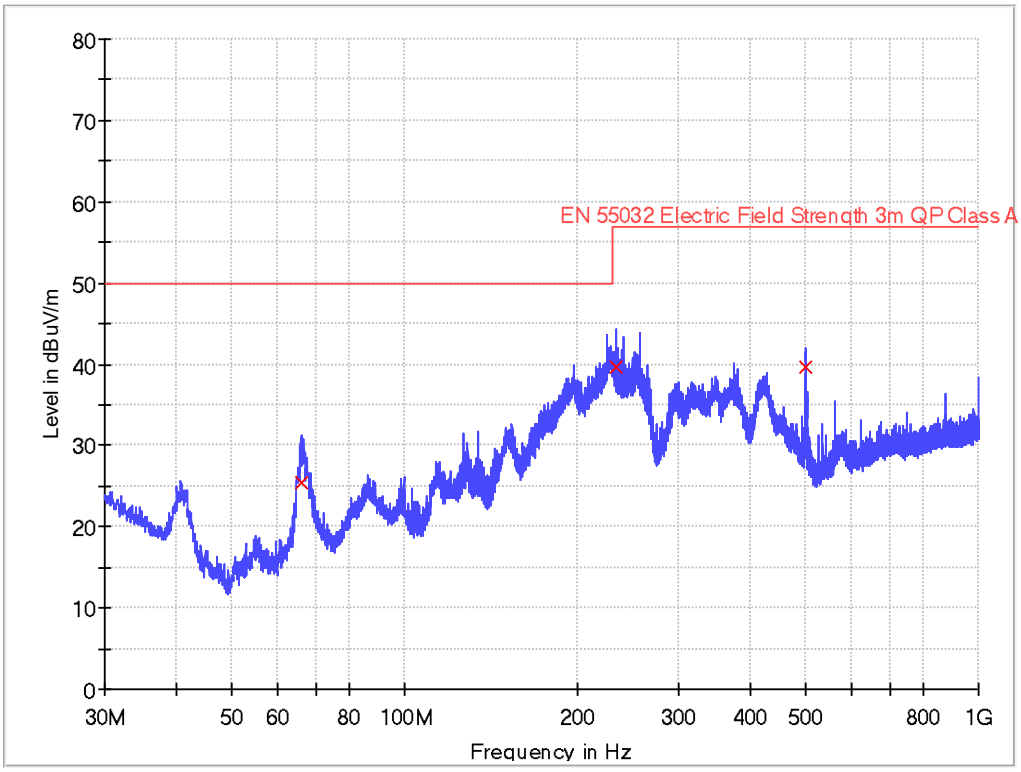


(Radiated Emission Measurements Test Setup for 1GHz to 6GHz)

Test Data

Radiated Emissions
Pursuant to EN 55032: Emissions Requirement

Horizontal



Limit and Margin

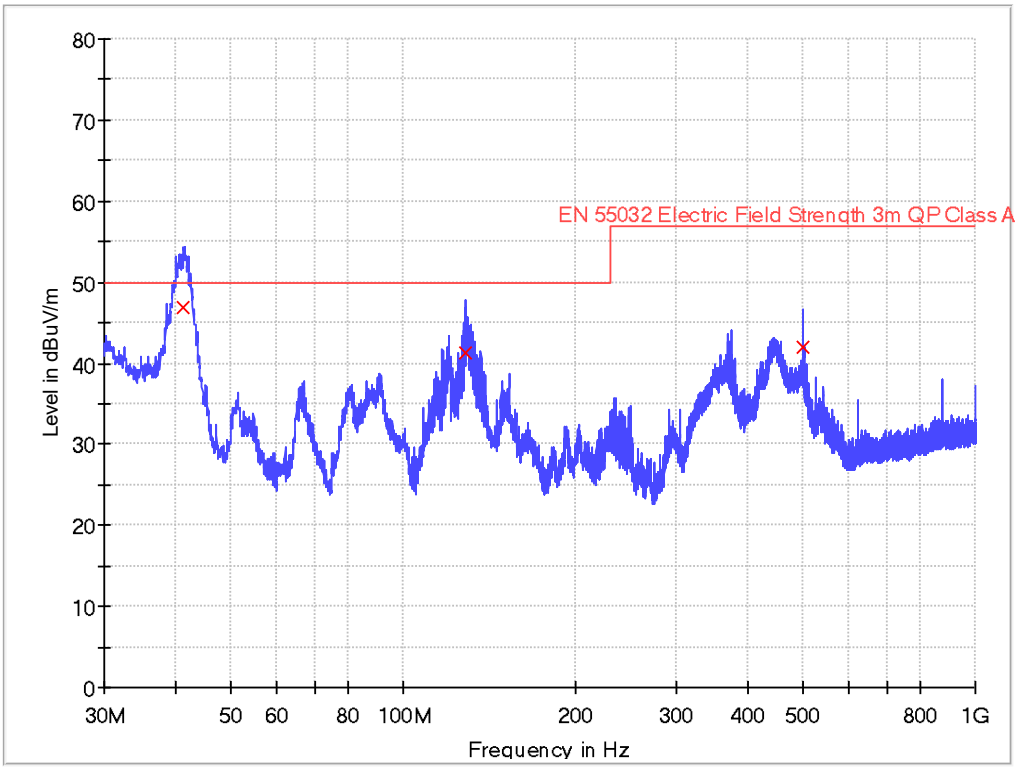
Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
65.890000	25.4	1000.0	120.000	Horizontal	7.8	24.6	50.0
234.152667	39.7	1000.0	120.000	Horizontal	12.7	17.3	57.0
499.868000	39.7	1000.0	120.000	Horizontal	20.1	17.3	57.0

Remark:
1. Corr. (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)
2. Quasi Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit QPK (dBµV/m) – Quasi Peak (dBµV/m)

Test Data

Radiated Emissions
Pursuant to EN 55032: Emissions Requirement

Vertical



Limit and Margin

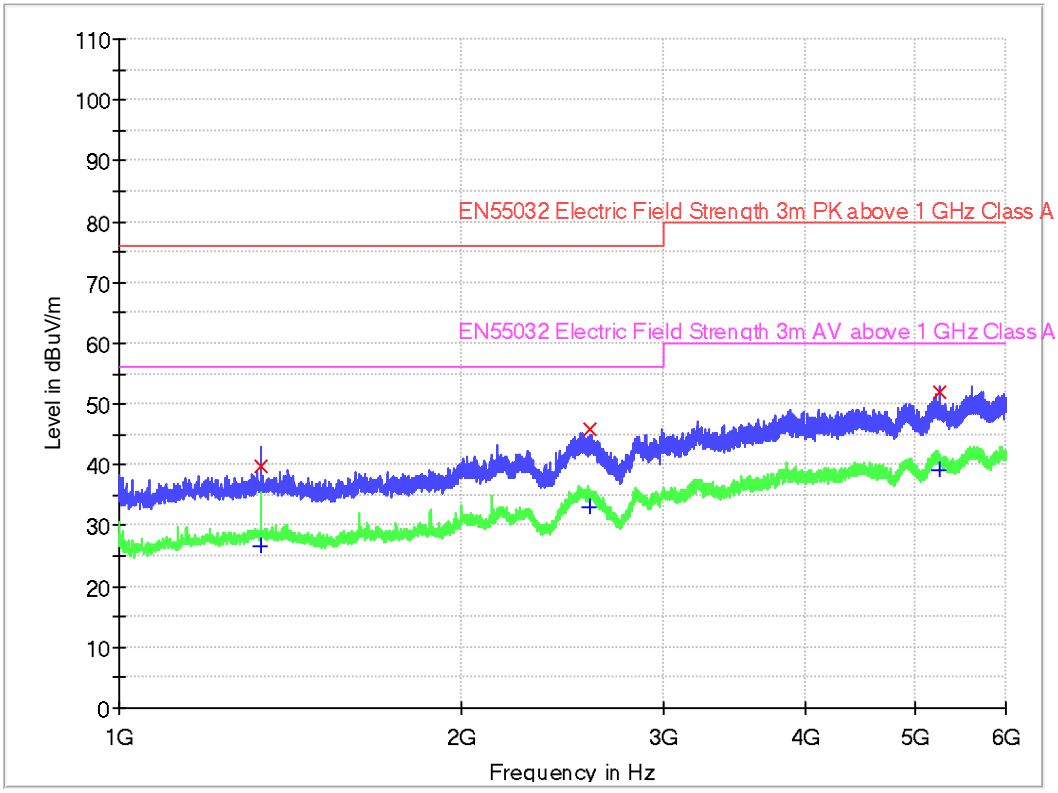
Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
41.349000	46.9	1000.0	120.000	Vertical	12.2	3.1	50.0
128.713667	41.2	1000.0	120.000	Vertical	9.1	8.8	50.0
500.126667	42.0	1000.0	120.000	Vertical	20.1	15.0	57.0

Remark:
1. Corr. (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)
2. Quasi Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit QPK (dBµV/m) – Quasi Peak (dBµV/m)

Test Data

Radiated Emissions
Pursuant to EN 55032: Emissions Requirement

Horizontal



Limit and Margin PK

Frequency (MHz)	Max Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1333.000000	39.8	1000.0	1000.000	Horizontal	-7.3	36.2	76.0
2586.666667	45.8	1000.0	1000.000	Horizontal	-1.0	30.2	76.0
5240.166667	52.0	1000.0	1000.000	Horizontal	8.5	28.0	80.0

Limit and Margin AV

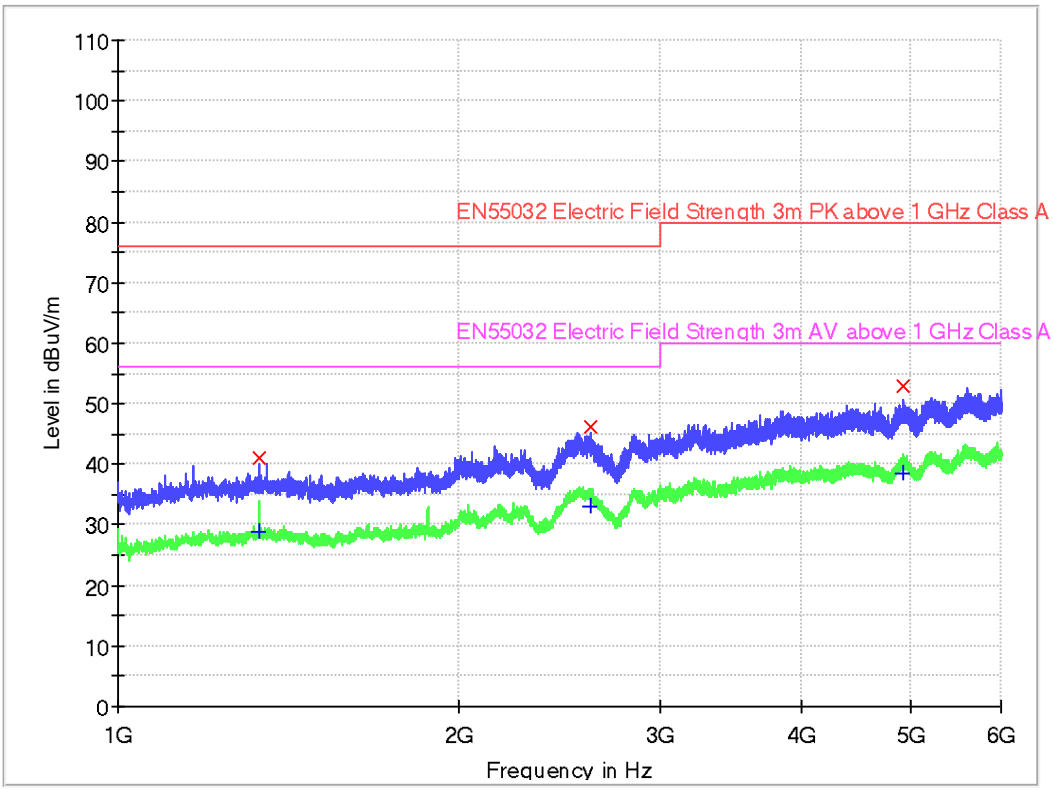
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1333.000000	26.7	1000.0	1000.000	Horizontal	-7.3	29.3	56.0
2586.666667	32.9	1000.0	1000.000	Horizontal	-1.0	23.1	56.0
5240.166667	39.1	1000.0	1000.000	Horizontal	8.5	20.9	60.0

Remark:
1. Corr. (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Amp. Gain (dB)
2. Max peak/Average (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit (dBµV/m) – Max peak/Average (dBµV/m)

Test Data

Radiated Emissions
Pursuant to EN 55032: Emissions Requirement

Vertical



Limit and Margin PK

Frequency (MHz)	Max Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1333.333333	41.1	1000.0	1000.000	Vertical	-7.3	34.9	76.0
2613.000000	46.2	1000.0	1000.000	Vertical	-0.9	29.8	76.0
4919.333333	52.9	1000.0	1000.000	Vertical	7.3	27.1	80.0

Limit and Margin AV

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1333.333333	28.7	1000.0	1000.000	Vertical	-7.3	27.3	56.0
2613.000000	33.0	1000.0	1000.000	Vertical	-0.9	23.0	56.0
4919.333333	38.5	1000.0	1000.000	Vertical	7.3	21.5	60.0

Remark:
1. Corr. (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Amp. Gain (dB)
2. Max peak/Average (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit (dBµV/m) – Max peak/Average (dBµV/m)

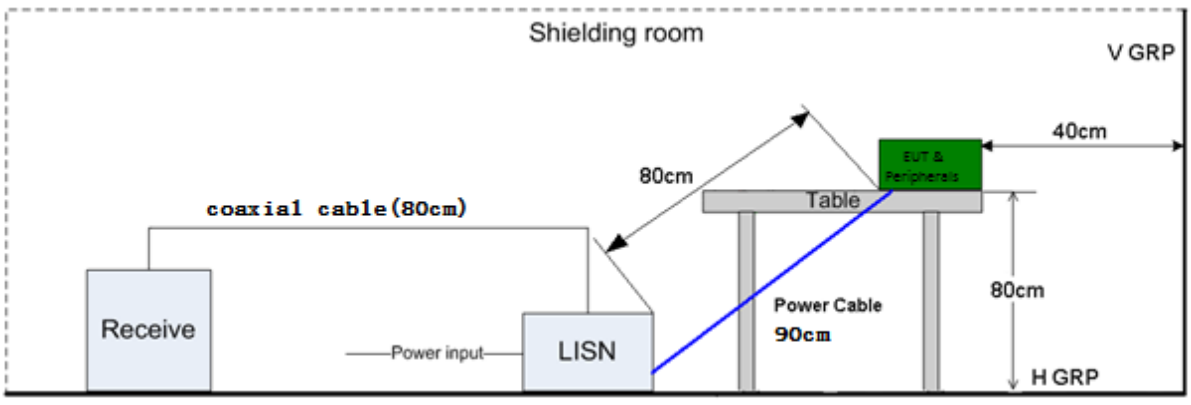
Conducted Emissions
Pursuant to EN 55032: Emissions Requirement

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ185-02	EMI Receiver	R & S	ESCI	2024-07-09	2025-07-09
SZ187-01	Two-Line V-Network	R & S	ENV216	2024-10-24	2025-10-24
SZ187-02	Two-Line V-Network	R & S	ENV216	2024-04-23	2025-04-23
SZ188-03	Shielding Room	ETS	RFD-100	2022-12-20	2025-12-20

Notes:
1. Peak and average detector quick scan are showed on the graph and final quasi-peak and average detector data are measured, the worst-case is recorded in the following graph and table.
2. Frequency range scanned: 150kHz to 30MHz.
3. Only emissions significantly above equipment noise floor is reported.
4. Uncertainty: ±3.2dB at a level of confidence of 95%.
5. Only the worst-case is recorded in the following graph and table.

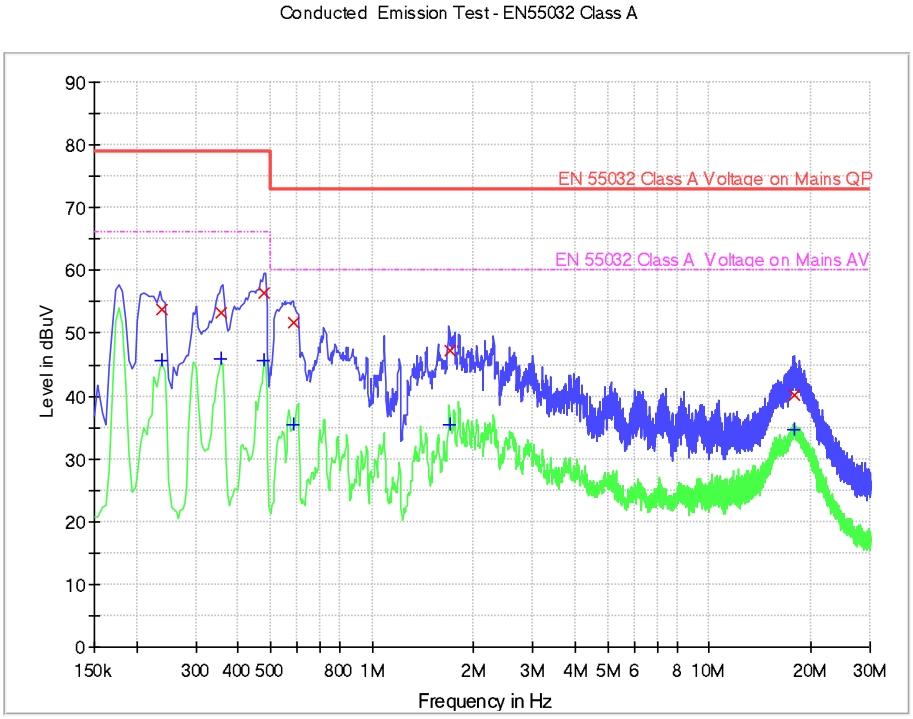
Test Setup Diagram



Test set-up of conducted disturbance for Power port

Test Data

Conducted Emissions
Pursuant to EN 55032: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.238000	53.8	9.000	L1	9.6	25.2	79.0
0.358000	53.3	9.000	L1	9.6	25.7	79.0
0.478000	56.5	9.000	L1	9.6	22.5	79.0
0.582000	51.8	9.000	L1	9.6	21.2	73.0
1.702000	47.3	9.000	L1	9.7	25.7	73.0
17.93000	40.2	9.000	L1	10.3	32.8	73.0

Limit and Margin AV

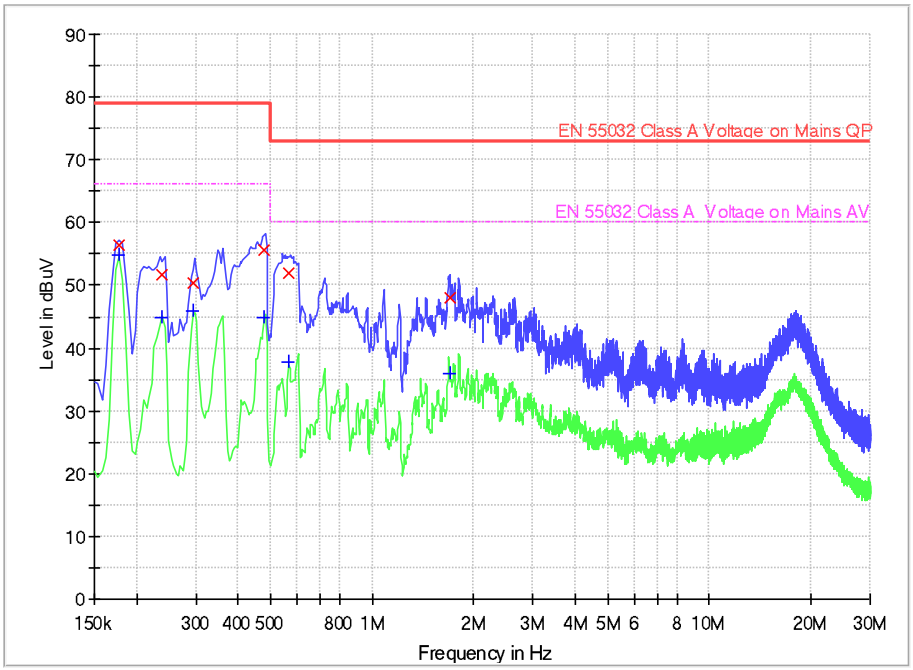
Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.238000	45.7	9.000	L1	9.6	20.3	66.0
0.358000	45.8	9.000	L1	9.6	20.2	66.0
0.478000	45.7	9.000	L1	9.6	20.3	66.0
0.582000	35.3	9.000	L1	9.6	24.7	60.0
1.702000	35.3	9.000	L1	9.7	24.7	60.0
17.93000	34.7	9.000	L1	10.3	25.3	60.0

Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBµV) – Quasi Peak/Average (dBµV)

Test Data

Conducted Emissions
Pursuant to EN 55032: Emissions Requirement

Conducted Emission Test - EN55032 Class A



Limit and Margin QP

Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.178000	56.5	9.000	N	9.6	22.5	79.0
0.238000	51.6	9.000	N	9.6	27.4	79.0
0.294000	50.4	9.000	N	9.6	28.6	79.0
0.478000	55.7	9.000	N	9.6	23.3	79.0
0.566000	52.0	9.000	N	9.6	21.0	73.0
1.698000	48.0	9.000	N	9.7	25.0	73.0

Limit and Margin AV

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.178000	54.8	9.000	N	9.6	11.2	66.0
0.238000	44.8	9.000	N	9.6	21.2	66.0
0.294000	46.0	9.000	N	9.6	20.0	66.0
0.478000	45.0	9.000	N	9.6	21.0	66.0
0.566000	37.8	9.000	N	9.6	22.2	60.0
1.698000	36.0	9.000	N	9.7	24.0	60.0

Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBµV) – Quasi Peak/Average (dBµV)

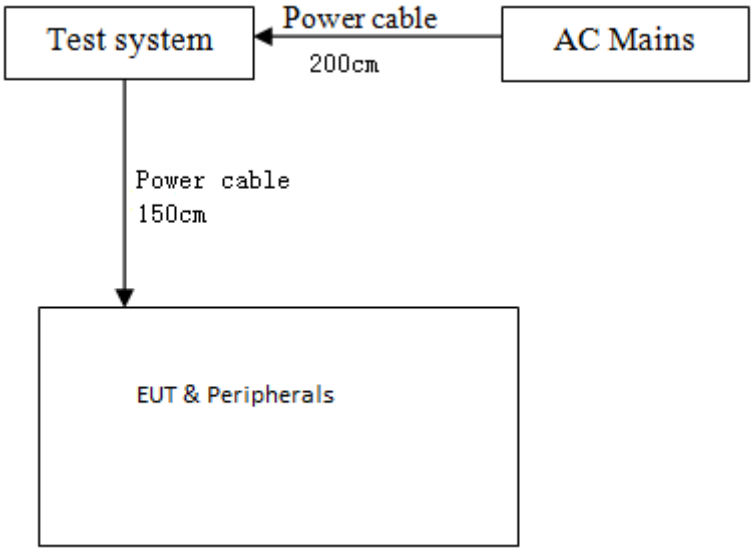
Harmonics
Pursuant to EN 61000-3-2

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ064-01	Compliance Test System	California Instruments	5001iX-CTS-400	2023-12-12	2024-12-12
SZ064-01-01	Power Analyzer and Conditioning System	California Instruments	PACS-1	2023-12-12	2024-12-12

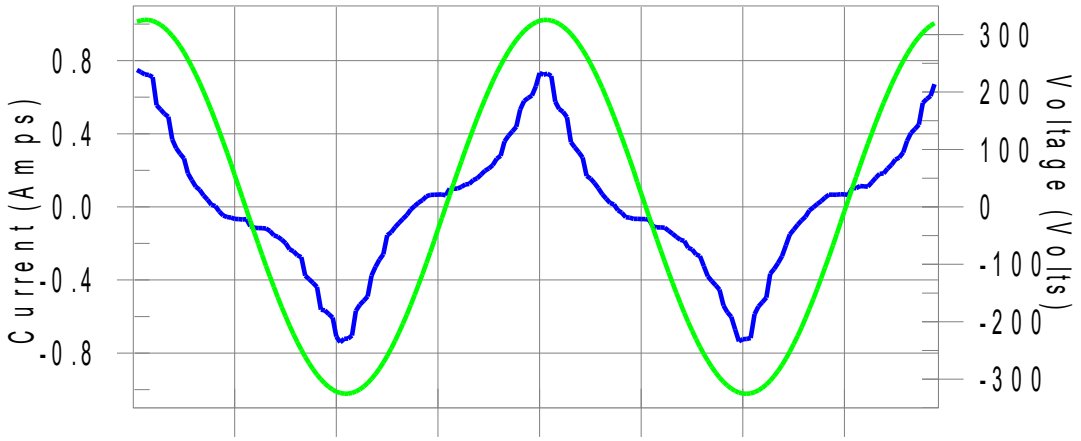
Notes: 1. The test result consisting of worst-case was attached in the following pages.
2. Uncertainty: 0.03% at a level of confidence of 95%.

Test Setup Diagram

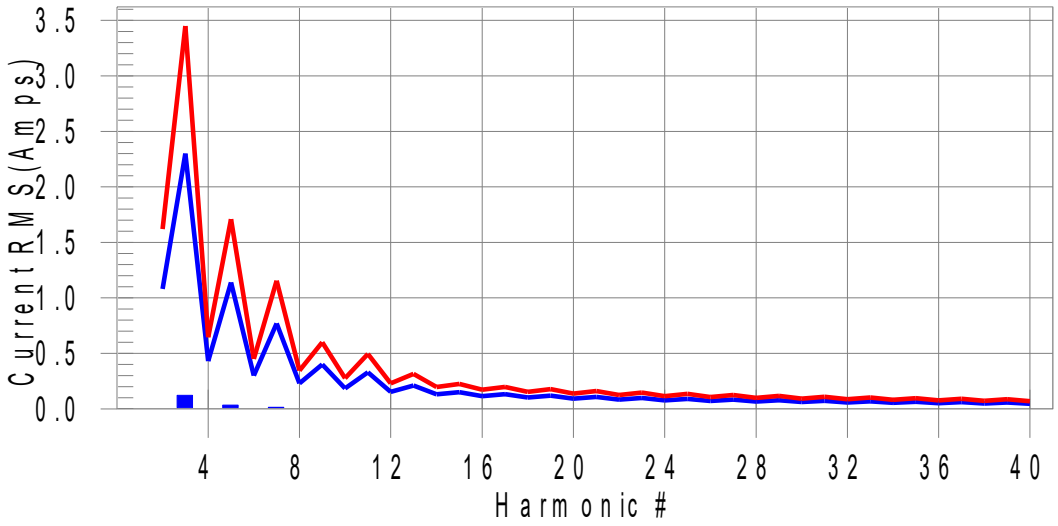


Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H29-5.9% of 150% limit, H29-8.6% of 100% limit

Current Test Result Summary (Run time)

Test Result: Pass **Source qualification: Normal**
THC(A): 0.128 **I-THD(%): 38.2** **POHC(A): 0.013** **POHC Limit(A): 0.251**

Highest parameter values during test:

V_RMS (Volts):	**230.29**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**0.781**	**I_RMS (Amps):**	**0.360**
I_Fund (Amps):	**0.336**	**Crest Factor:**	**2.182**
Power (Watts):	**75.7**	**Power Factor:**	**0.916**

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	0.122	2.300	5.3	0.123	3.450	3.6	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.033	1.140	2.9	0.034	1.710	2.0	Pass
6	0.001	0.300	N/A	0.001	0.450	N/A	Pass
7	0.014	0.770	1.8	0.014	1.155	1.2	Pass
8	0.001	0.230	N/A	0.001	0.345	N/A	Pass
9	0.006	0.400	1.4	0.006	0.600	1.0	Pass
10	0.001	0.184	N/A	0.001	0.276	N/A	Pass
11	0.005	0.330	1.7	0.006	0.495	1.1	Pass
12	0.001	0.153	N/A	0.001	0.230	N/A	Pass
13	0.006	0.210	3.0	0.006	0.315	2.0	Pass
14	0.001	0.131	N/A	0.001	0.197	N/A	Pass
15	0.002	0.150	N/A	0.003	0.225	N/A	Pass
16	0.001	0.115	N/A	0.001	0.173	N/A	Pass
17	0.003	0.132	N/A	0.003	0.198	N/A	Pass
18	0.001	0.102	N/A	0.001	0.153	N/A	Pass
19	0.005	0.118	4.4	0.005	0.178	3.0	Pass
20	0.001	0.092	N/A	0.001	0.138	N/A	Pass
21	0.006	0.107	5.8	0.006	0.161	3.9	Pass
22	0.001	0.084	N/A	0.001	0.125	N/A	Pass
23	0.003	0.098	N/A	0.003	0.147	N/A	Pass
24	0.001	0.077	N/A	0.001	0.115	N/A	Pass
25	0.004	0.090	N/A	0.004	0.135	N/A	Pass
26	0.001	0.071	N/A	0.001	0.107	N/A	Pass
27	0.007	0.083	7.8	0.007	0.125	5.5	Pass
28	0.001	0.066	N/A	0.001	0.099	N/A	Pass
29	0.007	0.078	8.6	0.007	0.116	5.9	Pass
30	0.001	0.061	N/A	0.001	0.092	N/A	Pass
31	0.003	0.073	N/A	0.003	0.109	N/A	Pass
32	0.001	0.058	N/A	0.001	0.086	N/A	Pass
33	0.002	0.068	N/A	0.002	0.102	N/A	Pass
34	0.001	0.054	N/A	0.001	0.081	N/A	Pass
35	0.001	0.064	N/A	0.002	0.096	N/A	Pass
36	0.001	0.051	N/A	0.001	0.077	N/A	Pass
37	0.002	0.061	N/A	0.002	0.091	N/A	Pass
38	0.001	0.048	N/A	0.001	0.073	N/A	Pass
39	0.001	0.058	N/A	0.001	0.087	N/A	Pass
40	0.001	0.046	N/A	0.001	0.069	N/A	Pass

Voltage Source Verification Data (Run time)

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	**230.29**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**0.781**	**I_RMS (Amps):**	**0.360**
I_Fund (Amps):	**0.336**	**Crest Factor:**	**2.182**
Power (Watts):	**75.7**	**Power Factor:**	**0.916**

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.066	0.460	14.44	OK
3	0.455	2.072	21.96	OK
4	0.061	0.460	13.24	OK
5	0.041	0.921	4.42	OK
6	0.014	0.460	3.04	OK
7	0.031	0.691	4.43	OK
8	0.012	0.460	2.59	OK
9	0.023	0.460	5.00	OK
10	0.014	0.460	2.97	OK
11	0.012	0.230	5.22	OK
12	0.017	0.230	7.39	OK
13	0.011	0.230	4.71	OK
14	0.005	0.230	2.01	OK
15	0.011	0.230	4.79	OK
16	0.013	0.230	5.76	OK
17	0.005	0.230	2.26	OK
18	0.015	0.230	6.43	OK
19	0.011	0.230	4.63	OK
20	0.016	0.230	6.92	OK
21	0.011	0.230	4.68	OK
22	0.007	0.230	2.94	OK
23	0.004	0.230	1.69	OK
24	0.003	0.230	1.46	OK
25	0.006	0.230	2.70	OK
26	0.004	0.230	1.72	OK
27	0.012	0.230	5.20	OK
28	0.002	0.230	1.02	OK
29	0.008	0.230	3.56	OK
30	0.003	0.230	1.15	OK
31	0.005	0.230	2.00	OK
32	0.003	0.230	1.14	OK
33	0.005	0.230	2.03	OK
34	0.002	0.230	0.85	OK
35	0.004	0.230	1.77	OK
36	0.002	0.230	0.80	OK
37	0.004	0.230	1.89	OK
38	0.002	0.230	1.05	OK
39	0.005	0.230	1.97	OK
40	0.008	0.230	3.57	OK

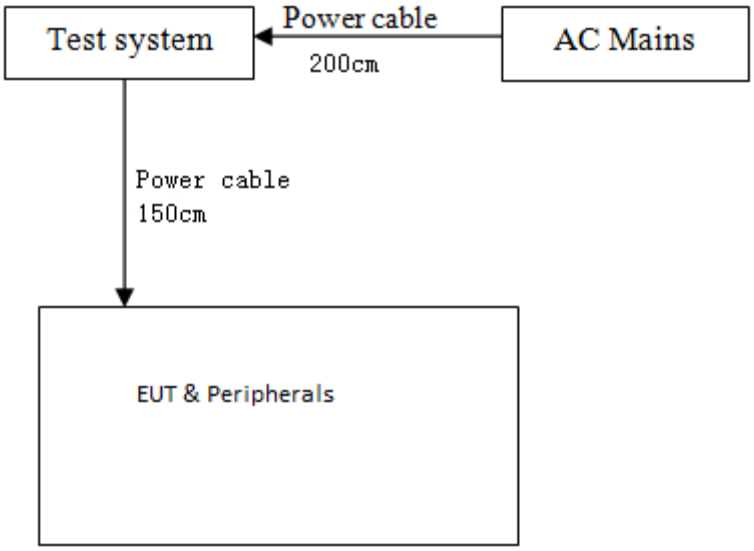
Voltage Fluctuations
Pursuant to EN 61000-3-3

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ064-01	Compliance Test System	California Instruments	5001iX-CTS-400	2023-12-12	2024-12-12
SZ064-01-01	Power Analyzer and Conditioning System	California Instruments	PACS-1	2023-12-12	2024-12-12

Notes: 1. The test result consisting of worst-case was attached in the following pages.
2. Uncertainty: 0.25% at a level of confidence of 95%.

Test Setup Diagram



Flicker Test Summary per EN 61000-3-3 (Run time)

Test Result: Pass **Status: Test Completed**

Pst and limit line **European Limits**

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.08**			
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):	**0.248**	**Test limit:**	**1.000**	**Pass**

Electrostatic Discharge
Pursuant to EN 61000-4-2

Test Summary (Pursuant to EN 55035)

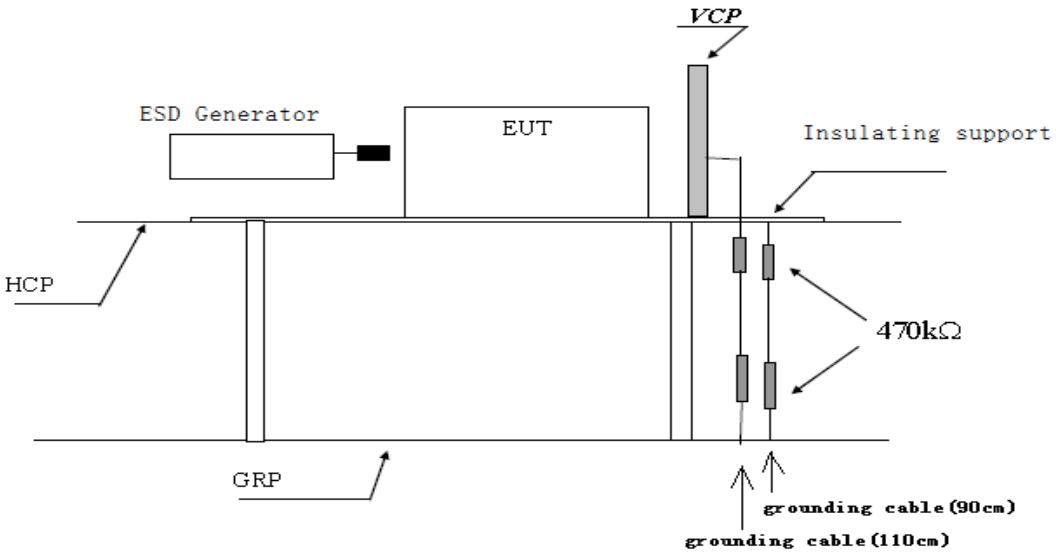
Port:	Enclosure
Basic Standard:	EN 61000-4-2
Required Performance Criterion:	B
Level:	±8.0kV (Air Discharge)
	±4.0kV (Contact Discharge)
	±4.0kV (Indirect Contact Discharge)
Temperature:	23.1°C
Relative Humidity:	48.5%
Test Mode:	Displaying colour bars, Displaying white light
Test Setup:	Table-top
Time Between Each Discharge:	1 second

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ189-05	ESD Simulator	TESEQ	NSG 437	2024-06-07	2025-06-07

Notes:
1. Contact discharge to the conductive surface and to coupling planes (metal shell, net port, door, etc).
2. Air discharge at insulating surface (gap, LED lamp board, etc).

Test Setup Diagram



Test set-up of electrostatic discharge

Test Results

EN 61000-4-2
Electrostatic Discharge

Discharge Type	No. of Discharge	Applied Voltage	Result (Pursuant to EN 55035, Criterion B)
Contact Discharge	20	±4.0kV	Pass
Air Discharge	20	±2.0, ±4.0, ±8.0kV	Pass
Indirect HCP Discharge	20	±4.0kV	Pass
Indirect VCP Discharge	20	±4.0kV	Pass

☒ Additional Information

☐ No observable change

☒ In all modes, the screen flash occur during Direct Air Discharge ±8kV test, but it can be resumed by itself after test.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at _____V, _____of ESD.

☐ _____.

Radiated Immunity
Pursuant to EN 61000-4-3

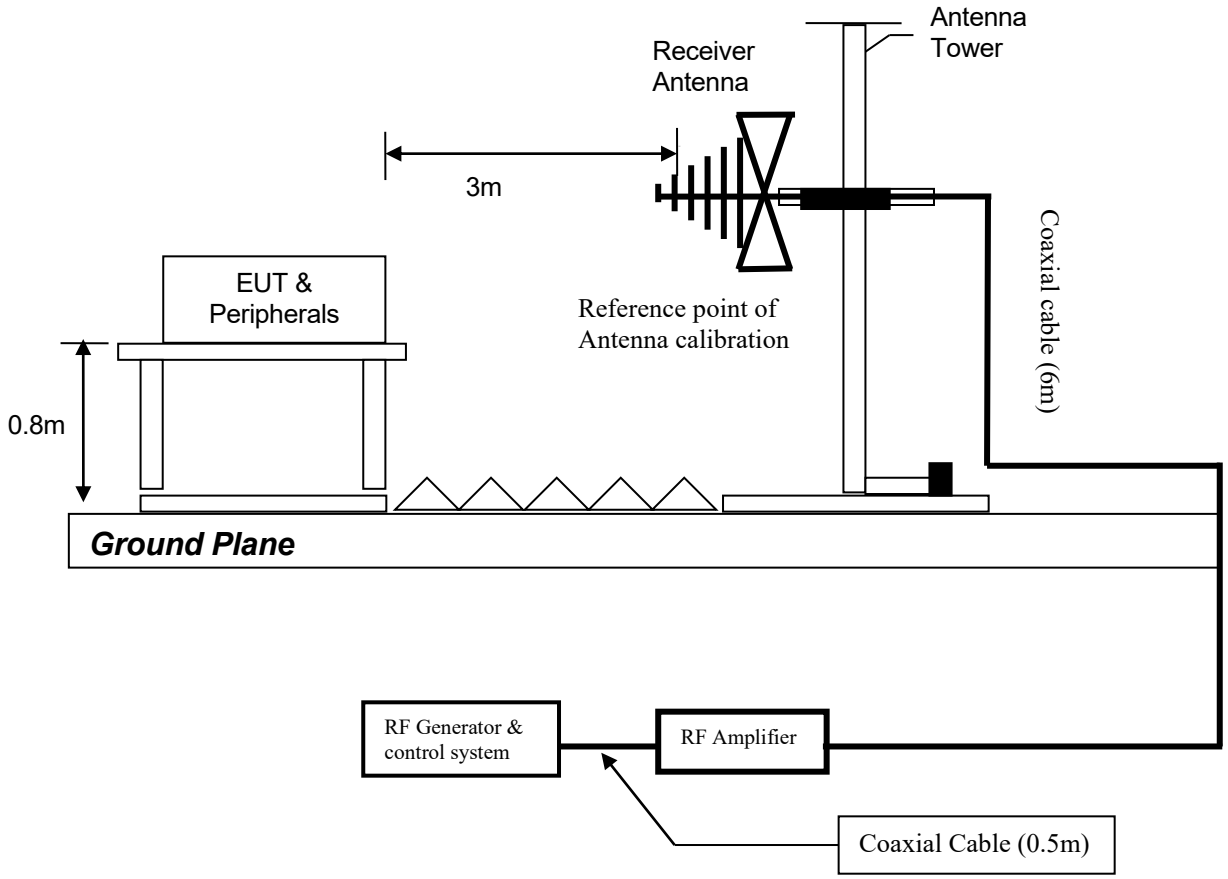
Test Summary (Pursuant to EN 55035)

Basic Standard:	EN 61000-4-3
Port:	Enclosure
Required Performance Criterion:	A
Level:	3.0V/m (rms)
Test Modulation:	1kHz, 80% AM
Frequency:	80MHz to 1000MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz
Dwell Time:	1s
Frequency Step:	1%
Temperature:	21.2°C
Relative Humidity:	52.1%
Test Facility:	Full Anechoic Chamber
Antenna Polarization:	Horizontal and Vertical
Type of Antenna:	Log-periodic,
Test Distance:	3 meters
Test Mode:	Displaying colour bars, Displaying white light
Test Setup:	Table-top

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ188-02	Anechoic Chamber	ETS	RFD-F/A-100	2021-12-12	2024-12-12
SZ061-13	Biconilog Antenna	ETS	3142E	2022-07-13	2025-07-13
SZ180-15	Signal Generator	R&S	SMB100A	2023-12-12	2024-12-12
SZ181-01	Amplifier	PRANA	AP32 MT215	2023-12-12	2024-12-12
SZ190-07	RF Amplifier	Milmega	AS0860-75/45	2023-12-12	2024-12-12

Test Setup Diagram



Test set-up of Radiated Immunity

Test Results

EN 61000-4-3
Radiated Immunity

Frequency (MHz)	Exposed Side	Field Strength V/m (rms)	Result (Pursuant to EN 55035, Criterion A)
80 to 1000, 1800, 2600, 3500, 5000	Front	3	Pass
80 to 1000, 1800, 2600, 3500, 5000	Left	3	Pass
80 to 1000, 1800, 2600, 3500, 5000	Rear	3	Pass
80 to 1000, 1800, 2600, 3500, 5000	Right	3	Pass

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at Freq. _____ of Radiated Immunity.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at Freq. _____ of Radiated Immunity.

☐ _____

Electrical Fast Transient / Burst
Pursuant to EN 61000-4-4

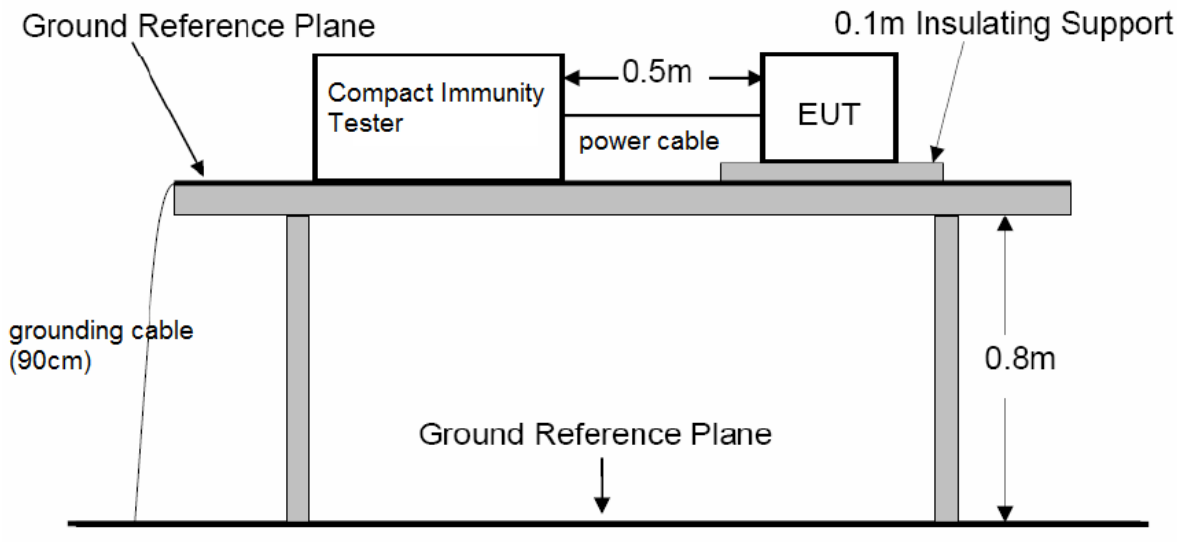
Test Summary (Pursuant to EN 55035)

Basic Standard:	EN 61000-4-4	
Port:	AC Power Lines	Signal Lines
Required Performance Criterion:	B	
Level:	±1.0kV/5KHz	±0.5kV/5KHz
Test Duration:	1 minute	
Tr/Tw:	5/50ns	
Test Mode:	Displaying colour bars, Displaying white light	
Test Setup:	Table-top	
Generator Drive:	Internal	

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ063-01	Compact Immunity Tester	Haefely	ECOMPACT 4	2023-12-12	2024-12-12
SZ063-01-01	Capacitive Coupling Clamp	Haefely	IP4A	2023-12-12	2024-12-12

Test Setup Diagram



Test set-up of immunity to electrical fast transient bursts

Test Results

EN 61000-4-4
Electrical Fast Transient / Burst

Port	Level	Polarity	Result (Pursuant to EN 55035, Criterion B)
AC Power Lines	1kV	+	Pass
	1kV	–	Pass
Signal Lines	0.5kV	+	Pass
	0.5kV	–	Pass

Notes: Direct injection using in AC Power Lines and coupling mode using in Signal Lines.

☒ Additional Information

☐ No observable change

☒ At Fast Transient test with test level ±1kV, AC Power Line and test level ±0.5kV, Signal Line, the EUT screen was flashed and could be recovered normal by itself after test.

☐ EUT was in abnormal operation:
– Operation mode was changed from _____ to _____ at _____V of Fast Transient.

☐ _____.

Surge Immunity
Pursuant to EN 61000-4-5

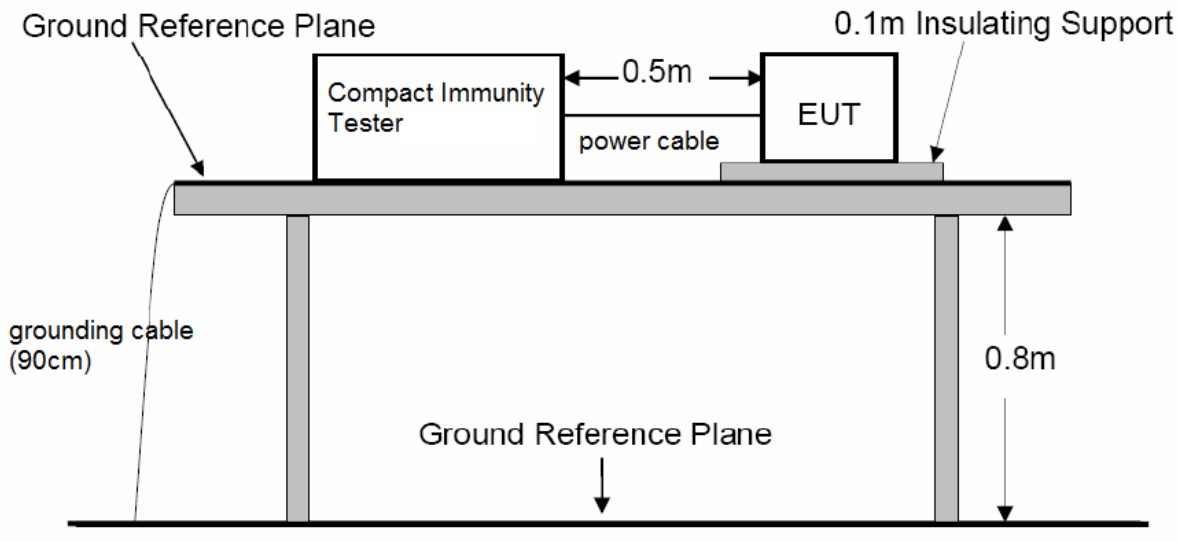
Test Summary (Pursuant to EN 55035)

Basic Standard:	EN 61000-4-5		
Port:	AC Power Lines		
	Phase and Neutral	Phase and Earth	Neutral and Earth
Level:	5 Positive and 5 Negative Surges		
	±1kV	±2kV	±2kV
Generator Impedance:	2ohm	12ohm	12ohm
Required Performance Criterion:	B		
Waveform:	1.2/50us		
Repetition Rate:	1 minute		
Test Mode:	Displaying colour bars, Displaying white light		
Test Setup:	Table-top		
Surge Generator Trigger:	Internal		
Installation Condition:	Class 3: Electrical environment where cables run in parallel.		
Phase Angle:	90°, 270°		

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ063-01	Compact Immunity Tester	Haefely	ECOMPACT 4	2023-12-12	2024-12-12

Test Setup Diagram



Test set-up of Surge Immunity

Test Results

EN 61000-4-5
Surge Immunity

Level		Result (Pursuant to EN 55035, Criterion B)
Between Phase and Neutral:	±1kV	Pass
Between Phase and Earth:	±2kV	Pass
Between Neutral and Earth:	±2kV	Pass
Between Shield and Earth:	±0.5kV	Pass

Note: The signal Lines will not be directly connected to cables that leave the building structure.

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at _____V of Surge.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at _____V of Surge.

☐ _____

Injected Current (0.15MHz to 80MHz)
Pursuant to EN 61000-4-6

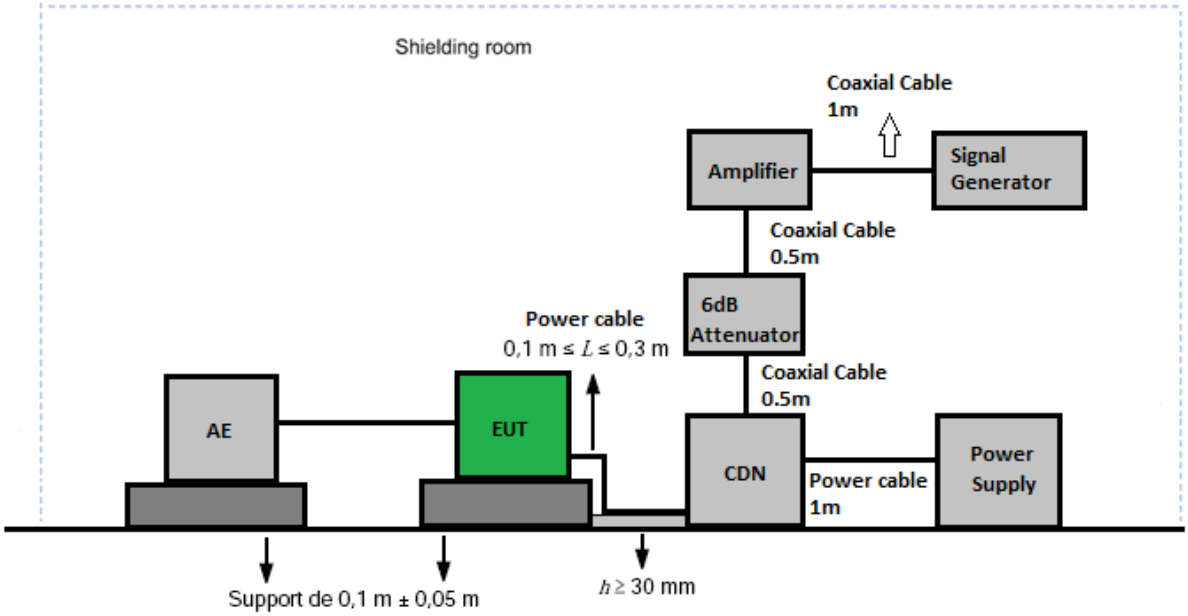
Test Summary (Pursuant to EN 55035)

Basic Standard:	EN 61000-4-6	
Port:	AC Power Lines, Signal Lines	
Required Performance Criterion:	A	
Level:	0.15MHz-10MHz	3V (rms)
	10MHz-30MHz	3V (rms) to 1V (rms)
	30MHz-80MHz	1V (rms)
Test Modulation:	1kHz, 80% AM	
Frequency:	0.15MHz to 80MHz	
Dwell Time:	1s	
Frequency Step:	1%	
Temperature:	21.5°C	
Relative Humidity:	51.8%	
Coupling Factor of CDN:	–1.0dB ~ –1.7dB	
Test Mode:	Displaying colour bars, Displaying white light	
Test Setup:	Table-top	

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ180-02	Signal Generator	Aeroflex	2023A	2023-12-12	2024-12-12
SZ181-03	Amplifier	AR-WORLDWIDE	75A250	2023-12-12	2024-12-12
SZ181-03-01	Attenuator	AR-WORLDWIDE	6dB/50FH-006-100	2023-12-13	2024-12-13
SZ183-01	RF CURRENT-INJECTION CLAMP	LUTHI	EM101	2023-12-12	2024-12-12
SZ184-01	Coupling-Decoupling Network	LUTHI	CDN L-801 M2/M3	2023-12-12	2024-12-12
SZ188-04	Shielding Room	Jiang yin Tian De	5*6*2.9m/5*2.5*2.7m	2022-12-20	2025-12-20

Test Setup Diagram



Test set-up of Injected Current

Test Results

EN 61000-4-6
Injected Current (0.15MHz to 80MHz)

Port	Frequency (MHz)	Level (V)	Result (Pursuant to EN 55035, Criterion A)
AC Power Lines	0.15 to 10	3 (see note)	Pass
	10 to 30	3 to 1(see note)	
	30 to 80	1(see note)	
Signal Lines	0.15 to 10	3(see note)	Pass
	10 to 30	3 to 1(see note)	
	30 to 80	1(see note)	

Note1： For Broadcast reception function

1. The disturbance level is reduced to 1 V for in-band frequencies.
2. The tuned channel ±0,5 MHz (lower edge frequency – 0,5 MHz up to the upper edge frequency + 0,5 MHz of the tuned channel) is excluded from testing. Except for DVB-C, the tuned channel ± 0,5 MHz (lower edge frequency - 0,5 MHz up to the upper edge frequency + 0,5 MHz of the tuned channel) is excluded from testing. For DVB-C, the disturbance levels are 3 V/m or 3 V, except in the tuned channel ± 0,5 MHz (lower edge frequency - 0,5 MHz up to the upper edge frequency + 0,5 MHz of the tuned channel), where the disturbance level is 1 V/m.

Notes2: Direct injection using in AC Power Lines and coupling mode using in Signal Lines.

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at _____V of Injected Current.

☐ EUT was in abnormal operation:

– Operation mode was changed from _____ to _____ at _____V of Injected Current.

☐ _____

Voltage Dips and Interruptions
Pursuant to EN 61000-4-11

Test Summary (Pursuant to EN 55035)

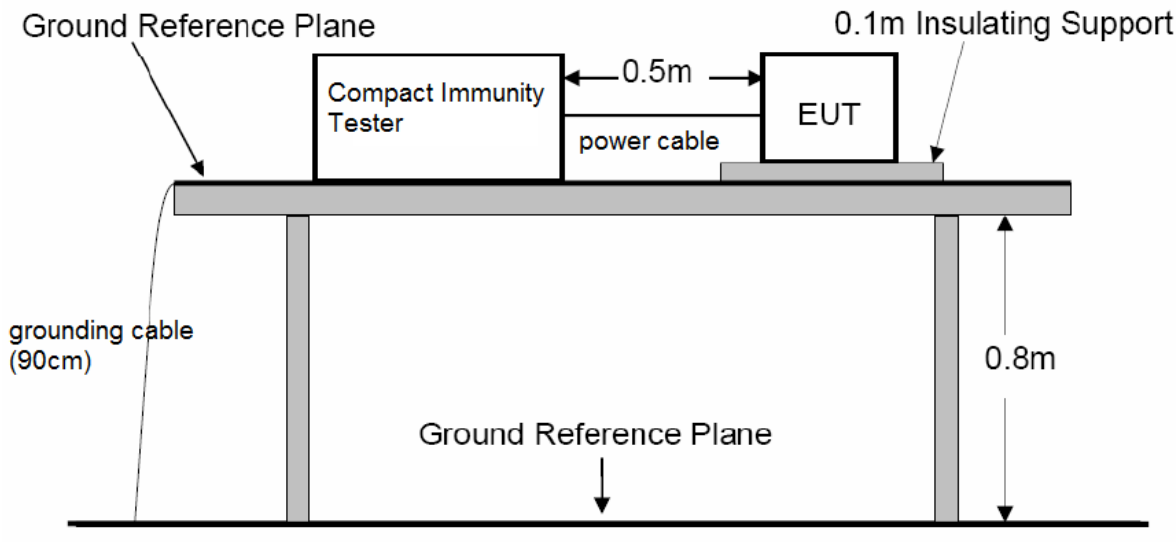
Basic Standard:	EN 61000-4-11		
Port:	AC Power Lines		
Limit:	Test Level in %U_T	Duration(s)	Required Performance Criterion
	0	0.01	B
	70	0.5	C
	0	5	C
No. of Dips / Interruptions:	3		
Test Mode:	Displaying colour bars, Displaying white light		
Test Setup:	Table-top		

U_T is the rated voltage for the equipment.

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ063-01	Compact Immunity Tester	Haefely	ECOMPACT 4	2023-12-12	2024-12-12

Test Setup Diagram



Test set-up of Voltage Dips and Interruptions

Test Results

EN 61000-4-11
Voltage Dips and Interruptions

Test Condition		Result (Pursuant to EN 55035, Criterion B)
Test Level in %U_T	Duration(s)	
0	0.01	Pass

Test Condition		Result (Pursuant to EN 55035, Criterion C)
Test Level in %U_T	Duration(s)	
70	0.5	Pass
0	5	Pass

☒ Additional Information

☐ No observable change

☒ At Interrupt test with test level 0% U_T, 5s, the EUT stopped operation and could be recovered normal by itself after test.

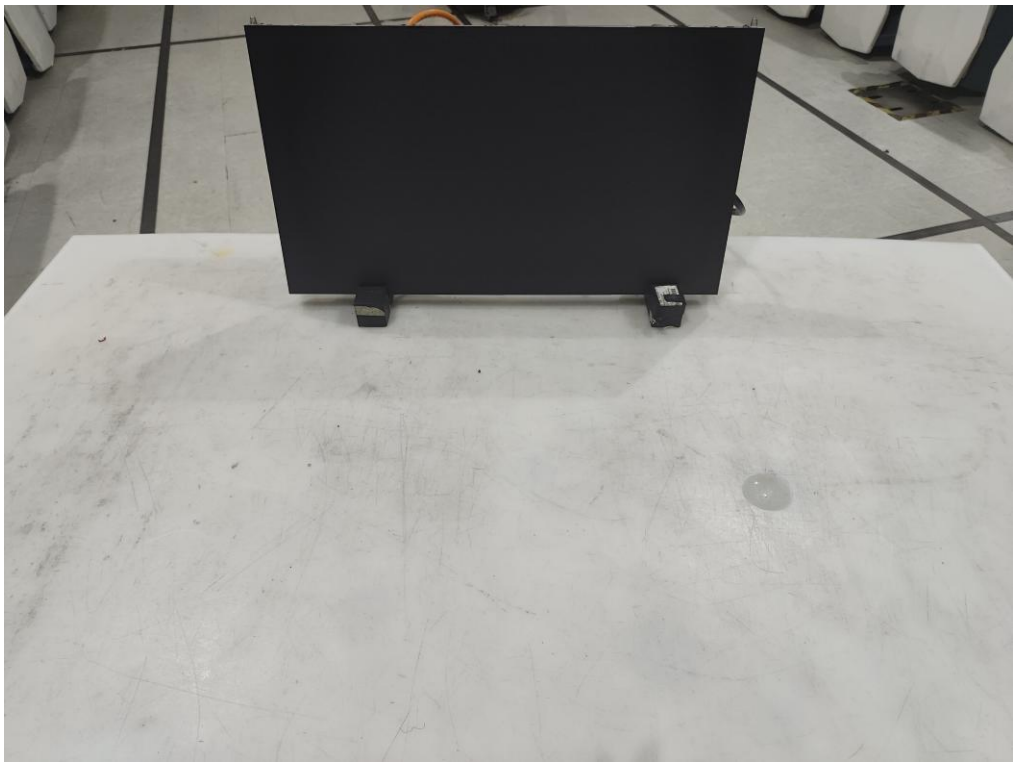
☐ EUT was in abnormal operation:

– Operation mode was changed from _____ to _____ at test level _____ of Dip. / Interrupt.

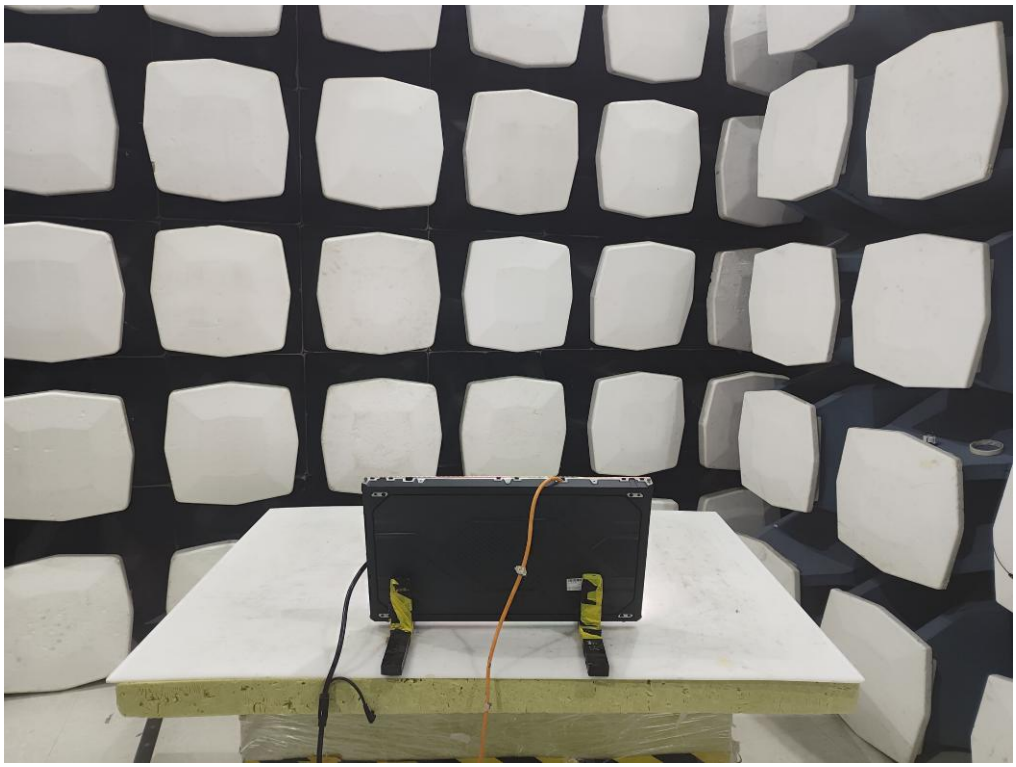
☐ _____

PHOTOS OF TEST SET-UP

Radiated Disturbance



Radiated Disturbance



Conducted Emissions

Conducted Emissions

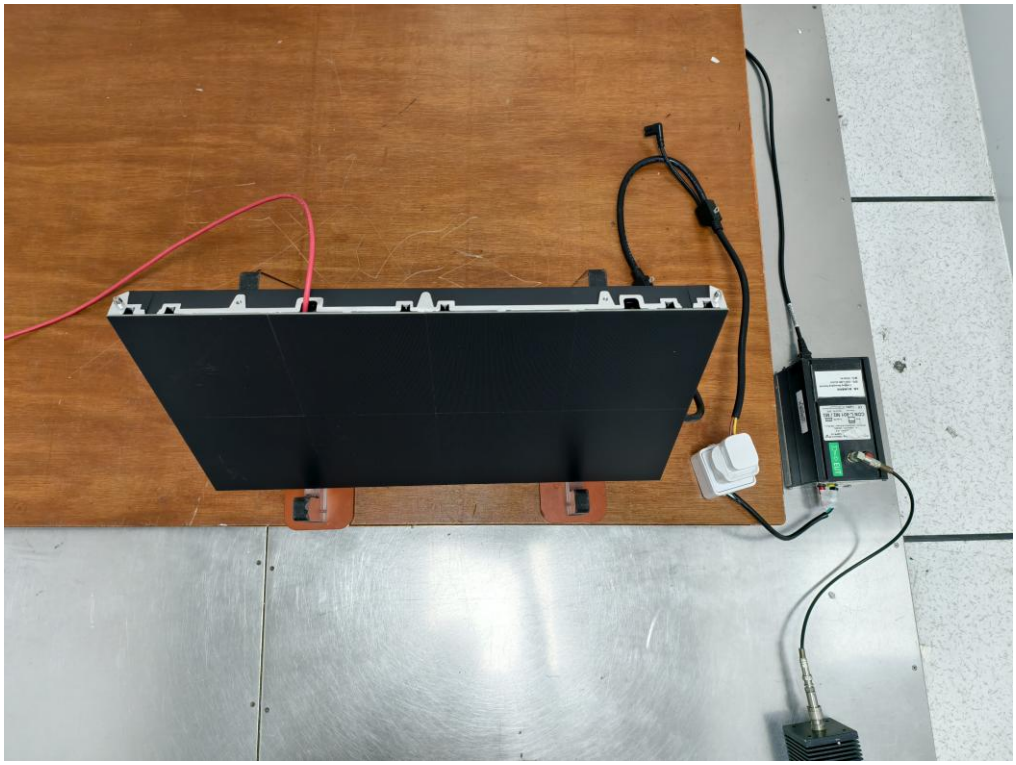
Harmonics Current & Flicker

Electrostatic Discharge

Radiated Immunity

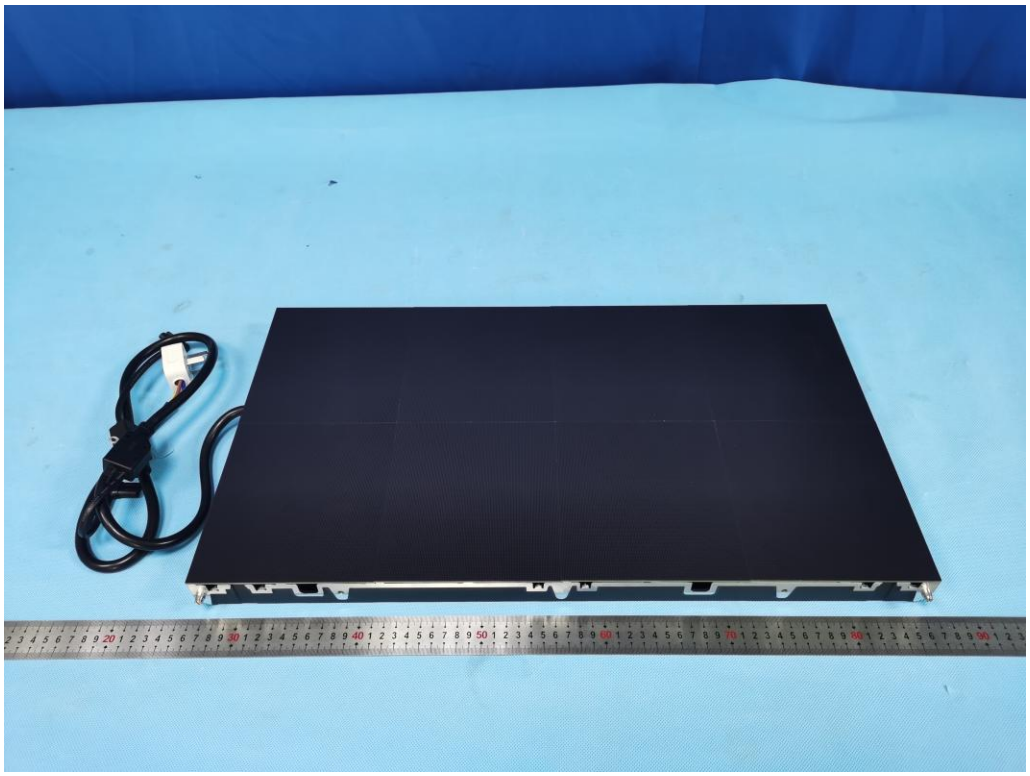
Electrical Fast Transient (Burst) / Surge Immunity / Voltage Dips and Interruptions

Injected Current



Photos of EUT

External Photo



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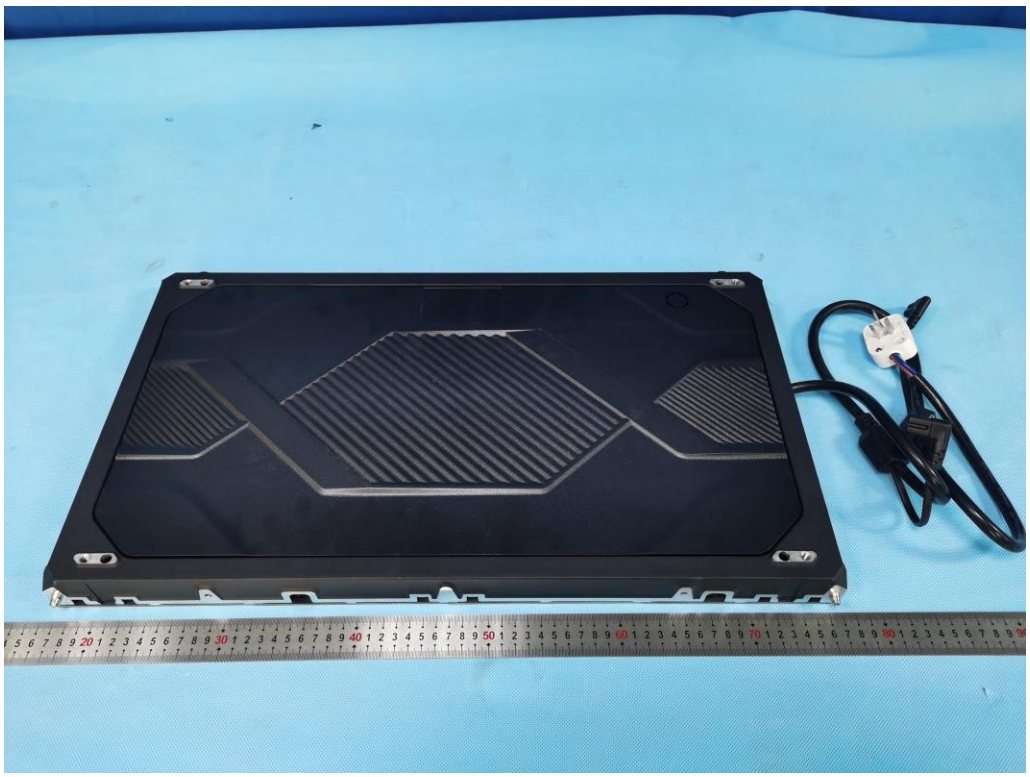

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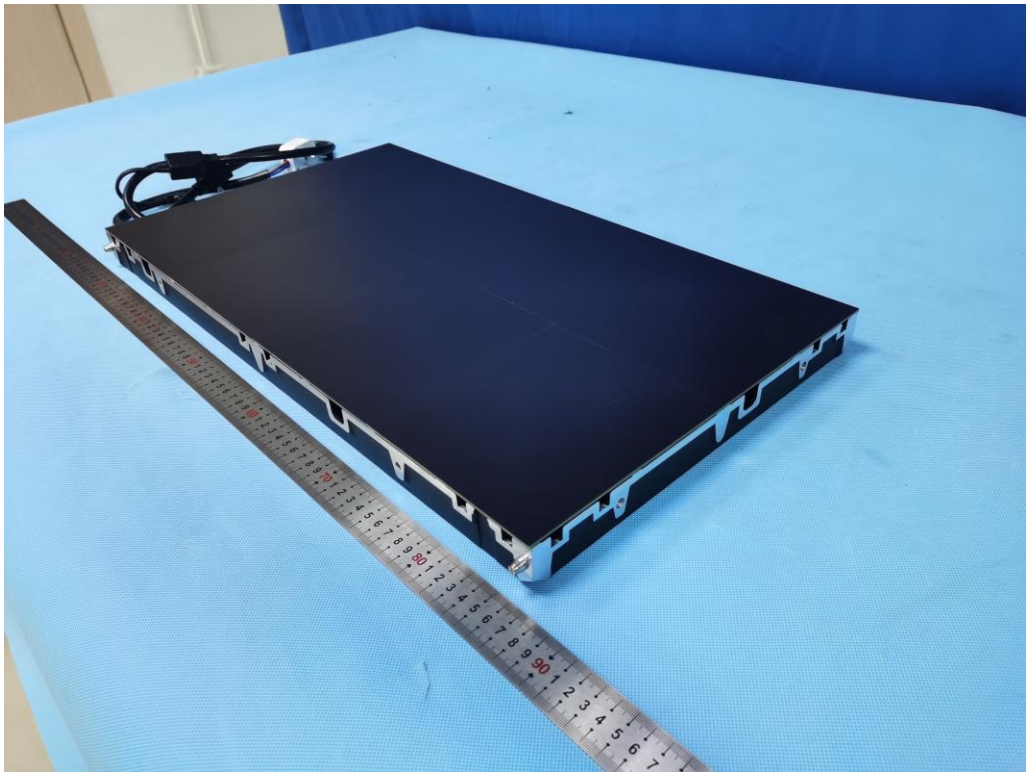

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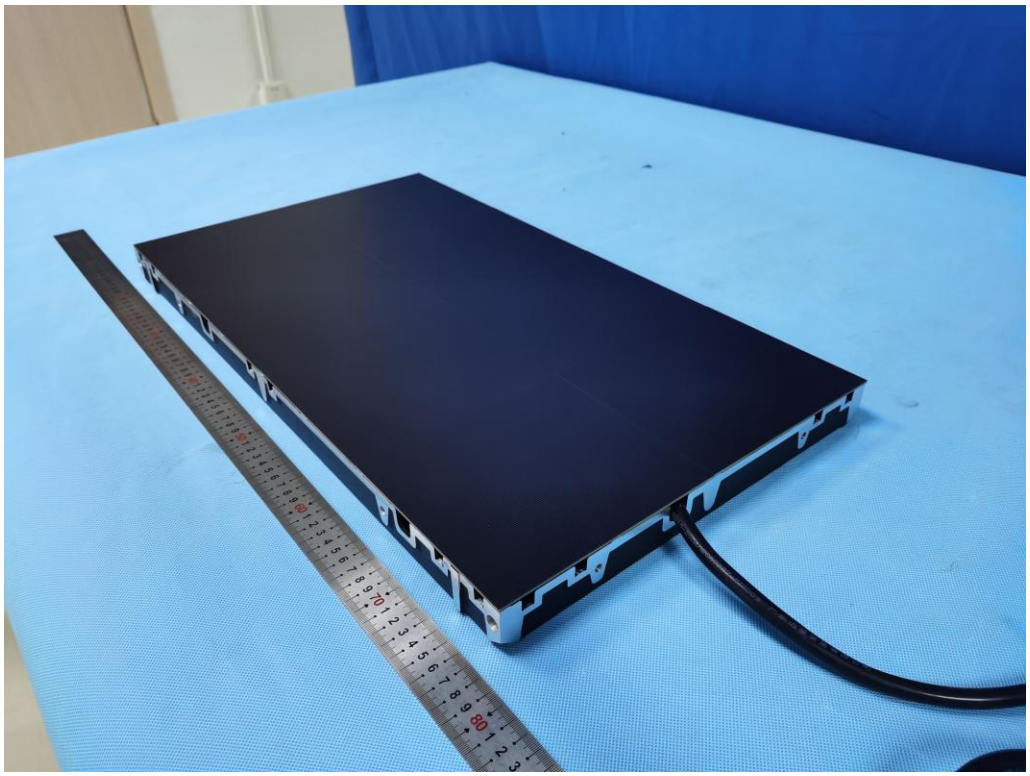
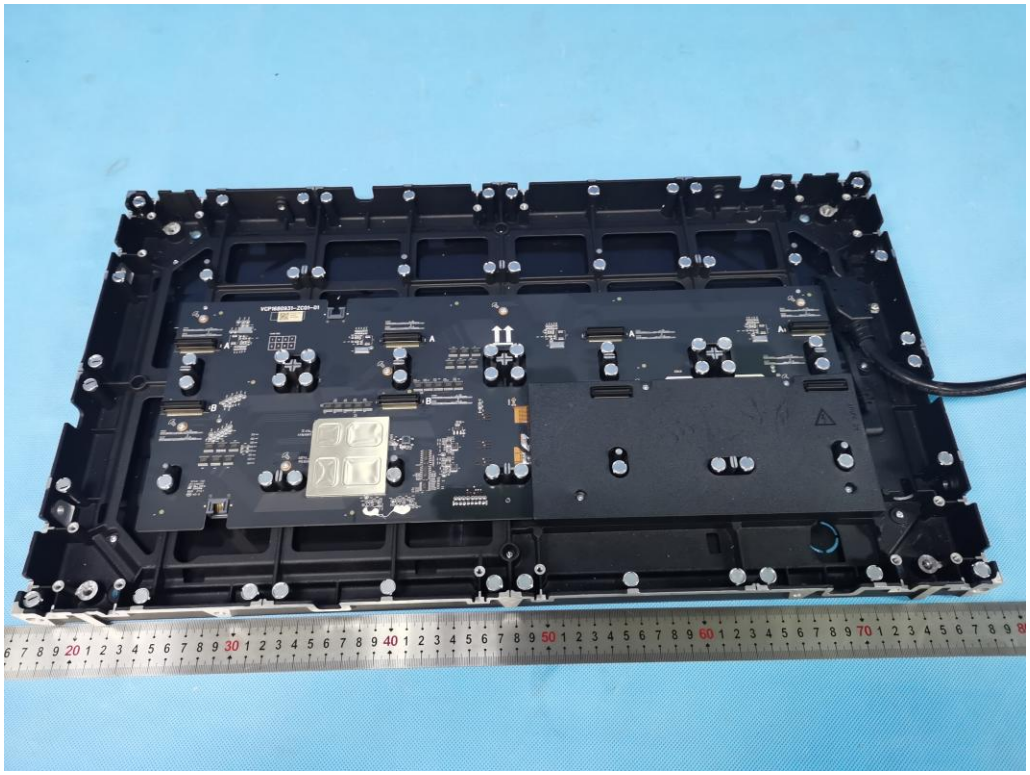
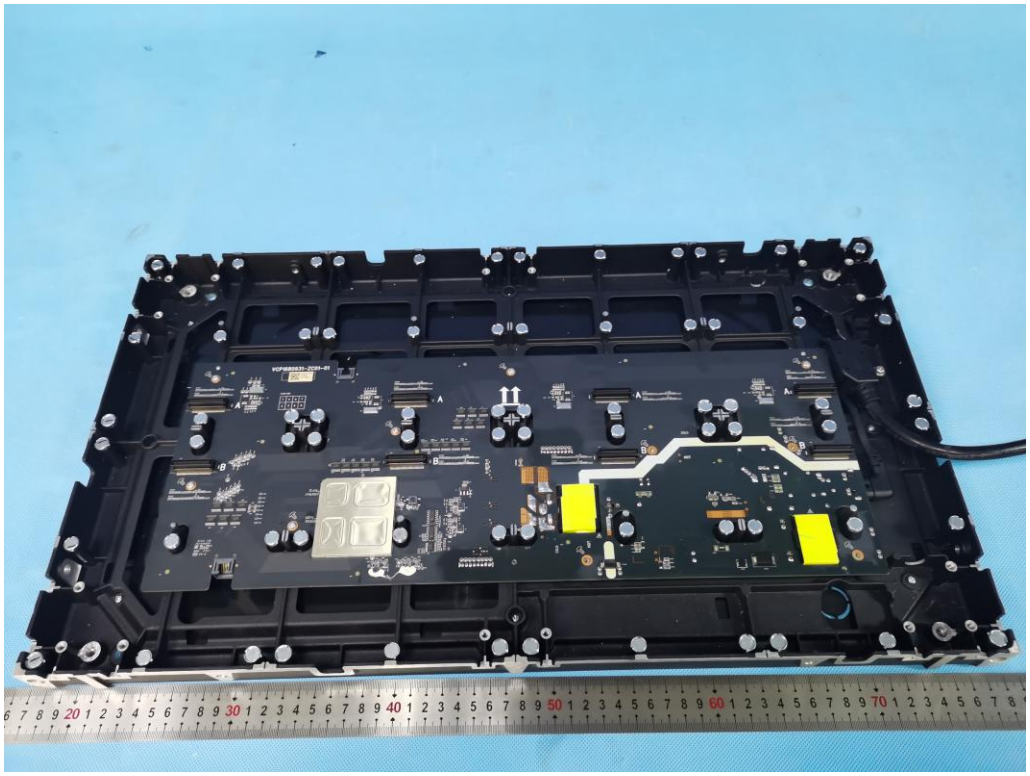


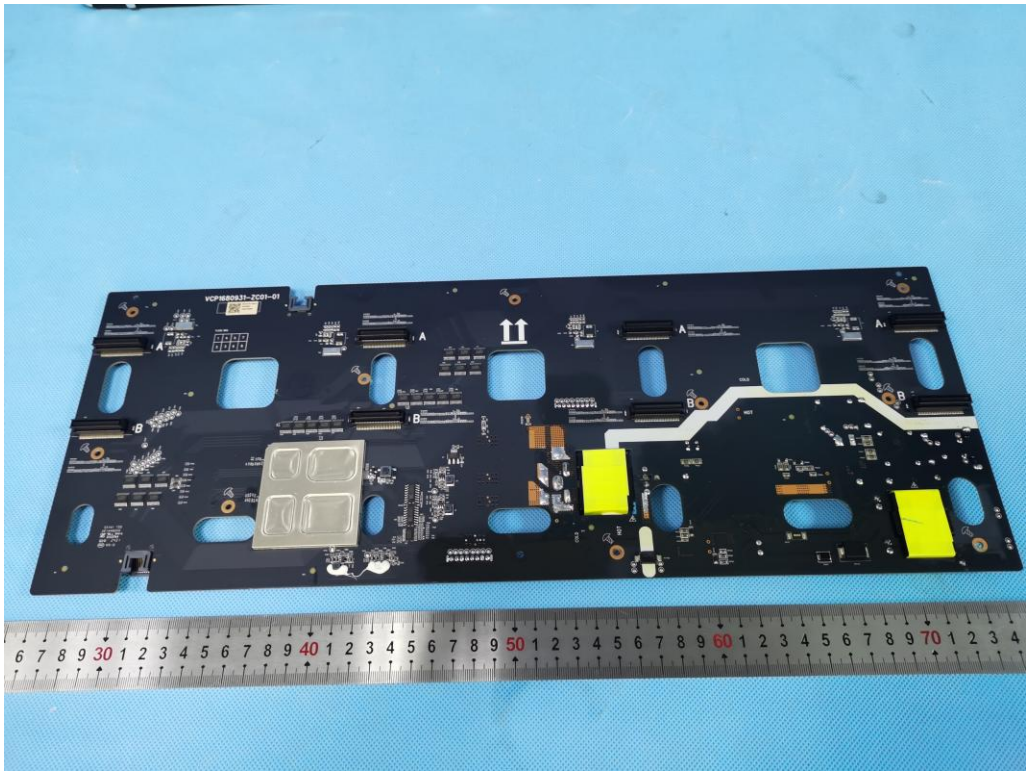
Internal Photo



Internal Photo



Internal Photo



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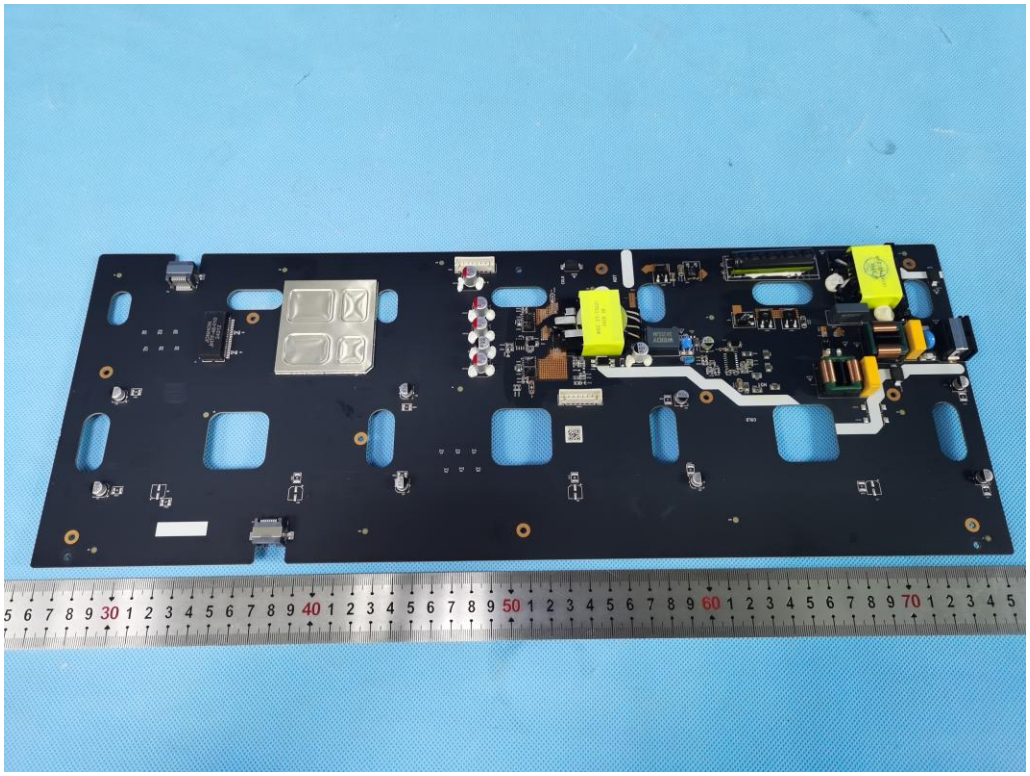

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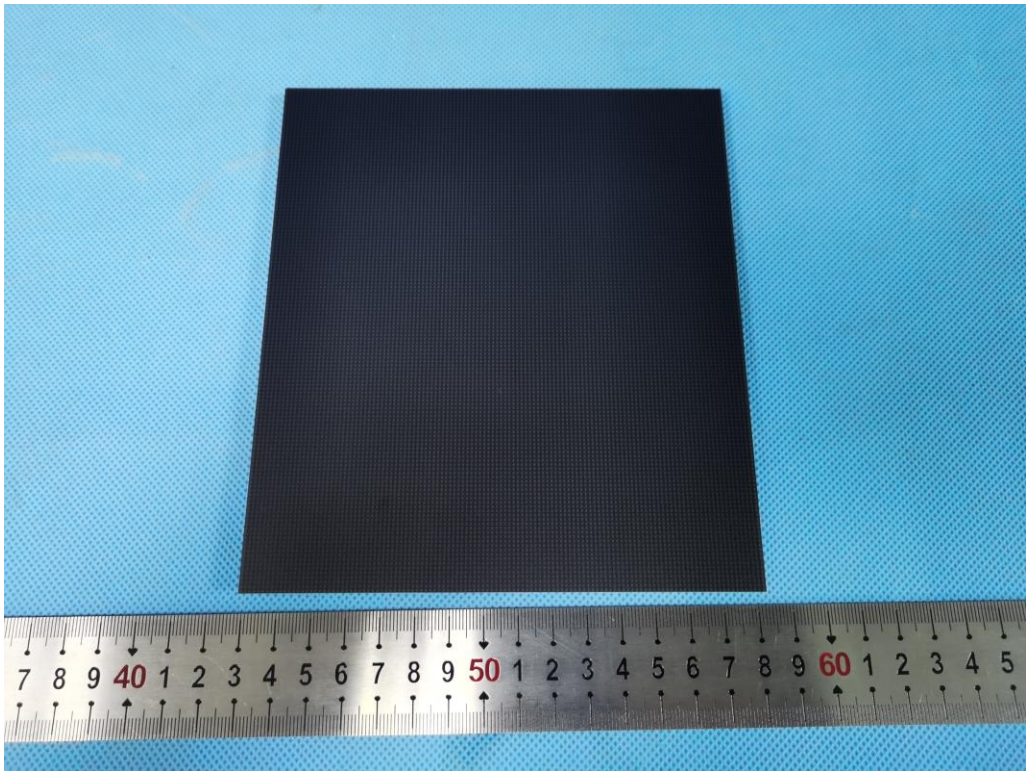

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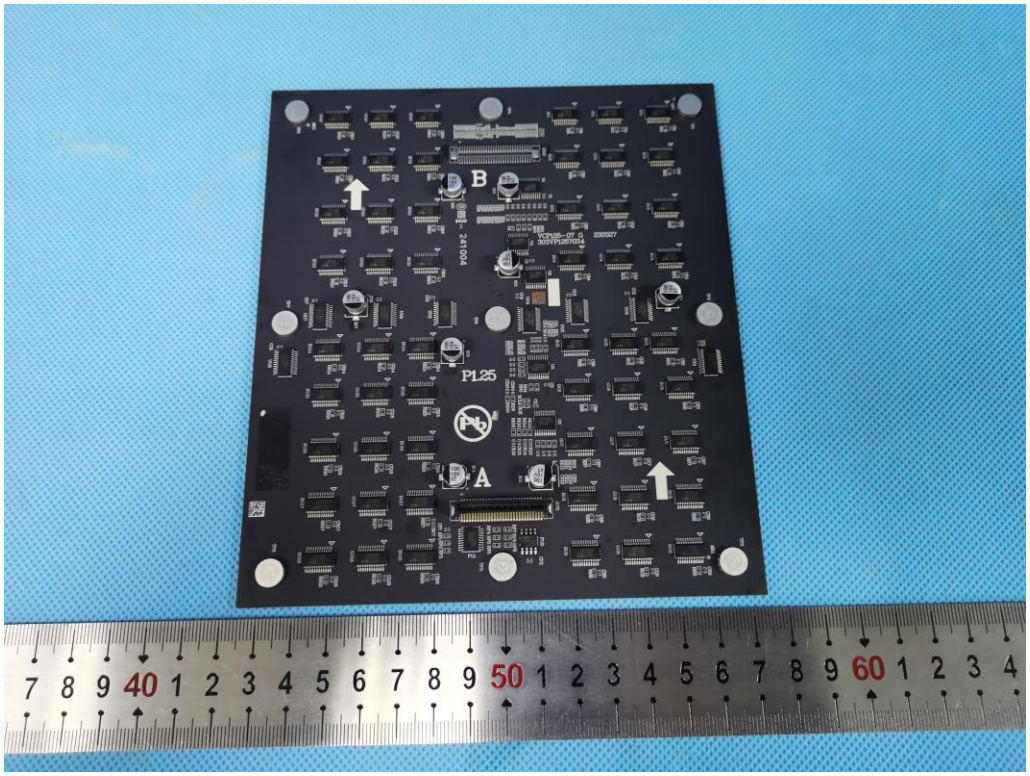

********** End of Report**********