

FCC Test Report

Report No.: 2405T58443EA
Applicant: NINGBO BAIHUANG ELECTRIC APPLIANCES CO., LTD.
Address: NO. 180, YANSHAN RD, HUXIMEN, HENGHE TOWN, CIXI,
NINGBO, China
Product Name: Remote Control Light Socket
Product Model: BHD9829B
Multiple Models: N/A
Trade Mark: N/A
FCC ID: Q92-BHD9829B
Standards: FCC CFR Title 47 Part 15B

Test Date: 2024-05-20

Test Result: Complied

Report Date: 2024-05-22

Reviewed by:

Approved by:

Abel Chen

Jacob Kong

Abel Chen
Project Engineer

Jacob Kong
Manager

Prepared by:

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen,
Guangdong, People's Republic of China



This report may contain data that are not covered by the NVLAP accreditation and shall be marked with an asterisk “★”

Announcement

1. This test report shall not be reproduced except in full, without the written approval of World Alliance Testing & Certification (Shenzhen) Co., Ltd
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.
5. The information marked “#” is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

Revision History

Version No.	Issued Date	Description
00	2024-05-22	Original

Contents

1	General Information	4
1.1	Client Information	4
1.2	Product Description of EUT	4
1.3	Related Submittal(s)/Grant(s).....	4
1.4	Measurement Uncertainty	4
1.5	Laboratory Location.....	5
1.6	Test Methodology	5
2	Description of Measurement.....	6
2.1	Test Configuration.....	6
2.2	Test Auxiliary Equipment	6
2.3	Test Setup.....	6
2.4	Test Procedure	7
2.5	Measurement Method.....	8
2.6	Measurement Equipment	9
3	Test Results	10
3.1	Test Summary.....	10
3.2	Limit	10
3.3	AC Line Conducted Emissions Test Data.....	11
3.4	Radiated emission Test Data.....	13
4	Test Setup Photo.....	17
5	E.U.T Photo	18

1 General Information

1.1 Client Information

Applicant:	NINGBO BAIHUANG ELECTRIC APPLIANCES CO., LTD.
Address:	NO. 180, YANSHAN RD, HUXIMEN, HENGHE TOWN, CIXI, NINGBO, China
Manufacturer:	NINGBO BAIHUANG ELECTRIC APPLIANCES CO., LTD.
Address:	NO. 180, YANSHAN RD, HUXIMEN, HENGHE TOWN, CIXI, NINGBO, China

1.2 Product Description of EUT

Sample Serial Number	2LAS-1
Sample Received Date	2024-05-14
Sample Status	Good Condition
Highest Operating Frequency [#]	433.92MHz
Power Supply	AC 120V/60Hz
Adapter Information	N/A
Modification	Sample No Modification by the test lab

1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s)

1.4 Measurement Uncertainty

Parameter		Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
AC Power Lines Conducted Emissions		±3.14dB
Radiated emission	Below 1GHz	±4.84dB
	Above 1GHz	±5.44dB
Note 1: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. Note 2: The Decision Rule is based on simple acceptance with ISO Guide 98-4:2012 Clause 8.2 (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)		

1.5 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: ga@watc.com.cn

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

1.6 Test Methodology

FCC CFR 47 Part 15

ANSI C63.4-2014

2 Description of Measurement

2.1 Test Configuration

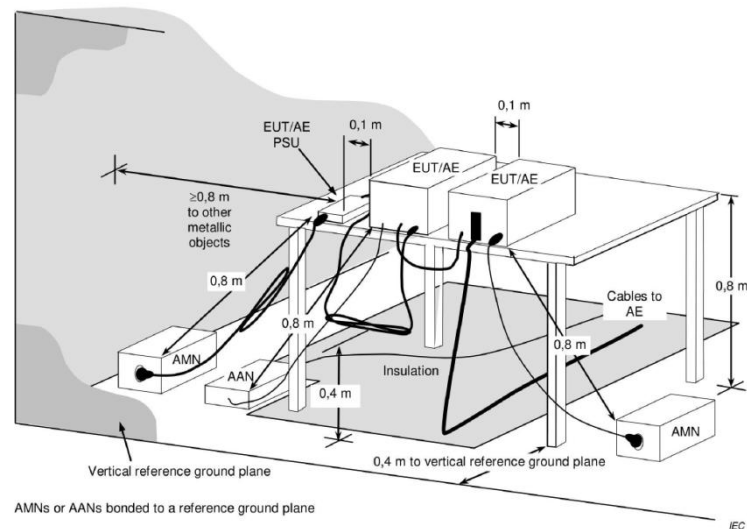
Test Mode:	
Mode 1:	Working
Note: For radiated emissions, EUT was investigated in three orthogonal orientation, the worst-case orientation was recorded in report	

2.2 Test Auxiliary Equipment

Manufacturer	Description	Model	Serial Number
Unknown	Lamp holder	Unknown	Unknown
Unknown	Lamp(60W)	Unknown	Unknown

2.3 Test Setup

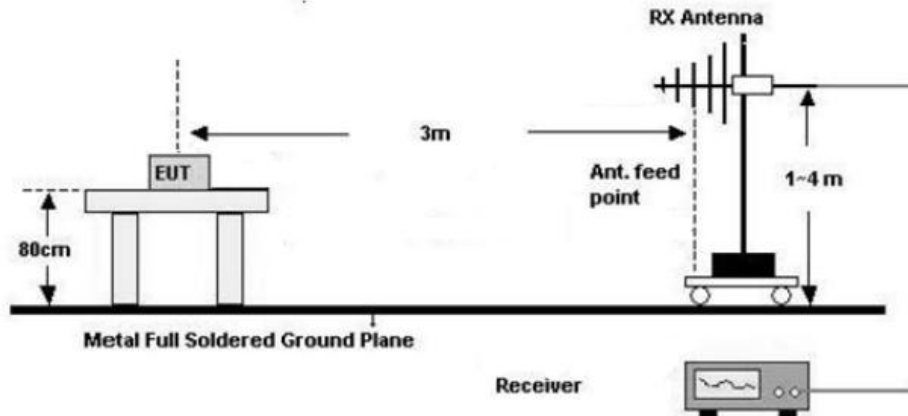
1) Conducted emission measurement:



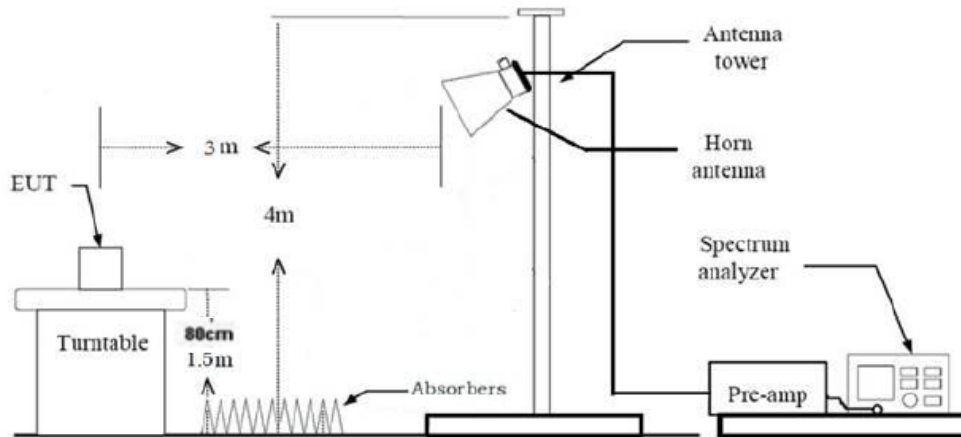
Note: The 0.8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be >0.8 m.

2) Radiated emission measurement:

30MHz-1GHz (3m SAC)



Above 1GHz(3m FAC)



2.4 Test Procedure

Conducted emission:

1. The E.U.T is placed on a non-conducting table 40cm from the vertical ground plane and 80cm above the horizontal ground plane (Please refer to the block diagram of the test setup and photographs).
2. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4 on conducted measurement.
3. Line conducted data is recorded for both Line and Neutral

Radiated Emission Procedure:

a) For 30MHz-1GHz:

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.

2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

b) For above 1GHz:

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.

2.5 Measurement Method

Description of Test	Measurement Method
AC Line Conducted Emissions	ANSI C63.4-2014 Section 7
Radiated emission	ANSI C63.4-2014 Section 8

2.6 Measurement Equipment

Manufacturer	Description	Model	Management No.	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
ROHDE& SCHWARZ	EMI TEST RECEIVER	ESR	101817	2023/7/3	2024/7/2
R&S	LISN	ENV216	101748	2023/8/1	2024/7/31
N/A	Coaxial Cable	NO.12	N/A	2023/7/3	2024/7/2
Farad	Test Software	EZ-EMC	Ver. EMEC-3A1	/	/
Radiated Emission Test					
R&S	EMI test receiver	ESR3	102758	2023/7/3	2024/7/2
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40-N	101608	2023/7/3	2024/7/2
SONOMA INSTRUMENT	Low frequency amplifier	310	186014	2023/7/12	2024/7/11
COM-POWER	preamplifier	PAM-118A	18040152	2023/8/21	2024/8/20
SCHWARZBECK	Log - periodic wideband antenna	VULB 9163	9163-872	2023/7/7	2024/7/6
Astro Antenna Ltd	Horn antenna	AHA-118S	3015	2023/7/6	2024/7/5
N/A	Coaxial Cable	N/A	NO.9	2023/8/8	2024/8/7
N/A	Coaxial Cable	N/A	NO.10	2023/8/8	2024/8/7
N/A	Coaxial Cable	N/A	NO.11	2023/8/8	2024/8/7
Audix	Test Software	E3	191218 V9	/	/

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.

3 Test Results

3.1 Test Summary

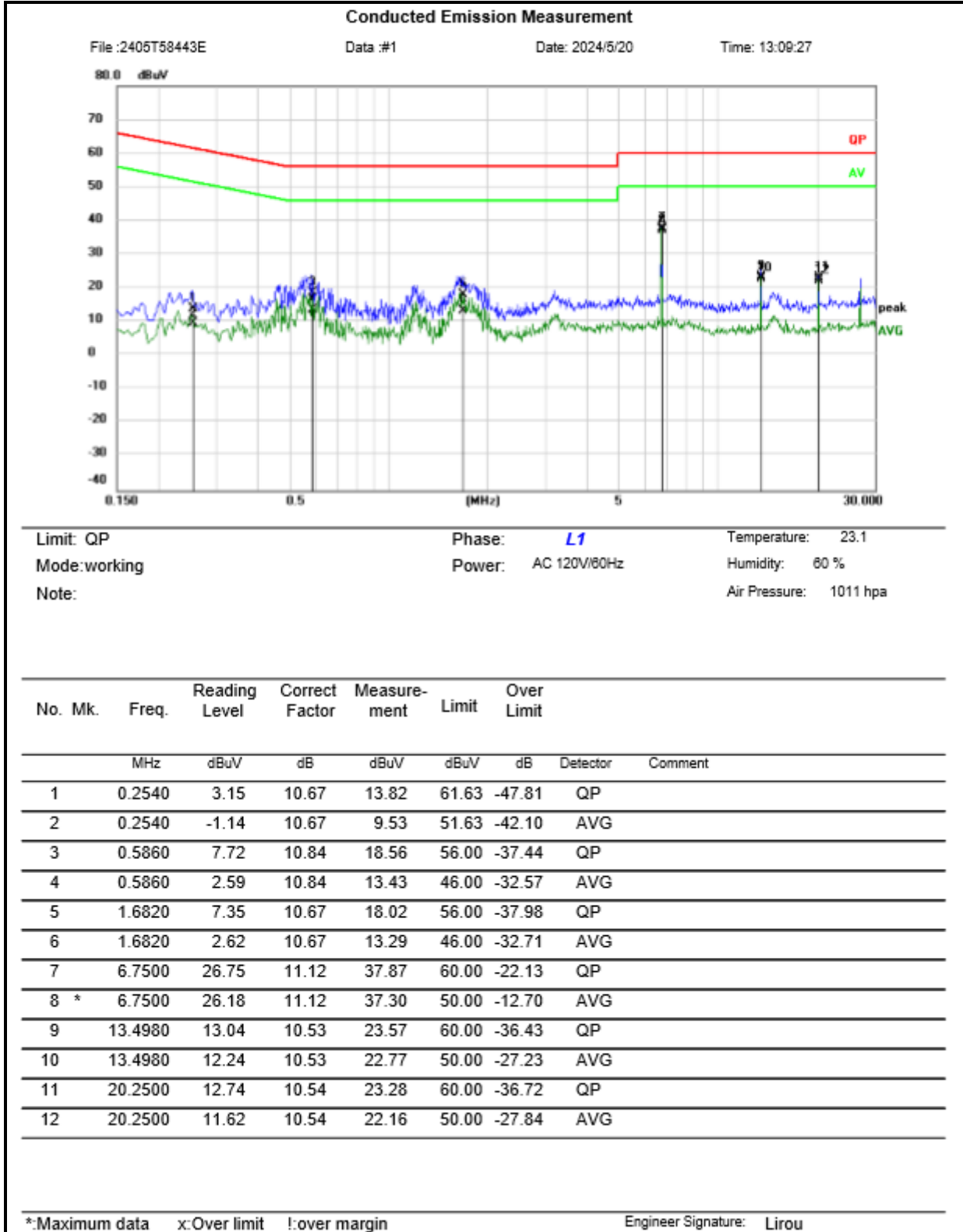
FCC Rules	Description of Test	Result
FCC §15.107	AC Line Conducted Emissions	Compliance
FCC §15.109	Radiated emission	Compliance

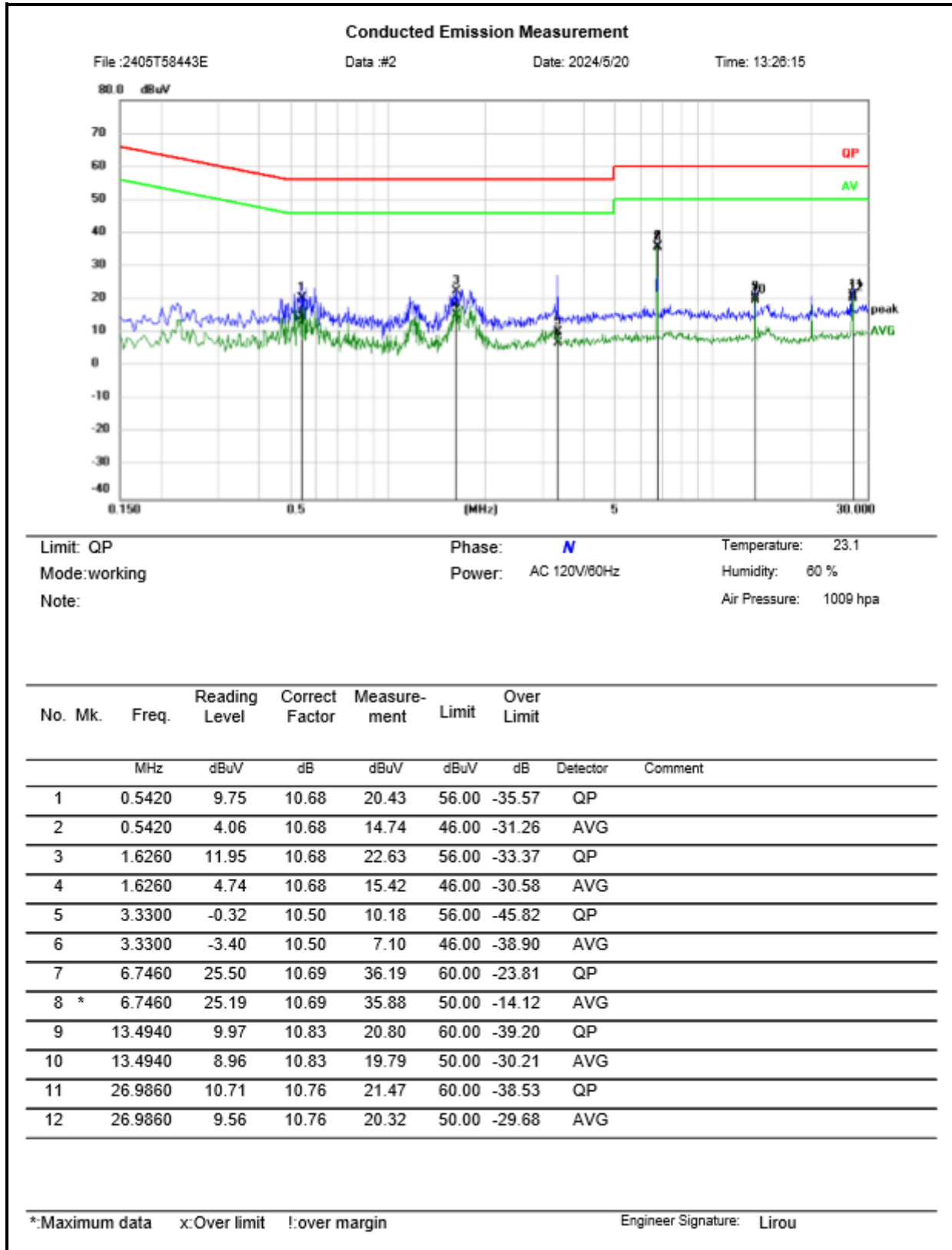
3.2 Limit

Test items	Limit																																																					
AC Line Conducted Emissions	<table><tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Class A Limit (dBµV)</th><th colspan="2">Class B Limit (dBµV)</th></tr><tr><th>Quasi-Peak</th><th>Average</th><th>Quasi-Peak</th><th>Average</th></tr><tr><td>0.15 – 0.5</td><td>79</td><td>66</td><td>66 to 56 ^{Note 1}</td><td>56 to 46 ^{Note 1}</td></tr><tr><td>0.5 – 5</td><td>73</td><td>60</td><td>56</td><td>46</td></tr><tr><td>5 – 30</td><td>73</td><td>60</td><td>60</td><td>50</td></tr><tr><td colspan="5">Note 1: The limit level in dBµV decreases linearly with the logarithm of frequency.</td></tr><tr><td colspan="5">Note 2: The more stringent limit applies at transition frequencies.</td></tr></table>	Frequency (MHz)	Class A Limit (dBµV)		Class B Limit (dBµV)		Quasi-Peak	Average	Quasi-Peak	Average	0.15 – 0.5	79	66	66 to 56 ^{Note 1}	56 to 46 ^{Note 1}	0.5 – 5	73	60	56	46	5 – 30	73	60	60	50	Note 1: The limit level in dBµV decreases linearly with the logarithm of frequency.					Note 2: The more stringent limit applies at transition frequencies.																							
	Frequency (MHz)		Class A Limit (dBµV)		Class B Limit (dBµV)																																																	
		Quasi-Peak	Average	Quasi-Peak	Average																																																	
	0.15 – 0.5	79	66	66 to 56 ^{Note 1}	56 to 46 ^{Note 1}																																																	
	0.5 – 5	73	60	56	46																																																	
	5 – 30	73	60	60	50																																																	
	Note 1: The limit level in dBµV decreases linearly with the logarithm of frequency.																																																					
Note 2: The more stringent limit applies at transition frequencies.																																																						
Radiated emission	<table><tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Class A Limit (dBµV/m)</th><th colspan="2">Class B Limit (dBµV/m)</th></tr><tr><th>Quasi-Peak @ 3m</th><th>Quasi-Peak @ 10m</th><th>Quasi-Peak @ 3m</th><th>Quasi-Peak @ 10m</th></tr><tr><td>30 – 88</td><td>49.0</td><td>39.0</td><td>40.0</td><td>30.0</td></tr><tr><td>88 – 216</td><td>53.5</td><td>43.5</td><td>43.5</td><td>33.5</td></tr><tr><td>216 – 960</td><td>56.0</td><td>46.0</td><td>46.0</td><td>36.0</td></tr><tr><td>960 – 1000</td><td>60.0</td><td>50.0</td><td>54.0</td><td>44.0</td></tr><tr><td colspan="5">Note: The more stringent limit applies at transition frequencies.</td></tr><tr><th rowspan="2">Frequency</th><th colspan="2">Class A Limit (dBµV/m) @ 3m</th><th colspan="2">Class B Limit (dBµV/m) @ 3m</th></tr><tr><th>Average</th><th>Peake</th><th>Average</th><th>Peake</th></tr><tr><td>Above 1 GHz</td><td>60.0</td><td>80.0</td><td>54.0</td><td>74.0</td></tr><tr><td colspan="5">Note: The measurement bandwidth shall be 1 MHz or greater.</td></tr></table>	Frequency (MHz)	Class A Limit (dBµV/m)		Class B Limit (dBµV/m)		Quasi-Peak @ 3m	Quasi-Peak @ 10m	Quasi-Peak @ 3m	Quasi-Peak @ 10m	30 – 88	49.0	39.0	40.0	30.0	88 – 216	53.5	43.5	43.5	33.5	216 – 960	56.0	46.0	46.0	36.0	960 – 1000	60.0	50.0	54.0	44.0	Note: The more stringent limit applies at transition frequencies.					Frequency	Class A Limit (dBµV/m) @ 3m		Class B Limit (dBµV/m) @ 3m		Average	Peake	Average	Peake	Above 1 GHz	60.0	80.0	54.0	74.0	Note: The measurement bandwidth shall be 1 MHz or greater.				
	Frequency (MHz)		Class A Limit (dBµV/m)		Class B Limit (dBµV/m)																																																	
		Quasi-Peak @ 3m	Quasi-Peak @ 10m	Quasi-Peak @ 3m	Quasi-Peak @ 10m																																																	
	30 – 88	49.0	39.0	40.0	30.0																																																	
	88 – 216	53.5	43.5	43.5	33.5																																																	
	216 – 960	56.0	46.0	46.0	36.0																																																	
	960 – 1000	60.0	50.0	54.0	44.0																																																	
	Note: The more stringent limit applies at transition frequencies.																																																					
	Frequency	Class A Limit (dBµV/m) @ 3m		Class B Limit (dBµV/m) @ 3m																																																		
		Average	Peake	Average	Peake																																																	
Above 1 GHz	60.0	80.0	54.0	74.0																																																		
Note: The measurement bandwidth shall be 1 MHz or greater.																																																						

3.3 AC Line Conducted Emissions Test Data

Test Date:	2024-05-20	Test By:	Lirou Li
Environment condition:	Temperature: 23.1°C; Relative Humidity:60%; ATM Pressure: 101.1kPa		





Remark:

Measurement (dBuV)= Reading Level (dBuV) + Correct Factor(dB)

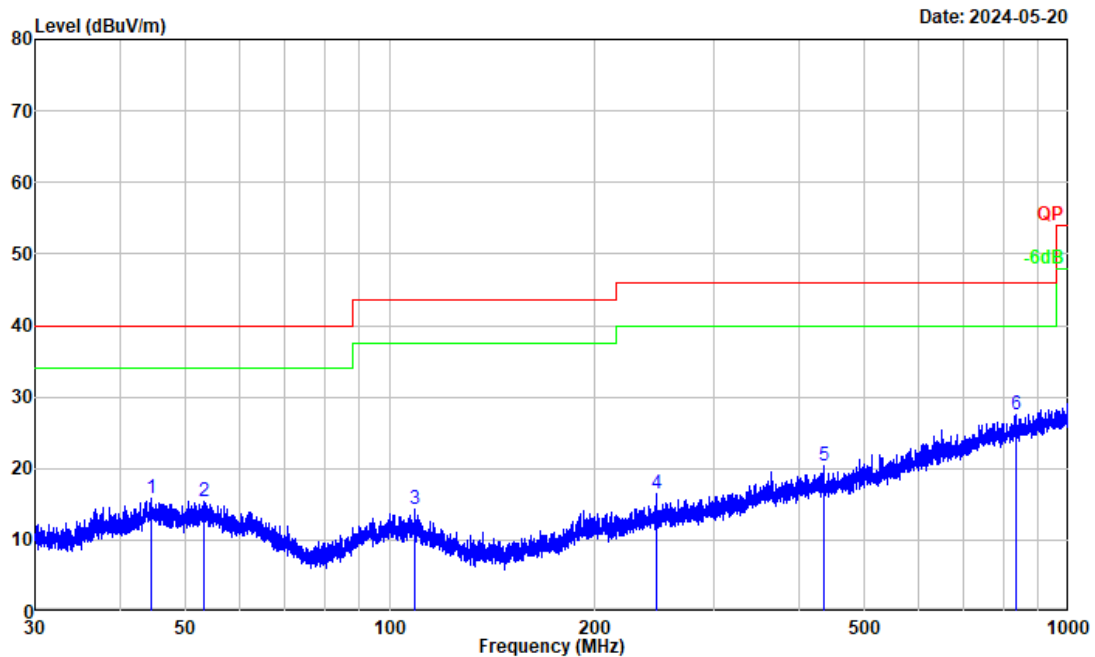
Correct Factor (dB)= LISN Voltage Division Factor (dB)+ Cable loss(dB)

Over Limit = Measurement – Limit

3.4 Radiated emission Test Data

30MHz-1GHz:

Test Date:	2024-05-20	Test By:	Luke Li
Environment condition:	Temperature: 22.3°C; Relative Humidity:62%; ATM Pressure: 99.9kPa		

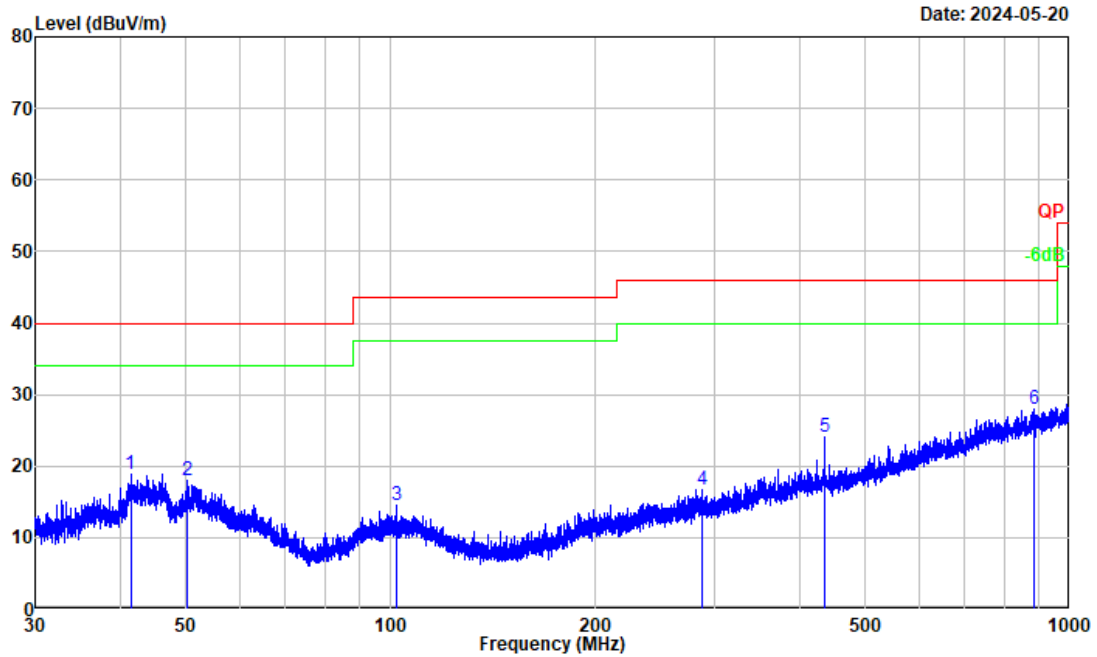


Project No. : 2405T58443E
Test Mode : Working
Test Voltage : AC 120V/60Hz
Environment : 22.3°C/62%R.H./99.9kPa
Tested by : Luke Li
Polarization : horizontal
Remark : /

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector

1	44.530	28.02	-12.25	15.77	40.00	-24.23	Peak
2	53.089	27.67	-12.31	15.36	40.00	-24.64	Peak
3	108.569	28.32	-14.09	14.23	43.50	-29.27	Peak
4	246.556	28.87	-12.49	16.38	46.00	-29.62	Peak
5	435.163	28.61	-8.22	20.39	46.00	-25.61	Peak
6	834.395	29.12	-1.54	27.58	46.00	-18.42	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain



Project No. : 2405T58443E
 Test Mode : Working
 Test Voltage : AC 120V/60Hz
 Environment : 22.3°C/62%R.H./99.9kPa
 Tested by : Luke Li
 Polarization : vertical
 Remark : /

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	41.460	31.59	-12.67	18.92	40.00	-21.08	Peak
2	50.302	30.21	-12.16	18.05	40.00	-21.95	Peak
3	102.331	28.61	-14.07	14.54	43.50	-28.96	Peak
4	288.072	28.39	-11.65	16.74	46.00	-29.26	Peak
5	435.354	32.23	-8.22	24.01	46.00	-21.99	Peak
6	884.102	28.70	-0.84	27.86	46.00	-18.14	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

Remark:

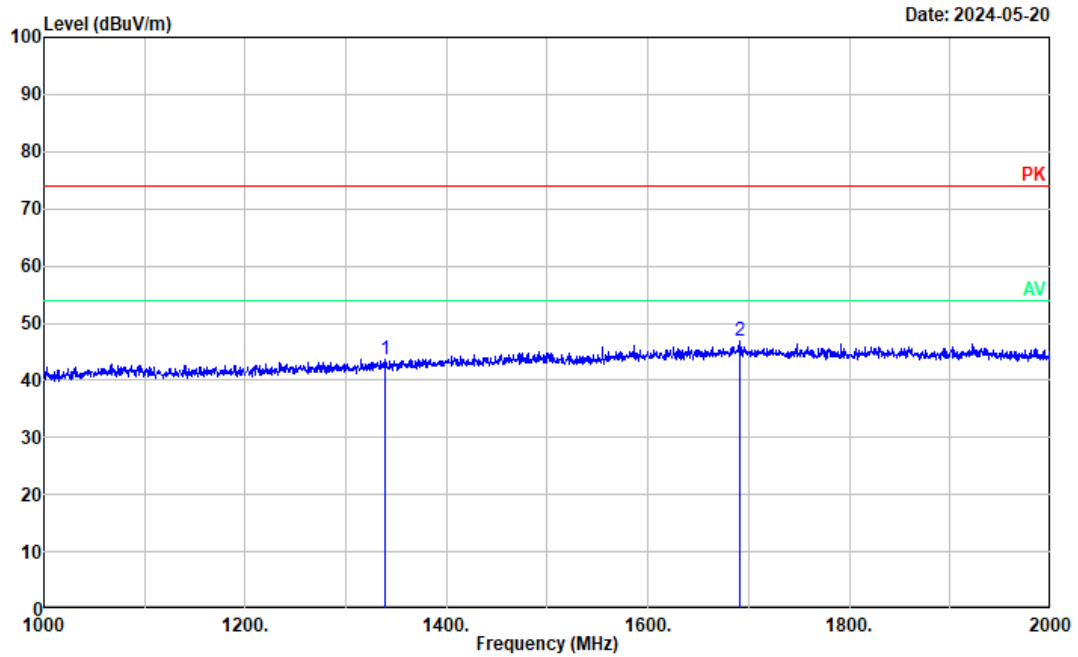
Result = Reading + Factor

Factor = Antenna factor + Cable loss – Amplifier gain

Over Limit = Result – Limit

Above 1GHz:

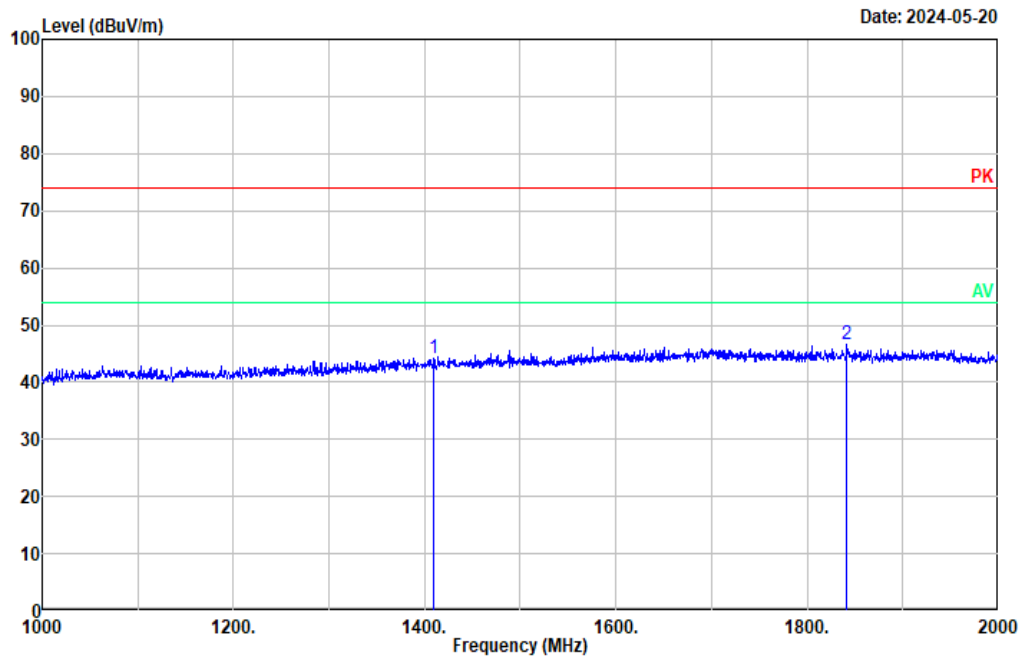
Test Date:	2024-05-20	Test By:	Luke Li
Environment condition:	Temperature: 22.3°C; Relative Humidity:62%; ATM Pressure: 99.9kPa		



Project No. : 2405T58443E
 Test Mode : Working
 Test Voltage : AC 120V/60Hz
 Environment : 22.3°C/62%R.H./99.9kPa
 Tested by : Luke Li
 Polarization : horizontal
 Remark : /

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	1339.170	48.93	-5.16	43.77	74.00	-30.23	Peak
2	1691.846	49.91	-3.10	46.81	74.00	-27.19	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain



Project No. : 2405T58443E
 Test Mode : Working
 Test Voltage : AC 120V/60Hz
 Environment : 22.3°C/62%R.H./99.9kPa
 Tested by : Luke Li
 Polarization : vertical
 Remark : /

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	1409.705	48.74	-4.61	44.13	74.00	-29.87	Peak
2	1840.920	49.86	-3.29	46.57	74.00	-27.43	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss – Amplifier gain

Margin = Corrected Amplitude – Limit

For the test result of Peak below the Peak limit more than 20dB, which can compliance with the average limit, just the Peak level was recorded.

4 Test Setup Photo

Please refer to the attachment 2405T58443E Test Setup photo.

5 E.U.T Photo

Please refer to the attachment 2405T58443E External photo and 2405T58443E Internal photo.

---End of Report---