TEST REPORT

Product Name	:	LED Luminaires
Model Number	:	MXL1224S-14LED22K82750, MXL1224S-14LED22K92750, MXL1225S-13LED22K82750, MXL1225S-13LED22K92750
FCC ID	:	2AL76-122425

Prepared for	:	Zhejiang Yankon Group Co.,Ltd.
Address	:	No.208 Tongjiang Middle Road Shangyu Economic Development Zone, SHAOXING Zhejiang 312300
Prepared by	:	EMTEK (NINGBO) CO., LTD.
Address	:	No. 8, Building 8, Lane 216, Qingyi Road, Ningbo Hi-Tech Zone, Ningbo, Zhejiang, China Tel: +86-574-27907998 Fax: +86-574-27721538

Report Number	:	ENB2408260003W00301R
Date(s) of Tests	:	August 26, 2024 to October 09, 2024
Date of Issue	:	October 10, 2024

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1 TEST RESULT CERTIFICATION

Applicant	:	Zhejiang Yankon Group Co.,Ltd.
Address	:	No.208 Tongjiang Middle Road Shangyu Economic Development Zone, SHAOXING Zhejiang 312300
Manufacturer	:	Zhejiang Yankon Group Co.,Ltd
Address	:	No.208 Tongjiang Middle Road Shangyu Economic Development Zone, SHAOXING Zhejiang 312300
EUT	:	LED Luminaires
Model Name	:	MXL1224S-14LED22K82750, MXL1224S-14LED22K92750, MXL1225S-13LED22K82750, MXL1225S-13LED22K92750
Trademark	:	N/A

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C	**PASS**

The above equipment was tested by EMTEK(SHENZHEN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2 and Part 15.249

The test results of this report relate only to the tested sample identified in this report.

Date of Test : August 26, 2024 to October 09, 2024

Prepared by : June Gao/Engineer

Reviewer : Lucas Xu/Supervisor

Approved & Authorized Signer : Tony Wei/Manager

Modified History

Version	Report No.	Revision Date	Summary
/	ENB2408260003W00301R	/	Original Report

2 EUT TECHNICAL DESCRIPTION

Product:	LED Luminaires
Model Number:	MXL1224S-14LED22K82750, MXL1224S-14LED22K92750, MXL1225S-13LED22K82750, MXL1225S-13LED22K92750 (Note: The color rendering index between MXL1224S-14LED22K82750 and MXL1224S-14LED22K92750 is different, and the schematic design and PCB Layout are the same. The same goes for MXL1225S-13LED22K82750 and MXL1225S-13LED22K92750. MXL1224S-14LED22K82750, MXL1224S-14LED22K92750 and MXL1225S-13LED22K82750, MXL1225S-13LED22K92750 are only different in appearance. The schematic design and PCB Layout etc. are the same. We chose MXL1224S-14LED22K82750 for RF test.)
Sample Number:	ENB2408260003W003-1-1
Power Supply:	AC 120V/60Hz
Modulation:	GFSK
Frequency Range:	5.8 GHz (±75 MHz)
Max Transmit Power:	93.07 dBuV/m
Antenna:	PCB Antenna
Antenna Gain:	2.0 dBi
Temperature Range:	-20°C ~ 70°C
Received of Date:	August 26, 2024

Note: for more details, please refer to the user's manual of the EUT.

3 SUMMARY OF TEST RESULT

FCC Part Clause	Test Parameter	Verdict	Remark
15.207	Conducted Emission	PASS	
15.209	Radiated Emission	PASS	
15.249	Radiated Spurious Emission	PASS	
15.249	Band edge test	PASS	
15.249	20dB Bandwidth	PASS	
15.203	Antenna Requirement	PASS	
NOTE1: N/A is an abbreviation for not applicable NOTE2: The report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.			

RELATED SUBMITTAL(S) / GRANT(S):
This submittal(s) (test report) is intended for FCC ID: 2AL76-122425 filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

4 TEST METHODOLOGY

4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:
FCC 47 CFR Part 2, Subpart J
FCC 47 CFR Part 15, Subpart C

4.2 MEASUREMENT EQUIPMENT USED

4.2.1 Conducted Emissions Test Equipment

Equ. No.	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
ENE-001	EMI Test Receiver	R & S	ESCI	101108	Dec 14, 2023	1 Year
ENE-158	L.I.S.N	Schwarzbeck	NNLK 8129	0373	Nov 17, 2023	1 Year
ENE-004	L.I.S.N	Schwarzbeck	NSLK 8126	8126-462	July 02, 2024	1 Year
ENE-006	Pulse Limiter	MTS-systemtechnik	IMP-136	2611115-001-0033	July 02, 2024	1 Year
ENE-278	RF Switching Unit	HTEC	HRSU	222101	July 02, 2024	1 Year
ENE-083	RF Cable	Hubber Suhner/Swiss	CBL-RE-3	/	May 30, 2024	1 Year
ENE-162-2	RF Cable	TIMES	2M(N-N)	605236-0002	May 30, 2024	1 Year
ENE-149	Conduction Test Room 1#	SKET	11.5*5*4m	/	Dec 17, 2021	3 Year

4.2.2 Radiated Emission Test Equipment

Equ. No.	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
ENE-185	EMI Test Receiver	R&S	ESR7	102480	Apr 25, 2024	ENE-185
ENE-190	Antenna Multiple	Schwarzbeck	VULB 9163	01499	May 18, 2024	ENE-190
ENE-195	Pre-Amplifier	JS Denki	PA09K03-40	JSPA21019	Apr 25, 2024	ENE-195
ENE-204	Low Frequency Notch Filter RF Switching	JS Denki	JSDSW-F	JSDSW2211D02	Apr 25, 2024	ENE-204
ENE-251	6dB Attenuator	Mini-Circuits	UNAT-6+	11542	July 02, 2024	ENE-251
ENE-279-1	RF Cable	Rosenberger	L17-C001-7000	/	May 30, 2024	ENE-279-1
ENE-279-2	RF Cable	Rosenberger	L17-C001-3500	/	May 30, 2024	ENE-279-2
ENE-279-3	RF Cable	Rosenberger	L17-C001-1500	/	May 30, 2024	ENE-279-3
ENE-279-4	RF Cable	Rosenberger	/	/	May 30, 2024	ENE-279-4
ENE-279-5	RF Cable	Rosenberger	/	/	May 30, 2024	ENE-279-5

ENE-279-6	RF Cable	Rosenberger	L08-C446-1500	/	May 30, 2024	ENE-279-6
ENE-171	EXA Signal Analyzer	KEYSIGHT	N9010B	MY60242467	Dec 14, 2023	1 Year
ENE-191	Horn Antenna	Schwarzbeck	BBHA 9120 D	02588	May 18, 2024	2 Year
ENE-198	Pre-Amplifier	JS Denki	PA0118-50	JSPA21022	Apr 25, 2024	1 Year
ENE-281-1	RF Cable	Rosenberger	LA2-C125-3500	/	May 30, 2024	1 Year
ENE-281-2	RF Cable	Rosenberger	LA2-C125-1500	/	May 30, 2024	1 Year
ENE-281-3	RF Cable	Rosenberger	LU7-C1511-1200	/	May 30, 2024	1 Year
ENE-285-1	RF Cable	Rosenberger	LA2-C199-6500	/	May 30, 2024	1 Year
ENE-206	High Frequency Notch FilterRf Switching	JS Denki	JSDSW-F	202083582	Apr 25, 2024	1 Year
ENE-144	3-Meter Anechoic Chamber 2#	SKET	9*6*6m	/	June 19, 2022	3 Year

4.2.3 Radio Frequency Test Equipment

Equ. No.	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
ENE-256	EXA Signal Anaalyzer	Keysight	N9010B	MY62060219	July 02, 2024	1 Year
ENE-172	RF Control Unit	Tonscend	JS0806-2(V.6E)	21L8060521	Feb. 27, 2024	1 Year

4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.
The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

The EUT has been tested under its typical operating condition so those modulation and channel were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Frequency and Channel list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5730	2	5800	3	5870
Note: N/A					

Test Frequency and Channel list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5730	2	5800	3	5870

4.4 TEST SOFTWARE

Item	Software
Radiated Emission:	JSDEMC-EMI(V 3.3)
Conducted Emission:	JSDEMC-EMI(V 3.3)

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No. 8, Building 8, Lane 216, Qingyi Road, Ningbo Hi-Tech Zone, Ningbo, Zhejiang, China
The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 32.

5.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description
EMC Lab. A : **Accredited by CNAS**
The Certificate Registration Number is L6666.
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2018 (identical to ISO/IEC 17025:2017)

Designation by FCC
Designation Number: CN1354
Test Firm Registration Number: 427606

Accredited by A2LA
The Certificate Number is 4321.03.
The certificate is valid until May 31, 2025

Designation by Industry Canada
The Conformity Assessment Body Identifier is CN0114

Name of Firm : EMTEK (NINGBO) CO., LTD.
Site Location : No. 8, Building 8, Lane 216, Qingyi Road, High-Tech Zone, Ningbo, Zhejiang , China

6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

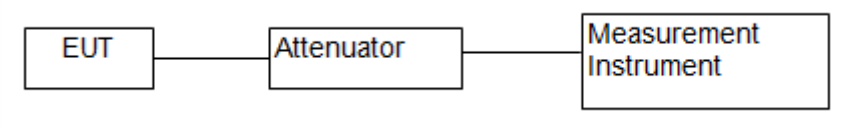
Parameter	Uncertainty
Radio Frequency	±1x10^-5
Radiated Emission Test	±2.0dB
Occupied Bandwidth Test	±1.0dB
Band Edge Test	±3dB
All emission, radiated	±3dB
Temperature	±0.5℃
Humidity	±3%

Measurement Uncertainty for a level of Confidence of 95%

7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP 1

The EUT wireless component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2014 and CAN/CSA-CEI/IEC CISPR 32.

Below 30MHz：

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

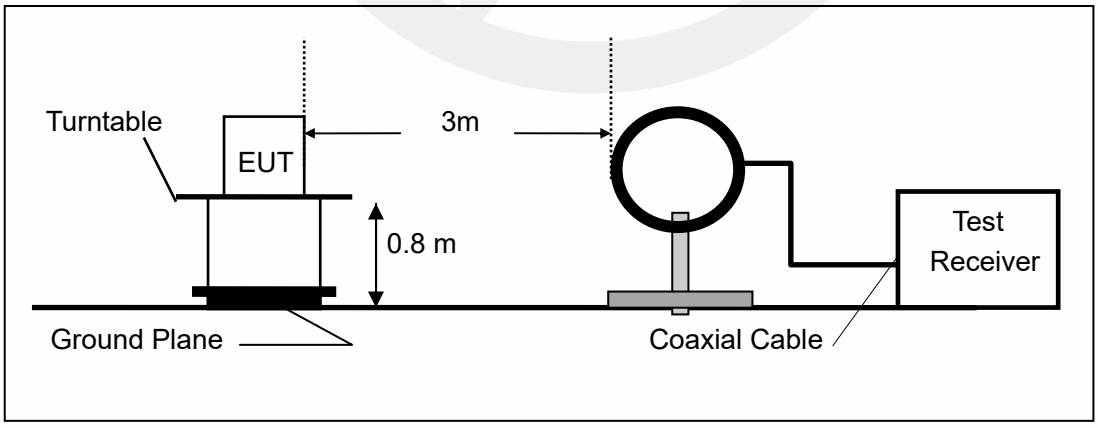
30MHz-1GHz：

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

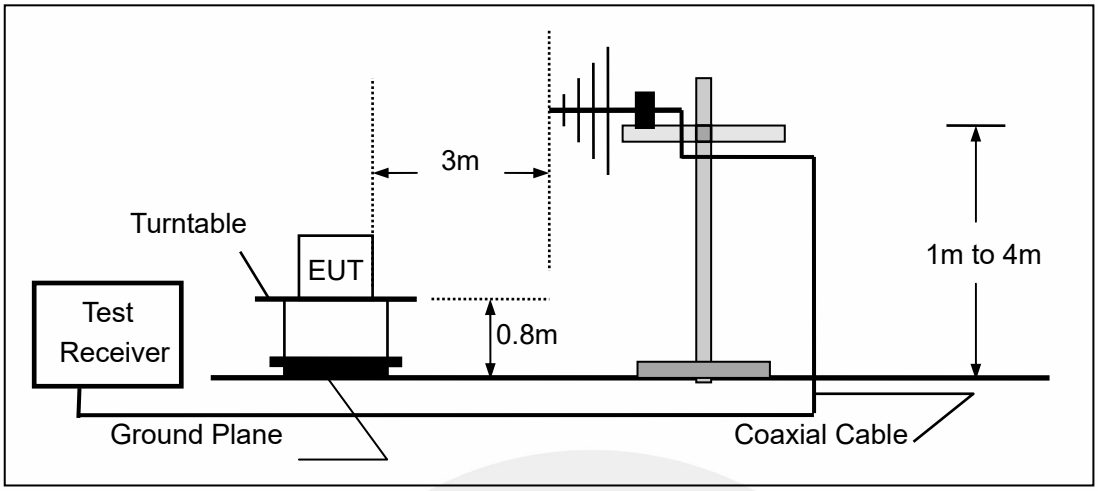
Above 1GHz：

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

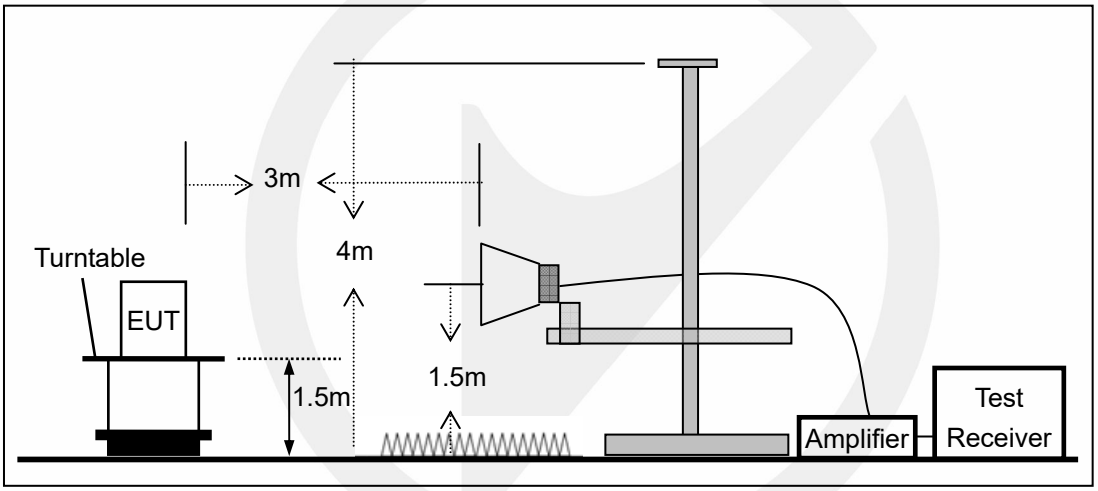
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz

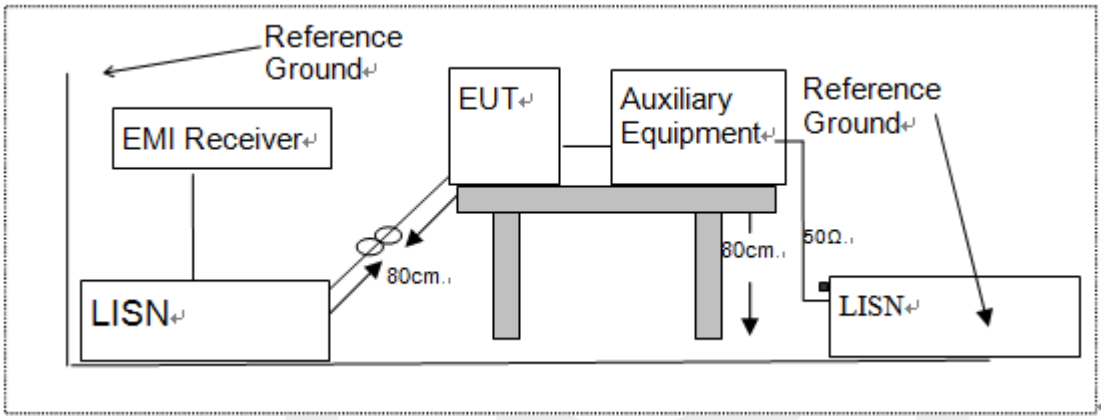


(c) Radiated Emission Test Set-Up, Frequency above 1000MHz



7.3 CONDUCTED EMISSION TEST SETUP

The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.
Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.
According to the requirements in Section 13.1.4.1 of ANSI C63.10-2014 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



7.4 SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

8 TEST REQUIREMENTS

8.1 BANDWIDTH TEST

8.1.1 Applicable Standard

According to FCC Part 15.249

8.1.2 Conformance Limit

N/A

8.1.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

8.1.4 Test Procedure

The EUT was operating in controlled its channel. Printed out the test result from the spectrum by hard copy function.
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously
Set RBW= 1%~5% of the 20 dB bandwidth
Set the video bandwidth (VBW) ≥ RBW
Set Span= approximately 2 to 3 times the 20 dB bandwidth
Set Detector = Peak.
Set Trace mode = max hold.
Set Sweep = auto couple.
Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.
Measure and record the results in the test report.

Test Results

Temperature:	25° C
Relative Humidity:	64%
ATM Pressure:	1011 mbar

Operation Mode	Channel Frequency (MHz)	20db Measurement Bandwidth (kHz)	99% Measurement Bandwidth (kHz)	Limit (kHz)	Verdict
GFSK	5730	1361	1369	N/A	PASS
GFSK	5800	1311	1386	N/A	PASS
GFSK	5870	1941	1703	N/A	PASS
Note: N/A (Not Applicable).					

Test Model	Occupied Bandwidth

Channel : 5730 MHz

Test Model	Occupied Bandwidth

Channel : 5800 MHz

Test Model	Occupied Bandwidth
	Channel : 5870 MHz

8.2 RADIATED SPURIOUS EMISSION

8.2.1 Applicable Standard

According to FCC Part 15.249 and 15.209

8.2.2 Conformance Limit

According to FCC Part 15.249: radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

According to FCC Part15.205, the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	24000/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Remark :1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.
for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

Field strength of fundamental and Field strength of harmonics Limit:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50(94 dBV/m)	500(54 dBV/m)
2400-2483.5 MHz	50(94 dBV/m)	500(54 dBV/m)
5725-5875 MHz	50(94 dBV/m)	500(54 dBV/m)
24.0-24.25 GHz	250(108 dBV/m)	2500(68 dBV/m)

As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation

For this report

Fundamental Frequency	Field Strength Of Fundamental	Field Strength of Spurious Emissions
5725-5875 MHz	AV:94 dBuV/m at 3m distance	AV:54 dBuV/m at 3m distance
	PK:114 dBuV/m at 3m distance	PK:74 dBuV/m at 3m distance

8.2.3 Test Configuration

Test according to clause 7.2 radio frequency test setup 2

8.2.4 Test Procedure

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:
The EUT was placed on a turn table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz(1GHz to 25GHz), 100 kHz for f < 1 GHz(30MHz to 1GHz)
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Follow the guidelines in ANSI C63.10-2014 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.
Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.
Repeat above procedures until all frequency measured was complete.

8.2.5 Test Results

Temperature:	25° C
Relative Humidity:	64%
ATM Pressure:	1011 mbar

■ Spurious Emission below 30MHz (9KHz to 30MHz)

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor

■ Field Strength of the fundamental signal

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
5730	V	87.51	78.77	114	94	-26.49	-15.23
	H	90.41	78.82	114	94	-23.59	-15.18
5800	V	90.11	80.82	114	94	-23.89	-13.18
	H	88.73	79.61	114	94	-25.27	-14.39
5870	V	93.07	81.02	114	94	-20.93	-12.98
	H	87.28	76.39	114	94	-26.72	-17.61

Note: (1) Correct Factor= Antenna Factor +Cable Loss- Amplifier Gain
(2) Emission Level= Reading Level+Probe Factor +Cable Loss

■ Out of Band Emissions

Test mode: GFSK Frequency: Channel : 5730MHz

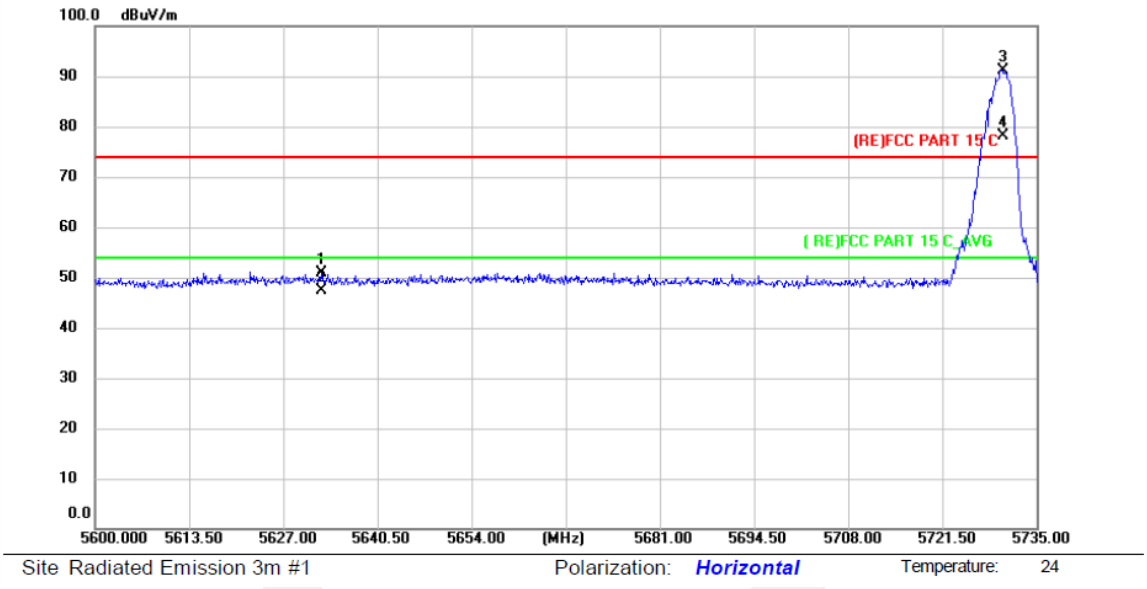
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5632.523	H	51.00	74	47.27	54
5687.127	V	51.35	74	46.53	54

Test mode: GFSK Frequency: Channel : 5870MHz

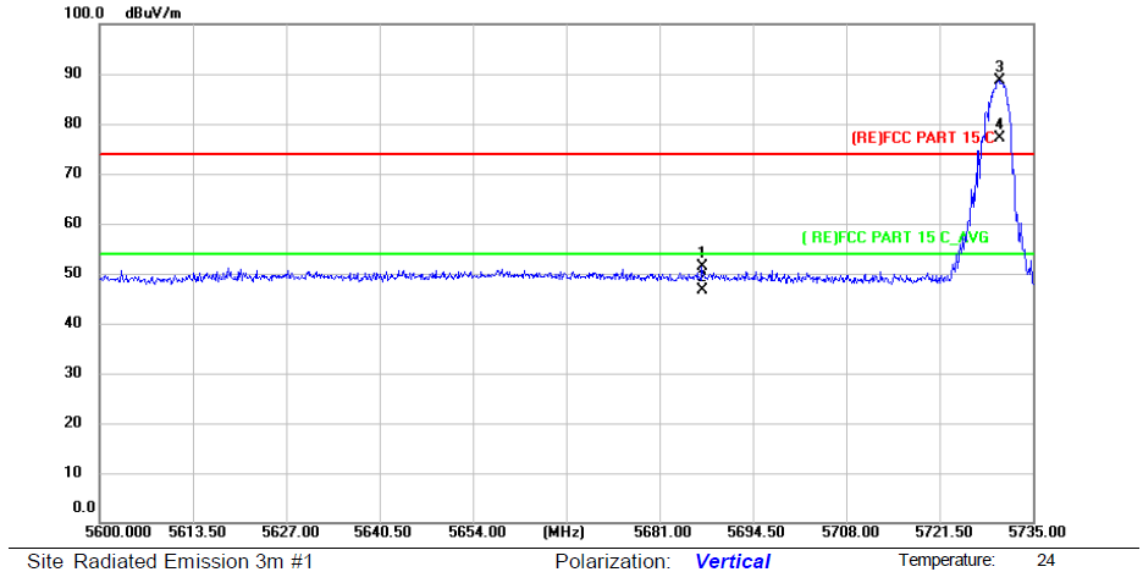
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5944.621	H	51.71	74	51.71	54
5904.719	V	51.30	74	48.61	54

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor +Cable Loss.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4)Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

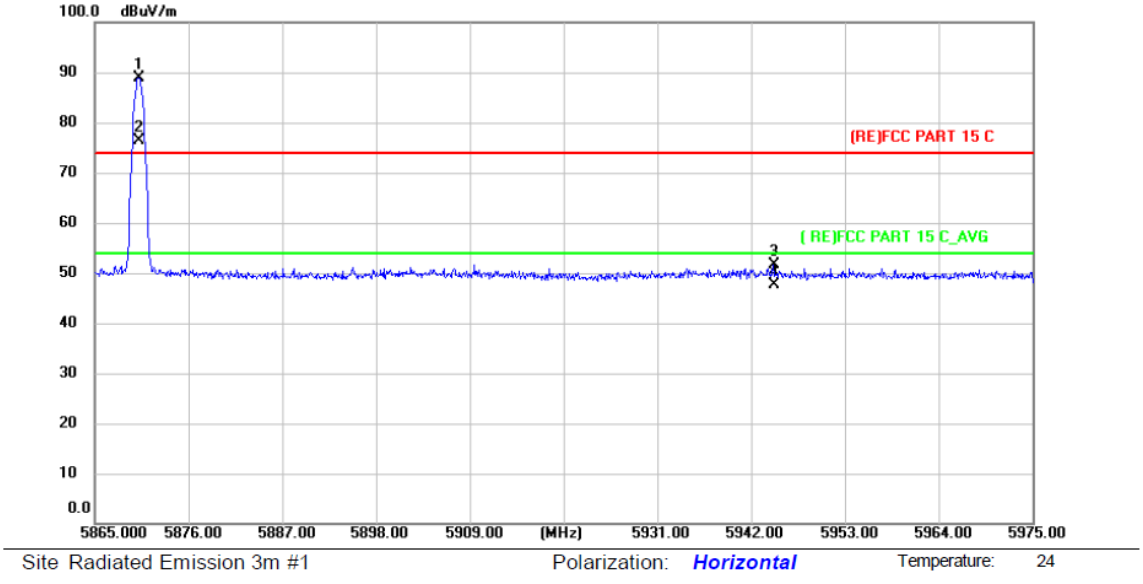
Test Model	Band Emissions Low Test By: Lucas Xu		H



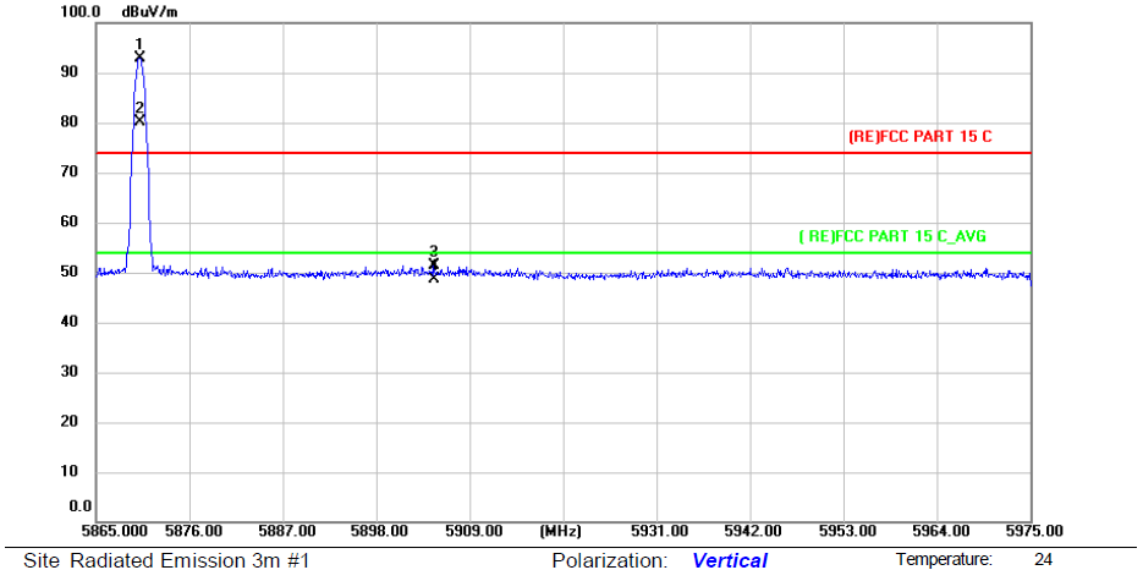
Test Model	Band Emissions Low Test By: Lucas Xu		V



Test Model	Band Emissions High Test By: Lucas Xu	H

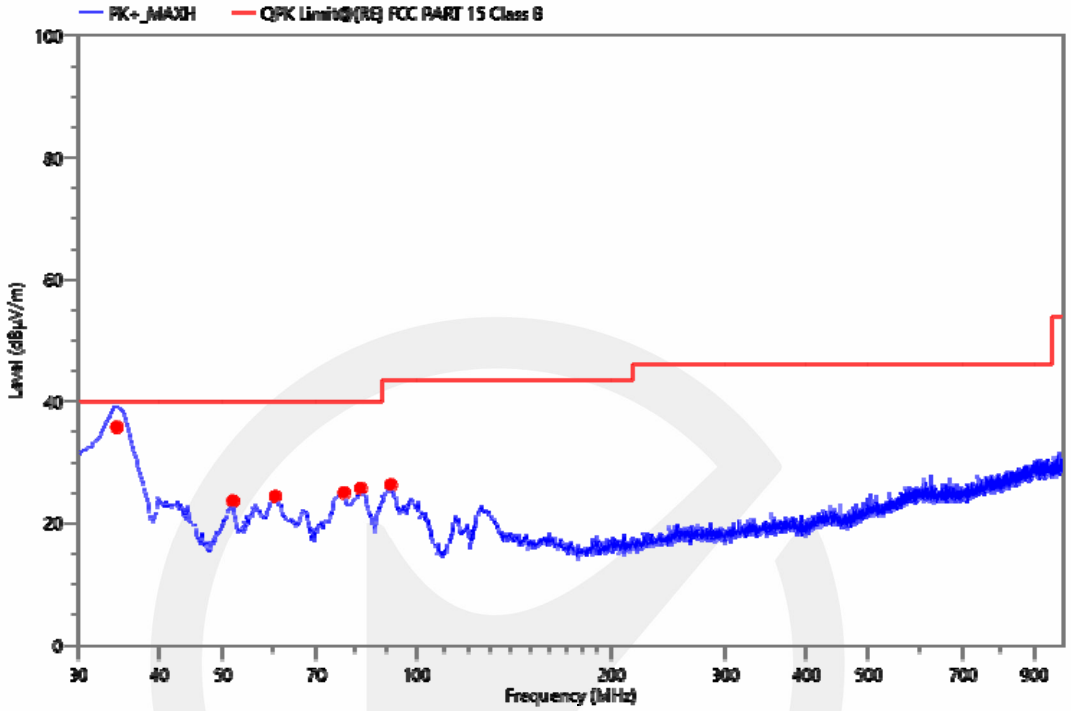


Test Model	Band Emissions High Test By: Lucas Xu	V



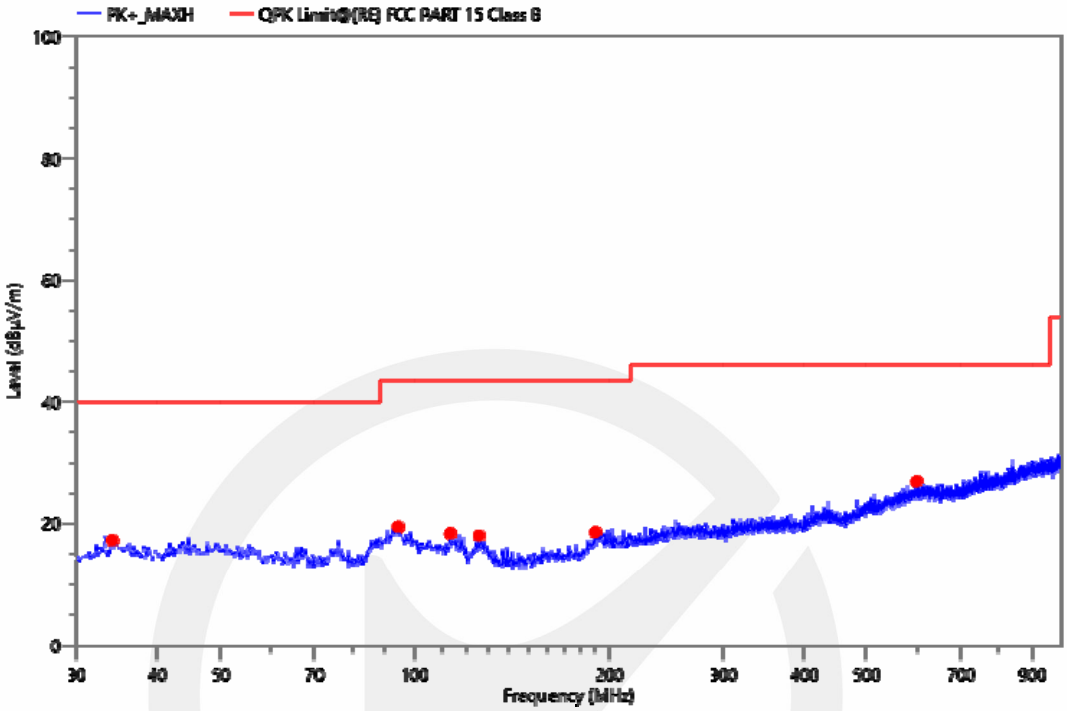
■ Spurious Emission below 1GHz (30MHz to 1GHz)

Project Information			
Mode:	TX 5730MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 18℃; Humi:67%	Engineer:	Chris Fan



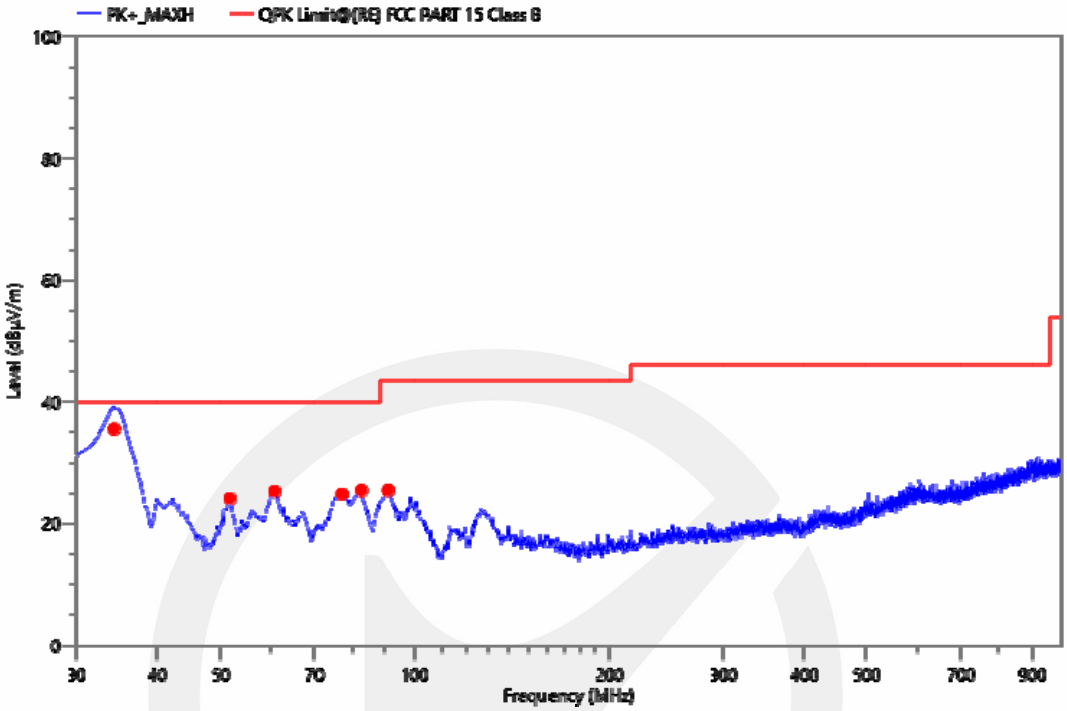
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Height (cm)	Pol.	Azimuth (deg)	Verdict
1	34.245	60.30	-24.5	35.80	40.00	4.20	QPK	100	V	226.7	PASS
2	51.825	47.80	-24.12	23.68	40.00	16.32	QPK	100	V	134.5	PASS
3	60.361	50.13	-25.69	24.44	40.00	15.56	QPK	200	V	339.2	PASS
4	76.948	51.58	-26.56	25.02	40.00	14.98	QPK	100	V	42.2	PASS
5	81.701	52.18	-26.42	25.76	40.00	14.24	QPK	100	V	319.0	PASS
6	91.110	51.47	-25.14	26.33	43.50	17.17	QPK	100	V	166.6	PASS

Project Information			
Mode:	TX 5730MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 18℃; Humi:67%	Engineer:	Chris Fan



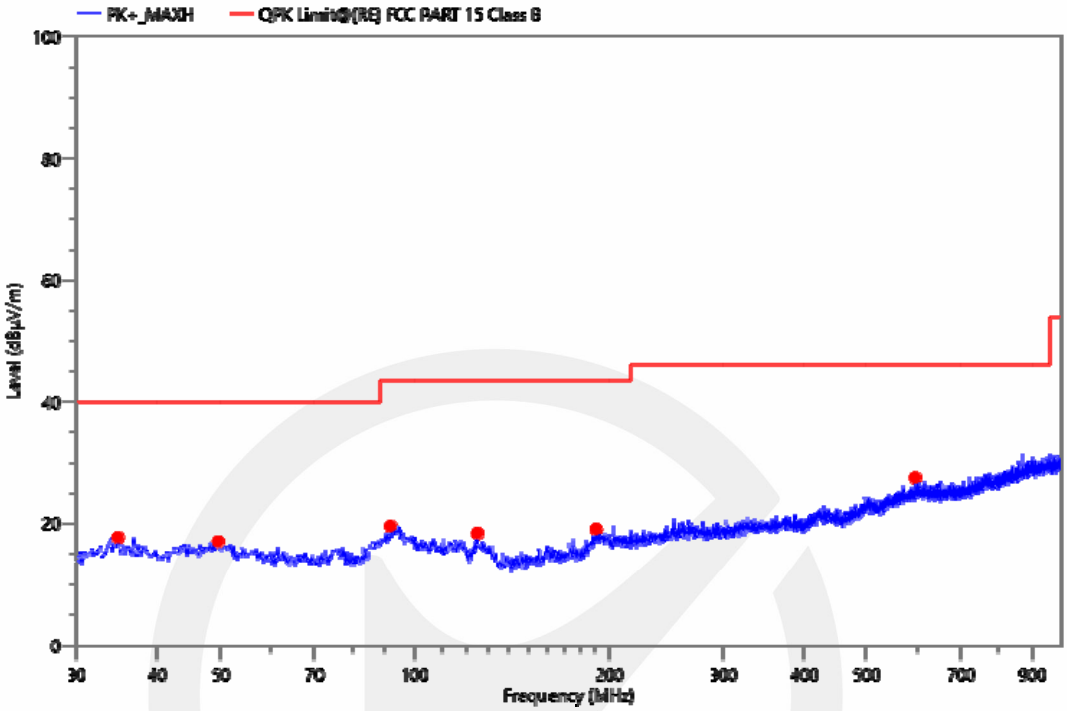
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Height (cm)	Pol.	Azimuth (deg)	Verdict
1	33.977	41.78	-24.57	17.21	40.00	22.79	QPK	200	H	220.9	PASS
2	94.214	44.28	-24.83	19.45	43.50	24.05	QPK	200	H	94.1	PASS
3	113.129	44.11	-25.75	18.36	43.50	25.14	QPK	200	H	103.6	PASS
4	125.545	45.00	-27.02	17.98	43.50	25.52	QPK	200	H	260.2	PASS
5	190.050	43.87	-25.32	18.55	43.50	24.95	QPK	200	H	86.4	PASS
6	596.092	41.31	-14.42	26.89	46.00	19.11	QPK	100	H	275.5	PASS

Project Information			
Mode:	TX 5800MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 18℃; Humi:67%	Engineer:	Chris Fan



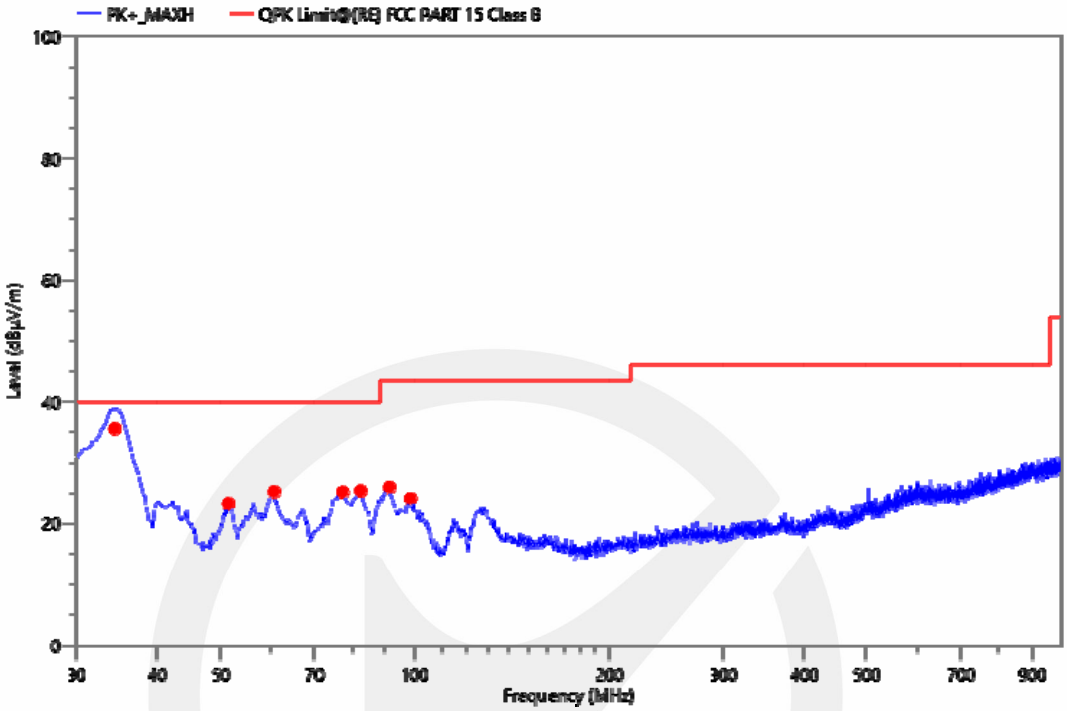
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Height (cm)	Pol.	Azimuth (deg)	Verdict
1	34.169	60.07	-24.52	35.55	40.00	4.45	QPK	200	V	203.1	PASS
2	51.631	48.21	-24.08	24.13	40.00	15.87	QPK	200	V	154.3	PASS
3	60.652	51.00	-25.71	25.29	40.00	14.71	QPK	100	V	135.9	PASS
4	76.948	51.42	-26.56	24.86	40.00	15.14	QPK	100	V	207.9	PASS
5	82.574	51.74	-26.29	25.45	40.00	14.55	QPK	100	V	245.4	PASS
6	90.916	50.65	-25.16	25.49	43.50	18.01	QPK	100	V	175.8	PASS

Project Information			
Mode:	TX 5800MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 18℃; Humi:67%	Engineer:	Chris Fan



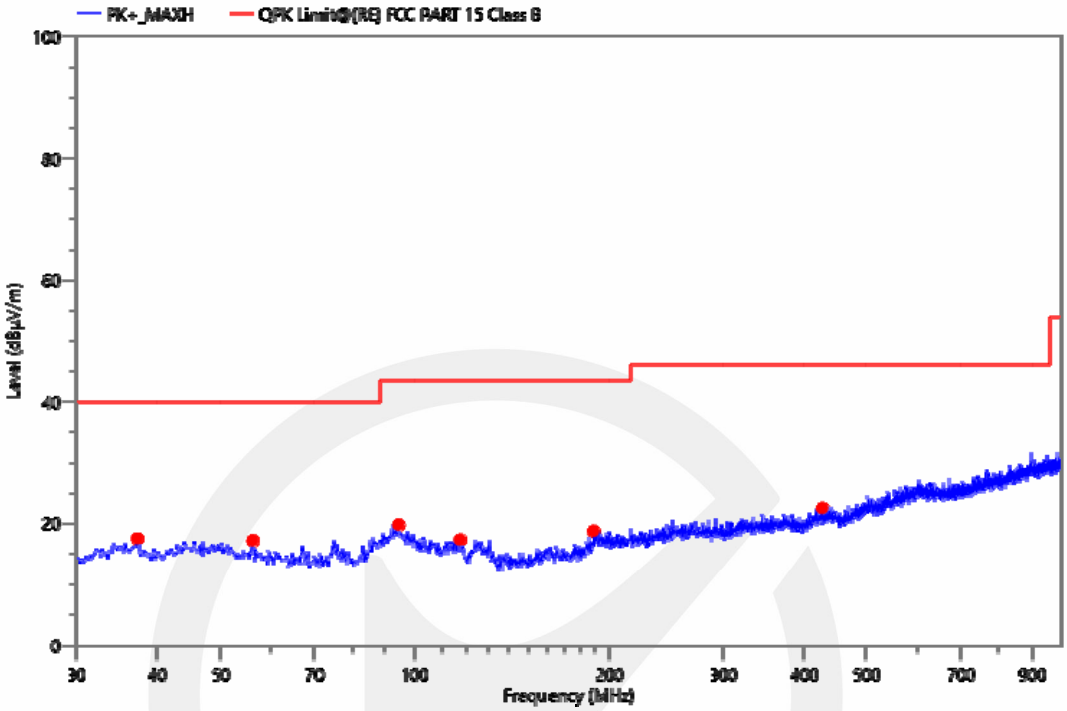
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Height (cm)	Pol.	Azimuth (deg)	Verdict
1	34.656	42.12	-24.39	17.73	40.00	22.27	QPK	200	H	185.4	PASS
2	49.497	40.78	-23.76	17.02	40.00	22.98	QPK	200	H	53.8	PASS
3	91.692	44.63	-25.08	19.55	43.50	23.95	QPK	200	H	85.4	PASS
4	124.769	45.37	-26.97	18.40	43.50	25.10	QPK	200	H	103.2	PASS
5	190.438	44.36	-25.28	19.08	43.50	24.42	QPK	200	H	107.4	PASS
6	592.600	42.03	-14.5	27.53	46.00	18.47	QPK	100	H	196.7	PASS

Project Information			
Mode:	TX 5870MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 18℃; Humi:67%	Engineer:	Chris Fan



No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Height (cm)	Pol.	Azimuth (deg)	Verdict
1	34.256	60.10	-24.5	35.60	40.00	4.40	QPK	100	V	198.3	PASS
2	51.340	47.31	-24.03	23.28	40.00	16.72	QPK	100	V	90.6	PASS
3	60.555	50.93	-25.7	25.23	40.00	14.77	QPK	100	V	144.8	PASS
4	77.142	51.74	-26.57	25.17	40.00	14.83	QPK	100	V	1.6	PASS
5	82.283	51.73	-26.34	25.39	40.00	14.61	QPK	200	V	257.3	PASS
6	91.304	51.07	-25.12	25.95	43.50	17.55	QPK	100	V	113.2	PASS

Project Information			
Mode:	TX 5870MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 18℃; Humi:67%	Engineer:	Chris Fan



No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Height (cm)	Pol.	Azimuth (deg)	Verdict
1	37.178	42.02	-24.49	17.53	40.00	22.47	QPK	200	H	315.3	PASS
2	56.093	42.13	-24.93	17.20	40.00	22.80	QPK	100	H	114.4	PASS
3	94.408	44.61	-24.81	19.80	43.50	23.70	QPK	200	H	98.7	PASS
4	117.203	43.64	-26.31	17.33	43.50	26.17	QPK	200	H	90.3	PASS
5	188.692	44.15	-25.39	18.76	43.50	24.74	QPK	200	H	109.4	PASS
6	426.342	41.00	-18.48	22.52	46.00	23.48	QPK	100	H	44.7	PASS

■ Spurious Emission Above 1GHz (1GHz to 18 GHz)

Test mode: GFSK Frequency: Channel : 5730 MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
8229.000	V	47.68	34.76	74	54	-26.32	-19.24
11039.00	V	50.73	36.38	74	54	-23.27	-17.62
17981.50	V	54.35	39.47	74	54	-19.65	-14.53
7911.500	H	47.33	34.62	74	54	-26.67	-19.38
11035.00	H	50.12	37.59	74	54	-23.88	-16.41
17990.00	H	54.33	39.58	74	54	-19.67	-14.42

Test mode: GFSK Frequency: Channel : 5800 MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
8580.000	V	47.25	33.05	74	54	-26.75	-20.95
14269.50	V	52.40	38.66	74	54	-21.60	-15.34
17923.00	V	53.65	38.49	74	54	-20.35	-15.51
10302.50	H	49.70	35.16	74	54	-24.30	-18.84
14142.00	H	52.36	38.45	74	54	-21.64	-15.55
17940.50	H	53.20	37.96	74	54	-20.80	-16.04

Test mode: GFSK Frequency: Channel : 5870 MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
10997.00	V	50.67	35.16	74	54	-23.33	-18.84
13889.00	V	52.80	37.04	74	54	-21.20	-16.96
17995.50	V	55.01	40.98	74	54	-18.99	-13.02
10985.50	H	50.32	35.28	74	54	-23.68	-18.72
14728.00	H	52.42	38.71	74	54	-21.58	-15.29
17940.00	H	53.82	39.42	74	54	-20.18	-14.58

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor +Cable Loss.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

8.3 CONDUCTED EMISSIONS TEST

8.3.1 Applicable Standard

According to FCC Part 15.207(a)

8.3.2 Conformance Limit

	Conducted Emission Limit	
Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

8.3.3 Test Configuration

Test according to clause 7.3 conducted emission test setup

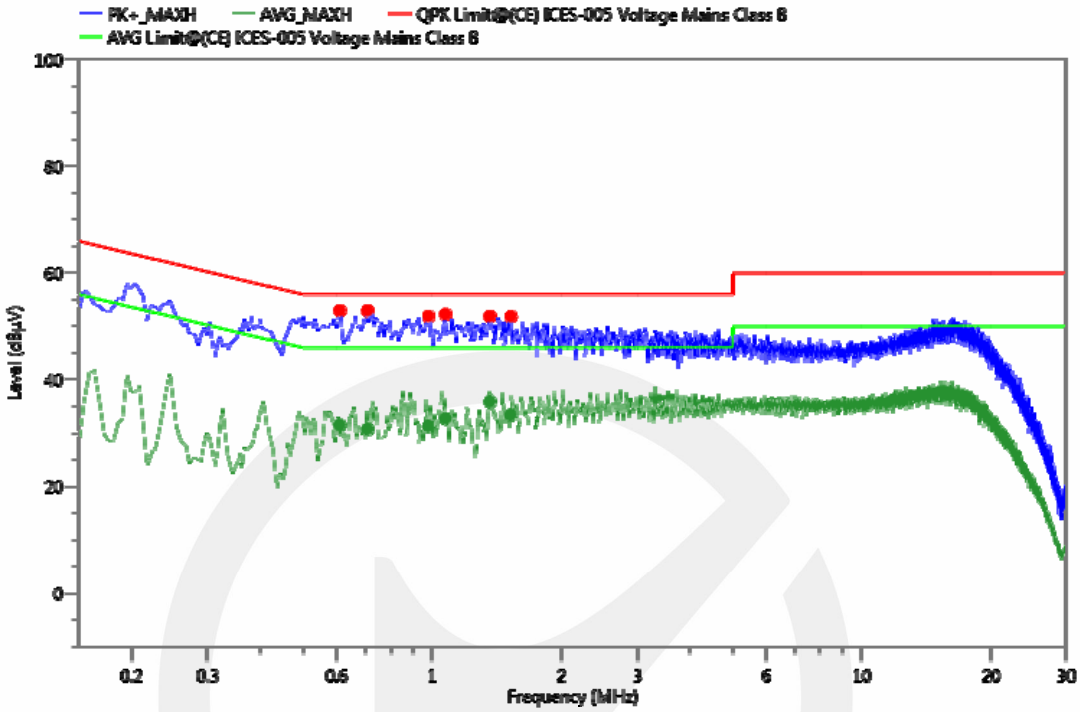
8.3.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Repeat above procedures until all frequency measured were complete.

8.3.5 Test Results

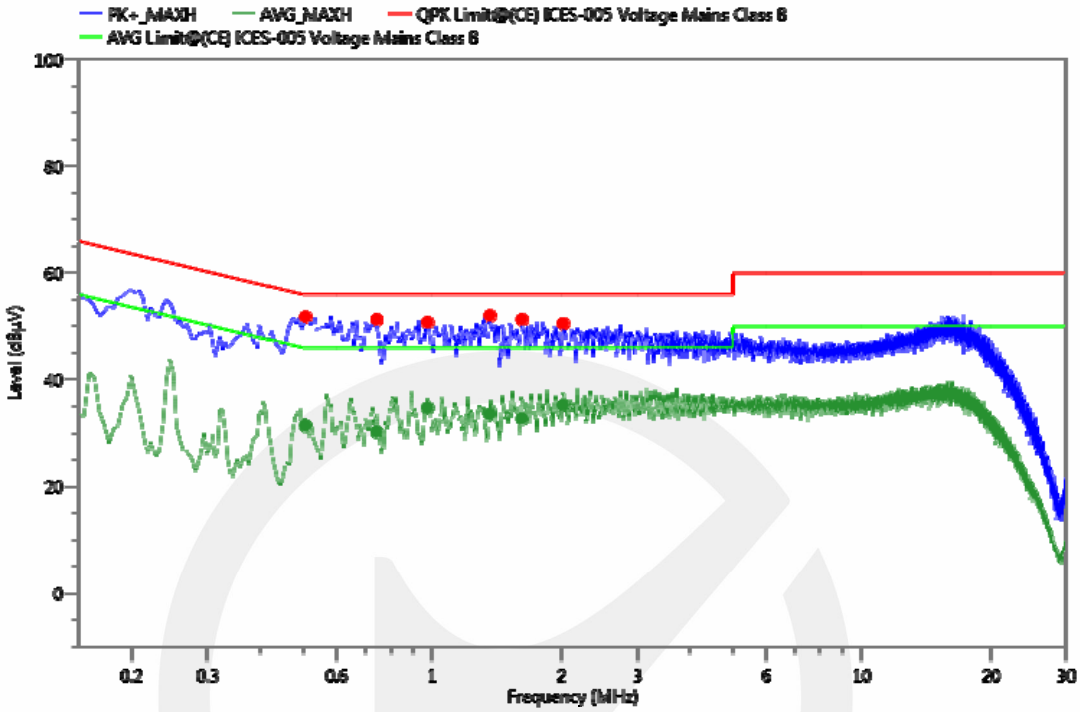
Pass

Project Information			
Mode:	TX5730	Voltage:	AC 120V/60Hz
Environment:	Temp: 22℃; Humi:71%	Engineer:	WK Luo



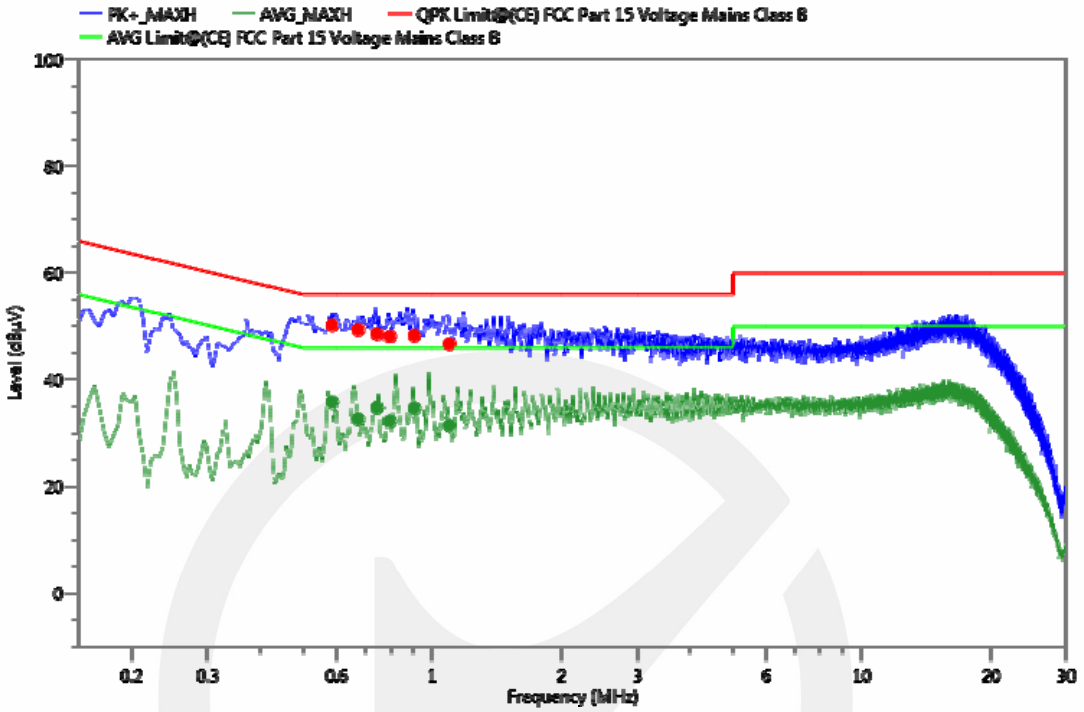
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	PE	Verdict
1	0.609	42.88	10.07	52.95	56.00	3.05	QPK	N	GND	PASS
2	0.609	21.40	10.07	31.47	46.00	14.53	AVG	N	GND	PASS
3	0.708	42.85	10.1	52.95	56.00	3.05	QPK	N	GND	PASS
4	0.708	20.59	10.1	30.69	46.00	15.31	AVG	N	GND	PASS
5	0.978	41.70	10.17	51.87	56.00	4.13	QPK	N	GND	PASS
6	0.978	21.09	10.17	31.26	46.00	14.74	AVG	N	GND	PASS
7	1.073	42.07	10.17	52.24	56.00	3.76	QPK	N	GND	PASS
8	1.073	22.51	10.17	32.68	46.00	13.32	AVG	N	GND	PASS
9	1.365	41.74	10.13	51.87	56.00	4.13	QPK	N	GND	PASS
10	1.365	25.71	10.13	35.84	46.00	10.16	AVG	N	GND	PASS
11	1.518	41.75	10.11	51.86	56.00	4.14	QPK	N	GND	PASS
12	1.518	23.26	10.11	33.37	46.00	12.63	AVG	N	GND	PASS

Project Information			
Mode:	TX5730	Voltage:	AC 120V/60Hz
Environment:	Temp: 22℃; Humi:71%	Engineer:	WK Luo



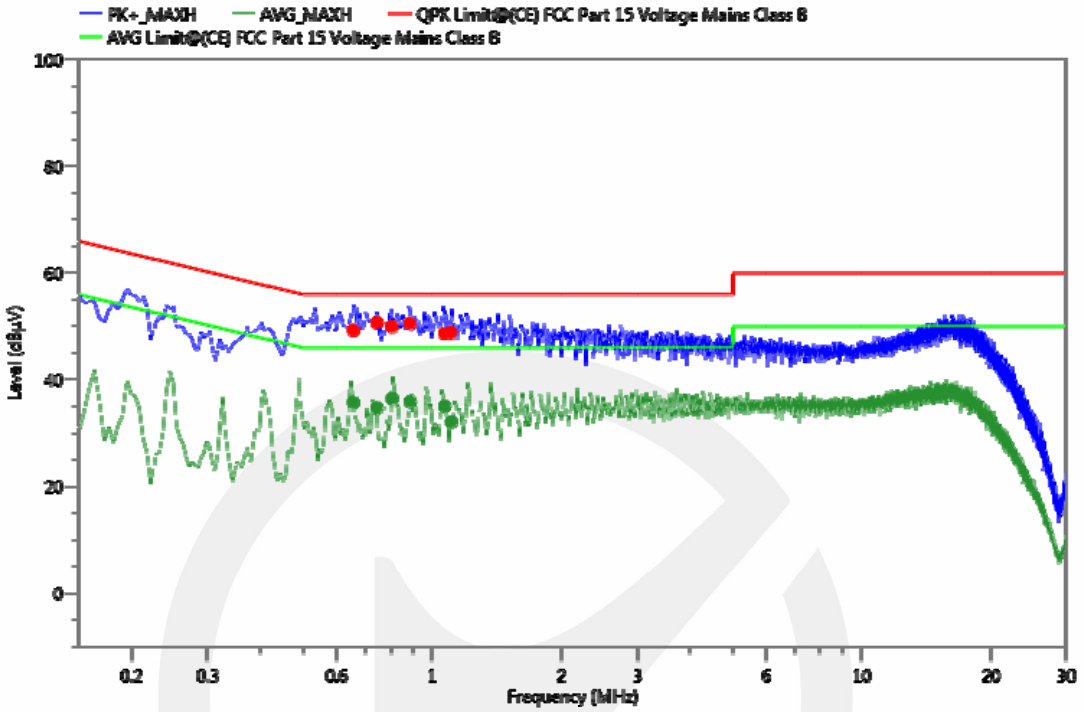
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	PE	Verdict
1	0.506	41.70	10.05	51.75	56.00	4.25	QPK	L1	GND	PASS
2	0.506	21.29	10.05	31.34	46.00	14.66	AVG	L1	GND	PASS
3	0.744	41.14	10.11	51.25	56.00	4.75	QPK	L1	GND	PASS
4	0.744	20.08	10.11	30.19	46.00	15.81	AVG	L1	GND	PASS
5	0.974	40.53	10.17	50.70	56.00	5.30	QPK	L1	GND	PASS
6	0.974	24.54	10.17	34.71	46.00	11.29	AVG	L1	GND	PASS
7	1.365	41.87	10.13	52.00	56.00	4.00	QPK	L1	GND	PASS
8	1.365	23.36	10.13	33.49	46.00	12.51	AVG	L1	GND	PASS
9	1.613	41.16	10.1	51.26	56.00	4.74	QPK	L1	GND	PASS
10	1.613	22.57	10.1	32.67	46.00	13.33	AVG	L1	GND	PASS
11	2.018	40.48	10.04	50.52	56.00	5.48	QPK	L1	GND	PASS
12	2.018	25.15	10.04	35.19	46.00	10.81	AVG	L1	GND	PASS

Project Information			
Mode:	TX5800	Voltage:	AC 120V/60Hz
Environment:	Temp: 22℃; Humi:71%	Engineer:	WK Luo



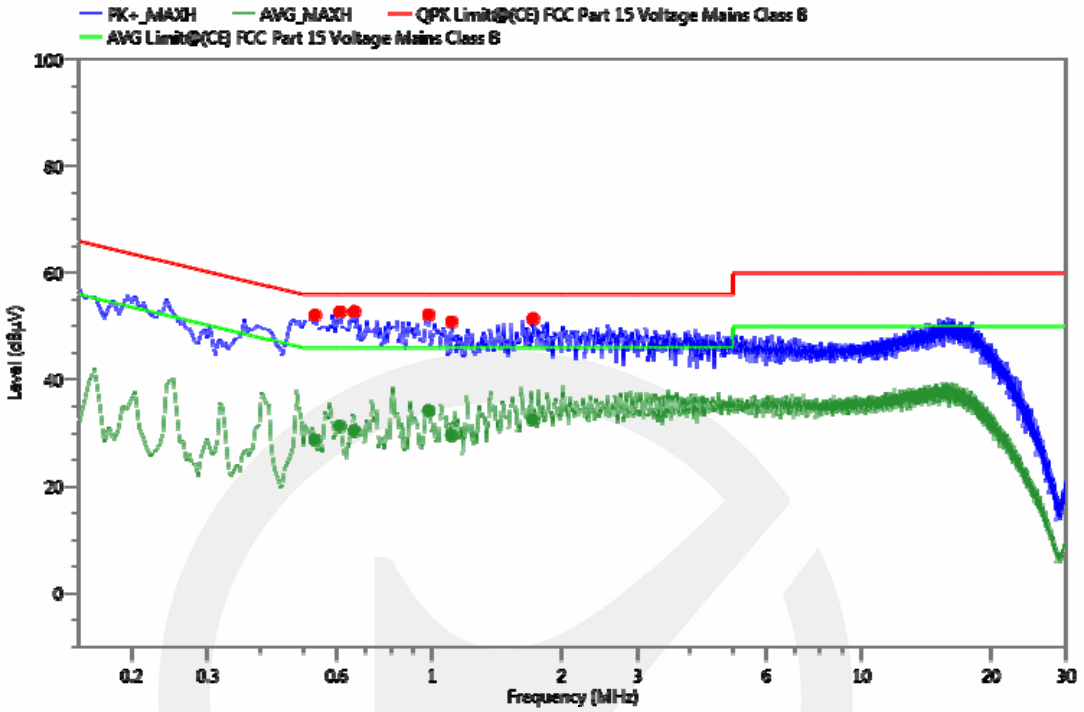
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	PE	Verdict
1	0.584	40.15	10.07	50.22	56.00	5.78	QPK	N	GND	PASS
2	0.584	25.70	10.07	35.77	46.00	10.23	AVG	N	GND	PASS
3	0.673	39.26	10.09	49.35	56.00	6.65	QPK	N	GND	PASS
4	0.673	22.50	10.09	32.59	46.00	13.41	AVG	N	GND	PASS
5	0.745	38.45	10.11	48.56	56.00	7.44	QPK	N	GND	PASS
6	0.745	24.66	10.11	34.77	46.00	11.23	AVG	N	GND	PASS
7	0.793	37.98	10.12	48.10	56.00	7.90	QPK	N	GND	PASS
8	0.793	22.09	10.12	32.21	46.00	13.79	AVG	N	GND	PASS
9	0.906	38.11	10.15	48.26	56.00	7.74	QPK	N	GND	PASS
10	0.906	24.50	10.15	34.65	46.00	11.35	AVG	N	GND	PASS
11	1.096	36.49	10.17	46.66	56.00	9.34	QPK	N	GND	PASS
12	1.096	21.20	10.17	31.37	46.00	14.63	AVG	N	GND	PASS

Project Information			
Mode:	TX5800	Voltage:	AC 120V/60Hz
Environment:	Temp: 22℃; Humi:71%	Engineer:	WK Luo



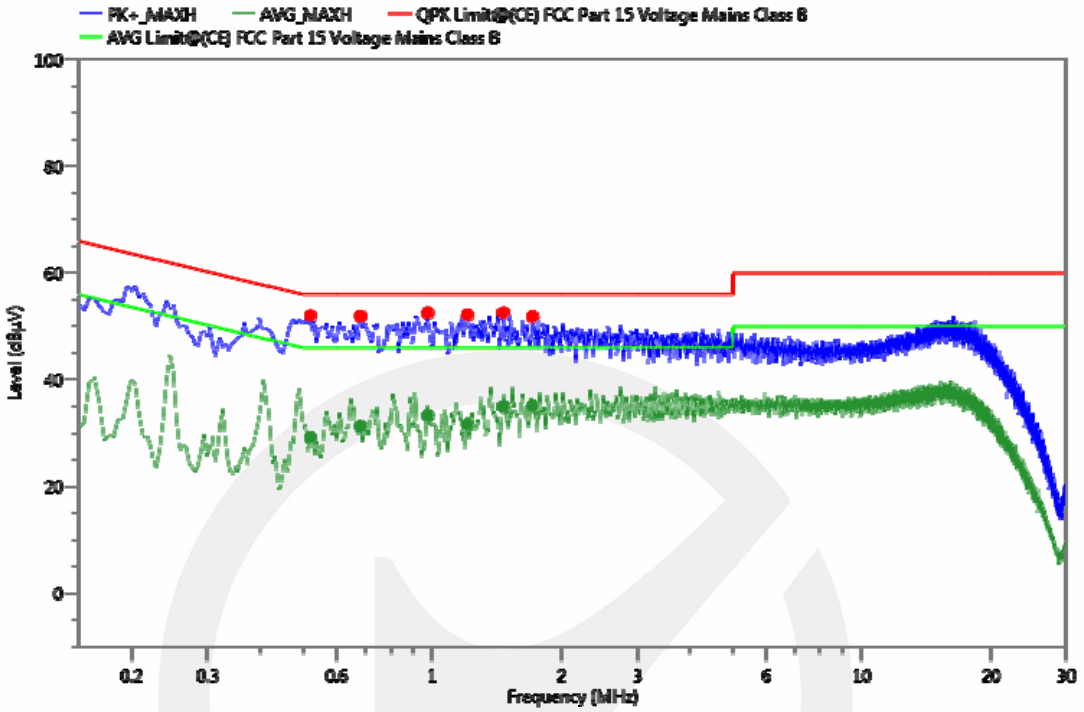
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	PE	Verdict
1	0.655	39.19	10.08	49.27	56.00	6.73	QPK	L1	GND	PASS
2	0.655	25.65	10.08	35.73	46.00	10.27	AVG	L1	GND	PASS
3	0.745	40.58	10.11	50.69	56.00	5.31	QPK	L1	GND	PASS
4	0.745	24.59	10.11	34.70	46.00	11.30	AVG	L1	GND	PASS
5	0.802	39.83	10.12	49.95	56.00	6.05	QPK	L1	GND	PASS
6	0.802	26.34	10.12	36.46	46.00	9.54	AVG	L1	GND	PASS
7	0.884	40.39	10.14	50.53	56.00	5.47	QPK	L1	GND	PASS
8	0.884	25.78	10.14	35.92	46.00	10.08	AVG	L1	GND	PASS
9	1.067	38.48	10.17	48.65	56.00	7.35	QPK	L1	GND	PASS
10	1.067	24.84	10.17	35.01	46.00	10.99	AVG	L1	GND	PASS
11	1.107	38.63	10.17	48.80	56.00	7.20	QPK	L1	GND	PASS
12	1.107	21.91	10.17	32.08	46.00	13.92	AVG	L1	GND	PASS

Project Information			
Mode:	TX5870	Voltage:	AC 120V/60Hz
Environment:	Temp: 22℃; Humi:71%	Engineer:	WK Luo



No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	PE	Verdict
1	0.533	42.00	10.05	52.05	56.00	3.95	QPK	N	GND	PASS
2	0.533	18.63	10.05	28.68	46.00	17.32	AVG	N	GND	PASS
3	0.609	42.64	10.07	52.71	56.00	3.29	QPK	N	GND	PASS
4	0.609	21.18	10.07	31.25	46.00	14.75	AVG	N	GND	PASS
5	0.659	42.67	10.08	52.75	56.00	3.25	QPK	N	GND	PASS
6	0.659	20.30	10.08	30.38	46.00	15.62	AVG	N	GND	PASS
7	0.978	41.97	10.17	52.14	56.00	3.86	QPK	N	GND	PASS
8	0.978	23.98	10.17	34.15	46.00	11.85	AVG	N	GND	PASS
9	1.109	40.66	10.17	50.83	56.00	5.17	QPK	N	GND	PASS
10	1.109	19.40	10.17	29.57	46.00	16.43	AVG	N	GND	PASS
11	1.712	41.33	10.09	51.42	56.00	4.58	QPK	N	GND	PASS
12	1.712	22.40	10.09	32.49	46.00	13.51	AVG	N	GND	PASS

Project Information			
Mode:	TX5870	Voltage:	AC 120V/60Hz
Environment:	Temp: 22℃; Humi:71%	Engineer:	WK Luo



No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	PE	Verdict
1	0.519	41.91	10.05	51.96	56.00	4.04	QPK	L1	GND	PASS
2	0.519	19.10	10.05	29.15	46.00	16.85	AVG	L1	GND	PASS
3	0.681	41.83	10.09	51.92	56.00	4.08	QPK	L1	GND	PASS
4	0.681	21.14	10.09	31.23	46.00	14.77	AVG	L1	GND	PASS
5	0.974	42.34	10.17	52.51	56.00	3.49	QPK	L1	GND	PASS
6	0.974	23.09	10.17	33.26	46.00	12.74	AVG	L1	GND	PASS
7	1.208	41.97	10.15	52.12	56.00	3.88	QPK	L1	GND	PASS
8	1.208	21.42	10.15	31.57	46.00	14.43	AVG	L1	GND	PASS
9	1.460	42.38	10.12	52.50	56.00	3.50	QPK	L1	GND	PASS
10	1.460	24.83	10.12	34.95	46.00	11.05	AVG	L1	GND	PASS
11	1.707	41.73	10.08	51.81	56.00	4.19	QPK	L1	GND	PASS
12	1.707	24.99	10.08	35.07	46.00	10.93	AVG	L1	GND	PASS

8.4 ANTENNA APPLICATION

8.4.1 Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.4.2 Result

PASS.

The EUT has 1 antenna: a PCB Antenna gain is 2.0 dBi.

Note: ☒ Antenna use a permanently attached antenna which is not replaceable.
☐ Not using a standard antenna jack or electrical connector for antenna replacement
☐ The antenna has to be professionally installed (please provide method of installation)

which in accordance to section 15.203, please refer to the internal photos.

*** End of Report ***

声 明
Statement

1. 本报告无授权批准人签字及“检验检测专用章”无效；
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   Objections shall be raised within 20 days from the date receiving the report.