Aibo Standard Technology (Shenzhen) Co., Ltd.
101, Building B, Tuori New Energy Industrial Park, High-tech Park, Tianliao Community, Yutang Street, Guangming District, Shenzhen City, Guangdong Province, China
Tel.: +(86) 0755 85250797 E-mail: Aibonorm@aibonorm.com Website: www.Aibonorm.com

TEST REPORT

Report No.....:	**AB25060009FW01**
FCC ID.....:	2BP62-W19
Applicant ..... :	Kachemak LLC
Address ..... :	Unit 3E,2248 W Belmont Ave, Chicago, IL.60618,US
Manufacturer.....:	Shenzhen Meifaner Technology Co ., Ltd.
Address.....:	4th Floor, Building A1, Zedali Science and Technology Park, Fuhai Sub-district, Bao 'an District, Shenzhen City
Product Name ..... :	10 IN 1 Type-c HUB Adapter
TradeMark..... :	Arctalis
Model/Type reference ..... :	BTJ-W19
Listed Model(s) ..... :	N/A
Standard..... :	**FCC CFR Title 47 Part 15 Subpart C Section 15.209**
Date of Receipt ..... :	2025.06.05
Date of Test Date ..... :	2025.06.05-2025.07.11
Date of issue ..... :	2025.07.11
Test result ..... :	**Pass**

Compiled by: (Printed name+signature)	Huaijie Li	Huaijie Li
Supervised by: (Printed name+signature)	Jay Liu	jay liu
Approved by: (Printed name+signature)	Mic Cheng	Mic Cheng

Testing Laboratory Name..... :	**Aibo Standard Technology (Shenzhen) Co., Ltd.**
Address ..... :	101, Building B, Tuori New Energy Industrial Park, High-tech Park, Tianliao Community, Yutang Street, Guangming District, Shenzhen City, Guangdong Province, China

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1. TEST SUMMARY

1.1. Test standards

The tests were performed according to following standards:

FCC Rules Part 15.209: Radiated emission limits; general requirements.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	2025.07.11	Original

1.3. Test description

FCC Rules Part 15.209			
Test Item	Standard Section	Result	Test Engineer
	FCC		
Antenna requirement	15.203	Pass	Guangke Zhao
Conducted Emissions	15.207	Pass	Guangke Zhao
Radiated Spurious Emissions	15.209	Pass	Guangke Zhao
Occupied Bandwidth	15.215(c)	Pass	Guangke Zhao

Note: 1. The measurement uncertainty is not included in the test result.

2.N/A: means this test item is not applicable

1.4. Test facility

Test Lab: Aibo Standard Technology (Shenzhen) Co., Ltd.

Address: 101, Building B, Tuori New Energy Industrial Park, High-tech Park, Tianliao Community, Yutang Street, Guangming District, Shenzhen City, Guangdong Province, China

Tel.: +(86) 0755 85250797

E-mail: Aibonorm@aibonorm.com

Website: www.Aibonorm.com

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

FCC Accredited Lab.

Designation Number: CN1411

Test Firm Registration Number: 567066

Aibo Standard Technology (Shenzhen) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromaanetic emission measurement.

A2LA-Lab Certificate No.: 7514.01

Aibo Standard Technology (Shenzhen) Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories

ISED#:33924

CAB identifier: CN0185

Aibo Standard Technology (Shenzhen) Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

1.5. Measurement uncertainty

The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Items	Measurement Uncertainty
Radiated Emission (9kHz~30MHz)	±3.10dB
Radiated Emission (30MHz~1GHz)	±4.90dB
Radiated Emission (1GHz~18GHz)	±3.88dB
Radiated Emission (8GHz~40GHz)	±5.32dB
RF Conducted Power	±0.57dB

Note: All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95 % level of confidence.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

2. GENERAL INFORMATION

2.1. General description of EUT

Product Name:	10 IN 1 Type-c HUB Adapter
Model/Type reference:	BTJ-W19
Trademark:	Arctalis
Listed models:	N/A
Model Difference:	N/A
Power supply:	DC 9V-2A PD charging input: 100W
Power supply(Battery):	N/A
Hardware version:	N/A
Software version:	N/A
RF Specification	
Operation frequency:	110.5- 205 KHz
Modulation Type:	ASK
Test Frequency	127 KHz
Power Rating	Output: 15W(Wireless charger)
Test Sample ID	AB25060009-1#
Antenna Type	Coil Antenna
Antenna Gain	0dBi
Note:For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.	

2.2. Test mode

The EUT was operated at continuous transmitting mode that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Modes:		
Mode 1	AC/DC Adapter(DC 9V) + EUT + Mobile Phone (battery status: 1%)	Record
Mode 2	AC/DC Adapter(DC 9V) + EUT + Mobile Phone (battery status: 50%)	Pre-tested
Mode 3	AC/DC Adapter(DC 9V) + EUT + Mobile Phone (battery status: 100%)	Pre-tested
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

2.3. Measurement instruments list

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
1	EMI Test Receiver	R&S	ESCI	101196	01/20/2025	01/19/2026
2	Loop Antenna	Schwarzbeck	FMZB 1519	1519-025	02/19/2025	02/18/2026
3	Power Amplifier	HZEMC	HPA-9K0133	HYPA23029	02/19/2025	02/18/2026
4	Broadband Antenna	Schwarzbeck	VULB 9168	01763	02/19/2025	02/18/2026
5	Attenuator	PRM	ATT50-6-3	ATT50-6-3	01/20/2025	01/19/2026
6	Spectrum Analyzer	R&S	FSV40-N	101365	01/20/2025	01/19/2026
7	Horn Antenna	Schwarzbeck	BBHA 9120 D	02786	02/19/2025	02/18/2026
8	Horn Antenna	Schwarzbeck	ZLB7-18-40G-777	072410839	02/19/2025	02/18/2026
9	Power Amplifier	HZEMC	PA0118-43	HYPA23030	02/19/2025	02/18/2026
10	Power Amplifier	HZEMC	PA01840-45	HYPA23031	02/19/2025	02/18/2026
11	EMI Test Receiver	R&S	ESCI	101196	01/20/2025	01/19/2026
12	LISN	R&S	ENV216	102374	01/20/2025	01/19/2026
13	Pulse Limiter	Schwarzbeck	ESH3-Z2	0357.8810.54	01/20/2025	01/19/2026
14	MXA Signal Analyzer	Keysight	N9020A	MY52091389	01/20/2025	01/19/2026
15	Power Sensor	Agilent	U2021XA	MY54110007	01/31/2025	01/30/2026
16	Power Sensor	Agilent	U2021XA	MY54110009	01/31/2025	01/30/2026
17	MXG Vector Signal Generator	Agilent	N5182A	MY47070153	01/20/2025	01/19/2026
18	Analog Signal Source	Keysight	N5173B	MY60403029	01/20/2025	01/19/2026
19	Vector Signal Generator	R&S	SMCV100B	106103	01/20/2025	01/19/2026
20	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW500	118780	01/20/2025	01/19/2026
21	WIDEBAND RADIO COMMUNICATION TESTER	Starpoint	SP9500	SP9500-20445, C1.0.9.36+SP1	01/20/2025	01/19/2026
22	DC POWER SUPPLY	MAISHENG	MT-305DS	2021040016	02/28/2025	02/27/2026
23	Const Temp. & Humidity Chamber	GRT	GR-HWX-150L	GR25010601	01/20/2025	01/19/2026

Note:
1) The cable loss has calculated in test result which connection between each test instruments.

2.4. Test software

Software name	Model	Version
Conducted emission Measurement Software	HzEMC	V4.1
Radiated emission Measurement Software	HzEMC	V4.1

3. TEST ITEM AND RESULTS

3.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, 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.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

Note: The antenna is permanently fixed to the EUT.

3.2. Conducted emission

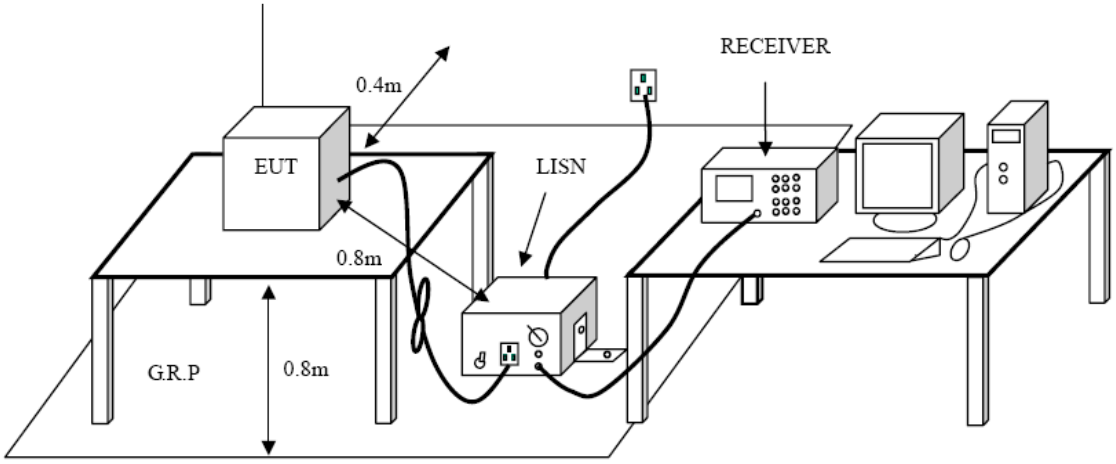
Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

(1) *Decreasing linearly with logarithm of the frequency.



(2) The lower limit shall apply at the transition frequencies.

(3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Configuration

Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment.
   The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
7. During the above scans, the emissions were maximized by cable manipulation.
8.

Test Mode:

Please refer to the clause 2.2.

Test Results

☒ **Passed** ☐ **Not Applicable**

Test Plots and Data of Conducted Emissions (Worst Case: Mode 1)			
Environmental Conditions	24.6℃, 53.4% RH	Test Engineer	Guangke Zhao
Test Voltage:	AC 120V/60Hz	Test Power Line:	Live

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	PE
1	0.249	22.90	9.99	32.89	51.79	18.90	AVG	L1	GND
2	0.596	36.11	10	46.11	56.00	9.89	PK+	L1	GND
3	1.581	26.80	10.02	36.82	46.00	9.18	AVG	L1	GND
4	1.586	36.86	10.02	46.88	56.00	9.12	PK+	L1	GND
5	2.486	38.55	10.03	48.58	56.00	7.42	PK+	L1	GND
6	2.486	30.05	10.03	40.08	46.00	5.92	AVG	L1	GND
7	2.733	38.73	10.03	48.76	56.00	7.24	PK+	L1	GND
8	2.733	30.63	10.03	40.66	46.00	5.34	AVG	L1	GND
9	13.520	30.44	13.03	43.47	50.00	6.53	AVG	L1	GND
10	13.997	39.91	13.22	53.13	60.00	6.87	PK+	L1	GND
11	19.383	30.75	13.82	44.57	50.00	5.43	AVG	L1	GND
12	25.134	40.08	15.1	55.18	60.00	4.82	PK+	L1	GND

Remark:

Emission Level = Reading + Correct Factor;

Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Attenuation Factor

Margin= Emission Level - Limit.

Test Plots and Data of Conducted Emissions (Worst Case: Mode 1)			
Environmental Conditions	24.6℃, 53.4% RH	Test Engineer	Guangke Zhao
Test Voltage:	AC 120V/60Hz	Test Power Line:	Neutral

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	PE
1	0.555	35.62	9.99	45.61	56.00	10.39	PK+	N	GND
2	0.618	23.86	10	33.86	46.00	12.14	AVG	N	GND
3	1.397	27.63	10.01	37.64	46.00	8.36	AVG	N	GND
4	1.631	38.40	10.02	48.42	56.00	7.58	PK+	N	GND
5	2.562	38.54	10.03	48.57	56.00	7.43	PK+	N	GND
6	3.489	29.84	10.05	39.89	46.00	6.11	AVG	N	GND
7	6.653	35.33	10.09	45.42	60.00	14.58	PK+	N	GND
8	6.653	26.91	10.09	37.00	50.00	13.00	AVG	N	GND
9	14.226	31.75	13.32	45.07	50.00	4.93	AVG	N	GND
10	14.685	40.16	13.5	53.66	60.00	6.34	PK+	N	GND
11	24.180	31.15	14.86	46.01	50.00	3.99	AVG	N	GND
12	25.107	39.73	15.09	54.82	60.00	5.18	PK+	N	GND

Remark:

Emission Level = Reading + Correct Factor;

Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Attenuation Factor

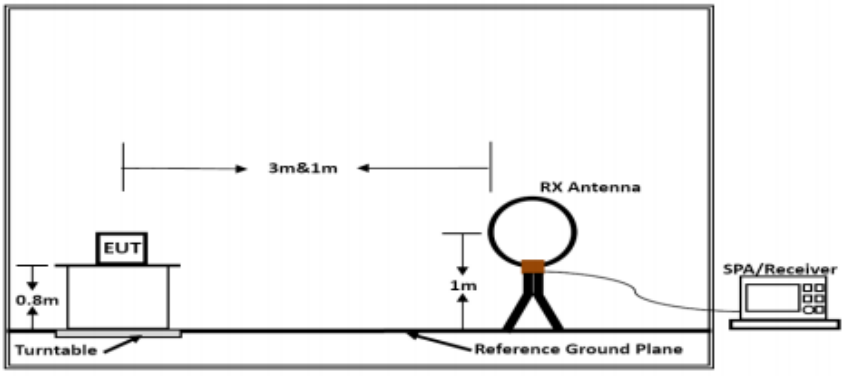
Margin= Emission Level - Limit.

3.3. Occupied bandwidth

Limit

N/A

Test Configuration



Below 30MHz

Test Procedure

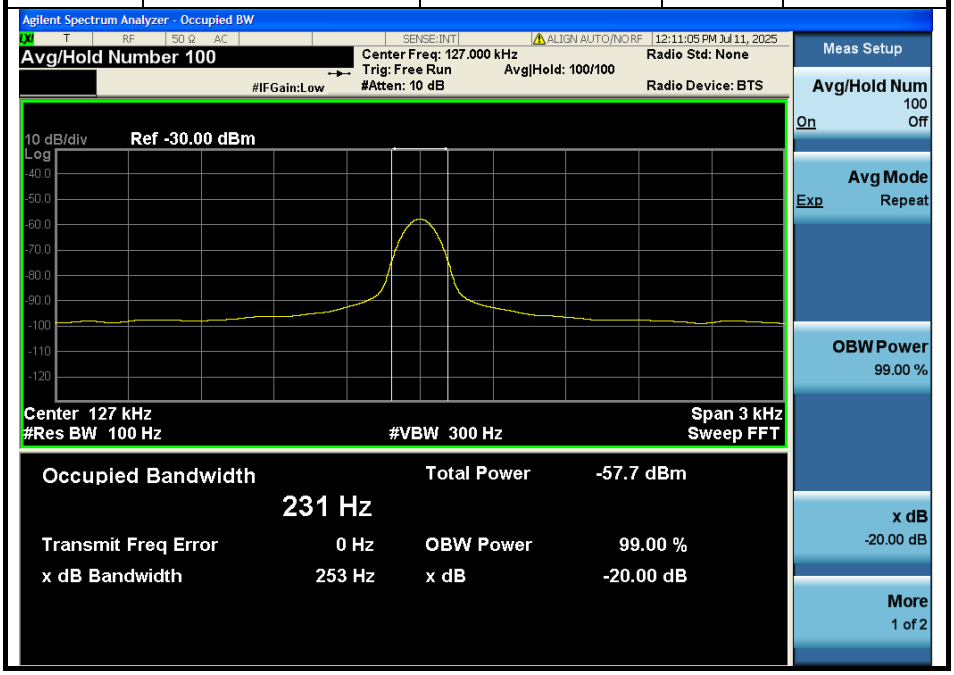
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be deomonstrated by measuring the radiated emissions.

Test Mode

Please refer to the clause 2.2.

Test Results

Mode	Channel frequency (KHz)	20dB Bandwidth (Hz)	Limit (kHz)	conclusion
Tx Mode	127	253	/	PASS



3.4. Spurious emission (radiated)

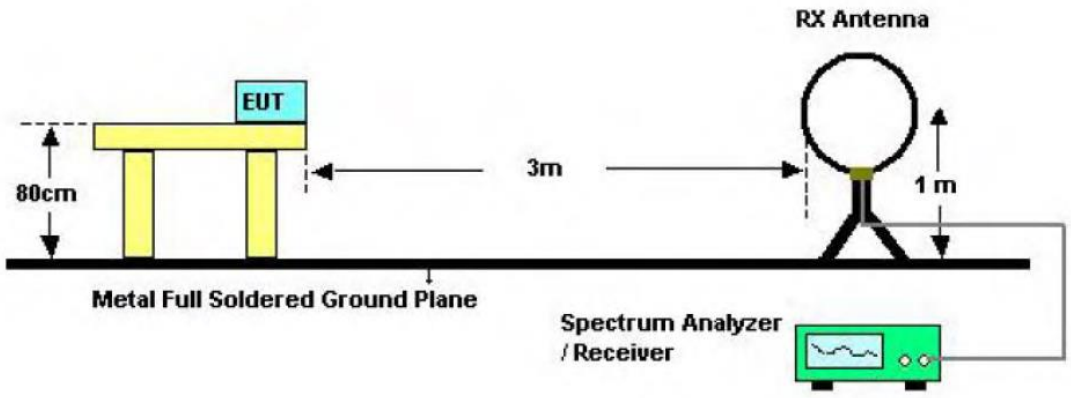
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.209

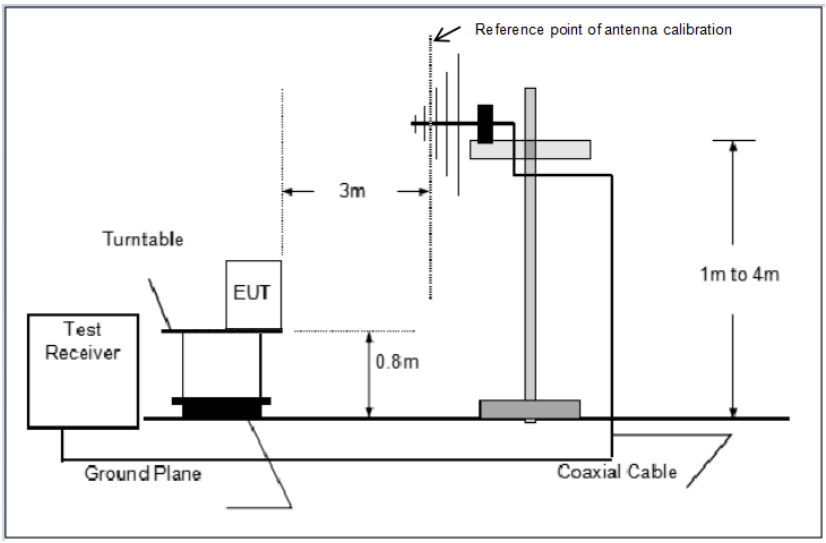
Radiated Emission Limits (9 kHz~1000 MHz)

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Test Configuration



Below 30MHz Test Setup



30M - 1000MHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings

   (1) Span shall wide enough to fully capture the emission being measured;

   (2) Below 1 GHz:

   RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;

   If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

   (3) From 1 GHz to 10th harmonic:

   RBW=1MHz, VBW=3MHz Peak detector for Peak value.

   RBW=1MHz, VBW=10Hz RMS detector for Average value.

Test Mode

Please refer to the clause 2.2.

Test Result

The value is less than the limit value 20dB.

9 KHz~30 MHz , 30MHz-1GHz

From 9 KHz~30 MHz, 30MHz-1GHz and 1GHz~6GHz: Conclusion: PASS

Note:

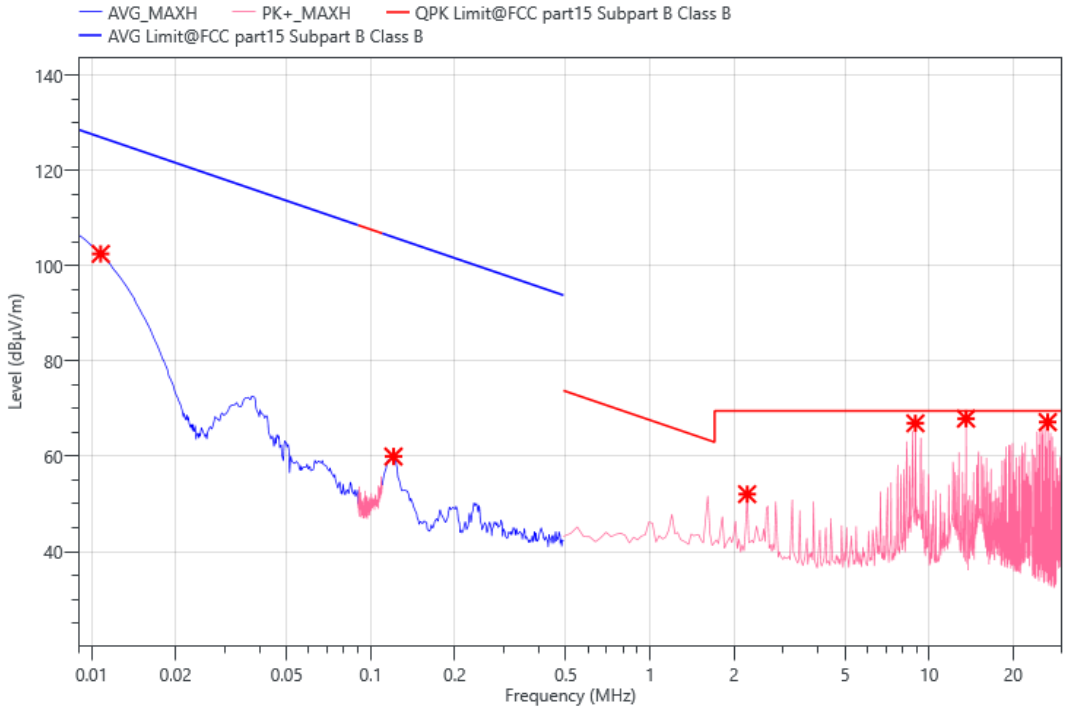
1) Final level = Reading level + Correct Factor

   Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor.

2) The emission levels of other frequencies are very lower than the limit and not show in test report.

3) The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

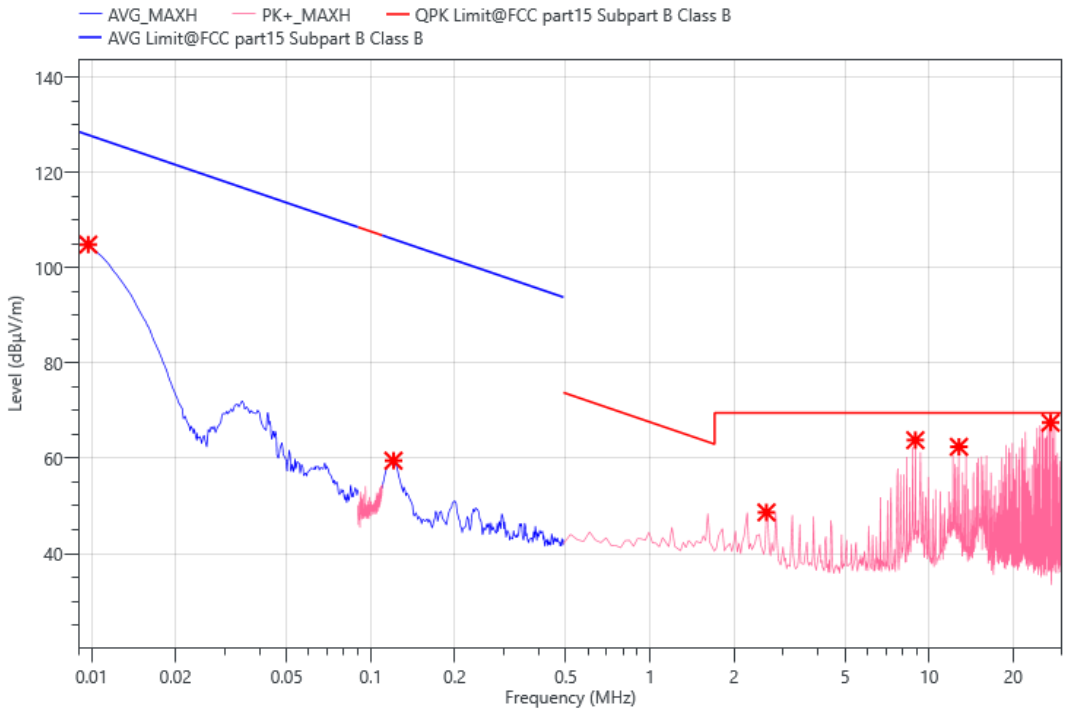
Radiated Emission Test Data (9kHz to 30MHz)			
Environmental Conditions	24.6℃, 53.4% RH	Test Engineer	Guangke Zhao
Worst Test Mode:	TM1	Polarity:	90°



No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
1	0.011	83.14	19.32	102.46	126.95	24.49	AVG
2	0.121	40.42	19.53	59.95	105.98	46.03	AVG
3	2.231	32.33	19.73	52.06	69.54	17.48	PK+
4	8.930	46.98	19.94	66.92	69.54	2.62	PK+
5	13.563	47.93	19.96	67.89	69.54	1.65	PK+
6	26.606	47.36	19.82	67.18	69.54	2.36	PK+

Remark:
Emission Level = Reading + Factor;
Factor = Antenna Factor + Cable Loss – Pre-amplifier;
Margin= Emission Level - Limit.

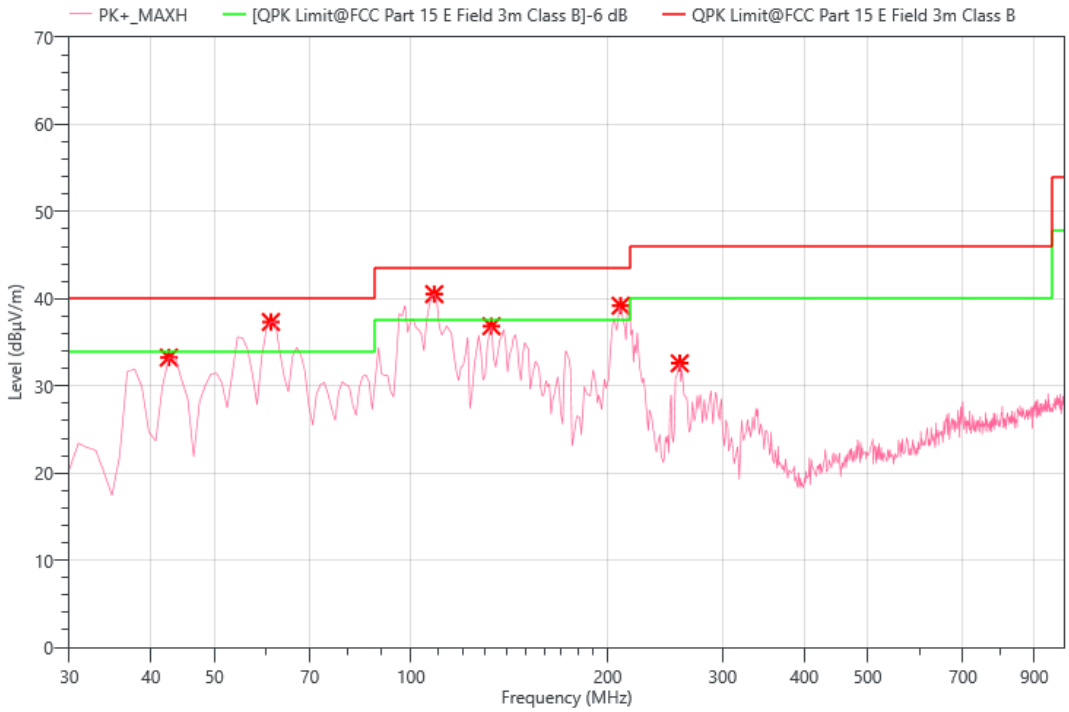
Radiated Emission Test Data (9kHz to 30MHz)			
Environmental Conditions	24.6℃, 53.4% RH	Test Engineer	Guangke Zhao
Worst Test Mode:	TM1	Polarity:	180°



No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
1	0.010	85.56	19.29	104.85	127.84	22.99	AVG
2	0.121	39.97	19.53	59.50	105.98	46.48	AVG
3	2.615	28.90	19.74	48.64	69.54	20.90	PK+
4	8.930	43.86	19.94	63.80	69.54	5.74	PK+
5	12.796	42.43	19.98	62.41	69.54	7.13	PK+
6	27.226	47.66	19.82	67.48	69.54	2.06	PK+

Remark:
Emission Level = Reading + Factor;
Factor = Antenna Factor + Cable Loss – Pre-amplifier;
Margin= Emission Level - Limit.

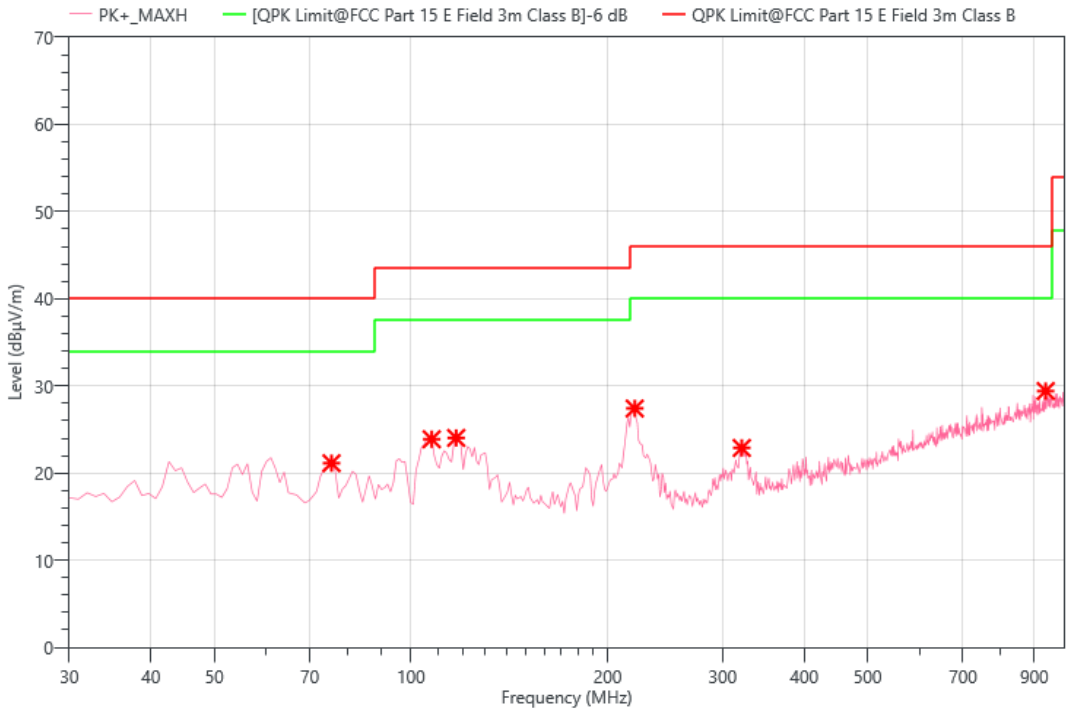
Radiated Emission Test Data (30MHz to 1GHz)			
Environmental Conditions	24.6℃, 53.4% RH	Test Engineer	Guangke Zhao
Worst Test Mode:	TM1	Polarity:	Horizontal



No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.
1	42.610	46.35	-13.1	33.25	40.00	6.75	PK+	H
2	61.040	51.43	-14.1	37.33	40.00	2.67	PK+	H
3	108.570	55.99	-15.46	40.53	43.50	2.97	PK+	H
4	132.820	50.06	-13.21	36.85	43.50	6.65	PK+	H
5	209.450	54.72	-15.52	39.20	43.50	4.30	PK+	H
6	257.950	46.12	-13.52	32.60	46.00	13.40	PK+	H

Remark:
Emission Level = Reading + Factor;
Factor = Antenna Factor + Cable Loss – Pre-amplifier;
Margin= Emission Level - Limit.

Radiated Emission Test Data (30MHz to 1GHz)			
Environmental Conditions	24.6℃, 53.4% RH	Test Engineer	Guangke Zhao
Worst Test Mode:	TM1	Polarity:	Vertical



No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.
1	42.610	49.50	-13.1	36.40	40.00	3.60	PK+	V
2	50.370	46.82	-13.4	33.42	40.00	6.58	PK+	V
3	54.250	49.39	-13.58	35.81	40.00	4.19	PK+	V
4	61.040	50.46	-14.1	36.36	40.00	3.64	PK+	V
5	97.900	55.11	-16.49	38.62	43.50	4.88	PK+	V
6	218.180	54.58	-15.14	39.44	46.00	6.56	PK+	V

Remark:
Emission Level = Reading + Factor;
Factor = Antenna Factor + Cable Loss – Pre-amplifier;
Margin= Emission Level - Limit.

4. TEST SETUP Photographs of EUT

Please refer to Appendix C_Test Photos.

5. Exterior Photographs of the EUT

Please refer to Appendix D External Photos.

6. INTERIOR Photographs of the EUT

Please refer to Appendix E_EUT Internal Photos.

********** THE END **********