FCC TEST REPORT
FCC ID:2BE8M-A5

Report Number.....:	**ZKT-2401291416E**
Date of Test.....	Feb. 16, 2024 to Feb. 23, 2024
Date of issue.....:	Feb. 23, 2024
Total number of pages.....	30
Test Result .....:	PASS
Testing Laboratory.....:	**Shenzhen ZKT Technology Co., Ltd.**
Address .....:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name .....:	**DINGSOUND ELECTRONIC TECHNOLOGY CO.,LIMITED**
Address .....:	ROOM 605, 6/F, FA YUEN COMMERCIAL BUILDING, 75-77 FA YUEN STREET, MONGKOK,KOWLOON, HONGKONG
Manufacturer's name .....:	**DONGGUAN ZHENGGAO ELECTRONICS CO.,LTD**
Address .....:	Room 301,no.4,no.2 zhenglong road, chang' an town, Dongguan City
Test specification:	
Standard.....:	FCC CFR Title 47 Part 15 Subpart C
Test procedure.....:	/
Non-standard test method .....:	N/A
Test Report Form No.....:	TRF-EL-107_V0
Test Report Form(s) Originator.....:	ZKT Testing
Master TRF .....:	Dated: 2020-01-06

This device described above has been tested by ZKT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Product name.....:	**Wireless charger Bluetooth speaker**
Trademark .....:	N/A
Model/Type reference.....:	A5
Ratings.....:	Input: 12V⎓2A, 9V⎓2A, 5V⎓2A Phone Output : 5W/15W (Max) Earbuds Output: 5W (Max) Watch Output: 3W (Max)

Testing procedure and testing location:

Testing Laboratory.....:	**Shenzhen ZKT Technology Co., Ltd.**
Address.....:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Tested by (name + signature).....:	Jim Liu
Reviewer (name + signature).....:	Jackson Fang
Approved (name + signature).....:	Lake Xie

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1. VERSION

Report No.	Version	Description	Approved
ZKT-2401291416E	Rev.01	Initial issue of report	Feb. 23, 2024

2. TEST SUMMARY

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Spurious Emission	15.209(a)(f)	Pass
20dB Bandwidth	15.215	Pass

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.
Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225
Designation Number: CN1299
IC Registered No.: 27033
CAB identifier: CN0110

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %。

No.	Item	Uncertainty
1	3m camber Radiated spurious emission(9KHz-30MHz)	U=4.5dB
2	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.8dB
3	3m chamber Radiated spurious emission(1GHz-6GHz)	U=4.9dB
4	3m chamber Radiated spurious emission(6GHz-40GHz)	U=5.0dB
5	Conducted disturbance	U=3.2dB
6	RF conducted Spurious Emission	U=2.2dB
7	RF Occupied Bandwidth	U=1.8MHz
8	humidity uncertainty	U=5.3%
9	Temperature uncertainty	U=0.59℃

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Wireless charger Bluetooth speaker
Model No.:	A5
Serial No.:	N/A
Model Difference:	N/A
Hardware version:	H 1.0
Software version:	V 1.1
Operation Frequency:	ANT 1&2&3: 115kHz-205kHz ANT 4: 320kHz
Modulation type:	ASK
Antenna Type:	ANT 1&2&3&4: Loop Coil Antenna
Antenna gain:	ANT 1&2&3&4: 0dBi
Ratings:	Input: 12V⎓2A, 9V⎓2A, 5V⎓2A Phone Output : 5W/15W (Max) Earbuds Output: 5W (Max) Watch Output: 3W (Max)
Transmitting mode	Keep the EUT in continuously wireless charging mode

3.2 Test mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

a. EUT mode of operation before folding:

Test Modes:	Test Coil	Description:
Mode 1	ANT 1	AC/DC Adapter + EUT + Phone (Battery Status: <1%)
Mode 2		AC/DC Adapter + EUT + Phone (Battery Status: 50%)
Mode 3		AC/DC Adapter + EUT + Phone (Battery Status: >98%)
Mode 4	ANT 2	AC/DC Adapter + EUT + Phone (Battery Status: <1%)
Mode 5		AC/DC Adapter + EUT + Phone (Battery Status: 50%)
Mode 6		AC/DC Adapter + EUT + Phone (Battery Status: >98%)
Mode 7	ANT 3	AC/DC Adapter + EUT + Earbuds (Battery Status: <1%)
Mode 8		AC/DC Adapter + EUT + Earbuds (Battery Status: 50%)
Mode 9		AC/DC Adapter + EUT + Earbuds (Battery Status: >98%)
Mode 10	ANT 4	AC/DC Adapter + EUT + Watch (Battery Status: <1%)
Mode 11		AC/DC Adapter + EUT + Watch (Battery Status: 50%)
Mode 12		AC/DC Adapter + EUT + Watch (Battery Status: >98%)
Mode 13	ANT 1 + ANT 3 + ANT 4	AC/DC Adapter + EUT + Phone + Earbuds + Watch (Battery Status: <1%)
Mode 14		AC/DC Adapter + EUT + Phone + Earbuds + Watch (Battery Status: 50%)
Mode 15		AC/DC Adapter + EUT + Phone + Earbuds + Watch (Battery Status: >98%)
Mode 16	ANT 2 + ANT 3 + ANT 4	AC/DC Adapter + EUT + Phone + Earbuds + Watch (Battery Status: <1%)
Mode 17		AC/DC Adapter + EUT + Phone + Earbuds + Watch (Battery Status: 50%)
Mode 18		AC/DC Adapter + EUT + Phone + Earbuds + Watch (Battery Status: >98%)

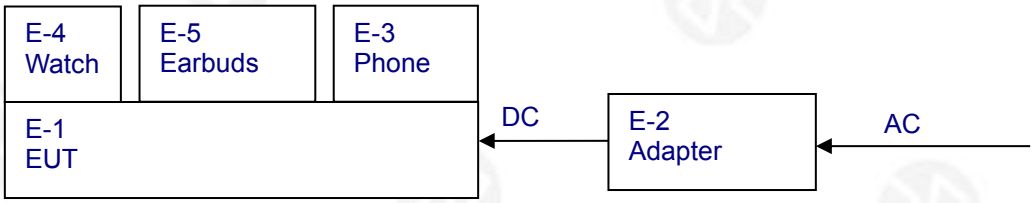
b. EUT works in folded mode:

Test Modes:	Test Coil	Description:
Mode 1a	ANT 1	AC/DC Adapter + EUT + Phone (Battery Status: <1%)
Mode 2a		AC/DC Adapter + EUT + Phone (Battery Status: 50%)
Mode 3a		AC/DC Adapter + EUT + Phone (Battery Status: >98%)
Mode 4a	ANT 2	AC/DC Adapter + EUT + Phone (Battery Status: <1%)
Mode 5a		AC/DC Adapter + EUT + Phone (Battery Status: 50%)
Mode 6a		AC/DC Adapter + EUT + Phone (Battery Status: >98%)

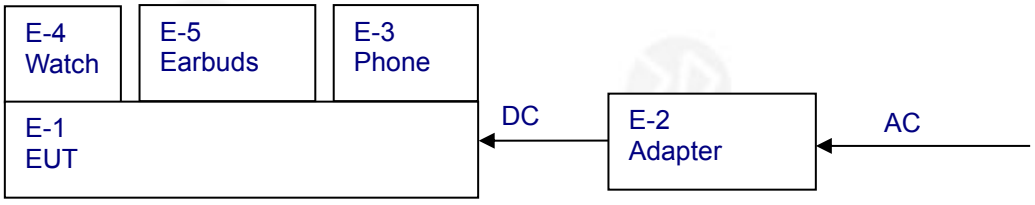
Note: Since the EUT operates in the same mode before and after folding, the report only reflects the test data before folding.

3.3 Block Diagram of EUT Configuration

Conducted Emission



Radiated Emission



3.4 Test Conditions

Temperature: 23~26℃

Relative Humidity: 54~63 %

3.5 Description Of Support Units (Conducted Mode)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Wireless charger Bluetooth speaker	N/A	A5	N/A	EUT
E-2	AC/DC Adapter	HUAWEI	HW-050450C00	N/A	Auxiliary
E-3	Phone	Apple	iPhone 13	N/A	Auxiliary
E-4	Watch	Apple	iWatch S2	N/A	Auxiliary
E-5	Earbuds	Apple	AirPods 2	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	1M	DC cable unshielded

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

3.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	N/A	Nov. 14, 2023	Nov. 13, 2024
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Nov. 02, 2023	Nov. 01, 2024
3	Test Cable	N/A	C-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
4	Test Cable	N/A	C-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
5	Test Cable	N/A	C-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
6	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Nov. 02, 2023	Nov. 01, 2024
7	Triple-Loop Antenna	N/A	RF300	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
8	Absorbing Clamp	DZ	ZN23201	15034	N/A	Nov. 07, 2023	Nov. 06, 2024
9	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY55370835	A.17.05	Nov. 02, 2023	Nov. 01, 2024
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Nov. 02, 2023	Nov. 01, 2024
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	101169	4.32	Nov. 02, 2023	Nov. 01, 2024
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	N/A	N/A	Nov. 13, 2023	Nov. 12, 2024
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Nov. 13, 2023	Nov. 12, 2024
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Nov. 13, 2023	Nov. 12, 2024
7	Loop Antenna	TESEQ	HLA6121	58357	N/A	Nov. 16, 2023	Nov. 15, 2024
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	060747	N/A	Nov. 02, 2023	Nov. 01, 2024
9	Amplifier (1GHz-26.5GHz)	Agilent	8449B	3008A00315	N/A	Nov. 02, 2023	Nov. 01, 2024
10	Amplifier (500MHz-40GHz)	QuanJuDa	DLE-161	097	N/A	Nov. 02, 2023	Nov. 01, 2024
11	Test Cable	N/A	R-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
12	Test Cable	N/A	R-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
13	Test Cable	N/A	R-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
14	D.C. Power Supply	LongWei	TPR-6405D	N/A	N/A	\	\
15	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\
16	Turntable	MF	MF-7802BS	N/A	N/A	\	\
17	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\

RF Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY55370835	A.17.05	Nov. 02, 2023	Nov. 01, 2024
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Nov. 02, 2023	Nov. 01, 2024
3	Test Cable	N/A	RF-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
4	Test Cable	N/A	RF-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
5	Test Cable	N/A	RF-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
6	ESG Signal Generator	Agilent	E4421B	N/A	B.03.84	Nov. 02, 2023	Nov. 01, 2024
7	Signal Generator	Agilent	N5182A	N/A	A.01.87	Nov. 02, 2023	Nov. 01, 2024
8	Magnetic Field Probe Tester	Narda	ELT-400	0-0344	N/A	Nov. 16, 2023	Nov. 15, 2024
9	Wideband Radio Communication Test	R&S	CMW500	106504	V 3.7.22	Nov. 02, 2023	Nov. 01, 2024
10	MWRF Power Meter Test system	MW	MW100-RF CB	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
11	D.C. Power Supply	LongWei	TPR-6405D	N/A	N/A	\	\
12	RF Software	MW	MTS8310	V2.0.0.0	N/A	\	\

4. CONDUCTED EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quas-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) *Decreases with the logarithm of the frequency.

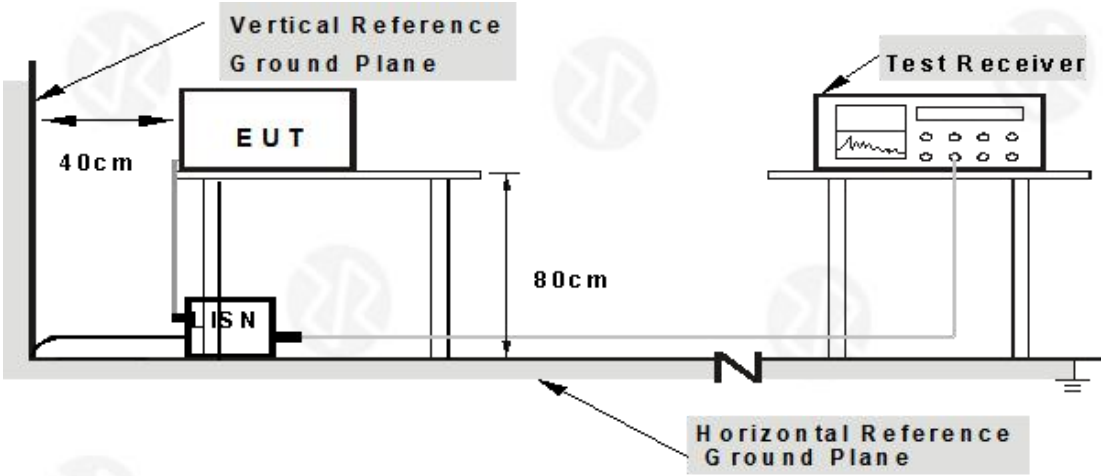
4.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



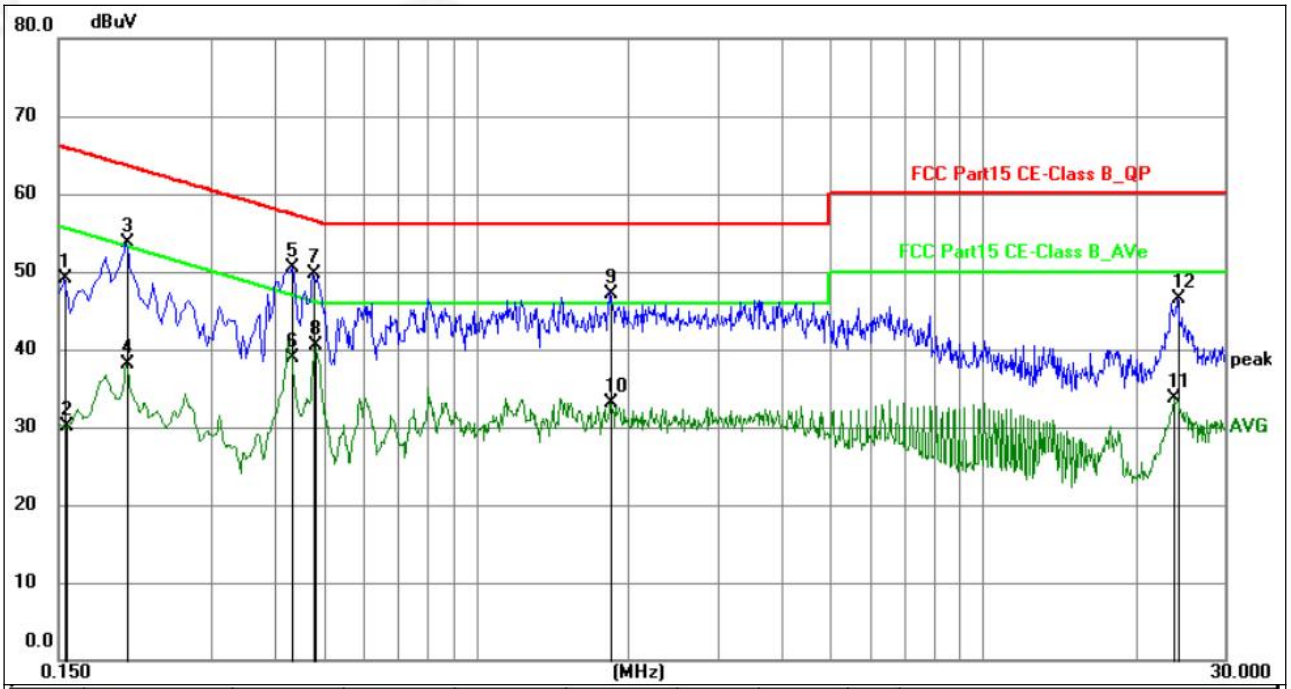
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.6 Test Result

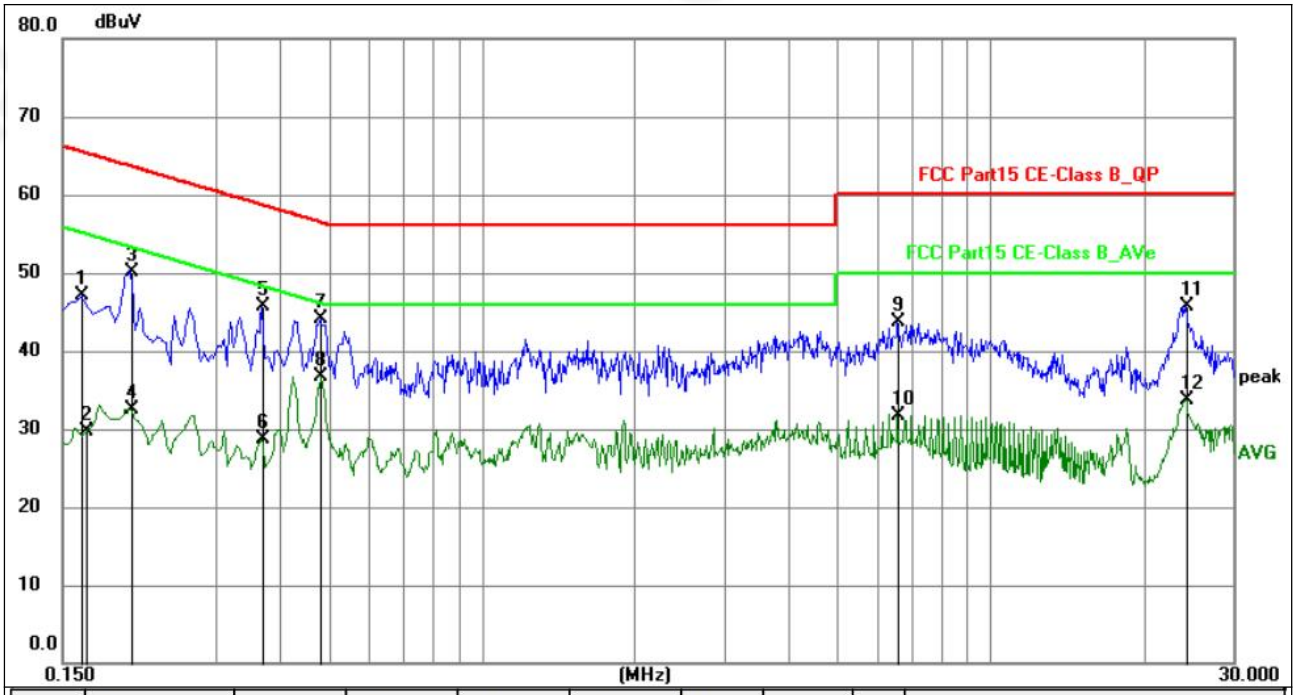
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 13



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	28.15	20.88	49.03	65.76	-16.73	QP	P	
2	0.1556	9.18	20.89	30.07	55.70	-25.63	AVG	P	
3	0.2040	32.74	21.03	53.77	63.45	-9.68	QP	P	
4	0.2040	17.12	21.03	38.15	53.45	-15.30	AVG	P	
5	0.4335	29.56	20.92	50.48	57.19	-6.71	QP	P	
6	0.4335	18.06	20.92	38.98	47.19	-8.21	AVG	P	
7	0.4785	28.89	20.86	49.75	56.37	-6.62	QP	P	
8	0.4830	19.63	20.85	40.48	46.29	-5.81	AVG	P	
9	1.8419	26.18	21.02	47.20	56.00	-8.80	QP	P	
10	1.8419	11.99	21.02	33.01	46.00	-12.99	AVG	P	
11	23.8380	9.32	24.32	33.64	50.00	-16.36	AVG	P	
12	24.2430	22.11	24.39	46.50	60.00	-13.50	QP	P	

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor.
4.All test modes were tested, with only the worst Mode 13 recorded.

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 13



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1635	26.17	20.89	47.06	65.28	-18.22	QP	P	
2	0.1667	8.85	20.89	29.74	55.12	-25.38	AVG	P	
3	0.2040	29.17	21.00	50.17	63.45	-13.28	QP	P	
4	0.2040	11.48	21.00	32.48	53.45	-20.97	AVG	P	
5	0.3704	24.82	20.94	45.76	58.49	-12.73	QP	P	
6	0.3704	7.72	20.94	28.66	48.49	-19.83	AVG	P	
7	0.4830	23.19	20.86	44.05	56.29	-12.24	QP	P	
8	0.4830	15.94	20.86	36.80	46.29	-9.49	AVG	P	
9	6.5670	22.22	21.49	43.71	60.00	-16.29	QP	P	
10	6.5670	10.22	21.49	31.71	50.00	-18.29	AVG	P	
11	24.2475	21.19	24.43	45.62	60.00	-14.38	QP	P	
12	24.2925	9.29	24.45	33.74	50.00	-16.26	AVG	P	

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor.
4.All test modes were tested, with only the worst Mode 13 recorded.

5. RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 1GHz
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

5.1 Radiated Emission Limits

Limits for frequency below 30MHz

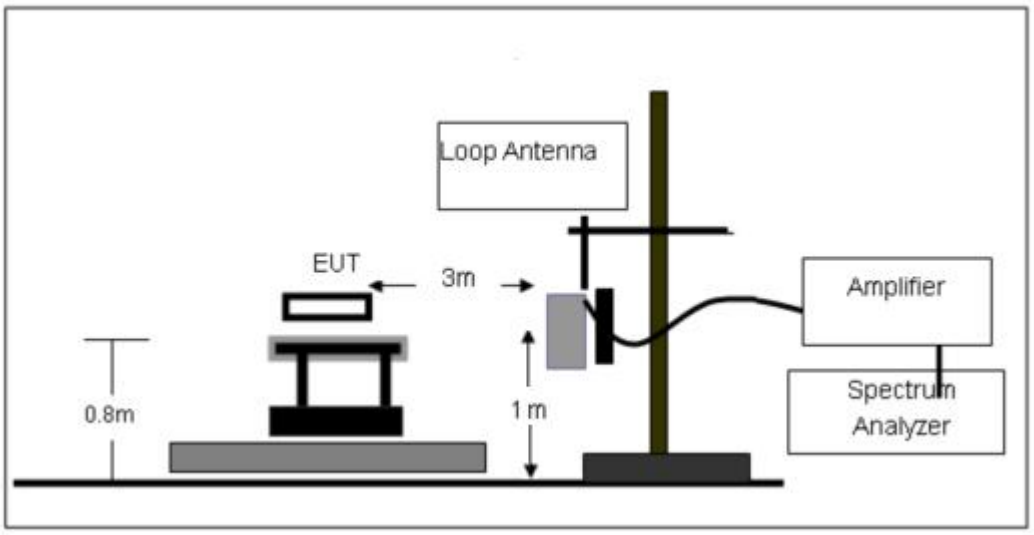
Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Quasi-peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Limits for frequency Above 30MHz

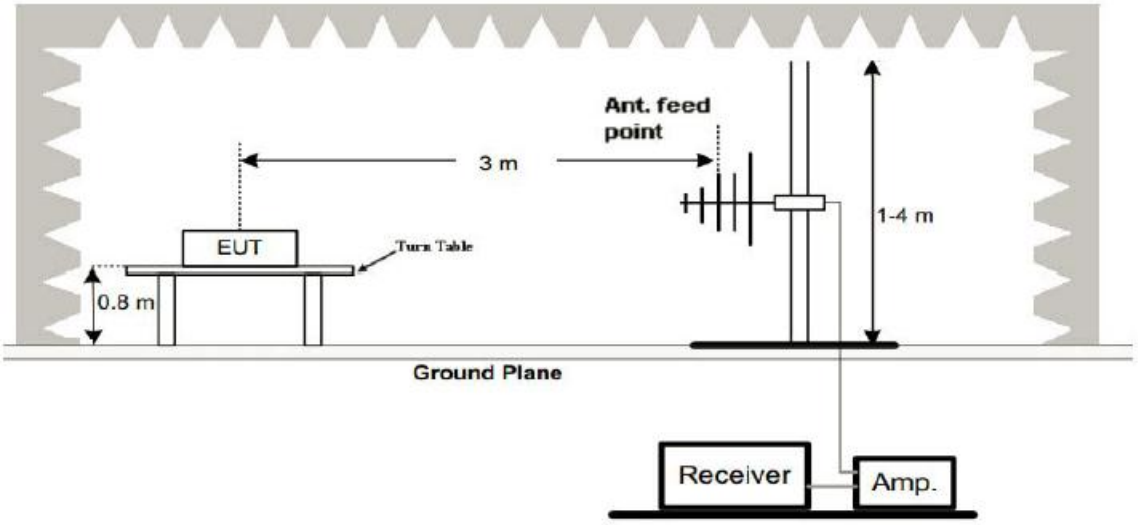
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

5.2 Anechoic Chamber Test Setup Diagram

（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.

5.3 Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement.

5.4 DEVIATION FROM TEST STANDARD

No deviation

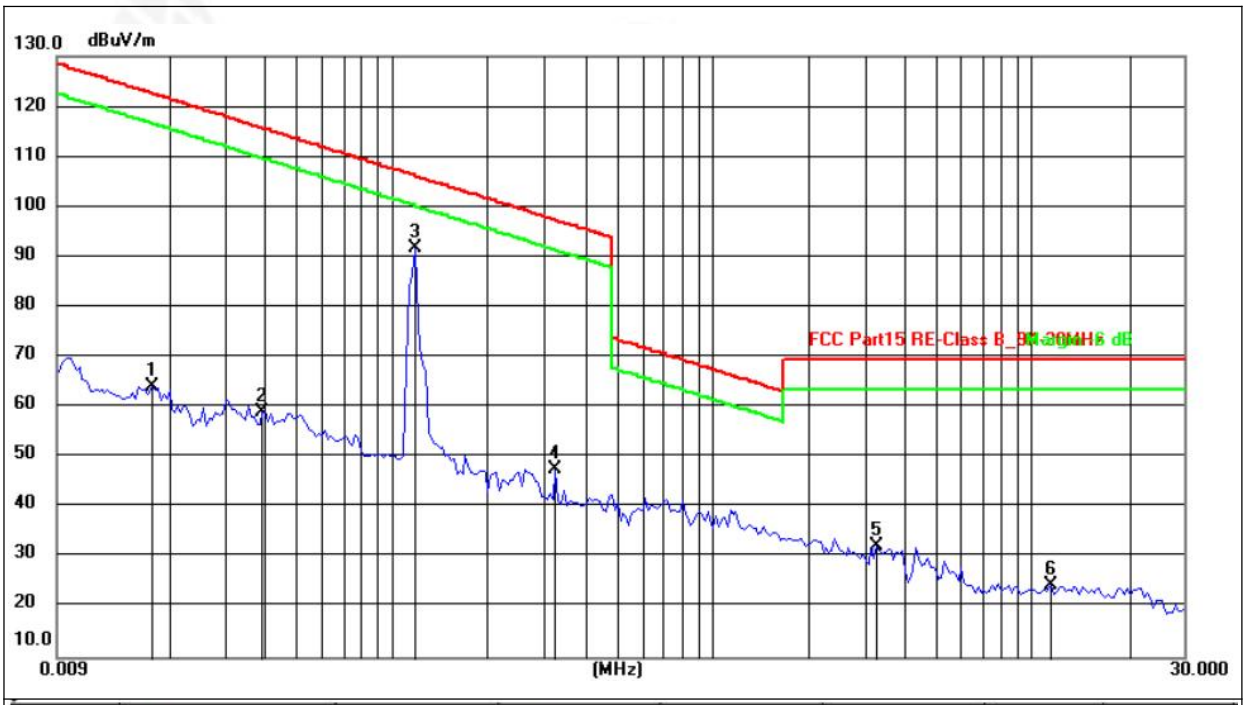
5.5 Test Result

Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80
Limit dBuV/m @3m = Limit dBuV/m @30m + 40

9 kHz~30 MHz

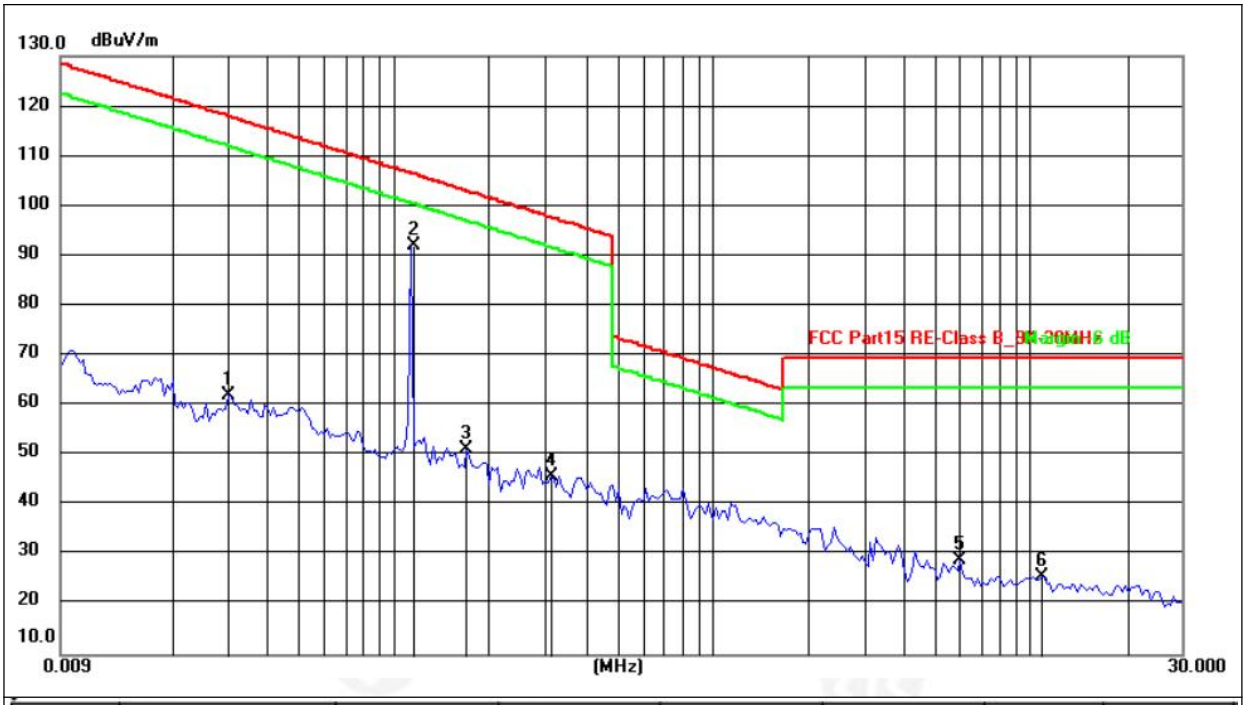
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0177	43.78	20.47	64.25	122.65	-58.40	peak
2	0.0395	39.15	19.99	59.14	115.67	-56.53	peak
3	0.1164	71.96	19.86	91.82	106.29	-14.47	peak
4	0.3259	27.62	20.13	47.75	97.34	-49.59	peak
5	3.2894	12.82	19.63	32.45	69.54	-37.09	peak
6	11.5655	5.56	18.98	24.54	69.54	-45.00	peak

Remarks:
1.Final Level =Receiver Read level + 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.

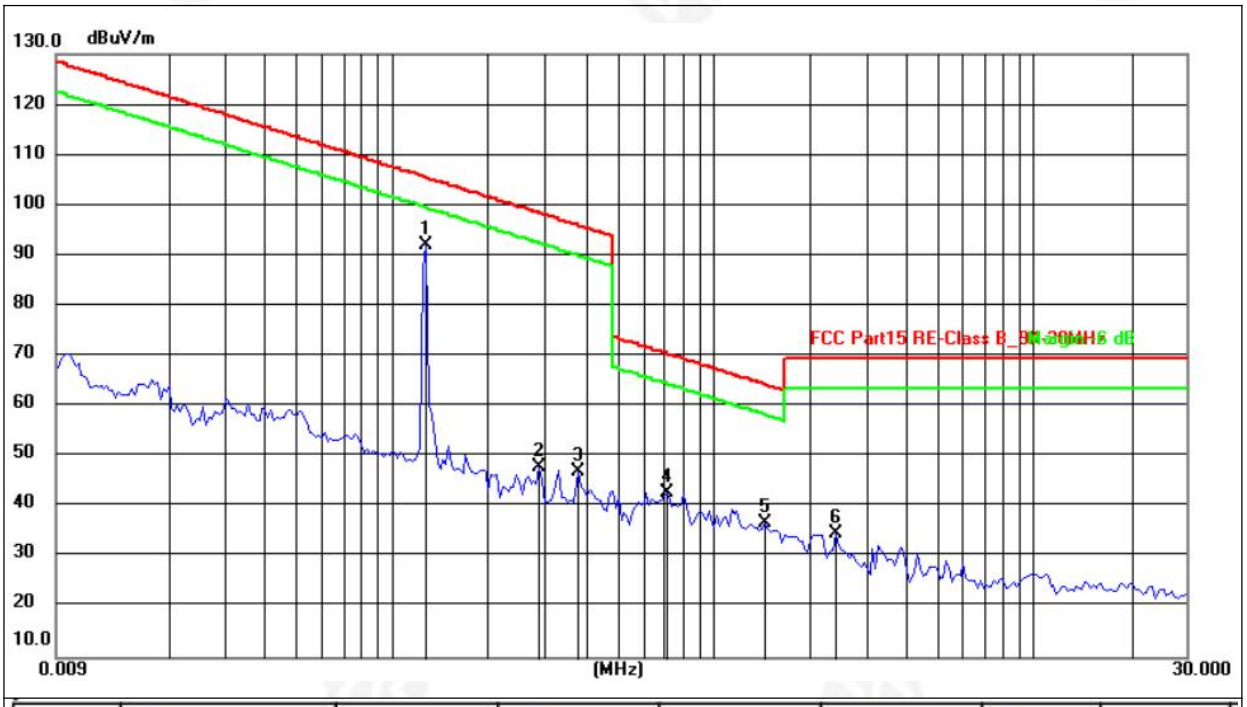
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 4



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0303	41.81	20.21	62.02	117.98	-55.96	peak
2	0.1152	72.13	19.85	91.98	106.38	-14.40	peak
3	0.1703	31.18	20.08	51.26	102.98	-51.72	peak
4	0.3129	25.74	20.13	45.87	97.70	-51.83	peak
5	6.0442	9.70	19.37	29.07	69.54	-40.47	peak
6	10.8833	6.71	18.99	25.70	69.54	-43.84	peak

Remarks:
1.Final Level =Receiver Read level + 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.

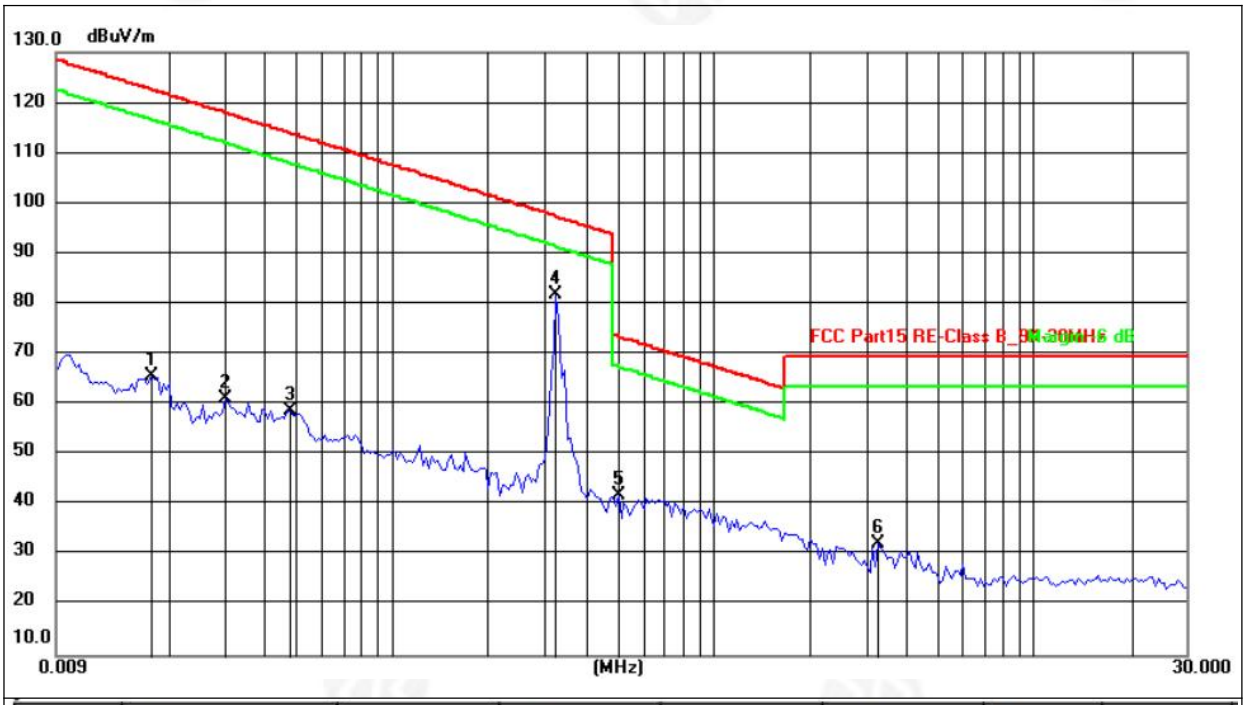
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 7



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1272	72.02	19.92	91.94	105.51	-13.57	peak
2	0.2883	27.89	20.12	48.01	98.41	-50.40	peak
3	0.3830	26.79	20.16	46.95	95.94	-48.99	peak
4	0.7186	22.32	20.39	42.71	70.47	-27.76	peak
5	1.4616	16.84	19.88	36.72	64.31	-27.59	peak
6	2.4266	15.02	19.73	34.75	69.54	-34.79	peak

Remarks:
1.Final Level =Receiver Read level + 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.

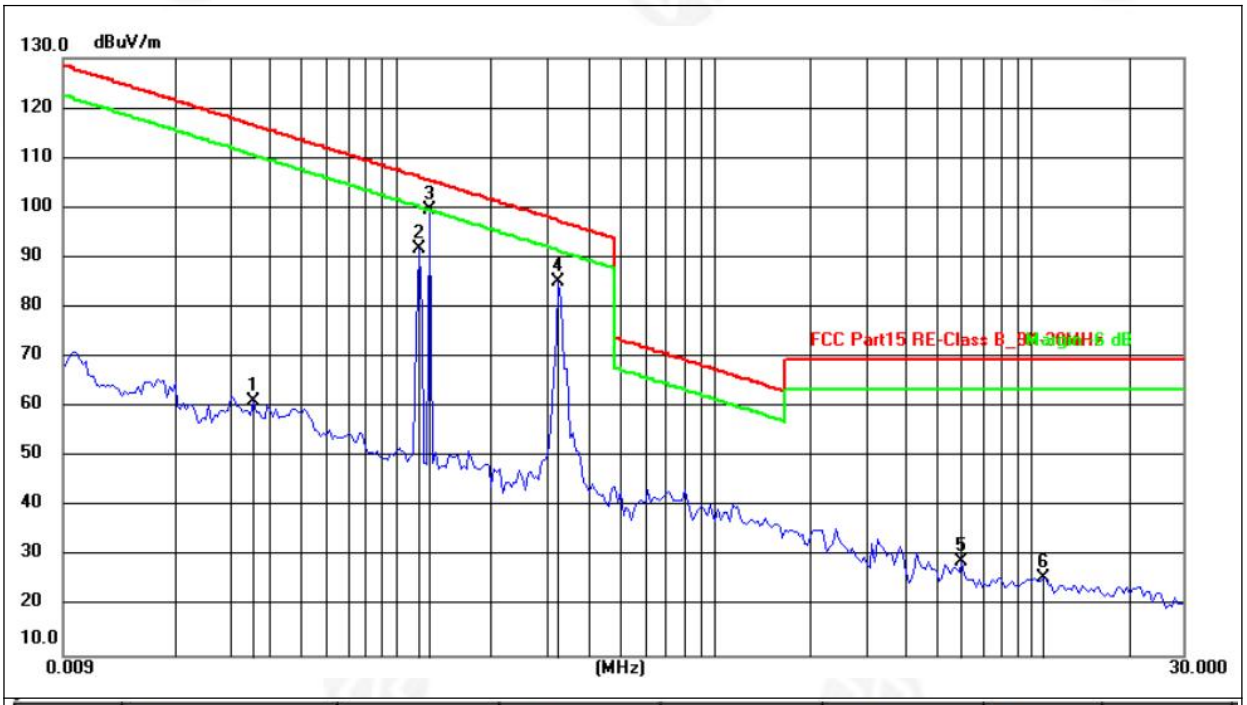
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 10



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0177	45.28	20.47	65.75	122.65	-56.90	peak
2	0.0303	40.81	20.21	61.02	117.98	-56.96	peak
3	0.0483	38.93	19.79	58.72	113.93	-55.21	peak
4	0.3200	61.62	20.13	81.75	97.50	-15.75	peak
5	0.5090	21.85	20.21	42.06	73.47	-31.41	peak
6	3.2894	12.82	19.63	32.45	69.54	-37.09	peak

Remarks:
1.Final Level =Receiver Read level + 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.

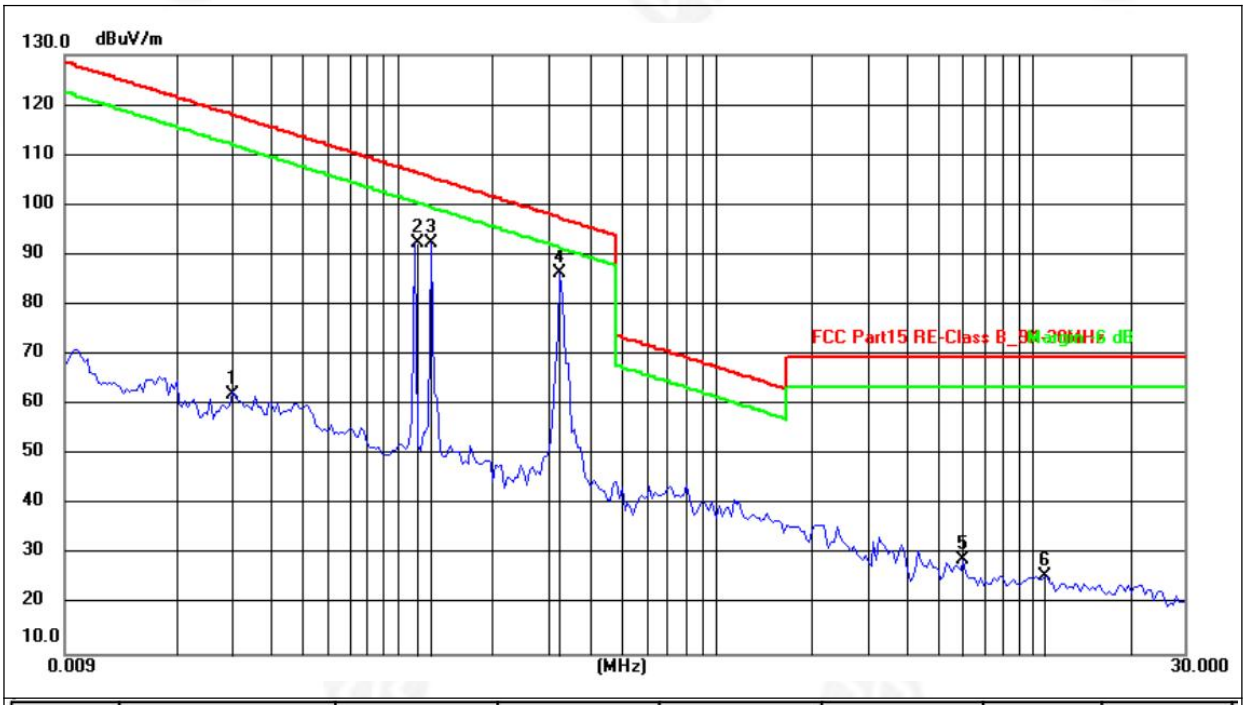
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 13



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0357	41.11	20.08	61.19	116.55	-55.36	peak
2	0.1164	71.96	19.86	91.82	106.29	-14.47	peak
3	0.1272	79.52	19.92	99.44	105.51	-6.07	peak
4	0.3200	65.12	20.13	85.25	97.50	-12.25	peak
5	6.0442	9.70	19.37	29.07	69.54	-40.47	peak
6	10.8833	6.71	18.99	25.70	69.54	-43.84	peak

Remarks:
1.Final Level =Receiver Read level + 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.

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 12V	Test Mode:	Mode 16

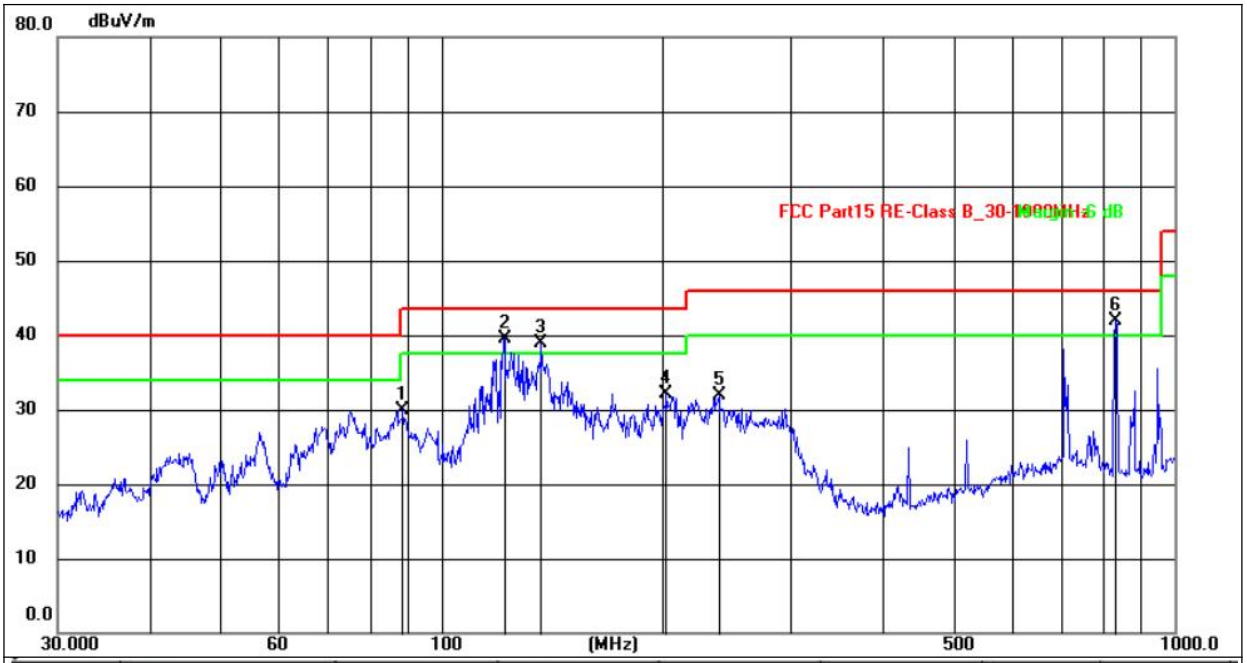


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0303	41.81	20.21	62.02	117.98	-55.96	peak
2	0.1152	72.63	19.85	92.48	106.38	-13.90	peak
3	0.1272	72.52	19.92	92.44	105.51	-13.07	peak
4	0.3200	66.12	20.13	86.25	97.50	-11.25	peak
5	6.0442	9.70	19.37	29.07	69.54	-40.47	peak
6	10.8833	6.71	18.99	25.70	69.54	-43.84	peak

Remarks:
1.Final Level =Receiver Read level + 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.

30MHz-1GHz

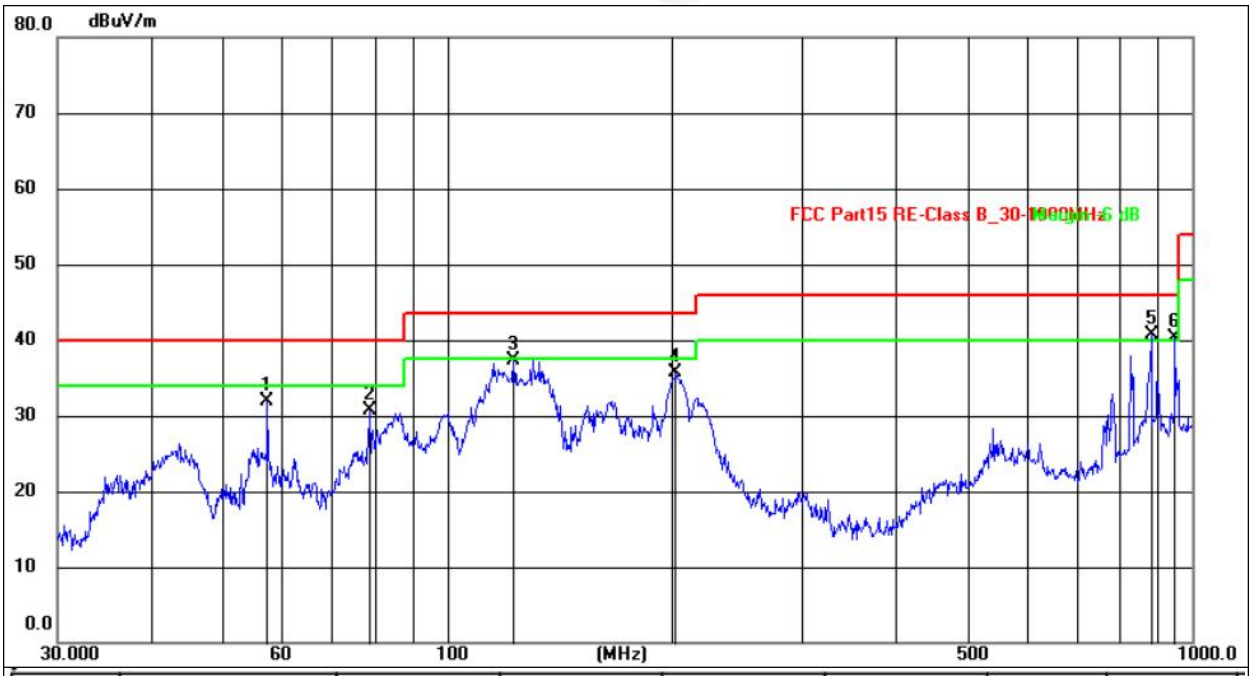
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 12V	Test Mode:	Mode 13



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	88.6524	50.06	-20.09	29.97	43.50	-13.53	QP
2	121.9755	57.97	-18.41	39.56	43.50	-3.94	QP
3	136.9390	56.01	-17.19	38.82	43.50	-4.68	QP
4	202.8103	50.85	-18.66	32.19	43.50	-11.31	QP
5	239.1472	48.16	-16.33	31.83	46.00	-14.17	QP
6	830.4001	48.80	-6.96	41.84	46.00	-4.16	QP

Remarks:
1.Final Level =Receiver Read level + 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.All test modes were tested, with only the worst Mode 13 recorded.

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 12V	Test Mode:	Mode 13



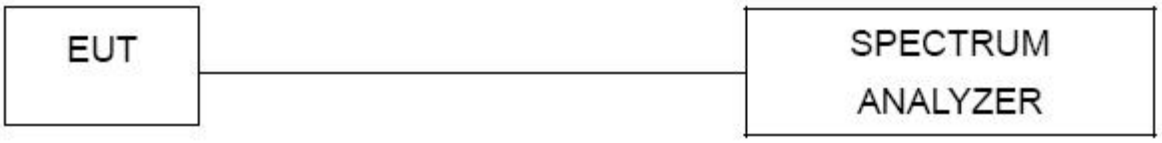
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	57.3923	49.97	-18.05	31.92	40.00	-8.08	QP
2	78.6887	52.20	-21.53	30.67	40.00	-9.33	QP
3	122.8339	58.70	-21.31	37.39	43.50	-6.11	QP
4	202.8103	56.27	-20.66	35.61	43.50	-7.89	QP
5	881.4067	41.91	-1.26	40.65	46.00	-5.35	QP
6	948.7608	40.79	-0.48	40.31	46.00	-5.69	QP

Remarks:
1.Final Level =Receiver Read level + 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.All test modes were tested, with only the worst Mode 13 recorded.

6. 20DB BANDWIDTH TEST

1. Set RBW = 1%~5% OBW.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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.

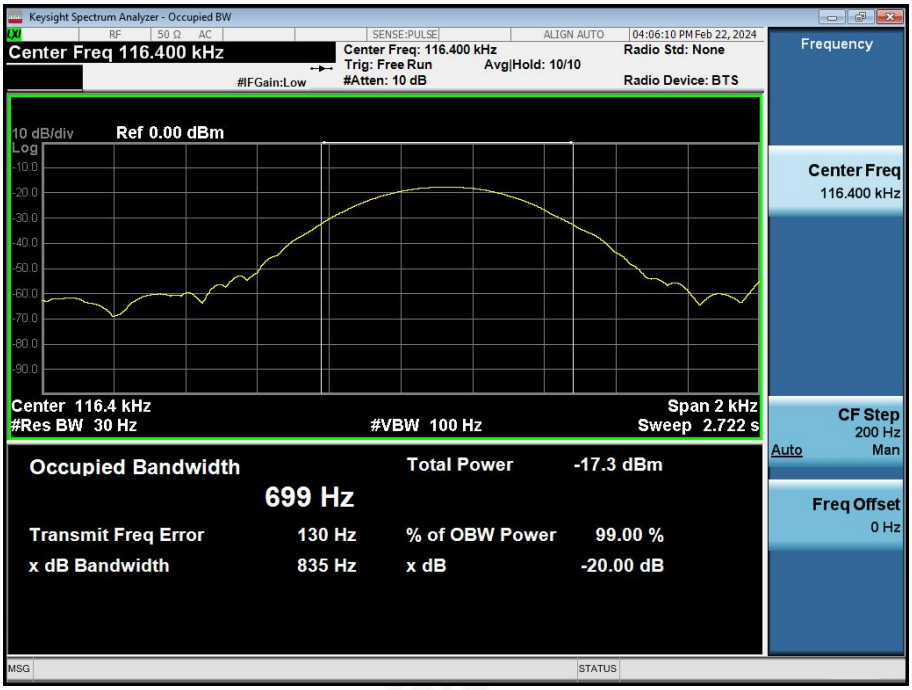
TEST SETUP



Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage:	DC 12V

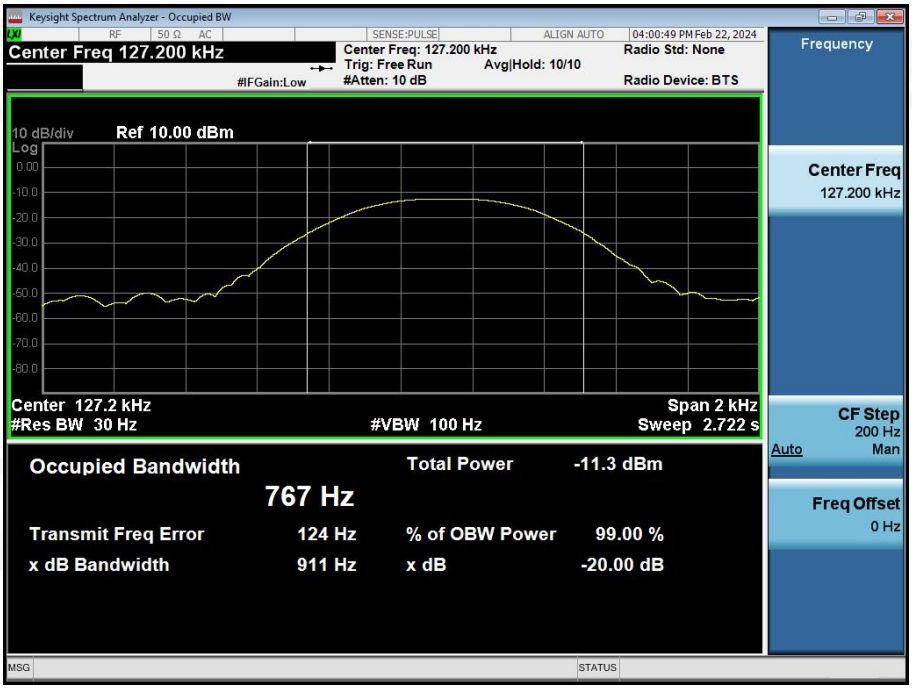
Test Coil	Frequency (kHz)	20dB Bandwidth (Hz)	Result
ANT 1	116.40	835	Pass
ANT 2	115.20	768	Pass
ANT 3	127.20	911	Pass
ANT 4	320.00	820	Pass

ANT 1:



ANT 2:

ANT 3:


Keysight Spectrum Analyzer - Occupied BW
Center Freq 127.200 kHz
Center Freq: 127.200 kHz
Trig: Free Run
Avg|Hold: 10/10
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
04:00:49 PM Feb 22, 2024
10 dB/div
Ref 10.00 dBm
Center 127.2 kHz
#Res BW 30 Hz
#VBW 100 Hz
Span 2 kHz
Sweep 2.722 s
Occupied Bandwidth
767 Hz
Total Power -11.3 dBm
Transmit Freq Error 124 Hz
% of OBW Power 99.00 %
x dB Bandwidth 911 Hz
x dB -20.00 dB
Frequency
Center Freq
127.200 kHz
CF Step
200 Hz
Auto Man
Freq Offset
0 Hz

ANT 4:

Keysight Spectrum Analyzer - Occupied BW
Center Freq 320.000 kHz
Center Freq: 320.000 kHz
Trig: Free Run
Avg|Hold: 10/10
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
04:10:09 PM Feb 22, 2024
10 dB/div
Ref 20.00 dBm
Center 320 kHz
#Res BW 30 Hz
#VBW 100 Hz
Span 2 kHz
Sweep 2.722 s
Occupied Bandwidth
696 Hz
Total Power 7.59 dBm
Transmit Freq Error 139 Hz
% of OBW Power 99.00 %
x dB Bandwidth 820 Hz
x dB -20.00 dB
Frequency
Center Freq
320.000 kHz
CF Step
200 Hz
Auto Man
Freq Offset
0 Hz

7. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: 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.	
EUT Antenna:	
The antenna is Loop Coil antenna, the best case gain of the antennas is 0dBi, reference to the appendix II for details	

8. TEST SETUP PHOTO

Reference to the appendix I for details.

9. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ END OF REPORT ※※※※※