



Shenzhen BANTEK Testing Co., Ltd.

Report No.: BTEK240109001AE001

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FCC ID: 2BEYA-CBST0292

TEST REPORT

Application No.: BTEK240109001AE
Applicant: Bazhou Boruiya Furniture Co.,Ltd.
Address of Applicant: East of the Old Development Zone,Shengfang Town,Bazhou City
Manufacturer: Bazhou Boruiya Furniture Co.,Ltd.
Address of Manufacturer: East of the Old Development Zone,Shengfang Town,Bazhou City
Factory: Bazhou Boruiya Furniture Co.,Ltd.
Address of Factory: East of the Old Development Zone,Shengfang Town,Bazhou City
Equipment Under Test (EUT):
EUT Name: Wireless Charging Nightstand
Model No.: C-B-ST-0292
Trade Mark: NA
Standard(s) : 47 CFR Part 15 Subpart C
Date of Receipt: 2024-01-09
Date of Test: 2024-01-09 to 2024-01-25
Date of Issue: 2024-01-26

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Damon Su
EMC Laboratory Manager

ShenZhen BANTEK Testing Co.,Ltd.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2024-01-26		Original

Authorized for issue by			
		<i>Elma Yang</i>	
		<u>Elma Yang/Project Engineer</u>	
		<i>Carl Yang</i>	
		<u>Carl Yang /Reviewer</u>	



Test Summary

Item	Document Title
47 CFR Part 15, Subpart C	Intentional Radiators
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Item	Standard	Result
Antenna Requirements	15.203	Pass
20dB Occupied Bandwidth	2.1049	Pass
AC Power Line Conducted Emissions	15.207	Pass
Spurious Emissions	15.209	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.



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General Information

4.1 Details of E.U.T.

Power Supply	Input: AC 100-240V 50/60Hz from adapter; DC 12V 3A Output: 5W/7.5W/10W(5V 1A/7.5V 1A/ 9V 1.1A)
Modulation Type	FSK
Frequency Range	The frequency block is 110.0 KHz to 205.0KHz.
Antenna Type	Coil antenna
Sample number	BTEK240109001AE-01
Remark: The information in this section is provided by the applicant or manufacturer, BANTEK is not liable to the accuracy, suitability, reliability or/and integrity of the information.	

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
WPC charging load	EESON	2S	--

4.3 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2 and TR100 028-1/-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Occupied Channel Bandwidth	69 KHz
RF output power, conducted	0.87 dB
Power Spectral Density, conducted	0.69 dB
Unwanted Emissions, conducted	0.94 dB
All emissions, radiated(<1GHz)	4.12 dB
All emissions, radiated(>1GHz)	4.16 dB
Temperature	0.82 °C
Humidity	4.1 %



4.4 Test Location

All tests were performed at:

Shenzhen BANTEK Testing Co., Ltd.

A5&A6, Building B1&B2, No.45 Gangtou Road, Bogang Community, Shajing Street, Bao'an District, Shenzhen, Guangdong, China 518104

Tel: +86 0755-2334 4200 Fax: +86 0755-2334 4200

FCC Registration Number: 264293

Designation Number: CN1356

No tests were sub-contracted.

4.5 Deviation from Standards

None

4.6 Abnormalities from Standard Conditions

None





Equipment List

Conducted Method Test					
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Shielding Room	YIHENG ENETRONIC	5.5*3.1*3	YH-BT-220304-03	2022-03-03	2025-03-02
EXA Signal Analyzer	KEYSIGHT	N9020A	MY54230486	2023-06-12	2024-06-11
DC Power Supply	E3632A	E3642A	KR75304416	2023-06-12	2024-06-11
Attenuator	RswTech	SMA-JK-6dB	N/A	2023-06-12	2024-06-11
Attenuator	RswTech	SMA-JK-3dB	N/A	2023-06-12	2024-06-11
RF Control Unit	Techy	TR1029-1	N/A	2023-06-12	2024-06-11
RF Sensor Unit	Techy	TR1029-2	N/A	2023-06-12	2024-06-11
MXG Vector Signal Generator	Agilent	N5182A	US46240522	2023-06-12	2024-06-11
Programmable Temperature&Humidity Chamber	GRT	GR-HWX1000	GR22051001	2023-06-12	2024-06-11
Measurement Software	TACHOY	RF TestSoft	N/A	2023-06-12	2024-06-11

Radiated Method Test					
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
3m Semi-Anechoic Chamber	YIHENG ENETRONIC	966	YH-BT-220304-01	2022-05-06	2025-05-05
EMI Test Receiver	Rohde&Schwarz	ESCI	100694	2023-06-12	2024-06-11
TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	01324	2022-06-15	2025-06-14
Pre-Amplifier	Schwarzbeck	BBV 9745	#180	2023-06-12	2024-06-11
Loop antenna	Schwarzbeck	FMZB1519B	00056	2023-06-12	2024-06-11
Measurement Software	Fara	EZ_EMV Ver. FA-03A2	N/A	N/A	N/A

Conducted disturbance Test					
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Shielding Room	YIHENG ENETRONIC	9*5*3.3	YH-BT-220304-04	2022-03-03	2025-03-02
EMI Test Receiver	Rohde&Schwarz	ESCI	101021	2023-06-12	2024-06-11
Measurement Software	Fara	EZ_EMV Ver. FA-03A2	N/A	N/A	N/A
LISN	Rohde&Schwarz	ENV216	101472	2023-06-12	2024-06-11
LISN	Schwarzbeck	NSLK 8128	05127	2023-06-12	2024-06-11





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General used equipment					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date
Humidity/Temperature/Barometric Pressure Indicator	KUMAR	F132	N/A	2023-06-12	2024-06-11
Humidity/Temperature/Barometric Pressure Indicator	KUMAR	F132	N/A	2023-06-12	2024-06-11



Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

Test Requirement FCC §15.203;

6.1.2 Conclusion

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.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.



Radio Spectrum Matter Test Results

7.1 20dB Occupied Bandwidth

Test Requirement FCC Part 2.1049

7.1.1 E.U.T. Operation

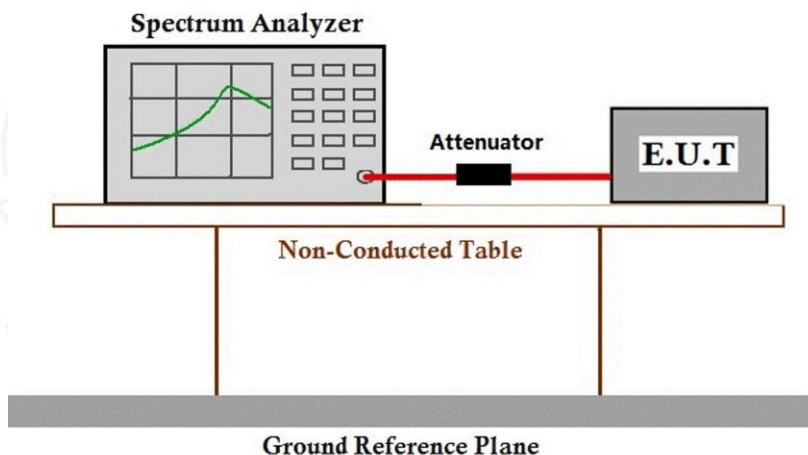
Operating Environment:

Temperature: 20.1 °C Humidity: 51.3 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.1.3 Test Setup Diagram



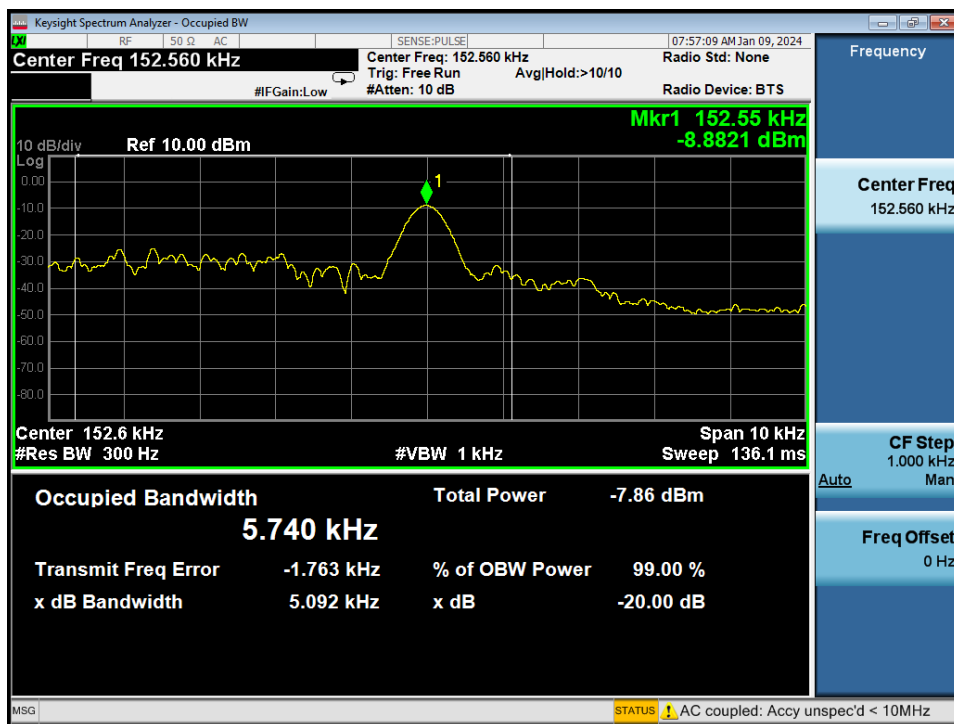
7.1.4 Measurement Procedure and Data

cable loss=0.9

- The transmitter output was connected to the spectrum analyzer through an attenuator, the pathloss was compensated to the results for each measurement.
- Set to the maximum power setting and enable the EUT transmit continuously
- Use the following spectrum analyzer settings:
Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
RBW $\geq$ 1% of the 20 dB bandwidth, VBW $\geq$ RBW
Sweep = auto, Detector function = peak, Trace = max hold
- Measure and record the results in the test report.



Freq. (kHz)	20 dB bandwidth Result (kHz)	Conclusion
152.560	5.092	PASS



7.2 AC Power Line Conducted Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method:

Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 21.3 °C

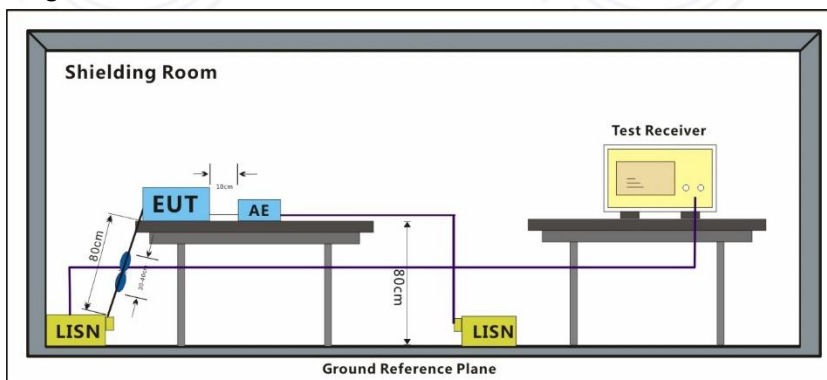
Humidity: 54.2 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

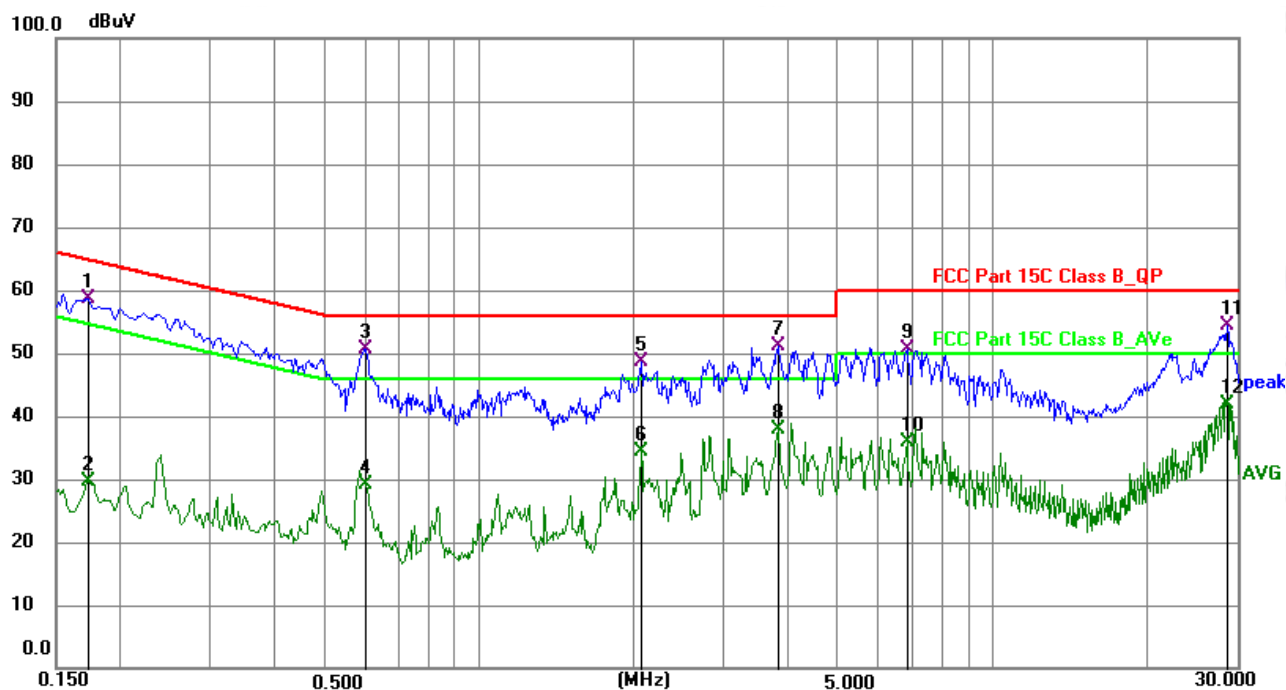
Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

Note:Level (dBuV) = Reading (dBuV) + Factor (dB)



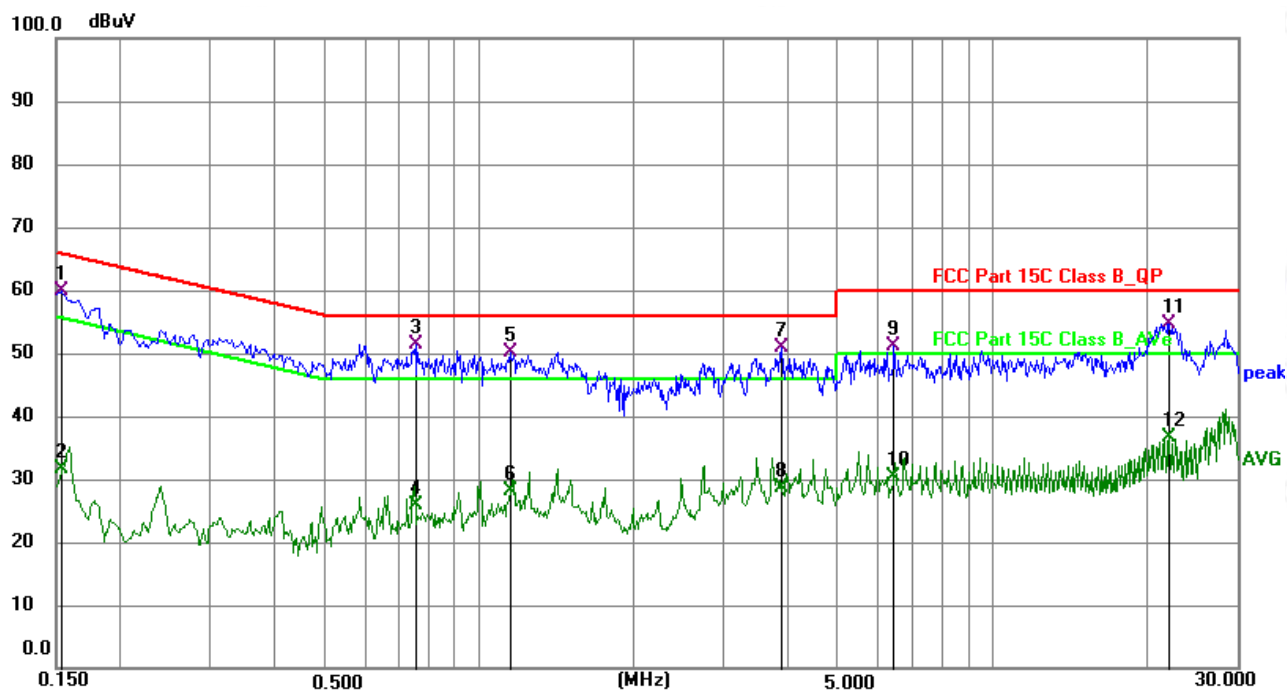
Test Mode: 00; Line: Live line; Modulation:FSK



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1723	38.87	19.78	58.65	64.85	-6.20	QP	P	
2	0.1723	9.93	19.78	29.71	54.85	-25.14	AVG	P	
3	0.6000	30.88	19.87	50.75	56.00	-5.25	QP	P	
4	0.6000	9.25	19.87	29.12	46.00	-16.88	AVG	P	
5	2.0714	28.54	20.07	48.61	56.00	-7.39	QP	P	
6	2.0714	14.42	20.07	34.49	46.00	-11.51	AVG	P	
7 *	3.8220	31.01	20.21	51.22	56.00	-4.78	QP	P	
8	3.8220	17.65	20.21	37.86	46.00	-8.14	AVG	P	
9	6.8100	30.06	20.52	50.58	60.00	-9.42	QP	P	
10	6.8100	15.30	20.52	35.82	50.00	-14.18	AVG	P	
11	28.6035	31.41	23.00	54.41	60.00	-5.59	QP	P	
12	28.6035	18.86	23.00	41.86	50.00	-8.14	AVG	P	



Test Mode: 00; Line: Neutral Line; Modulation:FSK



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1539	40.07	19.77	59.84	65.79	-5.95	QP	P	
2	0.1539	11.92	19.77	31.69	55.79	-24.10	AVG	P	
3 *	0.7530	31.56	19.93	51.49	56.00	-4.51	QP	P	
4	0.7530	6.03	19.93	25.96	46.00	-20.04	AVG	P	
5	1.1490	30.16	20.03	50.19	56.00	-5.81	QP	P	
6	1.1490	8.19	20.03	28.22	46.00	-17.78	AVG	P	
7	3.8894	30.75	20.18	50.93	56.00	-5.07	QP	P	
8	3.8894	8.47	20.18	28.65	46.00	-17.35	AVG	P	
9	6.4410	30.75	20.32	51.07	60.00	-8.93	QP	P	
10	6.4410	10.08	20.32	30.40	50.00	-19.60	AVG	P	
11	22.1770	32.38	22.20	54.58	60.00	-5.42	QP	P	
12	22.1770	14.47	22.20	36.67	50.00	-13.33	AVG	P	



7.3 Radiated Spurious Emissions

Test Requirement FCC §15.209

Test Method:

Limit:

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a). According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency tion at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.

7.3.1 E.U.T. Operation

Operating Environment:

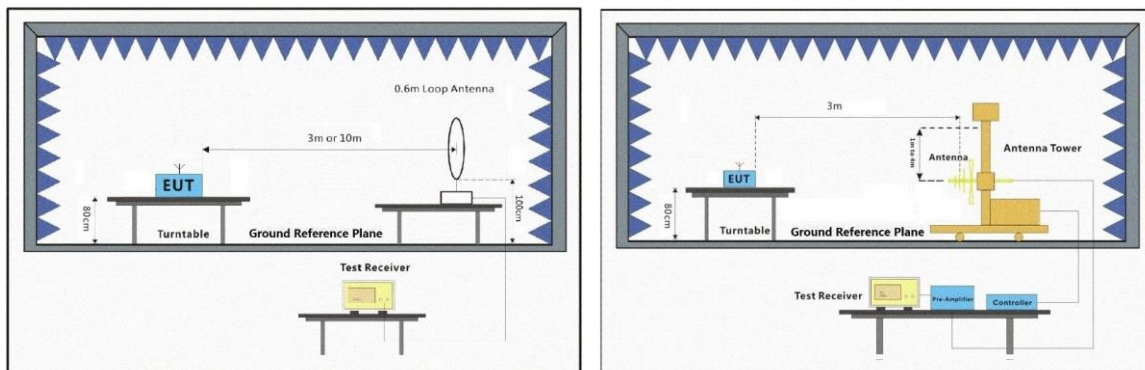
Temperature: 24.9 °C Humidity: 58.4 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with FSK modulation.



7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

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.

NOTE:

1. Results(dBuV/m) = Read_Level(dBuV) + Cable_Loss(dB)+Antenna_Factor(dB/m)-Preamp_Gain(dB)
2. Over limit = Results – Limit.



9 kHz ~ 30 MHz

Polarization: coaxial

Freq (MHz)	Cable _ Loss (dB)	Antenna _ Factor (dB/m)	Preamp _ Gain (dB)	Read _ Level (dBuV)	Level (dBuV/ m)	Limit _ Line (dBuV/m)	Over _ Limit (dB)	Detect or
0.0276	2.24	17.8	31.53	76.02	64.53	118.78	-54.25	QP
0.0400	2.32	17.8	32.43	79.12	66.81	115.57	-48.76	QP
0.1525	2.37	17.8	32.56	82.34	69.95	103.54	-33.59	QP
0.7026	2.46	17.8	31.67	45.23	33.82	70.67	-36.85	QP
1.2025	3.06	27.53	33.76	28.37	25.20	69.54	-44.34	QP
2.6070	3.11	29.26	33.52	28.15	27.00	69.54	-42.54	QP
7.6067	3.25	28.72	33.94	25.67	23.70	69.54	-45.84	QP

Polarization: coplaner

Freq (MHz)	Cable _ Loss (dB)	Antenna _ Factor (dB/m)	Preamp _ Gain (dB)	Read _ Level (dBuV)	Level (dBuV/ m)	Limit _ Line (dBuV/m)	Over _ Limit (dB)	Detect or
0.0219	2.24	17.8	31.53	75.78	64.29	120.78	-56.49	QP
0.0323	2.32	17.8	32.43	78.93	66.62	117.41	-50.79	QP
0.1525	2.37	17.8	32.56	83.55	71.16	101.24	-30.08	QP
0.7096	2.46	17.8	31.67	45.85	34.44	70.58	-36.14	QP
1.2098	3.06	27.53	33.76	28.24	25.07	69.54	-44.47	QP
2.6001	3.11	29.26	33.52	28.51	27.36	69.54	-42.19	QP
7.6065	3.25	28.72	33.94	25.53	23.56	69.54	-45.98	QP

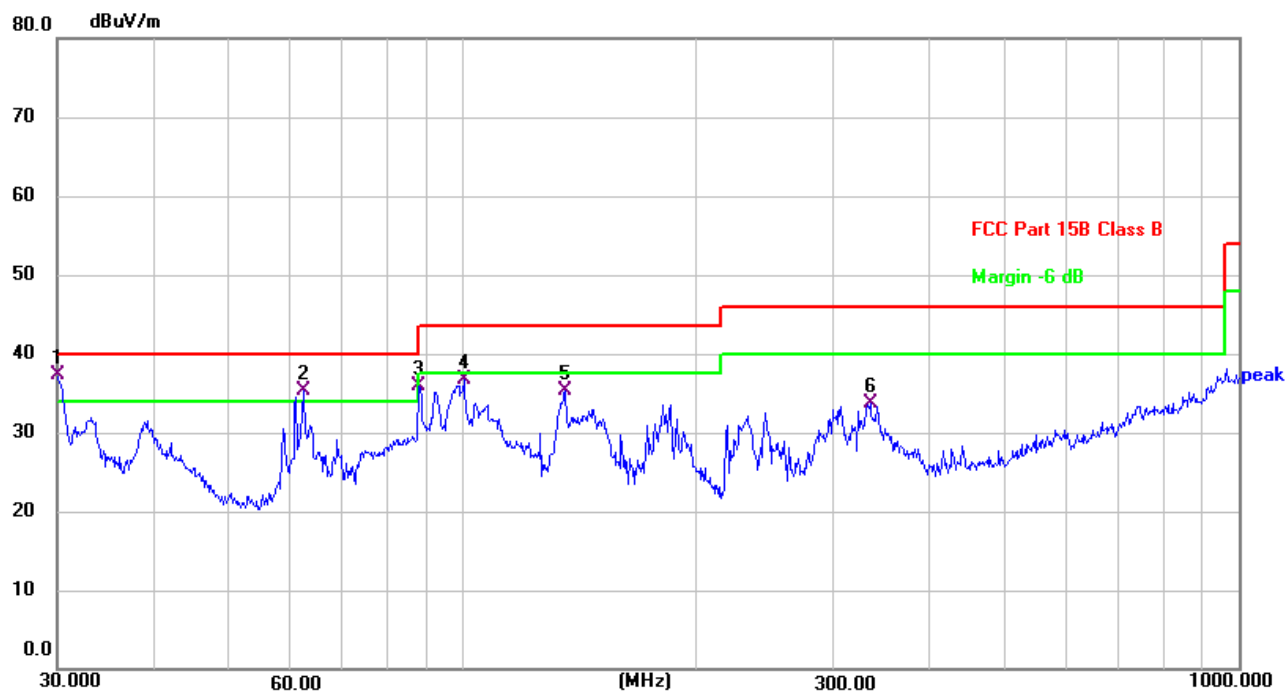
Note:

- 1). $\text{Level(dBuV/m)} = \text{Reading(dBuV)} + \text{Factor(dB/m)}$
- 2). $\text{Factor(dB/m)} = \text{Antenna Factor(dB/m)} + \text{Cable loss(dB)} - \text{Pre Amplifier gain(dB)}$
- 3). $\text{Margin(dB)} = \text{Limit(dBuV/m)} - \text{Level(dBuV/m)}$



30 MHz ~ 1GHz

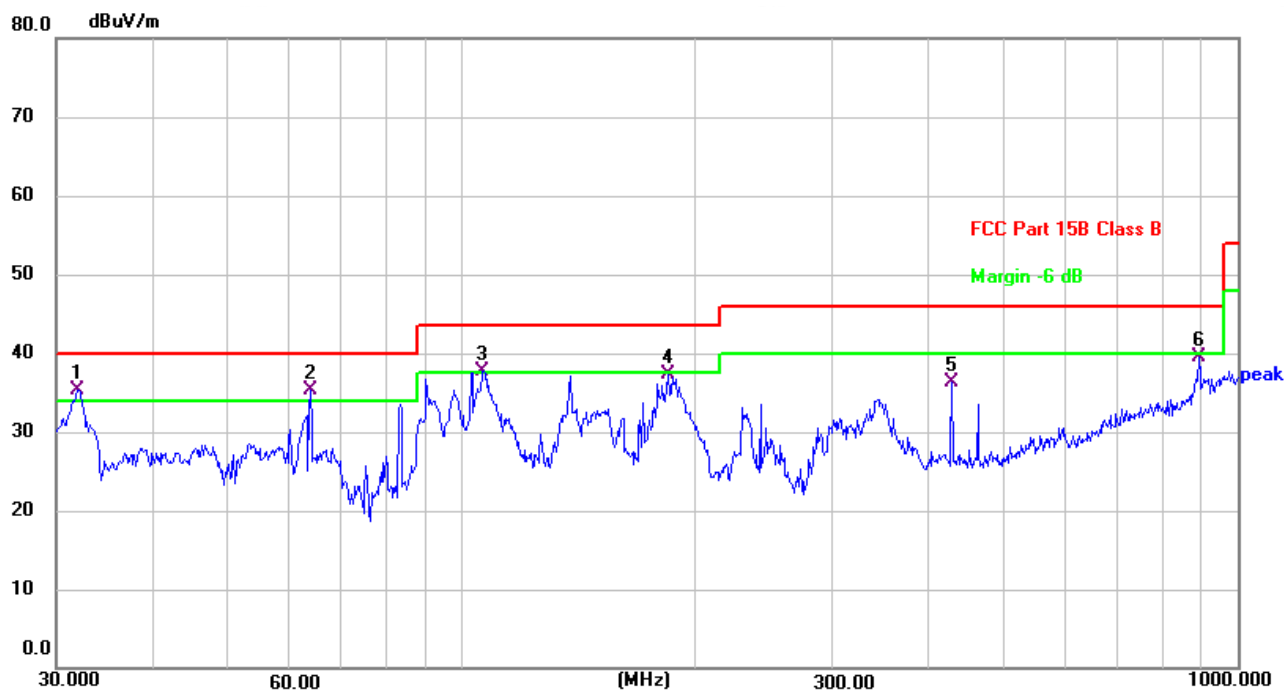
Test Mode: 00; Polarity: Horizontal; Modulation:FSK



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	30.0000	55.17	-17.95	37.22	40.00	-2.78	QP	100	112	P	
2 !	62.2128	53.69	-18.40	35.29	40.00	-4.71	QP	100	136	P	
3 !	87.7246	57.85	-22.01	35.84	40.00	-4.16	QP	100	151	P	
4	100.2285	57.74	-20.97	36.77	43.50	-6.73	QP	100	151	P	
5	135.5061	53.10	-17.87	35.23	43.50	-8.27	QP	100	110	P	
6	334.8588	50.33	-16.68	33.65	46.00	-12.35	QP	200	110	P	



Test Mode: 00; Polarity: Vertical; Modulation:FSK



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	31.9544	53.16	-17.84	35.32	40.00	-4.68	QP	100	136	P	
2 !	63.7588	54.11	-18.80	35.31	40.00	-4.69	QP	100	112	P	
3 !	106.3850	57.98	-20.25	37.73	43.50	-5.77	QP	200	123	P	
4	184.4898	57.68	-20.28	37.40	43.50	-6.10	QP	100	159	P	
5	428.0192	51.02	-14.65	36.37	46.00	-9.63	QP	100	163	P	
6	890.7277	47.55	-7.98	39.57	46.00	-6.43	QP	100	119	P	



8 Test Setup Photo

Please refer to the Appendix test setup Photos.

9 EUT Constructional Details (EUT Photos)

Please refer to the Appendix EUT Photos.

- End of the Report -

