

FCC TEST REPORT

FCC ID: 2BACV-FBBTBALN

Report No. : SSP24060104-1E

Applicant : Dongguan Unity Win Electronic Tech Co., Limited

Product Name : Wireless Mini Retro Speaker

Model Name : FBMRTSPK-ASST-T27-1

Test Standard : FCC Part 15.247

Date of Issue : 2024-06-24



Shenzhen CCUT Quality Technology Co., Ltd.

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This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.

Test Report Basic Information

Applicant:	Dongguan Unity Win Electronic Tech Co., Limited F501, Building 2, No.30 XinHua Rd, WanJiang Street, Dongguan, Guangdong, China
Manufacturer:	Dongguan Unity Win Electronic Tech Co., Limited F501, Building 2, No.30 XinHua Rd, WanJiang Street, Dongguan, Guangdong, China
Product Name:	Wireless Mini Retro Speaker
Brand Name:	VIVITAR
Main Model:	FBMRTSPK-ASST-T27-1
Series Models:	FBMRTSPK-PHN, FBMRTSPK-CAM, FBMRTSPK-BB
Test Standard:	FCC Part 15 Subpart C ANSI C63.4-2014 ANSI C63.10-2013
Date of Test	2024-06-14 to 2024-06-24
Test Result:	PASS
Tested By	<u>Lorzix Luo</u> (Lorzix Luo)
Reviewed By:	<u>Lieber Ouyang</u> (Lieber Ouyang)
Authorized Signatory:	<u>Lahm Peng</u> (Lahm Peng)
<p>Note : This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.. All test data presented in this test report is only applicable to presented test sample.</p>	



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Revision History

Revision	Issue Date	Description	Revised By
V1.0	2024-06-24	Initial Release	Lahm Peng

1. General Information

1.1 Product Information

Product Name:	Wireless Mini Retro Speaker
Trade Name:	VIVITAR
Main Model:	FBMRTSPK-ASST-T27-1
Series Models:	FBMRTSPK-PHN, FBMRTSPK-CAM, FBMRTSPK-BB
Rated Voltage:	DC 3.7V by Battery, USB 5V Charging
Battery:	DC 3.7V, 500mAh
Hardware Version:	V1.0
Software Version:	V1.0
Note 1: The test data is gathered from a production sample, provided by the manufacturer.	
Note 2: The appearance color, model name and appearance of the listed series models are different from the main model, but the circuit and electronic structure are the same, which shall be declared by the manufacturer.	

Wireless Specification	
Wireless Standard:	Bluetooth BR/EDR
Operating Frequency:	2402MHz ~2480MHz
Number of Channel:	79
Channel Separation:	1MHz
Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Antenna Gain:	0dBi
Type of Antenna:	PCB Antenna
Type of Device:	<input checked="" type="checkbox"/> Portable Device <input type="checkbox"/> Mobile Device <input type="checkbox"/> Modular Device

1.2 Test Setup Information

List of Test Modes			
Test Mode	Description	Remark	
TM1	Lowest Channel	2402MHz(DH5/2DH5/3DH5)	
TM2	Middle Channel	2441MHz(DH5/2DH5/3DH5)	
TM3	Highest Channel	2480MHz(DH5/2DH5/3DH5)	
TM4	Hopping	2402MHz~2480MHz	
TM5	Charging	-	
List and Details of Auxiliary Cable			
Description	Length (cm)	Shielded/Unshielded	With/Without Ferrite
-	-	-	-
-	-	-	-
List and Details of Auxiliary Equipment			
Description	Manufacturer	Model	Serial Number
Adapter	Huawei	HW-100225C00	HC78E2N6A23645
-	-	-	-

List of Channels							
No. of Channel	Frequency (MHz)	No. of Channel	Frequency (MHz)	No. of Channel	Frequency (MHz)	No. of Channel	Frequency (MHz)
01	2402	21	2422	41	2442	61	2462
02	2403	22	2423	42	2443	62	2463
03	2404	23	2424	43	2444	63	2464
04	2405	24	2425	44	2445	64	2465
05	2406	25	2426	45	2446	65	2466
~	~	~	~	~	~	~	~
16	2417	36	2437	56	2457	76	2477
17	2418	37	2438	57	2458	77	2478
18	2419	38	2439	58	2459	78	2479
19	2420	39	2440	59	2460	79	2480
20	2421	40	2441	60	2461		

1.3 Compliance Standards

Compliance Standards	
FCC Part 15 Subpart C	FEDERAL COMMUNICATIONS COMMISSION, RADIO FREQUENCY DEVICES, Intentional Radiators
All measurements contained in this report were conducted with all above standards	
According to standards for test methodology	
FCC Part 15 Subpart C	FEDERAL COMMUNICATIONS COMMISSION, RADIO FREQUENCY DEVICES, Intentional Radiators
ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.
ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
Maintenance of compliance is the responsibility of the manufacturer or applicant. Any modification of the product, which result is lowering the emission, should be checked to ensure compliance has been maintained.	

1.4 Test Facilities

Laboratory Name:	Shenzhen CCUT Quality Technology Co., Ltd. 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China
CNAS Laboratory No.:	L18863
A2LA Certificate No.:	6893.01
FCC Registration No:	583813
ISED Registration No.:	CN0164
All measurement facilities used to collect the measurement data are located at 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China.	

1.5 List of Measurement Instruments

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Conducted Emissions					
AMN	ROHDE&SCHWARZ	ENV216	101097	2023-10-21	2024-10-20
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	100242	2023-07-31	2024-07-30
Radiated Emissions					
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	100154	2023-07-31	2024-07-30
Spectrum Analyzer	KEYSIGHT	N9020A	MY48030972	2023-07-31	2024-07-30
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40-N	101692	2023-07-31	2024-07-30
Amplifier	SCHWARZBECK	BBV 9743B	00251	2023-07-31	2024-07-30
Amplifier	HUABO	YXL0518-2.5-45	--	2023-07-31	2024-07-30
Amplifier	COM-MW	DLAN-18G-4G-02	10229104	2023-07-31	2024-07-30
Loop Antenna	DAZE	ZN30900C	21104	2023-08-07	2024-08-06
Broadband Antenna	SCHWARZBECK	VULB 9168	01320	2023-08-07	2024-08-06
Horn Antenna	SCHWARZBECK	BBHA 9120D	02553	2023-08-07	2024-08-06
Horn Antenna	COM-MW	ZLB7-18-40G-950	12221225	2023-08-07	2024-08-06
Conducted RF Testing					
RF Test System	MWRFTest	MW100-RFCB	220418SQS-37	2023-07-31	2024-07-30
Spectrum Analyzer	KEYSIGHT	N9020A	ATO-90521	2023-07-31	2024-07-30

1.6 Measurement Uncertainty

Test Item	Conditions	Uncertainty
Conducted Emissions	9kHz ~ 30MHz	±1.64 dB
Radiated Emissions	9kHz ~ 30MHz	±2.88 dB
	30MHz ~ 1GHz	±3.32 dB
	1GHz ~ 18GHz	±3.50 dB
	18GHz ~ 40GHz	±3.66 dB
Conducted Output Power	9kHz ~ 26GHz	±0.50 dB
Occupied Bandwidth	9kHz ~ 26GHz	±4.0 %
Conducted Spurious Emission	9kHz ~ 26GHz	±1.32 dB
Power Spectrum Density	9kHz ~ 26GHz	±0.62 dB

2. Summary of Test Results

FCC Rule	Description of Test Item	Result
FCC Part 15.209, 15.247(d)	Radiated Emissions	Passed
FCC Part 15.207	Conducted Emissions	Passed
Passed: The EUT complies with the essential requirements in the standard Failed: The EUT does not comply with the essential requirements in the standard N/A: Not applicable		

3. Conducted Emissions

3.1 Standard and Limit

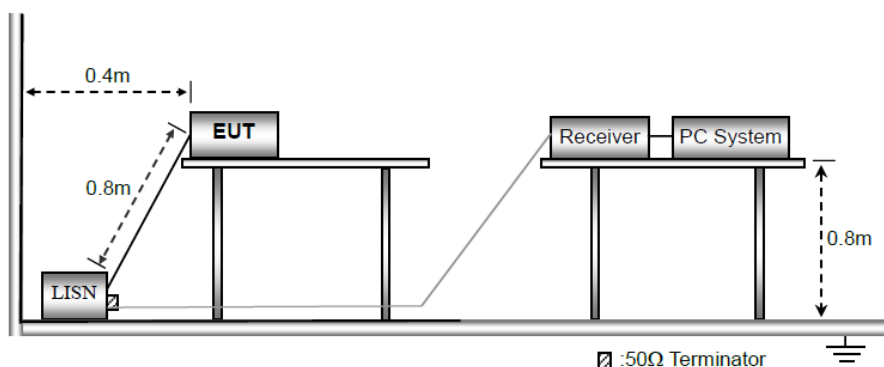
According to the rule FCC Part 15.207, Conducted emissions limit, the limit for a wireless device as below:

Frequency of Emission (MHz)	Conducted emissions (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Note 1: Decreases with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz
Note 2: The lower limit applies at the band edges

3.2 Test Procedure

Test is conducting under the description of ANSI C63.10 - 2013 section 6.2.



Test Setup Block Diagram

a) 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.

b) The following is the setting of the receiver

Attenuation: 10dB

Start Frequency: 0.15MHz

Stop Frequency: 30MHz

IF Bandwidth: 9kHz

c) 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 equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

d) 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.

e) 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.

f) LISN is at least 80 cm from nearest part of EUT chassis.

g) For the actual test configuration, please refer to the related Item - photographs of the test setup.

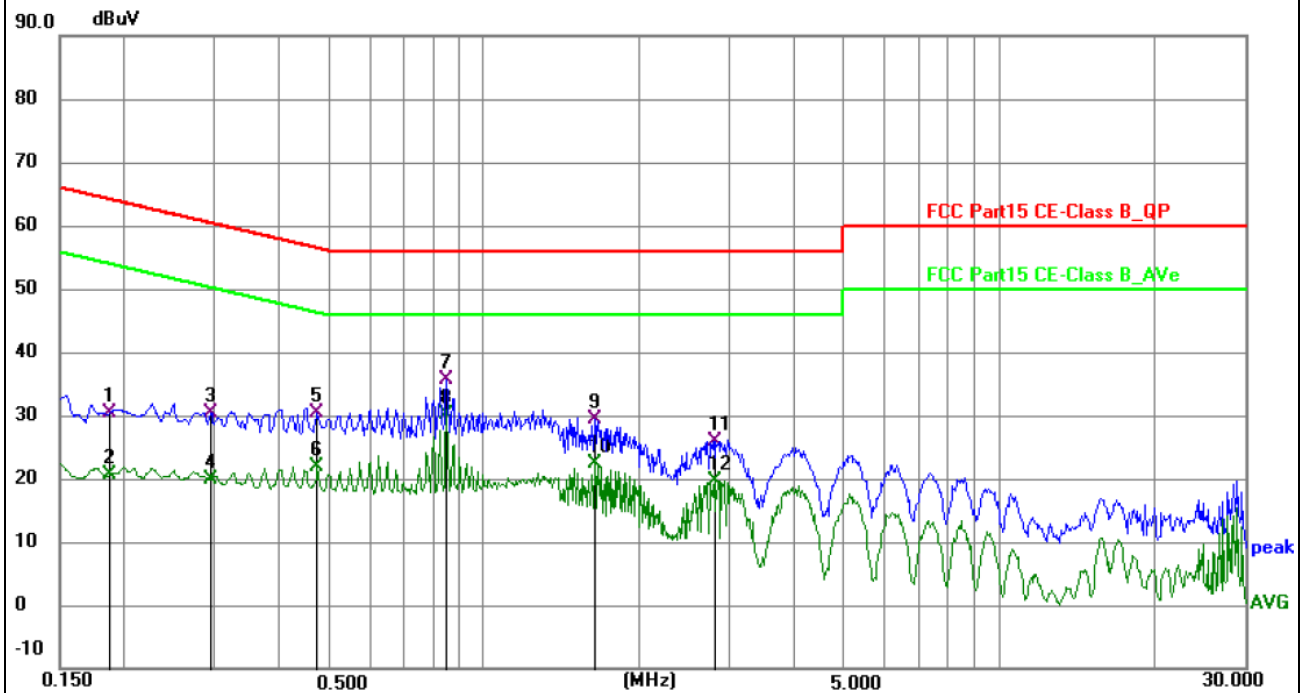
3.3 Test Data and Results

All of the modes have been tested, the EUT complied with the FCC Part 15.207 standard limit for a wireless device, and with the worst case as below:

Remark: Level = Reading + Factor, Margin = Level – Limit

Test Plots and Data of Conducted Emissions

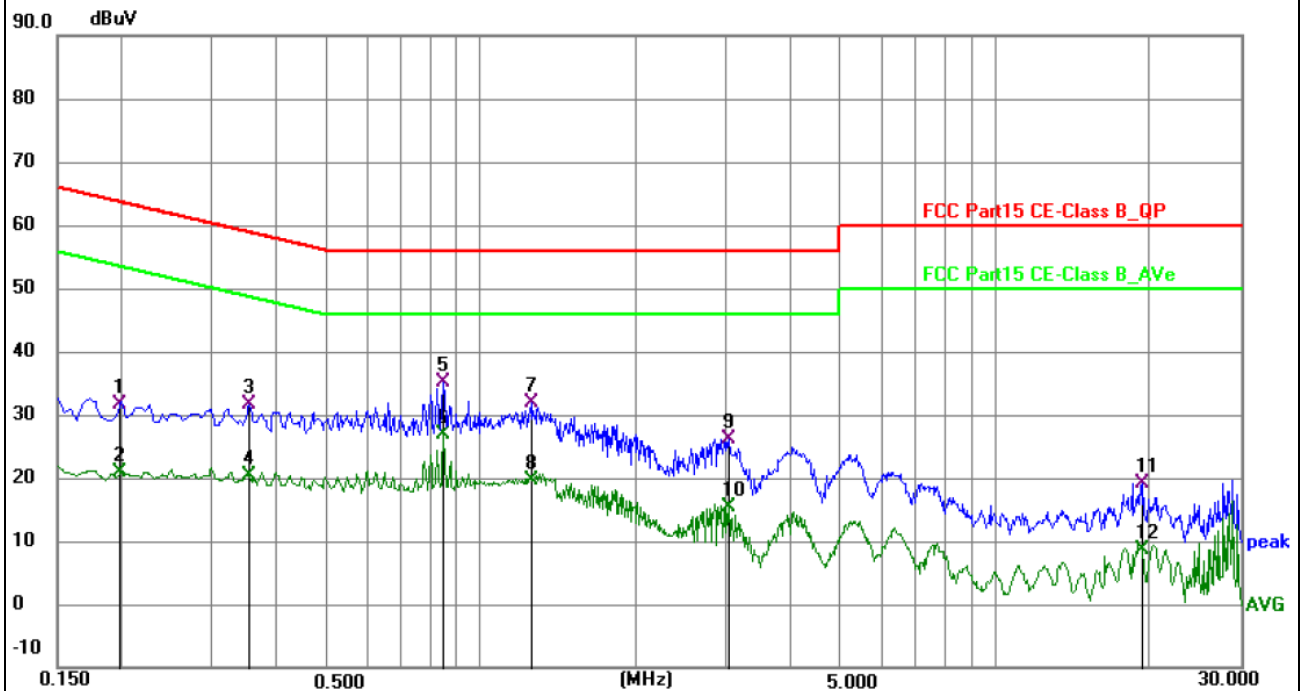
Tested Mode:	TM5
Test Voltage:	AC 120V/60Hz
Test Power Line:	Neutral
Remark:	FBMRTSPK-CAM



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1874	20.97	9.41	30.38	64.15	-33.77	QP	P	
2	0.1874	11.10	9.41	20.51	54.15	-33.64	AVG	P	
3	0.2940	20.66	9.69	30.35	60.41	-30.06	QP	P	
4	0.2940	10.26	9.69	19.95	50.41	-30.46	AVG	P	
5	0.4740	20.54	9.95	30.49	56.44	-25.95	QP	P	
6	0.4740	11.92	9.95	21.87	46.44	-24.57	AVG	P	
7	0.8475	25.91	9.62	35.53	56.00	-20.47	QP	P	
8 *	0.8475	20.55	9.62	30.17	46.00	-15.83	AVG	P	
9	1.6440	19.31	10.04	29.35	56.00	-26.65	QP	P	
10	1.6440	12.24	10.04	22.28	46.00	-23.72	AVG	P	
11	2.8140	15.87	10.09	25.96	56.00	-30.04	QP	P	
12	2.8140	9.62	10.09	19.71	46.00	-26.29	AVG	P	

Test Plots and Data of Conducted Emissions

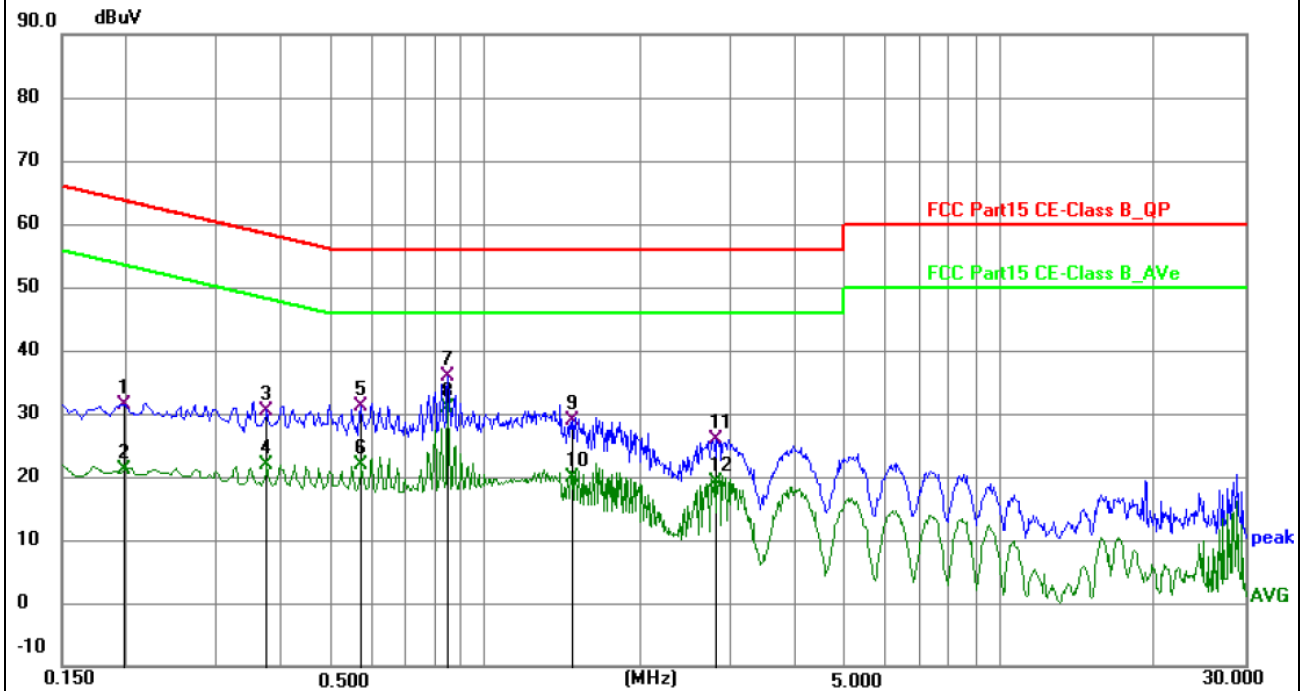
Tested Mode:	TM5
Test Voltage:	AC 120V/60Hz
Test Power Line:	Live
Remark:	FBMRTSPK-CAM



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1986	22.66	8.95	31.61	63.67	-32.06	QP	P	
2	0.1986	12.03	8.95	20.98	53.67	-32.69	AVG	P	
3	0.3525	21.95	9.79	31.74	58.90	-27.16	QP	P	
4	0.3525	10.64	9.79	20.43	48.90	-28.47	AVG	P	
5	0.8475	25.31	9.81	35.12	56.00	-20.88	QP	P	
6 *	0.8475	17.01	9.81	26.82	46.00	-19.18	AVG	P	
7	1.2570	21.75	10.03	31.78	56.00	-24.22	QP	P	
8	1.2570	9.68	10.03	19.71	46.00	-26.29	AVG	P	
9	3.0390	15.93	10.11	26.04	56.00	-29.96	QP	P	
10	3.0390	5.17	10.11	15.28	46.00	-30.72	AVG	P	
11	19.3290	8.53	10.50	19.03	60.00	-40.97	QP	P	
12	19.3290	-1.77	10.50	8.73	50.00	-41.27	AVG	P	

Test Plots and Data of Conducted Emissions

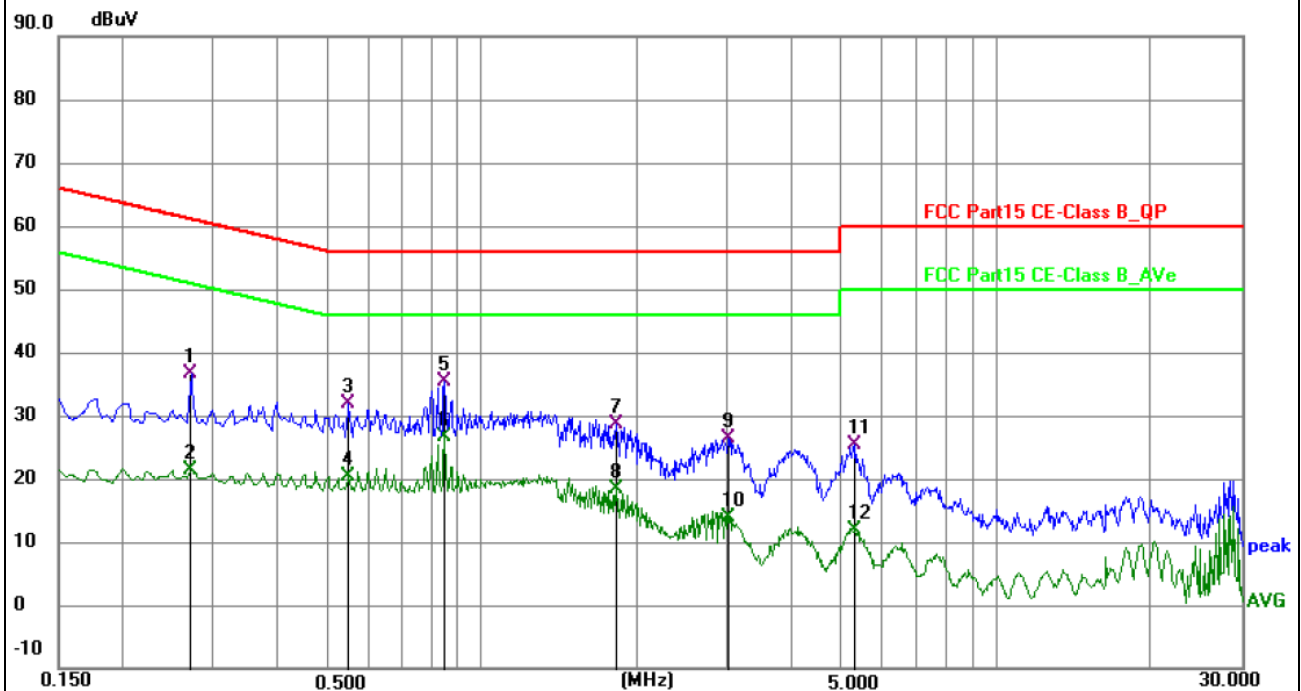
Tested Mode:	TM5
Test Voltage:	AC 120V/60Hz
Test Power Line:	Neutral
Remark:	FBMRTSPK-PHN



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1976	21.74	9.55	31.29	63.71	-32.42	QP	P	
2	0.1976	11.63	9.55	21.18	53.71	-32.53	AVG	P	
3	0.3750	20.85	9.65	30.50	58.39	-27.89	QP	P	
4	0.3750	12.18	9.65	21.83	48.39	-26.56	AVG	P	
5	0.5730	21.43	9.77	31.20	56.00	-24.80	QP	P	
6	0.5730	12.22	9.77	21.99	46.00	-24.01	AVG	P	
7	0.8475	26.21	9.62	35.83	56.00	-20.17	QP	P	
8 *	0.8475	21.29	9.62	30.91	46.00	-15.09	AVG	P	
9	1.4730	18.91	10.03	28.94	56.00	-27.06	QP	P	
10	1.4730	9.76	10.03	19.79	46.00	-26.21	AVG	P	
11	2.8140	15.87	10.09	25.96	56.00	-30.04	QP	P	
12	2.8140	9.04	10.09	19.13	46.00	-26.87	AVG	P	

Test Plots and Data of Conducted Emissions

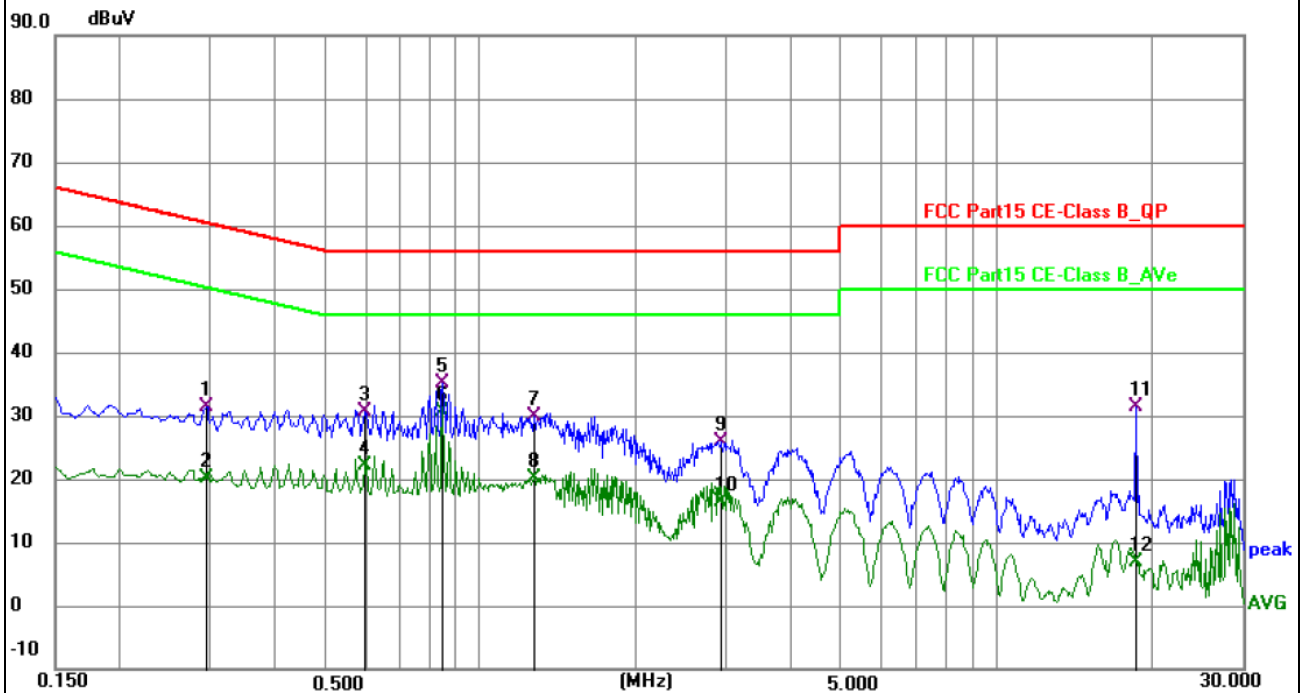
Tested Mode:	TM5
Test Voltage:	AC 120V/60Hz
Test Power Line:	Live
Remark:	FBMRTSPK-PHN



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2714	27.11	9.63	36.74	61.07	-24.33	QP	P	
2	0.2714	11.83	9.63	21.46	51.07	-29.61	AVG	P	
3	0.5505	21.97	9.94	31.91	56.00	-24.09	QP	P	
4	0.5505	10.48	9.94	20.42	46.00	-25.58	AVG	P	
5	0.8475	25.47	9.81	35.28	56.00	-20.72	QP	P	
6 *	0.8475	16.87	9.81	26.68	46.00	-19.32	AVG	P	
7	1.8195	18.66	10.05	28.71	56.00	-27.29	QP	P	
8	1.8195	8.34	10.05	18.39	46.00	-27.61	AVG	P	
9	3.0120	16.20	10.11	26.31	56.00	-29.69	QP	P	
10	3.0120	3.81	10.11	13.92	46.00	-32.08	AVG	P	
11	5.3115	15.08	10.24	25.32	60.00	-34.68	QP	P	
12	5.3115	1.52	10.24	11.76	50.00	-38.24	AVG	P	

Test Plots and Data of Conducted Emissions

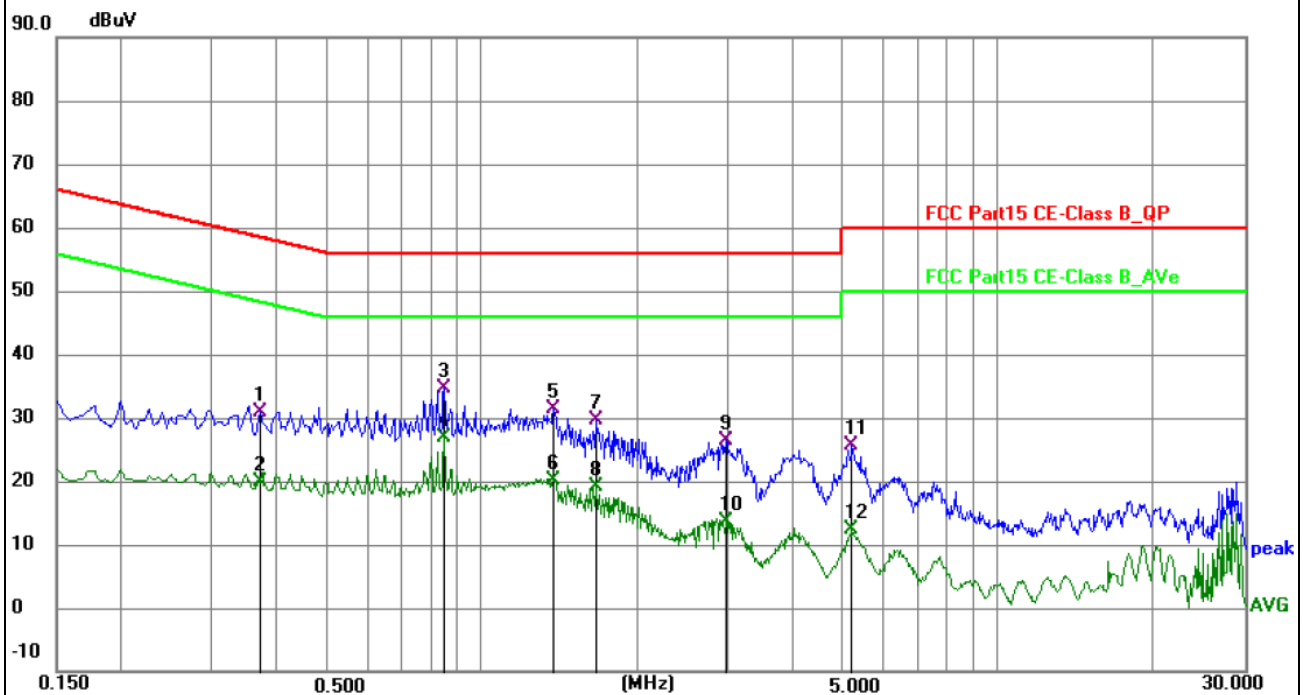
Tested Mode:	TM5
Test Voltage:	AC 120V/60Hz
Test Power Line:	Neutral
Remark:	FBMRTSPK-BB



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2940	21.68	9.69	31.37	60.41	-29.04	QP	P	
2	0.2940	10.38	9.69	20.07	50.41	-30.34	AVG	P	
3	0.5955	20.98	9.72	30.70	56.00	-25.30	QP	P	
4	0.5955	12.53	9.72	22.25	46.00	-23.75	AVG	P	
5	0.8475	25.53	9.62	35.15	56.00	-20.85	QP	P	
6 *	0.8475	20.99	9.62	30.61	46.00	-15.39	AVG	P	
7	1.2705	19.95	10.01	29.96	56.00	-26.04	QP	P	
8	1.2705	10.12	10.01	20.13	46.00	-25.87	AVG	P	
9	2.9175	15.90	10.09	25.99	56.00	-30.01	QP	P	
10	2.9175	6.18	10.09	16.27	46.00	-29.73	AVG	P	
11	18.6270	21.00	10.29	31.29	60.00	-28.71	QP	P	
12	18.6270	-3.42	10.29	6.87	50.00	-43.13	AVG	P	

Test Plots and Data of Conducted Emissions

Tested Mode:	TM5
Test Voltage:	AC 120V/60Hz
Test Power Line:	Live
Remark:	FBMRTSPK-BB



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3704	21.08	9.85	30.93	58.49	-27.56	QP	P	
2	0.3704	10.09	9.85	19.94	48.49	-28.55	AVG	P	
3	0.8475	24.81	9.81	34.62	56.00	-21.38	QP	P	
4 *	0.8475	16.96	9.81	26.77	46.00	-19.23	AVG	P	
5	1.3740	21.46	10.03	31.49	56.00	-24.51	QP	P	
6	1.3740	10.02	10.03	20.05	46.00	-25.95	AVG	P	
7	1.6665	19.48	10.04	29.52	56.00	-26.48	QP	P	
8	1.6665	9.00	10.04	19.04	46.00	-26.96	AVG	P	
9	2.9670	16.30	10.11	26.41	56.00	-29.59	QP	P	
10	2.9670	3.44	10.11	13.55	46.00	-32.45	AVG	P	
11	5.2080	15.27	10.24	25.51	60.00	-34.49	QP	P	
12	5.2080	2.09	10.24	12.33	50.00	-37.67	AVG	P	

4. Radiated Emissions

4.1 Standard and Limit

According to §15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, 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 the rule FCC Part 15.209, Radiated emission limit for a wireless device as below:

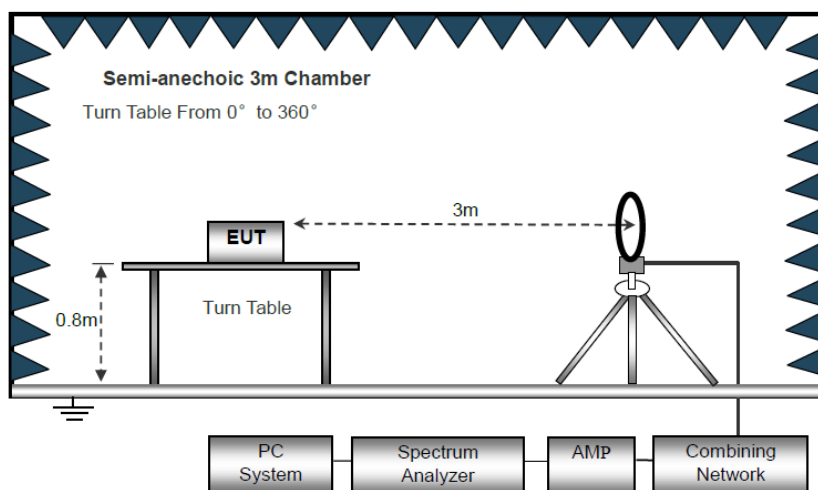
Frequency of Emission (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3
Note: The more stringent limit applies at transition frequencies.		

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

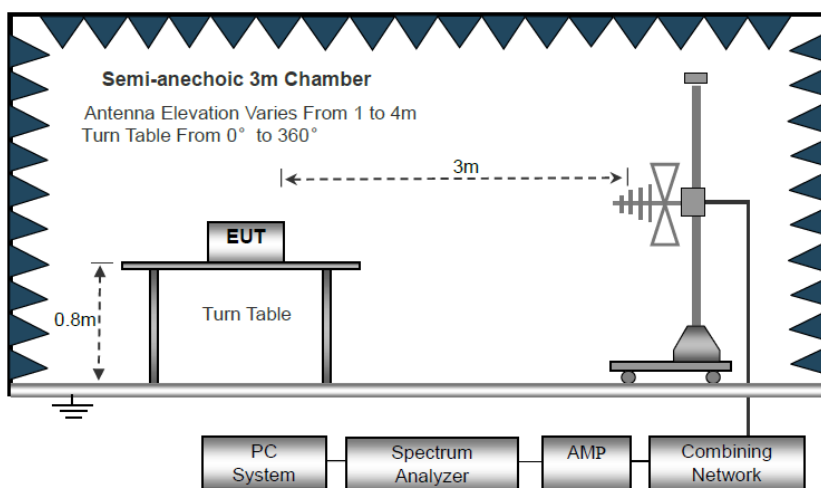
Note: Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

4.2 Test Procedure

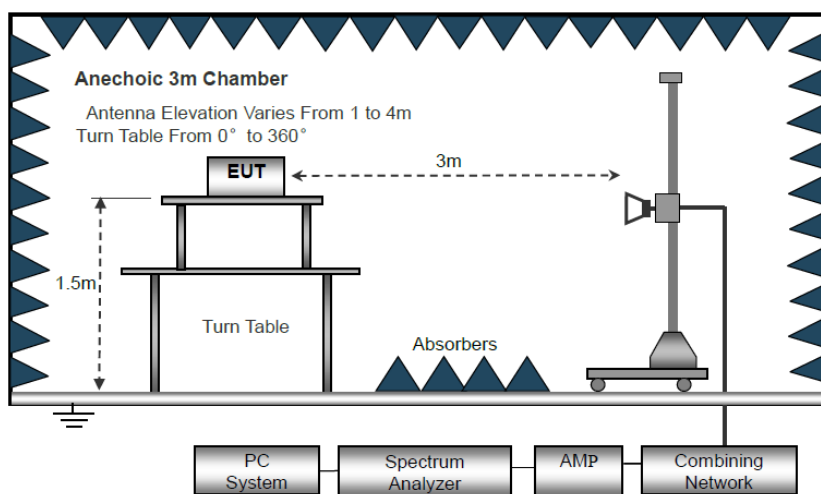
Test is conducting under the description of ANSI C63.10 - 2013 section 6.3 to 6.6.



Block Diagram of Radiated Emission Below 30MHz



Block Diagram of Radiated Emission From 30MHz to 1GHz



Block Diagram of Radiated Emission Above 1GHz

- a) The EUT is placed on a turntable, which is 0.8m above ground plane for test frequency range below 1GHz, and 1.5m above ground plane for test frequency range above 1GHz.
- b) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- c) Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for $f \geq 1\text{GHz}$, 100 kHz for $f < 1\text{GHz}$, 10kHz for $f < 30\text{MHz}$
VBW \geq RBW, Sweep = auto
Detector function = peak
Trace = max hold
- d) Follow the guidelines in ANSI C63.4-2014 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- e) The peak level, once corrected, must comply with the limit specified in Section 15.209. Set the RBW = 1MHz, VBW = 10Hz, Detector = PK for AV value, while maintaining all of the other instrument settings.
- f) For the actual test configuration, please refer to the related item - EUT test photos.

4.3 Test Data and Results

Based on all tested data, the EUT complied with the FCC Part 15.247 standard limit for a wireless device, and with the worst case as below:

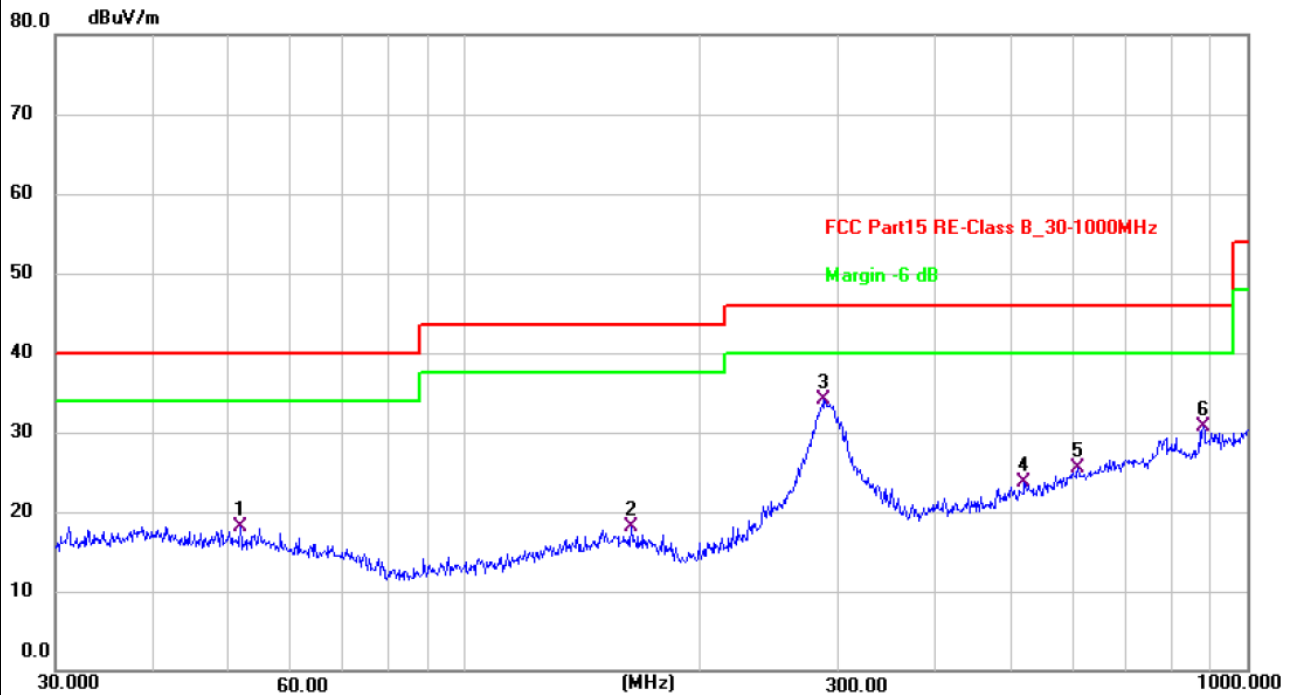
Remark: Level = Reading + Factor, Margin = Level - Limit

Radiated Emission Test Data (30MHz to 1GHz)

Tested Mode: TM1(2402MHz)

Test Antenna Polarization: Horizontal

Remark: FBMRTSPK-CAM



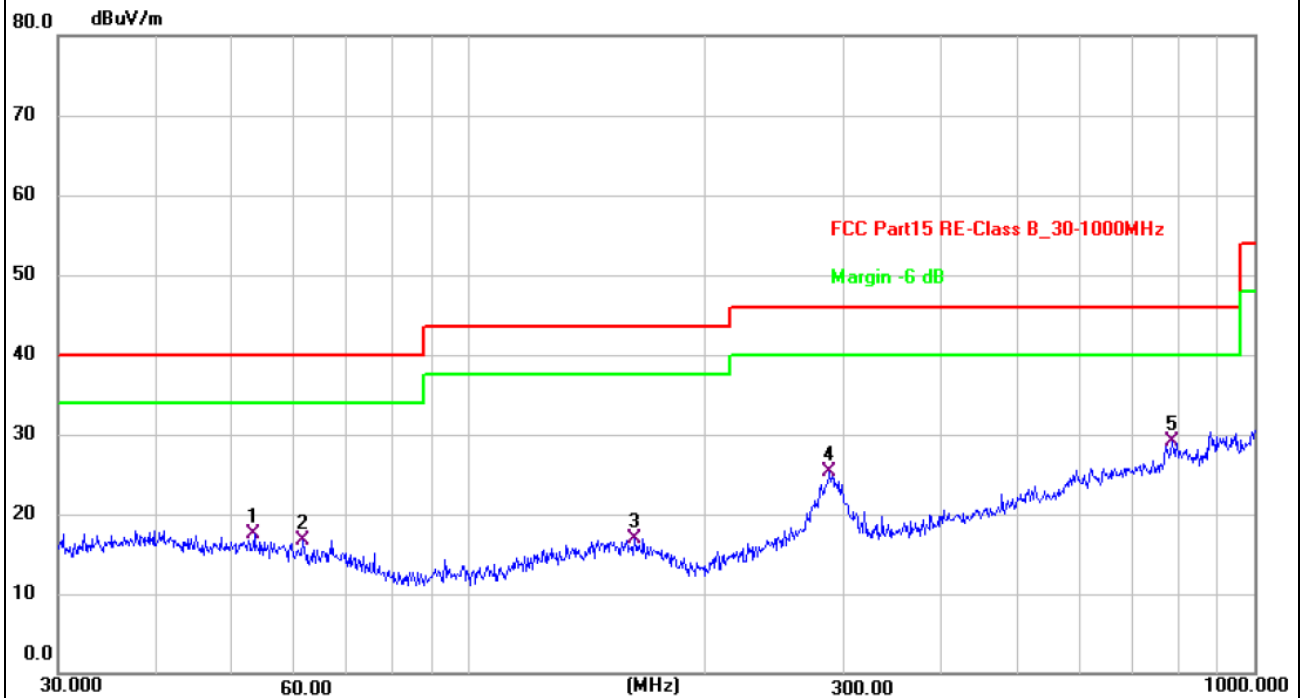
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	51.6616	26.95	-8.87	18.08	40.00	-21.92	QP	100	167	P	
2	163.1818	27.22	-9.17	18.05	43.50	-25.45	QP	199	242	P	
3 *	287.9904	42.68	-8.60	34.08	46.00	-11.92	QP	100	348	P	
4	519.0649	26.99	-3.25	23.74	46.00	-22.26	QP	100	167	P	
5	607.7867	26.44	-0.96	25.48	46.00	-20.52	QP	199	173	P	
6	878.3214	27.71	2.92	30.63	46.00	-15.37	QP	100	268	P	

Radiated Emission Test Data (30MHz to 1GHz)

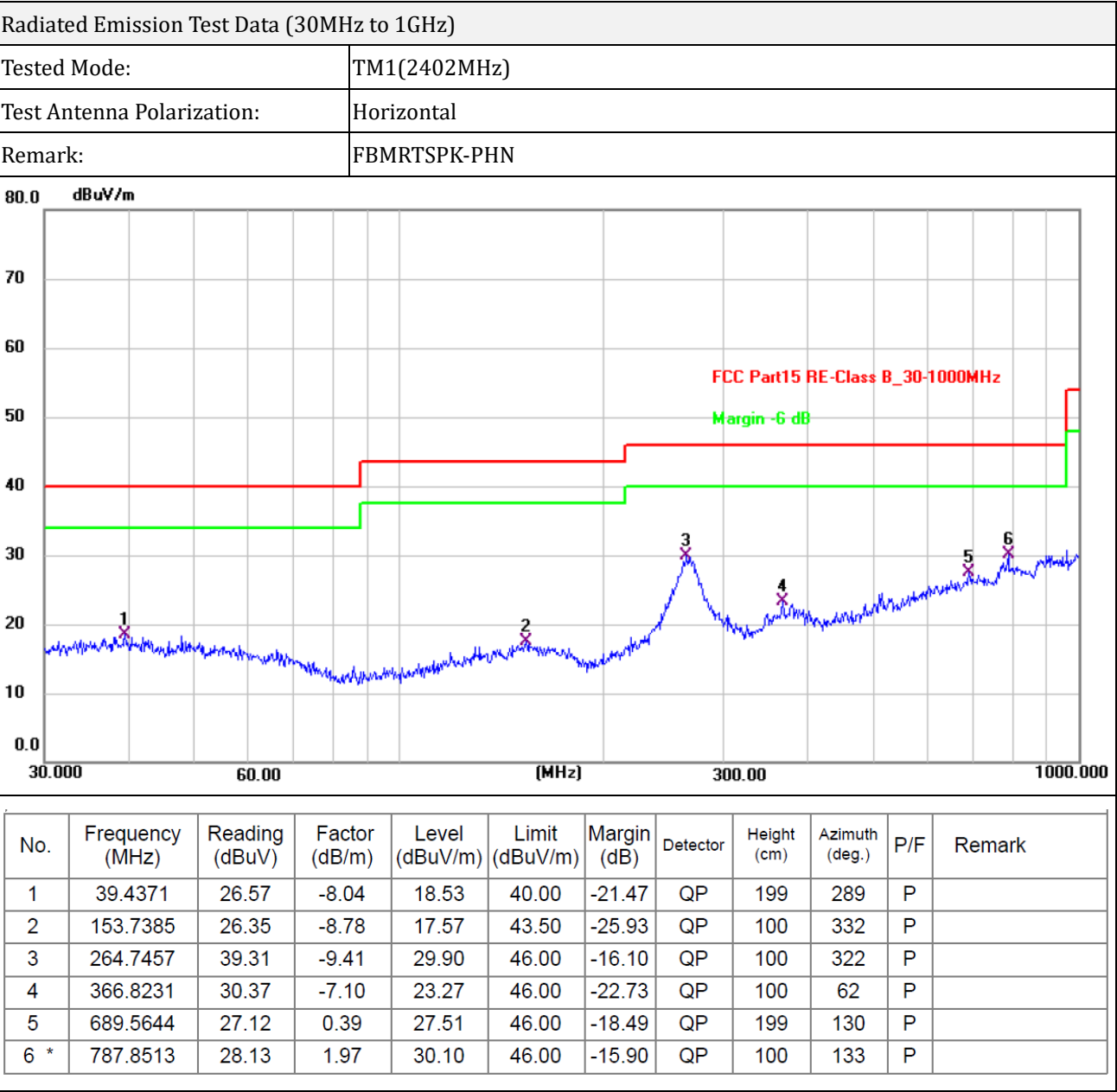
Tested Mode: TM1(2402MHz)

Test Antenna Polarization: Vertical

Remark: FBMRTSPK-CAM



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	53.3179	26.56	-9.09	17.47	40.00	-22.53	QP	100	58	P	
2	61.5618	26.74	-10.02	16.72	40.00	-23.28	QP	100	38	P	
3	162.6106	25.99	-9.13	16.86	43.50	-26.64	QP	100	278	P	
4	287.9904	33.96	-8.60	25.36	46.00	-20.64	QP	100	248	P	
5 *	785.0935	27.12	1.89	29.01	46.00	-16.99	QP	100	11	P	

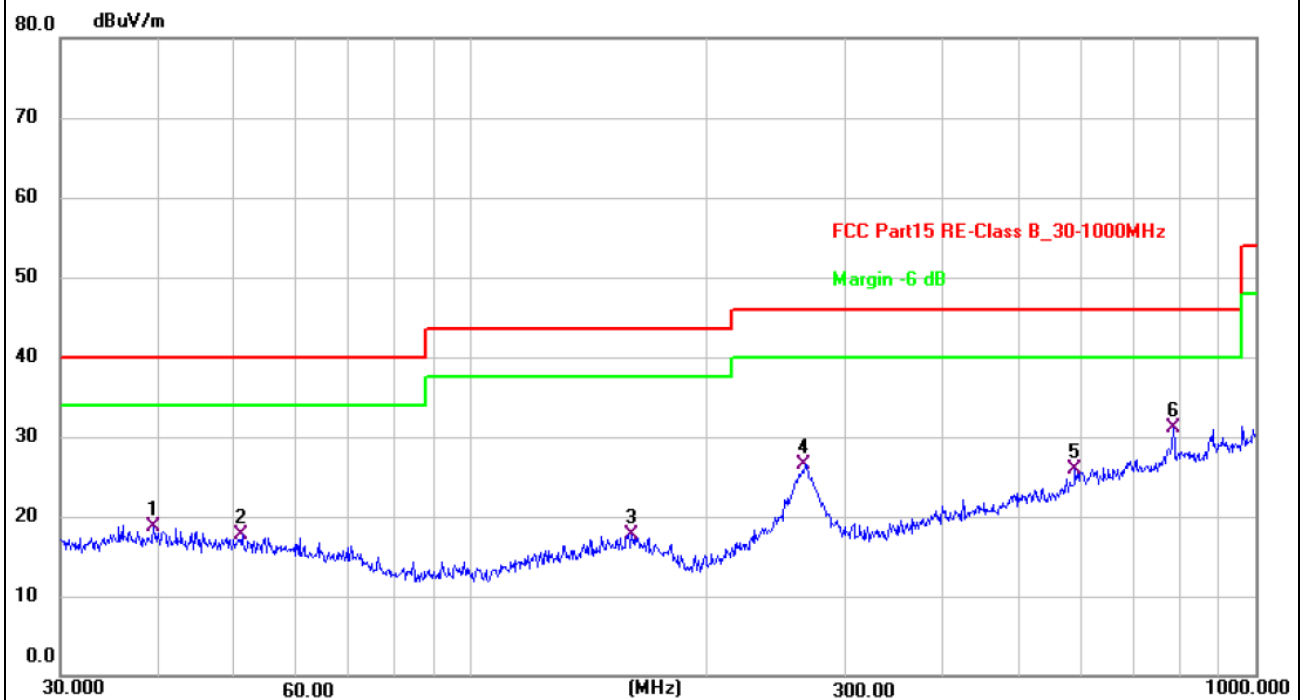


Radiated Emission Test Data (30MHz to 1GHz)

Tested Mode: TM1(2402MHz)

Test Antenna Polarization: Vertical

Remark: FBMRTSPK-PHN



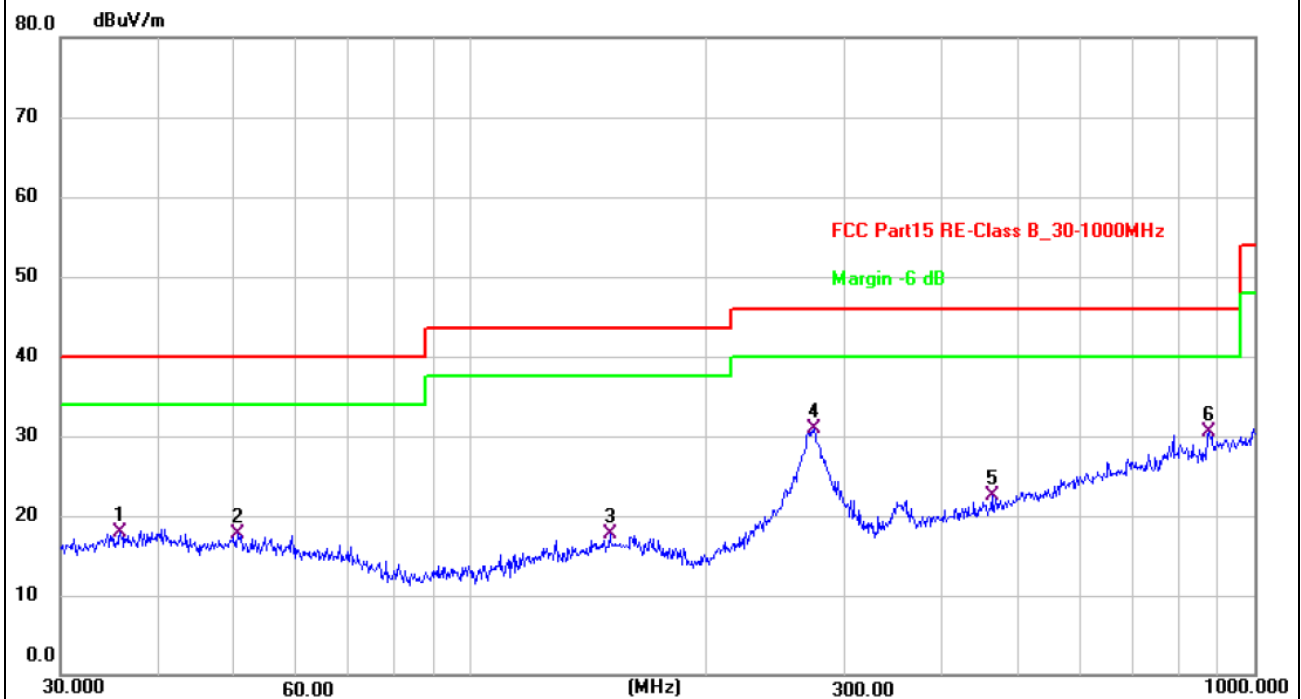
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	39.4371	26.75	-8.04	18.71	40.00	-21.29	QP	199	349	P	
2	51.1209	26.54	-8.81	17.73	40.00	-22.27	QP	199	179	P	
3	160.3456	26.75	-8.99	17.76	43.50	-25.74	QP	199	49	P	
4	266.6089	35.81	-9.33	26.48	46.00	-19.52	QP	100	202	P	
5	588.9051	27.27	-1.45	25.82	46.00	-20.18	QP	199	349	P	
6 *	785.0935	29.14	1.89	31.03	46.00	-14.97	QP	199	349	P	

Radiated Emission Test Data (30MHz to 1GHz)

Tested Mode: TM1(2402MHz)

Test Antenna Polarization: Horizontal

Remark: FBMRTSPK-BB



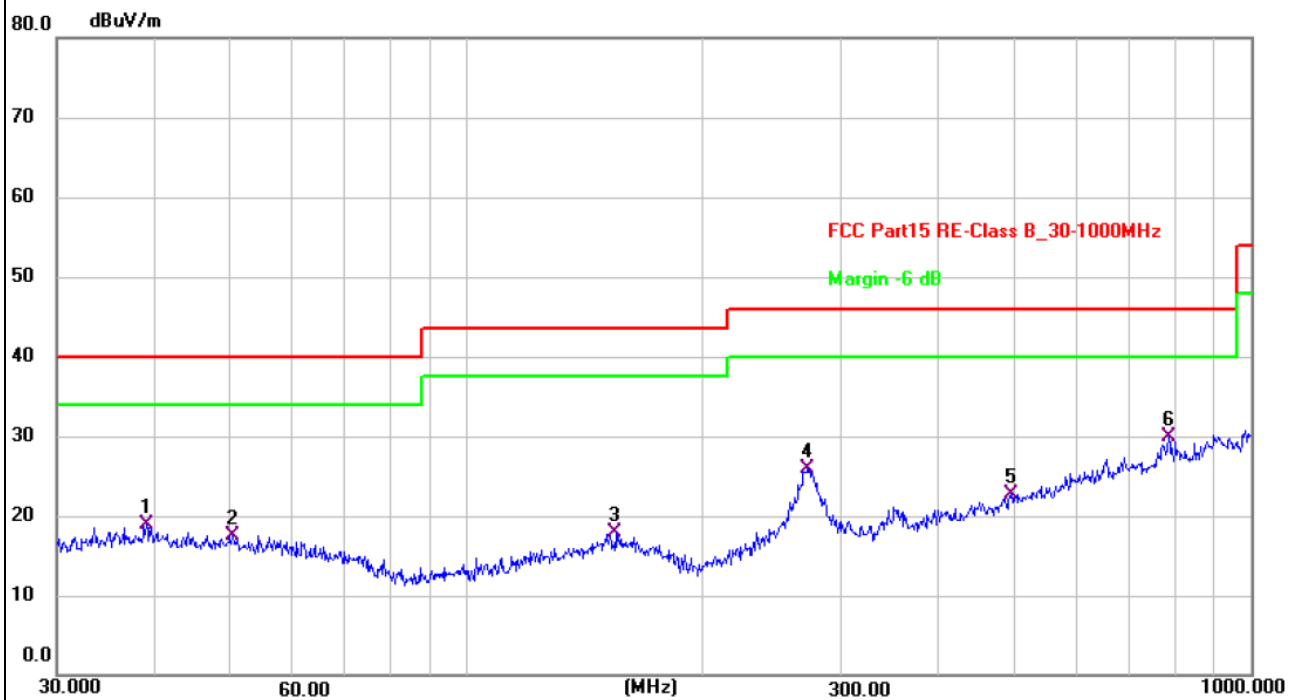
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	35.7490	26.60	-8.60	18.00	40.00	-22.00	QP	100	358	P	
2	50.5860	26.51	-8.75	17.76	40.00	-22.24	QP	199	148	P	
3	150.5378	26.37	-8.66	17.71	43.50	-25.79	QP	199	348	P	
4 *	274.1939	39.89	-9.02	30.87	46.00	-15.13	QP	100	360	P	
5	462.3455	27.16	-4.75	22.41	46.00	-23.59	QP	100	354	P	
6	875.2470	27.78	2.80	30.58	46.00	-15.42	QP	100	112	P	

Radiated Emission Test Data (30MHz to 1GHz)

Tested Mode: TM1(2402MHz)

Test Antenna Polarization: Vertical

Remark: FBMRTSPK-BB



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	39.0245	26.96	-8.10	18.86	40.00	-21.14	QP	100	60	P	
2	50.2324	26.29	-8.72	17.57	40.00	-22.43	QP	199	279	P	
3	154.8204	26.66	-8.81	17.85	43.50	-25.65	QP	100	231	P	
4	272.2776	34.95	-9.10	25.85	46.00	-20.15	QP	199	88	P	
5	494.1984	26.42	-3.71	22.71	46.00	-23.29	QP	199	219	P	
6 *	785.0935	28.09	1.89	29.98	46.00	-16.02	QP	100	347	P	

FBMRTSPK-CAM

Radiated Emission Test Data (Above 1GHz)							
Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	H/V	PK/AV
Lowest Channel (2402MHz)							
4804	74.65	-14.72	59.93	74	-14.07	H	PK
4804	60.18	-14.72	45.46	54	-8.54	H	AV
7206	63.29	-8.41	54.88	74	-19.12	H	PK
7206	49.14	-8.41	40.73	54	-13.27	H	AV
4804	78.79	-14.72	64.07	74	-9.93	V	PK
4804	59.33	-14.72	44.61	54	-9.39	V	AV
7206	63.78	-8.41	55.37	74	-18.63	V	PK
7206	49.37	-8.41	40.96	54	-13.04	V	AV
Middle Channel (2441MHz)							
4882	76.36	-14.64	61.72	74	-12.28	H	PK
4882	59.37	-14.64	44.73	54	-9.27	H	AV
7323	63.36	-8.28	55.08	74	-18.92	H	PK
7323	47.8	-8.28	39.52	54	-14.48	H	AV
4882	76.53	-14.64	61.89	74	-12.11	V	PK
4882	58.61	-14.64	43.97	54	-10.03	V	AV
7323	63.71	-8.28	55.43	74	-18.57	V	PK
7323	49.24	-8.28	40.96	54	-13.04	V	AV
Highest Channel (2480MHz)							
4960	78.56	-14.53	64.03	74	-9.97	H	PK
4960	61.33	-14.53	46.8	54	-7.2	H	AV
7440	62.77	-8.13	54.64	74	-19.36	H	PK
7440	48.26	-8.13	40.13	54	-13.87	H	AV
4960	78.74	-14.53	64.21	74	-9.79	V	PK
4960	59.79	-14.53	45.26	54	-8.74	V	AV
7440	64.83	-8.13	56.7	74	-17.3	V	PK
7440	47.78	-8.13	39.65	54	-14.35	V	AV

Note 1: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Note 2: Testing is carried out with frequency rang 9kHz to the tenth harmonics. The measurements greater than 20dB below the limit from 9kHz to 30MHz.

Note 3: Other emissions are attenuated 20dB below the limits from 9kHz to 30MHz, so it does not recorded in report. 18GHz-26GHz not recorded for no spurious point have a margin of less than 6 dB with respect to the limits.

FBMRTSPK-PHN

Radiated Emission Test Data (Above 1GHz)							
Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	H/V	PK/AV
Lowest Channel (2402MHz)							
4804	74.84	-14.72	60.12	74	-13.88	H	PK
4804	61.49	-14.72	46.77	54	-7.23	H	AV
7206	65.86	-8.41	57.45	74	-16.55	H	PK
7206	45.45	-8.41	37.04	54	-16.96	H	AV
4804	74.37	-14.72	59.65	74	-14.35	V	PK
4804	59.6	-14.72	44.88	54	-9.12	V	AV
7206	64.86	-8.41	56.45	74	-17.55	V	PK
7206	45.17	-8.41	36.76	54	-17.24	V	AV
Middle Channel (2441MHz)							
4882	75.84	-14.64	61.2	74	-12.8	H	PK
4882	59.36	-14.64	44.72	54	-9.28	H	AV
7323	62.05	-8.28	53.77	74	-20.23	H	PK
7323	46.3	-8.28	38.02	54	-15.98	H	AV
4882	78.02	-14.64	63.38	74	-10.62	V	PK
4882	58.16	-14.64	43.52	54	-10.48	V	AV
7323	65.9	-8.28	57.62	74	-16.38	V	PK
7323	48.85	-8.28	40.57	54	-13.43	V	AV
Highest Channel (2480MHz)							
4960	78.31	-14.53	63.78	74	-10.22	H	PK
4960	61.98	-14.53	47.45	54	-6.55	H	AV
7440	65.3	-8.13	57.17	74	-16.83	H	PK
7440	49.48	-8.13	41.35	54	-12.65	H	AV
4960	78.75	-14.53	64.22	74	-9.78	V	PK
4960	59.1	-14.53	44.57	54	-9.43	V	AV
7440	64.88	-8.13	56.75	74	-17.25	V	PK
7440	46.8	-8.13	38.67	54	-15.33	V	AV

Note 1: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Note 2: Testing is carried out with frequency rang 9kHz to the tenth harmonics. The measurements greater than 20dB below the limit from 9kHz to 30MHz.

Note 3: Other emissions are attenuated 20dB below the limits from 9kHz to 30MHz, so it does not recorded in report. 18GHz-26GHz not recorded for no spurious point have a margin of less than 6 dB with respect to the limits.

FBMRTSPK-BB

Radiated Emission Test Data (Above 1GHz)							
Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	H/V	PK/AV
Lowest Channel (2402MHz)							
4804	75.31	-14.72	60.59	74	-13.41	H	PK
4804	61.29	-14.72	46.57	54	-7.43	H	AV
7206	63.93	-8.41	55.52	74	-18.48	H	PK
7206	47.53	-8.41	39.12	54	-14.88	H	AV
4804	76.17	-14.72	61.45	74	-12.55	V	PK
4804	59.94	-14.72	45.22	54	-8.78	V	AV
7206	62.35	-8.41	53.94	74	-20.06	V	PK
7206	50.56	-8.41	42.15	54	-11.85	V	AV
Middle Channel (2441MHz)							
4882	76.05	-14.64	61.41	74	-12.59	H	PK
4882	62.75	-14.64	48.11	54	-5.89	H	AV
7323	64.4	-8.28	56.12	74	-17.88	H	PK
7323	46.39	-8.28	38.11	54	-15.89	H	AV
4882	77.99	-14.64	63.35	74	-10.65	V	PK
4882	60.48	-14.64	45.84	54	-8.16	V	AV
7323	65.89	-8.28	57.61	74	-16.39	V	PK
7323	45.59	-8.28	37.31	54	-16.69	V	AV
Highest Channel (2480MHz)							
4960	78.82	-14.53	64.29	74	-9.71	H	PK
4960	59.47	-14.53	44.94	54	-9.06	H	AV
7440	63.38	-8.13	55.25	74	-18.75	H	PK
7440	49.96	-8.13	41.83	54	-12.17	H	AV
4960	73.97	-14.53	59.44	74	-14.56	V	PK
4960	58.31	-14.53	43.78	54	-10.22	V	AV
7440	62.33	-8.13	54.2	74	-19.8	V	PK
7440	46.06	-8.13	37.93	54	-16.07	V	AV

Note 1: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Note 2: Testing is carried out with frequency rang 9kHz to the tenth harmonics. The measurements greater than 20dB below the limit from 9kHz to 30MHz.

Note 3: Other emissions are attenuated 20dB below the limits from 9kHz to 30MHz, so it does not recorded in report. 18GHz-26GHz not recorded for no spurious point have a margin of less than 6 dB with respect to the limits.

***** END OF REPORT *****