FCC CERTIFICATION TEST REPORT

For

FCC ID: IKQBTFM3SP

IC:6955A-BTFM3SP

Report Reference No.....:	19EFCS09021 2381
Date of issue.....:	2019-10-11
Testing Laboratory.....:	DongGuan ShuoXin Electronic Technology Co., Ltd.
Address.....:	Zone A, 1F, No. 6, XinGang Road YuanGang Street, XinAn District, ChangAn Town, DongGuan City, GuangDong, China
Applicant's name .....:	Scosche Industries, Inc.
Address.....:	1550 Pacific Ave, 0xnard, CA 93033
Manufacturer.....:	Scosche Industries Inc.
Test specification:	
Test item description .....:	Bluetooth FM Transmitter
Trade Mark .....:	Scosche
Model/Type reference .....:	FCC: BTFMTD10;BTFM3;BTFM3-SP;BTFM3SR; BTFM3SR-SP1; BTFM3-SP1 IC:BTFM3-SP
Ratings.....:	I/P: 12VDC 2A O/P: 5VDC 2.4A

Responsible Engineer :

Smile Wang

Smile Wang

Authorized Signatory:

king wang

King Wang

TABLE OF CONTENTS

TEST REPORT DECLARE

Applicant	:	Scosche Industries Inc.
Address	:	1550 Pacific Ave, 0xnard, CA 93033
Equipment under Test	:	Bluetooth FM Transmitter
Model No	:	FCC: BTFMTD10;BTFM3;BTFM3-SP;BTFM3SR; TFM3SR-SP1 ; BTFM3-SP1 IC:BTFM3-SP
Trade Mark	:	Scosche
Manufacturer	:	Scosche Industries Inc.
Address	:	1550 Pacific Ave, 0xnard, CA 93033

Test Standard Used: FCC:FCC Rules and Regulations Part 15 Subpart C (15.239)

IC: RSS-Gen Issue 5 March 2019 Amendment 1; RSS-210 Issue 9 August 2016

Test procedure used: ANSI C63.4: 2014, ANSI C63.10:2013

We Declare:

The equipment described above is tested by DongGuan ShuoXin Electronic Technology Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and DongGuan ShuoXin Electronic Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:	19EFCS09021 2381		
Date of Test:	2019-09-26 to 2019-10-11	**Date of Report:**	2019-10-11

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of DongGuan ShuoXin Electronic Technology Co., Ltd.

1. Summary of test Standards and results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Results
20dB Bandwidth	FCC Part 15: 15.239 RSS-210:B.9 (a)，RSS-Gen 6.7	PASS
Field Strength of Fundamental Emissions	FCC Part 15. 239 RSS-210:B.9 (b)(d)	PASS
Radiated Emission	FCC Part 15.209，205 RSS-210:B.9 (c)(d)	PASS
Frequency Stability	RSS-Gen §6.11	PASS

Note: The input signal is audio and the transmitter is frequency modulated, and the singal is demonstrated by modulating the transmitter with a 2.5 kHz tone at a level 16 dB higher than the required level in order to produce a frequency deviation of 75 kHz.

2. General test information

2.1 Description of EUT

EUT* Name	:	Bluetooth FM Transmitter
Model Number	:	FCC: BTFMTD10;BTFM3;BTFM3-SP;BTFM3SR; TFM3SR-SP1 ; BTFM3-SP1 IC:BTFM3-SP
Trade Mark	:	Scosche
EUT function description	:	Please reference user manual of this device
Power supply	:	12VDC 2A
Operation frequency	:	88.1-107.9MHz
Modulation	:	FM
Antenna Type	:	built-in FPC antenna, maximum PK gain:0dBi
Date of Receipt	:	2019/09/26
Sample Type	:	Signle production

Channel List

Channels	Frequency (MHz)	Channels	Frequency (MHz)	Channels	Frequency (MHz)
0	88.1	34	94.9	68	101.7
1	88.3	35	95.1	69	101.9
2	88.5	36	95.3	70	102.1
3	88.7	37	95.5	71	102.3
4	88.9	38	95.7	72	102.5
5	89.1	39	95.9	73	102.7
6	89.3	40	96.1	74	102.9
7	89.5	41	96.3	75	103.1
8	89.7	42	96.5	76	103.3
9	89.9	43	96.7	77	103.5
10	90.1	44	96.9	78	103.7
11	90.3	45	97.1	79	103.9
12	90.5	46	97.3	80	104.1
13	90.7	47	97.5	81	104.3
14	90.9	48	97.7	82	104.5
15	91.1	49	97.9	83	104.7
16	91.3	50	98.1	84	104.9
17	91.5	51	98.3	85	105.1
18	91.7	52	98.5	86	105.3
19	91.9	53	98.7	87	105.5
20	92.1	54	98.9	88	105.7
21	92.3	55	99.1	89	105.9
22	92.5	56	99.3	90	106.1
23	92.7	57	99.5	91	106.3
24	92.9	58	99.7	92	106.5
25	93.1	59	99.9	93	106.7
26	93.3	60	100.1	94	106.9
27	93.5	61	100.3	95	107.1
28	93.7	62	100.5	96	107.3
29	93.9	63	100.7	97	107.5
30	94.1	64	100.9	98	107.7
31	94.3	65	101.1	99	107.9
32	94.5	66	101.3		
33	94.7	67	101.5		

2.2 Accessories of EUT

Description of Accessories	Manufacturer	Model number or Type	Other
/	/	/	/

2.3 Assistant equipment used for test

Description of Assistant equipment	Manufacturer	Model number or Type	EMC Compliance	SN
/	/	/	/	/

2.4 Test environment conditions

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

Temperature range:	21-25℃
Humidity range:	40-75%
Pressure range:	86-106kPa

2.5 Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test (9kHz-150kHz)	3.7 dB
Uncertainty for Conduction emission test (150kHz-30MHz)	3.3 dB
Uncertainty for Radiation Emission test (30MHz-200MHz)	4.60 dB (Polarize: V)
	4.60 dB (Polarize: H)
Uncertainty for Radiation Emission test (200MHz-1GHz)	6.10 dB (Polarize: V)
	5.08 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz-6GHz)	5.01 dB (Polarize: V)
	5.01 dB (Polarize: H)
Uncertainty for Radiation Emission test (6GHz-18GHz)	5.26 dB (Polarize: V)
	5.26 dB (Polarize: H)
Uncertainty for Radiation Emission test (18GHz-40GHz)	5.06 dB (Polarize: V)
	5.06 dB (Polarize: H)
Uncertainty for radio frequency	±0.048kHz
Uncertainty for conducted RF Power	±0.32dB

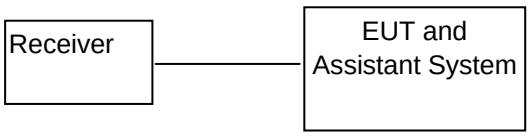
Note：This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. 20dB Bandwidth

3.1 Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Calibrated Date
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2020/05/27	2019/05/28
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2019/12/16	2018/12/17
3	RF Cable	Micable	C10-01-01-1	100309	2019/12/16	2018/12/17
4	Signal Generator	Levear	VP-8194D	0530228LA	2019/12/16	2018/12/17

3.2 Block diagram of test setup



3.3 Applicable Standard

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §15.239, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

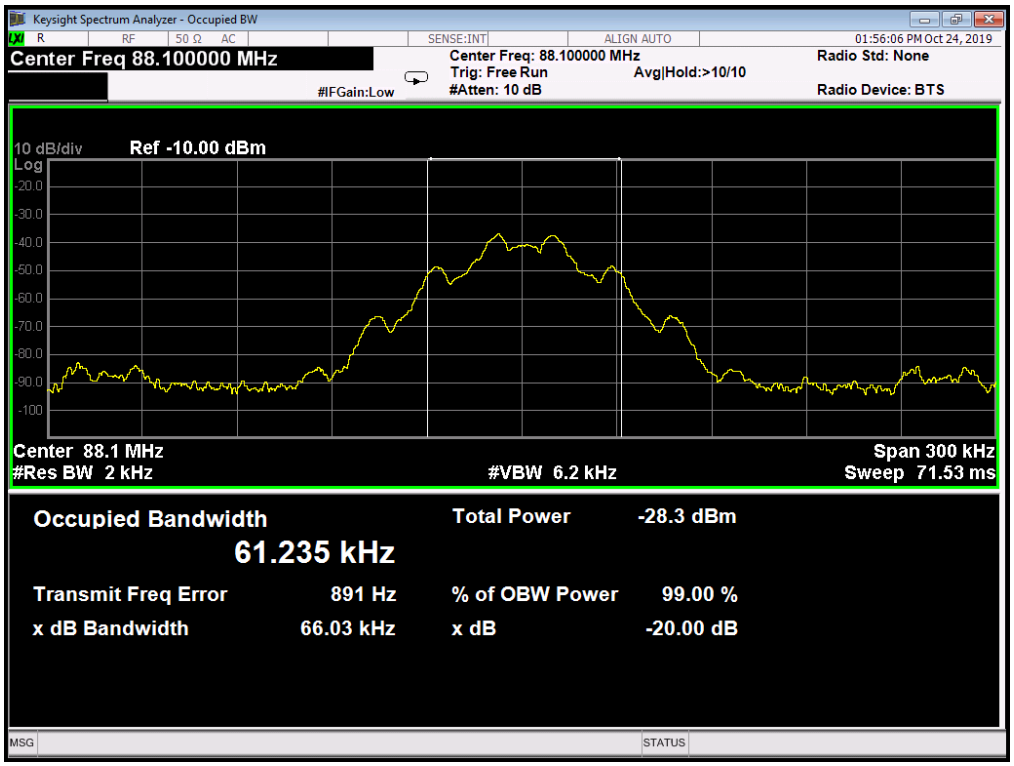
3.4 Test Procedure

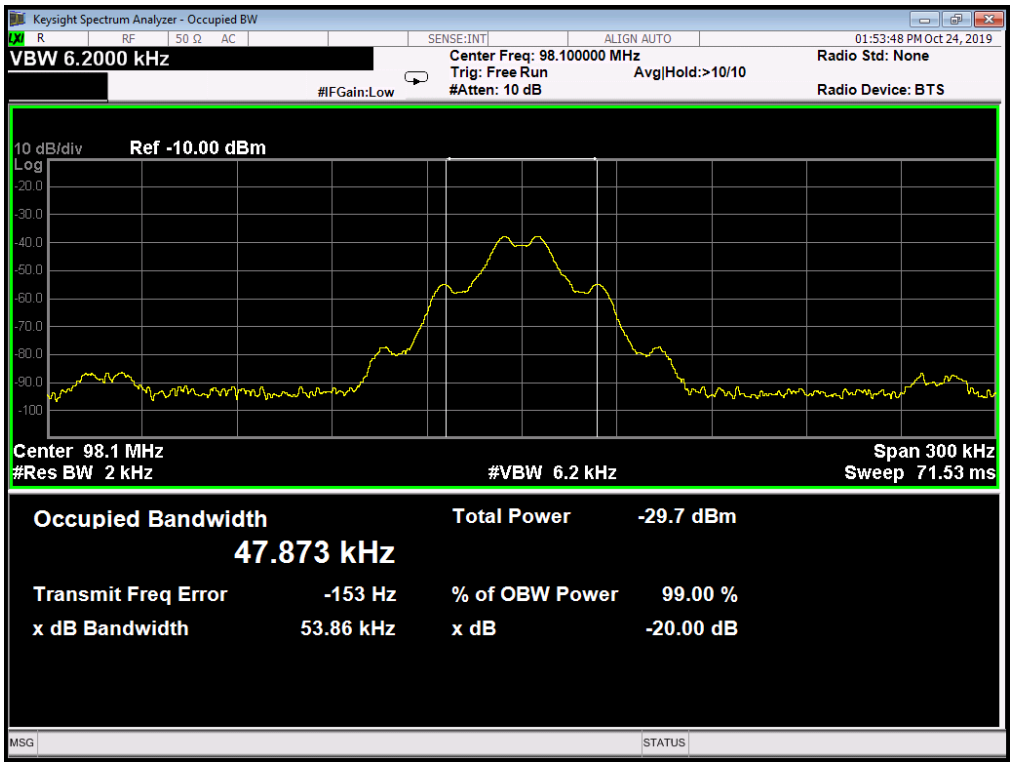
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT on the test table without connection to measurement instrument. Turn on the EUT. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20dB bandwidth and 99% bandwidth from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

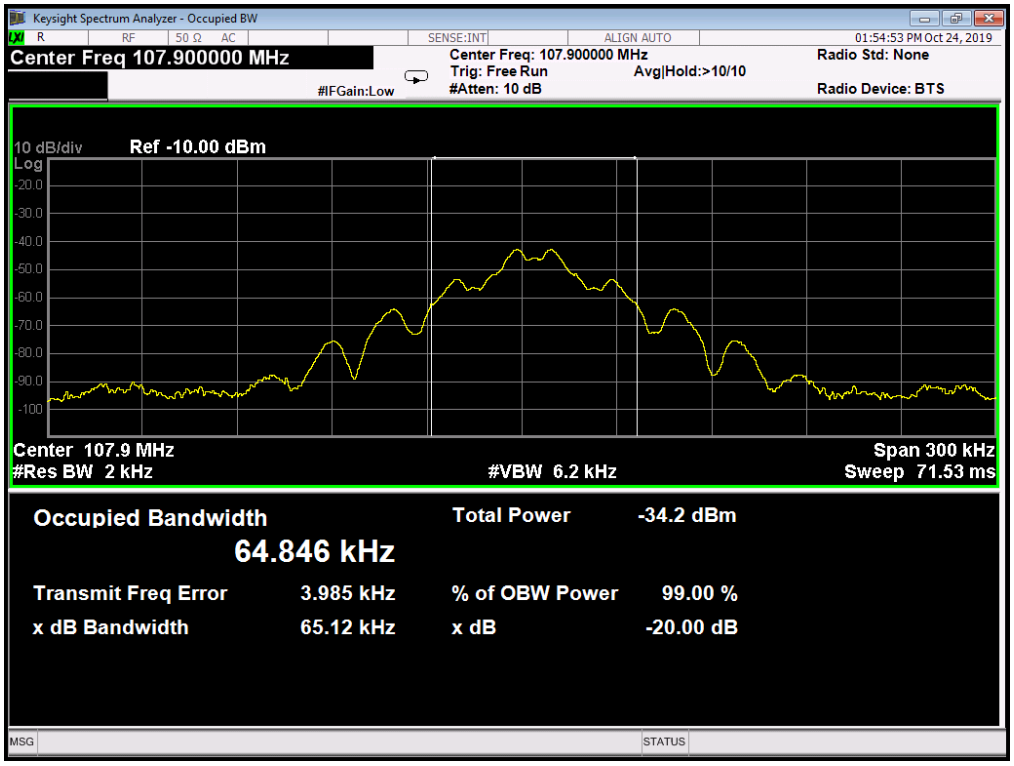
3.5 Test Result

Mode	Freq (MHz)	99% bandwidth (KHz)	20dB bandwidth (KHz)	Conclusion
Tx	88.1	61.235	66.03	PASS
	98.1	47.873	53.86	PASS
	107.9	64.846	65.12	PASS

3.6 Original test data




Keysight Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
01:53:48 PM Oct 24, 2019
VBW 6.2000 kHz
Center Freq: 98.100000 MHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
10 dB/div
Ref -10.00 dBm
Log
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
Center 98.1 MHz
#Res BW 2 kHz
#VBW 6.2 kHz
Span 300 kHz
Sweep 71.53 ms
Occupied Bandwidth
47.873 kHz
Total Power -29.7 dBm
Transmit Freq Error -153 Hz
% of OBW Power 99.00 %
x dB Bandwidth 53.86 kHz
x dB -20.00 dB
MSG
STATUS


Keysight Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
01:54:53 PM Oct 24, 2019
Center Freq 107.900000 MHz
Center Freq: 107.900000 MHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
10 dB/div
Ref -10.00 dBm
Log
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
Center 107.9 MHz
#Res BW 2 kHz
#VBW 6.2 kHz
Span 300 kHz
Sweep 71.53 ms
Occupied Bandwidth
64.846 kHz
Total Power -34.2 dBm
Transmit Freq Error 3.985 kHz
% of OBW Power 99.00 %
x dB Bandwidth 65.12 kHz
x dB -20.00 dB
MSG
STATUS

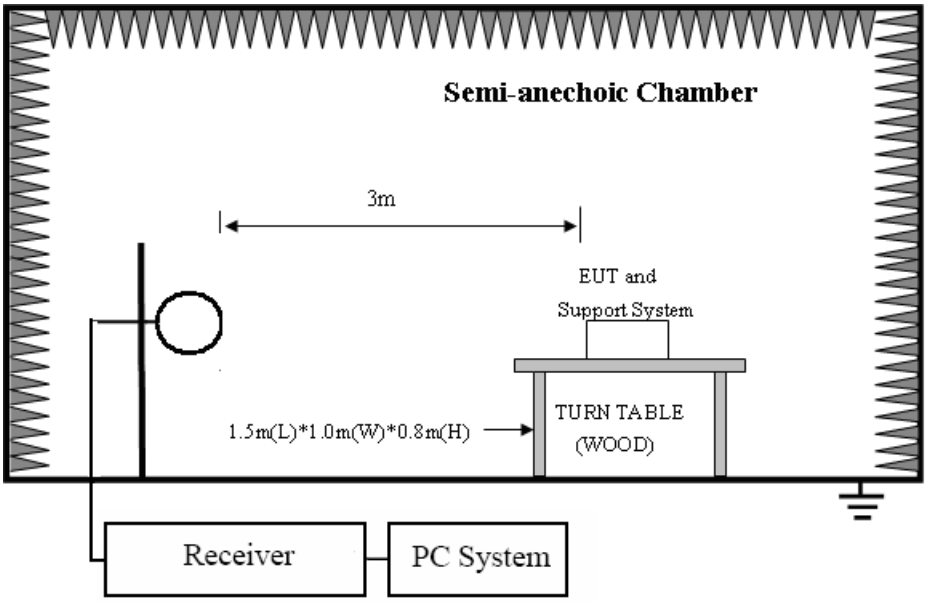
5. RADIATED EMISSION

5.1 Test equipment

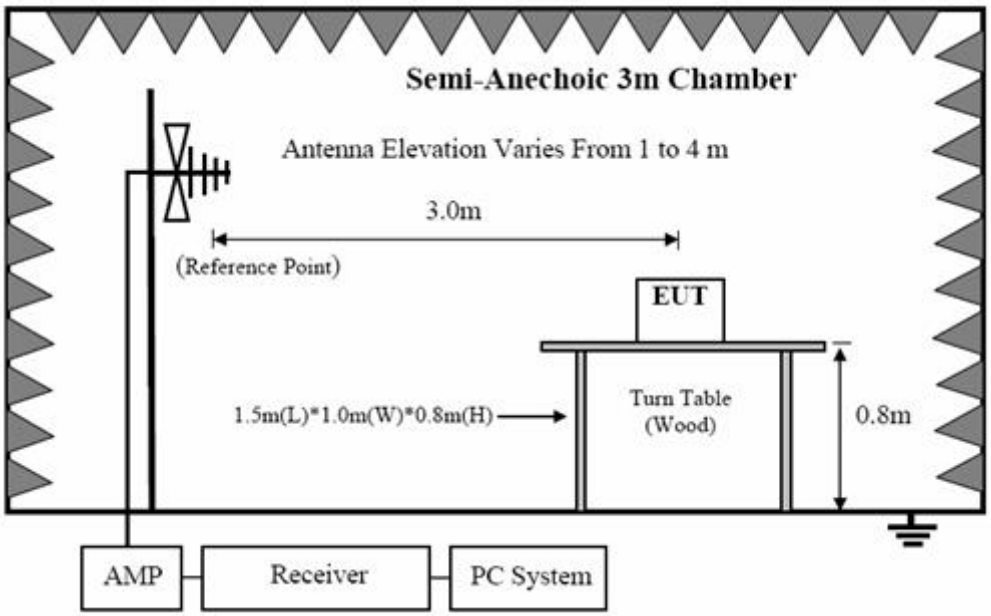
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Cal. Interval
1	EMI Test Receiver	R&S	ESCI	101307	2019/12/16	1 Year
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2020/05/27	1 Year
3	Spectrum analyzer	R&S	FSU	1166.1660.26	2019/12/16	1 Year
4	Loop antenna	TESEQ	HLA6120	20129	2019/12/16	1 Year
5	Log-Bicon Antenna	Schwarzbeck	VULB9168	VULB9168-192	03/22/2020	1 Year
6	Double Ridged Horn Antenna	Schwarzbeck	BBHA9120D	9120D 1065	2019/12/16	1 Year
7	Horn Antenna	Schwarzbeck	BBHA 9170	9170 1248	2019/12/16	1 Year
8	Pre-amplifier	A.H.	PAM-1840VH	562	2019/12/16	1 Year
9	Pre-amplifier	R&S	AFS33-18002650-30-8P-44	SEL0080	2019/12/16	1 Year
10	Pre-Amplifier	HP	8449B	3274A06298	2019/12/16	1 Year
11	RF Cable	R&S	R01	10403	2019/12/16	1 Year
12	RF Cable	R&S	R02	10512	2019/12/16	1 Year
13	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A	N/A
4	Signal Generator	Levear	VP-8194D	0530228LA	2019/12/16	2018/12/17

5.2 Block diagram of test setup

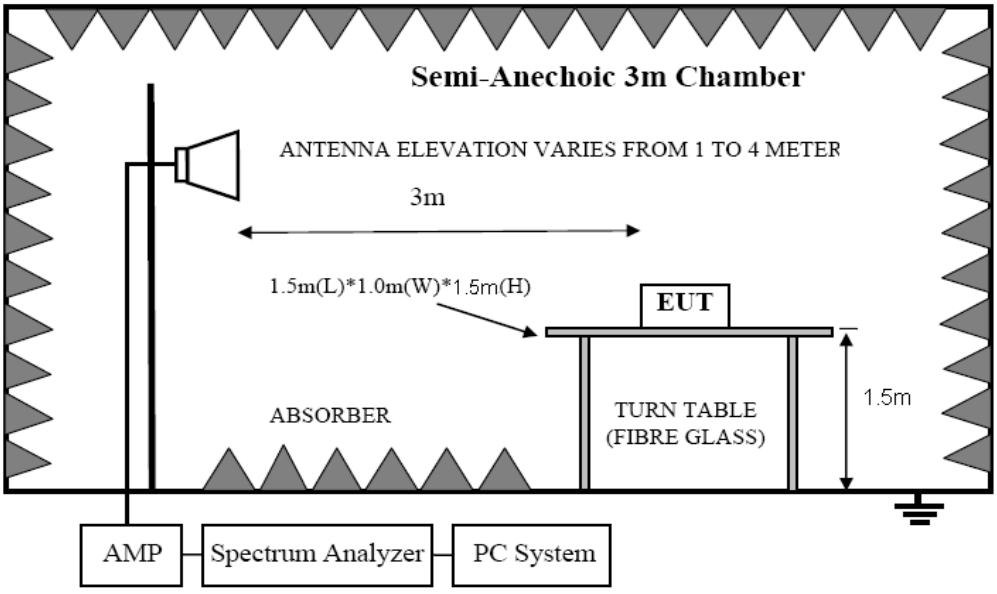
In 3m Anechoic Chamber Test Setup Diagram for below 30MHz



In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

5.3 Limit

FCC 15.209 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m at 3 m
0.009 ~ 0.49	300	2400/F(kHz)	65.0
0.49 ~ 1.705	30	2400/F(kHz)	45.0
1.705 ~ 30	30	30	69.5
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

5.3.4 Limit for this EUT

The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.4:2014. The specification used was the FCC 15.209.

5.4 Test Procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Setup EUT and assistant system according clause 2.4 and 8.2

(3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.

(a) Change work frequency or channel of device if practicable.

(b) Change modulation type of device if practicable.

(c) Change power supply range from 85% to 115% of the rated supply voltage

(d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions

(4) Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9KHz to 30MHz and 18GHz to 25GHz, so below final test was performed with frequency range from 30MHz to 18GHz.

(5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.

(6) For emissions from 30MHz to 1GHz, Quasi-Peak values were measured with EMI Receiver and the bandwidth of Receiver is 120 KHz.

5.5 Test result

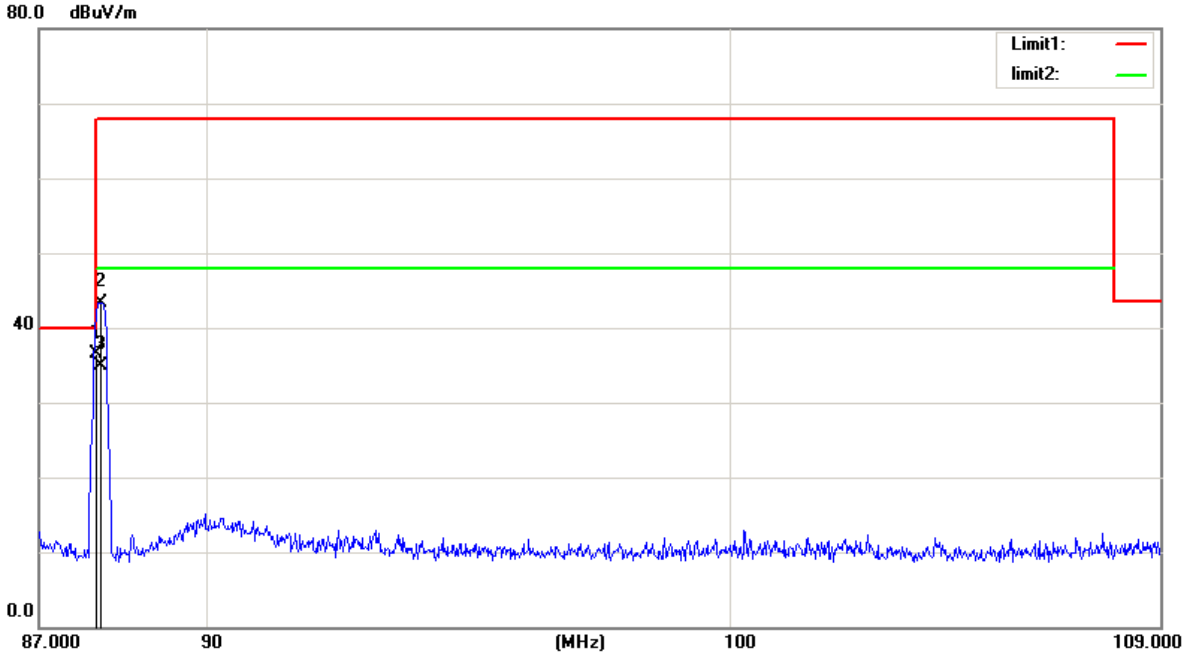
PASS. (See below detailed test result)

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, and section 15.205, 15.209 and 15.239, Vertical and Horizontal mode all have been tested, Horizontal mode is the worse case(new battery is used during all test) .with the worst margin reading of:

Radiated Emission Test Result

Field Strength of Fundamental Emissions

EUT:	**Bluetooth FM Transmitter**	**Model No.:**	**BTFM3-SP**
Temperature:	**24℃**	**Relative Humidity:**	**66%**
Distance:	**3m**	**Test Power:**	**DC 12V**
Polarization:	**Vertical**	**Test Result:**	**Pass**
Test Time:	**2019-10-10**	**Test By:**	**Blue**
Standard:	**(RE)FCC PART 15.239 30M-1G**		
Test Mode:	**TX FM_88.1MHz**		

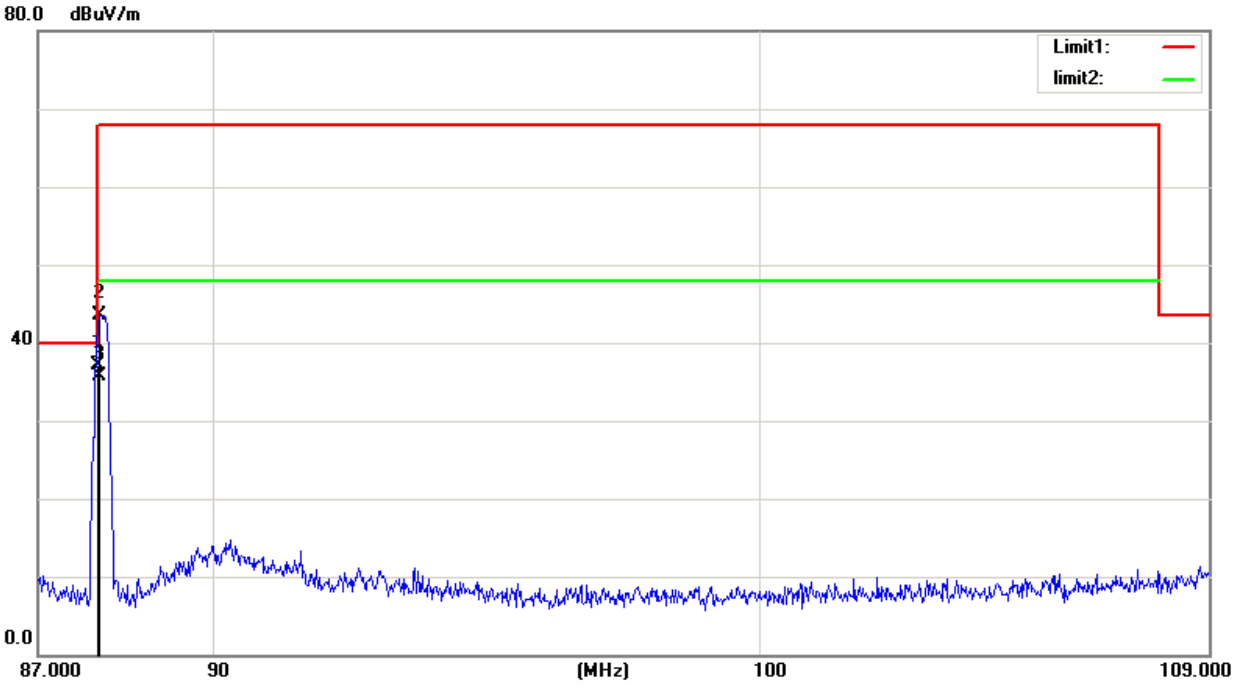


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	88.0000	51.82	-15.23	36.59	40.00	-3.41	QP
2	88.0999	58.51	-15.23	43.28	68.00	-24.72	peak
3	88.0999	50.21	-15.23	34.98	48.00	-13.02	AVG

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss-Amplifier Factor
(3) Margin = Result - Limit

EUT:	Bluetooth FM Transmitter	Model No.:	BTFM3-SP
Temperature:	24℃	Relative Humidity:	66%
Distance:	3m	Test Power:	DC 12V
Polarization:	Horizontal	Test Result:	Pass
Test Time:	2019-10-10	Test By:	Blue
Standard:	(RE)FCC PART 15.239 30M-1G		
Test Mode:	TX FM_88.1MHz		

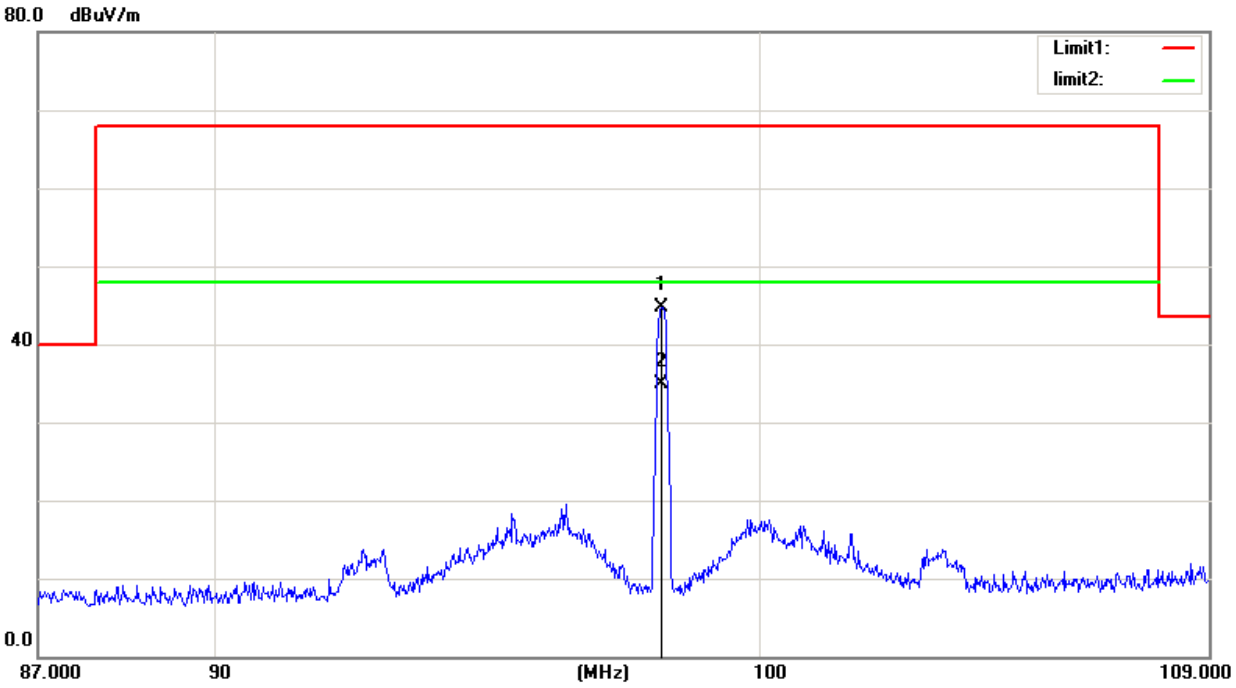


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	88.0000	54.35	-17.23	37.12	40.00	-2.88	QP
2	88.0559	60.75	-17.23	43.52	68.00	-24.48	peak
3	88.0559	52.98	-17.23	35.75	48.00	-12.25	AVG

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss-Amplifier Factor
(3) Margin = Result - Limit

EUT:	**Bluetooth FM Transmitter**	**Model No.:**	**BTFM3-SP**
Temperature:	**24℃**	**Relative Humidity:**	**66%**
Distance:	**3m**	**Test Power:**	**DC 12V**
Polarization:	**Horizontal**	**Test Result:**	**Pass**
Test Time:	**2019-10-10**	**Test By:**	**Blue**
Standard:	**(RE)FCC PART 15.239 30M-1G**		
Test Mode:	**TX FM_98.1MHz**		

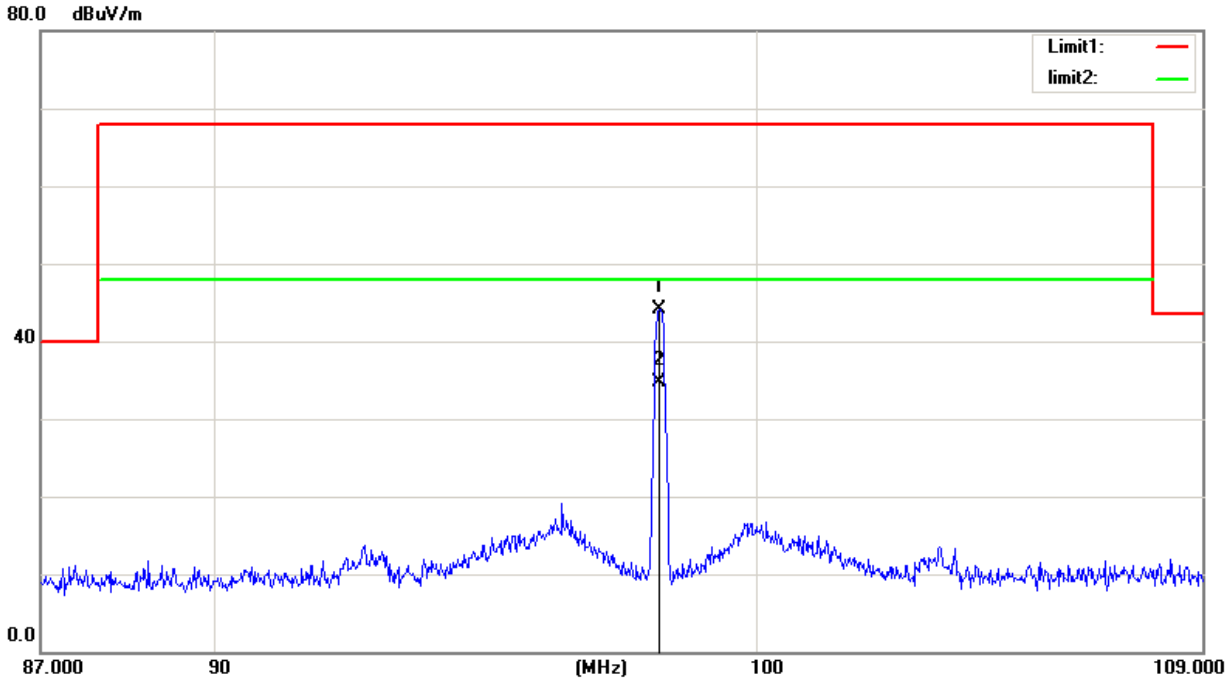


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	98.0879	61.32	-16.59	44.73	68.00	-23.27	peak
2	98.0879	51.47	-16.59	34.88	48.00	-13.12	AVG

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss-Amplifier Factor
(3) Margin = Result - Limit

EUT:	**Bluetooth FM Transmitter**	**Model No.:**	**BTFM3-SP**
Temperature:	**24℃**	**Relative Humidity:**	**66%**
Distance:	**3m**	**Test Power:**	**DC 12V**
Polarization:	**Vertical**	**Test Result:**	**Pass**
Test Time:	**2019-10-10**	**Test By:**	**Blue**
Standard:	**(RE)FCC PART 15.239 30M-1G**		
Test Mode:	**TX FM_98.1MHz**		

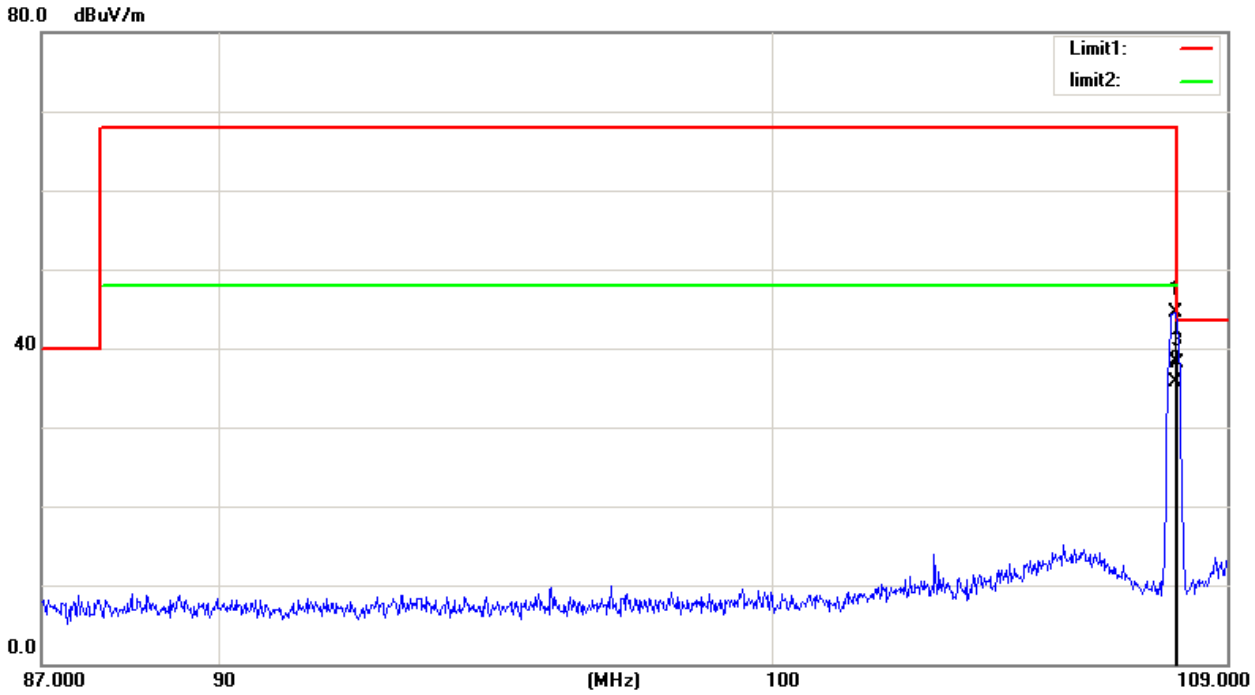


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	98.1099	58.62	-14.59	44.03	68.00	-23.97	peak
2	98.1099	49.34	-14.59	34.75	48.00	-13.25	AVG

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss-Amplifier Factor
(3) Margin = Result - Limit

EUT:	Bluetooth FM Transmitter	Model No.:	BTFM3-SP
Temperature:	24℃	Relative Humidity:	66%
Distance:	3m	Test Power:	DC 12V
Polarization:	Horizontal	Test Result:	Pass
Test Time:	2019-10-10	Test By:	Blue
Standard:	(RE)FCC PART 15.239 30M-1G		
Test Mode:	TX FM_107.9MHz		

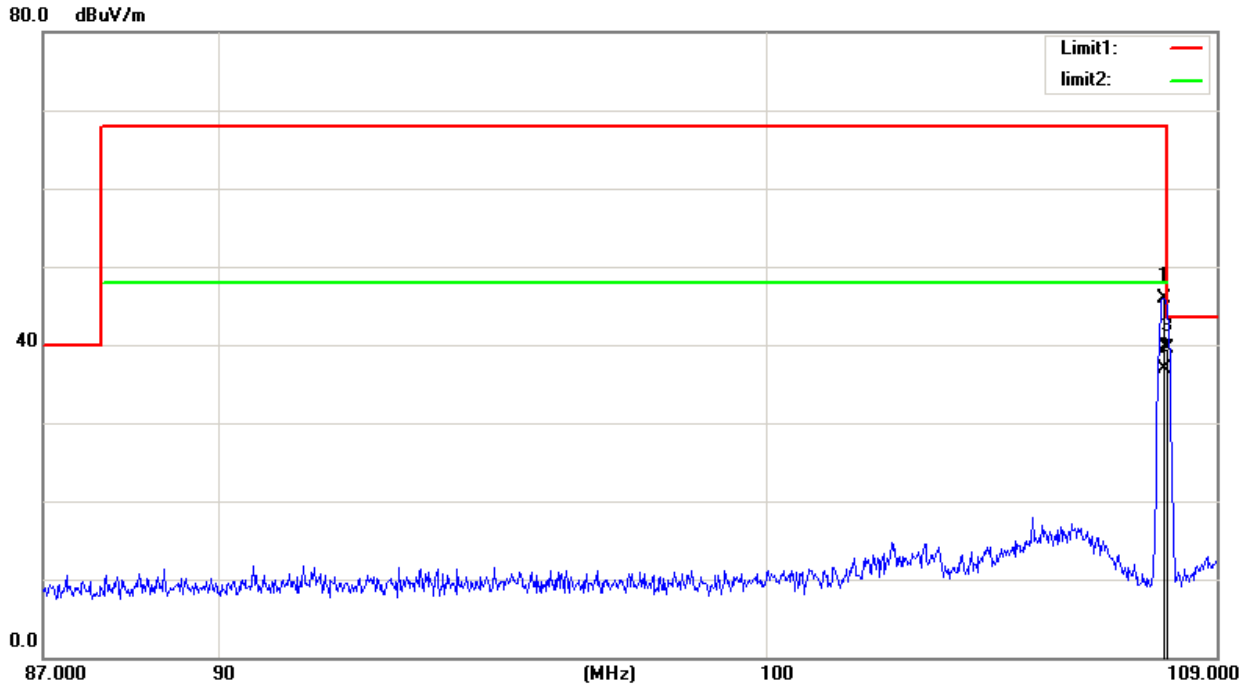


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	107.9440	59.28	-14.83	44.45	68.00	-23.55	peak
2	107.9440	50.50	-14.83	35.67	48.00	-12.33	AVG
3	108.0000	52.83	-14.81	38.02	48.00	-9.98	QP

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss-Amplifier Factor
(3) Margin = Result - Limit

EUT:	**Bluetooth FM Transmitter**	**Model No.:**	**BTFM3-SP**
Temperature:	**24℃**	**Relative Humidity:**	**66%**
Distance:	**3m**	**Test Power:**	**DC 12V**
Polarization:	**Vertical**	**Test Result:**	**Pass**
Test Time:	**2019-10-10**	**Test By:**	**Blue**
Standard:	**(RE)FCC PART 15.239 30M-1G**		
Test Mode:	**TX FM_107.9MHz**		



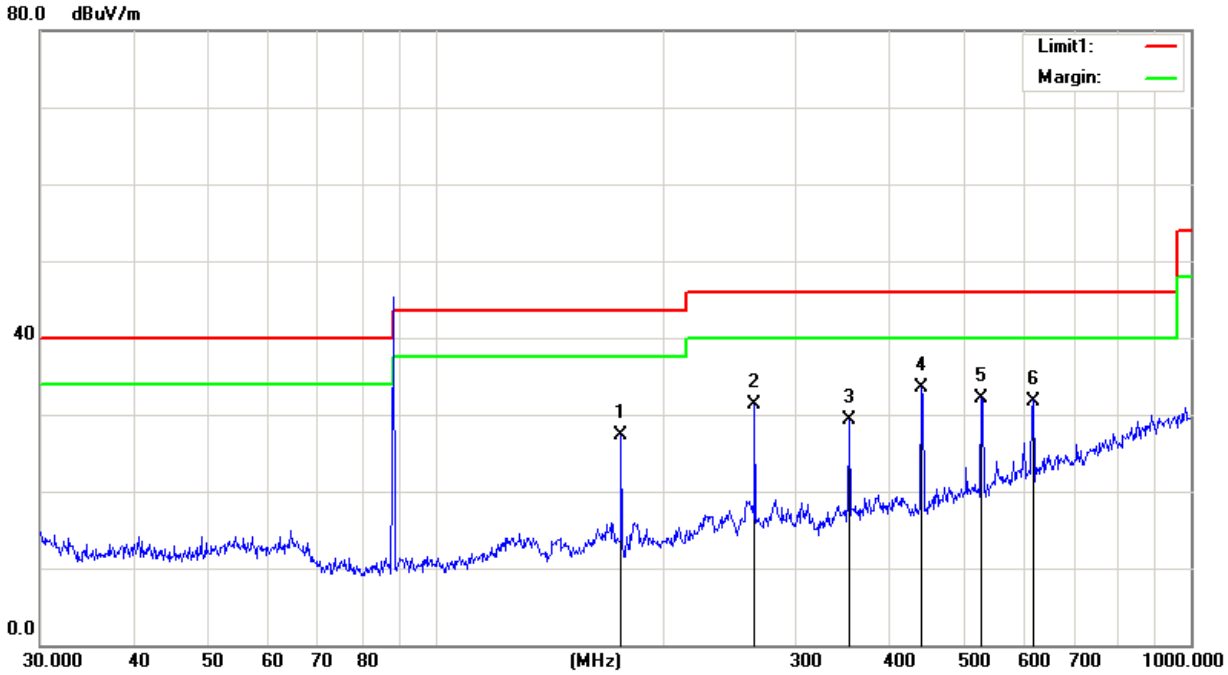
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	107.9000	60.29	-14.42	45.87	68.00	-22.13	peak
2	107.9000	51.37	-14.42	36.95	48.00	-11.05	AVG
3	108.0000	53.82	-14.41	39.41	43.50	-4.09	QP

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss-Amplifier Factor
(3) Margin = Result - Limit

30MHz-1GHz(Note:CH Low ,CH Mid ,CH High all have been tested ,only Worst Case is reported)

EUT:	Bluetooth FM Transmitter	Model No.:	BTFM3-SP
Temperature:	24℃	Relative Humidity:	66%
Distance:	3m	Test Power:	DC 12V
Polarization:	Vertical	Test Result:	Pass
Test Time:	2019-10-10	Test By:	Blue
Standard:	(RE)FCC PART 15 class B 3m		
Test Mode:	FM_88.1MHz (worse case)		

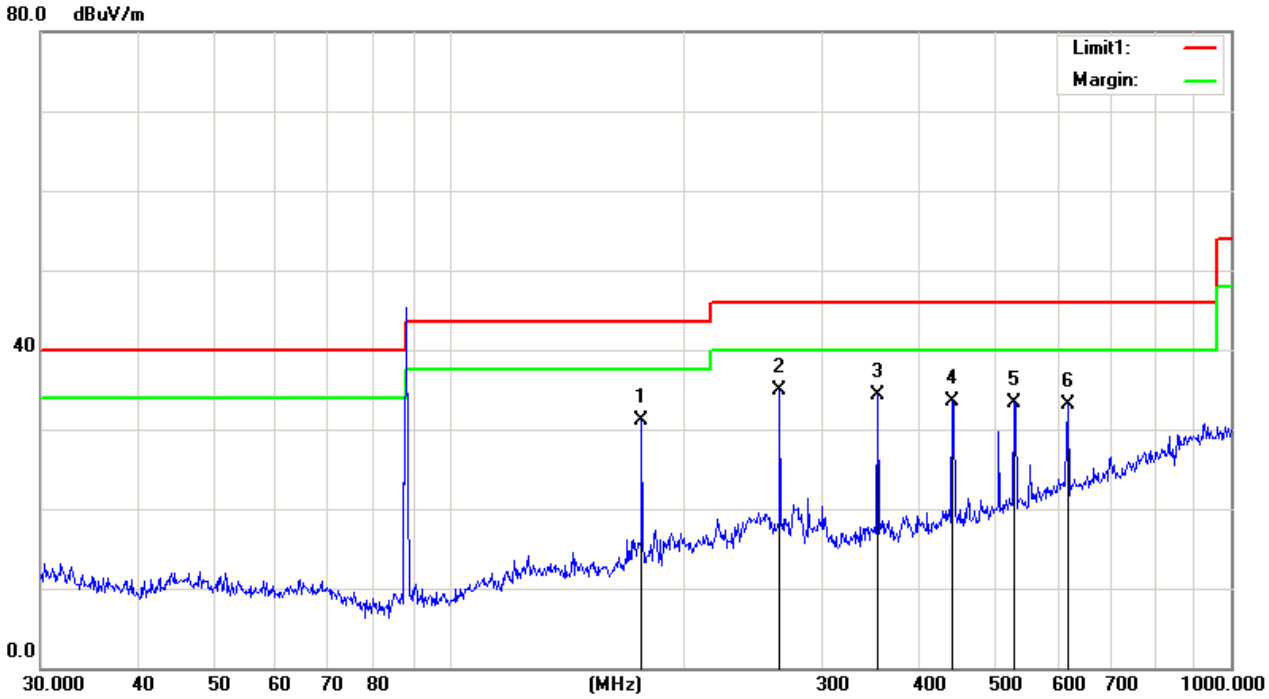


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	176.2685	38.79	-11.52	27.27	43.50	-16.23	peak
2	264.7456	39.81	-8.57	31.24	46.00	-14.76	peak
3	352.9433	36.41	-7.10	29.31	46.00	-16.69	peak
4	440.1963	40.15	-6.57	33.58	46.00	-12.42	peak
5	528.2458	37.15	-5.08	32.07	46.00	-13.93	peak
6	618.5368	35.56	-3.76	31.80	46.00	-14.20	peak

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss-Amplifier Factor
(3) Margin = Result - Limit

EUT:	Bluetooth FM Transmitter	Model No.:	BTFM3-SP
Temperature:	24℃	Relative Humidity:	66%
Distance:	3m	Test Power:	DC 12V
Polarization:	Horizontal	Test Result:	Pass
Test Time:	2019-10-10	Test By:	Blue
Standard:	(RE)FCC PART 15 class B 3m		
Test Mode:	FM_88.1MHz (worse case)		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	176.2685	40.66	-9.52	31.14	43.50	-12.36	peak
2	264.7456	39.61	-4.72	34.89	46.00	-11.11	peak
3	352.9433	42.52	-8.28	34.24	46.00	-11.76	peak
4	440.1963	40.08	-6.53	33.55	46.00	-12.45	peak
5	528.2458	38.48	-5.08	33.40	46.00	-12.60	peak
6	618.5368	36.89	-3.76	33.13	46.00	-12.87	peak

The test result is calculated as the following:

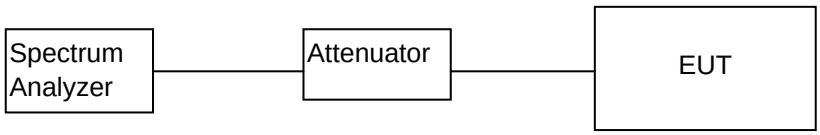
(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss-Amplifier Factor
(3) Margin = Result - Limit

6 Frequency Stability

6.1 Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2020/05/27	1 Year
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2019/12/16	1 Year
3	RF Cable	Micable	C10-01-01-1	100309	2019/12/16	1 Year
4	Temperature conditioning	Guan Jian.HTH1000	-20-130℃	GJ1000-10D 001	2019/12/16	1.Year
5	DC Power Supply	G.KE	IPR-10010D	010931954	2019/12/16	1.Year
6	Signal Generator	Levear	VP-8194D	0530228LA	2019/12/16	2018/12/17

6.2 Block diagram of test setup



6.3 Test Result

	Temperature vs. Frequency Stability	
Voltage	**Temperature**	**Measurement Frequency (MHz)**
12V	**(℃)**	**88.1**
	-20	88.1021
	20	88.1035
	50	88.1041
7.4V	**20**	88.1026
	Max. Deviation (MHz)	**0.0041**
	Max. Deviation (ppm)	**46.54**

	Temperature vs. Frequency Stability	
Voltage	**Temperature**	**Measurement Frequency (MHz)**
12V	**(℃)**	**98.1**
	-20	98.1038
	20	98.1024
	50	98.1033
7.4V	**20**	98.1019
	Max. Deviation (MHz)	**0.0038**
	Max. Deviation (ppm)	**38.74**

	Temperature vs. Frequency Stability	
Voltage	**Temperature**	**Measurement Frequency (MHz)**
12V	**(℃)**	**107.9**
	-20	107.9015
	20	107.9026
	50	107.9031
7.4V	**20**	107.9025
	Max. Deviation (MHz)	**0.0031**
	Max. Deviation (ppm)	**28.73**

Note: 7.4V is the end point voltage, and products below 7.4V will cease working.

7. Antenna Requirements

7.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

7.2. Result

The EUT antenna is permanent attached antenna. It comply with the standard requirement.