FCC Part 15C
Measurement and Test Report

For

BrandCharger Ltd

7/F, UNIT H, MAI LUEN INDUSTRIAL BUILDING, 23 KUNG YIP STREET, KWAI HING, Hong Kong

FCC ID: 2AG5AFUSION

FCC Rule(s):	FCC Part 15.247
Product Description:	Bluetooth Speaker
Tested Model:	FUSION
Report No.:	STR16078105I
Tested Date:	2016-07-12 to 2016-07-13
Issued Date:	2016-07-13
Tested By:	Tink Zeng / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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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 SEM.Test Technology Co., Ltd.

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1. GENERAL INFORMATION

Client Information

Applicant:	BrandCharger Ltd
Address of applicant:	7/F, UNIT H, MAI LUEN INDUSTRIAL BUILDING, 23 KUNG YIP STREET, KWAI HING, Hong Kong
Manufacturer:	SHENZHEN HOOX TECHNOLOGY CO., LTD
Address of manufacturer:	Floor 4, Building 1, Da'erxun Industrial Park, Pinghu Town, Longgang District, Shenzhen

General Description of EUT	
Product Name:	Bluetooth Speaker
Brand Name:	BrandCharger
Model No.:	FUSION
Rated Voltage:	DC 3.7V Battery; USB 5V Charging purpose only
Rated Current:	/
Note: The test data is gathered from a production sample provided by the manufacturer.	

Technical Characteristics of EUT	
Bluetooth Version:	V4.0 (BLE mode)
Frequency Range:	2402-2480MHz
RF Output Power:	0.486dBm (Conducted)
Data Rate:	25Mbps
Modulation:	GFSK
Quantity of Channels:	40
Channel Separation:	2MHz
Type of Antenna:	Integral
Antenna Gain:	-0.68 dBi
Lowest Internal Frequency of EUT:	26MHz

1.2 Test Standards

The following report is prepared on behalf of the BrandCharger Ltd in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices, and 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. The measurement guide KDB 558074 D01 v03r05 for digital transmission systems shall be performed also.

1.4 Test Facility

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

1.5 EUT Setup and Test Mode

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

Test Mode List		
Test Mode	Description	Remark
TM1	GFSK(BLE)	2402MHz, 2442MHz, 2480MHz

EUT Cable List and Details			
Cable Description	Length (m)	Shielded /Unshielded	With / Without Ferrite
USB Cable	0.5	Shielded	Without Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
Aux Cable	0.5	Unshielded	Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E23	EB12648265

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Power Spectral Density	Conducted	±1.8dB
Conducted Spurious Emission	Conducted	±2.17dB
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2016-06-04	2017-06-03
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2016-06-04	2017-06-03
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2016-06-04	2017-06-03
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2016-06-04	2017-06-03
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2016-06-04	2017-06-03
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2016-06-04	2017-06-03
SEMT-1042	Horn Antenna	ETS	3117	00086197	2016-06-04	2017-06-03
SEMT-1121	Horn Antenna	ETS	3116B	00088203	2016-06-04	2017-06-03
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2016-06-04	2017-06-03
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-06-04	2017-06-03
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2016-06-04	2017-06-03
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2016-06-04	2017-06-03

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 2.1093	RF Exposure	Compliant
§ 15.203; § 15.247(b)(4)(i)	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	Compliant
§ 15.207(a)	Conducted Emission	Compliant
§ 15.247(e)	Power Spectral Density	Compliant
§ 15.247(a)(2)	6 dB Bandwidth	Compliant
§ 15.247(b)(3)	RF Output Power	Compliant
§ 15.209(a)	Radiated Emission	Compliant
§ 15.247(d)	Band Edge (Out of Band Emissions)	Compliant

N/A: not applicable

3. RF Exposure

3.1 Standard Applicable

According to § 1.1307 and § 2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the RF Exposure Report.

4. Antenna Requirement

4.1 Standard Applicable

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

4.2 Evaluation Information

This product has a PCB antenna, fulfill the requirement of this section.

5. Power Spectral Density

5.1 Standard Applicable

According to 15.247(a)(1)(iii), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.2 Test Procedure

According to the KDB 558074 D01 v03r05, the test method of power spectral density as below:

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3 × RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.3 Environmental Conditions

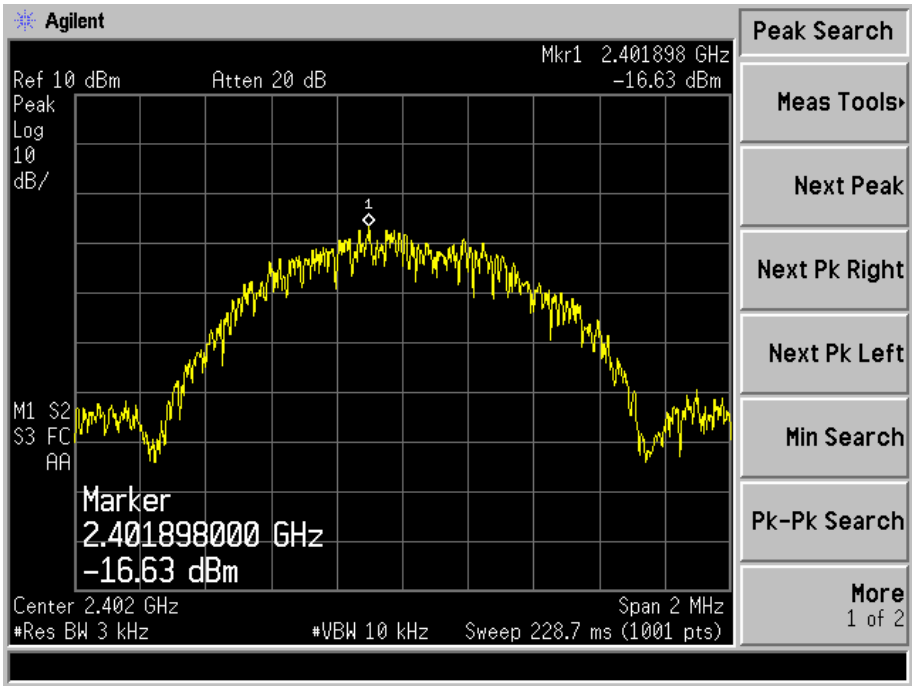
Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.4 Summary of Test Results/Plots

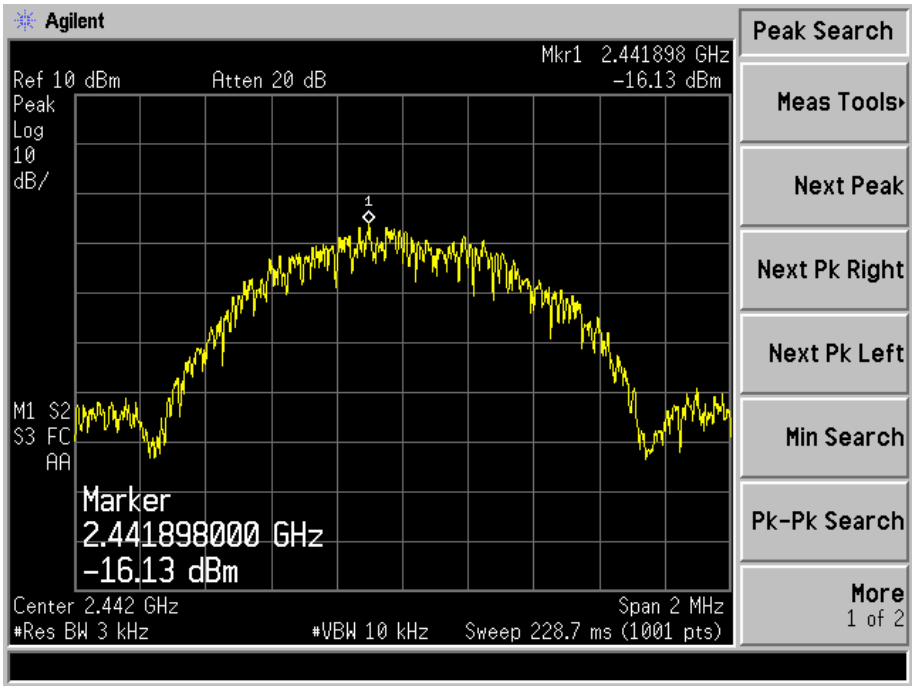
Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
GFSK(BLE)	2402	-16.63	8
	2442	-16.13	8
	2480	-15.84	8

Please refer to the following test plots:

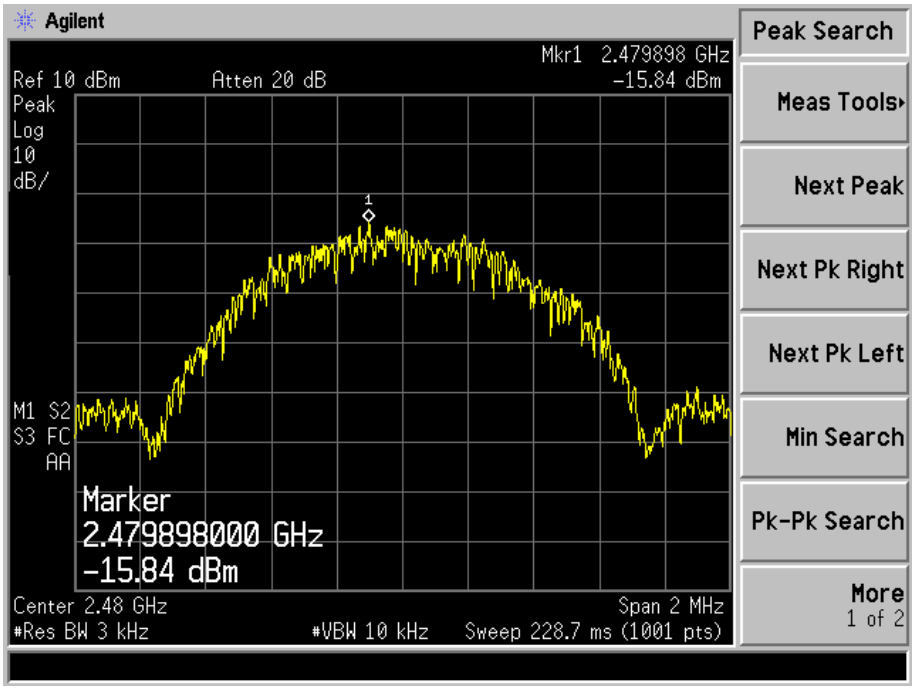
Low Channel



Middle Channel



High Channel



6. 6dB Bandwidth

6.1 Standard Applicable

According to 15.247(a)(2). Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.2 Test Procedure

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) 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 6 dB relative to the maximum level measured in the fundamental emission.

6.3 Environmental Conditions

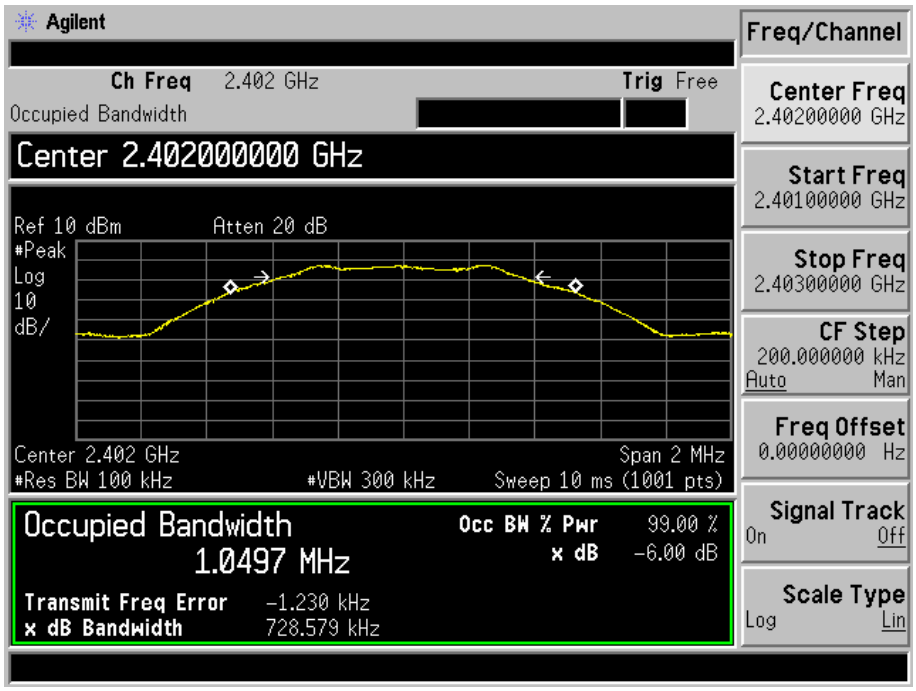
Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.4 Summary of Test Results/Plots

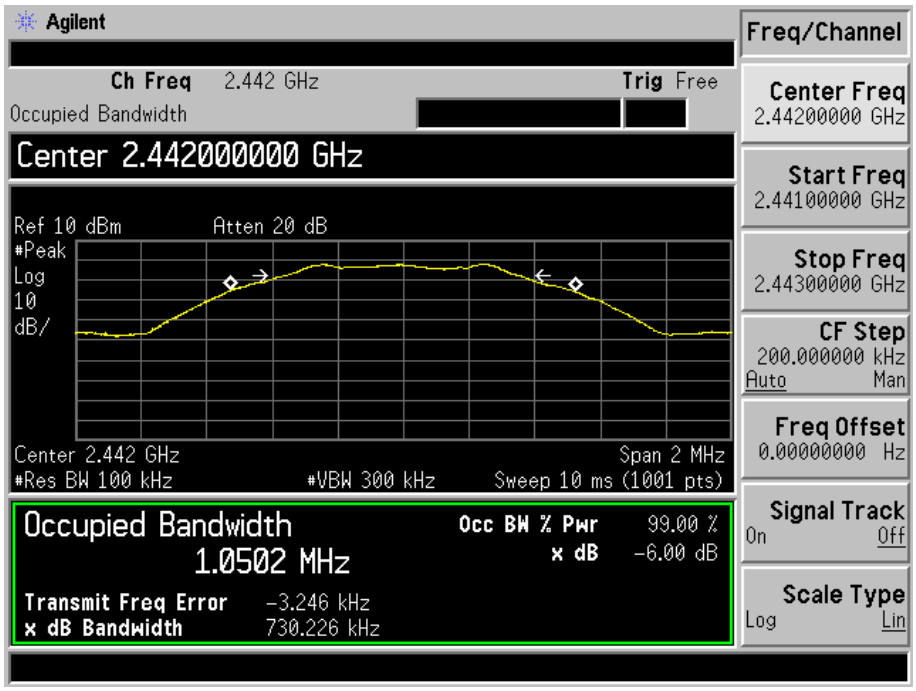
Test Mode	Test Channel MHz	6 dB Bandwidth kHz	99% Bandwidth kHz	Limit kHz
GFSK(BLE)	2402	728.579	1049.7	≥500
	2442	730.226	1050.2	≥500
	2480	730.670	1049.4	≥500

Please refer to the following test plots:

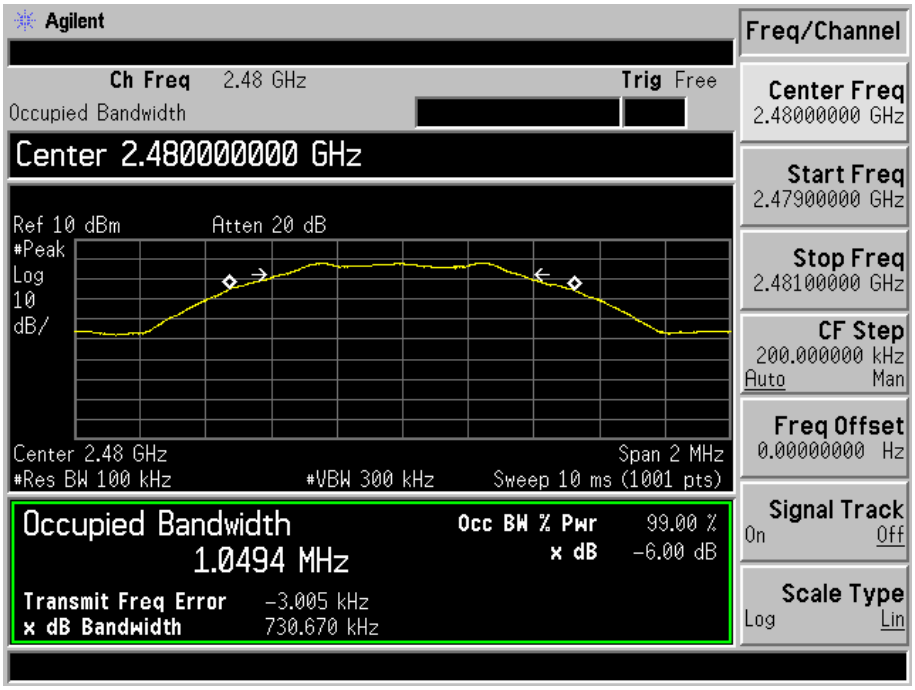
For BLE
Low Channel:



Middle Channel:



High Channel:



7. RF Output Power

7.1 Standard Applicable

According to 15.247(b)(3). For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

7.2 Test Procedure

According to section KDB-558074 D01 v03r05 section 9.1.1, this procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

a) Set the RBW ⩾ DTS bandwidth.
b) Set VBW ⩾ 3 × RBW.
c) Set span ⩾ 3 x RBW
d) Sweep time = auto couple.
e) Detector = peak.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude level.

7.3 Environmental Conditions

Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.4 Summary of Test Results/Plots

Test Mode	Frequency MHz	Reading dBm	Output Power mW	Limit mW
GFSK(BLE)	2402	0.486	1.118	1000
	2442	-1.539	0.702	1000
	2480	-1.374	0.729	1000

Note: the antenna gain of -0.68dBi less than 6dBi maximum permission antenna gain value based on 1 watt peak output power limit.

8. Field Strength of Spurious Emissions

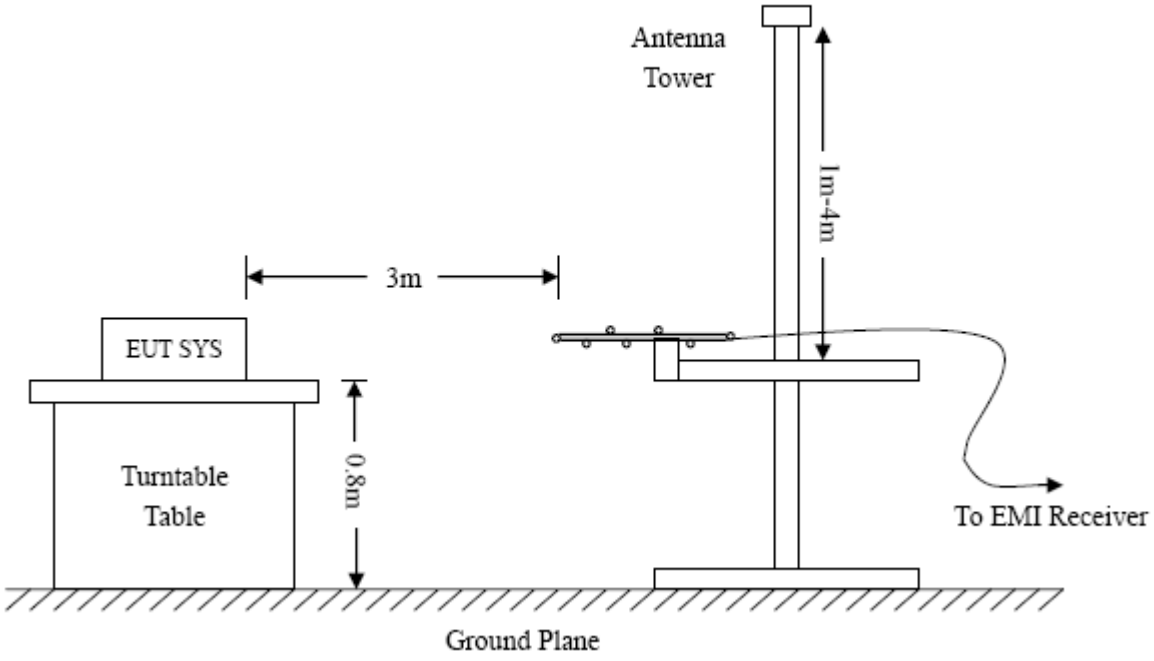
8.1 Standard Applicable

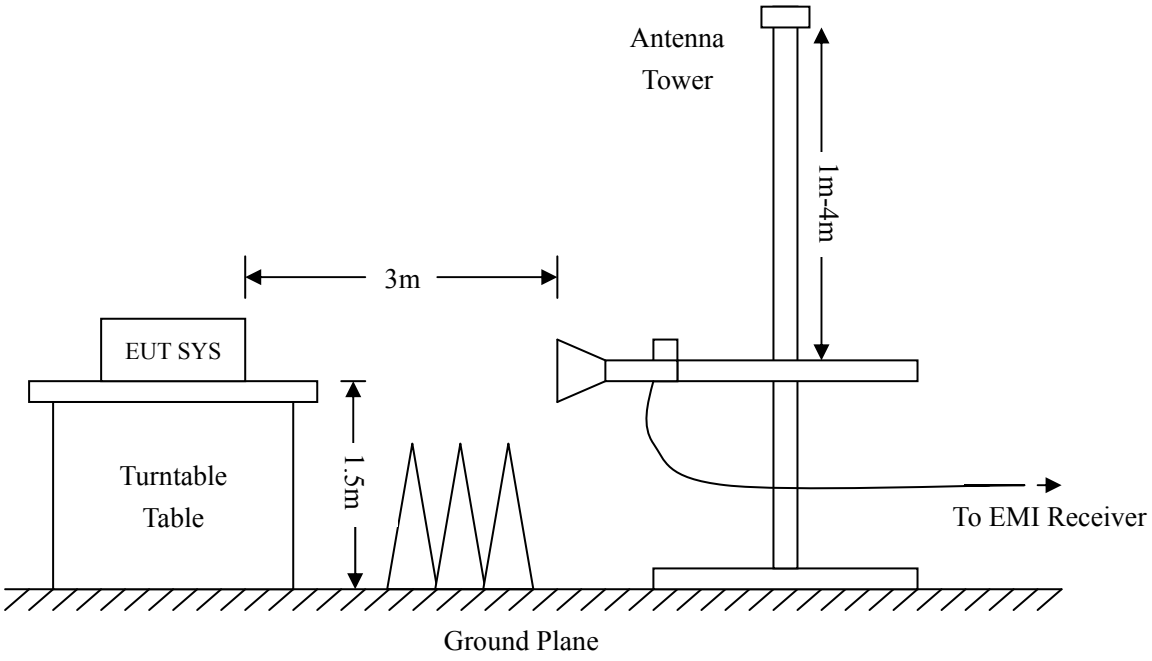
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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).

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.

8.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.





Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

8.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

8.4 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

8.5 Summary of Test Results/Plots

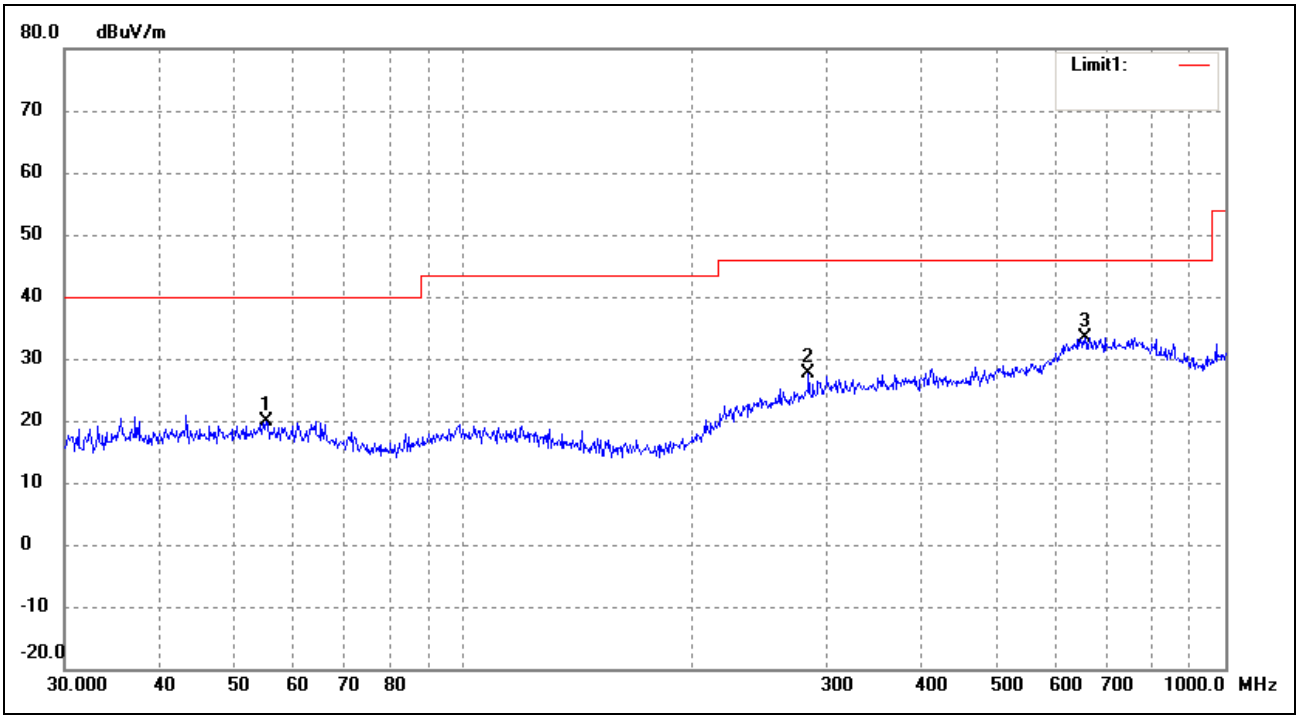
According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst cases:

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

Plot of Radiated Emissions Test Data

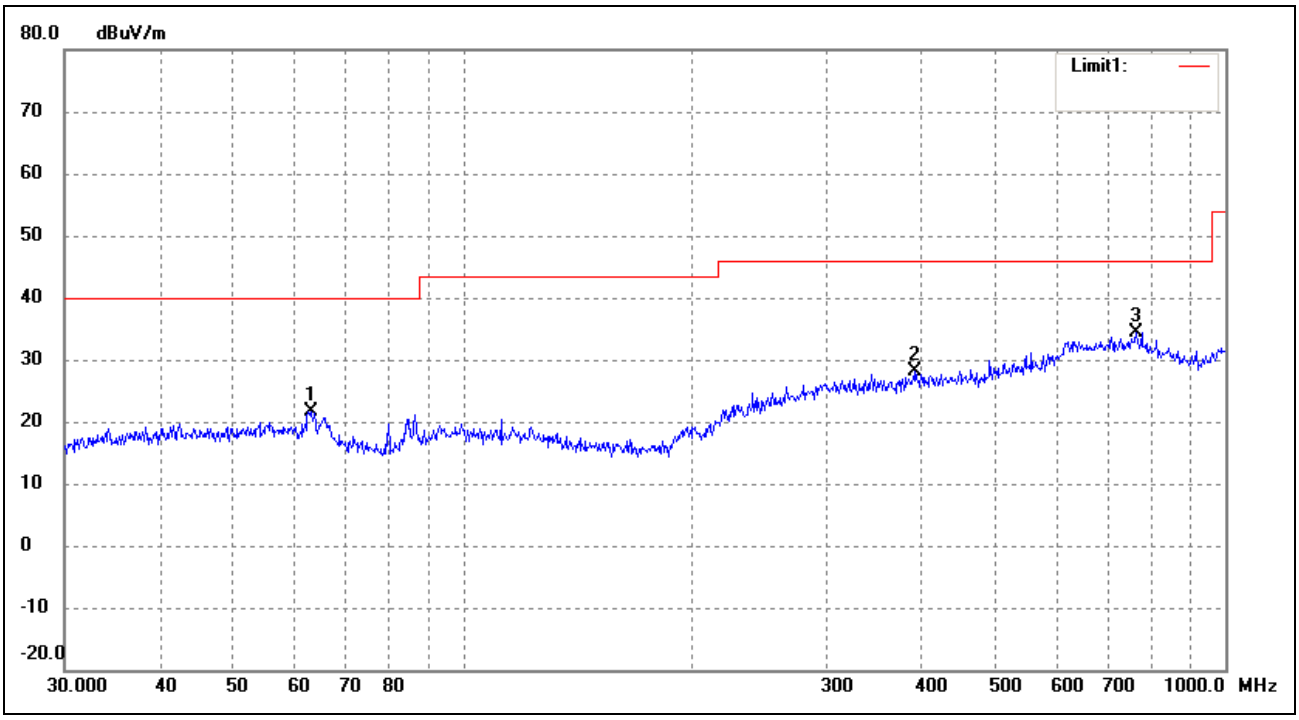
EUT: *Bluetooth Speaker*
Tested Model: *FUSION*
Operating Condition: *Transmitting-Low channel (2402MHz)*
Comment: *DC 3.7V Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	55.2207	14.89	5.02	19.91	40.00	-20.09	62	100	peak
2	283.9792	16.25	11.30	27.55	46.00	-18.45	132	100	peak
3	654.2318	15.76	17.71	33.47	46.00	-12.53	157	100	peak

Test Specification: *Vertical*

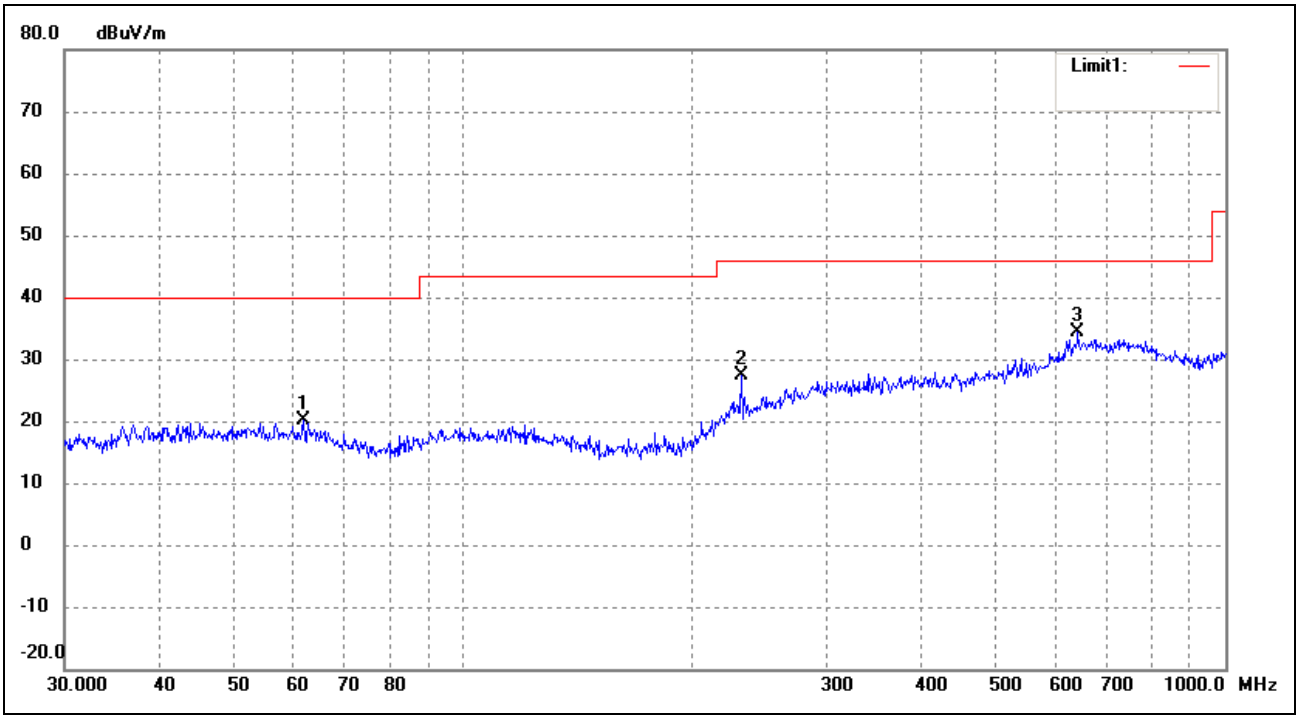


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	63.3132	17.35	4.35	21.70	40.00	-18.30	178	100	peak
2	392.0951	15.74	12.33	28.07	46.00	-17.93	35	100	peak
3	763.3757	16.45	17.95	34.40	46.00	-11.60	169	100	peak

Plot of Radiated Emissions Test Data

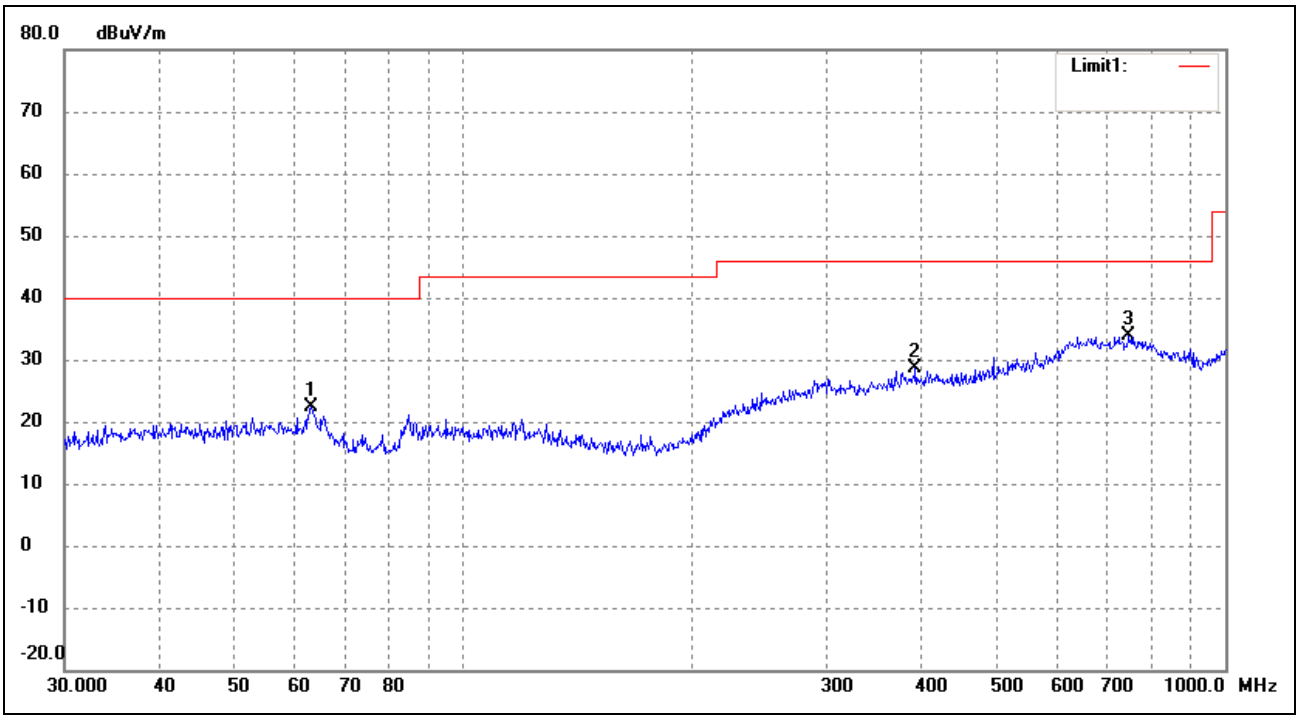
EUT: *Bluetooth Speaker*
Tested Model: *FUSION*
Operating Condition: *Transmitting-Middle channel (2442MHz)*
Comment: *DC 3.7V Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	61.7781	15.57	4.67	20.24	40.00	-19.76	360	100	peak
2	231.7179	18.99	8.40	27.39	46.00	-18.61	66	100	peak
3	640.6110	16.30	18.05	34.35	46.00	-11.65	159	100	peak

Test Specification: *Vertical*

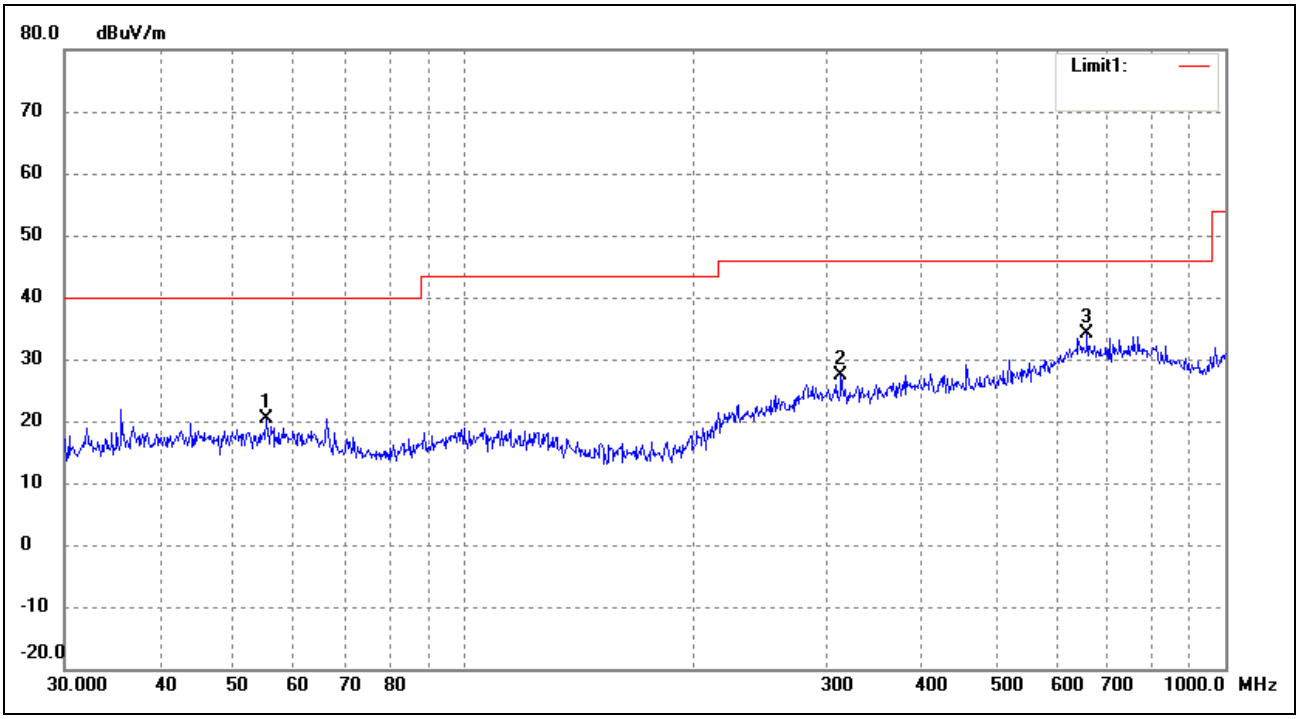


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	63.0916	17.92	4.40	22.32	40.00	-17.68	360	100	peak
2	392.0951	16.19	12.33	28.52	46.00	-17.48	226	100	peak
3	747.4826	15.14	18.69	33.83	46.00	-12.17	360	100	peak

Plot of Radiated Emissions Test Data

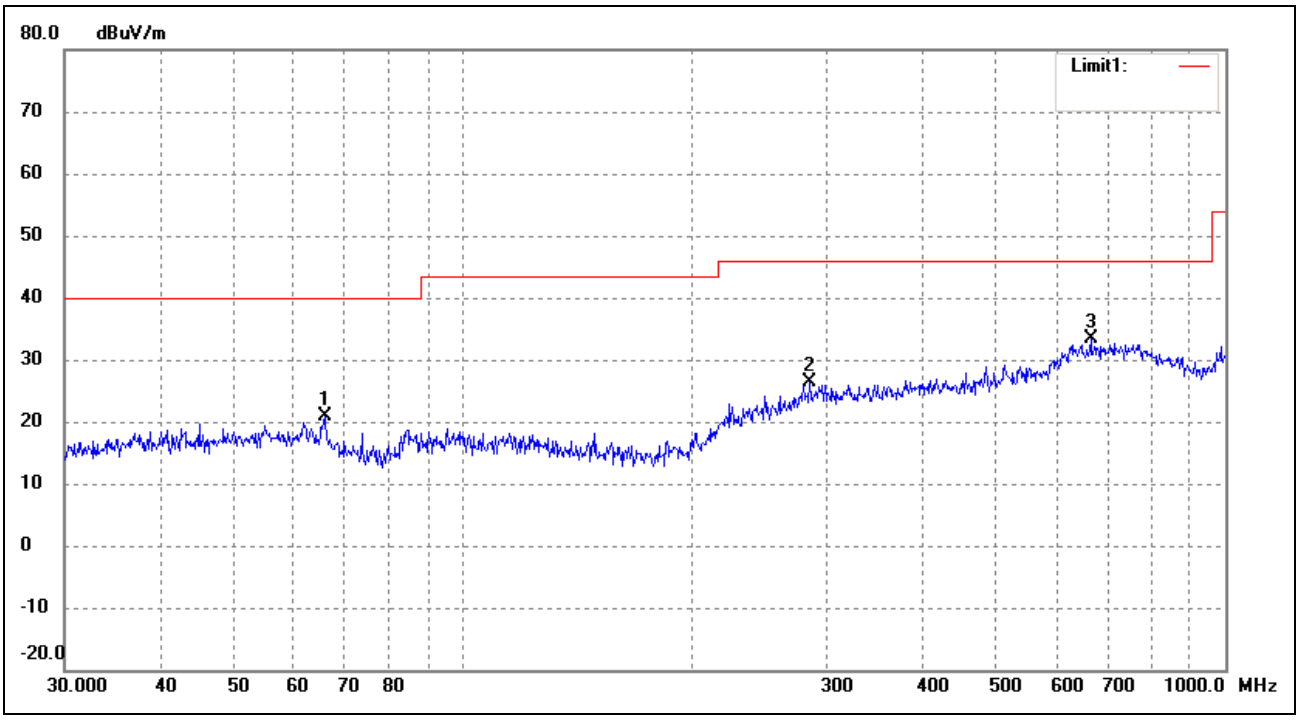
EUT: *Bluetooth Speaker*
Tested Model: *FUSION*
Operating Condition: *Transmitting-High channel (2480MHz)*
Comment: *DC 3.7V Battery*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	55.2207	15.31	5.02	20.33	40.00	-19.67	29	100	peak
2	313.2760	15.32	11.95	27.27	46.00	-18.73	167	100	peak
3	658.8362	16.57	17.61	34.18	46.00	-11.82	183	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	65.8031	17.06	3.80	20.86	40.00	-19.14	33	100	peak
2	284.9767	15.07	11.34	26.41	46.00	-19.59	85	100	peak
3	665.8035	15.41	17.90	33.31	46.00	-12.69	124	100	peak

Spurious Emissions Above 1GHz

Transmitting: BLE mode:

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2402MHz							
4804	54.98	-3.59	51.39	74	-22.61	H	PK
4804	43.12	-3.59	39.53	54	-14.47	H	AV
7206	52.32	-0.52	51.80	74	-22.20	H	PK
7206	38.96	-0.52	38.44	54	-15.56	H	AV
4804	56.88	-3.59	53.29	74	-20.71	V	PK
4804	55.31	-3.59	51.72	54	-2.28	V	AV
7206	52.69	-0.52	52.17	74	-21.83	V	PK
7206	45.32	-0.52	44.80	54	-9.20	V	AV
Middle Channel-2442MHz							
4884	56.35	-3.49	52.86	74	-21.14	H	PK
4884	45.62	-3.49	42.13	54	-11.87	H	AV
7326	51.14	-0.47	50.67	74	-23.33	H	PK
7326	43.23	-0.47	42.76	54	-11.24	H	AV
4884	51.93	-3.49	48.44	74	-25.56	V	PK
4884	41.82	-3.49	38.33	54	-15.67	V	AV
7326	53.01	-0.47	52.54	74	-21.46	V	PK
7326	41.23	-0.47	40.76	54	-13.24	V	AV
High Channel-2480MHz							
4960	56.93	-3.41	53.52	74	-20.48	H	PK
4960	45.41	-3.41	42.00	54	-12.00	H	AV
7440	50.38	-0.42	49.96	74	-24.04	H	PK
7440	42.31	-0.42	41.89	54	-12.11	H	AV
4960	55.39	-3.41	51.98	74	-22.02	V	PK
4960	43.69	-3.41	40.28	54	-13.72	V	AV
7440	52.89	-0.42	52.47	74	-21.53	V	PK
7440	43.25	-0.42	42.83	54	-11.17	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

9. Out of Band Emissions

9.1 Standard Applicable

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).

9.2 Test Procedure

According to the KDB 558074 D01 v03r05, the band-edge radiated test method as follows:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)
RBW = 1MHz, VBW = 1MHz for peak value measured
RBW = 1MHz, VBW = 10Hz for average value measured
Sweep = auto; Detector function = peak/average; Trace = max hold
All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the 15.209 limit for fall in the restricted bands listed in section 15.205. Note that the method of measurement KDB publication number: 913591 may be used for the radiated bandedge measurements.

According to the KDB 558074 D01 v03r05, the conducted spurious emissions test method as follows:
1. Set start frequency to DTS channel edge frequency.
2. Set stop frequency so as to encompass the spectrum to be examined.
3. Set RBW = 100 kHz.
4. Set VBW ≥ 300 kHz.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.
8. Allow the trace to stabilize (this may take some time, depending on the extent of the span).
9. Use peak marker function to determine maximum amplitude of all unwanted emissions within any 100 kHz bandwidth.

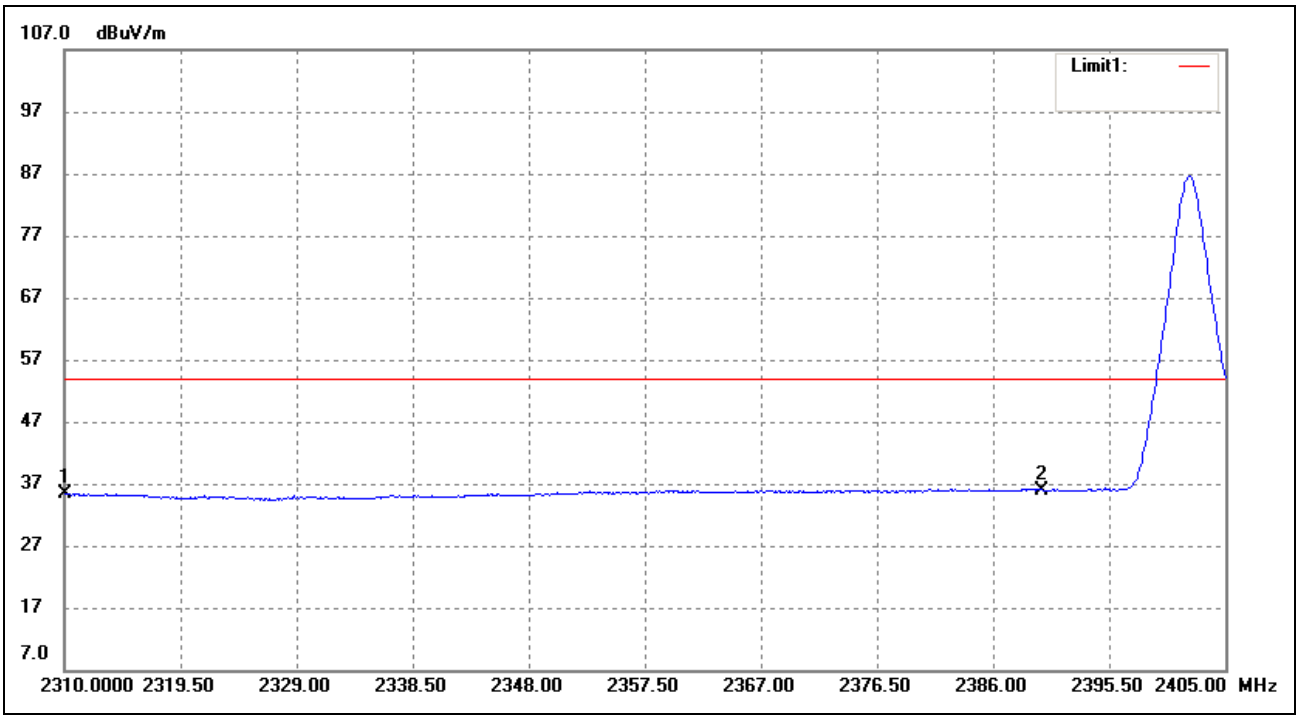
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in section 8.1. Report the three highest emissions relative to the limit.

9.3 Environmental Conditions

Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.4 Summary of Test Results/Plots

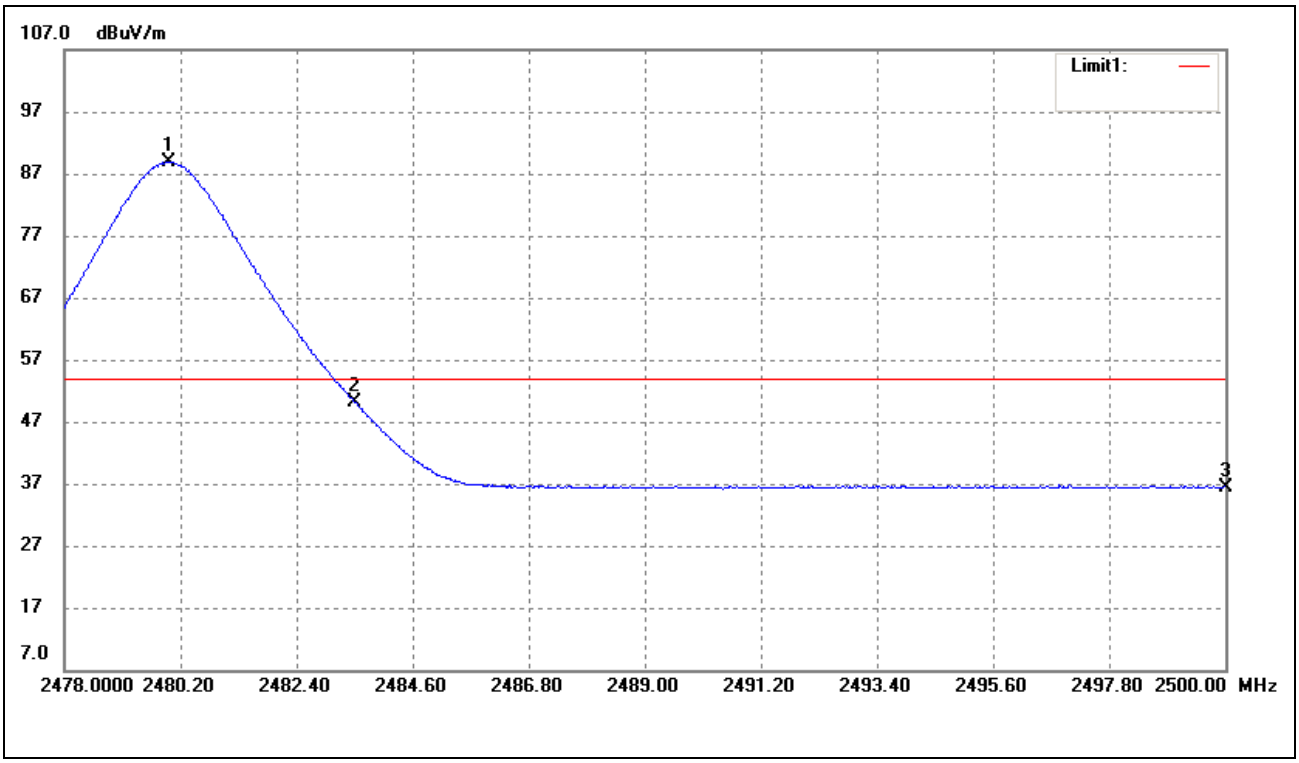
Bandedge (Radiated)
Lowest Bandedge-BLE
Horizontal (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	19.28	16.34	35.62	54.00	-18.38	Average Detector
	2310.000	31.00	16.34	47.34	74.00	-26.66	Peak Detector
2	2390.000	18.73	17.03	35.76	54.00	-18.24	Average Detector
	2390.000	31.60	17.03	48.63	74.00	-25.37	Peak Detector

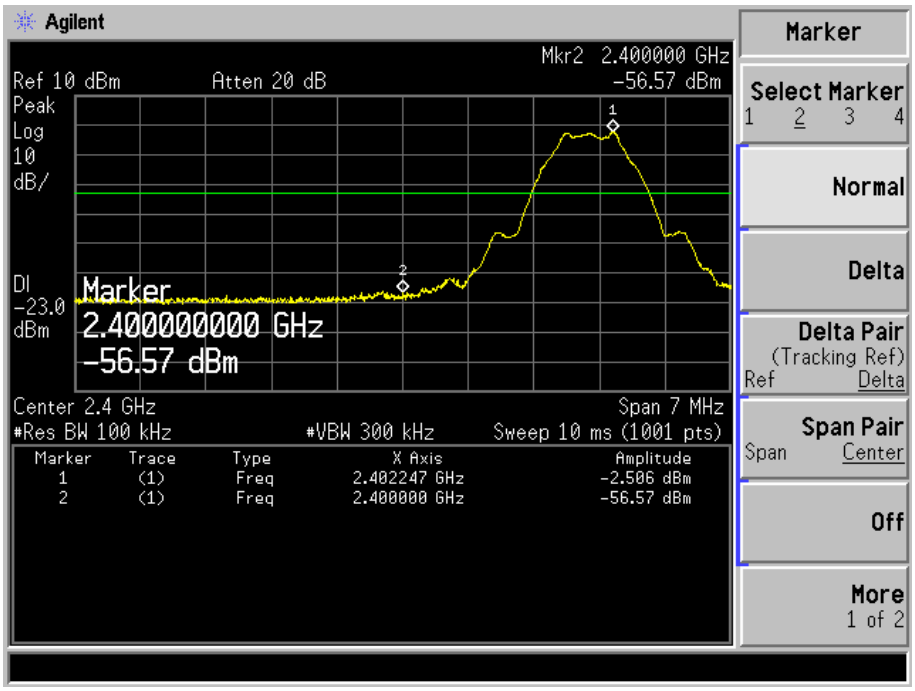
Highest Bandedge

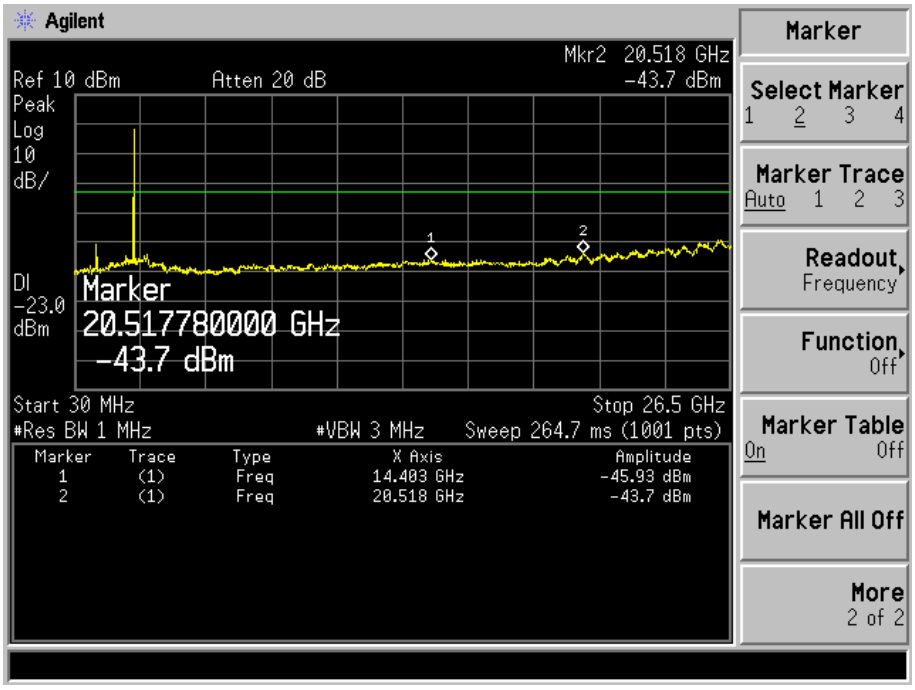
Horizontal (Worst case)



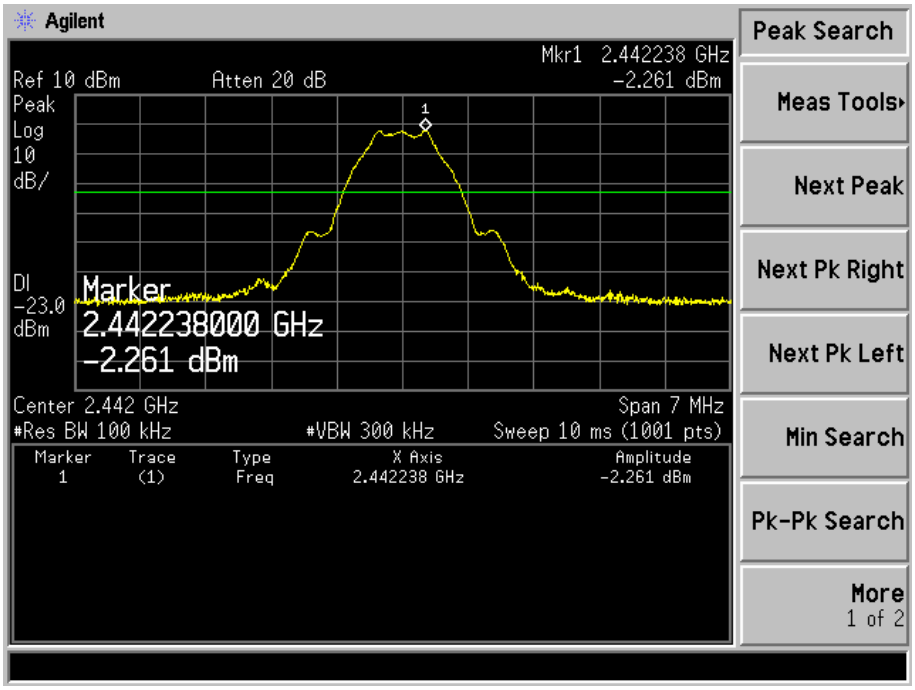
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2480.000	71.33	17.71	89.04	/	/	Average Detector
	2480.000	76.12	17.70	93.82	/	/	Peak Detector
2	2483.500	Delta = 49.32 dBc		39.72	54.00	-14.28	Average Detector
	2483.500			44.50	74.00	-29.50	Peak Detector
3	2500.000	17.65	17.85	35.50	54.00	-16.50	Average Detector
	2500.000	27.50	17.85	45.35	74.00	-24.65	Peak Detector

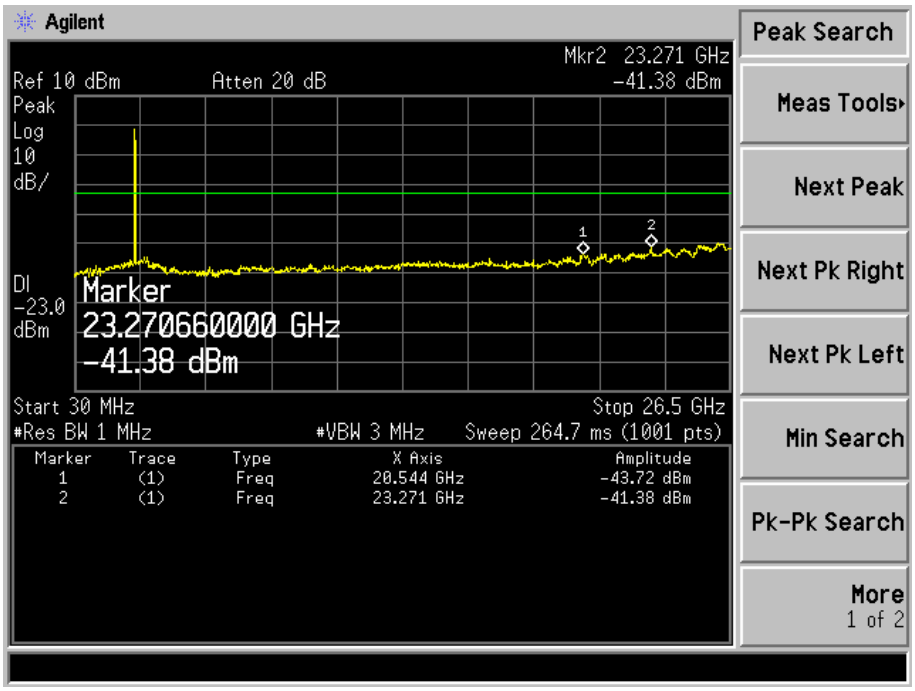
Bandedge (Conducted)
Lowest



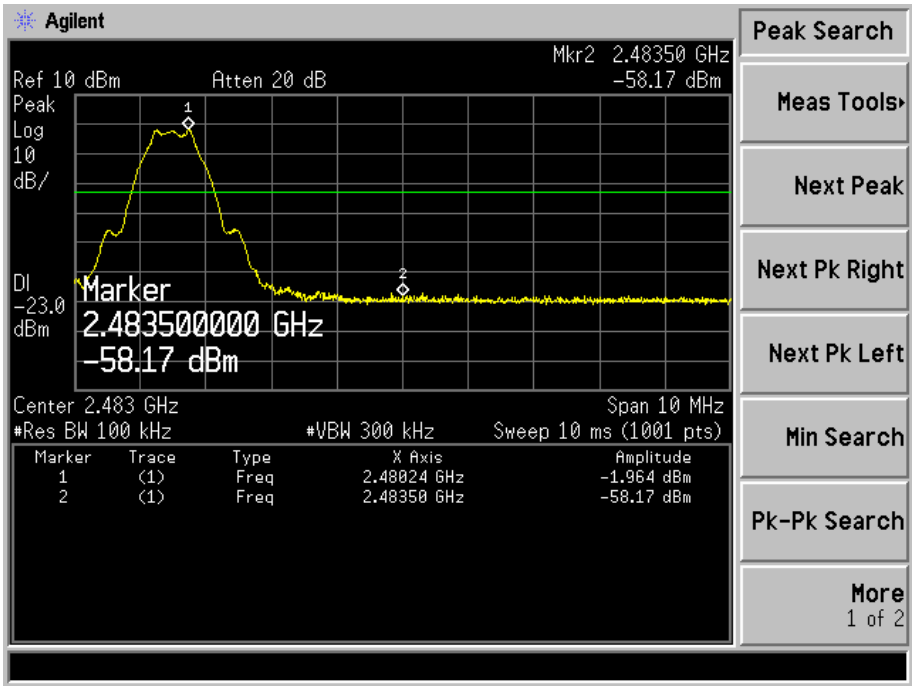


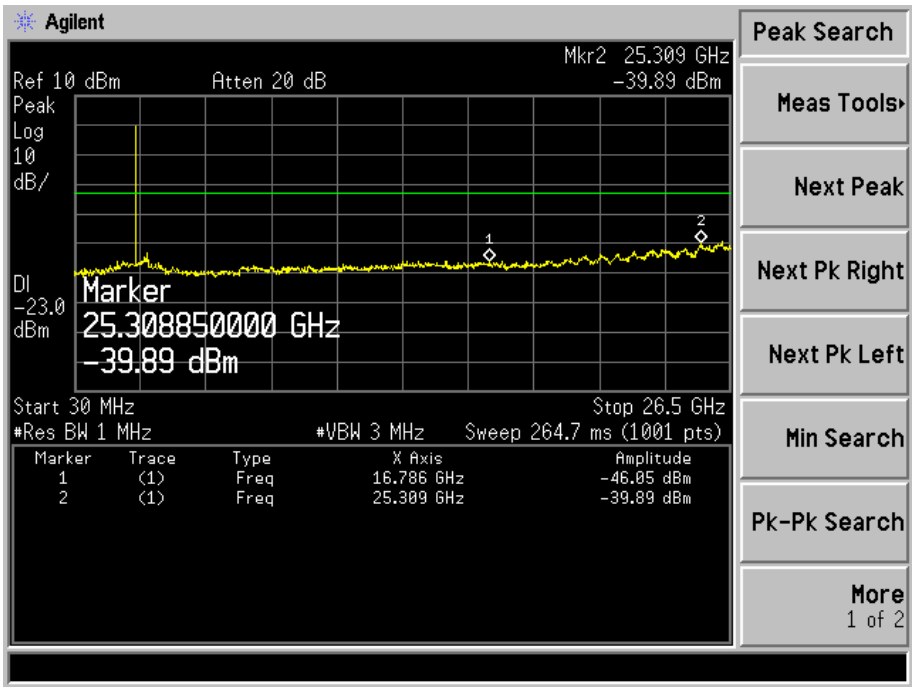
Middle


Agilent
Mkr1 2.442238 GHz
Ref 10 dBm
Atten 20 dB
-2.261 dBm
Peak
Log
10
dB/
DI
-23.0
dBm
Marker
2.442238000 GHz
-2.261 dBm
Center 2.442 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 7 MHz
Sweep 10 ms (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.442238 GHz -2.261 dBm
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent
Mkr2 23.271 GHz
Ref 10 dBm
Atten 20 dB
-41.38 dBm
Peak
Log
10
dB/
DI
-23.0
dBm
Marker
23.270660000 GHz
-41.38 dBm
Start 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Stop 26.5 GHz
Sweep 264.7 ms (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 20.544 GHz -43.72 dBm
2 (1) Freq 23.271 GHz -41.38 dBm
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

Highest


Agilent
Mkr2 2.48350 GHz
Ref 10 dBm
Atten 20 dB
-58.17 dBm
Peak
Log
10
dB/
Marker
2.483500000 GHz
-58.17 dBm
Center 2.483 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 10 ms (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.48024 GHz -1.964 dBm
2 (1) Freq 2.48350 GHz -58.17 dBm
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

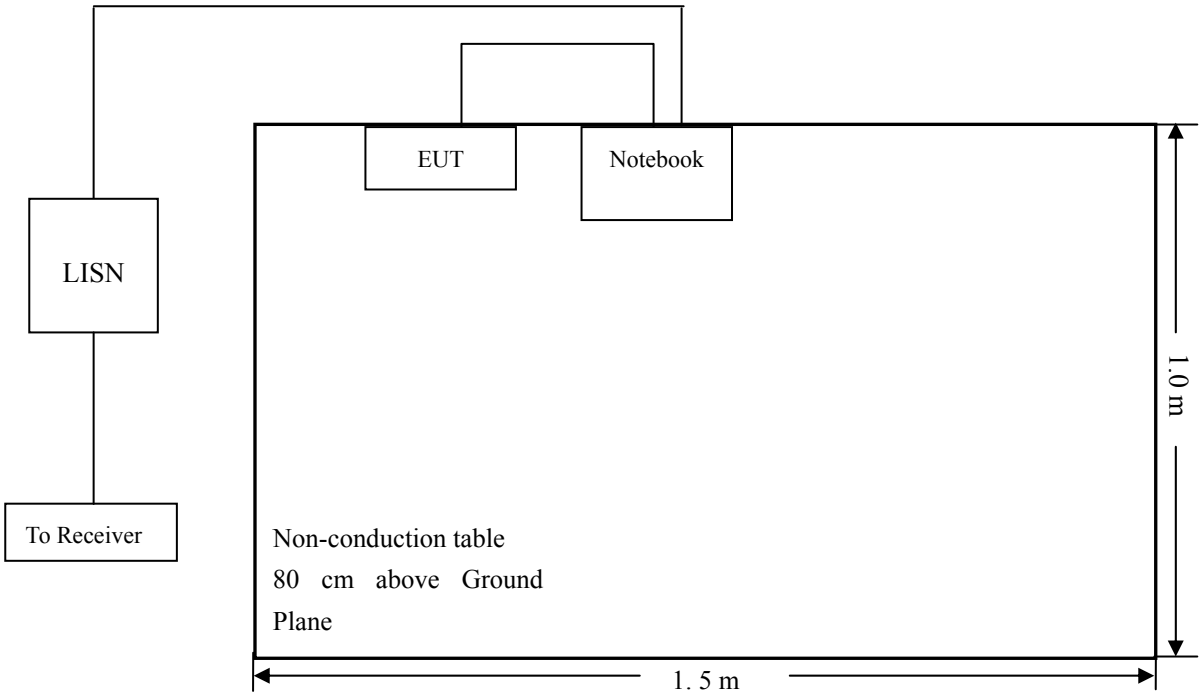

Agilent
Mkr2 25.309 GHz
Ref 10 dBm
Atten 20 dB
-39.89 dBm
Peak
Log
10
dB/
Marker
25.308850000 GHz
-39.89 dBm
Start 30 MHz
#Res BW 1 MHz
#VBW 3 MHz
Stop 26.5 GHz
Sweep 264.7 ms (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 16.786 GHz -46.85 dBm
2 (1) Freq 25.309 GHz -39.89 dBm
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

10. Conducted Emissions

10.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15.207 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.

10.2 Basic Test Setup Block Diagram



10.3 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

10.4 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency ..... 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed ..... Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 9 kHz
Quasi-Peak Adapter Mode ..... Normal

10.5 Summary of Test Results/Plots

According to the data in section 10.6, the EUT complied with the FCC Part 15.207 Conducted margin for this device, with the *worst* margin reading of:

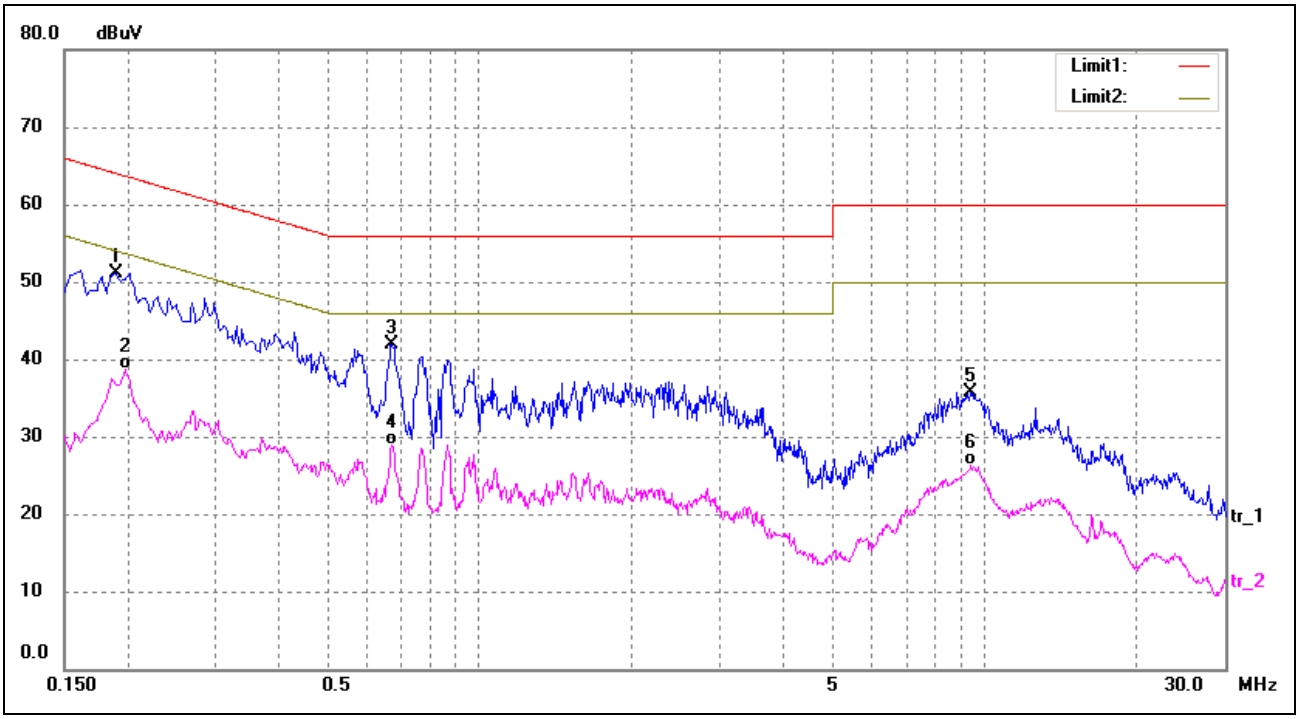
-10.59 dB at **0.1900 MHz** in the **Line, Peak** detector, 0.15-30MHz

10.6 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

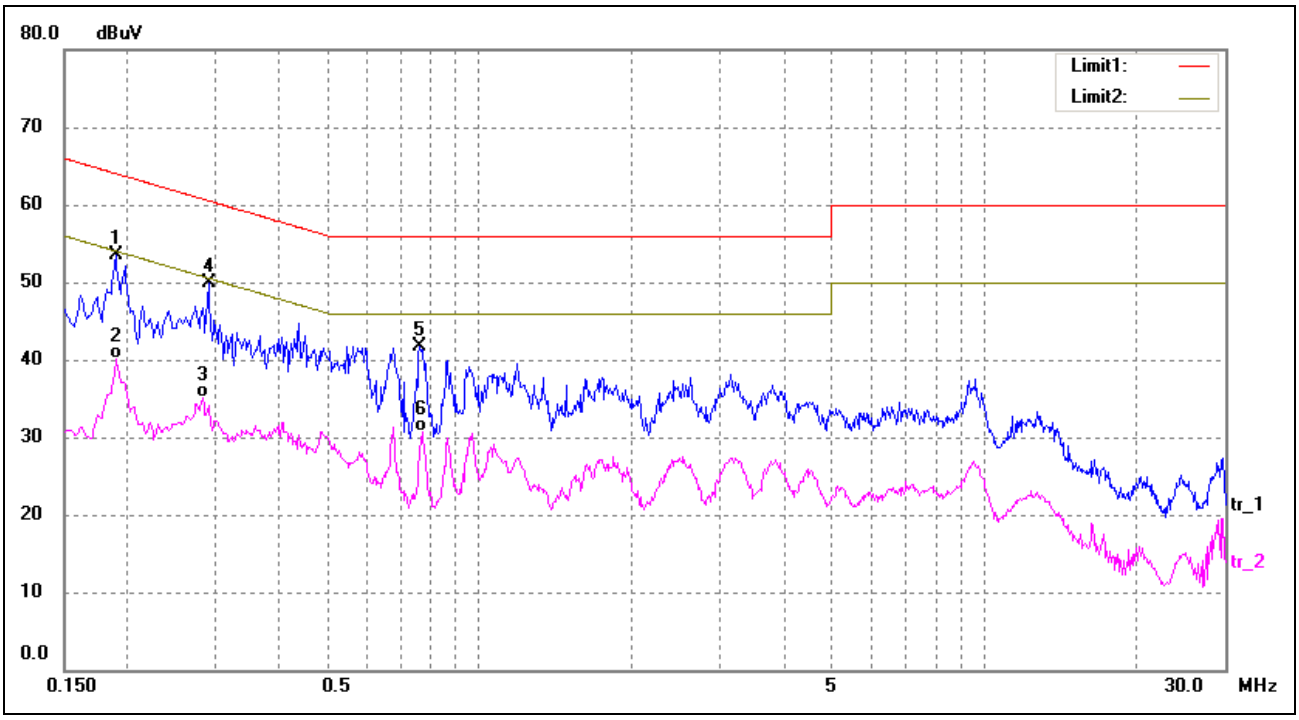
EUT: *Bluetooth Speaker*
Tested Model: *FUSION*
Operating Condition: *Transmitting*
Comment: *AC 120V/60Hz;Notebook USB 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1900	41.65	9.50	51.15	64.04	-12.89	peak
2	0.1980	29.18	9.50	38.68	53.69	-15.01	AVG
3	0.6700	32.30	9.60	41.90	56.00	-14.10	peak
4	0.6700	19.36	9.60	28.96	46.00	-17.04	AVG
5	9.4020	25.40	10.35	35.75	60.00	-24.25	peak
6	9.4020	16.03	10.35	26.38	50.00	-23.62	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1900	43.95	9.50	53.45	64.04	-10.59	peak
2	0.1900	30.60	9.50	40.10	54.04	-13.94	AVG
3	0.2820	25.58	9.50	35.08	50.76	-15.68	AVG
4	0.2900	40.35	9.50	49.85	60.52	-10.67	peak
5	0.7620	32.03	9.62	41.65	56.00	-14.35	peak
6	0.7700	21.04	9.62	30.66	46.00	-15.34	AVG

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