

FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Sony Corporation

Wireless Speaker

LF-S50G

FCC ID: AK8LFS50G

Prepared for : Sony Corporation
1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

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Date of Report : Jul.31,2017

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TEST REPORT CERTIFICATION

Applicant : Sony Corporation
Manufacturer : Sony Corporation
Product : Wireless Speaker
FCC ID : AK8LFS50G
(A) Model No. : LF-S50G
(B) Power Supply : DC 15V
(C) Test Voltage : DC 15V From Adaptor Input 120V/60Hz

Tested for comply with:
FCC CFR 47 Part 15 Subpart C

Test procedure used:
ANSI C63.10: 2013
KDB558074 D01 v04

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements. This report contains data that are not covered by the NVLAP accreditation.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Jun.01~Jul.04,2017 Report of date: Jul.31,2017

Prepared by : Ant Tang for Reviewed by : Sunny Lu
Brave Zhang / Assistant Deputy Manager



Approved & Authorized Signer :

David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

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

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission	FCC Part 15: 15.207	PASS
Radiated Emission	FCC Part 15: 15.209	PASS
Band Edge Compliance	FCC Part 15: 15.247	PASS
Conducted spurious emissions	FCC Part 15: 15.247	PASS
6dB Bandwidth	FCC Part 15: 15.247	PASS
Peak Output Power	FCC Part 15: 15.247	PASS
Power Spectral Density	FCC Part 15: 15.247	PASS
MPE Estimation	FCC Part 15: 15.247	PASS
Antenna requirement	FCC Part 15: 15.203	PASS
N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product	: Wireless Speaker
Model No.	: LF-S50G
FCC ID	: AK8LFS50G
Radio	: IEEE802.11 a/b/g/n; Bluetooth V3.0+EDR; Bluetooth V4.2; NFC Rx
Operation Frequency	: IEEE 802.11a: 5180MHz—5240MHz; 5260MHz—5320MHz 5500MHz—5700MHz; 5745MHz—5825MHz IEEE 802.11b: 2412MHz—2462MHz IEEE 802.11g: 2412MHz—2462MHz IEEE802.11nHT20: 2412MHz—2462MHz; 5180MHz—5240MHz; 5260MHz—5320MHz 5500MHz—5700MHz; 5745MHz—5825MHz IEEE802.11nHT40: 5190MHz—5230MHz; 5270MHz—5310MHz 5510MHz—5670MHz; 5755MHz—5795MHz Bluetooth : 2402-2480MHz NFC: 13.56MHz
Modulation Technology	: IEEE 802.11b: DSSS(CCK,DQPSK,BPSK) IEEE 802.11a/g: OFDM(64QAM, 16QAM, 256QAM, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, 256QAM,BPSK) Bluetooth V3.0+EDR: GFSK, $\pi/4$ DQPSK,8-DPSK Bluetooth V4.2:GFSK NFC: ASK
Antenna Assembly Gain	: Antenna Type: FPC Board Bluetooth: 2.1dBi WIFI 2.4GHz: 2.1dBi WIFI 5GHz: Band 1: 6.02dBi Band 2: 6.09dBi Band 3: 5.41dBi Band 4: 6.39dBi Loop Antenna for NFC

Applicant : Sony Corporation
1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

Manufacturer : Sony Corporation
1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

Power Adaptor : Manufacturer: Sony, M/N: AC-E1525
Input: AC 100-240V; 50/60Hz, 1.0A
Output: DC 15V, 2.5A
DC Cable: Unshielded, Undetachable, 1.6m

Date of Test : Jun.01~Jul.04,2017

Date of Receipt : May.30,2017

Remark : This report only for WiFi 2.4G.

2.2.Test Information

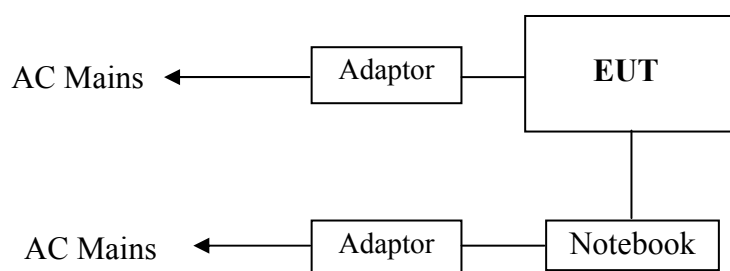
A special test software was used to control EUT work in Continuous TX mode(nearly 100% duty cycle), and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11b	1	Low :CH1	2412
	1	Middle: CH6	2437
	1	High: CH11	2462
IEEE 802.11g	6	Low :CH1	2412
	6	Middle: CH6	2437
	6	High: CH11	2462
IEEE 802.11n HT20	MCS0	Low :CH1	2412
	MCS0	Middle: CH6	2437
	MCS0	High: CH11	2462
IEEE 802.11n HT40	MCS0	Low :CH3	2422
	MCS0	Middle: CH6	2437
	MCS0	High: CH9	2452
Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.			

2.1. Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number
1.	Notebook	N/A	DELL	PP09S	N/A
		Power Cord: Unshielded, Detachable, 1.8m Power Adaptor: Manufacturer: DELL, M/N: LA65NS1-00 Cable: Unshielded, Detachable, 4.0m(Bond one ferrite core)			

2.2. Block diagram of connection between the EUT and simulators



(EUT: Wireless Speaker)

2.3. Test Facility

Site Description

Name of Firm	: Audix Technology (Shenzhen) Co., Ltd. No. 6, Kefeng Road, Science & Technology Park, Nanshan District , Shenzhen, Guangdong, China
EMC Lab.	Certificated by Industry Canada : Registration Number: IC 5183A-1 Valid Date: May.07, 2020 Certificated by DAkkS, Germany : Registration No: D-PL-12151-01-00 Valid Date: Dec.07, 2021 Accredited by NVLAP, USA : NVLAP Code: 200372-0 Valid Date: Mar.31, 2018

2.4.Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	3.2dB(150KHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	2.8dB(30~200MHz, Polarization: H)
	2.8dB(30~200MHz, Polarization: V)
	3.0dB(200M~1GHz, Polarization: H)
	3.0dB(200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 3m chamber(1GHz-18GHz)	5.8dB(1~6GMHz, Distance: 3m)
	5.8dB(6~18GMHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.6dB
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Bandwidth test	83kHz
Uncertainty for DC power test	0.1%
Uncertainty for test site temperature and humidity	0.6℃
	3%

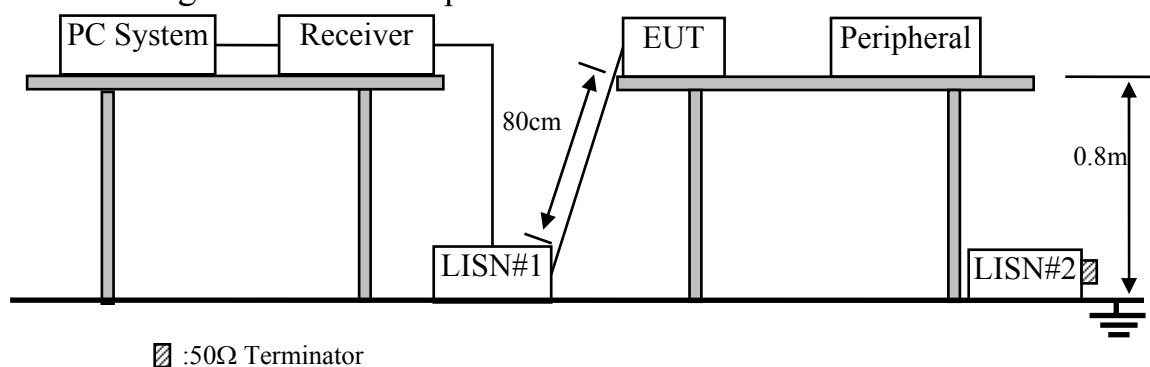
3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	Apr.17,17	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.22,17	1 Year
3.	L.I.S.N	Rohde & Schwarz	ENV216	102160	Mar.06.17	1 Year
4.	L.I.S.N.#2	Kyoritsu	K NW-403D	8-1750-2	Apr.22,17	1 Year
5.	I.S.N.	TESEQ	S751	24559	Mar.06.17	1.year
6.	Terminator	Hubersuhner	50Ω	No.1	Apr.23,17	1 Year
7.	Terminator	Hubersuhner	50Ω	No.2	Apr.23,17	1 Year
8.	RF Cable	MIYAZAKI	3D-2W	No.1	Apr.23,17	1Year
9.	Coaxial Switch	Anritsu	MP59B	6200766906	Apr.22,17	1 Year
10.	Test Software	AUDIX	e3	6.100913a	N/A	N/A

Note: N/A means Not applicable.

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. Wireless Speaker (EUT)

Model Number : LF-S50G

Serial Number : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

3.5.Operating Condition of EUT

- 3.5.1. Setup the EUT and simulator as shown as Section 3.2.
- 3.5.2. Turn on the power of all equipments.
- 3.5.3. PC run test software to control EUT work in Tx (WiFi 2.4GHz) mode.

3.6.Test Procedure

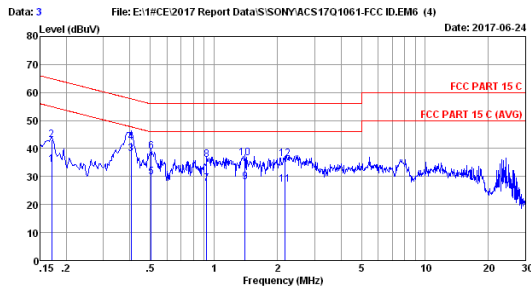
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7.Power Line Conducted Emission Test Results

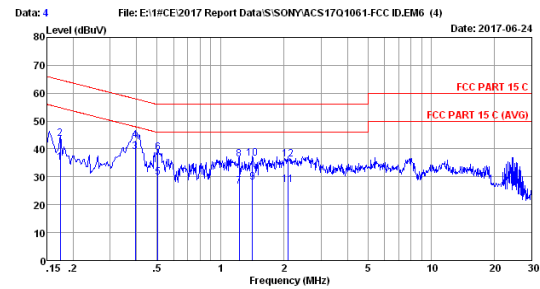
PASS. (All emissions not reported below are too low against the prescribed limits.)



Site no :1# CE Data No :3
 Dis./Lisn :2017 LISN ENV216-L LISN phase:
 Limit :FCC PART 15 C
 Env./Ins. :22.8°C/56% Engineer :Garry
 EUT :M/N:LF-S50G
 Power Rating :AC 120V/60Hz
 Test Mode :WiFi Tx Mode

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.170	9.51	0.02	24.60	34.13	54.94	20.81	Average
2	0.170	9.51	0.02	33.62	43.15	64.94	21.79	QP
3	0.406	9.50	0.03	28.50	38.03	47.73	9.70	Average
4	0.406	9.50	0.03	32.80	42.33	57.73	15.40	QP
5	0.505	9.50	0.03	20.30	29.83	46.00	16.17	Average
6	0.505	9.50	0.03	29.37	38.90	56.00	17.10	QP
7	0.923	9.49	0.05	17.80	27.34	46.00	18.66	Average
8	0.923	9.49	0.05	26.44	35.98	56.00	20.02	QP
9	1.403	9.49	0.06	18.60	28.15	46.00	17.85	Average
10	1.403	9.49	0.06	27.14	36.69	56.00	19.31	QP
11	2.167	9.49	0.07	17.60	27.16	46.00	18.84	Average
12	2.167	9.49	0.07	26.77	36.33	56.00	19.67	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



Site no :1# CE Data No :4
 Dis./Lisn :2017 LISN ENV216-N LISN phase:
 Limit :FCC PART 15 C
 Env./Ins. :22.8°C/56% Engineer :Garry
 EUT :M/N:LF-S50G
 Power Rating :AC 120V/60Hz
 Test Mode :WiFi Tx Mode

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.174	9.47	0.02	25.60	35.09	54.77	19.68	Average
2	0.174	9.47	0.02	34.15	43.64	64.77	21.13	QP
3	0.393	9.42	0.03	29.40	38.85	47.99	9.14	Average
4	0.393	9.42	0.03	33.60	43.05	57.99	14.94	QP
5	0.505	9.31	0.03	20.40	29.74	46.00	16.26	Average
6	0.505	9.31	0.03	29.44	38.78	56.00	17.22	QP
7	1.229	9.35	0.06	17.30	26.71	46.00	19.29	Average
8	1.229	9.35	0.06	26.95	36.36	56.00	19.64	QP
9	1.418	9.35	0.06	18.60	28.01	46.00	17.99	Average
10	1.418	9.35	0.06	27.14	36.55	56.00	19.45	QP
11	2.088	9.36	0.07	17.60	27.03	46.00	18.97	Average
12	2.088	9.36	0.07	26.90	36.33	56.00	19.67	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1. Test Equipment

4.1.1. For frequency range 30MHz~1000MHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Mar.28,17	1 Year
2.	Spectrum Analyzer	Agilent	N9010A	MY52220804	Oct.15,16	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.22,17	1 Year
4.	Amplifier	HP	8447D	2648A04738	Apr.22,17	1 Year
5.	Bi-log Antenna	TESEQ	CBL6112D	35375	Aug.03,16	1 Year
6.	RF Cable	MIYAZAKI	CFD400NL-LW	No.3	Sep.26.16	1 Year
7.	Coaxial Switch	Anritsu	MP59B	6201397222	Apr.22,17	1 Year
8.	Attenuator	EMCI	EMCI-N-6-06	AT-N0639	Sep.26.16	1 Year
9.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A

Note: N/A means Not applicable.

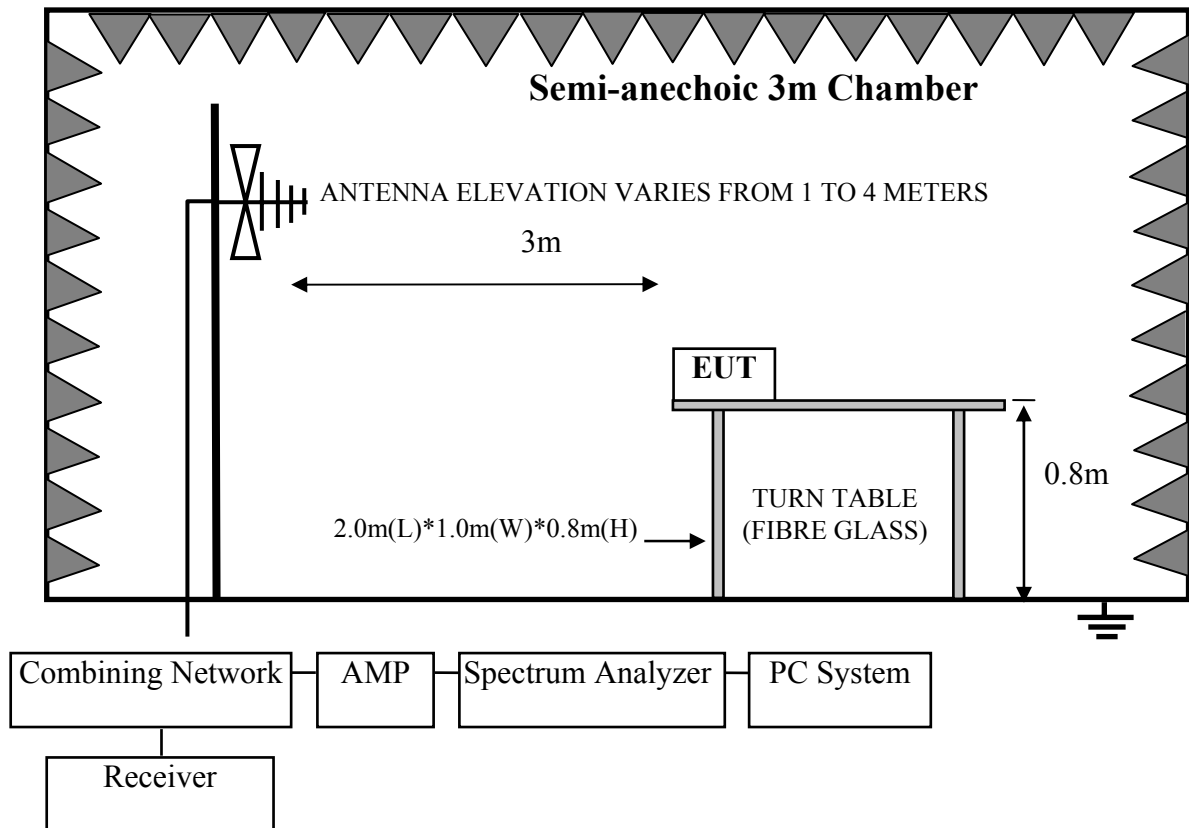
4.1.2. For frequency range 1GHz~40GHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Mar.28,17	1 Year
2.	Spectrum Analyzer	Agilent	N9010A	MY52220804	Oct.15,16	1 Year
3.	Amplifier	Agilent	83017A	MY53270084	May.08,17	1 Year
4.	RF Cable	Hubersuhner	SUCOFLEX104	274094/4	Apr.22,17	1 Year
5.	Horn Antenna	ETS	3115	9510-4580	Nov.16,16	1 Year
6.	Horn Antenna	ETS	3116	00060089	Nov.16,16	1 Year
7.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A

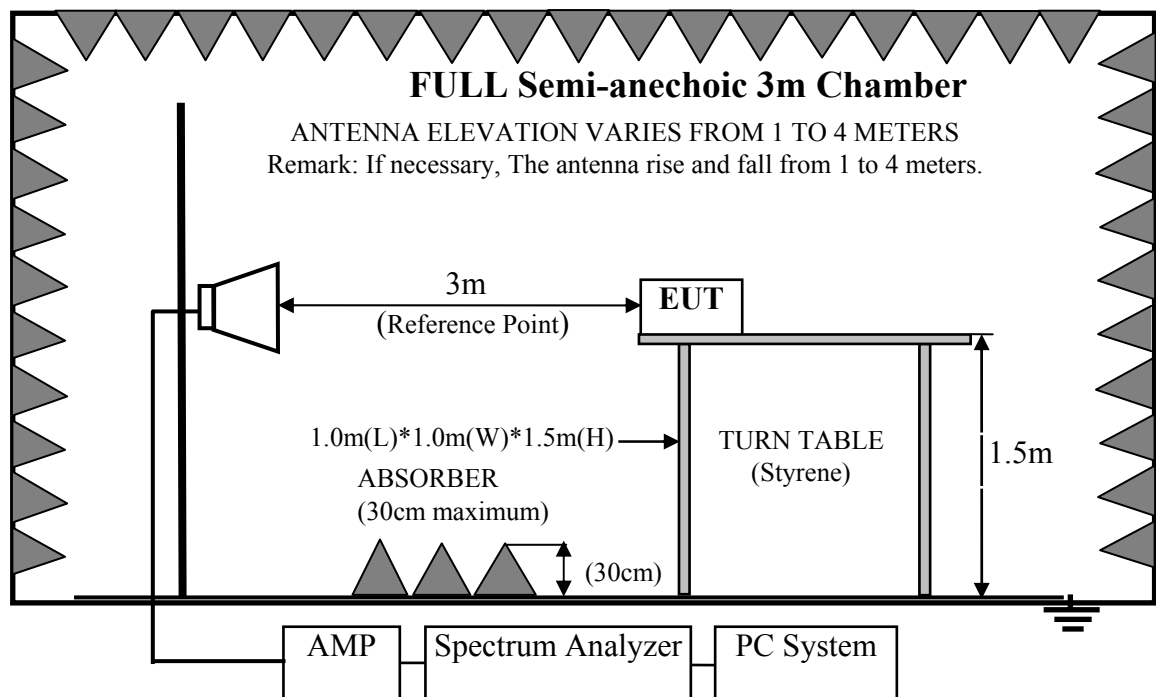
Note: N/A means Not applicable.

4.2. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range 1GHz-25GHz



4.3. Radiated Emission Limit

4.3.1. 15.247&209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
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 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

Remark : (1) Emission level $\text{dB}\mu\text{V} = 20 \log \text{Emission level } \mu\text{V}/\text{m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.3.2. 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions or comply with 15.209 limits.

4.4. EUT Configuration on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

4.4.1. Wireless Speaker (EUT)

Model Number : LF-S50G

Serial Number : N/A

4.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

4.5. Operating Condition of EUT

- 4.5.1. Setup the EUT and simulator as shown as Section 4.2.
- 4.5.2. Turn on the power of all equipments.
- 4.5.3. Let EUT work in Tx(WiFi 2.4GHz) mode

4.6. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground for frequency 30MHz~1000MHz, 1.5 meter high above ground for frequency above 1GHz and put the absorbing with 2.4m(L)*2.4m(W)*0.3m(H) on the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna for frequency 30MHz~1000MHz, and the Horn antenna is used as receiving antenna for frequency above 1GHz. Both horizontal and vertical polarization of the antenna are set on test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as test photo indicated.

The bandwidth of the EMI test receiver (R&S ESR7) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25GHz, So the radiated emissions from 18GHz to 25GHz were not record.

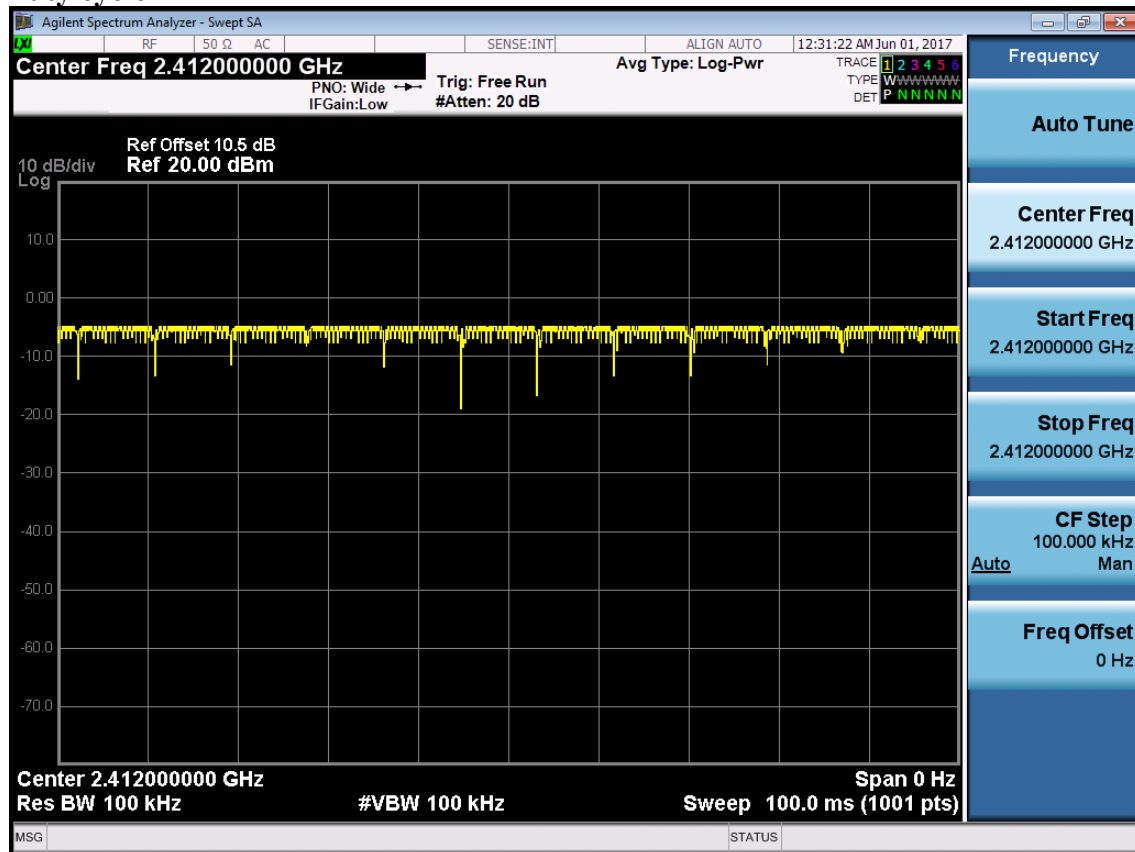
4.7. Radiated Emission Test Results

PASS.

All the emissions from 30MHz to 25 GHz were comply with 15.209 limits.

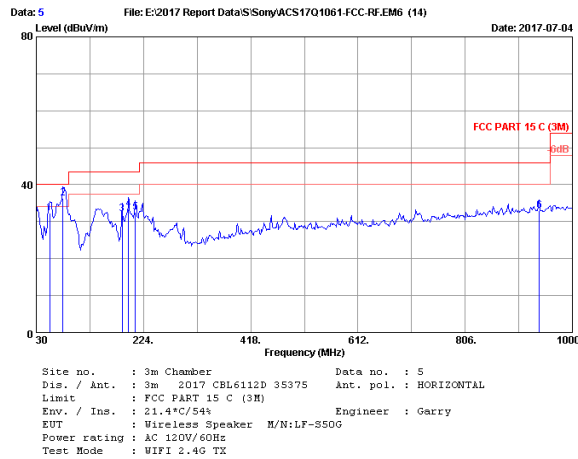
Note: For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

Duty cycle



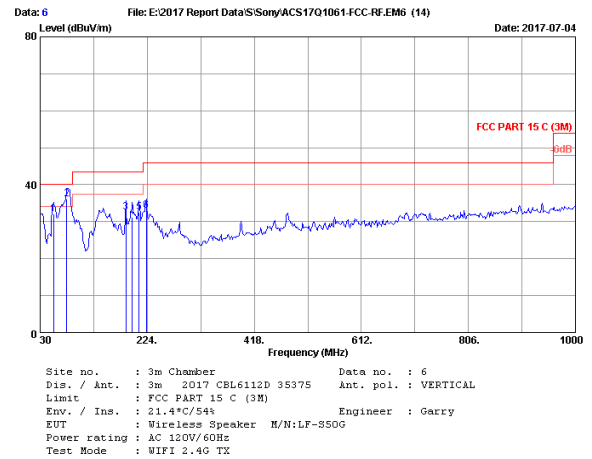
Note: The Duty Cycle is close to 100%.

Frequency: 30MHz~1GHz



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	54.250	8.70	6.67	17.03	32.40	40.00	7.60	QP
2	78.500	7.63	6.84	21.93	36.40	40.00	3.60	QP
3	185.200	10.20	7.31	14.51	32.02	43.50	11.48	QP
4	196.840	10.44	7.37	15.66	33.47	43.50	10.03	QP
5	209.450	10.74	7.42	14.48	32.64	43.50	10.86	QP
6	939.860	22.14	10.47	0.31	32.92	46.00	13.08	QP

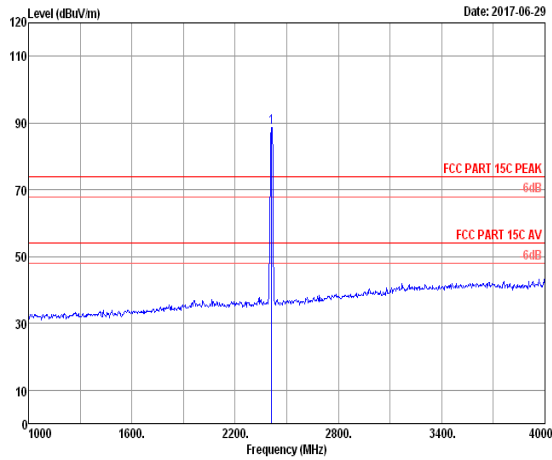
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	54.250	8.70	6.67	16.78	32.15	40.00	7.85	QP
2	78.500	7.63	6.84	21.56	36.03	40.00	3.97	QP
3	185.200	10.20	7.31	15.13	32.64	43.50	10.86	QP
4	196.840	10.44	7.37	13.35	31.16	43.50	12.34	QP
5	209.450	10.74	7.42	14.48	32.64	43.50	10.86	QP
6	222.060	11.16	7.47	14.43	33.06	46.00	12.94	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

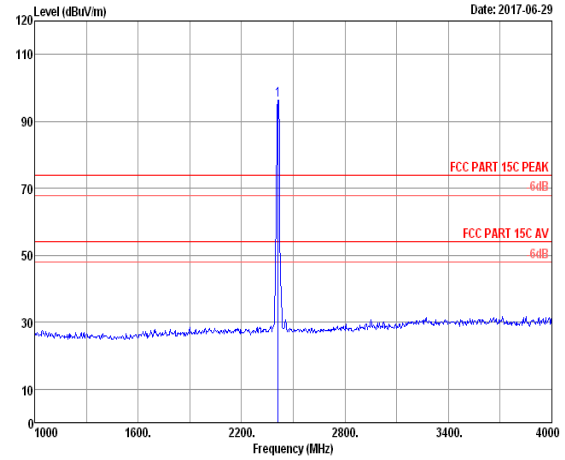
Frequency: 1GHz~18GHz



Site no. : 3m Chamber Data no. : 2
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/n)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.25	8.35	88.57	36.39	88.78	74.00	-14.78	Peak

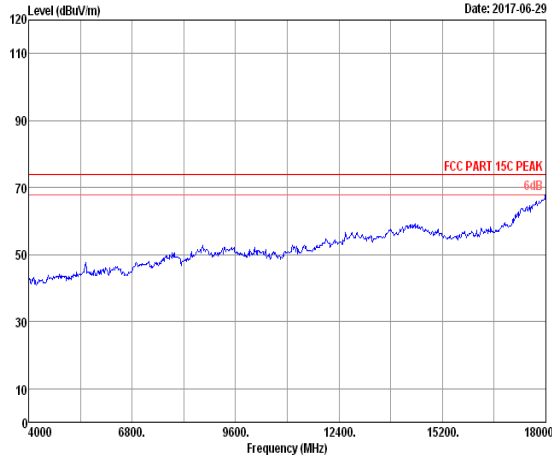
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



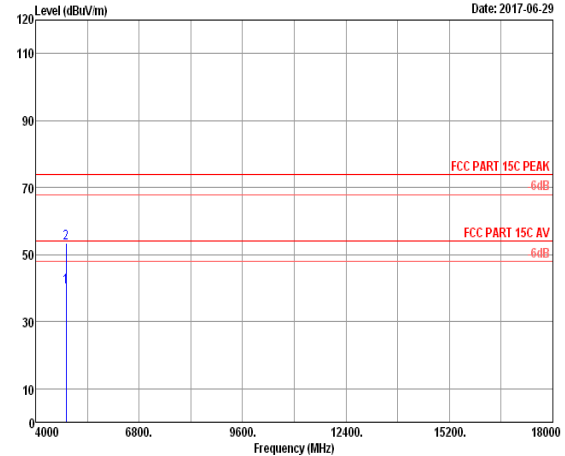
Site no. : 3m Chamber Data no. : 1
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/n)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.25	8.35	96.16	36.39	96.37	74.00	-22.37	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



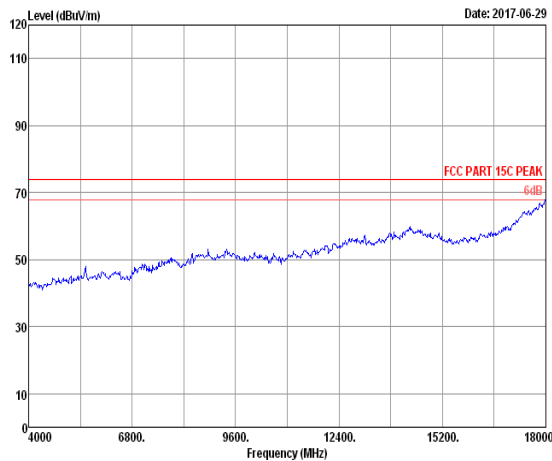
Site no. : 3m Chamber Data no. : 7
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 M/N: LF-S50G



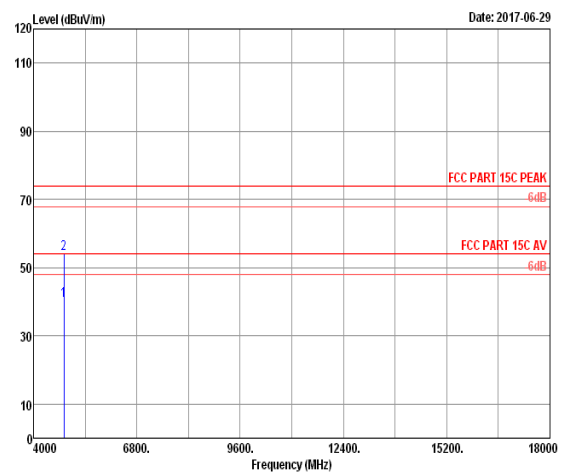
Site no. : 3m Chamber Data no. : 8
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/n)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	32.98	11.77	31.17	35.68	40.24	54.00	13.76	Average
2	4824.00	32.98	11.77	44.38	35.68	53.45	74.00	20.55	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



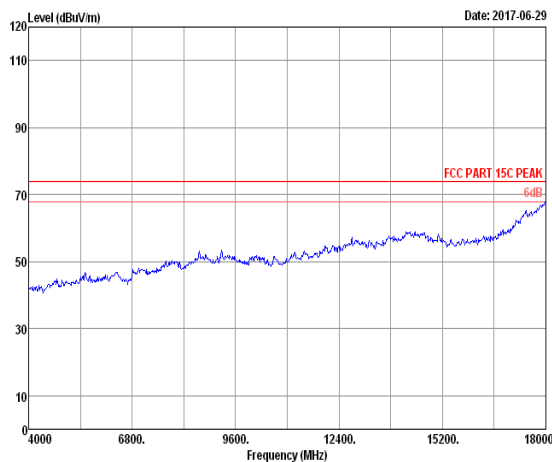
Site no. : 3m Chamber Data no. : 9
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 : M/N: LF-S50G



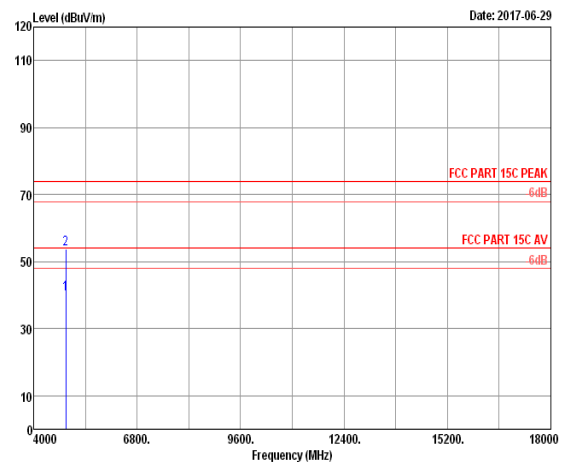
Site no. : 3m Chamber Data no. : 10
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	32.98	11.77	31.28	35.68	40.35	54.00	13.65	Average
2	4824.00	32.98	11.77	45.03	35.68	54.10	74.00	19.90	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



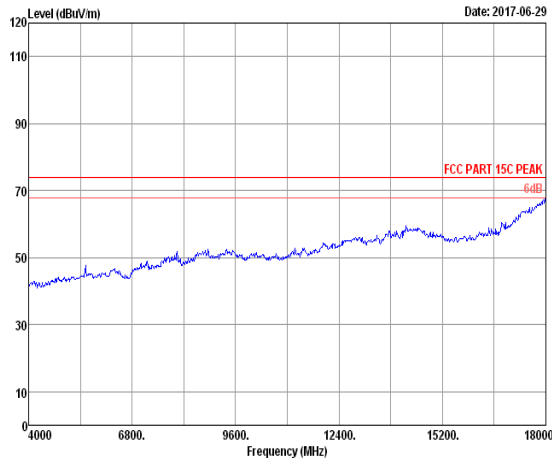
Site no. : 3m Chamber Data no. : 11
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2437MHz Tx Mode
 : M/N: LF-S50G



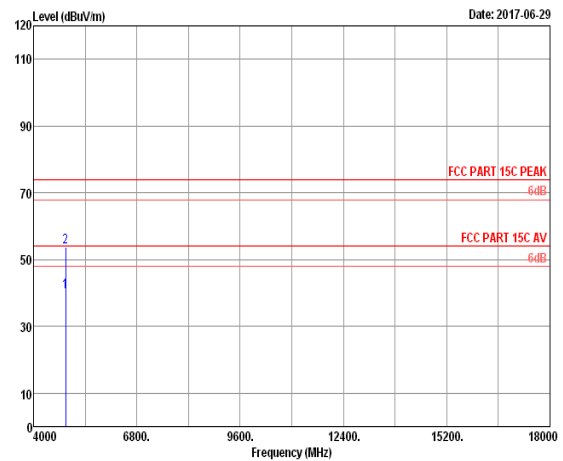
Site no. : 3m Chamber Data no. : 12
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2437MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	11.80	31.24	35.69	40.45	54.00	13.55	Average
2	4874.00	33.10	11.80	44.49	35.69	53.70	74.00	20.30	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 13
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.14C/52.5W Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2437MHz Tx Mode
 M/N: LF-S50G

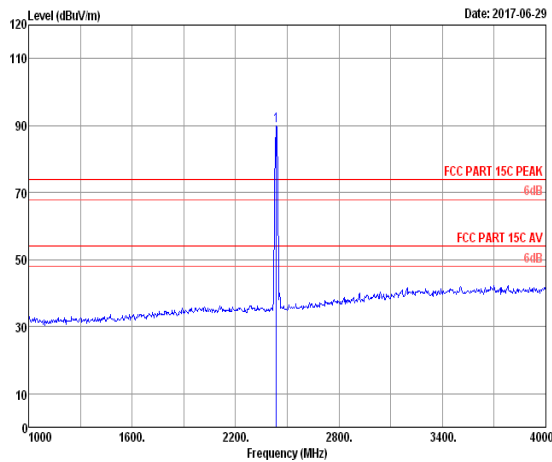


Site no. : 3m Chamber Data no. : 14
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.14C/52.5W Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2437MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	11.80	31.15	35.69	40.36	54.00	13.64	Average
2	4874.00	33.10	11.80	44.57	35.69	53.78	74.00	20.22	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

-Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.

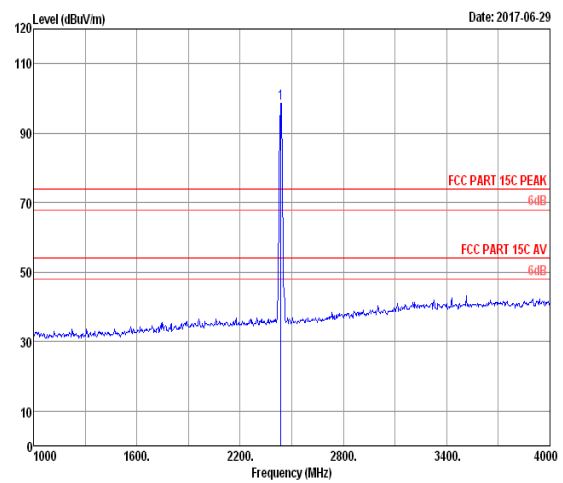


Site no. : 3m Chamber Data no. : 15
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.14C/52.5W Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2437MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.26	8.38	89.63	36.38	89.89	74.00	-15.89	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

-Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.

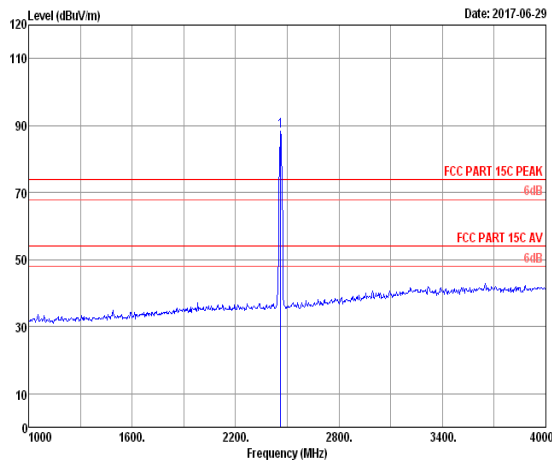


Site no. : 3m Chamber Data no. : 16
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.14C/52.5W Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2437MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.26	8.38	98.35	36.38	98.61	74.00	-24.61	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

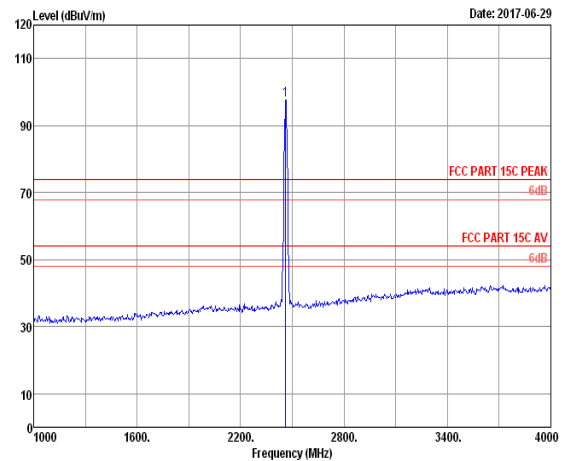
-Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 18
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.28	8.40	87.92	36.38	88.22	74.00	-14.22	Peak

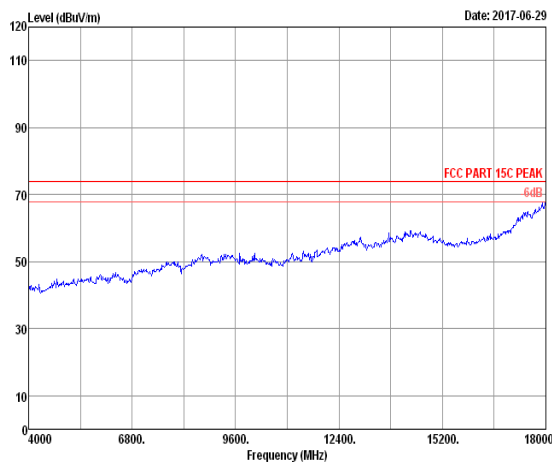
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 17
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.28	8.40	97.22	36.38	97.52	74.00	-23.52	Peak

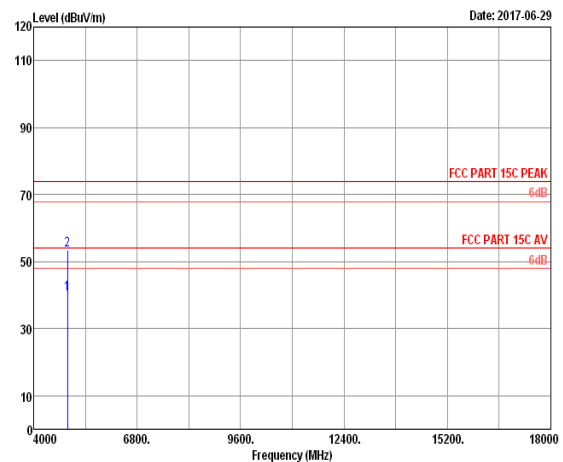
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 23
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-S50G

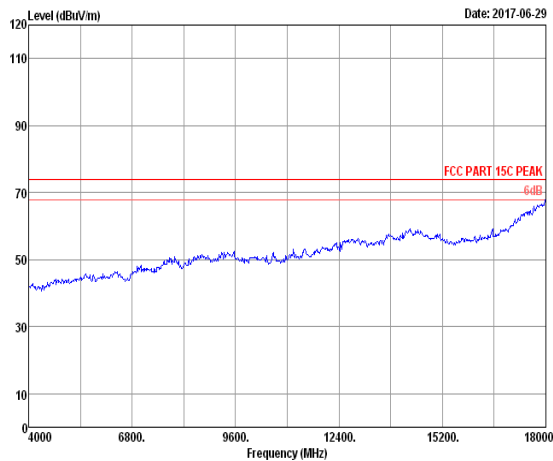
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.22	11.83	30.94	35.70	40.29	54.00	13.71	Average
2	4924.00	33.22	11.83	44.12	35.70	53.47	74.00	20.53	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.

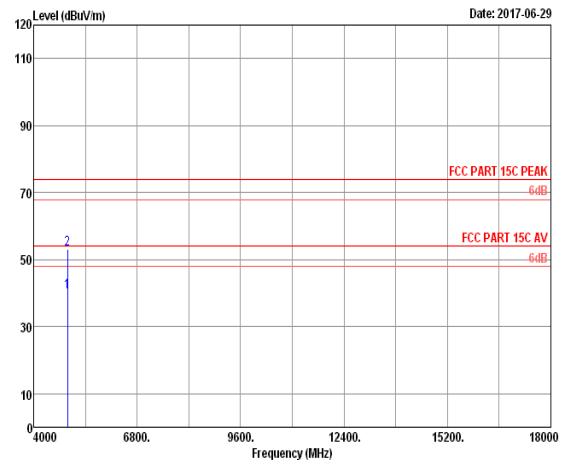


Site no. : 3m Chamber Data no. : 24
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.22	11.83	30.94	35.70	40.29	54.00	13.71	Average
2	4924.00	33.22	11.83	44.12	35.70	53.47	74.00	20.53	Peak



Site no. : 3m Chamber Data no. : 25
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-350G

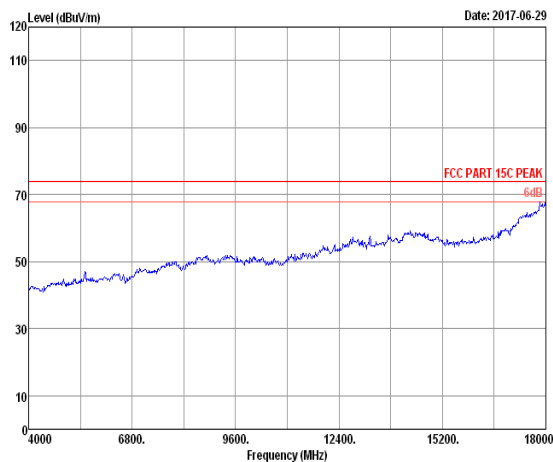


Site no. : 3m Chamber Data no. : 26
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-350G

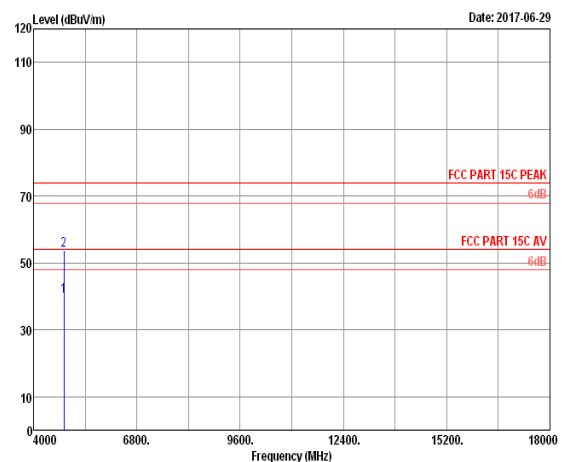
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.22	11.83	30.98	35.70	40.33	54.00	13.67	Average
2	4924.00	33.22	11.83	43.68	35.70	53.03	74.00	20.97	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 27
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-350G

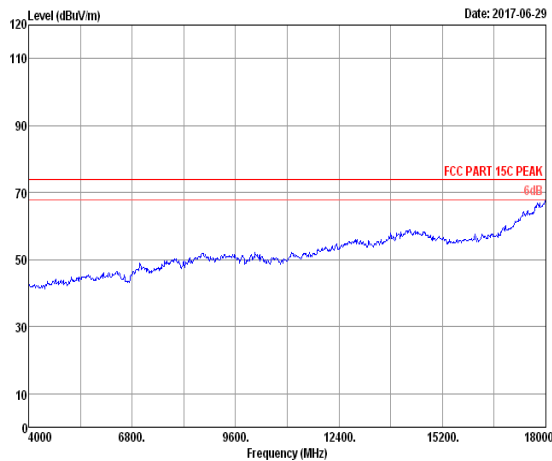


Site no. : 3m Chamber Data no. : 28
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-350G

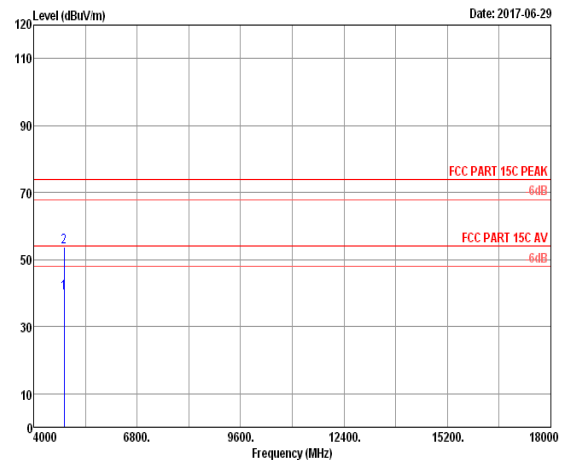
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	32.98	11.77	31.05	35.68	40.12	54.00	13.88	Average
2	4824.00	32.98	11.77	44.70	35.68	53.77	74.00	20.23	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 29
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-550G

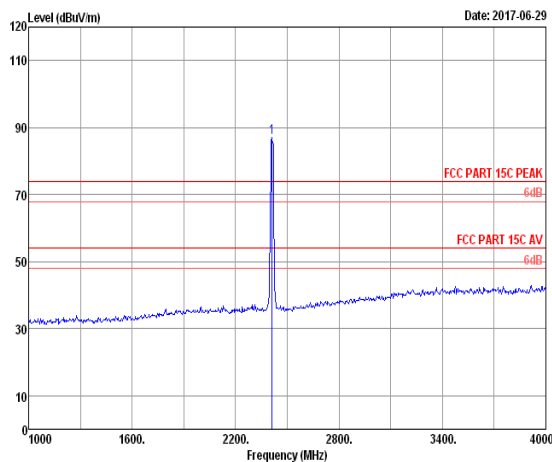


Site no. : 3m Chamber Data no. : 30
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-550G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	32.98	11.77	31.04	35.68	40.11	54.00	13.89	Average
2	4824.00	32.98	11.77	44.82	35.68	53.89	74.00	20.11	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.



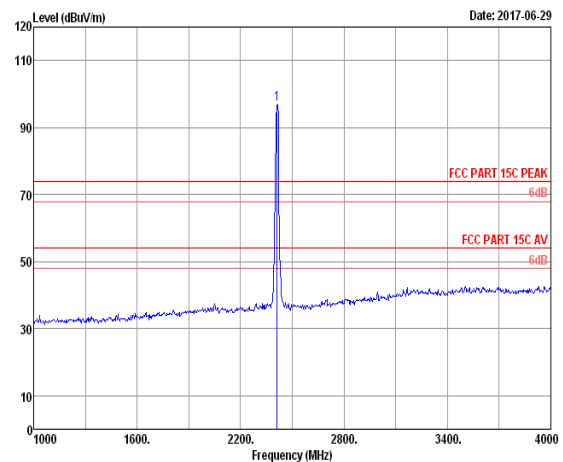
Site no. : 3m Chamber Data no. : 31
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-550G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.25	8.35	86.90	36.39	87.11	74.00	-13.11	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

-Ant Factor

2. The emission levels that are 20dB below the official limit are not reported.



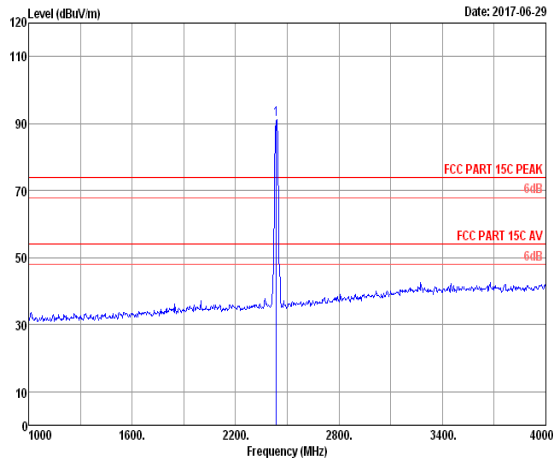
Site no. : 3m Chamber Data no. : 32
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-550G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.25	8.35	96.79	36.39	97.00	74.00	-23.00	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

-Ant Factor

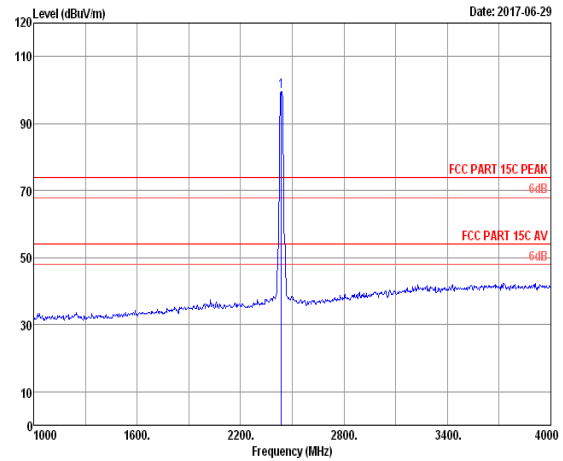
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 37
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2437MHz Tx Mode
 : M/N: LF-350G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.26	8.38	91.07	36.38	91.33	74.00	-17.33	Peak

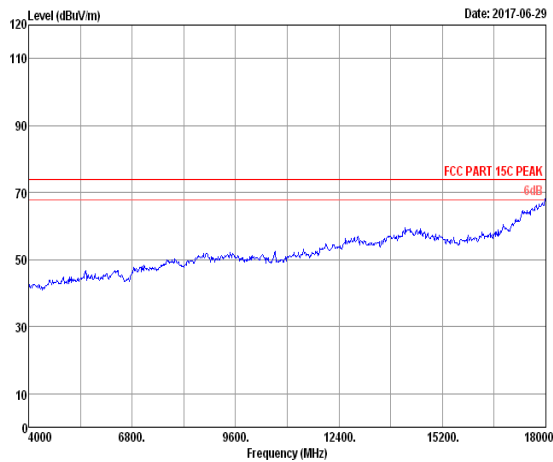
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



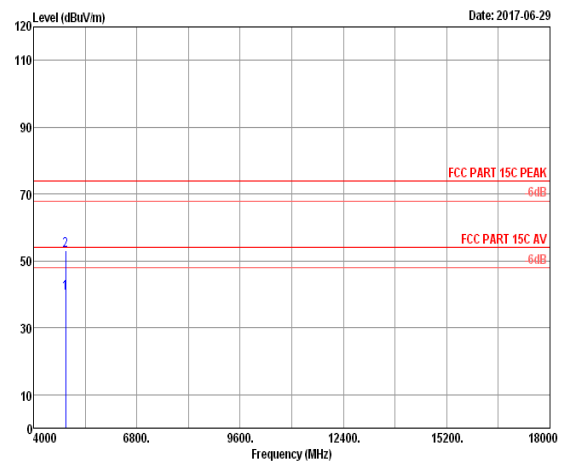
Site no. : 3m Chamber Data no. : 38
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2437MHz Tx Mode
 : M/N: LF-350G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.26	8.38	99.35	36.38	99.61	74.00	-25.61	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



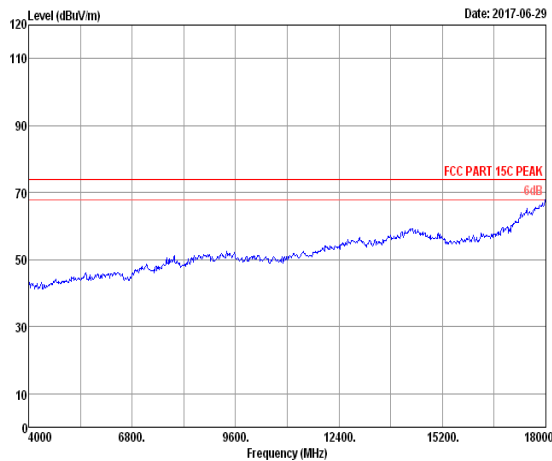
Site no. : 3m Chamber Data no. : 39
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2437MHz Tx Mode
 : M/N: LF-350G



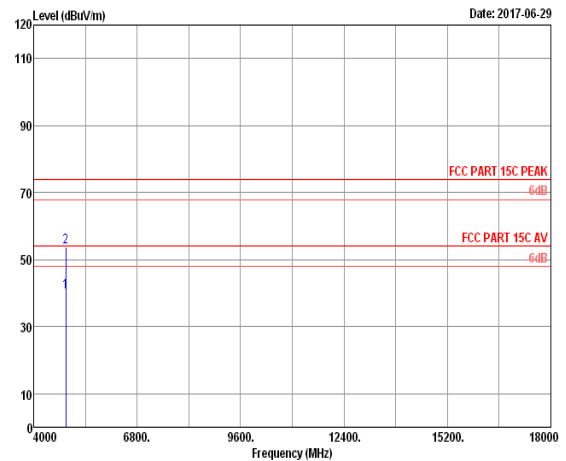
Site no. : 3m Chamber Data no. : 40
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2437MHz Tx Mode
 : M/N: LF-350G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	11.80	31.10	35.69	40.31	54.00	13.69	Average
2	4874.00	33.10	11.80	44.07	35.69	53.28	74.00	20.72	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 41
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2437MHz Tx Mode
 : M/N: LF-S50G

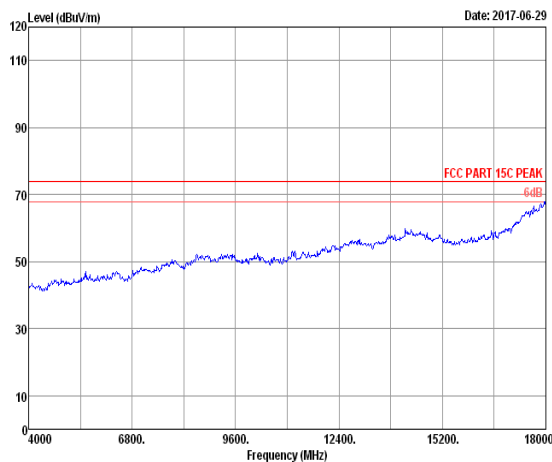


Site no. : 3m Chamber Data no. : 42
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2437MHz Tx Mode
 : M/N: LF-S50G

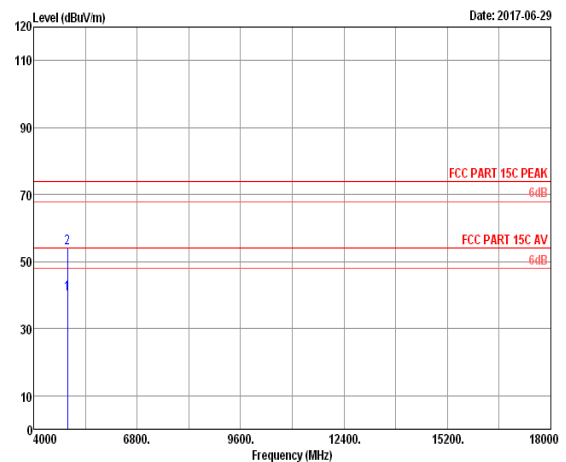
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	11.80	31.08	35.69	40.29	54.00	13.71	Average
2	4874.00	33.10	11.80	44.52	35.69	53.73	74.00	20.27	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 43
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-S50G

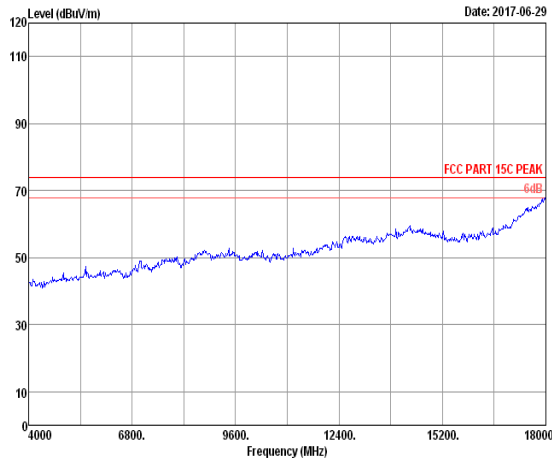


Site no. : 3m Chamber Data no. : 44
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-S50G

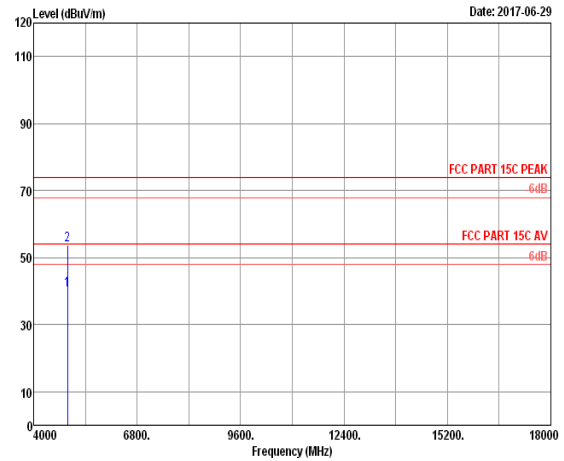
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.22	11.83	31.03	35.70	40.38	54.00	13.62	Average
2	4924.00	33.22	11.83	44.58	35.70	53.93	74.00	20.07	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 45
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-550G

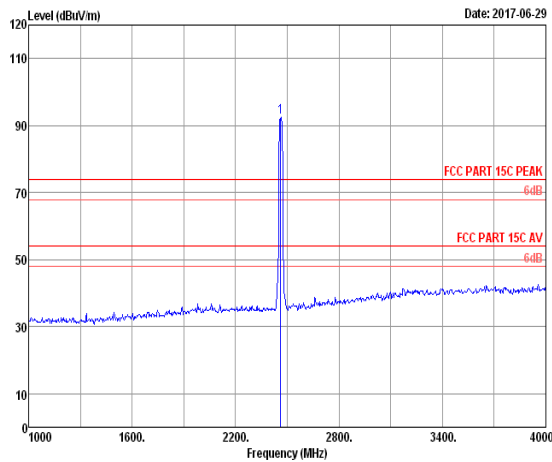


Site no. : 3m Chamber Data no. : 46
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-550G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.22	11.83	31.05	35.70	40.40	54.00	13.60	Average
2	4924.00	33.22	11.83	44.44	35.70	53.79	74.00	20.21	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.

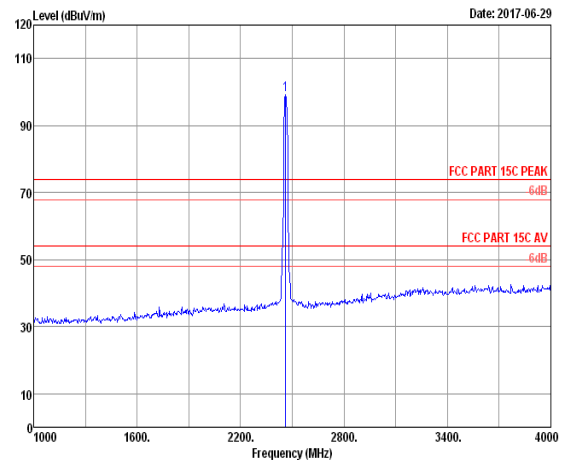


Site no. : 3m Chamber Data no. : 48
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-550G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.28	8.40	92.24	36.38	92.54	74.00	-18.54	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

-Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.

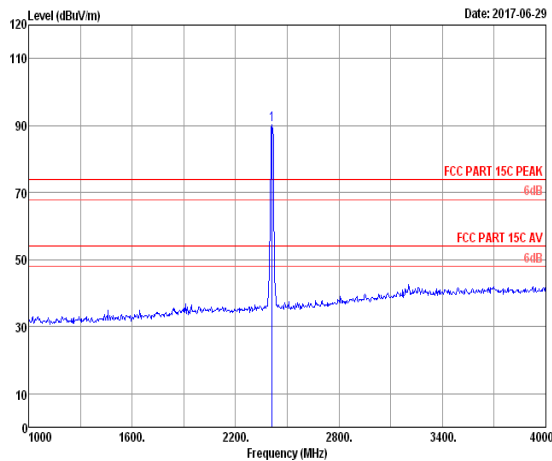


Site no. : 3m Chamber Data no. : 47
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-550G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.28	8.40	98.96	36.38	99.26	74.00	-25.26	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

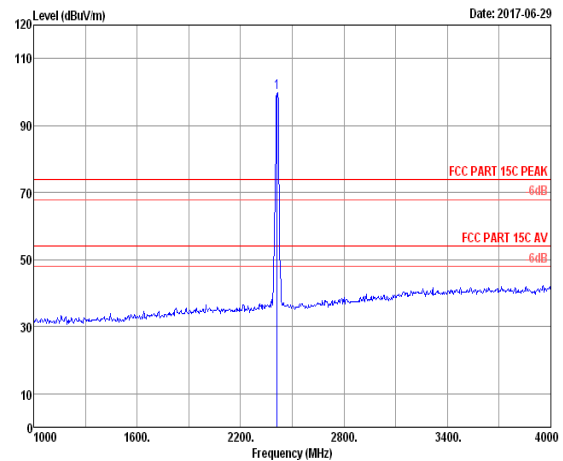
-Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 53
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.25	8.35	89.89	36.39	90.10	74.00	-16.10	Peak

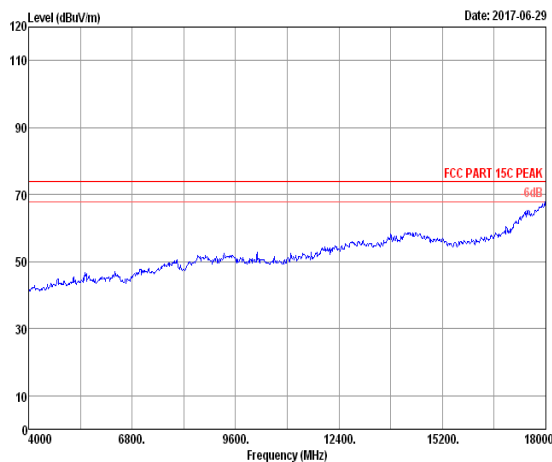
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 54
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	28.25	8.35	99.65	36.39	99.86	74.00	-25.86	Peak

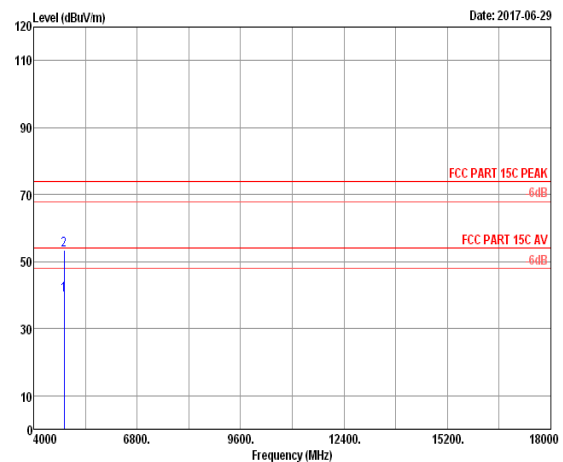
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 59
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 : M/N: LF-S50G

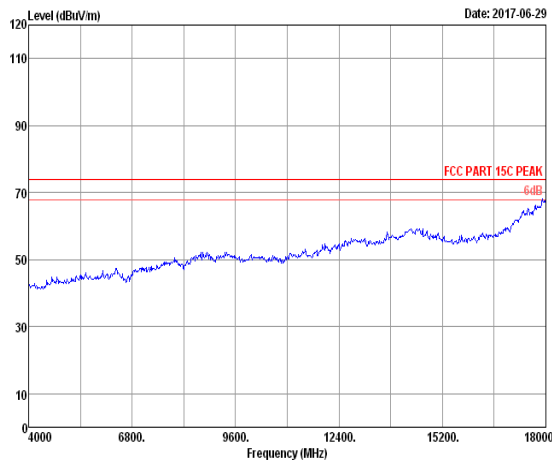
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	32.98	11.77	31.00	35.68	40.07	54.00	13.93	Average
2	4824.00	32.98	11.77	44.39	35.68	53.46	74.00	20.54	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.

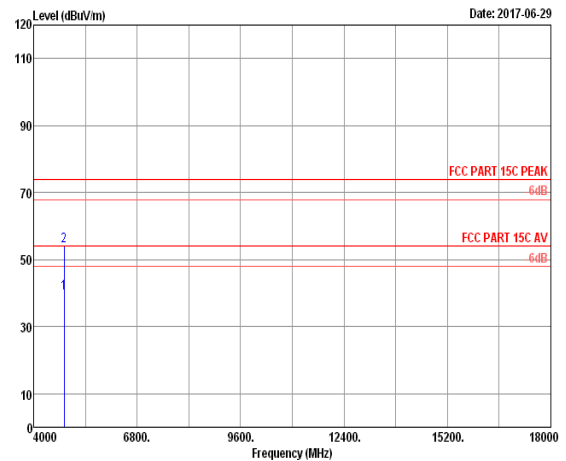


Site no. : 3m Chamber Data no. : 60
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	32.98	11.77	31.00	35.68	40.07	54.00	13.93	Average
2	4824.00	32.98	11.77	44.39	35.68	53.46	74.00	20.54	Peak



Site no. : 3m Chamber Data no. : 61
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 M/N: LF-S50G

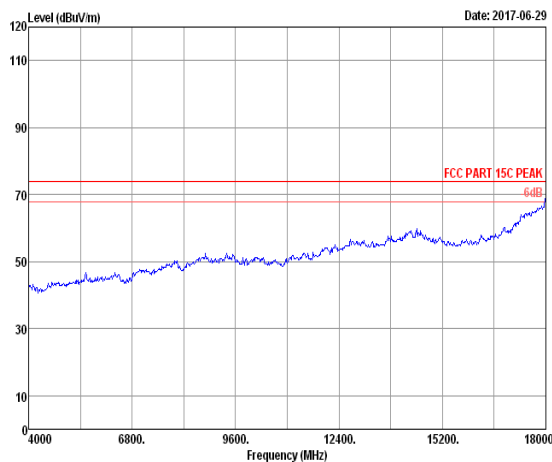


Site no. : 3m Chamber Data no. : 62
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 M/N: LF-S50G

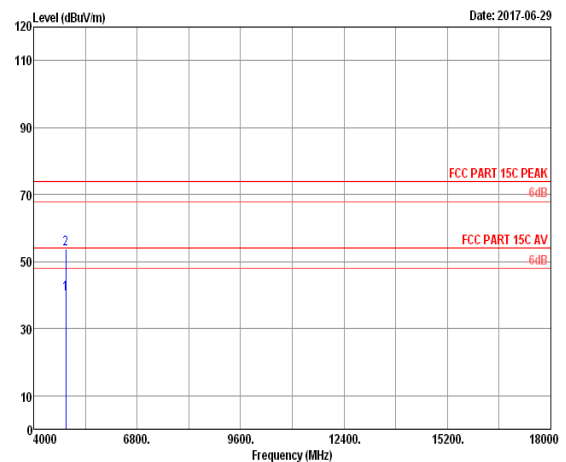
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.00	32.98	11.77	30.99	35.68	40.06	54.00	13.94	Average
2	4824.00	32.98	11.77	45.16	35.68	54.23	74.00	19.77	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 63
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2437MHz Tx Mode
 M/N: LF-S50G

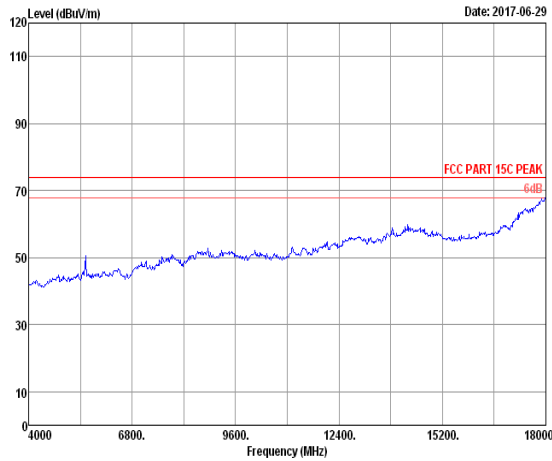


Site no. : 3m Chamber Data no. : 64
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2437MHz Tx Mode
 M/N: LF-S50G

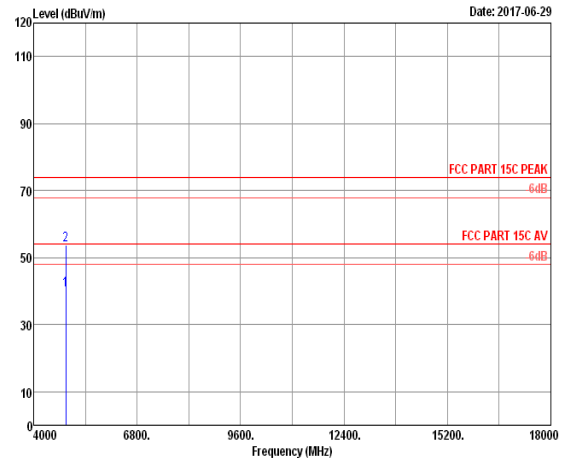
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	11.80	31.02	35.69	40.23	54.00	13.77	Average
2	4874.00	33.10	11.80	44.71	35.69	53.92	74.00	20.08	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 65
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 rHT20 2437MHz Tx Mode
 : M/N: LF-S50G

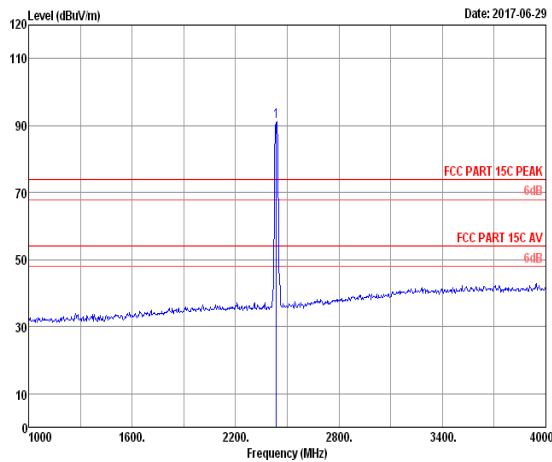


Site no. : 3m Chamber Data no. : 66
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 rHT20 2437MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.00	33.10	11.80	31.05	35.69	40.26	54.00	13.74	Average
2	4874.00	33.10	11.80	44.53	35.69	53.74	74.00	20.26	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

2. The emission levels that are 20dB below the official limit are not reported.

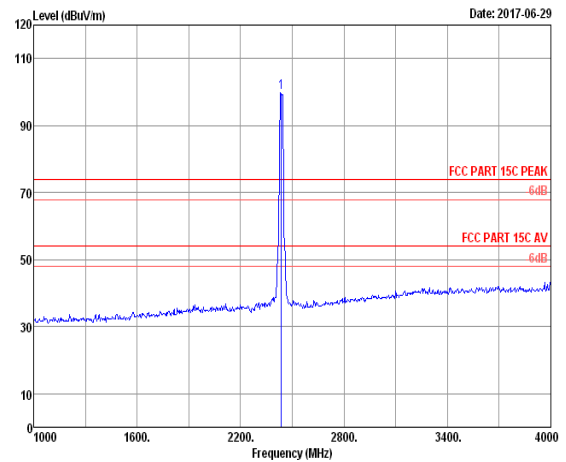


Site no. : 3m Chamber Data no. : 68
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 rHT20 2437MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.26	8.38	91.06	36.38	91.32	74.00	-17.32	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

-Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.

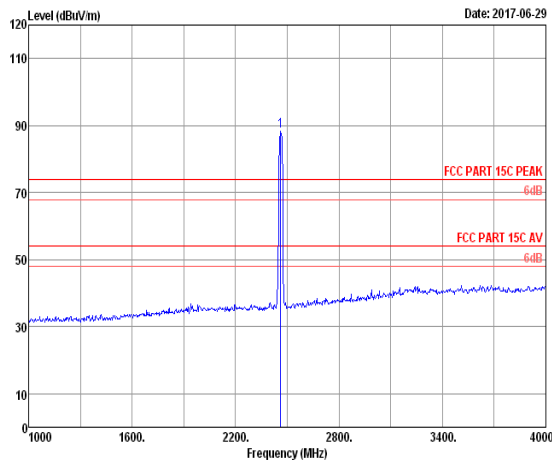


Site no. : 3m Chamber Data no. : 67
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 rHT20 2437MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.26	8.38	99.49	36.38	99.75	74.00	-25.75	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading

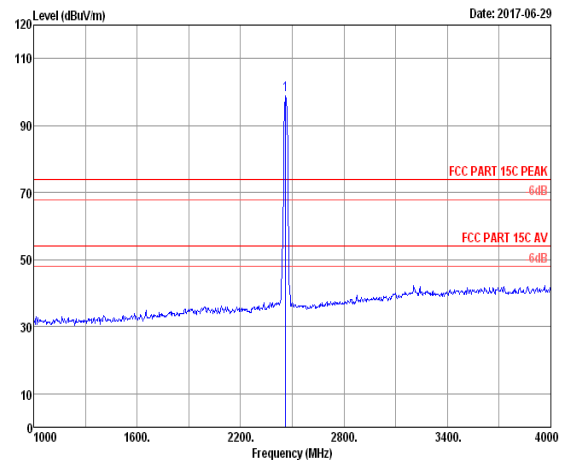
-Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 69
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.28	8.40	88.18	36.38	88.48	74.00	-14.48	Peak

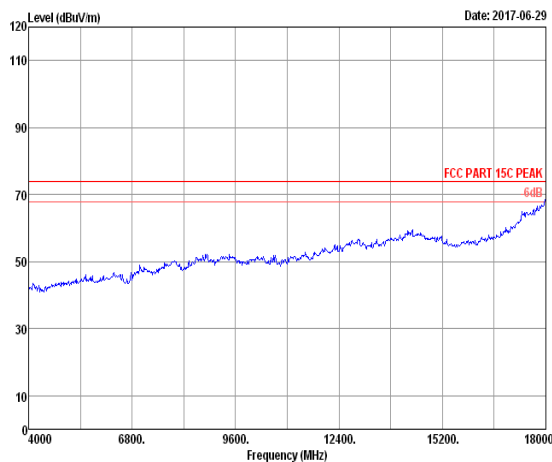
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 70
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.28	8.40	99.02	36.38	99.32	74.00	-25.32	Peak

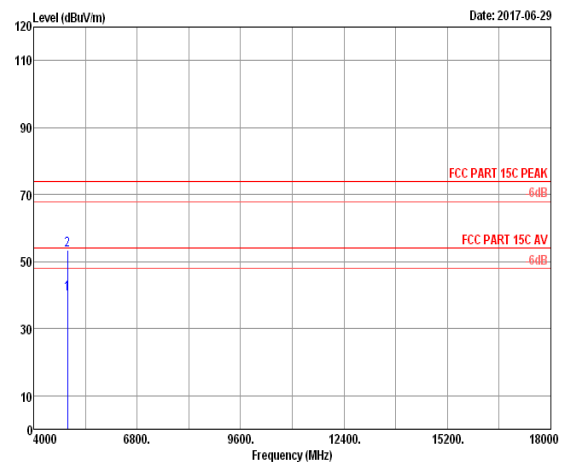
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 75
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 M/N: LF-S50G

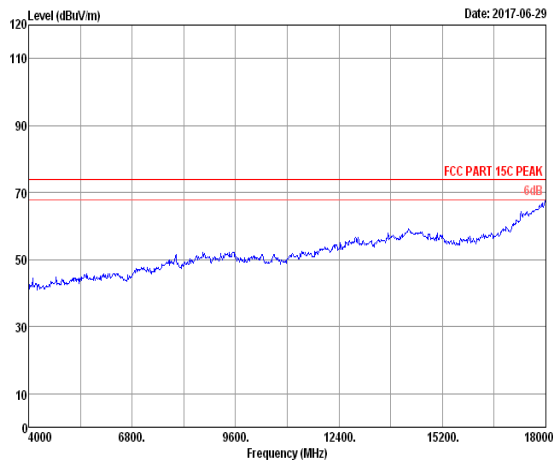
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.22	11.83	30.92	35.70	40.27	54.00	13.73	Average
2	4924.00	33.22	11.83	44.05	35.70	53.40	74.00	20.60	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.

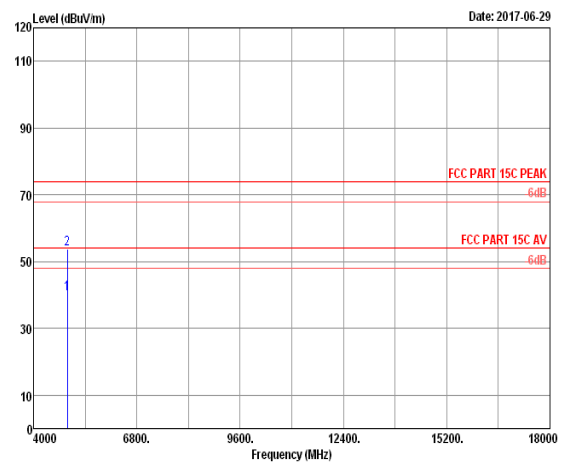


Site no. : 3m Chamber Data no. : 76
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.22	11.83	30.92	35.70	40.27	54.00	13.73	Average
2	4924.00	33.22	11.83	44.05	35.70	53.40	74.00	20.60	Peak



Site no. : 3m Chamber Data no. : T7
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1uV/52.5mV Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 : M/N: LF-S50G



Site no. : 3m Chamber Data no. : T8
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1uV/52.5mV Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	33.22	11.83	30.97	35.70	40.32	54.00	13.68	Average
2	4924.00	33.22	11.83	44.53	35.70	53.88	74.00	20.12	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.

5. CONDUCTED SPURIOUS EMISSIONS

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.15,16	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	Apr.27,17	1 Year
3.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	No.1	Oct.15,16	1 Year

5.2. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

5.3. Test Procedure

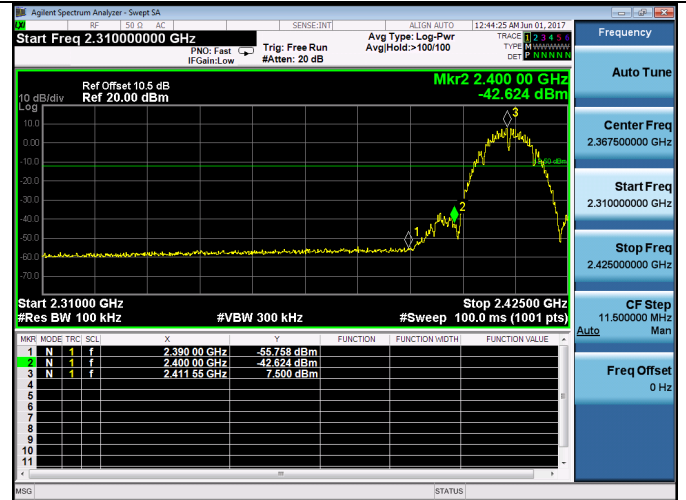
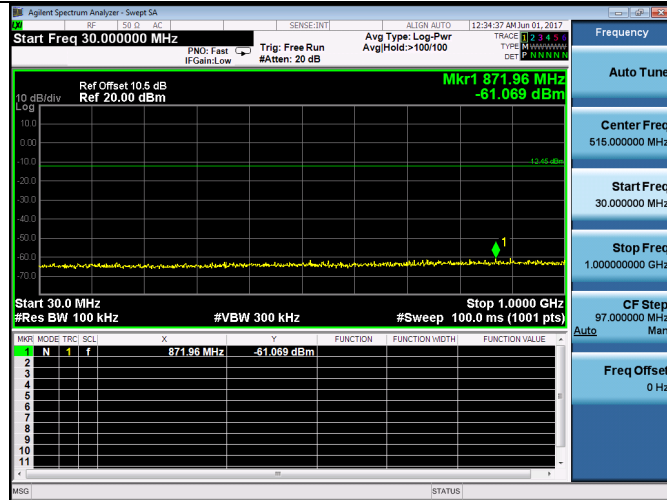
The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions with peak detector.

5.4. Test result

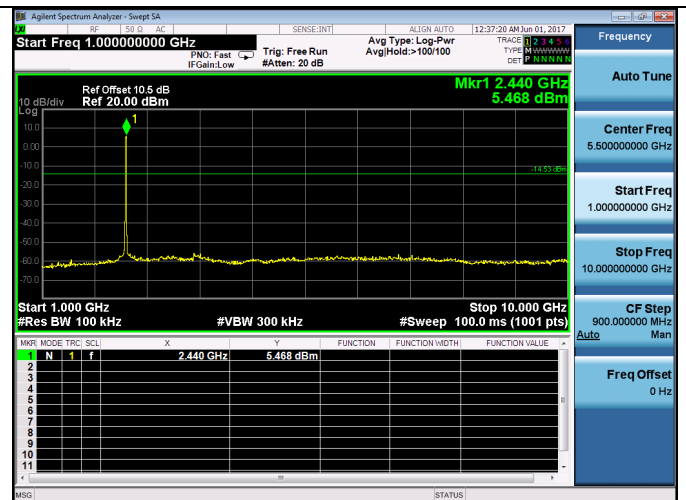
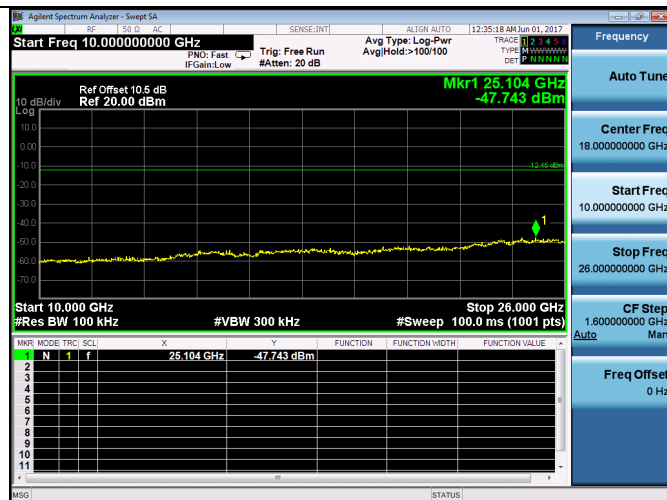
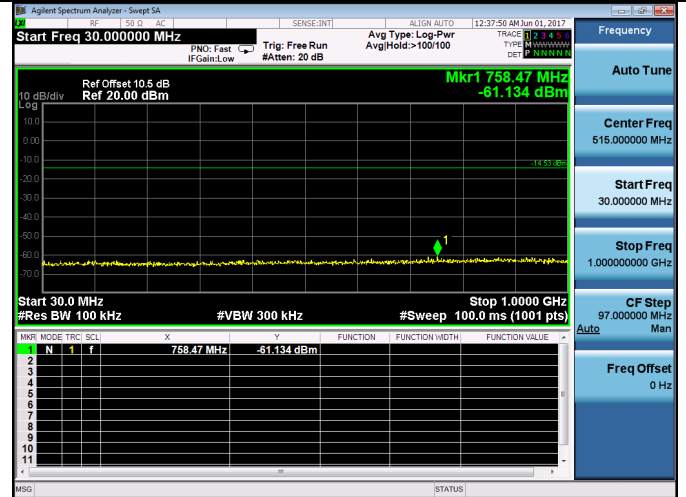
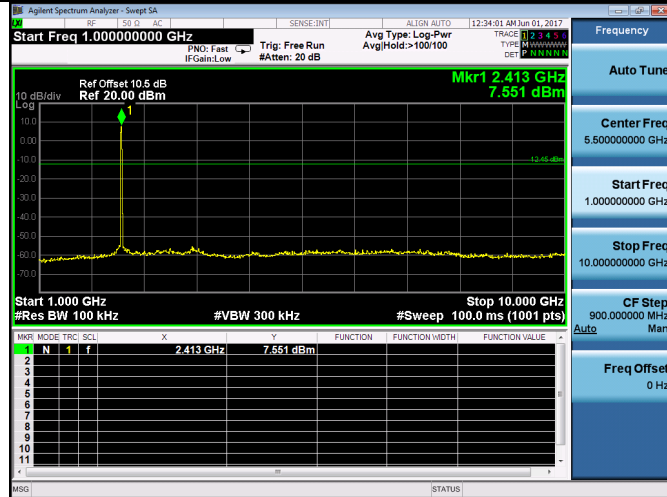
PASS (The testing data was attached in the next pages.)

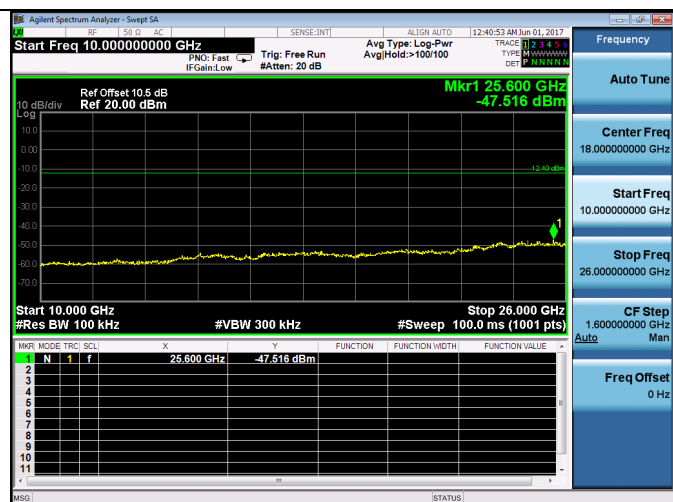
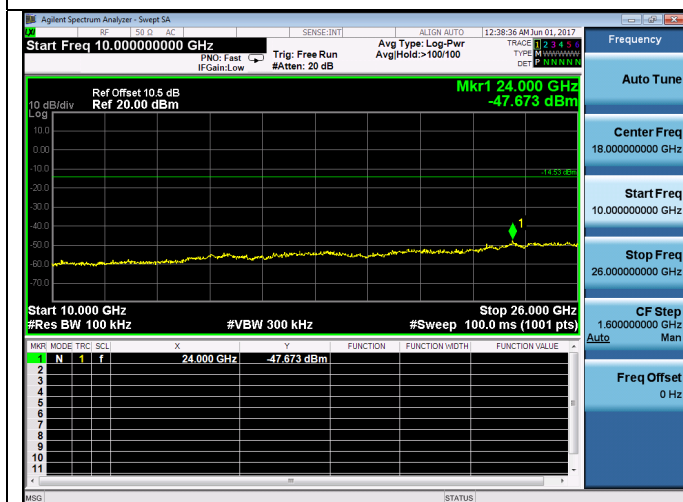
Test Mode: IEEE 802.11b

Test CH1: 2412MHz

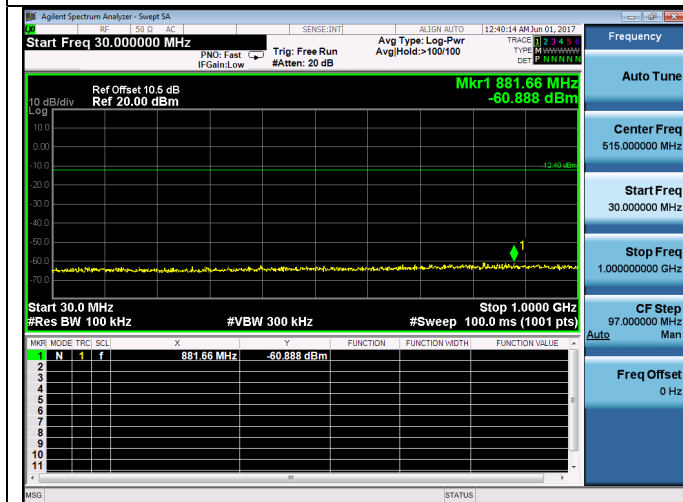


Test CH6: 2437MHz

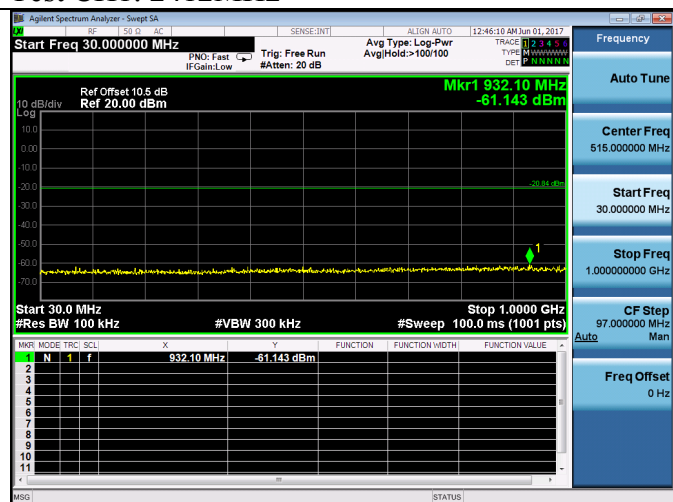
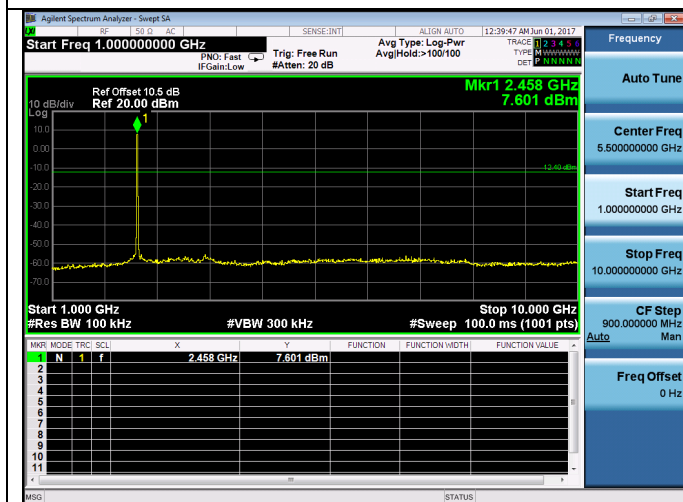




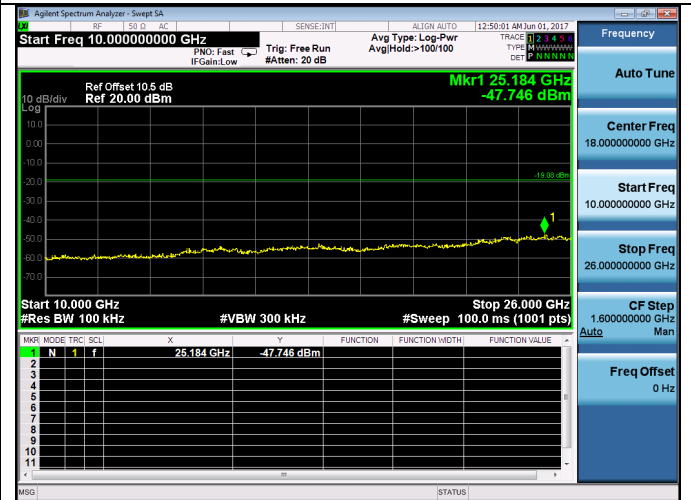
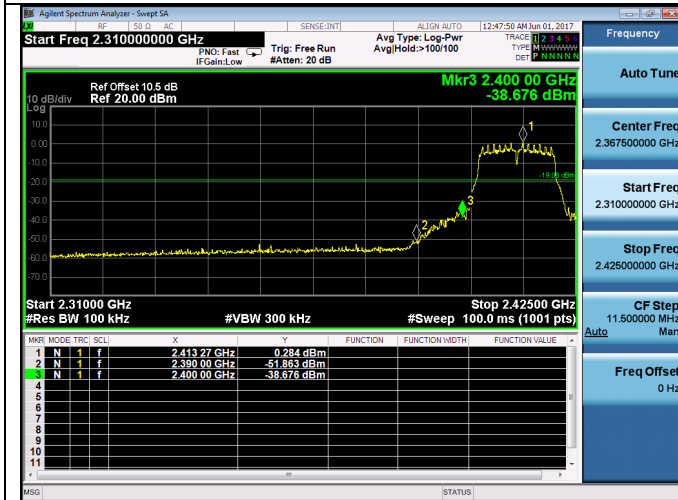
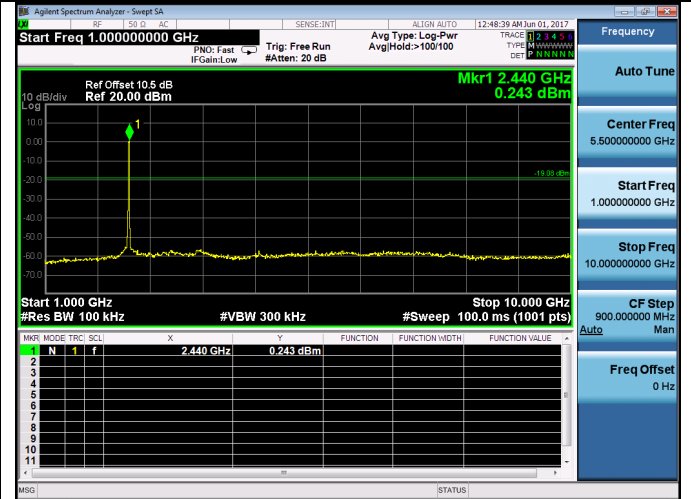
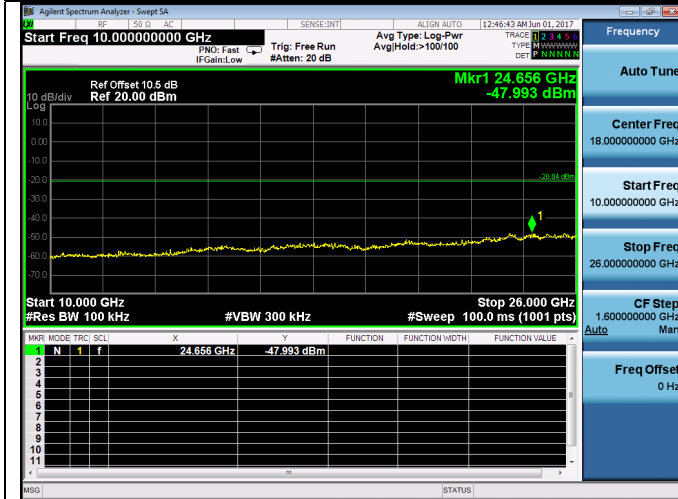
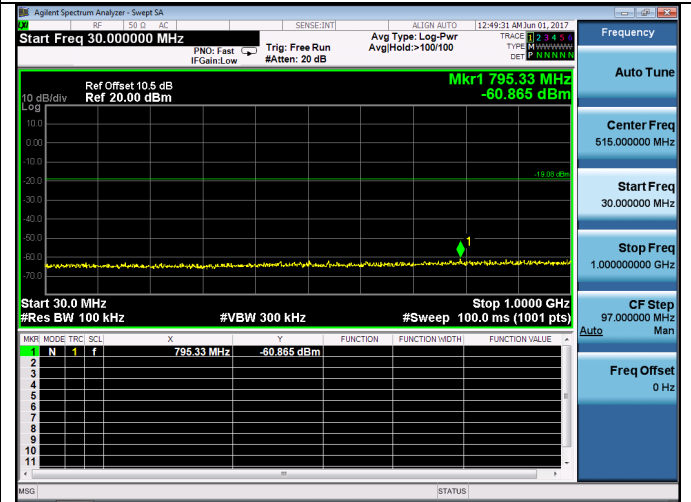
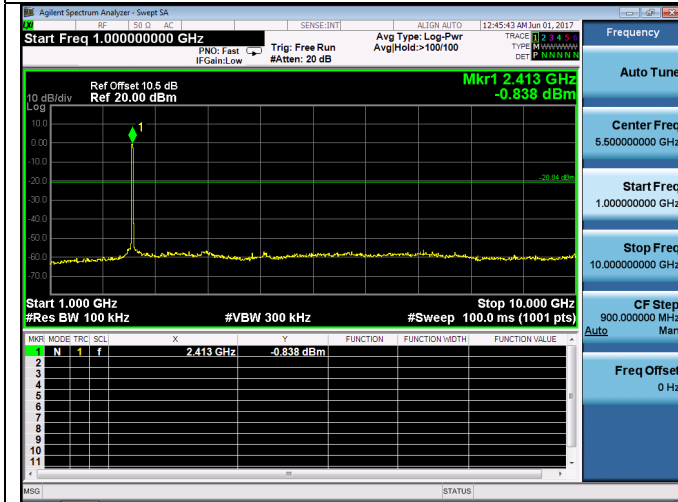
Test CH11: 2462MHz



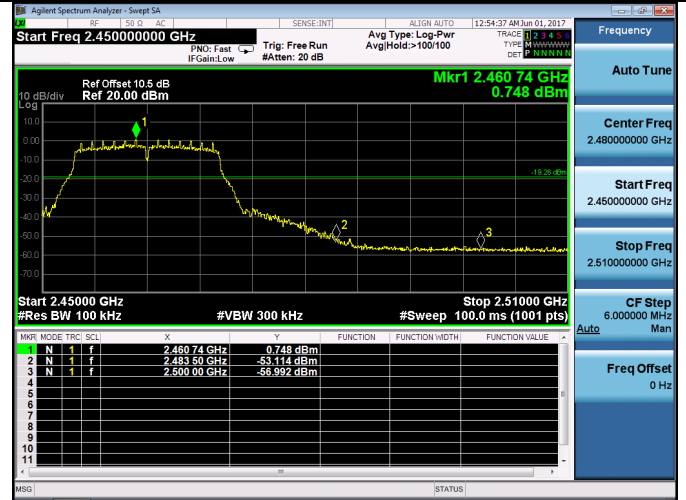
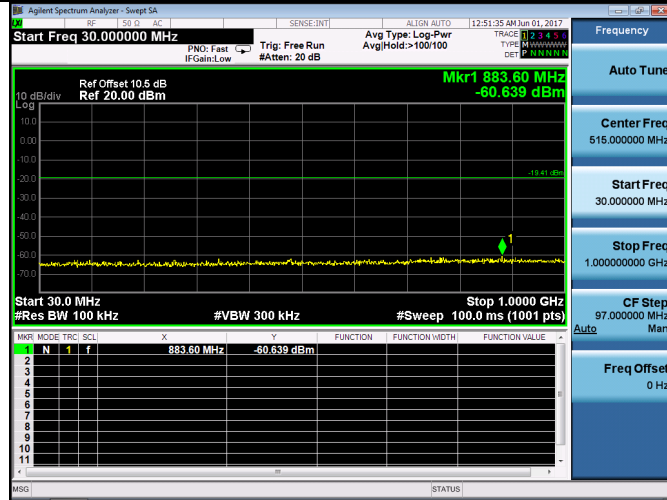
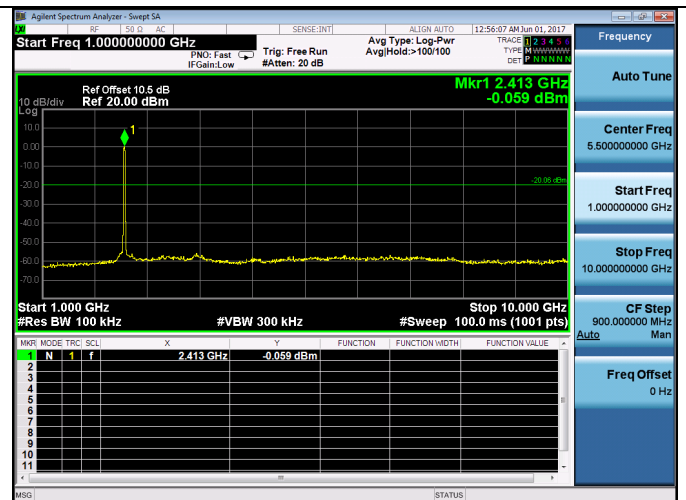
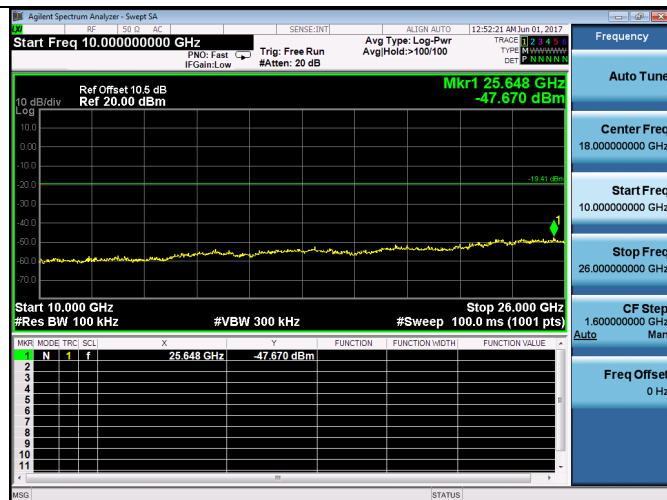
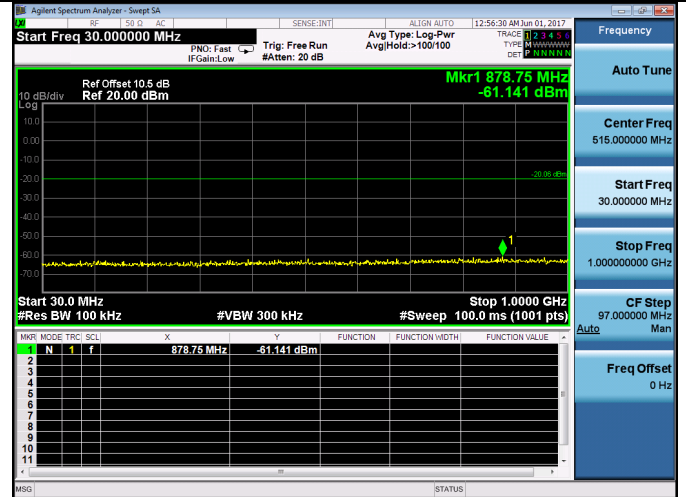
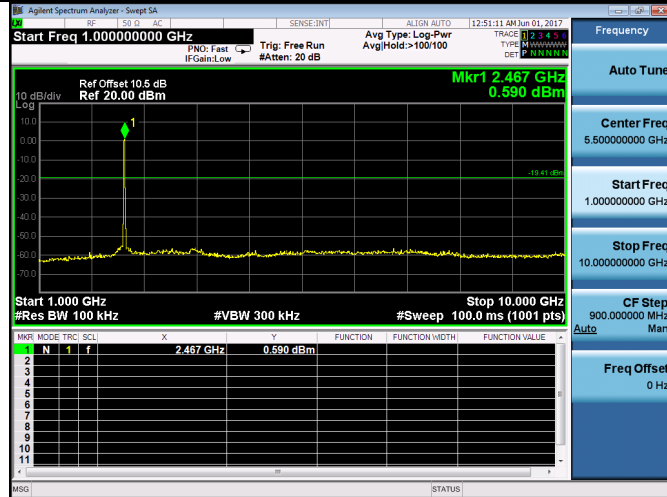
Test Mode: IEEE 802.11g
Test CH1: 2412MHz

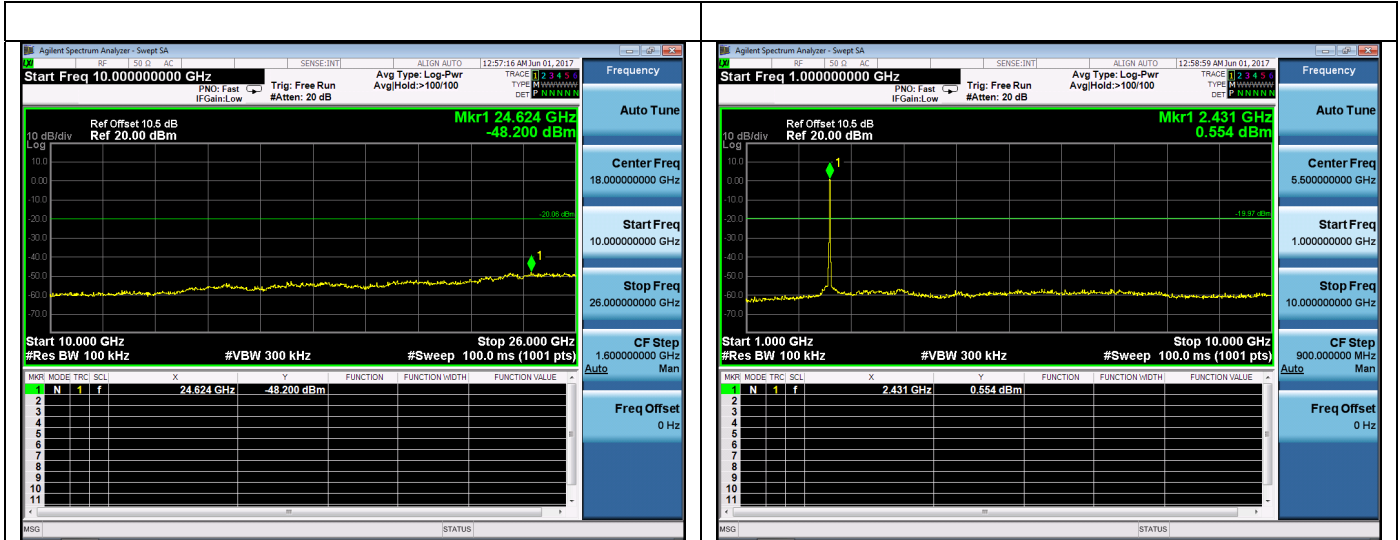


Test CH6: 2437MHz

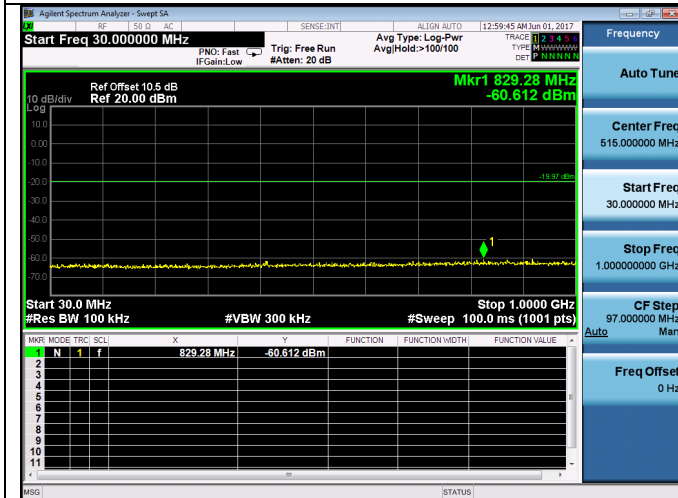


Test CH11: 2462MHz

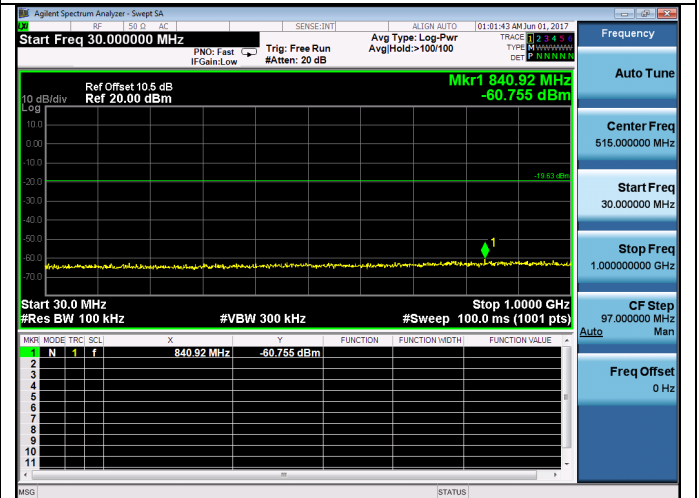

Test Mode: IEEE 802.11n HT20
Test CH1: 2412MHz




Test CH6: 2437MHz



Test CH11: 2462MHz





6. BAND EDGE COMPLIANCE TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	Apr.22,17	1 Year
2.	Amp	HP	8449B	3008A02495	Apr.22.17	1 Year
3.	Horn Antenna	ETS	3115	9510-4580	Nov.16,16	1 Year
4.	HF Cable	Hubersuhne	SUCOFLEX1 04	274094/4	Apr.22,17	1 Year

6.2. Limit

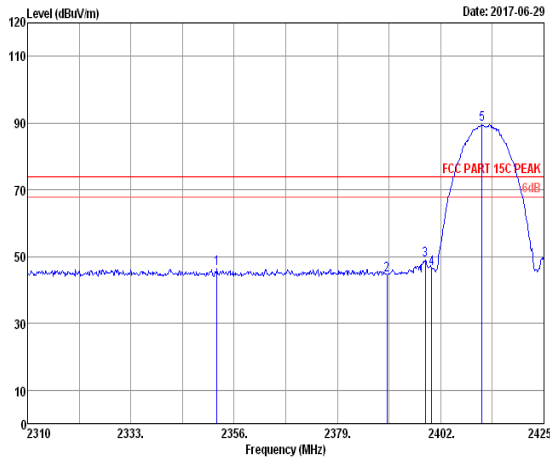
All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

6.3. Test Produce

1. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=1MHz; VBW=3MHz; Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz; VBW=10Hz; Sweep=AUTO

6.4. Test Results

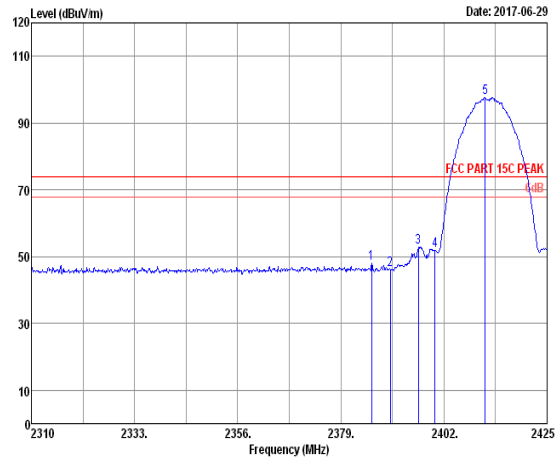
Pass (The testing data was attached in the next pages.)



Site no. : 3m Chamber Data no. : 3
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2352.21	28.21	8.29	46.26	36.39	46.36	74.00	27.64	Peak
2	2390.00	28.23	8.33	44.27	36.39	44.44	74.00	29.56	Peak
3	2398.55	28.24	8.34	48.74	36.39	48.93	74.00	25.07	Peak
4	2400.00	28.24	8.34	46.37	36.39	46.56	74.00	27.44	Peak
5	2411.20	28.25	8.35	89.29	36.39	89.50	74.00	-15.50	Peak

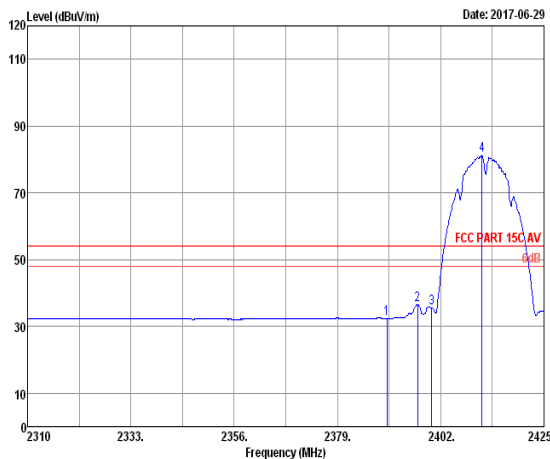
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 4
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2385.90	28.23	8.32	47.73	36.39	47.89	74.00	26.11	Peak
2	2390.00	28.23	8.33	46.07	36.39	46.24	74.00	27.76	Peak
3	2398.25	28.24	8.33	52.69	36.39	52.87	74.00	21.13	Peak
4	2400.00	28.24	8.34	51.66	36.39	51.85	74.00	22.15	Peak
5	2411.20	28.25	8.35	97.38	36.39	97.59	74.00	-23.62	Peak

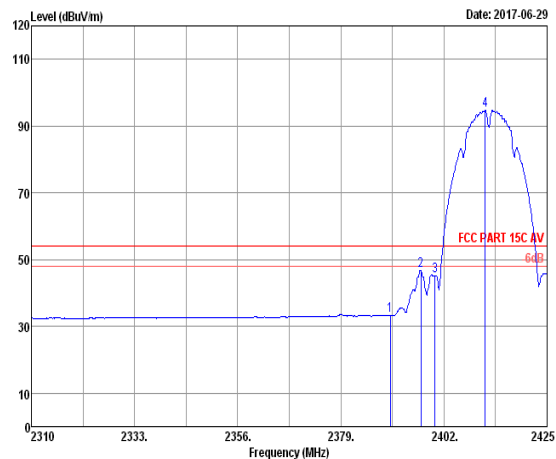
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 6
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.23	8.33	32.25	36.39	32.42	54.00	21.58	Average
2	2396.83	28.24	8.33	36.35	36.39	36.53	54.00	17.47	Average
3	2400.00	28.24	8.34	35.20	36.39	35.39	54.00	18.61	Average
4	2411.20	28.25	8.35	80.94	36.39	81.15	54.00	-27.15	Average

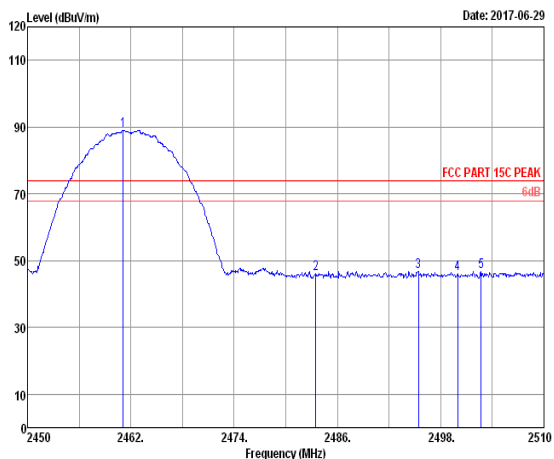
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 5
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.23	8.33	33.02	36.39	33.19	54.00	20.81	Average
2	2396.83	28.24	8.33	46.57	36.39	46.75	54.00	7.25	Average
3	2400.00	28.24	8.34	44.96	36.39	45.15	54.00	8.85	Average
4	2411.20	28.25	8.35	94.58	36.39	94.79	54.00	-40.79	Average

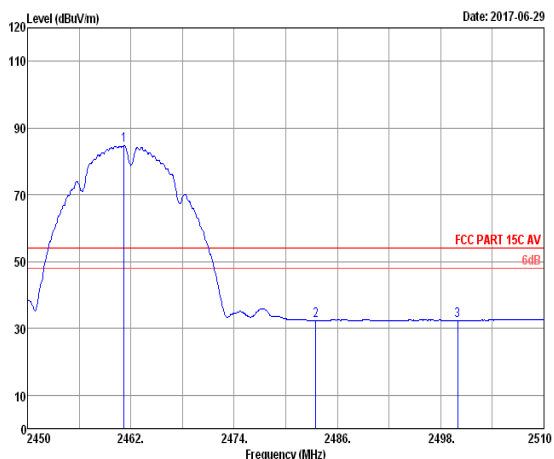
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 19
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-S506

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.10	28.28	8.40	88.77	36.38	89.07	74.00	-15.07	Peak
2	2483.50	28.29	8.42	45.83	36.38	46.16	74.00	27.84	Peak
3	2495.42	28.30	8.44	46.51	36.38	46.87	74.00	27.13	Peak
4	2500.00	28.30	8.44	45.59	36.38	45.95	74.00	28.05	Peak
5	2502.68	28.31	8.45	46.36	36.38	46.74	74.00	27.26	Peak

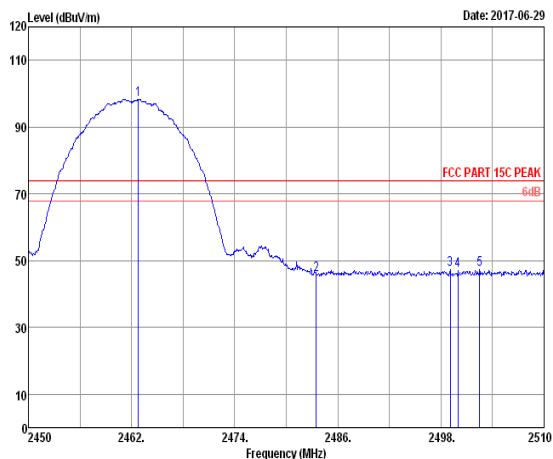
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 22
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-S506

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.22	28.28	8.40	84.49	36.38	84.79	54.00	-30.79	Average
2	2483.50	28.29	8.42	32.08	36.38	32.41	54.00	21.59	Average
3	2500.00	28.30	8.44	32.08	36.38	32.44	54.00	21.56	Average

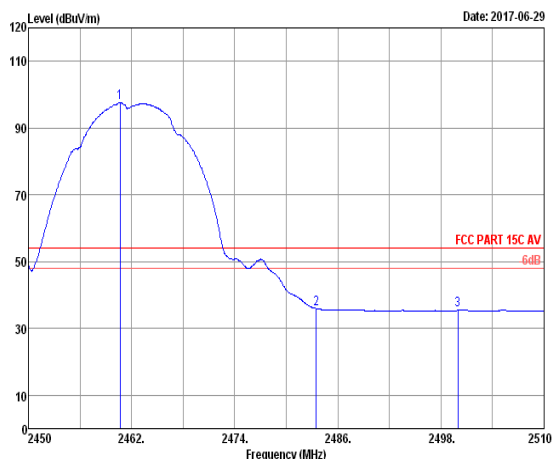
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 20
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-S506

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.78	28.28	8.40	98.01	36.38	98.31	74.00	-24.31	Peak
2	2483.50	28.29	8.42	45.56	36.38	45.89	74.00	28.11	Peak
3	2499.08	28.30	8.44	46.85	36.38	47.21	74.00	26.79	Peak
4	2500.00	28.30	8.44	46.61	36.38	46.97	74.00	27.03	Peak
5	2502.50	28.31	8.45	47.08	36.38	47.46	74.00	26.54	Peak

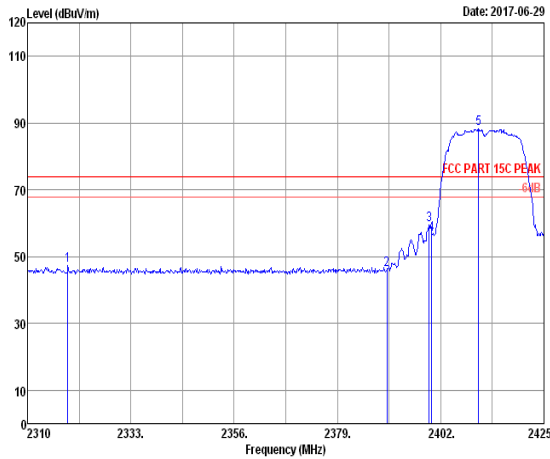
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 21
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2462MHz Tx Mode
 : M/N: LF-S506

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.68	28.28	8.40	97.24	36.38	97.54	54.00	-43.54	Average
2	2483.50	28.29	8.42	35.59	36.38	35.92	54.00	18.08	Average
3	2500.00	28.30	8.44	35.04	36.38	35.40	54.00	18.60	Average

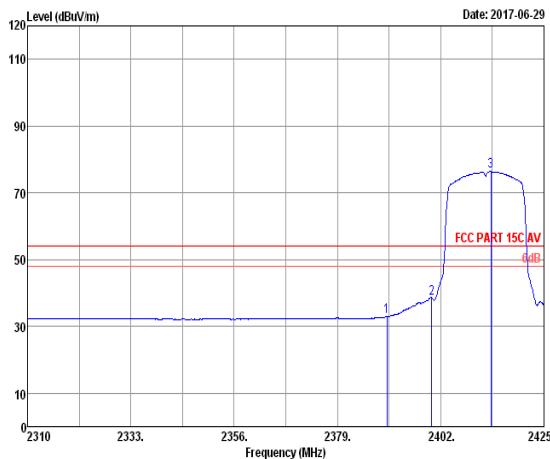
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 34
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2318.97	28.19	8.26	47.38	36.39	47.44	74.00	26.56	Peak
2	2390.00	28.23	8.33	45.88	36.39	46.05	74.00	27.95	Peak
3	2399.47	28.24	8.34	59.26	36.39	59.45	74.00	14.55	Peak
4	2400.00	28.24	8.34	56.49	36.39	56.68	74.00	17.32	Peak
5	2410.40	28.25	8.35	88.03	36.39	88.24	74.00	-14.24	Peak

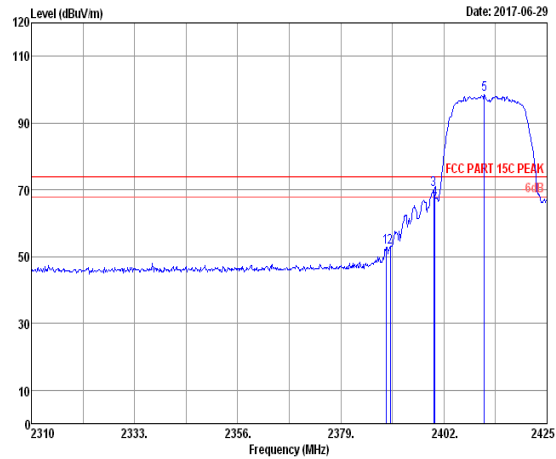
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 35
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.23	8.33	32.69	36.39	32.86	54.00	21.14	Average
2	2400.00	28.24	8.34	38.34	36.39	38.53	54.00	15.47	Average
3	2413.16	28.25	8.35	76.17	36.39	76.38	54.00	-22.38	Average

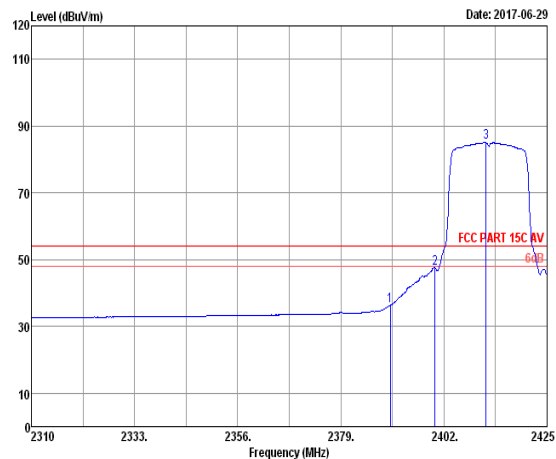
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 33
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2389.12	28.23	8.33	52.70	36.39	52.87	74.00	21.13	Peak
2	2390.00	28.23	8.33	52.68	36.39	52.85	74.00	21.15	Peak
3	2399.70	28.24	8.34	69.73	36.39	69.92	74.00	4.08	Peak
4	2400.00	28.24	8.34	66.97	36.39	67.16	74.00	6.84	Peak
5	2410.97	28.25	8.35	98.29	36.39	98.50	74.00	-24.50	Peak

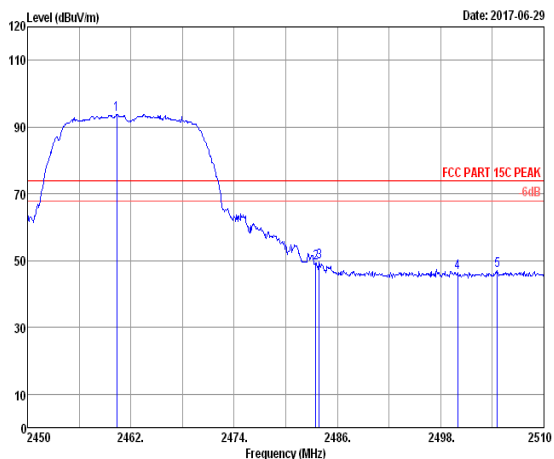
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 36
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.23	8.33	36.14	36.39	36.31	54.00	17.69	Average
2	2400.00	28.24	8.34	47.22	36.39	47.41	54.00	6.59	Average
3	2411.43	28.25	8.35	84.82	36.39	85.03	54.00	-31.03	Average

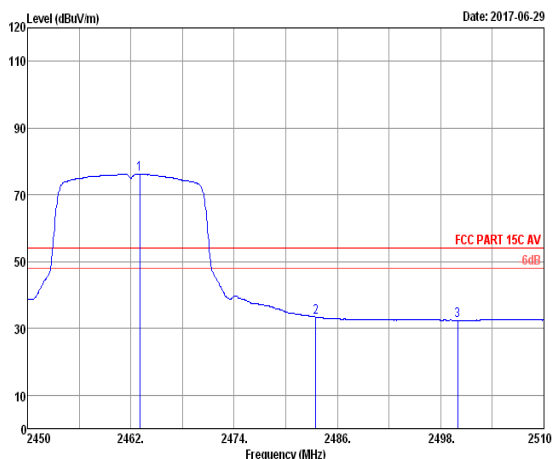
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 49
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.38	28.28	8.40	93.48	36.38	93.78	74.00	-19.78	Peak
2	2483.50	28.29	8.42	49.02	36.38	49.35	74.00	24.65	Peak
3	2483.90	28.29	8.42	49.19	36.38	49.52	74.00	24.48	Peak
4	2500.00	28.30	8.44	45.98	36.38	46.34	74.00	27.66	Peak
5	2504.60	28.31	8.46	46.59	36.38	46.98	74.00	27.02	Peak

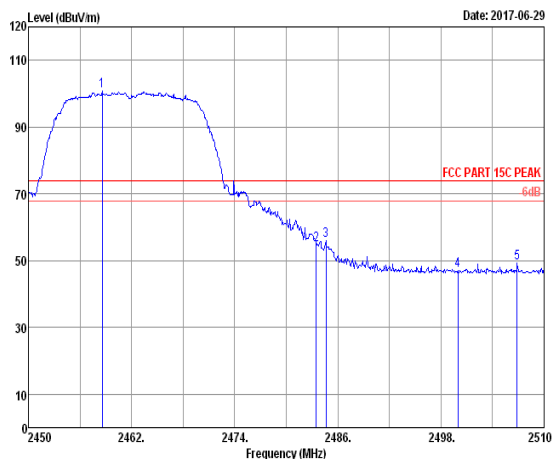
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 52
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.02	28.28	8.40	75.98	36.38	76.28	54.00	-22.28	Average
2	2483.50	28.29	8.42	33.01	36.38	33.34	54.00	20.66	Average
3	2500.00	28.30	8.44	32.10	36.38	32.46	54.00	21.54	Average

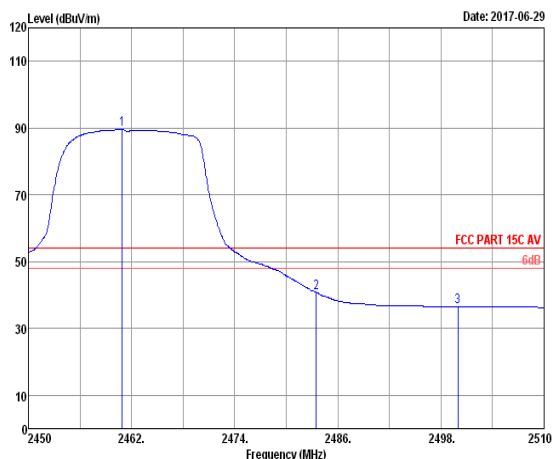
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 50
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2458.58	28.28	8.40	100.43	36.38	100.73	74.00	-26.73	Peak
2	2483.50	28.29	8.42	54.23	36.38	54.56	74.00	19.44	Peak
3	2484.62	28.29	8.42	55.69	36.38	56.02	74.00	17.98	Peak
4	2500.00	28.30	8.44	46.57	36.38	46.93	74.00	27.07	Peak
5	2506.88	28.32	8.47	48.90	36.38	49.31	74.00	24.69	Peak

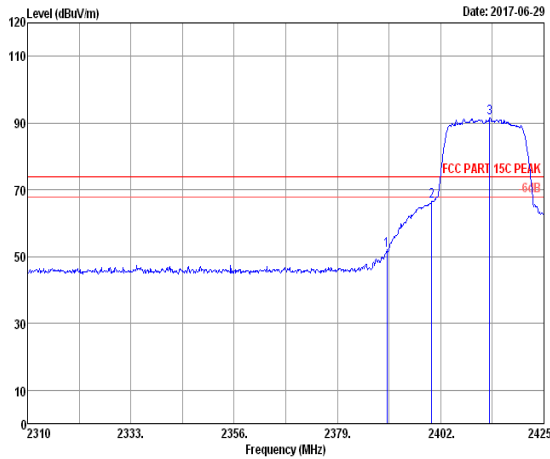
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 51
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11g 2462MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.92	28.28	8.40	89.27	36.38	89.57	54.00	-35.57	Average
2	2483.50	28.29	8.42	40.44	36.38	40.77	54.00	13.23	Average
3	2500.00	28.30	8.44	36.16	36.38	36.52	54.00	17.48	Average

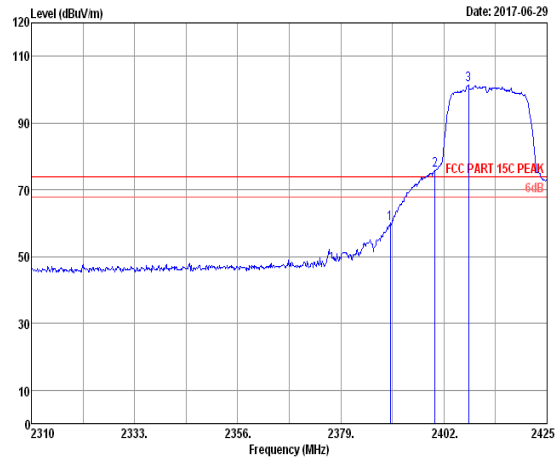
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 56
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.23	8.33	51.54	36.39	51.71	74.00	22.29	Peak
2	2400.00	28.24	8.34	66.36	36.39	66.55	74.00	7.45	Peak
3	2412.93	28.25	8.35	91.43	36.39	91.64	74.00	-17.64	Peak

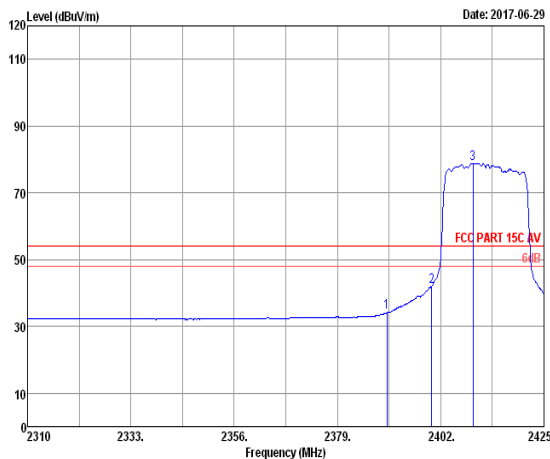
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 55
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.23	8.33	59.66	36.39	59.83	74.00	14.17	Peak
2	2400.00	28.24	8.34	75.58	36.39	75.77	74.00	-1.77	Peak
3	2407.52	28.24	8.35	101.14	36.39	101.34	74.00	-27.34	Peak

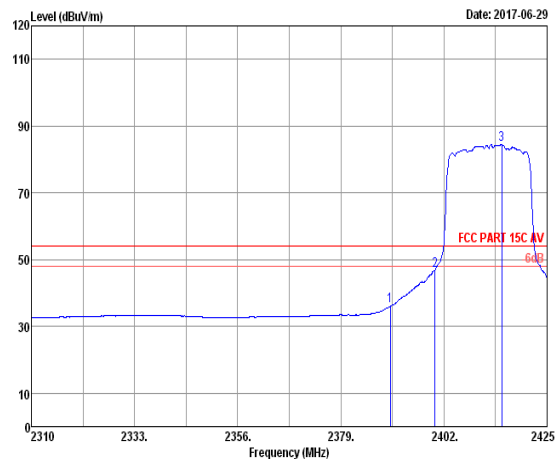
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 57
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.23	8.33	33.91	36.39	34.08	54.00	19.92	Average
2	2400.00	28.24	8.34	41.87	36.39	42.06	54.00	11.94	Average
3	2409.25	28.25	8.35	78.63	36.39	78.84	54.00	-24.84	Average

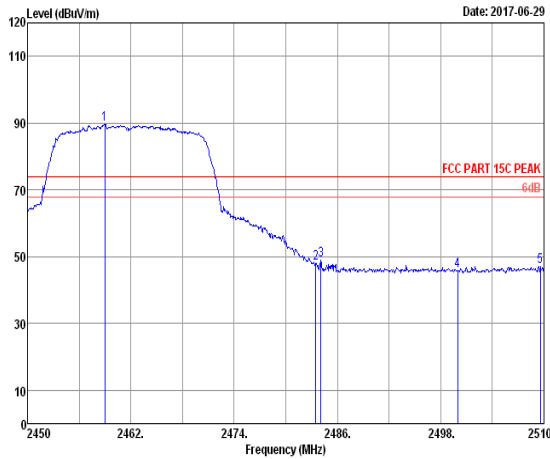
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 58
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2412MHz Tx Mode
 : M/N: LF-S50G

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.23	8.33	35.94	36.39	36.11	54.00	17.89	Average
2	2400.00	28.24	8.34	46.60	36.39	46.79	54.00	7.21	Average
3	2414.88	28.25	8.35	84.14	36.39	84.35	54.00	-30.35	Average

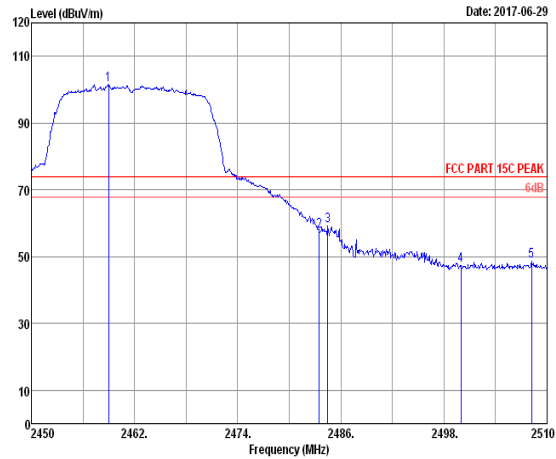
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 72
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 M/N: LF-S506

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2459.00	28.28	8.40	89.34	36.38	89.64	74.00	-15.64	Peak
2	2483.50	28.29	8.42	47.69	36.38	48.02	74.00	25.98	Peak
3	2484.08	28.29	8.42	48.67	36.38	49.00	74.00	25.00	Peak
4	2500.00	28.30	8.44	45.33	36.38	45.69	74.00	28.31	Peak
5	2509.68	28.33	8.48	46.68	36.38	47.11	74.00	26.89	Peak

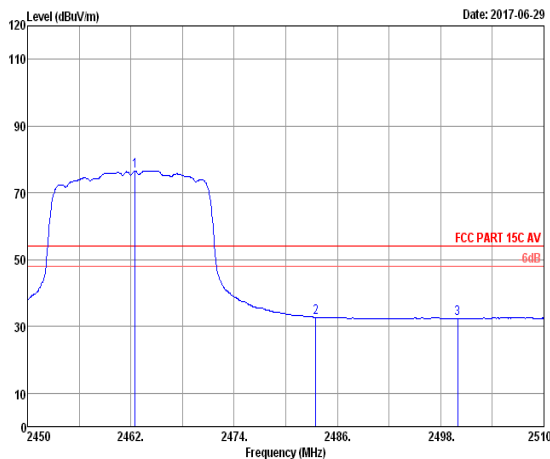
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 71
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 M/N: LF-S506

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2459.00	28.28	8.40	101.13	36.38	101.43	74.00	-27.43	Peak
2	2483.50	28.29	8.42	57.13	36.38	57.46	74.00	16.54	Peak
3	2484.08	28.29	8.42	58.96	36.38	59.29	74.00	14.71	Peak
4	2500.00	28.30	8.44	47.14	36.38	47.50	74.00	26.50	Peak
5	2509.68	28.32	8.47	48.26	36.38	48.67	74.00	25.33	Peak

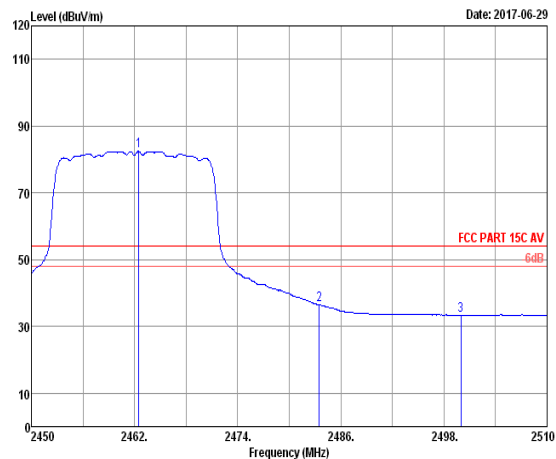
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 73
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 M/N: LF-S506

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.48	28.28	8.40	76.27	36.38	76.57	54.00	-22.57	Average
2	2483.50	28.29	8.42	32.45	36.38	32.78	54.00	21.22	Average
3	2500.00	28.30	8.44	32.05	36.38	32.41	54.00	21.59	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 74
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV Pre : 101.2kPa
 Env. / Ins. : 23.1°C/52.5% Engineer : zack_zhu
 EUT : Wireless Speaker
 Power : DC 15V From Adaptor Input AC 120V/60Hz
 Test Mode : IEEE802.11 nHT20 2462MHz Tx Mode
 M/N: LF-S506

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading factor (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.48	28.28	8.40	82.14	36.38	82.44	54.00	-28.44	Average
2	2483.50	28.29	8.42	36.09	36.38	36.42	54.00	17.58	Average
3	2500.00	28.30	8.44	32.96	36.38	33.32	54.00	20.68	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Ant Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.

7. 6dB Bandwidth Test

7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.15,16	1 Year
2.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.27,17	1 Year
3.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	No.1	Oct.15,16	1 Year

7.2. Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

7.3. Test Procedure

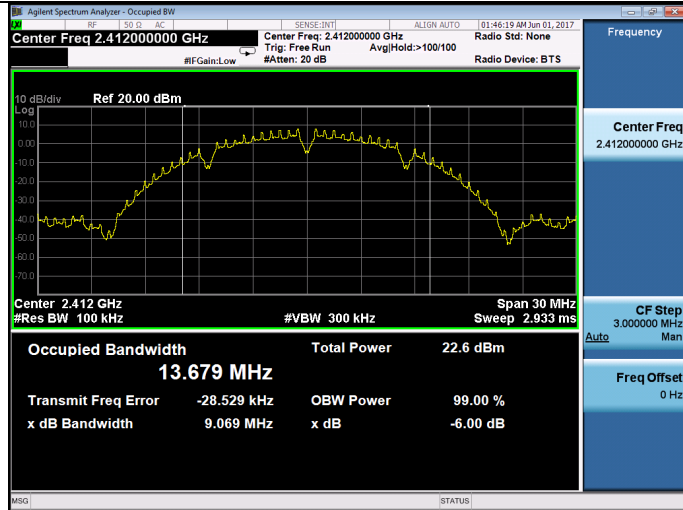
The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

7.4. Test Results

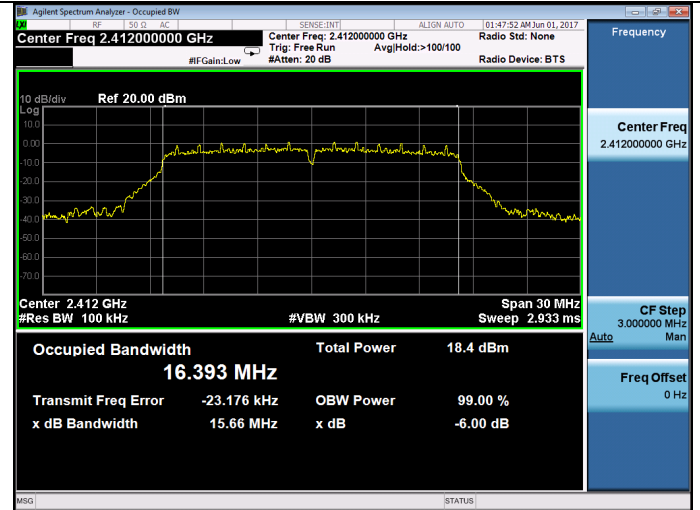
EUT: Wireless Speaker		
M/N: LF-S50G		
Test date: 2017-06-21	Pressure: 102.1±1.0 kpa	Humidity: 51.1±3.0%
Tested by: Alice-Yang	Test site: RF site	Temperature: 22.8±0.6 °C

Test Mode	CH	6dB bandwidth (MHz)	Limit (KHz)
11b	CH1	9.069	>500
	CH6	9.070	>500
	CH11	9.070	>500
11g	CH1	15.66	>500
	CH6	15.79	>500
	CH11	15.48	>500
11n HT20	CH1	16.80	>500
	CH6	16.80	>500
	CH11	16.81	>500
Conclusion : PASS			

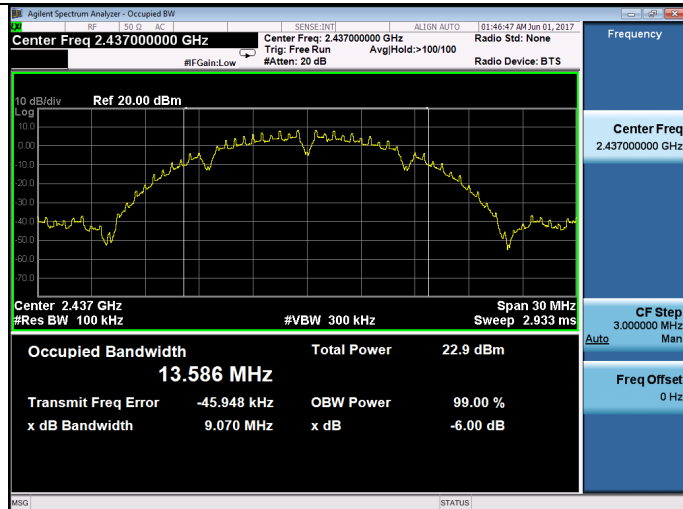
Test Mode: IEEE 802.11b
Test CH1: 2412MHz



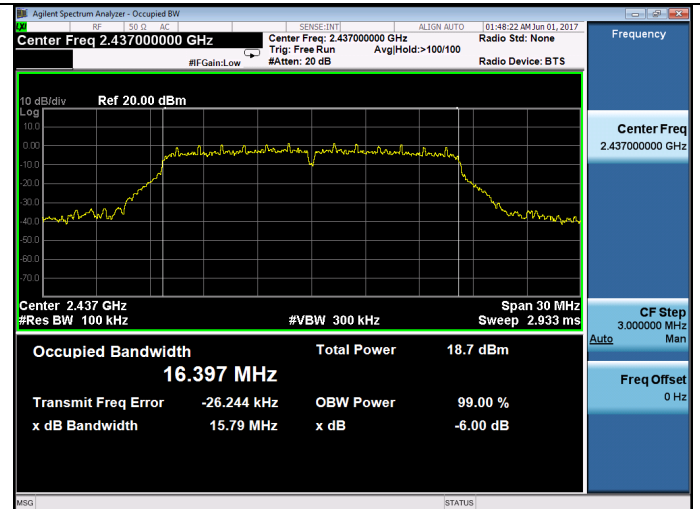
Test Mode: IEEE 802.11g
Test CH1: 2412MHz



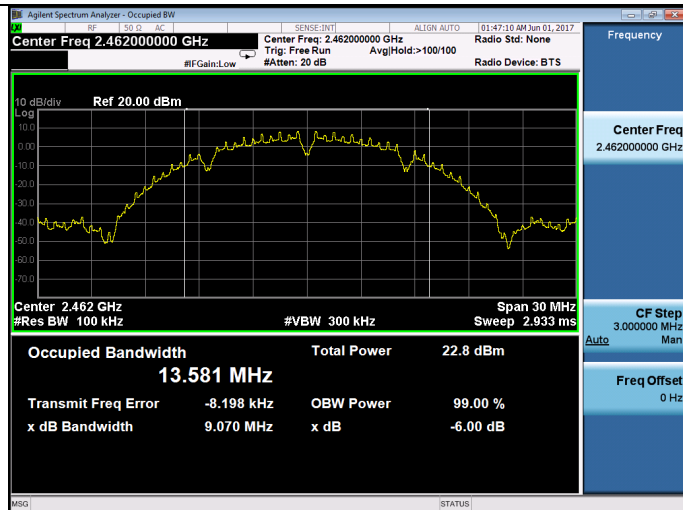
Test CH6: 2437MHz



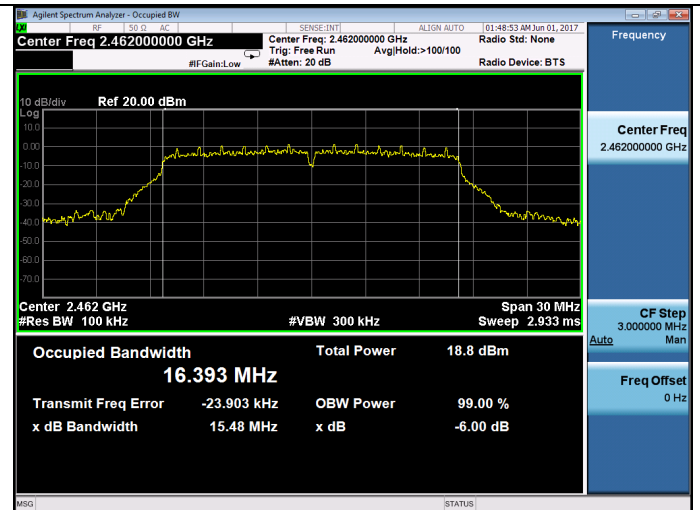
Test CH6: 2437MHz



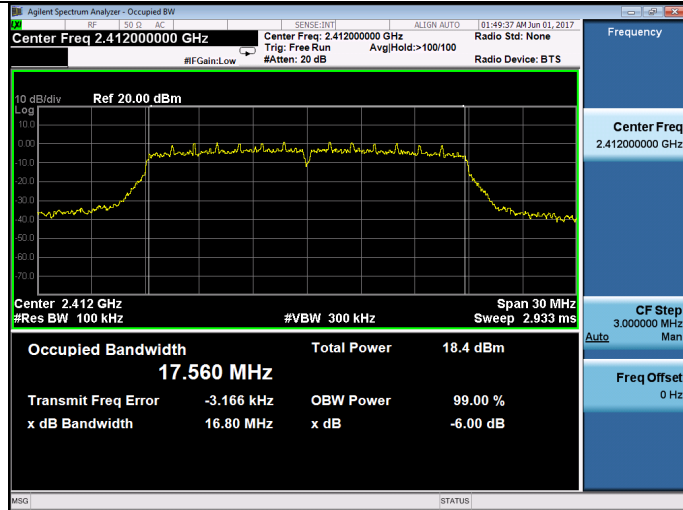
Test CH11: 2462MHz



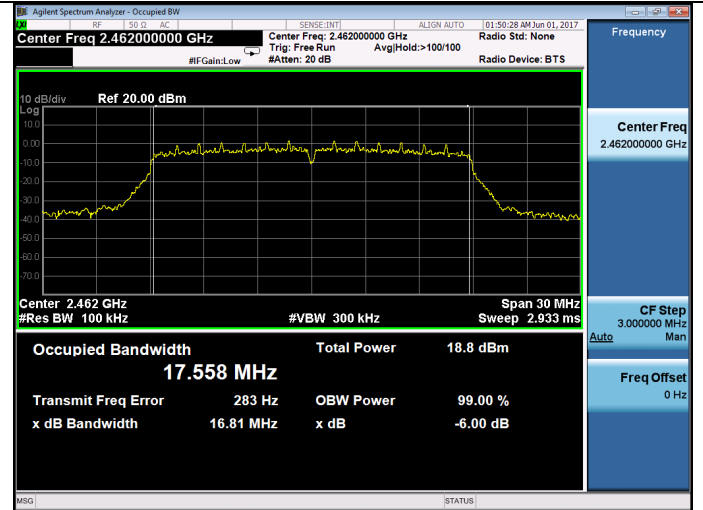
Test CH11: 2462MHz



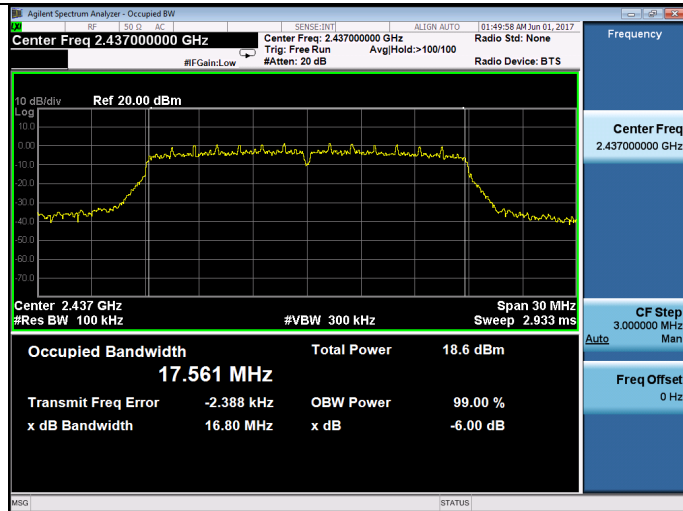
Test Mode: IEEE 802.11n HT20
Test CH1: 2412MHz



Test CH11: 2462MHz



Test CH6: 2437MHz



8. OUTPUT POWER TEST

8.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.15,16	1 Year
2.	Power meter	Anritsu	ML2487A	6K00002472	Apr.22,17	1 Year
3.	Power sensor	Anritsu	MA2491A	0033005	Apr.22,17	1 Year
4.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.22,17	1 Year
5.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	No.1	Oct.15,16	1 Year

8.2. Limit (FCC Part 15C 15.247 b(3))

For systems using digital modulation in the 2400—2483.5MHz, The Peak output Power shall not exceed 1W(30dBm), As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level.

8.3. Test Procedure

- 1, Connected the EUT's antenna port to measure device by 26dB attenuator.
- 2, For IEEE 802.11b/g and IEEE802.11n HT20 modes, use a power meter which bandwidth is 20MHz, above the bandwidth of signals, to measure out output power in each mode.
- 3, For IEEE802.11n HT40 mode, since the signal bandwidth is nearly 40MHz, which is above 20MHz bandwidth of power sensor of ML2491A. use the test method descried in KDB558074 clause 9.2.2.
 - 1) Set the RBW=1MHz and VBW =3MHz
 - 2) Set the span at least 1.5 times the OBW
 - 3) Detector = RMS
 - 4) Sweep time = auto couple
 - 5) allow trace to fully stabilize
 - 6) use the spectrum analyser's integrated band power measurement function with band limits set equal to the EBW band edges.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

8.4. Test Results

EUT: Wireless Speaker			
M/N: LF-S50G			
Test date: 2017-06-21		Pressure: 102.1±1.0 kpa	Humidity: 51.1±3.0%
Tested by: Alice-Yang		Test site: RF site	Temperature: 22.8±0.6 °C
Test Mode	CH	output Power (dBm)	Limit (dBm)
11b	CH1	15.34	30
	CH6	15.96	30
	CH11	16.31	30
11g	CH1	11.43	30
	CH6	11.76	30
	CH11	11.89	30
11n HT20	CH1	11.23	30
	CH6	11.61	30
	CH11	11.76	30
Conclusion: PASS			

9. POWER SPECTRAL DENSITY TEST

9.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.15,16	1 Year
2.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.27,17	1 Year
3.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	No.1	Oct.15,16	1 Year

9.2. Limit

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

9.3. Test Procedure

1. Connected the EUT's antenna port to spectrum analyzer device by 20dB attenuator.
2. Set span to 1.5 times the DTS Bandwidth.
3. Set the RBW=3KHz, VBW=10KHz.
4. Detector=peak, Sweep time=Auto, Trace mode=max Hold
5. All the trace to fully stabilize.
6. Use the peak marker function to determine the maximum amplitude level with in the RBW.

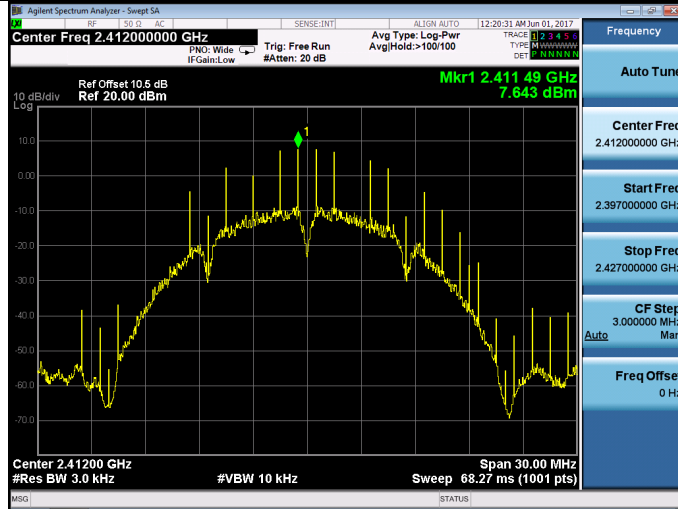
Note: The cable loss and attenuator loss were offset into measure device as an amplitude

9.4. Test Results

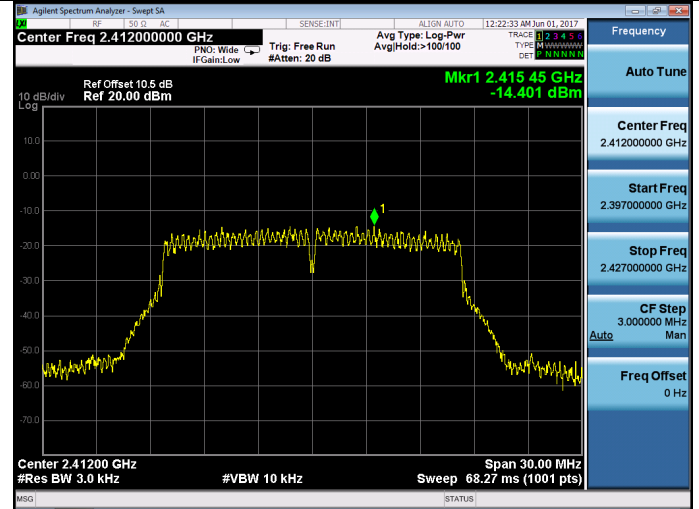
EUT: Wireless Speaker			
M/N: LF-S50G			
Test date: 2017-06-21		Pressure: 102.1±1.0 kpa	Humidity: 51.1±3.0%
Tested by: Alice-Yang		Test site: RF site	Temperature: 22.8±0.6 °C
Test Mode	CH	Power Density (dBm/3KHz)	Limit (dBm/3KHz)
11b	CH1	7.643	8
	CH6	7.246	8
	CH11	7.726	8
11g	CH1	-14.401	8
	CH6	-14.412	8
	CH11	-13.369	8
11n HT20	CH1	-13.854	8
	CH6	-14.200	8
	CH11	-12.829	8
Conclusion: PASS			

Note: For 11n mode, the direction gain less than 6dBi.

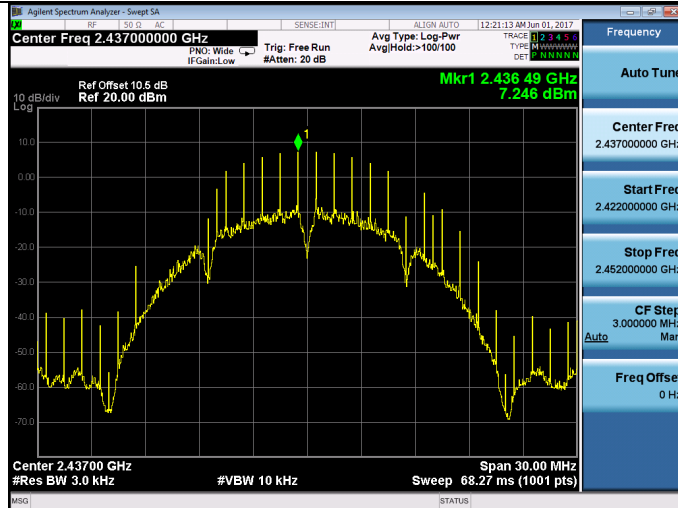
Test Mode: IEEE 802.11b
Test CH1: 2412MHz



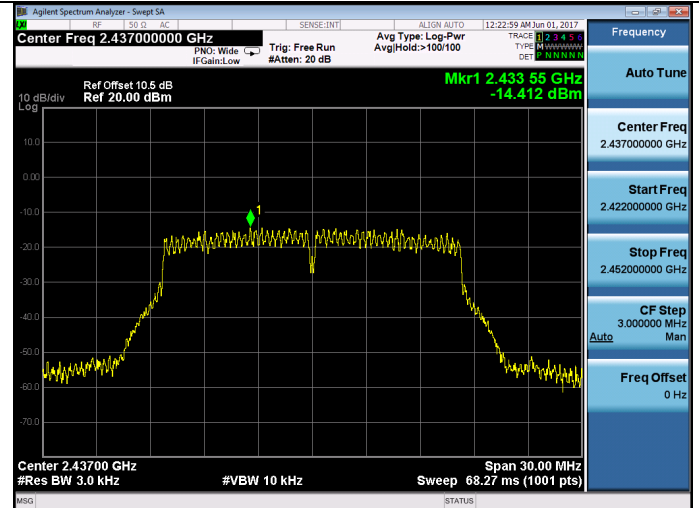
Test Mode: IEEE 802.11g
Test CH1: 2412MHz



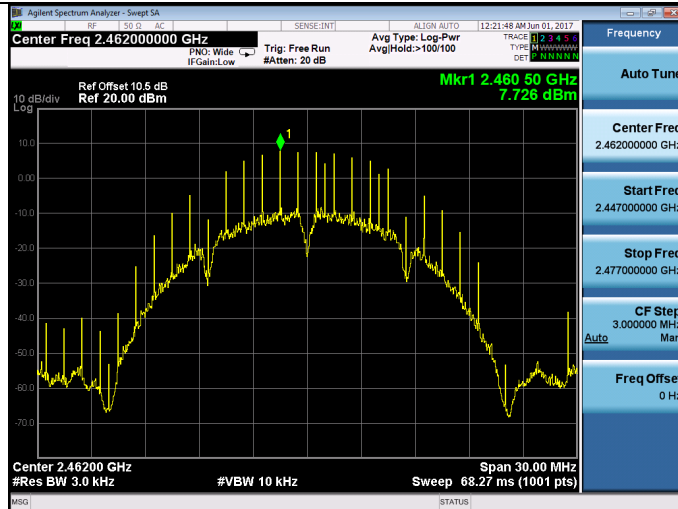
Test CH6: 2437MHz



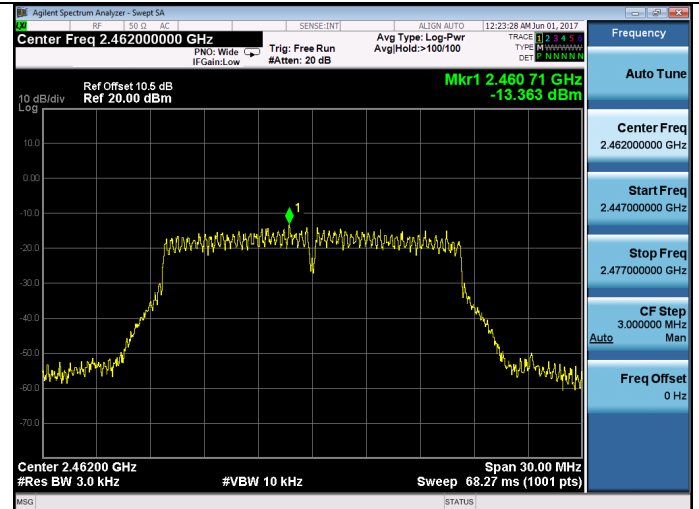
Test CH6: 2437MHz



Test CH11: 2462MHz

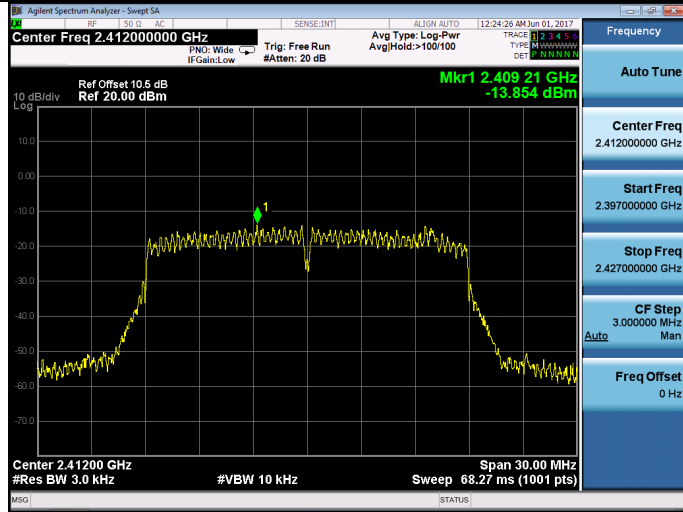


Test CH11: 2462MHz

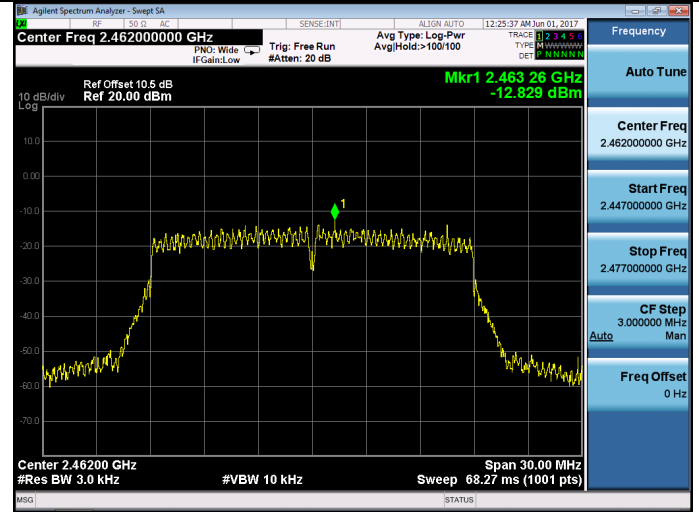


Test Mode: IEEE 802.11n HT20

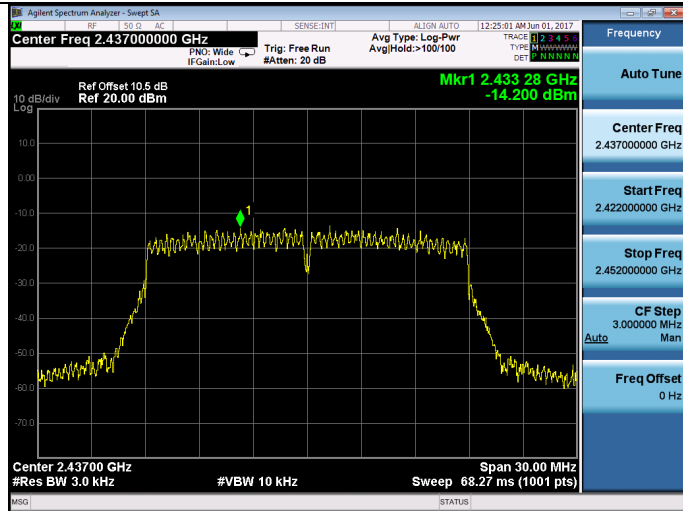
Test CH1: 2412MHz



Test CH1: 2462MHz



Test CH6: 2437MHz



10. MPE ESTIMATION

10.1.Limit for General Population/ Uncontrolled Exposures

Frequency	Power density (mW/cm2)	Averaging time(minutes)
300MHz----1.5GHz	F/1500	30
1.5GHz---100GHz	1.0	30

Frequency	Power density (mW/cm2)	Averaging time(minutes)
2412	1	30
2437	1	30
2462	1	30

Note: F= Frequency in MHz

10.2.Estimation Result

EUT: Wireless Speaker						
M/N: LF-S50G						
Test date: 2017-06-21			Pressure: 102.1±1.0 kpa		Humidity: 51.1±3.0%	
Tested by: Alice-Yang			Test site: RF site		Temperature:22.8±0.6 °C	
Test Mode	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Antenna Gain (dBi)	Antenna Gain (Linear)	MPE
11b	2412	15.34	34.20	2.1	1.62	0.0110
	2437	15.96	39.45	2.1	1.62	0.0127
	2462	16.31	42.76	2.1	1.62	0.0138
11g	2412	11.43	13.90	2.1	1.62	0.0045
	2437	11.76	15.00	2.1	1.62	0.0048
	2462	11.89	15.45	2.1	1.62	0.0050
11n HT20	2412	11.23	13.27	2.1	1.62	0.0043
	2437	11.61	14.49	2.1	1.62	0.0047
	2462	11.76	15.00	2.1	1.62	0.0048

$$MPE = \frac{PG}{4\pi R^2} \quad (R=20 \text{ cm})$$

11. ANTENNA REQUIREMENT

11.1. Standard Applicable

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.

11.2. Antenna Connected Construction

The antennas used for this product are Connector antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 2.1dBi.

12.DEVIATION TO TEST SPECIFICATIONS

[NONE]