# FCC Test Report

Product Name	Wi-Fi Chime
Model No	C-1030 / GC-DBC-C2 / LA227WH / CDBCH01
FCC ID.	D6XC1030

Applicant	Tecom Co.,Ltd.
Address	No.23 R&D Road 2, Science-Based Industrial Park, Hsin-Chu Taiwan

Date of Receipt	Mar. 09, 2017
Issue Date	Mar. 22, 2017
Report No.	1730149R-RFUSP26V00
Report Version	V1.0
Hac-MRA	esting Laboratory 3023

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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# Test Report

Issue Date: Mar. 22, 2017 Report No.: 1730149R-RFUSP26V00



Product Name	Wi-Fi Chime			
Applicant	Tecom Co.,Ltd.			
Address	No.23 R&D Road 2, Science-Based Industrial Park, Hsin-Chu Taiwan			
Manufacturer	1. Global Brands Manufacture (DongGuan) Ltd.			
	2. Smarthome Products (Shenzhen) Co.,Ltd.			
Model No.	C-1030 / GC-DBC-C2 / LA227WH / CDBCH01			
FCC ID.	D6XC1030			
EUT Rated Voltage	AC 120V/60Hz			
EUT Test Voltage	AC 120V/60Hz			
Trade Name	TECOM / Nortek / NuTone / Xblue			
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2015			
	ANSI C63.4: 2014, ANSI C63.10: 2013			
	KDB 558074 D01 DTS Meas Guidance v03r05			
Test Result	Complied			
Documented By	Joanne lin			
	(Senior Adm. Specialist / Joanne Lin)			
Tested By	Sam Hsu			

(Engineer / Sam Hsu)

Approved By

:

(Director / Vincent Lin)



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#### 1. GENERAL INFORMATION

## **1.1. EUT Description**

Product Name	Wi-Fi Chime			
Trade Name	TECOM / Nortek / NuTone / Xblue			
Model No.	C-1030 / GC-DBC-C2 / LA227WH / CDBCH01			
FCC ID.	D6XC1030			
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW			
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7			
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 150Mbps			
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK)			
	802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)			
Antenna Type	PIFA Antenna			
Antenna Gain	Refer to the table "Antenna List"			
Channel Control	Auto			

#### Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Invax	IVX0014-HL80AF	PIFA Antenna	4.17dBi for 2.4 GHz

Note: The antenna of EUT conforms to FCC 15.203.



802.11b/g/n-20MHz Center Frequency of Each Channel:

Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		
	Frequency 2412 MHz 2432 MHz 2452 MHz	FrequencyChannel2412 MHzChannel 02:2432 MHzChannel 06:2452 MHzChannel 10:	FrequencyChannelFrequency2412 MHzChannel 02:2417 MHz2432 MHzChannel 06:2437 MHz2452 MHzChannel 10:2457 MHz	FrequencyChannelFrequencyChannel2412 MHzChannel 02:2417 MHzChannel 03:2432 MHzChannel 06:2437 MHzChannel 07:2452 MHzChannel 10:2457 MHzChannel 11:	FrequencyChannelFrequencyChannelFrequency2412 MHzChannel 02:2417 MHzChannel 03:2422 MHz2432 MHzChannel 06:2437 MHzChannel 07:2442 MHz2452 MHzChannel 10:2457 MHzChannel 11:2462 MHz	FrequencyChannelFrequencyChannelFrequencyChannel2412 MHzChannel 02:2417 MHzChannel 03:2422 MHzChannel 04:2432 MHzChannel 06:2437 MHzChannel 07:2442 MHzChannel 08:2452 MHzChannel 10:2457 MHzChannel 11:2462 MHz

802.11n-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 03:	2422 MHz	Channel 04:	2427 MHz	Channel 05:	2432 MHz	Channel 06:	2437 MHz
Channel 07:	2442 MHz	Channel 08:	2447 MHz	Channel 09:	2452 MHz		

Note:

1. The EUT is a Wi-Fi Chime with a built-in WLAN, this report for WLAN.

2.	The different of each me	odel is shown as below:

Model Number	Trade Name
C-1030	TECOM
LA227WH	NuTone
GC-DBC-C2	Nortek
CDBCH01	Xblue

- 3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
  (802.11b is 1Mbps \$\cdot 802.11g is 6Mbps \$\cdot 802.11n(20M-BW) is 7.2Mbps and 802.11n(40M-BW) is 15Mbps)
- 5. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
- 6. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)
	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

#### **1.2.** Operational Description

The EUT is a Wi-Fi Chime, This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps and the device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b). The device provided of eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11g).

The device provided of eight kinds of transmitting speed 7.2,14.4,21.7,28.9,43.3,57.8,65 and 72.2Mbps in 802.11n(20M-BW) mode and 15,30,45,60,90,120,135 and 150 Mbps (40M-BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n), The IEEE 802.11n is Single In, Single Out" (SISO) technology and one antennas to support 1(Transmit) \* 1(Receive) SISO technology.

This Wi-Fi Chime, compliant with IEEE 802.11b/g/n, is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz Direst Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM) radio transmission, the Wi-Fi Chime Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b/g/n network.

#### **1.3.** Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	B6TYTZ1	Non-Shielded, 0.8m
2	Test Fixture	N/A	N/A	N/A	N/A

	Signal Cable Type	Signal cable Description		
А	Fixture Cable	Non-Shielded, 0.4m		
В	Fixture Cable	Non-Shielded, 0.3m		

#### **1.4.** Configuration of Tested System



#### **1.5. EUT Exercise Software**

- 1. Setup the EUT as shown in Section 1.4.
- 2. Execute software "UI\_mptool (1v11)" on the EUT.
- 3. Configure the test mode, the test channel, and the data rate.
- 4. Press "OK" to start the continuous Transmit.
- 5. Verify that the EUT works properly.

#### **1.6.** Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

http://www.dekra.com.tw/english/about/certificates.aspx?bval=5

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: <u>http://www.dekra.com.tw/index\_en.aspx</u>

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FCC Accreditation Number: TW1014



#### 1.7. List of Test Equipment

For Conducted measurements / CB3 / SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2016/11/28	2017/11/27
Х	Spectrum Analyzer	Agilent	N9010A	MY48030495	2016/7/22	2017/7/21
Х	Power Meter	Anritsu	ML2495A	6K00003357	2016/6/23	2017/6/22
Х	Pulse power sensor	Anritsu	MA2411B	0846193	2016/6/23	2017/6/22
Х	EMI Test Receiver	R&S	ESCS 30	100369	2016/10/13	2017/10/12
Х	LISN	R&S	ESH3-Z5	836679/017	2017/1/7	2018/1/6
Х	LISN	R&S	ENV216	100097	2017/1/7	2018/1/6
X	Coaxial Cable	QTK(Arnist)	RG 400	LC018-RG	2016/6/25	2017/6/24

#### For Radiated measurements / Site3 / CB8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
Х	Spectrum Analyzer	R&S	FSP40	100170	2017/1/5	2018/1/4
	Loop Antenna	Teseq	HLA6121	37133	2017/3/18	2018/3/17
X	Bi-Log Antenna	Schaffner Chase	CBL6112B	2707	2016/6/11	2017/6/10
X	Horn Antenna	ETS-Lindgren	3117	00135205	2016/4/6	2017/4/5
	Horn Antenna	Schwarzbeck	BBHA9170	9170430	2017/1/11	2018/1/10
Х	Pre-Amplifier	QTK	AP/0100A	CHM/0901069	2016/6/23	2017/6/22
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2017/1/26	2018/1/24
	Pre-Amplifier	NARDA WE	DBL-1840N506	013	2016/9/30	2017/9/29
X	Filter	MicroTRON	BRM50701	019	2016/11/2	2017/11/1
	Filter	Microwave Circuits	N0257881	36681	2016/12/7	2017/12/6
X	EMI Test Receiver	R&S	ESR26	101385	2016/9/29	2017/9/28
Х	Coaxial Cable	QTK(Arnist)	SUCOFLEX 106	L1606-015C	2016/6/23	2017/6/22
Х	EMI Test Receiver	R&S	ESCS 30	838251/001	2016/7/21	2017/7/20
Х	Coaxial Cable	QTK(Arnist)	RG 214	LC003-RG	2016/6/16	2017/6/15
Х	Coaxial signal switch	Anritsu	MP59B	6201415889	2016/6/16	2017/6/15

Note:

1. All equipments are calibrated every one year.

2. The test instruments marked with "X" are used to measure the final test results.

3. Test Software version :QuieTek EMI 2.0 V2.1.113.



#### 2. Conducted Emission

#### 2.1. Test Setup





#### 2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit							
Frequency	Limits						
MHz	QP	AVG					
0.15 - 0.50	66-56	56-46					
0.50-5.0	56	46					
5.0 - 30	60	50					

#### **2.3.** Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

#### 2.4. Uncertainty

± 2.26 dB



#### 2.5. Test Result of Conducted Emission

Product	:	Wi-Fi Chime
Test Item	:	Conducted Emission Test
Power Line	:	Line 1
Test Date	:	2017/03/21
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.502	9.726	39.210	48.936	-7.064	56.000
0.732	9.733	29.630	39.363	-16.637	56.000
1.380	9.704	20.510	30.214	-25.786	56.000
3.412	9.766	18.840	28.606	-27.394	56.000
19.711	10.028	36.640	46.668	-13.332	60.000
28.233	10.324	28.740	39.064	-20.936	60.000
Average					
0.502	9.726	34.260	43.986	-2.014	46.000
0.732	9.733	23.410	33.143	-12.857	46.000
1.380	9.704	12.600	22.304	-23.696	46.000
3.412	9.766	11.000	20.766	-25.234	46.000
19.711	10.028	27.700	37.728	-12.272	50.000
28.233	10.324	21.930	32.254	-17.746	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.

2. "means the worst emission level.

3. Measurement Level = Reading Level + Correct Factor



Product	:	Wi-Fi Chime
Test Item	:	Conducted Emission Test
Power Line	:	Line 2
Test Date	:	2017/03/21
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV	dB	dBμV
Line 2					
Quasi-Peak					
0.501	9.770	28.870	38.640	-17.360	56.000
0.755	9.814	16.900	26.714	-29.286	56.000
1.392	9.813	14.440	24.253	-31.747	56.000
2.587	9.783	8.330	18.113	-37.887	56.000
19.281	10.180	24.310	34.490	-25.510	60.000
28.248	10.506	28.550	39.056	-20.944	60.000
Average					
0.501	9.770	24.890	34.660	-11.340	46.000
0.755	9.814	11.360	21.174	-24.826	46.000
1.392	9.813	7.170	16.983	-29.017	46.000
2.587	9.783	1.960	11.743	-34.257	46.000
19.281	10.180	17.580	27.760	-22.240	50.000
28.248	10.506	22.120	32.626	-17.374	50.000

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



#### 3. Peak Power Output

#### 3.1. Test Setup



#### 3.2. Limits

The maximum peak power shall be less 1 Watt.

#### **3.3.** Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.2 PKPM1 Peak power meter method.

#### 3.4. Uncertainty

± 1.19 dB



### 3.5. Test Result of Peak Power Output

Product	:	Wi-Fi Chime
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/22
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

Channel Ne	Frequency	For d	Average ifferent Da	e Power ata Rate (N	Abps)	Peak Power	Required	Result
Channel No	(MHz)	1	2	5.5	11	1	Limit	
			Measur	ement Lev	vel (dBm)			
01	2412	15.98				18.67	<30dBm	Pass
06	2437	15.96	15.83	15.71	15.59	18.58	<30dBm	Pass
11	2462	15.95				18.59	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss



Product	:	Wi-Fi Chime
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/22
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

	1			Peak Power								
Channel No	(MHz)	6	9	12	18	24	36	48	54	6	Limit	Result
			Measurement Level (dBm)									
01	2412	14.96								24.51	<30dBm	Pass
06	2437	14.98	14.83	14.71	14.68	14.52	14.39	14.25	14.11	24.54	<30dBm	Pass
11	2462	14.99								24.53	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss



Product	:	Wi-Fi Chime
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/22
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

					Peak							
	Fraguanay		F	Doquirad								
Channel No	(MHz)	7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	7.2	Limit	Result
				Ν	Aeasure	ement L	.evel (d	Bm)				
01	2412	12.95								21.98	<30dBm	Pass
06	2437	12.93	12.81	12.65	12.49	12.35	12.24	12.09	11.93	22.2	<30dBm	Pass
11	2462	12.98								22.23	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss



Product	:	Wi-Fi Chime
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/22
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

	Encouchan		F	Paquirad								
Channel No	(MHz)	15	30	45	60	90	120	135	150	15	Limit	Result
				Ν	Aeasure	ement L	.evel (d	Bm)				
03	2422	12.95								22.09	<30dBm	Pass
06	2437	12.96	12.81	12.64	12.47	12.31	12.16	12.02	11.94	22.21	<30dBm	Pass
09	2452	12.97								22.36	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss



#### 4. Radiated Emission

#### 4.1. Test Setup

Radiated Emission Under 30MHz



3m

Radiated Emission Below 1GHz





#### Radiated Emission Above 1GHz



#### 4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits								
Frequency MHz	Field strength	Measurement distance						
IVIII IZ	(microvolts/meter)	(meter)						
0.009-0.490	2400/F(kHz)	300						
0.490-1.705	24000/F(kHz)	30						
1.705-30	30	30						
30-88	100	3						
88-216	150	3						
216-960	200	3						
Above 960	500	3						

Remarks: E field strength  $(dB\mu V/m) = 20 \log E$  field strength (uV/m)

#### 4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

#### 4.4. Uncertainty

- ± 4.08 dB above 1GHz
- ± 4.22 dB below 1GHz

#### 4.5. Test Result of Radiated Emission

Product	:	Wi-Fi Chime
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m
Horizontal					
Peak Detector:					
4824.000	-9.979	52.330	42.351	-31.649	74.000
7236.000	-4.641	51.800	47.160	-26.840	74.000
9648.000	-1.835	46.750	44.914	-29.086	74.000
Average Detector:					
Vertical					
Peak Detector:					
4824.000	-6.819	51.230	44.412	-29.588	74.000
7236.000	-3.796	52.350	48.554	-25.446	74.000
9648.000	-1.365	47.060	45.695	-28.305	74.000

#### **Average Detector:**

--

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	: Wi-Fi Chime								
Test Item	: Harmonic Radiated Emission Data								
Test Site	: No.3 OA	: No.3 OATS							
Test Date	: 2017/03/	: 2017/03/21							
Test Mode	: Mode 1:	Transmit (802.11	lb 1Mbps) (2437 MH	z)					
-	~	<b>D</b> 11			<b>.</b>				
Frequency	Correct	Reading	Measurement	Margin	Limit				
	Factor	Level	Level						
MHz	dB	dBµV	dBµV/m	dB	dBµV/m				
Horizontal									
<b>Peak Detector:</b>									
4874.000	-10.271	54.270	43.998	-30.002	74.000				
7311.000	-3.853	50.950	47.096	-26.904	74.000				
9748.000	-2.526	45.660	43.134	-30.866	74.000				
Average Detector:									
Vertical									
Peak Detector:									
4874.000	-7.497	52.400	44.902	-29.098	74.000				
7311.000	-3.018	52.300	49.281	-24.719	74.000				
9748.000	-2.035	45.760	43.725	-30.275	74.000				

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	: Wi-Fi C	hime					
Test Item	: Harmon	ic Radiated Emiss	sion Data				
Test Site	: No.3 OA	: No.3 OATS					
Test Date	: 2017/03/	/21					
Test Mode	: Mode 1:	Transmit (802.11	lb 1Mbps) (2462 MH	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	dBµV/m	dB	dBµV/m		
Horizontal							
<b>Peak Detector:</b>							
4924.000	-10.519	54.280	43.760	-30.240	74.000		
7386.000	-3.876	51.100	47.224	-26.776	74.000		
9848.000	-2.581	46.240	43.659	-30.341	74.000		
Average Detector:							
Vertical							
<b>Peak Detector:</b>							
4924.000	-7.856	53.180	45.323	-28.677	74.000		
7386.000	-2.749	52.470	49.721	-24.279	74.000		
9848.000	-2.066	47.130	45.064	-28.936	74.000		

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Wi-Fi Chime
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4824.000	-9.979	51.100	41.121	-32.879	74.000
7236.000	-4.641	51.240	46.600	-27.400	74.000
9648.000	-1.835	47.130	45.294	-28.706	74.000
Average Detector:					
Vertical					
Peak Detector:					
4824.000	-6.819	49.970	43.152	-30.848	74.000
7236.000	-3.796	52.880	49.084	-24.916	74.000
9648.000	-1.365	48.150	46.785	-27.215	74.000

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	: Wi-Fi C	hime			
Test Item	: Harmon	ic Radiated Emis	sion Data		
Test Site	: No.3 OA	ATS			
Test Date	: 2017/03	/21			
Test Mode	: Mode 2:	Transmit (802.11	lg 6Mbps) (2437 MH	z)	
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Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4874.000	-10.271	49.830	39.558	-34.442	74.000
7311.000	-3.853	54.590	50.736	-23.264	74.000
9748.000	-2.526	46.020	43.494	-30.506	74.000
Average Detector:					
Vertical					
<b>Peak Detector:</b>					
4874.000	-7.497	49.690	42.192	-31.808	74.000
7311.000	-3.018	54.980	51.961	-22.039	74.000
9748.000	-2.035	46.180	44.145	-29.855	74.000

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	: Wi-Fi C	hime			
Test Item	: Harmon	ic Radiated Emiss	sion Data		
Test Site	: No.3 OA	ATS			
Test Date	: 2017/03	/21			
Test Mode	: Mode 2:	Transmit (802.11	lg 6Mbps) (2462 MH	z)	
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$
Horizontal					
Peak Detector:					
4924.000	-10.519	50.900	40.380	-33.620	74.000
7386.000	-3.876	50.930	47.054	-26.946	74.000
9848.000	-2.581	46.030	43.449	-30.551	74.000
Average Detector:					
Vertical					
<b>Peak Detector:</b>					
4924.000	-7.856	51.150	43.293	-30.707	74.000
7386.000	-2.749	54.120	51.371	-22.629	74.000
9848.000	-2.066	46.930	44.864	-29.136	74.000

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Wi-Fi Chime
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4824.000	33.585	52.320	42.341	-31.659	74.000
7236.000	38.903	50.480	45.840	-28.160	74.000
9648.000	-1.835	47.600	45.764	-28.236	74.000
Average Detector:					
Vertical					
<b>Peak Detector:</b>					
4824.000	-6.819	49.100	42.282	-31.718	74.000
7236.000	-3.796	51.560	47.764	-26.236	74.000
9648.000	-1.365	47.100	45.735	-28.265	74.000

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Wi-Fi Chime
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m
Horizontal					
Peak Detector:					
4874.000	-10.271	49.350	39.078	-34.922	74.000
7311.000	-3.853	50.590	46.736	-27.264	74.000
9748.000	-2.526	45.600	43.074	-30.926	74.000
Average Detector:					
Vertical					
Peak Detector:					
4874.000	-7.497	49.120	41.622	-32.378	74.000
7311.000	-3.018	52.140	49.121	-24.879	74.000
9748.000	-2.035	46.230	44,195	-29.805	74.000

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	Wi-Fi Chime
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4924.000	-10.519	48.880	38.360	-35.640	74.000
7386.000	-3.876	48.950	45.074	-28.926	74.000
9848.000	-2.581	45.930	43.349	-30.651	74.000
Average Detector:					
Vertical					
<b>Peak Detector:</b>					
4924.000	-7.856	49.320	41.463	-32.537	74.000
7386.000	-2.749	51.770	49.021	-24.979	74.000
9848.000	-2.066	46.670	44.604	-29.396	74.000

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Wi-Fi Chime
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2422MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$
Horizontal					
Peak Detector:					
4844.000	-10.096	49.460	39.364	-34.636	74.000
7266.000	-4.271	48.830	44.559	-29.441	74.000
9688.000	-2.204	45.390	43.187	-30.813	74.000
Average Detector:					
Vertical					
Peak Detector:					
4844.000	-7.089	48.610	41.520	-32.480	74.000
7266.000	-3.451	49.590	46.139	-27.861	74.000
9688.000	-1.661	46.480	44.820	-29.180	74.000

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Wi-Fi Chime						
Test Item	:	Harmonic Radiated Emission Data						
Test Site	:	No.3 OATS						
Test Date	:	2017/03/21						
Test Mode	:	Mode 4: Trai	nsmit (802.11n M	CS0 15Mbps 40M-B	W) (2437 MHz)			
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Frequency		Correct	Reading	Measurement	Margin	Limit		
		Factor	Level	Level				
MHz		dB	dBµV	dBµV/m	dB	dBµV/m		
Horizontal								
Peak Detector:								
4874.000		-10.271	48.870	38.598	-35.402	74.000		
7311.000		-3.853	47.620	43.766	-30.234	74.000		
9748.000		-2.526	45.460	42.934	-31.066	74.000		
Average Detector	:							
Vertical								
Peak Detector:								
4874.000		-7.497	48.980	41.482	-32.518	74.000		
7311.000		-3.018	48.790	45.771	-28.229	74.000		
9748.000		-2.035	45.820	43.785	-30.215	74.000		

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	: Wi-Fi Chime						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OATS						
Test Date	: 2017/03/21						
Test Mode	: Mode 4:	Transmit (802.11	n MCS0 15Mbps 401	M-BW)(2452 MF	Iz)		
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	dBµV/m	dB	dBµV/m		
Horizontal							
Peak Detector:							
4904.000	-10.435	48.360	37.925	-36.075	74.000		
7356.000	-3.867	47.460	43.593	-30.407	74.000		
9808.000	-2.726	46.000	43.274	-30.726	74.000		
Average Detector:							
Vertical							
<b>Peak Detector:</b>							
4904.000	-7.819	48.700	40.881	-33.119	74.000		
7356.000	-2.857	48.570	45.713	-28.287	74.000		
9808.000	-2.300	46.040	43.740	-30.260	74.000		

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Wi-Fi Chime
Test Item	:	General Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m
Horizontal					
249.220	-15.402	51.644	36.242	-9.758	46.000
359.800	-11.190	45.272	34.082	-11.918	46.000
499.480	-9.683	47.268	37.585	-8.415	46.000
623.640	-7.950	40.639	32.689	-13.311	46.000
701.240	-7.342	36.209	28.867	-17.133	46.000
844.800	-4.499	37.538	33.039	-12.961	46.000
Vertical					
249.220	-17.022	43.908	26.886	-19.114	46.000
359.800	-13.320	39.619	26.299	-19.701	46.000
499.480	-10.583	43.012	32.429	-13.571	46.000
683.780	-8.023	32.718	24.695	-21.305	46.000
840.920	-7.149	40.460	33.311	-12.689	46.000
961.200	-2.720	34.477	31.757	-22.243	54.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Product	:	Wi-Fi Chime
Test Item	:	General Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
191.020	-19.370	53.705	34.335	-9.165	43.500
249.220	-15.402	52.193	36.791	-9.209	46.000
330.700	-13.982	50.336	36.354	-9.646	46.000
499.480	-9.683	41.886	32.203	-13.797	46.000
596.480	-5.853	43.175	37.322	-8.678	46.000
833.160	-4.477	40.228	35.751	-10.249	46.000
Vertical					
220.120	-18.190	56.180	37.990	-8.010	46.000
400.540	-14.726	45.777	31.052	-14.948	46.000
509.180	-9.911	43.377	33.466	-12.534	46.000
652.740	-14.544	43.781	29.237	-16.763	46.000
788.540	-7.188	41.852	34.664	-11.336	46.000
961.200	-2.720	35.067	32.347	-21.653	54.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.


Product	:	Wi-Fi Chime
Test Item	:	General Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2437MHz)

	Frequency	Correct	Reading	Measurement	Margin	Limit
		Factor	Level	Level		
=	MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m
	Horizontal					
	249.220	-15.402	52.368	36.966	-9.034	46.000
	361.740	-11.066	45.240	34.174	-11.826	46.000
	511.120	-8.261	46.233	37.972	-8.028	46.000
	670.200	-7.976	43.585	35.609	-10.391	46.000
	833.160	-4.477	42.400	37.923	-8.077	46.000
	937.920	-3.594	35.850	32.256	-13.744	46.000
	Vertical					
	158.040	-15.541	50.514	34.973	-8.527	43.500
	249.220	-17.022	44.607	27.585	-18.415	46.000
	359.800	-13.320	40.525	27.205	-18.795	46.000
	491.720	-12.558	45.271	32.713	-13.287	46.000
	705.120	-9.905	35.703	25.798	-20.202	46.000
	840.920	-7.149	39.230	32.081	-13.919	46.000

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Product	:	Wi-Fi Chime	e			
Test Item	:	General Rad	iated Emission Da	ata		
Test Site	:	No.3 OATS				
Test Date	:	2017/03/21				
Test Mode	:	Mode 4: Tra	nsmit (802.11n M	CS0 15Mbps 40M-BV	W)(2437MHz)	
Frequency		Correct	Reading	Measurement	Margin	

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
239.520	-16.226	54.127	37.901	-8.099	46.000
278.320	-15.115	48.801	33.686	-12.314	46.000
350.100	-11.832	50.030	38.198	-7.802	46.000
449.040	-11.889	49.409	37.520	-8.480	46.000
584.840	-6.469	38.625	32.156	-13.844	46.000
804.060	-5.133	43.200	38.067	-7.933	46.000
Vertical					
154.160	-15.561	51.133	35.572	-7.928	43.500
375.320	-11.569	40.510	28.941	-17.059	46.000
499.480	-10.583	44.719	34.136	-11.864	46.000
693.480	-7.836	35.434	27.598	-18.402	46.000
840.920	-7.149	39.106	31.957	-14.043	46.000
961.200	-2.720	36.214	33.494	-20.506	54.000

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

#### 5. **RF** antenna conducted test

#### 5.1. Test Setup

#### **RF** antenna Conducted Measurement:



#### 5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

#### 5.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

#### 5.4. Uncertainty

The measurement uncertainty Conducted is defined as  $\pm 1.20$ dB



### 5.5. Test Result of RF antenna conducted test

Product	:	Wi-Fi Chime
Test Item	:	RF antenna conducted test
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)



#### Channel 11 (2462MHz)





Product	:	Wi-Fi Chime
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)



#### Channel 11 (2462MHz)





Product	:	Wi-Fi Chime
T I		

- Test Item : RF Antenna Conducted Spurious
- Test Site : No.3 OATS
- Test Date : 2017/03/21

Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

# Channel 01 (2412MHz)



#### Channel 06 (2437MHz)



#### Channel 11 (2462MHz)





Product	:	Wi-Fi Chime
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

### Channel 01 (2422MHz)



# Channel 04 (2437MHz)



## Channel 07 (2452MHz)





#### 6. Band Edge

### 6.1. Test Setup

# RF Radiated Measurement:

#### 6.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

#### 6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

#### 6.4. Uncertainty

- ± 4.08 dB above 1GHz
- ± 4.22 dB below 1GHz



### 6.5. Test Result of Band Edge

Product	:	Wi-Fi Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

#### **RF Radiated Measurement (Horizontal):**

Channal No	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Docult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2387.400	6.463	41.644	48.107	74.00	54.00	Pass
01 (Peak)	2390.000	6.474	41.152	47.627	74.00	54.00	Pass
01 (Peak)	2400.000	6.528	50.118	56.646			
01 (Peak)	2413.000	6.610	97.640	104.250			
01 (Average)	2390.000	6.474	29.468	35.943	74.00	54.00	Pass
01 (Average)	2400.000	6.528	41.425	47.953			
01 (Average)	2411.200	6.597	93.934	100.531			





Horizontal (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	Wi-Fi Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

#### **RF Radiated Measurement (Vertical):**

Channal No	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Docult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2386.000	5.898	37.108	43.005	74.00	54.00	Pass
01 (Peak)	2390.000	5.880	35.863	41.744	74.00	54.00	Pass
01 (Peak)	2400.000	5.879	41.502	47.381			
01 (Peak)	2413.000	5.920	90.311	96.231			
01 (Average)	2390.000	5.880	24.759	30.640	74.00	54.00	Pass
01 (Average)	2400.000	5.879	32.419	38.298			
01 (Average)	2411.200	5.909	86.167	92.076			

#### **Figure Channel 01:**

#### Vertical (Peak)



Vertical (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



:	Wi-Fi Chime
:	Band Edge Data
:	No.3 OATS
:	2017/03/21
:	Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
	: : : :

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Docult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2462.900	6.965	99.247	106.212			
11 (Peak)	2483.500	7.110	43.186	50.296	74.00	54.00	Pass
11 (Peak)	2490.900	7.162	43.728	50.890	74.00	54.00	Pass
11 (Average)	2461.100	6.952	95.372	102.324			
11 (Average)	2483.500	7.110	31.258	38.368	74.00	54.00	Pass
11 (Average)	2500.100	7.189	31.437	38.626	74.00	54.00	Pass

Figure Channel 11:

Horizontal (Peak)





Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.

- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	Wi-Fi Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Dogult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2462.900	6.235	92.469	98.704			
11 (Peak)	2483.500	6.363	36.752	43.115	74.00	54.00	Pass
11 (Peak)	2485.900	6.378	37.941	44.319	74.00	54.00	Pass
11 (Average)	2461.100	6.224	88.587	94.811			
11 (Average)	2483.500	6.363	25.512	31.875	74.00	54.00	Pass
11 (Average)	2499.900	6.447	26.041	32.488	74.00	54.00	Pass

#### **Figure Channel 11:**

Vertical (Peak)



Vertical (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	Wi-Fi Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

#### **RF Radiated Measurement (Horizontal):**

Channal No.	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Docult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2389.000	6.470	49.002	55.472	74.00	54.00	Pass
01 (Peak)	2390.000	6.474	48.519	54.994	74.00	54.00	Pass
01 (Peak)	2400.000	6.528	70.267	76.795			
01 (Peak)	2418.600	6.650	98.318	104.968			
01(Average)	2390.000	6.474	34.131	40.606	74.00	54.00	Pass
01(Average)	2400.000	6.528	47.089	53.617			
01(Average)	2417.800	6.644	88.999	95.643			

Horizontal (Peak)





Horizontal (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	Wi-Fi Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
	(MHZ)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
01 (Peak)	2389.600	5.882	41.315	47.197	74.00	54.00	Pass
01 (Peak)	2390.000	5.880	39.943	45.824	74.00	54.00	Pass
01 (Peak)	2400.000	5.879	61.397	67.276			
01 (Peak)	2418.400	5.954	91.584	97.538			
01 (Average)	2390.000	5.880	26.596	32.477	74.00	54.00	Pass
01 (Average)	2400.000	5.879	38.298	44.177			
01 (Average)	2418.400	5.954	82.037	87.991			

#### **Figure Channel 01:**

#### Vertical (Peak)



Vertical (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements:  $RBW = \hat{1}MHz$ ,  $VBW = \hat{3}MHz$ , Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	Wi-Fi Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Decult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2463.300	6.967	99.930	106.898			
11 (Peak)	2483.500	7.110	62.647	69.757	74.00	54.00	Pass
11 (Average)	2463.900	6.971	90.528	97.500			
11 (Average)	2483.500	7.110	39.926	47.036	74.00	54.00	Pass

Figure Channel 11:

Horizontal (Peak)





Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	Wi-Fi Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Decult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2463.300	6.237	92.896	99.133			
11 (Peak)	2483.500	6.363	54.023	60.386	74.00	54.00	Pass
11 (Average)	2459.500	6.213	83.489	89.702			
11 (Average)	2483.500	6.363	32.251	38.614	74.00	54.00	Pass

#### **Figure Channel 11:**

Vertical (Peak)



Vertical (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	Wi-Fi Chime

- Test Item : Band Edge Data
- Test Site : No.3 OATS
- Test Date : 2017/03/21

Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Decult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	6.474	53.288	59.763	74.00	54.00	Pass
01 (Peak)	2400.000	6.528	69.168	75.696			
01 (Peak)	2409.000	6.583	97.014	103.597			
01 (Average)	2390.000	6.474	34.294	40.769	74.00	54.00	Pass
01 (Average)	2400.000	6.528	47.635	54.163			
01 (Average)	2417.800	6.644	86.921	93.565			

Horizontal (Peak)





Horizontal (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



	Product	:	Wi-Fi Chime
	Test Item	:	Band Edge Data
	Test Site	:	No.3 OATS
	Test Date	:	2017/03/21
	Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)
F	Radiated Ma	ocura	amont (Vartical).

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Docult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	5.880	42.509	48.390	74.00	54.00	Pass
01 (Peak)	2400.000	5.879	60.239	66.118			
01 (Peak)	2417.800	5.950	89.715	95.665			
01 (Average)	2390.000	5.880	26.779	32.660	74.00	54.00	Pass
01 (Average)	2400.000	5.879	38.872	44.751			
01 (Average)	2418.000	5.952	80.060	86.011			

Figure Channel 01:

Vertical (Peak)





Vertical (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



- Product : Wi-Fi Chime
- Test Item : Band Edge Data
- Test Site : No.3 OATS
- Test Date : 2017/03/21

Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Decult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2458.900	6.937	97.563	104.499			
11 (Peak)	2483.500	7.110	50.680	57.790	74.00	54.00	Pass
11 (Peak)	2485.900	7.127	51.629	58.756	74.00	54.00	Pass
11 (Average)	2467.700	6.999	87.721	94.719			
11 (Average)	2483.500	7.110	34.020	41.130	74.00	54.00	Pass

#### **Figure Channel 11:**

#### Horizontal (Peak)



Horizontal (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product:Wi-Fi ChimeTest Item:Band Edge DataTest Site:No.3 OATSTest Date:2017/03/21Test Mode:Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Docult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2458.700	6.209	91.049	97.257			
11 (Peak)	2483.500	6.363	42.055	48.418	74.00	54.00	Pass
11 (Peak)	2485.500	6.376	43.983	50.359	74.00	54.00	Pass
11 (Average)	2460.500	6.220	80.656	86.876			
11 (Average)	2483.500	6.363	27.107	33.470	74.00	54.00	Pass

#### **Figure Channel 11:**

#### Vertical (Peak)



Vertical (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



	Product	:	Wi-Fi Chime			
	Test Item	:	Band Edge Data			
	Test Site	:	No.3 OATS			
	Test Date	:	2017/03/21			
	Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)			
RF	RF Radiated Measurement (Horizontal):					

#### Frequency Reading Level Emission Level Peak Limit Correct Factor Average Limit Channel No. Result (MHz) (dBuV) (dBuV/m) (dBuV/m) (dB)(dBuV/m) 52.678 03 (Peak) 2388.800 6.470 59.147 74.00 54.00 Pass 03 (Peak) 2390.000 6.474 51.349 57.824 74.00 54.00 Pass 03 (Peak) 2400.000 6.528 64.800 71.328 ------93.228 99.886 03 (Peak) 2419.800 6.658 --\_\_ ---03 (Average) 2390.000 6.474 37.955 44.430 74.00 54.00 Pass 2400.000 6.528 52.119 58.647 03 (Average) ------2417.400 03 (Average) 6.641 83.396 90.037 -------

Horizontal (Peak)





Horizontal (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	Wi-Fi Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)
PE Radiated 1	Maasur	rement (Vertical).

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Docult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
03 (Peak)	2388.600	5.887	44.629	50.516	74.00	54.00	Pass
03 (Peak)	2390.000	5.880	42.103	47.984	74.00	54.00	Pass
03 (Peak)	2400.000	5.879	56.157	62.036			
03 (Peak)	2432.400	6.042	86.804	92.845			
03 (Average)	2390.000	5.880	28.681	34.562	74.00	54.00	Pass
03 (Average)	2400.000	5.879	43.005	48.884			
03 (Average)	2435.000	6.058	77.047	83.105			

Figure Channel 03:

#### Vertical (Peak)





Vertical (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



- Product : Wi-Fi Chime
- Test Item : Band Edge Data
- Test Site : No.3 OATS
- Test Date : 2017/03/21

Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Docult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
09 (Peak)	2462.300	6.961	94.710	101.670			
09 (Peak)	2483.500	7.110	55.174	62.284	74.00	54.00	Pass
09 (Peak)	2485.100	7.121	55.809	62.930	74.00	54.00	Pass
09 (Average)	2464.900	6.979	84.628	91.607			
09 (Average)	2483.500	7.110	37.936	45.046	74.00	54.00	Pass

#### **Figure Channel 09:**

#### Horizontal (Peak)





Horizontal (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Draduat		Wi Ei Chima
Product	•	wi-ri Chime
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2017/03/21
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Docult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
09 (Peak)	2462.300	6.232	87.420	93.651			
09 (Peak)	2483.500	6.363	45.130	51.493	74.00	54.00	Pass
09 (Peak)	2485.500	6.376	46.703	53.079	74.00	54.00	Pass
09 (Average)	2461.100	6.224	77.565	83.789			
09 (Average)	2483.500	6.363	29.818	36.181	74.00	54.00	Pass

#### Figure Channel 09:

#### Vertical (Peak)



Vertical (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
  - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
  - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
  - 4. "\*", means this data is the worst emission level.
  - 5. Measurement Level = Reading Level + Correct Factor.
  - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



# 7. 6dB Bandwidth

# 7.1. Test Setup



#### 7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

### 7.3. Test Procedure

The EUT was setup according to ANSI C63.4: 2014; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

# 7.4. Uncertainty

± 283Hz



# 7.5. Test Result of 6dB Bandwidth

Product	:	Wi-Fi Chime
Test Item	:	6dB Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	9150	>500	Pass
06	2437	9150	>500	Pass
11	2462	9150	>500	Pass

Agiler	nt Spe	ctrur	n An	alyzer - Swe	pt SA								
<mark>⊮</mark> ℝ Cen	ter	Fre	RF Pq 2	50 Ω 2.41200	AC 0000 GH		SE	NSE:INT	Avg Ty	ALIGN AUTO pe: Log-Pwr	11:57:58 A TRA	M Mar 19, 2017 CE 1 2 3 4 5 6 PE M WAAAAAAA	Frequency
					PT IFG	NO: Fast 🕞 Gain:Low	#Atten: 30	0 dB		B.41.	D		Auto Tune
10 d	B/div	,	Ref <b>Re</b> f	Offset 0.5 7 <b>20.50 c</b>	dB IBm					IVIK	rz z.407 -0.	40 GHZ 72 dBm	
10.5							<b>a</b> 2()	1	3				Center Freq
0.500			_				Journal	mary	1,			-0.63 dBm	2.412000000 GHz
-9.50						A Many			WWW N.				
-29.5						J.			n n	\			Start Freq
-39.5					. 1	/							2.387000000 GH2
-49.5	wrm	plother.	e.m.	يىمى <sub>يە</sub> يەم بىيىرىم	and					- What we	had a many market by	helonandram	Stop Freq
-69.5													2.437000000 GHz
Con	L	2.4	120	0 CH2							Snan 5	0.00 MHz	
#Re	s Bl	2.4 N 1	00	kHz		#VBV	V 300 kHz		Sweep	o (#Swp) 4	3pan 3 4.800 ms (	1001 pts)	CF Step 5.000000 MHz
MKR 1	MODE N	TRC 1	SCL		× 2 411 4	5 GHz	Y 5 37 di	FUN	CTION	UNCTION WIDTH	FUNCTI	DN VALUE	<u>Auto</u> Man
2	NN	1	f		2.407 4	0 GHz 5 GHz	-0.72 di -2.06 di	Bm Bm					Freg Offset
4												=	0 Hz
6													
8 9													
11												<u> </u>	
MSG											JS		<u></u>

Agiler	nt Spe	ctrun	n Ana	alyzer - Swe	pt SA								
ι <mark>x</mark> ι ℝ Cen	ter	Fre	RF q 2	50 Ω 2.43700	AC 0000 GH	z	SE Tria: Eno		Avg Ty	ALIGNAUTO De: Log-Pwr	12:01:26 P	M Mar 19, 2017 E 1 2 3 4 5 6	Frequency
10 d	Ref Offset 0.5 dB Mkr2 2.432 40 GHz 10 dB/div Ref 20.50 dBm -0.84 dBm										Auto Tune		
10.5 10.5 0.500 -9.50		, 		20.30 0			2 Juna unn	1 Marca	3			-0.74.dBm	Center Freq 2.437000000 GHz
-19.5 -29.5 -39.5						and a second			ы «му м				<b>Start Freq</b> 2.412000000 GHz
-49.5 -59.5 -69.5	nn ann	~ <b>\}~***</b>	s/#1~~	n teres and a star by	we they and the						White Mary ma	www.	<b>Stop Freq</b> 2.462000000 GHz
Cen #Re	iter : s B1	2.43 W 1	370 00	0 GHz kHz	×	#VB	W 300 kHz Y	FL	Sweep	(#Swp) 4	Span 5 .800 ms (	0.00 MHz 1001 pts) INVALUE	<b>CF Step</b> 5.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11 \$	N N		f		2.437 4 2.432 4 2.441 5	5 GHz 5 GHz 5 GHz	5.26 d -0.84 d -2.19 d	Bm Bm Bm					Freq Offset 0 Hz
MSG											S		

# Figure Channel 06:

Agilen	it Spect	trum A	inalyzer - Swe	ept SA								
Cen	ter F	 ■req	F 50 Ω 2.4620(	AC 00000 GH	lz	SEN!	SE:INT	Avg Ty	ALIGNAUTO pe: Log-Pwr	12:04:57 Pf TRA/	M Mar 19, 2017 CE 1 2 3 4 5 6	Frequency
10 d		Re Re	ef Offset 0.(	5 dB dBm	IO: Fast Jain:Low	J Trig: Free #Atten: 30	dB		Mk	r2 2.457 -0.	40 GHz 57 dBm	Auto Tune
Log 10.5 0.500 -9.50						2 -	1 Murr	3			-0.46 dBm	Center Freq 2.462000000 GHz
-19.5 -29.5 -39.5										<u> </u>		Start Freq 2.437000000 GHz
-49.5 -59.5 -69.5	no-tenni	mand	- All and a second second	Anton Mad				<u> </u>		Warnengthermer	- - 	<b>Stop Freq</b> 2.487000000 GHz
Cen #Re	ter 2. s BW	.462( / 100	00 GHz ) kHz		#VBN	√ 300 kHz		Sweep	) (#Swp) 4	Span 5 1.800 ms (	0.00 MHz (1001 pts)	CF Step 5.000000 MHz <u>Auto</u> Mar
1 2 3 4 5	N N N	1 f 1 f 1 f		2.461 45 2.457 40 2.466 5	5 GHz ) GHz 5 GHz	5.54 dB -0.57 dB -1.94 dB	5m 5m 5m					Freq Offset 0 Hz
6 7 8 9 10 11	<u> </u>	<u>+</u>										
< MSG									<b>I</b> STATI	JS		



Product	:	Wi-Fi Chime
Test Item	:	6dB Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16700	>500	Pass
06	2437	16700	>500	Pass
11	2462	16700	>500	Pass

Agilen	t Spectr	rum Ar	alyzer - Swe	pt SA									
Cen	ter F	RF req	50 Ω 2.41200	AC	łz		NSE:INT	Avg T	ALIGN/ ype: Log	AUTO -Pwr	12:08:49 Pf TRAC	M Mar 19, 2017 E 1 2 3 4 5 6	Frequency
10 d	B/div	Re <sup>1</sup>	f Offset 0.5	ifc ifc idB iBm	NO: Fast G Sain:Low	,⊃ Thg. Free #Atten: 30	0 dB			Mkr	2 2.403 -10.	60 GHz	Auto Tune
Log 10.5 0.500 -9.50							and the second		3			-6.90 dBm	Center Freq 2.412000000 GHz
-19.5 -29.5 -39.5				A Radio and A Radi	der and the second seco	<u> </u>			Jerry Market	لمرسمه	Mate mile da		Start Freq 2.387000000 GHz
-49.5 -59.5 -69.5	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1. Sugar	J. MARAN ( V WV			<u> </u>					- M. Mark. Rolling	- Marconal	Stop Freq 2.437000000 GHz
Cen #Re:	ter 2. s BW	4120 100	0 GHz kHz		#VBV	V 300 kHz		Swee	p (#Sw	/p) 4.	Span 5 .800 ms (	0.00 MHz 1001 pts)	CF Step 5.000000 MHz Auto Man
1 2 3 4 5 6	N 1 N 1 N 1			2.409 4 2.403 6 2.420 3	5 GHz 0 GHz 0 GHz	-0.90 dl -10.14 dl -9.78 d	Bm Bm			WIDAN	FORCE		Freq Offset
7 8 9 10 11												v	
MSG									<b>K</b>	STATUS			

Agilent Spect	rum Analyzer - Swe	ept SA						
Center F	RF 50 Ω Teq 2.43700	AC 00000 GHz		Avg Type	ALIGN AUTO : Log-Pwr	12:12:12 PM TRAC	4 Mar 19, 2017 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 0.5 Ref 20.50 c	FNU: Fast IFGain:Low dB IBm	#Atten: 30 dB		Mkr	<sup>یہ</sup> 2 2.428 -9.4	60 GHz 58 dBm	Auto Tune
10.5 0.500 -9.50		¢2-		manu and 3			-6.42 dBm	Center Freq 2.437000000 GHz
-19.5 -29.5 -39.5	. m Mar	Ward and a start and a start a			Mudanta	togo the Charles		Start Freq 2.412000000 GHz
-49.5 -59.5 -69.5							and the standing of the standi	<b>Stop Freq</b> 2.462000000 GHz
Center 2. #Res BW	43700 GHz 100 kHz	#V	BW 300 kHz	Sweep (	#Swp) 4	Span 5 .800 ms (	0.00 MHz 1001 pts)	CF Step 5.000000 MHz <u>Auto</u> Man
1 N 2 N 3 N 4 5	1 f 1 f 1 f	2.434 45 GHz 2.428 60 GHz 2.445 30 GHz	-0.42 dBm -9.58 dBm -9.26 dBm				E	Freq Offset 0 Hz
7 8 9 10 11								
MSG					<b>I</b> status	6		L

#### **Figure Channel 06:**

Agilent Spect	um Analyzer - Sw	ept SA								
Center F	RF 50 Ω req 2.46200	AC 00000 GH:	z		JSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	12:15:46 PM TRAC	1 Mar 19, 2017 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 0.	PNG IFG2 5 dB dBm	0: Fast ⊆ ain:Low	#Atten: 30	) dB		Mkr	2 2.453 -9.0	60 GHz	Auto Tune
Log 10.5 0.500 -9.50			<sup>2</sup>	- 1	anter arter and	mar way 3			-6.06 dBm	Center Freq 2.462000000 GHz
-19.5 -29.5 -39.5							and warner	munum		Start Freq 2.437000000 GHz
-49.5 -69.5									A gent perfection	<b>Stop Freq</b> 2.487000000 GHz
Center 2. #Res BW	46200 GHz 100 kHz		#VBW	/ 300 kHz		Sweep (	#Swp) 4	Span 5 .800 ms (	0.00 MHz 1001 pts)	CF Step 5.000000 MHz
MKR MODE T 1 N 2 N 3 N 4 5 6 7	Image: Text Section 1     Image: Text Section 1       Image: Text Section 1     Image: Text Section 1 <tr< td=""><td>× 2.459 45 2.453 60 2.470 30</td><td>GHz GHz GHz</td><td>-0.06 dE -9.05 dF -9.29 dE</td><td>3m 3m 3m 3m</td><td></td><td>CTION WIDTH</td><td>FUNCTIO</td><td></td><td>Freq Offset</td></tr<>	× 2.459 45 2.453 60 2.470 30	GHz GHz GHz	-0.06 dE -9.05 dF -9.29 dE	3m 3m 3m 3m		CTION WIDTH	FUNCTIO		Freq Offset
/ 8 9 10 11 <									v	



Product	:	Wi-Fi Chime
Test Item	:	6dB Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	17850	>500	Pass
06	2437	17900	>500	Pass
11	2462	17850	>500	Pass

Agile	nt Spe	ctrur	n Ana	alyzer - Swe	ept SA								
w R Cer	L nter	Fre	RF Pq 2	50 Ω 2.41200	AC   00000 GH	lz	SE Tria: Era		Avg Typ	ALIGNAUTO e: Log-Pwr	12:20:40 Pl TRAC	M Mar 19, 2017 E 1 2 3 4 5 6	Frequency
			Ref	Offset 0.5	PI IFC	NO: Fast G Gain:Low	#Atten: 3	0 dB		Mki	r2 2.403	05 GHz	Auto Tune
10 d	B/div	/	Ref	20.50 c	IBm						-8.	22 dBm	
10.6 0.500	;					2-	1 Annorm	- Part of Brach of y		3		-8.11 dBm	Center Freq 2.412000000 GHz
-9.50									- L				
-19.6 -29.6 -39.6										h h h h h h h h h h h h h h h h h h h			<b>Start Freq</b> 2.387000000 GHz
-49.5	hall	veralle	, and the second	www.www	W/A.					Nrv.,	Mr. Mana allense	mantheman	
-59.5	-												2.437000000 GHz
-69.5	-												
Cer #Re	nter : es Bl	2.4 <i>°</i> W 1	120 00	0 GHz kHz		#VBV	V 300 kHz		Sweep	(#Swp) 4	Span 5 I.800 ms (	0.00 MHz 1001 pts)	CF Step 5.000000 MHz
MKB	MODE	TRC	SCL		×		Y	F	UNCTION FL	INCTION WIDTH	FUNCTIO	ON VALUE	Auto Man
1 2 3 4 5 6	N N N	1	f		2.409 1 2.403 0 2.420 9	0 GHZ 5 GHZ 0 GHZ	-2.11 d -8.22 d -8.97 d	Bm Bm Bm				=	Freq Offset 0 Hz
7 8 9 10 11													
< MSG										<b>I</b> STATU	IS	>	

Agilent Spect	rum Analyzer -	Swept SA								
Center F	RF 5	0 Ω AC 1000000 GH	z	SEN:	BE:INT	Ауд Тур	ALIGN AUTO e: Log-Pwr	12:24:44 Pf TRAC TY	M Mar 19, 2017 E 1 2 3 4 5 6 E M MAAAAAAA	Frequency
10 dB/div	Ref Offsel Ref 20.5	t 0.5 dB	iU: Fast 🕒 Gain:Low	#Atten: 30	dB		Mkr	⊡ 2 2.428 -10.3	00 GHz 39 dBm	Auto Tune
10.5 0.500 -9.50			€ <sup>2</sup> pruny-J	1 www.way	rangerstyle		3		-8.20 dBm	Center Freq 2.437000000 GHz
-19.5 -29.5 -39.5						\	A A A A A A A A A A A A A A A A A A A			<b>Start Freq</b> 2.412000000 GHz
-49.5 -59.5 -69.5	an the second	Norry Mar .					- "A-V	MARAMANNA	war have	<b>Stop Freq</b> 2.462000000 GHz
Center 2. #Res BW	43700 GH 100 kHz	z	#VBV	V 300 kHz	511	Sweep	(#Swp) 4	Span 5 .800 ms (	0.00 MHz 1001 pts)	CF Step 5.000000 MHz <u>Auto</u> Man
1 N 2 N 3 N 4 5	1 f 1 f 1 f	2.434 00 2.428 00 2.445 90	5 GHz D GHz D GHz	-2.20 dB -10.39 dB -8.90 dB	m m m					Freq Offset 0 Hz
7 8 9 10 11										
MSG								5		

#### **Figure Channel 06:**

Agilent Sp	pectrum A	nalyzer - Swe	ept SA								
Cente	r Freq	<sup>ε 50 Ω</sup>	AC	lz	SE		Ауд Тур	ALIGNAUTO e: Log-Pwr	12:28:04 P	M Mar 19, 2017 E 1 2 3 4 5 6	Frequency
	R	ef Offset 0.5	idB	NU: Fast 🕒 Gain:Low	#Atten: 30	) dB		Mkr	□ 2 2.453 -8	05 GHz	Auto Tune
10.500				2	1 Marine Marine	an and a star of the second		3		-7.99 dBm	Center Freq 2.462000000 GHz
-19.5 — -29.5 — -39.5 —							\ 	A A A A A A A A A A A A A A A A A A A			Start Freq 2.437000000 GHz
-49.5 اسیر -59.5 -69.5	multi	provent and parts							a fallow and a sub-	and on the state of the second	<b>Stop Freq</b> 2.487000000 GHz
Center #Res E	r 2.462 3W 10	00 GHz ) kHz		#VBW	/ 300 kHz		Sweep	(#Swp) 4	Span 5 .800 ms (	0.00 MHz 1001 pts)	CF Step 5.000000 MHz
MXB     MOD       1     N       2     N       3     N       4     -       5     -       6     -       7     -       8     -       9     -       10     -			× 2.459 11 2.453 0 2.470 9	0 GHz 5 GHz 0 GHz	Y -1.99 dl -8.29 dl -9.05 dl	FUN Bm Bm Bm Bm Bm		NCTION WIDTH	FUNCTIO		Freq Offset 0 Hz
MSG									3		



Product	:	Wi-Fi Chime
Test Item	:	6dB Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36700	>500	Pass
06	2437	36700	>500	Pass
09	2452	36700	>500	Pass

Agiler	nt Specti	rum Ar	nalyzer - Swe	ept SA										
IXI R Cen	ter F	RF req	<u>50 Ω</u> 2.42200	AC	z	SE Tria: Ero	NSE:INT	Avg	Туре	ALIGNAUTO : Log-Pwr	12:31:55 P TRA	M Mar 19, 2017 CE 1 2 3 4 5	7 6 44	Frequency
10 d	B/div	Re	f Offset 0.5	Pr IFG dB <b>1Bm</b>	NO: Fast ( Gain:Low	#Atten: 3	0 dB			Mk	(r2 2.40 -16.	3 6 GH2 03 dBm	N Z	Auto Tune
Log 10.5 0.500 -9.50					2	Junation with the second	- Antone	1	{\} <sup>2</sup>	3		11.85 dBr		Center Freq 2.422000000 GHz
-19.5 -29.5 -39.5				hyd malael						M				<b>Start Freq</b> 2.372000000 GHz
-49.5 -59.5 -69.5	plan and	principal di	wheelow-lipsole	illouiteen							a manager and a second se	<sup>م</sup> الىكى بىلىكى		<b>Stop Freq</b> 2.472000000 GHz
Cen #Re	ter 2. s BW	4220 100	00 GHz kHz		#VB	W 300 kHz	: 	Swe	ep (	#Swp) 9	Span 1 .600 ms (	00.0 MH 1001 pts	<b>z</b> ][	CF Step 10.000000 MHz Auto Man
1 2 3 4 5 6 7 8 9 10				× 2.435 : 2.403 ( 2.440 ;	3 GHz 6 GHz 3 GHz	-5.85 d -16.03 d -13.00 d	Bm Bm Bm	FUNCTION		CTION WIDTH				Freq Offset 0 Hz
< MSG		_	1				1		-	I STATUS	s	>		



Agilent Spectrum Ana	alyzer - Swept SA					
Center Freq 2	50 Ω AC 2.437000000 GHz		Avg Type	ALIGN AUTO 12:35:39 PI : Log-Pwr TRAG	M Mar 19, 2017 E 1 2 3 4 5 6	Frequency
Ref	Offset 0.5 dB	in:Low #Atten: 3	0 dB	™ Mkr2 2.41 -15	et P NNNNN 8 6 GHz 68 dBm	Auto Tune
		2	Man mar an a f		11.98 dBm	<b>Center Freq</b> 2.437000000 GHz
-19.5 -29.5 -39.5				M		<b>Start Freq</b> 2.387000000 GHz
-49.5 -59.5 -69.5	18346176-14646184641916-14777617			vulnaarusete patropouridaere	ndødnanskarensk	<b>Stop Freq</b> 2.487000000 GHz
Center 2.43700 #Res BW 1001	0 GHz kHz ×	#VBW 300 kHz	Sweep (	Span 1 #Swp) 9.600 ms ( ction width	00.0 MHz 1001 pts) NVALUE	CF Step 10.000000 MHz Auto Man
1 N 1 f 2 N 1 f 3 N 1 f 4 5 6	2.432 8 2.418 6 2.455 3	GHz -5.98 dl GHz -15.68 dl GHz -13.06 dl	Bm Bm Bm		=	Freq Offset 0 Hz
7     8       9     10       11     11						
MSG						

# Figure Channel 06:

Image: Note of the service o	Agilen	it Spectr	r <mark>um Ar</mark>	halyzer - Swe	ept SA								
PNO: Fast     Trig: Free Kun     Mkr2 2.433 6 GHz     Auto Tun       10 dB/div     Ref Offset 0.5 dB     -15.35 dBm     -15.35 dBm     -16.35 dBm       10 dB/div     Ref 20.50 dBm     -11.43.06     -14.43.06     -14.43.06     -14.43.06       195	Cen	ter F	req	50 Ω 2.45200	AC   10000 GH	Iz		NSE:INT	Avg Tyr	ALIGNAUTO >e: Log-Pwr	12:39:04 P	M Mar 19, 2017 CE 1 2 3 4 5 6	Frequency
10 dB/div   Ref 20.50 dBm   -10.50 dBm     10 dB/div   Ref 20.50 dBm   -10.50 dBm     10 dB/div   2   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.50   -11   -11     0.10   -11   -11     0.10   -11   -11     0.10   -11   -11     10   -11   -11 <th></th> <th></th> <th>Re</th> <th>of Offset 0.{</th> <th>PN IFG 5 dB</th> <th>IO: Fast 🕞 jain:Low</th> <th>J Irig: Free #Atten: 30</th> <th>e Run 0 dB</th> <th></th> <th>Mł</th> <th>(r2 2.43: -15</th> <th>3 6 GHz</th> <th>Auto Tune</th>			Re	of Offset 0.{	PN IFG 5 dB	IO: Fast 🕞 jain:Low	J Irig: Free #Atten: 30	e Run 0 dB		Mł	(r2 2.43: -15	3 6 GHz	Auto Tune
1950   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.43.0001     195   11.14.0001     197   11.14.0001     198   11.14.0001     199   11.14.0001     190   11.14.0001     190   11.14.0001     191   11.14.0001     193   11.14.0001     193   11.14.0001     194   11.14.000000000000000000000000000000000	10 de Log 10.5	3/div	Re	f 20.50 d	JBm	▲2 mg-mb		a performer		3	-10.		<b>Center Freq</b> 2.452000000 GHz
49.5	-9.50 -19.5 -29.5 -39.5											-11.40 UDIII	Start Freq 2.402000000 GHz
Center 2.45200 GHz     Span 100.0 MHz     CF Step 10.00000 MHz       #Res BW 100 kHz     #VBW 300 kHz     Sweep (#Swp)     9.600 ms (1001 pts)     Auto       MKE MODE     TRC SCL     X     Y     FUNCTION     FUNCTION with the function water     Auto       1     N     1     f     2.447 2 GHz     5.48 dBm     Function with the function water     Function water       3     N     1     f     2.437 0 3 GHz     -15.36 dBm     Generation     Function water     Function water       3     N     1     f     2.470 3 GHz     -13.06 dBm     Generation     Generation     Generation     Function water       4     I     f     2.470 3 GHz     -13.06 dBm     Generation	-49.5 -59.5 -69.5	, Provenski	den habel	enternation and	mland they w					ion Physicales	and the second of the second o	uhanny hann	<b>Stop Freq</b> 2.502000000 GHz
MKB MODE     THC SOL     X     Y     FUNCTION     FUNCTION     FUNCTION     FUNCTION VALUE     F       1     N     1     f     2.447.2 GHz     -5.48 dBm	Cen #Res	ter 2.4 s BW	4520	)0 GHz kHz		#VBV	√ 300 kHz	:	Sweep	(#Swp) 9	Span 1 ).600 ms (	00.0 MHz 1001 pts)	CF Step 10.000000 MHz Auto Mar
7 8 9 9   9 9 9 9   10 9 9 9   11 9 9 9	1 2 3 4 5 6				2.447 2 2.433 ( 2.470 (	2 GHz 3 GHz 3 GHz	-5.48 df -15.35 df -13.06 df	Bm Bm Bm		JNCTION WID IN			Freq Offset
	7 8 9 10 11 <											v	



### 8. **Power Density**

#### 8.1. Test Setup



#### 8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

#### 8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

#### 8.4. Uncertainty

 $\pm$  1.20 dB



# 8.5. Test Result of Power Density

Product	:	Wi-Fi Chime
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	5.34	$\leq$ 8dBm	Pass
06	2437	5.23	$\leq$ 8dBm	Pass
11	2462	5.5	$\leq$ 8dBm	Pass

Agilent Spect	rum Analyzer - Swept	SA							
Center F	RF 50 Ω /	000 GHz	SENS	E:INT	Avg Type:	LIGNAUTO Log-Pwr	11:58:18 A TRA TY	M Mar 19, 2017 CE 1 2 3 4 5 6 PE M WWWWWW	Frequency
-		IFGain:Low	#Atten: 30	dB			E	ET P N N N N N	14, 142, 45, 171
10 dB/div	Ref Offset 0.5 dl Ref 20.50 dB	3 m				Mkr1	2.411 4 5.	451 GHz 34 dBm	Auto Tune
10.5			<b>●</b> <sup>1</sup>						Center Freq 2.412000000 GHz
0.500 -9.50	1 Jour -	Anton	un j	Min	The lasti	hang	may	they	Start Freq 2.405137500 GHz
-19.5									<b>Stop Freq</b> 2.418862500 GHz
-39.5									CF Step 1.372500 MHz <u>Auto</u> Man
-59.5						-			Freq Offset 0 Hz
-69.5							2.000		
Center 2. #Res BW	412000 GHz 100 kHz	#VB\	W 300 kHz	1	Sweep (#	#Swp) 1	Span 1 .333 ms	3.73 MHz (1001 pts)	
MSG									<u>I</u>



SA	
AC     SENSE:INT     ALIGNAUTO     12:01:46 PM Mar 19, 2017     Frequ       D00 GHz     Avg Type: Log-Pwr     TRACE 1, 2,3,4,5,6     Frequ       Tria: Free Run     Tria: Free Run     Tria: Free Run     Tria: Free Run	uency
IFGain:Low #Atten: 30 dB	uto Tune
m 5.23 dBm	
Cen 2.43700	n <b>ter Freq</b> 00000 GHz
superior and and superior superior 2.43013	tart Freq 37500 GHz
SI 2.44386	top Freq 52500 GHz
1.37: Auto	CF Step 2500 MHz Mar
Fre	e <b>q Offse</b> l 0 Hz
Span 13.73 MHz #VBW 300 kHz Sweep (#Swp) 1.333 ms (1001 pts)	

# Figure Channel 06:

Agilent Spectrum Analyzer - Swept SA				
μ     RF     50 Ω     AC       Center Freq 2.462000000 GHz	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	12:05:17 PM Mar 19, 2017 TRACE 1 2 3 4 5 6 TYPE M MARAMAN	Frequency
PNO: Fast 🦕 IFGain:Low	#Atten: 30 dB		DET PNNNNN	Auto Tune
Ref Offset 0.5 dB 10 dB/div Ref 20.50 dBm		Mkr1	2.461 437 GHz 5.50 dBm	Auto Tune
10.5	•1			Center Freq 2.462000000 GHz
9.50 ml	my m	manufathing	- And	Start Freq 2.455137500 GHz
-19.5				<b>Stop Freq</b> 2.468862500 GHz
-39.5				CF Step 1.372500 MHz <u>Auto</u> Man
-59.5				Freq Offset 0 Hz
-69.5			Span 13.73 MHz	
#Res BW 100 kHz #VBW	/ 300 kHz	Sweep (#Swp) 1.	333 ms (1001 pts)	


Product	:	Wi-Fi Chime
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	-0.92	$\leq$ 8dBm	Pass
06	2437	-0.45	$\leq$ 8dBm	Pass
11	2462	-0.08	$\leq$ 8dBm	Pass

# Figure Channel 01:

Agilent Spect	rum Analyzer - Swept S	A.				
Center F	RF 50 Ω AC	00 GHz PN0: Fast 🖵	SENSE(INT	ALIGNAUTO Avg Type: Log-Pwr	12:09:10 PM Mar 19, 2017 TRACE 1 2 3 4 5 6 TYPE MWMMMMM	Frequency
10 dB/div	Ref Offset 0.5 dB Ref 20.50 dBn	IFGain:Low	#Atten: 30 dB	Mkr	2.413 603 GHz -0.92 dBm	Auto Tune
10.5						Center Freq 2.412000000 GHz
0.500		างทางการสารมาราชา	ministry	and a second and the second of the second and the s	www	Start Freq 2.399475000 GHz
-19.5	- NWWWWWWW				1 minutes	Stop Freq 2.424525000 GHz
-39.5					with	CF Step 2.505000 MHz <u>Auto</u> Man
-59.5						Freq Offset 0 Hz
-69.5 Center 2. #Res BW	41200 GHz 100 kHz	#VBW	300 kHz	Sweep (#Swp)	Span 25.05 MHz 2.400 ms (1001 pts)	
MSG	2.1444 V 1913			To STATL	s	JI



Agilent Spect	rum Analyzer - Sw	vept SA							
Center F	req 2.4370	2 AC   000000 GH: PN	Z 0: Fast	sense Int	Avg Type	LIGNAUTO	12:12:33 PM TRACE TYPE	Mar 19, 2017 1 2 3 4 5 6 M WWWWWW	Frequency
10 dB/div	Ref Offset 0. Ref 20.50	IFG: 5 dB dBm	ain:Low #	Atten: 30 dB		Mkr1	2.434 47 -0.4	70 GHz 5 dBm	Auto Tune
10.5									Center Freq 2.437000000 GHz
0.500	ſ		man man	www.man	horner warey and ware	lerterspoore (lerade	m		Start Freq 2.424475000 GHz
-19.5	p.Mar worker						1 May	ing	<b>Stop Freq</b> 2.449525000 GHz
-39.5								Joseph Charles	CF Step 2.505000 MHz <u>Auto</u> Man
-59.5									Freq Offset 0 Hz
-69.5 Center 2. #Res BM	43700 GHz		#VBW 30	0 kH7	Sween	#Swn) 2	Span 25	5.05 MHz	
MSG	IVV NIIZ		#¥69¥ J(	W N112	oweeh (	STATUS	,	ioo i pio)	

#### Figure Channel 06:

## Figure Channel 11:





Product	:	Wi-Fi Chime
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	-2.00	$\leq$ 8dBm	Pass
06	2437	-2.05	$\leq$ 8dBm	Pass
11	2462	-1.91	$\leq$ 8dBm	Pass

# Figure Channel 01:

Agilent Spect	rum Analyzer - Swept SA						
Center F	RF 50 Ω AC req 2.412000000	GHz PNO: East	SENSE:INT	ALIGNAUT	12:21:01 F ד TRA די	M Mar 19, 2017 ACE 1 2 3 4 5 6 APE MWWWWW	Frequency
10 dB/div	Ref Offset 0.5 dB Ref 20.50 dBm	IFGain:Low	#Atten: 30 dB	Mk	r1 2.409 ( -2.	082 GHz .00 dBm	Auto Tune
10.5							Center Freq 2.412000000 GHz
-9.50	portan	icm/www.	1 rainan	server - Jollon - Shappar & Arrada	anny		Start Freq 2.398612500 GHz
-19.5	and and the second second				1 hours		Stop Freq 2.425387500 GHz
-39.5	-					hand contine No	CF Step 2.677500 MHz <u>Auto</u> Man
-59.5							Freq Offset 0 Hz
-69.5 Center 2.	41200 GHz	#\/BW	200 / Ца		Span 2	26.78 MHz	
MSG		#VDVV	JUU KIIZ	aweeh (#amb)	z.000 INS	(1001 pts)	<u> </u>



						rept SA	um Analyzer - Swa	Agilent Spect
Frequency	PM Mar 19, 2017 ACE 1 2 3 4 5 6 YPE MWWWWWW	12:25:04 TR T	ALIGN AUTO Avg Type: Log-Pwr	sense:int	Fast C Trig: Fi	AC 00000 GHz PNC	RF 50 Ω	Center F
Auto Tune	100 GHz .05 dBm	2.434	Mkr1	: 30 dB	:Low #Atten:	IFGa 5 dB d <b>Bm</b>	Ref Offset 0.5 Ref 20.50 d	10 dB/div
Center Freq 2.437000000 GHz				-	_			10.5
Start Freq 2.423575000 GHz		May	Pallenners, population and the	in porresta	ar do stay and	an many	per	-9.50
Stop Free 2.450425000 GHz	W.	1 ton					- Martin and	-19.5
CF Step 2.685000 MH: Auto Mar	N. W. S. W. N.							-39.5
Freq Offse 0 Ha								-59.5
	26.85 MHz (1001 pts)	Span 2.600 ms	Sweep (#Swp) 2	łz	#VBW 300 kH		13700 GHz 100 kHz	-69.5 Center 2. #Res BW
		5	To STATU		2010-00-00-00-00-00-00-00-00-00-00-00-00-		2.140.19 (State	MSG

#### Figure Channel 06:

## Figure Channel 11:





Product	:	Wi-Fi Chime
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
03	2422	-5.95	$\leq$ 8dBm	Pass
06	2437	-5.95	$\leq$ 8dBm	Pass
09	2452	-5.46	$\leq 8$ dBm	Pass

# Figure Channel 03:

Agilent Spect	rum Analyzer -	Swept SA								
Center F	req 2.422	000000 GH	Z 0: Fast 😱	SEN	Run	Avg Type	ALIGNAUTO : Log-Pwr	12:32:16 F TRA TY	M Mar 19, 2017 CE 1 2 3 4 5 6 PE MWWWWWW	Frequency
10 dB/div	Ref Offset Ref 20.5	0.5 dB 0 dBm	ain:Low	#Atten: 30	dB		Mkr	1 2.435 -5.	32 GHz 95 dBm	Auto Tune
10.5										Center Freq 2.422000000 GHz
-9.50		<u>เลาสา</u> สาสารเราชาติการ	an ann an an	dipolosionaliy	manan	ng Jangpings af Jan	Warfard Promyory	new		Start Freq 2.394475000 GHz
-19.5								4		Stop Freq 2.449525000 GHz
-39.5	Nord							N	hand the section of	CF Step 5.505000 MHz <u>Auto</u> Man
-59.5				-			1			Freq Offset 0 Hz
-69.5 Center 2.	42200 GHz		#\/D\/	300 kH-		Swoon	#Sum) F	Span (	5.05 MHz	
MSG			#VDVV	JUU M12		oweeh (	C (HWG-	.207 1115	(1001 pts)	L



								ept SA	Analyzer - Swa	ent Spectrum
Frequency	4 Mar 19, 2017 E 1 2 3 4 5 6 E M WAAAAAAA	12:36:00 P TRAC TY	ALIGNAUTO e: Log-Pwr	Avg Typ	ENSE(INT	SE Trig: Fre	1z	AC 0000 GH	RF 50 Ω q 2.43700	nter Fred
Auto Tune	32 GHz	Mkr	30 dB	#Atten: 3	NU: Fast 🕞 Gain:Low	dB	Ref Offset 0.5	R AR(din <b>R</b>		
Center Freq 2.437000000 GHz										
Start Freq 2.409475000 GHz		hojim	1 mention	pro Almonti ranto a Ma	A MARCENTER	alphaneser	n North Jack Martin	nnonarint	pan	0
Stop Freq 2.464525000 GHz					¥.					5
CF Step 5.505000 MHz <u>Auto</u> Man	helpelverydry	Ŵ								5
Freq Offset 0 Hz				-						6
	5.05 MHz 1001 pts)	Span 5 .267 ms (	(#Swp) 5	Sweep	z	300 kHz	#VBW		700 GHz 00 kHz	5 nter 2.437 es BW 10
		5	<b>N</b> STATUS							

#### Figure Channel 06:

#### Figure Channel 09:

