Roole Liu Silin chen Jumbres



# FCC Part 15C Measurement and Test Report

# For

# **Goodbetterbest Limited**

Suites 103-107 Devonshire Business Centre Works Road Letchworth Herts,

SG6 1GJ United Kingdom

FCC ID: VS9-HC5TX

FCC Rule(s): FCC Part 15.249

Product Description: Bluetooth Chat Headset Dongle

Tested Model: <u>HC5D</u>

**Report No.:** <u>STR15118172I-1</u>

**Tested Date:** <u>2015-11-01 to 2015-11-28</u>

**Issued Date:** <u>2015-11-28</u>

Tested By: Rode Liu/ Engineer

Reviewed By: Silin Chen / EMC Manager

Approved & Authorized By: <u>Jandy so / PSQ Manager</u>

**Prepared By:** 

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



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#### 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

**Client Information** 

Applicant: Goodbetterbest Limited

Address of applicant: Suites 103-107 Devonshire Business Centre Works

Road Letchworth Herts, SG6 1GJ United Kingdom

Manufacturer: ATI Electronics (ShenZhen) Co.,LTD

Address of manufacturer: 1/F, B Tower, Shengdelan Industrial Park, Kukeng

Village, Guanlan Town, Shenzhen, China.

General Description of EUT	
Product Name:	Bluetooth Chat Headset Dongle
Trade Name:	Gioteck
Model No.:	HC5D
Adding Model(s):	FL400D
Rated Voltage:	USB 5V

Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model HC5D, but the circuit and the electronic construction do not change, declared by the manufacturer.

Technical Characteristics of EUT				
Frequency Range:	2406-2474MHz			
Max. Field Strength:	80.70dBuV/m (at 3m field)			
Modulation:	GFSK			
Quantity of Channels:	34			
Channel Separation:	2MHz			
Antenna Type:	PCB Antenna			
Antenna Gain:	0 dBi			
Lowest Internal Frequency of EUT:	16MHz			
Device Category:	Mobile device			



#### 1.2 Test Standards

The following report is prepared on behalf of the Goodbetterbest Limited in accordance with FCC Part 15, Subpart B, Subpart C, and section 15.107, 15.203, 15.205, 15.207, 15.209 and 15.249 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.107,15.203, 15.205, 15.207, 15.209 and 15.249 of the Federal Communication Commissions rules.

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

### 1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices, and ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

#### 1.4 Test Facility

#### FCC - Registration No.: 934118

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

#### Industry Canada (IC) Registration No.: 11464A

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

# **CNAS Registration No.: L4062**

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



# 1.5 EUT Setup and Test Mode

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

Test Mode List					
Test Mode	Description	Remark			
TM1	Low Channel	2406MHz			
TM2	Middle Channel	2448MHz			
TM3	High Channel	2474MHz			

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

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

# 1.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal Date	<b>Due Date</b>
Spectrum Analyzer	Agilent	E4407B	MY41440400	2015-06-17	2016-06-16
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2015-06-17	2016-06-16
Amplifier	Agilent	8447F	3113A06717	2015-06-17	2016-06-16
Amplifier	C&D	PAP-1G18	2002	2015-06-17	2016-06-16
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2015-06-17	2016-06-16
Horn Antenna	ETS	3117	00086197	2015-06-17	2016-06-16
Horn Antenna	ETS	3116B	00088203	2015-06-17	2016-06-16
Loop Antenna	Schwarz beck	FMZB 1516	9773	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2015-06-17	2016-06-16
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2015-06-17	2016-06-16
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2015-06-17	2016-06-16

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# 2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.203	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	Compliant
§ 15.207(a)	Conducted Emission	Compliant
§ 15.209(a)(f)	Radiated Spurious Emissions	Compliant
§15.249(a)	Field Strength of Emissions	Compliant
§15.249(d)	Out of Band Emission	Compliant
§15.215 (c)	Emission Bandwidth	Compliant



# 3. Antenna Requirements

# 3.1 Standard Applicable

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

#### 3.2 Test Result

This product has an integral antenna, fulfill the requirement of this section.



### 4. Radiated Emissions

# **4.1 Measurement Uncertainty**

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is  $\pm 5.10$  dB.

### **4.2 Standard Applicable**

According to §15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field strength of fundamental	Field strength of Harmonics
	(milli-volts/meter)	(micro-volts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

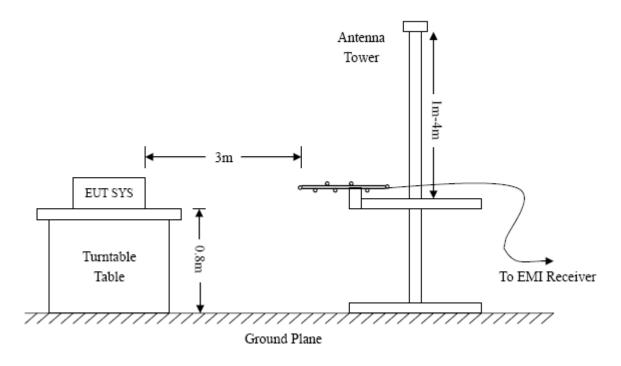
The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

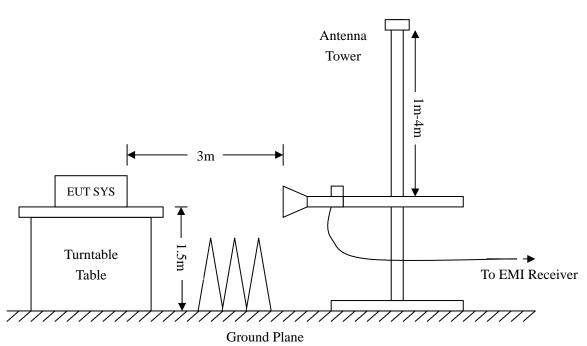
#### **4.3 Test Procedure**

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15.205 15.249(a) and FCC Part 15.209 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.







Frequency:9kHz-30MHz

RBW=10KHz,

VBW = 30KHz

Sweep time= Auto

 $Trace = max \ hold$ 

Detector function = peak

Frequency:30MHz-1GHz

RBW=120KHz,

VBW=300KHz

Sweep time= Auto

m 1 11

Trace = max hold

Detector function = peak, QP

Frequency : Above 1GHz

RBW=1MHz,

VBW=3MHz(Peak), 10Hz(AV)

Sweep time= Auto

Trace = max hold

Detector function = peak, AV



### 4.4 Corrected Amplitude & Margin Calculation

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

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

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

#### **4.5 Environmental Conditions**

Temperature:	24 °C
Relative Humidity:	60 %
ATM Pressure:	1012 mbar

#### 4.6 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.249 standards, and had the worst margin of:

-4.36 dB at 180.0165 MHz in the Vertical polarization, High Channel, 9 kHz to 25 GHz, 3Meters

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

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### Plot of Radiated Emissions Test Data (30MHz to 1GHz)

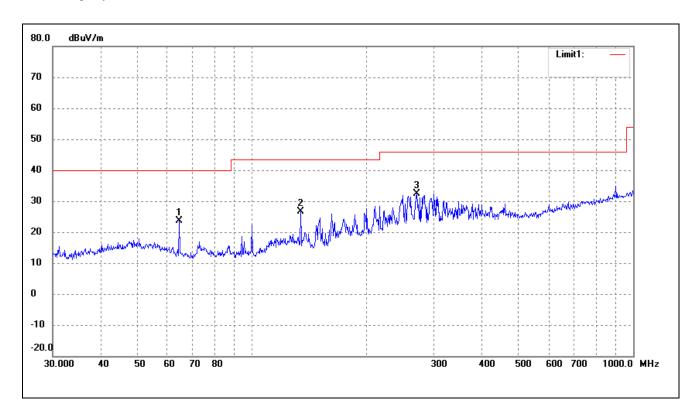
EUT: Bluetooth Chat Headset Dongle

Tested Model: HC5D

Operating Condition: Transmitting Low Channel (2406MHz)

Comment: AC 120V/60HZ USB 5V

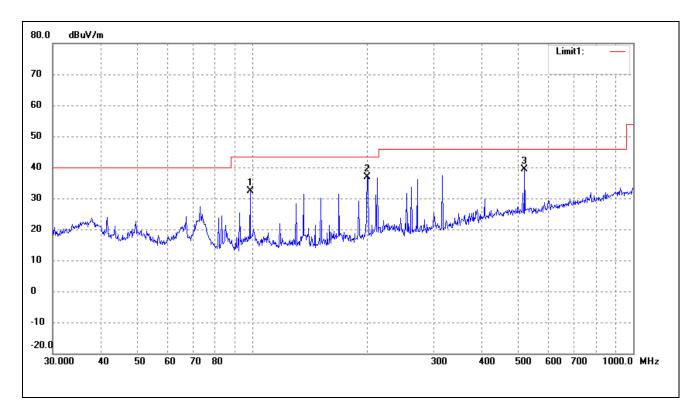
Test Specification: Horizontal



No	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	64.4331	23.23	0.44	23.67	40.00	-16.33	100	100	peak
2	134.0882	25.67	1.01	26.68	43.50	-16.82	100	200	peak
3	270.3748	26.53	5.77	32.30	46.00	-13.70	100	100	peak



Test Specification: Vertical



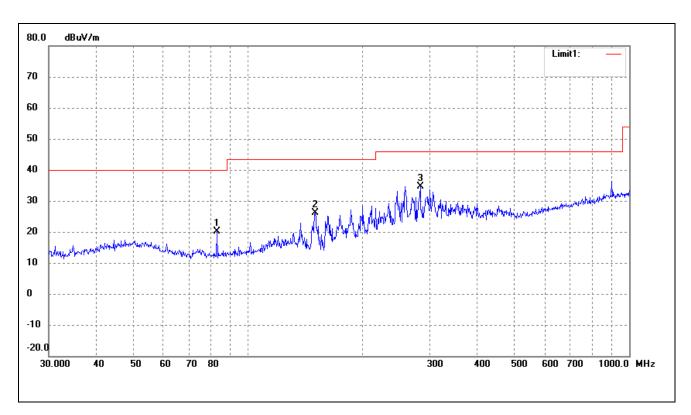
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	98.8326	31.85	0.50	32.35	43.50	-11.15	100	100	peak
2	200.6881	33.18	3.66	36.84	43.50	-6.66	100	100	peak
3	519.0649	27.82	11.59	39.41	46.00	-6.59	100	100	peak



Operating Condition: Transmitting Middle Channel (2448MHz)

Comment: AC 120V/60HZ USB 5V

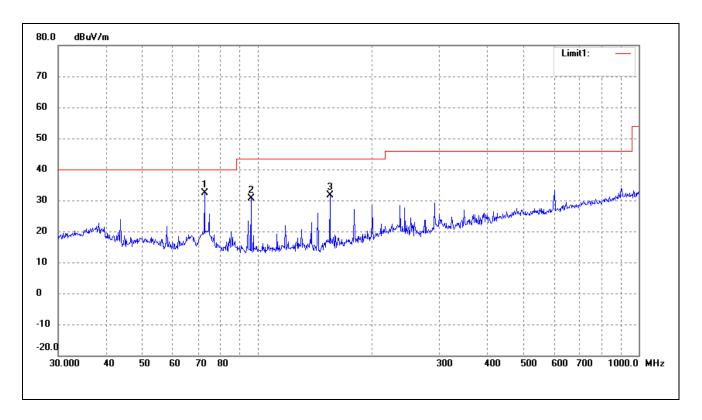
Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	82.9385	20.58	-0.39	20.19	40.00	-19.81	100	100	peak
2	150.0108	25.43	0.75	26.18	43.50	-17.32	100	100	peak
3	282.9852	28.33	6.31	34.64	46.00	-11.36	100	100	peak



Test Specification: Vertical



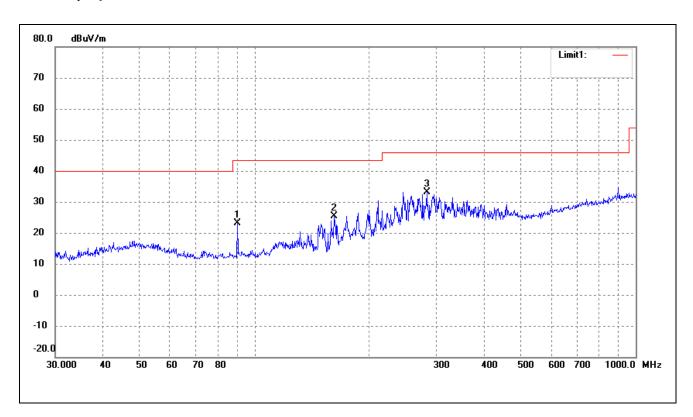
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	72.5917	33.16	-0.67	32.49	40.00	-7.51	100	100	peak
2	96.0986	30.43	0.28	30.71	43.50	-12.79	100	100	peak
3	154.8205	30.52	0.99	31.51	43.50	-11.99	100	100	peak



Operating Condition: Transmitting High Channel (2474MHz)

Comment: AC 120V/60HZ USB 5V

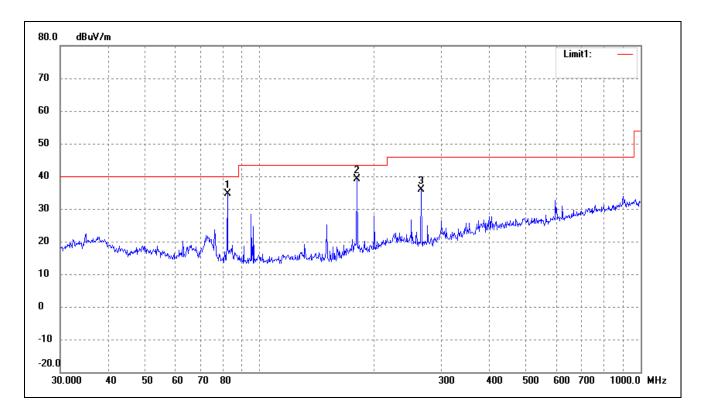
Test Specification: Horizontal



N	No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
		(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
	1	90.2205	23.38	-0.19	23.19	43.50	-20.31	100	100	peak
	2	161.4742	24.17	1.31	25.48	43.50	-18.02	100	100	peak
	3	282.9852	26.80	6.31	33.11	46.00	-12.89	100	100	peak



Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	82.3589	35.03	-0.41	34.62	40.00	-5.38	100	100	peak
2	180.0165	36.59	2.55	39.14	43.50	-4.36	100	100	peak
3	265.6757	30.24	5.73	35.97	46.00	-10.03	100	100	peak



# Spurious Emissions Above 1GHz

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
			Low Channe	el-2406MHz			
2406	84.08	-3.49	80.59	114	-33.47	Н	PK
2406	75.05	-3.49	71.56	94	-22.42	Н	AV
4812	60.81	0.57	61.38	74	-12.59	Н	PK
4812	46.75	0.57	47.32	54	-6.66	Н	AV
7218	40.82	7.18	48.02	74	-25.98	Н	PK
7218	28.80	7.18	35.98	54	-18.02	Н	AV
2406	83.22	-3.49	79.73	114	-34.27	V	PK
2406	78.24	-3.49	74.75	94	-19.25	V	AV
4812	48.39	0.57	48.96	74	-25.04	V	PK
4812	35.12	0.57	35.69	54	-18.31	V	AV
7218	40.12	5.89	46.01	74	-27.99	V	PK
7218	28.10	6.15	34.25	54	-19.75	V	AV
			Middle Chan	nel-2448MHz			
2448	81.03	-3.43	77.60	114	-33.40	Н	PK
2448	73.23	-3.43	69.80	94	-24.21	Н	AV
4896	57.47	0.66	58.13	74	-15.87	Н	PK
4896	42.89	0.66	43.55	54	-10.45	Н	AV
7344	41.08	3.11	44.19	74	-29.81	Н	PK
7344	28.93	3.33	32.26	54	-21.74	Н	AV
2448	82.48	-3.43	79.05	114	-34.95	V	PK
2448	75.13	-3.43	71.70	94	-22.30	V	AV
4896	49.01	0.66	49.67	74	-24.33	V	PK
4896	36.08	0.66	36.74	54	-17.26	V	AV
7344	41.03	7.18	48.21	74	-25.79	V	PK
7344	28.83	7.18	36.01	54	-17.99	V	AV



Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector			
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V				
	High Channel-2474MHz									
2474	84.03	-3.33	80.70	114	-33.33	Н	PK			
2474	75.13	-3.33	71.80	94	-22.23	Н	AV			
4948	53.18	0.75	53.93	74	-20.07	Н	PK			
4948	39.56	0.75	40.31	54	-13.69	Н	AV			
7412	40.49	7.11	47.60	74	-26.40	Н	PK			
7412	28.70	7.18	35.88	54	-18.12	Н	AV			
2474	82.30	-3.33	78.97	114	-35.03	V	PK			
2474	76.15	-3.33	72.82	94	-21.18	V	AV			
4948	46.52	0.75	47.27	74	-26.73	V	PK			
4948	33.70	0.75	34.45	54	-19.55	V	AV			
7412	41.30	7.23	48.53	74	-25.47	V	PK			
7412	28.76	7.18	35.94	54	-18.06	V	AV			

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, which above  $5^{th}$  Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. The measurements greater than 20dB below the limit from 9kHz to 30MHz..



# 5. Out of Band Emissions

# **5.1 Standard Applicable**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

#### **5.2 Test Procedure**

As the radiation test, set the Lowest and Highest Transmitting Channel, observed the outside band of 2400MHz to 2483.5MHz, than mark the higher-level emission for comparing with the FCC rules.

#### **5.3 Environmental Conditions**

Temperature:	24 °C
Relative Humidity:	60 %
ATM Pressure:	1012 mbar

# **5.4 Summary of Test Results/Plots**

To at one oll a	Frequency	Limit	D14
Test mode	MHz	dBuV / dBc	Result
	2310.00	<54 dBuV	Pass
Lowest	2390.00	<54 dBuV	Pass
	2400.00	<54 dBuV	Pass
II: -14	2483.50	<54 dBuV	Pass
Highest	2500.00	<54 dBuV	Pass

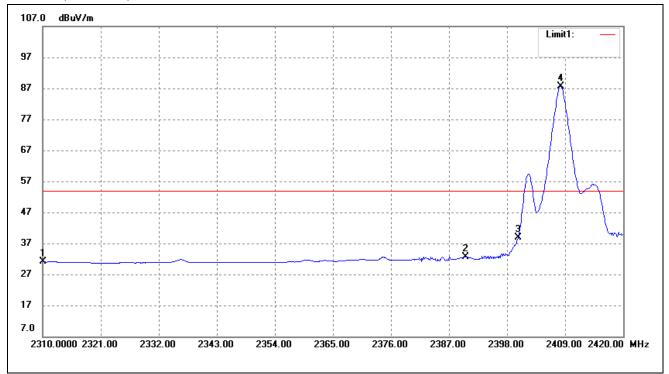
The edge emissions are below the FCC 15.209 Limits or complies with the 15.249 requirements.

Please refer to the test plots as below.



# Lowest Bandedge

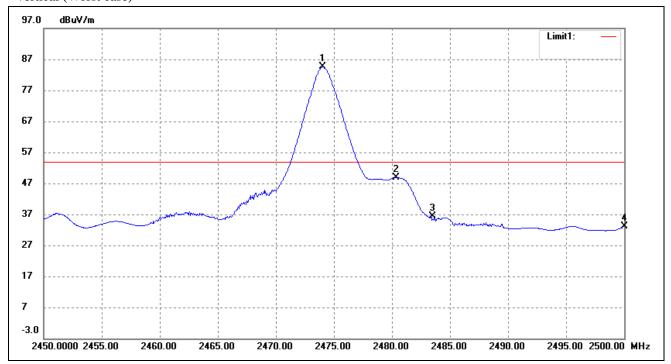
# Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	34.84	-3.82	31.02	54.00	-22.98	Ave Detector
	2310.000	47.21	-3.82	43.39	74.00	-30.61	Peak Detector
2	2390.000	36.20	-3.60	32.60	54.00	-21.40	Ave Detector
	2390.000	48.12	-3.60	44.52	74.00	-29.48	Peak Detector
3	2400.000	42.44	-3.56	38.88	54.00	-15.12	Ave Detector
	2400.000	53.93	-3.56	50.37	74.00	-23.63	Peak Detector
4	2408.120	91.27	-3.54	87.73	/	/	Ave Detector
	2407.460	93.49	-3.54	89.95	/	/	Peak Detector



# Highest Bandedge Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2474.050	87.91	-3.33	84.58	/	/	Ave Detector
	2474.400	91.67	-3.33	88.34	/	/	Peak Detector
2	2480.350	52.16	-3.32	48.84	54.00	-5.16	Ave Detector
	2479.300	64.30	-3.32	60.98	74.00	-13.02	Peak Detector
3	2483.500	39.60	-3.32	36.28	54.00	-17.72	Ave Detector
	2483.500	53.93	-3.32	50.61	74.00	-23.39	Peak Detector
4	2500.000	36.50	-3.26	33.24	54.00	-20.76	Ave Detector
	2500.000	49.98	-3.26	46.72	74.00	-27.28	Peak Detector



### 6. Emission Bandwidth

# **6.1 Standard Applicable**

According to 15.215 (c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

#### **6.2 Test Procedure**

According to the ANSI 63.4-2014, the emission bandwidth test method as follows.

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

Set span = 1MHz, centered on a transmitting channel

RBW ≥1% 20dB Bandwidth, VBW ≥RBW

Sweep = auto

Detector function = peak

Trace = max hold

All the trace to stabilize, use the marker-to-peak function to set the marker to the peak of the emission, use the marker-delta function to measure and record the 20dB down and 99% bandwidth of the emission.

#### **6.3 Environmental Conditions**

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

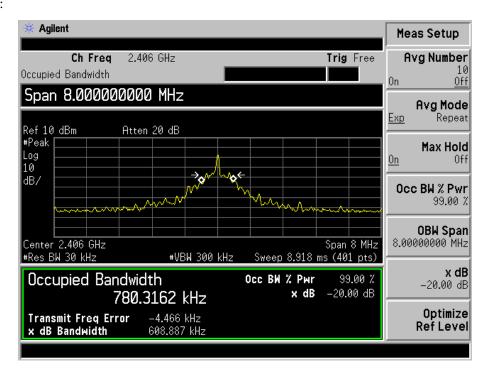
### 6.4 Summary of Test Results/Plots

Channel	Frequency MHz	20dB Bandwidth kHz	99% Bandwidth kHz
Low Channel	2406	608.887	780.3162
Middle Channel	2448	613.258	822.5590
High Channel	2474	601.378	671.2408

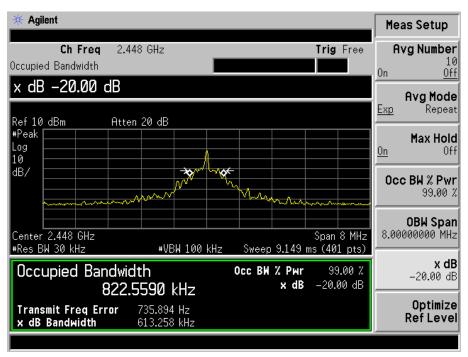
Please refer to the following test plots



#### Low Channel:

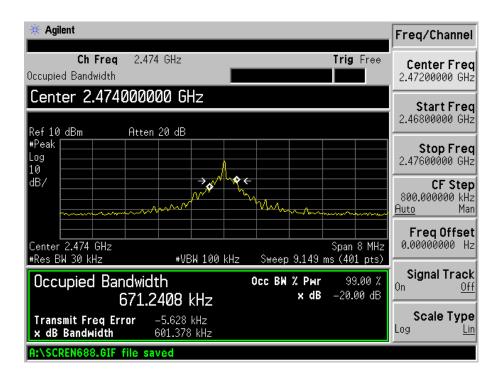


#### Middle Channel:





#### High Channel:





# 7. Conducted Emissions

# 7.1 Measurement Uncertainty

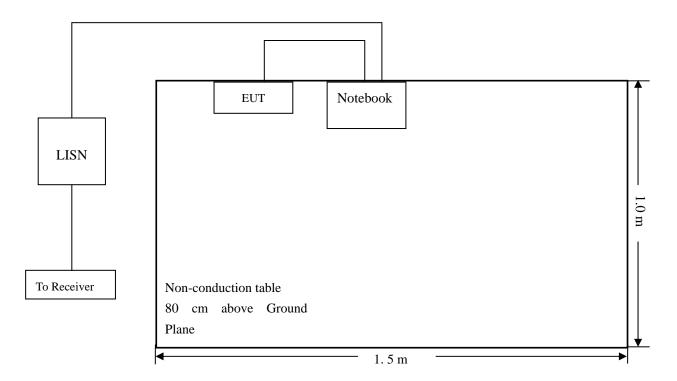
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is  $\pm$  2.88 dB.

#### 7.2 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15.207 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

### 7.3 Basic Test Setup Block Diagram



#### 7.4 Environmental Conditions

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

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# 7.5 Test Receiver Setup

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

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

# 7.6 Summary of Test Results/Plots

According to the data in section 7.7, the EUT <u>complied with the FCC Part 15.207</u> Conducted margin for this device, with the *worst* margin reading of:

-4.75 dB at 0.5940 MHz in the  $Neutral\ \text{mode}, AVG\ \text{detector}, 0.15\text{-}30\text{MHz}$ 

### 7.7 Conducted Emissions Test Data

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### **Plot of Conducted Emissions Test Data**

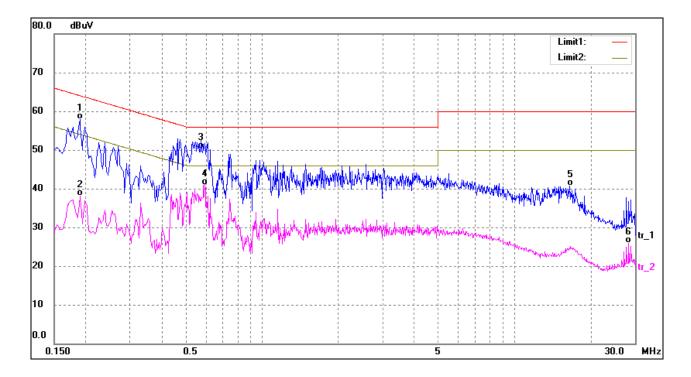
EUT: Bluetooth Chat Headset Dongle

Tested Model: HC5D

Operating Condition: Transmitting

Comment: AC 120V/60HZ USB 5V

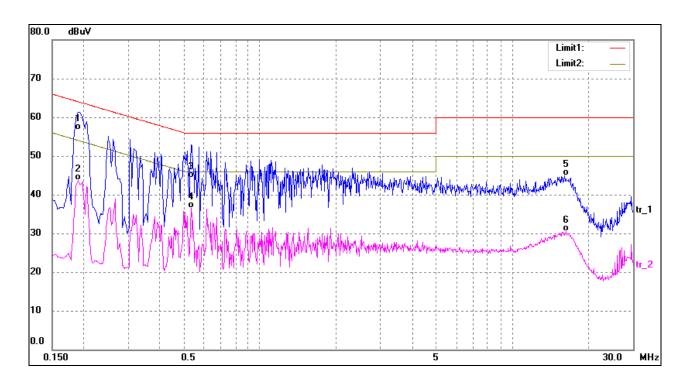
Test Specification: Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1900	48.39	9.50	57.89	64.04	-6.15	QP
2	0.1900	28.63	9.50	38.13	54.04	-15.91	AVG
3	0.5740	40.83	9.57	50.40	56.00	-5.60	QP
4*	0.5940	31.66	9.59	41.25	46.00	-4.75	AVG
5	16.5380	29.38	11.31	40.69	60.00	-19.31	QP
6	28.3580	12.96	13.00	25.96	50.00	-24.04	AVG



Test Specification: Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1900	47.20	9.50	56.70	64.04	-7.34	QP
2	0.1900	34.16	9.50	43.66	54.04	-10.38	AVG
3	0.5340	34.85	9.53	44.38	56.00	-11.62	QP
4	0.5340	26.92	9.53	36.45	46.00	-9.55	AVG
5	16.1100	33.67	11.22	44.89	60.00	-15.11	QP
6	16.3940	19.31	11.28	30.59	50.00	-19.41	AVG

# \*\*\*\*\* END OF REPORT \*\*\*\*\*