FCC Test Report

Report No.: AGC06271170302FE03

FCC ID : 2AHI6N17031

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION: Bluetooth Wireless Headphones

BRAND NAME : iLIVE

MODEL NAME : See Page 4

CLIENT : Shenzhen Ruijiahua Technology Co., LTD

DATE OF ISSUE : Apr.12, 2017

STANDARD(S)

TEST PROCEDURE(S) : FCC Part 15 Subpart C Section 15.249

REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr.12, 2017	Valid	Original Report

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1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Ruijiahua Technology Co., LTD	
Address	3rd/F, No.3 North Area of Qianjin 2nd Road, Bao'an District, Shenzhen	
Manufacturer Shenzhen Ruijiahua Technology Co., LTD		
Address	3rd/F, No.3 North Area of Qianjin 2nd Road, Bao'an District, Shenzhen	
Product Designation	Bluetooth Wireless Headphones	
Brand Name iLIVE		
Test Model	IAHKB7	
Series Model IAHKB7R, IAHKB7B, IAHKB7BU, IAHKB7P, IAHKB7PR, IAHKB7S IAHKB7RGD		
Difference description	All the same except for the appearance color. (IAHKB7R is RED, IAHKB7B is BLACK, IAHKB7BU is BLUE, IAHKB7P is PINK, IAHKB7PR is PURPLE, IAHKB7S is SILVER, IAHKB7GD is GOLD, IAHKB7RGD is ROSE GOLD)	
Date of test	Apr.05, 2017 to Apr.11, 2017	
Deviation	None	
Condition of Test Sample	Normal	
Report Template	AGCRT-US-BR/RF	

We hereby certify that:

The above equipment was tested by Dongguan Precise Testing Service Co., Ltd. The test data, the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.249.

Tested By	Honry Zhang	
	Henry Zhang(Zhang Zhuorui)	Apr.11, 2017
Reviewed By	Lowest ce	
	Forrest Lei(Lei Yonggang)	Apr.12, 2017
Approved By	Solya shong	
	Solger Zhang(Zhang Hongyi) Authorized Officer	Apr.12, 2017

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

	<u> </u>
Operation Frequency	2.402 GHz to 2.480GHz
RF Output Power	-4.03dBm(Max EIRP Power=Max radiation field-95.2)
Bluetooth Version	V 4.2
Modulation	GFSK , π /4-DQPSK, 8DPSK
Number of channels 79 for BR/EDR	
Hardware Version	V1.0
Software Version	V1.0
Antenna Designation	PCB Antenna (Met 15.203 Antenna requirement)
Antenna Gain	0dBi
Power Supply	DC 3.7V by battery

Note: 1. The USB port only be used for charging and can't be used to transfer data with PC.

2. The EUT didn't support BLE.

2.2. TABLE OF CARRIER FREQUENCYS

BR/EDR channel List

Frequency Band	Channel Number	Frequency
	0	2402MHz
	1	2403MHz
	:	:
	38	2440 MHz
2400~2483.5MHz	39	2441 MHz
	40	2442 MHz
	:	:
	77	2479 MHz
	78	2480 MHz

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3. MEASUREMENT UNCERTAINTY

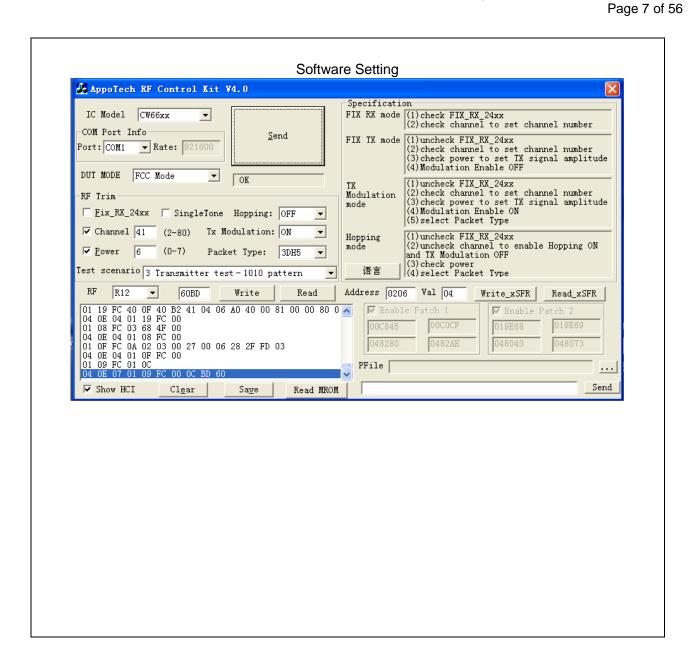
The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±3.18dB
2	All emissions,radiated	±3.91dB
3	Temperature	±0.5°C
4	Humidity	±2%

4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION		
1	Low channel GFSK		
2	Middle channel GFSK		
3	High channel GFSK		
4	Low channel π /4-DQPSK		
5	Middle channel π /4-DQPSK		
6	High channel π /4-DQPSK		
7	Low channel 8DPSK		
8	Middle channel 8DPSK		
9	High channel 8DPSK		
10	BT Link with charging		
11	BT Link		

- 1. All the test modes can be supply by battery, only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. The EUT used fully-charged battery when tested.

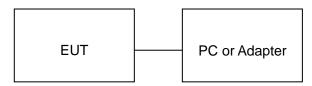


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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal hopping)



Note: Owing to the EUT has own battery, Testing will be performed while PC or adapter remove.

Configure 2: (Control continuous TX)



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Mfr/Brand	Model/Type No.	Remark
1	Bluetooth Wireless Headphones	iLIVE	IAHKB7	EUT
2	Battery	Ruijiahua	402030	Accessory
3	PC	Sony	E1412AYCW	A.E
4	PC Adapter	Sony	AC-L100	A.E
5	Control box	DOFLY	N/A	A.E
6	Adapter	IPRO	NTR-S01	A.E

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249(a) §15.209	Radiated Emission	Compliant
§15.249(d)	Band Edges	Compliant
§15.207	Conduction Emission	Compliant
§15.215	Bandwidth	Compliant

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6. TEST FACILITY

Site Dongguan Precise Testing Service Co., Ltd.	
Location Building D,Baoding Technology Park,Guangming Road2,Dongcheng District, Dongguan, Guangdong, China,	
FCC Registration No.	371540
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2014.

7.TEST METHOD

All measurements contained in this report were conducted with ANSI C63.10-2013

8. TEST EQUIPMENT LIST

FOR RADIATED EMISSION TEST (BELOW 1GHz)

Radiated Emission Test Site						
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration	
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101417	July 4, 2016	July 3, 2017	
Trilog Broadband Antenna (25M-1GHz)	SCHWARZBECK	VULB9160	9160-3355	July 4, 2016	July 3, 2017	
Signal Amplifier	SCHWARZBECK	BBV 9475	9745-0013	July 4, 2016	July 3, 2017	
RF Cable	SCHWARZBECK	AK9515E	96221	July 4, 2016	July 3, 2017	
3m Anechoic Chamber	CHENGYU	966	PTS-001	June 6, 2016	June 5, 2017	
MULTI-DEVICE Positioning Controller	MAX-FULL	MF-7802	MF780208339	N/A	N/A	
Active loop antenna (9K-30MHz)	SCHWARZBECK	FMZB1519	1519-038	June 6, 2016	June 5, 2017	
Spectrum analyzer	AGILENT	E4407B	MY46185649	June 6, 2016	June 5, 2017	
Radiation Cable 1	MXT	RS1	R005	June 6, 2016	June 5, 2017	
Radiation Cable 2	MXT	RS1	R006	June 6, 2016	June 5, 2017	

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FOR RADIATED EMISSION TEST (1GHz ABOVE)

	Radiat	ed Emission Tes	st Site		
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101417	July 4, 2016	July 3, 2017
Horn Antenna (1G-18GHz)	SCHWARZBECK	BBHA9120D	9120D-1246	July 11, 2016	July 10, 2017
Spectrum Analyzer	AGILENT	E4411B	MY4511453	July 4, 2016	July 3, 2017
Signal Amplifier	SCHWARZBECK	BBV 9718	9718-269	July 7, 2016	July 6, 2017
RF Cable	SCHWARZBECK	AK9515H	96220	July 8, 2016	July 7, 2017
3m Anechoic Chamber	CHENGYU	966	PTS-001	June 6, 2016	June 5, 2017
MULTI-DEVICE Positioning Controller	MAX-FULL	MF-7802	MF780208339	N/A	N/A
Horn Ant (18G-40GHz)	SCHWARZBECK	BBHA 9170	9170-181	June 6, 2016	June 5, 2017
Radiation Cable 1	MXT	RS1	R005	June 6, 2016	June 5, 2017
Radiation Cable 2	MXT	RS1	R006	June 6, 2016	June 5, 2017

	Conducted Emission Test Site													
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration									
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101417	July 4, 2016	July 3, 2017									
Artificial Mains Network	NARDA	L2-16B	000WX31025	July 8, 2016	July 7, 2017									
Artificial Mains Network (AUX)	NARDA	L2-16B	000WX31026	July 8, 2016	July 7, 2017									
RF Cable	SCHWARZBECK	AK9515E	96222	July 4, 2016	July 3, 2017									
Shielded Room	CHENGYU	843	PTS-002	June 6, 2016	June 5, 2017									
Conduction Cable	MXT	SE1	S003	June 6, 2016	June 5, 2017									

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9. RADIATED EMISSION

9.1TEST LIMIT

Standard FCC15.249

Fundamental Frequency	Field Strength of Fundamental	Field Strength of Harmonics
	(millivolts/meter)	(microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

Standard FCC 15.209

Frequency	Distance	Field Strengths Limit					
(MHz)	z) Meters		dB(μV)/m				
0.009 ~ 0.490	300	2400/F(kHz)					
0.490 ~ 1.705	30	24000/F(kHz)					
1.705 ~ 30	30	30					
30 ~ 88	3	100	40.0				
88 ~ 216	3	150	43.5				
216 ~ 960	3	200	46.0				
960 ~ 1000	3	500	54.0				
Above 1000	3	Other:74.0 dB(µV)/m (Peal	k) 54.0 dB(μV)/m (Average)				

Remark:

- (1) Emission level dB μ V = 20 log Emission level μ V/m
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

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9.2. MEASUREMENT PROCEDURE

1. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Below 1GHz)

- 2. The measuring distance of 3m shall used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Above 1GHz)
- 3. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.
- 4. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- 5. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform(Below 1GHz)
- 6. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak & AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(Above 1GHz)

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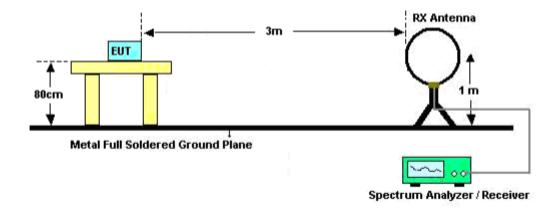
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/10Hz for Average
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

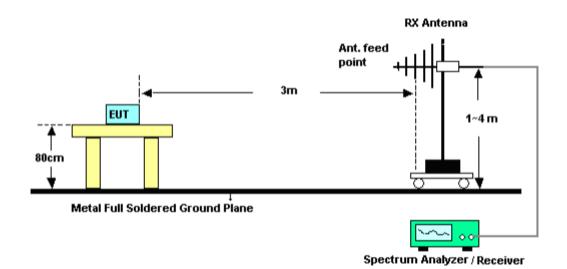
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9.3. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz

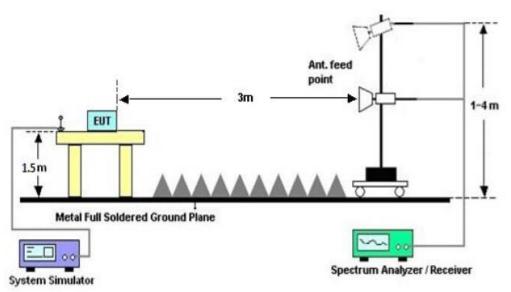


RADIATED EMISSION TEST SETUP 30MHz-1000MHz



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RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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9.4. TEST RESULT

(Worst modulation: GFSK)

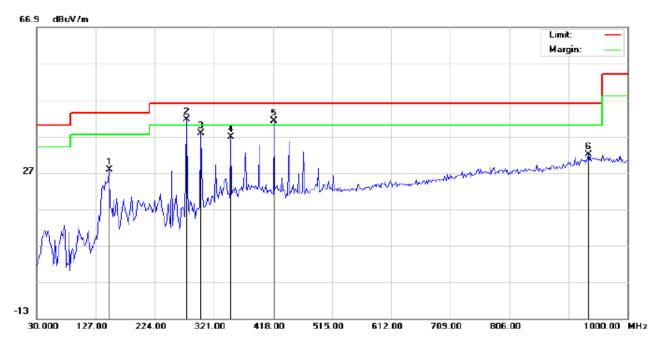
FOR BR/EDR

RADIATED EMISSION BELOW 30MHz

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHz

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL-HORIZONTAL



Site: site #1 Limit: FCC Class B 3M Radiation

EUT: Bluetooth Wireless Headphones

M/N: IAHKB7

Mode: Low Channel TX

Note:

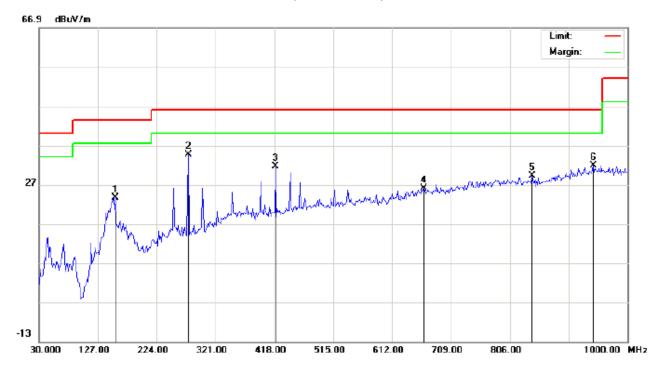
Polarization: Horizontal Temperature: 21.5 Power: Humidity: 54.3 %

Distance:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		149.6333	15.01	12.85	27.86	43.50	-15.64	peak			
2	*	275.7333	30.33	11.28	41.61	46.00	-4.39	peak			
3		299.9833	22.43	15.41	37.84	46.00	-8.16	peak			
4		348.4833	18.19	18.64	36.83	46.00	-9.17	peak			
5	ļ	419.6167	21.54	19.67	41.21	46.00	-4.79	peak			
6		935.3333	2.48	29.59	32.07	46.00	-13.93	peak			

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RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL -VERTICAL



Site: site #1

Limit: FCC Class B 3M Radiation

EUT: Bluetooth Wireless Headphones

M/N: IAHKB7

Mode: Low Channel TX

Note:

Polarization:	Vertical	Temperature: 21.	5
Power:		Humidity: 54.3 %	

Distance:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		156.1000	8.36	15.30	23.66	43.50	-19.84	peak			
2	*	275.7333	19.92	14.68	34.60	46.00	-11.40	peak			
3		419.6167	11.99	19.67	31.66	46.00	-14.34	peak			
4		663.7333	1.87	24.22	26.09	46.00	-19.91	peak			
5		843.1833	1.81	27.31	29.12	46.00	-16.88	peak			
6		943.4167	2.05	29.82	31.87	46.00	-14.13	peak			

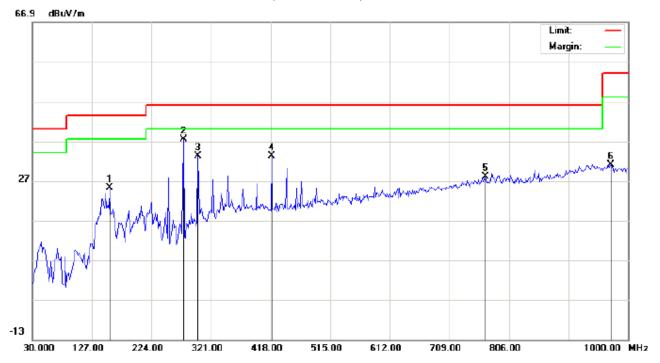
RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

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RADIATED EMISSION TEST- (30MHz-1GHz)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1 Limit: FCC Class B 3M Radiation

EUT: Bluetooth Wireless Headphones

M/N: IAHKB7

Mode: Middle Channel TX

Note:

Polarization: Horizontal Temperature: 21.5
Power: Humidity: 54.3 %

Distance:

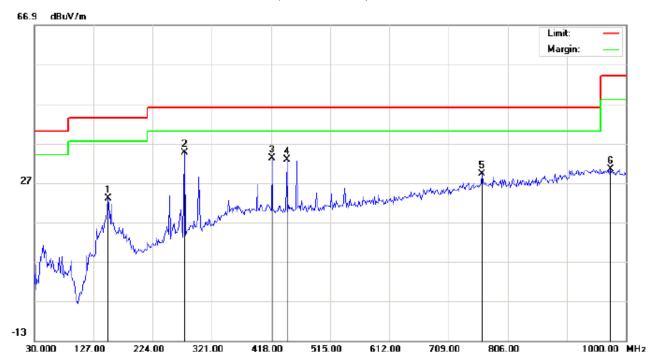
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu\//m	dBu∀/m	dB		cm	degree	
1		156.1000	13.96	11.28	25.24	43.50	-18.26	peak			
2	*	275.7333	26.13	11.28	37.41	46.00	-8.59	peak			
3		299.9833	17.81	15.41	33.22	46.00	-12.78	peak			
4		419.6167	13.53	19.67	33.20	46.00	-12.80	peak			
5		767.2000	1.10	26.87	27.97	46.00	-18.03	peak			
6		972.5167	1.32	29.78	31.10	54.00	-22.90	peak			

Temperature: 21.5

Humidity: 54.3 %

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RADIATED EMISSION TEST- (30MHz-1GHz)- MIDDLE CHANNEL -VERTICAL



Polarization:

Power:

Distance:

Vertical

Site: site #1 Limit: FCC Class B 3M Radiation

EUT:Bluetooth Wireless Headphones

M/N: IAHKB7

Mode: Middle Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		151.2500	7.72	15.27	22.99	43.50	-20.51	peak			
2	*	275.7333	19.88	14.68	34.56	46.00	-11.44	peak			
3		419.6167	13.54	19.67	33.21	46.00	-12.79	peak			
4		443.8667	12.38	20.40	32.78	46.00	-13.22	peak			
5		763.9667	2.29	26.82	29.11	46.00	-16.89	peak			
6		974.1333	0.70	29.77	30.47	54.00	-23.53	peak			

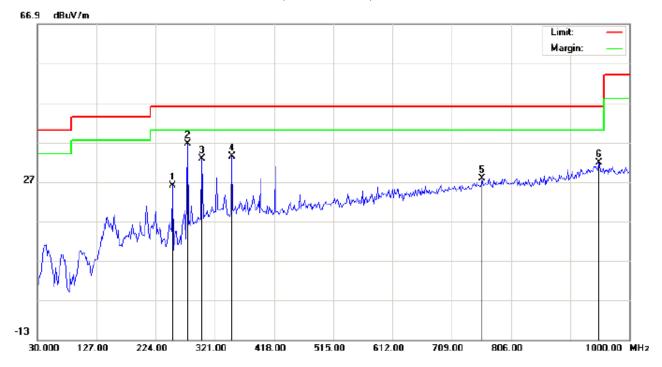
RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

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RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL-HORIZONTAL



Site: site #1 Limit: FCC Class B 3M Radiation

EUT: Bluetooth Wireless Headphones

M/N: IAHKB7

Mode: High Channel TX

Note:

Polarization: Horizontal Temperature: 21.5 Power: Humidity: 54.3 %

Distance:

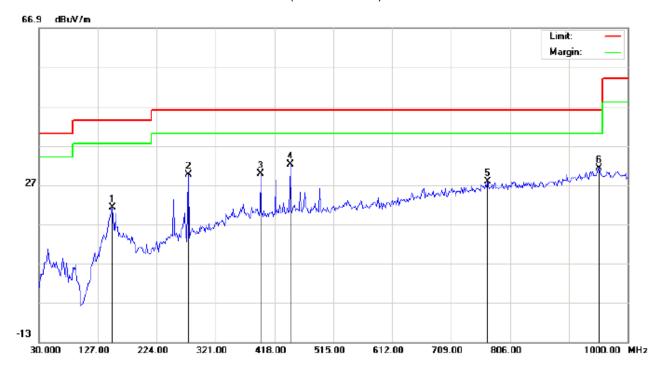
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		251.4833	18.80	7.15	25.95	46.00	-20.05	peak			
2	*	275.7333	25.31	11.28	36.59	46.00	-9.41	peak			
3		299.9833	17.46	15.41	32.87	46.00	-13.13	peak			
4		348.4833	14.82	18.64	33.46	46.00	-12.54	peak			
5		759.1167	1.08	26.76	27.84	46.00	-18.16	peak			
6		949.8833	1.78	30.00	31.78	46.00	-14.22	peak			

Temperature: 21.5

Humidity: 54.3 %

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RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL -VERTICAL



Polarization:

Power:

Distance:

Vertical

peak

Site: site #1

Limit: FCC Class B 3M Radiation

EUT: Bluetooth Wireless Headphones

M/N: IAHKB7

Mode: High Channel TX

953.1167

1.27

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Dotootor	Antenna Height	Table Degree	Comment
INO.								Detector	Tielgiit		Comment
		MHz	dBu∀	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1		151.2500	5.95	15.27	21.22	43.50	-22.28	peak			
2		275.7333	15.01	14.68	29.69	46.00	-16.31	peak			
3		395.3667	10.85	19.04	29.89	46.00	-16.11	peak			
4	*	443.8667	11.86	20.40	32.26	46.00	-13.74	peak			
5		768.8167	1.00	26.89	27.89	46.00	-18.11	peak			

46.00 -14.76

RESULT: PASS

6

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

29.97

2. The "Factor" value can be calculated automatically by software of measurement system.

31.24

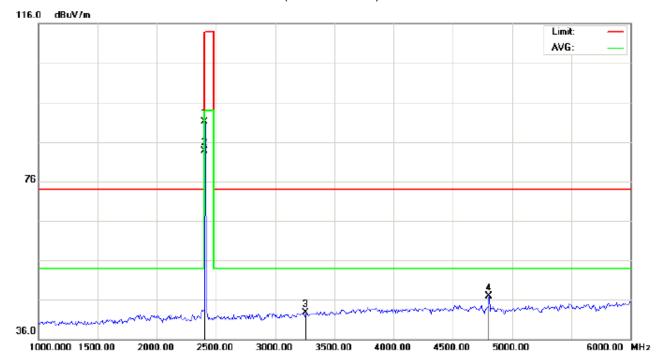
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RADIATED EMISSION ABOVE 1GHz

(Worst modulation: GFSK)

FOR BR/EDR

RADIATED EMISSION TEST- (ABOVE 1GHz)-LOW CHANNEL-HORIZONTAL



Site: site #1 Polarization: Horizontal Temperature: 22.7

Distance:

Limit: FCC Class B 3M Radiation above 1GHz(PK)- Power: Humidity: 53.6 %

EUT:Bluetooth Wireless Headphones

M/N:IAHKB7

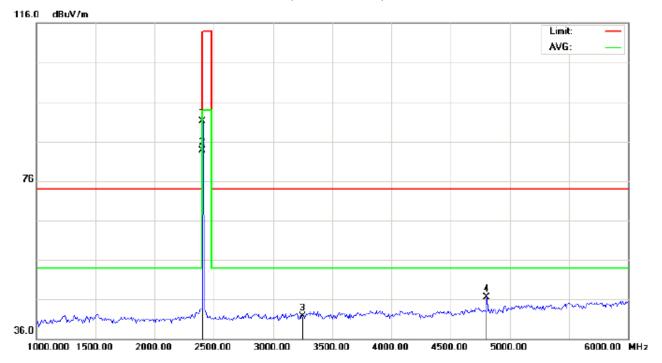
Mode: Low Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		2402.000	80.85	10.32	91.17	114.00	-22.83	peak			
2	*	2402.000	73.37	10.32	83.69	94.00	-10.31	AVG	100	17	
3		3259.000	30.80	11.88	42.68	74.00	-31.32	peak			
4		4804.000	39.24	7.69	46.93	74.00	-27.07	peak			

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RADIATED EMISSION TEST- (ABOVE 1GHz)-LOW CHANNEL- VERTICAL



Site: site #1 Polarization: Vertical Temperature: 22.7
Limit: FCC Class B 3M Radiation above 1GHz(PK)- Power: Humidity: 53.6 %

EUT:Bluetooth Wireless Headphones Distance:

M/N:IAHKB7

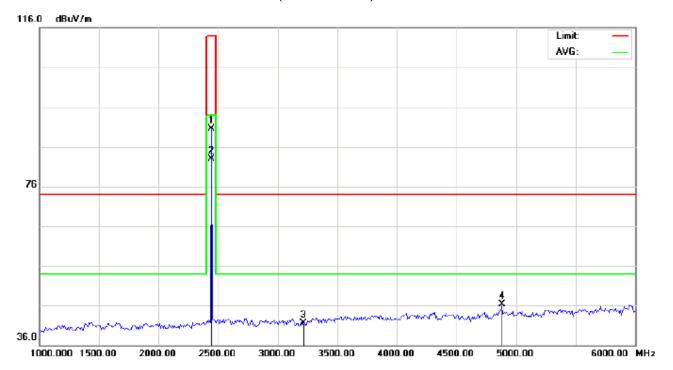
Mode: Low Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		2402.000	80.79	10.32	91.11	114.00	-22.89	peak			
2	*	2402.000	73.30	10.32	83.62	94.00	-10.38	AVG	100	34	
3		3251.000	29.90	11.88	41.78	74.00	-32.22	peak			
4		4804.000	38.88	7.69	46.57	74.00	-27.43	peak			

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RADIATED EMISSION TEST- (ABOVE 1GHz)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1 Polarization: Horizontal Temperature: 22.7
Limit: FCC Class B 3M Radiation above 1GHz(PK)- Power: Humidity: 53.6 %

EUT:Bluetooth Wireless Headphones Distance:

M/N:IAHKB7

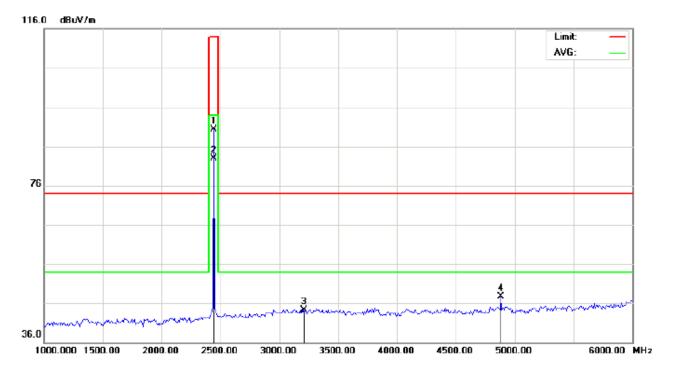
Mode: Middle Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu√/m	dB		cm	degree	
1		2441.000	80.11	10.36	90.47	114.00	-23.53	peak			
2	*	2441.000	72.60	10.36	82.96	94.00	-11.04	AVG	100	19	
3		3217.000	29.67	11.84	41.51	74.00	-32.49	peak			
4		4882.000	38.38	7.89	46.27	74.00	-27.73	peak			

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RADIATED EMISSION TEST- (ABOVE 1GHz)-MIDDLE CHANNEL- VERTICAL



Site: site #1 Polarization: Vertical Temperature: 22.7
Limit: FCC Class B 3M Radiation above 1GHz(PK)- Power: Humidity: 53.6 %

EUT:Bluetooth Wireless Headphones Distance:

M/N:IAHKB7

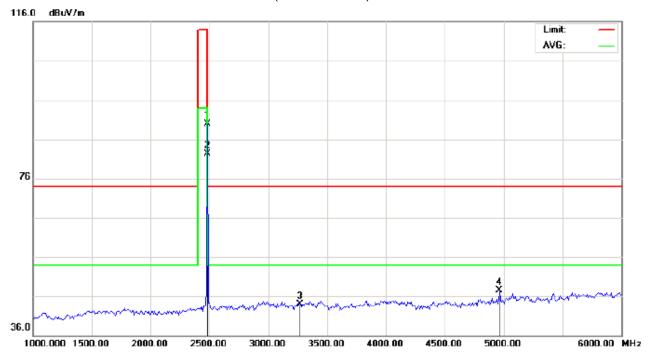
Mode: Middle Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBuV/m	dBu∀/m	dB		cm	degree	
1		2441.000	80.03	10.36	90.39	114.00	-23.61	peak			
2	*	2441.000	72.55	10.36	82.91	94.00	-11.09	AVG	100	36	
3		3209.000	32.43	11.84	44.27	74.00	-29.73	peak			
4		4882.000	39.81	7.89	47.70	74.00	-26.30	peak			

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RADIATED EMISSION TEST- (ABOVE 1GHz)-HIGH CHANNEL-HORIZONTAL



Site: site #1 Polarization: Horizontal Temperature: 22.7
Limit: FCC Class B 3M Radiation above 1GHz(PK)- Power: Humidity: 53.6 %

EUT:Bluetooth Wireless Headphones Distance:

M/N:IAHKB7

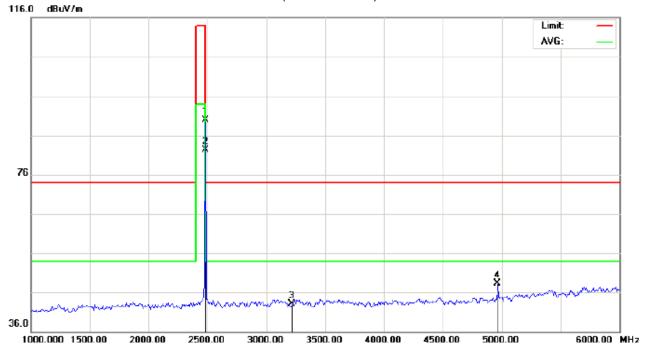
Mode: High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		2480.000	79.46	10.41	89.87	114.00	-24.13	peak			
2	*	2480.000	71.97	10.41	82.38	94.00	-11.62	AVG	100	18	
3		3269.000	32.08	11.89	43.97	74.00	-30.03	peak			
4		4960.000	39.51	8.09	47.60	74.00	-26.40	peak			

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RADIATED EMISSION TEST- (ABOVE 1GHz)-HIGH CHANNEL- VERTICAL



Site: site #1 Polarization: Vertical Temperature: 22.7
Limit: FCC Class B 3M Radiation above 1GHz(PK)- Power: Humidity: 53.6 %

EUT:Bluetooth Wireless Headphones Distance:

M/N:IAHKB7

Mode: High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		2480.000	79.42	10.41	89.83	114.00	-24.17	peak			
2	*	2480.000	71.93	10.41	82.34	94.00	-11.66	AVG	100	35	
3		3218.000	31.22	11.84	43.06	74.00	-30.94	peak			
4		4960.000	40.16	8.09	48.25	74.00	-25.75	peak			

RESULT: PASS

Note: 6~25GHz at least have 20dB margin. No recording in the test report.

Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

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Field strength of the fundamental signal

1Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	80.85	10.32	91.17	114	-22.83	Horizontal
2402	80.79	10.32	91.11	114	-22.89	Vertical
2441	80.11	10.36	90.47	114	-23.53	Horizontal
2441	80.03	10.36	90.39	114	-23.61	Vertical
2480	79.46	10.41	89.87	114	-24.13	Horizontal
2480	79.42	10.41	89.83	114	-24.17	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	73.37	10.32	83.69	94	-10.31	Horizontal
2402	73.30	10.32	83.62	94	-10.38	Vertical
2441	72.60	10.36	82.96	94	-11.04	Horizontal
2441	72.55	10.36	82.91	94	-11.09	Vertical
2480	71.97	10.41	82.38	94	-11.62	Horizontal
2480	71.93	10.41	82.34	94	-11.66	Vertical

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2Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	80.81	10.32	91.13	114	-22.87	Horizontal
2402	80.72	10.32	91.04	114	-22.96	Vertical
2441	80.05	10.36	90.41	114	-23.59	Horizontal
2441	79.99	10.36	90.35	114	-23.65	Vertical
2480	79.41	10.41	89.82	114	-24.18	Horizontal
2480	79.37	10.41	89.78	114	-24.22	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	73.32	10.32	83.64	94	-10.36	Horizontal
2402	73.25	10.32	83.57	94	-10.43	Vertical
2441	72.57	10.36	82.93	94	-11.07	Horizontal
2441	72.50	10.36	82.86	94	-11.14	Vertical
2480	71.94	10.41	82.35	94	-11.65	Horizontal
2480	71.84	10.41	82.25	94	-11.75	Vertical

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3Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	80.76	10.32	91.08	114	-22.92	Horizontal
2402	80.66	10.32	90.98	114	-23.02	Vertical
2441	79.98	10.36	90.34	114	-23.66	Horizontal
2441	79.92	10.36	90.28	114	-23.72	Vertical
2480	79.33	10.41	89.74	114	-24.26	Horizontal
2480	79.33	10.41	89.74	114	-24.26	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	73.23	10.32	83.55	94	-10.45	Horizontal
2402	73.21	10.32	83.53	94	-10.47	Vertical
2441	72.53	10.36	82.89	94	-11.11	Horizontal
2441	72.45	10.36	82.81	94	-11.19	Vertical
2480	71.88	10.41	82.29	94	-11.71	Horizontal
2480	71.77	10.41	82.18	94	-11.82	Vertical

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10. BAND EDGE EMISSION

10.1. MEASUREMENT PROCEDURE

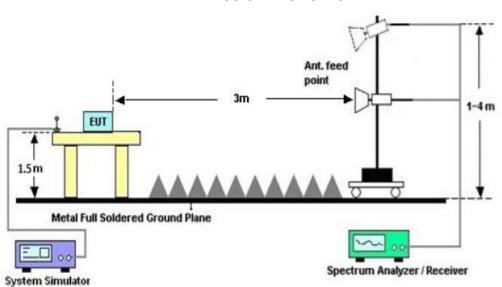
1The EUT operates at hopping-off test mode. The lowest or highest channels are tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.

2Max hold the trace of the setup 1,and the EUT operates at hopping-on test mode to verify the largest spurious emissions power.

3Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission

10.2 TEST SETUP

RADIATED EMISSION TEST SETUP



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10.3 RADIATED TEST RESULT

(Worst modulation: GFSK)

FOR BR/EDR

TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal



Site: site #1 Polarization: Horizontal Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHz(PK) Power: Humidity: 60 %

EUT:Bluetooth Wireless Headphones Distance:

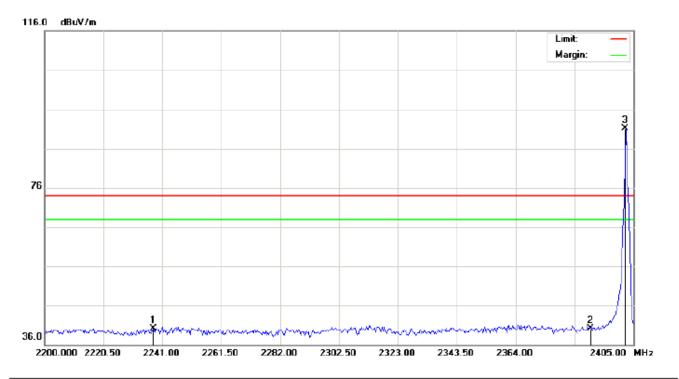
M/N:IAHKB7

Mode: Low Channel TX

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu√/m	dB		cm	degree	
1		2257.058	30.04	10.16	40.20	74.00	-33.80	peak			
2		2390.000	30.50	10.31	40.81	74.00	-33.19	peak			
3	*	2402.000	80.82	10.32	91.14	74.00	17.14	peak			

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TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical



Site: site #1 Polarization: Vertical Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHz(PK) Power: Humidity: 60 %

EUT:Bluetooth Wireless Headphones Distance:

M/N:IAHKB7

Mode: Low Channel TX

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu\//m	dBu∀/m	dB		cm	degree	
1		2237.925	29.95	10.14	40.09	74.00	-33.91	peak			
2		2390.000	29.71	10.31	40.02	74.00	-33.98	peak			
3	*	2402.000	80.76	10.32	91.08	74.00	17.08	peak			

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TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal



Site: site #1 Polarization: Horizontal Temperature: 26 Humidity: 60 % Power:

Limit: FCC Class B 3M Radiation above 1GHz(PK) Distance:

EUT:Bluetooth Wireless Headphones

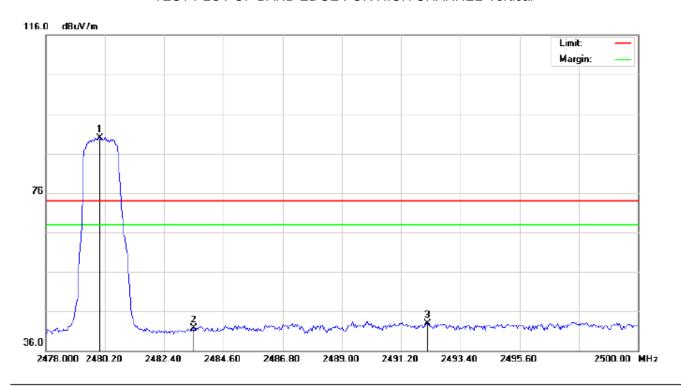
M/N:IAHKB7

Mode: High Channel TX

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1	*	2480.000	79.50	10.41	89.91	74.00	15.91	peak			
2		2483.500	30.19	10.41	40.60	74.00	-33.40	peak			
3		2491.713	31.20	10.42	41.62	74.00	-32.38	peak			

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TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical



Site: site #1 Polarization: Vertical Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHz(PK) Power: Humidity: 60 %

EUT:Bluetooth Wireless Headphones Distance:

M/N:IAHKB7

Mode: High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu\//m	dBu∀/m	dB		cm	degree	
1	*	2480.000	79.41	10.41	89.82	74.00	15.82	peak			
2		2483.500	31.26	10.41	41.67	74.00	-32.33	peak			
3		2492.190	32.48	10.42	42.90	74.00	-31.10	peak			

RESULT: PASS

Note: Factor=Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

Hopping on mode and Hopping off mode have been tested, but only worst case reported.

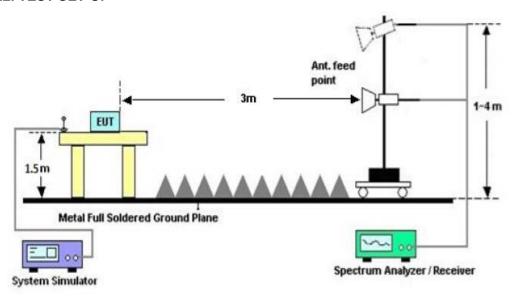
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11. 20DB BANDWIDTH

11.1. MEASUREMENT PROCEDURE

- 1. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 2. Set Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hoping channel RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ RBW; Sweep = auto; Detector function = peak
- 3. Set SPA Trace 1 Max hold, then View.

11.2. TEST SET-UP



11.3. LIMITS AND MEASUREMENT RESULTS

FOR BR/EDR

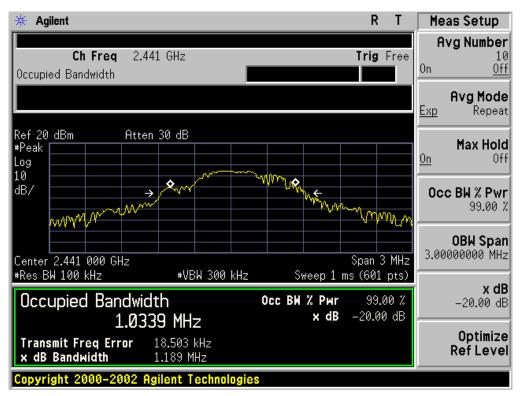
BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT										
	Measurement Result									
Applicable Limits		Decul								
		99%OBW (MHz)	-20dB BW(MHz)	Result						
	Low Channel	1.027	1.199	PASS						
N/A	Middle Channel	1.034	1.189	PASS						
	High Channel	1.040	1.206	PASS						

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TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

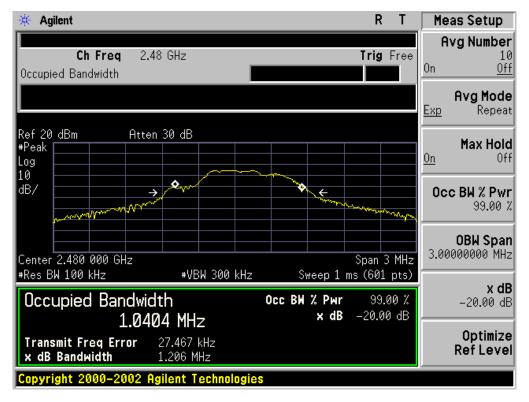


TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



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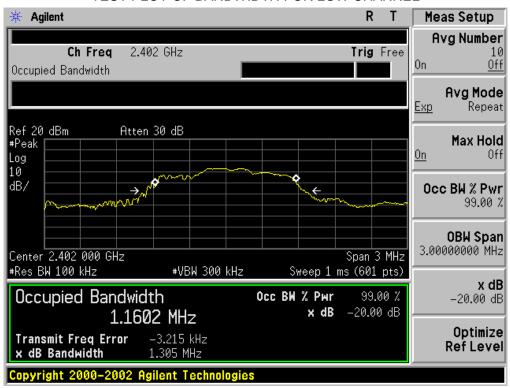
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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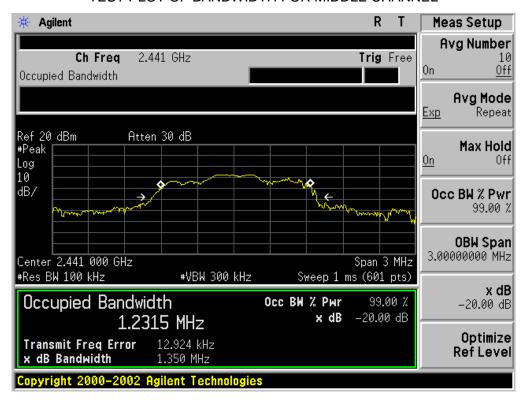
BLUETOOTH 2MBPS LIMITS AND MEASUREMENT RESULT										
	Measurement Result									
Applicable Limits		Dogult								
		99%OBW (MHz)	-20dB BW(MHz)	Result						
	Low Channel	1.160	1.305	PASS						
N/A	Middle Channel	1.232	1.350	PASS						
	High Channel	1.303	1.445	PASS						

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

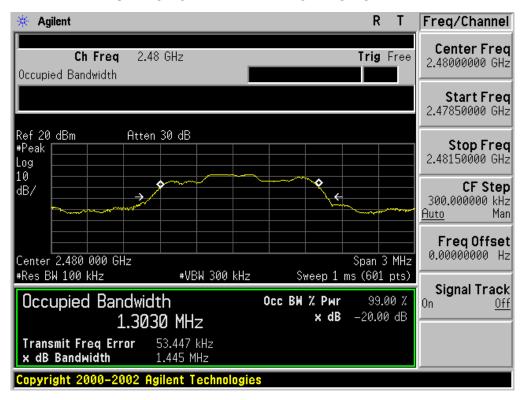


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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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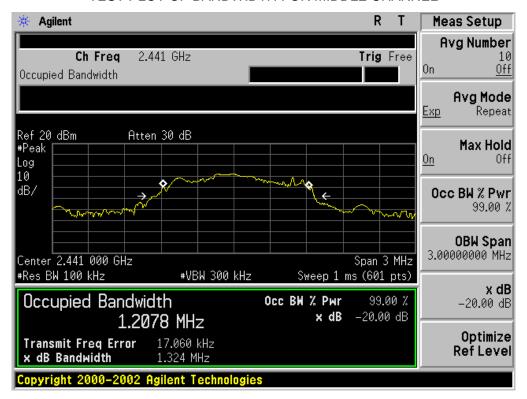
BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESULT										
	Measurement Result									
Applicable Limits		Doorle								
		99%OBW (MHz)	-20dB BW(MHz)	Result						
	Low Channel	1.193	1.302	PASS						
N/A	Middle Channel	1.208	1.324	PASS						
	High Channel	1.288	1.412	PASS						

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

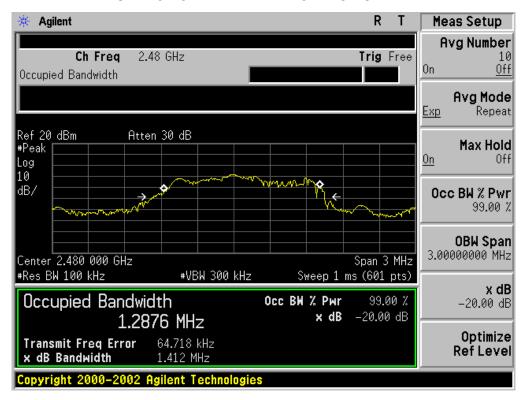


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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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12. FCC LINE CONDUCTED EMISSION TEST

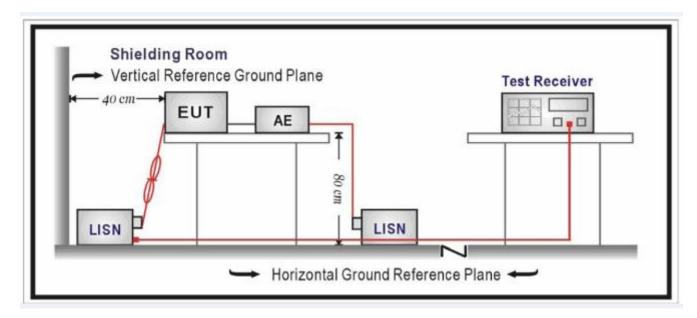
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Fraguency	Maximum RF Line Voltage							
Frequency	Q.P.(dBuV)	Average(dBuV)						
150kHz~500kHz	66-56	56-46						
500kHz~5MHz	56	46						
5MHz~30MHz	60	50						

Note:

- 1. The lower limit shall apply at the transition frequency.
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



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12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipments received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC charging voltage by adapter or PC which received 120V/60Hzpower by a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.

Humidity: 60 %

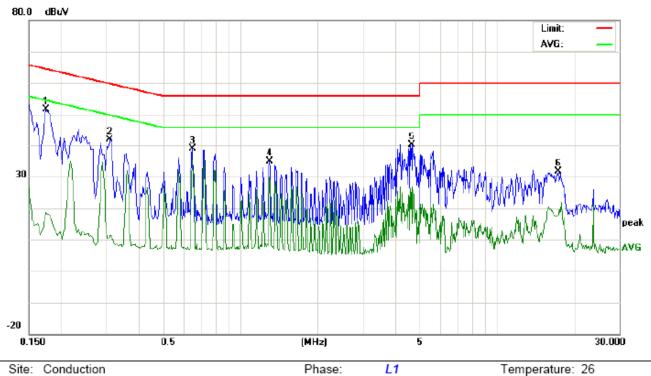
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12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

By adapter(worst case)

FOR BR/EDR

Line Conducted Emission Test Line 1-L



Site: Conduction

Limit: FCC Class B Conduction(QP)

EUT:Bluetooth Wireless Headphones

M/N:IAHKB7

Mode:BT Link with charging

Note:

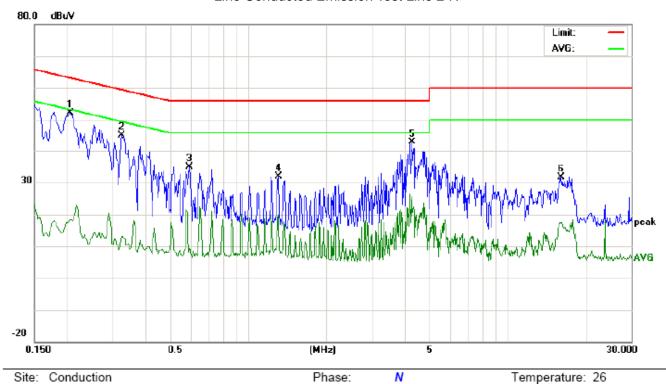
No.	Freq.	req. (dBuV)		_		Correct Measurement Factor (dBuV)		Limit (dBuV)		Margin (dB)		P/F	Comment	
	(MHz)	Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1740	41.37		8.38	10.19	51.56		18.57	64.76	54.76	-13.20	-36.19	Р	
2	0.3100	31.57		1.03	10.29	41.86		11.32	59.97	49.97	-18.11	-38.65	Р	
3	0.6500	28.62		24.88	10.33	38.95		35.21	56.00	46.00	-17.05	-10.79	Р	
4	1.3020	24.48		19.48	10.38	34.86		29.86	56.00	46.00	-21.14	-16.14	Р	
5	4.6939	30.00		16.54	10.22	40.22		26.76	56.00	46.00	-15.78	-19.24	Р	
6	17.3619	21.62		7.53	10.13	31.75		17.66	60.00	50.00	-28.25	-32.34	Р	

Power:

Humidity: 60 %

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Line Conducted Emission Test Line 2-N



Site: Conduction Limit: FCC Class B Conduction(QP)

EUT:Bluetooth Wireless Headphones

M/N:IAHKB7

Mode:BT Link with charging

Note:

No.	Freq.					Factor (dBuV)		Limit (dBuV)		Margin (dB)		P/F	Comment	
	(MHz)	Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2058	41.88		8.15	10.22	52.10		18.37	63.37	53.37	-11.27	-35.00	Р	
2	0.3260	34.92		2.93	10.30	45.22		13.23	59.55	49.55	-14.33	-36.32	Р	
3	0.5938	24.51		-0.97	10.32	34.83		9.35	56.00	46.00	-21.17	-36.65	Р	
4	1.3099	21.60		6.70	10.38	31.98		17.08	56.00	46.00	-24.02	-28.92	Р	
5	4.2819	32.57		15.20	10.31	42.88		25.51	56.00	46.00	-13.12	-20.49	Р	
6	16.1057	21.48		7.24	10.11	31.59		17.35	60.00	50.00	-28.41	-32.65	Р	

Power:

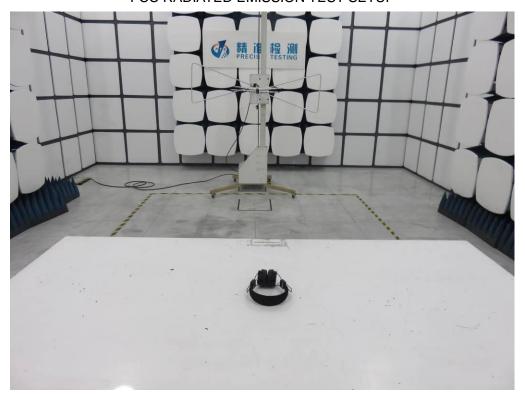
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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

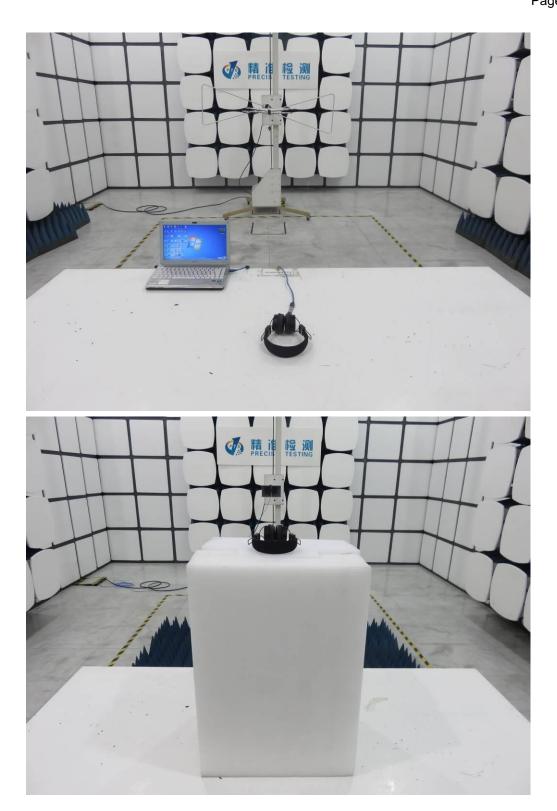
FCC LINE CONDUCTED EMISSION TEST SETUP



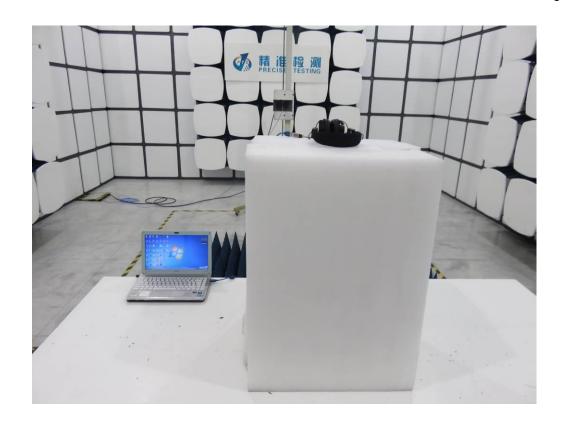
FCC RADIATED EMISSION TEST SETUP



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APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT



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FRONT VIEW OF EUT



BACK VIEW OF EUT



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LEFT VIEW OF EUT



RIGHT VIEW OF EUT



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VIEW OF EUT (PORT)-1



VIEW OF EUT (PORT)-2

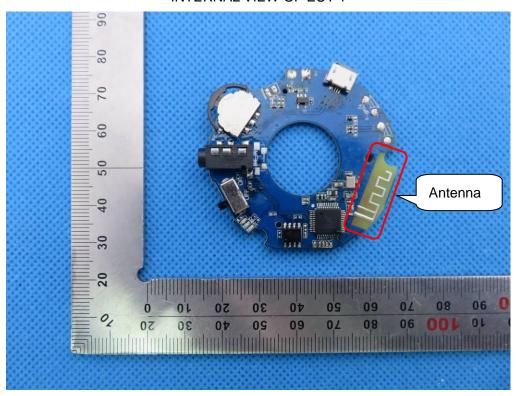


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OPEN VIEW OF EUT

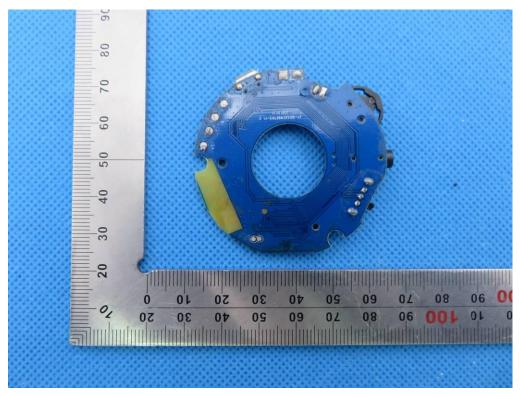


INTERNAL VIEW OF EUT-1

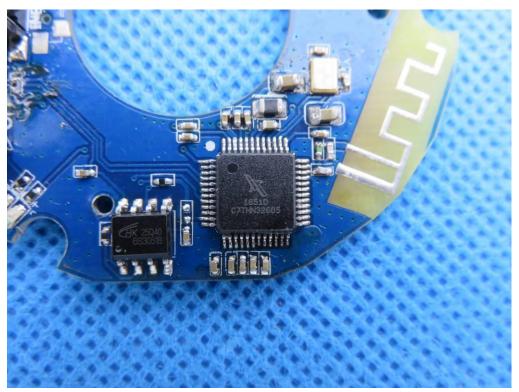


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INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



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VIEW OF ADAPTER(AE)



The adapter was supplied by AGC

----END OF REPORT----