FCC Test Report

Report No.: AGC06271170401FE03

FCC ID	:	2AHI6NIAEB37
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Wireless Stereo Earbuds
BRAND NAME	:	iLIVE
MODEL NAME	:	See Page 4
CLIENT	:	Shenzhen Ruijiahua Technology Co., LTD
DATE OF ISSUE	:	Apr.19, 2017
STANDARD(S) TEST PROCEDURE(S)	:	FCC Part 15 Subpart C Section 15.249
REPORT VERSION	:	V1.0



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Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr.19, 2017	Valid	Original Report

Report Revise Record

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1. VERIFICATION OF CO	
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	Wireless Stereo Earbuds
Brand Name	iLIVE
Test Model	IAEB37
Series Model	IAEB37R, IAEB37B, IAEB37BU, IAEB37P, IAEB37PR, IAEB37S, IAEB37GD, IAEB37RGD
Difference description	All the same except for the appearance color(IAEB37R is RED, IAEB37B is BLACK, IAEB37BU is BLUE, IAEB37P is PINK, IAEB37PR is PURPLE, IAEB37S is SILVER, IAEB37GD is GOLD, IAEB37RGD is ROSE GOLD)
Date of test	Apr.11, 2017 to Apr.15, 2017
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-BR/RF

1. VERIFICATION OF CONFORMITY

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.

Zhang Harry **Tested By** Henry Zhang(Zhang Zhuorui) Apr.15, 2017 owers is **Reviewed By** Forrest Lei(Lei Yonggang) Apr.19, 2017 Silya 2hong Approved By Solger Zhang(Zhang Hongyi) Apr.19, 2017 Authorized Officer

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

, , , , , , , , , , , , , , , , , , , ,		
Operation Frequency	2.402 GHz to 2.480GHz	
RF Output Power	-4.86dBm(Max EIRP Power=Max radiation field-95.2)	
Bluetooth Version	V4.2	
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	
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

3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y \pm 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

TEST MODE DESCRIPTION
Low channel GFSK
Middle channel GFSK
High channel GFSK
Low channel π /4-DQPSK
Middle channel π /4-DQPSK
High channel π /4-DQPSK
Low channel 8DPSK
Middle channel 8DPSK
High channel 8DPSK
BT Link with charging
BT Link

Note:

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.

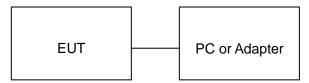
3. The EUT used fully-charged battery when tested.

DUT MODE FCC Mode OK DUT MODE FCC Mode OK RF Trim OK Fix_RX_24xx SingleTone Hopping: OFF ✓ Channel 41 (2-80) Tx Modulation: ON ✓ Power 6 (0-7) Packet Type: 3DH5 • est scenario 3 Transmitter test - 1010 pattern RF R12 60ED Write Read Address 01 19 FC 40 0F 40 B2 41 04 06 A0 40 00 81 00 00 80 0 01 08 FC 03 68 4F 00 04 0E 04 01 19 FC 00 01 08 FC 00 368 4F 00 01 00 FC 00 A02 03 00 27 00 06 28 2F FD 03 01 09 FC 01 0C	🔓 AppoTech RF Control Kit ¥4.0				
Port: COM1 • Rate: 921600 Jenu DUT MODE FCC Mode OK RF Trim OK (1) uncheck FIX_RX_24xx SingleTone Hopping: OFF (1) uncheck FIX_RX_24xx V Channel 41 (2-80) Tx Modulation: ON V Channel 41 (2-80) Tx Modulation: ON V Power 6 (0-7) Packet Type: Sets scenario 3 Transmitter test - 1010 pattern (3) check power est scenario 3 Transmitter test - 1010 pattern (3) check power 04 0E 04 01 19 FC 40 0F 40 E2 41 04 06 A0 40 00 81 00 00 80 0 (4) Enable Patch 1 (7) Enable Patch 1 04 0E 04 01 0F FC 00 01 0F FC 00 02 03 00 27 00 06 28 2F FD 03 (4) Eaable Patch 1 (7) Enable Patch 1 04 0E 07 01 09 FC 00 0C BD 60 90 (4) Eaable Patch 1 (4) Eaable Patch 2 (1) Enable Patch 2 04 0E 07 01 09 FC 00 0C BD 60 (4) 00 FC 00 (5) FC 00 (4) Eaable Patch 1 (4) Eaable Patch 2 04 0E 07 01 09 FC 00 0C BD 60 (5) FC 00 (6) FC D0 (7) FC 00 (7) FC 00 (7) FC 00 01 09 FC 01 0C (7) 00 FC 00			(1) check FIX_R	X_24xx el to set cha	nnel number
RF Trim (1) uncheck FIX_RX_24xx Modulation F Fix_RX_24xx SingleTone Hopping: OFF Channel 41 (2-80) Tx Modulation: ON Pewer 6 GOED Tx RF R12 60ED Write Read Address 0206 V4 0E 04 01 0F FC 00 00 08 00 01 09 FC 01 0C 00 08 25 FFD 03 04 0E 07 01 09 FC 00 00 02 ED 60	Port: COM1 Rate: 921600	FIX TX mode	(2) check chann (3) check power	el to set cha to set TX si	
▼ Channel 41 (2-80) Tx Modulation: ON ▼ ▼ Power 6 (0-7) Packet Type: 3DH5 ▼ est scenario 3 Transmitter test - 1010 pattern ▼ Hopping (1) uncheck FIX_RX_24xx (2) uncheck channel to enable Hopping ON and TX Modulation OFF (3) check power RF R12 60BD Write Read Address 0206 Val 04 Write_xSFR Read_xSFR 01 19 FC 40 0F 40 B2 41 04 06 A0 40 00 81 00 00 80 0 ● ● Enable Patch 1 ● Enable Patch 2 01 08 FC 03 68 4F 00 ● 000 02 70 00 06 28 2F FD 03 ●	RF Trim	Modulation	(2) check chann (3) check power (4) Modulation	el to set cha to set TX si Enable ON	
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01 19 FC 40 0F 40 B2 41 04 06 A0 40 00 81 00 00 80 0 ↑ 40 0E 04 01 19 FC 00 01 08 FC 03 68 4F 00 04 0E 04 01 08 FC 00 01 0F FC 0A 02 03 00 27 00 06 28 2F FD 03 04 0E 04 01 0F FC 00 01 09 FC 01 0C 04 0E 07 01 09 FC 00 0C BD 60 FF 18 04 0E 07 01 09 FC 00 0C BD 60 FF 18 04 0E 07 01 09 FC 00 0C BD 60 FF 18 04 0E 07 01 09 FC 00 0C BD 60	Test scenario 3 Transmitter test-1010 pattern 💌	语言	(3) check power		
04 0E 04 01 19 FC 00 01 08 FC 03 68 4F 00 04 0E 04 01 08 FC 00 01 0F FC 0A 02 03 00 27 00 06 28 2F FD 03 04 0E 04 01 0F FC 00 01 09 FC 01 0C 04 0E 07 01 09 FC 00 0C ED 60 FFile FFile	RF R12 - 60BD Write Read	Address 020	6 Val 04	Write_xSFR	Read_xSFR
04 0E 07 01 09 FC 00 0C BD 60	04 0E 04 01 19 FC 00 01 08 FC 03 68 4F 00 04 0E 04 01 08 FC 00 01 0F FC 0A 02 03 00 27 00 06 28 2F FD 03 04 0E 04 01 0F FC 00	00C845	DOCOCF	019E68	019E69 048073
V Show HUI Ulgar Save Read MROM	04 0E 07 01 09 FC 00 0C BD 60				
	Show HCI <u>Clear</u> Saye Read MROM				

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

ltem	Equipment	Mfr/Brand	Model/Type No.	Remark
1	Wireless Stereo Earbuds	iLIVE	IAEB37	EUT
2	Battery	Ruijiahua	501225	Accessory
3	PC	Sony	E1412AYCW	A.E
4	PC Adapter	Sony	AC-L100	A.E
5	Control box	DOFLY	LY-USB-TIL V2.2	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

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	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	МХТ	RS1	R005	June 6, 2016	June 5, 2017							
Radiation Cable 2	MXT	RS1	R006	June 6, 2016	June 5, 2017							

	Radiated Emission Test Site											
Name of Equipment Manufacturer Model Number Serial Number Last Calibration C												
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	МХТ	RS1	R005	June 6, 2016	June 5, 2017							
Radiation Cable 2	МХТ	RS1	R006	June 6, 2016	June 5, 2017							

FOR RADIATED EMISSION TEST (1GHz ABOVE)

	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								

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 Strer	ngths Limit				
(MHz)	Meters	μ V/m	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 (Peał	κ) 54.0 dB(μV)/m (Average)				
Remark: (1) Emission le	evel dBµ V = 20 log Emissio	n level µ V/m					
(2) The smalle	r limit shall apply at the cros	s point between two frequen	cy bands.				
(3) Distance is the distance in meters between the measuring instrument, antenna and the close							

point of any part of the device or system.

9.2. MEASUREMENT PROCEDURE

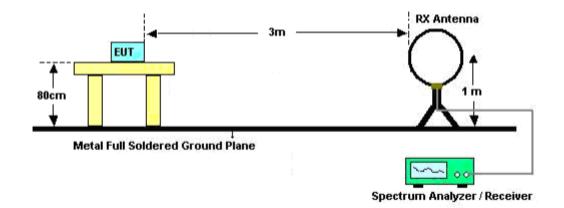
- The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Below 1GHz)
- 2. The measuring distance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

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

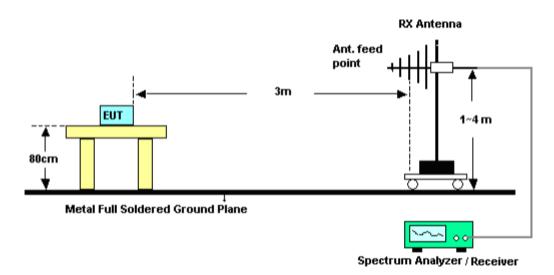
The following table is the setting of spectrum analyzer and receiver.

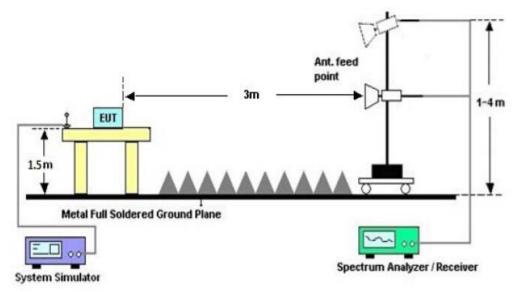
9.3. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz





RADIATED EMISSION TEST SETUP ABOVE 1000MHz

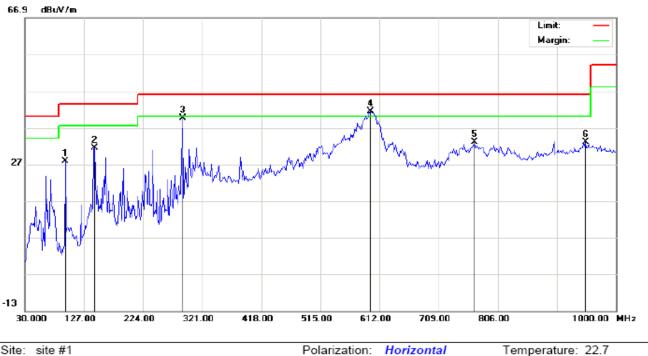
9.4. TEST RESULT (Worst modulation:GFSK) FOR BR/EDR

RADIATED EMISSION BELOW 30MHz

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

RADIATED EMISSION BELOW 1GHz

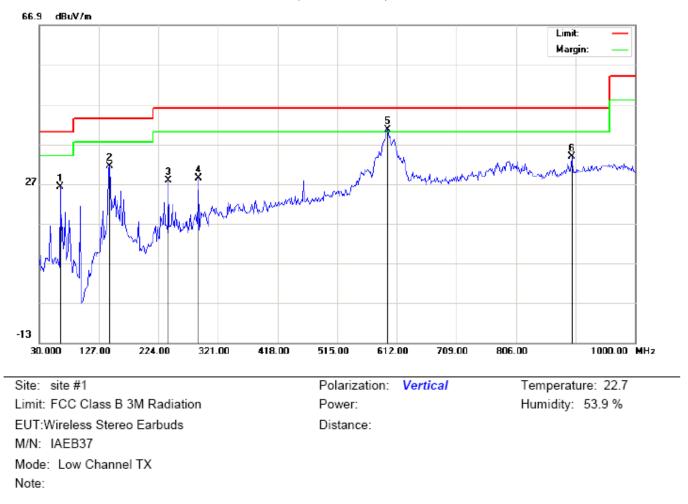
RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL-HORIZONTAL



Site: site #1 Limit: FCC Class B 3M Radiation EUT:Wireless Stereo Earbuds M/N: IAEB37 Mode: Low Channel TX Note:

Power: Distance: Humidity: 53.9 %

```
Antenna
                                                                                      Table
                    Reading
                              Factor
                                       Measurement
                                                     Limit
                                                            Over
           Freq.
    Mk
                                                                             Height
                                                                                     Degree
No.
                                                                   Detector
                                                                                                  Comment
           MHz
                     dBu∨
                               dB/m
                                          dBuV/m
                                                    dBuV/m
                                                                                      degree
                                                             dB
                                                                               cm
 1
         96.2833
                     21.01
                               6.77
                                          27.78
                                                     43.50
                                                            -15.72
                                                                    peak
 2
         144.7833
                     17.40
                              14.04
                                          31.44
                                                     43.50
                                                            -12.06
                                                                    peak
 3
         288.6667
                     26.12
                              13.48
                                          39.60
                                                     46.00
                                                            -6.40
                                                                    peak
 4
         597.4500
                     17.76
                              23.67
                                          41.43
                                                     46.00
                                                            -4.57
                                                                    peak
 5
         767.2000
                     6.11
                              26.87
                                          32.98
                                                     46.00
                                                            -13.02
                                                                    peak
                     2.99
 6
         949.8833
                              30.00
                                          32.99
                                                     46.00
                                                            -13.01
                                                                    peak
```



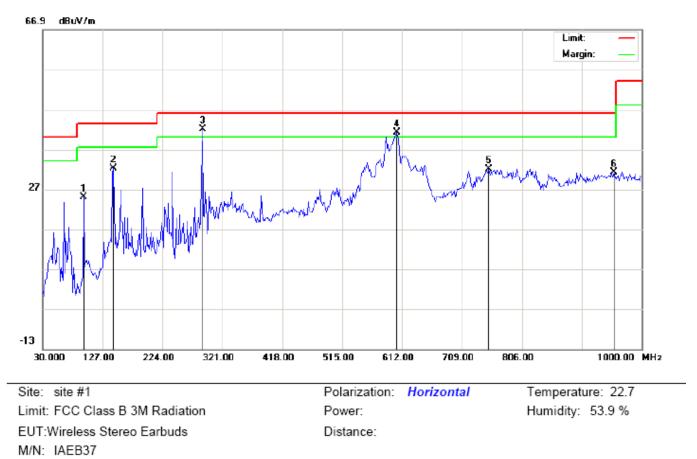
RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL -VERTICAL

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
	-	MHz	dBu∨	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1		63.9500	19.60	6.61	26.21	40.00	-13.79	peak			
2		144.7833	16.12	15.23	31.35	43.50	-12.15	peak			
3		240.1667	14.78	12.94	27.72	46.00	-18.28	peak			
4		288.6667	13.30	15.07	28.37	46.00	-17.63	peak			
5	*	597.4500	17.84	22.72	40.56	46.00	-5.44	peak			
6		896.5333	5.25	28.52	33.77	46.00	-12.23	peak			

RESULT: PASS

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

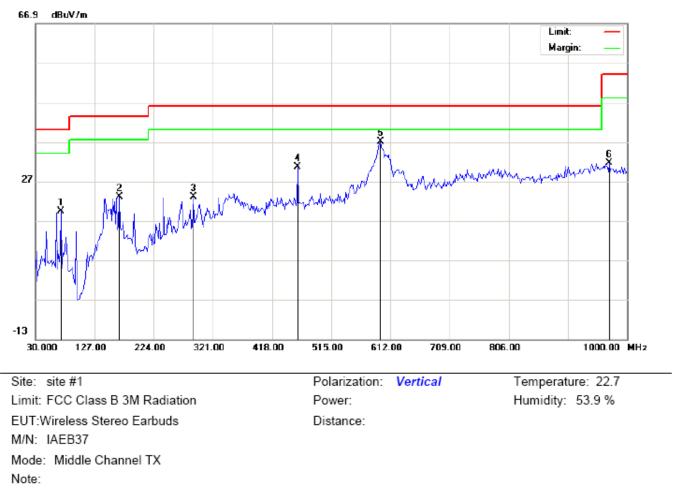
2. The "Factor" value can be calculated automatically by software of measurement system.



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

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	dBuV/m	dB		cm	degree	
1		96.2833	18.16	6.77	24.93	43.50	-18.57	peak			
2		144.7833	18.12	14.04	32.16	43.50	-11.34	peak			
3	*	288.6667	28.49	13.48	41.97	46.00	-4.03	peak			
4	İ	603.9167	17.51	23.74	41.25	46.00	-4.75	peak			
5		752.6500	5.27	26.67	31.94	46.00	-14.06	peak			
6		954.7333	1.35	29.95	31.30	46.00	-14.70	peak			



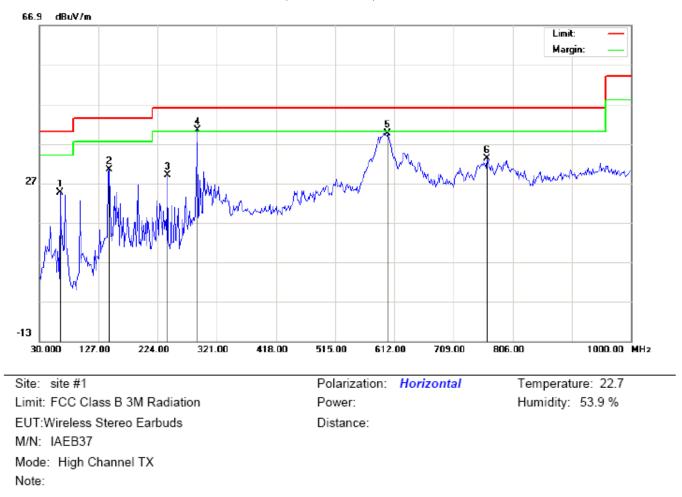
RADIATED EMISSION TEST- (30MHz-1GHz)- MIDDLE CHANNEL -VERTICAL

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
	-	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		72.0333	15.68	3.76	19.44	40.00	-20.56	peak			
2		167.4167	8.24	14.86	23.10	43.50	-20.40	peak			
3		288.6667	7.89	15.07	22.96	46.00	-23.04	peak			
4		460.0333	9.94	20.70	30.64	46.00	-15.36	peak			
5	*	595.8333	14.35	22.71	37.06	46.00	-8.94	peak			
6		970.9000	1.86	29.80	31.66	54.00	-22.34	peak			

RESULT: PASS

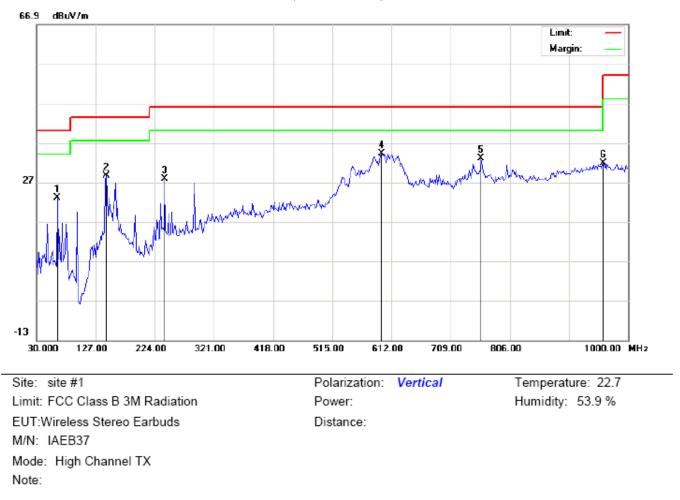
Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

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



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

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBuV/m	dB		cm	degree	
1		63.9500	20.17	4.36	24.53	40.00	-15.47	peak			
2		144.7833	16.44	14.04	30.48	43.50	-13.02	peak			
3		240.1667	21.20	7.90	29.10	46.00	-16.90	peak			
4	*	288.6667	26.90	13.48	40.38	46.00	-5.62	peak			
5		600.6833	15.93	23.73	39.66	46.00	-6.34	peak			
6		763.9667	6.29	26.82	33.11	46.00	-12.89	peak			



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

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		63.9500	16.39	6.61	23.00	40.00	-17.00	peak			
2		144.7833	13.28	15.23	28.51	43.50	-14.99	peak			
3		240.1667	14.86	12.94	27.80	46.00	-18.20	peak			
4	*	595.8333	11.42	22.71	34.13	46.00	-11.87	peak			
5		759.1167	6.24	26.76	33.00	46.00	-13.00	peak			
6		959.5833	1.90	29.91	31.81	46.00	-14.19	peak			

RESULT: PASS

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

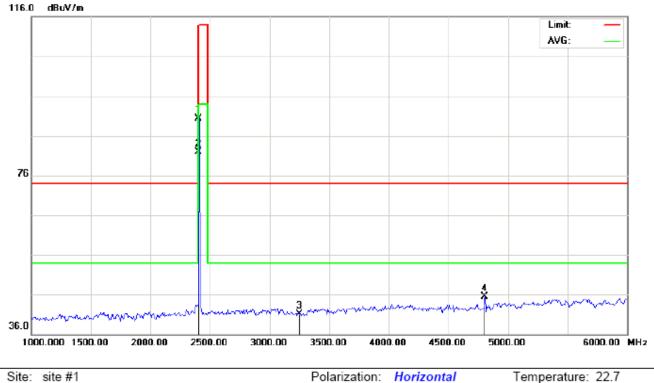
2. The "Factor" value can be calculated automatically by software of measurement system.

RADIATED EMISSION ABOVE 1GHz

(Worst modulation: GFSK)

FOR BR/EDR

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



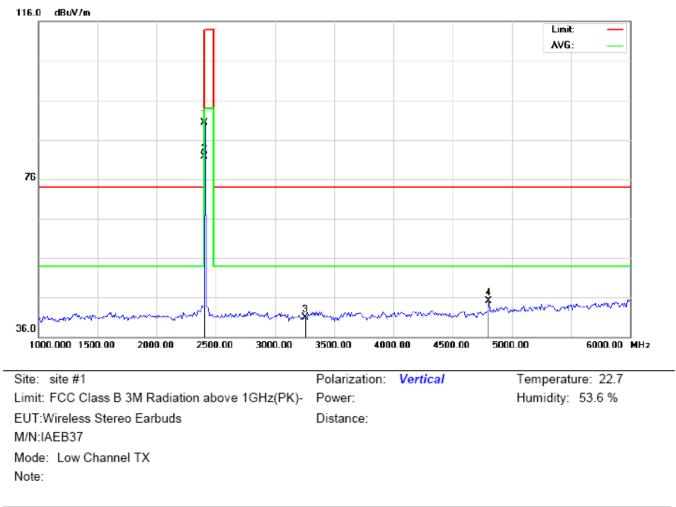
Site: site #1 Limit: FCC Class B 3M Radiation above 1GHz(PK)-EUT:Wireless Stereo Earbuds M/N:IAEB37 Mode: Low Channel TX Note:

Power:

Temperature: 22.7 Humidity: 53.6 %

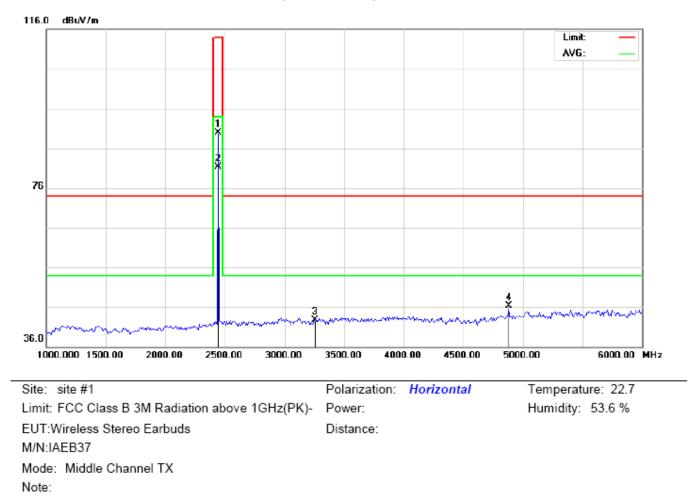
Distance:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1		2402.000	80.02	10.32	90.34	114.00	-23.66	peak			
2	*	2402.000	71.50	10.32	81.82	94.00	-12.18	AVG	100	74	
3		3251.000	29.22	11.88	41.10	74.00	-32.90	peak			
4		4804.000	37.74	7.69	45.43	74.00	-28.57	peak			



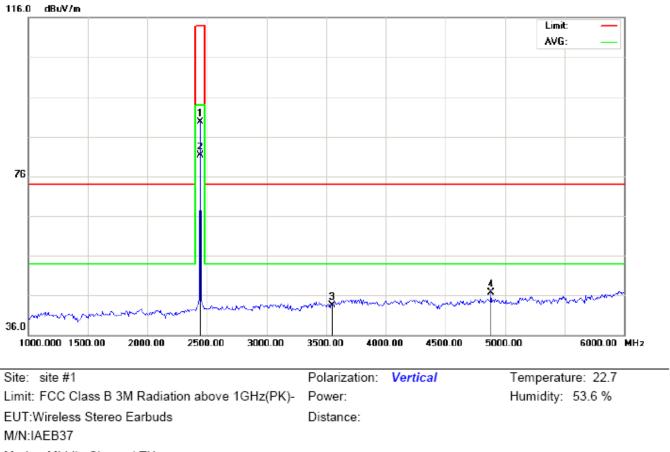
RADIATED EMISSION TEST- (ABOVE 1GHz)-LOW CHANNEL- VERTICAL

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2402.000	79.94	10.32	90.26	114.00	-23.74	peak			
2	*	2402.000	71.43	10.32	81.75	94.00	-12.25	AVG	100	53	
3		3259.000	29.05	11.88	40.93	74.00	-33.07	peak			
4		4804.000	37.38	7.69	45.07	74.00	-28.93	peak			



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

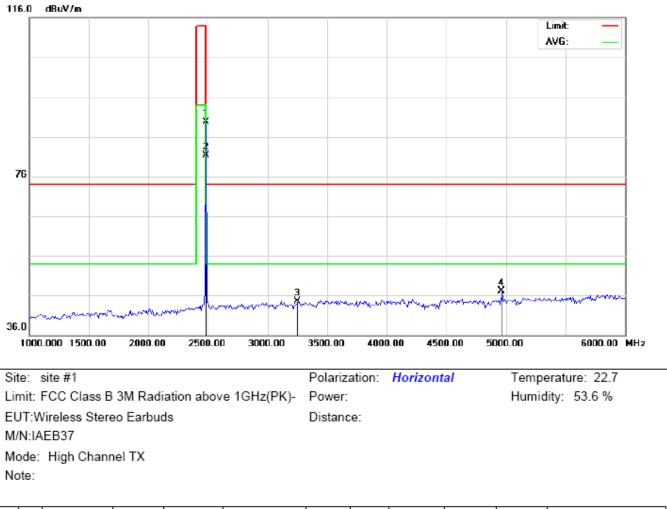
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
	•	MHz	dBu∀	dB/m	dBu∀/m	dBuV/m	dB		cm	degree	
1		2441.000	79.48	10.36	89.84	114.00	-24.16	peak			
2	*	2441.000	70.98	10.36	81.34	94.00	-12.66	AVG	100	75	
3		3259.000	30.87	11.88	42.75	74.00	-31.25	peak			
4		4882.000	38.38	7.89	46.27	74.00	-27.73	peak			



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

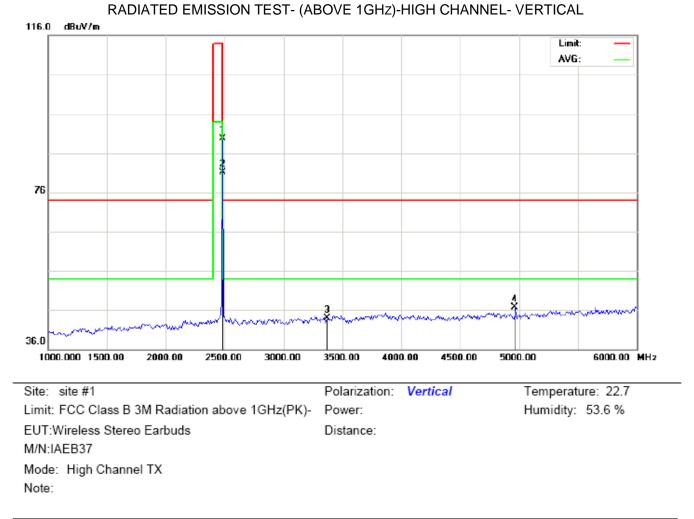
Mode: Middle Channel TX Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
	•	MHz	dBu∨	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1		2441.000	79.40	10.36	89.76	114.00	-24.24	peak			
2	*	2441.000	70.93	10.36	81.29	94.00	-12.71	AVG	100	54	
3		3547.000	31.01	12.40	43.41	74.00	-30.59	peak			
4		4882.000	38.81	7.89	46.70	74.00	-27.30	peak			



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

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	•	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	79.30	10.41	89.71	114.00	-24.29	peak			
2	*	2480.000	70.81	10.41	81.22	94.00	-12.78	AVG	100	77	
3		3253.000	32.59	11.88	44.47	74.00	-29.53	peak			
4		4960.000	39.01	8.09	47.10	74.00	-26.90	peak			



Antenna Table Freq. Reading Factor Measurement Limit Over Mk Height Degree No. Detector Comment dBu∨ dB/m dBuV/m dBu∀/m dB degree MHz cm 1 2480.000 79.26 10.41 89.67 114.00 -24.33 peak 2 2480.000 70.78 81.19 94.00 -12.81 AVG 10.41 100 51 3369.000 3 31.84 11.99 43.83 74.00 -30.17 peak 4 4960.000 38.66 8.09 46.75 74.00 -27.25 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.

Field strength of the fundamental signal

1Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	IHz) (dBuv) (dB/m)		(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	80.02	10.32	90.34	114	-23.66	Horizontal
2402	79.94	10.32	90.26	114	-23.74	Vertical
2441	79.48	10.36	89.84	114	-24.16	Horizontal
2441	79.40	10.36	89.76	114	-24.24	Vertical
2480	79.30	10.41	89.71	114	-24.29	Horizontal
2480	79.26	10.41	89.67	114	-24.33	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	71.50	10.32	81.82	94	-12.18	Horizontal
2402	71.43	10.32	81.75	94	-12.25	Vertical
2441	70.98	10.36	81.34	94	-12.66	Horizontal
2441	70.93	10.36	81.29	94	-12.71	Vertical
2480	70.81	10.41	81.22	94	-12.78	Horizontal
2480	70.78	10.41	81.19	94	-12.81	Vertical

2Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	79.99	10.32	90.31	114	-23.69	Horizontal
2402	79.89	10.32	90.21	114	-23.79	Vertical
2441	79.45	10.36	89.81	114	-24.19	Horizontal
2441	79.36	10.36	89.72	114	-24.28	Vertical
2480	79.27	10.41	89.68	114	-24.32	Horizontal
2480	79.22	10.41	89.63	114	-24.37	Vertical

Average value

Frequency	Reading Level	Factor Measurement		Limit	Over	Antenna
(MHz)	(dBuv) (dB/m)		(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	71.47	10.32	81.79	94	-12.21	Horizontal
2402	71.37	10.32	81.69	94	-12.31	Vertical
2441	70.95	10.36	81.31	94	-12.69	Horizontal
2441	70.89	10.36	81.25	94	-12.75	Vertical
2480	70.77	10.41	81.18	94	-12.82	Horizontal
2480	70.74	10.41	81.15	94	-12.85	Vertical

3Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	79.94	10.32	90.26	114	-23.74	Horizontal
2402	79.86	10.32	90.18	114	-23.82	Vertical
2441	79.42	10.36	89.78	114	-24.22	Horizontal
2441	79.32	10.36	89.68	114	-24.32	Vertical
2480	79.23	10.41	89.64	114	-24.36	Horizontal
2480	79.17	10.41	89.58	114	-24.42	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv) (dB/m)		(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	71.43	10.32	81.75	94	-12.25	Horizontal
2402	71.31	10.32	81.63	94	-12.37	Vertical
2441	70.91	10.36	81.27	94	-12.73	Horizontal
2441	70.85	10.36	81.21	94	-12.79	Vertical
2480	70.72	10.41	81.13	94	-12.87	Horizontal
2480	70.68	10.41	81.09	94	-12.91	Vertical

10. BAND EDGE EMISSION

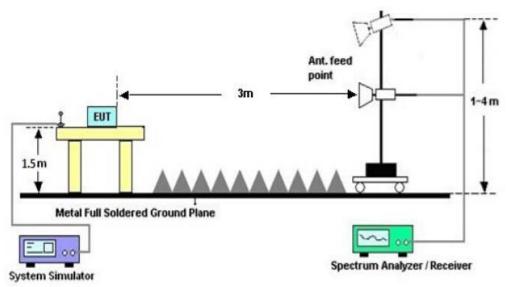
10.1. MEASUREMENT PROCEDURE

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



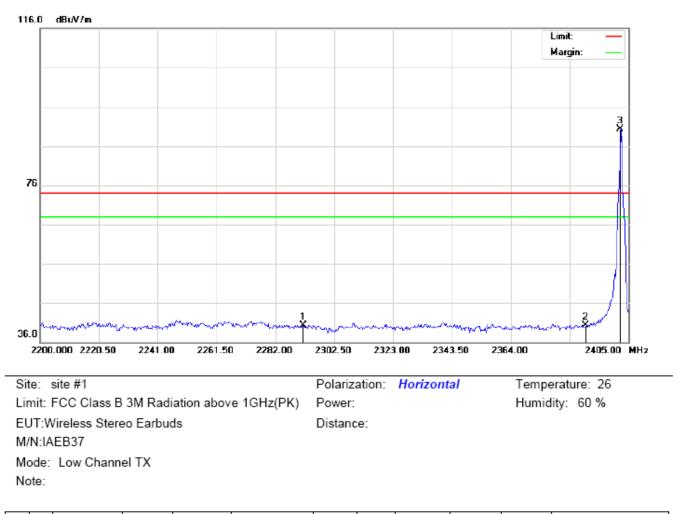
RADIATED EMISSION TEST SETUP

10.3 RADIATED TEST RESULT

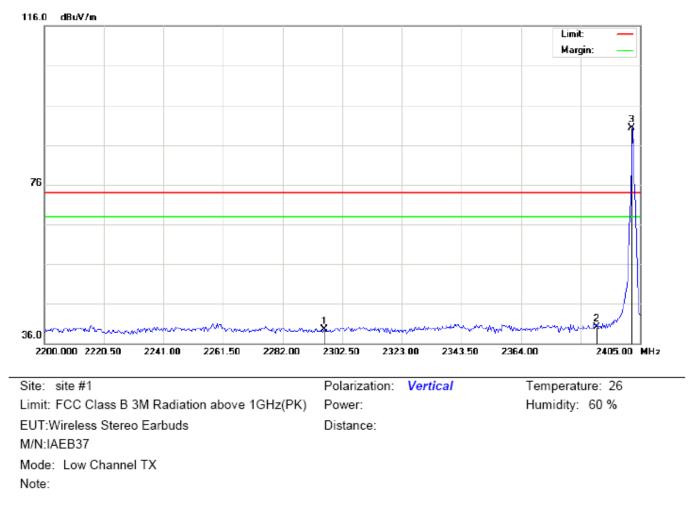
(Worst modulation: GFSK)

FOR BR/EDR

TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal

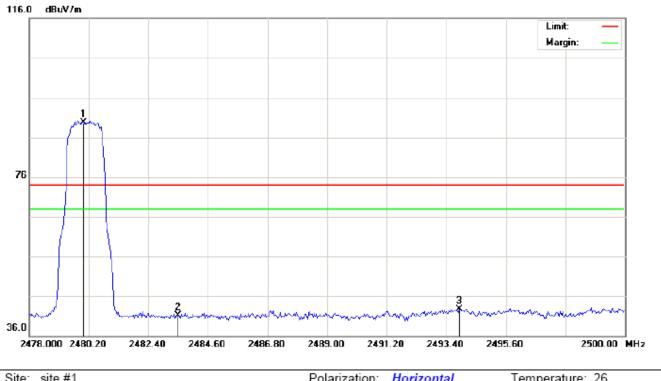


No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1		2291.567	30.16	10.20	40.36	74.00	-33.64	peak			
2		2390.000	30.00	10.31	40.31	74.00	-33.69	peak			
3	*	2402.000	80.00	10.32	90.32	74.00	16.32	peak			



TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2296.350	29.30	10.21	39.51	74.00	-34.49	peak			
2		2390.000	29.71	10.31	40.02	74.00	-33.98	peak			
3	*	2402.000	79.96	10.32	90.28	74.00	16.28	peak			



TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal

 Site:
 site #1
 Polarization:
 Horizontal
 Temperature:
 26

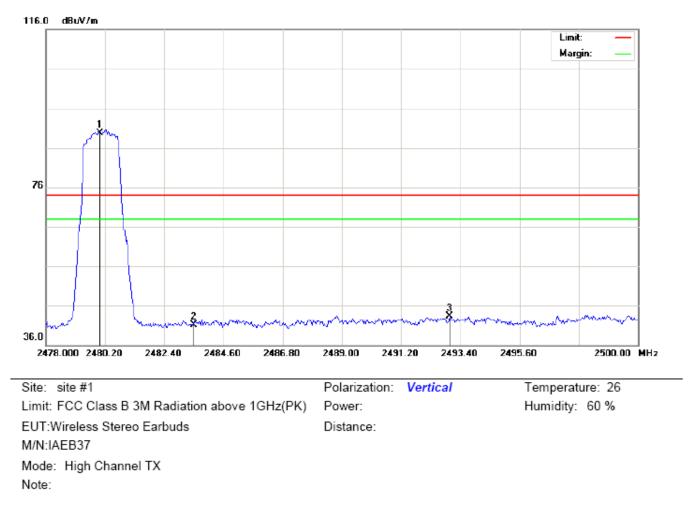
 Limit:
 FCC Class B 3M Radiation above 1GHz(PK)
 Power:
 Humidity:
 60 %

 EUT:Wireless Stereo Earbuds
 Distance:

 M/N:IAEB37
 Mode:
 High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	79.32	10.41	89.73	74.00	15.73	peak			
2		2483.500	30.69	10.41	41.10	74.00	-32.90	peak			
3		2493.877	32.31	10.42	42.73	74.00	-31.27	peak			



TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical

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	*	2480.000	79.24	10.41	89.65	74.00	15.65	peak			
2		2483.500	30.76	10.41	41.17	74.00	-32.83	peak			
3		2492.997	32.79	10.42	43.21	74.00	-30.79	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.

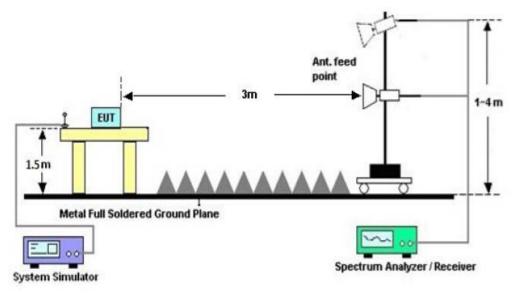
Hopping on mode and Hopping off mode have been tested, but only worst case reported.

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 \geq 1% of the 20 dB bandwidth, VBW \geq 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

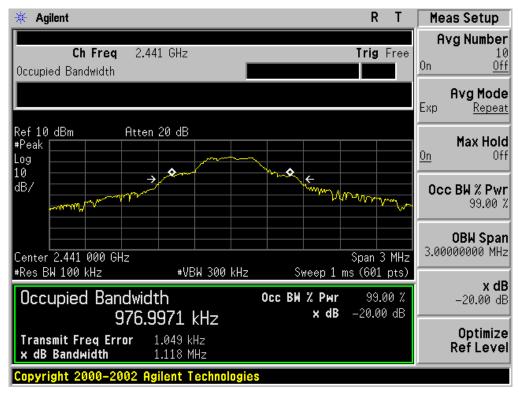
FOR BR/EDR

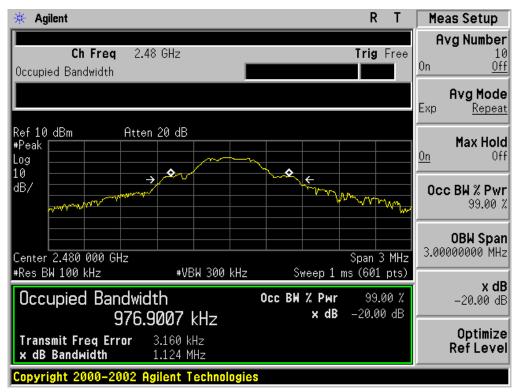
BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT								
	Measurement Result							
Applicable Limits		Decult						
		99%OBW (MHz)	-20dB BW(MHz)	Result				
	Low Channel	0.972	1.122	PASS				
N/A	Middle Channel	0.977	1.118	PASS				
	High Channel	0.977	1.124	PASS				



TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

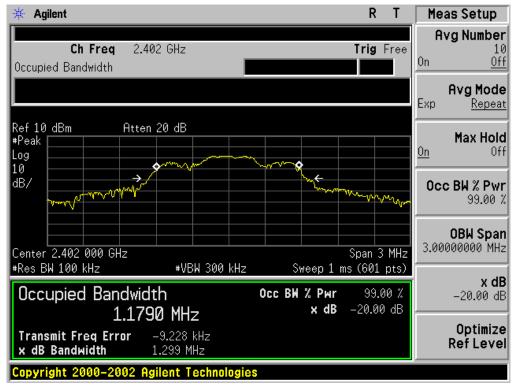


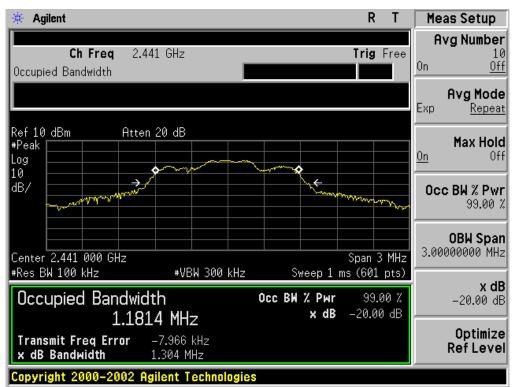


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

BLUETOOTH 2MBPS LIMITS AND MEASUREMENT RESULT									
	Measurement Result								
Applicable Limits		Test Data (MHz)							
		99%OBW (MHz)	-20dB BW(MHz)	Result					
	Low Channel	1.179	1.299	PASS					
N/A	Middle Channel	1.181	1.304	PASS					
	High Channel	1.182	1.311	PASS					

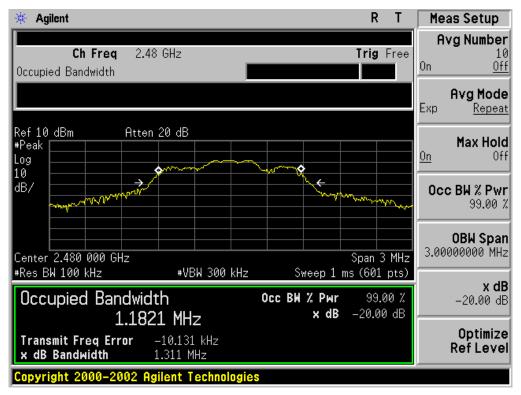
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL





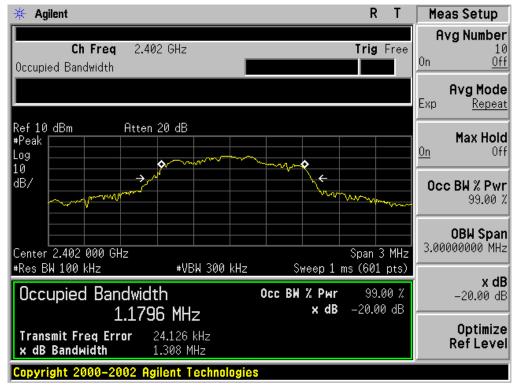
TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESULT										
	Measurement Result									
Applicable Limits		Decult								
		99%OBW (MHz)	-20dB BW(MHz)	Result						
	Low Channel	1.180	1.308	PASS						
N/A	Middle Channel	1.181	1.321	PASS						
	High Channel	1.195	1.329	PASS						

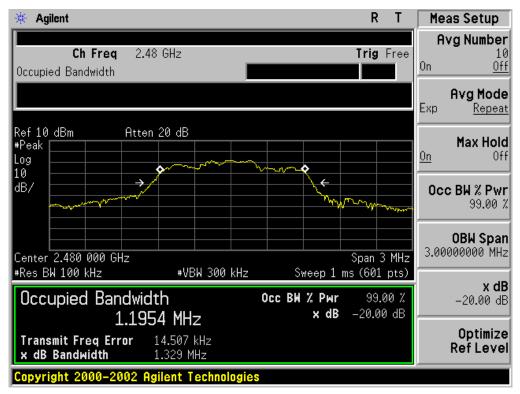
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL





TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



12. FCC LINE CONDUCTED EMISSION TEST

12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

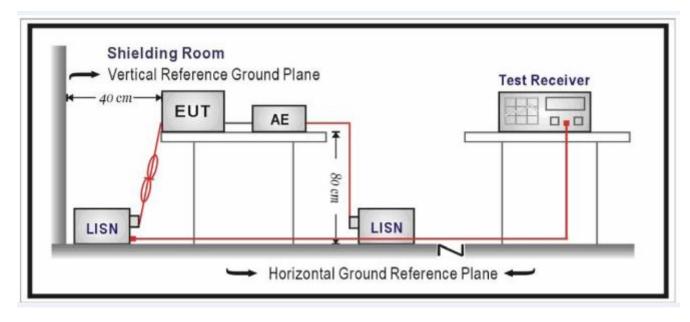
Frequency	Maximum RF Line Voltage							
Frequency	Q.P.(dBuV)	Average(dBuV)						
150kHz~500kHz	66-56	56-46						
500kHz~5MHz	56	46						
5MHz~30MHz	60	50						

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



12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 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

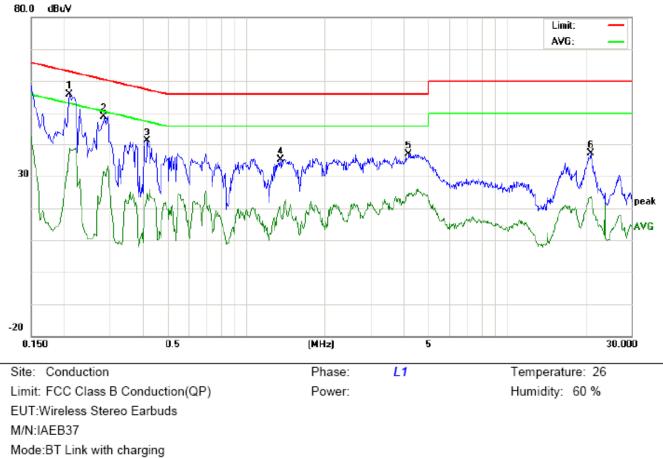
- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used 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.

12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

By adapter(worst case)

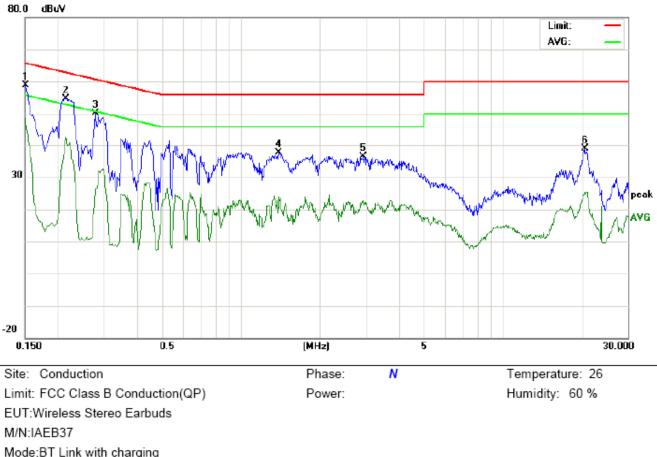
FOR BR/EDR

Line Conducted Emission Test Line 1-L



Note:

No.	Freq.	Rea	iding_L (dBuV)		Correct Factor	Me	asuren (dBuV)		1	nit uV)	Mai (d	rgin IB)	P/F	Comment
	(MHz)	Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2100	45.63		28.32	10.23	55.86		38.55	63.20	53.20	-7.34	-14.65	Ρ	
2	0.2860	38.53		20.93	10.28	48.81		31.21	60.64	50.64	-11.83	-19.43	Ρ	
3	0.4180	30.82		14.19	10.34	41.16		24.53	57.49	47.49	-16.33	-22.96	Ρ	
4	1.3540	24.79		8.73	10.38	35.17		19.11	56.00	46.00	-20.83	-26.89	Ρ	
5	4.2139	26.60		13.58	10.34	36.94		23.92	56.00	46.00	-19.06	-22.08	Р	
6	20.9660	26.94		13.30	10.13	37.07		23.43	60.00	50.00	-22.93	-26.57	Р	



Line Conducted Emission Test Line 2-N

Mode:BT Link with charging Note:

No.	No. Freq.				Correct Factor	Me	Measurement (dBuV)		Limit (dBuV)		Margin (dB)		P/F	Comment
	(MHz)	Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1499	48.79		38.50	10.16	58.95		48.66	66.00	56.00	-7.05	-7.34	Ρ	
2	0.2139	44.51		32.22	10.23	54.74		42.45	63.05	53.05	-8.31	-10.60	Р	
3	0.2779	39.77		16.02	10.28	50.05		26.30	60.88	50.88	-10.83	-24.58	Р	
4	1.3939	27.27		10.92	10.38	37.65		21.30	56.00	46.00	-18.35	-24.70	Р	
5	2.9460	25.85		12.21	10.54	36.39		22.75	56.00	46.00	-19.61	-23.25	Р	
6	20.5019	28.64		14.80	10.12	38.76		24.92	60.00	50.00	-21.24	-25.08	Р	

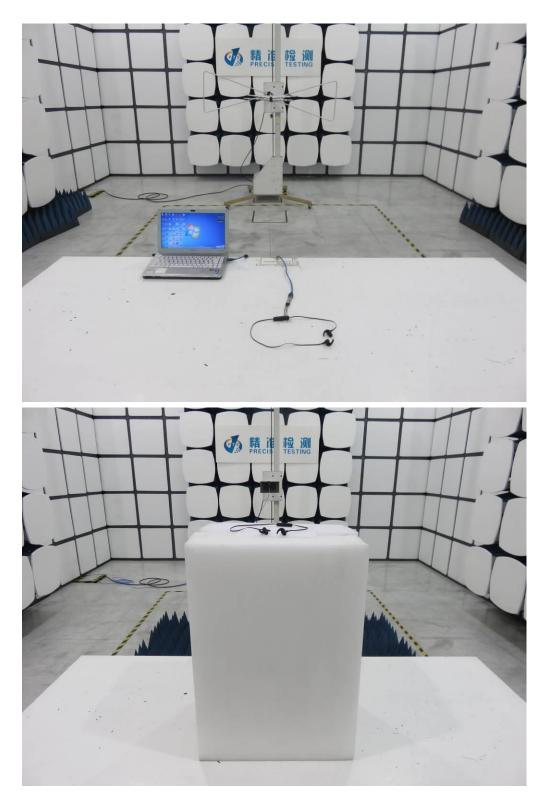
APPENDIX A: PHOTOGRAPHS OF TEST SETUP FCC LINE CONDUCTED EMISSION TEST SETUP



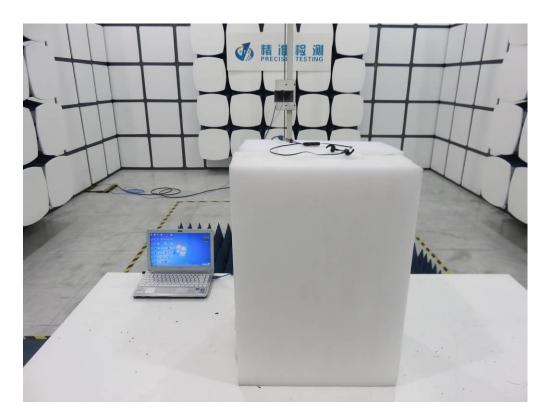
FCC RADIATED EMISSION TEST SETUP



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APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT

BOTTOM VIEW OF EUT





BACK VIEW OF EUT



FRONT VIEW OF EUT

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LEFT VIEW OF EUT

RIGHT VIEW OF EUT

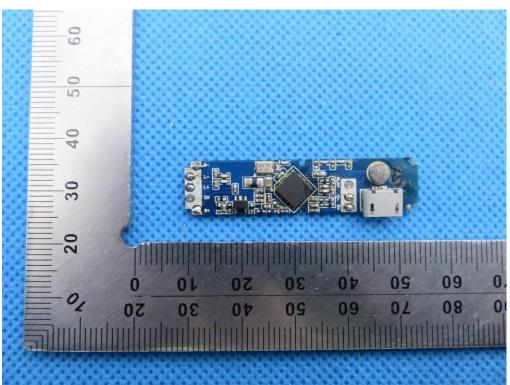




VIEW OF EUT (PORT)

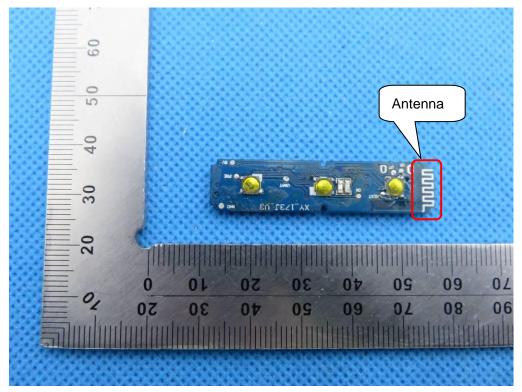
OPEN VIEW OF EUT

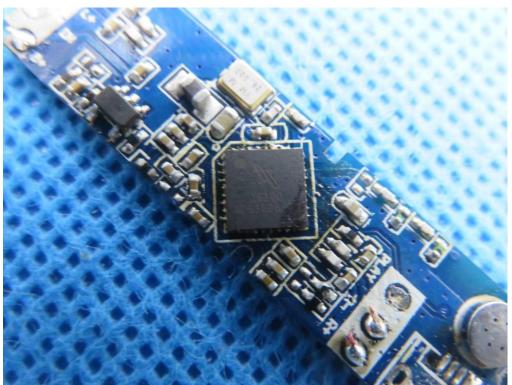




INTERNAL VIEW OF EUT-1

INTERNAL VIEW OF EUT-2





INTERNAL VIEW OF EUT-3

VIEW OF ADAPTER(AE)



The adapter was supplied by AGC ----END OF REPORT----