# **FCC Test Report**

Report No.: AGC00208160701FE03

**FCC ID** : Z63-B006

**APPLICATION PURPOSE** : Original Equipment

**PRODUCT DESIGNATION**: Bluetooth Headset

**BRAND NAME** : AONI/ANC/AUSDOM

**MODEL NAME** : See page 4

**CLIENT** : Shenzhen Aoni Electronic Industry Co., Ltd.

**DATE OF ISSUE** : Oct.26, 2016

STANDARD(S)

TEST PROCEDURE(S) : FCC Part 15 Rules

**REPORT VERSION**: V1.0

Attestation of Gobal Compliance (Shenzhen) Co., Ltd

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Report No.: AGC00208160701FE03 Page 2 of 54

# **Report Revise Record**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Oct.26, 2016	Valid	Original Report

## **TABLE OF CONTENTS**

1. VERIFICATION OF CONFORMITY	4
2. GENERAL INFORMATION	5
2.1. PRODUCT DESCRIPTION	5
2.2. TABLE OF CARRIER FREQUENCYS	5
3. MEASUREMENT UNCERTAINTY	6
4. DESCRIPTION OF TEST MODES	6
5. SYSTEM TEST CONFIGURATION	8
5.1. CONFIGURATION OF EUT SYSTEM	8
5.2. EQUIPMENT USED IN EUT SYSTEM	8
5.3. SUMMARY OF TEST RESULTS	8
6. TEST FACILITY	9
TEST METHODOLOGY	9
7. ALL TEST EQUIPMENT LIST	9
8. RADIATED EMISSION	11
8.1TEST LIMIT	11
8.2. MEASUREMENT PROCEDURE	12
8.3. TEST SETUP	14
8.4. TEST RESULT	16
9. BAND EDGE EMISSION	32
9.1. MEASUREMENT PROCEDURE	32
9.2 TEST SETUP	32
9.3 RADIATED TEST RESULT	33
10. 20DB BANDWIDTH	37
10.1. MEASUREMENT PROCEDURE	
10.2. TEST SET-UP	37
10.3. LIMITS AND MEASUREMENT RESULTS	37
11. FCC LINE CONDUCTED EMISSION TEST	
11.1. LIMITS OF LINE CONDUCTED EMISSION TEST	
11.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	44
11.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST	45
11.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST	45
11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST	45
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	
APPENDIX B: PHOTOGRAPHS OF EUT	48

Page 4 of 54

## 1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Aoni Electronic Industry Co., Ltd.		
Address	No.5, Bldg., Honghui Industrial Park, 2nd Liuxian Road, Bao'an District, Shenzhen, P.R.China 518101		
Manufacturer	Shenzhen Aoni Electronic Industry Co., Ltd.		
Address	No.5, Bldg., Honghui Industrial Park, 2nd Liuxian Road, Bao'an District, Shenzhen, P.R.China 518101		
Product Designation	Bluetooth Headset		
Brand Name	AONI/ANC/AUSDOM		
Test Model	B006		
Series Model	B007, B019, B026, B027, B028, B029, B314, B318, B325, B326, B327, B328, B329, B330, B331, B332, B940, B943, B945, B946, B949, B950, B952, B953		
Difference description	All the same except for the appearance color		
Date of test	Sep.08, 2016 to Oct.13, 2016		
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	Strive Lung	
	Strive Liang(Liang Faqiang)	Oct.26, 2016
Reviewed By	Lowers ce	
	Forrest Lei(Lei Yonggang)	Oct.26, 2016
Approved By	Solya Zhong	
	Solger Zhang(Zhang Hongyi) Authorized Officer	Oct.26, 2016

Page 5 of 54

#### 2. GENERAL INFORMATION

#### 2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

2.402 GHz to 2.480GHz	
0.18dBm (Max EIRP Power=Max radiation field-95.2)	
V4.1	
GFSK, π /4-DQPSK, 8DPSK	
79	
1.0	
1.0	
Fixed Antenna	
-2dBi	
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 is not active when charging
- 3. The EUT don't support BLE mode.

#### 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	

Page 6 of 54

#### 3. MEASUREMENT UNCERTAINTY

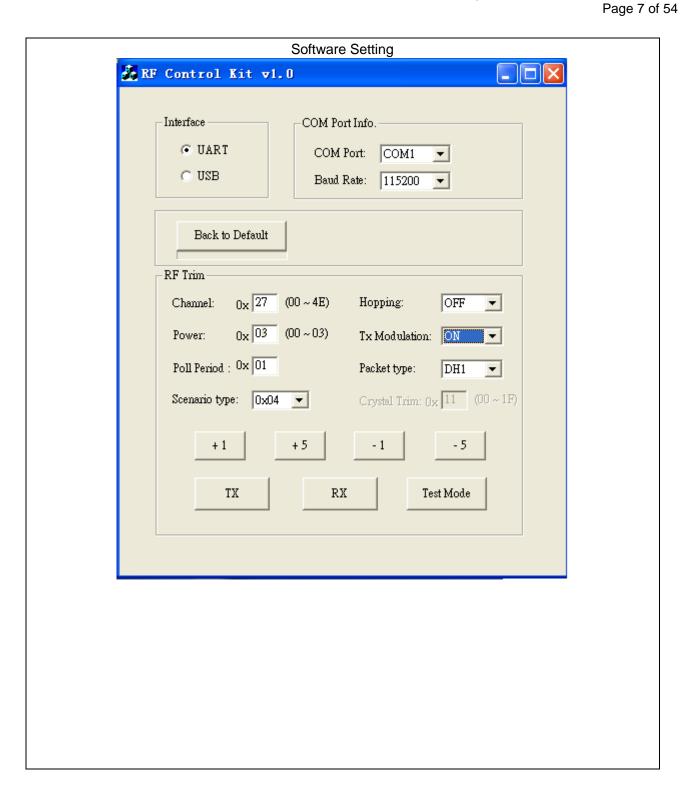
The reported uncertainty of measurement y  $\pm U$ , where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %  $\circ$ 

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

#### 4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX(GFSK)
2	Middle channel TX (GFSK)
3	High channel TX (GFSK)
4	Low channel TX(π/4-DQPSK)
5	Middle channel TX(π/4-DQPSK)
6	High channel TX (π/4-DQPSK)
7	Low channel TX(8DPSK)
8	Middle channel TX (8DPSK)
9	High channel TX (8DPSK)
10	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.

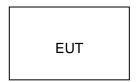


Page 8 of 54

#### 5. SYSTEM TEST CONFIGURATION

#### **5.1. CONFIGURATION OF EUT SYSTEM**

Configure 1: (Normal hopping)



Configure 2: (Control continuous TX)



#### **5.2. EQUIPMENT USED IN EUT SYSTEM**

ITEM	EQUIPMENT	MFR/BRAND	MODEL/TYPE NO.	REMARK
1	Bluetooth Headset	AONI	B006	EUT
2	Battery	VDL	10100	Accessory
3	PC	SONY	E1412AYCW	A.E
4	Control box	ISSC	N/A	A.E

#### **5.3. SUMMARY OF TEST RESULTS**

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249	Radiated Emission	Compliant
§15.249	Band Edges	Compliant
§15.207	Conduction Emission	N/A
§15.215	Bandwidth	Compliant

Note: N/A means it's not applicable to this item.

Page 9 of 54

## **6. TEST FACILITY**

Site Dongguan Precise Testing Service Co., Ltd.	
Location  Building D,Baoding Technology Park,Guangming Road2,Dongcheng Distri 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.

#### **TEST METHODOLOGY**

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

#### 7. ALL 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		
temporary antenna connector	N/A	S100		July 4, 2016	July 3, 2017		

Report No.: AGC00208160701FE03 Page 10 of 54

## FOR RADIATED EMISSION TEST (1GHZ ABOVE)

	Radiat	ted 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

Page 11 of 54

#### 8. RADIATED EMISSION

#### 8.1TEST 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 Stre	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 (Pea	k)
		54.0 dB(μV)/m (Ave	erage)

Remark:

- (1) Emission level dB $\mu$  V = 20 log Emission level  $\mu$  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.

Page 12 of 54

#### **8.2. 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)

Report No.: AGC00208160701FE03 Page 13 of 54

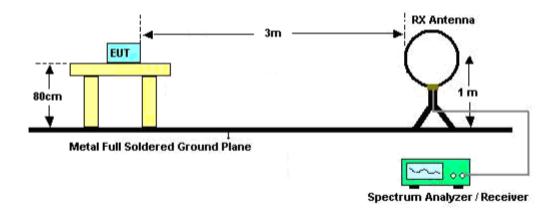
The following table is the setting of spectrum analyzer and receiver.

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

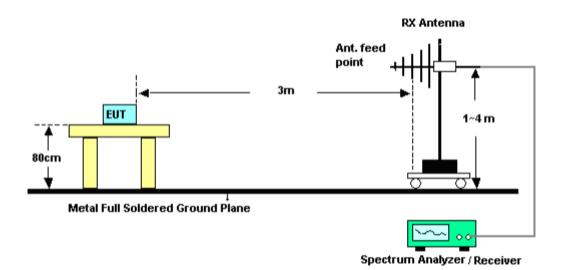
Report No.: AGC00208160701FE03 Page 14 of 54

#### 8.3. TEST SETUP

## Radiated Emission Test-Setup Frequency Below 30MHz

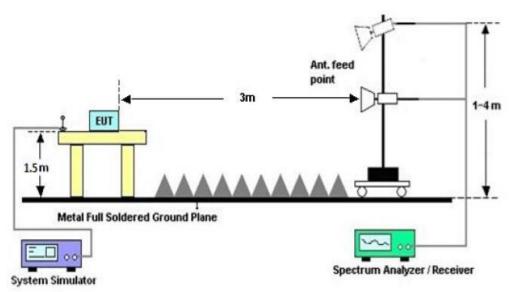


#### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



Page 15 of 54

## RADIATED EMISSION TEST SETUP ABOVE 1000MHz



Page 16 of 54

# 8.4. TEST RESULT

(Worst modulation: GFSK)

#### **RADIATED EMISSION BELOW 30MHZ**

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

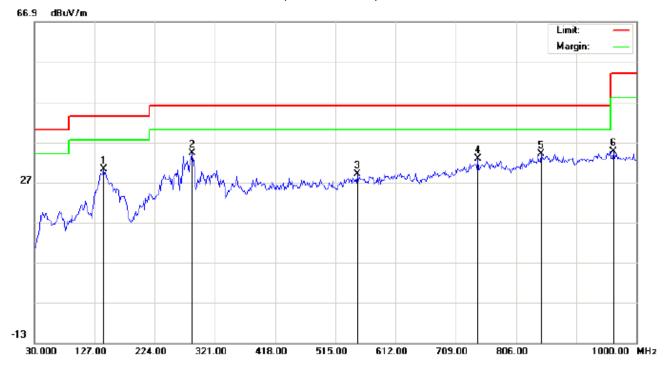
Temperature: 23.7

Humidity: 56.2 %

Page 17 of 54

#### **RADIATED EMISSION BELOW 1GHZ**

#### RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL-HORIZONTAL



Power:

46.00

54.00

-11.94

-19.46

peak

peak

Distance:

Polarization: Horizontal

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

EUT:Bluetooth Headset

M/N:B006

Mode:Low Channel TX

Freq.

MHz

141.5500

283.8167

550.5667

744.5667

846.4167

962.8167

Reading

dBu∀

15.35

21.46

6.49

6.42

6.75

4.66

Factor

dB/m

14.82

12.66

22.49

26.47

27.31

29.88

34.06

34.54

Note:

No. Mk

1

2

3

4

5

6

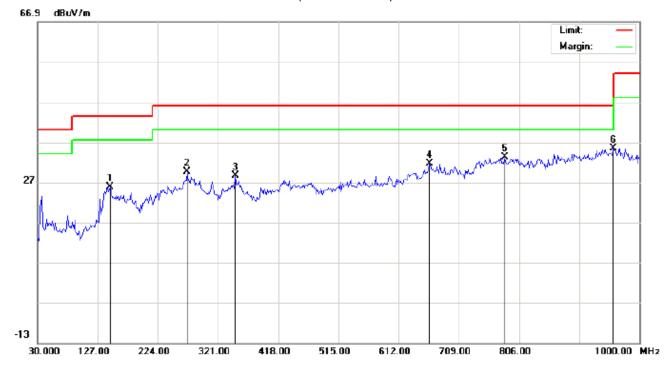
Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
dBu√/m	dBuV/m	dB		cm	degree	
30.17	43.50	-13.33	peak			
34.12	46.00	-11.88	peak			
28.98	46.00	-17.02	peak			
32.89	46.00	-13.11	peak			

Temperature: 23.7

Humidity: 56.2 %

Page 18 of 54

#### RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL -VERTICAL



Polarization:

Power:

Distance:

Vertical

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

Imit. FCC Class B Sivi Radiation

EUT:Bluetooth Headset

M/N:B006

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		146.4000	10.54	15.24	25.78	43.50	-17.72	peak			
2		270.8833	15.10	14.53	29.63	46.00	-16.37	peak			
3		348.4833	9.95	18.64	28.59	46.00	-17.41	peak			
4		662.1167	7.41	24.17	31.58	46.00	-14.42	peak			
5		783.3667	6.18	27.09	33.27	46.00	-12.73	peak			
6	*	957.9667	5.39	29.92	35.31	46.00	-10.69	peak			

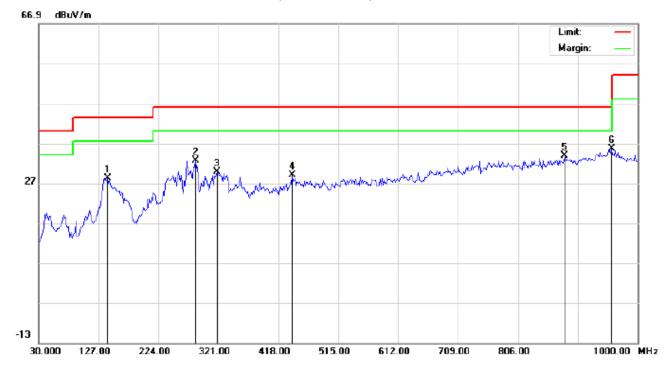
#### **RESULT: PASS**

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

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

Page 19 of 54

## RADIATED EMISSION TEST- (30MHZ-1GHZ)-MIDDLE CHANNEL-HORIZONTAL



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

EUT:Bluetooth Headset

M/N:B006

Mode:Middle Channel TX

Note:

Polarization: *Horizontal* Temperature: 23.7 Power: Humidity: 56.2 %

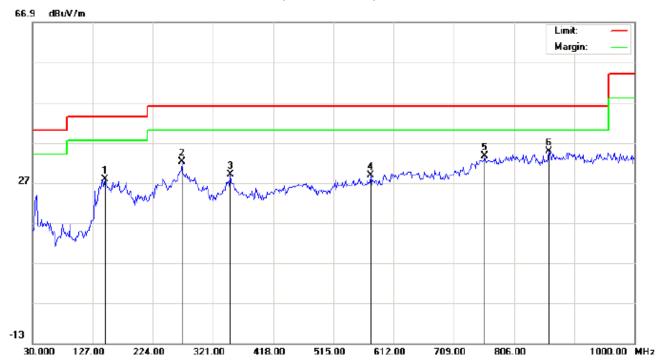
Distance:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		141.5500	13.35	14.82	28.17	43.50	-15.33	peak			
2		283.8167	19.96	12.66	32.62	46.00	-13.38	peak			
3		319.3833	13.06	16.70	29.76	46.00	-16.24	peak			
4		440.6333	8.73	20.31	29.04	46.00	-16.96	peak			
5		881.9833	5.71	28.14	33.85	46.00	-12.15	peak			
6	*	957.9667	5.61	29.92	35.53	46.00	-10.47	peak			

Temperature: 23.7 Humidity: 56.2 %

Page 20 of 54

#### RADIATED EMISSION TEST- (30MHZ-1GHZ)-MIDDLE CHANNEL -VERTICAL



Polarization: Vertical

Site: site #1

Limit: FCC Class B 3M Radiation

EUT:Bluetooth Headset

M/N:B006

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		146.4000	12.54	15.24	27.78	43.50	-15.72	peak			
2		270.8833	17.60	14.53	32.13	46.00	-13.87	peak			
3		348.4833	10.45	18.64	29.09	46.00	-16.91	peak			
4		574.8167	6.28	22.60	28.88	46.00	-17.12	peak			
5		759.1167	6.77	26.76	33.53	46.00	-12.47	peak			
6	*	862.5833	7.25	27.64	34.89	46.00	-11.11	peak			

Power:

Distance:

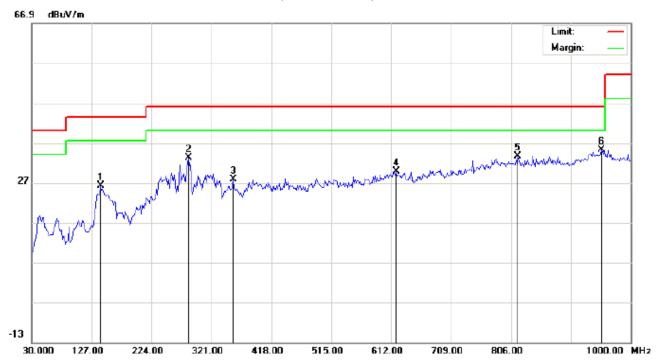
#### **RESULT: PASS**

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

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

Page 21 of 54

## RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL-HORIZONTAL



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

EUT:Bluetooth Headset

M/N:B006

Mode:High Channel TX

Note:

Polarization:	Horizontal	Temperature:	23.7
Power:		Humidity: 56	5.2 %

Distance:

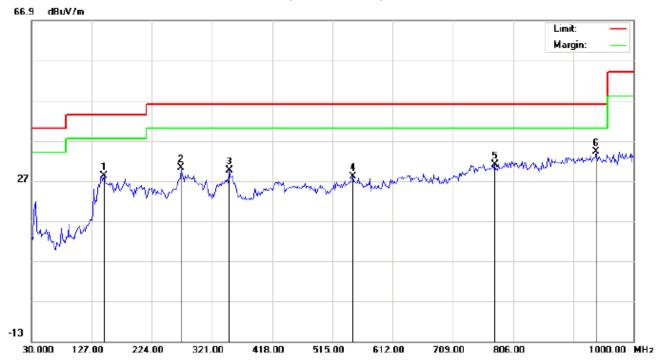
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB		cm	degree	
1		141.5500	11.35	14.82	26.17	43.50	-17.33	peak			
2		283.8167	20.46	12.66	33.12	46.00	-12.88	peak			
3		356.5667	9.06	18.78	27.84	46.00	-18.16	peak			
4		620.0833	5.96	23.78	29.74	46.00	-16.26	peak			
5		817.3167	6.23	27.32	33.55	46.00	-12.45	peak			
6	*	953.1167	5.28	29.97	35.25	46.00	-10.75	peak			

Temperature: 23.7

Humidity: 56.2 %

Page 22 of 54

#### RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL -VERTICAL



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

EUT:Bluetooth Headset

M/N:B006

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		146.4000	13.04	15.24	28.28	43.50	-15.22	peak			
2		270.8833	15.60	14.53	30.13	46.00	-15.87	peak			
3		348.4833	10.95	18.64	29.59	46.00	-16.41	peak			
4		547.3333	5.50	22.41	27.91	46.00	-18.09	peak			
5		776.9000	4.10	27.00	31.10	46.00	-14.90	peak			
6	*	940.1833	4.40	29.73	34.13	46.00	-11.87	peak			

Power:

Distance:

Polarization: Vertical

#### **RESULT: PASS**

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

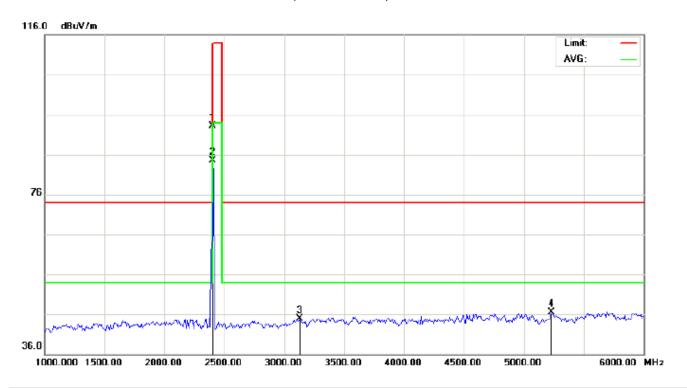
2. The "Factor" value can be calculated automatically by software of measurement system.

Page 23 of 54

#### **RADIATED EMISSION ABOVE 1GHZ**

(Worst modulation: GFSK)

## RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW 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 Headset Distance:

M/N:B006

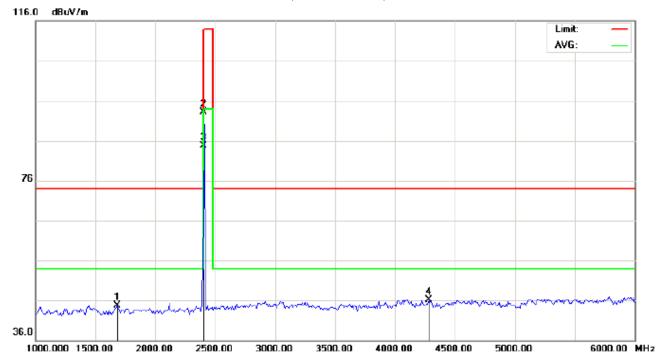
Mode: Low Channel TX

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	82.74	10.32	93.06	114.00	-20.94	peak			
2	*	2402.000	74.24	10.32	84.56	94.00	-9.44	AVG	100	45	
3		3133.333	33.23	11.77	45.00	74.00	-29.00	peak			
4		5233.333	42.93	3.53	46.46	74.00	-27.54	peak			

Page 24 of 54

## 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 Headset Distance:

M/N:B006

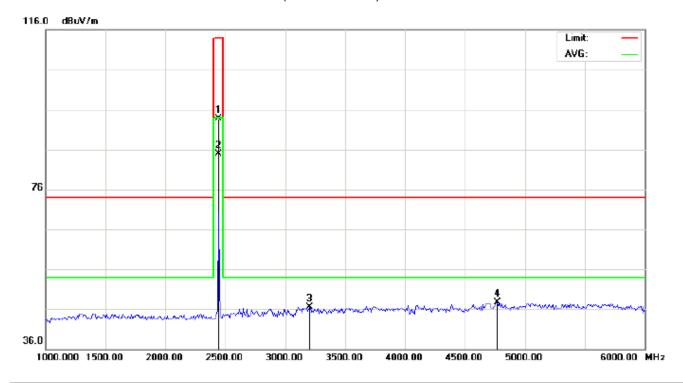
Mode: Low Channel TX

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		1683.333	38.25	6.55	44.80	74.00	-29.20	peak			
2		2402.000	82.79	10.32	93.11	114.00	-20.89	peak			
3	*	2402.000	74.30	10.32	84.62	94.00	-9.38	AVG	100	79	
4		4283.333	35.52	10.49	46.01	74.00	-27.99	peak			

Page 25 of 54

## 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 Headset Distance:

M/N:B006

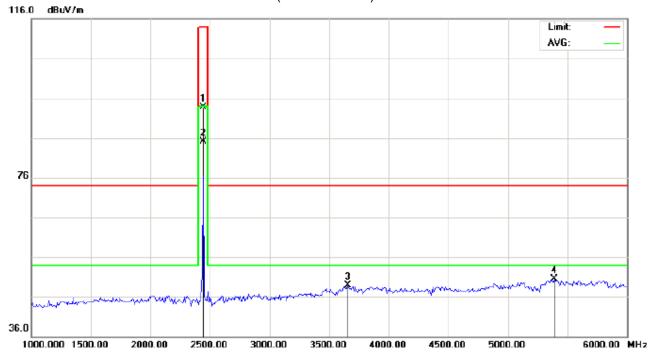
Mode: Middle Channel TX

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		2441.000	83.26	10.36	93.62	114.00	-20.38	peak			
2	*	2441.000	74.58	10.36	84.94	94.00	-9.06	AVG	150	167	
3		3200.000	34.72	11.83	46.55	74.00	-27.45	peak			
4		4766.667	40.05	7.59	47.64	74.00	-26.36	peak			

Page 26 of 54

## 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 Headset Distance:

M/N:B006

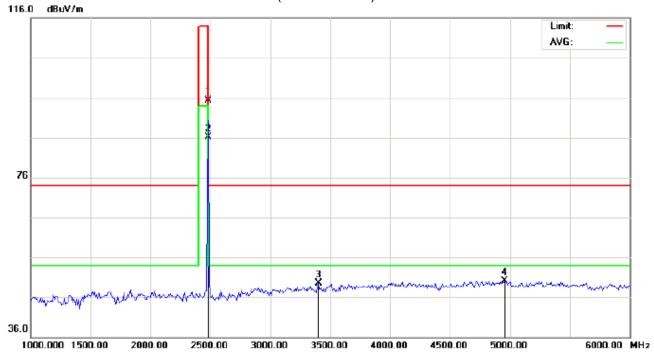
Mode: Middle Channel TX

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	83.39	10.36	93.75	114.00	-20.25	peak			
2	*	2441.000	74.76	10.36	85.12	94.00	-8.88	AVG	100	28	
3		3658.333	35.75	13.09	48.84	74.00	-25.16	peak			
4		5391.667	50.06	0.36	50.42	74.00	-23.58	peak			

Page 27 of 54

## 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 Headset Distance:

M/N:B006

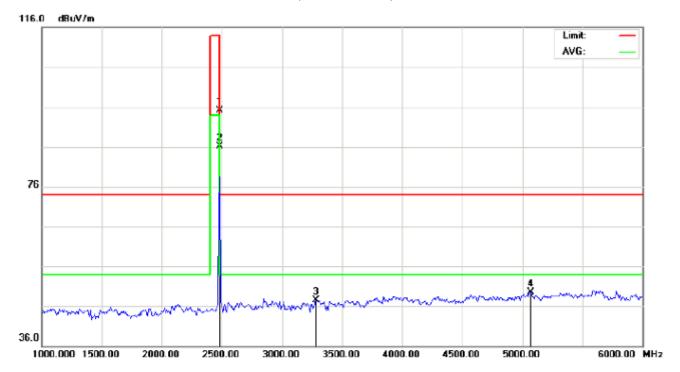
Mode: High Channel TX

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		2480.000	84.97	10.41	95.38	114.00	-18.62	peak			
2	*	2480.000	75.74	10.41	86.15	94.00	-7.85	AVG	100	45	
3		3400.000	37.52	12.02	49.54	74.00	-24.46	peak			
4		4958.333	41.98	8.09	50.07	74.00	-23.93	peak			

Page 28 of 54

#### 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 Headset

Distance:

M/N:B006

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	84.69	10.41	95.10	114.00	-18.90	peak			
2	*	2480.000	75.68	10.41	86.09	94.00	-7.91	AVG	100	343	
3		3283.333	35.59	11.91	47.50	74.00	-26.50	peak			
4		5066.667	42.68	6.86	49.54	74.00	-24.46	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.

Report No.: AGC00208160701FE03 Page 29 of 54

# 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	82.74	10.32	93.06	114	-20.94	Horizontal
2402	82.79	10.32	93.11	114	-20.89	Vertical
2441	83.26	10.36	93.62	114	-20.38	Horizontal
2441	83.39	10.36	93.75	114	-20.25	Vertical
2480	84.97	10.41	95.38	114	-18.62	Horizontal
2480	84.69	10.41	95.10	114	-18.90	Vertical

# Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	74.24	10.32	84.56	94	-9.44	Horizontal
2402	74.30	10.32	84.62	94	-9.38	Vertical
2441	74.58	10.36	84.94	94	-9.06	Horizontal
2441	74.76	10.36	85.12	94	-8.88	Vertical
2480	75.74	10.41	86.15	94	-7.85	Horizontal
2480	75.68	10.41	86.09	94	-7.91	Vertical

Report No.: AGC00208160701FE03 Page 30 of 54

# 2Mbps Result:

## Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	82.17	10.32	92.49	114	-21.51	Horizontal
2402	82.21	10.32	92.53	114	-21.47	Vertical
2441	82.78	10.36	93.14	114	-20.86	Horizontal
2441	82.81	10.36	93.17	114	-20.83	Vertical
2480	84.38	10.41	94.79	114	-19.21	Horizontal
2480	84.40	10.41	94.81	114	-19.19	Vertical

## Average value

Average value												
Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna						
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization						
2402	73.70	10.32	84.02	94	-9.98	Horizontal						
2402	73.76	10.32	84.08	94	-9.92	Vertical						
2441	74.11	10.36	84.47	94	-9.53	Horizontal						
2441	74.16	10.36	84.52	94	-9.48	Vertical						
2480	75.26	10.41	85.67	94	-8.33	Horizontal						
2480	75.28	10.41	85.69	94	-8.31	Vertical						

Report No.: AGC00208160701FE03 Page 31 of 54

# 3Mbps Result:

## Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	81.70	10.32	92.02	114	-21.98	Horizontal
2402	81.74	10.32	92.06	114	-21.94	Vertical
2441	82.29	10.36	92.65	114	-21.35	Horizontal
2441	82.33	10.36	92.69	114	-21.31	Vertical
2480	83.89	10.41	94.30	114	-19.7	Horizontal
2480	83.94	10.41	94.35	114	-19.65	Vertical

## Average value

Frequency	Reading Level	Factor Measurement		Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	73.24	10.32	83.56	94	-10.44	Horizontal
2402	73.30	10.32	83.62	94	-10.38	Vertical
2441	73.68	10.36	84.04	94	-9.96	Horizontal
2441	73.72	10.36	84.08	94	-9.92	Vertical
2480	74.74	10.41	85.15	94	-8.85	Horizontal
2480	74.77	10.41	85.18	94	-8.82	Vertical

Page 32 of 54

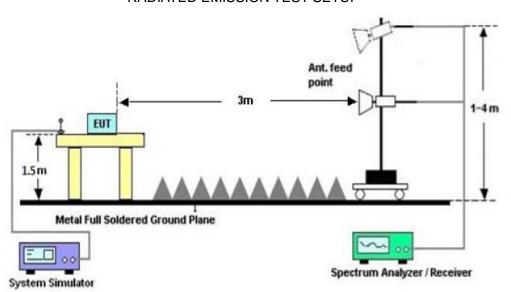
#### 9. BAND EDGE EMISSION

#### 9.1. MEASUREMENT PROCEDURE

- 1. The 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.
- 2. Max hold the trace of the setup1, and the EUT operates at hopping-on test mode to verify the largest spurious emissions power.
- 3. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission

#### 9.2 TEST SETUP

#### RADIATED EMISSION TEST SETUP

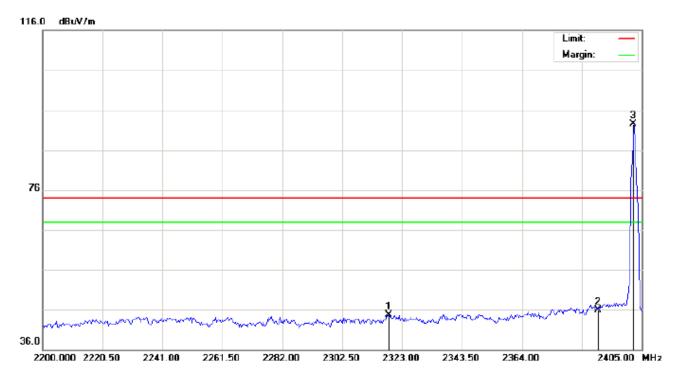


Page 33 of 54

#### 9.3 RADIATED TEST RESULT

(Worst modulation: GFSK)

#### 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 Headset Distance:

M/N:B006

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		2318.558	34.42	10.23	44.65	74.00	-29.35	peak			
2		2390.000	35.50	10.31	45.81	74.00	-28.19	peak			
3	*	2402.000	82.22	10.32	92.54	74.00	18.54	peak			

Page 34 of 54

#### 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 Headset Distance:

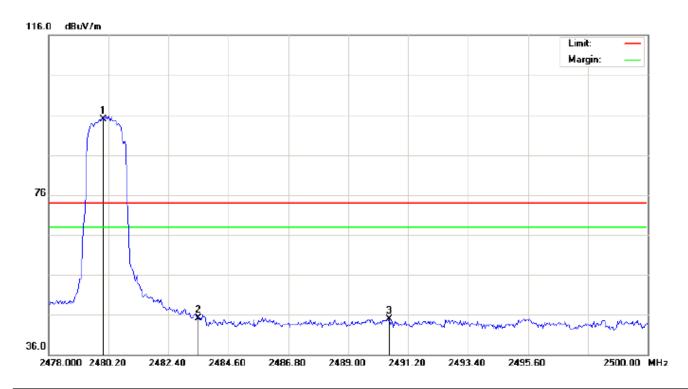
M/N:B006

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		2342.817	35.00	10.26	45.26	74.00	-28.74	peak			
2		2390.000	36.21	10.31	46.52	74.00	-27.48	peak			
3	*	2402.000	82.59	10.32	92.91	74.00	18.91	peak			

Page 35 of 54

## 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:Bluetooth Headset Distance:

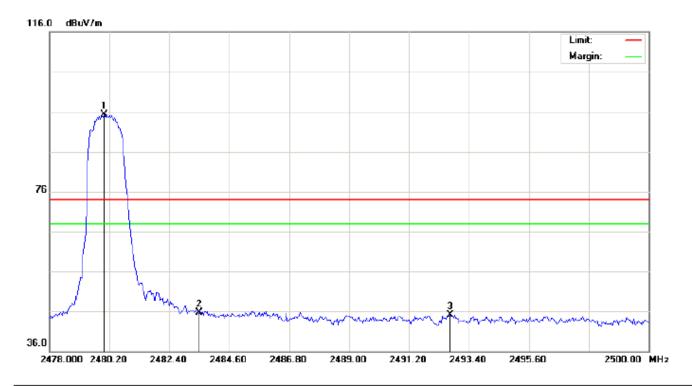
M/N:B006

Mode: High Channel TX

Ν	lo.	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	84.55	10.41	94.96	74.00	20.96	peak			
	2		2483.500	34.69	10.41	45.10	74.00	-28.90	peak			
	3		2490.503	34.43	10.42	44.85	74.00	-29.15	peak			

Page 36 of 54

#### 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 Headset Distance:

M/N:B006

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	84.82	10.41	95.23	74.00	21.23	peak			
2		2483.500	35.26	10.41	45.67	74.00	-28.33	peak			
3		2492.703	34.66	10.42	45.08	74.00	-28.92	peak			

#### **RESULT: PASS**

Note: The other modes radiation emission have enough 20dB margin.

 ${\it Factor=} Antenna \ {\it Factor} + {\it Cable loss} - {\it Amplifier gain, Over=} Measure-Limit.$ 

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.

Page 37 of 54

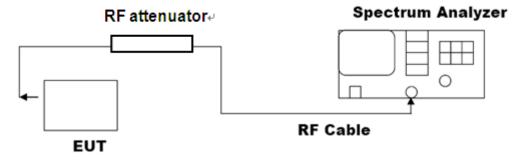
# 10. 20DB BANDWIDTH

### 10.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. 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
- 4. Set SPA Trace 1 Max hold, then View.

### 10.2. TEST SET-UP

## (BLOCK DIAGRAM OF CONFIGURATION)



Note: The EUT has been used temporary antenna connector for testing.

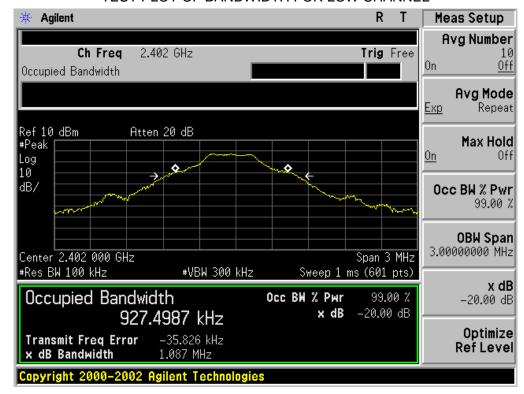
### 10.3. LIMITS AND MEASUREMENT RESULTS

#### FOR BR/EDR

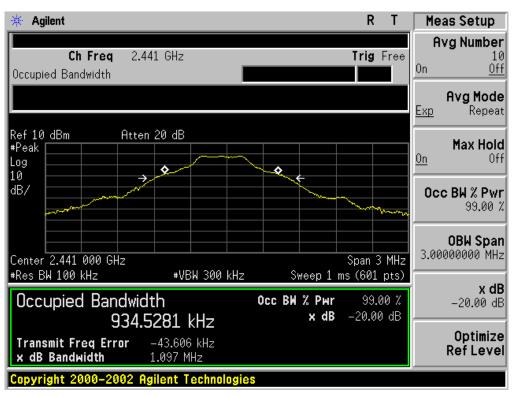
BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT					
	Measurement Result				
Applicable Limits	Test Data (MHz)			Deculé	
		99%OBW (MHz)	-20dB BW(MHz)	Result	
N/A	Low Channel	0.927	1.087	PASS	
	Middle Channel	0.935	1.097	PASS	
	High Channel	0.932	1.097	PASS	

Page 38 of 54

### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

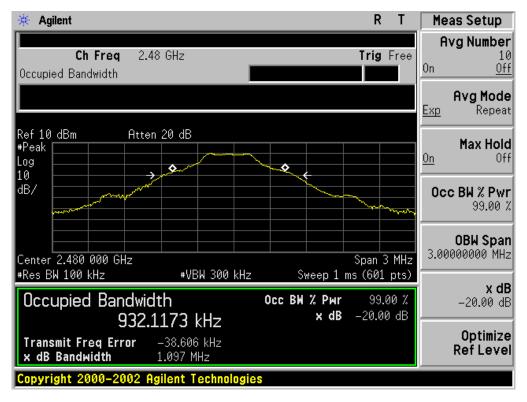


### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



Page 39 of 54

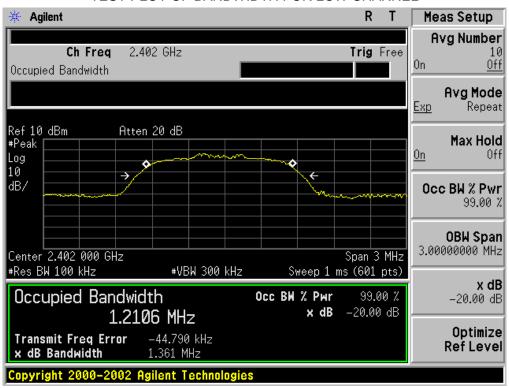
### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



Report No.: AGC00208160701FE03 Page 40 of 54

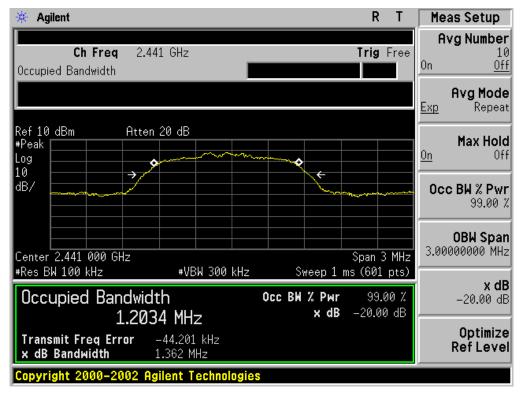
BLUETOOTH 2MBPS LIMITS AND MEASUREMENT RESULT					
	Measurement Result				
Applicable Limits	Test Data (MHz)			Doorle	
		99%OBW (MHz)	-20dB BW(MHz)	Result	
N/A	Low Channel	1.211	1.361	PASS	
	Middle Channel	1.203	1.362	PASS	
	High Channel	1.208	1.350	PASS	

### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

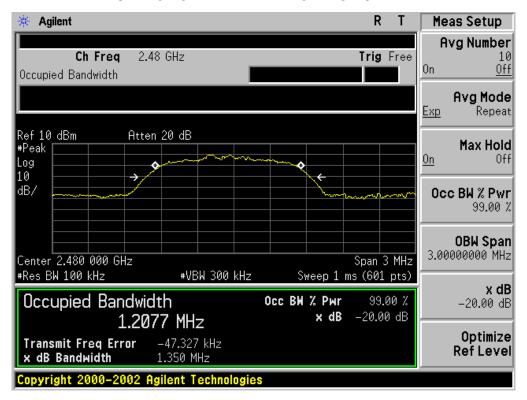


Page 41 of 54

#### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



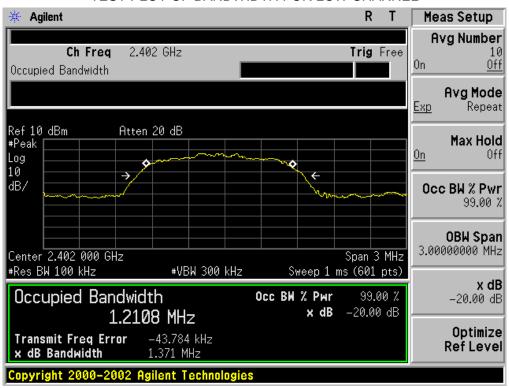
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



Report No.: AGC00208160701FE03 Page 42 of 54

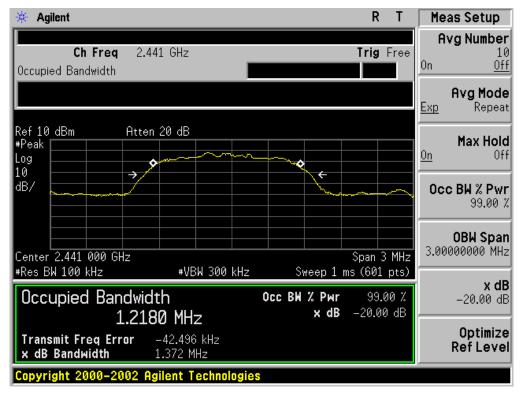
BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESULT					
	Measurement Result				
Applicable Limits	Test Data (MHz)			Dooult	
		99%OBW (MHz)	-20dB BW(MHz)	Result	
N/A	Low Channel	1.211	1.371	PASS	
	Middle Channel	1.218	1.372	PASS	
	High Channel	1.228	1.372	PASS	

## TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

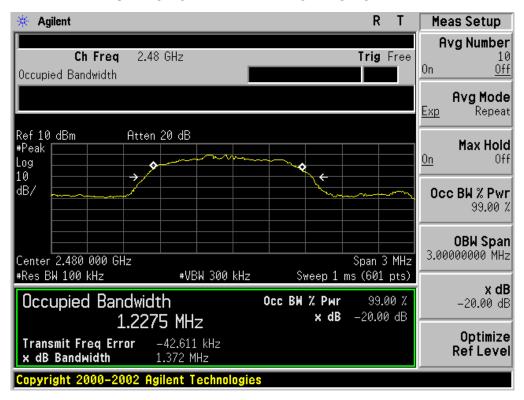


Page 43 of 54

#### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



Page 44 of 54

## 11. FCC LINE CONDUCTED EMISSION TEST

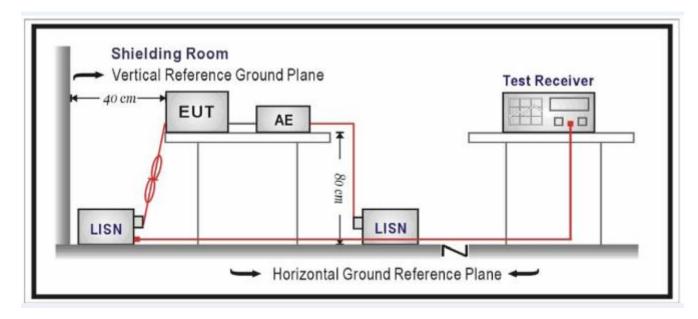
### 11.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Francis	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.

### 11.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



Page 45 of 54

#### 11.3. 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.

## 11.4. 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.

#### 11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

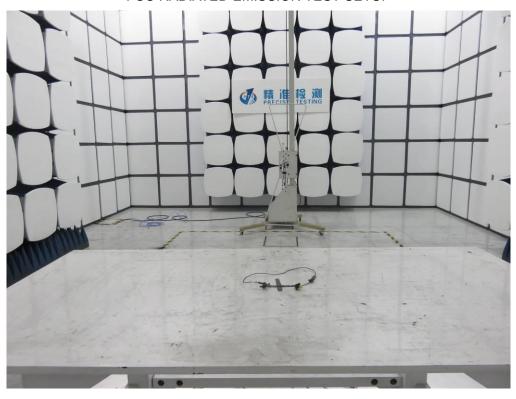
N/A

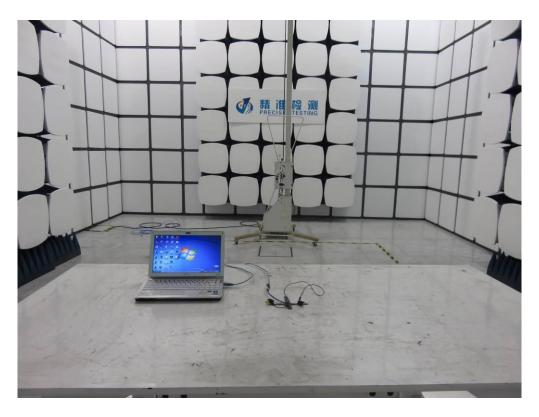
Note: The BT function of EUT didn't work when charging.

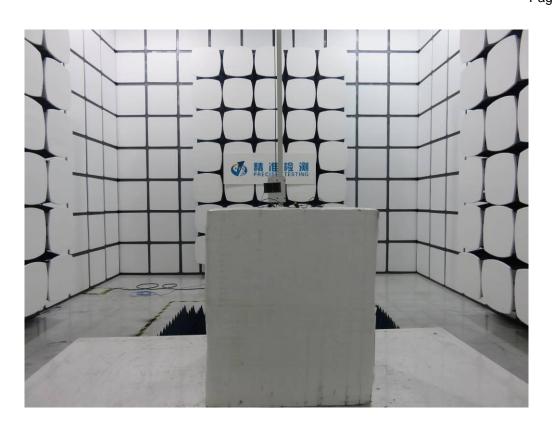
Page 46 of 54

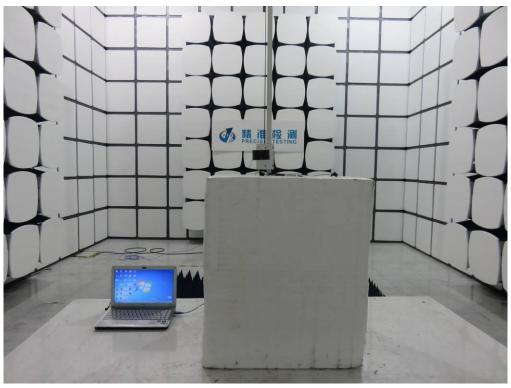
# **APPENDIX A: PHOTOGRAPHS OF TEST SETUP**

FCC RADIATED EMISSION TEST SETUP





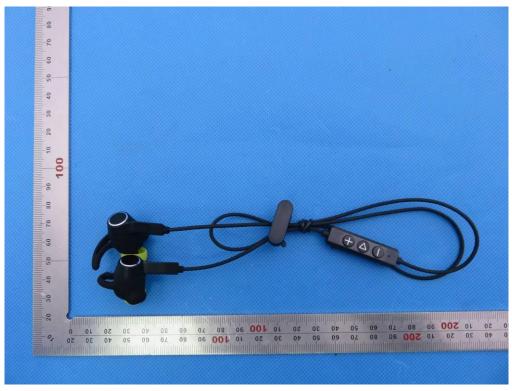




Page 48 of 54

# **APPENDIX B: PHOTOGRAPHS OF EUT**

TOP VIEW OF EUT



**BOTTOM VIEW OF EUT** 



FRONT VIEW OF EUT



**BACK VIEW OF EUT** 



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



VIEW OF EUT (LOCAL)-1



VIEW OF EUT (LOCAL)-2



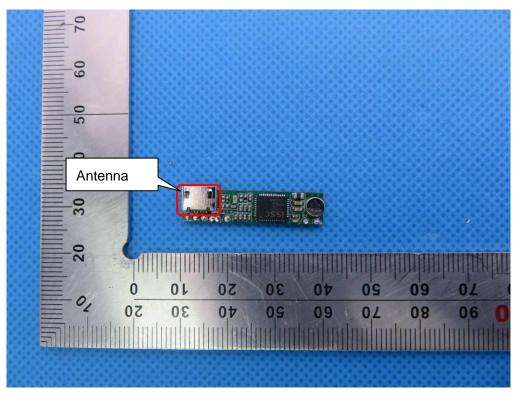
VIEW OF EUT (PORT)



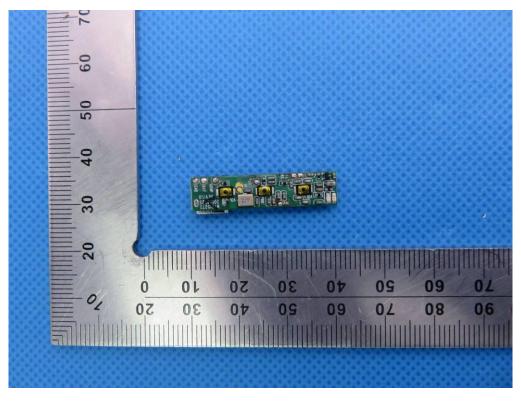
**OPEN VIEW OF EUT** 



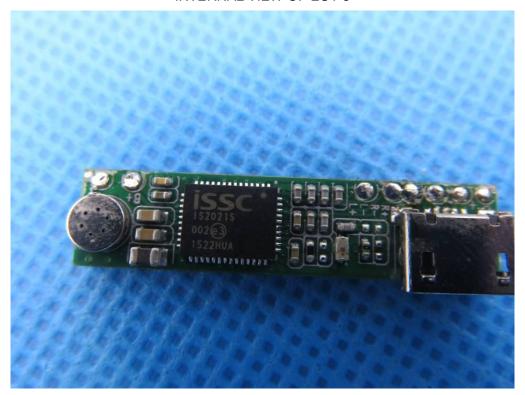
**INTERNAL VIEW OF EUT-1** 



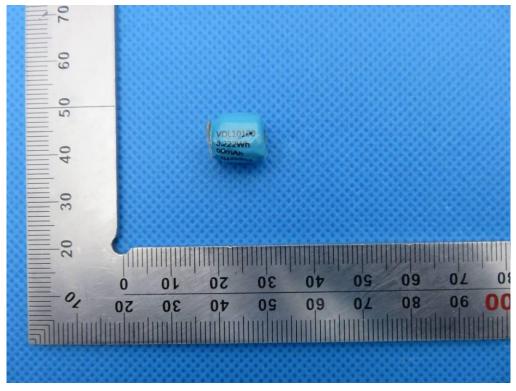
**INTERNAL VIEW OF EUT-2** 



# **INTERNAL VIEW OF EUT-3**



**VIEW OF BATTERY** 



----END OF REPORT----