FCC Test Report

Report No.: AGC10302170601FE03

FCC ID : 2AL9BVF50012BT

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION: Bluetooth Headphones

BRAND NAME : Vivitar /S.LAI

MODEL NAME : VF50012BT, BH-6016

CLIENT: SHENZHEN SHENGLAI TECHNOLOGY CO., LIMITED

DATE OF ISSUE : Jul.07, 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 No.: AGC10302170601FE03 Page 2 of 52

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jul.07, 2017	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
7 TEST METHOD	9
8 TEST EQUIPMENT LIST	9
9 RADIATED EMISSION	11
9.1TEST LIMIT	11
9.2. MEASUREMENT PROCEDURE	12
9.3. TEST SETUP	14
9.4. TEST RESULT	16
10 BAND EDGE EMISSION	31
10.1. MEASUREMENT PROCEDURE	
10.2 TEST SETUP	31
10.3 RADIATED TEST RESULT	32
11 20DB BANDWIDTH	36
11.1. MEASUREMENT PROCEDURE	36
11.2. TEST SET-UP	36
11.3. LIMITS AND MEASUREMENT RESULTS	36
12 FCC LINE CONDUCTED EMISSION TEST	43
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST	43
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	
12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST	44
12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST	44
12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST	44
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	
APPENDIX B: PHOTOGRAPHS OF EUT	47

Page 4 of 52

1. VERIFICATION OF CONFORMITY

SHENZHEN SHENGLAI TECHNOLOGY CO.,LIMITED
ROOM 709, BLOCK B, XINTIAN CENTURY BUSINESS CENTRE, FUMING ROAD, FUTIAN DISTRICT, SHENZHEN, China
SHENZHEN SHENGLAI TECHNOLOGY CO.,LIMITED
ROOM 709, BLOCK B, XINTIAN CENTURY BUSINESS CENTRE, FUMING ROAD, FUTIAN DISTRICT, SHENZHEN, China
Bluetooth Headphones
Vivitar /S.LAI
VF50012BT
BH-6016
All the same except for the appearance color.
Jun.29, 2017 to Jul.01, 2017
None
Normal
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)	Jul.01, 2017
Reviewed By	Forrest ce	
	Forrest Lei(Lei Yonggang)	Jul.07, 2017
Approved By	Solya stong	
	Solger Zhang(Zhang Hongyi) Authorized Officer	Jul.07, 2017

Page 5 of 52

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	0.13dBm(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	SL-8008_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.

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

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 52

3. MEASUREMENT UNCERTAINTY

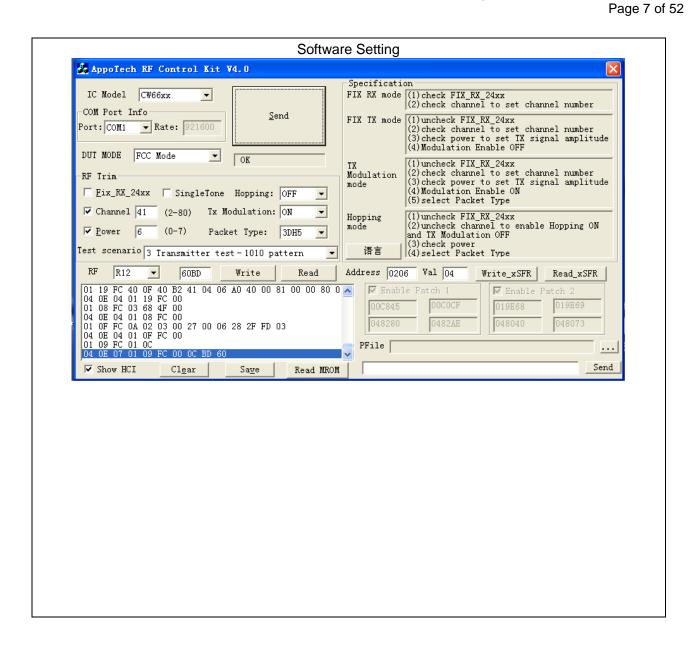
The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

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

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

- 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.

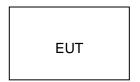


Page 8 of 52

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

721 2 CON M211 0025 N 201 01012M					
Item	Equipment	Mfr/Brand	Model/Type No.	Remark	
1	Bluetooth Headphones	Vivitar /S.LAI	VF50012BT	EUT	
2	Battery	N/A	502035	Accessory	
3	PC	SONY	E1412AYCW	A.E	
4	PC Adapter	SONY	VGP-AC19V36	A.E	
5	Control box	DOFLY	LY-USB-TIL V2.2	A.E	
6	USB Cable	N/A	1m unshielded	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	N/A
§15.215	Bandwidth	Compliant

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

Page 9 of 52

6. TEST FACILITY

Site Dongguan Precise Testing Service Co., Ltd.	
Location Building D,Baoding Technology Park,Guangming Road2,Dongcheng 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	
MULTI-DEVICE Positioning Controller	MAX-FULL	MF-7802	MF780208339	N/A	N/A	
Active loop antenna (9K-30MHz)	SCHWARZBECK	FMZB1519	1519-038	June 6, 2017	June 5, 2018	
Spectrum analyzer	AGILENT	E4407B	MY46185649	June 6, 2017	June 5, 2018	
Radiation Cable 1	MXT	RS1	R005	June 6, 2017	June 5, 2018	
Radiation Cable 2	MXT	RS1	R006	June 6, 2017	June 5, 2018	

Report No.: AGC10302170601FE03 Page 10 of 52

FOR RADIATED EMISSION TEST (1GHz ABOVE)

TOR RADIATED LIVIOU											
	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						
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						
MULTI-DEVICE Positioning Controller	MAX-FULL	MF-7802	MF780208339	N/A	N/A						
Horn Ant (18G-40GHz)	SCHWARZBECK	BBHA 9170	9170-181	June 6, 2017	June 5, 2018						
Radiation Cable 1	MXT	RS1	R005	June 6, 2017	June 5, 2018						
Radiation Cable 2	MXT	RS1	R006	June 6, 2017	June 5, 2018						

Page 11 of 52

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)	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 (Peak) 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.

Page 12 of 52

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)

Report No.: AGC10302170601FE03 Page 13 of 52

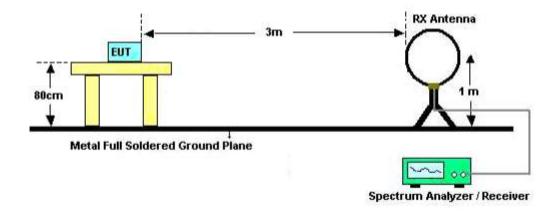
The following table is the setting of spectrum analyzer and receiver.

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 RBW 2MHz/ VBW 6MHz for Peak, RBW 1.5MHz/ VBW 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

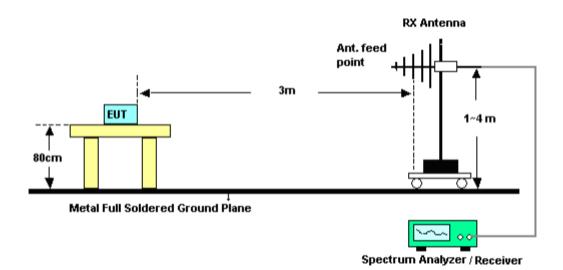
Report No.: AGC10302170601FE03 Page 14 of 52

9.3. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz

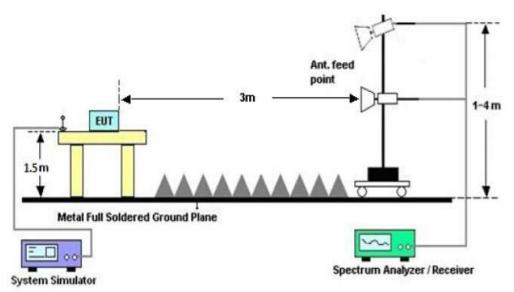


RADIATED EMISSION TEST SETUP 30MHz-1000MHz



Page 15 of 52

RADIATED EMISSION TEST SETUP ABOVE 1000MHz



Page 16 of 52

9.4. TEST RESULT

(Worst modulation: GFSK)

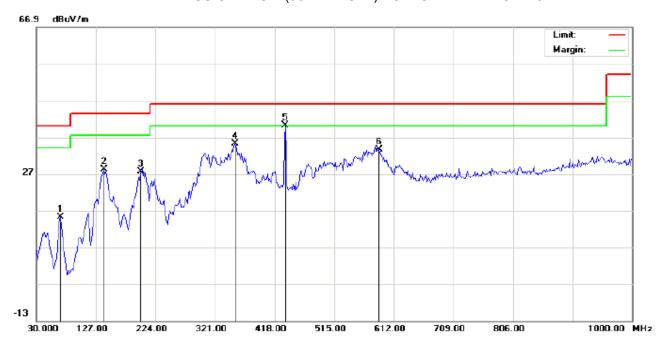
FOR BR/EDR

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 Headphones M/N:VF50012BT

Mode:Low Channel TX

Note:

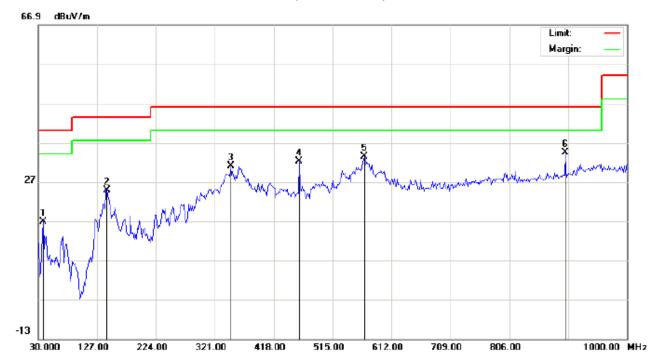
Polarization: Horizontal Temperature: 22.4
Power: Humidity: 52.5 %

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		68.8000	6.19	9.09	15.28	40.00	-24.72	peak			
2		139.9333	12.95	15.17	28.12	43.50	-15.38	peak			
3		199.7500	15.64	11.99	27.63	43.50	-15.87	peak			
4		353.3333	16.45	18.76	35.21	46.00	-10.79	peak			
5	*	435.7833	20.04	20.16	40.20	46.00	-5.80	peak			
6		587.7500	10.13	23.42	33.55	46.00	-12.45	peak			

Page 17 of 52

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



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

EUT:Bluetooth Headphones

M/N:VF50012BT

Mode:Low Channel TX

Note:

Polarization:	Vertical	Temperature: 22.4	1
Power:		Humidity: 52.5 %	

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		38.0833	10.46	6.39	16.85	40.00	-23.15	peak			
2		143.1667	9.68	15.22	24.90	43.50	-18.60	peak			
3		346.8667	12.52	18.53	31.05	46.00	-14.95	peak			
4		460.0333	11.60	20.70	32.30	46.00	-13.70	peak			
5		566.7333	10.93	22.56	33.49	46.00	-12.51	peak			
6	*	898.1500	5.93	28.56	34.49	46.00	-11.51	peak			

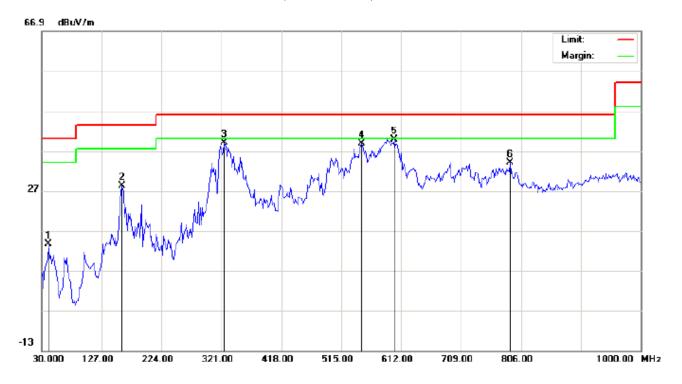
RESULT: PASS

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

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

Page 18 of 52

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



Site: site #1

Limit: FCC Class B 3M Radiation

EUT:Bluetooth Headphones

M/N:VF50012BT

Mode:Middle Channel TX

Note:

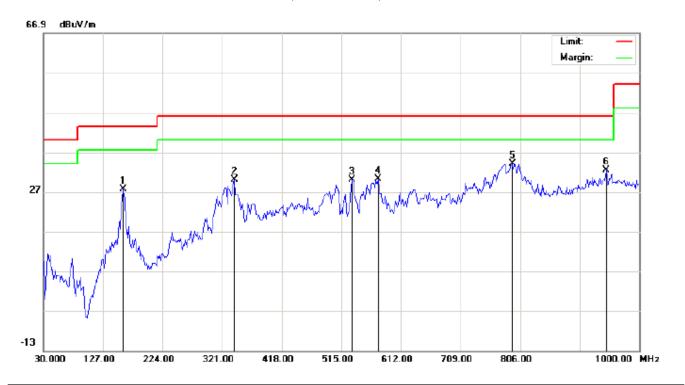
Polarization: *Horizontal* Temperature: 22.4 Power: Humidity: 52.5 %

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		41.3167	1.82	11.81	13.63	40.00	-26.37	peak			
2		159.3333	17.74	10.49	28.23	43.50	-15.27	peak			
3		325.8500	21.95	17.13	39.08	46.00	-6.92	peak			
4		547.3333	16.31	22.41	38.72	46.00	-7.28	peak			
5	*	600.6833	16.06	23.73	39.79	46.00	-6.21	peak			
6		788.2167	6.91	27.16	34.07	46.00	-11.93	peak			

Page 19 of 52

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



Site: site #1

Limit: FCC Class B 3M Radiation

EUT:Bluetooth Headphones

M/N:VF50012BT

Mode:Middle Channel TX

Note:

Polarization:	Vertical	Temperature: 22.4
Power:		Humidity: 52.5 %

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		159.3333	12.19	15.33	27.52	43.50	-15.98	peak			
2		340.4000	11.90	18.10	30.00	46.00	-16.00	peak			
3		532.7833	7.96	22.02	29.98	46.00	-16.02	peak			
4		574.8167	7.53	22.60	30.13	46.00	-15.87	peak			
5	*	793.0667	6.87	27.22	34.09	46.00	-11.91	peak			
6		946.6500	2.42	29.91	32.33	46.00	-13.67	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 20 of 52

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



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

EUT:Bluetooth Headphones

M/N:VF50012BT

Mode:High Channel TX

Note:

Polarization: *Horizontal* Temperature: 22.4 Power: Humidity: 52.5 %

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		162.5667	13.50	10.42	23.92	43.50	-19.58	peak			
2		330.7000	16.45	17.45	33.90	46.00	-12.10	peak			
3		493.9833	10.64	21.06	31.70	46.00	-14.30	peak			
4	*	569.9667	16.82	22.98	39.80	46.00	-6.20	peak			
5		717.0833	5.14	25.68	30.82	46.00	-15.18	peak			
6		948.2667	-0.31	29.95	29.64	46.00	-16.36	peak			

Page 21 of 52

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



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

EUT:Bluetooth Headphones

M/N:VF50012BT

Mode:High Channel TX

Note:

Polarization:	Vertical	Temperature: 22.4
Power:		Humidity: 52.5 %

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		159.3333	12.41	15.33	27.74	43.50	-15.76	peak			
2		314.5333	11.98	16.38	28.36	46.00	-17.64	peak			
3		536.0167	8.55	22.10	30.65	46.00	-15.35	peak			
4		568.3500	10.41	22.57	32.98	46.00	-13.02	peak			
5	*	770.4333	6.99	26.91	33.90	46.00	-12.10	peak			
6		924.0167	1.58	29.28	30.86	46.00	-15.14	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.

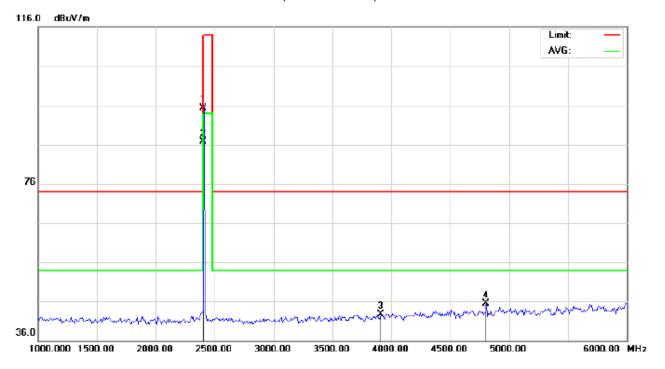
Page 22 of 52

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

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

EUT: Bluetooth Headphones Distance:

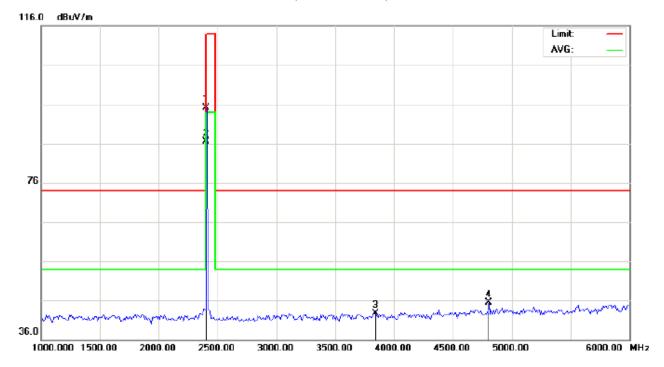
M/N: VF50012BT Mode: Low Channel TX

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	85.01	10.32	95.33	114.00	-18.67	peak			
2	*	2402.000	76.39	10.32	86.71	94.00	-7.29	AVG	100	56	
3		3908.333	28.13	14.63	42.76	74.00	-31.24	peak			
4		4804.000	37.74	7.69	45.43	74.00	-28.57	peak			

Page 23 of 52

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 Headphones Distance:

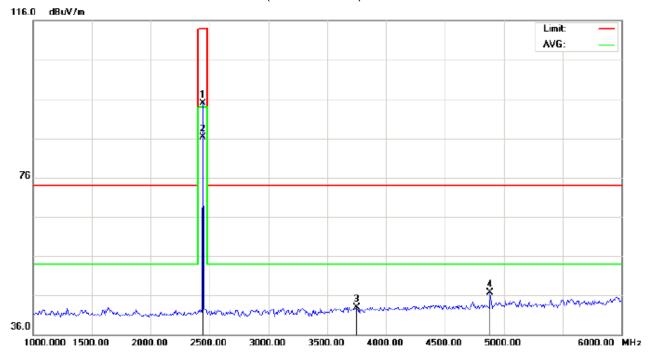
M/N: VF50012BT Mode: Low Channel TX

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	84.70	10.32	95.02	114.00	-18.98	peak			
2	*	2402.000	76.17	10.32	86.49	94.00	-7.51	AVG	100	46	
3		3841.667	28.50	14.21	42.71	74.00	-31.29	peak			
4		4804.000	37.88	7.69	45.57	74.00	-28.43	peak			

Page 24 of 52

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 Headphones Distance:

M/N: VF50012BT

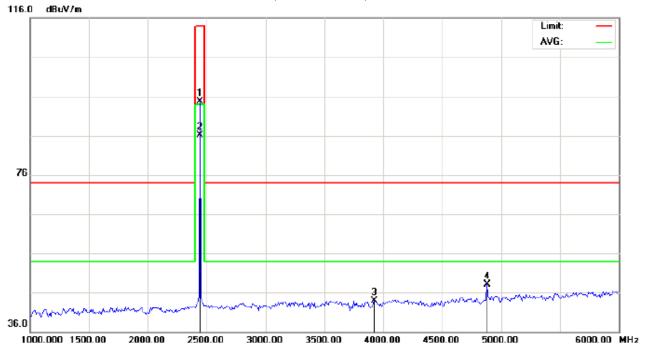
Mode: Middle Channel TX

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	84.53	10.36	94.89	114.00	-19.11	peak			
2	*	2441.000	75.96	10.36	86.32	94.00	-7.68	AVG	100	59	
3		3750.000	29.29	13.65	42.94	74.00	-31.06	peak			
4		4882.000	38.88	7.89	46.77	74.00	-27.23	peak			

Page 25 of 52

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 Headphones Distance:

M/N: VF50012BT

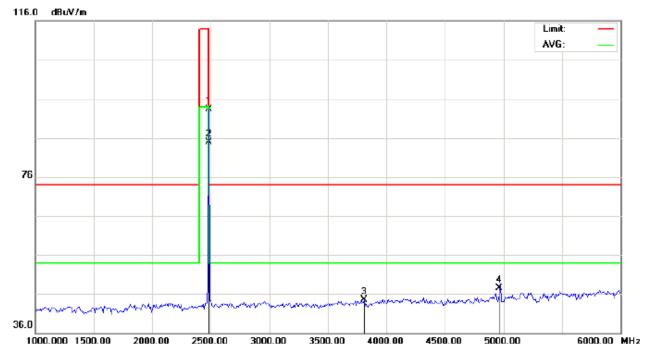
Mode: Middle Channel TX

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	84.25	10.36	94.61	114.00	-19.39	peak			
2	*	2441.000	75.71	10.36	86.07	94.00	-7.93	AVG	100	47	
3		3925.000	29.08	14.73	43.81	74.00	-30.19	peak			
4		4882.000	40.31	7.89	48.20	74.00	-25.80	peak			

Page 26 of 52

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 Headphones Distance:

M/N: VF50012BT

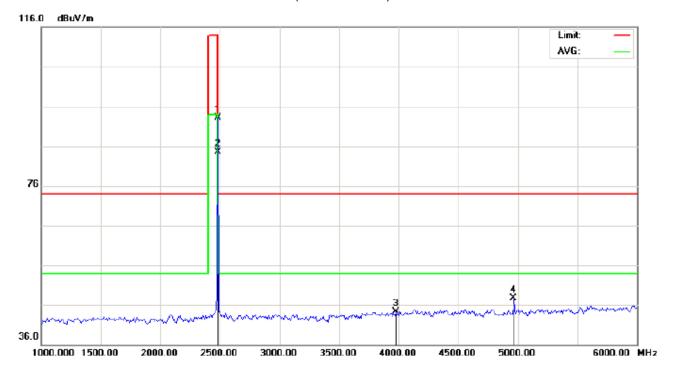
Mode: High Channel TX

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	82.97	10.41	93.38	114.00	-20.62	peak			
2	*	2480.000	74.41	10.41	84.82	94.00	-9.18	AVG	100	57	
3		3808.333	30.47	14.01	44.48	74.00	-29.52	peak			
4		4960.000	39.51	8.09	47.60	74.00	-26.40	peak			

Page 27 of 52

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 Headphones Distance:

M/N: VF50012BT

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	82.63	10.41	93.04	114.00	-20.96	peak			
2	*	2480.000	74.18	10.41	84.59	94.00	-9.41	AVG	100	47	
3		3975.000	29.23	15.04	44.27	74.00	-29.73	peak			
4		4960.000	39.66	8.09	47.75	74.00	-26.25	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.

Report No.: AGC10302170601FE03 Page 28 of 52

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	85.01	10.32	95.33	114	-18.67	Horizontal
2402	84.70	10.32	95.02	114	-18.98	Vertical
2441	84.53	10.36	94.89	114	-19.11	Horizontal
2441	84.25	10.36	94.61	114	-19.39	Vertical
2480	82.97	10.41	93.38	114	-20.62	Horizontal
2480	82.63	10.41	93.04	114	-20.96	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	76.39	10.32	86.71	94	-7.29	Horizontal
2402	76.17	10.32	86.49	94	-7.51	Vertical
2441	75.96	10.36	86.32	94	-7.68	Horizontal
2441	75.71	10.36	86.07	94	-7.93	Vertical
2480	74.41	10.41	84.82	94	-9.18	Horizontal
2480	74.18	10.41	84.59	94	-9.41	Vertical

Report No.: AGC10302170601FE03 Page 29 of 52

2Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	84.95	10.32	95.27	114	-18.73	Horizontal
2402	84.64	10.32	94.96	114	-19.04	Vertical
2441	84.46	10.36	94.82	114	-19.18	Horizontal
2441	84.16	10.36	94.52	114	-19.48	Vertical
2480	82.91	10.41	93.32	114	-20.68	Horizontal
2480	82.57	10.41	92.98	114	-21.02	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	76.36	10.32	86.68	94	-7.32	Horizontal
2402	76.10	10.32	86.42	94	-7.58	Vertical
2441	75.89	10.36	86.25	94	-7.75	Horizontal
2441	75.65	10.36	86.01	94	-7.99	Vertical
2480	74.34	10.41	84.75	94	-9.25	Horizontal
2480	74.11	10.41	84.52	94	-9.48	Vertical

Report No.: AGC10302170601FE03 Page 30 of 52

3Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	84.89	10.32	95.21	114	-18.79	Horizontal
2402	84.57	10.32	94.89	114	-19.11	Vertical
2441	84.38	10.36	94.74	114	-19.26	Horizontal
2441	84.09	10.36	94.45	114	-19.55	Vertical
2480	82.83	10.41	93.24	114	-20.76	Horizontal
2480	82.50	10.41	92.91	114	-21.09	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	76.29	10.32	86.61	94	-7.39	Horizontal
2402	76.00	10.32	86.32	94	-7.68	Vertical
2441	75.81	10.36	86.17	94	-7.83	Horizontal
2441	75.56	10.36	85.92	94	-8.08	Vertical
2480	74.24	10.41	84.65	94	-9.35	Horizontal
2480	74.01	10.41	84.42	94	-9.58	Vertical

Page 31 of 52

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.

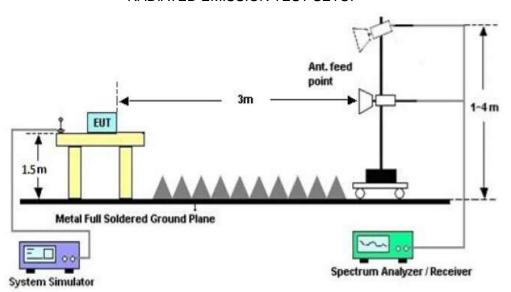
2Max hold the trace of the setup 1,and the EUT operates at hopping-on test mode to verify the largest spurious emissions power.

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

Start frequency(MHz)	Stop frequency(MHz)
2200	2405
2478	2500

10.2 TEST SETUP

RADIATED EMISSION TEST SETUP



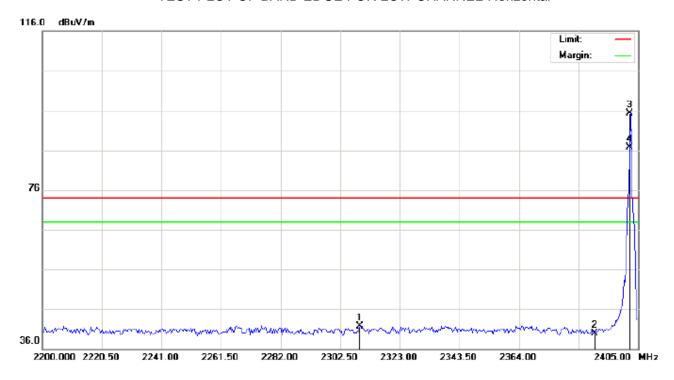
Page 32 of 52

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 Headphones Distance:

M/N: VF50012BT 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		2309.333	31.56	10.22	41.78	74.00	-32.22	peak			
2		2390.000	29.50	10.31	39.81	74.00	-34.19	peak			
3	*	2402.000	85.00	10.32	95.32	74.00	21.32	peak			
4	Х	2402.000	76.42	10.32	86.74	74.00	12.74	AVG	100	52	

Page 33 of 52

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 %

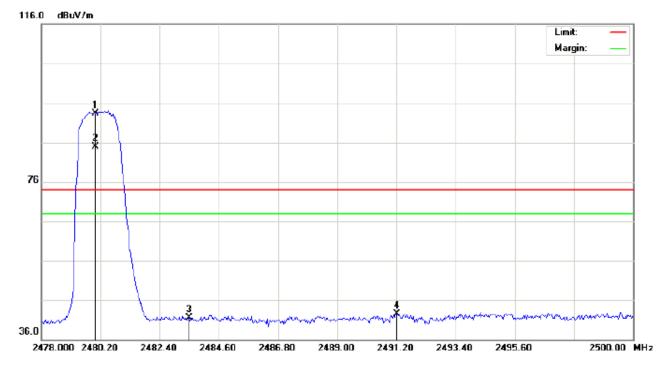
EUT: Bluetooth Headphones Distance:

M/N: VF50012BT 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		2313.091	31.22	10.22	41.44	74.00	-32.56	peak			
2		2390.000	30.21	10.31	40.52	74.00	-33.48	peak			
3	*	2402.000	84.66	10.32	94.98	74.00	20.98	peak			
4	Х	2402.000	76.02	10.32	86.34	74.00	12.34	AVG	100	45	

Page 34 of 52

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 %

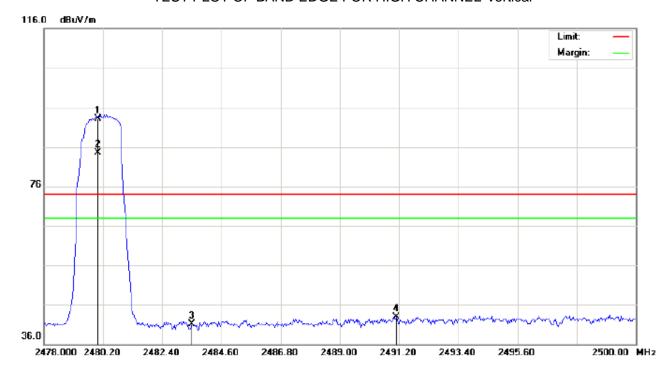
EUT: Bluetooth Headphones Distance:

M/N: VF50012BT Mode: High Channel TX

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	82.95	10.41	93.36	74.00	19.36	peak			
2	Х	2480.000	74.44	10.41	84.85	74.00	10.85	AVG	100	54	
3		2483.500	31.19	10.41	41.60	74.00	-32.40	peak			
4		2491.200	32.11	10.42	42.53	74.00	-31.47	peak			

Page 35 of 52

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 Headphones Distance:

M/N: VF50012BT 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	82.62	10.41	93.03	74.00	19.03	peak			
2	Х	2480.000	74.17	10.41	84.58	74.00	10.58	AVG	100	43	
3		2483.500	30.76	10.41	41.17	74.00	-32.83	peak			
4		2491.090	32.45	10.42	42.87	74.00	-31.13	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.

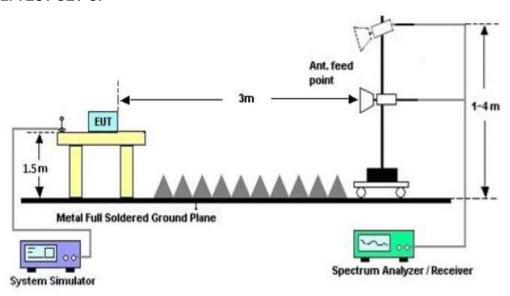
Page 36 of 52

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

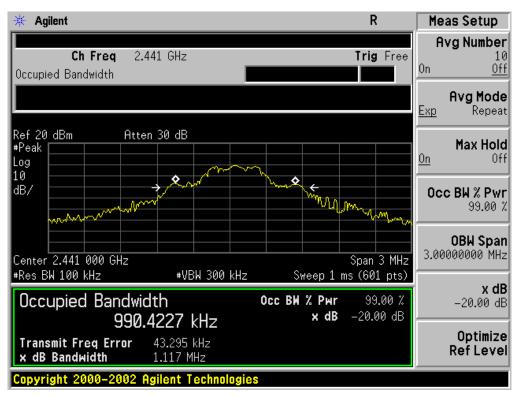
BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT									
	Measurement Result								
Applicable Limits		Deculé							
		99%OBW (MHz)	-20dB BW(MHz)	Result					
	Low Channel	0.998	1.106	PASS					
N/A	Middle Channel	0.990	1.117	PASS					
	High Channel	0.984	1.110	PASS					

Page 37 of 52

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

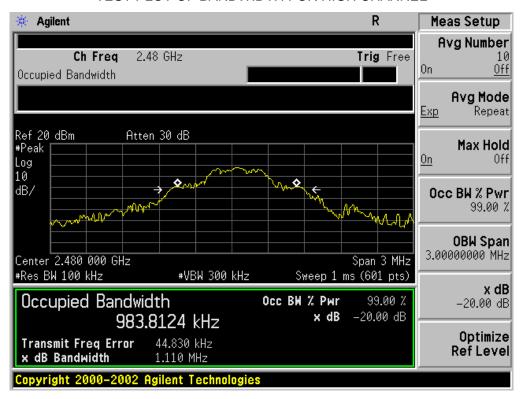


TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



Page 38 of 52

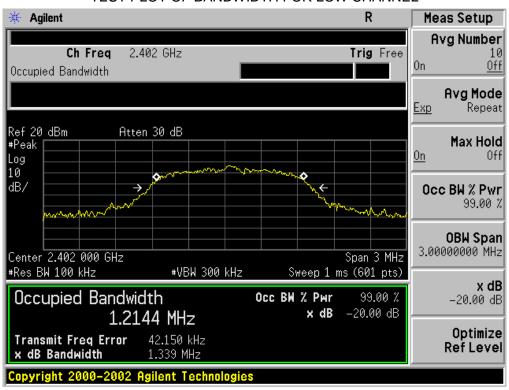
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



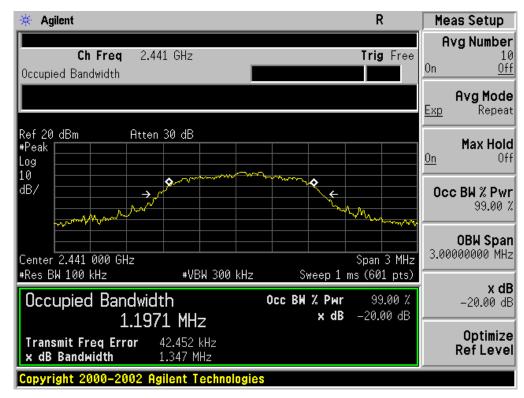
Report No.: AGC10302170601FE03 Page 39 of 52

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	1.214	1.339	PASS		
	Middle Channel	1.197	1.347	PASS		
	High Channel	1.195	1.351	PASS		

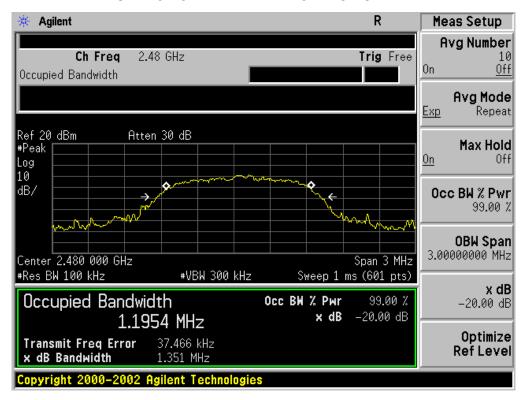
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



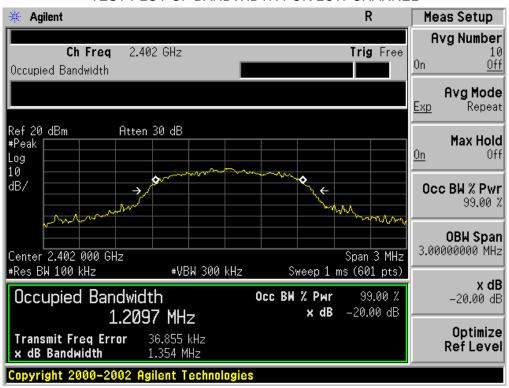
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



Report No.: AGC10302170601FE03 Page 41 of 52

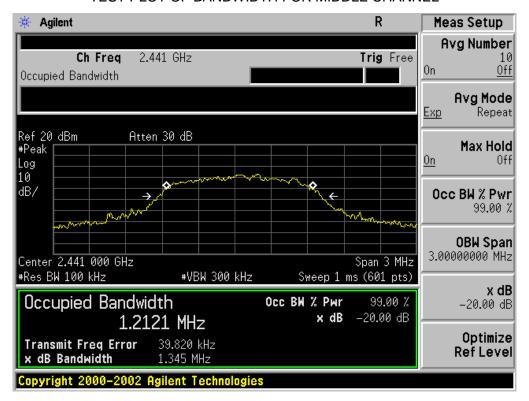
BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESULT						
	Measurement Result					
Applicable Limits	Test Data (MHz)			Decul		
		99%OBW (MHz)	-20dB BW(MHz)	Result		
N/A	Low Channel	1.210	1.354	PASS		
	Middle Channel	1.212	1.345	PASS		
	High Channel	1.212	1.377	PASS		

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

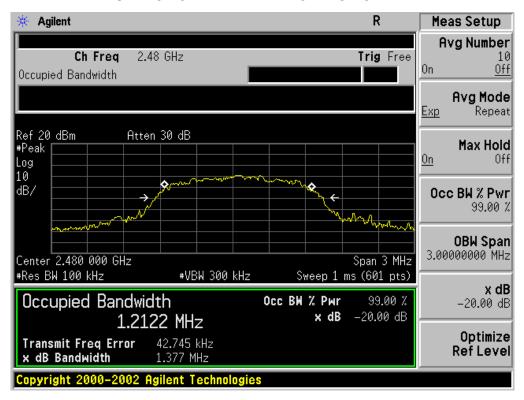


Page 42 of 52

TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



Report No.: AGC10302170601FE03

Page 43 of 52

12. FCC LINE CONDUCTED EMISSION TEST

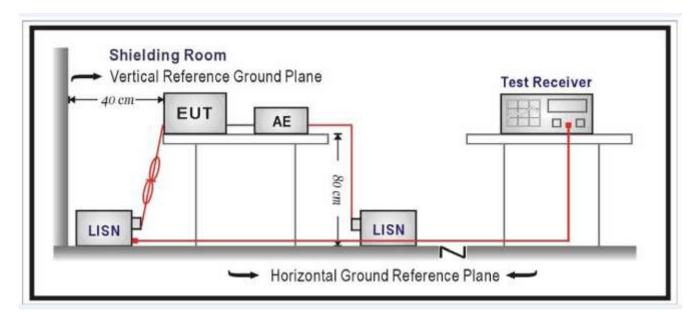
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

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.

12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



Report No.: AGC10302170601FE03

Page 44 of 52

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

- 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.

12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

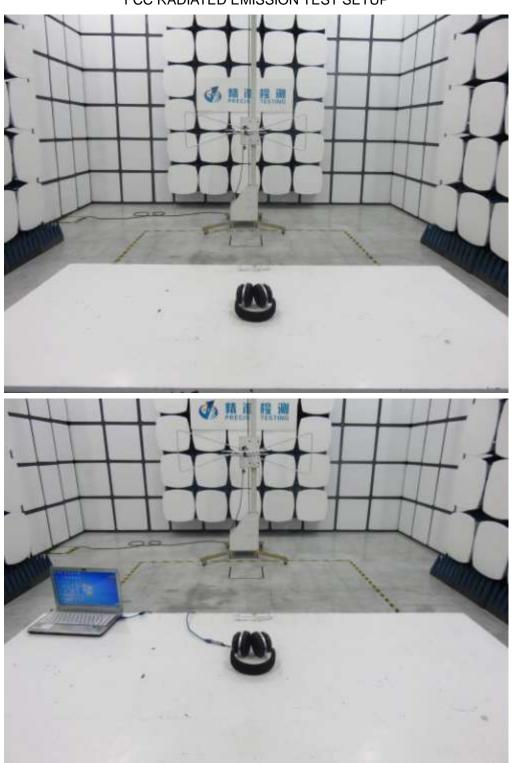
N/A

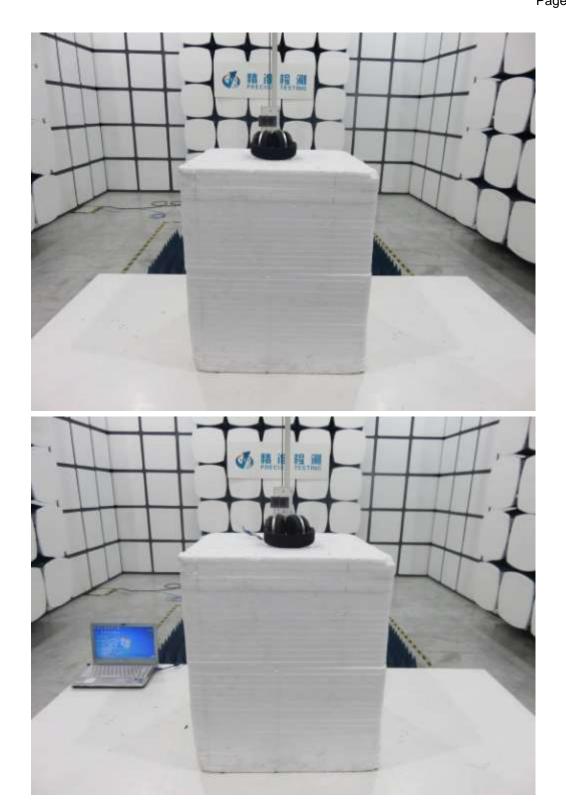
Note: The BT function of EUT didn't work when charging

Report No.: AGC10302170601FE03 Page 45 of 52

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC RADIATED EMISSION TEST SETUP





Report No.: AGC10302170601FE03

Page 47 of 52

APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT



Page 48 of 52

FRONT VIEW OF EUT



BACK VIEW OF EUT



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



VIEW OF EUT (PORT)-1



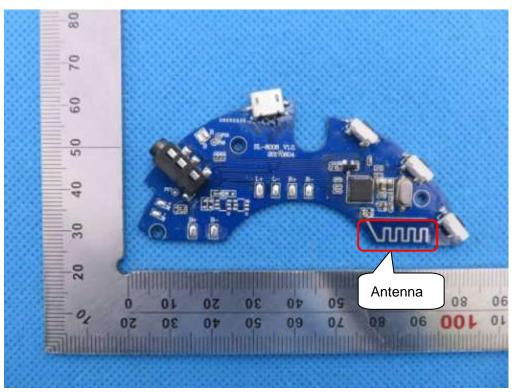
VIEW OF EUT (PORT)-2



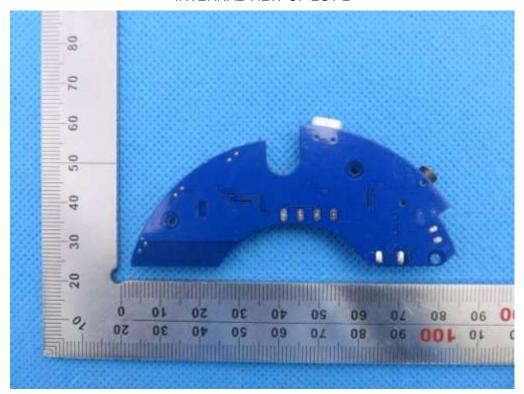
OPEN VIEW OF EUT



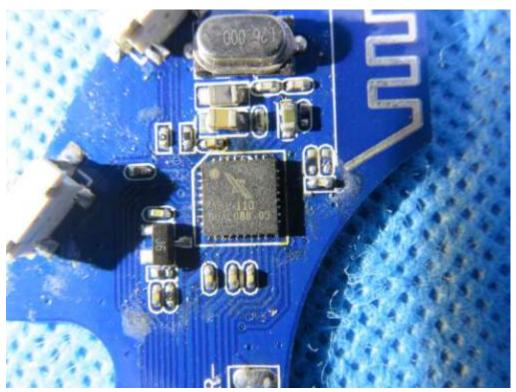
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



----END OF REPORT----