



FCC Part 15C TEST REPORT

FCC ID:2A5QJ-GOBLUAIR

Prepared for : Abbingdon Global Limited
Address : 79 SCARISBRICK NEW ROAD SOUTHPORT United Kingdom

Trade Name : ifi

E.U.T : Bluetooth decoder

Model Number : GO blu Air

Prepared by : Keyway Testing Technology(Guangdong) Co., Ltd.
Address : Room 2102, Building 6, Dongyi Intelligent Equipment New Energy Vehicle Park, No.30 of Tangxia District, Dongshen Road, Tangxia Town, Dongguan, 523710, People's Republic of China

Tel: 86-769-87182258

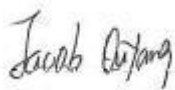
Fax: 86-769-87181058

Report No. : 2025090835999715-00

Date of Test: : Aug. 01 ~ Sep. 04, 2025

Date of Report : Sep. 05, 2025

Keyway Testing Technology (Guangdong) Co., Ltd.

Applicant:	Abbingdon Global Limited	
Address:	79 SCARISBRICK NEW ROAD SOUTHPORT United Kingdom	
Manufacturer:	Abbingdon Global Limited	
Address:	79 SCARISBRICK NEW ROAD SOUTHPORT United Kingdom	
E.U.T:	Bluetooth decoder	
Model Number:	GO blu Air	
Trade Name:	ifi	
Date of Receipt:	Aug. 01, 2025	
Date of Test:	Aug. 01 ~ Sep. 04, 2025	
Test Specification :	FCC CFR47 Part 15 Section 15.247 ANSI C63.10:2013	
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied.	
	Issue Date: Sep. 05, 2025	
Tested by:	Reviewed by:	Authorized by:
		
Jacob Ouyang /Engineer	Billy Zeng / Supervisor	Cherry Chen / Manager
<i>Abbreviations: OK/P=passed fail/F=failed N/A=not applicable E.U.T=equipment under tested</i>		
<i>This device described above has been tested by Keyway, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report. This report shall not be reproduced except in full, without the written approval of Keyway, this document may be altered or revised by Keyway, personal only, and shall be noted in the revision of the document.</i>		



Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2025.9.5		Original



Contents

	Page
1 TEST SUMMARY	6
2 TEST FACILITY	7
3 GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF E.U.T.	8
3.2 CHANNEL LIST	9
3.3 TEST SETUP CONFIGURATION	10
3.4 TEST MODE	11
4 EQUIPMENT DURING TEST	12
4.1 EQUIPMENTS LIST	12
4.2 MEASUREMENT UNCERTAINTY	14
4.3 DESCRIPTION OF SUPPORT UNITS	15
5 CONDUCTED EMISSION	16
5.1 E.U.T. OPERATION	16
5.2 EUT SETUP	16
5.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	17
5.4 MEASUREMENT PROCEDURE:	17
5.5 CONDUCTED EMISSION LIMIT	17
5.6 MEASUREMENT DESCRIPTION	17
5.7 CONDUCTED EMISSION TEST RESULT	17
6 RADIATED SPURIOUS EMISSIONS	20
6.1 EUT OPERATION	20
6.2 TEST SETUP	20
6.3 SPECTRUM ANALYZER SETUP	22
6.4 TEST PROCEDURE	22
6.5 SUMMARY OF TEST RESULTS	24
7 MAXIMUM PEAK OUTPUT POWER TEST	31
7.1 TEST STANDARD AND LIMIT	31
7.2 TEST SETUP	31
7.3 TEST PROCEDURE	31



7.4 TEST DATA	31
8 20DB OCCUPY BANDWIDTH & 99% OCB TEST	32
8.1 TEST STANDARD	32
8.2 TEST SETUP	32
8.3 TEST PROCEDURE	32
8.4 TEST DATA	32
9 CARRIER FREQUENCY SEPARATION TEST	33
9.1 TEST STANDARD AND LIMIT	33
9.2 TEST SETUP	33
9.3 TEST PROCEDURE	33
9.4 TEST DATA	33
10 NUMBER OF HOPPING CHANNEL TEST	34
10.1 TEST STANDARD AND LIMIT	34
10.2 TEST SETUP	34
10.3 TEST PROCEDURE	34
10.4 TEST DATA	34
12 DWELL TIME TEST	35
12.1 TEST STANDARD AND LIMIT	35
12.2 TEST SETUP	35
12.3 TEST PROCEDURE	35
12.4 TEST DATA	35
13 100KHZ BANDWIDTH OF FREQUENCY BAND EDGE REQUIREMENT	36
13.1 TEST STANDARD AND LIMIT	36
13.2 TEST SETUP	36
13.3 TEST PROCEDURE	36
13.4 TEST DATA	36
14 ANTENNA REQUIREMENT	37
14.1 TEST STANDARD AND REQUIREMENT	37
14.2 ANTENNA CONNECTED CONSTRUCTION	37
15 APPENDIX I -- TEST SETUP PHOTOGRAPH	38
16 APPENDIX II -- EUT PHOTOGRAPH	39



1 Test Summary

Test Items	Test Requirement	Result
Radiated Spurious Emissions and Restricted Bandedge	15.205(a) 15.209 15.247(d)	PASS
Conducted Unwanted emissions and Band edge	15.247(d) 15.205(a)	PASS
Conduct Emission	15.207	PASS
20dB Bandwidth & 99% OCB	15.247(a)(1)	PASS
Maximum Peak Output Power	15.247(b)(1)	PASS
Frequency Separation	15.247(a)(1)	PASS
Number of Hopping Frequency	15.247(a)(1)(iii)	PASS
Dwell time	15.247(a)(1)(iii)	PASS
Antenna Requirement	FCC part 15.203/15.247 (b)(4)	PASS

Remark:

1. "N/A" denotes test is not applicable in this Test Report.



2 TEST FACILITY

Lab Qualifications	: Certificated by CMA Registration No.: 202319016955 Date of registration: July 23, 2024 Certificated by CNAS Registration No.: CNAS L5783 Date of registration: March 07, 2025 Certificated by A2LA Certificate Number:7404.01 Valid To: March 31.2027 FCC Designation No.: CN1412 Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules. ISED (Company No.: 33959) The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0186 Certificated by VCCI Member No.3498 R-20091:G-20277:966 Chamber 2 Below 1 G G-20277:966 Chamber 2 above 1 G C-20064:Conducted Emissions at Mains ports T-20120:Conducted Emissions at Wired network port Date of Valid until: Step. 19, 2027 Certificated by Nemko Registration No.: ELA 814 Date of registration: September 25, 2024 Certificated by UL Registration No.: 100567237 Date of registration: September 25, 2024
Name of Firm	: Keyway Testing Technology(Guangdong) Co., Ltd.
Site Location	: Room 2102, Building 6, Dongyi Intelligent Equipment New Energy Vehicle Park, No.30 of Tangxia District, Dongshen Road, Tangxia Town, Dongguan, 523710, People's Republic of China



3 General Information

3.1 General Description of E.U.T.

Product Name	:	Bluetooth decoder
Model Name	:	GO blu Air
Sample ID	:	33000250160
Sample(s) Status:	:	Engineer sample
Additional model	:	/
Model difference	:	/
Operating frequency	:	2402-2480MHz
Numbers of Channel	:	79 channels
Antenna Type	:	FPC Antenna
Antenna Gain	:	-3.89dBi
Type of Modulation	:	GFSK, π /4DQPSK, 8DPSK
Power Input	:	DC 5V from Type C charging, DC3.8V from battery
Hardware Version	:	V1.1
Software Version	:	V1.1
Battery information	:	Li-ion Battery 450mAh DC 3.8V, 1.7Whr Model 502528
Hardware Version	:	N/A
Software Version	:	N/A
Remark: the Antenna gain is provided by customer from Antenna spec. and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.		



3.2 Channel List

The EUT has been tested under its typical operating condition. Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2013 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

The EUT has been tested under TX operating condition.

This EUT is a FHSS system, were conducted to determine the final configuration from all possible combinations. We use software control the EUT, Let EUT hopping on and transmit with highest power, all the modes GFSK, $\pi/4$ DQPSK, 8DPSK have been tested. 79 Channels are provided by EUT. The 3 channels of lower, medium and higher were chosen for test.

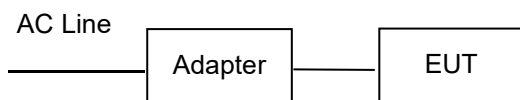
Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	-	-

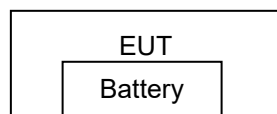
Channel	Frequency(MHz)
0	2402
39	2441
78	2480

3.3 Test Setup Configuration

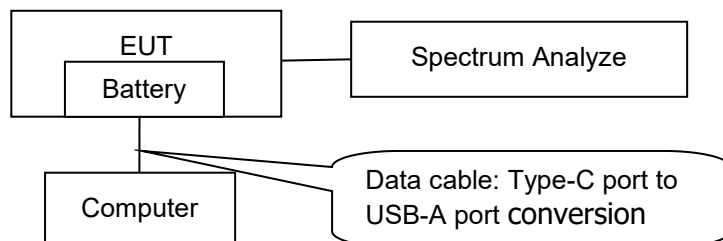
Conducted Emission



Radiated Emission



Conducted Spurious





3.4 Test Mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. For battery operated equipment, the equipment tests shall be performed using a new battery. So the report just shows that condition's data.	

Test Software	BlueSuite.WIN.3.3 Installer_WIN.3.3.15
Power level setup	10dBm



4 Equipment During Test

4.1 Equipments List

Equipment	Manufacturer	Model No.	Serial No.	Date of Cal.	Valid until
For conducted emission at the mains terminals and signal port test 944 Shielded Room					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-089	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101156	Apr 14, 25	Apr 13, 26
ArtificialMains Network	Rohde&Schwarz	ENV216	101314	Mar 05, 25	Mar 04, 26
RF Cable	FUJIKURA	3D-2W	KWET-030	Apr 14, 25	Apr 13, 26
Socket	Gongniu	KWET-003A1	KWET-003A1	Feb 21, 25	Feb 20, 26
For radiated emission test (30MHz-1GHz)966 Chamber 2					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-087	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101178	Apr 14, 25	Apr 13, 26
TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00829	May 10, 25	May 09, 26
3m Semi-anechoic Chamber	YIHENDIANZI	966	YH-KW-966-02	Mar 08, 24	Mar 07, 26
RF Cable	EMC Instruments	EMCCFD400-NM-NM-2000	240307	Apr 14, 25	Apr 13, 26
RF Cable	EMC Instruments	EMCCFD400-NM-NM-9000	240309	Apr 14, 25	Apr 13, 26
For radiated emission test (Above 1GHz)966 Chamber 2					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-087	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101178	Apr 14, 25	Apr 13, 26
Spectrum Analyzer	Agilent	N9020A	MY56070279	Apr 14, 25	Apr 13, 26
Spectrum analyzer	R&S	FSV 40	101059	Nov 06, 24	Nov 05, 25



Horn Antenna	DAZE	ZN30701	11003	Jul 27, 25	Jul 26, 26
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	1368	May 16, 25	May 15, 26
Signal Amplifier	WCS Technology	DLNA-18000-40000	KWET-138	Apr 19, 25	Apr 18, 26
3m anechoic Chamber	YIHENDIANZI	966	YH-KW-966-02	Mar 07, 25	Mar 06, 29
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-1000	240301	Apr 14, 25	Apr 13, 26
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-2000	240302	Apr 14, 25	Apr 13, 26
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-9000	240303	Apr 14, 25	Apr 13, 26
RF Cable(18G-40GHz)	WCS Technology	CA360P-29M29M-1M	W2415130001	Apr 14, 25	Apr 13, 26
RF Cable(18G-40GHz)	WCS Technology	CA360P-29M29M-9M	W2415110001	Apr 14, 25	Apr 13, 26
For conducted emission test (RF)					
MXG Signal Analyzer	Agilent	N9020A	MY56070279	Apr 14, 25	Apr 13, 26
RF SWITCH BOX	CSKJ	SMU-1003	KWET-047	Apr 14, 25	Apr 13, 26
Attenuator	R&S	ESH3-Z2	102696	Apr 14, 25	Apr 13, 26
Power meter	YOKOKAWA	WY210	27D528405	Apr 14, 25	Apr 13, 26
RF sma cable	Keysight	ULC-1m-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1m-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1.5FT-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1.5FT-SMSM+	1623	May 15, 25	May 14, 26
Coupler	Keysight	ZHDC-10-63-S+	SF331801603	May 15, 25	May 14, 26
Test Software	CSKJ	CS-305X	KWET-149	/	/
Power Meter	Agilent	E4418B	MY41294314	May 15, 25	May 14, 26



4.2 Measurement Uncertainty

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

Parameter	Uncertainty
RF output power, conducted	$\pm 1.0\text{dB}$
Power Spectral Density, conducted	$\pm 2.2\text{dB}$
Radio Frequency	$\pm 1 \times 10^{-6}$
Bandwidth	$\pm 1.5 \times 10^{-6}$
Duty Cycle	$\pm 2\%$
Spurious emissions, conducted	$\pm 0.21\text{dB}$
Temperature	$\pm 1^\circ\text{C}$
Humidity	$\pm 5\%$
DC and low frequency voltages	$\pm 3\%$
Conducted Emissions (150kHz~30MHz)	$\pm 3.64\text{dB}$
Radiated Emission(9KHz~30MHz)	$\pm 4.51\text{dB}$
Radiated Emission(30MHz~1GHz)	$\pm 5.03\text{dB}$
Radiated Emission(1GHz~25GHz)	$\pm 4.74\text{dB}$
Radiated Emission(25GHz~40GHz)	$\pm 3.38\text{dB}$



4.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Bluetooth decoder	ifi	GO blu Air	N/A	EUT
E-2	Notebook	lenovo	B40-80	MP07F6JD	Auxiliary
E-3	Adapter	N/A	HA728	N/A	Auxiliary

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

5 Conducted Emission

Test Requirement:	: FCC CFR 47 Part 15 Section 15.207
Test Method:	: ANSI C63.10:2013
Test Result:	: PASS
Frequency Range:	: 150kHz to 30MHz
Class/Severity:	: Class B
Detector:	: Peak for pre-scan (9kHz Resolution Bandwidth)

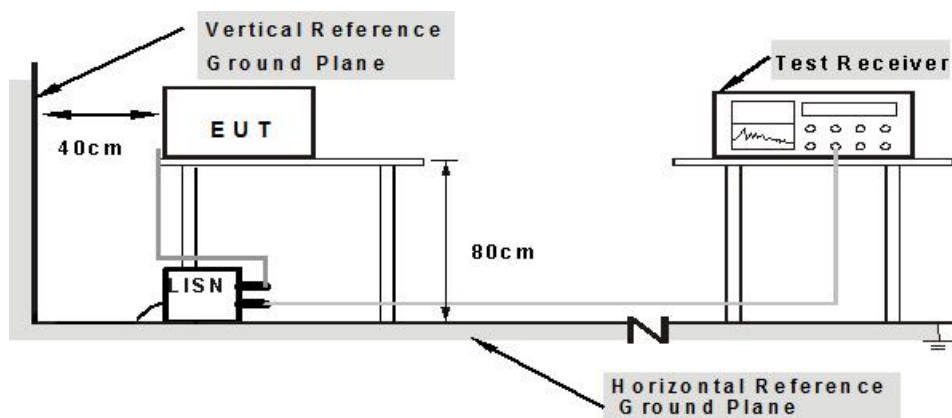
5.1 E.U.T. Operation

Operating Environment :

Temperature:	: 23.5°C
Humidity:	: 54 % RH
Atmospheric Pressure:	: 101.12 kPa
Test Voltage	: AC 120V/60Hz

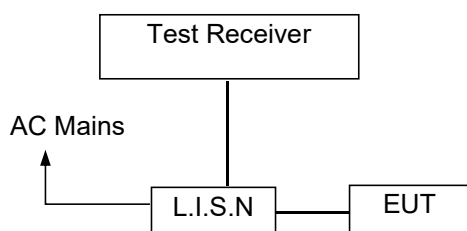
5.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10: 2013



**Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80
from other units and other metal planes**

5.3 Test SET-UP (Block Diagram of Configuration)



5.4 Measurement Procedure:

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

5.5 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

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

5.6 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

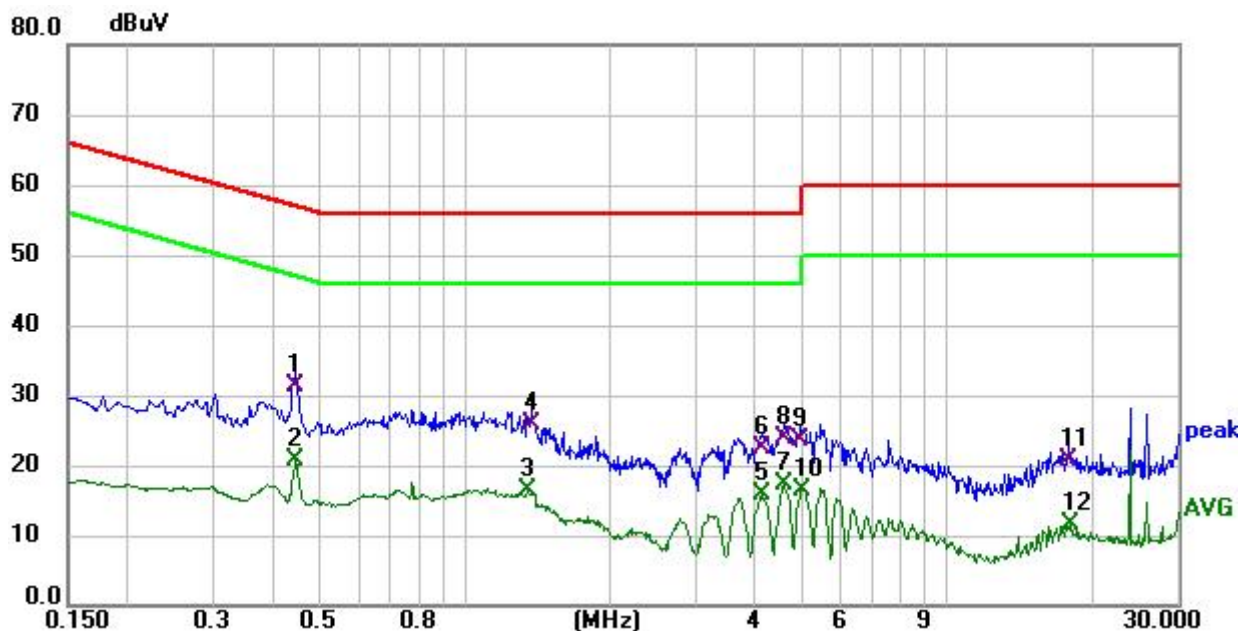
5.7 Conducted Emission Test Result

Pass

Conducted emission at both 120V & 240V is assessed, and emission at 120V represents the worst case. All the modulation modes were tested the data of the worst mode (8DPSK) are recorded in the following pages and the others modulation methods do not exceed the limits.

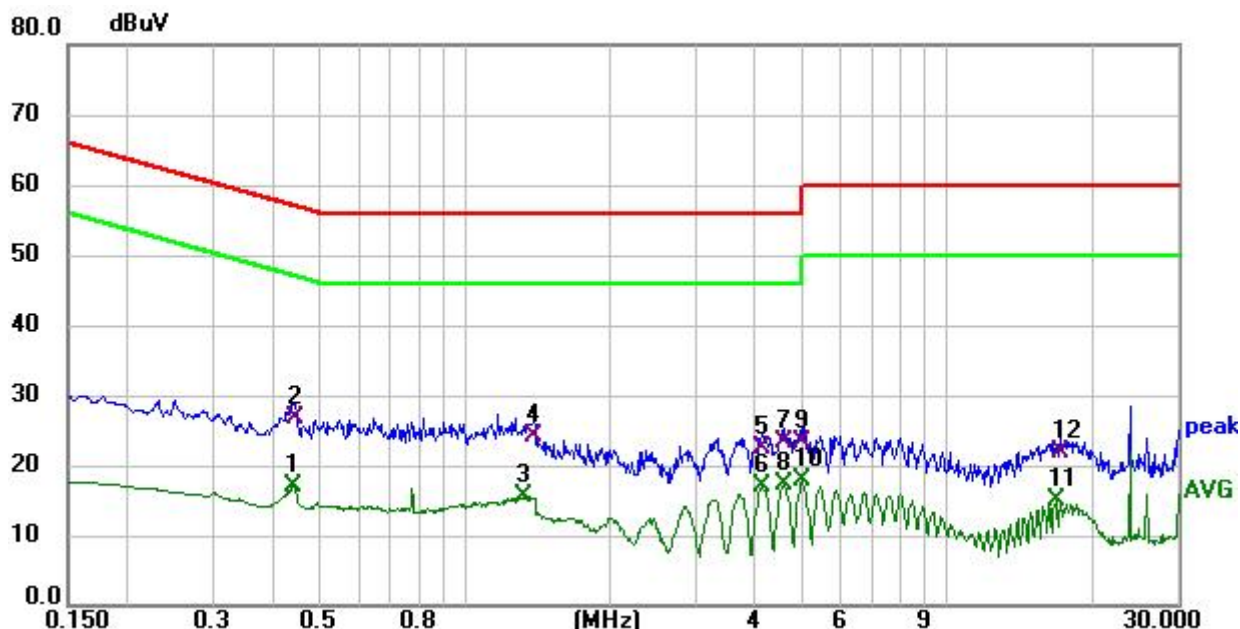


Channel:	High	Phase :	L
Model:	GO blu Air		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1 *	0.443	20.74	10.54	31.28	57.01	-25.73	QP	P	
2	0.443	10.04	10.54	20.58	47.01	-26.43	AVG	P	
3	1.351	5.95	10.51	16.46	46.00	-29.54	AVG	P	
4	1.369	15.27	10.51	25.78	56.00	-30.22	QP	P	
5	4.114	5.14	10.69	15.83	46.00	-30.17	AVG	P	
6	4.141	11.75	10.70	22.45	56.00	-33.55	QP	P	
7	4.591	6.58	10.76	17.34	46.00	-28.66	AVG	P	
8	4.600	13.06	10.76	23.82	56.00	-32.18	QP	P	
9	4.978	12.89	10.80	23.69	56.00	-32.31	QP	P	
10	4.996	5.76	10.80	16.56	46.00	-29.44	AVG	P	
11	17.775	7.69	12.92	20.61	60.00	-39.39	QP	P	
12	18.000	-1.46	12.93	11.47	50.00	-38.53	AVG	P	

Channel:	High	Phase :	N
Model:	GO blu Air		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.438	6.56	10.39	16.95	47.10	-30.15	AVG	P	
2	0.443	16.44	10.39	26.83	57.01	-30.18	QP	P	
3	1.324	5.35	10.34	15.69	46.00	-30.31	AVG	P	
4	1.387	13.92	10.34	24.26	56.00	-31.74	QP	P	
5	4.123	11.83	10.57	22.40	56.00	-33.60	QP	P	
6	4.123	6.45	10.57	17.02	46.00	-28.98	AVG	P	
7	4.600	12.62	10.64	23.26	56.00	-32.74	QP	P	
8	4.600	6.69	10.64	17.33	46.00	-28.67	AVG	P	
9	5.000	12.69	10.69	23.38	56.00	-32.62	QP	P	
10 *	5.000	7.06	10.69	17.75	46.00	-28.25	AVG	P	
11	16.750	1.78	13.12	14.90	50.00	-35.10	AVG	P	
12	17.125	8.64	13.15	21.79	60.00	-38.21	QP	P	

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor
Correct Factor = Line Loss

6 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.247
Test Method : ANSI C63.10:2013
Test Result : PASS
Measurement Distance : 3m
Limit : See the follow table

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

6.1 EUT Operation

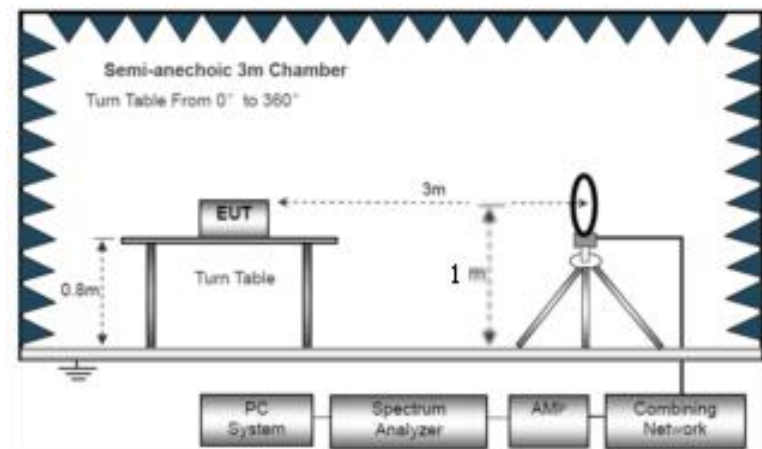
Operating Environment :

Temperature : 26 °C
Humidity : 54% RH
Atmospheric Pressure : 101.3kPa
Test Voltage : AC 120V60Hz

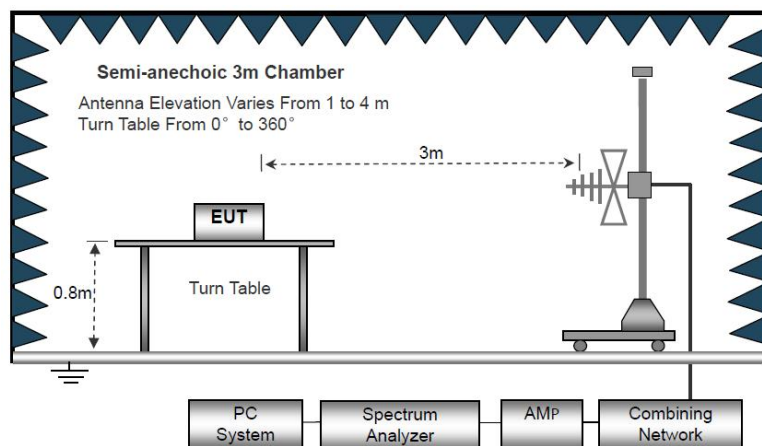
6.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

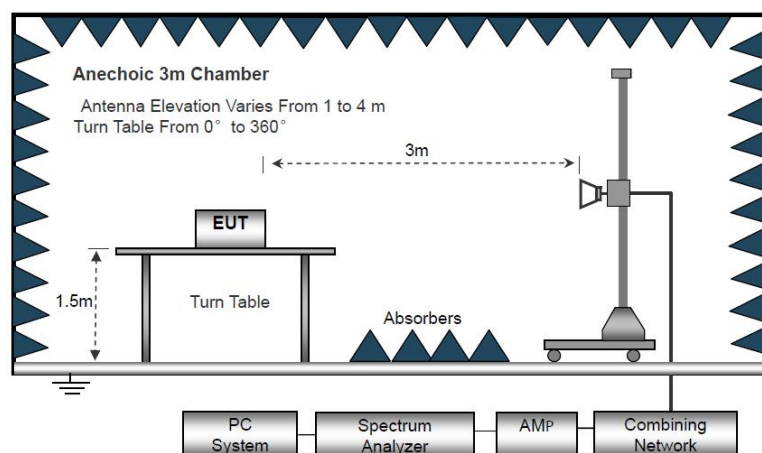
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



6.3 Spectrum Analyzer Setup

Below 30MHz			
IF Bandwidth	:	10kHz	
Resolution Bandwidth	:	10kHz	
Video Bandwidth	:	10kHz	
30MHz ~ 1GHz			
Detector	:	PK	QP
Resolution Bandwidth	:	100kHz	120kHz
Video Bandwidth	:	300kHz	300kHz
Above 1GHz			
Detector	:	PK	AV
Resolution Bandwidth	:	1MHz	1MHz
Video Bandwidth	:	3MHz	10Hz

6.4 Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10-2013.
2. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 0.8mm above ground plane.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.
7. Test Procedure of measurement (For Above 1GHz):
 - 1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).
 - 2) Change the antenna polarization and repeat 1) with vertical polarization.
 - 3) Make a hardcopy of the spectrum.



- 4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
- 5) Change the analyser mode to Clear/ Write and found the cone of emission.
- 6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.
- 7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.
- 8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.
8. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.



6.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq.	Ant.Pol.	Emission Level	Limit 3m	Over
(MHz)	H/V	(dBuV/m)	(dBuV/m)	(dB)
--	--	--	--	>20

Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor = $40\log(\text{Specific distance} / \text{test distance})$ (dB);

Limit line = Specific limits (dBuV) + distance extrapolation factor.

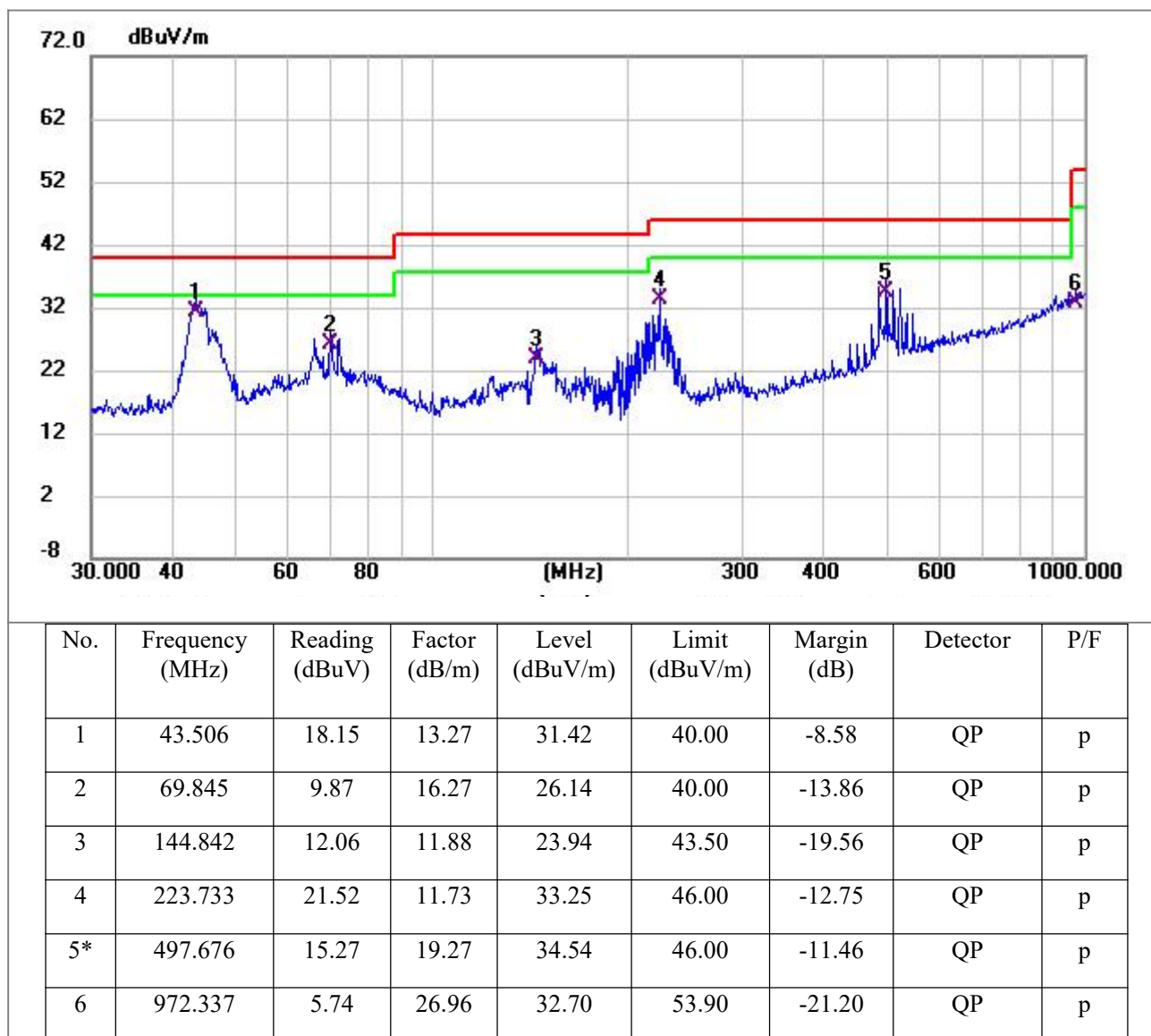
Test Frequency: 30MHz ~ 1GHz

Please refer to the following test plots, High Channel (2480MHz) Worst case 8DPSK for record:



Model:	GO blu Air
--------	------------

Test plot for Vertical



Remark: Level=Reading+ Factor

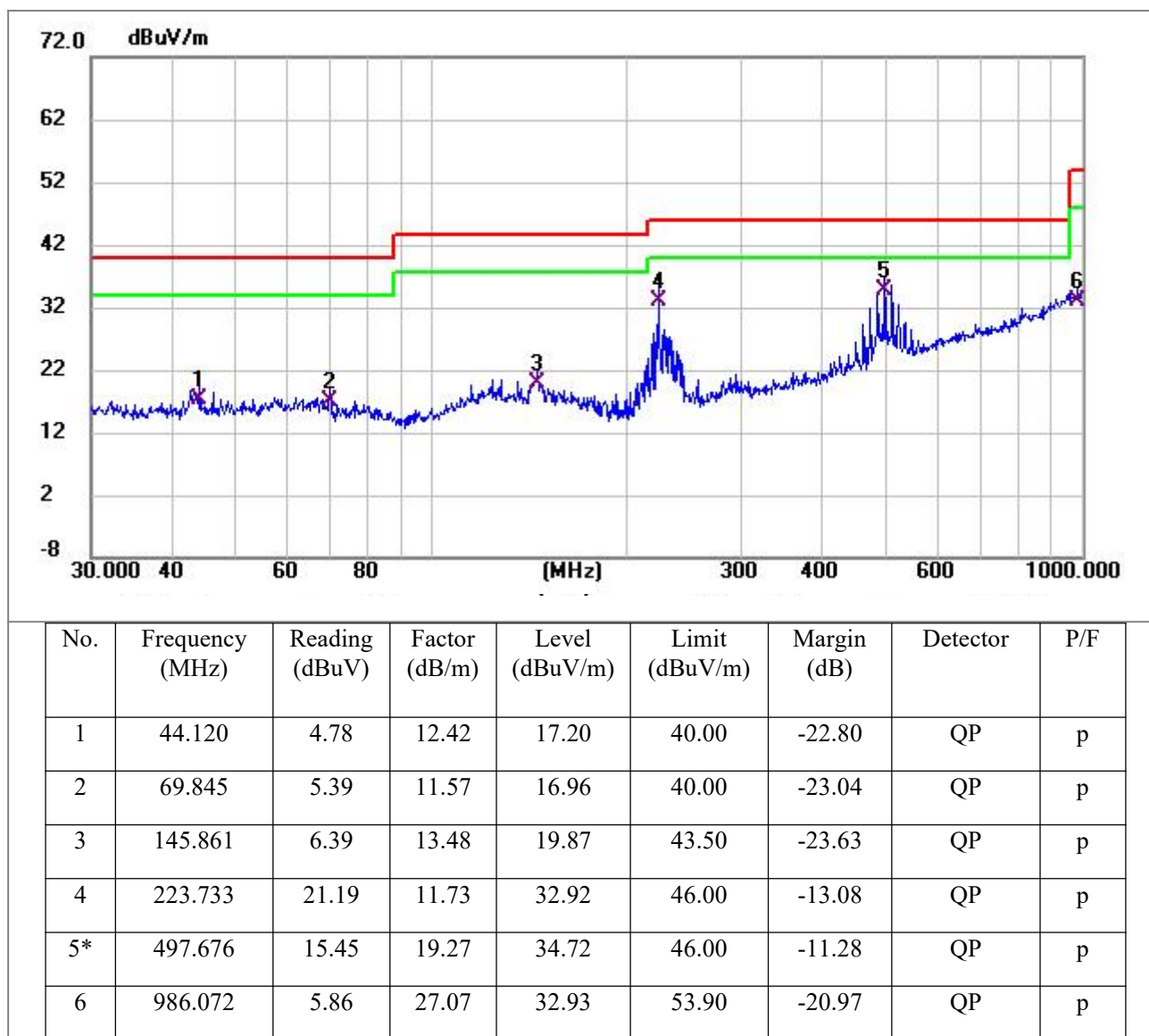
Factor=Cable Loss+ANT Factor-Preamp Factor

Margin=Level-Limit



Model:	GO blu Air
--------	------------

Test plot for Horizontal



Remark: Level=Reading+ Factor

Factor=Cable Loss+ANT Factor-Preamplifier Factor

Margin=Level-Limit

**Test Frequency 1GHz-25GHz**

Bluetooth (GFSK, $\pi/4$ DQPSK, 8DPSK) mode have been tested, and the worst result(8DPSK) was report as below

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel:2402MHz									
V	4804	51.05	34.12	5.03	32.39	54.35	74	-19.65	Pk
V	4804	37.71	34.12	5.03	32.39	41.01	54	-12.99	AV
V	7206	39.15	32.54	6.29	35.86	48.76	74	-25.24	Pk
V	7206	31.32	32.54	6.29	35.86	40.93	54	-13.07	AV
V	9608	41.13	32.98	7.55	38.4	54.10	74	-19.90	Pk
V	9608	30.72	32.98	7.55	38.4	43.69	54	-10.31	AV
V	12010	39.04	32.09	8.93	39	54.88	74	-19.12	Pk
V	12010	30.33	32.09	8.93	39	46.17	54	-7.83	AV
H	4804	51.41	34.12	5.03	32.39	54.71	74	-19.29	Pk
H	4804	38.69	34.12	5.03	32.39	41.99	54	-12.01	AV
H	7206	41.47	32.54	6.29	35.86	51.08	74	-22.92	Pk
H	7206	34.85	32.54	6.29	35.86	44.46	54	-9.54	AV
H	9608	40.93	32.98	7.55	38.4	53.90	74	-20.10	Pk
H	9608	31.24	32.98	7.55	38.4	44.21	54	-9.79	AV
H	12010	40.09	32.09	8.93	39	55.93	74	-18.07	Pk
H	12010	30.54	32.09	8.93	39	46.38	54	-7.62	AV



Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Middle Channel:2441MHz									
V	4882	50.06	34.07	5.09	32.59	53.67	74	-20.33	Pk
V	4882	40.13	34.07	5.09	32.59	43.74	54	-10.26	AV
V	7323	43.29	32.63	6.34	35.96	52.96	74	-21.04	Pk
V	7323	33.71	32.63	6.34	35.96	43.38	54	-10.62	AV
V	9764	43.20	32.92	7.59	38.4	56.27	74	-17.73	Pk
V	9764	32.77	32.92	7.59	38.4	45.84	54	-8.16	AV
V	12205	39.86	31.96	8.88	39.04	55.82	74	-18.18	Pk
V	12205	29.54	31.96	8.88	39.04	45.50	54	-8.50	AV
H	4882	51.94	34.07	5.09	32.59	55.55	74	-18.45	Pk
H	4882	37.72	34.07	5.09	32.59	41.33	54	-12.67	AV
H	7323	43.09	32.63	6.34	35.96	52.76	74	-21.24	Pk
H	7323	36.19	32.63	6.34	35.96	45.86	54	-8.14	AV
H	9764	42.76	32.92	7.59	38.4	55.83	74	-18.17	Pk
H	9764	32.08	32.92	7.59	38.4	45.15	54	-8.85	AV
H	12205	41.33	31.96	8.88	39.04	57.29	74	-16.71	Pk
H	12205	27.66	31.96	8.88	39.04	43.62	54	-10.38	AV



Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
High Channel:2480MHz									
V	4960	50.63	34.02	5.15	32.8	54.56	74	-19.44	Pk
V	4960	40.56	34.02	5.15	32.8	44.49	54	-9.51	AV
V	7440	44.57	32.71	6.4	36.05	54.31	74	-19.69	Pk
V	7440	33.73	32.71	6.4	36.05	43.47	54	-10.53	AV
V	9920	39.73	32.86	7.62	38.4	52.89	74	-21.11	Pk
V	9920	30.20	32.86	7.62	38.4	43.36	54	-10.64	AV
V	12400	38.97	31.82	8.84	39.08	55.07	74	-18.93	Pk
V	12400	29.27	31.82	8.84	39.08	45.37	54	-8.63	AV
H	4960	49.32	34.02	5.15	32.8	53.25	74	-20.75	Pk
H	4960	42.25	34.02	5.15	32.8	46.18	54	-7.82	AV
H	7440	41.80	32.71	6.4	36.05	51.54	74	-22.46	Pk
H	7440	34.38	32.71	6.4	36.05	44.12	54	-9.88	AV
H	9920	42.14	32.86	7.62	38.4	55.30	74	-18.70	Pk
H	9920	30.85	32.86	7.62	38.4	44.01	54	-9.99	AV
H	12400	39.58	31.82	8.84	39.08	55.68	74	-18.32	Pk
H	12400	29.54	31.82	8.84	39.08	45.64	54	-8.36	AV

Note: 1. The testing has been conformed to 10*2480MHz=24800MHz.

2. All other emissions more than 30dB below the limit.

3. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Emission Level = Reading + Factor

Margin=Emission Level-Limit

**Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz**

Bluetooth (GFSK, $\pi/4$ DQPSK, 8DPSK) mode have been tested, and the worst result(8DPSK) was report as below

	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin(dB)	Detector Type	Result
GFSK	Low Channel: 2402MHz										
	H	2390	56.22	35.17	3.48	27.49	52.02	74	-21.98	PK	PASS
	H	2390	46.42	35.17	3.48	27.49	42.22	54	-11.78	AV	PASS
	H	2400	56.13	35.16	3.49	27.52	51.98	74	-22.02	PK	PASS
	H	2400	46.28	35.16	3.49	27.52	42.13	54	-11.87	AV	PASS
	V	2390	54.08	35.17	3.48	27.49	49.88	74	-24.12	PK	PASS
	V	2390	48.74	35.17	3.48	27.49	44.54	54	-9.46	AV	PASS
	V	2400	57.54	35.16	3.49	27.52	53.39	74	-20.61	PK	PASS
	V	2400	48.13	35.16	3.49	27.52	43.98	54	-10.02	AV	PASS
	High Channel: 2480MHz										
	H	2483.5	55.73	35.11	3.56	27.75	51.93	74	-22.07	PK	PASS
	H	2483.5	48.29	35.11	3.56	27.75	44.49	54	-9.51	AV	PASS
	H	2500	56.52	35.1	3.57	27.8	52.79	74	-21.21	PK	PASS
	H	2500	45.90	35.1	3.57	27.8	42.17	54	-11.83	AV	PASS
	V	2483.5	57.79	35.11	3.56	27.75	53.99	74	-20.01	PK	PASS
	V	2483.5	46.47	35.11	3.56	27.75	42.67	54	-11.33	AV	PASS
	V	2500	56.16	35.1	3.57	27.8	52.43	74	-21.57	PK	PASS
	V	2500	42.91	35.1	3.57	27.8	39.18	54	-14.82	AV	PASS

Remark:

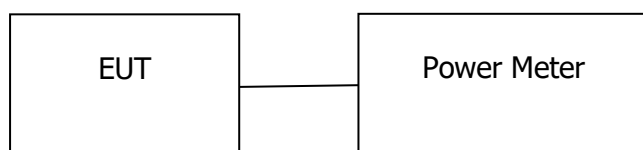
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

7 Maximum Peak Output Power Test

7.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (b)(1)
Test Limit	For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts. For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W.

7.2 Test Setup



7.3 Test Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance and C63.10 section 11.9.1 for Maximum peak conducted output power.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum analyzer

Power Meter:

It is used as the auxiliary test equipment to conduct the output power measurement.

4. Record the max. Reading as observed from Power Meter.

7.4 Test Data

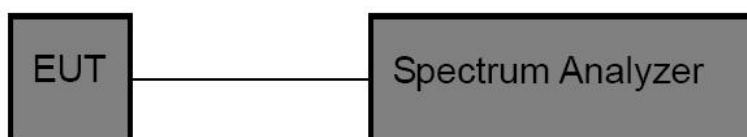
Please see the appendix III Bluetooth_(Class Bluetooth)_Test data.

8 20dB Occupy Bandwidth & 99% OCB Test

8.1 Test Standard

Test Standard	FCC Part15 C Section 15.247 (a)(1)
---------------	------------------------------------

8.2 Test Setup



8.3 Test Procedure

Using the following spectrum analyzer settings:

20dB Occupy Bandwidth:

1. Span= approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel.
2. Set the RBW = 30 kHz.
3. Set the VBW = 91 kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

99% Occupy Bandwidth:

1. Span= approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel.
2. Set the RBW = 20 kHz.
3. Set the VBW = 62 kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

8.4 Test Data

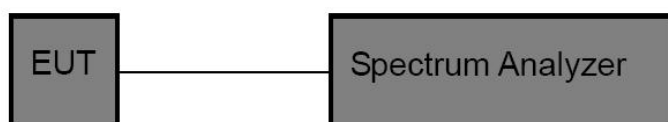
Please see the appendix III Bluetooth_(Class Bluetooth)_Test data.

9 Carrier Frequency Separation Test

9.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(1)
Test Limit	GFSK: 20dB bandwidth π /4DQPSK & 8DPSK: 0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)

9.2 Test Setup



9.3 Test Procedure

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

1. Span: Wide enough to capture the peaks of two adjacent channels.
2. RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
3. Video (or average) bandwidth (VBW) $\geq$ RBW.
4. Sweep: No faster than coupled (auto) time.
5. Detector function: Peak.
6. Trace: Max-hold.
7. Allow the trace to stabilize.

9.4 Test Data

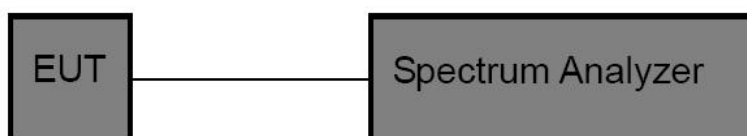
Please see the appendix III Bluetooth_(Class Bluetooth)_Test data.

10 Number of Hopping Channel Test

10.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247(a)(1)(iii)
Test Limit	≥15 channels

10.2 Test Setup



10.3 Test Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer setting:

1. Span: The frequency band of operation. Depending on the number of channels the device supports, it could be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
2. RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
3. VBW $\geq$ RBW.
4. Sweep: No faster than coupled (auto) time.
5. Detector function: peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

10.4 Test Data

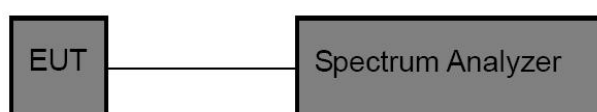
Please see the appendix III Bluetooth_(Class Bluetooth)_Test data.

12 Dwell Time Test

12.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(1)(iii)
Test Limit	0.4 sec

12.2 Test Setup



12.3 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

1. Span= zero span, centered on a hopping channel
2. Set the RBW = 1 MHz.
3. Set the VBW = 3 MHz.
4. Sweep time = as necessary to capture the entire dwell time per hopping channel.
5. Detector function = clear write.
6. Trace mode = normal.
7. Allow trace to fully stabilize.

12.4 Test Data

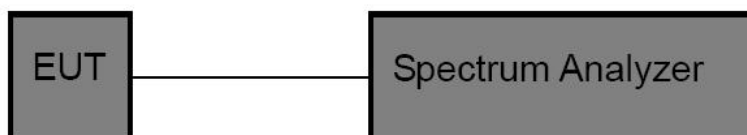
Please see the appendix III Bluetooth_(Class Bluetooth)_Test data.

13 100kHz Bandwidth of Frequency Band Edge Requirement

13.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (d)
Test Limit	in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

13.2 Test Setup



13.3 Test Procedure

The EUT must have its hopping/Non-hopping function enabled. Using the following spectrum analyzer setting:

1. Set the RBW = 100kHz.
2. Set the VBW = 300kHz.
3. Sweep time = auto couple.
4. Detector function = peak.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.

13.4 Test Data

Please see the appendix III Bluetooth_(Class Bluetooth)_Test data.

14 Antenna Requirement

14.1 Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203 /15.247 (b)(4)
Requirement	1) 15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 2) 15.247 (b)(4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

14.2 Antenna Connected Construction

The antenna is FPC Antenna which permanently attached, and the best case gain of the antenna is -3.89dBi. It complies with the standard requirement.



15 APPENDIX I -- TEST SETUP PHOTOGRAPH

Please see the attachment for details.



16 APPENDIX II -- EUT PHOTOGRAPH

Please see the attachment for details.

----- End of Report -----