TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: **47 CFR FCC Part 15, Subpart C (Section 15.247)**

Report No.: RFBDKG-WTW-P22030324D

FCC ID: JNZSR0192

Product: Bluetooth speaker

Brand: ULTIMATE EARS

Model No.: SR0192

Received Date: 2022/12/7

Test Date: 2023/1/9 ~ 2023/1/16

Issued Date: 2023/2/10

Applicant: LOGITECH FAR EAST LTD.

Address: 7700 Gateway Boulevard Newark California United States

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

FCC Registration / Designation Number: 723255 / TW2022

Approved by: _____ , **Date:** **2023/2/10**

May Chen / Manager

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Prepared by : Vito Lung / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBDKG-WTW-P22030324D	Original release.	2023/2/10

1 Certificate

Product:	Bluetooth speaker
Brand:	ULTIMATE EARS
Test Model:	SR0192
Sample Status:	Engineering sample
Applicant:	LOGITECH FAR EAST LTD.
Test Date:	2023/1/9 ~ 2023/1/16
Standard:	47 CFR FCC Part 15, Subpart C (Section 15.247)
Measurement procedure:	ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247 (a)(1)	RF Output Power	Pass	Meet the requirement of limit.
15.247(a)(1) (iii)	Number of Hopping Frequency Used	NA	Refer to Note 1
15.247(a)(1) (iii)	Dwell Time on Each Channel	NA	Refer to Note 1
15.247(a)(1)	Hopping Channel Separation	NA	Refer to Note 1
15.247(a)(1)	20 dB Bandwidth	NA	Refer to Note 1
15.247(d)	Conducted Out of Band Emissions	NA	Refer to Note 1
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -23.78 dB at 25.13668 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -6.4 dB at 328.71 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -7.6 dB at 2390.00 MHz
15.203	Antenna Requirement	Pass	No antenna connector is used.

Notes:

1. RF Output Power & AC Power Conducted Emissions & Unwanted Emissions Measurement were performed for this addendum. The others testing data refer to original test report.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Parameter	Specification	Expanded Uncertainty (k=2) (±)
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.4 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.0 dB
	18 GHz ~ 40 GHz	5.3 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description

Product	Bluetooth speaker
Brand	ULTIMATE EARS
Test Model	SR0192
Status of EUT	Engineering sample
Power Supply Rating	3.8 Vdc from battery or 5 Vdc from USB interface
Modulation Type	GFSK, π/4-DQPSK, 8DPSK
Modulation Technology	FHSS
Transfer Rate	Up to 3 Mbps
Operating Frequency	2.402 GHz ~ 2.48 GHz
Number of Channel	79
Output Power	5.712 mW (7.57 dBm)
Accessory	USB to Type-C Cable x 1 (Shielded, 0.6m)

Note:

1. This is a supplementary report of Report No.: RFBDKG-WTW-P22030324C. The differences between them are as below information:
   - ◆ Change Micro-B female connector to a USB-C female connector on the Jack Board (USB board).
2. According to above condition, only RF Output Power & AC Power Conducted Emissions & Unwanted Emissions test need to be performed. And all data are verified to meet the requirements.
3. The EUT may have a lot of colors for marketing requirement.
4. The EUT must be supplied with rechargeable battery as the following table:

Battery 1		
Brand	Model	Specification
Springpower Technology (Shenzhen) Co., LTD.	944643 or 533-000139	Power Rating : Output :3.8V, 2100mAh, 7.98Wh
Battery 2		
Brand	Model	Specification
Apower Electronics Co., Ltd.	AEC944643 or 533-000154	Power Rating : Output :3.8V, 2100mAh, 7.98Wh

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type
0.9	2.4~2.4835	PCB layout PIFA Antenna	None

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

3.3 Channel List

79 channels are provided for BT-EDR:

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

3.4 Test Mode Applicability and Tested Channel Detail

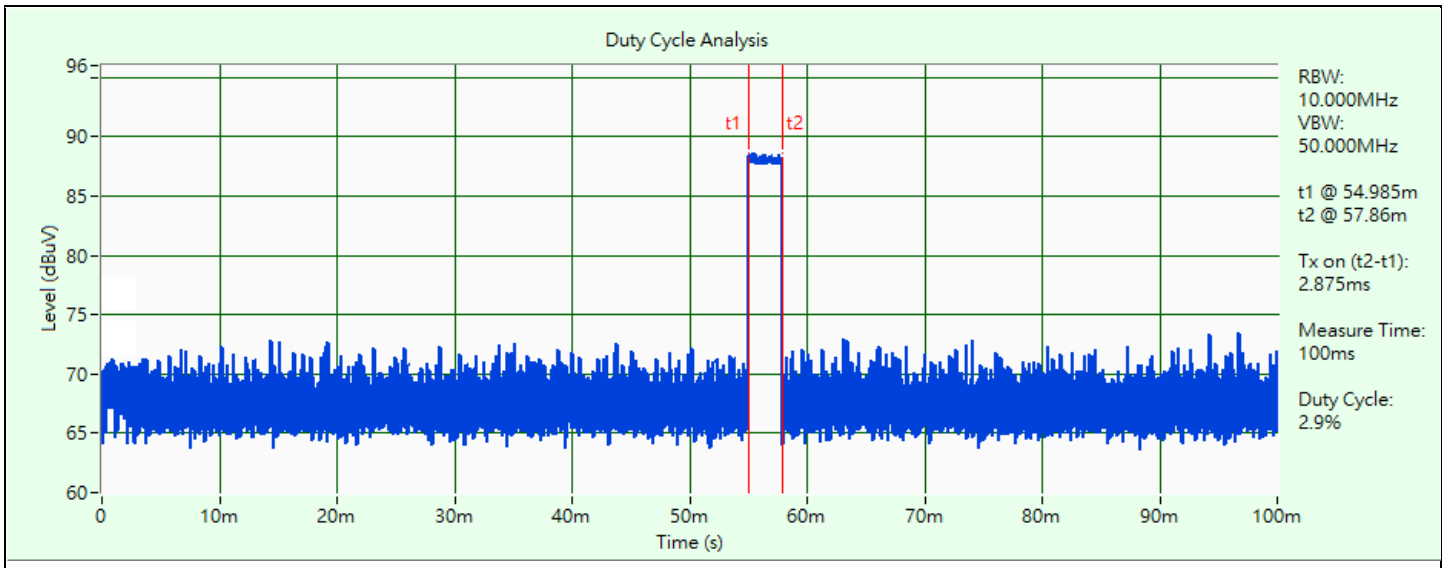
Pre-Scan:	1. The USB Type C Cable has the following models: JEM IQH202211026/ JC 201001094. Pre-scan these models of USB Cables and find the worst case as a representative test condition. 2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
Worst Case:	1. USB Cable Worst Condition:JEM IQH202211026

Following channel(s) was (were) selected for the final test as listed below:

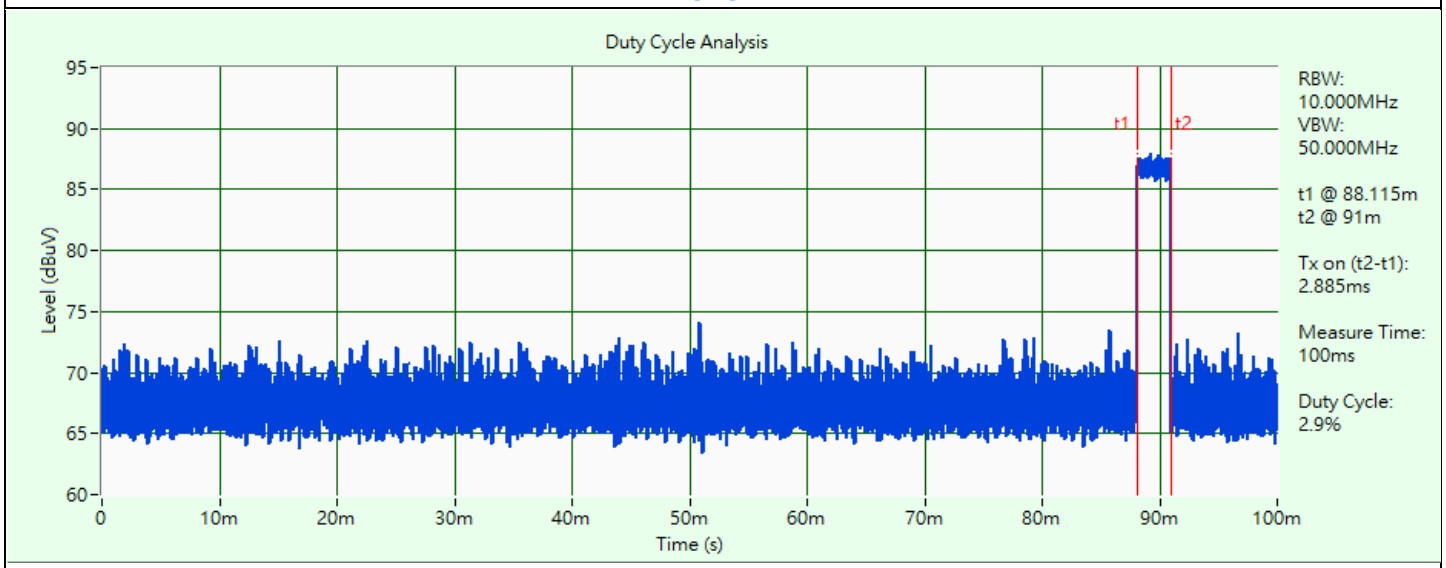
Test Item	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	0, 39, 78	GFSK	DH5
		8DPSK	3DH5
AC Power Conducted Emissions	0	GFSK	DH5
Unwanted Emissions below 1 GHz	0	GFSK	DH5
Unwanted Emissions above 1 GHz	0, 39, 78	GFSK	DH5
		8DPSK	3DH5
Note: In the original report 1. X/ Y/ Z Worst Condition: Y Axis. 2. Power supply Worst Condition: AC adapter mode (incl. worst battery: 533-000139 or 944643) for Unwanted Emission and AC Power Conducted Emission.			

3.5 Duty Cycle of Test Signal

GFSK: Duty cycle = 2.875 ms / 100 ms x 100% = 2.9%
8DPSK: Duty cycle = 2.885 ms / 100 ms x 100% = 2.9%



GFSK

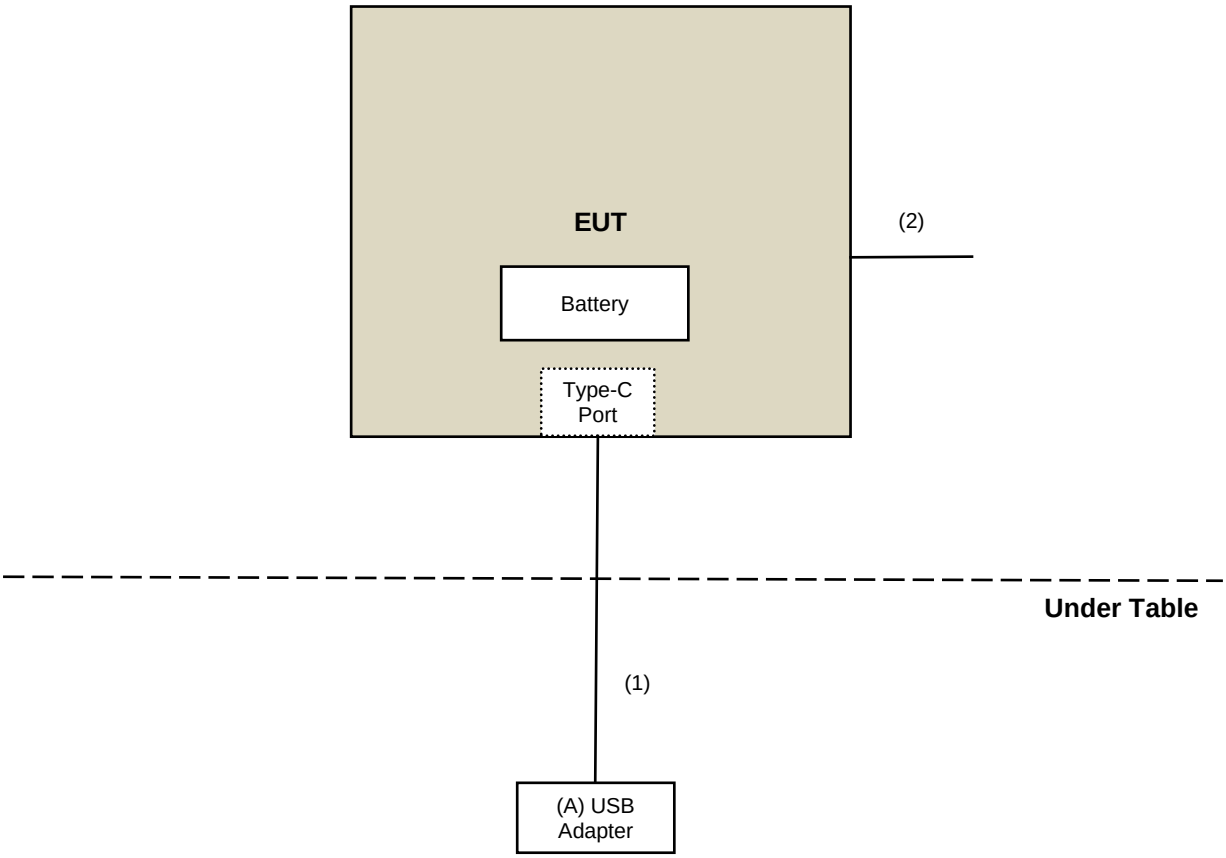


8DPSK

3.6 Test Program Used and Operation Descriptions

Controlling software (eaglecomV0765 + WCN_Combo_Tool) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Adapter	ASUS	EXA1205UA	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB to Type C Cable	1	0.6	Yes	0	Supplied by applicant

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Power Meter Anritsu	ML2495A	1529002	2022/6/22	2023/6/21
Pulse Power Sensor Anritsu	MA2411B	1726434	2022/6/22	2023/6/21
Pulse Power Sensor Anritsu	MA2411B	1726434	2022/6/22	2023/6/21
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2023/1/16

4.2 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance	N/A	EMC-01	2022/9/27	2023/9/26
Fixed attenuator STI	STI02-2200-10	005	2022/8/24	2023/8/23
LISN R&S	ESH3-Z5	848773/004	2022/10/18	2023/10/17
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2022/8/24	2023/8/23
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A
TEST RECEIVER R&S	ESCS 30	847124/029	2022/10/14	2023/10/13

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2023/1/10

4.3 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	2022/9/14	2023/9/13
LOOP ANTENNA Electro-Metrics	EM-6879	264	2022/3/18	2023/3/17
Pre_Amplifier Agilent	8447D	2944A10636	2022/3/19	2023/3/18
Pre_Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	2022/10/4	2023/10/3
RF Coaxial Cable COMMATE/PEWC	8D	966-3-2	2022/2/26	2023/2/25
		966-3-3	2022/2/26	2023/2/25
		966-4-1	2022/3/8	2023/3/7
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2022/12/19	2023/12/18
		LOOPCAB-002	2022/12/19	2023/12/18
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer KEYSIGHT	N9030B	MY57142938	2022/4/26	2023/4/25
Test Receiver KEYSIGHT	N9038A	MY59050100	2022/6/20	2023/6/19
Trilog Broadband Antenna Schwarzbeck	VULB 9168	9168-361	2022/10/21	2023/10/20

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2023/1/9

4.4 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9170	9170-739	2022/11/13	2023/11/12
	BBHA9120-D	9120D-406	2022/11/13	2023/11/12
Pre_Amplifier EMCI	EMC12630SE	980384	2022/12/28	2023/12/27
	EMC184045SE	980387	2022/12/28	2023/12/27
RF Cable EMCI	EMC104-SM-SM-6000	210201	2022/5/10	2023/5/9
RF Cable-Frequency range: 1-40GHz EMCI	EMC102-KM-KM-1200	160924	2022/12/28	2023/12/27
RF Coaxial Cable EMCI	EMC-KM-KM-4000	200214	2022/3/8	2023/3/7
	EMC104-SM-SM-1500	180504	2022/4/25	2023/4/24
	EMC104-SM-SM-2000	180601	2022/6/6	2023/6/5
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer KEYSIGHT	N9030B	MY57142938	2022/4/26	2023/4/25
Test Receiver KEYSIGHT	N9038A	MY59050100	2022/6/20	2023/6/19

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2023/1/10

5 Limits of Test Items

5.1 RF Output Power

The Maximum Output Power Measurement is 125 mW (21 dBm).

5.2 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

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 0.50 MHz.

5.3 Unwanted Emissions below 1 GHz

Radiated emissions up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.4 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

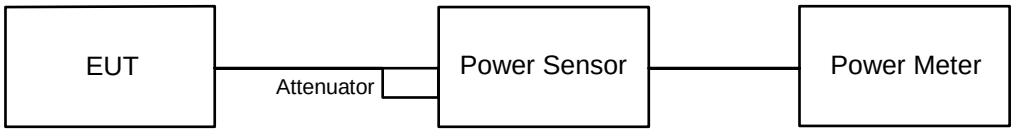
Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup



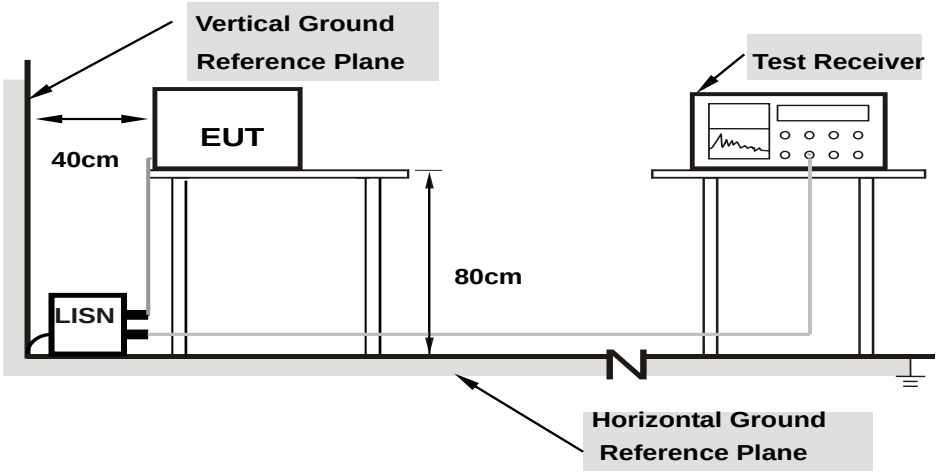
6.1.2 Test Procedure

Peak Power:
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average Power:
Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

6.2 AC Power Conducted Emissions

6.2.1 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.2.2 Test Procedure

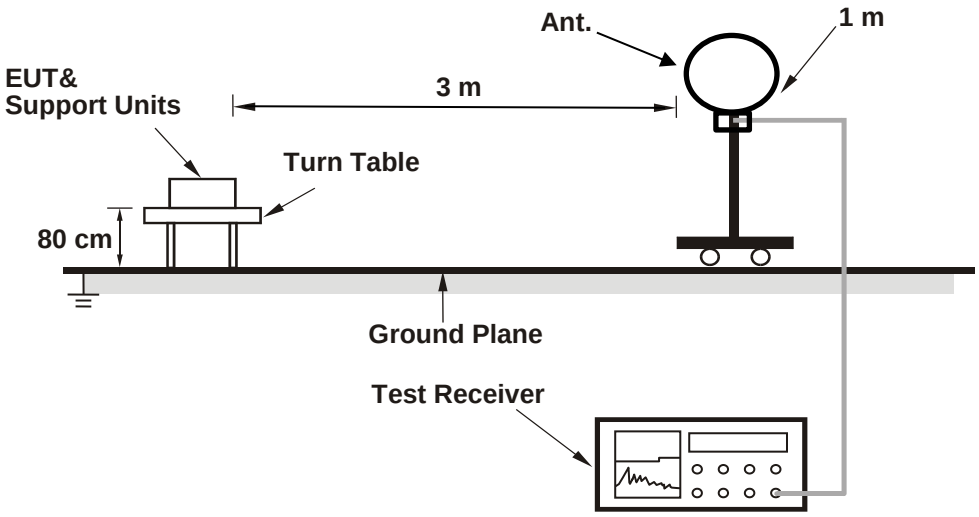
a. The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

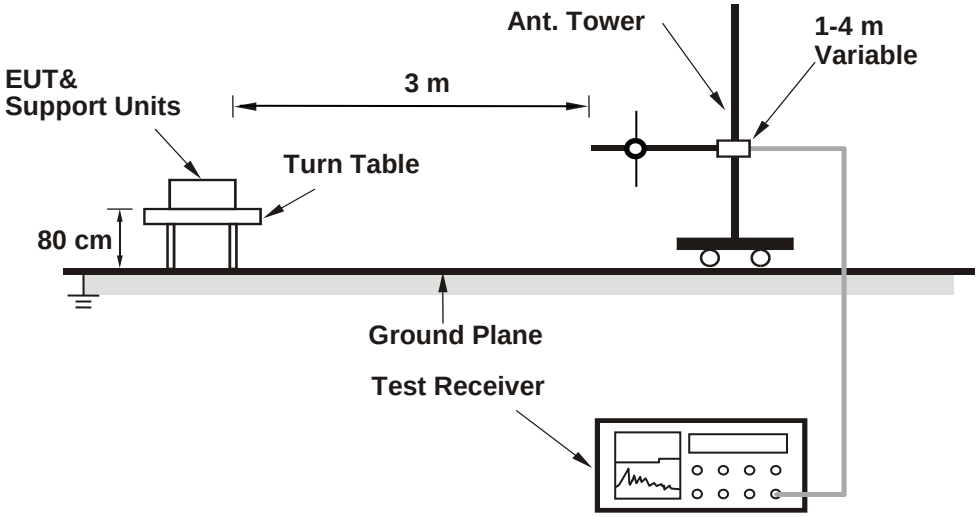
6.3 Unwanted Emissions below 1 GHz

6.3.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.3.2 Test Procedure

For Radiated emission below 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

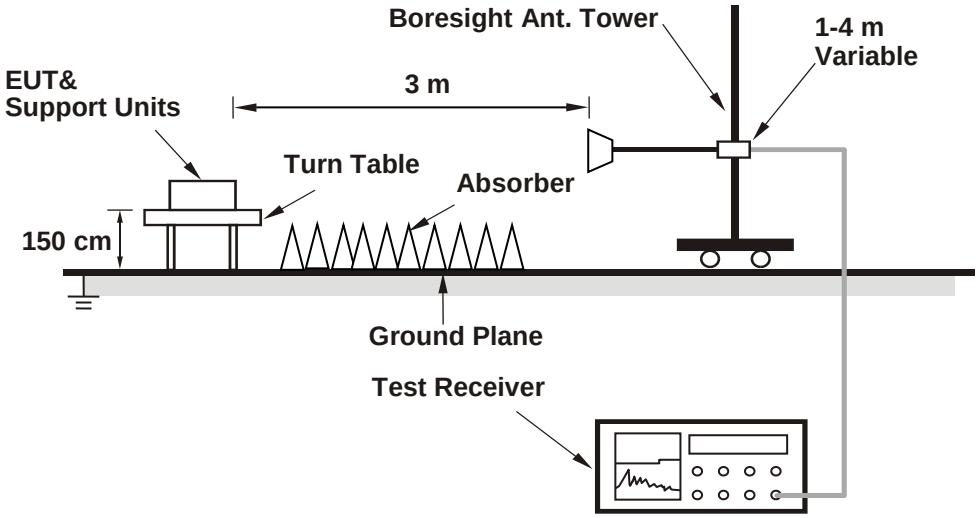
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.4 Unwanted Emissions above 1 GHz

6.4.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.4.2 Test Procedure

a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
2. According to ANSI C63.10 section 6.6.4 and 4.1.4.2.2. For fundamental and harmonic signal measurement, according to ANSI C63.10 section 7.5, the average value = peak value + duty cycle correction factor. For duty cycle correction factor values, see the Test Signal Duty Cycle section in this report.
3. All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	3.8 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Katina Lu

For Peak Power

GFSK

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
0	2402	5.712	7.57	21	Pass
39	2441	5.547	7.44	21	Pass
78	2480	5.152	7.12	21	Pass

Note: The antenna gain is 0.9 dBi < 6 dBi, so the output power limit shall not be reduced.

8DPSK

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
0	2402	5.546	7.44	21	Pass
39	2441	5	6.99	21	Pass
78	2480	4.519	6.55	21	Pass

Note: The antenna gain is 0.9 dBi < 6 dBi, so the output power limit shall not be reduced.

For Average Power

GFSK

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	5.395	7.32
39	2441	5.333	7.27
78	2480	4.92	6.92

8DPSK

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	3.006	4.78
39	2441	2.685	4.29
78	2480	2.523	4.02

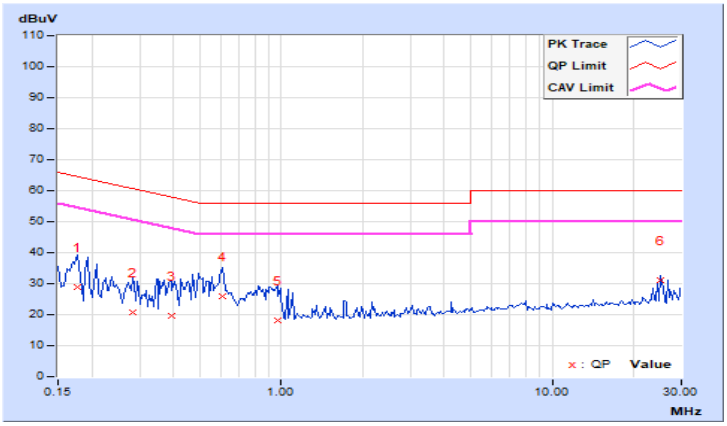
7.2 AC Power Conducted Emissions

RF Mode	BT GFSK	**Channel**	CH 0：2402 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Carter Lin		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.17737	9.96	18.98	-6.31	28.94	3.65	64.61	54.61	-35.67	-50.96
2	0.28286	9.96	10.71	-10.72	20.67	-0.76	60.73	50.73	-40.06	-51.49
3	0.39223	9.96	9.53	-11.09	19.49	-1.13	58.02	48.02	-38.53	-49.15
4	0.60308	9.97	16.06	-8.53	26.03	1.44	56.00	46.00	-29.97	-44.56
5	0.97029	10.00	8.05	-11.42	18.05	-1.42	56.00	46.00	-37.95	-47.42
6	**25.13668**	**11.29**	**19.91**	**14.93**	**31.20**	**26.22**	**60.00**	**50.00**	**-28.80**	**-23.78**

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

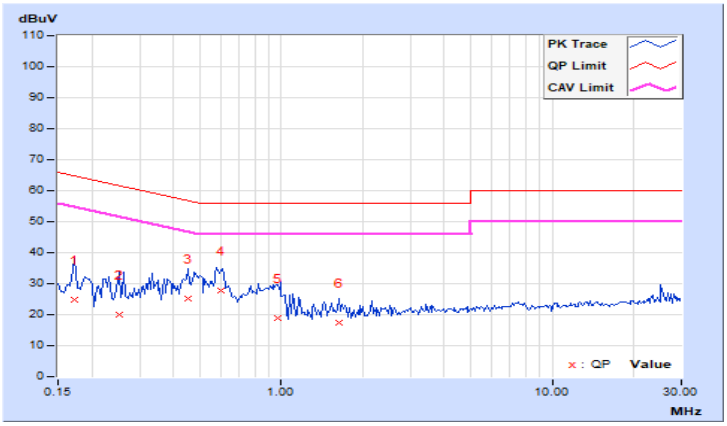


RF Mode	BT GFSK	Channel	CH 0：2402 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60Hz	Environmental Conditions	25°C, 75% RH
Tested By	Carter Lin		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	9.95	14.77	-7.88	24.72	2.07	64.79	54.79	-40.07	-52.72
2	0.25156	9.96	10.00	-10.96	19.96	-1.00	61.71	51.71	-41.75	-52.71
3	0.45469	9.96	15.06	-8.31	25.02	1.65	56.79	46.79	-31.77	-45.14
4	0.59922	9.97	17.92	-6.27	27.89	3.70	56.00	46.00	-28.11	-42.30
5	0.96641	10.00	9.05	-10.48	19.05	-0.48	56.00	46.00	-36.95	-46.48
6	1.62891	10.04	7.20	-11.21	17.24	-1.17	56.00	46.00	-38.76	-47.17

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



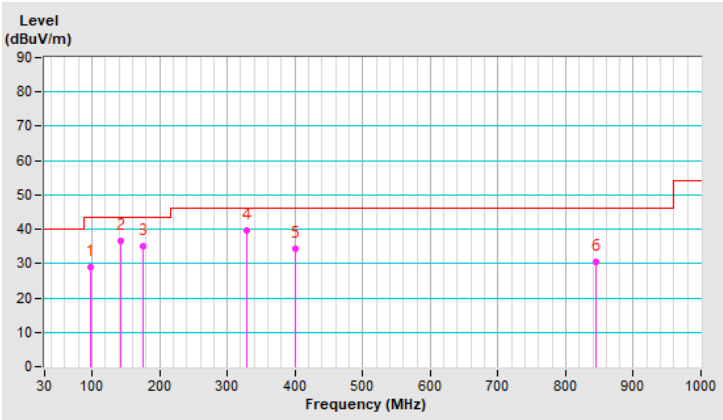
7.3 Unwanted Emissions below 1 GHz

RF Mode	BT GFSK	**Channel**	CH 0：2402 MHz
Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60Hz	**Environmental Conditions**	25°C, 65% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	98.48	29.1 QP	43.5	-14.4	2.50 H	338	41.9	-12.8
2	142.47	36.6 QP	43.5	-6.9	2.00 H	78	44.9	-8.3
3	175.74	34.9 QP	43.5	-8.6	1.00 H	268	44.1	-9.2
4	**328.71**	**39.6 QP**	**46.0**	**-6.4**	**1.00 H**	**237**	**46.2**	**-6.6**
5	400.56	34.2 QP	46.0	-11.8	2.50 H	52	39.4	-5.2
6	844.02	30.4 QP	46.0	-15.6	1.00 H	88	27.0	3.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

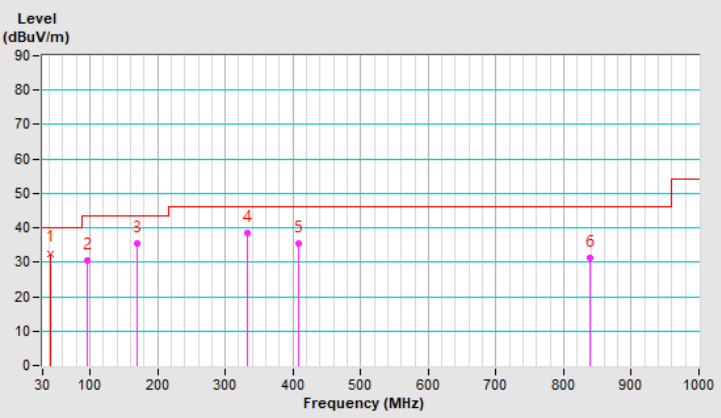


RF Mode	BT GFSK	**Channel**	CH 0：2402 MHz
Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power (System)	120 Vac, 60Hz	**Environmental Conditions**	25°C, 65% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	41.05	32.6 QP	40.0	-7.4	1.50 V	0	40.9	-8.3
2	95.85	30.4 QP	43.5	-13.1	2.00 V	356	43.7	-13.3
3	170.12	35.5 QP	43.5	-8.0	1.00 V	150	44.3	-8.8
4	332.37	38.3 QP	46.0	-7.7	1.00 V	274	44.9	-6.6
5	407.97	35.5 QP	46.0	-10.5	1.00 V	240	40.5	-5.0
6	838.13	31.2 QP	46.0	-14.8	2.00 V	355	27.7	3.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



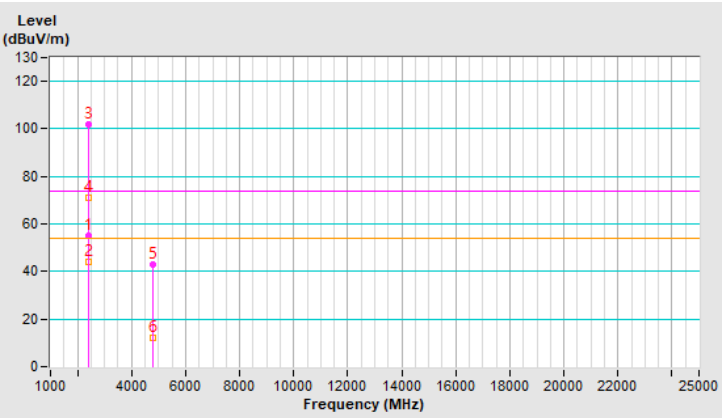
7.4 Unwanted Emissions above 1 GHz

RF Mode	BT GFSK	**Channel**	CH 0：2402 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	55.0 PK	74.0	-19.0	1.34 H	178	55.9	-0.9
2	2390.00	44.1 AV	54.0	-9.9	1.34 H	178	45.0	-0.9
3	*2402.00	101.7 PK			1.34 H	178	102.5	-0.8
4	*2402.00	70.9 AV			1.34 H	178	71.7	-0.8
5	4804.00	42.8 PK	74.0	-31.2	2.92 H	209	38.9	3.9
6	4804.00	12.0 AV	54.0	-42.0	2.92 H	209	8.1	3.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.875 ms / 100 ms) = -30.8 dB

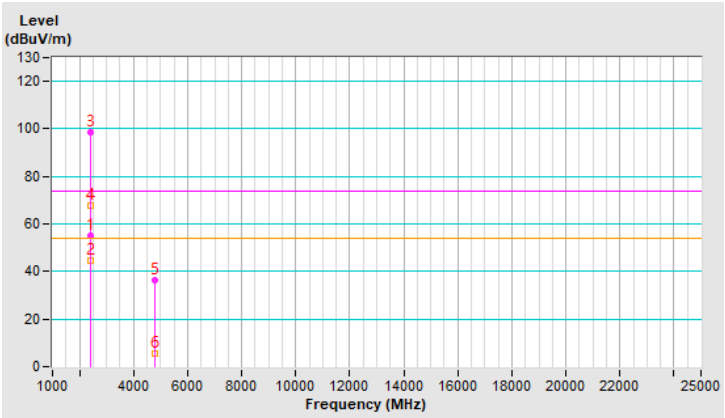


RF Mode	BT GFSK	**Channel**	CH 0：2402 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	55.3 PK	74.0	-18.7	1.41 V	228	56.2	-0.9
2	2390.00	44.6 AV	54.0	-9.4	1.41 V	228	45.5	-0.9
3	*2402.00	98.5 PK			1.41 V	228	99.3	-0.8
4	*2402.00	67.7 AV			1.41 V	228	68.5	-0.8
5	4804.00	36.4 PK	74.0	-37.6	2.04 V	344	32.5	3.9
6	4804.00	5.6 AV	54.0	-48.4	2.04 V	344	1.7	3.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.875 ms / 100 ms) = -30.8 dB

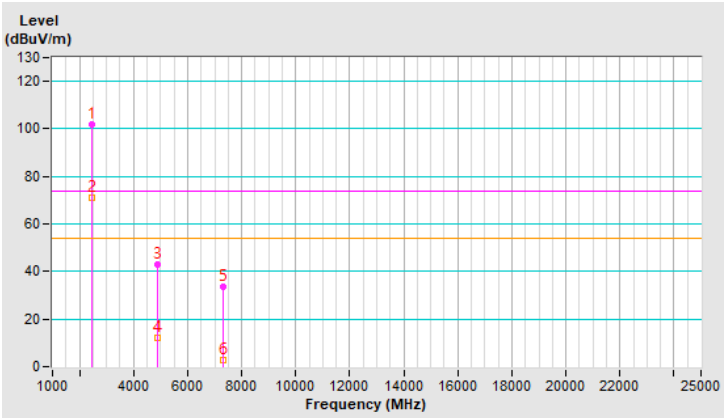


RF Mode	BT GFSK	Channel	CH 39：2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	Environmental Conditions	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	101.9 PK			1.34 H	183	102.6	-0.7
2	*2441.00	71.1 AV			1.34 H	183	71.8	-0.7
3	4882.00	43.1 PK	74.0	-30.9	3.02 H	211	39.3	3.8
4	4882.00	12.3 AV	54.0	-41.7	3.02 H	211	8.5	3.8
5	7323.00	33.5 PK	74.0	-40.5	2.59 H	271	23.1	10.4
6	7323.00	2.7 AV	54.0	-51.3	2.59 H	271	-7.7	10.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.875 ms / 100 ms) = -30.8 dB

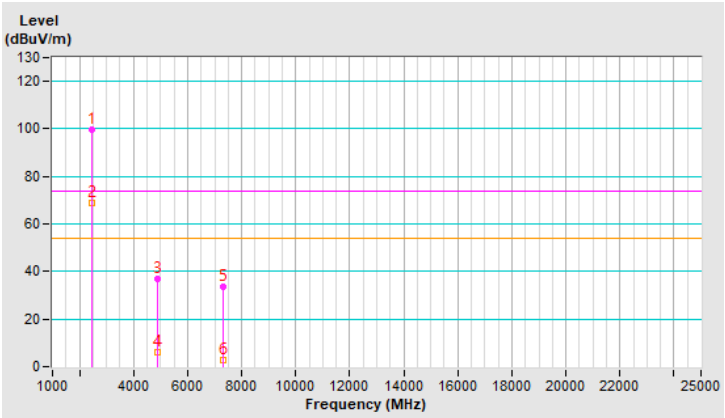


RF Mode	BT GFSK	Channel	CH 39：2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	Environmental Conditions	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	99.5 PK			1.67 V	226	100.2	-0.7
2	*2441.00	68.7 AV			1.67 V	226	69.4	-0.7
3	4882.00	36.9 PK	74.0	-37.1	2.05 V	333	33.1	3.8
4	4882.00	6.1 AV	54.0	-47.9	2.05 V	333	2.3	3.8
5	7323.00	33.7 PK	74.0	-40.3	2.29 V	224	23.3	10.4
6	7323.00	2.9 AV	54.0	-51.1	2.29 V	224	-7.5	10.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.875 ms / 100 ms) = -30.8 dB

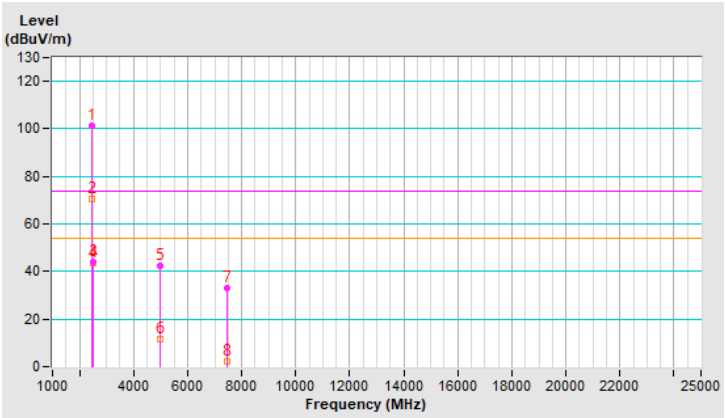


RF Mode	BT GFSK	Channel	CH 78：2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	Environmental Conditions	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	101.3 PK			1.22 H	190	102.0	-0.7
2	*2480.00	70.5 AV			1.22 H	190	71.2	-0.7
3	2483.50	44.2 PK	74.0	-29.8	1.22 H	190	45.0	-0.8
4	2483.50	43.5 AV	54.0	-10.5	1.22 H	190	44.3	-0.8
5	4960.00	42.5 PK	74.0	-31.5	2.85 H	212	38.5	4.0
6	4960.00	11.7 AV	54.0	-42.3	2.85 H	212	7.7	4.0
7	7440.00	32.8 PK	74.0	-41.2	2.49 H	252	22.2	10.6
8	7440.00	2.0 AV	54.0	-52.0	2.49 H	252	-8.6	10.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.875 ms / 100 ms) = -30.8 dB

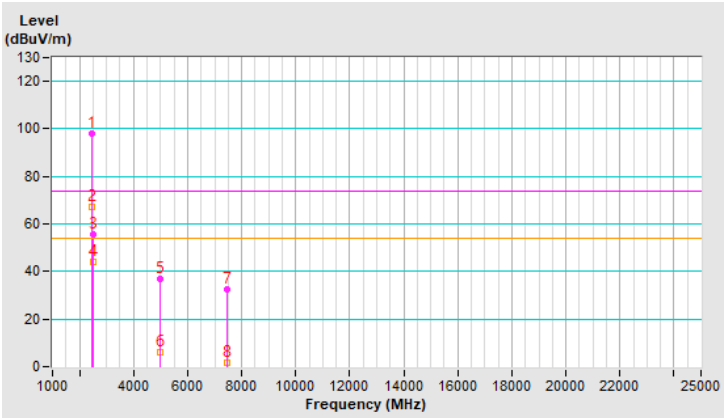


RF Mode	BT GFSK	Channel	CH 78：2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	Environmental Conditions	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	97.8 PK			1.54 V	227	98.5	-0.7
2	*2480.00	67.0 AV			1.54 V	227	67.7	-0.7
3	2483.50	55.5 PK	74.0	-18.5	1.54 V	227	56.3	-0.8
4	2483.50	43.8 AV	54.0	-10.2	1.54 V	227	44.6	-0.8
5	4960.00	36.8 PK	74.0	-37.2	2.29 V	338	32.8	4.0
6	4960.00	6.0 AV	54.0	-48.0	2.29 V	338	2.0	4.0
7	7440.00	32.6 PK	74.0	-41.4	2.24 V	180	22.0	10.6
8	7440.00	1.8 AV	54.0	-52.2	2.24 V	180	-8.8	10.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.875 ms / 100 ms) = -30.8 dB

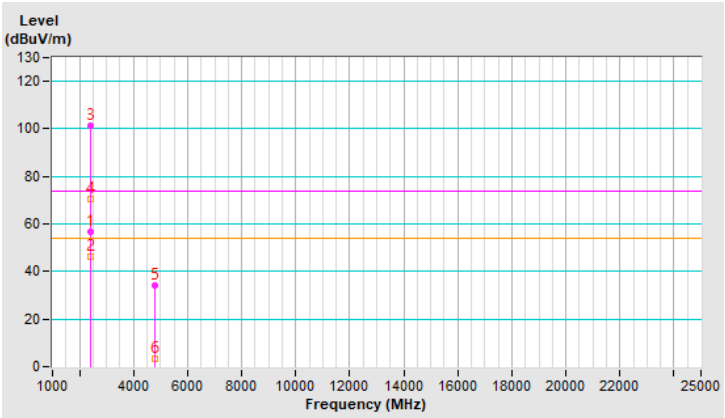


RF Mode	BT 8DPSK	Channel	CH 0：2402 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	Environmental Conditions	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	56.8 PK	74.0	-17.2	1.67 H	224	57.7	-0.9
2	**2390.00**	**46.4 AV**	**54.0**	**-7.6**	**1.67 H**	**224**	**47.3**	**-0.9**
3	*2402.00	101.4 PK			1.67 H	224	102.2	-0.8
4	*2402.00	70.6 AV			1.67 H	224	71.4	-0.8
5	4804.00	34.3 PK	74.0	-39.7	3.12 H	59	30.4	3.9
6	4804.00	3.5 AV	54.0	-50.5	3.12 H	59	-0.4	3.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.885 ms / 100 ms) = -30.8 dB

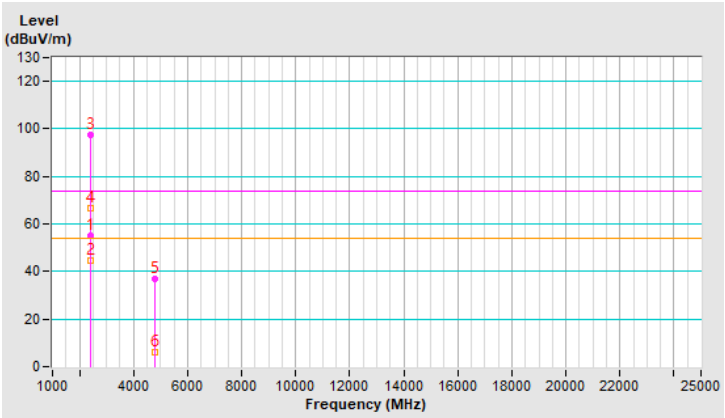


RF Mode	BT 8DPSK	**Channel**	CH 0：2402 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	55.3 PK	74.0	-18.7	1.44 V	250	56.2	-0.9
2	2390.00	44.8 AV	54.0	-9.2	1.44 V	250	45.7	-0.9
3	*2402.00	97.3 PK			1.44 V	250	98.1	-0.8
4	*2402.00	66.5 AV			1.44 V	250	67.3	-0.8
5	4804.00	37.0 PK	74.0	-37.0	2.33 V	323	33.1	3.9
6	4804.00	6.2 AV	54.0	-47.8	2.33 V	323	2.3	3.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.885 ms / 100 ms) = -30.8 dB

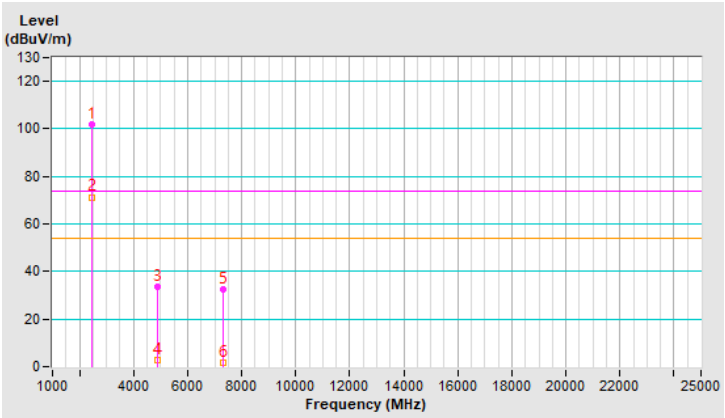


RF Mode	BT 8DPSK	Channel	CH 39：2441 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	Environmental Conditions	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	102.1 PK			2.05 H	177	102.8	-0.7
2	*2441.00	71.3 AV			2.05 H	177	72.0	-0.7
3	4882.00	33.7 PK	74.0	-40.3	3.20 H	37	29.9	3.8
4	4882.00	2.9 AV	54.0	-51.1	3.20 H	37	-0.9	3.8
5	7323.00	32.6 PK	74.0	-41.4	3.52 H	360	22.2	10.4
6	7323.00	1.8 AV	54.0	-52.2	3.52 H	360	-8.6	10.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.885 ms / 100 ms) = -30.8 dB

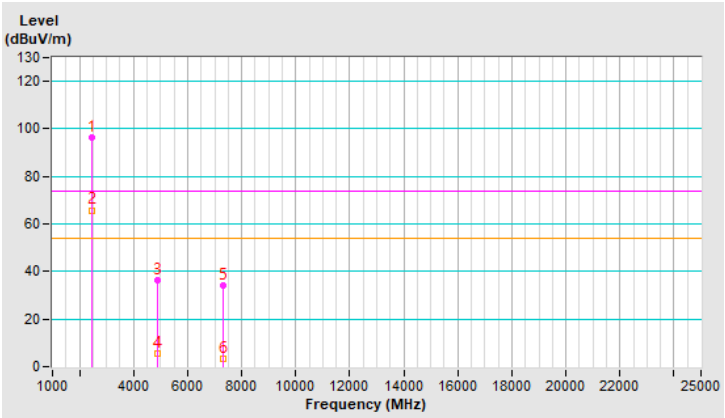


RF Mode	BT 8DPSK	**Channel**	CH 39：2441 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2441.00	96.6 PK			1.40 V	216	97.3	-0.7
2	*2441.00	65.8 AV			1.40 V	216	66.5	-0.7
3	4882.00	36.4 PK	74.0	-37.6	2.40 V	350	32.6	3.8
4	4882.00	5.6 AV	54.0	-48.4	2.40 V	350	1.8	3.8
5	7323.00	34.2 PK	74.0	-39.8	2.59 V	226	23.8	10.4
6	7323.00	3.4 AV	54.0	-50.6	2.59 V	226	-7.0	10.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.885 ms / 100 ms) = -30.8 dB

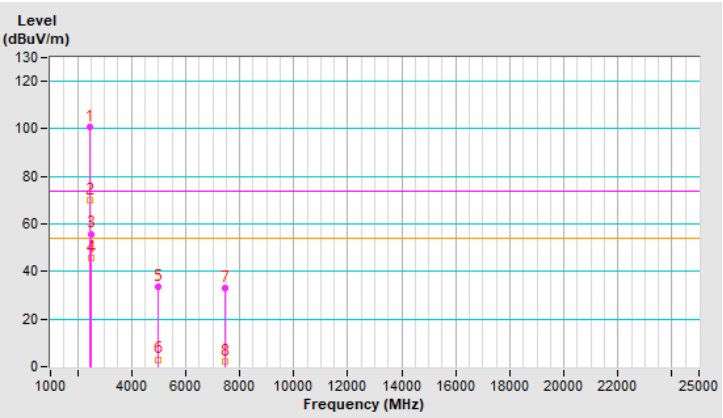


RF Mode	BT 8DPSK	**Channel**	CH 78：2480 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2480.00	100.7 PK			1.87 H	183	101.4	-0.7
2	*2480.00	69.9 AV			1.87 H	183	70.6	-0.7
3	2483.50	55.9 PK	74.0	-18.1	1.87 H	183	56.7	-0.8
4	2483.50	45.8 AV	54.0	-8.2	1.87 H	183	46.6	-0.8
5	4960.00	33.8 PK	74.0	-40.2	3.30 H	63	29.8	4.0
6	4960.00	3.0 AV	54.0	-51.0	3.30 H	63	-1.0	4.0
7	7440.00	33.1 PK	74.0	-40.9	3.29 H	360	22.5	10.6
8	7440.00	2.3 AV	54.0	-51.7	3.29 H	360	-8.3	10.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.885 ms / 100 ms) = -30.8 dB

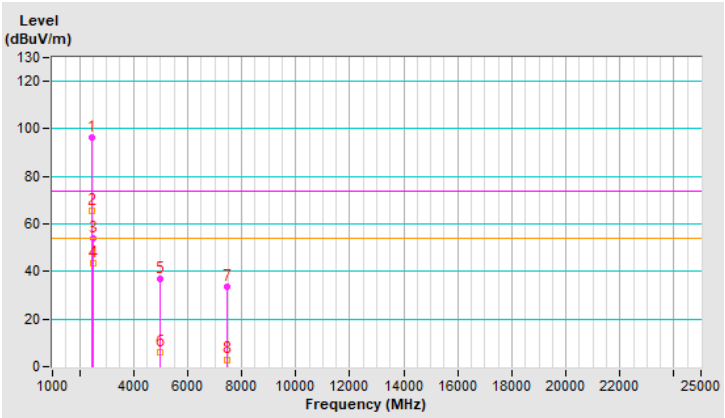


RF Mode	BT 8DPSK	Channel	CH 78：2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 MHz
Input Power (System)	120 Vac, 60Hz	Environmental Conditions	25°C, 75% RH
Tested By	Nelson Teng		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	96.3 PK			1.27 V	232	97.0	-0.7
2	*2480.00	65.5 AV			1.27 V	232	66.2	-0.7
3	2483.50	54.1 PK	74.0	-19.9	1.27 V	232	54.9	-0.8
4	2483.50	43.3 AV	54.0	-10.7	1.27 V	232	44.1	-0.8
5	4960.00	37.0 PK	74.0	-37.0	2.33 V	332	33.0	4.0
6	4960.00	6.2 AV	54.0	-47.8	2.33 V	332	2.2	4.0
7	7440.00	33.8 PK	74.0	-40.2	2.59 V	215	23.2	10.6
8	7440.00	3.0 AV	54.0	-51.0	2.59 V	215	-7.6	10.6

Remarks:

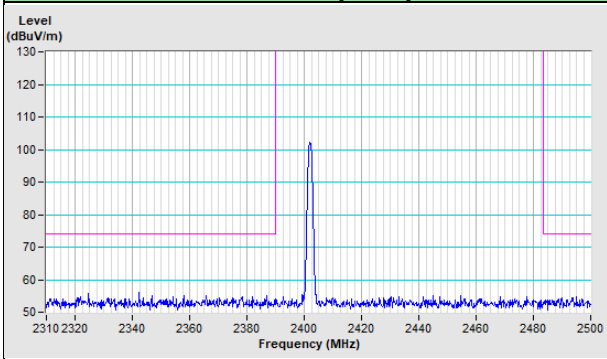
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(2.885 ms / 100 ms) = -30.8 dB



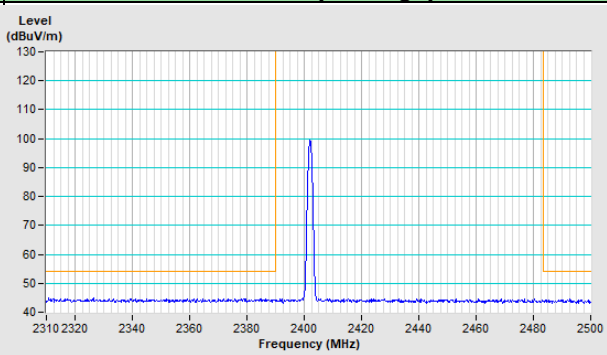
Plot of Band Edge

BT GFSK Channel 0

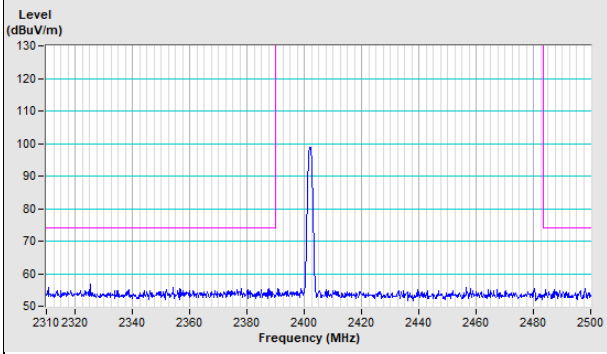
Horizontal (Peak)



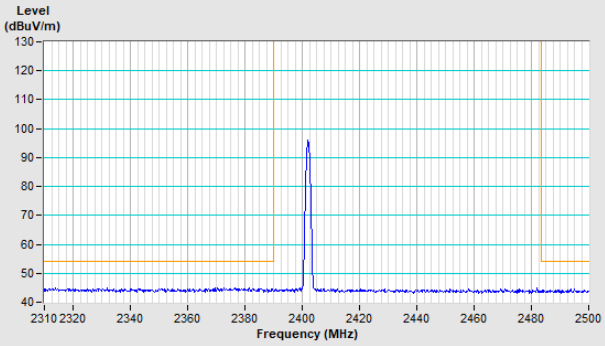
Horizontal (Average)



Vertical (Peak)

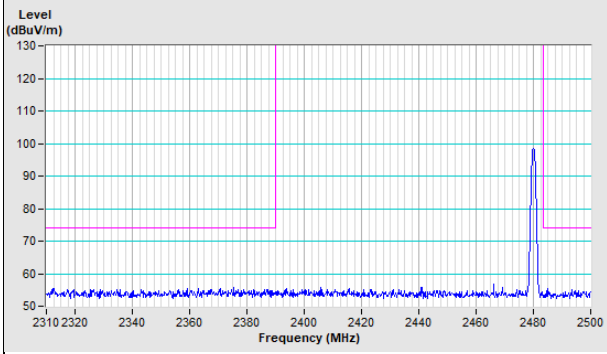


Vertical (Average)

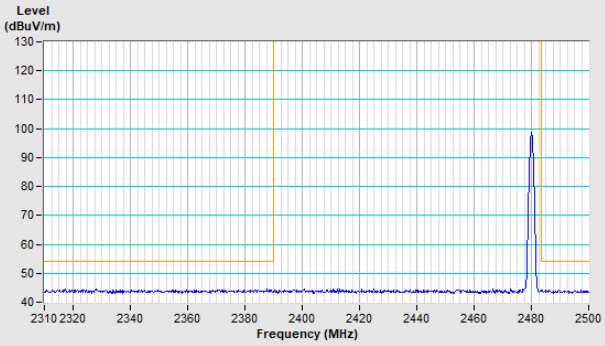


BT GFSK Channel 78

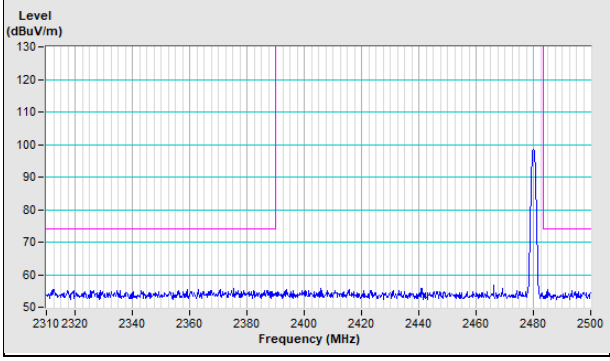
Horizontal (Peak)



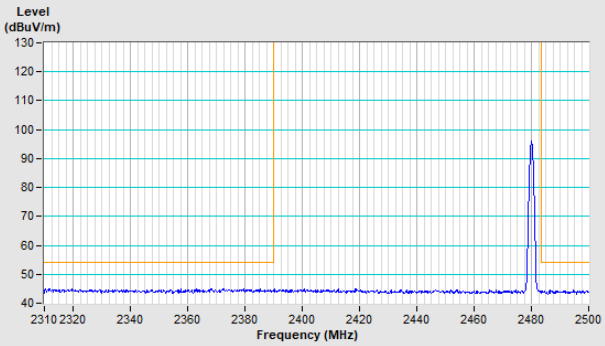
Horizontal (Average)



Vertical (Peak)

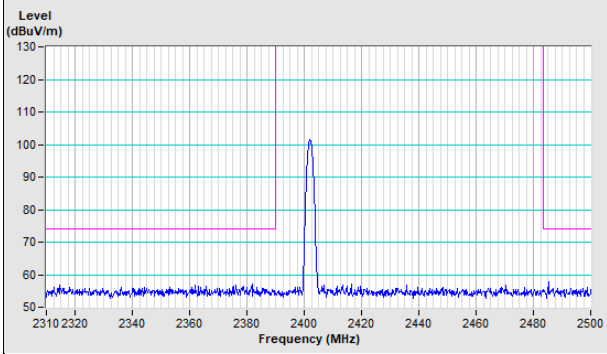


Vertical (Average)

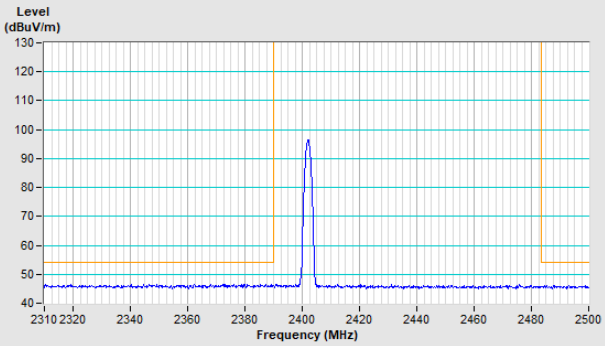


BT 8DPSK Channel 0

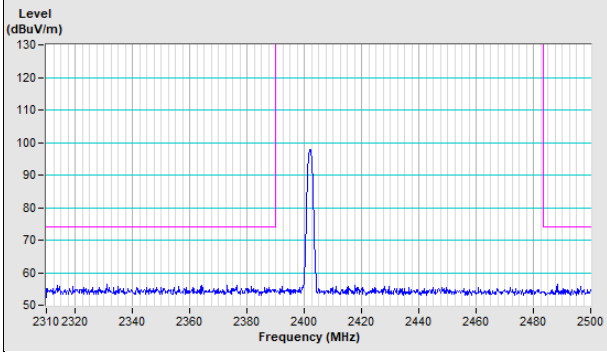
Horizontal (Peak)



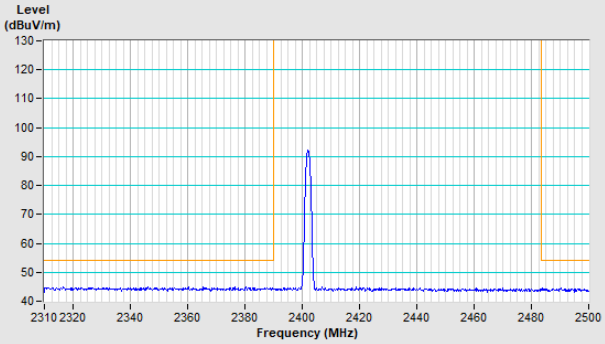
Horizontal (Average)



Vertical (Peak)

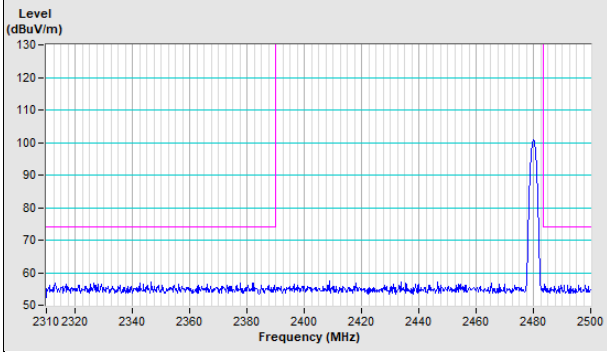


Vertical (Average)

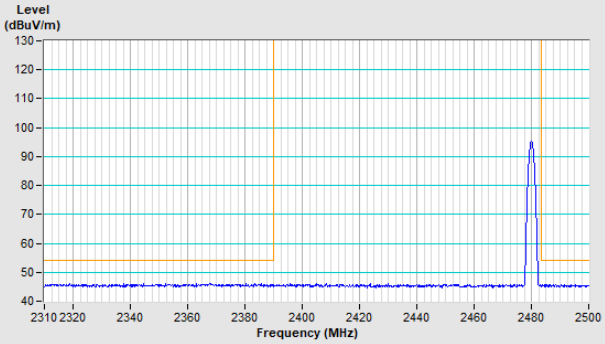


BT 8DPSK Channel 78

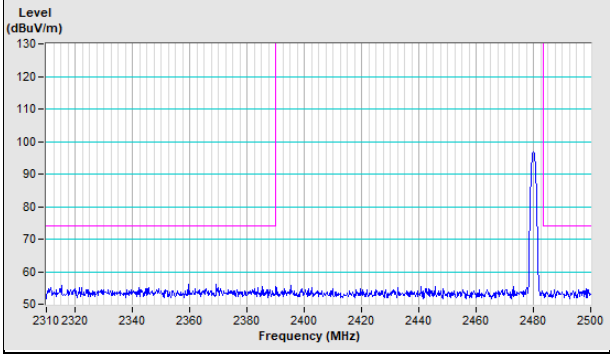
Horizontal (Peak)



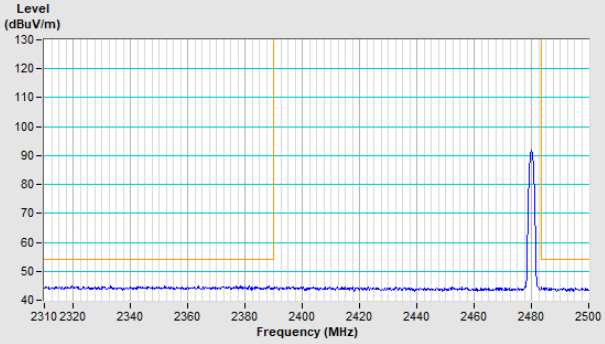
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

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Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@bureauveritas.com
Web Site: http://ee.bureauveritas.com.tw

The address and road map of all our labs can be found in our web site also.

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