FCC Test Report

Application No.:	T31620250003EM
Applicant:	EASTCOLIGHT (HONG KONG) LTD.
Address:	Room1108-1110, Peninsula Centre, 67 Mody Road, Tsimshatsui, Kowloon, Hong Kong
Product Information:	
Product Description:	PLANETARIUM WITH WIRELESS BLUETOOTH SPEAKER
Item No.:	8007
Country of Origin:	China
Country of Destination:	EU & USA
Age Grading:	14 Ages & Up
FCC ID:	OIJ8007
Requirement:	CFR 47 FCC PART 15 SUBPART C, 2015 - Intentional Radiators (Section 15.249)
Date of Receipt:	2016-09-02
Date of Test:	2016-09-09 to 2016-09-14
Date of Issue:	2016-09-15

Test Result :	**PASS***

In the configuration tested, the EUT complied with the requirements for the relevant clauses of Federal Communications Commission Rules as specified above.

Authorized Signature:

TSANG KA TING, Calvin

2 Test Summary

Test	Test Requirement	Test Method	Result
Conducted Emission (150KHz to 30MHz)	FCC PART 15, SUBPART C: 2015	ANSI C63.10:2013	PASS
Radiated Emission (9kMHz to 1GHz)	FCC PART 15, SUBPART C: 2015	ANSI C63.10:2013	PASS
Radiated Emission above 1 GHz	FCC PART 15, SUBPART C: 2015	ANSI C63.10:2013	PASS
Restricted-band band-edge measurements (Radiated Emission)	FCC PART 15, SUBPART C: 2015	ANSI C63.10:2013	PASS
Band edge / 20 dB Bandwidth	FCC PART 15, SUBPART C: 2015	ANSI C63.10:2013	PASS

3 Contents

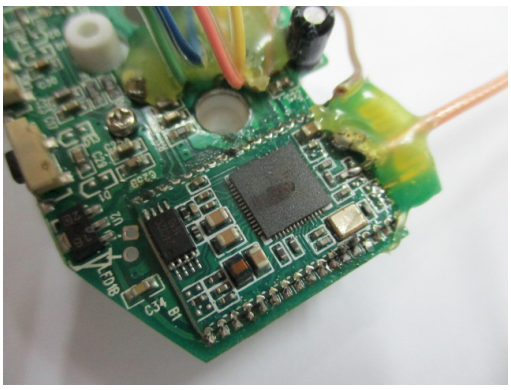
4 General Information

4.1 General Description of EUT

Product Description: PLANETARIUM WITH WIRELESS BLUETOOTH SPEAKER
Item No: 8007
Serial No.: --

4.2 Details of EUT

Power Supply: AC120V~60Hz to DC5V (adaptor: IECC-05)
DC 4.5V(AA battery x 3 for light)
Cable: 2 wires unscreened adaptor cable
Operating Frequency (2402-2480)MHz
Antenna Type: Integral antenna



unreplaceable antenna
Bluetooth version 3.0+EDR
Modulation Type: GFSK,Π/4-DQPSK and 8DPSK

Modulation	Packet	Packet Type	Packet Size
GFSK	DH1	4	24
	DH3	11	183
	DH5	15	339
(π/4)DQPSK	2DH1	20	54
	2DH3	26	367
	2DH5	30	379
8DPSK	3DH1	24	83
	3DH3	27	552
	3DH5	31	1021

4.3 Conditions of EUT

The received sample was under good condition.

4.4 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	HP	OmniBook 6000 series	(S) TW22204704
BT test board	--	001	N/A
Test software	RF control Kit v1.0		
Cable	Audio In cable (3.5mm jack) with 22k Ohm Terminator		
Note1: USB cable,adaptor and notebook are provided by SGS IECC Ltd. Note2: BT test board and Audio In cable are provided by client			

All field strength measures in this test report were done by the aid of test software which places the device in continuous transmission with 100% duty cycle under different package type and the test software above allowed to set the frequency fixed and hopping stopped.
When testing, the software about transmitt power(0-15) setting is 15 as worse case.

4.5Standards Applicable for Testing

CFR 47, FCC Part 15, 2015
ANSI C63.10:2013

4.6 Test Location

All tests were performed at:

SGS IECC Limited (Member of the SGS Group (SGS SA))

Units 303-305, 3/F., 31 Lok Yip Road, On Lok Tsuen, Fanling, N.T., Hong Kong

Tel: +852 2305 2570 Fax: +852 2756 4480

4.7 Test Facility

Measurement facility located at Fanling (Hong Kong), placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules (FCC Registration No. : 97774).

The test facility is recognized, certified, or accredited by the following organizations:

FCC – CAB Registration No.: 446297

Measurement facility located at Fanling (Hong Kong), accredited as a Conformity Assessment Body (CAB) and was designated by FCC to perform compliance testing on equipment subject to Declaration Of Conformity (DOC) and Certification under Part 15 and 18 of the Commission's Rules.

4.8 Deviation from Standards

None.

4.9 Abnormalities from Standard Conditions

None.

4.10 Declaration of Family Grouping

None.

4.11 Abbreviations

N/A: Not Applicable
EUT: Equipment Under Test

4.12 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radiated disturbance 9 kHz - 30MHz	4.20
2	Radiated disturbance 30MHz – 1GHz	5.02
3	Radiated disturbance 1GHz – 18GHz	5.03
4	Conducted Emissions	3.06

5 Equipments Used during Test

Conducted Emission				
Equipment	**Manufacturer**	**Model / Serial No.**	**Cal. Date**	**Cal. Due Date**
Test Receiver	Rohde & Schwarz	ESHS 30 / 839667/002	2015/09/29	2016/09/28
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127 / 8127312	2016/04/20	2017/04/19
Impulse Limiter	Rohde & Schwarz	ESH-3-Z2 / 357881052	2015/02/02	2017/02/01

Radiated Emission				
Equipment	**Manufacturer**	**Model / Serial No.**	**Cal. Date**	**Cal. Due Date**
3m Semi-Anechoic Chamber (pre-test)	--	--	--	--
3m / 10m Open Aera Test Site	--	--	2015-03-11	2018-03-10
Test Receiver	Rohde & Schwarz	ESCS 30 / 100388	2015/09/29	2016/09/28
Spectrum Analyzer	Rohde & Schwarz	FSP 30 / 101474	2016/05/31	2017/05/30
Loop antenna	Rohde & Schwarz	HFH2-Z2 / 871336/48	2016/01/23	2019/01/22
Antenna 30-1000MHz	Schaffner	CBL6111C / 2791	2014/10/19	2016/10/18
Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D / 9120D-1070	2016/01/23	2018/01/22
Horn Antenna 15-26.5GHz	Schwarzbeck	BBHA9170 / 9170-492	2014/11/24	2016/11/23
Preamplifier 10MHz – 6GHz	Schwarzbeck	BBV9743 / 9743-052	2016/04/19	2017/04/18
Preamplifier 1-18GHz	Schwarzbeck	BBV9718 / 9718-223	2016/01/23	2017/01/22
Preamplifier 18- 26.5GHz	Schwarzbeck	BBV9719 / 9719-019	2014/11/19	2016/11/18
Coaxial Cable	--	E167	2016/06/26	2017/06/24
RF Cable	HUBER+SUHNER	E207	2014/11/17	2016/11/16

Antenna Mast System	Schwarzbeck	AM9104 / -	--	--
Turntable with Controller	Drehtisch	DT312 / -	--	--

General Use Equipment

Equipment	Manufacturer	Model / Serial No.	Cal. Date	Cal. Due Date
Digital Multimeter	Fluke	189 / 83640020	2016/04/21	2017/04/20
Temperature / Humidity meter	-	E159	2015-10-07	2016/10/06

6 Test Results

6.1 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement: FCC Part15 C Section 15.207
Test Method: ANSI C63.10
Test Date: 2016-09-09
Frequency Range: 150kHz to 30MHz
Class / Severity: Class B
Detector: Peak for pre-scan (9kHz Resolution Bandwidth)
Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

Limit:

Frequency range MHz	Class B Limits dB (μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note:
1) The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.
2) The lower limit is applicable at the transition frequency.

6.1.1 EUT Operation

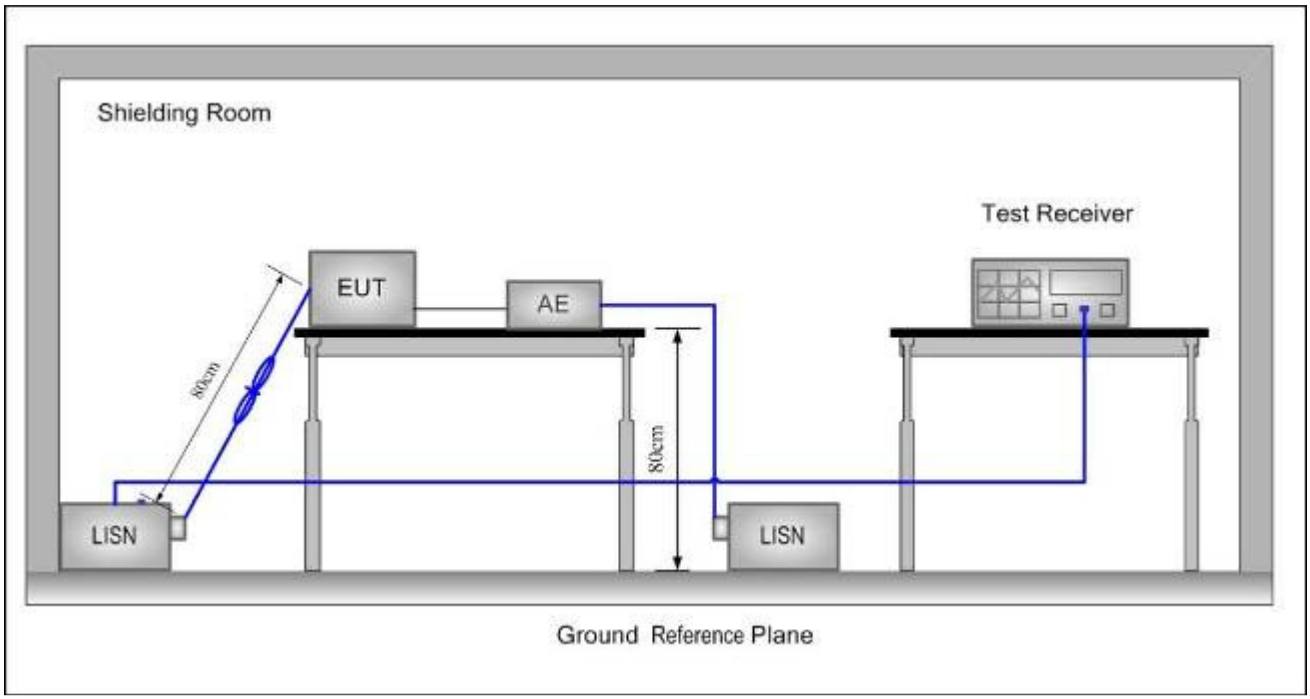
Operating Environment:

Temperature: 27°C Humidity: 56% RH

EUT Operation: Pre-test with Peak detector and the following mode(s):
1: Transmission with GFSK (packet DH1/DH3/DH5)
2: Transmimssion with Π/4-DQPSK (packet 2DH1/2DH3/2DH5)
3: Transmission with 8DPSK (packet 3DH1/3DH3/3DH5)

Final test with Quasi-Peak detector and the following mode(s):
1: Transmission with GFSK (packet DH5)

6.1.2 Test Setup and Procedure

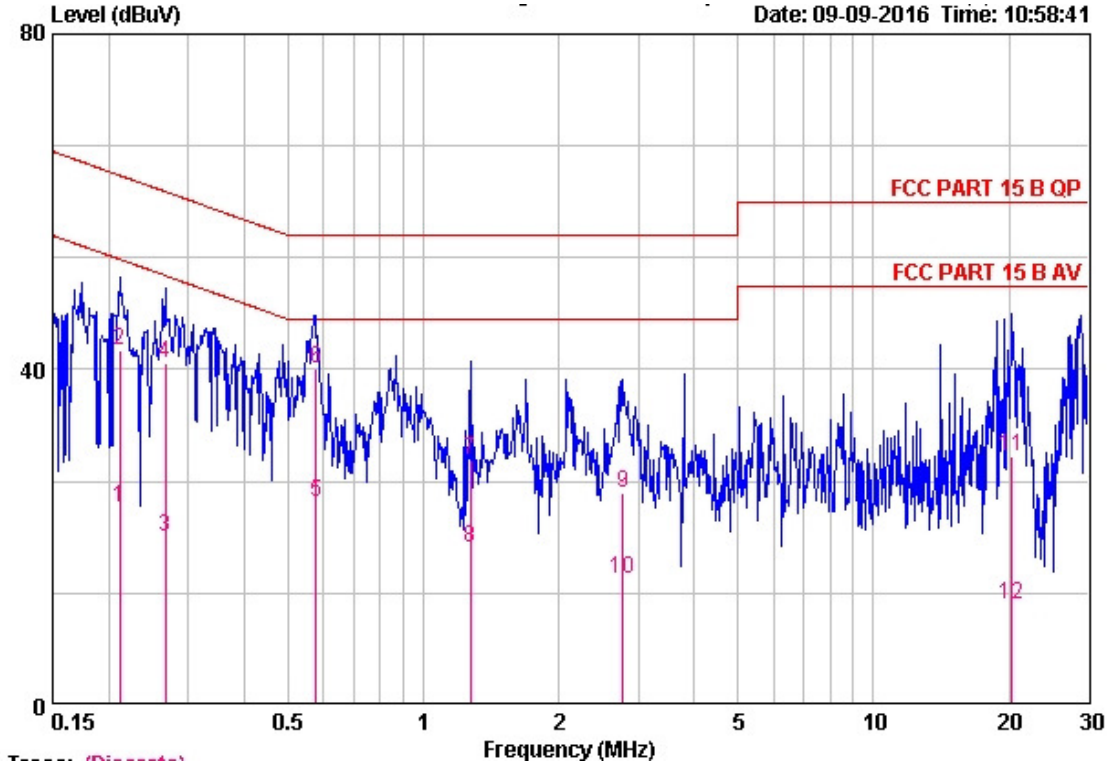


1. The mains terminal conducted emission test was conducted in a shielded room.
2. The EUT was connected to AC power source through a LISN (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. For Load terminal voltage measurement, a voltage probe was used on the load terminals. Measurement at control terminals were carried out by means of an impedance stabilization network (ISN). The ISN was bounded to ground.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The EUT kept a distance of at least 0.8m from any other earthed conducting surface. The Artificial Mains Network was situated at a distance of 0.8m from the EUT. The mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

6.1.3 Measurement Data

Live Line:

Quasi-peak / Average measurement:

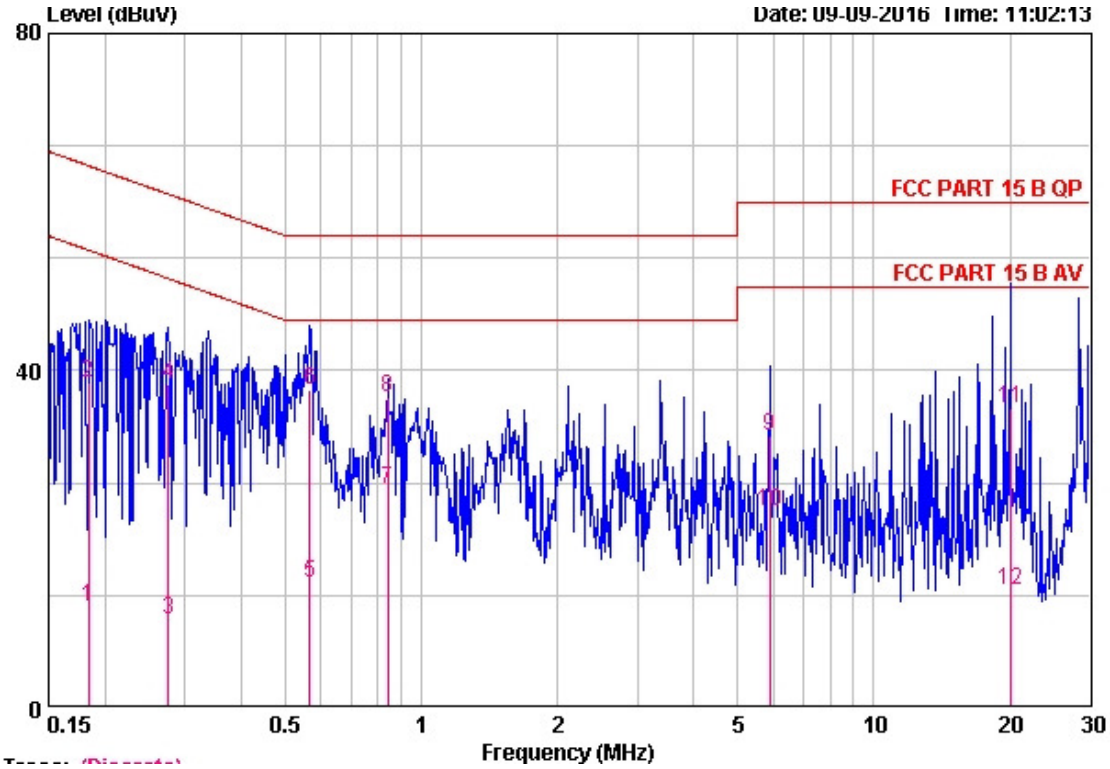


	Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.21	23.53	0.01	0.05	23.59	53.14	-29.55	AVERAGE
2	0.21	42.24	0.01	0.05	42.30	63.14	-20.84	QP
3	0.27	19.97	0.01	0.04	20.03	51.20	-31.18	AVERAGE
4	0.27	40.70	0.01	0.04	40.76	61.20	-20.45	QP
5	0.58	24.18	0.02	0.05	24.25	46.00	-21.75	AVERAGE
6 @	0.58	40.08	0.02	0.05	40.15	56.00	-15.85	QP
7	1.27	29.08	0.05	0.06	29.18	56.00	-26.82	QP
8	1.27	18.70	0.05	0.06	18.80	46.00	-27.20	AVERAGE
9	2.78	25.04	0.07	0.09	25.20	56.00	-30.80	QP
10	2.78	14.86	0.07	0.09	15.02	46.00	-30.98	AVERAGE
11	20.27	28.98	0.15	0.59	29.72	60.00	-30.28	QP
12	20.27	11.26	0.15	0.59	12.00	50.00	-38.00	AVERAGE

Level = Read Level + LISN Factor + Cable Loss.

Neutral Line:

Quasi-peak / Average measurement:



	Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.18	11.93	0.01	0.07	12.01	54.33	-42.32	AVERAGE
2	0.18	38.42	0.01	0.07	38.50	64.33	-25.83	QP
3	0.28	10.46	0.02	0.07	10.55	50.94	-40.39	AVERAGE
4	0.28	38.26	0.02	0.07	38.35	60.94	-22.59	QP
5	0.57	14.76	0.02	0.07	14.85	46.00	-31.15	AVERAGE
6 @	0.57	37.72	0.02	0.07	37.81	56.00	-18.19	QP
7	0.84	25.76	0.04	0.07	25.87	46.00	-20.13	AVERAGE
8	0.84	36.80	0.04	0.07	36.91	56.00	-19.09	QP
9	5.90	32.00	0.09	0.17	32.26	60.00	-27.74	QP
10	5.90	23.07	0.09	0.17	23.33	50.00	-26.67	AVERAGE
11	20.06	34.64	0.15	0.67	35.46	60.00	-24.54	QP
12	20.06	13.12	0.15	0.67	13.94	50.00	-36.06	AVERAGE

Level = Read Level + LISN Factor + Cable Loss.

6.2 Radiated Emissions, 9kHz to1GHz

Test Requirement:	FCC Part15 Subpart C Section 15.209 and 15.249(d)
Test Method:	ANSI C63.10:2013
Test Date:	2016-09-12
Frequency Range:	The lowest frequency generated by EUT, 32.768kHz to 1GHz
Measurement Distance:	3m
Detector:	Peak for pre-scan
	(200Hz resolution bandwidth and 1kHz video bandwidth for measurement between 9kHz – 150kHz)
	(9kHz resolution bandwidth and 100kHz video bandwidth for measurement between 150kHz – 30MHz)
	120kHz resolution bandwidth and 1MHz video bandwidth for measurement between 30MHz to 1GHz)
	Quasi-Peak if maximised peak within 6dB of limit

Limit :

Frequency range MHz	Quasi-peak limits dB (μV/m)
0.009 – 0.490	-72.4 – 20logF(MHz)
0.490 – 1.705	-12.4 – 20logF(MHz)
1.705 – 30.0	-10.5
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54
Note: 1) At transitional frequencies the lower limit applies. 2) F is the frequency of the spurious emission measured in MHz. 3) Limit from 0.009 – 30 MHz is converted from measuring distance 300m or 30m to 3m with the formulat provided in FCC Part 15, section 15.31(f)(2)	

6.2.1 EUT Operation

Operating Environment:

Temperature: 26 °C Humidity: 49%

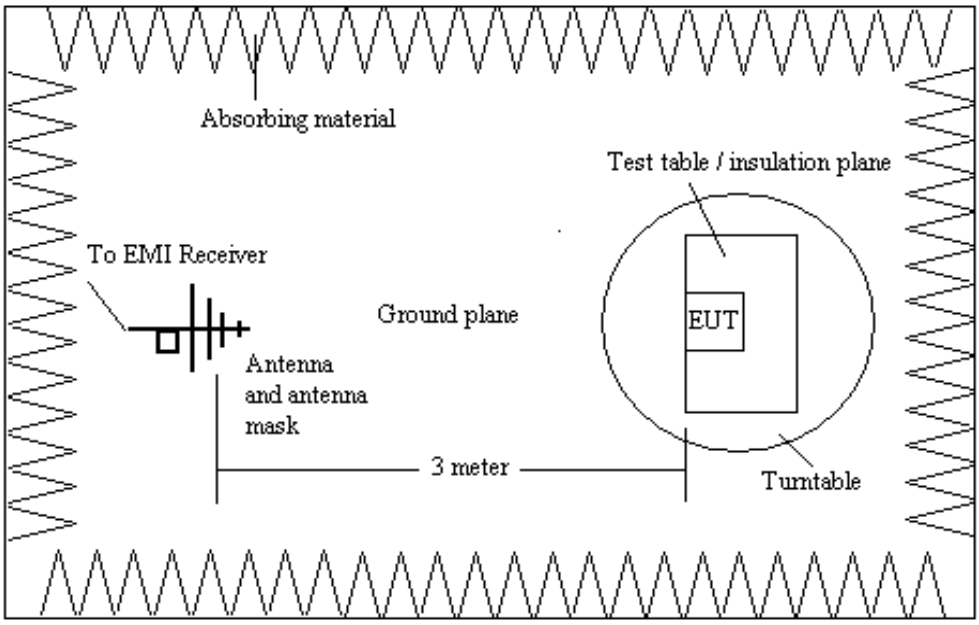
EUT Operation: Pre-test with adaptor or battery operate and Peak detector with the following mode(s):

1: Transmission with GFSK (packet DH1/DH3/DH5)
2: Transmimssion with Π/4-DQPSK (packet 2DH1/2DH3/2DH5)
3: Transmission with 8DPSK (packet 3DH1/3DH3/3DH5)

Final test with adaptor and Quasi-Peak detector and the following mode(s):

1: Transmission with GFSK (packet DH5)

6.2.2 Test Setup and Procedure



1. The pre-test of the radiated emissions test was conducted in a semi-anechoic chamber and the final measurement was conducted in the open area test site.
2. The EUT was connected to AC power source through a mains power outlet which was bonded to the ground reference plane. The EUT was placed upon a non-metallic table 0.8m above the ground reference plane.
3. Loop antennat and Bilog antenna was used for the frequency range from the lowest generated frequency to 30MHz and 30MHz to 1GHz respectively
4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT with located frequencies.
5. The actual frequencies of maximum emission were confirmed in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters for Bilog antenna (Loop antenna is still maintain in 1m hight) in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

6.2.3 Measurement Data

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. The EUT was measured by Bilog antenna with 3 orthogonal polarities and frequencies of peak emissions from the EUT were detected within 6dB of the limit line. Final measurement was conducted in the open area test site with data as follows:

Test results:

(1) Operation Frequency : 2402MHz

Frequency (MHz)	Antenna Polarization	Correction Factor (dB/m)	Receiver QP Reading (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)
40.063	V	15.4	5.7	21.1	40.0	-18.9
88.063	V	9.5	7.1	16.6	43.5	-26.9
144.013	V	11.6	15.9	27.5	43.5	-16.0
208.000	V	9.7	18.0	27.7	43.5	-15.8
310.125	H	14.1	10.0	24.1	46.0	-21.9
435.875	H	17.9	7.8	25.7	46.0	-20.3

Test results:

(2) Operation Frequency : 2440MHz

Frequency (MHz)	Antenna Polarization	Correction Factor (dB/m)	Receiver QP Reading (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)
31.375	H	18.9	4.3	23.2	40.0	-16.8
41.813	H	14.8	5.1	19.9	40.0	-20.1
94.188	V	9.7	13.1	22.8	43.5	-20.7
127.188	V	11.6	7.5	19.1	43.5	-24.4
208.000	V	9.7	20.7	30.4	43.5	-13.1
423.813	H	17.5	5.9	23.4	46.0	-22.6

Test results:

(3) Operation Frequency : 2480MHz

Frequency (MHz)	Antenna Polarization	Correction Factor (dB/m)	Receiver QP Reading (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)
30.250	H	19.3	3.9	23.2	40.0	-16.8
53.688	V	11.3	5.1	16.4	40.0	-23.6
90.750	V	9.6	10.4	20.0	43.5	-23.5
129.000	V	11.6	9.3	20.9	43.5	-22.6
192.063	V	9.3	13.1	22.4	43.5	-21.1
372.938	H	15.4	9.4	24.8	46.0	-21.2

Note:

1) **All readings are Quasi-Peak values.**
2) **Correction Factor = Antenna Factor + Cable Loss.**
3) **The above results were the worst case results with the EUT positioned in all 3 axis during the test. The EUT was positioned vertically and horizontally on the table for vertical and horizontal measurement respectively.**
4) **Other emissions more than 20dB below the limit are not shown on the above table and only worst six emissions below 1GHz are listed.**
5) **USB port and Aux In port are terminated by resistor during test.**

6.3 Radiated Emissions above 1 GHz

Test Requirement:	FCC Part15 Subpart C Section 15.209 & 15.249(a) & (d)
Test Method:	ANSI C63.10:2013
Test Date:	2016-09-13
Frequency Range:	1GHz – 26GHz
Measurement Distance:	3m
Detector:	Peak for pre-scan (1MHz resolution bandwidth, 1MHz video bandwidth) Average and Peak detector for final test

Limit :

Fundamental Frequency :

Frequency range MHz	Limits (Peak) dB (μV/m)	Limits (Average) dB (μV/m)
2400 to 2483.5	114	94

Spurious Emission :

Frequency range MHz	Limits (Peak) dB (μV/m)	Limits (Average) dB (μV/m)
Over 1000	74	54

6.3.1 EUT Operation

Operating Environment:

Temperature: 26 °C Humidity: 49 %

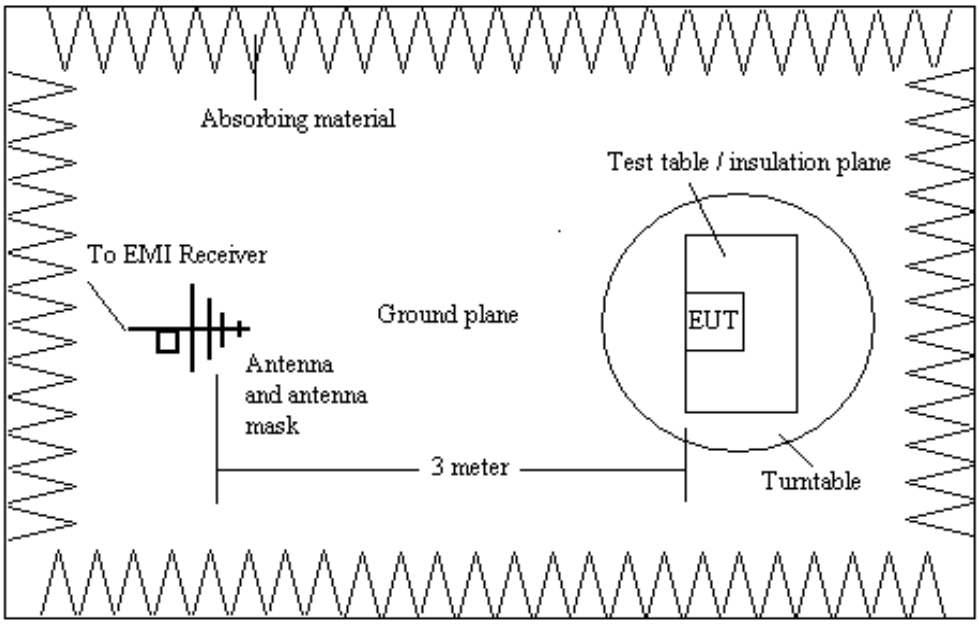
EUT Operation: Pre-test with adaptor or battery operate and Peak detector with the following mode(s):

1: Transmission with GFSK (packet DH1/DH3/DH5)
2: Transmimssion with Π/4-DQPSK (packet 2DH1/2DH3/2DH5)
3: Transmission with 8DPSK (packet 3DH1/3DH3/3DH5)

Final test with adaptor and Peak and Avearge detector with the following mode(s):

1: Transmission with GFSK (packet DH5)

6.3.2 Test Setup and Procedure



1. The pre-test of the radiated emissions test was conducted in a semi-anechoic chamber and the final measurement was conducted in the open area test site.
2. The EUT was connected to AC power source through a mains power outlet which was bonded to the ground reference plane. The EUT was placed upon a non-metallic table 0.8m above the ground reference plane.
3. Horn antenna was used for the frequency over 1GHz
4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT with located frequencies.
5. The actual frequencies of maximum emission were confirmed in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

6.3.3 Measurement Data

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. The EUT was measured with 3 orthogonal polarities and frequencies of average emissions from the EUT were measured as follows:

Test results :

(1) Fundmental Frequency

Frequency (MHz)	Antenna Polarization	Emission Level (dBμV/m)		Limit (dBμV/m)		Remark
		Peak	Average	Peak	Average	
2402.0	H	93.66	58.29	114	94	Pass
2402.0	V	95.00	58.56	114	94	Pass
2440.0	H	92.00	57.26	114	94	Pass
2440.0	V	93.24	58.51	114	94	Pass
2480.0	H	94.84	57.71	114	94	Pass
2480.0	V	94.92	58.63	114	94	Pass

(2) Spurious Emission

Operation Frequency : 2402.0 MHz

Frequency (MHz)	Antenna Polarization	Emission Level (dBμV/m)		Limit (dBμV/m)		Remark
		Peak	Average	Peak	Average	
4810.000	V	49.60	30.50	74	54	Pass
5717.000	V	42.90	28.01	74	54	Pass
6376.000	V	44.20	28.94	74	54	Pass
7215.000	H	45.80	30.52	74	54	Pass
8693.000	H	49.40	33.75	74	54	Pass
9620.000	H	47.30	32.16	74	54	Pass

Operation Frequency : 2440.0 MHz

Frequency (MHz)	Antenna Polarization	Emission Level (dBµV/m)		Limit (dBµV/m)		Remark
		Peak	Average	Peak	Average	
4880.000	V	46.90	30.24	74	54	Pass
5580.000	V	43.70	27.72	74	54	Pass
7320.000	H	45.70	30.79	74	54	Pass
8891.000	H	49.00	33.61	74	54	Pass
9760.000	H	48.40	33.10	74	54	Pass
12200.000	H	50.30	35.35	74	54	Pass

Operation Frequency : 2480.0 MHz

Frequency (MHz)	Antenna Polarization	Emission Level (dBµV/m)		Limit (dBµV/m)		Remark
		Peak	Average	Peak	Average	
4950.000	V	45.50	29.17	74	54	Pass
6784.000	H	44.80	30.08	74	54	Pass
7425.000	V	46.90	32.36	74	54	Pass
8692.000	V	49.40	34.08	74	54	Pass
9900.000	H	49.10	34.29	74	54	Pass
12375.000	H	51.60	36.48	74	54	Pass

Note:

1) **The above results were the worst case results with the EUT positioned in all 3 axis during the test. The EUT was positioned vertically and horizontally on the table for vertical and horizontal measurement respectively.**
2) **Other emissions more than 20dB below the limit are not shown on the above table and only worst six emissions below 1GHz are listed.**
3) **USB port and Aux In port are terminated by resistor during test.**

6.4 Restricted-band band-edge measurements (Radiated Emission)

Test Requirement: FCC Part15 Subpart C Section 15.215, 15.249(d)

Test Method: ANSI C63.10

Measurement Distance: 3m

Detector: (1MHz resolution bandwidth, 3MHz video bandwidth)
Average and Peak detector

Limit: Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general field strength limits listed in RSS-Gen, whichever is less stringent.

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test Date: 2016-09-14

EUT Operation: Pre-test with adaptor or battery operate and Peak detector with the following mode(s):
1: Transmission with GFSK (packet DH1/DH3/DH5)
2: Transmimssion with Π/4-DQPSK (packet 2DH1/2DH3/2DH5)
3: Transmission with 8DPSK (packet 3DH1/3DH3/3DH5)

Final test with adaptor and Peak and Avearge detector with the following mode(s):
1: Transmission with GFSK (packet DH5)

Result: Pass

Test results : (Worst case: Transmissin with GFSK)

Operation frequency : 2402.0 MHz

Frequency (MHz)	Antenna Polarization	Emission Level (dBµV/m)		Limit (dBµV/m)		Remark
		Peak	Average	Peak	Average	
2390.0	V	36.50	20.40	74	54	Pass
2400.0	V	37.92	22.57	74	54	Pass

Operation frequency : 2480.0 MHz

Frequency (MHz)	Antenna Polarization	Emission Level (dBµV/m)		Limit (dBµV/m)		Remark
		Peak	Average	Peak	Average	
2483.5	V	33.56	20.23	74	54	Pass

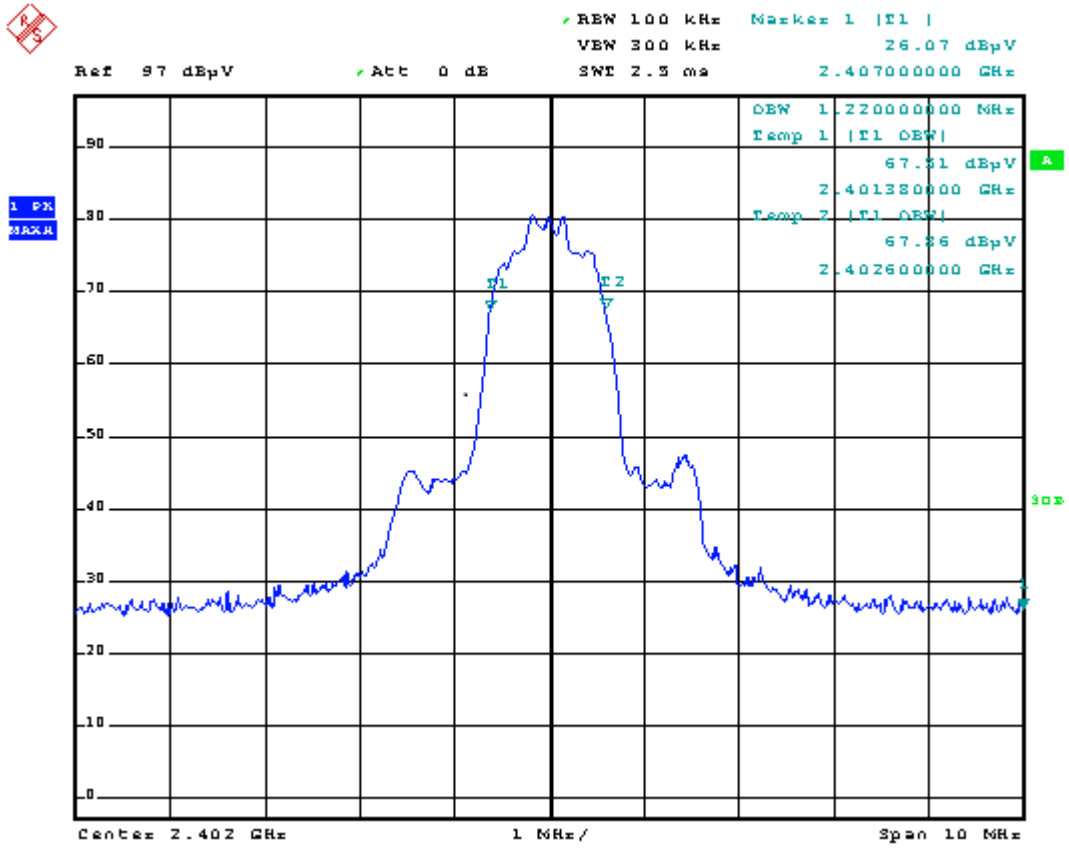
According to above bandedge measurement, emissions radiated outside of the specified frequency bands, (2400-2483.5)MHz except for harmonics, are below general field strength limits under 15.209 It is deemed to comply with section 15.215 and 15.249(d)

6.5 Band Edge / 20 dB Bandwidth

Test Requirement:	FCC Part15 Subpart C Section 15.215, 15.249(d)
Test Method:	ANSI C63.10:2013 and Marker-Delta Method
Test Date:	2016-09-13
EUT Operation:	1: Transmission with GFSK (packet DH1/DH3/DH5) 2: Transmimssion with Π/4-DQPSK (packet 2DH1/2DH3/2DH5) 3: Transmission with 8DPSK (packet 3DH1/3DH3/3DH5)
Result:	Pass

Test Plot : (Worst case: Transmission with 8DPSK(3DH5))

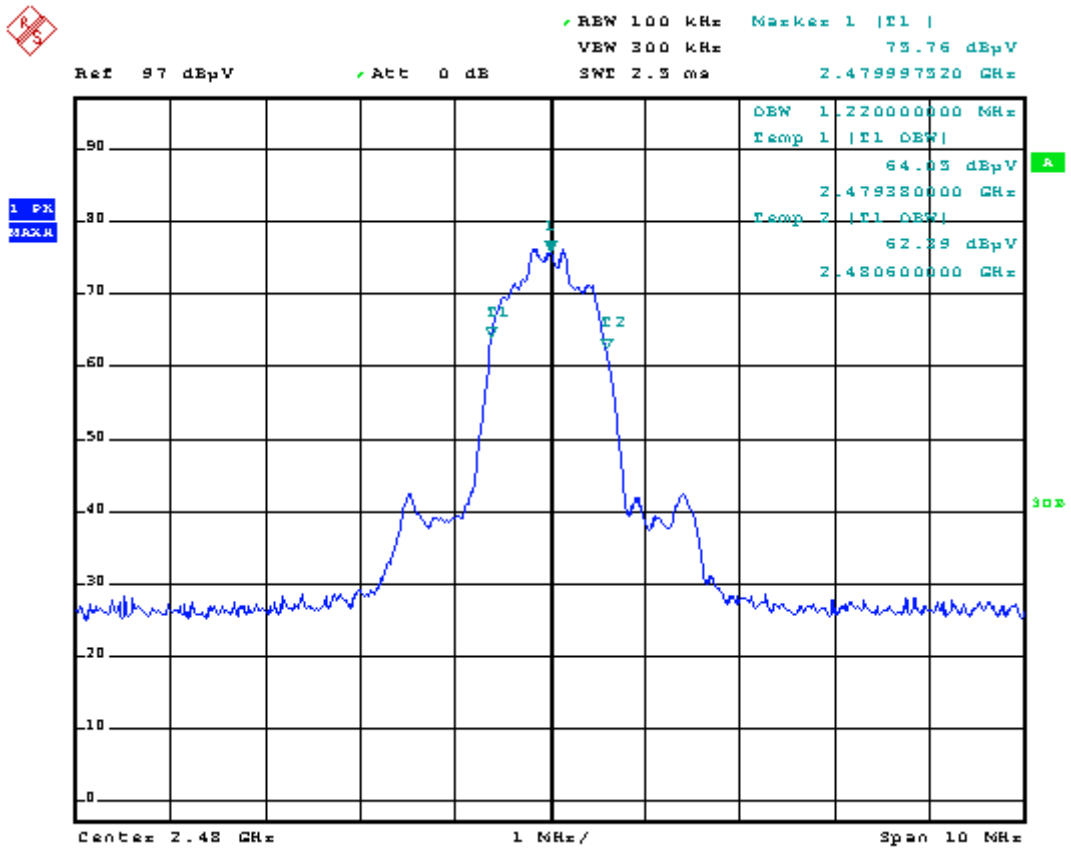
Operation frequency : 2402.0 MHz



According to above plot, 20dB bandwidth falls in assigned band (2400-2483.5)MHz. It is deemed to comply with section 15.215

Test Plot : (Worst case: Transmission with 8DPSK(3DH5))

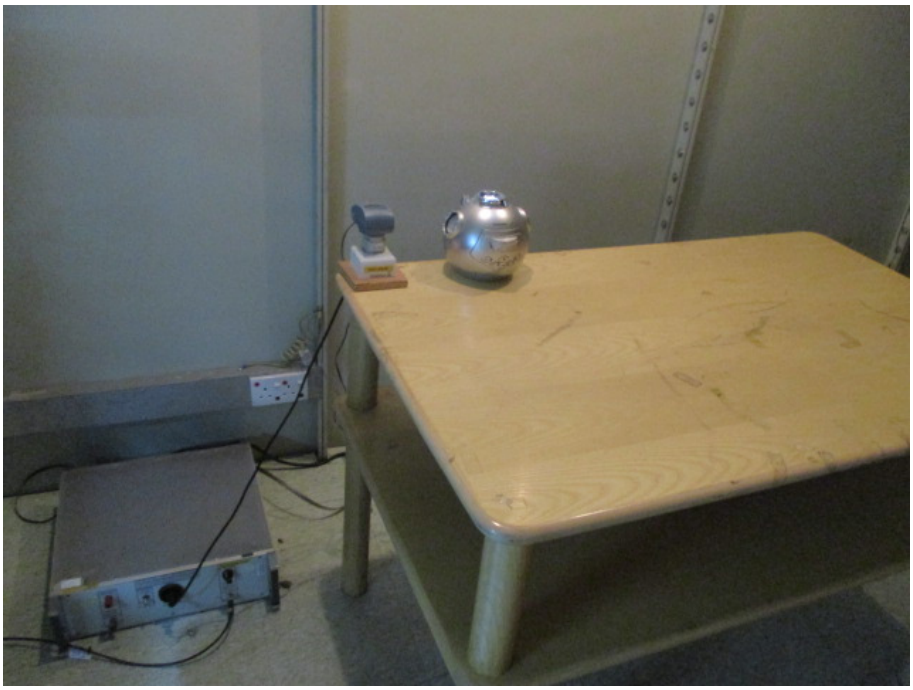
Operation frequency : 2480.0 MHz



According to above plot, 20dB bandwidth falls in assigned band (2400-2483.5)MHz. It is deemed to comply with section 15.215

7 Photographs

7.1 Conducted Emission Test Setup



7.2 Radiatd Emission Test Setup

7.3 EUT Constructional Details

-- END OF REPORT --