FCC/IC TEST REPORT

Reference No. : **G-45-2018-01873**

Applicant : **COMPACT.D**

Equipment Under Test (EUT) :

Product Name : BTS OFFICIAL LIGHT STICK VER.3

Model Name : BTS X OFFICIAL 7718G

Applied Standards : **FCC Part 15 Subpart B**

ANSI C 63.4:2014

ICES-003, Issue 6

Date of Receipt : **June 1, 2018**

Date of Test : **June 22, 2018**

Date of Issue : **July 13, 2018**

Test Results : **Complied**

Tested by : ----------

Yongtae Yu

Reviewed by : ----------

Paul Kang

Remarks :

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Revision History

Revision	Report Number	Description
0	F690501/RF-EMC003680(G)	Initial
1		
2		

1. General Information

1.1 Client Information

Applicant : COMPACT.D
- Address of Applicant : 2F, 703, Eonju-ro, Gangnam-gu, Seoul, Republic of Korea

Manufacturer : COMPACT.D
- Address of Manufacturer : 2F, 703, Eonju-ro, Gangnam-gu, Seoul, Republic of Korea.

1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd.
- Giheung 1 Laboratory : 35, Giheungdanji-ro 121beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
- Giheung 2 Laboratory : 23, Giheungdanji-ro 24beon-gil, Giheung-gu,Yongin-si, Gyeonggi-do, Republic of Korea
- Gunpo Laboratory : 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 15807, Republic of Korea.

Phone : + 82 31 428 5700
Fax : + 82 31 427 2370
e-mail : paul.kang@sgs.com

1.3 General Information of E.U.T.

Classification	Description
Product Name	BTS OFFICIAL LIGHT STICK VER.3
Model Name	BTS X OFFICIAL 7718G
Serial No.	-
EMI Classification	Class B
Test Voltage	4.5 Vd.c
Rated Voltage	4.5 Vd.c., 160 ㎃
Operating Temperature	(-)10 ℃ ~ (+)50 ℃
Description	The device is a battery-powered bluetooth light stick.

1.4 Operating Modes and Conditions

Operating Mode	Percussor
1) Operation mode	White LED Illuminated regularly

1.5 Auxiliary Equipments

Description	Model	Serial No.	Manufacturer
-	-	-	-

1.6 Cable List

Start		END		Cable Spec.		Used core
Name	I/O Port	Name	I/O Port	Length	Shield	
-	-	-	-	-	-	-

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
Main Board	BTS ARMY Bong v2	-	-

1.8 Test System Layout

1.9 Modifications

- There was no modified item during the test.

1.10 Applicable Standards for Testing

Standards	Status	Deviation
FCC Part 15 Subpart B ICES-003 Issue 6: 2017	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Standards	Results
Radiated Emission	ANSI C 63.4:2014 FCC Part 15 Subpart B ICES-003 Issue 6: 2017	Complied

Note : Test methods of all test items are performed according to the basic standards in this table.

EMISSION

2.1 Test Results

Test Items	Basic Standards	Test Results
Radiated Emission	ANSI C 63.4:2014, FCC Part 15 Subpart B ICES-003 Issue 6: 2017	**Complied**

2.2 Test Method and Limits

2.2.1 Test Method

Test Items	Measuring Frequency Range	RBW	Measuring Distance
Radiated Emission	30 MHz ~ 1 GHz	120 kHz	3 m
	Above 1 GHz	1 MHz	3 m

2.2.2 Test Limits

-Radiated Emission Limits below 1 GHz

Frequency Range	Limits(dB(μV/m))	Class
	Quasi-peak	
30 MHz ~ 88 MHz	39.1	**Class A**
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46.4	
960 MHz ~ 1 GHz	49.5	
30 MHz ~ 88 MHz	40	**Class B**
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46	
960 MHz ~ 1 GHz	54	

-Radiated Emission Limits above 1 GHz（3m method）

Frequency Range	Limits(dB(μV/m))		Class
	Average	Peak	
Above 1 GHz	59.5	79.5	**Class A**
Above 1 GHz	54	74	**Class B**

2.3 Radiated Emission

The initial preliminary exploratory scans were performed at 3 ㎜ distance over the measuring frequency range(30 ㎒ to 13 ㎓) using a max hold mode incorporating a Peak detector and using the software of EMC32(Version 8.50.0 from R&S) and EP5RE(Version Ver3.10.20 from TOYO). The final test data was measured using a Quasi-Peak detector below 1 ㎓ at 3 ㎜ distance and a Peak and Average detector above 1 ㎓ at 3 ㎜ distance. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360˚ to find the maximum emitting point for each frequency.

2.3.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Cal Due. Date
Horn Antenna (KOLAS)	HF906	R & S	100326	2020.02.14
Signal Conditioning Unit	SCU 18	R & S	102244	2018.09.22
Test Receiver	ESU26	R & S	100109	2019.02.07
Bilog Antenna (KOLAS)	VULB9163	SCHWARZBECK	01126	2020.03.26
Amplifier	8447F	HP	2944A03909	2018.08.11

Note : Only the calibration period of Antennas is 2 years but the period of every equipment is 1 year.

2.3.2 Test Site

3m SEMI-ANECHOIC CHAMBER Gunpo Laboratory (Below 1 ㎓, Above 1 ㎓)

2.3.3 Environment Conditions and data

- Below 1 ㎓

Temperature : (minimum 20.7, maximum 21.3) ℃
Humidity : (minimum 37.0, maximum 39.0) %R.H.
Atmospheric Pressure : (minimum 101.4, maximum 101.5) ㎪

Test Date : June 22, 2018

- Above 1 ㎓

Temperature : (minimum 20.7, maximum 21.3) ℃
Humidity : (minimum 37.0, maximum 39.0) %R.H.
Atmospheric Pressure : (minimum 101.4, maximum 101.5) ㎪

Test Date : June 22, 2018

- Below 1 GHz (3 m method)

Freq. (MHz)	Level (dB(μV))	Pol. (H/V)	A (°)	H (cm)	AF (dB/m)	CL (dB)	Amp. (dB)	Result (dB(μV/m))	Limit (dB(μV/m))	Margin (dB)
33.92	31.20	V	329	400	10.68	1.22	28.10	15.00	40.00	25.00
35.38	32.90	H	5	100	10.88	1.23	28.10	16.91	40.00	23.09
53.97	31.70	H	127	100	12.95	1.40	28.09	17.96	40.00	22.04
60.07	31.50	V	232	300	11.96	1.46	28.08	16.84	40.00	23.16
430.73	32.60	H	192	200	17.09	3.64	28.38	24.95	46.00	21.05
550.89	31.60	V	174	300	19.40	4.08	28.80	26.28	46.00	19.72

Measurement Uncertainty (Horizontal) : 5.31 dB (The confidential level is about 95%, *k*=2)
Measurement Uncertainty (Vertical) : 5.73 dB (The confidential level is about 95%, *k*=2)
Note 1: • AF = Antenna Factor • CL = Cable Loss • Amp = Amplifier Gain
• POL H = Horizontal • POL V = Vertical • A : Angle
• H : Height • Margin = Limit – Result • Result = Level + AF + CL – Amp

- Above 1 GHz (3 m method)

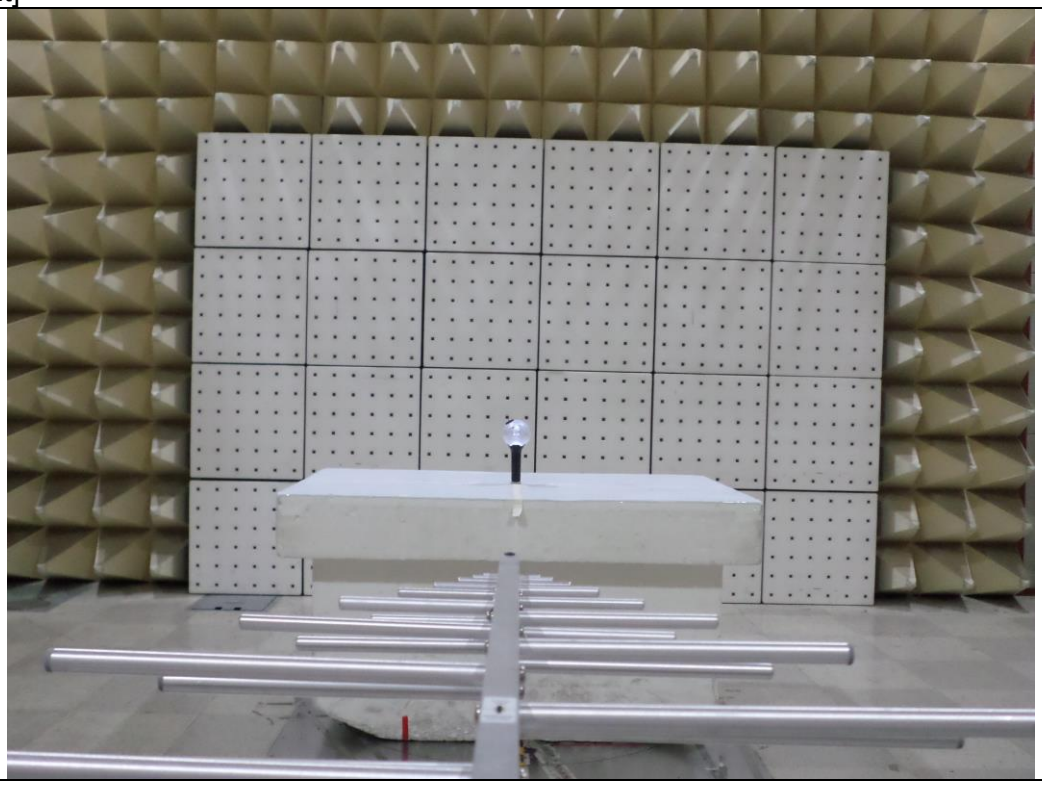
Freq. (MHz)	Level (dBμV)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	CF (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Peak Detector											
1083.13	56.40	H	186	100	24.48	5.64	38.21	0.00	48.31	74.00	25.69
1529.58	54.40	H	186	100	25.52	6.68	37.92	0.00	48.68	74.00	25.32
1593.54	50.40	V	167	100	25.82	6.89	38.08	0.00	45.03	74.00	28.97
1593.75	54.60	H	186	100	25.82	6.90	38.08	0.00	49.24	74.00	24.76
1953.33	52.80	H	186	100	27.50	7.94	37.92	0.00	50.32	74.00	23.68
1961.46	52.00	H	186	100	27.54	7.98	37.92	0.00	49.60	74.00	24.40
1977.50	47.50	V	181	100	27.61	8.04	37.91	0.00	45.24	74.00	28.76
Average Detector											
1083.13	40.70	H	186	100	24.48	5.64	38.21	0.00	32.61	54.00	21.39
1529.58	40.90	H	186	100	25.52	6.68	37.92	0.00	35.18	54.00	18.82
1593.54	37.30	V	167	100	25.82	6.89	38.08	0.00	31.93	54.00	22.07
1593.75	41.50	H	186	100	25.82	6.90	38.08	0.00	36.14	54.00	17.86
1953.33	42.20	H	186	100	27.50	7.94	37.92	0.00	39.72	54.00	14.28
1961.46	41.50	H	186	100	27.54	7.98	37.92	0.00	39.10	54.00	14.90
1977.50	37.10	V	181	100	27.61	8.04	37.91	0.00	34.84	54.00	19.16

Measurement Uncertainty (Horizontal) : 5.73 dB (The confidential level is about 95%, *k*=2)
Measurement Uncertainty (Vertical) : 5.85 dB (The confidential level is about 95%, *k*=2)
Note 1: • AF = Antenna Factor • CL = Cable Loss • Amp = Amplifier Gain
• POL H = Horizontal • POL V = Vertical • A : Angle
• H : Height • Margin = Limit – Result • Result = Level + AF + CL – Amp

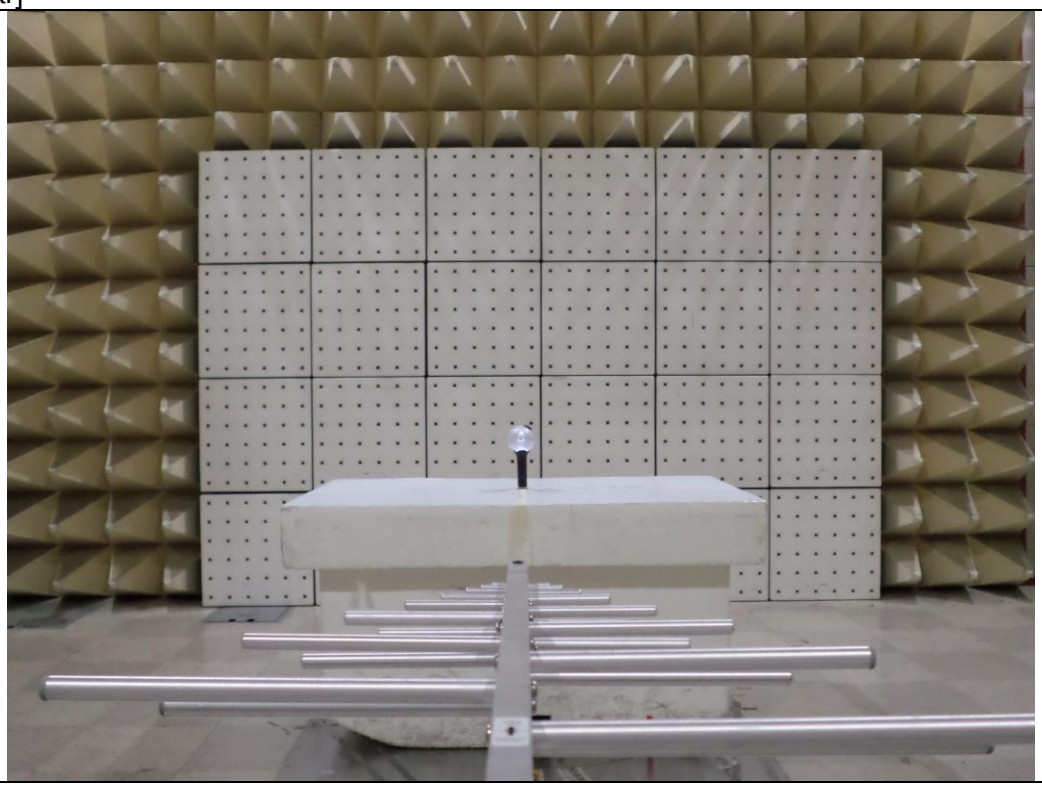
See Appendix B (Radiated Emission)

2.4 Photographs of Radiated Emission (Below 1 ㎓)

[Front]

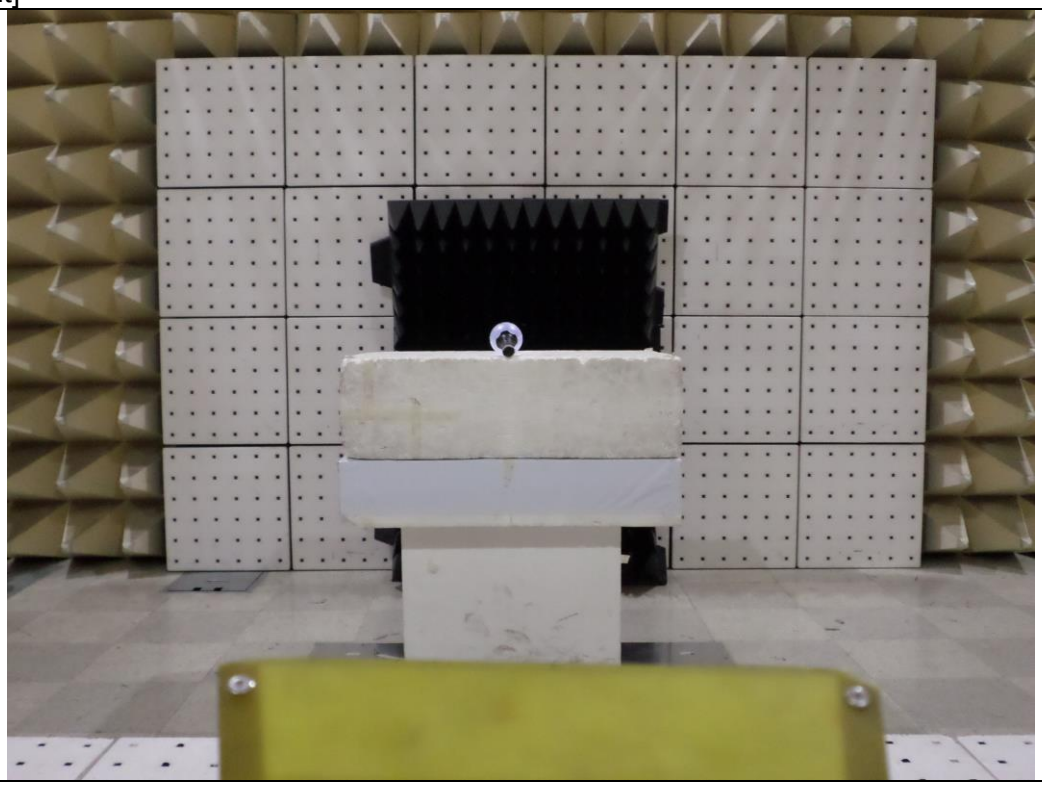


[Rear]

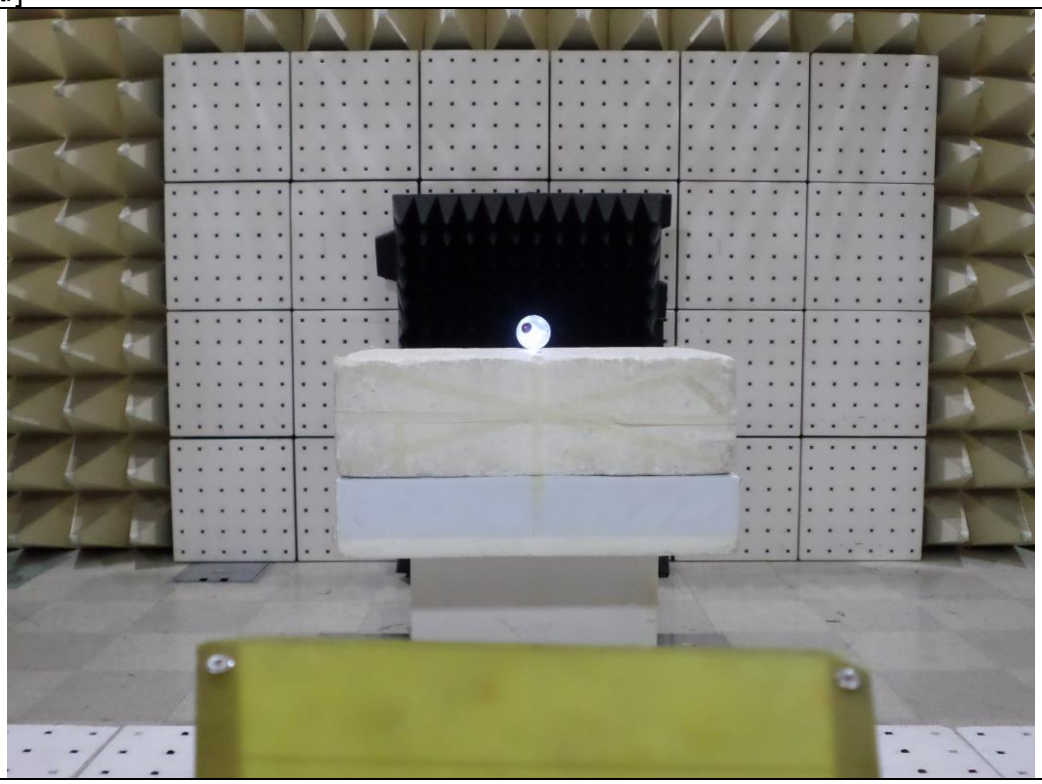


2.5 Photographs of Radiated Emission (Above 1 ㎓)

[Front]



[Rear]



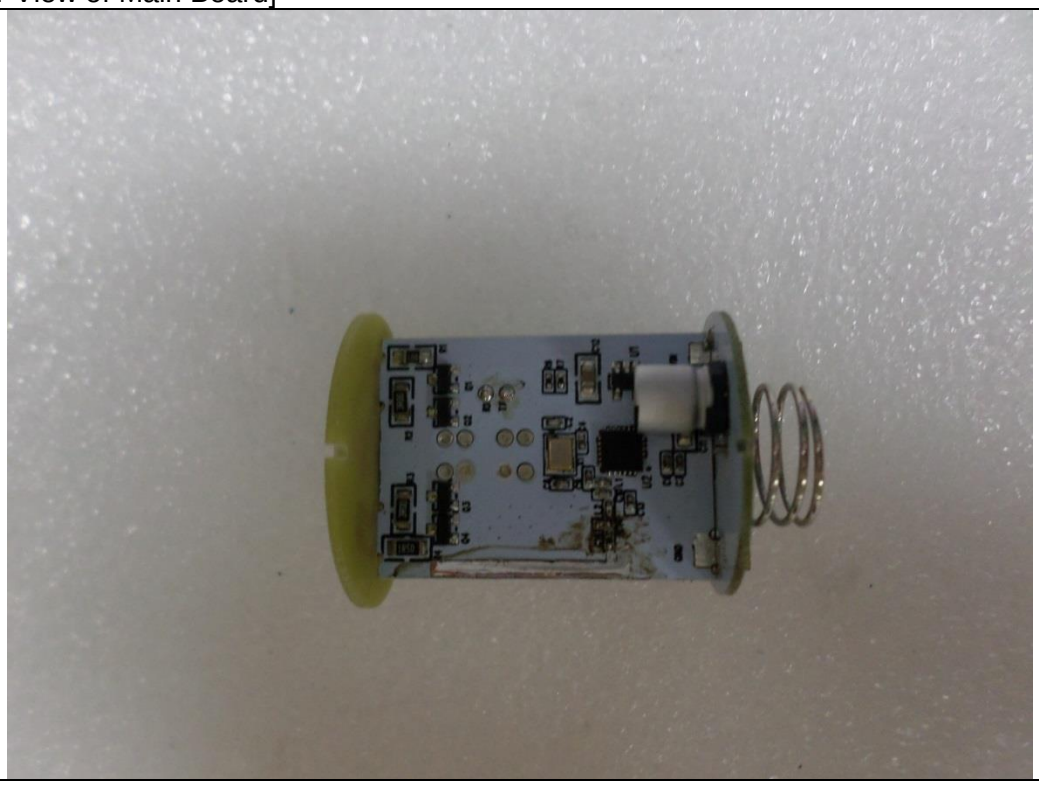
3. Photographs of EUT

[Front View of EUT]

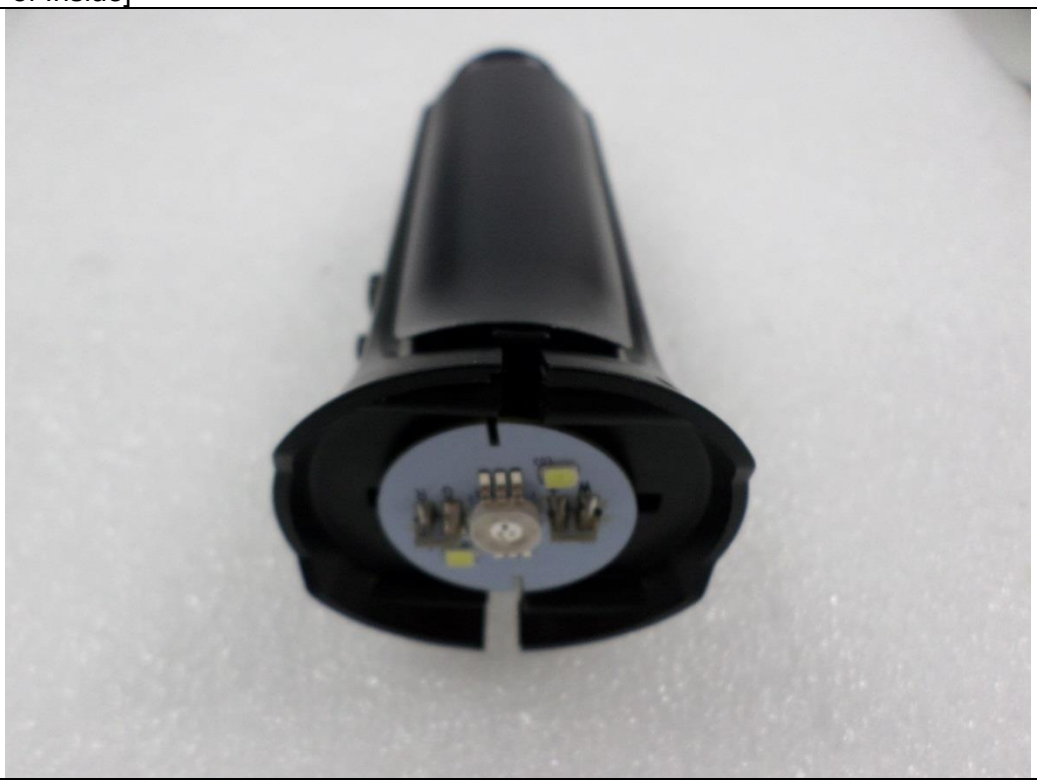
[Rear View of EUT]

[Front View of Main Board]

[Rear View of Main Board]

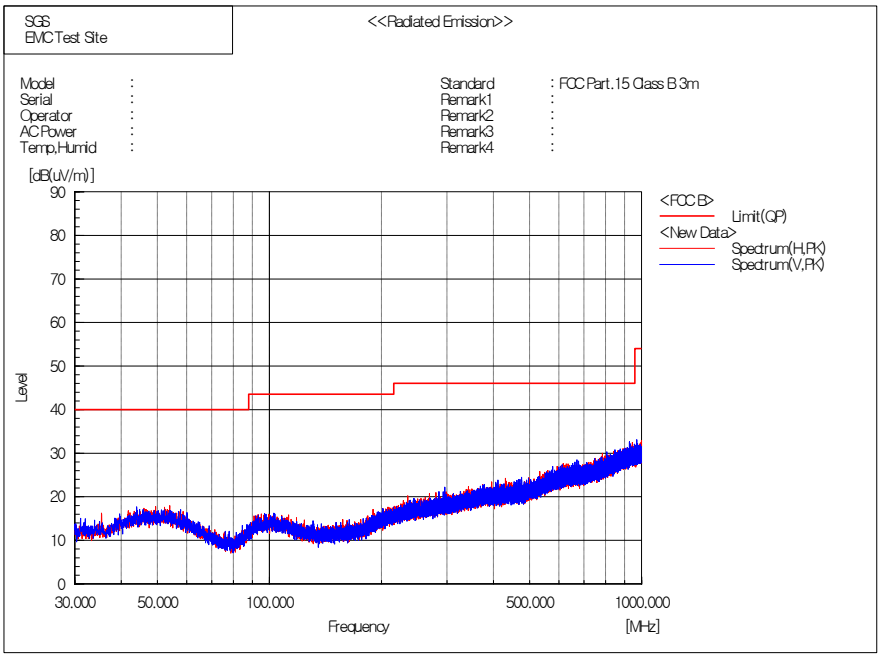


[View of Inside]

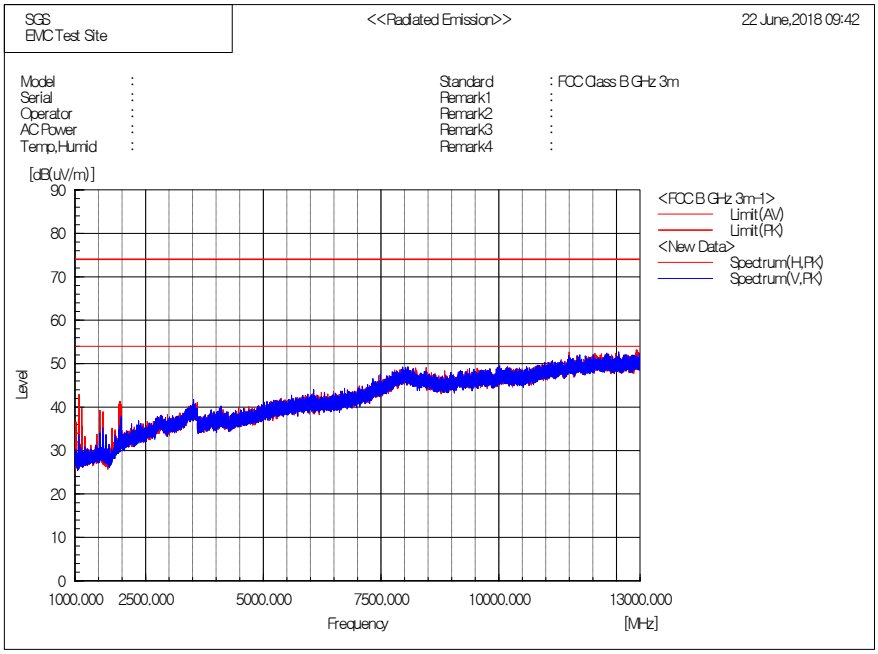


Appendix A: Radiated Emission

Below 1 GHz



Above 1 GHz



- End of the Report -