TEST REPORT

Product	:	BOOM TOWER
Trade mark	:	SOUNDCANDY
Model/Type reference	:	SC3003
Serial Number	:	N/A
Report Number	:	EED32H000894-2
FCC ID	:	2AFQL-SC3003
Date of Issue:	:	July 21, 2015
Test Standards	:	47 CFR Part 15Subpart C (2014)
Test result	:	PASS

Prepared for:

DUST STUDIO LTD
7/f, Flat B-03, Cheong Wah Factory Building,
Tokwawan, Kowloon, HK

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
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Tested by: Wave Xin Reviewed by: Kevin Lan

Approved by: Sheek Luo Date: July 23, 2015

Sheek Luo
Lab supervisor

Check No.: 1022581390

2 Version

Version No.	Date	Description
00	July 21, 201	Original

3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15Subpart C Section 15.203/15.247 (c)	ANSI C63.10-2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15Subpart C Section 15.207	ANSI C63.10-2013	PASS
Conducted Peak Output Power	47 CFR Part 15Subpart C Section 15.247 (b)(3)	ANSI C63.10-2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15Subpart C Section 15.247 (a)(2)	ANSI C63.10-2013	PASS
Power Spectral Density	47 CFR Part 15Subpart C Section 15.247 (e)	ANSI C63.10-2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
Radiated Spurious Emissions	47 CFR Part 15Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS

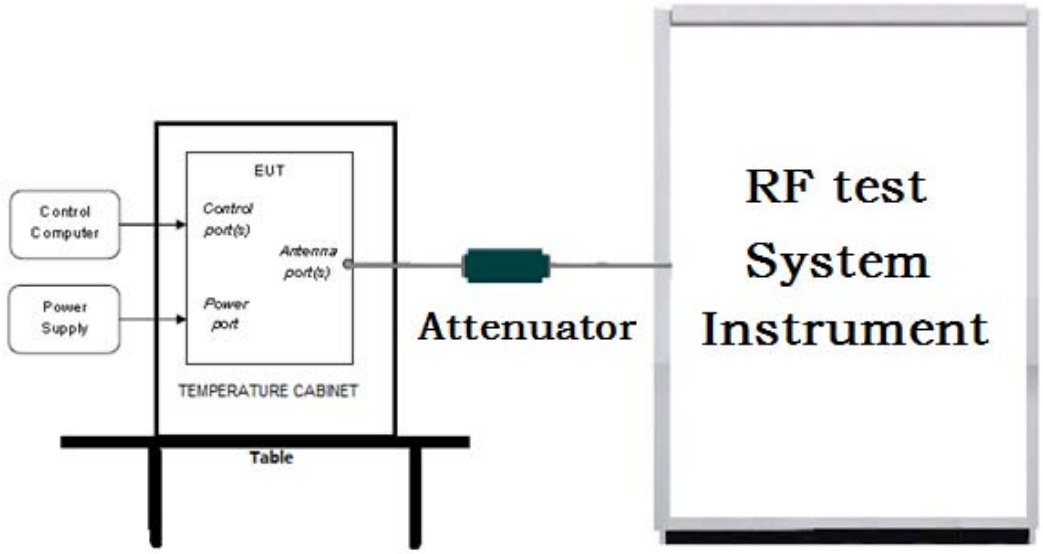
Test according to ANSI C63.4-2014 & ANSI C63.10-2013.

4 Content

5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

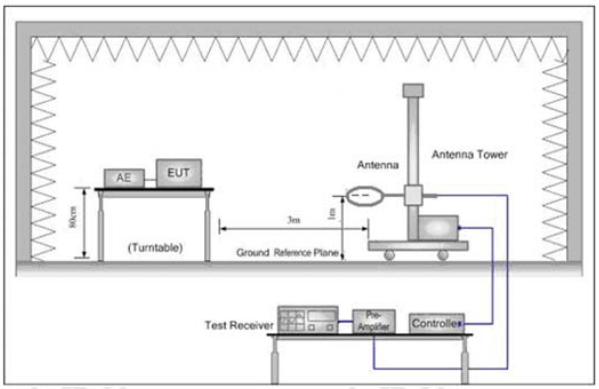


Figure 1. Below 30MHz

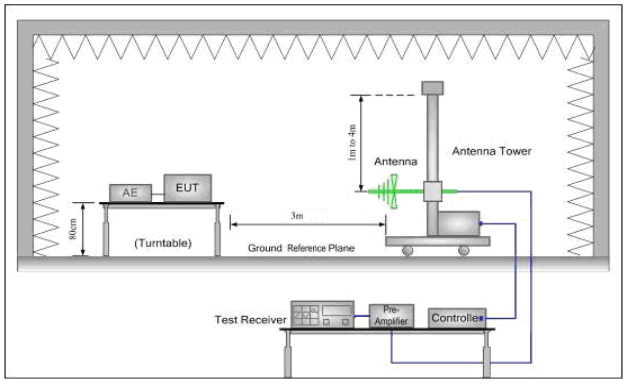


Figure 2. 30MHz to 1GHz

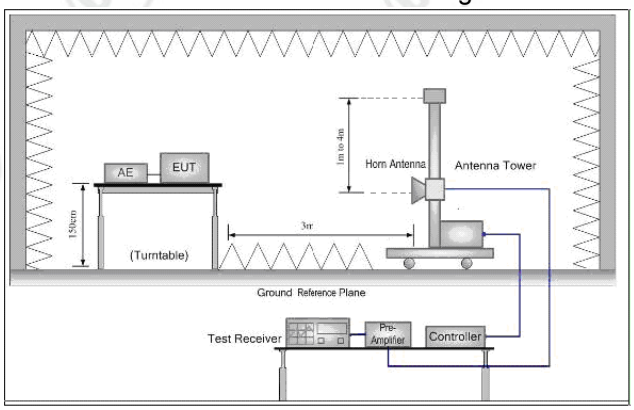
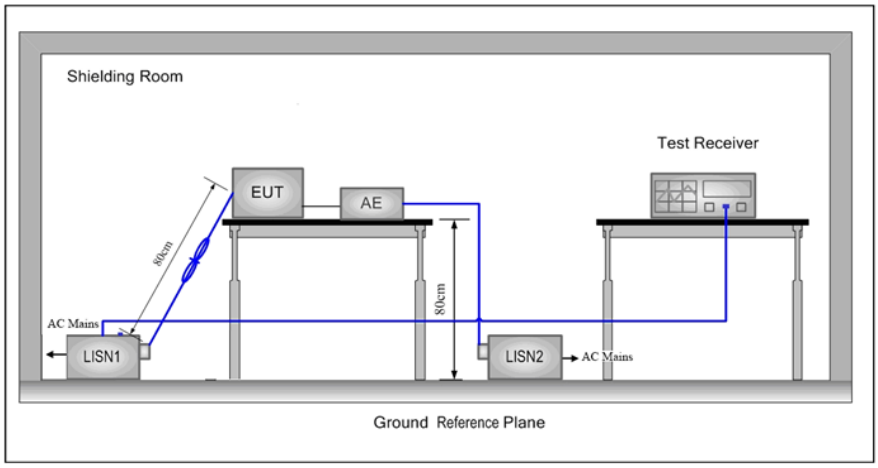


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	24 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test channel:

Test Mode	Tx	RF Channel		
		Low(L)	Middle(M)	High(H)
GFSK	2402MHz ~2480 MHz	Channel 1	Channel 20	Channel 40
		2402MHz	2440MHz	2480MHz
Transmitting mode:	The EUT transmitted the continuous modulation test signal at the specific channel			

6 General Information

6.1 Client Information

Applicant:	DUST STUDIO LTD
Address of Applicant:	7/f, Flat B-03, Cheong Wah Factory Building, Tokwawan, Kowloon, HK
Manufacturer:	DUST STUDIO LTD
Address of Manufacturer:	7/f, Flat B-03, Cheong Wah Factory Building, Tokwawan, Kowloon, HK
Factory:	SHENZHEN HUAZENG TECHNOLOTY CO LTD
Address of Factory:	Floor 2-3, Yinjin Building, District 71, BaoAn, Shenzhen, Guangdong, China

6.2 General Description of EUT

Product Name:	BOOM TOWER
Model No.(EUT):	SC3003
Trade mark:	SOUNDCANDY
EUT Supports Radios application	Bluetooth V4.0 BLE
Power Supply:	DC 3.7V
Sample Received Date:	July 08, 2015
Sample tested Date:	July 08, 2015 to July 21, 2015

6.3 *Product Specification subjective to this standard*

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	4.0
Modulation Type:	GFSK
Number of Channel:	40
Sample Type:	Portable production
Antenna Gain:	0dBi
Test Voltage:	DC 3.7V

Operation Frequency each of channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	11	2422MHz	21	2442MHz	31	2462MHz
2	2404MHz	12	2424MHz	22	2444MHz	32	2464MHz
3	2406MHz	13	2426MHz	23	2446MHz	33	2466MHz
4	2408MHz	14	2428MHz	24	2448MHz	34	2468MHz
5	2410MHz	15	2430MHz	25	2450MHz	35	2470MHz
6	2412MHz	16	2432MHz	26	2452MHz	36	2472MHz
7	2414MHz	17	2434MHz	27	2454MHz	37	2474MHz
8	2416MHz	18	2436MHz	28	2456MHz	38	2476MHz
9	2418MHz	19	2438MHz	29	2458MHz	39	2478MHz
10	2420MHz	20	2440MHz	30	2460MHz	40	2480MHz

6.4 Description of Support Units

The EUT has been tested with associated equipment below.

1）support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Notebook	HP	G3	FCC DOC	CTI
Mouse	L.Selectron	M004	FCC DOC	CTI

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China518101

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

6.6 Test Facility

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

CNAS-Lab Code: L1910

Centre Testing International Group Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories..

A2LA-Lab Cert. No. 3061.01

Centre Testing International Group Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 565659

Centre Testing International Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 565659.

IC-Registration No.: 7408A

The 3m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A .

IC-Registration No.: 7408B

The 10m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B.

NEMKO-Aut. No.: ELA503

Centre Testing International Group Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality

assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

VCCI

The Radiation 3 &10 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of

Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

6.7 Deviation from Standards

None.

6.8 Abnormalities from Standard Conditions

None.

6.9 Other Information Requested by the Customer

None.

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

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.31dB (30MHz-1GHz)
		0.57dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-12.75GHz)
4	Conduction emission	3.6dB (9kHz to 150kHz)
		3.2dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	2.8%
7	DC power voltages	0.025%

7 Equipment List

RF test system					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Signal Generator	Keysight	E8257D	MY53401106	04-14-2015	04-13-2016
Communication test set test set	Agilent	N4010A	MY47230124	04-02-2015	04-01-2016
Spectrum Analyzer	Keysight	N9010A	MY54510339	04-01-2015	03-31-2016
Attenuator	HuaXiang	SHX370	15040701	04-01-2015	03-31-2016
Signal Generator	Keysight	N5182B	MY53051549	03-31-2015	03-30-2016
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-13-2015	01-12-2016
High-pass filter(5-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-13-2015	01-12-2016
band rejection filter (GSM900)	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-13-2015	01-12-2016
band rejection filter (GSM850)	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-13-2015	01-12-2016
band rejection filter (GSM1800)	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-13-2015	01-12-2016
band rejection filter (GSM1900)	Sinoscite	FL5CX02CA03C L12-0394-001	---	01-13-2015	01-12-2016
DC Power	Keysight	E3642A	MY54436035	03-31-2015	03-30-2016
PC-1	Lenovo	R4960d	---	04-01-2015	03-31-2016
BT&WI-FI Automatic control	R&S	OSPB157	101374	04-01-2015	03-31-2016
RF control unit	JS Tonscend	JS0806-2	2015860006	04-01-2015	03-31-2016
BT&WI-FI Automatic test software	JS Tonscend	JSTS1120-2	---	04-01-2015	03-31-2016

Conducted Spurious Emission					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Spectrum Analyzer	R&S	FSP40	100416	07-08-2014	07-07-2015
Spectrum Analyzer	R&S	FSP40	100416	07-08-2015	07-072016
Receiver	R&S	ESCI	100435	07-08-2014	07-07-2015
Receiver	R&S	ESCI	100435	07-08-2015	07-07-2016
Noise generator	Beijing daming jidian	DM1661	126001	04-01-2015	03-31-2016
Attenuator	HuaXiang	INMET64671	INMET64671	04-01-2015	03-31-2016
Signal Generator	Agilent	E4438C	MY45095744	04-19-2015	04-18-2016
Attenuator	HuaXiang	SHX370	15040701	04-01-2015	03-31-2016
Signal Generator	Keysight	E8257D	MY53401106	04-14-2015	04-13-2016
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-13-2015	01-12-2016
High-pass filter(5-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-13-2015	01-12-2016
band rejection filter (GSM900)	Sinoscite	FL5CX01CA09 CL12-0395-001	---	01-13-2015	01-12-2016
band rejection filter (GSM850)	Sinoscite	FL5CX01CA08 CL12-0393-001	---	01-13-2015	01-12-2016
band rejection filter (GSM1800)	Sinoscite	FL5CX02CA04 CL12-0396-002	---	01-13-2015	01-12-2016

Radiated Spurious Emission & Radiated Emission(3M Semi-anechoic Chamber (2))					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-02-2013	06-01-2016
TRILOG Broadband Antenna	SCHWARZBECK	VULB9163	9163-617	07-13-2014	07-12-2015
TRILOG Broadband Antenna	SCHWARZBECK	VULB9163	9163-617	07-13-2015	07-12-2016
Microwave Preamplifier	Agilent	8449B	3008A02425	02-05-2015	02-04-2016
Horn Antenna	ETS-LINDGREN	3117	00057410	07-07-2015	07-06-2016
Loop Antenna	ETS	6502	00071730	07-22-2014	07-21-2015
Loop Antenna	ETS	6502	00071730	07-22-2015	07-21-2016
Spectrum Analyzer	R&S	FSP40	100416	07-08-2014	07-07-2015
Spectrum Analyzer	R&S	FSP40	100416	07-08-2015	07-07-2016
Receiver	R&S	ESCI	100435	07-08-2014	07-07-2015
Receiver	R&S	ESCI	100435	07-08-2015	07-07-2016
Multi device Controller	maturo	NCD/070/10711112	---	01-13-2015	01-12-2016
LISN	schwarzbeck	NNBM8125	81251547	07-08-2014	07-07-2015
LISN	schwarzbeck	NNBM8125	81251547	07-08-2015	07-07-2016
LISN	schwarzbeck	NNBM8125	81251546	07-08-2014	07-07-2015
LISN	schwarzbeck	NNBM8125	81251546	07-08-2015	07-07-2016
Signal Generator	Agilent	E4438C	MY45095744	04-19-2015	04-18-2016
Signal Generator	Keysight	E8257D	MY53401106	04-14-2015	04-13-2016
Temperature/ Humidity Indicator	TAYLOR	1451	5190	07-09-2014	07-06-2015
Temperature/ Humidity Indicator	TAYLOR	1451	5190	07-09-2015	07-06-2016
Communication test set	Agilent	E5515C	GB47050533	01-13-2015	01-12-2016
Cable line	Fulai(7M)	SF106	5219/6A	01-13-2015	01-12-2016
Cable line	Fulai(6M)	SF106	5220/6A	01-13-2015	01-12-2016
Cable line	Fulai(3M)	SF106	5216/6A	01-13-2015	01-12-2016
Cable line	Fulai(3M)	SF106	5217/6A	01-13-2015	01-12-2016
Communication test set	R&S	CMW500	152394	04-19-2015	04-18-2016
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18NM12-0398-002	---	01-13-2015	01-12-2016
High-pass filter(5-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-13-2015	01-12-2016
band rejection filter (GSM900)	Sinoscite	FL5CX01CA09CL12-0395-001	---	01-13-2015	01-12-2016

band rejection filter (GSM850)	Sinoscite	FL5CX01CA 08CL12-0393-001	---	01-13-2015	01-12-2016
band rejection filter (GSM1800)	Sinoscite	FL5CX02CA 04CL12-0396-002	---	01-13-2015	01-12-2016
band rejection filter (GSM1900)	Sinoscite	FL5CX02CA 03CL12-0394-001	---	01-13-2015	01-12-2016

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C (2014)	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicesed Wireless Devices

Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (a)(2)	ANSI C63.10	6dB Occupied Bandwidth	PASS	Appendix A)
Part15C Section 15.247 (b)(3)	ANSI C63.10	Conducted Peak Output Power	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10	Band-edge for RF Conducted Emissions	PASS	Appendix C)
Part15C Section 15.247(d)	ANSI C63.10	RF Conducted Spurious Emissions	PASS	Appendix D)
Part15C Section 15.247 (e)	ANSI C63.10	Power Spectral Density	PASS	Appendix E)
Part15C Section 15.203/15.247 (c)	ANSI C63.10	Antenna Requirement	PASS	Appendix F)
Part15C Section 15.207	ANSI C63.10	AC Power Line Conducted Emission	PASS	Appendix G)
Part15C Section 15.205/15.209	ANSI C63.10	Restricted bands around fundamental frequency (Radiated Emission)	PASS	Appendix H)
Part15C Section 15.205/15.209	K ANSI C63.10	Radiated Spurious Emissions	PASS	Appendix H)

Appendix A) 6dB Occupied Bandwidth

Test Result

Mode	Channel	6dB Bandwidth [MHz]	99% OBW[MHz]	Verdict
BLE	LCH	0.7089	1.0699	PASS
BLE	MCH	0.8002	1.0718	PASS
BLE	HCH	0.7205	1.0665	PASS

Remark: Peak detector is used.

Test Graphs

Graphs		
LCH		
MCH		
HCH		

Appendix B) Conducted Peak Output Power

Test Result

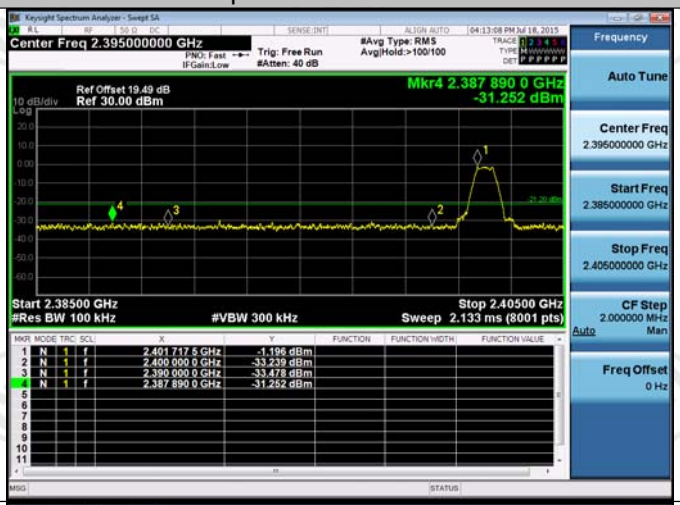
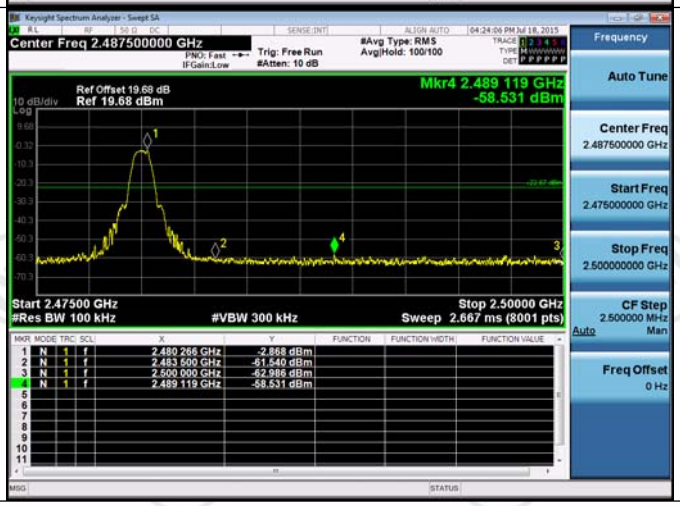
Mode	Channel	Conduct Peak Power[dBm]	Verdict
BLE	LCH	1.430	PASS
BLE	MCH	1.274	PASS
BLE	HCH	0.309	PASS

Test Graphs

Graphs			
LCH			
MCH			
HCH			

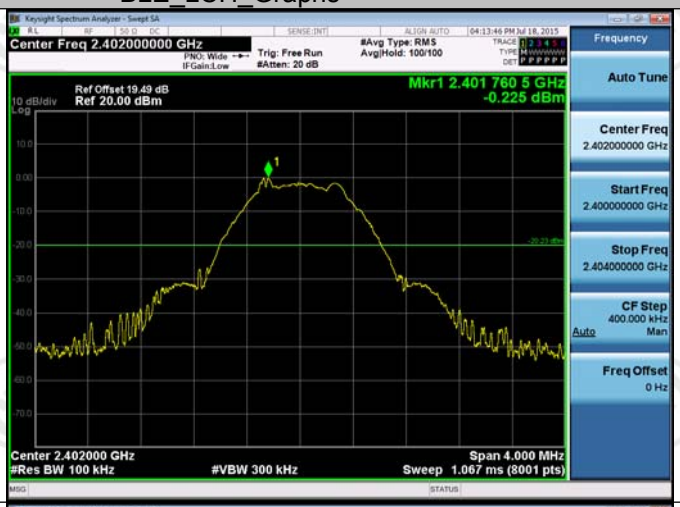
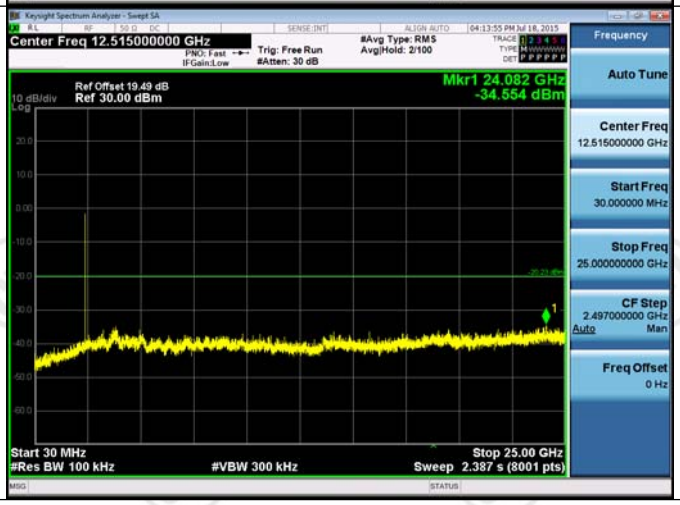
Appendix C) Band-edge for RF Conducted Emissions

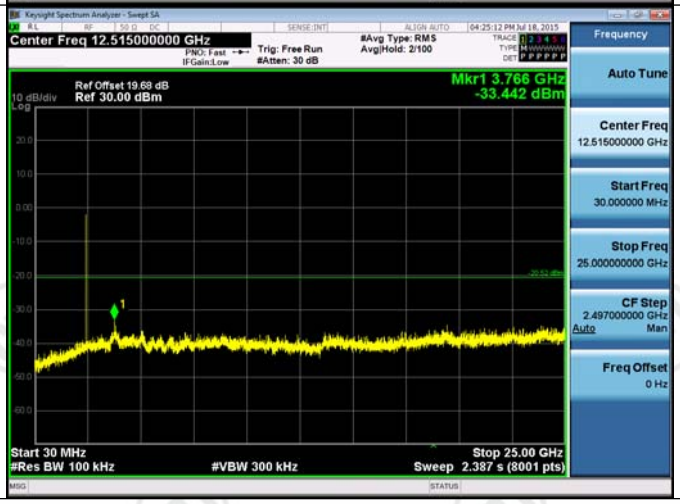
Test Graphs

Graphs			
LCH			
HCH			

Appendix D) RF Conducted Spurious Emissions

Test Graphs

BLE_LCH_Graphs			
Pref/BLE/LCH			
Puw/BLE/LCH			

BLE_MCH_Graphs		
Pref/BLE/MCH		
Puw/BLE/MCH		

BLE_HCH_Graphs		
Pref/BLE/HCH		

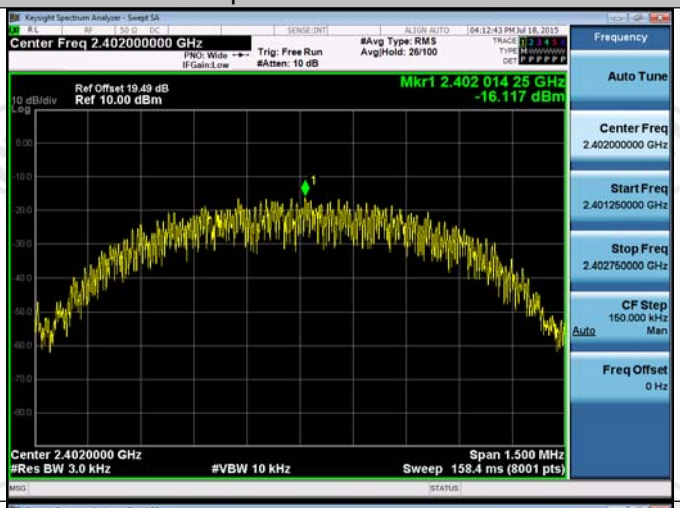
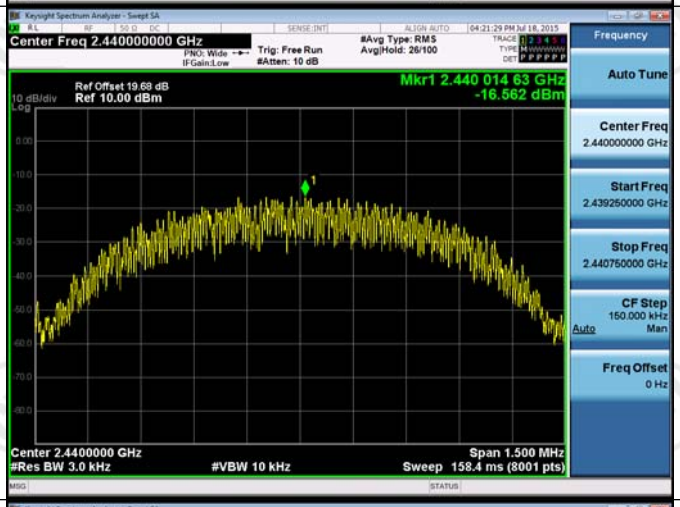
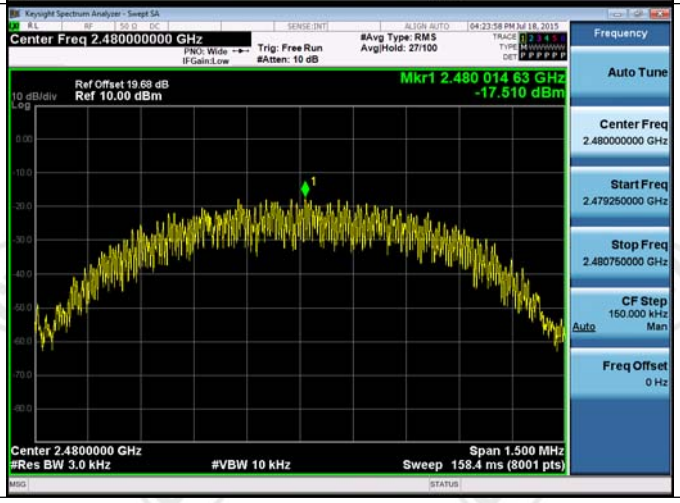
Puw/BLE/HCH		 Keysight Spectrum Analyzer - Swept SA Center Freq 12.515000000 GHz PNO: Fast IFGain:Low Trig: Free Run #Atten: 30 dB #Avg Type: RMS Avg|Hold: 6/100 Ref Offset 19.68 dB 10 dB/div Ref 30.00 dBm Log Mkr1 23.839 GHz -33.354 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 25.00 GHz Sweep 2.387 s (8001 pts) Frequency Auto Tune Center Freq 12.515000000 GHz Start Freq 30.000000 MHz Stop Freq 25.000000000 GHz CF Step 2.497000000 GHz Auto Man Freq Offset 0 Hz

Appendix E) Power Spectral Density

Result Table

Mode	Channel	PSD [dBm]	Verdict
BLE	LCH	-16.117	PASS
BLE	MCH	-16.562	PASS
BLE	HCH	-17.510	PASS

Test Graphs

Graphs		
LCH		
MCH		
HCH		

Appendix F)Antenna Requirement

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. 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.

EUT Antenna:	
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.	

Appendix G)AC Power Line Conducted Emission

Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 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, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
Limit:	

Frequency range (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

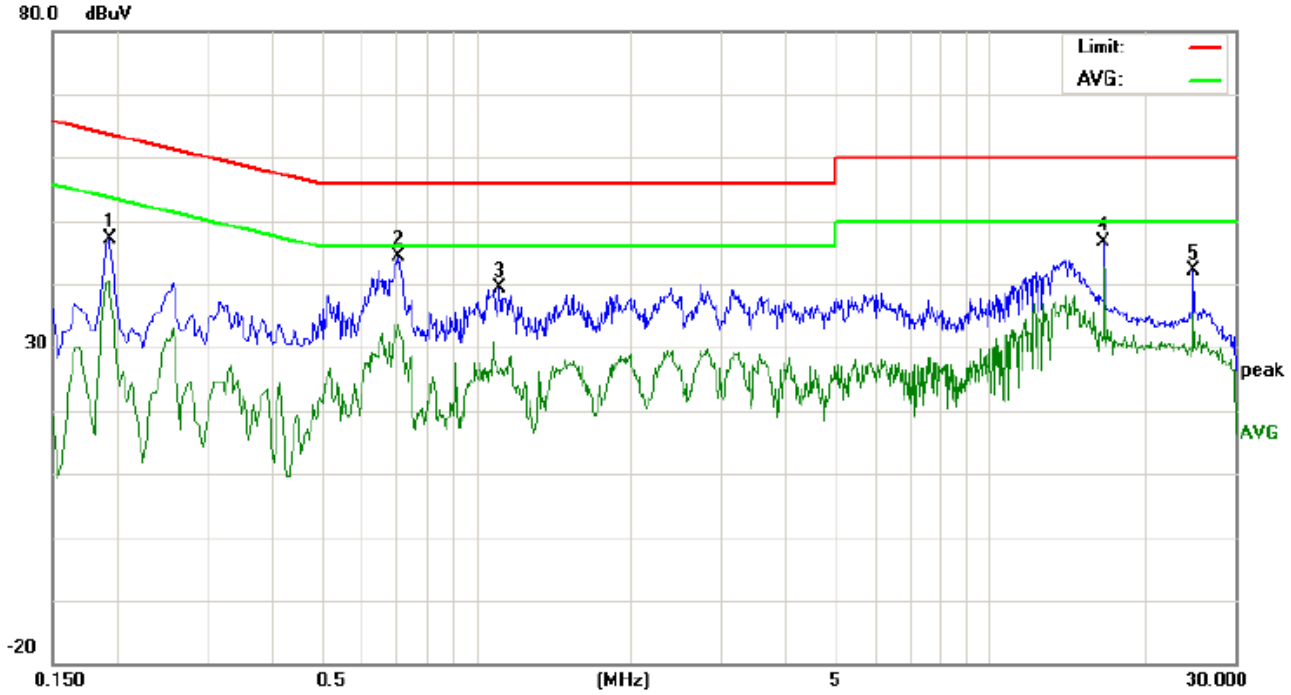
* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.
NOTE : The lower limit is applicable at the transition frequency

Measurement Data
An initial pre-scan was performed on the live and neutral lines with peak detector.
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Test data:

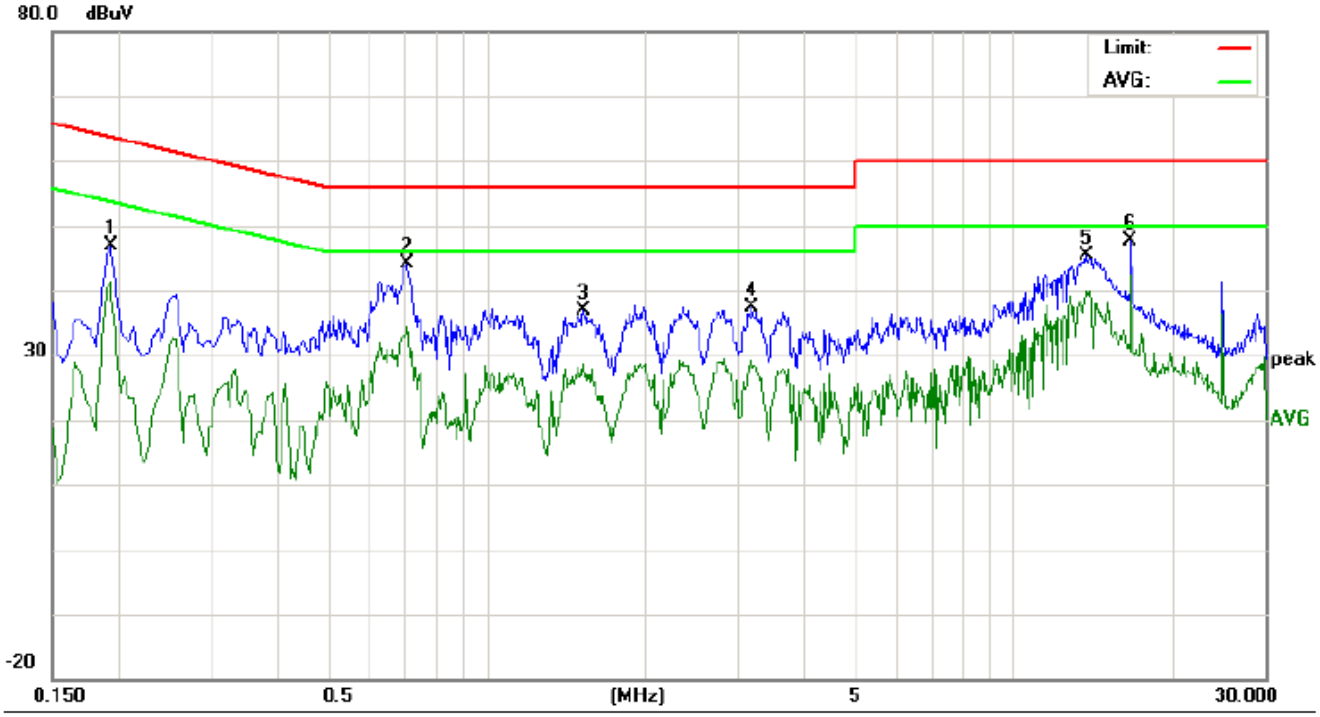
Product	:	BOOM TOWER	**Model/Type reference**	:	SC3003
Power	:	AC 120V/60Hz	**Temperature**	:	24℃
Mode	:	Keeping TX and Charging	**Humidity**	:	55%

Live line:



No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	0.1940	37.32		30.55	9.90	47.22		40.45	63.86	53.86	-16.64	-13.41	P	
2	0.7060	34.53		23.80	9.90	44.43		33.70	56.00	46.00	-11.57	-12.30	P	
3	1.1140	29.60		15.95	9.90	39.50		25.85	56.00	46.00	-16.50	-20.15	P	
4	16.6980	36.60		32.49	10.07	46.67		42.56	60.00	50.00	-13.33	-7.44	P	
5	25.0500	31.83		24.82	10.30	42.13		35.12	60.00	50.00	-17.87	-14.88	P	

Neutral line:



No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	0.1940	37.09		31.41	9.90	46.99		41.31	63.86	53.86	-16.87	-12.55	P	
2	0.7060	34.35		23.59	9.90	44.25		33.49	56.00	46.00	-11.75	-12.51	P	
3	1.5339	27.04		18.63	9.90	36.94		28.53	56.00	46.00	-19.06	-17.47	P	
4	3.2060	27.39		19.14	9.90	37.29		29.04	56.00	46.00	-18.71	-16.96	P	
5	13.7180	35.36		29.21	9.93	45.29		39.14	60.00	50.00	-14.71	-10.86	P	
6	16.6980	37.44		32.41	10.07	47.51		42.48	60.00	50.00	-12.49	-7.52	P	

Appendix H)Restricted bands around fundamental frequency (Radiated)/ Radiated Spurious Emissions

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120 kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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, whichwas mounted on the top of a variable-height antenna tower.
c. The antenna height 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
j. Repeat above procedures until all frequencies measured was complete.

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Radiated Spurious Emissions test Data:

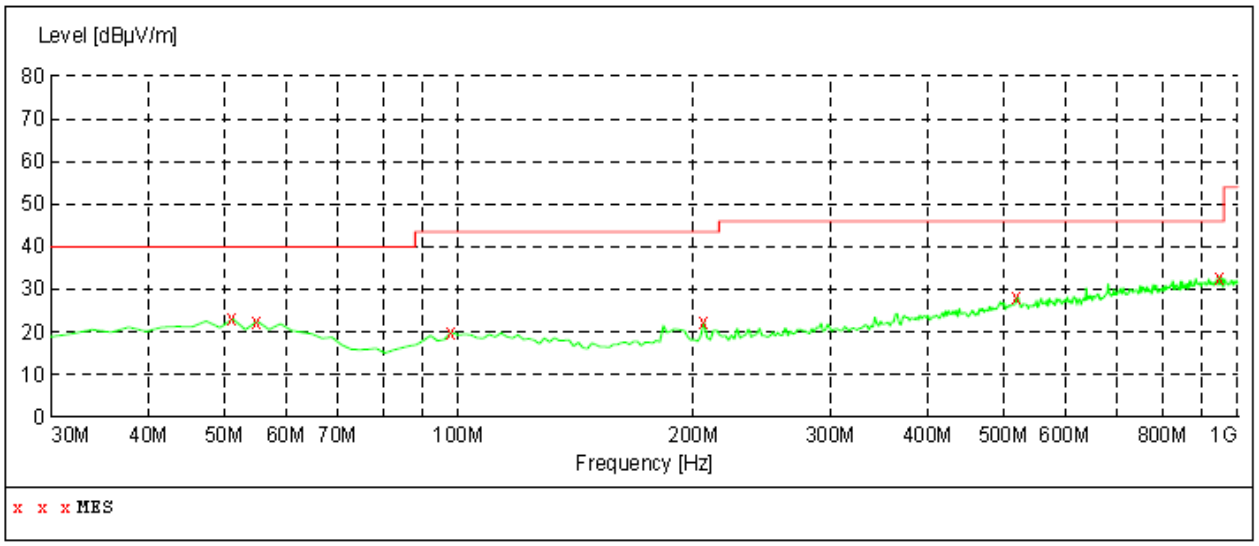
All the modes of operation (X, Y, Z) were investigated and the worst-case emissions are reported.

A. Below 30MHz:

No emissions were found higher than the background below 30MHz and background is lower than the limit, so it deems to compliance with the limit without recorded.

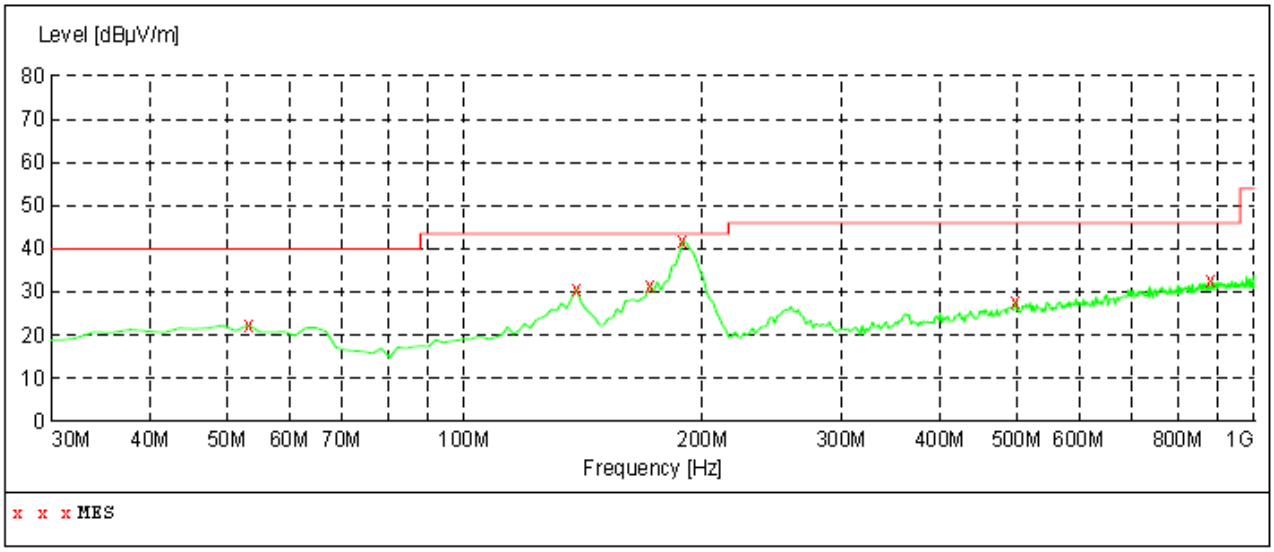
B. 30MHz ～ 1GHz:

The test data of low channel, middle channel and high channel are almost same in frequency bands 30MHz to 1GHz, and the data of middle channel (GFSK mode) are worse case as representative in below:



MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
51.340000	23.10	16.3	40.0	16.9	---	200.0	95.00	HORIZONTAL
55.220000	22.50	15.8	40.0	17.5	---	100.0	291.00	HORIZONTAL
97.900000	20.00	14.4	43.5	23.5	---	200.0	291.00	HORIZONTAL
206.540000	22.30	13.9	43.5	21.2	---	200.0	54.00	HORIZONTAL
520.820000	28.20	21.6	46.0	17.8	---	100.0	21.00	HORIZONTAL
947.620000	32.90	26.7	46.0	13.1	---	200.0	135.00	HORIZONTAL



MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.280000	22.40	16.1	40.0	17.6	---	200.0	106.00	VERTICAL
138.640000	30.70	12.0	43.5	12.8	---	100.0	67.00	VERTICAL
171.620000	31.60	12.5	43.5	11.9	---	100.0	67.00	VERTICAL
189.080000	41.80	13.3	43.5	1.7	---	100.0	163.00	VERTICAL
499.480000	27.90	21.5	46.0	18.1	---	100.0	67.00	VERTICAL
883.600000	32.60	26.5	46.0	13.4	---	200.0	158.00	VERTICAL

C. **Above 1GHz:**

Test Results-(Measurement Distance: 3m)_Channel low_2402MHz_GFSK mode:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
2390.0	37.76	74	PK	H	P
2400.0	42.56	74	PK	H	P
2402.0*	81.52	---	PK	H	P
4804.0	47.09	74	PK	H	P
2390.0	37.33	74	PK	V	P
2400.0	40.77	74	PK	V	P
2402.0*	83.06	---	PK	V	P
4804.0	45.48	74	PK	V	P

*: fundamental frequency

Test Results-(Measurement Distance: 3m)_Channel middle_2440MHz_GFSK mode:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
2440.0*	84.02	---	PK	H	P
4880.0	46.32	74	PK	H	P
2440.0*	84.76	---	PK	V	P
4880.0	45.78	74	PK	V	P

*: fundamental frequency

Test Results-(Measurement Distance: 3m)_Channel high_2480MHz_GFSK mode:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
2480.0*	83.32	---	PK	H	P
2483.5	42.76	74	PK	H	P
4960.0	46.33	74	PK	H	P
2480.0*	84.75	---	PK	V	P
2483.5	42.68	74	PK	V	P
4960.0	45.77	74	PK	V	P

*: fundamental frequency

Remark:

1. The above tables show that the frequencies peak data are all below the average limit, so the average data of these frequencies are deems to fulfill the average limits and not reported.
2. All the modes have been tested and the worst data of GFSK mode are chosen as above.
3. No emission found from 18GHz to 25GHz.
4. All outside of operating frequency band and restricted band specified are below 15.209.

PHOTOGRAPHS OF TEST SETUP

Test mode No.: SC3003

Conducted Emission Test Setup

Radiated spurious emission Test Setup-1(Below 1GHz)

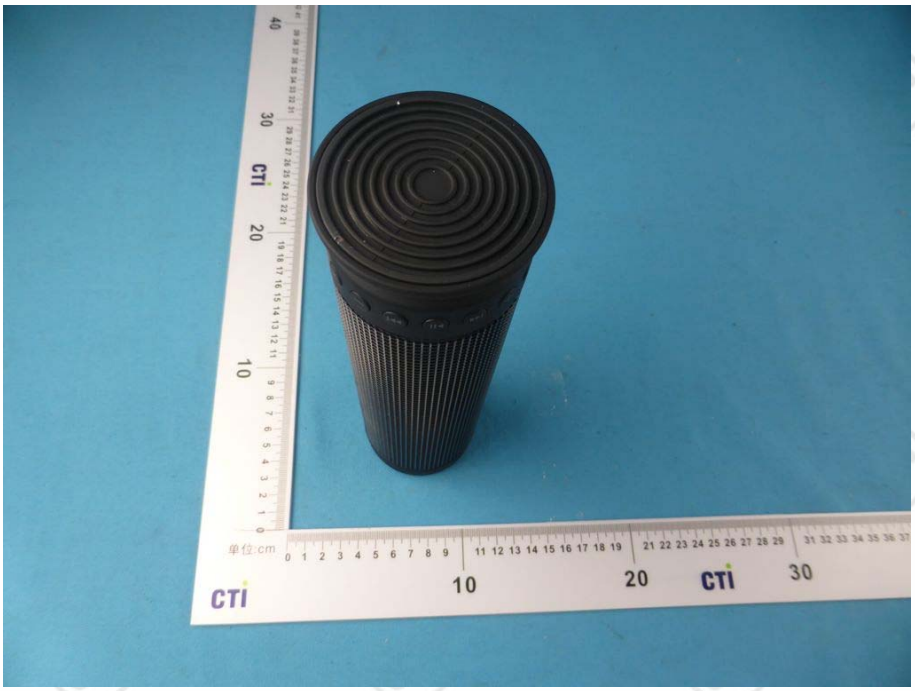
Radiated spurious emission Test Setup-2(Above 1GHz)

PHOTOGRAPHS OF EUT Constructional Details

View of Product-1

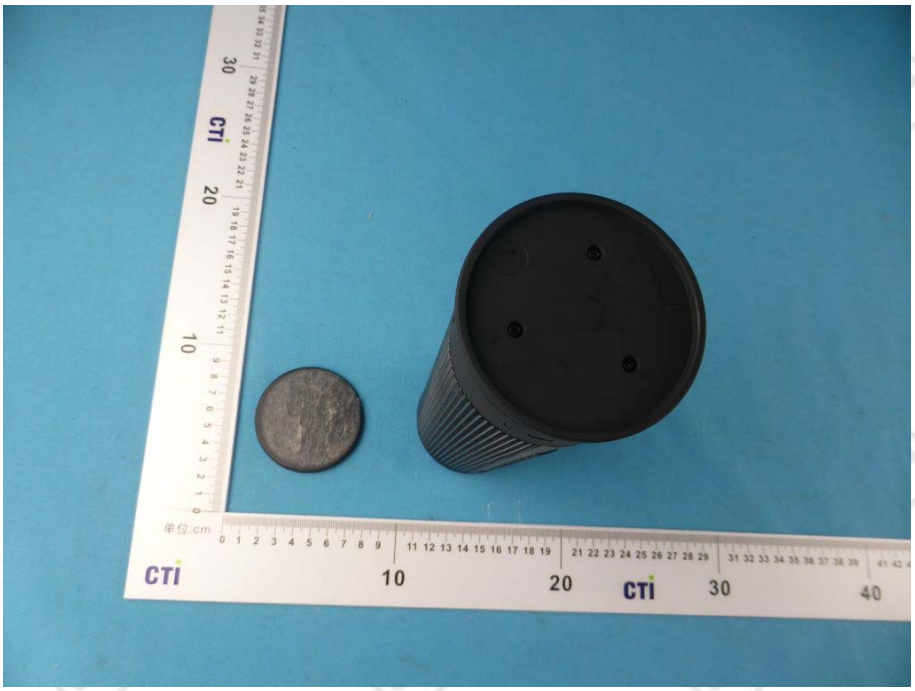
View of Product-2

View of Product-3

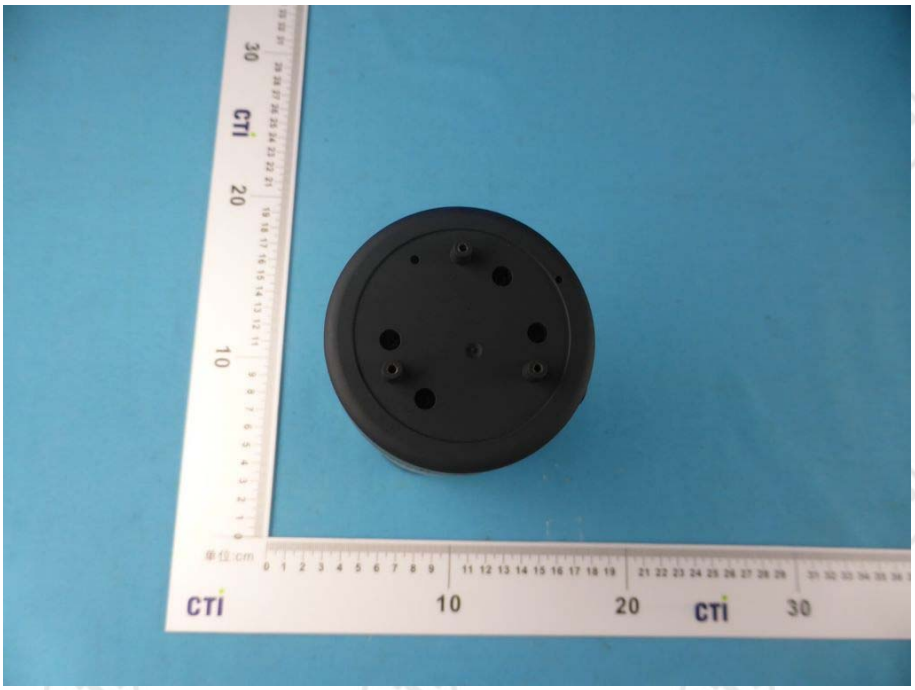


View of Product-4

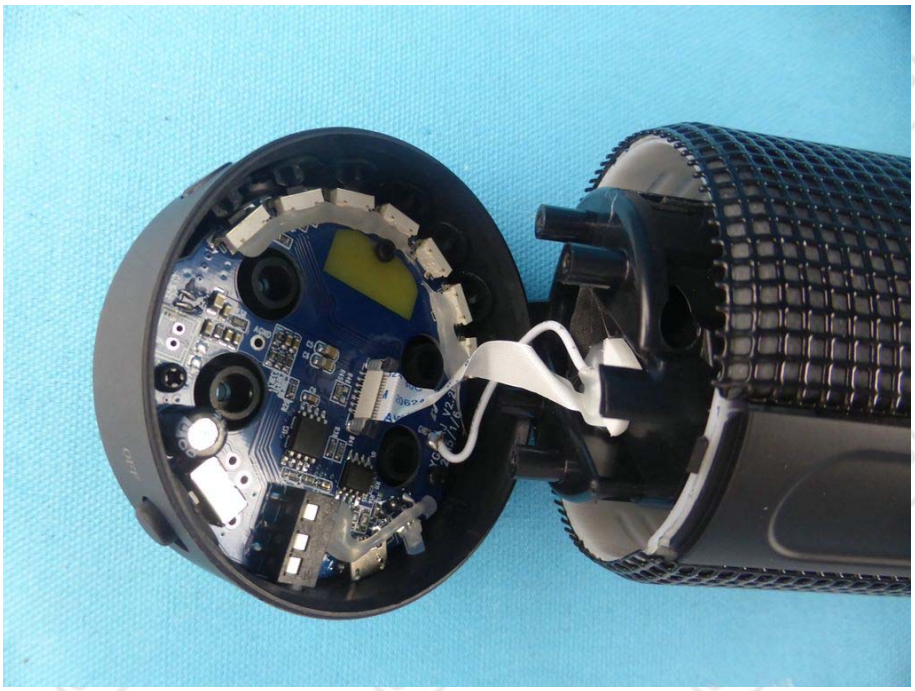
View of Product-5



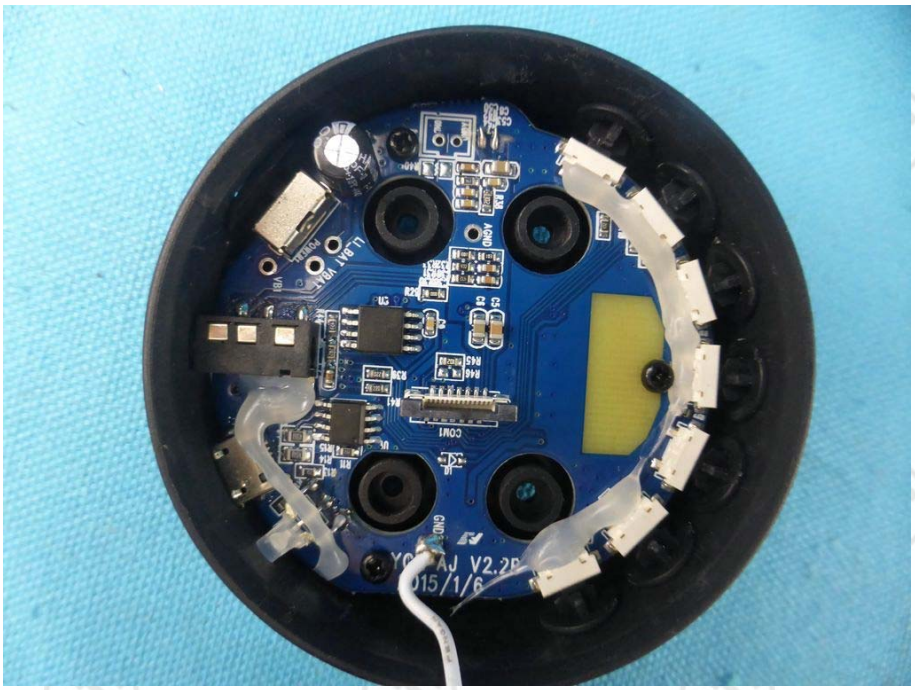
View of Product-6



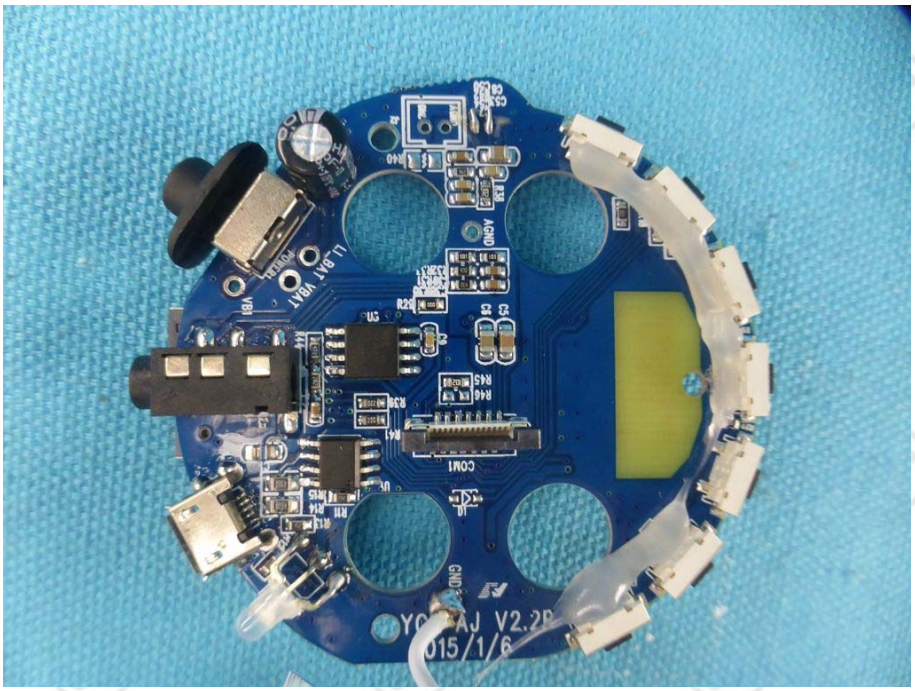
View of Product-7



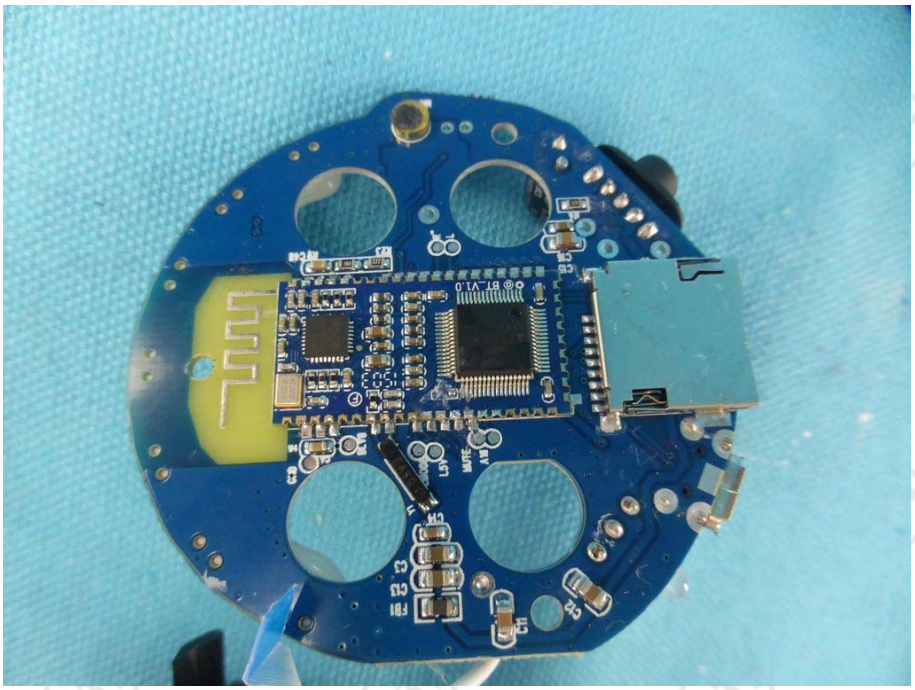
View of Product-8



View of Product-9

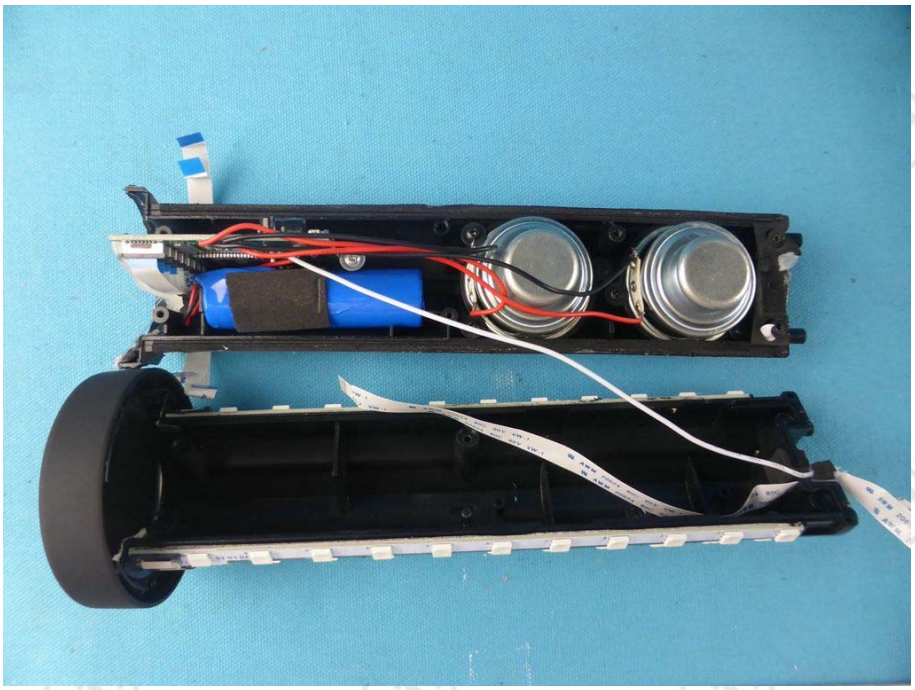


View of Product-10

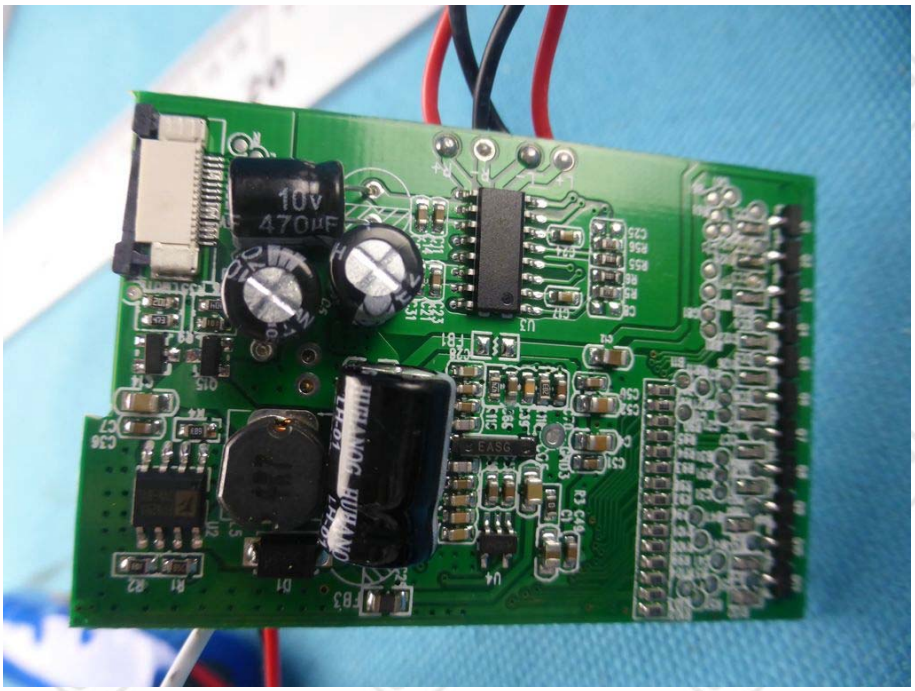


View of Product-11

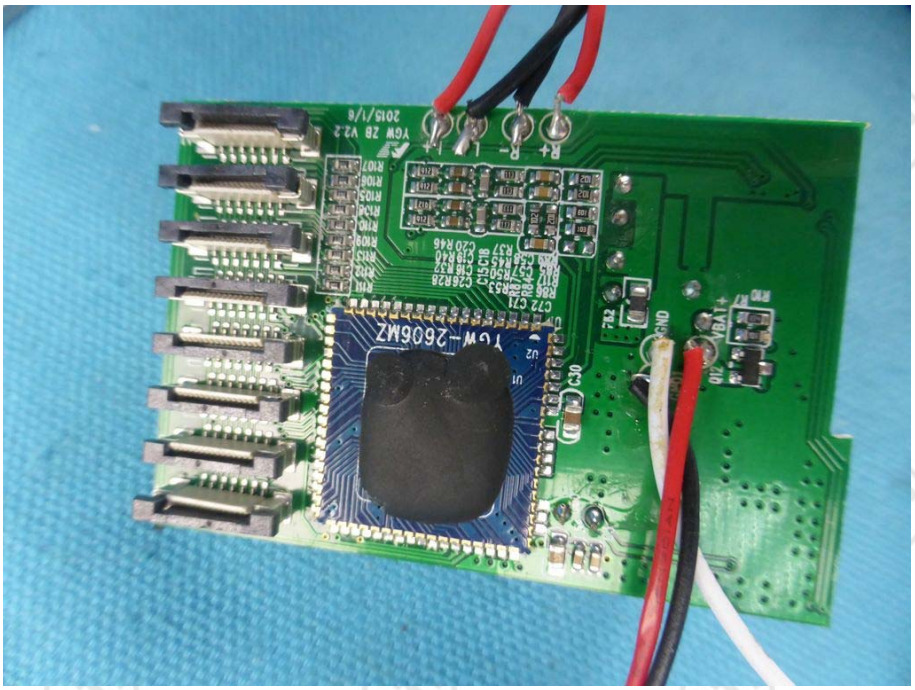
View of Product-12



View of Product-13



View of Product-14



View of Product-15

View of Product-16

*** End of Report ***

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