TEST REPORT

Product	:	Nanoleaf Remote
Trade mark	:	Nanoleaf
Model/Type reference	:	NL26-0001, NL26-XXXX
Serial Number	:	N/A
Report Number	:	EED32J00292101
FCC ID	:	2AEWY-NL26
Date of Issue	:	Jan. 30, 2018
Test Standards	:	47 CFR Part 15 Subpart C
Test result	:	PASS

Prepared for:

NANOGRID LIMITED
ROOM 1405, 135 BONHAM STRAND TRADE CENTRE,
135 BONHAM STRAND, SHEUNG WAN, HONG KONG

Prepared by:

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Tested By:	Tom chen (Test Project)	Compiled by:	Kevin Ian (Project Engineer)
Reviewed by:	Kevin yang (Reviewer)	Approved by:	Sheek Luo (Lab supervisor)
Date:	Jan. 30, 2018		Check No.:2457547922

CENTRE TESTING INTERNATIONAL GROUP CO.,LTD. Report Seal

2 Version

Version No.	Date	Description
00	Jan. 30, 2018	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	N/A
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

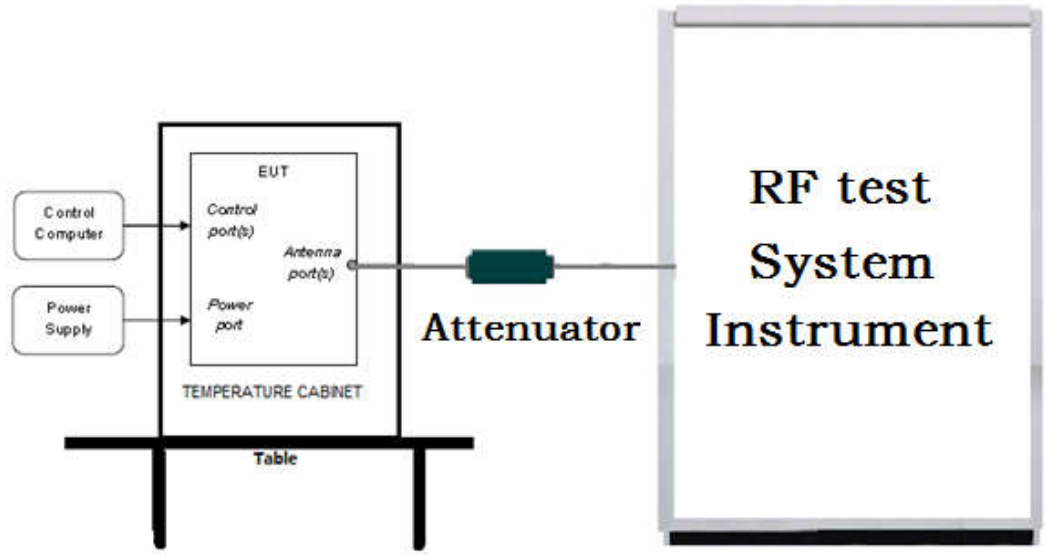
Remark:
Test according to ANSI C63.4-2014 & ANSI C63.10-2013.
The tested sample(s) and the sample information are provided by the client.
N/A: The device is only battery operated, the test related AC mains is not applicable.
Model No.:NL26-0001, NL26-XXXX
Only the model L26-0001 was tested, 1st, 2nd, 3rd, and 4th "X" denote country or/and region codes where each "X" to be replaced by the alphanumeric codes from 0 - 9 or A - Z, which are only for marketing purposes.

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:

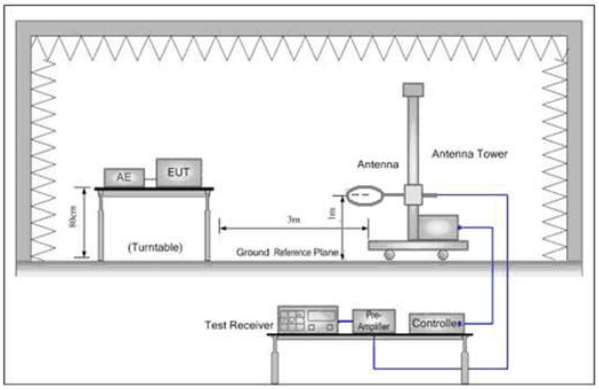


Figure 1. Below 30MHz

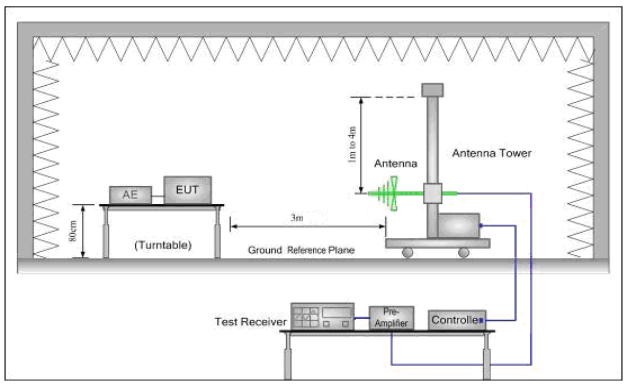


Figure 2. 30MHz to 1GHz

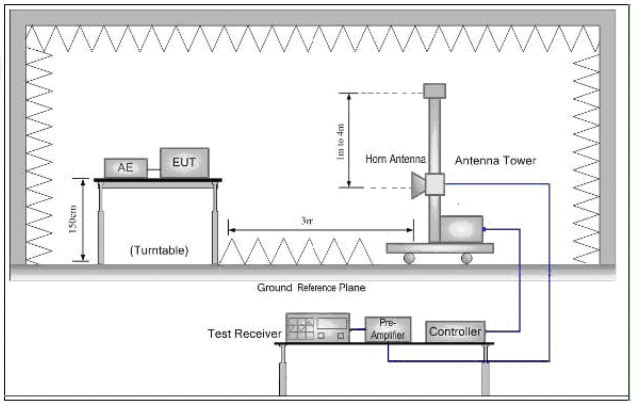
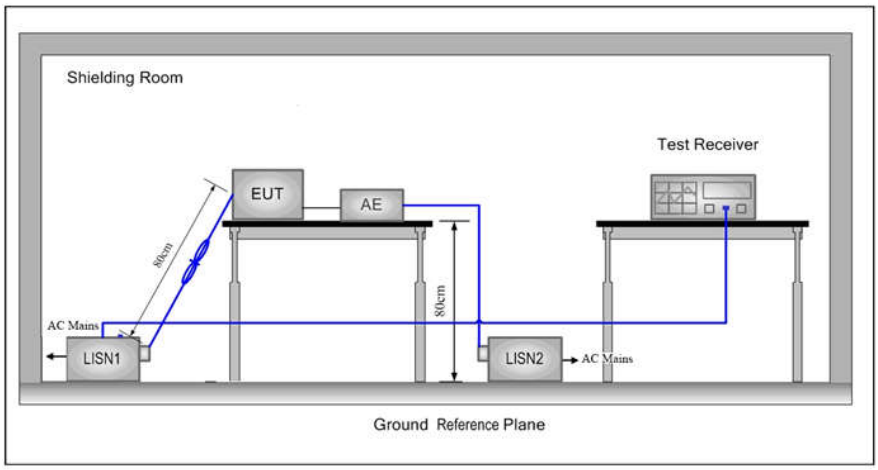


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	23.4 °C
Humidity:	40 % RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test channel:

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

6 General Information

6.1 Client Information

Applicant:	NANOGRID LIMITED
Address of Applicant:	ROOM 1405, 135 BONHAM STRAND TRADE CENTRE, 135 BONHAM STRAND, SHEUNG WAN, HONG KONG
Manufacturer:	NANOGRID LIMITED
Address of Manufacturer:	ROOM 1405, 135 BONHAM STRAND TRADE CENTRE, 135 BONHAM STRAND, SHEUNG WAN, HONG KONG
Factory:	Seveco Global Limited
Address of Factory:	No. 1, Jianxiang Street, Hanxishui Village, Chashan Town, Dongguan City, Guangdong Province, P.R. China,

6.2 General Description of EUT

Product Name:	Nanoleaf Remote
Model No.(EUT):	NL26-0001, NL26-XXXX
Test Model No.:	NL26-0001
Trade mark:	Nanoleaf
EUT Supports Radios application:	BT: 4.2 Signal mode, 2402-2480MHz
Power Supply:	Battery:2*1.5(AA)=3.0V
Sample Received Date:	Dec. 20, 2017
Sample tested Date:	Dec. 20, 2017 to Jan. 29, 2018

6.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	4.2
Modulation Technique:	DSSS
Modulation Type:	GFSK
Number of Channel:	40
Sample Type:	Portable production
Test Power Grade:	TX 0
Test Software of EUT:	Secure CRT
Antenna Type and Gain:	Type: PCB Antenna; Gain: 2.15dBi
Test Voltage:	Battery:2*1.5(AA)=3.0V
Hardware Version:	PCB-FZ021-V2.2
Firmware Version:	0.8.4

6.4 Description of Support Units

The EUT has been tested independently.

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101
Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385
No tests were sub-contracted.
FCC Designation No.: CN1164

6.6 Deviation from Standards

None.

6.7 Abnormalities from Standard Conditions

None.

6.8 Other Information Requested by the Customer

None.

6.9 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**	**Model No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Signal Generator	Keysight	E8257D	MY53401106	03-14-2017	03-13-2018
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-14-2017	03-13-2018
Signal Generator	Keysight	N5182B	MY53051549	03-14-2017	03-13-2018
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2017	01-11-2018
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-10-2018	01-09-2019
DC Power	Keysight	E3642A	MY54436035	03-14-2017	03-13-2018
power meter & power sensor	R&S	OSP120	101374	03-14-2017	03-13-2018
RF control unit	JS Tonscend	JS0806-2	158060006	03-14-2017	03-13-2018
BT&WI-FI Automatic test software	JS Tonscend	JS1120-2	---	03-14-2017	03-13-2018

3M Semi/full-anechoic Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-05-2016	06-05-2019
TRILOG Broadband Antenna	SCHWARZBECK	VULB9163	9163-401	05-02-2017	05-01-2018
Microwave Preamplifier	Agilent	8449B	3008A02425	02-16-2017	02-15-2018
Horn Antenna	ETS-LINDGREN	3117	00057407	07-20-2015	07-18-2018
Loop Antenna	ETS	6502	00071730	06-22-2017	06-21-2019
Spectrum Analyzer	R&S	FSP40	100416	06-13-2017	06-12-2018
Receiver	R&S	ESCI	100435	06-14-2017	06-13-2018
LISN	schwarzbeck	NNBM8125	81251547	06-13-2017	06-12-2018
LISN	schwarzbeck	NNBM8125	81251548	06-13-2017	06-12-2018
Signal Generator	Agilent	E4438C	MY45095744	03-14-2017	03-13-2018
Signal Generator	Keysight	E8257D	MY53401106	03-14-2017	03-13-2018
Temperature/ Humidity Indicator	TAYLOR	1451	1905	05-08-2017	05-07-2018
Communication test set	Agilent	E5515C	GB47050534	04-01-2017	03-31-2018
Cable line	Fulai(7M)	SF106	5219/6A	01-12-2017	01-11-2018
Cable line	Fulai(7M)	SF106	5219/6A	01-09-2018	01-08-2019
Cable line	Fulai(6M)	SF106	5220/6A	01-12-2017	01-11-2018
Cable line	Fulai(6M)	SF106	5220/6A	01-09-2018	01-08-2019
Cable line	Fulai(3M)	SF106	5216/6A	01-12-2017	01-11-2018
Cable line	Fulai(3M)	SF106	5216/6A	01-09-2018	01-08-2019
Cable line	Fulai(3M)	SF106	5217/6A	01-12-2017	01-11-2018
Cable line	Fulai(3M)	SF106	5217/6A	01-09-2018	01-08-2019
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2017	01-11-2018
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX01CA09 CL12-0395-001	---	11-06-2017	11-05-2018
band rejection filter	Sinoscite	FL5CX01CA08 CL12-0393-001	---	11-06-2017	11-05-2018
band rejection filter	Sinoscite	FL5CX02CA04 CL12-0396-002	---	11-06-2017	11-05-2018
band rejection filter	Sinoscite	FL5CX02CA03 CL12-0394-001	---	11-06-2017	11-05-2018

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C (2015)	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicesed Wireless Devices

Test Results List:

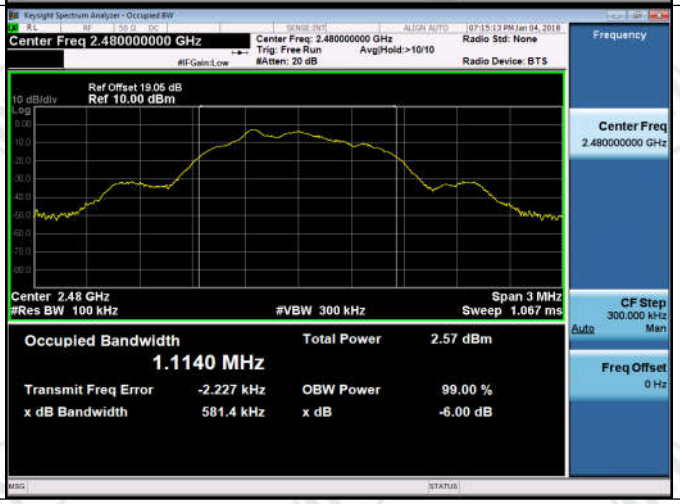
Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (a)(2)	ANSI C63.10	6dB Occupied Bandwidth	PASS	Appendix A)
Part15C Section 15.247 (b)(3)	ANSI C63.10	Conducted Peak Output Power	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10	Band-edge for RF Conducted Emissions	PASS	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	N/A	N/A
Part15C Section 15.205/15.209	ANSI C63.10	Restricted bands around fundamental frequency (Radiated Emission)	PASS	Appendix G)
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	Remark
BLE	LCH	0.5866	1.1156	PASS	Peak detector
BLE	MCH	0.5871	1.1149	PASS	
BLE	HCH	0.5814	1.1140	PASS	

Test Graphs

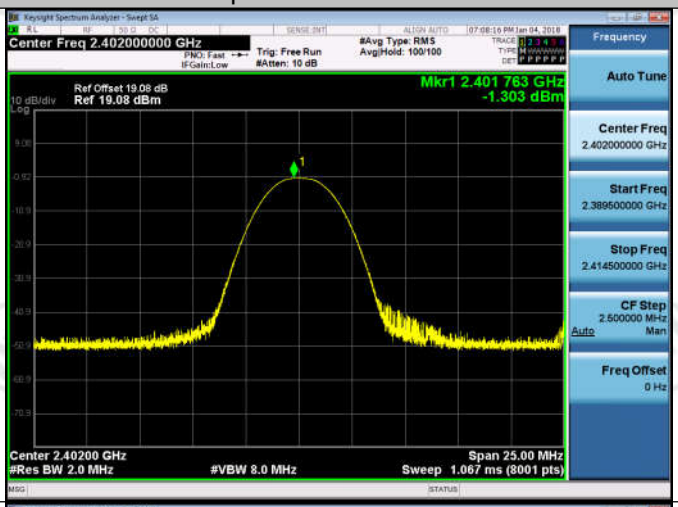
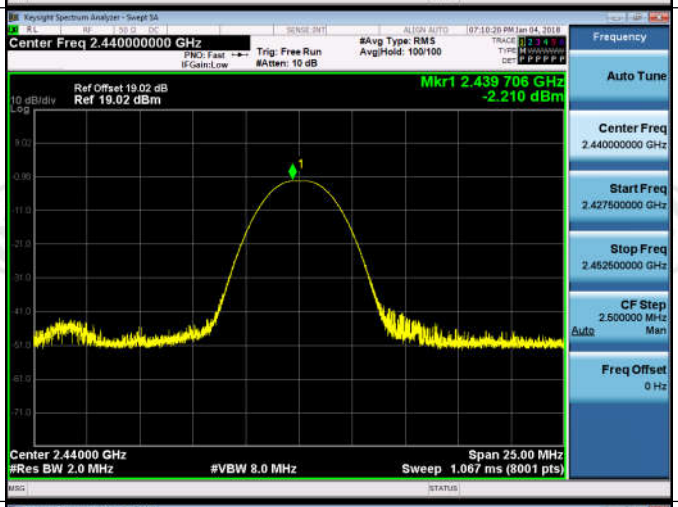
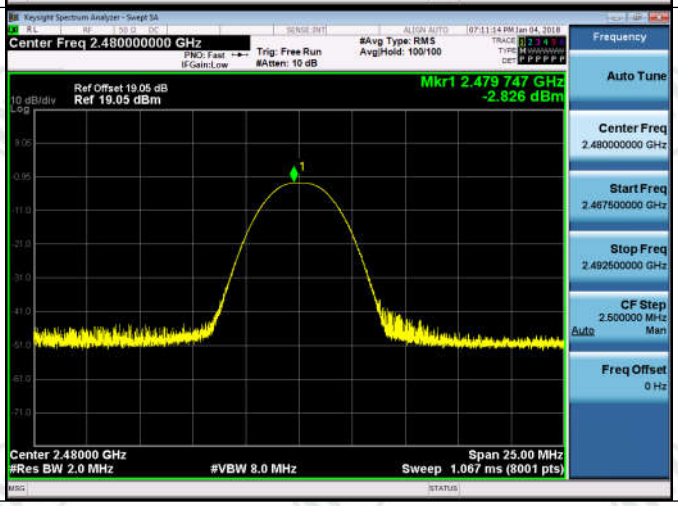
Graphs		
LCH		
MCH		
HCH		

Appendix B): Conducted Peak Output Power

Test Result

Mode	Channel	Conduct Peak Power[dBm]	Verdict
BLE	LCH	-1.303	PASS
BLE	MCH	-2.210	PASS
BLE	HCH	-2.826	PASS

Test Graphs

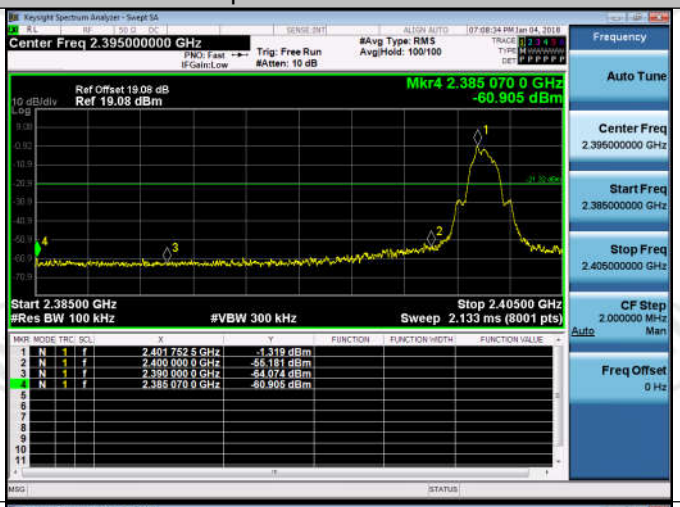
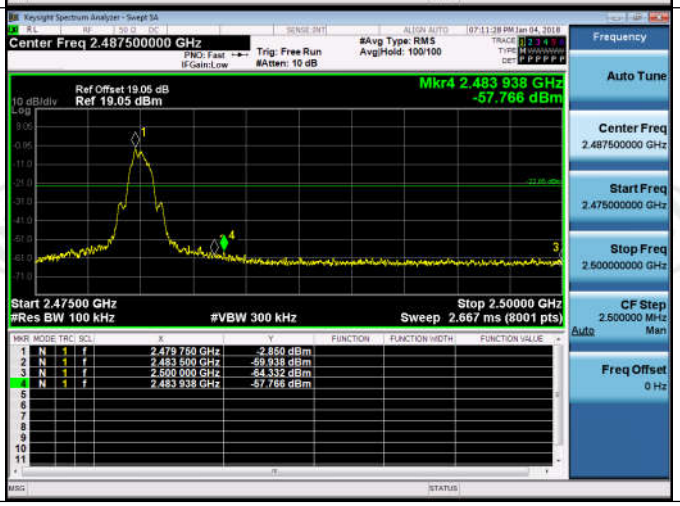
Graphs		
LCH		
MCH		
HCH		

Appendix C): Band-edge for RF Conducted Emissions

Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BLE	LCH	-1.319	-60.905	-21.32	PASS
BLE	HCH	-2.850	-57.766	-22.85	PASS

Test Graphs

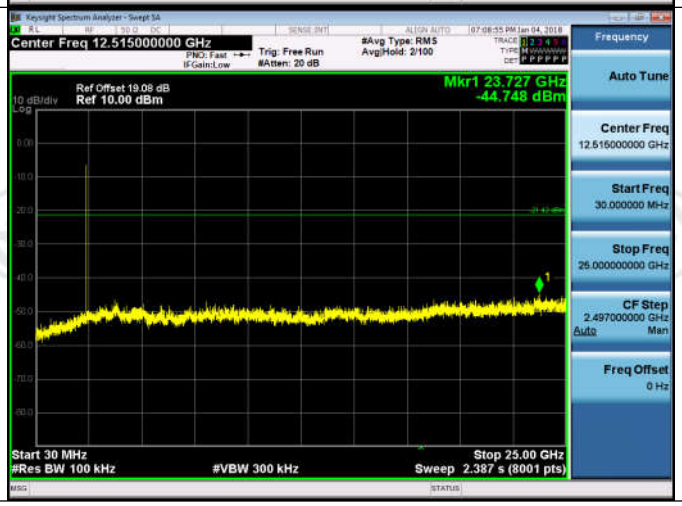
Graphs			
LCH			
HCH			

Appendix D): RF Conducted Spurious Emissions

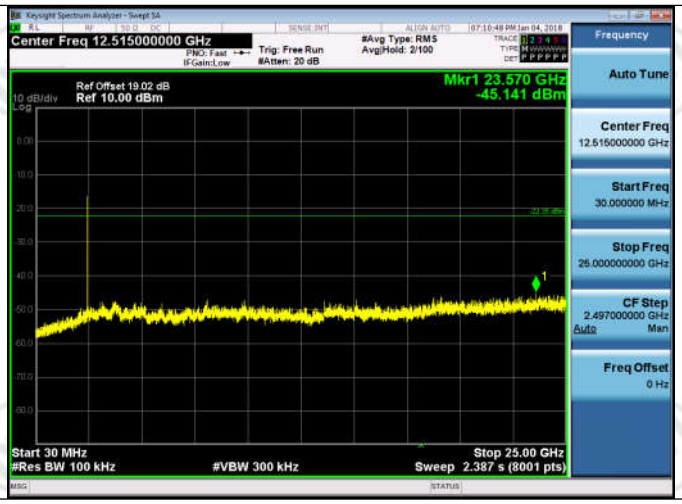
Result Table

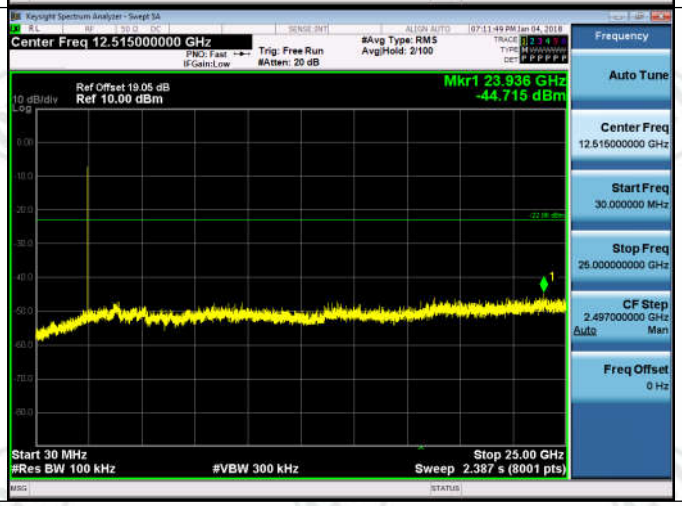
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
BLE	LCH	-1.422	<Limit	PASS
BLE	MCH	-2.348	<Limit	PASS
BLE	HCH	-2.955	<Limit	PASS

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	

Appendix E): Power Spectral Density

Result Table

Mode	Channel	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE	LCH	-19.795	8	PASS
BLE	MCH	-20.710	8	PASS
BLE	HCH	-21.267	8	PASS

Test Graphs

Graphs		
LCH		
MCH		
HCH		

Appendix F): Antenna Requirement

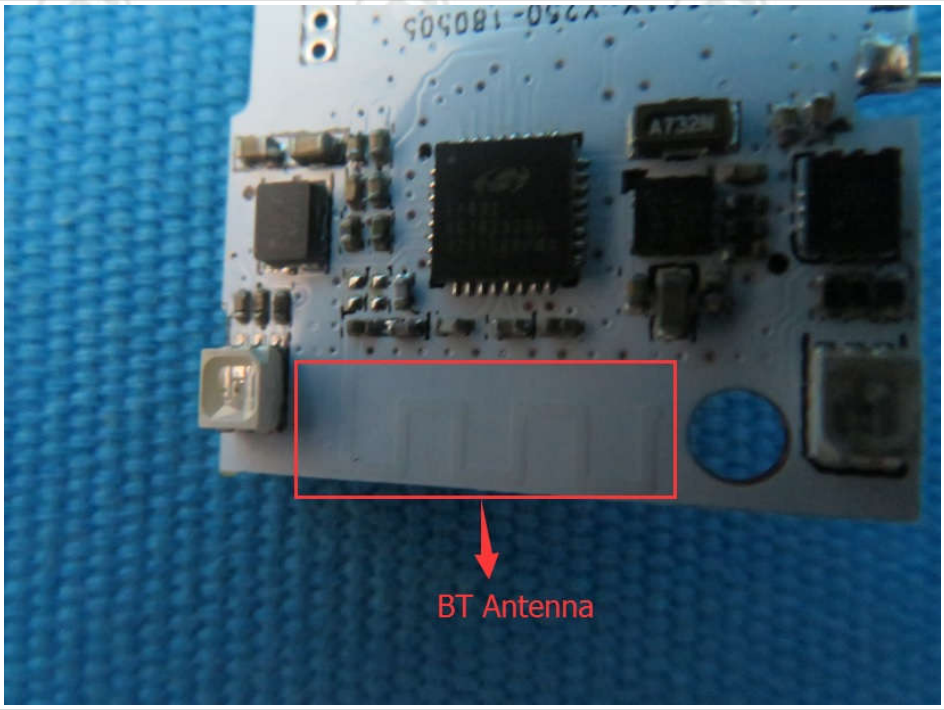
15.203 requirement:

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 2.15dBi.

Appendix G): Restricted bands around fundamental frequency (Radiated)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120kHz	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, which was 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 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. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel

Above 1GHz test procedure as below:

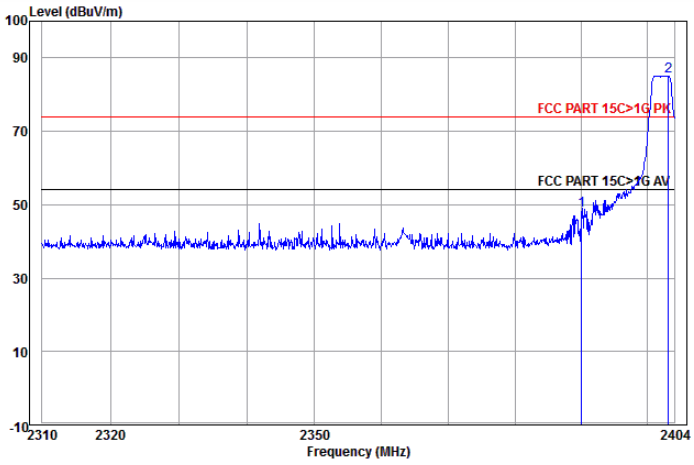
g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
h. . Test the EUT in the lowest channel , the Highest channel
i. The radiation measurements are 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	Limit (dBμV/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

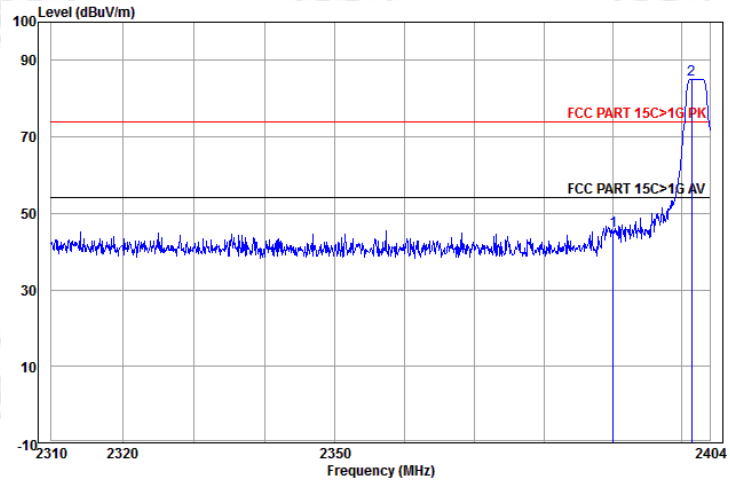
Test plot as follows:

Worse case mode:	GFSK		
Frequency: 2402MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



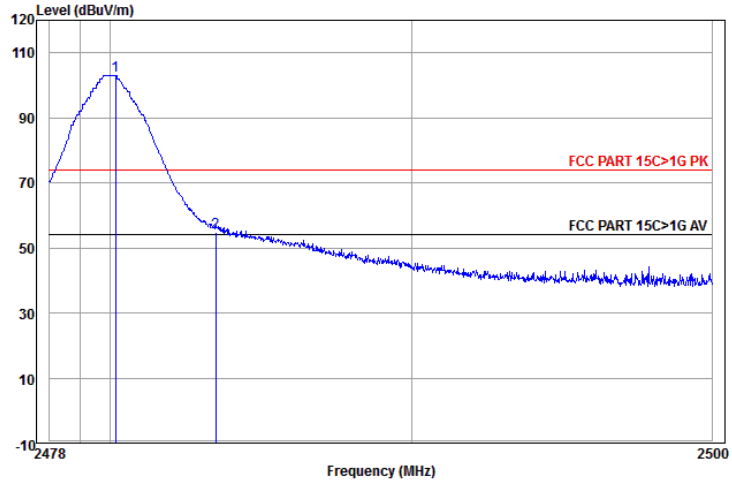
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	44.03	56.84	48.41	74.00	-25.59	Horizontal	
2 pp	2403.137	32.56	3.08	44.04	93.43	85.03	74.00	11.03	Horizontal	

Worse case mode:	GFSK		
Frequency2402MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



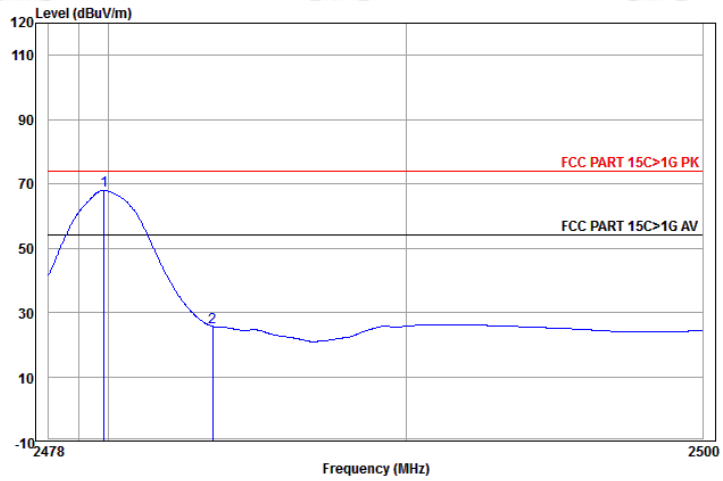
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	44.03	53.76	45.33	74.00	-28.67	Vertical	
2 pp	2401.412	32.56	3.07	44.04	93.43	85.02	74.00	11.02	Vertical	

Worse case mode:	GFSK		
Frequency: 2480MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



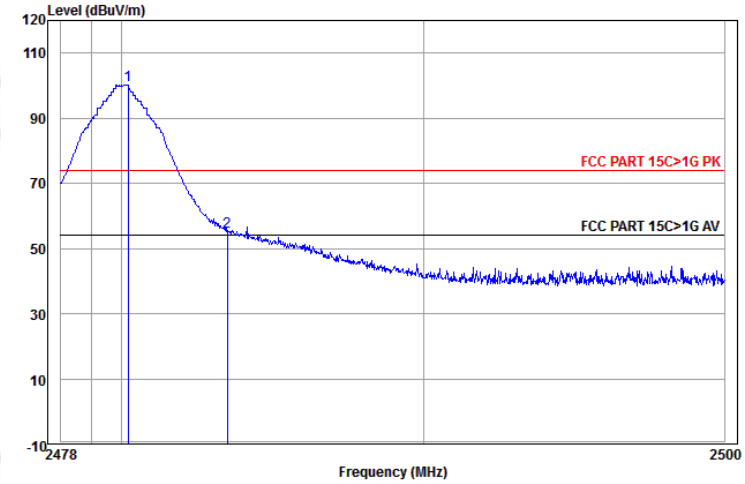
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2480.191	32.71	3.12	44.14	111.35	103.04	74.00	29.04	Horizontal	
2	2483.500	32.71	3.12	44.14	63.19	54.88	74.00	-19.12	Horizontal	

Worse case mode:	GFSK		
Frequency: 2480MHz	Test channel: Highest	Polarization: Horizontal	Remark: Average



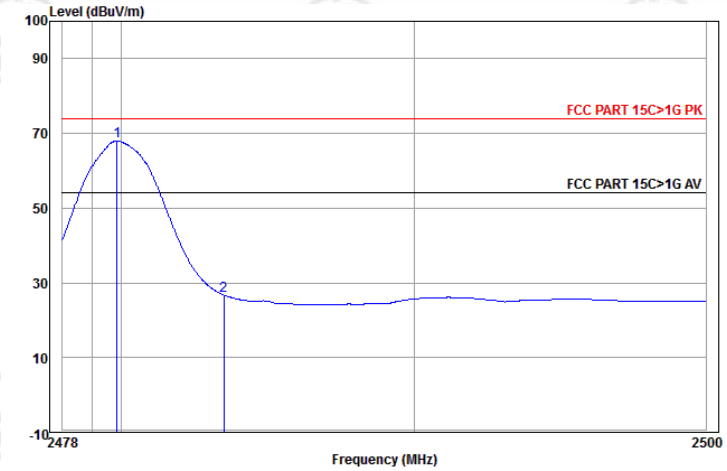
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2479.863	32.71	3.12	44.14	76.24	67.93	54.00	13.93	Horizontal	Average
2	2483.500	32.71	3.12	44.14	33.63	25.32	54.00	-28.68	Horizontal	Average

Worse case mode:	GFSK		
Frequency: 2480MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2480.213	32.71	3.12	44.14	108.38	100.07	74.00	26.07	Vertical	
2	2483.500	32.71	3.12	44.14	63.37	55.06	74.00	-18.94	Vertical	

Worse case mode:	GFSK		
Frequency: 2480MHz	Test channel: Highest	Polarization: Vertical	Remark: Average



	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2479.863	32.71	3.12	44.14	76.26	67.95	54.00	13.95	Vertical	Average
2	2483.500	32.71	3.12	44.14	35.00	26.69	54.00	-27.31	Vertical	Average

Note:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading -Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

Appendix H) 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	120kHz	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:

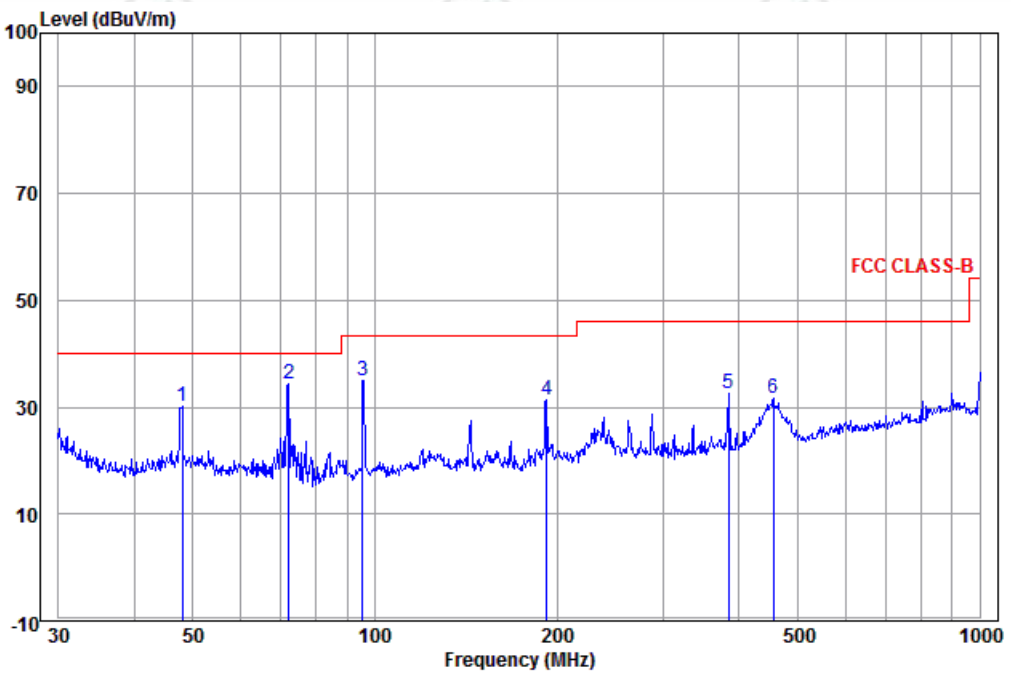
Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz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

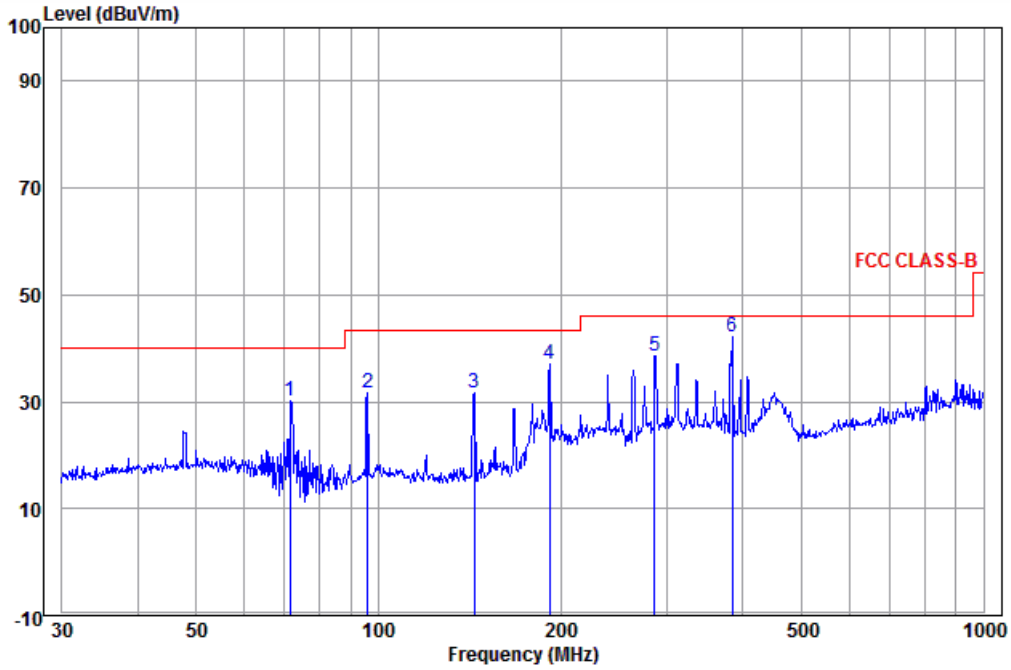
Radiated Emission below 1GHz

30MHz~1GHz (QP)		
Test mode:	Transmitting	Vertical



	Freq	Ant Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	47.994	14.45	0.10	15.71	30.26	40.00	-9.74	Vertical	QP
2 pp	72.084	10.00	0.29	24.18	34.47	40.00	-5.53	Vertical	QP
3	95.427	11.79	0.51	22.78	35.08	43.50	-8.42	Vertical	QP
4	192.419	11.14	1.03	19.32	31.49	43.50	-12.01	Vertical	QP
5	383.932	14.95	1.32	16.25	32.52	46.00	-13.48	Vertical	QP
6	455.906	16.29	1.48	13.98	31.75	46.00	-14.25	Vertical	QP

Test mode:	Transmitting	Horizontal



	Freq	Ant Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	71.330	10.15	0.27	19.63	30.05	40.00	-9.95	Horizontal	QP
2	96.099	11.90	0.52	19.30	31.72	43.50	-11.78	Horizontal	QP
3	143.830	9.18	0.61	21.92	31.71	43.50	-11.79	Horizontal	QP
4	191.745	11.10	1.03	25.04	37.17	43.50	-6.33	Horizontal	QP
5	285.978	13.19	1.14	24.31	38.64	46.00	-7.36	Horizontal	QP
6 pp	383.932	14.95	1.32	25.79	42.06	46.00	-3.94	Horizontal	QP

Transmitter Emission above 1GHz

Worse case mode:		GFSK		Test channel:		Lowest	Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1195.049	30.21	1.85	44.39	57.54	45.21	74.00	-28.79	Pass	H
1597.401	31.05	2.41	43.89	57.56	47.13	74.00	-26.87	Pass	H
4804.000	34.69	5.98	44.60	47.71	43.78	74.00	-30.22	Pass	H
5762.235	35.72	7.20	44.52	49.10	47.50	74.00	-26.50	Pass	H
7206.000	36.42	6.97	44.77	47.65	46.27	74.00	-27.73	Pass	H
9608.000	37.88	6.98	45.58	45.25	44.53	74.00	-29.47	Pass	H
1195.049	30.21	1.85	44.39	57.29	44.96	74.00	-29.04	Pass	V
1593.340	31.04	2.40	43.89	56.03	45.58	74.00	-28.42	Pass	V
4804.000	34.69	5.98	44.60	47.55	43.62	74.00	-30.38	Pass	V
6109.670	35.96	7.41	44.51	49.97	48.83	74.00	-25.17	Pass	V
7206.000	36.42	6.97	44.77	46.94	45.56	74.00	-28.44	Pass	V
9608.000	37.88	6.98	45.58	45.54	44.82	74.00	-29.18	Pass	V

Worse case mode:		GFSK		Test channel:		Middle	Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1195.049	30.21	1.85	44.39	57.52	45.19	74.00	-28.81	Pass	H
4256.330	33.44	4.80	44.60	49.52	43.16	74.00	-30.84	Pass	H
4880.000	34.85	6.13	44.60	47.60	43.98	74.00	-30.02	Pass	H
5762.235	35.72	7.20	44.52	49.02	47.42	74.00	-26.58	Pass	H
7320.000	36.43	6.85	44.87	46.93	45.34	74.00	-28.66	Pass	H
9760.000	38.05	7.12	45.55	46.50	46.12	74.00	-27.88	Pass	H
1195.049	30.21	1.85	44.39	56.88	44.55	74.00	-29.45	Pass	V
1593.340	31.04	2.40	43.89	51.21	40.76	74.00	-33.24	Pass	V
4880.000	34.85	6.13	44.60	47.25	43.63	74.00	-30.37	Pass	V
5762.235	35.72	7.20	44.52	48.82	47.22	74.00	-26.78	Pass	V
7320.000	36.43	6.85	44.87	47.03	45.44	74.00	-28.56	Pass	V
9760.000	38.05	7.12	45.55	45.83	45.45	74.00	-28.55	Pass	V

Worse case mode:		GFSK		Test channel:		Highest	Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1195.049	30.21	1.85	44.39	57.43	45.10	74.00	-28.90	Pass	H
1510.402	30.89	2.30	43.99	52.29	41.49	74.00	-32.51	Pass	H
4960.000	35.02	6.29	44.60	47.43	44.14	74.00	-29.86	Pass	H
6017.064	35.91	7.44	44.50	47.96	46.81	74.00	-27.19	Pass	H
7440.000	36.45	6.73	44.97	45.83	44.04	74.00	-29.96	Pass	H
9920.000	38.22	7.26	45.52	46.17	46.13	74.00	-27.87	Pass	H
1195.049	30.21	1.85	44.39	56.35	44.02	74.00	-29.98	Pass	V
1659.574	31.16	2.48	43.82	56.08	45.90	74.00	-28.10	Pass	V
4960.000	35.02	6.29	44.60	47.65	44.36	74.00	-29.64	Pass	V
5762.235	35.72	7.20	44.52	48.86	47.26	74.00	-26.74	Pass	V
7440.000	36.45	6.73	44.97	46.44	44.65	74.00	-29.35	Pass	V
9920.000	38.22	7.26	45.52	44.98	44.94	74.00	-29.06	Pass	V

Note:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading -Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

2) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

PHOTOGRAPHS OF TEST SETUP

Test Model No.: NL26-0001

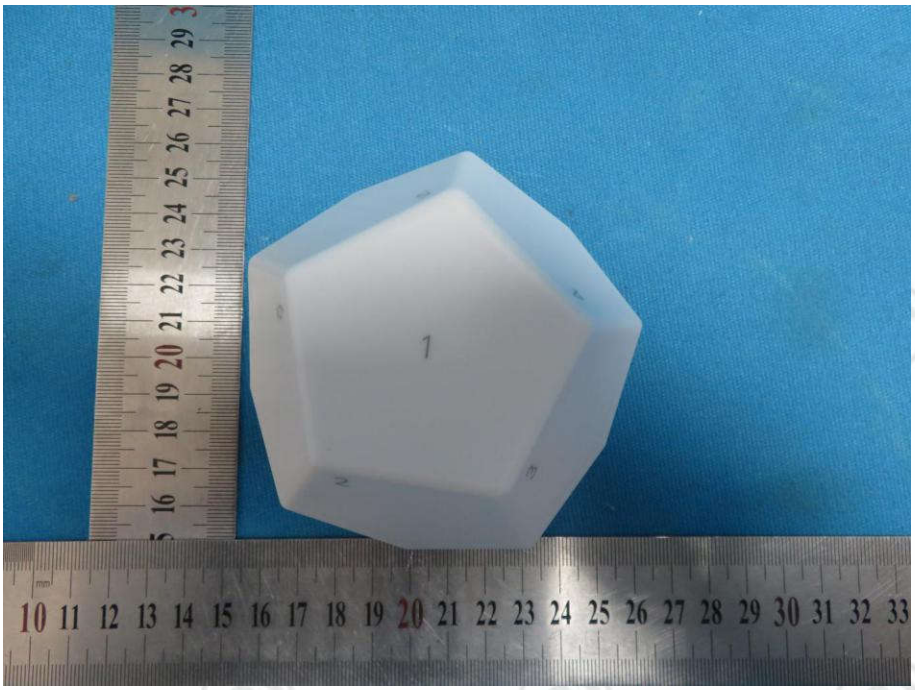
Radiated spurious emission Test Setup-1(Above 1GHz)

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

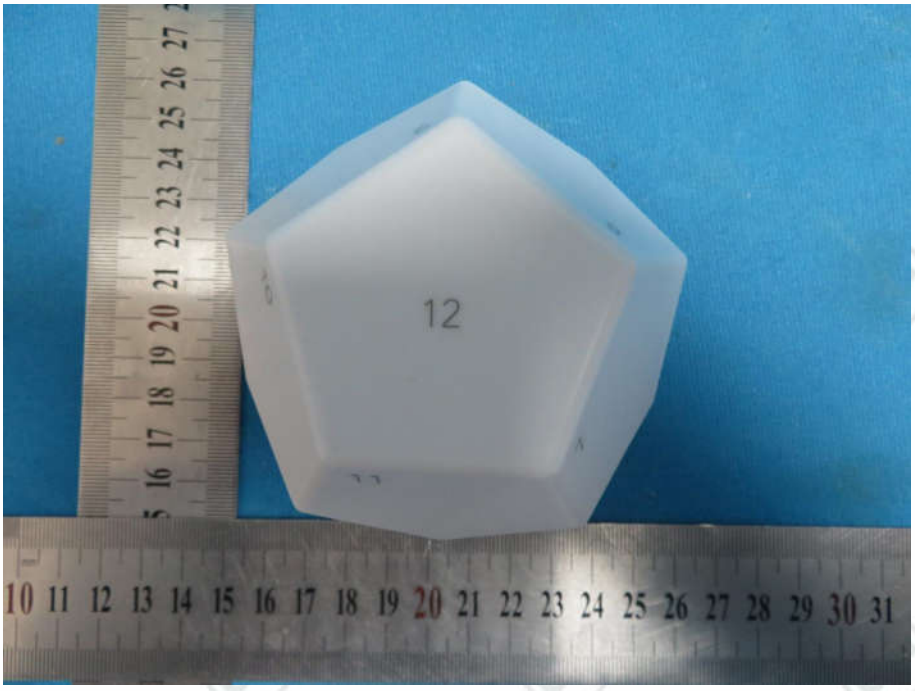
Radiated spurious emission Test Setup-3(Below 30M)

PHOTOGRAPHS OF EUT Constructional Details

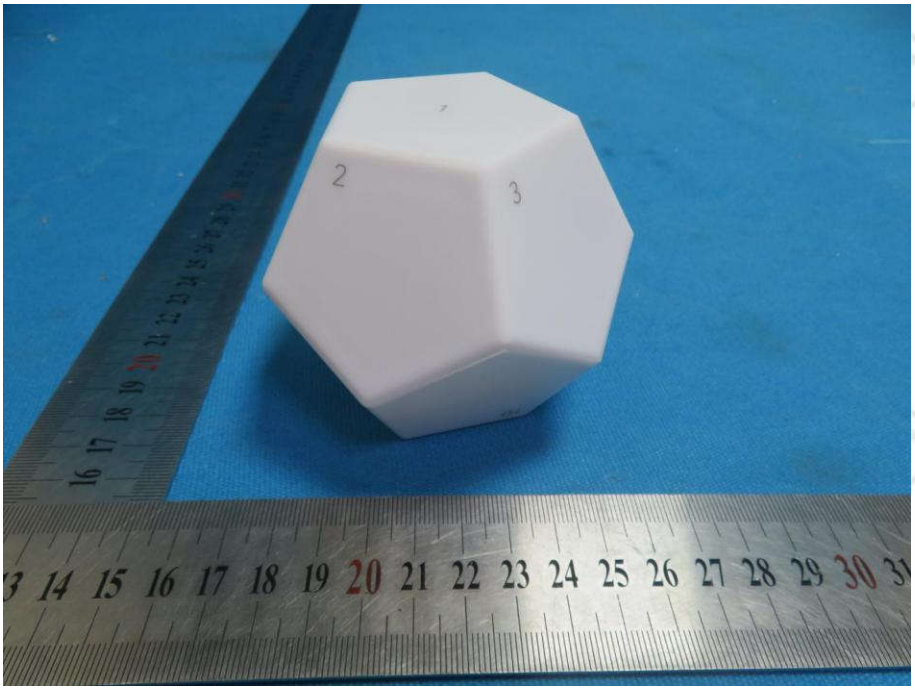
Test model No.: NL26-0001



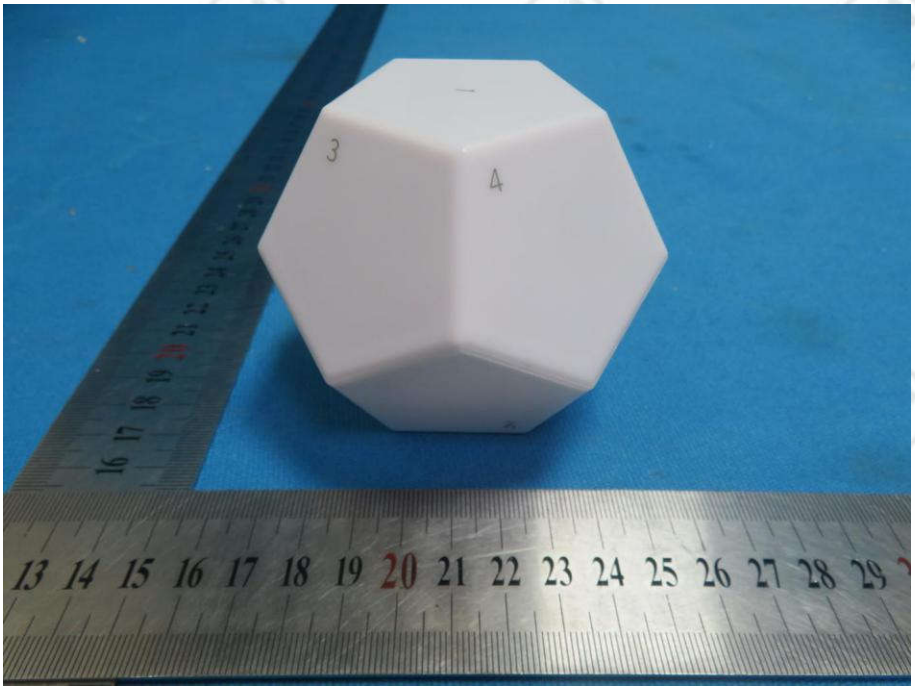
View of Product-1



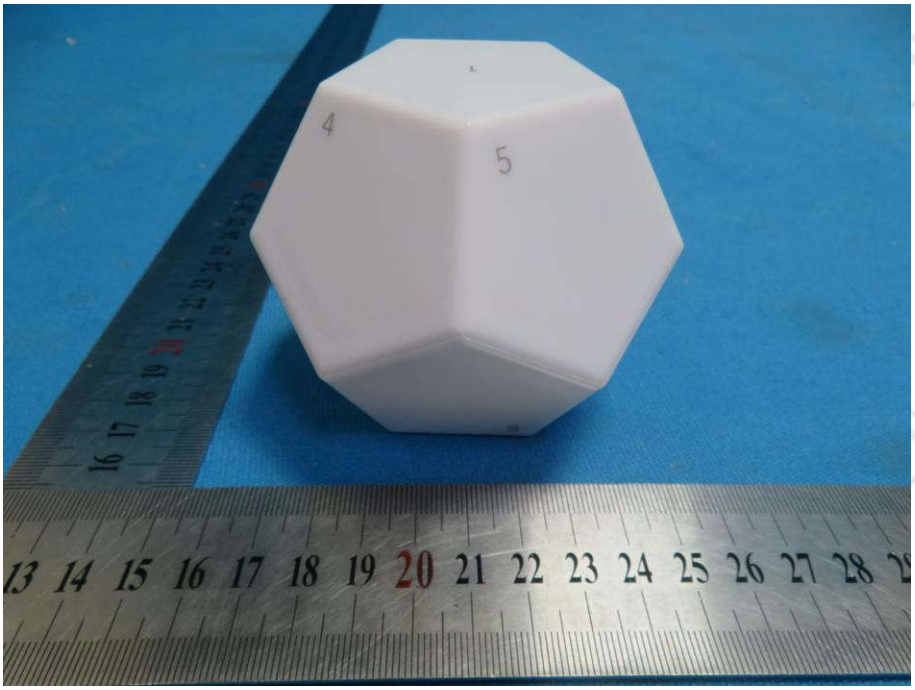
View of Product-2



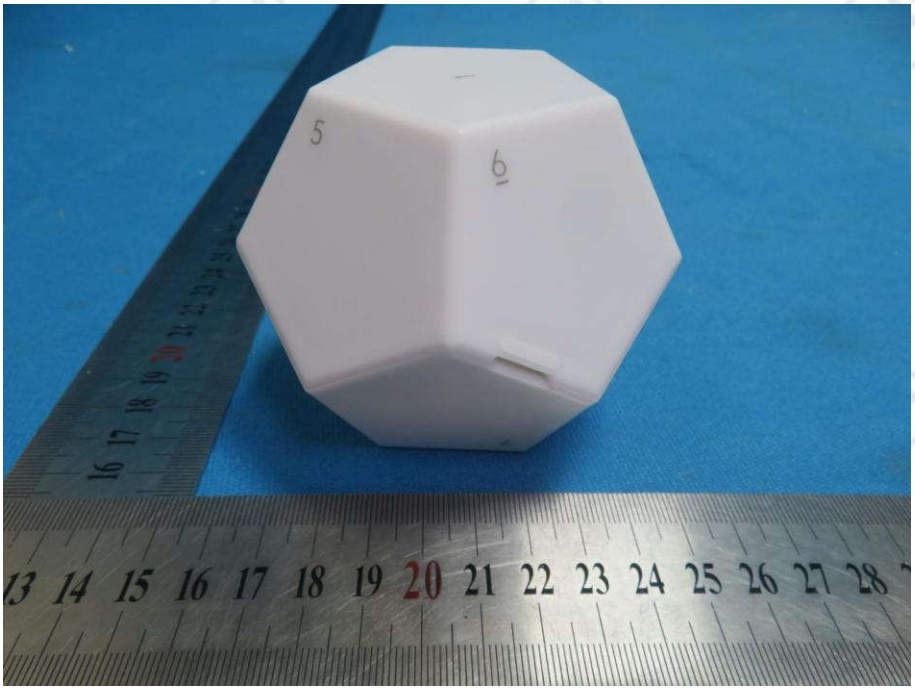
View of Product-3



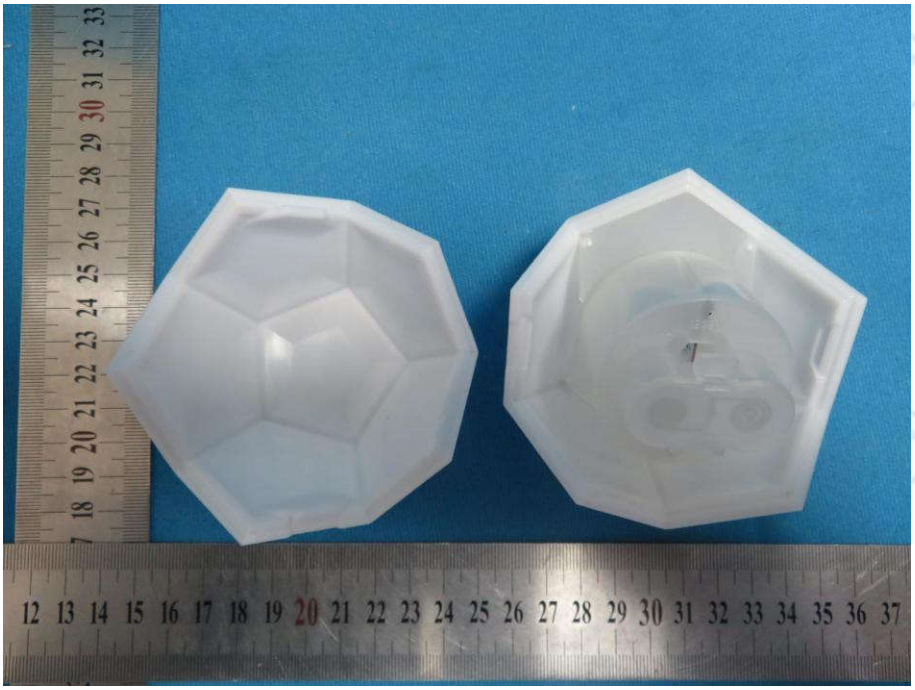
View of Product-4



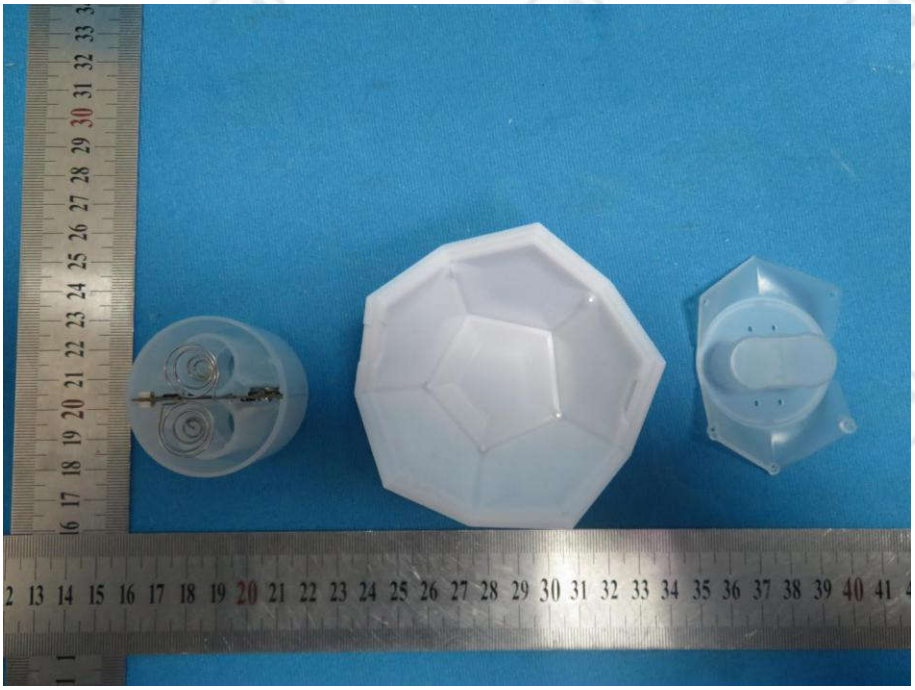
View of Product-5



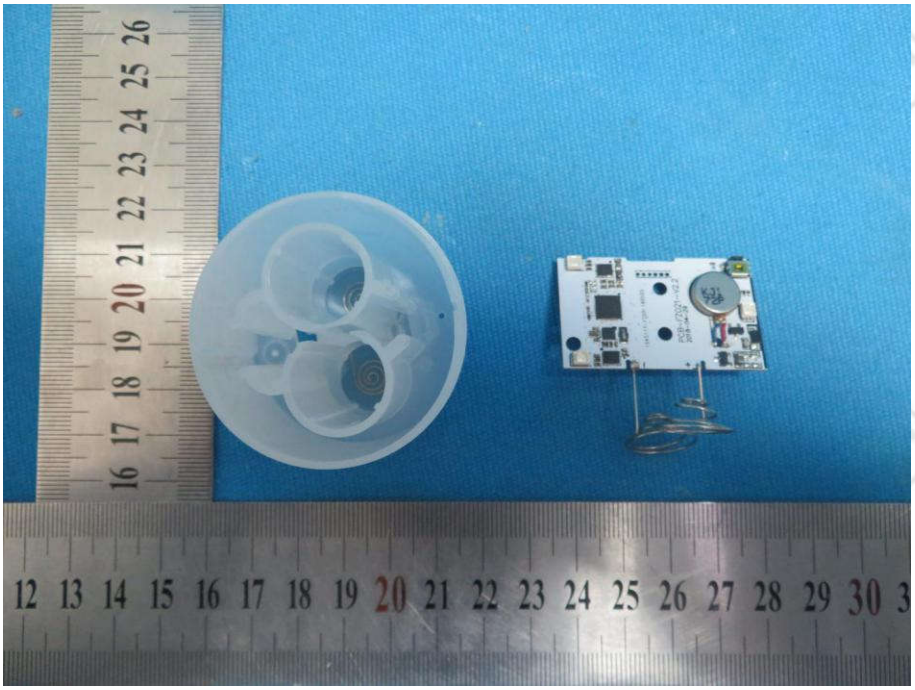
View of Product-6



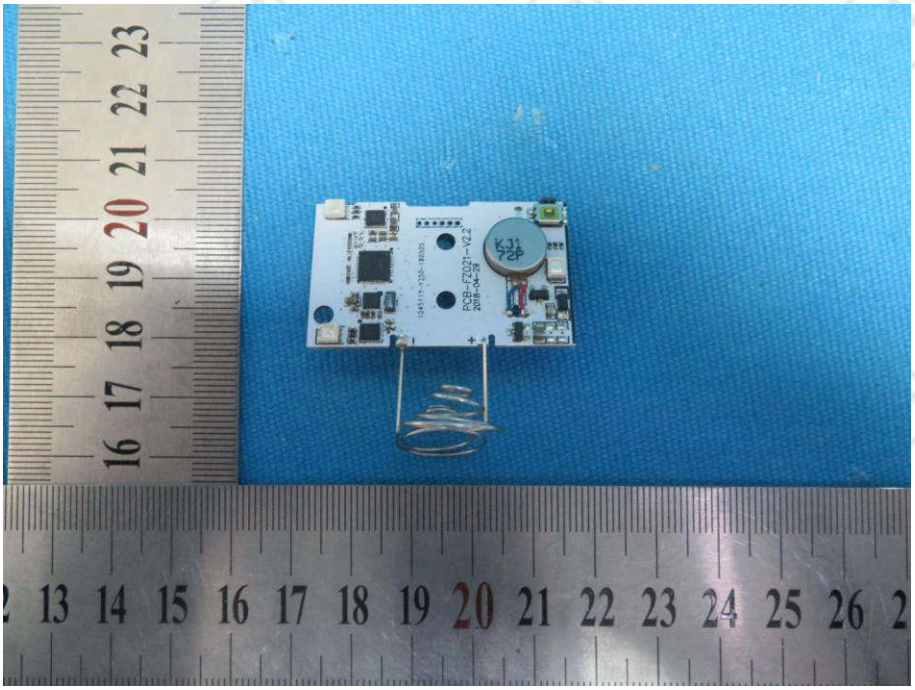
View of Product-7



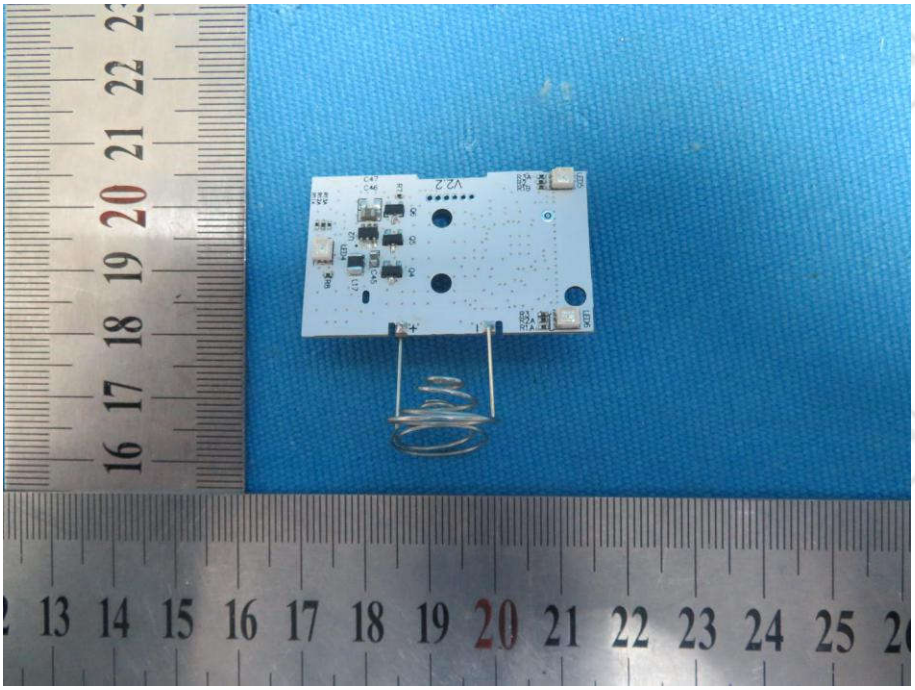
View of Product-8



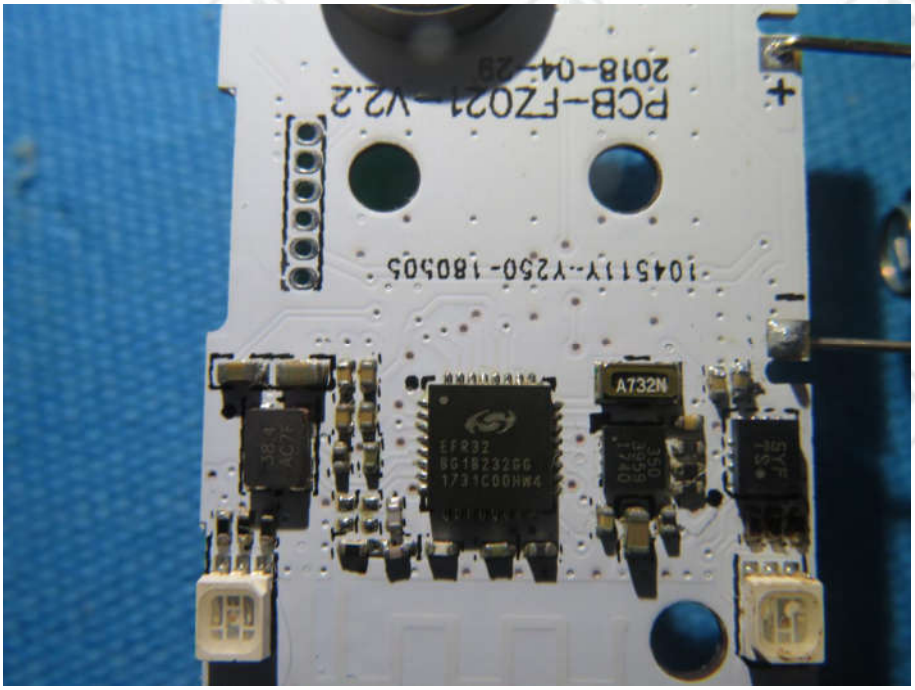
View of Product-9



View of Product-10



View of Product-11



View of Product-12

*** End of Report ***

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