TEST REPORT

Product	:	Cabinet Lock
Trade mark	:	Digilock
Model/Type reference	:	NLTR-AXSX, NMTR-AXSX
Serial Number	:	N/A
Report Number	:	EED32K002266
FCC ID	:	2ABVZ5GNMTRNLTR
Date of Issue	:	Oct. 09, 2018
Test Standards	:	47 CFR Part 15 Subpart C
Test result	:	PASS

Prepared for:

Security People, Inc. dba Digilock
9 Willowbrook Court Petaluma, CA94954, USA

Prepared by:

Centre Testing International Group Co., Ltd.
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	Kevin Yang (Reviewer)		Sheek Luo (Lab supervisor)
Date:	Oct. 09, 2018		Check No.:3320249656

CENTRE TESTING INTERNATIONAL GROUP CO.,LTD. Report Seal

2 Version

Version No.	Date	Description
00	Oct. 09, 2018	Original

3 Test Summary

Test Item	Test Requirement	Test method	Result
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	N/A
Antenna Requirement	47 CFR Part 15C Section 15.203	ANSI C63.10-2013	PASS
Radiated Emission	47 CFR Part 15 Subpart C Section 15.209; 15.225(a)(b)(c)(d)	ANSI C63.10-2013	PASS
Frequency Tolerance	47 CFR Part 15 Subpart C Section 15.225(e)	ANSI C63.10-2013	PASS
Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.215	ANSI C63.10-2013	PASS

Remark:

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

2.The tested sample and the sample information are provided by the client.

N/A: In this whole report not application, since the tested sample is only supplied by battery DC 6V.

Model No.: NLTR-AXSX, NMTR-AXSX

Only the model NMTR-AXSX was tested, since the electrical circuit design, layout, components used internal, the shell material and shape wiring were identical for the above models, with difference being outer decoration.

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5 General Information

5.1 Client Information

Applicant:	Security People, Inc. dba Digilock
Address of Applicant:	9 Willowbrook Court Petaluma, CA94954, USA
Manufacturer:	Security People, Inc. dba Digilock
Address of Manufacturer:	9 Willowbrook Court Petaluma, CA94954, USA
Factory:	Digilock
Address of Factory:	No.11, DaXin Road, HuaiDe Community, HuMen Town, DongGuan City, GuangDong Province, China

5.2 General Description of EUT

Product Name:	Cabinet Lock
Model No.(EUT):	NLTR-AXSX, NMTR-AXSX
Test Model No.:	NMTR-AXSX
Trade Mark:	Digilock
EUT Supports Radios application:	13.56MHz
Firmware version:	1.19(manufacturer declare)
Hardware version:	A01(manufacturer declare)
Power Supply:	ALCALINE Battery 4×1.5V (LR6)=6V

5.3 Product Specification subjective to this standard

Carrier Frequency:	13.56MHz
Modulation Type:	ASK
Antenna Type:	PCB trace antenna
Antenna gain:	-47.1862dBi
Test voltage:	ALCALINE Battery 4×1.5V (LR6)=6V
Sample Received Date:	Aug. 21, 2018
Sample tested Date:	Aug. 21, 2018 to Oct. 08, 2018

5.4 Test Environment and Mode

Operating Environment:	
Temperature:	24°C
Humidity:	54% RH
Atmospheric Pressure:	1010mbar
Test mode:	
TX mode:	The EUT transmitted the continuous signal at the specific channel(s).

5.5 Description of Support Units

The EUT has been tested independently.

5.6 Test Location

All tests were performed at:
Centre Testing International Group Co., Ltd
Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China
Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385
No tests were sub-contracted.
FCC Designation No.: CN1164

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

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

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

6 Equipment List

RF test system					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Spectrum Analyzer	R&S	FSP40	100416	05-11-2018	05-10-2019
DC Power	Keysight	E3642A	MY54426035	03-13-2018	03-12-2019
high-low temperature test chamber	DongGuangQinZhuo	LK-80GA	QZ20150611879	03-16-2018	03-15-2019

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	---	06-04-2016	06-03-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-401	04-26-2018	04-25-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-30-2018	07-29-2019
Microwave Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Microwave Preamplifier	Tonscend	EMC051845SE	980380	01-19-2018	01-18-2019
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1869	04-25-2018	04-23-2021
Double ridge horn antenna	A.H.SYSTEMS	SAS-574	6042	06-05-2018	06-04-2021
Pre-amplifier	A.H.SYSTEMS	PAP-1840-60	6041	06-05-2018	06-04-2021
Loop Antenna	ETS	6502	00071730	06-22-2017	06-21-2019
Spectrum Analyzer	R&S	FSP40	100416	05-11-2018	05-10-2019
Receiver	R&S	ESCI	100435	05-25-2018	05-24-2019
Multi device Controller	maturo	NCD/070/10711112	---	01-10-2018	01-09-2019
LISN	schwarzbeck	NNBM8125	81251547	05-11-2018	05-10-2019
LISN	schwarzbeck	NNBM8125	81251548	05-11-2018	05-10-2019
Signal Generator	Agilent	E4438C	MY45095744	03-13-2018	03-12-2019
Signal Generator	Keysight	E8257D	MY53401106	03-13-2018	03-12-2019
Temperature/ Humidity Indicator	TAYLOR	1451	1905	05-02-2018	05-01-2019
Communication test set	Agilent	E5515C	GB47050534	03-16-2018	03-15-2019
Cable line	Fulai(7M)	SF106	5219/6A	01-10-2018	01-09-2019
Cable line	Fulai(6M)	SF106	5220/6A	01-10-2018	01-09-2019
Cable line	Fulai(3M)	SF106	5216/6A	01-10-2018	01-09-2019
Cable line	Fulai(3M)	SF106	5217/6A	01-10-2018	01-09-2019
Communication test set	R&S	CMW500	104466	02-05-2018	02-04-2019
High-pass filter	Sinoscite	FL3CX03WG18NM12-0398-002	---	01-10-2018	01-09-2019
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX01CA09CL12-0395-001	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX01CA08CL12-0393-001	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX02CA04CL12-0396-002	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX02CA03CL12-0394-001	---	01-10-2018	01-09-2019

3M full-anechoic Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	06-20-2018	06-19-2019
Receiver	Keysight	N9038A	MY57290136	03-28-2018	03-27-2019
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-28-2018	03-27-2019
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-28-2018	03-27-2019
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-075	04-25-2018	04-23-2021
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-23-2021
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-23-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-23-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-829	04-25-2018	04-23-2021
Communication Antenna	Schwarzbeck	CLSA 0110L	1014	02-15-2018	02-14-2019
Biconical antenna	Schwarzbeck	VUBA 9117	9117-381	04-25-2018	04-23-2021
Horn Antenna	ETS-LINDGREN	3117	00057407	07-10-2018	07-08-2021
Preamplifier	EMCI	EMC184055SE	980596	06-20-2018	06-19-2019
Communication test set	R&S	CMW500	102898	02-05-2018	02-04-2019
Preamplifier	EMCI	EMC001330	980563	06-20-2018	06-19-2019
Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Signal Generator	KEYSIGHT	E8257D	MY53401106	03-13-2018	03-12-2019
Fully Anechoic Chamber	TDK	FAC-3	---	11-17-2017	11-25-2020
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-08-2021
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	01-10-2018	01-09-2019
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	01-10-2018	01-09-2019
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	01-10-2018	01-09-2019
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	01-10-2018	01-09-2019
Cable line	Times	EMC104-NMNM-1000	SN160710	01-10-2018	01-09-2019
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	01-10-2018	01-09-2019
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	01-10-2018	01-09-2019
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	01-10-2018	01-09-2019
Cable line	Times	HF160-KMKM-3.00M	393493-0001	01-10-2018	01-09-2019

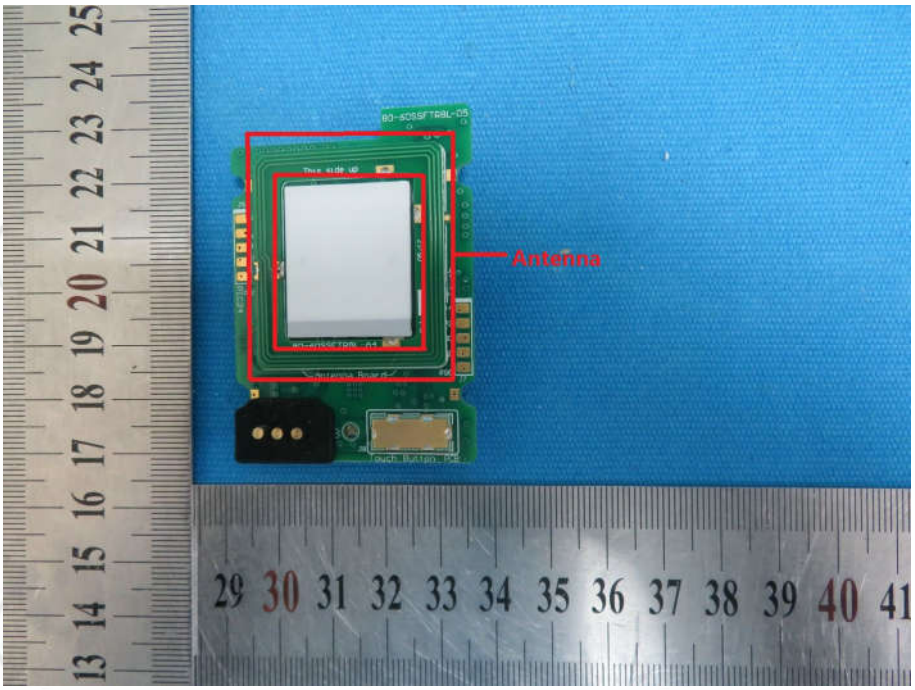
7 Test Result & Measurement Data

7.1 Antenna Requirement

Standard Requirement:	47 CFR Part 15C Section 15.203

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.



The antenna is integrated on the main PCB and no consideration of replacement.

7.2 Radiated Emissions

Test Requirement: 47 CFR Part 15 Subpart C Section 15.209; 15.225(a)(b)(c)(d)

Test Method: ANSI C63.10-2013

Test Site: 3m (Semi-Anechoic Chamber)

Requirements: (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed

15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Quasi-peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Quasi-peak	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Quasi-peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Quasi-peak	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 Setup:

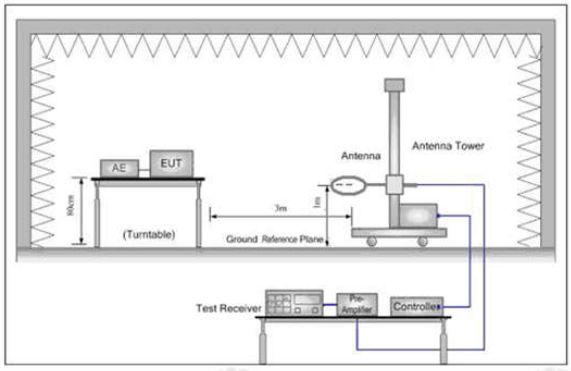


Figure 1. Below 30MHz

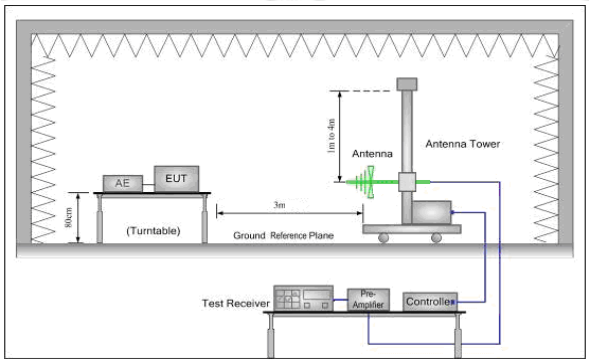


Figure 2. 30MHz to 1GHz

Test Procedure:

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The limit 1.705MHz to 30MHz in clause 4.3 are specified at 30 meters, and measurements were made at 3 meters, the limit is translated to 3 meters by using a formula as follows:

   Limit3m = Limit30m + 40log(30m/3)
8. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode: Transmitter mode

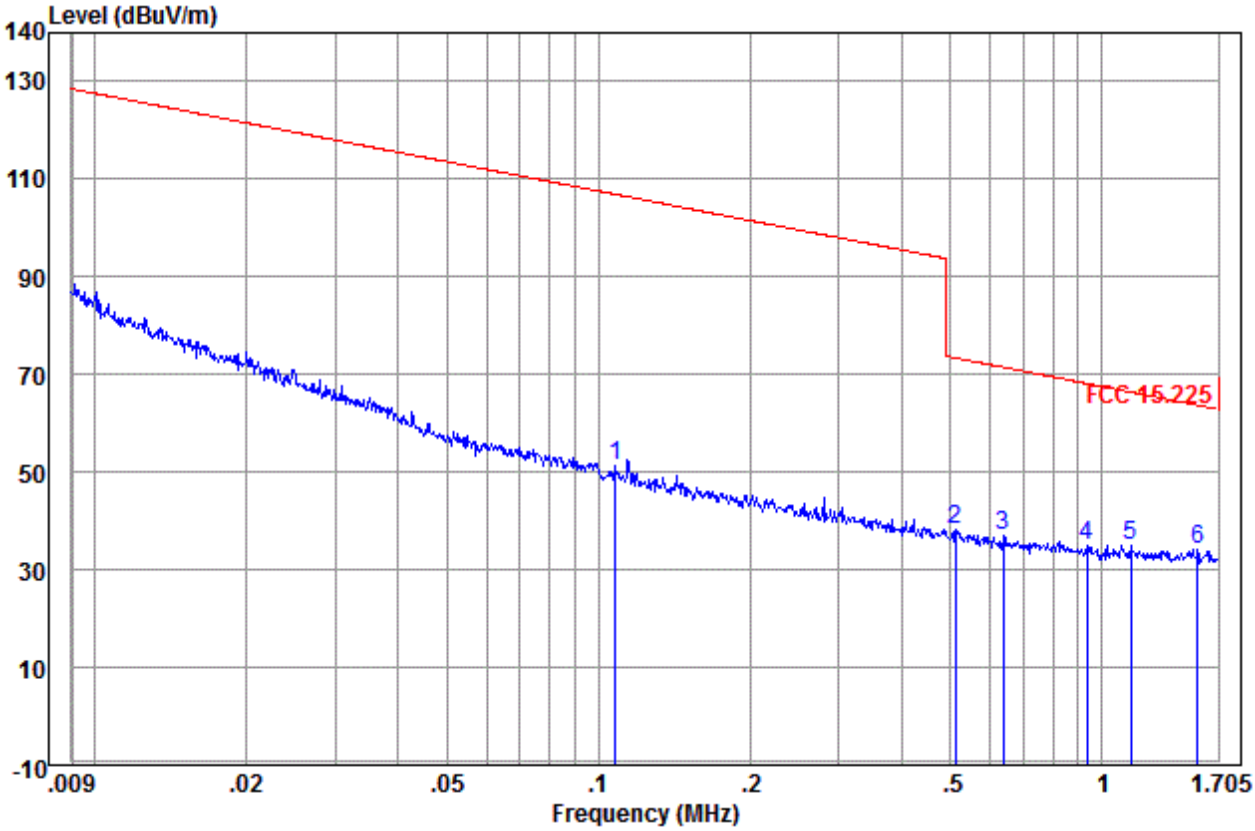
Instruments Used: Refer to section 6 for details

Test Result: Pass

Test Procedure: For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.4: 2014, section 8.2.1. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

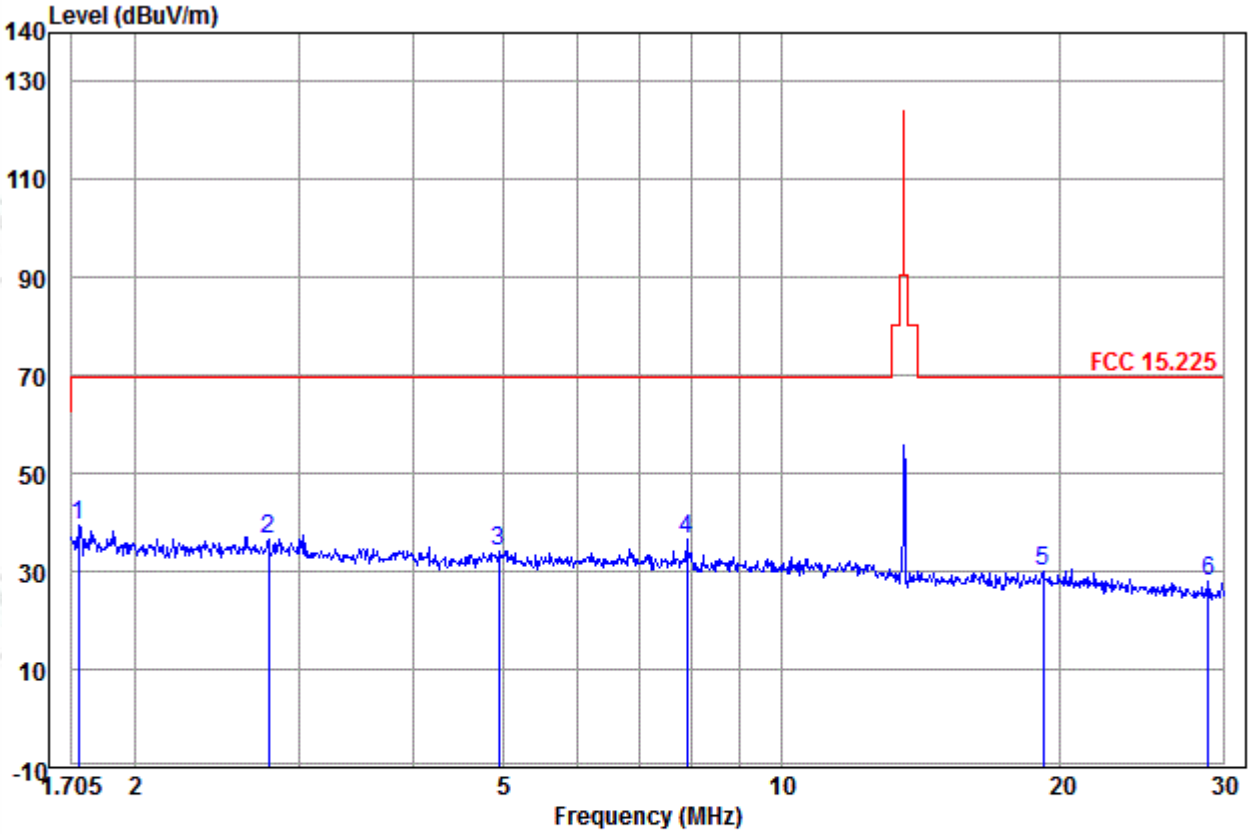
Test data:

9 kHz-1.705MHz



	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	0.108	11.40	0.11	39.73	51.24	106.92	-55.68	X	QP
2	0.513	11.30	0.12	26.71	38.13	73.40	-35.27	X	QP
3	0.639	11.30	0.12	25.41	36.83	71.47	-34.64	X	QP
4	0.938	11.38	0.13	23.41	34.92	68.13	-33.21	X	QP
5	1.145	11.40	0.14	23.43	34.97	66.38	-31.41	X	QP
6 pp	1.551	11.40	0.17	22.70	34.27	63.73	-29.46	X	QP

1.705MHz-30MHz

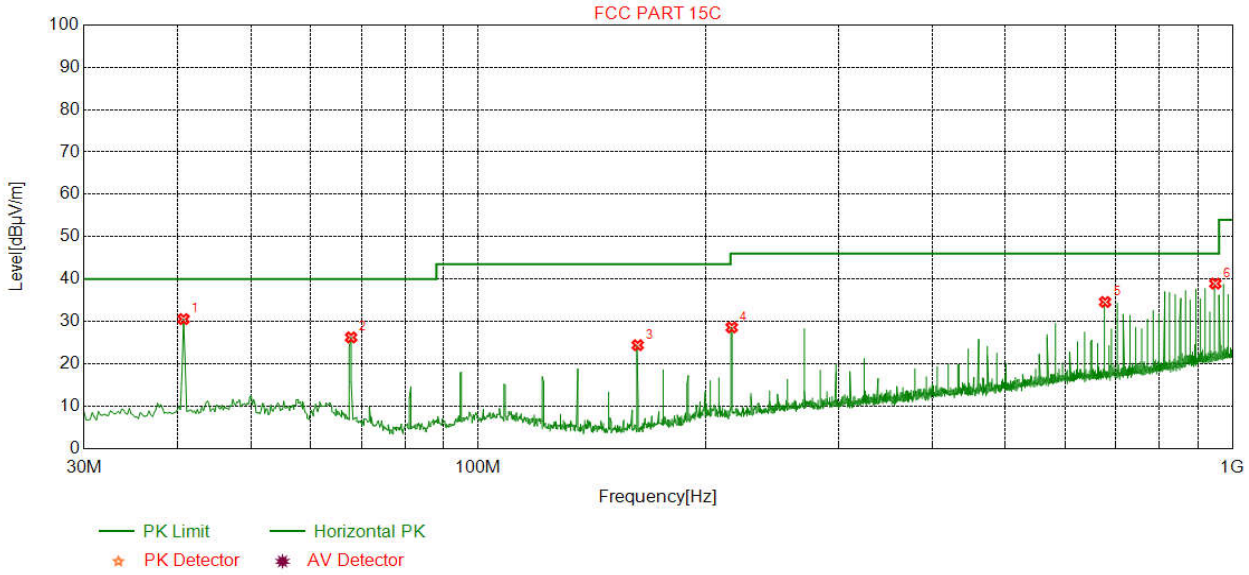


	Freq	Ant Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	1.735	11.40	0.19	28.06	39.65	69.50	-29.85	X	QP
2	2.784	11.48	0.17	25.06	36.71	69.50	-32.79	X	QP
3	4.940	11.21	0.14	22.91	34.26	69.50	-35.24	X	QP
4	7.884	11.00	0.47	25.07	36.54	69.50	-32.96	X	QP
5	19.180	10.19	0.76	19.03	29.98	69.50	-39.52	X	QP
6	28.902	8.47	0.80	18.62	27.89	69.50	-41.61	X	QP

Remark: The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case X axis is shown in the report.

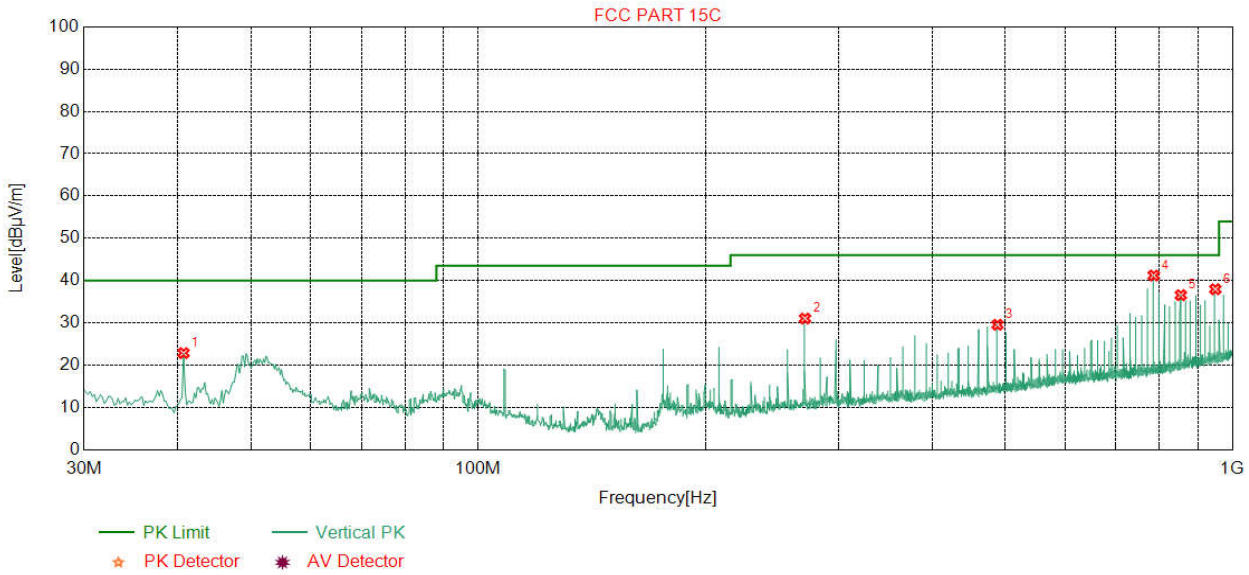
30MHz-1000MHz

Mode:	Transmitting	Channel:	
Remark:	QP		



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Magin [dB]	Result	Polarity
1	40.6721	12.42	0.72	-32.11	49.51	30.54	40.00	9.46	Pass	Horizontal
2	67.8376	9.56	0.94	-32.05	47.76	26.21	40.00	13.79	Pass	Horizontal
3	162.7225	8.05	1.49	-31.98	46.81	24.37	43.50	19.13	Pass	Horizontal
4	216.8594	11.34	1.75	-31.95	47.41	28.55	46.00	17.45	Pass	Horizontal
5	677.8956	19.62	3.11	-32.10	43.94	34.57	46.00	11.43	Pass	Horizontal
6	949.1618	22.39	3.72	-31.15	43.96	38.92	46.00	7.08	Pass	Horizontal

Mode:	Transmitting	Channel:	
Remark:	QP		



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Magin [dB]	Result	Polarity
1	40.6721	12.42	0.72	-32.11	41.80	22.83	40.00	17.17	Pass	Vertical
2	271.1902	12.62	1.96	-31.88	48.31	31.01	46.00	14.99	Pass	Vertical
3	488.1256	16.81	2.64	-31.89	41.98	29.54	46.00	16.46	Pass	Vertical
4	786.3633	20.75	3.36	-31.99	49.07	41.19	46.00	4.81	Pass	Vertical
5	854.2769	21.55	3.52	-31.75	43.22	36.54	46.00	9.46	Pass	Vertical
6	949.1618	22.39	3.72	-31.15	42.99	37.95	46.00	8.05	Pass	Vertical

Remark:

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 + Antenna Factor + Cable Factor – Preamplifier Factor .

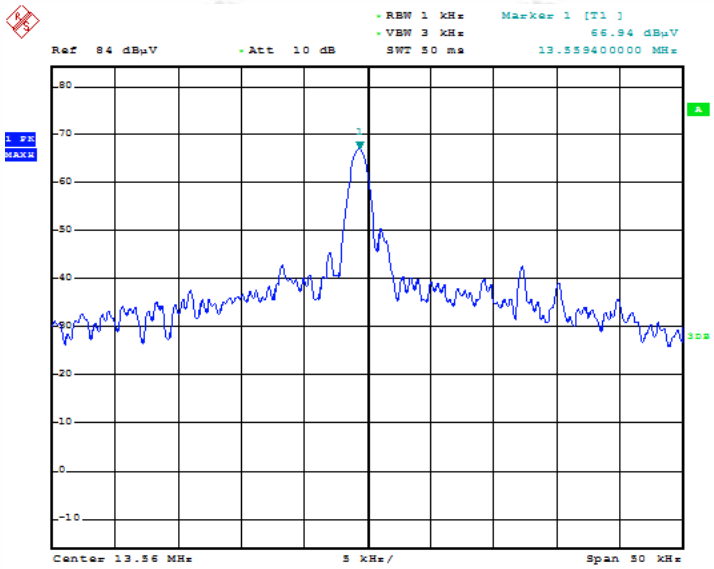
7.3 Frequency Tolerance

Test Requirement:	47 CFR Part 15 Subpart C Section 15.225(e)
Test Method:	ANSI C63.10-2013
Frequency range:	Operation within the band 13.110-14.010 MHz
Requirement :	The frequency tolerance of the carrier signal shall be maintained within +/-0.01% of the operating frequency over a temperature variation of –20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.
Test Mode:	Transmitter mode
Method of measurement:	The EUT was placed in an environmental test chamber and powered such that control element received normal voltage and the transmitter provided maximum RF output.
Instruments Used:	Refer to section 6 for details
Test Result:	Pass

Test Frequency: 13.56MHz				Temperature:24℃
Supply Voltage (V)	Test Result (MHz)	Deviation (kHz)	Limit (kHz)	Result
6.0	13.5594	0.6	1.356	Pass

Test Frequency: 13.56MHz				Temperature:20℃
Supply Voltage (V)	Test Result (MHz)	Deviation (kHz)	Limit (kHz)	Result
5.1	13.5602	0.2	1.356	Pass
5.7	13.5605	0.5	1.356	Pass
6.3	13.5604	0.4	1.356	Pass
6.6	13.5603	0.3	1.356	Pass
6.9	13.5607	0.7	1.356	Pass

Test Frequency: 13.56MHz				Voltage: 6V
Temperature (℃)	Test Result (MHz)	Deviation (kHz)	Limit (kHz)	Result
-20	13.5603	0.3	1.356	Pass
-10	13.5595	0.5	1.356	
0	13.5602	0.2	1.356	
10	13.5605	0.5	1.356	
20	13.5604	0.4	1.356	
30	13.5596	0.4	1.356	
40	13.5606	0.6	1.356	
50	13.5608	0.8	1.356	



Date: 25.SEP.2018 11:13:45

7.4 Occupied Bandwidth

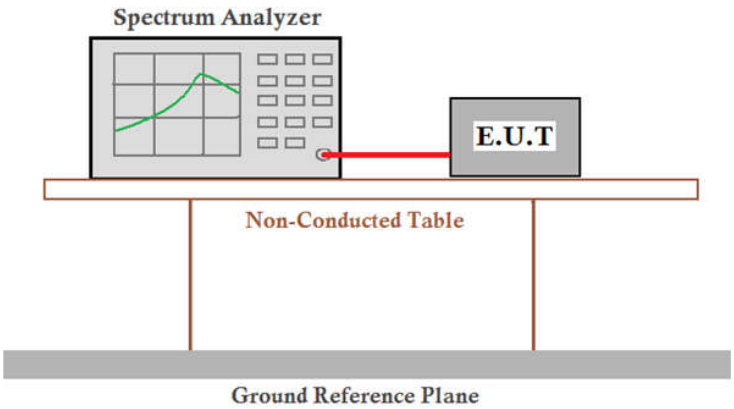
Test Requirement: 47 CFR Part 15C Section 15.215 (C)

Test Method: ANSI C63.10-2013

Frequency range: Operation within the band 13.110 – 14.010 MHz

Requirement : Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be.deomonstrated by measuring the radiated emissions.

Test Setup:

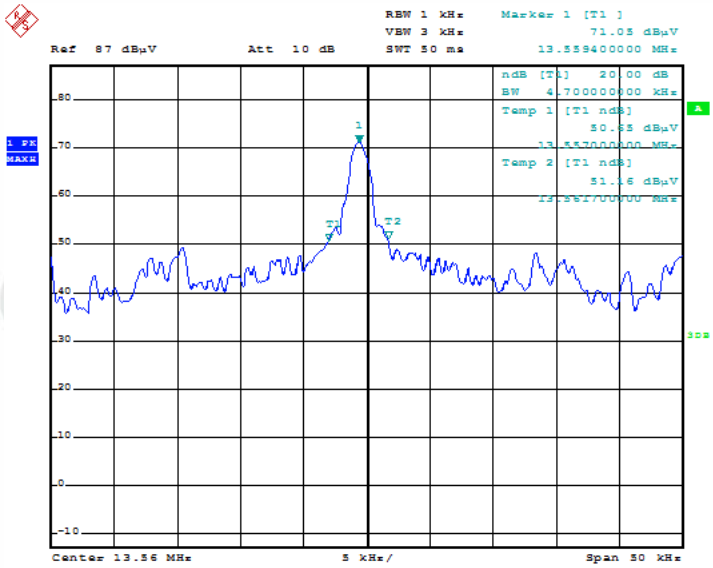


Test Mode: Transmitter mode

Instruments Used: Refer to section 6 for details

Test Result: Pass

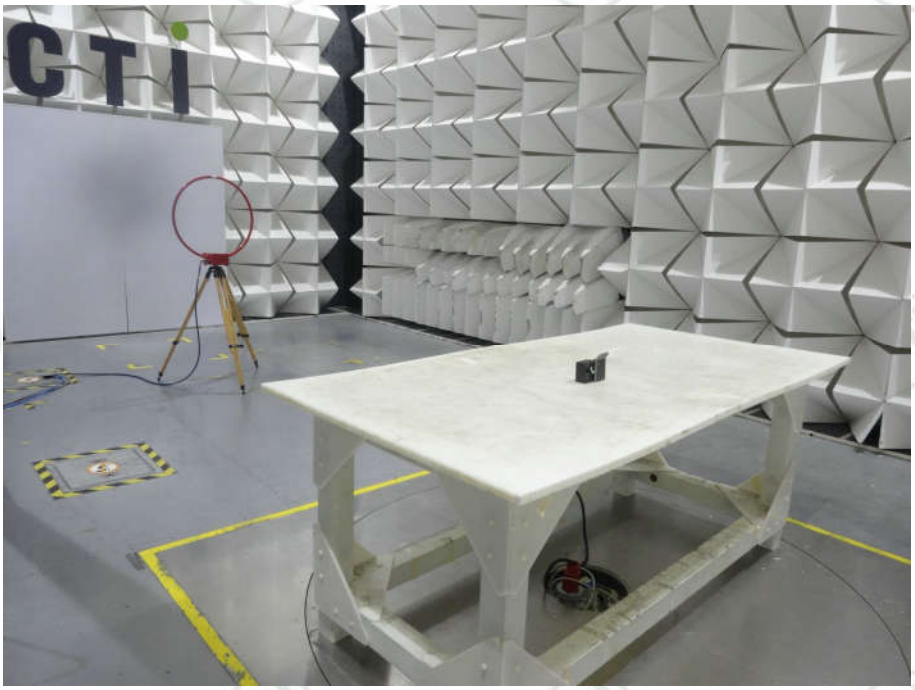
The graph as below: represents the emissions take for this device.



Date: 25.SEP.2018 14:12:54

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

Test Model No.: NMTR-AXSX



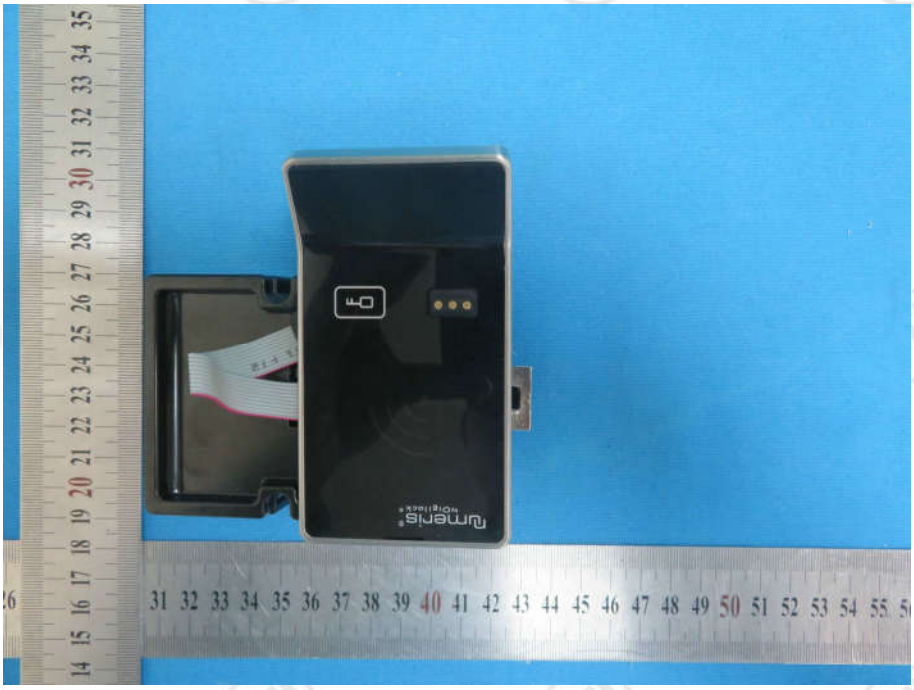
Radiated emission Test Setup (9kHz～30MHz)

Radiated emission Test Setup (30MHz-1GHz)

Radiated emission Test Setup (Close-up)

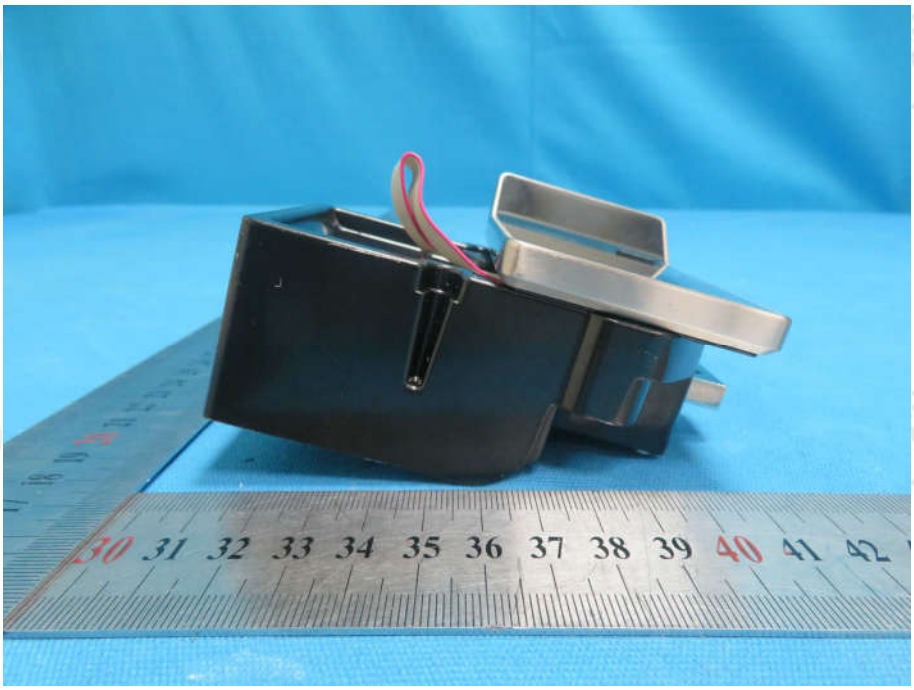
APPENDIX 2 PHOTOGRAPHS OF EUT

Test model No.: NMTR-AXSX

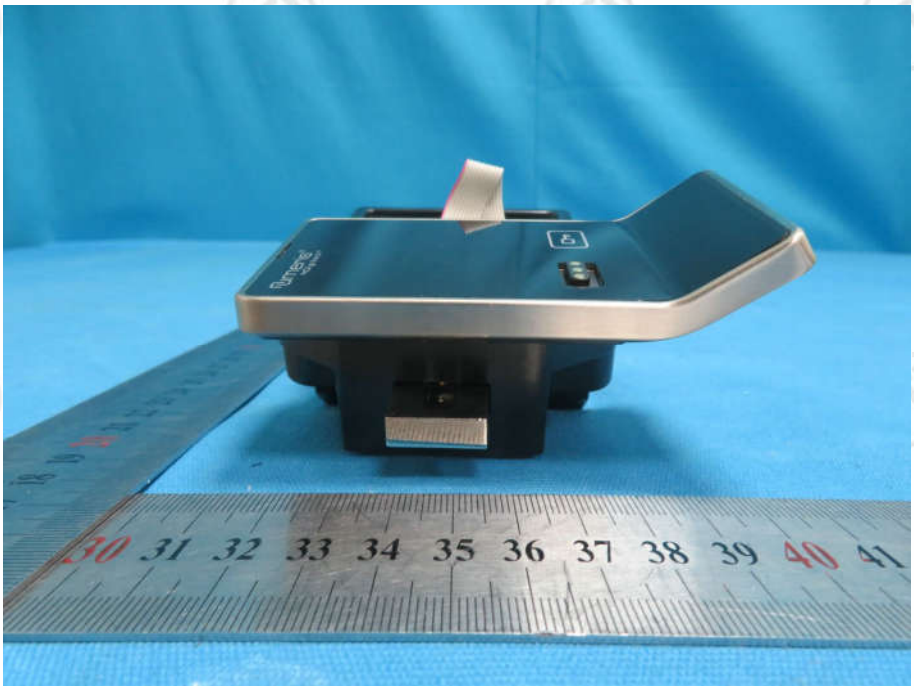


View of Product-1

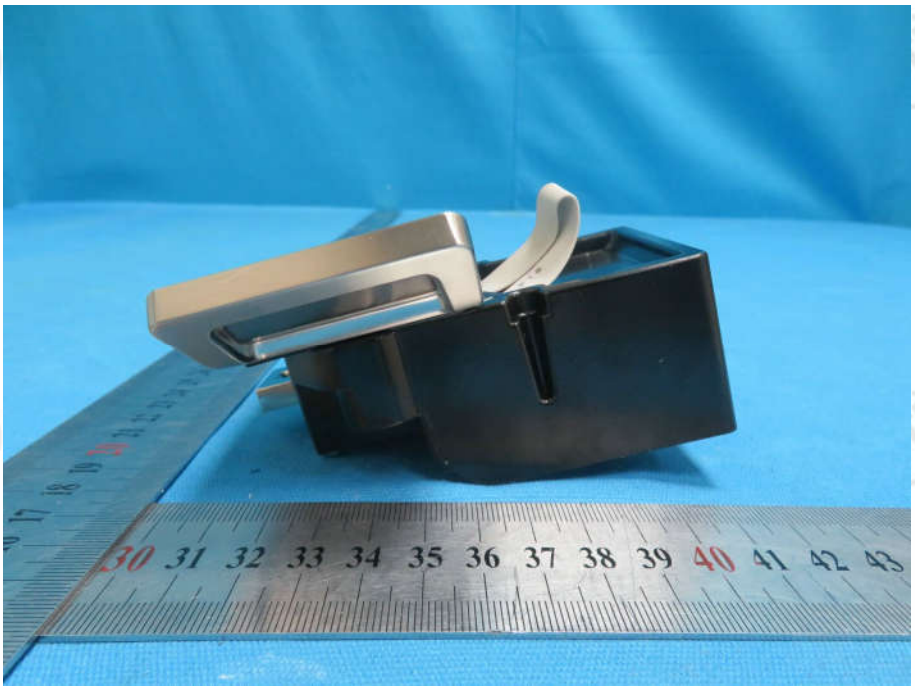
View of Product-2



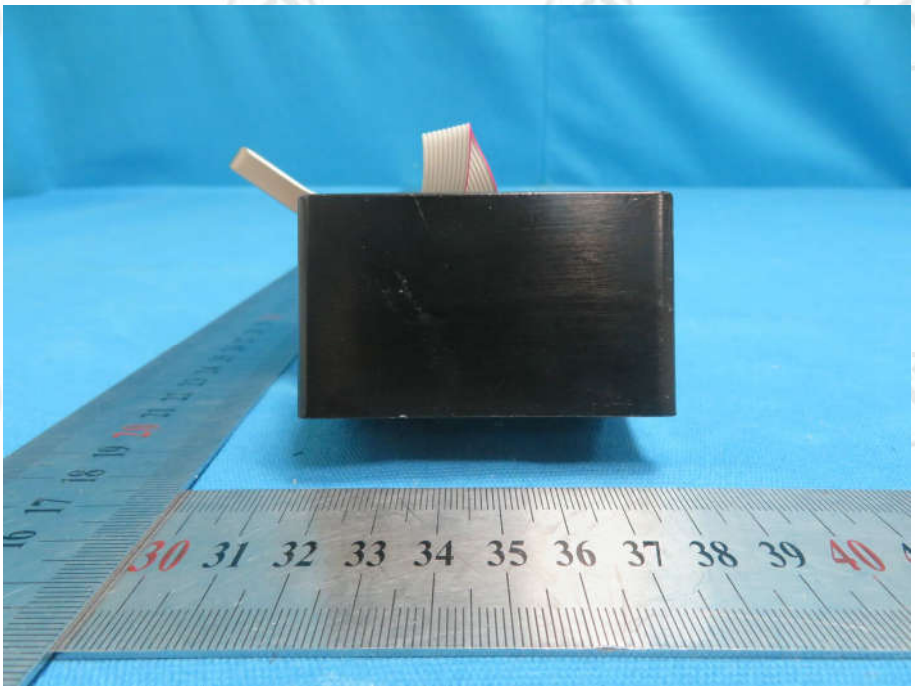
View of Product-3



View of Product-4

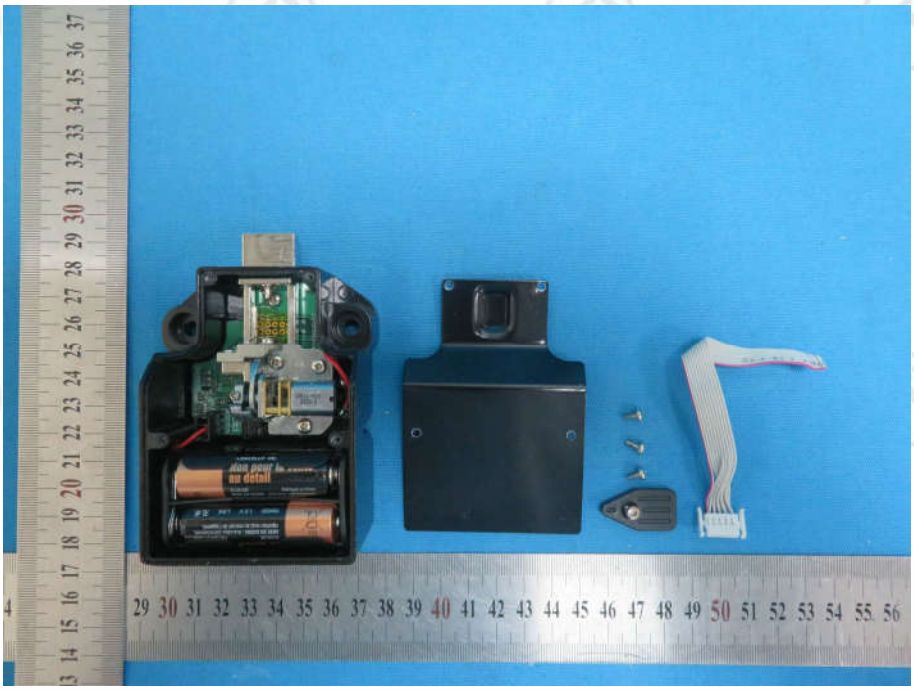


View of Product-5

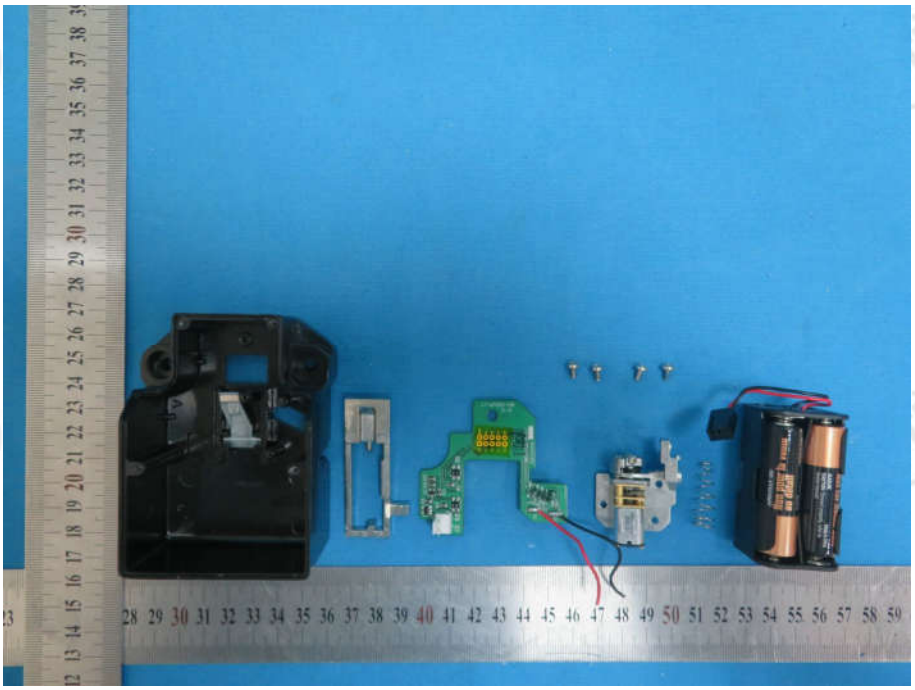


View of Product-6

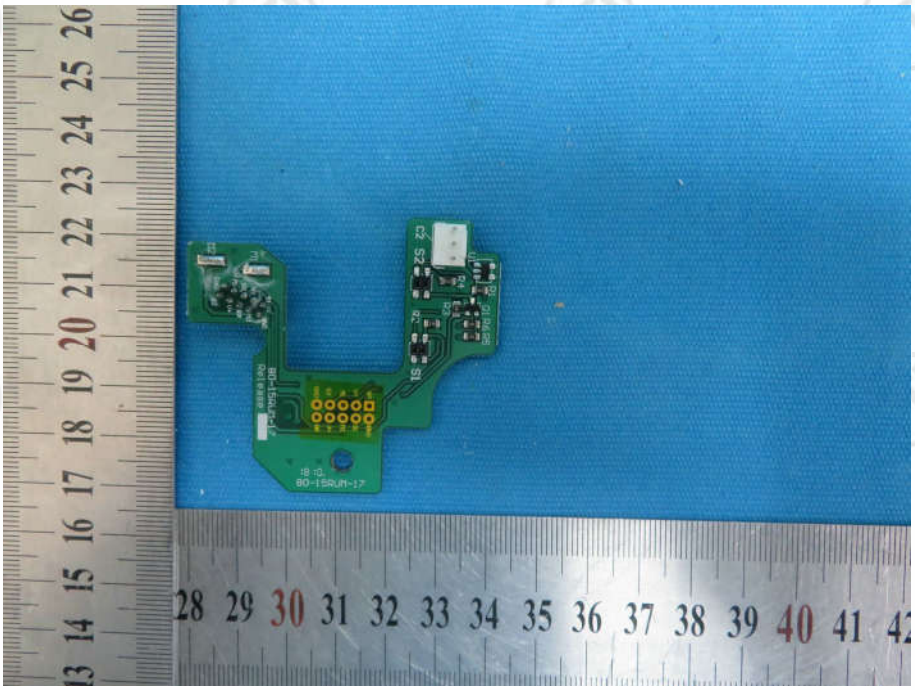
View of Product-7



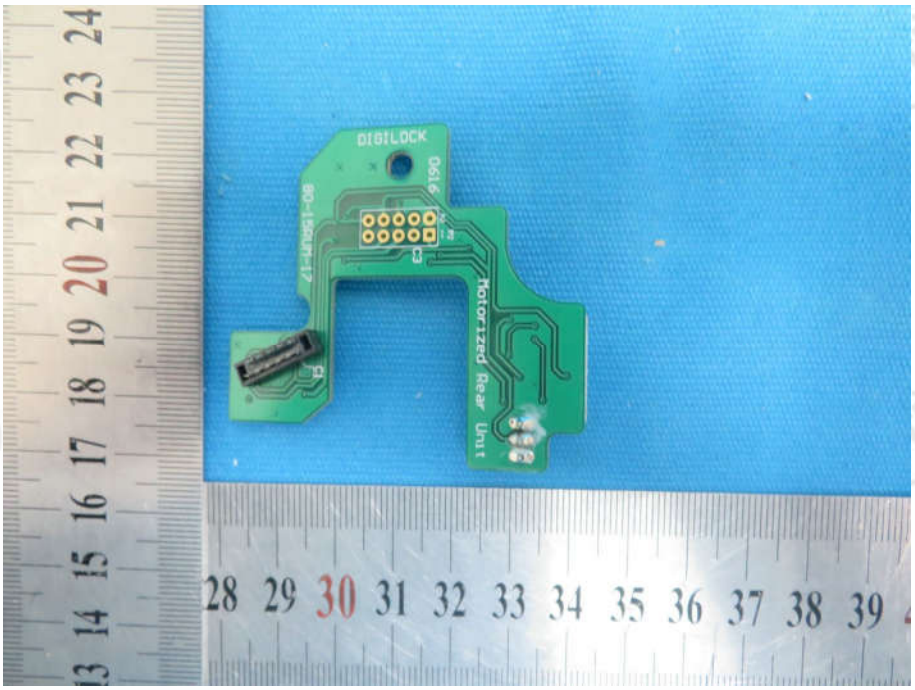
View of Product-8



View of Product-9

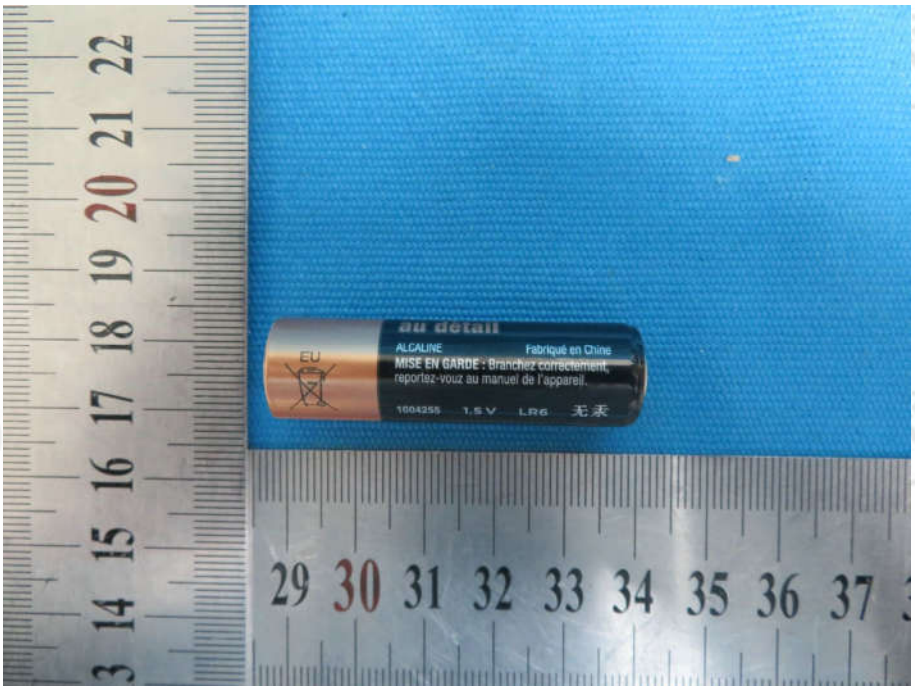


View of Product-10

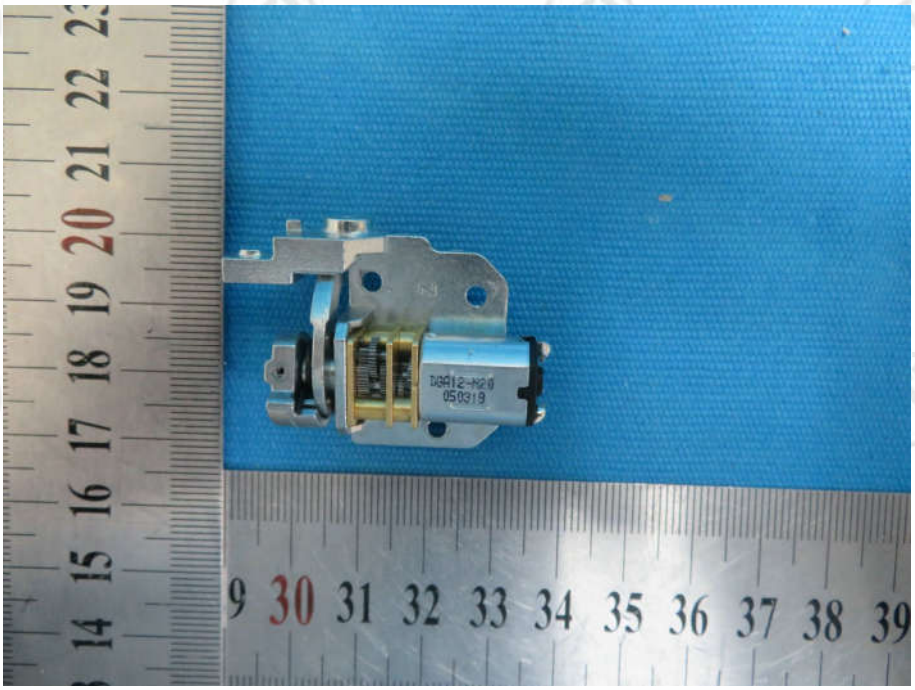


View of Product-11

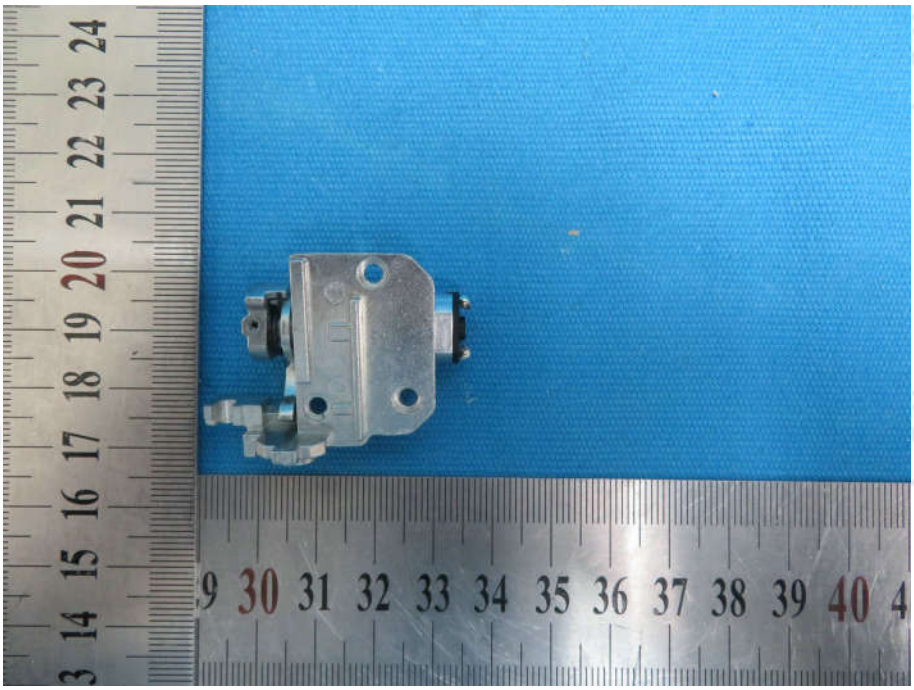
View of Product-12



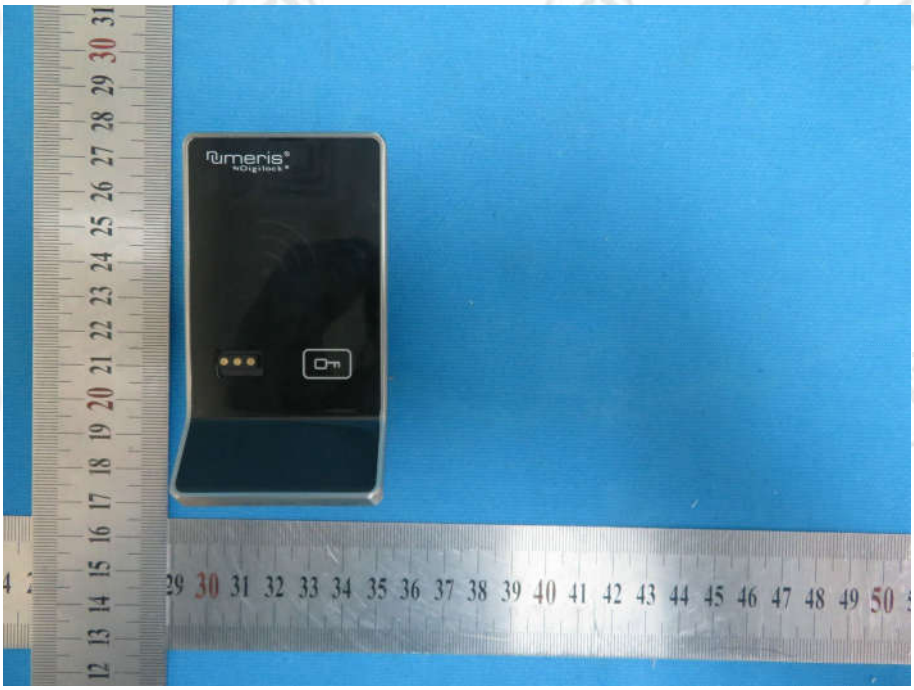
View of Product-13



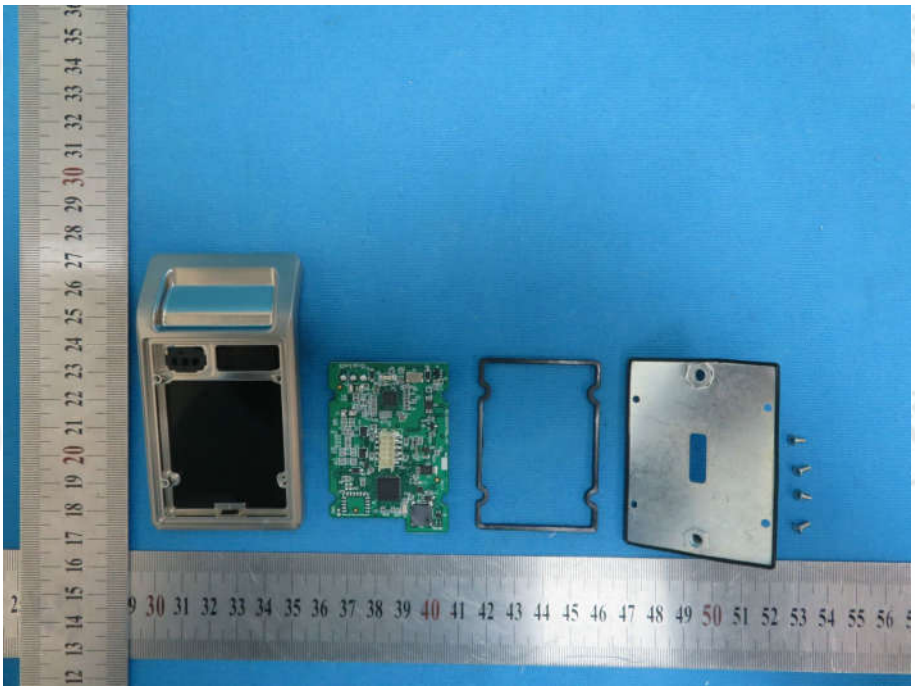
View of Product-14



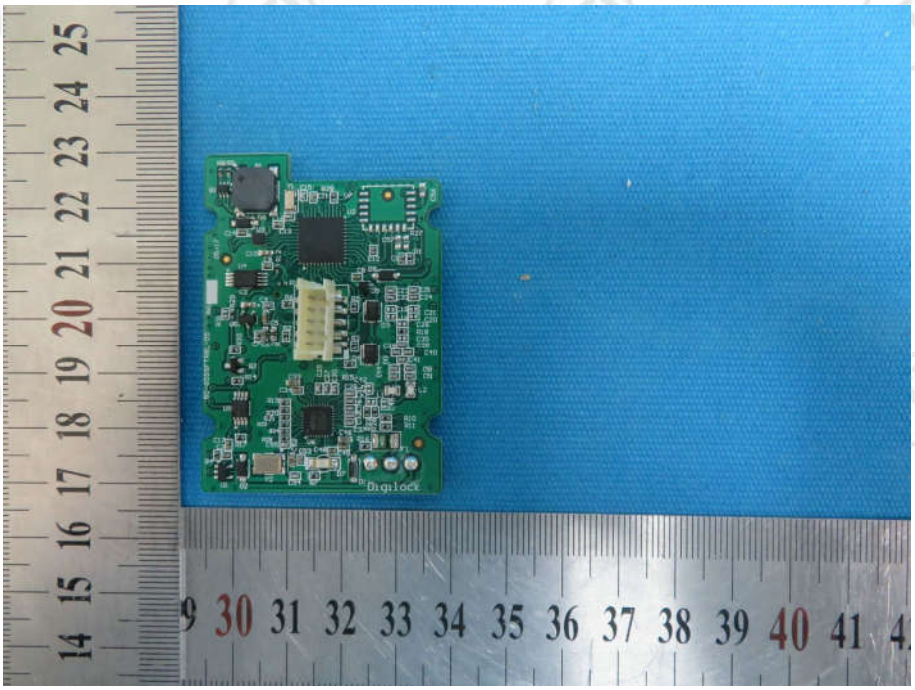
View of Product-15



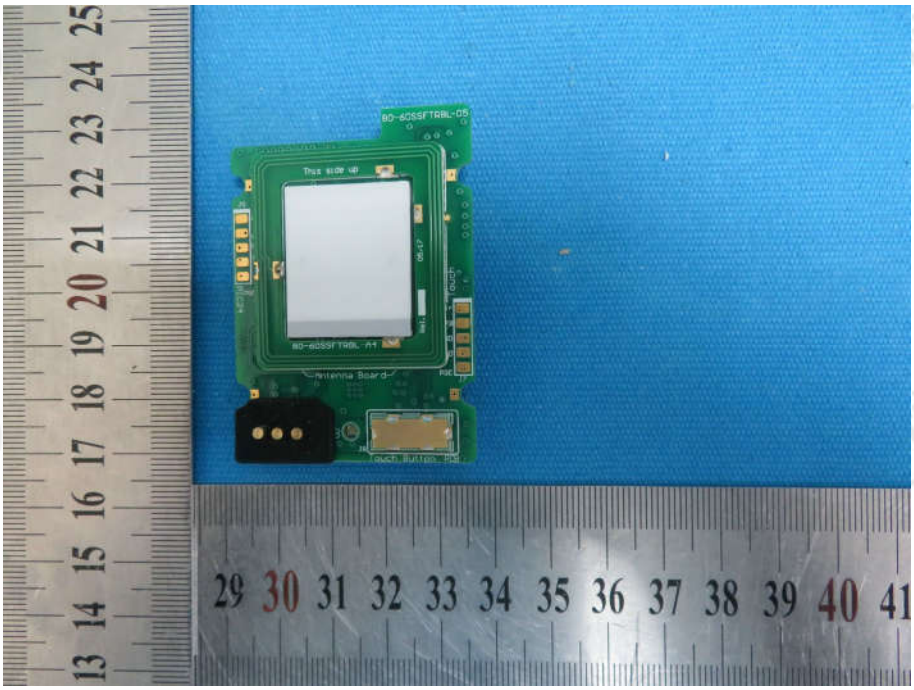
View of Product-16



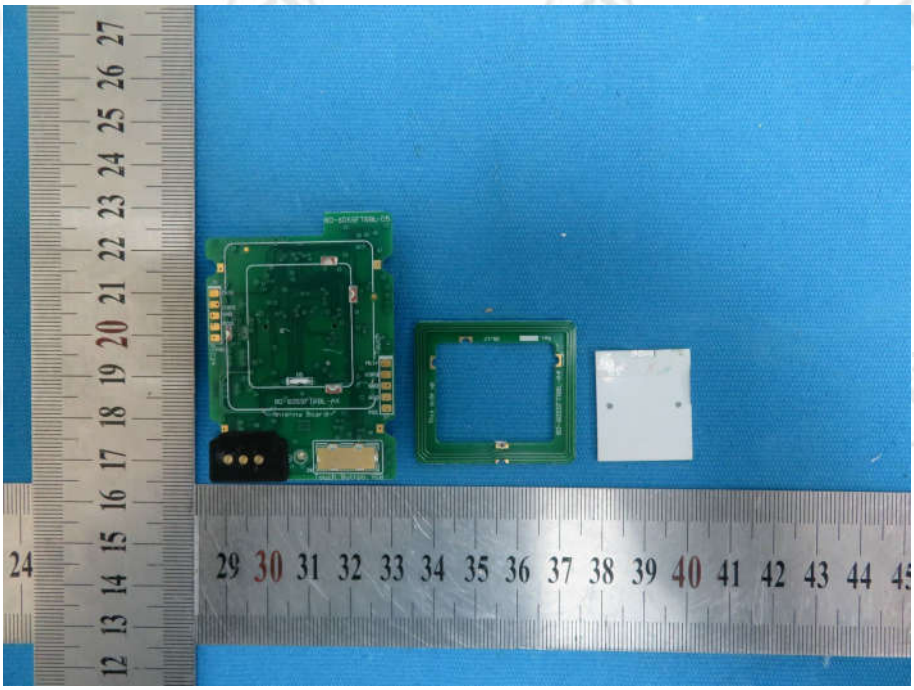
View of Product-17



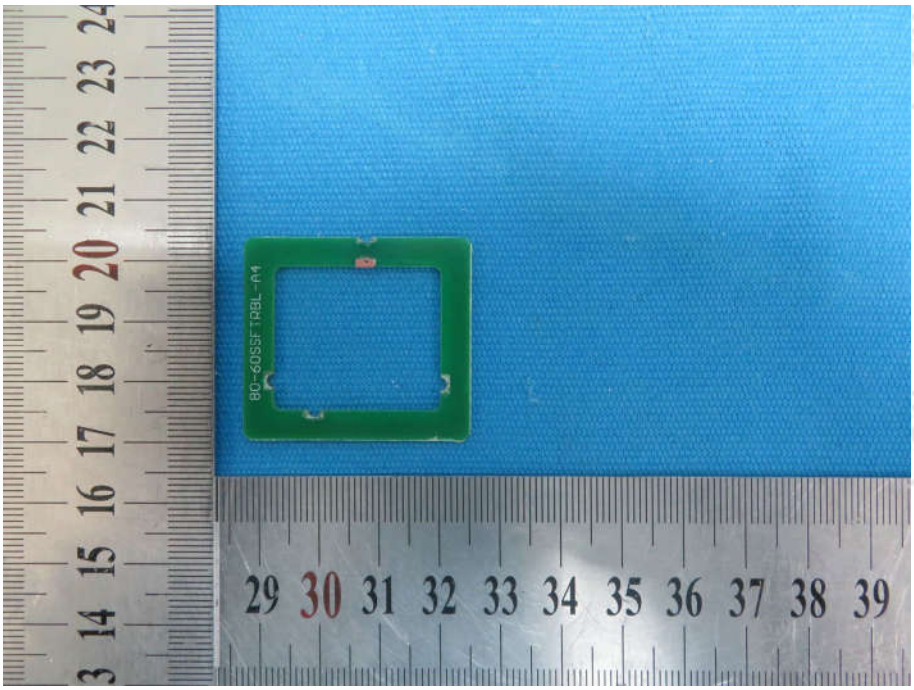
View of Product-18



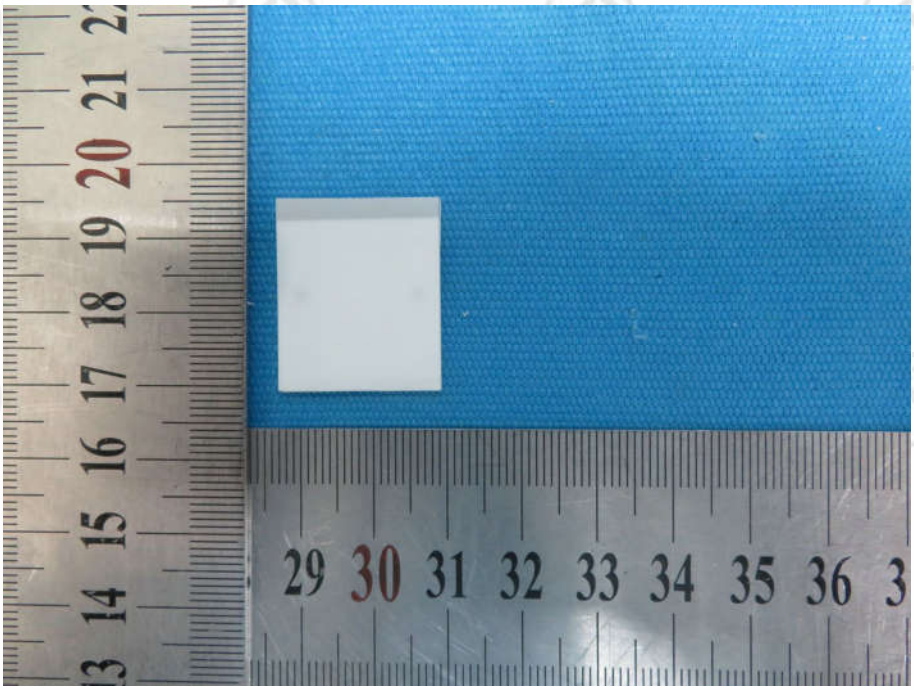
View of Product-19



View of Product-20



View of Product-21



View of Product-22

*** End of Report ***

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