TEST REPORT

Product	:	Memoo
Trade mark	:	N/A
Model/Type reference	:	CWMEMOOV01
Serial Number	:	N/A
Report Number	:	EED32J00168901
FCC ID	:	2ANIH-CWAYMEMOOV01
Date of Issue	:	Oct. 31, 2017
Test Standards	:	47 CFR Part 15 Subpart C
Test result	:	PASS

Prepared for:

C-way
55 Rue la boetie, Paris, France, 75008

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Tested By: Tom chen (Test Project)

Compiled by: Max liang (Project Engineer)

Reviewed by: Kevin yang (Reviewer)

Approved by: Sheek Luo (Lab supervisor)

Date: Oct. 31, 2017

CENTRE TESTING INTERNATIONAL GROUP CO.,LTD. CTI Report Seal

Check No.: :3043824796

2 Version

Version No.	Date	Description
00	Oct. 31, 2017	Original

3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203/15.247 (c)	ANSI C63.10-2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
Conducted Peak Output Power	47 CFR Part 15 Subpart C Section 15.247 (b)(1)	ANSI C63.10-2013	PASS
20dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	PASS
Carrier Frequencies Separation	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	PASS
Hopping Channel Number	47 CFR Part 15 Subpart C Section 15.247 (b)	ANSI C63.10-2013	PASS
Dwell Time	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	PASS
Pseudorandom Frequency Hopping Sequence	47 CFR Part 15 Subpart C Section 15.247(b)(4)&TCB Exclusion List (7 July 2002)	ANSI C63.10-2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
Radiated Spurious emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS

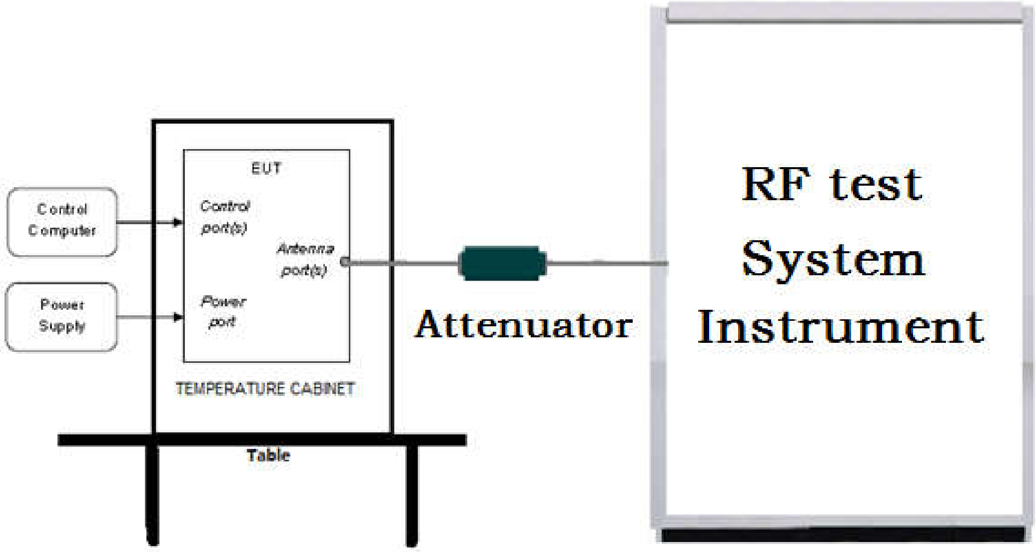
Remark:
Test according to ANSI C63.4-2014 & ANSI C63.10-2013.
The tested sample(s) and the sample information are provided by the client.

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:

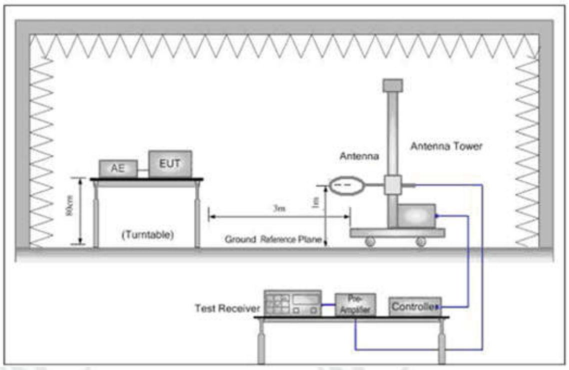


Figure 1. Below 30MHz

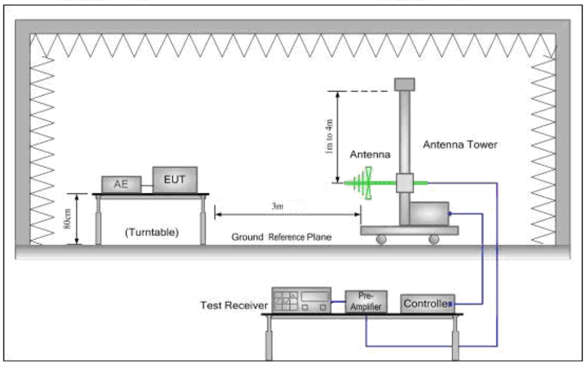


Figure 2. 30MHz to 1GHz

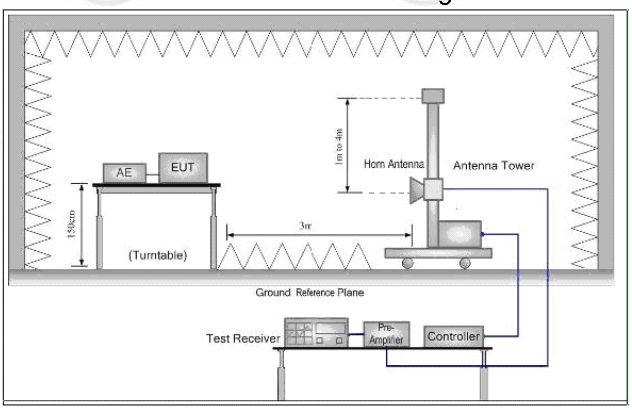
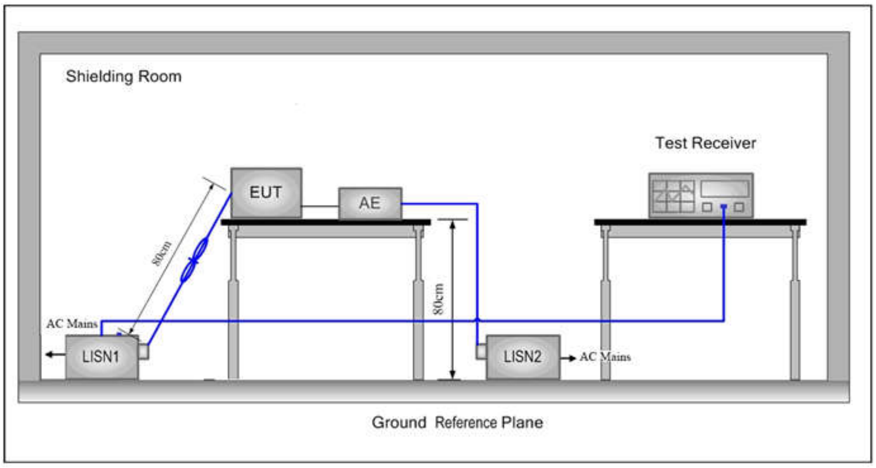


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	24.7 °C
Humidity:	61 % RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
GFSK/π/4DQPSK/ 8DPSK(DH1,DH3,DH5)	2402MHz ~2480 MHz	Channel 1	Channel 40	Channel79
		2402MHz	2441MHz	2480MHz

Test mode:

Pre-scan under all rate at middle channel 1

Mode	**GFSK**		
packets	**1-DH1**	**1-DH3**	**1-DH5**
Power(dBm)	4.712	4.899	5.020

Mode	π/4DQPSK		
packets	**2-DH1**	**2-DH3**	**2-DH5**
Power(dBm)	5.819	5.910	6.095
Mode	8DPSK		
packets	**3-DH1**	**3-DH3**	**3-DH5**
Power(dBm)	6.009	6.110	6.282

Through Pre-scan, 1-DH5 packet the power is the worst case of GFSK, 2-DH5 packet the power is the worst case of π/4DQPSK, 3-DH5 packet the power is the worst case of 8DPSK.

6 General Information

6.1 Client Information

Applicant:	C-way
Address of Applicant:	55 Rue la boetie, Paris, France, 75008
Manufacturer:	Kaertech Limited
Address of Manufacturer:	Suite 1601-02, Seaview Commercial Building, 21-24 Connaught Road West, Sheung Wan, Hong Kong
Factory:	Kaertech Electronics Philippines, Inc.
Address of Factory:	Innorev Building 2A, 141 East Main Avenue, Loop, Phase 6A, Lot 3281-1, Laguna Technopark Inc., SEPZ, Binan, Laguna, Philippines 4024

6.2 General Description of EUT

Product Name:	Memoo	
Model No.(EUT):	CWMEMOOV01	
Trade mark:	N/A	
EUT Supports Radios application:	Bluetooth: 4.0 BT Dual mode Wi-Fi: IEEE 802.11b/g/n(HT20), IEEE 802.11n(HT40)	
Power Supply:	Adapter	MODEL:KSA29B0500200D5 Input: 100V-240V,50Hz/60Hz,0.5A Output: 5.0V⎓2.0A
Software version:	V1.07 (manufacturer declare)	
Hardware version:	V4.1 (manufacturer declare)	
Sample Received Date:	Aug. 04, 2017	
Sample tested Date:	Aug. 04, 2017 to Oct. 27, 2017	

6.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	BT3.0+EDR
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test Power Grade:	N/A
Test Software of EUT:	REALTEK 2.0.0.4 (manufacturer declare)
Antenna Type:	Chip Antenna
Antenna Gain:	2dBi
Test Voltage:	AC 120V,60Hz

Operation Frequency each of channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	21	2422MHz	41	2442MHz	61	2462MHz
2	2403MHz	22	2423MHz	42	2443MHz	62	2463MHz
3	2404MHz	23	2424MHz	43	2444MHz	63	2464MHz
4	2405MHz	24	2425MHz	44	2445MHz	64	2465MHz
5	2406MHz	25	2426MHz	45	2446MHz	65	2466MHz

6	2407MHz	26	2427MHz	46	2447MHz	66	2467MHz
7	2408MHz	27	2428MHz	47	2448MHz	67	2468MHz
8	2409MHz	28	2429MHz	48	2449MHz	68	2469MHz
9	2410MHz	29	2430MHz	49	2450MHz	69	2470MHz
10	2411MHz	30	2431MHz	50	2451MHz	70	2471MHz
11	2412MHz	31	2432MHz	51	2452MHz	71	2472MHz
12	2413MHz	32	2433MHz	52	2453MHz	72	2473MHz
13	2414MHz	33	2434MHz	53	2454MHz	73	2474MHz
14	2415MHz	34	2435MHz	54	2455MHz	74	2475MHz
15	2416MHz	35	2436MHz	55	2456MHz	75	2476MHz
16	2417MHz	36	2437MHz	56	2457MHz	76	2477MHz
17	2418MHz	37	2438MHz	57	2458MHz	77	2478MHz
18	2419MHz	38	2439MHz	58	2459MHz	78	2479MHz
19	2420MHz	39	2440MHz	59	2460MHz	79	2480MHz
20	2421MHz	40	2441MHz	60	2461MHz		

6.4 Description of Support Units

None.

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
Communication test set test set	Agilent	N4010A	MY51400230	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	---	01-11-2017	01-10-2018
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX02CA03C L12-0394-001	---	01-11-2017	01-10-2018
DC Power	Keysight	E3642A	MY54436035	03-14-2017	03-13-2018
PC-1	Lenovo	R4960d	---	04-01-2017	03-31-2018
BT&WI-FI Automatic control	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

Conducted disturbance Test					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Receiver	R&S	ESCI	100009	06-14-2017	06-13-2018
Temperature/ Humidity Indicator	TAYLOR	1451	1905	05-08-2017	05-07-2018
Communication test set	Agilent	E5515C	GB47050534	03-14-2017	03-13-2018
Communication test set	R&S	CMW500	152394	03-14-2017	03-13-2018
LISN	R&S	ENV216	100098	06-13-2017	06-12-2018
LISN	schwarzbeck	NNLK8121	8121-529	06-13-2017	06-12-2018
Voltage Probe	R&S	ESH2-Z3	--	06-13-2017	06-11-2020
Current Probe	R&S	EZ17	100106	06-13-2017	06-12-2018
ISN	TESEQ GmbH	ISN T800	30297	02-23-2017	02-22-2018

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	9163-484	05-23-2017	05-22-2018
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
Microwave Preamplifier	A.H.SYSTEMS	PAP-1840-60	6041.6042	06-30-2015	06-28-2018
Horn Antenna	A.H.SYSTEMS	SAS-574 374	---	06-30-2015	06-28-2018
Spectrum Analyzer	R&S	FSP40	100416	06-13-2017	06-12-2018
Receiver	R&S	ESCI	100435	06-14-2017	06-13-2018
Multi device Controller	maturo	NCD/070/10711112	---	01-11-2017	01-10-2018
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	03-14-2017	03-13-2018
Cable line	Fulai(7M)	SF106	5219/6A	01-11-2017	01-10-2018
Cable line	Fulai(6M)	SF106	5220/6A	01-11-2017	01-10-2018
Cable line	Fulai(3M)	SF106	5216/6A	01-11-2017	01-10-2018
Cable line	Fulai(3M)	SF106	5217/6A	01-11-2017	01-10-2018
Communication test set	R&S	CMW500	152394	03-14-2017	03-13-2018
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-11-2017	01-10-2018
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX01CA09 CL12-0395-001	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX01CA08 CL12-0393-001	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX02CA04 CL12-0396-002	---	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX02CA03 CL12-0394-001	---	01-11-2017	01-10-2018

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:

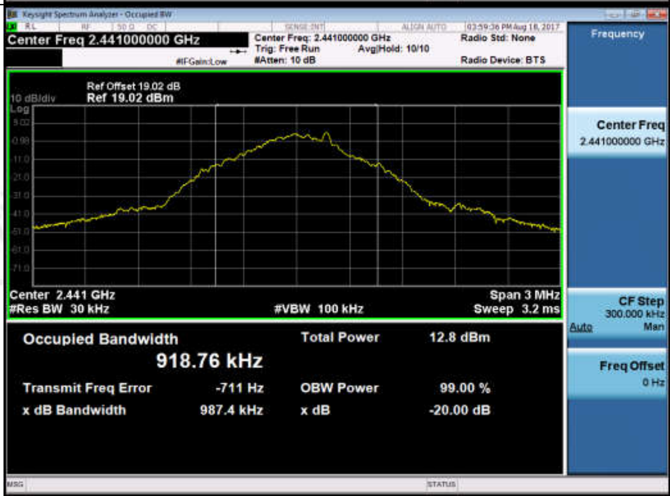
Test requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (a)(1)	ANSI 63.10	20dB Occupied Bandwidth	PASS	Appendix A)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Carrier Frequencies Separation	PASS	Appendix B)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Dwell Time	PASS	Appendix C)
Part15C Section 15.247 (b)	ANSI 63.10	Hopping Channel Number	PASS	Appendix D)
Part15C Section 15.247 (b)(1)	ANSI 63.10	Conducted Peak Output Power	PASS	Appendix E)
Part15C Section 15.247(d)	ANSI 63.10	Band-edge for RF Conducted Emissions	PASS	Appendix F)
Part15C Section 15.247(d)	ANSI 63.10	RF Conducted Spurious Emissions	PASS	Appendix G)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Pseudorandom Frequency Hopping Sequence	PASS	Appendix H)
Part15C Section 15.203/15.247 (c)	ANSI 63.10	Antenna Requirement	PASS	Appendix I)
Part15C Section 15.207	ANSI 63.10	AC Power Line Conducted Emission	PASS	Appendix J)
Part15C Section 15.205/15.209	ANSI 63.10	Restricted bands around fundamental frequency (Radiated) Emission)	PASS	Appendix K)
Part15C Section 15.205/15.209	ANSI 63.10	Radiated Spurious Emissions	PASS	Appendix L)

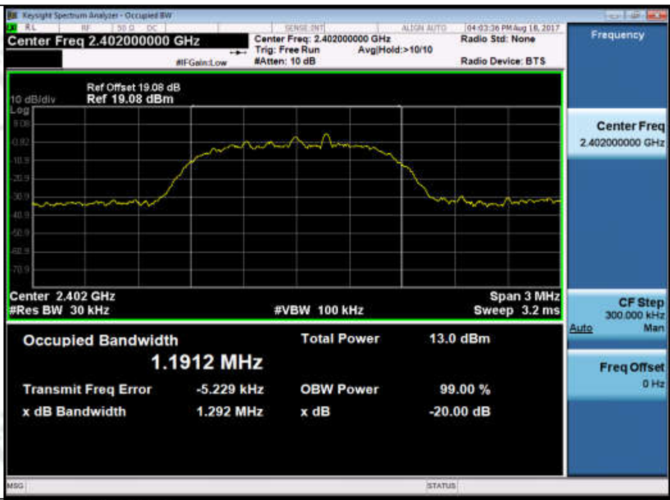
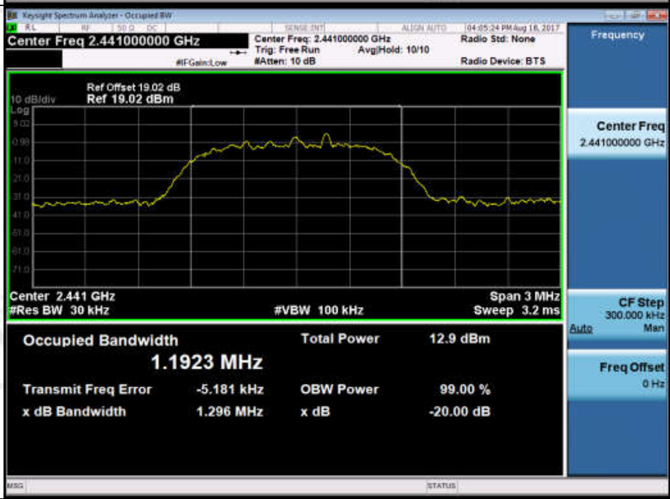
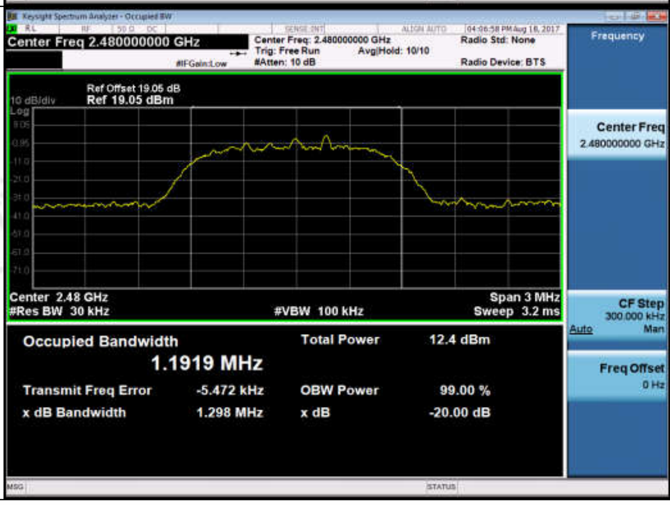
Appendix A): 20dB Occupied Bandwidth

Test Result

Mode	Channel.	20dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
GFSK	LCH	1.032	0.91993	PASS	Peak detector
GFSK	MCH	0.9874	0.91876	PASS	
GFSK	HCH	1.030	0.92061	PASS	
π/4DQPSK	LCH	1.292	1.1912	PASS	
π/4DQPSK	MCH	1.296	1.1923	PASS	
π/4DQPSK	HCH	1.298	1.1919	PASS	
8DPSK	LCH	1.294	1.1909	PASS	
8DPSK	MCH	1.287	1.1905	PASS	
8DPSK	HCH	1.294	1.1909	PASS	

Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH		
π/4DQPSK/MCH		
π/4DQPSK/HCH		

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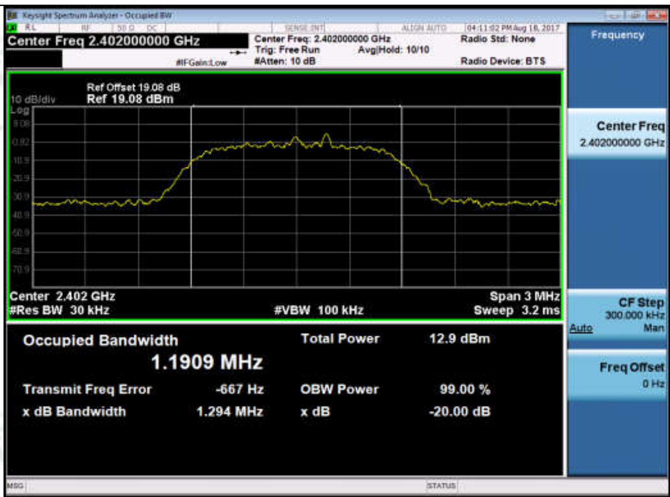
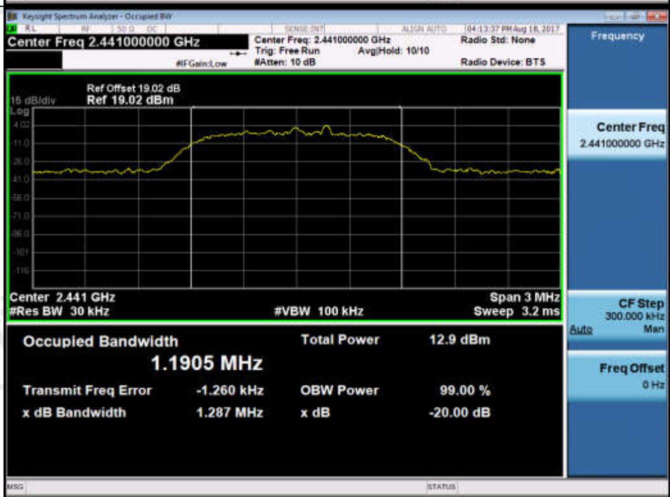
<tr><td>8DPSK/LCH</td><td></td><td>
</td></tr>
<tr><td>8DPSK/MCH</td><td></td><td>
</td></tr>
<tr><td>8DPSK/HCH</td><td></td><td>
</td></tr>
</table>

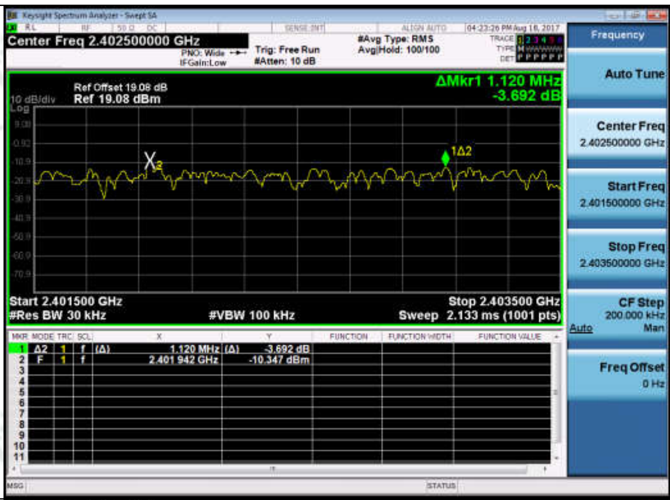
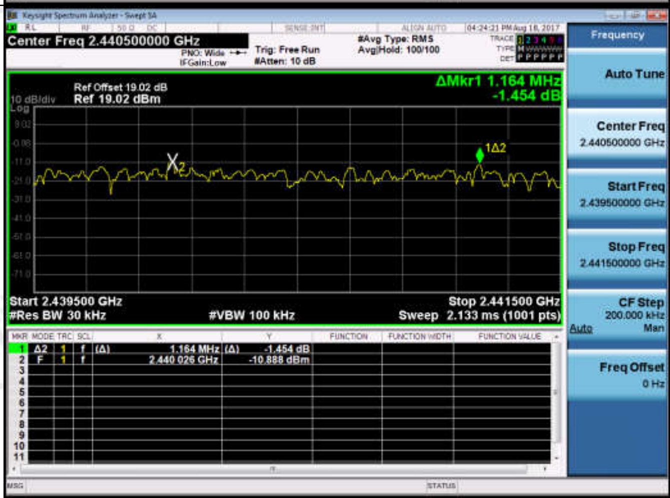
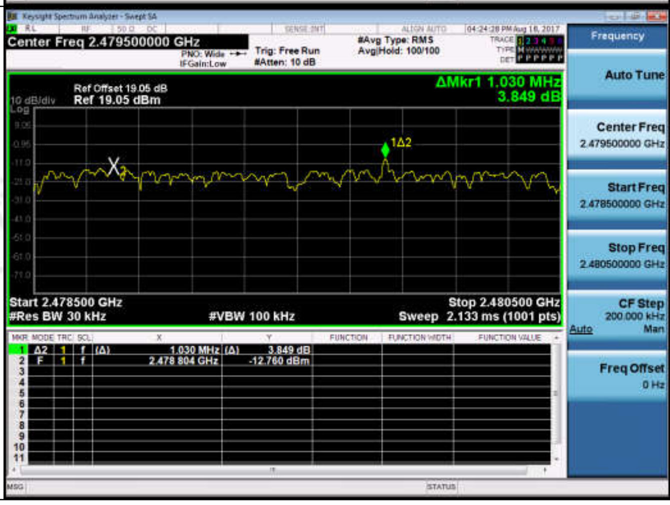
Appendix B): Carrier Frequency Separation

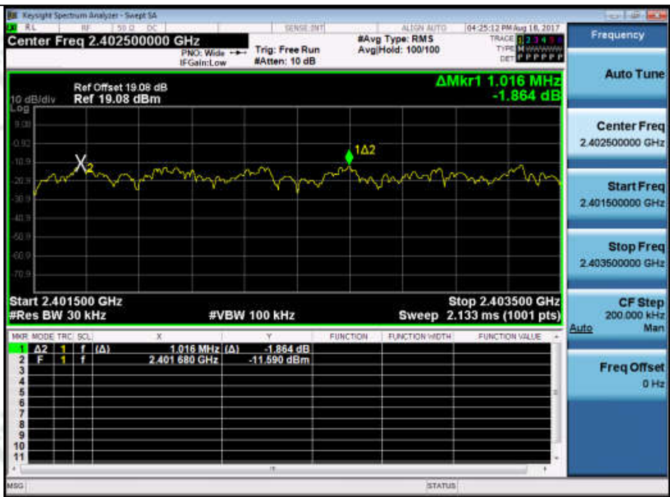
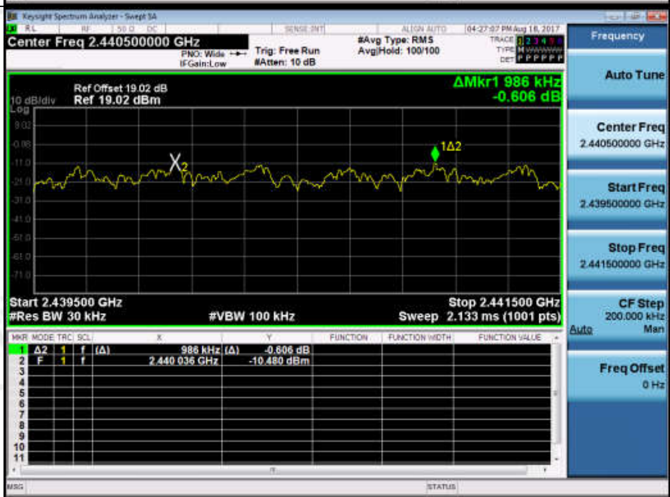
Result Table

Mode	Channel.	Carrier Frequency Separation [MHz]	Verdict
GFSK	LCH	1.088	PASS
GFSK	MCH	1.000	PASS
GFSK	HCH	1.002	PASS
π/4DQPSK	LCH	1.120	PASS
π/4DQPSK	MCH	1.164	PASS
π/4DQPSK	HCH	1.030	PASS
8DPSK	LCH	1.016	PASS
8DPSK	MCH	0.986	PASS
8DPSK	HCH	1.106	PASS

Test Graph

Graphs		
GFSK/LCH		
GFSK/MCH		
GFSK/HCH		

π/4DQPSK/LCH		
π/4DQPSK/MCH		
π/4DQPSK/HCH		

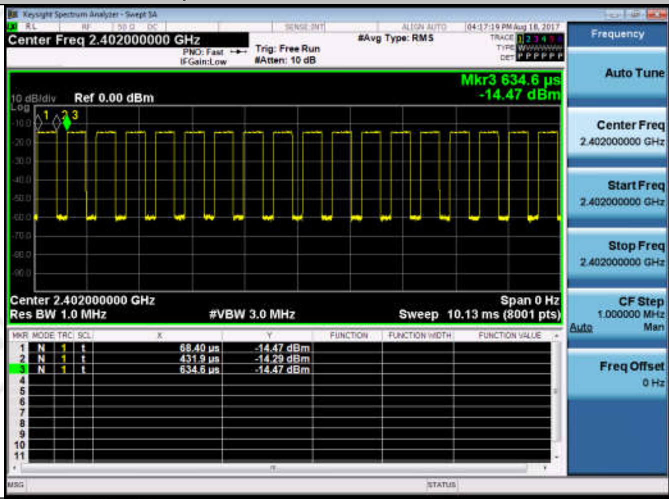
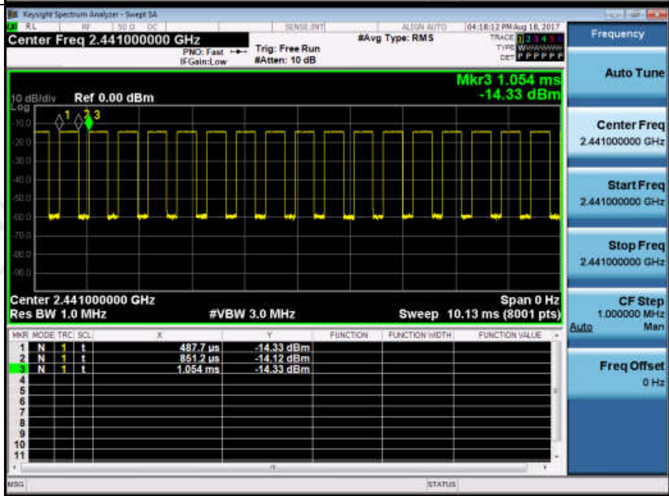
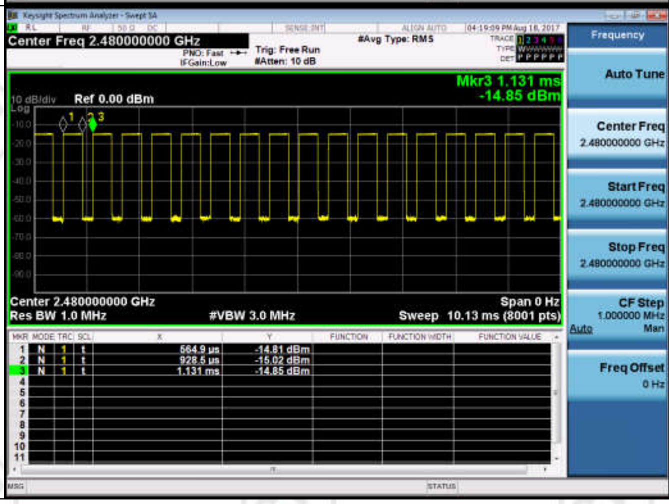
8DPSK/LCH		
8DPSK/MCH		
8DPSK/HCH		

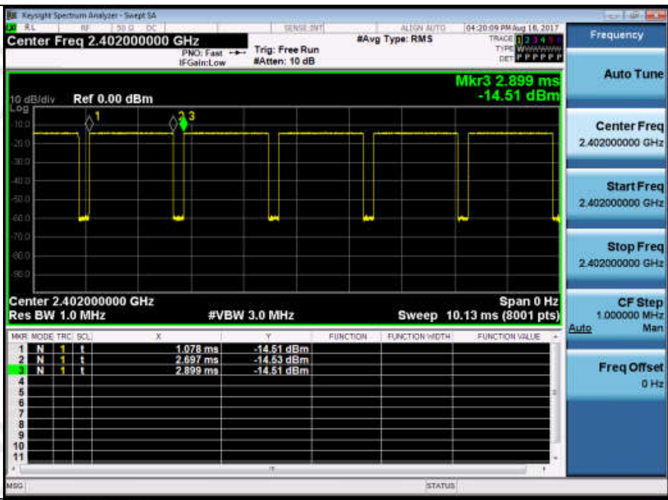
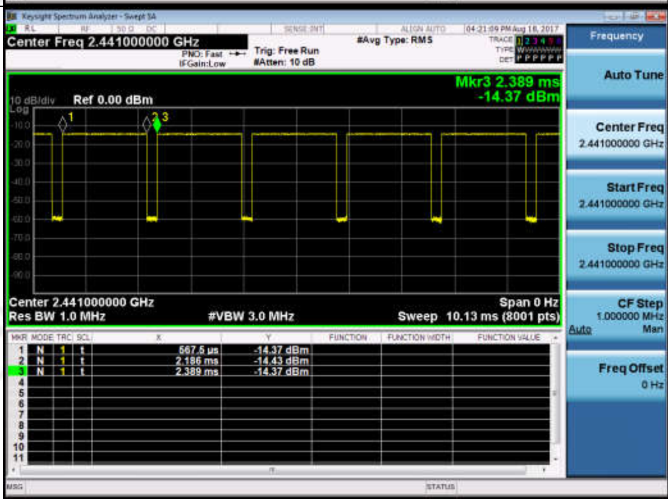
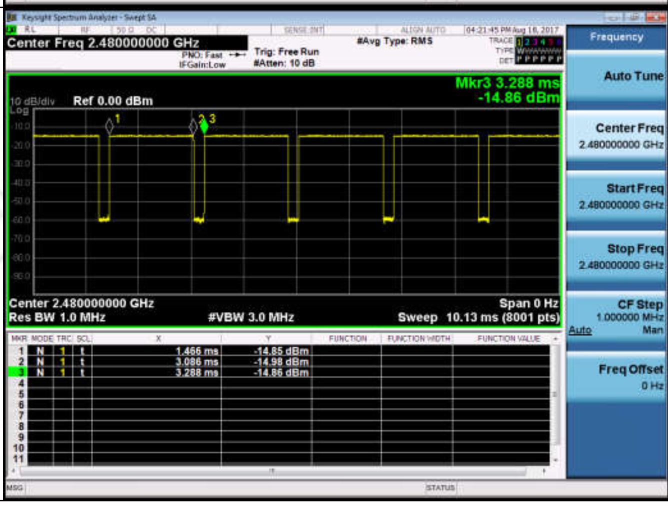
Appendix C): Dwell Time

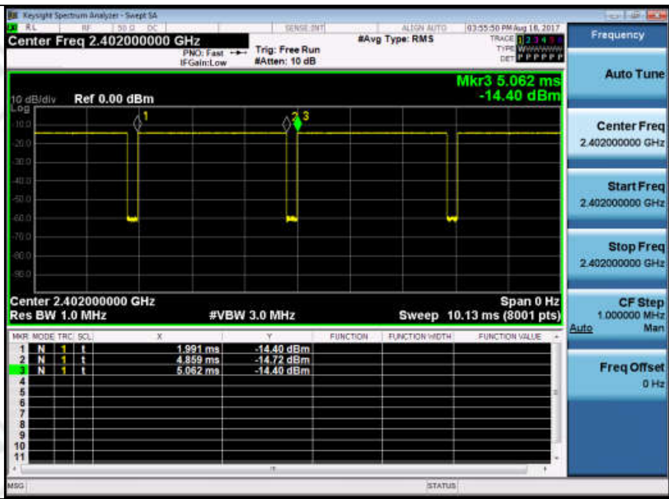
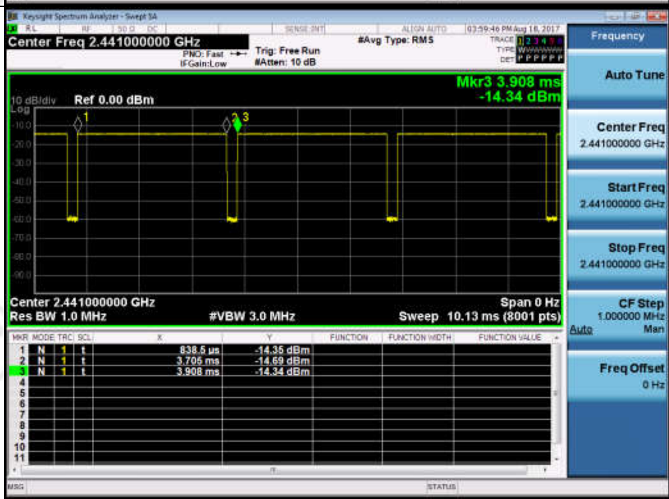
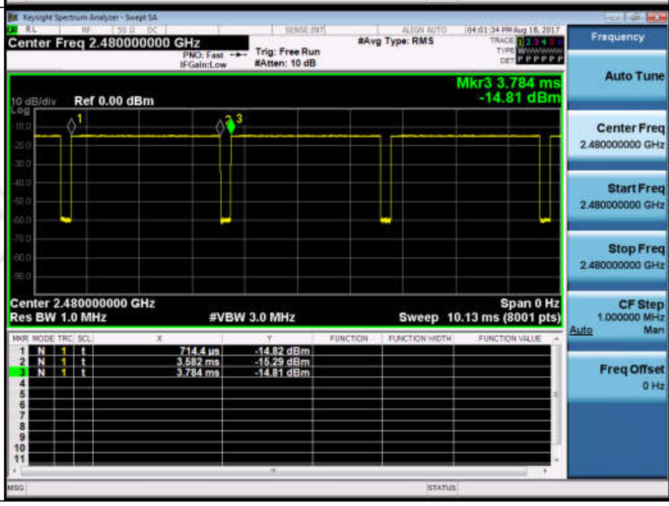
Result Table

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Duty Cycle [%]	Verdict
GFSK	DH1	LCH	0.363533	320	0.116	0.64	PASS
GFSK	DH1	MCH	0.363533	320	0.116	0.64	PASS
GFSK	DH1	HCH	0.363534	320	0.116	0.64	PASS
GFSK	DH3	LCH	1.6188	160	0.259	0.89	PASS
GFSK	DH3	MCH	1.618803	160	0.259	0.89	PASS
GFSK	DH3	HCH	1.62007	160	0.259	0.89	PASS
GFSK	DH5	LCH	2.86773	106.7	0.306	0.93	PASS
GFSK	DH5	MCH	2.866467	106.7	0.306	0.93	PASS
GFSK	DH5	HCH	2.86773	106.7	0.306	0.93	PASS

Test Graph

Graphs		
GFSK_DH1/LCH		
GFSK_DH1/MCH		
GFSK_DH1/HCH		

GFSK_DH3/LCH		
GFSK_DH3/MCH		
GFSK_DH3/HCH		

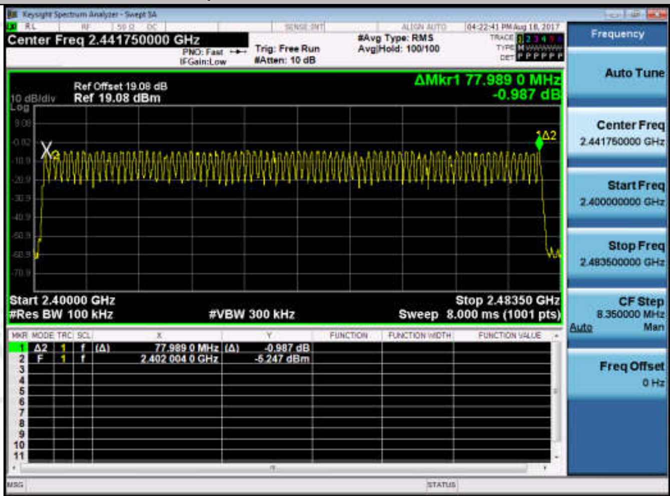
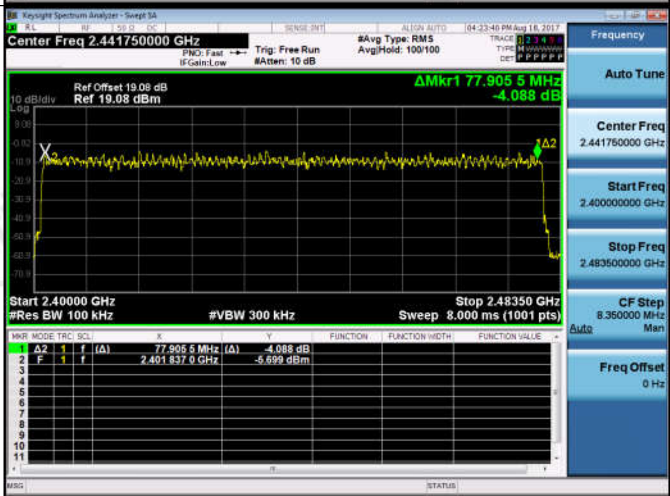
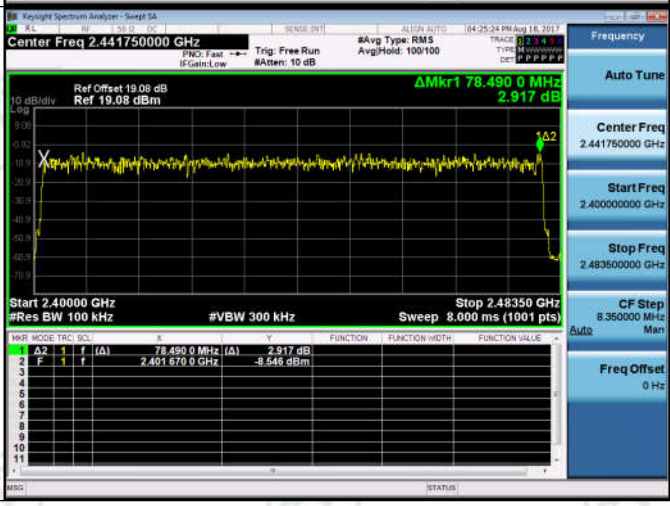
<table>
<tr><td>GFSK_DH5/LCH</td><td></td><td>
</td><td></td></tr>
<tr><td>GFSK_DH5/MCH</td><td></td><td>
</td><td></td></tr>
<tr><td>GFSK_DH5/HCH</td><td></td><td>
</td><td></td></tr>
</table>

Appendix D): Hopping Channel Number

Result Table

Mode	Channel.	Number of Hopping Channel	Verdict
GFSK	Hop	79	PASS
π/4DQPSK	Hop	79	PASS
8DPSK	Hop	79	PASS

Test Graph

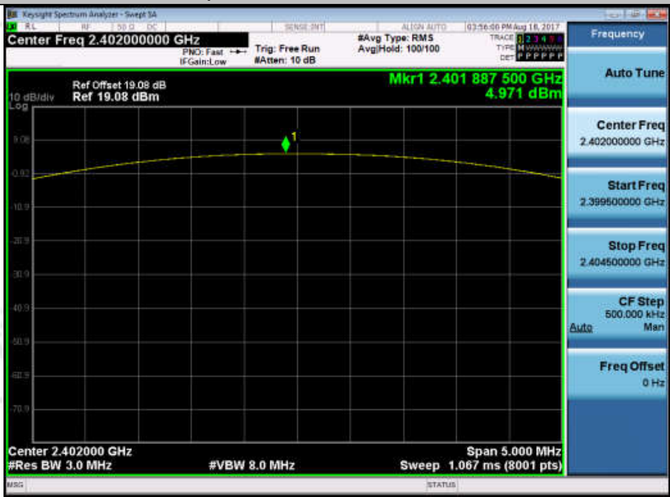
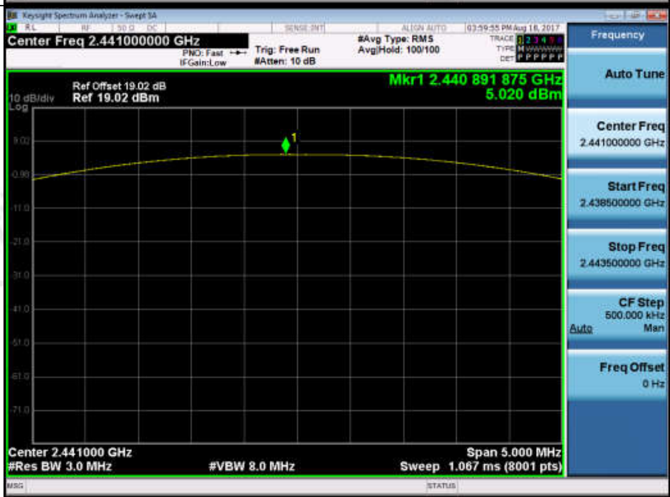
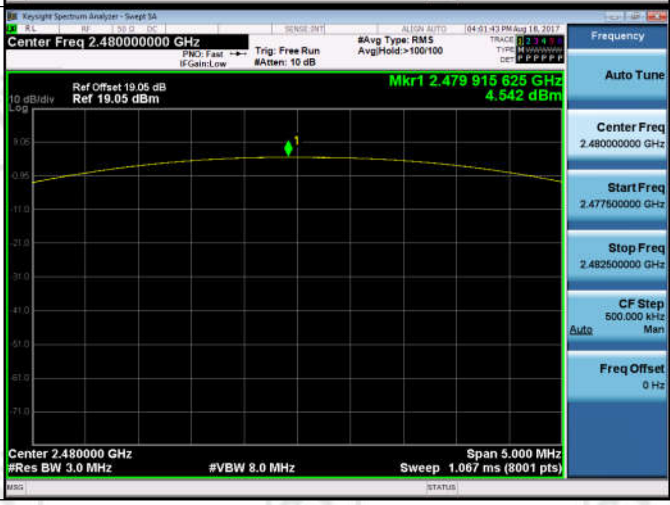
Graphs		
GFSK/Hop		
π/4DQPSK/Hop		
8DPSK/Hop		

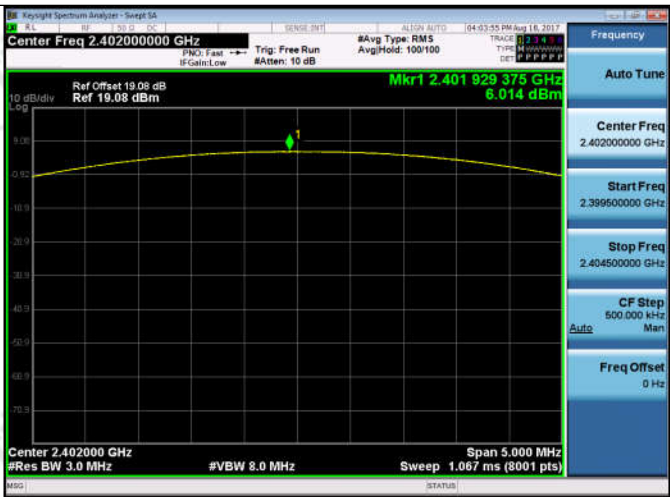
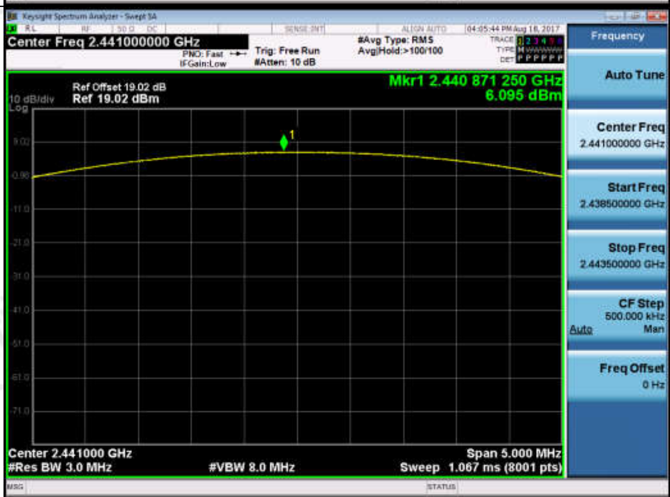
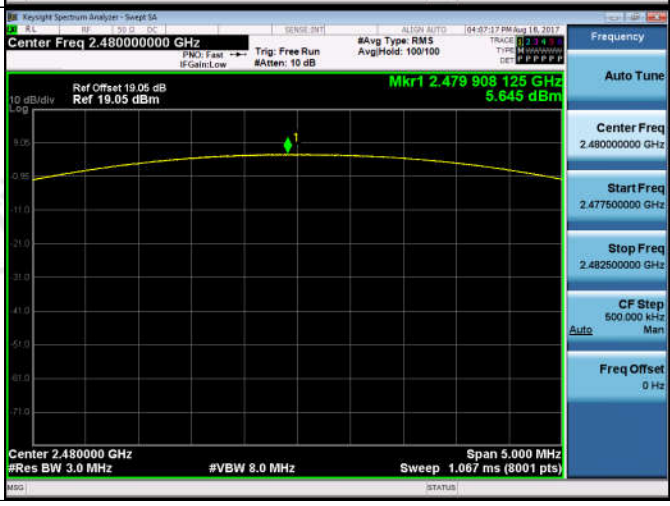
Appendix E): Conducted Peak Output Power

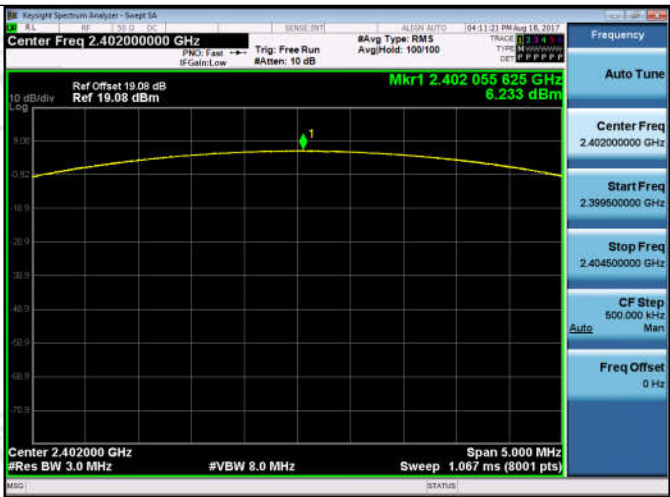
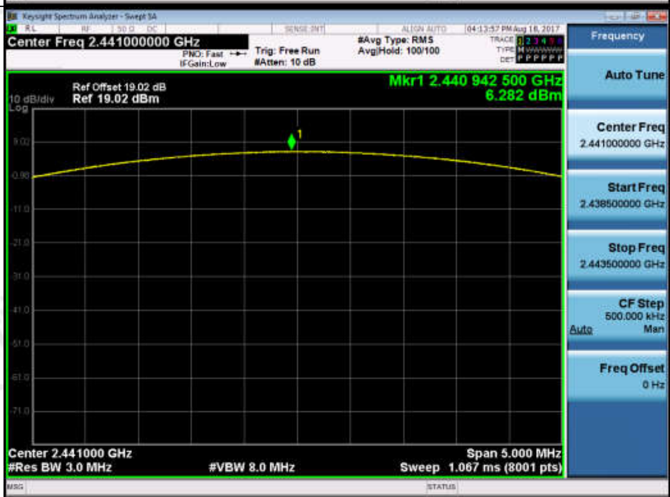
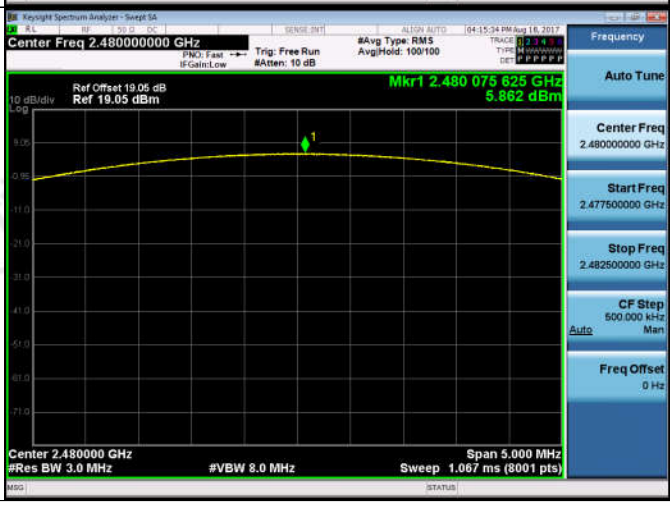
Result Table

Mode	Channel.	Maximum Peak Output Power [dBm]	Verdict
GFSK	LCH	4.971	PASS
GFSK	MCH	5.020	PASS
GFSK	HCH	4.542	PASS
π/4DQPSK	LCH	6.014	PASS
π/4DQPSK	MCH	6.095	PASS
π/4DQPSK	HCH	5.645	PASS
8DPSK	LCH	6.233	PASS
8DPSK	MCH	6.282	PASS
8DPSK	HCH	5.862	PASS

Test Graph

	Graphs
GFSK/LCH	
GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH		
π/4DQPSK/MCH		
π/4DQPSK/HCH		

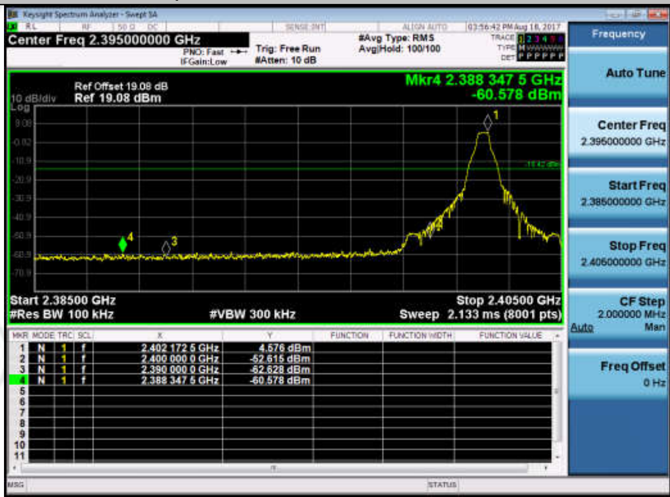
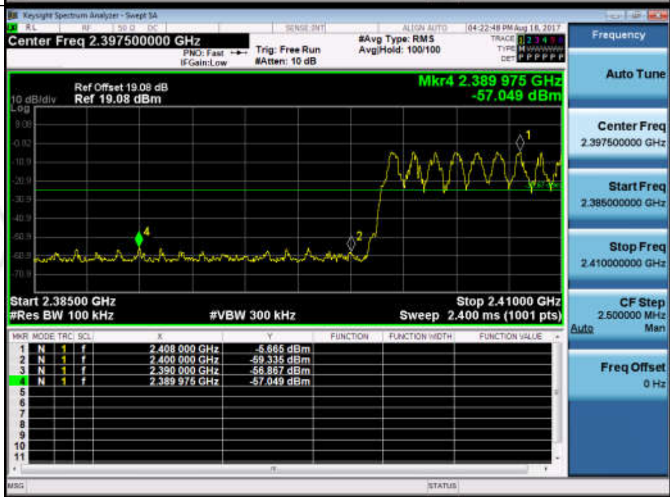
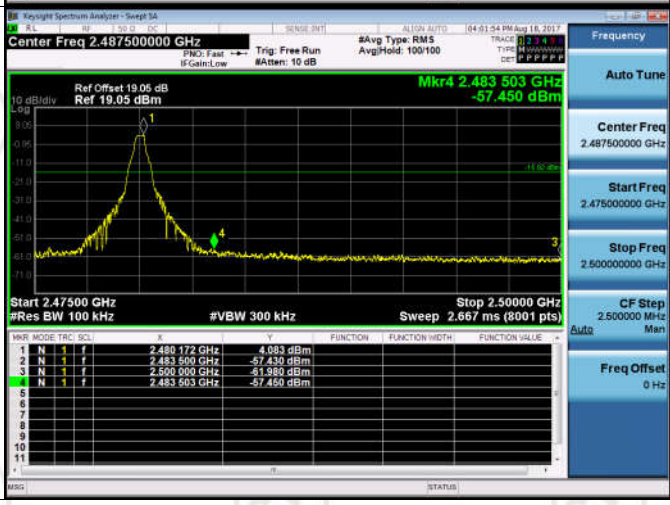
8DPSK/LCH		
8DPSK/MCH		
8DPSK/HCH		

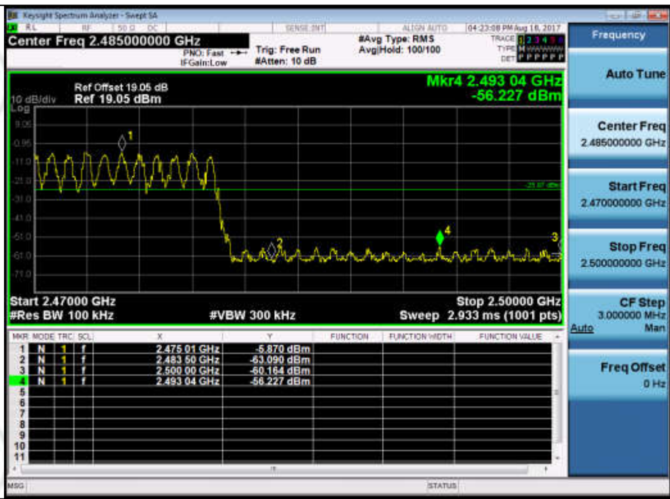
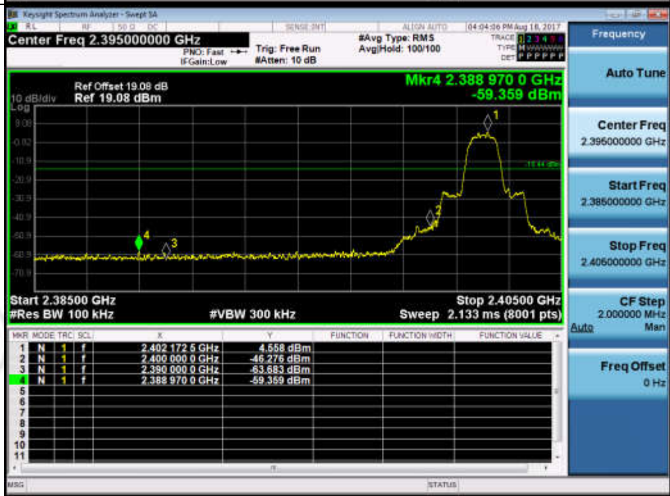
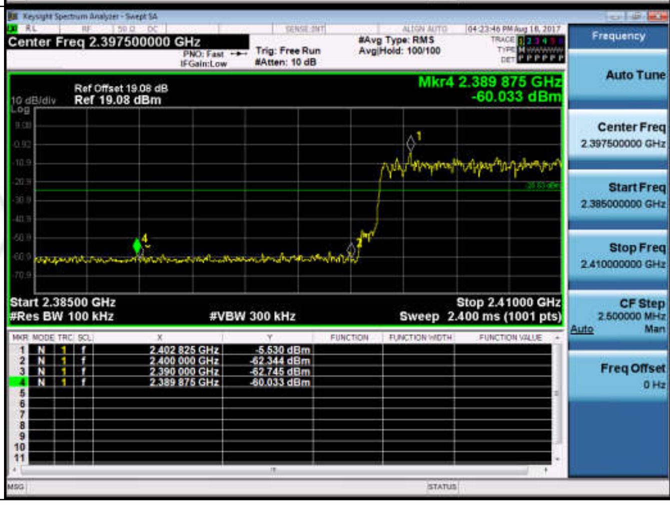
Appendix F): Band-edge for RF Conducted Emissions

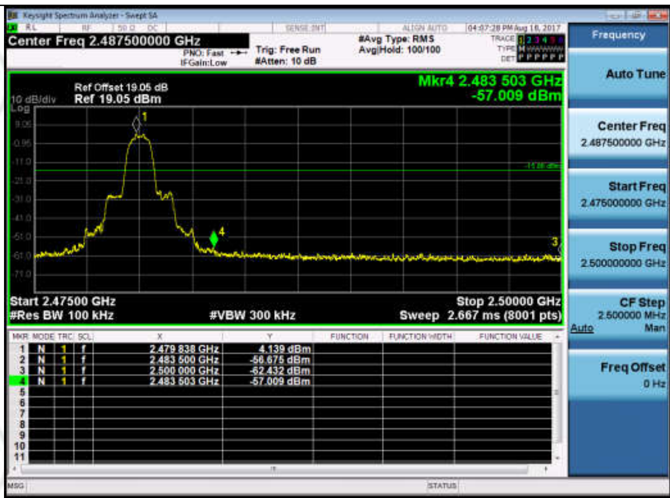
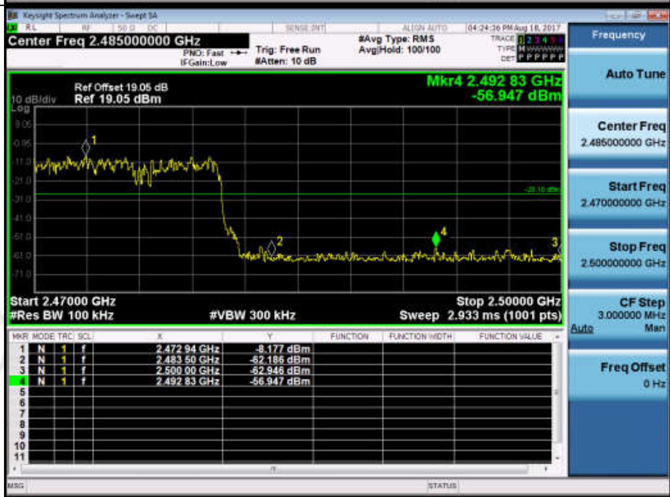
Result Table

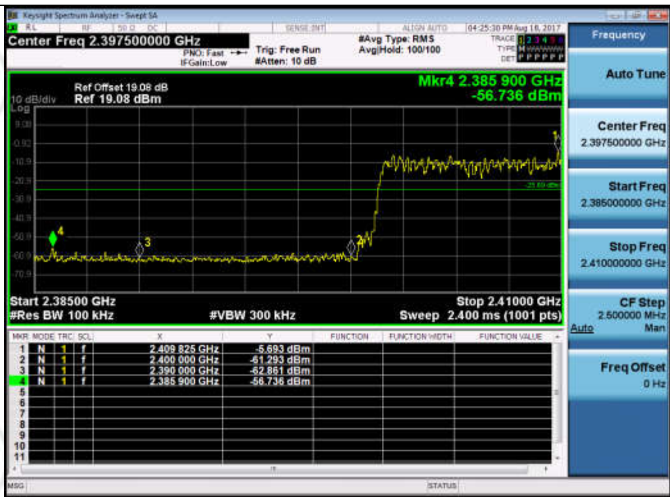
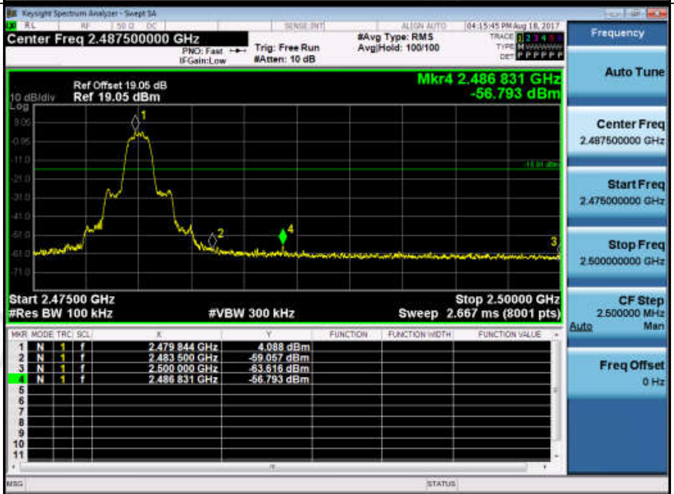
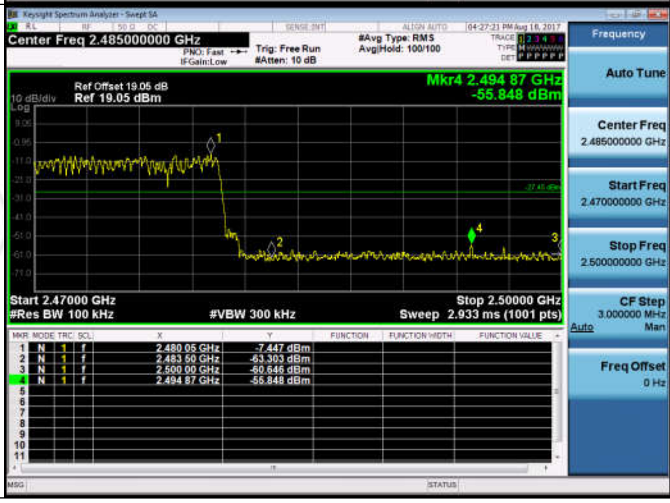
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	4.576	Off	-60.578	-15.42	PASS
			-5.665	On	-57.049	-25.67	PASS
GFSK	HCH	2480	4.083	Off	-57.450	-15.92	PASS
			-5.870	On	-56.227	-25.87	PASS
π/4DQPSK	LCH	2402	4.558	Off	-59.359	-15.44	PASS
			-5.530	On	-60.033	-25.53	PASS
π/4DQPSK	HCH	2480	4.139	Off	-57.009	-15.86	PASS
			-8.177	On	-56.947	-28.18	PASS
8DPSK	LCH	2402	4.538	Off	-59.820	-15.46	PASS
			-5.693	On	-56.736	-25.69	PASS
8DPSK	HCH	2480	4.088	Off	-56.793	-15.91	PASS
			-7.447	On	-55.848	-27.45	PASS

Test Graph

Graphs		
GFSK/LCH/No Hop		
GFSK/LCH/Hop		
GFSK/HCH/No Hop		

GFSK/HCH/Hop		
π/4DQPSK/LCH/No Hop		
π/4DQPSK/LCH/Hop		

π/4DQPSK/HCH/No Hop		
π/4DQPSK/HCH/Hop		
8DPSK/LCH/No Hop		

<table>
<tr><td>8DPSK/LCH/Hop</td><td></td><td></td></tr>
<tr><td>8DPSK/HCH/No Hop</td><td></td><td></td></tr>
<tr><td>8DPSK/HCH/Hop</td><td></td><td></td></tr>
</table>

Appendix G): RF Conducted Spurious Emissions

Result Table

Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
GFSK	LCH	4.57	<Limit	PASS
GFSK	MCH	4.596	<Limit	PASS
GFSK	HCH	4.077	<Limit	PASS
π/4DQPSK	LCH	4.324	<Limit	PASS
π/4DQPSK	MCH	4.593	<Limit	PASS
π/4DQPSK	HCH	4.057	<Limit	PASS
8DPSK	LCH	2.303	<Limit	PASS
8DPSK	MCH	4.572	<Limit	PASS
8DPSK	HCH	3.998	<Limit	PASS

Test Graph

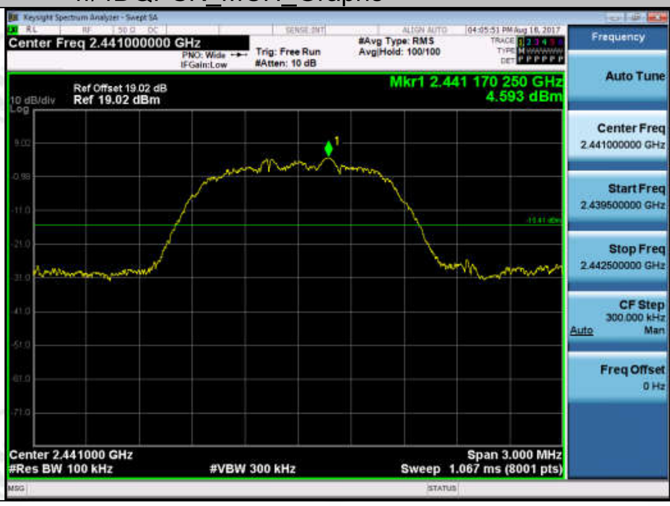
GFSK_LCH_Graphs		
Pref		
Puw		

GFSK_MCH_Graphs		
Pref		

<table>
<tr><td>Puw</td><td></td><td>
</td></tr>
</table>

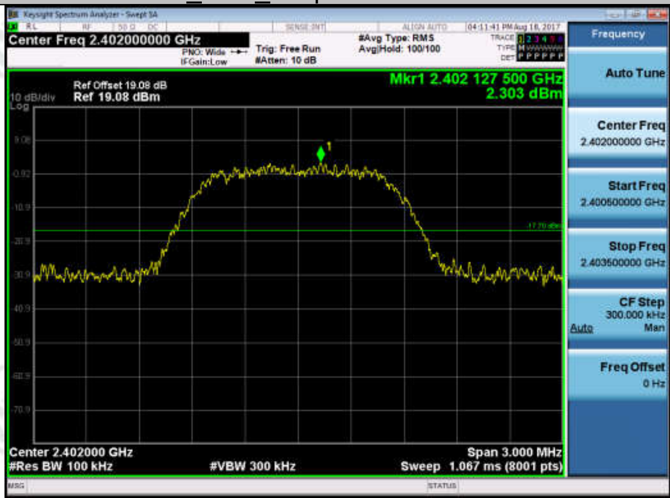
<table>
<tr><th colspan="3">GFSK_HCH_Graphs</th></tr>
<tr><td>Pref</td><td></td><td>
</td></tr>
<tr><td>Puw</td><td></td><td>
</td></tr>
</table>

π/4DQPSK_LCH_Graphs		
Pref		
Puw		

π/4DQPSK_MCH_Graphs		
Pref		

Puw		

π/4DQPSK_HCH_Graphs		
Pref		
Puw		

8DPSK_LCH_Graphs		
Pref		
Puw		

8DPSK_MCH_Graphs		
Pref		

Puw		

8DPSK_HCH_Graphs		
Pref		
Puw		

Appendix H): Pseudorandom Frequency Hopping Sequence

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1) requirement:

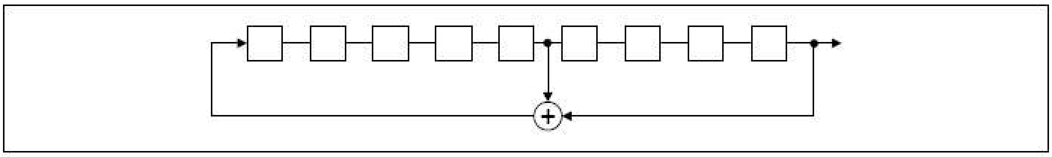
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively. Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

EUT Pseudorandom Frequency Hopping Sequence

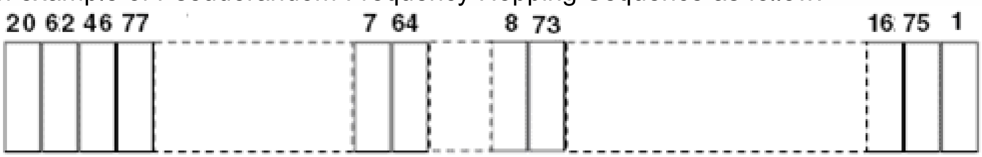
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

The device does not have the ability to be coordinated with other FHSS systems in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

Appendix I): Antenna Requirement

15.203 requirement:

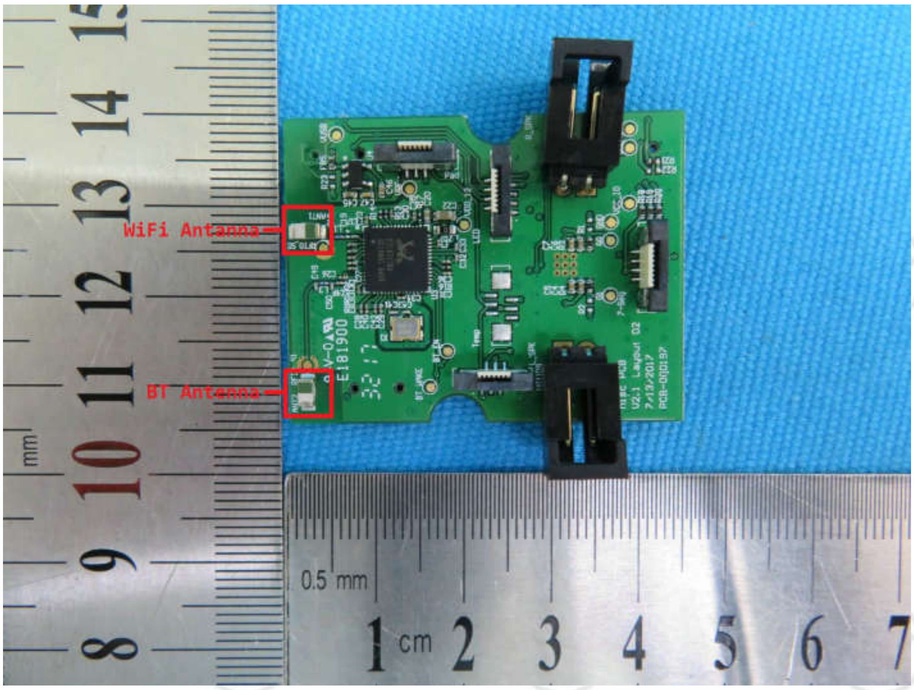
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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 chip antenna and no consideration of replacement. The best case gain of the antenna is 2dBi.



Appendix J): 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:	(see table below)

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.

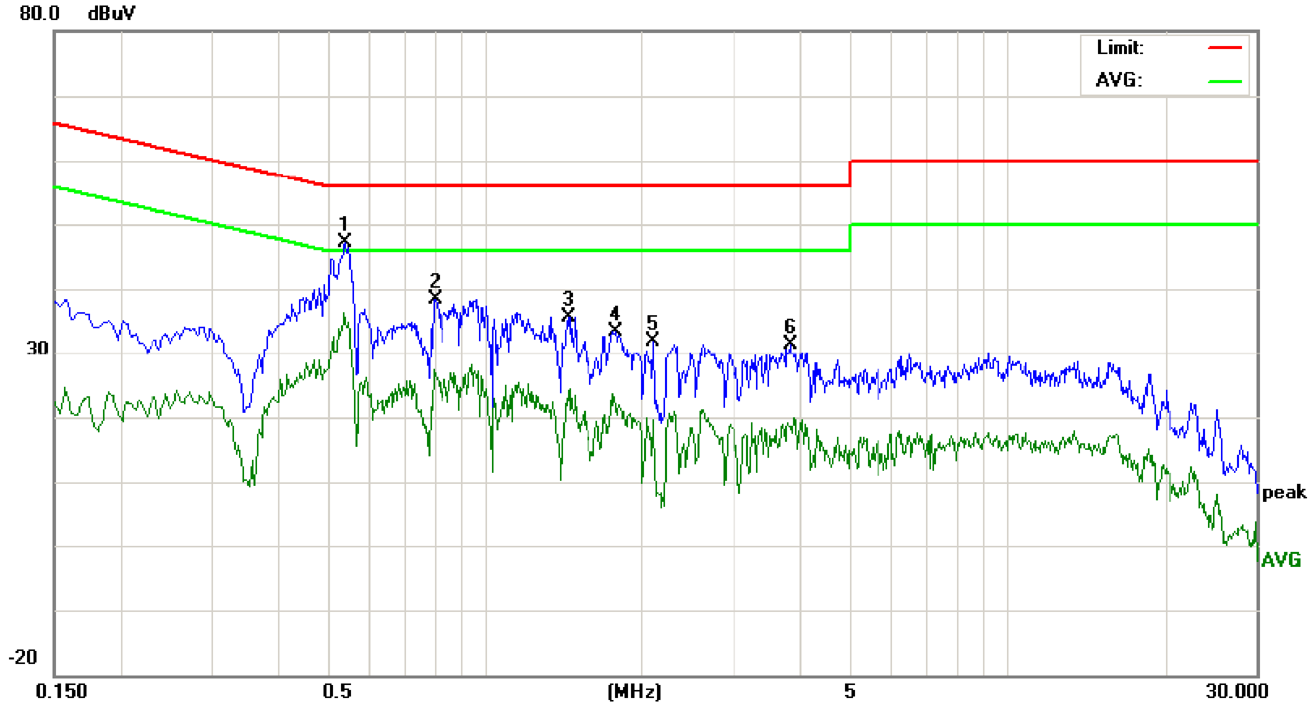
NOTE : The lower limit is applicable at the transition frequency

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

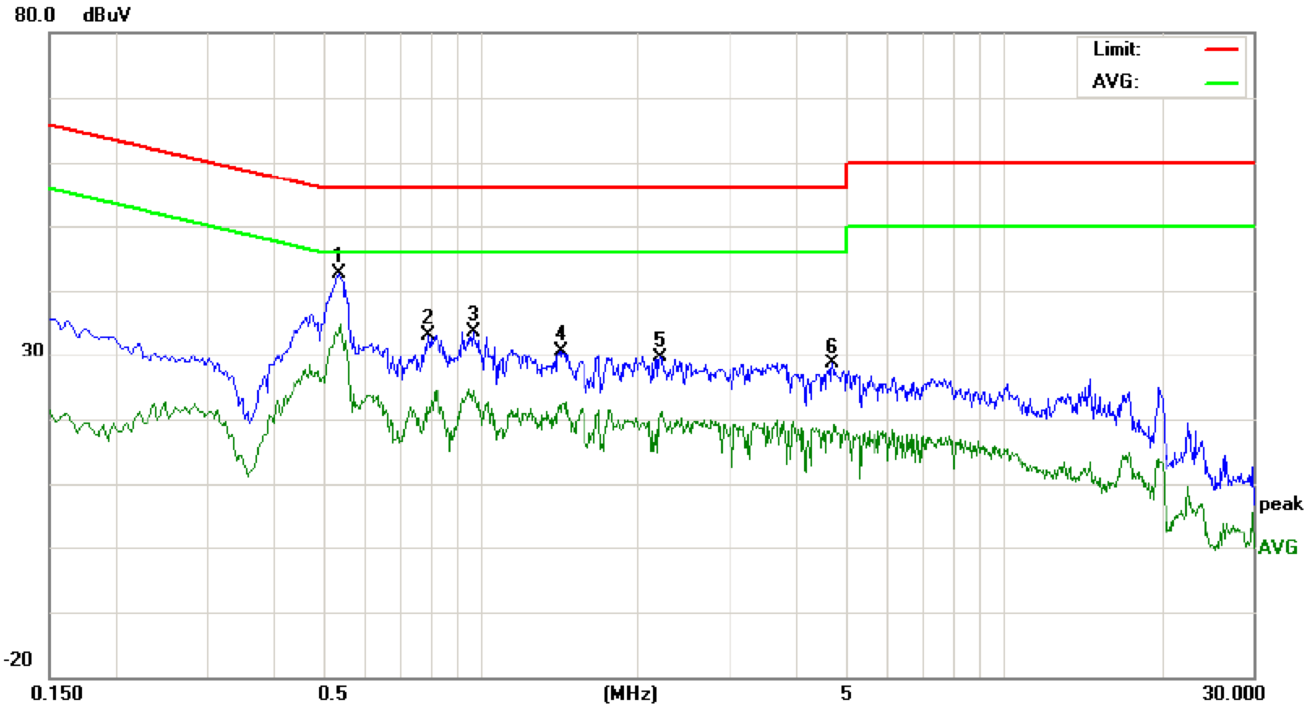
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

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	0.5420	37.43	34.26	24.12	9.73	47.16	43.99	33.85	56.00	46.00	-12.01	-12.15	P	
2	0.8059	28.75	26.09	16.49	9.74	38.49	35.83	26.23	56.00	46.00	-20.17	-19.77	P	
3	1.4420	26.01	22.14	12.21	9.72	35.73	31.86	21.93	56.00	46.00	-24.14	-24.07	P	
4	1.7820	23.59	20.87	11.00	9.72	33.31	30.59	20.72	56.00	46.00	-25.41	-25.28	P	
5	2.1099	22.12	17.55	6.73	9.72	31.84	27.27	16.45	56.00	46.00	-28.73	-29.55	P	
6	3.8420	21.76	17.36	7.68	9.66	31.42	27.02	17.34	56.00	46.00	-28.98	-28.66	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	0.5380	32.79	30.21	22.51	9.73	42.52	39.94	32.24	56.00	46.00	-16.06	-13.76	P	
2	0.7940	23.44	15.66	8.79	9.74	33.18	25.40	18.53	56.00	46.00	-30.60	-27.47	P	
3	0.9700	23.99	17.48	9.54	9.73	33.72	27.21	19.27	56.00	46.00	-28.79	-26.73	P	
4	1.4299	20.90	17.28	9.85	9.72	30.62	27.00	19.57	56.00	46.00	-29.00	-26.43	P	
5	2.2100	19.88	16.23	7.30	9.71	29.59	25.94	17.01	56.00	46.00	-30.06	-28.99	P	
6	4.7020	18.99	13.22	6.03	9.63	28.62	22.85	15.66	56.00	46.00	-33.15	-30.34	P	

Notes:

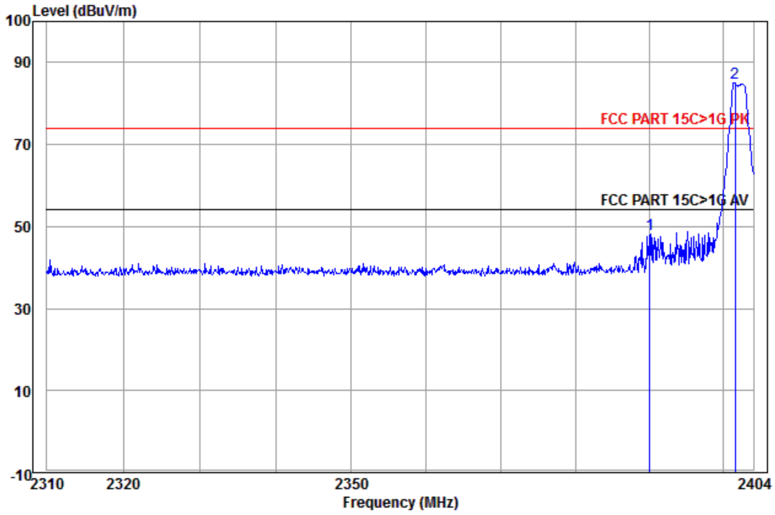
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

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

Receiver Setup:	<table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr><tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr><tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</td></tr></table>
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 table 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 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. b. 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:	<table><tr><td>Frequency</td><td>Limit (dBµV/m @3m)</td><td>Remark</td></tr><tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr><tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr><tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr><tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr><tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr><tr><td>74.0</td><td>Peak Value</td></tr></table>

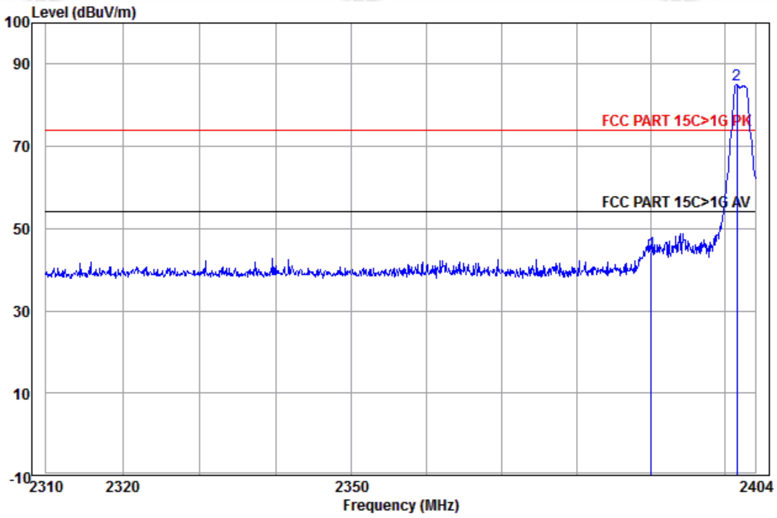
Test plot as follows:

Worse case mode:	GFSK(1-DH5)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



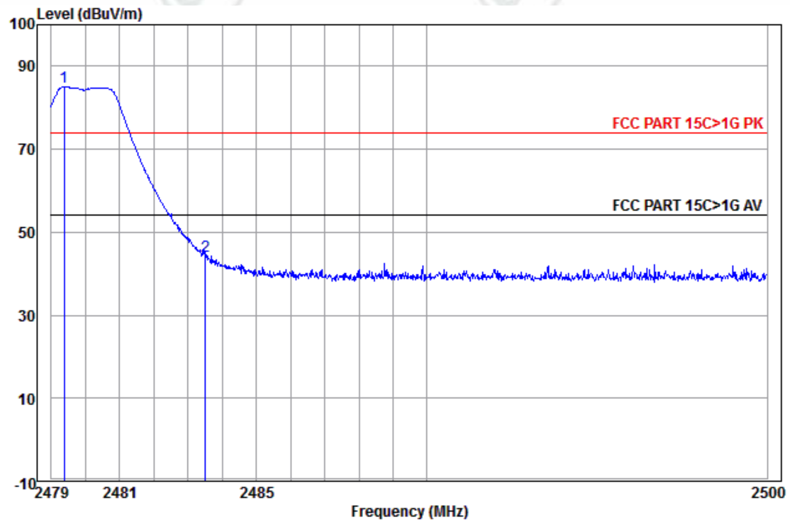
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	44.03	56.56	48.13	74.00	-25.87	Horizontal	Peak
2 pp	2401.508	32.56	3.07	44.04	93.39	84.98	74.00	10.98	Horizontal	Peak

Worse case mode:	GFSK(1-DH5)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



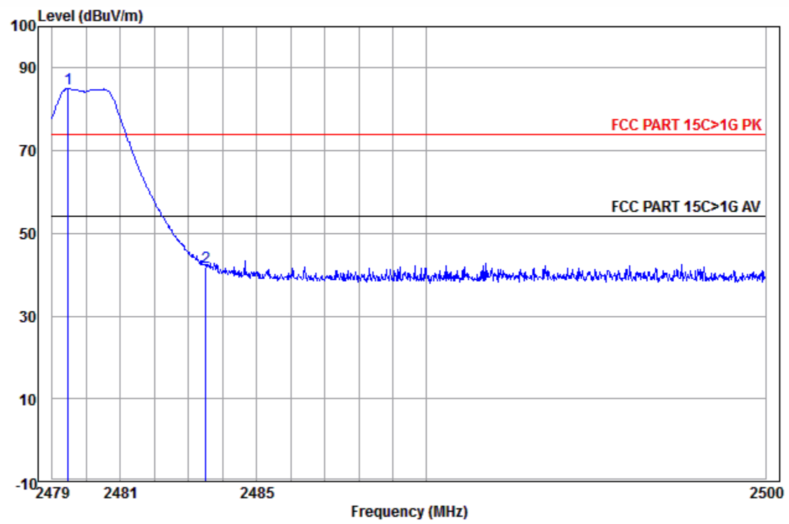
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	44.03	52.76	44.33	74.00	-29.67	Vertical	Peak
2 pp	2401.508	32.56	3.07	44.04	93.39	84.98	74.00	10.98	Vertical	Peak

Worse case mode:	GFSK(1-DH5)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



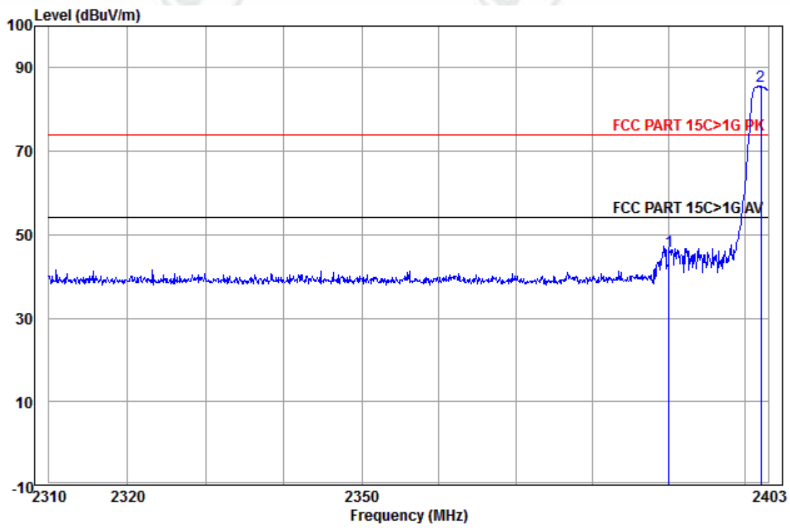
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2479.376	32.71	3.12	44.14	93.46	85.15	74.00	11.15	Horizontal	Peak
2	2483.500	32.71	3.12	44.14	52.63	44.32	74.00	-29.68	Horizontal	Peak

Worse case mode:	GFSK(1-DH5)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



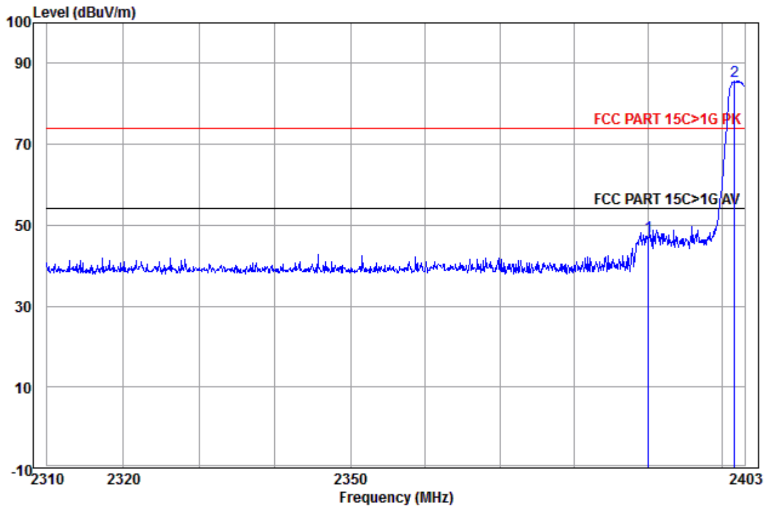
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2479.460	32.71	3.12	44.14	93.35	85.04	74.00	11.04	Vertical	Peak
2	2483.500	32.71	3.12	44.14	50.31	42.00	74.00	-32.00	Vertical	Peak

Worse case mode:	π/4DQPSK(2-DH5)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



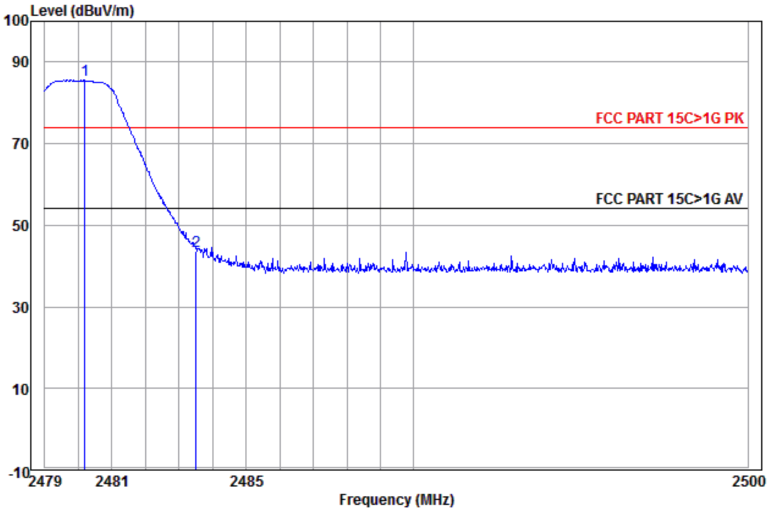
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	44.03	54.55	46.12	74.00	-27.88	Horizontal	Peak
2 pp	2402.052	32.56	3.07	44.04	93.95	85.54	74.00	11.54	Horizontal	Peak

Worse case mode:	π/4DQPSK(2-DH5)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



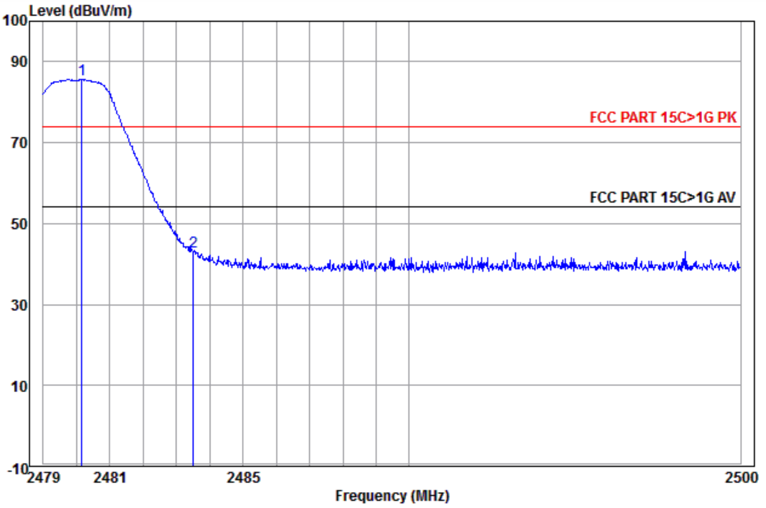
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	44.03	55.63	47.20	74.00	-26.80	Vertical	Peak
2 pp	2401.673	32.56	3.07	44.04	93.97	85.56	74.00	11.56	Vertical	Peak

Worse case mode:	π/4DQPSK(2-DH5)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



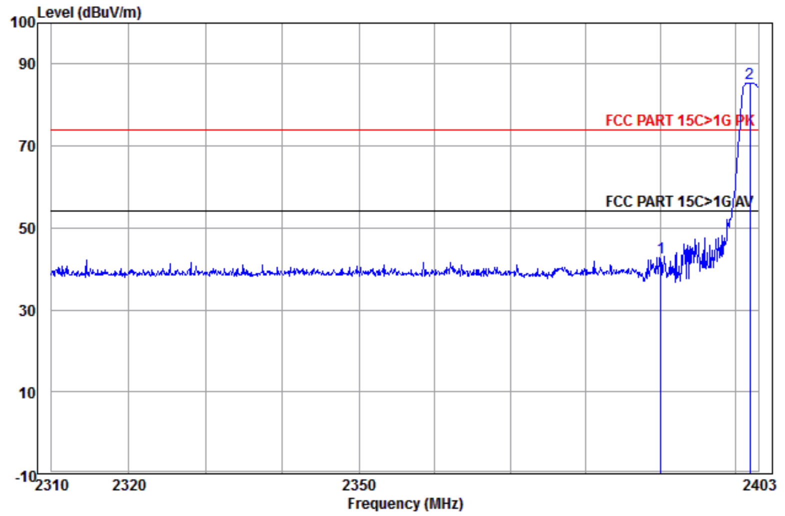
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2480.192	32.71	3.12	44.14	93.89	85.58	74.00	11.58	Horizontal	Peak
2	2483.500	32.71	3.12	44.14	51.95	43.64	74.00	-30.36	Horizontal	Peak

Worse case mode:	π/4DQPSK(2-DH5)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



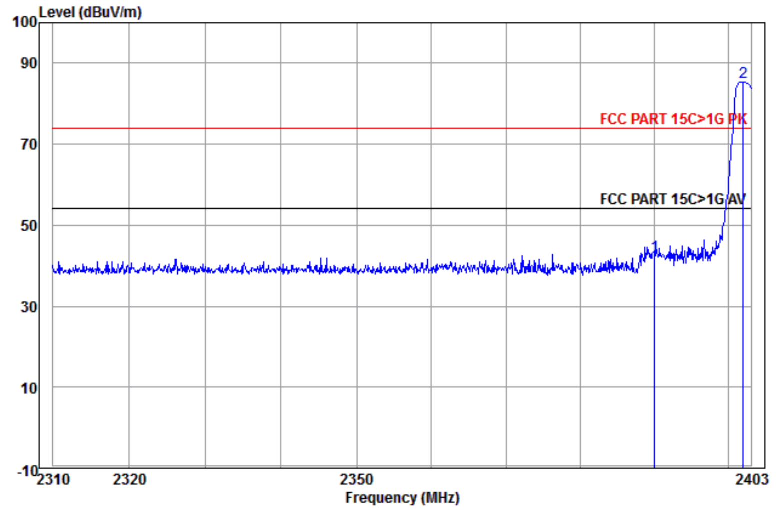
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2480.150	32.71	3.12	44.14	93.94	85.63	74.00	11.63	Vertical	Peak
2	2483.500	32.71	3.12	44.14	51.50	43.19	74.00	-30.81	Vertical	Peak

Worse case mode:	8DPSK(3-DH5)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



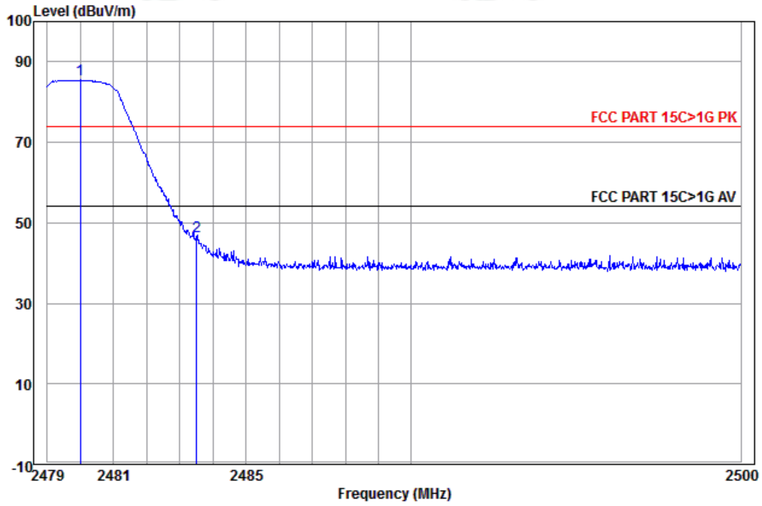
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	44.03	51.20	42.77	74.00	-31.23	Horizontal	Peak
2 pp	2401.862	32.56	3.07	44.04	93.87	85.46	74.00	11.46	Horizontal	Peak

Worse case mode:	8DPSK(3-DH5)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



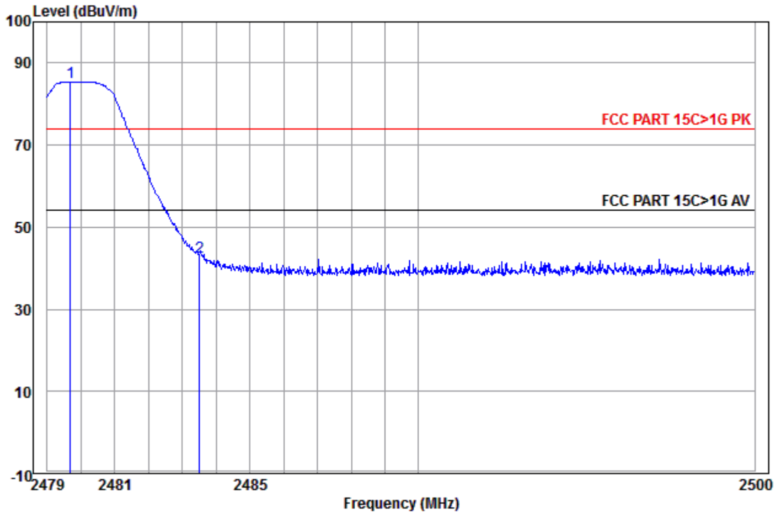
	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	44.03	50.77	42.34	74.00	-31.66	Vertical	Peak
2 pp	2401.957	32.56	3.07	44.04	93.77	85.36	74.00	11.36	Vertical	Peak

Worse case mode:	8DPSK(3-DH5)		
Frequency: 2483.5MHz	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	2479.983	32.71	3.12	44.14	93.81	85.50	74.00	11.50	Horizontal	Peak
2	2483.500	32.71	3.12	44.14	54.82	46.51	74.00	-27.49	Horizontal	Peak

Worse case mode:	8DPSK(3-DH5)		
Frequency: 2483.5MHz	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	2479.690	32.71	3.12	44.14	93.72	85.41	74.00	11.41	Vertical	Peak
2	2483.500	32.71	3.12	44.14	51.20	42.89	74.00	-31.11	Vertical	Peak

Note:

1) Through Pre-scan Non-hopping transmitting mode and charge+transmitter mode with all kind of modulation and all kind of data type, find the 1-DH5 of data type is the worse case of GFSK modulation type, the 2-DH5 of data type is the worse case of π/4DQPSK modulation type, the 3-DH5 of data type is the worse case of 8DPSK modulation type in charge + transmitter mode.

2) 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 L): 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 table 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:

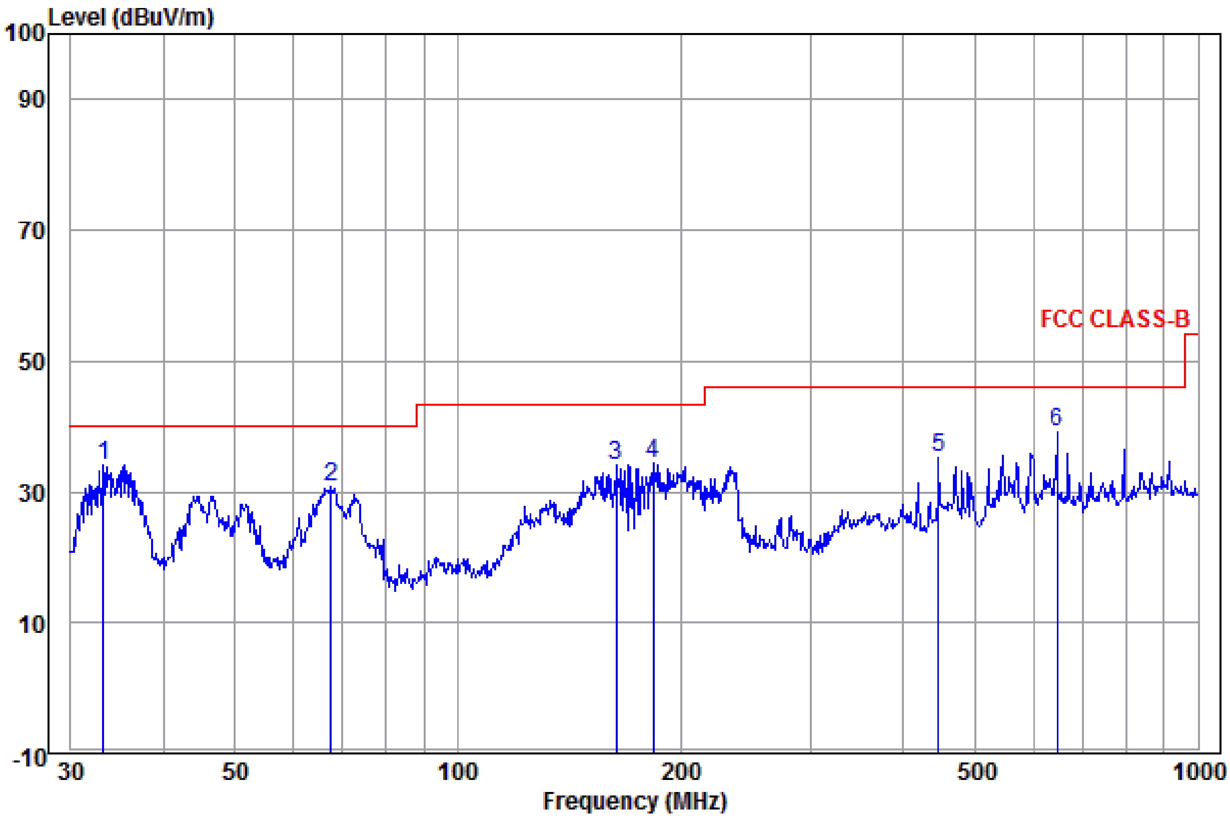
Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz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

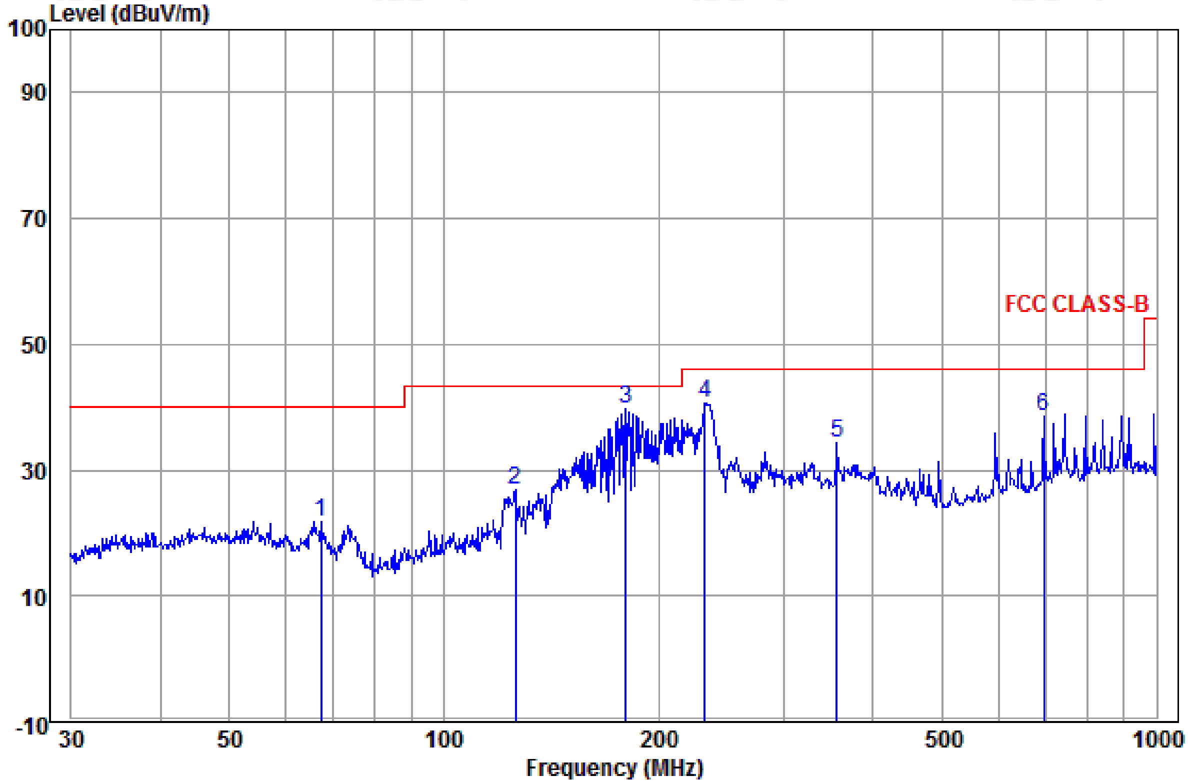
Radiated Emission below 1GHz

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 pp	33.211	12.57	0.08	21.47	34.12	40.00	-5.88	Vertical	QP
2	67.438	11.05	0.24	19.46	30.75	40.00	-9.25	Vertical	QP
3	163.755	9.62	0.76	23.59	33.97	43.50	-9.53	Vertical	QP
4	183.844	10.71	0.96	22.68	34.35	43.50	-9.15	Vertical	QP
5	446.414	16.13	1.46	17.54	35.13	46.00	-10.87	Vertical	QP
6	645.120	18.88	1.83	18.53	39.24	46.00	-6.76	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	67.202	11.11	0.24	10.54	21.89	40.00	-18.11	Horizontal	QP
2	125.886	10.40	0.60	15.72	26.72	43.50	-16.78	Horizontal	QP
3 pp	180.017	10.51	0.92	28.21	39.64	43.50	-3.86	Horizontal	QP
4	232.532	12.24	1.26	27.25	40.75	46.00	-5.25	Horizontal	QP
5	356.676	14.51	1.32	18.47	34.30	46.00	-11.70	Horizontal	QP
6	694.417	19.08	2.00	17.57	38.65	46.00	-7.35	Horizontal	QP

Transmitter Emission above 1GHz

Worse case mode:		GFSK(1-DH5)		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
1313.075	30.49	2.03	44.23	47.27	35.56	74.00	-38.44	Pass	H
1685.115	31.21	2.51	43.80	46.98	36.90	74.00	-37.10	Pass	H
4804.000	34.69	5.98	44.60	42.90	38.97	74.00	-35.03	Pass	H
6363.645	36.09	7.34	44.54	46.22	45.11	74.00	-28.89	Pass	H
7206.000	36.42	6.97	44.77	43.95	42.57	74.00	-31.43	Pass	H
9608.000	37.88	6.98	45.58	42.79	42.07	74.00	-31.93	Pass	H
1093.183	29.96	1.68	44.55	47.84	34.93	74.00	-39.07	Pass	V
1553.293	30.97	2.35	43.94	47.59	36.97	74.00	-37.03	Pass	V
4804.000	34.69	5.98	44.60	43.11	39.18	74.00	-34.82	Pass	V
5762.235	35.72	7.20	44.52	46.31	44.71	74.00	-29.29	Pass	V
7206.000	36.42	6.97	44.77	44.46	43.08	74.00	-30.92	Pass	V
9608.000	37.88	6.98	45.58	42.99	42.27	74.00	-31.73	Pass	V

Worse case mode:		GFSK(1-DH5)		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
1228.984	30.29	1.91	44.34	47.25	35.11	74.00	-38.89	Pass	H
1510.402	30.89	2.30	43.99	47.11	36.31	74.00	-37.69	Pass	H
4882.000	34.85	6.14	44.60	43.06	39.45	74.00	-34.55	Pass	H
5865.832	35.80	7.31	44.51	46.02	44.62	74.00	-29.38	Pass	H
7323.000	36.43	6.85	44.87	42.68	41.09	74.00	-32.91	Pass	H
9764.000	38.05	7.12	45.55	42.90	42.52	74.00	-31.48	Pass	H
1170.959	30.16	1.81	44.43	47.33	34.87	74.00	-39.13	Pass	V
1510.402	30.89	2.30	43.99	47.37	36.57	74.00	-37.43	Pass	V
4882.000	34.85	6.14	44.60	43.20	39.59	74.00	-34.41	Pass	V
5806.408	35.76	7.25	44.52	45.98	44.47	74.00	-29.53	Pass	V
7323.000	36.43	6.85	44.87	43.38	41.79	74.00	-32.21	Pass	V
9764.000	38.05	7.12	45.55	43.46	43.08	74.00	-30.92	Pass	V

Worse case mode:		GFSK(1-DH5)		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
1144.437	30.09	1.77	44.47	47.38	34.77	74.00	-39.23	Pass	H
1476.193	30.82	2.26	44.03	47.72	36.77	74.00	-37.23	Pass	H
4960.000	35.02	6.29	44.60	44.15	40.86	74.00	-33.14	Pass	H
5776.922	35.73	7.22	44.52	46.78	45.21	74.00	-28.79	Pass	H
7440.000	36.45	6.73	44.97	44.01	42.22	74.00	-31.78	Pass	H
9920.000	38.22	7.26	45.52	42.33	42.29	74.00	-31.71	Pass	H
1107.186	29.99	1.71	44.52	48.12	35.30	74.00	-38.70	Pass	V
1518.111	30.90	2.31	43.98	47.16	36.39	74.00	-37.61	Pass	V
4960.000	35.02	6.29	44.60	43.65	40.36	74.00	-33.64	Pass	V
6396.125	36.11	7.34	44.54	45.70	44.61	74.00	-29.39	Pass	V
7440.000	36.45	6.73	44.97	44.03	42.24	74.00	-31.76	Pass	V
9920.000	38.22	7.26	45.52	42.19	42.15	74.00	-31.85	Pass	V

Worse case mode:		π/4DQPSK(2-DH5)		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
1238.405	30.32	1.92	44.33	47.20	35.11	74.00	-38.89	Pass	H
1693.716	31.22	2.52	43.79	46.68	36.63	74.00	-37.37	Pass	H
4804.000	34.69	5.98	44.60	44.97	41.04	74.00	-32.96	Pass	H
5806.408	35.76	7.25	44.52	46.06	44.55	74.00	-29.45	Pass	H
7206.000	36.42	6.97	44.77	43.64	42.26	74.00	-31.74	Pass	H
9608.000	37.88	6.98	45.58	43.00	42.28	74.00	-31.72	Pass	H
1165.013	30.14	1.80	44.44	47.21	34.71	74.00	-39.29	Pass	V
1518.111	30.90	2.31	43.98	47.80	37.03	74.00	-36.97	Pass	V
4804.000	34.69	5.98	44.60	42.53	38.60	74.00	-35.40	Pass	V
5791.646	35.74	7.23	44.52	46.42	44.87	74.00	-29.13	Pass	V
7206.000	36.42	6.97	44.77	43.92	42.54	74.00	-31.46	Pass	V
9608.000	37.88	6.98	45.58	43.02	42.30	74.00	-31.70	Pass	V

Worse case mode:		π/4DQPSK(2-DH5)		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
1141.528	30.08	1.76	44.47	47.59	34.96	74.00	-39.04	Pass	H
1565.200	30.99	2.37	43.92	47.19	36.63	74.00	-37.37	Pass	H
4882.000	34.85	6.14	44.60	43.49	39.88	74.00	-34.12	Pass	H
5806.408	35.76	7.25	44.52	45.81	44.30	74.00	-29.70	Pass	H
7323.000	36.43	6.85	44.87	44.47	42.88	74.00	-31.12	Pass	H
9764.000	38.05	7.12	45.55	42.71	42.33	74.00	-31.67	Pass	H
1303.086	30.46	2.02	44.24	46.63	34.87	74.00	-39.13	Pass	V
1782.177	31.37	2.62	43.70	47.49	37.78	74.00	-36.22	Pass	V
4882.000	34.85	6.14	44.60	43.98	40.37	74.00	-33.63	Pass	V
6363.645	36.09	7.34	44.54	44.92	43.81	74.00	-30.19	Pass	V
7323.000	36.43	6.85	44.87	42.93	41.34	74.00	-32.66	Pass	V
9764.000	38.05	7.12	45.55	43.33	42.95	74.00	-31.05	Pass	V

Worse case mode:		π/4DQPSK(2-DH5)		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
1276.818	30.41	1.98	44.28	46.88	34.99	74.00	-39.01	Pass	H
1809.605	31.41	2.65	43.67	47.35	37.74	74.00	-36.26	Pass	H
4960.000	35.02	6.29	44.60	43.90	40.61	74.00	-33.39	Pass	H
5821.207	35.77	7.26	44.52	46.57	45.08	74.00	-28.92	Pass	H
7440.000	36.45	6.73	44.97	43.53	41.74	74.00	-32.26	Pass	H
9920.000	38.22	7.26	45.52	41.04	41.00	74.00	-33.00	Pass	H
1162.051	30.13	1.80	44.44	47.83	35.32	74.00	-38.68	Pass	V
1565.200	30.99	2.37	43.92	48.31	37.75	74.00	-36.25	Pass	V
4960.000	35.02	6.29	44.60	44.70	41.41	74.00	-32.59	Pass	V
6363.645	36.09	7.34	44.54	45.71	44.60	74.00	-29.40	Pass	V
7440.000	36.45	6.73	44.97	43.96	42.17	74.00	-31.83	Pass	V
9920.000	38.22	7.26	45.52	41.95	41.91	74.00	-32.09	Pass	V

Worse case mode:		8DPSK(3-DH5)		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
1087.632	29.94	1.67	44.55	47.97	35.03	74.00	-38.97	Pass	H
1557.252	30.98	2.36	43.93	47.50	36.91	74.00	-37.09	Pass	H
4804.000	34.69	5.98	44.60	43.05	39.12	74.00	-34.88	Pass	H
6363.645	36.09	7.34	44.54	47.52	46.41	74.00	-27.59	Pass	H
7206.000	36.42	6.97	44.77	44.64	43.26	74.00	-30.74	Pass	H
9608.000	37.88	6.98	45.58	42.23	41.51	74.00	-32.49	Pass	H
1121.367	30.03	1.73	44.50	48.14	35.40	74.00	-38.60	Pass	V
1755.164	31.32	2.59	43.73	46.69	36.87	74.00	-37.13	Pass	V
4804.000	34.69	5.98	44.60	42.96	39.03	74.00	-34.97	Pass	V
5791.646	35.74	7.23	44.52	46.29	44.74	74.00	-29.26	Pass	V
7206.000	36.42	6.97	44.77	44.48	43.10	74.00	-30.90	Pass	V
9608.000	37.88	6.98	45.58	42.20	41.48	74.00	-32.52	Pass	V

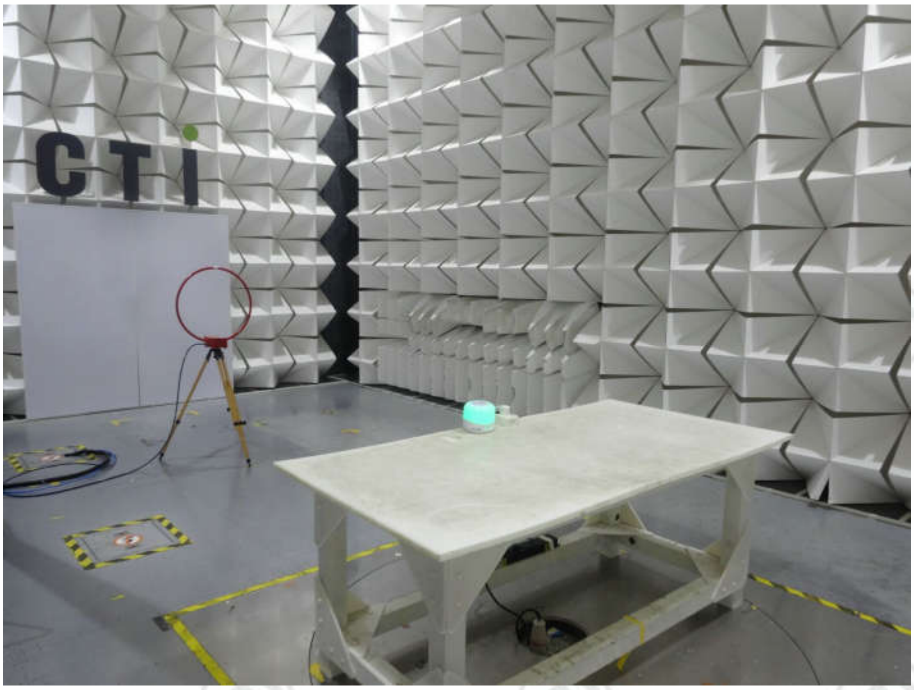
Worse case mode:		8DPSK(3-DH5)		Test channel:		Middle	Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1251.079	30.35	1.94	44.31	47.33	35.31	74.00	-38.69	Pass	H
1593.340	31.04	2.40	43.89	47.12	36.67	74.00	-37.33	Pass	H
4882.000	34.85	6.14	44.60	43.37	39.76	74.00	-34.24	Pass	H
6347.466	36.08	7.35	44.54	46.02	44.91	74.00	-29.09	Pass	H
7323.000	36.43	6.85	44.87	43.14	41.55	74.00	-32.45	Pass	H
9764.000	38.05	7.12	45.55	42.41	42.03	74.00	-31.97	Pass	H
1201.149	30.23	1.86	44.38	47.35	35.06	74.00	-38.94	Pass	V
1529.749	30.93	2.33	43.96	47.46	36.76	74.00	-37.24	Pass	V
4882.000	34.85	6.14	44.60	43.12	39.51	74.00	-34.49	Pass	V
5791.646	35.74	7.23	44.52	46.34	44.79	74.00	-29.21	Pass	V
7323.000	36.43	6.85	44.87	43.26	41.67	74.00	-32.33	Pass	V
9764.000	38.05	7.12	45.55	42.91	42.53	74.00	-31.47	Pass	V

Worse case mode:		8DPSK(3-DH5)		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
1207.279	30.24	1.87	44.37	47.24	34.98	74.00	-39.02	Pass	H
1569.189	31.00	2.37	43.92	47.36	36.81	74.00	-37.19	Pass	H
4960.000	35.02	6.29	44.60	43.59	40.30	74.00	-33.70	Pass	H
6396.125	36.11	7.34	44.54	45.68	44.59	74.00	-29.41	Pass	H
7440.000	36.45	6.73	44.97	43.06	41.27	74.00	-32.73	Pass	H
9920.000	38.22	7.26	45.52	41.78	41.74	74.00	-32.26	Pass	H
1185.958	30.19	1.84	44.40	46.81	34.44	74.00	-39.56	Pass	V
1502.732	30.88	2.29	43.99	48.28	37.46	74.00	-36.54	Pass	V
4960.000	35.02	6.29	44.60	43.58	40.29	74.00	-33.71	Pass	V
6903.705	36.36	7.21	44.59	46.10	45.08	74.00	-28.92	Pass	V
7440.000	36.45	6.73	44.97	43.64	41.85	74.00	-32.15	Pass	V
9920.000	38.22	7.26	45.52	42.34	42.30	74.00	-31.70	Pass	V

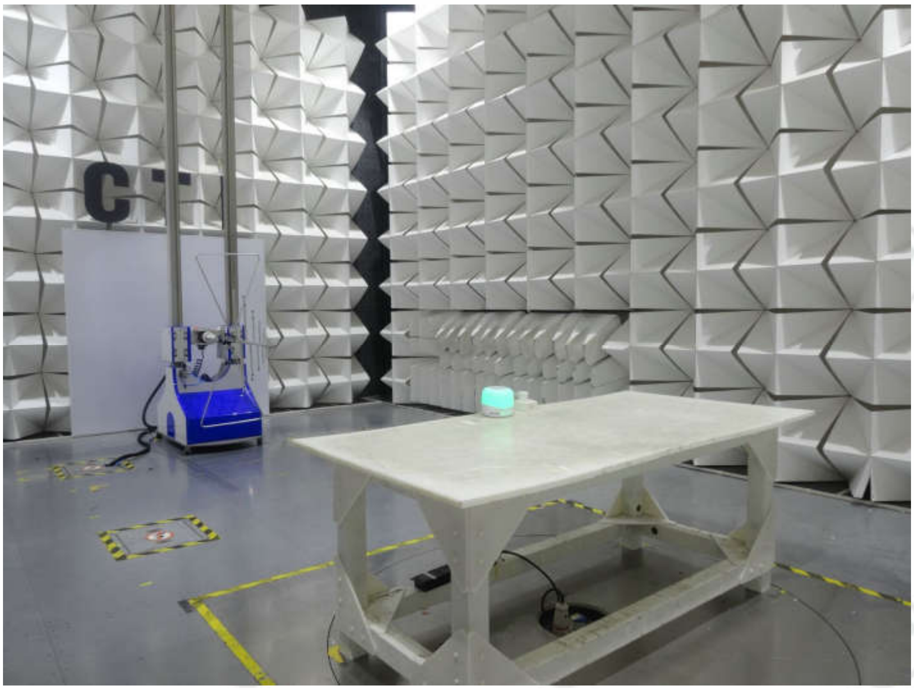
Note:
1)Through Pre-scan Non-hopping transmitting mode and charge+transmitter mode with all kind of modulation and all kind of data type, find the 1-DH5 of data type is the worse case of GFSK modulation type, the 2-DH5 of data type is the worse case of π/4DQPSK modulation type, the 3-DH5 of data type is the worse case of 8DPSK modulation type in charge + transmitter mode.
2) 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
3) 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.: CWMEMOOV01



Radiated spurious emission Test Setup-1(9KHz-30MHz)



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

Radiated spurious emission Test Setup-3(Above 1GHz)

Conducted Emissions Test Setup

PHOTOGRAPHS OF EUT Constructional Details

Test model No.: CWMEMOOV01

View of Product-1

View of Product-2

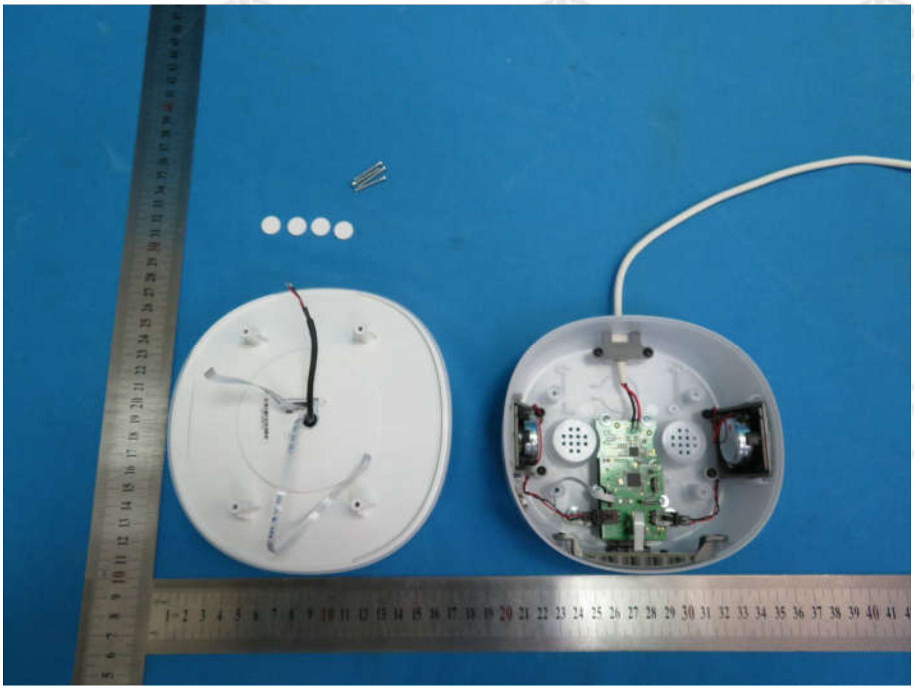
View of Product-3


View of Product-4

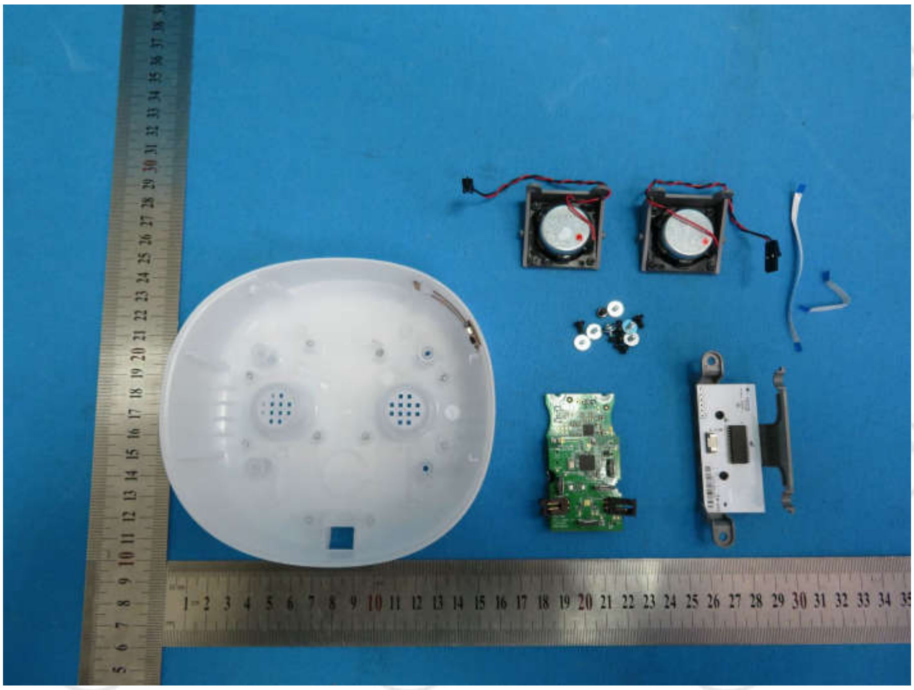

View of Product-5


View of Product-6

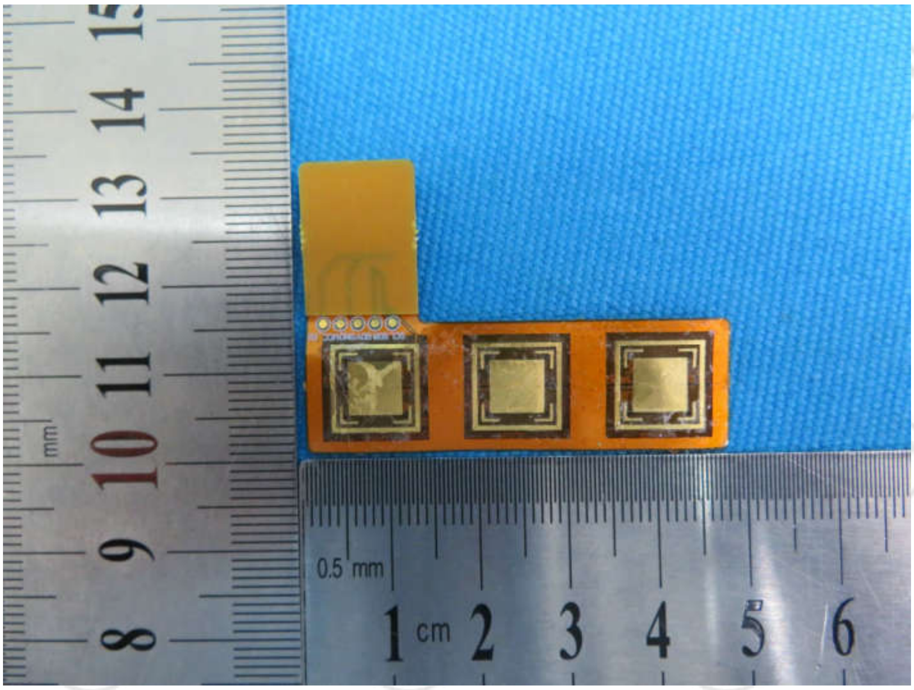
View of Product-7



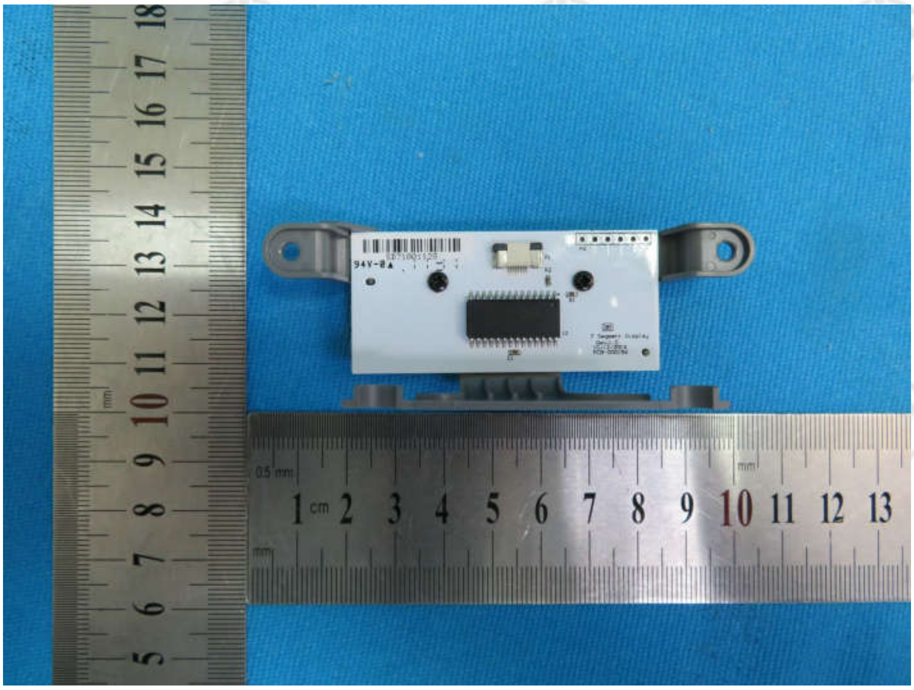
View of Product-8


View of Product-9

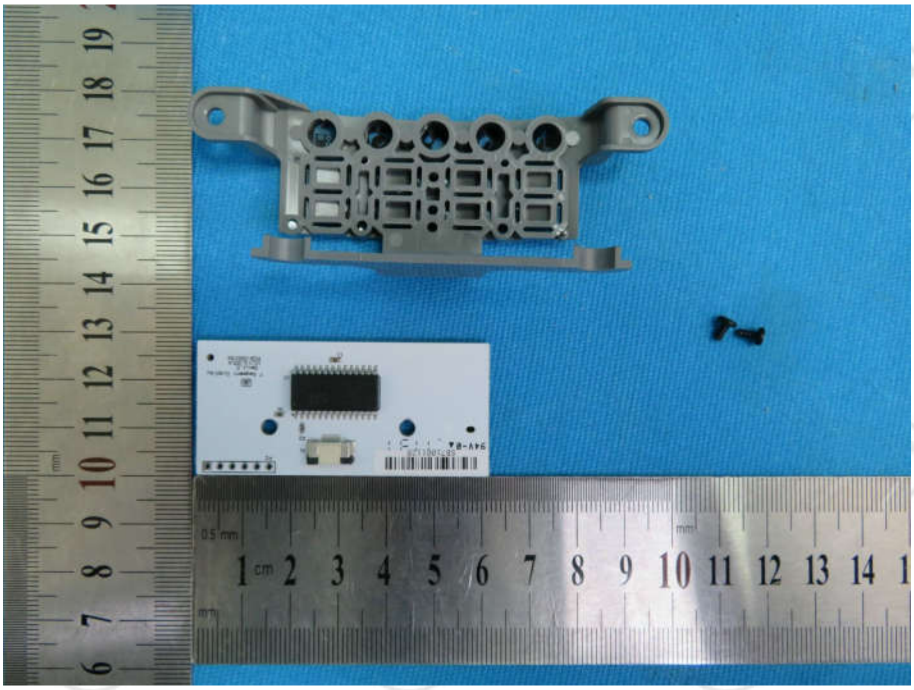

View of Product-10



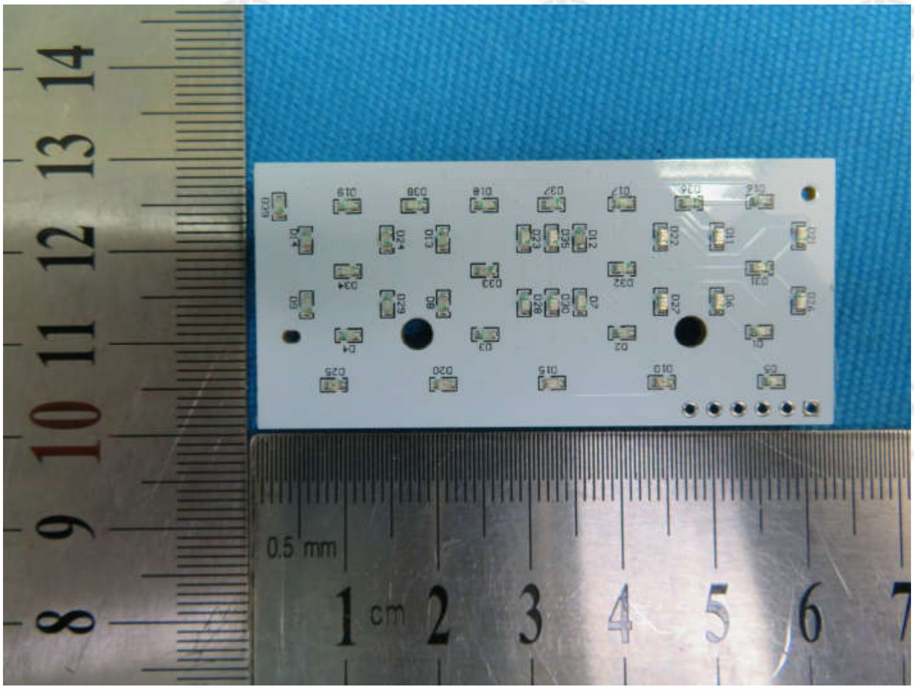
View of Product-11



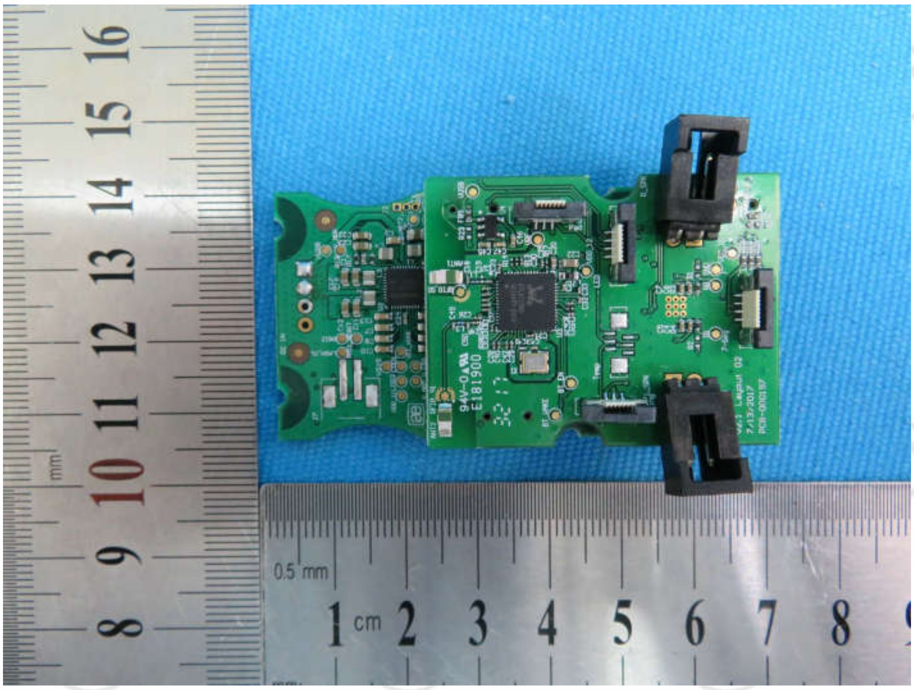
View of Product-12



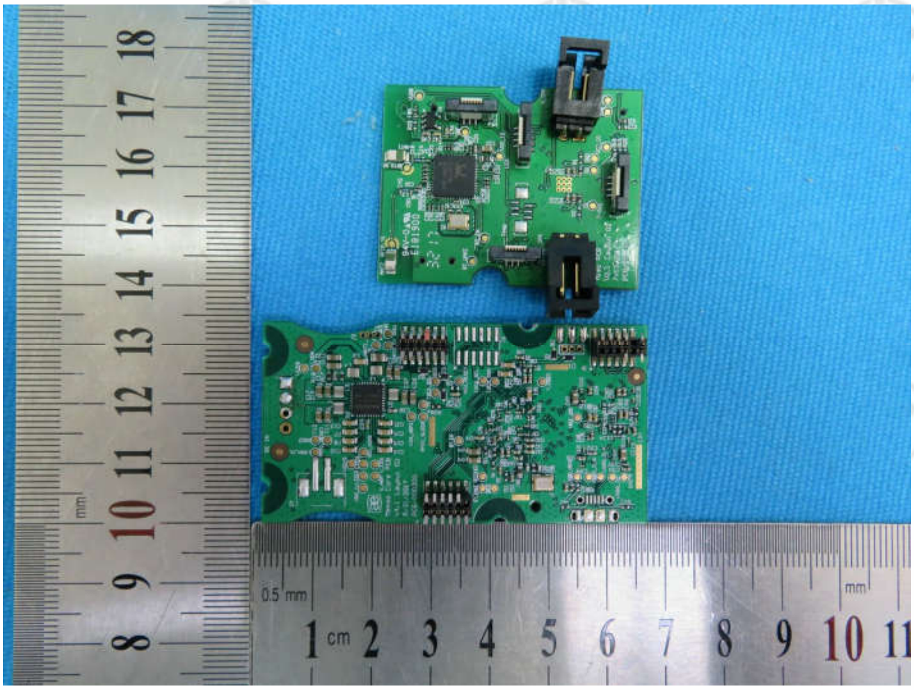
View of Product-13



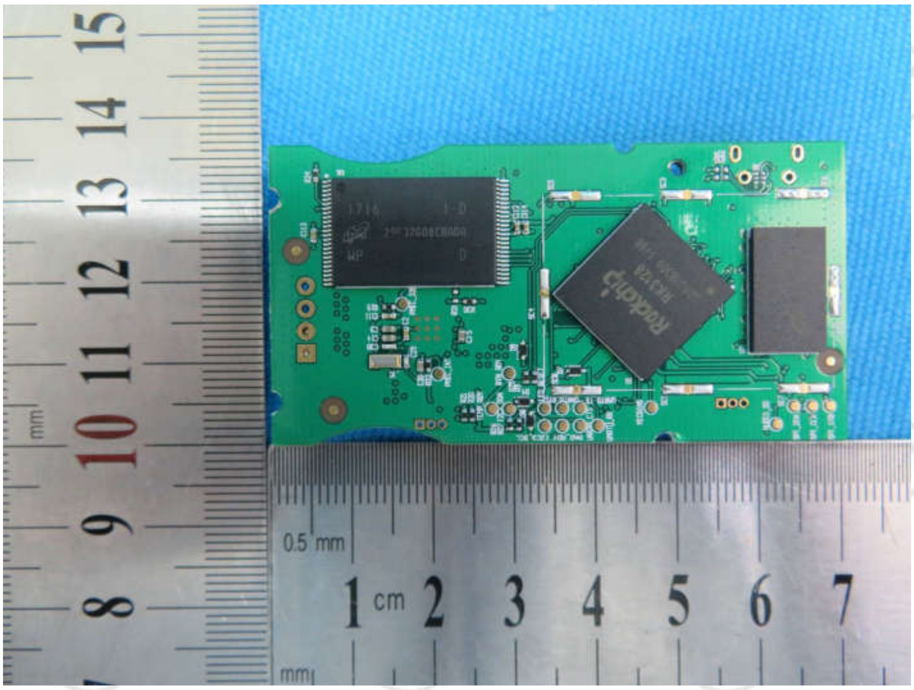
View of Product-14



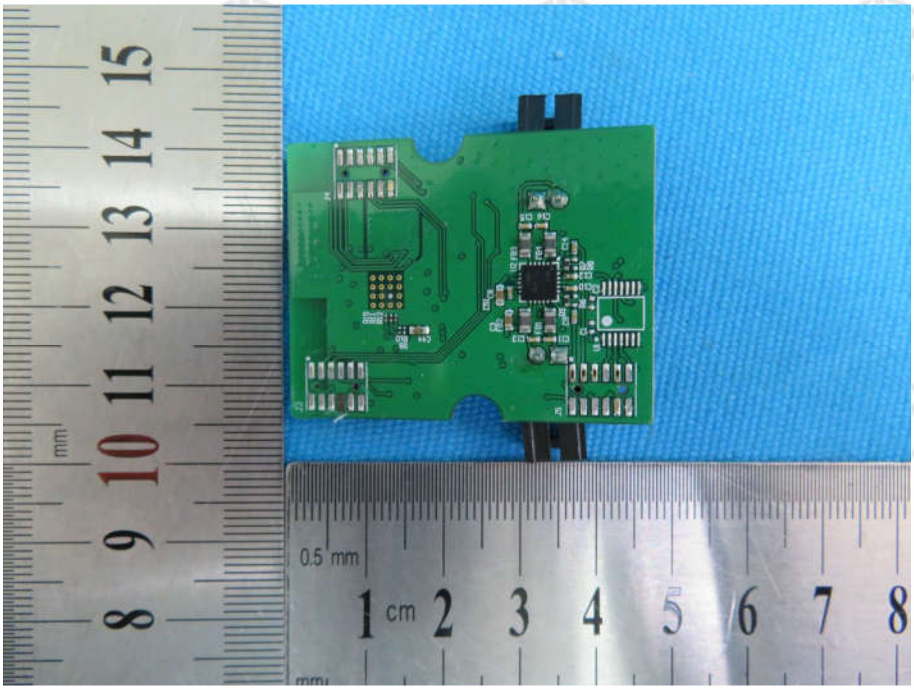
View of Product-15



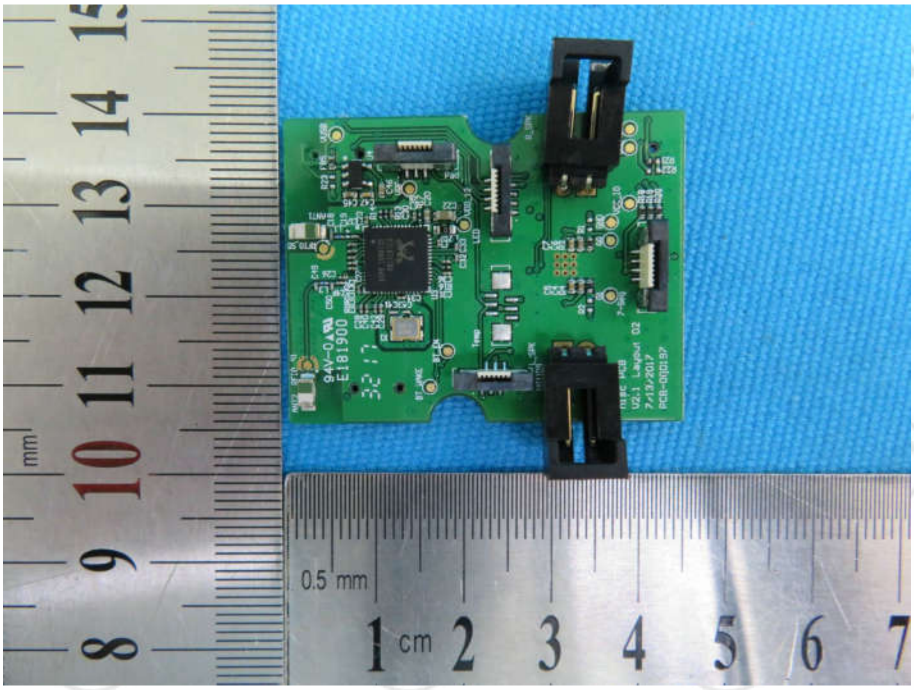
View of Product-16



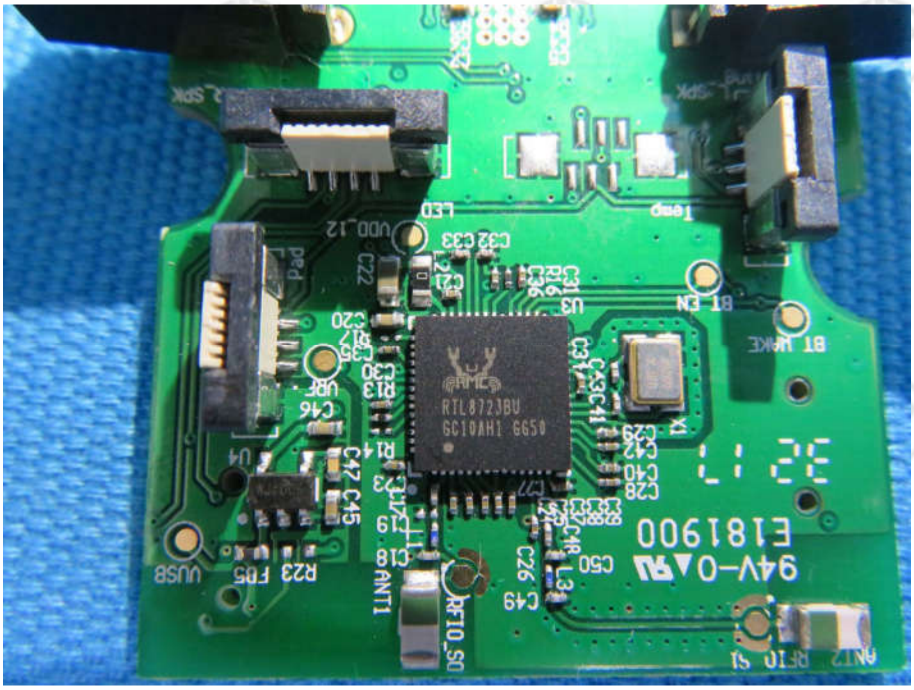
View of Product-17



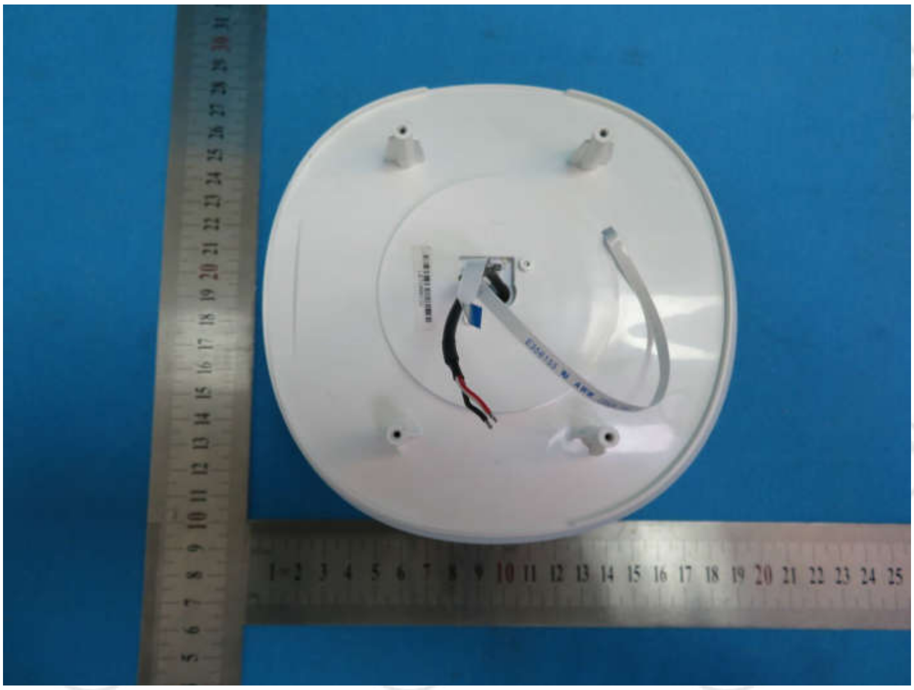
View of Product-18



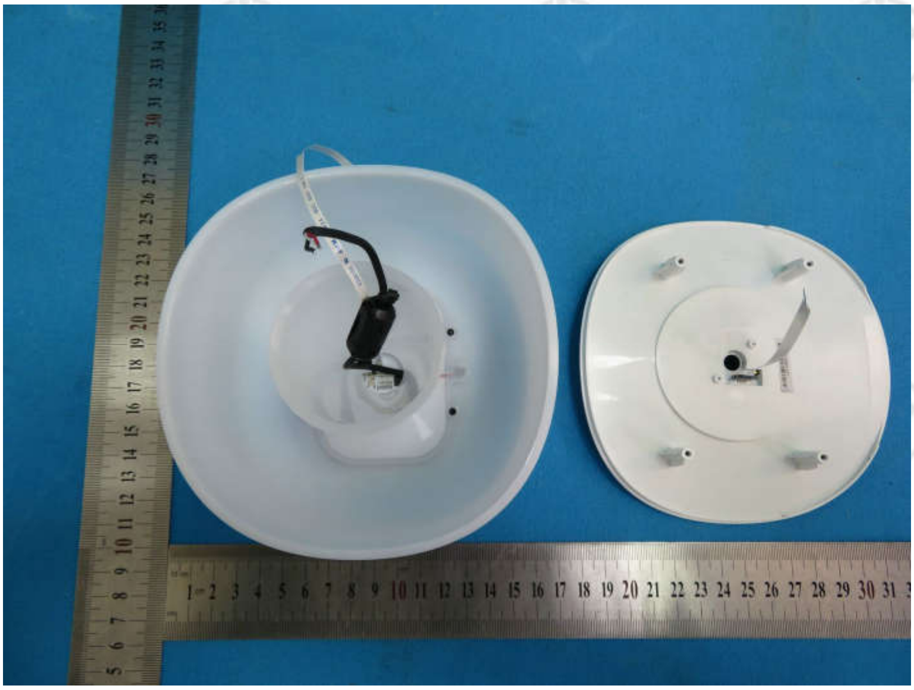
View of Product-19



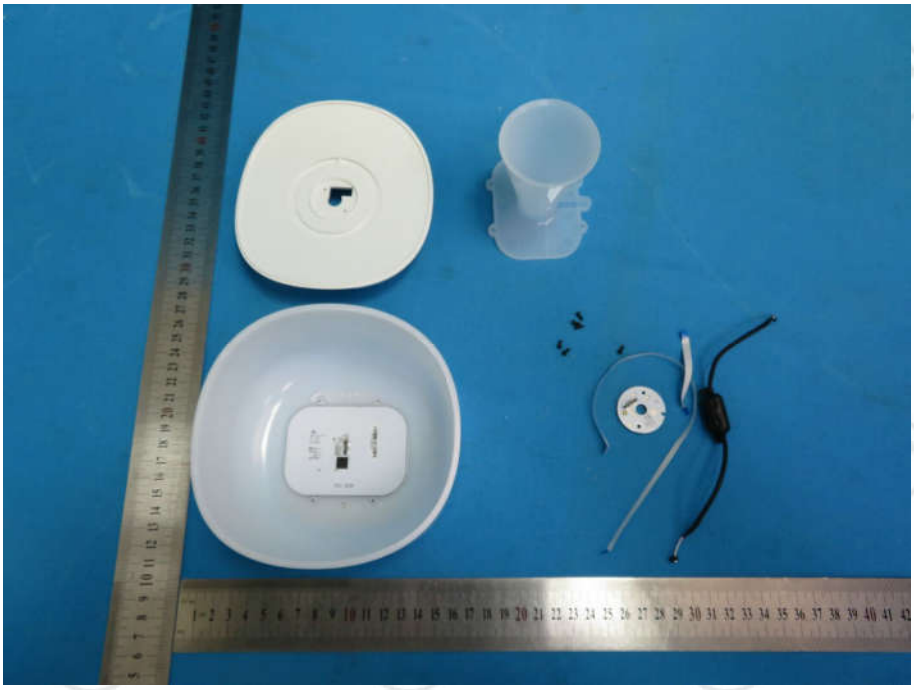
View of Product-20



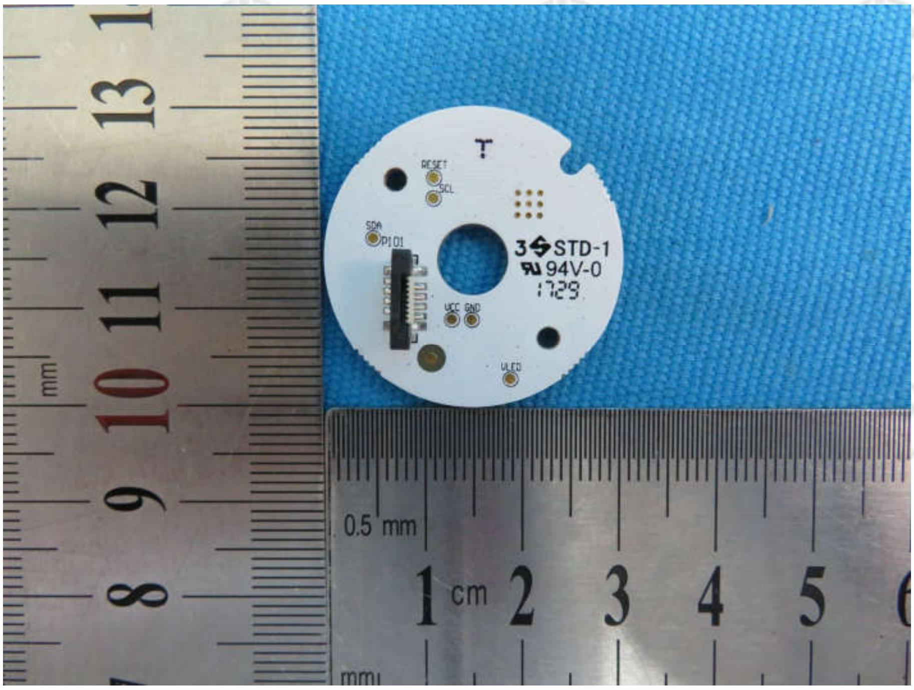
View of Product-21



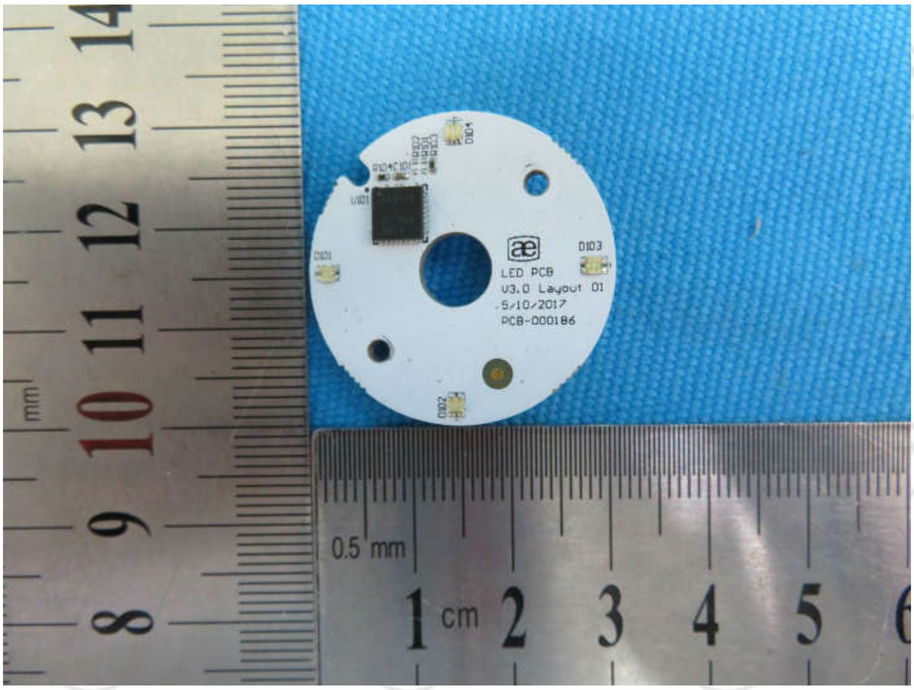
View of Product-22



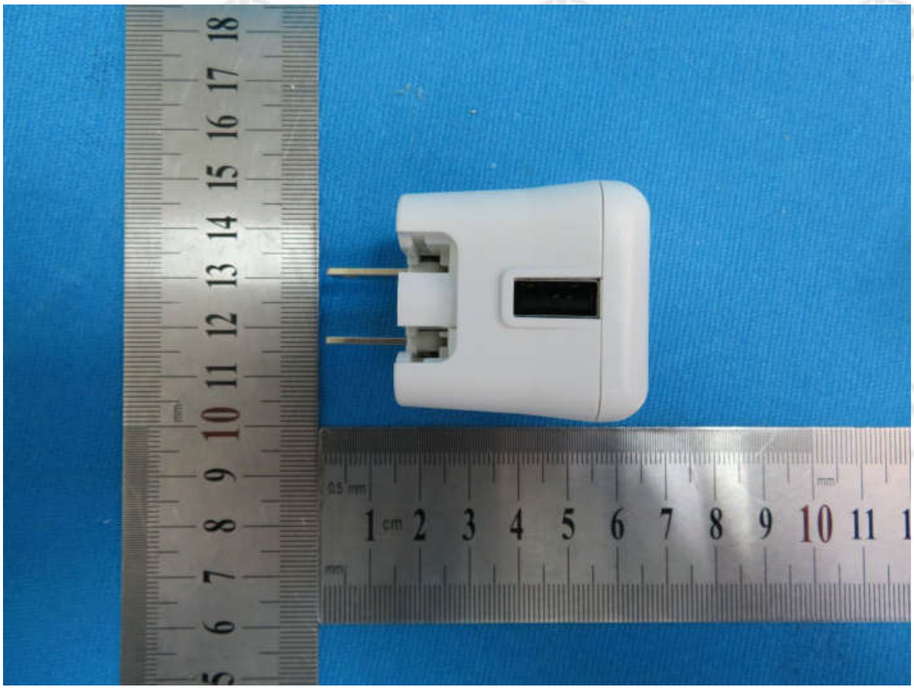
View of Product-23

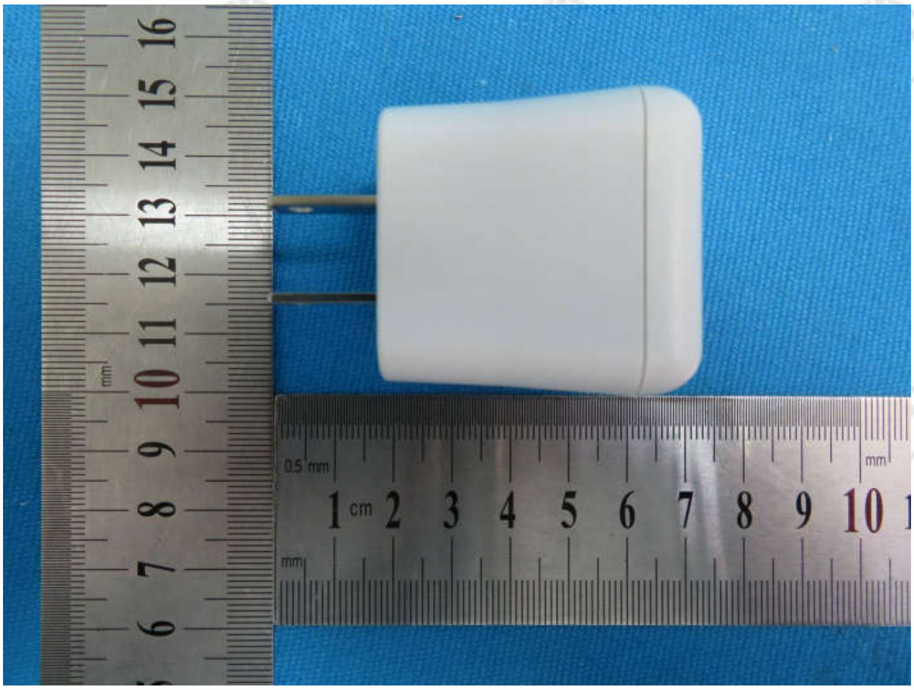


View of Product-24

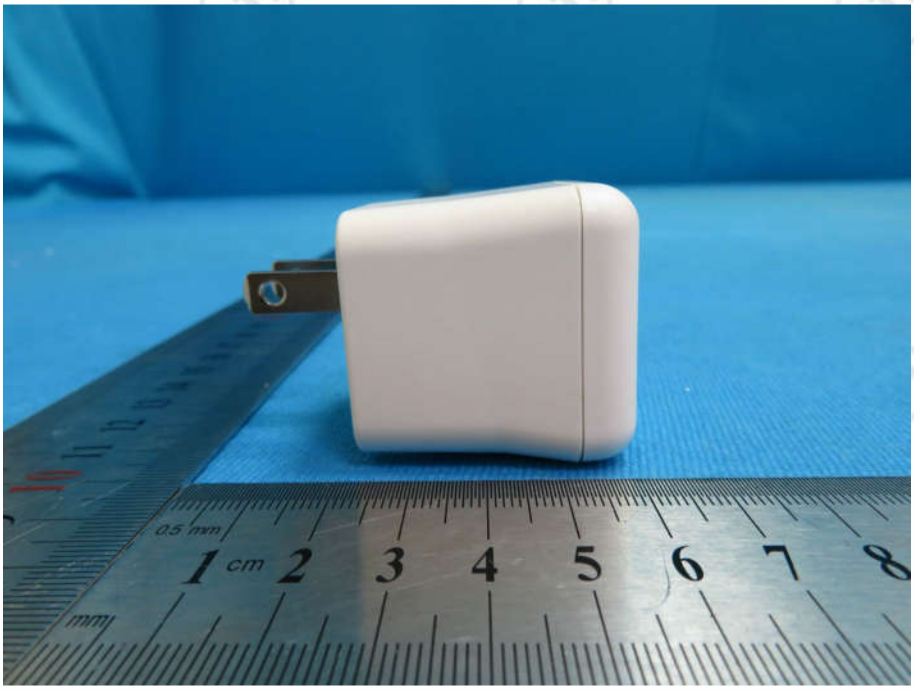


View of Product-25


View of Product-26

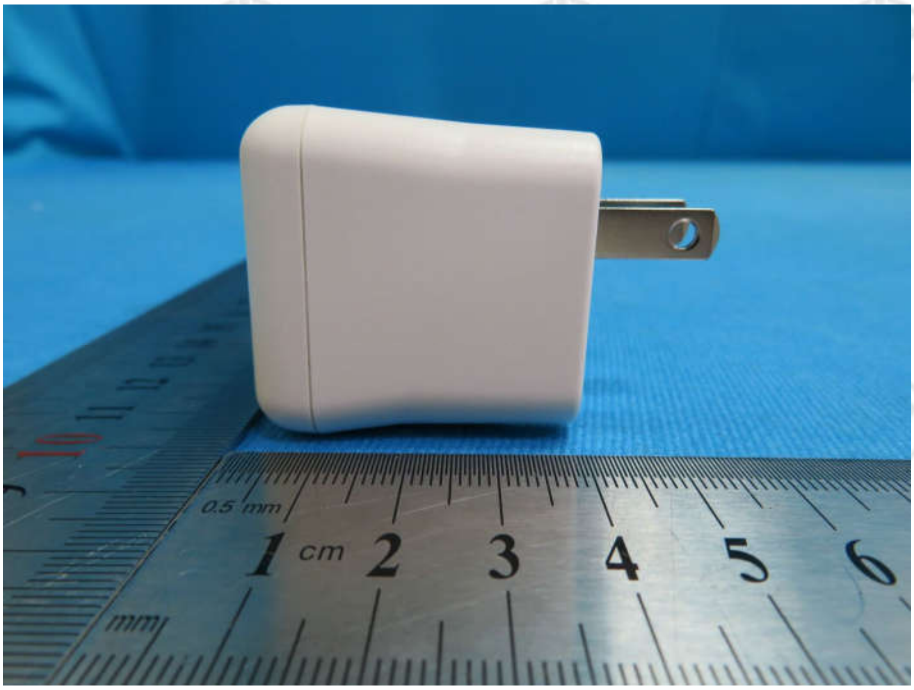


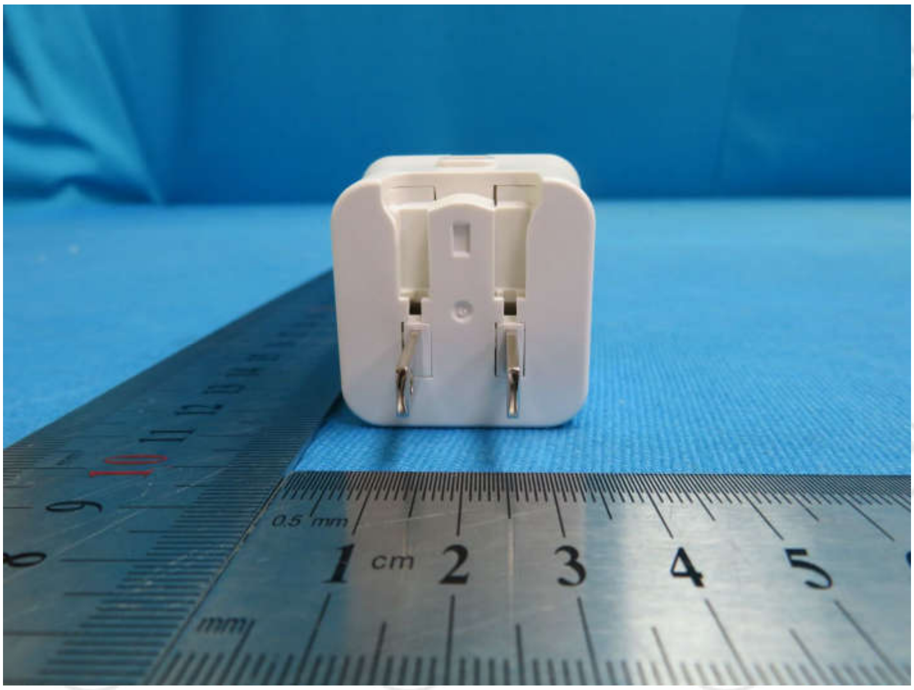
View of Product-27



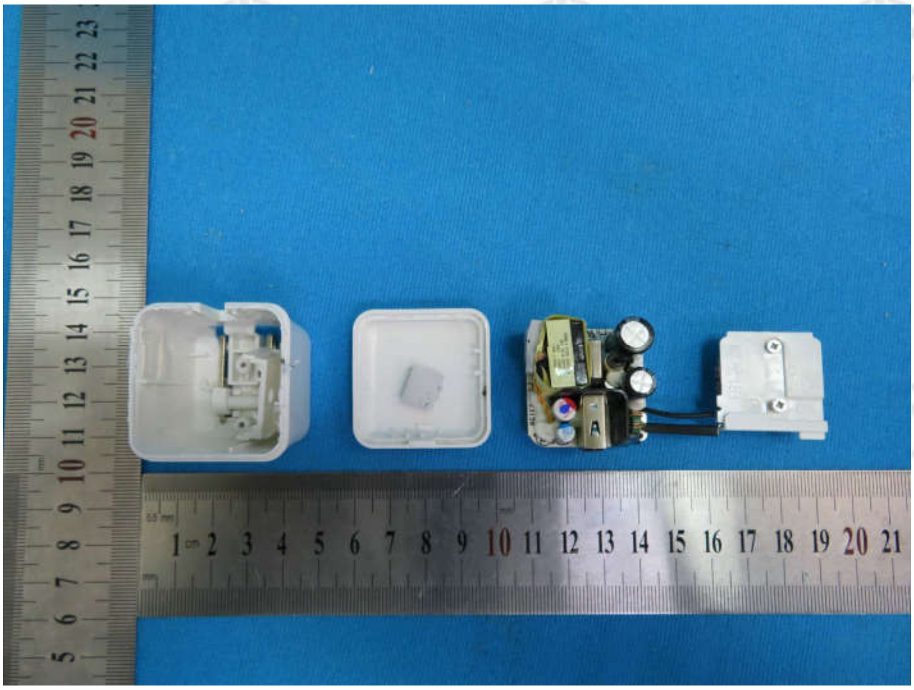
View of Product-28

View of Product-29

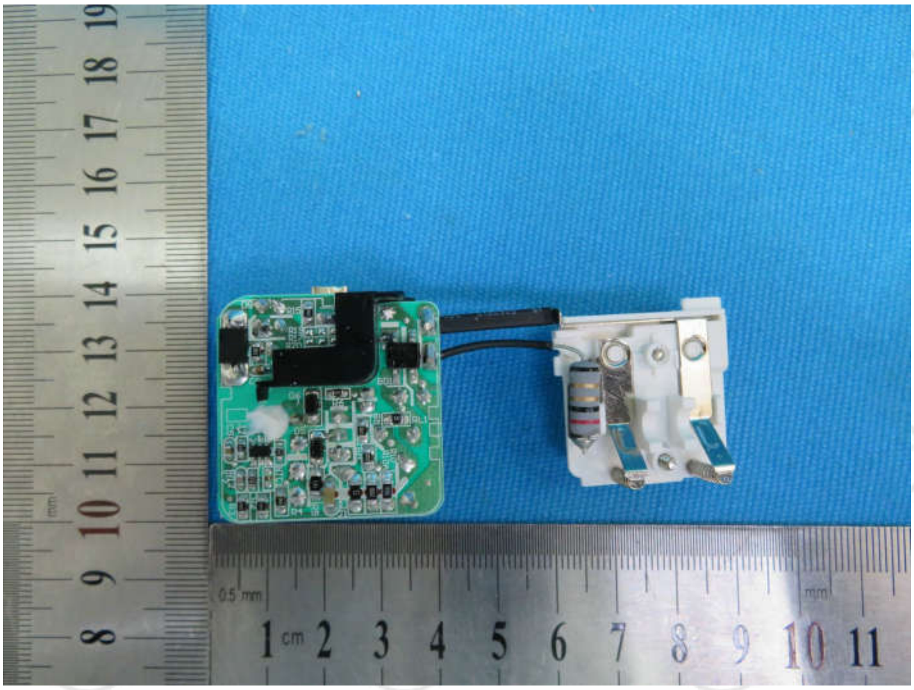

View of Product-30



View of Product-31



View of Product-32



View of Product-33

*** End of Report ***