TEST REPORT

Reference No.	:	WTF17S0989382E
FCC ID.....	:	2AJNO1006MTK
Applicant	:	AeroGrow International, Inc.
Address	:	6075 Longbow Dr. Suite #200, Boulder, Colorado 80301, United States
Manufacturer	:	ENVITEK(CHINA) LTD
Address	:	SOUTH WEI 2 ROAD(EAST JING 1 ROAD) 3.9SKM INDUSTRIAL PARK, DEVELOPMENT ZONE, ANQING ANHUI CHINA
Product.....	:	AeroGarden
Model(s).....	:	100661-XXX, 100670-XXX
Model Similarity.....	:	Model 100661-XXX is same as model 100670-XXX, except that the main plastic enclosure of Model 100670-XXX additional with metal decorative layer. Where suffix XXX is the letters A to Z, denoted the different enclosure colour.
Standards.....	:	FCC CFR47 Part 15 C Section 15.247:2016
Date of Receipt sample..	:	2017-09-05
Date of Test.....	:	2017-09-05 to 2017-09-10
Date of Issue	:	2017-09-13
Test Result.....	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.
The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
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1 Laboratories Introduction

Waltek Services Test Group Ltd. is one of the largest and the most comprehensive third party testing organizations in China, our headquarter located in Shenzhen (CNAS Registration No. L3110, A2LA Certificate Number: 4243.01) and have branches in Foshan (CNAS Registration No. L6478), Dongguan (CNAS Registration No. L9950), Zhongshan, Suzhou (CNAS Registration No. L7754), Ningbo and Hong Kong, Our test capability covered four large fields: safety test. Electronic Magnetic Compatibility(EMC), reliability and energy performance, Chemical test. Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CPSC(Consumer Product Safety Commission), CEC(California energy efficiency), IC(Industry Canada) and ELI(Efficient Lighting Initiative). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as UL, Intertek(ETL-SEMKO), CSA, TÜV Rheinland, TÜV SÜD, etc. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

Waltek Services (Shenzhen) Co., Ltd.

A. Accreditations for Conformity Assessment (International)

Country/Region	Accreditation Body	Scope	Note
USA	**CNAS (Registration No.: L3110) A2LA (Certificate No.: 4243.01)**	FCC ID \ DOC \ VOC	1
Canada		IC ID \ VOC	2
Japan		MIC-T \ MIC-R	-
Europe		EMCD \ RED	-
Taiwan		NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
India	**International Services**	WPC	-
Thailand		NTC	-
Singapore		IDA	-

Note:

1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476.
2. IC Canada Registration No.: 7760A

B. TCBs and Notify Bodies Recognized Testing Laboratory.

Recognized Testing Laboratory of …	Notify body number
TUV Rheinland	Optional.
Intertek	
TUV SUD	
SGS	
Phoenix Testlab GmbH	0700
Element Materials Technology Warwick Ltd	0891
Timco Engineering, Inc.	1177
Eurofins Product Service GmbH	0681

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3 Report Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTF17S0989382E	2017-09-05	2017-09-05 to 2017-09-10	2017-09-13	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product :	AeroGarden
Model(s)	100661-XXX, 100670-XXX
Model Similarity	Model 100661-XXX is same as model 100670-XXX, except that the main plastic enclosure of Model 100670-XXX additional with metal decorative layer. Where suffix XXX is the letters A to Z, denoted the different enclosure colour.The model 100661-BLK and 100670-BSS are the tested sample.
Operation Frequency:	802.11b/g/n HT20: 2412MHz ~ 2462MHz, 802.11n HT40: 2422MHz~2452MHz
The Lowest Oscillator:	8MHz
Antenna Gain:	2.5dBi
Type of modulation:	IEEE 802.11b: DQPSK/DBPSK/DSSS/CCK IEEE 802.11g: QPSK/BPSK/16QAM/64QAM/OFDM IEEE 802.11n: QPSK/BPSK/16QAM/64QAM/OFDM
Hardware Version:	V1.1
Software Version:	V1.11

4.2 Details of E.U.T.

Technical Data: Input Voltage: AC 120V, 60Hz, 0.3A

4.3 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2412	2	2417	3	2422	4	2427
5	2432	6	2437	7	2442	8	2447
9	2452	10	2457	11	2462	12	-

4.4 Test Mode

Table 1 Tests Carried Out Under FCC part 15.247

Test Items	Mode	Data Rate	Channel	TX/RX
Maximum conducted (average) output power	802.11b	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	3/6/9	TX
Power Spectral Density	802.11b	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	3/6/9	TX
Bandwidth	802.11b	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	3/6/9	TX
Band Edge	802.11b	1 Mbps	1/11	TX
	802.11g	6 Mbps	1/11	TX
	802.11n HT20	MCS0	1/11	TX
	802.11n HT40	MCS0	3/6/9	TX
Radiated Emissions	802.11b	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	3/6/9	TX

Note :Parameters set by test software during channel & power tests, the software provided by the customer was used to set the operating channels as well as the output power level. The RF output power set is the power expected by the manufacturer and is going to be fixed on the firmware of the final product .

5 Equipment Used during Test

5.1 Equipment's List

Conducted Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	2016-09-12	2017-09-11
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	2016-09-12	2017-09-11
3.	Limiter	York	MTS-IMP-136	261115-001-0024	2016-09-12	2017-09-11
4.	Cable	LARGE	RF300	-	2016-09-12	2017-09-11
3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP	100091	2017-04-29	2018-04-28
2	Amplifier	Agilent	8447D	2944A10178	2017-01-12	2018-01-11
3	Active Loop Antenna	Beijing Dazhi	ZN30900A	0703	2016-10-17	2017-10-16
4	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2017-04-07	2018-04-06
5	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2016-09-12	2017-09-11
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2017-04-07	2018-04-06
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2017-04-07	2018-04-06
8	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	EW02014-7	2017-04-07	2018-04-06
3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2017-04-06	2018-04-05
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2017-04-07	2018-04-06
3	Amplifier	ANRITSU	MH648A	M43381	2017-04-07	2018-04-06
4	Cable	HUBER+SUHNER	CBL2	525178	2017-04-07	2018-04-06
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	Spectrum Analyzer	R&S	FSP	100091	2017-04-29	2018-04-28

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (30M~1000MHz)
	± 5.47 dB (1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., LTD. address is No.163, Pingyun Rd. West of Huangpu Ave, Tianhe District, Guangzhou, Guangdong, China.

6 Test Summary

Test Items	Test Requirement	Result
Radiated Spurious Emissions	15.247(d) 15.205(a) 15.209(a)	Pass
Conducted Spurious emissions	15.247(d)	Pass
Conducted Emissions	15.207(a)	Pass
Bandwidth	15.247(a)(2)	Pass
Maximum conducted (average) output power	15.247(b)(3),(4)	Pass
Power Spectral Density	15.247(e)	Pass
Band Edge	15.247(d)	Pass
Antenna Requirement	15.203	Pass
SAR Evaluation	1.1307(b)(1)	Pass
Note: Pass=Compliance; Fail=Not Compliance; N/A=Not Applicable.		

7 Conducted Emission

Test Requirement: FCC CFR 47 Part 15 Section 15.207

Test Method: ANSI C63.10:2013,ANSI C63.4:2014

Test Result: PASS

Frequency Range: 150kHz to 30MHz

Class/Severity: Class B

Limit:

Frequency (MHz)	Limit (dBμV)	
	Quasi peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0 5 to 5	5	46
5 to 30	60	0

7.1 E.U.T. Operation

Operating Environment :

Temperature: 21.5 °C

Humidity: 51.9 % RH

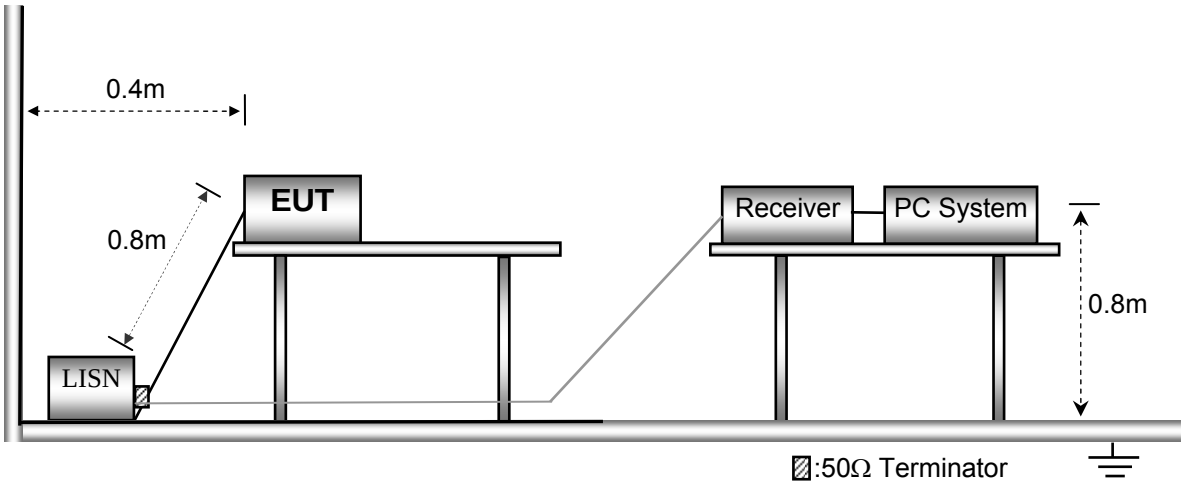
Atmospheric Pressure: 101.2kPa

EUT Operation :

The test was performed in Wi-Fi Transmitting mode, the worst data (Wi-Fi b mode low channel) were shown in the report.

7.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2013.



7.3 Measurement Description

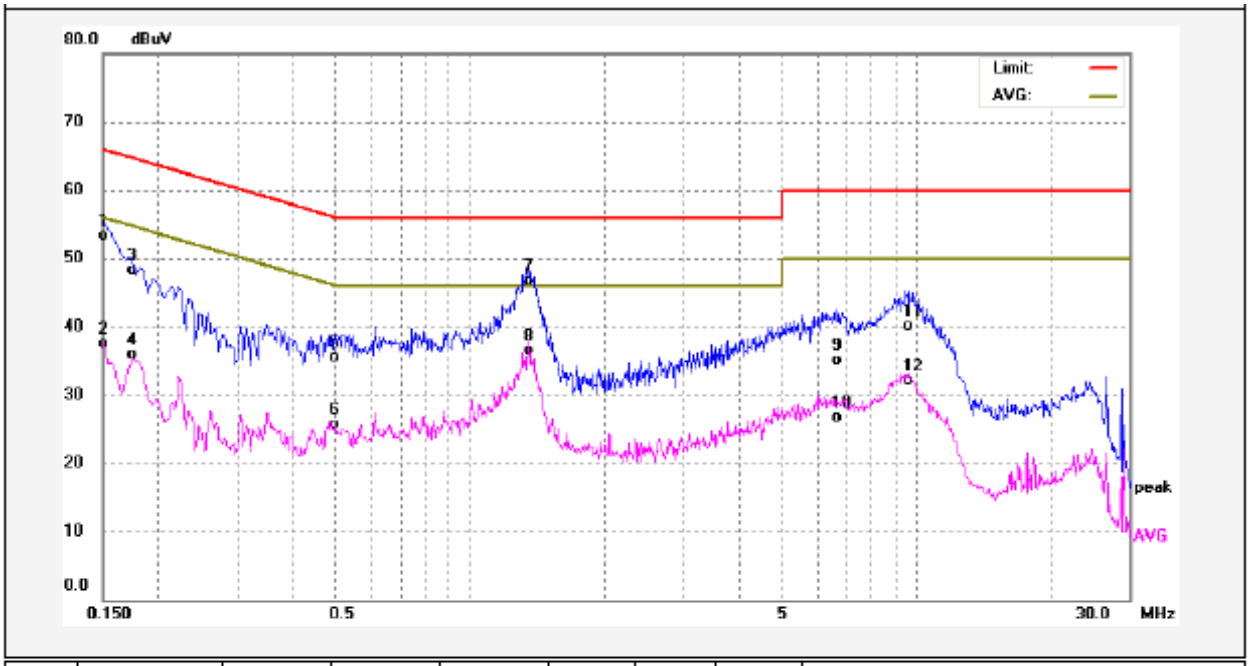
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

7.4 Conducted Emission Test Result

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

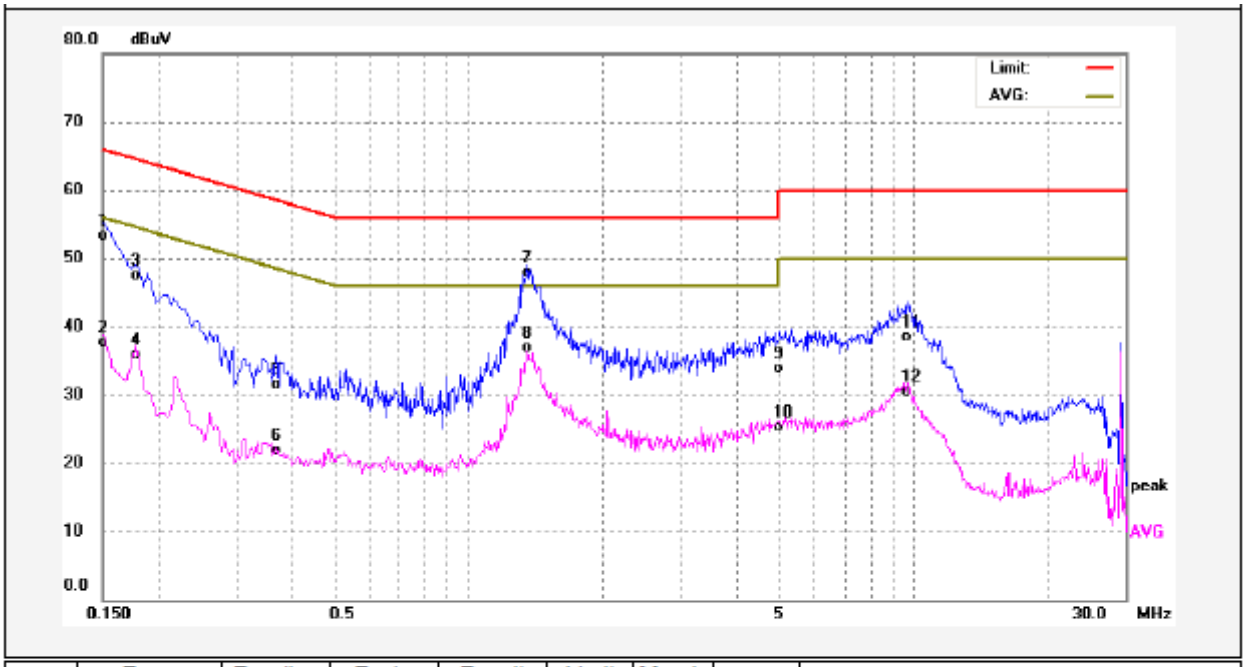
Model 100661-BLK

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	43.22	10.06	53.28	65.99	-12.71	QP	
2	0.1500	27.54	10.06	37.60	55.99	-18.39	AVG	
3	0.1740	38.41	9.87	48.28	64.76	-16.48	QP	
4	0.1740	25.94	9.87	35.81	54.76	-18.95	AVG	
5	0.4980	25.41	10.08	35.49	56.03	-20.54	QP	
6	0.4980	15.65	10.08	25.73	46.03	-20.30	AVG	
7	1.3540	36.52	10.28	46.80	56.00	-9.20	QP	
8	1.3540	26.23	10.28	36.51	46.00	-9.49	AVG	
9	6.6380	24.92	10.27	35.19	60.00	-24.81	QP	
10	6.6380	16.52	10.27	26.79	50.00	-23.21	AVG	
11	9.4740	29.73	10.35	40.08	60.00	-19.92	QP	
12	9.4740	21.74	10.35	32.09	50.00	-17.91	AVG	

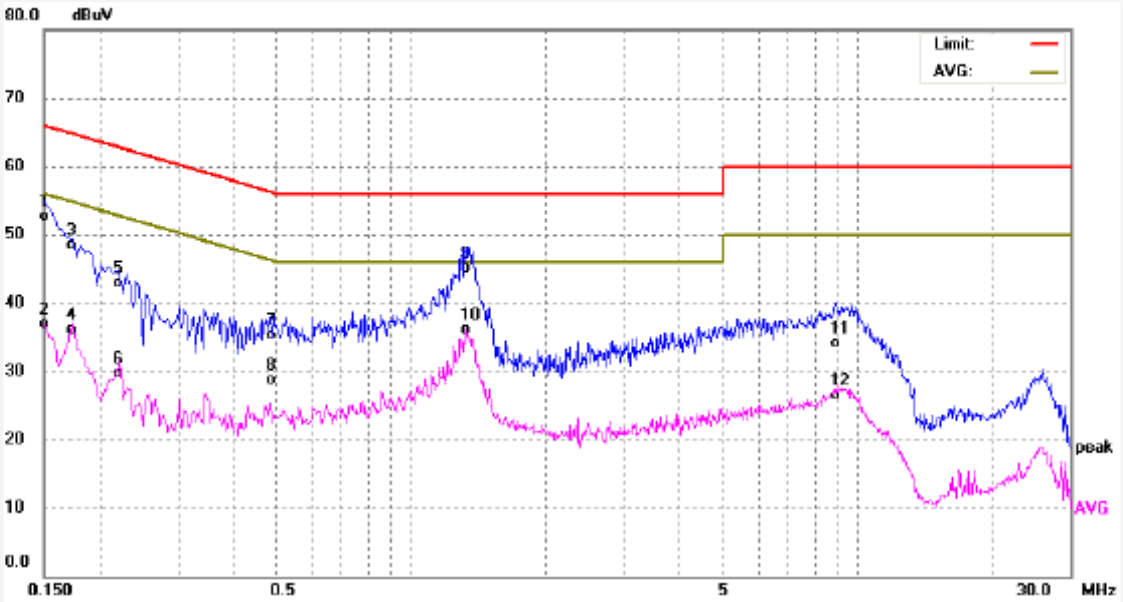
Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	43.23	10.06	53.29	65.99	-12.70	QP	
2	0.1500	27.55	10.06	37.61	55.99	-18.38	AVG	
3	0.1787	37.57	9.88	47.45	64.54	-17.09	QP	
4	0.1787	26.11	9.88	35.99	54.54	-18.55	AVG	
5	0.3700	21.50	10.05	31.55	58.50	-26.95	QP	
6	0.3700	11.83	10.05	21.88	48.50	-26.62	AVG	
7	1.3540	37.55	10.28	47.83	56.00	-8.17	QP	
8	1.3540	26.64	10.28	36.92	46.00	-9.08	AVG	
9	4.9860	23.68	10.25	33.93	56.00	-22.07	QP	
10	4.9860	15.04	10.25	25.29	46.00	-20.71	AVG	
11	9.6540	28.22	10.36	38.58	60.00	-21.42	QP	
12	9.6540	20.06	10.36	30.42	50.00	-19.58	AVG	

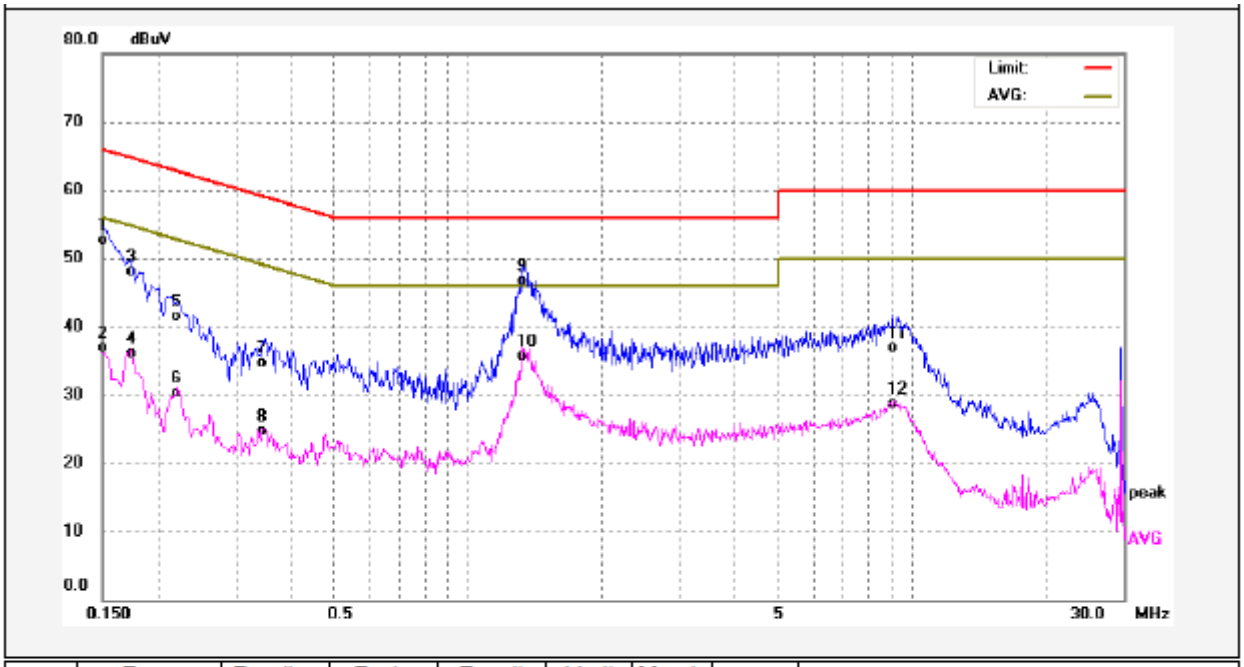
Model 100670-BSS

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	42.59	10.06	52.65	65.99	-13.34	QP	
2	0.1500	26.79	10.06	36.85	55.99	-19.14	AVG	
3	0.1722	38.59	9.86	48.45	64.85	-16.40	QP	
4	0.1722	26.15	9.86	36.01	54.85	-18.84	AVG	
5	0.2220	32.91	9.96	42.87	62.74	-19.87	QP	
6	0.2220	19.79	9.96	29.75	52.74	-22.99	AVG	
7	0.4940	25.23	10.08	35.31	56.10	-20.79	QP	
8	0.4940	18.63	10.08	28.71	46.10	-17.39	AVG	
9	1.3340	34.76	10.29	45.05	56.00	-10.95	QP	
10	1.3340	25.72	10.29	36.01	46.00	-9.99	AVG	
11	8.9379	23.85	10.34	34.19	60.00	-25.81	QP	
12	8.9379	16.22	10.34	26.56	50.00	-23.44	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	42.57	10.06	52.63	65.99	-13.36	QP	
2	0.1500	26.81	10.06	36.87	55.99	-19.12	AVG	
3	0.1740	38.22	9.87	48.09	64.76	-16.67	QP	
4	0.1740	26.30	9.87	36.17	54.76	-18.59	AVG	
5	0.2220	31.63	9.96	41.59	62.74	-21.15	QP	
6	0.2220	20.30	9.96	30.26	52.74	-22.48	AVG	
7	0.3500	24.62	10.06	34.68	58.96	-24.28	QP	
8	0.3500	14.56	10.06	24.62	48.96	-24.34	AVG	
9	1.3300	36.48	10.30	46.78	56.00	-9.22	QP	
10	1.3300	25.36	10.30	35.66	46.00	-10.34	AVG	
11	9.0420	26.54	10.34	36.88	60.00	-23.12	QP	
12	9.0420	18.42	10.34	28.76	50.00	-21.24	AVG	

8 Radiated Spurious Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method: ANSI C63.10:2013,ANSI C63.4:2014

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

8.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

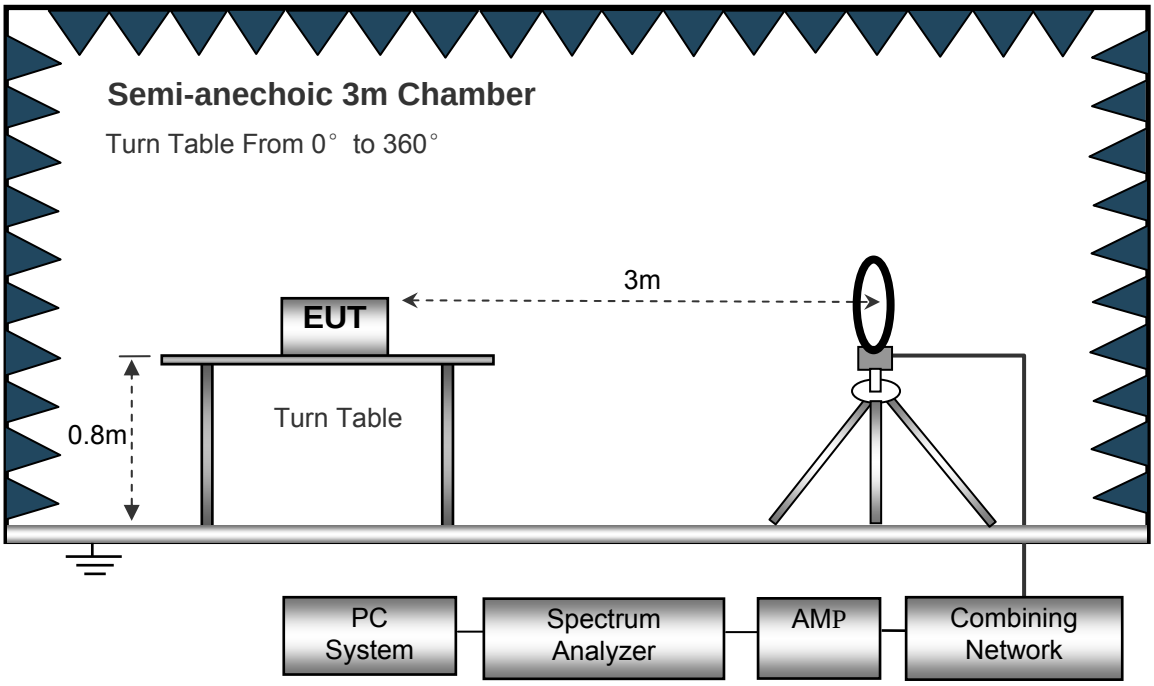
EUT Operation **:**

The test was performed in Wi-Fi Transmitting mode.

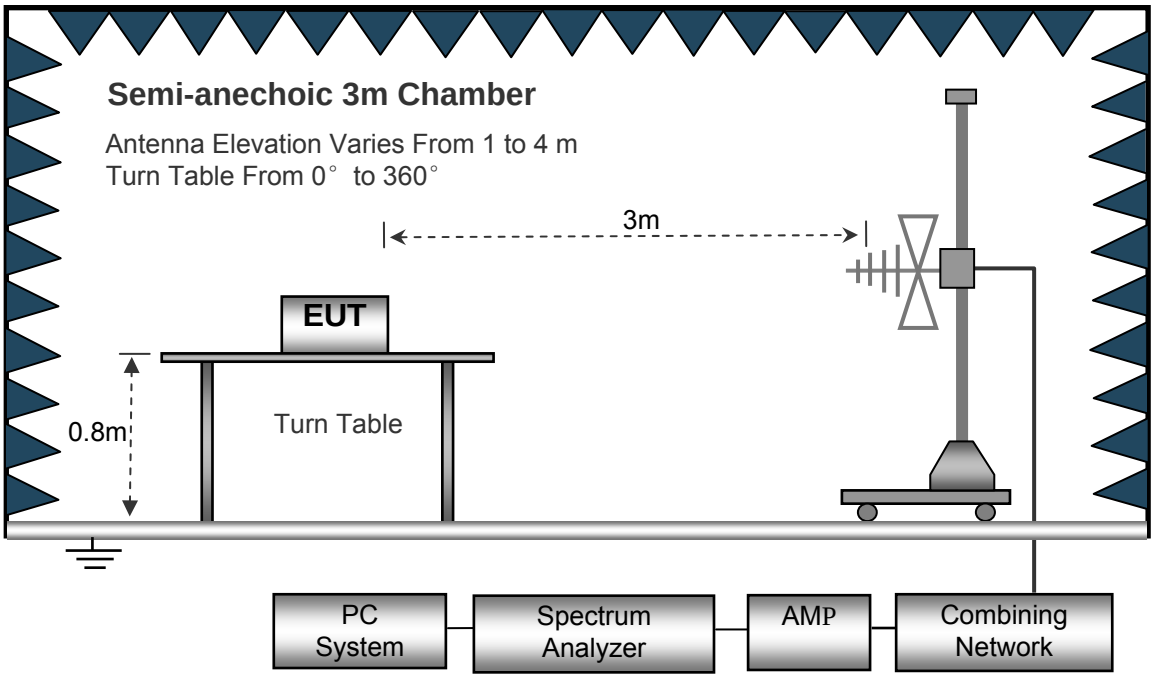
8.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10:2013.

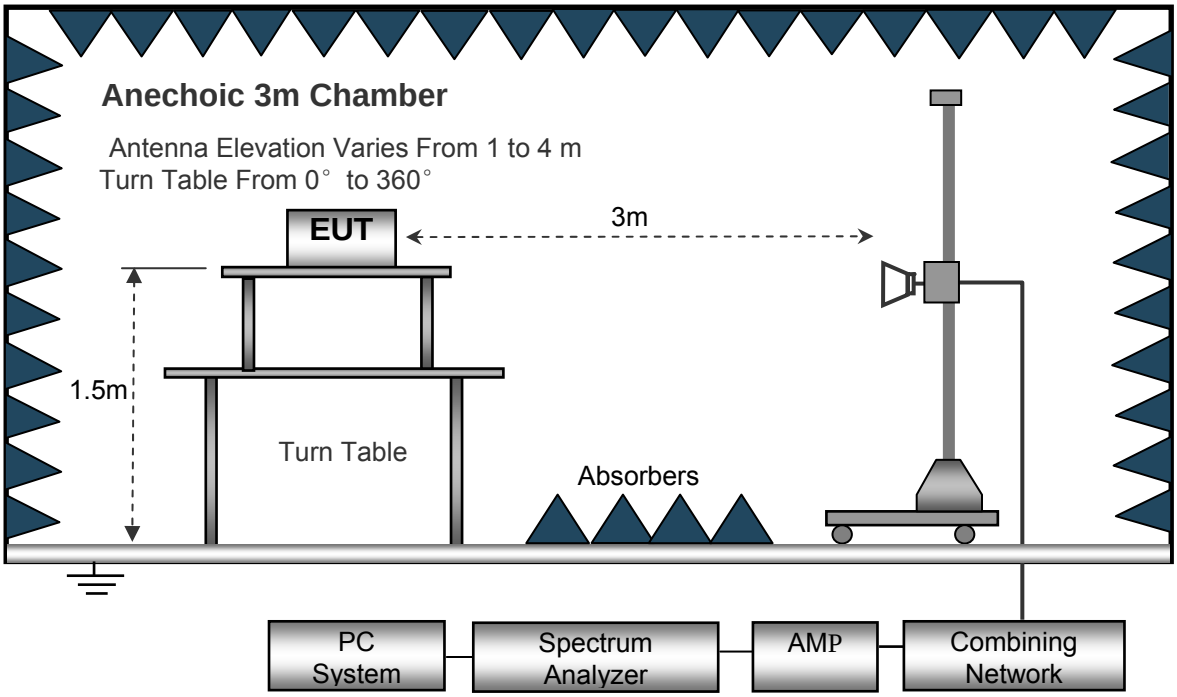
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



8.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed ..... Auto
IF Bandwidth..... 10kHz
Video Bandwidth..... 10kHz
Resolution Bandwidth..... 10kHz

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 100kHz
Video Bandwidth..... 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 3MHz
Detector ..... Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 10Hz

8.4 Test Procedure

1. The EUT is placed on a turntable. For below 1GHz, the EUT is 0.8m above ground plane; For above1GHz, the EUT is 1.5m 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 radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in X axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used druing radiated emissions above 1GHz measurement.

8.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Limit

8.6 Summary of Test Results

Model 100661-BLK

Test Frequency : 9KHz to 30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency : 30MHz ~ 18GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: Low Channel 2412MHz									
223.68	40.79	QP	106.53	1.29	H	11.02	29.77	46.00	-16.23
223.68	38.66	QP	250.32	1.26	V	11.02	27.64	46.00	-18.36
4824.00	52.33	PK	14.48	1.26	V	1.08	51.25	74.00	-22.75
4824.00	40.75	Ave	14.48	1.26	V	1.08	39.67	54.00	-14.33
7236.00	45.26	PK	294.55	1.93	H	1.33	46.59	74.00	-27.41
7236.00	38.61	Ave	294.55	1.93	H	1.33	39.94	54.00	-14.06
2330.10	45.80	PK	269.37	1.33	V	13.11	32.69	74.00	-41.31
2330.10	38.41	Ave	269.37	1.33	V	13.11	25.30	54.00	-28.70
2354.71	42.14	PK	110.13	1.37	H	13.06	29.08	74.00	-44.92
2354.71	36.28	Ave	110.13	1.37	H	13.04	23.24	54.00	-30.76
2493.98	43.57	PK	345.98	2.00	V	13.00	30.57	74.00	-43.43
2493.98	36.97	Ave	345.98	2.00	V	13.00	23.97	54.00	-30.03

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: Middle Channel 2437MHz									
223.68	39.97	QP	54.48	1.71	H	11.02	28.95	46.00	-17.05
223.68	38.98	QP	143.02	1.21	V	11.02	27.96	46.00	-18.04
4874.00	52.93	PK	320.11	1.81	V	1.08	51.85	74.00	-22.15
4874.00	41.73	Ave	320.11	1.81	V	1.08	40.65	54.00	-13.35
7311.00	44.47	PK	244.25	1.37	H	2.21	46.68	74.00	-27.32
7311.00	40.03	Ave	244.25	1.37	H	2.21	42.24	54.00	-11.76
2345.80	46.83	PK	328.51	1.88	V	13.19	33.64	74.00	-40.36
2345.80	38.53	Ave	328.51	1.88	V	13.19	25.34	54.00	-28.66
2383.19	43.28	PK	126.00	1.25	H	13.14	30.14	74.00	-43.86
2383.19	38.38	Ave	126.00	1.25	H	13.14	25.24	54.00	-28.76
2498.62	44.32	PK	44.93	1.83	V	13.08	31.24	74.00	-42.76
2498.62	36.98	Ave	44.93	1.83	V	13.08	23.90	54.00	-30.10

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: High Channel 2462MHz									
223.68	39.33	QP	337.08	1.88	H	11.02	28.31	46.00	-17.69
223.68	37.99	QP	321.41	1.85	V	11.02	26.97	46.00	-19.03
4924.00	54.15	PK	239.95	1.86	V	1.08	53.07	74.00	-20.93
4924.00	41.32	Ave	239.95	1.86	V	1.08	40.24	54.00	-13.76
7386.00	43.49	PK	349.88	1.54	H	2.84	46.33	74.00	-27.67
7386.00	41.04	Ave	349.88	1.54	H	2.84	43.88	54.00	-10.12
2320.07	45.03	PK	270.82	1.88	V	13.11	31.92	74.00	-42.08
2320.07	37.90	Ave	270.82	1.88	V	13.11	24.79	54.00	-29.21
2374.79	43.70	PK	224.95	1.68	H	13.06	30.64	74.00	-43.36
2374.79	36.91	Ave	224.95	1.68	H	13.04	23.87	54.00	-30.13
2499.49	43.07	PK	340.22	1.58	V	13.00	30.07	74.00	-43.93
2499.49	37.53	Ave	340.22	1.58	V	13.00	24.53	54.00	-29.47

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: Low Channel 2412MHz									
223.68	40.06	QP	317.84	1.94	H	11.02	29.04	46.00	-16.96
223.68	38.27	QP	205.50	1.57	V	11.02	27.25	46.00	-18.75
4824.00	53.45	PK	328.99	1.68	V	1.08	52.37	74.00	-21.63
4824.00	41.99	Ave	328.99	1.68	V	1.08	40.91	54.00	-13.09
7236.00	43.15	PK	287.44	1.34	H	1.33	44.48	74.00	-29.52
7236.00	41.42	Ave	287.44	1.34	H	1.33	42.75	54.00	-11.25
2338.41	46.23	PK	117.08	1.46	V	13.11	33.12	74.00	-40.88
2338.41	37.99	Ave	117.08	1.46	V	13.11	24.88	54.00	-29.12
2380.15	43.73	PK	269.48	1.85	H	13.06	30.67	74.00	-43.33
2380.15	38.25	Ave	269.48	1.85	H	13.04	25.21	54.00	-28.79
2490.22	42.78	PK	101.43	2.00	V	13.00	29.78	74.00	-44.22
2490.22	36.26	Ave	101.43	2.00	V	13.00	23.26	54.00	-30.74

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: Middle Channel 2437MHz									
223.68	41.41	QP	252.79	1.47	H	11.02	30.39	46.00	-15.61
223.68	39.61	QP	232.40	1.10	V	11.02	28.59	46.00	-17.41
4874.00	54.23	PK	345.20	1.28	V	1.08	53.15	74.00	-20.85
4874.00	42.01	Ave	345.20	1.28	V	1.08	40.93	54.00	-13.07
7311.00	44.08	PK	281.07	1.32	H	2.21	46.29	74.00	-27.71
7311.00	41.65	Ave	281.07	1.32	H	2.21	43.86	54.00	-10.14
2314.40	46.23	PK	254.24	1.22	V	13.11	33.12	74.00	-40.88
2314.40	38.98	Ave	254.24	1.22	V	13.11	25.87	54.00	-28.13
2386.47	43.33	PK	151.47	1.21	H	13.06	30.27	74.00	-43.73
2386.47	38.60	Ave	151.47	1.21	H	13.04	25.56	54.00	-28.44
2496.52	42.52	PK	232.47	1.47	V	13.00	29.52	74.00	-44.48
2496.52	36.43	Ave	232.47	1.47	V	13.00	23.43	54.00	-30.57

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: High Channel 2462MHz									
223.68	41.90	QP	119.64	1.79	H	11.02	30.88	46.00	-15.12
223.68	38.78	QP	39.99	1.56	V	11.02	27.76	46.00	-18.24
4924.00	53.23	PK	279.82	1.73	V	1.08	52.15	74.00	-21.85
4924.00	42.68	Ave	279.82	1.73	V	1.08	41.60	54.00	-12.40
7386.00	42.73	PK	256.54	1.41	H	2.84	45.57	74.00	-28.43
7386.00	41.28	Ave	256.54	1.41	H	2.84	44.12	54.00	-9.88
2336.02	46.98	PK	287.33	1.47	V	13.11	33.87	74.00	-40.13
2336.02	39.24	Ave	287.33	1.47	V	13.11	26.13	54.00	-27.87
2356.59	44.69	PK	312.51	1.38	H	13.06	31.63	74.00	-42.37
2356.59	38.66	Ave	312.51	1.38	H	13.04	25.62	54.00	-28.38
2493.59	43.56	PK	226.66	1.16	V	13.00	30.56	74.00	-43.44
2493.59	38.75	Ave	226.66	1.16	V	13.00	25.75	54.00	-28.25

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: Low Channel 2412MHz									
223.68	41.01	QP	314.08	1.79	H	11.02	29.99	46.00	-16.01
223.68	38.72	QP	213.52	1.81	V	11.02	27.70	46.00	-18.30
4824.00	53.76	PK	140.77	1.66	V	1.08	52.68	74.00	-21.32
4824.00	43.91	Ave	140.77	1.66	V	1.08	42.83	54.00	-11.17
7236.00	41.63	PK	350.25	1.70	H	1.33	42.96	74.00	-31.04
7236.00	42.54	Ave	350.25	1.70	H	1.33	43.87	54.00	-10.13
2348.65	46.51	PK	237.77	1.34	V	13.11	33.40	74.00	-40.60
2348.65	38.66	Ave	237.77	1.34	V	13.11	25.55	54.00	-28.45
2387.45	43.31	PK	224.23	1.44	H	13.06	30.25	74.00	-43.75
2387.45	37.27	Ave	224.23	1.44	H	13.04	24.23	54.00	-29.77
2489.49	42.66	PK	191.00	1.04	V	13.00	29.66	74.00	-44.34
2489.49	37.68	Ave	191.00	1.04	V	13.00	24.68	54.00	-29.32

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: Middle Channel 2437MHz									
223.68	40.41	QP	163.39	1.66	H	11.02	29.39	46.00	-16.61
223.68	39.88	QP	269.45	1.51	V	11.02	28.86	46.00	-17.14
4874.00	53.71	PK	315.29	1.34	V	1.08	52.63	74.00	-21.37
4874.00	43.48	Ave	315.29	1.34	V	1.08	42.40	54.00	-11.60
7311.00	42.81	PK	62.36	1.50	H	2.21	45.02	74.00	-28.98
7311.00	41.46	Ave	62.36	1.50	H	2.21	43.67	54.00	-10.33
2338.80	45.84	PK	201.89	1.89	V	13.11	32.73	74.00	-41.27
2338.80	38.15	Ave	201.89	1.89	V	13.11	25.04	54.00	-28.96
2370.45	43.16	PK	125.07	1.19	H	13.06	30.10	74.00	-43.90
2370.45	36.01	Ave	125.07	1.19	H	13.04	22.97	54.00	-31.03
2485.18	42.05	PK	267.33	1.73	V	13.00	29.05	74.00	-44.95
2485.18	36.42	Ave	267.33	1.73	V	13.00	23.42	54.00	-30.58

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: High Channel 2462MHz									
223.68	40.65	QP	76.14	1.11	H	11.02	29.63	46.00	-16.37
223.68	40.18	QP	1.98	1.14	V	11.02	29.16	46.00	-16.84
4924.00	54.80	PK	304.53	1.57	V	1.08	53.72	74.00	-20.28
4924.00	44.98	Ave	304.53	1.57	V	1.08	43.90	54.00	-10.10
7386.00	43.41	PK	186.89	1.25	H	2.84	46.25	74.00	-27.75
7386.00	42.02	Ave	186.89	1.25	H	2.84	44.86	54.00	-9.14
2328.41	45.01	PK	85.73	1.33	V	13.11	31.90	74.00	-42.10
2328.41	37.40	Ave	85.73	1.33	V	13.11	24.29	54.00	-29.71
2371.48	44.53	PK	298.10	1.20	H	13.06	31.47	74.00	-42.53
2371.48	36.14	Ave	298.10	1.20	H	13.04	23.10	54.00	-30.90
2489.44	44.84	PK	33.34	1.87	V	13.00	31.84	74.00	-42.16
2489.44	37.18	Ave	33.34	1.87	V	13.00	24.18	54.00	-29.82

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: Low Channel 2422MHz									
223.68	39.93	QP	293.66	1.56	H	11.02	28.91	46.00	-17.09
223.68	39.32	QP	178.13	1.79	V	11.02	28.30	46.00	-17.70
4844.00	52.44	PK	2.86	1.31	V	1.08	51.36	74.00	-22.64
4844.00	42.50	Ave	2.86	1.31	V	1.08	41.42	54.00	-12.58
7266.00	40.46	PK	249.03	1.19	H	1.33	41.79	74.00	-32.21
7266.00	39.63	Ave	249.03	1.19	H	1.33	40.96	54.00	-13.04
2337.72	45.44	PK	4.27	1.98	V	13.11	32.33	74.00	-41.67
2337.72	38.35	Ave	4.27	1.98	V	13.11	25.24	54.00	-28.76
2389.93	43.40	PK	96.65	1.68	H	13.06	30.34	74.00	-43.66
2389.93	36.75	Ave	96.65	1.68	H	13.04	23.71	54.00	-30.29
2489.86	42.73	PK	217.56	1.85	V	13.00	29.73	74.00	-44.27
2489.86	37.00	Ave	217.56	1.85	V	13.00	24.00	54.00	-30.00

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: Middle Channel 2437MHz									
223.68	40.11	QP	150.41	1.46	H	11.02	29.09	46.00	-16.91
223.68	40.11	QP	174.48	1.70	V	11.02	29.09	46.00	-16.91
4874.00	52.86	PK	329.57	1.26	V	1.08	51.78	74.00	-22.22
4874.00	42.34	Ave	329.57	1.26	V	1.08	41.26	54.00	-12.74
7311.00	41.07	PK	333.71	1.60	H	2.21	43.28	74.00	-30.72
7311.00	40.07	Ave	333.71	1.60	H	2.21	42.28	54.00	-11.72
2344.54	45.02	PK	301.26	1.34	V	13.11	31.91	74.00	-42.09
2344.54	39.16	Ave	301.26	1.34	V	13.11	26.05	54.00	-27.95
2369.25	43.78	PK	95.74	1.96	H	13.06	30.72	74.00	-43.28
2369.25	37.20	Ave	95.74	1.96	H	13.04	24.16	54.00	-29.84
2488.76	44.60	PK	41.95	1.19	V	13.00	31.60	74.00	-42.40
2488.76	36.89	Ave	41.95	1.19	V	13.00	23.89	54.00	-30.11

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: High Channel 2452MHz									
223.68	40.93	QP	135.67	1.50	H	11.02	29.91	46.00	-16.09
223.68	40.86	QP	119.08	1.44	V	11.02	29.84	46.00	-16.16
4904.00	52.82	PK	82.19	1.20	V	1.08	51.74	74.00	-22.26
4904.00	42.80	Ave	82.19	1.20	V	1.08	41.72	54.00	-12.28
7356.00	40.58	PK	330.48	1.06	H	2.84	43.42	74.00	-30.58
7356.00	39.57	Ave	330.48	1.06	H	2.84	42.41	54.00	-11.59
2314.65	46.68	PK	256.17	1.73	V	13.11	33.57	74.00	-40.43
2314.65	39.57	Ave	256.17	1.73	V	13.11	26.46	54.00	-27.54
2352.91	42.77	PK	169.89	1.87	H	13.06	29.71	74.00	-44.29
2352.91	36.91	Ave	169.89	1.87	H	13.04	23.87	54.00	-30.13
2486.88	42.60	PK	149.03	1.07	V	13.00	29.60	74.00	-44.40
2486.88	38.92	Ave	149.03	1.07	V	13.00	25.92	54.00	-28.08

Test Frequency: 18GHz~25GHz

The measurements were more than 20 dB below the limit and not reported.

Model 100670-BSS:

Test Frequency : 9KHz to 30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency : 30MHz ~ 18GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: Low Channel 2412MHz									
236.68	41.26	QP	335.78	1.84	H	11.02	30.24	46.00	-15.76
236.68	37.61	QP	131.09	1.17	V	11.02	26.59	46.00	-19.41
4824.00	53.44	PK	99.61	1.23	V	1.08	52.36	74.00	-21.64
4824.00	41.49	Ave	99.61	1.23	V	1.08	40.41	54.00	-13.59
7236.00	46.88	PK	71.11	1.22	H	1.33	48.21	74.00	-25.79
7236.00	37.19	Ave	71.11	1.22	H	1.33	38.52	54.00	-15.48
2346.87	45.69	PK	94.16	1.35	V	13.11	32.58	74.00	-41.42
2346.87	39.76	Ave	94.16	1.35	V	13.11	26.65	54.00	-27.35
2386.36	43.97	PK	357.23	1.87	H	13.06	30.91	74.00	-43.09
2386.36	38.74	Ave	357.23	1.87	H	13.04	25.70	54.00	-28.30
2486.48	42.85	PK	329.92	1.67	V	13.00	29.85	74.00	-44.15
2486.48	37.60	Ave	329.92	1.67	V	13.00	24.60	54.00	-29.40

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: Middle Channel 2437MHz									
236.68	41.11	QP	294.11	1.38	H	11.02	30.09	46.00	-15.91
236.68	37.80	QP	265.48	1.78	V	11.02	26.78	46.00	-19.22
4874.00	54.65	PK	39.12	1.83	V	1.08	53.57	74.00	-20.43
4874.00	40.19	Ave	39.12	1.83	V	1.08	39.11	54.00	-14.89
7311.00	47.65	PK	356.65	1.03	H	2.21	49.86	74.00	-24.14
7311.00	36.99	Ave	356.65	1.03	H	2.21	39.20	54.00	-14.80
2331.19	45.76	PK	252.93	1.31	V	13.19	32.57	74.00	-41.43
2331.19	38.64	Ave	252.93	1.31	V	13.19	25.45	54.00	-28.55
2389.38	44.99	PK	143.22	1.87	H	13.14	31.85	74.00	-42.15
2389.38	37.30	Ave	143.22	1.87	H	13.14	24.16	54.00	-29.84
2494.26	44.69	PK	7.78	1.23	V	13.08	31.61	74.00	-42.39
2494.26	38.77	Ave	7.78	1.23	V	13.08	25.69	54.00	-28.31

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: High Channel 2462MHz									
236.68	41.90	QP	218.14	1.60	H	11.02	30.88	46.00	-15.12
236.68	37.98	QP	134.98	1.18	V	11.02	26.96	46.00	-19.04
4924.00	53.93	PK	197.31	1.11	V	1.08	52.85	74.00	-21.15
4924.00	41.08	Ave	197.31	1.11	V	1.08	40.00	54.00	-14.00
7386.00	46.38	PK	142.08	1.80	H	2.84	49.22	74.00	-24.78
7386.00	36.77	Ave	142.08	1.80	H	2.84	39.61	54.00	-14.39
2326.57	46.39	PK	59.01	1.20	V	13.11	33.28	74.00	-40.72
2326.57	37.48	Ave	59.01	1.20	V	13.11	24.37	54.00	-29.63
2384.71	44.37	PK	63.38	1.67	H	13.06	31.31	74.00	-42.69
2384.71	36.38	Ave	63.38	1.67	H	13.04	23.34	54.00	-30.66
2489.89	43.97	PK	181.38	1.45	V	13.00	30.97	74.00	-43.03
2489.89	37.26	Ave	181.38	1.45	V	13.00	24.26	54.00	-29.74

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: Low Channel 2412MHz									
236.68	40.84	QP	61.73	1.01	H	11.02	29.82	46.00	-16.18
236.68	36.71	QP	197.91	1.89	V	11.02	25.69	46.00	-20.31
4824.00	53.34	PK	167.43	1.75	V	1.08	52.26	74.00	-21.74
4824.00	41.56	Ave	167.43	1.75	V	1.08	40.48	54.00	-13.52
7236.00	45.85	PK	143.29	1.78	H	1.33	47.18	74.00	-26.82
7236.00	37.37	Ave	143.29	1.78	H	1.33	38.70	54.00	-15.30
2332.06	46.83	PK	212.32	1.19	V	13.11	33.72	74.00	-40.28
2332.06	38.45	Ave	212.32	1.19	V	13.11	25.34	54.00	-28.66
2375.26	44.57	PK	340.96	1.19	H	13.06	31.51	74.00	-42.49
2375.26	36.98	Ave	340.96	1.19	H	13.04	23.94	54.00	-30.06
2491.04	43.76	PK	221.48	1.51	V	13.00	30.76	74.00	-43.24
2491.04	38.47	Ave	221.48	1.51	V	13.00	25.47	54.00	-28.53

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: Middle Channel 2437MHz									
236.68	40.15	QP	67.98	1.33	H	11.02	29.13	46.00	-16.87
236.68	35.96	QP	213.14	1.25	V	11.02	24.94	46.00	-21.06
4874.00	53.34	PK	290.87	1.87	V	1.08	52.26	74.00	-21.74
4874.00	41.96	Ave	290.87	1.87	V	1.08	40.88	54.00	-13.12
7311.00	45.40	PK	125.71	1.69	H	2.21	47.61	74.00	-26.39
7311.00	37.67	Ave	125.71	1.69	H	2.21	39.88	54.00	-14.12
2323.36	46.50	PK	225.43	1.83	V	13.11	33.39	74.00	-40.61
2323.36	37.17	Ave	225.43	1.83	V	13.11	24.06	54.00	-29.94
2386.97	43.63	PK	348.16	1.78	H	13.06	30.57	74.00	-43.43
2386.97	37.30	Ave	348.16	1.78	H	13.04	24.26	54.00	-29.74
2491.93	42.51	PK	277.84	1.94	V	13.00	29.51	74.00	-44.49
2491.93	38.81	Ave	277.84	1.94	V	13.00	25.81	54.00	-28.19

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: High Channel 2462MHz									
236.68	41.51	QP	37.98	1.35	H	11.02	30.49	46.00	-15.51
236.68	35.64	QP	269.34	1.56	V	11.02	24.62	46.00	-21.38
4924.00	53.19	PK	223.41	1.24	V	1.08	52.11	74.00	-21.89
4924.00	42.47	Ave	223.41	1.24	V	1.08	41.39	54.00	-12.61
7386.00	45.49	PK	16.17	1.57	H	2.84	48.33	74.00	-25.67
7386.00	38.95	Ave	16.17	1.57	H	2.84	41.79	54.00	-12.21
2346.49	45.13	PK	201.87	1.95	V	13.11	32.02	74.00	-41.98
2346.49	37.07	Ave	201.87	1.95	V	13.11	23.96	54.00	-30.04
2356.69	42.32	PK	233.28	1.04	H	13.06	29.26	74.00	-44.74
2356.69	38.83	Ave	233.28	1.04	H	13.04	25.79	54.00	-28.21
2484.92	42.85	PK	163.47	1.27	V	13.00	29.85	74.00	-44.15
2484.92	36.55	Ave	163.47	1.27	V	13.00	23.55	54.00	-30.45

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: Low Channel 2412MHz									
236.68	40.96	QP	188.99	1.83	H	11.02	29.94	46.00	-16.06
236.68	36.78	QP	14.12	1.73	V	11.02	25.76	46.00	-20.24
4824.00	54.53	PK	191.77	1.91	V	1.08	53.45	74.00	-20.55
4824.00	43.23	Ave	191.77	1.91	V	1.08	42.15	54.00	-11.85
7236.00	44.84	PK	314.96	1.39	H	1.33	46.17	74.00	-27.83
7236.00	38.32	Ave	314.96	1.39	H	1.33	39.65	54.00	-14.35
2347.71	46.60	PK	132.74	1.92	V	13.11	33.49	74.00	-40.51
2347.71	37.82	Ave	132.74	1.92	V	13.11	24.71	54.00	-29.29
2360.75	44.60	PK	87.10	1.32	H	13.06	31.54	74.00	-42.46
2360.75	37.78	Ave	87.10	1.32	H	13.04	24.74	54.00	-29.26
2489.44	42.15	PK	223.22	1.87	V	13.00	29.15	74.00	-44.85
2489.44	36.54	Ave	223.22	1.87	V	13.00	23.54	54.00	-30.46

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: Middle Channel 2437MHz									
236.68	41.37	QP	257.25	1.02	H	11.02	30.35	46.00	-15.65
236.68	35.67	QP	290.55	1.46	V	11.02	24.65	46.00	-21.35
4874.00	53.66	PK	229.58	1.43	V	1.08	52.58	74.00	-21.42
4874.00	42.44	Ave	229.58	1.43	V	1.08	41.36	54.00	-12.64
7311.00	44.88	PK	249.56	1.37	H	2.21	47.09	74.00	-26.91
7311.00	37.98	Ave	249.56	1.37	H	2.21	40.19	54.00	-13.81
2344.18	45.80	PK	89.45	1.25	V	13.11	32.69	74.00	-41.31
2344.18	38.39	Ave	89.45	1.25	V	13.11	25.28	54.00	-28.72
2381.19	43.10	PK	332.97	1.93	H	13.06	30.04	74.00	-43.96
2381.19	37.38	Ave	332.97	1.93	H	13.04	24.34	54.00	-29.66
2486.35	43.50	PK	201.02	1.13	V	13.00	30.50	74.00	-43.50
2486.35	38.97	Ave	201.02	1.13	V	13.00	25.97	54.00	-28.03

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: High Channel 2462MHz									
236.68	40.03	QP	160.42	1.36	H	11.02	29.01	46.00	-16.99
236.68	36.37	QP	108.38	1.04	V	11.02	25.35	46.00	-20.65
4924.00	54.82	PK	131.22	1.29	V	1.08	53.74	74.00	-20.26
4924.00	41.79	Ave	131.22	1.29	V	1.08	40.71	54.00	-13.29
7386.00	43.86	PK	59.64	1.78	H	2.84	46.70	74.00	-27.30
7386.00	39.04	Ave	59.64	1.78	H	2.84	41.88	54.00	-12.12
2335.31	45.48	PK	124.39	1.76	V	13.11	32.37	74.00	-41.63
2335.31	38.94	Ave	124.39	1.76	V	13.11	25.83	54.00	-28.17
2359.71	44.08	PK	156.05	1.39	H	13.06	31.02	74.00	-42.98
2359.71	36.22	Ave	156.05	1.39	H	13.04	23.18	54.00	-30.82
2494.14	44.96	PK	47.55	1.22	V	13.00	31.96	74.00	-42.04
2494.14	36.14	Ave	47.55	1.22	V	13.00	23.14	54.00	-30.86

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: Low Channel 2422MHz									
236.68	41.36	QP	242.44	1.91	H	11.02	30.34	46.00	-15.66
236.68	36.09	QP	51.81	1.26	V	11.02	25.07	46.00	-20.93
4844.00	52.43	PK	187.79	1.40	V	1.08	51.35	74.00	-22.65
4844.00	39.52	Ave	187.79	1.40	V	1.08	38.44	54.00	-15.56
7266.00	41.59	PK	129.32	1.19	H	1.33	42.92	74.00	-31.08
7266.00	36.80	Ave	129.32	1.19	H	1.33	38.13	54.00	-15.87
2310.66	45.82	PK	59.70	1.40	V	13.11	32.71	74.00	-41.29
2310.66	37.78	Ave	59.70	1.40	V	13.11	24.67	54.00	-29.33
2387.88	44.26	PK	189.83	1.63	H	13.06	31.20	74.00	-42.80
2387.88	38.35	Ave	189.83	1.63	H	13.04	25.31	54.00	-28.69
2493.71	42.47	PK	52.36	1.03	V	13.00	29.47	74.00	-44.53
2493.71	38.64	Ave	52.36	1.03	V	13.00	25.64	54.00	-28.36

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: Middle Channel 2437MHz									
236.68	40.56	QP	72.14	1.41	H	11.02	29.54	46.00	-16.46
236.68	36.21	QP	24.34	1.17	V	11.02	25.19	46.00	-20.81
4874.00	52.28	PK	292.85	1.38	V	1.08	51.20	74.00	-22.80
4874.00	40.17	Ave	292.85	1.38	V	1.08	39.09	54.00	-14.91
7311.00	42.53	PK	104.16	1.95	H	2.21	44.74	74.00	-29.26
7311.00	36.22	Ave	104.16	1.95	H	2.21	38.43	54.00	-15.57
2333.91	46.65	PK	135.04	1.98	V	13.11	33.54	74.00	-40.46
2333.91	38.41	Ave	135.04	1.98	V	13.11	25.30	54.00	-28.70
2366.02	44.09	PK	132.68	1.57	H	13.06	31.03	74.00	-42.97
2366.02	37.77	Ave	132.68	1.57	H	13.04	24.73	54.00	-29.27
2492.59	42.49	PK	155.21	1.72	V	13.00	29.49	74.00	-44.51
2492.59	38.89	Ave	155.21	1.72	V	13.00	25.89	54.00	-28.11

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: High Channel 2452MHz									
236.68	40.20	QP	79.63	1.40	H	11.02	29.18	46.00	-16.82
236.68	37.06	QP	33.37	1.85	V	11.02	26.04	46.00	-19.96
4904.00	53.01	PK	24.53	1.69	V	1.08	51.93	74.00	-22.07
4904.00	39.93	Ave	24.53	1.69	V	1.08	38.85	54.00	-15.15
7356.00	41.99	PK	245.17	2.00	H	2.84	44.83	74.00	-29.17
7356.00	35.26	Ave	245.17	2.00	H	2.84	38.10	54.00	-15.90
2324.97	45.79	PK	121.63	1.18	V	13.11	32.68	74.00	-41.32
2324.97	38.96	Ave	121.63	1.18	V	13.11	25.85	54.00	-28.15
2385.63	42.33	PK	108.74	1.48	H	13.06	29.27	74.00	-44.73
2385.63	38.46	Ave	108.74	1.48	H	13.04	25.42	54.00	-28.58
2487.24	44.07	PK	6.38	1.08	V	13.00	31.07	74.00	-42.93
2487.24	38.44	Ave	6.38	1.08	V	13.00	25.44	54.00	-28.56

Test Frequency: 18GHz~25GHz

The measurements were more than 20 dB below the limit and not reported.

9 Conducted Spurious Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 DTS Meas Guidance v04, April 5, 2017

Test Result: PASS

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

9.1 Test Procedure

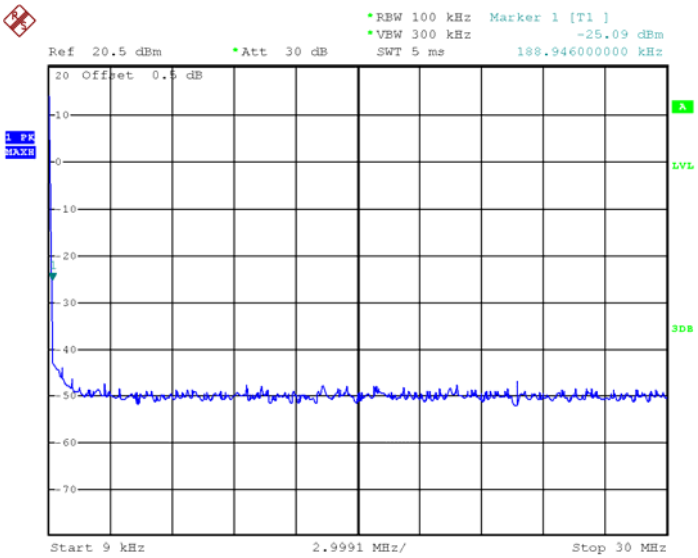
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:
   RBW = 100kHz, VBW = 300kHz, Sweep = auto
   Detector function = peak, Trace = max hold

9.2 Test Result

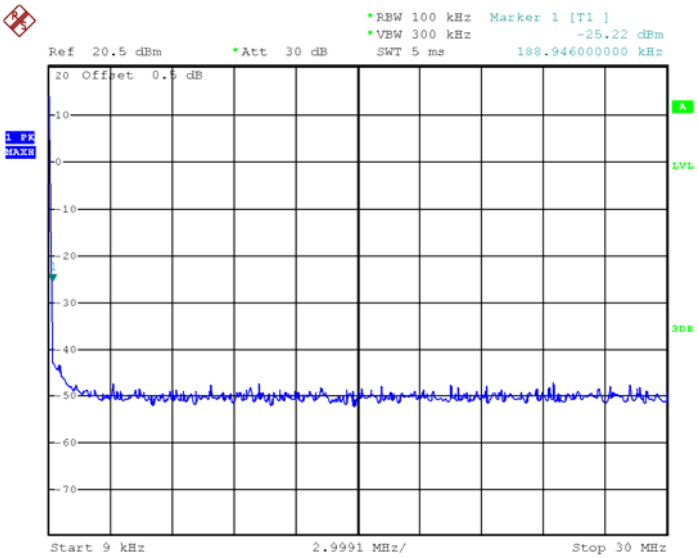
9 KHz – 30MHz

802.11b

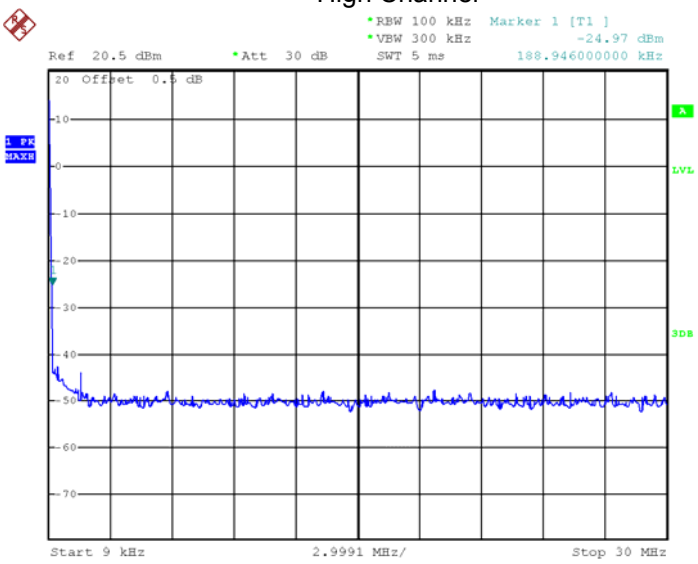
Low Channel



Middle Channel

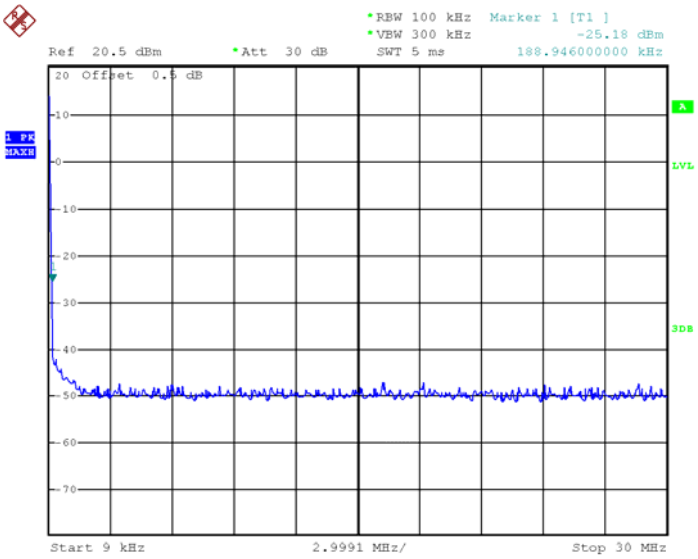


High Channel

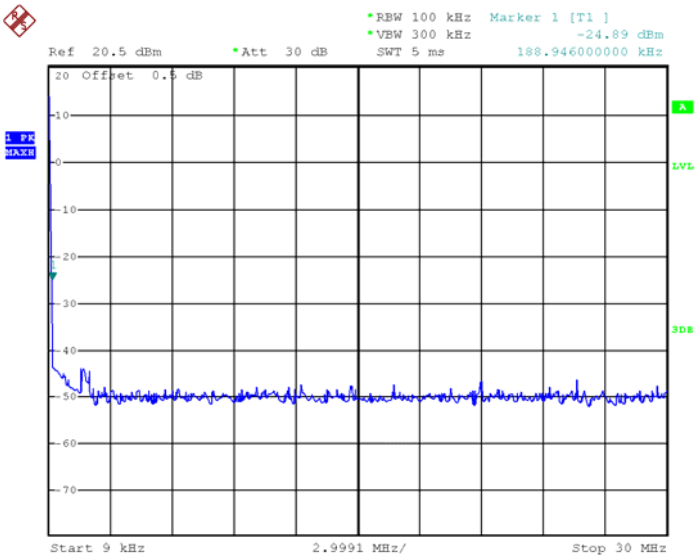


802.11g

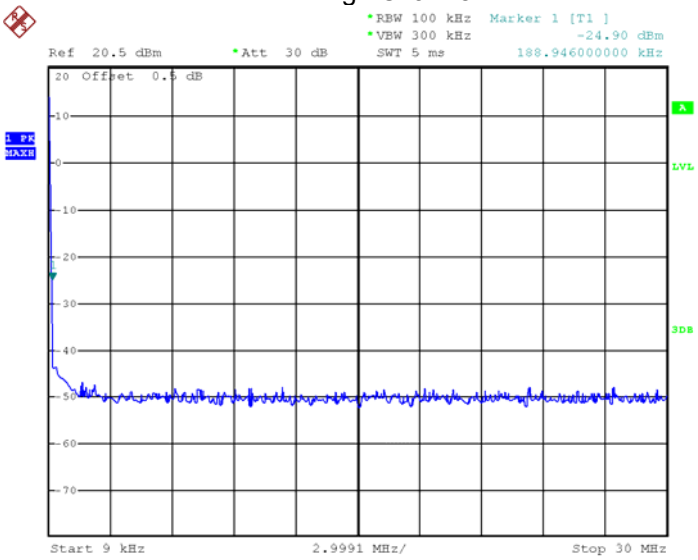
Low Channel



Middle Channel

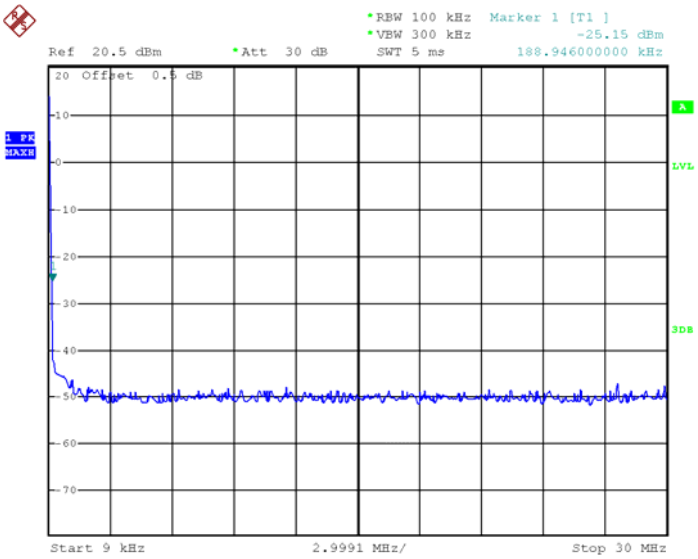


High Channel

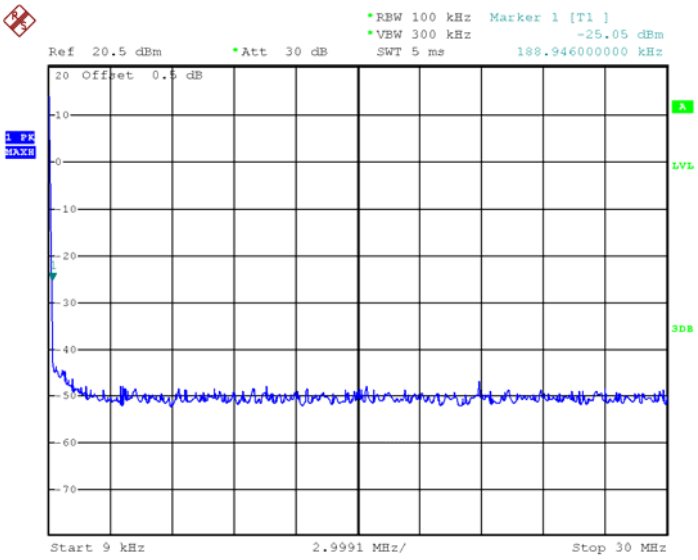


802.11n HT20

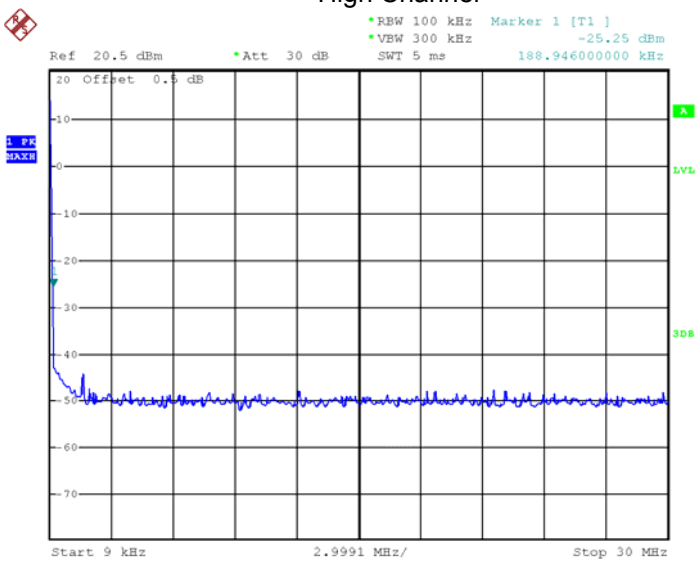
Low Channel



Middle Channel



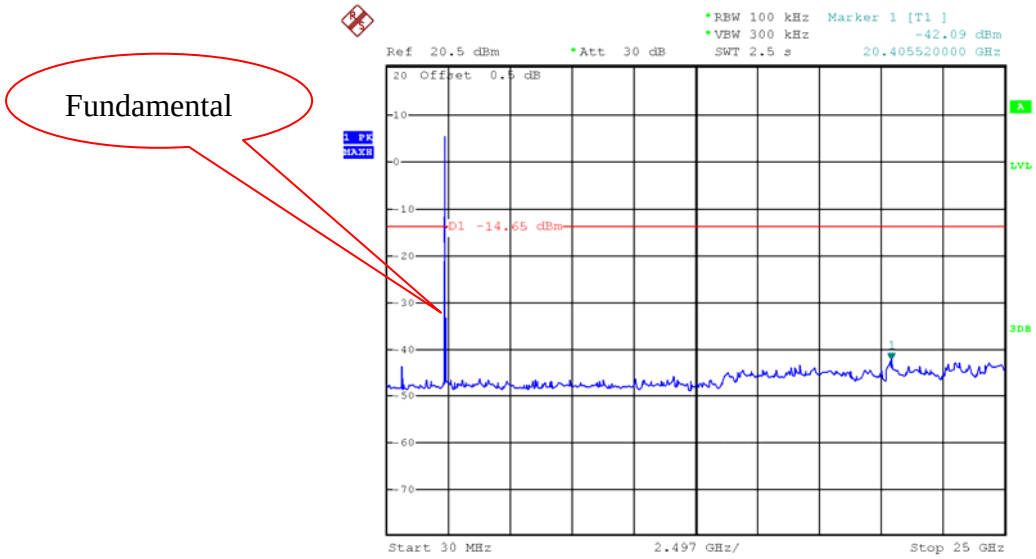
High Channel



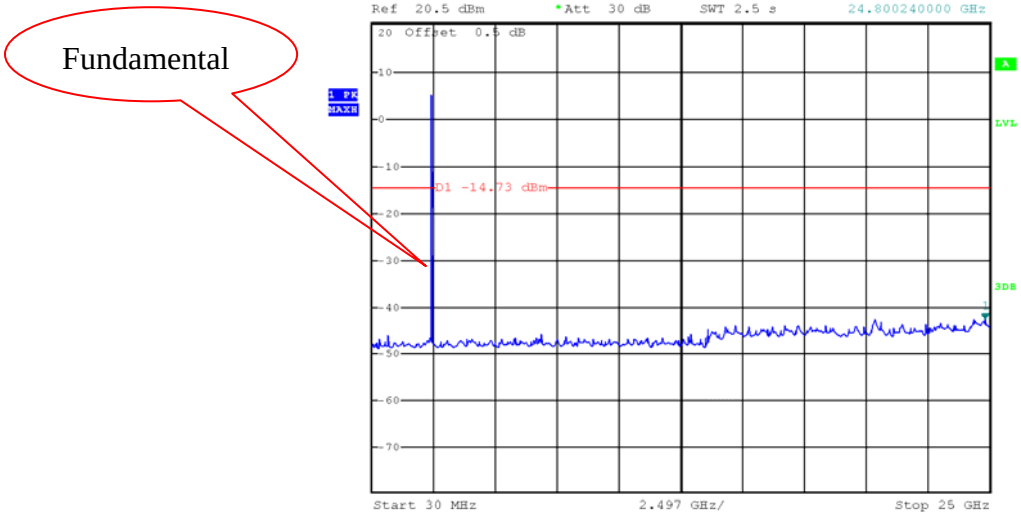
Above 30MHz

802.11b

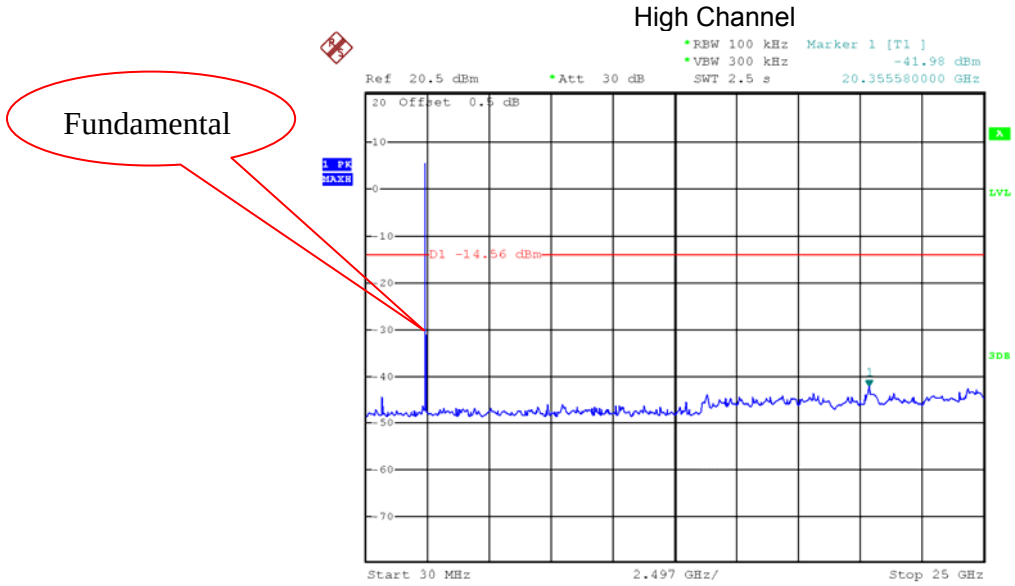
Low Channel



Middle Channel

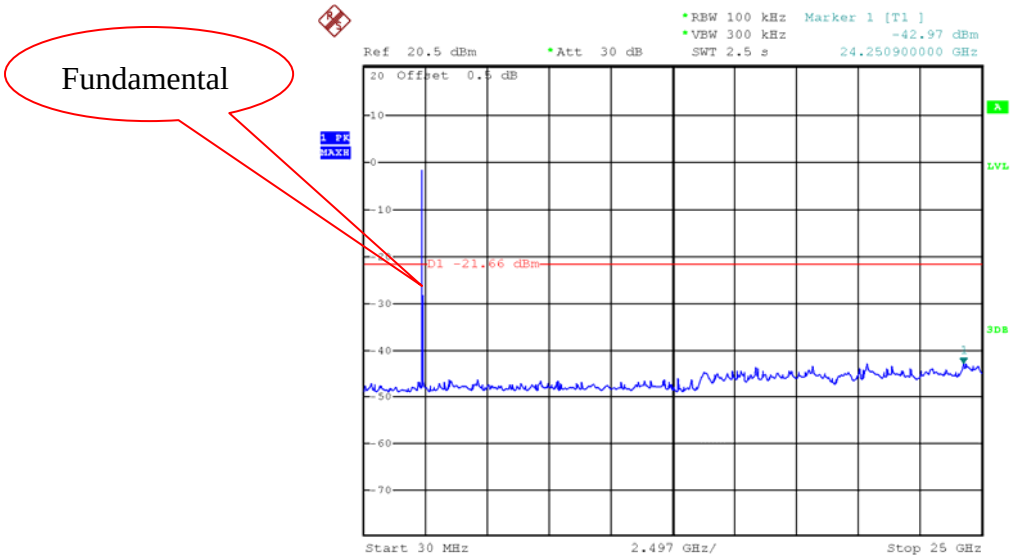


High Channel

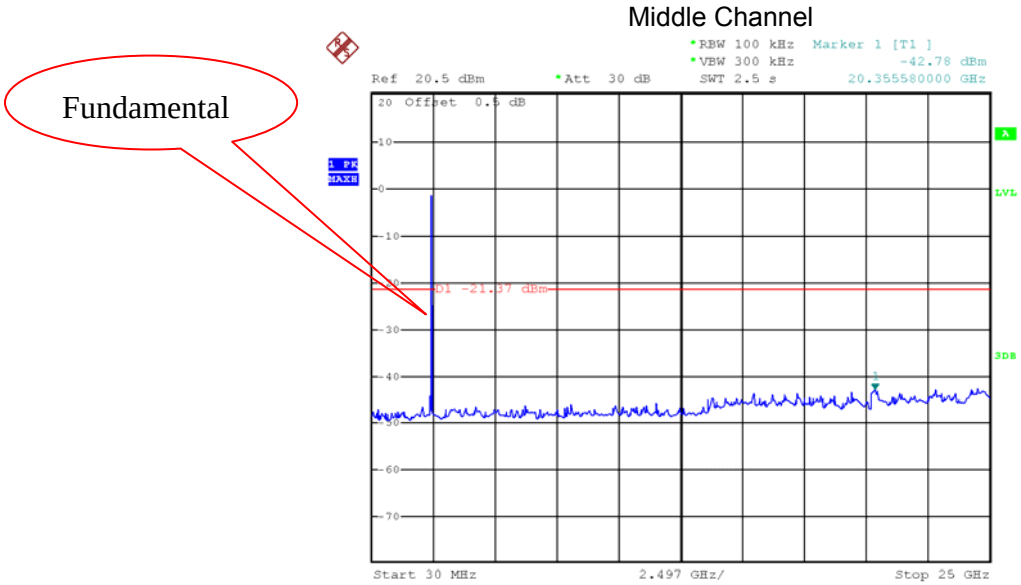


802.11g

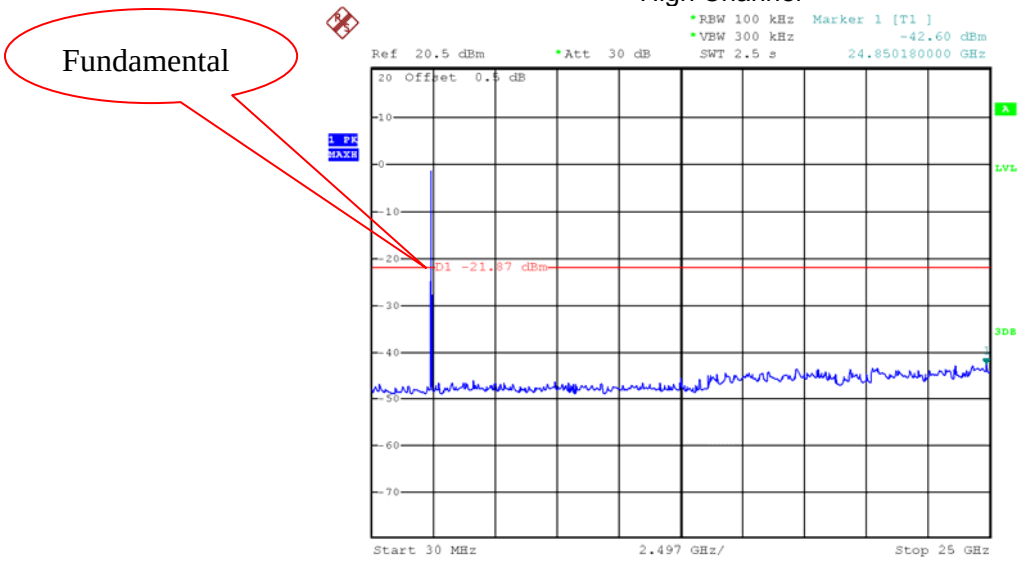
Low Channel



Middle Channel

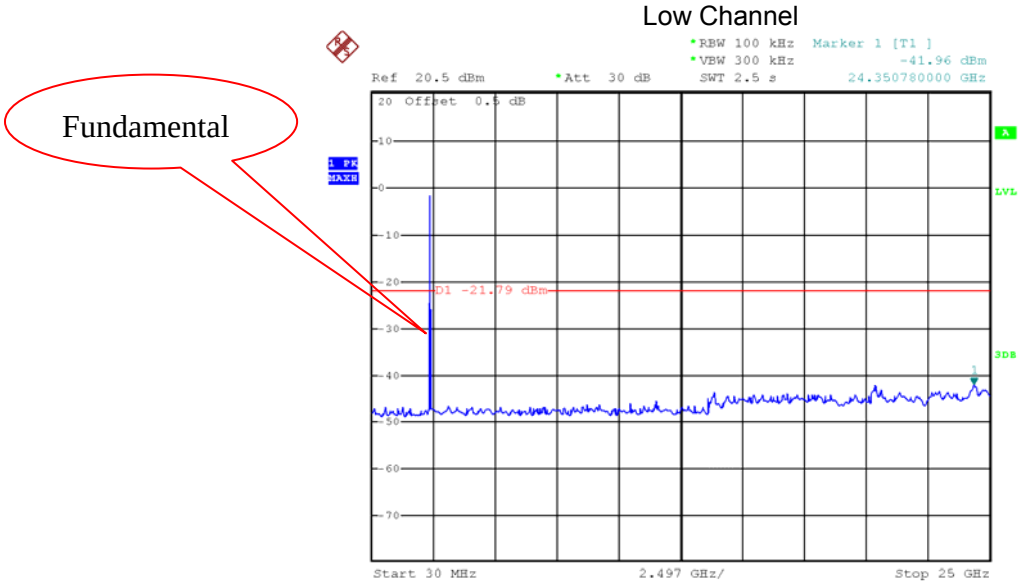


High Channel

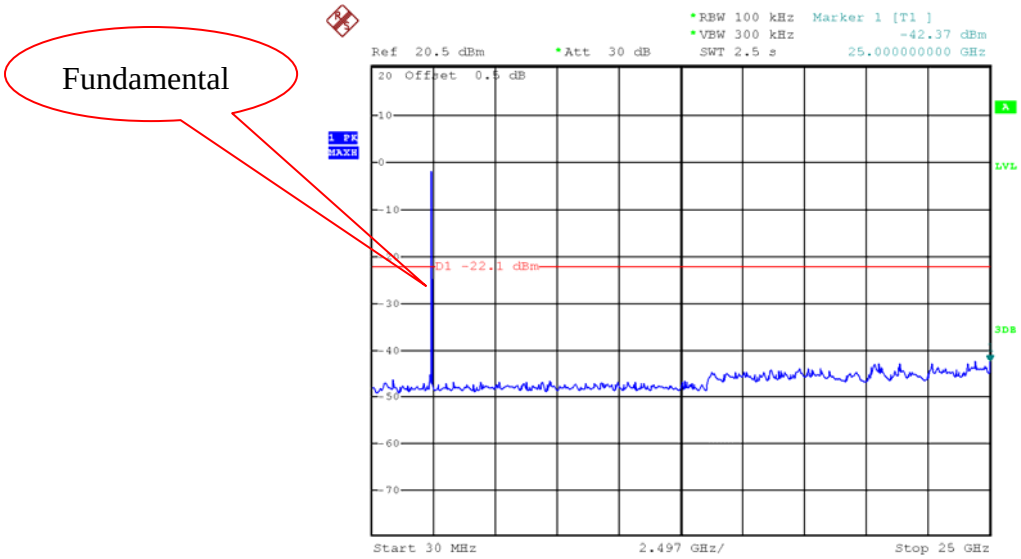


802.11n HT20

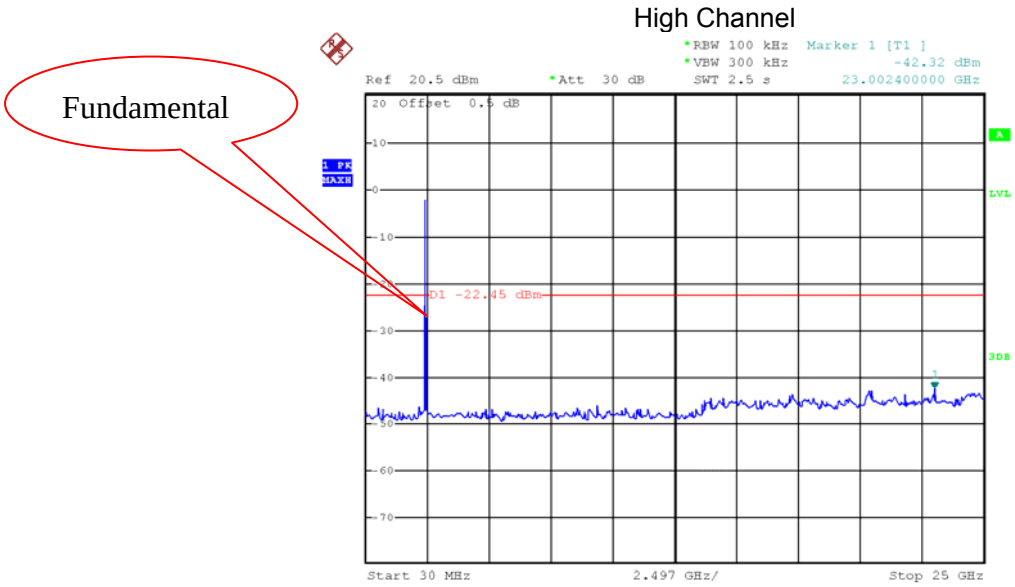
Low Channel



Middle Channel

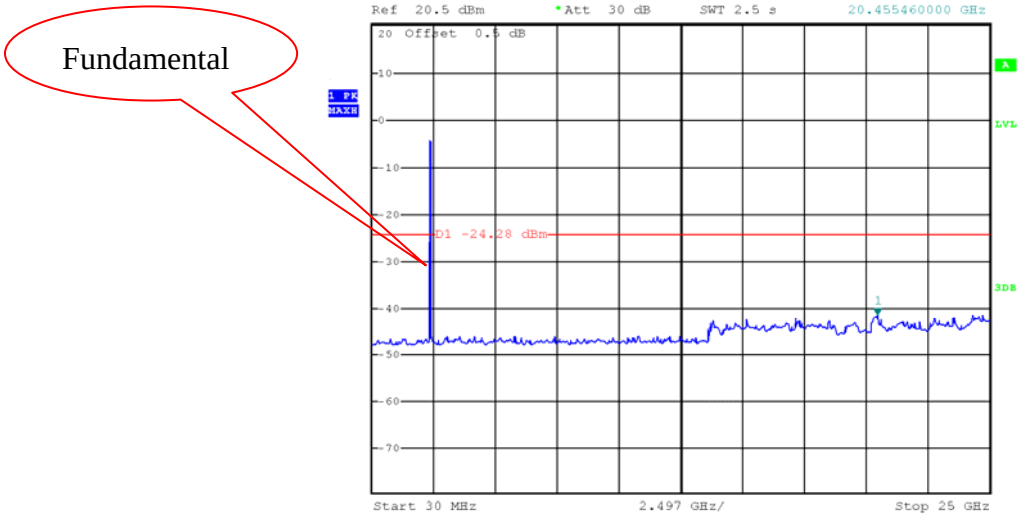


High Channel

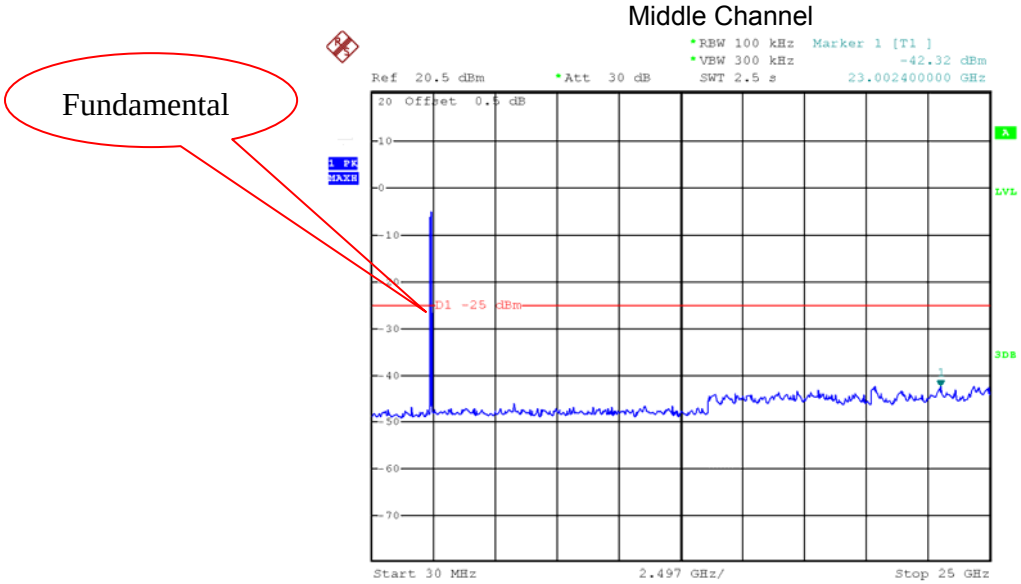


802.11n HT40

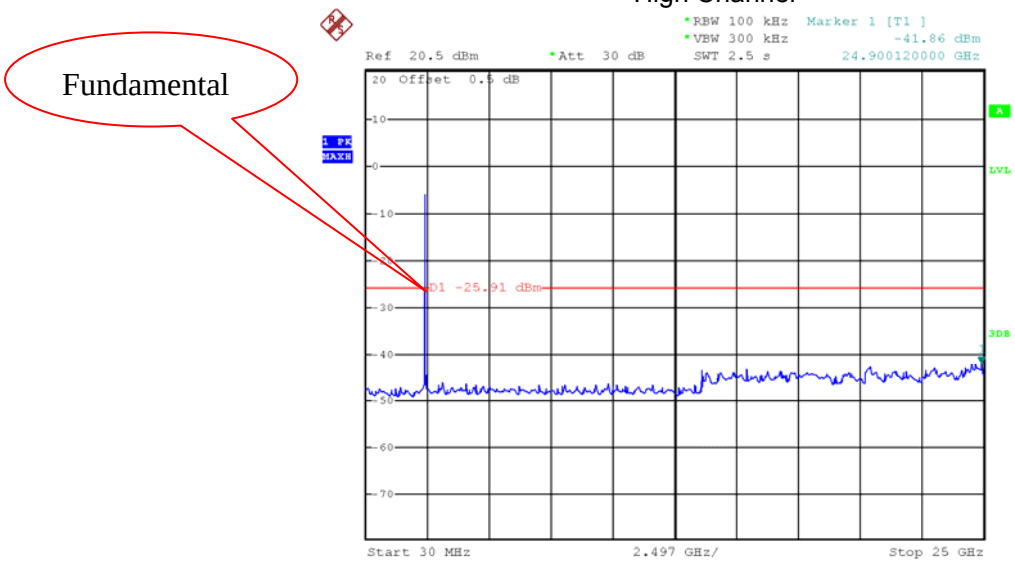
Low Channel



Middle Channel



High Channel



10 Band Edge Measurement

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	558074 D01 DTS Meas Guidance v04, April 5, 2017
Test Limit:	Regulation 15.247 (d),In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
Test Mode:	Transmitting

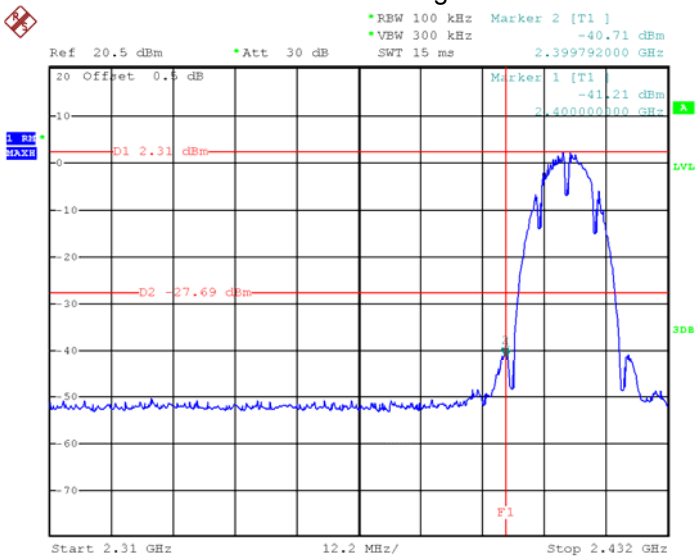
10.1 Test Produce

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

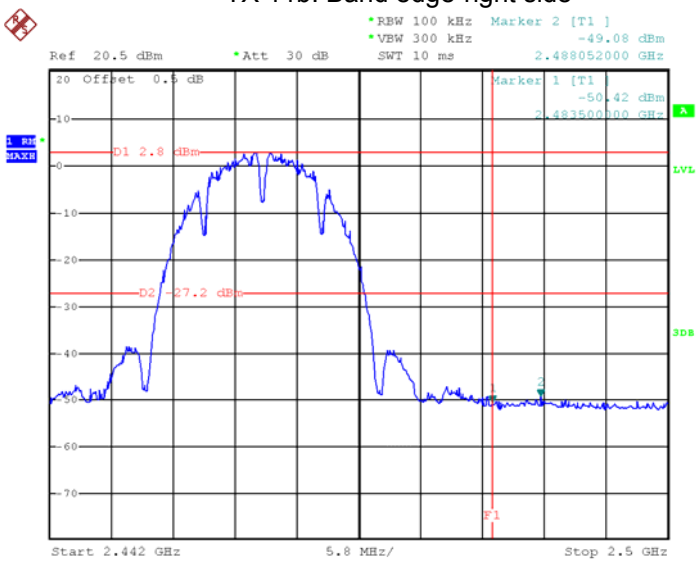
10.2 Test Result

Test result plots shown as follows:

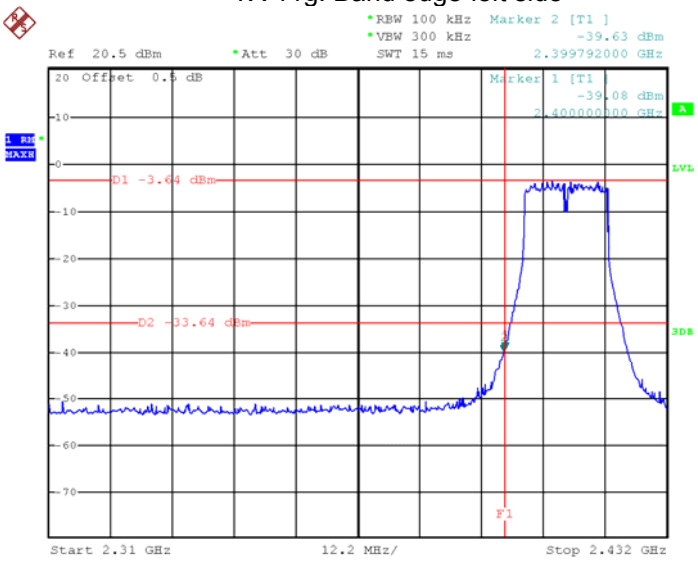
TX 11b: Band edge-left side



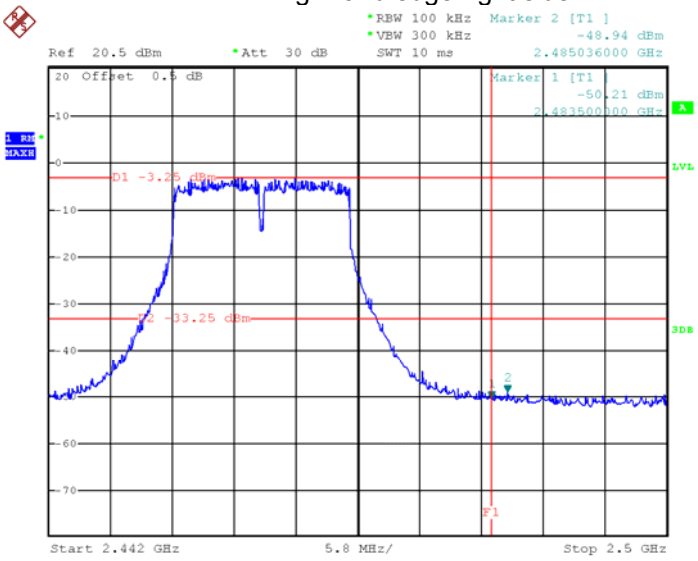
TX 11b: Band edge-right side



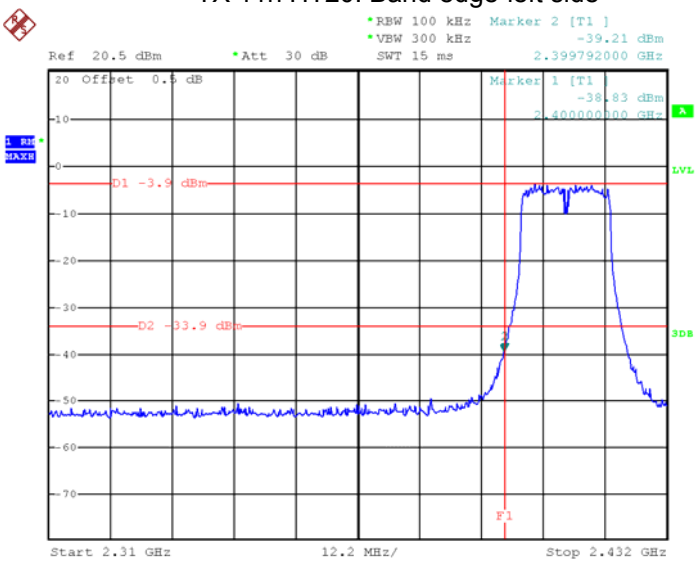
TX 11g: Band edge-left side



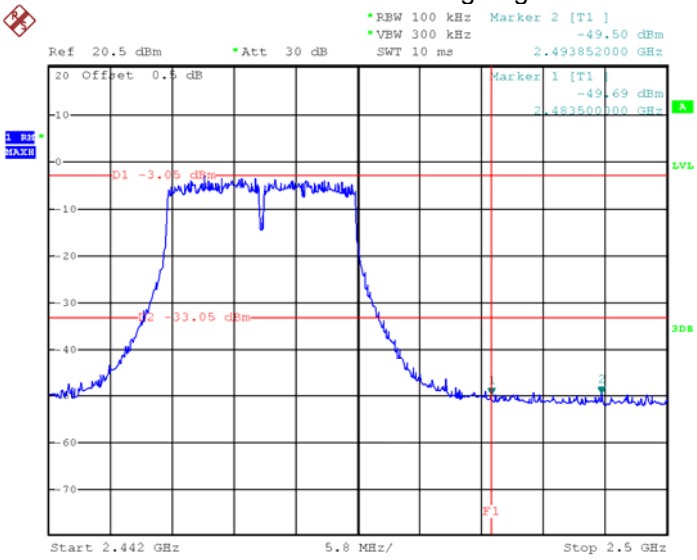
TX 11g: Band edge-right side



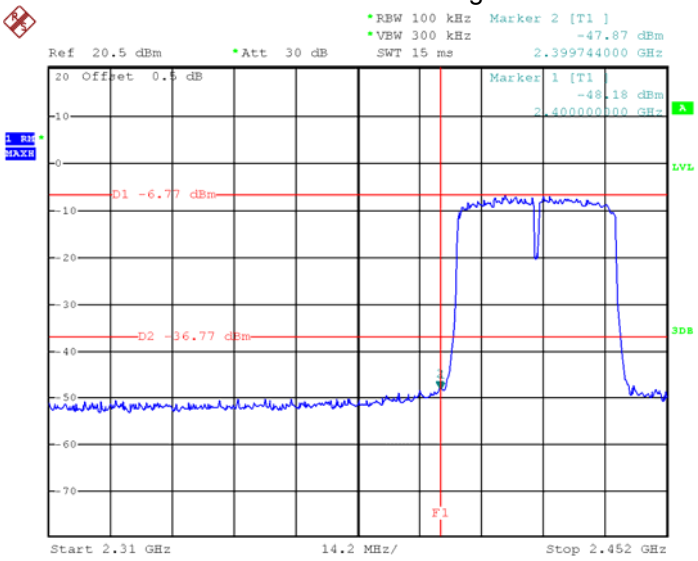
TX 11n HT20: Band edge-left side



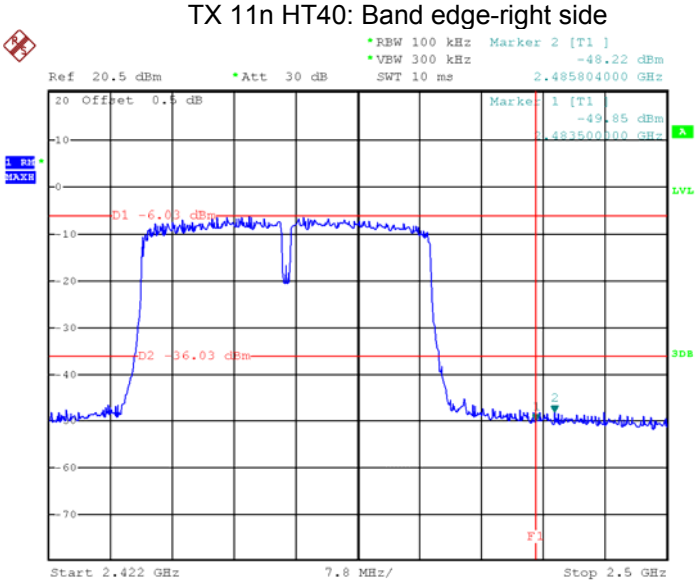
TX 11n HT20: Band edge-right side



TX 11n HT40: Band edge-left side



TX 11n HT40: Band edge-right side



11 Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance v04, April 5, 2017

11.1 Test Procedure:

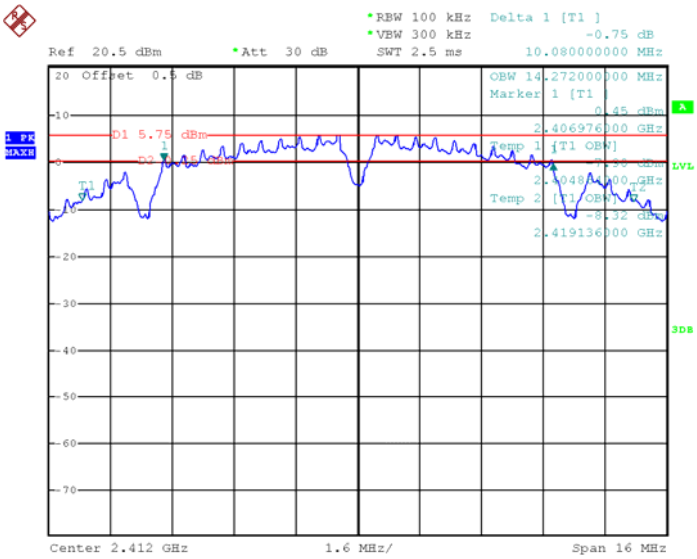
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

11.2 Test Result:

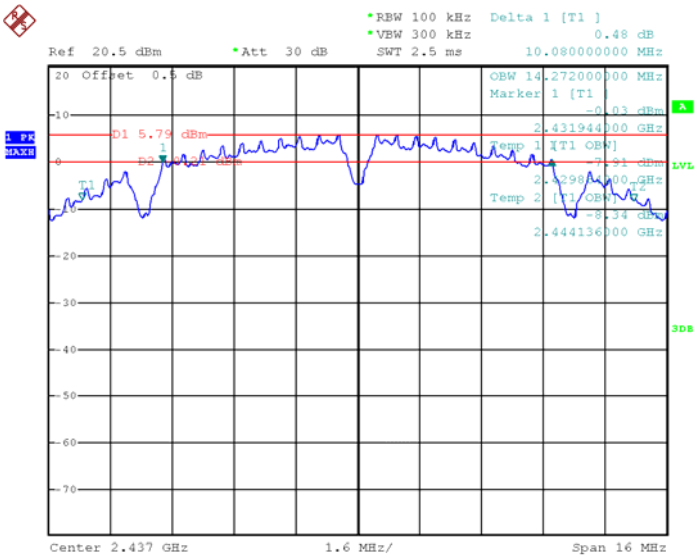
Operation mode	6dB Bandwidth (MHz)		
TX 11b	Channel 1	Channel 6	Channel 11
	10.080	10.080	10.080
TX 11g	Channel 1	Channel 6	Channel 11
	16.600	16.600	16.600
TX 11n HT20	Channel 1	Channel 6	Channel 11
	17.766	17.766	17.766
TX 11n HT40	Channel 3	Channel 6	Channel 9
	36.520	36.520	36.520

Test result plot as follows:

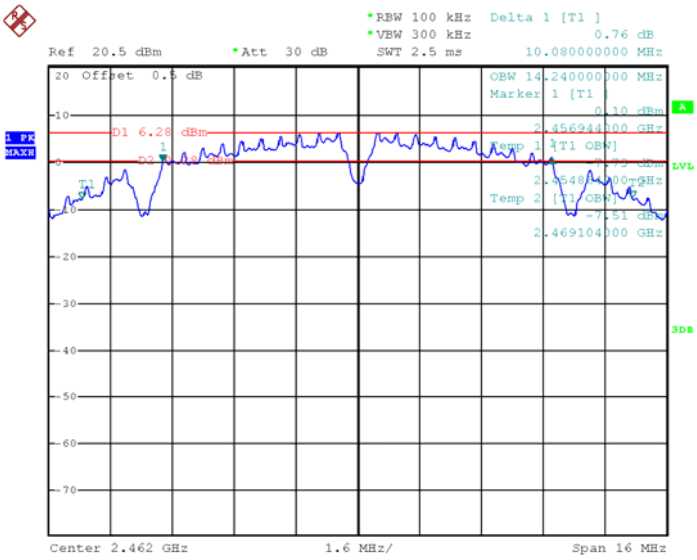
Mode: TX 11b channel 1



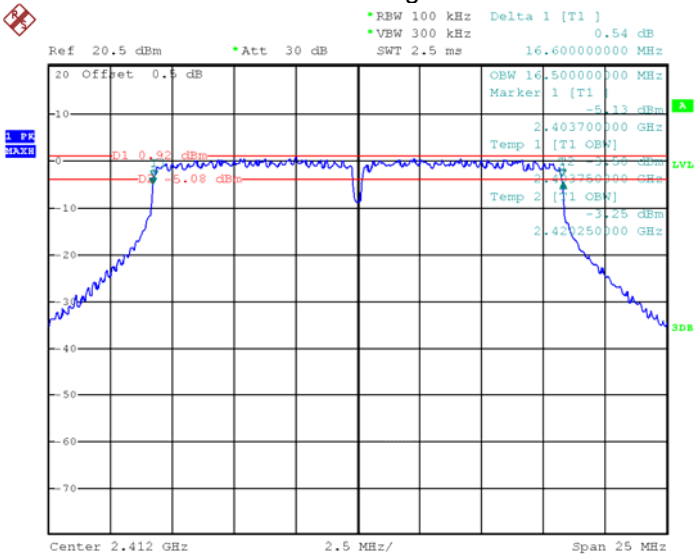
Mode: TX 11b channel 6



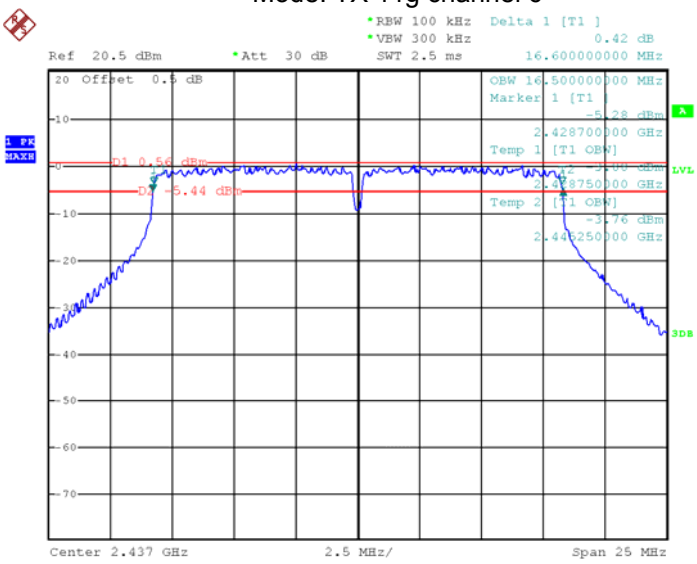
Mode: TX 11b channel 11



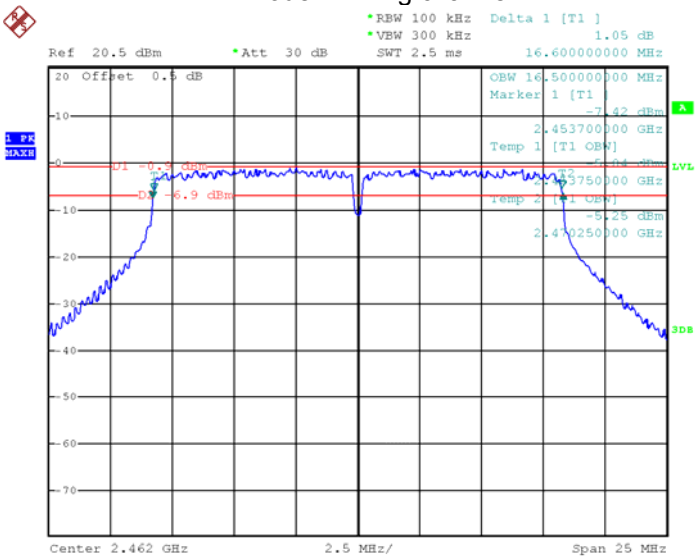
Mode: TX 11g channel 1



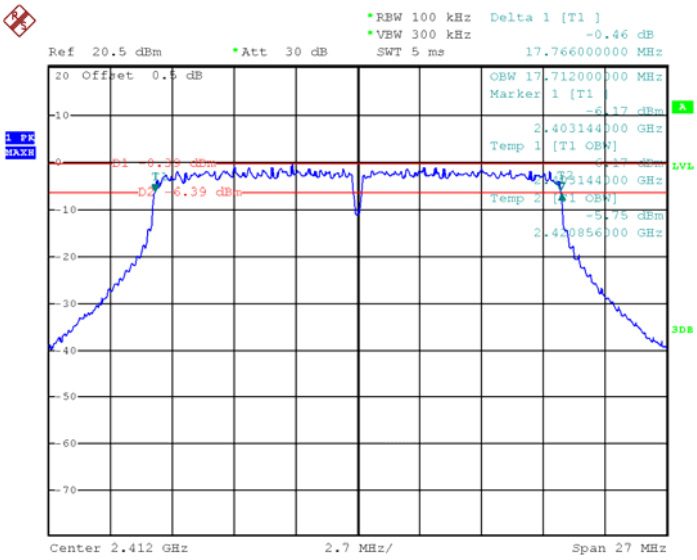
Mode: TX 11g channel 6



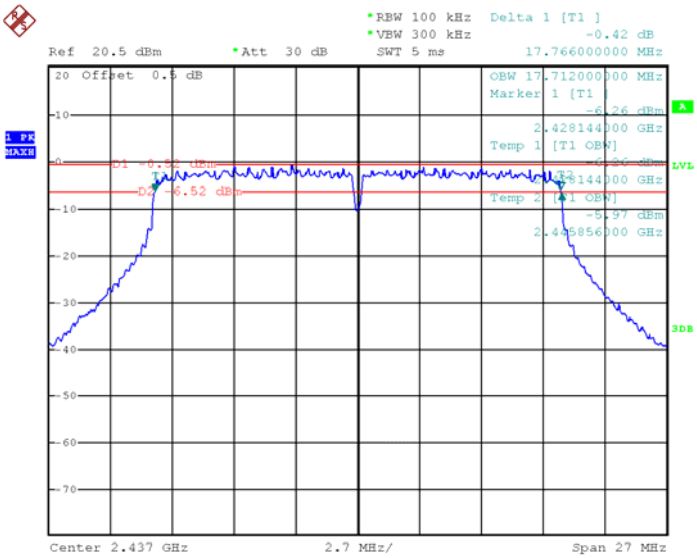
Mode: TX 11g channel 11



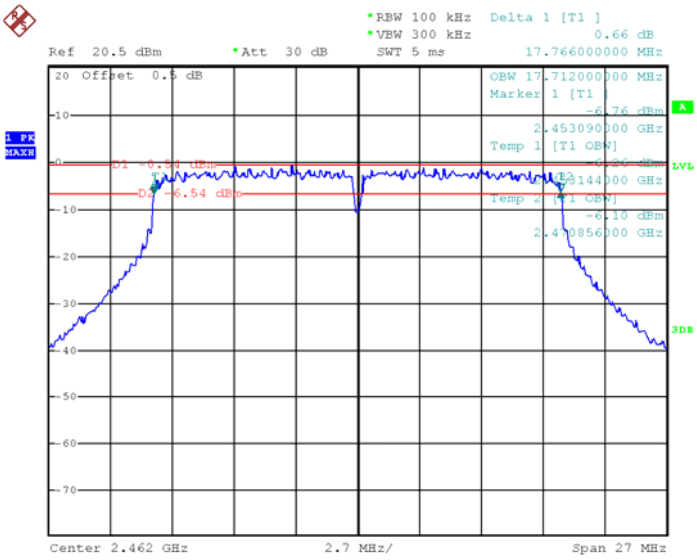
Mode: TX 11n HT20 channel 1



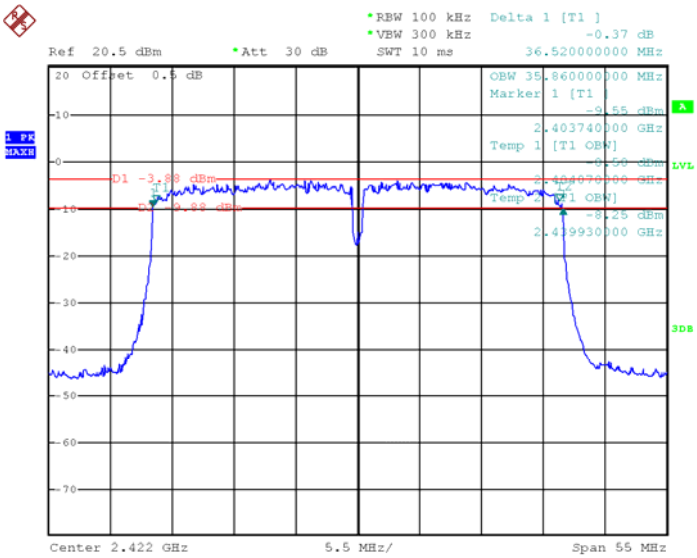
Mode: TX 11n HT20 channel 6



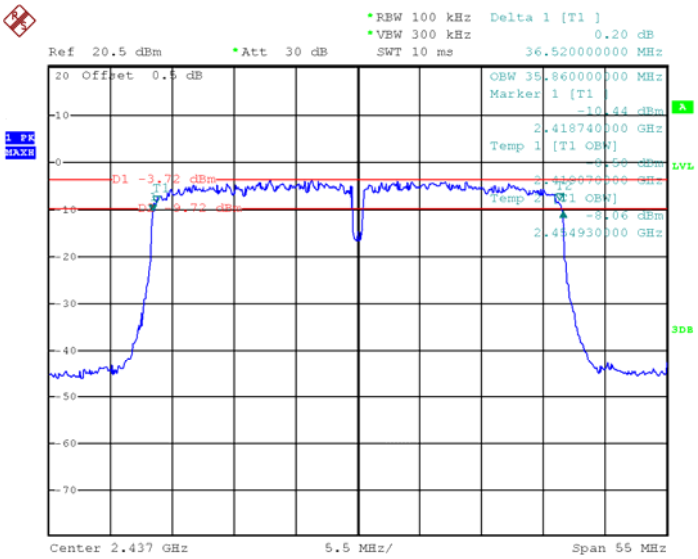
Mode: TX 11n HT20 channel 11



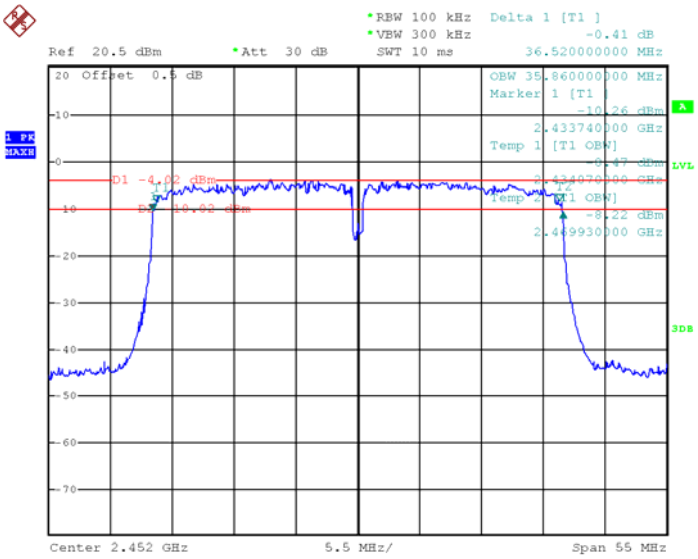
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6



Mode: TX 11n HT40 channel 9



12 Maximum conducted (average) output power

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance v04, April 5, 2017

12.1 Test Procedure:

558074 D01 DTS Meas Guidance v04, April 5, 2017

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1 MHz. VBW = 3 MHz. Sweep = auto; Detector Function = RMS, Set the span to fully encompass the DTS bandwidth.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

12.2 Test Result:

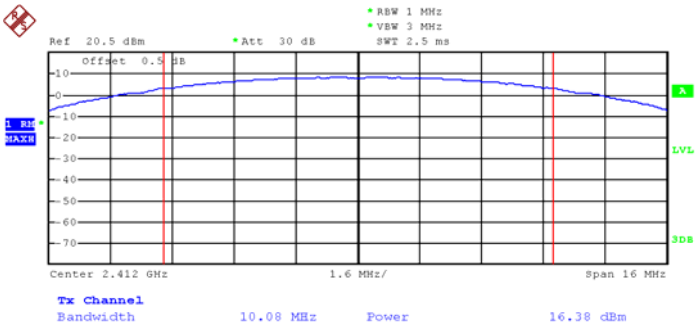
Test mode :TX 11b		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
16.38	16.04	16.69
Limit: 1W/30dBm		

Test mode :TX 11g		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
15.77	15.23	15.19
Limit: 1W/30dBm		

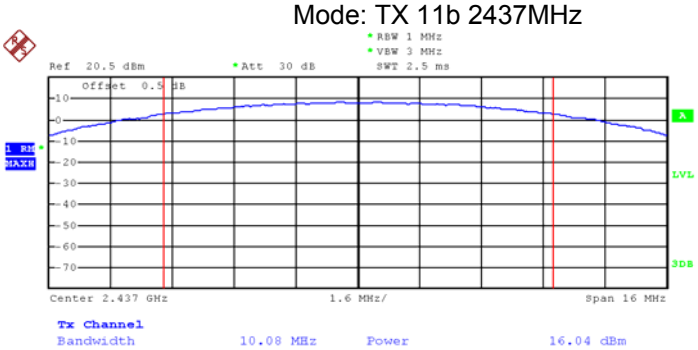
Test mode :TX 11n HT20		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
15.31	15.69	15.63
Limit: 1W/30dBm		

Test mode :TX 11n HT40		
Maximum Peak Output Power (dBm)		
2422MHz	2437MHz	2452MHz
15.25	15.80	15.45
Limit: 1W/30dBm		

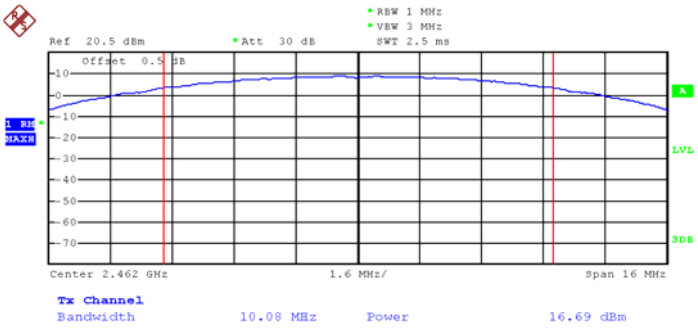
Mode: TX 11b 2412MHz



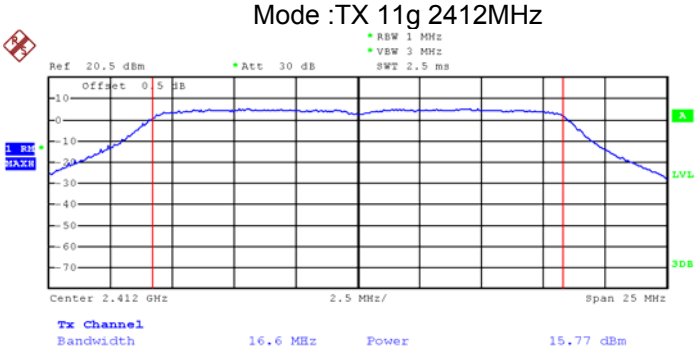
Mode: TX 11b 2437MHz



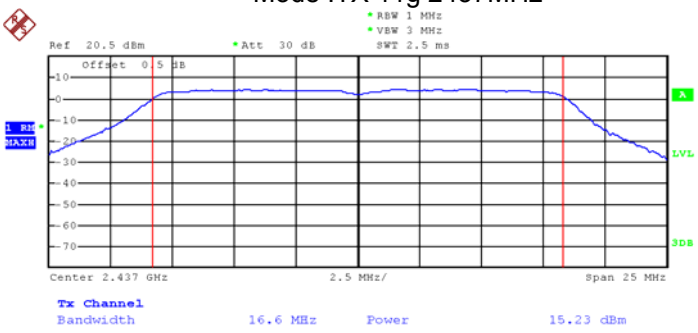
Mode: TX 11b 2462MHz



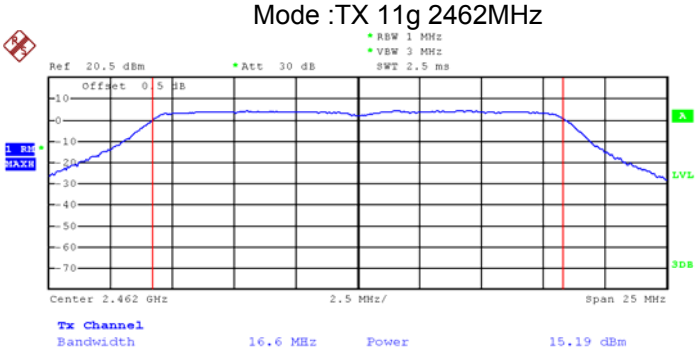
Mode :TX 11g 2412MHz



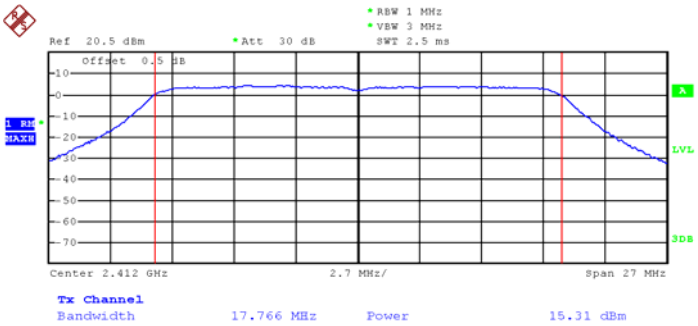
Mode :TX 11g 2437MHz



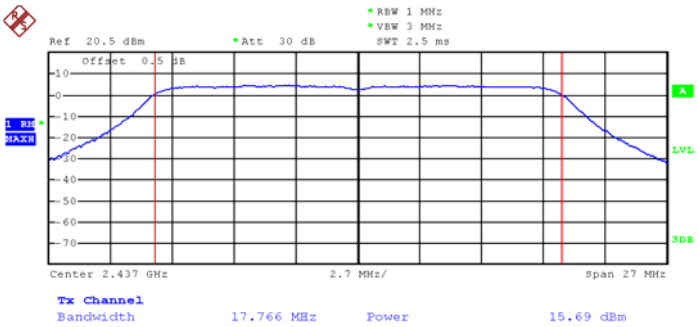
Mode :TX 11g 2462MHz



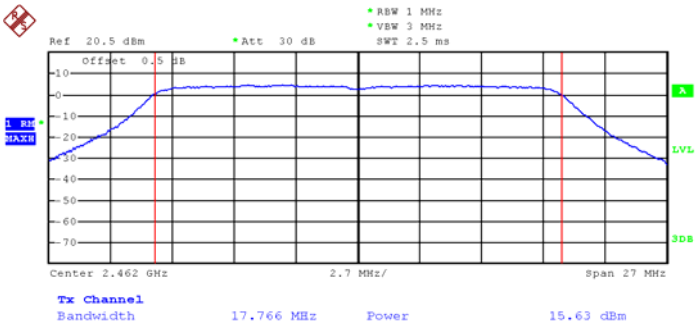
Mode: TX 11n HT20 2412MHz



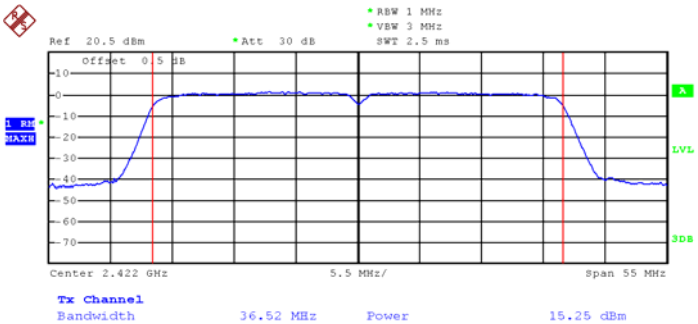
Mode: TX 11n HT20 2437MHz



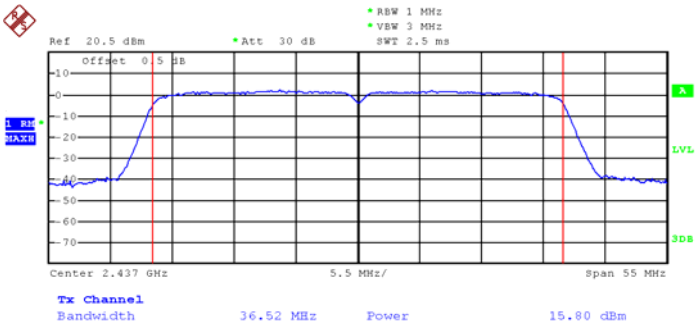
Mode: TX 11n HT20 2462MHz



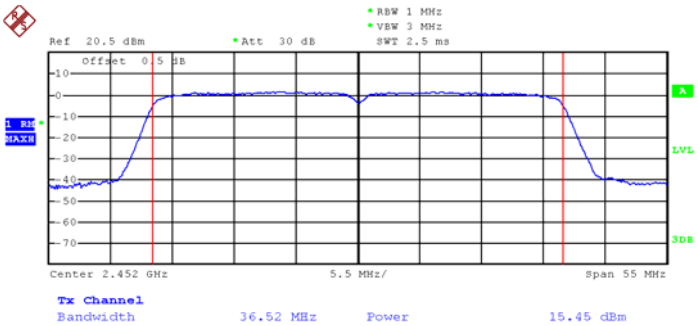
Mode: TX 11n HT40 2422MHz



Mode: TX 11n HT40 2437MHz



Mode: TX 11n HT40 2452MHz



13 Power Spectral density

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance v04, April 5, 2017

13.1 Test Procedure:

558074 D01 DTS Meas Guidance v04, April 5, 2017

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

13.2 Test Result:

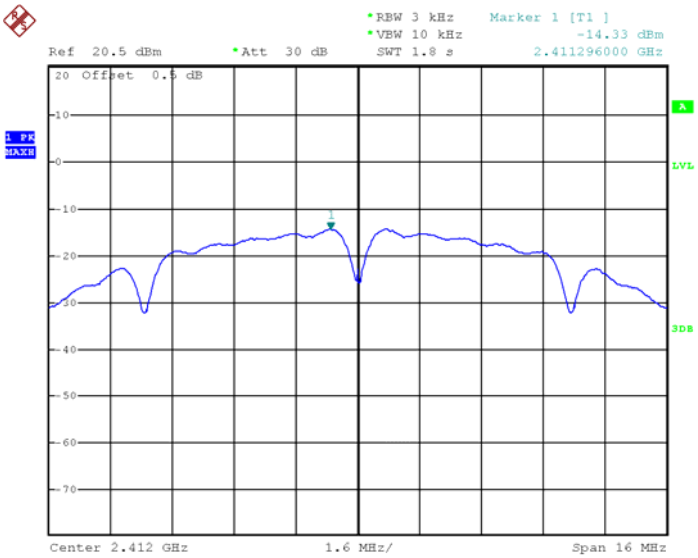
Test mode :TX 11b		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-14.33	-14.29	-13.18
Limit: 8dBm per 3kHz		

Test mode :TX 11g		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-15.27	-15.16	-15.40
Limit: 8dBm per 3kHz		

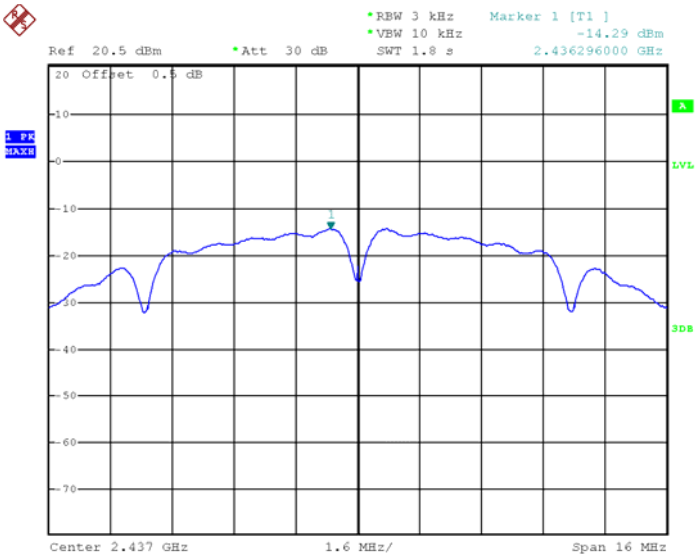
Test mode :TX 11n HT20		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-14.77	-15.70	-14.84
Limit: 8dBm per 3kHz		

Test mode :TX 11n HT40		
Power Spectral (dBm per 3kHz)		
2422MHz	2437MHz	2452MHz
-17.16	-14.29	-15.99
Limit: 8dBm per 3kHz		

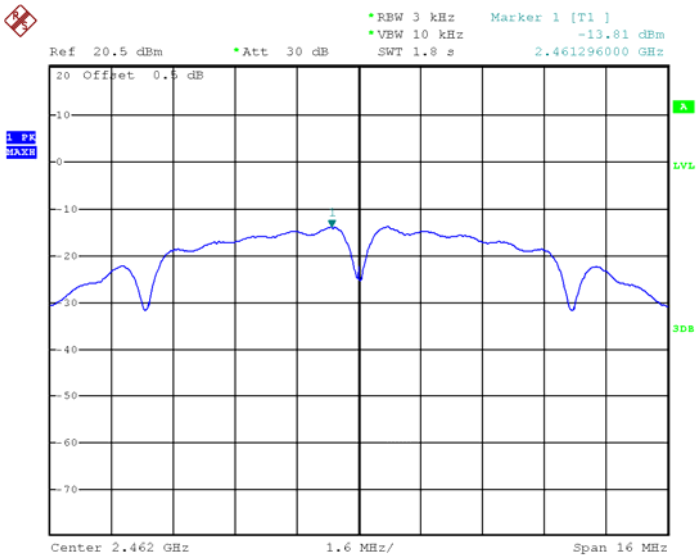
Mode: TX 11b 2412MHz



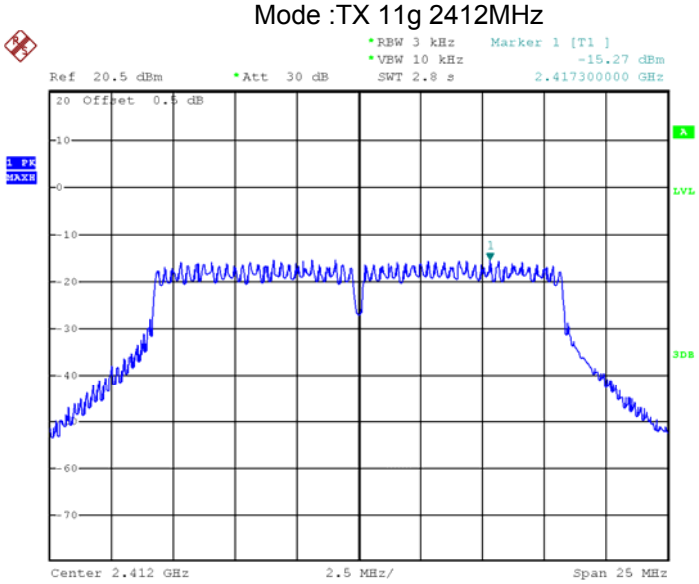
Mode: TX 11b 2437MHz



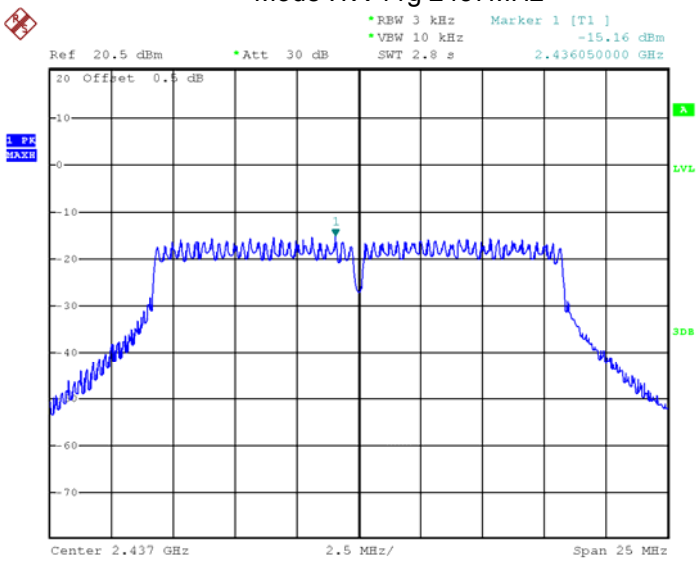
Mode: TX 11b 2462MHz



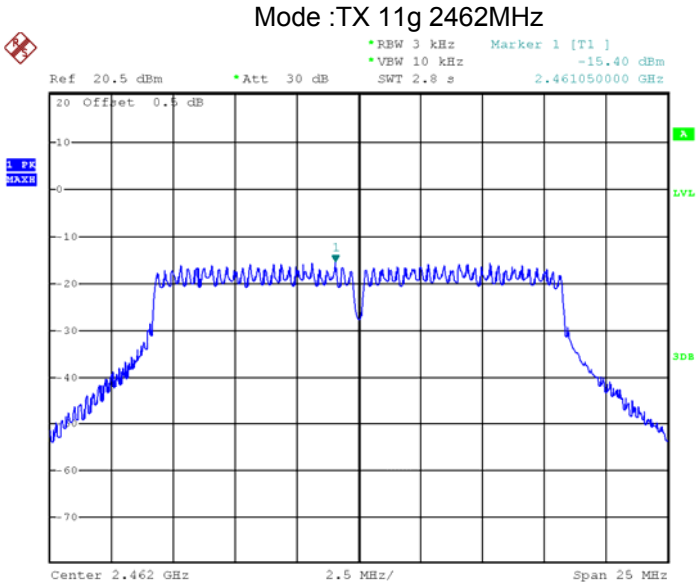
Mode :TX 11g 2412MHz



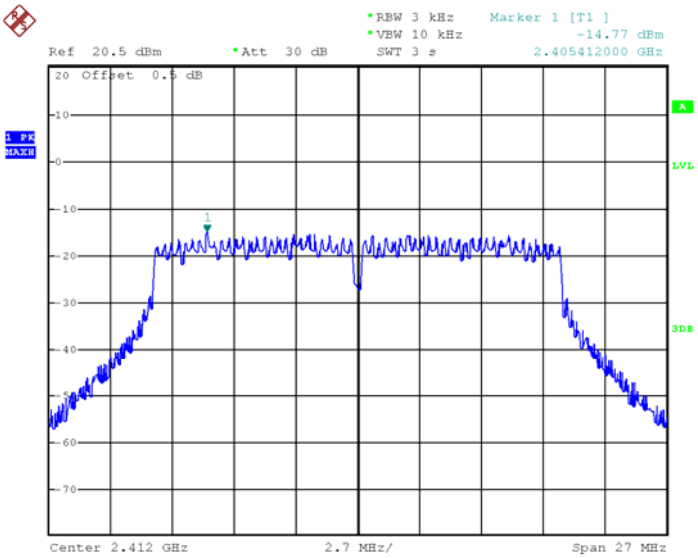
Mode :TX 11g 2437MHz



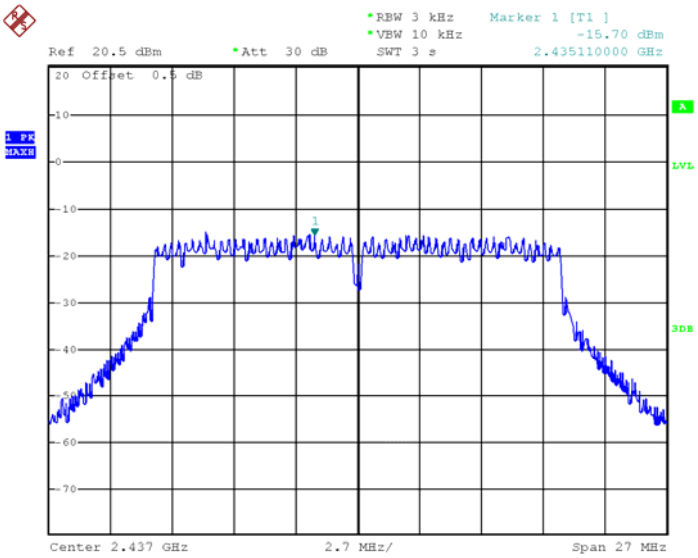
Mode :TX 11g 2462MHz



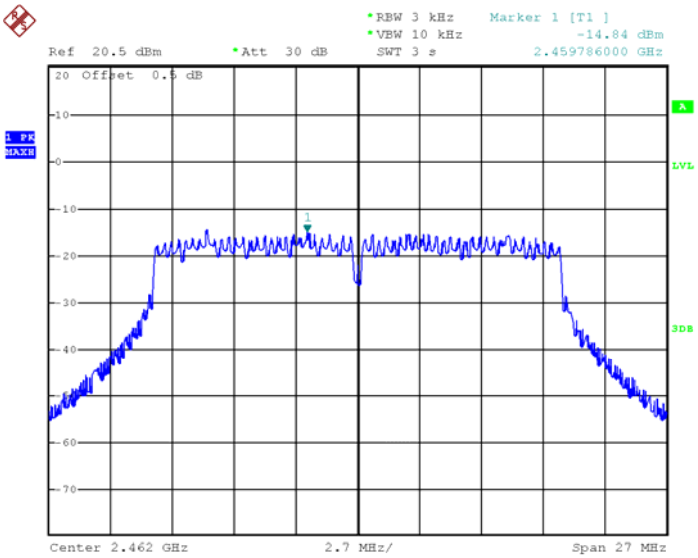
Mode: TX 11n HT20 2412MHz



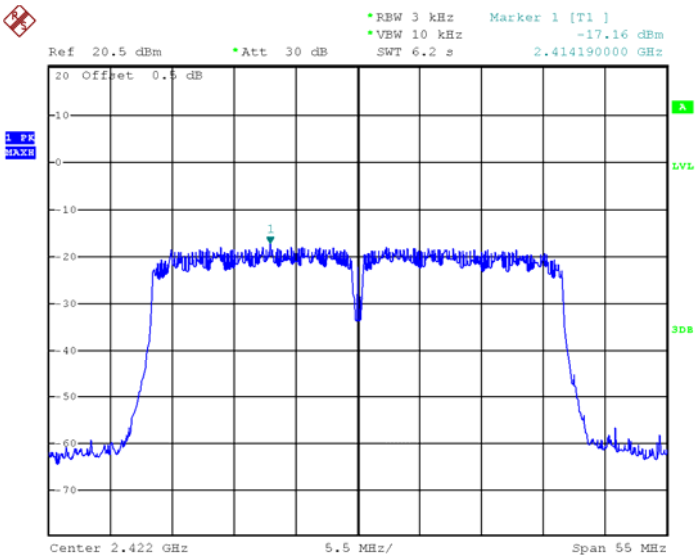
Mode: TX 11n HT20 2437MHz



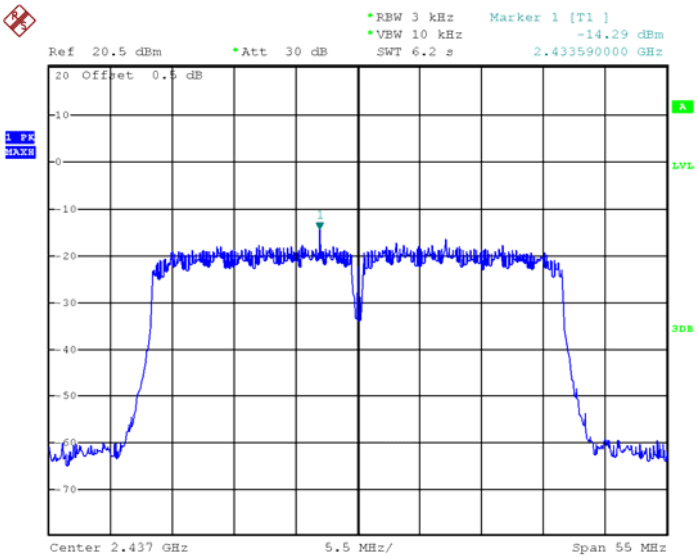
Mode: TX 11n HT20 2462MHz



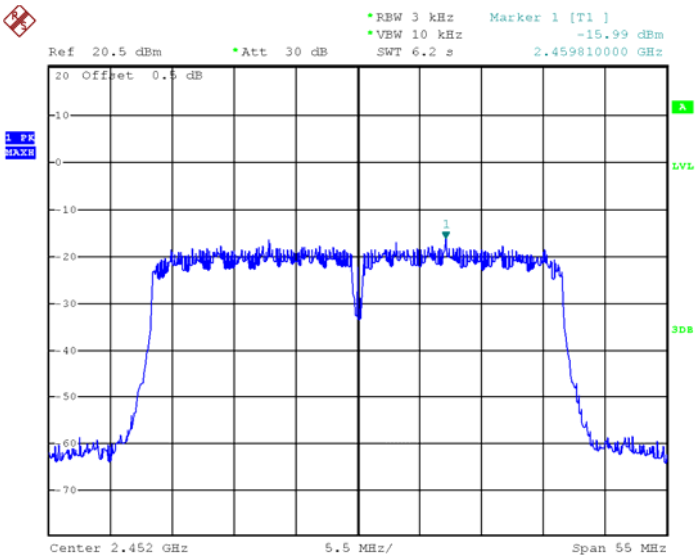
Mode: TX 11n HT40 2422MHz



Mode: TX 11n HT40 2437MHz



Mode: TX 11n HT40 2452MHz



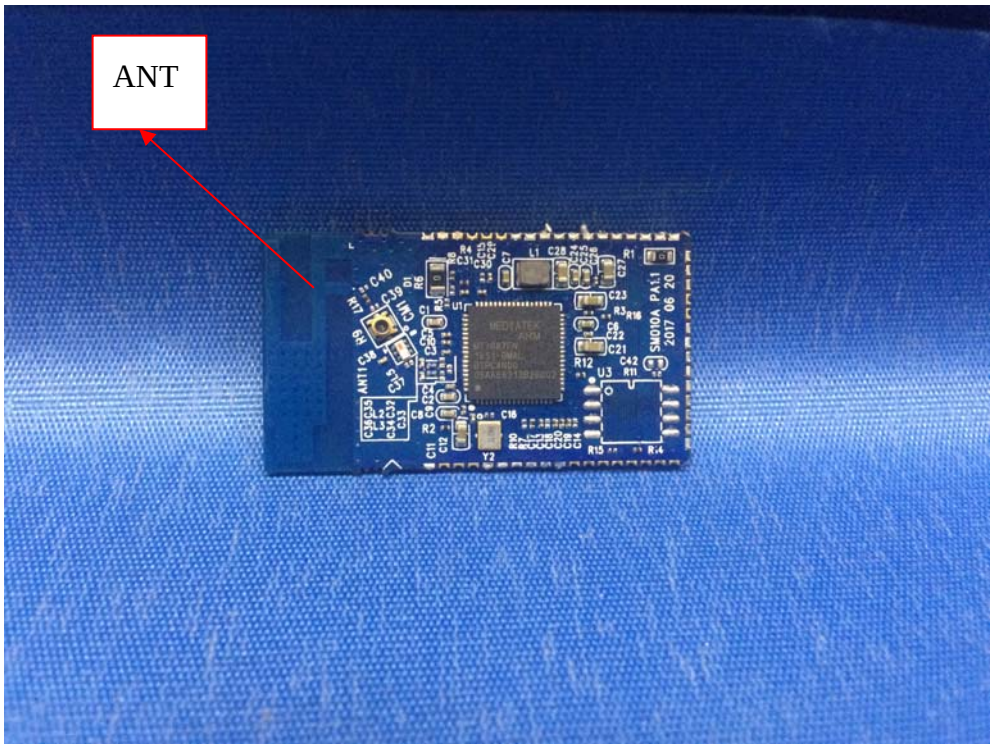
14 Antenna Requirement

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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, 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.

Result:

The EUT has one PCB Antenna, the gain is 2.5dBi. meets the requirements of FCC 15.203.



15 SAR Evaluation

Test Requirement: FCC Part 1.1307

Evaluation Method FCC Part2.1093 & KDB 447498 D01 General RF Exposure Guidance v06

15.1 Requirements

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)] ≤3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR where

1. f(GHz) is the RF channel transmit frequency in GHz
2. Power and distance are rounded to the nearest mW and mm before calculation
3. The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

15.2 The procedures / limit

Maximum conducted (average) output power (dBm)	Maximum conducted (average) output power (mW)	Source-based time-averaged maximum conducted output power(mW)	Minimum test separation distance required for the exposure conditions (mm)	SAR Test Exclusion Thresholds Calculation Value	SAR Test Exclusion Thresholds Limit	Result
16.69	46.67	46.67	25	2.9	3.0	Compliance

Remark: Max. duty factor is 100%

Low Chanel: f=2412MHz=2.412GHz, so √f(GHz)=1.553

High Chanel: f=2462MHz=2.462GHz, so √f(GHz)=1.569

15.3 Result: Compliance

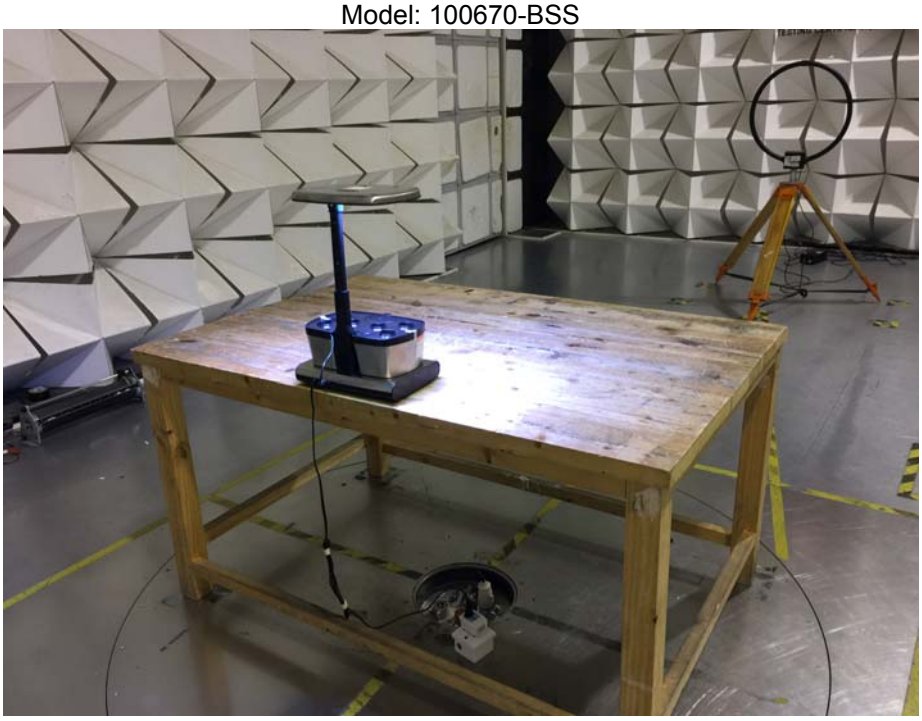
No SAR measurement is required.

16 Photographs – Test Setup

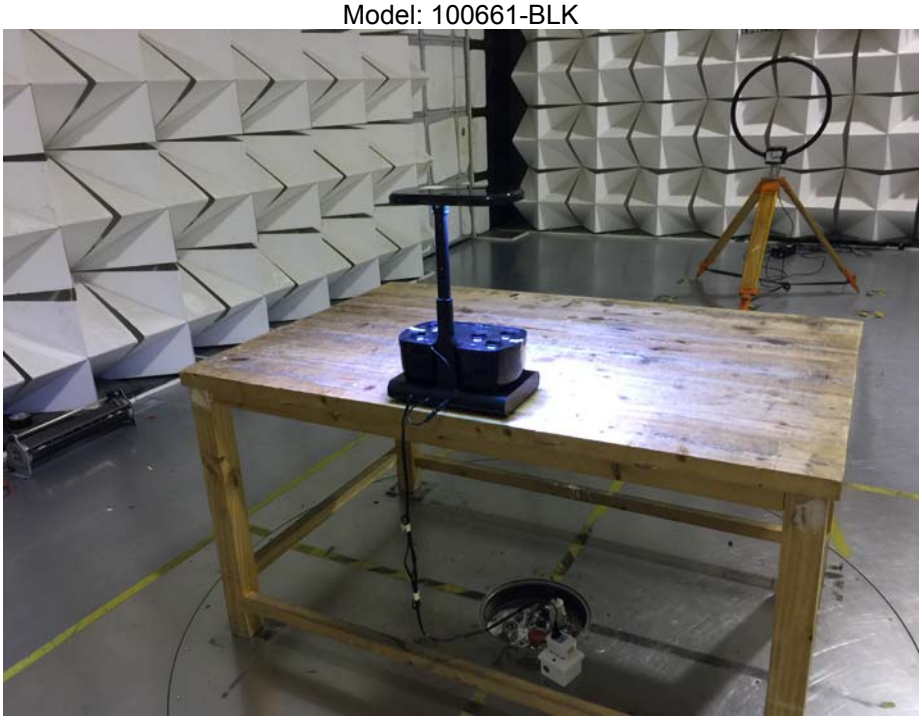
16.1 Radiated Spurious Emissions

Test frequency 9KHz to 30MHz

Model: 100670-BSS

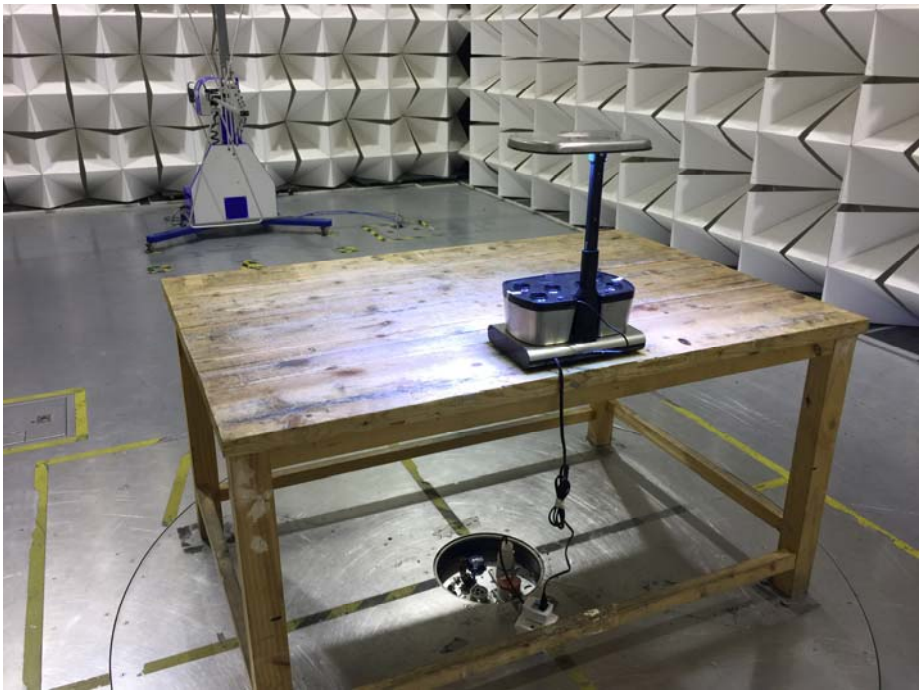


Model: 100661-BLK

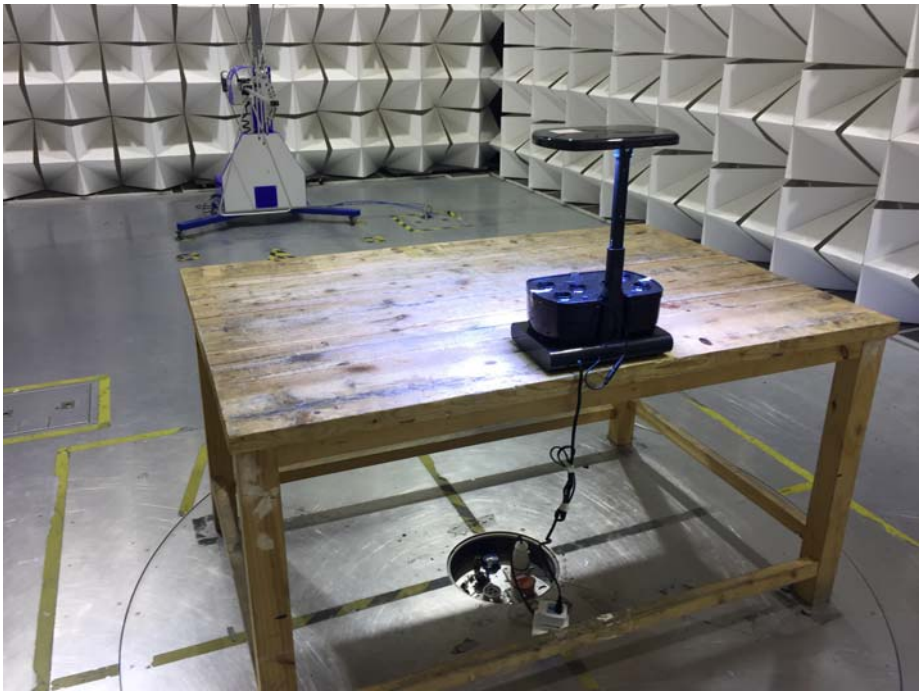


Test frequency from 30MHz to 1GHz

Model: 100670-BSS

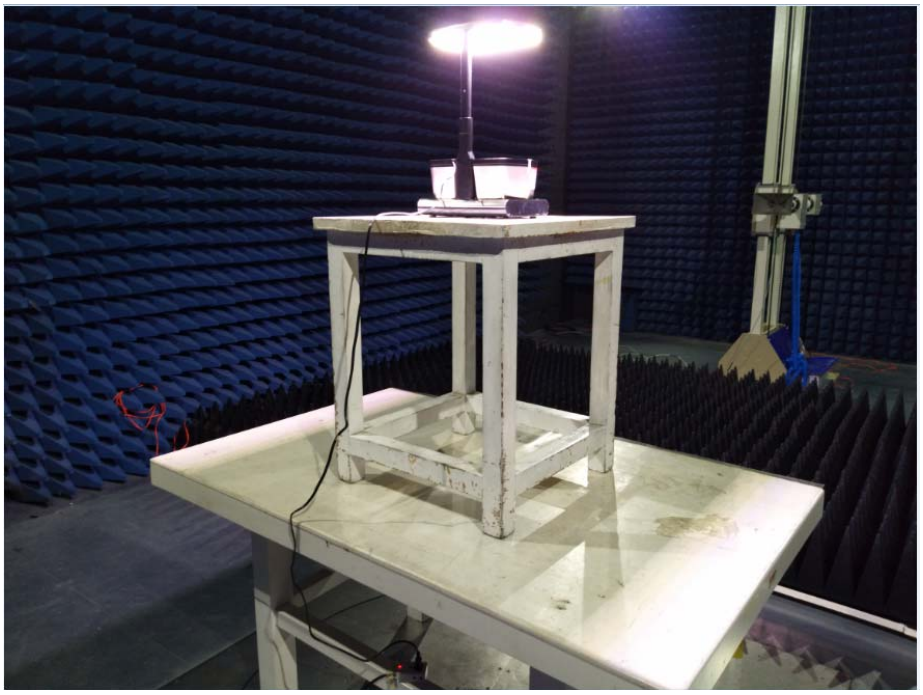


Model: 100661-BLK



Test frequency above 1GHz

Model: 100670-BSS



Model: 100661-BLK

16.2 Conducted Emission

Model: 100670-BSS

Model: 100661-BLK

17 Photographs - Constructional Details

17.1 EUT-External Photos

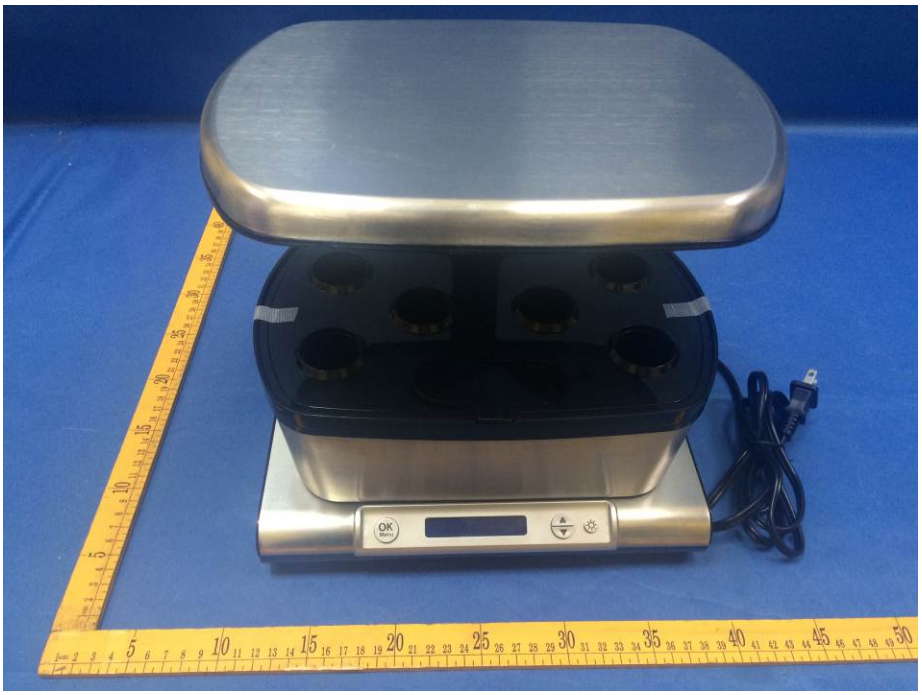
Model: 100661-BLK

OK

AeroGarden

OK
Menu

Model: 100670-BSS

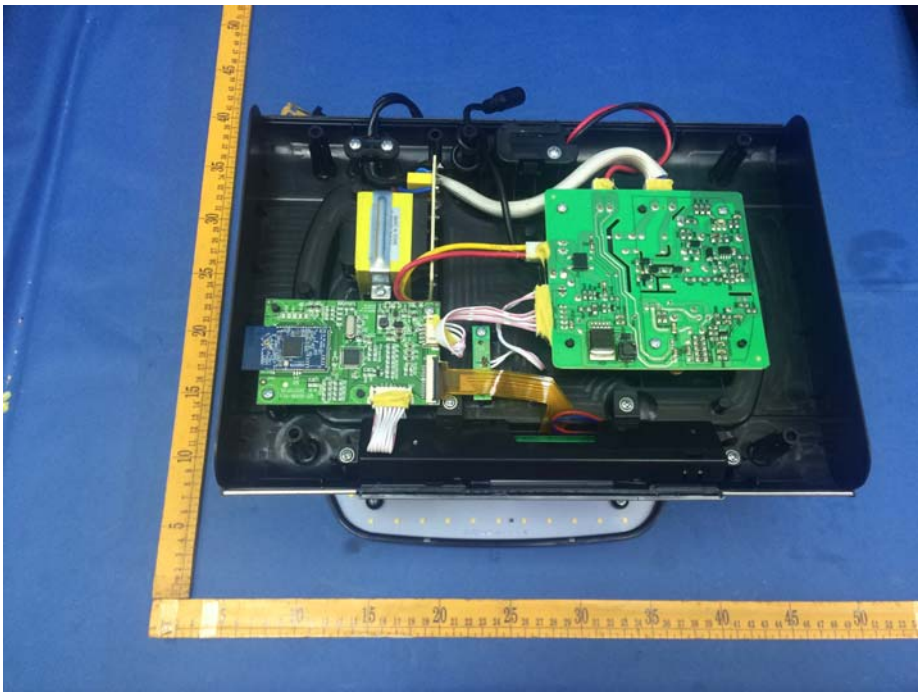


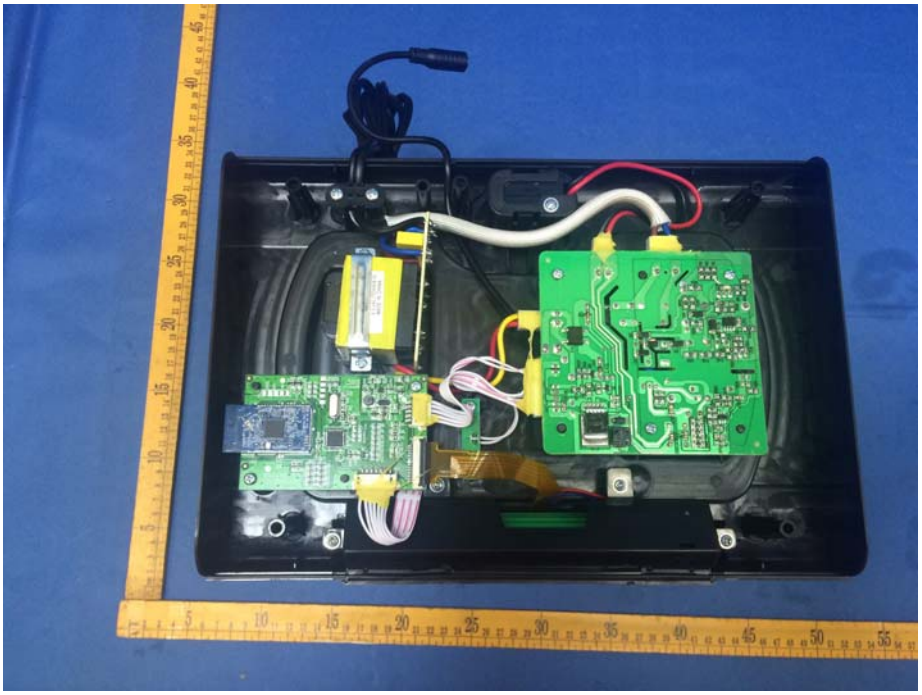
OK
Menu

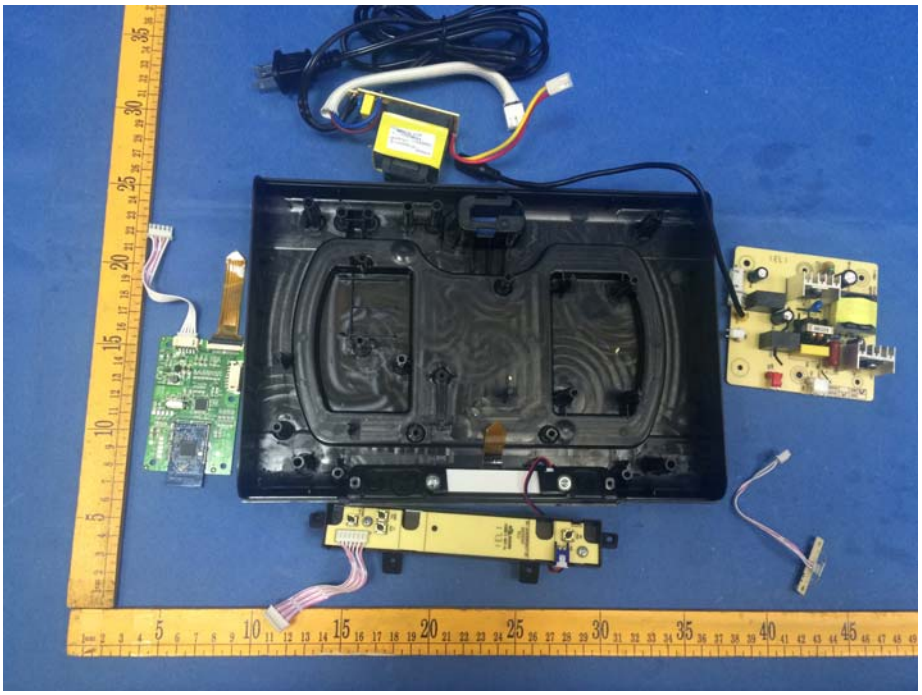
OK
Menu

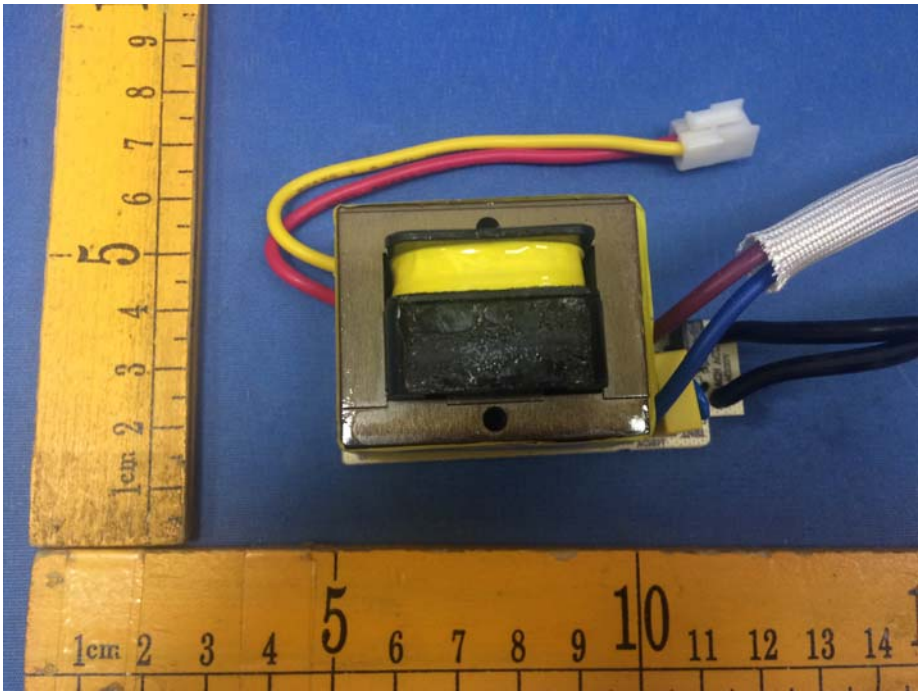
17.2 EUT-Internal Photos

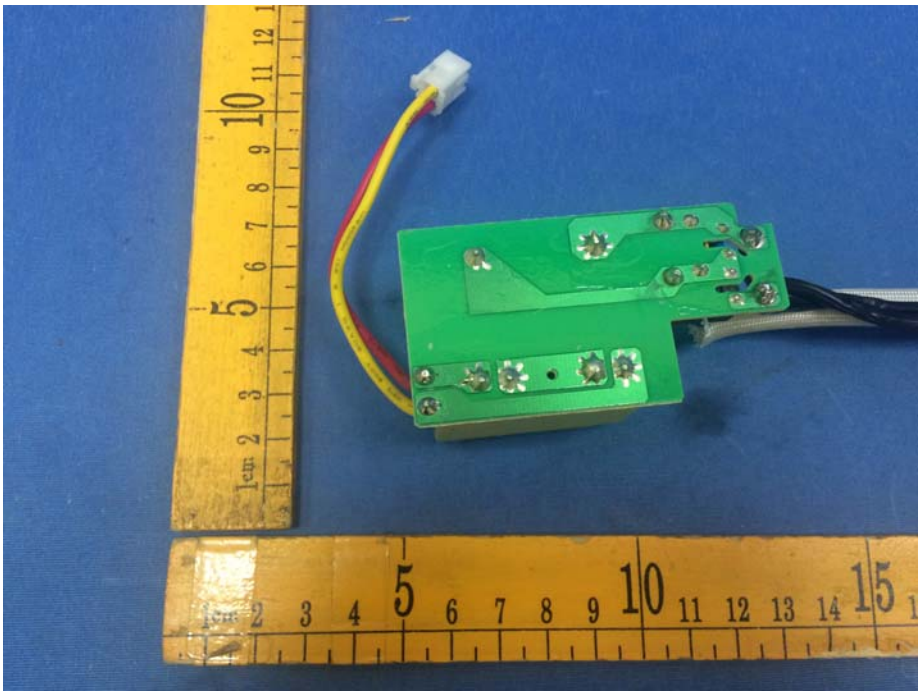
Model: 100661-BLK

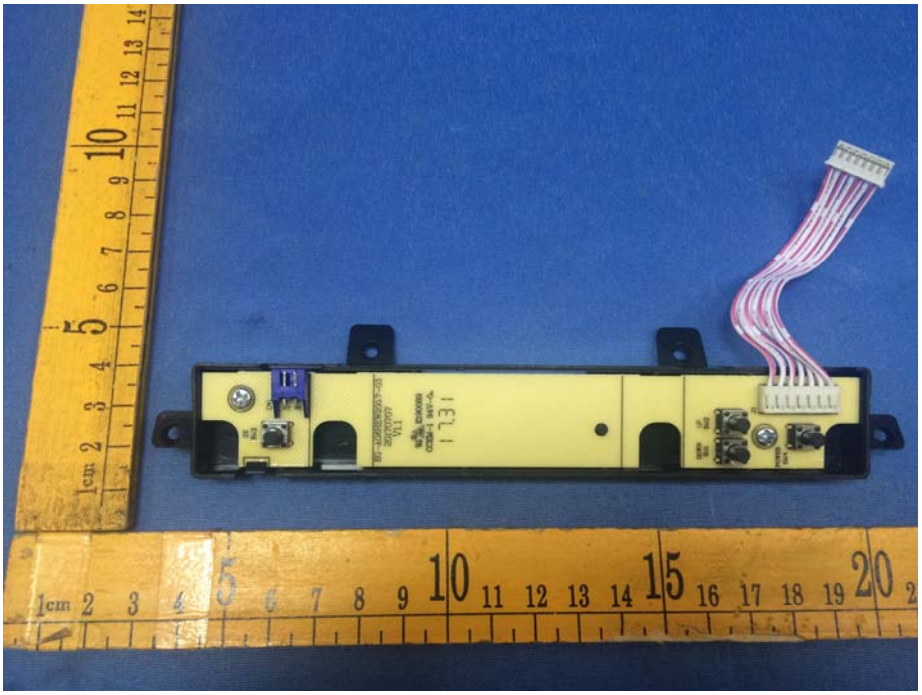


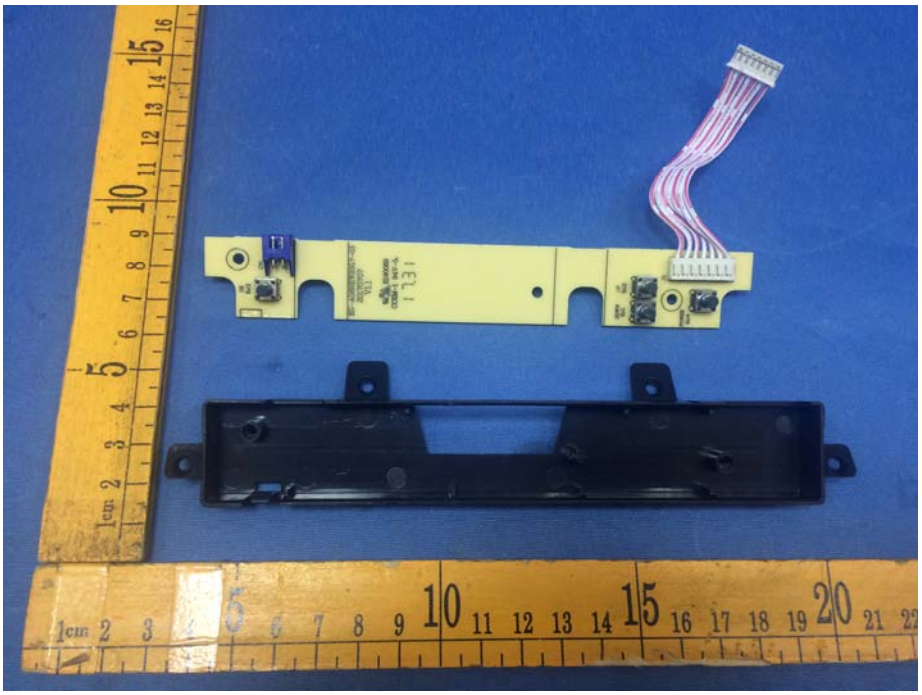


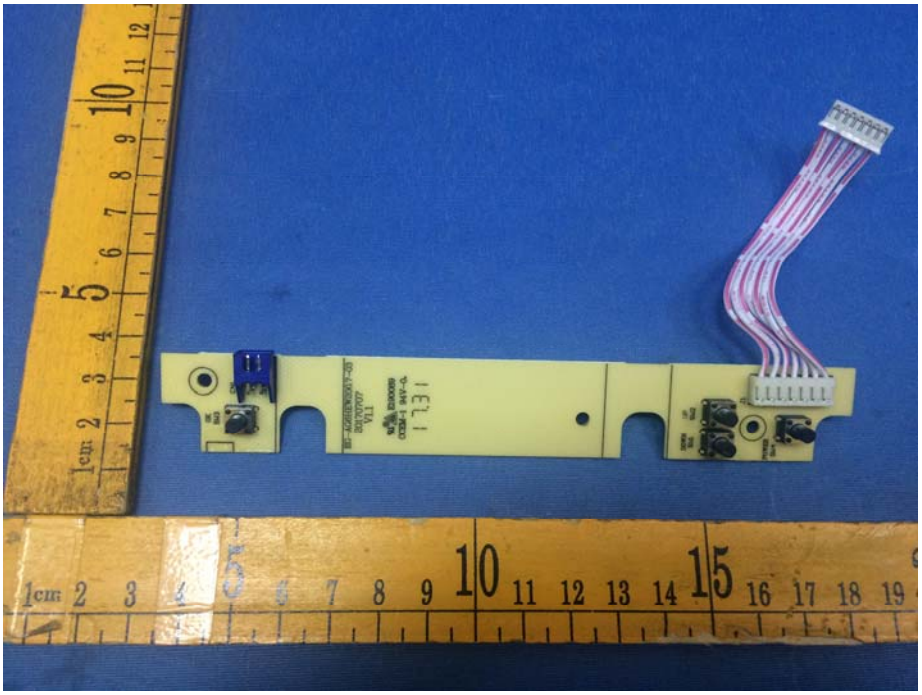


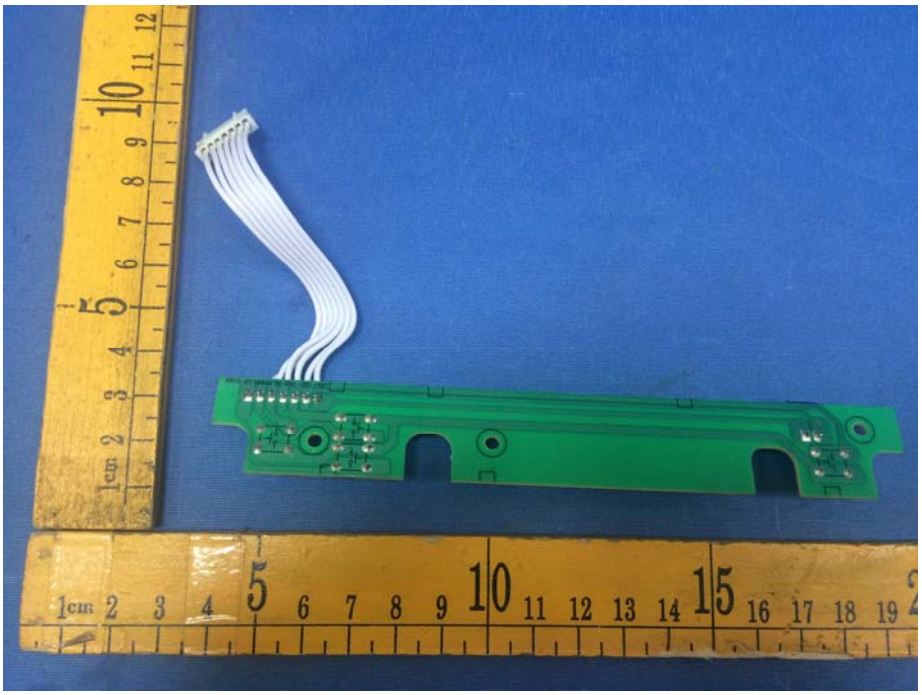


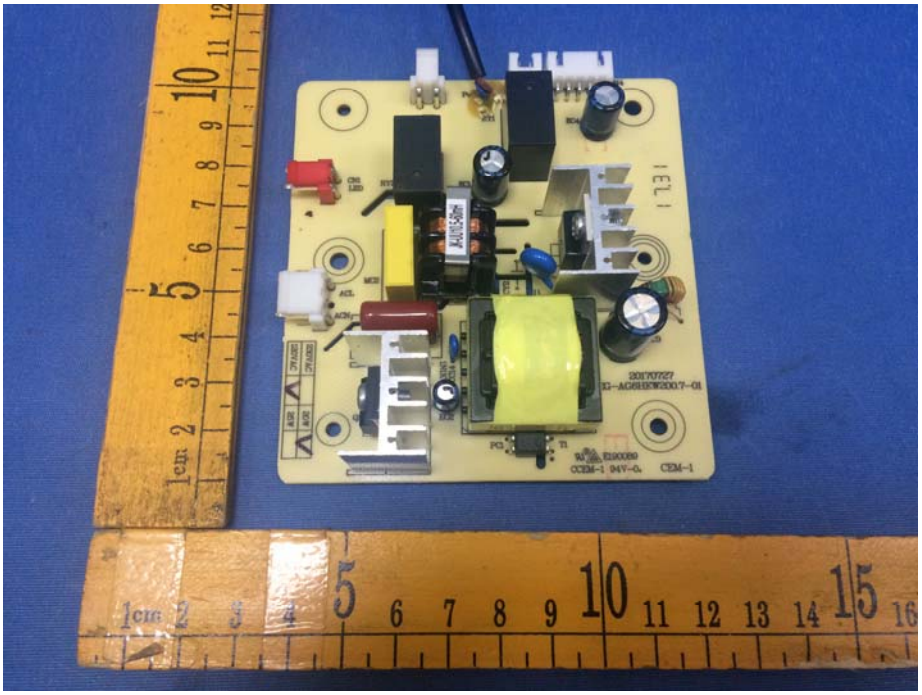


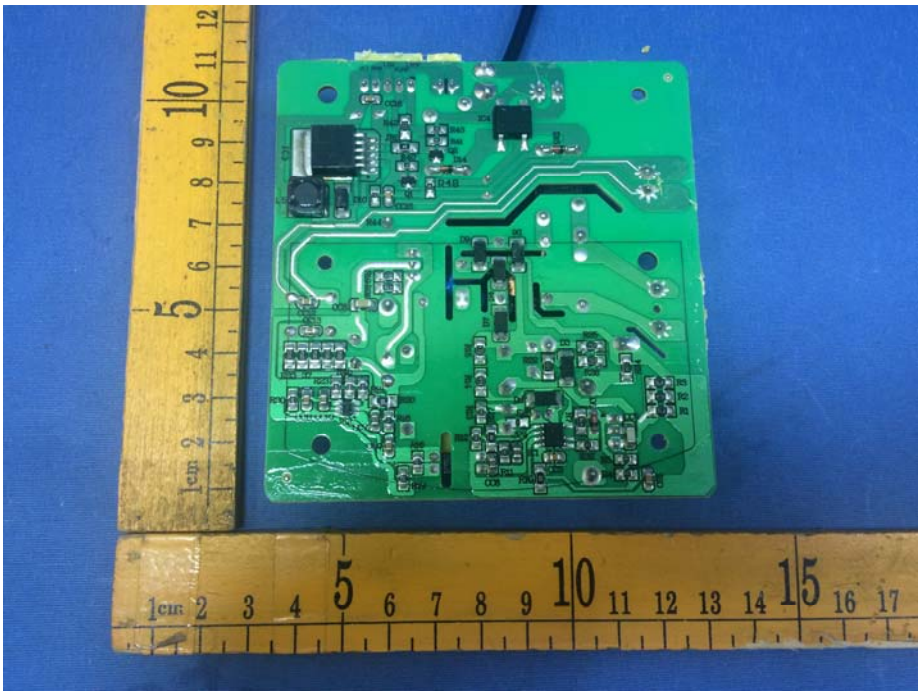


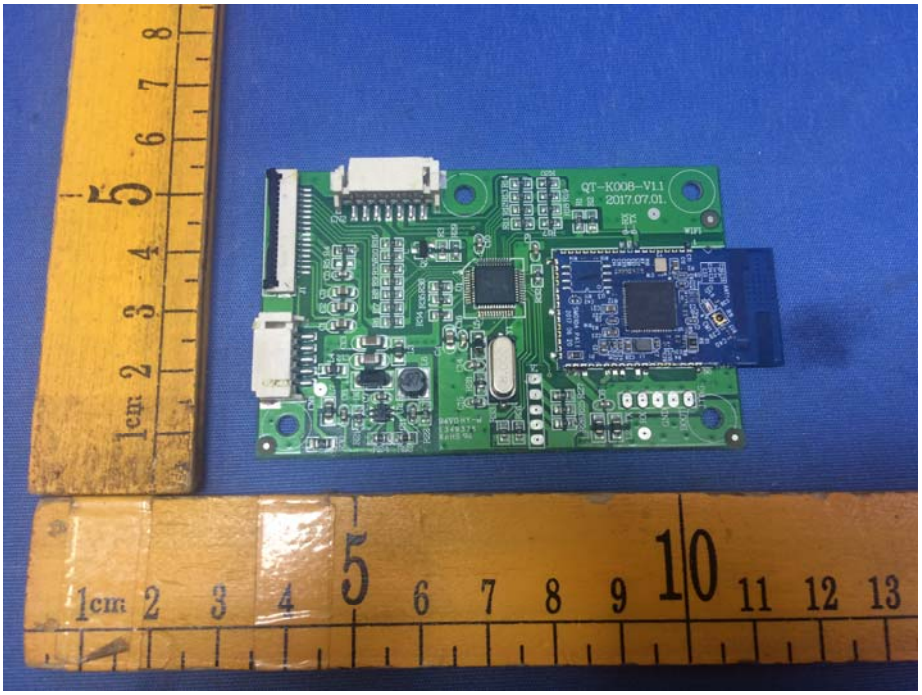








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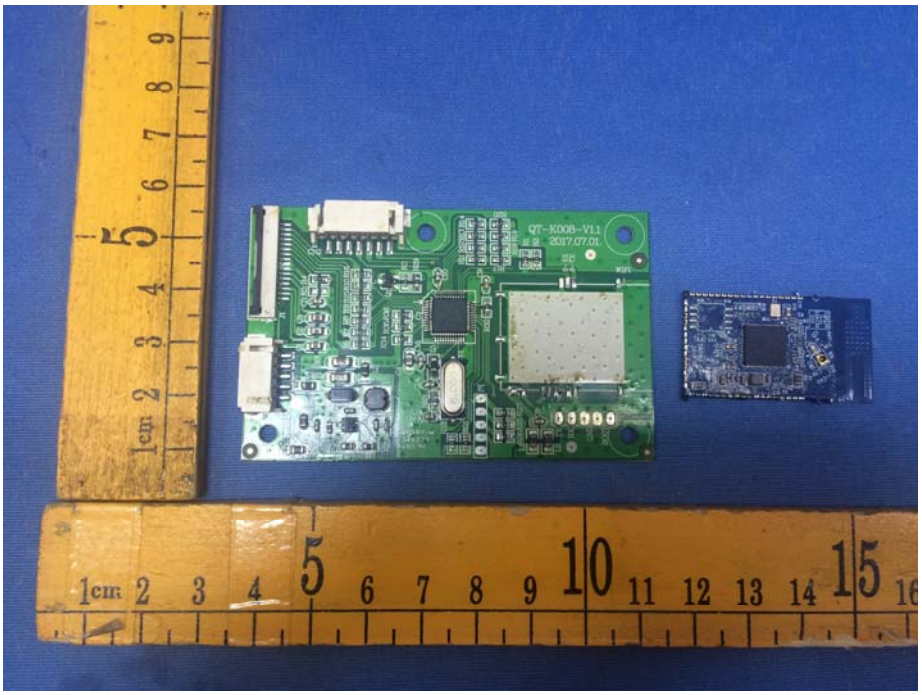
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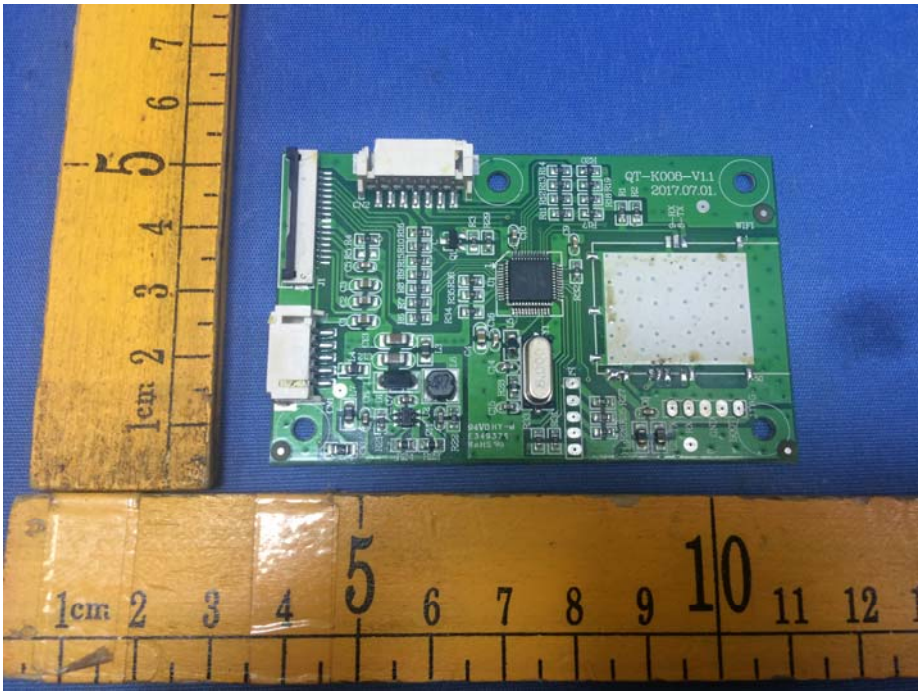
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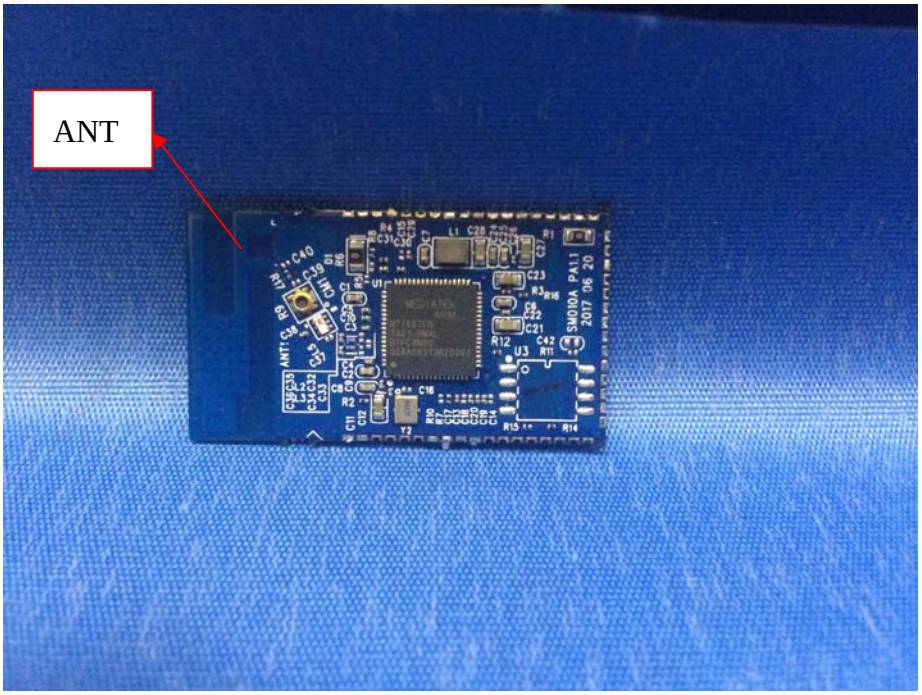
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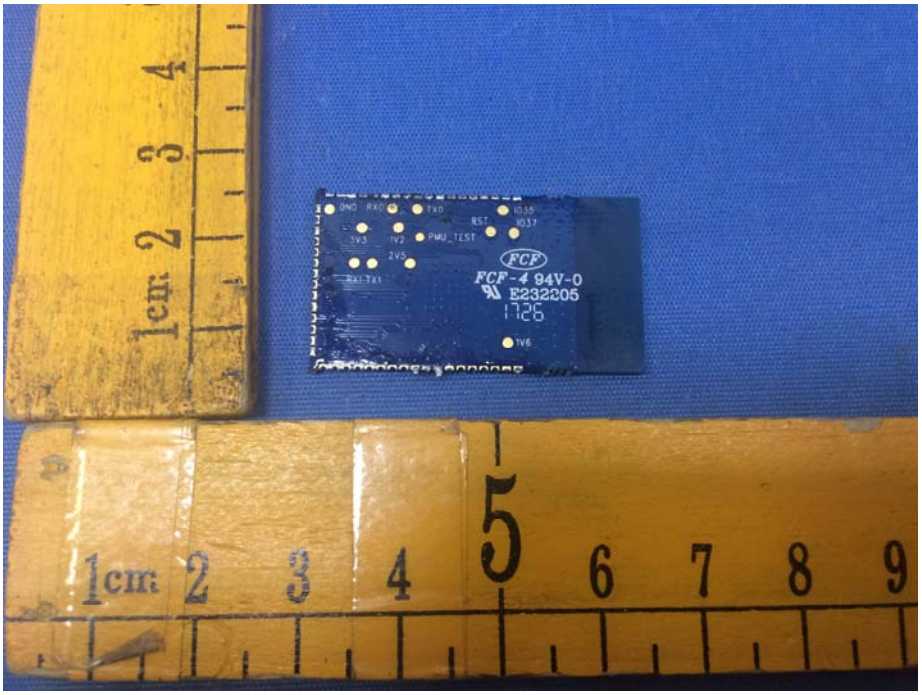
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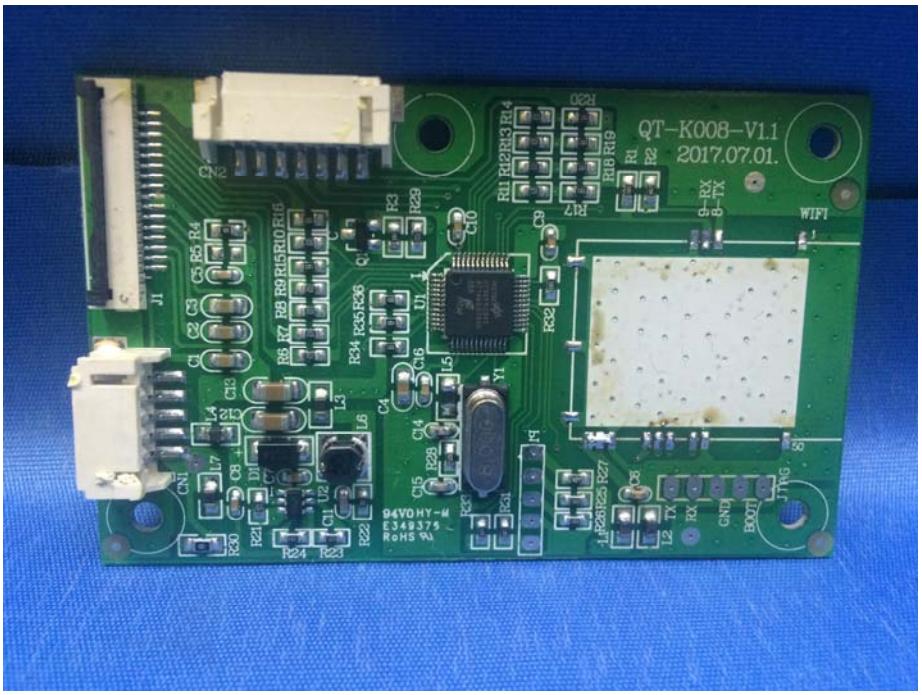
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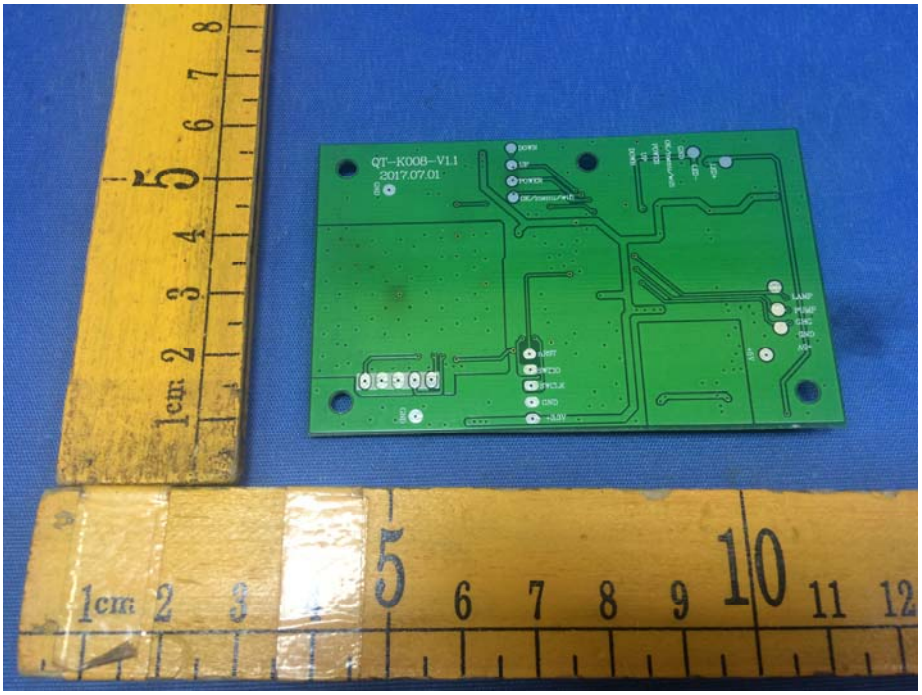
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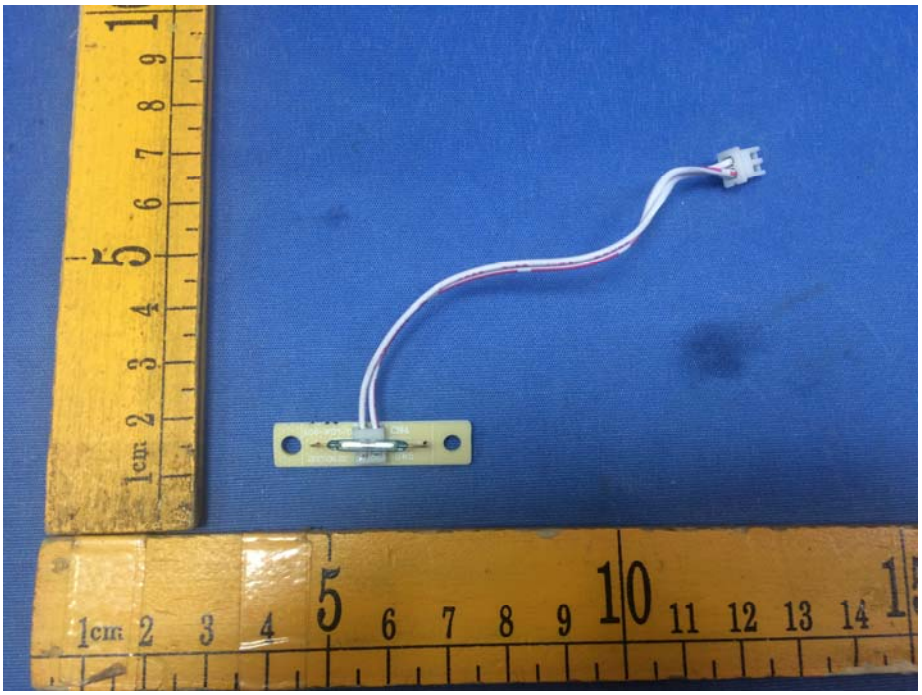

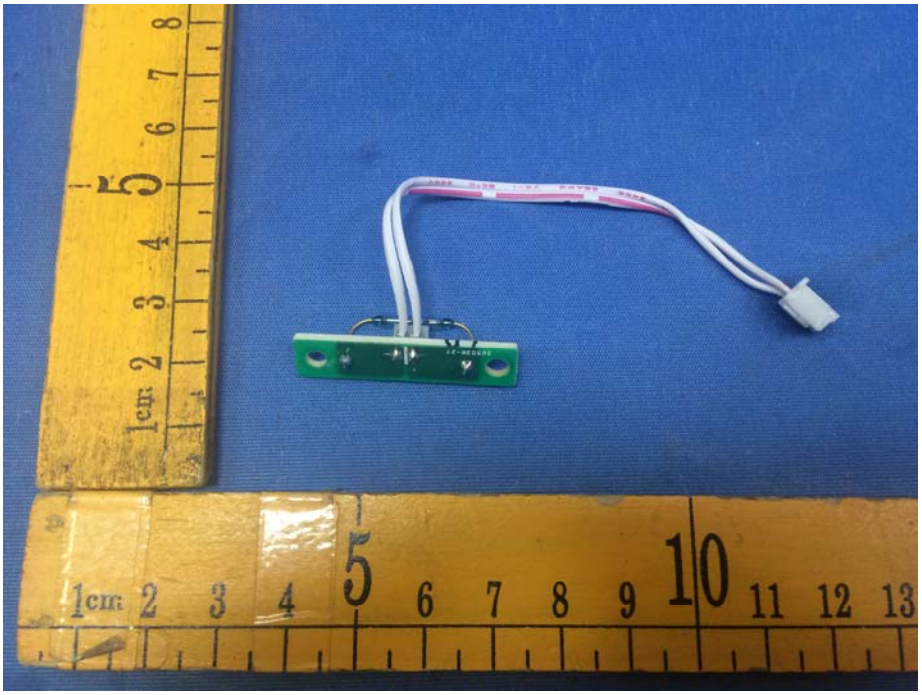

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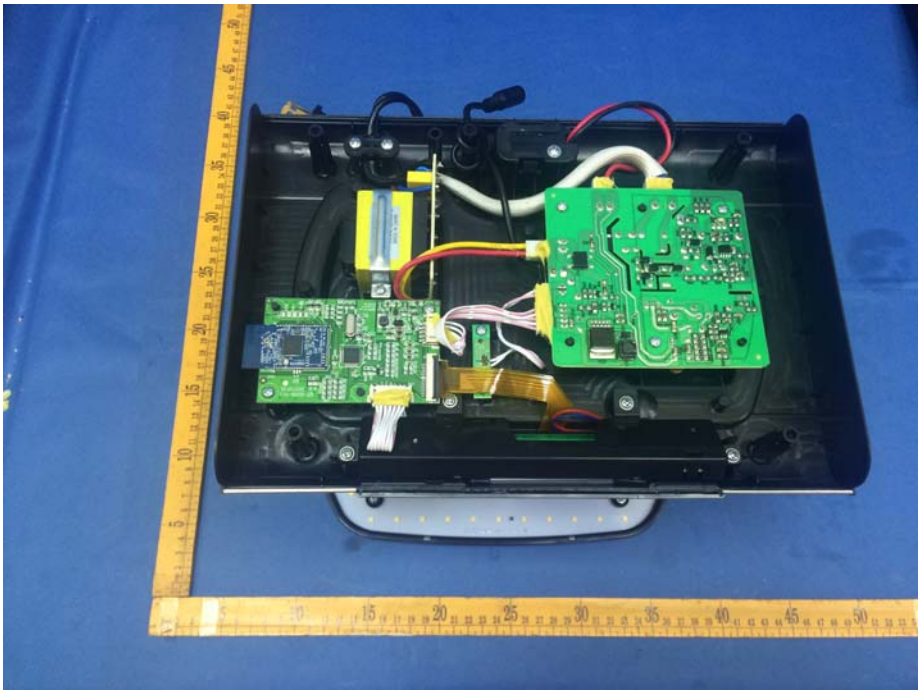
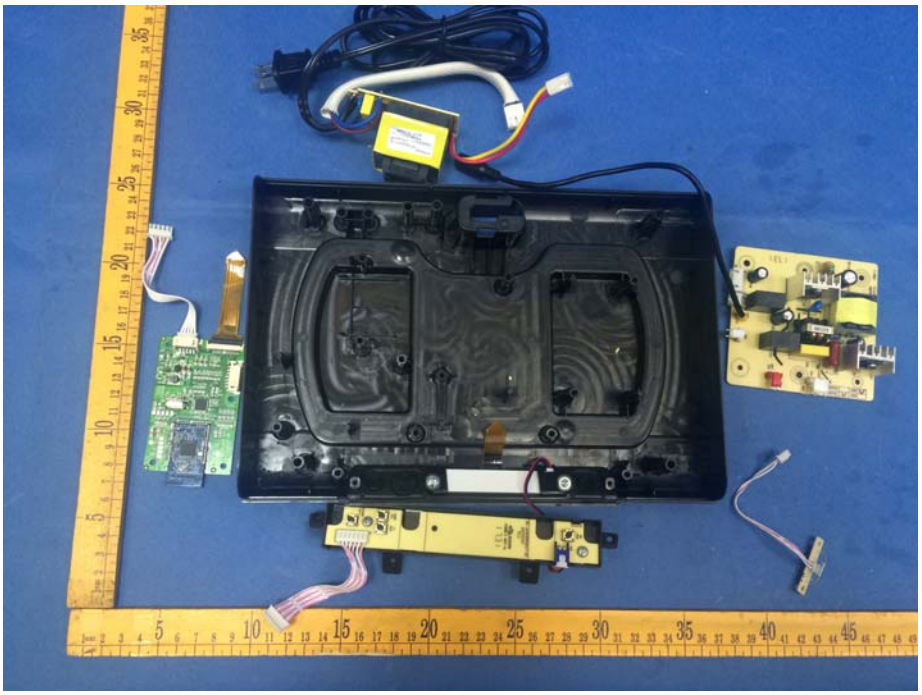
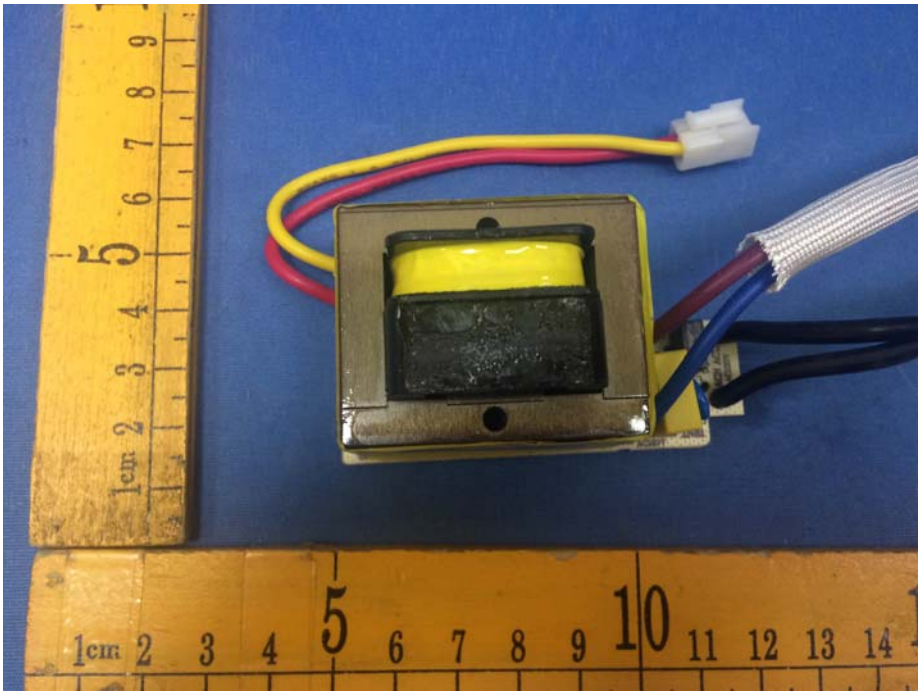
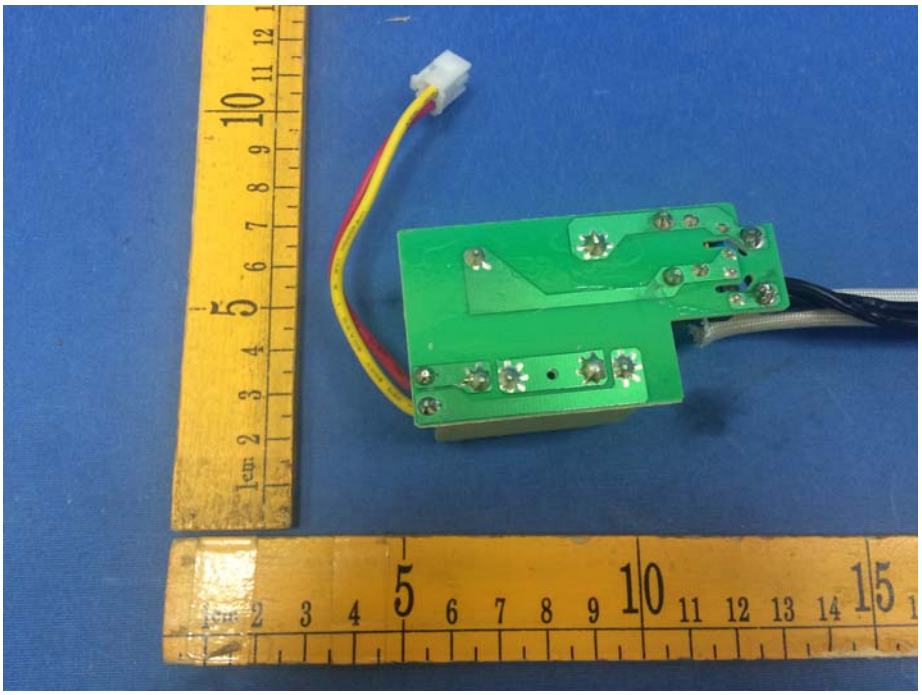
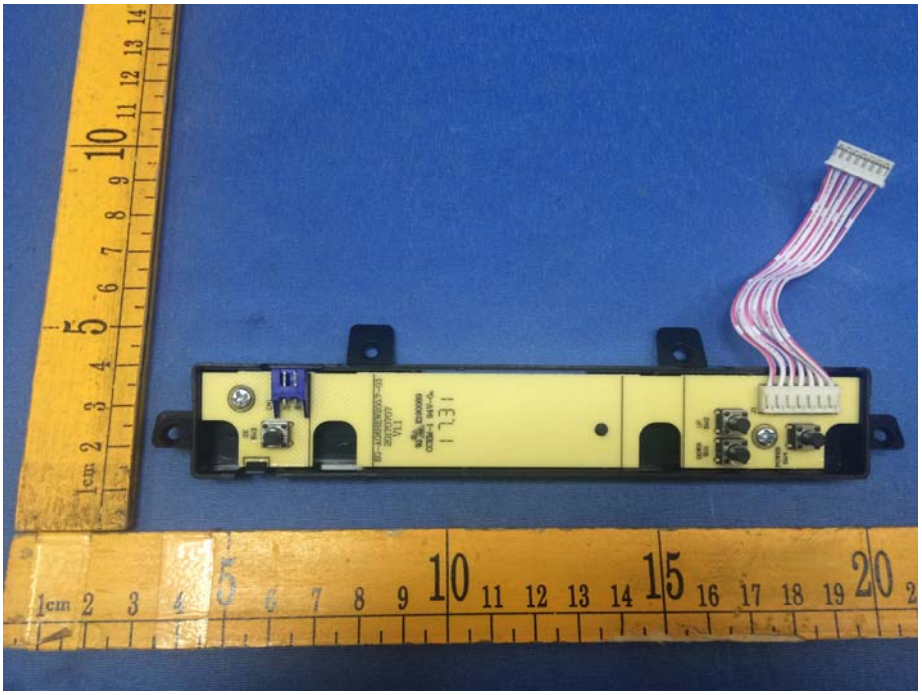
Model: 100670-BSS

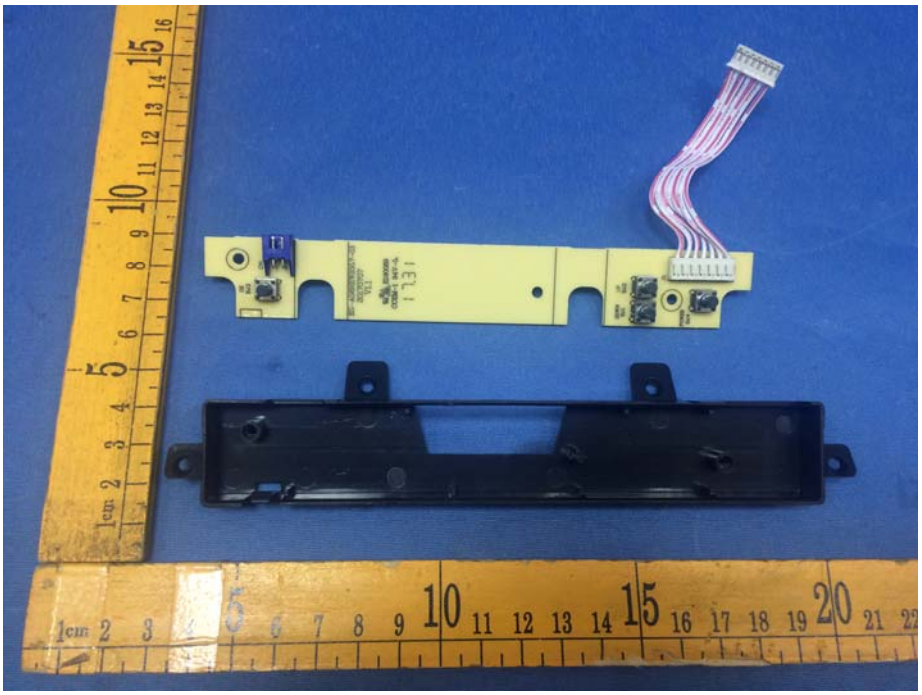


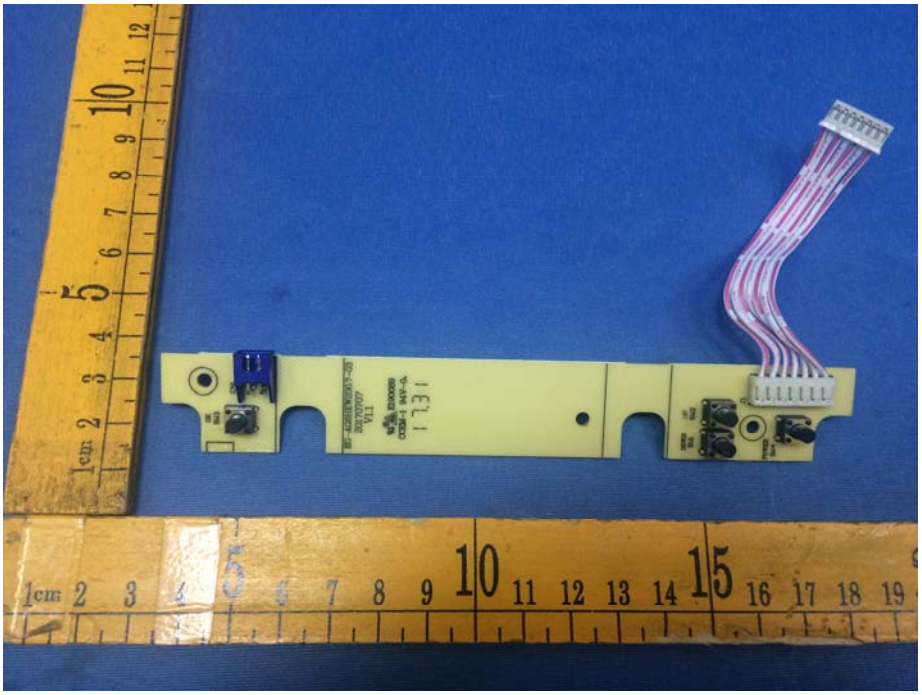


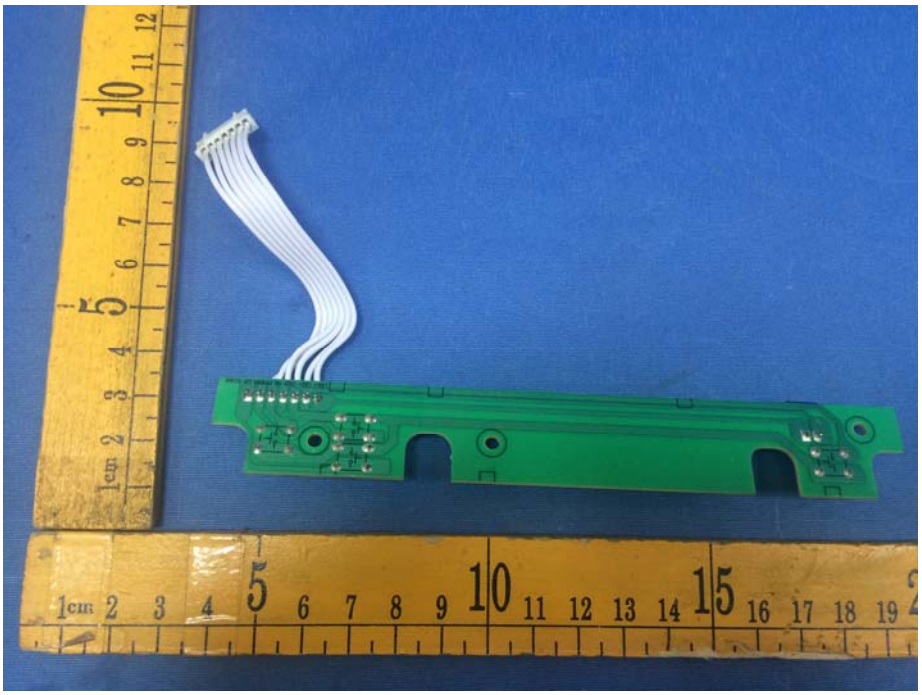


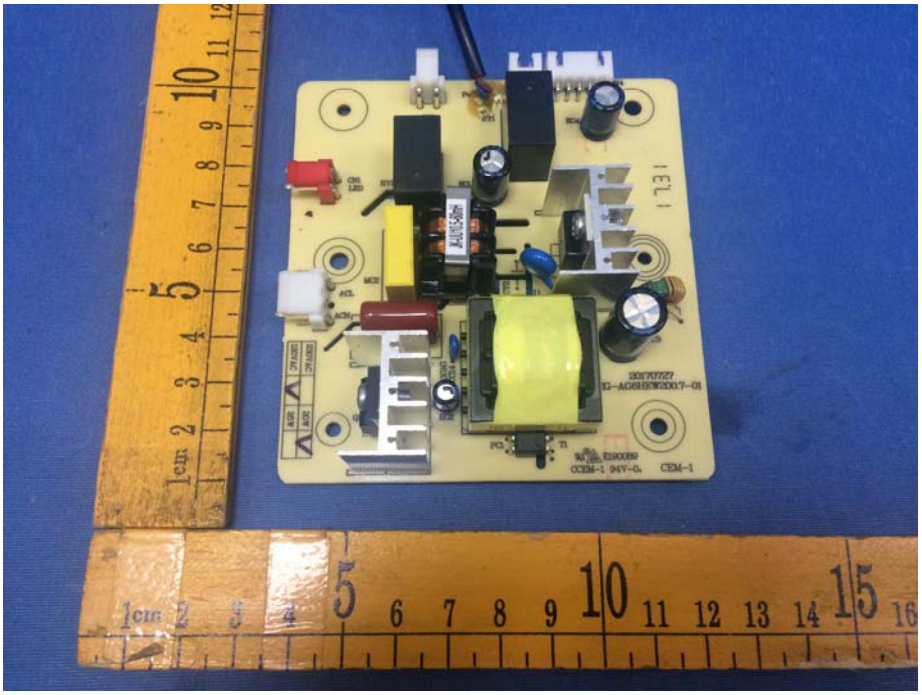


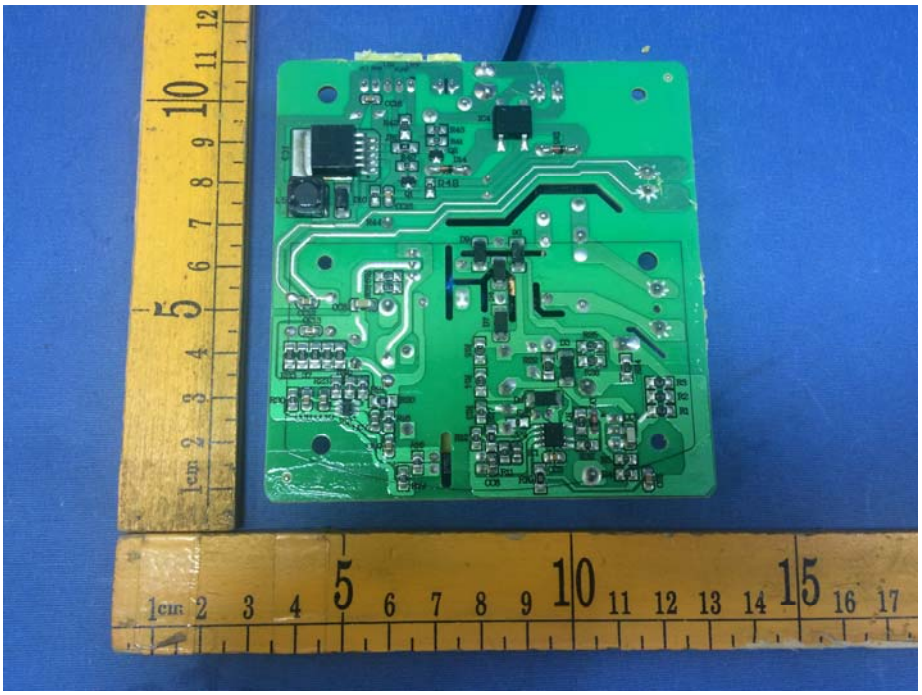


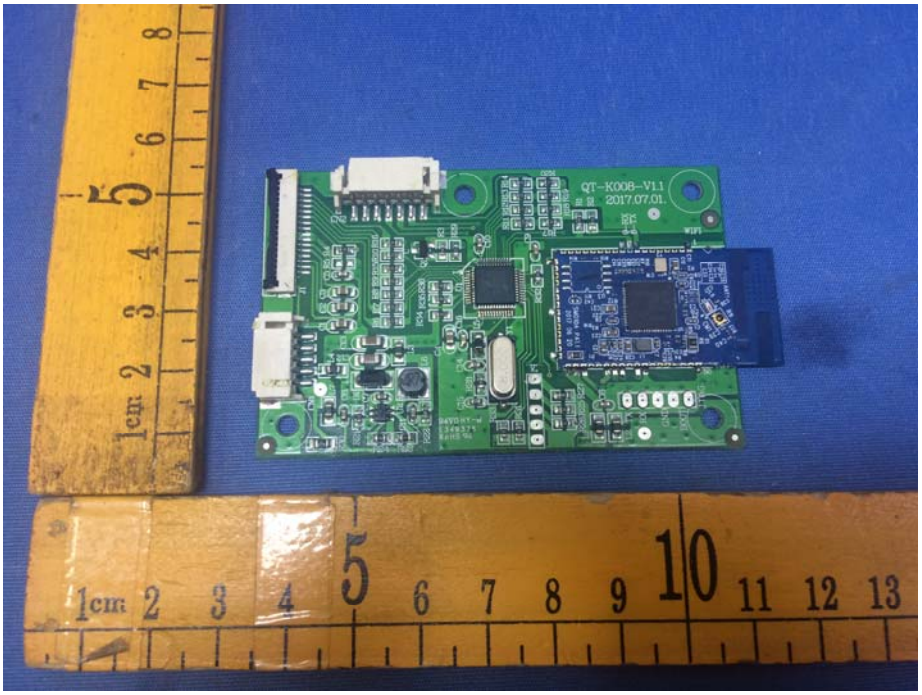








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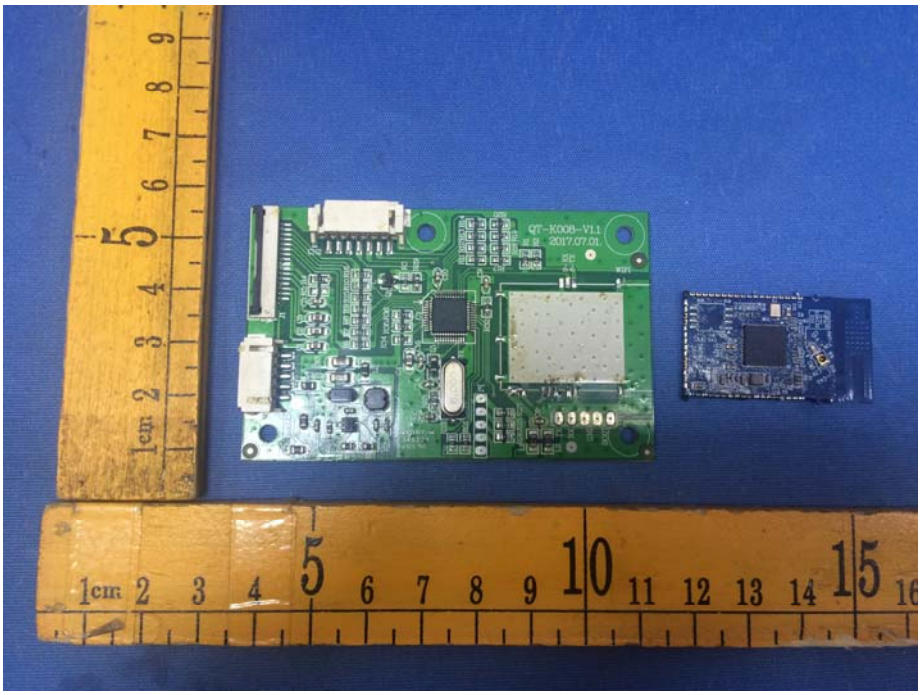
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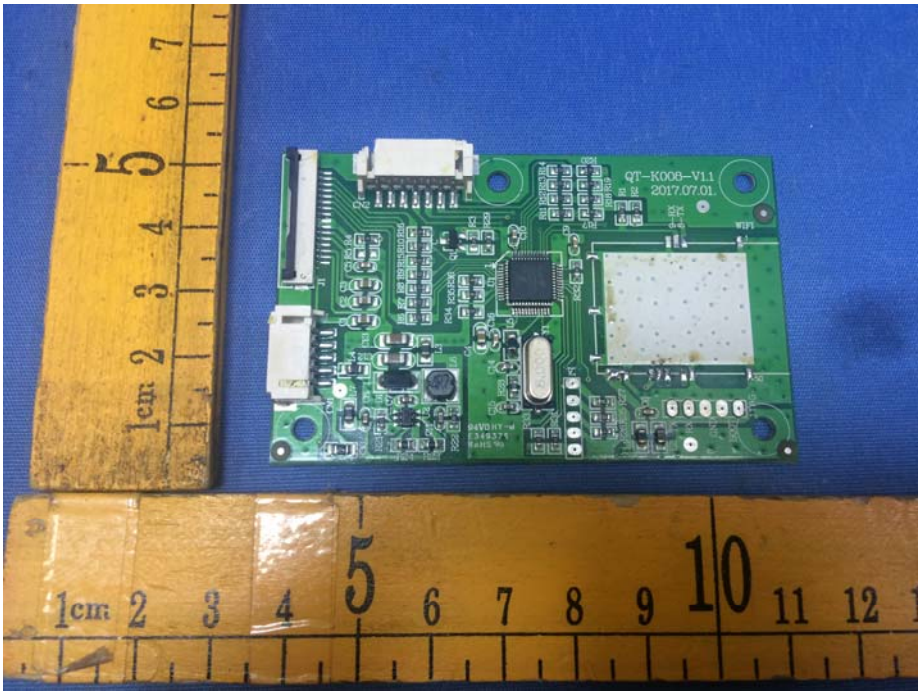
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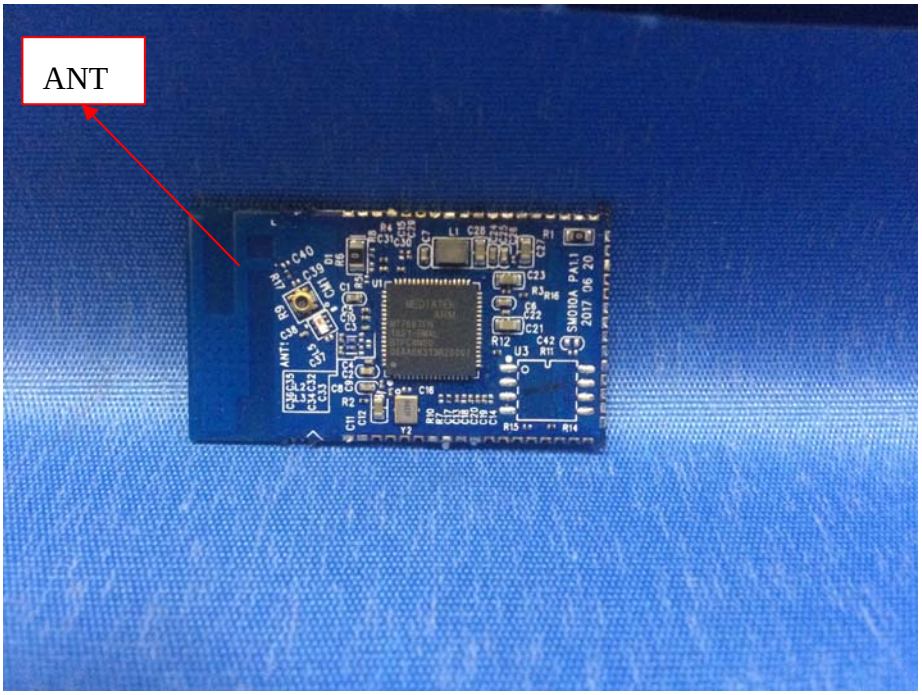
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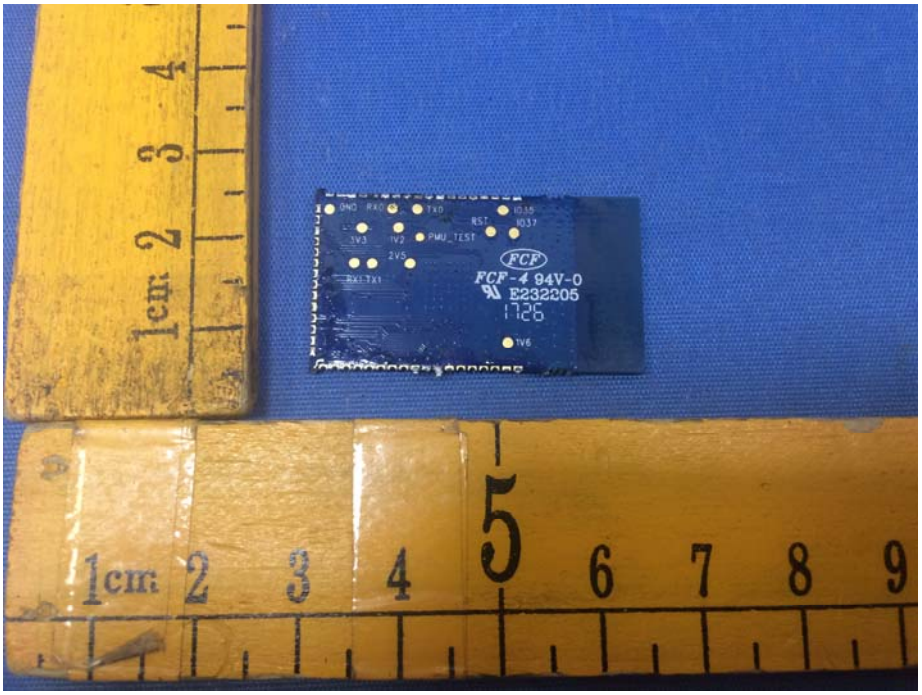
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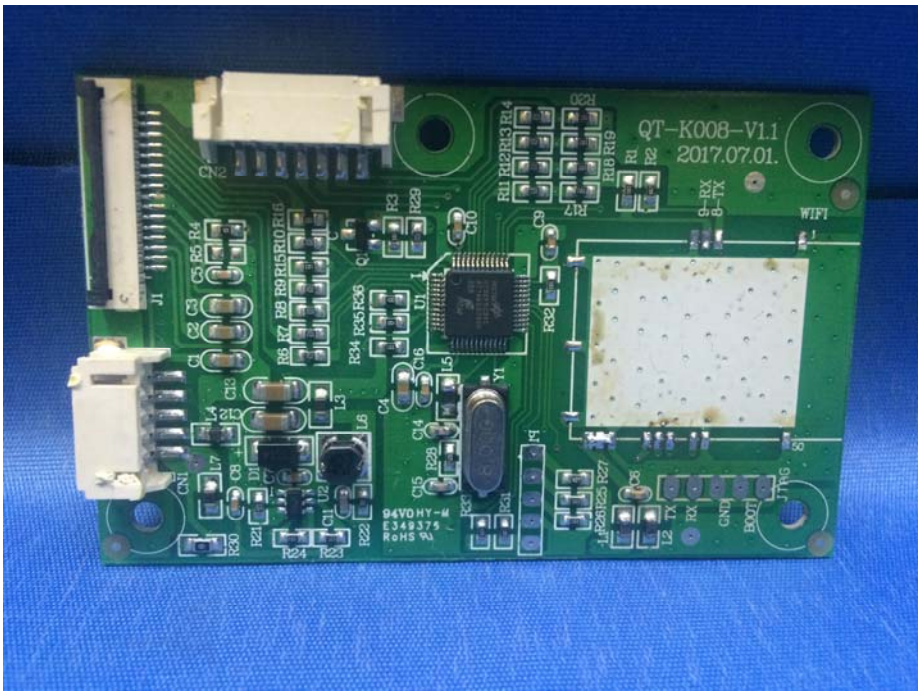
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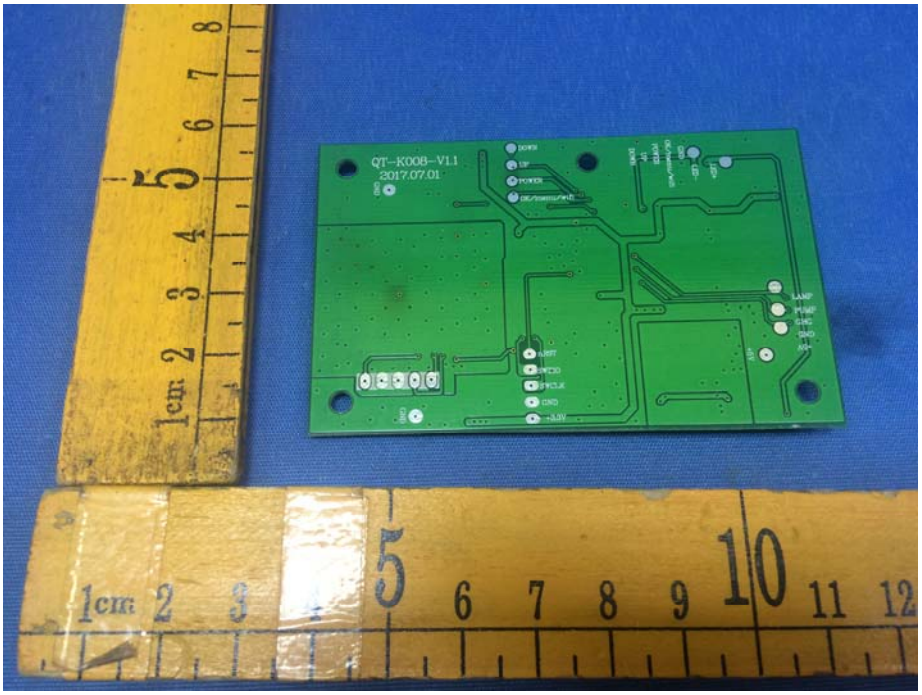
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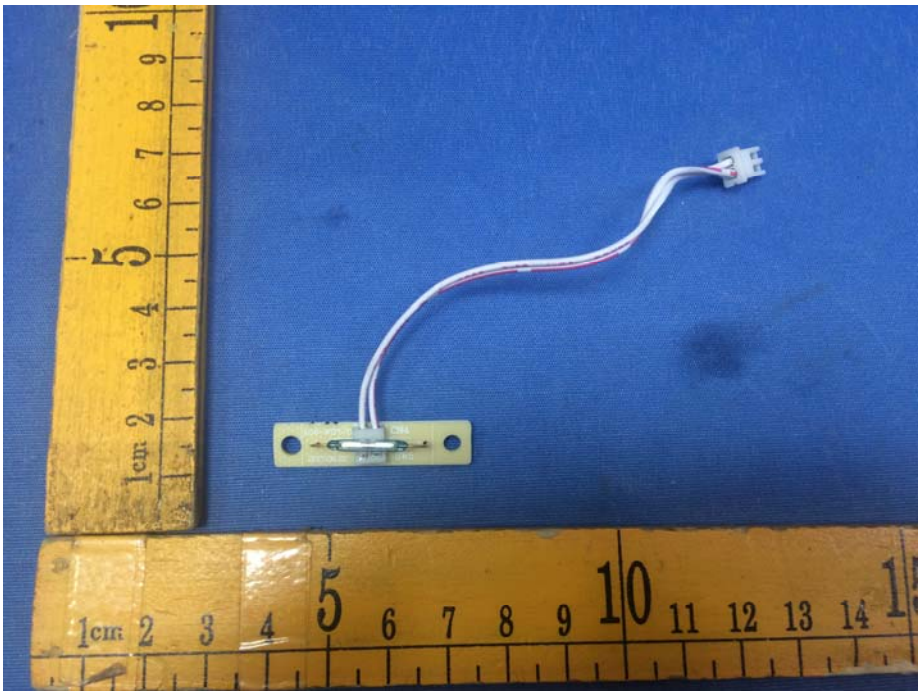

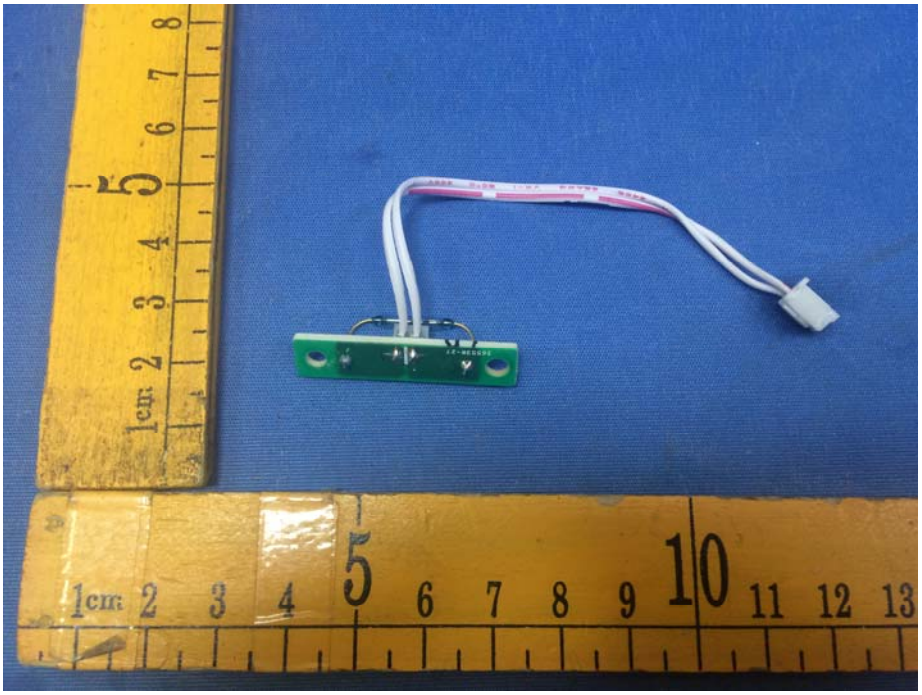

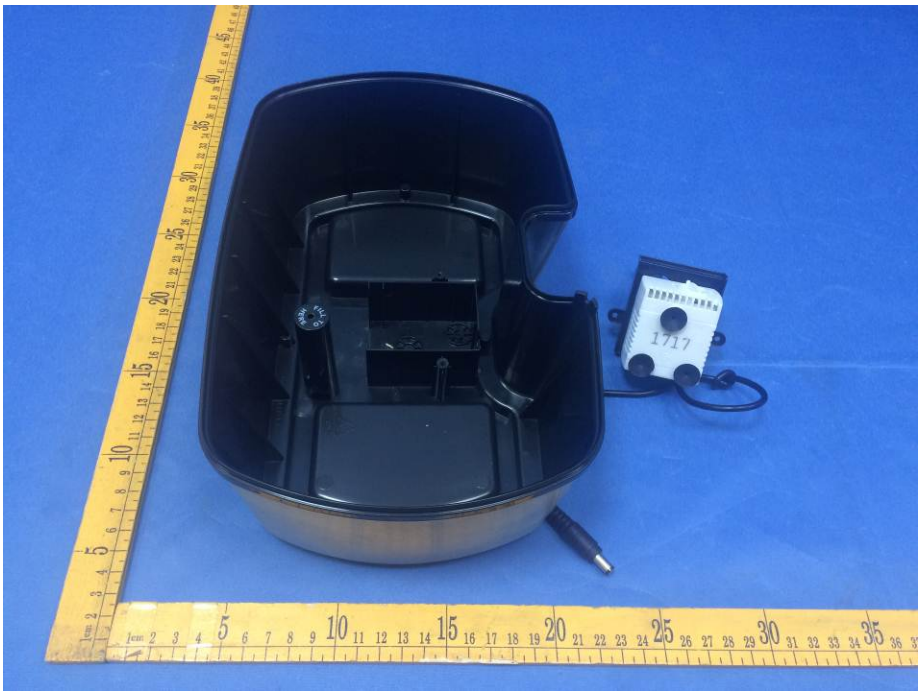
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======End of Report======