TEST REPORT

Reference No.	:	WTF17S0786091E
FCC ID	:	2AJNO1006
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 Name	:	AeroGarden
Model No.	:	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	:	Jul. 31, 2017
Date of Test	:	Aug. 01 – 09, 2017
Date of Issue	:	Aug. 10, 2017
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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3 Report Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTF17S0786091E	Jul. 31, 2017	Aug. 01 – 09, 2017	Aug. 10, 2017	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product Name:	AeroGarden
Model No.	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,
The Lowest Oscillator:	8MHz
Antenna Gain:	2.5dBi
Type of modulation:	IEEE 802.11b (CCK/QPSK/BPSK,11Mbps max.) IEEE 802.11g (BPSK/QPSK/16QAM/64QAM,54Mbps max.) IEEE 802.11n (BPSK/QPSK/16QAM/64QAM,HT20:72Mbps max.,)
Hardware Version:	V1.1
Software Version:	V1.10

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	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	TX
Power Spectral Density	802.11b	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	TX
Bandwidth	802.11b	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	TX
Band Edge	802.11b	11 Mbps	1/11	TX
	802.11g	54 Mbps	1/11	TX
	802.11n HT20	108 Mbps	1/11	TX
Radiated Emissions	802.11b	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	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 .

4.5 Test Facility

Waltek Services (Shenzhen) Co., Ltd.

Accreditations for Conformity Assessment			
Country/Region	Accreditation Body	Scope	Note
USA	A2LA (Certificate No.: 4243.01) CNAS (Registration No. : L3110)	FCC ID \ DOC \ VOC	1
Canada		IC ID \ VOC	2
Japan		MIC-T \ MIC-R \ PSE	-
Europe		EMCD \ LVD \ RED	-
Taiwan		BSMI \ NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
South Korea		KC	-
Thailand		NTC	-
Singapore		IDA	-
Note: 1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476. 2. IC Canada Registration No.: 7760A			

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	Sep.12,2016	Sep.11,2017
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	Sep.12,2016	Sep.11,2017
3.	Limiter	York	MTS-IMP-136	261115-001-0024	Sep.12,2016	Sep.11,2017
4.	Cable	LARGE	RF300	-	Sep.12,2016	Sep.11,2017
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	Apr.29, 2017	Apr.28, 2018
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Apr.09,2017	Apr.08,2018
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.09,2017	Apr.08,2018
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.12,2016	Sep.11,2017
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.09,2017	Apr.08,2018
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Apr.09,2017	Apr.08,2018
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.13,2017	Apr.12,2018
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	Apr.13,2017	Apr.12,2018
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	Apr.13,2017	Apr.12,2018
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	Apr.09,2017	Apr.08,2018
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	Apr.13,2017	Apr.12,2018
4	Cable	HUBER+SUHNER	CBL2	525178	Apr.13,2017	Apr.12,2018
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Sep.12,2016	Sep.11,2017

2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Sep.12,2016	Sep.11,2017
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	Sep.12,2016	Sep.11,2017

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)	C
Conducted Spurious emissions	15.247(d)	C
Conducted Emissions	15.207(a)	C
Bandwidth	15.247(a)(2)	C
Maximum Peak Output Power	15.247(b)(3),(4)	C
Power Spectral Density	15.247(e)	C
Band Edge	15.247(d)	C
Antenna Requirement	15.203	C
SAR Evaluation	1.1307(b)(1)	C
Note: C=Compliance; NC=Not Compliance; NT=Not Tested; 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

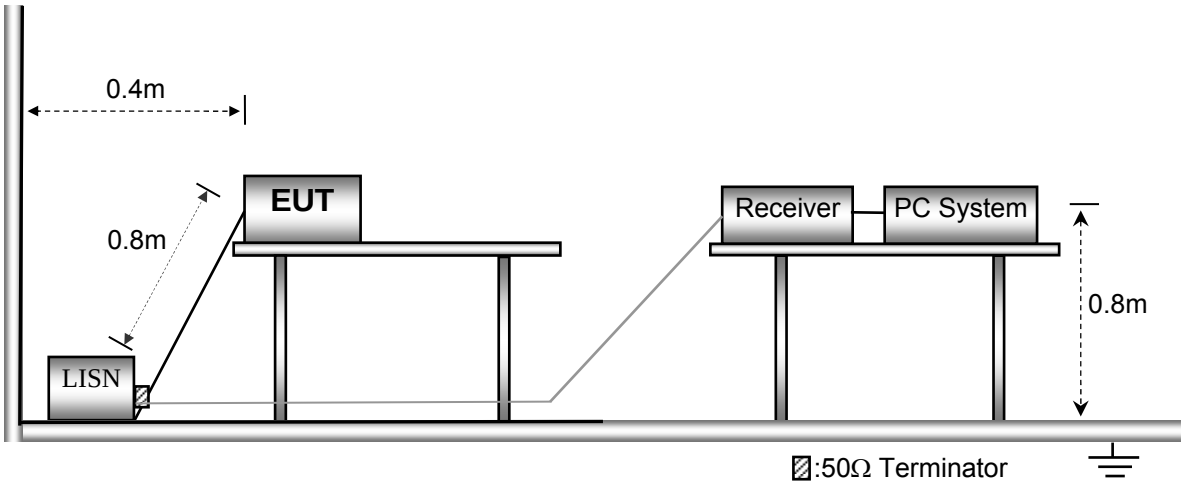
EUT Operation **:**

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

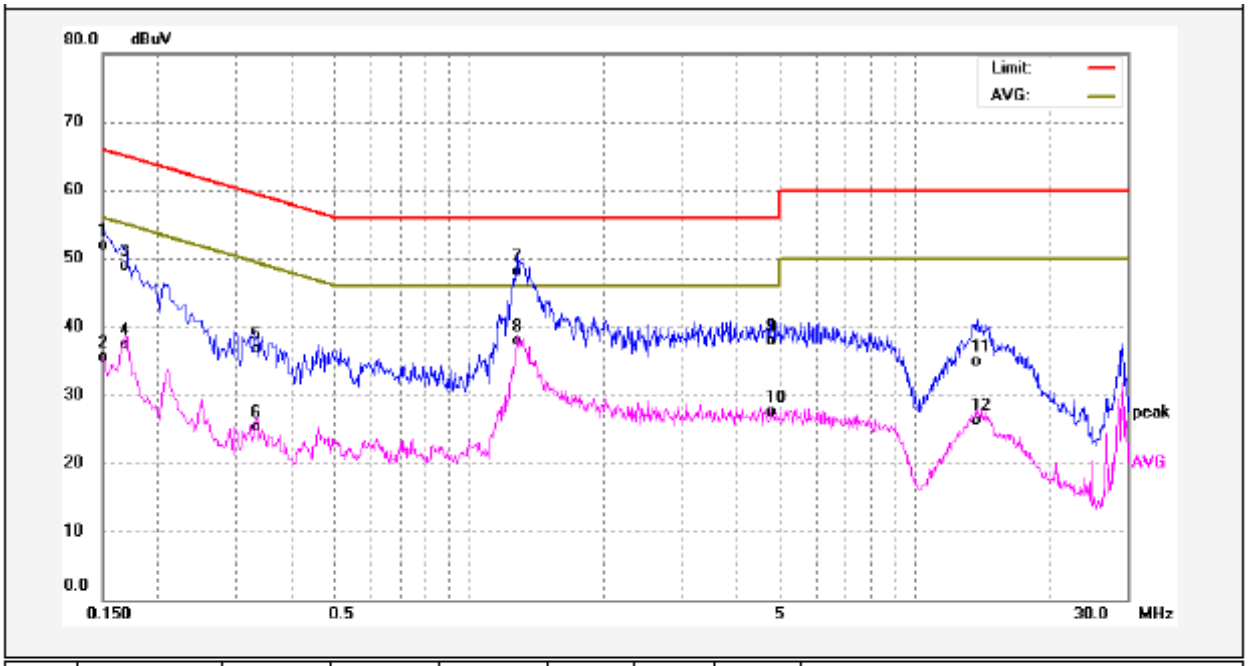
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

7.4 Conducted Emission Test Result

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

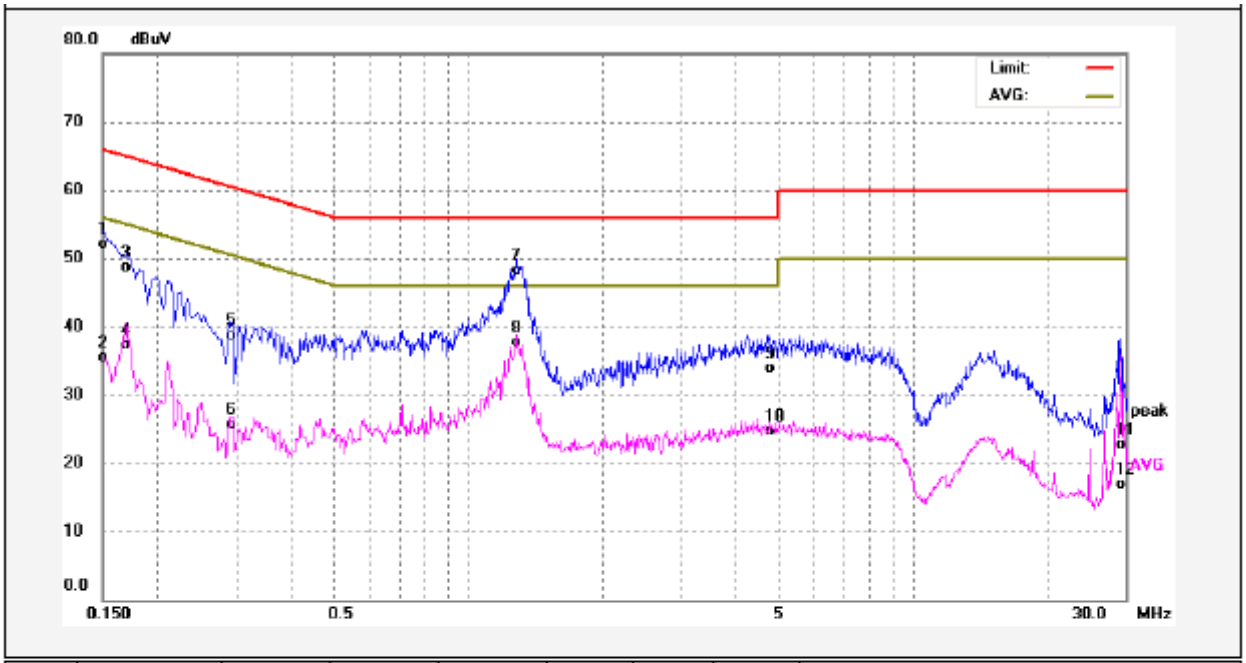
Model 100661-BLK

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	41.91	10.06	51.97	65.99	-14.02	QP	
2	0.1500	25.53	10.06	35.59	55.99	-20.40	AVG	
3	0.1700	39.01	9.86	48.87	64.96	-16.09	QP	
4	0.1700	27.35	9.86	37.21	54.96	-17.75	AVG	
5	0.3300	26.69	10.03	36.72	59.45	-22.73	QP	
6	0.3300	15.36	10.03	25.39	49.45	-24.06	AVG	
7	1.2820	37.86	10.34	48.20	56.00	-7.80	QP	
8	1.2820	27.47	10.34	37.81	46.00	-8.19	AVG	
9	4.7500	27.62	10.25	37.87	56.00	-18.13	QP	
10	4.7500	17.34	10.25	27.59	46.00	-18.41	AVG	
11	13.8900	24.61	10.38	34.99	60.00	-25.01	QP	
12	13.8900	15.83	10.38	26.21	50.00	-23.79	AVG	

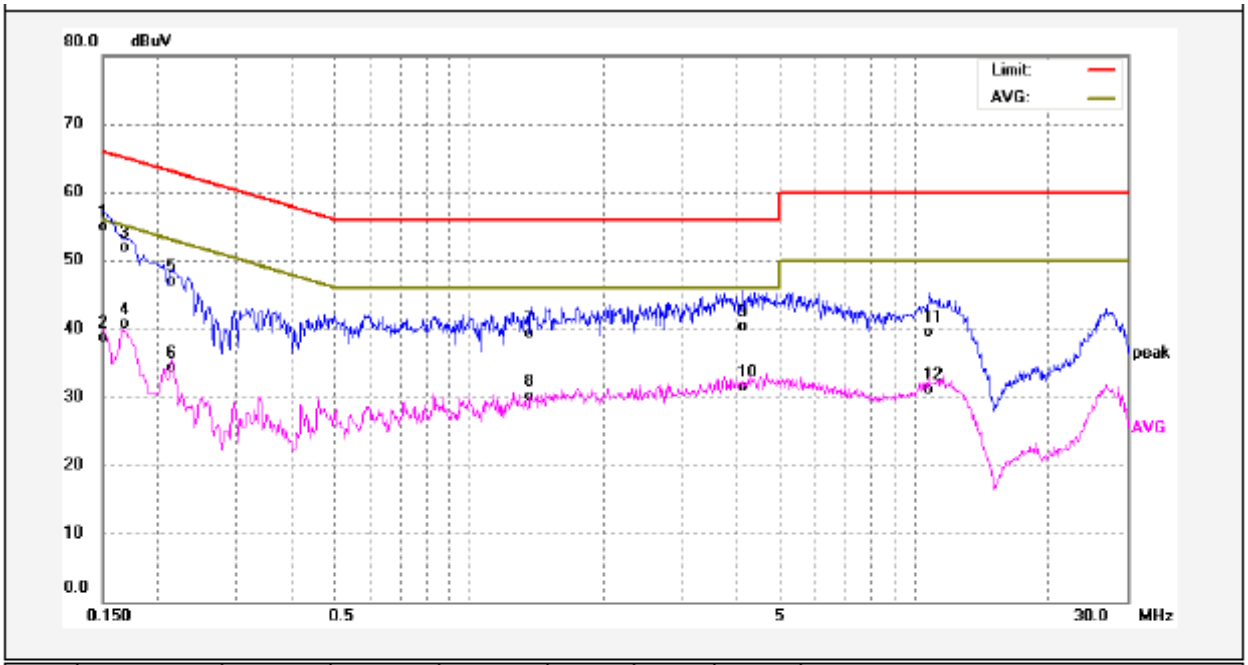
Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	42.01	10.06	52.07	65.99	-13.92	QP	
2	0.1500	25.50	10.06	35.56	55.99	-20.43	AVG	
3	0.1700	38.82	9.86	48.68	64.96	-16.28	QP	
4	0.1700	27.39	9.86	37.25	54.96	-17.71	AVG	
5	0.2900	28.75	9.99	38.74	60.52	-21.78	QP	
6	0.2900	15.68	9.99	25.67	50.52	-24.85	AVG	
7	1.2820	37.93	10.34	48.27	56.00	-7.73	QP	
8	1.2820	27.27	10.34	37.61	46.00	-8.39	AVG	
9	4.7140	23.57	10.26	33.83	56.00	-22.17	QP	
10	4.7140	14.41	10.26	24.67	46.00	-21.33	AVG	
11	29.2820	12.04	10.65	22.69	60.00	-37.31	QP	
12	29.2820	6.23	10.65	16.88	50.00	-33.12	AVG	

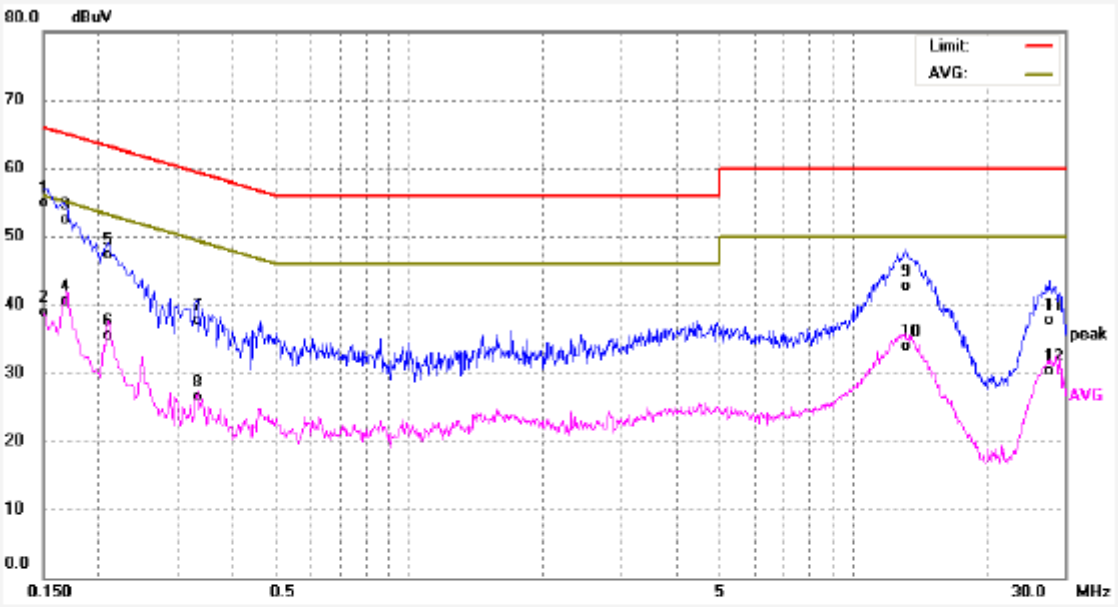
Model 100670-BSS

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	44.89	10.06	54.95	65.99	-11.04	QP	
2	0.1500	28.74	10.06	38.80	55.99	-17.19	AVG	
3	0.1700	42.07	9.86	51.93	64.96	-13.03	QP	
4	0.1700	30.85	9.86	40.71	54.96	-14.25	AVG	
5	0.2140	36.95	9.94	46.89	63.04	-16.15	QP	
6	0.2140	24.38	9.94	34.32	53.04	-18.72	AVG	
7	1.3820	29.07	10.25	39.32	56.00	-16.68	QP	
8	1.3820	19.87	10.25	30.12	46.00	-15.88	AVG	
9	4.1060	30.07	10.27	40.34	56.00	-15.66	QP	
10	4.1060	21.19	10.27	31.46	46.00	-14.54	AVG	
11	10.7980	29.14	10.37	39.51	60.00	-20.49	QP	
12	10.7980	20.74	10.37	31.11	50.00	-18.89	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	44.94	10.06	55.00	65.99	-10.99	QP	
2	0.1500	28.76	10.06	38.82	55.99	-17.17	AVG	
3	0.1700	42.59	9.86	52.45	64.96	-12.51	QP	
4	0.1700	30.65	9.86	40.51	54.96	-14.45	AVG	
5	0.2100	37.32	9.93	47.25	63.20	-15.95	QP	
6	0.2100	25.60	9.93	35.53	53.20	-17.67	AVG	
7	0.3339	27.64	10.03	37.67	59.35	-21.68	QP	
8	0.3339	16.47	10.03	26.50	49.35	-22.85	AVG	
9	13.2460	32.30	10.38	42.68	60.00	-17.32	QP	
10	13.2460	23.61	10.38	33.99	50.00	-16.01	AVG	
11	27.6940	27.13	10.62	37.75	60.00	-22.25	QP	
12	27.6940	19.63	10.62	30.25	50.00	-19.75	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

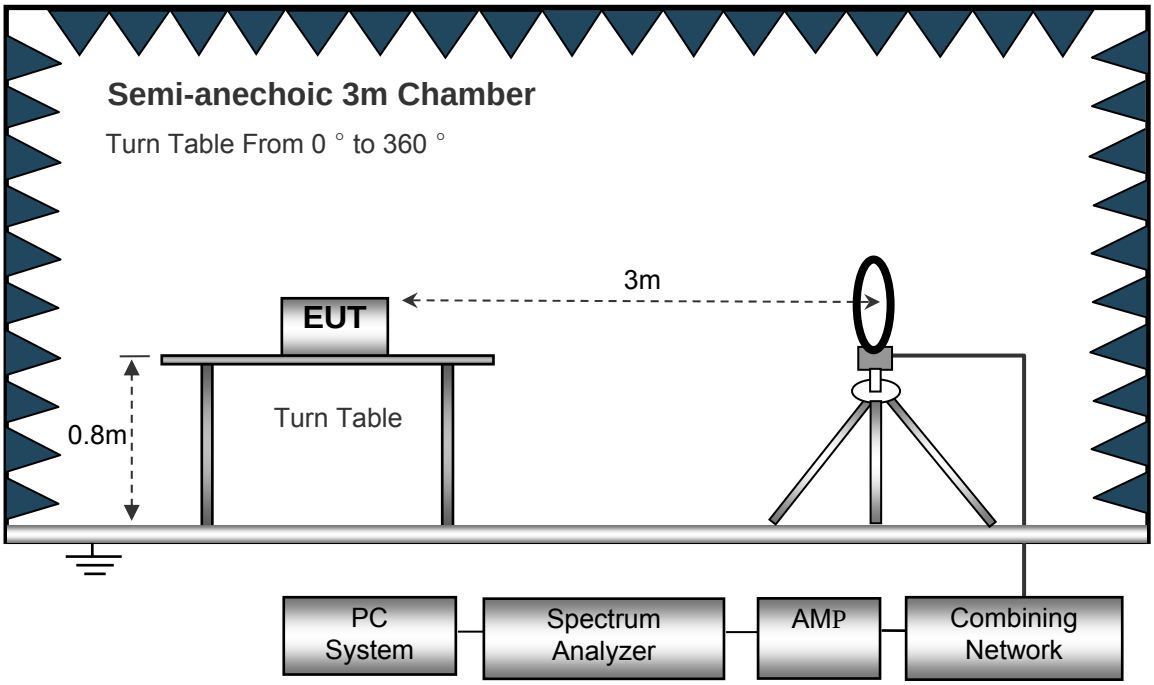
EUT Operation **:**

The test was performed in Wi-Fi Transmitting mode.

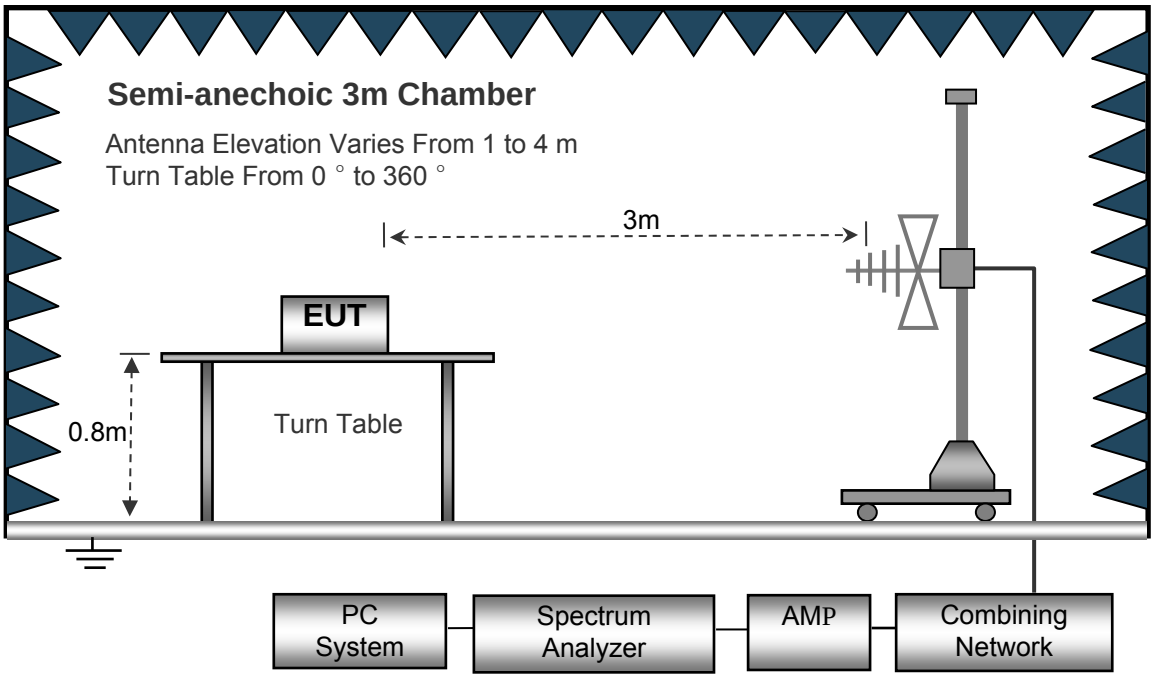
8.2 Test Setup

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

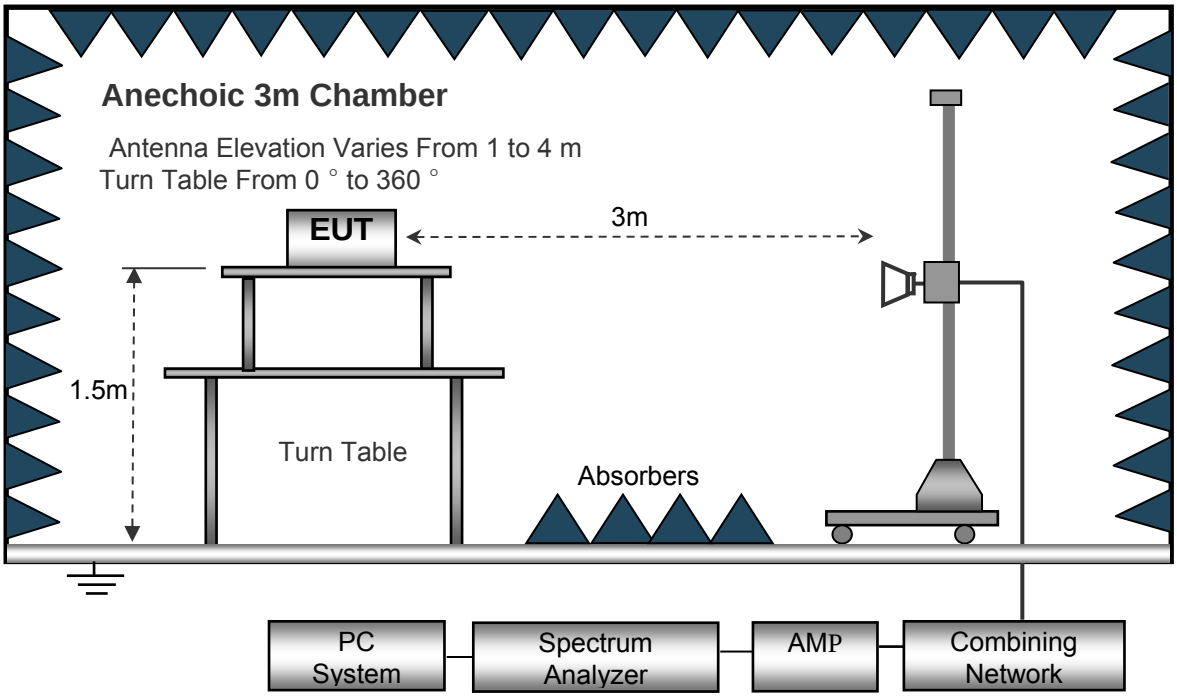
The test setup for emission measurement below 30MHz.



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									
223.45	41.05	QP	346	1.8	H	-11.62	29.43	46.00	-16.57
223.45	36.26	QP	135	1.1	V	-11.62	24.64	46.00	-21.36
4824.00	50.44	PK	294	1.2	V	-1.06	49.38	74.00	-24.62
4824.00	46.32	Ave	294	1.2	V	-1.06	45.26	54.00	-8.74
7236.00	41.08	PK	160	1.2	H	1.33	42.41	74.00	-31.59
7236.00	41.96	Ave	160	1.2	H	1.33	43.29	54.00	-10.71
2311.93	45.85	PK	239	1.2	V	-13.19	32.66	74.00	-41.34
2311.93	38.81	Ave	239	1.2	V	-13.19	25.62	54.00	-28.38
2370.08	42.78	PK	352	1.9	H	-13.14	29.64	74.00	-44.36
2370.08	37.98	Ave	352	1.9	H	-13.14	24.84	54.00	-29.16
2493.86	44.29	PK	335	1.8	V	-13.08	31.21	74.00	-42.79
2493.86	38.07	Ave	335	1.8	V	-13.08	24.99	54.00	-29.01

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									
223.45	41.58	QP	32	1.9	H	-11.62	29.96	46.00	-16.04
223.45	36.09	QP	143	1.3	V	-11.62	24.47	46.00	-21.53
4874.00	50.54	PK	178	1.6	V	-0.62	49.92	74.00	-24.08
4874.00	46.53	Ave	178	1.6	V	-0.62	45.91	54.00	-8.09
7311.00	42.45	PK	13	1.8	H	2.21	44.66	74.00	-29.34
7311.00	40.78	Ave	13	1.8	H	2.21	42.99	54.00	-11.01
2321.86	46.77	PK	107	1.3	V	-13.19	33.58	74.00	-40.42
2321.86	39.07	Ave	107	1.3	V	-13.19	25.88	54.00	-28.12
2369.92	42.81	PK	320	1.2	H	-13.14	29.67	74.00	-44.33
2369.92	38.56	Ave	320	1.2	H	-13.14	25.42	54.00	-28.58
2499.25	43.07	PK	12	1.8	V	-13.08	29.99	74.00	-44.01
2499.25	37.07	Ave	12	1.8	V	-13.08	23.99	54.00	-30.01

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									
223.45	40.55	QP	355	1.8	H	-11.62	28.93	46.00	-17.07
223.45	36.79	QP	347	1.2	V	-11.62	25.17	46.00	-20.83
4924.00	50.85	PK	98	1.6	V	-0.24	50.61	74.00	-23.39
4924.00	46.25	Ave	98	1.6	V	-0.24	46.01	54.00	-7.99
7386.00	43.93	PK	240	1.5	H	2.84	46.77	74.00	-27.23
7386.00	39.96	Ave	240	1.5	H	2.84	42.80	54.00	-11.20
2338.54	46.69	PK	344	1.8	V	-13.19	33.50	74.00	-40.50
2338.54	38.99	Ave	344	1.8	V	-13.19	25.80	54.00	-28.20
2373.24	43.25	PK	35	1.8	H	-13.14	30.11	74.00	-43.89
2373.24	38.78	Ave	35	1.8	H	-13.14	25.64	54.00	-28.36
2498.47	44.35	PK	168	1.1	V	-13.08	31.27	74.00	-42.73
2498.47	38.51	Ave	168	1.1	V	-13.08	25.43	54.00	-28.57

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: Low Channel 2412MHz									
223.45	40.94	QP	110	1.5	H	-11.62	29.32	46.00	-16.68
223.45	35.96	QP	284	1.1	V	-11.62	24.34	46.00	-21.66
4824.00	51.80	PK	310	1.9	V	-1.06	50.74	74.00	-23.26
4824.00	44.99	Ave	310	1.9	V	-1.06	43.93	54.00	-10.07
7236.00	42.62	PK	22	1.8	H	1.33	43.95	74.00	-30.05
7236.00	38.77	Ave	22	1.8	H	1.33	40.10	54.00	-13.90
2323.97	46.94	PK	122	1.9	V	-13.19	33.75	74.00	-40.25
2323.97	39.54	Ave	122	1.9	V	-13.19	26.35	54.00	-27.65
2366.73	42.74	PK	296	1.2	H	-13.14	29.60	74.00	-44.40
2366.73	36.28	Ave	296	1.2	H	-13.14	23.14	54.00	-30.86
2493.83	44.74	PK	305	1.9	V	-13.08	31.66	74.00	-42.34
2493.83	37.73	Ave	305	1.9	V	-13.08	24.65	54.00	-29.35

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									
223.45	41.60	QP	59	1.4	H	-11.62	29.98	46.00	-16.02
223.45	36.51	QP	110	1.3	V	-11.62	24.89	46.00	-21.11
4874.00	50.35	PK	75	1.6	V	-0.62	49.73	74.00	-24.27
4874.00	45.52	Ave	75	1.6	V	-0.62	44.90	54.00	-9.10
7311.00	42.43	PK	158	1.2	H	2.21	44.64	74.00	-29.36
7311.00	37.60	Ave	158	1.2	H	2.21	39.81	54.00	-14.19
2336.23	45.33	PK	137	1.9	V	-13.19	32.14	74.00	-41.86
2336.23	39.73	Ave	137	1.9	V	-13.19	26.54	54.00	-27.46
2382.26	43.44	PK	111	1.3	H	-13.14	30.30	74.00	-43.70
2382.26	37.57	Ave	111	1.3	H	-13.14	24.43	54.00	-29.57
2489.66	43.82	PK	44	1.4	V	-13.08	30.74	74.00	-43.26
2489.66	36.64	Ave	44	1.4	V	-13.08	23.56	54.00	-30.44

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									
223.45	42.40	QP	7	1.3	H	-11.62	30.78	46.00	-15.22
223.45	37.58	QP	130	1.8	V	-11.62	25.96	46.00	-20.04
4924.00	48.91	PK	305	1.1	V	-0.24	48.67	74.00	-25.33
4924.00	44.53	Ave	305	1.1	V	-0.24	44.29	54.00	-9.71
7386.00	41.69	PK	199	1.4	H	2.84	44.53	74.00	-29.47
7386.00	36.43	Ave	199	1.4	H	2.84	39.27	54.00	-14.73
2333.06	45.46	PK	131	1.4	V	-13.19	32.27	74.00	-41.73
2333.06	37.23	Ave	131	1.4	V	-13.19	24.04	54.00	-29.96
2376.30	43.42	PK	299	1.5	H	-13.14	30.28	74.00	-43.72
2376.30	37.47	Ave	299	1.5	H	-13.14	24.33	54.00	-29.67
2484.03	43.65	PK	160	1.2	V	-13.08	30.57	74.00	-43.43
2484.03	38.85	Ave	160	1.2	V	-13.08	25.77	54.00	-28.23

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									
223.45	41.19	QP	235	1.8	H	-11.62	29.57	46.00	-16.43
223.45	38.89	QP	41	1.2	V	-11.62	27.27	46.00	-18.73
4824.00	48.84	PK	253	2.0	V	-1.06	47.78	74.00	-26.22
4824.00	44.73	Ave	253	2.0	V	-1.06	43.67	54.00	-10.33
7236.00	42.98	PK	260	1.5	H	1.33	44.31	74.00	-29.69
7236.00	36.65	Ave	260	1.5	H	1.33	37.98	54.00	-16.02
2312.18	45.62	PK	93	2.0	V	-13.19	32.43	74.00	-41.57
2312.18	39.16	Ave	93	2.0	V	-13.19	25.97	54.00	-28.03
2376.44	42.87	PK	185	1.1	H	-13.14	29.73	74.00	-44.27
2376.44	37.80	Ave	185	1.1	H	-13.14	24.66	54.00	-29.34
2494.57	43.00	PK	276	1.1	V	-13.08	29.92	74.00	-44.08
2494.57	37.32	Ave	276	1.1	V	-13.08	24.24	54.00	-29.76

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									
223.45	42.49	QP	69	1.5	H	-11.62	30.87	46.00	-15.13
223.45	38.02	QP	42	1.3	V	-11.62	26.40	46.00	-19.60
4874.00	49.39	PK	109	1.1	V	-0.62	48.77	74.00	-25.23
4874.00	45.22	Ave	109	1.1	V	-0.62	44.60	54.00	-9.40
7311.00	42.65	PK	359	1.5	H	2.21	44.86	74.00	-29.14
7311.00	37.79	Ave	359	1.5	H	2.21	40.00	54.00	-14.00
2340.07	45.12	PK	23	1.7	V	-13.19	31.93	74.00	-42.07
2340.07	37.91	Ave	23	1.7	V	-13.19	24.72	54.00	-29.28
2355.20	44.18	PK	96	1.9	H	-13.14	31.04	74.00	-42.96
2355.20	37.86	Ave	96	1.9	H	-13.14	24.72	54.00	-29.28
2497.35	44.70	PK	109	1.6	V	-13.08	31.62	74.00	-42.38
2497.35	36.73	Ave	109	1.6	V	-13.08	23.65	54.00	-30.35

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									
223.45	43.10	QP	258	1.2	H	-11.62	31.48	46.00	-14.52
223.45	37.02	QP	39	1.8	V	-11.62	25.40	46.00	-20.60
4924.00	50.70	PK	66	1.7	V	-0.24	50.46	74.00	-23.54
4924.00	44.85	Ave	66	1.7	V	-0.24	44.61	54.00	-9.39
7386.00	43.20	PK	158	1.1	H	2.84	46.04	74.00	-27.96
7386.00	38.68	Ave	158	1.1	H	2.84	41.52	54.00	-12.48
2344.10	45.32	PK	92	1.4	V	-13.19	32.13	74.00	-41.87
2344.10	39.31	Ave	92	1.4	V	-13.19	26.12	54.00	-27.88
2374.27	42.18	PK	128	1.7	H	-13.14	29.04	74.00	-44.96
2374.27	38.71	Ave	128	1.7	H	-13.14	25.57	54.00	-28.43
2498.40	42.65	PK	168	2.0	V	-13.08	29.57	74.00	-44.43
2498.40	36.86	Ave	168	2.0	V	-13.08	23.78	54.00	-30.22

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									
245.96	40.23	QP	257	1.9	H	-11.62	28.61	46.00	-17.39
245.96	34.28	QP	85	1.5	V	-11.62	22.66	46.00	-23.34
4824.00	49.07	PK	240	1.8	V	-1.06	48.01	74.00	-25.99
4824.00	44.16	Ave	240	1.8	V	-1.06	43.10	54.00	-10.90
7236.00	42.14	PK	31	1.5	H	1.33	43.47	74.00	-30.53
7236.00	37.61	Ave	31	1.5	H	1.33	38.94	54.00	-15.06
2341.89	45.61	PK	357	1.8	V	-13.19	32.42	74.00	-41.58
2341.89	38.98	Ave	357	1.8	V	-13.19	25.79	54.00	-28.21
2380.07	42.44	PK	43	1.3	H	-13.14	29.30	74.00	-44.70
2380.07	36.97	Ave	43	1.3	H	-13.14	23.83	54.00	-30.17
2488.13	42.21	PK	124	2.0	V	-13.08	29.13	74.00	-44.87
2488.13	38.28	Ave	124	2.0	V	-13.08	25.20	54.00	-28.80

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									
245.96	41.27	QP	213	1.8	H	-11.62	29.65	46.00	-16.35
245.96	34.44	QP	30	1.5	V	-11.62	22.82	46.00	-23.18
4874.00	50.05	PK	131	1.2	V	-0.62	49.43	74.00	-24.57
4874.00	43.75	Ave	131	1.2	V	-0.62	43.13	54.00	-10.87
7311.00	42.42	PK	90	1.5	H	2.21	44.63	74.00	-29.37
7311.00	37.71	Ave	90	1.5	H	2.21	39.92	54.00	-14.08
2341.14	45.49	PK	245	1.6	V	-13.19	32.30	74.00	-41.70
2341.14	38.67	Ave	245	1.6	V	-13.19	25.48	54.00	-28.52
2360.06	44.85	PK	196	1.5	H	-13.14	31.71	74.00	-42.29
2360.06	38.19	Ave	196	1.5	H	-13.14	25.05	54.00	-28.95
2499.43	44.63	PK	258	1.6	V	-13.08	31.55	74.00	-42.45
2499.43	38.14	Ave	258	1.6	V	-13.08	25.06	54.00	-28.94

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									
245.96	40.82	QP	185	1.1	H	-11.62	29.20	46.00	-16.80
245.96	35.64	QP	284	1.2	V	-11.62	24.02	46.00	-21.98
4924.00	50.23	PK	60	1.9	V	-0.24	49.99	74.00	-24.01
4924.00	45.00	Ave	60	1.9	V	-0.24	44.76	54.00	-9.24
7386.00	43.42	PK	31	1.3	H	2.84	46.26	74.00	-27.74
7386.00	37.91	Ave	31	1.3	H	2.84	40.75	54.00	-13.25
2344.22	46.68	PK	1	1.1	V	-13.19	33.49	74.00	-40.51
2344.22	38.12	Ave	1	1.1	V	-13.19	24.93	54.00	-29.07
2378.43	43.24	PK	68	1.4	H	-13.14	30.10	74.00	-43.90
2378.43	36.02	Ave	68	1.4	H	-13.14	22.88	54.00	-31.12
2491.79	44.75	PK	152	1.2	V	-13.08	31.67	74.00	-42.33
2491.79	38.05	Ave	152	1.2	V	-13.08	24.97	54.00	-29.03

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)
11g: Low Channel 2412MHz									
245.96	39.59	QP	192	1.5	H	-11.62	27.97	46.00	-18.03
245.96	34.78	QP	11	1.1	V	-11.62	23.16	46.00	-22.84
4824.00	49.70	PK	158	1.2	V	-1.06	48.64	74.00	-25.36
4824.00	44.32	Ave	158	1.2	V	-1.06	43.26	54.00	-10.74
7236.00	44.72	PK	210	1.6	H	1.33	46.05	74.00	-27.95
7236.00	37.70	Ave	210	1.6	H	1.33	39.03	54.00	-14.97
2313.97	46.71	PK	168	1.1	V	-13.19	33.52	74.00	-40.48
2313.97	39.92	Ave	168	1.1	V	-13.19	26.73	54.00	-27.27
2362.37	42.36	PK	81	1.6	H	-13.14	29.22	74.00	-44.78
2362.37	36.56	Ave	81	1.6	H	-13.14	23.42	54.00	-30.58
2493.07	43.28	PK	41	1.5	V	-13.08	30.20	74.00	-43.80
2493.07	37.75	Ave	41	1.5	V	-13.08	24.67	54.00	-29.33

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									
245.96	38.96	QP	101	1.1	H	-11.62	27.34	46.00	-18.66
245.96	33.80	QP	212	1.9	V	-11.62	22.18	46.00	-23.82
4874.00	50.63	PK	116	1.3	V	-0.62	50.01	74.00	-23.99
4874.00	43.23	Ave	116	1.3	V	-0.62	42.61	54.00	-11.39
7311.00	45.60	PK	319	1.0	H	2.21	47.81	74.00	-26.19
7311.00	37.11	Ave	319	1.0	H	2.21	39.32	54.00	-14.68
2332.40	46.10	PK	307	1.1	V	-13.19	32.91	74.00	-41.09
2332.40	38.68	Ave	307	1.1	V	-13.19	25.49	54.00	-28.51
2361.64	42.51	PK	271	2.0	H	-13.14	29.37	74.00	-44.63
2361.64	38.22	Ave	271	2.0	H	-13.14	25.08	54.00	-28.92
2492.06	44.95	PK	89	1.8	V	-13.08	31.87	74.00	-42.13
2492.06	36.85	Ave	89	1.8	V	-13.08	23.77	54.00	-30.23

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									
245.96	37.96	QP	337	1.6	H	-11.62	26.34	46.00	-19.66
245.96	32.38	QP	322	1.1	V	-11.62	20.76	46.00	-25.24
4924.00	50.72	PK	126	1.5	V	-0.24	50.48	74.00	-23.52
4924.00	42.94	Ave	126	1.5	V	-0.24	42.70	54.00	-11.30
7386.00	46.89	PK	3	1.2	H	2.84	49.73	74.00	-24.27
7386.00	38.61	Ave	3	1.2	H	2.84	41.45	54.00	-12.55
2331.28	45.78	PK	314	1.4	V	-13.19	32.59	74.00	-41.41
2331.28	37.93	Ave	314	1.4	V	-13.19	24.74	54.00	-29.26
2351.03	44.67	PK	348	1.6	H	-13.14	31.53	74.00	-42.47
2351.03	36.43	Ave	348	1.6	H	-13.14	23.29	54.00	-30.71
2489.75	43.67	PK	270	1.5	V	-13.08	30.59	74.00	-43.41
2489.75	36.72	Ave	270	1.5	V	-13.08	23.64	54.00	-30.36

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)
n20: Low Channel 2412MHz									
245.96	38.35	QP	71	1.1	H	-11.62	26.73	46.00	-19.27
245.96	31.51	QP	96	1.1	V	-11.62	19.89	46.00	-26.11
4824.00	49.33	PK	204	1.5	V	-1.06	48.27	74.00	-25.73
4824.00	43.09	Ave	204	1.5	V	-1.06	42.03	54.00	-11.97
7236.00	46.94	PK	199	1.4	H	1.33	48.27	74.00	-25.73
7236.00	38.78	Ave	199	1.4	H	1.33	40.11	54.00	-13.89
2341.62	45.87	PK	85	1.6	V	-13.19	32.68	74.00	-41.32
2341.62	37.52	Ave	85	1.6	V	-13.19	24.33	54.00	-29.67
2359.70	43.85	PK	70	1.3	H	-13.14	30.71	74.00	-43.29
2359.70	36.27	Ave	70	1.3	H	-13.14	23.13	54.00	-30.87
2498.05	44.73	PK	313	1.2	V	-13.08	31.65	74.00	-42.35
2498.05	37.17	Ave	313	1.2	V	-13.08	24.09	54.00	-29.91

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									
245.96	39.33	QP	342	1.4	H	-11.62	27.71	46.00	-18.29
245.96	30.33	QP	265	1.5	V	-11.62	18.71	46.00	-27.29
4874.00	49.47	PK	15	1.8	V	-0.62	48.85	74.00	-25.15
4874.00	41.60	Ave	15	1.8	V	-0.62	40.98	54.00	-13.02
7311.00	46.68	PK	120	1.4	H	2.21	48.89	74.00	-25.11
7311.00	37.84	Ave	120	1.4	H	2.21	40.05	54.00	-13.95
2332.97	45.37	PK	316	1.9	V	-13.19	32.18	74.00	-41.82
2332.97	39.25	Ave	316	1.9	V	-13.19	26.06	54.00	-27.94
2358.65	44.31	PK	172	1.2	H	-13.14	31.17	74.00	-42.83
2358.65	37.47	Ave	172	1.2	H	-13.14	24.33	54.00	-29.67
2496.85	43.01	PK	273	1.9	V	-13.08	29.93	74.00	-44.07
2496.85	37.88	Ave	273	1.9	V	-13.08	24.80	54.00	-29.20

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									
245.96	39.68	QP	350	1.6	H	-11.62	28.06	46.00	-17.94
245.96	28.92	QP	93	2.0	V	-11.62	17.30	46.00	-28.70
4924.00	50.96	PK	3	1.6	V	-0.24	50.72	74.00	-23.28
4924.00	40.16	Ave	3	1.6	V	-0.24	39.92	54.00	-14.08
7386.00	45.95	PK	174	1.9	H	2.84	48.79	74.00	-25.21
7386.00	38.82	Ave	174	1.9	H	2.84	41.66	54.00	-12.34
2335.01	45.05	PK	73	1.5	V	-13.19	31.86	74.00	-42.14
2335.01	38.50	Ave	73	1.5	V	-13.19	25.31	54.00	-28.69
2368.77	42.84	PK	110	1.5	H	-13.14	29.70	74.00	-44.30
2368.77	37.07	Ave	110	1.5	H	-13.14	23.93	54.00	-30.07
2495.32	44.53	PK	26	1.3	V	-13.08	31.45	74.00	-42.55
2495.32	39.00	Ave	26	1.3	V	-13.08	25.92	54.00	-28.08

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

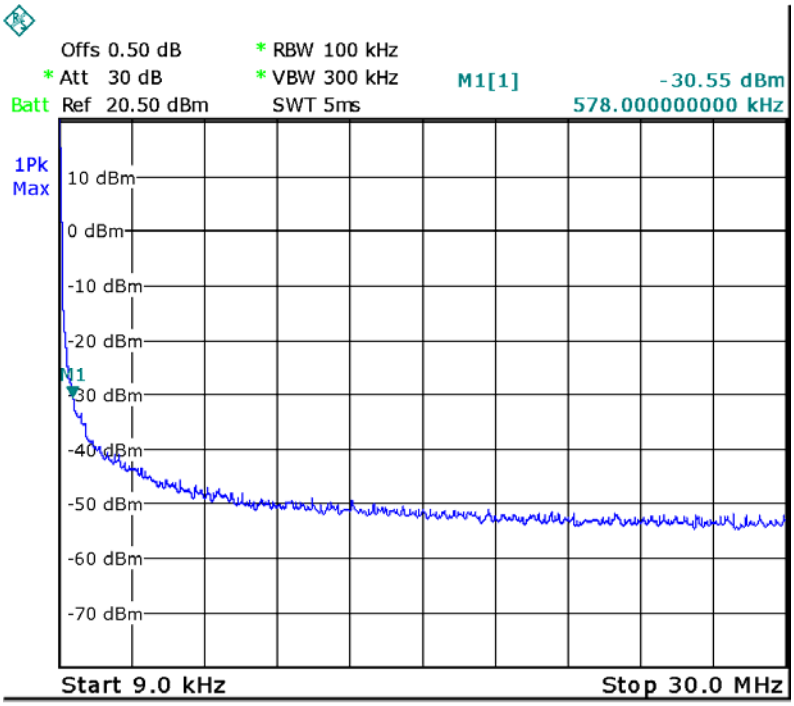
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:
   RBW = 100kHz, VBW = 300kHz, Sweep = auto
   Detector function = peak, Trace = max hold

9.2 Test Result

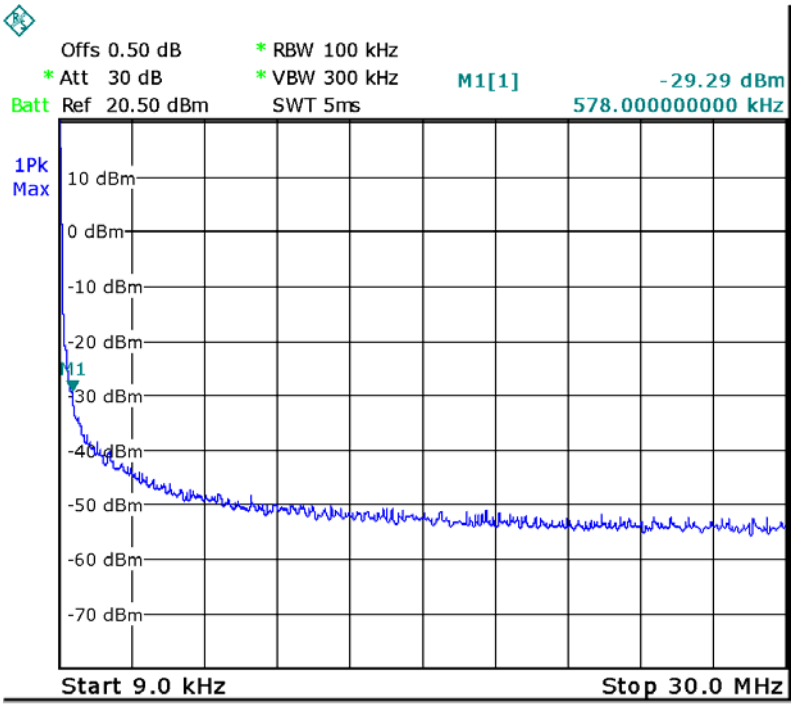
9 KHz – 30MHz

802.11b

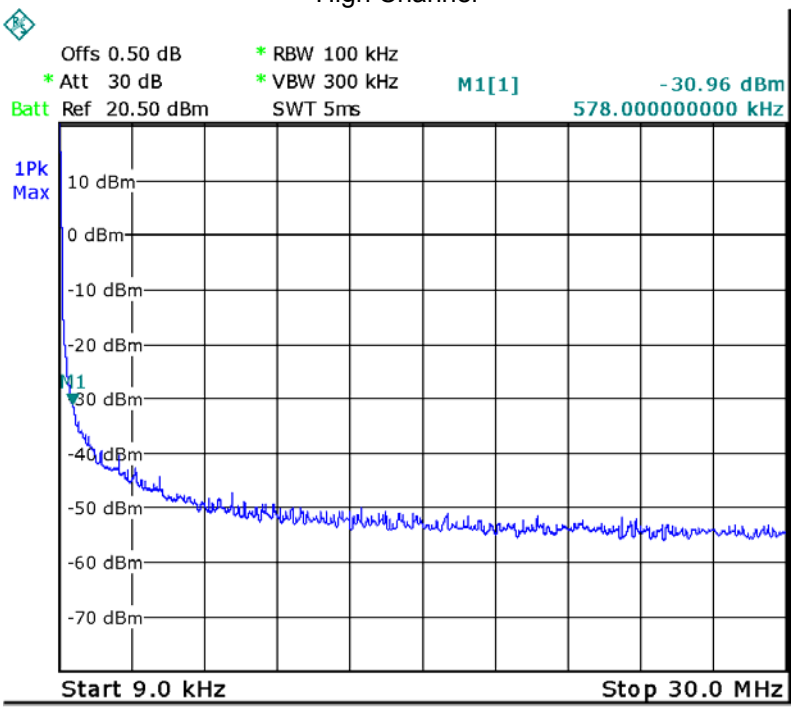
Low Channel



Middle Channel

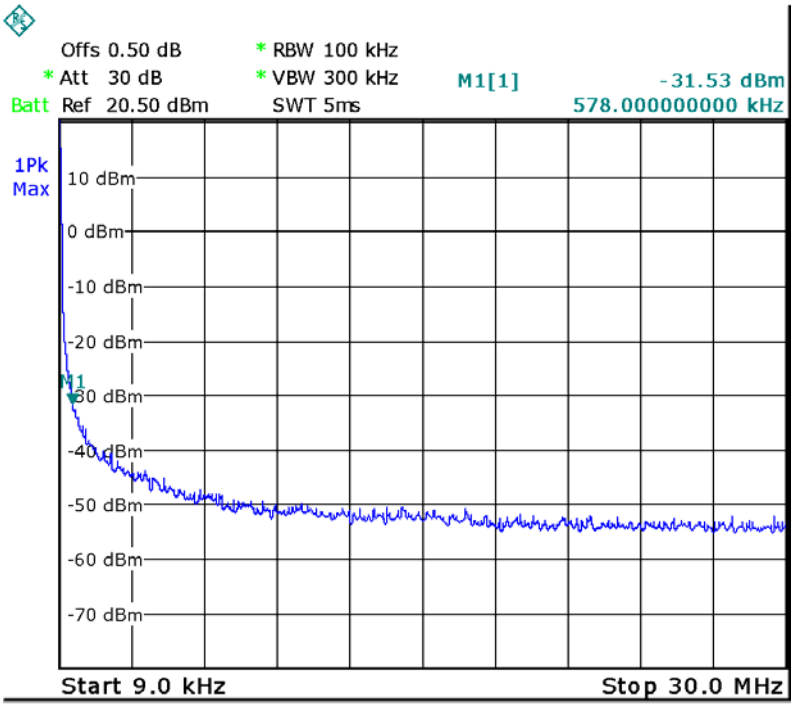


High Channel

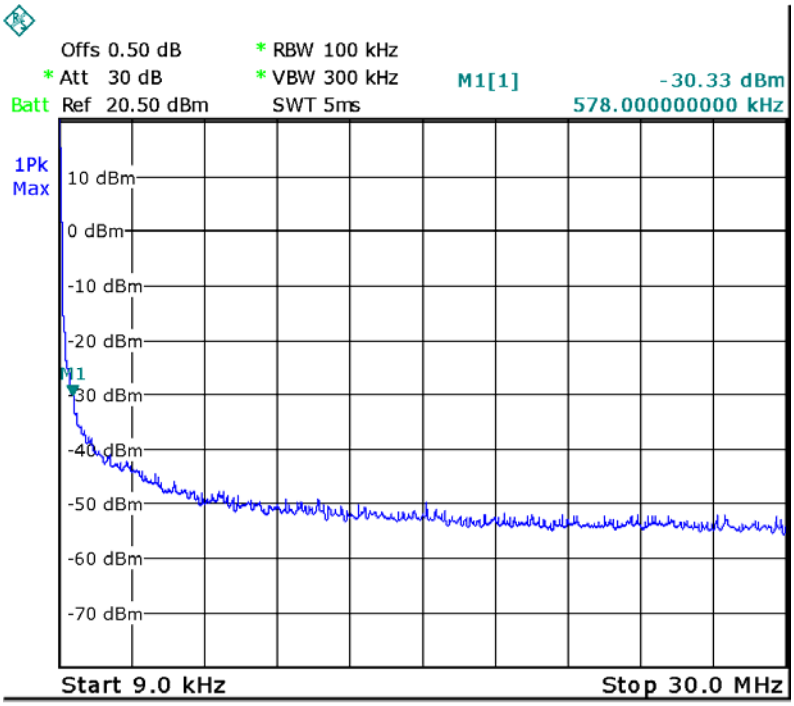


802.11g

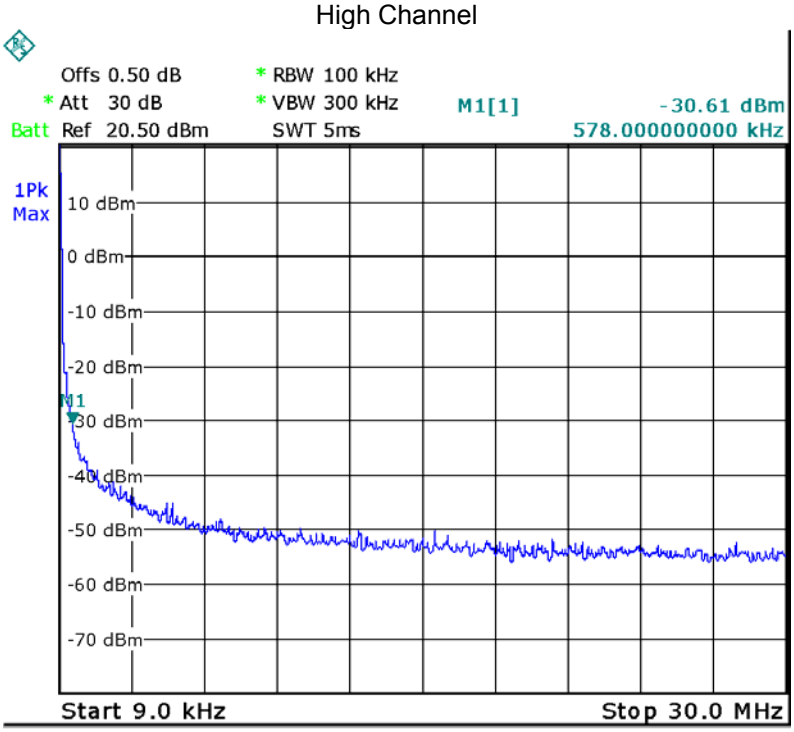
Low Channel



Middle Channel

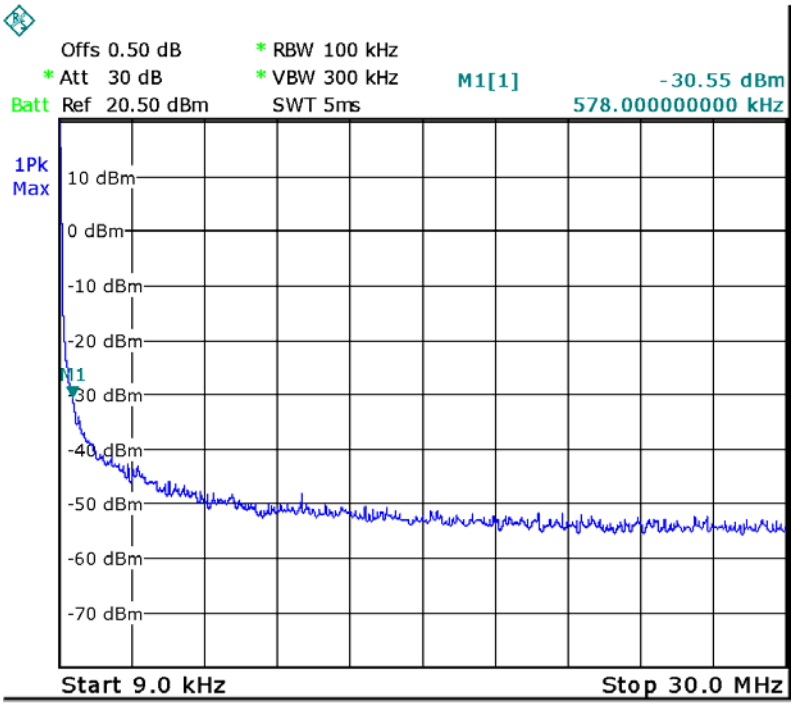


High Channel

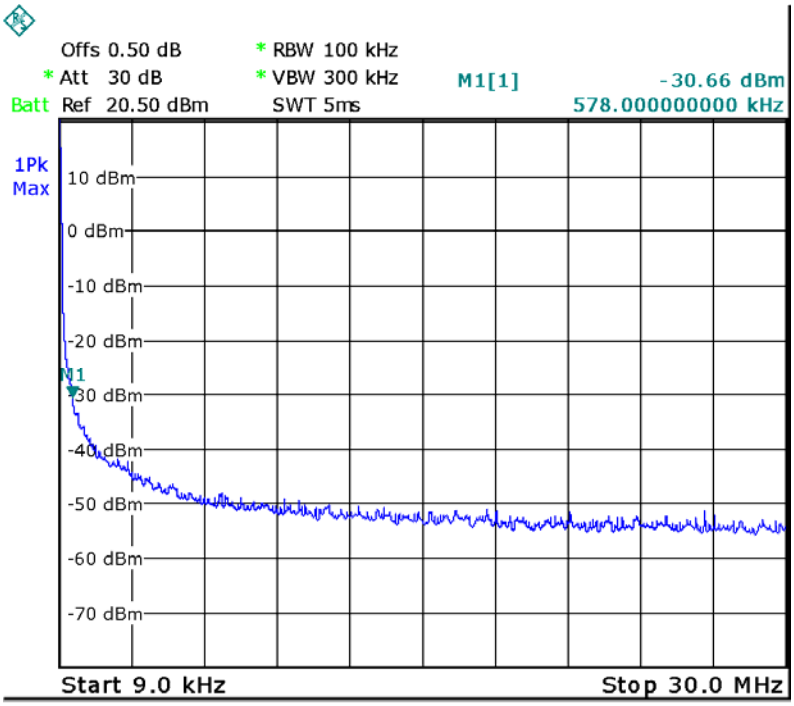


802.11n HT20

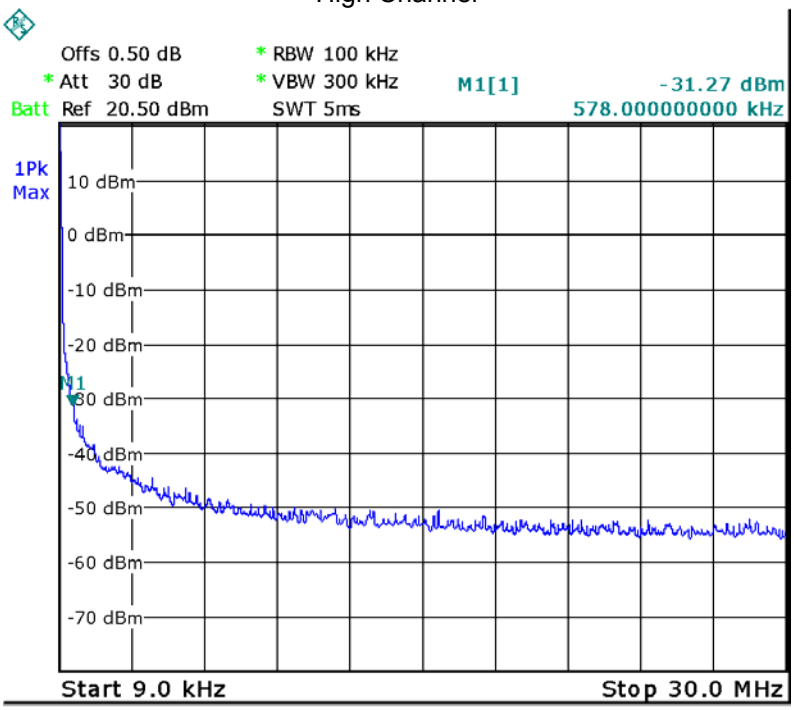
Low Channel



Middle Channel



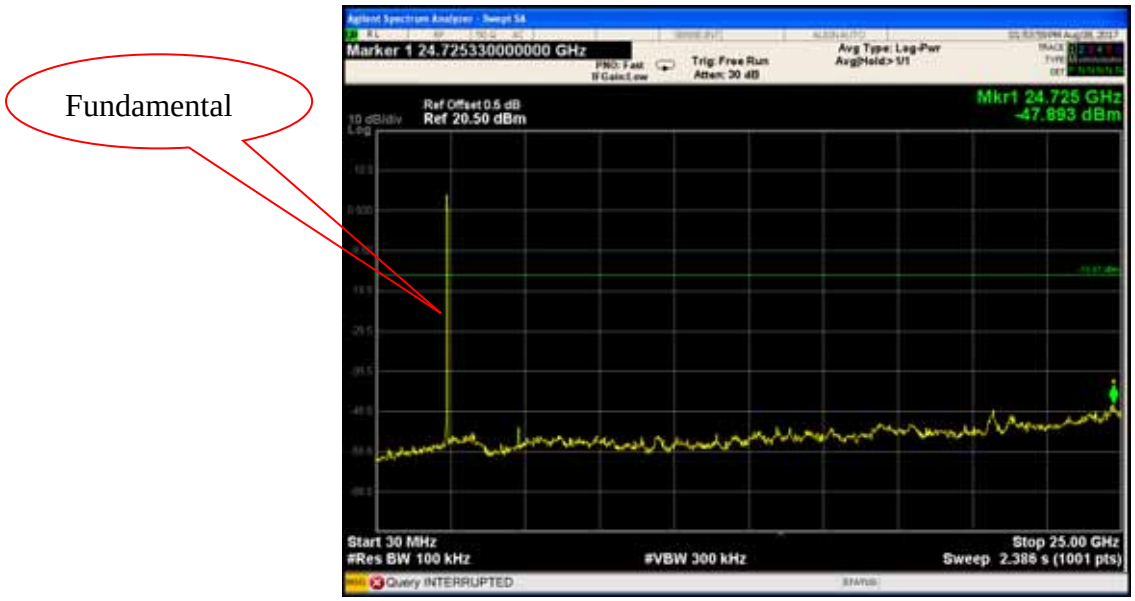
High Channel



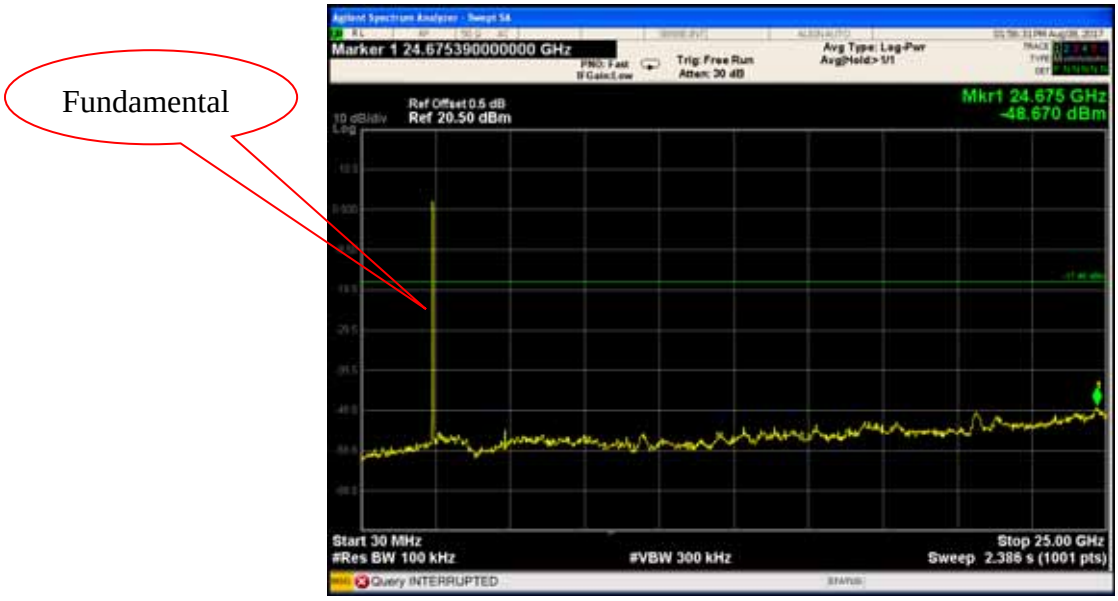
Above 30MHz

802.11b

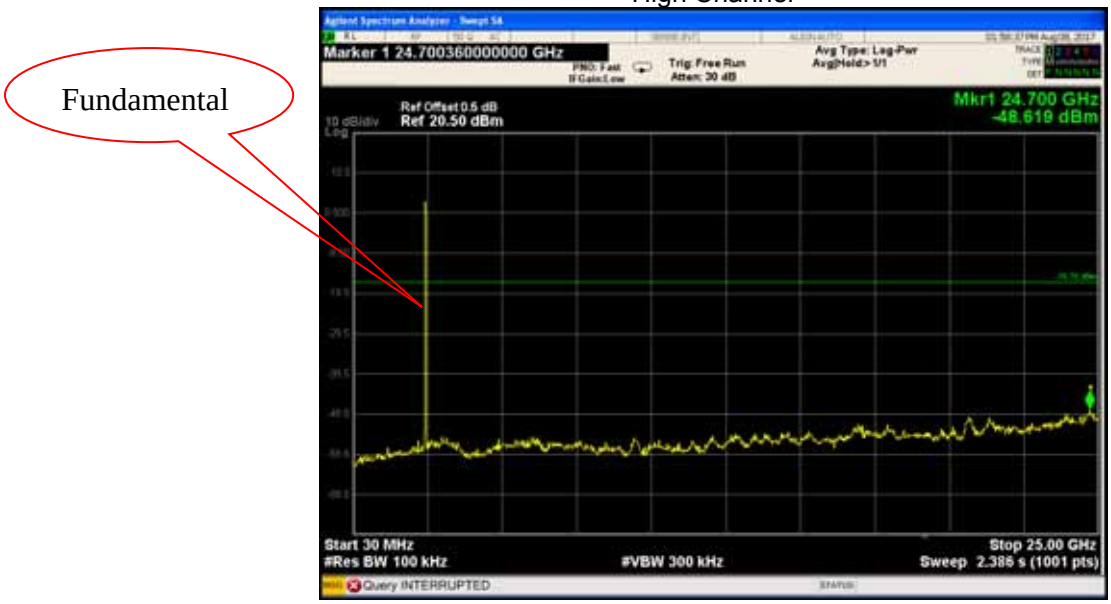
Low Channel



Middle Channel



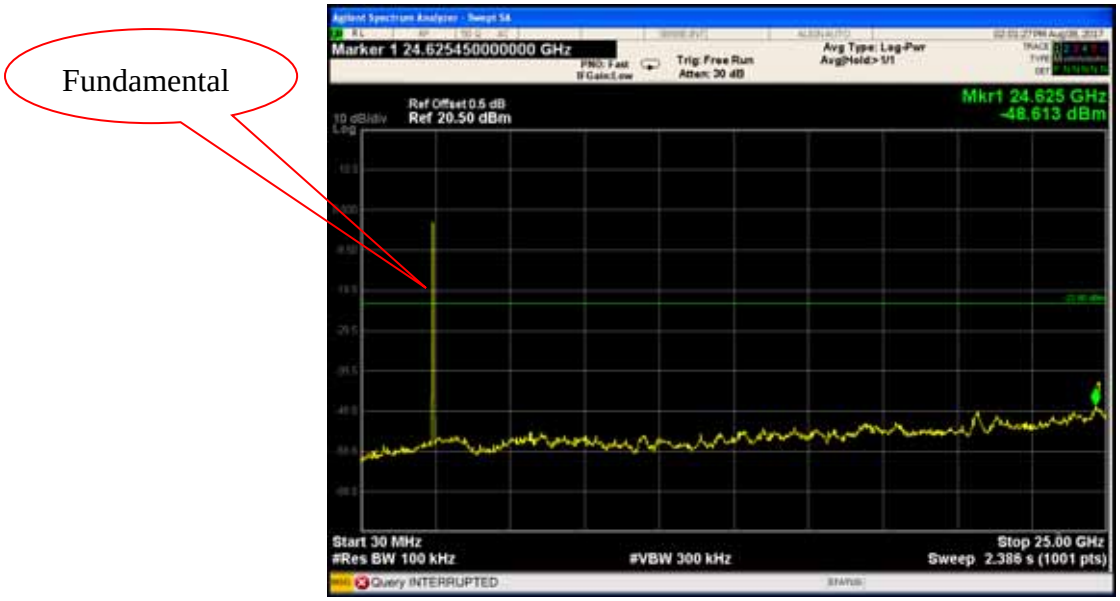
High Channel



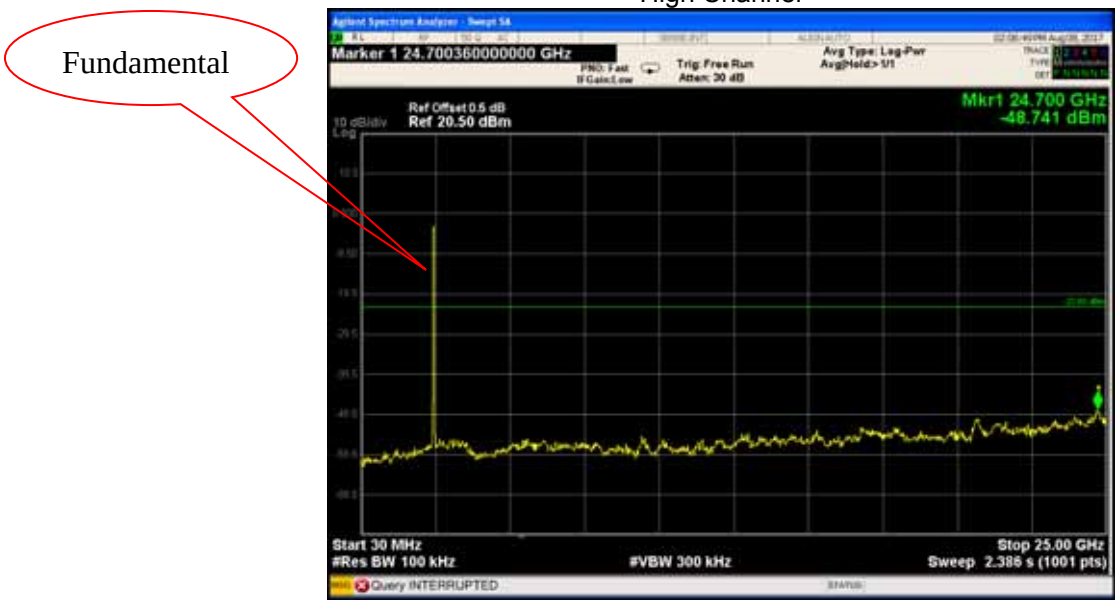
802.11g

Low Channel

Middle Channel



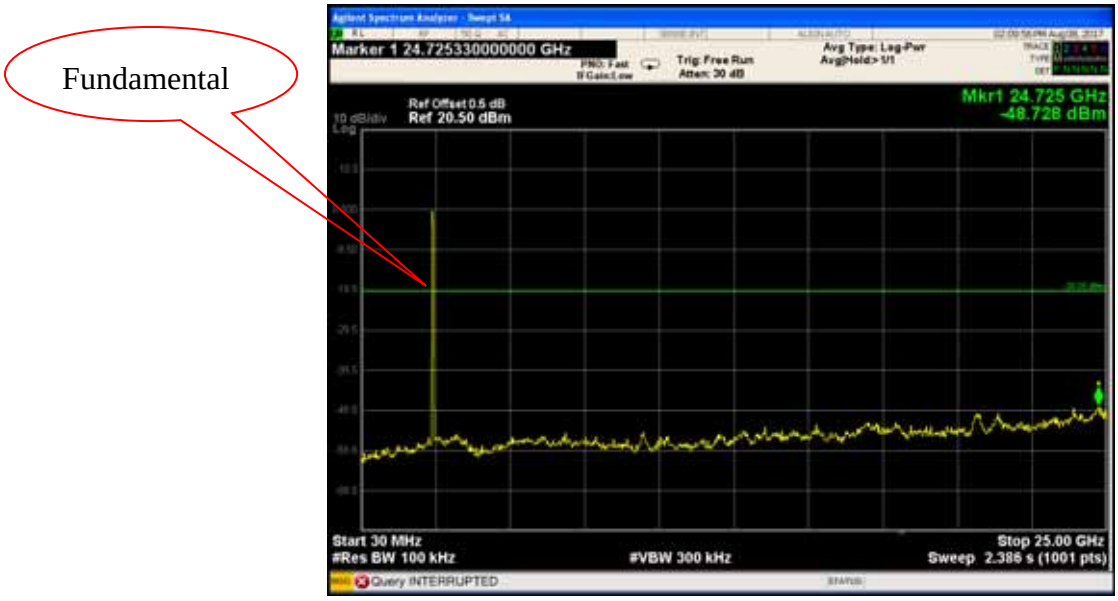
High Channel



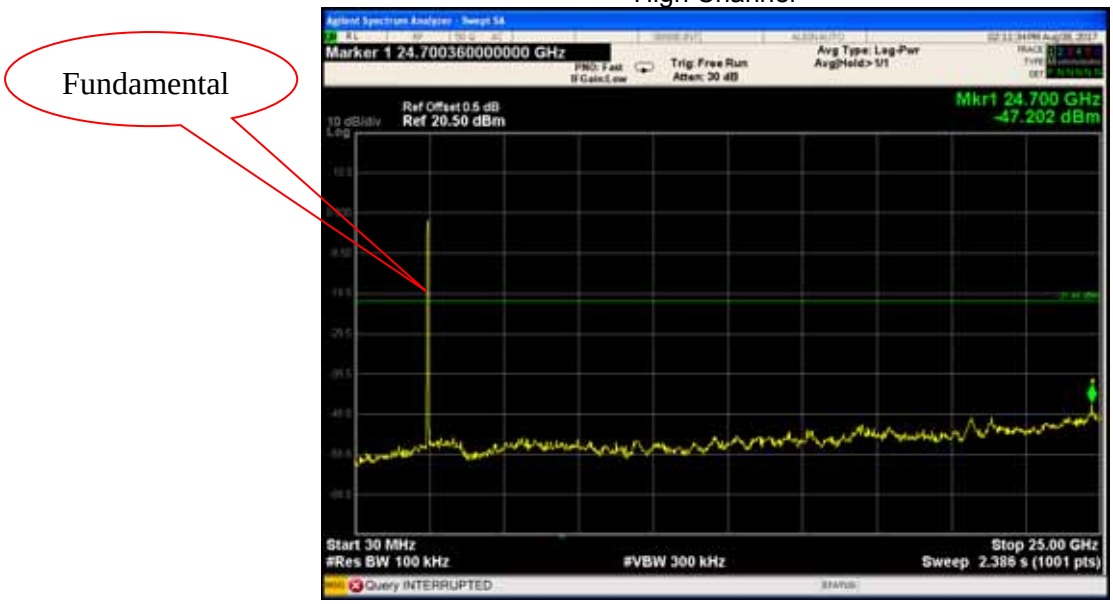
802.11n HT20

Low Channel

Middle Channel



High Channel



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

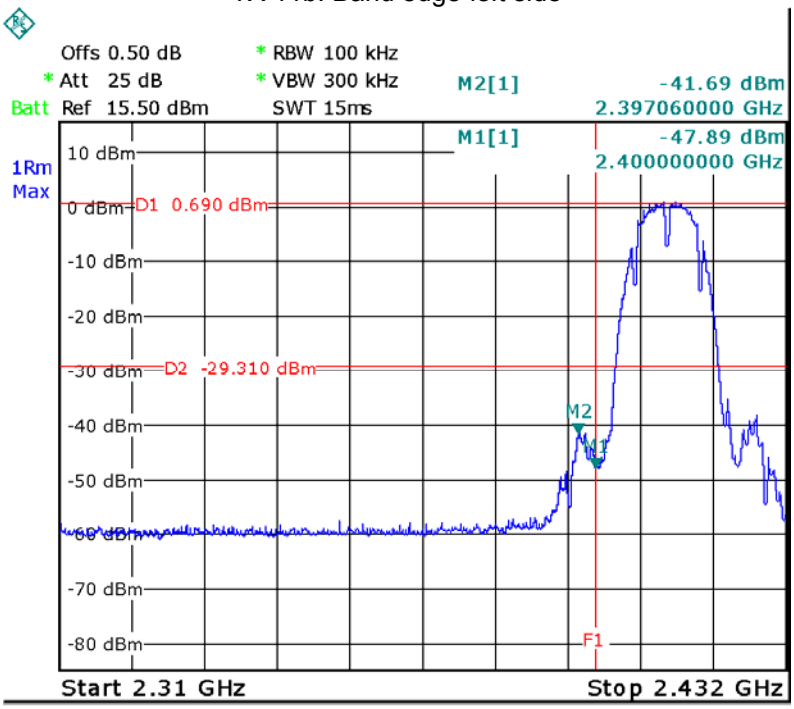
10.1 Test Produce

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.

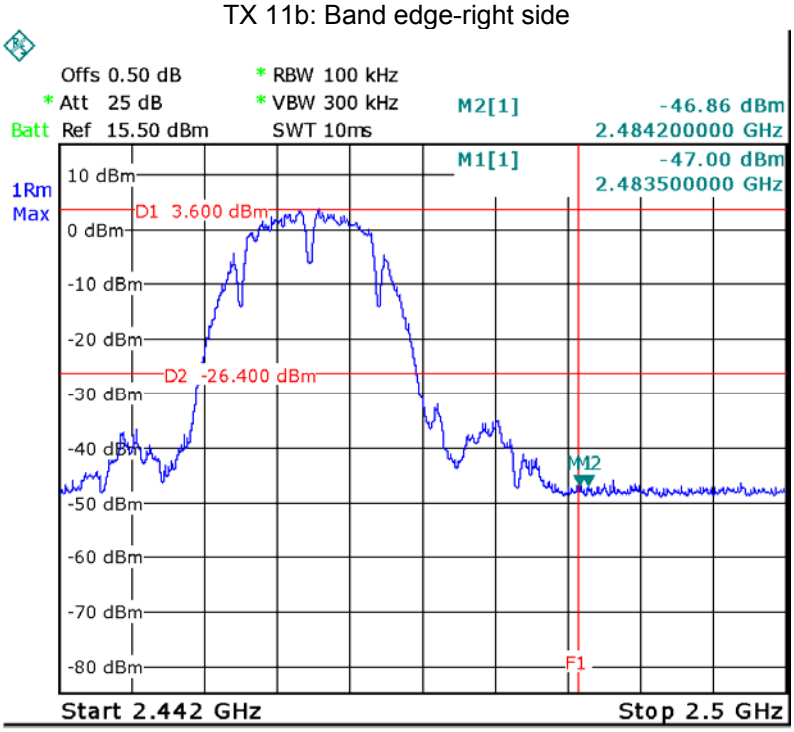
10.2 Test Result

Test result plots shown as follows:

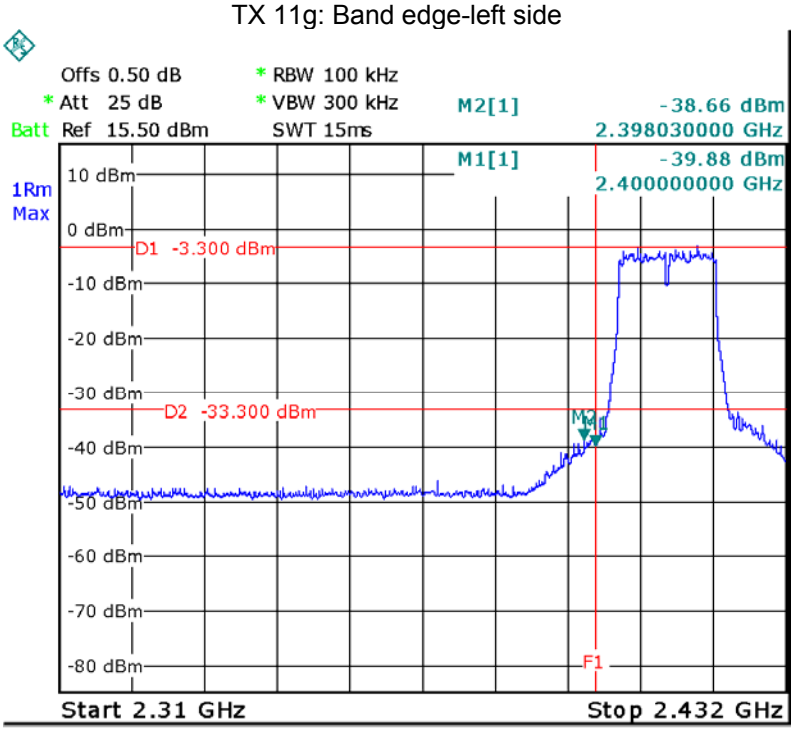
TX 11b: Band edge-left side



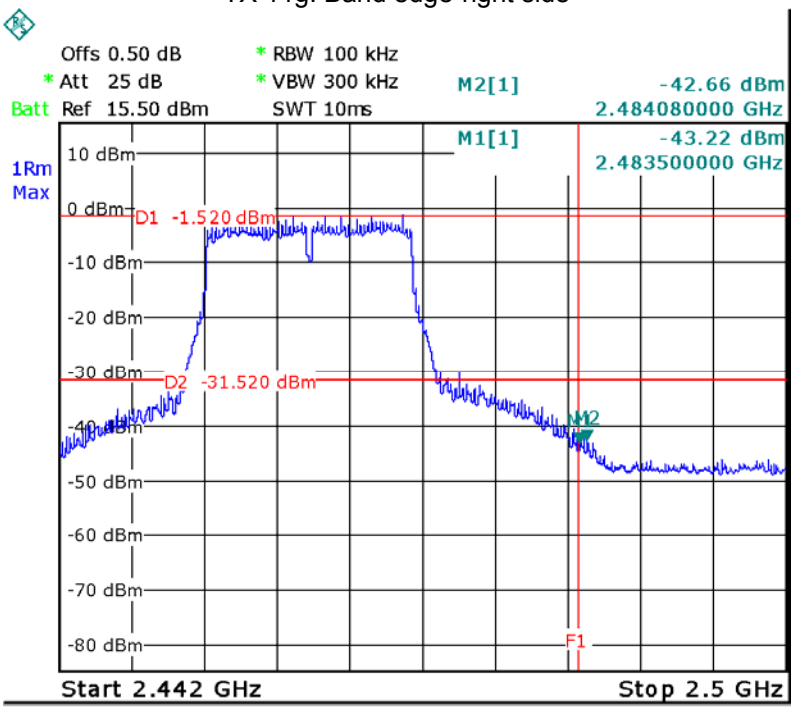
TX 11b: Band edge-right side



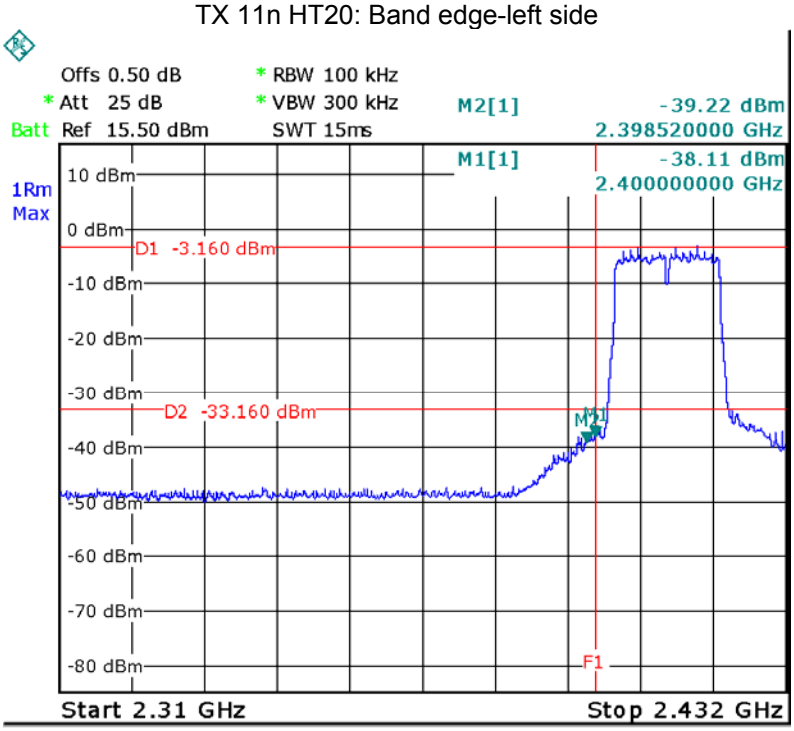
TX 11g: Band edge-left side



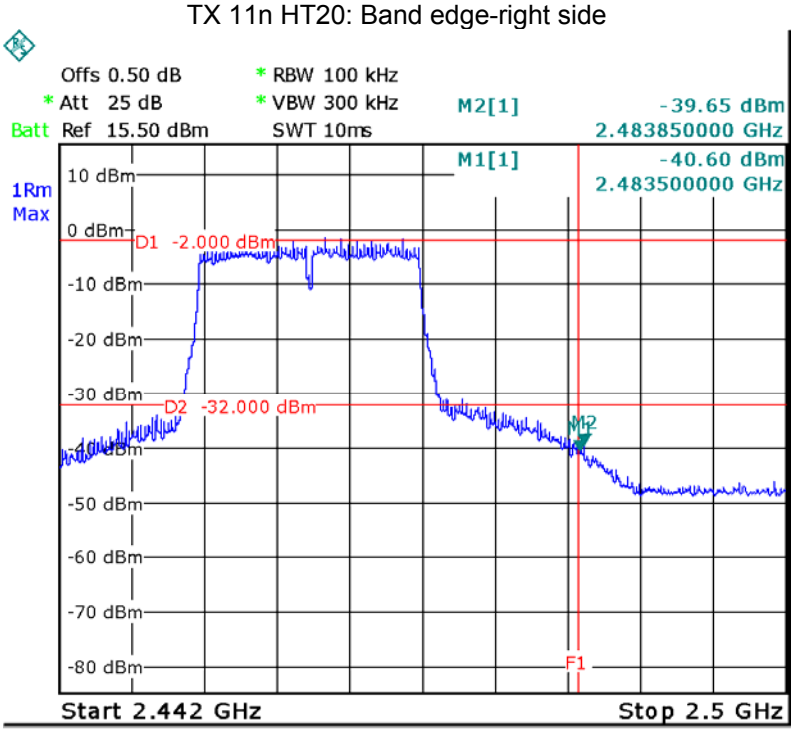
TX 11g: Band edge-right side



TX 11n HT20: Band edge-left side



TX 11n HT20: Band edge-right side



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;

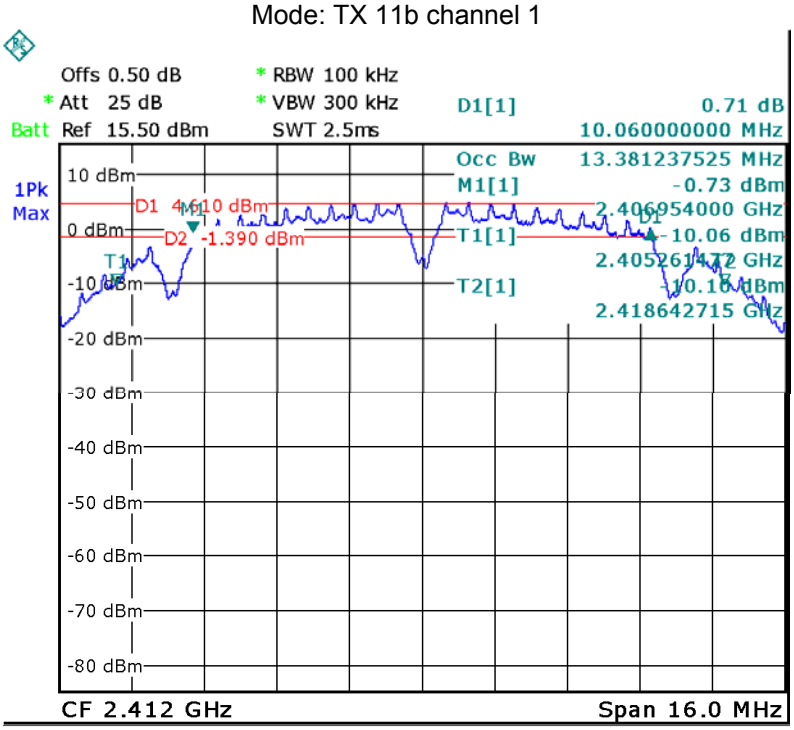
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

11.2 Test Result:

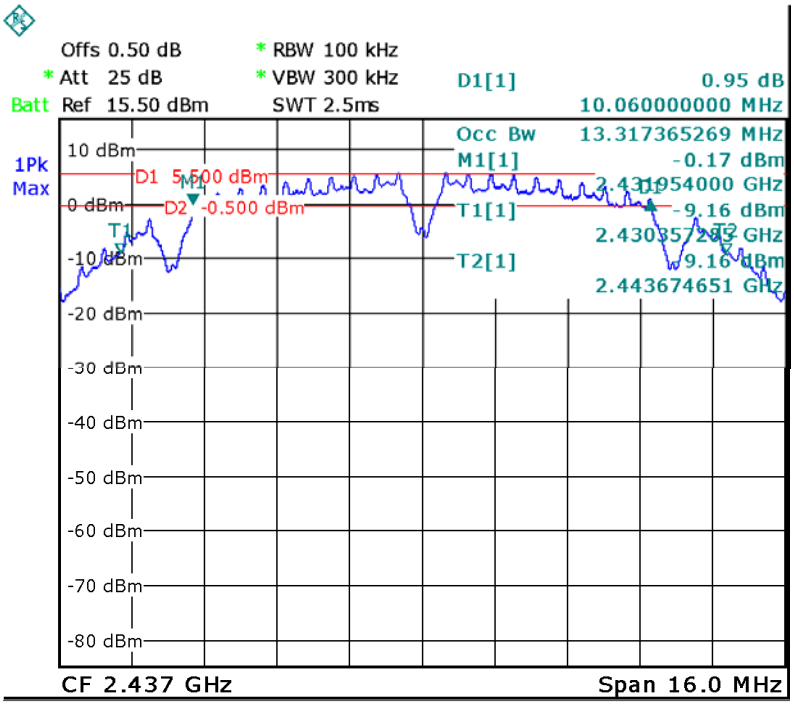
Operation mode	6dB Bandwidth (MHz)		
TX 11b	Channel 1	Channel 6	Channel 11
	10.060	10.060	10.060
TX 11g	Channel 1	Channel 6	Channel 11
	16.467	16.467	16.467
TX 11n HT20	Channel 1	Channel 6	Channel 11
	17.677	17.677	17.677

Test result plot as follows:

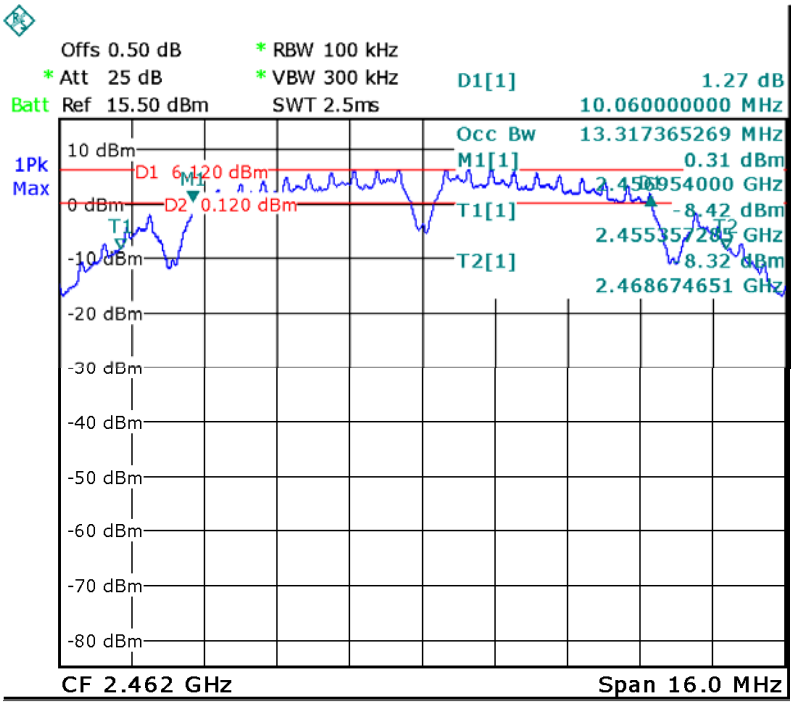
Mode: TX 11b channel 1



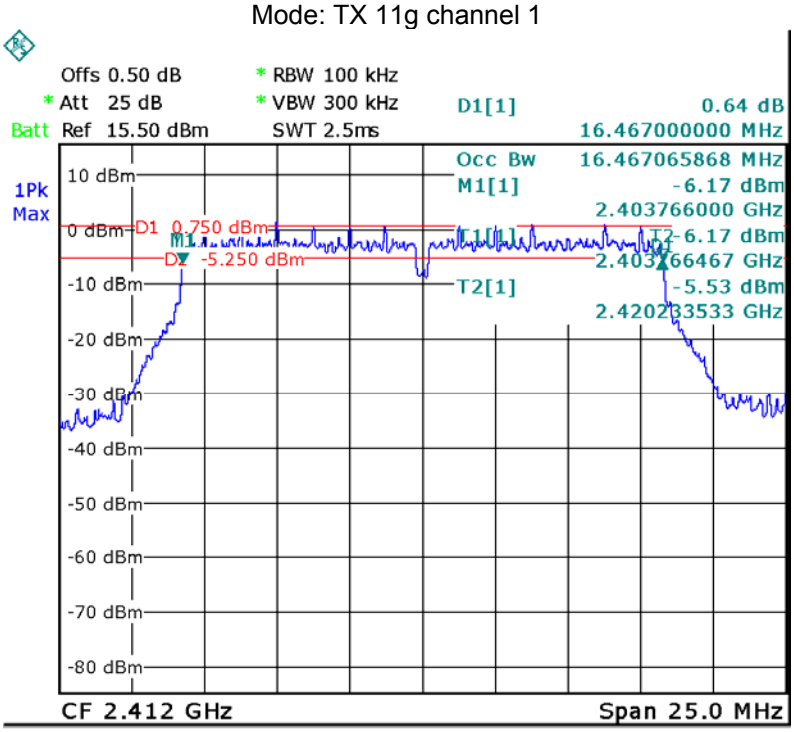
Mode: TX 11b channel 6



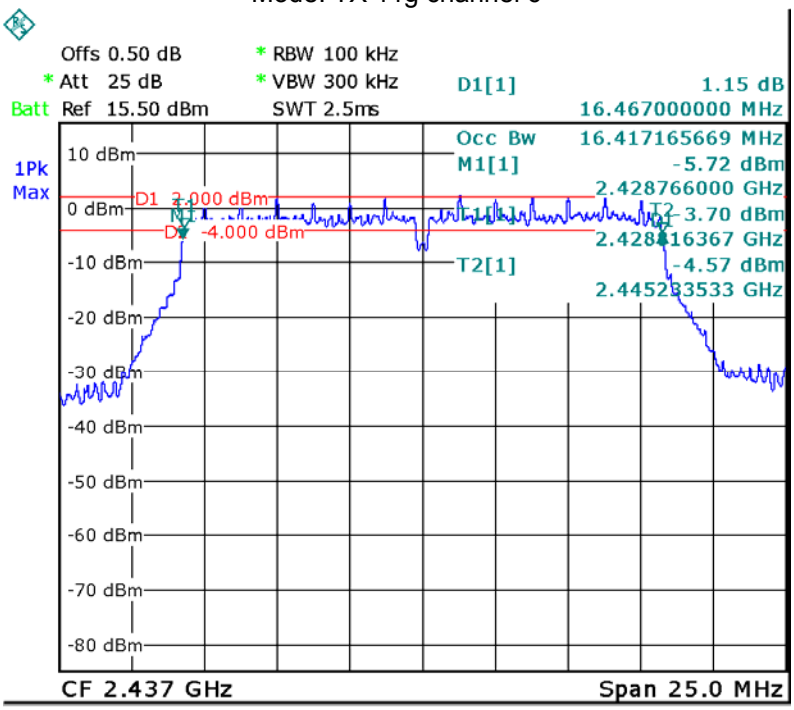
Mode: TX 11b channel 11



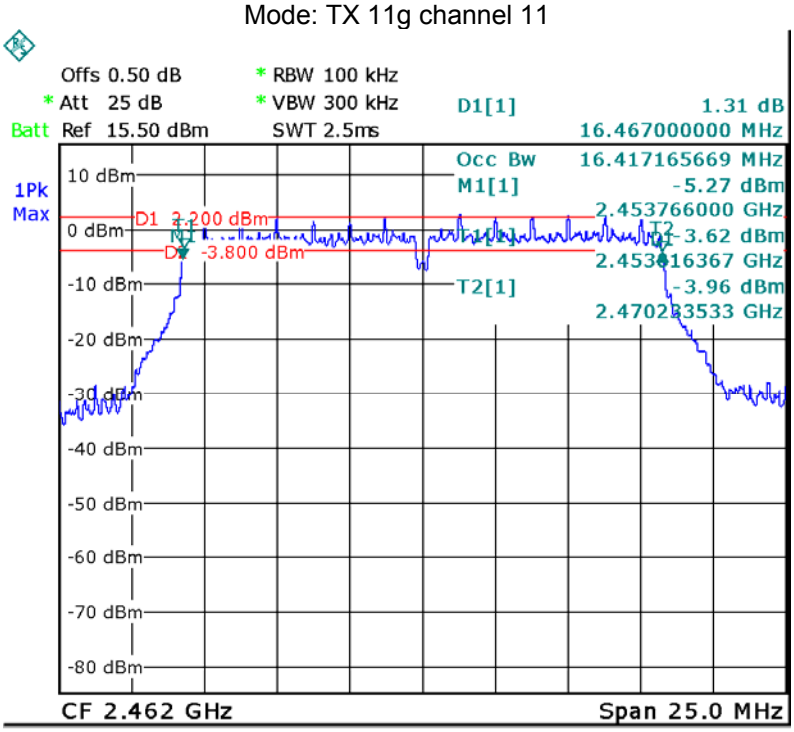
Mode: TX 11g channel 1



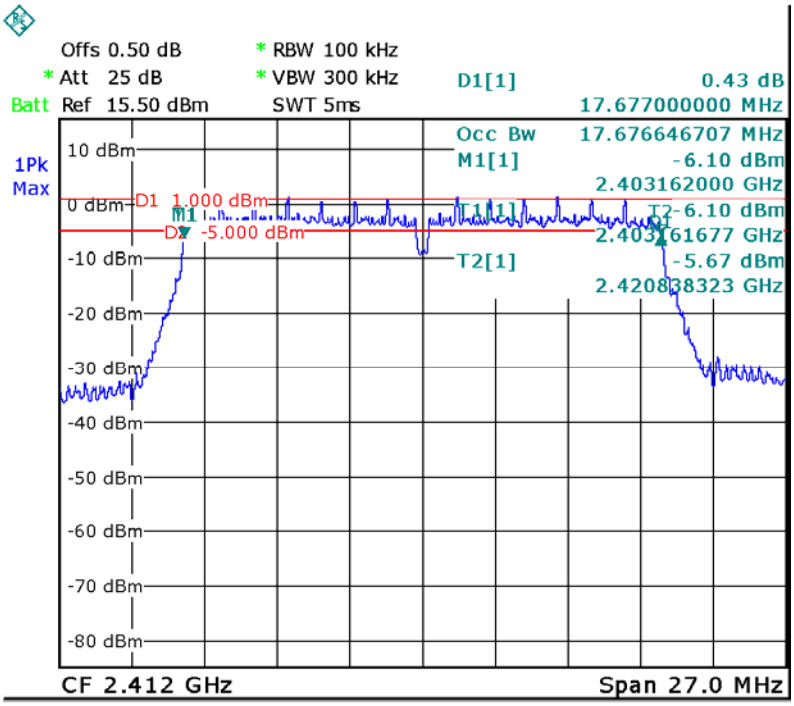
Mode: TX 11g channel 6



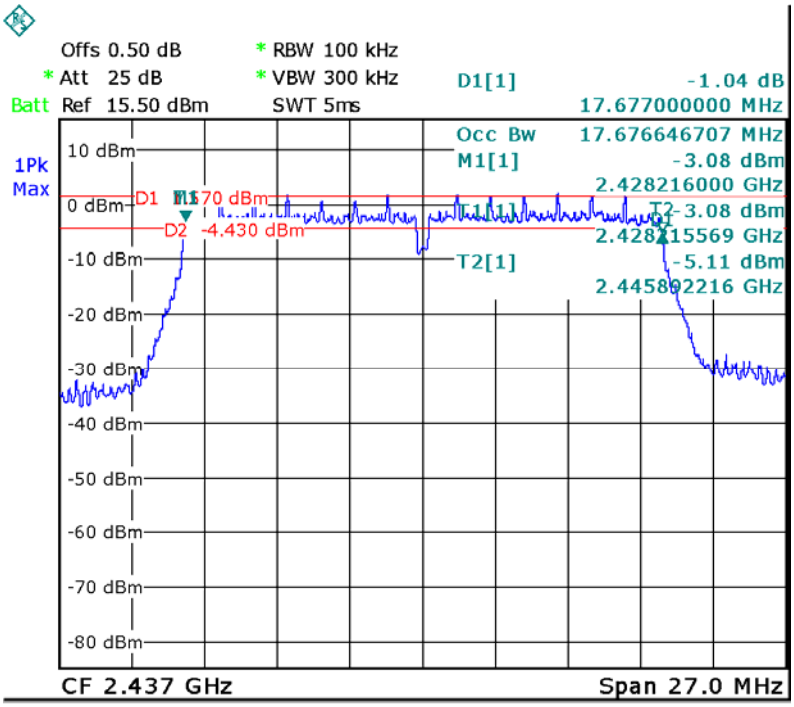
Mode: TX 11g channel 11



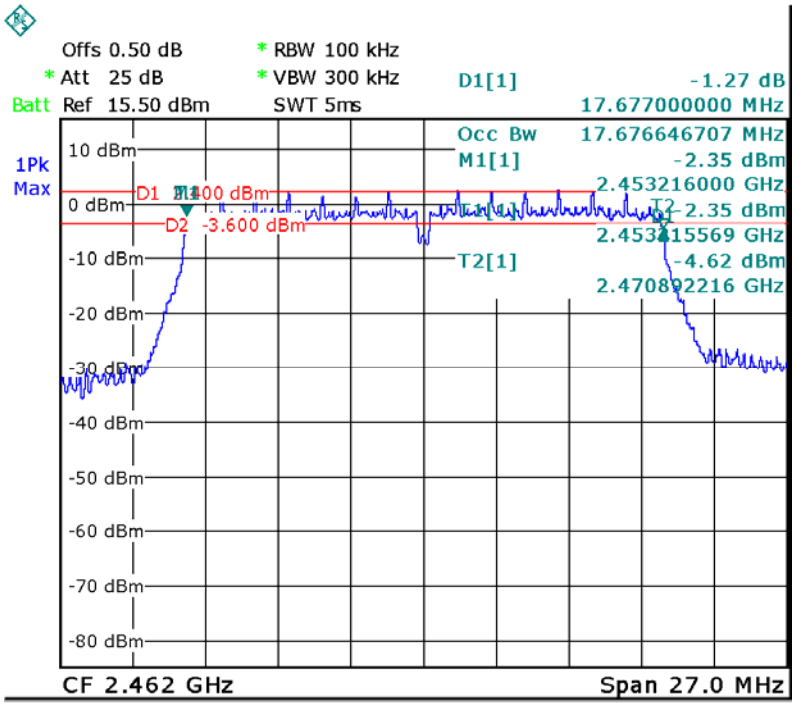
Mode: TX 11n HT20 channel 1



Mode: TX 11n HT20 channel 6



Mode: TX 11n HT20 channel 11



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.

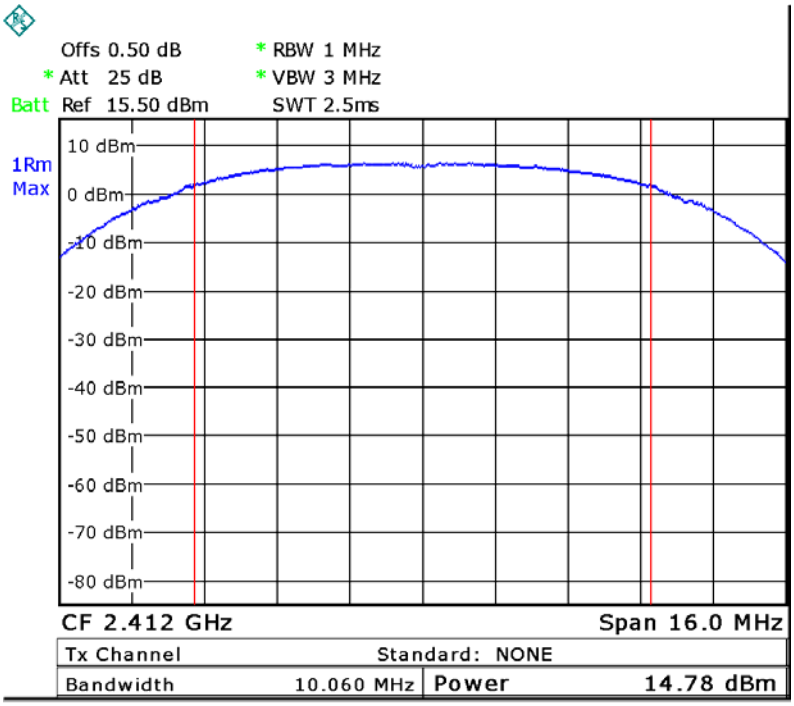
12.2 Test Result:

Test mode :TX 11b		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
14.78	15.46	15.40
Limit: 1W/30dBm		

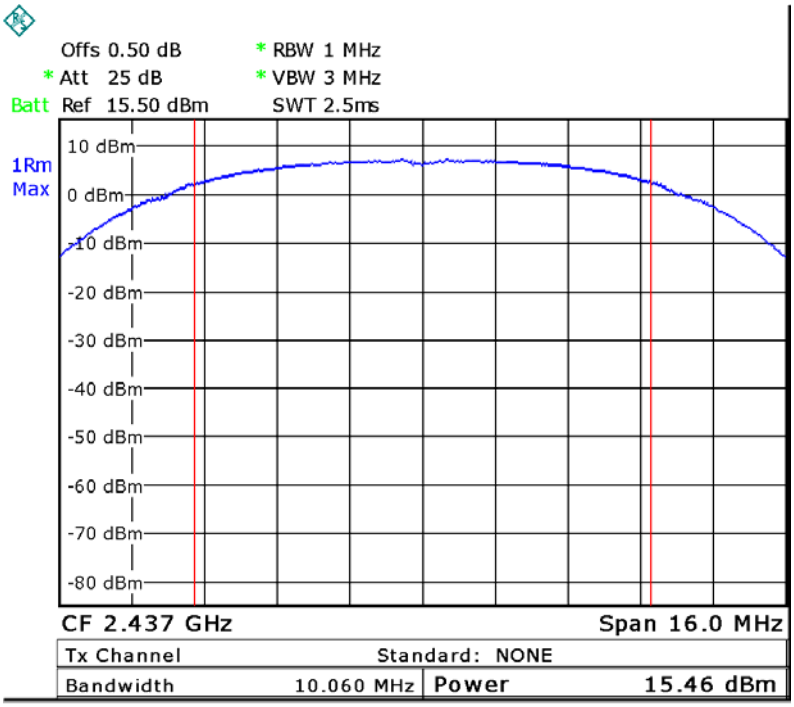
Test mode :TX 11g		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
14.14	14.95	15.39
Limit: 1W/30dBm		

Test mode :TX 11n HT20		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
14.26	14.78	15.35
Limit: 1W/30dBm		

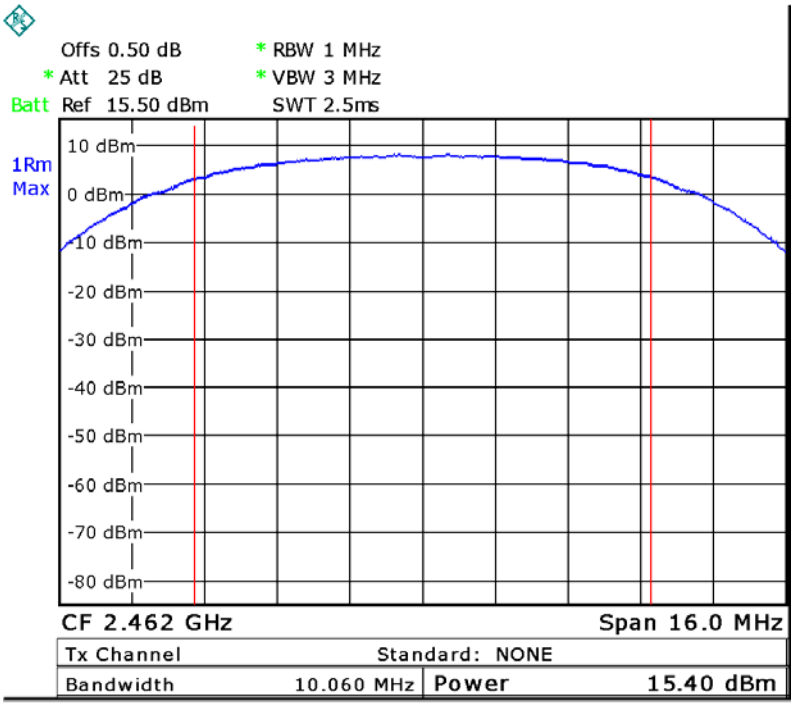
Mode: TX 11b 2412MHz



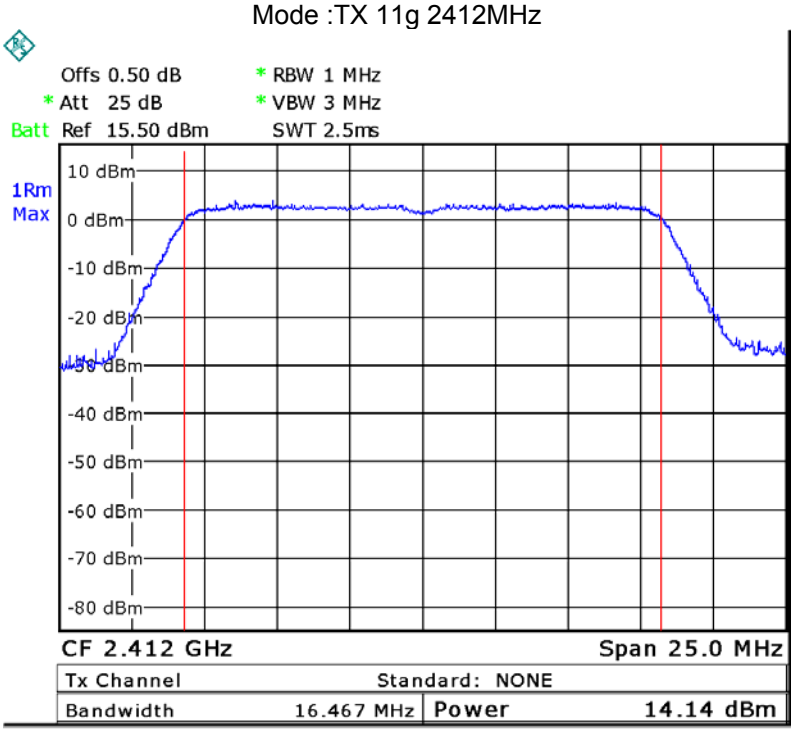
Mode: TX 11b 2437MHz



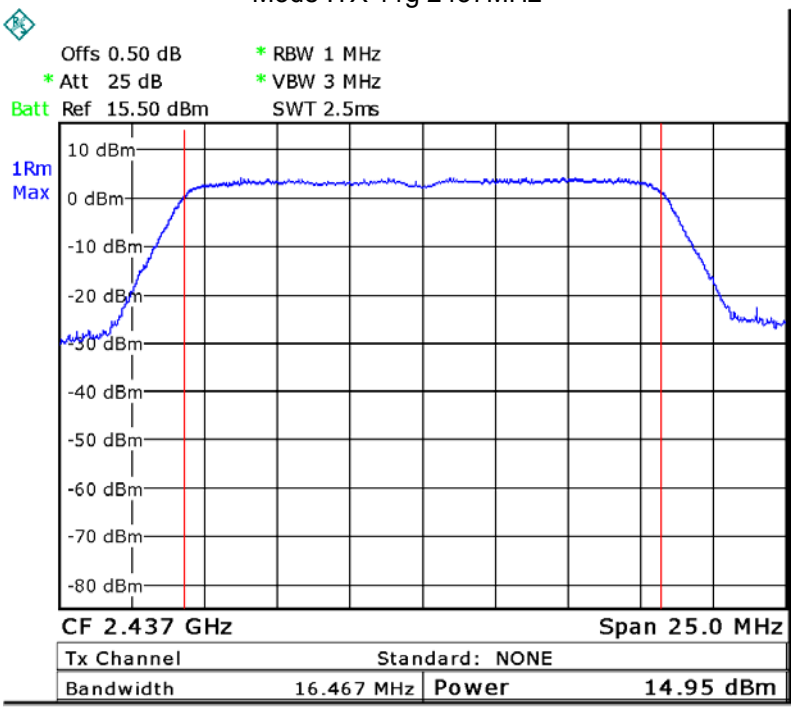
Mode: TX 11b 2462MHz



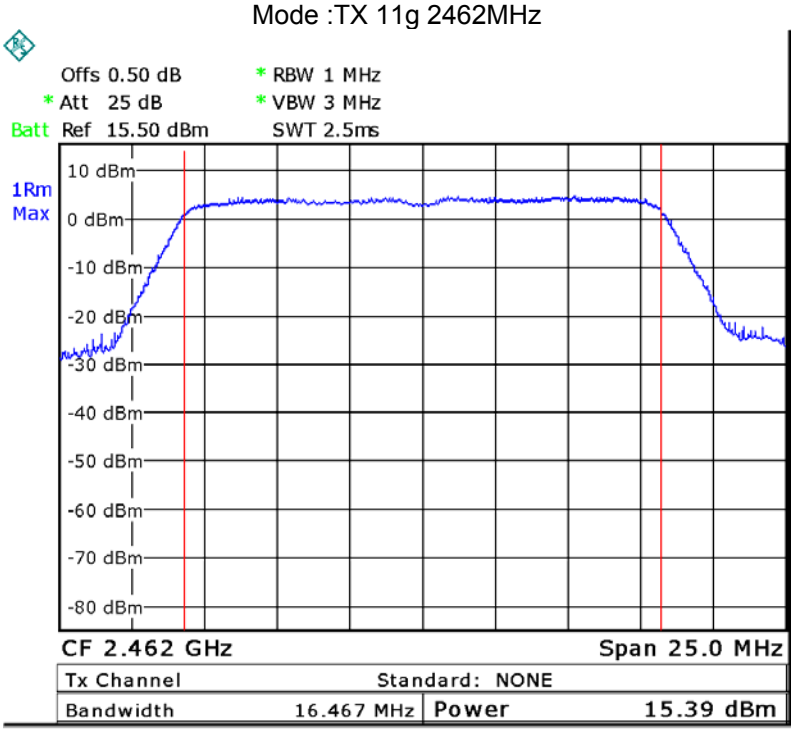
Mode :TX 11g 2412MHz



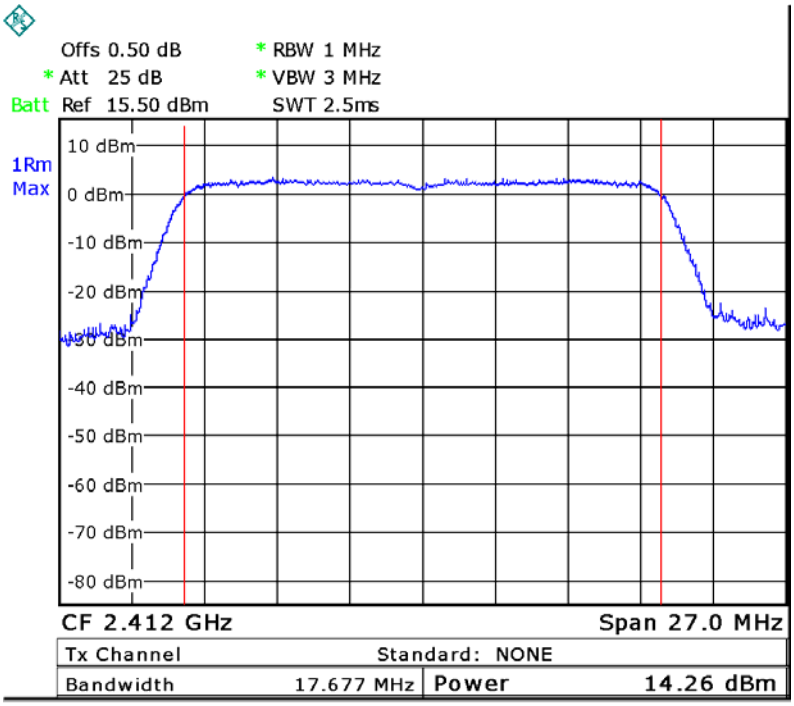
Mode :TX 11g 2437MHz



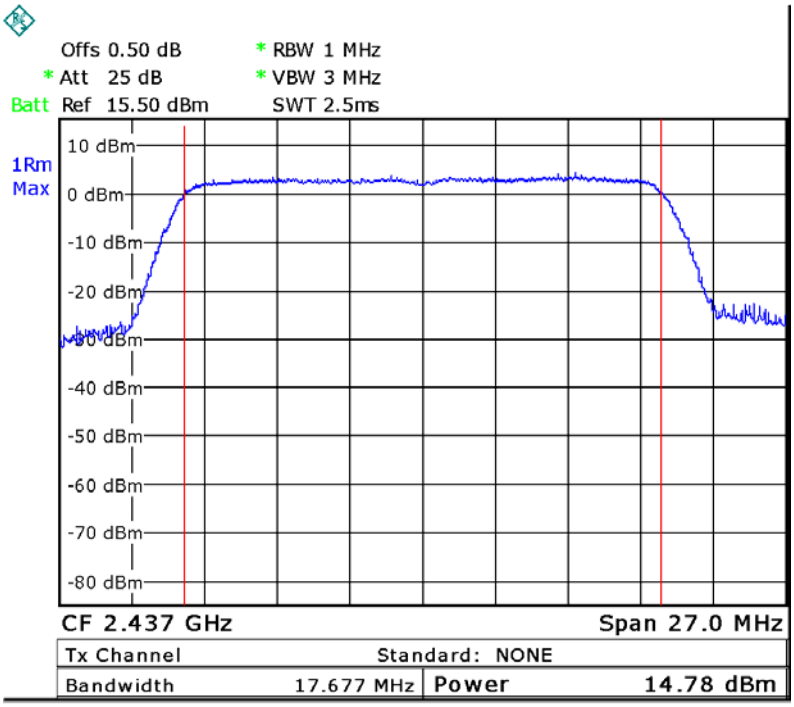
Mode :TX 11g 2462MHz



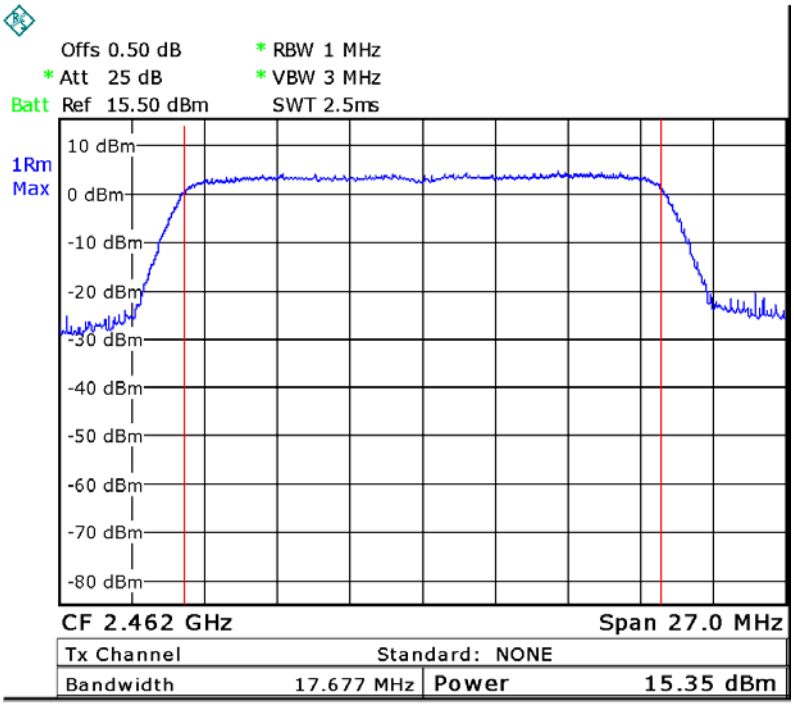
Mode: TX 11n HT20 2412MHz



Mode: TX 11n HT20 2437MHz



Mode: TX 11n HT20 2462MHz



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.

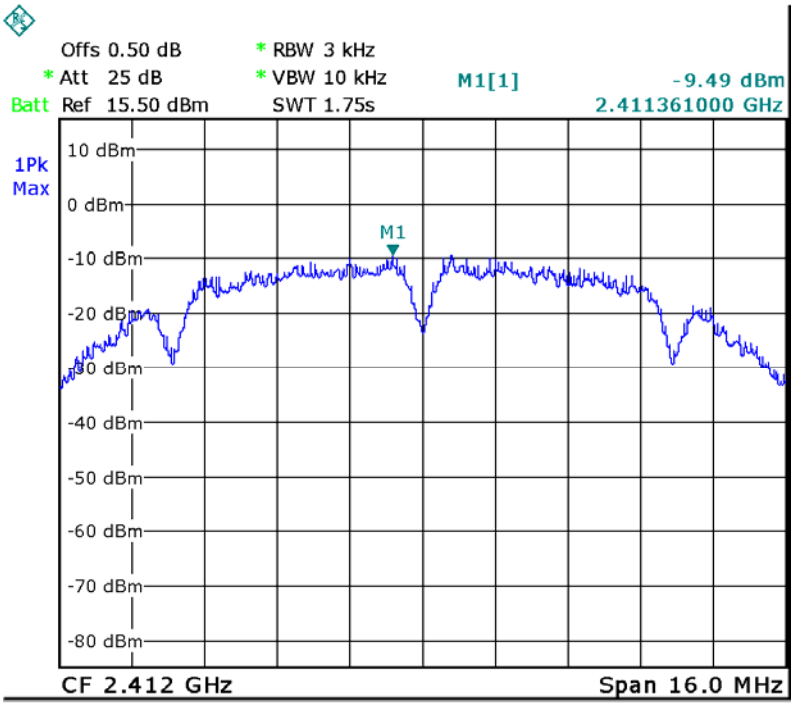
13.2 Test Result:

Test mode :TX 11b		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-9.49	-8.98	-8.14
Limit: 8dBm per 3kHz		

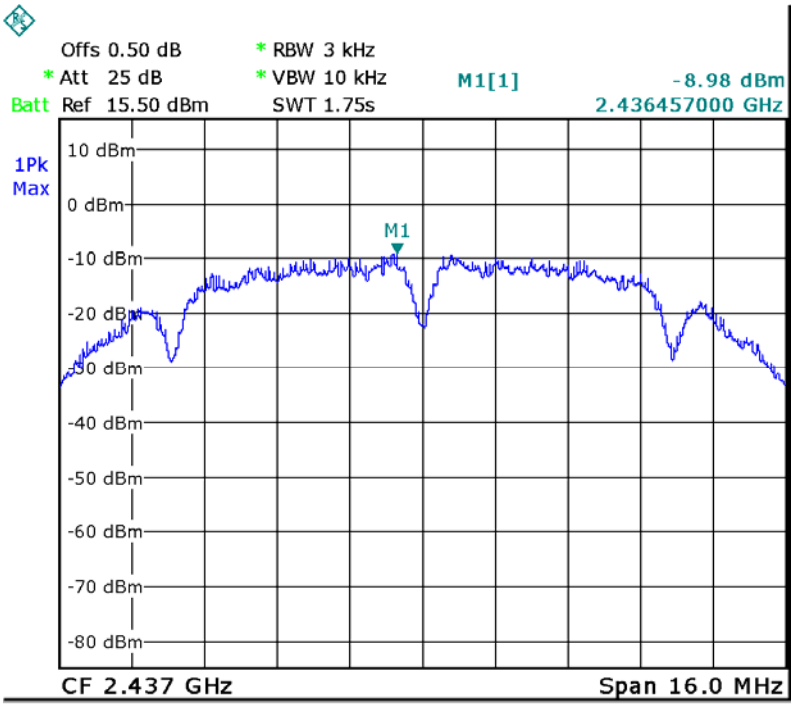
Test mode :TX 11g		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-14.00	-13.59	-13.72
Limit: 8dBm per 3kHz		

Test mode :TX 11n HT20		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-13.91	-13.25	-12.72
Limit: 8dBm per 3kHz		

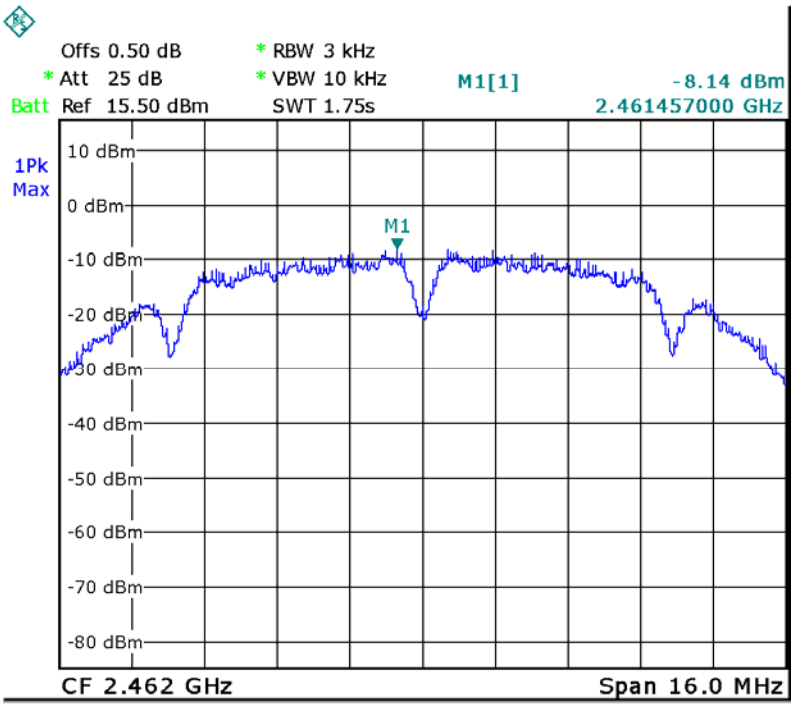
Mode: TX 11b 2412MHz



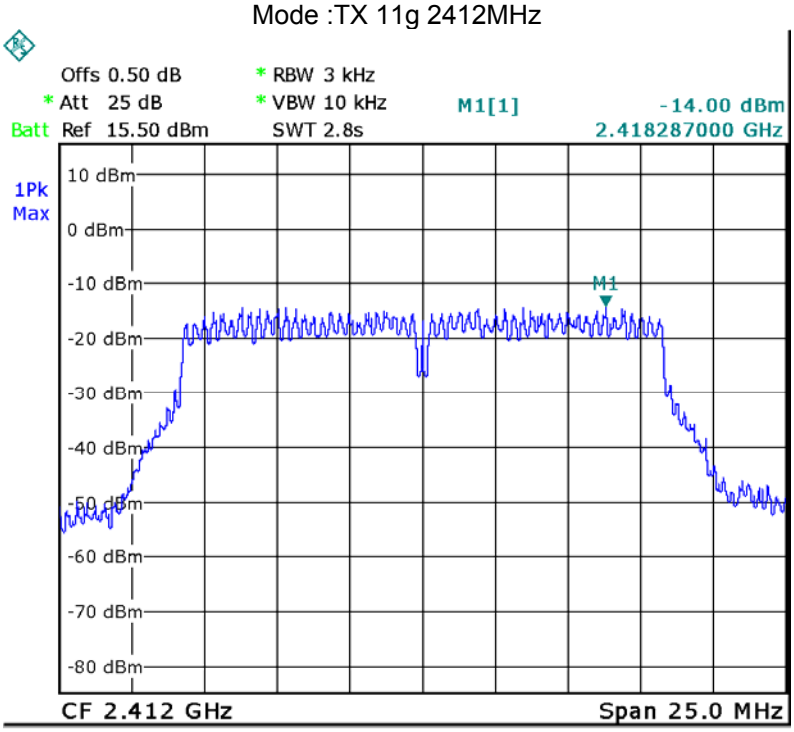
Mode: TX 11b 2437MHz



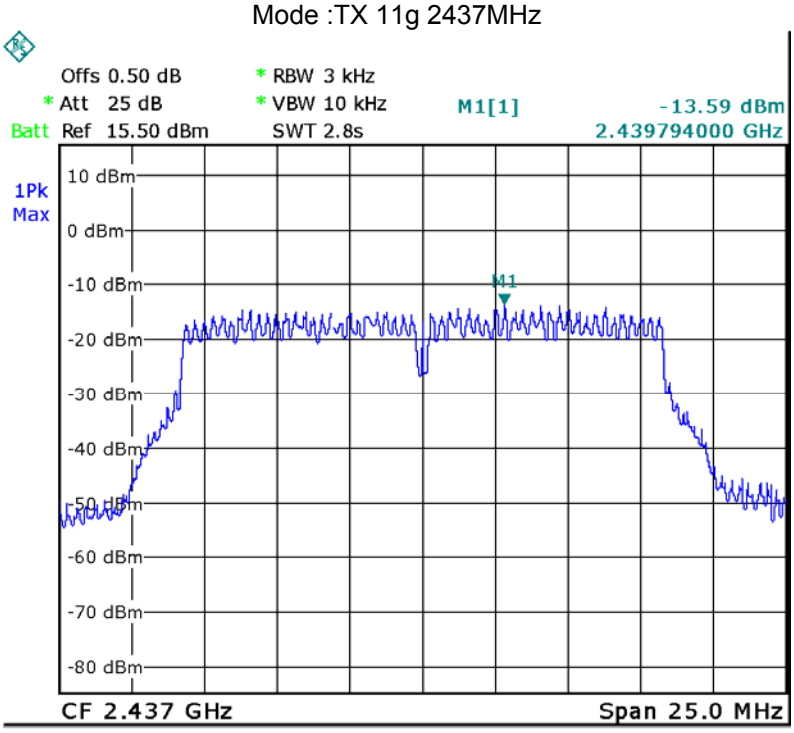
Mode: TX 11b 2462MHz



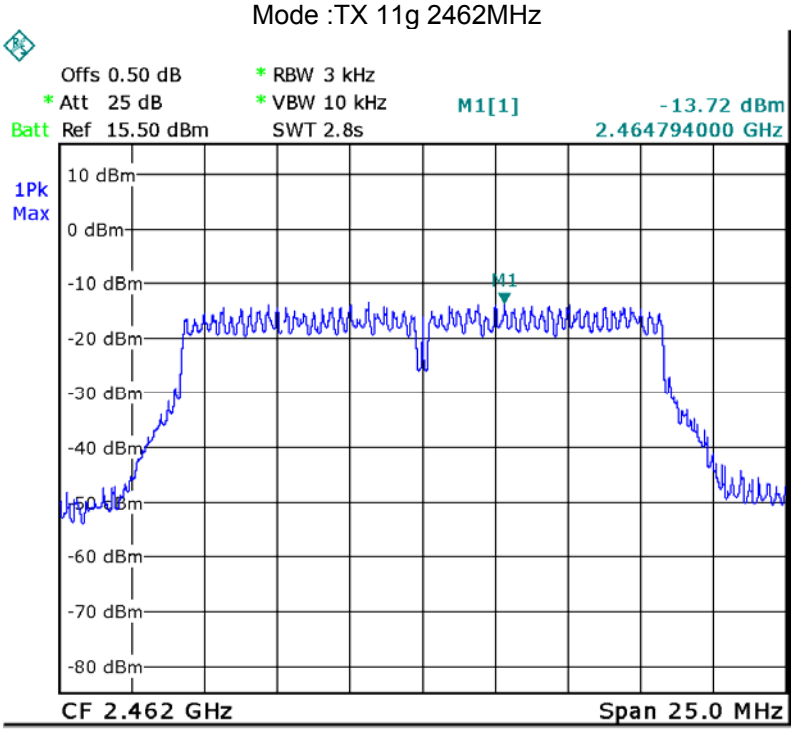
Mode :TX 11g 2412MHz



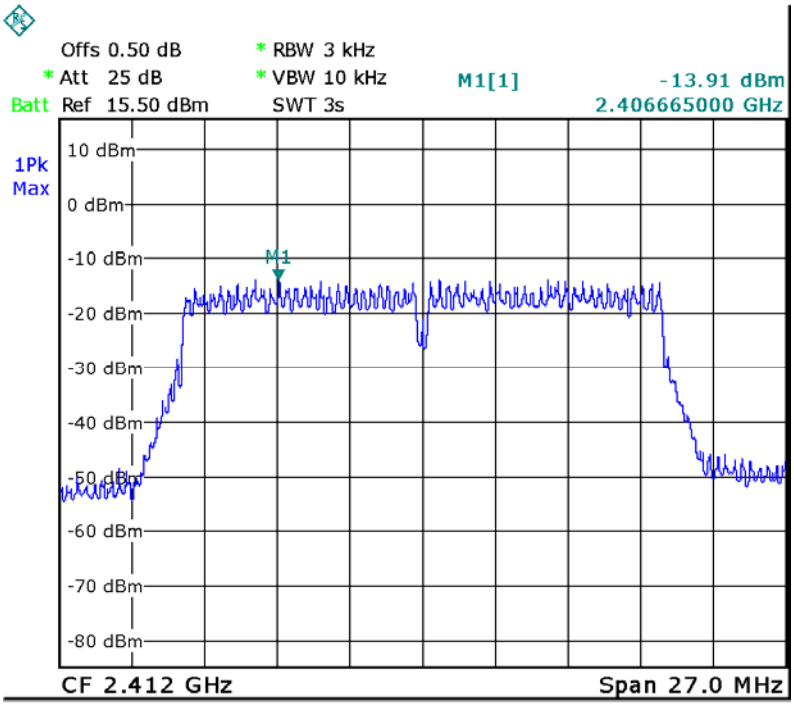
Mode :TX 11g 2437MHz



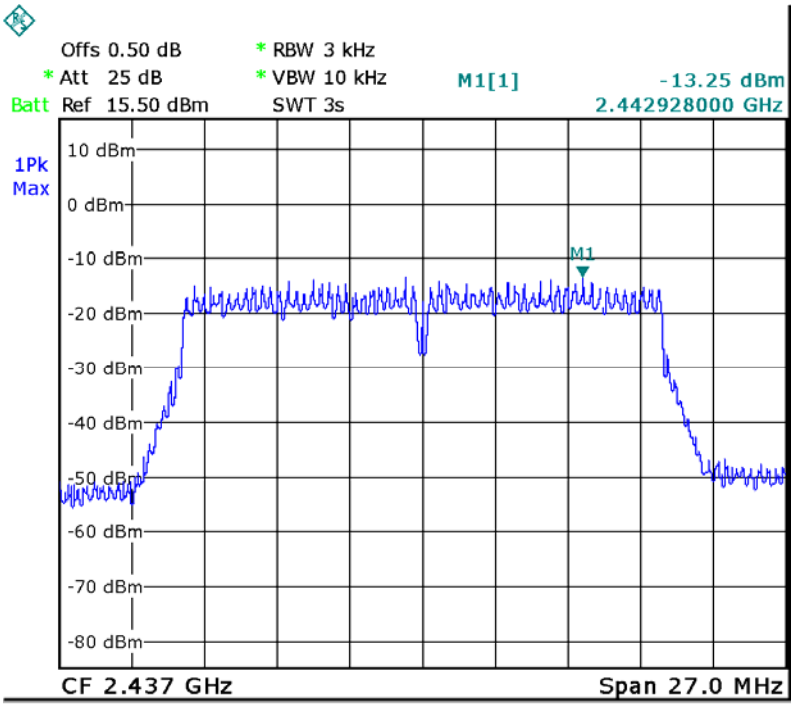
Mode :TX 11g 2462MHz



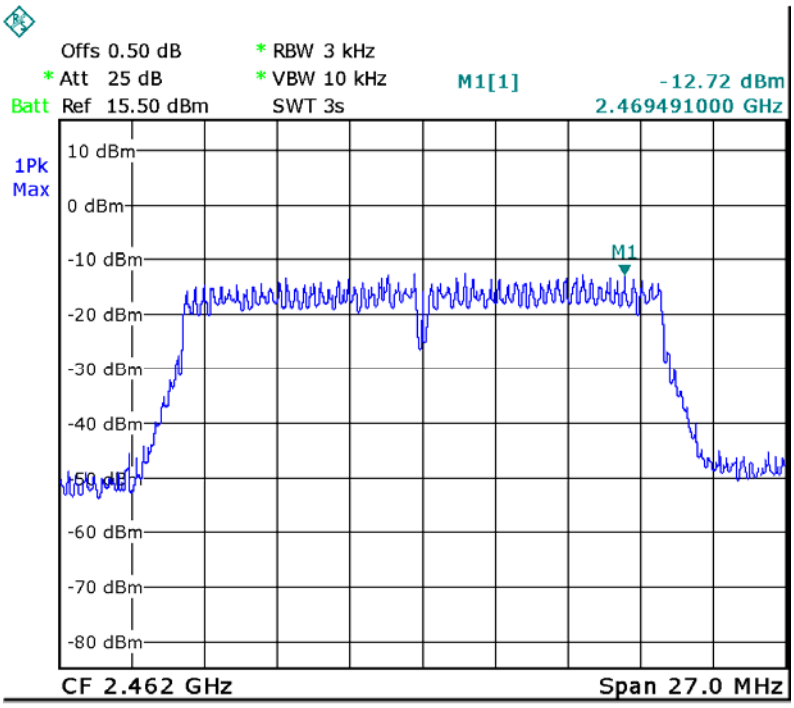
Mode: TX 11n HT20 2412MHz



Mode: TX 11n HT20 2437MHz



Mode: TX 11n HT20 2462MHz



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
15.46	35.16	35.16	19	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

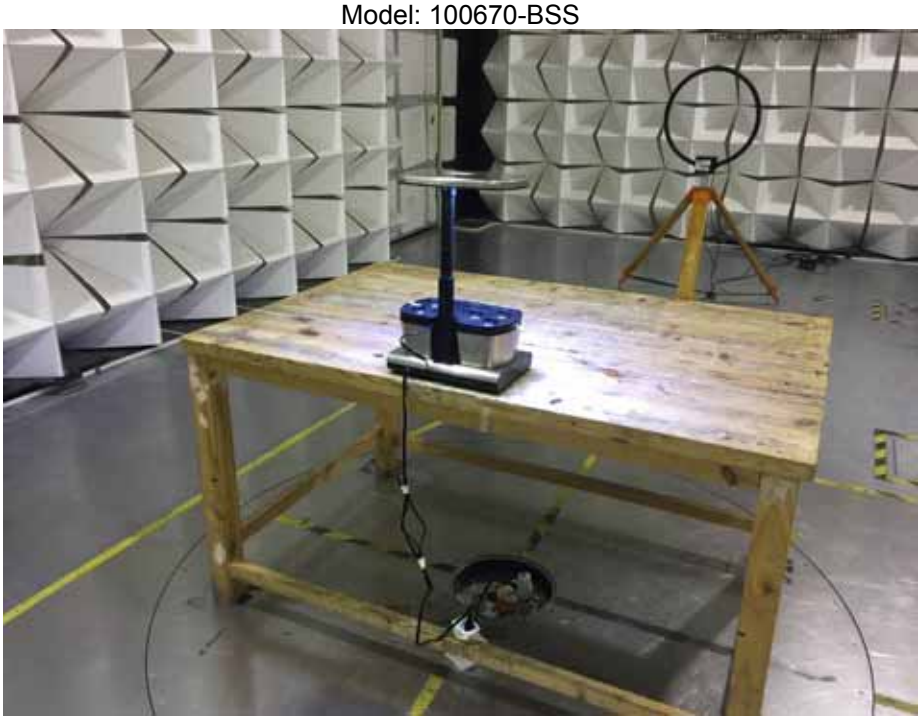
No SAR measurement is required.

16 Photographs – Test Setup

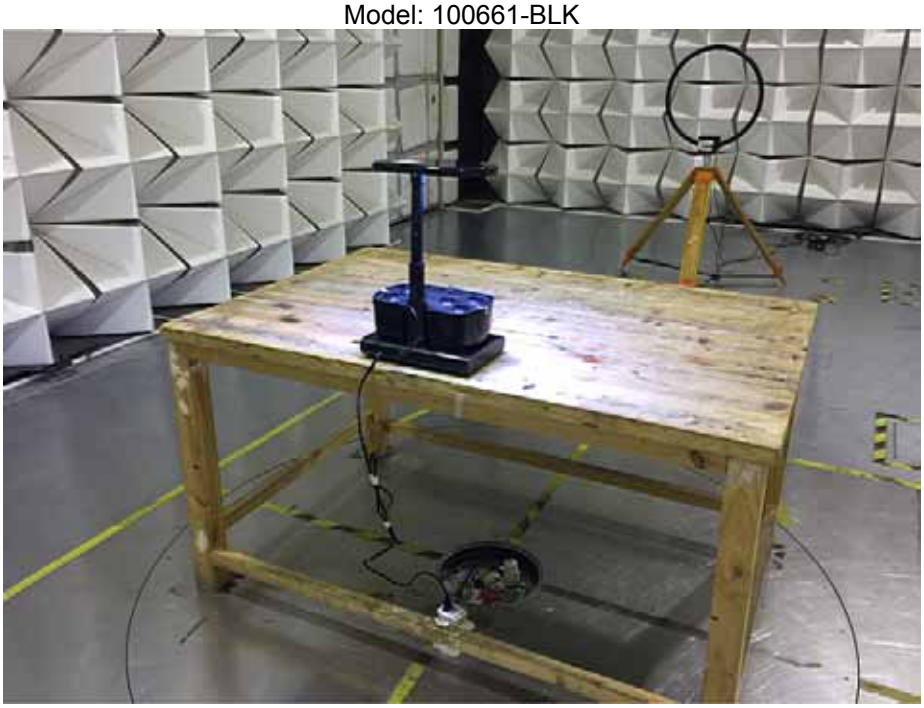
16.1 Radiated Spurious Emissions

Test frequency 9KHz to 30MHz

Model: 100670-BSS

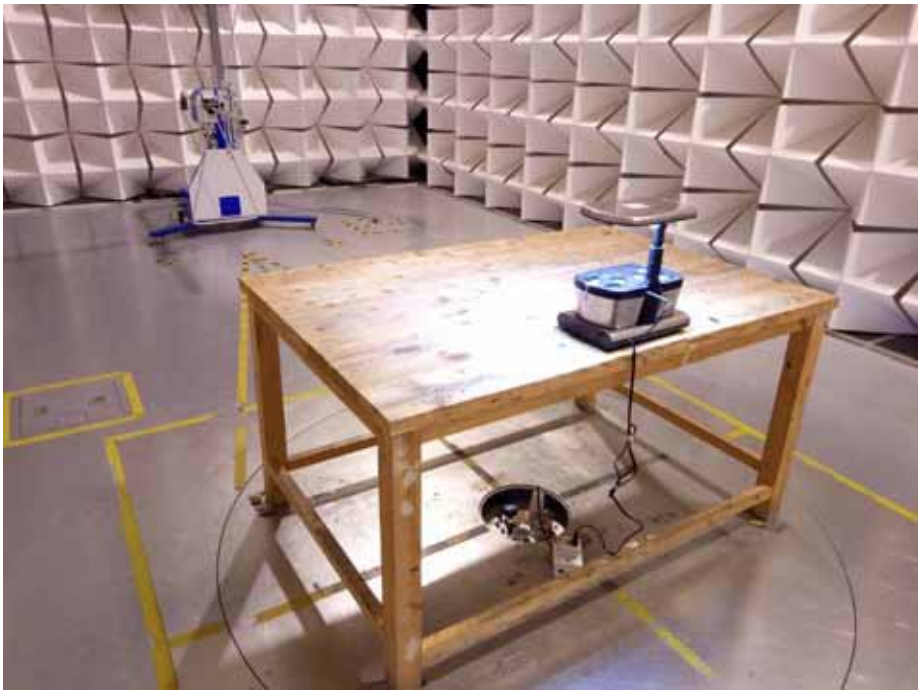


Model: 100661-BLK

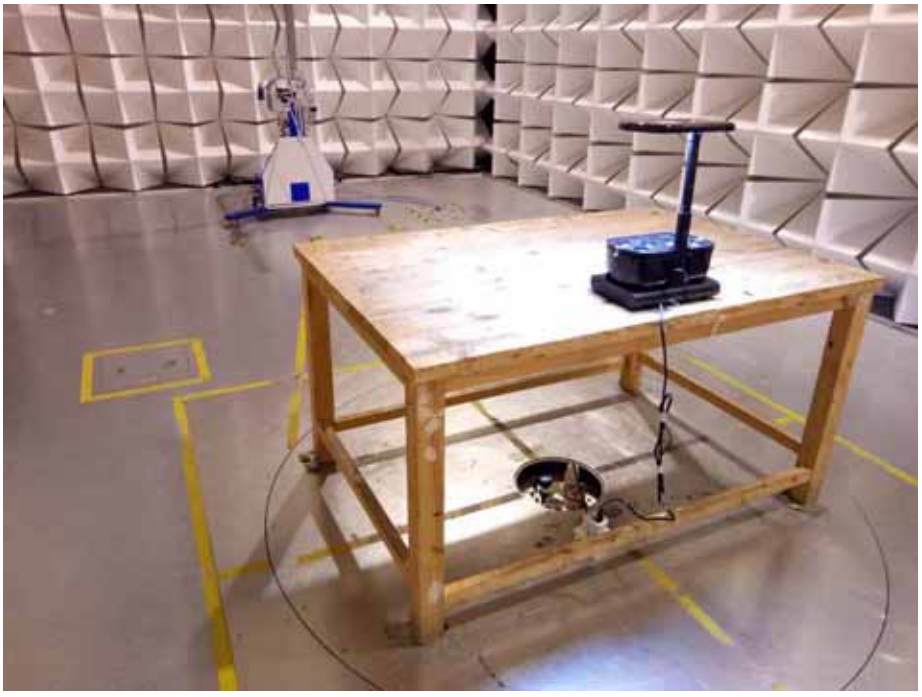


Test frequency from 30MHz to 1GHz

Model: 100670-BSS

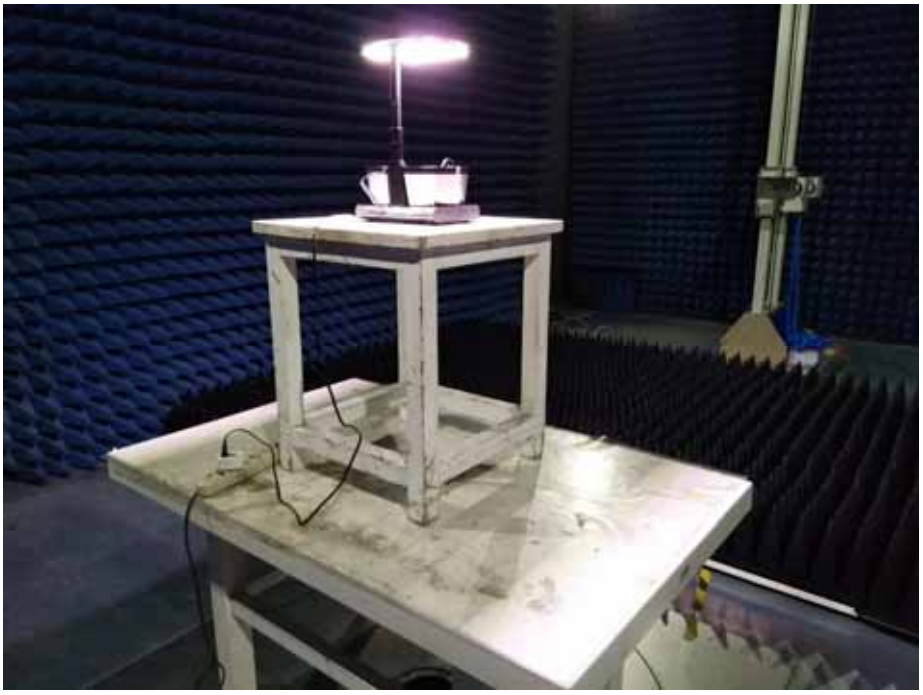


Model: 100661-BLK



Test frequency above 1GHz

Model: 100670-BSS



Model: 100661-BLK

16.2 Conducted Emission

Model: 100670-BSS

Model: 100661-BLK

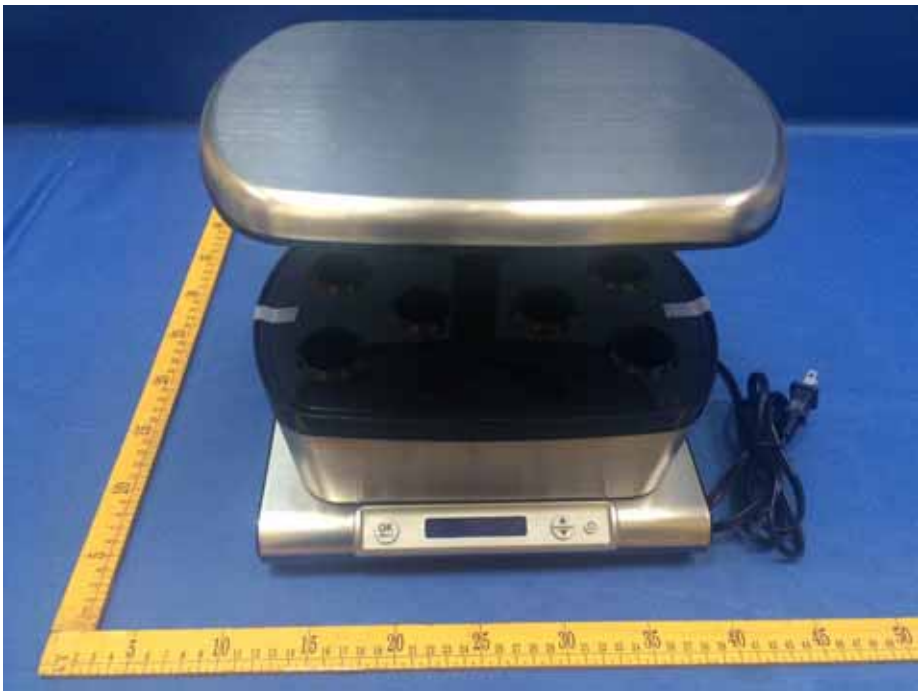
17 Photographs - Constructional Details

17.1 EUT-External Photos

Model: 100661-BLK


OK
Menu

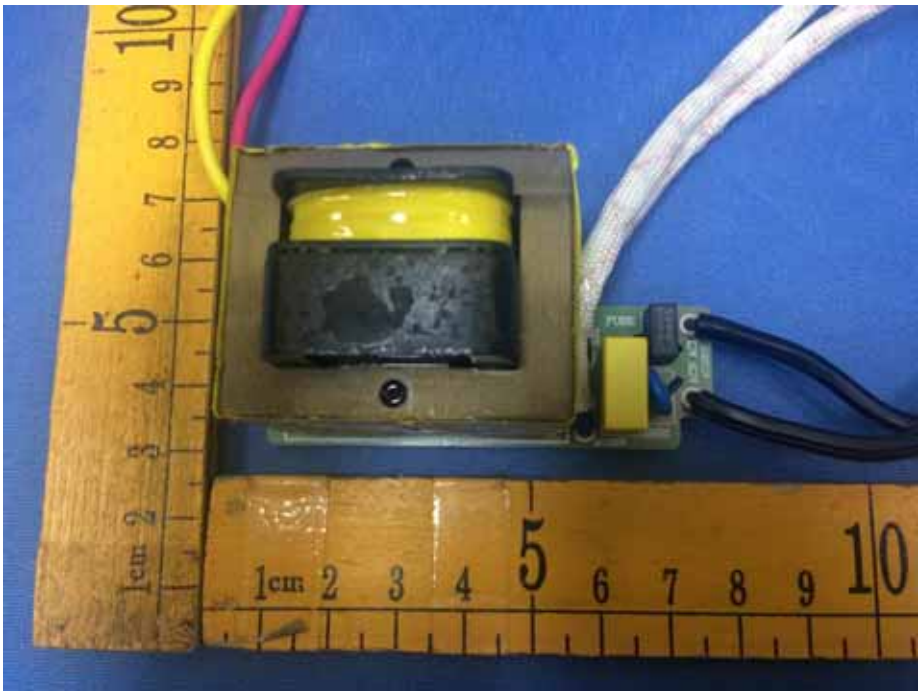
Model: 100670-BSS

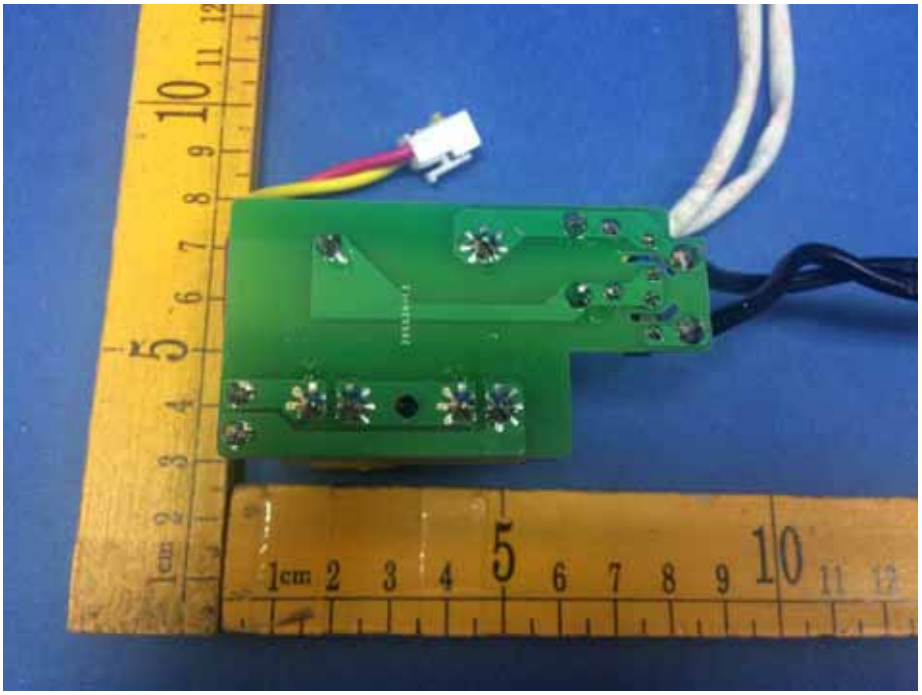


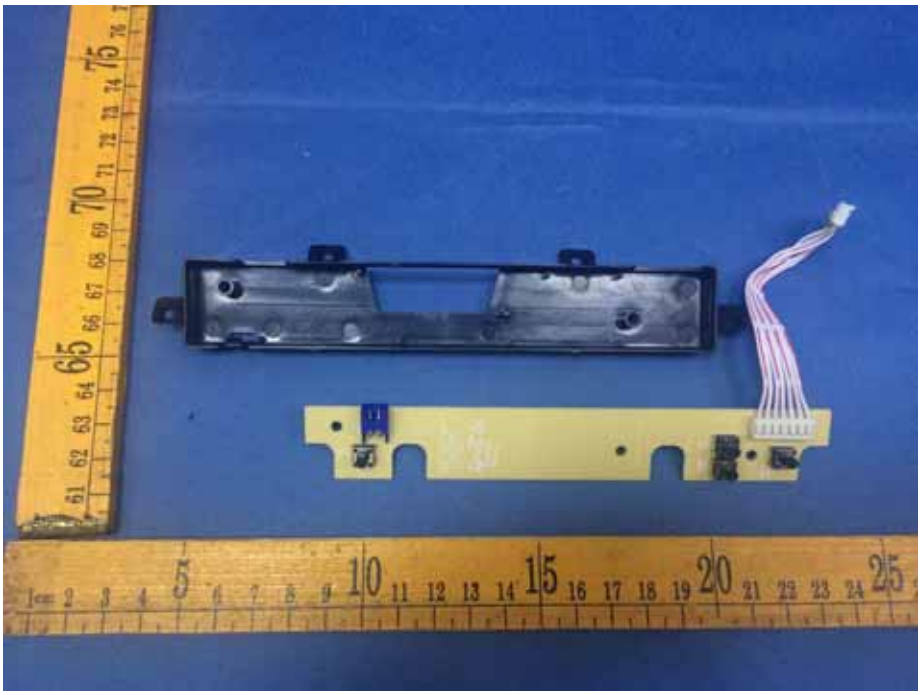

OK
Menu

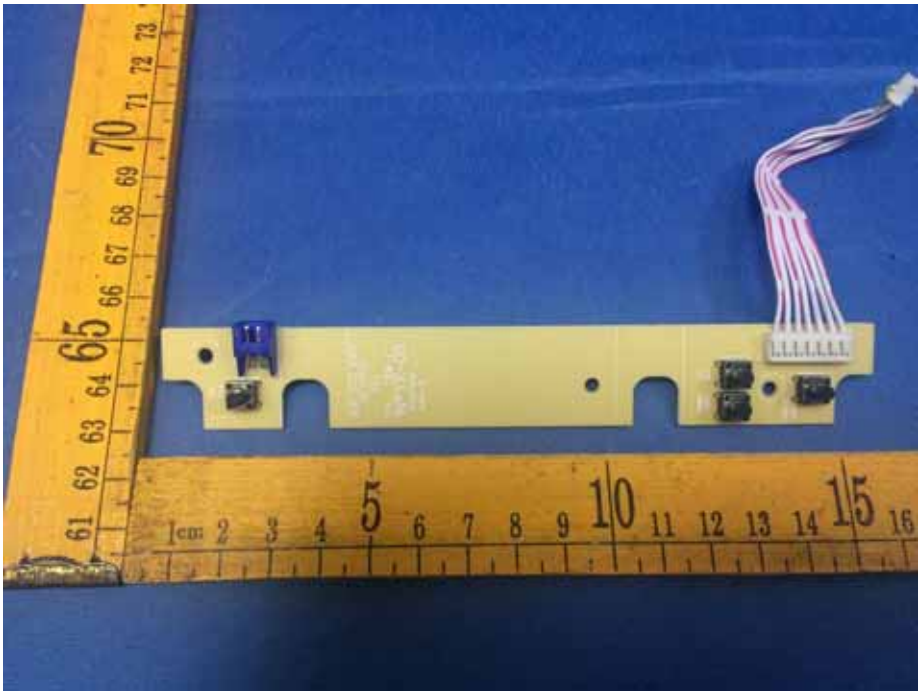
17.2 EUT-Internal Photos

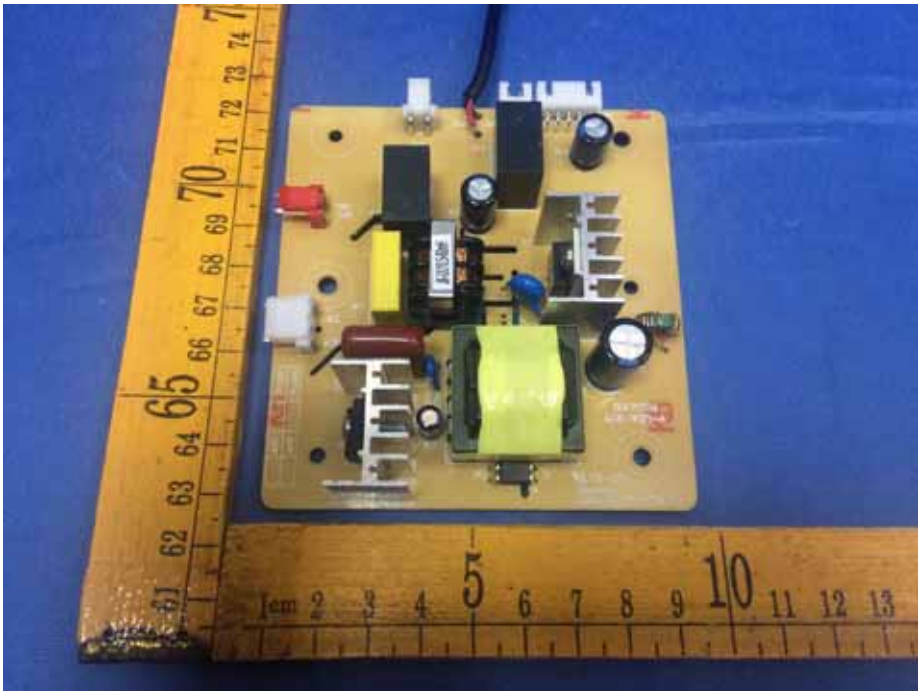
Model: 100661-BLK

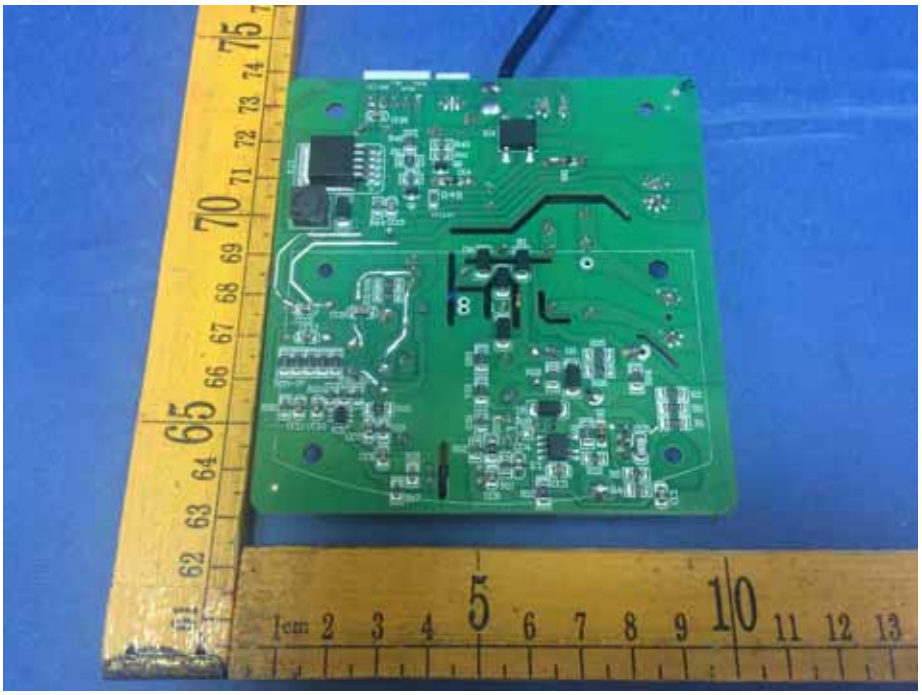


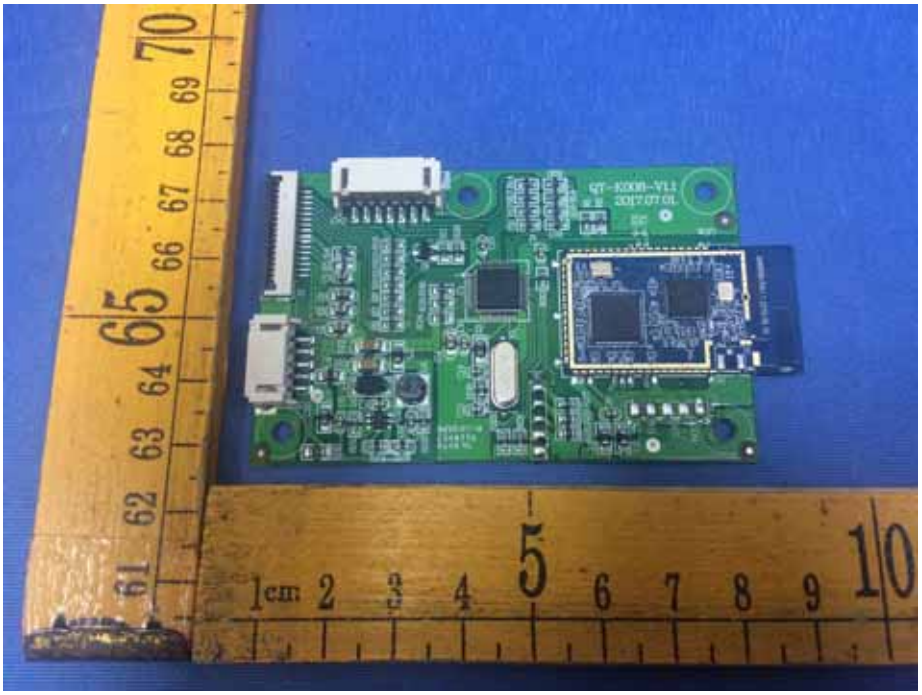


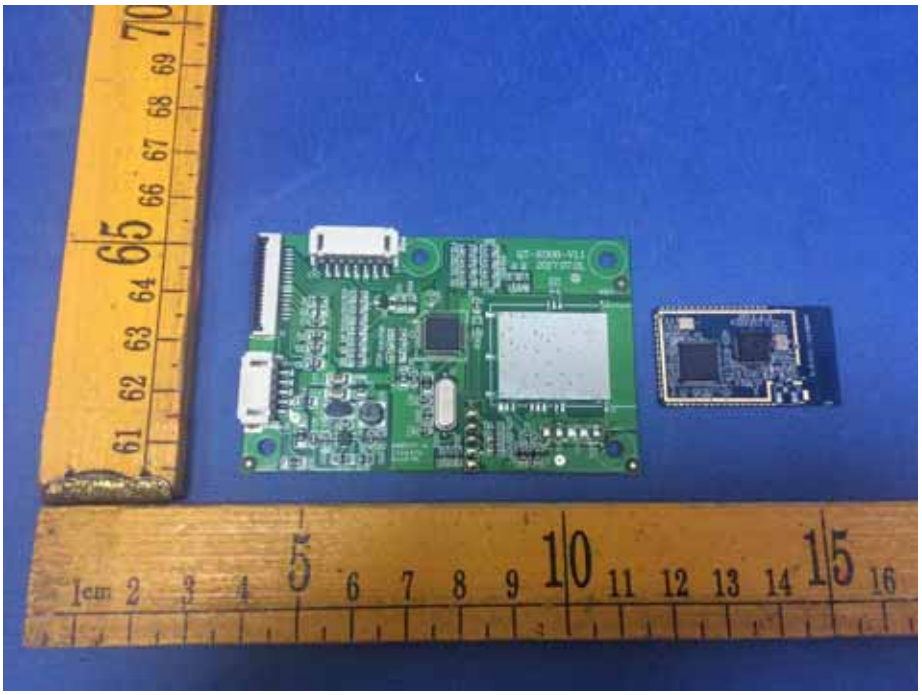


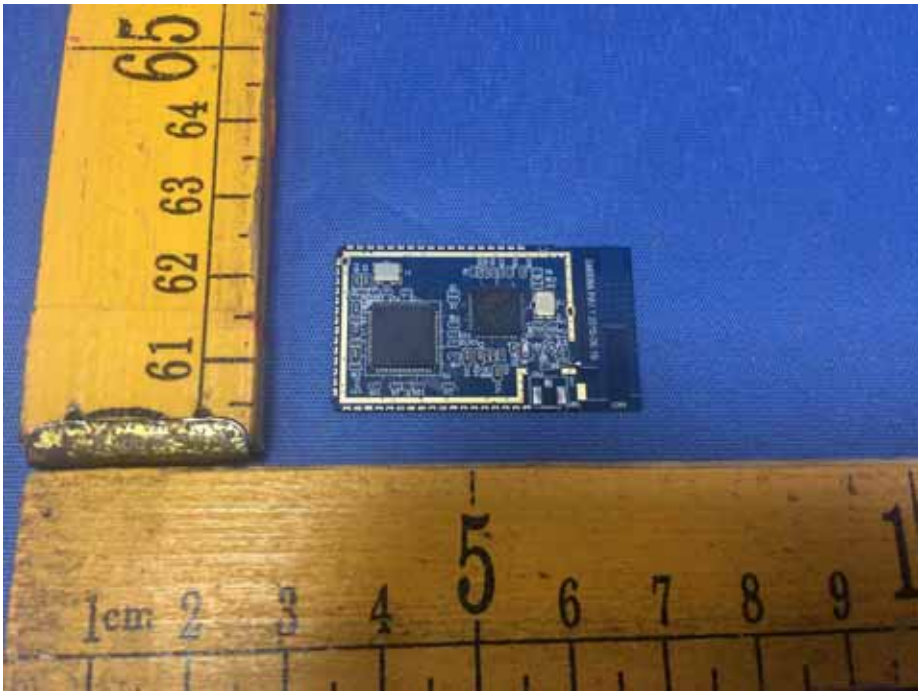










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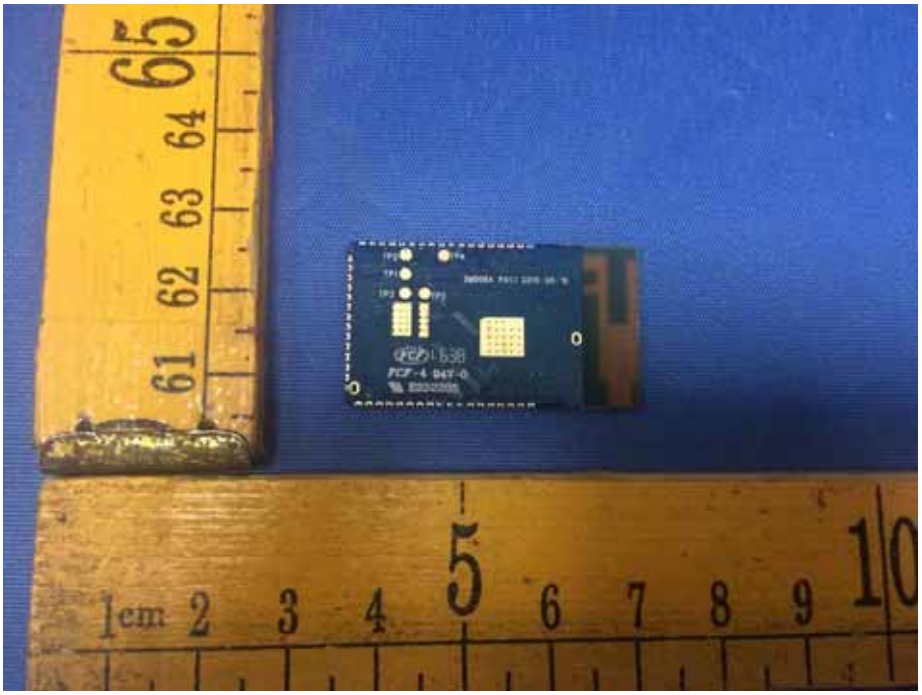
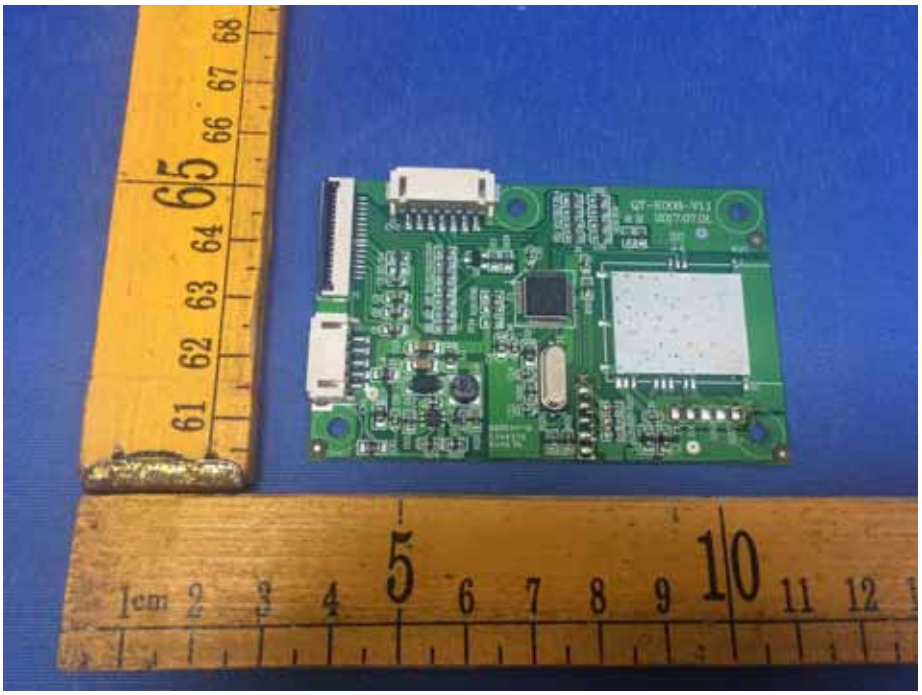

65
64
63
62
61
1cm 2 3 4 5 6 7 8 9 10

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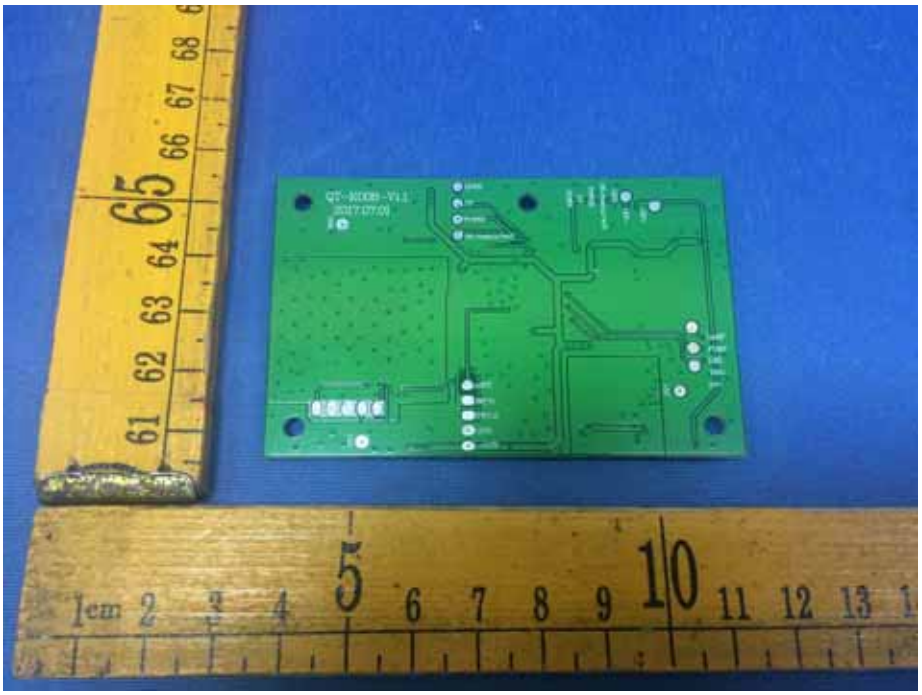

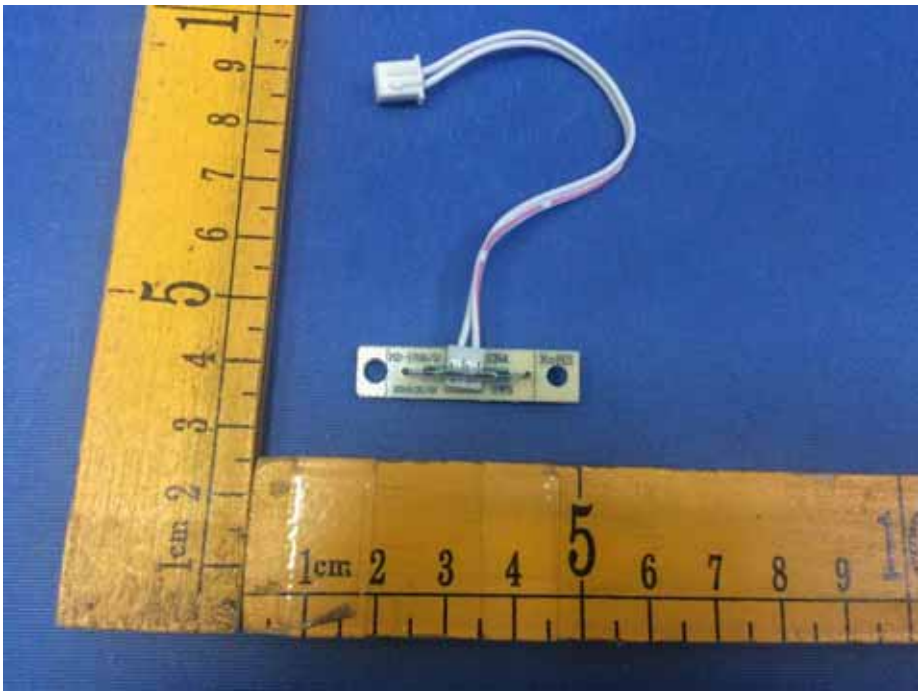


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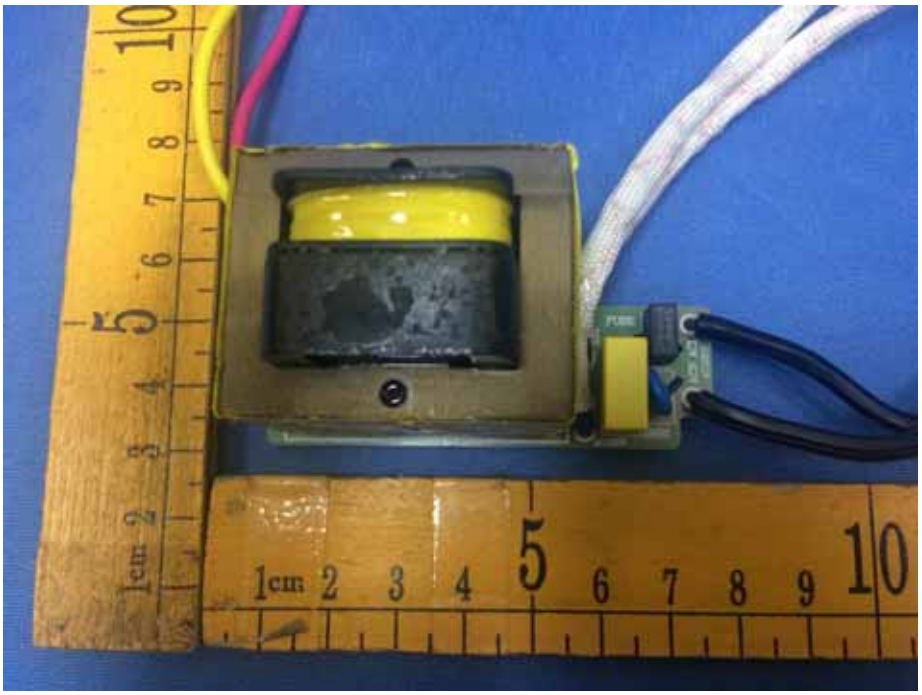
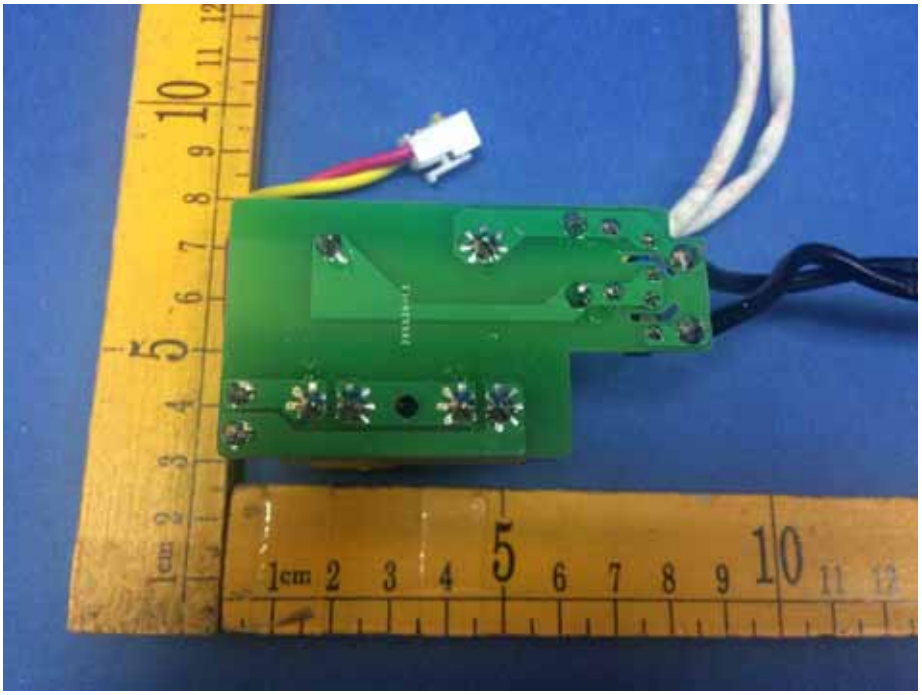
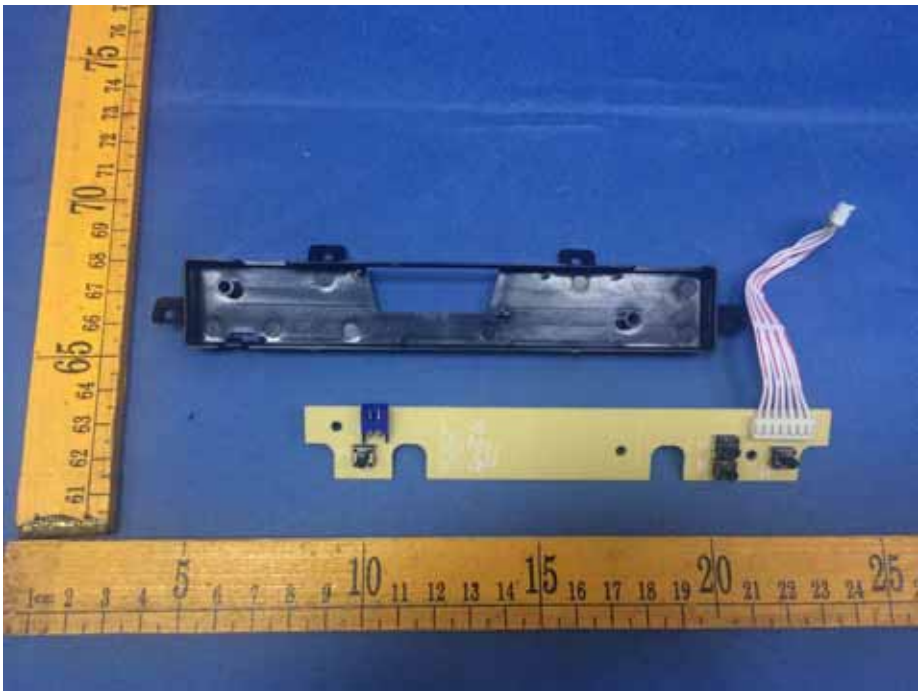
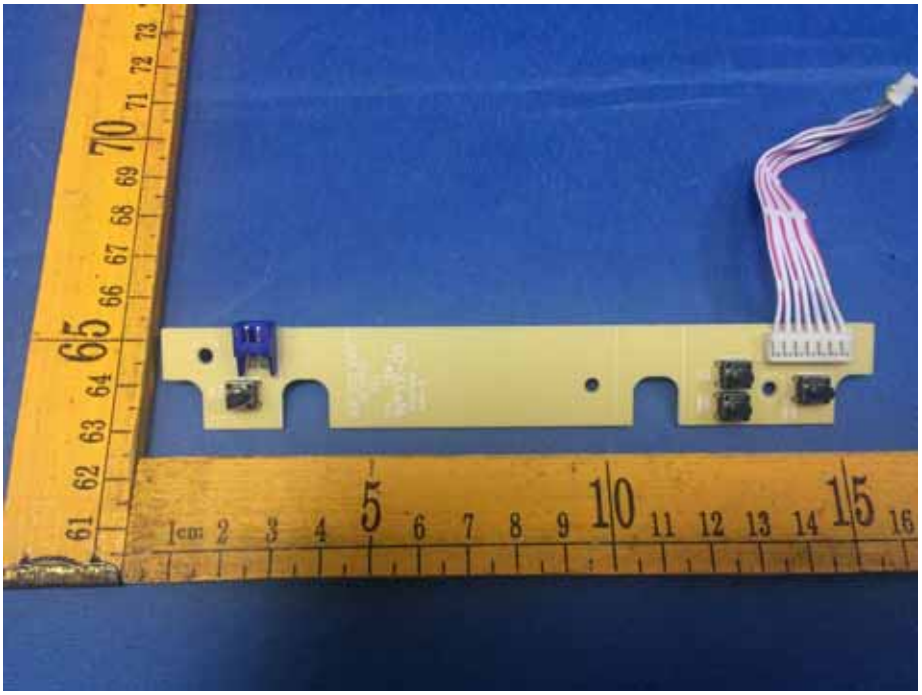
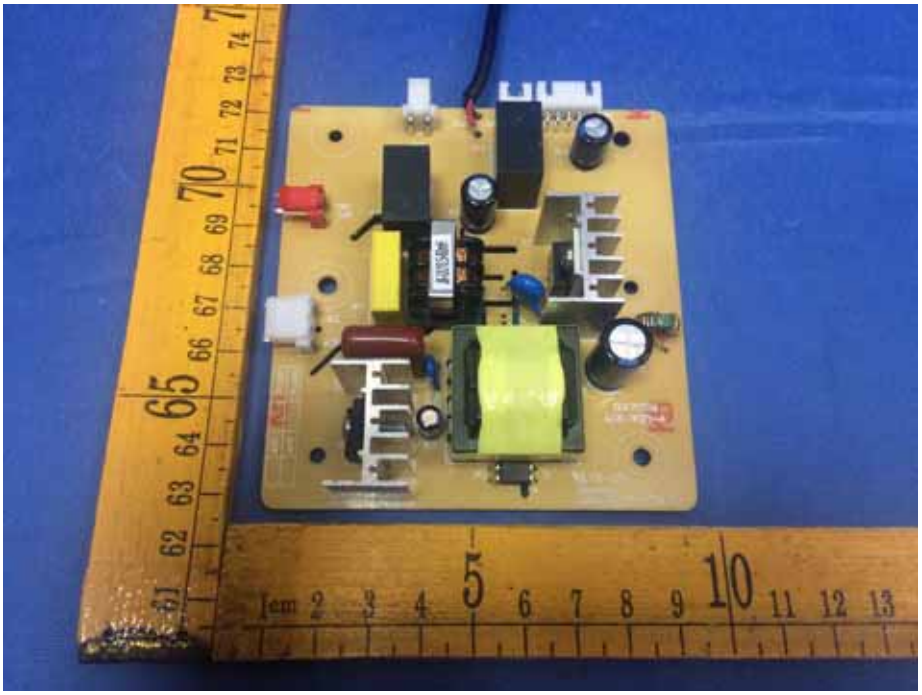
Model: 100670-BSS

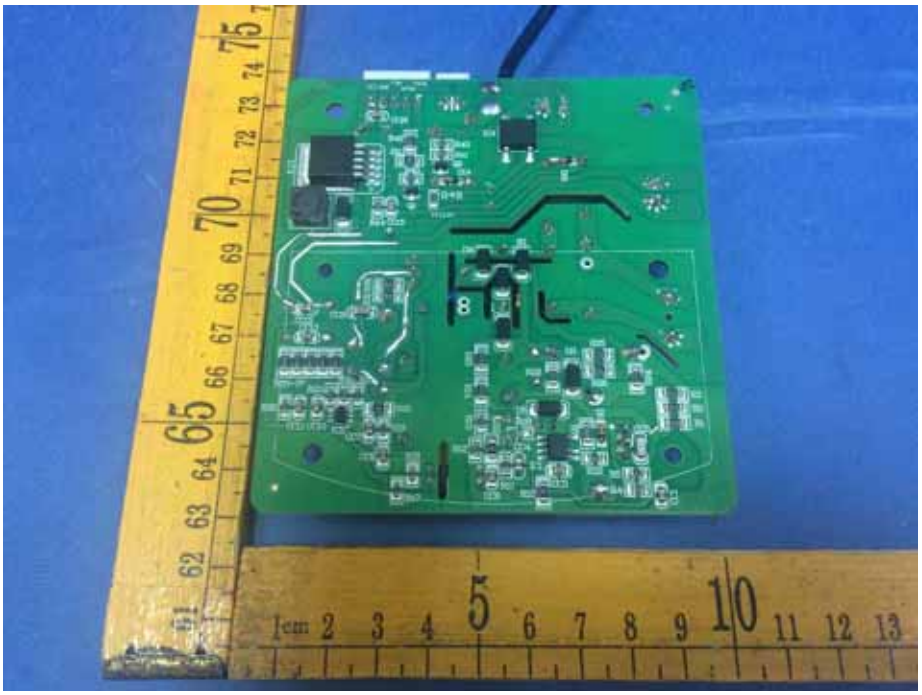


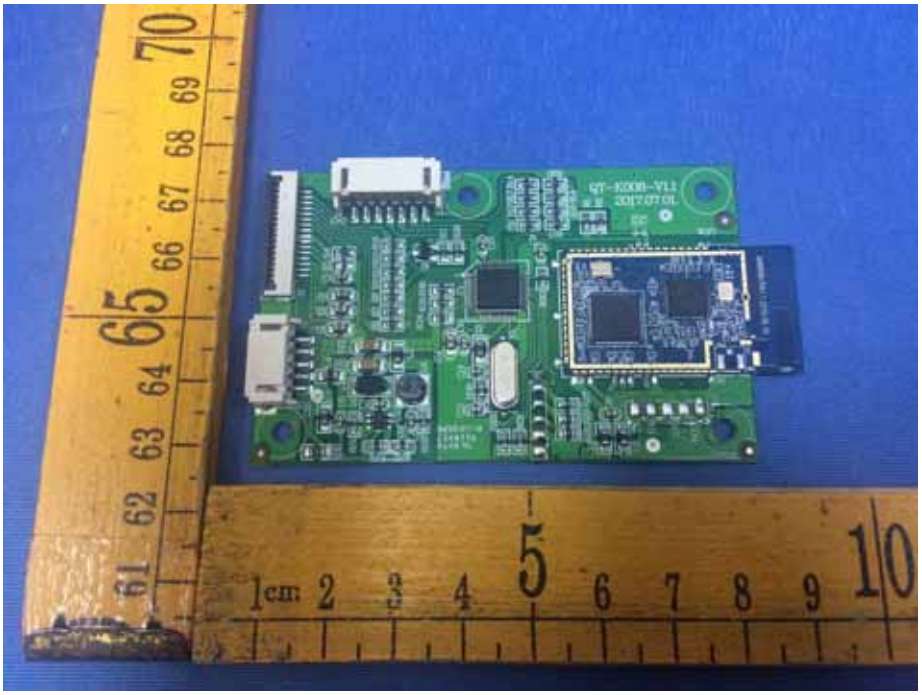


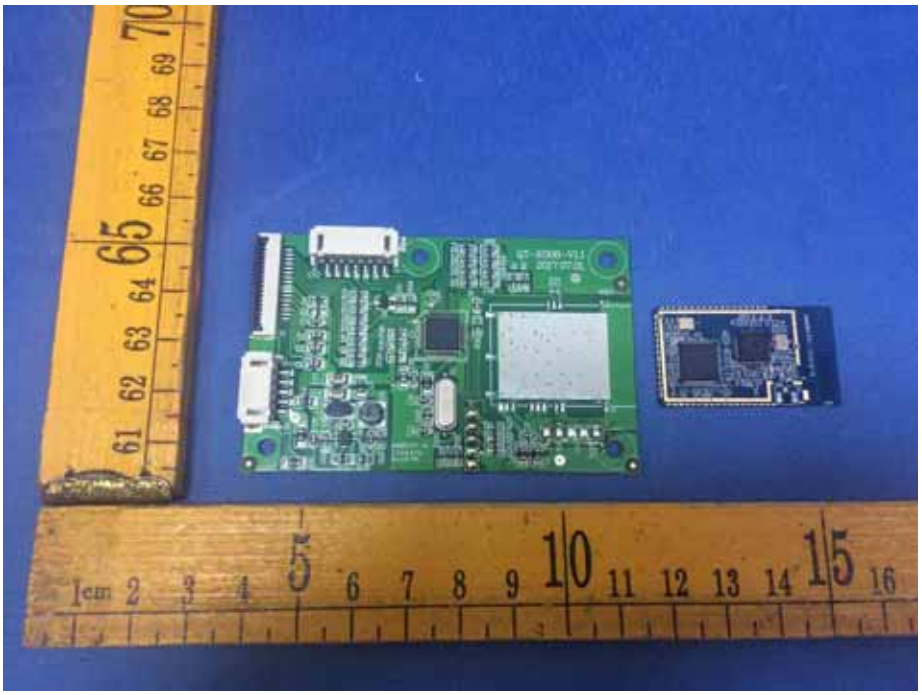


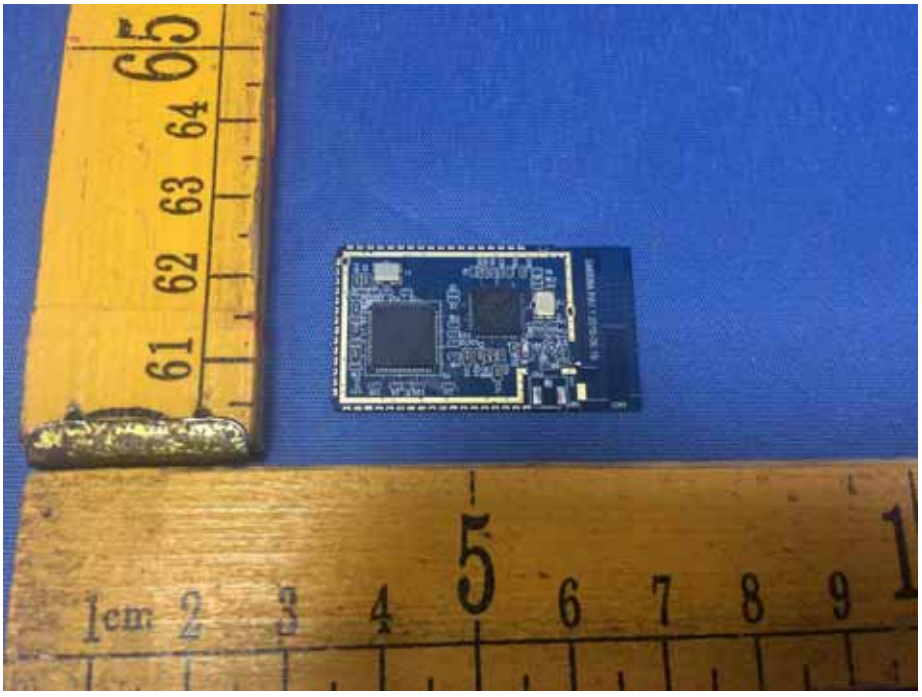










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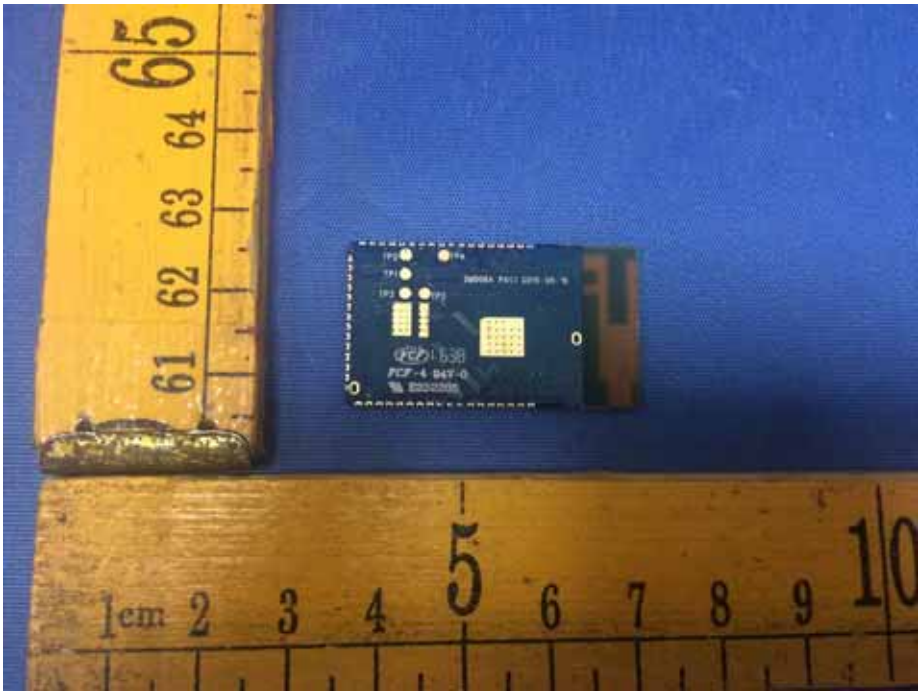

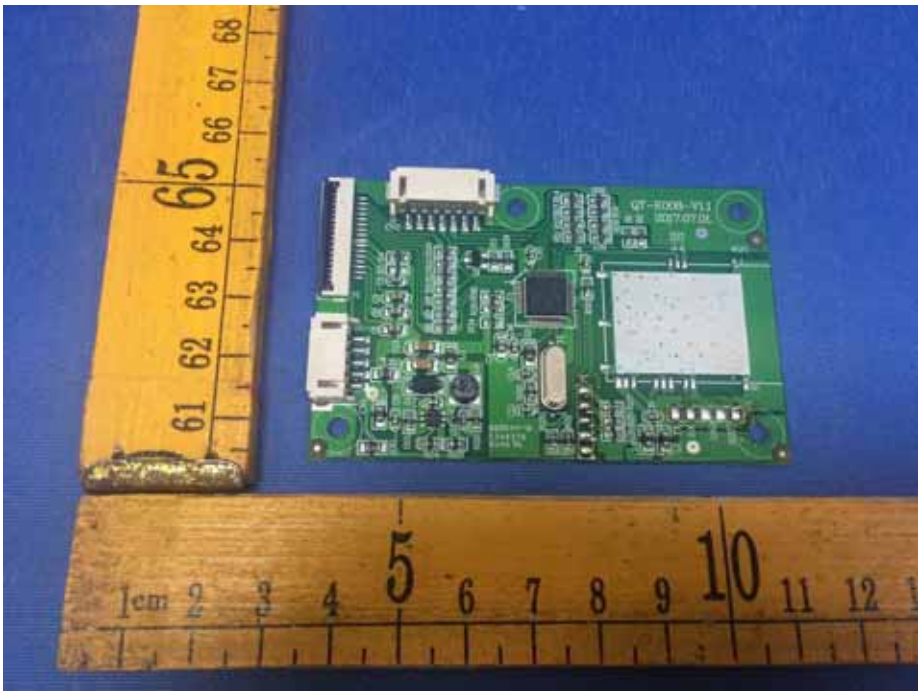


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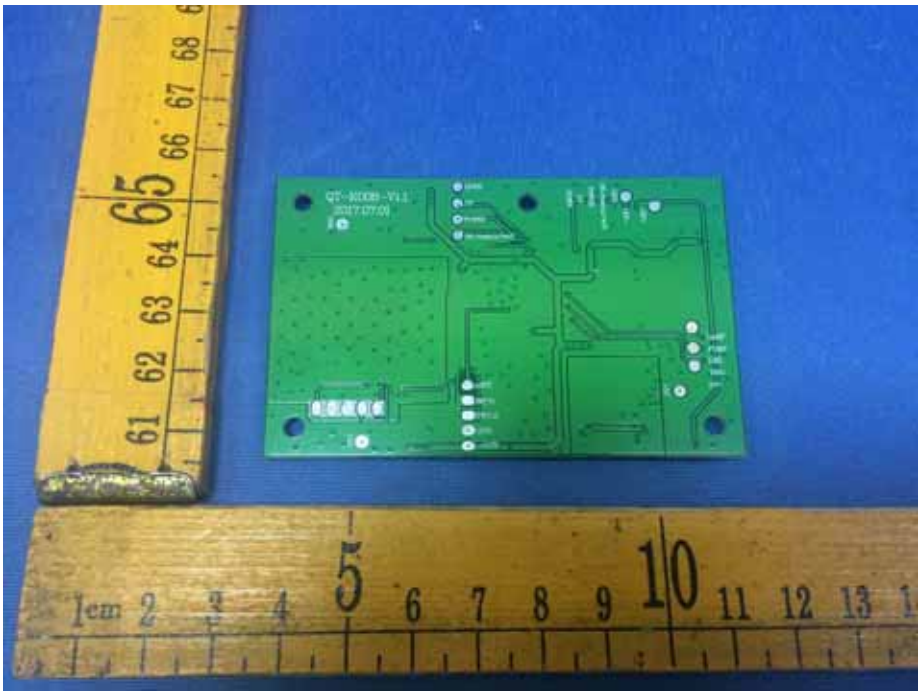

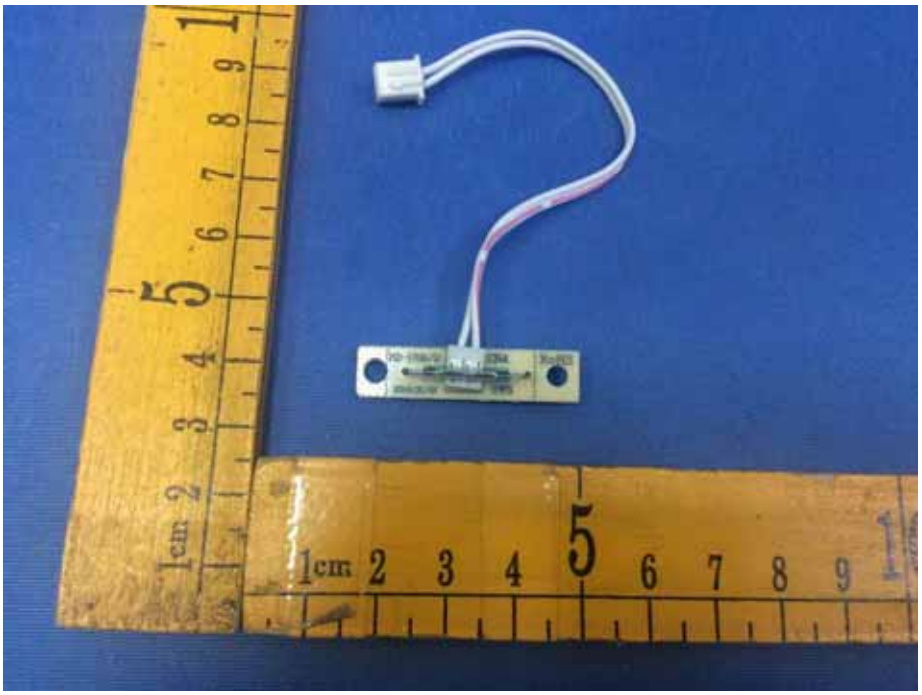
1cm 2 3 4 5 6 7 8 9


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