FCC Test Report

Product Name	360 CAM(WIFI+Bluetooth)
Model No	VSF013W
FCC ID.	2AAD3013W

Applicant	ABILITY ENTERPRISE CO., LTD.
Address	No.200, Sec. 3, Zhonghuan Rd., Xinzhuang Dist.,New Taipei City 24242,Taiwan(R.O.C.)

Date of Receipt	Jul. 13, 2018
Issue Date	Dec. 19, 2018
Report No.	1870168R-RFUSP70V01
Report Version	V1.0

Testing Laboratory
3023

Test Report

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Applicant	ABILITY ENTERPRISE CO., LTD.
Address	No.200, Sec. 3, Zhonghuan Rd., Xinzhuang Dist.,New Taipei City 24242,Taiwan(R.O.C.)
Manufacturer	ABILITY ENTERPRISE CO., LTD.
Model No.	VSF013W
FCC ID.	2AAD3013W
EUT Rated Voltage	By Battery
EUT Test Voltage	AC 120V /60 Hz (Adapter); By Battery
Trade Name	ABILITY
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2017 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v05
Test Result	Complied

Documented By : Anita Chou

(Senior Engineering Adm. Specialist / Anita Chou)

Tested By : Jason Tuan

(Engineer / Jason Tuan)

Approved By :

(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	360 CAM(WIFI+Bluetooth)
Trade Name	ABILITY
Model No.	VSF013W
FCC ID.	2AAD3013W
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW
Number of Channels	802.11b/g/n-20MHz: 11
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 72.2Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
USB Cable	Shielded, 0.8m
USB Cable	Shielded, 0.6m
Power Adapter	MFR: AQUIL STAR PRECISION INDUSTRIAL(SHENZHEN)CO., LTD, M/N: ASSA55E-050200 INPUT: AC 100-240V~50/60Hz 0.45A OUTPUT：DC 5V, 2.0A

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	LYNwave	N/A	PIFA Antenna	-2.5dBi for 2.4 GHz

Note:The antenna of EUT conforms to FCC 15.203.

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

Note:

1. The EUT is a 360 CAM(WIFI+Bluetooth) with a built-in WLAN and Bluetooth transceiver, this report for WLAN 2.4G.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps、802.11g is 6Mbps and 802.11n(20M-BW) is 7.2Mbps)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)
	Mode 4: Charge mode

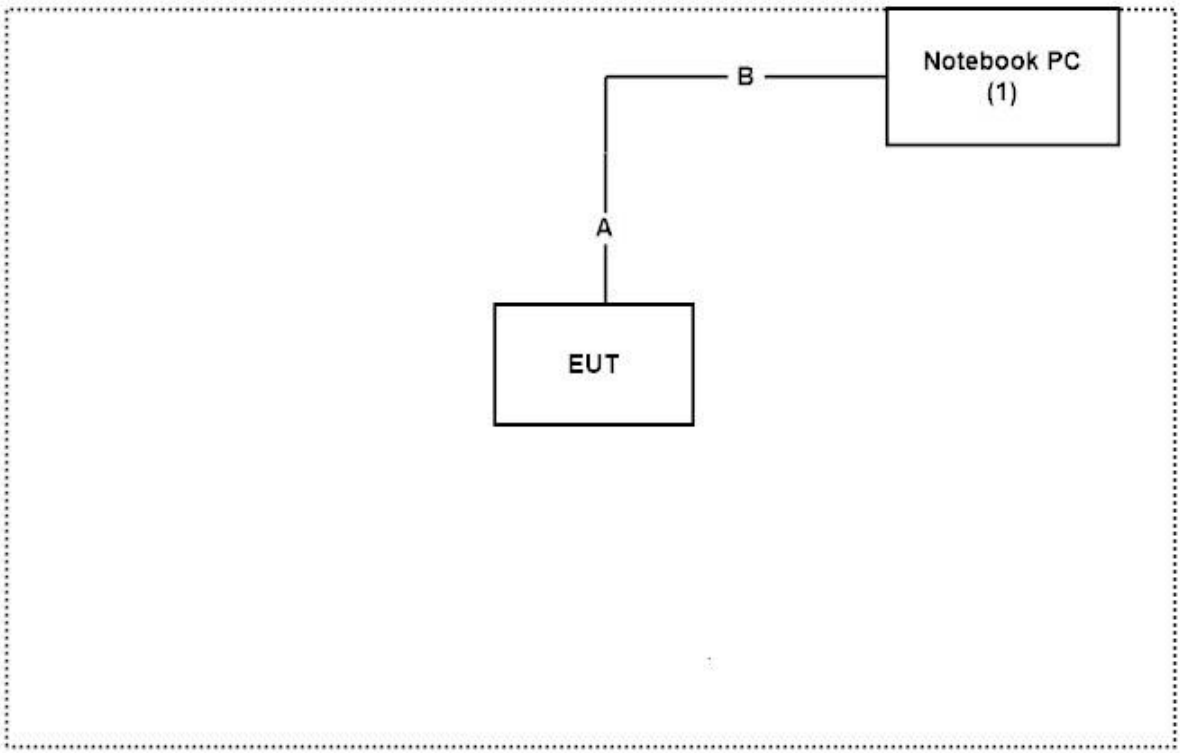
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	B6TYTZ1	Non-Shielded, 0.8m

Signal Cable Type		Signal cable Description
A	USB Cable	Shielded, 0.8m
B	USB Cable	Shielded, 2m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software ”Vendor command v.01.08.2018.0828” on the Notebook PC.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:
http://www.dekra.com.tw/english/about/certificates.aspx?bval=5
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en.aspx

Site Description: Accredited by TAF
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd
Site Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW3023

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2018/02/12	2019/02/11
X	Spectrum Analyzer	Agilent	N9010A	MY53470892	2018/09/27	2019/09/26
X	Peak Power Analyzer	Keysight	8990B	MY51000410	2018/08/01	2019/07/31
X	Wideband Power Sensor	Keysight	N1923A	MY56080003	2018/07/25	2019/07/24
X	Wideband Power Sensor	Keysight	N1923A	MY56080004	2018/07/25	2019/07/24
X	EMI Test Receiver	R&S	ESCS 30	100369	2018/11/07	2019/11/06
X	LISN	R&S	ESH3-Z5	836679/017	2018/02/09	2019/02/08
X	LISN	R&S	ENV216	100097	2018/02/09	2019/02/08
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2018/06/21	2019/06/20

For Radiated measurements /Site3/CB8

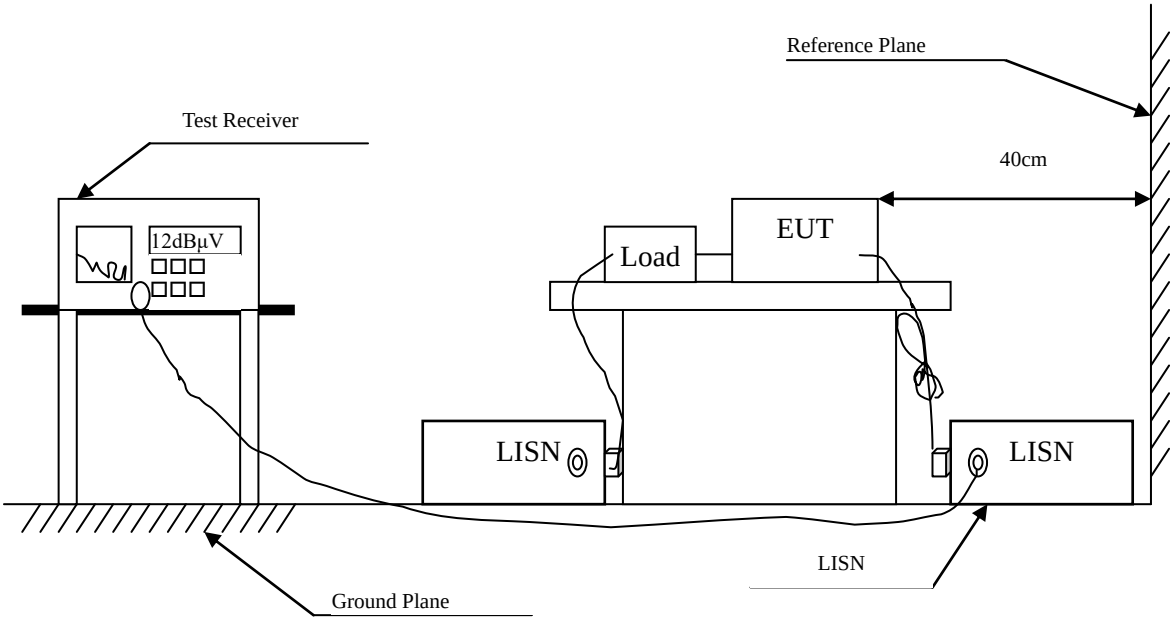
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2018/03/12	2019/03/11
	Loop Antenna	Teseq	HLA6121	37133	2018/10/13	2019/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2018/06/24	2019/06/23
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2018/06/14	2019/06/13
X	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330010	2018/06/14	2019/06/13
X	Horn Antenna	ETS-Lindgren	3117	00135205	2018/05/03	2019/05/02
X	Horn Antenna	SCHWARZBECK	9120D	576	2018/11/30	2019/11/29
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2018/04/10	2019/04/09
	Horn Antenna	Com-Power	AH-840	101043	2018/01/09	2019/01/08
	Amplifier + Cable	EMCI	EMC184045SE	980370	2018/03/21	2019/03/20
X	Filter	MICRO-TRONICS	BRM50702	G270	2018/08/06	2019/08/05
	Filter	MICRO-TRONICS	BRM50716	G196	2018/08/06	2019/08/05

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version :QuieTek EMI 2.0 V2.1.113.

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Uncertainty

± 2.26 dB

2.5. Test Result of Conducted Emission

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Conducted Emission Test
Power Line : Line 1
Test Date : 2018/10/17
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.166	9.744	36.340	46.084	-19.459	65.543
0.177	9.741	37.600	47.341	-17.888	65.229
0.459	9.748	31.420	41.168	-16.003	57.171
1.685	9.809	26.660	36.469	-19.531	56.000
3.517	9.880	30.420	40.299	-15.701	56.000
9.877	10.069	27.120	37.189	-22.811	60.000
Average					
0.166	9.744	26.760	36.504	-19.039	55.543
0.177	9.741	24.870	34.611	-20.618	55.229
0.459	9.748	21.550	31.298	-15.873	47.171
1.685	9.809	16.590	26.399	-19.601	46.000
3.517	9.880	19.700	29.579	-16.421	46.000
9.877	10.069	21.310	31.379	-18.621	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Conducted Emission Test
Power Line : Line 2
Test Date : 2018/10/17
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 2					
Quasi-Peak					
0.170	9.737	42.280	52.017	-13.412	65.429
0.240	9.739	30.740	40.479	-22.950	63.429
0.451	9.738	33.520	43.258	-14.142	57.400
1.830	9.814	26.980	36.794	-19.206	56.000
3.201	9.863	28.260	38.123	-17.877	56.000
9.607	10.075	22.800	32.875	-27.125	60.000
Average					
0.170	9.737	29.480	39.217	-16.212	55.429
0.240	9.739	20.740	30.479	-22.950	53.429
0.451	9.738	21.490	31.228	-16.172	47.400
1.830	9.814	17.580	27.394	-18.606	46.000
3.201	9.863	18.000	27.863	-18.137	46.000
9.607	10.075	16.640	26.715	-23.285	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Conducted Emission Test
Power Line : Line 1
Test Date : 2018/10/17
Test Mode : Mode 4: Charge mode

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.185	9.738	33.780	43.518	-21.482	65.000
0.259	9.740	25.000	34.740	-28.146	62.886
0.498	9.750	31.680	41.430	-14.627	56.057
1.439	9.799	24.380	34.179	-21.821	56.000
3.310	9.865	30.020	39.885	-16.115	56.000
9.408	10.055	24.580	34.635	-25.365	60.000
Average					
0.185	9.738	14.040	23.778	-31.222	55.000
0.259	9.740	10.460	20.200	-32.686	52.886
0.498	9.750	21.120	30.870	-15.187	46.057
1.439	9.799	16.480	26.279	-19.721	46.000
3.310	9.865	18.770	28.635	-17.365	46.000
9.408	10.055	18.850	28.905	-21.095	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Conducted Emission Test
Power Line : Line 2
Test Date : 2018/10/17
Test Mode : Mode 4: Charge mode

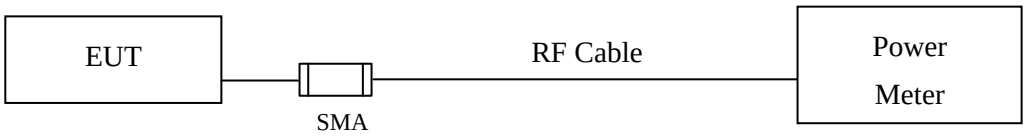
Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.181	9.737	36.100	45.837	-19.277	65.114
0.212	9.738	31.440	41.178	-23.051	64.229
0.509	9.740	33.140	42.880	-13.120	56.000
1.056	9.773	20.160	29.933	-26.067	56.000
3.420	9.868	27.560	37.428	-18.572	56.000
9.166	10.066	17.840	27.906	-32.094	60.000
Average					
0.181	9.737	17.950	27.687	-27.427	55.114
0.212	9.738	15.410	25.148	-29.081	54.229
0.509	9.740	25.340	35.080	-10.920	46.000
1.056	9.773	11.370	21.143	-24.857	46.000
3.420	9.868	16.380	26.248	-19.752	46.000
9.166	10.066	10.670	20.736	-29.264	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup



3.2. Limits

The maximum peak power shall be less 1 Watt.

3.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

3.4. Uncertainty

± 1.19 dB

3.5. Test Result of Peak Power Output

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Date : 2018/10/18
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	10.25	-	-	-	13.49	<30dBm	Pass
06	2437	10.79	10.77	10.76	10.75	13.85	<30dBm	Pass
11	2462	10.77	-	-	-	13.77	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Date : 2018/10/18
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	10.18	-	-	-	-	-	-	-	19.3	<30dBm	Pass
06	2437	10.93	10.92	10.9	10.89	10.87	10.85	10.83	10.81	20.53	<30dBm	Pass
11	2462	10.99	-	-	-	-	-	-	-	20.03	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Date : 2018/10/18
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

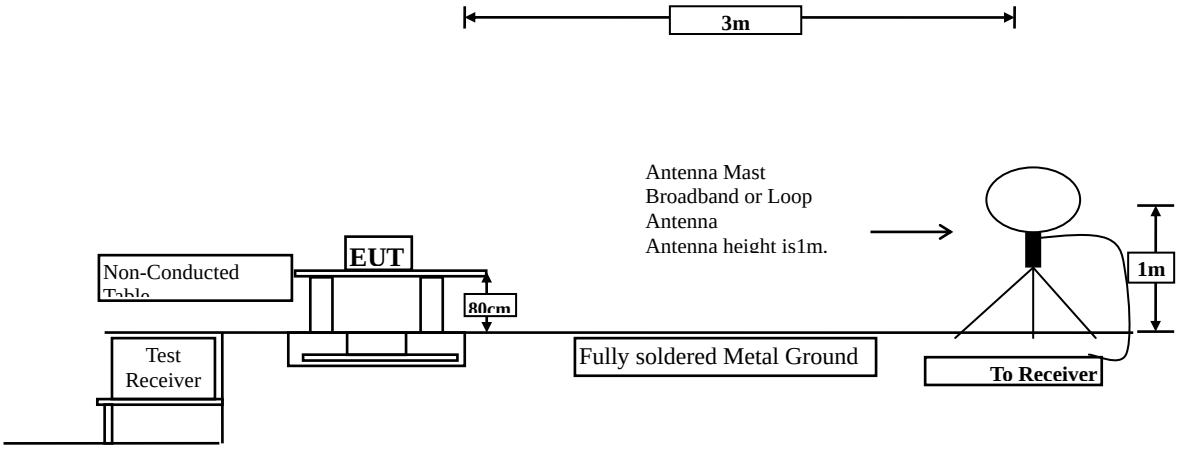
Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	7.2		
		Measurement Level (dBm)										
01	2412	9.82	-	-	-	-	-	-	-	19.23	<30dBm	Pass
06	2437	10.44	10.42	10.41	10.39	10.38	10.36	10.35	10.33	19.82	<30dBm	Pass
11	2462	10.56	-	-	-	-	-	-	-	19.92	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

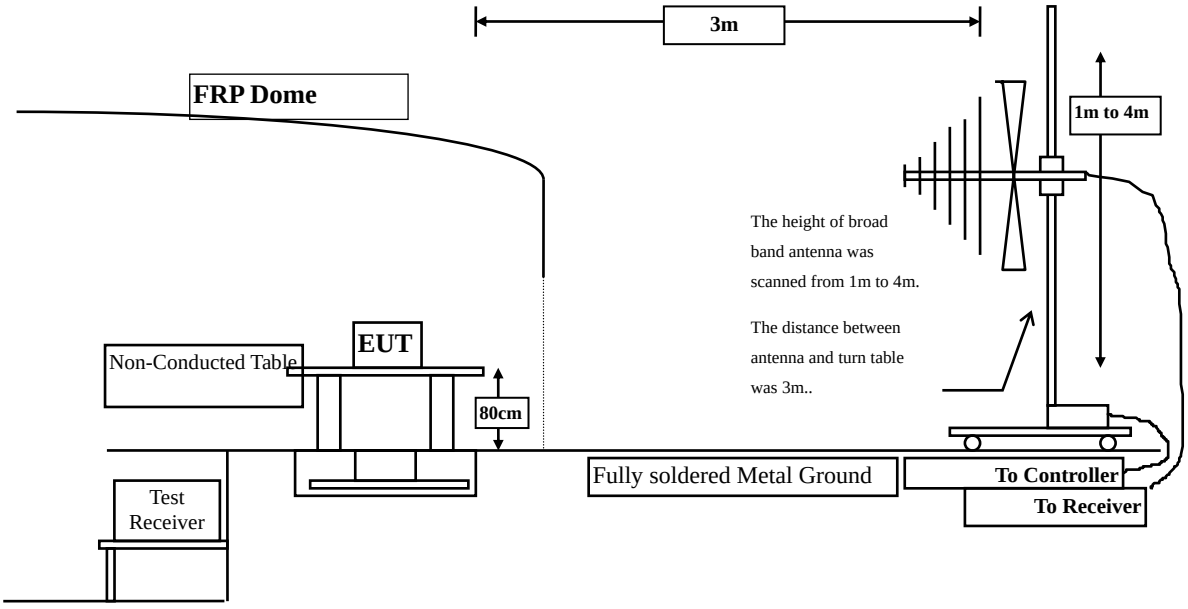
4. Radiated Emission

4.1. Test Setup

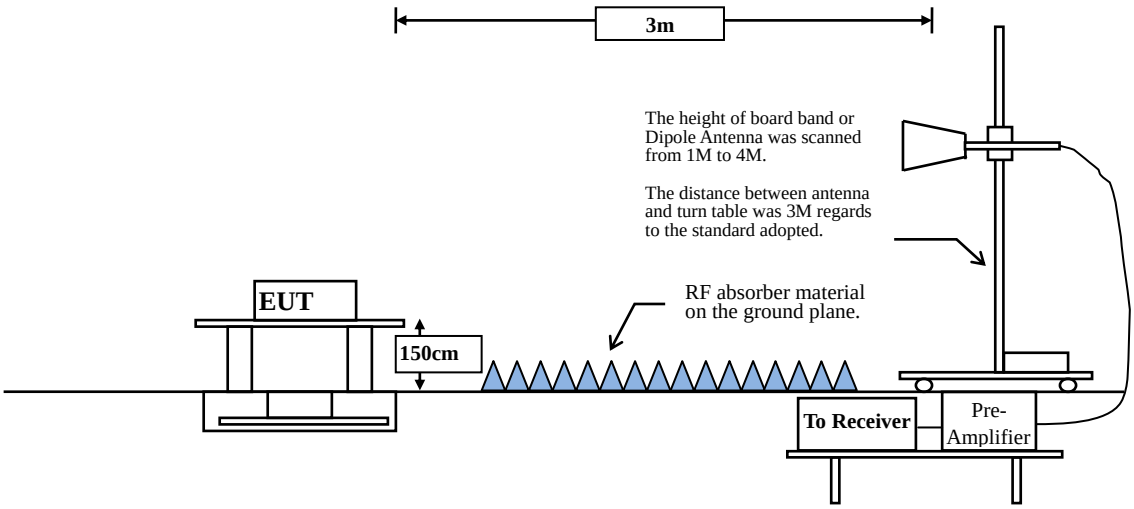
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBμV/m) = 20 log E field strength (uV/m)

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground,when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to KDB 558074 section 12.2.4. Peak power measurement procedure

RBW = as specified in Table 1.

VBW ≥ 3 x RBW.

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to KDB 558074 section 12.2.5. Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	98.98	8.4347	119	200
802.11g	91.75	1.3696	730	1000
802.11n20	91.28	1.2899	775	1000

Note: Duty Cycle Refer to Section 9

4.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

4.5. Test Result of Radiated Emission

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/10/16
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	2.428	39.495	41.924	-32.076	74.000
7236.000	9.177	37.763	46.940	-27.060	74.000
9648.000	10.019	35.562	45.582	-28.418	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	2.836	38.901	41.738	-32.262	74.000
7236.000	9.676	37.233	46.909	-27.091	74.000
9648.000	10.556	35.716	46.273	-27.727	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	360 CAM(WIFI+Bluetooth)
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2018/10/16
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	2.076	39.652	41.729	-32.271	74.000
7311.000	9.512	37.308	46.820	-27.180	74.000
9748.000	9.630	37.278	46.908	-27.092	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	2.532	39.025	41.557	-32.443	74.000
7311.000	10.089	36.779	46.868	-27.132	74.000
9748.000	10.266	37.243	47.510	-26.490	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/10/16
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	2.191	39.887	42.078	-31.922	74.000
7386.000	10.373	36.217	46.591	-27.409	74.000
9848.000	9.964	37.083	47.047	-26.953	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	2.805	39.321	42.126	-31.874	74.000
7386.000	11.180	36.487	47.667	-26.333	74.000
9848.000	10.801	37.501	48.302	-25.698	74.000
Average Detector:					
--					

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/10/16
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	2.428	38.890	41.319	-32.681	74.000
7236.000	9.177	37.577	46.754	-27.246	74.000
9648.000	10.019	36.140	46.160	-27.840	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	2.836	38.673	41.510	-32.490	74.000
7236.000	9.676	37.417	47.093	-26.907	74.000
9648.000	10.556	36.075	46.632	-27.368	74.000
Average Detector:					
--					

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/10/16
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	2.076	39.048	41.125	-32.875	74.000
7311.000	9.512	36.239	45.751	-28.249	74.000
9748.000	9.630	37.408	47.038	-26.962	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	2.532	38.856	41.388	-32.612	74.000
7311.000	10.089	37.305	47.394	-26.606	74.000
9748.000	10.266	37.172	47.439	-26.561	74.000
Average Detector:					
--					

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/10/16
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	2.191	38.774	40.965	-33.035	74.000
7386.000	10.373	36.254	46.628	-27.372	74.000
9848.000	9.964	36.929	46.893	-27.107	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	2.805	38.566	41.371	-32.629	74.000
7386.000	11.180	35.978	47.158	-26.842	74.000
9848.000	10.801	37.242	48.043	-25.957	74.000
Average Detector:					
--					

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/10/16
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	2.428	39.158	41.587	-32.413	74.000
7236.000	9.177	37.007	46.184	-27.816	74.000
9648.000	10.019	36.506	46.526	-27.474	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	2.836	38.064	40.901	-33.099	74.000
7236.000	9.676	36.986	46.662	-27.338	74.000
9648.000	10.556	37.044	47.601	-26.399	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	:	360 CAM(WIFI+Bluetooth)
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2018/10/16
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	2.076	39.138	41.215	-32.785	74.000
7311.000	9.512	36.846	46.358	-27.642	74.000
9748.000	9.630	37.240	46.870	-27.130	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	2.532	39.154	41.686	-32.314	74.000
7311.000	10.089	36.734	46.823	-27.177	74.000
9748.000	10.266	36.885	47.152	-26.848	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/10/16
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	2.191	38.635	40.826	-33.174	74.000
7386.000	10.373	36.393	46.767	-27.233	74.000
9848.000	9.964	37.330	47.294	-26.706	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	2.805	38.672	41.477	-32.523	74.000
7386.000	11.180	36.363	47.543	-26.457	74.000
9848.000	10.801	37.223	48.024	-25.976	74.000
Average Detector:					
--					

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/12/19
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
107.600	-12.392	43.811	31.419	-12.081	43.500
284.140	-8.697	39.860	31.163	-14.837	46.000
352.040	-6.399	42.450	36.051	-9.949	46.000
492.690	-2.917	38.151	35.234	-10.766	46.000
719.670	1.425	31.644	33.069	-12.931	46.000
833.160	3.681	28.646	32.327	-13.673	46.000
Vertical					
105.660	-12.664	46.493	33.829	-9.671	43.500
192.960	-13.303	46.016	32.713	-10.787	43.500
360.770	-6.067	32.378	26.311	-19.689	46.000
610.060	-0.240	34.105	33.865	-12.135	46.000
719.670	1.425	29.574	30.999	-15.001	46.000
833.160	3.681	28.598	32.279	-13.721	46.000

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/12/19
Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
107.600	-12.392	45.729	33.337	-10.163	43.500
240.490	-10.356	41.746	31.390	-14.610	46.000
353.010	-6.360	42.193	35.833	-10.167	46.000
494.630	-2.876	38.487	35.611	-10.389	46.000
719.670	1.425	32.579	34.004	-11.996	46.000
833.160	3.681	29.438	33.119	-12.881	46.000
Vertical					
107.600	-12.392	47.318	34.926	-8.574	43.500
209.450	-12.262	44.448	32.186	-11.314	43.500
288.020	-8.590	39.445	30.855	-15.145	46.000
598.420	-0.449	33.735	33.286	-12.714	46.000
719.670	1.425	29.113	30.538	-15.462	46.000
833.160	3.681	28.699	32.380	-13.620	46.000

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/12/19
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
107.600	-12.392	43.530	31.138	-12.362	43.500
241.460	-10.278	40.895	30.617	-15.383	46.000
353.010	-6.360	41.495	35.135	-10.865	46.000
492.690	-2.917	38.225	35.308	-10.692	46.000
719.670	1.425	31.041	32.466	-13.534	46.000
833.160	3.681	29.313	32.994	-13.006	46.000
Vertical					
107.600	-12.392	46.780	34.388	-9.112	43.500
363.680	-5.960	31.695	25.735	-20.265	46.000
491.720	-2.942	35.490	32.548	-13.452	46.000
719.670	1.425	28.099	29.524	-16.476	46.000
833.160	3.681	28.705	32.386	-13.614	46.000
935.980	5.646	26.177	31.823	-14.177	46.000

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/12/19
Test Mode : Mode 4: Charge mode

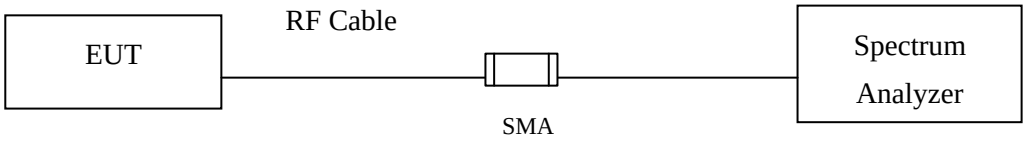
Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
137.670	-11.980	39.374	27.394	-16.106	43.500
239.520	-10.448	44.030	33.582	-12.418	46.000
348.160	-6.535	42.733	36.198	-9.802	46.000
530.520	-2.013	33.952	31.939	-14.061	46.000
647.890	0.433	25.759	26.192	-19.808	46.000
815.700	3.241	27.316	30.557	-15.443	46.000
Vertical					
136.700	-11.932	40.454	28.522	-14.978	43.500
211.390	-12.234	45.420	33.186	-10.314	43.500
348.160	-6.535	45.743	39.208	-6.792	46.000
547.980	-1.578	28.256	26.678	-19.322	46.000
702.210	1.001	24.182	25.183	-20.817	46.000
860.320	4.221	22.771	26.992	-19.008	46.000

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

5. RF antenna conducted test

5.1. Test Setup

RF antenna Conducted Measurement:



5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. 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)).

5.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

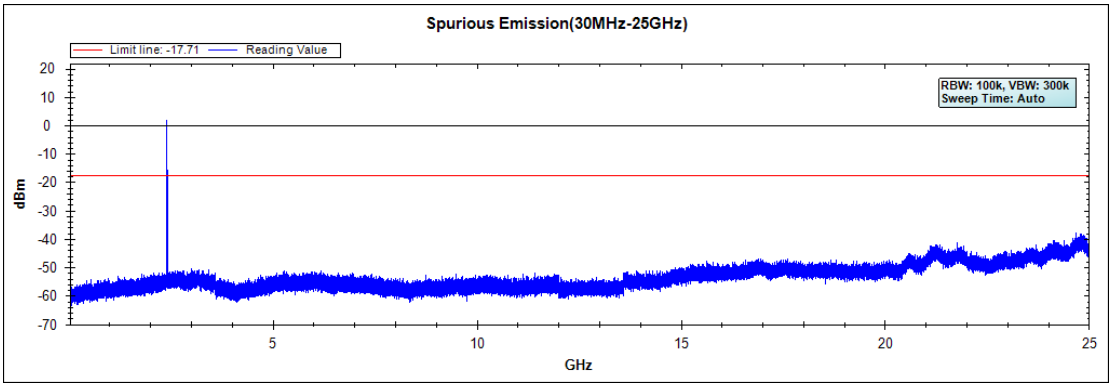
5.4. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.20dB

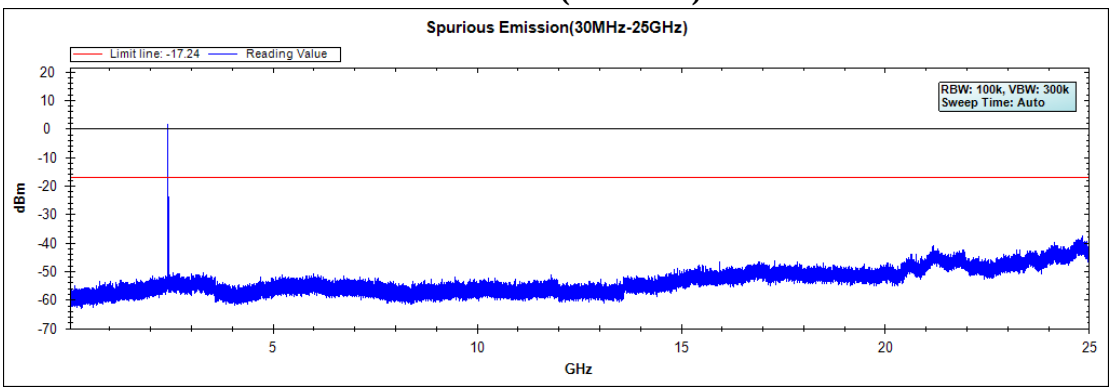
5.5. Test Result of RF antenna conducted test

Product	:	360 CAM(WIFI+Bluetooth)
Test Item	:	RF antenna conducted test
Test Site	:	No.3 OATS
Test Date	:	2018/10/18
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

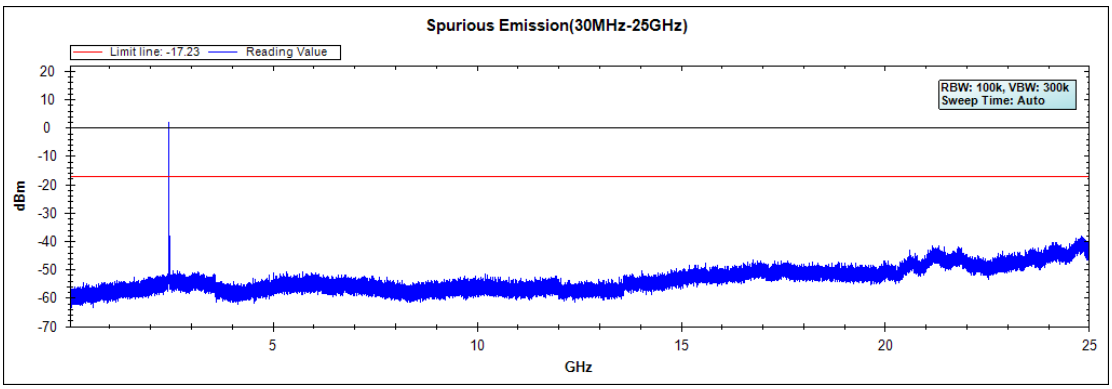
Channel 01 (2412MHz)



Channel 06 (2437MHz)



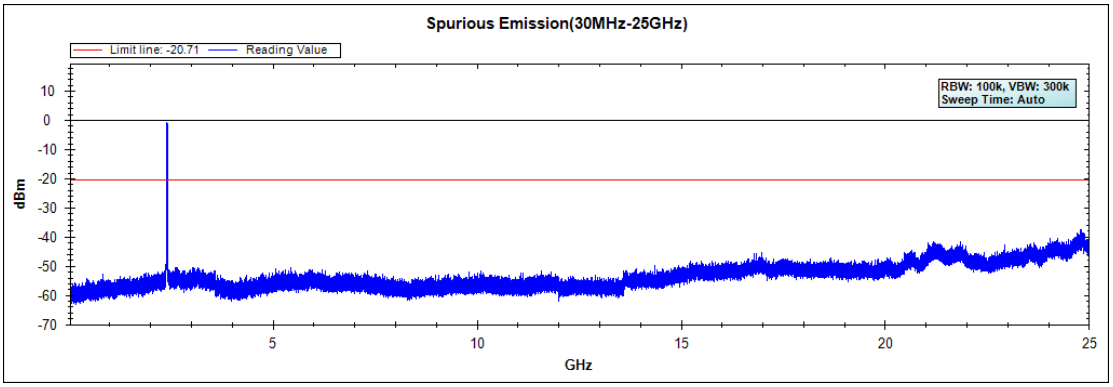
Channel 11 (2462MHz)



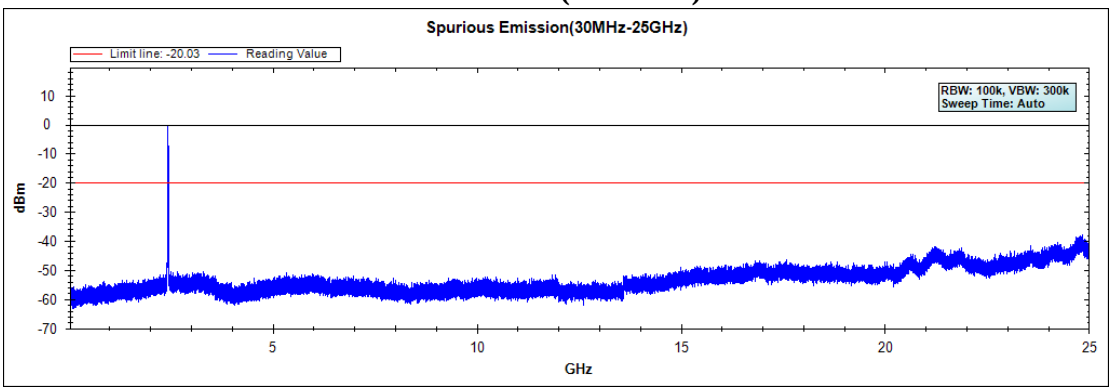
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	360 CAM(WIFI+Bluetooth)
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2018/10/18
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

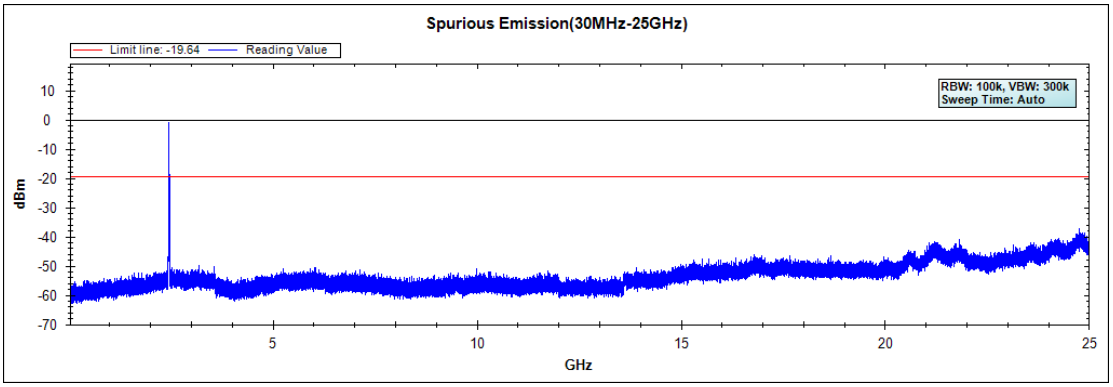
Channel 01 (2412MHz)



Channel 06 (2437MHz)



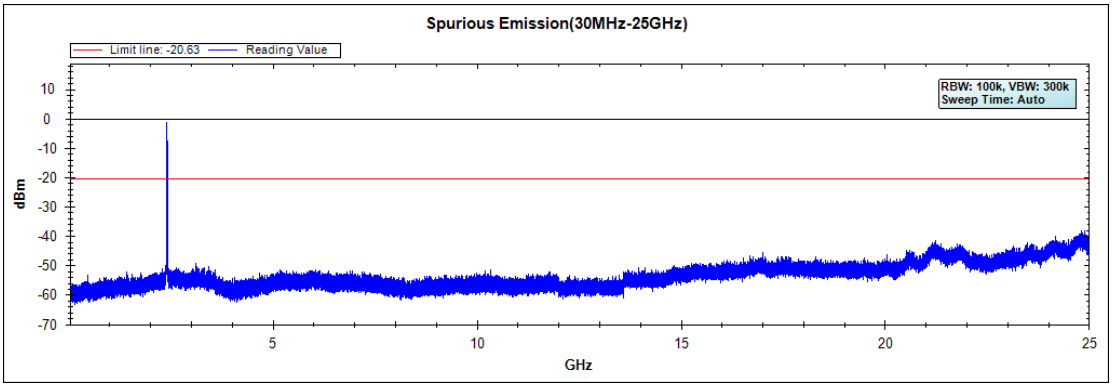
Channel 11 (2462MHz)



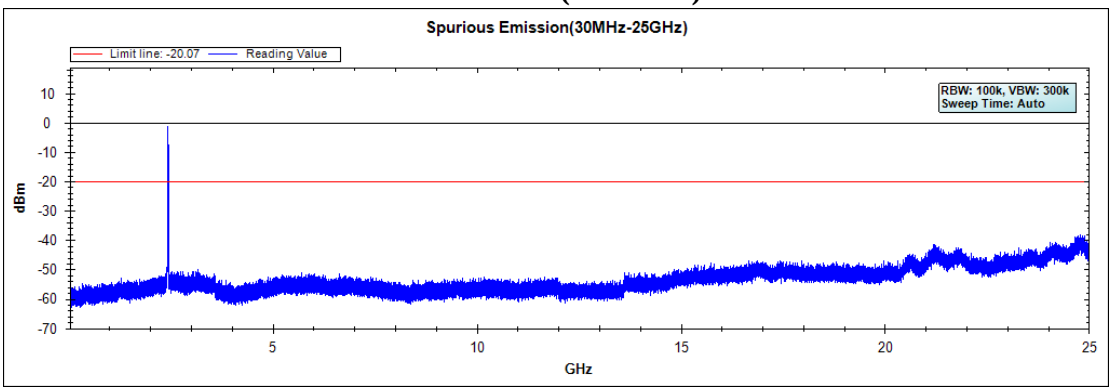
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	360 CAM(WIFI+Bluetooth)
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2018/10/18
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

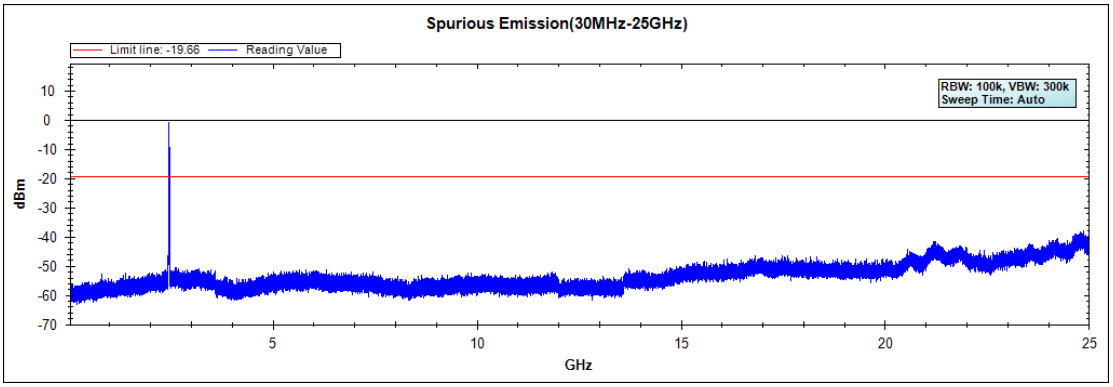
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

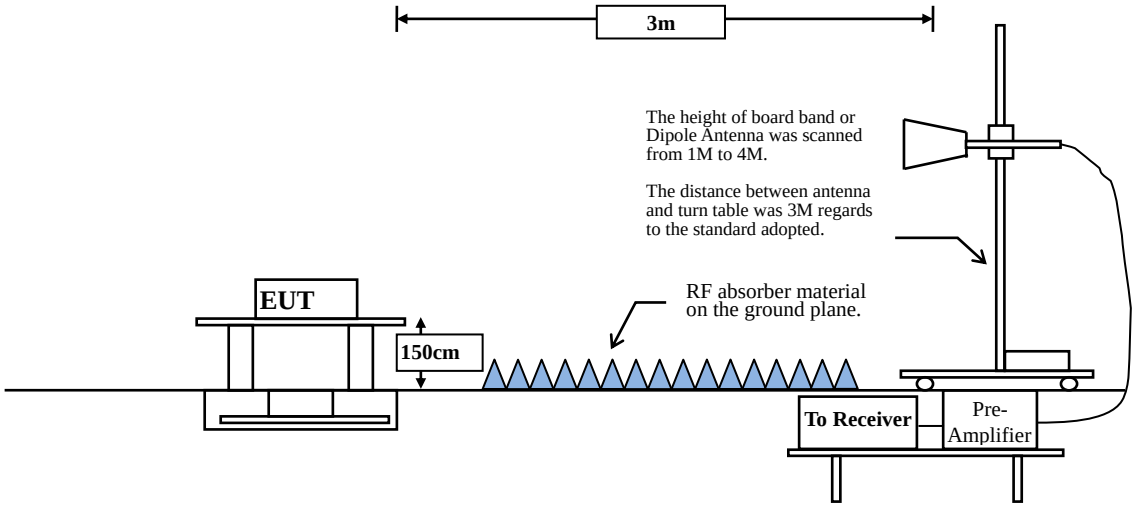


Note: The above test pattern is synthesized by multiple of the frequency range.

6. Band Edge

6.1. Test Setup

RF Radiated Measurement:



6.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

RBW and VBW Parameter setting:

According to KDB 558074 section 12.2.4. Peak power measurement procedure

RBW = as specified in Table 1.

VBW ≥ 3 x RBW.

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to KDB 558074 section 12.2.5. Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	98.98	8.4347	119	200
802.11g	91.75	1.3696	730	1000
802.11n20	91.28	1.2899	775	1000

Note: Duty Cycle Refer to Section 9

6.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

6.5. Test Result of Band Edge

Product	:	360 CAM(WIFI+Bluetooth)
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2018/10/13
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2388.841	6.470	40.852	47.322	74.00	54.00	Pass
01 (Peak)	2390.000	6.474	39.067	45.542	74.00	54.00	Pass
01 (Peak)	2400.000	6.528	43.406	49.934	--	--	--
01 (Peak)	2410.435	6.592	84.037	90.629	--	--	--
01 (Average)	2375.942	6.413	23.667	30.080	74.00	54.00	Pass
01 (Average)	2390.000	6.474	22.590	29.065	74.00	54.00	Pass
01 (Average)	2400.000	6.528	36.225	42.753	--	--	--
01 (Average)	2411.304	6.598	82.435	89.033	--	--	--

Figure Channel 01: Horizontal (Peak)

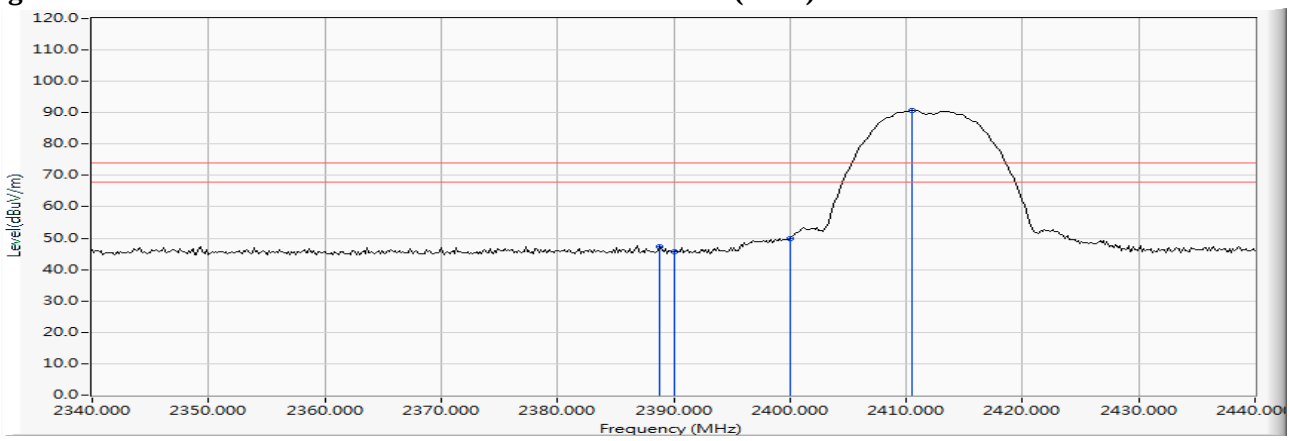
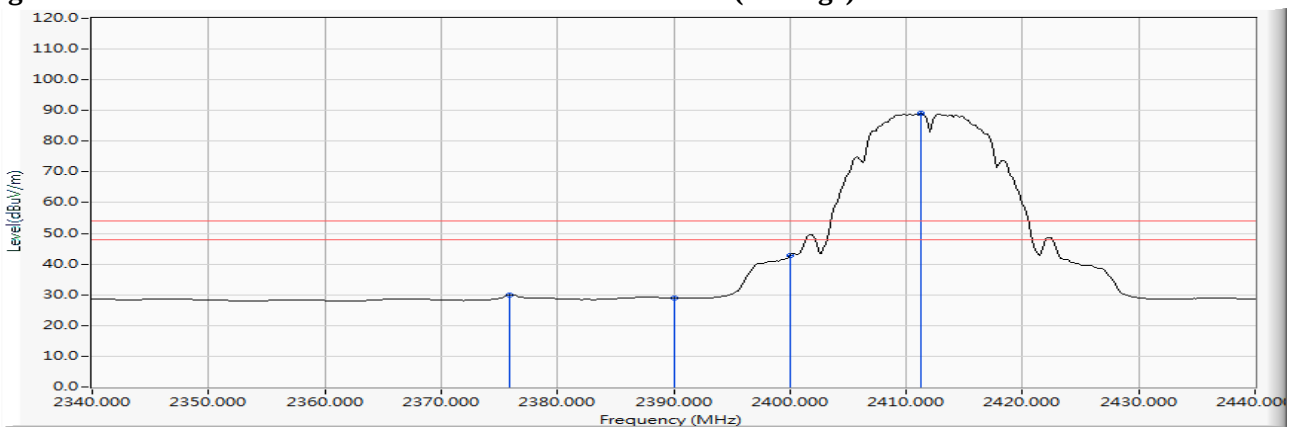


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	5.880	39.688	45.569	74.00	54.00	Pass
01 (Peak)	2400.000	5.879	43.515	49.394	--	--	--
01 (Peak)	2410.435	5.906	82.840	88.746	--	--	--
01 (Average)	2390.000	5.880	22.563	28.444	74.00	54.00	Pass
01 (Average)	2400.000	5.879	34.898	40.777	--	--	--
01 (Average)	2411.304	5.910	81.147	87.056	--	--	--

Figure Channel 01: VERTICAL (Peak)

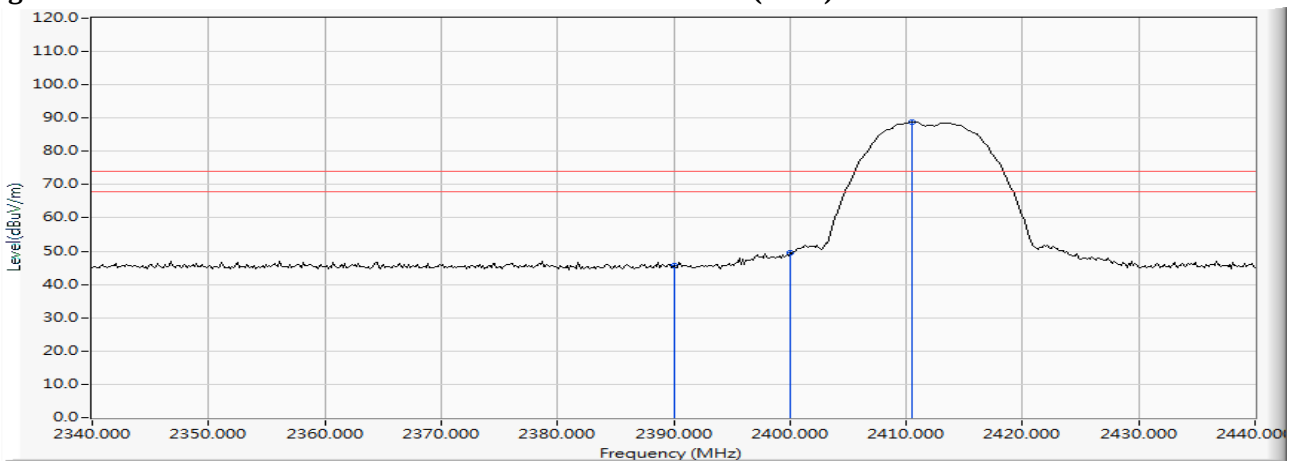
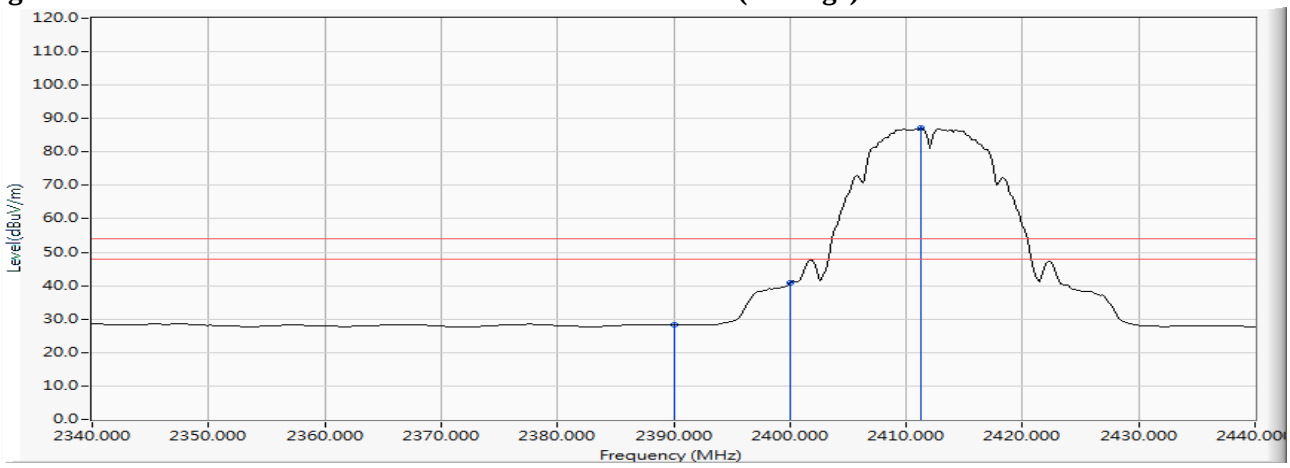


Figure Channel 01: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2463.065	6.966	84.844	91.810	--	--	--
11 (Peak)	2483.500	7.110	40.329	47.439	74.00	54.00	Pass
11 (Average)	2462.630	6.963	83.307	90.270	--	--	--
11 (Average)	2483.500	7.110	22.570	29.680	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

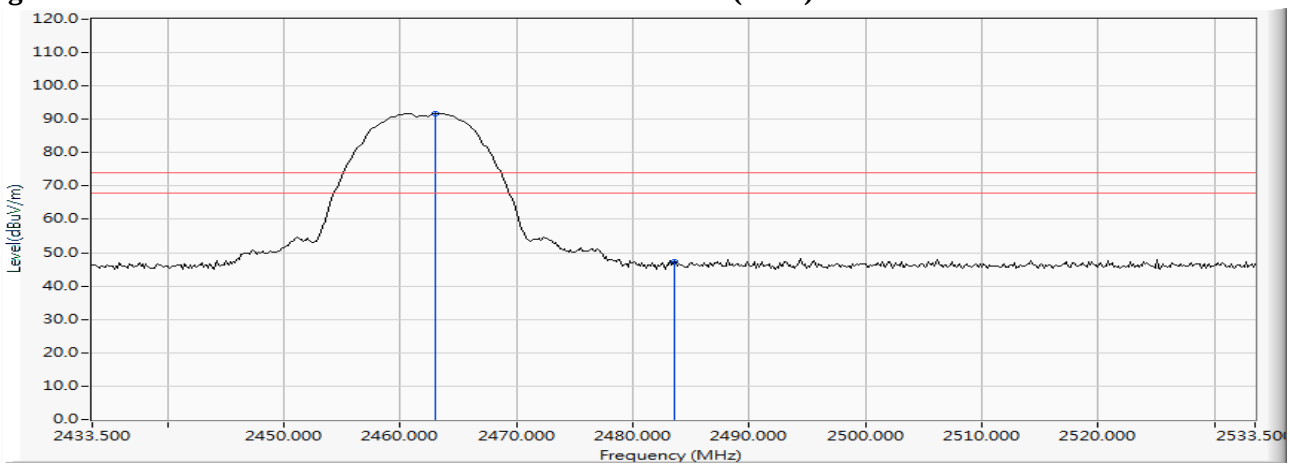
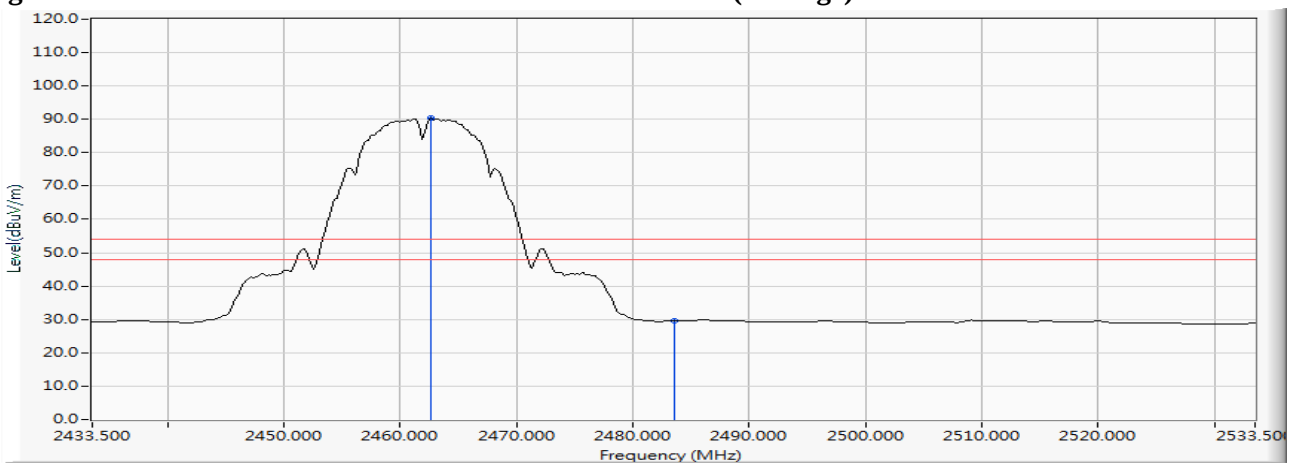


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2462.920	6.235	83.293	89.528	--	--	--
11 (Peak)	2483.500	6.363	40.308	46.671	74.00	54.00	Pass
11 (Average)	2462.630	6.234	81.975	88.208	--	--	--
11 (Average)	2483.500	6.363	22.135	28.498	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

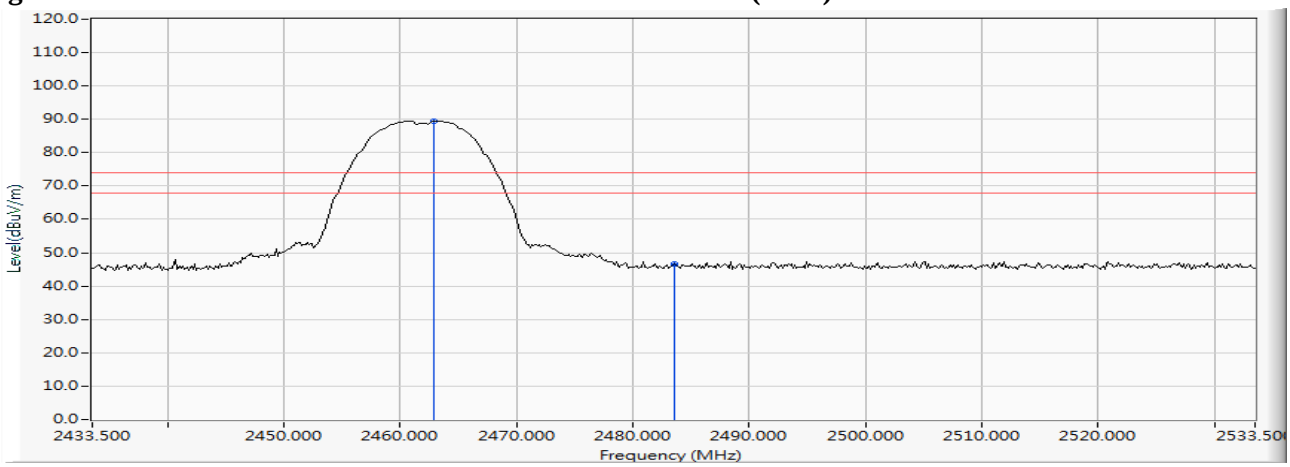
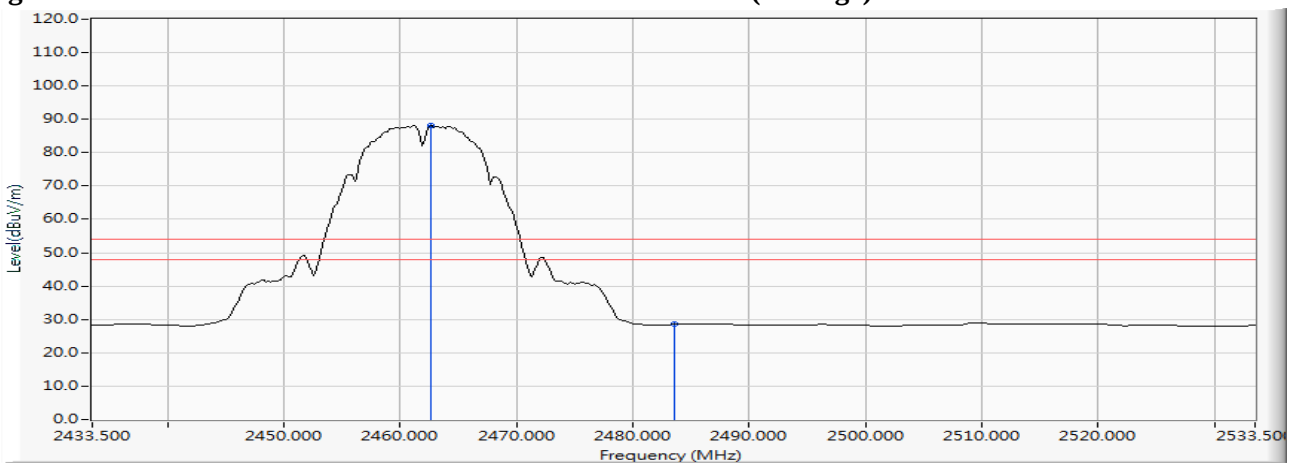


Figure Channel 11: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	6.474	48.960	55.435	74.00	54.00	Pass
01 (Peak)	2397.681	6.514	59.596	66.110	--	--	--
01 (Peak)	2400.000	6.528	57.195	63.723	--	--	--
01 (Peak)	2412.609	6.607	88.552	95.159	--	--	--
01 (Average)	2390.000	6.474	30.134	36.609	74.00	54.00	Pass
01 (Average)	2400.000	6.528	43.242	49.770	--	--	--
01 (Average)	2411.304	6.598	81.873	88.471	--	--	--

Figure Channel 01: Horizontal (Peak)

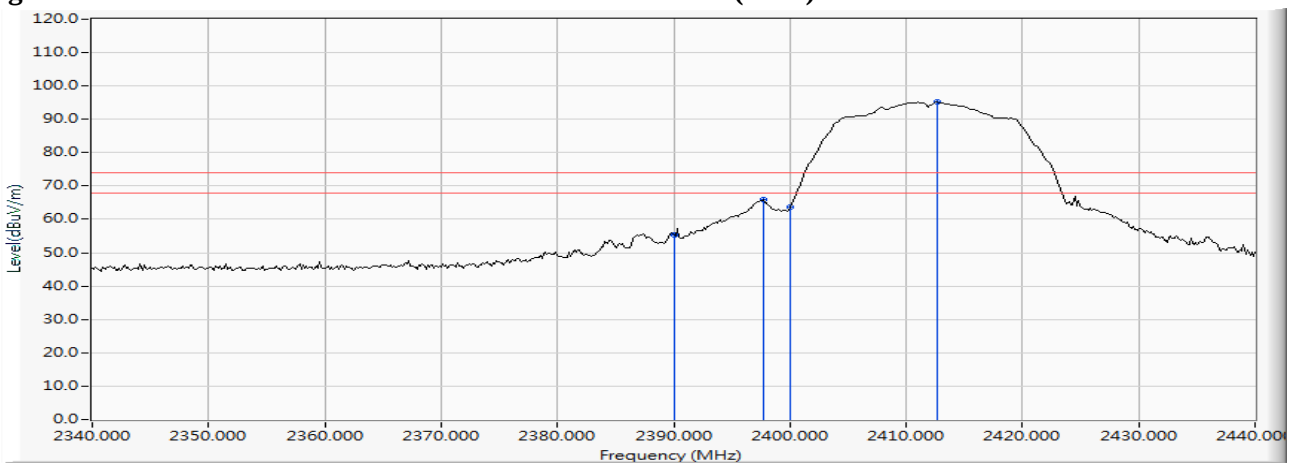
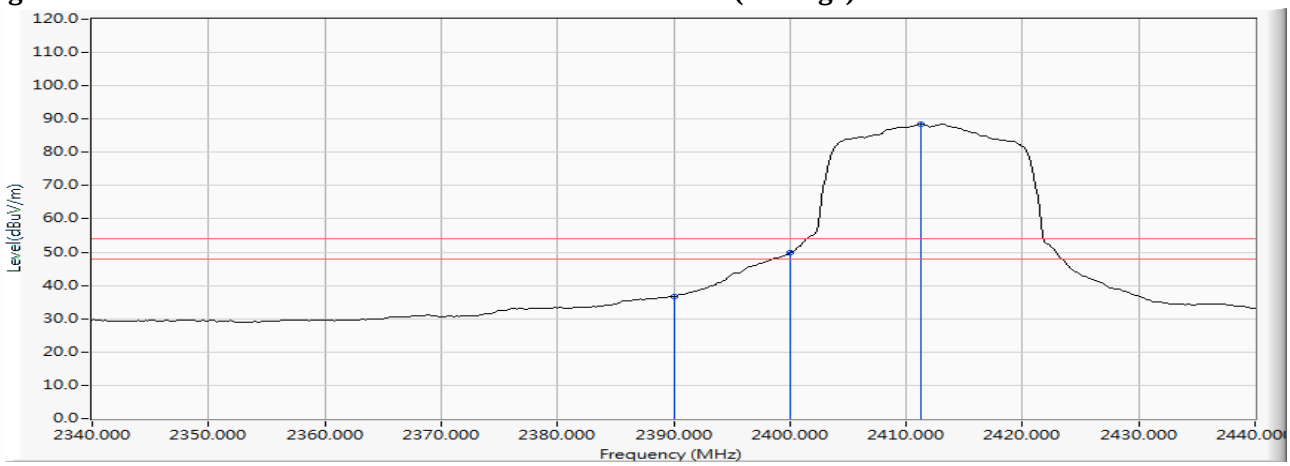


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	5.880	48.398	54.279	74.00	54.00	Pass
01 (Peak)	2397.536	5.873	57.467	63.340	--	--	--
01 (Peak)	2400.000	5.879	55.252	61.131	--	--	--
01 (Peak)	2411.159	5.909	86.496	92.404	--	--	--
01 (Average)	2390.000	5.880	29.188	35.069	74.00	54.00	Pass
01 (Average)	2400.000	5.879	41.742	47.621	--	--	--
01 (Average)	2411.304	5.910	79.933	85.842	--	--	--

Figure Channel 01: VERTICAL (Peak)

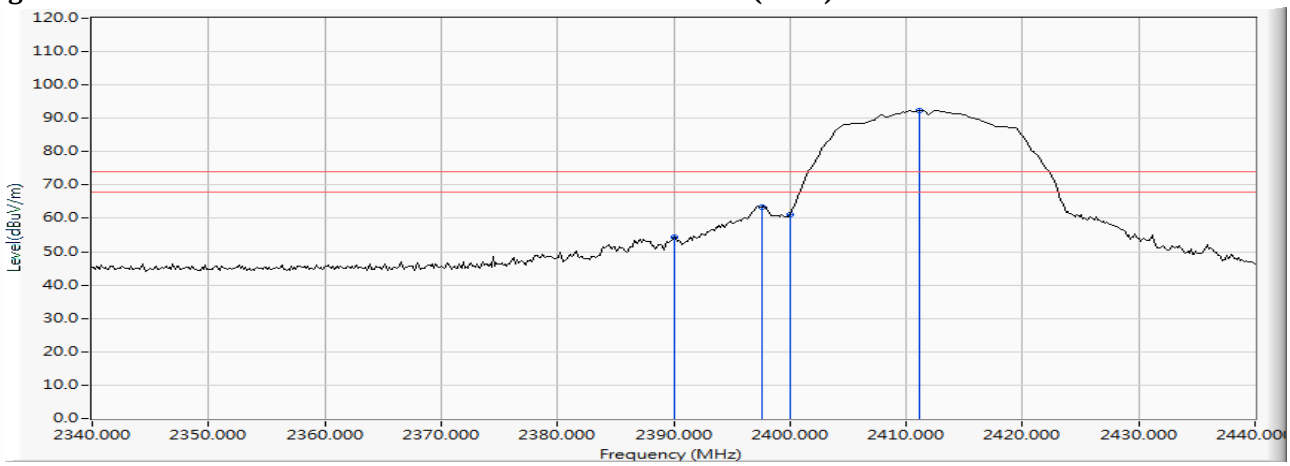
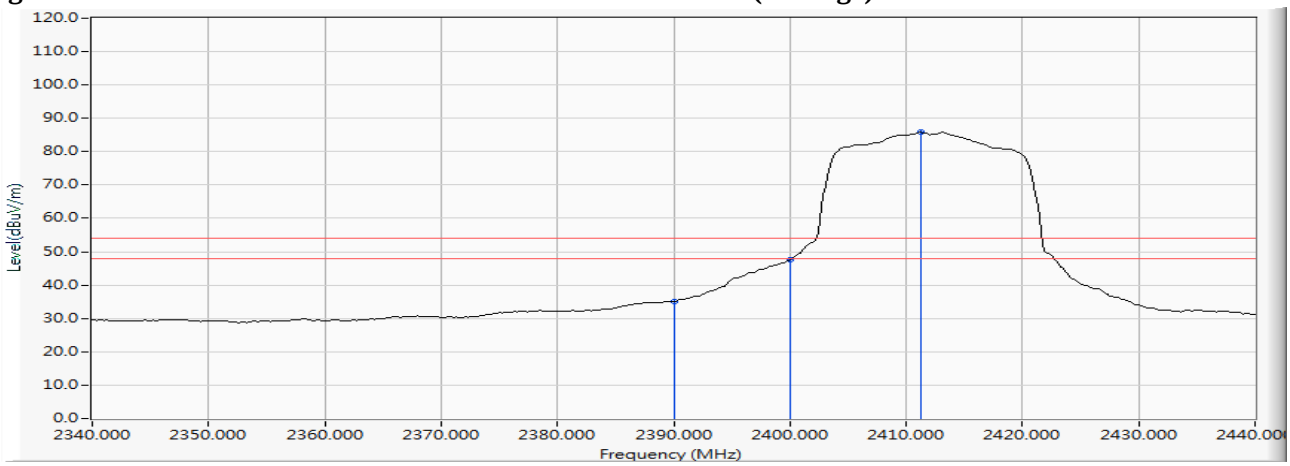


Figure Channel 01: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2462.486	6.962	88.211	95.173	--	--	--
11 (Peak)	2483.500	7.110	46.759	53.869	74.00	54.00	Pass
11 (Average)	2462.920	6.965	81.550	88.515	--	--	--
11 (Average)	2483.500	7.110	27.085	34.195	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

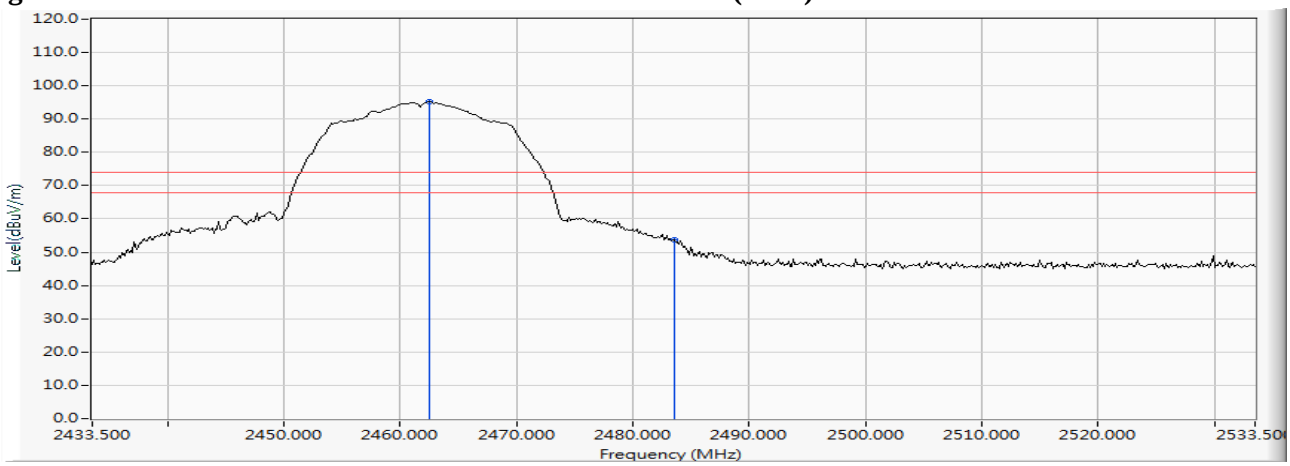
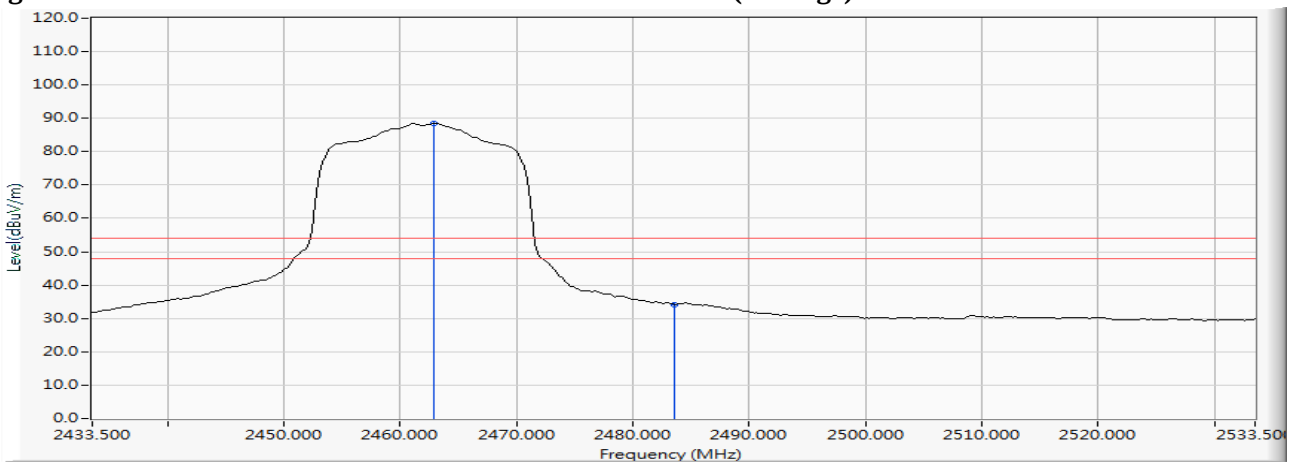


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2462.486	6.233	88.311	94.543	--	--	--
11 (Peak)	2483.500	6.363	45.473	51.836	74.00	54.00	Pass
11 (Average)	2462.920	6.235	81.632	87.867	--	--	--
11 (Average)	2483.500	6.363	26.797	33.160	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

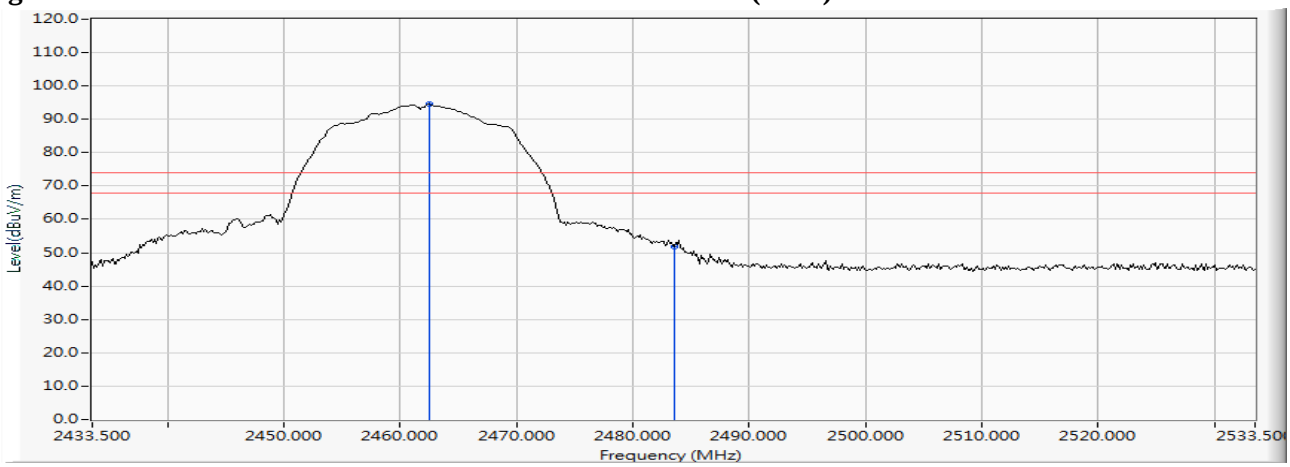
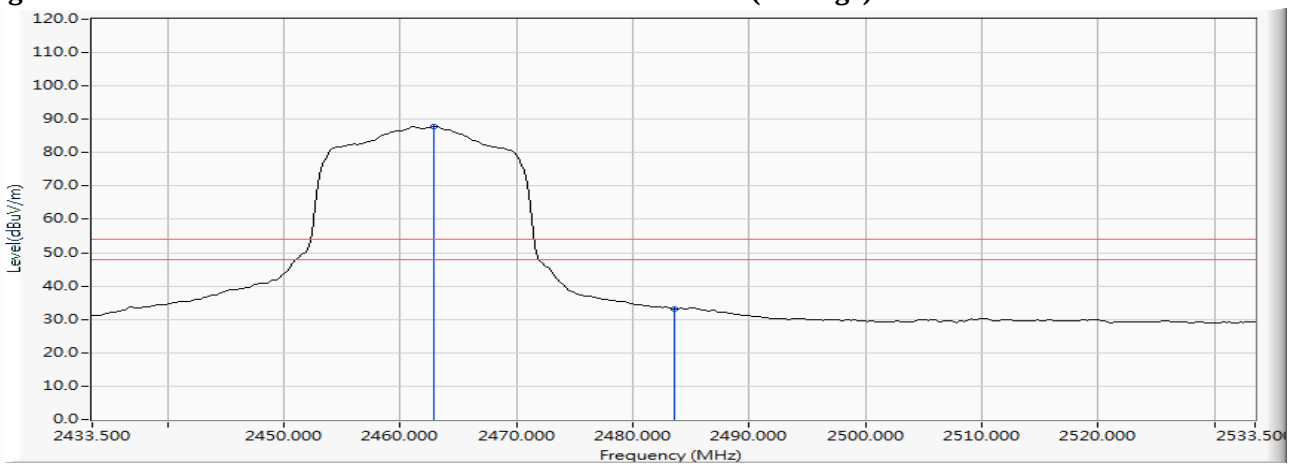


Figure Channel 11: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	6.474	49.664	56.139	74.00	54.00	Pass
01 (Peak)	2397.971	6.516	56.980	63.496	--	--	--
01 (Peak)	2400.000	6.528	55.796	62.324	--	--	--
01 (Peak)	2409.710	6.588	89.069	95.657	--	--	--
01 (Average)	2390.000	6.474	28.740	35.215	74.00	54.00	Pass
01 (Average)	2400.000	6.528	38.488	45.016	--	--	--
01 (Average)	2411.304	6.598	80.958	87.556	--	--	--

Figure Channel 01: Horizontal (Peak)

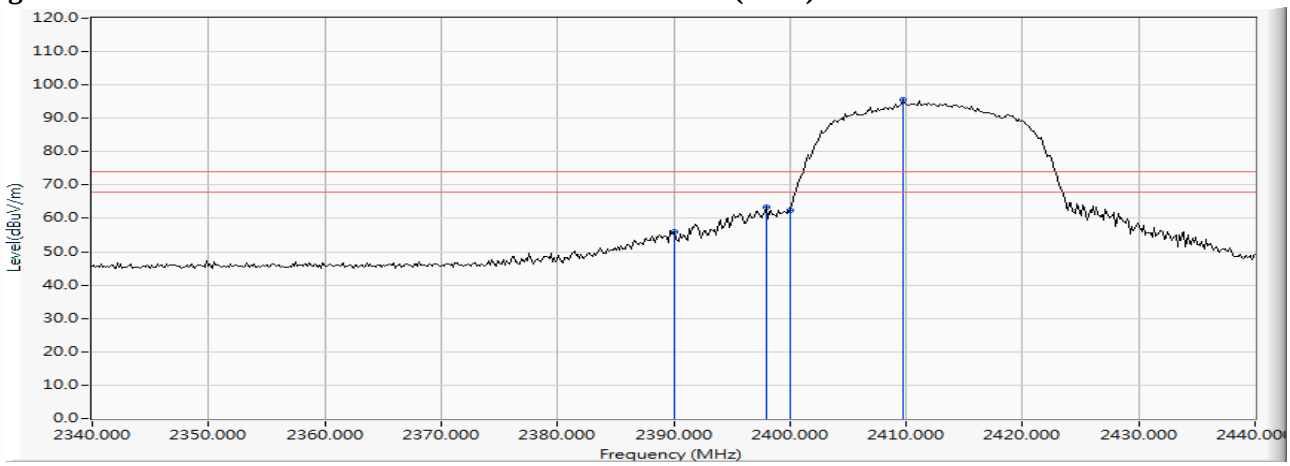
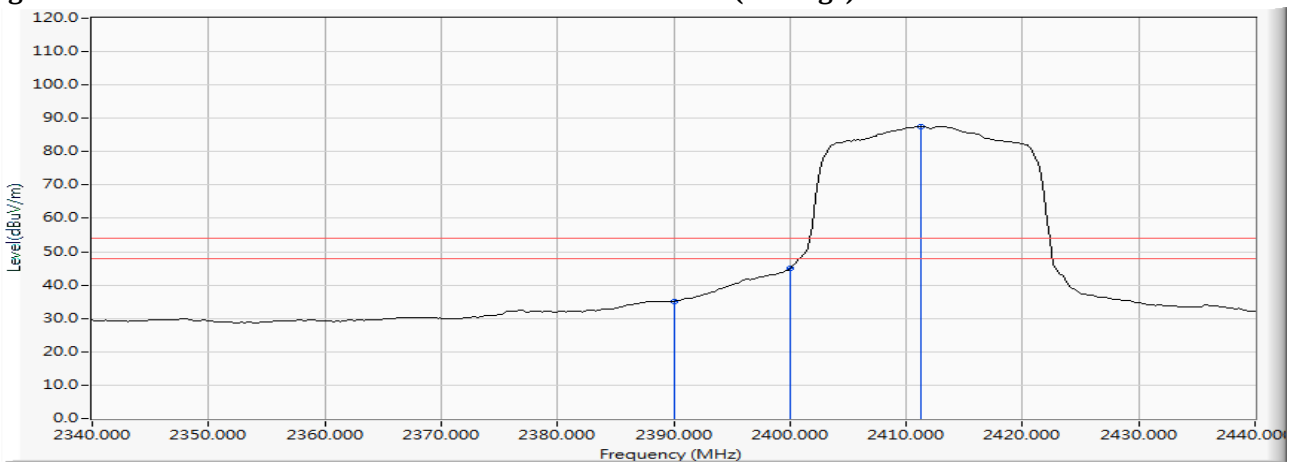


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	5.880	48.883	54.764	74.00	54.00	Pass
01 (Peak)	2400.000	5.879	54.966	60.845	--	--	--
01 (Peak)	2410.435	5.906	87.175	93.081	--	--	--
01 (Average)	2390.000	5.880	28.367	34.248	74.00	54.00	Pass
01 (Average)	2400.000	5.879	36.966	42.845	--	--	--
01 (Average)	2413.188	5.921	79.283	85.204	--	--	--

Figure Channel 01: VERTICAL (Peak)

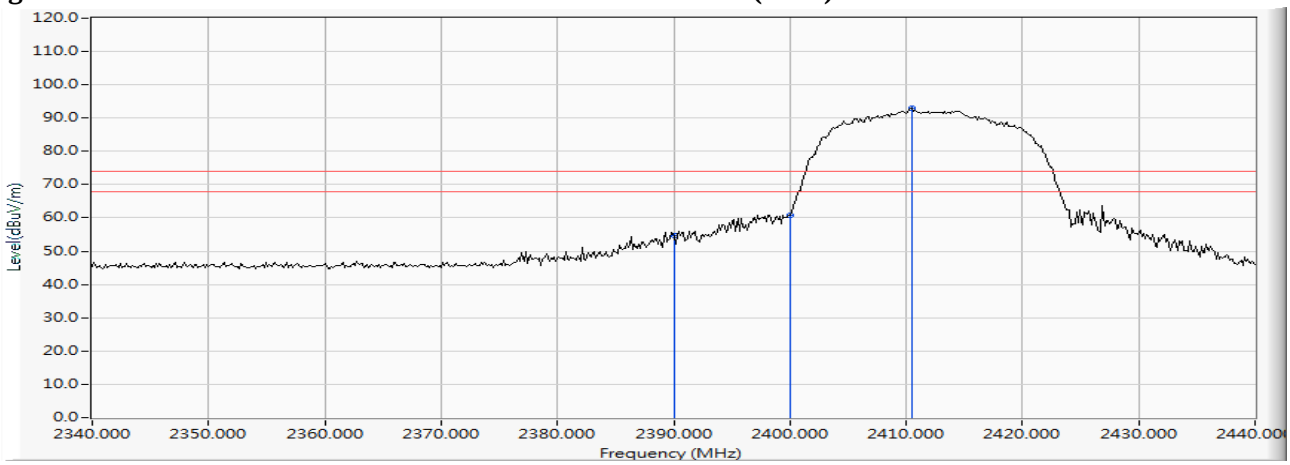
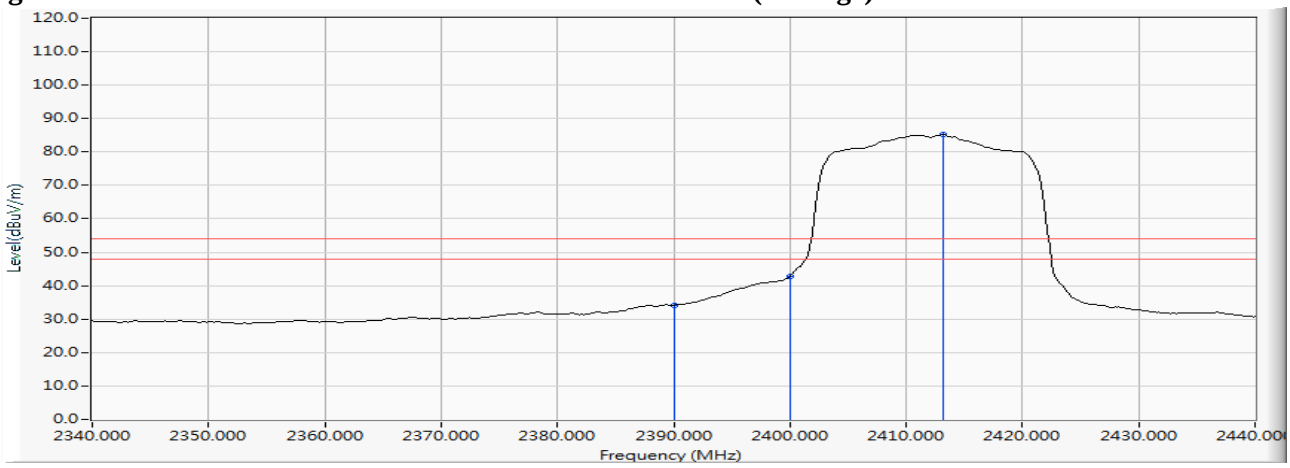


Figure Channel 01: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2461.761	6.956	87.129	94.086	--	--	--
11 (Peak)	2483.500	7.110	45.415	52.525	74.00	54.00	Pass
11 (Average)	2462.775	6.964	79.981	86.945	--	--	--
11 (Average)	2483.500	7.110	25.454	32.564	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

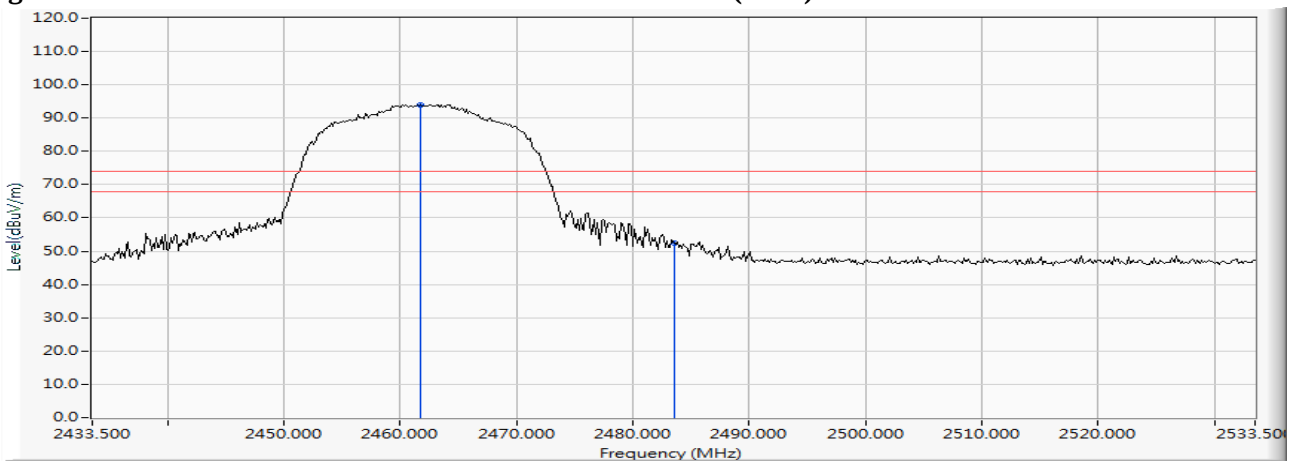
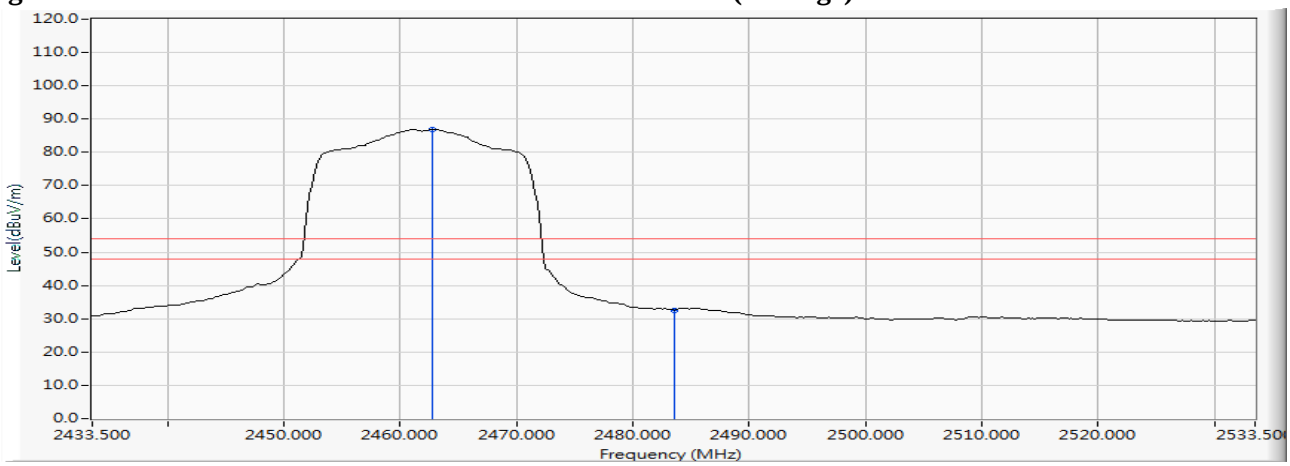


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/10/13
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2459.732	6.215	87.031	93.246	--	--	--
11 (Peak)	2483.500	6.363	42.652	49.015	74.00	54.00	Pass
11 (Peak)	2483.645	6.364	45.692	52.056	74.00	54.00	Pass
11 (Average)	2462.920	6.235	79.039	85.274	--	--	--
11 (Average)	2483.500	6.363	24.682	31.045	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

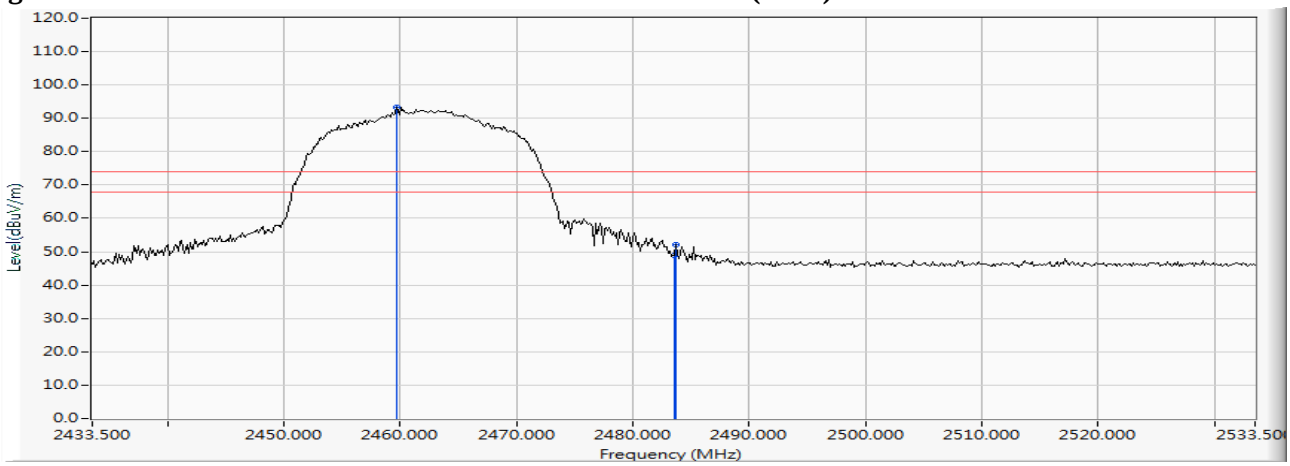
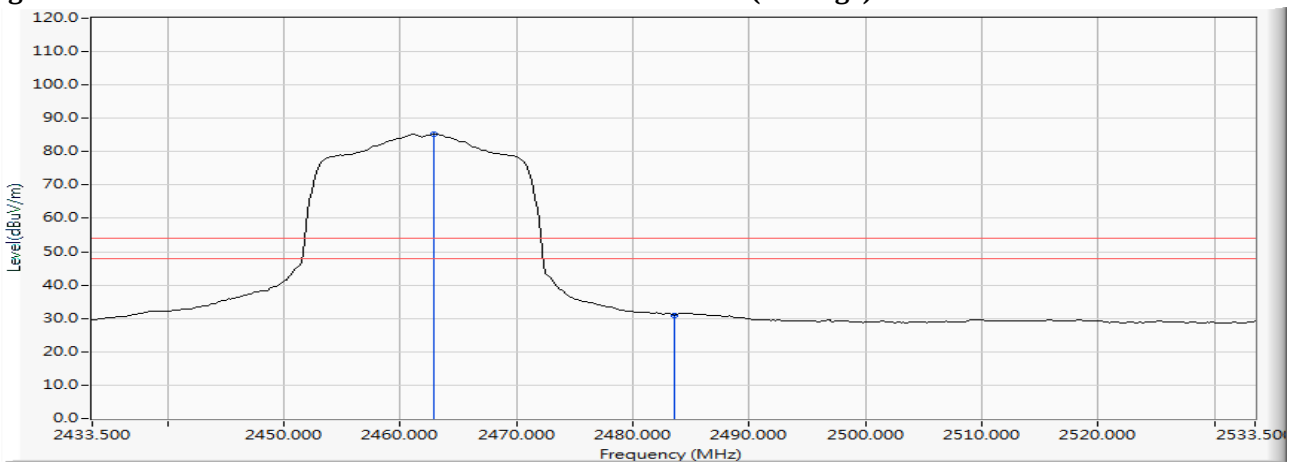


Figure Channel 11: VERTICAL (Average)

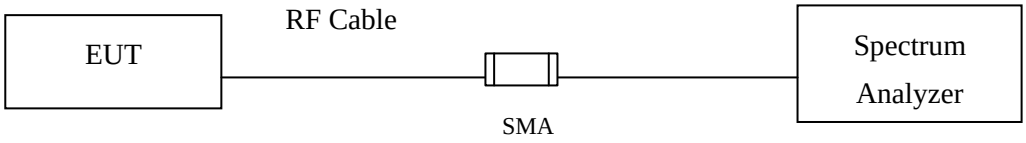


Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

7. 6dB Bandwidth

7.1. Test Setup



7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

7.3. Test Procedure

The EUT was setup according to ANSI C63.4: 2014; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

7.4. Uncertainty

± 283Hz

7.5. Test Result of 6dB Bandwidth

Product : 360 CAM(WIFI+Bluetooth)
Test Item : 6dB Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	8200	>500	Pass
06	2437	8200	>500	Pass
11	2462	8650	>500	Pass

Figure Channel 01:

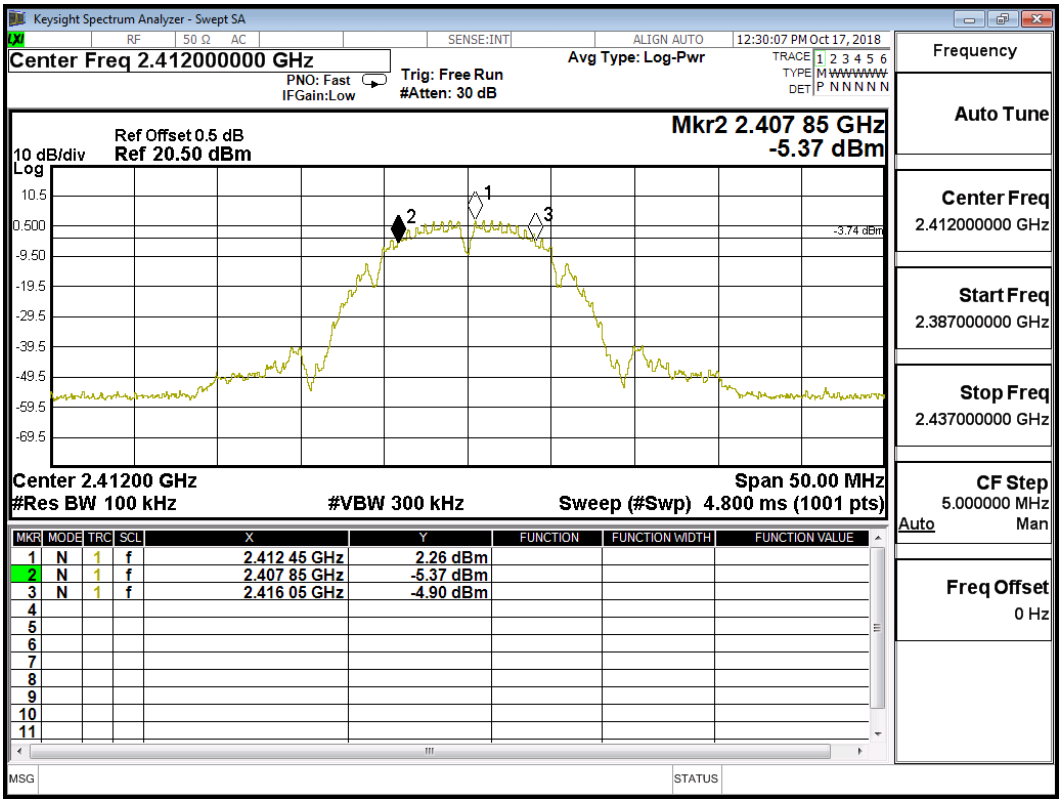


Figure Channel 06:

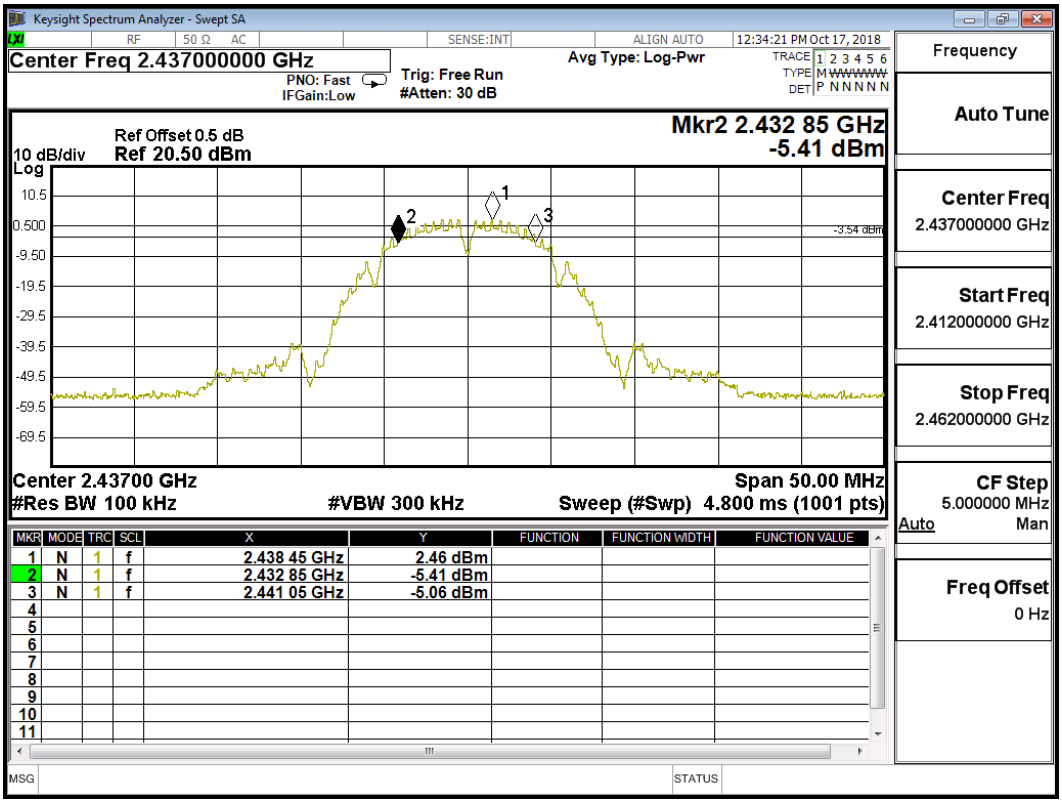
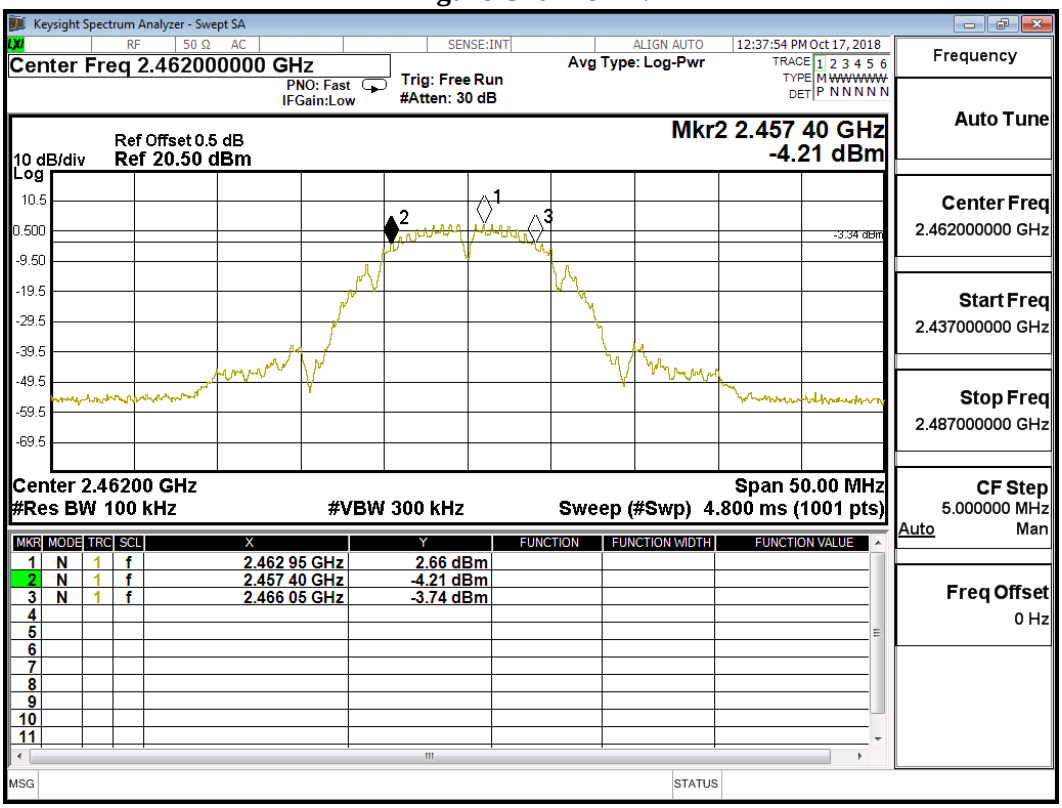


Figure Channel 11:



Product : 360 CAM(WIFI+Bluetooth)
Test Item : 6dB Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	15450	>500	Pass
06	2437	15500	>500	Pass
11	2462	15300	>500	Pass

Figure Channel 01:

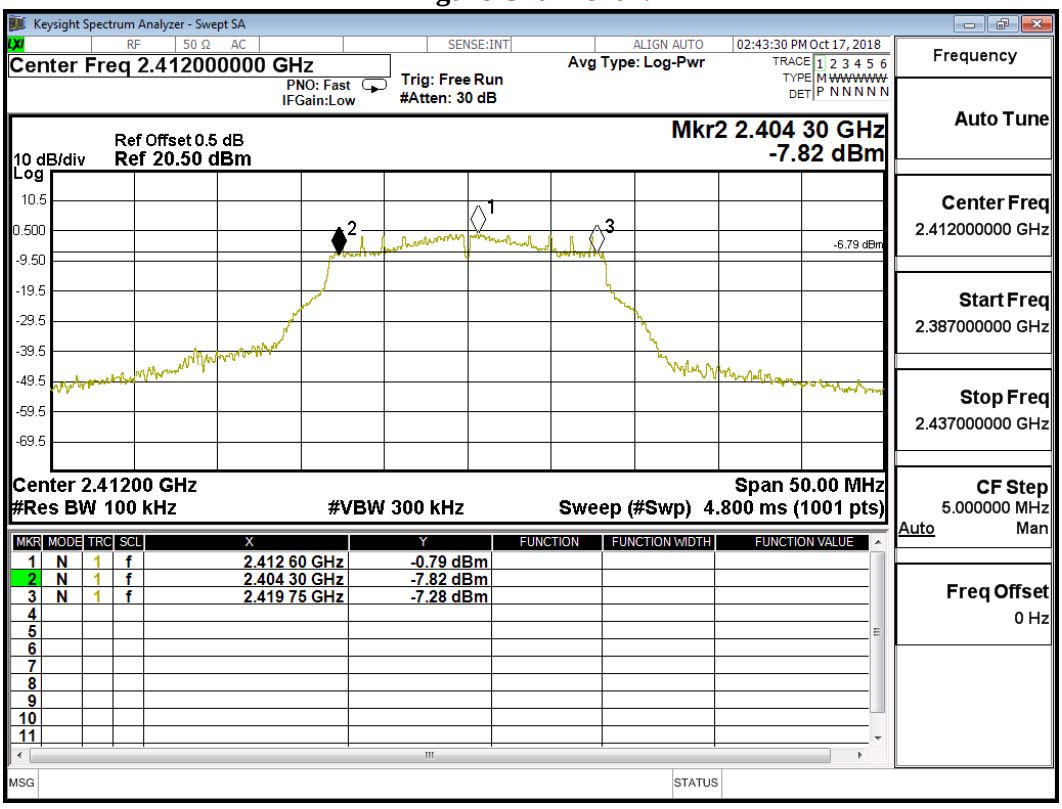


Figure Channel 06:

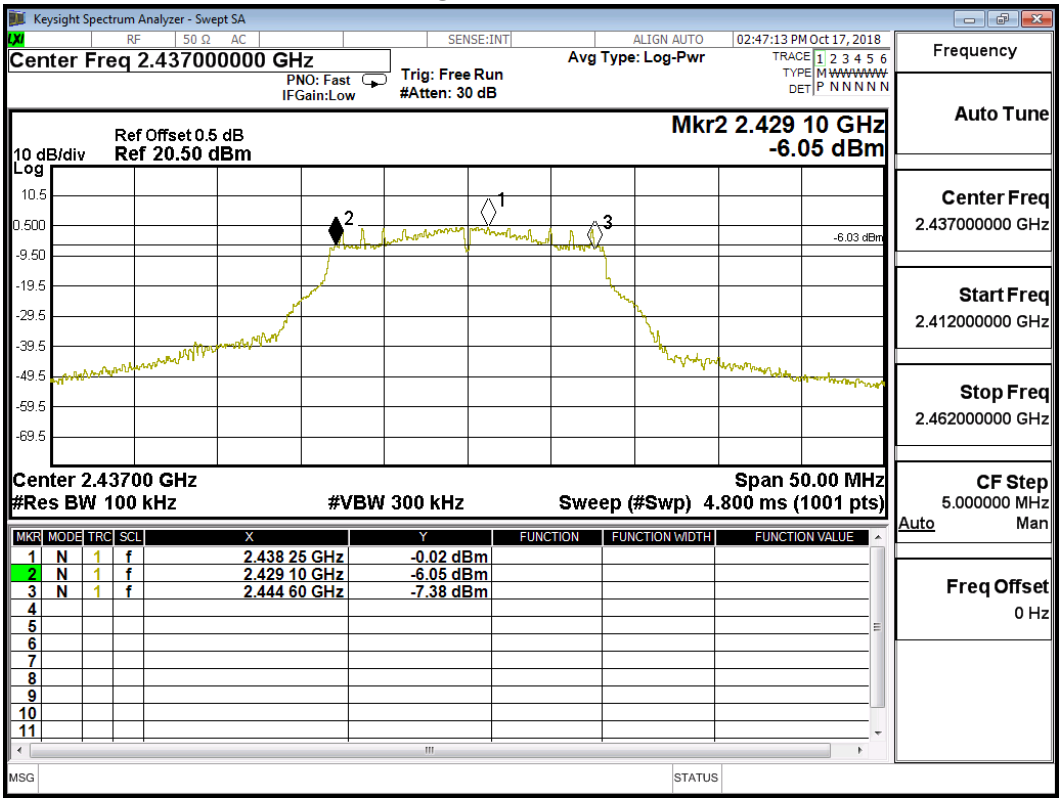
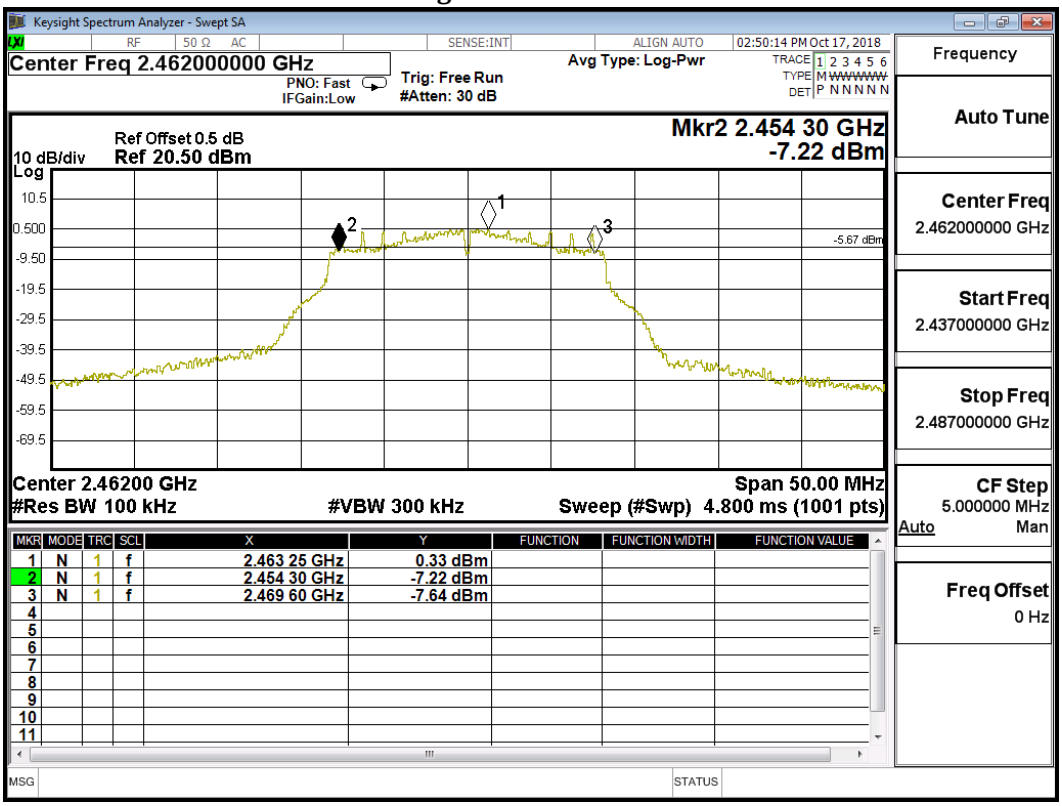


Figure Channel 11:



Product : 360 CAM(WIFI+Bluetooth)
Test Item : 6dB Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	15300	>500	Pass
06	2437	15250	>500	Pass
11	2462	15250	>500	Pass

Figure Channel 01:

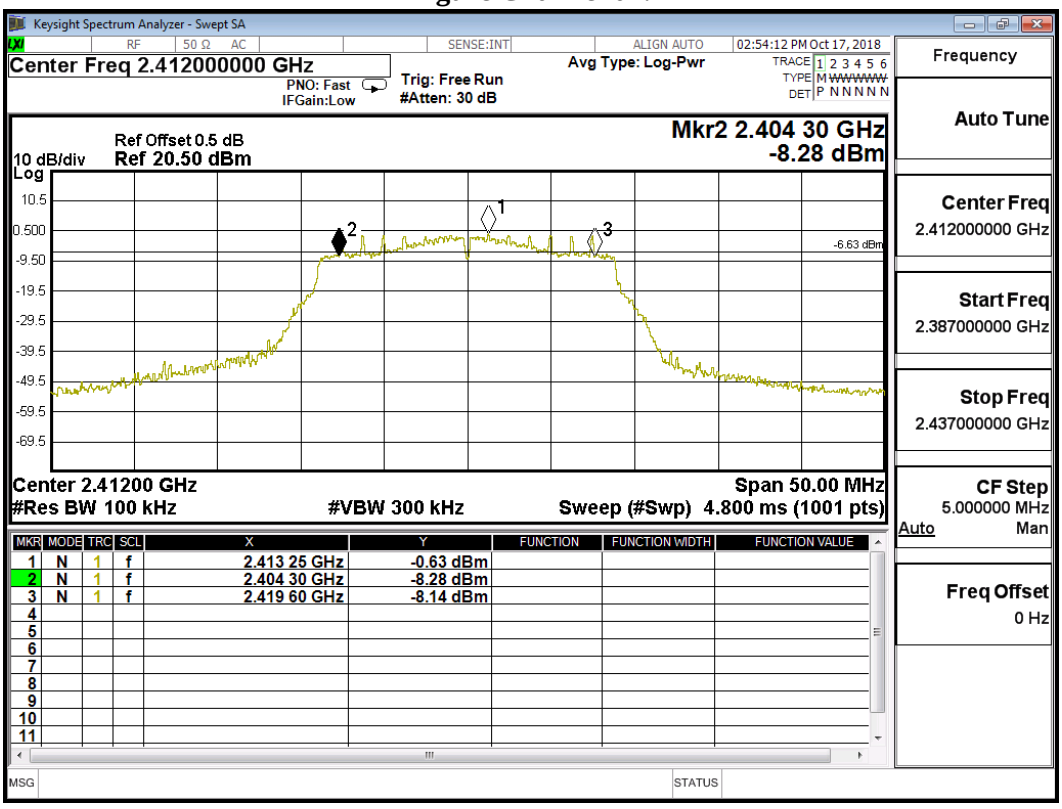


Figure Channel 06:

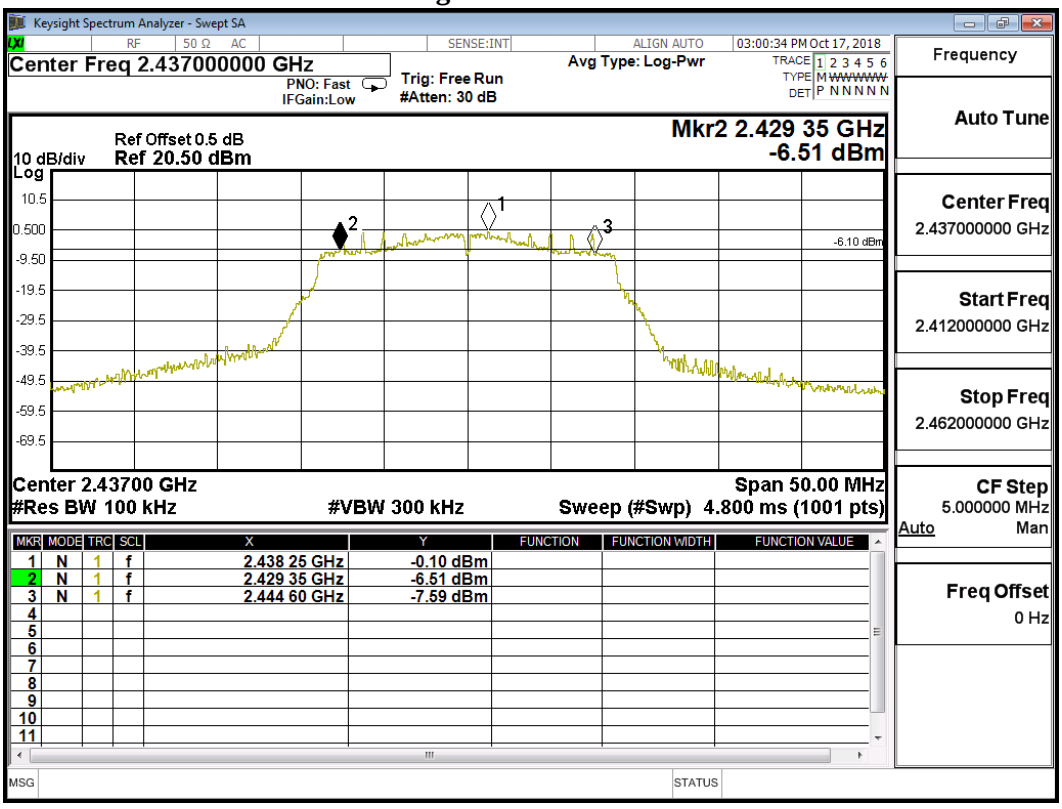
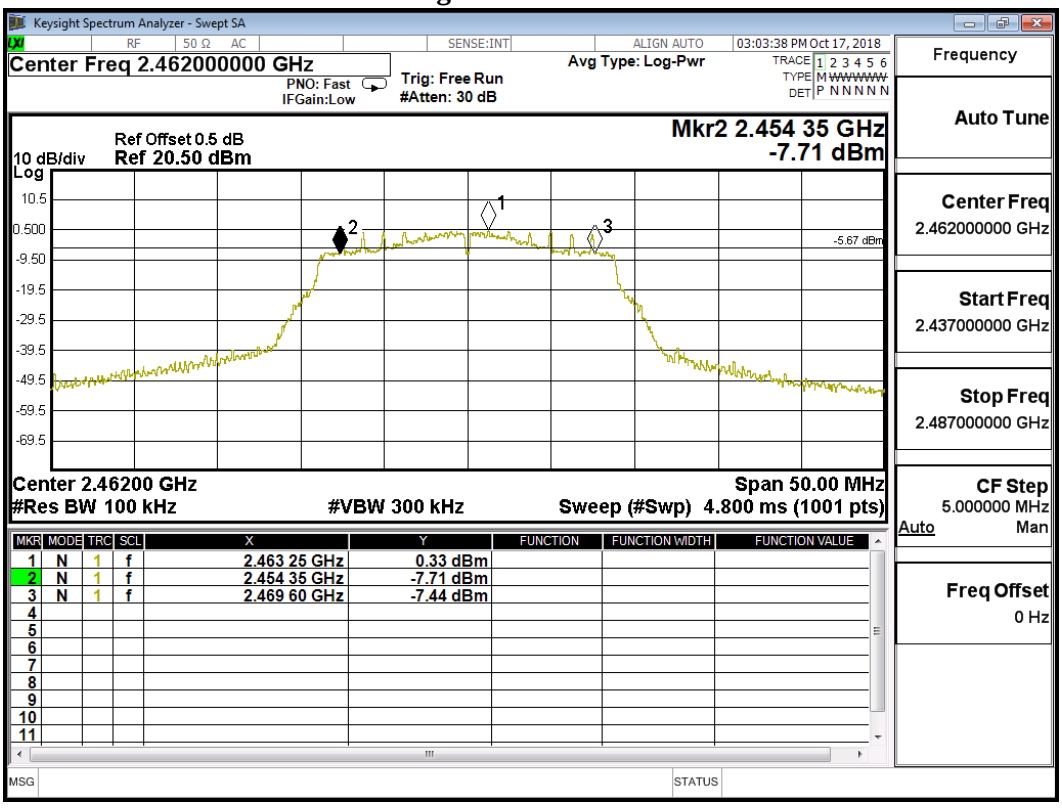
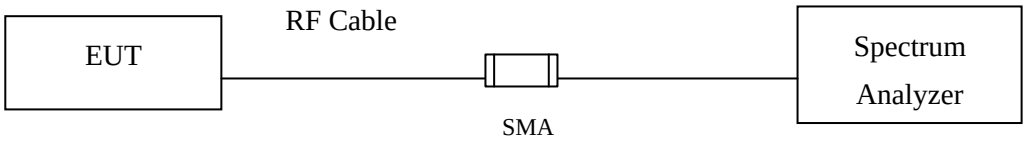


Figure Channel 11:



8. Power Density

8.1. Test Setup



8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

8.4. Uncertainty

± 1.20 dB

8.5. Test Result of Power Density

Product : 360 CAM(WIFI+Bluetooth)
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	2.290	≦8dBm	Pass
06	2437	2.760	≦8dBm	Pass
11	2462	2.770	≦8dBm	Pass

Figure Channel 01:

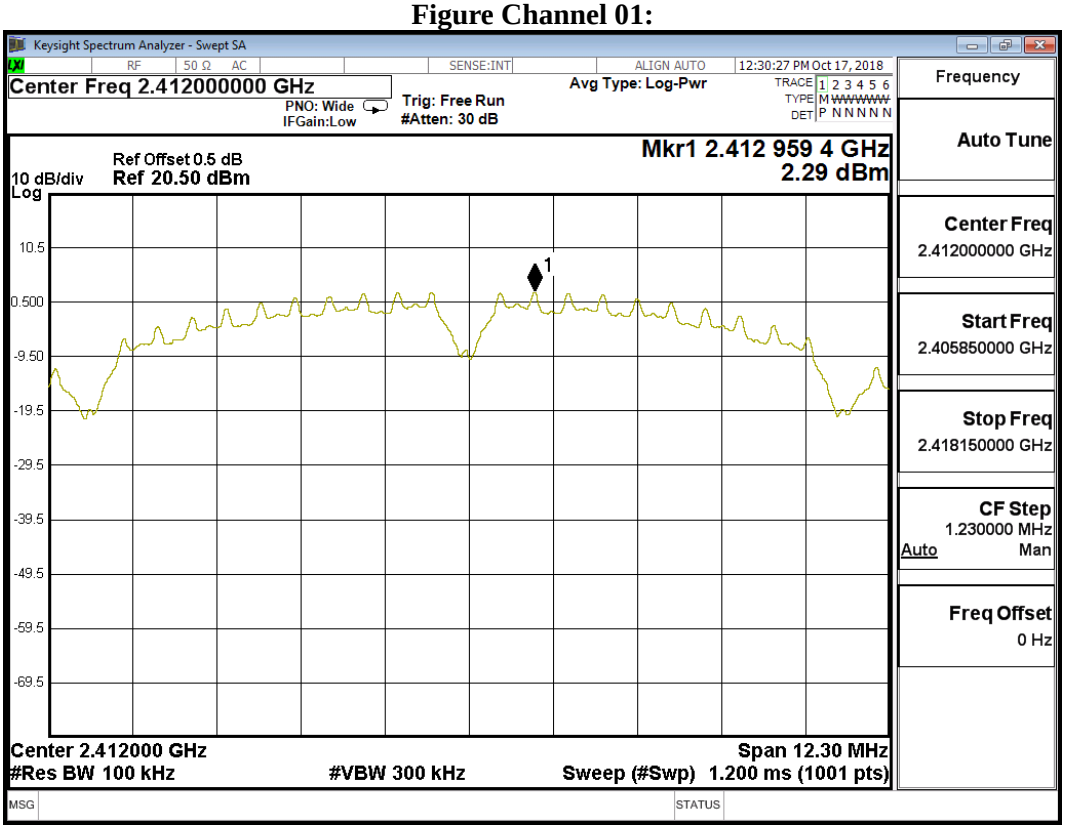


Figure Channel 06:

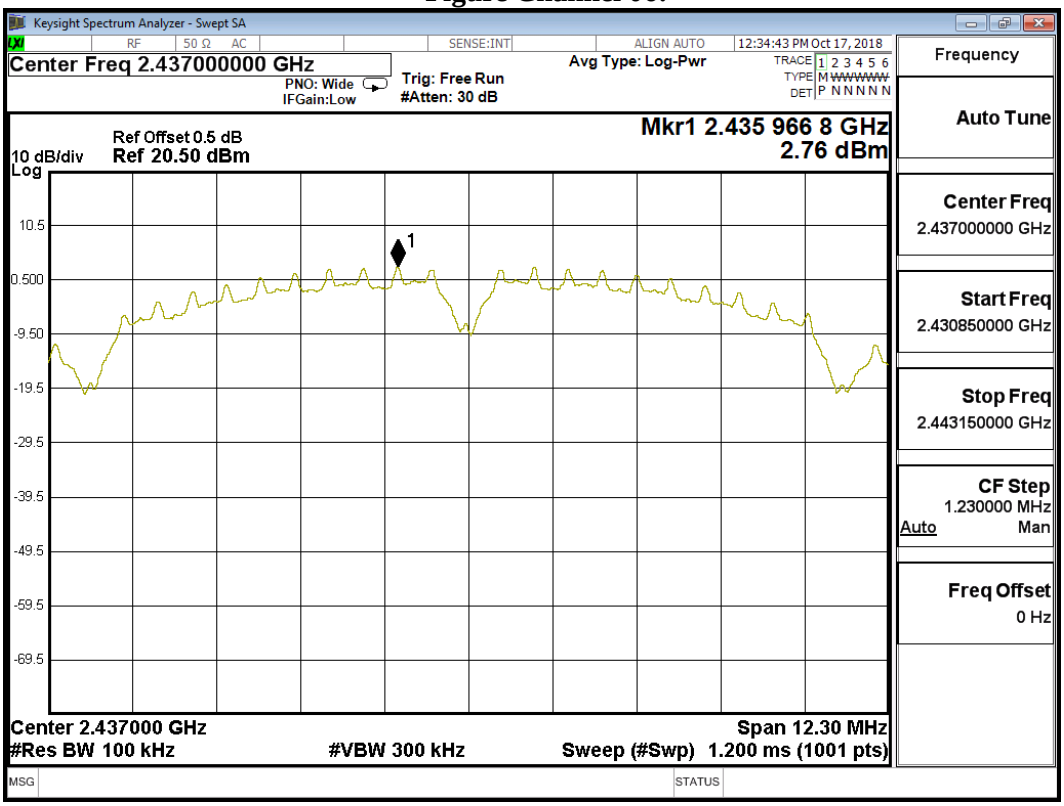
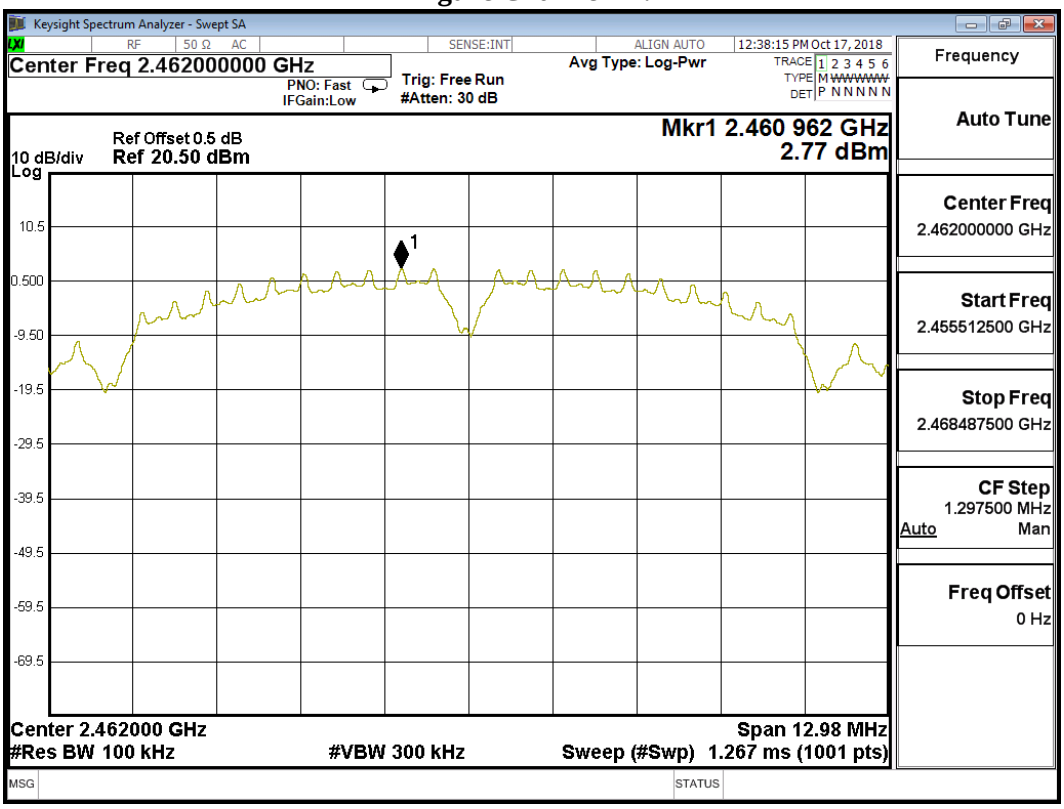


Figure Channel 11:



Product : 360 CAM(WIFI+Bluetooth)
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	-0.710	≦8dBm	Pass
06	2437	-0.030	≦8dBm	Pass
11	2462	0.360	≦8dBm	Pass

Figure Channel 01:

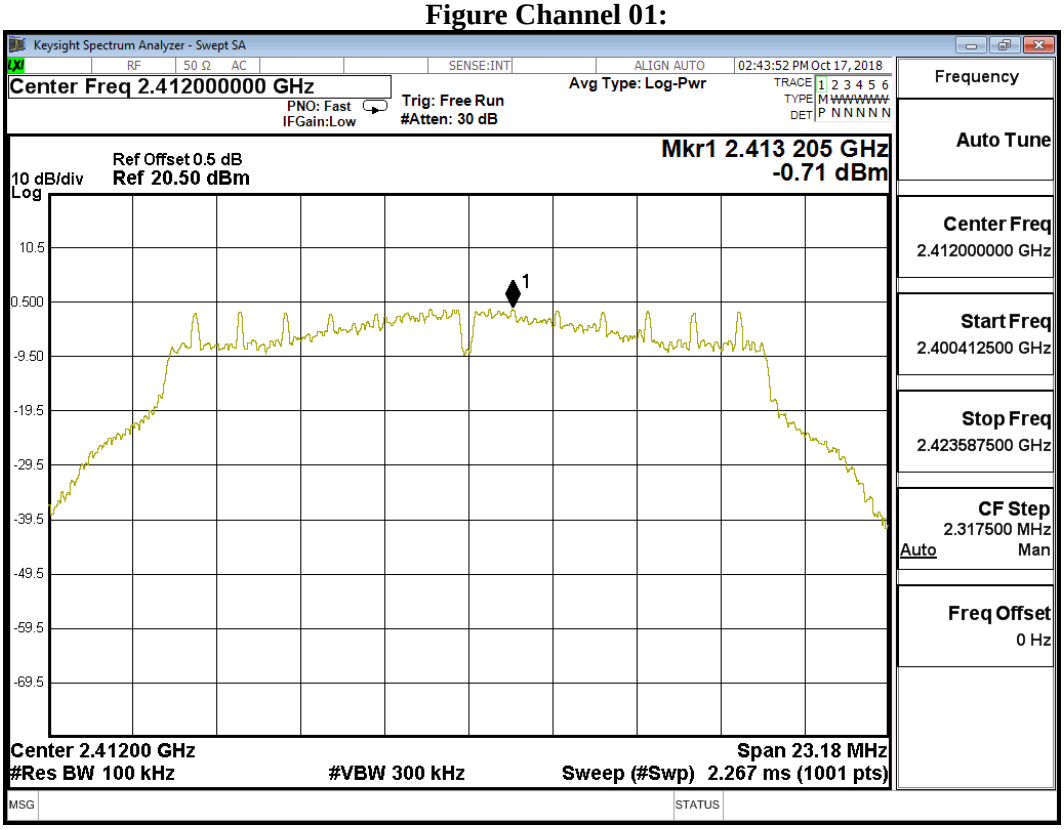


Figure Channel 06:

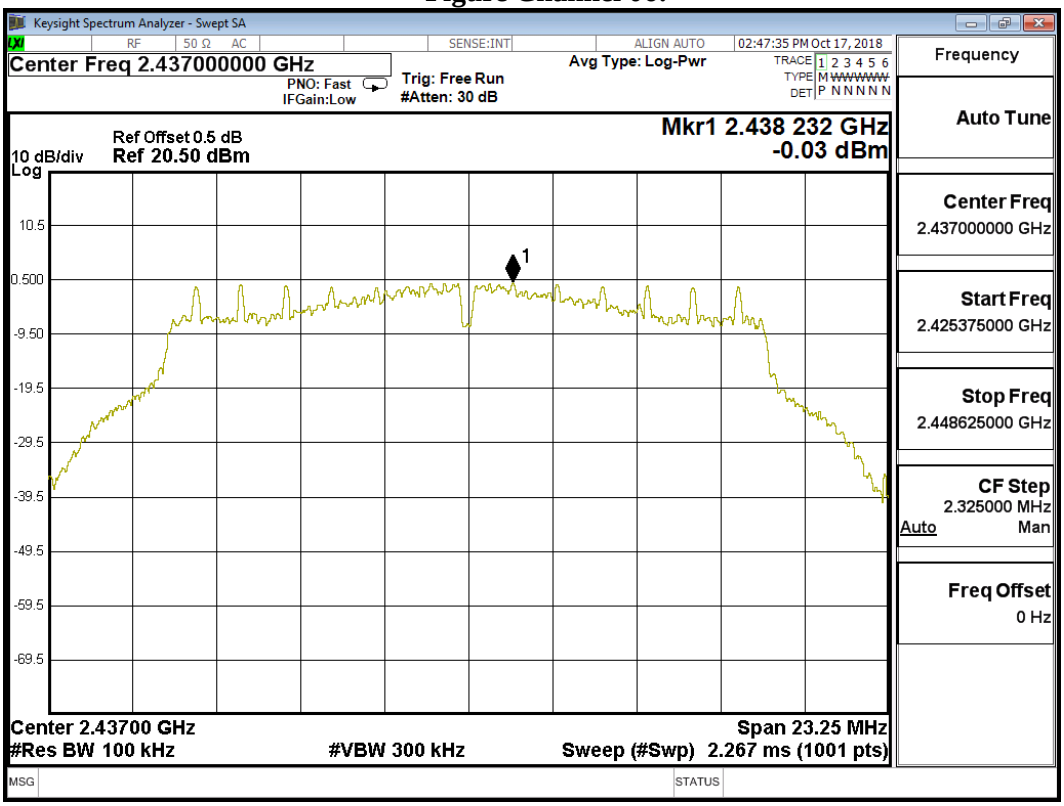
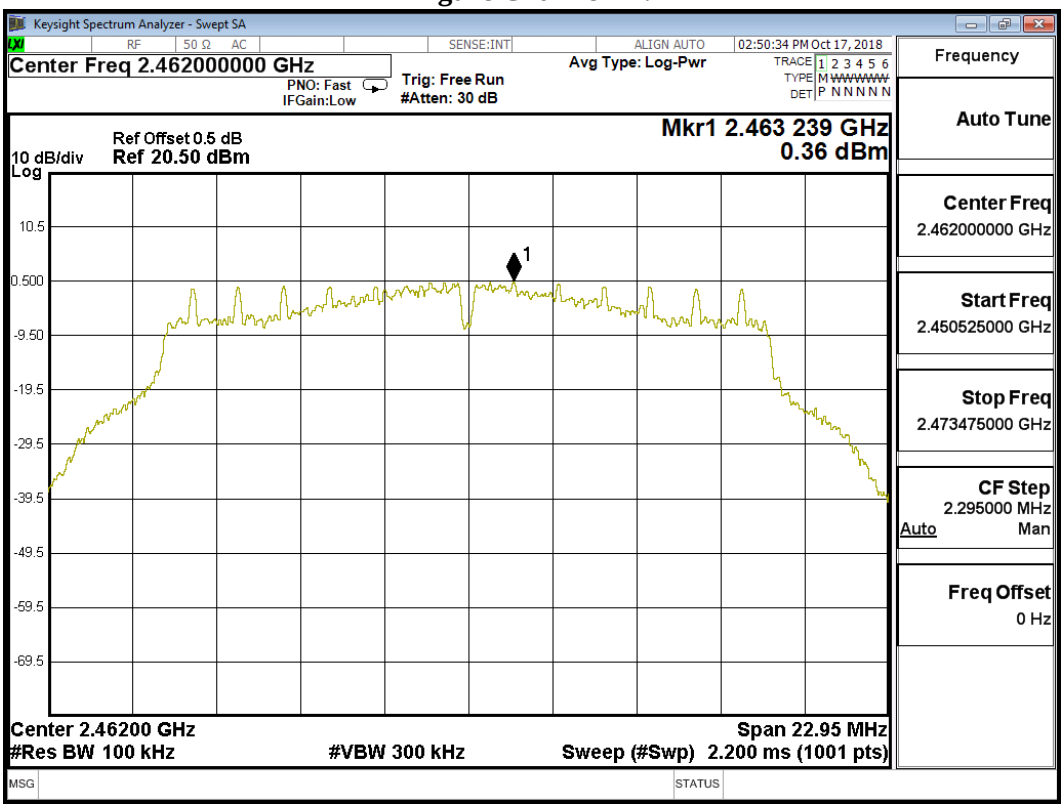


Figure Channel 11:



Product : 360 CAM(WIFI+Bluetooth)
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	-0.630	≦8dBm	Pass
06	2437	-0.070	≦8dBm	Pass
11	2462	0.340	≦8dBm	Pass

Figure Channel 01:

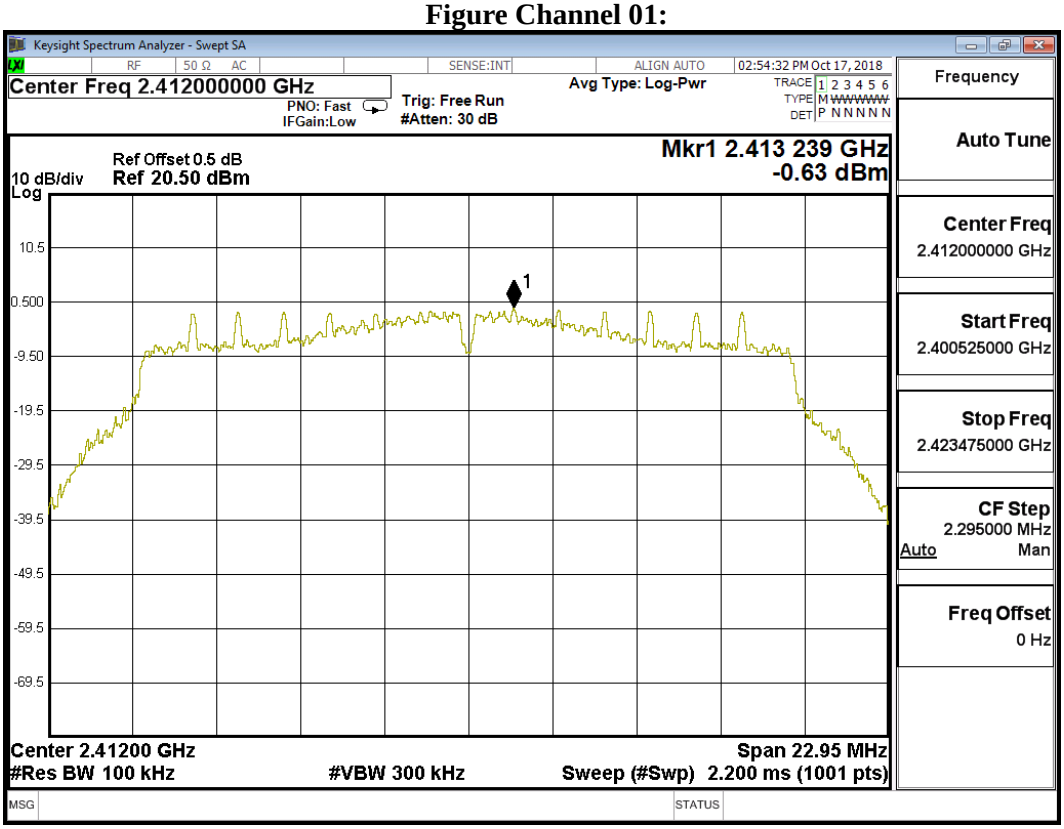


Figure Channel 06:

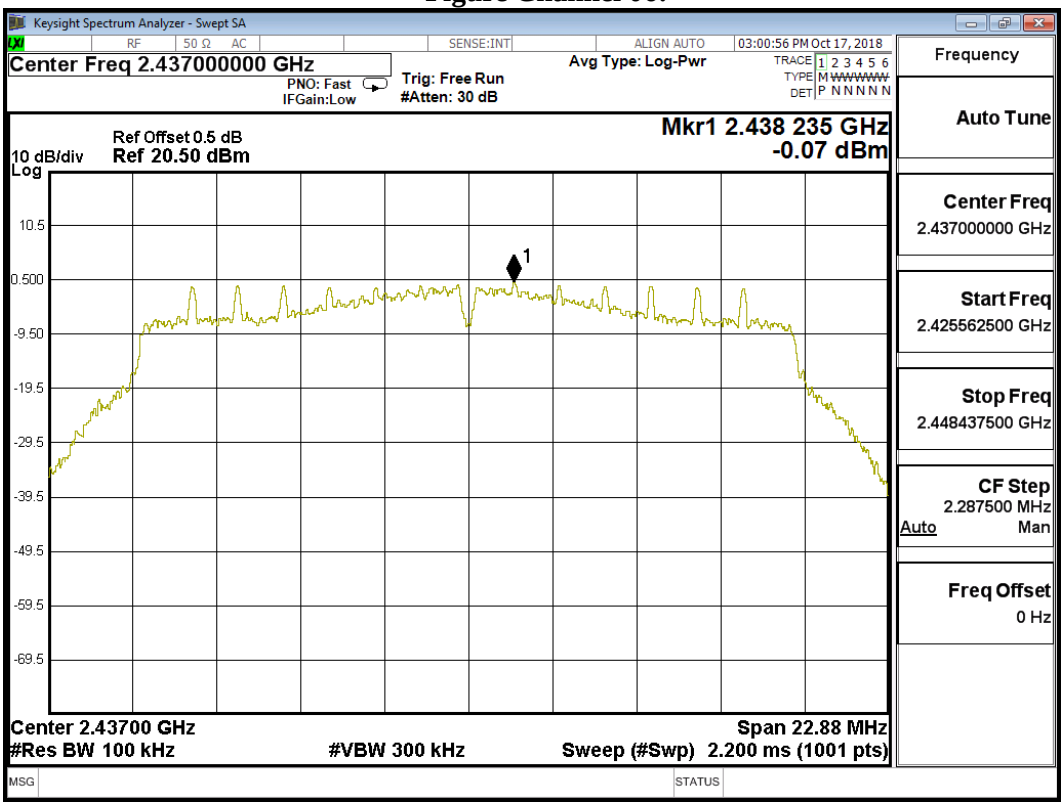
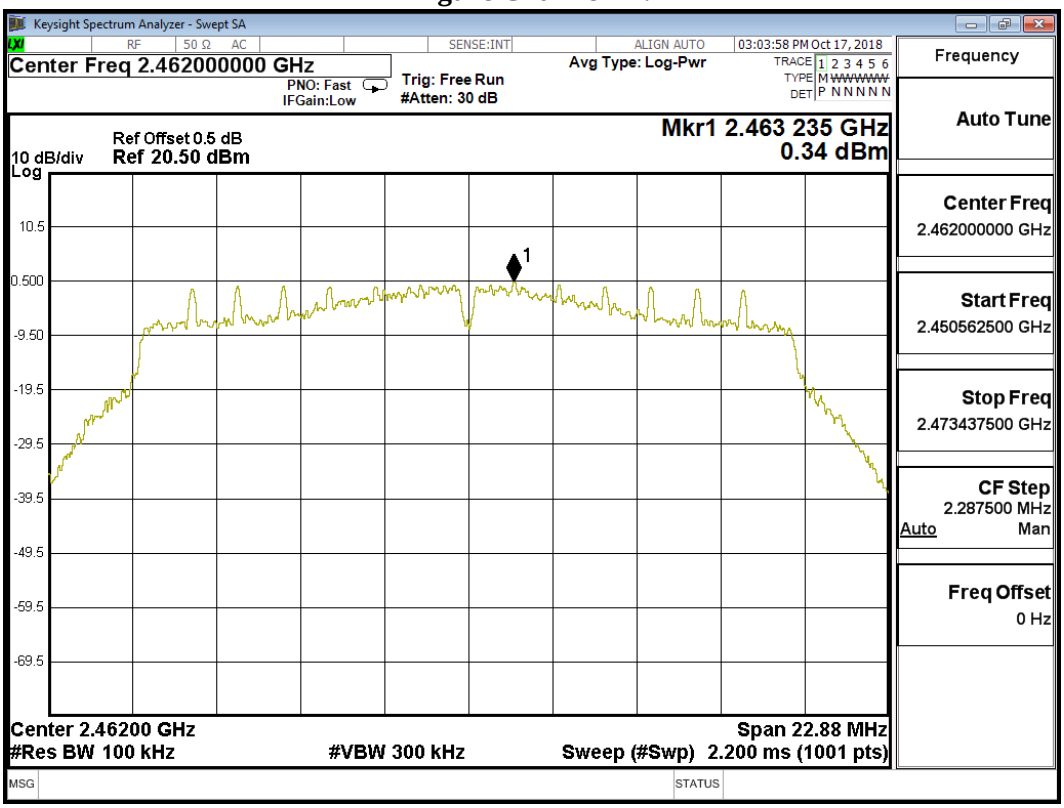
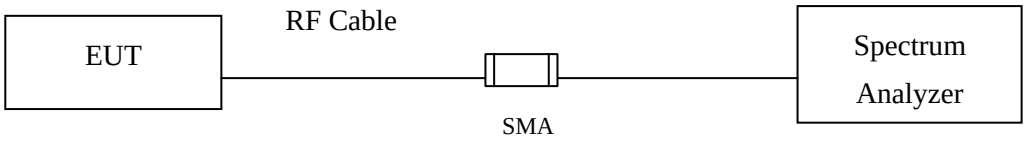


Figure Channel 11:



9. Duty Cycle

9.1. Test Setup



9.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

9.3. Uncertainty

± 2.31msec

9.4. Test Result of Duty Cycle

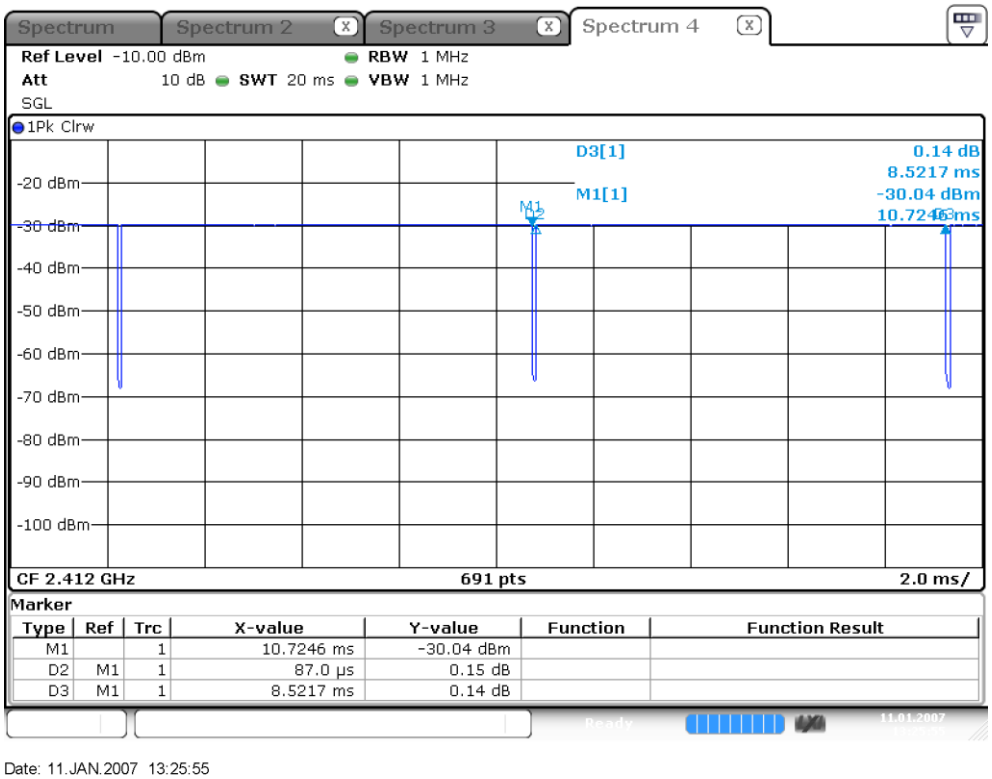
Product : 360 CAM(WIFI+Bluetooth)
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:
Duty Cycle = Ton / (Ton + Toff)
Duty Factor = 10 Log (1/Duty Cycle)

Results:

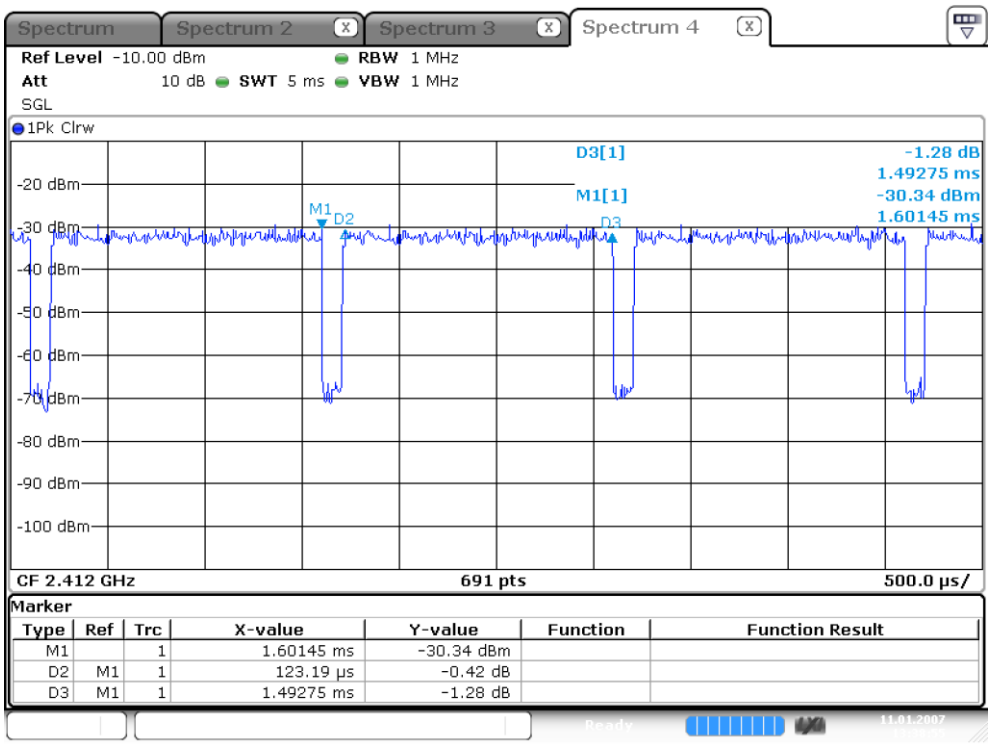
2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11b	8.4347	8.5217	98.98	0.04
802.11g	1.3696	1.4928	91.75	0.37
802.11n20	1.2899	1.4130	91.28	0.40

802.11b



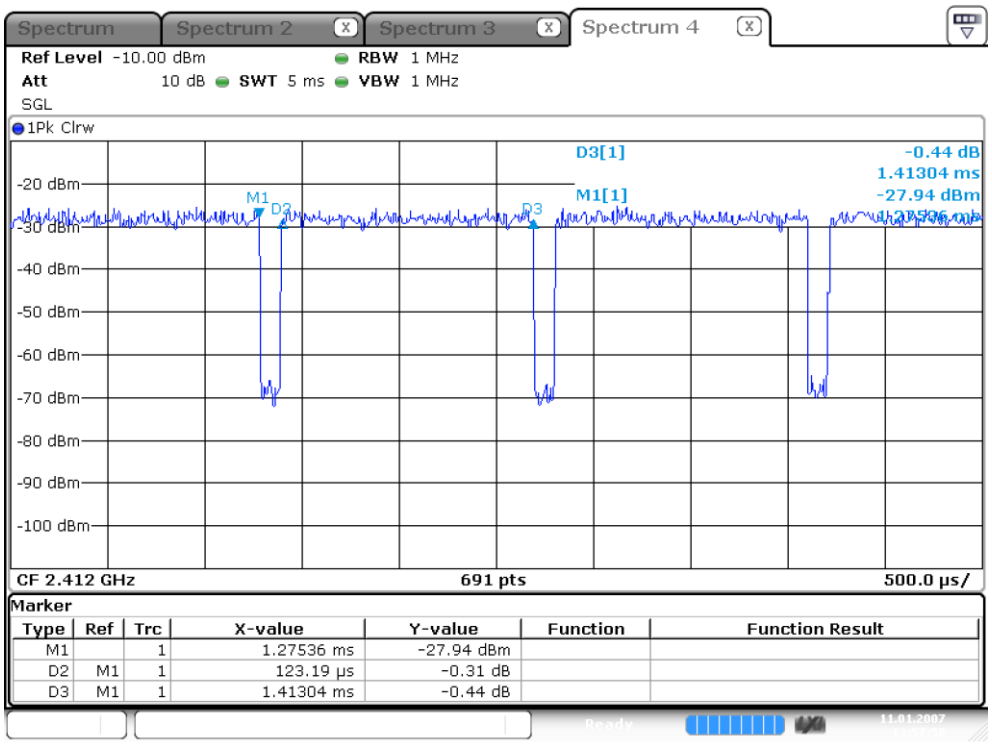
Date: 11.JAN.2007 13:25:55

802.11g



Date: 11.JAN.2007 13:38:56

802.11n20



Date: 11.JAN.2007 13:57:58

10. EMI Reduction Method During Compliance Testing

No modification was made during testing.