TEST REPORT

Report No.: SHATBL2409002W01

Applicant	:	SHENZHEN AONI ELECTRONIC CO.,LTD
Product Name	:	2K Battery Wi-Fi Smart Video Doorbell
Brand Name	:	Night Owl
Model Name	:	DB-DBH4-B
FCC ID	:	Z63-DB-DBH4-B
Test Standard	:	47 CFR FCC Part 15, Subpart C (Section 15.247); ANSI C63.10: 2013
Date of Test	:	2024.08.9~2024.09.26

Report Prepared by : Chris Xu

(Chris Xu)

Report Approved by : Guozheng Li

(Guozheng Li)

Authorized Signatory : Terry Yang

(Terry Yang)

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REVISION HISTORY

Rev.	Issue Date	Revisions	Revised by
A0	2024.09.26	Initial Release	N/A

DECLARATION OF REPORT

1. The device has been tested by ATBL, and the test results show that the equipment under test (EUT) is in compliance with the requirements of 47 CFR 15.247. And it is applicable only to the tested sample identified in the report.

2. This report shall not be reproduced except in full, without the written approval of ATBL, this document only be altered or revised by ATBL, personal only, and shall be noted in the revision of the document.

3. The general information of EUT in this report is provided by the customer or manufacture, ATBL is only responsible for the test data but not for the information provided by the customer or manufacture.

4. The results in this report is only apply to the sample as tested under conditions. The customer or manufacturer is responsible for ensuring that the additional production units of this model have the same electrical and mechanical components.

5. In this report, '☐' indicates that EUT does not support content after '☐', and '☑' indicates that it supports content after '☑'

SUMMARY OF TEST RESULT

Report Section	Standard Section	Test Item	Judgment	Remark
3.1	47 CFR 15.247(b)(3)	Maximum Peak Conducted Output Power	PASS	--
3.2	--	Duty Cycle	Report only	--
3.3	47 CFR 15.247(a)(2)	6dB Bandwidth	PASS	--
	--	99% Bandwidth	Report only	--
3.4	47 CFR 15.247(e)	Power Spectral Density	PASS	--
3.5	47 CFR 15.247(d)	Conducted Band Edge	PASS	--
3.6	47 CFR 15.247(d)	Conducted Spurious Emission	PASS	--
3.7	47 CFR 15.247(d)/15.209(a)/15.205(a)	Radiated Spurious Emission and Restricted Band	PASS	--
3.8	47 CFR 15.207(a)	AC Power-Line Conducted Emission	PASS	--
3.9	47 CFR 15.203	Antenna Requirements	PASS	--

1. GENERAL DESCRIPTION

1.1. Applicant

Name	:	SHENZHEN AONI ELECTRONIC CO.,LTD
Address	:	No.5,Bldg.,Honghui Industrial Park,2nd Liuxian Road,Xin'An streets, Bao'an District, ShenZhen, China

1.2. Manufacturer

Name	:	SHENZHEN AONI ELECTRONIC CO.,LTD
Address	:	No.5,Bldg.,Honghui Industrial Park,2nd Liuxian Road,Xin'An streets, Bao'an District, ShenZhen, China

1.3. Factory

Name	:	Aoni Intelligent Technology (Zhongshan) Co., LTD
Address	:	Floor 4,5,6,7,8,9, Building 2, NO. 138, Lefeng South Road, Lianfeng, Xiaolan Town, Zhongshan City, Guangdong Province

1.4. General Information of EUT

General Information	
Equipment Name	2K Battery Wi-Fi Smart Video Doorbell
Brand Name	Night Owl
Model Name	DB-DBH4-B
Series Model	DB-DBH4-B,C-DB-H4DBCH,DB-H4DB,DB-DBH4-B-CN13
Model Difference	There is no difference between themodels except the name. So all the test were performed on themodel DB-DBH4-B)
Test sample(s) ID:	202408010004003
Sample(s) Status:	Engineer sample
Battery	Rated Voltage: 3.6V Charge Limit Voltage:4.2V Capacity: 2600mAh*2
Hardware Version	V2.0
Software Version	V1.0.56
Connecting I/O Port(s)	Refer to the remark below.

Remark:

The above information of EUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.5. Equipment Specification

Equipment Specification			
Frequency Range	2412MHz - 2462MHz		
Maximum AVG Output Power To Antenna	☑802.11b:	**16.234**dBm (0.042W)	
	☑802.11g:	11.656dBm (0.015W)	
	☑802.11n(HT)20:	11.488dBm (0.014W)	
Type of Modulation	☑802.11b: DSSS (DBPSK/DQPSK/CCK)		
	☑802.11g/n(HT): OFDM (BPSK/QPSK/16QAM/64QAM)		
Antenna Information	☑SISO	Antenna Type:	Shrapnel antenna
		Antenna Gain:	3.28dBi
	☐MIMO	Antenna Number:	/
		Antenna Type:	/
		Antenna Gain:	/
		Antenna Technology:	☐Beamforming ☐CDD
		Directional Gain:	For Power:
			For PSD:

1.6. Modification of EUT

No modifications are made to the EUT during all test items.

1.7. Laboratory Information

Company Name	:	Shanghai ATBL Technology Co., Ltd.
Address	:	Building 8,No.160 Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai
Telephone	:	+86(0)21-51298625

1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

47 CFR Part 15 Subpart C §15.247

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2013

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

2. TEST CONFIGURATION OF EUT

2.1. Carrier Frequency Channel

Frequency Band	Channel	Frequency MHz	Channel	Frequency MHz
2400 - 2483.5 MHz	01	2412	07	2442
	02	2417	08	2447
	03	2422	09	2452
	04	2427	10	2457
	05	2432	11	2462
	06	2437		

Remark:

1. For 20 MHz Bandwidth: Low Channel: **CH 01_2412 MHz**; Middle Channel: **CH 06_2437 MHz**; High Channel: **CH 11_2462 MHz**.

2.2. Test Modes

Final test modes are considering the modulation and worse data rates as below table.

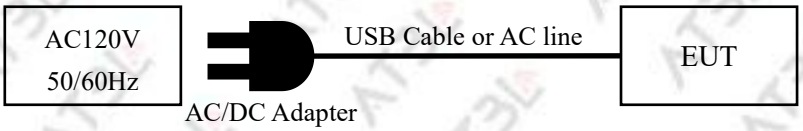
Summary Table of Test Modes			
Test Item	Mode	Data Rate	Channel
For Conducted and Radiated Test	☑802.11b:	1 Mbps	Low, Middle, High
	☑802.11g:	6 Mbps	Low, Middle, High
	☑802.11n(HT)20:	MCS 0	Low, Middle, High
	☐802.11n(HT)40:	MCS 0	Low, Middle, High
	☐802.11ac(VHT)20:	MCS 0	Low, Middle, High
	☐802.11ac(VHT)40:	MCS 0	Low, Middle, High
	☐802.11ax(HE)20:	MCS 0	Low, Middle, High
	☐802.11ax(HE)40:	MCS 0	Low, Middle, High
For AC Power-line Conducted Emission	802.11b:Low, High Channel		

Remark:

1.All the test modes of Radiated Spurious Emission (RSE) were tested at the worst data rate; only the worse data shown in report.

2.3. Block Diagram of Test System

2.3.1. For AC Power-Line Conducted Emission



2.3.2. For Radiated Spurious Emission

2.3.3. For Conducted Test

2.4. Description of Support Units

NO.	Unit	Brand	Model	Description
1	PC	Redmi	G36	for fixed frequency
2	Adapter	N/A	BS05A-0501000US	for AC Power-Line Conducted Emission
3				

2.5. Test Software and Power Level

During the test, the channel and power control software provided by the customer is used to control the operation channel and output power level.

2.6. EUT Operating Conditions

For AC power-line conducted emission, the EUT was connected under the large package sizes transmission.

For radiated spurious emission and conducted test, the engineering test program was provided and make the EUT to continuous transmit/receive.

2.7. Equipment List

2.7.1. For AC Power-Line Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	Test Receiver	ESPI	ESPI	101679	May.17.2024	May.16.2025
2	LISN	ENV216	ENV216	100300	May.17.2024	May.16.2025
3	LISN	ENV216	ENV216	100333	May.17.2024	May.16.2025
4	Thermometer	DeLi	N/A	N/A	N/A	N/A
Test software						
Name of Software:			FALA			
Version of Software:			EZ-EMC			

2.7.2. For Radiated Spurious Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	Keysight	N9020A	MY50200811	May.17.2024	May.16.2025
2	BiLog Antenna	SCHWARZBECK	VULB 9168	01174	May.17.2024	May.16.2025
3	Broad-band Horn antenna	COM-POWER	SCHWARZBECK	02334	May.17.2024	May.16.2025
4	Amplifier (25MHz-1GHz)	JPT	JPA-10M1G32	21010100035001	May.17.2024	May.16.2025
5	Amplifier (1-18GHz)	JPT	JPA0118-55-303A	1910001800055000	May.17.2024	May.16.2025
Test software						
Name of Software:			FALA			
Version of Software:			EMC-RI(Ver.4A2.1)			

2.7.3. For Conducted Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	Keysight	N9020A	MY50510136	July.09,2024	July.08,2025
2	Spectrum Analyzer	R&S	FSV40-N	101761	July.09,2024	July.08,2025
3	Vector signal generator	Agilent	N5182A	MY50143555	July.09,2024	July.08,2025
4	Analog signal generator	Keysight	N5173B	MY60403026	July.09,2024	July.08,2025
5	Power Sensor	Rediteq	RPR3006W	RPR6W-220 1002	July.09,2024	July.08,2025
6	Power meter	Anritsu	ML2496A	1935001	Sep.28,2024	Sep.27,2025
7	Power sensor	Anritsu	MA2411B	1911006	Sep.28,2024	Sep.27,2025
8	Power sensor	DARE	RPR3006W	16I00054SN 016	Sep.28,2024	Sep.27,2025
9	Power sensor	DARE	RPR3006W	RPR6W-200 1005	Sep.28,2024	Sep.27,2025
10	Power sensor	Rediteq	RPR3006W	RPR6W-220 1002	Sep.28,2024	Sep.27,2025
11	Power sensor	Rediteq	RPR3006W	RPR6W-220 1003	Sep.28,2024	Sep.27,2025
12	Power sensor	Keysight	U2021XA	MY591200004	Sep.28,2024	Sep.27,2025
13	Wideband radio communication tester	R&S	CMW500	101331	July.09,2024	Sep.27,2025
14	Thermometer	DeLi	DeLi	N/A	July.09,2024	Sep.27,2025
15	Constant temperature and humidity box	KSON	THS-B6C-150	9159K	Mar.28,2024	Mar.27,2025
Test Software						
Name of Software:		WCS-WCN				
Version of Software:		23.09.07				

2.8. Measurement Uncertainty

The reported uncertainty of measurement y±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.958dB
2	Conducted spurious emissions	±2.988dB
3	All emissions, radiated 9KHz-30MHz	±0.96dB
4	All emissions, radiated 30MHz-1GHz	±2.50dB
5	All emissions, radiated 1GHz-18GHz	±3.51dB
6	All emissions, radiated 18GHz-40GHz	±4.68dB
7	Occupied bandwidth	±23.20Hz
8	Power spectral density	±0.886dB

3. TEST RESULT

3.1. Maximum conducted output power

3.1.1. Limit

47 CFR 15.247(b)(3): For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

47 CFR 15.247(b)(4): If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

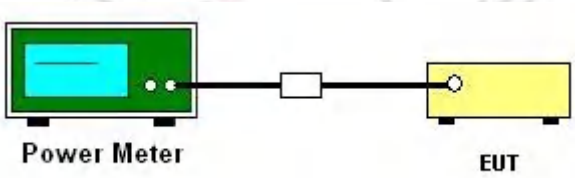
47 CFR 15.247(c)(1)(i): Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

3.1.2. Test Procedure

ANSI C63.10-2013 clause 11.9.2.3.2 Method AVGPM: Method AVGPM is a measurement using an RF average power meter, as follows:

measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at itsl maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.1.3. Test Setup



3.1.4. Test Result of Maximum Conducted Output Power

Please refer to the Appendix A1.

3.2. Duty Cycle

3.2.1. Limit

There is no limit requirement for Duty Cycle.

3.2.2. Test Procedure

ANSI C63.10-2013 clause 11.6: Measurements of duty cycle and transmission duration shall be performed using one of the following techniques:

1. A diode detector and an oscilloscope that together have a sufficiently short response time to permit accurate measurements of the ON and OFF times of the transmitted signal.

2. The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:

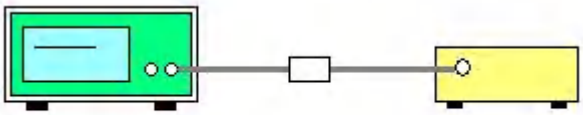
① Set the center frequency of the instrument to the center frequency of the transmission.

② Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.

③ Set VBW ≥ RBW. Set detector = peak or average.

④ The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if T ≤ 16.7 μs.)

3.2.3. Test Setup



3.2.4. Test Result of Duty Cycle

Please refer to the Appendix A2.

3.3. 6dB Bandwidth and 99% Bandwidth

3.3.1. Limit

47 CFR 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

There is no limit requirement for 99% Bandwidth.

3.3.2. Test Procedure

1. The testing of 6dB Bandwidth follows *ANSI C63.10-2013 clause 11.8.1*: The steps for the first option are as follows:

① Set RBW = 100 kHz.

② Set the VBW ≥ [3 × RBW].

③ Detector = peak.

④ Trace mode = max hold.

⑤ Sweep = auto couple.

⑥ Allow the trace to stabilize.

⑦ Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

2. The testing of 99% Bandwidth follows *ANSI C63.10-2013 clause 6.9.3*: The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

① The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.

② The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.

③ Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in *ANSI C63.10-2013 clause 4.1.5.2*.

④ Step a) through step c) might require iteration to adjust within the specified range.

⑤ Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

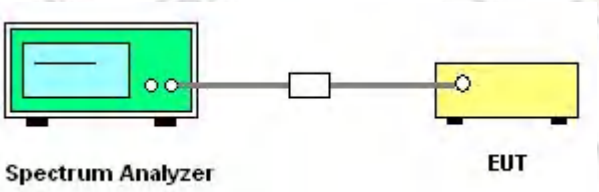
⑥ Use the 99% power bandwidth function of the instrument (if available) and report the

measured bandwidth.

⑦ If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.

⑧ The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

3.3.3. Test Setup



3.3.4. Test Result of 6dB Bandwidth and 99% Bandwidth

Please refer to the Appendix A3.

3.4. Power Spectral Density

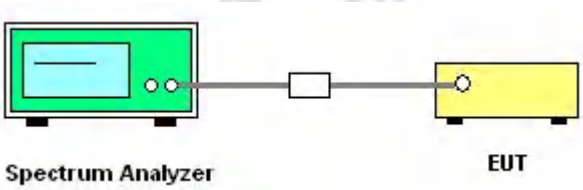
3.4.1. Limit

47 CFR 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

3.4.2. Test Procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to 3 kHz.
4. Set the VBW ≥ [3 × RBW].
5. Detector =RMS.
6. Sweep time = auto couple.
7. Trace mode = averaging.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.

3.4.3. Test Setup



3.4.4. Test Result of Power Spectral Density

Please refer to the Appendix A4.

3.5. Conducted Band Edge

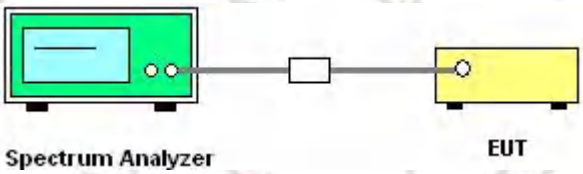
3.5.1. Limit

47 CFR 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.

3.5.2. Test Procedure

1. The testing follows *ANSI C63.10-2013 clause 11.13*.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100 kHz, VBW=300 kHz, RMS Detector. Conducted Band Edge measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the 100 kHz bandwidth within the band that contains the highest level of the desired power when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
4. Measure and record the results in the test report.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.5.3. Test Setup



3.5.4. Test Result of Conducted Band Edge

Please refer to the Appendix A5.

3.6. Conducted Spurious Emission

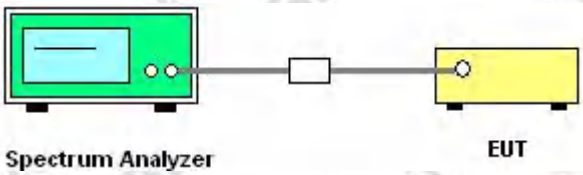
3.6.1. Limit

47 CFR 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.

3.6.2. Test Procedure

1. The testing follows *ANSI C63.10-2013 clause 7.8.8*.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW = 300kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 30 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.6.3. Test Setup



3.6.4. Test Result of Conducted Spurious Emission

Please refer to the Appendix A5.

3.7. Radiated Spurious Emission and Restricted Band

3.7.1. Limit

47 CFR 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.

47 CFR 15.205(a): Only spurious emissions are permitted in any of the frequency bands listed below:

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
0.090-0.110	12.29-12.293	149.9-150.05	1660-1710	8.025-8.5
0.495-0.505	12.51975-12.52025	156.52475-156.52525	1718.8-1722.2	9.0-9.2
2.1735-2.1905	12.57675-12.57725	156.7-156.9	2200-2300	9.3-9.5
4.125-4.128	13.36-13.41	162.0125-167.17	2310-2390	10.6-12.7
4.17725-4.17775	16.42-16.423	167.72-173.2	2483.5-2500	13.25-13.4
4.20725-4.20775	16.69475-16.69525	240-285	2690-2900	14.47-14.5
6.215-6.218	16.80425-16.80475	322-335.4	3260-3267	15.35-16.2
6.26775-6.26825	25.5-25.67	399.9-410	3332-3339	17.7-21.4
6.31175-6.31225	37.5-38.25	608-614	3345.8-3358	22.01-23.12
8.291-8.294	73-74.6	960-1240	3600-4400	23.6-24.0
8.362-8.366	74.8-75.2	1300-1427	4500-5150	31.2-31.8
8.37625-8.38675	108-121.94	1435-1626.5	5350-5460	36.43-36.5
8.41425-8.41475	123-138	1645.5-1646.5	7250-7750	Above 38.6

47 CFR 15.209(a): The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

3.7.2. Test Procedure

1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.

3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Pre-amp Factor = Level.

6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.

7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

8. Use the following spectrum analyzer settings:

① Span shall wide enough to fully capture the emission being measured;

② When frequency < 1 GHz:

• Set RBW=100 kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;

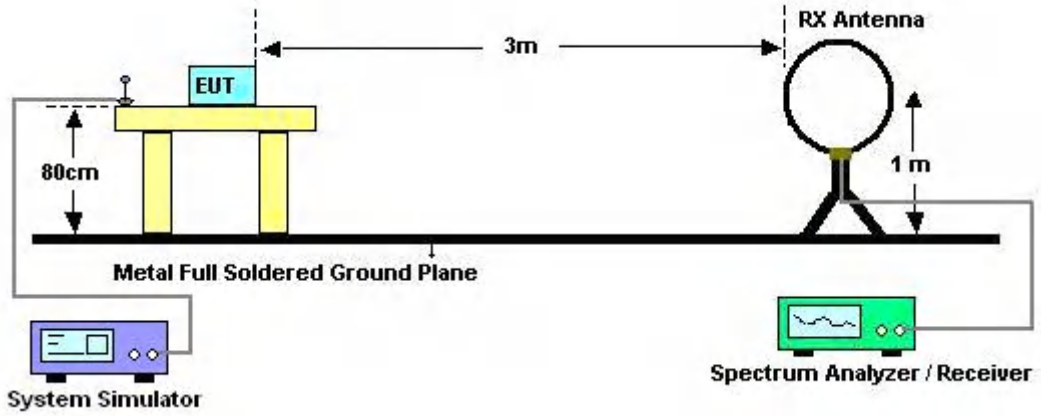
③ When frequency ≥ 1 GHz:

• Set RBW = 1 MHz; VBW = 3 MHz for peak measurement;

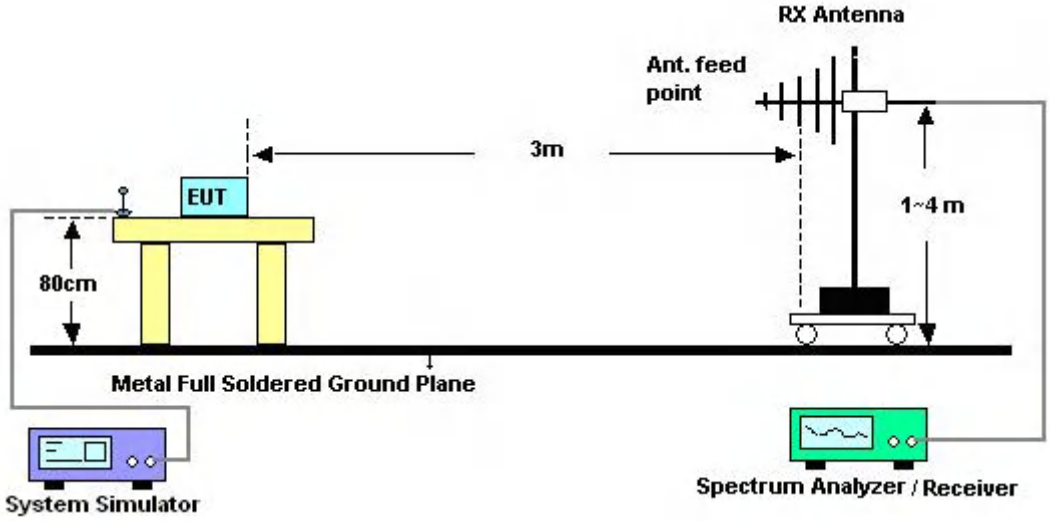
• Set RBW = 1 MHz; VBW = 10 Hz, when duty cycle is no less than 98 percent or VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.7.3. Test Setup

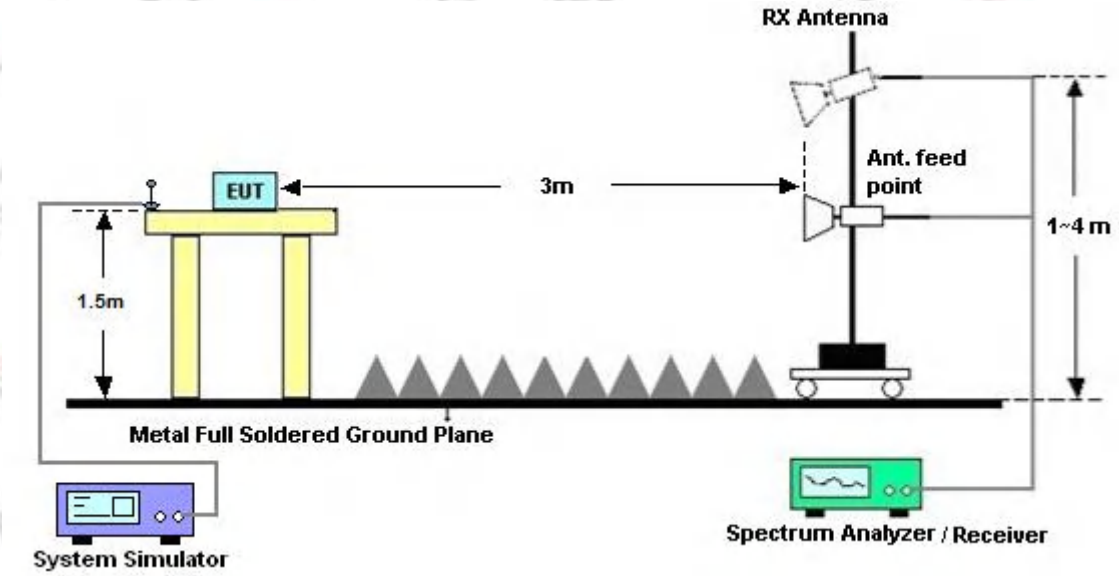
3.7.3.1. For radiated emissions below 30MHz



3.7.3.2. For radiated emissions from 30MHz to 1GHz



3.7.3.3. For radiated emissions above 1GHz



3.7.4. Test Result of Radiated Spurious Emission

For 9 kHz ~ 30 MHz

Note:

1.The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

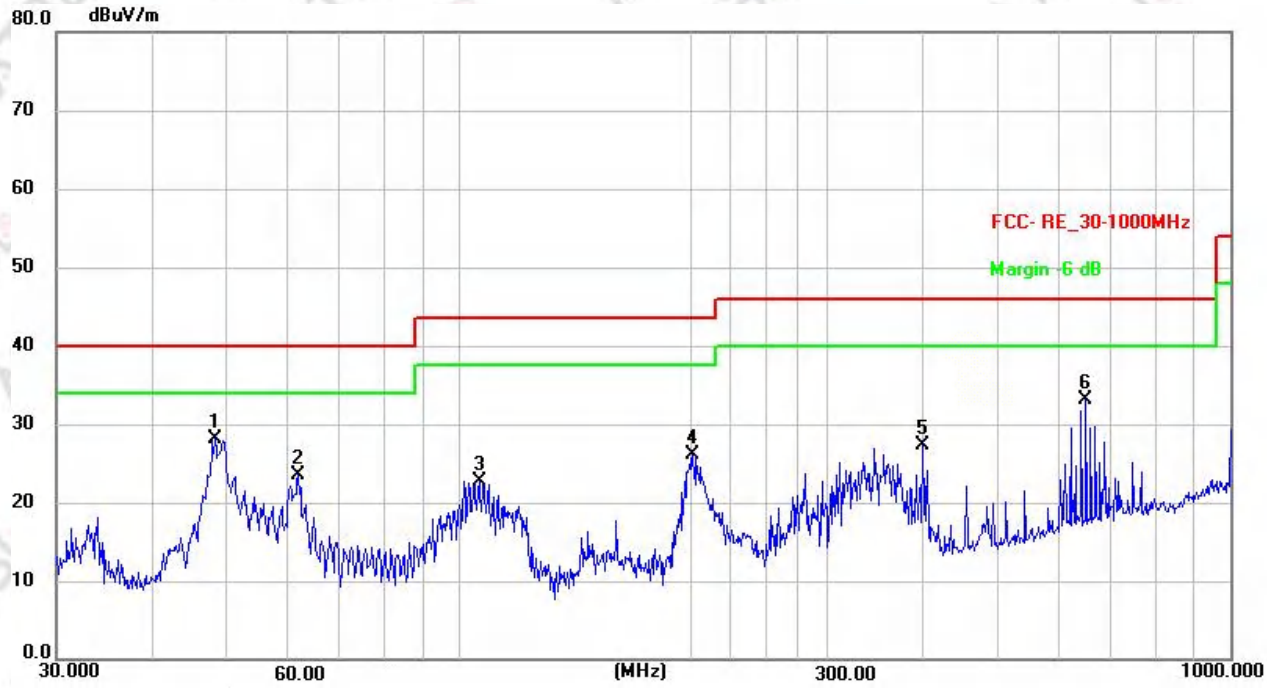
2.The all data rate modes had been test, but only worse test data was recorded in the test report.

Below 1GHz:

Note:

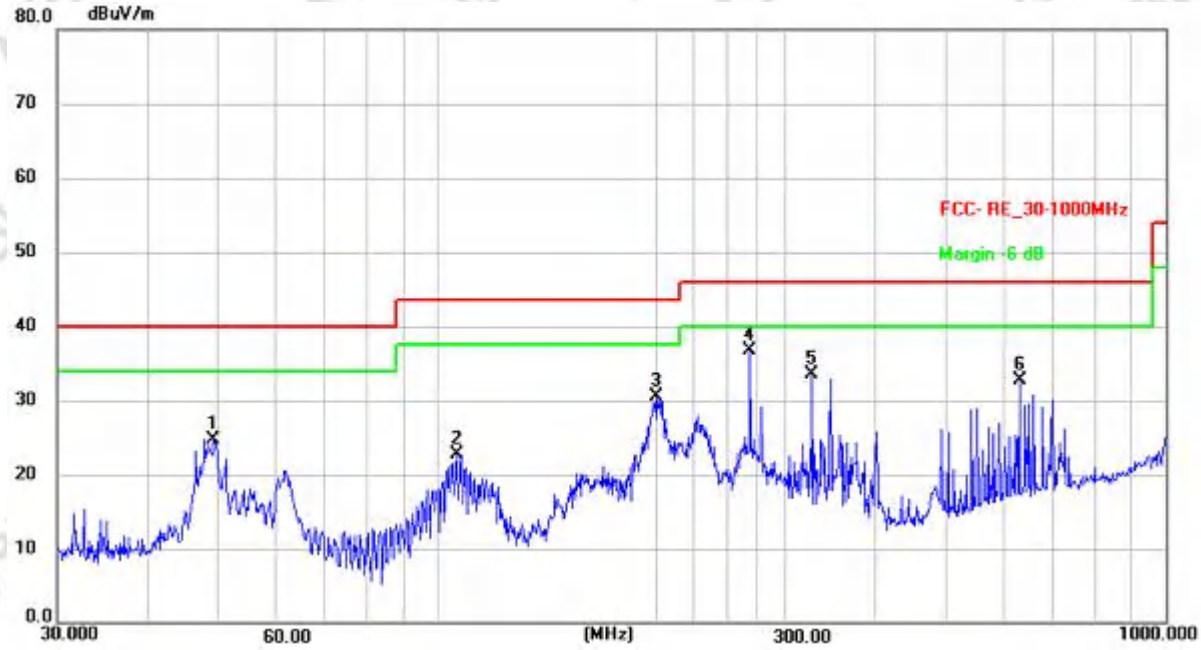
All modes have been tested, only worst case(802.11b-2412MHz)mode was recorded in the test report if no any others.

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11B-2412



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	48.1626	57.11	-28.93	28.18	40.00	-11.82	peak
2	61.7781	53.08	-29.64	23.44	40.00	-16.56	peak
3	106.0126	55.46	-32.79	22.67	43.50	-20.83	peak
4	200.6881	58.65	-32.49	26.16	43.50	-17.34	peak
5	399.0302	53.32	-26.08	27.24	46.00	-18.76	peak
6	649.6597	53.53	-20.52	33.01	46.00	-12.99	peak

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11B-2412



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	49.1865	53.67	-28.89	24.78	40.00	-15.22	peak
2	106.0126	55.55	-32.79	22.76	43.50	-20.74	peak
3	199.2855	62.83	-32.32	30.51	43.50	-12.99	peak
4 *	268.4853	66.25	-29.55	36.70	46.00	-9.30	peak
5	326.7395	61.27	-27.82	33.45	46.00	-12.55	peak
6	629.4772	53.53	-20.78	32.75	46.00	-13.25	peak

Above 1GHz:

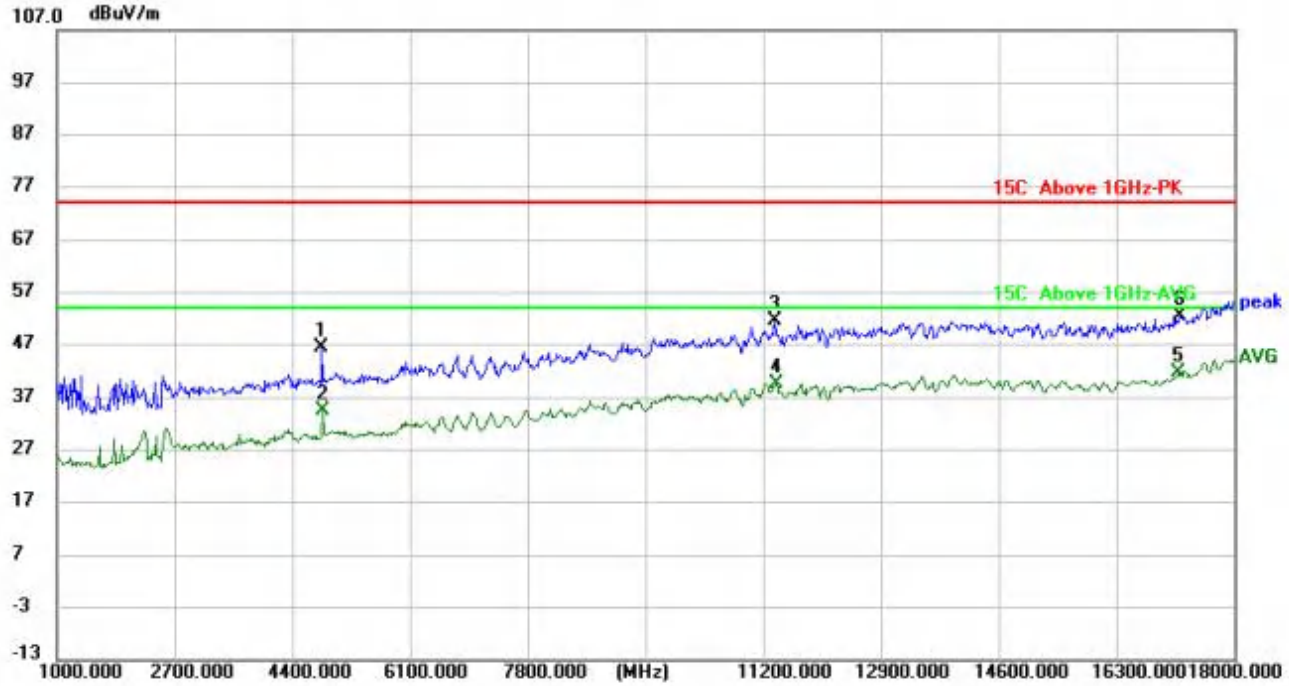
Note:

1.The all data rate modes had been test, but only worse test data was recorded in the test report.

2.In frequency ranges 18 ~25GHz no any other harmonic emissions detected which are tested to compliance with the limit. No recording in the test report. No any other emissions level which are attenuated less than 20dB below the limit. No recording in the test report.

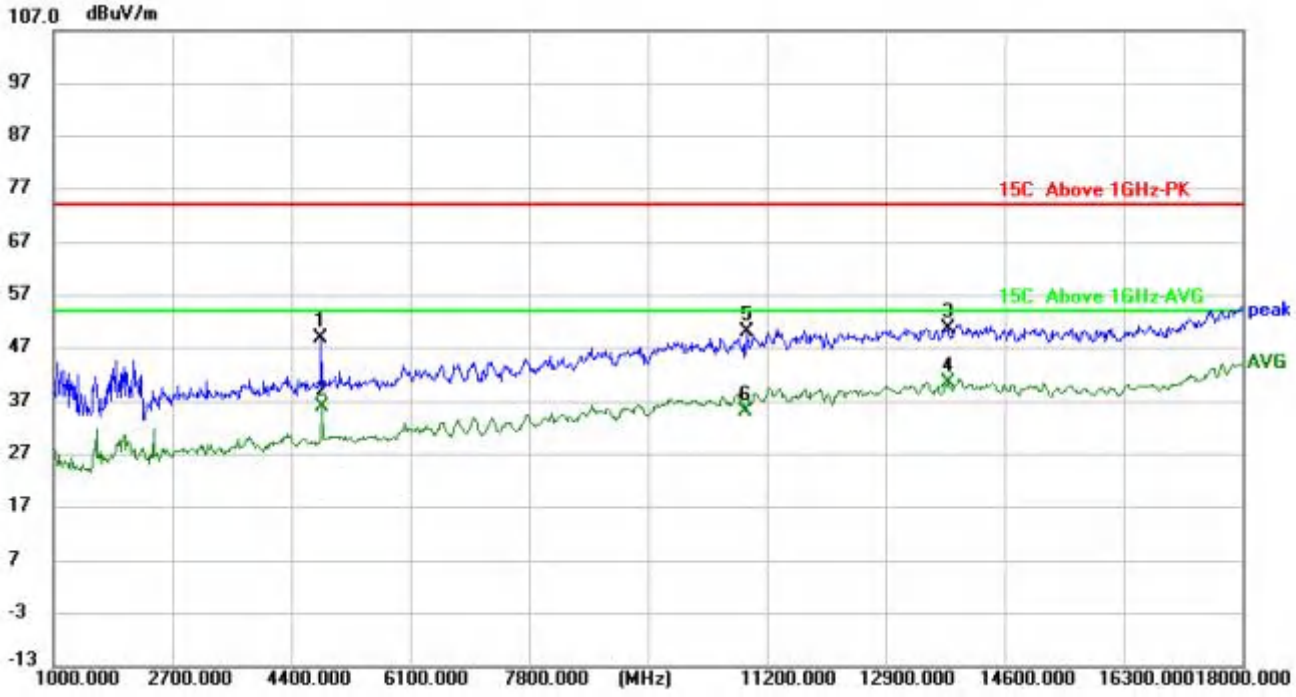
3.We used the filter to test and the main frequency was filtered out.

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11B-2412



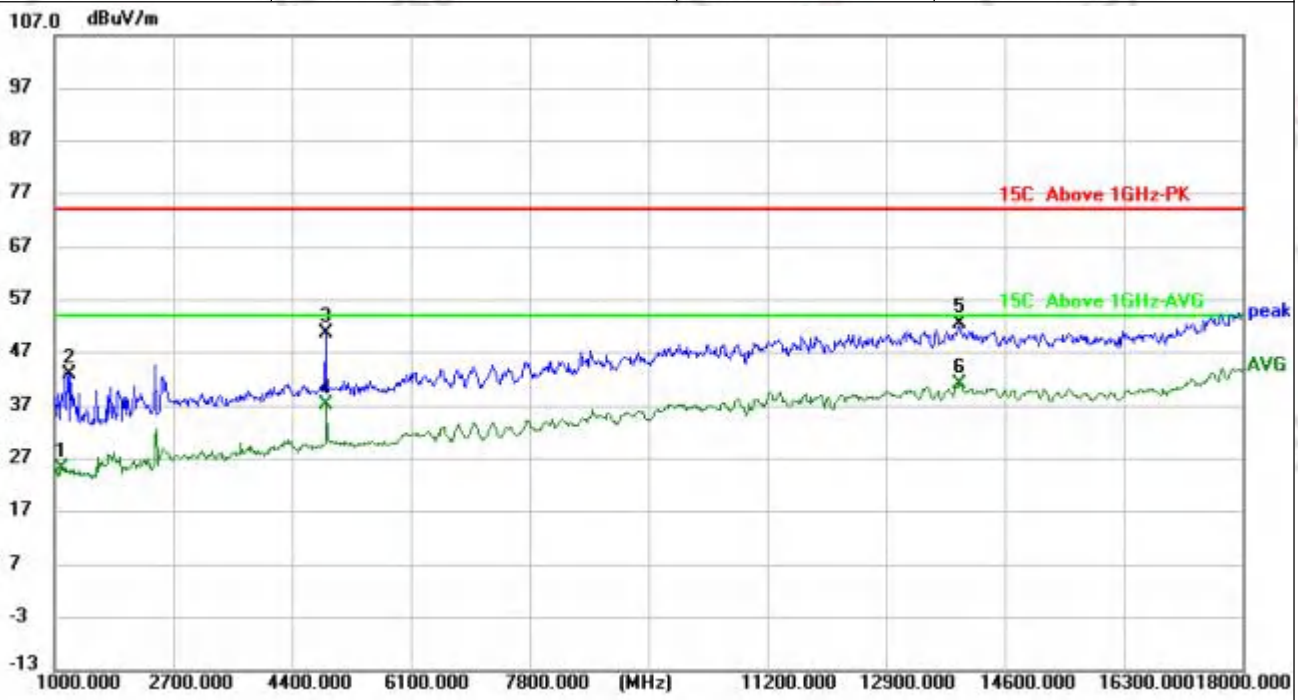
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4825.000	53.34	-6.74	46.60	74.00	-27.40	peak
2	4842.000	41.10	-6.63	34.47	54.00	-19.53	AVG
3	11370.000	43.37	8.42	51.79	74.00	-22.21	peak
4	11387.000	31.29	8.44	39.73	54.00	-14.27	AVG
5 *	17201.000	27.07	14.64	41.71	54.00	-12.29	AVG
6	17218.000	37.80	14.75	52.55	74.00	-21.45	peak

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11B-2412



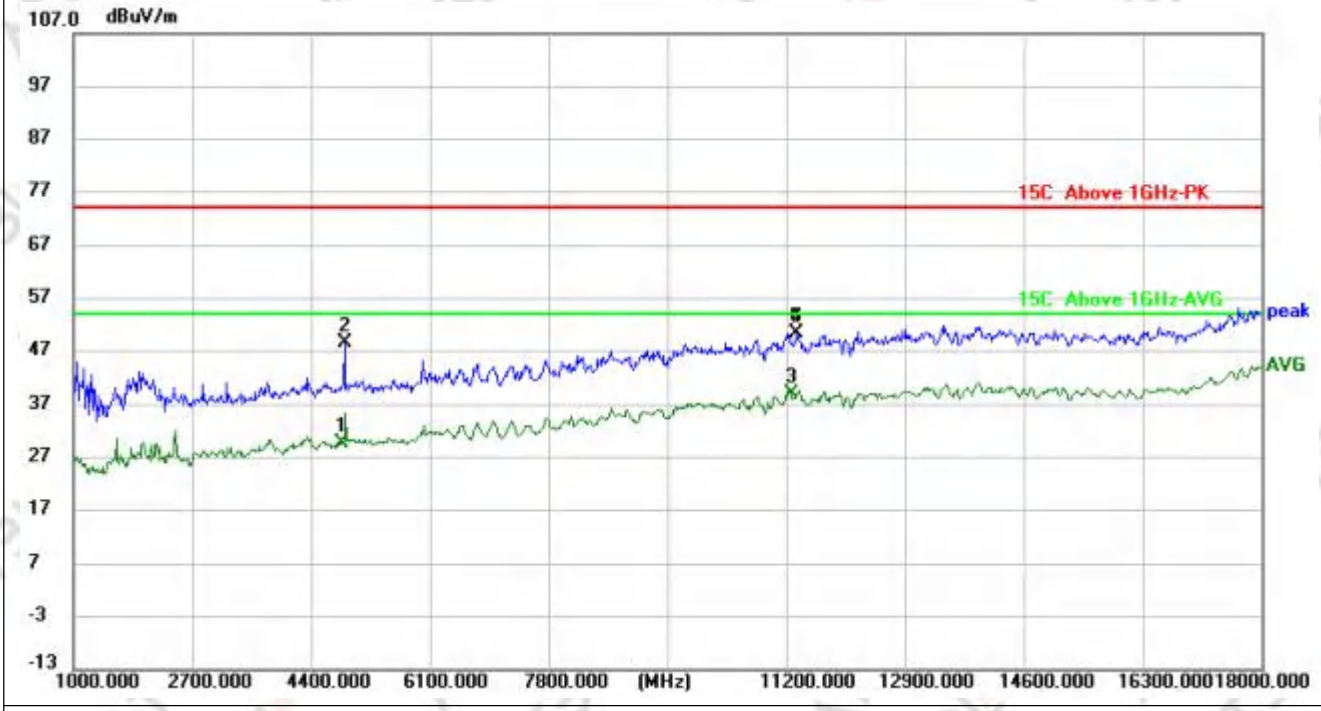
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4825.000	55.56	-6.74	48.82	74.00	-25.18	peak
2	4842.000	42.56	-6.63	35.93	54.00	-18.07	AVG
3	13784.000	39.63	11.06	50.69	74.00	-23.31	peak
4 *	13784.000	29.37	11.06	40.43	54.00	-13.57	AVG
5	10911.000	42.50	7.75	50.25	74.00	-23.75	peak
6	10894.000	27.47	7.74	35.21	54.00	-18.79	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11B-2437



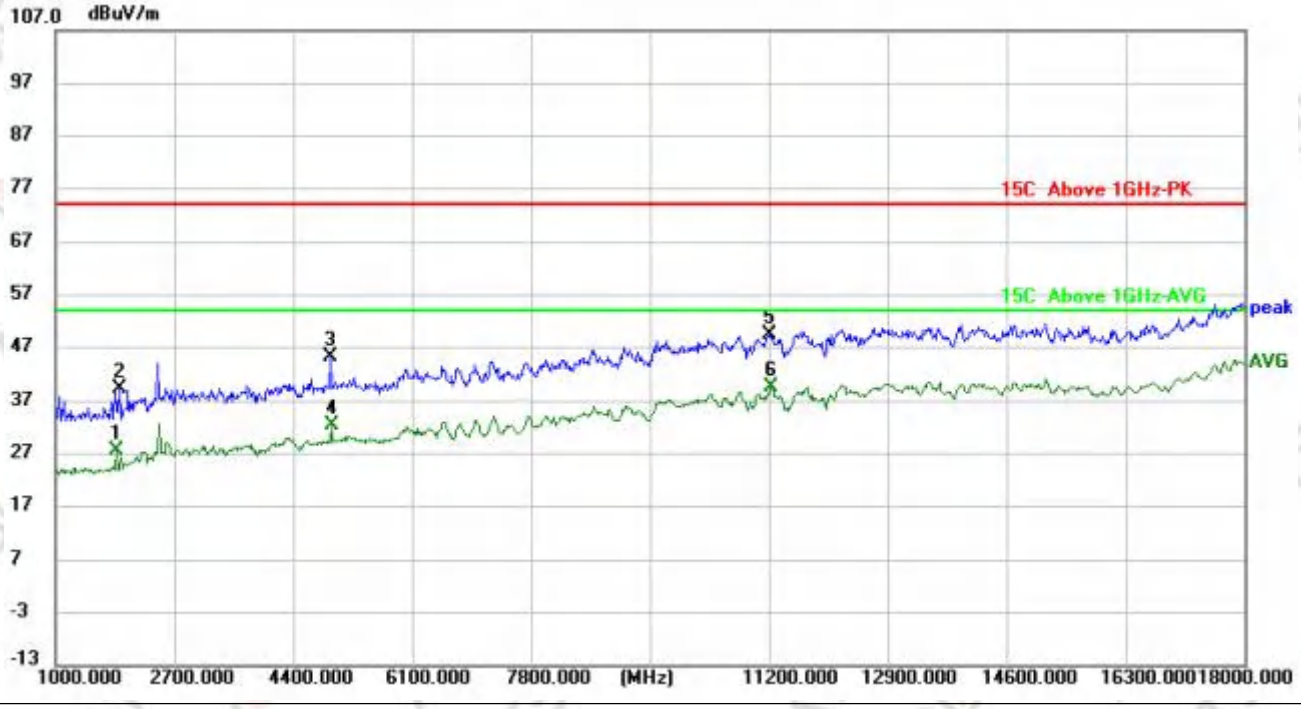
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1102.000	44.91	-19.61	25.30	54.00	-28.70	AVG
2	1204.000	62.12	-19.31	42.81	74.00	-31.19	peak
3	4876.000	57.12	-6.41	50.71	74.00	-23.29	peak
4	4893.000	43.47	-6.30	37.17	54.00	-16.83	AVG
5	13954.000	41.22	11.25	52.47	74.00	-21.53	peak
6 *	13954.000	29.83	11.25	41.08	54.00	-12.92	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11B-2437



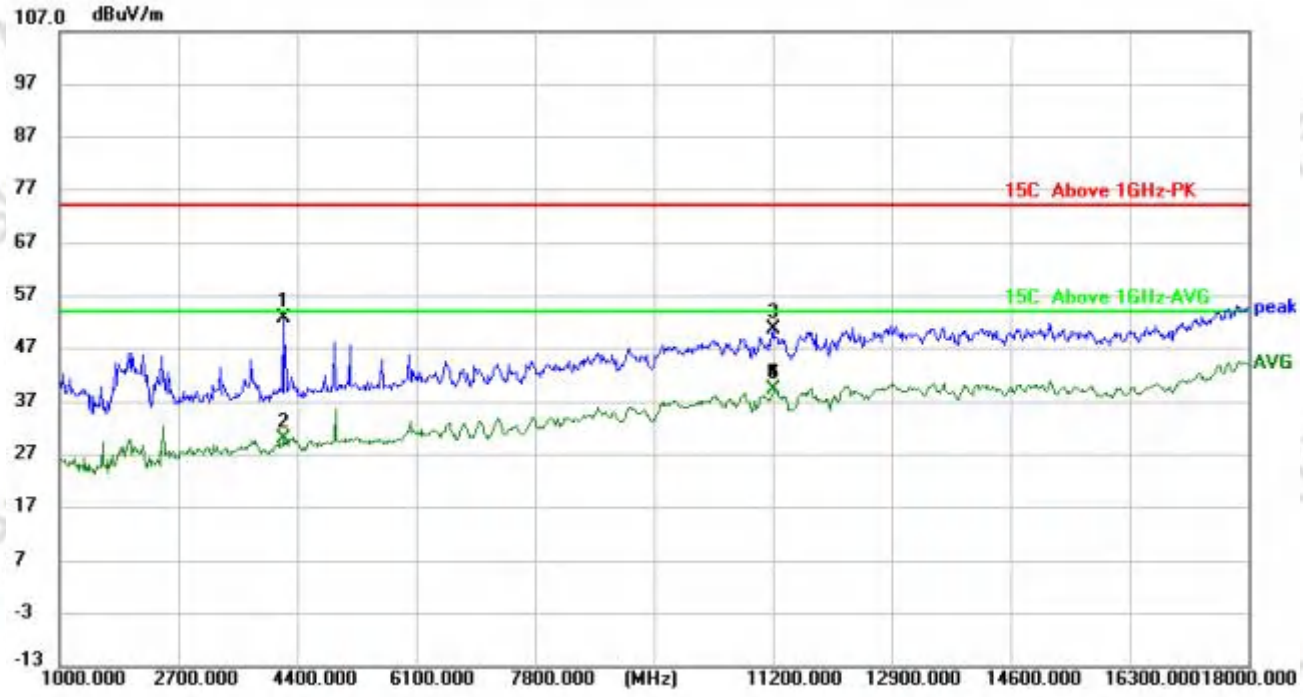
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4842.000	36.30	-6.63	29.67	54.00	-24.33	AVG
2	4876.000	55.19	-6.41	48.78	74.00	-25.22	peak
3 *	11268.000	30.82	8.27	39.09	54.00	-14.91	AVG
4	11353.000	42.01	8.39	50.40	74.00	-23.60	peak
5	11353.000	42.01	8.39	50.40	74.00	-23.60	peak
6	11353.000	42.01	8.39	50.40	74.00	-23.60	peak

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11B-2462



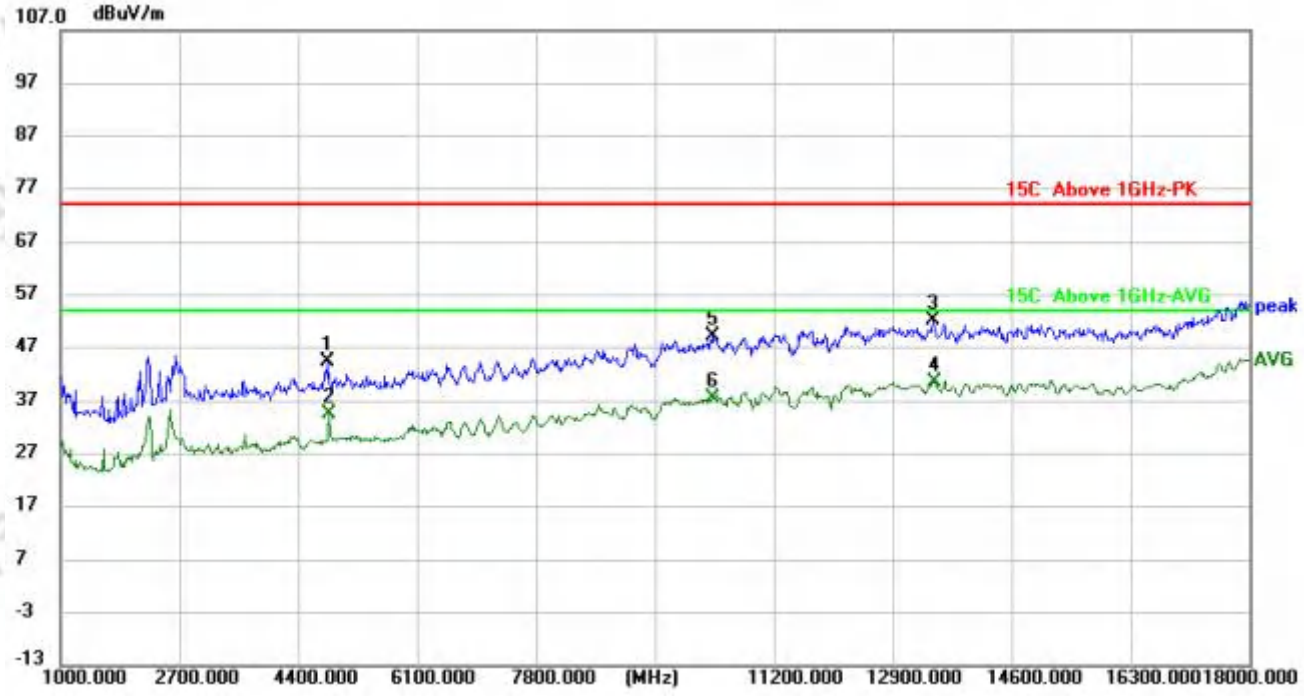
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1867.000	45.29	-17.75	27.54	54.00	-26.46	AVG
2	1918.000	56.98	-17.51	39.47	74.00	-34.53	peak
3	4927.000	51.47	-6.07	45.40	74.00	-28.60	peak
4	4944.000	38.40	-5.96	32.44	54.00	-21.56	AVG
5	11217.000	41.23	8.20	49.43	74.00	-24.57	peak
6 *	11234.000	31.29	8.23	39.52	54.00	-14.48	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11B-2462



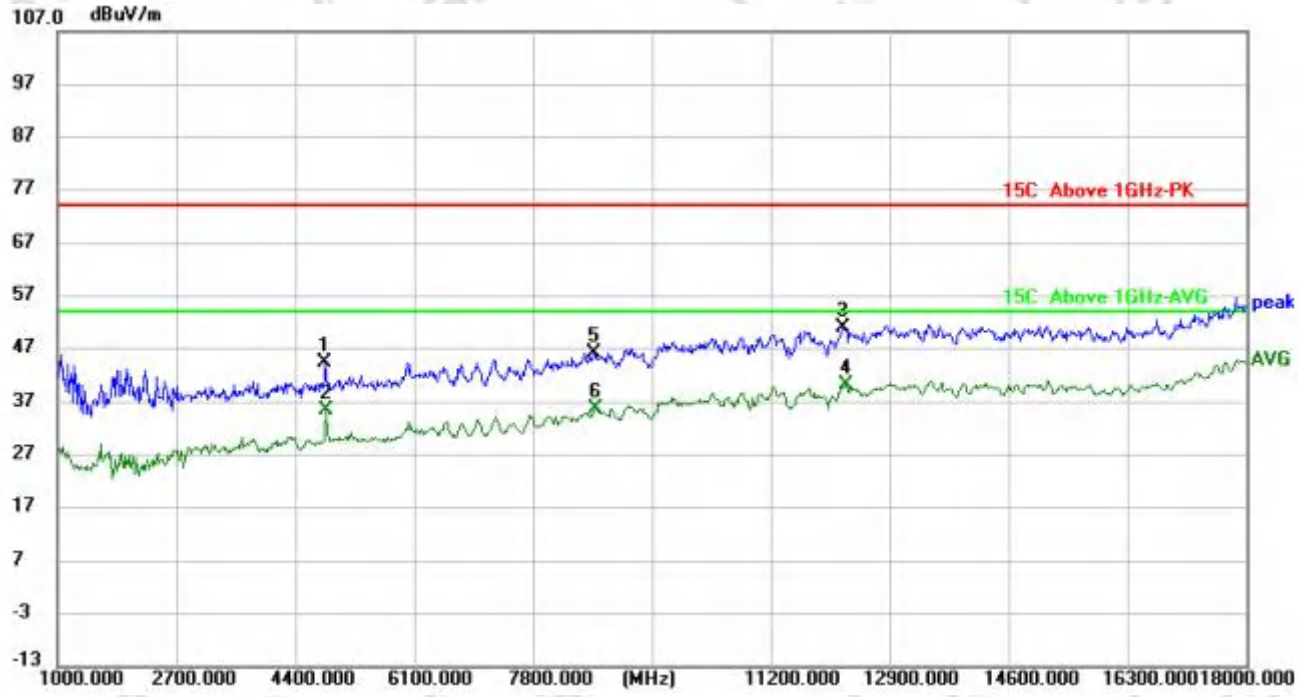
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4196.000	61.27	-8.31	52.96	74.00	-21.04	peak
2	4213.000	38.36	-8.21	30.15	54.00	-23.85	AVG
3	11200.000	42.54	8.18	50.72	74.00	-23.28	peak
4 *	11217.000	31.29	8.20	39.49	54.00	-14.51	AVG
5 *	11217.000	31.29	8.20	39.49	54.00	-14.51	AVG
6 *	11217.000	31.29	8.20	39.49	54.00	-14.51	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11g-2412



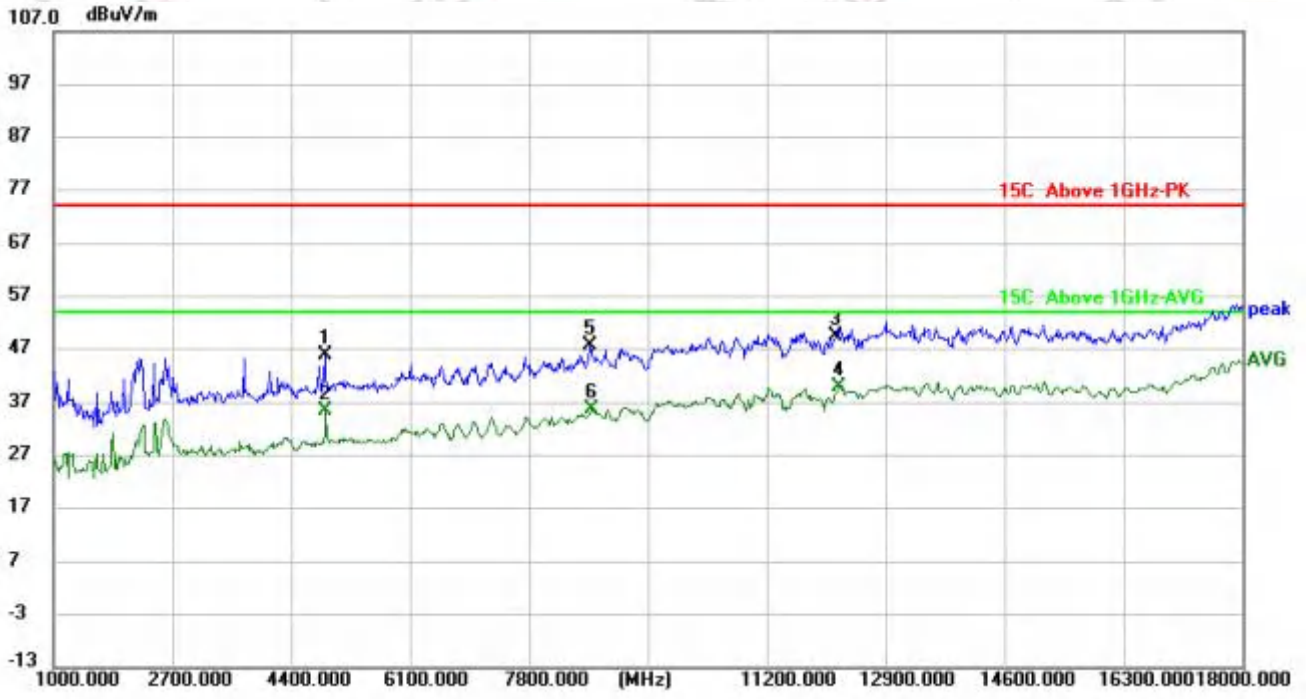
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4825.000	51.08	-6.74	44.34	74.00	-29.66	peak
2	4842.000	41.24	-6.63	34.61	54.00	-19.39	AVG
3	13478.000	41.42	10.72	52.14	74.00	-21.86	peak
4 *	13495.000	29.93	10.74	40.67	54.00	-13.33	AVG
5	10333.000	42.38	6.73	49.11	74.00	-24.89	peak
6	10333.000	30.95	6.73	37.68	54.00	-16.32	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11g-2412



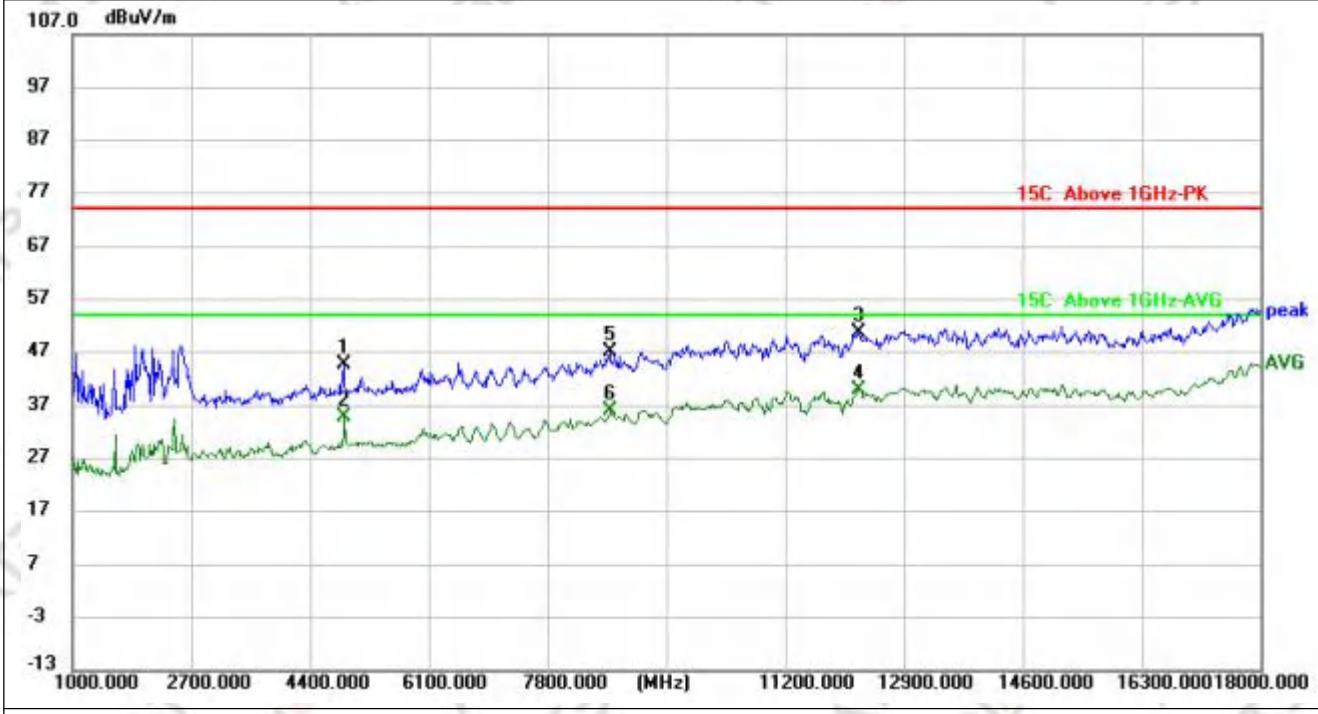
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4825.000	51.22	-6.74	44.48	74.00	-29.52	peak
2	4842.000	42.17	-6.63	35.54	54.00	-18.46	AVG
3	12237.000	42.35	8.84	51.19	74.00	-22.81	peak
4 *	12271.000	31.29	8.87	40.16	54.00	-13.84	AVG
5	8667.000	42.94	3.30	46.24	74.00	-27.76	peak
6	8684.000	32.49	3.35	35.84	54.00	-18.16	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11g-2437



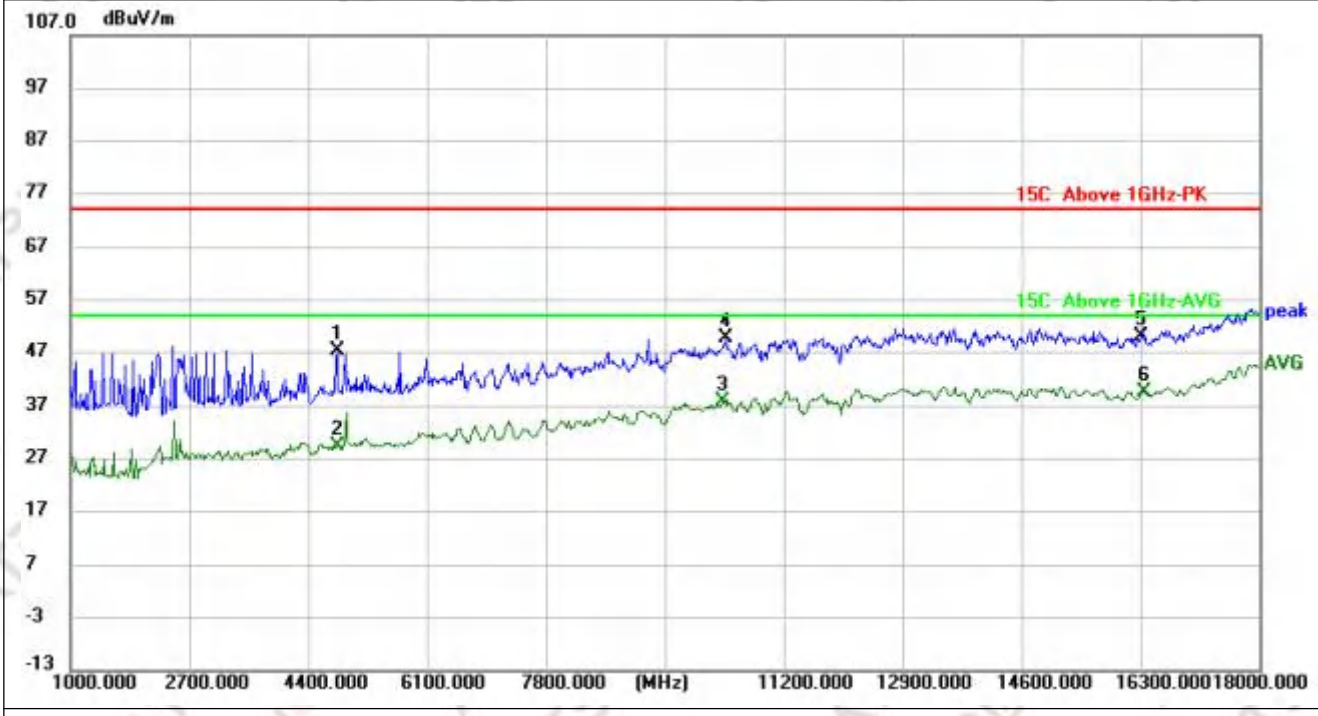
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4876.000	52.33	-6.41	45.92	74.00	-28.08	peak
2	4893.000	41.81	-6.30	35.51	54.00	-18.49	AVG
3	12186.000	40.63	8.81	49.44	74.00	-24.56	peak
4 *	12237.000	31.16	8.84	40.00	54.00	-14.00	AVG
5	8667.000	44.44	3.30	47.74	74.00	-26.26	peak
6	8684.000	32.45	3.35	35.80	54.00	-18.20	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11g-2437



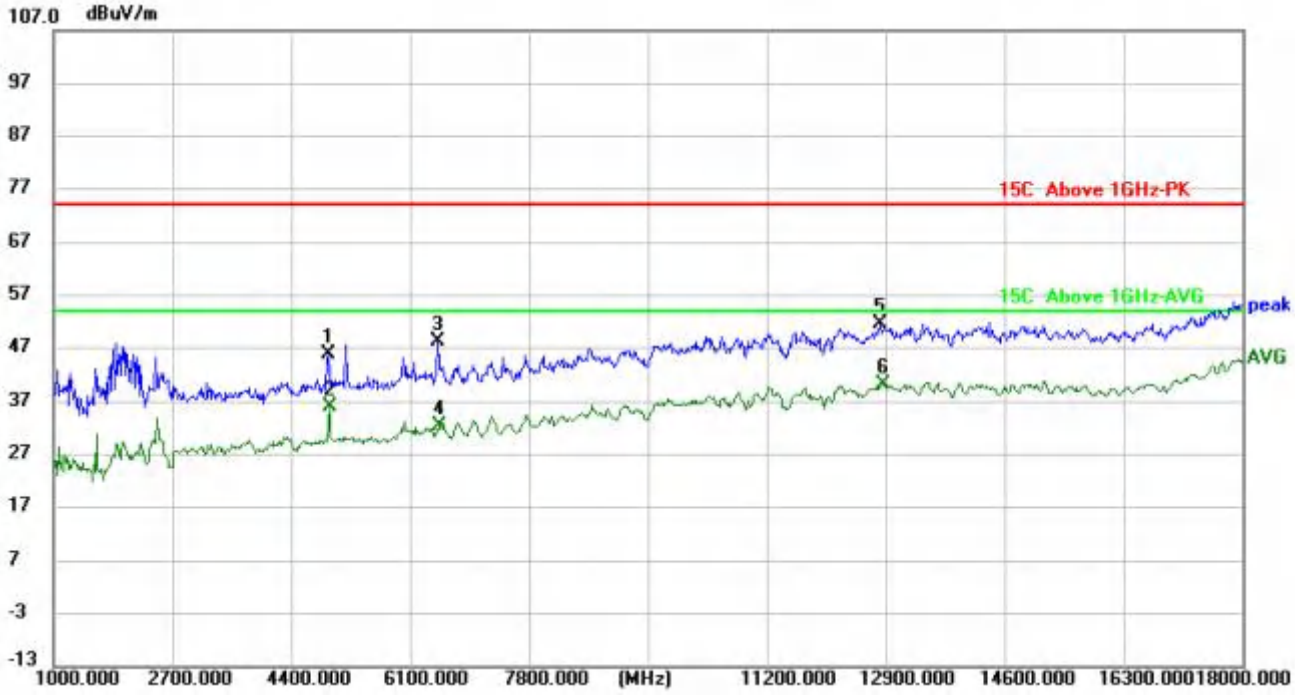
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4876.000	51.12	-6.41	44.71	74.00	-29.29	peak
2	4893.000	41.25	-6.30	34.95	54.00	-19.05	AVG
3	12254.000	42.01	8.85	50.86	74.00	-23.14	peak
4 *	12254.000	31.19	8.85	40.04	54.00	-13.96	AVG
5	8684.000	43.89	3.35	47.24	74.00	-26.76	peak
6	8701.000	32.68	3.40	36.08	54.00	-17.92	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11g-2462



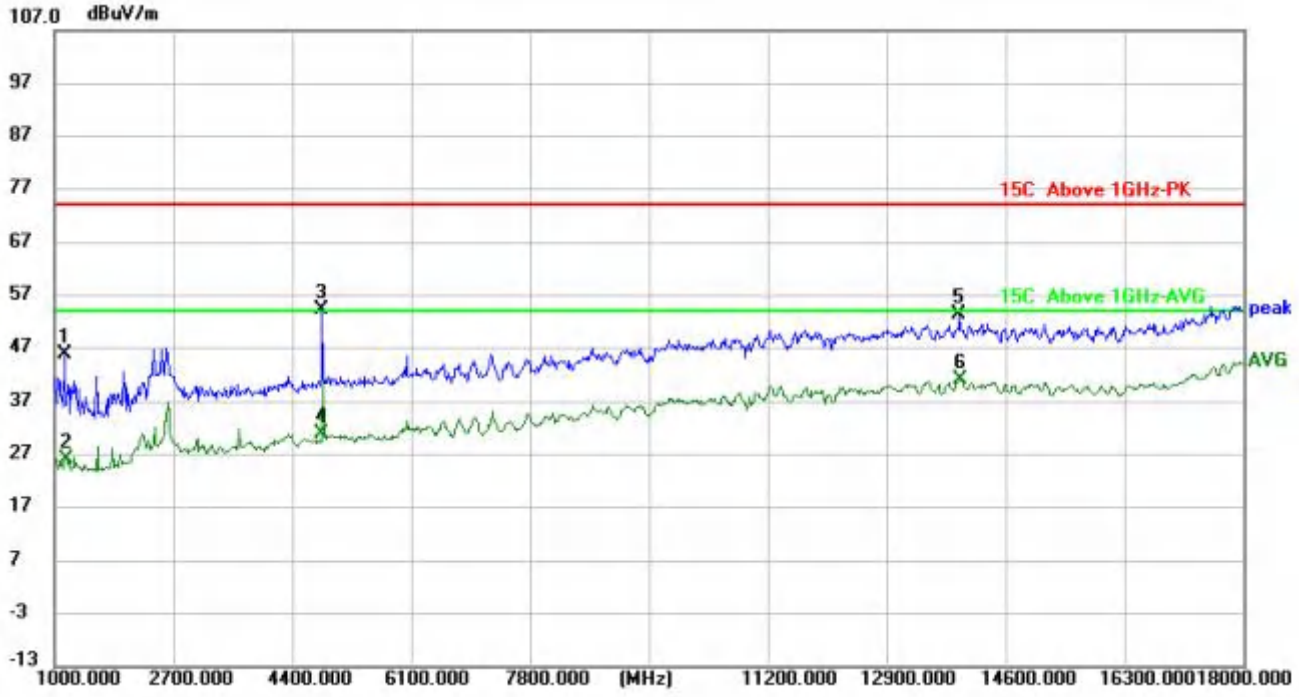
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4808.000	54.23	-6.85	47.38	74.00	-26.62	peak
2	4825.000	36.23	-6.74	29.49	54.00	-24.51	AVG
3	10333.000	30.99	6.73	37.72	54.00	-16.28	AVG
4	10367.000	42.97	6.81	49.78	74.00	-24.22	peak
5	16317.000	37.95	12.14	50.09	74.00	-23.91	peak
6 *	16351.000	27.59	12.20	39.79	54.00	-14.21	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11g-2462



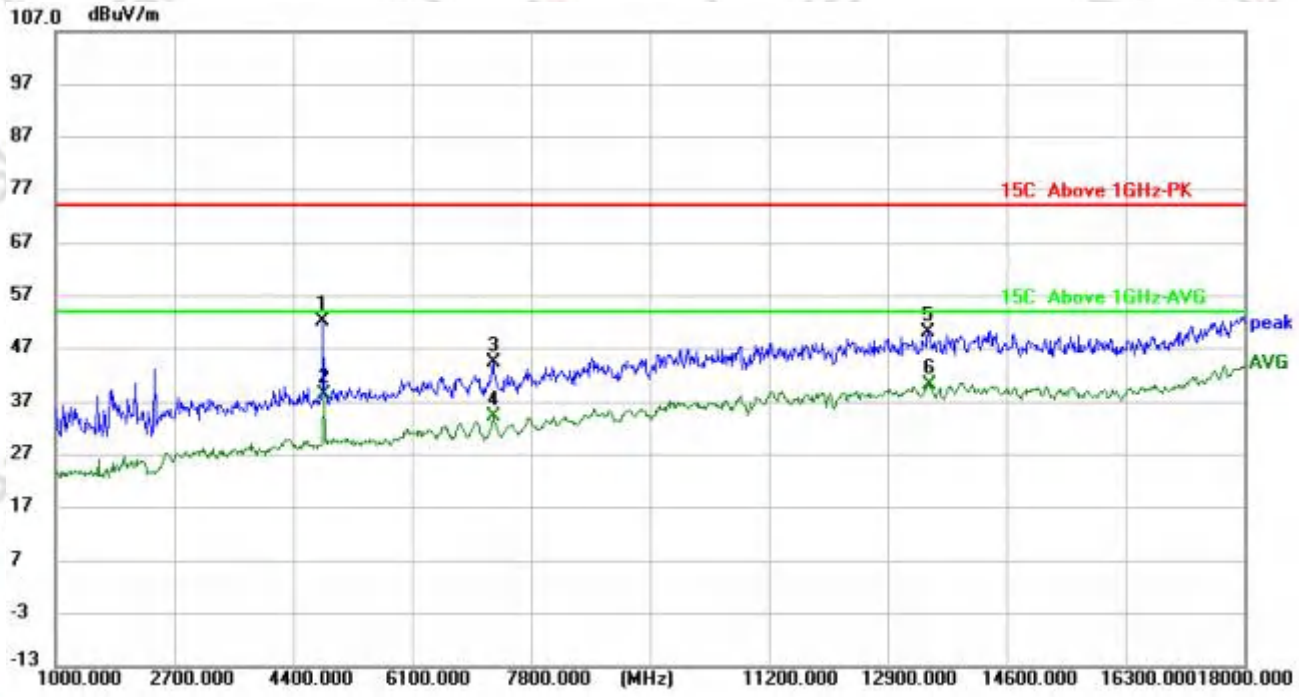
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4927.000	52.01	-6.07	45.94	74.00	-28.06	peak
2	4944.000	42.09	-5.96	36.13	54.00	-17.87	AVG
3	6491.000	50.20	-1.92	48.28	74.00	-25.72	peak
4	6525.000	34.26	-1.81	32.45	54.00	-21.55	AVG
5	12815.000	42.09	9.63	51.72	74.00	-22.28	peak
6 *	12866.000	30.45	9.74	40.19	54.00	-13.81	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11n20-2412



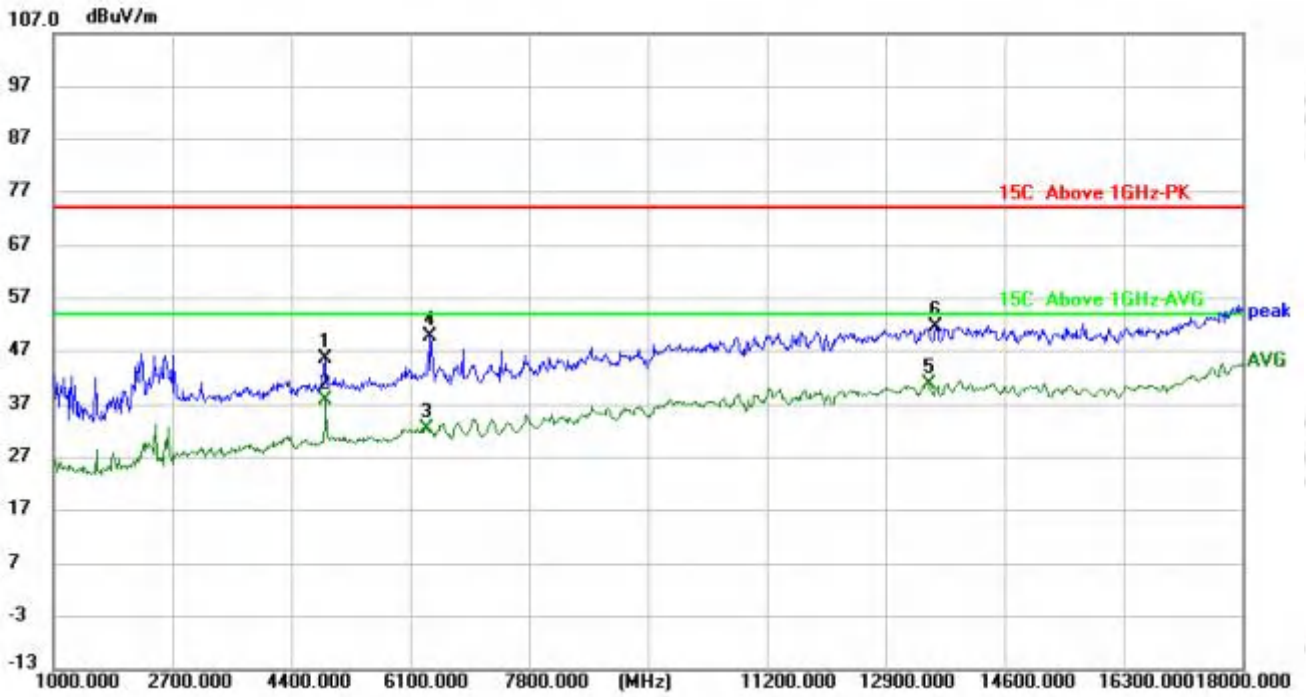
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1136.000	65.33	-19.51	45.82	74.00	-28.18	peak
2	1170.000	45.51	-19.40	26.11	54.00	-27.89	AVG
3	4825.000	61.12	-6.74	54.38	74.00	-19.62	peak
4	4825.000	37.56	-6.74	30.82	54.00	-23.18	AVG
5	13937.000	42.26	11.23	53.49	74.00	-20.51	peak
6 *	13954.000	29.88	11.25	41.13	54.00	-12.87	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11n20-2412



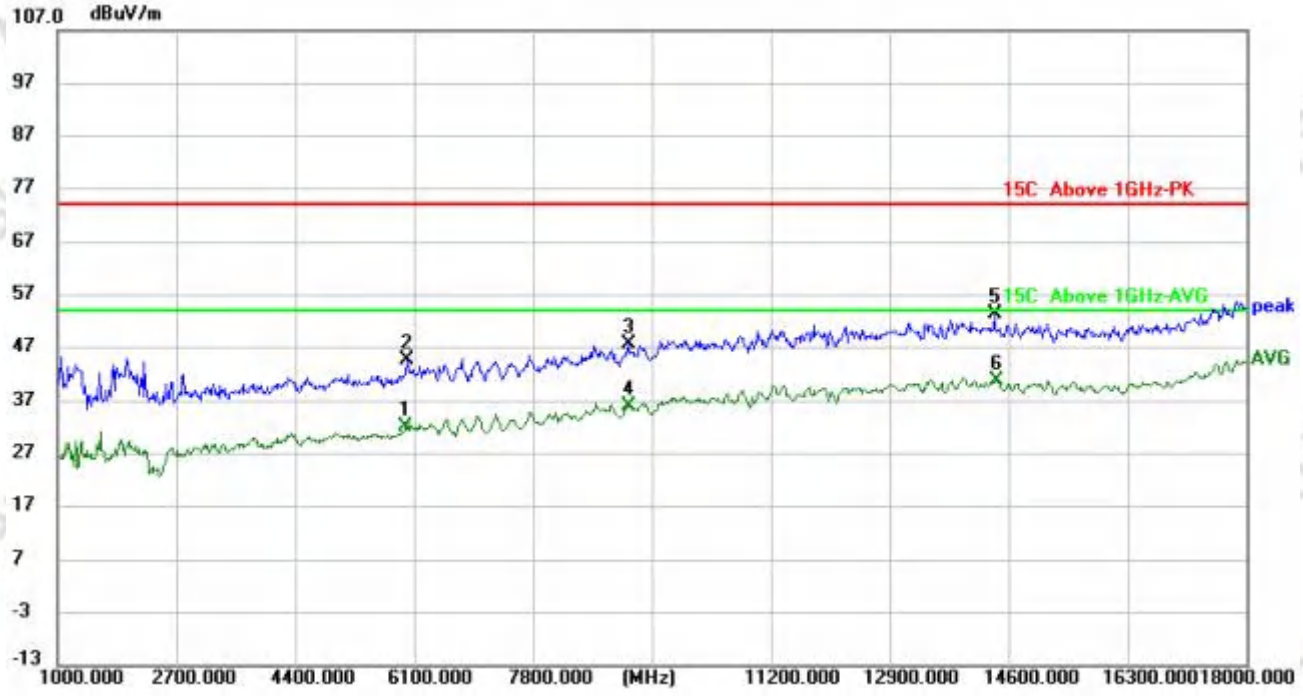
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4825.000	58.85	-6.74	52.11	74.00	-21.89	peak
2	4842.000	45.17	-6.63	38.54	54.00	-15.46	AVG
3	7256.000	43.99	0.32	44.31	74.00	-29.69	peak
4	7256.000	33.89	0.32	34.21	54.00	-19.79	AVG
5	13478.000	39.46	10.72	50.18	74.00	-23.82	peak
6	13495.000	29.59	10.74	40.33	54.00	-13.67	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11n20-2437



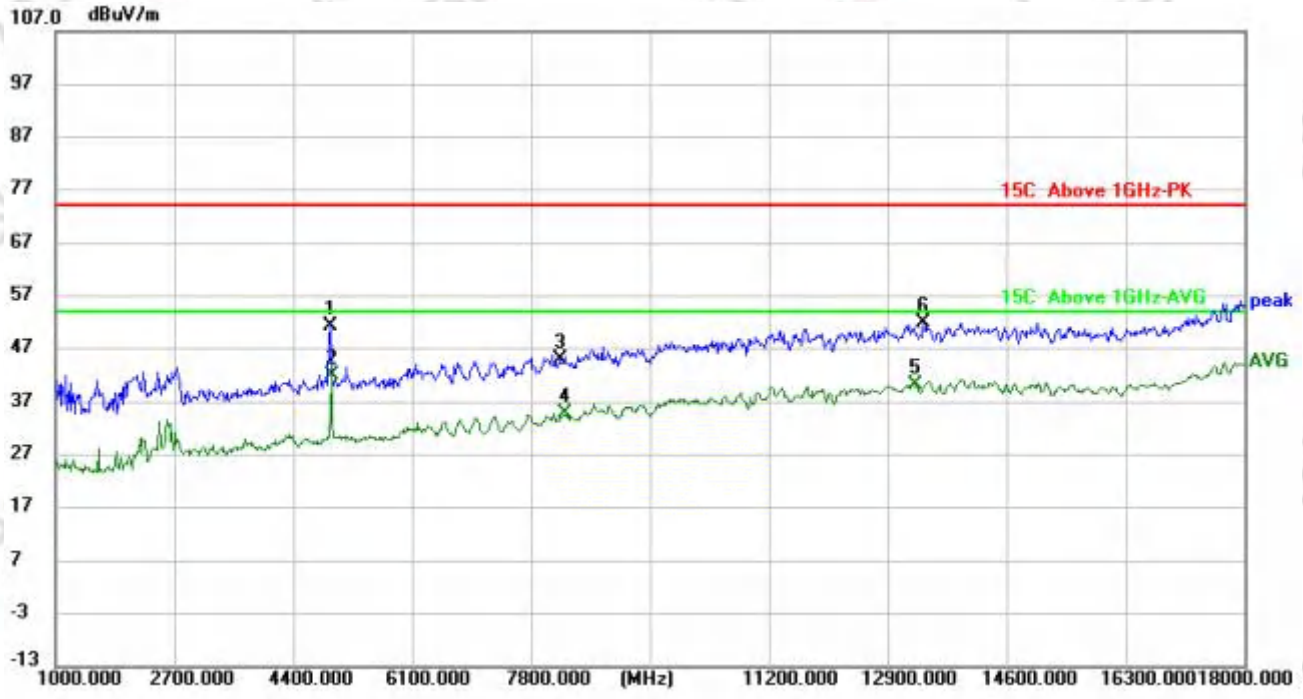
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4876.000	52.16	-6.41	45.75	74.00	-28.25	peak
2	4893.000	44.09	-6.30	37.79	54.00	-16.21	AVG
3	6338.000	34.84	-2.32	32.52	54.00	-21.48	AVG
4	6389.000	52.07	-2.18	49.89	74.00	-24.11	peak
5 *	13512.000	30.18	10.76	40.94	54.00	-13.06	AVG
6	13614.000	40.64	10.87	51.51	74.00	-22.49	peak

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11n20-2437



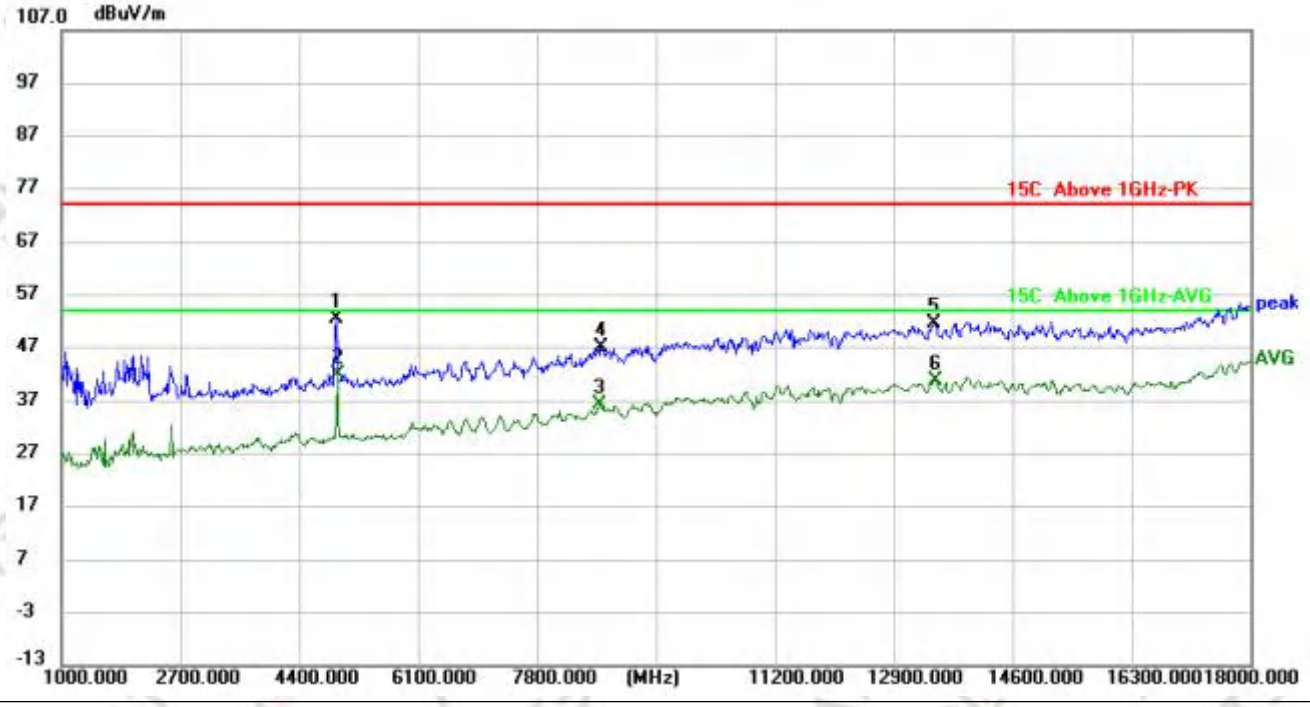
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5981.000	35.33	-3.31	32.02	54.00	-21.98	AVG
2	5998.000	48.08	-3.20	44.88	74.00	-29.12	peak
3	9160.000	43.44	4.40	47.84	74.00	-26.16	peak
4	9177.000	31.67	4.41	36.08	54.00	-17.92	AVG
5	14396.000	41.94	11.46	53.40	74.00	-20.60	peak
6 *	14430.000	29.27	11.47	40.74	54.00	-13.26	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11n20-2462



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4927.000	57.53	-6.07	51.46	74.00	-22.54	peak
2 *	4944.000	47.92	-5.96	41.96	54.00	-12.04	AVG
3	8208.000	42.78	2.22	45.00	74.00	-29.00	peak
4	8276.000	32.35	2.35	34.70	54.00	-19.30	AVG
5	13291.000	29.68	10.44	40.12	54.00	-13.88	AVG
6	13410.000	41.33	10.61	51.94	74.00	-22.06	peak

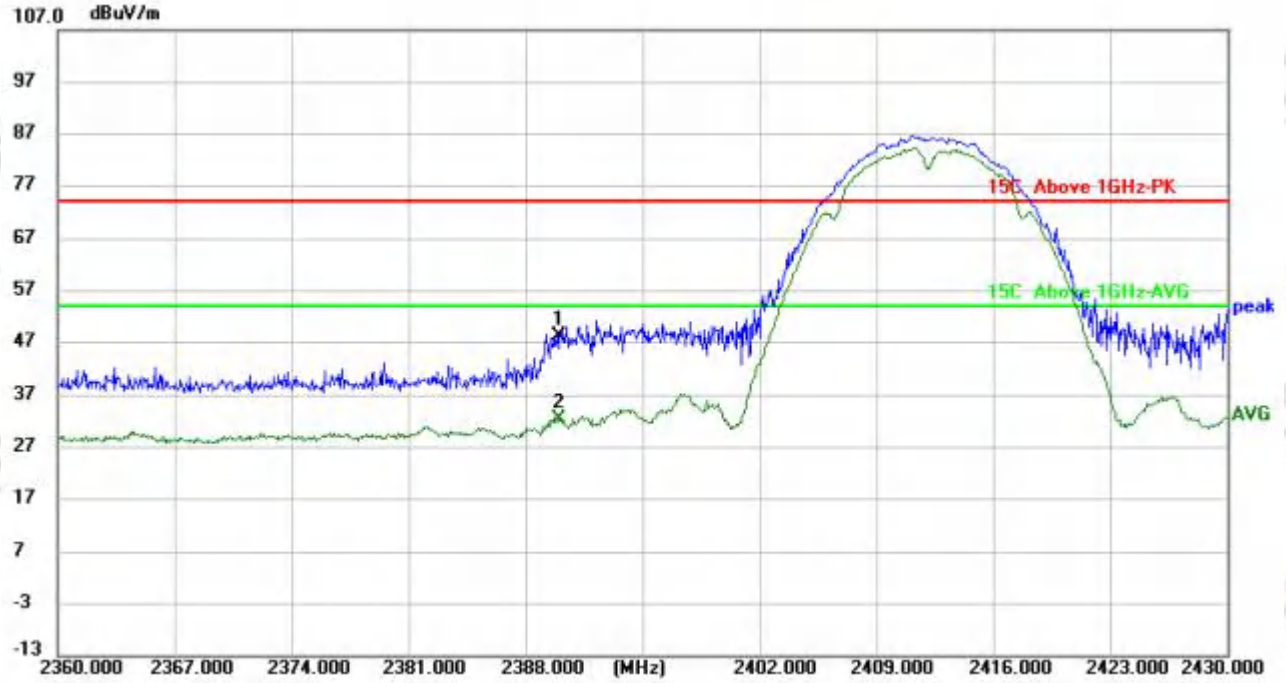
Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11n20-2462



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4927.000	58.51	-6.07	52.44	74.00	-21.56	peak
2 *	4944.000	48.05	-5.96	42.09	54.00	-11.91	AVG
3	8701.000	33.04	3.40	36.44	54.00	-17.56	AVG
4	8718.000	43.79	3.45	47.24	74.00	-26.76	peak
5	13478.000	40.99	10.72	51.71	74.00	-22.29	peak
6	13495.000	30.12	10.74	40.86	54.00	-13.14	AVG

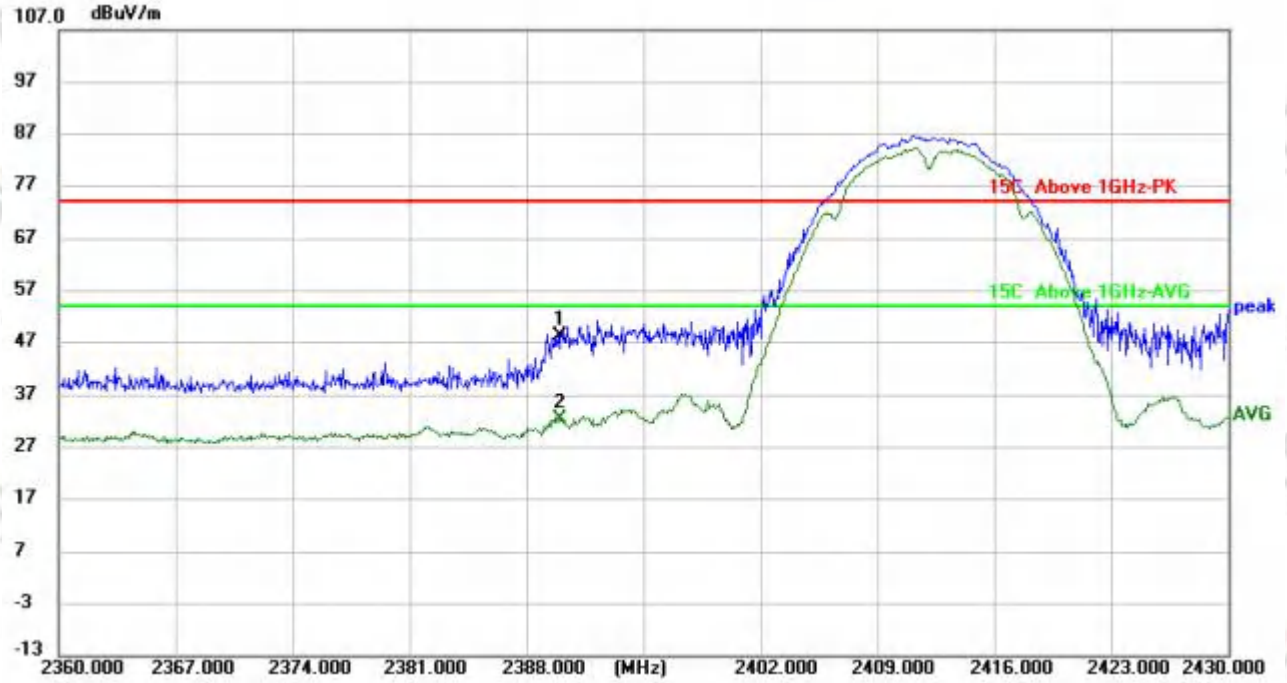
3.7.5. Test Result of Restricted Band

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11B-2412



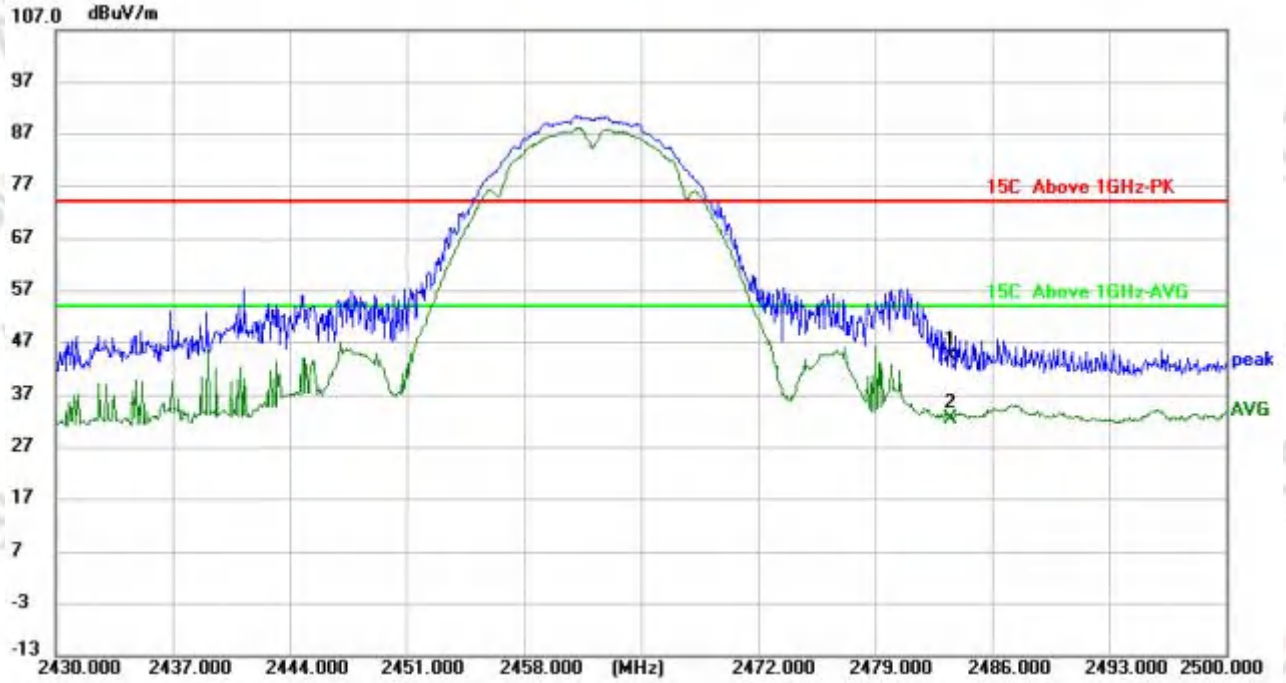
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	60.60	-15.08	45.52	74.00	-28.48	peak
2 *	2390.000	46.81	-15.08	31.73	54.00	-22.27	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11B-2412



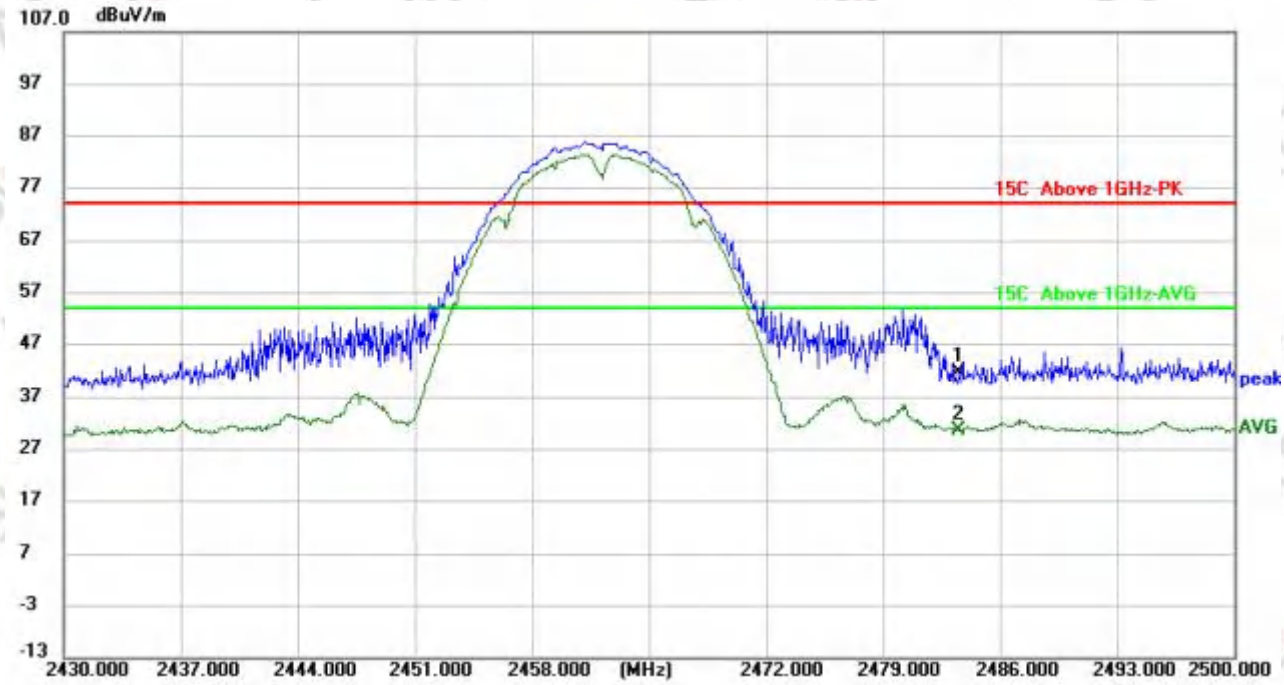
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	63.37	-15.08	48.29	74.00	-25.71	peak
2 *	2390.000	47.60	-15.08	32.52	54.00	-21.48	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11B-2462



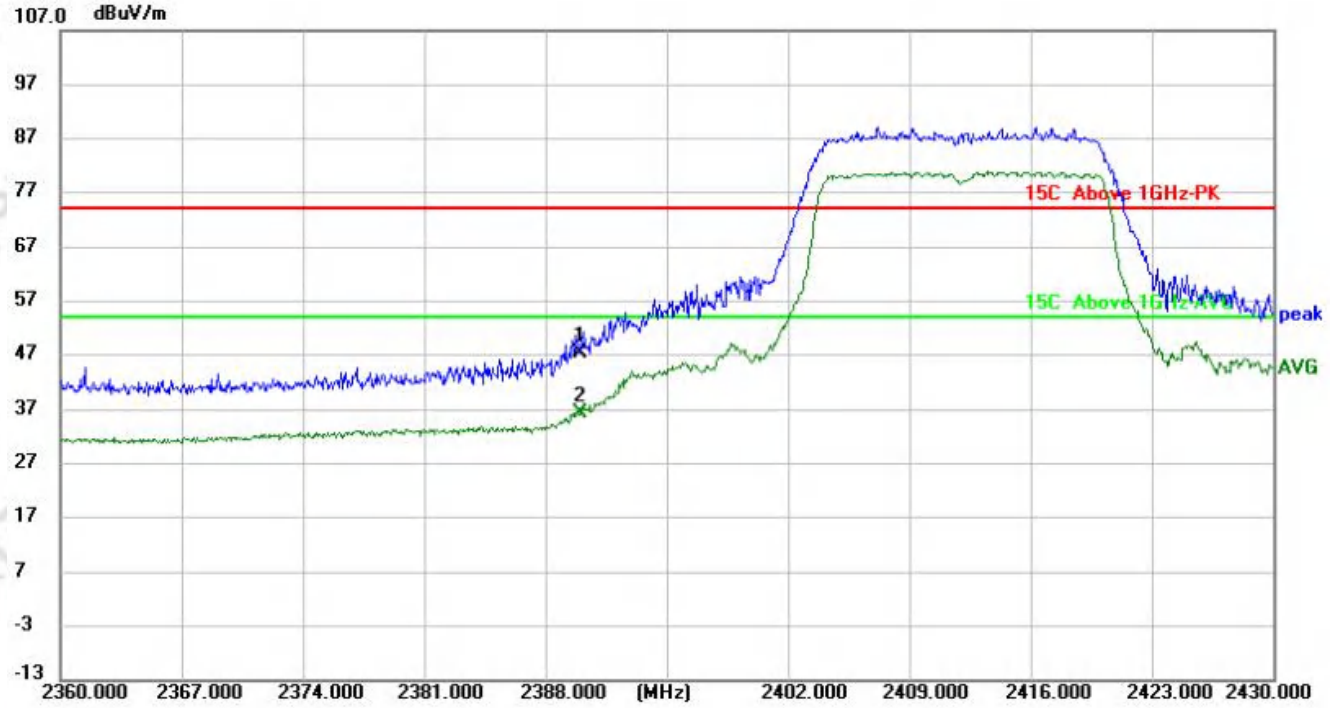
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	59.11	-14.66	44.45	74.00	-29.55	peak
2 *	2483.500	47.15	-14.66	32.49	54.00	-21.51	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11B-2462



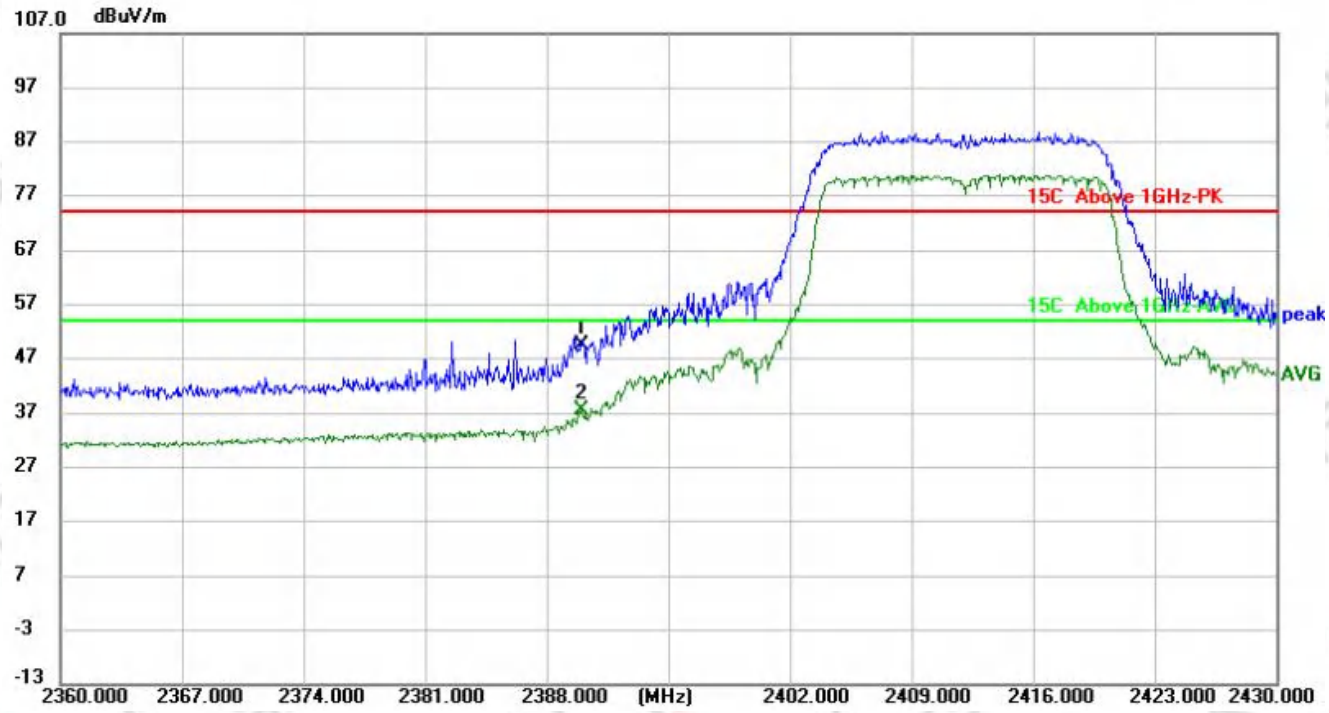
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	56.40	-14.66	41.74	74.00	-32.26	peak
2 *	2483.500	45.28	-14.66	30.62	54.00	-23.38	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11G-2412



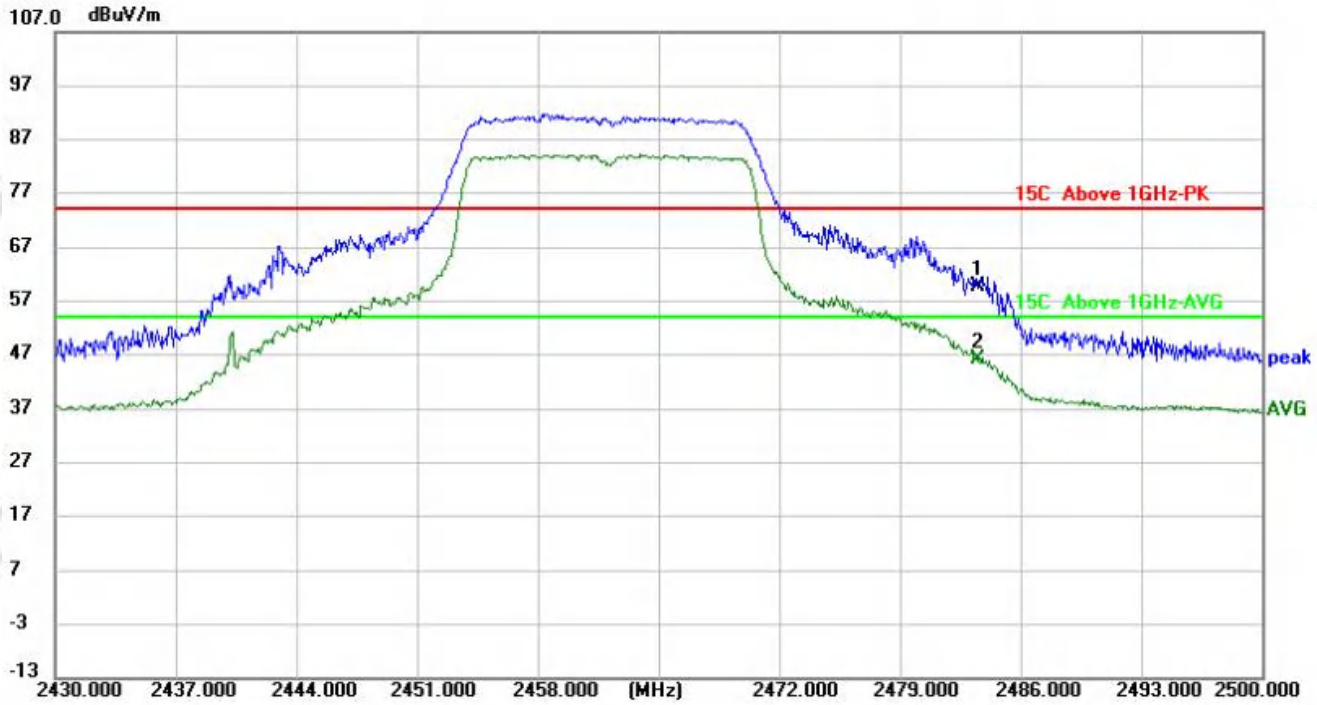
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	62.46	-15.08	47.38	74.00	-26.62	peak
2 *	2390.000	51.30	-15.08	36.22	54.00	-17.78	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11G-2412



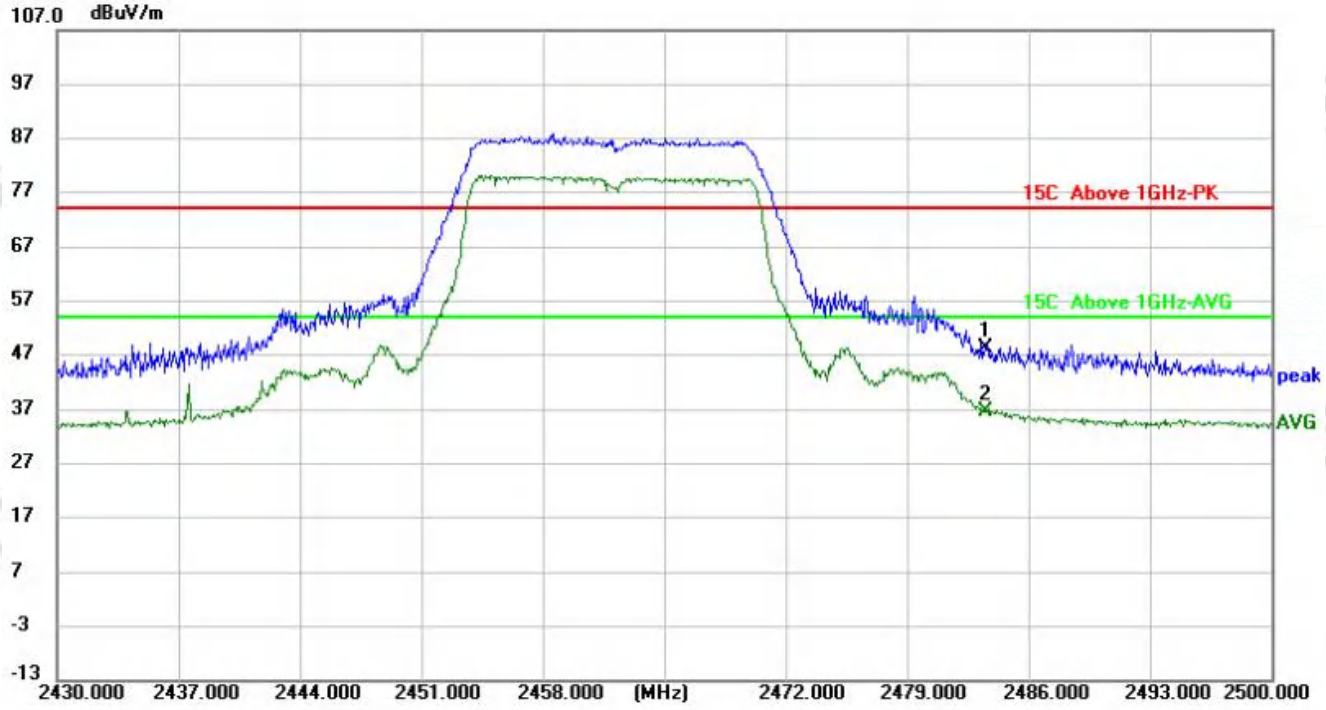
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	64.63	-15.08	49.55	74.00	-24.45	peak
2 *	2390.000	52.75	-15.08	37.67	54.00	-16.33	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11G-2462



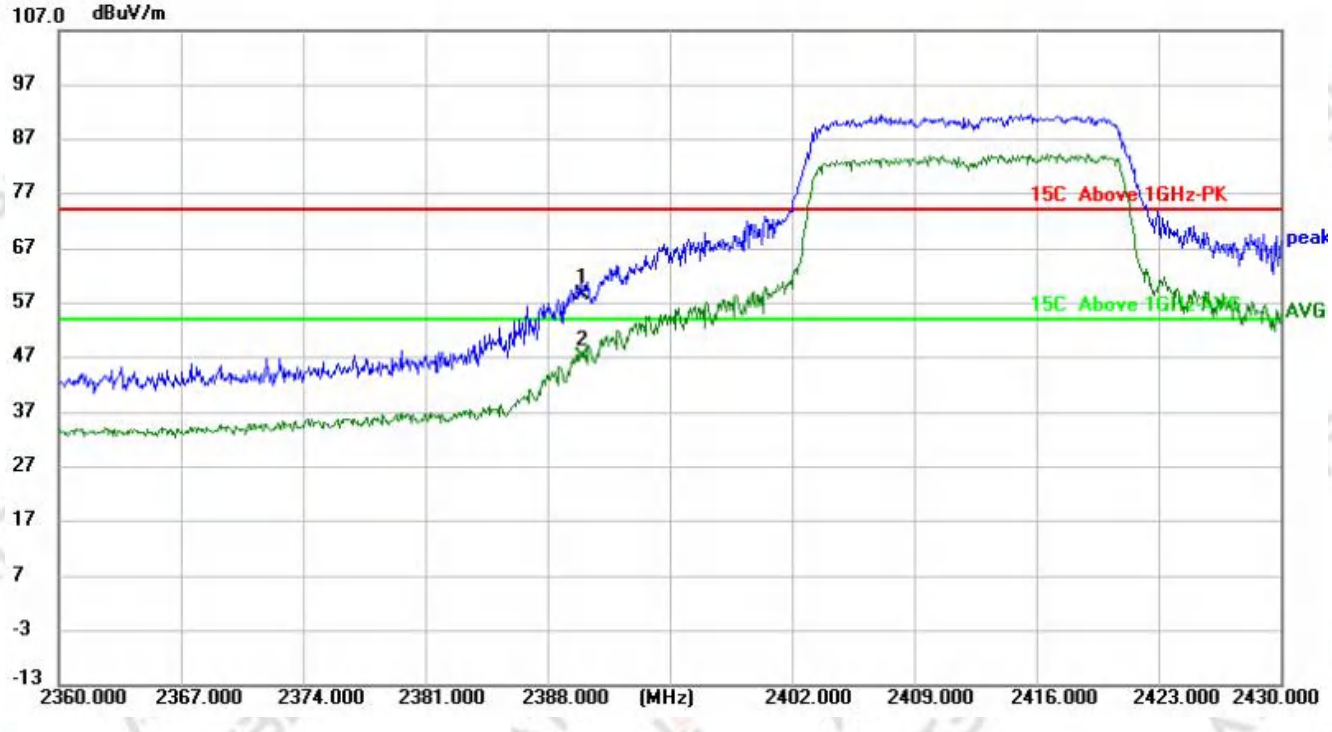
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	74.44	-14.66	59.78	74.00	-14.22	peak
2 *	2483.500	61.06	-14.66	46.40	54.00	-7.60	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11G-2462



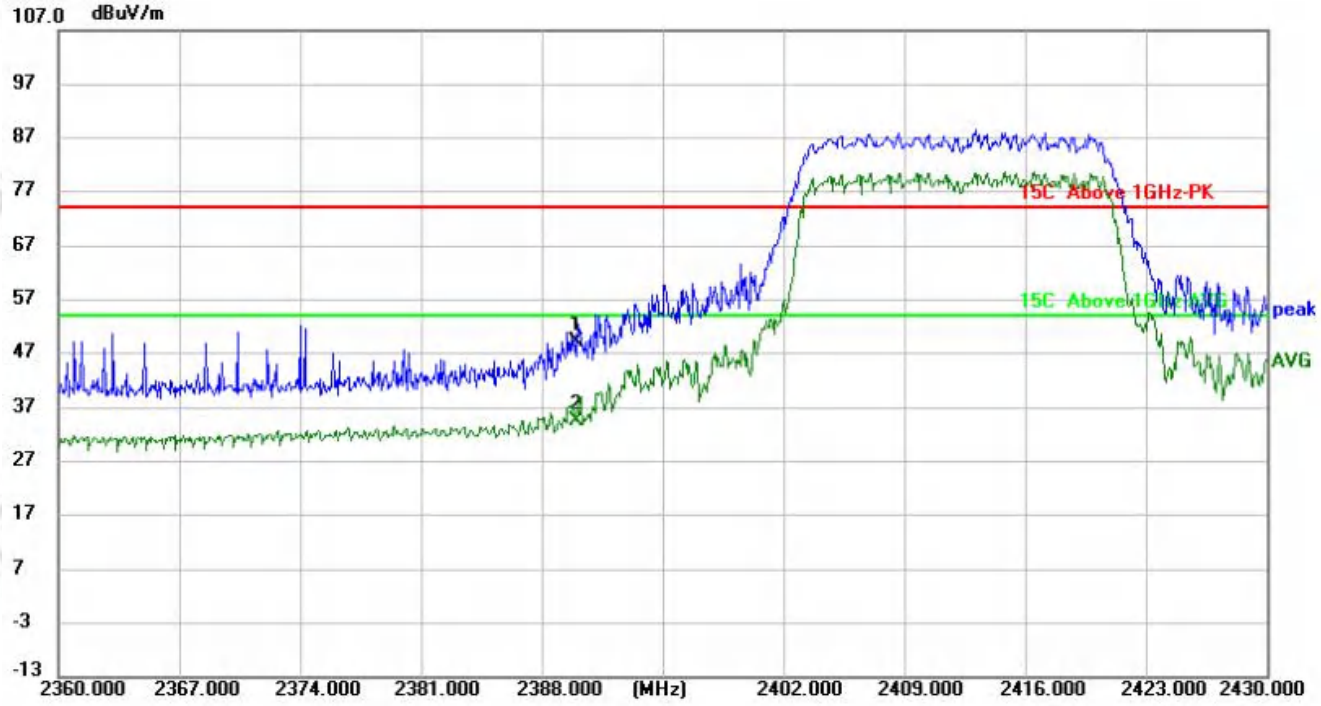
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	62.97	-14.66	48.31	74.00	-25.69	peak
2 *	2483.500	51.41	-14.66	36.75	54.00	-17.25	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11N20-2412



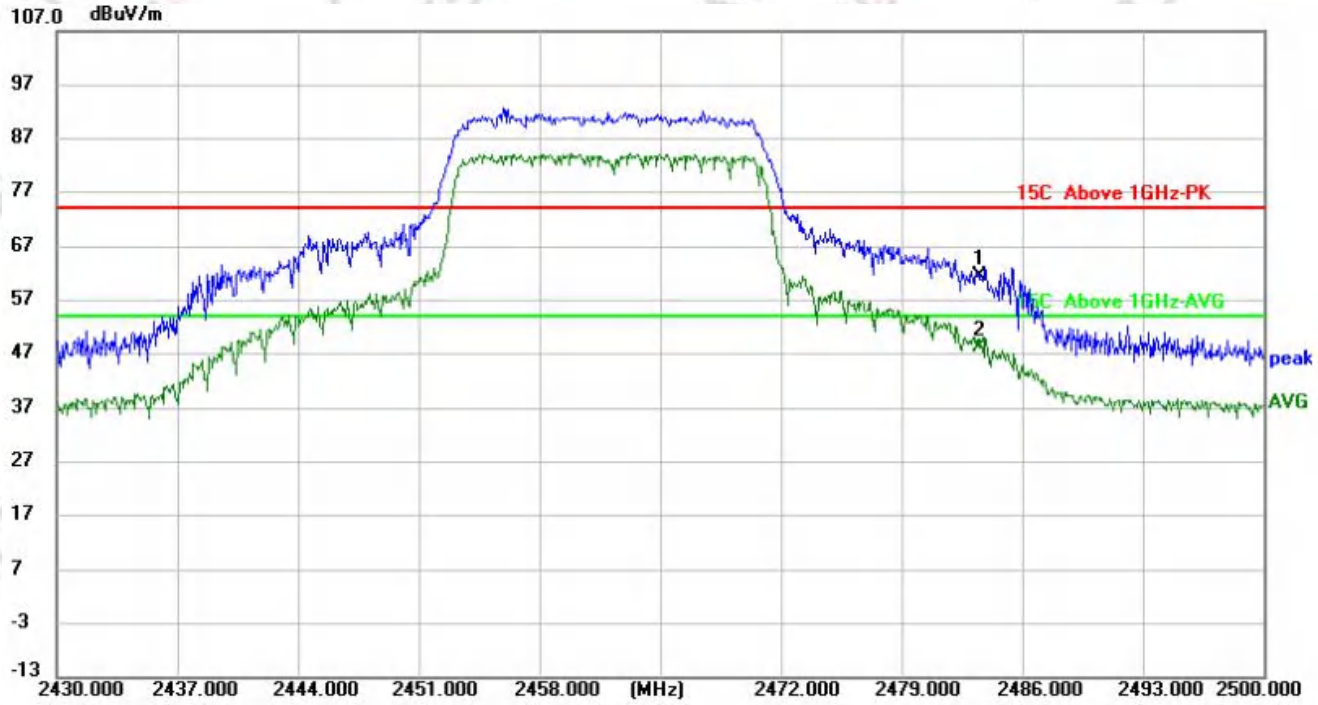
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	73.74	-15.08	58.66	74.00	-15.34	peak
2 *	2390.000	62.17	-15.08	47.09	54.00	-6.91	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11N20-2412



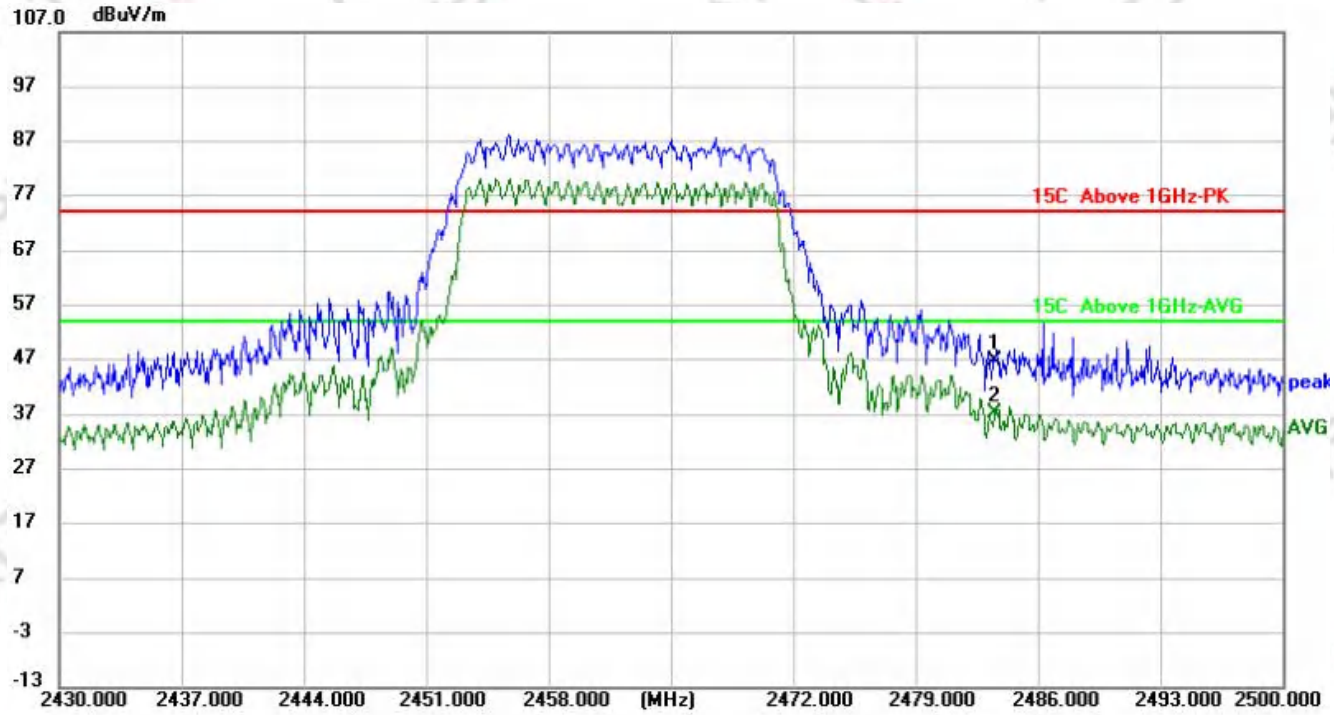
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	64.46	-15.08	49.38	74.00	-24.62	peak
2 *	2390.000	49.71	-15.08	34.63	54.00	-19.37	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Horizontal	Mode	11N20-2462



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	76.10	-14.66	61.44	74.00	-12.56	peak
2 *	2483.500	62.86	-14.66	48.20	54.00	-5.80	AVG

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	Vertical	Mode	11N20-2462



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	61.41	-14.66	46.75	74.00	-27.25	peak
2 *	2483.500	52.06	-14.66	37.40	54.00	-16.60	AVG

3.8. AC Power-Line Conducted Emission

3.8.1. Limit

47 CFR 15.207(a): For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table:

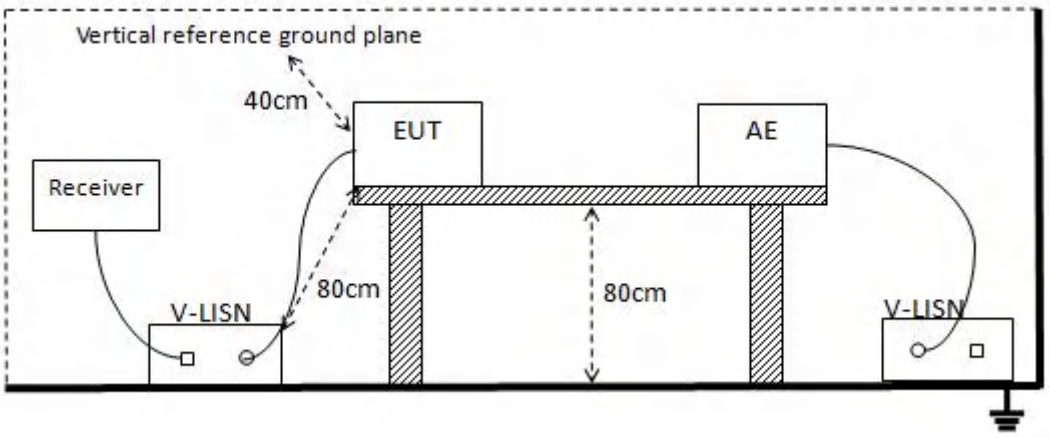
Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

3.8.2. Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

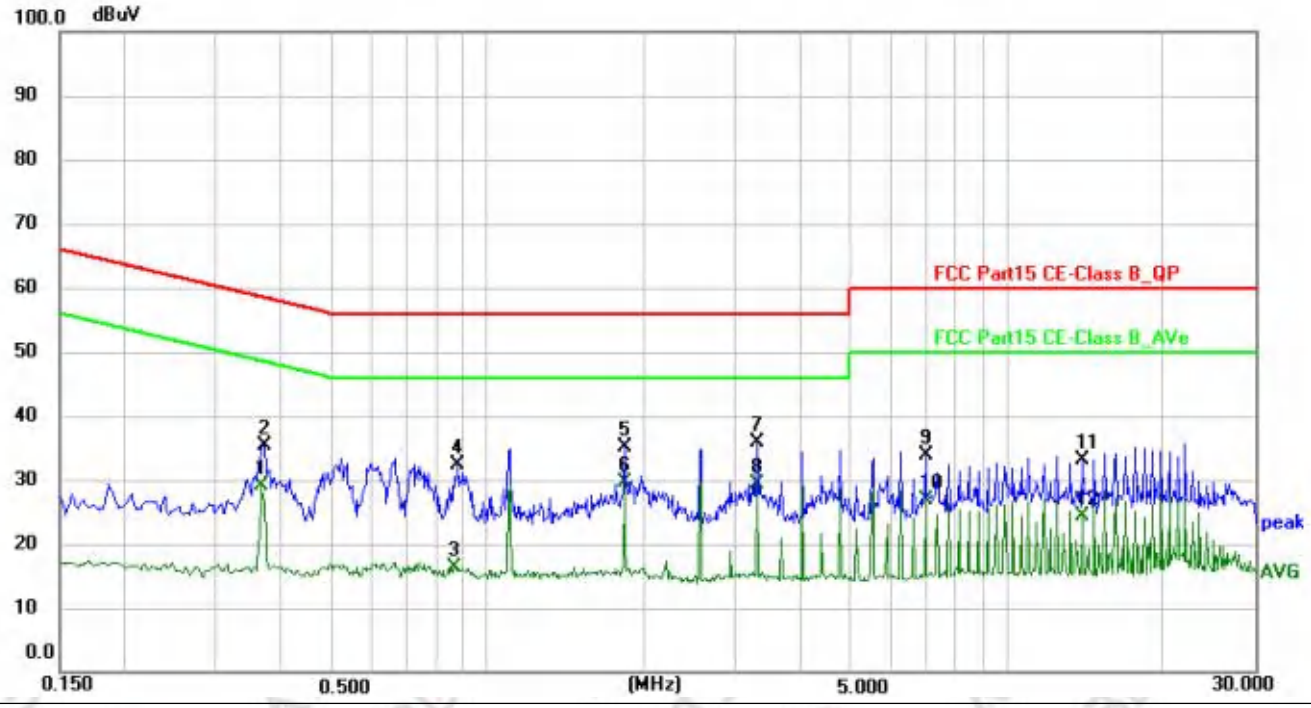
3.8.3. Test Setup



3.8.4. Test Result of AC Power-Line Conducted Emission

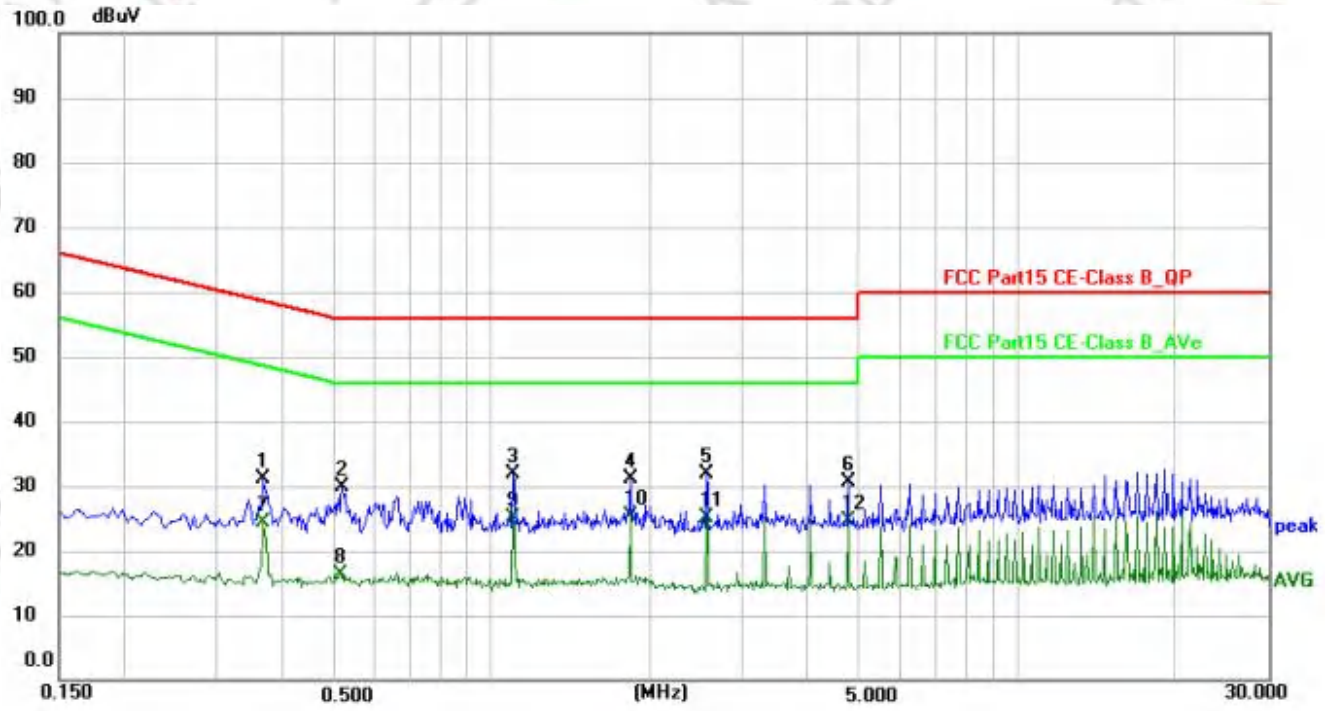
Note:only worst case (802.11b) mode was recorded in the test report if no any others.

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	N	Mode	11b-2412



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.3660	9.82	19.28	29.10	48.59	-19.49	AVG	P
2	0.3700	16.12	19.28	35.40	58.50	-23.10	peak	P
3	0.8620	-2.89	19.34	16.45	46.00	-29.55	AVG	P
4	0.8780	12.95	19.33	32.28	56.00	-23.72	peak	P
5	1.8340	15.81	19.43	35.24	56.00	-20.76	peak	P
6 *	1.8340	10.25	19.43	29.68	46.00	-16.32	AVG	P
7	3.3020	16.50	19.47	35.97	56.00	-20.03	peak	P
8	3.3020	9.91	19.47	29.38	46.00	-16.62	AVG	P
9	6.9740	14.57	19.29	33.86	60.00	-26.14	peak	P
10	6.9740	7.52	19.29	26.81	50.00	-23.19	AVG	P
11	13.9460	13.72	19.51	33.23	60.00	-26.77	peak	P
12	13.9460	4.77	19.51	24.28	50.00	-25.72	AVG	P

Product Name	2K Battery Wi-Fi Smart Video Doorbell	Model	DB-DBH4-B
Polarization	L	Mode	11b-2412



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.3660	11.78	19.28	31.06	58.59	-27.53	peak	P
2	0.5180	10.59	19.26	29.85	56.00	-26.15	peak	P
3	1.0980	12.65	19.27	31.92	56.00	-24.08	peak	P
4	1.8340	11.61	19.43	31.04	56.00	-24.96	peak	P
5	2.5660	12.52	19.47	31.99	56.00	-24.01	peak	P
6	4.7660	11.27	19.43	30.70	56.00	-25.30	peak	P
7	0.3660	5.13	19.28	24.41	48.59	-24.18	AVG	P
8	0.5140	-2.81	19.25	16.44	46.00	-29.56	AVG	P
9	1.0980	5.89	19.27	25.16	46.00	-20.84	AVG	P
10 *	1.8340	5.83	19.43	25.26	46.00	-20.74	AVG	P
11	2.5660	5.71	19.47	25.18	46.00	-20.82	AVG	P
12	4.7660	5.25	19.43	24.68	46.00	-21.32	AVG	P

3.9. Antenna Requirement

3.9.1. Standard Requirement

According to *47 CFR 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.

3.9.2. EUT Antenna

The antenna used for the EUT is Shrapnel antenna, which meets the antenna requirements.

4. Test Setup Photographs

Please refer to the Appendix F.

Appendix A of data

A1.Maximum conducted output power

Test Result

Conducted AVG output power

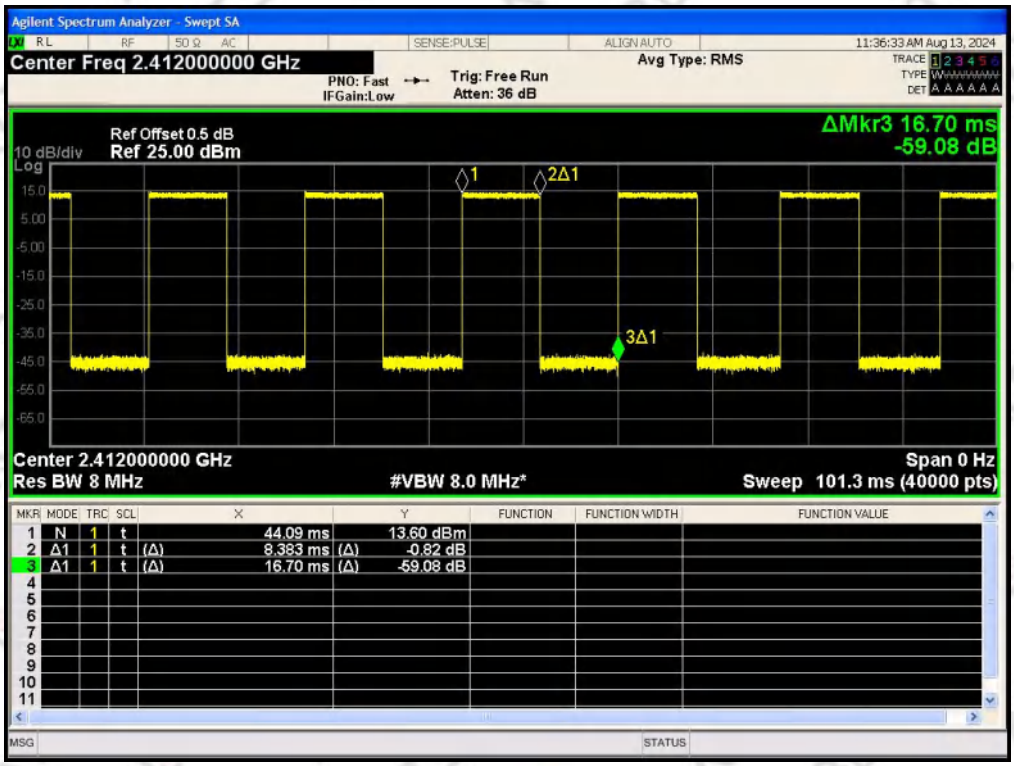
Mode	Channel	Ant. 0 (dBm)	Limit (dBm)	Result
IEEE 802.11b	1	15.318	≤30	PASS
	6	**16.234**	≤30	PASS
	11	16.197	≤30	PASS
IEEE 802.11g	1	10.769	≤30	PASS
	6	10.645	≤30	PASS
	11	**11.656**	≤30	PASS
IEEE 802.11n_20	1	10.924	≤30	PASS
	6	11.297	≤30	PASS
	11	**11.488**	≤30	PASS

A2.Duty Cycle

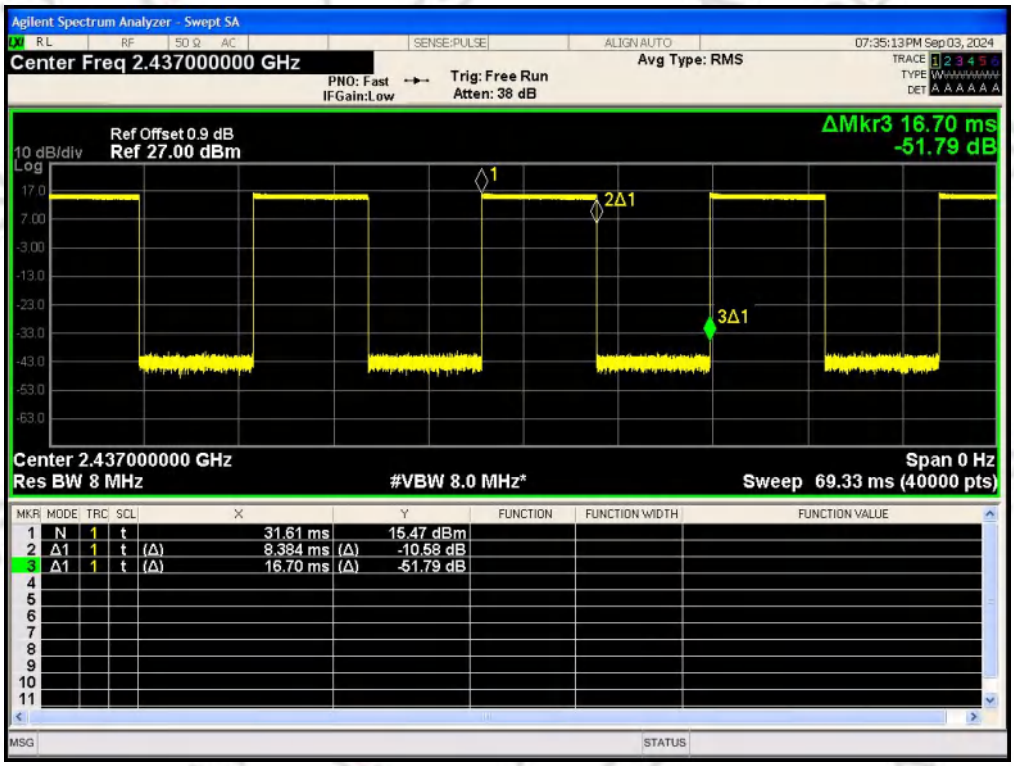
Test Result

Mode	Data rates	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
IEEE 802.11b	1	1	0	8.383	16.700	50.20	0.5020	2.993
		6		8.384	16.702	50.20	0.5020	2.993
		11		8.384	16.702	50.20	0.5020	2.993
IEEE 802.11g	6	1		2.118	4.056	52.22	0.5222	2.8216
		6		2.033	4.046	50.25	0.5025	2.9886
		11		2.033	4.046	50.25	0.5025	2.9886
IEEE 802.11n_20	MCS 0	1		0.356	1.372	25.98	0.2598	5.8536
		6		0.356	1.372	25.98	0.2598	5.8536
		11		0.356	1.373	25.96	0.2596	5.857

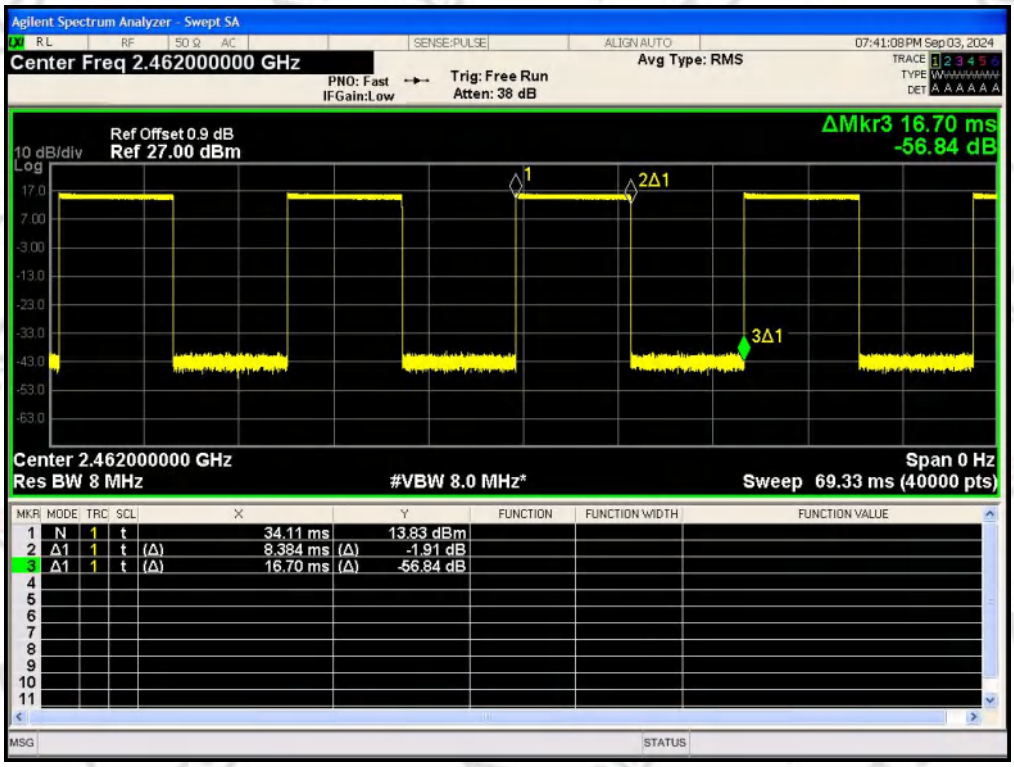
Test Graphs



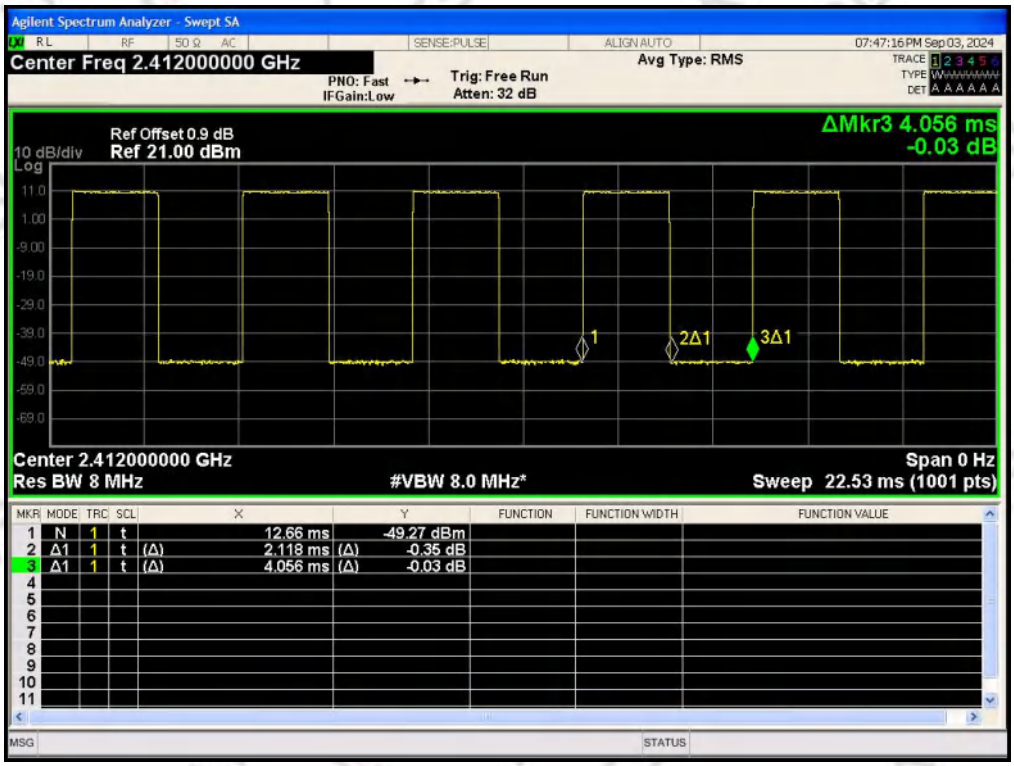
IEEE 802.11b_20MHz_Channel 1



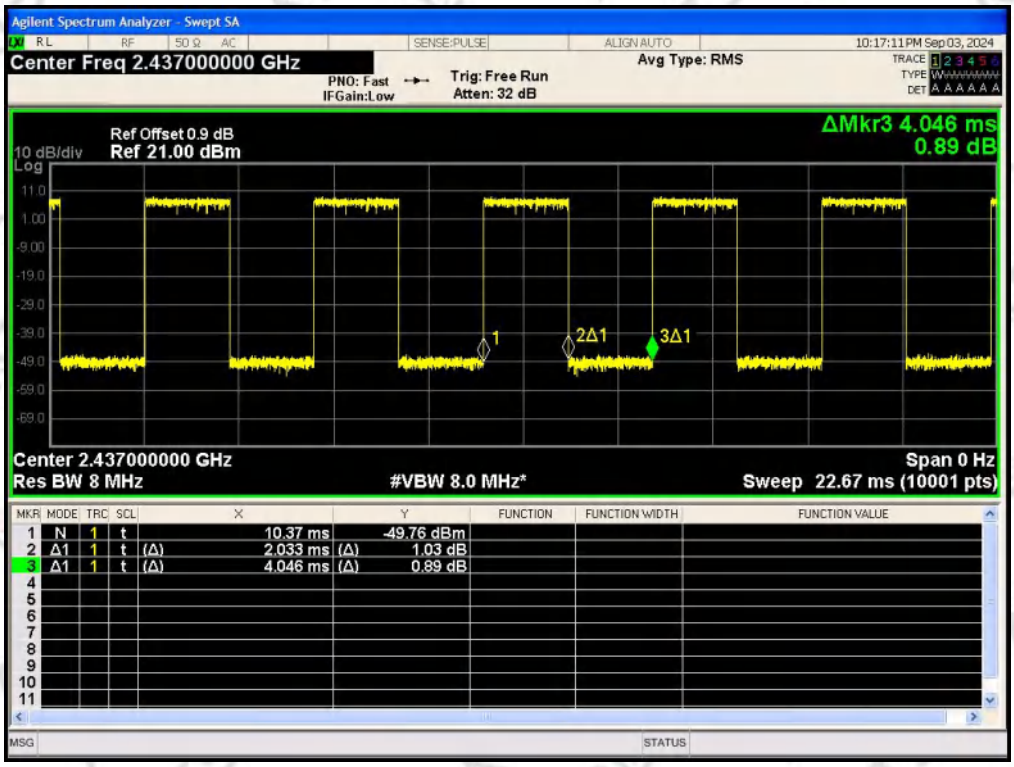
IEEE 802.11b_20MHz_Channel 6



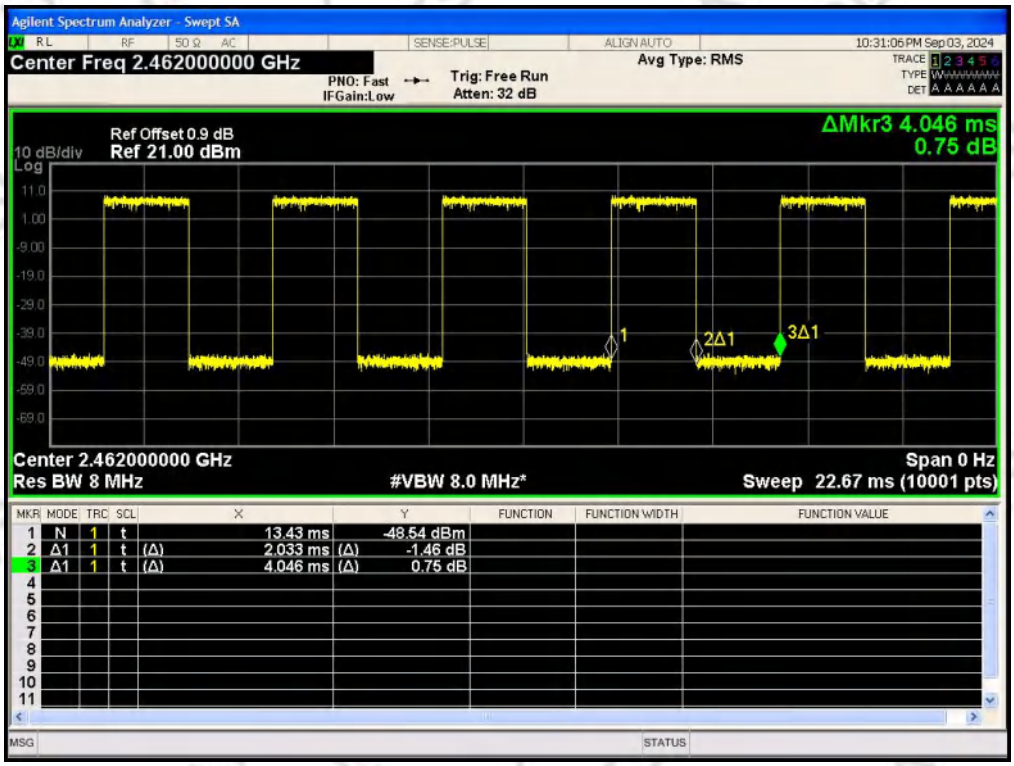
IEEE 802.11b_20MHz_Channel 11



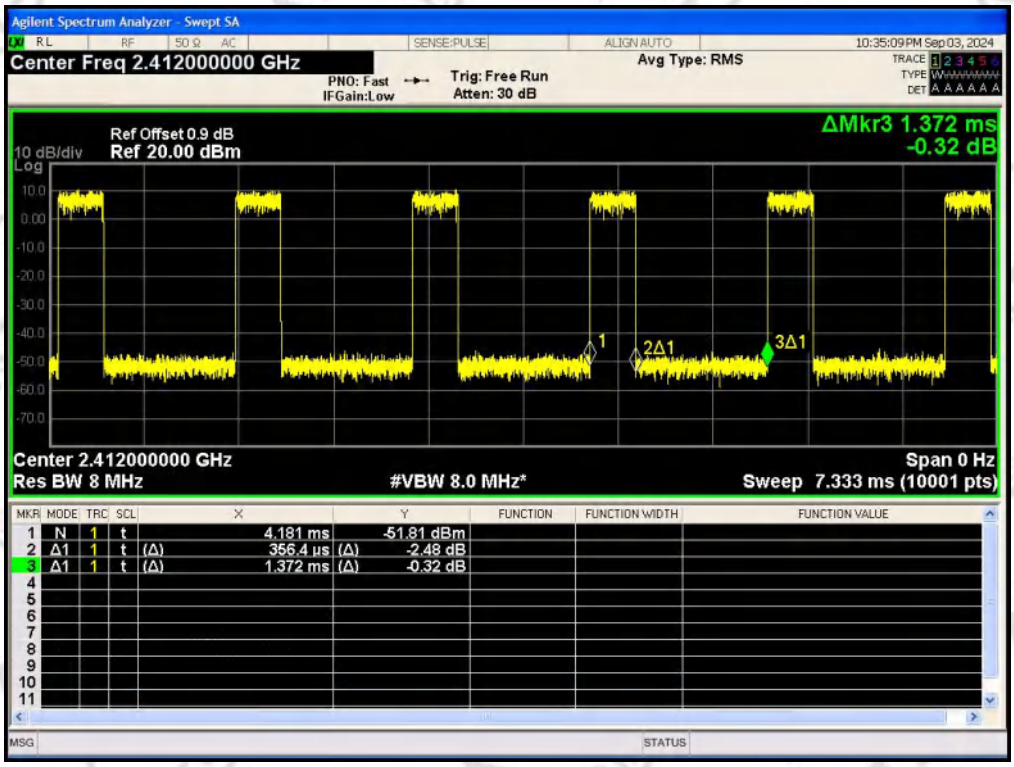
IEEE 802.11g_20MHz_Channel 1



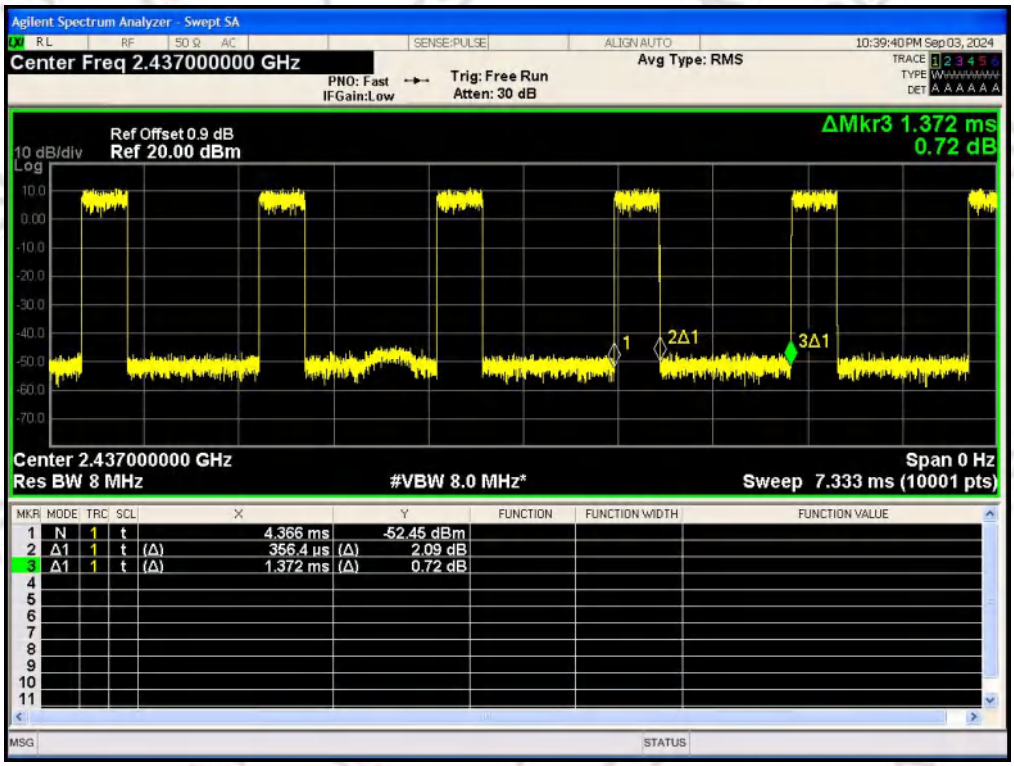
IEEE 802.11g_20MHz_Channel 6



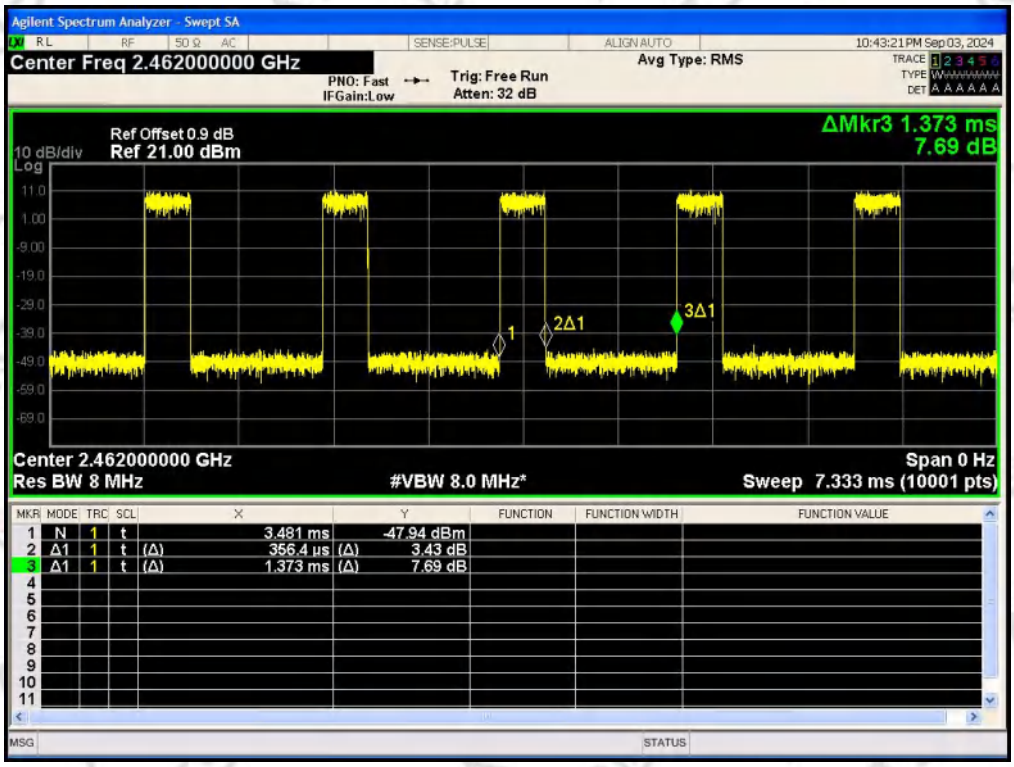
IEEE 802.11g_20MHz_Channel 11



IEEE 802.11n_20MHz_Channel 1



IEEE 802.11n_20MHz_Channel 6



IEEE 802.11n_20MHz_Channel 11

A3.6dB Bandwidth and 99% Bandwidth

6dB Bandwidth

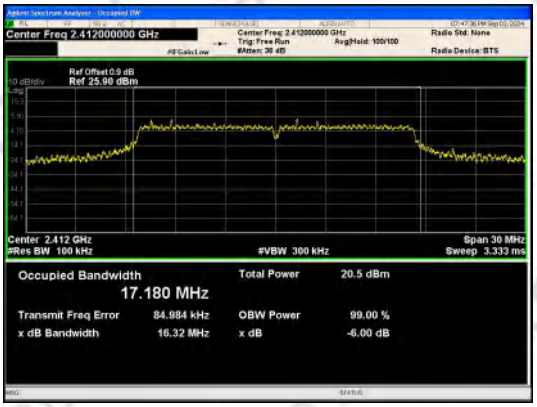
Mode	Channel	Ant.	Center Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11b	1	0	2412	9.545	≥0.5	PASS
	6		2437	9.532		PASS
	11		2462	9.071		PASS
IEEE 802.11g	1		2412	16.32		PASS
	6		2437	16.36		PASS
	11		2462	16.34		PASS
IEEE 802.11n_20	1		2412	17.66		PASS
	6		2437	17.65		PASS
	11		2462	17.66		PASS

Test Graphs

IEEE 802.11b_Channel 1_20MHz_Antenna 0

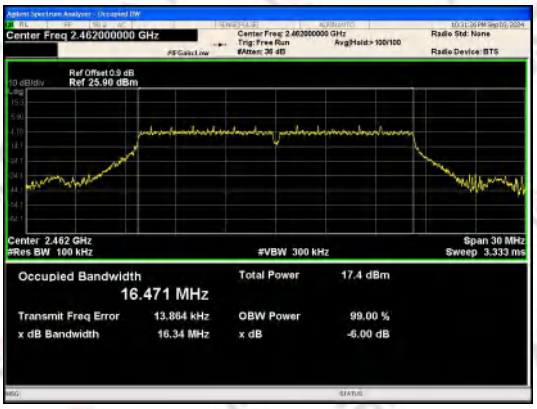
IEEE 802.11b_Channel 6_20MHz_Antenna 0

IEEE 802.11b_Channel 11_20MHz_Antenna 0

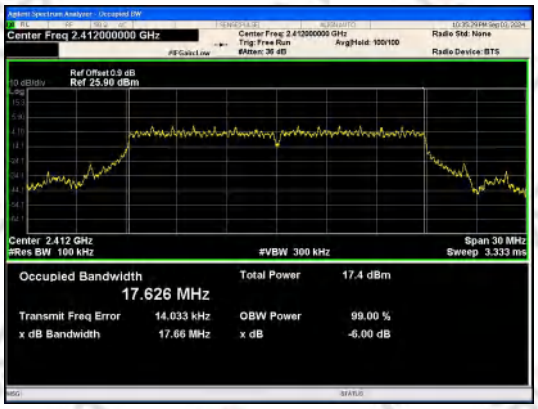


IEEE 802.11g_Channel 1_20MHz_Antenna 0

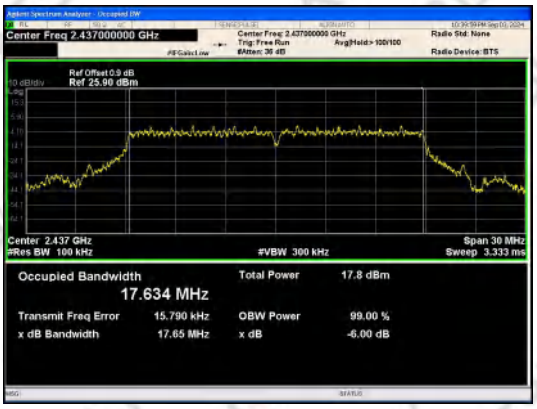
IEEE 802.11g_Channel 6_20MHz_Antenna 0



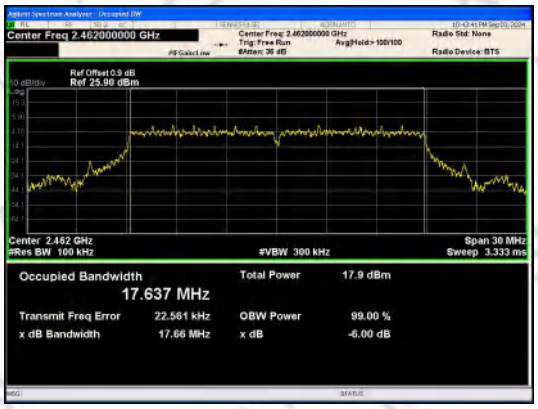
IEEE 802.11g_Channel 11_20MHz_Antenna 0



IEEE 802.11n_Channel 1_20MHz_Antenna 0



IEEE 802.11n_Channel 6_20MHz_Antenna 0



IEEE 802.11n_Channel 11_20MHz_Antenna 0

99% Bandwidth

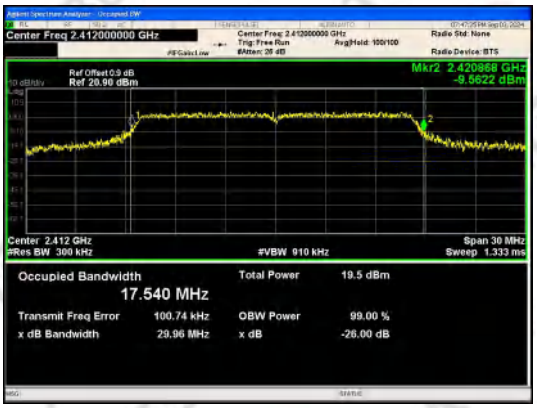
Mode	Channel	Ant.	Center Frequency (MHz)	99% BW (MHz)
IEEE 802.11b	1	0	2412	15.301
	6		2437	14.188
	11		2462	14.155
IEEE 802.11g	1		2412	17.540
	6		2437	16.736
	11		2462	16.711
IEEE 802.11n_20	1		2412	17.731
	6		2437	17.777
	11		2462	17.771

Test Graphs

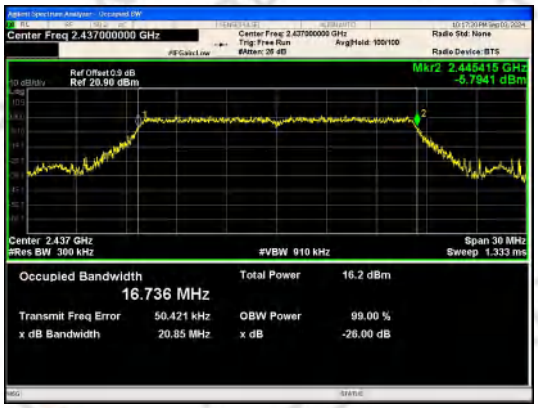
IEEE 802.11b_Channel 1_20MHz_Antenna 0

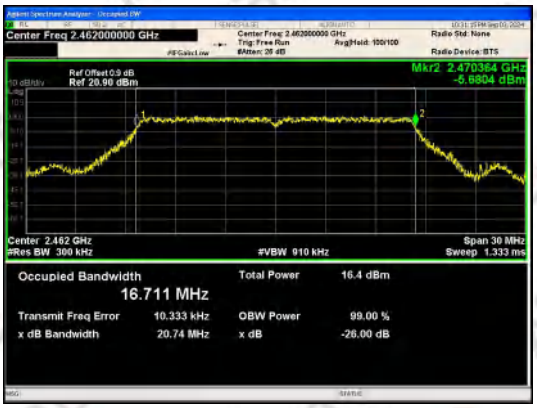
IEEE 802.11b_Channel 6_20MHz_Antenna 0

IEEE 802.11b_Channel 11_20MHz_Antenna 0

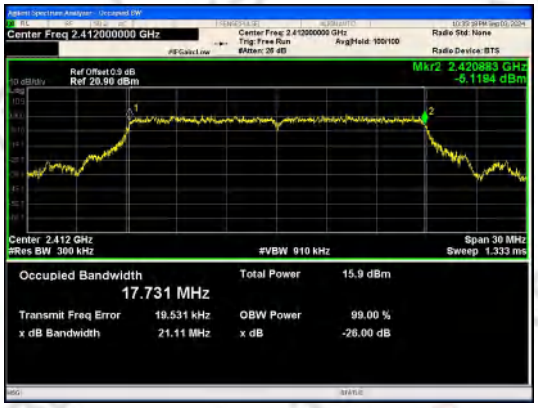


IEEE 802.11g_Channel 1_20MHz_Antenna 0

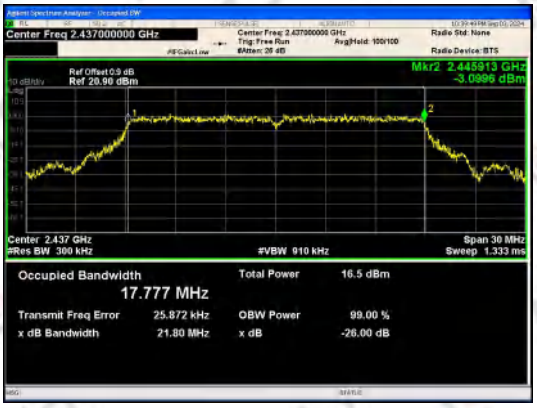




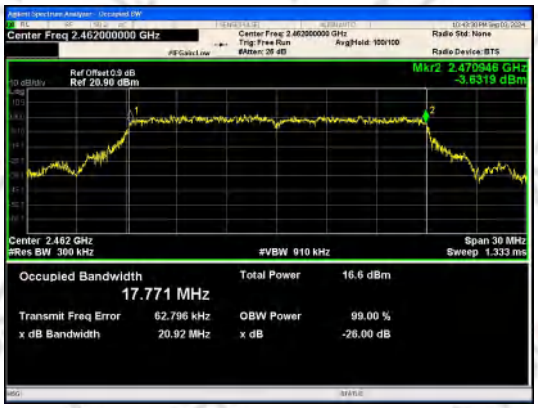
IEEE 802.11g_Channel 6_20MHz_Antenna 0



IEEE 802.11g_Channel 11_20MHz_Antenna 0



IEEE 802.11n_Channel 1_20MHz_Antenna 0



IEEE 802.11n_Channel 6_20MHz_Antenna 0

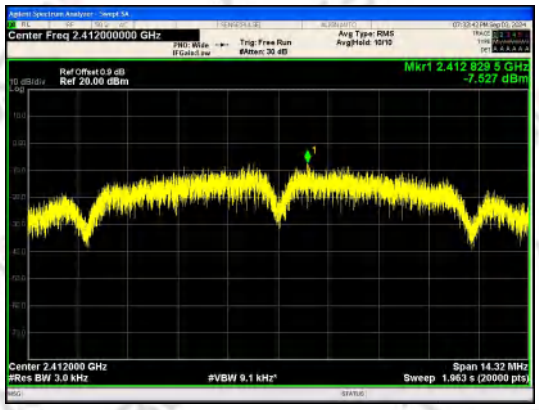
IEEE 802.11n_Channel 11_20MHz_Antenna 0

A4.Power Spectral Density

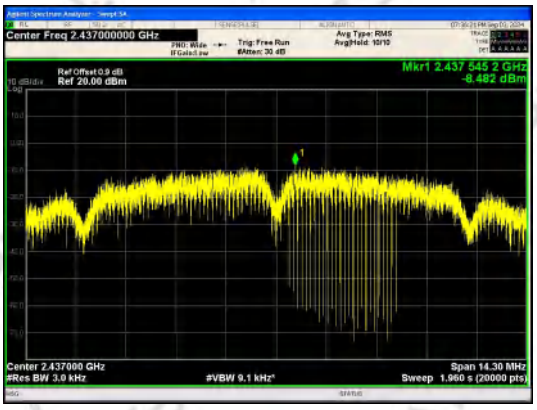
Test Result

Mode	Channel	PSD (dBm/3kHz) Ant. 0	Duty Cycle Factor (dB)	Test result PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
IEEE 802.11b	1	-7.527	2.993	-4.534	≤8	PASS
	6	-8.482	2.993	-5.489		PASS
	11	-6.766	2.993	-3.773		PASS
IEEE 802.11g	1	-14.799	2.8216	-11.9774		PASS
	6	-15.466	2.9886	-12.4774		PASS
	11	-15.594	2.9886	-12.6054		PASS
IEEE 802.11n_20	1	-17.480	5.8536	-11.6264		PASS
	6	-17.080	5.8536	-11.2264		PASS
	11	-16.645	5.857	-10.788		PASS

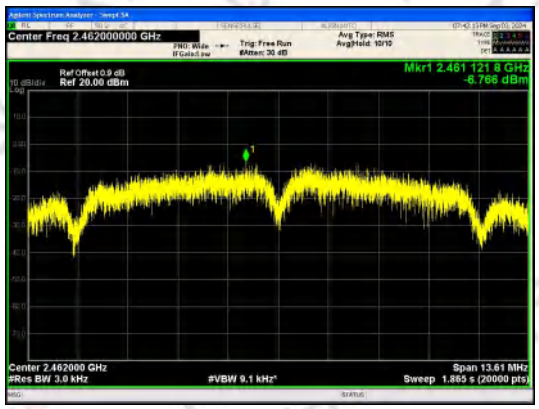
Test Graphs



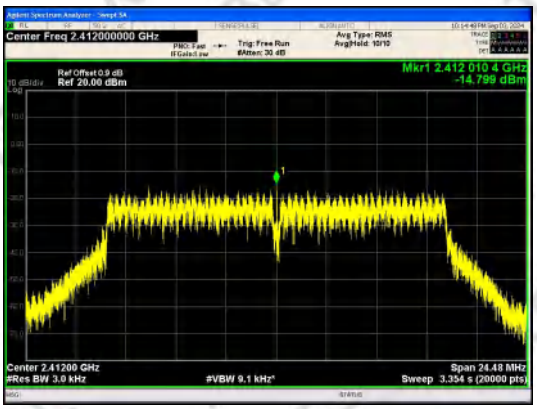
IEEE 802.11b_Channel 1_20MHz_Antenna 0



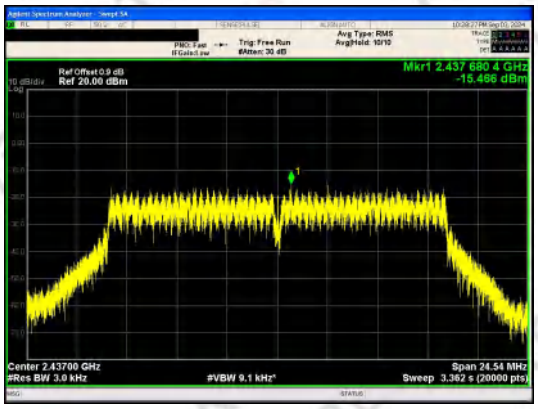
IEEE 802.11b_Channel 6_20MHz_Antenna 0



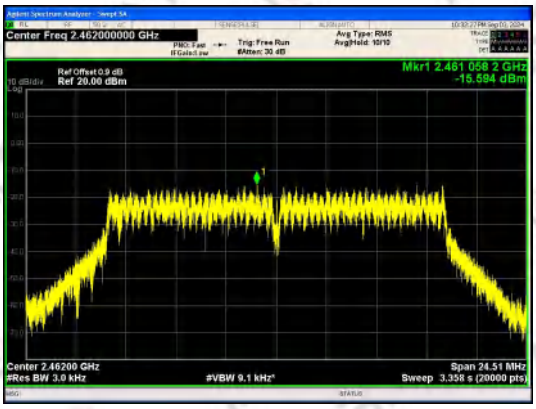
IEEE 802.11b_Channel 11_20MHz_Antenna 0



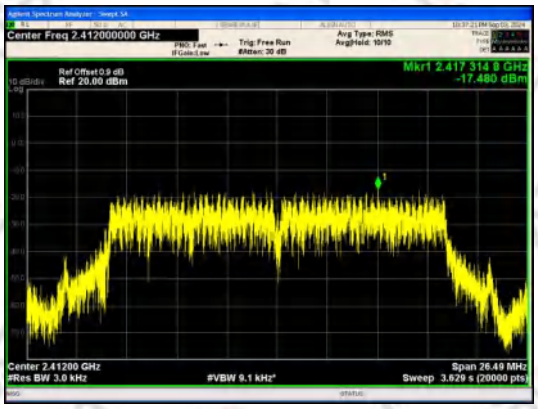
IEEE 802.11g_Channel 1_20MHz_Antenna 0



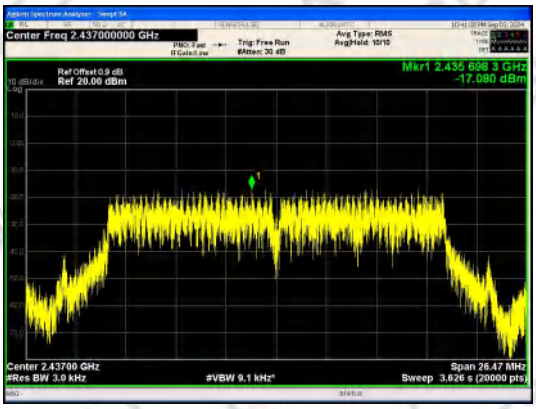
IEEE 802.11g_Channel 6_20MHz_Antenna 0



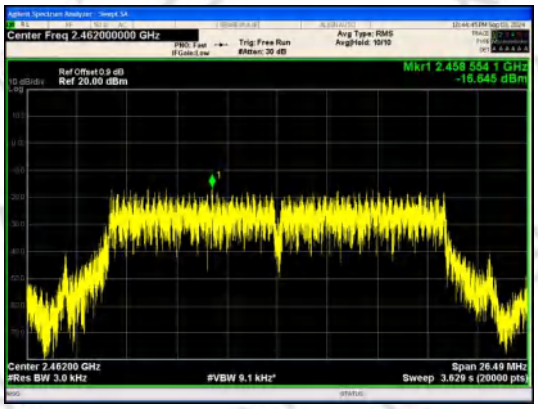
IEEE 802.11g_Channel 11_20MHz_Antenna 0



IEEE 802.11n_Channel 1_20MHz_Antenna 0



IEEE 802.11n_Channel 6_20MHz_Antenna 0



IEEE 802.11n_Channel 11_20MHz_Antenna 0

A5.Conducted Band Edge and Conducted Spurious Emission

Test Result

Mode	Channel	Ant.	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
IEEE 802.11b	1	0	2396.97	-23.917	-22.79	-1.127	PASS
			2400.00	-35.653	-22.79	-12.863	PASS
			4827.40	-52.860	-22.79	-30.070	PASS
			7226.40	-52.484	-22.79	-29.694	PASS
			9652.80	-53.345	-22.79	-30.555	PASS
			24938.8	-38.609	-22.79	-15.819	PASS
	6		4872.31	-52.320	-22.74	-29.580	PASS
			7313.12	-49.849	-22.74	-27.109	PASS
			9750.20	-52.555	-22.74	-29.815	PASS
			24915.7	-37.821	-22.74	-15.081	PASS
	11		2483.50	-47.044	-22.19	-24.854	PASS
			4940.35	-53.049	-22.19	-30.859	PASS
			7381.79	-52.267	-22.19	-30.077	PASS
			9851.33	-52.649	-22.19	-30.459	PASS
			24855.2	-39.209	-22.19	-17.019	PASS
IEEE 802.11g	1		52.50	-44.053	-30.47	-13.583	PASS
			2398.66	-34.394	-30.47	-3.924	PASS
			2400.00	-38.220	-30.47	-7.750	PASS
			4830.50	-69.728	-30.47	-39.258	PASS
			7234.50	-67.797	-30.47	-37.328	PASS
			9652.80	-69.375	-30.47	-38.905	PASS
	6		4891.03	-52.940	-29.9	-23.040	PASS
			7316.25	-51.382	-29.9	-21.482	PASS
			9756.44	-53.355	-29.9	-23.455	PASS
			24892.6	-38.885	-29.9	-8.985	PASS
	11		2483.50	-42.518	-29.53	-12.988	PASS
			4904.77	-52.270	-29.53	-22.740	PASS
			7387.41	-50.535	-29.53	-21.005	PASS
			9843.83	-52.268	-29.53	-22.738	PASS
			24850.8	-39.046	-29.53	-9.516	PASS
IEEE 802.11n_20	1		2398.27	-33.629	-29.95	-3.679	PASS
			2400.00	-40.288	-29.95	-10.338	PASS
			4812.40	-53.745	-29.95	-23.795	PASS
			7237.60	-52.075	-29.95	-22.125	PASS
			9646.60	-53.039	-29.95	-23.089	PASS
			24873.3	-38.946	-29.95	-8.996	PASS
	6		4885.42	-53.324	-29.63	-23.694	PASS
			7293.77	-50.527	-29.63	-20.897	PASS
			9740.21	-53.170	-29.63	-23.540	PASS

			24902.0	-38.429	-29.63	-8.799	PASS
	11		2483.50	-48.306	-29.31	-18.996	PASS
			4916.00	-52.406	-29.31	-23.096	PASS
			7388.66	-50.431	-29.31	-21.121	PASS
			9848.83	-52.733	-29.31	-23.423	PASS
			24915.1	-37.776	-29.31	-8.466	PASS

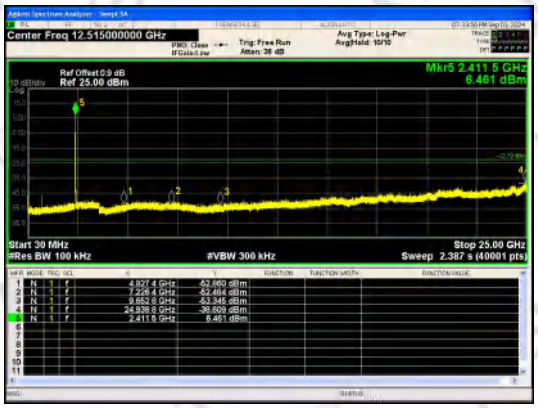
Test Graphs

In-Band Reference Level

IEEE 802.11b_Channel 1_20MHz_Antenna 0

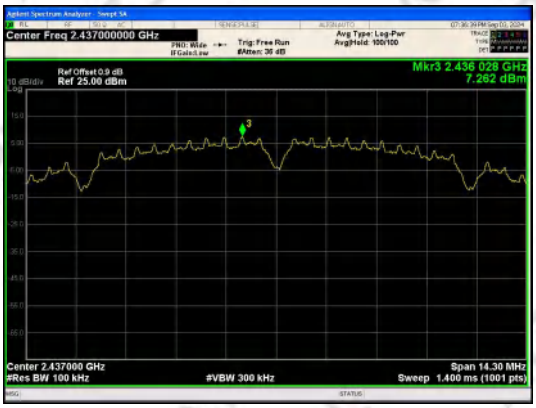
Out Of Band Emission

IEEE 802.11b_Channel 1_20MHz_Antenna 0



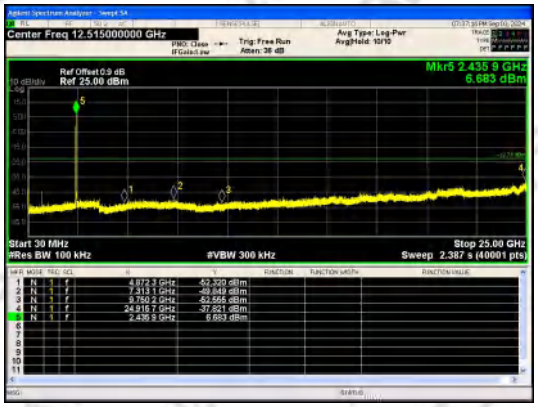
30.0 MHz - 25000.0 MHz

IEEE 802.11b_Channel 1_20MHz_Antenna 0



In-Band Reference Level

IEEE 802.11b_Channel 6_20MHz_Antenna 0



30.0 MHz - 25000.0 MHz

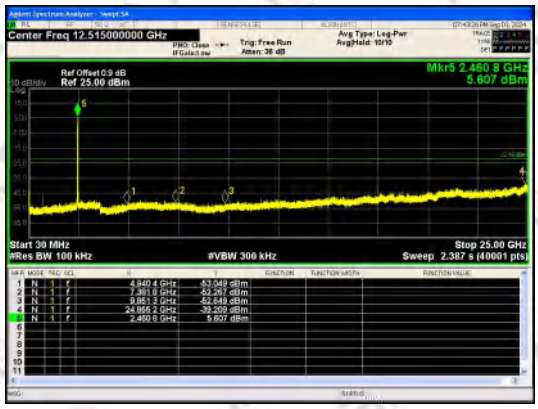
IEEE 802.11b_Channel 6_20MHz_Antenna 0

In-Band Reference Level

IEEE 802.11b_Channel 11_20MHz_Antenna 0

Out Of Band Emission

IEEE 802.11b_Channel 11_20MHz_Antenna 0



30.0 MHz - 25000.0 MHz

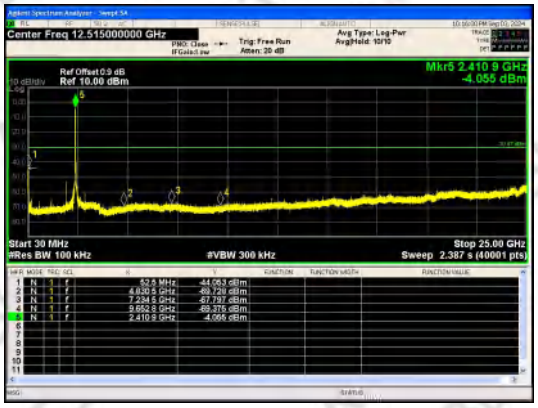
IEEE 802.11b_Channel 11_20MHz_Antenna 0

In-Band Reference Level

IEEE 802.11g_Channel 1_20MHz_Antenna 0

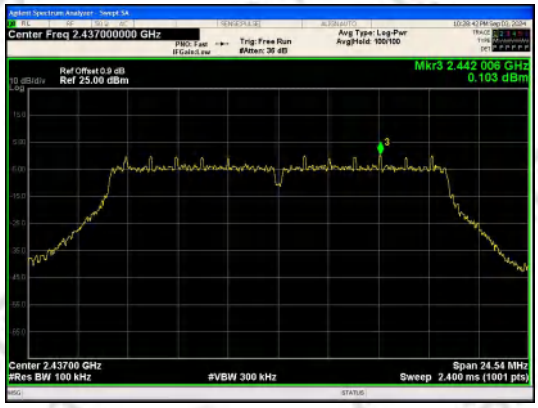
Out Of Band Emission

IEEE 802.11g_Channel 1_20MHz_Antenna 0



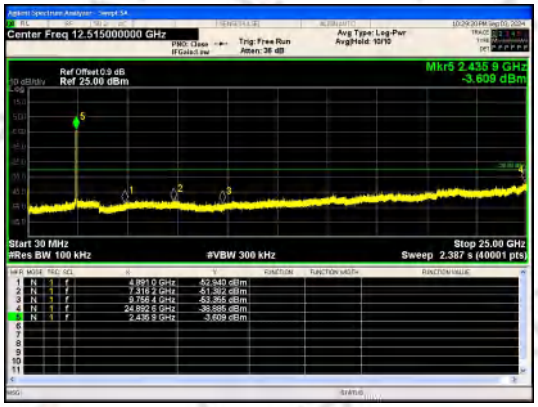
30.0 MHz - 25000.0 MHz

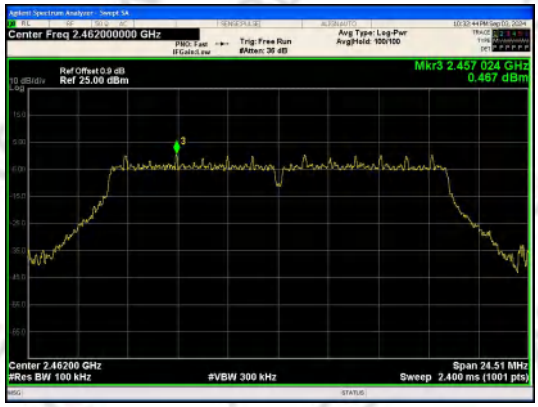
IEEE 802.11g_Channel 1_20MHz_Antenna 0

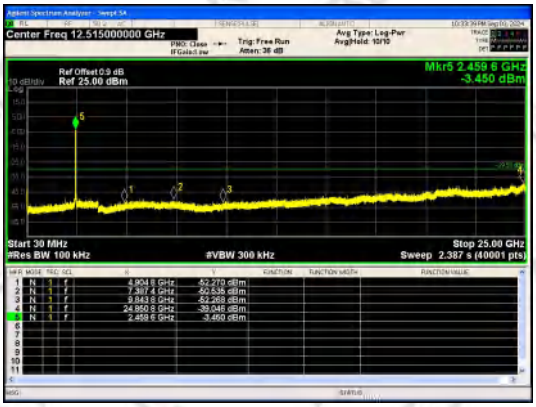
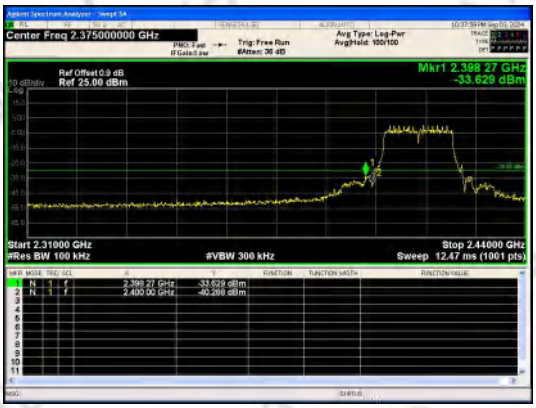
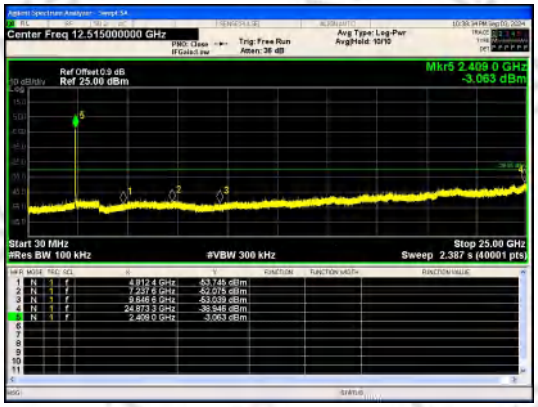
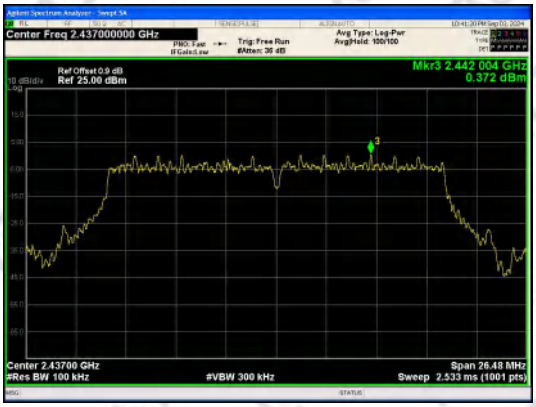


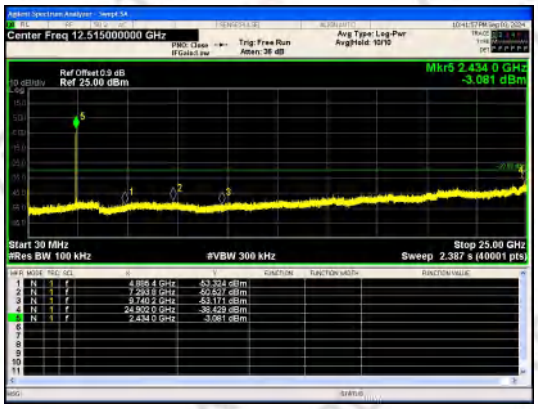
In-Band Reference Level

IEEE 802.11g_Channel 6_20MHz_Antenna 0



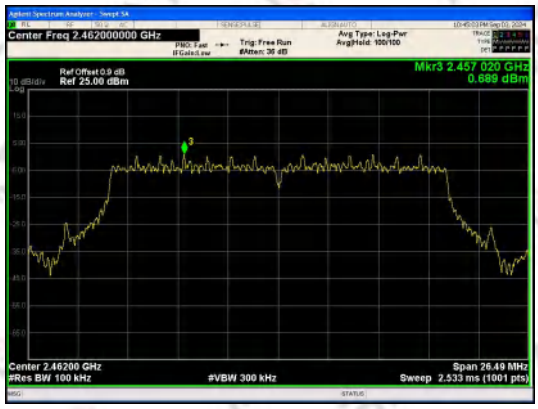


30.0 MHz - 25000.0 MHz IEEE 802.11g_Channel 6_20MHz_Antenna 0	In-Band Reference Level IEEE 802.11g_Channel 11_20MHz_Antenna 0
	
Out Of Band Emission IEEE 802.11g_Channel 11_20MHz_Antenna 0	30.0 MHz - 25000.0 MHz IEEE 802.11g_Channel 11_20MHz_Antenna 0
	
In-Band Reference Level IEEE 802.11n_Channel 1_20MHz_Antenna 0	Out Of Band Emission IEEE 802.11n_Channel 1_20MHz_Antenna 0
	
30.0 MHz - 25000.0 MHz IEEE 802.11n_Channel 1_20MHz_Antenna 0	In-Band Reference Level IEEE 802.11n_Channel 6_20MHz_Antenna 0



30.0 MHz - 25000.0 MHz

IEEE 802.11n_Channel 6_20MHz_Antenna 0

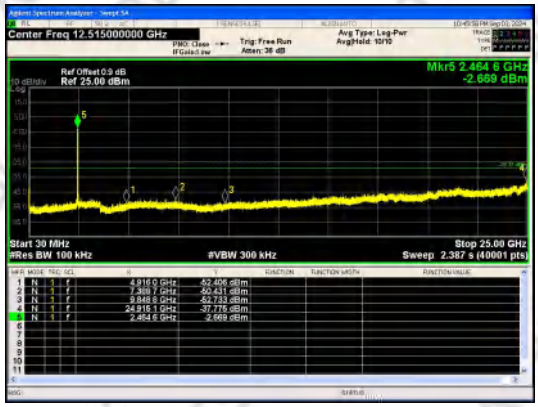


In-Band Reference Level

IEEE 802.11n_Channel 11_20MHz_Antenna 0

Out Of Band Emission

IEEE 802.11n_Channel 11_20MHz_Antenna 0



30.0 MHz - 25000.0 MHz

IEEE 802.11n_Channel 11_20MHz_Antenna 0

※※※※※END OF THE REPORT※※※※※