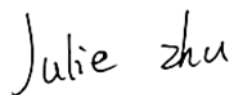
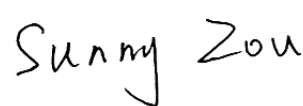


TEST REPORT

Applicant: Jiangmen Dascom Computer Peripherals Co., Ltd.
Address: No 399, Jin Xing Road, Jiang Hai District, Jiangmen
City Guang Dong Province, China
Equipment Type: Card Printer
Model Name: DC-8600 (refer to section 2.3)
Brand Name: 
FCC ID: Z7ODC8600PRO
Test Standard: 47 CFR Part 15 Subpart C
(refer to section 3.1)
Sample Arrival Date: Jan. 20, 2025
Test Date: Apr. 01, 2025 - Apr. 09, 2025
Date of Issue: May 20, 2025

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Julie Zhu**Checked by:** Ye Hongji**Approved by:** Sunny Zou
(Technical Director)

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>May 20, 2025</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☒ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Jiangmen Dascom Computer Peripherals Co., Ltd.
Address	No 399, Jin Xing Road, Jiang Hai District, Jiangmen City Guang Dong Province, China

2.2 Manufacturer Information

Manufacturer	Jiangmen Dascom Computer Peripherals Co., Ltd.
Address	No 399, Jin Xing Road, Jiang Hai District, Jiangmen City Guang Dong Province, China

2.3 General Description for Equipment under Test (EUT)

EUT Name	Card Printer
Model Name Under Test	DC-8600
Series Model Name	DC-8650, DC-8600Pro, DC-700, DC-730
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in model name. (this information provided by the applicant)
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE), RFID WIFI 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac and 802.11ax
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The requirement for the following technical information of the EUT was tested in this report:

Frequency Range	802.11b/g/n/ax(20 MHz): 2.412 GHz - 2.462 GHz $f_c = 2412 \text{ MHz} + (N-1)*5 \text{ MHz}$, where - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11.	
Modulation Type	DSSS, OFDM, OFDMA	
Product Type	☒ Mobile ☐ Portable ☐ Fix Location	
Antenna System (eg., MIMO, Smart Antenna)	Cyclic Delay Diversity (CDD) for 802.11b/g Multi Input Multi Output (MIMO) for 802.11n/ax	
Categorization as Correlated or Completely Uncorrelated	Categorization as Correlated for 802.11b/g Categorization as Uncorrelated for 802.11n/ax	
Antenna Type	SISO-Antenna 0 SISO-Antenna 1	Dipole Antenna
Antenna Gain	SISO-Antenna 0 SISO-Antenna 1	2.67 dBi
Total directional gain	For power spectral density (PSD) measurements	Correlated: 5.68 dBi Formulas: Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi Uncorrelated: 2.67 dBi Formulas: Directional gain = G_{ANT}
	For power measurements	Correlated: 5.68 dBi Formulas: Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi Uncorrelated: 2.67 dBi Formulas: Directional gain = G_{ANT}
	For Conducted Out-of-Band and Spurious Measurem	Correlated: 5.68 dBi Formulas: Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi Uncorrelated: 2.67 dBi Formulas: Directional gain = G_{ANT}

	ents	
About the Product	Only the WIFI 802.11b, 802.11g, 802.11n (HT20) and 802.11ax (HE20) was tested in this report.	

Mode	Antenna		
	SISO-Antenna 0	SISO-Antenna 1	MIMO
802.11b	√	√	√
802.11g	√	√	√
802.11n20	√	√	√
802.11ax20	√	√	√
Note: All the configurations were tested, but only the worst case was reported in this report.			

802.11ax RU configuration table						
Mode	Full RU (SU)	RU_26	RU_52	RU_106	RU_242	RU_484
802.11ax20	√	--	--	--	--	--

Modulation technology	Modulation Type	Transfer Rate (Mbps)(Single RF path)
DSSS (802.11b)	DBPSK	1
	DQPSK	2
	CCK	5.5/11
OFDM (802.11g)	BPSK	6/9
	QPSK	12/18
	16QAM	24/36
	64QAM	48/54
OFDM (802.11n-20 MHz)	BPSK	6.5/7.2
	QPSK	13/19.5/14.4/21.7
	16QAM	26/39/28.9/43.3
	64QAM	52/58.5/65/57.8/65/72.2
OFDMA (802.11ax-20 MHz)	BPSK	4
	QPSK	16/24/17/26
	16QAM	33/49/34/52
	64QAM	65/73/81/69/77/86
	256QAM	98/108/103/115
	1024QAM	122/135/129/143

Note: Preliminary tests were performed in different data rate in above table to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
Output Power	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Occupied Bandwidth	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Conducted Spurious Emission	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Conducted Emission	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Radiated Spurious Emission	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Band Edge	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Power spectral density (PSD)	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11

Note: The above EUT information in section 2.4 was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Intentional radiators of radio frequency equipment
2	KDB Publication 662911 D01v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)
3	ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
4	KDB Publication 558074 D01v05r02	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES

3.2 Test Verdict

No.	Description	FCC PART No.	Test Result	Verdict
1	Antenna Requirement	15.203	N/A	Pass ^{Note}
2	Output Power	15.247 (b)	ANNEX A.1	Pass
3	Occupied Bandwidth	15.247 (a)	ANNEX A.2	Pass
4	Conducted Spurious Emission	15.247 (d)	ANNEX A.3	Pass
5	Band Edge(Authorized-band band-edge)	15.247 (d)	ANNEX A.4	Pass
6	Conducted Emission	15.207	ANNEX A.5	Pass
7	Radiated Spurious Emission	15.209; 15.247 (d)	ANNEX A.6	Pass
8	Band Edge(Restricted-band band-edge)	15.209; 15.247 (d)	ANNEX A.7	Pass
9	Power spectral density (PSD)	15.247 (e)	ANNEX A.8	Pass

Note: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	46% to 65%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+21.3°C to +24.5°C
Working Voltage of the EUT	NV (Normal Voltage)	120 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY50531259	2024.08.01	2025.07.31
Power Sensor	KEYSIGHT	U2063XA	MY58000247	2024.07.04	2025.07.03
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-40	101544	2024.12.16	2025.12.15
Spectrum Analyzer	KEYSIGHT	N9020A	MY52510065	2024.08.01	2025.07.31
Signaling Unit	ROHDE&SCHWARZ	CMW500	171150	2024.05.22	2025.05.21
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	01631	2025.02.22	2028.02.21
Test Antenna-Horn	A-INFO	LB-180400KF	J211060273	2024.06.15	2027.06.14
Anechoic Chamber	RAINFORD	9m*6m*6m	144	2022.02.19	2025.09.03
Amplifier	COM-MV	LSCX_LNA1-12G-01	180602	2024.08.01	2025.07.31
Amplifier	COM-MV	XKu_LNA7-18G-01	180601	2024.08.01	2025.07.31
Amplifier	COM-MV	KA LNA18 40G-01	18050001	2024.12.05	2025.12.04
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2024.08.01	2025.07.31
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9168	9168-01162	2023.08.04	2026.08.03
Test Antenna-Loop	SCHWARZBECK	FMZB 1519	1519-037	2024.01.23	2027.01.22
Amplifier	COM-MV	ZT30-1000M	B2018054558	2024.11.28	2025.11.27
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60*7.35m	130	2024.07.13	2027.07.12
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2024.08.01	2025.07.31
LISN	SCHWARZBECK	NSLK 8127	8127-687	2024.05.09	2025.05.08
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.5m*3.1m*2.8m	112	2025.02.14	2028.02.13

4.3 Test Software List

Description	Manufacturer	Software Version	Serial No.	Applicable test Setup
BL410R	BALUN	V2.1.1.488	N/A	The section 4.5.1
BL410E	BALUN	V22.930	N/A	The section 4.5.2&4.5.3&4.5.4&4.5.5

4.4 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Parameters	Uncertainty
Occupied Channel Bandwidth	2.8%
RF output power, conducted	1.28 dB
Power Spectral Density, conducted	1.30 dB
Unwanted Emissions, conducted	1.84 dB
All emissions, radiated	5.36 dB
Temperature	0.8°C
Humidity	4%

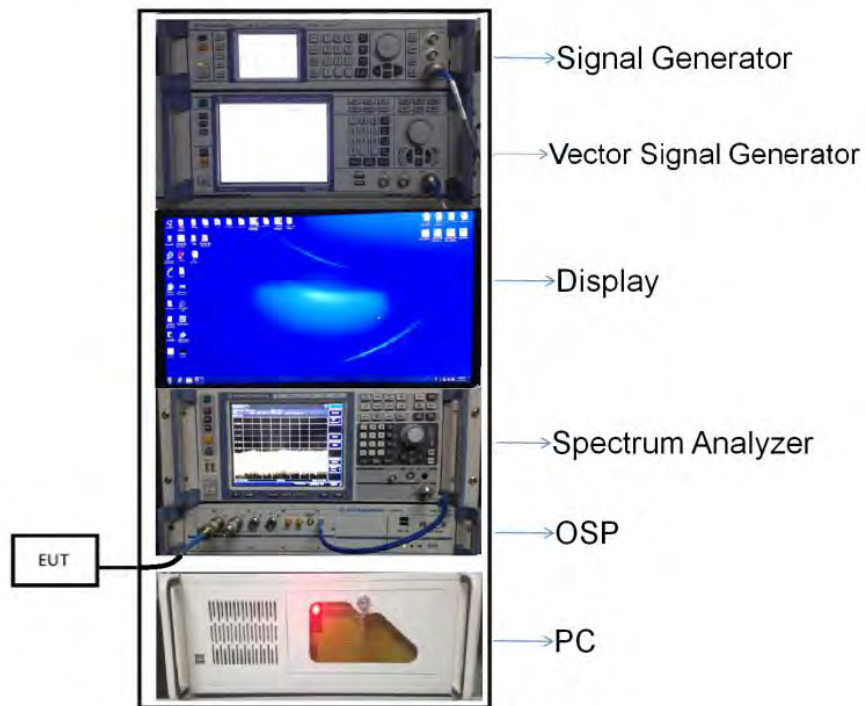
4.5 Description of Test Setup

4.5.1 For Antenna Port Test

Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:

Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



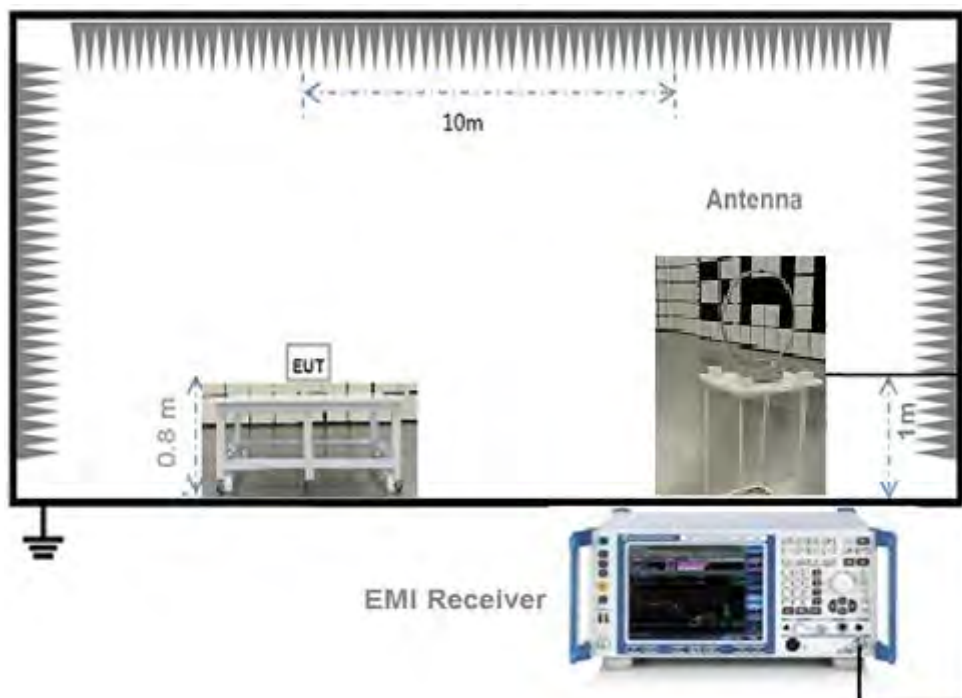
(Diagram 1)

4.5.2 For AC Power Supply Port Test



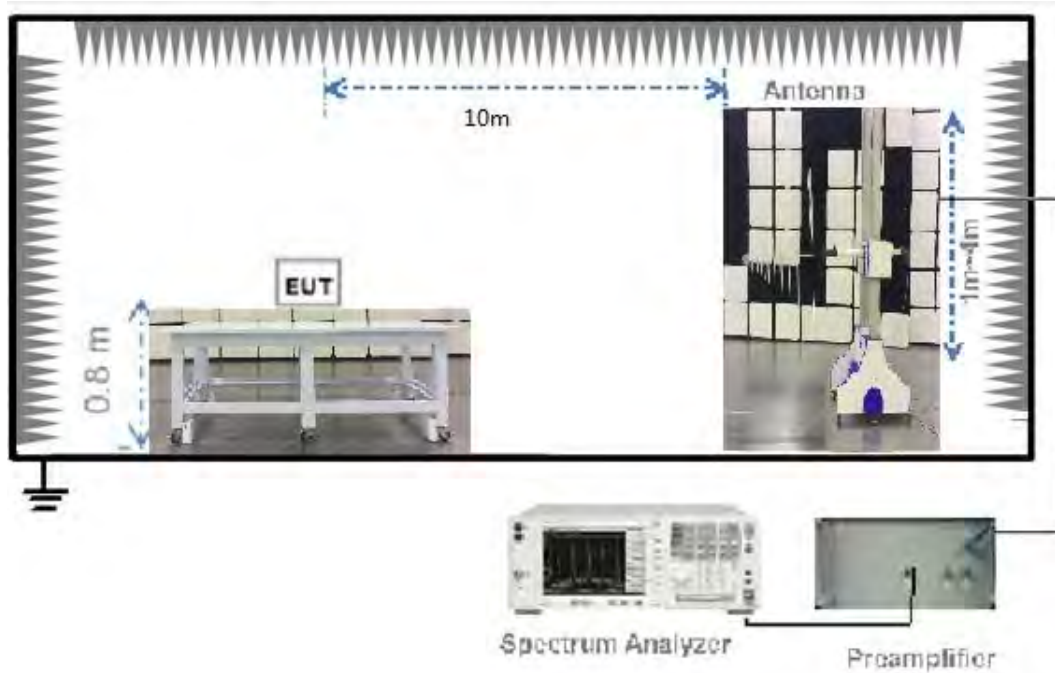
(Diagram 2)

4.5.3 For Radiated Test (Below 30 MHz)



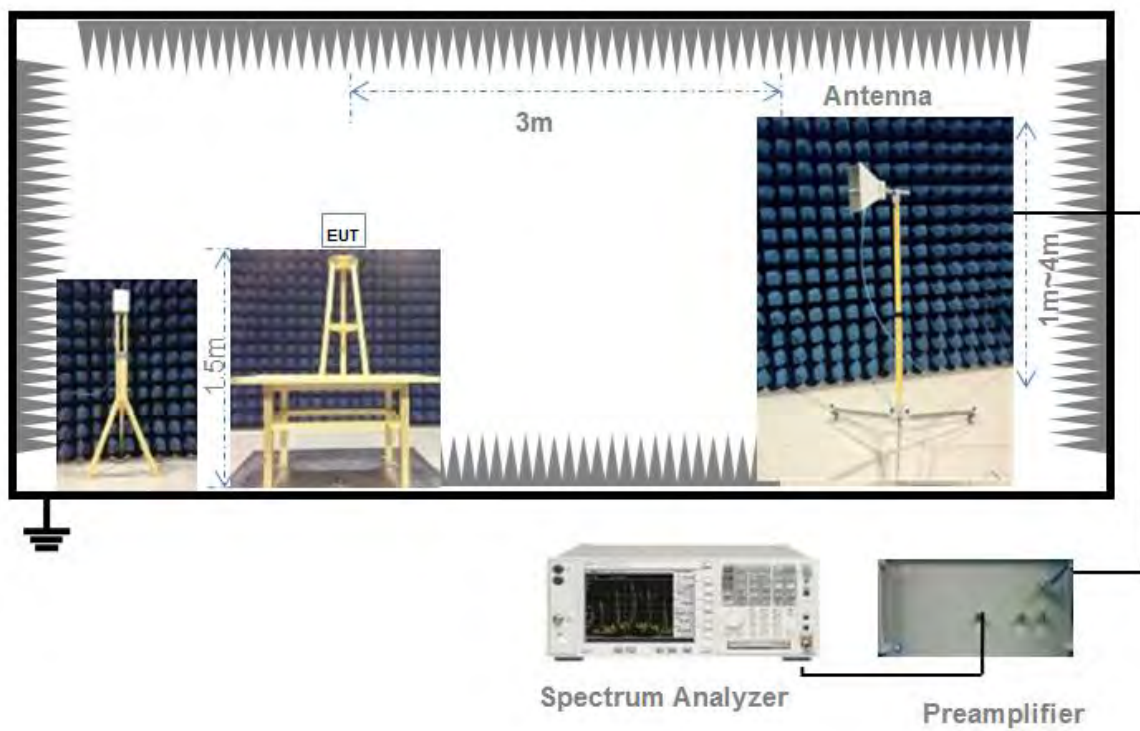
(Diagram 3)

4.5.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.5.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

4.6 Measurement Results Explanation Example

4.6.1 For conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

4.6.2 For radiated band edges and spurious emission test:

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

EIRP = Measure Conducted output power Value (dBm) + Maximum transmit antenna gain (dBi) + the appropriate maximum ground reflection factor (dB)

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	Please refer to the EUT Photo documents.

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 Output Power

5.2.1 Test Limit

FCC § 15.247(b)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements.

5.2.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

Maximum peak conducted output power

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

The EUT shall be transmitted at its maximum power control level.

Maximum conducted (average) output power (Reporting Only)

a) As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

- 1) The EUT is configured to transmit continuously, or to transmit with a constant duty factor.
 - 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
 - 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- b) If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output signal.
- c) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- d) Adjust the measurement in dBm by adding $10\log(1/x)$, where x is the duty cycle.

Measurements of duty cycle

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.

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

Set $RBW \geq OBW$ if possible; otherwise, set RBW to the largest available value.

Set $VBW \geq RBW$. Set detector = peak or average.

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 duty cycle shall not be used if $T \leq 16.7$ microseconds.)

5.2.4 Test Result

Please refer to ANNEX A.1.

5.3 Occupied Bandwidth

5.3.1 Limit

FCC §15.247(a)

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.

5.3.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

Use the following spectrum analyzer settings:

Set RBW = 100 kHz.

Set the video bandwidth (VBW) ≥ 3 RBW.

Detector = Peak.

Trace mode = max hold.

Sweep = auto couple.

Allow the trace to stabilize.

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.

5.3.4 Test Result

Please refer to ANNEX A.2.

5.4 Conducted Spurious Emission

5.4.1 Limit

FCC §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.

5.4.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

The DTS rules specify that in any 100 kHz bandwidth outside of the authorized frequency band, the power shall be attenuated according to the following conditions:

- a) If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).
- b) If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).
- c) In either case, attenuation to levels below the 15.209 general radiated emissions limits is not required.

The following procedures shall be used to demonstrate compliance to these limits. Note that these procedures can be used in either an antenna-port conducted or radiated test set-up. Radiated tests must conform to the test site requirements and utilize maximization procedures defined herein.

Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DTS channel center frequency.

Set the span to ≥ 1.5 times the DTS bandwidth.

Set the RBW = 100 kHz.

Set the VBW $\geq 3 \times$ RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum PSD level.

Emission level measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

Set the RBW = 100 kHz.

Set the VBW $\geq 3 \times$ RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b). Report the three highest emissions relative to the limit.

5.4.4 Test Result

Please refer to ANNEX A.3.

5.5 Band Edge (Authorized-band band-edge)

5.5.1 Limit

FCC §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.

5.5.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The following procedures may be used to determine the peak or average field strength or power of an unwanted emission that is within 2 MHz of the authorized band edge. If a peak detector is utilized, use the procedure described in 13.2.1. Use the procedure described in 13.2.2 when using an average detector and the EUT can be configured to transmit continuously (i.e., duty cycle $\geq 98\%$). Use the procedure described in 13.2.3 when using an average detector and the EUT cannot be configured to transmit continuously but the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent). Use the procedure described in 13.2.4 when using an average detector for those cases where the EUT cannot be configured to transmit continuously and the duty cycle is not constant (duty cycle variations equal or exceed 2 percent).

When using a peak detector to measure unwanted emissions at or near the band edge (within 2 MHz of the authorized band), the following integration procedure can be used.

Set instrument center frequency to the frequency of the emission to be measured (must be within 2 MHz of the authorized band edge).

Set span to 2 MHz

RBW = 100 kHz.

VBW $\geq 3 \times$ RBW.

Detector = peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweep to continue until the trace stabilizes (required measurement time may increase for low duty cycle applications)

Compute the power by integrating the spectrum over 1 MHz using the analyzer's band power measurement function with band limits set equal to the emission frequency (femission) ± 0.5 MHz. If the instrument does not have a band power function, then sum the amplitude levels (in power units) at 100 kHz intervals extending across the 1 MHz spectrum defined by femission ± 0.5 MHz.

Standard method(The 99% OBW of the fundamental emission is without 2 MHz of the authorized band):

Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation.

Reference level: As required to keep the signal from exceeding the maximum instrument input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (\text{OBW/RBW})]$ below the reference level. Specific guidance is given in 4.1.5.2.

Attenuation: Auto (at least 10 dB preferred).

Sweep time: Coupled.

Resolution bandwidth: 100 kHz.

Video bandwidth: 300 kHz.

Detector: Peak.

Trace: Max hold.

5.5.4 Test Result

Please refer to ANNEX A.4.

5.6 Conducted Emission

5.6.1 Limit

FCC §15.207

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 within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.6.2 Test Setup

See section 4.5.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX B.

5.6.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.6.4 Test Result

Please refer to ANNEX A.5.

5.7 Radiated Spurious Emission

5.7.1 Limit

FCC §15.209&15.247(d)

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Measurement Distance (m)
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

Note:

1. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
2. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.7.2 Test Setup

See section 4.5.3 to 4.5.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.7.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

General Procedure for conducted measurements in restricted bands

- a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
- b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see guidance on determining the applicable antenna gain)
- c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
- d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
- e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

- f) Compare the resultant electric field strength level to the applicable limit.
- g) Perform radiated spurious emission test.

Quasi-Peak measurement procedure

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak power measurement procedure

Peak emission levels are measured by setting the instrument as follows:

- a) RBW = as specified in Table 1.
- b) VBW $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Sweep time = auto.
- e) Trace mode = max hold.
- f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be

longer for low duty cycle applications).

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

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Trace averaging across on and off times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent), then the following procedure shall be used:

- a) The EUT shall be configured to operate at the maximum achievable duty cycle.
- b) Measure the duty cycle, x , of the transmitter output signal as described in section 6.0.
- c) RBW = 1 MHz (unless otherwise specified).
- d) VBW $\geq 3 \times$ RBW.
- e) Detector = RMS, if $\text{span}/(\# \text{ of points in sweep}) \leq (\text{RBW}/2)$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
- f) Averaging type = power (i.e., RMS).
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
- g) Sweep time = auto.
- h) Perform a trace average of at least 100 traces.
- i) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.
 - 2) If linear voltage averaging mode was used in step f), then the applicable correction factor is $20 \log(1/x)$, where x is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

NOTE: Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

Determining the applicable transmit antenna gain

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi) must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.

Radiated spurious emission test

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.7.4 Test Result

Please refer to ANNEX A.6.

5.8 Band Edge (Restricted-band band-edge)

5.8.1 Limit

FCC §15.209&15.247(d)

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

5.8.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.8.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

For transmitters operating above 1 GHz repeat the measurement with an average detector.

5.8.4 Test Result

Please refer to ANNEX A.7.

5.9 Power Spectral density (PSD)

5.9.1 Limit

FCC §15.247(e)

The same method of determining the conducted output power shall be used to determine the power spectral density. If a peak output power is measured, then a peak power spectral density measurement is required. If an average output power is measured, then an average power spectral density measurement should be used.

5.9.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.9.3 Test Procedure

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.

Set the VBW $\geq 3 \text{ RBW}$.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.9.4 Test Result

Please refer to ANNEX A.8.

ANNEX A TEST RESULT

A.1 Output Power

Note: All the configurations were pre tested, only the worst configuration has been reported in this report.

Duty Cycle

Test Mode	On Time (ms)	On+Off time (ms)	Duty Cycle	Duty Factor
802.11b	12.38	12.70	97.44%	0.11
802.11g	2.06	2.36	86.97%	0.61
802.11n-20 MHz	1.88	2.19	86.05%	0.65
802.11ax-20 MHz	1.01	1.12	90.00%	0.46

SISO-Antenna 0

Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	20.68	116.95	30	1000	Pass
Middle	20.01	100.23			Pass
High	19.73	93.97			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	22.76	188.80	30	1000	Pass
Middle	22.63	183.23			Pass
High	21.68	147.23			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.11	257.63	30	1000	Pass
Middle	23.58	228.03			Pass
High	13.08	20.32			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	26.21	417.83	30	1000	Pass
Middle	25.37	344.35			Pass
High	25.42	348.34			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.48	44.46	30	1000	Pass
Middle	16.82	48.08			Pass
High	16.29	42.56			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.94	39.26	30	1000	Pass
Middle	15.18	32.96			Pass
High	15.00	31.62			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.96	49.66	30	1000	Pass
Middle	16.30	42.66			Pass
High	15.81	38.11			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.25	53.09	30	1000	Pass
Middle	16.99	50.00			Pass
High	16.32	42.85			Pass

SISO-Antenna 1Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	20.48	111.69	30	1000	Pass
Middle	20.21	104.95			Pass
High	19.83	96.16			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	23.06	202.30	30	1000	Pass
Middle	22.63	183.23			Pass
High	22.08	161.44			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.21	263.63	30	1000	Pass
Middle	23.68	233.35			Pass
High	13.18	20.80			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	26.01	399.02	30	1000	Pass
Middle	25.67	368.98			Pass
High	25.32	340.41			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.68	46.56	30	1000	Pass
Middle	16.72	46.99			Pass
High	16.19	41.59			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.94	39.26	30	1000	Pass
Middle	15.48	35.32			Pass
High	15.00	31.62			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.96	49.66	30	1000	Pass
Middle	16.40	43.65			Pass
High	15.91	38.99			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.15	51.88	30	1000	Pass
Middle	16.89	48.87			Pass
High	16.52	44.87			Pass

MIMO-Antenna 0Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.38	54.70	30	1000	Pass
Middle	17.21	52.60			Pass
High	16.83	48.19			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	19.96	99.08	30	1000	Pass
Middle	19.83	96.16			Pass
High	18.78	75.51			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.11	129.12	30	1000	Pass
Middle	20.28	106.66			Pass
High	10.08	10.19			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	23.11	204.64	30	1000	Pass
Middle	21.97	157.40			Pass
High	22.32	170.61			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.38	21.78	30	1000	Pass
Middle	13.52	22.49			Pass
High	12.99	19.91			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	12.84	19.23	30	1000	Pass
Middle	11.78	15.07			Pass
High	12.20	16.60			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.66	23.23	30	1000	Pass
Middle	13.00	19.95			Pass
High	12.91	19.54			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.25	26.61	30	1000	Pass
Middle	13.89	24.49			Pass
High	13.22	20.99			Pass

MIMO-Antenna 1Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.28	53.46	30	1000	Pass
Middle	16.91	49.09			Pass
High	16.43	43.95			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	20.16	103.75	30	1000	Pass
Middle	20.03	100.69			Pass
High	18.48	70.47			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.21	132.13	30	1000	Pass
Middle	20.18	104.23			Pass
High	10.28	10.67			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	23.01	199.99	30	1000	Pass
Middle	22.17	164.82			Pass
High	22.02	159.22			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.18	20.80	30	1000	Pass
Middle	13.42	21.98			Pass
High	12.89	19.45			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	12.44	17.54	30	1000	Pass
Middle	11.98	15.78			Pass
High	12.10	16.22			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.26	21.18	30	1000	Pass
Middle	12.80	19.05			Pass
High	12.91	19.54			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.95	24.83	30	1000	Pass
Middle	13.49	22.34			Pass
High	13.32	21.48			Pass

MIMOPeak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	20.34	108.16	30	1000	Pass
Middle	20.07	101.69			Pass
High	19.64	92.15			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	23.07	202.84	30	1000	Pass
Middle	22.94	196.85			Pass
High	21.64	145.98			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.17	261.25	30	1000	Pass
Middle	23.24	210.89			Pass
High	13.19	20.85			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	26.07	404.63	30	1000	Pass
Middle	25.08	322.21			Pass
High	25.18	329.83			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.29	42.57	30	1000	Pass
Middle	16.48	44.47			Pass
High	15.95	39.36			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.65	36.77	30	1000	Pass
Middle	14.89	30.84			Pass
High	15.16	32.81			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.47	44.41	30	1000	Pass
Middle	15.91	39.01			Pass
High	15.92	39.09			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.11	51.44	30	1000	Pass
Middle	16.70	46.83			Pass
High	16.28	42.47			Pass

A.2 Occupied Bandwidth

Note ¹: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note ²: All antenna were pre tested, but only the worst case has been reported in this report.

Test Data

SISO-Antenna 1

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	7.300000	11.361000	≥500
Middle	7.800000	11.383000	≥500
High	7.800000	11.422000	≥500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	16.500000	17.591000	≥500
Middle	16.500000	17.766000	≥500
High	16.500000	17.820000	≥500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	17.700000	19.321000	≥500
Middle	17.700000	18.927000	≥500
High	17.700000	18.944000	≥500

802.11ax-20 MHz(SU) Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	18.800000	19.271000	≥500
Middle	18.900000	19.295000	≥500
High	19.000000	19.295000	≥500

Test Plots

SISO-Antenna 1

6 dB Bandwidth

802.11b LOW CHANNEL



802.11b MIDDLE CHANNEL



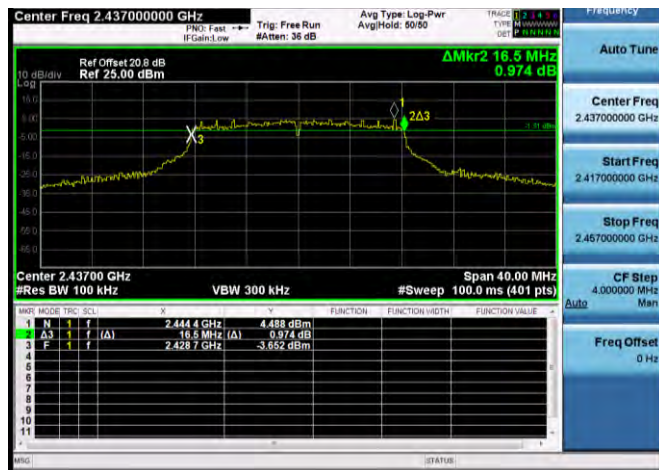
802.11b HIGH CHANNEL



802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL



802.11n-20 MHz LOW CHANNEL



802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL

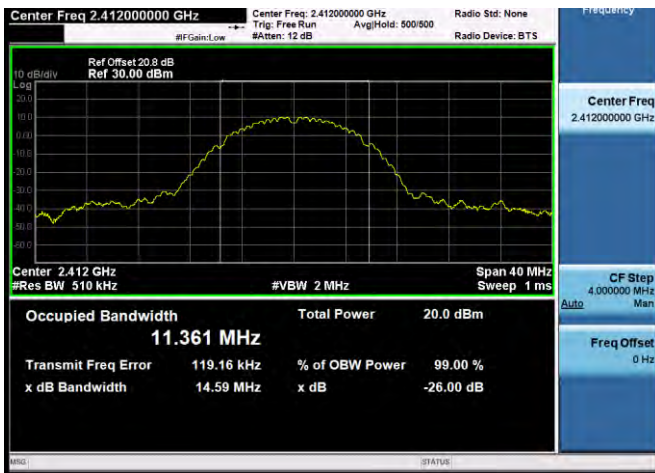


802.11ax-20 MHz(SU) HIGH CHANNEL



99% Bandwidth

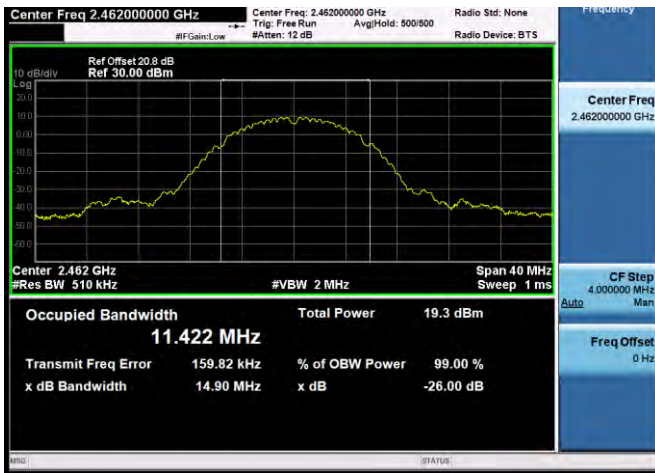
802.11b LOW CHANNEL



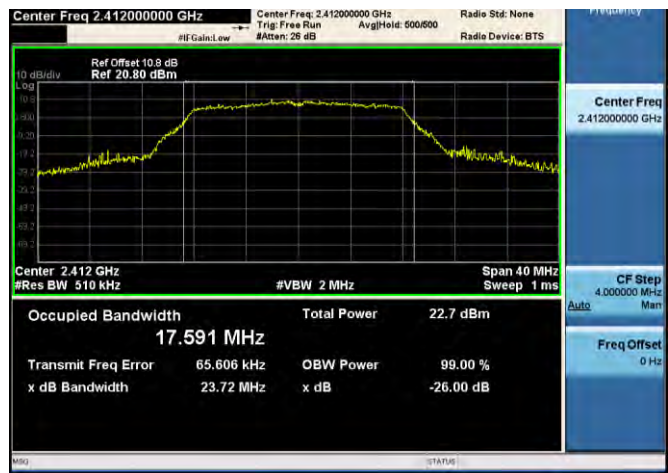
802.11b MIDDLE CHANNEL



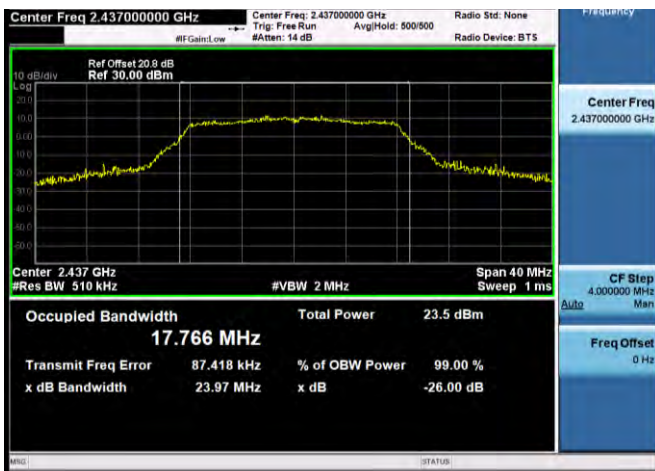
802.11b HIGH CHANNEL



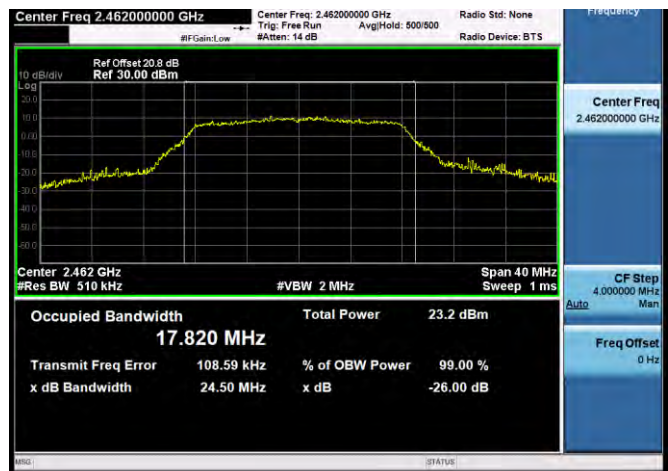
802.11g LOW CHANNEL



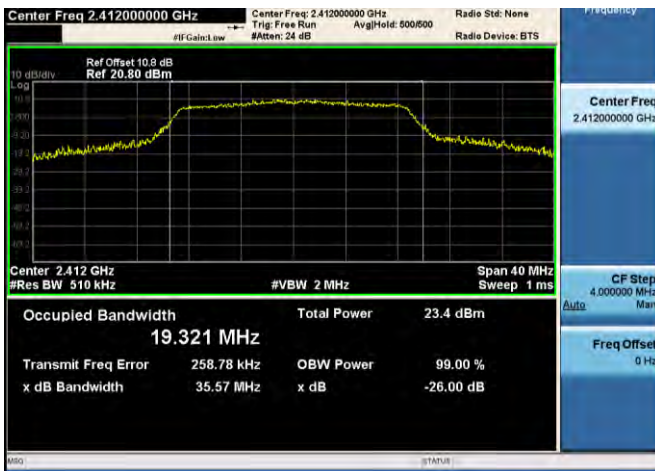
802.11g MIDDLE CHANNEL



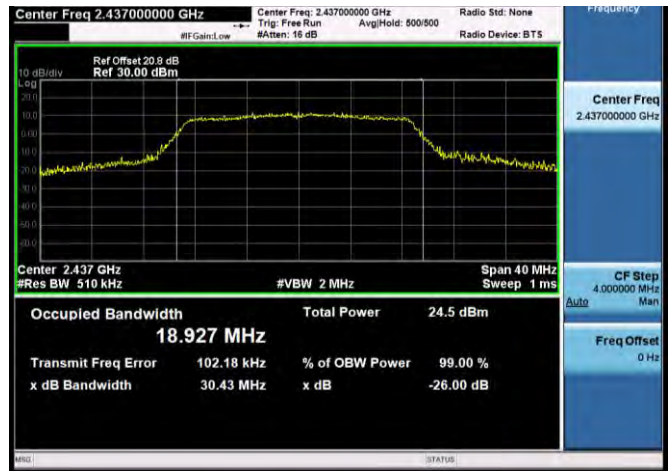
802.11g HIGH CHANNEL



802.11n-20 MHz LOW CHANNEL



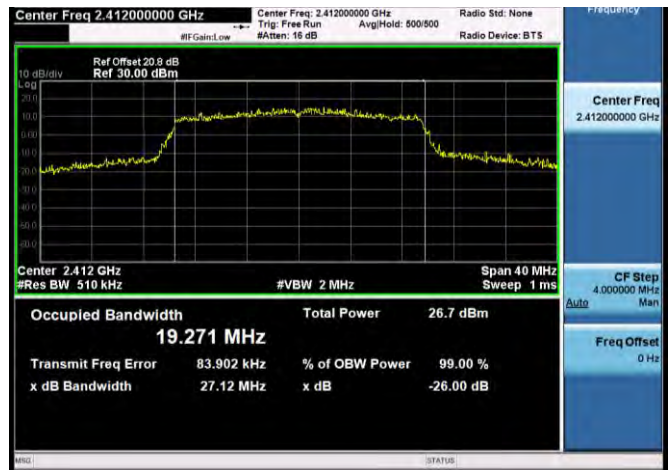
802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL



802.11ax-20 MHz(SU) HIGH CHANNEL



A.3 Conducted Spurious Emissions

Note ¹: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note ²: All antenna were pre tested, but only the worst case has been reported in this report.

Test Data

SISO-Antenna 1

802.11b Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-24.06	9.84	-10.16	Pass
Middle	-27.91	9.73	-10.27	Pass
High	-28.36	9.21	-10.79	Pass

802.11g Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-27.76	5.40	-14.61	Pass
Middle	-28.55	4.64	-15.36	Pass
High	-27.91	4.74	-15.26	Pass

802.11n-20MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-28.96	7.06	-12.94	Pass
Middle	-27.58	6.03	-13.97	Pass
High	-28.78	5.74	-14.26	Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-28.26	6.91	-13.09	Pass
Middle	-28.25	6.31	-13.69	Pass
High	-25.61	5.93	-14.07	Pass

Test Plots

SISO-Antenna 1

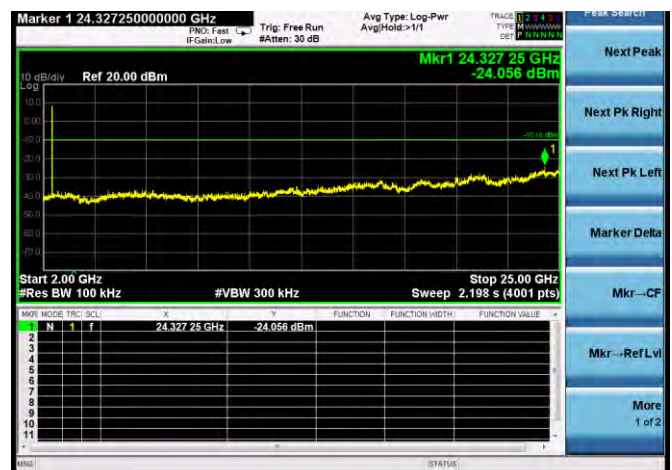
802.11b LOW CHANNEL CARRIER LEVEL



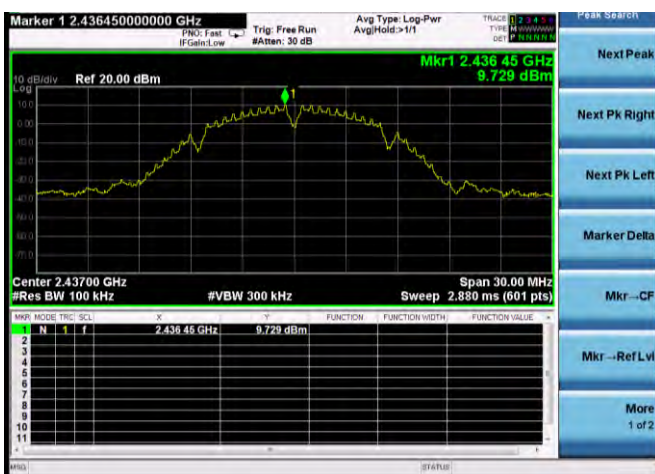
802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



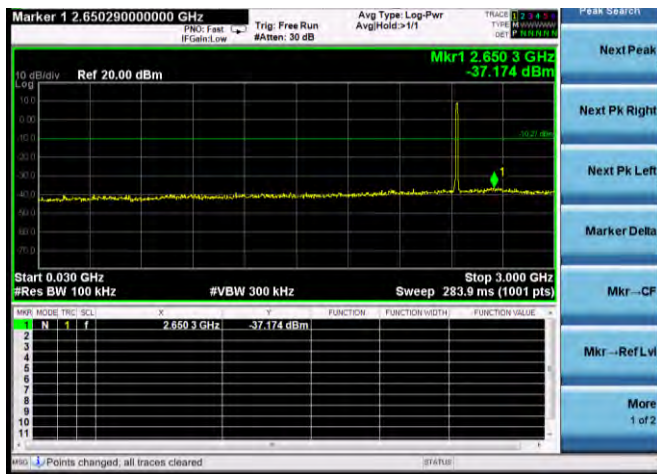
802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



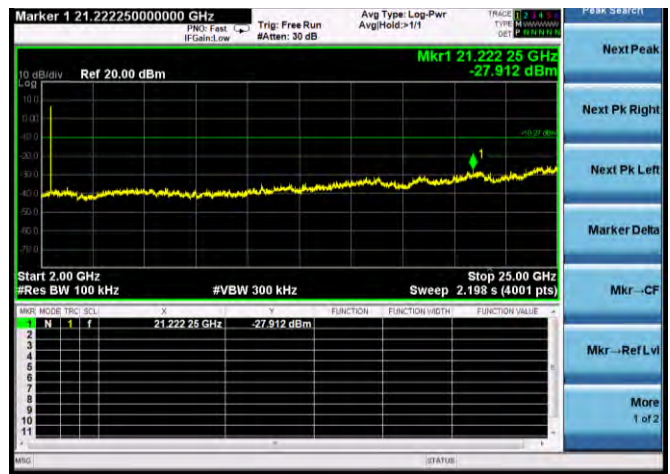
802.11b MIDDLE CHANNEL CARRIER LEVEL



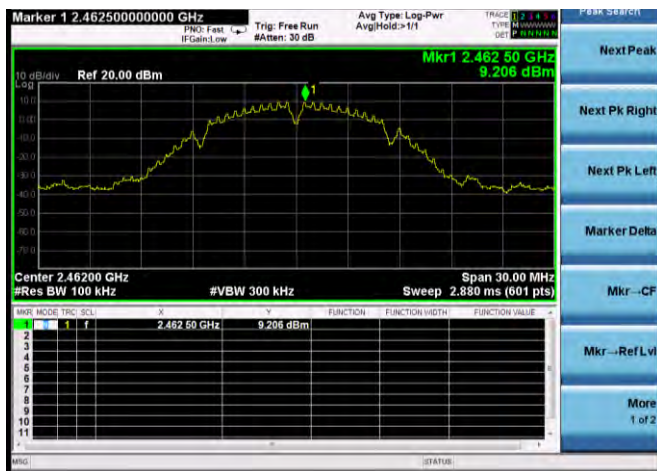
802.11b MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



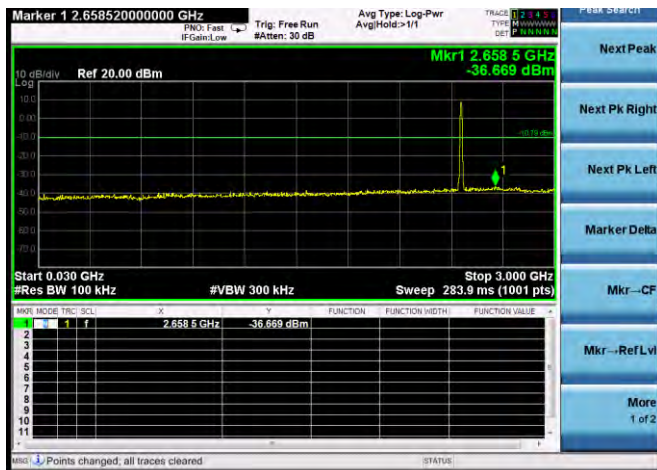
802.11b MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



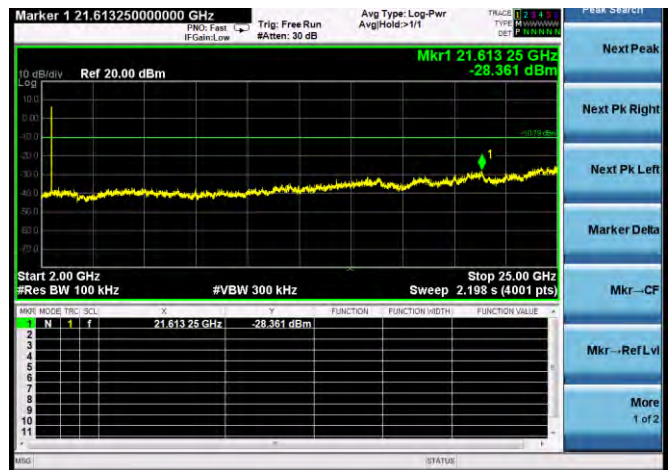
802.11b HIGH CHANNEL CARRIER LEVEL



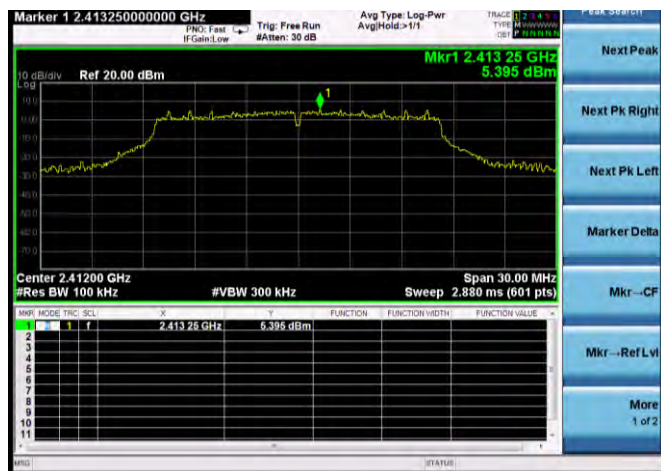
802.11b HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11b HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



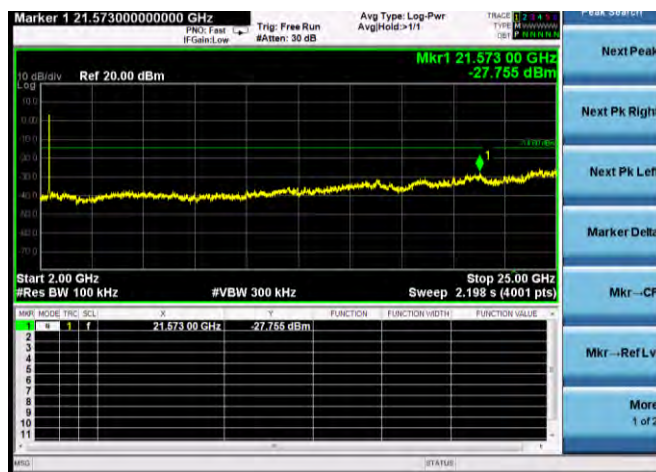
802.11g LOW CHANNEL CARRIER LEVEL



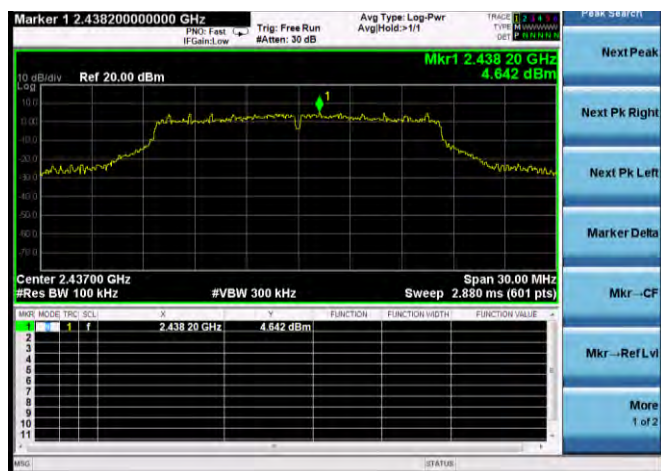
802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



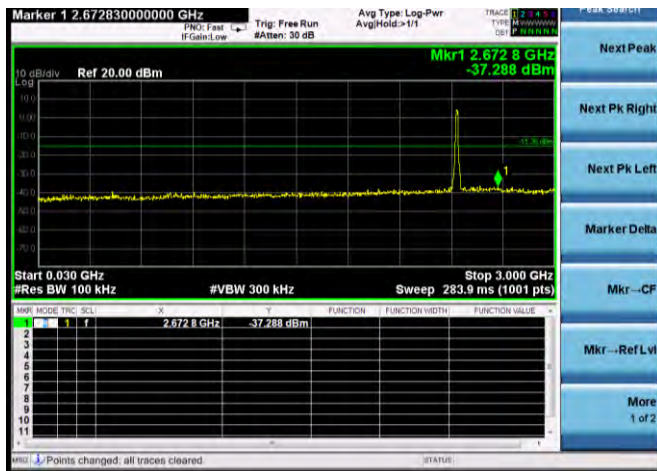
802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



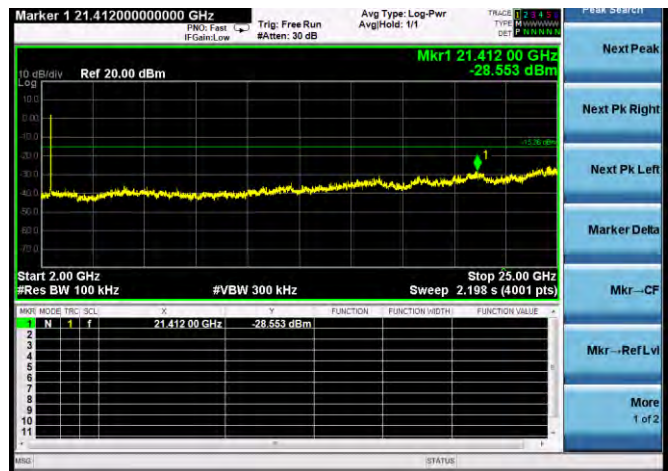
802.11g MIDDLE CHANNEL CARRIER LEVEL



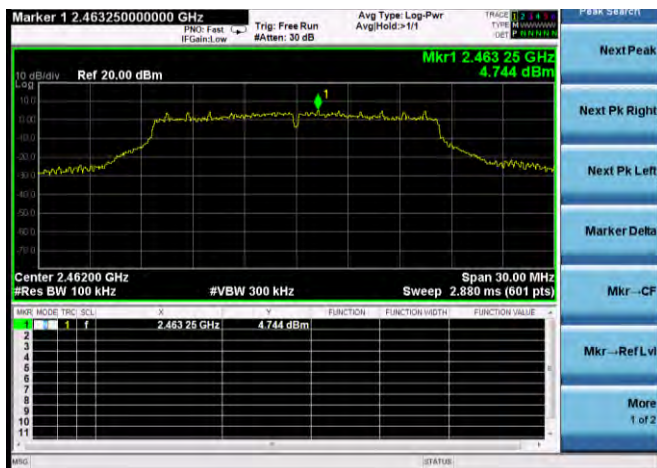
802.11g MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



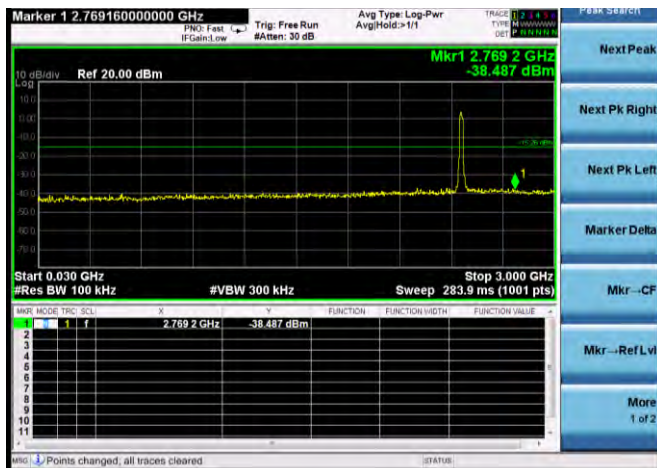
802.11g MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



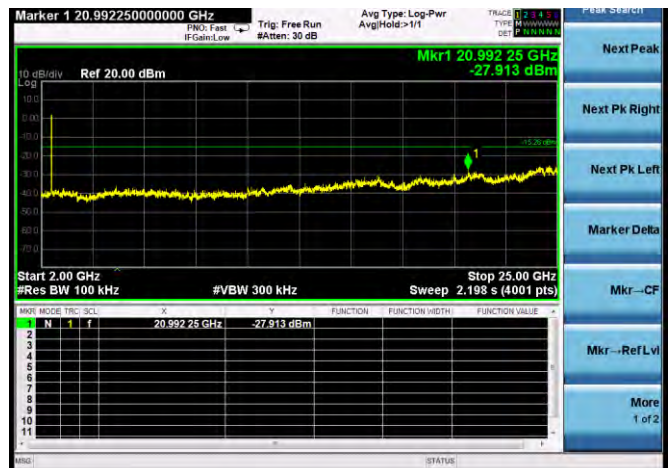
802.11g HIGH CHANNEL CARRIER LEVEL



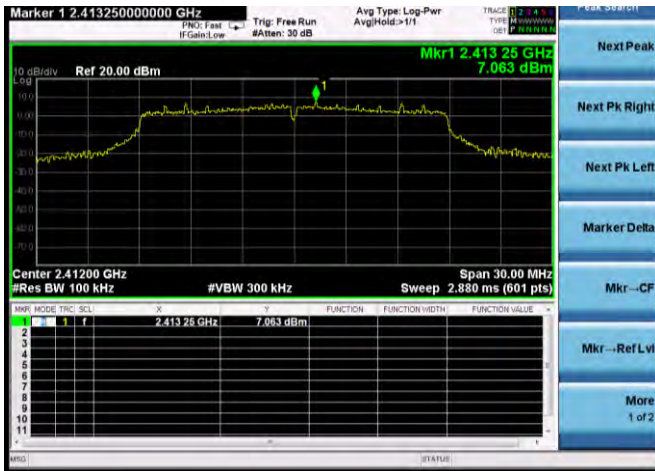
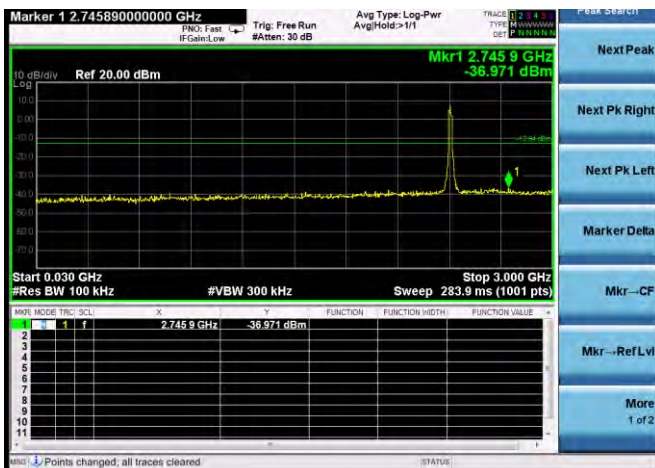
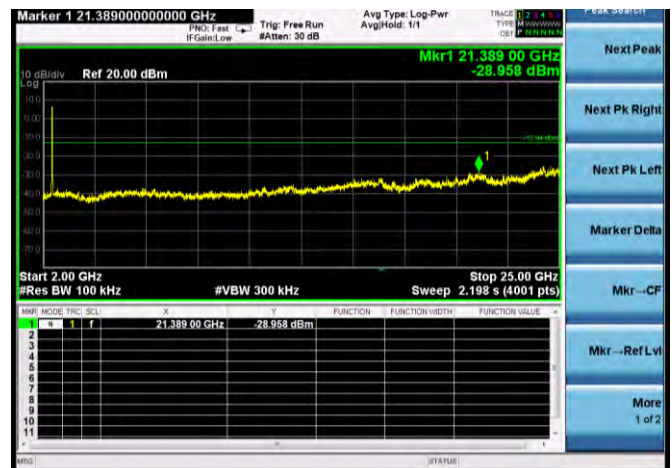
802.11g HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



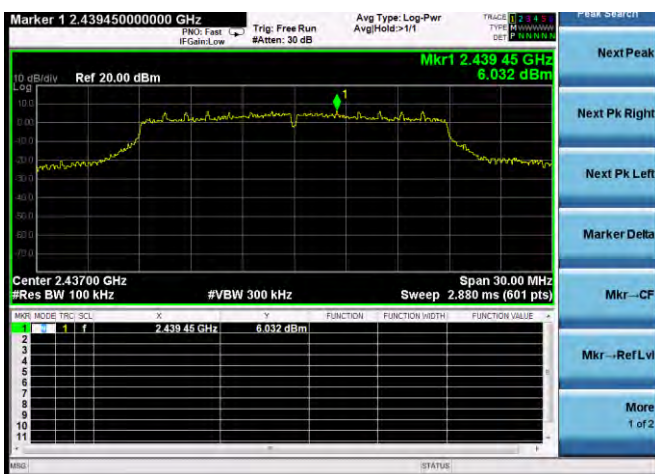
802.11g HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



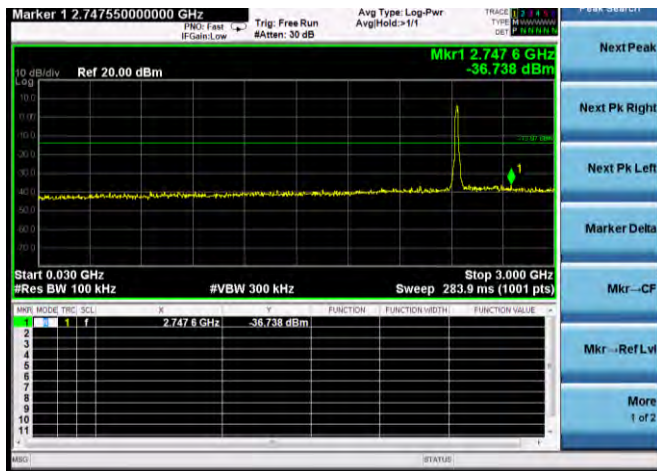
802.11n-20 MHz LOW CHANNEL CARRIER LEVEL

802.11n-20 MHz LOW CHANNEL, SPURIOUS
30 MHz ~ 3 GHz802.11n-20 MHz LOW CHANNEL, SPURIOUS
2 GHz ~ 25 GHz

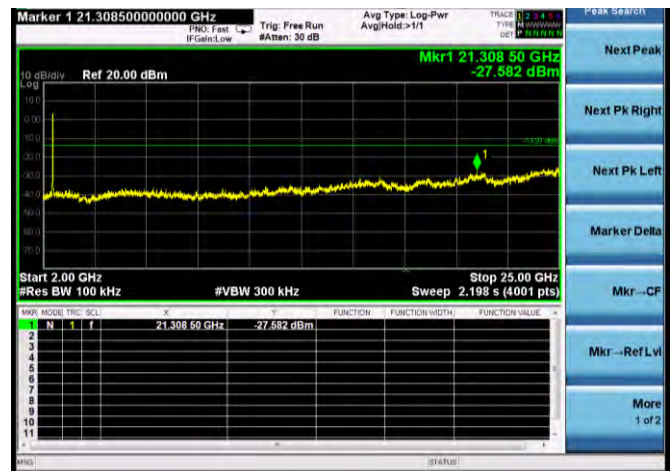
802.11n-20 MHz MIDDLE CHANNEL CARRIER LEVEL



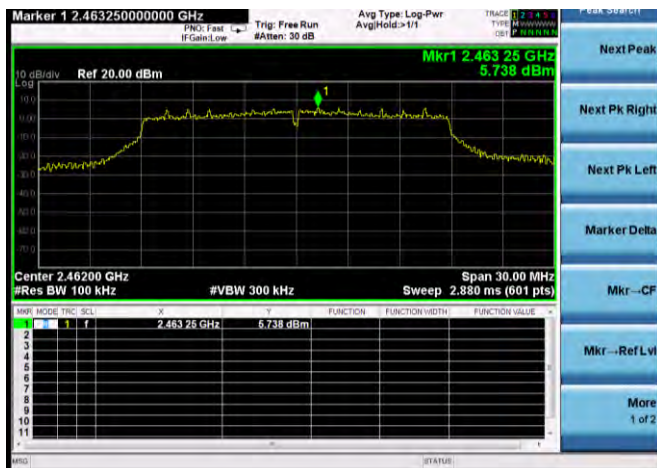
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



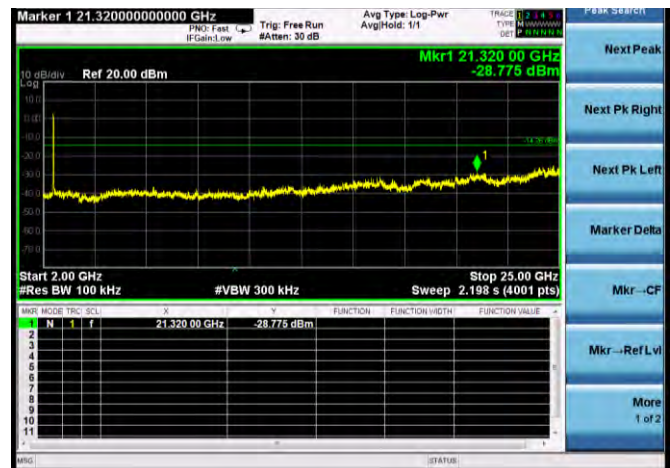
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



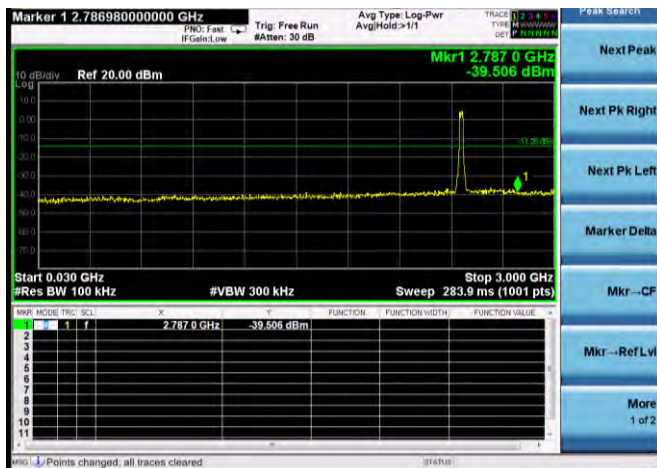
802.11n-20 MHz HIGH CHANNEL CARRIER LEVEL



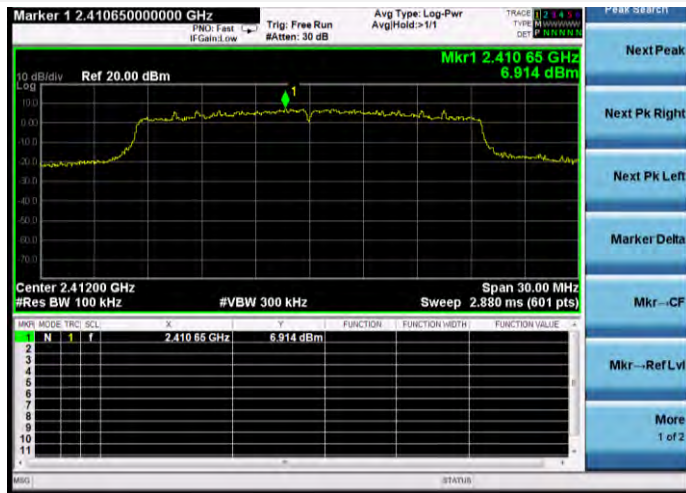
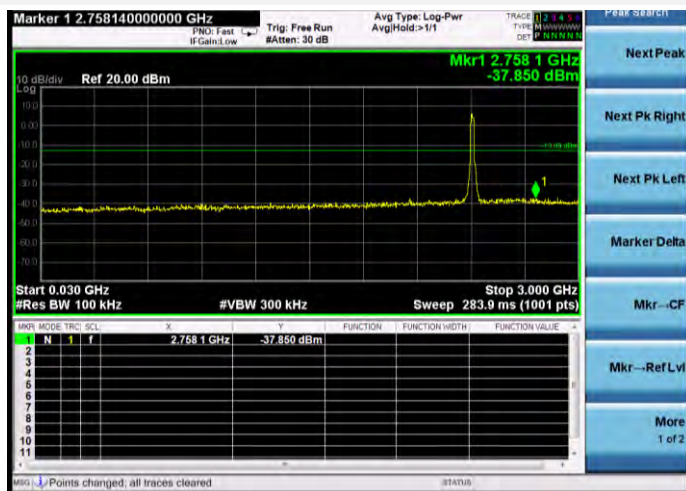
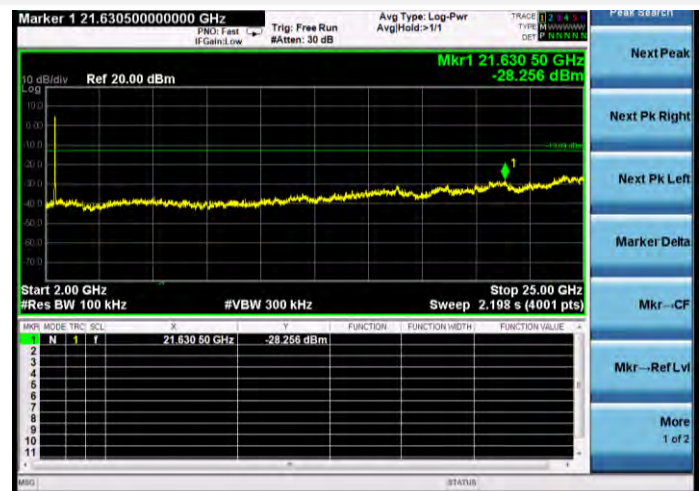
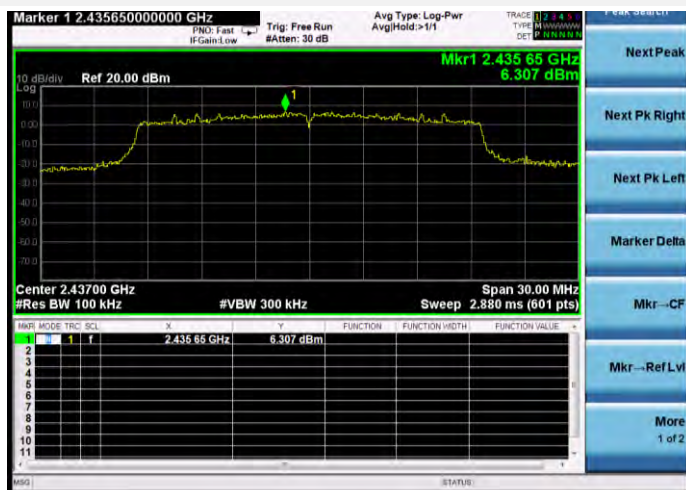
802.11n-20 MHz HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



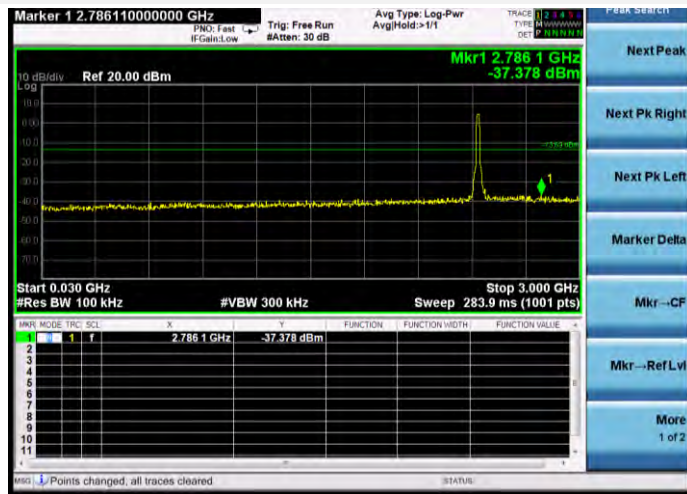
802.11n-20 MHz HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



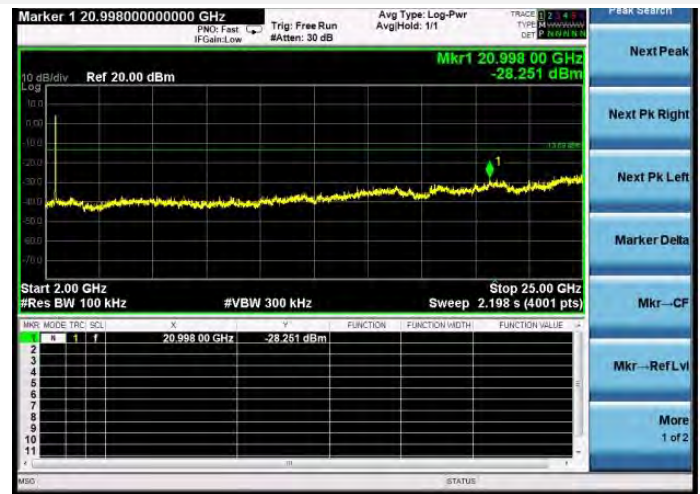
802.11ax-20 MHz(SU) LOW CHANNEL CARRIER LEVEL

802.11ax-20 MHz(SU) LOW CHANNEL, SPURIOUS
30 MHz ~ 3 GHz802.11ax-20 MHz(SU) LOW CHANNEL, SPURIOUS
2 GHz ~ 25 GHz802.11ax-20 MHz(SU) MIDDLE CHANNEL CARRIER
LEVEL

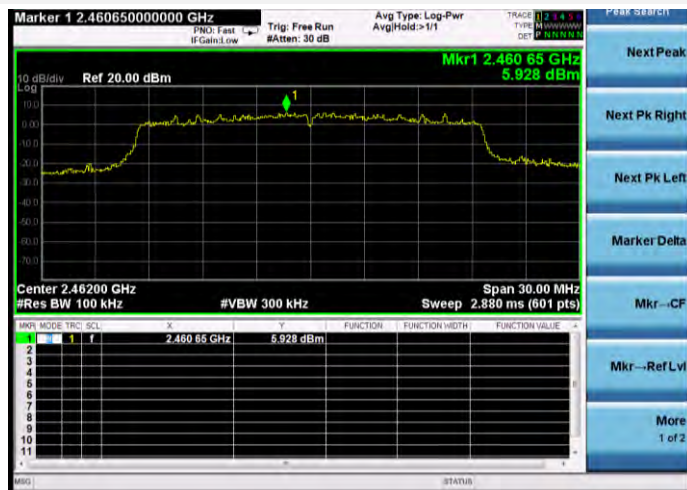
802.11ax-20 MHz(SU) MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



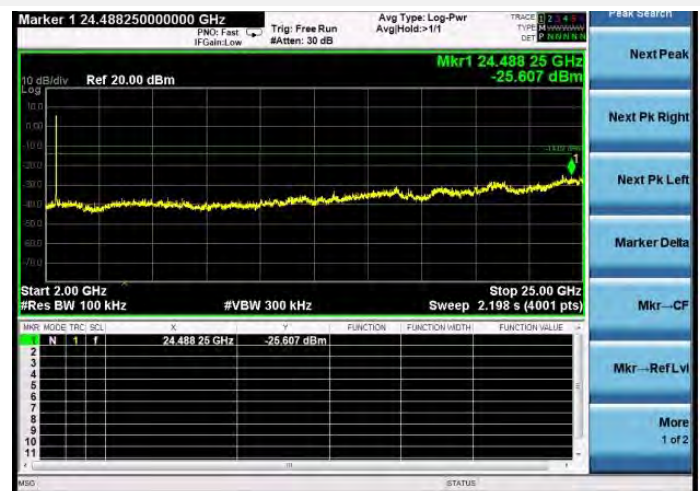
802.11ax-20 MHz(SU) MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



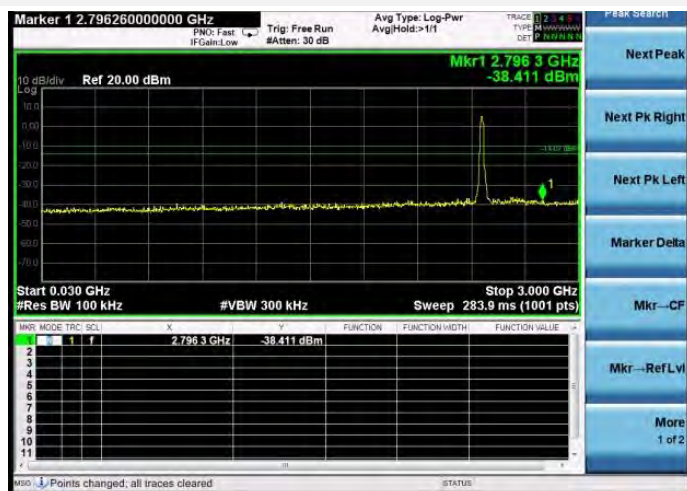
802.11ax-20 MHz(SU) HIGH CHANNEL CARRIER LEVEL



802.11ax-20 MHz(SU) HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11ax-20 MHz(SU) HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



A.4 Band Edge (Authorized-band band-edge)

Note¹: The 99% OBW of the fundamental emission is without 2 MHz of the authorized band.

Note²: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note³: All antenna were pre tested, but only the worst case has been reported in this report.

Test Data

SISO-Antenna 1

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-34.24	9.84	-10.16	Pass
High Channel	-36.80	9.21	-10.79	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-22.60	5.40	-14.61	Pass
High Channel	-34.35	4.74	-15.26	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-21.50	7.06	-12.94	Pass
High Channel	-28.25	5.74	-14.26	Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-20.04	6.91	-13.09	Pass
High Channel	-28.22	5.93	-14.07	Pass

Test Plots

SISO-Antenna 1

802.11b LOW CHANNEL, CARRIER LEVEL



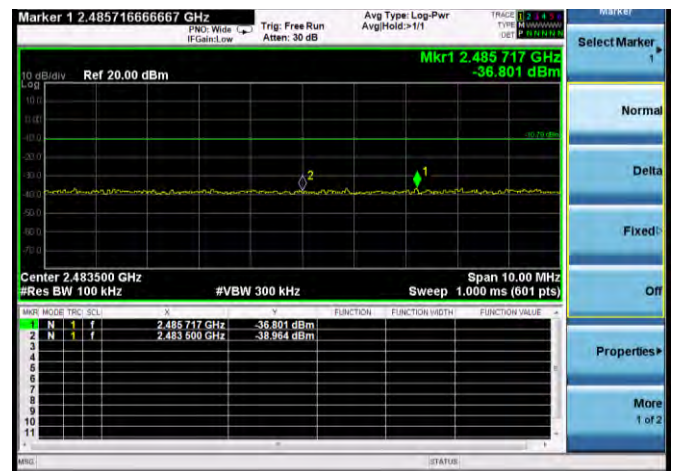
802.11b LOW CHANNEL, BAND EDGE



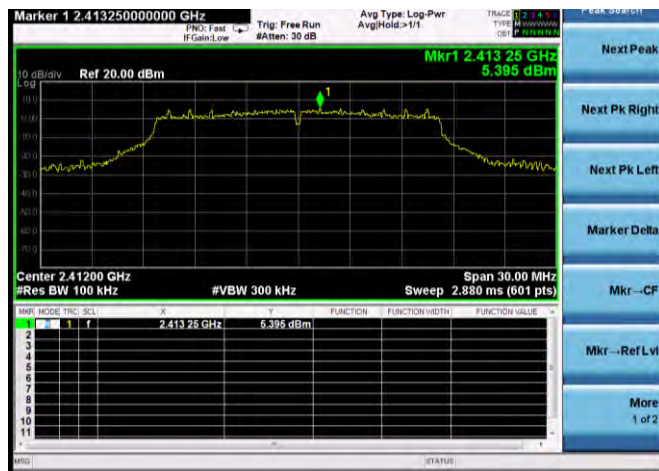
802.11b HIGH CHANNEL, CARRIER LEVEL



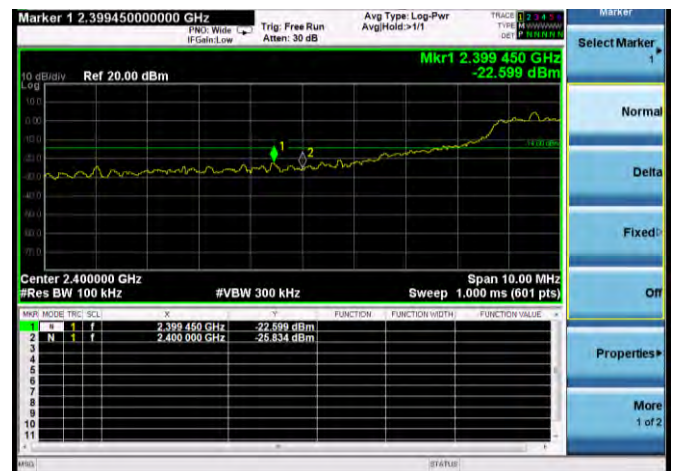
802.11b HIGH CHANNEL, BAND EDGE



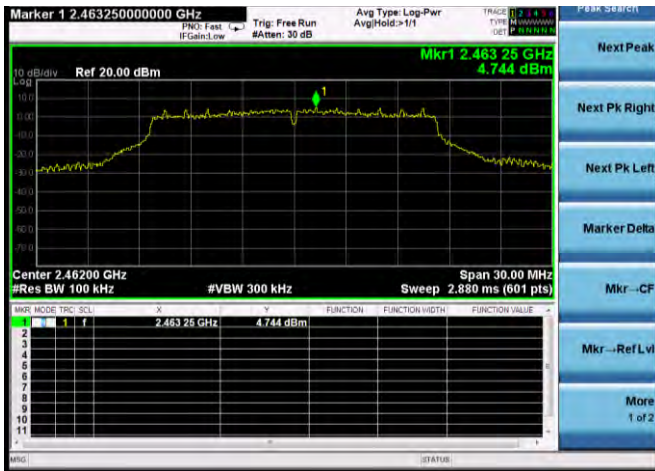
802.11g LOW CHANNEL, CARRIER LEVEL



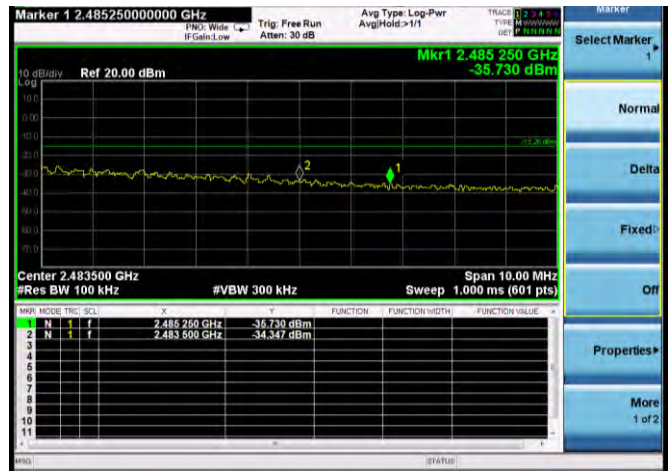
802.11g LOW CHANNEL, BAND EDGE



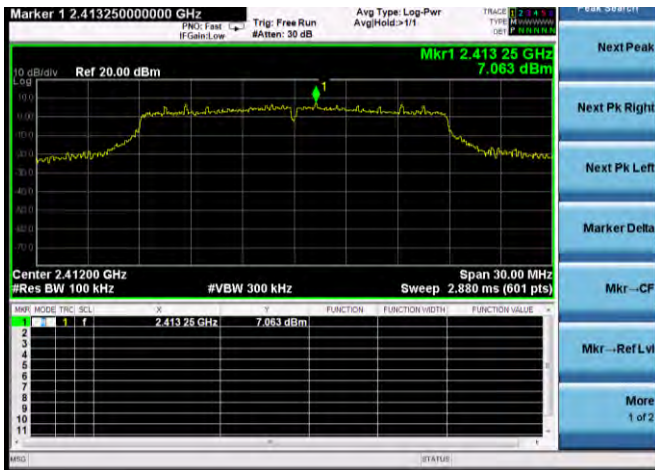
802.11g HIGH CHANNEL, CARRIER LEVEL



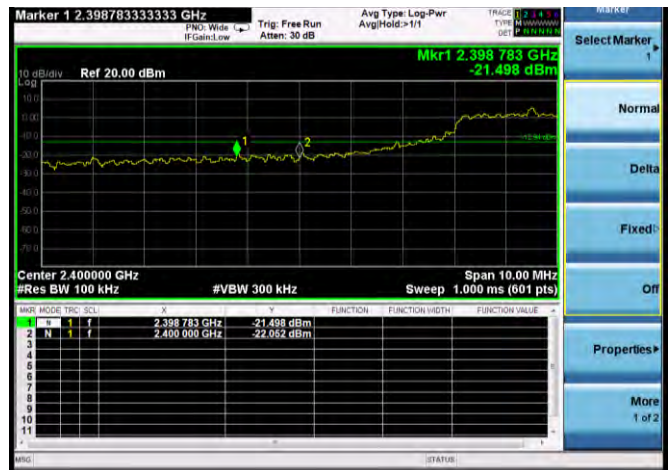
802.11g HIGH CHANNEL, BAND EDGE



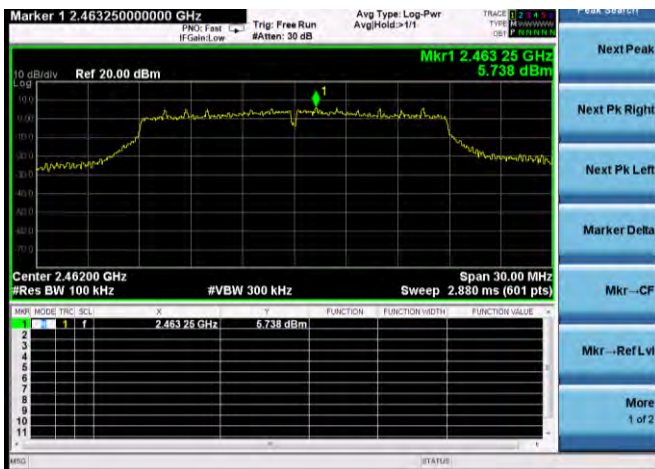
802.11n-20 MHz LOW CHANNEL, CARRIER LEVEL



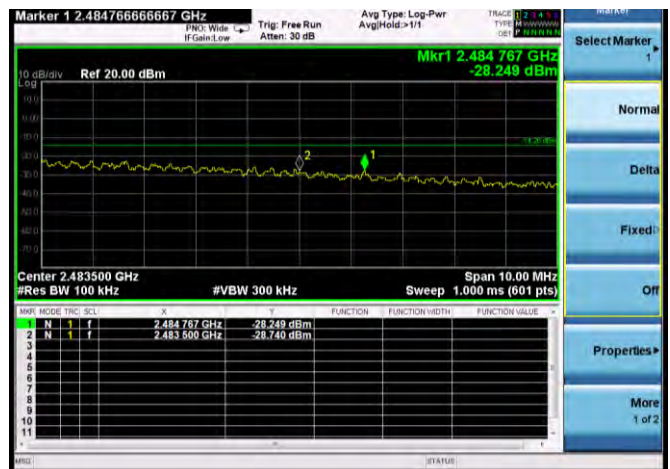
802.11n-20 MHz LOW CHANNEL, BAND EDGE



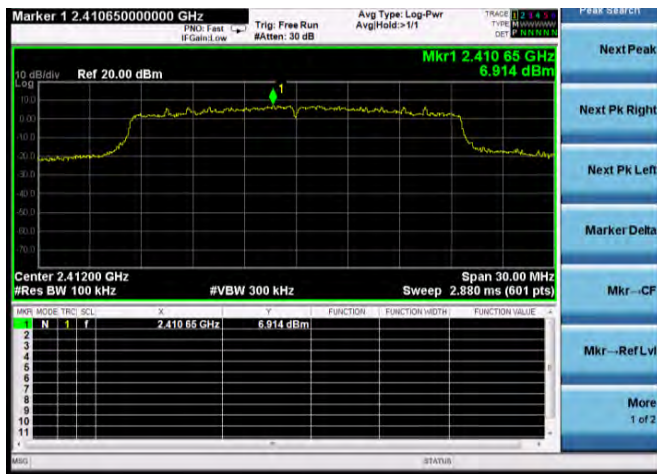
802.11n-20 MHz HIGH CHANNEL, CARRIER LEVEL



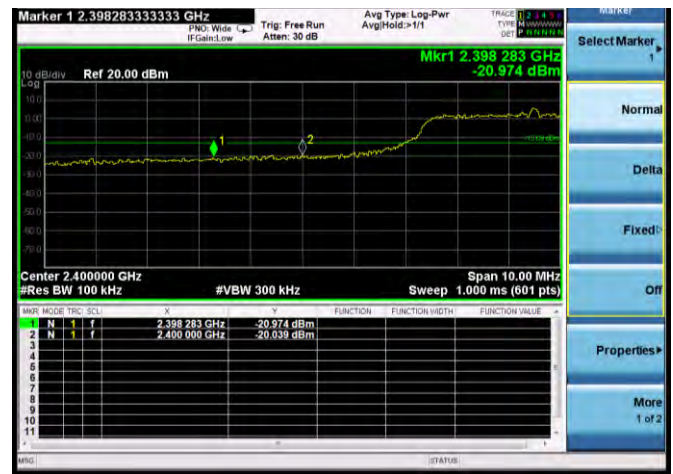
802.11n-20 MHz HIGH CHANNEL, BAND EDGE



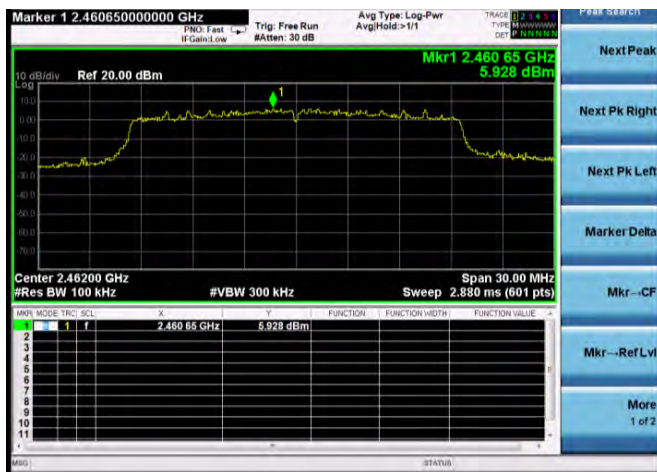
802.11ax-20 MHz(SU) LOW CHANNEL, CARRIER LEVEL



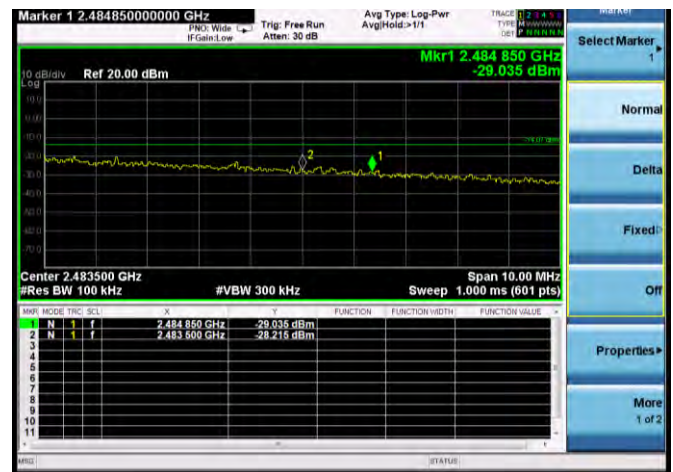
802.11ax-20 MHz(SU) LOW CHANNEL, BAND EDGE



802.11ax-20 MHz(SU) HIGH CHANNEL, CARRIER LEVEL



802.11ax-20 MHz(SU) HIGH CHANNEL, BAND EDGE



A.5 Conducted Emissions

Note ¹: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.

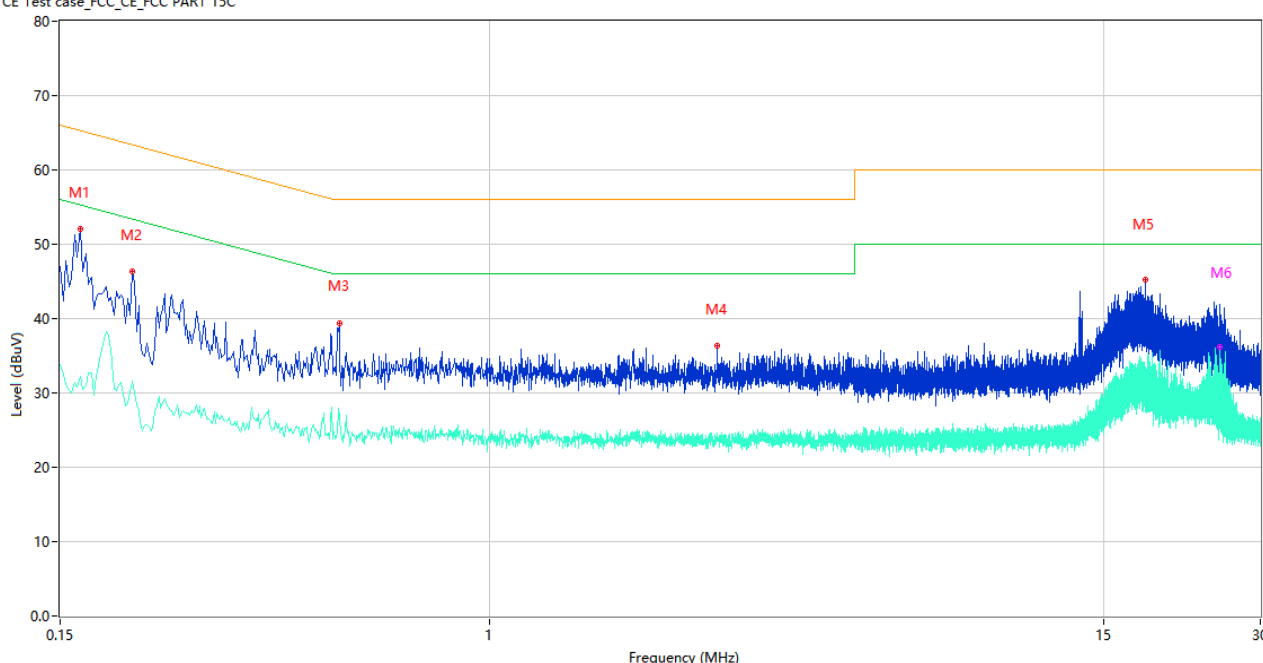
Note ²: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (240 VAC, 50 Hz) shown here.

Note ³: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

PHASE L

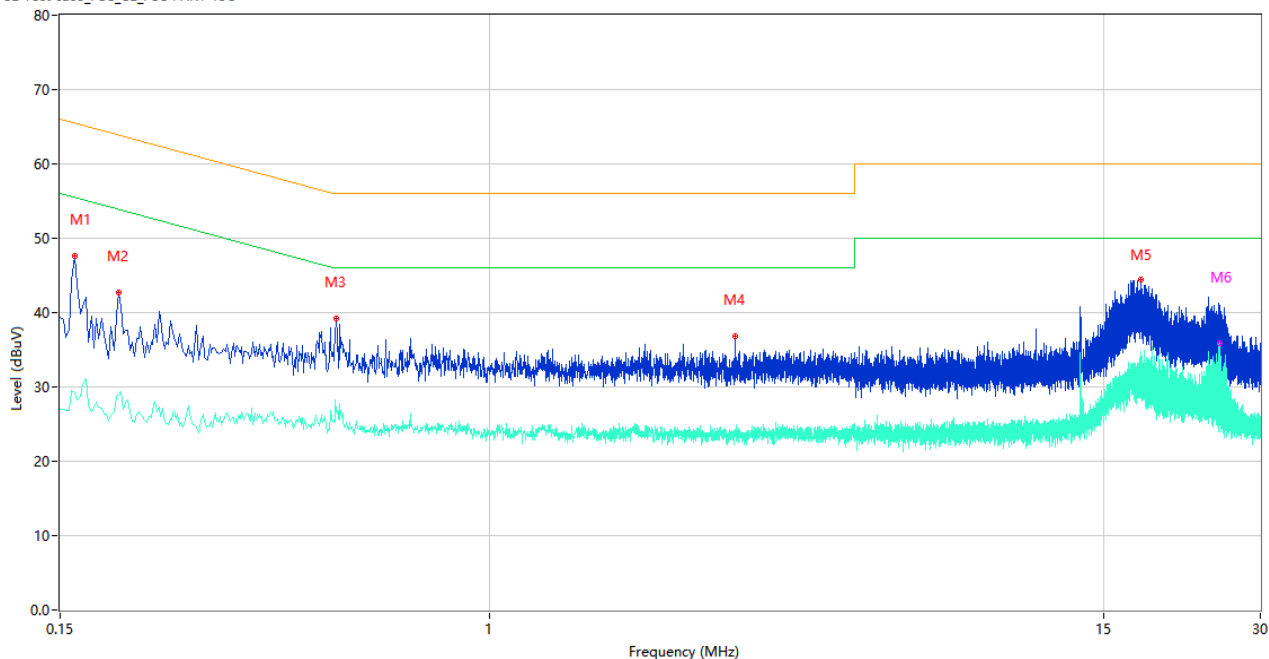
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.164	52.03	9.78	65.26	13.23	Peak	L	Pass
1**	0.164	32.20	9.78	55.26	23.06	AV	L	Pass
2	0.206	46.35	9.77	63.37	17.02	Peak	L	Pass
2**	0.206	31.51	9.77	53.37	21.86	AV	L	Pass
3	0.514	39.40	9.99	56.00	16.60	Peak	L	Pass
3**	0.514	27.03	9.99	46.00	18.97	AV	L	Pass
4	2.730	36.34	10.13	56.00	19.66	Peak	L	Pass
4**	2.730	24.58	10.13	46.00	21.42	AV	L	Pass
5	18.034	45.20	10.68	60.00	14.80	Peak	L	Pass
5**	18.034	32.03	10.68	50.00	17.97	AV	L	Pass
6	25.054	40.52	10.75	60.00	19.48	Peak	L	Pass
6**	25.054	36.23	10.75	50.00	13.77	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.160	47.67	9.78	65.46	17.79	Peak	N	Pass
1**	0.160	29.22	9.78	55.46	26.24	AV	N	Pass
2	0.194	42.64	9.77	63.86	21.22	Peak	N	Pass
2**	0.194	28.94	9.77	53.86	24.92	AV	N	Pass
3	0.508	39.18	9.99	56.00	16.82	Peak	N	Pass
3**	0.508	26.71	9.99	46.00	19.29	AV	N	Pass
4	2.958	36.75	10.21	56.00	19.25	Peak	N	Pass
4**	2.958	24.32	10.21	46.00	21.68	AV	N	Pass
5	17.694	44.42	11.04	60.00	15.58	Peak	N	Pass
5**	17.694	34.74	11.04	50.00	15.26	AV	N	Pass
6	25.052	40.47	10.76	60.00	19.53	Peak	N	Pass
6**	25.052	35.95	10.76	50.00	14.05	AV	N	Pass

A.6 Radiated Emission

Note¹: The symbol of “--” in the table which means not application.

Note²: For the test data above 1 GHz, According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

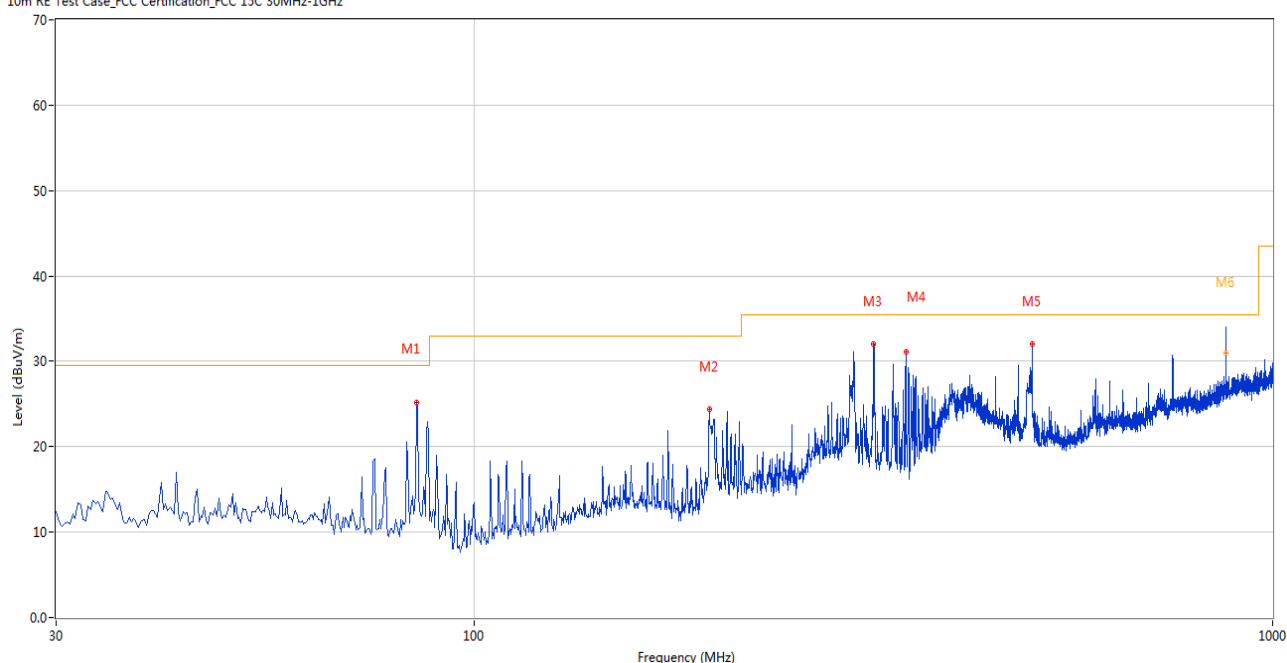
Note³: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note⁴: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and normal link mode is worst.

Test Data and Plots

30 MHz to 1 GHz, ANT H

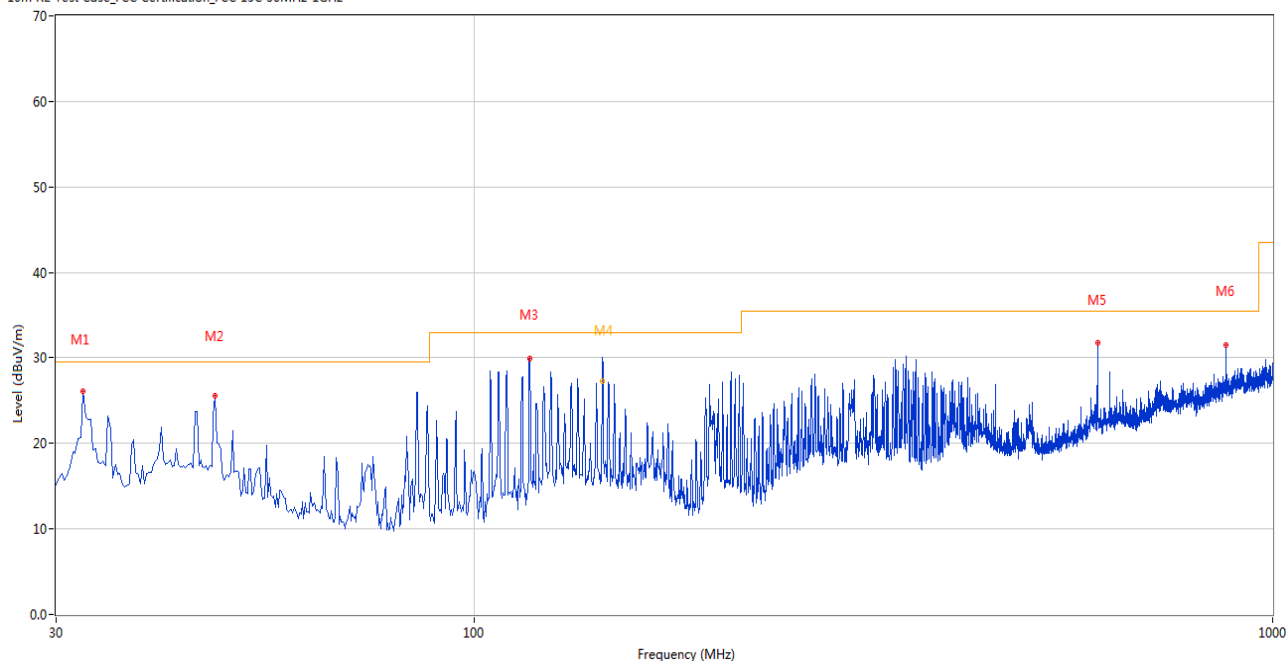
10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	84.791	25.20	-31.39	29.5	4.30	Peak	267.00	200	Horizontal	Pass
2	197.041	24.40	-28.79	33.0	8.60	Peak	236.00	200	Horizontal	Pass
3	316.806	32.06	-24.40	35.5	3.44	Peak	38.00	200	Horizontal	Pass
4	347.596	31.05	-23.83	35.5	4.45	Peak	252.00	200	Horizontal	Pass
5	499.848	32.10	-19.33	35.5	3.40	Peak	243.00	200	Horizontal	Pass
6	874.901	33.06	-11.18	35.5	2.44	Peak	276.00	100	Horizontal	N/A
6*	874.901	30.97	-11.18	35.5	4.53	QP	276.00	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V

10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	32.424	26.15	-27.54	29.5	3.35	Peak	322.00	100	Vertical	Pass
2	47.456	25.60	-26.15	29.5	3.90	Peak	294.00	100	Vertical	Pass
3	117.521	29.94	-28.33	33.0	3.06	Peak	334.00	100	Vertical	Pass
4	144.916	30.06	-25.90	33.0	2.94	Peak	319.00	100	Vertical	N/A
4*	144.916	27.35	-25.90	33.0	5.65	QP	319.00	100	Vertical	Pass
5	603.612	31.72	-16.55	35.5	3.78	Peak	115.00	200	Vertical	Pass
6	874.901	31.50	-11.18	35.5	4.00	Peak	292.00	200	Vertical	Pass

Note ¹: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Note ²: The spurious above 18G is noise only, do not show on the report.

Note ³: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note ⁴: All antenna were pre tested, but only the worst case has been reported in this report.

SISO-Antenna 1

1 GHz to 18 GHz, ANT H 802.11b Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1326.578	43.35	74.0	30.65	Peak	42.00	400	Horizontal	Pass
1**	1326.578	37.52	54.0	16.48	AV	42.00	400	Horizontal	Pass
2	2996.204	52.58	74.0	21.42	Peak	203.00	300	Horizontal	Pass
2**	2996.204	42.34	54.0	11.66	AV	203.00	300	Horizontal	Pass
3	4932.392	49.13	74.0	24.87	Peak	103.00	200	Horizontal	Pass
3**	4932.392	42.94	54.0	11.06	AV	103.00	200	Horizontal	Pass
4	6805.151	53.93	74.0	20.07	Peak	155.00	200	Horizontal	Pass
4**	6805.151	43.11	54.0	10.89	AV	155.00	200	Horizontal	Pass
5	13409.340	54.68	74.0	19.32	Peak	314.00	400	Horizontal	Pass
5**	13409.340	47.33	54.0	6.67	AV	314.00	400	Horizontal	Pass
6	17422.636	57.49	74.0	16.51	Peak	17.00	100	Horizontal	Pass
6**	17422.636	47.66	54.0	6.34	AV	17.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.953	45.59	74.0	28.41	Peak	267.00	100	Vertical	Pass
1**	1330.953	37.53	54.0	16.47	AV	267.00	100	Vertical	Pass
2	2978.371	51.78	74.0	22.22	Peak	331.00	200	Vertical	Pass
2**	2978.371	39.67	54.0	14.33	AV	331.00	200	Vertical	Pass
3	4852.009	47.92	74.0	26.08	Peak	137.00	200	Vertical	Pass
3**	4852.009	42.33	54.0	11.67	AV	137.00	200	Vertical	Pass
4	6607.905	55.86	74.0	18.14	Peak	99.00	300	Vertical	Pass
4**	6607.905	42.21	54.0	11.79	AV	99.00	300	Vertical	Pass
5	13437.801	54.65	74.0	19.35	Peak	144.00	300	Vertical	Pass
5**	13437.801	48.63	54.0	5.37	AV	144.00	300	Vertical	Pass
6	17417.126	55.62	74.0	18.38	Peak	163.00	100	Vertical	Pass
6**	17417.126	47.93	54.0	6.07	AV	163.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.909	42.62	74.0	31.38	Peak	313.00	200	Horizontal	Pass
1**	1330.909	36.60	54.0	17.40	AV	313.00	200	Horizontal	Pass
2	2996.548	49.18	74.0	24.82	Peak	157.00	100	Horizontal	Pass
2**	2996.548	41.98	54.0	12.02	AV	157.00	100	Horizontal	Pass
3	4936.223	49.50	74.0	24.50	Peak	92.00	200	Horizontal	Pass
3**	4936.223	44.59	54.0	9.41	AV	92.00	200	Horizontal	Pass
4	6809.100	56.17	74.0	17.83	Peak	116.00	100	Horizontal	Pass
4**	6809.100	43.05	54.0	10.95	AV	116.00	100	Horizontal	Pass
5	13408.358	58.03	74.0	15.97	Peak	265.00	100	Horizontal	Pass
5**	13408.358	45.83	54.0	8.17	AV	265.00	100	Horizontal	Pass
6	17424.479	53.89	74.0	20.11	Peak	166.00	200	Horizontal	Pass
6**	17424.479	45.91	54.0	8.09	AV	166.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1334.517	43.92	74.0	30.08	Peak	7.00	400	Vertical	Pass
1**	1334.517	39.91	54.0	14.09	AV	7.00	400	Vertical	Pass
2	2978.164	52.75	74.0	21.25	Peak	247.00	200	Vertical	Pass
2**	2978.164	40.88	54.0	13.12	AV	247.00	200	Vertical	Pass
3	4856.437	49.50	74.0	24.50	Peak	297.00	200	Vertical	Pass
3**	4856.437	43.37	54.0	10.63	AV	297.00	200	Vertical	Pass
4	6604.219	51.66	74.0	22.34	Peak	128.00	100	Vertical	Pass
4**	6604.219	44.61	54.0	9.39	AV	128.00	100	Vertical	Pass
5	13438.074	52.90	74.0	21.10	Peak	295.00	100	Vertical	Pass
5**	13438.074	45.88	54.0	8.12	AV	295.00	100	Vertical	Pass
6	17416.502	59.59	74.0	14.41	Peak	322.00	200	Vertical	Pass
6**	17416.502	47.91	54.0	6.09	AV	322.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.022	45.53	74.0	28.47	Peak	220.00	300	Horizontal	Pass
1**	1330.022	39.71	54.0	14.29	AV	220.00	300	Horizontal	Pass
2	2997.704	52.63	74.0	21.37	Peak	1.00	300	Horizontal	Pass
2**	2997.704	44.17	54.0	9.83	AV	1.00	300	Horizontal	Pass
3	4936.569	52.81	74.0	21.19	Peak	74.00	200	Horizontal	Pass
3**	4936.569	39.63	54.0	14.37	AV	74.00	200	Horizontal	Pass
4	6803.539	54.94	74.0	19.06	Peak	250.00	400	Horizontal	Pass
4**	6803.539	44.21	54.0	9.79	AV	250.00	400	Horizontal	Pass
5	13410.042	53.89	74.0	20.11	Peak	214.00	200	Horizontal	Pass
5**	13410.042	47.43	54.0	6.57	AV	214.00	200	Horizontal	Pass
6	17426.480	53.59	74.0	20.41	Peak	34.00	400	Horizontal	Pass
6**	17426.480	47.15	54.0	6.85	AV	34.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1336.237	46.28	74.0	27.72	Peak	306.00	200	Vertical	Pass
1**	1336.237	38.64	54.0	15.36	AV	306.00	200	Vertical	Pass
2	2985.860	48.34	74.0	25.66	Peak	74.00	300	Vertical	Pass
2**	2985.860	42.65	54.0	11.35	AV	74.00	300	Vertical	Pass
3	4855.554	51.81	74.0	22.19	Peak	159.00	200	Vertical	Pass
3**	4855.554	40.47	54.0	13.53	AV	159.00	200	Vertical	Pass
4	6608.204	52.36	74.0	21.64	Peak	224.00	300	Vertical	Pass
4**	6608.204	44.98	54.0	9.02	AV	224.00	300	Vertical	Pass
5	13432.133	52.74	74.0	21.26	Peak	50.00	400	Vertical	Pass
5**	13432.133	48.92	54.0	5.08	AV	50.00	400	Vertical	Pass
6	17419.042	56.23	74.0	17.77	Peak	65.00	300	Vertical	Pass
6**	17419.042	47.91	54.0	6.09	AV	65.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1325.889	42.39	74.0	31.61	Peak	153.00	300	Horizontal	Pass
1**	1325.889	39.23	54.0	14.77	AV	153.00	300	Horizontal	Pass
2	2994.249	51.35	74.0	22.65	Peak	118.00	200	Horizontal	Pass
2**	2994.249	39.66	54.0	14.34	AV	118.00	200	Horizontal	Pass
3	4934.396	49.92	74.0	24.08	Peak	148.00	200	Horizontal	Pass
3**	4934.396	38.83	54.0	15.17	AV	148.00	200	Horizontal	Pass
4	6807.062	56.90	74.0	17.10	Peak	301.00	300	Horizontal	Pass
4**	6807.062	45.06	54.0	8.94	AV	301.00	300	Horizontal	Pass
5	13409.557	54.69	74.0	19.31	Peak	185.00	400	Horizontal	Pass
5**	13409.557	49.47	54.0	4.53	AV	185.00	400	Horizontal	Pass
6	17427.526	56.91	74.0	17.09	Peak	209.00	300	Horizontal	Pass
6**	17427.526	49.01	54.0	4.99	AV	209.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1336.439	42.98	74.0	31.02	Peak	283.00	100	Vertical	Pass
1**	1336.439	35.10	54.0	18.90	AV	283.00	100	Vertical	Pass
2	2984.900	53.33	74.0	20.67	Peak	237.00	400	Vertical	Pass
2**	2984.900	41.99	54.0	12.01	AV	237.00	400	Vertical	Pass
3	4856.592	47.45	74.0	26.55	Peak	0.00	200	Vertical	Pass
3**	4856.592	43.48	54.0	10.52	AV	0.00	200	Vertical	Pass
4	6606.281	55.69	74.0	18.31	Peak	54.00	400	Vertical	Pass
4**	6606.281	42.68	54.0	11.32	AV	54.00	400	Vertical	Pass
5	13432.593	53.32	74.0	20.68	Peak	337.00	200	Vertical	Pass
5**	13432.593	45.44	54.0	8.56	AV	337.00	200	Vertical	Pass
6	17413.754	59.95	74.0	14.05	Peak	224.00	300	Vertical	Pass
6**	17413.754	47.01	54.0	6.99	AV	224.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.529	47.06	74.0	26.94	Peak	83.00	400	Horizontal	Pass
1**	1330.529	34.35	54.0	19.65	AV	83.00	400	Horizontal	Pass
2	2993.610	51.35	74.0	22.65	Peak	201.00	200	Horizontal	Pass
2**	2993.610	43.86	54.0	10.14	AV	201.00	200	Horizontal	Pass
3	4934.292	51.05	74.0	22.95	Peak	296.00	200	Horizontal	Pass
3**	4934.292	39.84	54.0	14.16	AV	296.00	200	Horizontal	Pass
4	6810.925	56.14	74.0	17.86	Peak	59.00	400	Horizontal	Pass
4**	6810.925	43.15	54.0	10.85	AV	59.00	400	Horizontal	Pass
5	13411.102	57.95	74.0	16.05	Peak	258.00	200	Horizontal	Pass
5**	13411.102	48.35	54.0	5.65	AV	258.00	200	Horizontal	Pass
6	17425.832	57.09	74.0	16.91	Peak	182.00	400	Horizontal	Pass
6**	17425.832	50.10	54.0	3.90	AV	182.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1333.067	43.84	74.0	30.16	Peak	141.00	100	Vertical	Pass
1**	1333.067	39.43	54.0	14.57	AV	141.00	100	Vertical	Pass
2	2979.552	52.62	74.0	21.38	Peak	292.00	300	Vertical	Pass
2**	2979.552	42.19	54.0	11.81	AV	292.00	300	Vertical	Pass
3	4853.087	47.27	74.0	26.73	Peak	82.00	200	Vertical	Pass
3**	4853.087	38.72	54.0	15.28	AV	82.00	200	Vertical	Pass
4	6608.588	56.16	74.0	17.84	Peak	264.00	100	Vertical	Pass
4**	6608.588	47.26	54.0	6.74	AV	264.00	100	Vertical	Pass
5	13432.926	54.10	74.0	19.90	Peak	71.00	400	Vertical	Pass
5**	13432.926	44.40	54.0	9.60	AV	71.00	400	Vertical	Pass
6	17414.526	55.04	74.0	18.96	Peak	242.00	200	Vertical	Pass
6**	17414.526	45.38	54.0	8.62	AV	242.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1327.790	46.55	74.0	27.45	Peak	156.00	200	Horizontal	Pass
1**	1327.790	34.87	54.0	19.13	AV	156.00	200	Horizontal	Pass
2	2996.369	51.98	74.0	22.02	Peak	333.00	200	Horizontal	Pass
2**	2996.369	42.07	54.0	11.93	AV	333.00	200	Horizontal	Pass
3	4932.905	51.78	74.0	22.22	Peak	201.00	200	Horizontal	Pass
3**	4932.905	43.08	54.0	10.92	AV	201.00	200	Horizontal	Pass
4	6807.185	52.99	74.0	21.01	Peak	254.00	100	Horizontal	Pass
4**	6807.185	47.18	54.0	6.82	AV	254.00	100	Horizontal	Pass
5	13407.508	57.48	74.0	16.52	Peak	131.00	200	Horizontal	Pass
5**	13407.508	49.07	54.0	4.93	AV	131.00	200	Horizontal	Pass
6	17426.193	56.17	74.0	17.83	Peak	77.00	400	Horizontal	Pass
6**	17426.193	48.35	54.0	5.65	AV	77.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.318	45.49	74.0	28.51	Peak	222.00	400	Vertical	Pass
1**	1332.318	38.17	54.0	15.83	AV	222.00	400	Vertical	Pass
2	2984.869	47.91	74.0	26.09	Peak	108.00	300	Vertical	Pass
2**	2984.869	39.83	54.0	14.17	AV	108.00	300	Vertical	Pass
3	4854.126	48.76	74.0	25.24	Peak	100.00	200	Vertical	Pass
3**	4854.126	41.34	54.0	12.66	AV	100.00	200	Vertical	Pass
4	6610.243	52.35	74.0	21.65	Peak	335.00	300	Vertical	Pass
4**	6610.243	47.46	54.0	6.54	AV	335.00	300	Vertical	Pass
5	13432.948	58.40	74.0	15.60	Peak	143.00	200	Vertical	Pass
5**	13432.948	44.93	54.0	9.07	AV	143.00	200	Vertical	Pass
6	17420.181	56.68	74.0	17.32	Peak	142.00	400	Vertical	Pass
6**	17420.181	48.50	54.0	5.50	AV	142.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1325.805	42.12	74.0	31.88	Peak	56.00	100	Horizontal	Pass
1**	1325.805	38.58	54.0	15.42	AV	56.00	100	Horizontal	Pass
2	2997.990	49.54	74.0	24.46	Peak	221.00	300	Horizontal	Pass
2**	2997.990	40.24	54.0	13.76	AV	221.00	300	Horizontal	Pass
3	4936.806	53.51	74.0	20.49	Peak	22.00	200	Horizontal	Pass
3**	4936.806	38.90	54.0	15.10	AV	22.00	200	Horizontal	Pass
4	6806.867	56.93	74.0	17.07	Peak	286.00	300	Horizontal	Pass
4**	6806.867	42.41	54.0	11.59	AV	286.00	300	Horizontal	Pass
5	13407.354	53.69	74.0	20.31	Peak	157.00	100	Horizontal	Pass
5**	13407.354	47.78	54.0	6.22	AV	157.00	100	Horizontal	Pass
6	17429.649	54.18	74.0	19.82	Peak	110.00	100	Horizontal	Pass
6**	17429.649	46.28	54.0	7.72	AV	110.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.170	46.36	74.0	27.64	Peak	209.00	200	Vertical	Pass
1**	1329.170	35.95	54.0	18.05	AV	209.00	200	Vertical	Pass
2	2985.093	52.56	74.0	21.44	Peak	23.00	100	Vertical	Pass
2**	2985.093	43.25	54.0	10.75	AV	23.00	100	Vertical	Pass
3	4852.079	52.27	74.0	21.73	Peak	145.00	200	Vertical	Pass
3**	4852.079	41.79	54.0	12.21	AV	145.00	200	Vertical	Pass
4	6609.692	53.61	74.0	20.39	Peak	226.00	200	Vertical	Pass
4**	6609.692	47.46	54.0	6.54	AV	226.00	200	Vertical	Pass
5	13436.386	53.75	74.0	20.25	Peak	105.00	100	Vertical	Pass
5**	13436.386	47.09	54.0	6.91	AV	105.00	100	Vertical	Pass
6	17420.389	58.23	74.0	15.77	Peak	152.00	300	Vertical	Pass
6**	17420.389	47.43	54.0	6.57	AV	152.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1326.154	44.76	74.0	29.24	Peak	334.00	300	Horizontal	Pass
1**	1326.154	37.07	54.0	16.93	AV	334.00	300	Horizontal	Pass
2	2996.842	48.08	74.0	25.92	Peak	276.00	100	Horizontal	Pass
2**	2996.842	40.63	54.0	13.37	AV	276.00	100	Horizontal	Pass
3	4936.253	52.88	74.0	21.12	Peak	339.00	200	Horizontal	Pass
3**	4936.253	41.85	54.0	12.15	AV	339.00	200	Horizontal	Pass
4	6804.354	56.06	74.0	17.94	Peak	321.00	100	Horizontal	Pass
4**	6804.354	43.30	54.0	10.70	AV	321.00	100	Horizontal	Pass
5	13409.847	53.51	74.0	20.49	Peak	159.00	400	Horizontal	Pass
5**	13409.847	43.84	54.0	10.16	AV	159.00	400	Horizontal	Pass
6	17422.540	53.12	74.0	20.88	Peak	162.00	300	Horizontal	Pass
6**	17422.540	47.20	54.0	6.80	AV	162.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1335.666	47.02	74.0	26.98	Peak	38.00	300	Vertical	Pass
1**	1335.666	35.51	54.0	18.49	AV	38.00	300	Vertical	Pass
2	2979.919	50.81	74.0	23.19	Peak	217.00	300	Vertical	Pass
2**	2979.919	43.05	54.0	10.95	AV	217.00	300	Vertical	Pass
3	4854.264	50.06	74.0	23.94	Peak	43.00	200	Vertical	Pass
3**	4854.264	39.27	54.0	14.73	AV	43.00	200	Vertical	Pass
4	6610.002	51.58	74.0	22.42	Peak	304.00	300	Vertical	Pass
4**	6610.002	43.36	54.0	10.64	AV	304.00	300	Vertical	Pass
5	13434.734	54.14	74.0	19.86	Peak	256.00	200	Vertical	Pass
5**	13434.734	49.28	54.0	4.72	AV	256.00	200	Vertical	Pass
6	17419.357	57.29	74.0	16.71	Peak	279.00	400	Vertical	Pass
6**	17419.357	44.46	54.0	9.54	AV	279.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.924	41.83	74.0	32.17	Peak	110.00	300	Horizontal	Pass
1**	1332.924	35.56	54.0	18.44	AV	110.00	300	Horizontal	Pass
2	2997.499	51.32	74.0	22.68	Peak	273.00	300	Horizontal	Pass
2**	2997.499	43.98	54.0	10.02	AV	273.00	300	Horizontal	Pass
3	4934.482	49.60	74.0	24.40	Peak	35.00	200	Horizontal	Pass
3**	4934.482	44.29	54.0	9.71	AV	35.00	200	Horizontal	Pass
4	6808.526	55.50	74.0	18.50	Peak	208.00	100	Horizontal	Pass
4**	6808.526	44.58	54.0	9.42	AV	208.00	100	Horizontal	Pass
5	13413.646	57.46	74.0	16.54	Peak	180.00	100	Horizontal	Pass
5**	13413.646	44.00	54.0	10.00	AV	180.00	100	Horizontal	Pass
6	17429.015	54.66	74.0	19.34	Peak	29.00	100	Horizontal	Pass
6**	17429.015	46.85	54.0	7.15	AV	29.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.652	48.09	74.0	25.91	Peak	283.00	400	Vertical	Pass
1**	1332.652	37.68	54.0	16.32	AV	283.00	400	Vertical	Pass
2	2978.831	51.96	74.0	22.04	Peak	46.00	200	Vertical	Pass
2**	2978.831	44.70	54.0	9.30	AV	46.00	200	Vertical	Pass
3	4851.215	49.20	74.0	24.80	Peak	177.00	200	Vertical	Pass
3**	4851.215	39.70	54.0	14.30	AV	177.00	200	Vertical	Pass
4	6611.047	52.67	74.0	21.33	Peak	111.00	300	Vertical	Pass
4**	6611.047	44.15	54.0	9.85	AV	111.00	300	Vertical	Pass
5	13438.401	57.09	74.0	16.91	Peak	249.00	300	Vertical	Pass
5**	13438.401	49.39	54.0	4.61	AV	249.00	300	Vertical	Pass
6	17415.405	55.65	74.0	18.35	Peak	73.00	200	Vertical	Pass
6**	17415.405	47.29	54.0	6.71	AV	73.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11ax20(SU) Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1327.657	42.60	74.0	31.40	Peak	241.00	200	Horizontal	Pass
1**	1327.657	39.28	54.0	14.72	AV	241.00	200	Horizontal	Pass
2	2994.230	48.55	74.0	25.45	Peak	164.00	300	Horizontal	Pass
2**	2994.230	43.07	54.0	10.93	AV	164.00	300	Horizontal	Pass
3	4932.493	49.80	74.0	24.20	Peak	85.00	200	Horizontal	Pass
3**	4932.493	43.02	54.0	10.98	AV	85.00	200	Horizontal	Pass
4	6803.990	54.67	74.0	19.33	Peak	263.00	400	Horizontal	Pass
4**	6803.990	43.73	54.0	10.27	AV	263.00	400	Horizontal	Pass
5	13409.466	57.30	74.0	16.70	Peak	278.00	400	Horizontal	Pass
5**	13409.466	44.40	54.0	9.60	AV	278.00	400	Horizontal	Pass
6	17425.993	54.13	74.0	19.87	Peak	55.00	300	Horizontal	Pass
6**	17425.993	45.09	54.0	8.91	AV	55.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V802.11ax20(SU) Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.007	43.41	74.0	30.59	Peak	254.00	400	Vertical	Pass
1**	1332.007	37.56	54.0	16.44	AV	254.00	400	Vertical	Pass
2	2983.009	47.47	74.0	26.53	Peak	26.00	400	Vertical	Pass
2**	2983.009	39.26	54.0	14.74	AV	26.00	400	Vertical	Pass
3	4852.231	46.57	74.0	27.43	Peak	233.00	200	Vertical	Pass
3**	4852.231	43.34	54.0	10.66	AV	233.00	200	Vertical	Pass
4	6605.550	56.26	74.0	17.74	Peak	209.00	300	Vertical	Pass
4**	6605.550	48.01	54.0	5.99	AV	209.00	300	Vertical	Pass
5	13436.916	52.99	74.0	21.01	Peak	145.00	200	Vertical	Pass
5**	13436.916	45.08	54.0	8.92	AV	145.00	200	Vertical	Pass
6	17418.585	58.20	74.0	15.80	Peak	52.00	200	Vertical	Pass
6**	17418.585	47.72	54.0	6.28	AV	52.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11ax20(SU) Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1327.980	44.54	74.0	29.46	Peak	282.00	100	Horizontal	Pass
1**	1327.980	38.88	54.0	15.12	AV	282.00	100	Horizontal	Pass
2	2999.436	48.82	74.0	25.18	Peak	293.00	200	Horizontal	Pass
2**	2999.436	43.58	54.0	10.42	AV	293.00	200	Horizontal	Pass
3	4932.732	52.82	74.0	21.18	Peak	62.00	200	Horizontal	Pass
3**	4932.732	43.27	54.0	10.73	AV	62.00	200	Horizontal	Pass
4	6805.487	53.06	74.0	20.94	Peak	55.00	300	Horizontal	Pass
4**	6805.487	42.55	54.0	11.45	AV	55.00	300	Horizontal	Pass
5	13415.062	54.84	74.0	19.16	Peak	257.00	400	Horizontal	Pass
5**	13415.062	49.23	54.0	4.77	AV	257.00	400	Horizontal	Pass
6	17425.994	57.51	74.0	16.49	Peak	294.00	200	Horizontal	Pass
6**	17425.994	49.88	54.0	4.12	AV	294.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11ax20(SU) Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.018	45.84	74.0	28.16	Peak	196.00	100	Vertical	Pass
1**	1332.018	36.19	54.0	17.81	AV	196.00	100	Vertical	Pass
2	2981.805	49.36	74.0	24.64	Peak	79.00	300	Vertical	Pass
2**	2981.805	41.42	54.0	12.58	AV	79.00	300	Vertical	Pass
3	4855.581	47.18	74.0	26.82	Peak	302.00	200	Vertical	Pass
3**	4855.581	41.14	54.0	12.86	AV	302.00	200	Vertical	Pass
4	6604.834	56.45	74.0	17.55	Peak	175.00	300	Vertical	Pass
4**	6604.834	42.30	54.0	11.70	AV	175.00	300	Vertical	Pass
5	13432.533	53.98	74.0	20.02	Peak	338.00	100	Vertical	Pass
5**	13432.533	43.39	54.0	10.61	AV	338.00	100	Vertical	Pass
6	17414.422	56.02	74.0	17.98	Peak	302.00	200	Vertical	Pass
6**	17414.422	44.48	54.0	9.52	AV	302.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H802.11ax20(SU) High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.040	42.72	74.0	31.28	Peak	17.00	300	Horizontal	Pass
1**	1329.040	34.46	54.0	19.54	AV	17.00	300	Horizontal	Pass
2	2996.961	50.42	74.0	23.58	Peak	160.00	100	Horizontal	Pass
2**	2996.961	39.91	54.0	14.09	AV	160.00	100	Horizontal	Pass
3	4938.346	54.09	74.0	19.91	Peak	121.00	200	Horizontal	Pass
3**	4938.346	43.65	54.0	10.35	AV	121.00	200	Horizontal	Pass
4	6804.329	57.10	74.0	16.90	Peak	352.00	300	Horizontal	Pass
4**	6804.329	44.98	54.0	9.02	AV	352.00	300	Horizontal	Pass
5	13414.414	54.00	74.0	20.00	Peak	240.00	400	Horizontal	Pass
5**	13414.414	45.25	54.0	8.75	AV	240.00	400	Horizontal	Pass
6	17425.535	53.50	74.0	20.50	Peak	186.00	100	Horizontal	Pass
6**	17425.535	45.74	54.0	8.26	AV	186.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11ax20(SU) High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.415	42.38	74.0	31.62	Peak	260.00	400	Vertical	Pass
1**	1330.415	37.86	54.0	16.14	AV	260.00	400	Vertical	Pass
2	2978.656	47.58	74.0	26.42	Peak	3.00	100	Vertical	Pass
2**	2978.656	41.57	54.0	12.43	AV	3.00	100	Vertical	Pass
3	4850.892	49.10	74.0	24.90	Peak	82.00	200	Vertical	Pass
3**	4850.892	37.75	54.0	16.25	AV	82.00	200	Vertical	Pass
4	6603.836	55.44	74.0	18.56	Peak	232.00	300	Vertical	Pass
4**	6603.836	47.14	54.0	6.86	AV	232.00	300	Vertical	Pass
5	13432.401	54.26	74.0	19.74	Peak	218.00	100	Vertical	Pass
5**	13432.401	49.35	54.0	4.65	AV	218.00	100	Vertical	Pass
6	17420.770	56.98	74.0	17.02	Peak	336.00	200	Vertical	Pass
6**	17420.770	45.02	54.0	8.98	AV	336.00	200	Vertical	Pass

A.7 Band Edge (Restricted-band band-edge)

Note ¹: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Note ²: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

Note ³: According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note ⁴: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note ⁵: All antenna were pre tested, but only the worst case has been reported in this report.

Test Data**SISO-Antenna 1****802.11b LOW CHANNEL**

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2384.504	58.14	74.0	15.86	Peak	281.00	300	Horizontal	Pass
1**	2384.504	46.58	54.0	7.42	AV	281.00	300	Horizontal	Pass
2	2390.000	57	74.0	17.00	Peak	28.00	100	Horizontal	Pass
2**	2390.000	44.85	54.0	9.15	AV	28.00	100	Horizontal	Pass

802.11b HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	55.5	74.0	18.50	Peak	318.00	300	Horizontal	Pass
1**	2483.500	46.65	54.0	7.35	AV	318.00	300	Horizontal	Pass
2	2486.938	56.6	74.0	17.40	Peak	1.00	200	Horizontal	Pass
2**	2486.938	44.54	54.0	9.46	AV	1.00	200	Horizontal	Pass

802.11g LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2383.464	56.25	74.0	17.75	Peak	247.00	200	Horizontal	Pass
1**	2383.464	46.17	54.0	7.83	AV	247.00	200	Horizontal	Pass
2	2390.000	54.48	74.0	19.52	Peak	195.00	300	Horizontal	Pass
2**	2390.000	46.17	54.0	7.83	AV	195.00	300	Horizontal	Pass

802.11g HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	55.69	74.0	18.31	Peak	69.00	300	Horizontal	Pass
1**	2483.500	46.1	54.0	7.90	AV	69.00	300	Horizontal	Pass
2	2488.874	59.8	74.0	14.20	Peak	106.00	100	Horizontal	Pass
2**	2488.874	44.11	54.0	9.89	AV	106.00	100	Horizontal	Pass

802.11n20 LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2385.757	59.89	74.0	14.11	Peak	170.00	300	Horizontal	Pass
1**	2385.757	46.03	54.0	7.97	AV	170.00	300	Horizontal	Pass
2	2390.000	54.99	74.0	19.01	Peak	341.00	100	Horizontal	Pass
2**	2390.000	46.47	54.0	7.53	AV	341.00	100	Horizontal	Pass

802.11n20 HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	57.26	74.0	16.74	Peak	219.00	100	Horizontal	Pass
1**	2483.500	46.96	54.0	7.04	AV	219.00	100	Horizontal	Pass
2	2486.010	56.69	74.0	17.31	Peak	137.00	100	Horizontal	Pass
2**	2486.010	47.27	54.0	6.73	AV	137.00	100	Horizontal	Pass

802.11ax20(SU) LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2383.700	58.78	74.0	15.22	Peak	185.00	300	Horizontal	Pass
1**	2383.700	48.07	54.0	5.93	AV	185.00	300	Horizontal	Pass
2	2390.000	56.17	74.0	17.83	Peak	294.00	100	Horizontal	Pass
2**	2390.000	47	54.0	7.00	AV	294.00	100	Horizontal	Pass

802.11ax20(SU) HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	57.44	74.0	16.56	Peak	243.00	200	Horizontal	Pass
1**	2483.500	47.96	54.0	6.04	AV	243.00	200	Horizontal	Pass
2	2487.701	56.43	74.0	17.57	Peak	221.00	200	Horizontal	Pass
2**	2487.701	46.35	54.0	7.65	AV	221.00	200	Horizontal	Pass

A.8 Power Spectral Density (PSD)

Note¹: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note²: All antenna were pre tested, but only the worst case has been reported in this report.

Test Data

SISO-Antenna 1

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-5.10	8
Middle	-5.50	8
High	-4.90	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-7.80	8
Middle	-8.99	8
High	-8.19	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-6.30	8
Middle	-7.56	8
High	-7.07	8

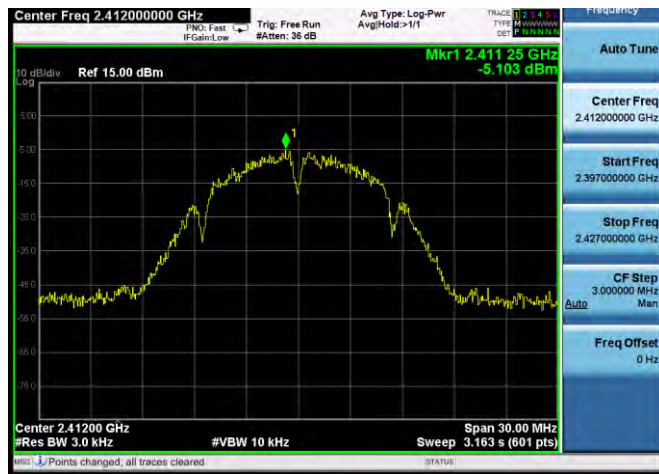
802.11ax-20 MHz(SU) Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-7.03	8
Middle	-6.72	8
High	-6.77	8

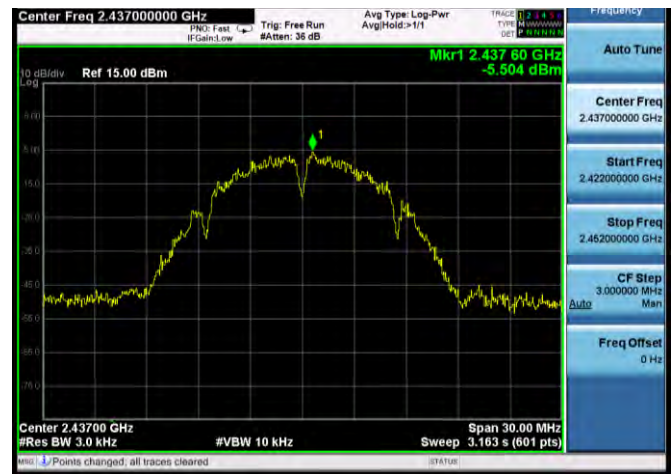
Test Plots

SISO-Antenna 1

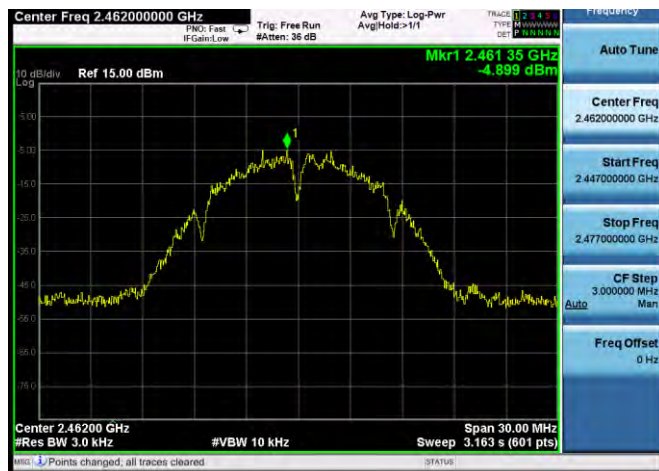
802.11b LOW CHANNEL



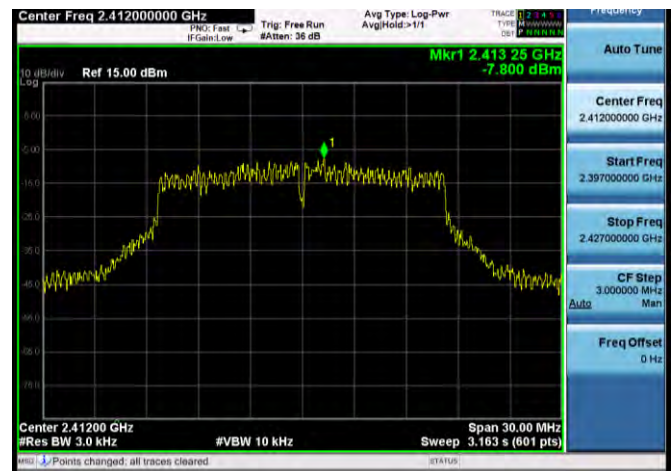
802.11b MIDDLE CHANNEL



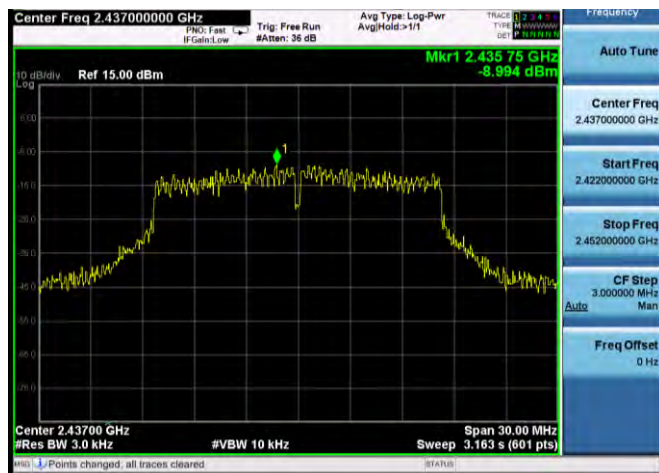
802.11b HIGH CHANNEL



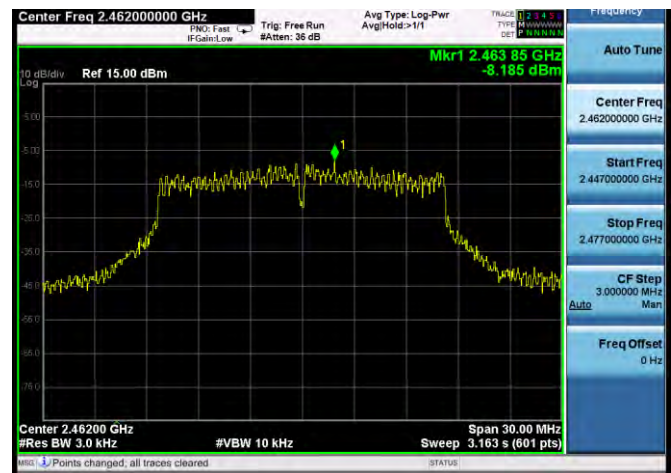
802.11g LOW CHANNEL



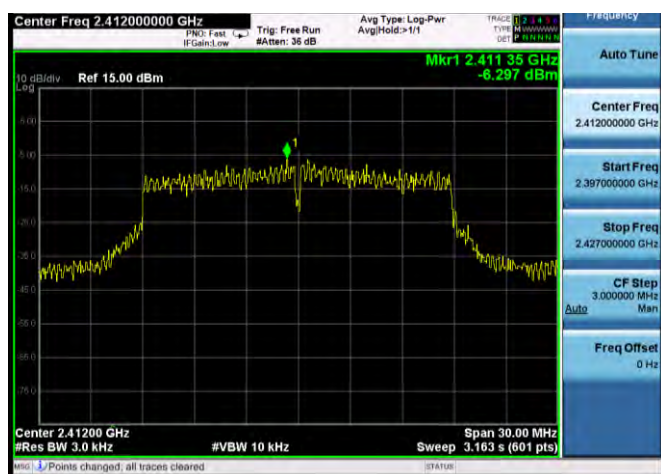
802.11g MIDDLE CHANNEL



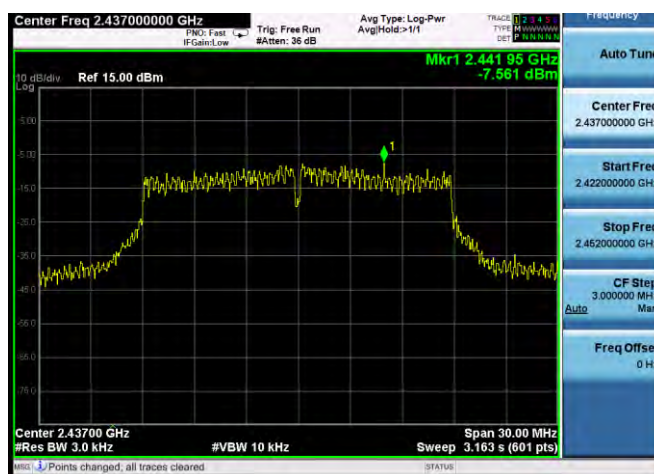
802.11g HIGH CHANNEL



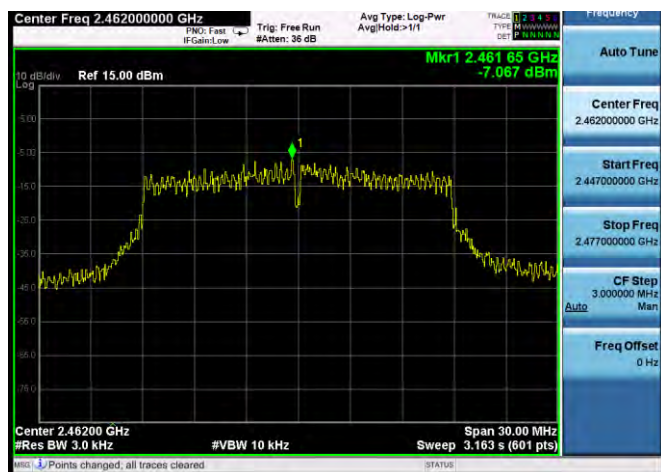
802.11n-20 MHz LOW CHANNEL



802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL



802.11ax-20 MHz(SU) HIGH CHANNEL



ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2510988-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2510988-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2510988-AI.PDF”.

Statement

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--END OF REPORT--