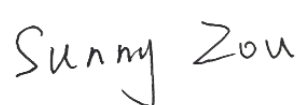


TEST REPORT

Applicant: MeiG Smart Technology Co., Ltd
Address: 2nd Floor, Office Building, No.5 Lingxia Road,
Fenghuang, Fuyong Street, Bao'an District,
Shenzhen City. China
Equipment Type: Smart Module
Model Name: SNM970
Brand Name: MEIGLink
FCC ID: 2APJ4-SNM970
ISED Number: 23860-SNM970
Test Standard: 47 CFR Part 15 Subpart C
RSS-Gen Issue 5
RSS-247 Issue 3
(refer to section 3.1)
Sample Arrival Date: Jun. 27, 2025
Test Date: Jul. 04, 2025 - Jul. 14, 2025
Date of Issue: Aug. 27, 2025

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Yang Wenxuan**Checked by:** Ye Hongji**Approved by:** Sunny Zou
(Technical Director)

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Aug. 27, 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. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	MeiG Smart Technology Co., Ltd
Address	2nd Floor, Office Building, No.5 Lingxia Road, Fenghuang, Fuyong Street, Bao'an District, Shenzhen City. China

2.2 Manufacturer Information

Manufacturer	MeiG Smart Technology Co., Ltd
Address	2nd Floor, Office Building, No.5 Lingxia Road, Fenghuang, Fuyong Street, Bao'an District, Shenzhen City. China

2.3 General Description for Equipment under Test (EUT)

EUT Name	Smart Module
Model Name Under Test	SNM970
Series Model Name	N/A
Description of Model name differentiation	N/A
Serial Number	M97016AAYD122500030
Hardware Version	V1.03
Software Version	V01_T17
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE) WIFI 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac, 802.11ax and 802.11be
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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(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. 802.11n(40 MHz): 2.422 GHz - 2.452 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 3 to 9.	
Modulation Technology	DSSS, OFDM	
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	
Categorization as Correlated or Completely Uncorrelated	Categorization as Correlated for 802.11b/g Categorization as Uncorrelated for 802.11n	
Antenna Type	ANT0 ANT1	Dipole Antenna
Antenna Gain	ANT0 ANT1	3.95 dBi
Total directional gain	For power spectral density (PSD) measurements	Correlated: 6.96 dBi Formulas: Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi Uncorrelated: 3.95 dBi Formulas: Directional gain = G_{ANT}
	For power measurements	Correlated: 6.96 dBi Formulas: Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi Uncorrelated: 3.95 dBi Formulas: Directional gain = G_{ANT}
	For Conducted Out-of-Band and Spurious	Correlated: 6.96 dBi Formulas: Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi Uncorrelated: 3.95 dBi

	Measurements	Formulas: Directional gain = G_{ANT}
About the Product	Only the WIFI 802.11b, 802.11g and 802.11n (HT20/40) was tested in this report.	

Mode	Antenna		
	ANT0	ANT1	MIMO
802.11b	√	√	√
802.11g	√	√	√
802.11n20	√	√	√
802.11n40	√	√	√
Note: All the configurations were tested, but only the worst data was shown in this report.			

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
OFDM (802.11n-40 MHz)	BPSK	13.5/15
	QPSK	27/40.5/30/45
	16QAM	54/81/60/90
	64QAM	108/121.5/135/120/150

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/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Occupied Bandwidth	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Conducted Spurious Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Conducted Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Radiated Spurious Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Band Edge	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Power spectral density (PSD)	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9

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	RSS-Gen Issue 5	General Requirements for Compliance of Radio Apparatus
3	RSS-247 Issue 3	Digital Transmission Systems (DTSS), Frequency Hopping Systems(FHSS) and Licence-Exempt Local Area Network (LE-LAN) Devices
4	KDB Publication 662911 D01v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)
5	ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
6	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.	ISED Part No.	Test Result	Verdict
1	Antenna Requirement	15.203	RSS-247, 5.4 (f)	N/A	Pass ^{Note 1}
2	Output Power	15.247 (b)	RSS-247, 5.4 (d)	ANNEX A.1	Pass
3	Occupied Bandwidth	15.247 (a)	RSS-GEN, 6.7; RSS-247, 5.2 (a)	ANNEX A.2	Pass
4	Conducted Spurious Emission	15.247 (d)	RSS-247, 5.5	ANNEX A.3	Pass
5	Band Edge(Authorized-band band-edge)	15.247 (d)	RSS-GEN, 8.9; RSS-247, 5.5	ANNEX A.4	Pass
6	Conducted Emission	15.207	RSS-GEN, 8.8	ANNEX A.5	Pass
7	Radiated Spurious Emission	15.209; 15.247 (d)	RSS-247, 5.5	ANNEX A.6	Pass
8	Band Edge(Restricted-band band-edge)	15.209; 15.247 (d)	RSS-247, 5.5	ANNEX A.7	Pass
9	Power spectral density (PSD)	15.247 (e)	RSS-247, 5.2 (b)	ANNEX A.8	Pass
10	Receiver Spurious Emissions	N/A	RSS-Gen, 7.3	N/A	N/A ^{Note 2}

Note ¹: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

Note ²: Only radio communication receivers operating in stand-alone mode within the band 30-960 MHz, as well as scanner receivers, are subject to Industry Canada requirements, so this test is not applicable.

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

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

Relative Humidity	46% to 69%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+20.8℃ to +25.1℃
Working Voltage of the EUT	NV (Normal Voltage)	3.80 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY50330200	2025.04.28	2026.04.27
Power Sensor	KEYSIGHT	U2063XA	MY58000247	2024.07.04	2025.07.03
				2025.06.16	2026.06.15
Spectrum Analyzer	KEYSIGHT	N9020A	MY52510065	2024.08.01	2025.07.31
Signaling Unit	ROHDE&SCHWARZ	CMW500	171150	2025.04.28	2026.04.27
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	2025.04.29	2026.04.28
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℃
Humidity	4%

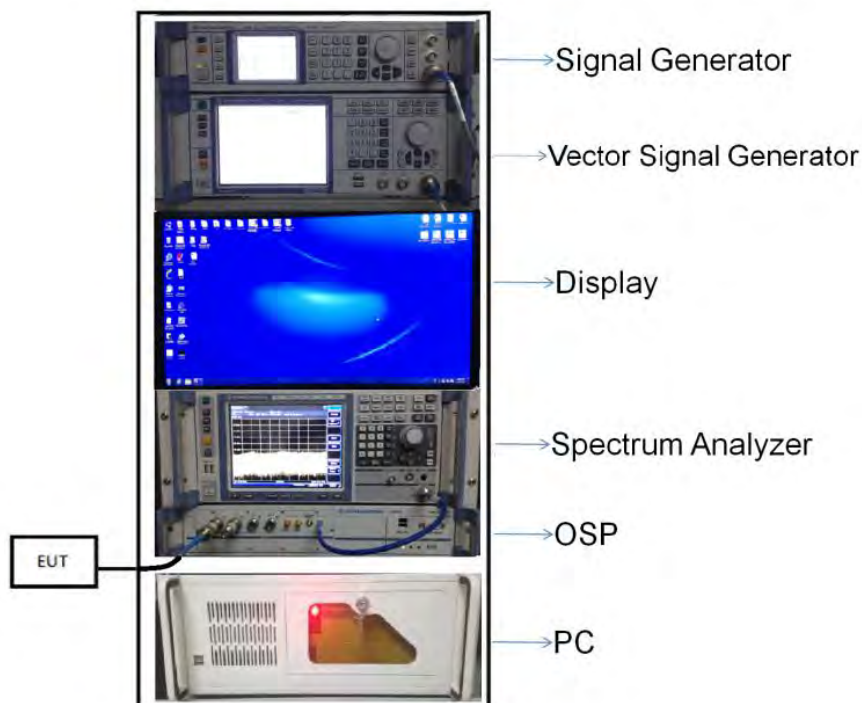
4.5 Description of Test Setup

4.5.1 For Antenna Port Test

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

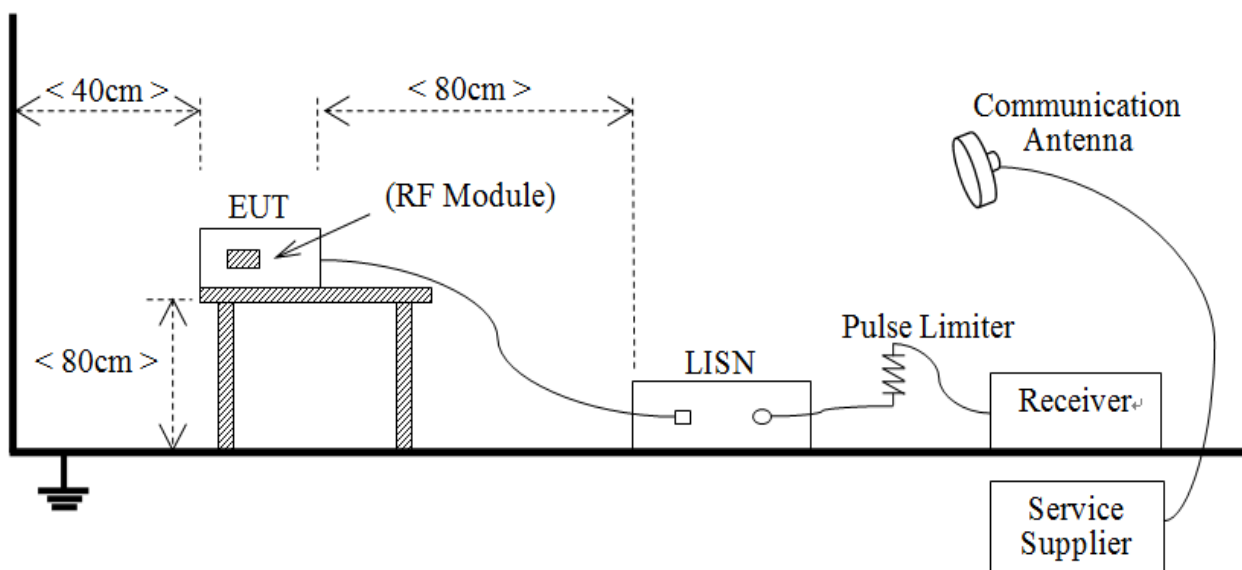
For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:

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



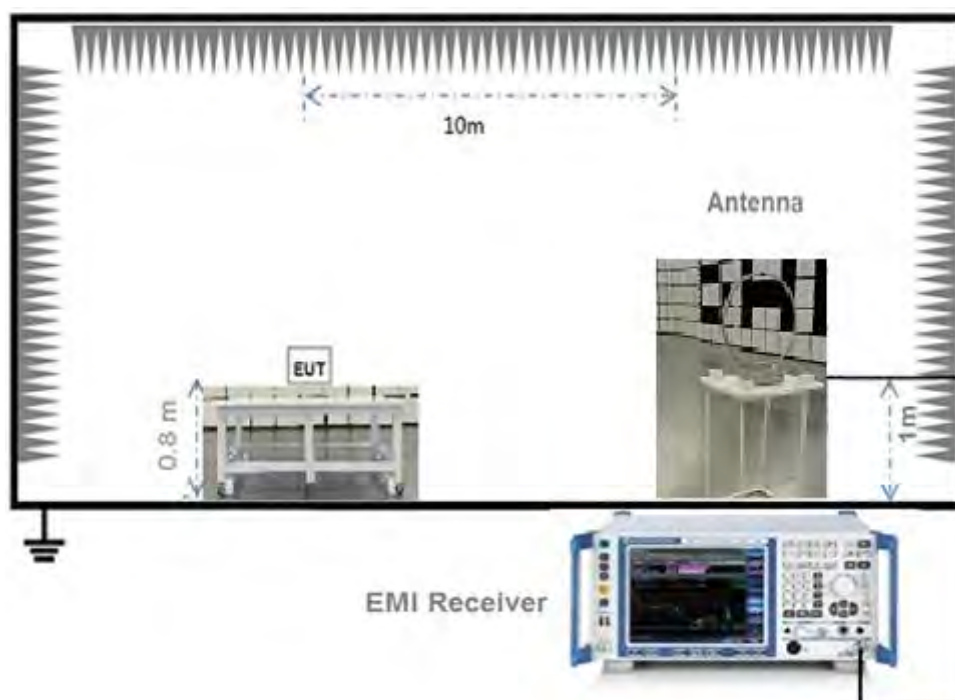
(Diagram 1)

4.5.2 For AC Power Supply Port Test



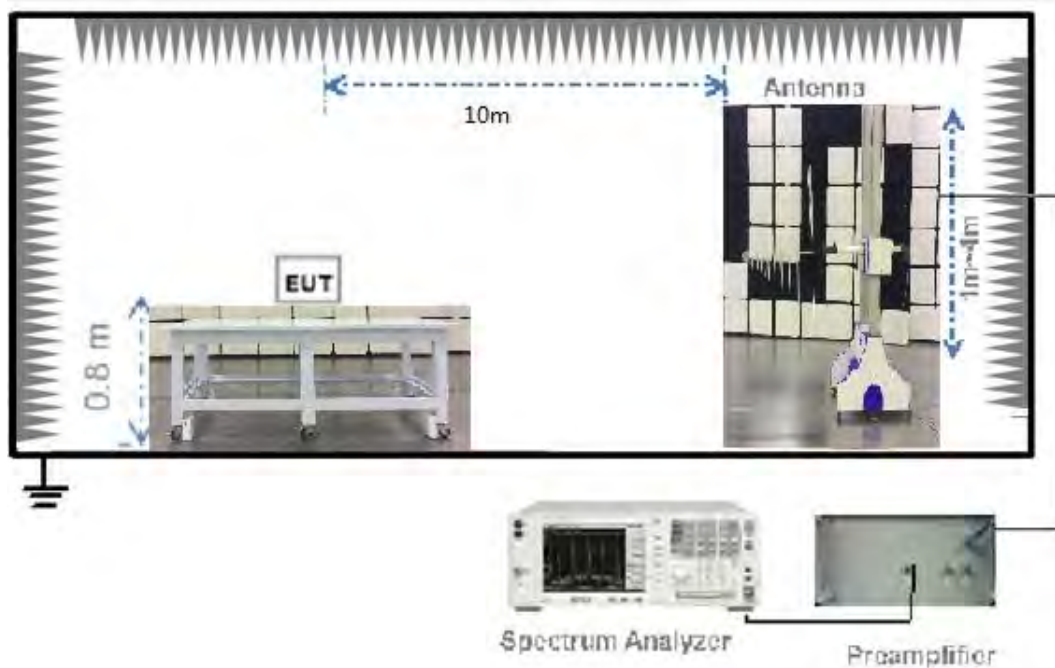
(Diagram 2)

4.5.3 For Radiated Test (Below 30 MHz)



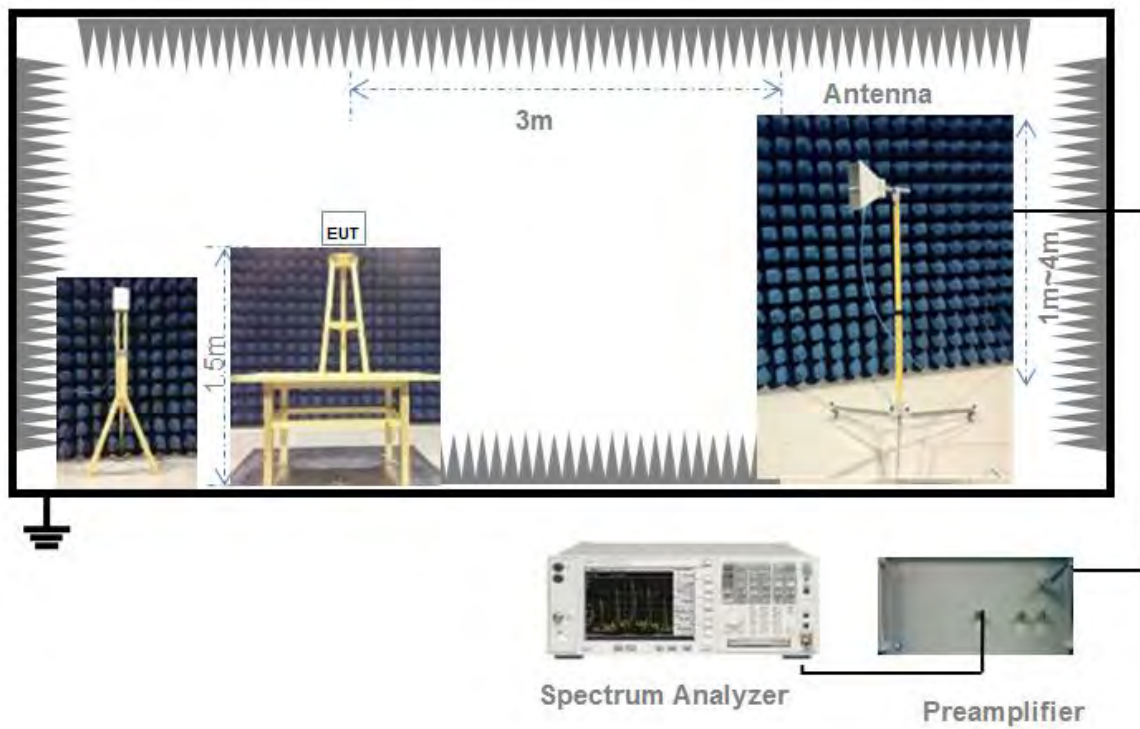
(Diagram 3)

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; RSS-247, 5.4 (f)

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); RSS-247, 5.4 (d)

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.

EIRP= Maximum peak conducted output power +Antenna Gain.

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); RSS-GEN, 6.7; RSS-247, 5.2 (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); RSS-247, 5.5

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); RSS-GEN, 8.9, RSS-247, 5.5

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; RSS-GEN, 8.8

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); RSS-247, 5.5

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); RSS-247, 5.5

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); RSS-247, 5.2 (b)

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

Duty Cycle

Test Mode	On Time (ms)	On+Off time (ms)	Duty Cycle	Duty Factor
802.11b	0.660	0.676	97.63%	0.10
802.11g	2.088	2.112	98.86%	0.05
802.11n-20 MHz	5.295	5.340	99.16%	0.04
802.11n-40 MHz	5.355	5.415	98.89%	0.05

Peak Power Test Data

SISO-ANT0

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	18.80	75.86	30	1000	Pass
Middle	18.97	78.89			Pass
High	18.55	71.61			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	25.55	358.92	30	1000	Pass
Middle	25.78	378.44			Pass
High	25.27	336.51			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	25.90	389.05	30	1000	Pass
Middle	26.14	411.15			Pass
High	25.65	367.28			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	25.88	387.26	30	1000	Pass
Middle	26.19	415.91			Pass
High	25.90	389.05			Pass

SISO-ANT1

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	18.77	75.34	30	1000	Pass
Middle	18.65	73.28			Pass
High	18.44	69.82			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	25.79	379.31	30	1000	Pass
Middle	25.70	371.54			Pass
High	25.61	363.92			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	25.71	372.39	30	1000	Pass
Middle	25.68	369.83			Pass
High	25.60	363.08			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	25.63	365.59	30	1000	Pass
Middle	25.84	383.71			Pass
High	25.84	383.71			Pass

MIMO-ANT0

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.81	30.27	30	1000	Pass
Middle	15.04	31.92			Pass
High	14.61	28.91			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.61	144.88	30	1000	Pass
Middle	21.84	152.76			Pass
High	21.29	134.59			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.92	155.60	30	1000	Pass
Middle	22.19	165.58			Pass
High	21.69	147.57			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.93	155.96	30	1000	Pass
Middle	22.26	168.27			Pass
High	21.98	157.76			Pass

MIMO-ANT1

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.82	30.34	30	1000	Pass
Middle	14.66	29.24			Pass
High	14.45	27.86			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.88	154.17	30	1000	Pass
Middle	21.71	148.25			Pass
High	21.62	145.21			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.78	150.66	30	1000	Pass
Middle	21.70	147.91			Pass
High	21.66	146.55			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.71	148.25	30	1000	Pass
Middle	21.89	154.53			Pass
High	21.88	154.17			Pass

MIMO

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.83	60.61	30	1000	Pass
Middle	17.86	61.16			Pass
High	17.54	56.77			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.76	299.05	30	1000	Pass
Middle	24.79	301.01			Pass
High	24.47	279.80			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.86	306.26	30	1000	Pass
Middle	24.96	313.49			Pass
High	24.69	294.13			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.83	304.21	30	1000	Pass
Middle	25.09	322.79			Pass
High	24.94	311.93			Pass

Average Power Test DataSISO-ANT0

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.81	38.11	30	1000	Pass
Middle	16.03	40.09			Pass
High	15.56	35.97			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.59	57.41	30	1000	Pass
Middle	17.82	60.53			Pass
High	17.30	53.70			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.62	57.81	30	1000	Pass
Middle	17.86	61.09			Pass
High	17.37	54.58			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.56	57.02	30	1000	Pass
Middle	17.88	61.38			Pass
High	17.56	57.02			Pass

SISO-ANT1

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.80	38.02	30	1000	Pass
Middle	15.68	36.98			Pass
High	15.45	35.08			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.45	55.59	30	1000	Pass
Middle	17.38	54.70			Pass
High	17.27	53.33			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.44	55.46	30	1000	Pass
Middle	17.39	54.83			Pass
High	17.30	53.70			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.29	53.58	30	1000	Pass
Middle	17.53	56.62			Pass
High	17.50	56.23			Pass

MIMO-ANT0**802.11b Mode:**

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	11.90	15.49	30	1000	Pass
Middle	12.03	15.96			Pass
High	11.60	14.45			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.63	23.07	30	1000	Pass
Middle	13.89	24.49			Pass
High	13.39	21.83			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.70	23.44	30	1000	Pass
Middle	13.93	24.72			Pass
High	13.43	22.03			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.62	23.01	30	1000	Pass
Middle	13.91	24.60			Pass
High	13.60	22.91			Pass

MIMO-ANT1**802.11b Mode:**

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	11.85	15.31	30	1000	Pass
Middle	11.73	14.89			Pass
High	11.52	14.19			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.55	22.65	30	1000	Pass
Middle	13.47	22.23			Pass
High	13.35	21.63			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.52	22.49	30	1000	Pass
Middle	13.40	21.88			Pass
High	13.35	21.63			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.30	21.38	30	1000	Pass
Middle	13.53	22.54			Pass
High	13.57	22.75			Pass

MIMO

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.89	30.80	30	1000	Pass
Middle	14.89	30.85			Pass
High	14.57	28.64			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.60	45.71	30	1000	Pass
Middle	16.70	46.72			Pass
High	16.38	43.45			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.62	45.93	30	1000	Pass
Middle	16.68	46.59			Pass
High	16.40	43.66			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.47	44.39	30	1000	Pass
Middle	16.73	47.15			Pass
High	16.60	45.66			Pass

E.I.R.P Test Data (For ISED)SISO-ANT0

802.11b Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	22.75	188.36	36	4	Pass
Middle	22.92	195.88			Pass
High	22.50	177.83			Pass

802.11g Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	29.50	891.25	36	4	Pass
Middle	29.73	939.72			Pass
High	29.22	835.60			Pass

802.11n-20 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	29.85	966.05	36	4	Pass
Middle	30.09	1020.94			Pass
High	29.60	912.01			Pass

802.11n-40 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	29.83	961.61	36	4	Pass
Middle	30.14	1032.76			Pass
High	29.85	966.05			Pass

SISO-ANT1

802.11b Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	22.72	187.07	36	4	Pass
Middle	22.60	181.97			Pass
High	22.39	173.38			Pass

802.11g Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	29.74	941.89	36	4	Pass
Middle	29.65	922.57			Pass
High	29.56	903.65			Pass

802.11n-20 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	29.66	924.70	36	4	Pass
Middle	29.63	918.33			Pass
High	29.55	901.57			Pass

802.11n-40 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	29.58	907.82	36	4	Pass
Middle	29.79	952.80			Pass
High	29.79	952.80			Pass

MIMO-ANT0

802.11b Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	18.76	75.16	36	4	Pass
Middle	18.99	79.25			Pass
High	18.56	71.78			Pass

802.11g Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	25.56	359.75	36	4	Pass
Middle	25.79	379.31			Pass
High	25.24	334.20			Pass

802.11n-20 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	25.87	386.37	36	4	Pass
Middle	26.14	411.15			Pass
High	25.64	366.44			Pass

802.11n-40 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	25.88	387.26	36	4	Pass
Middle	26.21	417.83			Pass
High	25.93	391.74			Pass

MIMO-ANT1

802.11b Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	18.77	75.34	36	4	Pass
Middle	18.61	72.61			Pass
High	18.40	69.18			Pass

802.11g Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	25.83	382.82	36	4	Pass
Middle	25.66	368.13			Pass
High	25.57	360.58			Pass

802.11n-20 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	25.73	374.11	36	4	Pass
Middle	25.65	367.28			Pass
High	25.61	363.92			Pass

802.11n-40 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	25.66	368.13	36	4	Pass
Middle	25.84	383.71			Pass
High	25.83	382.82			Pass

MIMO

802.11b Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	21.78	150.66	36	4	Pass
Middle	21.81	151.71			Pass
High	21.49	140.93			Pass

802.11g Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	28.71	743.02	36	4	Pass
Middle	28.74	748.17			Pass
High	28.42	695.02			Pass

802.11n-20 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	28.81	760.33	36	4	Pass
Middle	28.91	778.04			Pass
High	28.64	731.14			Pass

802.11n-40 MHz Mode:

Channel	E.I.R.P		Limit		Verdict
	dBm	mW	dBm	W	
Low	28.78	755.09	36	4	Pass
Middle	29.04	801.68			Pass
High	28.89	774.46			Pass

A.2 Occupied Bandwidth

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

Test Data

SISO-ANT0

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	8.200000	13.165000	≥500
Middle	8.200000	13.209000	≥500
High	8.200000	13.208000	≥500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	16.600000	17.473000	≥500
Middle	16.600000	17.499000	≥500
High	16.600000	17.627000	≥500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	17.800000	18.519000	≥500
Middle	17.800000	18.531000	≥500
High	17.800000	18.568000	≥500

802.11n-40MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	36.600000	36.860000	≥500
Middle	36.600000	36.729000	≥500
High	36.600000	36.786000	≥500

Test Plots

SISO-ANT0

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



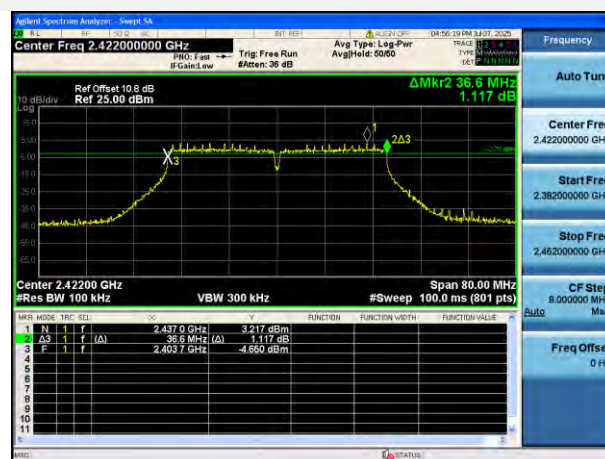
802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



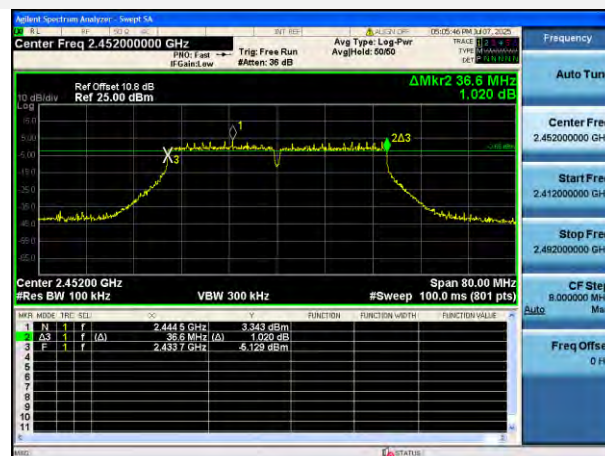
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL

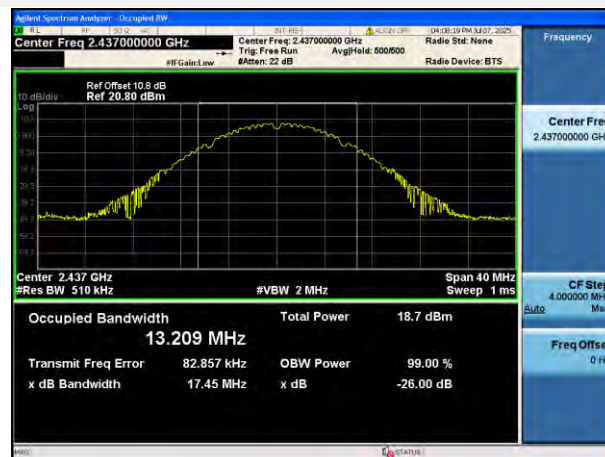


99% Bandwidth

802.11b LOW CHANNEL



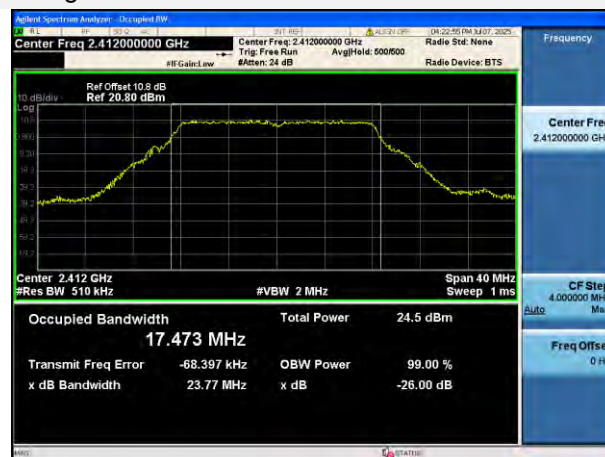
802.11b MIDDLE CHANNEL



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



802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL



A.3 Conducted Spurious Emissions

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

Test Data

SISO-ANT0

802.11b Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-43.76	7.83	-12.17	Pass
Middle	-43.92	8.15	-11.85	Pass
High	-43.05	6.85	-13.15	Pass

802.11g Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-44.97	6.41	-13.59	Pass
Middle	-44.18	6.61	-13.39	Pass
High	-44.58	6.35	-13.65	Pass

802.11n-20MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-44.63	5.62	-14.38	Pass
Middle	-44.84	6.17	-13.83	Pass
High	-44.45	6.25	-13.75	Pass

802.11n-40MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-44.67	3.30	-16.70	Pass
Middle	-43.22	3.31	-16.69	Pass
High	-43.76	3.33	-16.67	Pass

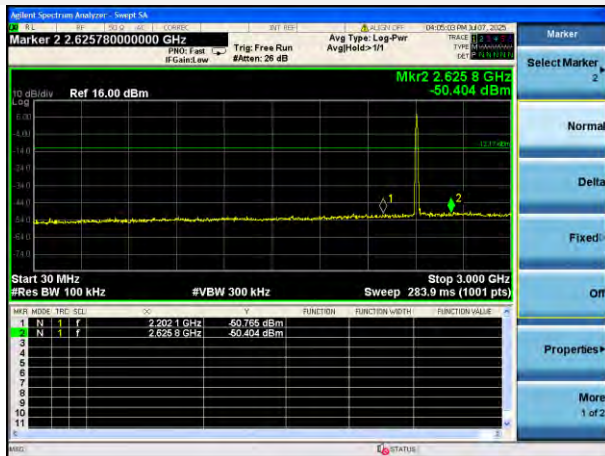
Test Plots

SISO-ANT0

802.11b LOW CHANNEL CARRIER LEVEL



802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



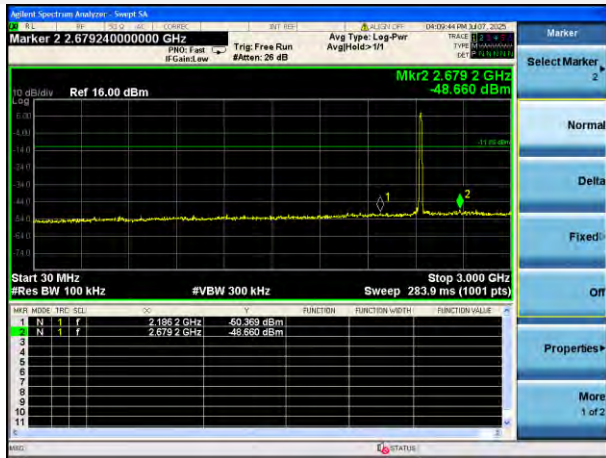
802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11b MIDDLE CHANNEL CARRIER LEVEL



802.11b MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



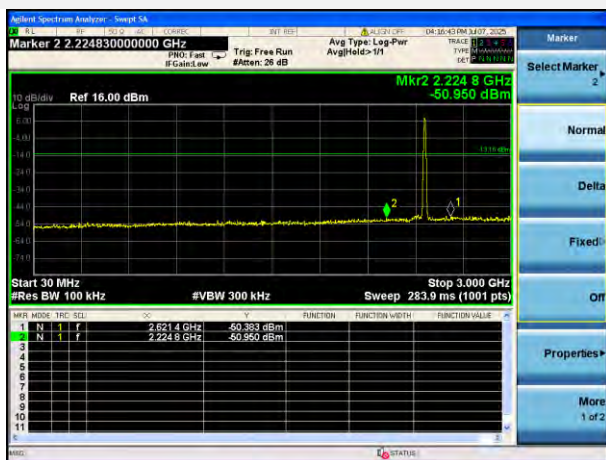
802.11b MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11b HIGH CHANNEL CARRIER LEVEL



802.11b HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



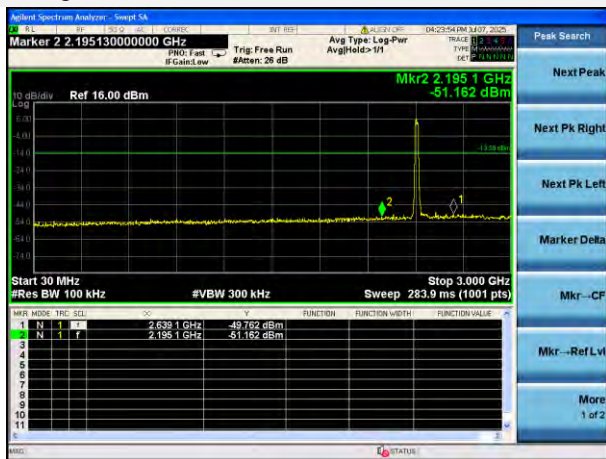
802.11b HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11g LOW CHANNEL CARRIER LEVEL



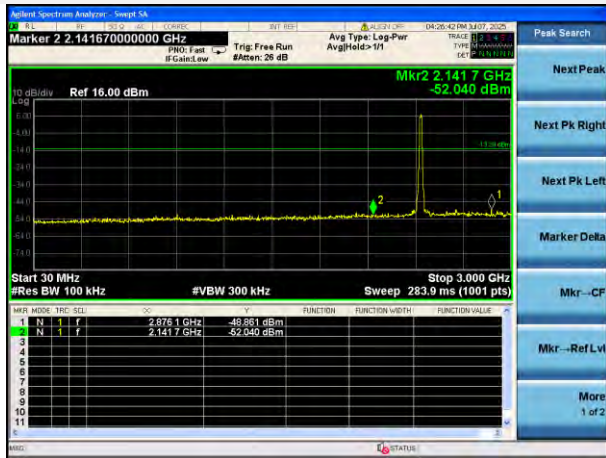
802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz 802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11g MIDDLE CHANNEL CARRIER LEVEL



802.11g MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



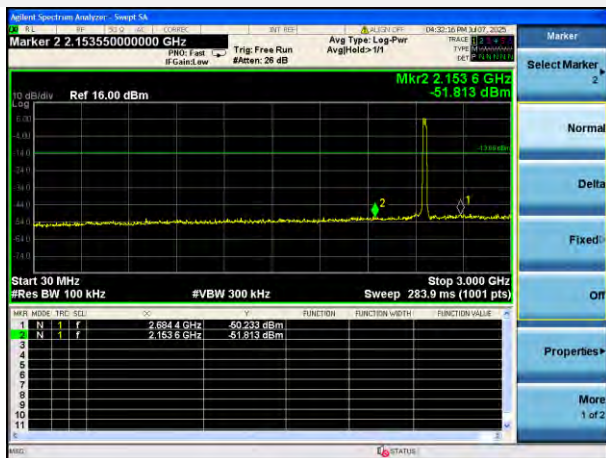
802.11g MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



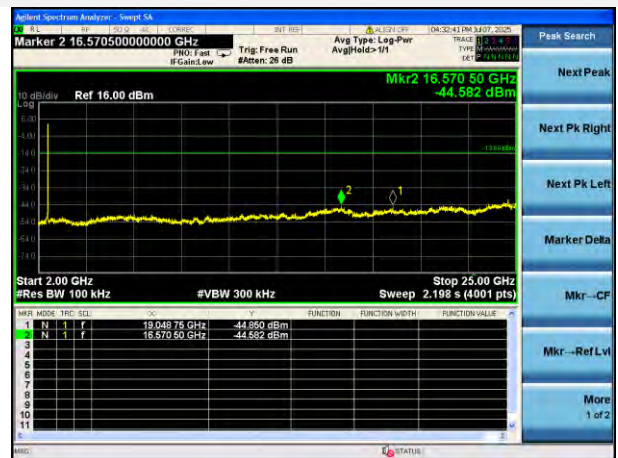
802.11g HIGH CHANNEL CARRIER LEVEL



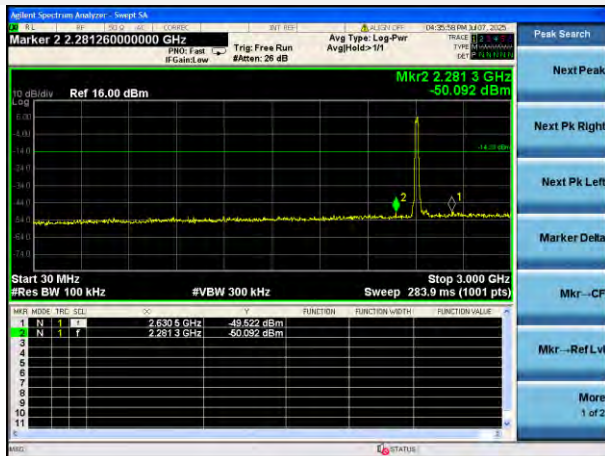
802.11g HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11g HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



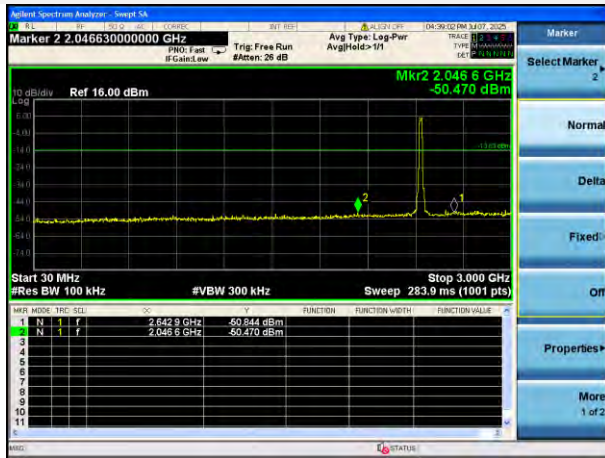
802.11n-20 MHz LOW CHANNEL CARRIER LEVEL

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

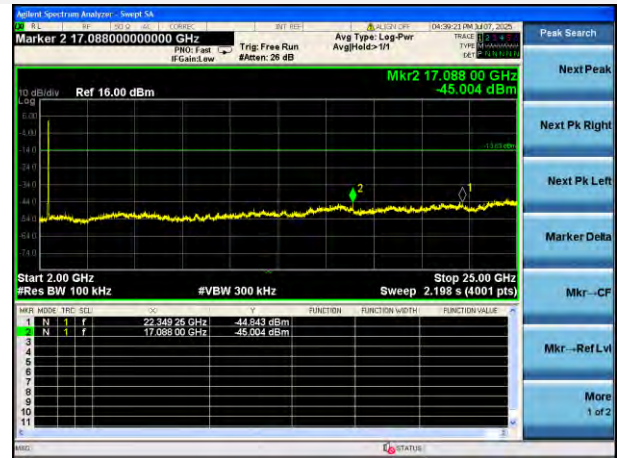
802.11n-20 MHz MIDDLE CHANNEL CARRIER LEVEL



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



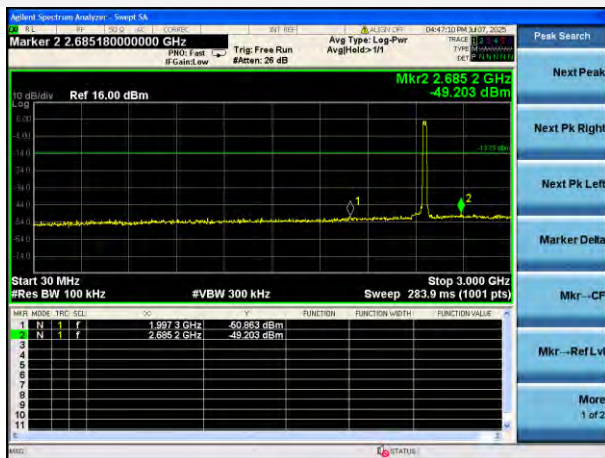
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



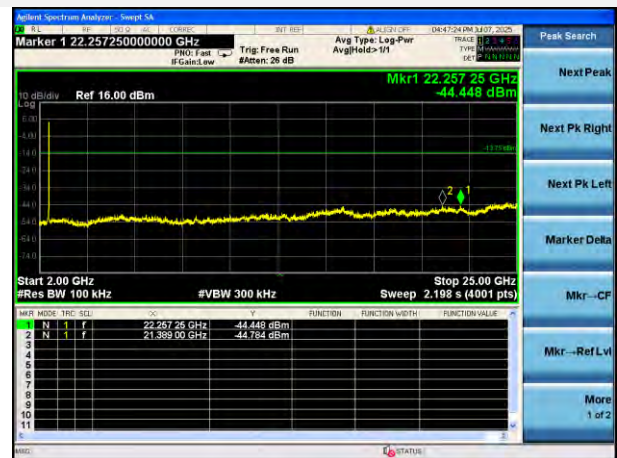
802.11n-20 MHz HIGH CHANNEL CARRIER LEVEL



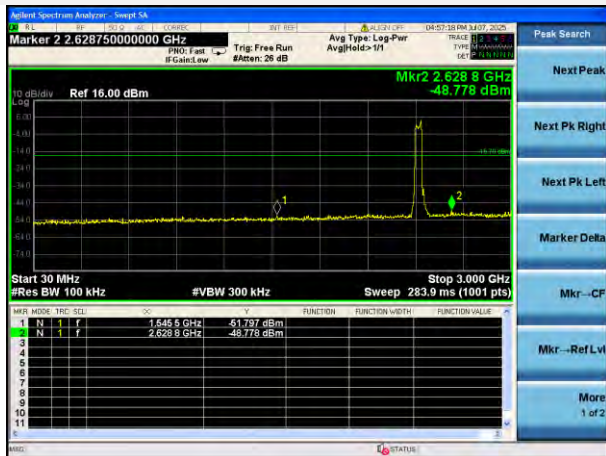
802.11n-20 MHz HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



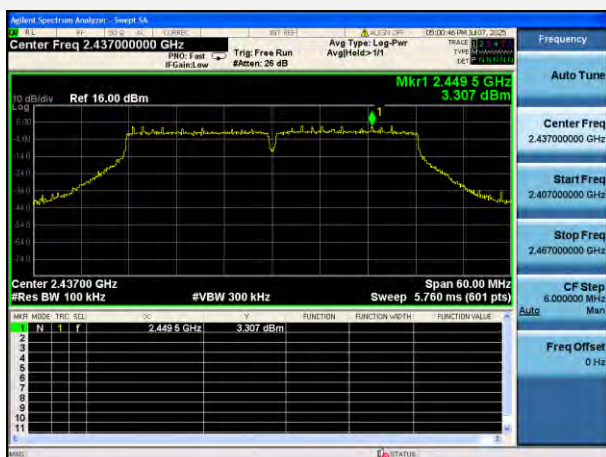
802.11n-20 MHz HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



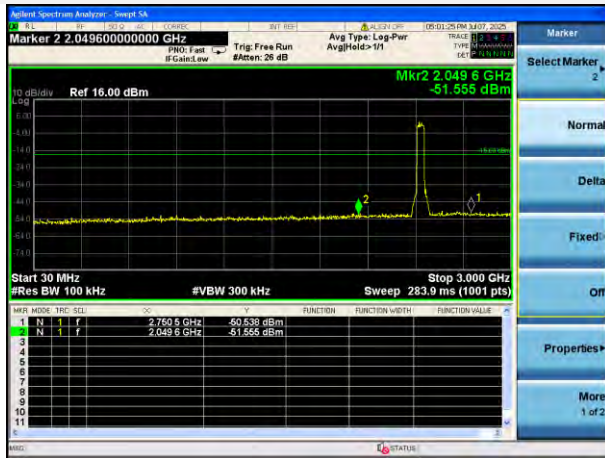
802.11n-40 MHz LOW CHANNEL CARRIER LEVEL

802.11n-40 MHz LOW CHANNEL, SPURIOUS
30 MHz ~ 3 GHz802.11n-40 MHz LOW CHANNEL, SPURIOUS
2 GHz ~ 25 GHz

802.11n-40 MHz MIDDLE CHANNEL CARRIER LEVEL



802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



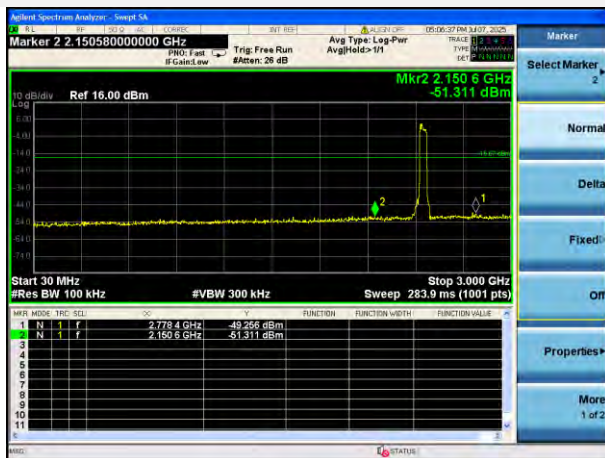
802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



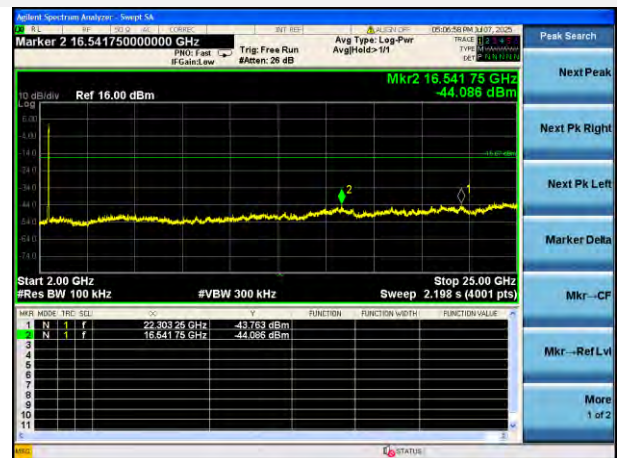
802.11n-40 MHz HIGH CHANNEL CARRIER LEVEL



802.11n-40 MHz HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11n-40 MHz HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



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

Note ¹: The 99% OBW of the fundamental emission is without 2 MHz of the authorized band.

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

Test Data

SISO-ANT0

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-44.97	7.83	-12.17	Pass
High Channel	-49.70	6.85	-13.15	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-29.11	6.41	-13.59	Pass
High Channel	-48.36	6.35	-13.65	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-26.74	5.62	-14.38	Pass
High Channel	-45.65	6.25	-13.75	Pass

802.11n-40 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-26.34	3.30	-16.70	Pass
High Channel	-37.27	3.33	-16.67	Pass

Test Plots

SISO-ANT0

802.11b LOW CHANNEL, CARRIER LEVEL



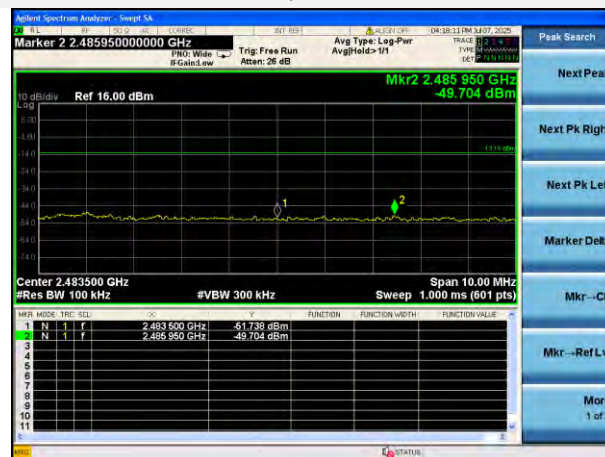
802.11b LOW CHANNEL, BAND EDGE



802.11b HIGH CHANNEL, CARRIER LEVEL



802.11b HIGH CHANNEL, BAND EDGE



802.11g LOW CHANNEL, CARRIER LEVEL



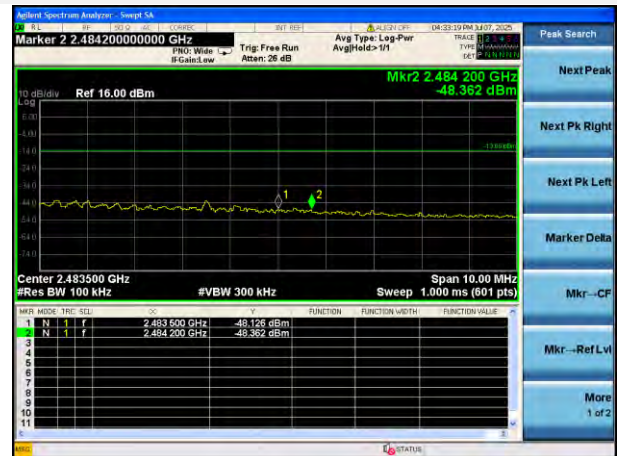
802.11g LOW CHANNEL, BAND EDGE



802.11g HIGH CHANNEL, CARRIER LEVEL



802.11g HIGH CHANNEL, BAND EDGE



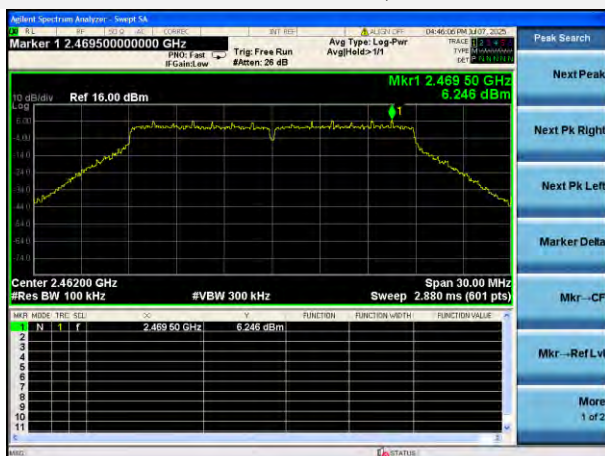
802.11n-20 MHz LOW CHANNEL, CARRIER LEVEL



802.11n-20 MHz LOW CHANNEL, BAND EDGE



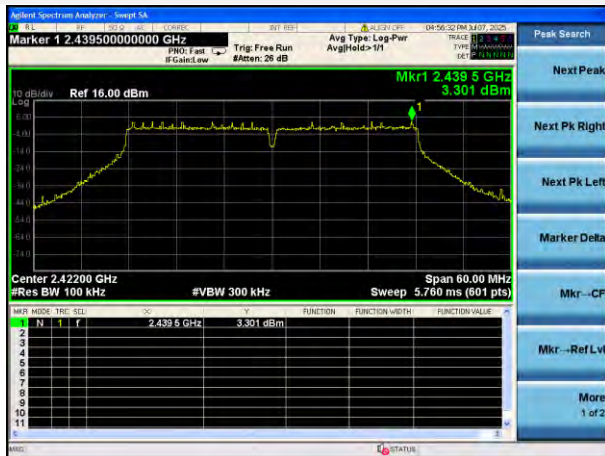
802.11n-20 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-20 MHz HIGH CHANNEL, BAND EDGE



802.11n-40 MHz LOW CHANNEL, CARRIER LEVEL



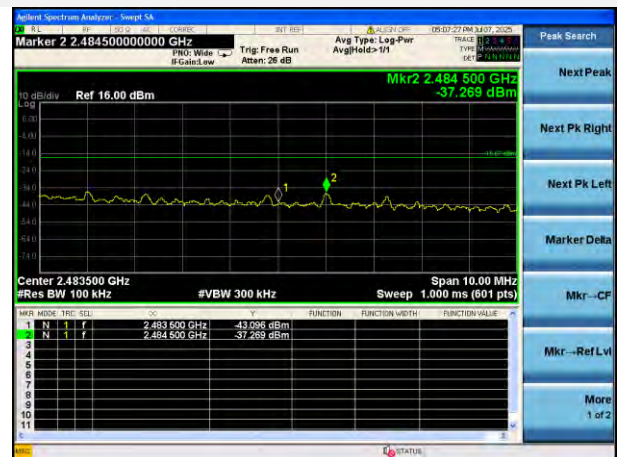
802.11n-40 MHz LOW CHANNEL, BAND EDGE



802.11n-40 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-40 MHz HIGH CHANNEL, BAND EDGE



A.5 Conducted Emissions

Note¹: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.

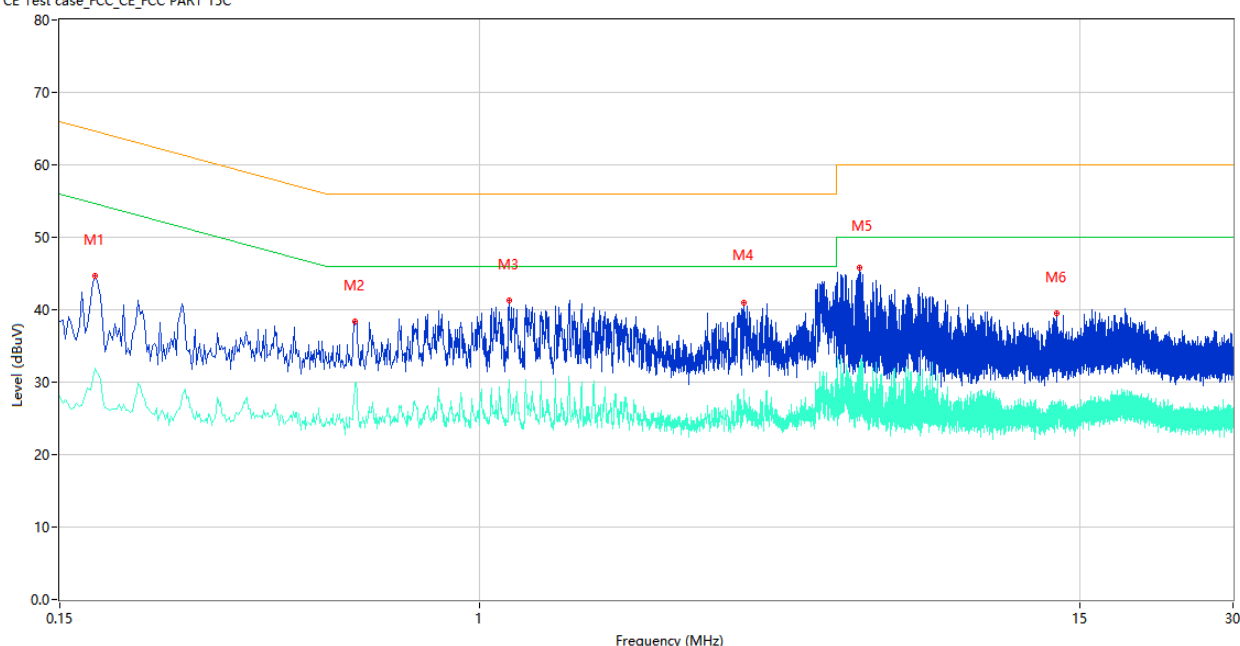
Note²: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Note³: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

PHASE L

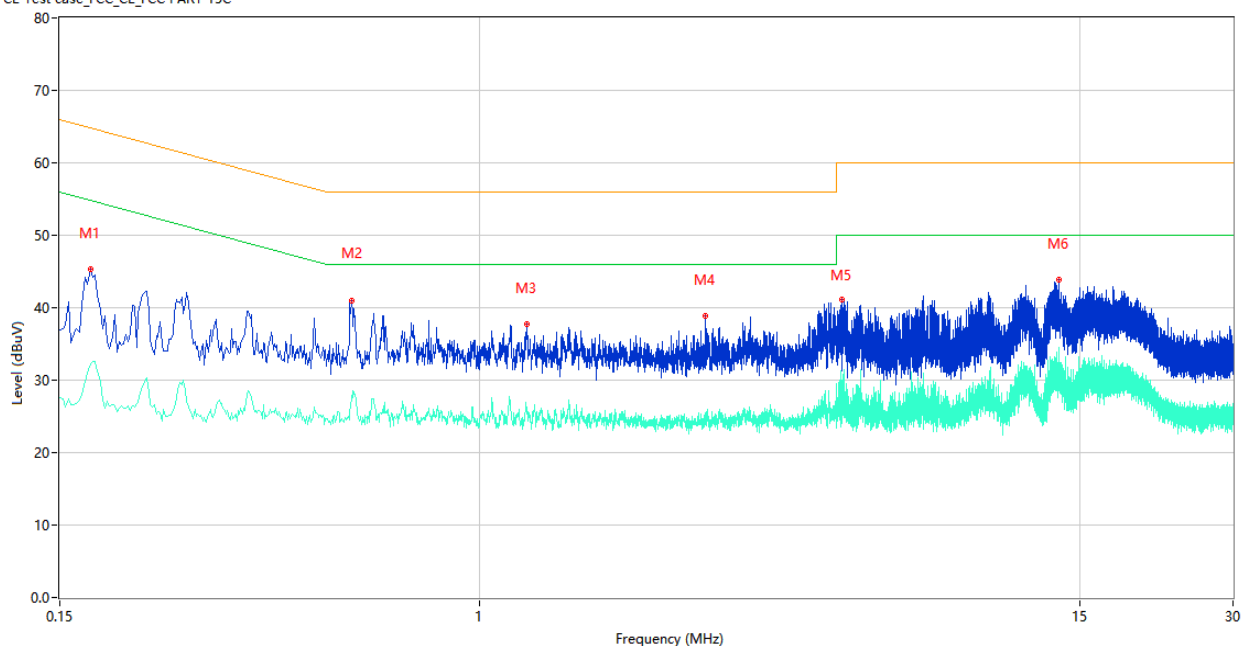
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.176	44.71	9.85	64.67	19.96	Peak	L	Pass
1**	0.176	31.97	9.85	54.67	22.70	AV	L	Pass
2	0.568	38.45	10.14	56.00	17.55	Peak	L	Pass
2**	0.568	29.78	10.14	46.00	16.22	AV	L	Pass
3	1.142	41.31	10.41	56.00	14.69	Peak	L	Pass
3**	1.142	30.32	10.41	46.00	15.68	AV	L	Pass
4	3.298	40.90	10.39	56.00	15.10	Peak	L	Pass
4**	3.298	28.24	10.39	46.00	17.76	AV	L	Pass
5	5.564	45.80	10.52	60.00	14.20	Peak	L	Pass
5**	5.564	32.25	10.52	50.00	17.75	AV	L	Pass
6	13.520	39.49	10.28	60.00	20.51	Peak	L	Pass
6**	13.520	26.27	10.28	50.00	23.73	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	0.172	45.39	9.85	64.86	19.47	Peak	N	Pass
1**	0.172	32.20	9.85	54.86	22.66	AV	N	Pass
2	0.560	41.04	10.11	56.00	14.96	Peak	N	Pass
2**	0.560	27.28	10.11	46.00	18.72	AV	N	Pass
3	1.238	37.73	10.39	56.00	18.27	Peak	N	Pass
3**	1.238	25.78	10.39	46.00	20.22	AV	N	Pass
4	2.764	38.90	10.30	56.00	17.10	Peak	N	Pass
4**	2.764	24.94	10.30	46.00	21.06	AV	N	Pass
5	5.140	41.21	10.24	60.00	18.79	Peak	N	Pass
5**	5.140	28.08	10.24	50.00	21.92	AV	N	Pass
6	13.674	43.79	10.82	60.00	16.21	Peak	N	Pass
6**	13.674	31.31	10.82	50.00	18.69	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.

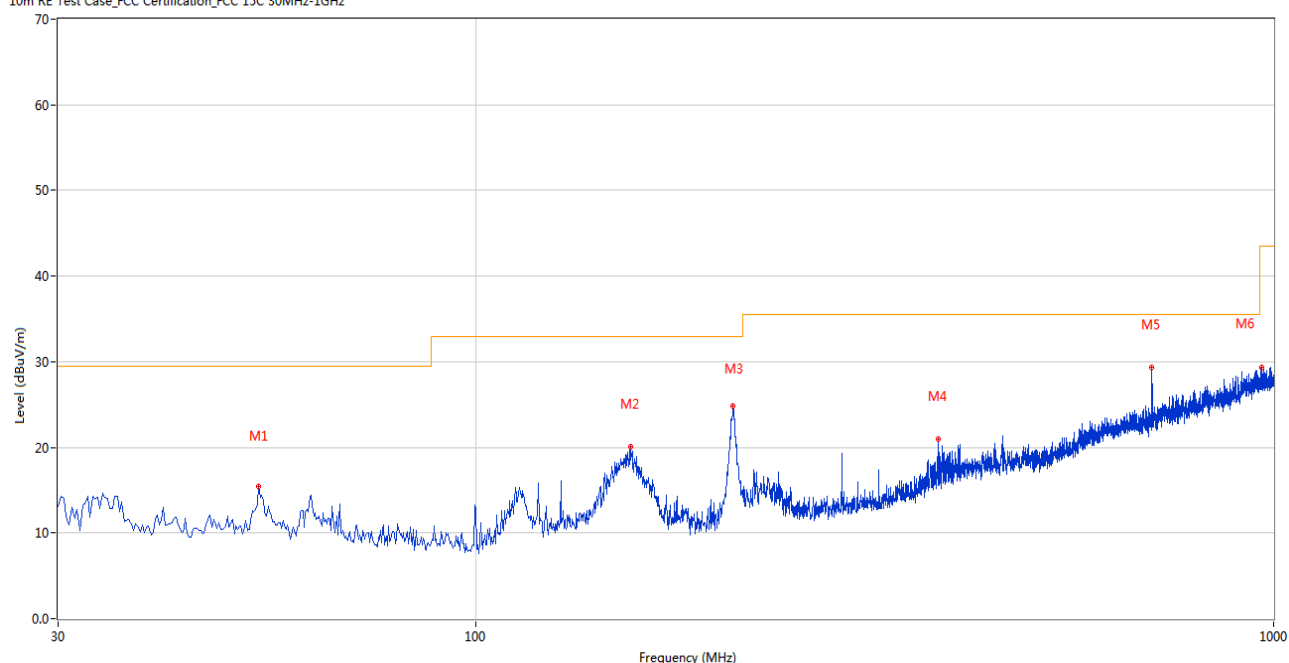
Note³: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

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

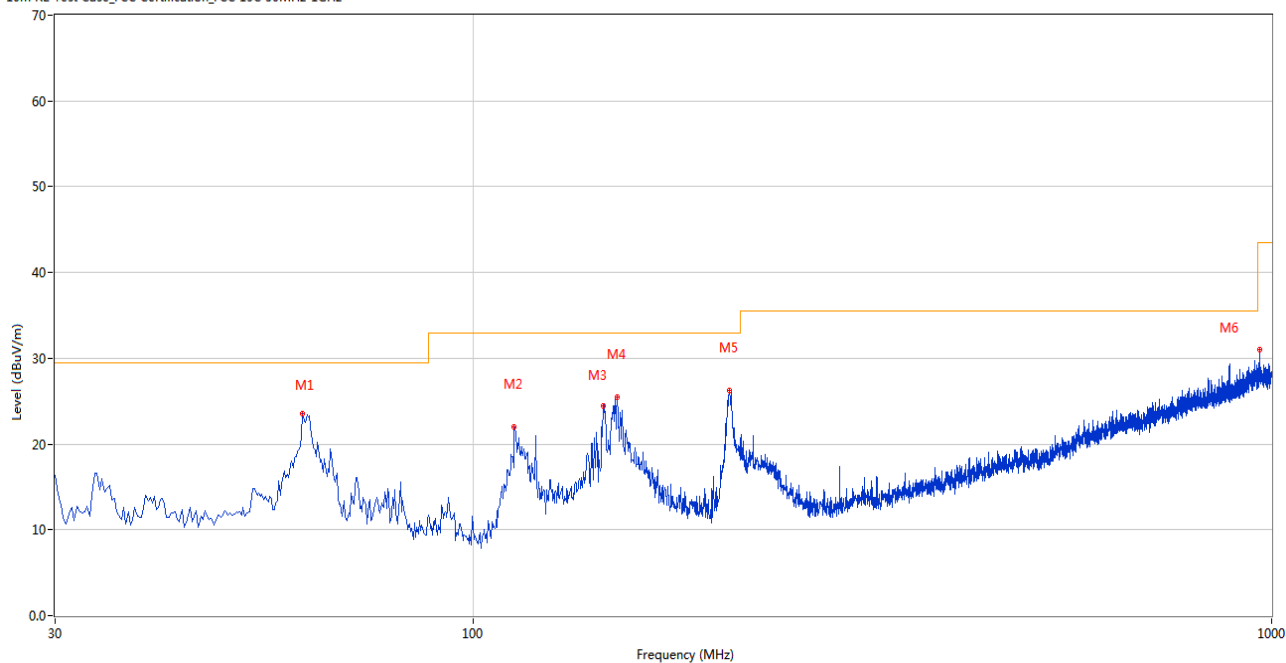
10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	53.517	15.41	-27.05	29.5	14.09	Peak	91.00	100	Horizontal	Pass
2	156.311	20.12	-26.16	33.0	12.88	Peak	275.00	200	Horizontal	Pass
3	210.375	24.82	-29.27	33.0	8.18	Peak	258.00	200	Horizontal	Pass
4	379.840	20.97	-23.46	35.5	14.53	Peak	7.00	200	Horizontal	Pass
5	703.739	29.31	-15.01	35.5	6.19	Peak	270.00	100	Horizontal	Pass
6	966.786	29.40	-9.19	43.5	14.10	Peak	2.00	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	61.275	23.56	-27.61	29.5	5.94	Peak	145.00	200	Vertical	Pass
2	112.672	22.02	-28.74	33.0	10.98	Peak	0.00	200	Vertical	Pass
3	145.644	24.41	-26.36	33.0	8.59	Peak	226.00	100	Vertical	Pass
4	151.705	25.46	-26.22	33.0	7.54	Peak	356.00	100	Vertical	Pass
5	209.648	26.25	-29.32	33.0	6.75	Peak	318.00	100	Vertical	Pass
6	965.089	30.95	-9.17	43.5	12.55	Peak	280.00	100	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 antenna were pre tested, but only the worst case has been reported in this report.

SISO-ANT0

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	1326.809	43.62	74.0	30.38	Peak	358.00	300	Horizontal	Pass
1**	1326.809	34.54	54.0	19.46	AV	358.00	300	Horizontal	Pass
2	2995.752	47.77	74.0	26.23	Peak	27.00	100	Horizontal	Pass
2**	2995.752	41.60	54.0	12.40	AV	27.00	100	Horizontal	Pass
3	4935.982	50.49	74.0	23.51	Peak	29.00	200	Horizontal	Pass
3**	4935.982	43.45	54.0	10.55	AV	29.00	200	Horizontal	Pass
4	6805.300	57.21	74.0	16.79	Peak	190.00	100	Horizontal	Pass
4**	6805.300	46.08	54.0	7.92	AV	190.00	100	Horizontal	Pass
5	13412.698	58.50	74.0	15.50	Peak	204.00	100	Horizontal	Pass
5**	13412.698	47.87	54.0	6.13	AV	204.00	100	Horizontal	Pass
6	17427.826	53.34	74.0	20.66	Peak	262.00	100	Horizontal	Pass
6**	17427.826	46.55	54.0	7.45	AV	262.00	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	1331.889	45.44	74.0	28.56	Peak	125.00	100	Vertical	Pass
1**	1331.889	39.88	54.0	14.12	AV	125.00	100	Vertical	Pass
2	2983.915	50.84	74.0	23.16	Peak	109.00	300	Vertical	Pass
2**	2983.915	44.41	54.0	9.59	AV	109.00	300	Vertical	Pass
3	4855.122	51.68	74.0	22.32	Peak	125.00	200	Vertical	Pass
3**	4855.122	43.53	54.0	10.47	AV	125.00	200	Vertical	Pass
4	6606.561	53.67	74.0	20.33	Peak	231.00	100	Vertical	Pass
4**	6606.561	43.49	54.0	10.51	AV	231.00	100	Vertical	Pass
5	13436.388	57.17	74.0	16.83	Peak	175.00	400	Vertical	Pass
5**	13436.388	45.85	54.0	8.15	AV	175.00	400	Vertical	Pass
6	17415.413	60.00	74.0	14.00	Peak	350.00	100	Vertical	Pass
6**	17415.413	46.85	54.0	7.15	AV	350.00	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	1331.625	43.69	74.0	30.31	Peak	54.00	400	Horizontal	Pass
1**	1331.625	38.91	54.0	15.09	AV	54.00	400	Horizontal	Pass
2	2993.216	50.50	74.0	23.50	Peak	190.00	400	Horizontal	Pass
2**	2993.216	38.63	54.0	15.37	AV	190.00	400	Horizontal	Pass
3	4937.007	51.02	74.0	22.98	Peak	80.00	200	Horizontal	Pass
3**	4937.007	43.40	54.0	10.60	AV	80.00	200	Horizontal	Pass
4	6804.955	56.13	74.0	17.87	Peak	19.00	100	Horizontal	Pass
4**	6804.955	44.49	54.0	9.51	AV	19.00	100	Horizontal	Pass
5	13408.948	54.40	74.0	19.60	Peak	310.00	400	Horizontal	Pass
5**	13408.948	45.86	54.0	8.14	AV	310.00	400	Horizontal	Pass
6	17428.065	58.85	74.0	15.15	Peak	249.00	300	Horizontal	Pass
6**	17428.065	48.49	54.0	5.51	AV	249.00	300	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	1332.472	45.99	74.0	28.01	Peak	223.00	400	Vertical	Pass
1**	1332.472	38.94	54.0	15.06	AV	223.00	400	Vertical	Pass
2	2985.946	53.13	74.0	20.87	Peak	271.00	100	Vertical	Pass
2**	2985.946	42.72	54.0	11.28	AV	271.00	100	Vertical	Pass
3	4850.818	52.19	74.0	21.81	Peak	82.00	200	Vertical	Pass
3**	4850.818	42.24	54.0	11.76	AV	82.00	200	Vertical	Pass
4	6603.865	55.62	74.0	18.38	Peak	324.00	200	Vertical	Pass
4**	6603.865	44.74	54.0	9.26	AV	324.00	200	Vertical	Pass
5	13435.788	55.45	74.0	18.55	Peak	231.00	200	Vertical	Pass
5**	13435.788	46.88	54.0	7.12	AV	231.00	200	Vertical	Pass
6	17419.972	56.79	74.0	17.21	Peak	168.00	400	Vertical	Pass
6**	17419.972	45.48	54.0	8.52	AV	168.00	400	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	1326.677	45.58	74.0	28.42	Peak	246.00	100	Horizontal	Pass
1**	1326.677	37.40	54.0	16.60	AV	246.00	100	Horizontal	Pass
2	2993.232	47.42	74.0	26.58	Peak	142.00	200	Horizontal	Pass
2**	2993.232	41.26	54.0	12.74	AV	142.00	200	Horizontal	Pass
3	4934.738	51.77	74.0	22.23	Peak	141.00	200	Horizontal	Pass
3**	4934.738	40.35	54.0	13.65	AV	141.00	200	Horizontal	Pass
4	6807.265	55.67	74.0	18.33	Peak	20.00	200	Horizontal	Pass
4**	6807.265	44.90	54.0	9.10	AV	20.00	200	Horizontal	Pass
5	13410.838	58.40	74.0	15.60	Peak	21.00	200	Horizontal	Pass
5**	13410.838	45.91	54.0	8.09	AV	21.00	200	Horizontal	Pass
6	17429.879	53.47	74.0	20.53	Peak	242.00	300	Horizontal	Pass
6**	17429.879	48.38	54.0	5.62	AV	242.00	300	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	1336.186	42.52	74.0	31.48	Peak	25.00	200	Vertical	Pass
1**	1336.186	40.20	54.0	13.80	AV	25.00	200	Vertical	Pass
2	2981.808	51.47	74.0	22.53	Peak	244.00	200	Vertical	Pass
2**	2981.808	39.47	54.0	14.53	AV	244.00	200	Vertical	Pass
3	4854.279	49.01	74.0	24.99	Peak	93.00	200	Vertical	Pass
3**	4854.279	38.23	54.0	15.77	AV	93.00	200	Vertical	Pass
4	6604.719	56.37	74.0	17.63	Peak	69.00	200	Vertical	Pass
4**	6604.719	47.45	54.0	6.55	AV	69.00	200	Vertical	Pass
5	13435.858	58.23	74.0	15.77	Peak	37.00	100	Vertical	Pass
5**	13435.858	47.95	54.0	6.05	AV	37.00	100	Vertical	Pass
6	17415.933	58.52	74.0	15.48	Peak	281.00	400	Vertical	Pass
6**	17415.933	48.28	54.0	5.72	AV	281.00	400	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	1326.530	45.23	74.0	28.77	Peak	1.00	200	Horizontal	Pass
1**	1326.530	38.74	54.0	15.26	AV	1.00	200	Horizontal	Pass
2	2998.494	52.42	74.0	21.58	Peak	59.00	400	Horizontal	Pass
2**	2998.494	42.48	54.0	11.52	AV	59.00	400	Horizontal	Pass
3	4933.896	54.43	74.0	19.57	Peak	82.00	200	Horizontal	Pass
3**	4933.896	39.22	54.0	14.78	AV	82.00	200	Horizontal	Pass
4	6803.497	55.06	74.0	18.94	Peak	309.00	200	Horizontal	Pass
4**	6803.497	47.02	54.0	6.98	AV	309.00	200	Horizontal	Pass
5	13414.726	55.55	74.0	18.45	Peak	114.00	100	Horizontal	Pass
5**	13414.726	45.80	54.0	8.20	AV	114.00	100	Horizontal	Pass
6	17427.309	58.99	74.0	15.01	Peak	259.00	200	Horizontal	Pass
6**	17427.309	48.68	54.0	5.32	AV	259.00	200	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	1329.001	47.73	74.0	26.27	Peak	314.00	200	Vertical	Pass
1**	1329.001	37.67	54.0	16.33	AV	314.00	200	Vertical	Pass
2	2980.979	51.34	74.0	22.66	Peak	356.00	200	Vertical	Pass
2**	2980.979	39.93	54.0	14.07	AV	356.00	200	Vertical	Pass
3	4851.594	49.84	74.0	24.16	Peak	267.00	200	Vertical	Pass
3**	4851.594	41.09	54.0	12.91	AV	267.00	200	Vertical	Pass
4	6609.201	54.33	74.0	19.67	Peak	108.00	300	Vertical	Pass
4**	6609.201	42.41	54.0	11.59	AV	108.00	300	Vertical	Pass
5	13432.112	52.82	74.0	21.18	Peak	0.00	100	Vertical	Pass
5**	13432.112	45.09	54.0	8.91	AV	0.00	100	Vertical	Pass
6	17413.335	56.97	74.0	17.03	Peak	103.00	400	Vertical	Pass
6**	17413.335	47.08	54.0	6.92	AV	103.00	400	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	1331.416	42.69	74.0	31.31	Peak	57.00	100	Horizontal	Pass
1**	1331.416	34.74	54.0	19.26	AV	57.00	100	Horizontal	Pass
2	3000.159	52.78	74.0	21.22	Peak	177.00	400	Horizontal	Pass
2**	3000.159	41.02	54.0	12.98	AV	177.00	400	Horizontal	Pass
3	4936.230	51.67	74.0	22.33	Peak	52.00	200	Horizontal	Pass
3**	4936.230	39.42	54.0	14.58	AV	52.00	200	Horizontal	Pass
4	6804.307	57.41	74.0	16.59	Peak	280.00	200	Horizontal	Pass
4**	6804.307	47.70	54.0	6.30	AV	280.00	200	Horizontal	Pass
5	13407.825	53.80	74.0	20.20	Peak	346.00	200	Horizontal	Pass
5**	13407.825	44.38	54.0	9.62	AV	346.00	200	Horizontal	Pass
6	17428.772	58.74	74.0	15.26	Peak	40.00	300	Horizontal	Pass
6**	17428.772	47.15	54.0	6.85	AV	40.00	300	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	1336.737	46.42	74.0	27.58	Peak	333.00	200	Vertical	Pass
1**	1336.737	38.49	54.0	15.51	AV	333.00	200	Vertical	Pass
2	2979.828	51.51	74.0	22.49	Peak	88.00	200	Vertical	Pass
2**	2979.828	39.75	54.0	14.25	AV	88.00	200	Vertical	Pass
3	4852.027	50.61	74.0	23.39	Peak	316.00	200	Vertical	Pass
3**	4852.027	37.71	54.0	16.29	AV	316.00	200	Vertical	Pass
4	6605.934	51.58	74.0	22.42	Peak	266.00	200	Vertical	Pass
4**	6605.934	46.86	54.0	7.14	AV	266.00	200	Vertical	Pass
5	13433.390	53.83	74.0	20.17	Peak	141.00	200	Vertical	Pass
5**	13433.390	46.38	54.0	7.62	AV	141.00	200	Vertical	Pass
6	17420.067	57.78	74.0	16.22	Peak	109.00	300	Vertical	Pass
6**	17420.067	49.62	54.0	4.38	AV	109.00	300	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	1331.491	42.46	74.0	31.54	Peak	249.00	400	Horizontal	Pass
1**	1331.491	36.87	54.0	17.13	AV	249.00	400	Horizontal	Pass
2	2996.650	52.62	74.0	21.38	Peak	276.00	400	Horizontal	Pass
2**	2996.650	38.73	54.0	15.27	AV	276.00	400	Horizontal	Pass
3	4931.558	52.49	74.0	21.51	Peak	326.00	200	Horizontal	Pass
3**	4931.558	43.43	54.0	10.57	AV	326.00	200	Horizontal	Pass
4	6809.769	55.43	74.0	18.57	Peak	116.00	200	Horizontal	Pass
4**	6809.769	41.88	54.0	12.12	AV	116.00	200	Horizontal	Pass
5	13407.664	52.59	74.0	21.41	Peak	302.00	400	Horizontal	Pass
5**	13407.664	45.53	54.0	8.47	AV	302.00	400	Horizontal	Pass
6	17428.354	57.34	74.0	16.66	Peak	219.00	300	Horizontal	Pass
6**	17428.354	46.39	54.0	7.61	AV	219.00	300	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	1332.670	44.09	74.0	29.91	Peak	36.00	100	Vertical	Pass
1**	1332.670	39.94	54.0	14.06	AV	36.00	100	Vertical	Pass
2	2985.055	47.81	74.0	26.19	Peak	52.00	400	Vertical	Pass
2**	2985.055	43.30	54.0	10.70	AV	52.00	400	Vertical	Pass
3	4856.694	52.21	74.0	21.79	Peak	298.00	200	Vertical	Pass
3**	4856.694	38.09	54.0	15.91	AV	298.00	200	Vertical	Pass
4	6607.833	51.29	74.0	22.71	Peak	207.00	200	Vertical	Pass
4**	6607.833	43.71	54.0	10.29	AV	207.00	200	Vertical	Pass
5	13434.673	53.72	74.0	20.28	Peak	29.00	100	Vertical	Pass
5**	13434.673	47.29	54.0	6.71	AV	29.00	100	Vertical	Pass
6	17415.718	54.38	74.0	19.62	Peak	104.00	400	Vertical	Pass
6**	17415.718	47.10	54.0	6.90	AV	104.00	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	1333.420	47.04	74.0	26.96	Peak	46.00	100	Horizontal	Pass
1**	1333.420	39.24	54.0	14.76	AV	46.00	100	Horizontal	Pass
2	2994.803	50.50	74.0	23.50	Peak	19.00	400	Horizontal	Pass
2**	2994.803	38.43	54.0	15.57	AV	19.00	400	Horizontal	Pass
3	4934.137	52.96	74.0	21.04	Peak	285.00	200	Horizontal	Pass
3**	4934.137	39.15	54.0	14.85	AV	285.00	200	Horizontal	Pass
4	6805.194	53.43	74.0	20.57	Peak	182.00	300	Horizontal	Pass
4**	6805.194	41.92	54.0	12.08	AV	182.00	300	Horizontal	Pass
5	13411.862	56.71	74.0	17.29	Peak	15.00	300	Horizontal	Pass
5**	13411.862	45.18	54.0	8.82	AV	15.00	300	Horizontal	Pass
6	17427.284	56.25	74.0	17.75	Peak	2.00	200	Horizontal	Pass
6**	17427.284	47.21	54.0	6.79	AV	2.00	200	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	1335.177	46.28	74.0	27.72	Peak	288.00	300	Vertical	Pass
1**	1335.177	34.82	54.0	19.18	AV	288.00	300	Vertical	Pass
2	2980.316	49.71	74.0	24.29	Peak	260.00	200	Vertical	Pass
2**	2980.316	44.11	54.0	9.89	AV	260.00	200	Vertical	Pass
3	4853.988	47.65	74.0	26.35	Peak	143.00	200	Vertical	Pass
3**	4853.988	42.33	54.0	11.67	AV	143.00	200	Vertical	Pass
4	6606.590	51.40	74.0	22.60	Peak	10.00	400	Vertical	Pass
4**	6606.590	48.02	54.0	5.98	AV	10.00	400	Vertical	Pass
5	13436.120	56.38	74.0	17.62	Peak	307.00	200	Vertical	Pass
5**	13436.120	43.74	54.0	10.26	AV	307.00	200	Vertical	Pass
6	17418.592	55.34	74.0	18.66	Peak	75.00	200	Vertical	Pass
6**	17418.592	49.41	54.0	4.59	AV	75.00	200	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	1330.508	47.54	74.0	26.46	Peak	354.00	100	Horizontal	Pass
1**	1330.508	37.09	54.0	16.91	AV	354.00	100	Horizontal	Pass
2	2996.878	49.31	74.0	24.69	Peak	82.00	300	Horizontal	Pass
2**	2996.878	42.33	54.0	11.67	AV	82.00	300	Horizontal	Pass
3	4937.699	49.51	74.0	24.49	Peak	123.00	200	Horizontal	Pass
3**	4937.699	42.95	54.0	11.05	AV	123.00	200	Horizontal	Pass
4	6805.850	53.04	74.0	20.96	Peak	116.00	300	Horizontal	Pass
4**	6805.850	47.45	54.0	6.55	AV	116.00	300	Horizontal	Pass
5	13408.800	58.39	74.0	15.61	Peak	26.00	400	Horizontal	Pass
5**	13408.800	47.86	54.0	6.14	AV	26.00	400	Horizontal	Pass
6	17424.114	57.36	74.0	16.64	Peak	313.00	400	Horizontal	Pass
6**	17424.114	46.43	54.0	7.57	AV	313.00	400	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	1331.330	44.48	74.0	29.52	Peak	301.00	400	Vertical	Pass
1**	1331.330	35.10	54.0	18.90	AV	301.00	400	Vertical	Pass
2	2979.850	51.77	74.0	22.23	Peak	268.00	300	Vertical	Pass
2**	2979.850	39.88	54.0	14.12	AV	268.00	300	Vertical	Pass
3	4856.224	49.71	74.0	24.29	Peak	61.00	200	Vertical	Pass
3**	4856.224	38.65	54.0	15.35	AV	61.00	200	Vertical	Pass
4	6607.280	54.01	74.0	19.99	Peak	59.00	100	Vertical	Pass
4**	6607.280	47.43	54.0	6.57	AV	59.00	100	Vertical	Pass
5	13432.398	57.70	74.0	16.30	Peak	209.00	300	Vertical	Pass
5**	13432.398	46.48	54.0	7.52	AV	209.00	300	Vertical	Pass
6	17419.207	56.25	74.0	17.75	Peak	19.00	400	Vertical	Pass
6**	17419.207	47.03	54.0	6.97	AV	19.00	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	1329.488	42.34	74.0	31.66	Peak	155.00	300	Horizontal	Pass
1**	1329.488	37.05	54.0	16.95	AV	155.00	300	Horizontal	Pass
2	2999.354	48.41	74.0	25.59	Peak	147.00	100	Horizontal	Pass
2**	2999.354	43.44	54.0	10.56	AV	147.00	100	Horizontal	Pass
3	4935.636	54.48	74.0	19.52	Peak	25.00	200	Horizontal	Pass
3**	4935.636	40.56	54.0	13.44	AV	25.00	200	Horizontal	Pass
4	6807.534	55.04	74.0	18.96	Peak	24.00	400	Horizontal	Pass
4**	6807.534	42.95	54.0	11.05	AV	24.00	400	Horizontal	Pass
5	13410.079	58.06	74.0	15.94	Peak	254.00	200	Horizontal	Pass
5**	13410.079	45.65	54.0	8.35	AV	254.00	200	Horizontal	Pass
6	17422.666	54.92	74.0	19.08	Peak	342.00	100	Horizontal	Pass
6**	17422.666	49.80	54.0	4.20	AV	342.00	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	1334.551	46.79	74.0	27.21	Peak	341.00	200	Vertical	Pass
1**	1334.551	34.69	54.0	19.31	AV	341.00	200	Vertical	Pass
2	2979.015	47.60	74.0	26.40	Peak	172.00	400	Vertical	Pass
2**	2979.015	41.88	54.0	12.12	AV	172.00	400	Vertical	Pass
3	4853.489	48.16	74.0	25.84	Peak	11.00	200	Vertical	Pass
3**	4853.489	39.20	54.0	14.80	AV	11.00	200	Vertical	Pass
4	6607.875	53.68	74.0	20.32	Peak	38.00	100	Vertical	Pass
4**	6607.875	45.14	54.0	8.86	AV	38.00	100	Vertical	Pass
5	13434.834	54.02	74.0	19.98	Peak	265.00	100	Vertical	Pass
5**	13434.834	47.07	54.0	6.93	AV	265.00	100	Vertical	Pass
6	17413.118	56.31	74.0	17.69	Peak	277.00	300	Vertical	Pass
6**	17413.118	46.89	54.0	7.11	AV	277.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n40 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.912	42.38	74.0	31.62	Peak	74.00	300	Horizontal	Pass
1**	1330.912	39.43	54.0	14.57	AV	74.00	300	Horizontal	Pass
2	2997.155	48.06	74.0	25.94	Peak	152.00	100	Horizontal	Pass
2**	2997.155	38.68	54.0	15.32	AV	152.00	100	Horizontal	Pass
3	4931.591	50.13	74.0	23.87	Peak	83.00	200	Horizontal	Pass
3**	4931.591	39.80	54.0	14.20	AV	83.00	200	Horizontal	Pass
4	6810.615	53.76	74.0	20.24	Peak	294.00	300	Horizontal	Pass
4**	6810.615	46.13	54.0	7.87	AV	294.00	300	Horizontal	Pass
5	13409.733	58.10	74.0	15.90	Peak	185.00	200	Horizontal	Pass
5**	13409.733	48.47	54.0	5.53	AV	185.00	200	Horizontal	Pass
6	17425.304	57.93	74.0	16.07	Peak	243.00	400	Horizontal	Pass
6**	17425.304	46.28	54.0	7.72	AV	243.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n40 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1335.777	46.03	74.0	27.97	Peak	318.00	400	Vertical	Pass
1**	1335.777	39.91	54.0	14.09	AV	318.00	400	Vertical	Pass
2	2985.220	48.29	74.0	25.71	Peak	156.00	100	Vertical	Pass
2**	2985.220	42.47	54.0	11.53	AV	156.00	100	Vertical	Pass
3	4857.043	52.20	74.0	21.80	Peak	281.00	200	Vertical	Pass
3**	4857.043	41.17	54.0	12.83	AV	281.00	200	Vertical	Pass
4	6606.240	51.84	74.0	22.16	Peak	160.00	100	Vertical	Pass
4**	6606.240	44.58	54.0	9.42	AV	160.00	100	Vertical	Pass
5	13438.012	53.16	74.0	20.84	Peak	107.00	100	Vertical	Pass
5**	13438.012	48.86	54.0	5.14	AV	107.00	100	Vertical	Pass
6	17419.567	56.81	74.0	17.19	Peak	341.00	400	Vertical	Pass
6**	17419.567	45.15	54.0	8.85	AV	341.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n40 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1331.066	45.97	74.0	28.03	Peak	307.00	200	Horizontal	Pass
1**	1331.066	37.53	54.0	16.47	AV	307.00	200	Horizontal	Pass
2	3000.509	48.68	74.0	25.32	Peak	67.00	400	Horizontal	Pass
2**	3000.509	38.52	54.0	15.48	AV	67.00	400	Horizontal	Pass
3	4933.433	50.49	74.0	23.51	Peak	68.00	200	Horizontal	Pass
3**	4933.433	41.60	54.0	12.40	AV	68.00	200	Horizontal	Pass
4	6807.773	53.41	74.0	20.59	Peak	340.00	400	Horizontal	Pass
4**	6807.773	44.07	54.0	9.93	AV	340.00	400	Horizontal	Pass
5	13409.881	52.69	74.0	21.31	Peak	115.00	400	Horizontal	Pass
5**	13409.881	43.53	54.0	10.47	AV	115.00	400	Horizontal	Pass
6	17430.071	54.14	74.0	19.86	Peak	345.00	100	Horizontal	Pass
6**	17430.071	44.57	54.0	9.43	AV	345.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n40 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1334.389	47.68	74.0	26.32	Peak	211.00	400	Vertical	Pass
1**	1334.389	39.86	54.0	14.14	AV	211.00	400	Vertical	Pass
2	2984.546	51.86	74.0	22.14	Peak	78.00	300	Vertical	Pass
2**	2984.546	42.78	54.0	11.22	AV	78.00	300	Vertical	Pass
3	4854.811	51.94	74.0	22.06	Peak	229.00	200	Vertical	Pass
3**	4854.811	43.48	54.0	10.52	AV	229.00	200	Vertical	Pass
4	6608.051	55.98	74.0	18.02	Peak	248.00	200	Vertical	Pass
4**	6608.051	45.61	54.0	8.39	AV	248.00	200	Vertical	Pass
5	13431.878	53.72	74.0	20.28	Peak	102.00	100	Vertical	Pass
5**	13431.878	46.43	54.0	7.57	AV	102.00	100	Vertical	Pass
6	17415.120	54.59	74.0	19.41	Peak	211.00	300	Vertical	Pass
6**	17415.120	44.50	54.0	9.50	AV	211.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n40 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1327.209	46.24	74.0	27.76	Peak	358.00	100	Horizontal	Pass
1**	1327.209	36.80	54.0	17.20	AV	358.00	100	Horizontal	Pass
2	2994.113	50.82	74.0	23.18	Peak	299.00	200	Horizontal	Pass
2**	2994.113	40.17	54.0	13.83	AV	299.00	200	Horizontal	Pass
3	4930.595	52.51	74.0	21.49	Peak	106.00	200	Horizontal	Pass
3**	4930.595	42.68	54.0	11.32	AV	106.00	200	Horizontal	Pass
4	6805.838	52.28	74.0	21.72	Peak	36.00	100	Horizontal	Pass
4**	6805.838	43.95	54.0	10.05	AV	36.00	100	Horizontal	Pass
5	13409.605	56.75	74.0	17.25	Peak	93.00	100	Horizontal	Pass
5**	13409.605	48.01	54.0	5.99	AV	93.00	100	Horizontal	Pass
6	17426.132	56.70	74.0	17.30	Peak	19.00	300	Horizontal	Pass
6**	17426.132	47.24	54.0	6.76	AV	19.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n40 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.145	42.23	74.0	31.77	Peak	206.00	100	Vertical	Pass
1**	1330.145	35.59	54.0	18.41	AV	206.00	100	Vertical	Pass
2	2982.373	52.91	74.0	21.09	Peak	237.00	100	Vertical	Pass
2**	2982.373	39.02	54.0	14.98	AV	237.00	100	Vertical	Pass
3	4855.227	51.63	74.0	22.37	Peak	71.00	200	Vertical	Pass
3**	4855.227	39.18	54.0	14.82	AV	71.00	200	Vertical	Pass
4	6606.375	52.78	74.0	21.22	Peak	44.00	100	Vertical	Pass
4**	6606.375	43.36	54.0	10.64	AV	44.00	100	Vertical	Pass
5	13435.596	53.08	74.0	20.92	Peak	332.00	400	Vertical	Pass
5**	13435.596	46.54	54.0	7.46	AV	332.00	400	Vertical	Pass
6	17414.941	59.18	74.0	14.82	Peak	269.00	400	Vertical	Pass
6**	17414.941	45.14	54.0	8.86	AV	269.00	400	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 antenna were pre tested, but only the worst case has been reported in this report.

Test DataSISO-ANT0

802.11b LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2385.941	59.92	74.0	14.08	Peak	231.00	200	Horizontal	Pass
1**	2385.941	48.52	54.0	5.48	AV	231.00	200	Horizontal	Pass
2	2390.000	55.98	74.0	18.02	Peak	332.00	200	Horizontal	Pass
2**	2390.000	46.91	54.0	7.09	AV	332.00	200	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	55.07	74.0	18.93	Peak	131.00	100	Horizontal	Pass
1**	2483.500	47.06	54.0	6.94	AV	131.00	100	Horizontal	Pass
2	2488.645	59.65	74.0	14.35	Peak	95.00	100	Horizontal	Pass
2**	2488.645	46.25	54.0	7.75	AV	95.00	100	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	2384.396	56.94	74.0	17.06	Peak	112.00	200	Horizontal	Pass
1**	2384.396	47.1	54.0	6.90	AV	112.00	200	Horizontal	Pass
2	2390.000	54.49	74.0	19.51	Peak	120.00	100	Horizontal	Pass
2**	2390.000	45.61	54.0	8.39	AV	120.00	100	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	54.25	74.0	19.75	Peak	271.00	100	Horizontal	Pass
1**	2483.500	44.92	54.0	9.08	AV	271.00	100	Horizontal	Pass
2	2487.682	58.19	74.0	15.81	Peak	89.00	300	Horizontal	Pass
2**	2487.682	44.6	54.0	9.40	AV	89.00	300	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	2385.936	59.24	74.0	14.76	Peak	179.00	300	Horizontal	Pass
1**	2385.936	47.93	54.0	6.07	AV	179.00	300	Horizontal	Pass
2	2390.000	55.57	74.0	18.43	Peak	120.00	300	Horizontal	Pass
2**	2390.000	46.42	54.0	7.58	AV	120.00	300	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	54.58	74.0	19.42	Peak	201.00	100	Horizontal	Pass
1**	2483.500	47.69	54.0	6.31	AV	201.00	100	Horizontal	Pass
2	2488.124	59.16	74.0	14.84	Peak	189.00	100	Horizontal	Pass
2**	2488.124	44.53	54.0	9.47	AV	189.00	100	Horizontal	Pass

802.11n40 LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2386.402	57.49	74.0	16.51	Peak	283.00	100	Horizontal	Pass
1**	2386.402	48.77	54.0	5.23	AV	283.00	100	Horizontal	Pass
2	2390.000	56.73	74.0	17.27	Peak	353.00	100	Horizontal	Pass
2**	2390.000	44.62	54.0	9.38	AV	353.00	100	Horizontal	Pass

802.11n40 HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	55.49	74.0	18.51	Peak	3.00	200	Horizontal	Pass
1**	2483.500	44.54	54.0	9.46	AV	3.00	200	Horizontal	Pass
2	2487.949	57.97	74.0	16.03	Peak	289.00	100	Horizontal	Pass
2**	2487.949	45.28	54.0	8.72	AV	289.00	100	Horizontal	Pass

A.8 Power Spectral Density (PSD)

Test Data

SISO-ANT0

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.12	8
Middle	-5.94	8
High	-7.67	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.99	8
Middle	-8.79	8
High	-9.67	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.02	8
Middle	-8.49	8
High	-8.01	8

802.11n-40 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.16	8
Middle	-10.47	8
High	-11.37	8

SISO-ANT1

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-6.72	8
Middle	-7.65	8
High	-7.56	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-7.10	8
Middle	-7.67	8
High	-8.43	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-9.08	8
Middle	-8.46	8
High	-8.86	8

802.11n-40 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.85	8
Middle	-10.35	8
High	-10.38	8

MIMO-ANT0

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.28	8
Middle	-9.16	8
High	-10.91	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-12.23	8
Middle	-12.06	8
High	-12.81	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.20	8
Middle	-11.74	8
High	-11.18	8

802.11n-40 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-14.45	8
Middle	-13.68	8
High	-14.65	8

MIMO-ANT1

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-9.87	8
Middle	-10.90	8
High	-10.78	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-10.25	8
Middle	-10.85	8
High	-11.66	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-12.31	8
Middle	-11.59	8
High	-12.10	8

802.11n-40 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-15.11	8
Middle	-13.53	8
High	-13.65	8

MIMO

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-7.51	8
Middle	-6.93	8
High	-7.83	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.12	8
Middle	-8.40	8
High	-9.19	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.71	8
Middle	-8.65	8
High	-8.61	8

802.11n-40 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.76	8
Middle	-10.59	8
High	-11.11	8

Test Plots

SISO-ANT0

802.11b LOW CHANNEL



802.11b MIDDLE CHANNEL



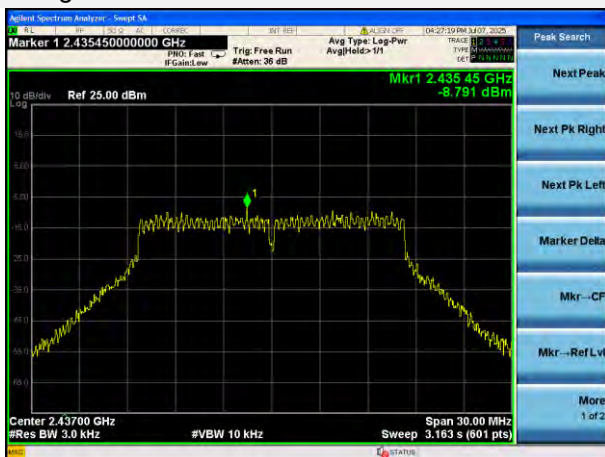
802.11b HIGH CHANNEL



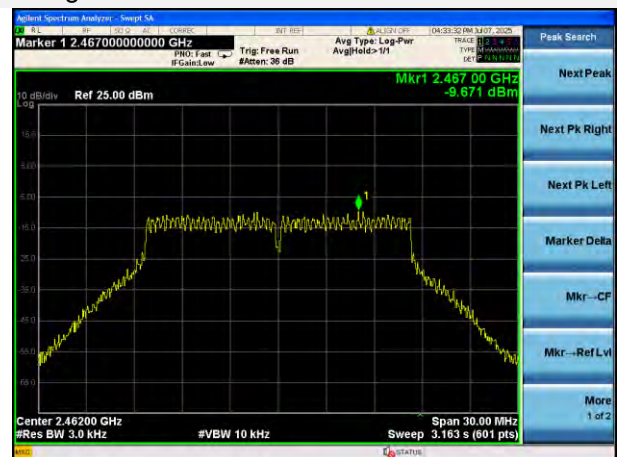
802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL



802.11n-20 MHz LOW CHANNEL



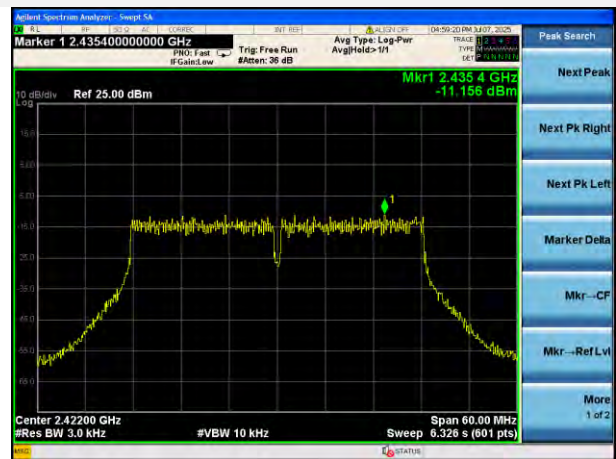
802.11n-20 MHz MIDDLE CHANNEL



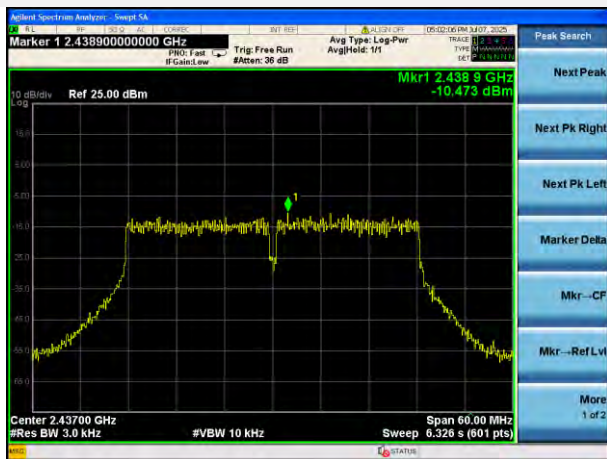
802.11n-20 MHz HIGH CHANNEL



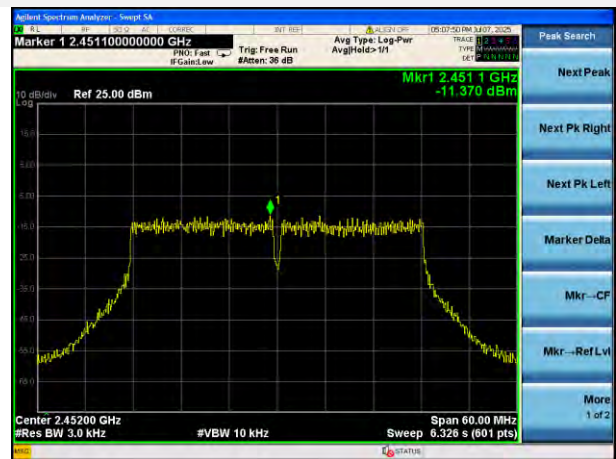
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL



SISO-ANT1

802.11b LOW CHANNEL



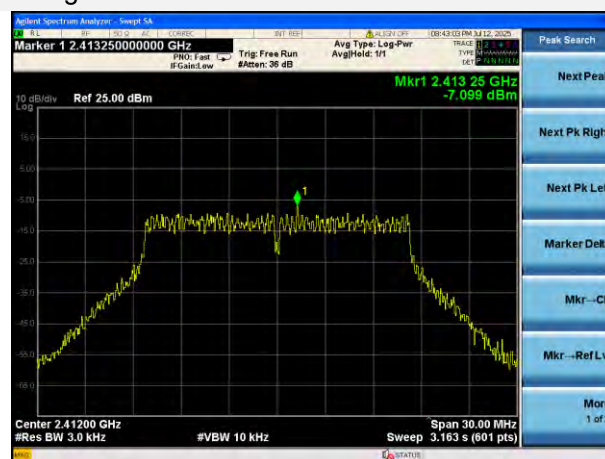
802.11b MIDDLE CHANNEL



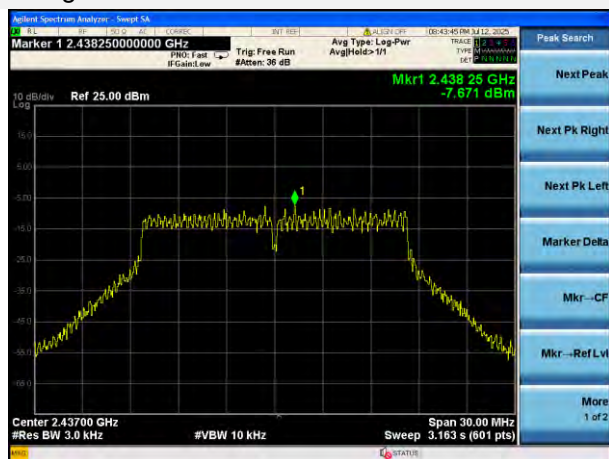
802.11b HIGH CHANNEL



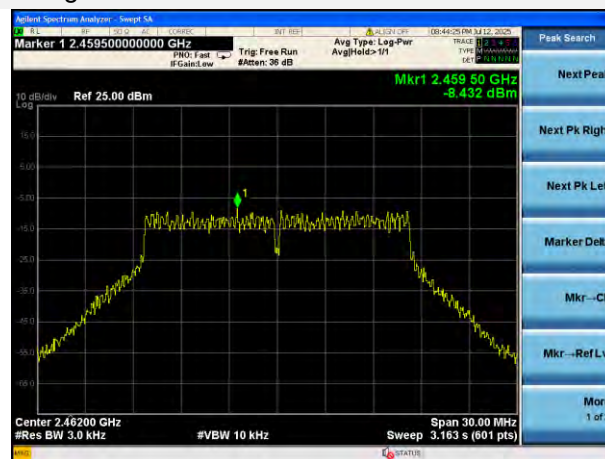
802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL



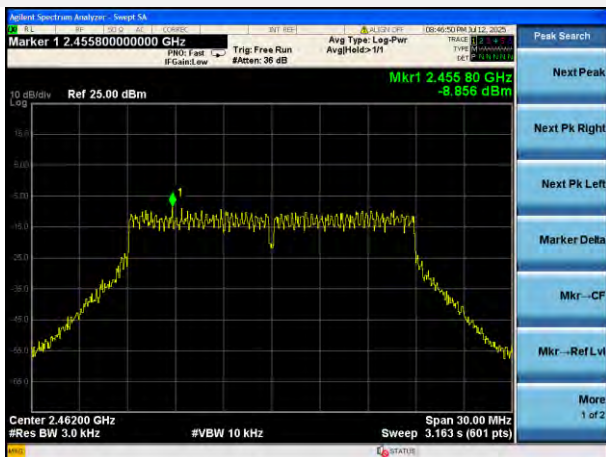
802.11n-20 MHz LOW CHANNEL



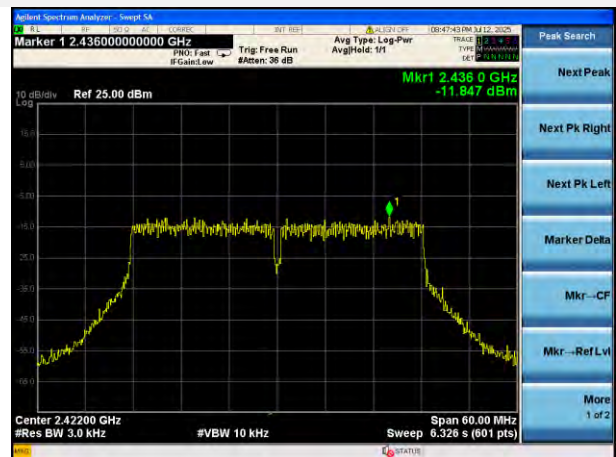
802.11n-20 MHz MIDDLE CHANNEL



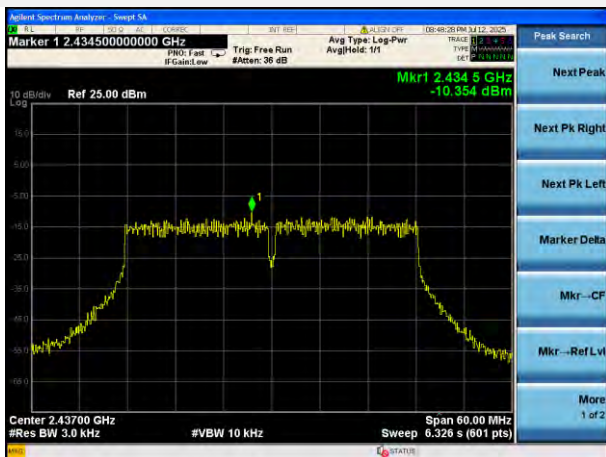
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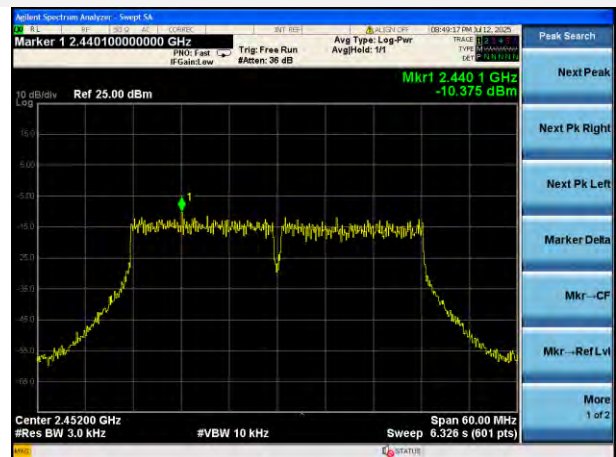
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL



ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2561484-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2561484-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2561484-AI.PDF”.

Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
3. For the report with CNAS mark or A2LA mark, the items marked with "☆" are not within the accredited scope.
4. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the "inspection and testing dedicated stamp" or test report stamp.
5. The test data and results are only valid for the tested samples provided by the customer.
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--END OF REPORT--