NVLAP TESTING
NVLAP LAB CODE 600341-0

BACL Bay Area Compliance Labs Corp.

TEST REPORT

Applicant: **UBTECH ROBOTICS CORP LTD**

Address: **Room 2201, Building C1 Nanshan Smart Park No. 1001 Xueyuan Avenue Changyuan Community Taoyuan Street Nanshan District Shenzhen CHINA**

Product Name: **Lora Gateway**

FCC ID: **2AHJX-GATEWAYM10**

Standard(s): **47 CFR Part 15, Subpart C(15.247)**
ANSI C63.10-2020
KDB 558074 D01 15.247 Meas Guidance v05r02

Report Number: **2502S53059E-RF-00B**

Report Date: **2025/5/21**

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2502S53059E-RF-00B	Original Report	2025/5/21

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Lora Gateway
EUT Model:	LG-M10
Operation Frequency:	2412-2462MHz (802.11b/g/n ht20) 2422-2452MHz (802.11n ht40)
Maximum Peak Output Power (Conducted):	24.46dBm
Modulation Type:	802.11b:DSSS-DBPSK, DQPSK, CCK 802.11g/n: OFDM-BPSK, QPSK, 16QAM, 64QAM
Rated Input Voltage:	5Vdc from USB
Serial Number:	For AC Line Conducted Emissions and Radiated Spurious Emission Test: 319W-1 For RF Conducted Test: 319W-2
EUT Received Date:	2025/4/14
EUT Received Status:	Good

1.2 Accessory Information

Accessory Description	Manufacturer	Model	Parameters
/	/	/	/

1.3 Antenna Information Detail▲

Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
PCB	50	2.4-2.5GHz	4.16dBi
The design of compliance with §15.203:			
☒ Unit uses a permanently attached antenna. ☐ Unit uses a unique coupling to the intentional radiator. ☐ Unit was professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.			

1.4 Equipment Modifications

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

2. SUMMARY OF TEST RESULTS

Standard(s) Section	Test Items	Result
§15.207(a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Radiated Spurious Emissions	Compliant
§15.247 (a)(2)	Minimum 6 dB Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth Of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.203	Antenna Requirement	Compliant
§15.247 (i) & §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliant
Note 1: For AC line conducted emissions, the maximum peak output power mode and channel was tested. Note 2: For Radiated Spurious Emissions 9kHz~1GHz and 18~25GHz, the maximum peak output power mode and channel was tested.		

3. DESCRIPTION OF TEST CONFIGURATION

3.1 Operation Frequency Detail

For 802.11b/g/n ht20:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	**2412**	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	**2462**
6	**2437**	/	/

For 802.11n ht40:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	**2422**	7	2442
4	2427	8	2447
5	2432	9	**2452**
6	**2437**	/	/

Note: The above frequencies in bold were performed the test.

3.2 EUT Operation Condition

The EUT was configured for testing in Engineering Mode, which was provided by the manufacturer. The EUT configuration as below:

EUT Exercise Software:	ESP_RF_Test			
The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:				
Test Modes	Data Rate	Power Level Setting		
		Lowest Channel	Middle Channel	Highest Channel
802.11b	1Mbps	0	0	0
802.11g	6Mbps	4	4	4
802.11n ht20	MCS0	4	4	4
802.11n ht40	MCS0	6	6	6
The above are the worst-case data rates, which are determined for each mode based upon investigations by measuring the average power and PSD across all data rates, bandwidths, and modulations.				

3.3 Support Equipment List and Details

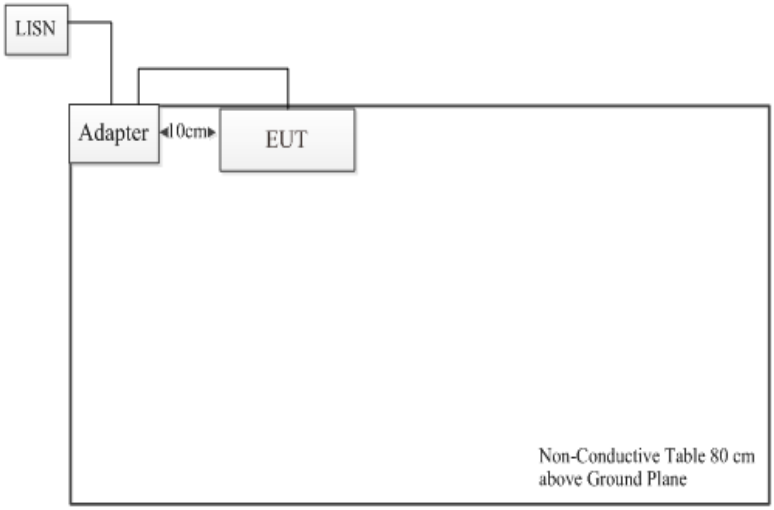
Manufacturer	Description	Model	Serial Number
Xiamen kell Electronics Co.,Ltd	Adapter	KL-WD050200U	unknown

3.4 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable For CE	no	no	1.0	Adapter	EUT
USB Cable For RE	no	no	1.5	Adapter	EUT

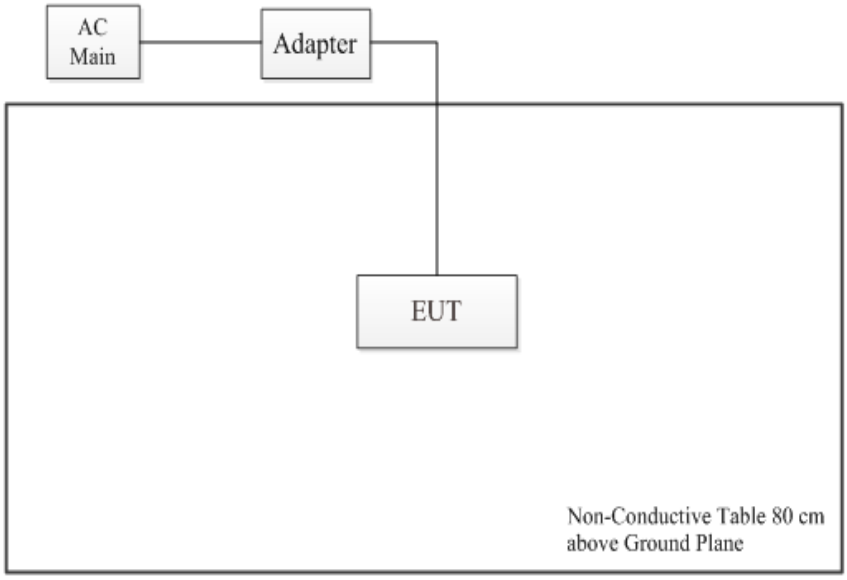
3.5 Block Diagram of Test Setup

AC line conducted emissions:

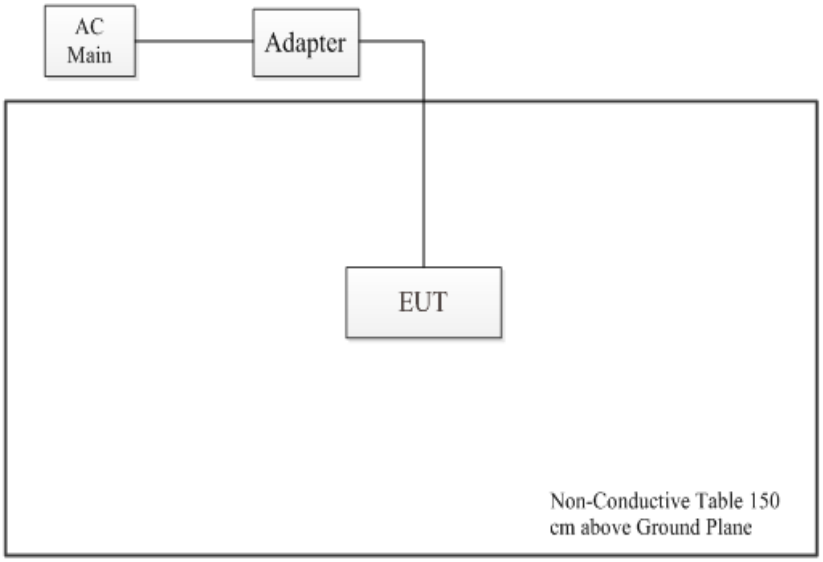


Spurious Emissions:

Below 1GHz:



Above 1GHz:


AC
Main
Adapter
EUT
Non-Conductive Table 150
cm above Ground Plane

3.6 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 829273, the FCC Designation No. : CN5044.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

3.7 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	9kHz~30MHz: 3.3dB, 30MHz~200MHz: 4.55 dB,200MHz~1GHz: 5.92 dB,1GHz~6GHz: 4.98 dB, 6GHz~18GHz: 5.89 dB, 18GHz~26.5GHz:5.47 dB, 26.5GHz~40GHz:5.63 dB
Unwanted Emissions, conducted	±2.47 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.11 dB (150 kHz to 30 MHz)

4. REQUIREMENTS AND TEST PROCEDURES

4.1 AC Line Conducted Emissions

4.1.1 Applicable Standard

FCC§15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

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

*Decreases with the logarithm of the frequency.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

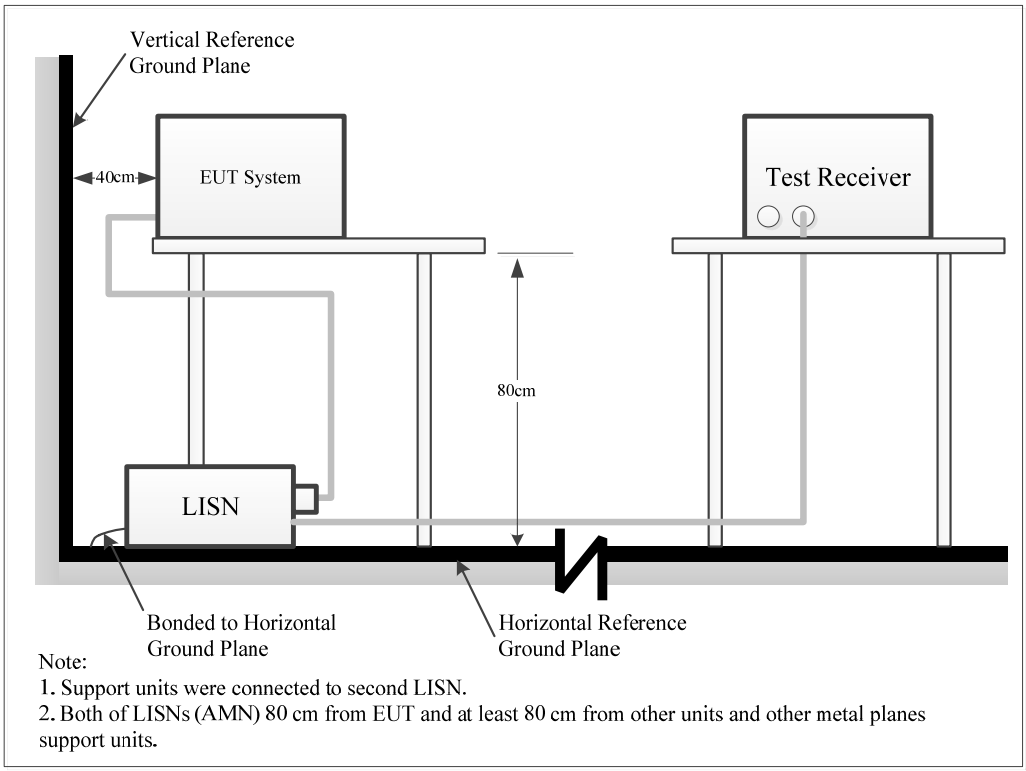
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221,§15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtainig their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

4.1.2 EUT Setup



The setup of EUT is according with per ANSI C63.10-2020 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10cm.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

4.1.3 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

4.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground[protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

4.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
Factor=attenuation caused by cable loss + voltage division factor of AMN

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

4.1.6 Test Result

Please refer to section 5.1.

4.2 Radiation Spurious Emissions

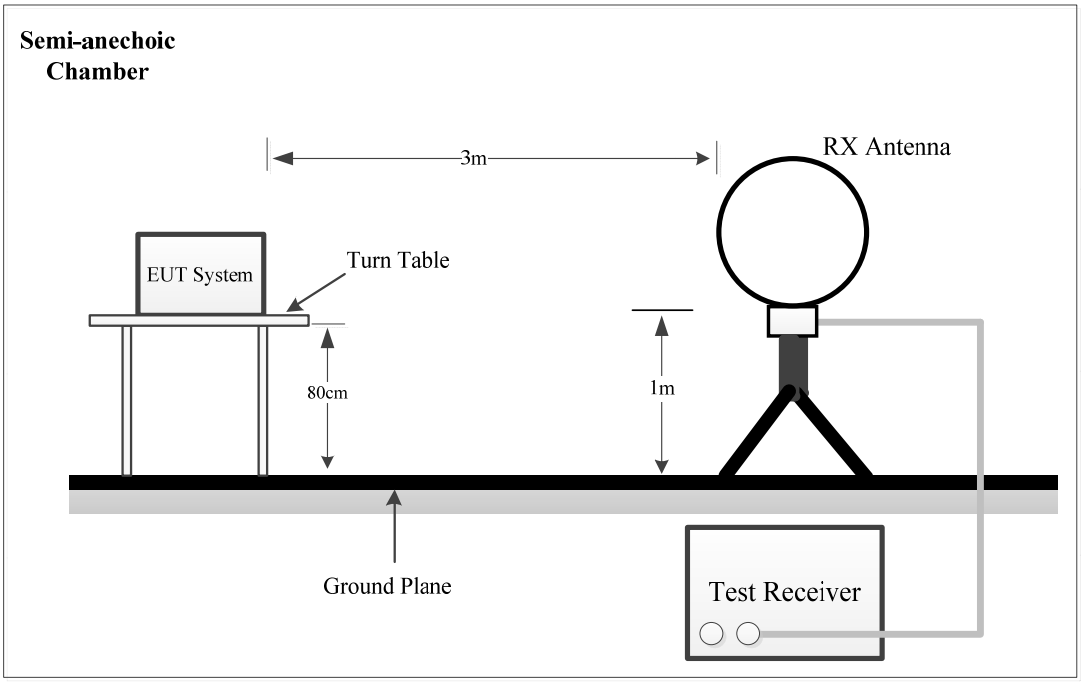
4.2.1 Applicable Standard

FCC §15.247 (d);

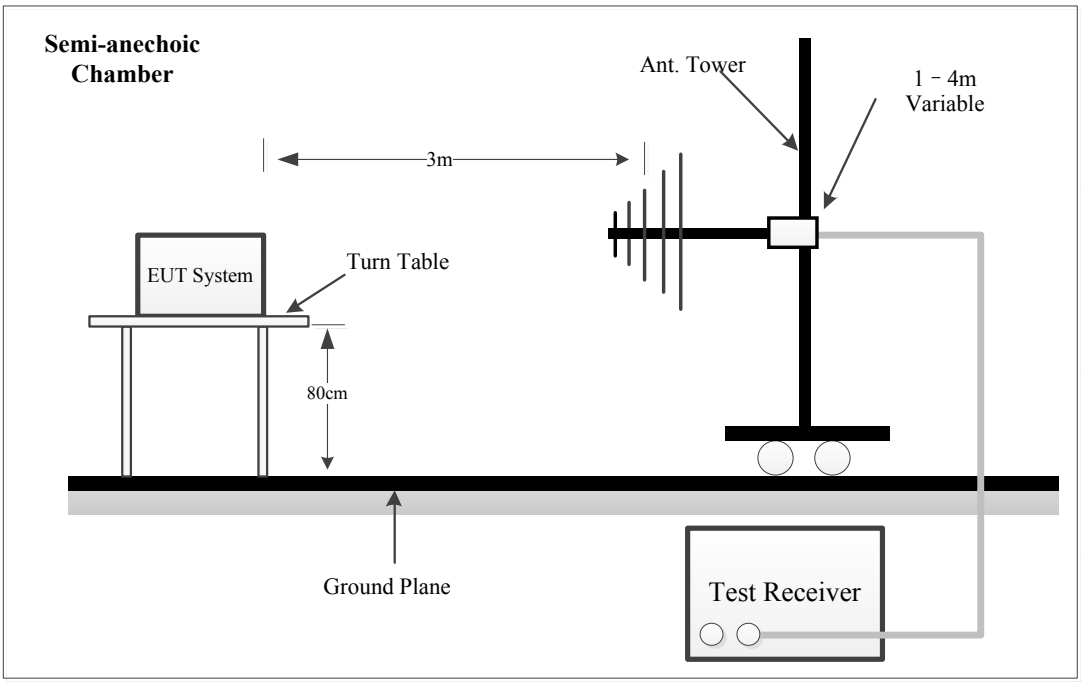
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in§15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

4.2.2 EUT Setup

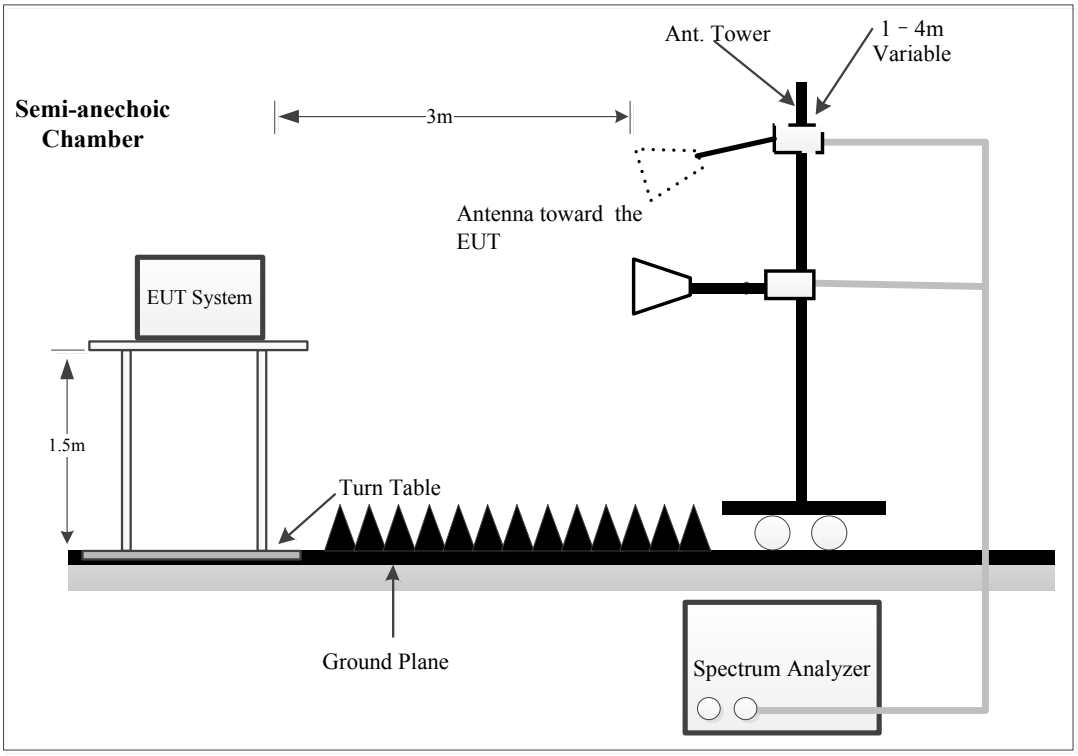
9kHz~30MHz:



30MHz~1GHz:



Above 1GHz:



The radiated emissions were performed in the 3 meters distance, using the setup accordance with the ANSI C63.10-2020. The specification used was the FCC 15.209, and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40cm long in the middle.

For 9kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

4.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

9kHz-1000MHz:

Frequency Range	Measurement	RBW	Video B/W	IF B/W	Detector
9 kHz – 150 kHz	QP/AV	300Hz	1 kHz	200 Hz	QP/AV
150 kHz – 30 MHz	QP/AV	10 kHz	30 kHz	9 kHz	QP/AV
30MHz – 1000 MHz	PK	100 kHz	300 kHz	/	PK
	QP	/	/	120kHz	QP

1GHz- 25GHz:
Pre-scan:

Measurement	Detector	RBW	Video B/W
PK	PK	1MHz	3 MHz
Ave.	PK	1MHz	5kHz

Final measurement for emission identified during the pre-scan:

Measurement	Detector	Duty cycle	RBW	Video B/W
PK	PK	Any	1MHz	3 MHz
Ave.	PK	>98%	1MHz	10 Hz
		<98%	1MHz	≥1/T

Note: T is minimum transmission duration

4.2.4 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 9 kHz -1 GHz, except 9-90 kHz, 110-490 kHz, employing an average detector, peak and Average detection modes for frequencies above 1 GHz.

If the maximized peak measured value is under the QP/Average limit by more than 6dB, then it is unnecessary to perform an QP/Average measurement.

4.2.5 Corrected Result& Margin Calculation

$E_{Log} = 20 \times \log_{10}(E_{Linear})$

E_{Linear} is the field strength of the emission, in μ V/m
E_{Log} is the field strength of the emission, in dB μ V/m

For 9kHz-30MHz test, test distance is 3m, extrapolation limit shall be calculated using Equation:

$E_{limit\text{-}measure} = E_{limit\text{-}Standard} + 40 \times \log_{10}(d_{standard}/d_{measure})$

The basic equation is as follows:

Result = Reading + Factor
Factor= Antenna Factor + Cable Loss- Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

4.2.6 Test Result

Please refer to section 5.2.

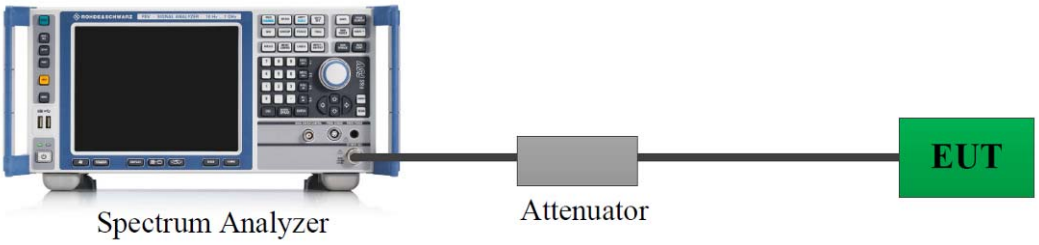
4.3 Minimum 6 dB Emission Bandwidth

4.3.1 Applicable Standard

FCC §15.247 (a)(2)

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

4.3.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.3.3 Test Procedure

According to ANSI C63.10-2020 Section 11.8

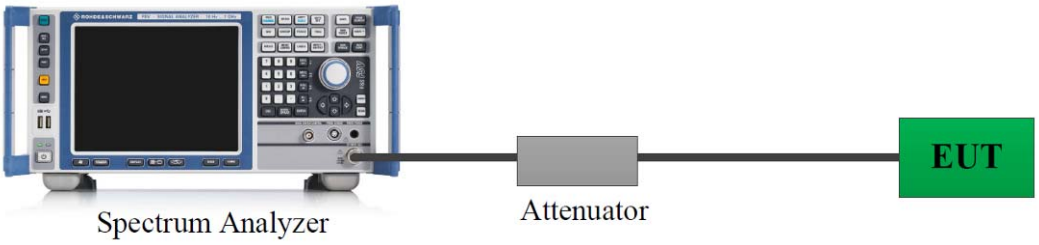
a) Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
b) Set the VBW ≥ [3 × RBW].
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = No faster than coupled (auto) time.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "−6 dB down amplitude". If a marker is below this "−6 dB down amplitude" value, then it shall be as close as possible to this value.

4.3.4 Test Result

Please refer to section 5.3.

4.4 99% Occupied Bandwidth

4.4.1 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.4.2 Test Procedure

According to ANSI C63.10-2020 Section 6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:
a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.6.2.
d) Step a) through step c) might require iteration to adjust within the specified range.
e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.4.3 Test Result

Please refer to section 5.4.

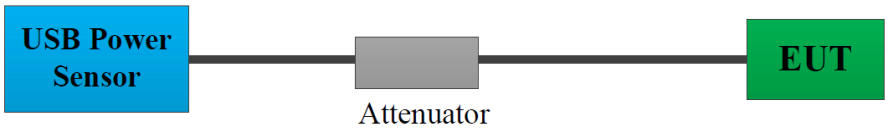
4.5 Maximum Conducted Output Power

4.5.1 Applicable Standard

FCC §15.247 (b)(3)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. 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. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

4.5.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.5.3 Test Procedure

According to ANSI C63.10-2020 Section 11.9.1.2

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 use a fast-responding diode detector.

a) Set the EUT in transmitting mode.
b) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
c) Add a correction factor to the display.
d) Set the power meter to test peak output power, record the result.

According to ANSI C63.10-2020 Section 11.9.2.3.2

Method AVGPM-G is a measurement using a gated RF average power meter.

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

4.5.4 Test Result

Please refer to section 5.5.

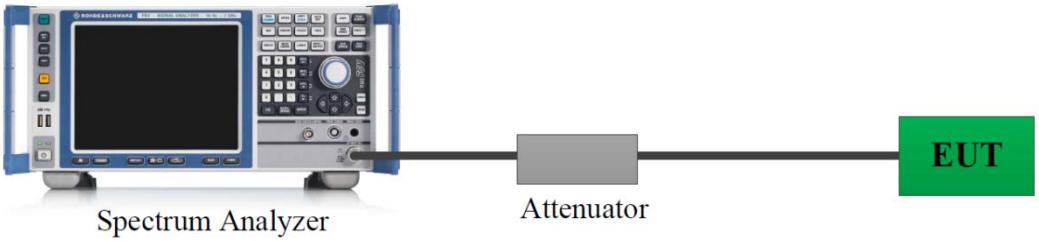
4.6 Maximum Power Spectral Density

4.6.1 Applicable Standard

FCC §15.247 (e)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

4.6.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.6.3 Test Procedure

According to ANSI C63.10-2020 Section 11.10.2

The following procedure shall be used if maximum peak conducted output power was used to determine compliance:

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span >1.5 times the DTS bandwidth.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set VBW ≥ [3× RBW].
e) Detector = peak.
f) Sweep time = No faster than coupled (auto) time.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

4.6.4 Test Result

Please refer to section 5.6.

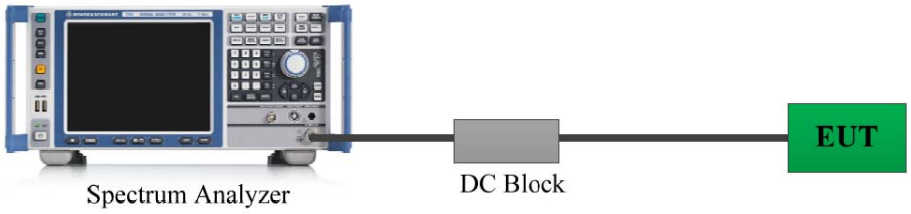
4.7 100 kHz Bandwidth of Frequency Band Edge

4.7.1 Applicable Standard

FCC §15.247 (d);

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in§15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

4.7.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.7.3 Test Procedure

According to ANSI C63.10-2020 Section 11.11

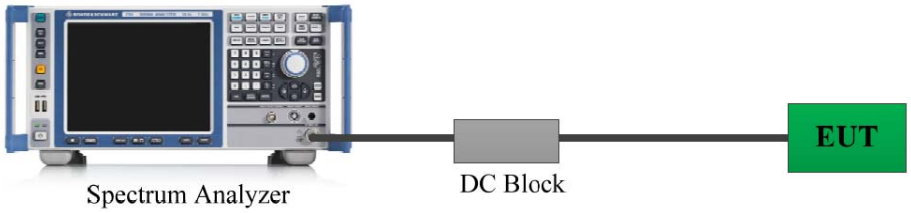
a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ [3 × RBW].
d) Detector = peak.
e) Sweep time = No faster than coupled (auto) time.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

4.7.4 Test Result

Please refer to section 5.7.

4.8 Duty Cycle

4.8.1 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.8.2 Test Procedure

According to ANSI C63.10-2020 Section 11.6

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
1) Set the center frequency of the instrument to the center frequency of the transmission.
2) Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.
3) Set VBW ≥ RBW. Set detector = peak or average.
4) The zero-span measurement method shall not be used unless both RBW and VBW are> 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if T ≤ 16.7 μs.)

4.8.3 Judgment

Report Only. Please refer to section 5.8.

4.9 Antenna Requirement

4.9.1 Applicable Standard

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or§15.236. 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.

4.9.2 Judgment

Compliant. Please refer to the Antenna Information detail in Section 1.3.

5. Test DATA AND RESULTS

5.1 AC Line Conducted Emissions

Serial Number:	319W-1	Test Date:	2025/04/24
Test Site:	CE	Test Mode:	Transmitting
Tester:	Yukin Qiu	Test Result:	Pass

Environmental Conditions:

Temperature: (℃)	26.6	Relative Humidity: (%)	61	ATM Pressure: (kPa)	100.3

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101614	2024/9/5	2025/9/4
MICRO-COAX	Coaxial Cable	C-NJNJ-50	C-0200-01	2024/9/5	2025/9/4
R&S	EMI Test Receiver	ESCI	101121	2024/9/5	2025/9/4
Audix	Test Software	E3	191218 V9	N/A	N/A

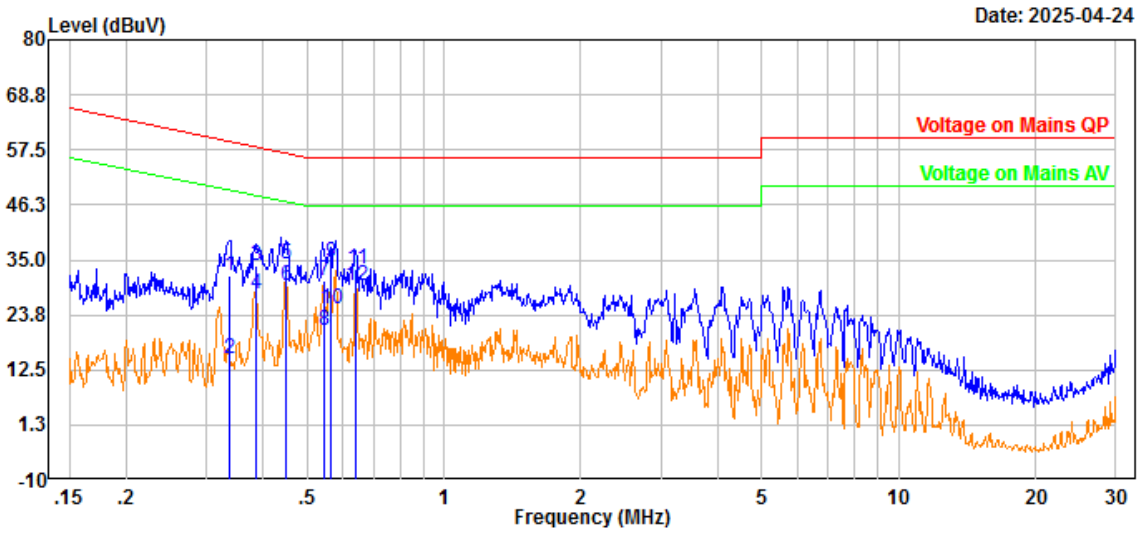
** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Note: 802.11g High channel was tested.

Project No.: 2502S53059E-RF
Port: Line
Test Mode: Transmitting
IF B/W 9KHz PK/AV

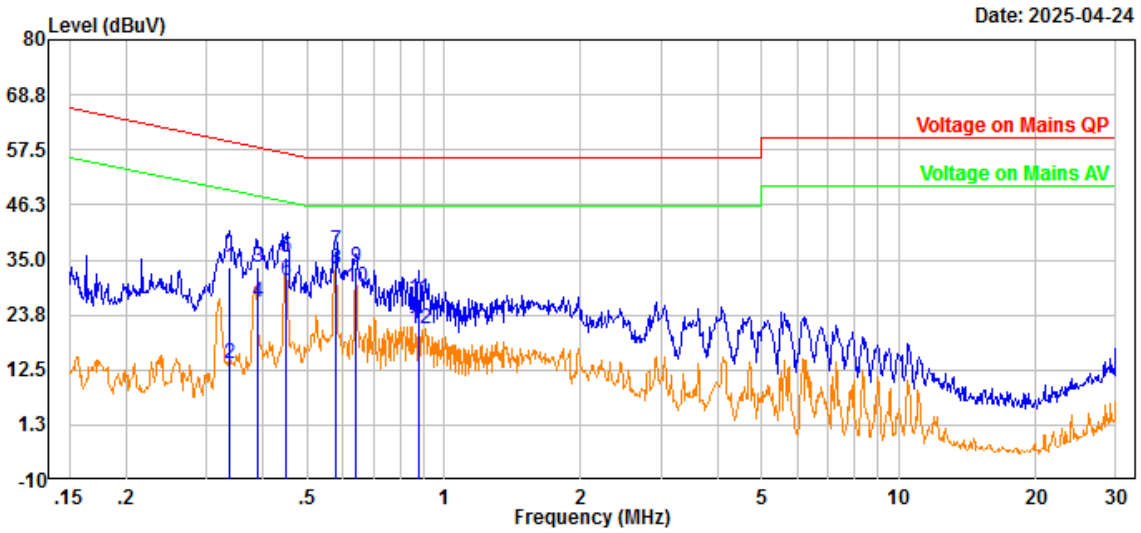
Serial No.: 319W-1
Tester: Yukin Qiu



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Measurement
1	0.338	20.94	10.83	31.77	59.25	27.48	QP
2	0.338	4.11	10.83	14.94	49.25	34.31	Average
3	0.386	22.94	10.84	33.78	58.14	24.36	QP
4	0.386	17.28	10.84	28.12	48.14	20.02	Average
5	0.451	23.19	10.84	34.03	56.86	22.83	QP
6	0.451	18.88	10.84	29.72	46.86	17.14	Average
7	0.545	19.91	10.83	30.74	56.00	25.26	QP
8	0.545	9.87	10.83	20.70	46.00	25.30	Average
9	0.563	23.69	10.83	34.52	56.00	21.48	QP
10	0.563	14.23	10.83	25.06	46.00	20.94	Average
11	0.641	22.33	10.84	33.17	56.00	22.83	QP
12	0.641	18.88	10.84	29.72	46.00	16.28	Average

Project No.: 2502S53059E-RF
Port: neutral
Test Mode: Transmitting
IF B/W 9KHz PK/AV

Serial No.: 319W-1
Tester: Yukin Qiu



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Measurement
1	0.336	22.65	10.78	33.43	59.29	25.86	QP
2	0.336	3.04	10.78	13.82	49.29	35.47	Average
3	0.388	22.65	10.78	33.43	58.10	24.67	QP
4	0.388	15.44	10.78	26.22	48.10	21.88	Average
5	0.451	24.68	10.76	35.44	56.86	21.42	QP
6	0.451	20.14	10.76	30.90	46.86	15.96	Average
7	0.579	26.27	10.72	36.99	56.00	19.01	QP
8	0.579	22.28	10.72	33.00	46.00	13.00	Average
9	0.639	22.70	10.74	33.44	56.00	22.56	QP
10	0.639	18.78	10.74	29.52	46.00	16.48	Average
11	0.882	16.31	10.82	27.13	56.00	28.87	QP
12	0.882	10.06	10.82	20.88	46.00	25.12	Average

5.2 Radiation Spurious Emissions

1)9kHz - 1GHz

Serial Number:	319W-1	Test Date:	2025/4/23~2025/4/24
Test Site:	Chamber A	Test Mode:	Transmitting
Tester:	Jayce Wang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.5~25.7	Relative Humidity: (%)	50~52	ATM Pressure: (kPa)	100.3~100.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMCO	Passive Loop Antenna	6512	9706-1206	2023/10/25	2026/10/24
Sunol Sciences	Hybrid Antenna	JB3	A060611-2	2024/4/16	2027/4/15
Narda	Coaxial Attenuator	757C-6dB	34010	2024/4/16	2027/4/15
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2024/7/1	2025/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2024/7/1	2025/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2024/7/1	2025/6/30
Sonoma	Amplifier	310N	372193	2024/8/16	2025/8/15
R&S	EMI Test Receiver	ESR3	102453	2024/8/26	2025/8/25
Audix	Test Software	E3	191218 V9	N/A	N/A

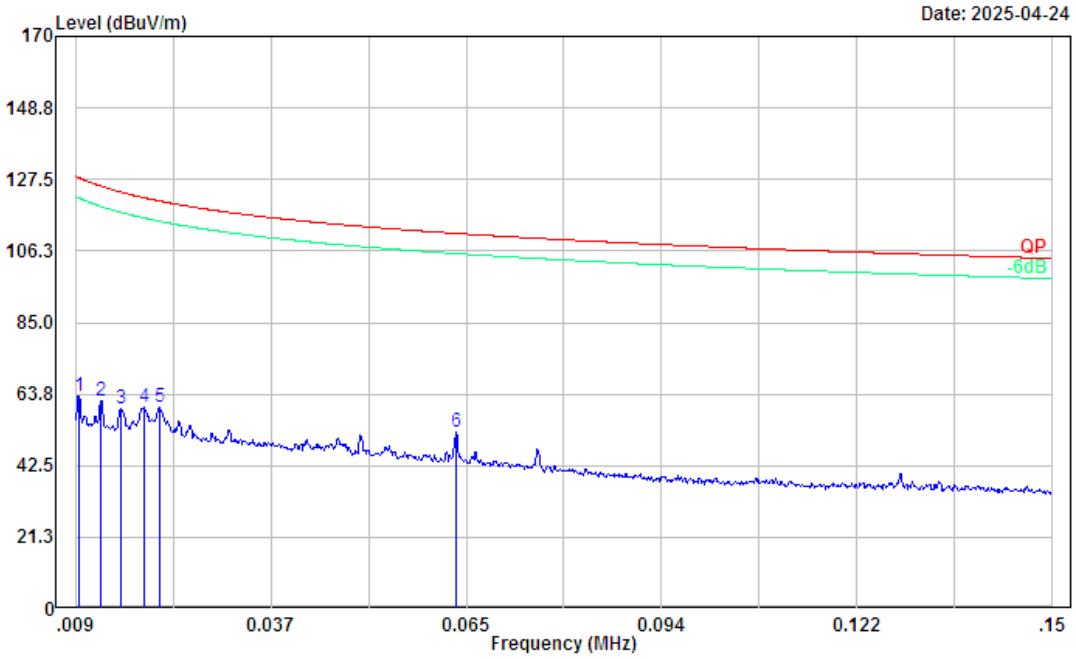
** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:
Please refer to the below plots.
After pre-scan in the X, Y and Z axes of orientation, the worst case is refer to table and plots.
Note: 802.11g High channel was tested.

9kHz~30MHz

Three antenna orientations (parallel, perpendicular, and ground-parallel) was measured, the worst orientations was below:

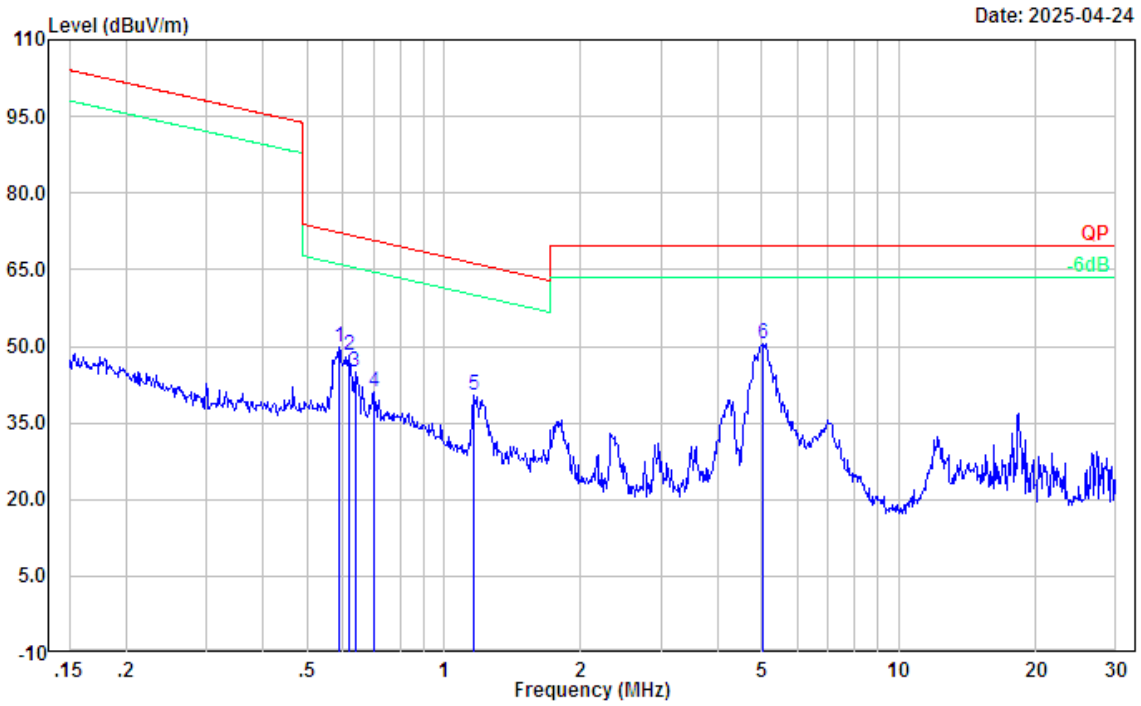
```
 Project No.: 2502S53059E-RF                    Serial No.: 319W-1
Polarization: Parallel                              Tester: Jayce Wang
   Test Mode: Transmitting
        Note: RBW:300Hz,VBW:1kHz
```



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Measurement
1	0.010	11.11	51.88	62.99	128.00	65.01	Peak
2	0.013	10.69	50.87	61.56	125.55	63.99	Peak
3	0.015	9.38	50.15	59.53	123.80	64.27	Peak
4	0.019	10.50	49.25	59.75	122.03	62.28	Peak
5	0.021	11.01	48.72	59.73	121.05	61.32	Peak
6	0.064	11.58	41.15	52.73	111.48	58.75	Peak

Project No.: 2502S53059E-RF
Polarization: Parallel
Test Mode: Transmitting
Note: RBW:10kHz,VBW:30kHz

Serial No.: 319W-1
Tester: Jayce Wang

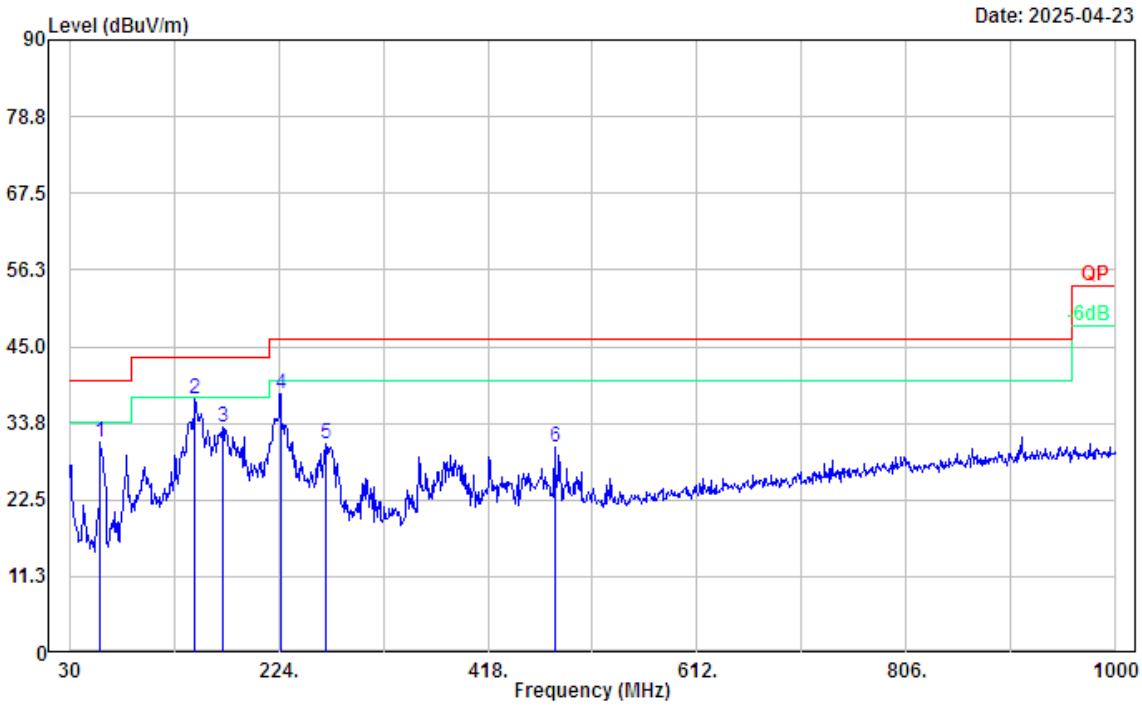


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Measurement
1	0.589	27.78	21.96	49.74	72.18	22.44	Peak
2	0.621	26.75	21.62	48.37	71.71	23.34	Peak
3	0.637	23.59	21.41	45.00	71.47	26.47	Peak
4	0.701	20.53	20.64	41.17	70.62	29.45	Peak
5	1.160	25.58	14.90	40.48	66.16	25.68	Peak
6	5.031	44.90	5.67	50.57	69.54	18.97	Peak

30MHz-1GHz

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: RBW:100kHz,VBW:300kHz
:

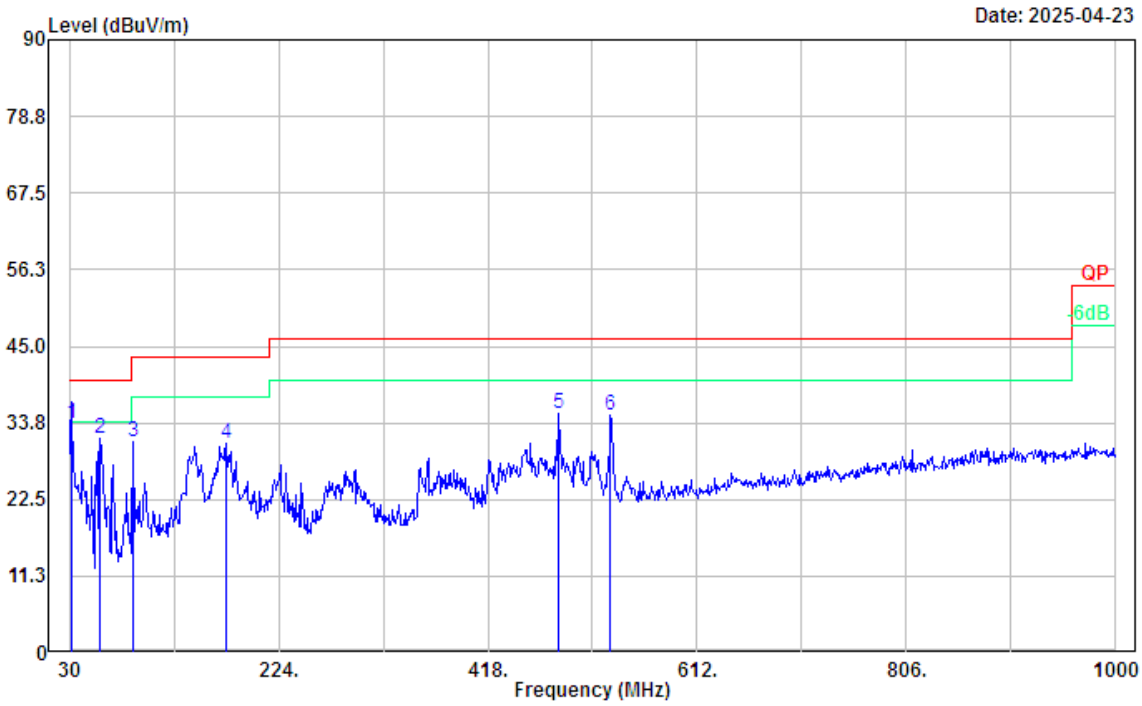
Serial No.: 319W-1
Tester: Jayce Wang



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Measurement
1	59.10	48.18	-17.27	30.91	40.00	9.09	Peak
2	146.40	48.47	-11.24	37.23	43.50	6.27	Peak
3	171.62	45.02	-11.84	33.18	43.50	10.32	Peak
4	225.94	49.18	-11.03	38.15	46.00	7.85	Peak
5	267.65	41.28	-10.55	30.73	46.00	15.27	Peak
6	480.08	34.81	-4.69	30.12	46.00	15.88	Peak

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: RBW:100kHz,VBW:300kHz
:

Serial No.: 319W-1
Tester: Jayce Wang



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Measurement
1	31.94	38.80	-5.03	33.77	40.00	6.23	QP
2	59.10	48.78	-17.27	31.51	40.00	8.49	Peak
3	89.17	47.85	-16.77	31.08	43.50	12.42	Peak
4	175.50	42.68	-11.99	30.69	43.50	12.81	Peak
5	483.96	39.73	-4.61	35.12	46.00	10.88	Peak
6	531.49	38.80	-3.81	34.99	46.00	11.01	Peak

2) 1-25GHz:

Serial Number:	319W-1	Test Date:	2025/4/22~2025/4/23
Test Site:	Chamber B	Test Mode:	Transmitting
Tester:	Ted Wang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	24.8~26.1	Relative Humidity: (%)	36~43	ATM Pressure: (kPa)	100.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ETS-Lindgren	Horn Antenna	3115	000 527 35	2023/9/7	2026/9/6
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2023/2/22	2026/2/21
Xinhang Macrowave	Coaxial Cable	XH750A-N/J-SMA/J-10M	20231117004 #0001	2024/11/17	2025/11/16
Xinhang Macrowave	Coaxial Cable	XH360A-2.92/J-2.92/J-6M-A	20231208001 #0001	2024/12/9	2025/12/8
AH	Preamplifier	PAM-0118P	469	2025/4/11	2026/4/10
AH	Preamplifier	PAM-1840VH	191	2024/9/5	2025/9/4
R&S	Spectrum Analyzer	FSV40	101944	2024/9/6	2025/9/5
Audix	Test Software	E3	191218 V9	N/A	N/A
Decentest	Multiplex Switch Test Control Set & Filter Switch Unit	DT7220SCU & DT7220FCU	DC79902 & DC79905	2024/8/27	2025/8/26

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

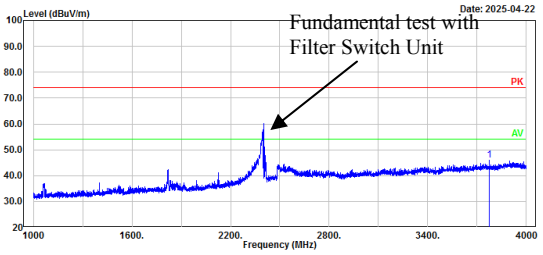
Please refer to the below plots.
After pre-scan in the X, Y and Z axes of orientation, the worst case is refer to table and plots.

1-18GHz:

802.11b low channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11b low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

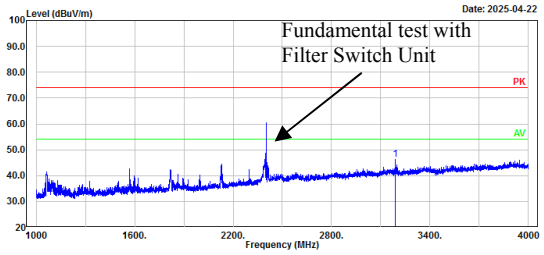


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3773.80	50.33	-4.34	45.99	74.00	28.01	Peak

802.11b low channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11b low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz

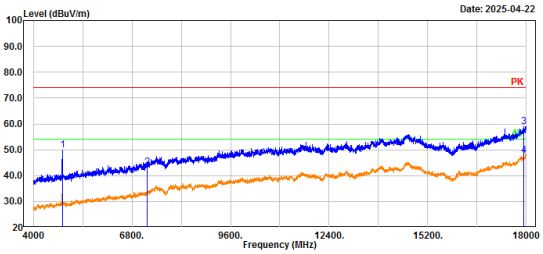
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3188.80	52.07	-5.94	46.13	74.00	27.87	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11b low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

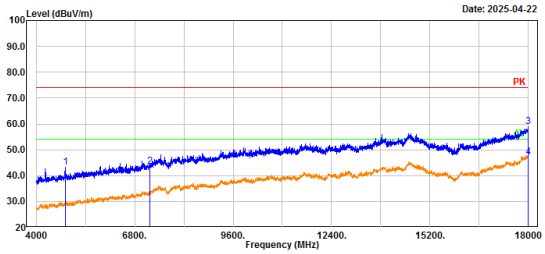
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4824.00	58.37	-8.58	49.79	74.00	24.21	Peak
2	7236.00	47.03	-3.67	43.36	74.00	30.64	Peak
3	17930.00	48.03	10.95	58.98	74.00	15.02	Peak
4	17930.00	36.69	10.95	47.64	54.00	6.36	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11b low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

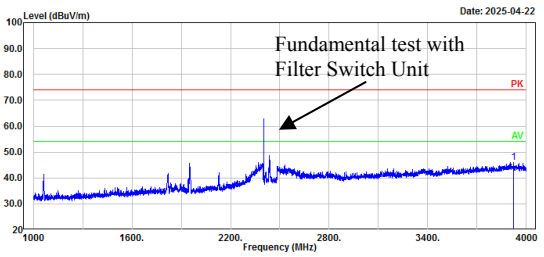


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4824.00	51.72	-8.58	43.14	74.00	30.86	Peak
2	7236.00	47.15	-3.67	43.48	74.00	30.52	Peak
3	17991.60	47.63	11.35	58.98	74.00	15.02	Peak
4	17991.60	35.96	11.35	47.31	54.00	6.69	Average

802.11b middle channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11b middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

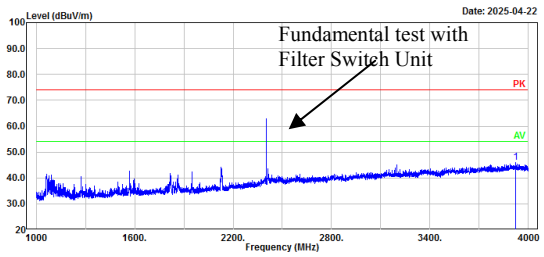


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3920.20	49.82	-3.74	46.08	74.00	27.92	Peak

802.11b middle channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11b middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz

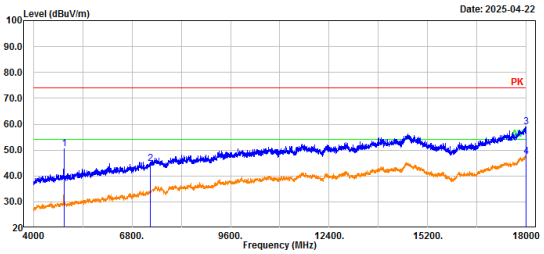
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3922.60	49.60	-3.75	45.85	74.00	28.15	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11b middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

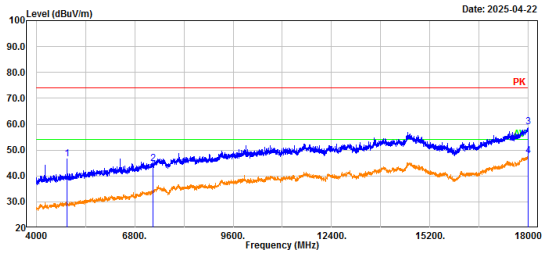
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4874.00	58.96	-8.50	50.46	74.00	23.54	Peak
2	7311.00	47.95	-3.27	44.68	74.00	29.32	Peak
3	17994.40	47.55	11.37	58.92	74.00	15.08	Peak
4	17994.40	36.01	11.37	47.38	54.00	6.62	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11b middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

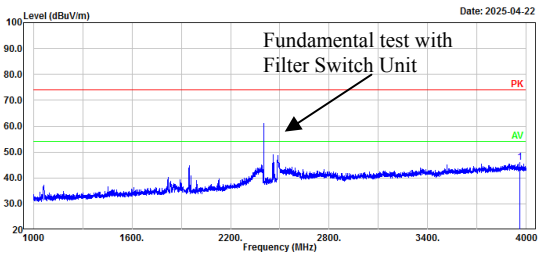


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4874.00	55.09	-8.50	46.59	74.00	27.41	Peak
2	7311.00	47.94	-3.27	44.67	74.00	29.33	Peak
3	17998.00	47.60	11.38	58.98	74.00	15.02	Peak
4	17998.00	36.29	11.38	47.67	54.00	6.33	Average

802.11b high channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11b high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

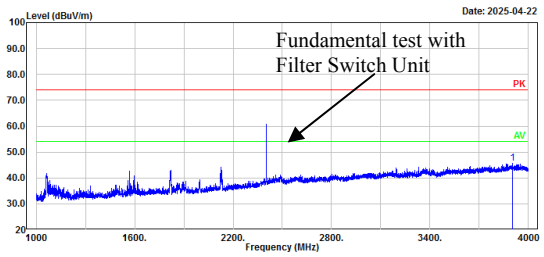


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3958.60	49.80	-3.69	46.11	74.00	27.89	Peak

802.11b high channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11b high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz

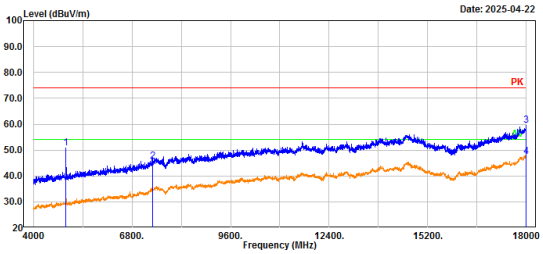
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3901.60	49.27	-3.63	45.64	74.00	28.36	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11b high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

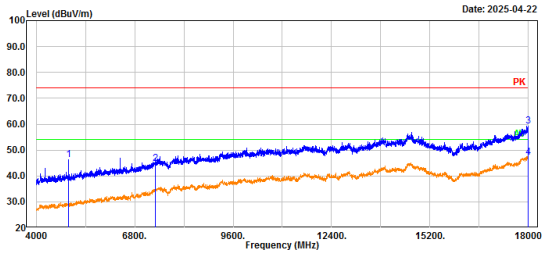
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4924.00	59.27	-8.47	50.80	74.00	23.20	Peak
2	7386.00	48.24	-2.71	45.53	74.00	28.47	Peak
3	17986.00	48.19	11.32	59.51	74.00	14.49	Peak
4	17986.00	36.23	11.32	47.55	54.00	6.45	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11b high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

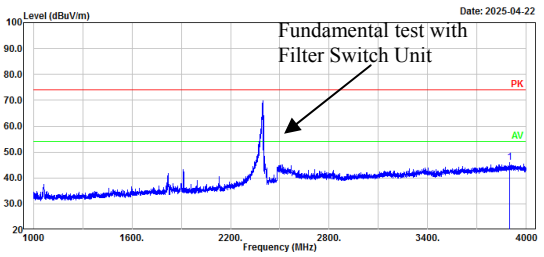


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4924.00	54.61	-8.47	46.14	74.00	27.86	Peak
2	7386.00	47.35	-2.71	44.64	74.00	29.36	Peak
3	17991.60	47.94	11.35	59.29	74.00	14.71	Peak
4	17991.60	35.84	11.35	47.19	54.00	6.81	Average

802.11g low channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11g low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

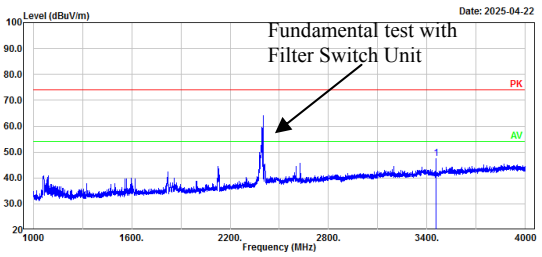


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3899.80	49.47	-3.61	45.86	74.00	28.14	Peak

802.11g low channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11g low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz

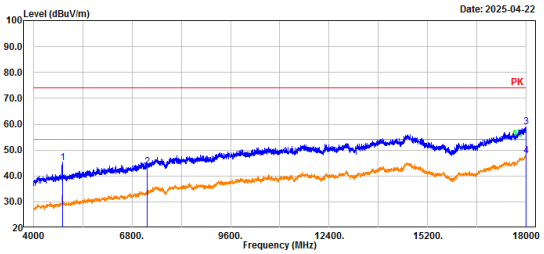
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3456.40	52.73	-5.37	47.36	74.00	26.64	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11g low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

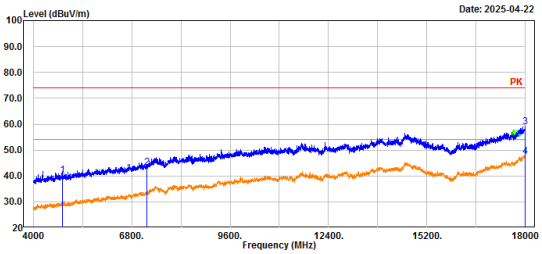
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4824.00	53.53	-8.58	44.95	74.00	29.05	Peak
2	7236.00	47.27	-3.67	43.60	74.00	30.40	Peak
3	17986.00	47.61	11.32	58.93	74.00	15.07	Peak
4	17986.00	36.33	11.32	47.65	54.00	6.35	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11g low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

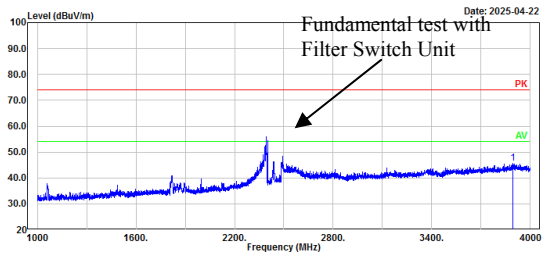


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4824.00	48.78	-8.58	40.20	74.00	33.80	Peak
2	7236.00	46.86	-3.67	43.19	74.00	30.81	Peak
3	17986.00	47.77	11.32	59.09	74.00	14.91	Peak
4	17986.00	36.19	11.32	47.51	54.00	6.49	Average

802.11g middle channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11g middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

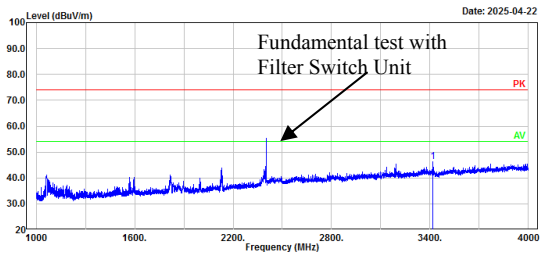


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3893.80	49.43	-3.67	45.76	74.00	28.24	Peak

802.11g middle channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11g middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz

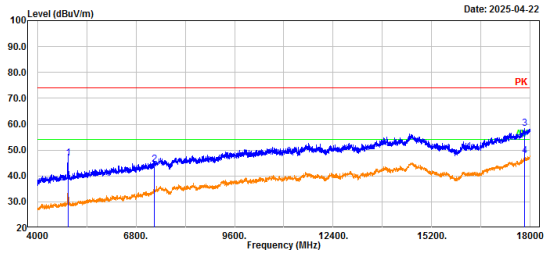
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3419.20	51.66	-5.45	46.21	74.00	27.79	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11g middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

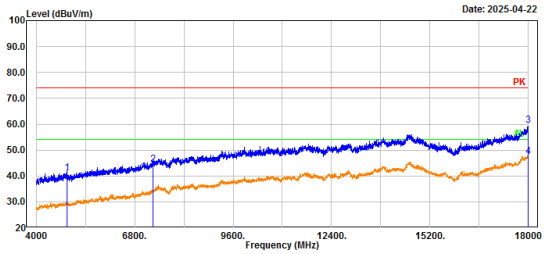
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4874.00	55.44	-8.50	46.94	74.00	27.06	Peak
2	7311.00	47.67	-3.27	44.40	74.00	29.60	Peak
3	17837.60	47.93	10.38	58.31	74.00	15.69	Peak
4	17837.60	37.31	10.38	47.69	54.00	6.31	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11g middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

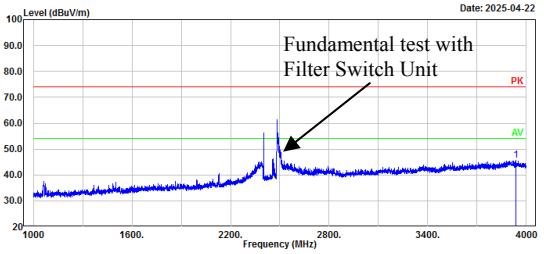


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4874.00	49.78	-8.50	41.28	74.00	32.72	Peak
2	7311.00	47.86	-3.27	44.59	74.00	29.41	Peak
3	17998.00	48.04	11.38	59.42	74.00	14.58	Peak
4	17998.00	36.19	11.38	47.57	54.00	6.43	Average

802.11g high channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11g high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

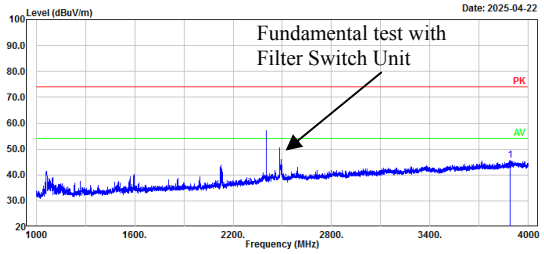


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3938.20	49.42	-3.69	45.73	74.00	28.27	Peak

802.11g high channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11g high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz

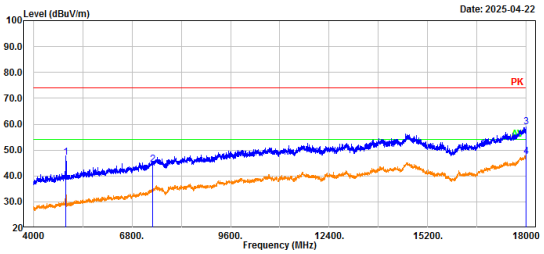
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3890.80	49.43	-3.73	45.70	74.00	28.30	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11g high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

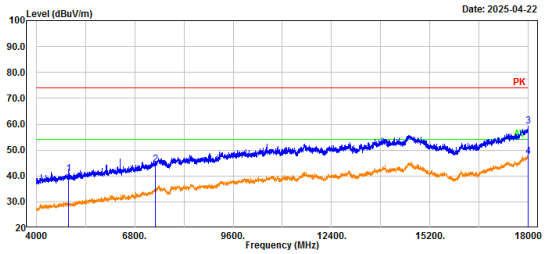
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4924.00	55.67	-8.47	47.20	74.00	26.80	Peak
2	7386.00	47.03	-2.71	44.32	74.00	29.68	Peak
3	17997.20	47.57	11.38	58.95	74.00	15.05	Peak
4	17997.20	36.18	11.38	47.56	54.00	6.44	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11g high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

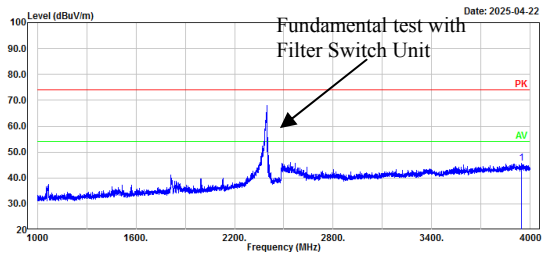


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4924.00	49.35	-8.47	40.88	74.00	33.12	Peak
2	7386.00	47.22	-2.71	44.51	74.00	29.49	Peak
3	17994.40	47.78	11.37	59.15	74.00	14.85	Peak
4	17994.40	36.11	11.37	47.48	54.00	6.52	Average

802.11n20 low channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n20 low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

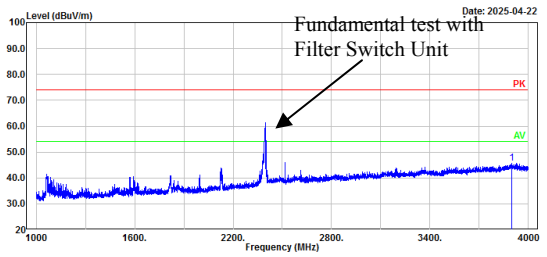


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3946.00	49.39	-3.61	45.78	74.00	28.22	Peak

802.11n20 low channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n20 low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz

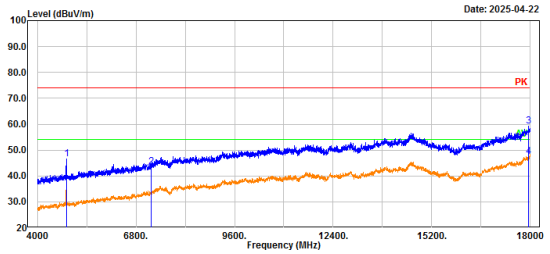
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3896.20	49.40	-3.63	45.77	74.00	28.23	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n20 low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

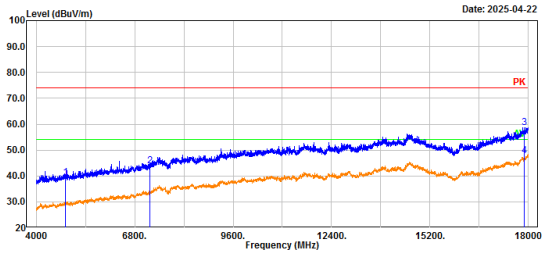
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4824.00	55.14	-8.58	46.56	74.00	27.44	Peak
2	7236.00	47.19	-3.67	43.52	74.00	30.48	Peak
3	17938.40	48.10	11.01	59.11	74.00	14.89	Peak
4	17938.40	36.45	11.01	47.46	54.00	6.54	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n20 low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

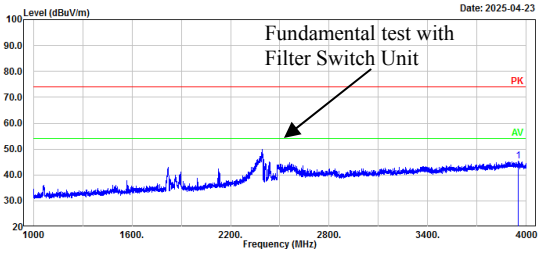


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4824.00	47.82	-8.58	39.24	74.00	34.76	Peak
2	7236.00	47.49	-3.67	43.82	74.00	30.18	Peak
3	17882.40	48.13	10.64	58.77	74.00	15.23	Peak
4	17882.40	37.02	10.64	47.66	54.00	6.34	Average

802.11n20 middle channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n20 middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

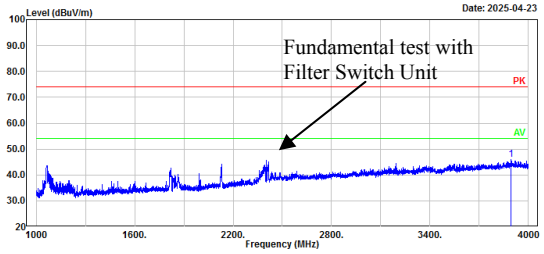


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3949.60	48.86	-3.63	45.23	74.00	28.77	Peak

802.11n20 middle channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n20 middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz

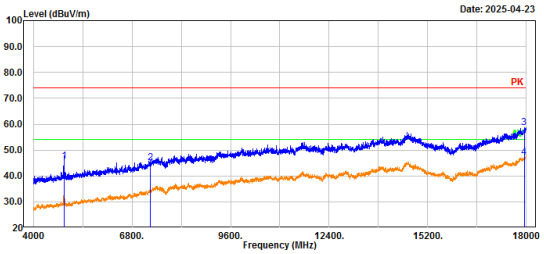
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3895.00	49.61	-3.64	45.97	74.00	28.03	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n20 middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

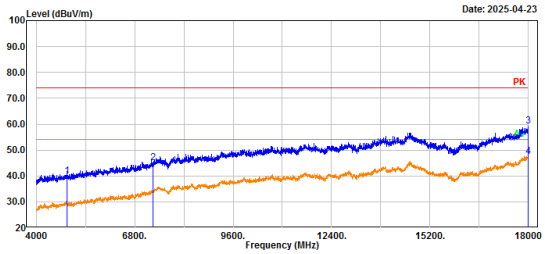
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4874.00	54.04	-8.50	45.54	74.00	28.46	Peak
2	7311.00	48.21	-3.27	44.94	74.00	29.06	Peak
3	17935.60	47.70	10.99	58.69	74.00	15.31	Peak
4	17935.60	36.29	10.99	47.28	54.00	6.72	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n20 middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

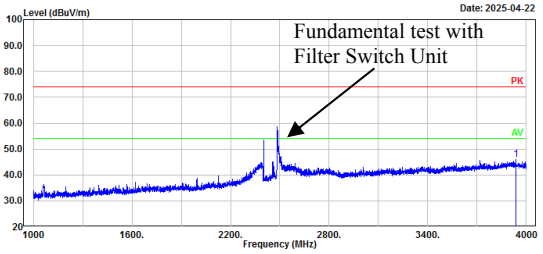


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4874.00	48.47	-8.50	39.97	74.00	34.03	Peak
2	7311.00	48.23	-3.27	44.96	74.00	29.04	Peak
3	17994.40	47.94	11.37	59.31	74.00	14.69	Peak
4	17994.40	36.24	11.37	47.61	54.00	6.39	Average

802.11n20 high channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n20 high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

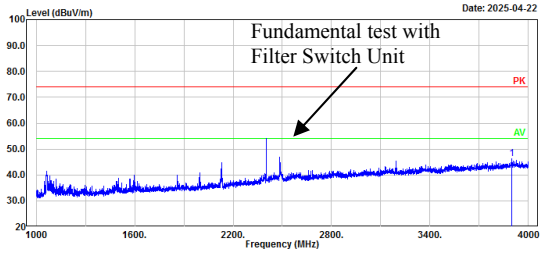


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3934.60	49.80	-3.73	46.07	74.00	27.93	Peak

802.11n20 high channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n20 high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz

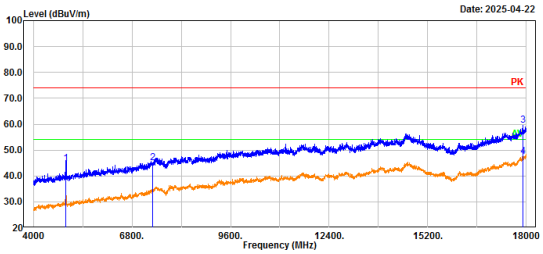
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3896.80	49.85	-3.62	46.23	74.00	27.77	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n20 high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

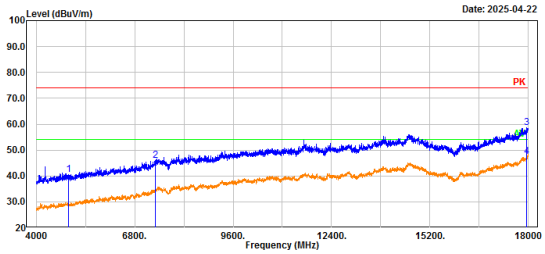
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4924.00	53.12	-8.47	44.65	74.00	29.35	Peak
2	7386.00	47.91	-2.71	45.20	74.00	28.80	Peak
3	17893.60	48.79	10.70	59.49	74.00	14.51	Peak
4	17893.60	36.68	10.70	47.38	54.00	6.62	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n20 high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

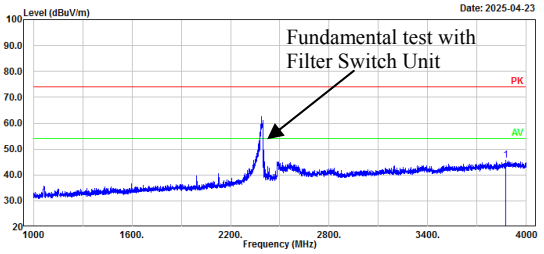


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4924.00	48.85	-8.47	40.38	74.00	33.62	Peak
2	7386.00	48.57	-2.71	45.86	74.00	28.14	Peak
3	17944.00	47.69	11.04	58.73	74.00	15.27	Peak
4	17944.00	36.53	11.04	47.57	54.00	6.43	Average

802.11n40 low channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n40 low channel 2422MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

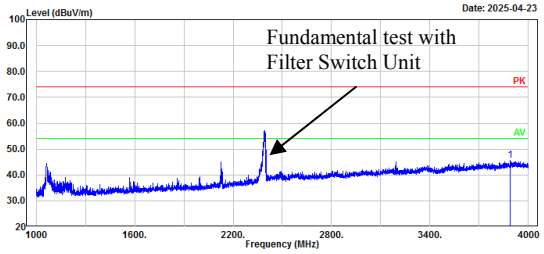


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3875.20	49.57	-3.93	45.64	74.00	28.36	Peak

802.11n40 low channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n40 low channel 2422MHz
Peak:RBW:1MHz,VBW:3MHz

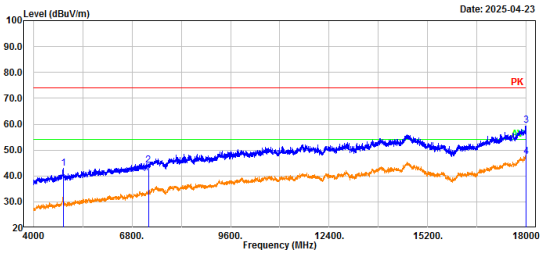
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3887.80	49.38	-3.79	45.59	74.00	28.41	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n40 low channel 2422MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

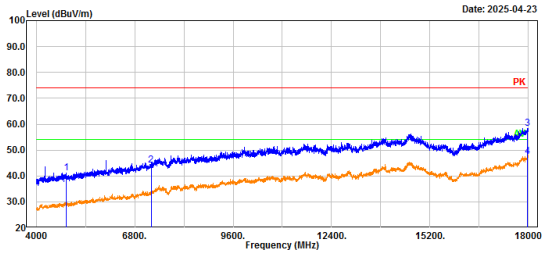
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4844.00	51.52	-8.53	42.99	74.00	31.01	Peak
2	7266.00	47.59	-3.52	44.07	74.00	29.93	Peak
3	17998.00	48.27	11.38	59.65	74.00	14.35	Peak
4	17998.00	36.23	11.38	47.61	54.00	6.39	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n40 low channel 2422MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

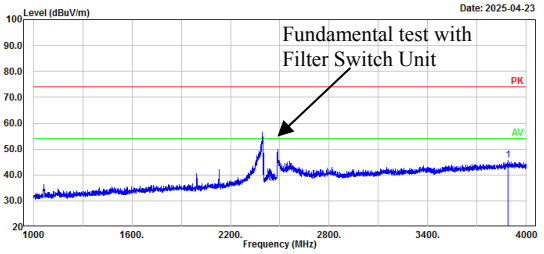


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4844.00	49.55	-8.53	41.02	74.00	32.98	Peak
2	7266.00	47.70	-3.52	44.18	74.00	29.82	Peak
3	17972.00	47.15	11.24	58.39	74.00	15.61	Peak
4	17972.00	36.13	11.24	47.37	54.00	6.63	Average

802.11n40 middle channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n40 middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

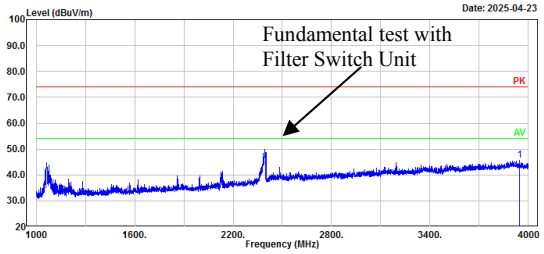


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3890.20	49.47	-3.75	45.72	74.00	28.28	Peak

802.11n40 middle channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n40 middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz

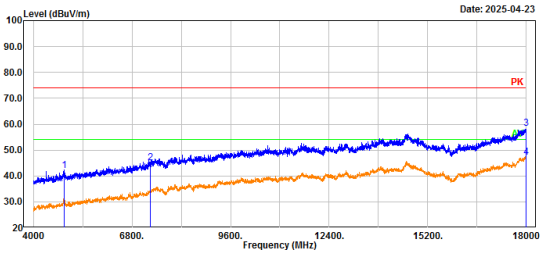
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3946.00	49.28	-3.61	45.67	74.00	28.33	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n40 middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

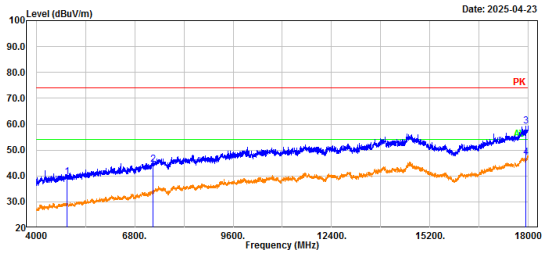
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4874.00	50.55	-8.50	42.05	74.00	31.95	Peak
2	7311.00	48.30	-3.27	45.03	74.00	28.97	Peak
3	17998.00	46.82	11.38	58.20	74.00	15.80	Peak
4	17998.00	35.90	11.38	47.28	54.00	6.72	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n40 middle channel 2437MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

Serial No.: 319W-1
Tester: Ted Wang

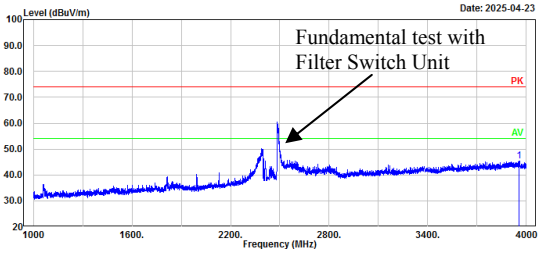


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4874.00	48.19	-8.50	39.69	74.00	34.31	Peak
2	7311.00	47.64	-3.27	44.37	74.00	29.63	Peak
3	17918.80	48.44	10.86	59.30	74.00	14.70	Peak
4	17918.80	36.35	10.86	47.21	54.00	6.79	Average

802.11n40 high channel Horizontal

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n40 high channel 2452MHz
Peak:RBW:1MHz,VBW:3MHz

Serial No.: 319W-1
Tester: Ted Wang

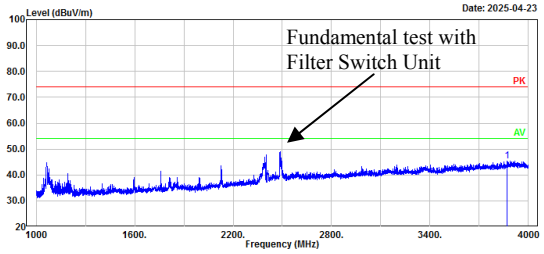


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3955.60	48.95	-3.66	45.29	74.00	28.71	Peak

802.11n40 high channel Vertical

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n40 high channel 2452MHz
Peak:RBW:1MHz,VBW:3MHz

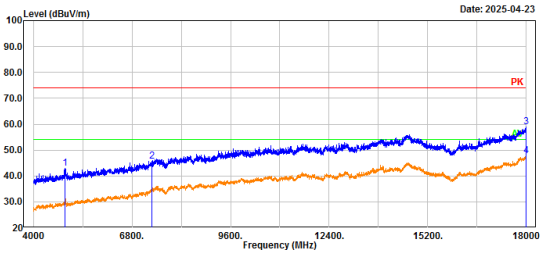
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	3869.20	49.37	-3.97	45.40	74.00	28.60	Peak

Project No.: 2502S53059E-RF
Polarization: Horizontal
Test Mode: Transmitting
Note: 802.11n40 high channel 2452MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

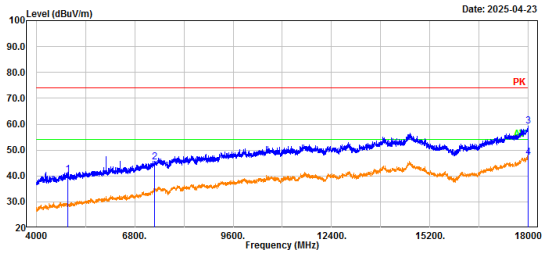
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4904.00	51.39	-8.46	42.93	74.00	31.07	Peak
2	7356.00	48.47	-2.92	45.55	74.00	28.45	Peak
3	17988.80	47.63	11.33	58.96	74.00	15.04	Peak
4	17988.80	36.55	11.33	47.88	54.00	6.12	Average

Project No.: 2502S53059E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: 802.11n40 high channel 2452MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz

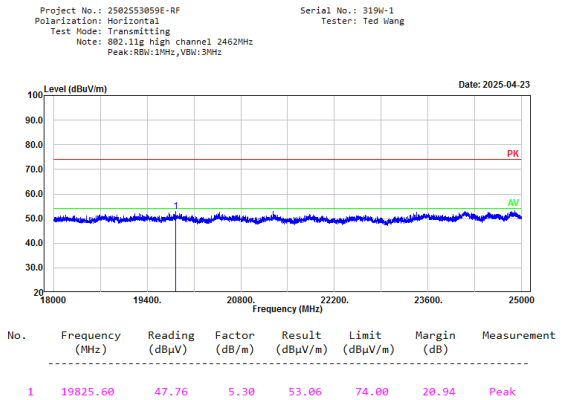
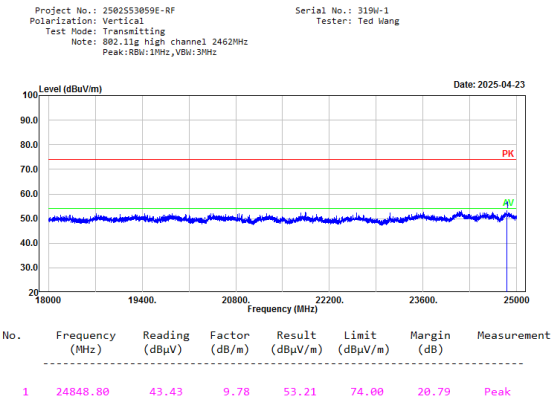
Serial No.: 319W-1
Tester: Ted Wang



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4904.00	48.95	-8.46	40.49	74.00	33.51	Peak
2	7356.00	48.16	-2.92	45.24	74.00	28.76	Peak
3	17994.40	47.78	11.37	59.15	74.00	14.85	Peak
4	17994.40	35.88	11.37	47.25	54.00	6.75	Average

18-25GHz:

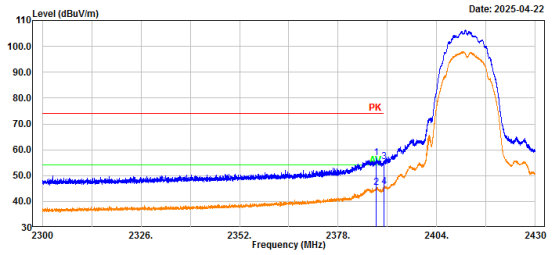
No Emission was detected in the range 18-25GHz, test was performed on the mode and channel which with the maximum power.

802.11g high channel Horizontal	802.11g high channel Vertical
 No. Frequency (MHz) Reading (dBμV) Factor (dB/m) Result (dBμV/m) Limit (dBμV/m) Margin (dB) Measurement 1 19825.60 47.76 5.30 53.06 74.00 20.94 Peak	 No. Frequency (MHz) Reading (dBμV) Factor (dB/m) Result (dBμV/m) Limit (dBμV/m) Margin (dB) Measurement 1 24848.80 43.43 9.78 53.21 74.00 20.79 Peak

Bandedge:

802.11b low channel Bandedge Horizontal

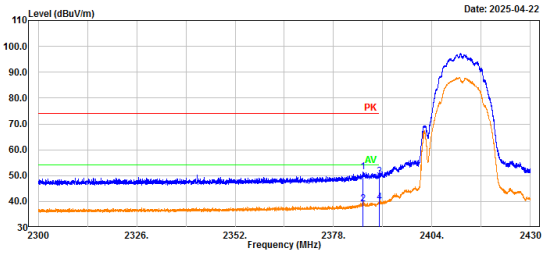
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Horizontal Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11b low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2388.11	57.38	-0.51	56.87	74.00	17.13	Peak
2	2388.11	45.76	-0.51	45.25	54.00	8.75	Average
3	2390.00	55.73	-0.49	55.24	74.00	18.76	Peak
4	2390.00	46.26	-0.49	45.77	54.00	8.23	Average

802.11b low channel Bandedge Vertical

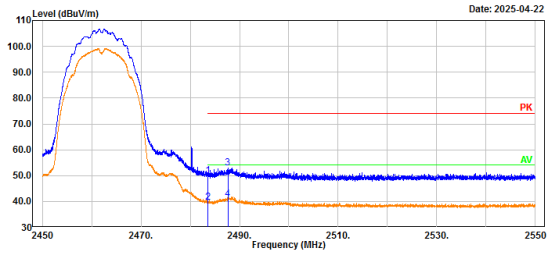
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Vertical Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11b low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2385.67	51.82	-0.52	51.30	74.00	22.70	Peak
2	2385.67	39.51	-0.52	38.99	54.00	15.01	Average
3	2390.00	50.12	-0.49	49.63	74.00	24.37	Peak
4	2390.00	40.21	-0.49	39.72	54.00	14.28	Average

802.11b high channel Bandedge Horizontal

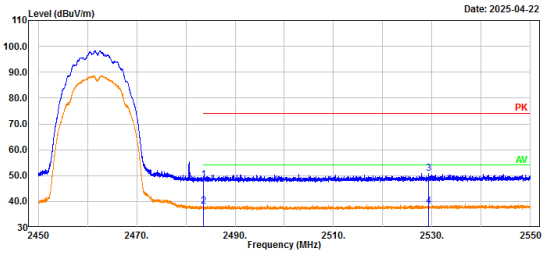
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Horizontal Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11b high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	50.08	-0.05	50.03	74.00	23.97	Peak
2	2483.50	39.77	-0.05	39.72	54.00	14.28	Average
3	2487.62	52.95	-0.03	52.92	74.00	21.08	Peak
4	2487.62	41.04	-0.03	41.01	54.00	12.99	Average

802.11b high channel Bandedge Vertical

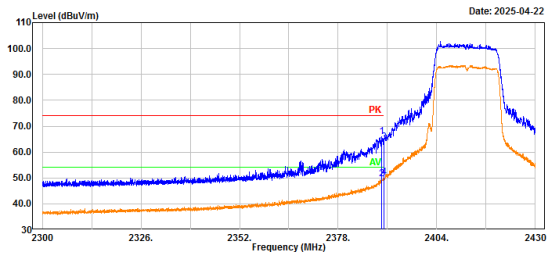
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Vertical Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11b high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	48.42	-0.05	48.37	74.00	25.63	Peak
2	2483.50	38.13	-0.05	38.08	54.00	15.92	Average
3	2529.26	50.57	0.21	50.78	74.00	23.22	Peak
4	2529.26	37.99	0.21	38.20	54.00	15.80	Average

802.11g low channel Bandedge Horizontal

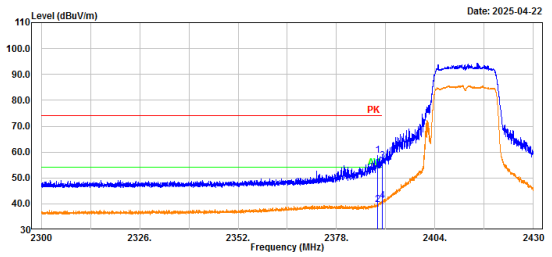
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Horizontal Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11g low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2389.49	66.51	-0.49	66.02	74.00	7.98	Peak
2	2389.49	50.11	-0.49	49.62	54.00	4.38	Average
3	2390.00	64.31	-0.49	63.82	74.00	10.18	Peak
4	2390.00	50.64	-0.49	50.15	54.00	3.85	Average

802.11g low channel Bandedge Vertical

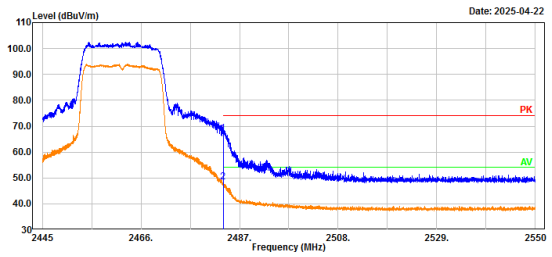
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Vertical Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11g low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2388.79	59.04	-0.50	58.54	74.00	15.46	Peak
2	2388.79	40.28	-0.50	39.78	54.00	14.22	Average
3	2390.00	57.16	-0.49	56.67	74.00	17.33	Peak
4	2390.00	41.69	-0.49	41.20	54.00	12.80	Average

802.11g high channel Bandedge Horizontal

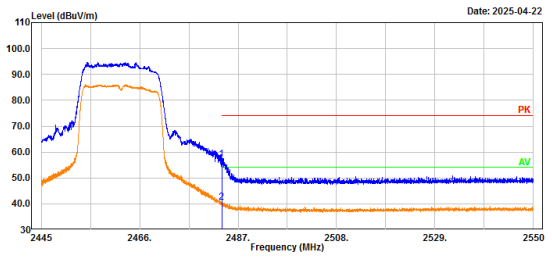
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Horizontal Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11g high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	67.11	-0.05	67.06	74.00	6.94	Peak
2	2483.50	48.34	-0.05	48.29	54.00	5.71	Average

802.11g high channel Bandedge Vertical

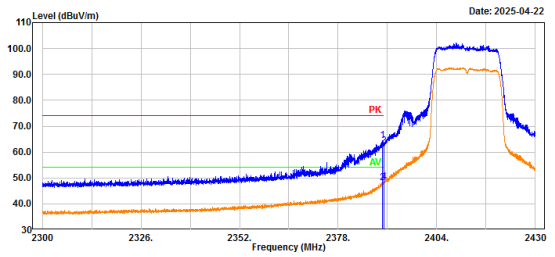
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Vertical Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11g high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	57.23	-0.05	57.18	74.00	16.82	Peak
2	2483.50	40.58	-0.05	40.53	54.00	13.47	Average

802.11n20 low channel Bandedge Horizontal

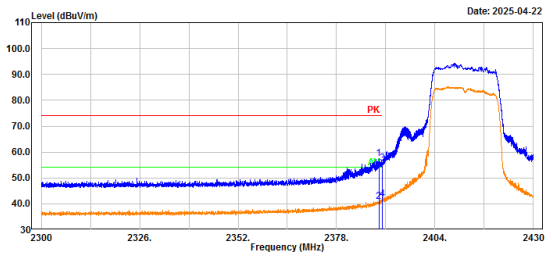
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Horizontal Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11n20 low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2389.62	64.92	-0.49	64.43	74.00	9.57	Peak
2	2389.62	48.63	-0.49	48.14	54.00	5.86	Average
3	2390.00	62.90	-0.49	62.41	74.00	11.59	Peak
4	2390.00	49.02	-0.49	48.53	54.00	5.47	Average

802.11n20 low channel Bandedge Vertical

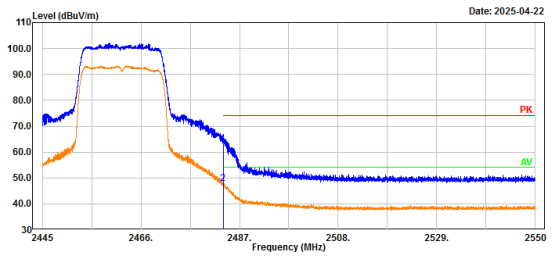
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Vertical Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11n20 low channel 2412MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2389.15	57.95	-0.50	57.45	74.00	16.55	Peak
2	2389.15	41.50	-0.50	41.00	54.00	13.00	Average
3	2390.00	56.03	-0.49	55.54	74.00	18.46	Peak
4	2390.00	42.14	-0.49	41.65	54.00	12.35	Average

802.11n20 high channel Bandedge Horizontal

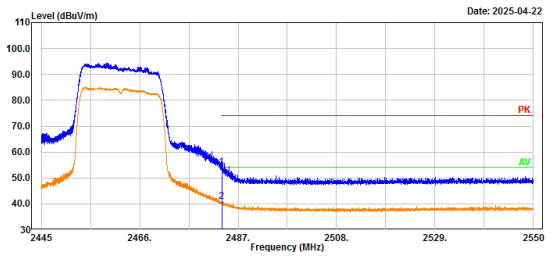
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Horizontal Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11n20 high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	63.37	-0.05	63.32	74.00	10.68	Peak
2	2483.50	47.88	-0.05	47.83	54.00	6.17	Average

802.11n20 high channel Bandedge Vertical

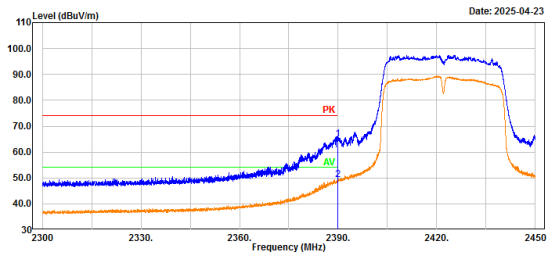
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Vertical Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11n20 high channel 2462MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	54.35	-0.05	54.30	74.00	19.70	Peak
2	2483.50	40.83	-0.05	40.78	54.00	13.22	Average

802.11n40 low channel Bandedge Horizontal

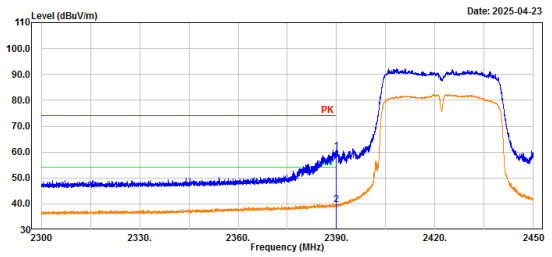
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Horizontal Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11n40 low channel 2422MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2390.00	65.63	-0.49	65.14	74.00	8.86	Peak
2	2390.00	49.81	-0.49	49.32	54.00	4.68	Average

802.11n40 low channel Bandedge Vertical

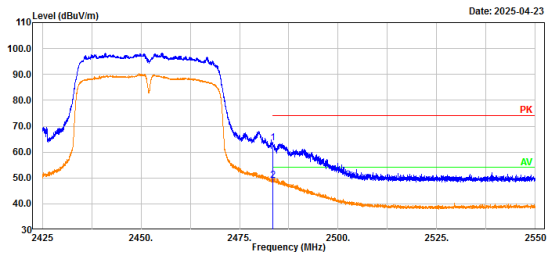
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Vertical Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11n40 low channel 2422MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2390.00	60.68	-0.49	60.19	74.00	13.81	Peak
2	2390.00	40.11	-0.49	39.62	54.00	14.38	Average

802.11n40 high channel Bandedge Horizontal

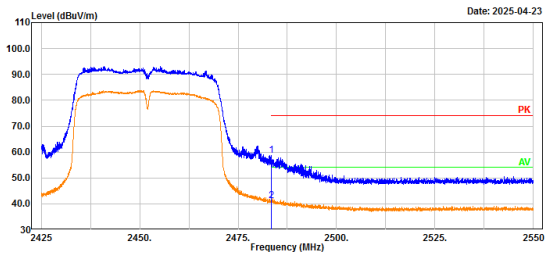
Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Horizontal Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11n40 high channel 2452MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	63.57	-0.05	63.52	74.00	10.48	Peak
2	2483.50	49.02	-0.05	48.97	54.00	5.03	Average

802.11n40 high channel Bandedge Vertical

Project No.: 2502S53059E-RF Serial No.: 319W-1
Polarization: Vertical Tester: Ted Wang
Test Mode: Transmitting
Note: 802.11n40 high channel 2452MHz
Peak:RBW:1MHz,VBW:3MHz Ave:RBW:1MHz,VBW:5kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2483.50	58.68	-0.05	58.63	74.00	15.37	Peak
2	2483.50	41.26	-0.05	41.21	54.00	12.79	Average

5.3 6dB Emission Bandwidth

Test Information:

Serial No.:	319W-2	**Test Date:**	2025/05/07~2025/05/14
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Bill Yang	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	24.7-26.1	**Relative Humidity: (%)**	49-52	**ATM Pressure: (kPa)**	100.8-101.2

Test Equipment List and Details:

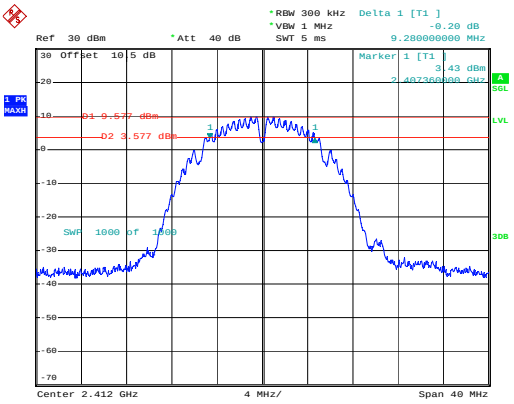
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2024/06/07	2025/06/06
Narda	Coaxial Attenuator	773-10	F-08-EM511	2024/06/07	2025/06/06
R&S	Spectrum Analyzer	FSP 38	100478	2024/09/05	2025/09/04

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Mode	Test Frequency (MHz)	Result (MHz)	Limit (MHz)	Verdict
802.11b	2412	9.280	≥0.5	Pass
	2437	9.280	≥0.5	Pass
	2462	9.280	≥0.5	Pass
802.11g	2412	16.560	≥0.5	Pass
	2437	16.560	≥0.5	Pass
	2462	16.560	≥0.5	Pass
802.11n20	2412	17.720	≥0.5	Pass
	2437	17.720	≥0.5	Pass
	2462	17.720	≥0.5	Pass
802.11n40	2422	36.560	≥0.5	Pass
	2437	36.560	≥0.5	Pass
	2452	36.560	≥0.5	Pass

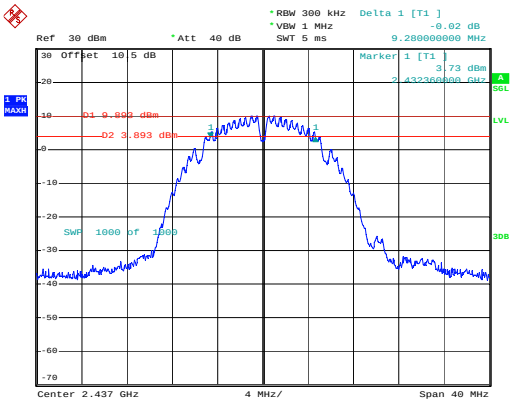
802.11b_2412MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:44:21

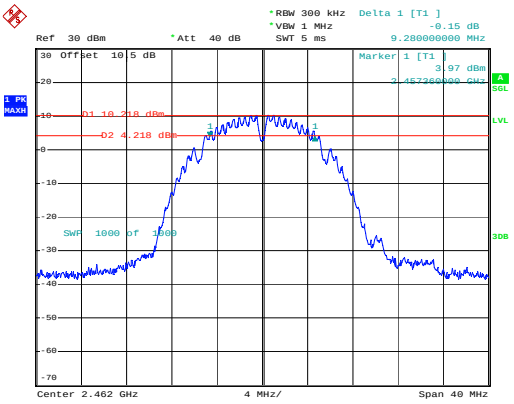
802.11b_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:53:14

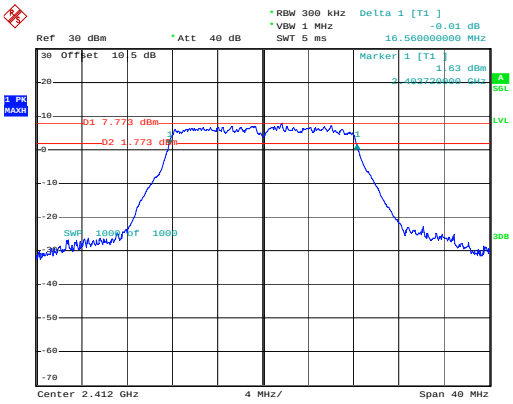
802.11b_2462MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:59:39

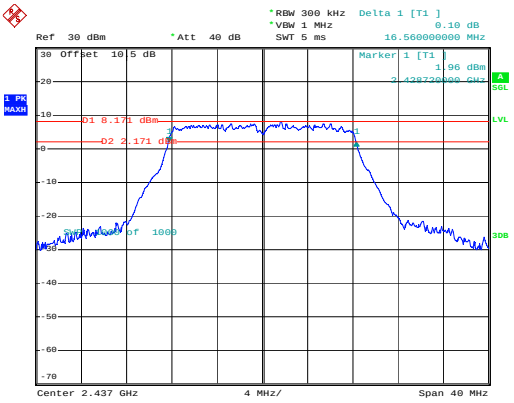
802.11g_2412MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:08:36

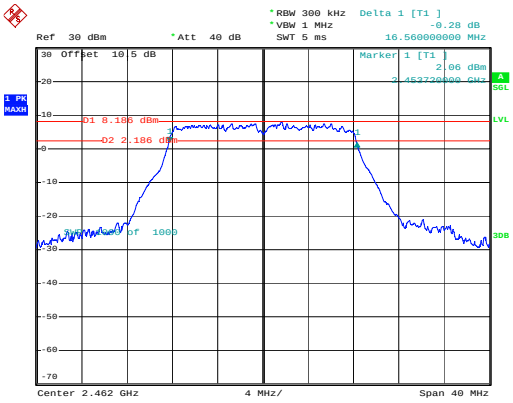
802.11g_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:11:42

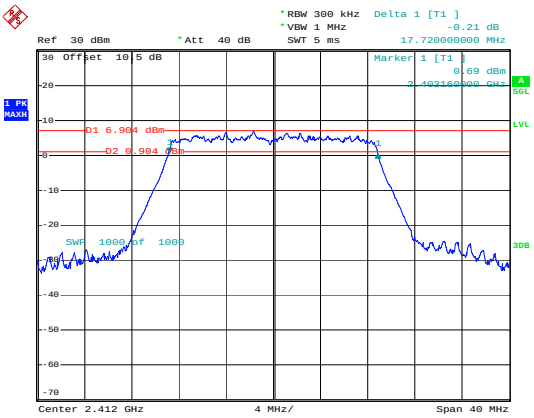
802.11g_2462MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

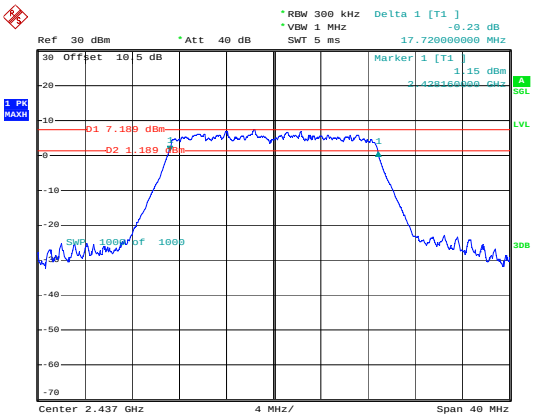
Date: 7.MAY.2025 11:14:43

802.11n20_2412MHz



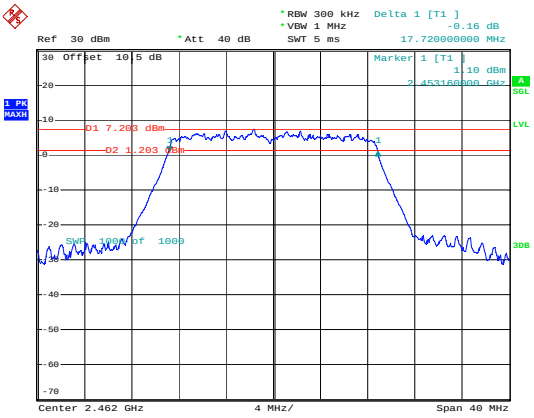
ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 11:18:42

802.11n20_2437MHz



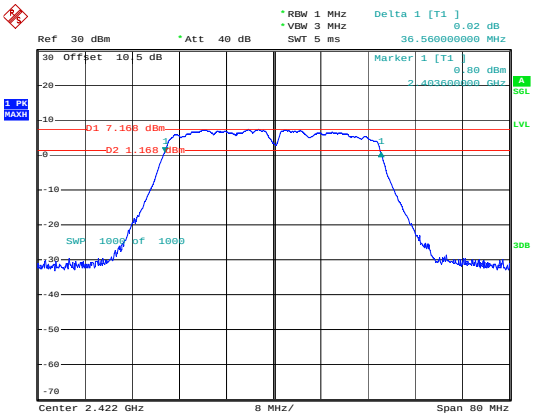
ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 11:27:28

802.11n20_2462MHz



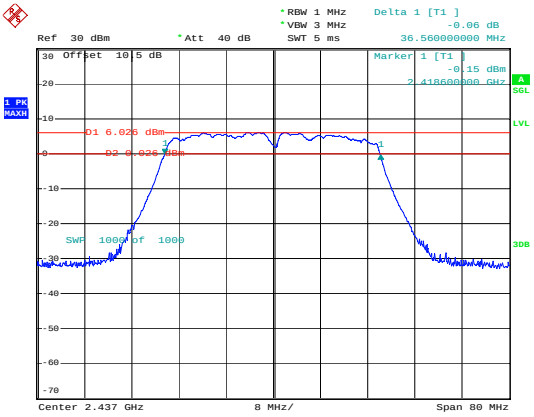
ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 11:32:25

802.11n40_2422MHz



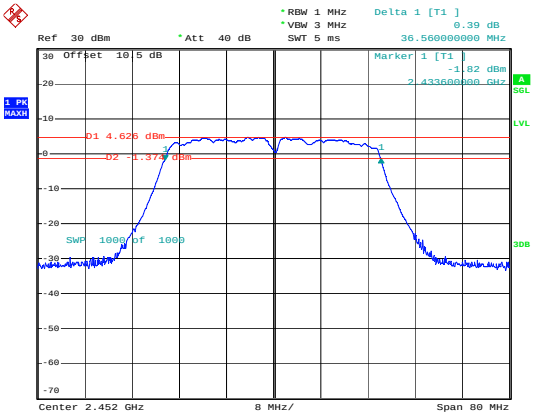
ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 14.MAY.2025 11:10:07

802.11n40_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 14.MAY.2025 11:11:00

802.11n40_2452MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 14.MAY.2025 11:12:02

5.4 99% Occupied Bandwidth

Test Information:

Serial No.:	319W-2	**Test Date:**	2025/05/07
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Bill Yang	**Test Result:**	/

Environmental Conditions:

Temperature: (°C)	26.1	**Relative Humidity: (%)**	52	**ATM Pressure: (kPa)**	100.8

Test Equipment List and Details:

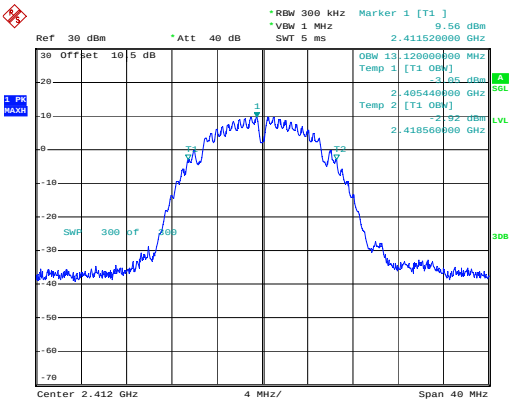
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2024/06/07	2025/06/06
R&S	Spectrum Analyzer	FSP 38	100478	2024/09/05	2025/09/04

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Mode	Test Frequency (MHz)	99% OBW (MHz)
802.11b	2412	13.120
	2437	13.160
	2462	13.160
802.11g	2412	17.440
	2437	17.440
	2462	17.480
802.11n20	2412	18.440
	2437	18.440
	2462	18.440
802.11n40	2422	37.360
	2437	37.440
	2452	37.360

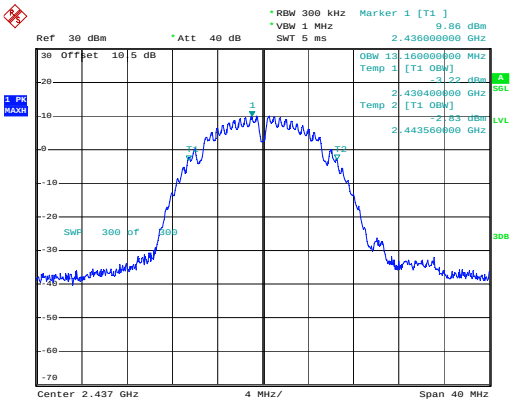
802.11b_2412MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:44:47

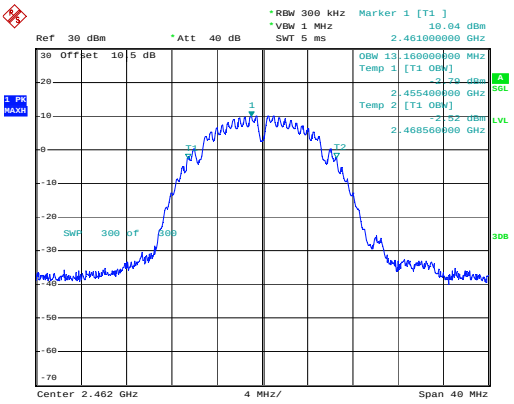
802.11b_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:53:37

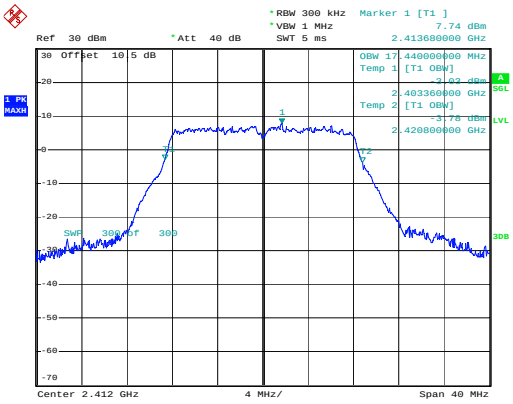
802.11b_2462MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:00:02

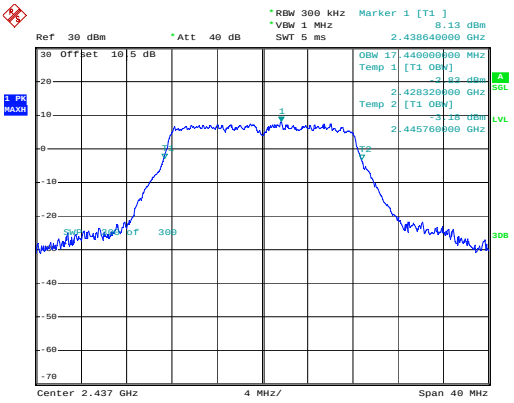
802.11g_2412MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:09:01

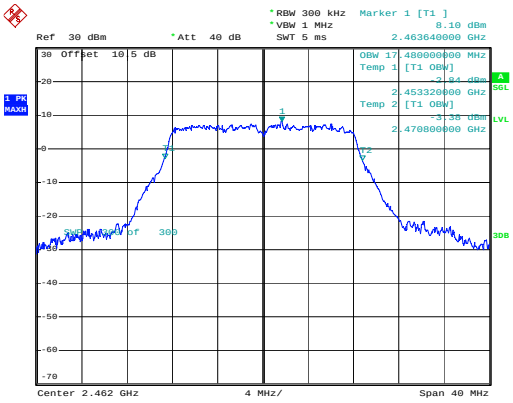
802.11g_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:12:07

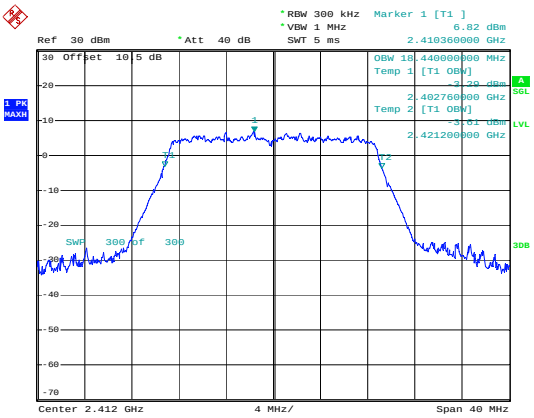
802.11g_2462MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:15:07

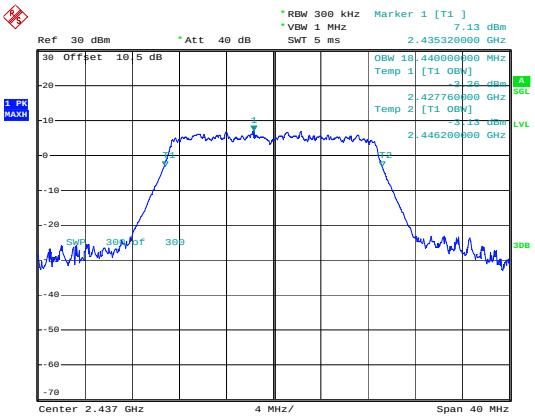
802.11n20_2412MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:19:07

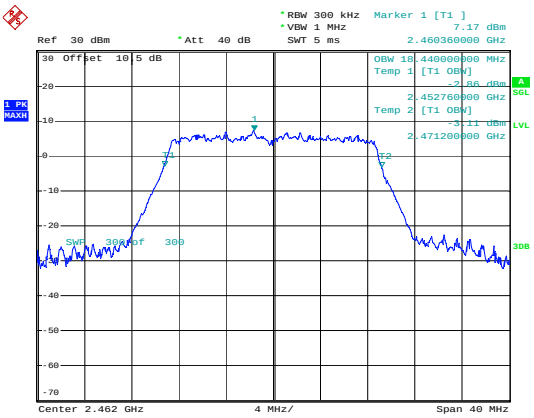
802.11n20_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:27:53

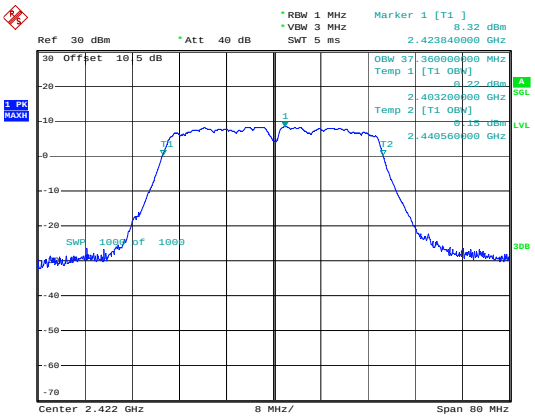
802.11n20_2462MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:32:51

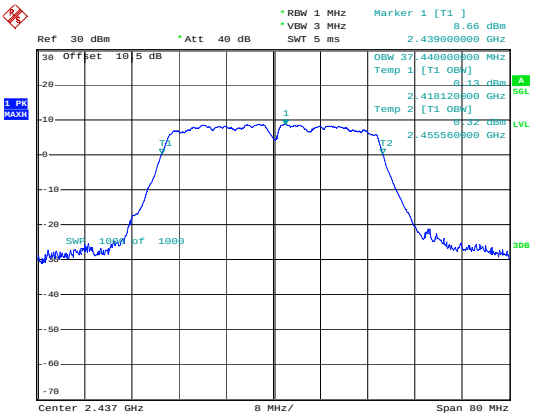
802.11n40_2422MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:37:08

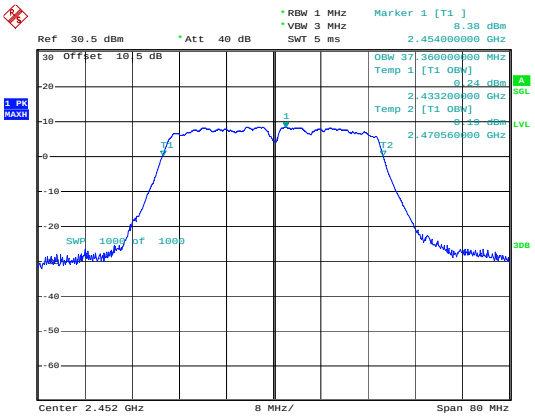
802.11n40_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 11:50:45

802.11n40_2452MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 12:06:04

5.5 Maximum Conducted Output Power

Test Information:

Serial No.:	319W-2	**Test Date:**	2025/05/07
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Bill Yang	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	26.1	**Relative Humidity: (%)**	52	**ATM Pressure: (kPa)**	100.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2024/06/07	2025/06/06
Anritsu	Microwave Peak Power Sensor	MA24418A	12618	2024/08/27	2025/08/26

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Mode	Test Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Limit (dBm)	Verdict
802.11b	2412	20.71	16.97	30	Pass
	2437	20.93	17.26	30	Pass
	2462	21.12	17.45	30	Pass
802.11g	2412	24.11	15.17	30	Pass
	2437	24.33	15.54	30	Pass
	2462	**24.46**	15.56	30	Pass
802.11n20	2412	23.27	14.34	30	Pass
	2437	23.47	14.67	30	Pass
	2462	23.63	14.72	30	Pass
802.11n40	2422	22.49	13.39	30	Pass
	2437	22.99	13.73	30	Pass
	2452	22.78	13.56	30	Pass

5.6 Power Spectral Density

Test Information:

Serial No.:	319W-2	**Test Date:**	2025/05/07
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Bill Yang	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	26.1	**Relative Humidity: (%)**	52	**ATM Pressure: (kPa)**	100.8

Test Equipment List and Details:

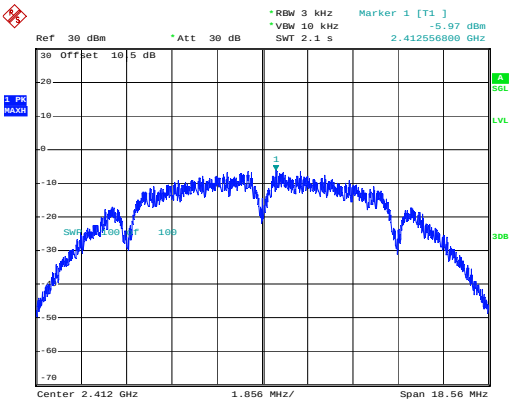
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2024/06/07	2025/06/06
R&S	Spectrum Analyzer	FSP 38	100478	2024/09/05	2025/09/04

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

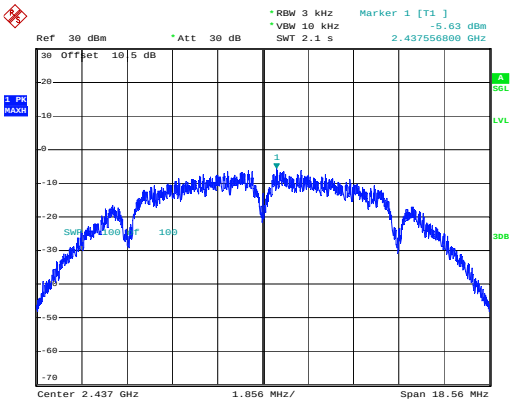
Mode	Test Frequency (MHz)	Result (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11b	2412	-5.97	8	Pass
	2437	-5.63	8	Pass
	2462	-5.56	8	Pass
802.11g	2412	-10.05	8	Pass
	2437	-9.65	8	Pass
	2462	-9.68	8	Pass
802.11n20	2412	-10.36	8	Pass
	2437	-10.12	8	Pass
	2462	-10.00	8	Pass
802.11n40	2422	-12.72	8	Pass
	2437	-12.37	8	Pass
	2452	-12.83	8	Pass

802.11b_2412MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 10:50:05

802.11b_2437MHz



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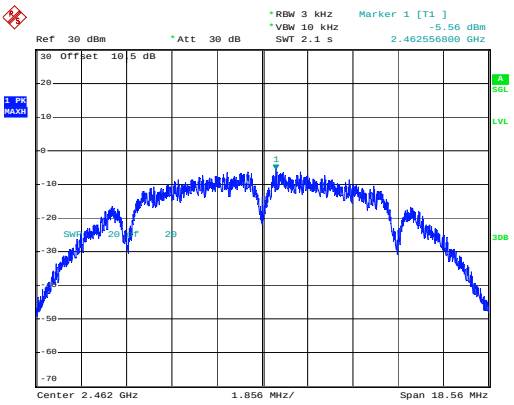
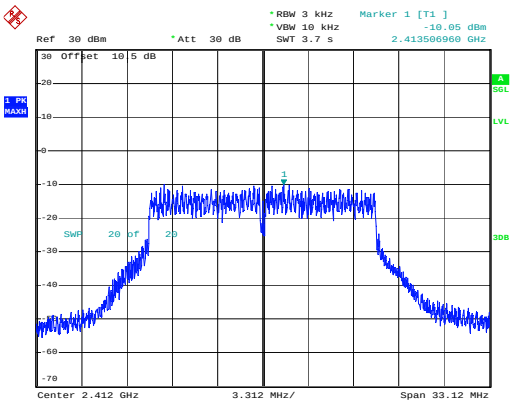
Date: 7.MAY.2025 10:57:30

802.11b_2462MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 11:01:05

802.11g_2412MHz



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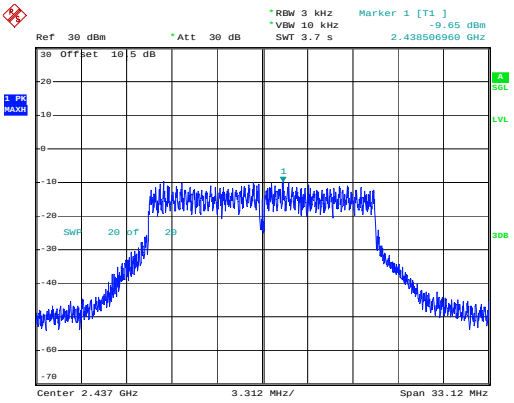
Date: 7.MAY.2025 11:10:41

802.11g_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
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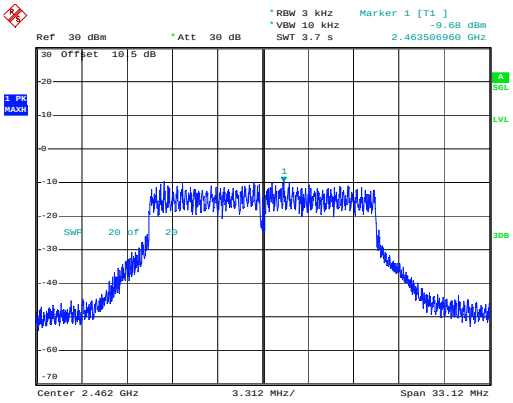
802.11g_2462MHz



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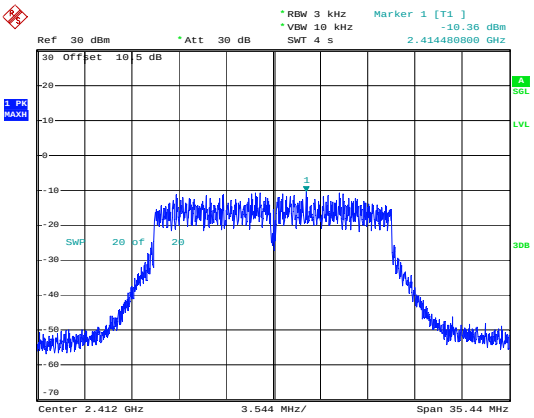
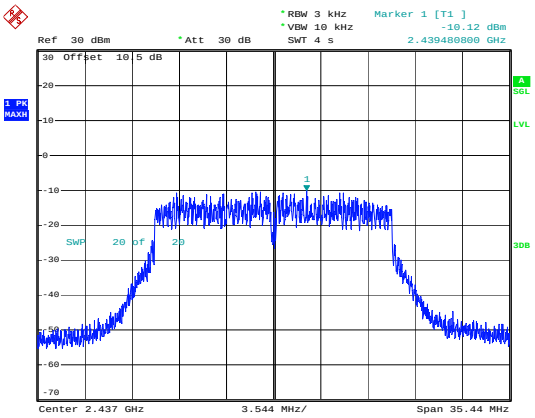
Date: 7.MAY.2025 11:16:44

802.11n20_2412MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 11:20:52

802.11n20_2437MHz



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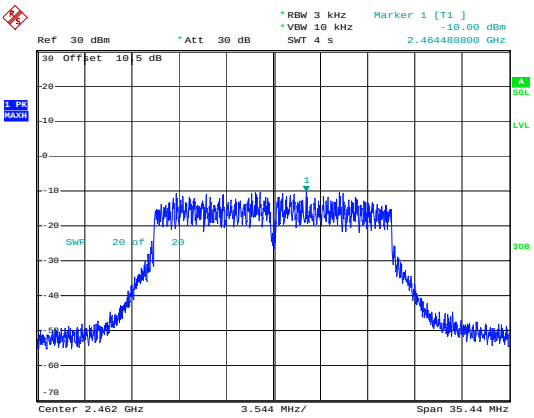
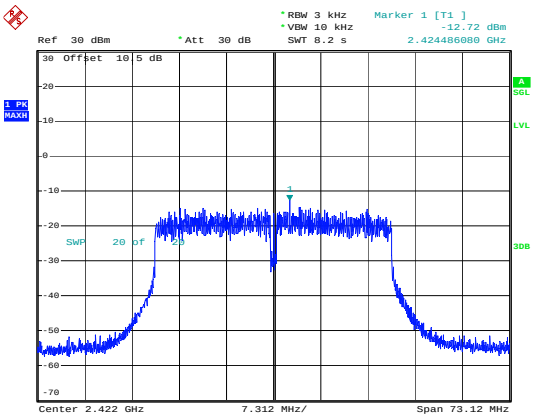
802.11n20_2462MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 11:34:34

802.11n40_2422MHz



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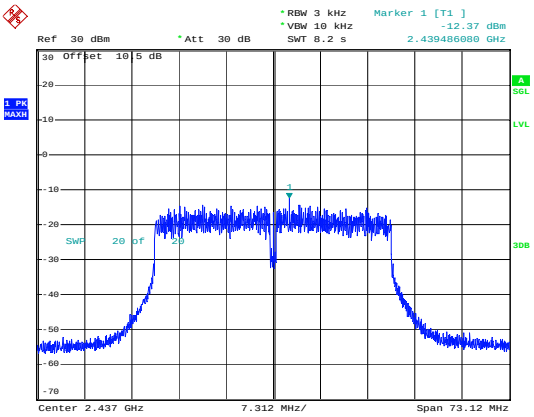
802.11n40_2437MHz



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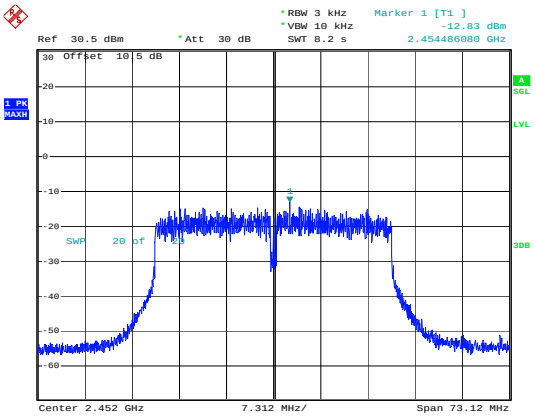
802.11n40_2452MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 12:03:34

5.7 100 kHz Bandwidth of Frequency Band Edge

Test Information:

Serial No.:	319W-2	**Test Date:**	2025/05/07
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Bill Yang	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	26.1	**Relative Humidity: (%)**	52	**ATM Pressure: (kPa)**	100.8

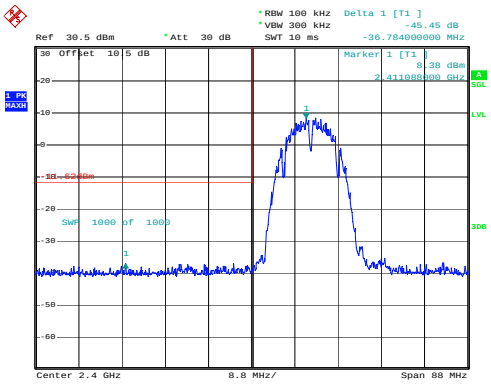
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2024/06/07	2025/06/06
R&S	Spectrum Analyzer	FSP 38	100478	2024/09/05	2025/09/04

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

802.11b_2412MHz



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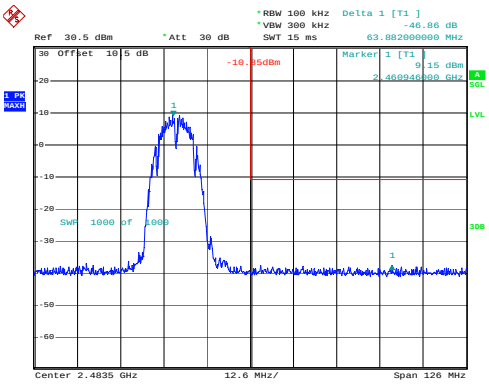
Date: 7.MAY.2025 12:08:53

802.11b_2462MHz



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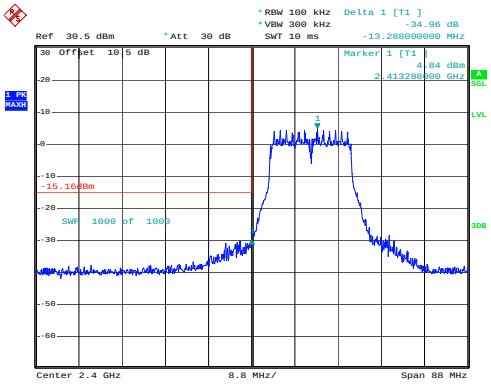
Date: 7.MAY.2025 12:10:14

802.11g_2412MHz



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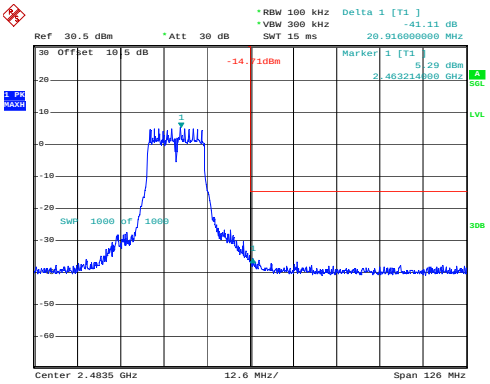
Date: 7.MAY.2025 12:11:29

802.11g_2462MHz



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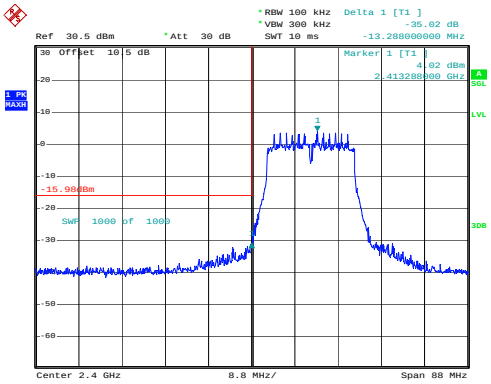
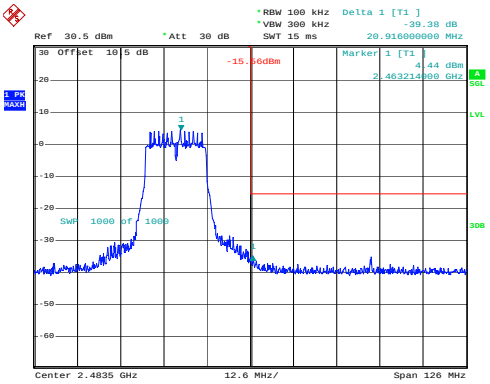
Date: 7.MAY.2025 12:12:46

802.11n20_2412MHz



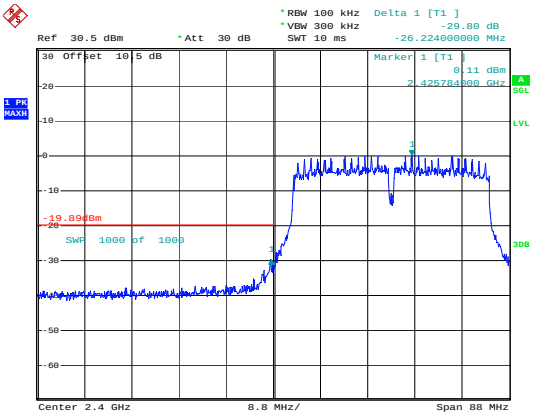
ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 12:15:21

802.11n20_2462MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 12:16:36

802.11n40_2422MHz



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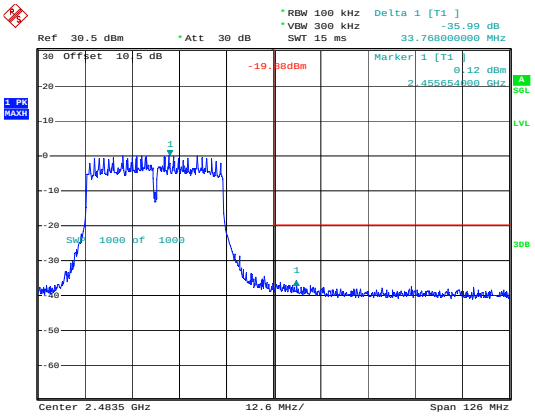
Date: 7.MAY.2025 12:17:42

802.11n40_2452MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang
Date: 7.MAY.2025 12:18:52

5.8 Duty Cycle

Test Information:

Serial No.:	319W-2	**Test Date:**	2025/05/07
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Bill Yang	**Test Result:**	/

Environmental Conditions:

Temperature: (°C)	26.1	**Relative Humidity: (%)**	52	**ATM Pressure: (kPa)**	100.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM502	2024/06/07	2025/06/06
R&S	Spectrum Analyzer	FSP 38	100478	2024/09/05	2025/09/04

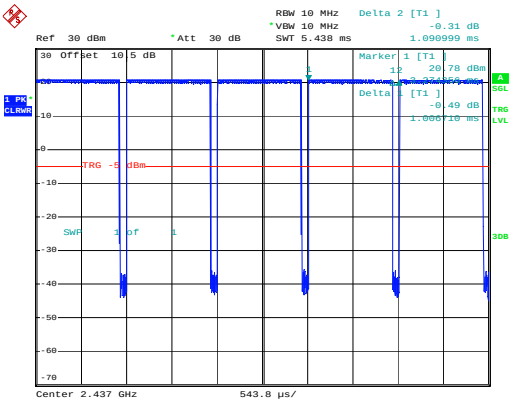
** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Mode	Test Frequency (MHz)	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
802.11b	2437	1.007	1.091	92.30	0.35	993	1
802.11g	2437	0.615	0.660	93.18	0.31	1626	2
802.11n20	2437	0.605	0.656	92.23	0.35	1653	2
802.11n40	2437	0.611	0.656	93.14	0.31	1637	2

Duty Cycle = Ton/(Ton+Toff)*100%

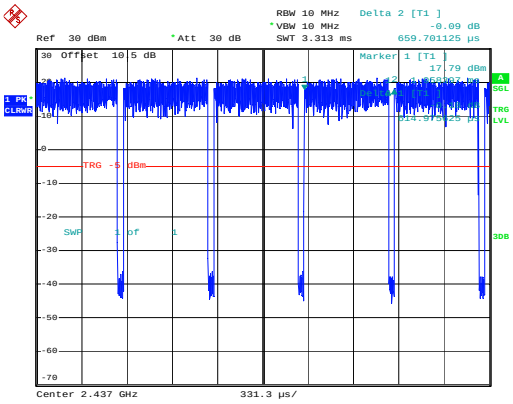
802.11b_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:27:54

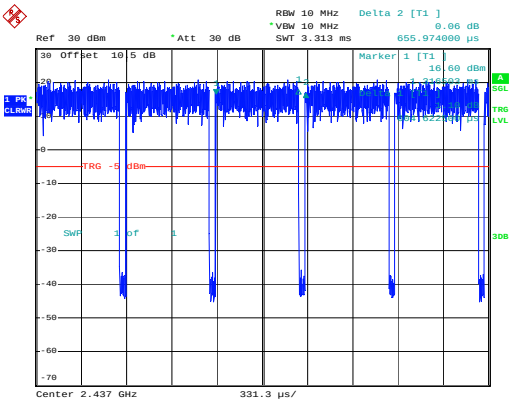
802.11g_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:29:36

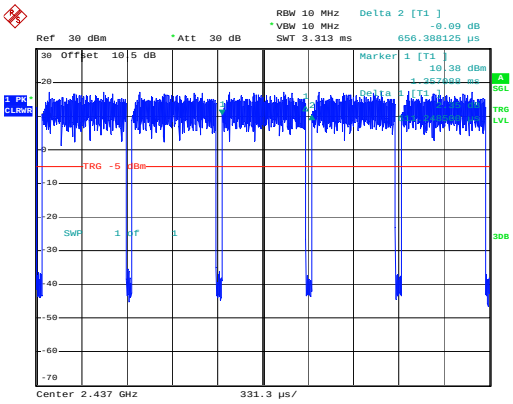
802.11n20_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:31:21

802.11n40_2437MHz



ProjectNo.:2502S53059E-RF Tester:Bill Yang

Date: 7.MAY.2025 10:32:37

EXHIBIT A - EUT PHOTOGRAPHS

Please refer to the attachment 2502S53059E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2502S53059E-RF-INP EUT INTERNAL PHOTOGRAPHS.

EXHIBIT B - TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2502S53059E-RF-00B-TSP TEST SETUP PHOTOGRAPHS.

EXHIBIT C - RF EXPOSURE EVALUATION

Maximum Permissible Exposure (MPE)

Applicable Standard

According to subpart §1.1310,15.247(i) systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Mode	Frequency (MHz)	Antenna Gain▲		Conducted output power including Tune-up Tolerance▲		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G WiFi	2412-2462	4.16	2.61	24.5	281.84	20.00	0.146	1.0
BLE	2402-2480	4.16	2.61	6.5	4.47	20.00	0.002	1.0
Lora	902.8-927.3	1.2	1.32	16.5	44.67	20.00	0.012	0.6

Note:
The Antenna Gain and Conducted output power including Tune-up Tolerance provided by manufacturer

Simultaneous transmission:

BLE and 2.4G Wifi can't transmit simultaneously, but BLE or 2.4G Wifi can transmit simultaneously with Lora:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

$S_{2.4G\ Wifi}/S_{limit\text{-}2.4G\ Wifi} + S_{Lora}/S_{limit\text{-}\ Lora}$

=0.146/1.0+0.012/0.6

=0.17

< 1.0

Result: The device meet FCC MPE at 20 cm distance

******* END OF REPORT *******