中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **Tosibox Oy**

Address: Elektroniikkatie 2A, 90590 OULU, Finland

FCC ID: **2AHCNNODE350**

Product Name: **Tosibox VPN Router**

Standard(s): **47 CFR Part 15, Subpart C(15.247)**
ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **CR240103476-00A**

Date Of Issue: **2024/2/29**

Reviewed By: **Calvin Chen**

Title: RF Engineer

Approved By: **Sun Zhong**

Title: Manager

Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
Tel: +86-769-82016888

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang 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. : 442868, the FCC Designation No. : CN1314.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

This report cannot be reproduced except in full, without prior written approval of the Company.

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk "★".

CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR240103476-00A	Original Report	2024/2/29

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Tosibox VPN Router
EUT Model:	TOSIBOX 350
Operation Frequency:	2412-2462 MHz(802.11b/g/n ht20) , 2422-2452MHz(802.11n ht40)
Maximum Output Power (Conducted):	AVG:19.40 dBm Peak:24.58 dBm
Modulation Type:	802.11b:DSSS-DBPSK, DQPSK, CCK 802.11g/n:OFDM-BPSK, QPSK, 16QAM, 64QAM
Rated Input Voltage:	DC 12V from Adapter
Serial Number:	2GPP-3 (For RF Conducted Test) 2GPP-1(For RE/CE Test)
EUT Received Date:	2024/1/18
EUT Received Status:	Good

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	/	/

Per section 15.31(m), the below frequencies were performed the test as below:

Test Channel	Frequency (MHz)
Lowest	2412
Middle	2437
Highest	2462

For 802.11n ht40:

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

Per section 15.31(m), the below frequencies were performed the test as below:

Test Channel	Frequency (MHz)
Lowest	2422
Middle	2437
Highest	2452

Antenna Information Detail▲:

Antenna Manufacturer	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain	
				Chain 0	Chain 1
ShenZhen GuYang Commuication Technology Co.,Ltd.	dipole	50	2.4~2.5GHz	4.69 dBi	4.69 dBi
The Method of §15.203 Compliance: ☐Antenna was permanently attached to the unit. ☒Antenna use a unique type of connector to attach to the EUT. ☐Unit was professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.					

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters	S/N
Adapter	SHENZHEN KUANTEN LIMITED	KT241120150H	Input: 100-240V~50/60Hz 0.8A Output: 12.0V-1.5A 18.0W	2352

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

For 802.11b/g/n:

EUT Operation Mode:	The system was configured for testing in Engineering Mode, which was provided by the manufacturer.
Equipment Modifications:	No
EUT Exercise Software:	MT7620

The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:

Test Modes	Test Channels	Test Frequency	Data rate	Power Level Setting	
				Chain 0	Chain 1
802.11b	Lowest	2412	1Mbps	10	19
	Middle	2437	1Mbps	10	19
	Highest	2462	1Mbps	10	19
802.11g	Lowest	2412	6Mbps	9	13
	Middle	2437	6Mbps	9	13
	Highest	2462	6Mbps	9	13
802.11n ht20	Lowest	2412	MCS0	9	12
	Middle	2437	MCS0	9	13
	Highest	2462	MCS0	9	13
802.11n ht40	Lowest	2422	MCS0	8	12
	Middle	2437	MCS0	8	12
	Highest	2452	MCS0	8	12

Note:
1. 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.
2. The device only supports SISO, two links can be connected to Chain 0 or Chain 1.

1.2.2 Support Equipment List and Details

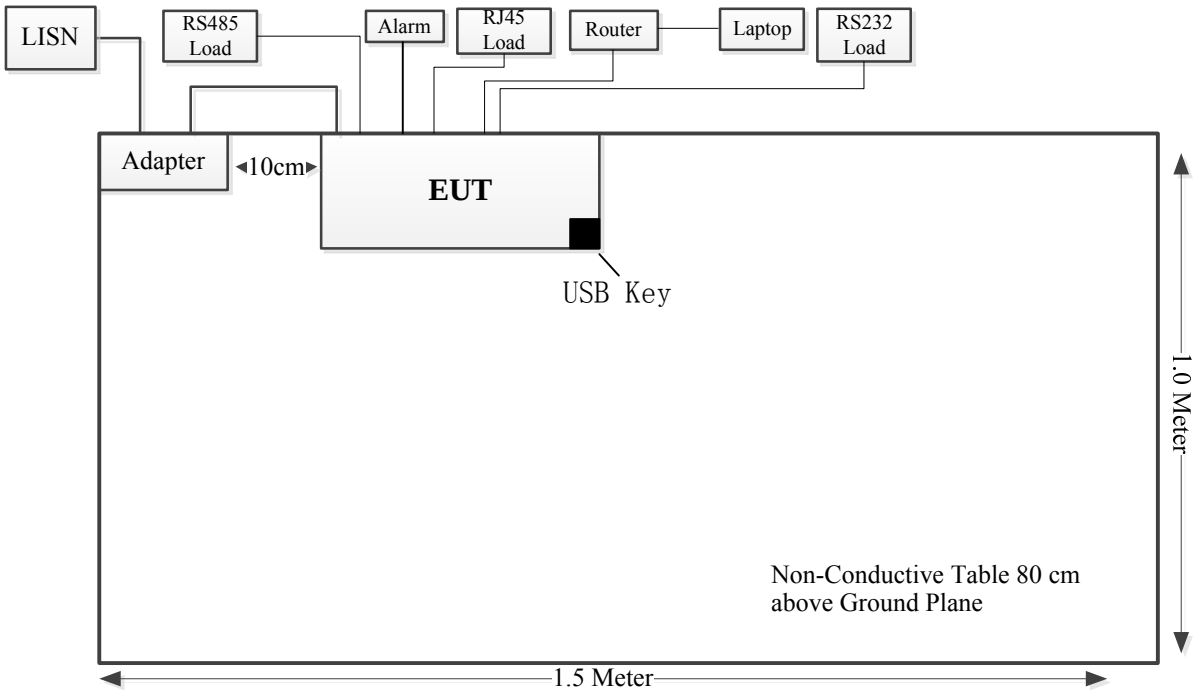
Manufacturer	Description	Model	Serial Number
Fenfei Election	RS485 Load	N-J-10W	NA
GWT	Alarm	A-24	unknown
Bacl	RJ45 Load	RJ45X8	F-EM-PHRJ45X8002
TOTO Link	Router	LR1200	190924004S1
DELL	Laptop	E6410ATG	EMZBPC21103005
Tosibox	RS232 Load	unknown	unknown
Tosibox	USB Key	unknown	unknown

1.2.3 Support Cable List and Details

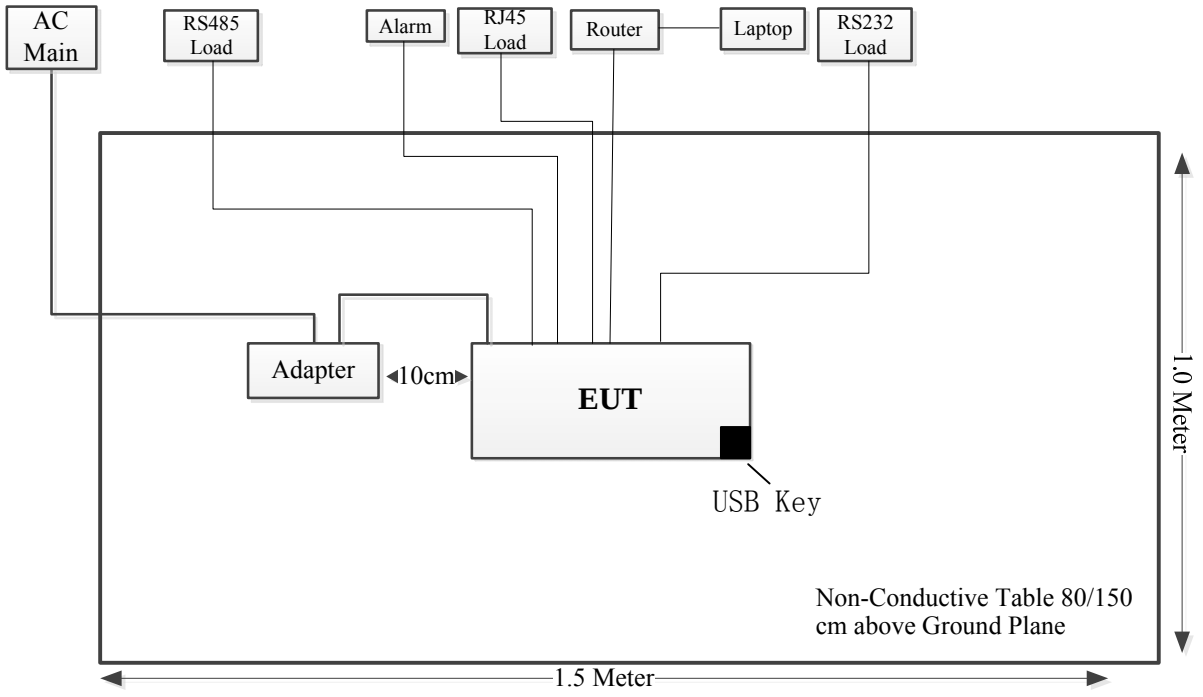
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
DC Cable	No	Yes	1	Adapter	EUT
RS485 Cable	No	No	1.2	RS485 Load	EUT
DC Cable	No	No	1.2	Alarm	EUT
RJ45 Cable	No	No	1.2	RJ45 Load	EUT
RJ45 Cable	No	Yes	10	EUT	Router
RJ45 Cable	No	No	1	Router	Laptop
RS232 Cable	No	No	1.2	RS232 Load	EUT

1.2.4 Block Diagram of Test Setup

AC line conducted emissions:



Radiation Spurious Emissions:



1.3 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: 4.12dB,30M~200MHz: 4.15 dB,200M~1GHz: 5.61 dB,1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Unwanted Emissions, conducted	±1.26 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

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)	Radiation 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	RF Exposure Evaluation	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 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:

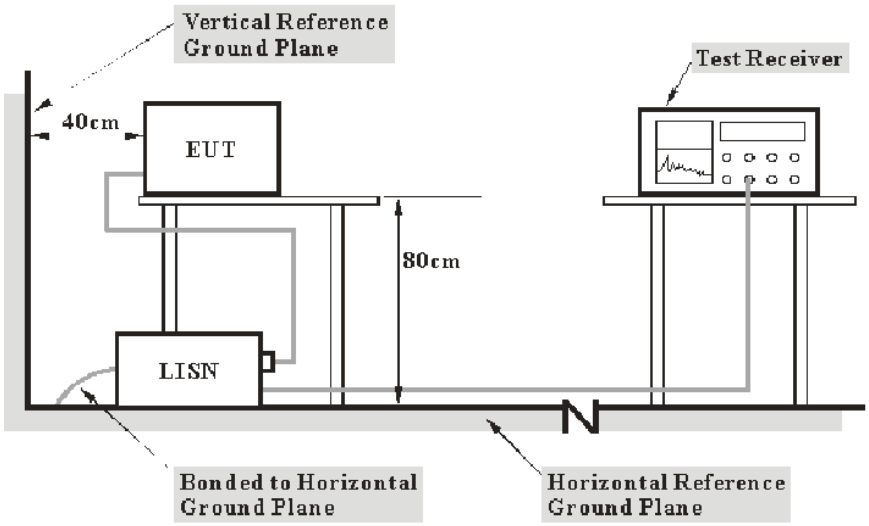
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(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.

3.1.2 EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

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

3.1.3 EMI Test Receiver Setup

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

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

3.1.4 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.

3.1.5 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

3.2 Radiation Spurious Emissions

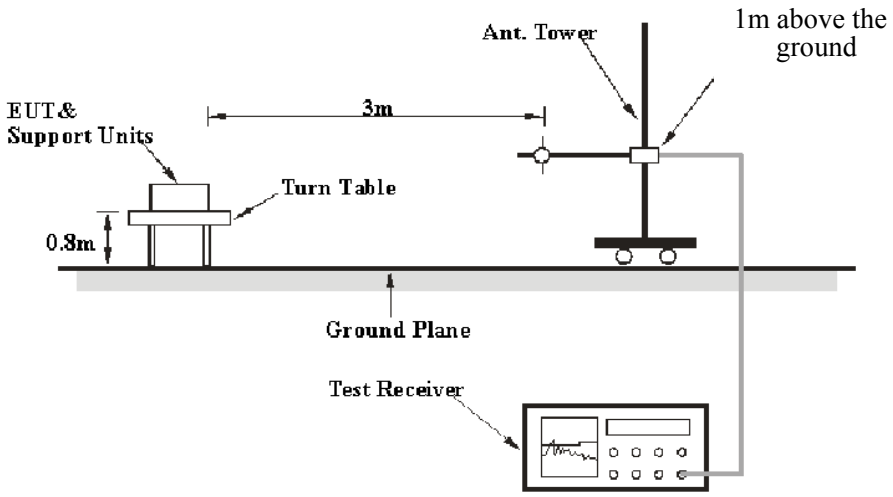
3.2.1 Applicable Standard

FCC §15.247 (d);

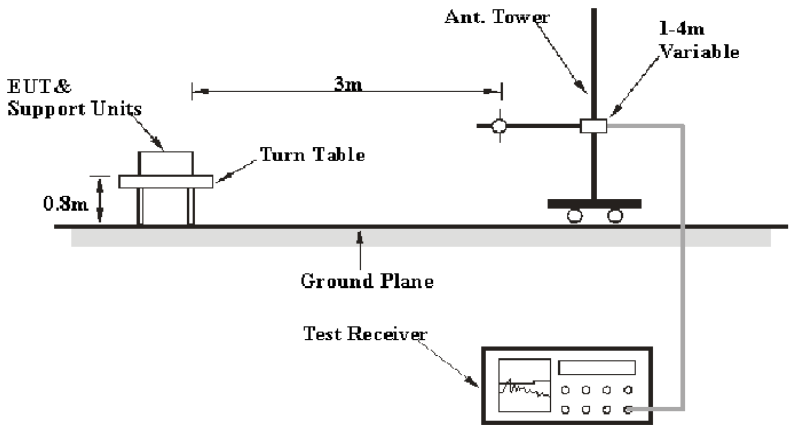
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

3.2.2 EUT Setup

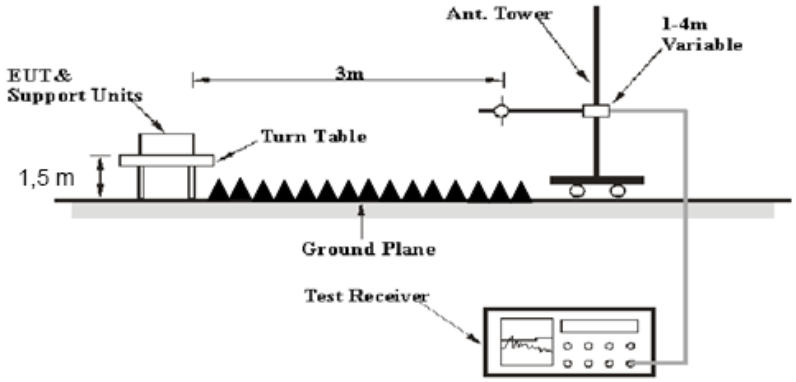
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



The radiated emissions were performed in the 3 meters distance, using the setup accordance with the ANSI C63.10-2013. 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 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

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.

3.2.3 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:

9 kHz -1000 MHz:

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

1GHz- 25GHz:

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

Note: T is minimum transmission duration

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

3.2.4 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.

The spurious emissions which below the limit more than 20dB was not be recorded.

3.2.5 Corrected Amplitude & Margin Calculation

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

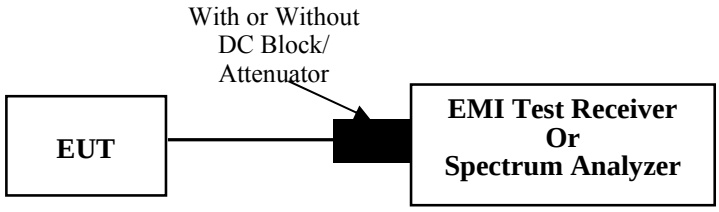
3.3 Minimum 6 dB Emission Bandwidth

3.3.1 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.

3.3.2 EUT Setup



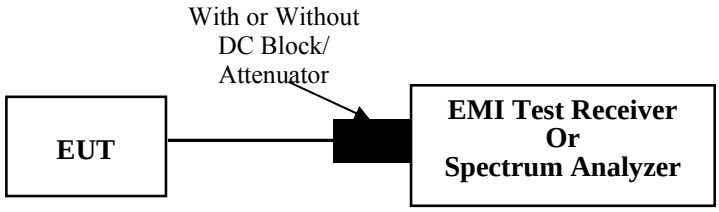
3.3.3 Test Procedure

According to ANSI C63.10-2013 Section 11.8

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3×RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.4 99% Occupied Bandwidth

3.4.1 EUT Setup



3.4.2 Test Procedure

According to ANSI C63.10-2013 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 4.1.5.2.
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).

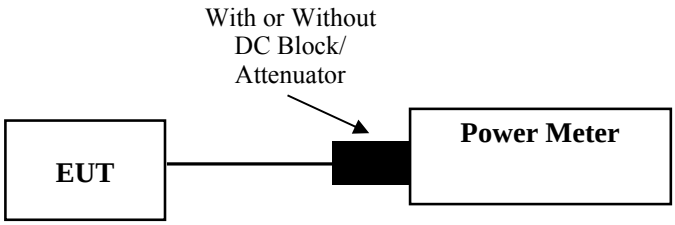
3.5 Maximum Conducted Output Power

3.5.1 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.

3.5.2 EUT Setup



3.5.3 Test Procedure

According to ANSI C63.10-2013 Section 11.9.1.3

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.

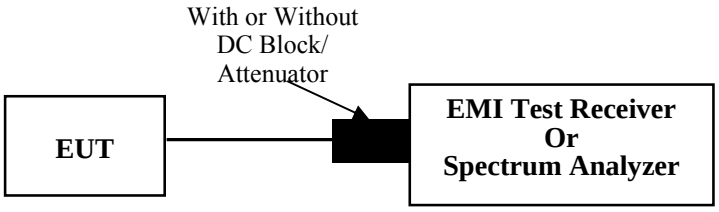
3.6 Maximum Power Spectral Density

3.6.1 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.

3.6.2 EUT Setup



3.6.3 Test Procedure

According to ANSI C63.10-2013 Section 11.10.2

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ [3 × RBW].
e) Detector = peak.
f) Sweep time = auto couple.
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.

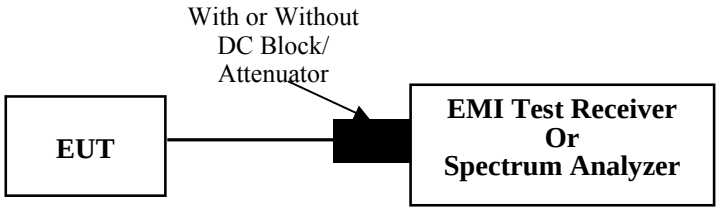
3.7 100 kHz Bandwidth of Frequency Band Edge

3.7.1 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)).

3.7.2 EUT Setup



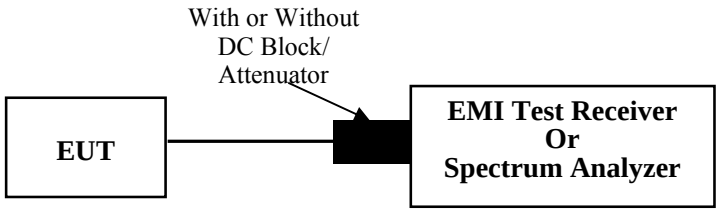
3.7.3 Test Procedure

According to ANSI C63.10-2013 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 = auto couple.
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.

3.8 Duty Cycle

3.8.1 EUT Setup



3.8.2 Test Procedure

According to ANSI C63.10-2013 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.)

3.9 Antenna Requirement

3.9.1 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.

3.9.2 Judgment

Compliant. Please refer to the Antenna Information detail in Section 1.

4. Test DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	2GPP-1	Test Date:	2024/01/20-2024/01/22
Test Site:	CE	Test Mode:	Transmitting (maximum output power mode(802.11g mode Low channel) was tested)
Tester:	David Huang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	24.9	Relative Humidity: (%)	39	ATM Pressure: (kPa)	101.9

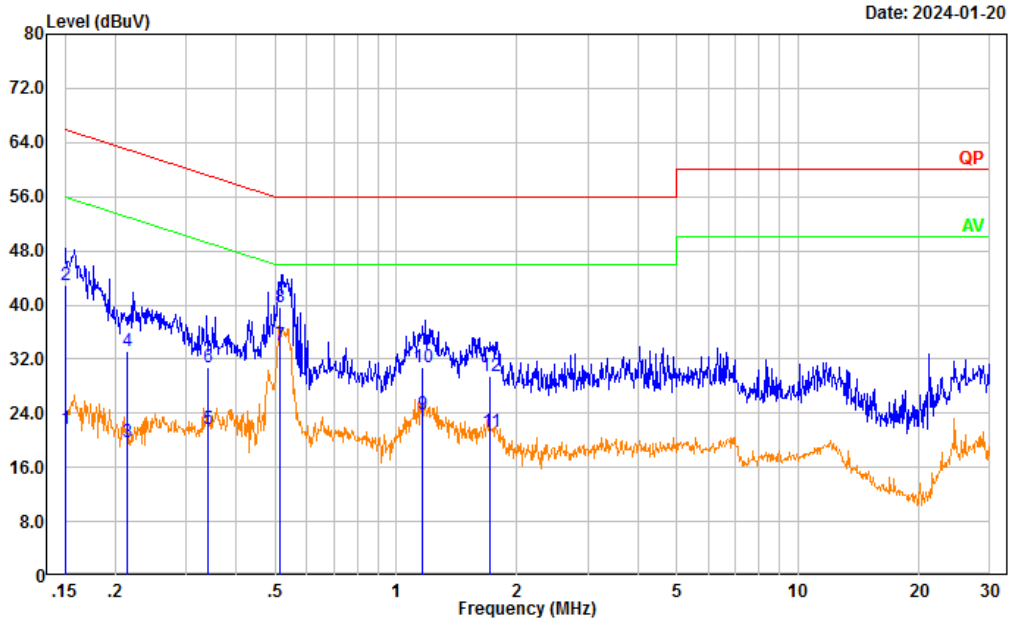
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/3/31	2024/3/30
R&S	EMI Test Receiver	ESR3	102726	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2023/8/6	2024/8/5
Audix	Test Software	E3	190306 (V9)	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

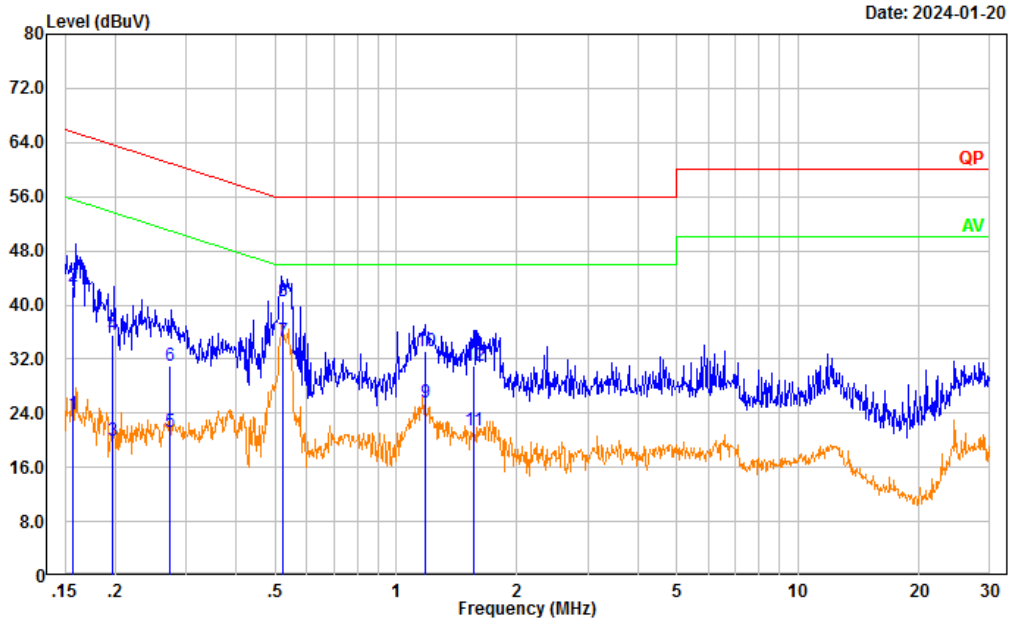
Chain 0:

Project No.: CR240103476-RF
Tester: David Huang
Port: Line
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.151	12.08	9.61	21.69	55.96	34.27	Average
2	0.151	33.24	9.61	42.85	65.96	23.11	QP
3	0.215	10.09	9.61	19.70	53.02	33.32	Average
4	0.215	23.50	9.61	33.11	63.02	29.91	QP
5	0.341	12.13	9.61	21.74	49.17	27.43	Average
6	0.341	21.14	9.61	30.75	59.17	28.42	QP
7	0.514	24.52	9.61	34.13	46.00	11.87	Average
8	0.514	30.14	9.61	39.75	56.00	16.25	QP
9	1.161	14.19	9.62	23.81	46.00	22.19	Average
10	1.161	21.13	9.62	30.75	56.00	25.25	QP
11	1.718	11.67	9.63	21.30	46.00	24.70	Average
12	1.718	19.76	9.63	29.39	56.00	26.61	QP

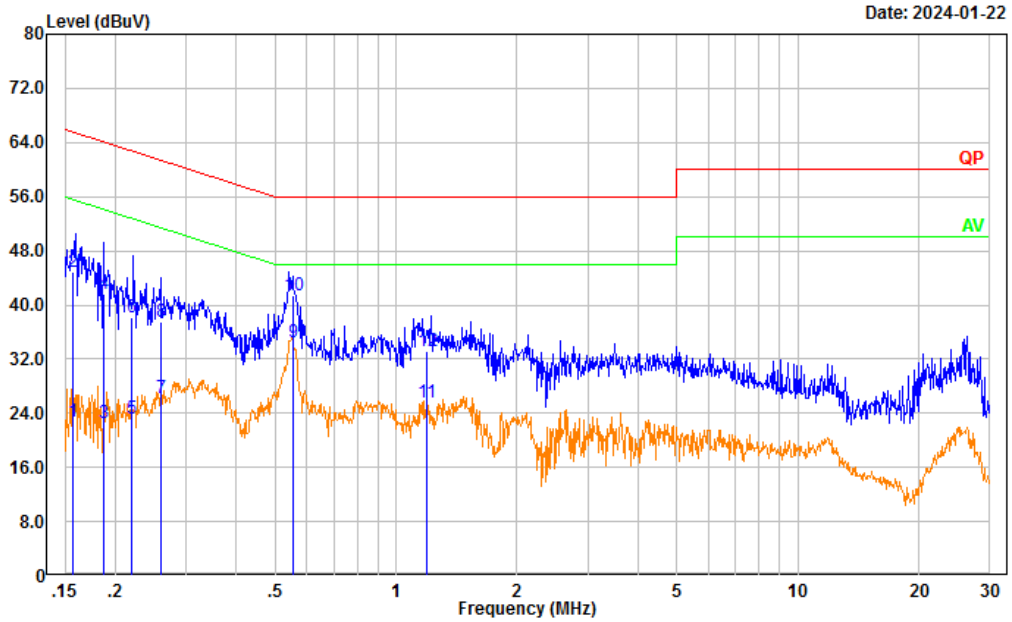
Project No.: CR240103476-RF
Tester: David Huang
Port: neutral
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.158	14.14	9.61	23.75	55.59	31.84	Average
2	0.158	33.12	9.61	42.73	65.59	22.86	QP
3	0.197	10.29	9.61	19.90	53.74	33.84	Average
4	0.197	25.95	9.61	35.56	63.74	28.18	QP
5	0.274	11.56	9.61	21.17	50.99	29.82	Average
6	0.274	21.37	9.61	30.98	60.99	30.01	QP
7	0.524	25.00	9.61	34.61	46.00	11.39	Average
8	0.524	30.98	9.61	40.59	56.00	15.41	QP
9	1.180	16.04	9.62	25.66	46.00	20.34	Average
10	1.180	23.63	9.62	33.25	56.00	22.75	QP
11	1.562	11.77	9.63	21.40	46.00	24.60	Average
12	1.562	21.38	9.63	31.01	56.00	24.99	QP

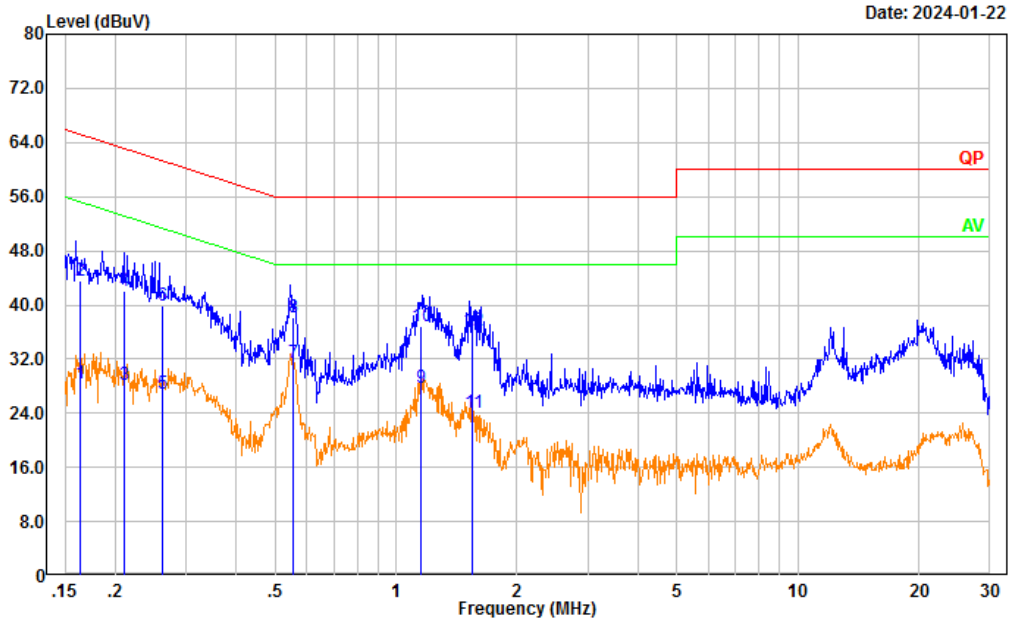
Chain 1:

Project No.: CR240103476-RF
Tester: David Huang
Port: Line
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.158	13.10	9.61	22.71	55.59	32.88	Average
2	0.158	35.26	9.61	44.87	65.59	20.72	QP
3	0.188	12.99	9.61	22.60	54.13	31.53	Average
4	0.188	31.98	9.61	41.59	64.13	22.54	QP
5	0.219	13.66	9.61	23.27	52.85	29.58	Average
6	0.219	28.55	9.61	38.16	62.85	24.69	QP
7	0.260	16.59	9.61	26.20	51.42	25.22	Average
8	0.260	27.96	9.61	37.57	61.42	23.85	QP
9	0.553	24.94	9.62	34.56	46.00	11.44	Average
10	0.553	31.80	9.62	41.42	56.00	14.58	QP
11	1.191	15.94	9.62	25.56	46.00	20.44	Average
12	1.191	23.57	9.62	33.19	56.00	22.81	QP

Project No.: CR240103476-RF
Tester: David Huang
Port: neutral
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.163	18.76	9.61	28.37	55.30	26.93	Average
2	0.163	33.91	9.61	43.52	65.30	21.78	QP
3	0.210	18.56	9.61	28.17	53.19	25.02	Average
4	0.210	32.45	9.61	42.06	63.19	21.13	QP
5	0.263	17.24	9.61	26.85	51.34	24.49	Average
6	0.263	30.26	9.61	39.87	61.34	21.47	QP
7	0.554	21.76	9.62	31.38	46.00	14.62	Average
8	0.554	28.54	9.62	38.16	56.00	17.84	QP
9	1.155	18.10	9.62	27.72	46.00	18.28	Average
10	1.155	27.29	9.62	36.91	56.00	19.09	QP
11	1.553	14.50	9.63	24.13	46.00	21.87	Average
12	1.553	26.51	9.63	36.14	56.00	19.86	QP

4.2 Radiation Spurious Emissions

Serial Number:	2GPP-1	Test Date:	2024/1/22
Test Site:	966-2,966-1	Test Mode:	Transmitting
Tester:	Vic Du, Mack Huang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	24.1~26.4	Relative Humidity: (%)	45~53	ATM Pressure: (kPa)	101.9

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Below 1G					
Sunol Sciences	Antenna	JB6	A082520-5	2023/12/01	2026/11/30
BACL	Loop Antenna	1313-1A	3110611	2023/12/04	2026/12/03
Daruikang	Coaxial Cable	BNC-JJ-RG58	C-0300-01	2024/01/11	2025/01/10
Daruikang	Coaxial Cable	BNC-JJ-RG58	C-0500-01	2024/01/11	2025/01/10
R&S	EMI Test Receiver	ESR3	102724	2023/03/31	2024/03/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/07/16	2024/07/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/07/16	2024/07/15
Sonoma	Amplifier	310N	186165	2023/07/16	2024/07/15
Audix	Test Software	E3	201021 (V9)	N/A	N/A
Above 1G					
ETS-Lindgren	Horn Antenna	3115	9912-5985	2023/12/06	2026/12/05
R&S	Spectrum Analyzer	FSV40	101591	2023/03/31	2024/03/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2024/01/15	2025/01/14
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2024/01/15	2025/01/14
A.H	Preamplifier	PAM-0118P	628	2024/01/15	2025/01/14
Audix	Test Software	E3	191218 (V9)	N/A	N/A
PASTERNACK	Horn Antenna	PE9852/2F-20	112002	2021/02/05	2024/02/04
Quinstar	Preamplifier	QLW-18405536-JO	15964001005	2023/09/15	2024/09/14
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2023/08/06	2024/08/05
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2023/08/06	2024/08/05
Mini Circuits	High Pass Filter	VHF-6010+	31119	2023/08/06	2024/08/05

** Statement of Traceability: China Certification ICT Co., Ltd (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 table and plots.

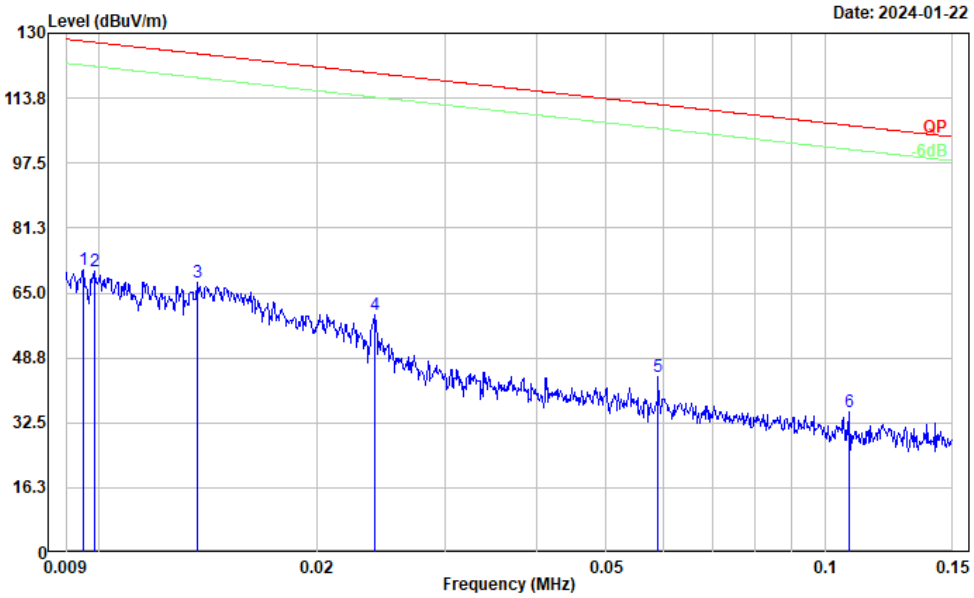
After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

1) 9kHz~30MHz(maximum output power mode(802.11g mode Low channel) was tested)

Chain 0:

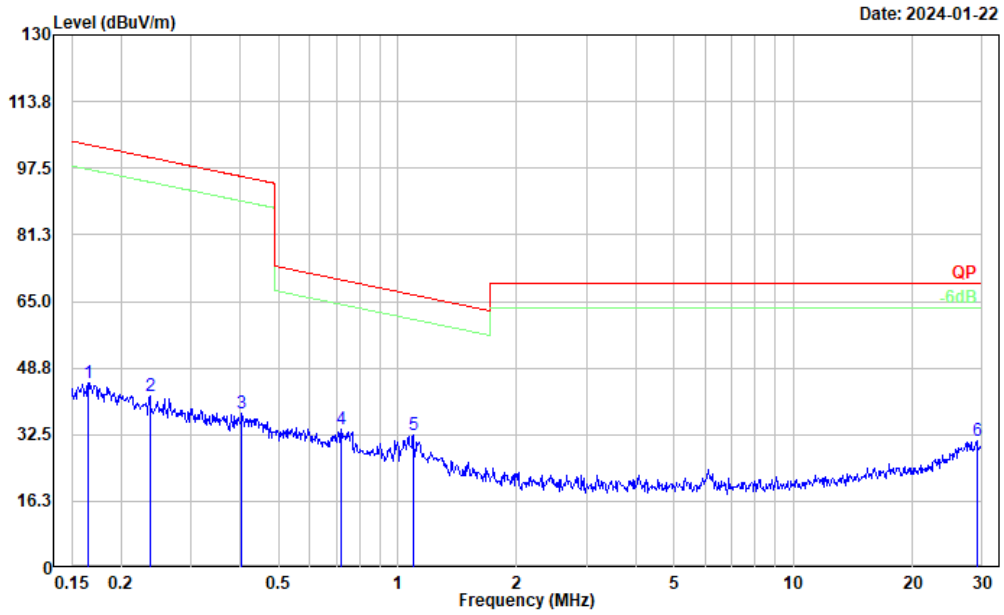
Parallel:

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Parallel
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	35.70	35.09	70.79	128.06	57.27	Peak
2	0.010	35.76	34.63	70.39	127.74	57.35	Peak
3	0.014	35.08	32.62	67.70	124.88	57.18	Peak
4	0.024	31.87	27.56	59.43	119.99	60.56	Peak
5	0.059	24.67	19.21	43.88	112.20	68.32	Peak
6	0.108	20.80	14.27	35.07	106.94	71.87	Peak

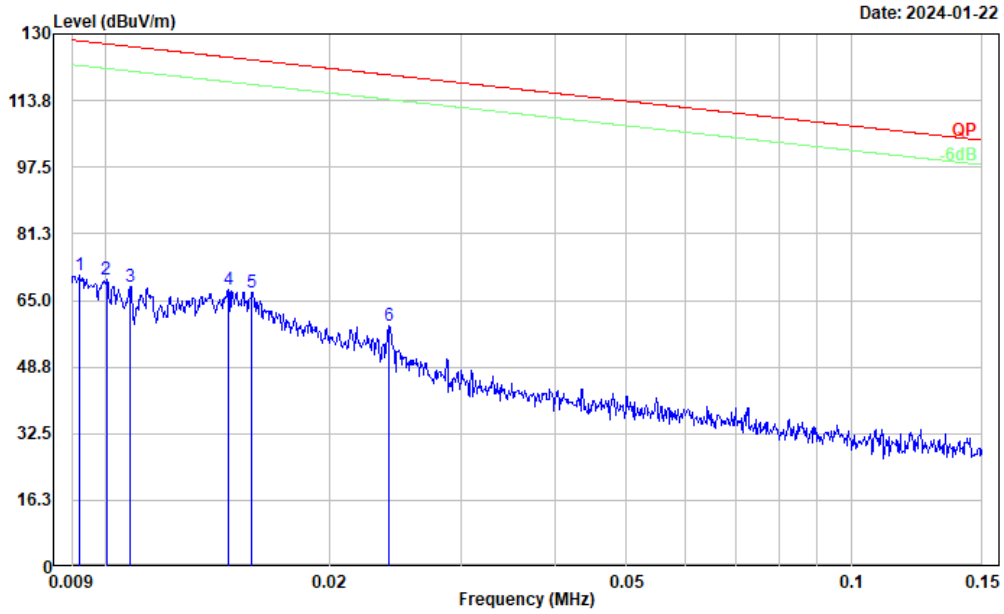
Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Parallel
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.165	33.47	11.62	45.09	103.25	58.16	Peak
2	0.237	33.52	8.29	41.81	100.12	58.31	Peak
3	0.404	34.81	3.06	37.87	95.48	57.61	Peak
4	0.720	35.56	-1.59	33.97	70.39	36.42	Peak
5	1.094	36.82	-4.55	32.27	66.68	34.41	Peak
6	29.061	38.32	-7.26	31.06	69.54	38.48	Peak

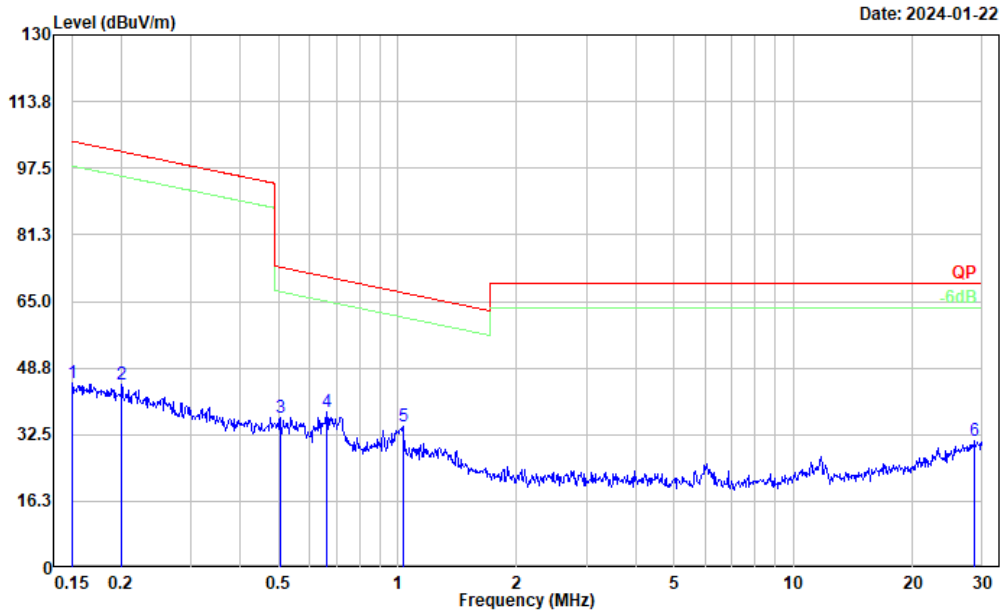
Perpendicular:

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Perpendicular
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	35.78	35.46	71.24	128.32	57.08	Peak
2	0.010	35.60	34.42	70.02	127.59	57.57	Peak
3	0.011	34.27	34.05	68.32	126.96	58.64	Peak
4	0.015	35.30	32.18	67.48	124.32	56.84	Peak
5	0.016	35.42	31.63	67.05	123.68	56.63	Peak
6	0.024	31.15	27.59	58.74	120.02	61.28	Peak

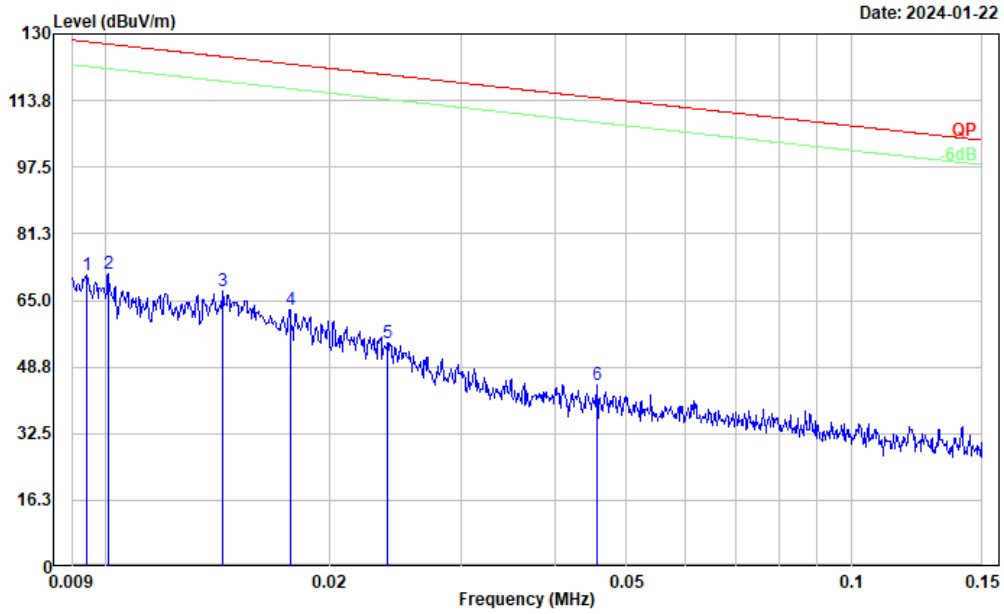
Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Perpendicular
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.150	32.94	12.32	45.26	104.08	58.82	Peak
2	0.201	34.77	9.96	44.73	101.55	56.82	Peak
3	0.505	35.85	0.91	36.76	73.54	36.78	Peak
4	0.661	38.84	-0.91	37.93	71.14	33.21	Peak
5	1.032	38.79	-4.33	34.46	67.19	32.73	Peak
6	28.755	38.36	-7.31	31.05	69.54	38.49	Peak

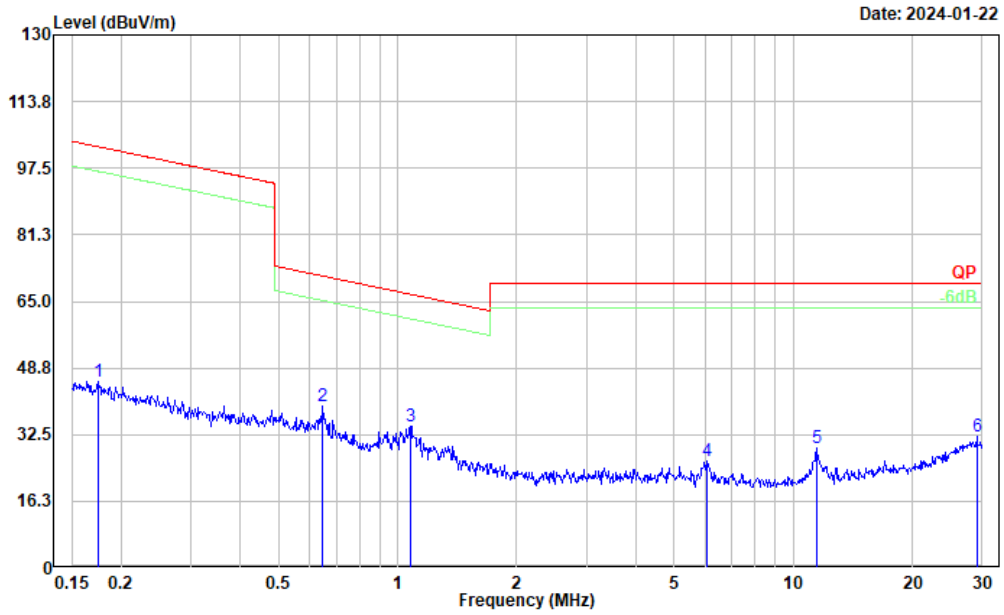
Ground-parallel:

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Ground-parallel
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	35.94	35.16	71.10	128.10	57.00	Peak
2	0.010	37.04	34.39	71.43	127.54	56.11	Peak
3	0.014	34.91	32.29	67.20	124.46	57.26	Peak
4	0.018	32.10	30.67	62.77	122.65	59.88	Peak
5	0.024	26.89	27.62	54.51	120.04	65.53	Peak
6	0.046	22.92	21.35	44.27	114.42	70.15	Peak

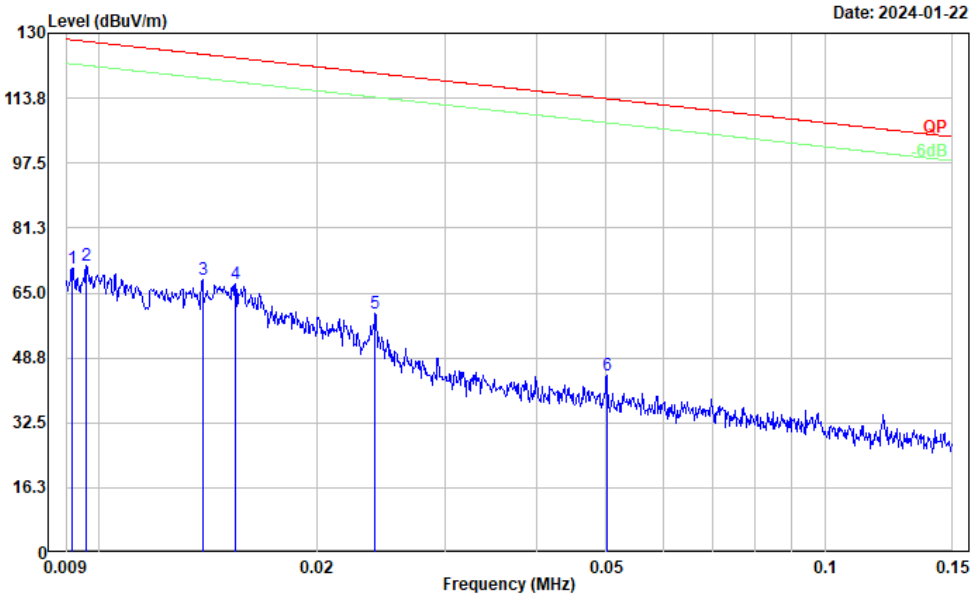
Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Ground-parallel
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.175	34.35	11.16	45.51	102.75	57.24	Peak
2	0.647	40.33	-0.75	39.58	71.33	31.75	Peak
3	1.077	39.12	-4.49	34.63	66.82	32.19	Peak
4	6.024	34.97	-8.93	26.04	69.54	43.50	Peak
5	11.438	37.25	-8.03	29.22	69.54	40.32	Peak
6	29.061	39.16	-7.26	31.90	69.54	37.64	Peak

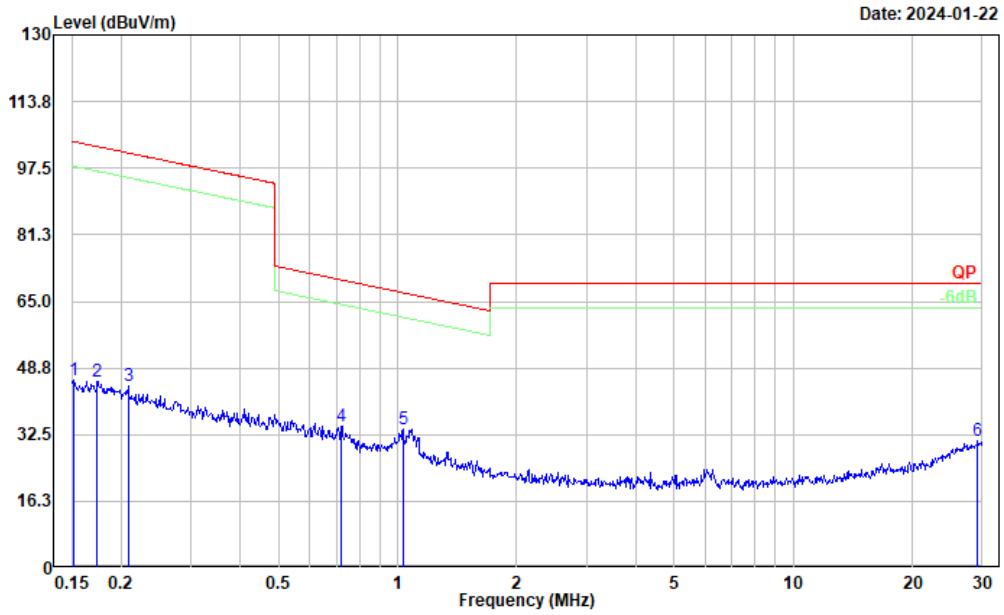
Chain 1:
Parallel:

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Parallel
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	35.80	35.50	71.30	128.35	57.05	Peak
2	0.010	36.75	34.95	71.70	127.96	56.26	Peak
3	0.014	35.78	32.53	68.31	124.76	56.45	Peak
4	0.015	35.53	31.78	67.31	123.85	56.54	Peak
5	0.024	32.38	27.56	59.94	119.99	60.05	Peak
6	0.050	23.88	20.42	44.30	113.61	69.31	Peak

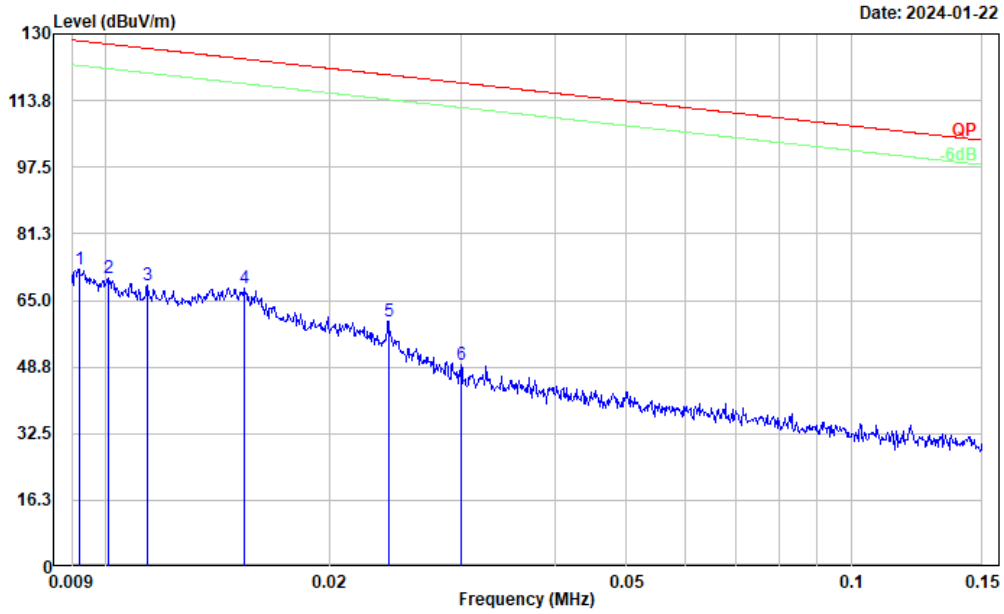
Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Parallel
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.152	33.55	12.24	45.79	103.99	58.20	Peak
2	0.174	34.30	11.20	45.50	102.79	57.29	Peak
3	0.208	34.76	9.60	44.36	101.23	56.87	Peak
4	0.720	36.19	-1.59	34.60	70.39	35.79	Peak
5	1.032	38.24	-4.33	33.91	67.19	33.28	Peak
6	29.216	38.42	-7.24	31.18	69.54	38.36	Peak

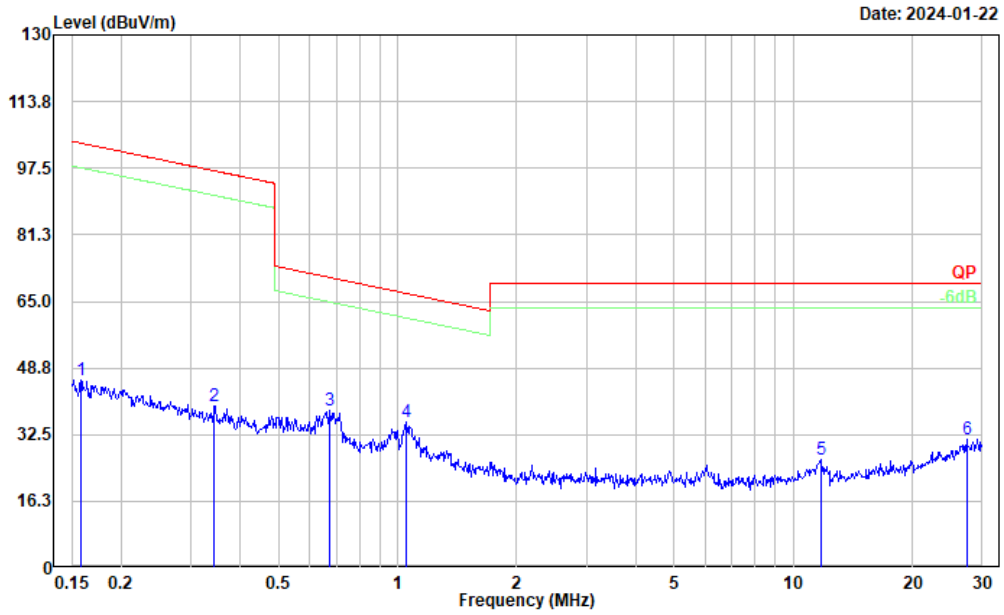
Perpendicular:

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Perpendicular
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	37.21	35.46	72.67	128.32	55.65	Peak
2	0.010	35.97	34.38	70.35	127.52	57.17	Peak
3	0.011	34.85	33.76	68.61	126.49	57.88	Peak
4	0.015	36.26	31.80	68.06	123.88	55.82	Peak
5	0.024	32.37	27.59	59.96	120.02	60.06	Peak
6	0.030	24.61	24.63	49.24	118.06	68.82	Peak

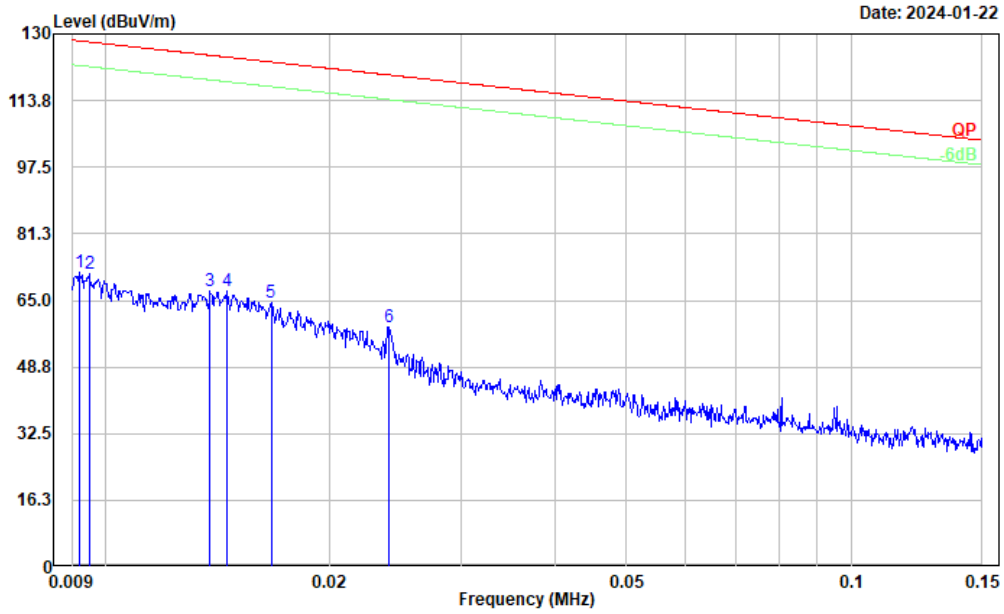
Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Perpendicular
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.158	33.96	11.94	45.90	103.62	57.72	Peak
2	0.345	35.18	4.37	39.55	96.86	57.31	Peak
3	0.675	39.37	-1.08	38.29	70.95	32.66	Peak
4	1.049	39.90	-4.38	35.52	67.05	31.53	Peak
5	11.745	34.27	-7.98	26.29	69.54	43.25	Peak
6	27.416	38.73	-7.48	31.25	69.54	38.29	Peak

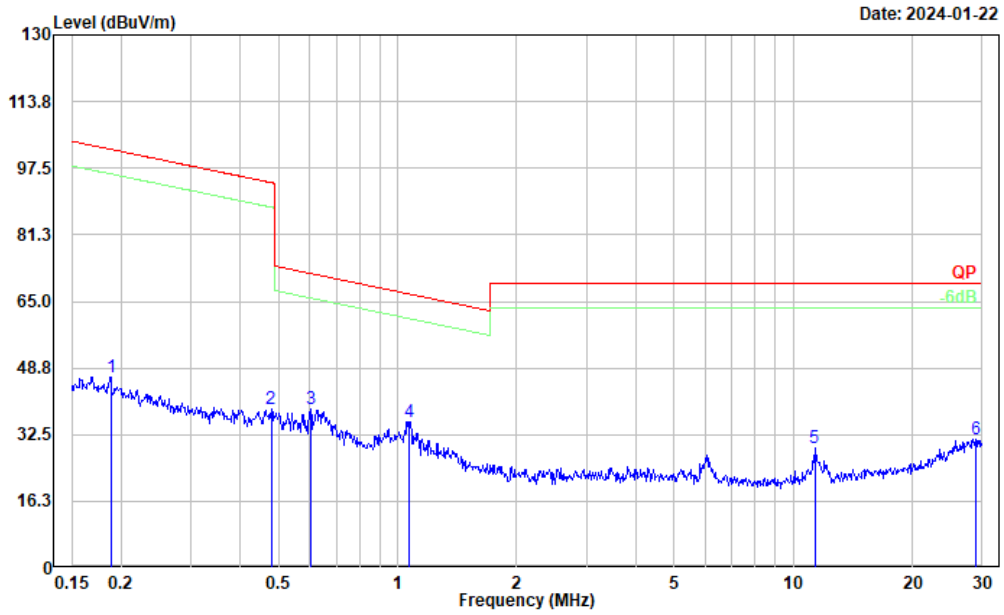
Ground-parallel:

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Ground-parallel
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	36.30	35.46	71.76	128.32	56.56	Peak
2	0.009	36.28	35.09	71.37	128.06	56.69	Peak
3	0.014	34.67	32.57	67.24	124.81	57.57	Peak
4	0.015	34.94	32.20	67.14	124.34	57.20	Peak
5	0.017	33.15	31.16	64.31	123.17	58.86	Peak
6	0.024	31.09	27.56	58.65	119.99	61.34	Peak

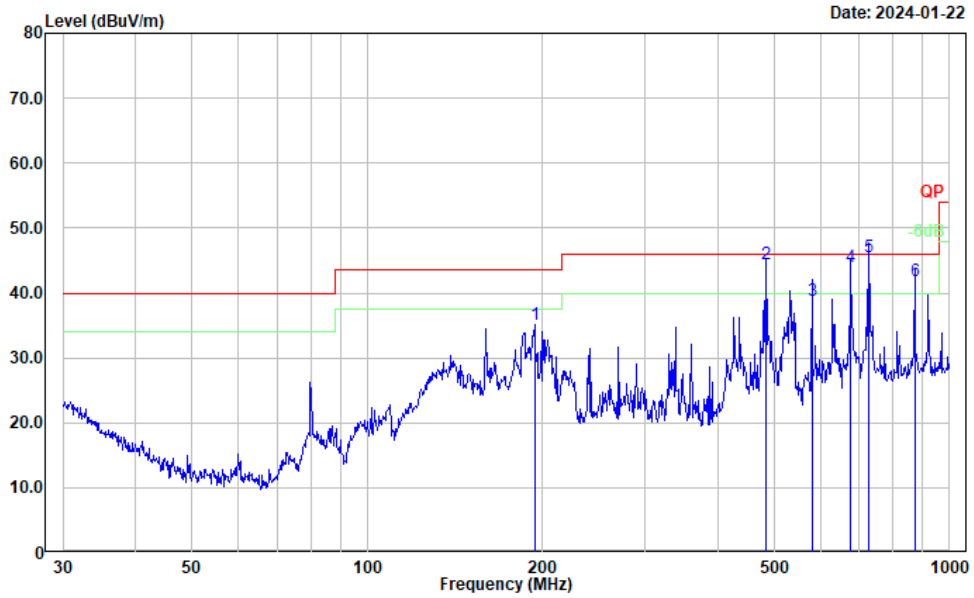
Project No.: CR240103476-RF
Tester: Vic Du
Polarization: Ground-parallel
Note: Transmitting



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.188	36.11	10.53	46.64	102.10	55.46	Peak
2	0.479	37.33	1.43	38.76	94.00	55.24	Peak
3	0.601	38.85	-0.21	38.64	71.99	33.35	Peak
4	1.071	40.16	-4.47	35.69	66.86	31.17	Peak
5	11.317	37.28	-8.05	29.23	69.54	40.31	Peak
6	28.908	38.59	-7.28	31.31	69.54	38.23	Peak

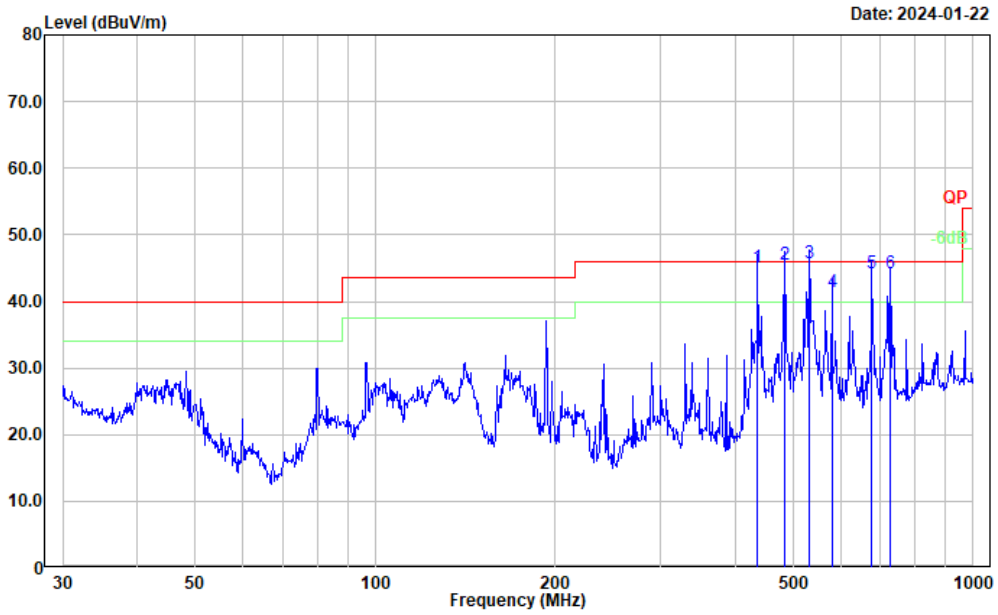
2) 30MHz-1GHz(maximum output power mode(802.11g mode Low channel) was tested):
Chain 0:

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: horizontal
Note: Transmitting 2.4G WiFi



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	193.773	48.60	-13.45	35.15	43.50	8.35	Peak
2	483.910	50.52	-6.14	44.38	46.00	1.62	QP
3	580.030	43.35	-4.50	38.85	46.00	7.15	QP
4	676.713	47.40	-3.42	43.98	46.00	2.02	QP
5	726.805	48.42	-2.80	45.62	46.00	0.38	QP
6	872.183	42.37	-0.54	41.83	46.00	4.17	QP

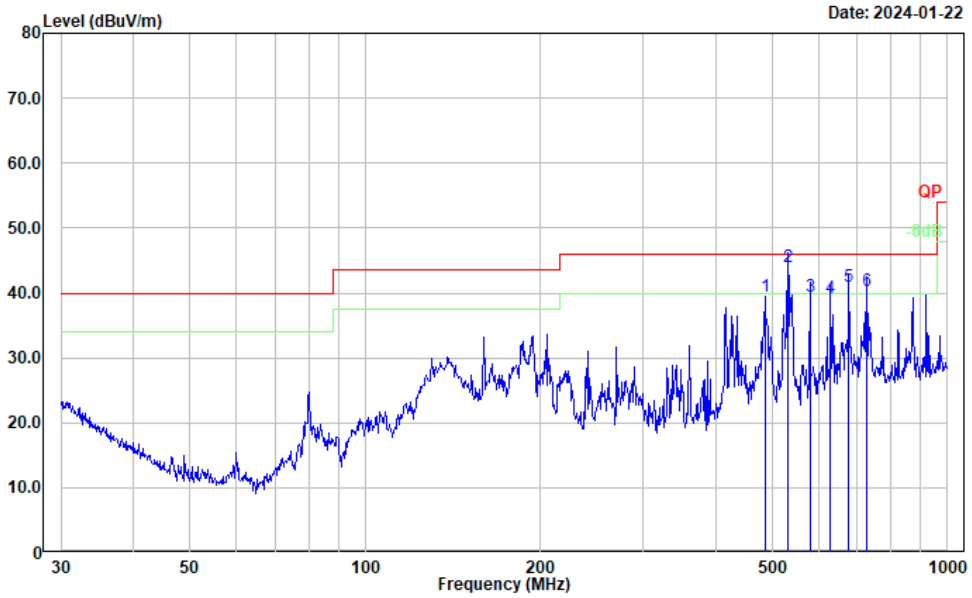
Project No.: CR240103476-RF
Tester: Vic Du
Polarization: vertical
Note: Transmitting 2.4G WiFi



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	435.590	52.11	-7.00	45.11	46.00	0.89	QP
2	483.910	51.66	-6.14	45.52	46.00	0.48	QP
3	531.964	51.17	-5.39	45.78	46.00	0.22	QP
4	580.703	45.89	-4.50	41.39	46.00	4.61	QP
5	677.580	47.70	-3.42	44.28	46.00	1.72	QP
6	726.805	46.98	-2.80	44.18	46.00	1.82	QP

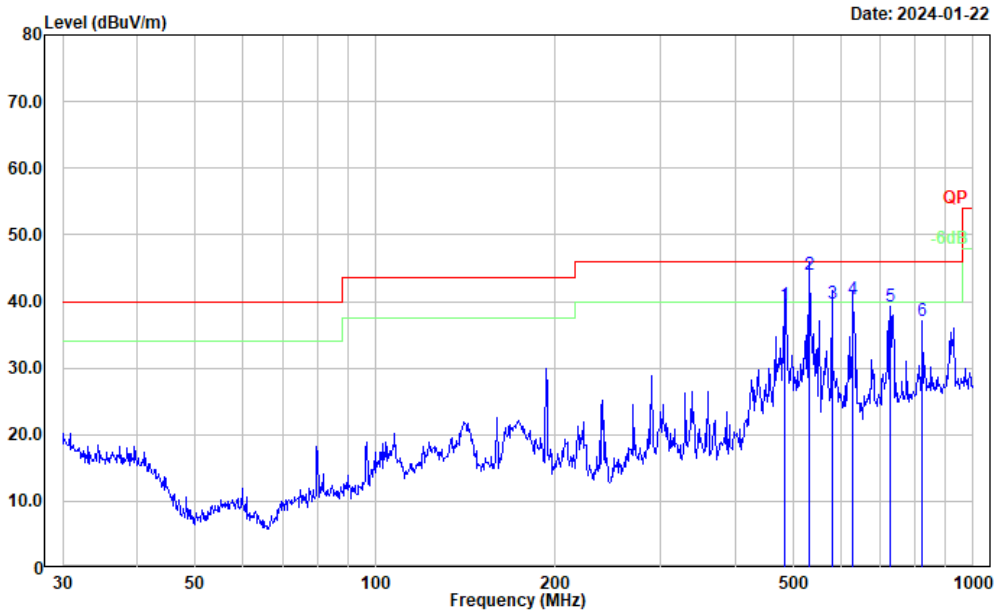
Chain 1:

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: horizontal
Note: Transmitting 2.4G WiFi



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	485.609	45.61	-6.11	39.50	46.00	6.50	Peak
2	531.964	49.47	-5.39	44.08	46.00	1.92	QP
3	580.703	44.06	-4.50	39.56	46.00	6.44	QP
4	629.477	43.37	-4.11	39.26	46.00	6.74	QP
5	677.580	44.44	-3.42	41.02	46.00	4.98	QP
6	726.805	43.22	-2.80	40.42	46.00	5.58	QP

Project No.: CR240103476-RF
Tester: Vic Du
Polarization: vertical
Note: Transmitting 2.4G WiFi



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	483.910	45.69	-6.14	39.55	46.00	6.45	QP
2	531.964	49.35	-5.39	43.96	46.00	2.04	QP
3	580.703	44.21	-4.50	39.71	46.00	6.29	QP
4	629.477	44.50	-4.11	40.39	46.00	5.61	QP
5	726.805	42.08	-2.80	39.28	46.00	6.72	Peak
6	821.710	38.35	-1.23	37.12	46.00	8.88	Peak

3) 1-25GHz:
Chain 0:

802.11b Mode

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2412 MHz							
4824.000	56.08	PK	H	-5.59	50.49	74.00	23.51
4824.000	53.11	AV	H	-5.59	47.52	54.00	6.48
4824.000	60.24	PK	V	-5.59	54.65	74.00	19.35
4824.000	57.73	AV	V	-5.59	52.14	54.00	**1.86**
7236.000	50.61	PK	H	-0.18	50.43	74.00	23.57
7236.000	38.67	AV	H	-0.18	38.49	54.00	15.51
7236.000	47.44	PK	V	-0.18	47.26	74.00	26.74
7236.000	35.61	AV	V	-0.18	35.43	54.00	18.57
Middle Channel: 2437 MHz							
4874.000	52.36	PK	H	-5.49	46.87	74.00	27.13
4874.000	49.78	AV	H	-5.49	44.29	54.00	9.71
4874.000	58.09	PK	V	-5.49	52.60	74.00	21.40
4874.000	55.46	AV	V	-5.49	49.97	54.00	4.03
7311.000	46.55	PK	H	0.41	46.96	74.00	27.04
7311.000	33.64	AV	H	0.41	34.05	54.00	19.95
7311.000	47.10	PK	V	0.41	47.51	74.00	26.49
7311.000	34.55	AV	V	0.41	34.96	54.00	19.04
High Channel: 2462 MHz							
4924.000	51.66	PK	H	-5.35	46.31	74.00	27.69
4924.000	48.67	AV	H	-5.35	43.32	54.00	10.68
4924.000	57.42	PK	V	-5.35	52.07	74.00	21.93
4924.000	54.37	AV	V	-5.35	49.02	54.00	4.98
7386.000	46.52	PK	H	0.77	47.29	74.00	26.71
7386.000	33.69	AV	H	0.77	34.46	54.00	19.54
7386.000	46.78	PK	V	0.77	47.55	74.00	26.45
7386.000	33.59	AV	V	0.77	34.36	54.00	19.64

802.11g Mode

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2412 MHz							
4824.000	50.21	PK	H	-5.59	44.62	74.00	29.38
4824.000	37.66	AV	H	-5.59	32.07	54.00	21.93
4824.000	53.25	PK	V	-5.59	47.66	74.00	26.34
4824.000	40.13	AV	V	-5.59	34.54	54.00	19.46
7236.000	46.32	PK	H	-0.18	46.14	74.00	27.86
7236.000	33.79	AV	H	-0.18	33.61	54.00	20.39
7236.000	47.15	PK	V	-0.18	46.97	74.00	27.03
7236.000	34.52	AV	V	-0.18	34.34	54.00	19.66
Middle Channel: 2437 MHz							
4874.000	48.63	PK	H	-5.49	43.14	74.00	30.86
4874.000	35.44	AV	H	-5.49	29.95	54.00	24.05
4874.000	52.12	PK	V	-5.49	46.63	74.00	27.37
4874.000	39.55	AV	V	-5.49	34.06	54.00	19.94
7311.000	46.24	PK	H	0.41	46.65	74.00	27.35
7311.000	33.19	AV	H	0.41	33.60	54.00	20.40
7311.000	46.78	PK	V	0.41	47.19	74.00	26.81
7311.000	33.64	AV	V	0.41	34.05	54.00	19.95
High Channel: 2462 MHz							
4924.000	48.14	PK	H	-5.35	42.79	74.00	31.21
4924.000	35.44	AV	H	-5.35	30.09	54.00	23.91
4924.000	53.09	PK	V	-5.35	47.74	74.00	26.26
4924.000	40.73	AV	V	-5.35	35.38	54.00	18.62
7386.000	46.39	PK	H	0.77	47.16	74.00	26.84
7386.000	33.24	AV	H	0.77	34.01	54.00	19.99
7386.000	46.55	PK	V	0.77	47.32	74.00	26.68
7386.000	33.38	AV	V	0.77	34.15	54.00	19.85

802.11n ht20 Mode:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2412 MHz							
4824.000	51.02	PK	H	-5.59	45.43	74.00	28.57
4824.000	38.33	AV	H	-5.59	32.74	54.00	21.26
4824.000	53.46	PK	V	-5.59	47.87	74.00	26.13
4824.000	40.12	AV	V	-5.59	34.53	54.00	19.47
7236.000	47.10	PK	H	-0.18	46.92	74.00	27.08
7236.000	34.22	AV	H	-0.18	34.04	54.00	19.96
7236.000	47.52	PK	V	-0.18	47.34	74.00	26.66
7236.000	34.69	AV	V	-0.18	34.51	54.00	19.49
Middle Channel: 2437 MHz							
4874.000	48.12	PK	H	-5.49	42.63	74.00	31.37
4874.000	35.34	AV	H	-5.49	29.85	54.00	24.15
4874.000	51.81	PK	V	-5.49	46.32	74.00	27.68
4874.000	38.65	AV	V	-5.49	33.16	54.00	20.84
7311.000	46.22	PK	H	0.41	46.63	74.00	27.37
7311.000	33.43	AV	H	0.41	33.84	54.00	20.16
7311.000	46.59	PK	V	0.41	47.00	74.00	27.00
7311.000	33.36	AV	V	0.41	33.77	54.00	20.23
High Channel: 2462 MHz							
4924.000	49.01	PK	H	-5.35	43.66	74.00	30.34
4924.000	36.23	AV	H	-5.35	30.88	54.00	23.12
4924.000	53.66	PK	V	-5.35	48.31	74.00	25.69
4924.000	40.58	AV	V	-5.35	35.23	54.00	18.77
7386.000	46.33	PK	H	0.77	47.10	74.00	26.90
7386.000	33.47	AV	H	0.77	34.24	54.00	19.76
7386.000	47.10	PK	V	0.77	47.87	74.00	26.13
7386.000	34.67	AV	V	0.77	35.44	54.00	18.56

802.11n ht40 Mode:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2422 MHz							
4844.000	48.39	PK	H	-5.47	42.92	74.00	31.08
4844.000	35.17	AV	H	-5.47	29.70	54.00	24.30
4844.000	50.12	PK	V	-5.47	44.65	74.00	29.35
4844.000	37.24	AV	V	-5.47	31.77	54.00	22.23
7266.000	46.22	PK	H	0.04	46.26	74.00	27.74
7266.000	33.61	AV	H	0.04	33.65	54.00	20.35
7266.000	46.55	PK	V	0.04	46.59	74.00	27.41
7266.000	33.46	AV	V	0.04	33.50	54.00	20.50
Middle Channel: 2437 MHz							
4874.000	48.32	PK	H	-5.49	42.83	74.00	31.17
4874.000	35.20	AV	H	-5.49	29.71	54.00	24.29
4874.000	50.02	PK	V	-5.49	44.53	74.00	29.47
4874.000	37.66	AV	V	-5.49	32.17	54.00	21.83
7311.000	46.33	PK	H	0.41	46.74	74.00	27.26
7311.000	33.19	AV	H	0.41	33.60	54.00	20.40
7311.000	46.37	PK	V	0.41	46.78	74.00	27.22
7311.000	33.84	AV	V	0.41	34.25	54.00	19.75
High Channel: 2452 MHz							
4904.000	48.55	PK	H	-5.51	43.04	74.00	30.96
4904.000	35.10	AV	H	-5.51	29.59	54.00	24.41
4904.000	50.36	PK	V	-5.51	44.85	74.00	29.15
4904.000	37.69	AV	V	-5.51	32.18	54.00	21.82
7356.000	46.38	PK	H	0.67	47.05	74.00	26.95
7356.000	33.20	AV	H	0.67	33.87	54.00	20.13
7356.000	47.11	PK	V	0.67	47.78	74.00	26.22
7356.000	34.57	AV	V	0.67	35.24	54.00	18.76

Chain 1:

802.11b Mode

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2412 MHz							
4824.000	56.01	PK	H	-5.59	50.42	74.00	23.58
4824.000	53.10	AV	H	-5.59	47.51	54.00	6.49
4824.000	59.06	PK	V	-5.59	53.47	74.00	20.53
4824.000	56.12	AV	V	-5.59	50.53	54.00	**3.47**
7236.000	46.37	PK	H	-0.18	46.19	74.00	27.81
7236.000	33.15	AV	H	-0.18	32.97	54.00	21.03
7236.000	47.15	PK	V	-0.18	46.97	74.00	27.03
7236.000	34.10	AV	V	-0.18	33.92	54.00	20.08
Middle Channel: 2437 MHz							
4874.000	51.33	PK	H	-5.49	45.84	74.00	28.16
4874.000	48.31	AV	H	-5.49	42.82	54.00	11.18
4874.000	52.69	PK	V	-5.49	47.20	74.00	26.80
4874.000	48.88	AV	V	-5.49	43.39	54.00	10.61
7311.000	46.79	PK	H	0.41	47.20	74.00	26.80
7311.000	33.77	AV	H	0.41	34.18	54.00	19.82
7311.000	46.91	PK	V	0.41	47.32	74.00	26.68
7311.000	33.66	AV	V	0.41	34.07	54.00	19.93
High Channel: 2462 MHz							
4924.000	47.14	PK	H	-5.35	41.79	74.00	32.21
4924.000	34.02	AV	H	-5.35	28.67	54.00	25.33
4924.000	47.94	PK	V	-5.35	42.59	74.00	31.41
4924.000	34.87	AV	V	-5.35	29.52	54.00	24.48
7386.000	46.32	PK	H	0.77	47.09	74.00	26.91
7386.000	33.96	AV	H	0.77	34.73	54.00	19.27
7386.000	46.55	PK	V	0.77	47.32	74.00	26.68
7386.000	33.67	AV	V	0.77	34.44	54.00	19.56

802.11g Mode

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2412 MHz							
4824.000	52.02	PK	H	-5.59	46.43	74.00	27.57
4824.000	39.46	AV	H	-5.59	33.87	54.00	20.13
4824.000	56.84	PK	V	-5.59	51.25	74.00	22.75
4824.000	43.84	AV	V	-5.59	38.25	54.00	15.75
7236.000	47.10	PK	H	-0.18	46.92	74.00	27.08
7236.000	34.88	AV	H	-0.18	34.70	54.00	19.30
7236.000	46.45	PK	V	-0.18	46.27	74.00	27.73
7236.000	33.71	AV	V	-0.18	33.53	54.00	20.47
Middle Channel: 2437 MHz							
4874.000	49.64	PK	H	-5.49	44.15	74.00	29.85
4874.000	36.57	AV	H	-5.49	31.08	54.00	22.92
4874.000	52.42	PK	V	-5.49	46.93	74.00	27.07
4874.000	39.77	AV	V	-5.49	34.28	54.00	19.72
7311.000	46.58	PK	H	0.41	46.99	74.00	27.01
7311.000	33.13	AV	H	0.41	33.54	54.00	20.46
7311.000	46.22	PK	V	0.41	46.63	74.00	27.37
7311.000	33.17	AV	V	0.41	33.58	54.00	20.42
High Channel: 2462 MHz							
4924.000	50.11	PK	H	-5.35	44.76	74.00	29.24
4924.000	37.46	AV	H	-5.35	32.11	54.00	21.89
4924.000	57.01	PK	V	-5.35	51.66	74.00	22.34
4924.000	44.69	AV	V	-5.35	39.34	54.00	14.66
7386.000	47.12	PK	H	0.77	47.89	74.00	26.11
7386.000	34.22	AV	H	0.77	34.99	54.00	19.01
7386.000	46.86	PK	V	0.77	47.63	74.00	26.37
7386.000	33.57	AV	V	0.77	34.34	54.00	19.66

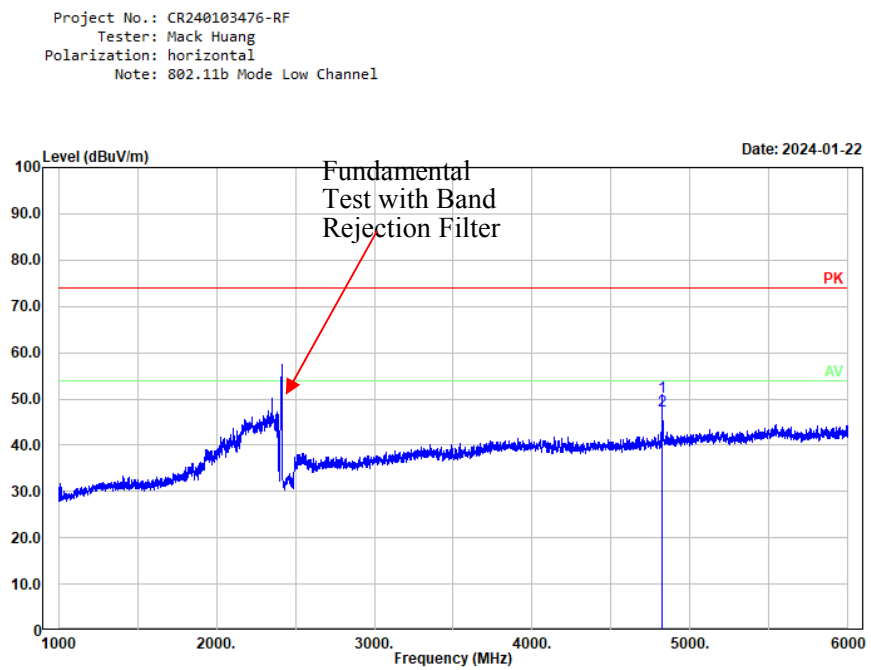
802.11n ht20 Mode:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2412 MHz							
4824.000	51.33	PK	H	-5.59	45.74	74.00	28.26
4824.000	38.42	AV	H	-5.59	32.83	54.00	21.17
4824.000	54.79	PK	V	-5.59	49.20	74.00	24.80
4824.000	41.21	AV	V	-5.59	35.62	54.00	18.38
7236.000	56.43	PK	H	-0.18	56.25	74.00	17.75
7236.000	42.33	AV	H	-0.18	42.15	54.00	11.85
7236.000	52.49	PK	V	-0.18	52.31	74.00	21.69
7236.000	39.78	AV	V	-0.18	39.60	54.00	14.40
Middle Channel: 2437 MHz							
4874.000	50.01	PK	H	-5.49	44.52	74.00	29.48
4874.000	37.64	AV	H	-5.49	32.15	54.00	21.85
4874.000	52.31	PK	V	-5.49	46.82	74.00	27.18
4874.000	39.46	AV	V	-5.49	33.97	54.00	20.03
7311.000	47.15	PK	H	0.41	47.56	74.00	26.44
7311.000	34.33	AV	H	0.41	34.74	54.00	19.26
7311.000	46.58	PK	V	0.41	46.99	74.00	27.01
7311.000	33.23	AV	V	0.41	33.64	54.00	20.36
High Channel: 2462 MHz							
4924.000	51.32	PK	H	-5.35	45.97	74.00	28.03
4924.000	38.52	AV	H	-5.35	33.17	54.00	20.83
4924.000	56.68	PK	V	-5.35	51.33	74.00	22.67
4924.000	43.66	AV	V	-5.35	38.31	54.00	15.69
7386.000	46.57	PK	H	0.77	47.34	74.00	26.66
7386.000	33.12	AV	H	0.77	33.89	54.00	20.11
7386.000	46.10	PK	V	0.77	46.87	74.00	27.13
7386.000	33.50	AV	V	0.77	34.27	54.00	19.73

802.11n ht40 Mode:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2422 MHz							
4844.000	49.32	PK	H	-5.47	43.85	74.00	30.15
4844.000	36.13	AV	H	-5.47	30.66	54.00	23.34
4844.000	50.10	PK	V	-5.47	44.63	74.00	29.37
4844.000	37.64	AV	V	-5.47	32.17	54.00	21.83
7266.000	46.55	PK	H	0.04	46.59	74.00	27.41
7266.000	33.82	AV	H	0.04	33.86	54.00	20.14
7266.000	46.22	PK	V	0.04	46.26	74.00	27.74
7266.000	33.91	AV	V	0.04	33.95	54.00	20.05
Middle Channel: 2437 MHz							
4874.000	48.36	PK	H	-5.49	42.87	74.00	31.13
4874.000	35.44	AV	H	-5.49	29.95	54.00	24.05
4874.000	49.74	PK	V	-5.49	44.25	74.00	29.75
4874.000	36.44	AV	V	-5.49	30.95	54.00	23.05
7311.000	46.74	PK	H	0.41	47.15	74.00	26.85
7311.000	33.55	AV	H	0.41	33.96	54.00	20.04
7311.000	46.39	PK	V	0.41	46.80	74.00	27.20
7311.000	33.81	AV	V	0.41	34.22	54.00	19.78
High Channel: 2452 MHz							
4904.000	47.28	PK	H	-5.51	41.77	74.00	32.23
4904.000	34.69	AV	H	-5.51	29.18	54.00	24.82
4904.000	50.88	PK	V	-5.51	45.37	74.00	28.63
4904.000	38.12	AV	V	-5.51	32.61	54.00	21.39
7356.000	46.90	PK	H	0.67	47.57	74.00	26.43
7356.000	33.74	AV	H	0.67	34.41	54.00	19.59
7356.000	46.64	PK	V	0.67	47.31	74.00	26.69
7356.000	33.11	AV	V	0.67	33.78	54.00	20.22

Worst Test plots(802.11b Low channel):
Chain 0:

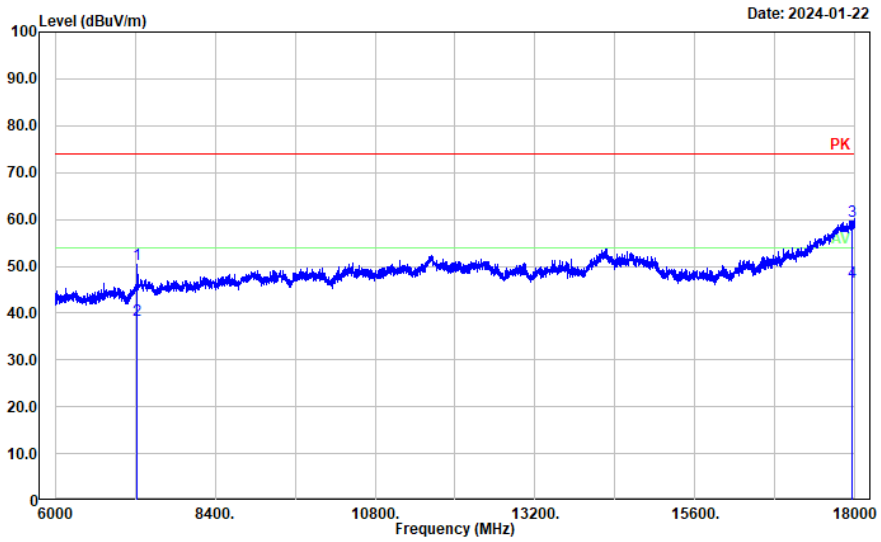
	Horizontal
1-6GHz	

No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	4824.000	56.08	-5.59	50.49	74.00	23.51	Peak
2	4824.000	53.11	-5.59	47.52	54.00	6.48	Average

Horizontal

6-18GHz

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: horizontal
Note: 802.11b Mode Low Channel

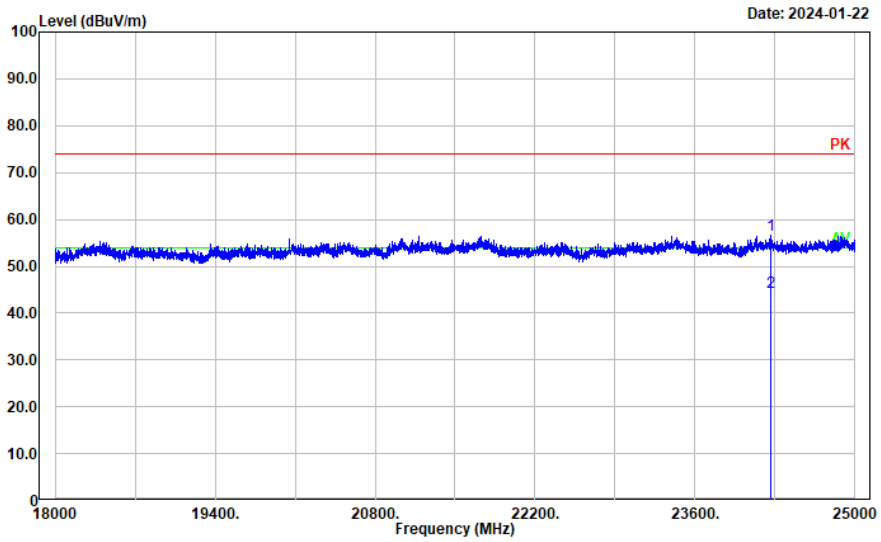


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	7236.000	50.61	-0.18	50.43	74.00	23.57	Peak
2	7236.000	38.67	-0.18	38.49	54.00	15.51	Average
3	17952.000	43.63	16.07	59.70	74.00	14.30	Peak
4	17952.000	30.51	16.07	46.58	54.00	7.42	Average

Horizontal

18-25GHz

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11b Mode Low Channel

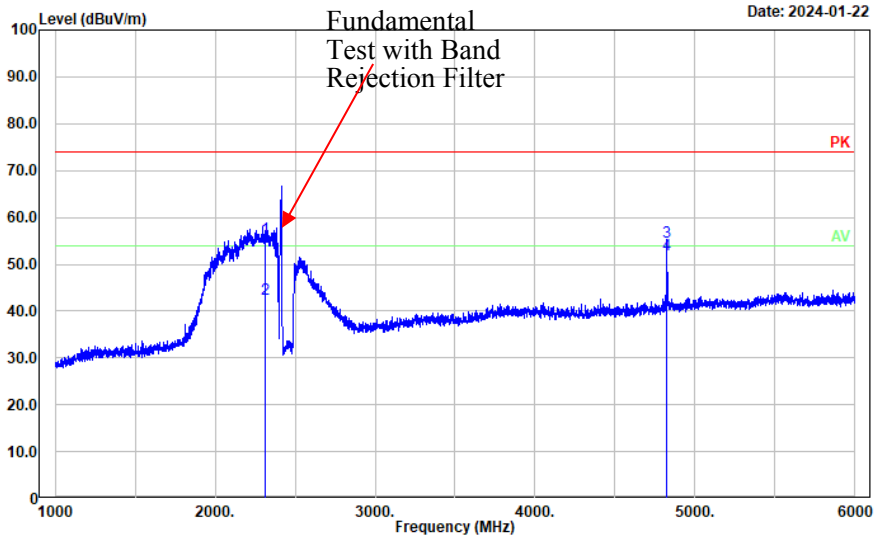


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	24258.000	51.47	5.04	56.51	74.00	17.49	Peak
2	24258.000	39.33	5.04	44.37	54.00	9.63	Average

Vertical

1-6GHz

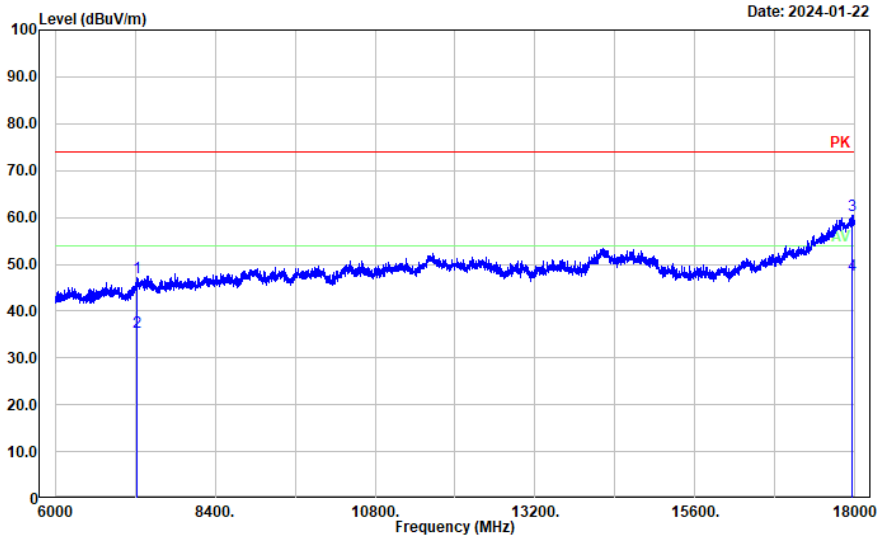
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: vertical
Note: 802.11b Mode Low Channel



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2310.000	67.68	-12.25	55.43	74.00	18.57	Peak
2	2310.000	54.83	-12.25	42.58	54.00	11.42	Average
3	4824.000	60.24	-5.59	54.65	74.00	19.35	Peak
4	4824.000	57.73	-5.59	52.14	54.00	1.86	Average

Vertical	
6-18GHz	

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: vertical
Note: 802.11b Mode Low Channel

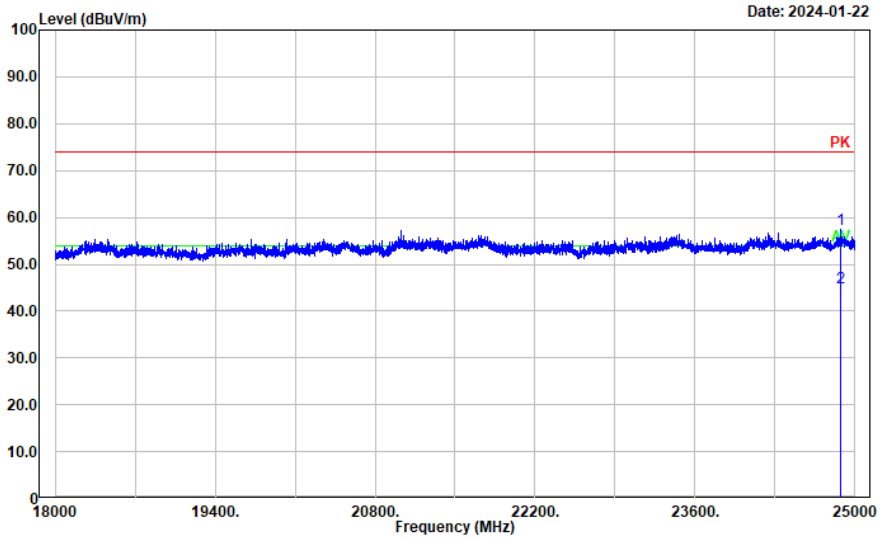


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	7236.000	47.44	-0.18	47.26	74.00	26.74	Peak
2	7236.000	35.61	-0.18	35.43	54.00	18.57	Average
3	17956.800	44.40	16.08	60.48	74.00	13.52	Peak
4	17956.800	31.50	16.08	47.58	54.00	6.42	Average

Vertical

18-25GHz

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11b Mode Low Channel

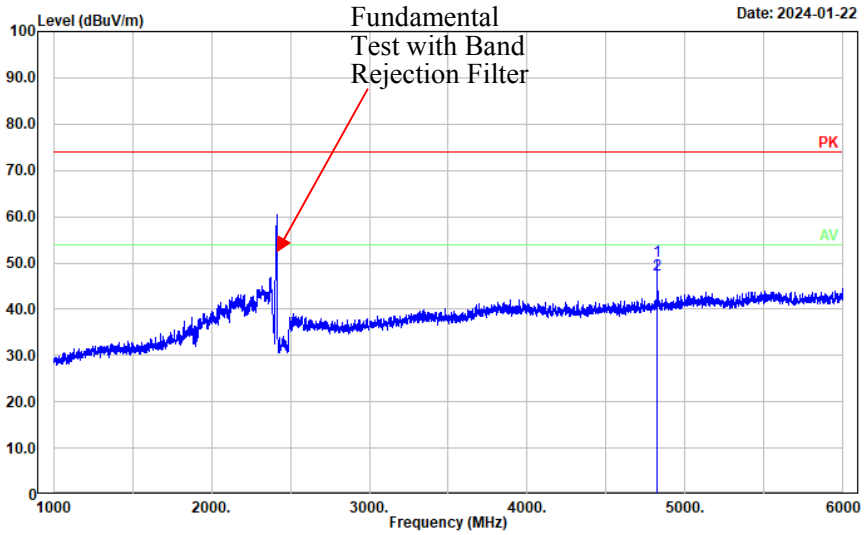


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	24872.600	51.42	6.10	57.52	74.00	16.48	Peak
2	24872.600	39.02	6.10	45.12	54.00	8.88	Average

Chain 1:

Horizontal	
1-6GHz	

```
Project No.: CR240103476-RF
     Tester: Mack Huang
Polarization: horizontal
       Note: 802.11b Mode Low Channel
```

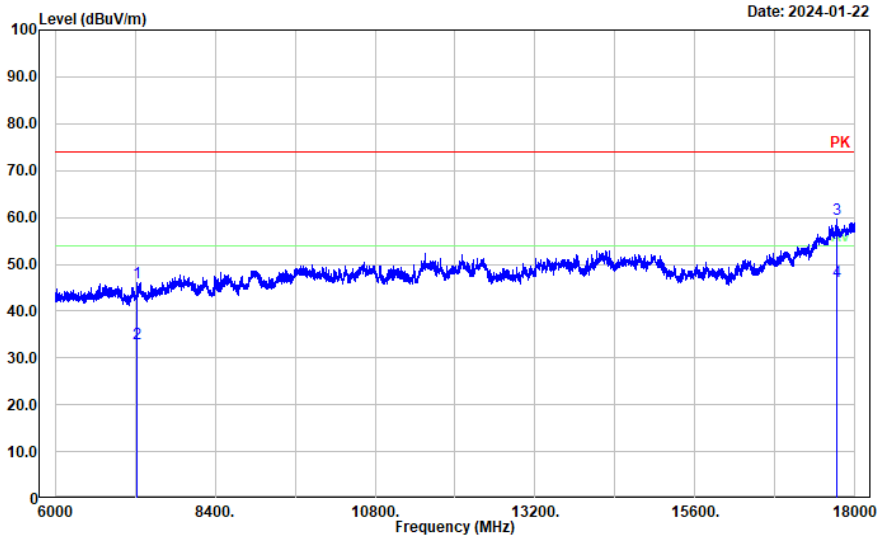


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	4824.000	56.01	-5.59	50.42	74.00	23.58	Peak
2	4824.000	53.10	-5.59	47.51	54.00	6.49	Average

Horizontal

6-18GHz

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: horizontal
Note: 802.11b Mode Low Channel

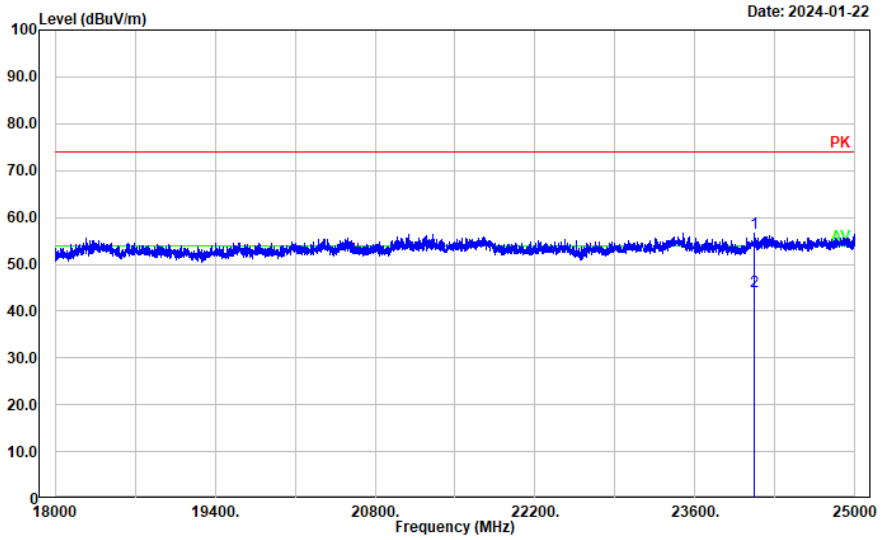


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	7236.000	46.37	-0.18	46.19	74.00	27.81	Peak
2	7236.000	33.15	-0.18	32.97	54.00	21.03	Average
3	17726.400	43.75	15.80	59.55	74.00	14.45	Peak
4	17726.400	30.47	15.80	46.27	54.00	7.73	Average

Horizontal

18-25GHz

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11b Mode Low Channel

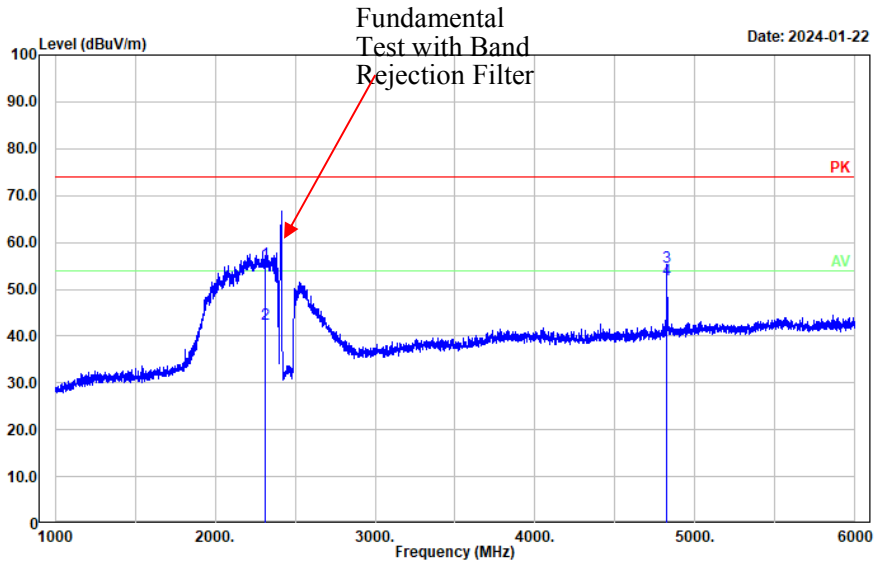


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	24120.800	51.69	4.86	56.55	74.00	17.45	Peak
2	24120.800	39.24	4.86	44.10	54.00	9.90	Average

Vertical

1-6GHz

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: vertical
Note: 802.11b Mode Low Channel

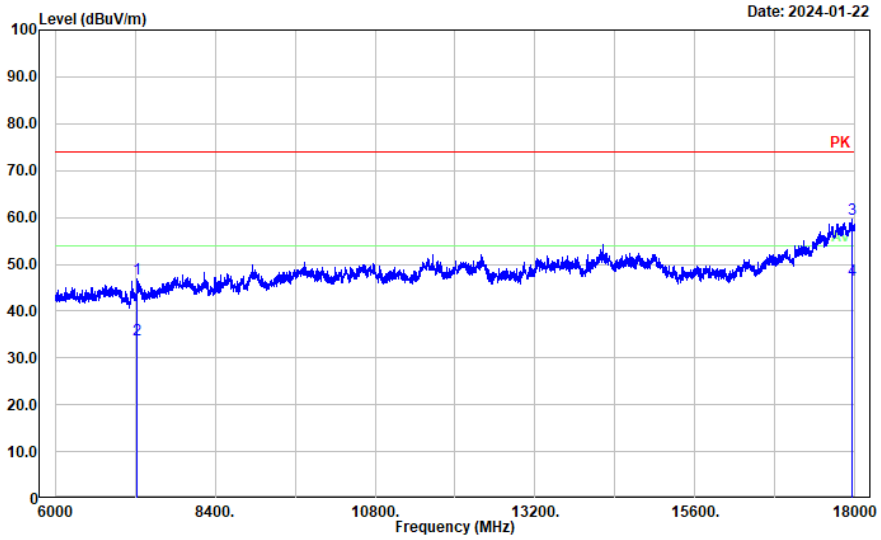


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2310.000	67.68	-12.25	55.43	74.00	18.57	Peak
2	2310.000	54.83	-12.25	42.58	54.00	11.42	Average
3	4824.000	60.24	-5.59	54.65	74.00	19.35	Peak
4	4824.000	57.73	-5.59	52.14	54.00	1.86	Average

Vertical

6-18GHz

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: vertical
Note: 802.11b Mode Low Channel

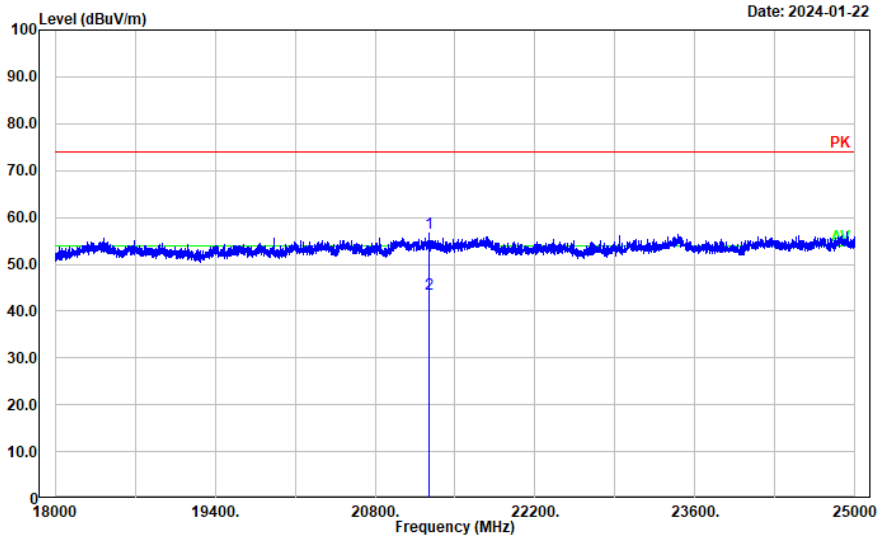


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	7236.000	47.15	-0.18	46.97	74.00	27.03	Peak
2	7236.000	34.10	-0.18	33.92	54.00	20.08	Average
3	17947.200	43.53	16.07	59.60	74.00	14.40	Peak
4	17947.200	30.47	16.07	46.54	54.00	7.46	Average

Vertical

18-25GHz

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11b Mode Low Channel



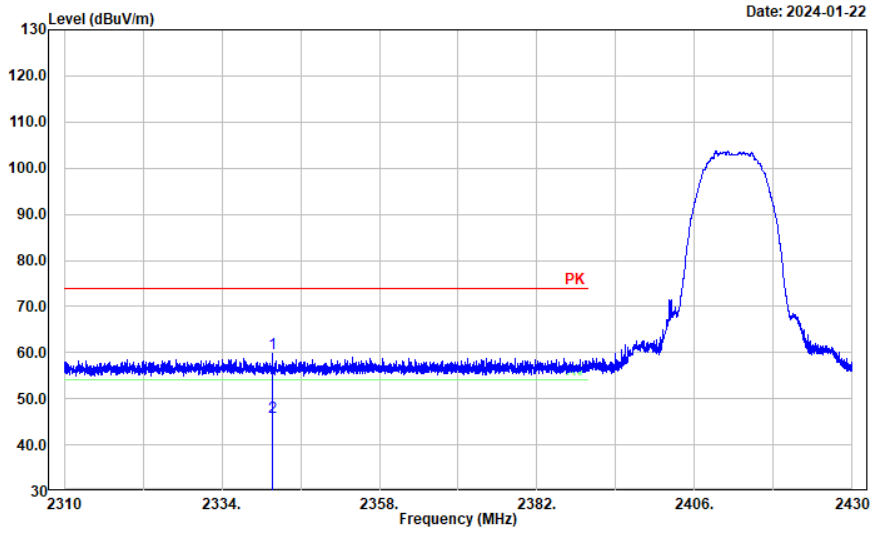
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	21277.400	51.79	4.82	56.61	74.00	17.39	Peak
2	21277.400	38.79	4.82	43.61	54.00	10.39	Average

Test plots for 2.4G Band Edge Measurements (Radiated)

Chain 0:

802.11b			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal**

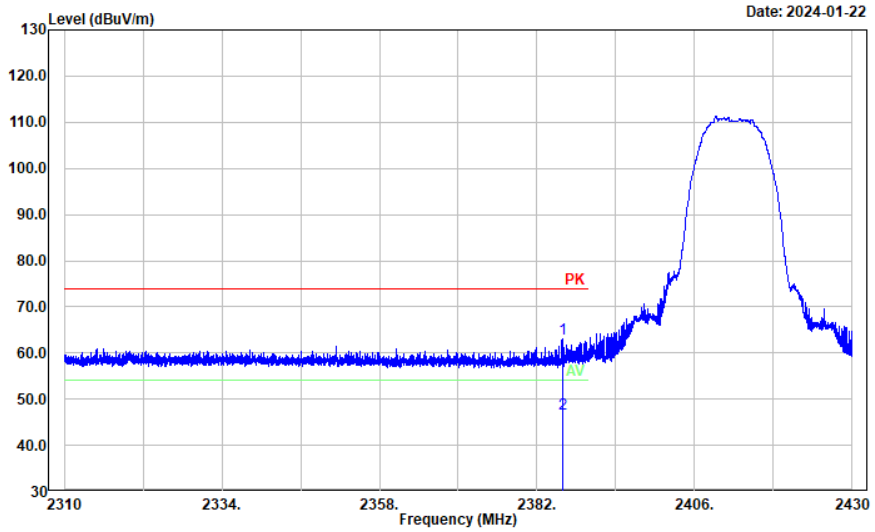
```
Project No.: CR240103476-RF
     Tester: Mack Huang
Polarization: Horizontal
       Note: B Mode 2412 Edge
```



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2341.776	28.31	31.37	59.68	74.00	14.32	Peak
2	2341.776	14.56	31.37	45.93	54.00	8.07	Average

802.11b			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**

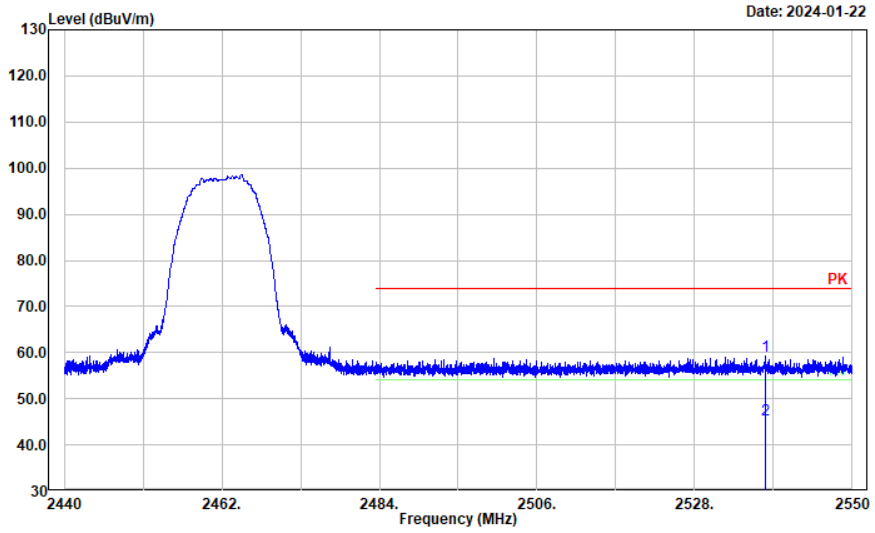
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: B Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2385.888	31.57	31.45	63.02	74.00	10.98	Peak
2	2385.888	15.34	31.45	46.79	54.00	7.21	Average

802.11b			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**

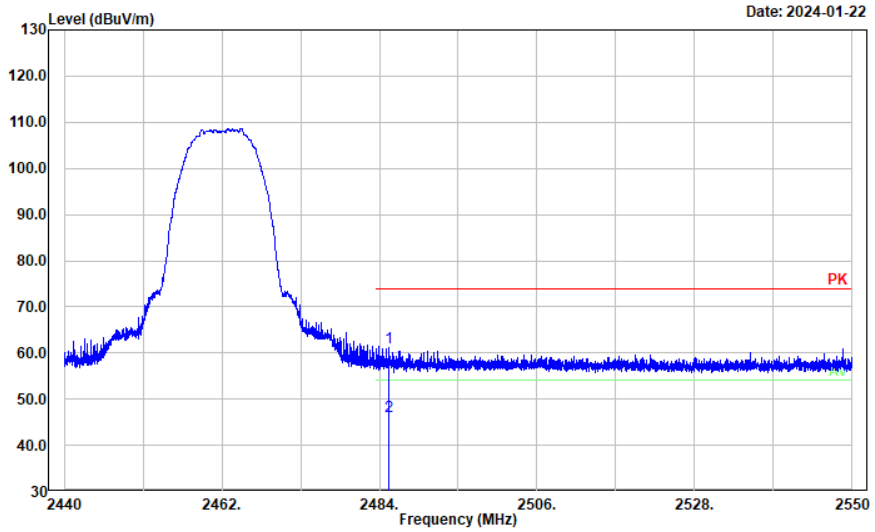
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: B Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2537.812	27.57	31.67	59.24	74.00	14.76	Peak
2	2537.812	13.86	31.67	45.53	54.00	8.47	Average

802.11b			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical**

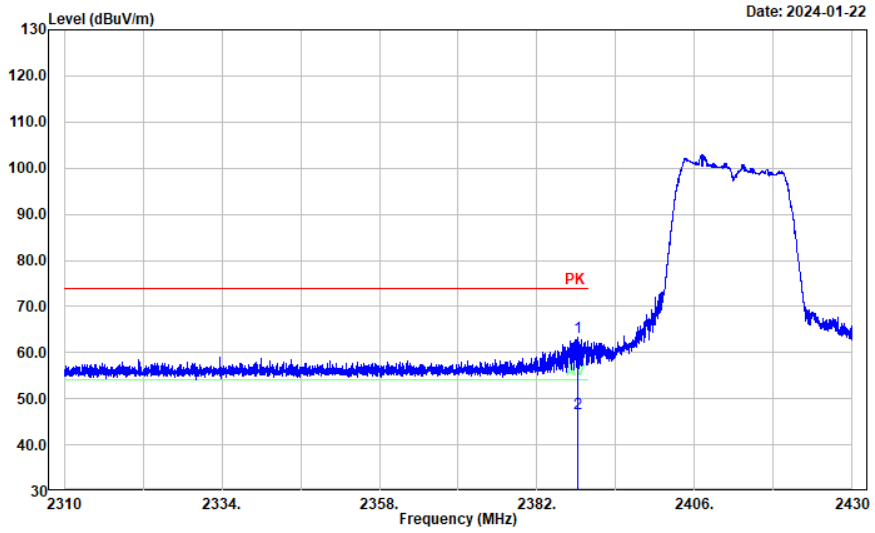
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: B Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2485.364	29.64	31.50	61.14	74.00	12.86	Peak
2	2485.364	14.79	31.50	46.29	54.00	7.71	Average

802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal**

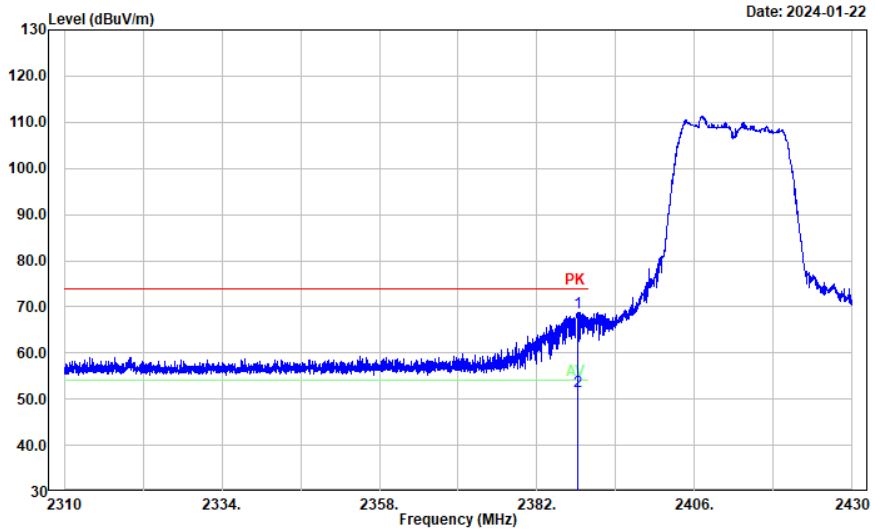
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: G Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2388.264	31.82	31.46	63.28	74.00	10.72	Peak
2	2388.264	15.47	31.46	46.93	54.00	7.07	Average

802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**

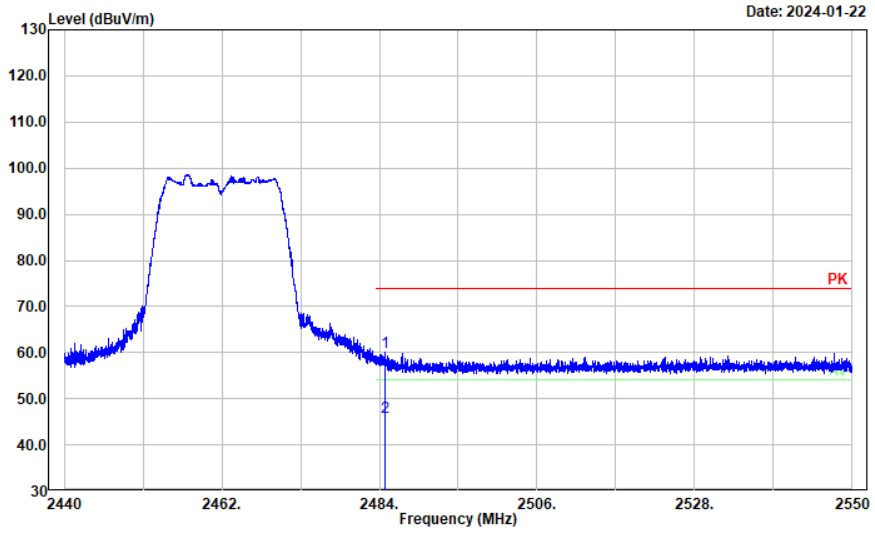
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: G Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2388.168	37.38	31.46	68.84	74.00	5.16	Peak
2	2388.168	20.31	31.46	51.77	54.00	2.23	Average

802.11g			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**

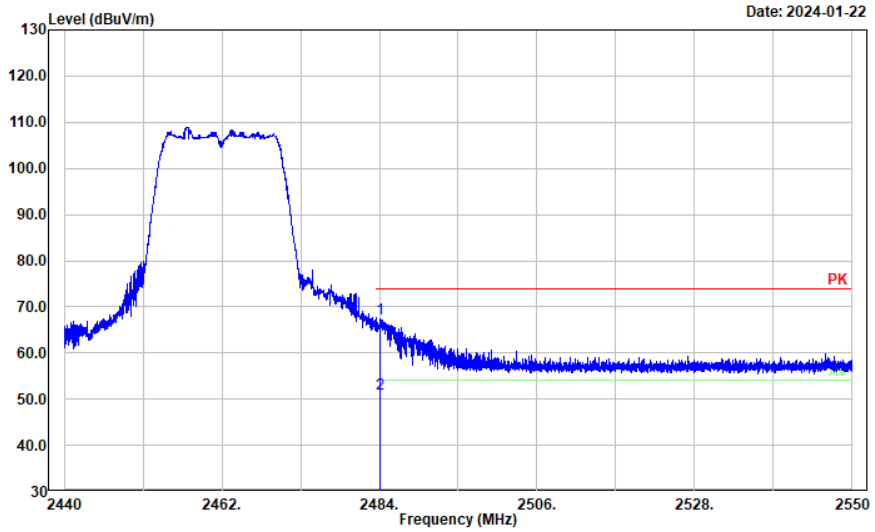
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: G Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2484.814	28.45	31.50	59.95	74.00	14.05	Peak
2	2484.814	14.36	31.50	45.86	54.00	8.14	Average

802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**

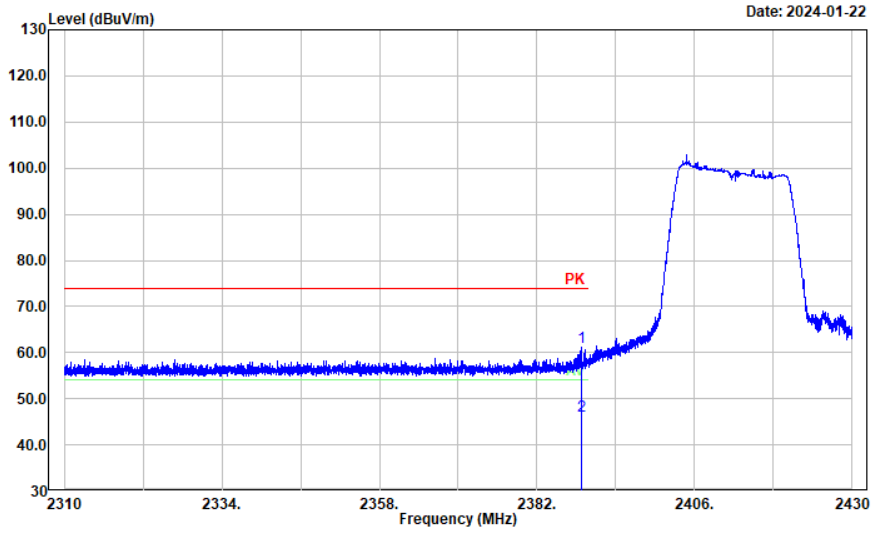
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: G Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2484.110	35.87	31.50	67.37	74.00	6.63	Peak
2	2484.110	19.67	31.50	51.17	54.00	2.83	Average

802.11n ht20			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal**

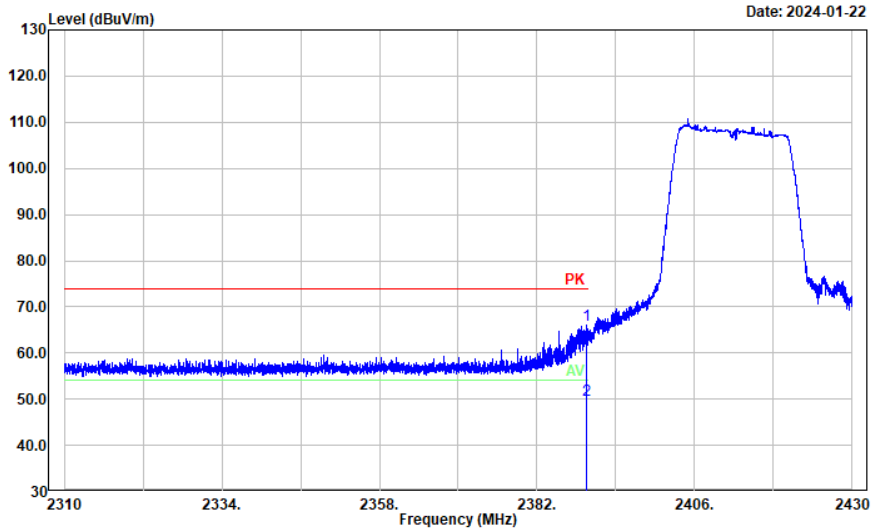
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: N20 Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2388.696	29.60	31.46	61.06	74.00	12.94	Peak
2	2388.696	14.89	31.46	46.35	54.00	7.65	Average

802.11n ht20			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**

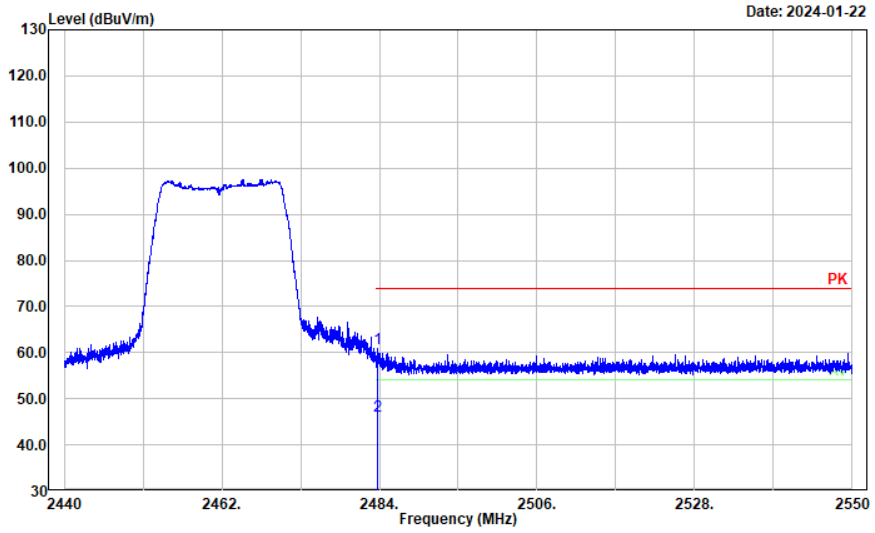
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: N20 Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2389.536	34.54	31.46	66.00	74.00	8.00	Peak
2	2389.536	18.45	31.46	49.91	54.00	4.09	Average

802.11n ht20			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**

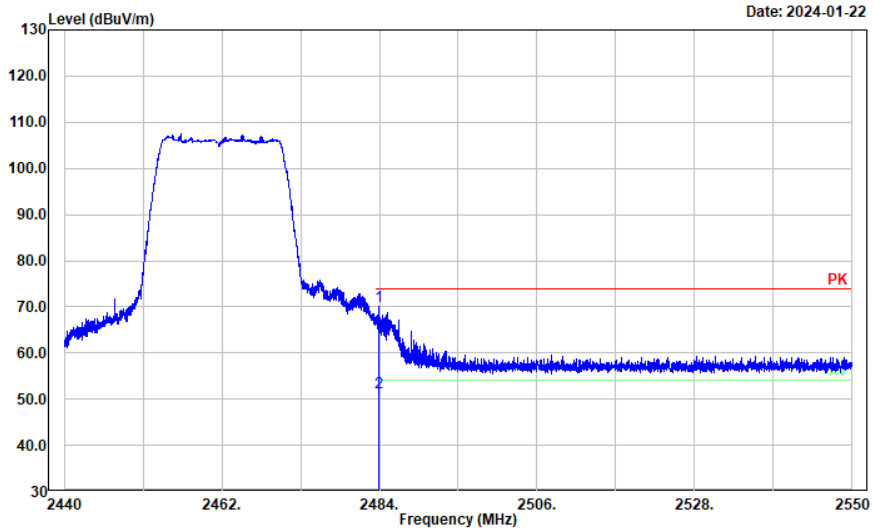
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: N20 Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2483.780	29.27	31.50	60.77	74.00	13.23	Peak
2	2483.780	14.88	31.50	46.38	54.00	7.62	Average

802.11n ht20			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical**

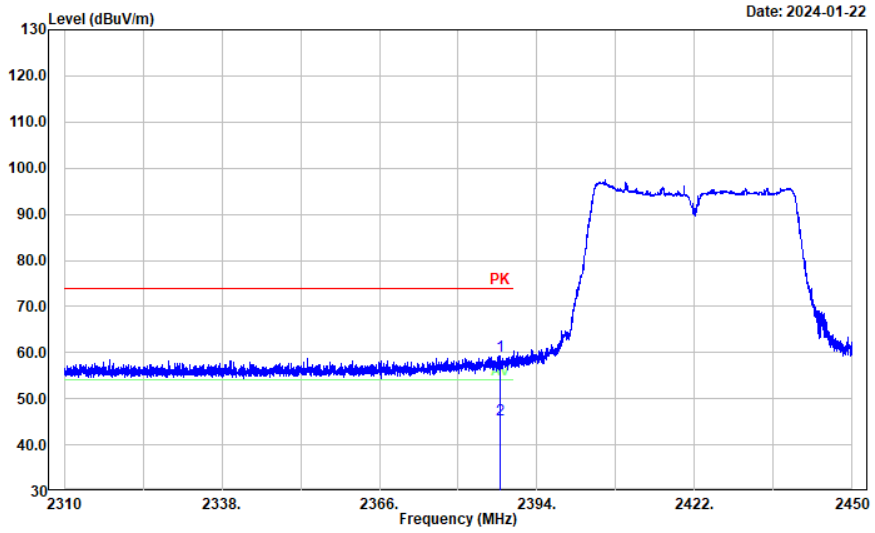
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: N20 Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2483.890	38.52	31.50	70.02	74.00	3.98	Peak
2	2483.890	19.87	31.50	51.37	54.00	2.63	Average

802.11n ht40			
Test Channel:	**2422MHz**	**Ant. Polar. :**	**Horizontal**

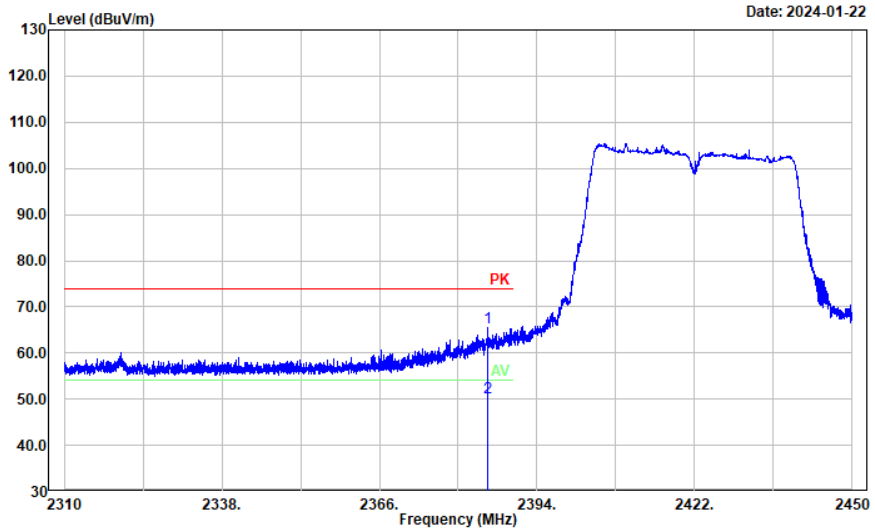
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: N40 Mode 2422 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2387.532	27.75	31.46	59.21	74.00	14.79	Peak
2	2387.532	13.89	31.46	45.35	54.00	8.65	Average

802.11n ht40			
Test Channel:	**2422MHz**	**Ant. Polar. :**	**Vertical**

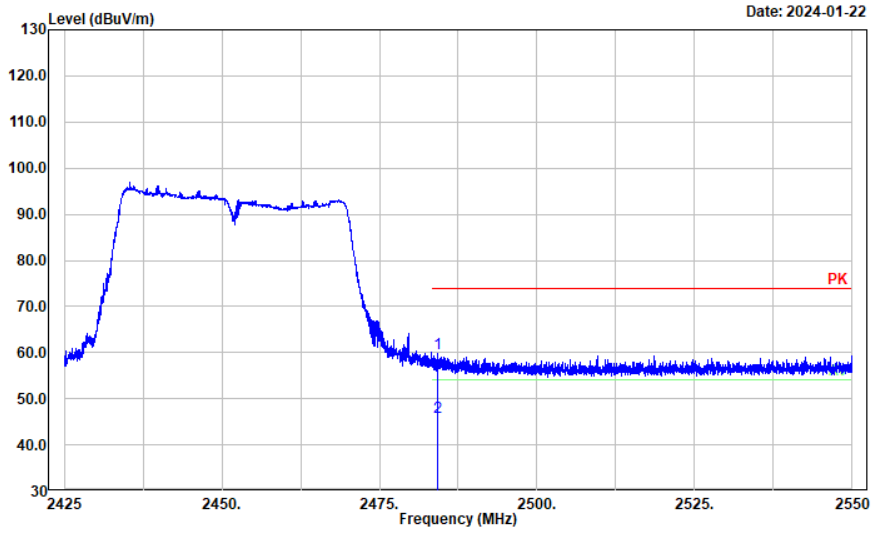
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: N40 Mode 2422 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2385.180	34.06	31.45	65.51	74.00	8.49	Peak
2	2385.180	18.78	31.45	50.23	54.00	3.77	Average

802.11n ht40			
Test Channel:	**2452MHz**	**Ant. Polar. :**	**Horizontal**

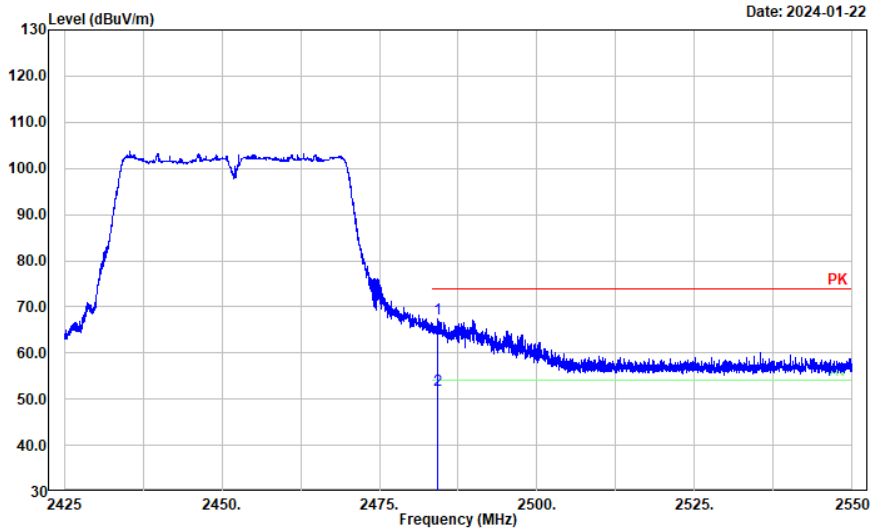
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: N40 Mode 2452 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2484.225	28.25	31.50	59.75	74.00	14.25	Peak
2	2484.225	14.55	31.50	46.05	54.00	7.95	Average

802.11n ht40			
Test Channel:	**2452MHz**	**Ant. Polar. :**	**Vertical**

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: N40 Mode 2452 Edge

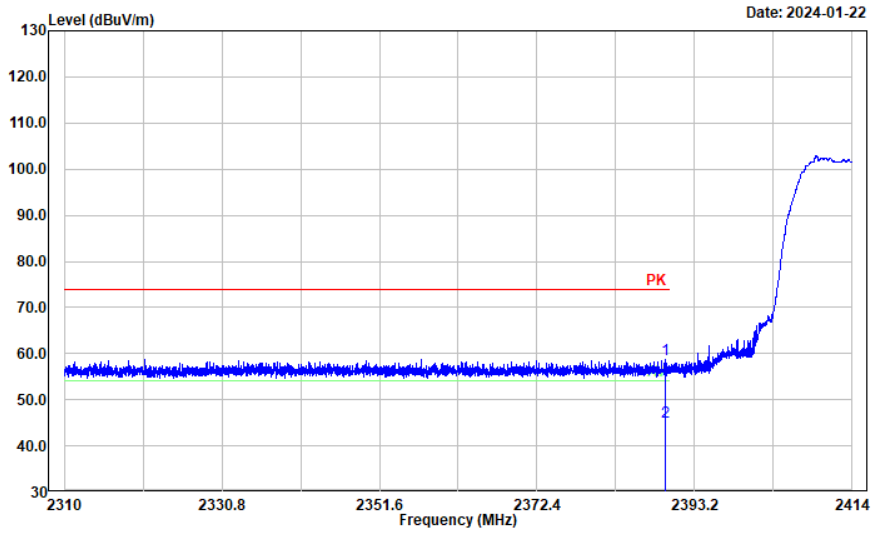


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2484.275	35.81	31.50	67.31	74.00	6.69	Peak
2	2484.275	20.46	31.50	51.96	54.00	2.04	Average

Chain 1:

802.11b			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal**

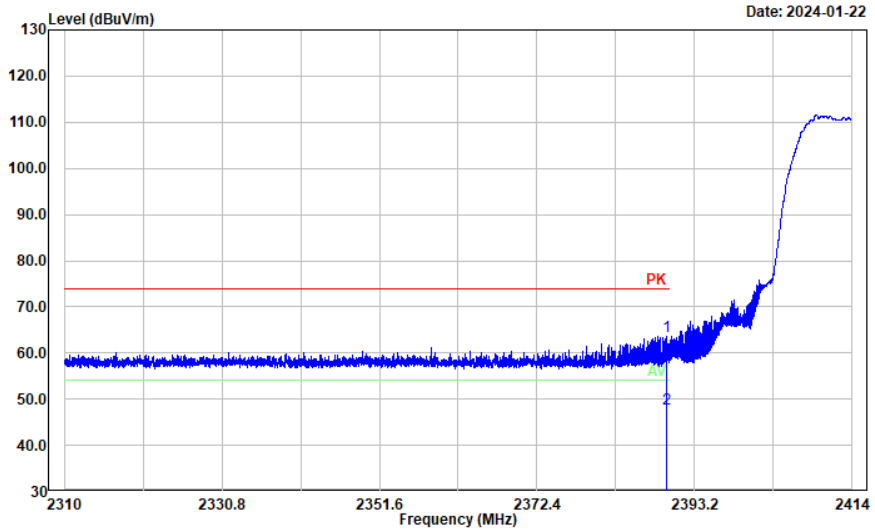
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: B Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2389.269	27.34	31.46	58.80	74.00	15.20	Peak
2	2389.269	13.79	31.46	45.25	54.00	8.75	Average

802.11b			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**

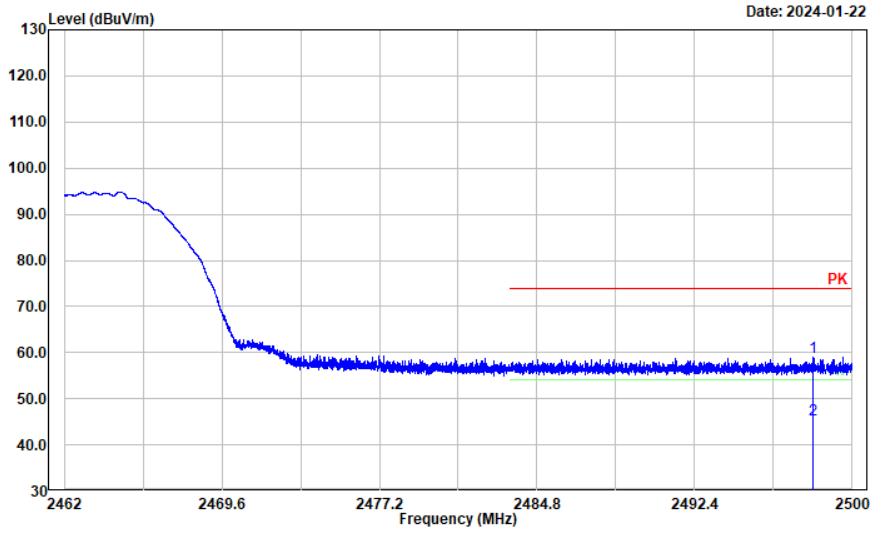
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: B Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2389.456	32.23	31.46	63.69	74.00	10.31	Peak
2	2389.456	16.41	31.46	47.87	54.00	6.13	Average

802.11b			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**

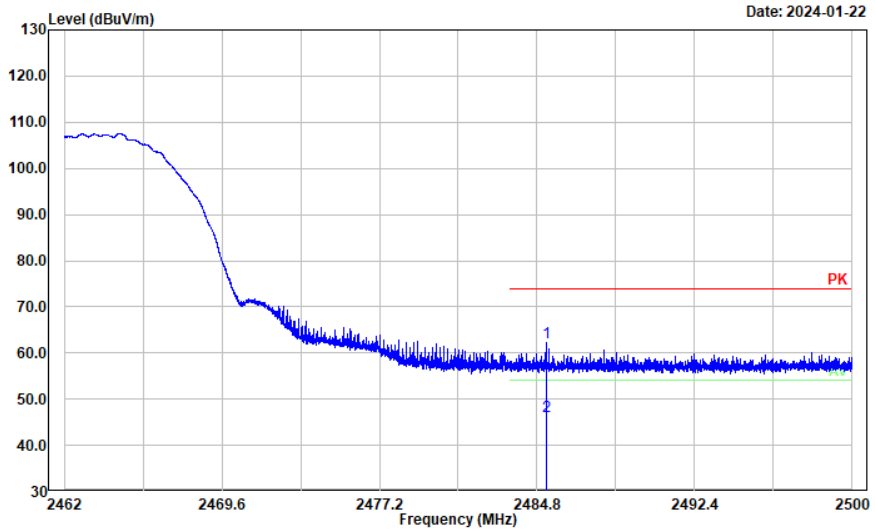
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: B Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2498.100	27.59	31.51	59.10	74.00	14.90	Peak
2	2498.100	14.01	31.51	45.52	54.00	8.48	Average

802.11b			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical**

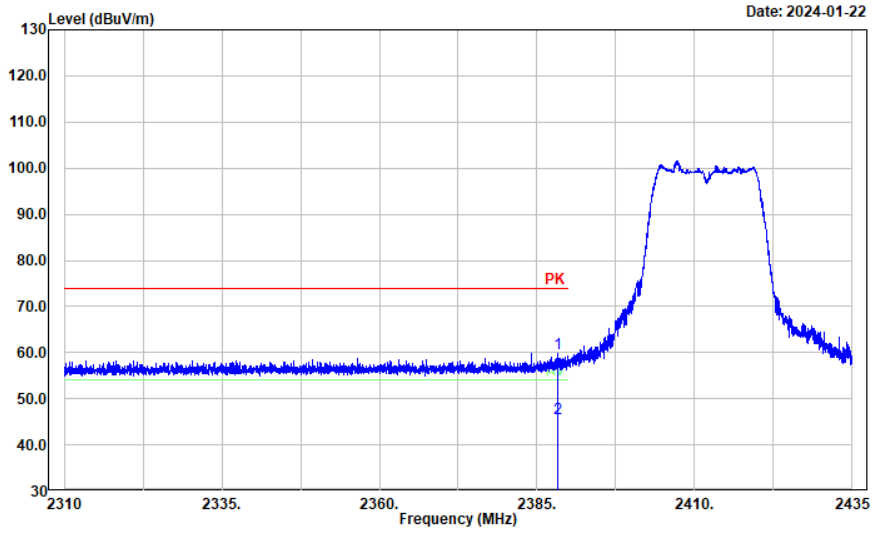
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: B Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2485.233	30.86	31.50	62.36	74.00	11.64	Peak
2	2485.233	14.89	31.50	46.39	54.00	7.61	Average

802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal**

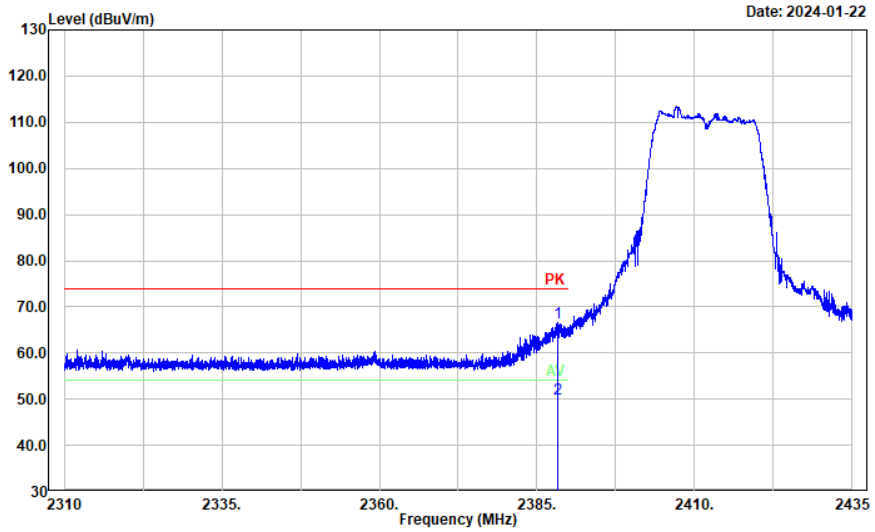
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: G Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2388.275	28.46	31.46	59.92	74.00	14.08	Peak
2	2388.275	14.22	31.46	45.68	54.00	8.32	Average

802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**

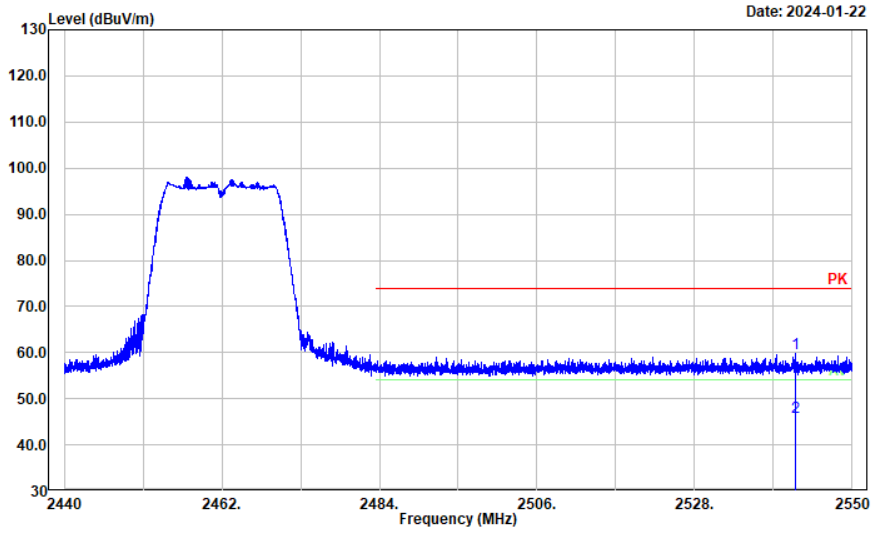
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: G Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2388.375	35.24	31.46	66.70	74.00	7.30	Peak
2	2388.375	18.67	31.46	50.13	54.00	3.87	Average

802.11g			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**

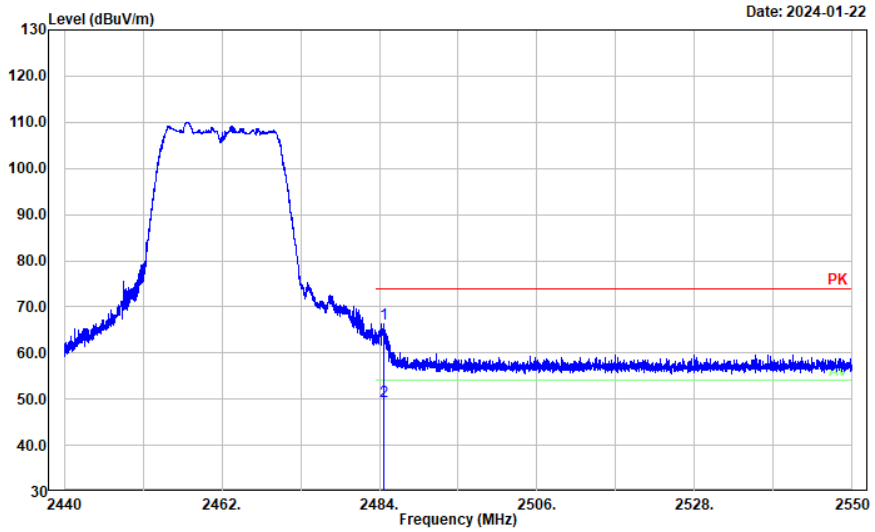
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: G Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2541.992	28.14	31.69	59.83	74.00	14.17	Peak
2	2541.992	14.23	31.69	45.92	54.00	8.08	Average

802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**

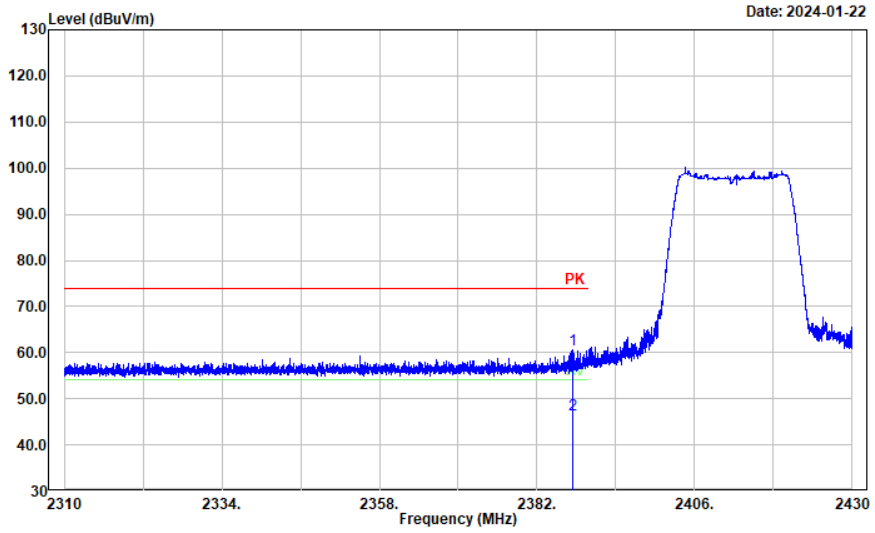
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: G Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2484.594	34.81	31.50	66.31	74.00	7.69	Peak
2	2484.594	17.89	31.50	49.39	54.00	4.61	Average

802.11n ht20			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal**

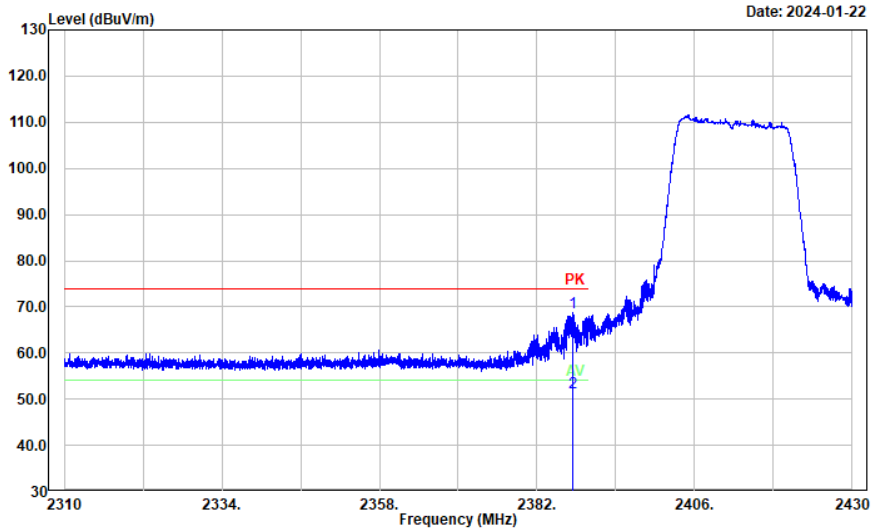
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: N20 Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2387.496	29.15	31.45	60.60	74.00	13.40	Peak
2	2387.496	15.12	31.45	46.57	54.00	7.43	Average

802.11n ht20			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**

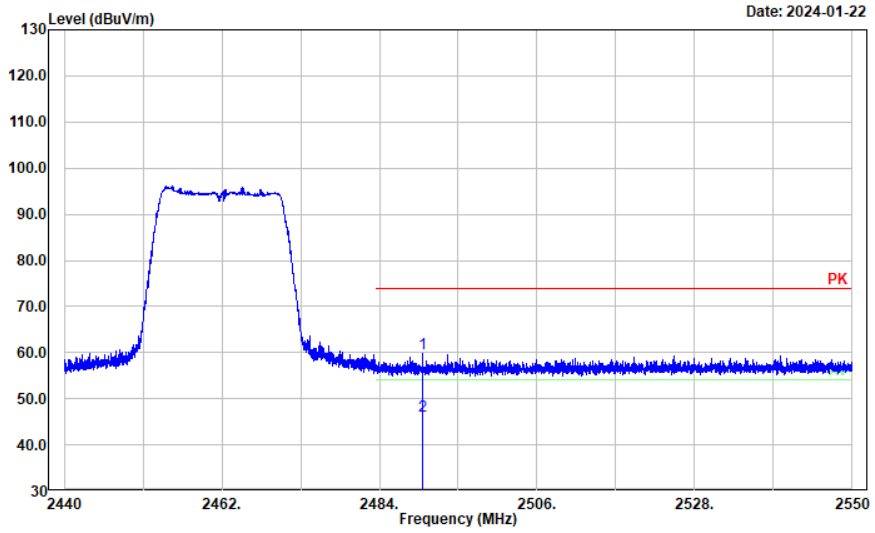
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: N20 Mode 2412 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2387.448	37.38	31.45	68.83	74.00	5.17	Peak
2	2387.448	19.87	31.45	51.32	54.00	2.68	Average

802.11n ht20			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**

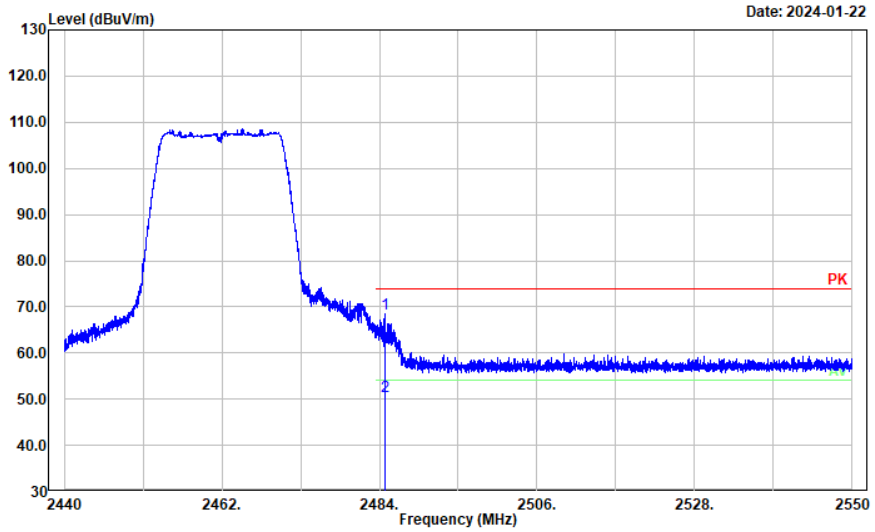
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: N20 Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2490.050	28.21	31.50	59.71	74.00	14.29	Peak
2	2490.050	14.69	31.50	46.19	54.00	7.81	Average

802.11n ht20			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical**

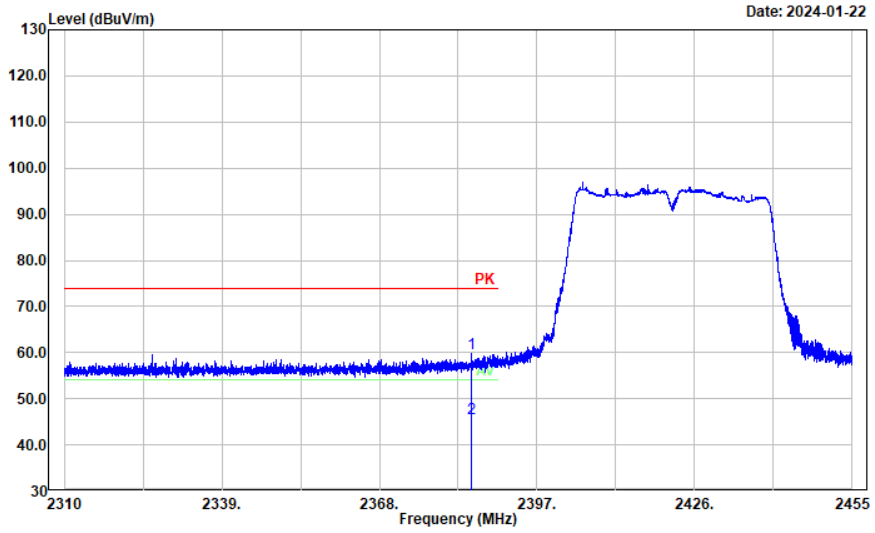
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: N20 Mode 2462 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2484.726	36.88	31.50	68.38	74.00	5.62	Peak
2	2484.726	19.04	31.50	50.54	54.00	3.46	Average

802.11n ht40			
Test Channel:	**2422MHz**	**Ant. Polar. :**	**Horizontal**

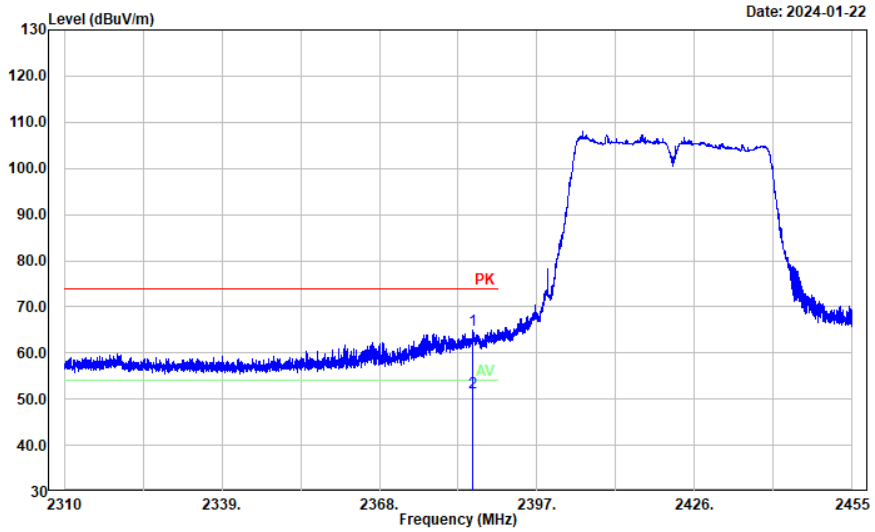
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: N40 Mode 2422 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2385.023	28.33	31.45	59.78	74.00	14.22	Peak
2	2385.023	14.33	31.45	45.78	54.00	8.22	Average

802.11n ht40			
Test Channel:	**2422MHz**	**Ant. Polar. :**	**Vertical**

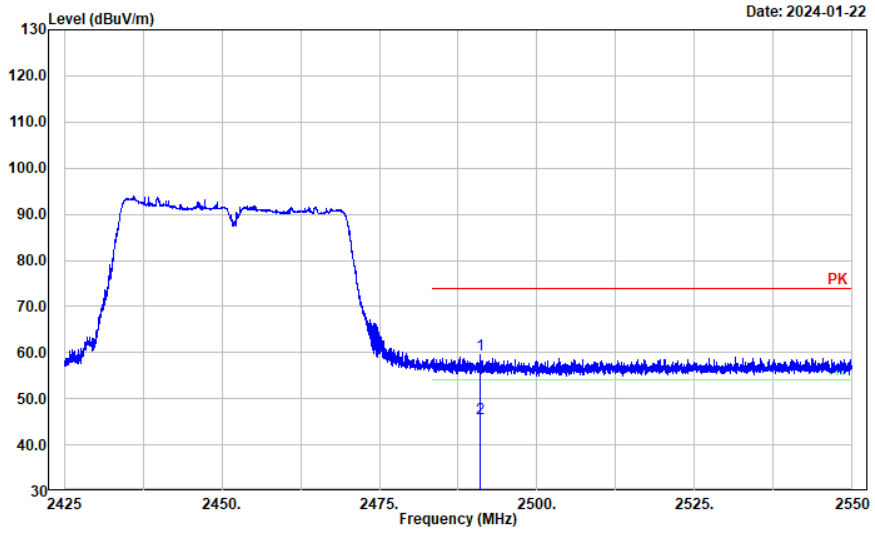
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: N40 Mode 2422 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2385.255	33.40	31.45	64.85	74.00	9.15	Peak
2	2385.255	19.86	31.45	51.31	54.00	2.69	Average

802.11n ht40			
Test Channel:	**2452MHz**	**Ant. Polar. :**	**Horizontal**

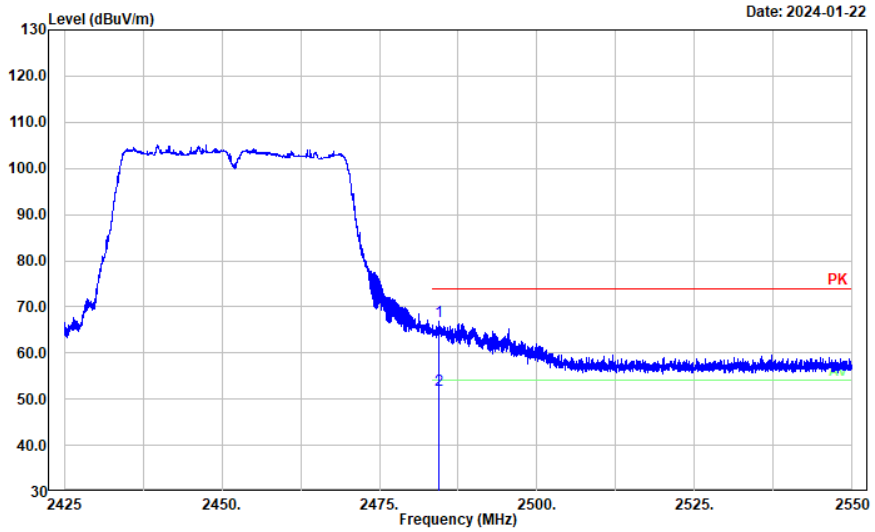
Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Horizontal
Note: N40 Mode 2452 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2491.050	27.95	31.50	59.45	74.00	14.55	Peak
2	2491.050	14.10	31.50	45.60	54.00	8.40	Average

802.11n ht40			
Test Channel:	**2452MHz**	**Ant. Polar. :**	**Vertical**

Project No.: CR240103476-RF
Tester: Mack Huang
Polarization: Vertical
Note: N40 Mode 2452 Edge



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2484.425	35.29	31.50	66.79	74.00	7.21	Peak
2	2484.425	20.49	31.50	51.99	54.00	2.01	Average

4.3 RF Conducted Test

4.3.1 Maximum Conducted Output Power

Serial Number:	2GPP-3	Test Date:	2024/02/03
Test Site:	RF	Test Mode:	Transmitting
Tester:	LingLing Li	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.7	Relative Humidity: (%)	62	ATM Pressure: (kPa)	101.1

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
zhuoxiang	Coaxial Cable	SMA-178	211003	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
Anritsu	Power Meter	ML2495A	1106009	2023/08/04	2024/08/03
Anritsu	Pulse Power Sensor	MA2411A	10780	2023/08/04	2024/08/03

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Test Modes	Test Frequency (MHz)	Maximum Conducted Average Output Power (dBm)			Limit (dBm)
		Chain 0	Chain 1	Total	
802.11b	2412	18.29	19.4	/	30
	2437	17.37	18.45	/	30
	2462	16.51	17.41	/	30
802.11g	2412	14.46	16.98	/	30
	2437	13.76	15.95	/	30
	2462	12.76	14.94	/	30
802.11n ht20	2412	14.36	16.27	/	30
	2437	13.54	16.41	/	30
	2462	12.56	15.25	/	30
802.11n ht40	2422	12.9	15.04	/	30
	2437	12.42	14.52	/	30
	2452	11.93	13.79	/	30

Test Modes	Test Frequency (MHz)	Maximum Conducted Peak Output Power (dBm)			Limit (dBm)
		Chain 0	Chain 1	Total	
802.11b	2412	22.29	23.07	/	30
	2437	21.33	22.23	/	30
	2462	20.52	21.23	/	30
802.11g	2412	23.71	**24.58**	/	30
	2437	23.17	24.2	/	30
	2462	22.46	23.68	/	30
802.11n ht20	2412	23.26	23.94	/	30
	2437	23.04	23.85	/	30
	2462	22	23.18	/	30
802.11n ht40	2422	23.42	23.72	/	30
	2437	22.94	23.59	/	30
	2452	22.97	23.2	/	30

4.3.2 Minimum 6 dB Emission Bandwidth

Please refer to Appendix-00A.

4.3.3 99% Occupied Bandwidth

Please refer to Appendix-00A.

4.3.4 Maximum Power Spectral Density

Please refer to Appendix-00A.

4.3.5 100 kHz Bandwidth of Frequency Band Edge

Please refer to Appendix-00A.

4.3.6 Duty Cycle

Please refer to Appendix-00A.

5. RF EXPOSURE EVALUATION

5.1 FCC §15.247 (i) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

5.1.1 Applicable Standard

According to subpart §1.1310, 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	*($180/f^2$)	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.

5.1.2 Calculation formula:

For Power Density:
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);

5.1.3 Calculated Data:

Power Density Calculation:

Operation Modes	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 WLAN	2412-2462	4.69	2.94	25	316.23	20.00	0.1853	1.0

Note: The Conducted output power including Tune-up Tolerance was provided by manufacturer.

Result: The device meet FCC MPE at 20 cm distance

6. EUT PHOTOGRAPHS

Please refer to the attachment CR240103476-EXP EUT EXTERNAL PHOTOGRAPHS and CR240103476-INP EUT INTERNAL PHOTOGRAPHS

7. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR240103476-00A-TSP TEST SETUP PHOTOGRAPHS.

===== END OF REPORT ====