NVLAP TESTING
NVLAP LAB CODE 600341-0

BACL Bay Area Compliance Labs Corp.

TEST REPORT

Applicant:	**AKUVOX (XIAMEN) NETWORKS CO., LTD.**
Address:	**10/F, No.56 Guanri Road, Software Park II , Xiamen 361009, China**
Product Name:	**HyPanel Plus**
FCC ID:	**2AHCR-PS52V2**
Standard(s):	**47 CFR Part 15, Subpart C(15.247) ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02**
Report Number:	**2402V45633E-RF-00E**
Report Date:	**2024/11/26**

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

Reviewed By: Gavin Xu	**Approved By:** Ivan Cao
Title: RF Engineer	Title: EMC Manager

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CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2402V45633E-RF-00E	Original Report	2024/11/26

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	HyPanel Plus
EUT Model:	PS52V2
Operation Frequency:	2405-2480 MHz
Maximum Peak Output Power (Conducted):	6.62dBm
Modulation Type:	O-QPSK
Rated Input Voltage:	DC 12V From Base
Serial Number:	2EB1-1(For RF Conducted Test) 2EB1-3(For AC Line Conducted Emissions and Radiated Spurious Emission Test)
EUT Received Date:	2024/7/4
EUT Received Status:	Good

1.2 Accessory Information

Accessory Description	Manufacturer	Model	Parameters
/	/	/	/

1.3 Antenna Information Detail▲

Antenna Manufacturer	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
Fuzhou JieLei Electronic Technology Co.,Ltd.	FPC	50	2400-2500MHz	-2.57dBi
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(e)	Power Spectral Density	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.203	Antenna Requirement	Compliant
Note 1: For AC line conducted emissions, the maximum output power mode and channel was tested. Note 2: For Radiated Spurious Emissions 9kHz~ 1GHz, the maximum output power mode and channel was tested.		

3. DESCRIPTION OF TEST CONFIGURATION

3.1 Operation Frequency Detail

Channel	Frequency (MHz)	Channel	Frequency (MHz)
11	**2405**	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	**2440**	26	**2480**

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:	SSCOM V5.13.1		
The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:			
Test Modes	Power Level Setting		
	Lowest	Middle	Highest
ZigBee	10	10	10

3.3 Support Equipment List and Details

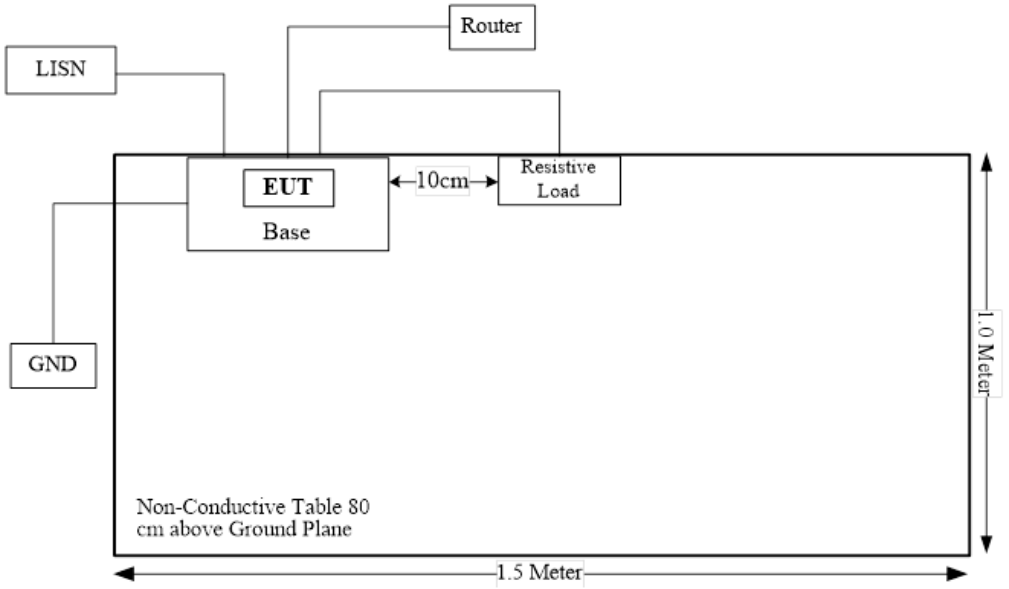
Manufacturer	Description	Model	Serial Number
ZIONCOM	Router	MB-R210-00	EMZBWR21103001
Hengxin electronic	Resistive Load	RX20-T1000W	EMZBRL21120401EN
AKUVOX	Base	F51-D1-US	F51-001

3.4 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 Cble	No	No	10	Router	Base
AC Cable	No	No	0.8	Resistive Load	Base
GND line	No	No	2.0	EUT	GND

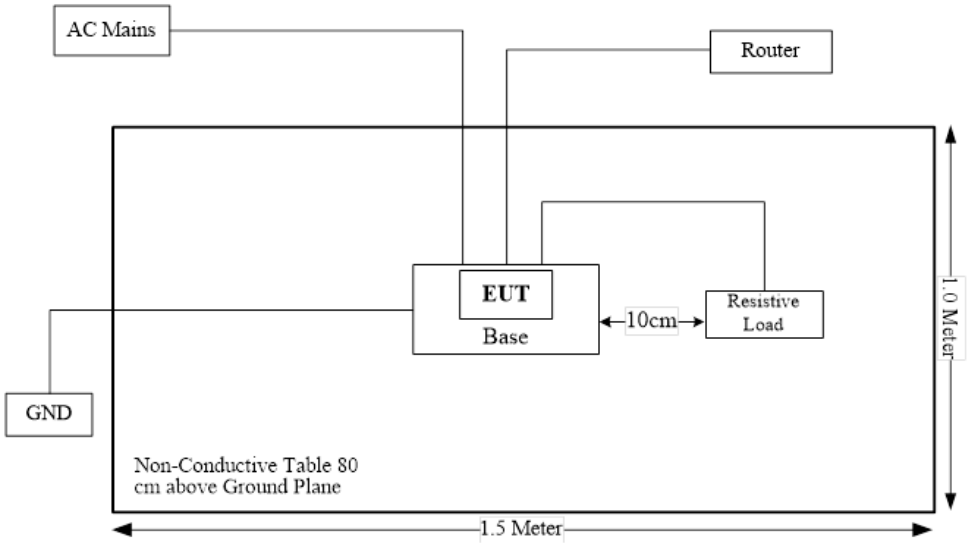
3.5 Block Diagram of Test Setup

AC line conducted emissions:

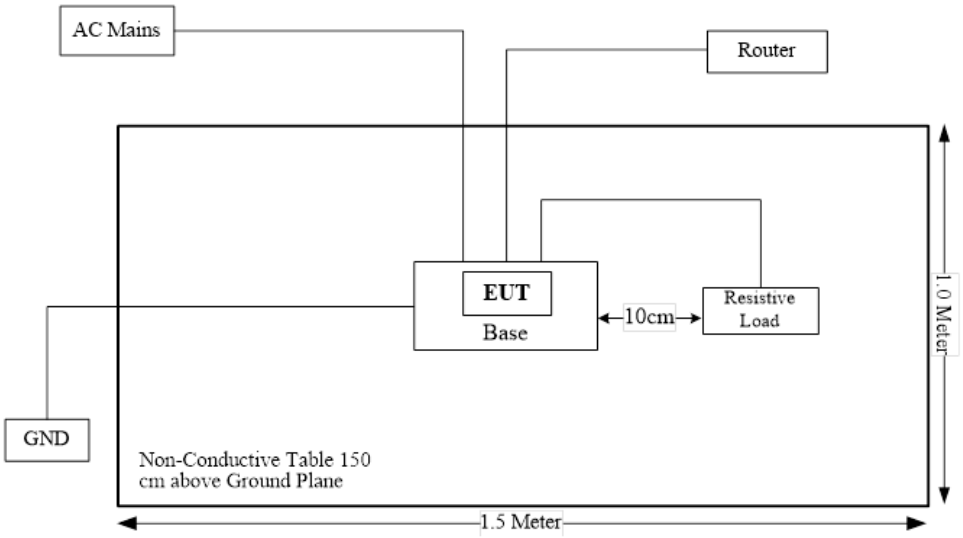


Radiated Spurious Emissions:

Below 1GHz:



Above 1GHz:



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:

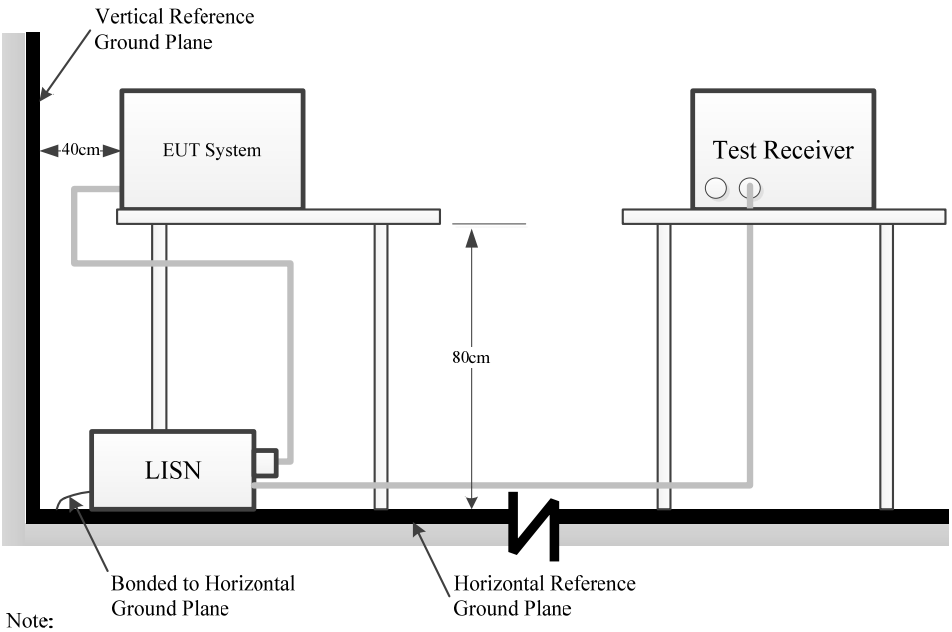
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(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



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

4.1.3 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

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

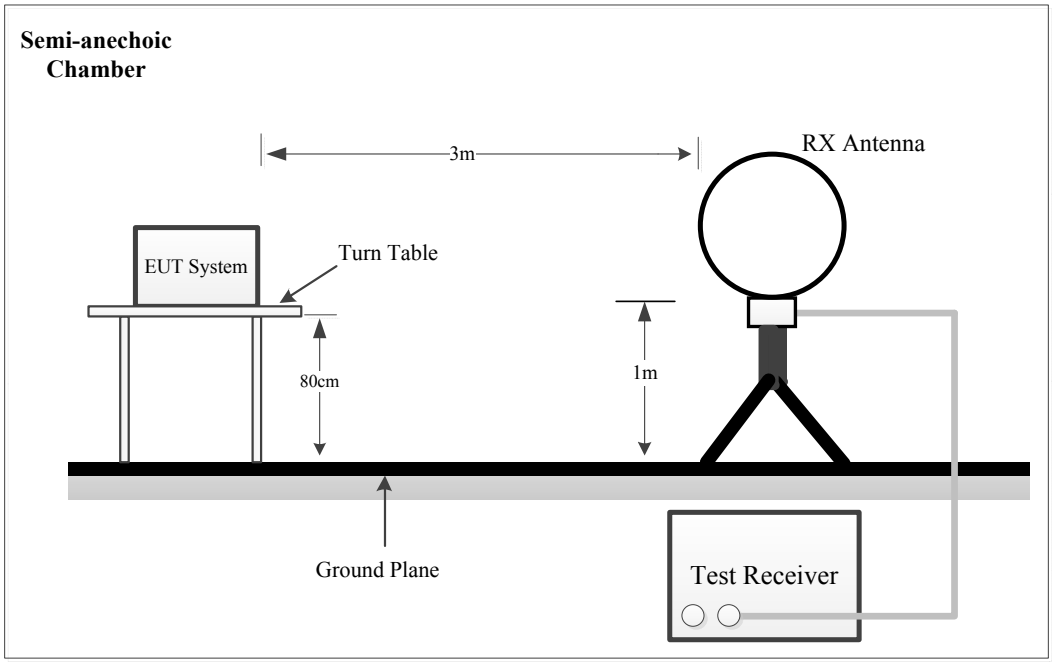
4.2.1 Applicable Standard

FCC §15.247 (d);

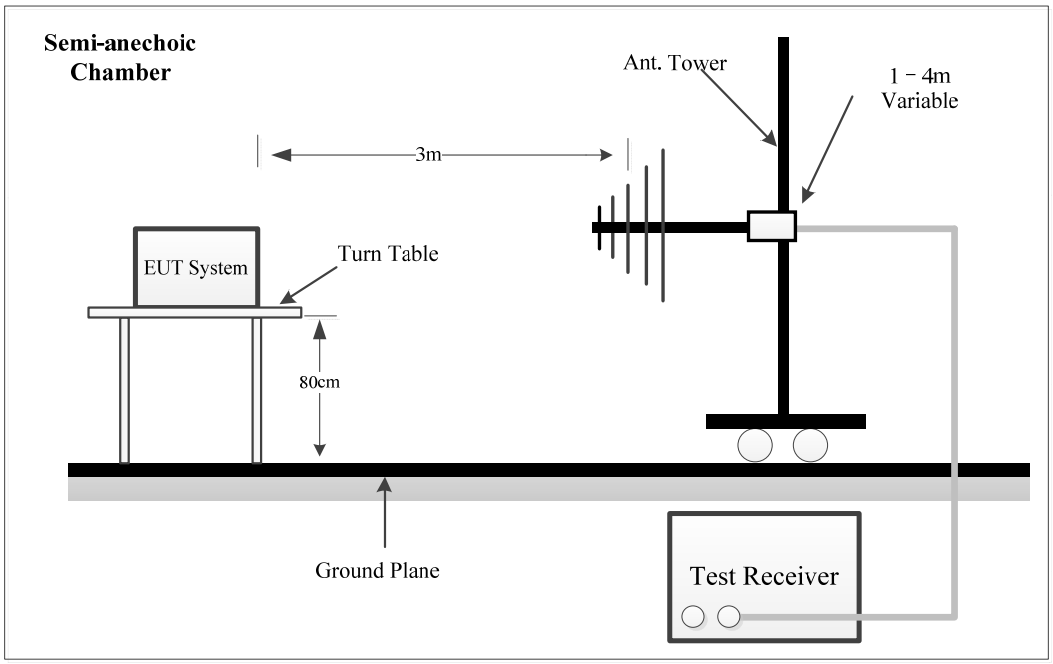
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

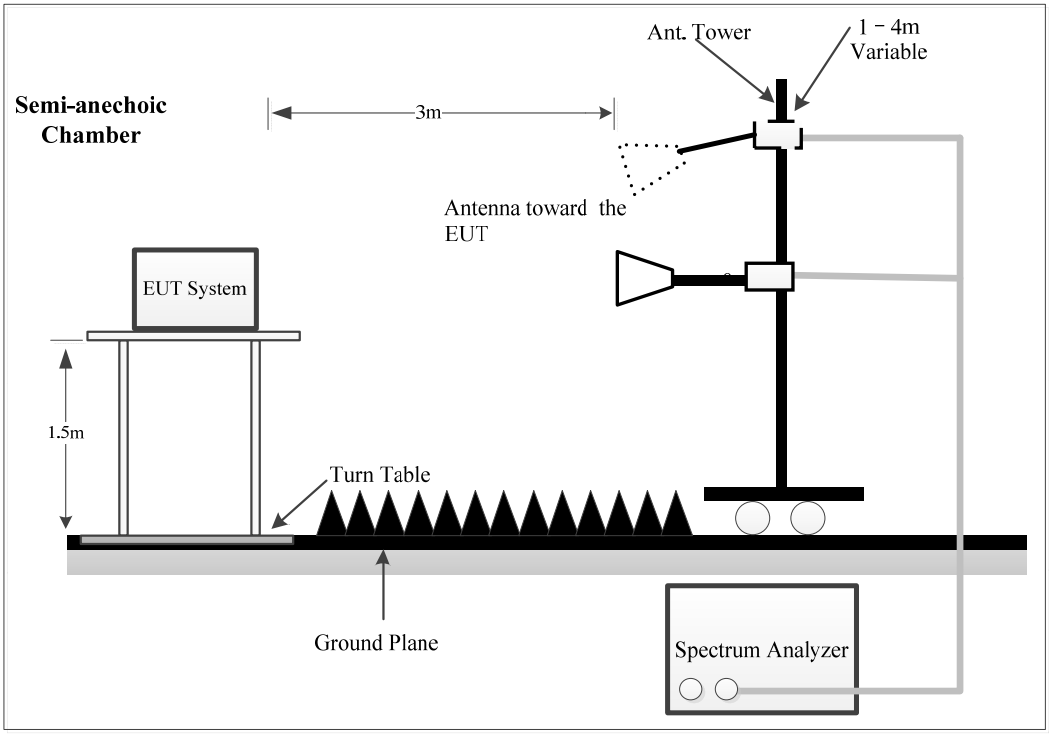
9kHz-30MHz:



30MHz~1GHz:



Above 1GHz:



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

4.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9kHz 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	200 Hz	1 kHz	200 Hz	QP/AV
150 kHz – 30 MHz	QP/AV	9 kHz	30 kHz	9 kHz	QP/AV
30 MHz – 1000 MHz	PK	100 kHz	300 kHz	/	PK
	QP	/	/	120 kHz	QP

1GHz- 25GHz:
Pre-scan:

Measurement	Detector	Duty cycle	RBW	Video B/W
PK	PK	Any	1MHz	3 MHz
Ave.	PK	>98%	1MHz	5kHz
		<98%	1MHz	1/T, not less than 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

If the maximized peak measured value is under the average limit, then it is unnecessary to perform an QP measurement.

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 required 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 complies with under the QP limit more than 6dB, then it is unnecessary to perform an QP measurement.

4.2.5 Corrected Result & 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

4.2.6 Test Result

Please refer to section 5.2.

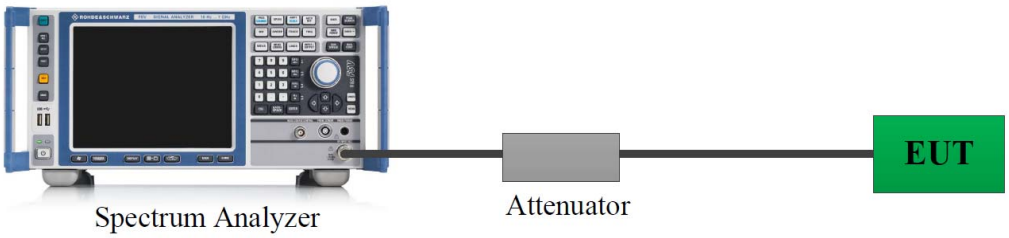
4.3 Minimum 6 dB Bandwidth

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 C63.10-2013 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.

4.3.4 Test Result

Please refer to section 5.3.

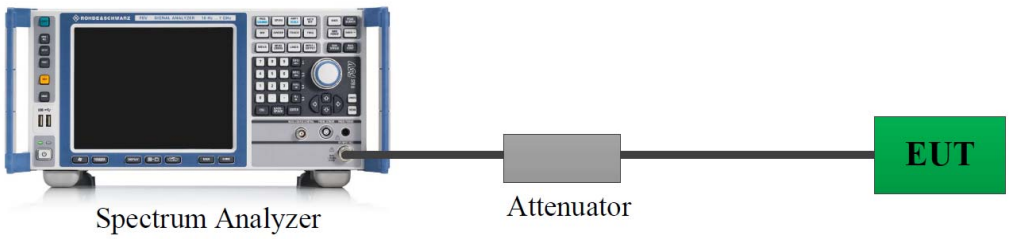
4.4 Maximum Conducted Output Power

4.4.1 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.

4.4.2 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.

4.4.3 Test Procedure

According to ANSI C63.10-2013 Section 11.9.1.1

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:
a) Set the RBW ≥ DTS bandwidth.
b) Set VBW ≥ [3 × RBW].
c) Set span ≥ [3 × RBW].
d) Sweep time = auto couple.
e) Detector = peak.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude level.

4.4.4 Test Result

Please refer to section 5.4.

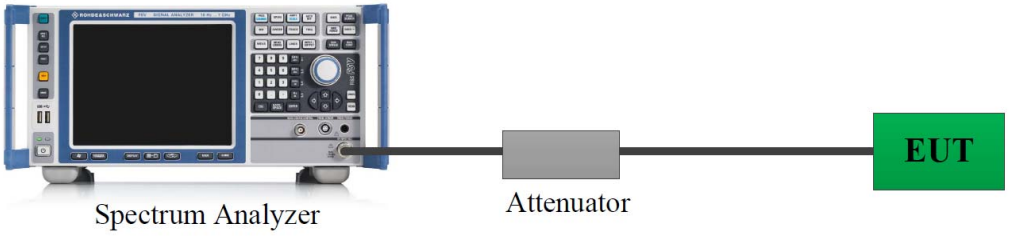
4.5 Maximum power spectral density

4.5.1 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.

4.5.2 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 C63.10-2013 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.

4.5.4 Test Result

Please refer to section 5.5.

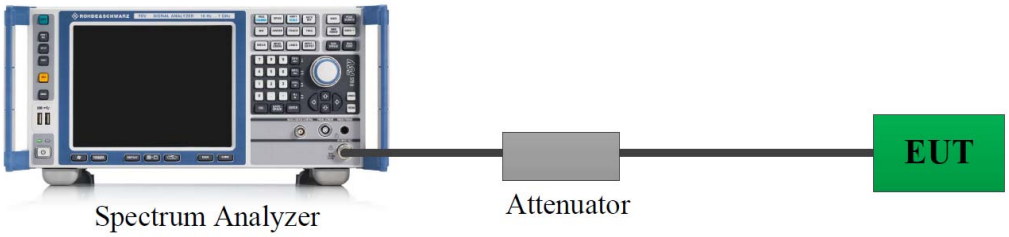
4.6 100 kHz Bandwidth of Frequency Band Edge

4.6.1 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)).

4.6.2 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 C63.10-2013 Section 11.11

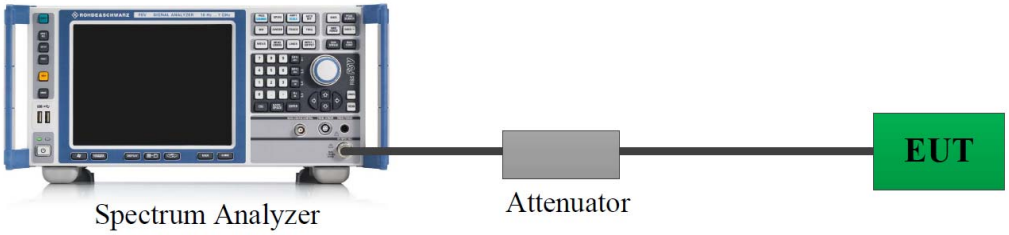
a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ [3 × RBW].
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum 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.

4.6.4 Test Result

Please refer to section 5.6.

4.7 Duty Cycle

4.7.1 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.

4.7.2 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.)

4.7.3 Judgment

Report only, please refer to section 5.7.

4.8 Antenna Requirement

4.8.1 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.

4.8.2 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:	2EB1-3	Test Date:	2024/7/30
Test Site:	CE	Test Mode:	Transmitting
Tester:	Lane Sun	Test Result:	Pass

Environmental Conditions:

Temperature: (℃)	25.6	Relative Humidity: (%)	64	ATM Pressure: (kPa)	99.8

Test Equipment List and Details:

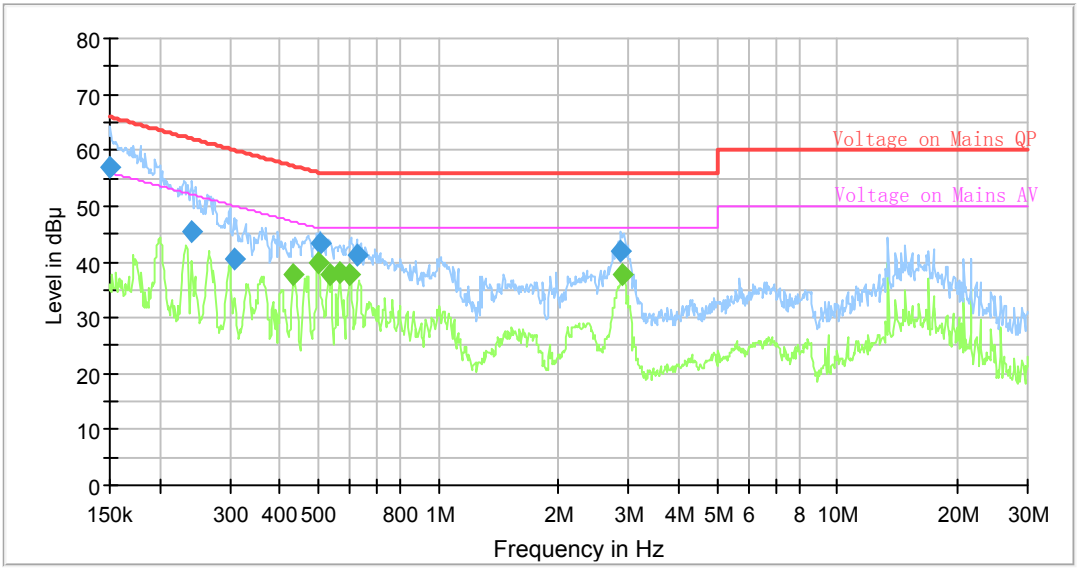
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101614	2023/10/18	2024/10/17
MICRO-COAX	Coaxial Cable	C-NJNJ-50	C-0200-01	2023/9/7	2024/9/6
R&S	EMI Test Receiver	ESCI	100035	2023/8/18	2024/8/17
R&S	Test Software	EMC32	V9.10.00	N/A	N/A

** 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: the maximum output power channel was tested.

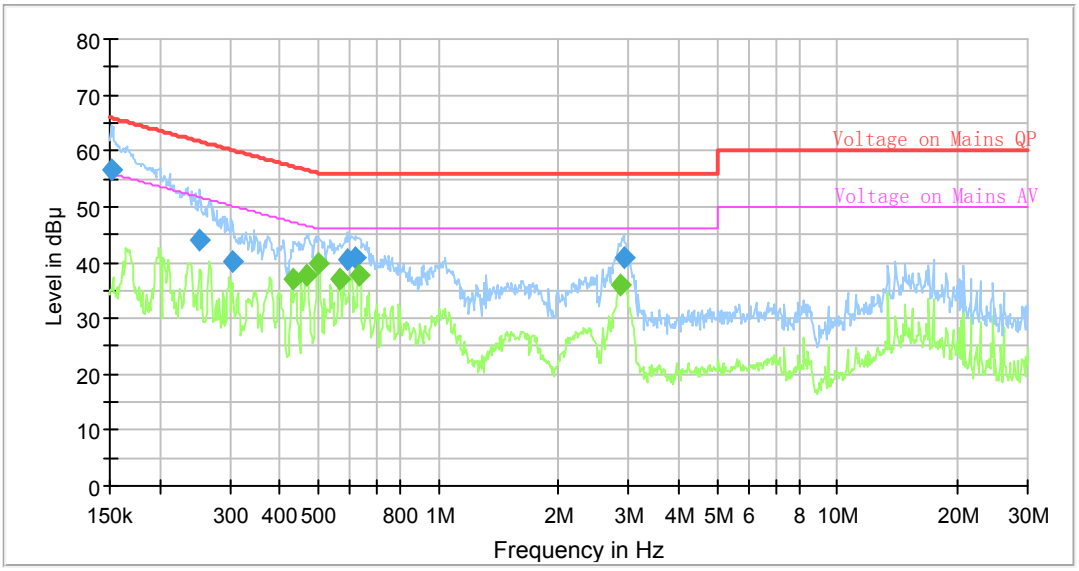
Project No:	2402V45633E-RF
Test Engineer:	Lane Sun
Test Date:	2024-7-30
Port:	L
Test Mode:	Transmitting
Power Source:	AC 120V/60Hz
Note:	High Channel



Final_Result

Frequency (MHz)	QuasiPeak (dB µ V)	Average (dB µ V)	Limit (dB µ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.150750	56.78	---	65.96	9.18	9.000	L1	9.8
0.240917	45.51	---	62.06	16.55	9.000	L1	9.7
0.307613	40.41	---	60.03	19.62	9.000	L1	9.7
0.431814	---	37.88	47.22	9.34	9.000	L1	9.7
0.499013	---	39.68	46.02	6.34	9.000	L1	9.7
0.504016	43.15	---	56.00	12.85	9.000	L1	9.7
0.532440	---	37.65	46.00	8.35	9.000	L1	9.7
0.568106	---	37.93	46.00	8.07	9.000	L1	9.7
0.600145	---	37.72	46.00	8.28	9.000	L1	9.7
0.624575	41.28	---	56.00	14.72	9.000	L1	9.7
2.873425	41.94	---	56.00	14.06	9.000	L1	9.7
2.902231	---	37.62	46.00	8.38	9.000	L1	9.7

Project No:	2402V45633E-RF
Test Engineer:	Lane Sun
Test Date:	2024-7-30
Port:	N
Test Mode:	Transmitting
Power Source:	AC 120V/60Hz
Note:	High Channel



Final_Result

Frequency (MHz)	QuasiPeak (dB µ V)	Average (dB µ V)	Limit (dB µ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.151504	56.76	---	65.92	9.16	9.000	N	9.8
0.251977	44.12	---	61.69	17.57	9.000	N	9.7
0.306082	40.33	---	60.08	19.75	9.000	N	9.7
0.431814	---	36.99	47.22	10.23	9.000	N	9.7
0.467685	---	37.66	46.55	8.89	9.000	N	9.7
0.499013	---	39.73	46.02	6.29	9.000	N	9.7
0.565280	---	37.13	46.00	8.87	9.000	N	9.7
0.591232	40.62	---	56.00	15.38	9.000	N	9.6
0.621468	40.77	---	56.00	15.23	9.000	N	9.6
0.633991	---	37.83	46.00	8.17	9.000	N	9.6
2.873425	---	35.99	46.00	10.01	9.000	N	9.7
2.916742	40.74	---	56.00	15.26	9.000	N	9.7

5.2 Radiation Spurious Emissions

Serial Number:	2EB1-3	Test Date:	Below 1GHz: 2024/7/17&2024/11/22 Above 1GHz: 2024/7/20-2024/11/22
Test Site:	Chamber A, Chamber B	Test Mode:	Transmitting
Tester:	Jayce Wang, Colin Yang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	20.9~27.3	Relative Humidity: (%)	28~48	ATM Pressure: (kPa)	100.2~102.1

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
9kHz~1000MHz					
EMCO	Passive Loop Antenna	6512	9706-1206	2023/10/25	2026/10/24
Sunol Sciences	Hybrid Antenna	JB3	A060611-3	2024/1/12	2027/1/11
Sunol Sciences	Hybrid Antenna	JB3	A060611-2	2024/4/16	2027/4/15
Wilson	Coaxial Attenuator	859936	F-08-EM014	2024/1/12	2027/1/11
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	2024/7/1	2025/6/30
R&S	EMI Test Receiver	ESR3	102453	2023/8/18	2024/8/17
R&S	EMI Test Receiver	ESR3	102453	2024/8/26	2025/8/25
Audix	Test Software	E3	191218 (V9)	N/A	N/A
Above 1GHz					
ETS-Lindgren	Horn Antenna	3115	000 527 35	2023/9/7	2026/9/6
R&S	Spectrum Analyzer	FSV40	101944	2023/10/18	2024/10/17
R&S	Spectrum Analyzer	FSV40	101944	2024/9/6	2025/9/5
Xinhang Macrowave	Coaxial Cable	XH750A-N/J-SMA/J-10M	20231117004 #0001	2023/11/17	2024/11/16
Xinhang Macrowave	Coaxial Cable	XH750A-N/J-SMA/J-10M	20231117004 #0001	2024/11/17	2025/11/16
Audix	Test Software	E3	191218 (V9)	N/A	N/A
AH	Preamplifier	PAM-0118P	469	2024/4/15	2025/4/14
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-03 1304	2023/2/22	2026/2/21
Xinhang Macrowave	Coaxial Cable	XH360A-2.92/J-2.92/J-6M-A	20231208001 #0001	2023/12/11	2024/12/10
AH	Preamplifier	PAM-1840VH	191	2023/9/7	2024/9/6

AH	Preamplifier	PAM-1840VH	191	2024/9/5	2025/9/4
E-Microwave	Band Rejection Filter	OBSF-2400-2483.5-S	OE01601525	2024/2/21	2025/2/20
Micro-tronics	High Pass Filter	HPM50111	G217	2023/12/1	2024/11/30
Mini-Circuits	High Pass Filter	VHF-6010+	31118	2024/6/11	2025/6/10

** 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).*

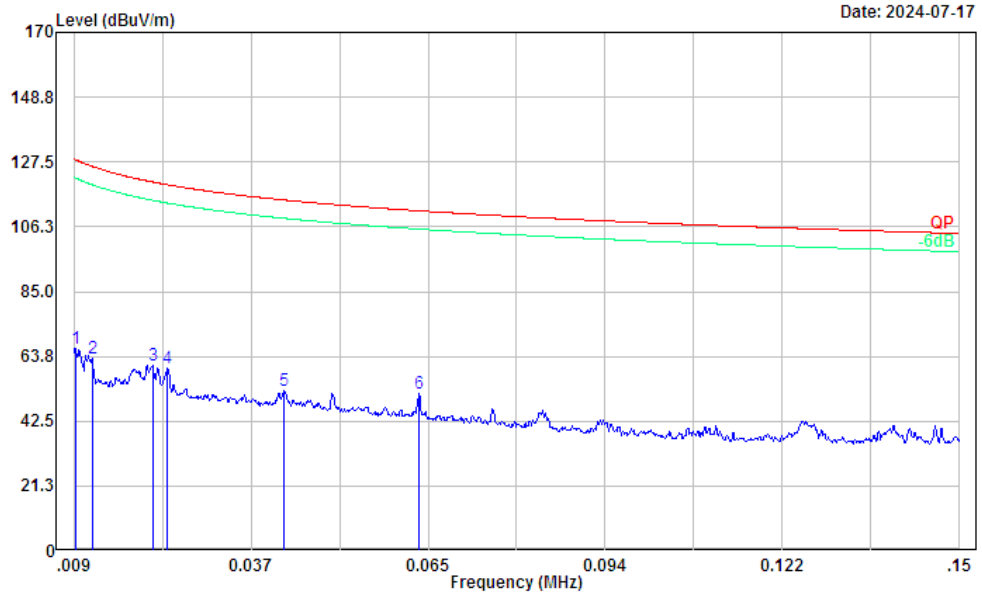
Test Data:

Please refer to the below table and plots.

1) 9kHz~30MHz

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

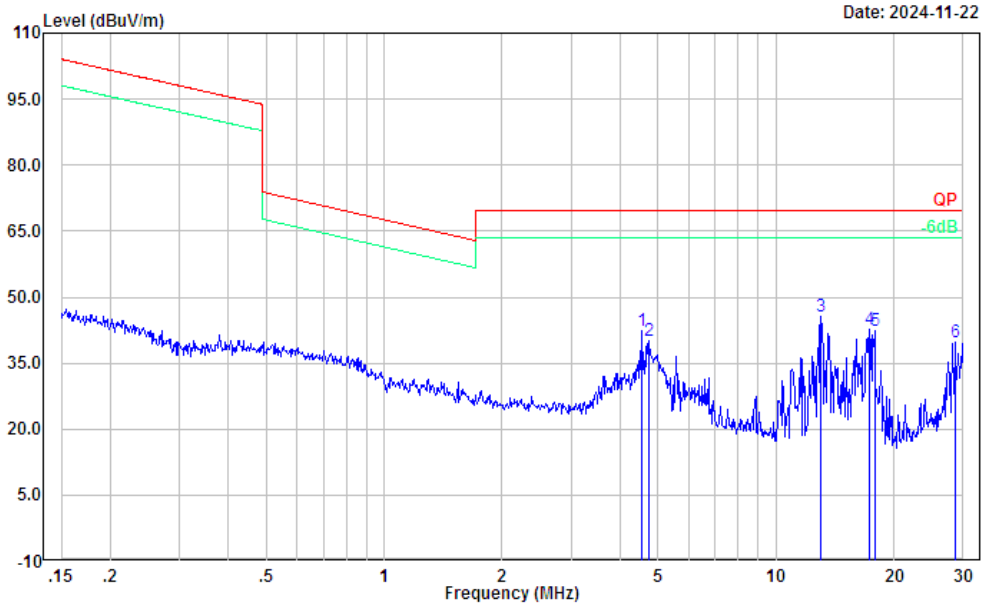
Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Parallel Tester: Jayce Wang
Test Mode: Transmitting
Note: ZigBee High channel



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	14.17	52.19	66.36	128.12	61.76	Peak
2	0.012	11.64	51.41	63.05	126.05	63.00	Peak
3	0.022	12.07	48.68	60.75	120.94	60.19	Peak
4	0.024	11.63	48.09	59.72	120.02	60.30	Peak
5	0.043	8.29	44.43	52.72	115.02	62.30	Peak
6	0.064	11.03	40.73	51.76	111.48	59.72	Peak

Project No.: 2402V45633E-RF
Polarization: Parallel
Test Mode: Transmitting
Note: ZigBee High channel

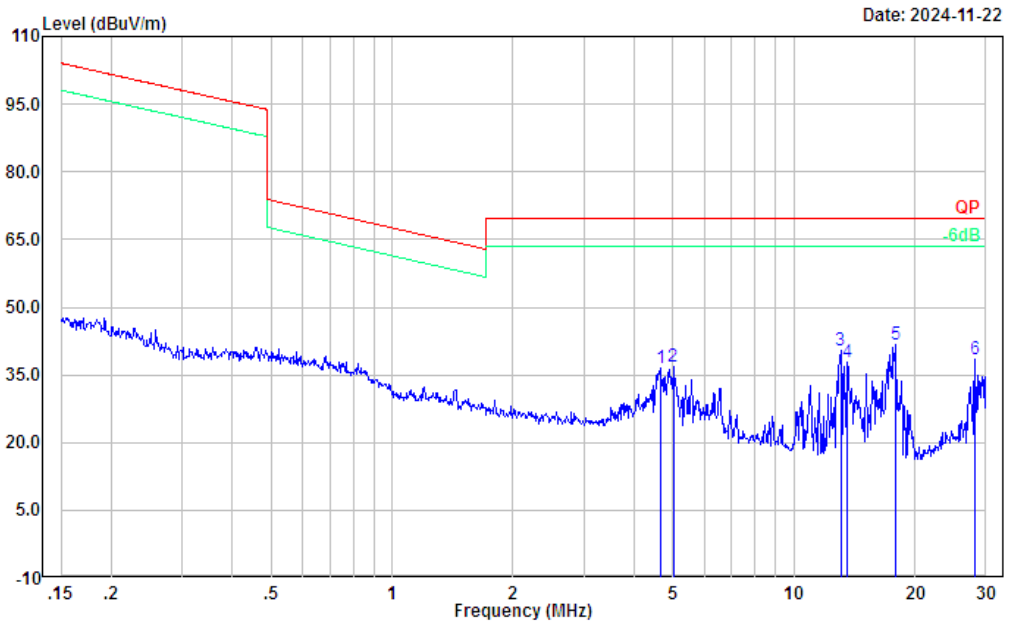
Serial No.: 2EB1-3
Tester: Jayce Wang



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	4.525	36.03	6.21	42.24	69.54	27.30	Peak
2	4.746	34.05	6.03	40.08	69.54	29.46	Peak
3	12.988	41.86	3.85	45.71	69.54	23.83	Peak
4	17.291	39.30	3.54	42.84	69.54	26.70	Peak
5	17.849	38.84	3.53	42.37	69.54	27.17	Peak
6	28.603	36.32	3.51	39.83	69.54	29.71	Peak

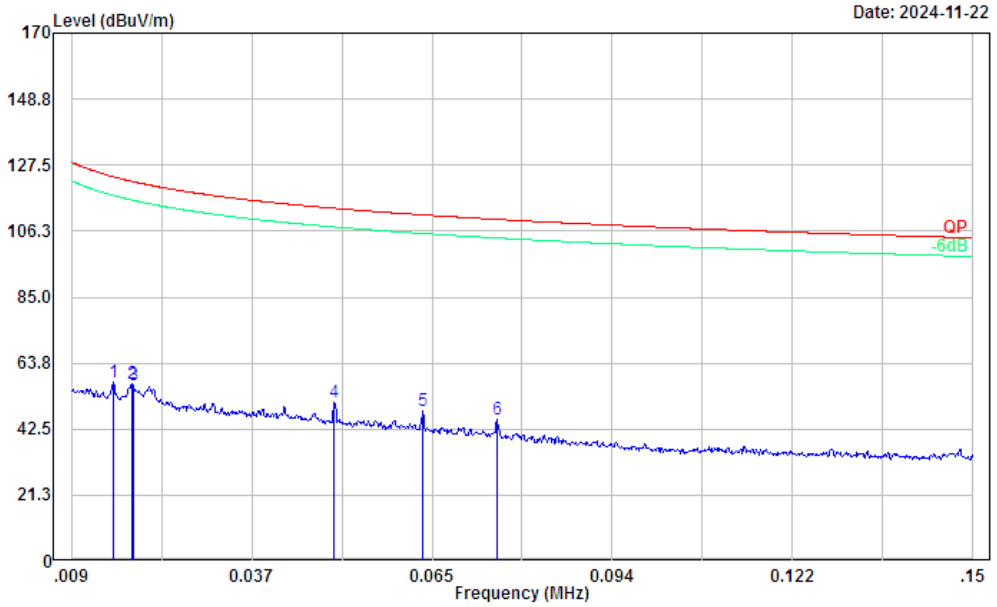
2.4G Wifi is transmitted simultaneously with ZigBee:

Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Parallel Tester: Jayce Wang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11n20 high channel 2462MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	4.647	30.30	6.11	36.41	69.54	33.13	Peak
2	5.005	31.09	5.82	36.91	69.54	32.63	Peak
3	13.057	36.59	3.85	40.44	69.54	29.10	Peak
4	13.551	33.85	3.81	37.66	69.54	31.88	Peak
5	17.849	38.14	3.53	41.67	69.54	27.87	Peak
6	28.302	34.86	3.48	38.34	69.54	31.20	Peak

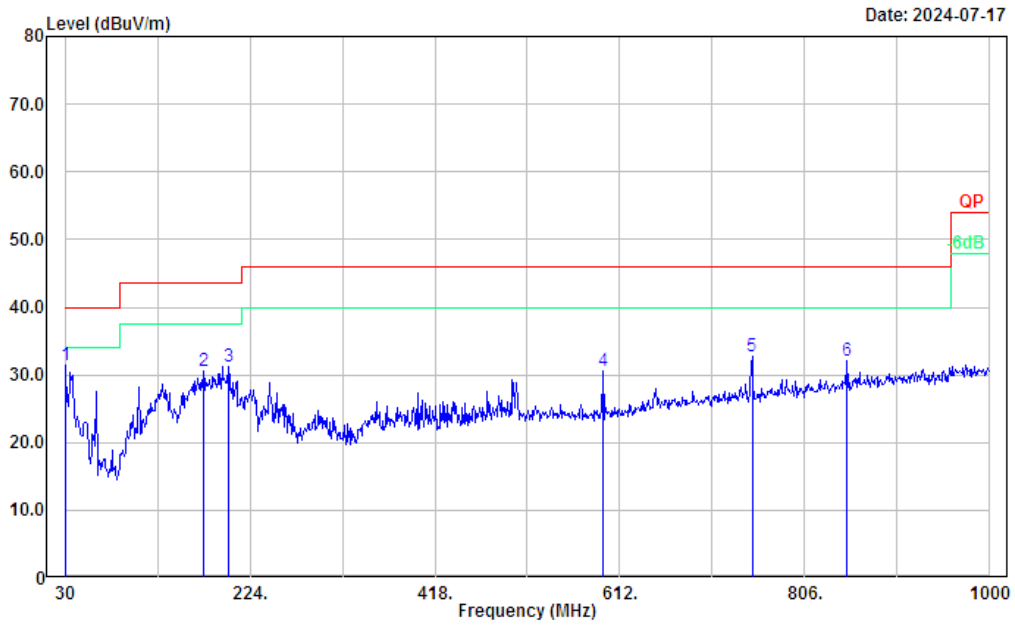
Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Parallel Tester: Jayce Wang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11n20 high channel 2462MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.016	7.27	50.34	57.61	123.73	66.12	Peak
2	0.019	7.62	49.47	57.09	122.22	65.13	Peak
3	0.019	7.17	49.43	56.60	122.15	65.55	Peak
4	0.050	8.10	43.10	51.20	113.60	62.40	Peak
5	0.064	7.51	40.73	48.24	111.48	63.24	Peak
6	0.076	6.62	38.78	45.40	110.04	64.64	Peak

2) 30MHz-1GHz

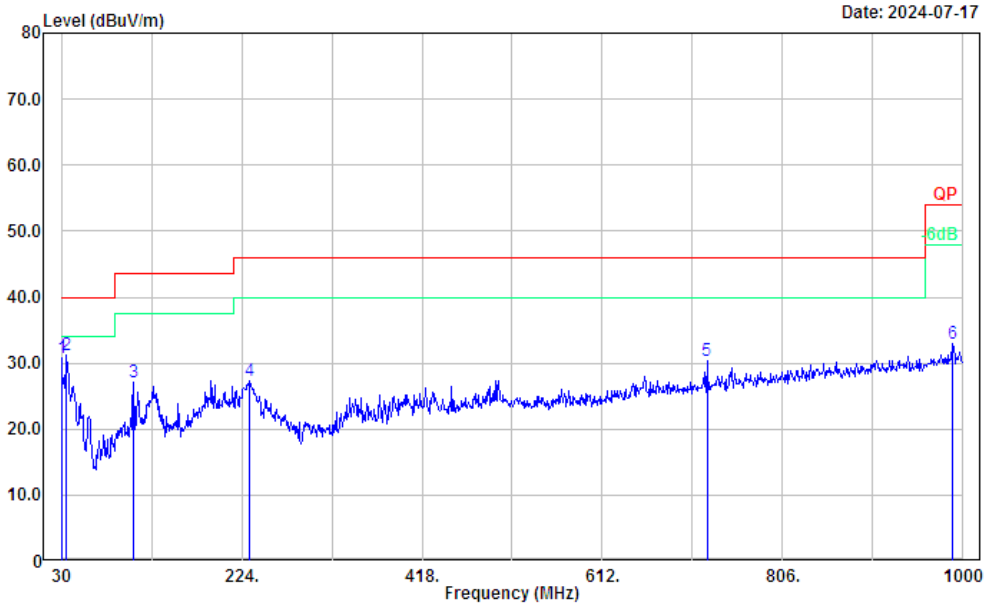
Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Horizontal Tester: Jayce Wang
Test Mode: Transmitting
Note: ZigBee High channel



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.00	34.45	-2.99	31.46	40.00	8.54	Peak
2	175.50	42.29	-11.83	30.46	43.50	13.04	Peak
3	201.69	42.08	-10.77	31.31	43.50	12.19	Peak
4	594.54	33.44	-2.82	30.62	46.00	15.38	Peak
5	750.71	32.34	0.40	32.74	46.00	13.26	Peak
6	850.62	29.78	2.37	32.15	46.00	13.85	Peak

Project No.: 2402V45633E-RF
Polarization: Vertical
Test Mode: Transmitting
Note: ZigBee High channel

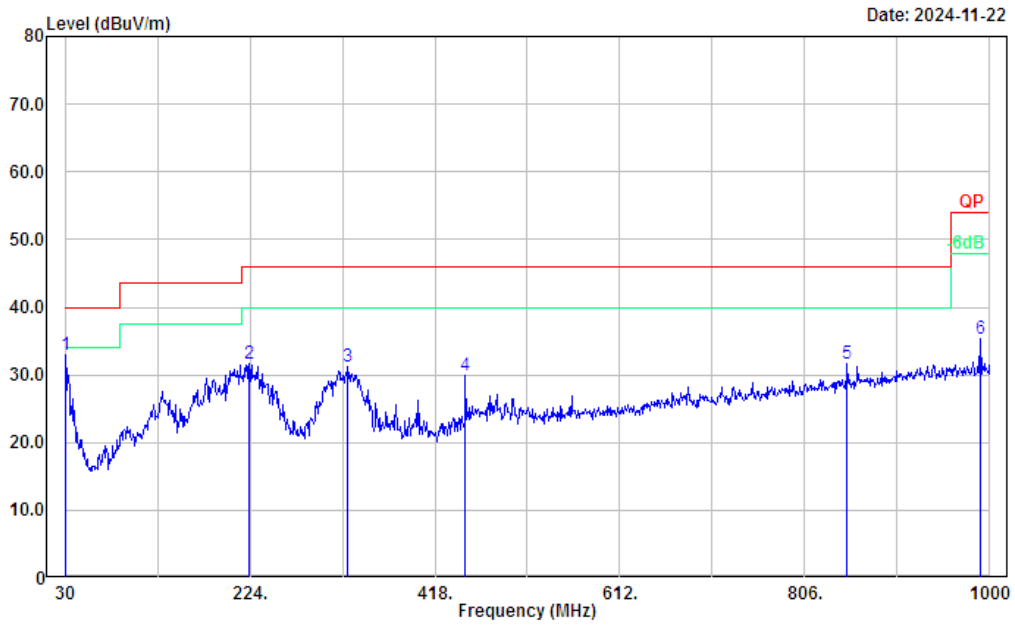
Serial No.: 2EB1-3
Tester: Jayce Wang



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.00	33.83	-2.99	30.84	40.00	9.16	Peak
2	35.82	38.06	-6.93	31.13	40.00	8.87	Peak
3	107.60	38.42	-11.38	27.04	43.50	16.46	Peak
4	231.76	38.14	-10.89	27.25	46.00	18.75	Peak
5	724.52	30.51	-0.15	30.36	46.00	15.64	Peak
6	988.36	27.83	5.15	32.98	54.00	21.02	Peak

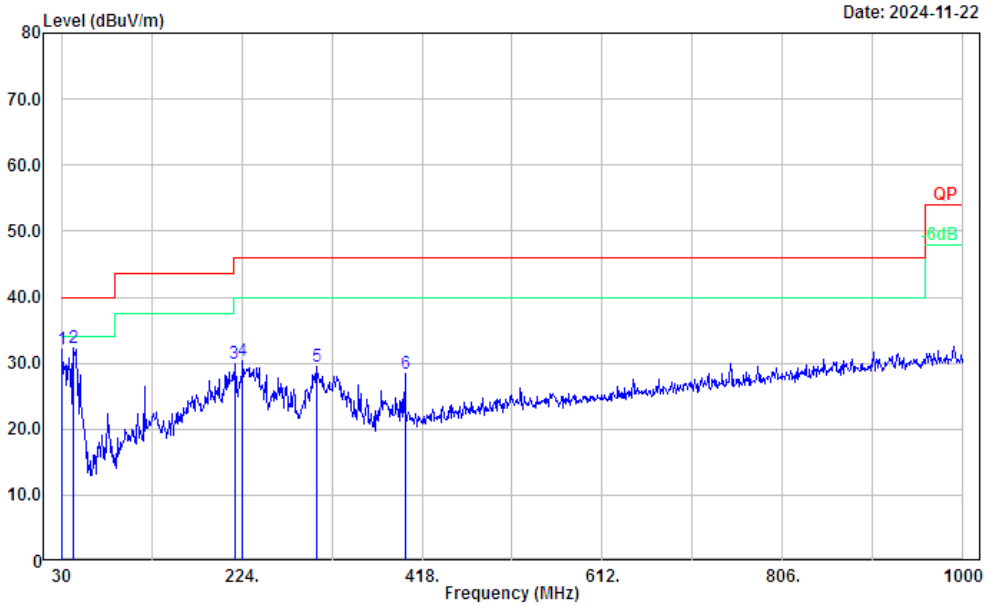
2.4G Wifi is transmitted simultaneously with ZigBee:

Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Horizontal Tester: Jayce Wang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11n20 high channel 2462MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.00	36.07	-3.19	32.88	40.00	7.12	Peak
2	223.03	42.44	-10.72	31.72	46.00	14.28	Peak
3	326.82	39.18	-8.07	31.11	46.00	14.89	Peak
4	450.01	34.99	-5.02	29.97	46.00	16.03	Peak
5	850.62	29.08	2.57	31.65	46.00	14.35	Peak
6	990.30	29.99	5.29	35.28	54.00	18.72	Peak

Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Vertical Tester: Jayce Wang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11n20 high channel 2462MHz



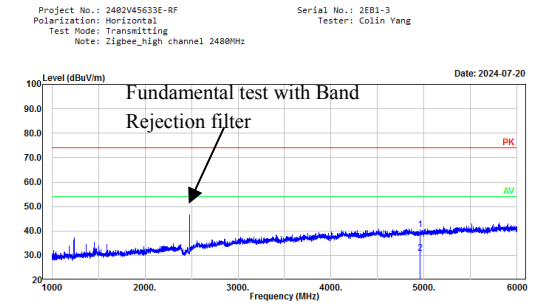
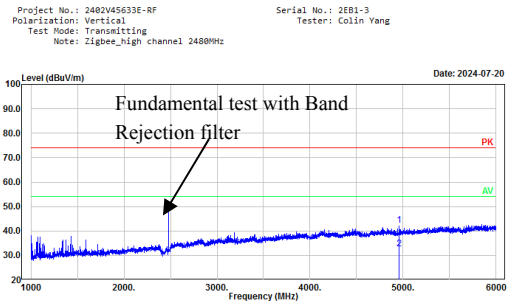
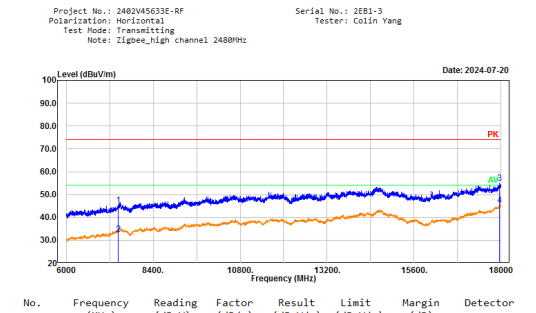
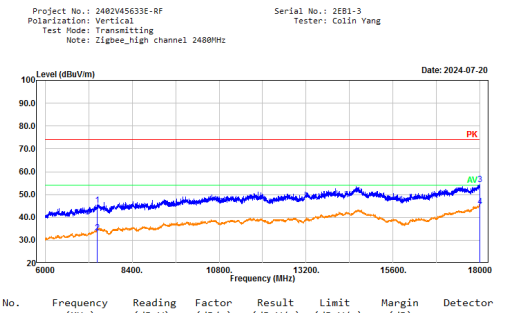
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.00	35.20	-3.19	32.01	40.00	7.99	Peak
2	42.61	44.10	-11.77	32.33	40.00	7.67	Peak
3	216.24	40.58	-10.68	29.90	46.00	16.10	Peak
4	224.97	41.18	-10.74	30.44	46.00	15.56	Peak
5	305.48	38.07	-8.62	29.45	46.00	16.55	Peak
6	399.57	34.53	-6.22	28.31	46.00	17.69	Peak

3)1-25GHz

Zigbee

Frequency	Reading	Detector	Polar	Factor	Corrected Amplitude	Limit	Margin
MHz	dBµV	PK/QP/AV	H/V	dB/m	dBµV/m	dBµV/m	dB
low channel 2405 MHz							
2390.00	26.12	PK	H	28.57	54.69	74.00	19.31
2390.00	16.21	AV	H	28.57	44.78	54.00	9.22
2390.00	25.31	PK	V	28.57	53.88	74.00	20.12
2390.00	16.23	AV	V	28.57	44.80	54.00	9.20
4810.00	49.50	PK	H	-10.1	39.40	74.00	34.60
4810.00	39.16	AV	H	-10.1	29.06	54.00	24.94
4810.00	50.33	PK	V	-10.1	40.23	74.00	33.77
4810.00	40.27	AV	V	-10.1	30.17	54.00	23.83
7215.00	48.59	PK	H	-5.46	43.13	74.00	30.87
7215.00	36.76	AV	H	-5.46	31.30	54.00	22.70
7215.00	49.12	PK	V	-5.46	43.66	74.00	30.34
7215.00	37.15	AV	V	-5.46	31.69	54.00	22.31
middle channel 2440 MHz							
4880.00	49.13	PK	H	-10.01	39.12	74.00	34.88
4880.00	39.25	AV	H	-10.01	29.24	54.00	24.76
4880.00	50.53	PK	V	-10.01	40.52	74.00	33.48
4880.00	40.74	AV	V	-10.01	30.73	54.00	23.27
7320.00	48.19	PK	H	-5.02	43.17	74.00	30.83
7320.00	36.34	AV	H	-5.02	31.32	54.00	22.68
7320.00	47.98	PK	V	-5.02	42.96	74.00	31.04
7320.00	36.01	AV	V	-5.02	30.99	54.00	23.01
high channel 2480 MHz							
2483.50	26.99	PK	H	28.95	55.94	74.00	18.06
2483.50	17.24	AV	H	28.95	46.19	54.00	7.81
2483.50	28.50	PK	V	28.95	57.45	74.00	16.55
2483.50	17.86	AV	V	28.95	46.81	54.00	7.19
4960.00	50.64	PK	H	-9.98	40.66	74.00	33.34
4960.00	40.97	AV	H	-9.98	30.99	54.00	23.01
4960.00	52.19	PK	V	-9.98	42.21	74.00	31.79
4960.00	42.63	AV	V	-9.98	32.65	54.00	21.35
7440.00	49.82	PK	H	-4.51	45.31	74.00	28.69
7440.00	37.12	AV	H	-4.51	32.61	54.00	21.39
7440.00	49.90	PK	V	-4.51	45.39	74.00	28.61
7440.00	37.86	AV	V	-4.51	33.35	54.00	**20.65**

Worst Channel Test plots:

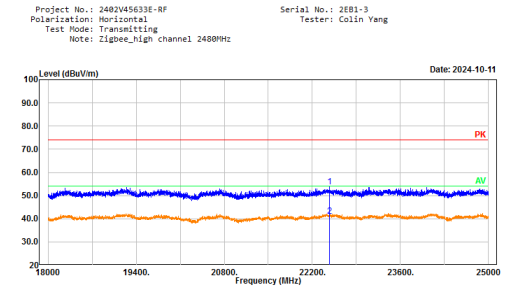
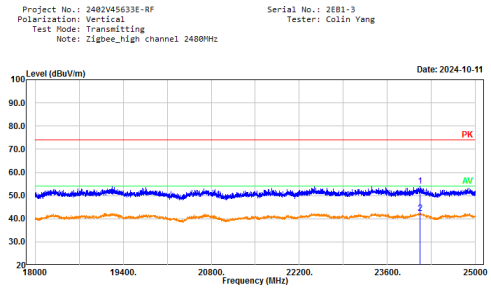
High Channel, Horizontal	High Channel, Vertical
	
	

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4960.00	50.64	-9.98	40.66	74.00	33.34	Peak
2	4960.00	40.97	-9.98	30.99	54.00	23.01	Average

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4960.00	52.19	-9.98	42.21	74.00	31.79	Peak
2	4960.00	42.63	-9.98	32.65	54.00	21.35	Average

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	7440.00	49.82	-4.51	45.31	74.00	28.69	Peak
2	7440.00	37.12	-4.51	32.61	54.00	21.39	Average
3	17947.20	47.34	7.75	55.09	74.00	18.91	Peak
4	17947.20	37.54	7.75	45.29	54.00	8.71	Average

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	7440.00	49.90	-4.51	45.39	74.00	28.61	Peak
2	7440.00	37.86	-4.51	33.35	54.00	20.65	Average
3	17995.20	46.27	8.10	54.37	74.00	19.63	Peak
4	17995.20	36.51	8.10	44.61	54.00	9.39	Average

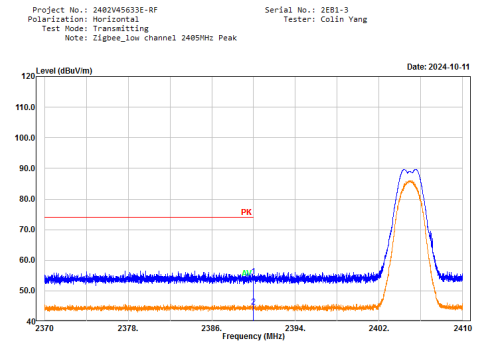
High Channel, Horizontal	High Channel, Vertical
	

No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	22473.00	45.94	7.86	53.80	74.00	20.20	Peak
2	22473.00	33.33	7.86	41.19	54.00	12.81	Average

No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	24113.80	45.28	8.83	54.11	74.00	19.89	Peak
2	24113.80	33.36	8.83	42.19	54.00	11.81	Average

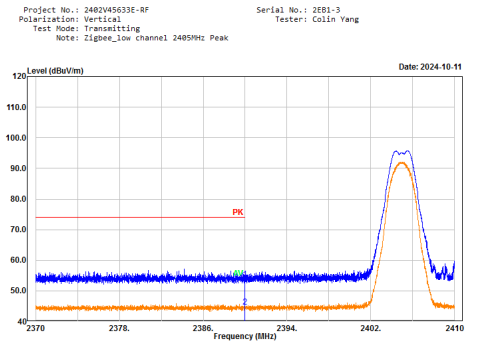
Low Channel, Bandedge, Horizontal	Low Channel, Bandedge, Vertical

Low Channel, Bandedge, Horizontal



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2390.00	26.12	28.57	54.69	74.00	19.31	Peak
2	2390.00	16.21	28.57	44.78	54.00	9.22	Average

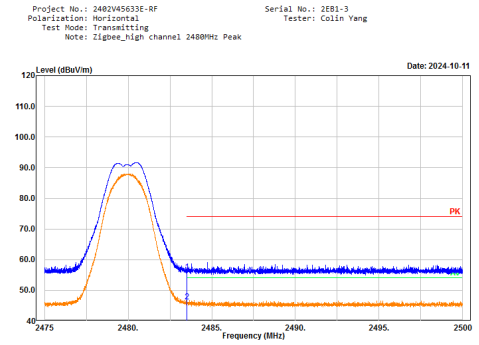
Low Channel, Bandedge, Vertical



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2390.00	25.31	28.57	53.88	74.00	20.12	Peak
2	2390.00	16.23	28.57	44.80	54.00	9.20	Average

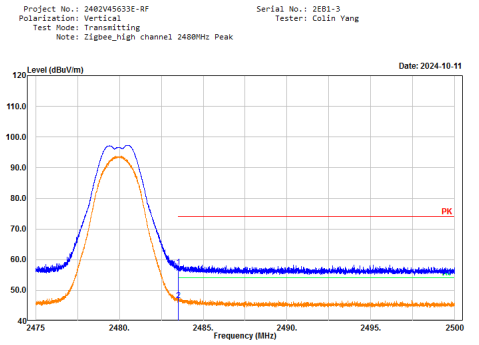
High Channel, Bandedge, Horizontal	High Channel, Bandedge, Vertical

High Channel, Bandedge, Horizontal



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2483.50	26.99	28.95	55.94	74.00	18.06	Peak
2	2483.50	17.24	28.95	46.19	54.00	7.81	Average

High Channel, Bandedge, Vertical

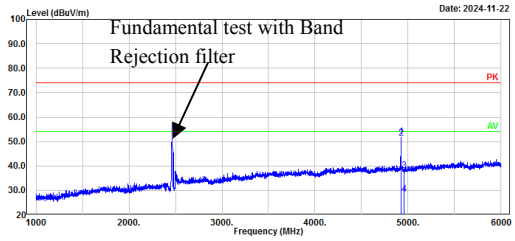


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	2483.50	28.50	28.95	57.45	74.00	16.55	Peak
2	2483.50	17.86	28.95	46.81	54.00	7.19	Average

2.4G Wifi is transmitted simultaneously with ZigBee:

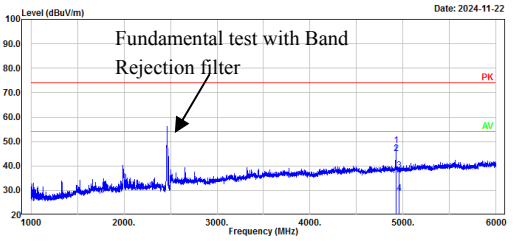
Horizontal	Vertical

Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Horizontal Tester: Colin Yang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11b high channel 2462MHz



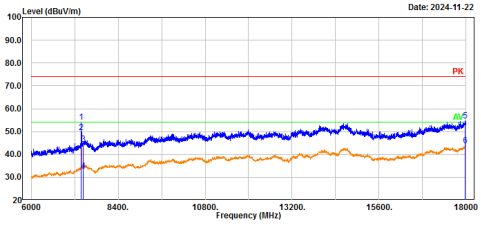
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	4924.00	62.14	-9.99	52.15	74.00	21.85	Peak
2	4924.00	61.38	-9.99	51.39	54.00	2.61	Average
3	4960.00	48.04	-9.98	38.06	74.00	35.94	Peak
4	4960.00	38.35	-9.98	28.37	54.00	25.63	Average

Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Vertical Tester: Colin Yang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11b high channel 2462MHz



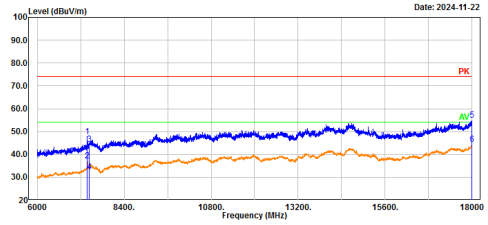
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	4924.00	58.37	-9.99	48.38	74.00	25.62	Peak
2	4924.00	55.17	-9.99	45.18	54.00	8.82	Average
3	4960.00	48.12	-9.98	38.14	74.00	35.86	Peak
4	4960.00	38.78	-9.98	28.80	54.00	25.20	Average

Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Horizontal Tester: Colin Yang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11b high channel 2462MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	7386.00	58.79	-4.74	54.05	74.00	19.95	Peak
2	7386.00	54.43	-4.74	49.69	54.00	4.31	Average
3	7440.00	48.96	-4.51	44.45	74.00	29.55	Peak
4	7440.00	37.12	-4.51	32.61	54.00	21.39	Average
5	17968.80	46.95	7.91	54.86	74.00	19.14	Peak
6	17968.80	35.86	7.91	43.77	54.00	10.23	Average

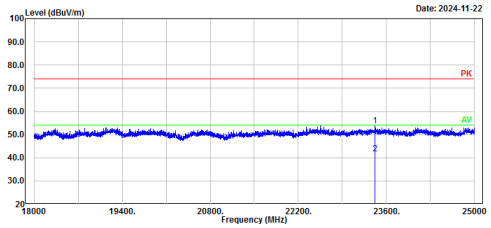
Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Vertical Tester: Colin Yang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11b high channel 2462MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	7386.00	52.64	-4.74	47.90	74.00	26.10	Peak
2	7386.00	41.89	-4.74	37.15	54.00	16.85	Average
3	7440.00	48.99	-4.51	44.48	74.00	29.52	Peak
4	7440.00	37.03	-4.51	32.52	54.00	21.48	Average
5	18000.00	46.82	8.13	54.95	74.00	19.05	Peak
6	18000.00	36.19	8.13	44.32	54.00	9.68	Average

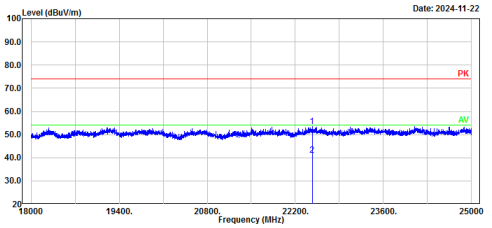
Horizontal	Vertical

Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Horizontal Tester: Colin Yang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11b high channel 2462MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	23419.40	45.04	8.70	53.74	74.00	20.26	Peak
2	23419.40	33.06	8.70	41.76	54.00	12.24	Average

Project No.: 2402V45633E-RF Serial No.: 2EB1-3
Polarization: Vertical Tester: Colin Yang
Test Mode: Transmitting
Note: Zigbee high channel 2480MHz+2.4G 802.11b high channel 2462MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	22467.40	45.68	7.85	53.53	74.00	20.47	Peak
2	22467.40	33.38	7.85	41.23	54.00	12.77	Average

5.3 6 dB Emission Bandwidth

Serial No.:	2EB1-1	**Test Date:**	2024/7/15
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Roy Xiao	**Test Result:**	Pass

Environmental Conditions:

Temperature: (℃)	25.4	Relative Humidity: (%)	45	ATM Pressure: (kPa)	100.9

Test Equipment List and Details:

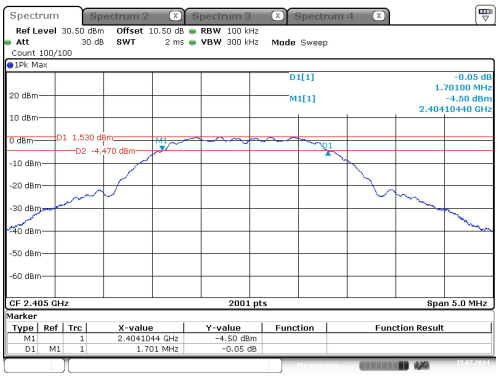
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101947	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM504	2024/6/7	2025/6/7

** 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).*

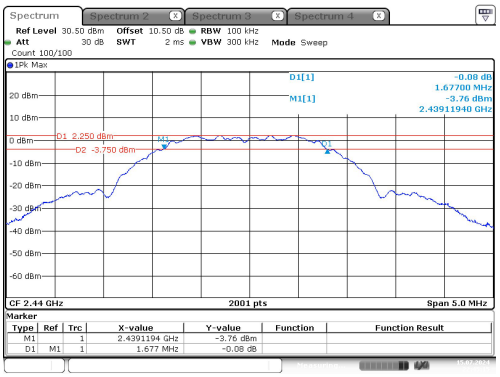
Test Data:

Mode	Value (MHz)	Limit (MHz)	Result
Low	1.701	0.5	Pass
Mid	1.677	0.5	Pass
High	1.736	0.5	Pass

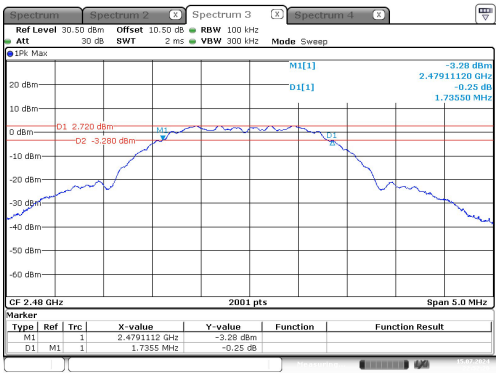
Low


Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 30.50 dBm Offset 10.50 dB RBW 100 kHz
Att 30 dB SWT 2 ms VBW 300 kHz Mode Sweep
Count 100/100
1Pk Max
D1[1] -0.05 dB
1.70100 MHz
M1[1] -4.50 dBm
2.40410440 GHz
D1 1.530 dBm
D2 -4.470 dBm
CF 2.405 GHz 2001 pts Span 5.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4041044 GHz -4.50 dBm
D1 M1 1 1.701 MHz -0.05 dB
ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 22:42:37

Mid


Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 30.50 dBm Offset 10.50 dB RBW 100 kHz
Att 30 dB SWT 2 ms VBW 300 kHz Mode Sweep
Count 100/100
1Pk Max
D1[1] -0.08 dB
1.67700 MHz
M1[1] -3.76 dBm
2.43911940 GHz
D1 2.250 dBm
D2 -3.750 dBm
CF 2.44 GHz 2001 pts Span 5.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4391194 GHz -3.76 dBm
D1 M1 1 1.677 MHz -0.08 dB
ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 22:45:16

High


Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 30.50 dBm Offset 10.50 dB RBW 100 kHz
Att 30 dB SWT 2 ms VBW 300 kHz Mode Sweep
1Pk Max
M1[1] -3.28 dBm
2.47911120 GHz
D1[1] -0.25 dB
1.73550 MHz
D1 2.720 dBm
D2 -3.280 dBm
CF 2.48 GHz 2001 pts Span 5.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4791112 GHz -3.28 dBm
D1 M1 1 1.7355 MHz -0.25 dB
ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 22:52:21

5.4 Maximum Conducted Output Power

Serial No.:	2EB1-1	**Test Date:**	2024/7/15
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Roy Xiao	**Test Result:**	Pass

Environmental Conditions:

Temperature: (℃)	25.4	Relative Humidity: (%)	45	ATM Pressure: (kPa)	100.9

Test Equipment List and Details:

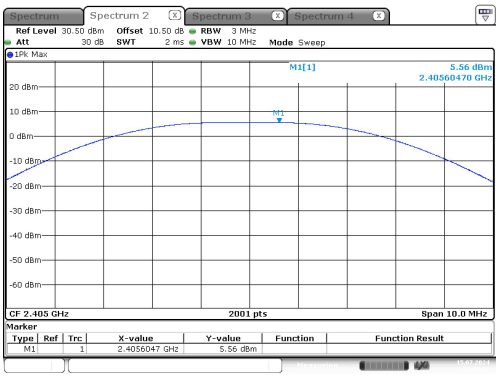
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101947	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM504	2024/6/7	2025/6/7

** 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).*

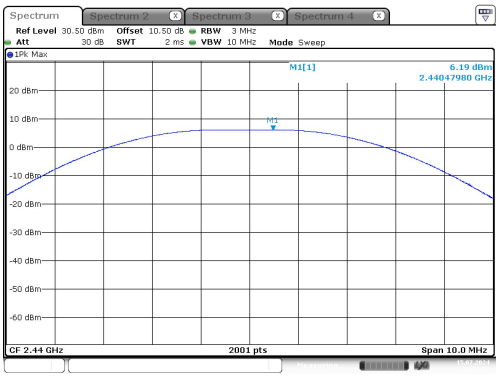
Test Data:

Mode	Value (dBm)	Limit (dBm)	Result
Low	5.56	30.00	Pass
Mid	6.19	30.00	Pass
High	**6.62**	30.00	Pass

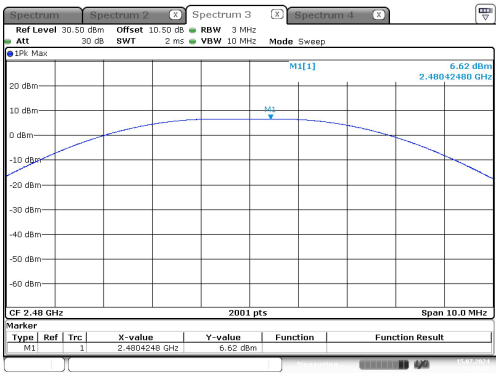
Low


Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 30.50 dBm Offset 10.50 dB RBW 3 MHz
Att 30 dB SWT 2 ms VBW 10 MHz Mode Sweep
1Pk Max
M1[1] 5.56 dBm 2.40560470 GHz
M1
CF 2.405 GHz 2001 pts Span 10.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4056047 GHz 5.56 dBm
ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 23:00:33

Mid


Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 30.50 dBm Offset 10.50 dB RBW 3 MHz
Att 30 dB SWT 2 ms VBW 10 MHz Mode Sweep
1Pk Max
M1[1] 6.19 dBm 2.44047980 GHz
M1
CF 2.44 GHz 2001 pts Span 10.0 MHz
ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 23:01:23

High


Spectrum
Spectrum 2
Spectrum 3
Spectrum 4
Ref Level 30.50 dBm Offset 10.50 dB RBW 3 MHz
Att 30 dB SWT 2 ms VBW 10 MHz Mode Sweep
1Pk Max
M1[1] 6.62 dBm 2.48042480 GHz
M1
CF 2.48 GHz 2001 pts Span 10.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4804248 GHz 6.62 dBm
ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 22:59:35

5.5 Maximum Power Spectral Density

Serial No.:	2EB1-1	**Test Date:**	2024/7/15~2024/8/13
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Roy Xiao	**Test Result:**	Pass

Environmental Conditions:

Temperature: (℃)	25.4	Relative Humidity: (%)	45	ATM Pressure: (kPa)	100.9

Test Equipment List and Details:

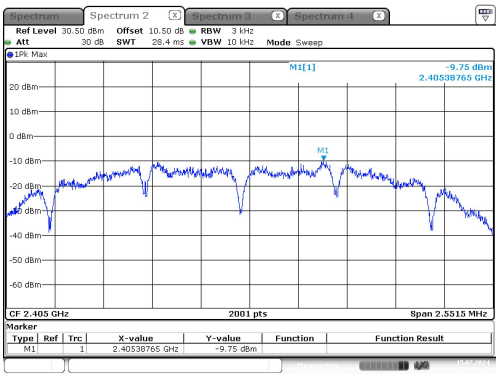
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101947	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM504	2024/6/7	2025/6/7

** 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:

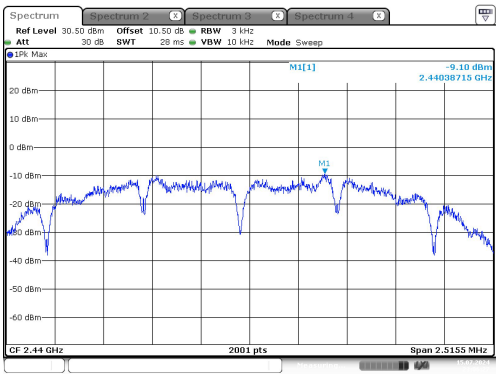
Mode	Value (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	-9.75	8.00	Pass
Mid	-9.10	8.00	Pass
High	-8.62	8.00	Pass

Low



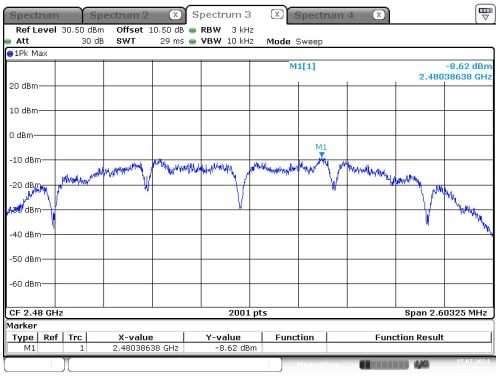
ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 23:08:29

Mid



ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 23:06:27

High



ProjectNo.:2402V45633E Tester:Roy xiao
Date: 15.JUL.2024 23:09:47

5.6 100 kHz Bandwidth of Frequency Band Edge

Serial No.:	2EB1-1	**Test Date:**	2024/7/15~2024/8/13
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Roy Xiao	**Test Result:**	Pass

Environmental Conditions:

Temperature: (℃)	25.4	Relative Humidity: (%)	45	ATM Pressure: (kPa)	100.9

Test Equipment List and Details:

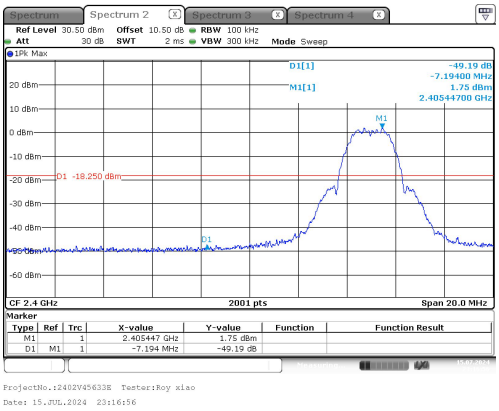
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101947	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM504	2024/6/7	2025/6/7

** 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).*

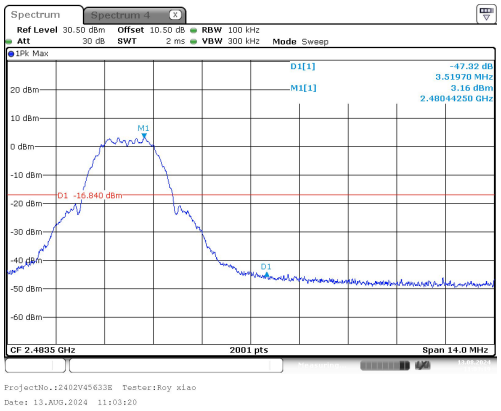
Test Data:

Please refer to the below plots:

Low



High



5.7 Duty Cycle

Serial No.:	2EB1-1	**Test Date:**	2024/8/23
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Roy Xiao	**Test Result:**	/

Environmental Conditions:

Temperature: (℃)	25.9	Relative Humidity: (%)	49	ATM Pressure: (kPa)	101.2

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101947	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM504	2024/6/7	2025/6/7

** 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	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	1/T (Hz)	VBW Setting (kHz)
Mid	100	100	100.00	/	0.01

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

Mid

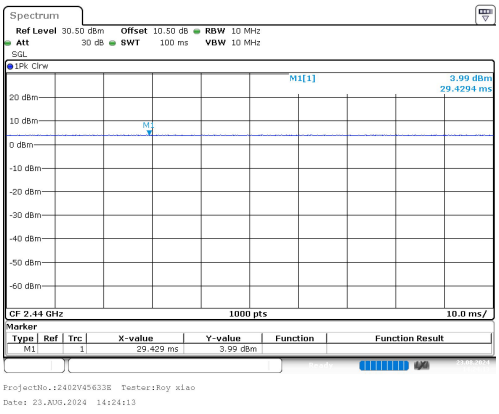


EXHIBIT A - EUT PHOTOGRAPHS

Please refer to the attachment 2402V45633E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2402V45633E-RF-INP EUT INTERNAL PHOTOGRAPHS

EXHIBIT B - TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2402V45633E-RF-00E-TSP TEST SETUP PHOTOGRAPHS.

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