TEST REPORT

Applicant Name:	YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD.
Address:	No.666 Hu'an Rd. Huli District Xiamen City, Fujian, P.R. China
Report Number:	2401T34440E-RFC
FCC ID:	T2C-UVC85
IC:	10741A-UVC85

Test Standard (s)

FCC PART 15.247; RSS-GEN ISSUE 5, FEBRUARY 2021 AMENDMENT 2;
RSS-247 ISSUE 3, AUGUST 2023

Sample Description

Product Type:	Video Conferencing Camera
Model No.:	UVC85
Multiple Model(s) No.:	N/A
Trade Mark:	Yealink
Date Received:	2024/06/04
Issue Date:	2024/09/27

Test Result:	Pass▲

▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Gala Liu

Gala Liu
RF Engineer

Approved By:

Jimmy Xiao

Jimmy Xiao
EMC Manager

Note: The information marked# is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401T34440E-RFC	Original Report	2024/09/27

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

HVIN	UVC85
FVIN	UVC85
Product	Video Conferencing Camera
Tested Model	UVC85
Multiple Model(s)	N/A
Frequency Range	2412-2462MHz
Mode	Module YL43752: 802.11b/g/n20/ax20 Module YL43456: 802.11b/g/n20
Maximum Conducted Average Output Power	Module YL43752: 18.17dBm Module YL43456: 20.71dBm
Modulation Technique	DSSS, OFDM, OFDMA
Antenna Specification[#]	Module YL43752 ANT0/1: 3.51dBi Module YL43456 ANT: 4.42dBi (It is provided by the applicant)
Voltage Range	DC 48V from Adapter or DC 54V from POE
Sample serial number	2MDE-1 (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	N/A
Note 1: The device install two certified WLAN module: YL43752(FCC ID: T2C-YL43752, IC: 10741A-YL43752) and YL43456(FCC ID: T2C-YL43456, IC: 10741A-YL43456), for module YL43752, support Bluetooth(include BLE), 2.4GHz Wi-Fi and 5GHz Wi-Fi, for module YL43456, support 2.4GHz Wi-Fi and 5GHz Wi-Fi. Note 2: The device support adapter power mode and POE power mode, the adapter power mode was select to full test, for POE power mode was checked test item AC line conducted emission on Bluetooth mode for module YL43752 and on 2.4GHz Wi-Fi mode for module YL43456, and test item radiated emission of below 1GHz on 2.4GHz Wi-Fi mode for both two module, test result show the POE mode can compliance with the limit.	

Objective

This report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission's rules and RSS-GEN Issue 5, February 2021 Amendment 2 and RSS-247 Issue 3, August 2023 of the Innovation, Science and Economic Development Canada rules.

The tests were performed in order to determine Compliant with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices and RSS-GEN Issue 5, February 2021 Amendment 2 and RSS-247 Issue 3, August 2023.
And KDB 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF Frequency		213.55 Hz(k=2, 95% level of confidence)
RF output power, conducted		0.72 dB(k=2, 95% level of confidence)
Unwanted Emission, conducted		1.75 dB(k=2, 95% level of confidence)
AC Power Lines Conducted Emissions	9 kHz~150 KHz	3.94dB(k=2, 95% level of confidence)
	150 kHz ~30MHz	3.84dB(k=2, 95% level of confidence)
Radiated Emissions	9kHz - 30MHz	3.30dB(k=2, 95% level of confidence)
	30MHz~200MHz (Horizontal)	4.48dB(k=2, 95% level of confidence)
	30MHz~200MHz (Vertical)	4.55dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Horizontal)	4.85dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Vertical)	5.05dB(k=2, 95% level of confidence)
	1GHz - 6GHz	5.35dB(k=2, 95% level of confidence)
	6GHz - 18GHz	5.44dB(k=2, 95% level of confidence)
	18GHz - 40GHz	5.16dB(k=2, 95% level of confidence)
Temperature		±1℃
Humidity		±1%
Supply voltages		±0.4%

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

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, 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. : 715558, the FCC Designation No. : CN5045.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0023.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

For 2.4GHz Wi-Fi mode, total 11channels are provided to testing:

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

For 802.11b, 802.11g, 802.11n20, 802.11ax20, EUT was tested with Channel 1, 6 and 11.
For 802.11n40, EUT was tested with Channel 3, 6 and 9.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

"AuthenticationTool.exe v2.0.2.0#" exercise software was used

The device was tested with the worst case was performed as below:

Module YL43752

Mode	Data rate	Power Level#		
		Low Channel	Middle Channel	High Channel
802.11b	1Mbps	8	8	8
802.11g	6Mbps	8	8	8
802.11n-HT20	MCS0	8	8	8
802.11ax20	MCS0	8	8	8

Note: For this Wi-Fi mode, EUT has two antennas and support SISO/MIMO transmit except for 802.11b/g mode which only support SISO. The MIMO mode was the worst case which select to test. All the antenna ports have the same power level.

Module YL43456

Mode	Data rate	Power Level#		
		Low Channel	Middle Channel	High Channel
802.11b	1Mbps	16	16	16
802.11g	6Mbps	16	16	16
802.11n-HT20	MCS0	16	16	16

The software and power level was provided by the applicant.

Support Equipment List and Details

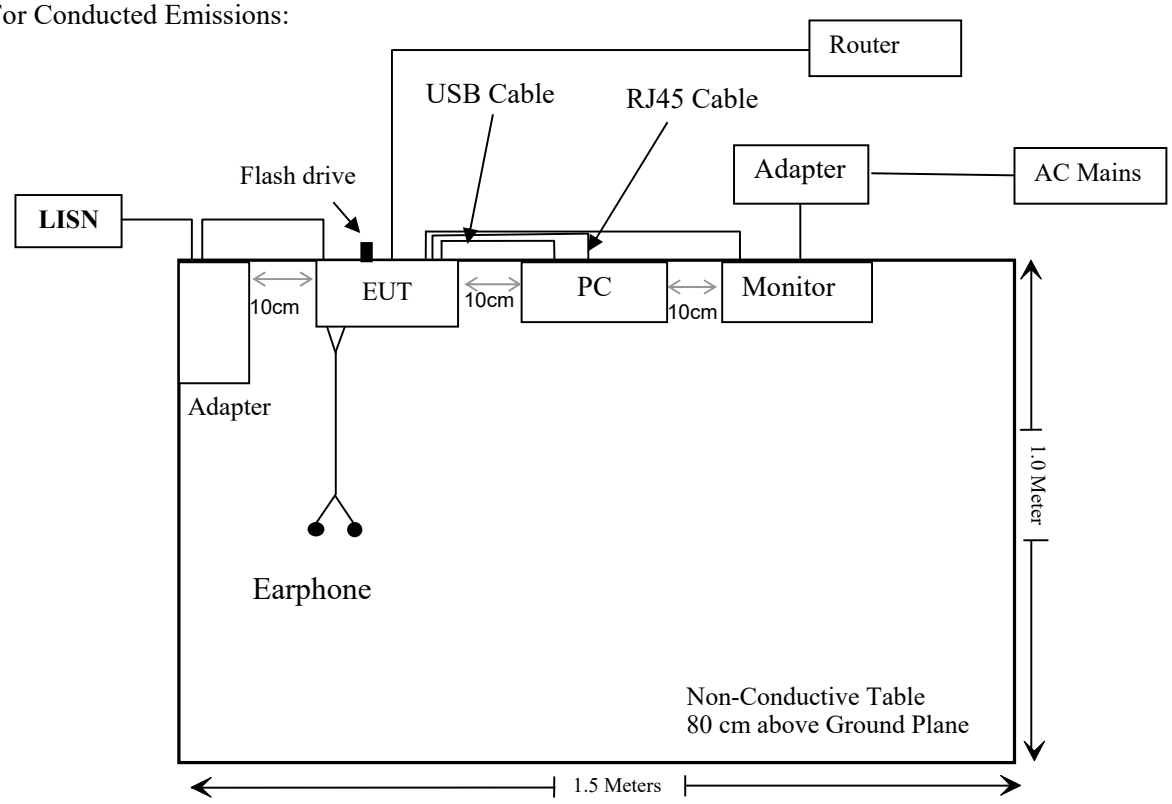
Manufacturer	Description	Model	Serial Number
DELL	PC	Latitude E5430	JG3NLV1
Unknown	Earphone	Unknown	Unknown
Redmi	Monitor	24B1	QVGP3HA038953
Kingston	Flash drive	Unknown	Unknown
Shenzhen JingQuanHua&Evemse Intel ligent Electric Co.,Ltd	Adapter	YLPS482000C	Unknown
Unknown	Adapter	CD265	Unknown
HIKVISION	Router	DS-3WR03	10021642429
TP-LINK	POE	TL-POE2412G	T240050-2-PoE
Unknown	Receptacle	Unknown	Unknown

External I/O Cable

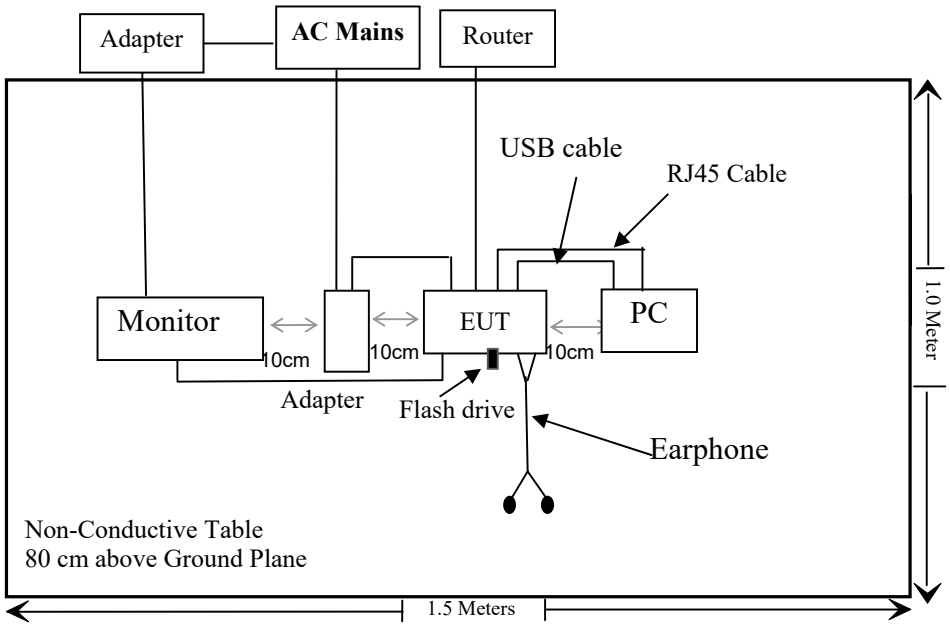
Cable Description	Length (m)	From Port	To
Un-shielding Un-Detachable DC Cable	1.0	EUT	Adapter
Un-shielding Un-Detachable AC Cable	1.0	POE	EUT
Un-shielding Un-Detachable HDMI Cable	1.5	EUT	Monitor
Un-shielded Detachable AC Cable	1.5	Adapter	LISN/AC Mains
Un-shielding Un-Detachable AC Cable	1.5	Receptacle	LISN/AC Mains
Un-shielding Detachable AC Cable	0.5	Receptacle	POE
Unshielded detachable USB cable	1.0	EUT	PC
Unshielded un-detachable RJ45 cable	2.5	EUT	PC
Unshielded un-detachable RJ45 cable	8	EUT	Router

Block Diagram of Test Setup

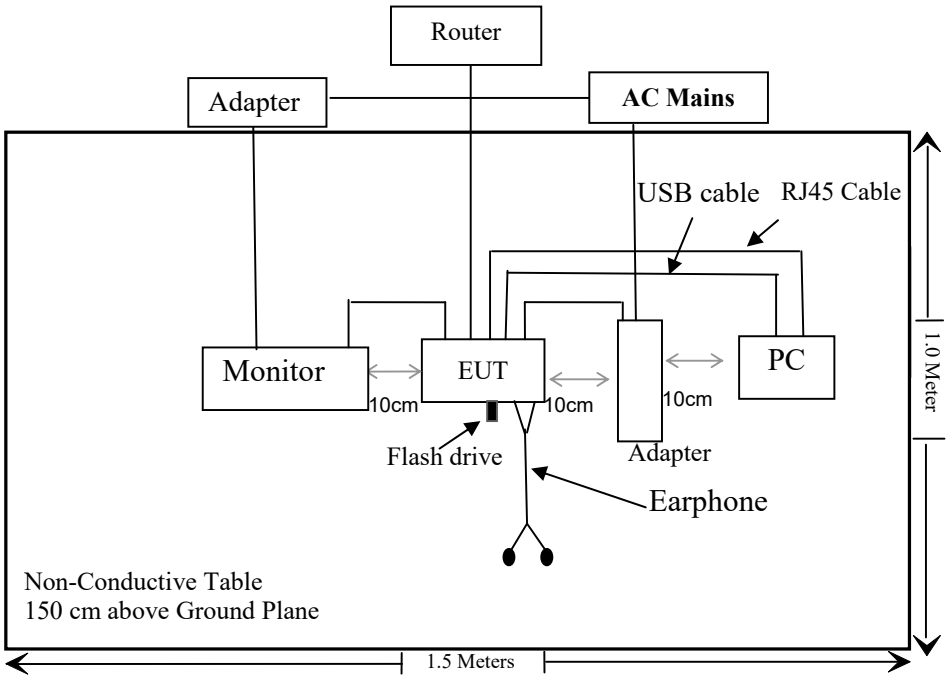
Power by Adapter
For Conducted Emissions:



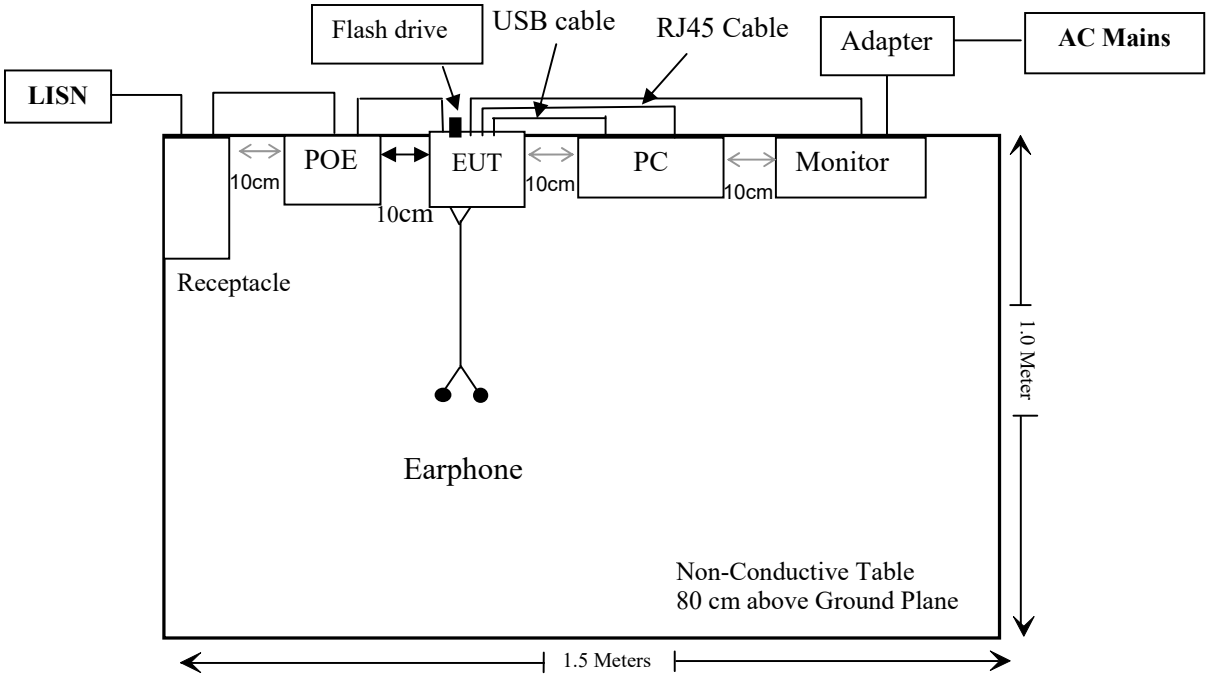
For Radiated Emissions below 1GHz:



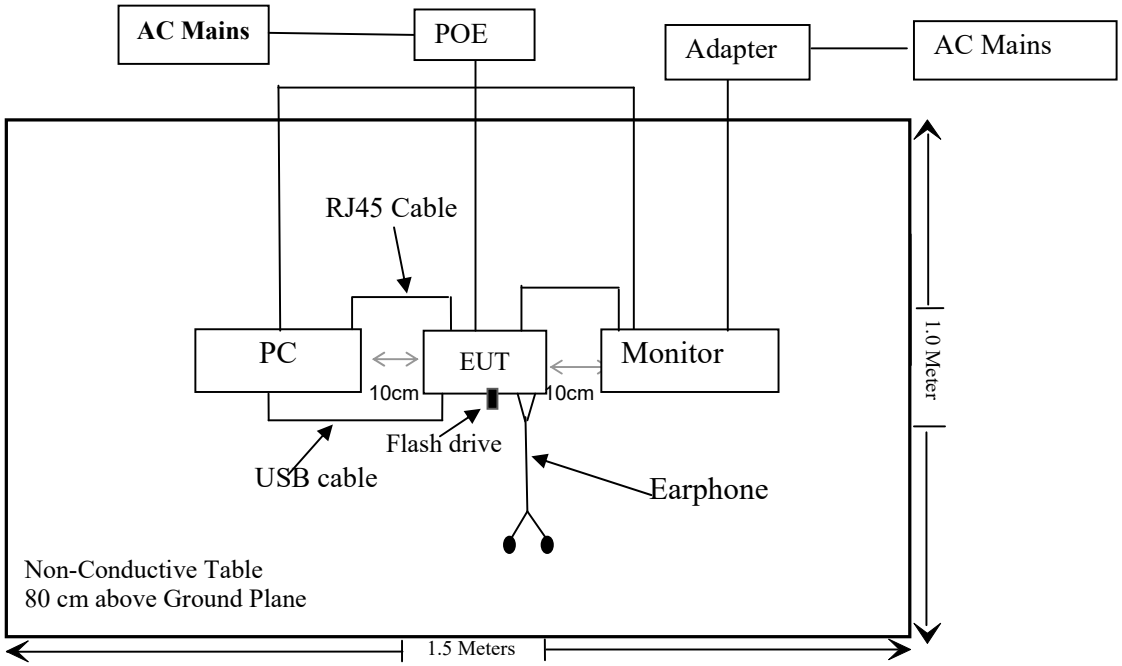
For Radiated Emissions above 1GHz:



Power by POE
For Conducted Emissions:



For Radiated Emissions



SUMMARY OF TEST RESULTS

FCC Rules	RSS Rules	Description of Test	Result	Remark
§15.247 (i), §1.1307 (b) (3) & §2.1091	RSS-102 §4	RF Exposure Evaluation & Exposure Limits	Compliant	-
§15.203	RSS-Gen §6.8	Antenna Requirement	Compliant	-
§15.207 (a)	RSS-Gen §8.8	AC Line Conducted Emissions	Compliant	-
§15.205, §15.209, §15.247(d)	RSS-GEN § 8.10 & RSS-247 § 5.5	Spurious Emissions	Compliant	-
§15.247 (a)(2)	RSS- Gen§6.7 RSS-247 § 5.2 (a)	99% Occupied Bandwidth & 6 dB Emission Bandwidth	-	See Note
§15.247(b)(3)	RSS-247 § 5.4(d)	Maximum Conducted Output Power	-	See Note
§15.247(d)	RSS-247 § 5.5	100 kHz Bandwidth of Frequency Band Edge	-	See Note
§15.247(e)	RSS-247 § 5.2 (b)	Power Spectral Density	-	See Note

Note:
1: The manufacturer declared two certified WLAN module installed in EUT, model YL43752 (FCC ID: T2C-YL43752, IC: 10741A-YL43752) and model YL43456 (FCC ID: T2C-YL43456, IC: 10741A-YL43456)

2: The test data are referred to the module report SZNS220511-19727E-RFB, FCC022022-06244RF1and IC022022-06245RF1, the cross-reference of each test item and the data of reference module report as below:

Test item	Reference data of module report		
	SZNS220511-19727E-RFB	FCC022022-06244RF1	IC022022-06245RF1
99% Occupied Bandwidth & 6 dB Emission Bandwidth	Page 58~67	Page 66~76	Page 66~76
Maximum Conducted Output Power	Page 68 Maximum EIRP =18.17dBm+3.51dBi =21.68dBm<36dBm	Page 77~78	Page 77~78 Maximum EIRP =20.71dBm+4.42dBi =25.13dBm<36dBm
100 kHz Bandwidth of Frequency Band Edge	Page 78~83	Page 79~96	Page 79~96
Power Spectral Density	Page 69~77*	Page 97~102	Page 97~102**

*: For model YL43752, the antenna gain of EUT is 3.51dBi<6dBi, the PSD limit of SISO mode for EUT is same as for module report, so for EUT SISO mode can compliance with the PSD limit; for MIMO mode the directional gain for PSD measurement is 3.51+10*log2= 6.51dBi>6dBi, the PSD limit need reduce 0.51dBi, has checked the test data of MIMO mode in module report, it's compliance with the limit for EUT.
**: For model YL43456, the antenna gain of EUT is 4.42dBi<6dBi, the PSD limit for EUT is same as for module report, so for EUT can compliance with the PSD limit.

3: The BACL is responsible for all the information provided in this report, except when information is provided by the customer as identified in this report.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2024/01/16	2025/01/15
Rohde & Schwarz	LISN	ENV216	101613	2024/01/16	2025/01/15
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2024/05/21	2025/05/20
Unknown	CE Cable	Unknown	UF A210B-1-0720-504504	2024/05/21	2025/05/20
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
Radiated Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310 N	186238	2024/05/21	2025/05/20
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
Unknown	Cable	Chamber A Cable 1	N/A	2024/06/18	2025/06/17
Unknown	Cable	XH500C	J-10M-A	2024/06/18	2025/06/17
BACL	Active Loop Antenna	1313-1A	4031911	2024/05/14	2027/05/13
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
COM-POWER	Pre-amplifier	PA-122	181919	2024/06/18	2025/06/17
The Electro-Mechanics Co.	Horn Antenna	3115	9107-3694	2024/06/06	2027/06/05
Unknown	RF Cable	KMSE	735	2024/06/18	2025/06/17
Unknown	RF Cable	UFA147	219661	2024/06/18	2025/06/17
Unknown	RF Cable	XH750A-N	J-10M	2024/06/18	2025/06/17
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	2024/06/18	2025/06/17
Electro-Mechanics Co	Horn Antenna	3116	9510-2270	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2024/06/18	2025/06/17
Audix	EMI Test software	E3	191218(V9)	NCR	NCR

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

FCC §15.247 (I) & §1.1307 (B) (3) & §2.1091 - RF EXPOSURE EVALUATION

Applicable Standard

According to subpart 15.247 (i) and subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(3)(i)(C)] to support an exemptionfrom further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1,920 R^2.
1.34-30	3,450 R^2/f^2.
30-300	3.83 R^2.
300-1,500	0.0128 R^2f.
1,500-100,000	19.2R^2.

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\sum_{i=1}^{a} \frac{P_i}{P_{th,i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

Result

For worst case:

For Module YL43752:

Mode	Frequency (MHz)	Tune up conducted power#	Antenna Gain#		ERP		Evaluation Distance (m)	ERP Limit (mW)
		(dBm)	(dBi)	(dBd)	(dBm)	(mW)		
BT	2402-2480	8.5	3.51	1.36	9.86	9.68	0.2	768
BLE	2402-2480	8.0	3.51	1.36	9.36	8.63	0.2	768
2.4G Wi-Fi	2412-2462	18.5	3.51	1.36	19.86	96.83	0.2	768
5G Wi-Fi	5180-5240	12.0	3.39	1.24	13.24	21.09	0.2	768
	5260-5280	13.0	3.39	1.24	14.24	26.55	0.2	768
	5500-5700	12.0	3.39	1.24	13.24	21.09	0.2	768
	5745-5825	14.5	3.39	1.24	15.74	37.50	0.2	768

Note 1: The tune-up power and antenna gain was declared by the applicant.
Note 2: 0dBd=2.15dBi.
Note 3: according to module report, the BT can transmit at the same time with the Wi-Fi, the 2.4G Wi-Fi and 5G Wi-Fi cannot Simultaneous transmitting

Simultaneous transmitting consideration:

The ratio=ERP_{BT}/limit+$ERP_{Wi\text{-}Fi}$/limit=9.68/768+96.83/768=0.139＜1.0, so simultaneous exposure is compliant.

For Module YL43456:

Mode	Frequency (MHz)	Tune up conducted power#	Antenna Gain#		ERP		Evaluation Distance (m)	ERP Limit (mW)
		(dBm)	(dBi)	(dBd)	(dBm)	(mW)		
BT	2402-2480	8.0	4.42	2.27	10.27	10.64	0.2	768
BLE	2402-2480	4.0	4.42	2.27	6.27	4.24	0.2	768
2.4G Wi-Fi	2412-2462	21.0	4.42	2.27	23.27	212.32	0.2	768
5G Wi-Fi	5180-5825	16.5	3.39	1.24	17.74	59.43	0.2	768

Note 1: The tune-up power and antenna gain was declared by the applicant.
Note 2: 0dBd=2.15dBi.
Note 3: according to module report, the BT cannot transmit at the same time with the Wi-Fi

The two WLAN module cannot transmit at same time.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant

RSS-102 § 4 - EXPOSURE LIMITS

Applicable Standard

According to RSS-102 § 4:

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
0.003-10[21]	83	90	-	Instantaneous˙
0.1-10	-	0.73/ f	-	6¨
1.1-10	87/ $f^{0.5}$	-	-	6¨
10-20	27.46	0.0728	-2	6
20-48	58.07/ $f^{0.25}$	0.1540/ $f^{0.25}$	8.944/ $f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 $f^{0.3417}$	0.008335 $f^{0.3417}$	0.02619 $f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ $f^{1.2}$
150000-300000	0.158 $f^{0.5}$	4.21×10^{-4} $f^{0.5}$	6.67×10^{-5} f	616000/f

Note: f is frequency in MHz.
˙ Based on nerve stimulation (NS).
¨ Based on specific absorption rate (SAR).

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. W/m^2)
P = power input to the antenna (in appropriate units, e.g., W).
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)

For worst case:

For Module YL43752:

Mode	Frequency (MHz)	Antenna Gain#		Max Tune-up Power#		Evaluation Distance (m)	Power Density (W/m^2)	MPE Limit (W/m^2)
		(dBi)	(numeric)	(dBm)	(W)			
BT	2402-2480	3.51	2.24	8.5	0.007	0.2	0.031	5.35
BLE	2402-2480	3.51	2.24	8.0	0.006	0.2	0.027	5.35
2.4G Wi-Fi	2412-2462	3.51	2.24	18.5	0.071	0.2	0.317	5.37
5G Wi-Fi	5180-5240	3.39	2.18	12.0	0.016	0.2	0.069	9.02
	5260-5280	3.39	2.18	13.0	0.020	0.2	0.087	9.13
	5500-5700	3.39	2.18	12.0	0.016	0.2	0.069	9.39
	5745-5825	3.39	2.18	14.5	0.028	0.2	0.121	9.69

Note 1: The tune-up power and antenna gain was declared by the applicant.
Note 2: according to module report, the BT can transmit at the same time with the Wi-Fi, the 2.4G Wi-Fi and 5G Wi-Fi cannot Simultaneous transmitting

$$\sum_i \frac{S_i}{S_{Limit,i}} = 0.031/5.35 + 0.317/5.37 = 0.065<1.0$$

For Module YL43456:

Mode	Frequency (MHz)	Antenna Gain#		Max Tune-up Power#		Evaluation Distance (m)	Power Density (W/m^2)	MPE Limit (W/m^2)
		(dBi)	(numeric)	(dBm)	(W)			
BT	2402-2480	4.42	2.77	8.0	0.006	0.2	0.033	5.35
BLE	2402-2480	4.42	2.77	4.0	0.003	0.2	0.017	5.35
2.4G Wi-Fi	2412-2462	4.42	2.77	21.0	0.126	0.2	0.695	5.37
5G Wi-Fi	5180-5825	3.39	2.18	16.5	0.045	0.2	0.195	9.02

Note 1: The tune-up power and antenna gain was declared by the applicant.
Note 2: according to module report, the BT cannot transmit at the same time with the Wi-Fi

The two WLAN module cannot transmit at same time.

Result: Compliant

Note: To maintain compliance with the RF exposure guidelines, place the equipment at least 0.2 m from nearby persons.

§15.203 & RSS-GEN §6.8 ANTENNA REQUIREMENT

Applicable Standard

According to § 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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine Compliant with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the Compliant of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

Antenna Connector Construction

The EUT has three internal antennas arrangement which was permanently attached for Wi-Fi, fulfill the requirement of this section. Please refer to the EUT photos.

ANT	Type	Antenna Gain#	Impedance
Module YL43752 ANT0/1	PCB	3.51dBi	50Ω
Module YL43456 ANT	PCB	4.42dBi	50Ω

Result: Compliant

§15.207 (a) & RSS-GEN §8.8 AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC § 15.207 (a) & RSS-GEN §8.8

Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in table 4, as measured using a 50 μH / 50 Ω line impedance stabilization network. This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for Compliant with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

Table 4 - AC Power Lines Conducted Emission Limits		
Frequency range (MHz)	Conducted limit (dBμV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56[1]	56 to 46[1]
0.5 – 5	56	46
5 – 30	60	50

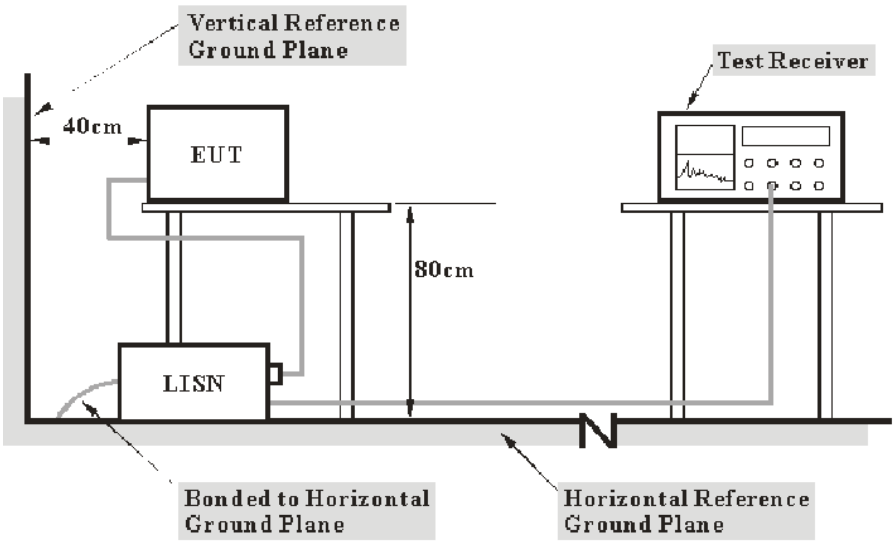
Note 1: The level decreases linearly with the logarithm of the frequency.

For an EUT with a permanent or detachable antenna operating between 150 kHz and 30 MHz, the AC power-line conducted emissions must be measured using the following configurations:

(a) Perform the AC power-line conducted emissions test with the antenna connected to determine Compliant with the limits of table 4 outside the transmitter's fundamental emission band.

(b) Retest with a dummy load instead of the antenna to determine Compliant with the limits of table 4 within the transmitter's fundamental emission band. For a detachable antenna, remove the antenna and connect a suitable dummy load to the antenna connector. For a permanent antenna, remove the antenna and terminate the RF output with a dummy load or network that simulates the antenna in the fundamental frequency band.

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 & RSS-247/RSS-Gen limits.

The spacing between the peripherals was 10 cm.

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

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

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Factor & Over Limit Calculation

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

Factor = LISN VDF + Cable Loss

The "**Over limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

Over Limit = Level – Limit
Level = Read Level + Factor

Note: The term "cable loss" refers to the combination of a cable and a 10dB transient limiter (attenuator).

Test Data

Environmental Conditions

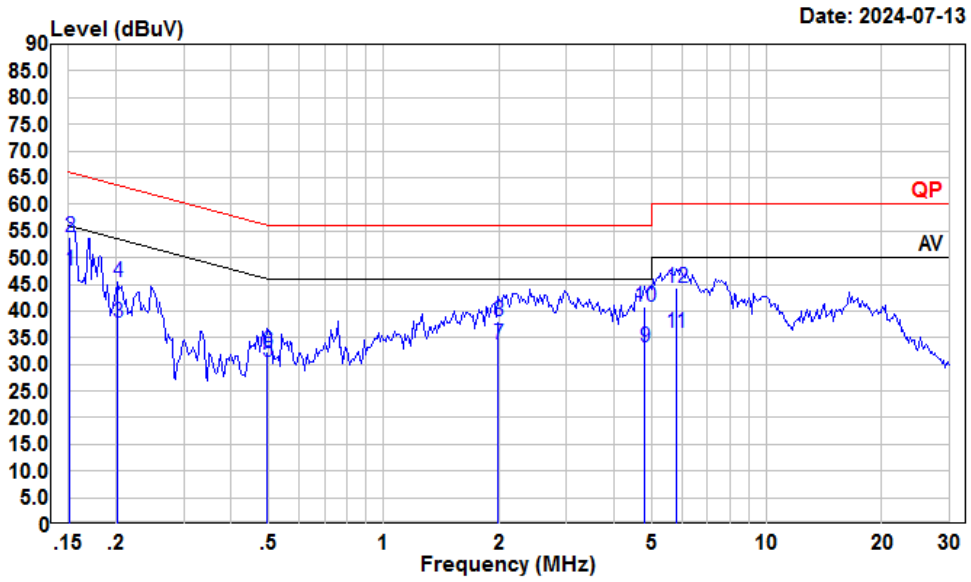
Temperature:	25 °C
Relative Humidity:	69 %
ATM Pressure:	101 kPa

The testing was performed by Macy Shi from 2024-07-13 to 2024-09-04.

EUT operation mode: Transmitting

For Module YL43752 *(Maximum output power mode 802.11ax20 middle channel)*
Power by Adapter

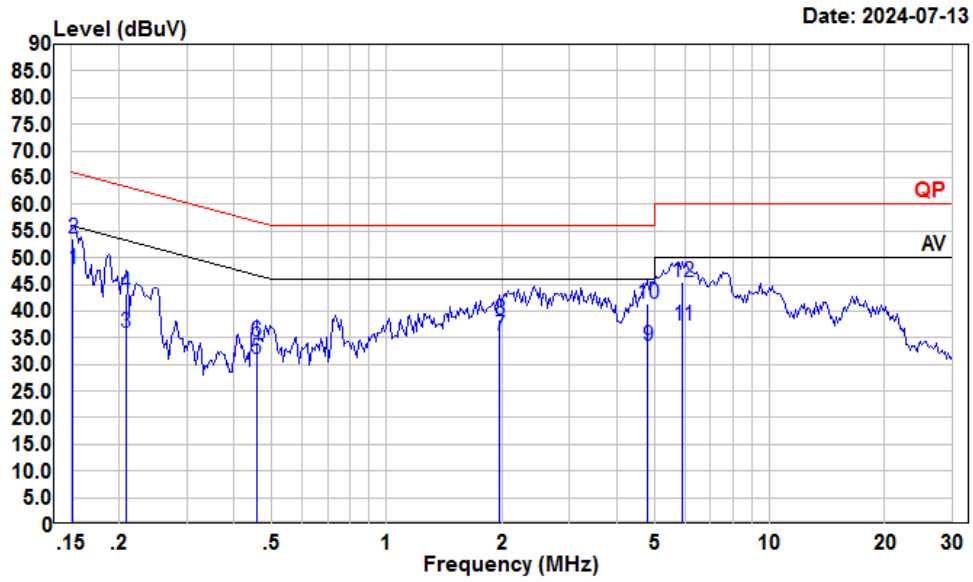
AC 120V/60 Hz, Line



Condition: Line
Project : 2401T34440E-RF
tester : Macy.shi
Note : 2.4G WIFI

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.15	26.51	47.54	10.90	10.13	55.91	-8.37	Average
2	0.15	32.87	53.90	10.90	10.13	65.91	-12.01	QP
3	0.20	16.94	37.83	10.80	10.09	53.54	-15.71	Average
4	0.20	24.62	45.51	10.80	10.09	63.54	-18.03	QP
5	0.50	9.79	30.43	10.50	10.14	46.05	-15.62	Average
6	0.50	11.65	32.29	10.50	10.14	56.05	-23.76	QP
7	1.99	12.94	33.73	10.60	10.19	46.00	-12.27	Average
8	1.99	17.34	38.13	10.60	10.19	56.00	-17.87	QP
9	4.80	12.76	33.31	10.36	10.19	46.00	-12.69	Average
10	4.80	20.20	40.75	10.36	10.19	56.00	-15.25	QP
11	5.81	15.21	35.82	10.43	10.18	50.00	-14.18	Average
12	5.81	23.60	44.21	10.43	10.18	60.00	-15.79	QP

AC 120V/60 Hz, Neutral

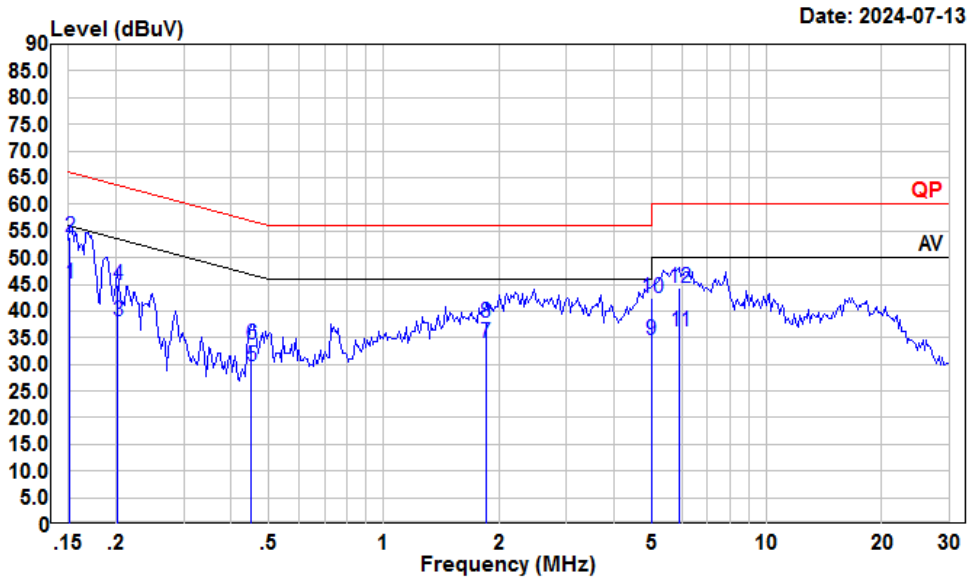


Condition: Neutral
Project : 2401T34440E-RF
tester : Macy.shi
Note : 2.4G WIFI

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.15	27.06	47.78	10.59	10.13	55.91	-8.13	Average
2	0.15	32.79	53.51	10.59	10.13	65.91	-12.40	QP
3	0.21	15.42	35.92	10.41	10.09	53.27	-17.35	Average
4	0.21	22.66	43.16	10.41	10.09	63.27	-20.11	QP
5	0.46	10.26	31.05	10.67	10.12	46.76	-15.71	Average
6	0.46	13.36	34.15	10.67	10.12	56.76	-22.61	QP
7	1.97	14.76	35.36	10.41	10.19	46.00	-10.64	Average
8	1.97	17.84	38.44	10.41	10.19	56.00	-17.56	QP
9	4.80	12.89	33.58	10.50	10.19	46.00	-12.42	Average
10	4.80	20.67	41.36	10.50	10.19	56.00	-14.64	QP
11	5.93	16.58	37.37	10.61	10.18	50.00	-12.63	Average
12	5.93	24.51	45.30	10.61	10.18	60.00	-14.70	QP

For Module YL43456 *(Maximum output power mode 802.11g low channel)*
Power by Adapter

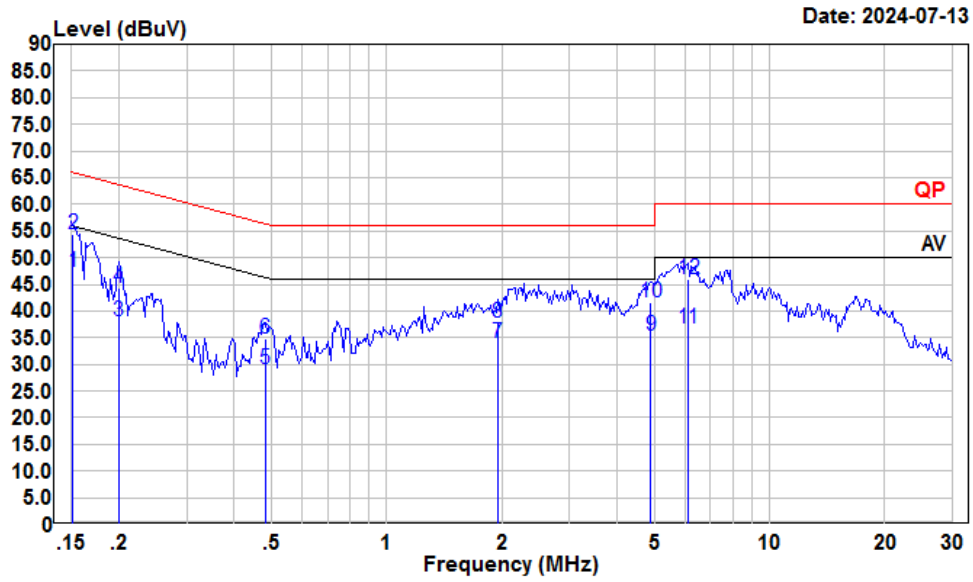
AC 120V/60 Hz, Line



Condition: Line
Project : 2401T34440E-RF
tester : Macy.shi
Note : 2.4G WIFI

	Freq	Read Level	LISN Level	Cable Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.15	24.05	45.08	10.90	10.13	55.91	-10.83	Average
2	0.15	32.86	53.89	10.90	10.13	65.91	-12.02	QP
3	0.20	17.27	38.16	10.80	10.09	53.54	-15.38	Average
4	0.20	23.97	44.86	10.80	10.09	63.54	-18.68	QP
5	0.45	9.00	29.65	10.53	10.12	46.85	-17.20	Average
6	0.45	13.05	33.70	10.53	10.12	56.85	-23.15	QP
7	1.85	13.12	33.88	10.58	10.18	46.00	-12.12	Average
8	1.85	17.12	37.88	10.58	10.18	56.00	-18.12	QP
9	5.01	14.06	34.62	10.38	10.18	50.00	-15.38	Average
10	5.01	21.96	42.52	10.38	10.18	60.00	-17.48	QP
11	5.93	15.54	36.16	10.44	10.18	50.00	-13.84	Average
12	5.93	23.78	44.40	10.44	10.18	60.00	-15.60	QP

AC 120V/60 Hz, Neutral

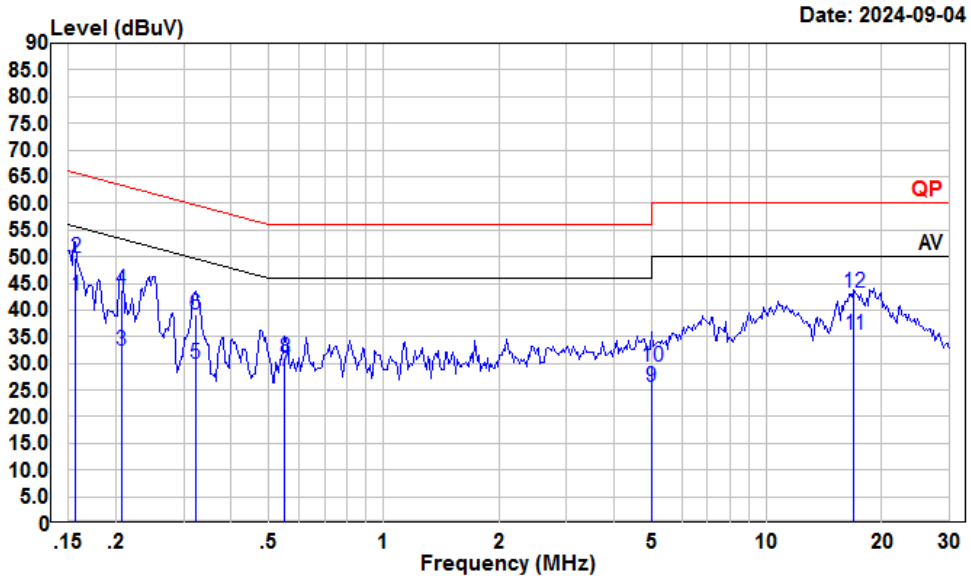


Condition: Neutral
Project : 2401T34440E-RF
tester : Macy.shi
Note : 2.4G WIFI

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.15	26.57	47.29	10.59	10.13	55.91	-8.62	Average
2	0.15	33.62	54.34	10.59	10.13	65.91	-11.57	QP
3	0.20	17.52	38.01	10.40	10.09	53.62	-15.61	Average
4	0.20	23.72	44.21	10.40	10.09	63.62	-19.41	QP
5	0.48	8.34	29.16	10.69	10.13	46.32	-17.16	Average
6	0.48	14.03	34.85	10.69	10.13	56.32	-21.47	QP
7	1.95	13.42	34.03	10.42	10.19	46.00	-11.97	Average
8	1.95	17.21	37.82	10.42	10.19	56.00	-18.18	QP
9	4.90	14.60	35.29	10.51	10.18	46.00	-10.71	Average
10	4.90	21.05	41.74	10.51	10.18	56.00	-14.26	QP
11	6.12	16.03	36.85	10.63	10.19	50.00	-13.15	Average
12	6.12	25.24	46.06	10.63	10.19	60.00	-13.94	QP

Power by POE

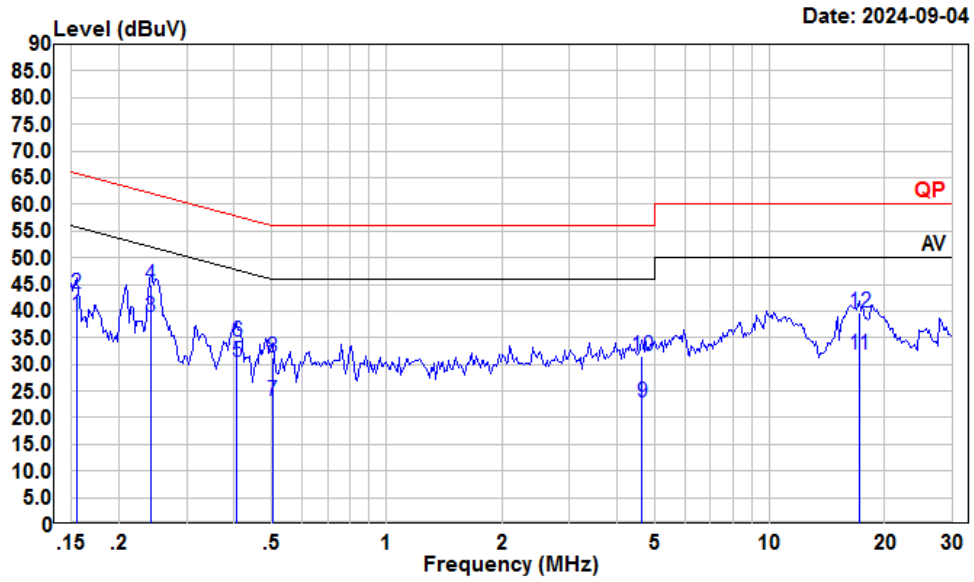
AC 120V/60 Hz, Line



Condition: Line
Project : 2401T34440E-RF
tester : Macy.shi
Note : 2.4G WIFI

	Freq	Read Level	LISN Level	Cable Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.156	21.74	42.75	10.89	10.12	55.65	-12.90	Average
2	0.156	28.82	49.83	10.89	10.12	65.65	-15.82	QP
3	0.206	11.37	32.25	10.79	10.09	53.36	-21.11	Average
4	0.206	22.83	43.71	10.79	10.09	63.36	-19.65	QP
5	0.322	9.29	30.04	10.64	10.11	49.66	-19.62	Average
6	0.322	18.41	39.16	10.64	10.11	59.66	-20.50	QP
7	0.552	7.94	28.57	10.50	10.13	46.00	-17.43	Average
8	0.552	10.39	31.02	10.50	10.13	56.00	-24.98	QP
9	5.005	4.92	25.48	10.38	10.18	50.00	-24.52	Average
10	5.005	8.81	29.37	10.38	10.18	60.00	-30.63	QP
11	16.928	14.31	35.24	10.73	10.20	50.00	-14.76	Average
12	16.928	22.28	43.21	10.73	10.20	60.00	-16.79	QP

AC 120V/60 Hz, Neutral



Condition: Neutral
Project : 2401T34440E-RF
tester : Macy.shi
Note : 2.4G WIFI

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.155	18.46	39.16	10.58	10.12	55.74	-16.58	Average
2	0.155	22.67	43.37	10.58	10.12	65.74	-22.37	QP
3	0.242	18.41	38.95	10.46	10.08	52.04	-13.09	Average
4	0.242	24.33	44.87	10.46	10.08	62.04	-17.17	QP
5	0.406	9.75	30.48	10.63	10.10	47.73	-17.25	Average
6	0.406	13.46	34.19	10.63	10.10	57.73	-23.54	QP
7	0.502	2.15	22.99	10.70	10.14	46.00	-23.01	Average
8	0.502	10.42	31.26	10.70	10.14	56.00	-24.74	QP
9	4.647	2.28	22.95	10.48	10.19	46.00	-23.05	Average
10	4.647	10.90	31.57	10.48	10.19	56.00	-24.43	QP
11	17.109	10.92	31.87	10.75	10.20	50.00	-18.13	Average
12	17.109	18.64	39.59	10.75	10.20	60.00	-20.41	QP

§15.205, §15.209, §15.247(d) & RSS-GEN § 8.10 & RSS-247 § 5.5 SPURIOUS EMISSIONS

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

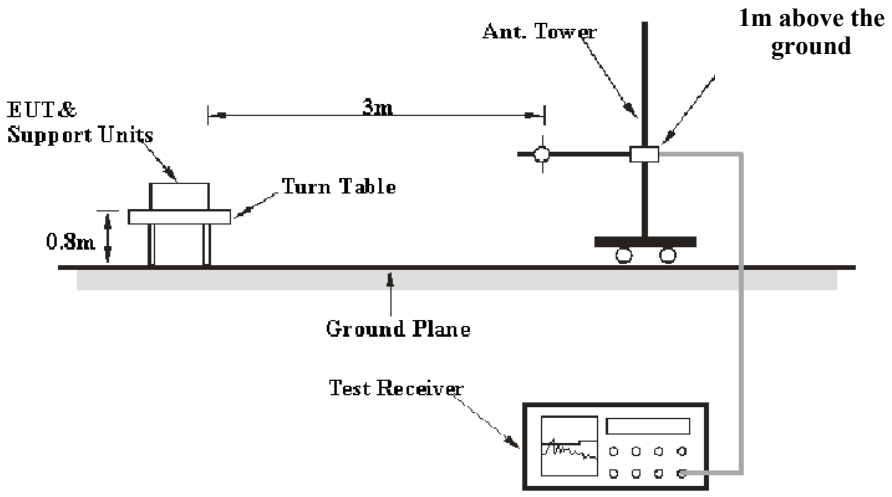
According to RSS-GEN § 8.10 & RSS-247 § 5.5

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:(a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).(b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.(c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

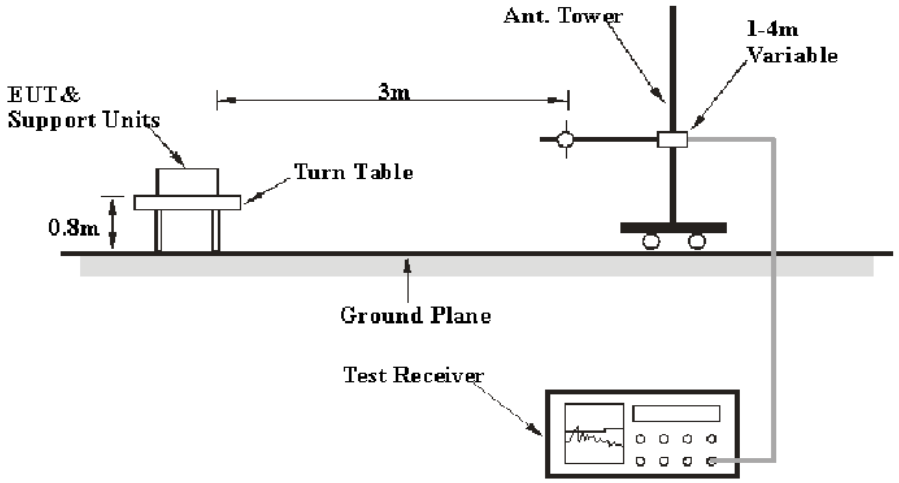
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates Compliant with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

EUT Setup

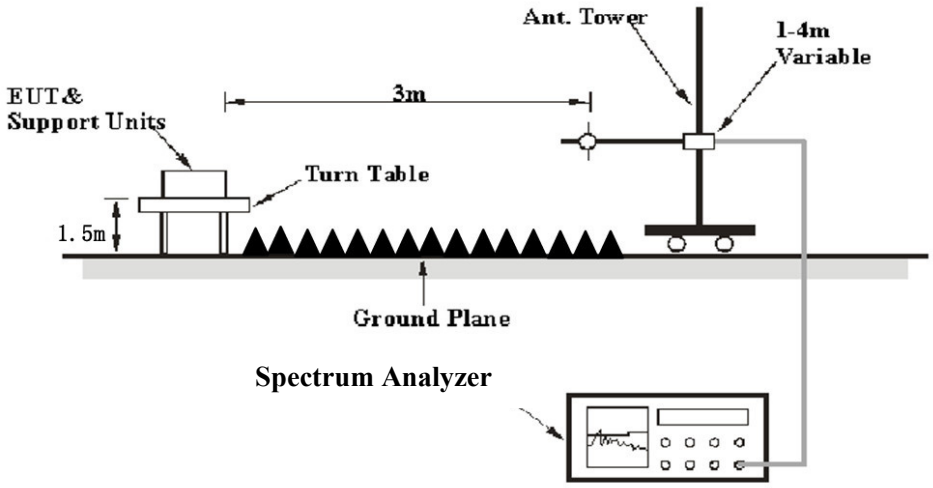
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013 & RSS-Gen. The specification used was the FCC 15.209, and FCC 15.247 & RSS-Gen limits.

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

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-1GHz:

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

1-25GHz:

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

Note: Ton 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.

Test Procedure

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

All final data was recorded in Quasi-peak detection mode except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, average detection modes for frequency bands 9–90 kHz and 110–490 kHz, peak and average detection modes for frequencies above 1 GHz.

For 9 kHz-30MHz, the report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground-parallel) unless the margin is greater than 20 dB.

All emissions under the average limit and under the noise floor have not recorded in the report.

Factor & Over Limit/Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

Factor = Antenna Factor + Cable Loss - Amplifier Gain

The "**Over Limit/Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

Over Limit/Margin = Level/Corrected Amplitude – Limit
Level / Corrected Amplitude = Read Level + Factor

Test Data

Environmental Conditions

Temperature:	22~26 ℃
Relative Humidity:	50~57 %
ATM Pressure:	101 kPa

The testing was performed by Anson Su from 2024-07-12 to 2024-09-10 for below 1GHz and Zenos Qiao and Dylan Yang from 2024-07-11 to 2024-07-19 for above 1GHz.

EUT operation mode: Transmitting

Note: Pre-scan in the X, Y and Z axes of orientation, the worst case Z-axis of orientation was recorded.

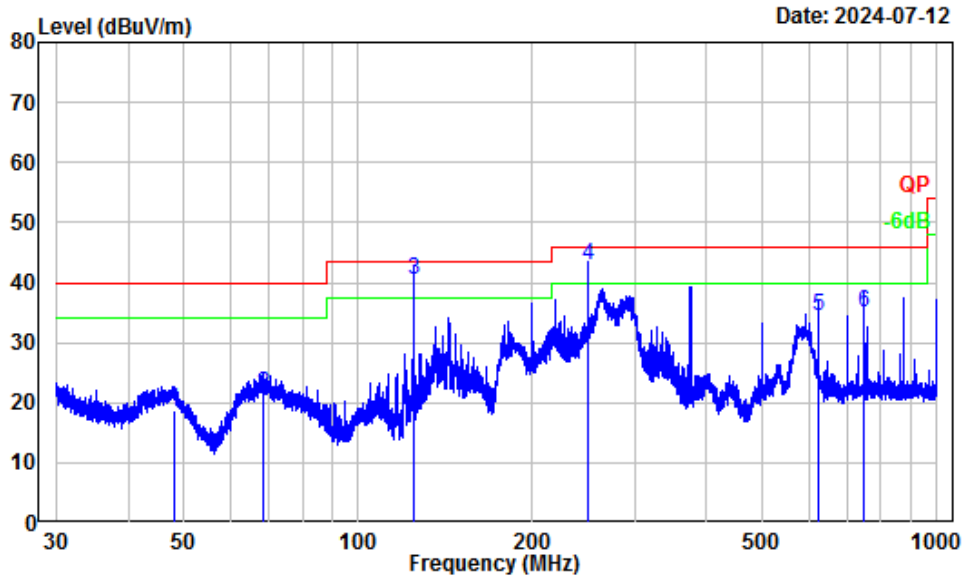
For Module YL43752

9 kHz-30MHz:

The amplitude of spurious emissions attenuated more than 20 dB below the limit was not recorded.

30 MHz~1 GHz: *(Maximum output power mode 802.11ax20 middle channel)*
Power by Adapter

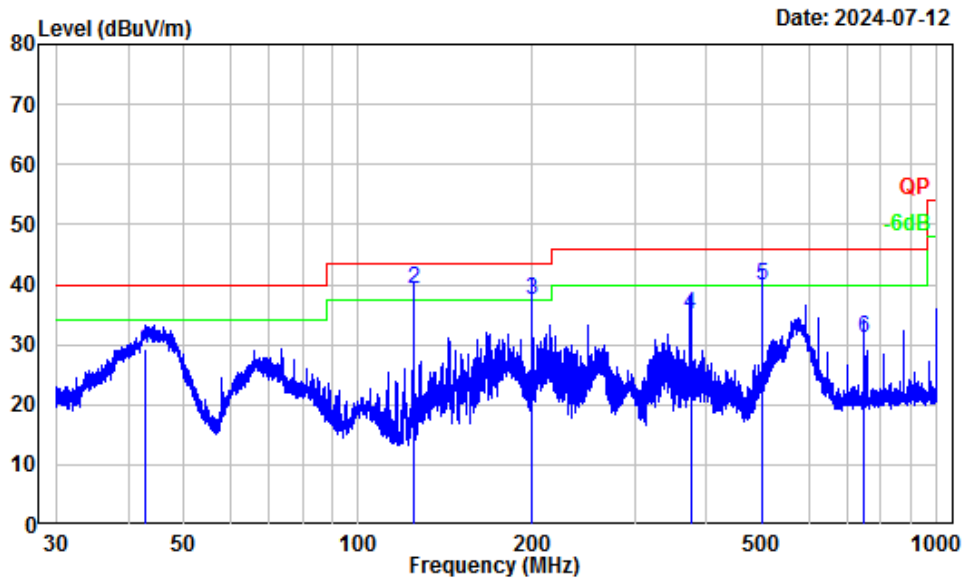
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401T34440E-RF
Test Mode : 2.4G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	48.20	-16.69	35.36	18.67	40.00	-21.33	QP
2	68.27	-17.58	39.03	21.45	40.00	-18.55	QP
3	125.01	-12.21	52.60	40.39	43.50	-3.11	QP
4	249.97	-14.53	57.30	42.77	46.00	-3.23	QP
5	625.08	-7.48	41.86	34.38	46.00	-11.62	QP
6	750.11	-5.54	40.71	35.17	46.00	-10.83	QP

Vertical

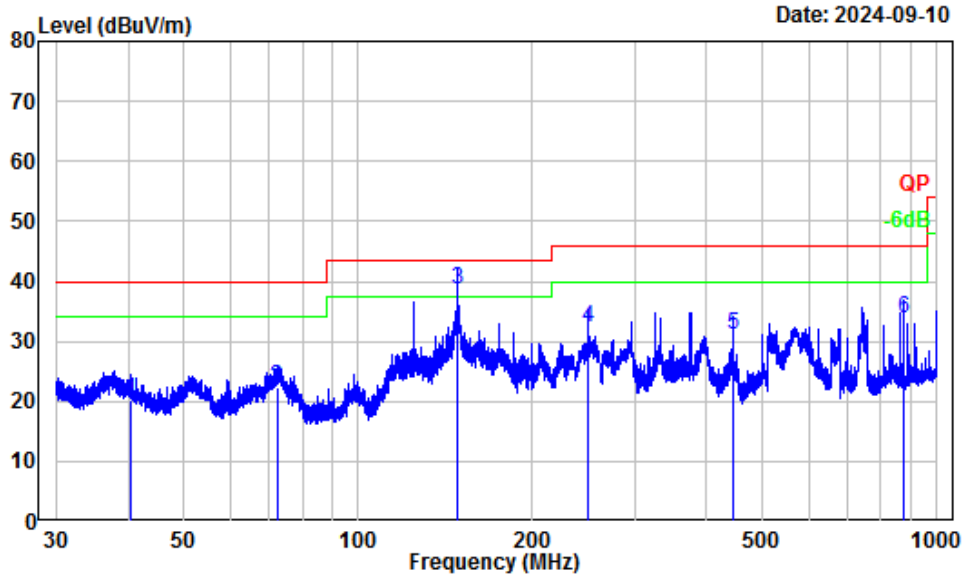


Site : Chamber A
Condition : 3m Vertical
Project Number: 2401T34440E-RF
Test Mode : 2.4G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	42.73	-14.57	43.78	29.21	40.00	-10.79	QP
2	125.01	-12.66	51.90	39.24	43.50	-4.26	QP
3	199.99	-14.69	52.23	37.54	43.50	-5.96	QP
4	375.12	-11.54	46.55	35.01	46.00	-10.99	QP
5	500.08	-8.47	48.28	39.81	46.00	-6.19	QP
6	750.11	-6.04	37.14	31.10	46.00	-14.90	QP

Power by POE

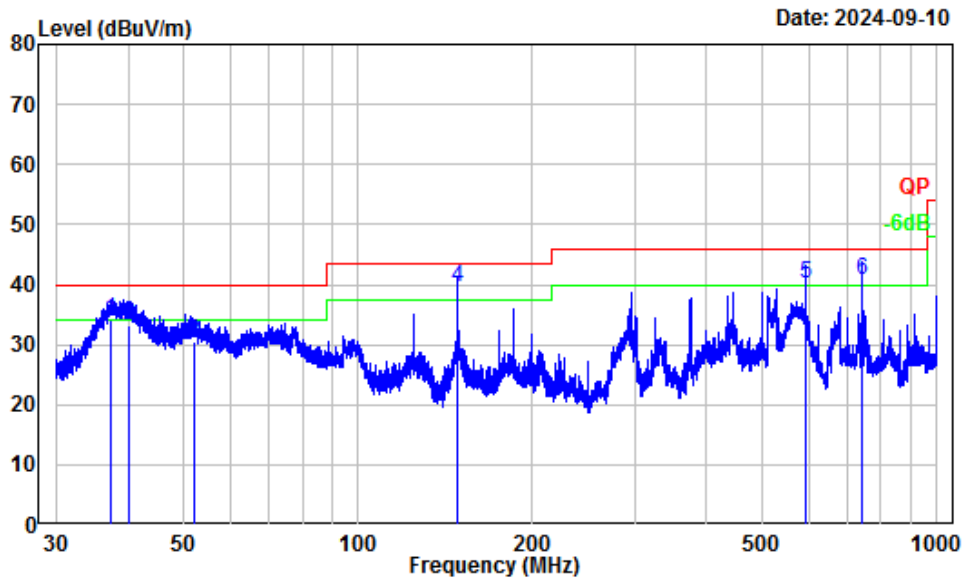
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401T34440E-RF
Test Mode : 2.4G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.43	-13.50	33.80	20.30	40.00	-19.70	QP
2	72.31	-18.54	41.01	22.47	40.00	-17.53	QP
3	148.44	-13.51	52.28	38.77	43.50	-4.73	QP
4	249.97	-14.74	46.94	32.20	46.00	-13.80	QP
5	445.63	-9.82	40.98	31.16	46.00	-14.84	QP
6	875.25	-3.88	37.79	33.91	46.00	-12.09	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401T34440E-RF
Test Mode : 2.4G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	37.42	-11.36	45.49	34.13	40.00	-5.87	QP
2	40.22	-13.36	46.59	33.23	40.00	-6.77	QP
3	52.09	-19.03	49.55	30.52	40.00	-9.48	QP
4	148.51	-13.51	53.00	39.49	43.50	-4.01	QP
5	594.09	-8.43	48.67	40.24	46.00	-5.76	QP
6	742.58	-5.74	46.59	40.85	46.00	-5.15	QP

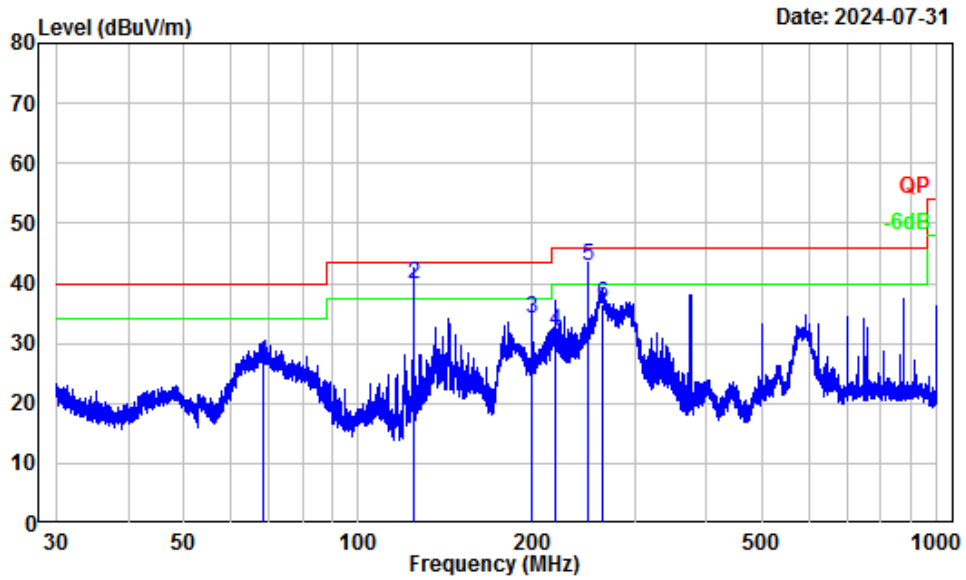
For Module YL43456

9 kHz-30MHz:

The amplitude of spurious emissions attenuated more than 20 dB below the limit was not recorded.

30 MHz~1 GHz: *(Maximum output power mode 802.11g low channel)*
Power by Adapter

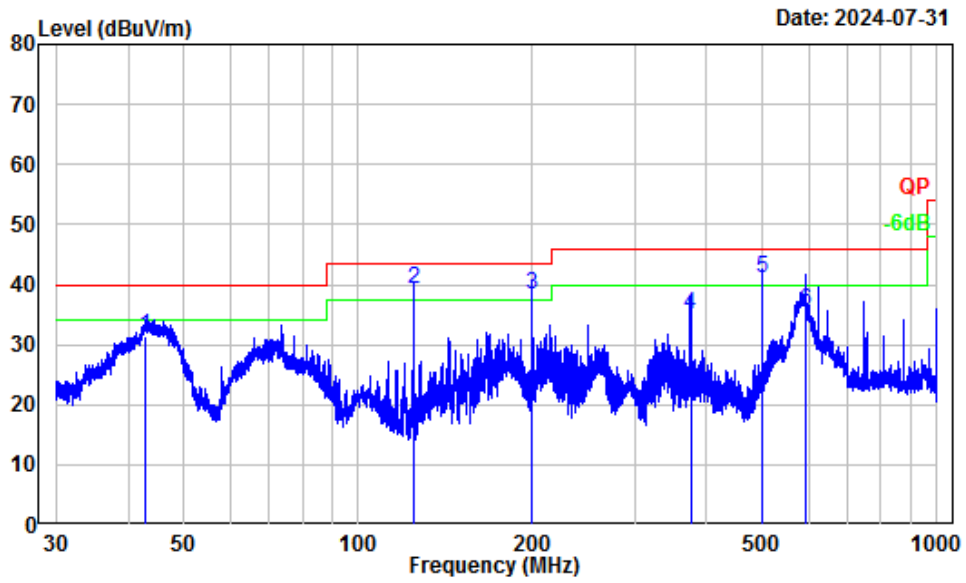
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401T34440E-RF
Test Mode : 2.4G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	68.27	-17.58	44.59	27.01	40.00	-12.99	QP
2	125.01	-12.21	52.00	39.79	43.50	-3.71	QP
3	199.99	-13.49	47.60	34.11	43.50	-9.39	QP
4	219.08	-13.89	46.00	32.11	46.00	-13.89	QP
5	249.97	-14.53	57.30	42.77	46.00	-3.23	QP
6	263.82	-14.04	50.60	36.56	46.00	-9.44	QP

Vertical

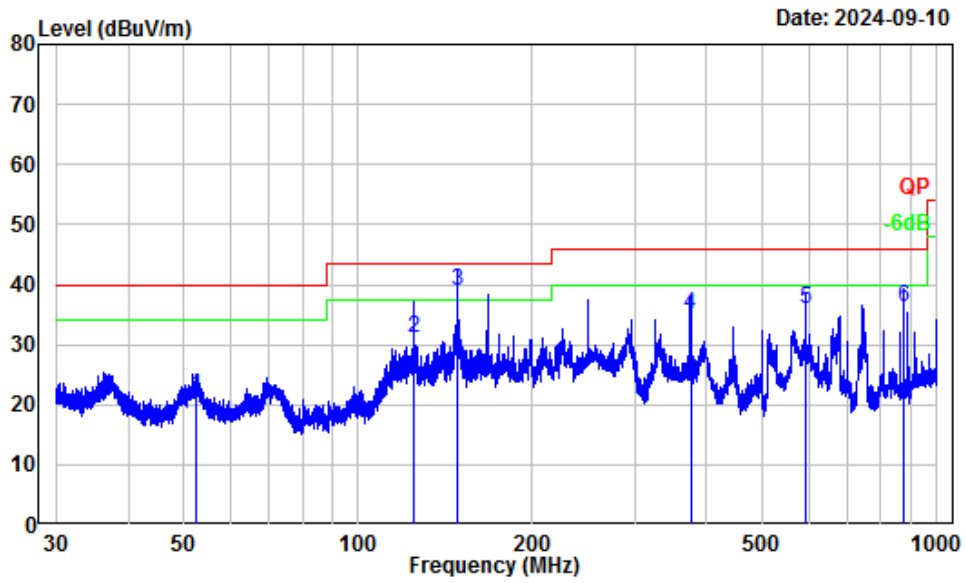


Site : Chamber A
Condition : 3m Vertical
Project Number: 2401T34440E-RF
Test Mode : 2.4G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	42.73	-14.57	46.00	31.43	40.00	-8.57	QP
2	125.01	-12.66	52.00	39.34	43.50	-4.16	QP
3	199.99	-14.69	53.10	38.41	43.50	-5.09	QP
4	375.12	-11.54	46.55	35.01	46.00	-10.99	QP
5	500.08	-8.47	49.60	41.13	46.00	-4.87	QP
6	594.09	-8.24	44.00	35.76	46.00	-10.24	QP

Power by POE

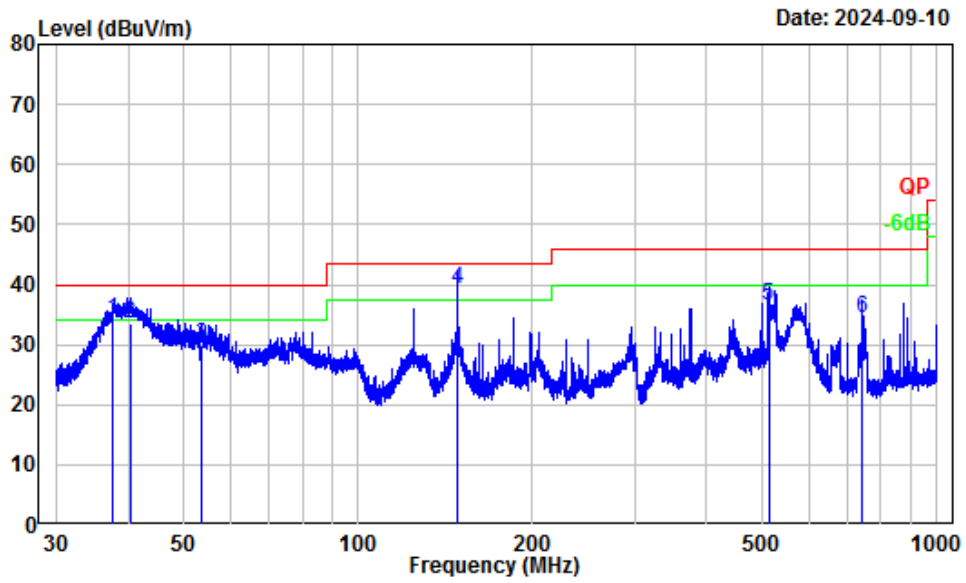
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401T34440E-RF
Test Mode : 2.4G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	52.55	-19.08	40.58	21.50	40.00	-18.50	QP
2	125.01	-12.30	43.50	31.20	43.50	-12.30	QP
3	148.57	-13.51	52.55	39.04	43.50	-4.46	QP
4	375.12	-11.54	46.61	35.07	46.00	-10.93	QP
5	594.09	-8.43	44.29	35.86	46.00	-10.14	QP
6	875.25	-3.88	40.11	36.23	46.00	-9.77	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401T34440E-RF
Test Mode : 2.4G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	37.65	-11.53	45.50	33.97	40.00	-6.03	QP
2	40.28	-13.39	46.98	33.59	40.00	-6.41	QP
3	53.43	-19.11	49.12	30.01	40.00	-9.99	QP
4	148.57	-13.51	52.79	39.28	43.50	-4.22	QP
5	511.84	-9.00	45.63	36.63	46.00	-9.37	QP
6	742.26	-5.75	40.26	34.51	46.00	-11.49	QP

1 GHz-25 GHz:

For Module YL43752

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
ANT0							
802.11b							
Low Channel 2412MHz							
2389.25	70.42	PK	H	-2.93	67.49	74	-6.51
2389.25	42.79	AV	H	-2.93	39.86	54	-14.14
2389.02	68.96	PK	V	-2.93	66.03	74	-7.97
2389.02	42.21	AV	V	-2.93	39.28	54	-14.72
4824.00	47.66	PK	H	2.45	50.11	74	-23.89
4824.00	33.42	AV	H	2.45	35.87	54	-18.13
4824.00	47.15	PK	V	2.45	49.60	74	-24.40
4824.00	33.09	AV	V	2.45	35.54	54	-18.46
Middle Channel 2437MHz							
4874.00	48.08	PK	H	2.56	50.64	74	-23.36
4874.00	33.67	AV	H	2.56	36.23	54	-17.77
4874.00	47.56	PK	V	2.56	50.12	74	-23.88
4874.00	33.24	AV	V	2.56	35.80	54	-18.20
High Channel 2462MHz							
2483.91	69.03	PK	H	-3.17	65.86	74	-8.14
2483.91	42.38	AV	H	-3.17	39.21	54	-14.79
2483.84	67.87	PK	V	-3.17	64.70	74	-9.30
2483.84	41.96	AV	V	-3.17	38.79	54	-15.21
4924.00	47.39	PK	H	2.63	50.02	74	-23.98
4924.00	33.25	AV	H	2.63	35.88	54	-18.12
4924.00	46.78	PK	V	2.63	49.41	74	-24.59
4924.00	32.83	AV	V	2.63	35.46	54	-18.54

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
ANT1							
802.11b							
Low Channel 2412MHz							
2389.59	70.13	PK	H	-2.93	67.20	74	-6.80
2389.59	42.57	AV	H	-2.93	39.64	54	-14.36
2389.71	68.39	PK	V	-2.93	65.46	74	-8.54
2389.71	42.08	AV	V	-2.93	39.15	54	-14.85
4824.00	49.70	PK	H	2.45	52.15	74	-21.85
4824.00	40.25	AV	H	2.45	42.70	54	-11.30
4824.00	47.53	PK	V	2.45	49.98	74	-24.02
4824.00	39.44	AV	V	2.45	41.89	54	-12.11
Middle Channel 2437MHz							
4874.00	48.21	PK	H	2.56	50.77	74	-23.23
4874.00	37.48	AV	H	2.56	40.04	54	-13.96
4874.00	47.05	PK	V	2.56	49.61	74	-24.39
4874.00	36.57	AV	V	2.56	39.13	54	-14.87
High Channel 2462MHz							
2483.56	74.17	PK	H	-3.17	71.00	74	-3.00
2483.56	42.38	AV	H	-3.17	39.21	54	-14.79
2483.75	72.64	PK	V	-3.17	69.47	74	-4.53
2483.75	41.89	AV	V	-3.17	38.72	54	-15.28
4924.00	47.36	PK	H	2.63	49.99	74	-24.01
4924.00	34.49	AV	H	2.63	37.12	54	-16.88
4924.00	46.27	PK	V	2.63	48.90	74	-25.10
4924.00	33.62	AV	V	2.63	36.25	54	-17.75

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
ANT0							
802.11g							
Low Channel 2412MHz							
2389.48	57.27	PK	H	-2.93	54.34	74	-19.66
2389.48	44.19	AV	H	-2.93	41.26	54	-12.74
2389.83	56.38	PK	V	-2.93	53.45	74	-20.55
2389.83	43.54	AV	V	-2.93	40.61	54	-13.39
4824.00	47.57	PK	H	2.45	50.02	74	-23.98
4824.00	32.32	AV	H	2.45	34.77	54	-19.23
4824.00	47.29	PK	V	2.45	49.74	74	-24.26
4824.00	32.04	AV	V	2.45	34.49	54	-19.51
Middle Channel 2437MHz							
4874.00	47.24	PK	H	2.56	49.80	74	-24.20
4874.00	32.15	AV	H	2.56	34.71	54	-19.29
4874.00	46.88	PK	V	2.56	49.44	74	-24.56
4874.00	31.96	AV	V	2.56	34.52	54	-19.48
High Channel 2462MHz							
2483.67	56.98	PK	H	-3.17	53.81	74	-20.19
2483.67	43.32	AV	H	-3.17	40.15	54	-13.85
2483.84	56.05	PK	V	-3.17	52.88	74	-21.12
2483.84	42.83	AV	V	-3.17	39.66	54	-14.34
4924.00	47.32	PK	H	2.63	49.95	74	-24.05
4924.00	32.20	AV	H	2.63	34.83	54	-19.17
4924.00	47.07	PK	V	2.63	49.70	74	-24.30
4924.00	32.11	AV	V	2.63	34.74	54	-19.26

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
ANT1							
802.11g							
Low Channel 2412MHz							
2389.83	58.04	PK	H	-2.93	55.11	74	-18.89
2389.83	44.45	AV	H	-2.93	41.52	54	-12.48
2389.94	57.21	PK	V	-2.93	54.28	74	-19.72
2389.94	43.98	AV	V	-2.93	41.05	54	-12.95
4824.00	47.37	PK	H	2.45	49.82	74	-24.18
4824.00	33.11	AV	H	2.45	35.56	54	-18.44
4824.00	47.23	PK	V	2.45	49.68	74	-24.32
4824.00	32.94	AV	V	2.45	35.39	54	-18.61
Middle Channel 2437MHz							
4874.00	47.04	PK	H	2.56	49.60	74	-24.40
4874.00	32.67	AV	H	2.56	35.23	54	-18.77
4874.00	46.83	PK	V	2.56	49.39	74	-24.61
4874.00	32.51	AV	V	2.56	35.07	54	-18.93
High Channel 2462MHz							
2483.54	58.68	PK	H	-3.17	55.51	74	-18.49
2483.54	45.15	AV	H	-3.17	41.98	54	-12.02
2483.72	57.49	PK	V	-3.17	54.32	74	-19.68
2483.72	44.57	AV	V	-3.17	41.40	54	-12.60
4924.00	47.15	PK	H	2.63	49.78	74	-24.22
4924.00	32.88	AV	H	2.63	35.51	54	-18.49
4924.00	46.86	PK	V	2.63	49.49	74	-24.51
4924.00	32.60	AV	V	2.63	35.23	54	-18.77

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11n20							
Low Channel 2412MHz							
2389.71	59.61	PK	H	-2.93	56.68	74	-17.32
2389.71	44.16	AV	H	-2.93	41.23	54	-12.77
2389.48	58.35	PK	V	-2.93	55.42	74	-18.58
2389.48	43.54	AV	V	-2.93	40.61	54	-13.39
4824.00	47.57	PK	H	2.45	50.02	74	-23.98
4824.00	33.11	AV	H	2.45	35.56	54	-18.44
4824.00	47.32	PK	V	2.45	49.77	74	-24.23
4824.00	32.89	AV	V	2.45	35.34	54	-18.66
Middle Channel 2437MHz							
4874.00	47.18	PK	H	2.56	49.74	74	-24.26
4874.00	32.59	AV	H	2.56	35.15	54	-18.85
4874.00	46.95	PK	V	2.56	49.51	74	-24.49
4874.00	32.44	AV	V	2.56	35.00	54	-19.00
High Channel 2462MHz							
2483.63	59.98	PK	H	-3.17	56.81	74	-17.19
2483.63	44.65	AV	H	-3.17	41.48	54	-12.52
2483.80	58.52	PK	V	-3.17	55.35	74	-18.65
2483.80	44.04	AV	V	-3.17	40.87	54	-13.13
4924.00	47.25	PK	H	2.63	49.88	74	-24.12
4924.00	32.78	AV	H	2.63	35.41	54	-18.59
4924.00	47.01	PK	V	2.63	49.64	74	-24.36
4924.00	32.62	AV	V	2.63	35.25	54	-18.75

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax20							
Low Channel 2412MHz							
2389.48	60.07	PK	H	-2.93	57.14	74	-16.86
2389.48	44.61	AV	H	-2.93	41.68	54	-12.32
2389.94	58.58	PK	V	-2.93	55.65	74	-18.35
2389.94	43.99	AV	V	-2.93	41.06	54	-12.94
4824.00	47.50	PK	H	2.45	49.95	74	-24.05
4824.00	33.04	AV	H	2.45	35.49	54	-18.51
4824.00	47.28	PK	V	2.45	49.73	74	-24.27
4824.00	32.87	AV	V	2.45	35.32	54	-18.68
Middle Channel 2437MHz							
4874.00	47.25	PK	H	2.56	49.81	74	-24.19
4874.00	32.86	AV	H	2.56	35.42	54	-18.58
4874.00	47.07	PK	V	2.56	49.63	74	-24.37
4874.00	32.68	AV	V	2.56	35.24	54	-18.76
High Channel 2462MHz							
2483.60	61.49	PK	H	-3.17	58.32	74	-15.68
2483.60	46.58	AV	H	-3.17	43.41	54	-10.59
2483.53	59.95	PK	V	-3.17	56.78	74	-17.22
2483.53	45.87	AV	V	-3.17	42.70	54	-11.30
4924.00	47.46	PK	H	2.63	50.09	74	-23.91
4924.00	32.79	AV	H	2.63	35.42	54	-18.58
4924.00	47.31	PK	V	2.63	49.94	74	-24.06
4924.00	32.67	AV	V	2.63	35.30	54	-18.70

For Module YL43456

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11b							
Low Channel 2412MHz							
2389.94	62.76	PK	H	-2.93	59.83	74	-14.17
2389.94	53.65	AV	H	-2.93	50.72	54	-3.28
2388.51	60.55	PK	V	-2.93	57.62	74	-16.38
2388.51	51.46	AV	V	-2.93	48.53	54	-5.47
4824.00	49.10	PK	H	2.45	51.55	74	-22.45
4824.00	43.08	AV	H	2.45	45.53	54	-8.47
4824.00	49.27	PK	V	2.45	51.72	74	-22.28
4824.00	43.69	AV	V	2.45	46.14	54	-7.86
Middle Channel 2437MHz							
4874.00	50.46	PK	H	2.56	53.02	74	-20.98
4874.00	44.71	AV	H	2.56	47.27	54	-6.73
4874.00	50.92	PK	V	2.56	53.48	74	-20.52
4874.00	44.56	AV	V	2.56	47.12	54	-6.88
High Channel 2462MHz							
2483.70	62.94	PK	H	-3.17	59.77	74	-14.23
2483.70	53.99	AV	H	-3.17	50.82	54	-3.18
2484.14	58.21	PK	V	-3.17	55.04	74	-18.96
2484.14	50.54	AV	V	-3.17	47.37	54	-6.63
4924.00	51.21	PK	H	2.63	53.84	74	-20.16
4924.00	46.22	AV	H	2.63	48.85	54	-5.15
4924.00	51.58	PK	V	2.63	54.21	74	-19.79
4924.00	46.70	AV	V	2.63	49.33	54	-4.67

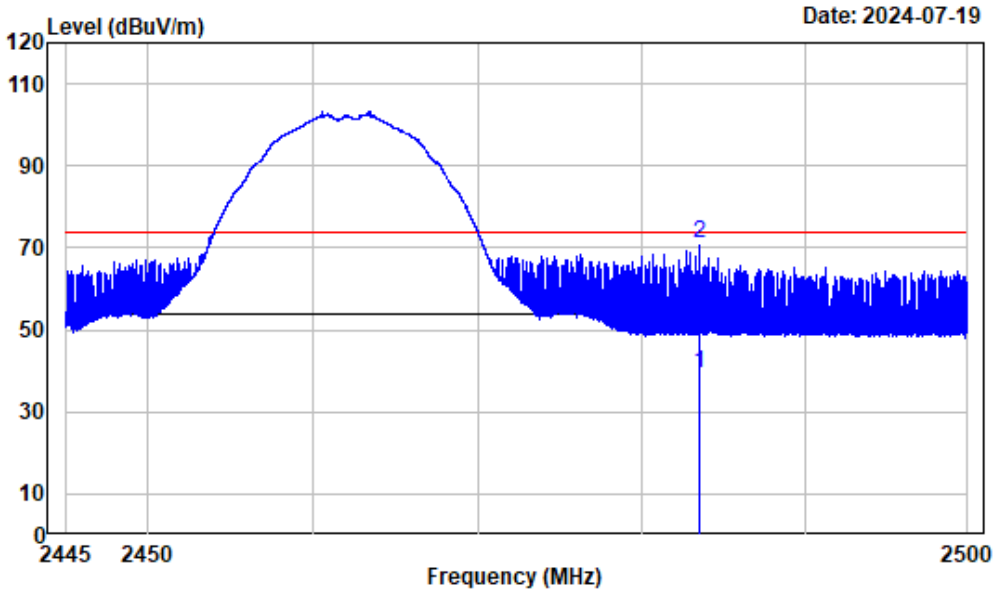
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11g							
Low Channel 2412MHz							
2389.83	69.48	PK	H	-2.93	66.55	74	-7.45
2389.83	50.34	AV	H	-2.93	47.41	54	-6.59
2388.61	67.55	PK	V	-2.93	64.62	74	-9.38
2388.61	48.25	AV	V	-2.93	45.32	54	-8.68
4824.00	46.22	PK	H	2.45	48.67	74	-25.33
4824.00	32.83	AV	H	2.45	35.28	54	-18.72
4824.00	46.16	PK	V	2.45	48.61	74	-25.39
4824.00	32.86	AV	V	2.45	35.31	54	-18.69
Middle Channel 2437MHz							
4874.00	46.66	PK	H	2.56	49.22	74	-24.78
4874.00	33.20	AV	H	2.56	35.76	54	-18.24
4874.00	46.98	PK	V	2.56	49.54	74	-24.46
4874.00	33.72	AV	V	2.56	36.28	54	-17.72
High Channel 2462MHz							
2483.56	69.38	PK	H	-3.10	66.28	74	-7.72
2483.56	48.53	AV	H	-3.10	45.43	54	-8.57
2484.52	68.24	PK	V	-3.10	65.14	74	-8.86
2484.52	47.15	AV	V	-3.10	44.05	54	-9.95
4924.00	47.82	PK	H	2.63	50.45	74	-23.55
4924.00	34.05	AV	H	2.63	36.68	54	-17.32
4924.00	47.24	PK	V	2.63	49.87	74	-24.13
4924.00	33.28	AV	V	2.63	35.91	54	-18.09

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11n20							
Low Channel 2412MHz							
2389.71	72.22	PK	H	-2.93	69.29	74	-4.71
2389.71	51.21	AV	H	-2.93	48.28	54	-5.72
2388.48	70.66	PK	V	-2.93	67.73	74	-6.27
2388.48	49.35	AV	V	-2.93	46.42	54	-7.58
4824.00	46.21	PK	H	2.45	48.66	74	-25.34
4824.00	32.82	AV	H	2.45	35.27	54	-18.73
4824.00	46.49	PK	V	2.45	48.94	74	-25.06
4824.00	32.90	AV	V	2.45	35.35	54	-18.65
Middle Channel 2437MHz							
4874.00	46.65	PK	H	2.56	49.21	74	-24.79
4874.00	33.18	AV	H	2.56	35.74	54	-18.26
4874.00	46.81	PK	V	2.56	49.37	74	-24.63
4874.00	33.38	AV	V	2.56	35.94	54	-18.06
High Channel 2462MHz							
2483.92	73.17	PK	H	-3.10	70.07	74	-3.93
2483.92	48.93	AV	H	-3.10	45.83	54	-8.17
2484.06	70.55	PK	V	-3.10	67.45	74	-6.55
2484.06	45.81	AV	V	-3.10	42.71	54	-11.29
4924.00	47.72	PK	H	2.63	50.35	74	-23.65
4924.00	34.15	AV	H	2.63	36.78	54	-17.22
4924.00	47.90	PK	V	2.63	50.53	74	-23.47
4924.00	34.17	AV	V	2.63	36.80	54	-17.20

Note:
Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Factor + Reading
Margin = Corrected. Amplitude - Limit
The other spurious emission which is in the noise floor level was not recorded.

For Module YL43752
Test plots for Band Edge Measurements (Radiated):

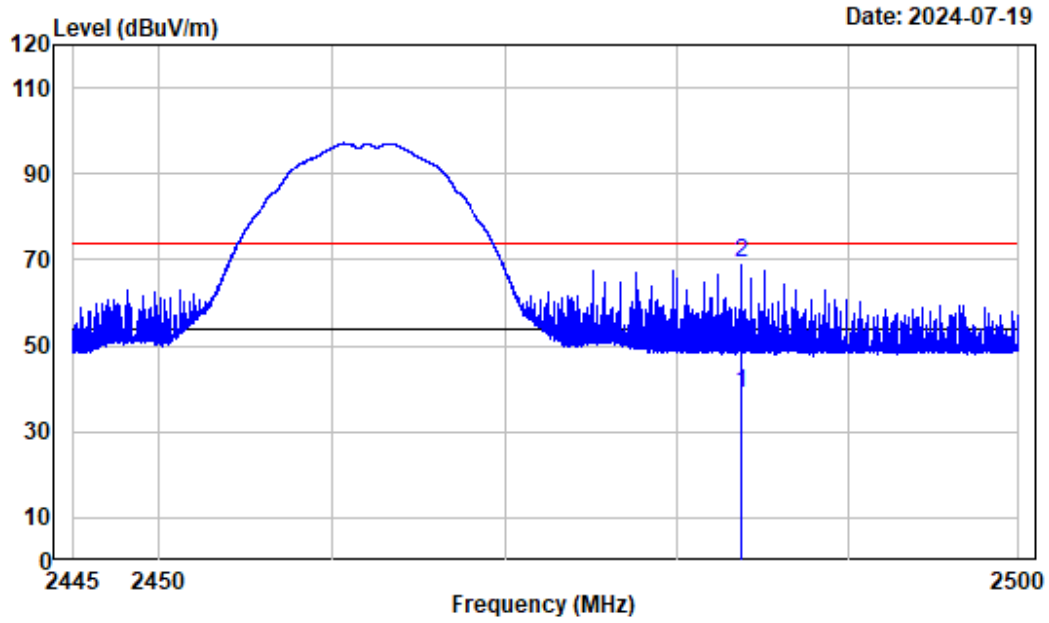
802.11b(ANT1)			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401T34440E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-ant1-b-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.560	-3.17	42.38	39.21	54.00	-14.79	Average
2	2483.560	-3.17	74.17	71.00	74.00	-3.00	Peak

802.11b(ANT1)			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical**

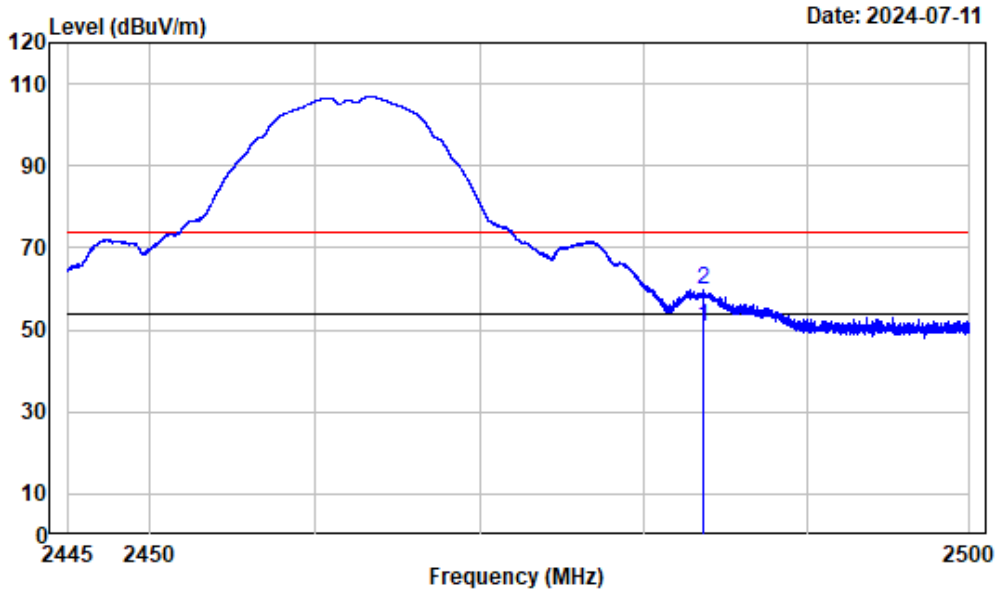


Condition : Vertical
Project No.: 2401T34440E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-ant1-b-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.750	-3.17	41.89	38.72	54.00	-15.28	Average
2	2483.750	-3.17	72.64	69.47	74.00	-4.53	Peak

For Module YL43456
Test plots for Band Edge Measurements (Radiated):

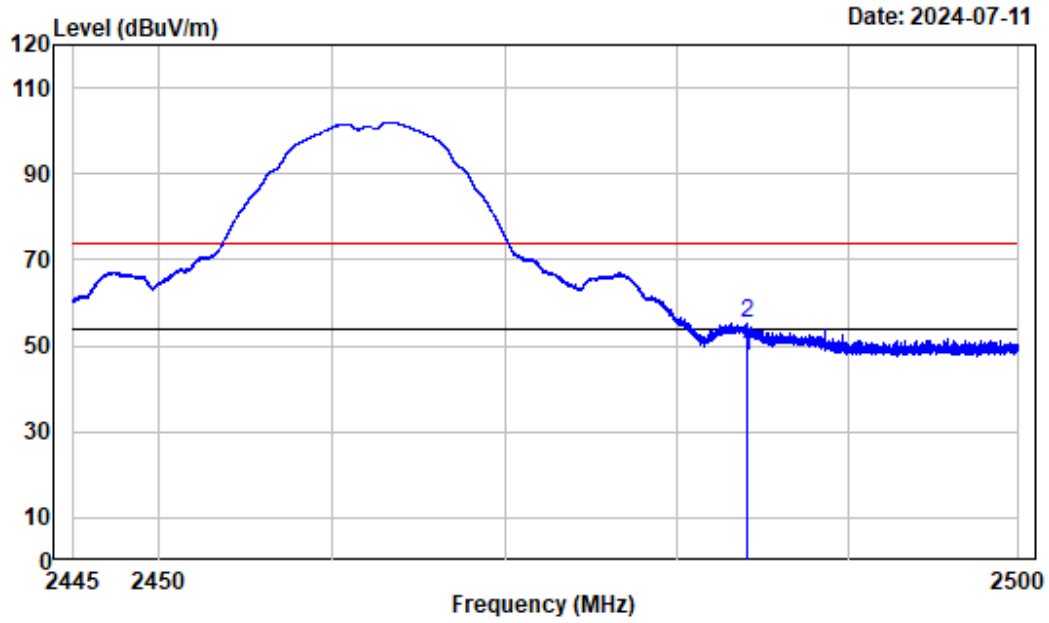
802.11b			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401T34440E-RF
Tester : Dylan
Note : 802.11B_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.699	-3.17	53.99	50.82	54.00	-3.18	Average
2	2483.699	-3.17	62.94	59.77	74.00	-14.23	peak

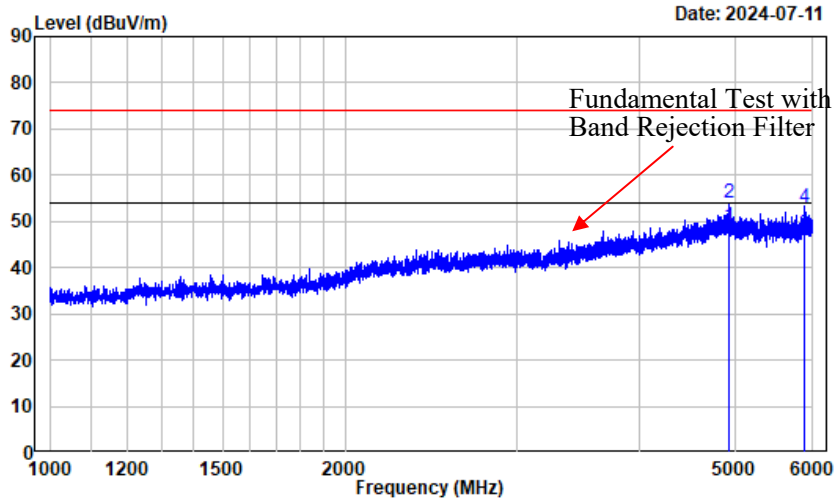
802.11b			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401T34440E-RF
Tester : Dylan
Note : 802.11B_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2484.139	-3.17	50.54	47.37	54.00	-6.63	Average
2	2484.139	-3.17	58.21	55.04	74.00	-18.96	peak

Test plots for Harmonic and Emissions Measurements:

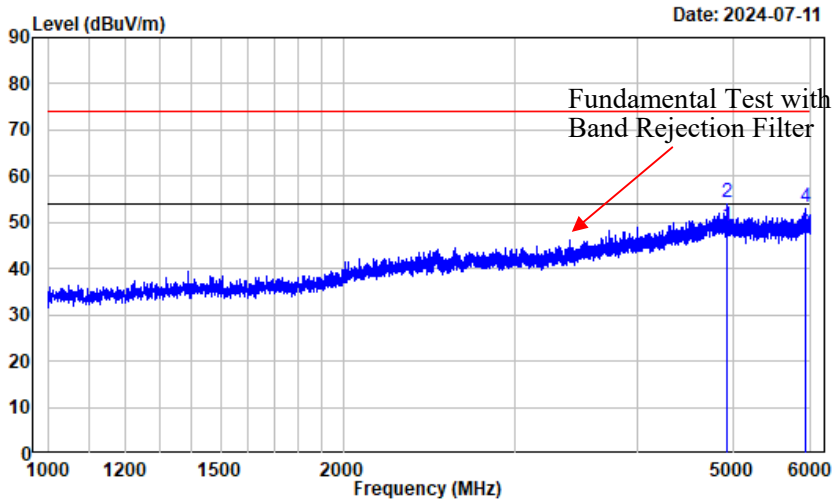
Horizontal	
1-6GHz	


```
Condition   : Horizontal
Project No.: 2401T34440E-RF
Tester      : Dylan Yang
Note        : 2.4GWiFi-b-2462
```

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	46.22	48.85	54.00	-5.15	Average
2	4924.000	2.63	51.21	53.84	74.00	-20.16	Peak
3	5891.875	3.83	43.52	47.35	54.00	-6.65	Average
4	5891.875	3.83	49.21	53.04	74.00	-20.96	Peak

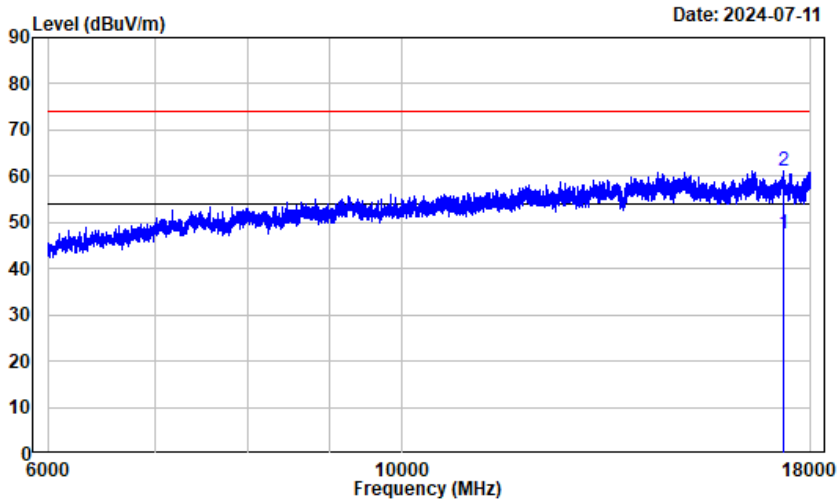
Vertical

1-6GHz



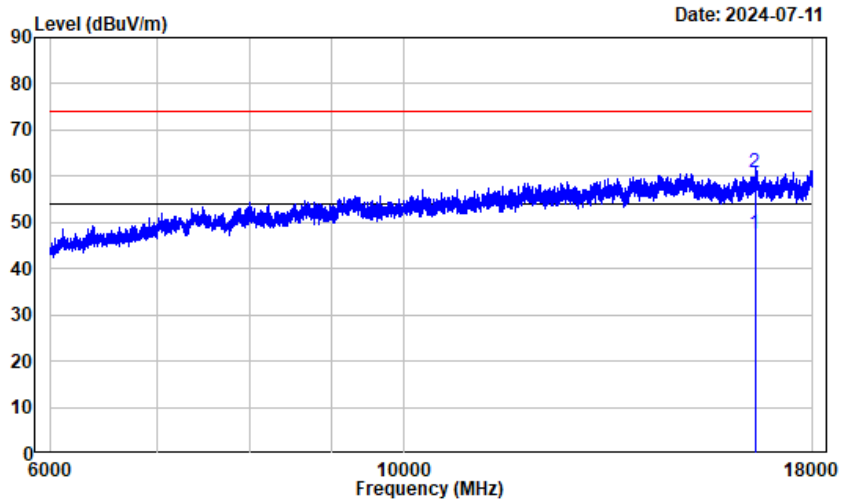
Condition : Vertical
Project No.: 2401T34440E-RF
Tester : Dylan Yang
Note : 2.4GWiFi-b-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	46.70	49.33	54.00	-4.67	Average
2	4924.000	2.63	51.58	54.21	74.00	-19.79	Peak
3	5935.625	3.77	43.69	47.46	54.00	-6.54	Average
4	5935.625	3.77	49.54	53.31	74.00	-20.69	Peak

Horizontal	
6-18GHz	 Condition : Horizontal Project No.: 2401T34440E-RF Tester : Dylan Yang Note : 2.4GWiFi-b-2462 Freq / Factor / Read Level / Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 17298.000 19.33 28.36 47.69 54.00 -6.31 Average 2 17298.000 19.33 41.97 61.30 74.00 -12.70 Peak

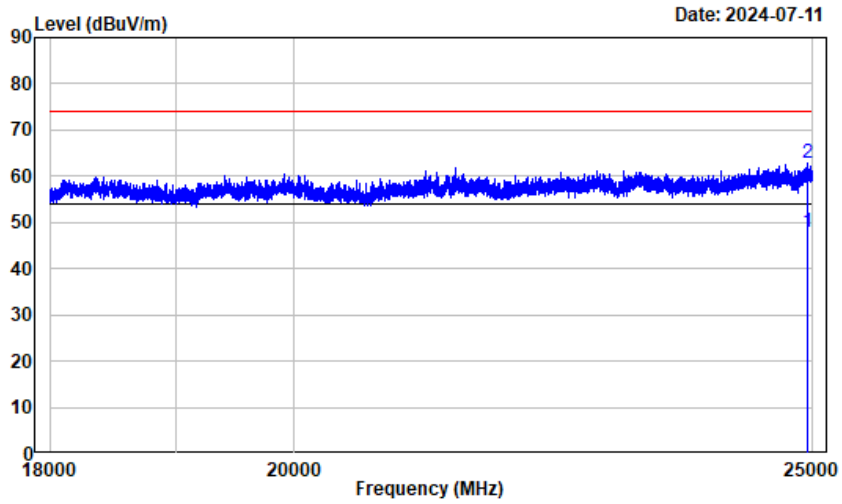
Vertical

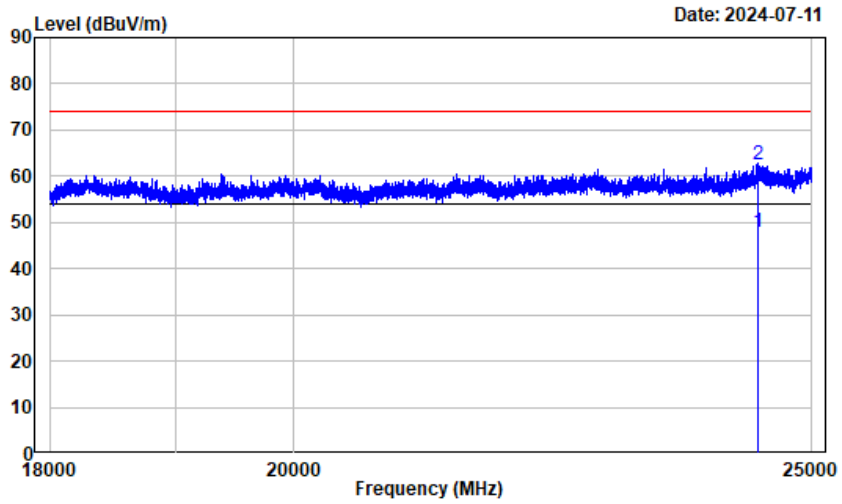
6-18GHz



Condition : Vertical
Project No.: 2401T34440E-RF
Tester : Dylan Yang
Note : 2.4GWiFi-b-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	16563.000	15.90	31.67	47.57	54.00	-6.43	Average
2	16563.000	15.90	44.88	60.78	74.00	-13.22	Peak

Horizontal	
18-25GHz	 Condition : Horizontal Project No.: 2401T34440E-RF Tester : Dylan Yang Note : 2.4GWiFi-b-2462 Freq / Factor / Read Level / Level / Limit Line / Over Limit / Remark 1 24942.250 18.44 29.48 47.92 54.00 -6.08 Average 2 24942.250 18.44 44.36 62.80 74.00 -11.20 Peak

Vertical	
18-25GHz	 Condition : Vertical Project No.: 2401T34440E-RF Tester : Dylan Yang Note : 2.4GWiFi-b-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	24426.000	18.82	28.99	47.81	54.00	-6.19	Average
2	24426.000	18.82	43.75	62.57	74.00	-11.43	Peak

EUT PHOTOGRAPHS

Please refer to the attachment 2401T34440E-RF External photo and 2401T34440E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401T34440E-RFA Test Setup photo.

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