TEST REPORT

Applicant Name:	Grandstream Networks, Inc.
Address:	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA
Report Number:	2401U56759E-RF-00B
FCC ID:	YZZWP856

Test Standard (s)

FCC PART 15.407

Sample Description

Product Type:	Wi-Fi Smartphone
Model No.:	WP856
Multiple Model(s) No.:	N/A
Trade Mark:	GRANDSTREAM
Date Received:	2024/06/18
Issue Date:	2024/09/14

Test Result:	Pass▲

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

Prepared and Checked By:

Jojo Guo
RF Engineer

Approved By:

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.

This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "▼".

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401U56759E-RF-00B	Original Report	2024/09/14

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Wi-Fi Smartphone
Tested Model	WP856
Multiple Model(s)	N/A
Frequency Range	5G Wi-Fi: 5150-5250MHz;5250-5350MHz;5470-5725MHz;5725-5850MHz; 5850~5895MHz
Mode	802.11a/n20/n40/ac20/ac40/ac80/ac160/ax20/ax40/ax80/ax160
Maximum Conducted Average Output Power	5150-5250MHz: 20.65dBm 5250-5350MHz: 20.13dBm 5470-5725MHz: 19.89dBm 5725-5850MHz: 19.37dBm 5850-5895MHz: 20.01dBm
Modulation Technique	OFDM, OFDMA
TPC Function	N/A
Beam-Forming	N/A
Antenna Specification#	B1:-0.36dBi; B2: -0.36dBi; B3:- 0.37dBi; B4:-1.21dBi; B5:-1.63dBi (It is provided by the applicant)
Voltage Range	DC 3.85V from battery or DC 5V/9V from adapter
Sample serial number	2N44-3 for Conducted and Radiated Emissions 2N44-2 for RF Conducted Test (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	Model: QC18W-G Input: AC 100-240V, 50/60Hz, 0.5A, Max. Output: DC 5V, 3.0A or DC 9V, 2.0A or DC 12V, 1.5A

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB789033 D02 General U-NII Test Procedures New Rules v02r01.

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	9kHz-150kHz	3.94dB(k=2, 95% level of confidence)
	150kHz-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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer.

The device support 802.11a/n20/n40/ac20/ac40/ac80/ac160/ax20/ax40/ax80/ax160 modes.

For 5150-5350MHz Band, 15 channels are provided to test:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	52	5260
38	5190	54	5270
40	5200	56	5280
42	5210	58	5290
44	5220	60	5300
46	5230	62	5310
48	5240	64	5320
50	5250	/	/

5150-5250MHz Band,

For 802.11a/ac/ax20 mode: channel 36, 40, 48 were tested;
For 802.11ac/ax40 mode: channel 38, 46 were tested;
For 802.11ac/ax80 mode: channel 42 was tested.

5250-5350MHz Band,

For 802.11a/ac/ax20 mode: channel 52, 56, 64 were tested;
For 802.11ac/ax40 mode: channel 54, 62 were tested;
For 802.11ac/ax80 mode: channel 58 was tested.

Cross Channel, 802.11ac/ax160, channel 50 was tested

For 5470-5725MHz Band, 22 channels are provided to testing:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
100	5500	122	5610
102	5510	124	5620
104	5520	126	5630
106	5530	128	5640
108	5540	132	5660
110	5550	134	5670
112	5560	136	5680
114	5570	138	5690
116	5580	140	5700
118	5590	142	5710
120	5600	144	5720

For 802.11a/ac20/ax20 mode: channel 100, 116, 140, 144 were tested;
For 802.11ac40/ax40 mode: channel 102, 110, 134, 142 were tested;
For 802.11ac80/ax80 mode, channel 106, 122, 138 was tested.
For 802.11ac160/ax160 mode, channel 114 was tested.

For 5725-5850MHz Band, 8 channels are provided to testing:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
149	5745	157	5785
151	5755	159	5795
153	5765	161	5805
155	5775	165	5825

For 802.11a/ac20/ax20 mode: channel 149, 157, 165 were tested;
For 802.11ac40/ax40 mode: channel 151, 159 were tested;
For 802.11ac80/ax80 mode, channel 155 was tested.

For 5850-5895MHz band, 5725-5850MHz & 5850-5895MHz bands span channels: 7 channels are provided to testing:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
163	5815	173	5865
167	5835	175	5875
169	5845	177	5885
171	5855	/	/

For 802.11a/ac20/ax20 mode: channel 169, 173, 177 were tested;
For 802.11ac40/ax40 mode: channel 167, 175 were tested;
For 802.11ac80/ax80 mode, channel 171 was tested
For 802.11ac160/ax160 mode, channel 163 was tested.

EUT Exercise Software

"CMD#" exercise software was used. The software and power level was provided by the applicant. The device was tested with the worst case was performed as below:

5150-5250 MHz Band:				
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting#**
802.11a	Lowest	5180	6Mbps	16
	Middle	5200	6Mbps	17
	Highest	5240	6Mbps	17
802.11ac-VHT20	Lowest	5180	MCS0	18
	Middle	5200	MCS0	18
	Highest	5240	MCS0	18
802.11ac-VHT40	Lowest	5190	MCS0	15
	Highest	5230	MCS0	18
802.11ac-VHT80	Middle	5210	MCS0	14
802.11ac-VHT160	Middle	5250	MCS0	14
802.11ax-HE20	Lowest	5180	MCS0	18
	Middle	5200	MCS0	18
	Highest	5240	MCS0	18
802.11ax-HE40	Lowest	5190	MCS0	15
	Highest	5230	MCS0	19
802.11ax-HE80	Middle	5210	MCS0	14
802.11ax-HE160	Middle	5250	MCS0	14
5250-5350 MHz Band:				
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting#**
802.11a	Lowest	5260	6Mbps	16
	Middle	5280	6Mbps	17
	Highest	5320	6Mbps	16
802.11ac-VHT20	Lowest	5260	MCS0	18
	Middle	5280	MCS0	18
	Highest	5320	MCS0	18
802.11ac-VHT40	Lowest	5270	MCS0	17
	Highest	5310	MCS0	14
802.11ac-VHT80	Middle	5290	MCS0	13
802.11ax-HE20	Lowest	5260	MCS0	18
	Middle	5280	MCS0	18
	Highest	5320	MCS0	17
802.11ax-HE40	Lowest	5270	MCS0	18
	Highest	5310	MCS0	14
802.11ax-HE80	Middle	5290	MCS0	13

5470-5725MHz Band:				
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting#**
802.11a	Lowest	5500	6Mbps	14
	Middle	5580	6Mbps	17
	Highest	5700	6Mbps	14
	Cross	5720	6Mbps	17
802.11ac-VHT20	Lowest	5500	MCS0	15
	Middle	5580	MCS0	18
	Highest	5700	MCS0	15
	Cross	5720	MCS0	18
802.11ac-VHT40	Lowest	5510	MCS0	12
	Middle	5550	MCS0	17
	Highest	5670	MCS0	17
	Cross	5710	MCS0	18
802.11ac-VHT80	Lowest	5530	MCS0	12
	Highest	5610	MCS0	17
	Cross	5690	MCS0	18
802.11ac-VHT160	Middle	5570	MCS0	12
802.11ax-HE20	Lowest	5500	MCS0	15
	Middle	5580	MCS0	18
	Highest	5700	MCS0	14
	Cross	5720	MCS0	18
802.11ax-HE40	Lowest	5510	MCS0	12
	Middle	5550	MCS0	18
	Highest	5670	MCS0	16
	Cross	5710	MCS0	18
802.11ax-HE80	Lowest	5530	MCS0	12
	Highest	5610	MCS0	16
	Cross	5690	MCS0	18
802.11ax-HE160	Middle	5570	MCS0	12

5725-5850 MHz Band:				
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting#**
802.11a	Lowest	5745	6Mbps	15
	Middle	5785	6Mbps	15
	Highest	5825	6Mbps	14
802.11ac-VHT20	Lowest	5745	MCS0	16
	Middle	5785	MCS0	16
	Highest	5825	MCS0	16
802.11ac-VHT40	Lowest	5755	MCS0	16
	Highest	5795	MCS0	16
802.11ac-VHT80	Middle	5775	MCS0	17
802.11ax-HE20	Lowest	5745	MCS0	17
	Middle	5785	MCS0	16
	Highest	5825	MCS0	16
802.11ax-HE40	Lowest	5755	MCS0	17
	Highest	5795	MCS0	16
802.11ax-HE80	Middle	5775	MCS0	17
5850-5895MHz Band, 5725-5850MHz & 5850-5895MHz Bands span channels:				
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting#**
802.11a	Lowest	5845	6Mbps	16
	Middle	5865	6Mbps	17
	Highest	5885	6Mbps	16
802.11ac-VHT20	Lowest	5845	MCS0	18
	Middle	5865	MCS0	18
	Highest	5885	MCS0	18
802.11ac-VHT40	Lowest	5835	MCS0	18
	Highest	5875	MCS0	18
802.11ac-VHT80	Middle	5855	MCS0	19
802.11ac-VHT160	Middle	5815	MCS0	19
802.11ax-HE20	Lowest	5845	MCS0	17
	Middle	5865	MCS0	18
	Highest	5885	MCS0	18
802.11ax-HE40	Lowest	5835	MCS0	18
	Highest	5875	MCS0	18
802.11ax-HE80	Middle	5855	MCS0	19
802.11ax-HE160	Middle	5815	MCS0	18

Note:
1. The worst-case data rates are determined to be as follows for each mode based upon inverstigation by measuring the average power, power and PSD across all data rates bandwidths, and modulations.
2. The n20/n40 mode was reduced test as identical parameter with ac20/ac40 mode.
3. For 802.11ax modes, the device not support partial RU mode.

Duty cycle

Please refer to the Appendix.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

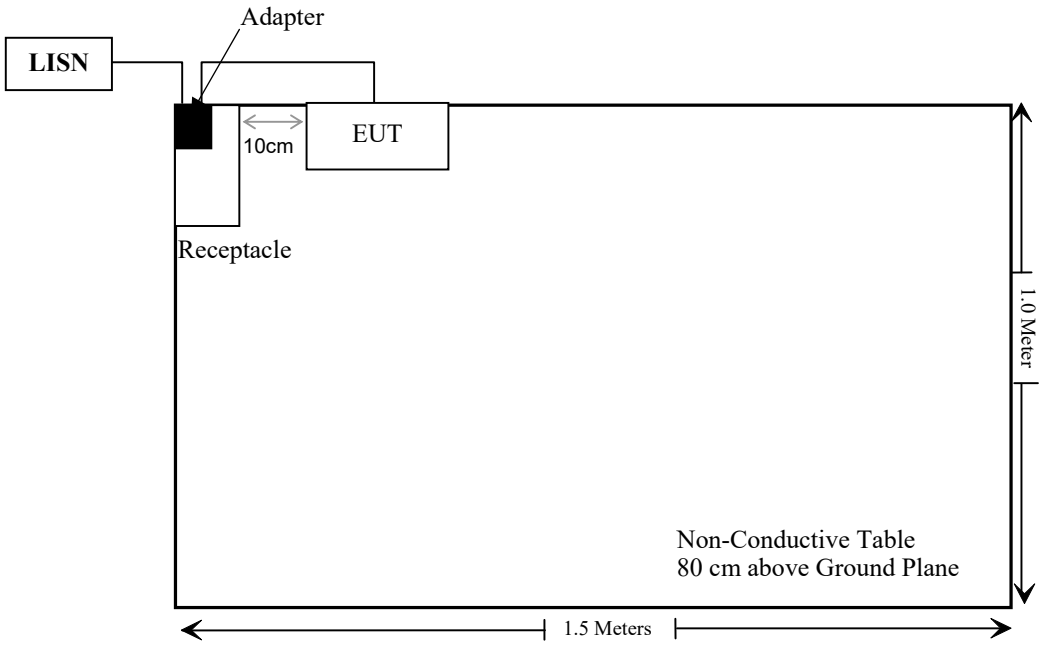
Manufacturer	Description	Model	Serial Number
Bull	Receptacle	Unknown	Unknown

External I/O Cable

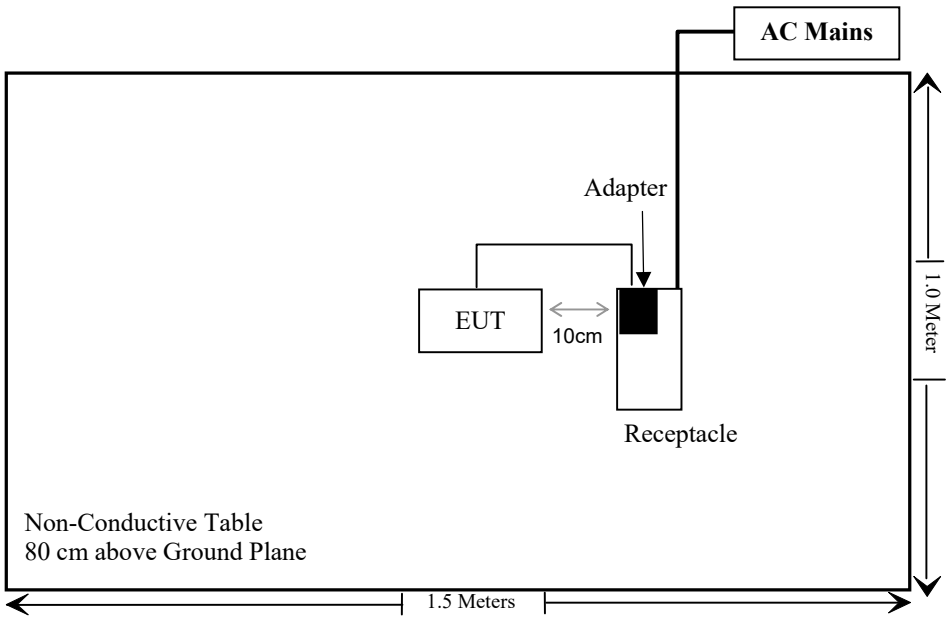
Cable Description	Length (m)	From Port	To
Un-shielding Detachable USB Cable	1.0	EUT	Adapter
Un-shielding Un-Detachable AC Cable	1.5	Receptacle	LISN/AC Mains

Block Diagram of Test Setup

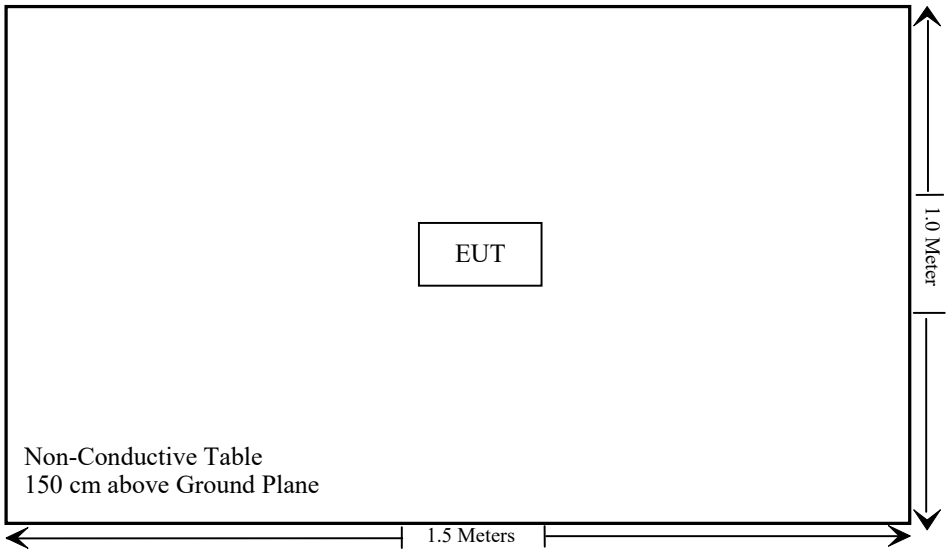
For conducted emission:



For radiated emission (Below 1GHz):



For radiated emission (Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) (1) & §2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.407(b)(9)& §15.207(a)	Conducted Emissions	Compliant
§15.205& §15.209 &§15.407(b)	Undesirable Emission& Restricted Bands	Compliant
§15.407(a) (e)	26 dB Emission Bandwidth & 6dB Bandwidth	Compliant
§15.407(a)	Conducted Transmitter Output Power	Compliant
§15.407 (a)	Power Spectral Density	Compliant
§15.407 (h)	Transmit Power Control (TPC)	Not Applicable
§15.407 (h)	Dynamic Frequency Selection (DFS)	Compliant*

Compliant*: Please refer to the DFS report 2401U56759E-RFD.
Not Applicable: For 5250-5350MHz/5470-5725MHz, the maximum EIRP is 19.77dBm≤27dBm (500mW)

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
Unknown	Cable	2Y194	0735	2024/05/21	2025/05/20
Unknown	Cable	PNG214	1354	2024/05/21	2025/05/20
Audix	EMI Test software	E3	19821b(V9)	NCR	NCR
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
Schwarzbeck	Horn Antenna	BBHA9120D (1201)	1143	2023/07/26	2026/07/25
Unknown	RF Cable	KMSE	735	2024/06/18	2025/06/17
Unknown	RF Cable	UFA147	219661	2024/06/18	2025/06/17
SNSD	2.4G Band Reject filter	BSF2402-2480MN-0898-001	2.4G filter	2024/06/27	2025/06/26
A.H.System	Pre-amplifier	PAM-1840VH	190	2024/06/18	2025/06/17
Electro-Mechanics Co	Horn Antenna	3116	2026	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2023/08/03	2024/08/02
Audix	EMI Test software	E3	191218(V9)	NCR	NCR

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Tonscend	RF control Unit	JS0806-2	19D8060154	2023/09/06	2024/09/05
ANRITSU	Microwave peak power sensor	MA24418A	12622	2024/05/21	2025/05/20
Rohde & Schwarz	Spectrum Analyzer	FSV40	101473	2024/01/16	2025/01/15
Narda	20dB Attenuator	99899	0107	2024/06/27	2025/06/26
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200982	2023/12/18	2024/12/17
MARCONI	10dB Attenuator	6534/3	2942	2024/06/27	2025/06/26

*** 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 §1.1307 (b) (1) &§2.1093 - RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Result: Compliant.

Please refer to SAR Report Number: 2401U56759E-SAA.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to 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.

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.

Antenna Connector Construction

The EUT has one internal antenna which was permanently attached, and the maximum antenna gain# as below table, fulfill the requirement of this section. Please refer to the EUT photos.

Frequency Range	Antenna Type	Antenna Gain#	Impedance
5150-5250MHz	FPC	-0.36dBi	50Ω
5250-5350 MHz	FPC	-0.36dBi	50Ω
5470-5725 MHz	FPC	-0.37dBi	50Ω
5725-5850 MHz	FPC	-1.21dBi	50Ω
5850-5895MHz	FPC	-1.63dBi	50Ω

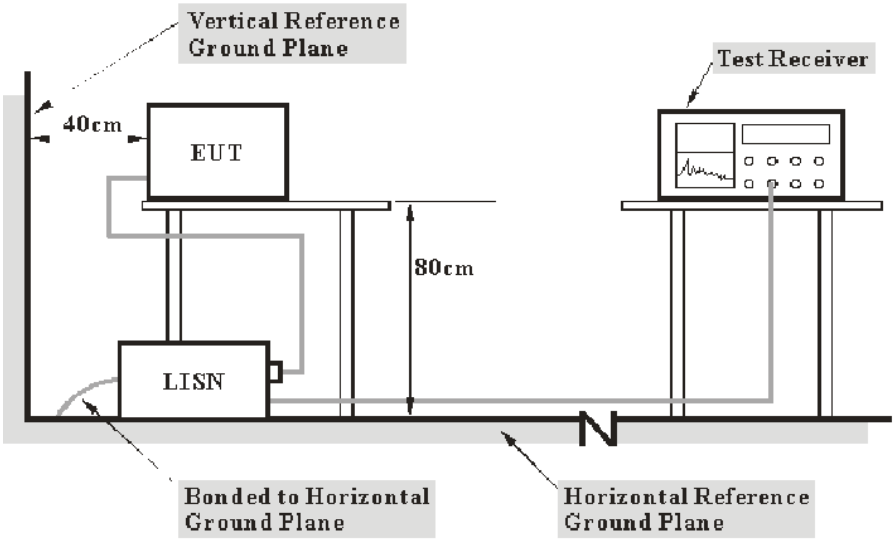
Result: Compliant

FCC §15.407 (b) (6) §15.207 (a) - CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207, §15.407(b) (6)

EUT Setup



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

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

The spacing between the peripherals was 10 cm.

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

During the conducted emission test, the adapter was connected to the LISN.

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

All 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

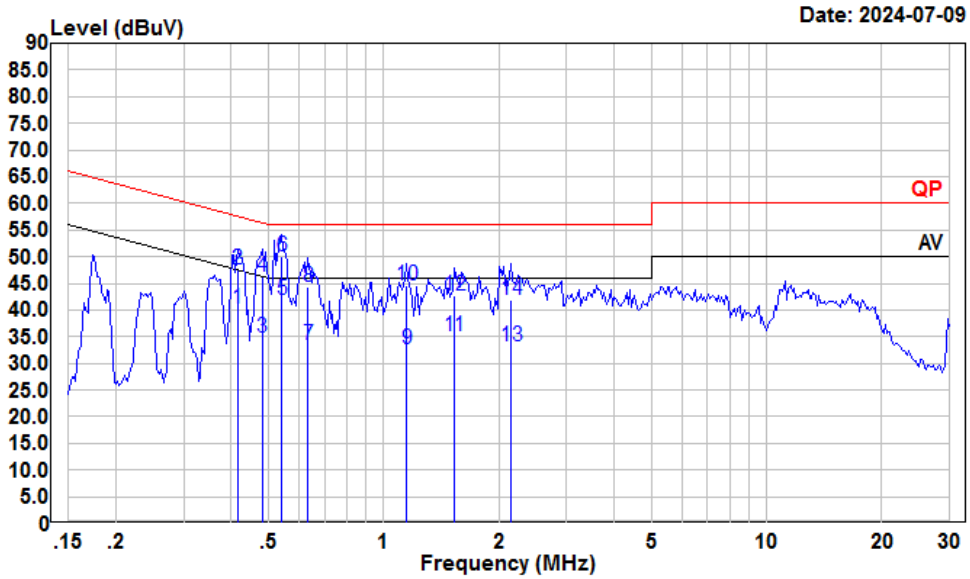
Environmental Conditions

Temperature:	26 °C
Relative Humidity:	64%
ATM Pressure:	101 kPa

The testing was performed by Macy Shi on 2024-07-09.

EUT operation mode: Transmitting (Maximum output power mode, 802.11 ax40, 5230MHz)

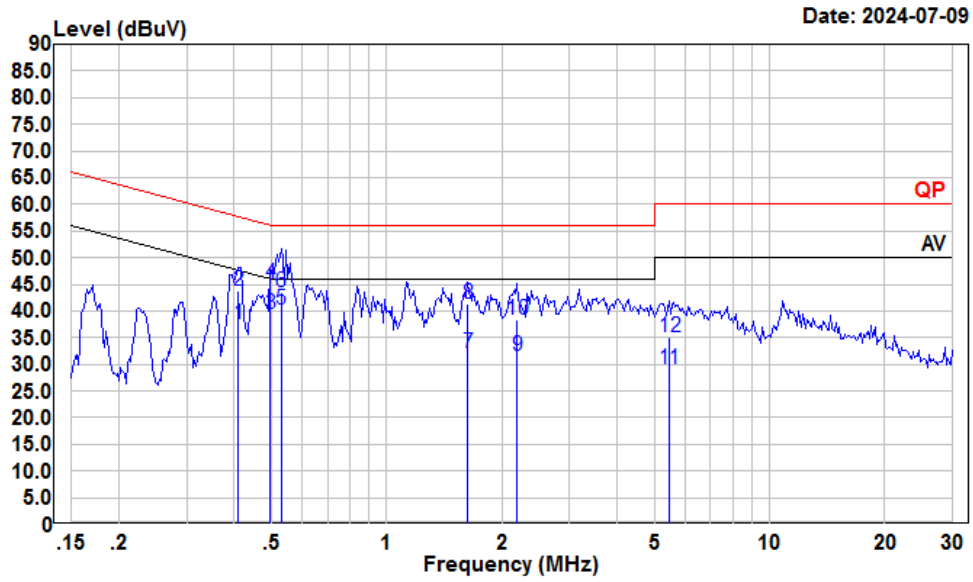
AC 120V/60 Hz, Line



Condition: Line
Project : 2401U56759E-RF
tester : Macy.shi
Note : 5G WIFI

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.41	19.57	40.24	10.56	10.11	47.55	-7.31	Average
2	0.41	27.05	47.72	10.56	10.11	57.55	-9.83	QP
3	0.48	14.21	34.85	10.51	10.13	46.32	-11.47	Average
4	0.48	25.51	46.15	10.51	10.13	56.32	-10.17	QP
5	0.54	21.35	41.98	10.50	10.13	46.00	-4.02	Average
6	0.54	29.42	50.05	10.50	10.13	56.00	-5.95	QP
7	0.63	12.70	33.33	10.50	10.13	46.00	-12.67	Average
8	0.63	23.80	44.43	10.50	10.13	56.00	-11.57	QP
9	1.15	12.00	32.57	10.44	10.13	46.00	-13.43	Average
10	1.15	24.10	44.67	10.44	10.13	56.00	-11.33	QP
11	1.53	14.40	35.08	10.52	10.16	46.00	-10.92	Average
12	1.53	21.90	42.58	10.52	10.16	56.00	-13.42	QP
13	2.14	12.54	33.29	10.57	10.18	46.00	-12.71	Average
14	2.14	21.04	41.79	10.57	10.18	56.00	-14.21	QP

AC 120V/60 Hz, Neutral



Condition: Neutral
Project : 2401U56759E-RF
tester : Macy.shi
Note : 5G WIFI

	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.41	16.80	37.54	10.64	10.10	47.64	-10.10	Average
2	0.41	23.00	43.74	10.64	10.10	57.64	-13.90	QP
3	0.50	18.54	39.38	10.70	10.14	46.05	-6.67	Average
4	0.50	24.28	45.12	10.70	10.14	56.05	-10.93	QP
5	0.53	19.53	40.36	10.70	10.13	46.00	-5.64	Average
6	0.53	22.56	43.39	10.70	10.13	56.00	-12.61	QP
7	1.63	11.30	32.02	10.55	10.17	46.00	-13.98	Average
8	1.63	20.70	41.42	10.55	10.17	56.00	-14.58	QP
9	2.19	11.04	31.62	10.40	10.18	46.00	-14.38	Average
10	2.19	17.80	38.38	10.40	10.18	56.00	-17.62	QP
11	5.45	8.48	29.23	10.57	10.18	50.00	-20.77	Average
12	5.45	14.30	35.05	10.57	10.18	60.00	-24.95	QP

§15.205 & §15.209 & §15.407(B) - UNDESIRABLE EMISSION

Applicable Standard

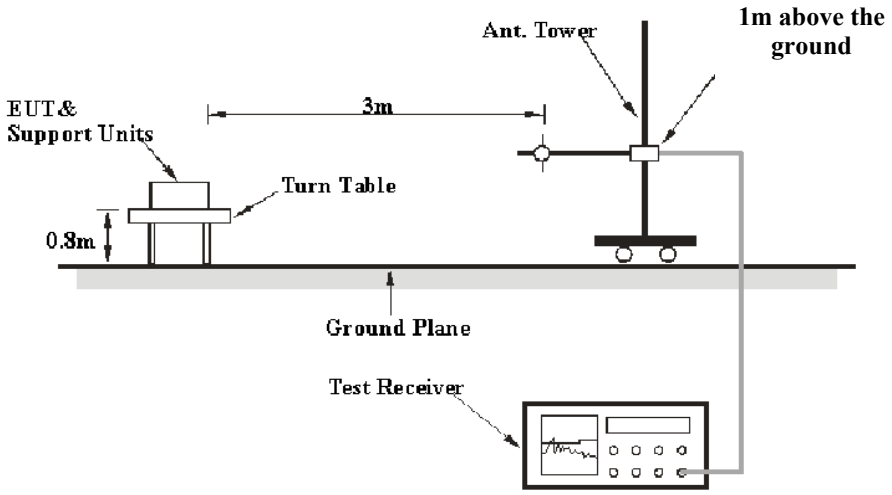
FCC §15.407 (b); §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:
(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
(5) For transmitters operating solely in the 5.850-5.895 GHz band or operating on a channel that spans across 5.725-5.895 GHz:
(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of −7 dBm/MHz at or above 5.925 GHz.
(iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of −27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

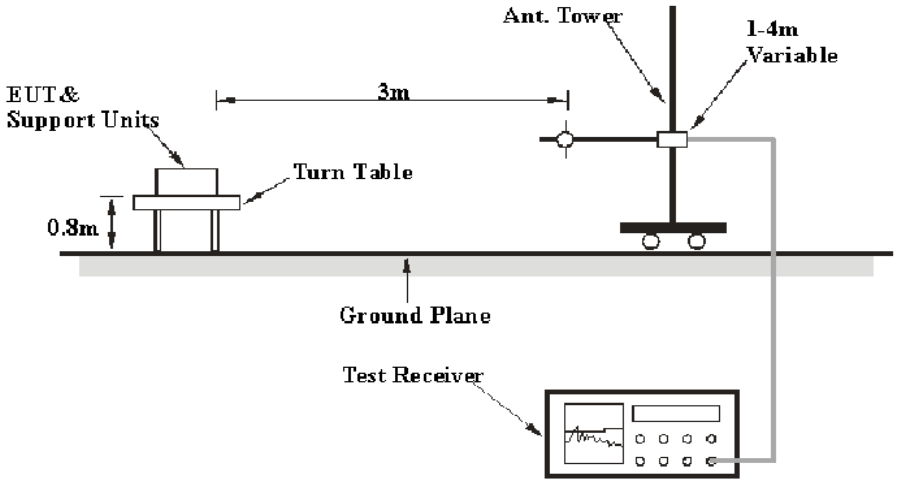
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

EUT Setup

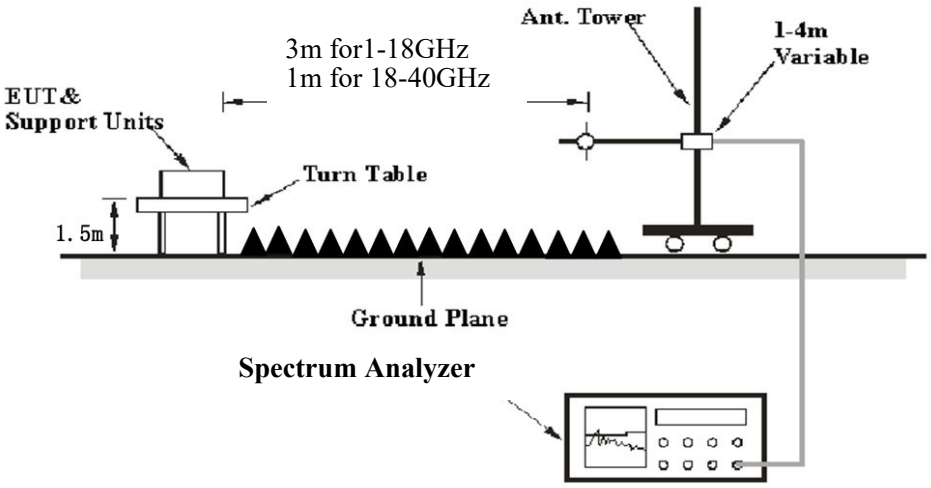
9 kHz-30MHz:



30MHz-1GHz:



Above 1 GHz:



The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 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 40 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

1-40GHz:

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

Radiated Spurious Emission

During the radiated emission test, the adapter was connected to the AC floor outlet.

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

According to ANSI C63.10-2013,9.4: For field strength measurements made at other than the distance at which the applicable limit is specified, extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance). In some cases, a different distance correction factor may be required;

$$E_{\mathrm{SpecLimit}} = E_{\mathrm{Meas}} + 20\log\left(\frac{d_{\mathrm{Meas}}}{d_{\mathrm{SpecLimit}}}\right)$$

where

$E_{\mathrm{SpecLimit}}$	is the field strength of the emission at the distance specified by the limit, in dBμV/m
E_{Meas}	is the field strength of the emission at the measurement distance, in dBμV/m
d_{Meas}	is the measurement distance, in m
$d_{\mathrm{SpecLimit}}$	is the distance specified by the limit, in m

So the extrapolation factor of 1m is 20*log(1/3)= -9.5 dB, for 18-40GHz range, the limit of 1m distance was added by 9.5dB from limit of 3m to compared with the result measurement at 1m distance.

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

Test Data

Environmental Conditions

Temperature:	22~25.5℃
Relative Humidity:	50~54 %
ATM Pressure:	101 kPa

The testing was performed by Anson Su on 2024-07-22 for below 1GHz and Zenos Qiao from 2024-07-23 to 2024-07-24 and Dylan Yang on 2024-07-25 for above 1GHz.

EUT operation mode: Transmitting

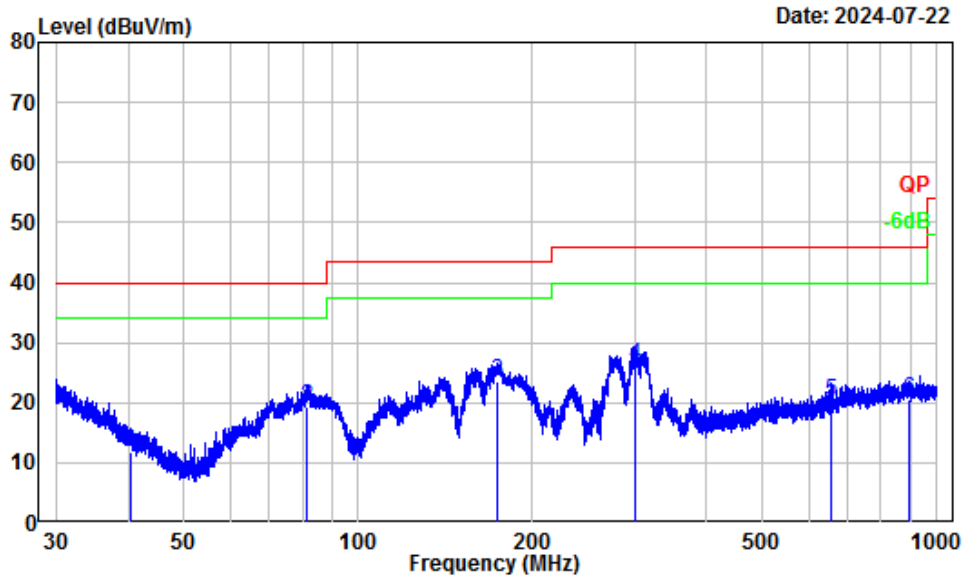
Note: Pre-scan in the X, Y and Z axes of orientation, the worst case Y-axis of orientation was recorded.

9 kHz-30MHz: *(Maximum output power mode, 802.11 ax40, 5230MHz)*

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

30 MHz–1 GHz: *(Maximum output power mode, 802.11 ax40, 5230MHz)*

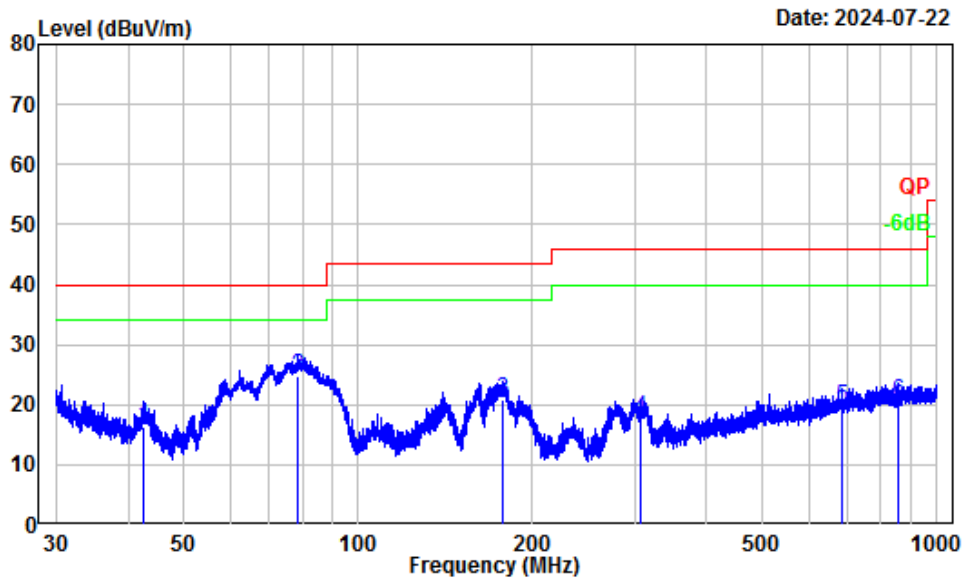
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401U56759E-RF
Test Mode : 5G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.33	-11.73	23.48	11.75	40.00	-28.25	QP
2	81.39	-18.20	37.38	19.18	40.00	-20.82	QP
3	174.35	-14.50	37.97	23.47	43.50	-20.03	QP
4	301.42	-12.75	39.08	26.33	46.00	-19.67	QP
5	655.95	-6.66	27.00	20.34	46.00	-25.66	QP
6	895.03	-4.47	24.90	20.43	46.00	-25.57	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401U56759E-RF
Test Mode : 5G WIFI
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	42.54	-14.46	30.81	16.35	40.00	-23.65	QP
2	78.31	-18.71	43.39	24.68	40.00	-15.32	QP
3	177.82	-15.04	35.81	20.77	43.50	-22.73	QP
4	308.51	-13.02	30.85	17.83	46.00	-28.17	QP
5	687.15	-6.70	26.46	19.76	46.00	-26.24	QP
6	855.90	-5.08	25.55	20.47	46.00	-25.53	QP

Above 1GHz:

5150-5250 MHz:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11a							
5180MHz							
5149.70	67.97	PK	H	2.71	70.68	74	-3.32
5149.70	48.98	AV	H	2.71	51.69	54	-2.31
5149.34	69.23	PK	V	2.71	71.94	74	-2.06
5149.34	49.84	AV	V	2.71	52.55	54	-1.45
10360.00	49.64	PK	H	13.07	62.71	68.2	-5.49
10360.00	50.49	PK	V	13.07	63.56	68.2	-4.64
5200MHz							
10400.00	50.81	PK	H	13.12	63.93	68.2	-4.27
10400.00	51.35	PK	V	13.12	64.47	68.2	-3.73
5240MHz							
5356.24	55.17	PK	H	3.07	58.24	74	-15.76
5356.24	41.32	AV	H	3.07	44.39	54	-9.61
5355.01	55.45	PK	V	3.07	58.52	74	-15.48
5355.01	41.53	AV	V	3.07	44.60	54	-9.40
10480.00	50.99	PK	H	13.07	64.06	68.2	-4.14
10480.00	52.06	PK	V	13.07	65.13	68.2	-3.07
802.11ac-VHT20							
5180MHz							
5149.68	68.72	PK	H	2.71	71.43	74	-2.57
5149.68	47.86	AV	H	2.71	50.57	54	-3.43
5149.46	69.98	PK	V	2.71	72.69	74	-1.31
5149.46	48.65	AV	V	2.71	51.36	54	-2.64
10360.00	49.97	PK	H	13.07	63.04	68.2	-5.16
10360.00	50.82	PK	V	13.07	63.89	68.2	-4.31
5200MHz							
10400.00	50.49	PK	H	13.12	63.61	68.2	-4.59
10400.00	51.28	PK	V	13.12	64.40	68.2	-3.80
5240MHz							
5352.96	55.15	PK	H	3.07	58.22	74	-15.78
5352.96	41.27	AV	H	3.07	44.34	54	-9.66
5353.74	55.39	PK	V	3.07	58.46	74	-15.54
5353.74	41.48	AV	V	3.07	44.55	54	-9.45
10480.00	51.27	PK	H	13.07	64.34	68.2	-3.86
10480.00	52.13	PK	V	13.07	65.20	68.2	-3.00

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT40							
5190MHz							
5149.45	63.87	PK	H	2.71	66.58	74	-7.42
5149.45	47.34	AV	H	2.71	50.05	54	-3.95
5149.72	65.15	PK	V	2.71	67.86	74	-6.14
5149.72	48.09	AV	V	2.71	50.80	54	-3.20
10380.00	45.86	PK	H	13.09	58.95	68.2	-9.25
10380.00	46.57	PK	V	13.09	59.66	68.2	-8.54
5230MHz							
5351.24	60.37	PK	H	3.07	63.44	74	-10.56
5351.24	42.89	AV	H	3.07	45.96	54	-8.04
5351.83	61.58	PK	V	3.07	64.65	74	-9.35
5351.83	43.25	AV	V	3.07	46.32	54	-7.68
10460.00	48.56	PK	H	13.09	61.65	68.2	-6.55
10460.00	49.25	PK	V	13.09	62.34	68.2	-5.86
802.11ac-VHT80							
5149.54	60.26	PK	H	2.71	62.97	74	-11.03
5149.54	49.05	AV	H	2.71	51.76	54	-2.24
5149.39	61.64	PK	V	2.71	64.35	74	-9.65
5149.39	49.88	AV	V	2.71	52.59	54	-1.41
5350.88	55.15	PK	H	3.07	58.22	74	-15.78
5350.88	43.52	AV	H	3.07	46.59	54	-7.41
5351.69	55.41	PK	V	3.07	58.48	74	-15.52
5351.69	43.88	AV	V	3.07	46.95	54	-7.05
10420.00	45.34	PK	H	13.12	58.46	68.2	-9.74
10420.00	45.97	PK	V	13.12	59.09	68.2	-9.11

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT160							
5250MHz							
5144.03	59.78	PK	H	2.71	62.49	74	-11.51
5144.03	49.04	AV	H	2.71	51.75	54	-2.25
5143.81	60.96	PK	V	2.71	63.67	74	-10.33
5143.81	49.81	AV	V	2.71	52.52	54	-1.48
5354.96	58.71	PK	H	3.07	61.78	74	-12.22
5354.96	46.94	AV	H	3.07	50.01	54	-3.99
5355.49	59.85	PK	V	3.07	62.92	74	-11.08
5355.49	47.68	AV	V	3.07	50.75	54	-3.25
10500.00	45.32	PK	H	13.07	58.39	68.2	-9.81
10500.00	45.88	PK	V	13.07	58.95	68.2	-9.25
802.11ax-HE20							
5180MHz							
5149.59	68.37	PK	H	2.71	71.08	74	-2.92
5149.59	48.02	AV	H	2.71	50.73	54	-3.27
5149.87	69.64	PK	V	2.71	72.35	74	-1.65
5149.87	48.75	AV	V	2.71	51.46	54	-2.54
10360.00	49.08	PK	H	13.07	62.15	68.2	-6.05
10360.00	49.77	PK	V	13.07	62.84	68.2	-5.36
5200MHz							
10400.00	49.68	PK	H	13.12	62.80	68.2	-5.40
10400.00	50.45	PK	V	13.12	63.57	68.2	-4.63
5240MHz							
5352.75	55.14	PK	H	3.07	58.21	74	-15.79
5352.75	41.25	AV	H	3.07	44.32	54	-9.68
5353.18	55.37	PK	V	3.07	58.44	74	-15.56
5353.18	41.42	AV	V	3.07	44.49	54	-9.51
10480.00	50.19	PK	H	13.07	63.26	68.2	-4.94
10480.00	51.01	PK	V	13.07	64.08	68.2	-4.12

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE40							
5190MHz							
5149.45	66.18	PK	H	2.71	68.89	74	-5.11
5149.45	47.85	AV	H	2.71	50.56	54	-3.44
5149.24	67.43	PK	V	2.71	70.14	74	-3.86
5149.24	48.54	AV	V	2.71	51.25	54	-2.75
10380.00	46.21	PK	H	13.09	59.30	68.2	-8.90
10380.00	46.94	PK	V	13.09	60.03	68.2	-8.17
5230MHz							
5353.36	60.56	PK	H	3.07	63.63	74	-10.37
5353.36	43.02	AV	H	3.07	46.09	54	-7.91
5352.69	61.94	PK	V	3.07	65.01	74	-8.99
5352.69	43.63	AV	V	3.07	46.70	54	-7.30
10460.00	48.59	PK	H	13.09	61.68	68.2	-6.52
10460.00	49.46	PK	V	13.09	62.55	68.2	-5.65
802.11ax-HE80							
5210MHz							
5149.73	62.15	PK	H	2.71	64.86	74	-9.14
5149.73	48.99	AV	H	2.71	51.70	54	-2.30
5149.56	63.37	PK	V	2.71	66.08	74	-7.92
5149.56	49.78	AV	V	2.71	52.49	54	-1.51
5352.75	54.29	PK	H	3.07	57.36	74	-16.64
5352.75	43.73	AV	H	3.07	46.80	54	-7.20
5353.38	54.64	PK	V	3.07	57.71	74	-16.29
5353.38	44.11	AV	V	3.07	47.18	54	-6.82
10420.00	45.39	PK	H	13.12	58.51	68.2	-9.69
10420.00	45.86	PK	V	13.12	58.98	68.2	-9.22

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE160							
5250MHz							
5145.55	60.67	PK	H	2.71	63.38	74	-10.62
5145.55	49.19	AV	H	2.71	51.90	54	-2.10
5146.64	61.83	PK	V	2.71	64.54	74	-9.46
5146.64	50.08	AV	V	2.71	52.79	54	-1.21
5351.18	59.36	PK	H	3.07	62.43	74	-11.57
5351.18	47.09	AV	H	3.07	50.16	54	-3.84
5353.73	60.54	PK	V	3.07	63.61	74	-10.39
5353.73	47.93	AV	V	3.07	51.00	54	-3.00
10500.00	45.48	PK	H	13.07	58.55	68.2	-9.65
10500.00	46.01	PK	V	13.07	59.08	68.2	-9.12

5250-5350MHz:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11a							
5260MHz							
5056.39	55.15	PK	H	2.97	58.12	74	-15.88
5056.39	41.47	AV	H	2.97	44.44	54	-9.56
5050.47	55.39	PK	V	2.97	58.36	74	-15.64
5050.47	41.64	AV	V	2.97	44.61	54	-9.39
10520.00	50.27	PK	H	13.05	63.32	68.2	-4.88
10520.00	51.46	PK	V	13.05	64.51	68.2	-3.69
5280MHz							
10560.00	51.34	PK	H	13.02	64.36	68.2	-3.84
10560.00	52.57	PK	V	13.02	65.59	68.2	-2.61
5320MHz							
5350.54	65.66	PK	H	3.07	68.73	74	-5.27
5350.54	48.12	AV	H	3.07	51.19	54	-2.81
5350.67	66.94	PK	V	3.07	70.01	74	-3.99
5350.67	48.57	AV	V	3.07	51.64	54	-2.36
10640.00	48.52	PK	H	13.19	61.71	74	-12.29
10640.00	35.64	AV	H	13.19	48.83	54	-5.17
10640.00	49.48	PK	V	13.19	62.67	74	-11.33
10640.00	36.39	AV	V	13.19	49.58	54	-4.42
802.11ac-VHT20							
5260MHz							
5044.18	54.84	PK	H	2.97	57.81	74	-16.19
5044.18	41.50	AV	H	2.97	44.47	54	-9.53
5034.62	55.02	PK	V	2.97	57.99	74	-16.01
5034.62	41.69	AV	V	2.97	44.66	54	-9.34
10520.00	49.71	PK	H	13.05	62.76	68.2	-5.44
10520.00	51.05	PK	V	13.05	64.10	68.2	-4.10
5280MHz							
10560.00	50.73	PK	H	13.02	63.75	68.2	-4.45
10560.00	51.96	PK	V	13.02	64.98	68.2	-3.22
5320MHz							
5350.69	68.57	PK	H	3.07	71.64	74	-2.36
5350.69	48.64	AV	H	3.07	51.71	54	-2.29
5350.88	69.46	PK	V	3.07	72.53	74	-1.47
5350.88	49.21	AV	V	3.07	52.28	54	-1.72
10640.00	49.82	PK	H	13.19	63.01	74	-10.99
10640.00	36.04	AV	H	13.19	49.23	54	-4.77
10640.00	50.71	PK	V	13.19	63.90	74	-10.10
10640.00	36.90	AV	V	13.19	50.09	54	-3.91

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT40							
5270MHz							
5145.33	57.47	PK	H	2.71	60.18	74	-13.82
5145.33	42.58	AV	H	2.71	45.29	54	-8.71
5146.20	58.15	PK	V	2.71	60.86	74	-13.14
5146.20	42.79	AV	V	2.71	45.50	54	-8.50
10540.00	48.75	PK	H	13.03	61.78	68.2	-6.42
10540.00	49.66	PK	V	13.03	62.69	68.2	-5.51
5310MHz							
5350.56	62.58	PK	H	3.07	65.65	74	-8.35
5350.56	47.45	AV	H	3.07	50.52	54	-3.48
5350.38	63.39	PK	V	3.07	66.46	74	-7.54
5350.38	47.97	AV	V	3.07	51.04	54	-2.96
10620.00	46.18	PK	H	13.09	59.27	74	-14.73
10620.00	32.96	AV	H	13.09	46.05	54	-7.95
10620.00	46.59	PK	V	13.09	59.68	74	-14.32
10620.00	33.33	AV	V	13.09	46.42	54	-7.58
802.11ac-VHT80							
5290MHz							
5144.90	55.60	PK	H	2.71	58.31	74	-15.69
5144.90	43.16	AV	H	2.71	45.87	54	-8.13
5145.38	55.98	PK	V	2.71	58.69	74	-15.31
5145.38	43.32	AV	V	2.71	46.03	54	-7.97
5350.52	60.57	PK	H	3.07	63.64	74	-10.36
5350.52	49.09	AV	H	3.07	52.16	54	-1.84
5350.29	61.73	PK	V	3.07	64.80	74	-9.20
5350.29	49.44	AV	V	3.07	52.51	54	-1.49
10580.00	45.88	PK	H	13.00	58.88	68.2	-9.32
10580.00	46.35	PK	V	13.00	59.35	68.2	-8.85

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE20							
5260MHz							
5049.38	55.07	PK	H	2.97	58.04	74	-15.96
5049.38	41.48	AV	H	2.97	44.45	54	-9.55
5052.21	55.24	PK	V	2.97	58.21	74	-15.79
5052.21	41.62	AV	V	2.97	44.59	54	-9.41
10520.00	49.87	PK	H	13.05	62.92	68.2	-5.28
10520.00	51.02	PK	V	13.05	64.07	68.2	-4.13
5280MHz							
10560.00	50.54	PK	H	13.02	63.56	68.2	-4.64
10560.00	51.60	PK	V	13.02	64.62	68.2	-3.58
5320MHz							
5350.25	67.69	PK	H	3.07	70.76	74	-3.24
5350.25	47.25	AV	H	3.07	50.32	54	-3.68
5350.40	68.87	PK	V	3.07	71.94	74	-2.06
5350.40	47.98	AV	V	3.07	51.05	54	-2.95
10640.00	48.68	PK	H	13.19	61.87	74	-12.13
10640.00	35.33	AV	H	13.19	48.52	54	-5.48
10640.00	49.87	PK	V	13.19	63.06	74	-10.94
10640.00	36.12	AV	V	13.19	49.31	54	-4.69
802.11ax-HE40							
5270MHz							
5148.15	57.89	PK	H	2.71	60.60	74	-13.40
5148.15	42.94	AV	H	2.71	45.65	54	-8.35
5147.50	58.53	PK	V	2.71	61.24	74	-12.76
5147.50	43.38	AV	V	2.71	46.09	54	-7.91
10540.00	47.91	PK	H	13.03	60.94	68.2	-7.26
10540.00	48.86	PK	V	13.03	61.89	68.2	-6.31
5310MHz							
5350.56	65.74	PK	H	3.07	68.81	74	-5.19
5350.56	47.68	AV	H	3.07	50.75	54	-3.25
5350.45	66.86	PK	V	3.07	69.93	74	-4.07
5350.45	48.55	AV	V	3.07	51.62	54	-2.38
10620.00	45.87	PK	H	13.09	58.96	74	-15.04
10620.00	33.01	AV	H	13.09	46.10	54	-7.90
10620.00	46.38	PK	V	13.09	59.47	74	-14.53
10620.00	33.25	AV	V	13.09	46.34	54	-7.66

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE80							
5290MHz							
5146.78	55.26	PK	H	2.71	57.97	74	-16.03
5146.78	43.09	AV	H	2.71	45.80	54	-8.20
5145.95	55.68	PK	V	2.71	58.39	74	-15.61
5145.95	43.41	AV	V	2.71	46.12	54	-7.88
5350.24	61.48	PK	H	3.07	64.55	74	-9.45
5350.24	48.37	AV	H	3.07	51.44	54	-2.56
5350.08	62.64	PK	V	3.07	65.71	74	-8.29
5350.08	48.89	AV	V	3.07	51.96	54	-2.04
10580.00	45.97	PK	H	13.00	58.97	68.2	-9.23
10580.00	46.44	PK	V	13.00	59.44	68.2	-8.76

5470-5725MHz:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11a							
5500MHz							
5460.00	56.65	PK	H	3.59	60.24	74	-13.76
5460.00	44.32	AV	H	3.59	47.91	54	-6.09
5460.00	56.89	PK	V	3.59	60.48	74	-13.52
5460.00	44.47	AV	V	3.59	48.06	54	-5.94
5469.40	60.53	PK	H	3.69	64.22	68.2	-3.98
5469.06	60.74	PK	V	3.69	64.43	68.2	-3.77
11000.00	45.02	PK	H	13.98	59.00	74	-15.00
11000.00	31.75	AV	H	13.98	45.73	54	-8.27
11000.00	46.14	PK	V	13.98	60.12	74	-13.88
11000.00	32.26	AV	V	13.98	46.24	54	-7.76
5580MHz							
11160.00	49.47	PK	H	13.62	63.09	74	-10.91
11160.00	36.78	AV	H	13.62	50.40	54	-3.60
11160.00	50.84	PK	V	13.62	64.46	74	-9.54
11160.00	37.99	AV	V	13.62	51.61	54	-2.39
5700MHz							
5727.58	60.96	PK	H	4.09	65.05	68.2	-3.15
5727.39	61.53	PK	V	4.09	65.62	68.2	-2.58
11400.00	47.14	PK	H	14.08	61.22	74	-12.78
11400.00	33.45	AV	H	14.08	47.53	54	-6.47
11400.00	48.07	PK	V	14.08	62.15	74	-11.85
11400.00	34.19	AV	V	14.08	48.27	54	-5.73
5720MHz							
11440.00	51.94	PK	H	14.08	66.02	74	-7.98
11440.00	38.17	AV	H	14.08	52.25	54	-1.75
11440.00	52.23	PK	V	14.08	66.31	74	-7.69
11440.00	38.40	AV	V	14.08	52.48	54	-1.52

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT20							
5500MHz							
5460.00	56.61	PK	H	3.59	60.20	74	-13.80
5460.00	44.54	AV	H	3.59	48.13	54	-5.87
5460.00	56.86	PK	V	3.59	60.45	74	-13.55
5460.00	44.78	AV	V	3.59	48.37	54	-5.63
5469.12	61.69	PK	H	3.69	65.38	68.2	-2.82
5469.38	62.32	PK	V	3.69	66.01	68.2	-2.19
11000.00	45.23	PK	H	13.98	59.21	74	-14.79
11000.00	32.05	AV	H	13.98	46.03	54	-7.97
11000.00	45.91	PK	V	13.98	59.89	74	-14.11
11000.00	32.48	AV	V	13.98	46.46	54	-7.54
5580MHz							
11160.00	49.48	PK	H	13.62	63.10	74	-10.90
11160.00	36.94	AV	H	13.62	50.56	54	-3.44
11160.00	50.66	PK	V	13.62	64.28	74	-9.72
11160.00	37.87	AV	V	13.62	51.49	54	-2.51
5700MHz							
5725.24	61.59	PK	H	4.09	65.68	68.2	-2.52
5725.07	62.36	PK	V	4.09	66.45	68.2	-1.75
11400.00	48.65	PK	H	14.08	62.73	74	-11.27
11400.00	33.06	AV	H	14.08	47.14	54	-6.86
11400.00	49.73	PK	V	14.08	63.81	74	-10.19
11400.00	33.97	AV	V	14.08	48.05	54	-5.95
5720MHz							
11440.00	52.93	PK	H	14.08	67.01	74	-6.99
11440.00	37.85	AV	H	14.08	51.93	54	-2.07
11440.00	53.38	PK	V	14.08	67.46	74	-6.54
11440.00	38.14	AV	V	14.08	52.22	54	-1.78

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT40							
5510MHz							
5460.00	55.27	PK	H	3.59	58.86	74	-15.14
5460.00	43.81	AV	H	3.59	47.40	54	-6.60
5460.00	55.53	PK	V	3.59	59.12	74	-14.88
5460.00	43.96	AV	V	3.59	47.55	54	-6.45
5469.69	61.32	PK	H	3.69	65.01	68.2	-3.19
5469.54	62.19	PK	V	3.69	65.88	68.2	-2.32
11020.00	44.31	PK	H	13.89	58.20	74	-15.80
11020.00	31.42	AV	H	13.89	45.31	54	-8.69
11020.00	44.84	PK	V	13.89	58.73	74	-15.27
11020.00	31.68	AV	V	13.89	45.57	54	-8.43
5550MHz							
11100.00	46.87	PK	H	13.53	60.40	74	-13.60
11100.00	33.35	AV	H	13.53	46.88	54	-7.12
11100.00	48.02	PK	V	13.53	61.55	74	-12.45
11100.00	34.18	AV	V	13.53	47.71	54	-6.29
5670MHz							
5725.87	61.65	PK	H	4.09	65.74	68.2	-2.46
5726.98	62.52	PK	V	4.09	66.61	68.2	-1.59
11340.00	45.64	PK	H	13.99	59.63	74	-14.37
11340.00	33.38	AV	H	13.99	47.37	54	-6.63
11340.00	46.79	PK	V	13.99	60.78	74	-13.22
11340.00	33.92	AV	V	13.99	47.91	54	-6.09
5710MHz							
11420.00	50.25	PK	H	14.08	64.33	74	-9.67
11420.00	37.32	AV	H	14.08	51.40	54	-2.60
11420.00	50.69	PK	V	14.08	64.77	74	-9.23
11420.00	37.58	AV	V	14.08	51.66	54	-2.34

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT80							
5530MHz							
5460.00	58.57	PK	H	3.59	62.16	74	-11.84
5460.00	47.36	AV	H	3.59	50.95	54	-3.05
5460.00	59.08	PK	V	3.59	62.67	74	-11.33
5460.00	47.49	AV	V	3.59	51.08	54	-2.92
5469.50	62.53	PK	H	3.69	66.22	68.2	-1.98
5469.72	63.24	PK	V	3.69	66.93	68.2	-1.27
11060.00	44.87	PK	H	13.71	58.58	74	-15.42
11060.00	32.51	AV	H	13.71	46.22	54	-7.78
11060.00	45.35	PK	V	13.71	59.06	74	-14.94
11060.00	32.76	AV	V	13.71	46.47	54	-7.53
5610MHz							
5726.35	61.78	PK	H	4.09	65.87	68.2	-2.33
5725.56	62.63	PK	V	4.09	66.72	68.2	-1.48
11220.00	44.97	PK	H	13.73	58.70	74	-15.30
11220.00	33.08	AV	H	13.73	46.81	54	-7.19
11220.00	45.21	PK	V	13.73	58.94	74	-15.06
11220.00	33.32	AV	V	13.73	47.05	54	-6.95
5690MHz							
11380.00	50.35	PK	H	13.99	64.34	74	-9.66
11380.00	38.21	AV	H	13.99	52.20	54	-1.80
11380.00	50.69	PK	V	13.99	64.68	74	-9.32
11380.00	38.48	AV	V	13.99	52.47	54	-1.53

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT160							
5570MHz							
5460.00	56.48	PK	H	3.59	60.07	74	-13.93
5460.00	45.02	AV	H	3.59	48.61	54	-5.39
5460.00	56.91	PK	V	3.59	60.50	74	-13.50
5460.00	45.25	AV	V	3.59	48.84	54	-5.16
5463.36	61.06	PK	H	3.59	64.65	68.2	-3.55
5462.77	62.19	PK	V	3.59	65.78	68.2	-2.42
5725.89	56.38	PK	H	4.09	60.47	68.2	-7.73
5726.52	56.91	PK	V	4.09	61.00	68.2	-7.20
11140.00	44.91	PK	H	13.53	58.44	74	-15.56
11140.00	34.15	AV	H	13.53	47.68	54	-6.32
11140.00	45.23	PK	V	13.53	58.76	74	-15.24
11140.00	34.48	AV	V	13.53	48.01	54	-5.99

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE20							
5500MHz							
5460.00	56.98	PK	H	3.59	60.57	74	-13.43
5460.00	44.75	AV	H	3.59	48.34	54	-5.66
5460.00	57.21	PK	V	3.59	60.80	74	-13.20
5460.00	44.93	AV	V	3.59	48.52	54	-5.48
5469.41	61.64	PK	H	3.69	65.33	68.2	-2.87
5469.25	62.79	PK	V	3.69	66.48	68.2	-1.72
11000.00	45.01	PK	H	13.98	58.99	74	-15.01
11000.00	31.72	AV	H	13.98	45.70	54	-8.30
11000.00	45.64	PK	V	13.98	59.62	74	-14.38
11000.00	32.15	AV	V	13.98	46.13	54	-7.87
5580MHz							
11160.00	50.16	PK	H	13.62	63.78	74	-10.22
11160.00	36.59	AV	H	13.62	50.21	54	-3.79
11160.00	51.08	PK	V	13.62	64.70	74	-9.30
11160.00	37.45	AV	V	13.62	51.07	54	-2.93
5700MHz							
5725.88	61.65	PK	H	4.09	65.74	68.2	-2.46
5725.19	62.87	PK	V	4.09	66.96	68.2	-1.24
11400.00	46.62	PK	H	14.08	60.70	74	-13.30
11400.00	32.18	AV	H	14.08	46.26	54	-7.74
11400.00	47.57	PK	V	14.08	61.65	74	-12.35
11400.00	32.93	AV	V	14.08	47.01	54	-6.99
5720MHz							
11440.00	53.18	PK	H	14.08	67.26	74	-6.74
11440.00	37.99	AV	H	14.08	52.07	54	-1.93
11440.00	53.57	PK	V	14.08	67.65	74	-6.35
11440.00	38.31	AV	V	14.08	52.39	54	-1.61

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE40							
5510MHz							
5460.00	56.42	PK	H	3.59	60.01	74	-13.99
5460.00	44.68	AV	H	3.59	48.27	54	-5.73
5460.00	56.76	PK	V	3.59	60.35	74	-13.65
5460.00	44.97	AV	V	3.59	48.56	54	-5.44
5469.45	61.89	PK	H	3.69	65.58	68.2	-2.62
5469.76	63.13	PK	V	3.69	66.82	68.2	-1.38
11020.00	44.18	PK	H	13.89	58.07	74	-15.93
11020.00	31.25	AV	H	13.89	45.14	54	-8.86
11020.00	44.69	PK	V	13.89	58.58	74	-15.42
11020.00	31.54	AV	V	13.89	45.43	54	-8.57
5550MHz							
11100.00	46.62	PK	H	13.53	60.15	74	-13.85
11100.00	33.09	AV	H	13.53	46.62	54	-7.38
11100.00	47.78	PK	V	13.53	61.31	74	-12.69
11100.00	33.86	AV	V	13.53	47.39	54	-6.61
5670MHz							
5726.24	61.69	PK	H	4.09	65.78	68.2	-2.42
5726.57	62.84	PK	V	4.09	66.93	68.2	-1.27
11340.00	45.17	PK	H	13.99	59.16	74	-14.84
11340.00	32.75	AV	H	13.99	46.74	54	-7.26
11340.00	46.09	PK	V	13.99	60.08	74	-13.92
11340.00	33.24	AV	V	13.99	47.23	54	-6.77
5710MHz							
11420.00	50.52	PK	H	14.08	64.60	74	-9.40
11420.00	37.49	AV	H	14.08	51.57	54	-2.43
11420.00	50.87	PK	V	14.08	64.95	74	-9.05
11420.00	37.71	AV	V	14.08	51.79	54	-2.21

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE80							
5530MHz							
5460.00	58.14	PK	H	3.59	61.73	74	-12.27
5460.00	47.89	AV	H	3.59	51.48	54	-2.52
5460.00	58.58	PK	V	3.59	62.17	74	-11.83
5460.00	48.22	AV	V	3.59	51.81	54	-2.19
5469.74	62.91	PK	H	3.69	66.60	68.2	-1.60
5469.93	63.35	PK	V	3.69	67.04	68.2	-1.16
11060.00	45.05	PK	H	13.71	58.76	74	-15.24
11060.00	32.63	AV	H	13.71	46.34	54	-7.66
11060.00	45.49	PK	V	13.71	59.20	74	-14.80
11060.00	32.78	AV	V	13.71	46.49	54	-7.51
5610MHz							
5725.97	61.38	PK	H	4.09	65.47	68.2	-2.73
5726.25	62.47	PK	V	4.09	66.56	68.2	-1.64
11220.00	45.02	PK	H	13.73	58.75	74	-15.25
11220.00	33.11	AV	H	13.73	46.84	54	-7.16
11220.00	45.36	PK	V	13.73	59.09	74	-14.91
11220.00	33.25	AV	V	13.73	46.98	54	-7.02
5690MHz							
11380.00	50.63	PK	H	13.99	64.62	74	-9.38
11380.00	38.42	AV	H	13.99	52.41	54	-1.59
11380.00	50.94	PK	V	13.99	64.93	74	-9.07
11380.00	38.65	AV	V	13.99	52.64	54	-1.36

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE160							
5570MHz							
5460.00	56.86	PK	H	3.59	60.45	74	-13.55
5460.00	45.15	AV	H	3.59	48.74	54	-5.26
5460.00	57.28	PK	V	3.59	60.87	74	-13.13
5460.00	45.42	AV	V	3.59	49.01	54	-4.99
5469.37	61.39	PK	H	3.69	65.08	68.2	-3.12
5469.63	62.57	PK	V	3.69	66.26	68.2	-1.94
5726.25	56.98	PK	H	4.09	61.07	68.2	-7.13
5725.86	57.45	PK	V	4.09	61.54	68.2	-6.66
11140.00	44.95	PK	H	13.53	58.48	74	-15.52
11140.00	34.04	AV	H	13.53	47.57	54	-6.43
11140.00	45.17	PK	V	13.53	58.70	74	-15.30
11140.00	34.32	AV	V	13.53	47.85	54	-6.15

5725-5850 MHz:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11a							
5745MHz							
5650.00	55.48	PK	H	3.59	59.07	68.20	-9.13
5700.00	56.91	PK	H	4.09	61.00	105.20	-44.20
5720.00	67.14	PK	H	4.09	71.23	110.80	-39.57
5725.00	75.52	PK	H	4.09	79.61	122.20	-42.59
5650.00	55.79	PK	V	3.59	59.38	68.20	-8.82
5700.00	57.54	PK	V	4.09	61.63	105.20	-43.57
5720.00	68.67	PK	V	4.09	72.76	110.80	-38.04
5725.00	76.93	PK	V	4.09	81.02	122.20	-41.18
11490.00	50.89	PK	H	14.31	65.20	74	-8.80
11490.00	37.05	AV	H	14.31	51.36	54	-2.64
11490.00	52.27	PK	V	14.31	66.58	74	-7.42
11490.00	37.92	AV	V	14.31	52.23	54	-1.77
5785MHz							
11570.00	51.54	PK	H	14.05	65.59	74	-8.41
11570.00	37.16	AV	H	14.05	51.21	54	-2.79
11570.00	52.83	PK	V	14.05	66.88	74	-7.12
11570.00	38.22	AV	V	14.05	52.27	54	-1.73
5825MHz							
5850.00	60.16	PK	H	4.09	64.25	122.20	-57.95
5855.00	57.94	PK	H	4.09	62.03	110.80	-48.77
5875.00	56.21	PK	H	4.19	60.40	105.20	-44.80
5925.00	55.08	PK	H	4.69	59.77	68.20	-8.43
5850.00	61.44	PK	V	4.09	65.53	122.20	-56.67
5855.00	58.68	PK	V	4.09	62.77	110.80	-48.03
5875.00	56.57	PK	V	4.19	60.76	105.20	-44.44
5925.00	55.25	PK	V	4.69	59.94	68.20	-8.26
11650.00	51.18	PK	H	13.83	65.01	74	-8.99
11650.00	36.94	AV	H	13.83	50.77	54	-3.23
11650.00	52.45	PK	V	13.83	66.28	74	-7.72
11650.00	37.87	AV	V	13.83	51.70	54	-2.30

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT20							
5745MHz							
5650.00	55.71	PK	H	3.59	59.30	68.20	-8.90
5700.00	56.54	PK	H	4.09	60.63	105.20	-44.57
5720.00	67.68	PK	H	4.09	71.77	110.80	-39.03
5725.00	81.32	PK	H	4.09	85.41	122.20	-36.79
5650.00	55.96	PK	V	3.59	59.55	68.20	-8.65
5700.00	57.29	PK	V	4.09	61.38	105.20	-43.82
5720.00	69.04	PK	V	4.09	73.13	110.80	-37.67
5725.00	82.15	PK	V	4.09	86.24	122.20	-35.96
11490.00	52.29	PK	H	14.31	66.60	74	-7.40
11490.00	37.37	AV	H	14.31	51.68	54	-2.32
11490.00	52.76	PK	V	14.31	67.07	74	-6.93
11490.00	37.58	AV	V	14.31	51.89	54	-2.11
5785MHz							
11570.00	53.22	PK	H	14.05	67.27	74	-6.73
11570.00	37.87	AV	H	14.05	51.92	54	-2.08
11570.00	53.65	PK	V	14.05	67.70	74	-6.30
11570.00	38.06	AV	V	14.05	52.11	54	-1.89
5825MHz							
5850.00	66.43	PK	H	4.09	70.52	122.20	-51.68
5855.00	61.74	PK	H	4.09	65.83	110.80	-44.97
5875.00	56.89	PK	H	4.19	61.08	105.20	-44.12
5925.00	55.57	PK	H	4.69	60.26	68.20	-7.94
5850.00	67.06	PK	V	4.09	71.15	122.20	-51.05
5855.00	62.94	PK	V	4.09	67.03	110.80	-43.77
5875.00	57.37	PK	V	4.19	61.56	105.20	-43.64
5925.00	55.75	PK	V	4.69	60.44	68.20	-7.76
11650.00	54.23	PK	H	13.83	68.06	74	-5.94
11650.00	38.68	AV	H	13.83	52.51	54	-1.49
11650.00	54.71	PK	V	13.83	68.54	74	-5.46
11650.00	38.92	AV	V	13.83	52.75	54	-1.25

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT40							
5755MHz							
5650.00	57.08	PK	H	3.59	60.67	68.20	-7.53
5700.00	65.34	PK	H	4.09	69.43	105.20	-35.77
5720.00	78.12	PK	H	4.09	82.21	110.80	-28.59
5725.00	80.97	PK	H	4.09	85.06	122.20	-37.14
5650.00	57.65	PK	V	3.59	61.24	68.20	-6.96
5700.00	66.19	PK	V	4.09	70.28	105.20	-34.92
5720.00	79.04	PK	V	4.09	83.13	110.80	-27.67
5725.00	81.46	PK	V	4.09	85.55	122.20	-36.65
11510.00	50.89	PK	H	14.29	65.18	74	-8.82
11510.00	36.72	AV	H	14.29	51.01	54	-2.99
11510.00	51.26	PK	V	14.29	65.55	74	-8.45
11510.00	36.93	AV	V	14.29	51.22	54	-2.78
5795MHz							
5850.00	62.57	PK	H	4.09	66.66	122.20	-55.54
5855.00	59.18	PK	H	4.09	63.27	110.80	-47.53
5875.00	57.36	PK	H	4.19	61.55	105.20	-43.65
5925.00	56.04	PK	H	4.69	60.73	68.20	-7.47
5850.00	63.99	PK	V	4.09	68.08	122.20	-54.12
5855.00	60.32	PK	V	4.09	64.41	110.80	-46.39
5875.00	58.06	PK	V	4.19	62.25	105.20	-42.95
5925.00	56.45	PK	V	4.69	61.14	68.20	-7.06
11590.00	51.39	PK	H	13.97	65.36	74	-8.64
11590.00	37.41	AV	H	13.97	51.38	54	-2.62
11590.00	51.63	PK	V	13.97	65.60	74	-8.40
11590.00	37.58	AV	V	13.97	51.55	54	-2.45

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT80							
5775MHz							
5650.00	61.15	PK	H	3.59	64.74	68.20	-3.46
5700.00	73.09	PK	H	4.09	77.18	105.20	-28.02
5720.00	76.27	PK	H	4.09	80.36	110.80	-30.44
5725.00	78.54	PK	H	4.09	82.63	122.20	-39.57
5650.00	61.78	PK	V	3.59	65.37	68.20	-2.83
5700.00	74.45	PK	V	4.09	78.54	105.20	-26.66
5720.00	77.56	PK	V	4.09	81.65	110.80	-29.15
5725.00	79.69	PK	V	4.09	83.78	122.20	-38.42
5850.00	75.08	PK	H	4.09	79.17	122.20	-43.03
5855.00	72.92	PK	H	4.09	77.01	110.80	-33.79
5875.00	67.64	PK	H	4.19	71.83	105.20	-33.37
5925.00	58.17	PK	H	4.69	62.86	68.20	-5.34
5850.00	76.25	PK	V	4.09	80.34	122.20	-41.86
5855.00	73.16	PK	V	4.09	77.25	110.80	-33.55
5875.00	68.89	PK	V	4.19	73.08	105.20	-32.12
5925.00	58.61	PK	V	4.69	63.30	68.20	-4.90
11550.00	49.38	PK	H	14.13	63.51	74	-10.49
11550.00	36.93	AV	H	14.13	51.06	54	-2.94
11550.00	49.64	PK	V	14.13	63.77	74	-10.23
11550.00	37.15	AV	V	14.13	51.28	54	-2.72

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11ax-HE20							
5745MHz							
5650.00	55.95	PK	H	3.59	59.54	68.20	-8.66
5700.00	58.86	PK	H	4.09	62.95	105.20	-42.25
5720.00	72.78	PK	H	4.09	76.87	110.80	-33.93
5725.00	82.19	PK	H	4.09	86.28	122.20	-35.92
5650.00	56.17	PK	V	3.59	59.76	68.20	-8.44
5700.00	59.24	PK	V	4.09	63.33	105.20	-41.87
5720.00	74.32	PK	V	4.09	78.41	110.80	-32.39
5725.00	83.69	PK	V	4.09	87.78	122.20	-34.42
11490.00	52.42	PK	H	14.31	66.73	74	-7.27
11490.00	37.50	AV	H	14.31	51.81	54	-2.19
11490.00	52.87	PK	V	14.31	67.18	74	-6.82
11490.00	37.64	AV	V	14.31	51.95	54	-2.05
5785MHz							
11570.00	53.45	PK	H	14.05	67.50	74	-6.50
11570.00	37.98	AV	H	14.05	52.03	54	-1.97
11570.00	53.84	PK	V	14.05	67.89	74	-6.11
11570.00	38.17	AV	V	14.05	52.22	54	-1.78
5825MHz							
5850.00	71.45	PK	H	4.09	75.54	122.20	-46.66
5855.00	63.82	PK	H	4.09	67.91	110.80	-42.89
5875.00	57.91	PK	H	4.19	62.10	105.20	-43.10
5925.00	55.66	PK	H	4.69	60.35	68.20	-7.85
5850.00	72.91	PK	V	4.09	77.00	122.20	-45.20
5855.00	65.28	PK	V	4.09	69.37	110.80	-41.43
5875.00	58.64	PK	V	4.19	62.83	105.20	-42.37
5925.00	55.89	PK	V	4.69	60.58	68.20	-7.62
11650.00	54.38	PK	H	13.83	68.21	74	-5.79
11650.00	38.77	AV	H	13.83	52.60	54	-1.40
11650.00	54.85	PK	V	13.83	68.68	74	-5.32
11650.00	38.98	AV	V	13.83	52.81	54	-1.19

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11ax-HE40							
5755MHz							
5650.00	58.54	PK	H	3.59	62.13	68.20	-6.07
5700.00	66.08	PK	H	4.09	70.17	105.20	-35.03
5720.00	79.71	PK	H	4.09	83.80	110.80	-27.00
5725.00	81.87	PK	H	4.09	85.96	122.20	-36.24
5650.00	59.06	PK	V	3.59	62.65	68.20	-5.55
5700.00	67.38	PK	V	4.09	71.47	105.20	-33.73
5720.00	80.79	PK	V	4.09	84.88	110.80	-25.92
5725.00	82.92	PK	V	4.09	87.01	122.20	-35.19
11510.00	51.08	PK	H	14.29	65.37	74	-8.63
11510.00	36.87	AV	H	14.29	51.16	54	-2.84
11510.00	51.51	PK	V	14.29	65.80	74	-8.20
11510.00	37.09	AV	V	14.29	51.38	54	-2.62
5795MHz							
5850.00	63.12	PK	H	4.09	67.21	122.20	-54.99
5855.00	61.07	PK	H	4.09	65.16	110.80	-45.64
5875.00	57.89	PK	H	4.19	62.08	105.20	-43.12
5925.00	56.51	PK	H	4.69	61.20	68.20	-7.00
5850.00	64.48	PK	V	4.09	68.57	122.20	-53.63
5855.00	62.35	PK	V	4.09	66.44	110.80	-44.36
5875.00	58.53	PK	V	4.19	62.72	105.20	-42.48
5925.00	56.96	PK	V	4.69	61.65	68.20	-6.55
11590.00	51.56	PK	H	13.97	65.53	74	-8.47
11590.00	37.47	AV	H	13.97	51.44	54	-2.56
11590.00	51.78	PK	V	13.97	65.75	74	-8.25
11590.00	37.64	AV	V	13.97	51.61	54	-2.39

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ax-HE80							
5775MHz							
5650.00	62.92	PK	H	3.59	66.51	68.20	-1.69
5700.00	74.45	PK	H	4.09	78.54	105.20	-26.66
5720.00	78.03	PK	H	4.09	82.12	110.80	-28.68
5725.00	81.64	PK	H	4.09	85.73	122.20	-36.47
5650.00	63.57	PK	V	3.59	67.16	68.20	-1.04
5700.00	75.78	PK	V	4.09	79.87	105.20	-25.33
5720.00	79.29	PK	V	4.09	83.38	110.80	-27.42
5725.00	82.06	PK	V	4.09	86.15	122.20	-36.05
5850.00	76.19	PK	H	4.09	80.28	122.20	-41.92
5855.00	72.42	PK	H	4.09	76.51	110.80	-34.29
5875.00	68.36	PK	H	4.19	72.55	105.20	-32.65
5925.00	58.84	PK	H	4.69	63.53	68.20	-4.67
5850.00	77.53	PK	V	4.09	81.62	122.20	-40.58
5855.00	73.87	PK	V	4.09	77.96	110.80	-32.84
5875.00	69.64	PK	V	4.19	73.83	105.20	-31.37
5925.00	59.25	PK	V	4.69	63.94	68.20	-4.26
11550.00	49.75	PK	H	14.13	63.88	74	-10.12
11550.00	37.06	AV	H	14.13	51.19	54	-2.81
11550.00	50.07	PK	V	14.13	64.20	74	-9.80
11550.00	37.32	AV	V	14.13	51.45	54	-2.55

5850-5895 MHz:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11a							
5845MHz							
11690.00	50.24	PK	H	13.83	64.07	74	-9.93
11690.00	36.37	AV	H	13.83	50.20	54	-3.80
11690.00	51.46	PK	V	13.83	65.29	74	-8.71
11690.00	37.84	AV	V	13.83	51.67	54	-2.33
5865MHz							
11730.00	50.66	PK	H	13.63	64.29	74	-9.71
11730.00	37.30	AV	H	13.63	50.93	54	-3.07
11730.00	52.18	PK	V	13.63	65.81	74	-8.19
11730.00	39.37	AV	V	13.63	53.00	54	-1.00
5885MHz							
11770.00	50.84	PK	H	13.63	64.47	74	-9.53
11770.00	36.36	AV	H	13.63	49.99	54	-4.01
11770.00	52.19	PK	V	13.63	65.82	74	-8.18
11770.00	38.52	AV	V	13.63	52.15	54	-1.85
802.11ac-VHT20							
5845MHz							
11690.00	51.56	PK	H	13.83	65.39	74	-8.61
11690.00	36.99	AV	H	13.83	50.82	54	-3.18
11690.00	53.28	PK	V	13.83	67.11	74	-6.89
11690.00	38.52	AV	V	13.83	52.35	54	-1.65
5865MHz							
11730.00	51.49	PK	H	13.63	65.12	74	-8.88
11730.00	36.77	AV	H	13.63	50.40	54	-3.60
11730.00	52.79	PK	V	13.63	66.42	74	-7.58
11730.00	38.75	AV	V	13.63	52.38	54	-1.62
5885MHz							
11770.00	51.28	PK	H	13.63	64.91	74	-9.09
11770.00	37.21	AV	H	13.63	50.84	54	-3.16
11770.00	53.26	PK	V	13.63	66.89	74	-7.11
11770.00	39.04	AV	V	13.63	52.67	54	-1.33

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
802.11ac-VHT40							
5835MHz							
11670.00	48.68	PK	H	13.83	62.51	74	-11.49
11670.00	36.14	AV	H	13.83	49.97	54	-4.03
11670.00	50.04	PK	V	13.83	63.87	74	-10.13
11670.00	38.03	AV	V	13.83	51.86	54	-2.14
5875MHz							
11750.00	48.59	PK	H	13.63	62.22	74	-11.78
11750.00	36.77	AV	H	13.63	50.40	54	-3.60
11750.00	51.28	PK	V	13.63	64.91	74	-9.09
11750.00	38.45	AV	V	13.63	52.08	54	-1.92
802.11ac-VHT80							
5855MHz							
11710.00	47.69	PK	H	13.63	61.32	74	-12.68
11710.00	36.31	AV	H	13.63	49.94	54	-4.06
11710.00	49.13	PK	V	13.63	62.76	74	-11.24
11710.00	38.24	AV	V	13.63	51.87	54	-2.13
802.11ac-VHT160							
5815MHz							
11630.00	44.67	PK	H	13.83	58.50	74	-15.50
11630.00	33.51	AV	H	13.83	47.34	54	-6.66
11630.00	45.78	PK	V	13.83	59.61	74	-14.39
11630.00	35.05	AV	V	13.83	48.88	54	-5.12
802.11ax-HE20							
5845MHz							
11690.00	48.76	PK	H	13.83	62.59	74	-11.41
11690.00	35.92	AV	H	13.83	49.75	54	-4.25
11690.00	50.98	PK	V	13.83	64.81	74	-9.19
11690.00	37.62	AV	V	13.83	51.45	54	-2.55
5865MHz							
11730.00	50.68	PK	H	13.63	64.31	74	-9.69
11730.00	37.09	AV	H	13.63	50.72	54	-3.28
11730.00	51.92	PK	V	13.63	65.55	74	-8.45
11730.00	38.51	AV	V	13.63	52.14	54	-1.86
5885MHz							
11770.00	52.17	PK	H	13.63	65.80	74	-8.20
11770.00	36.93	AV	H	13.63	50.56	54	-3.44
11770.00	54.23	PK	V	13.63	67.86	74	-6.14
11770.00	38.82	AV	V	13.63	52.45	54	-1.55

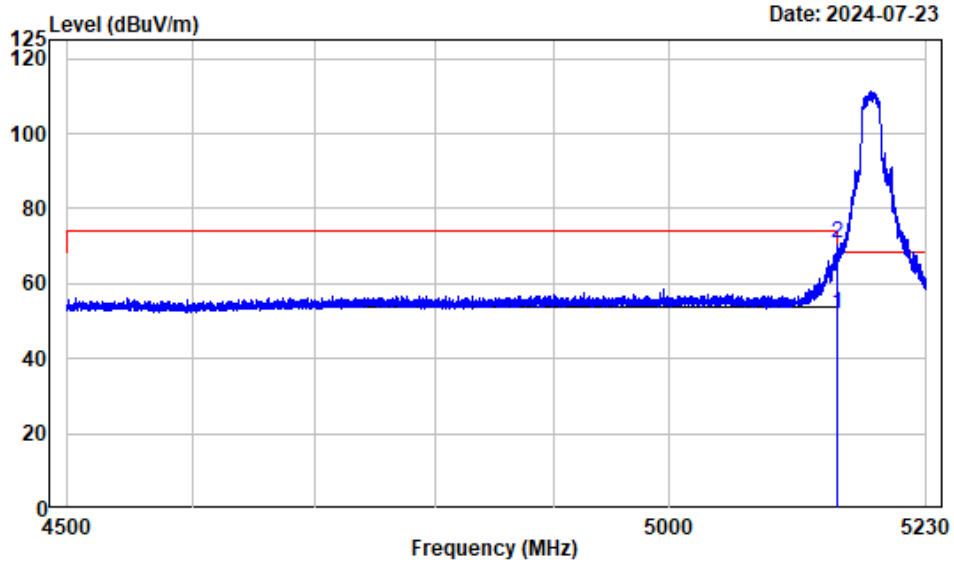
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11ax-HE40							
5835MHz							
11670.00	49.58	PK	H	13.83	63.41	74	-10.59
11670.00	36.41	AV	H	13.83	50.24	54	-3.76
11670.00	50.14	PK	V	13.83	63.97	74	-10.03
11670.00	37.83	AV	V	13.83	51.66	54	-2.34
5875MHz							
11750.00	49.37	PK	H	13.63	63.00	74	-11.00
11750.00	36.48	AV	H	13.63	50.11	54	-3.89
11750.00	50.28	PK	V	13.63	63.91	74	-10.09
11750.00	37.69	AV	V	13.63	51.32	54	-2.68
802.11ax-HE80							
5855MHz							
11710.00	48.57	PK	H	13.63	62.20	74	-11.80
11710.00	36.63	AV	H	13.63	50.26	54	-3.74
11710.00	49.07	PK	V	13.63	62.70	74	-11.30
11710.00	37.66	AV	V	13.63	51.29	54	-2.71
802.11ax-HE160							
5815MHz							
11630.00	46.61	PK	H	13.83	60.44	74	-13.56
11630.00	34.38	AV	H	13.83	48.21	54	-5.79
11630.00	47.72	PK	V	13.83	61.55	74	-12.45
11630.00	35.31	AV	V	13.83	49.14	54	-4.86

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.

Test plots for Band Edge Measurements (Radiated)

5150~5250 MHz:

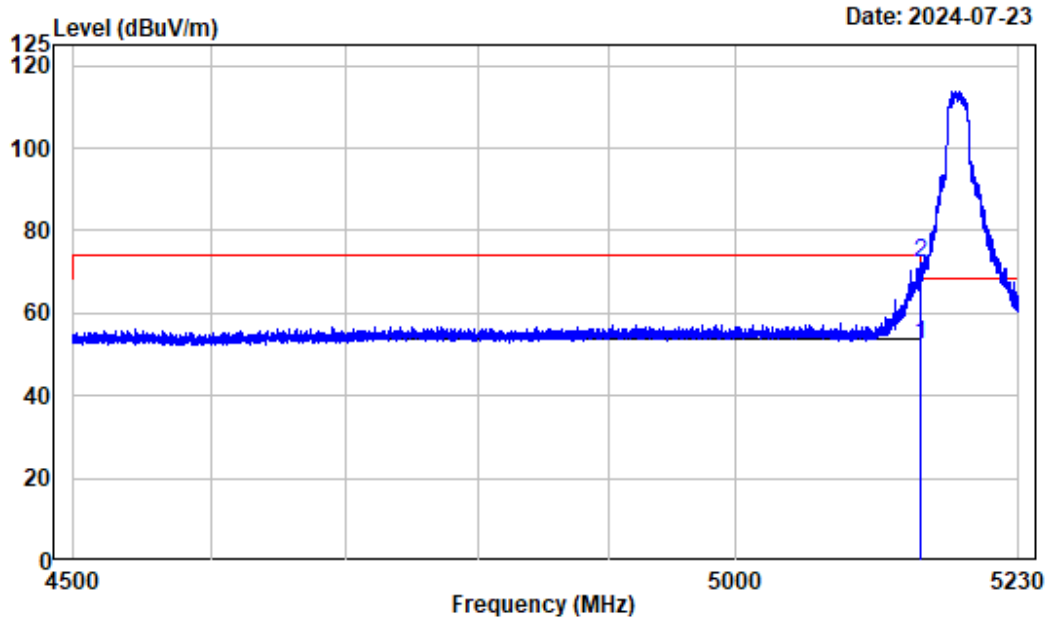
802.11a			
Test Channel:	**5180MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Zenos Qiao
Note : 5GWiFi-Band1-A-5180

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5149.700	2.71	48.98	51.69	54.00	-2.31	Average
2	5149.700	2.71	67.97	70.68	74.00	-3.32	Peak

802.11a			
Test Channel:	**5180MHz**	**Ant. Polar. :**	**Vertical**

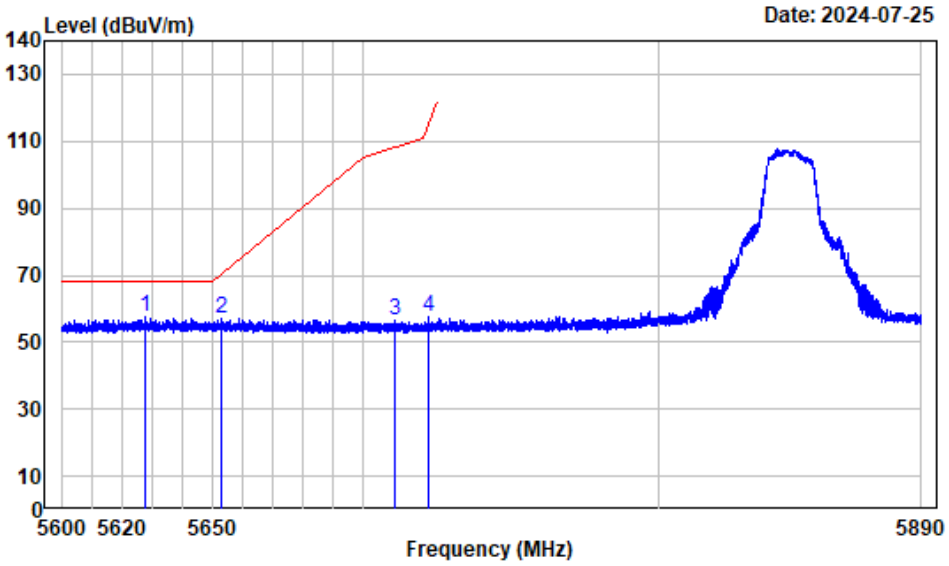


Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Zenos Qiao
Note : 5GWiFi-Band1-A-5180

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5149.335	2.71	49.84	52.55	54.00	-1.45	Average
2	5149.335	2.71	69.23	71.94	74.00	-2.06	Peak

5850-5895MHz Band, 5725-5850MHz & 5850-5895MHz Bands span channels:

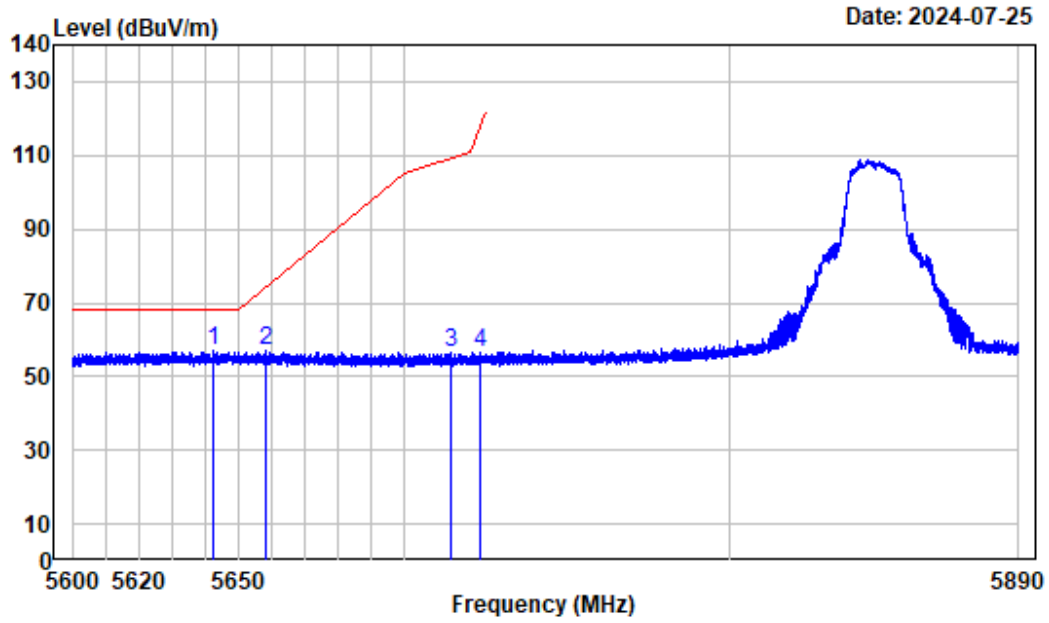
802.11a			
Test Channel:	**5845MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11A_5845

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5627.623	3.10	54.49	57.59	68.20	-10.61	peak
2	5652.599	3.28	54.02	57.30	70.13	-12.83	peak
3	5710.816	3.46	52.86	56.32	108.23	-51.91	peak
4	5721.800	3.48	53.89	57.37	114.90	-57.53	peak

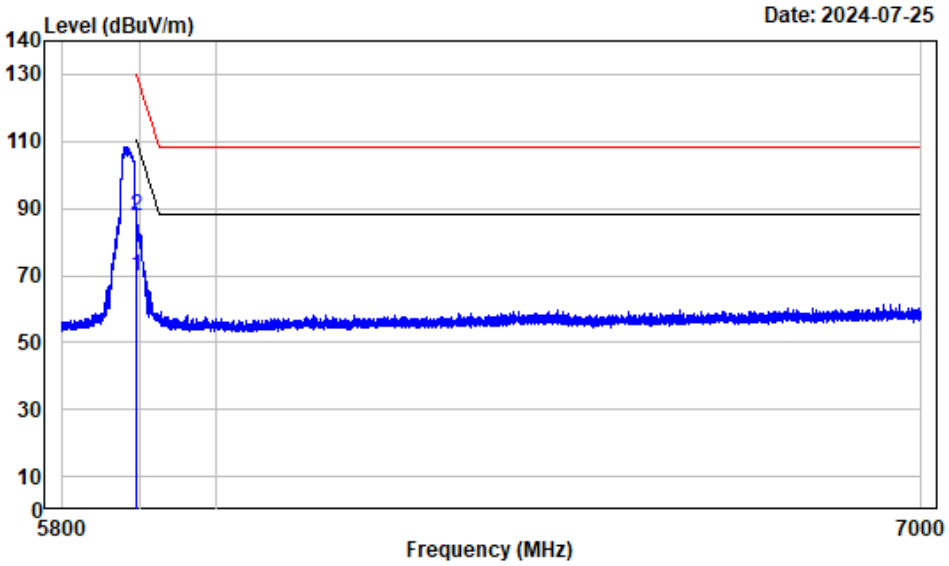
802.11a			
Test Channel:	**5845MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11A_5845

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5642.340	3.21	54.08	57.29	68.20	-10.91	peak
2	5658.036	3.30	53.85	57.15	74.17	-17.02	peak
3	5714.333	3.47	52.91	56.38	109.22	-52.84	peak
4	5723.359	3.48	53.06	56.54	118.46	-61.92	peak

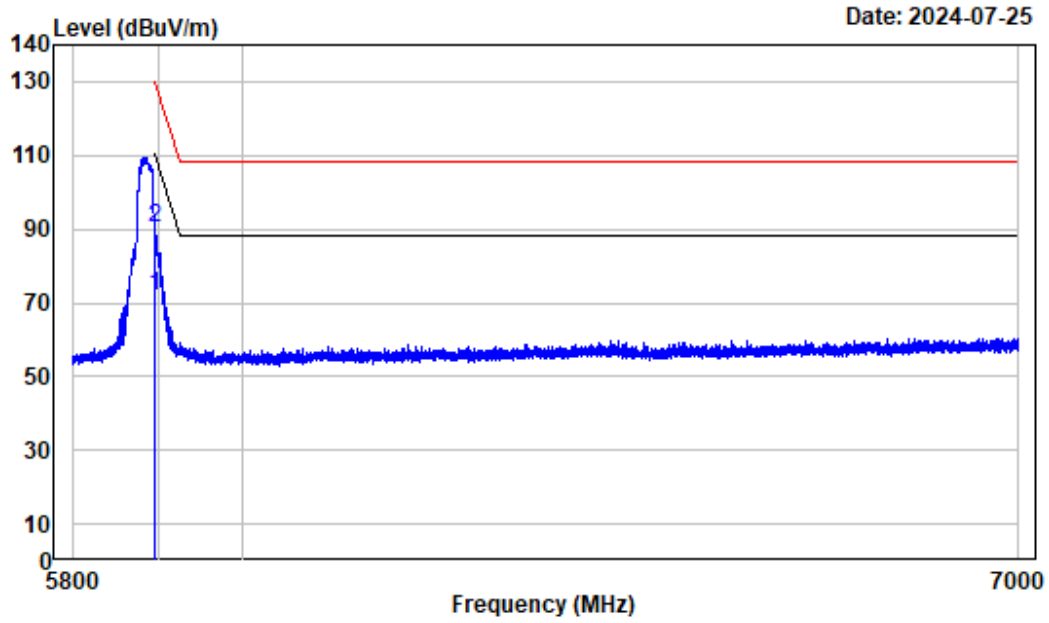
802.11a			
Test Channel:	**5885MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11A_5885

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5895.250	3.84	65.88	69.72	110.02	-40.30	Average
2	5895.250	3.84	84.08	87.92	130.02	-42.10	peak

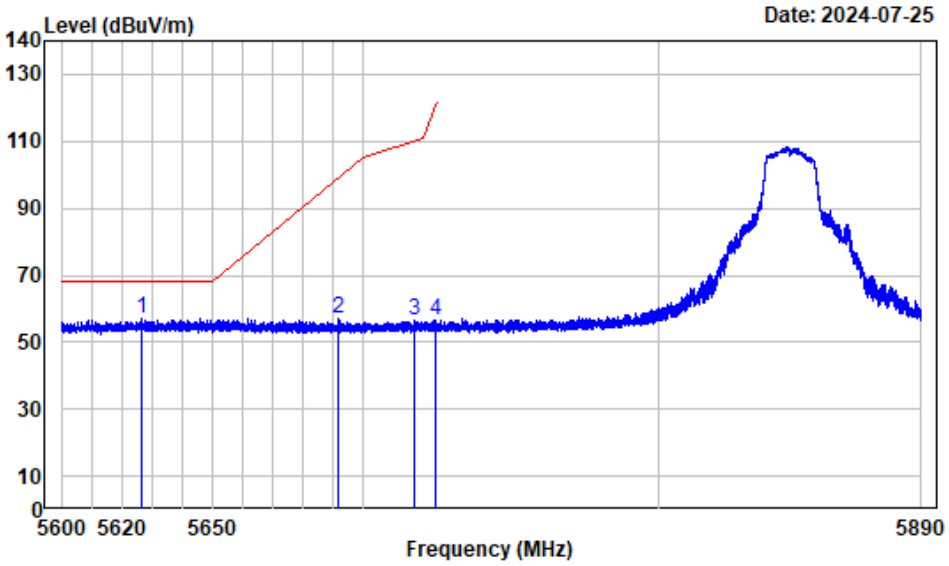
802.11a			
Test Channel:	**5885MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11A_5885

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5895.250	3.84	68.12	71.96	110.02	-38.06	Average
2	5895.250	3.84	86.24	90.08	130.02	-39.94	peak

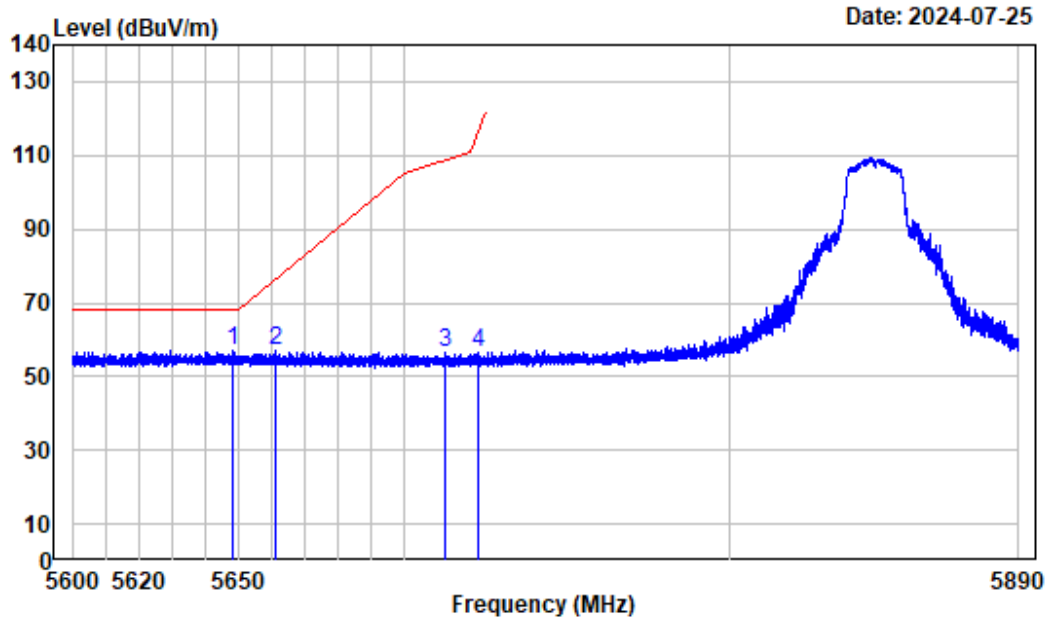
802.11ac-VHT20			
Test Channel:	**5845MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC20_5845

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5626.245	3.09	53.93	57.02	68.20	-11.18	peak
2	5692.039	3.42	53.89	57.31	99.33	-42.02	peak
3	5717.305	3.47	52.96	56.43	110.05	-53.62	peak
4	5724.120	3.48	53.15	56.63	120.19	-63.56	peak

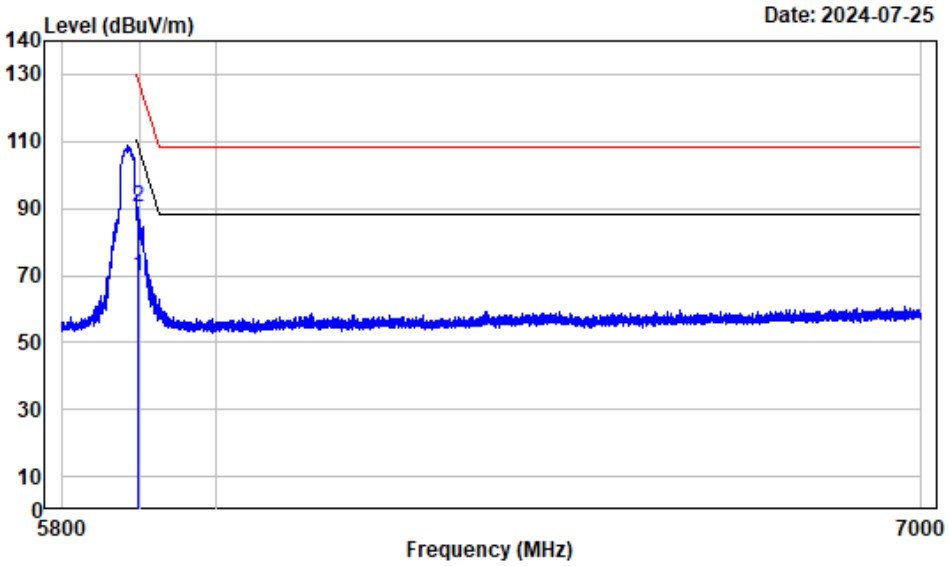
802.11ac-VHT20			
Test Channel:	**5845MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC20_5845

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5648.067	3.25	53.87	57.12	68.20	-11.08	peak
2	5660.973	3.30	53.95	57.25	76.35	-19.10	peak
3	5712.520	3.48	53.03	56.51	108.71	-52.20	peak
4	5722.670	3.49	52.79	56.28	116.89	-60.61	peak

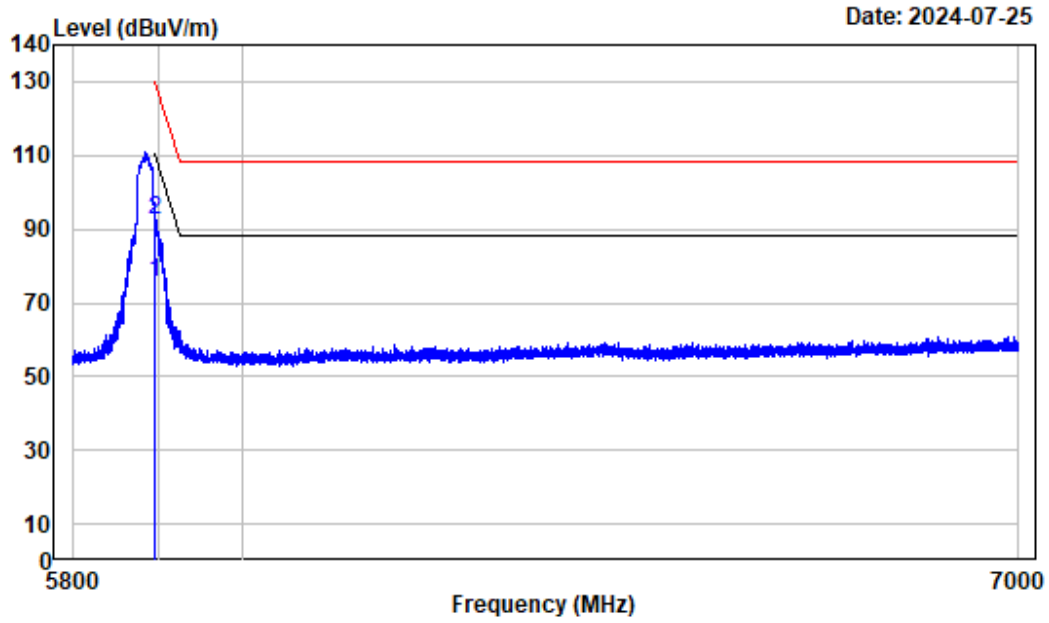
802.11ac-VHT20			
Test Channel:	**5885MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC20_5885

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5898.400	3.84	65.89	69.73	107.70	-37.97	Average
2	5898.400	3.84	86.35	90.19	127.70	-37.51	peak

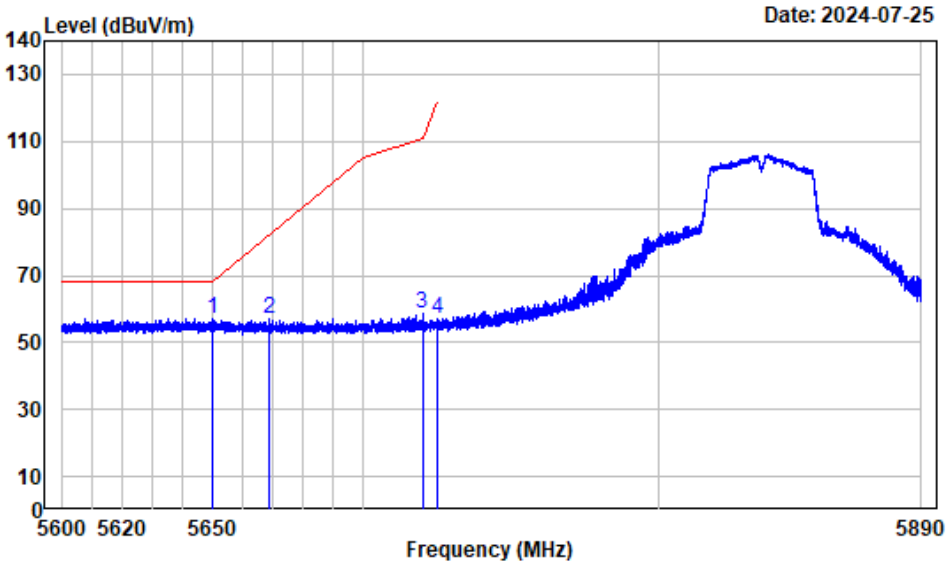
802.11ac-VHT20			
Test Channel:	**5885MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC20_5885

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5895.250	3.84	71.86	75.70	110.02	-34.32	Average
2	5895.250	3.84	88.80	92.64	130.02	-37.38	peak

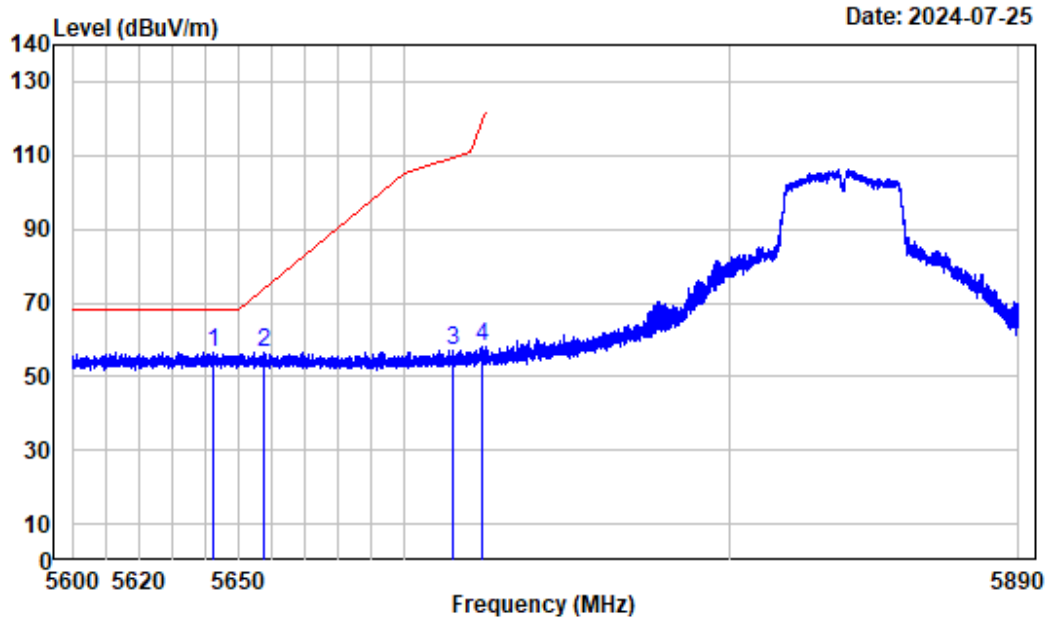
802.11ac-VHT40			
Test Channel:	**5835MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC40_5835

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5649.844	3.28	53.93	57.21	68.20	-10.99	peak
2	5668.658	3.33	53.61	56.94	82.04	-25.10	peak
3	5719.951	3.48	54.96	58.44	110.79	-52.35	peak
4	5724.954	3.48	53.33	56.81	122.09	-65.28	peak

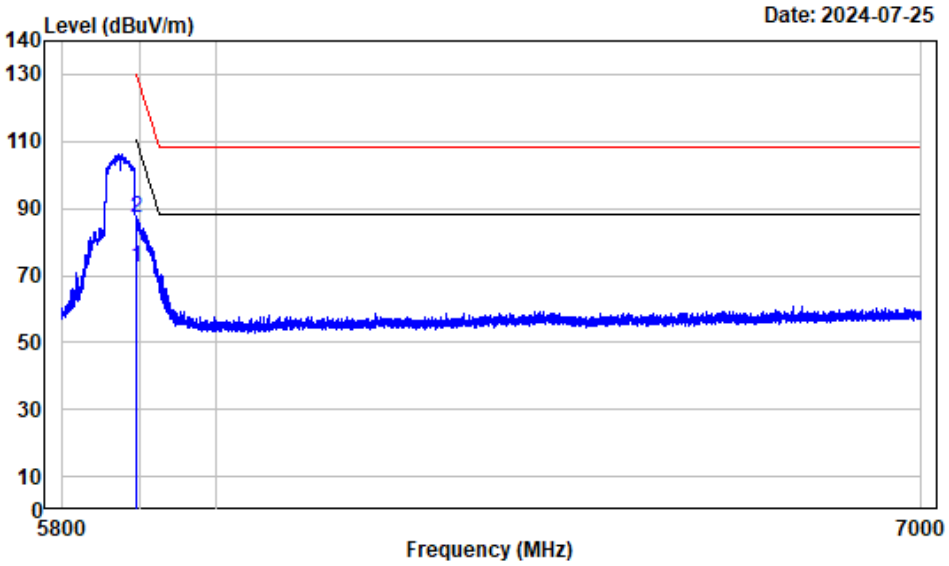
802.11ac-VHT40			
Test Channel:	**5835MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC40_5835

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5642.195	3.21	53.56	56.77	68.20	-11.43	peak
2	5657.275	3.30	53.40	56.70	73.60	-16.90	peak
3	5714.949	3.47	53.78	57.25	109.39	-52.14	peak
4	5723.866	3.48	54.58	58.06	119.62	-61.56	peak

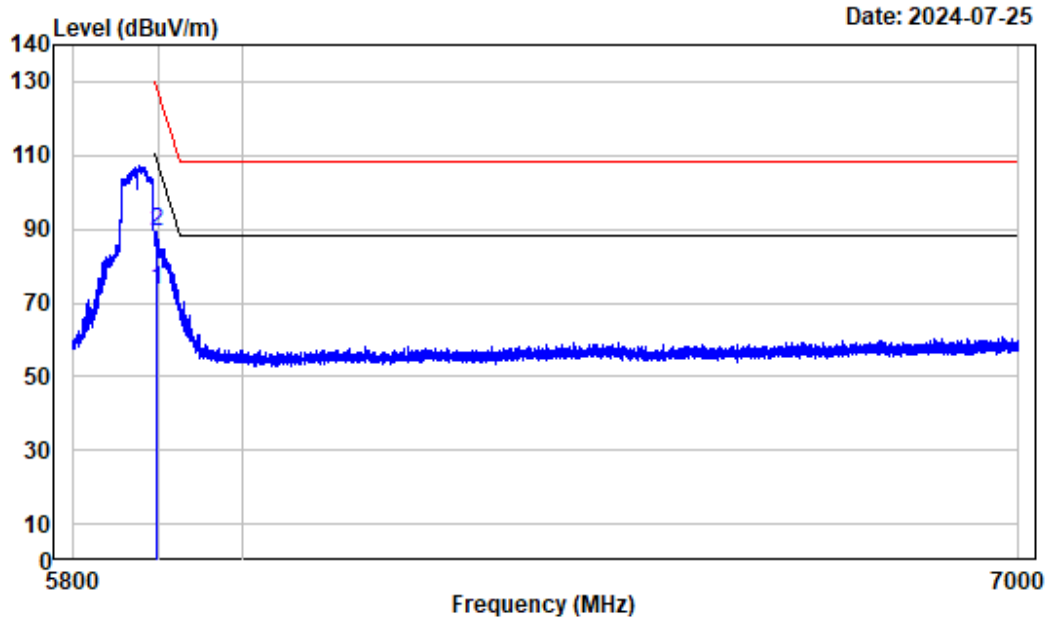
802.11ac-VHT40			
Test Channel:	**5875MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC40_5875

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5895.550	3.83	68.37	72.20	109.80	-37.60	Average
2	5895.550	3.83	83.31	87.14	129.80	-42.66	peak

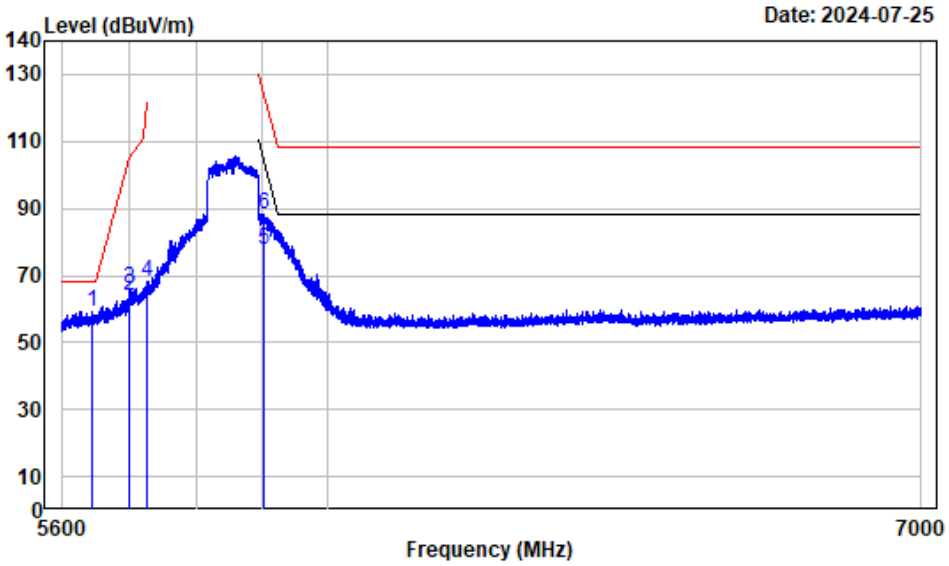
802.11ac-VHT40			
Test Channel:	**5875MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC40_5875

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5897.350	3.84	69.83	73.67	108.47	-34.80	Average
2	5897.350	3.84	85.18	89.02	128.47	-39.45	peak

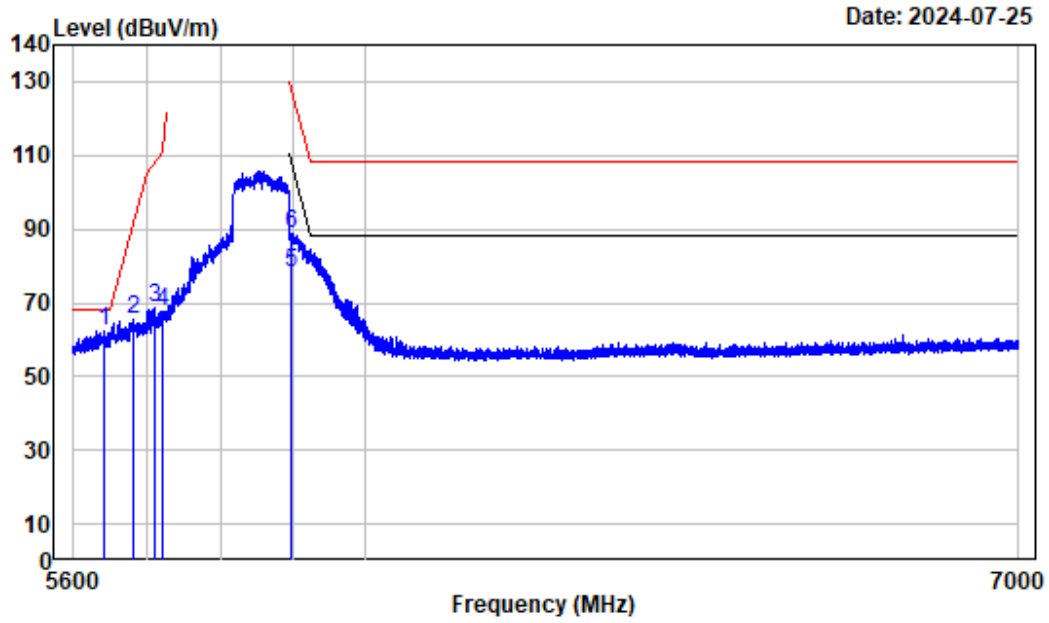
802.11ac-VHT80			
Test Channel:	**5855MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC80_5855

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5645.675	3.24	56.12	59.36	68.20	-8.84	peak
2	5699.925	3.45	60.63	64.08	105.14	-41.06	peak
3	5700.450	3.45	62.59	66.04	105.33	-39.29	peak
4	5724.775	3.48	64.68	68.16	121.69	-53.53	peak
5	5902.400	3.86	73.57	77.43	104.76	-27.33	Average
6	5902.400	3.86	84.21	88.07	124.76	-36.69	peak

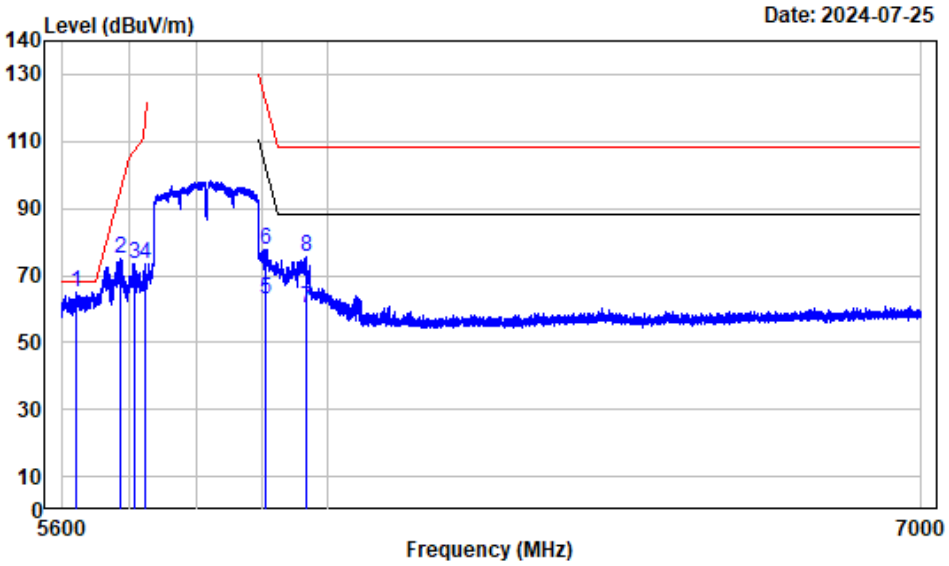
802.11ac-VHT80			
Test Channel:	**5855MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC80_5855

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5640.950	3.20	58.96	62.16	68.20	-6.04	peak
2	5681.900	3.39	62.22	65.61	91.84	-26.23	peak
3	5709.200	3.46	65.47	68.93	107.78	-38.85	peak
4	5720.575	3.48	64.26	67.74	112.11	-44.37	peak
5	5895.925	3.83	74.40	78.23	109.52	-31.29	Average
6	5895.925	3.83	85.00	88.83	129.52	-40.69	peak

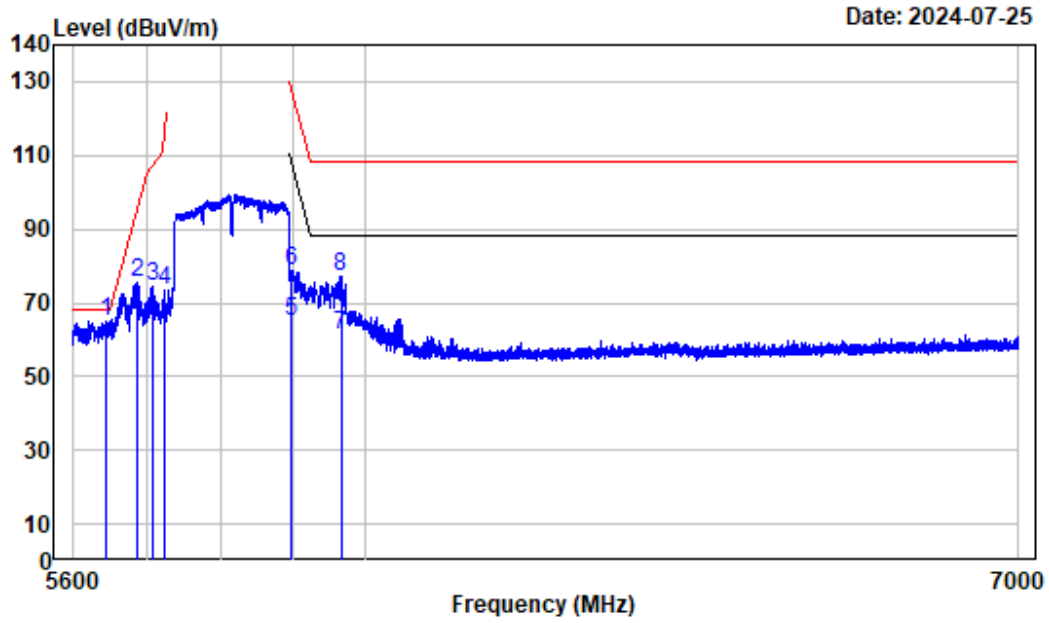
802.11ac-VHT160			
Test Channel:	**5815MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC160_5815

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5622.400	3.07	61.81	64.88	68.20	-3.32	peak
2	5686.450	3.40	71.83	75.23	95.21	-19.98	peak
3	5706.225	3.45	70.01	73.46	106.95	-33.49	peak
4	5722.675	3.49	70.16	73.65	116.90	-43.25	peak
5	5905.725	3.84	59.07	62.91	102.32	-39.41	Average
6	5905.725	3.84	73.77	77.61	122.32	-44.71	peak
7	5966.275	3.70	56.36	60.06	88.20	-28.14	Average
8	5966.275	3.70	71.86	75.56	108.20	-32.64	Peak

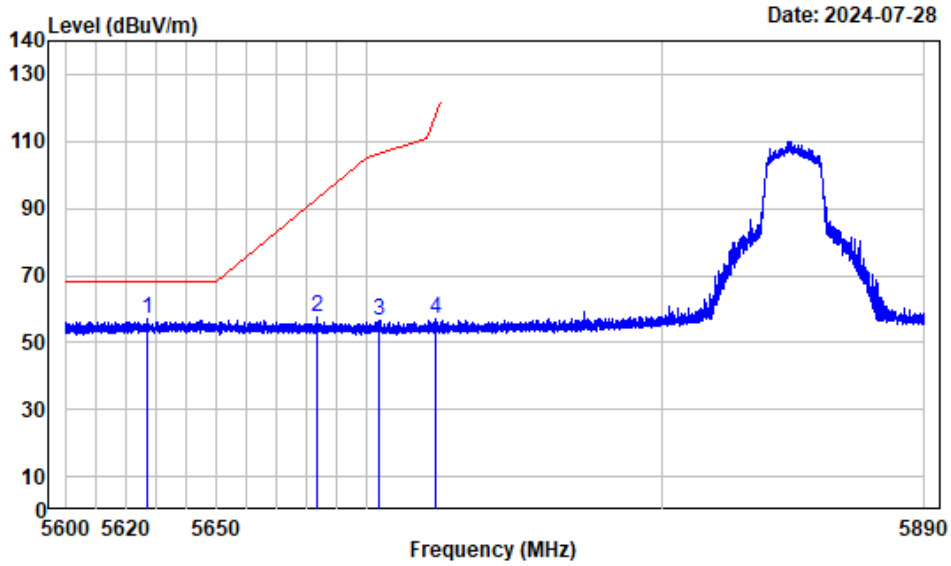
802.11ac-VHT160			
Test Channel:	**5815MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AC160_5815

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5644.625	3.23	61.94	65.17	68.20	-3.03	peak
2	5685.575	3.40	72.15	75.55	94.56	-19.01	peak
3	5706.225	3.45	70.93	74.38	106.95	-32.57	peak
4	5722.850	3.48	69.76	73.24	117.30	-44.06	peak
5	5897.850	3.84	61.08	64.92	108.11	-43.19	Average
6	5897.850	3.84	74.73	78.57	128.11	-49.54	peak
7	5966.100	3.70	57.83	61.53	88.20	-26.67	Average
8	5966.100	3.70	73.31	77.01	108.20	-31.19	Peak

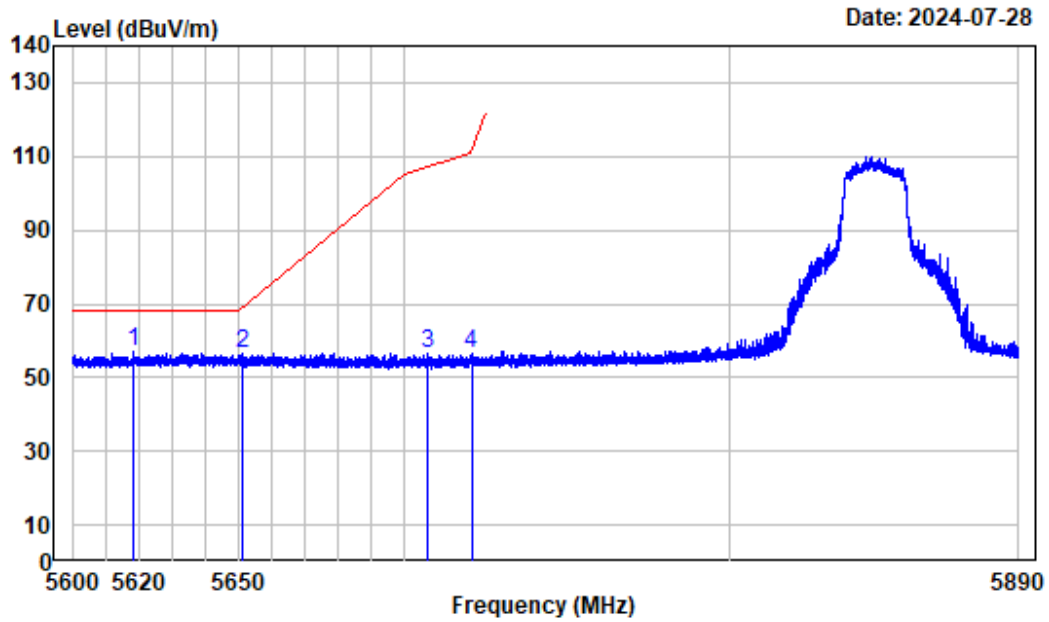
802.11ax-HE20			
Test Channel:	**5845MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX20_5845

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5627.188	3.10	53.98	57.08	68.20	-11.12	peak
2	5683.592	3.39	54.01	57.40	93.09	-35.69	peak
3	5704.291	3.46	53.06	56.52	106.40	-49.88	peak
4	5723.286	3.48	53.42	56.90	118.29	-61.39	peak

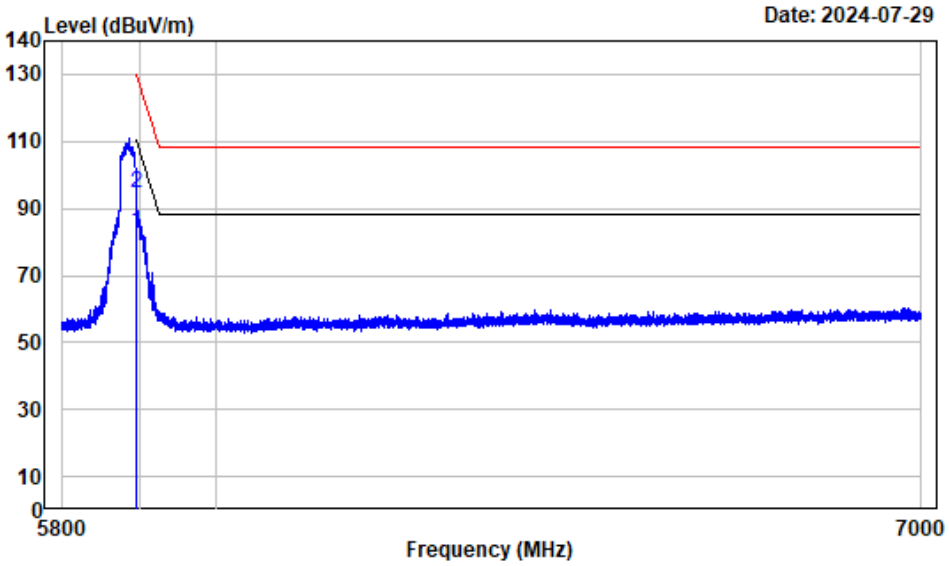
802.11ax-HE20			
Test Channel:	**5845MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX20_5845

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5618.415	3.04	53.77	56.81	68.20	-11.39	peak
2	5651.221	3.27	53.26	56.53	69.11	-12.58	peak
3	5707.373	3.45	52.97	56.42	107.27	-50.85	peak
4	5720.531	3.48	52.84	56.32	112.01	-55.69	peak

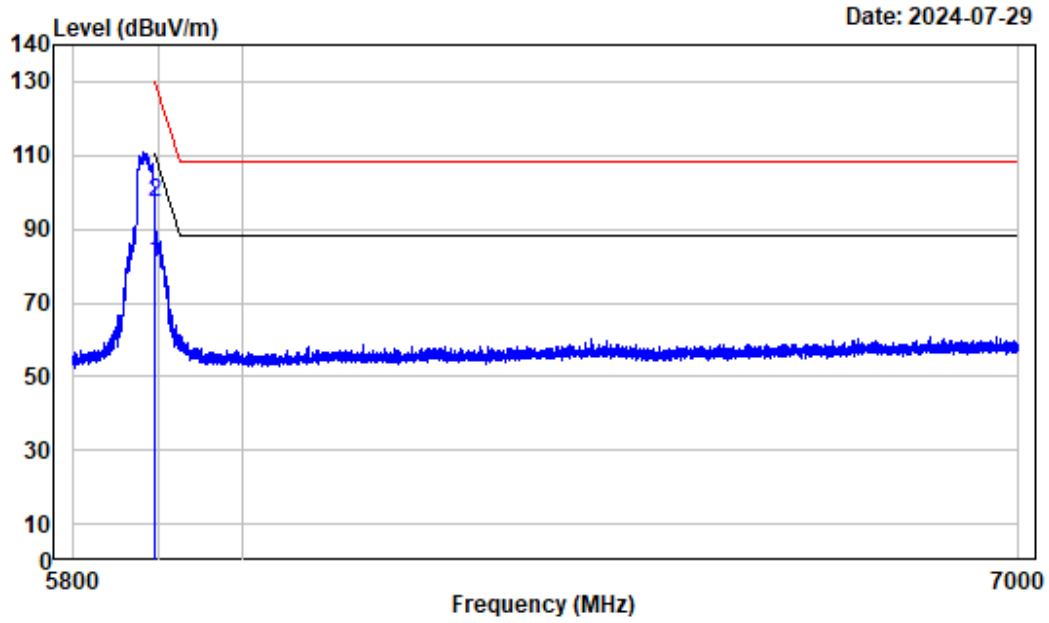
802.11ax-HE20			
Test Channel:	**5885MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX20_5885

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5895.250	3.84	79.12	82.96	110.02	-27.06	Average
2	5895.250	3.84	90.78	94.62	130.02	-35.40	peak

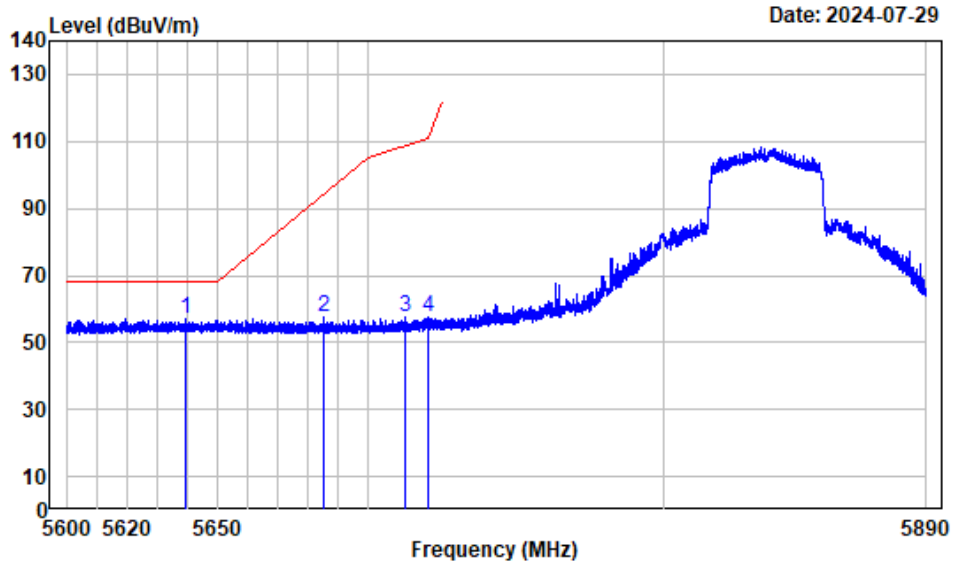
802.11ax-HE20			
Test Channel:	**5885MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX20_5885

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5895.400	3.84	77.09	80.93	109.91	-28.98	Average
2	5895.400	3.84	93.54	97.38	129.91	-32.53	peak

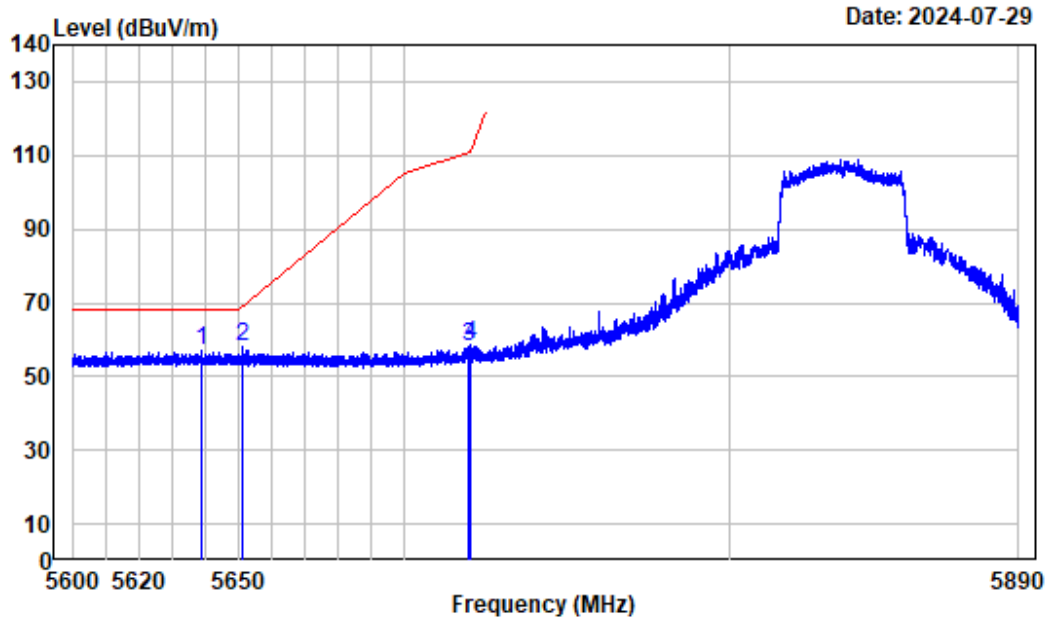
802.11ax-HE40			
Test Channel:	**5835MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX40_5835

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5639.513	3.20	54.04	57.24	68.20	-10.96	peak
2	5685.115	3.40	54.21	57.61	94.22	-36.61	peak
3	5712.737	3.48	53.91	57.39	108.77	-51.38	peak
4	5720.132	3.48	54.27	57.75	111.10	-53.35	peak

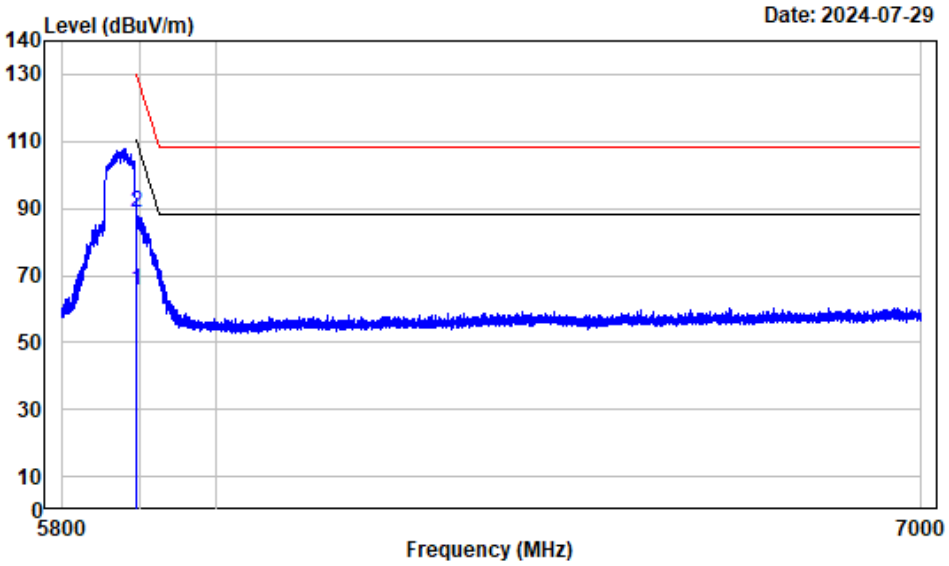
802.11ax-HE40			
Test Channel:	**5835MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX40_5835

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5638.933	3.19	53.87	57.06	68.20	-11.14	peak
2	5651.330	3.28	54.60	57.88	69.19	-11.31	peak
3	5719.806	3.48	54.80	58.28	110.75	-52.47	peak
4	5720.060	3.48	55.04	58.52	110.94	-52.42	peak

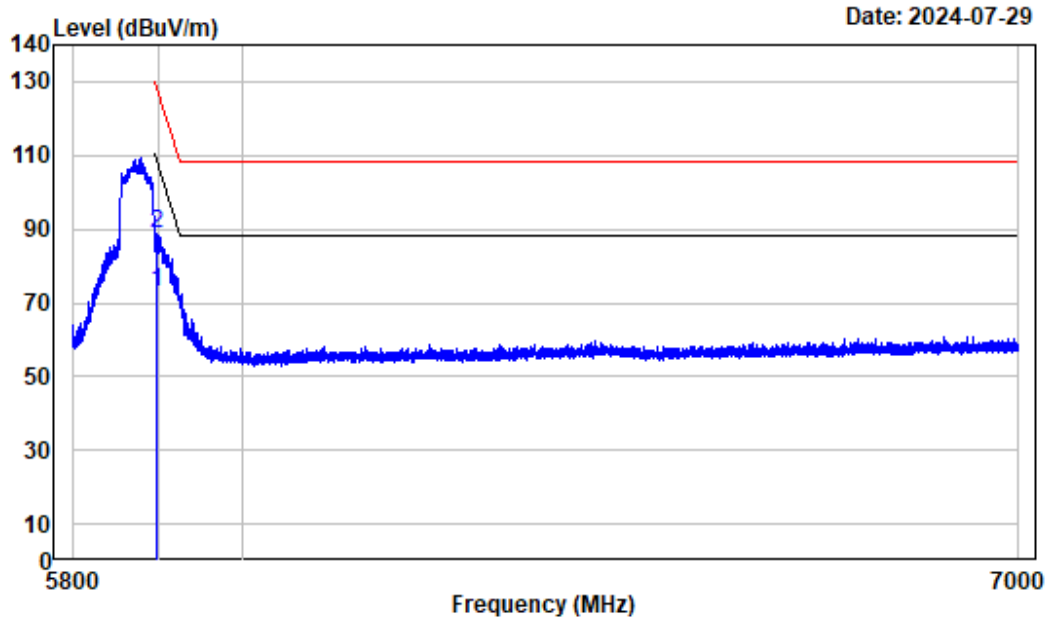
802.11ax-HE40			
Test Channel:	**5875MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX40_5875

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5895.250	3.84	61.77	65.61	110.02	-44.41	Average
2	5895.250	3.84	84.68	88.52	130.02	-41.50	peak

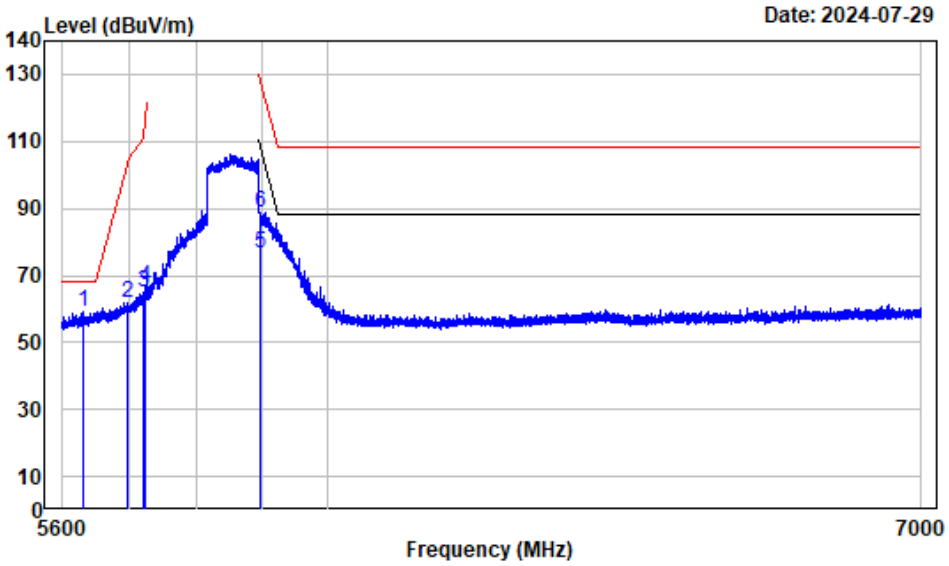
802.11ax-HE40			
Test Channel:	**5875MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX40_5875

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5899.000	3.86	68.94	72.80	107.26	-34.46	Average
2	5899.000	3.86	84.86	88.72	127.26	-38.54	peak

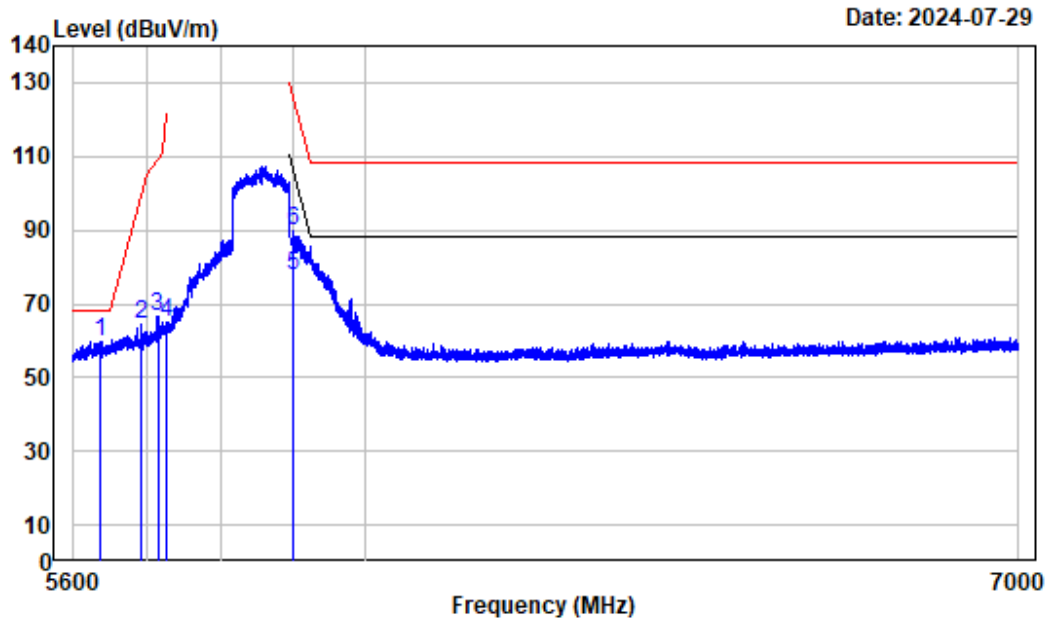
802.11ax-HE80			
Test Channel:	**5855MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX80_5855

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5632.900	3.14	56.27	59.41	68.20	-8.79	peak
2	5697.475	3.44	58.23	61.67	103.34	-41.67	peak
3	5719.525	3.48	61.61	65.09	110.67	-45.58	peak
4	5723.200	3.48	62.89	66.37	118.10	-51.73	peak
5	5896.100	3.83	72.60	76.43	109.39	-32.96	Average
6	5896.100	3.83	85.17	89.00	129.39	-40.39	peak

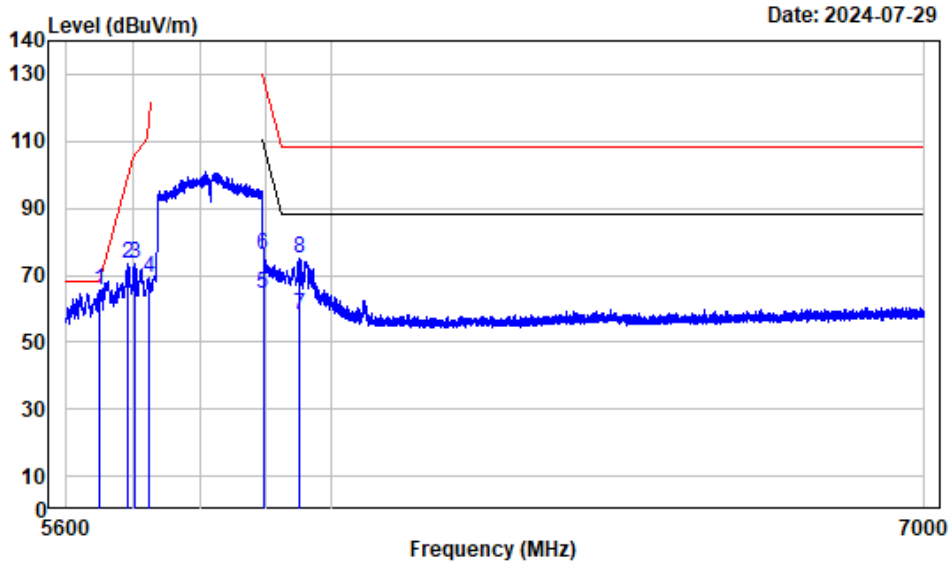
802.11ax-HE80			
Test Channel:	**5855MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX80_5855

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5637.800	3.18	56.56	59.74	68.20	-8.46	peak
2	5692.400	3.42	60.93	64.35	99.60	-35.25	peak
3	5713.925	3.47	62.91	66.38	109.10	-42.72	peak
4	5724.775	3.48	61.66	65.14	121.69	-56.55	peak
5	5898.200	3.84	73.72	77.56	107.85	-30.29	Average
6	5898.200	3.84	85.82	89.66	127.85	-38.19	peak

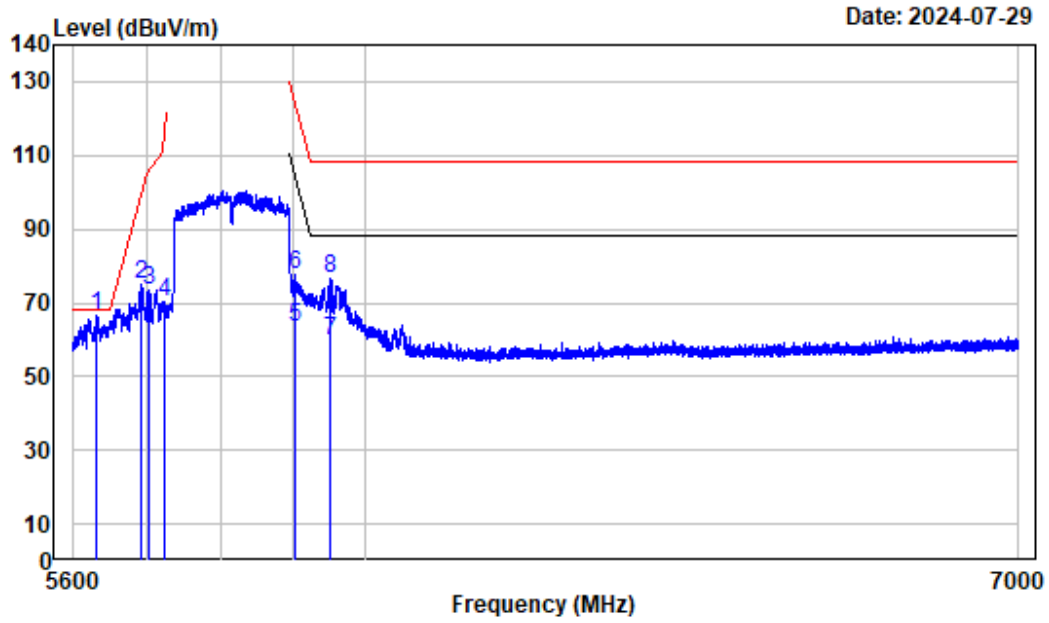
802.11ax-HE160			
Test Channel:	**5815MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX160_5815

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5649.175	3.27	62.09	65.36	68.20	-2.84	peak
2	5692.225	3.42	70.09	73.51	99.47	-25.96	peak
3	5702.375	3.45	70.15	73.60	105.87	-32.27	peak
4	5722.325	3.48	65.84	69.32	116.10	-46.78	peak
5	5895.225	3.84	60.54	64.38	110.02	-45.64	Average
6	5895.225	3.84	72.06	75.90	130.02	-54.12	peak
7	5952.100	3.73	54.59	58.32	88.20	-29.88	Average
8	5952.100	3.73	71.22	74.95	108.20	-33.25	Peak

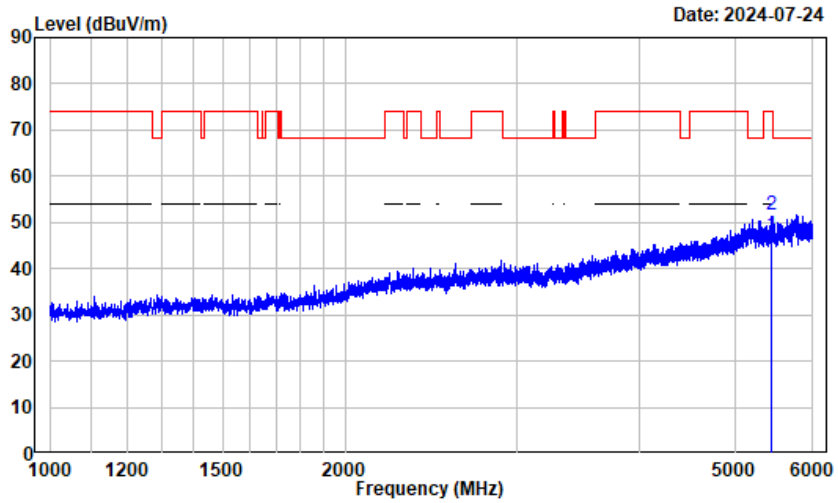
802.11ax-HE160			
Test Channel:	**5815MHz**	**Ant. Polar. :**	**Vertical**

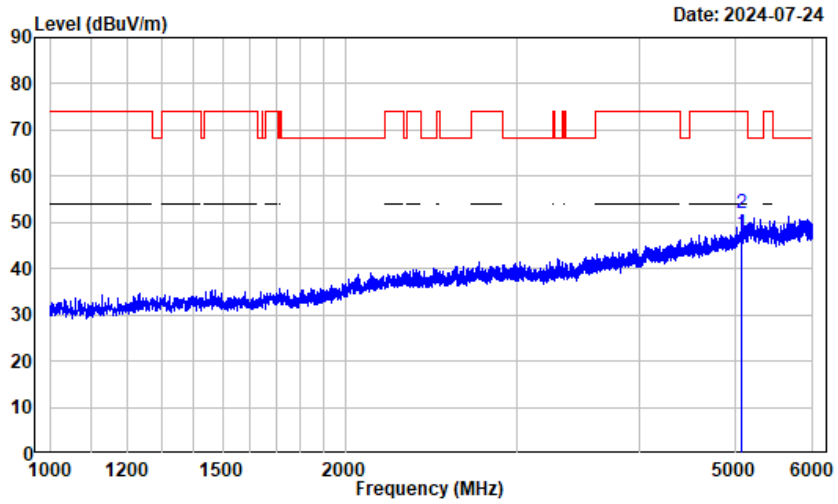


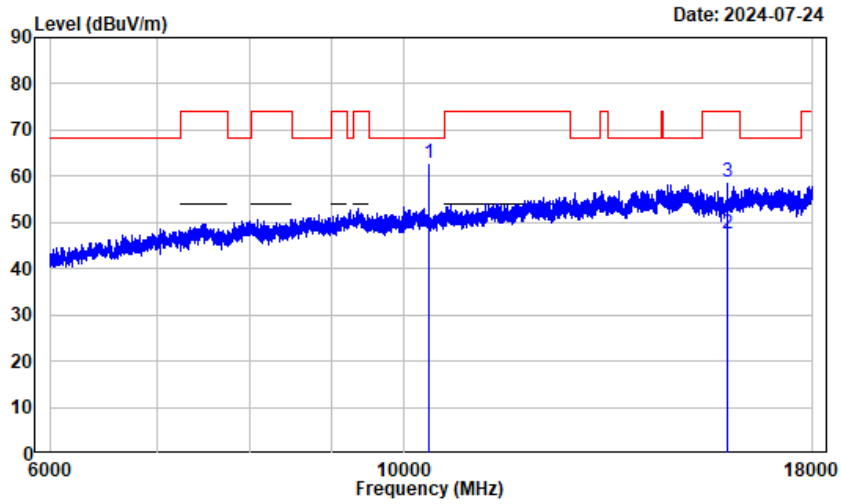
Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Dylan
Note : 802.11AX160_5815

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5632.550	3.13	63.34	66.47	68.20	-1.73	peak
2	5691.700	3.42	71.51	74.93	99.08	-24.15	peak
3	5702.375	3.45	70.18	73.63	105.87	-32.24	peak
4	5721.975	3.48	66.88	70.36	115.30	-44.94	peak
5	5901.000	3.86	59.75	63.61	105.79	-42.18	Average
6	5901.000	3.86	74.00	77.86	125.79	-47.93	peak
7	5952.100	3.73	56.14	59.87	88.20	-28.33	Average
8	5952.100	3.73	72.98	76.71	108.20	-31.49	Peak

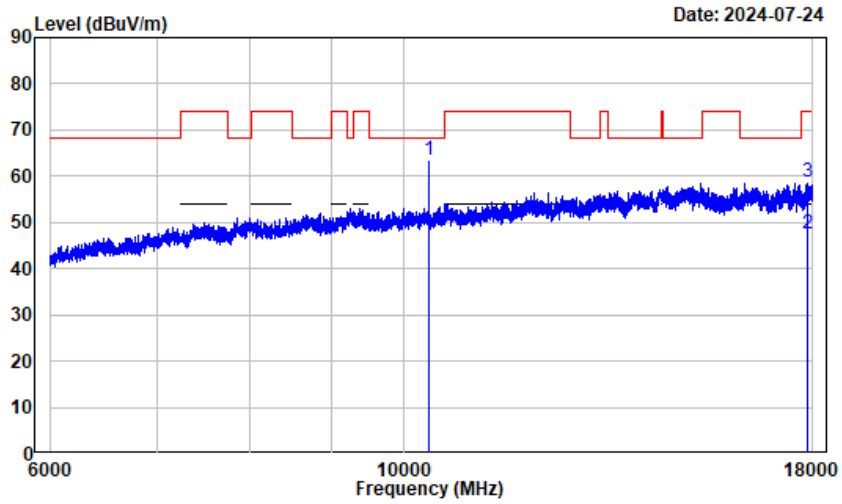
Test plots for Harmonic and Emissions Measurements:

Horizontal	
1-6GHz	 Condition : Horizontal Project No.: 2401U56759E-RF Tester : Zenos Qiao Note : 5GWiFi-Band1-A-5180 Freq / Factor / Read Level / Limit Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 5453.125 3.06 44.30 47.36 54.00 -6.64 Average 2 5453.125 3.06 48.67 51.73 74.00 -22.27 Peak

Vertical	
1-6GHz	 Condition : Vertical Project No.: 2401U56759E-RF Tester : Zenos Qiao Note : 5GWiFi-Band1-A-5180 | | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark | | | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | | | 1 | 5076.250 | 2.83 | 44.65 | 47.48 | 54.00 | -6.52 | Average | | 2 | 5076.250 | 2.83 | 49.09 | 51.92 | 74.00 | -22.08 | Peak |

Horizontal	
6-18GHz	 Condition : Horizontal Project No.: 2401U56759E-RF Tester : Zenos Qiao Note : 5GWiFi-Band1-A-5180

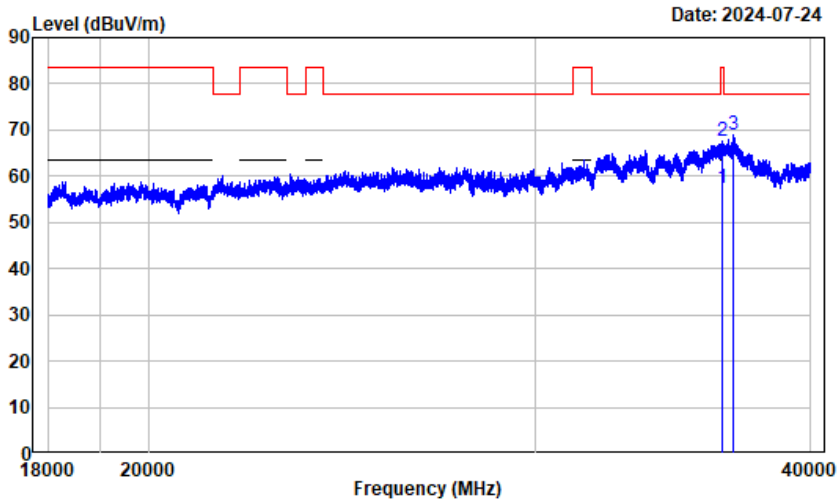
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	10360.000	13.07	49.64	62.71	68.20	-5.49	Peak
2	15937.500	13.65	33.92	47.57	54.00	-6.43	Average
3	15937.500	13.65	45.01	58.66	74.00	-15.34	Peak

Vertical	
6-18GHz	 Condition : Vertical Project No.: 2401U56759E-RF Tester : Zenos Qiao Note : 5GWiFi-Band1-A-5180

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	10360.000	13.07	50.49	63.56	68.20	-4.64	Peak
2	17872.500	23.47	24.22	47.69	54.00	-6.31	Average
3	17872.500	23.47	35.43	58.90	74.00	-15.10	Peak

Horizontal

18-40GHz

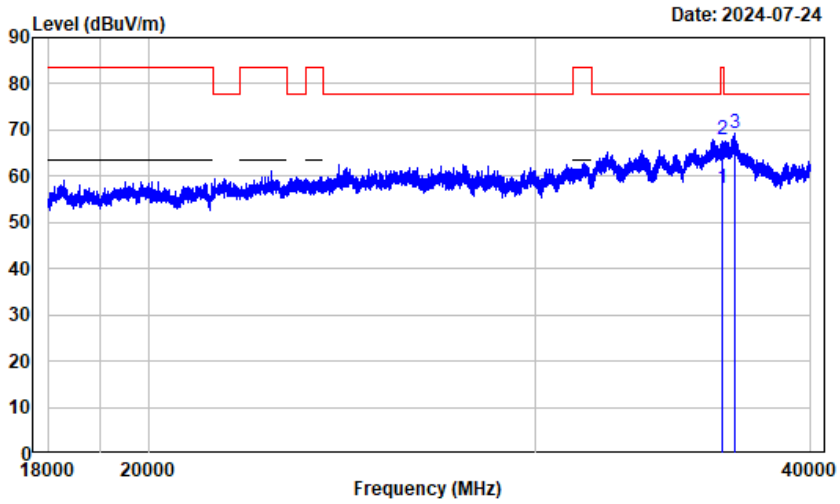


Condition : Horizontal
Project No.: 2401U56759E-RF
Tester : Zenos Qiao
Note : 5GWiFi-Band1-A-5180

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	36474.500	25.31	31.94	57.25	63.50	-6.25	Average
2	36474.500	25.31	42.22	67.53	83.50	-15.97	Peak
3	36882.750	25.01	44.00	69.01	77.70	-8.69	Peak

Vertical

18-40GHz



Site : chamber
Condition : Vertical
Project No.: 2401U56759E-RF
Tester : Zenos Qiao
Note : 5G WiFi_B1_A-5745

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	36491.000	25.36	32.04	57.40	63.50	-6.10	Average
2	36491.000	25.36	42.58	67.94	83.50	-15.56	Peak
3	36956.250	24.94	44.28	69.22	77.70	-8.48	Peak

FCC §15.407(a), (e) - 26 dB & 6dB EMISSION BANDWIDTH

Applicable Standard

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

According to KDB789033 D02 section II.C and section II.D

1. Emission Bandwidth (EBW)
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

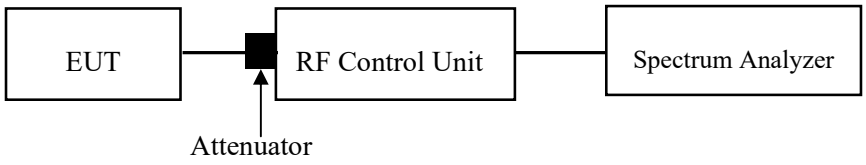
3. 99% Occupied Bandwidth:

According to ANSI C63.10-2013 Section 12.4.2&6.9.3

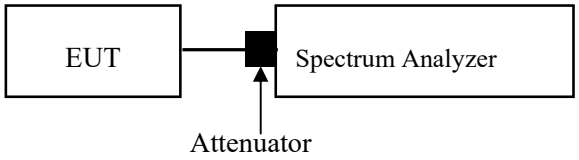
The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:
a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
d) Step a) through step c) might require iteration to adjust within the specified range.
e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

For 5.2G, 5.3G, 5.6G and 5.8G Bands:



For 5.9G Band:



Test Data

Environmental Conditions

Temperature:	25~28 ℃
Relative Humidity:	48~55 %
ATM Pressure:	101kPa

The testing was performed by Allen Bai and Lee Li from 2024-07-28 to 2024-07-31.

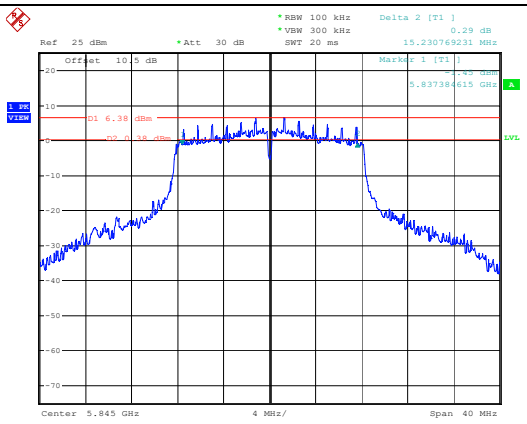
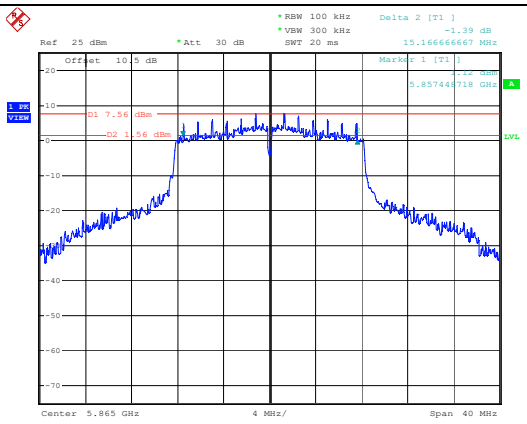
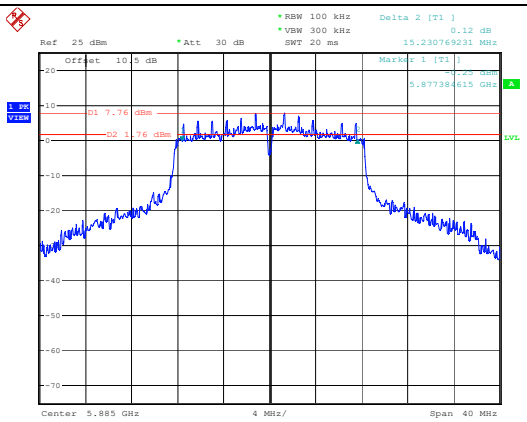
EUT operation mode: Transmitting

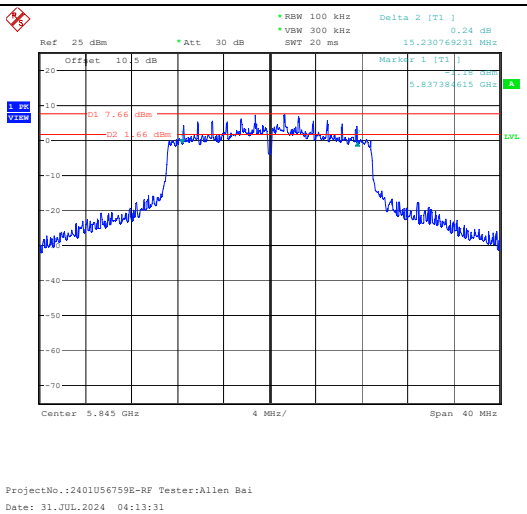
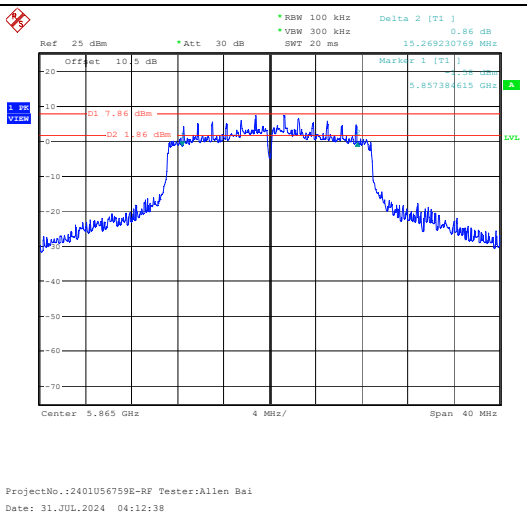
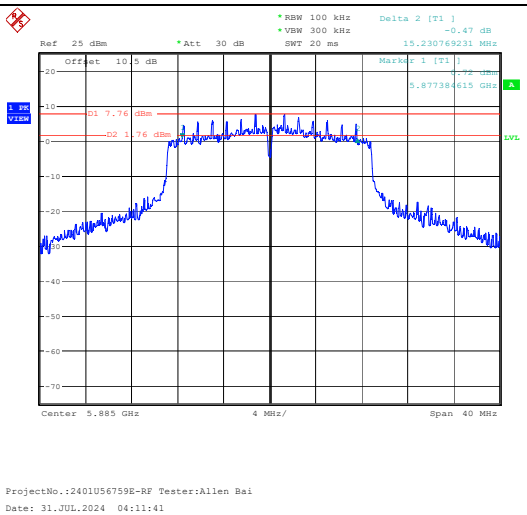
Test Result: Compliant.

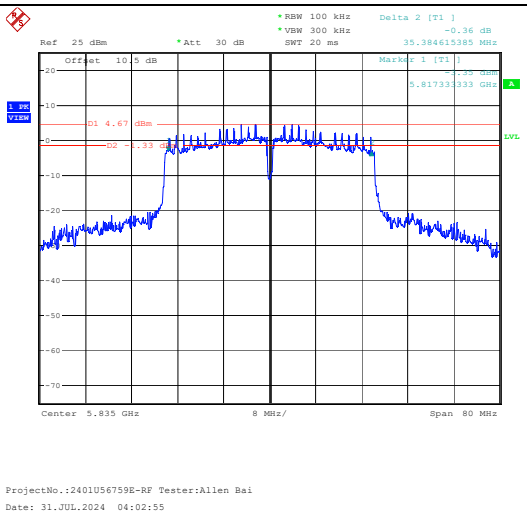
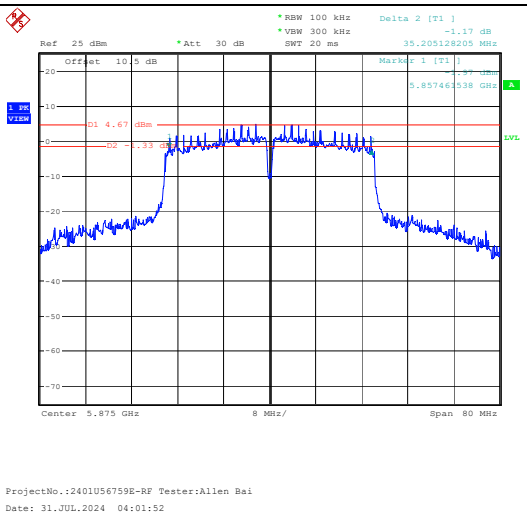
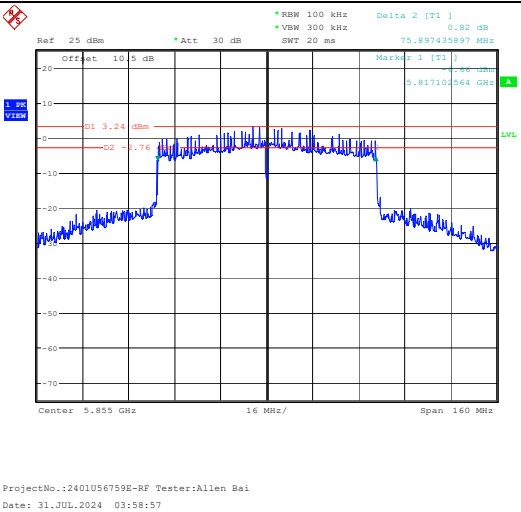
5850- 5895 MHz:

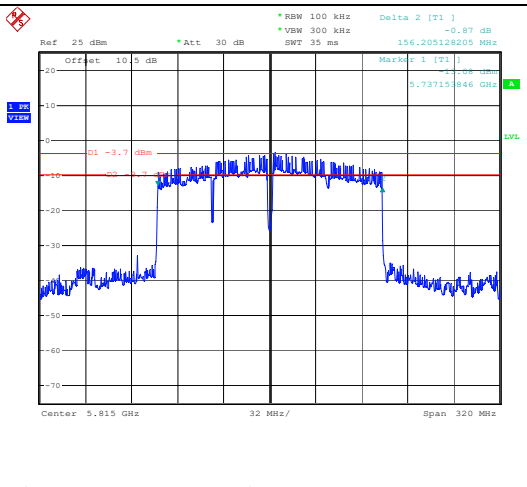
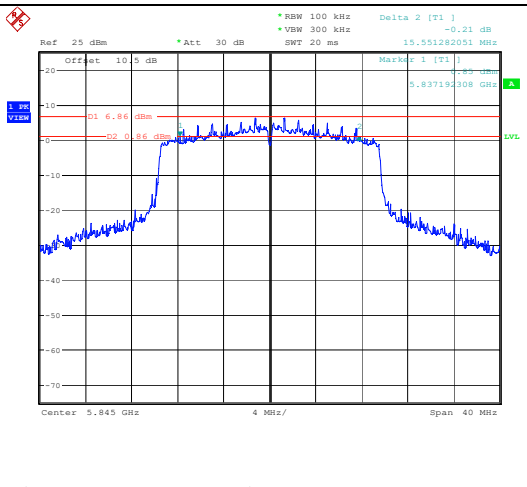
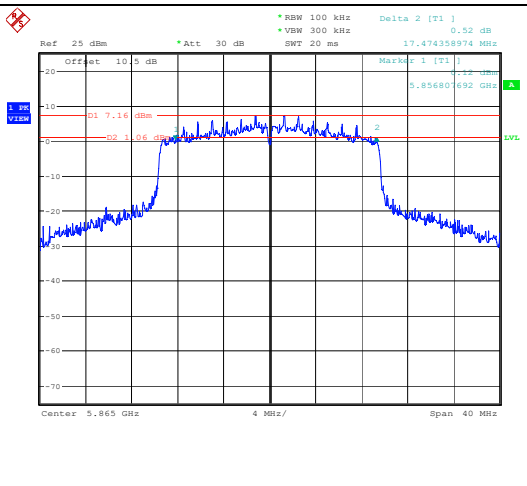
Test Modes	Test Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5845	15.23	17.63
	5865	15.17	18.01
	5885	15.23	17.63
802.11ac-VHT20	5845	15.23	19.23
	5865	15.27	19.23
	5885	15.23	19.42
802.11ac-VHT40	5835	35.38	37.44
	5875	35.21	37.44
802.11ac-VHT80	5855	75.90	78.72
802.11ac-VHT160	5815	156.21	155.38
802.11ax-HE20	5845	15.55	19.29
	5865	17.47	19.36
	5885	17.54	19.36
802.11ax-HE40	5835	35.33	38.33
	5875	35.72	38.33
802.11ax-HE80	5855	74.62	79.49
802.11ax-HE160	5815	154.77	156.41
Note: 6dB Emission Bandwidth Limit: ≥0.5MHz.			

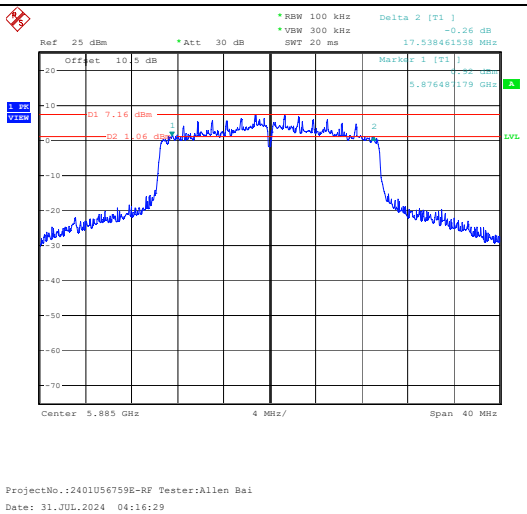
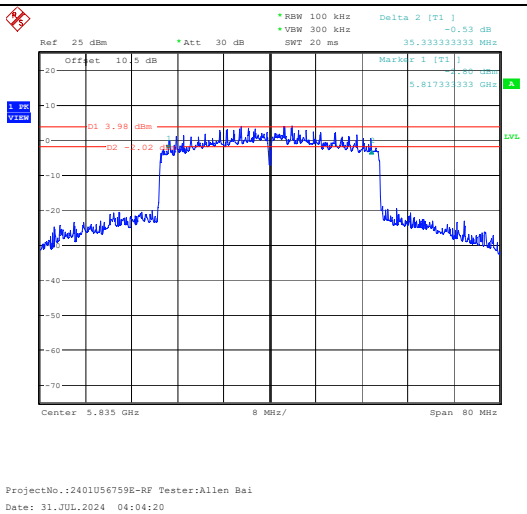
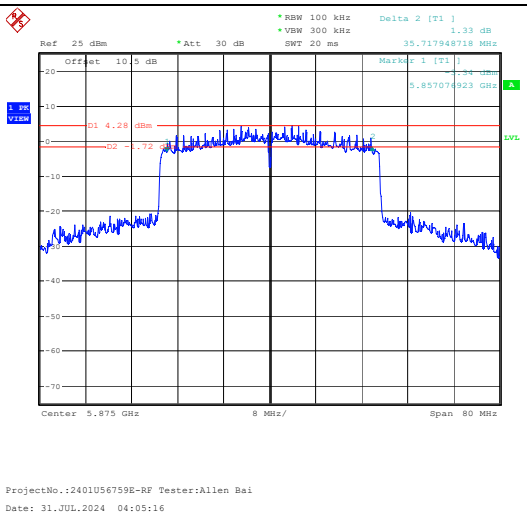
5850-5895 MHz:

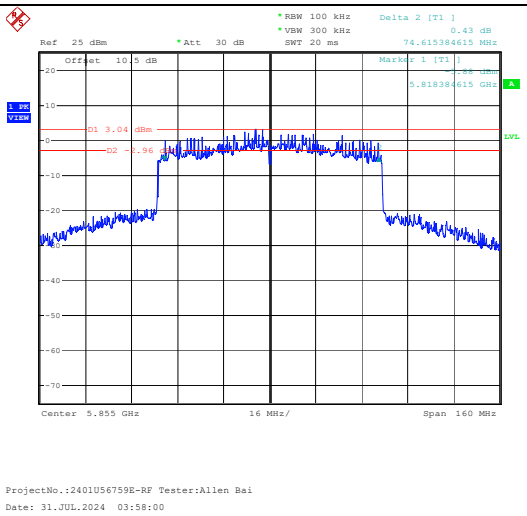
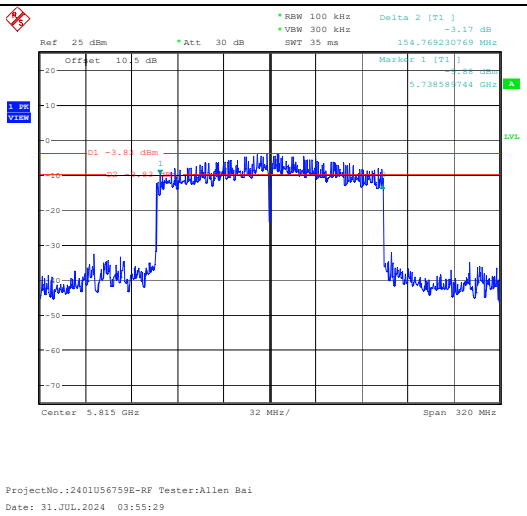
6dB Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

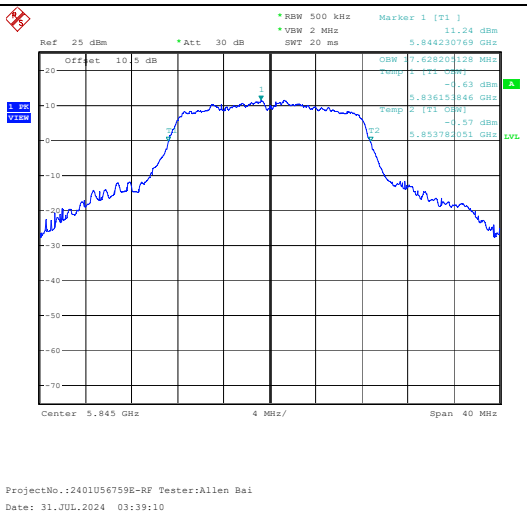
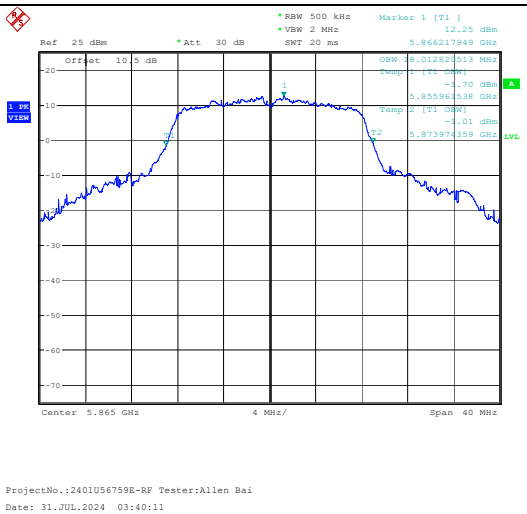
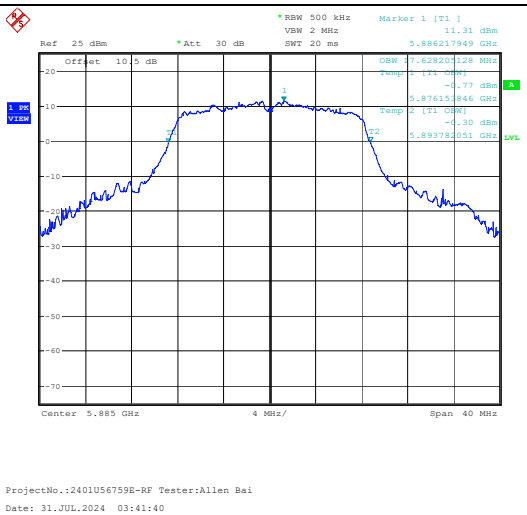
6dB Emission Bandwidth	
802.11ac-VHT20 Lowest Channel	
802.11ac-VHT20 Middle Channel	
802.11ac-VHT20 Highest Channel	

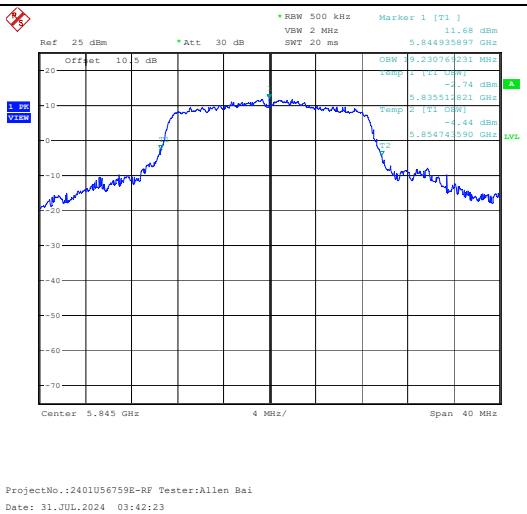
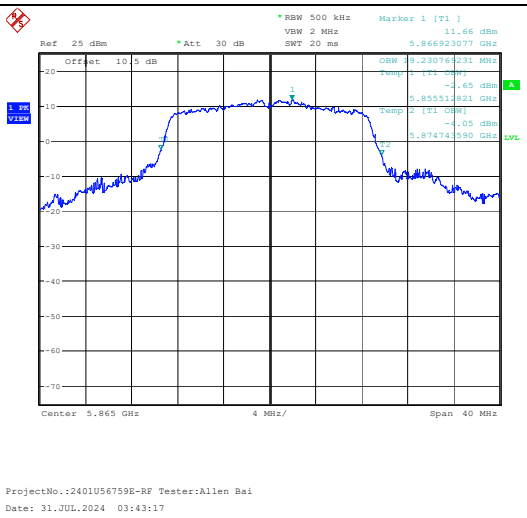
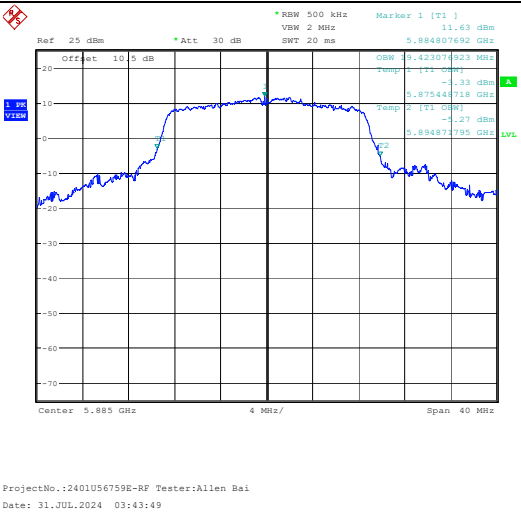
6dB Emission Bandwidth	
802.11ac-VHT40 Lowest Channel	
802.11ac-VHT40 Highest Channel	
802.11ac-VHT80 Middle Channel	

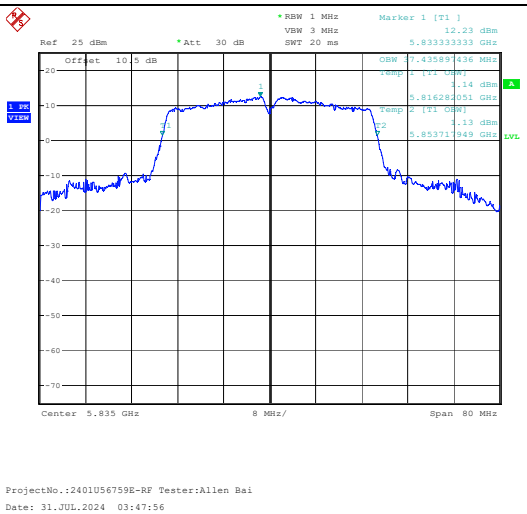
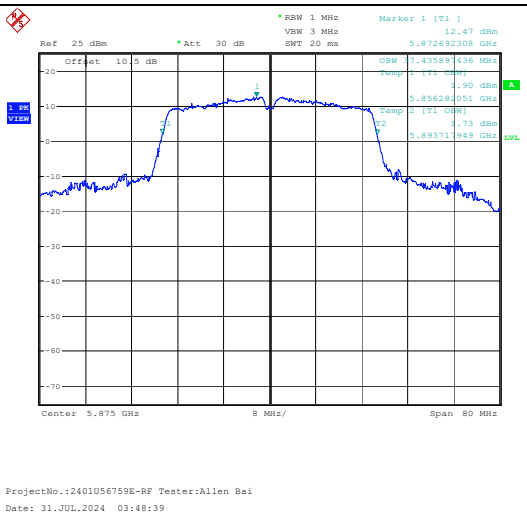
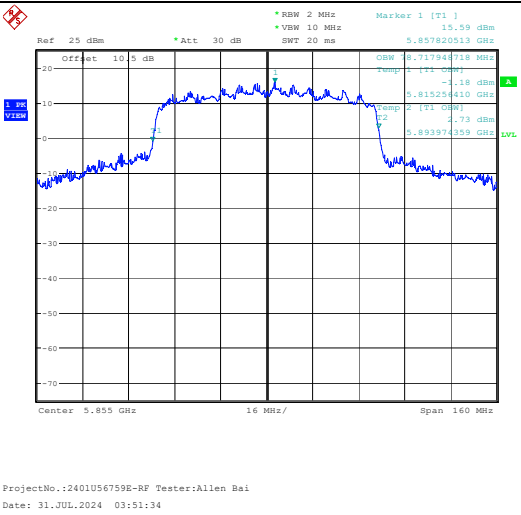
6dB Emission Bandwidth	
802.11ac-VHT160 Middle Channel	
802.11ax-HE20 Lowest Channel	
802.11ax-HE20 Middle Channel	

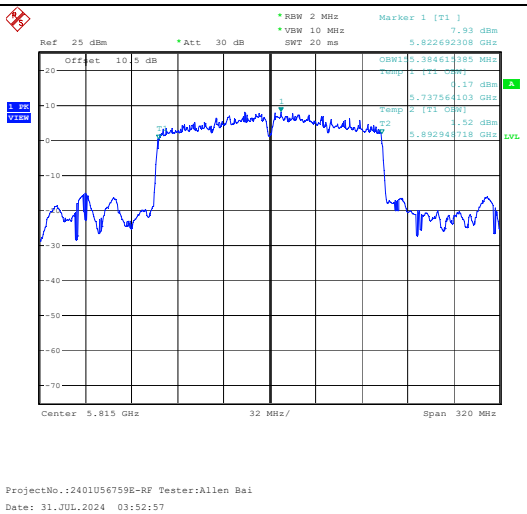
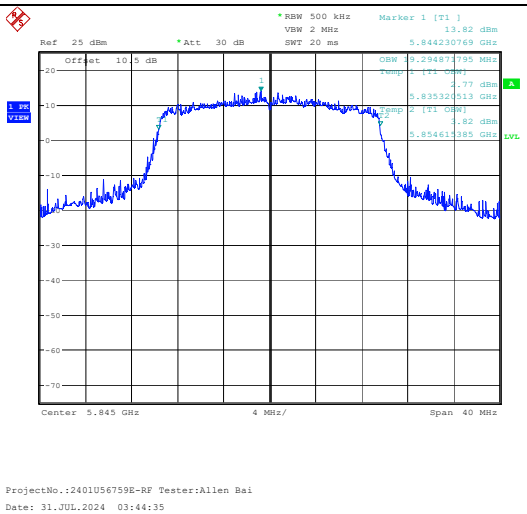
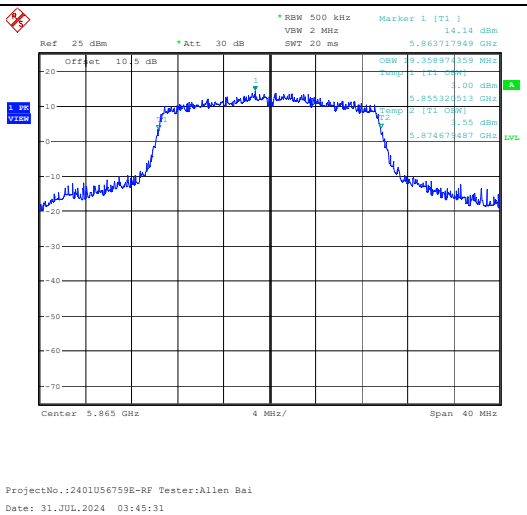
6dB Emission Bandwidth	
802.11ax-HE20 Middle Channel	
802.11ax-HE40 Lowest Channel	
802.11ax-HE40 Highest Channel	

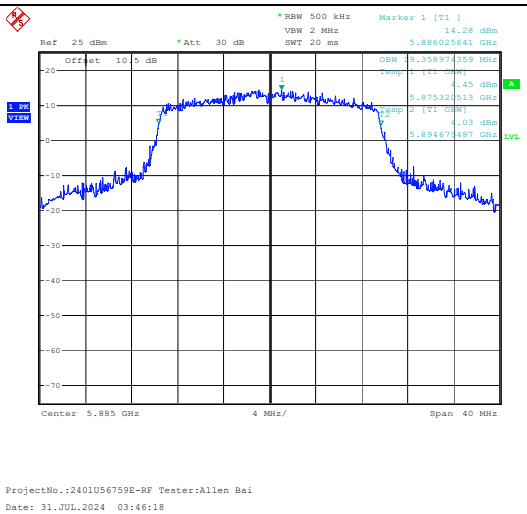
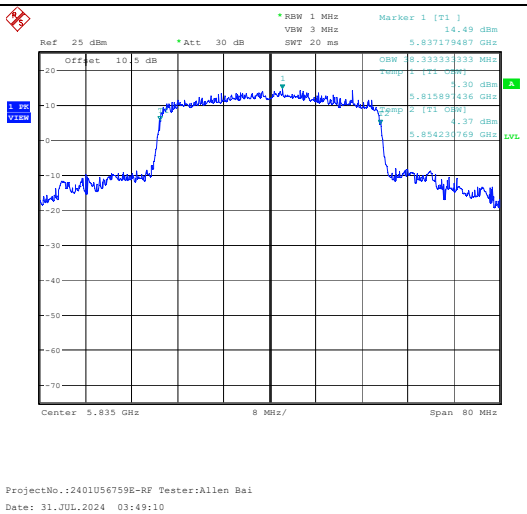
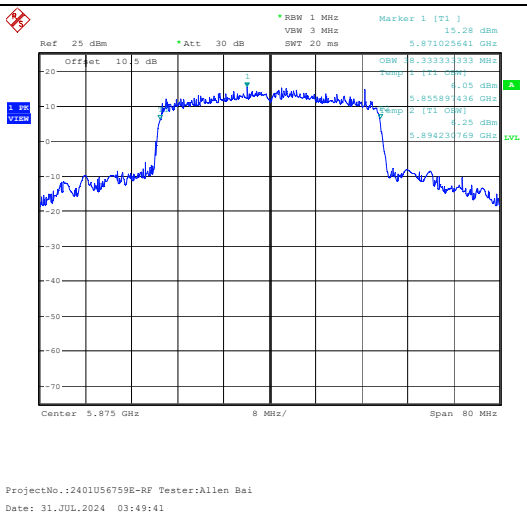
6dB Emission Bandwidth	
802.11ax-HE80 Middle Channel	
802.11ax-HE160 Middle Channel	

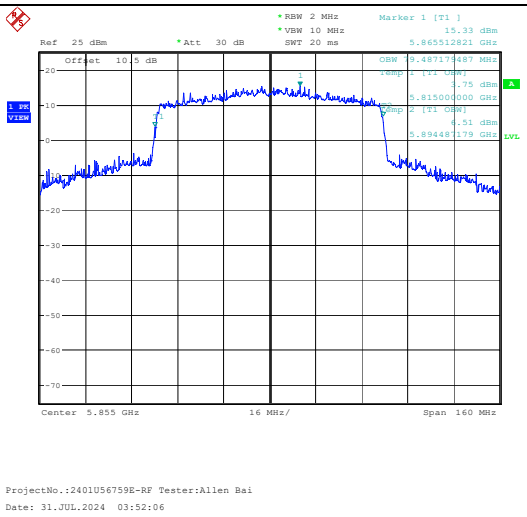
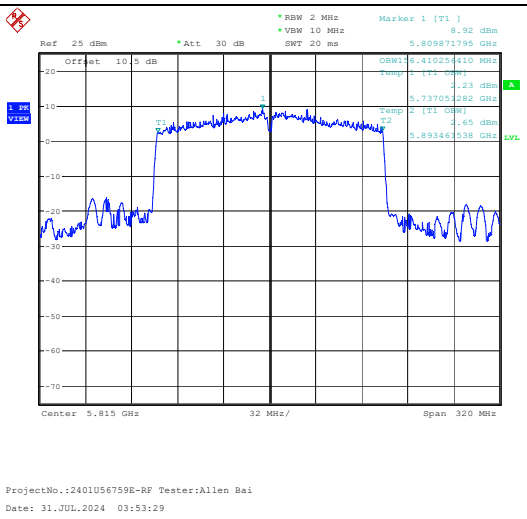
99% Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

99% Emission Bandwidth	
802.11ac-VHT20 Lowest Channel	
802.11ac-VHT20 Middle Channel	
802.11ac-VHT20 Highest Channel	

99% Emission Bandwidth	
802.11ac-VHT40 Lowest Channel	
802.11ac-VHT40 Highest Channel	
802.11ac-VHT80 Middle Channel	

99% Emission Bandwidth	
802.11ac-VHT160 Middle Channel	
802.11ax-HE20 Lowest Channel	
802.11ax-HE20 Middle Channel	

99% Emission Bandwidth	
802.11ax-HE20 Middle Channel	
802.11ax-HE40 Lowest Channel	
802.11ax-HE40 Highest Channel	

99% Emission Bandwidth	
802.11ax-HE80 Middle Channel	
802.11ax-HE160 Middle Channel	

Note: The test data and plots of other bands please refer to the Appendix.

FCC §15.407(a) - CONDUCTED TRANSMITTER OUTPUT POWER

Applicable Standard

FCC § 15.407 (a):

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

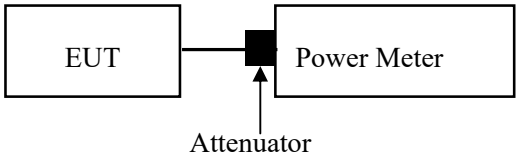
For an indoor access point operating in the 5.850-5.895 GHz band, the maximum power spectral density must not exceed 20 dBm e.i.r.p. in any 1-megahertz band. In addition, the maximum e.i.r.p. over the frequency band of operation must not exceed 36 dBm. Indoor access points operating on a channel that spans the 5.725-5.850 GHz and 5.850-5.895 GHz bands must not exceed an e.i.r.p. of 36 dBm.

For client devices operating under the control of an indoor access point in the 5.850-5.895 GHz band, the maximum power spectral density must not exceed 14 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm. Client devices operating on a channel that spans the 5.725-5.850 GHz and 5.850-5.895 GHz bands must not exceed an e.i.r.p. of 30 dBm.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method PM should be applied

a. Place the EUT on a bench and set it in transmitting mode.
b. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.



Test Data

Environmental Conditions

Temperature:	25~28 ℃
Relative Humidity:	48~55 %
ATM Pressure:	101kPa

The testing was performed by Allen Bai and Lee Li from 2024-07-28 to 2024-08-28.

EUT operation mode: Transmitting

Test Result: Compliant.

5850-5895 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power			EIRP (dBm)	
		Reading (dBm)	Duty Cycle Factor (dB)	Result (dBm)	Result	Limit
802.11a	5845	16.06	0.12	16.18	14.55	30
	5865	17.01	0.12	17.13	15.50	30
	5885	16.13	0.12	16.25	14.62	30
802.11ac-VHT20	5845	16.83	0.13	16.96	15.33	30
	5865	16.87	0.13	17.00	15.37	30
	5885	16.88	0.13	17.01	15.38	30
802.11ac-VHT40	5835	15.75	2.55	18.30	16.67	30
	5875	15.91	2.55	18.46	16.83	30
802.11ac-VHT80	5855	13.77	5.67	19.44	17.81	30
802.11ac-VHT160	5815	19.86	0.15	20.01	**18.38**	30
802.11ax-HE20	5845	15.81	0.71	16.52	14.89	30
	5865	16.76	0.71	17.47	15.84	30
	5885	16.79	0.71	17.50	15.87	30
802.11ax-HE40	5835	15.09	0.32	15.41	13.78	30
	5875	15.12	0.32	15.44	13.81	30
802.11ax-HE80	5855	13.47	6.17	19.64	18.01	30
802.11ax-HE160	5815	19.51	0.13	19.64	18.01	30
Note: The device is a client.						

Note: The test data and plots of other bands please refer to the Appendix.

FCC §15.407(a) - POWER SPECTRAL DENSITY

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

For an indoor access point operating in the 5.850-5.895 GHz band, the maximum power spectral density must not exceed 20 dBm e.i.r.p. in any 1-megahertz band. In addition, the maximum e.i.r.p. over the frequency band of operation must not exceed 36 dBm. Indoor access points operating on a channel that spans the 5.725-5.850 GHz and 5.850-5.895 GHz bands must not exceed an e.i.r.p. of 36 dBm.

For client devices operating under the control of an indoor access point in the 5.850-5.895 GHz band, the maximum power spectral density must not exceed 14 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm. Client devices operating on a channel that spans the 5.725-5.850 GHz and 5.850-5.895 GHz bands must not exceed an e.i.r.p. of 30 dBm.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Duty cycle ≥98%

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-1 should be applied.

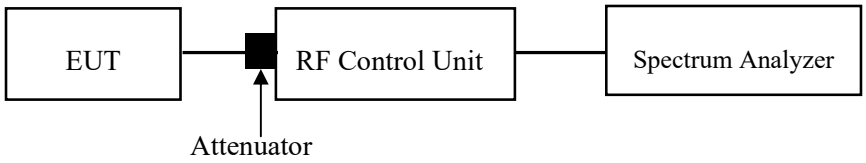
Duty cycle <98%, duty cycle variations are less than ±2%

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-2 should be applied.

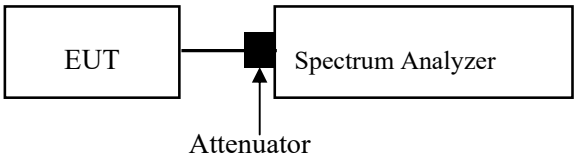
Duty cycle <98%, duty cycle variations exceed ±2%

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-3 should be applied.

For 5.2G, 5.3G, 5.6G and 5.8G Bands:



For 5.9G Band:



Test Data

Environmental Conditions

Temperature:	25~28 ℃
Relative Humidity:	48~55 %
ATM Pressure:	101kPa

The testing was performed by Allen Bai, Lee Li and Kungfumaster Liang from 2024-07-28 to 2024-09-05.

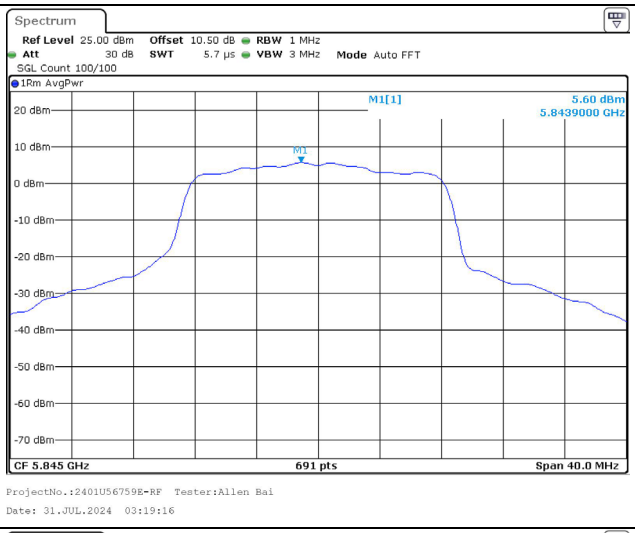
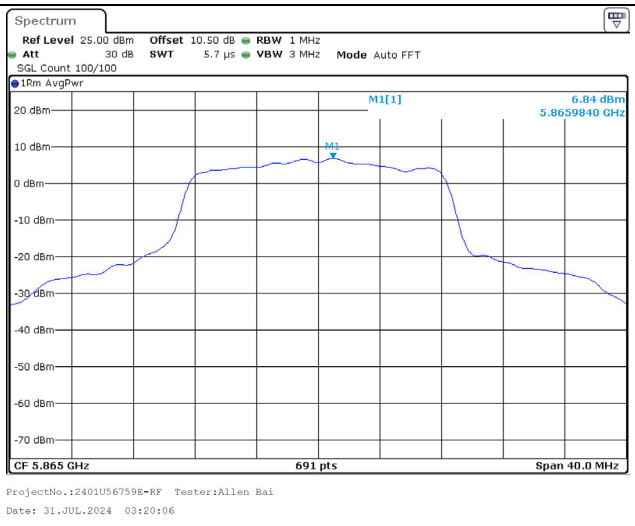
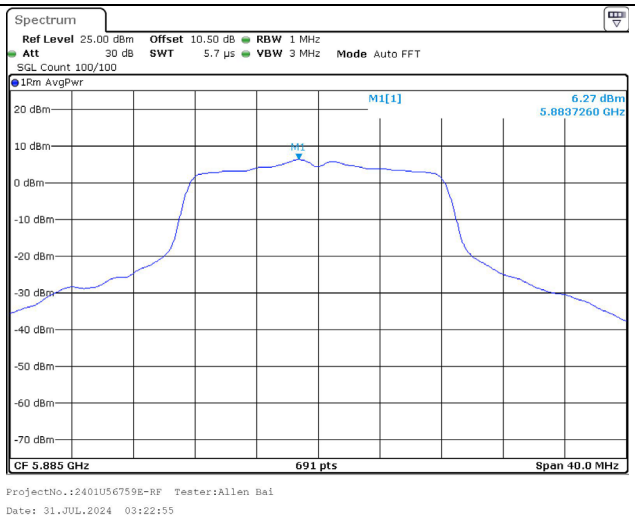
EUT operation mode: Transmitting

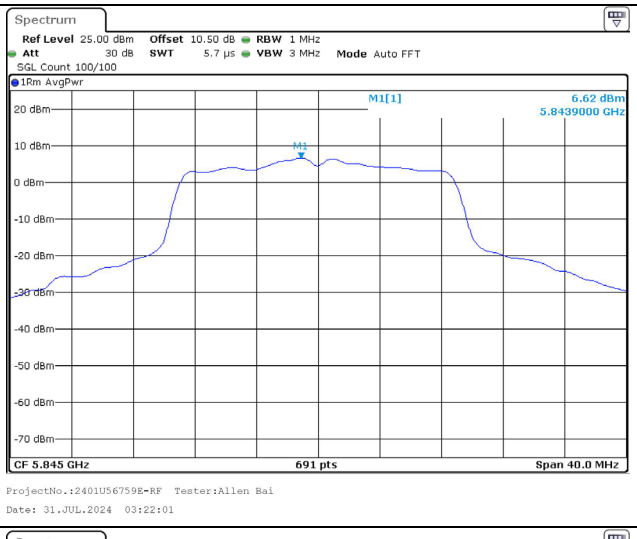
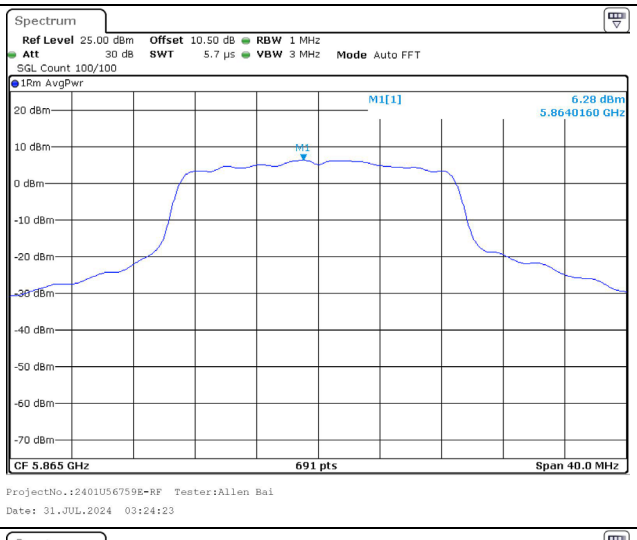
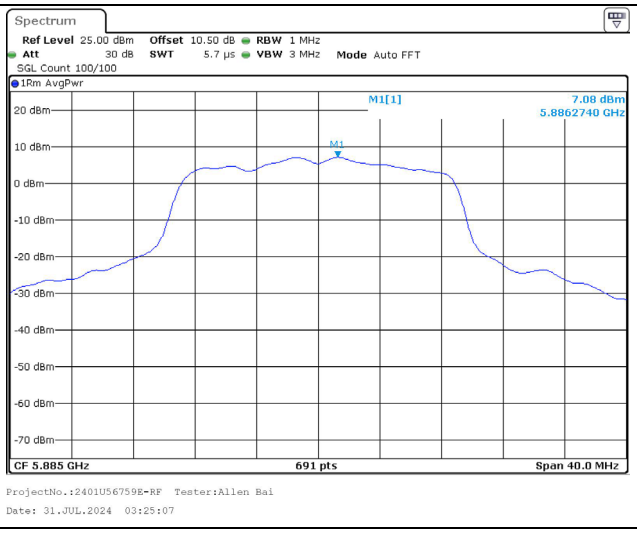
Test Result: Compliant.

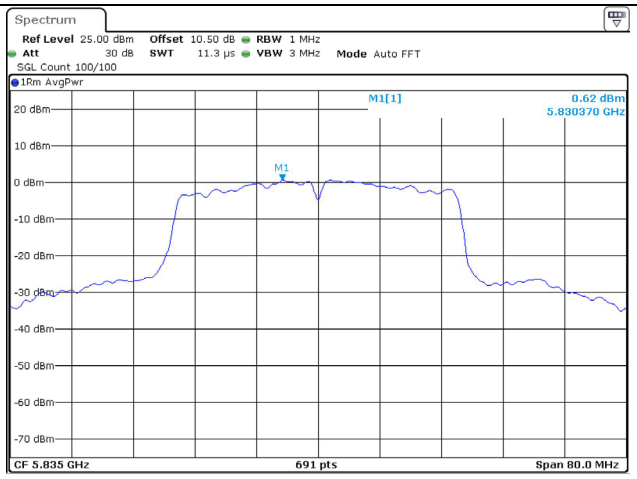
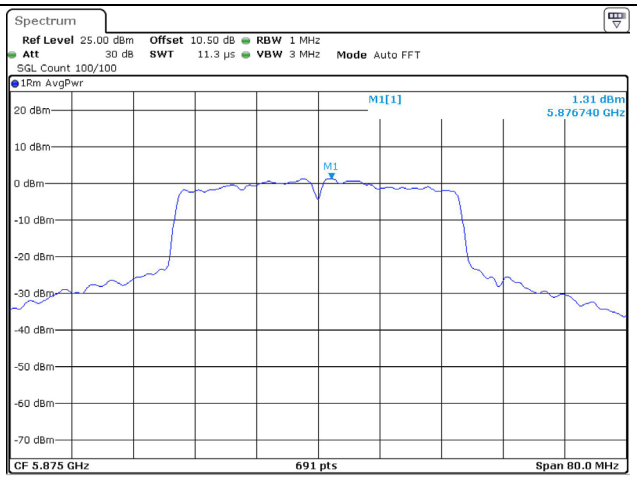
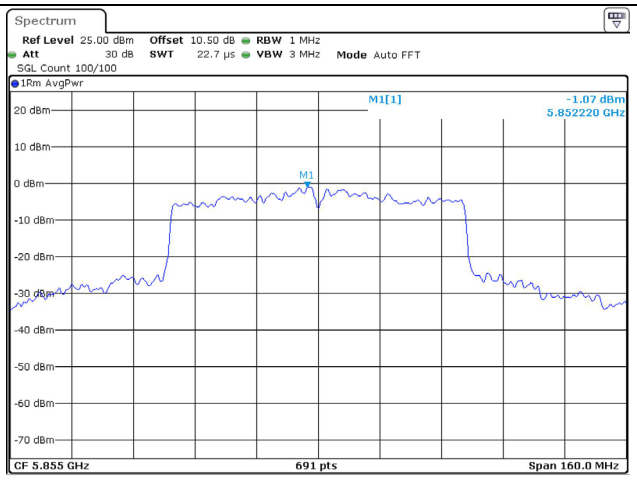
5850-5895 MHz:

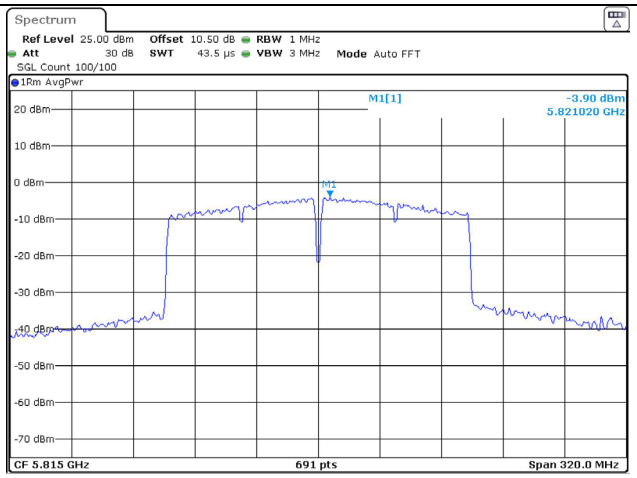
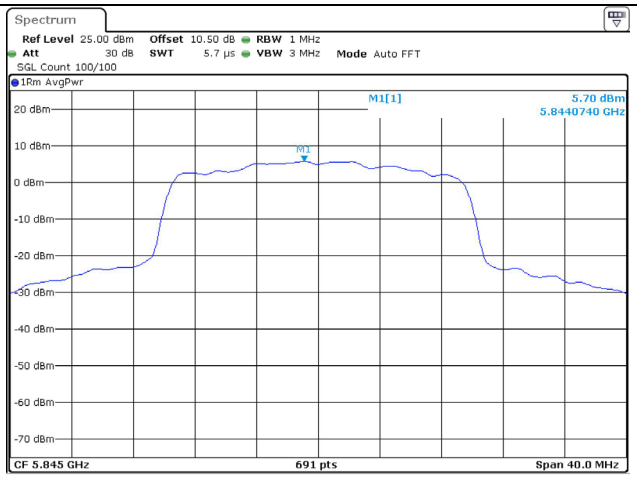
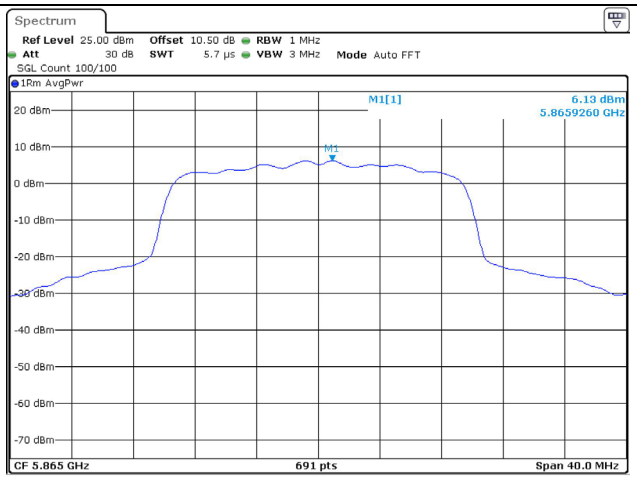
Test Modes	Test Frequency (MHz)	Maximum Power Spectral Density			Maximum EIRP Power Spectral Density (dBm/MHz)	
		Reading (dBm/MHz)	Duty Cycle Factor (dB)	Result (dBm/MHz)	Result	Limit
802.11a	5845	5.60	0.12	5.72	4.09	14
	5865	6.84	0.12	6.96	5.33	14
	5885	6.27	0.12	6.39	4.76	14
802.11ac-VHT20	5845	6.62	0.13	6.75	5.12	14
	5865	6.28	0.13	6.41	4.78	14
	5885	7.08	0.13	7.21	5.58	14
802.11ac-VHT40	5835	0.62	2.55	3.17	1.54	14
	5875	1.31	2.55	3.86	2.23	14
802.11ac-VHT80	5855	-1.07	5.67	4.60	2.97	14
802.11ac-VHT160	5815	-3.90	0.15	-3.75	-5.38	14
802.11ax-HE20	5845	5.70	0.71	6.41	4.78	14
	5865	6.13	0.71	6.84	5.21	14
	5885	6.01	0.71	6.72	5.09	14
802.11ax-HE40	5835	0.42	0.32	0.74	-0.89	14
	5875	1.03	0.32	1.35	-0.28	14
802.11ax-HE80	5855	-0.69	6.17	5.48	3.85	14
802.11ax-HE160	5815	-3.42	0.13	-3.29	-4.92	14
Note: The device is a client.						

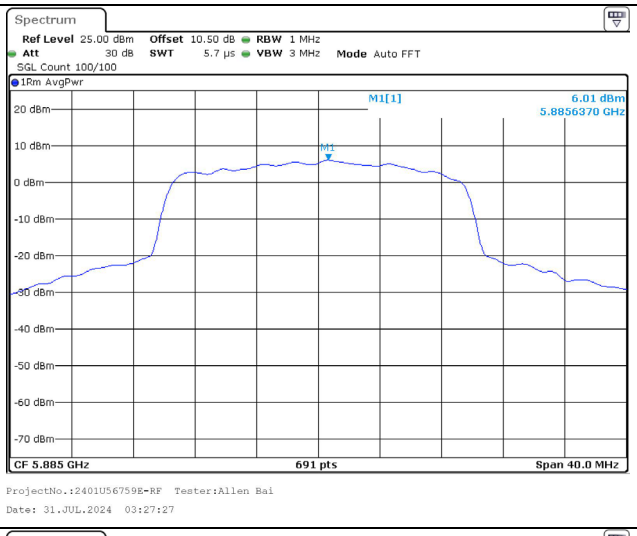
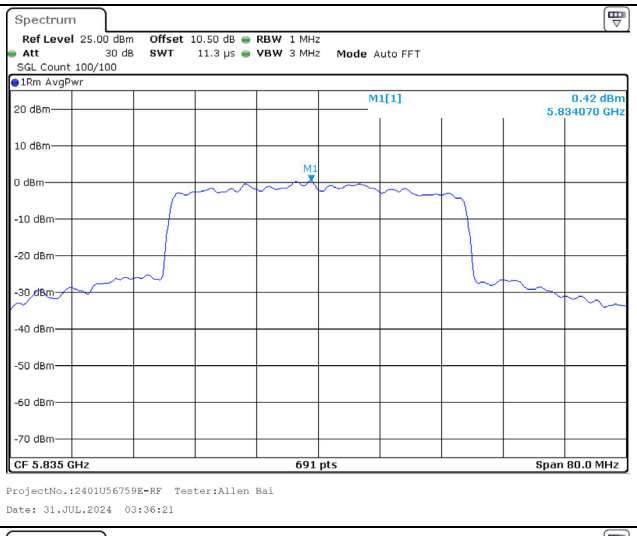
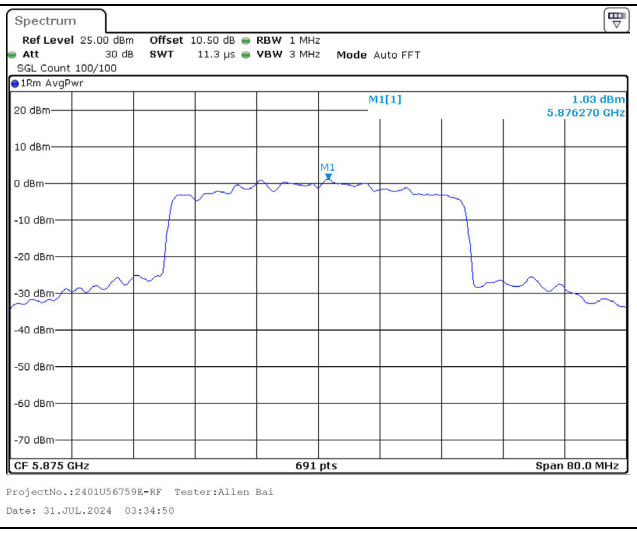
5850-5895 MHz:

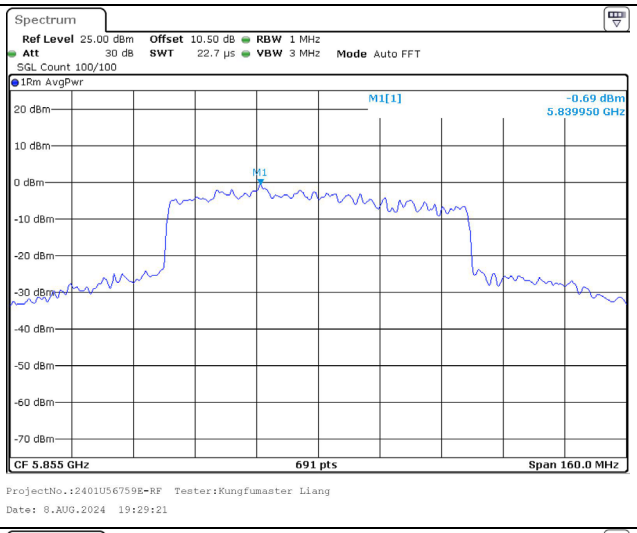
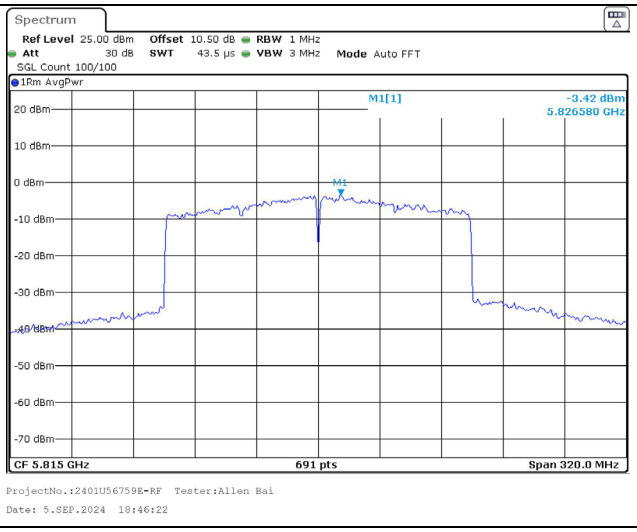
Maximum power spectral density	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

Maximum power spectral density	
802.11ac-VHT20 Lowest Channel	
802.11ac-VHT20 Middle Channel	
802.11ac-VHT20 Highest Channel	

Maximum power spectral density	
802.11ac-VHT40 Lowest Channel	
802.11ac-VHT40 Highest Channel	
802.11ac-VHT80 Middle Channel	

Maximum power spectral density	
802.11ac-VHT160 Middle Channel	
802.11ax-HE20 Lowest Channel	
802.11ax-HE20 Middle Channel	

Maximum power spectral density	
802.11ax-HE20 Middle Channel	
802.11ax-HE40 Lowest Channel	
802.11ax-HE40 Highest Channel	

Maximum power spectral density	
802.11ax-HE80 Middle Channel	
802.11ax-HE160 Middle Channel	

Note: The test data and plots of other bands please refer to the Appendix.

EUT PHOTOGRAPHS

Please refer to the attachment 2401U56759E-RF External photo and 2401U56759E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401U56759E-RFB Test Setup photo.

APPENDIX

Appendix A1: Emission Bandwidth

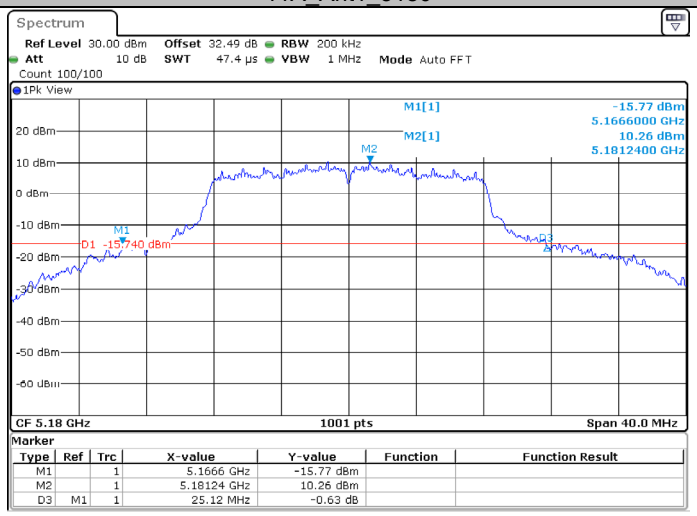
Test Result

Test Mode	Antenna	Channel	26dB EBW [MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	25.12	---	---
		5200	27.00	---	---
		5240	25.12	---	---
		5260	25.24	---	---
		5280	25.08	---	---
		5320	26.16	---	---
		5500	26.04	---	---
		5580	26.04	---	---
		5700	25.52	---	---
		5720	26.08	---	---
		5720_UNII-2C	18.52	---	---
		5720_UNII-3	7.56	---	---
11AC20SISO	Ant1	5180	25.84	---	---
		5200	29.72	---	---
		5240	24.32	---	---
		5260	25.60	---	---
		5280	28.64	---	---
		5320	29.68	---	---
		5500	26.52	---	---
		5580	26.44	---	---
		5700	23.48	---	---
		5720	25.92	---	---
		5720_UNII-2C	16.76	---	---
		5720_UNII-3	9.16	---	---
11AC40SISO	Ant1	5190	58.88	---	---
		5230	58.00	---	---
		5270	44.88	---	---
		5310	60.64	---	---
		5510	58.48	---	---
		5550	44.64	---	---
		5670	68.08	---	---
		5710	68.40	---	---
		5710_UNII-2C	50.28	---	---
		5710_UNII-3	18.12	---	---
11AC80SISO	Ant1	5210	108.48	---	---
		5290	108.80	---	---
		5530	108.80	---	---
		5610	91.52	---	---
		5690	114.40	---	---
		5690_UNII-2C	96.92	---	---
		5690_UNII-3	17.48	---	---
11AC160SISO	Ant1	5250	174.72	---	---
		5250_UNII-1	86.08	---	---
		5250_UNII-2A	88.64	---	---
		5570	177.28	---	---
11AX20SISO	Ant1	5180	21.80	---	---
		5200	25.28	---	---
		5240	25.32	---	---
		5260	22.40	---	---
		5280	24.76	---	---
		5320	21.52	---	---
		5500	21.28	---	---

		5580	26.52	---	---
		5700	21.64	---	---
		5720	28.08	---	---
		5720_UNII-2C	18.2	---	---
		5720_UNII-3	9.88	---	---
11AX40SISO	Ant1	5190	39.84	---	---
		5230	56.80	---	---
		5270	60.16	---	---
		5310	39.84	---	---
		5510	39.84	---	---
		5550	62.88	---	---
		5670	39.92	---	---
		5710	52.80	---	---
		5710_UNII-2C	41.08	---	---
		5710_UNII-3	11.72	---	---
11AX80SISO	Ant1	5210	80.96	---	---
		5290	80.96	---	---
		5530	80.80	---	---
		5610	80.64	---	---
		5690	106.24	---	---
		5690_UNII-2C	88.28	---	---
		5690_UNII-3	17.96	---	---
11AX160SISO	Ant1	5250	162.88	---	---
		5250_UNII-1	81.28	---	---
		5250_UNII-2A	81.6	---	---
		5570	162.88	---	---

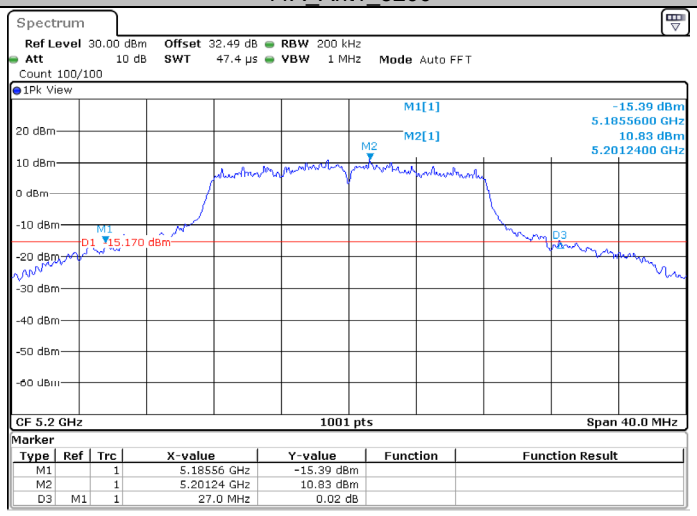
Test Graphs

11A_Ant1_5180



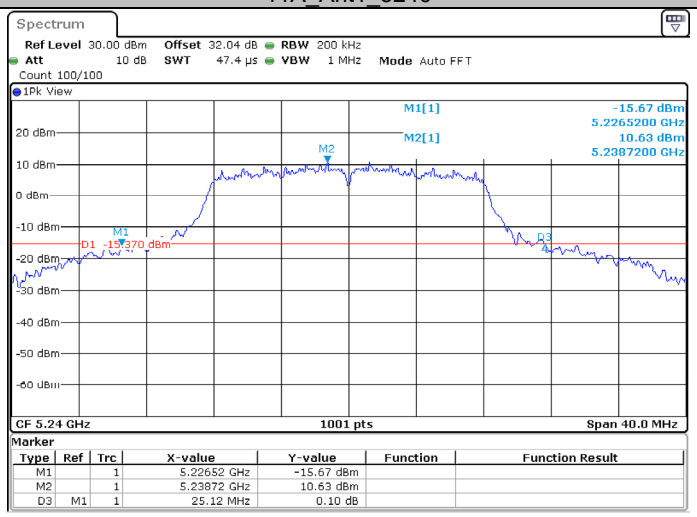
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 10:57:22

11A_Ant1_5200



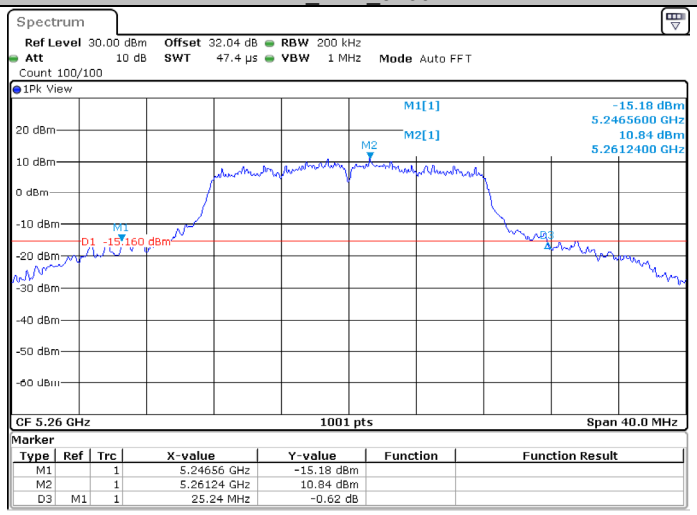
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 10:59:55

11A_Ant1_5240



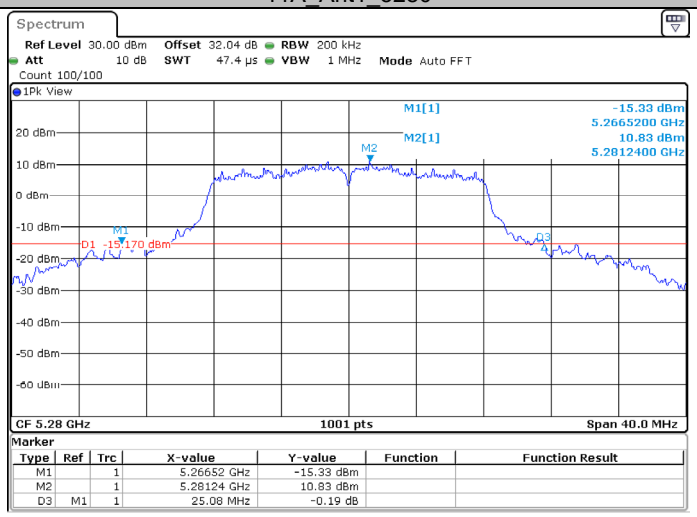
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:01:53

11A_Ant1_5260



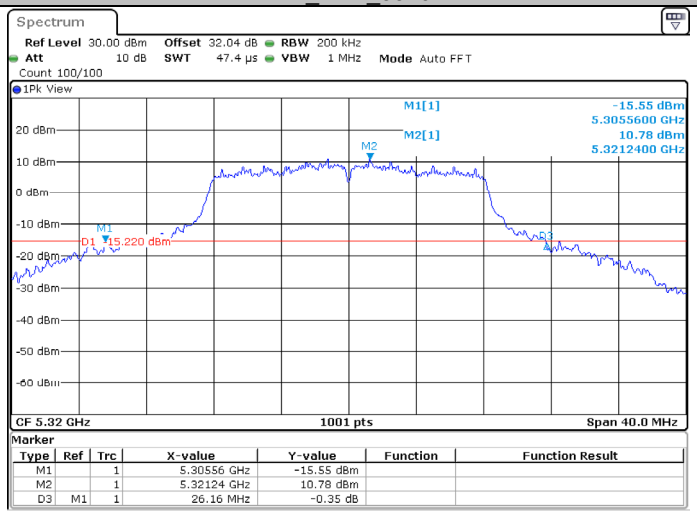
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:36:35

11A_Ant1_5280



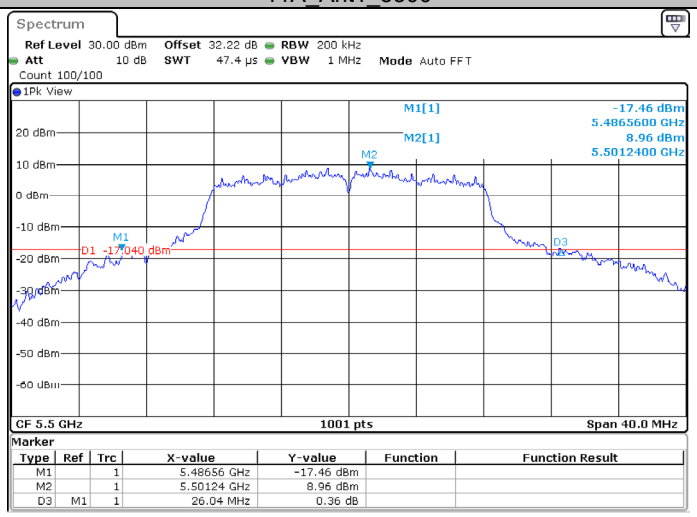
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:40:41

11A_Ant1_5320



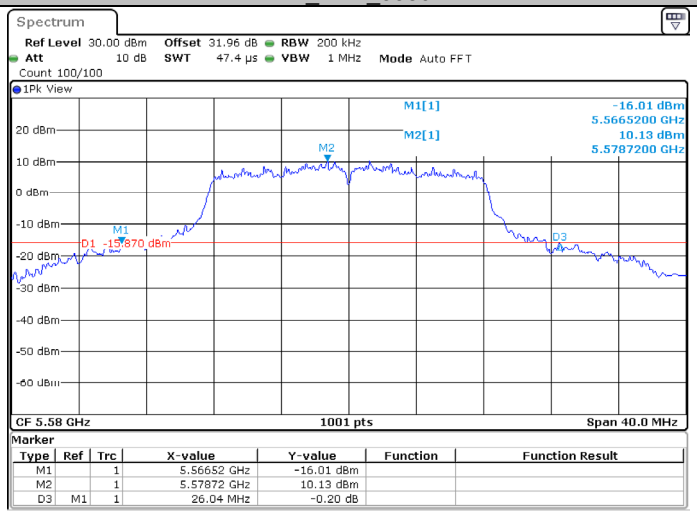
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:42:52

11A_Ant1_5500



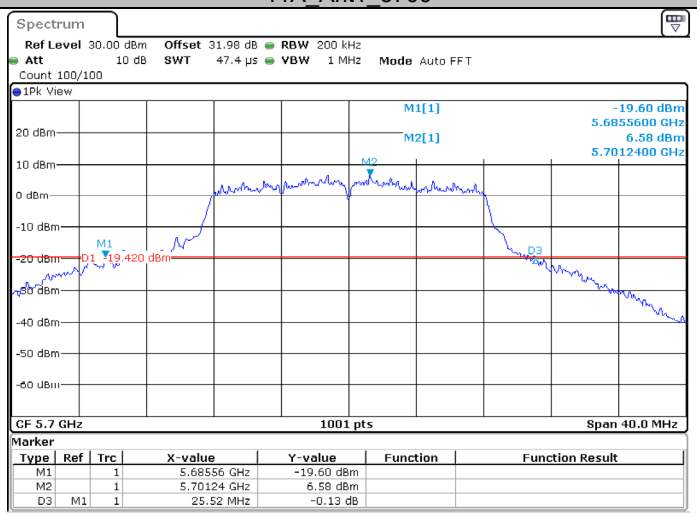
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 13:00:55

11A_Ant1_5580



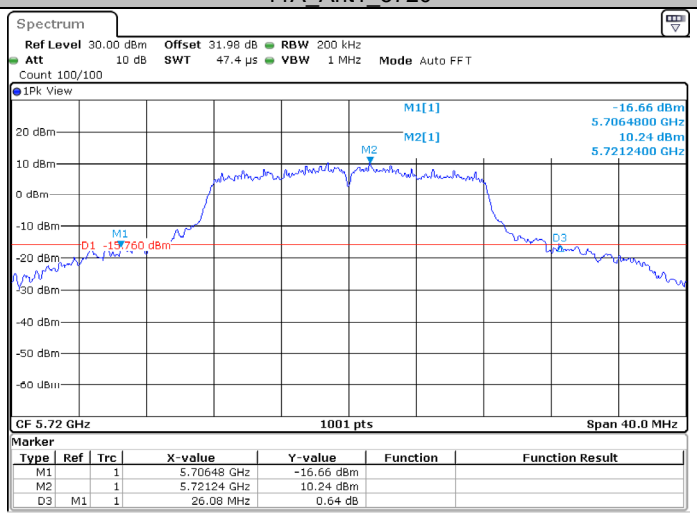
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 13:06:42

11A_Ant1_5700



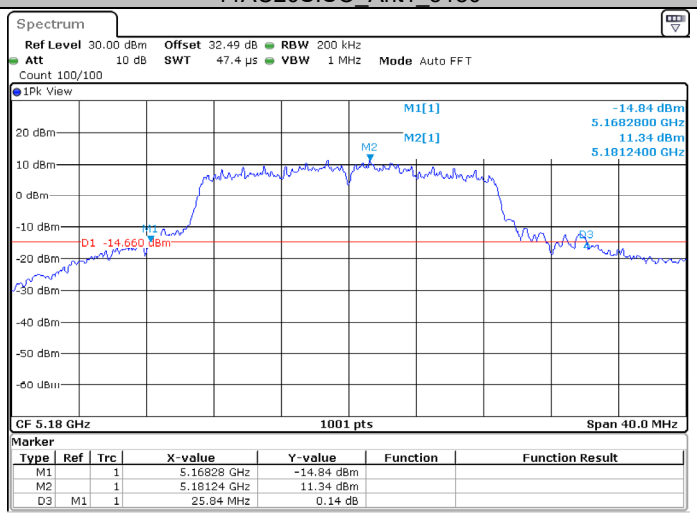
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 13:05:12

11A_Ant1_5720



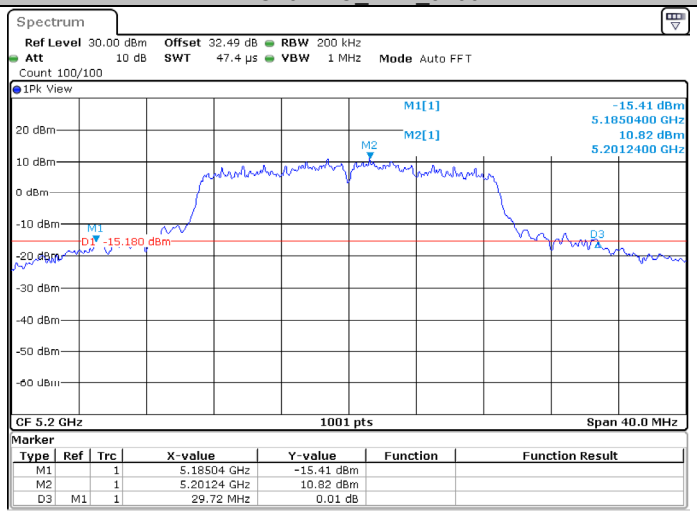
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 13:07:57

11AC20SISO_Ant1_5180



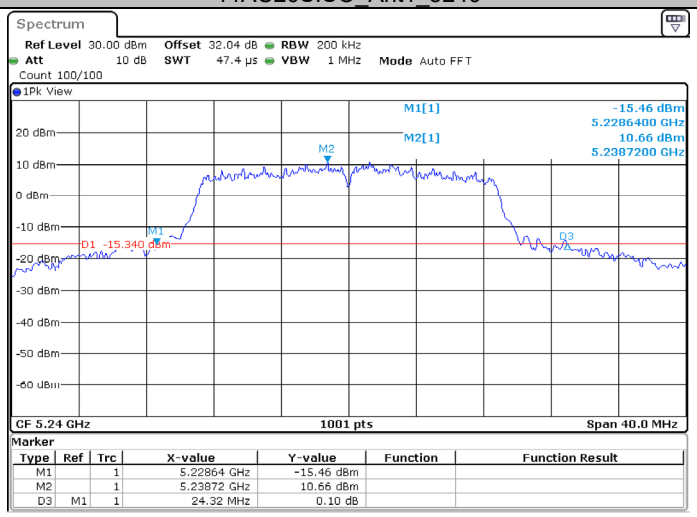
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:04:53

11AC20SISO_Ant1_5200



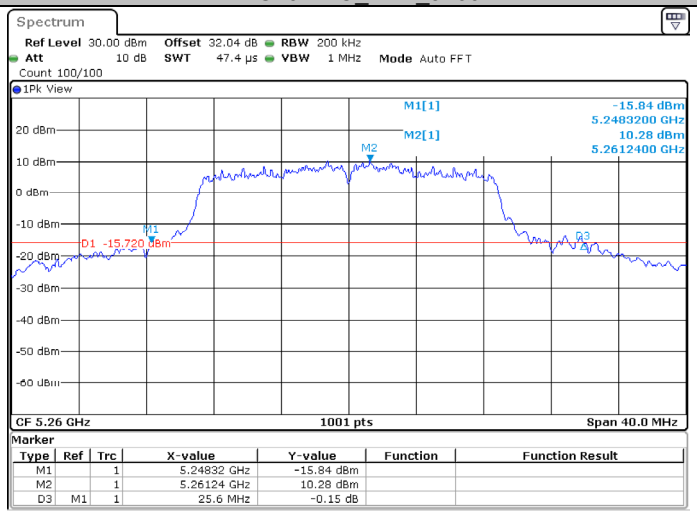
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:06:06

11AC20SISO_Ant1_5240



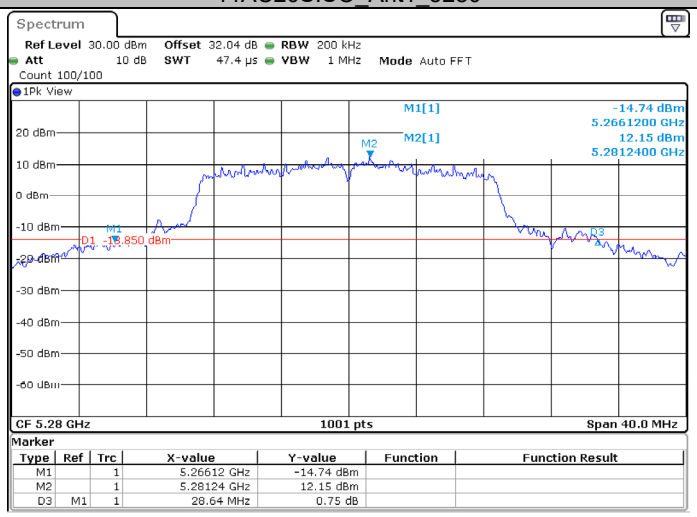
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:07:20

11AC20SISO_Ant1_5260



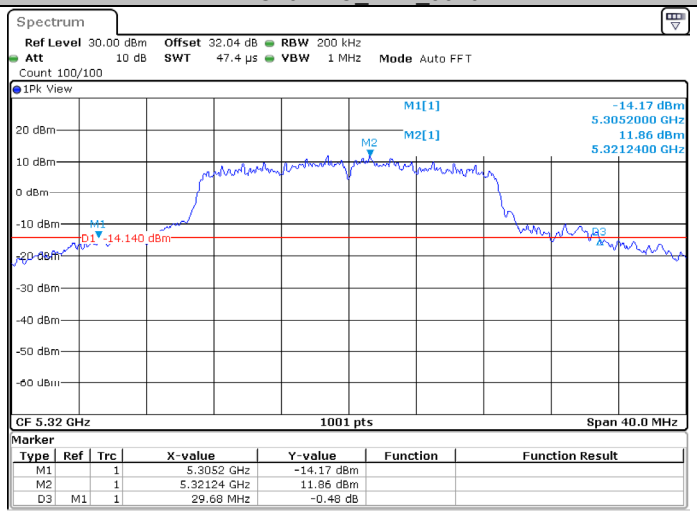
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:44:48

11AC20SISO_Ant1_5280



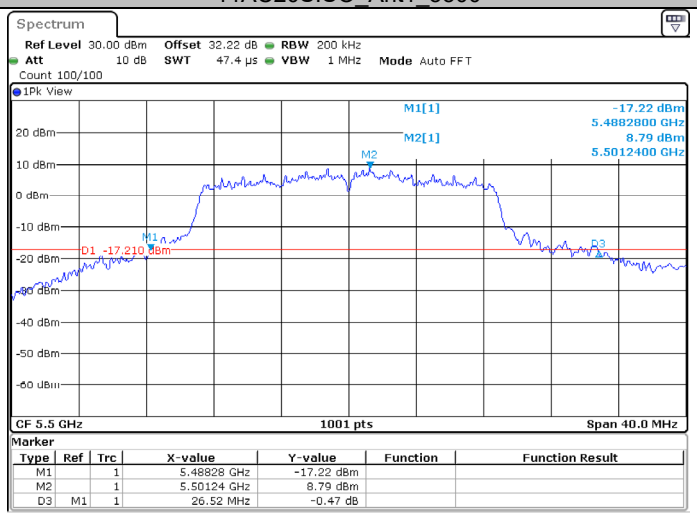
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:47:03

11AC20SISO_Ant1_5320



ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:48:31

11AC20SISO_Ant1_5500

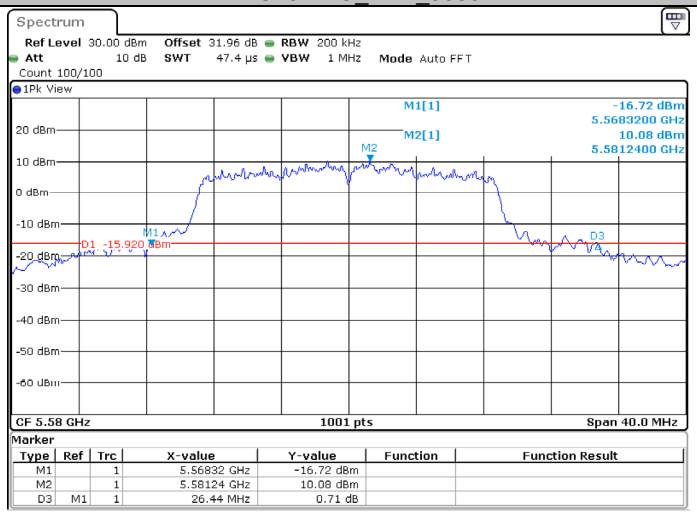


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.48828 GHz	-17.22 dBm		
M2		1	5.50124 GHz	8.79 dBm		
D3	M1	1	26.52 MHz	-0.47 dB		

ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 13:10:19

11AC20SISO_Ant1_5580

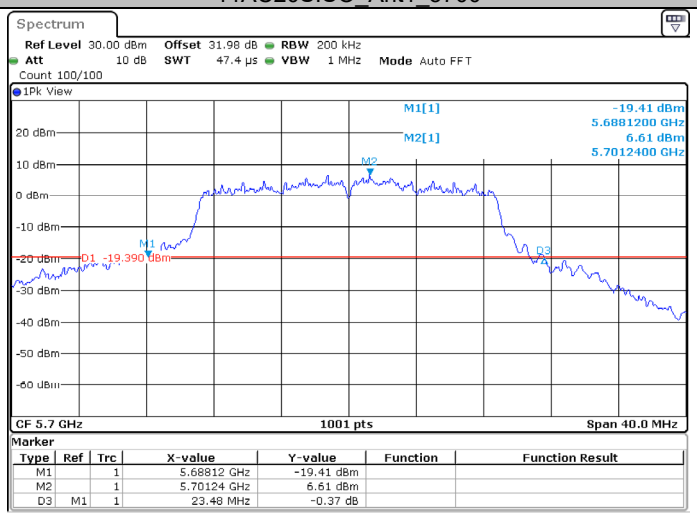


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.56832 GHz	-16.72 dBm		
M2		1	5.58124 GHz	10.08 dBm		
D3	M1	1	26.44 MHz	0.71 dB		

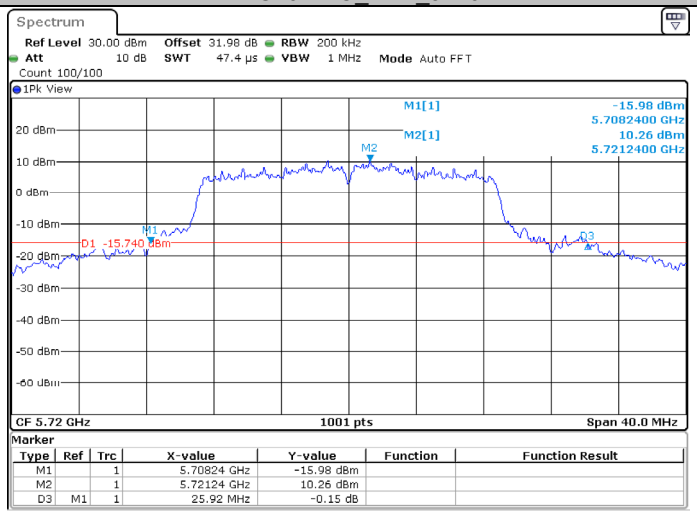
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 13:14:09

11AC20SISO_Ant1_5700



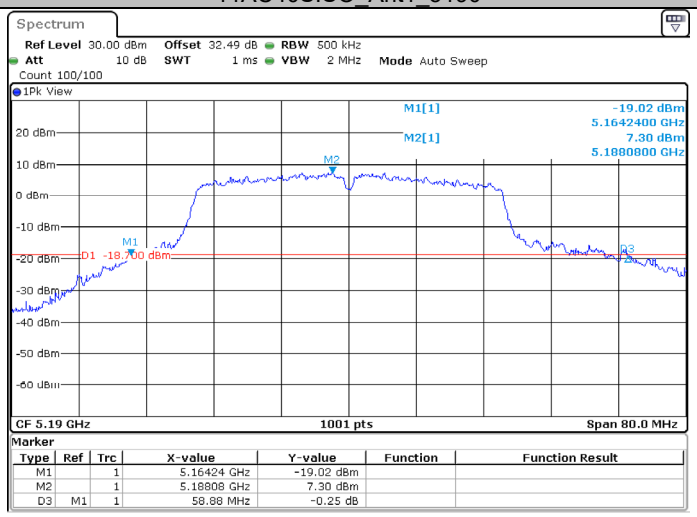
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 13:15:31

11AC20SISO_Ant1_5720



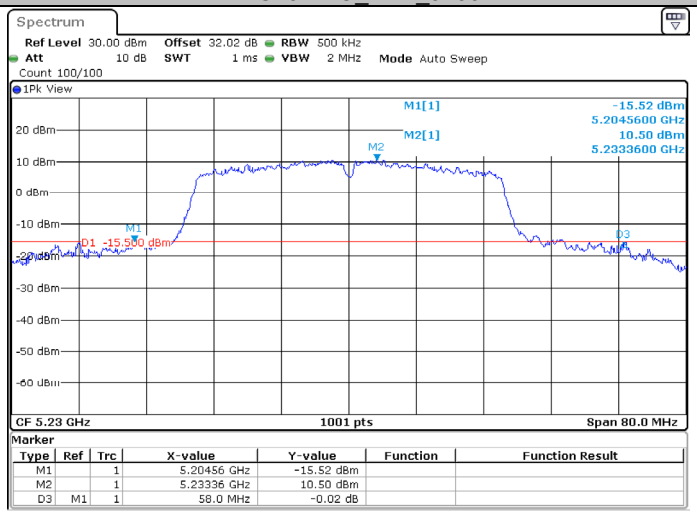
ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 13:16:54

11AC40SISO_Ant1_5190



ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 11:08:55

11AC40SISO_Ant1_5230



ProjectNo.:2401U56759E-RF Tester:Lee.Li
Date: 28.JUL.2024 14:26:37