

TEST REPORT

Applicant Name: Shenzhen Youmi Intelligent Technology Co., Ltd.
Address: 406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen City, China
Report Number: SZ1231208-73855E-RF-00B
FCC ID: 2ATZ4-G7TABPRO

Test Standard (s)
FCC PART 15.407

Sample Description

Product Type: Smart Tablet
Model No.: TG2403GBA
Multiple Model(s) No.: N/A
Trade Mark: UMIDIGI
Date Received: 2024/01/26
Issue Date: 2024/03/15

Test Result:	Pass▲
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▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Andy Yu

Andy Yu
RF Engineer

Approved By:

Nancy Wang

Nancy Wang
RF Supervisor

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

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Bay Area Compliance Laboratories Corp. (Shenzhen)

5F(B-West), 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China

Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	SZ1231208-73855E-RF-00B	Original Report	2024/03/15

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Smart Tablet
Tested Model	TG2403GBA
Multiple Model(s)	N/A
Frequency Range	5G Wi-Fi: 5150-5250MHz; 5725-5850MHz
Mode	802.11a/n20/n40/ac20/ac40
Maximum Conducted Average Output Power	5150-5250MHz: 13.11dBm 5725-5850MHz: 13.27dBm
Modulation Technique	OFDM
Antenna Specification [#]	0.82dBi (provided by the applicant)
Voltage Range	DC 3.85V from battery or DC 5V/9V/12V from adapter
Sample serial number	2F2C-2 for Conducted and Radiated Emissions Test 2F2C-1 for RF Conducted Test (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	Model: QZ-02002AC00 Input: AC 100-240V~50/60Hz 0.5A Output: DC 5.0V.3.0A or 9.0V.2.22A or 12.0V.1.67A(20.0W)

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°C
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 system support 802.11a/n ht20/n ht40/ac vht20/ac vht40, the 802.11 n ht20/n ht40 were reduced since the identical parameters with 802.11ac vht20 and vht40.

For 5150-5250MHz Band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
42	5210	/	/

For 802.11a/ac20 mode: channel 36, 40, 48 were tested;

For 802.11ac40 mode: channel 38, 46 were 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 mode: channel 149, 157, 165 were tested;

For 802.11ac40 mode: channel 151, 159 were tested;

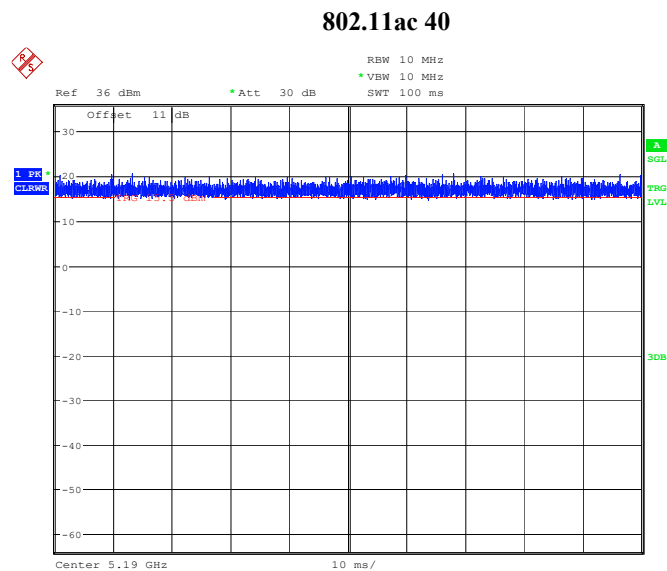
EUT Exercise Software

EUT was test in engineering mode and power level as below. The software and power level was provided by the applicant. The device was tested with the worst case was performed as below:

U-NII	Mode	Data rate	Power Level [#]		
			Low Channel	Middle Channel	High Channel
5150 – 5250MHz	802.11a	6Mbps	15	15	15
	802.11ac20	MCS0	15	15	15
	802.11ac40	MCS0	13	/	13
5725 – 5850MHz	802.11a	6Mbps	15	15	15
	802.11ac20	MCS0	15	15	15
	802.11ac40	MCS0	13	/	13

Duty cycle

Test Modes	Ton (ms)	Ton+off (ms)	Duty cycle (%)	Duty Cycle Factor (dB)	1/T (Hz)	VBW Setting (kHz)
802.11a	100	100	100.00	/	/	0.01
802.11ac vht20	1	1	100.00	/	/	0.01
802.11ac vht40	1	1	100.00	/	/	0.01



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 28.JAN.2024 17:41:22

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

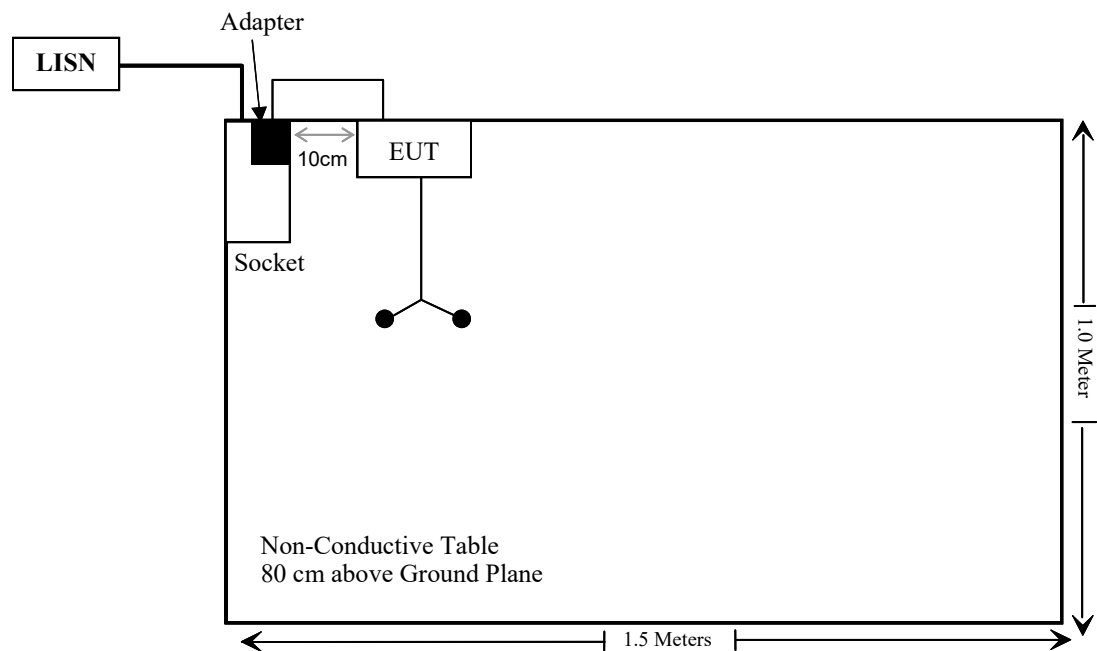
Manufacturer	Description	Model	Serial Number
N/A	Earphone	N/A	/

External I/O Cable

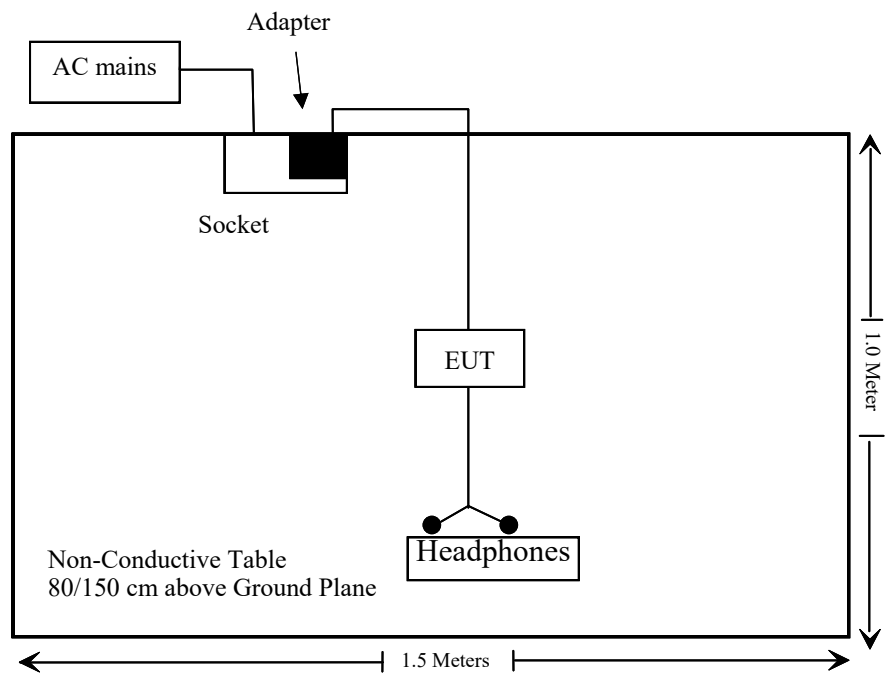
Cable Description	Length (m)	From Port	To
Unshielded un-detachable AC cable	1.2	LISN/AC mains	Socket
Un-shielding Detachable USB Cable	1.0	Adapter	EUT

Block Diagram of Test Setup

For Conducted Emissions:



For Radiated Emissions:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) (3) & §2.1093	RF Exposure& Exposure Limits	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)	Not Applicable

Not Applicable: The supplier declared that the equipment has no this function.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions 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	2023/08/03	2024/08/02
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2023/08/03	2024/08/02
Audix	EMI Test software	E3	191218	NCR	NCR
Radiated Emissions Test					
R&S	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310 N	186238	2023/06/08	2024/06/07
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2024/07/19
ETS	Passive Loop Antenna	6512	29604	2023/07/07	2024/07/06
Unknown	Cable	Chamber Cable 1	F-03-EM236	2023/08/03	2024/08/02
Unknown	Cable	Chamber Cable 4	EC-007	2023/08/03	2024/08/02
Audix	EMI Test software	E3	19821b(V9)	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2023/04/18	2024/04/17
COM-POWER	Pre-amplifier	PA-122	181919	2023/06/29	2024/06/28
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2024/07/25
Unknown	RF Cable	KMSE	0735	2023/10/08	2024/10/07
Unknown	RF Cable	UFA147	219661	2023/10/08	2024/10/07
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	NCR	NCR
SNSD	5G Band Reject filter	BSF5150-5850MN-0899-004	5G filter	2023/08/03	2024/08/02
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
A.H.System	Pre-amplifier	PAM-1840VH	190	2023/08/03	2024/08/02
Electro-Mechanics Co	Horn Antenna	3116	9510-2270	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2023/08/03	2024/08/02
RF Conducted Test					
R&S	SPECTRUM ANALYZER	FSU26	200120	2024/01/08	2025/01/07
Agilent	USB wideband power sensor	U2021XA	MY52350001	2023/06/08	2024/06/07
Unknown	10dB Attenuator	Unknown	F-03-EM190	2023/07/04	2024/07/03
Micro-Tronics	RF Cable	8082176	W6102	2023/07/04	2024/07/03

* **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) (3) & §2.1093- RF EXPOSURE EVALUATION

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: SZ1231208-73855E-20A.

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

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

And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has one internal antennas which was permanently attached, and the maximum antenna gain[#] is 0.82dBi, fulfill the requirement of this section. Please refer to the EUT photos.

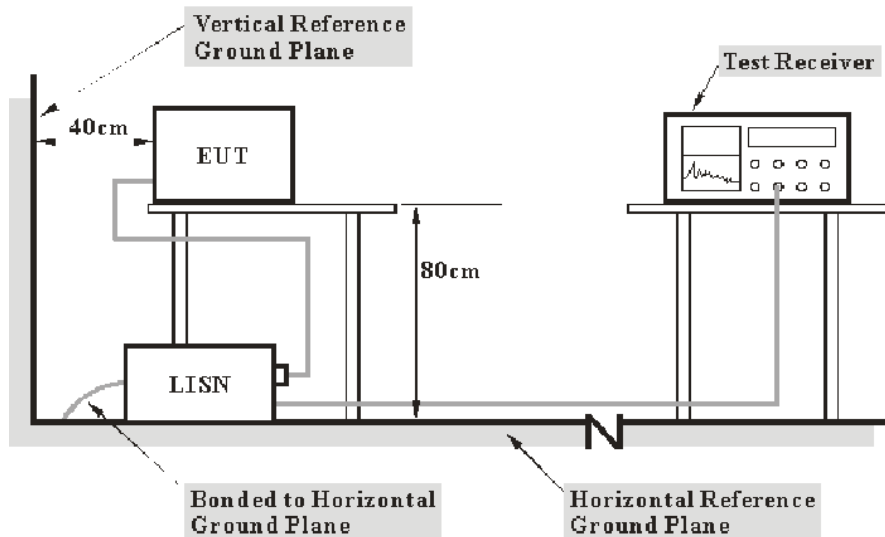
Result: Compliant

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:

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss}$$

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:

$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Read Level} + \text{Factor}\end{aligned}$$

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

Test Data

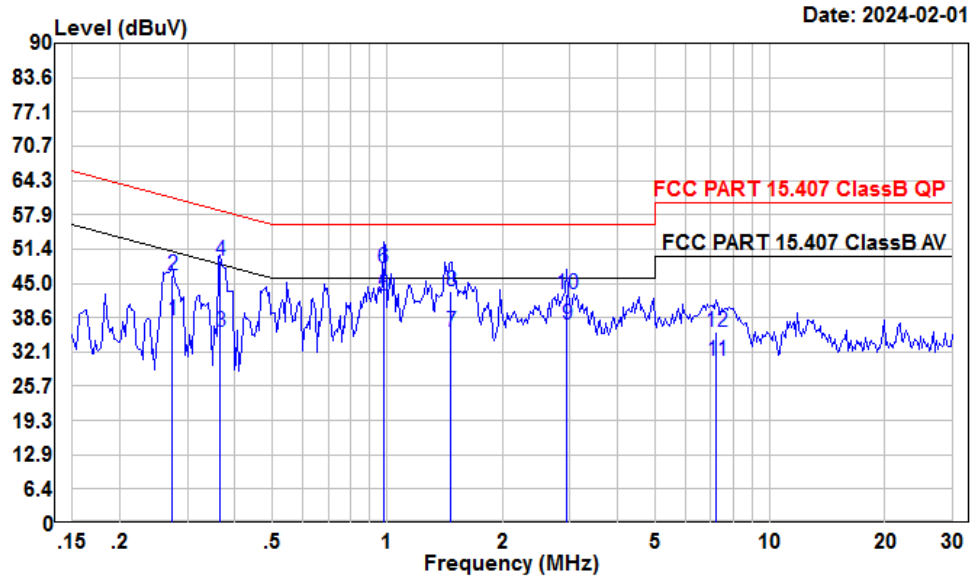
Environmental Conditions

Temperature:	23 °C
Relative Humidity:	70 %
ATM Pressure:	101 kPa

The testing was performed by Macy Shi on 2024-02-01.

EUT operation mode: Transmitting (Maximum output power mode, 802.11ac vht40 5795MHz)

AC 120V/60 Hz, Line



Condition: Line

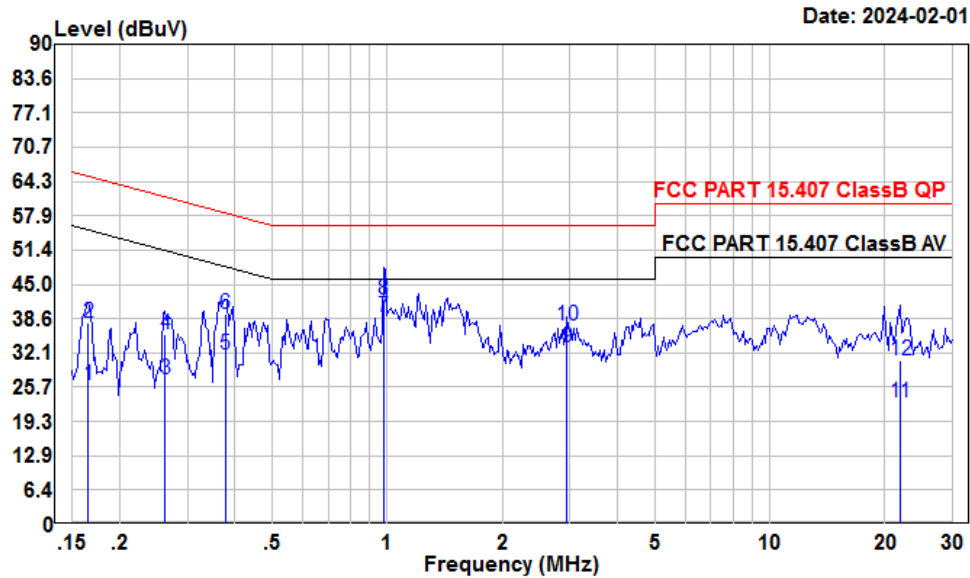
Project : SZ1231208-73855E-RF

Tester : Macy shi

Note : 5G WIFI

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.27	17.29	38.16	10.70	10.17	50.98	-12.82	Average
2	0.27	25.74	46.61	10.70	10.17	60.98	-14.37	QP
3	0.37	15.07	35.85	10.60	10.18	48.61	-12.76	Average
4	0.37	28.49	49.27	10.60	10.18	58.61	-9.34	QP
5	0.98	22.16	42.77	10.41	10.20	46.00	-3.23	Average
6	0.98	27.15	47.76	10.41	10.20	56.00	-8.24	QP
7	1.46	15.20	35.77	10.51	10.06	46.00	-10.23	Average
8	1.46	22.90	43.47	10.51	10.06	56.00	-12.53	QP
9	2.95	16.67	37.36	10.43	10.26	46.00	-8.64	Average
10	2.95	22.17	42.86	10.43	10.26	56.00	-13.14	QP
11	7.25	9.67	30.40	10.51	10.22	50.00	-19.60	Average
12	7.25	15.25	35.98	10.51	10.22	60.00	-24.02	QP

AC 120V/60 Hz, Neutral



Condition: Neutral

Project : SZ1231208-73855E-RF

Tester : Macy shi

Note : 5G WIFI

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.17	5.41	26.09	10.53	10.15	55.21	-29.12	Average
2	0.17	17.14	37.82	10.53	10.15	65.21	-27.39	QP
3	0.26	6.50	27.18	10.49	10.19	51.34	-24.16	Average
4	0.26	14.86	35.54	10.49	10.19	61.34	-25.80	QP
5	0.38	11.08	31.88	10.61	10.19	48.34	-16.46	Average
6	0.38	18.66	39.46	10.61	10.19	58.34	-18.88	QP
7	0.98	17.88	38.97	10.89	10.20	46.00	-7.03	Average
8	0.98	20.95	42.04	10.89	10.20	56.00	-13.96	QP
9	2.95	12.55	33.21	10.40	10.26	46.00	-12.79	Average
10	2.95	16.73	37.39	10.40	10.26	56.00	-18.61	QP
11	21.83	2.09	22.91	10.66	10.16	50.00	-27.09	Average
12	21.83	9.90	30.72	10.66	10.16	60.00	-29.28	QP

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

Applicable Standard

FCC §15.407 (b); §15.209; §15.205;

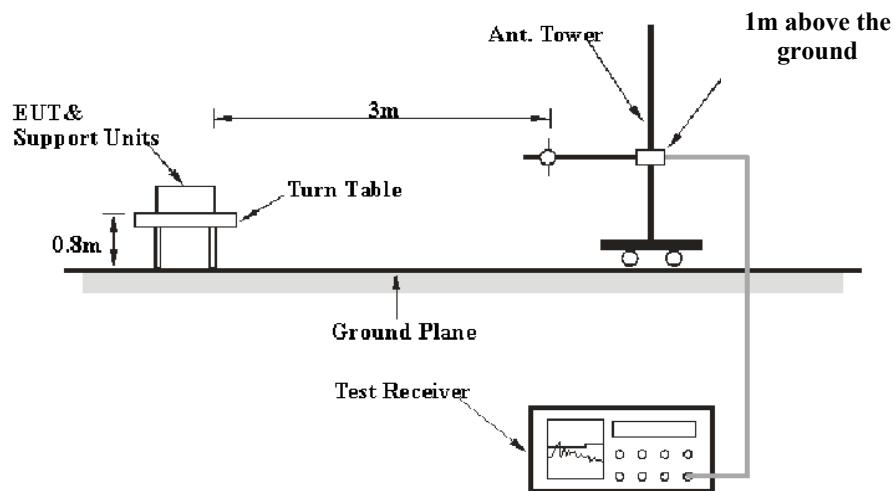
(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

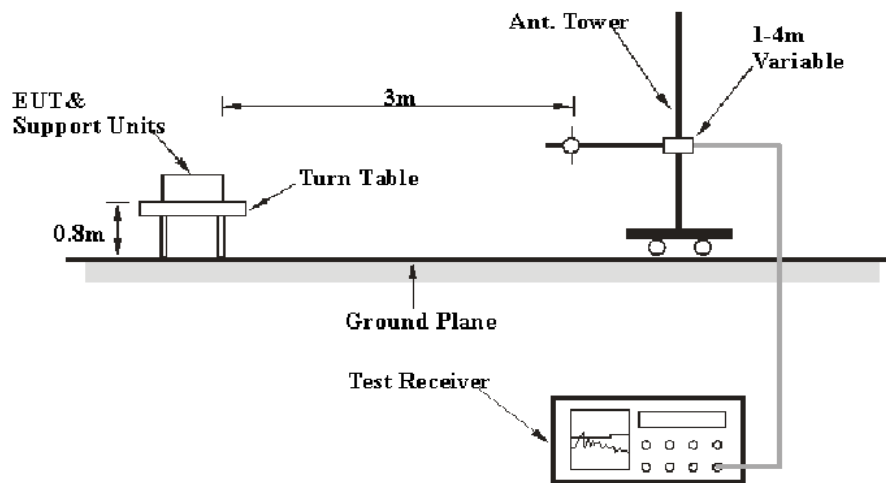
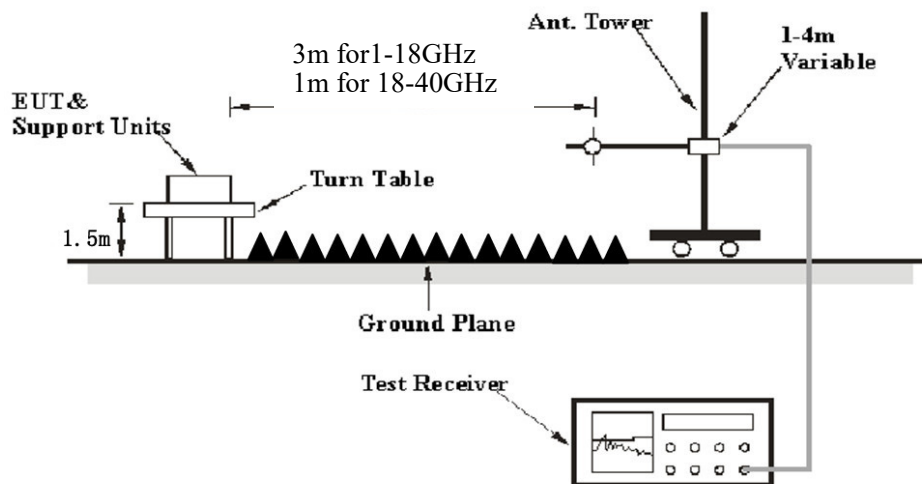
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (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.

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/AV
	300 Hz	1 kHz	/	PK
150 kHz – 30 MHz	/	/	9 kHz	QP/AV
	10 kHz	30 kHz	/	PK
30 MHz – 1000 MHz	/	/	120 kHz	QP
	100 kHz	300 kHz	/	PK
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	AV

1-40GHz:

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

Note: T is minimum transmission duration

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

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.

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;

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

where

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

So the extrapolation factor of 1m is $20 \cdot \log(1/3) = -9.5$ 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:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\begin{aligned} \text{Over Limit} &= \text{Level} - \text{Limit}; \text{Margin} = \text{Limit} - \text{Corrected Amplitude} \\ \text{Level / Corrected Amplitude} &= \text{Read Level} + \text{Factor} \end{aligned}$$

Test Data

Environmental Conditions

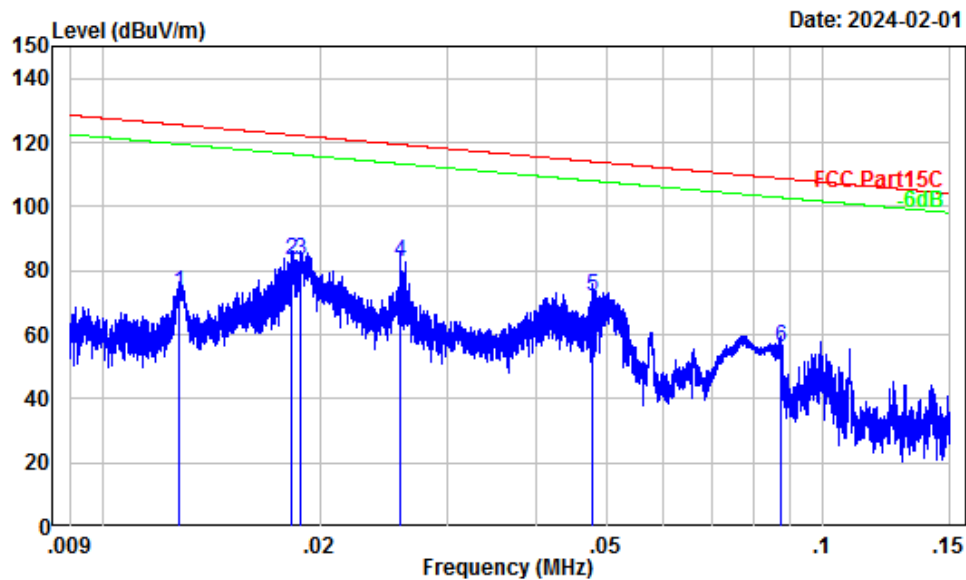
Temperature:	23~25.1 °C
Relative Humidity:	50~55 %
ATM Pressure:	101 kPa

The testing was performed by Warren Huang from 2024-02-01 to 2024-02-05 for below 1GHz and Zenos Qiao on 2024-01-31 and 2024-03-13 for above 1GHz.

EUT operation mode: Transmitting

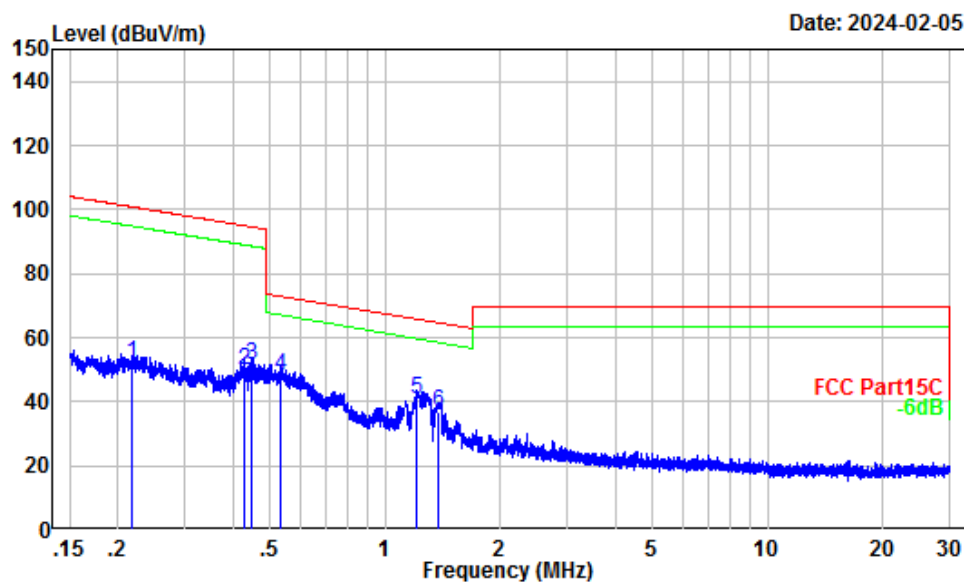
Note: After pre-scan in the X, Y and Z axes of orientation, the worst case is below.

9 kHz-30MHz, Parallel (Maximum output power mode, 802.11ac vht40 5795MHz):



Site : chamber
Condition : 3m
Project Number: SZ1231208-73855E-RF
Note : 5G WIFI
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.01	52.46	20.44	72.90	125.48	-52.58	QP
2	0.02	50.76	32.64	83.40	122.35	-38.95	QP
3	0.02	50.61	32.66	83.27	122.13	-38.86	QP
4	0.03	48.41	34.24	82.65	119.34	-36.69	QP
5	0.05	41.64	30.09	71.73	113.99	-42.26	QP
6	0.09	35.89	20.11	56.00	108.79	-52.79	QP

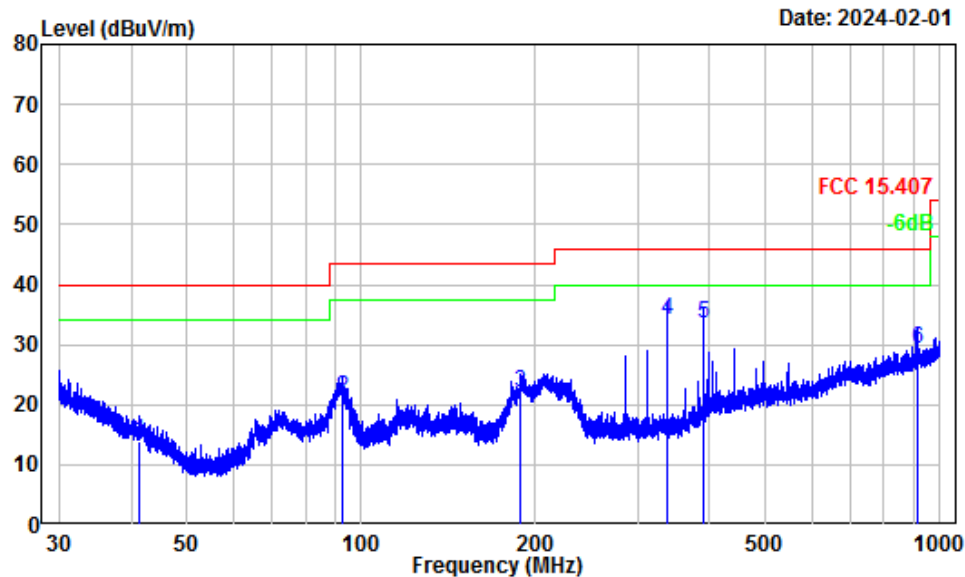


Site : chamber
Condition : 3m
Project Number: SZ1231208-73855E-RF
Note : 5G WIFI
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.22	28.37	23.50	51.87	100.86	-48.99	QP
2	0.43	21.97	27.66	49.63	95.00	-45.37	QP
3	0.45	21.70	29.54	51.24	94.62	-43.38	QP
4	0.53	20.55	27.33	47.88	73.08	-25.20	QP
5	1.21	14.38	26.44	40.82	65.75	-24.93	QP
6	1.38	13.56	23.45	37.01	64.62	-27.61	QP

30 MHz–1 GHz: (Maximum output power mode, 802.11ac vht40 5795MHz)

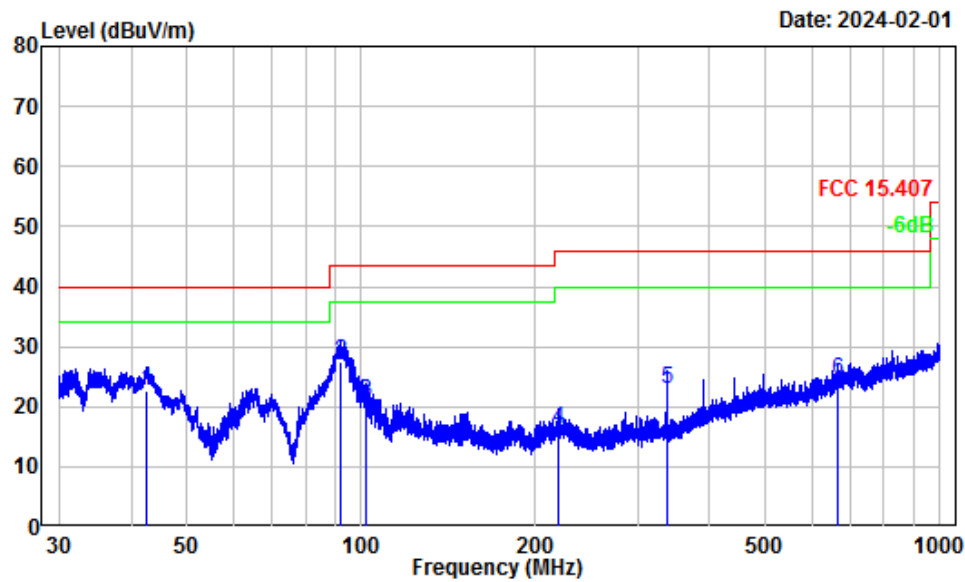
Horizontal



Site : chamber
Condition : 3m Horizontal
Project Number: SZ1231208-73855E-RF
Note : 5G WIFI
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	41.44	-11.31	25.33	14.02	40.00	-25.98	QP
2	92.50	-15.85	36.84	20.99	43.50	-22.51	QP
3	188.50	-12.30	34.28	21.98	43.50	-21.52	QP
4	338.10	-9.88	44.10	34.22	46.00	-11.78	QP
5	390.04	-7.86	41.50	33.64	46.00	-12.36	QP
6	912.86	1.17	28.20	29.37	46.00	-16.63	QP

Vertical



Site : chamber
Condition : 3m Vertical
Project Number: SZ1231208-73855E-RF
Note : 5G WIFI
Tester : Warren Huang

Freq Factor		Read Level	Limit Level	Over Limit	Remark
MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB
1	42.56	-13.35	35.92	22.57	40.00 -17.43 QP
2	92.26	-16.88	44.37	27.49	43.50 -16.01 QP
3	101.91	-14.67	35.39	20.72	43.50 -22.78 QP
4	218.40	-12.23	28.59	16.36	46.00 -29.64 QP
5	337.96	-10.20	33.08	22.88	46.00 -23.12 QP
6	666.97	-2.53	26.85	24.32	46.00 -21.68 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/Ave					
802.11a							
5180MHz							
10360.00	45.56	PK	H	13.07	58.63	68.2	-9.57
10360.00	45.43	PK	V	13.07	58.50	68.2	-9.70
5200MHz							
10400.00	45.57	PK	H	13.12	58.69	68.2	-9.51
10400.00	45.41	PK	V	13.12	58.53	68.2	-9.67
5240MHz							
10480.00	45.59	PK	H	13.07	58.66	68.2	-9.54
10480.00	45.42	PK	V	13.07	58.49	68.2	-9.71
802.11ac20							
5180MHz							
10360.00	45.05	PK	H	13.07	58.12	68.2	-10.08
10360.00	45.01	PK	V	13.07	58.08	68.2	-10.12
5200MHz							
10400.00	45.17	PK	H	13.12	58.29	68.2	-9.91
10400.00	46.03	PK	V	13.12	59.15	68.2	-9.05
5240MHz							
10480.00	45.27	PK	H	13.07	58.34	68.2	-9.86
10480.00	46.28	PK	V	13.07	59.35	68.2	-8.85
802.11ac40							
5190MHz							
10380.00	45.13	PK	H	13.09	58.22	68.2	-9.98
10380.00	44.85	PK	V	13.09	57.94	68.2	-10.26
5230MHz							
10460.00	45.91	PK	H	13.09	59.00	68.2	-9.20
10460.00	46.42	PK	V	13.09	59.51	68.2	-8.69

5725-5850 MHz:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave					
802.11a							
5745MHz							
11490.00	44.52	PK	H	14.31	58.83	74	-15.17
11490.00	31.19	AV	H	14.31	45.50	54	-8.50
11490.00	44.97	PK	V	14.31	59.28	74	-14.72
11490.00	31.23	AV	V	14.31	45.54	54	-8.46
5785MHz							
11570.00	44.63	PK	H	14.05	58.68	74	-15.32
11570.00	31.75	AV	H	14.05	45.80	54	-8.20
11570.00	45.02	PK	V	14.05	59.07	74	-14.93
11570.00	32.16	AV	V	14.05	46.21	54	-7.79
5825MHz							
11650.00	44.72	PK	H	13.83	58.55	74	-15.45
11650.00	32.13	AV	H	13.83	45.96	54	-8.04
11650.00	45.15	PK	V	13.83	58.98	74	-15.02
11650.00	32.26	AV	V	13.83	46.09	54	-7.91
802.11ac20							
5745MHz							
11490.00	44.97	PK	H	14.31	59.28	74	-14.72
11490.00	32.09	AV	H	14.31	46.40	54	-7.60
11490.00	45.28	PK	V	14.31	59.59	74	-14.41
11490.00	32.12	AV	V	14.31	46.43	54	-7.57
5785MHz							
11570.00	45.08	PK	H	14.05	59.13	74	-14.87
11570.00	32.17	AV	H	14.05	46.22	54	-7.78
11570.00	44.89	PK	V	14.05	58.94	74	-15.06
11570.00	32.05	AV	V	14.05	46.10	54	-7.90
5825MHz							
11650.00	45.44	PK	H	13.83	59.27	74	-14.73
11650.00	32.31	AV	H	13.83	46.14	54	-7.86
11650.00	45.29	PK	V	13.83	59.12	74	-14.88
11650.00	32.18	AV	V	13.83	46.01	54	-7.99

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave					
802.11ac40							
5755MHz							
11510.00	45.57	PK	H	14.29	59.86	74	-14.14
11510.00	32.68	AV	H	14.29	46.97	54	-7.03
11510.00	45.36	PK	V	14.29	59.65	74	-14.35
11510.00	32.45	AV	V	14.29	46.74	54	-7.26
5795MHz							
11590.00	45.44	PK	H	13.97	59.41	74	-14.59
11590.00	32.59	AV	H	13.97	46.56	54	-7.44
11590.00	45.81	PK	V	13.97	59.78	74	-14.22
11590.00	32.76	AV	V	13.97	46.73	54	-7.27

Note:

Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

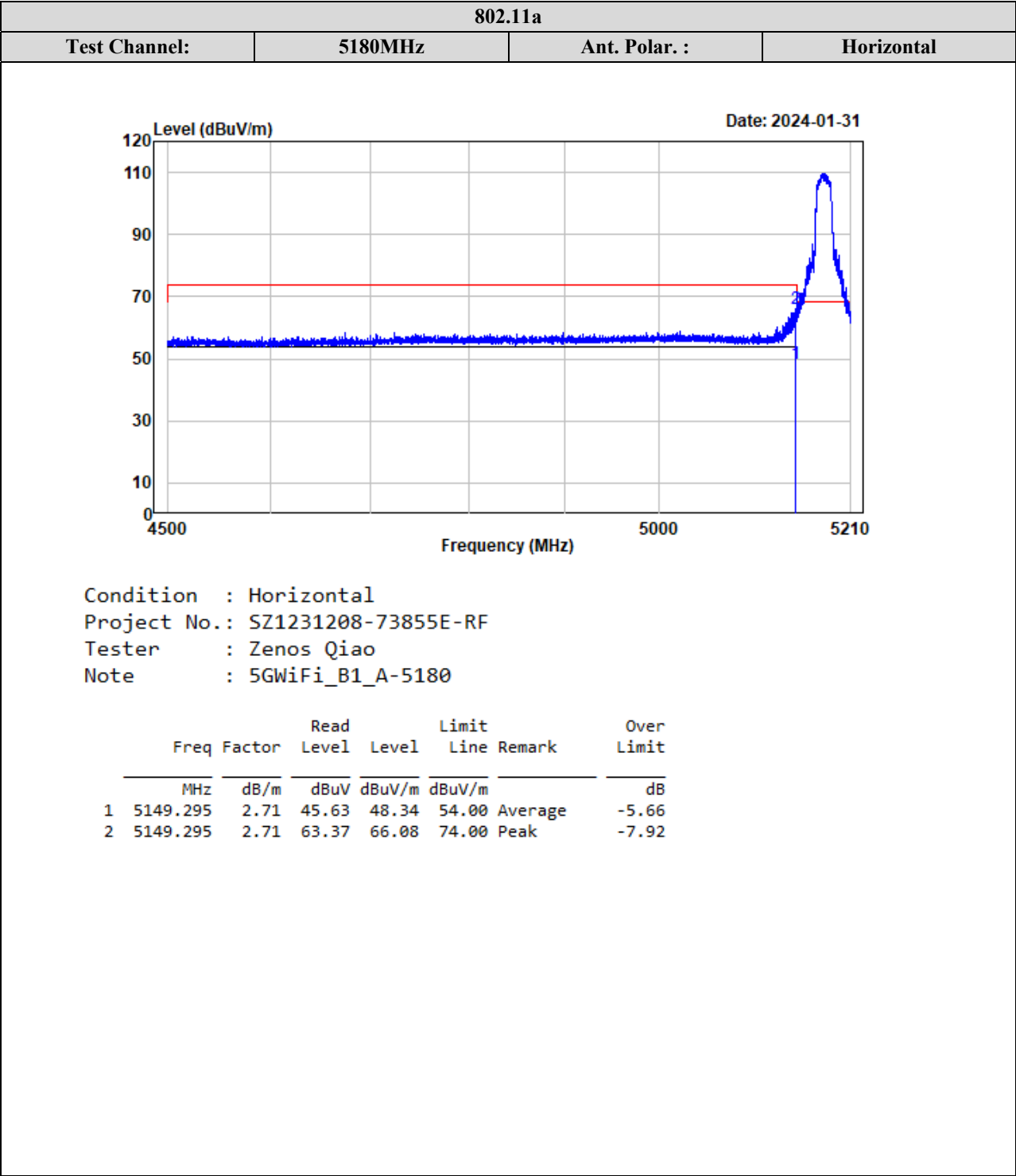
Corrected Amplitude = Factor + Reading

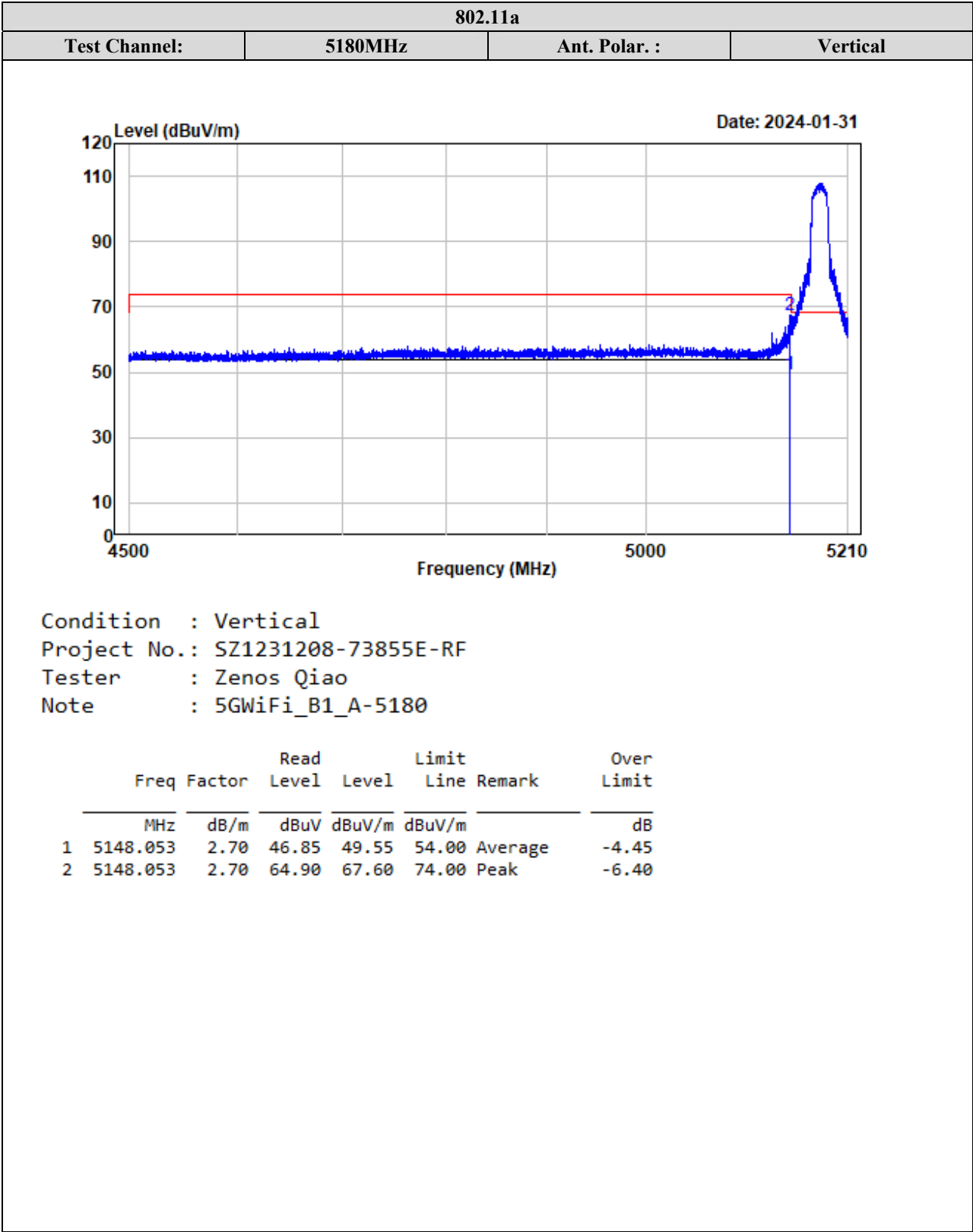
Margin = Corrected. Amplitude - Limit

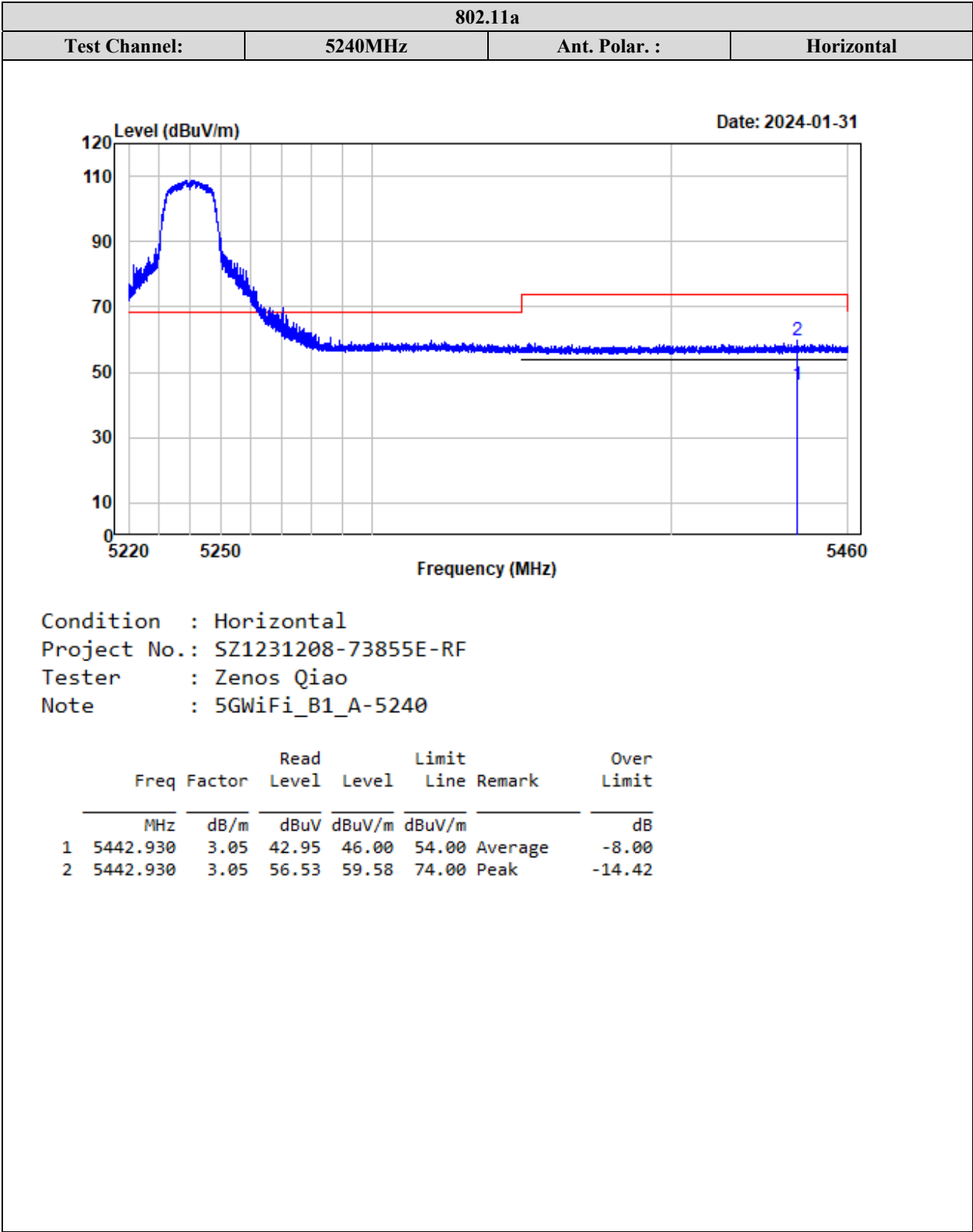
The other spurious emission which is in the noise floor level was not recorded.

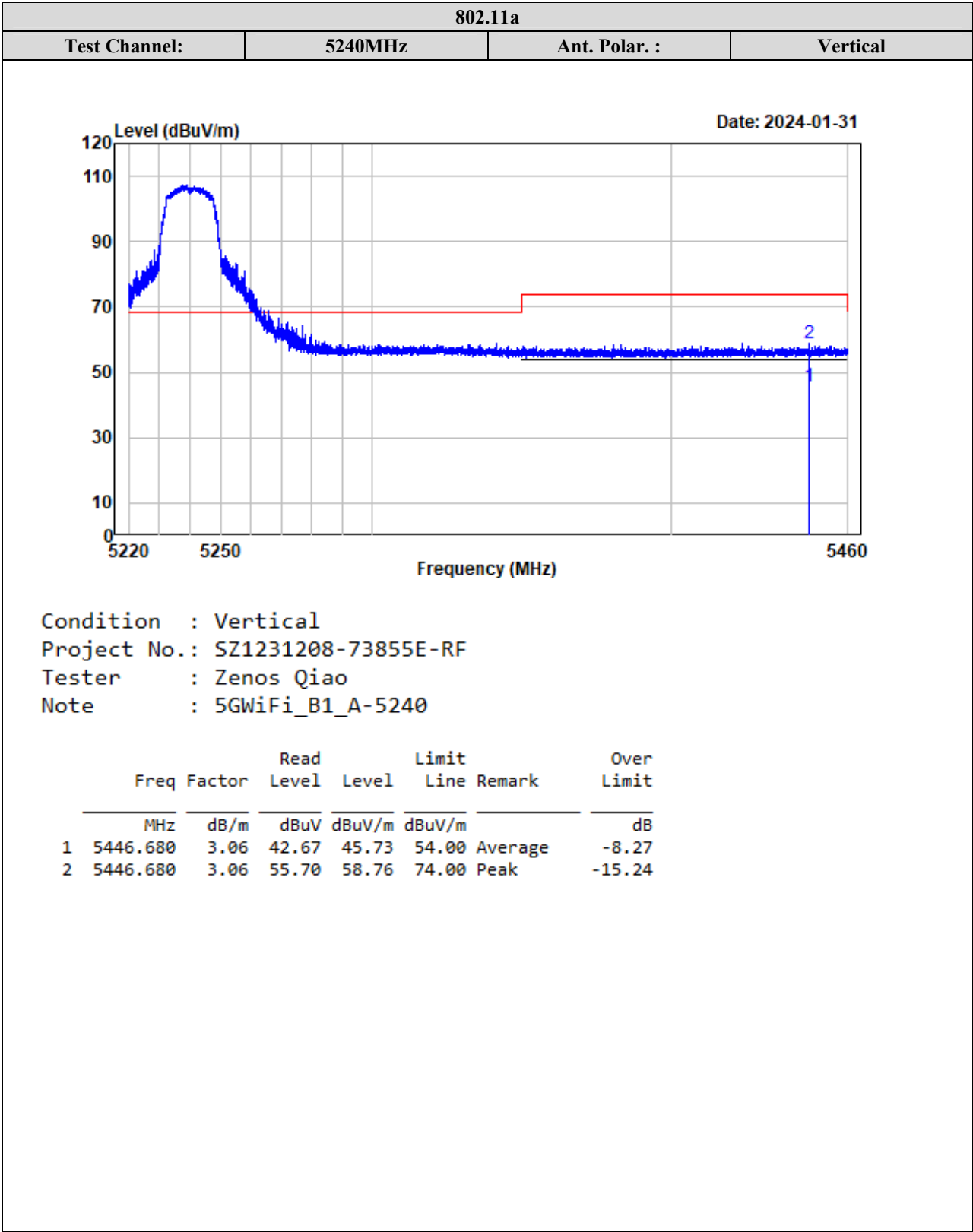
Test plots for Band Edge Measurements (Radiated)

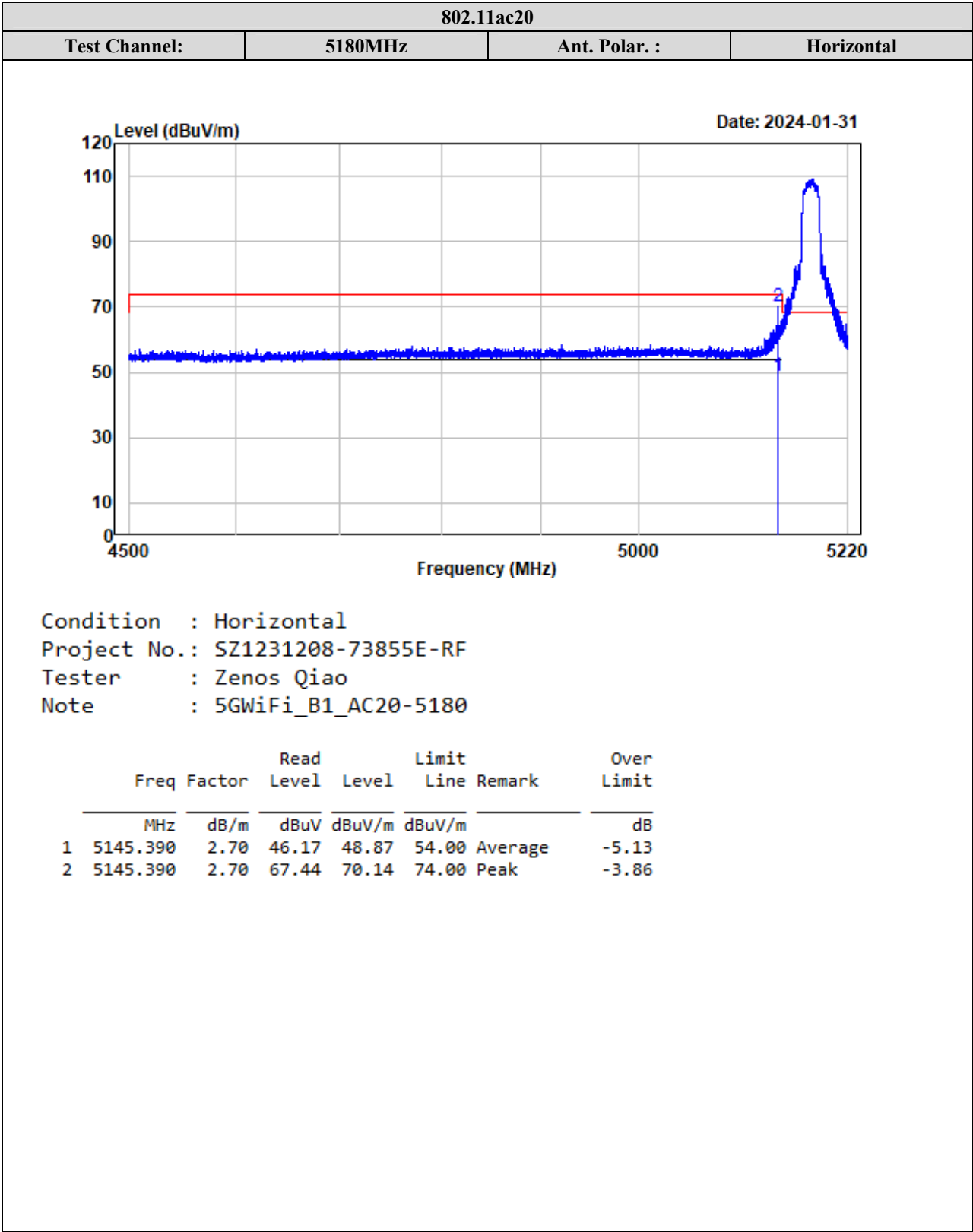
5150-5250MHz:

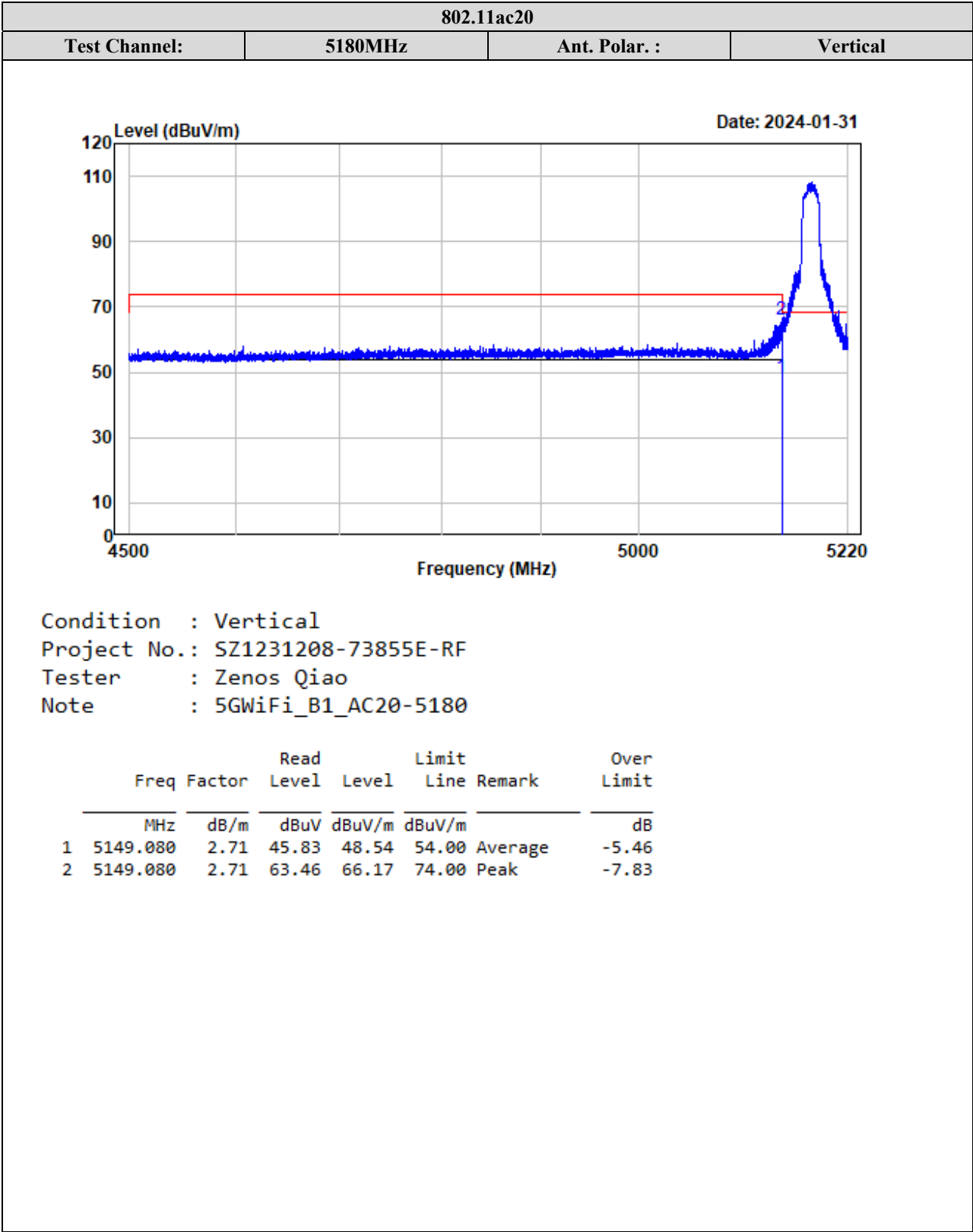


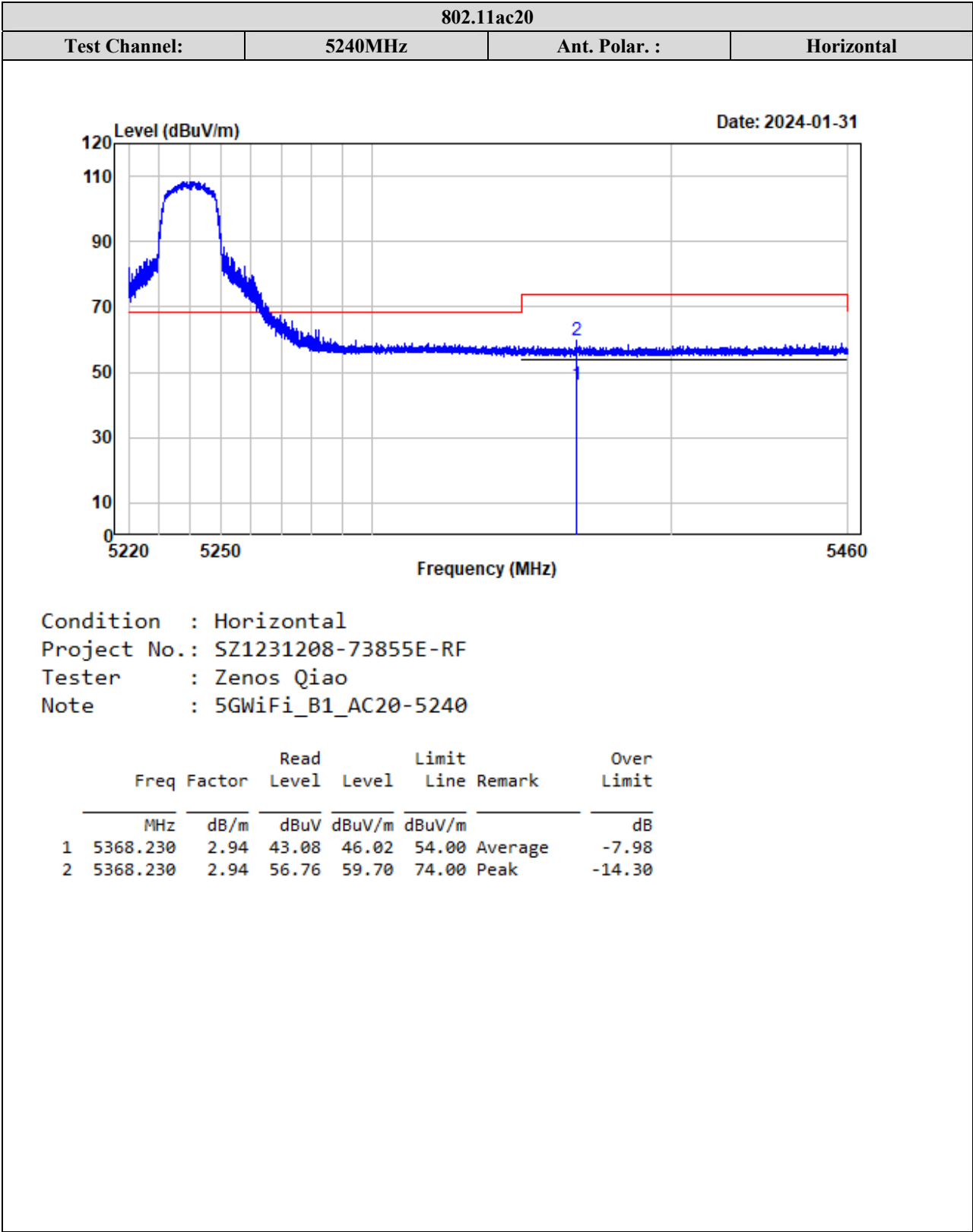


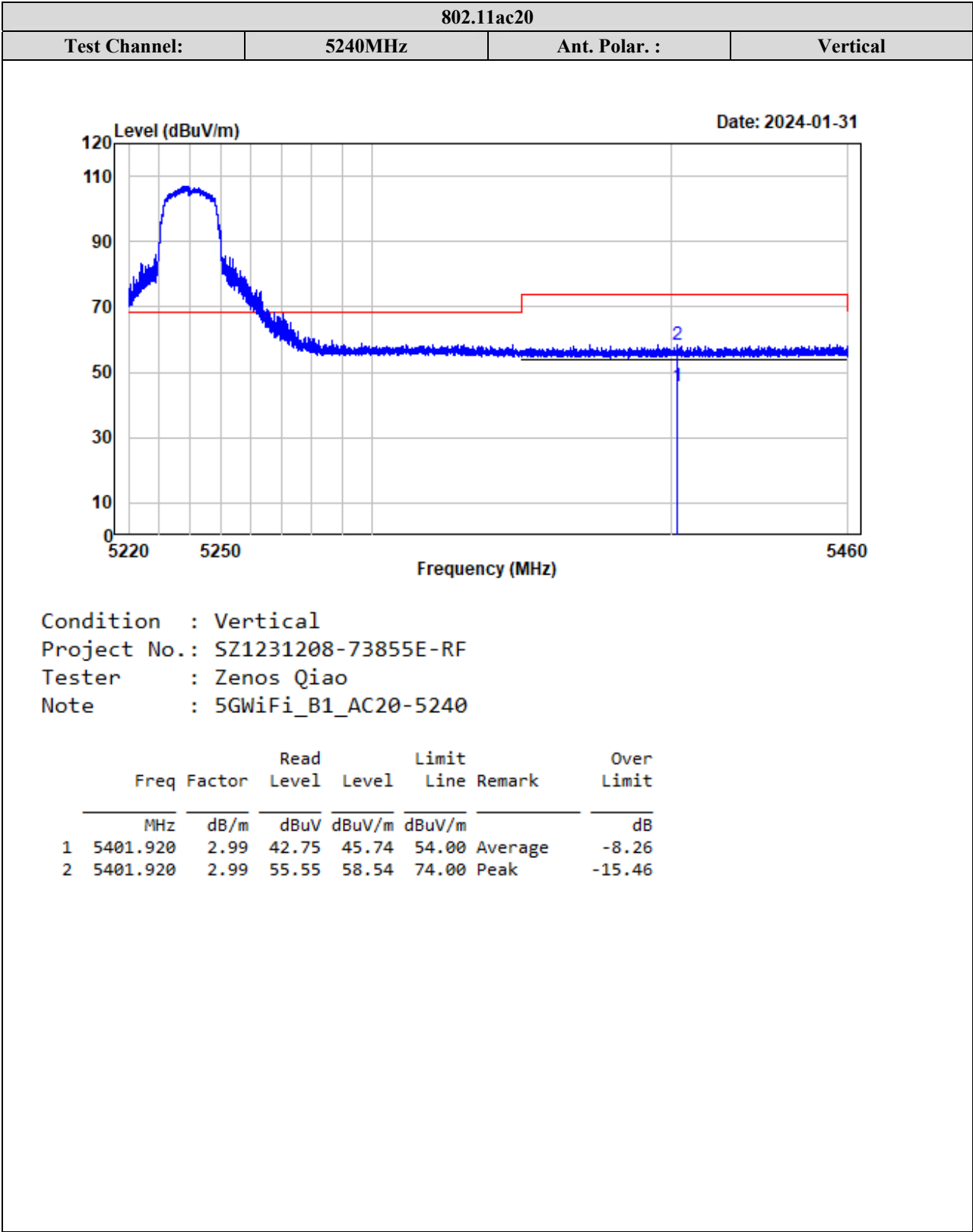


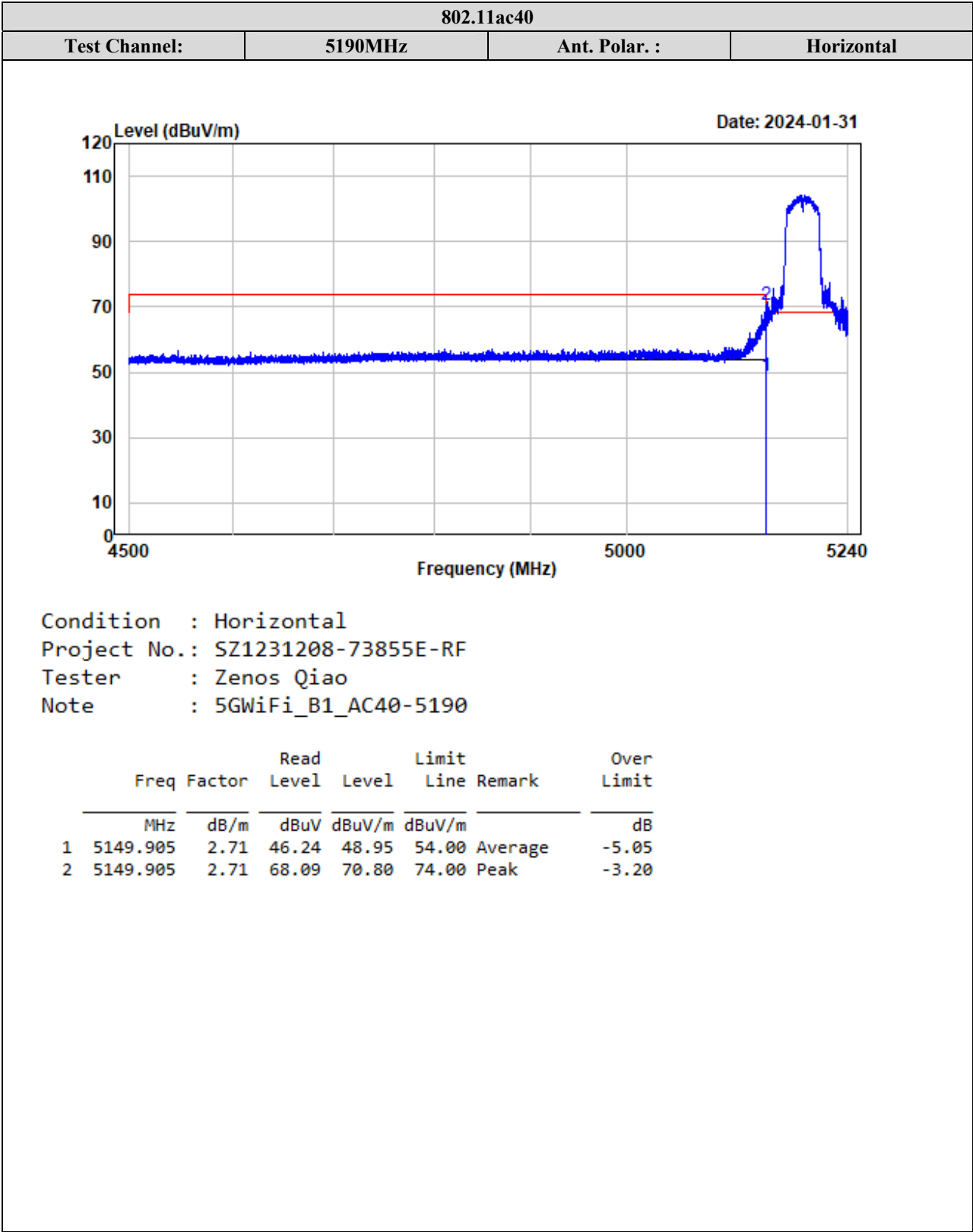


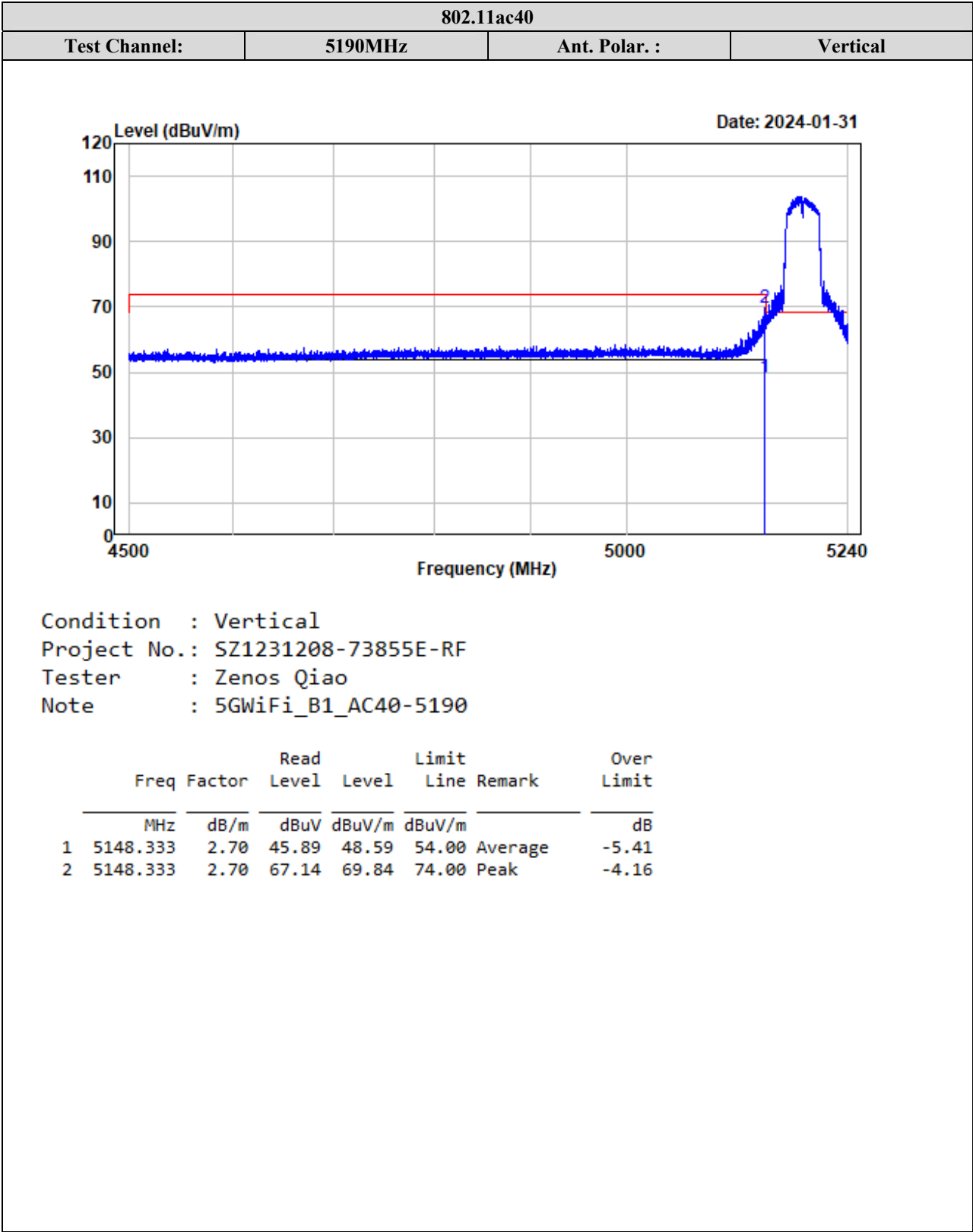


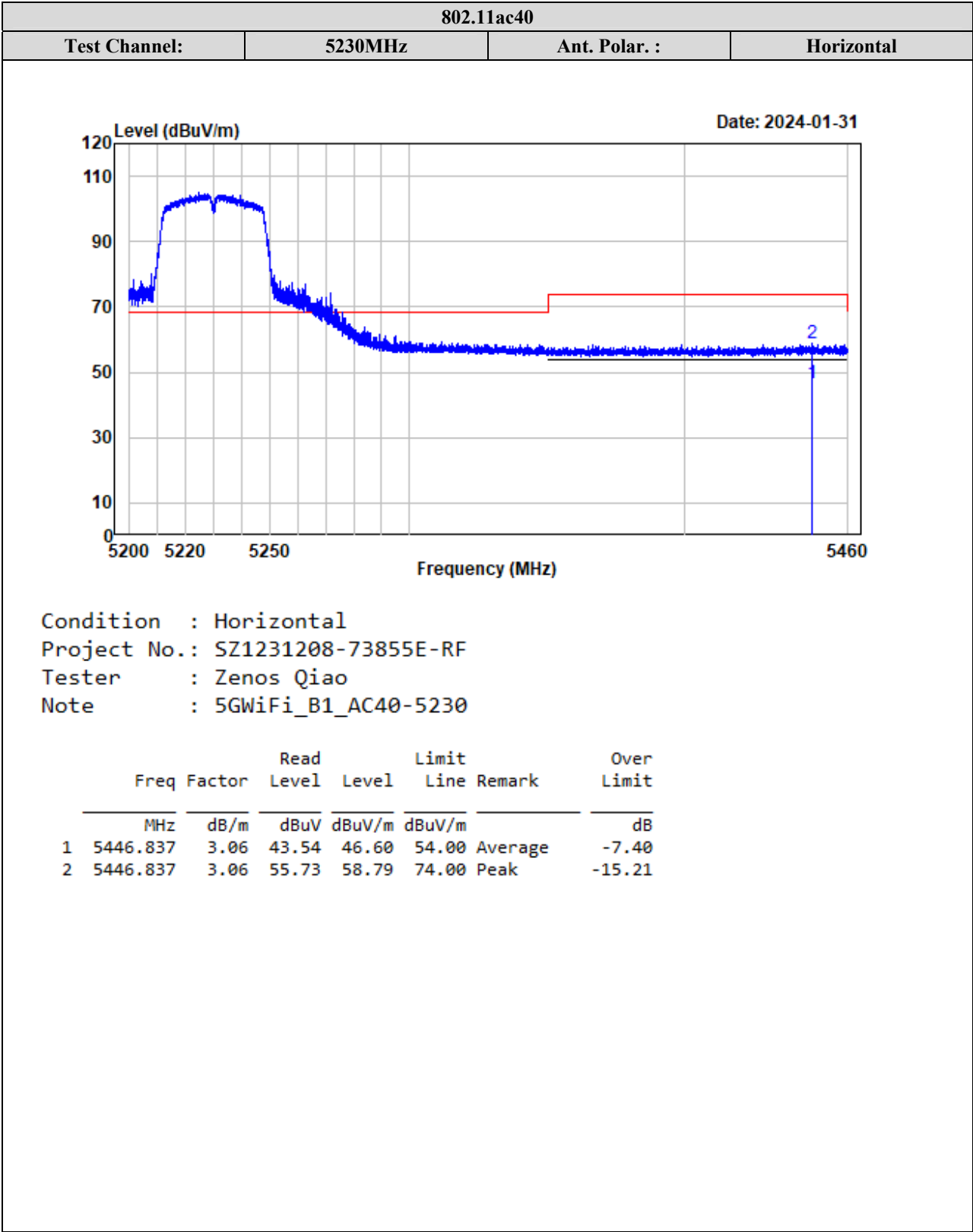


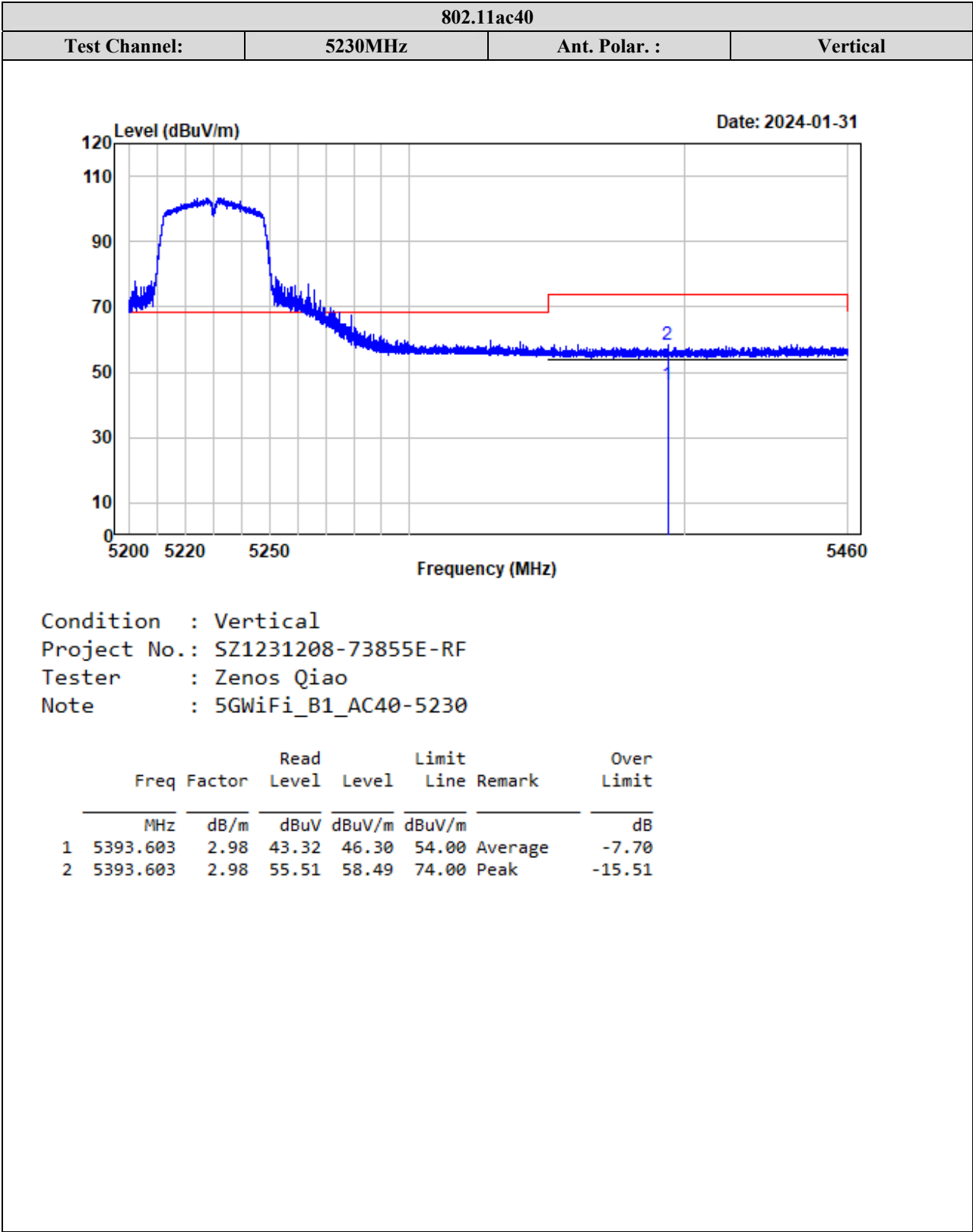




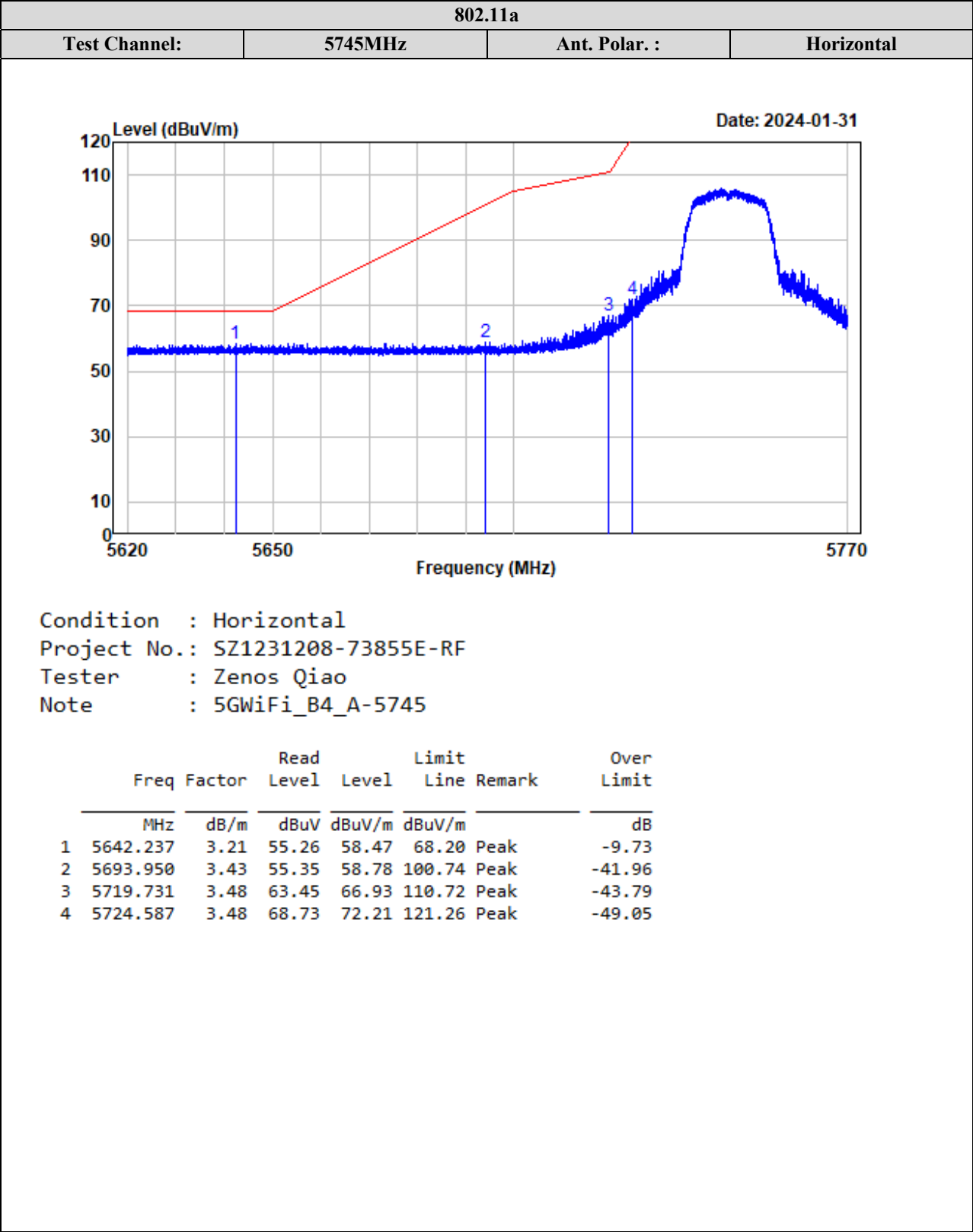


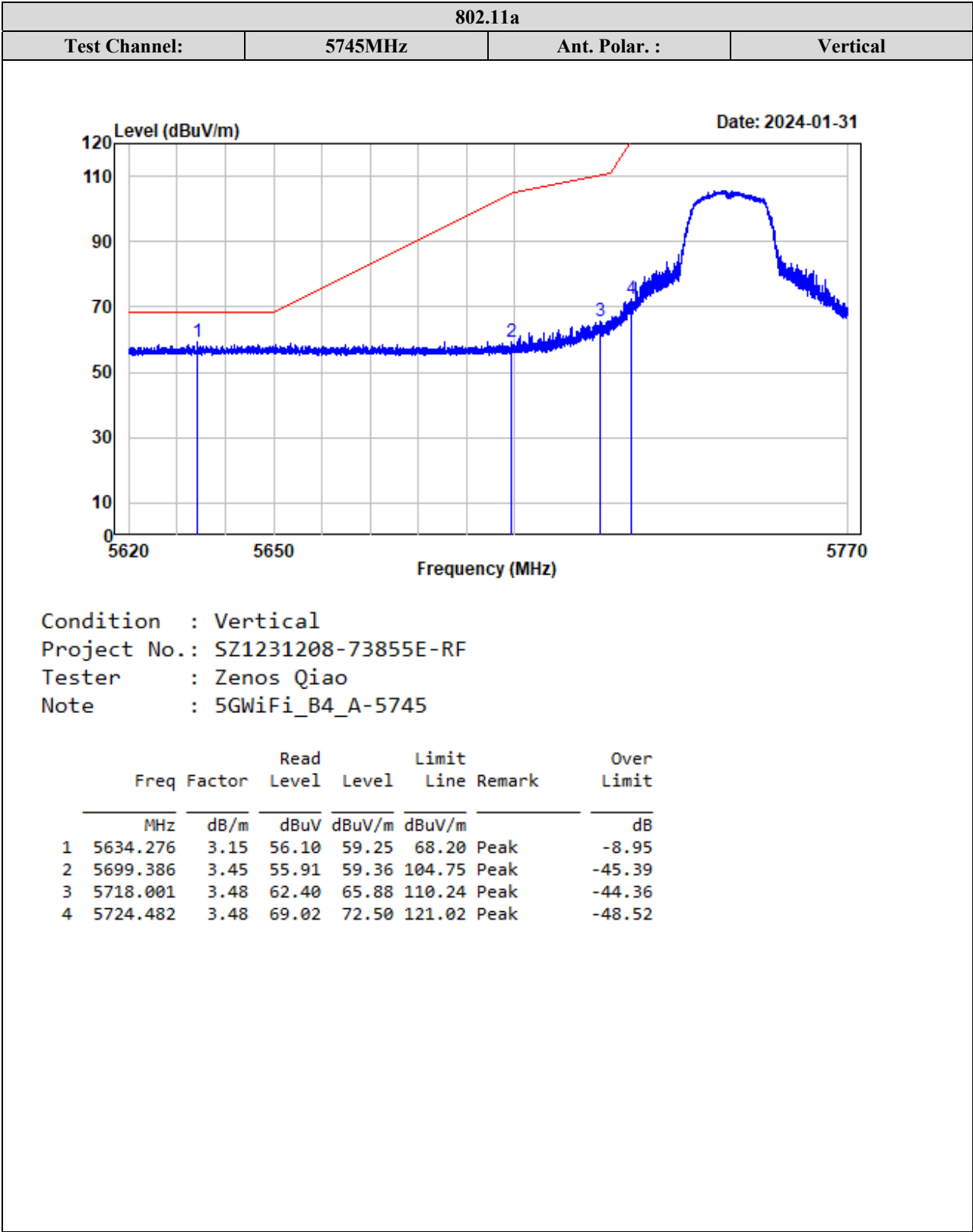


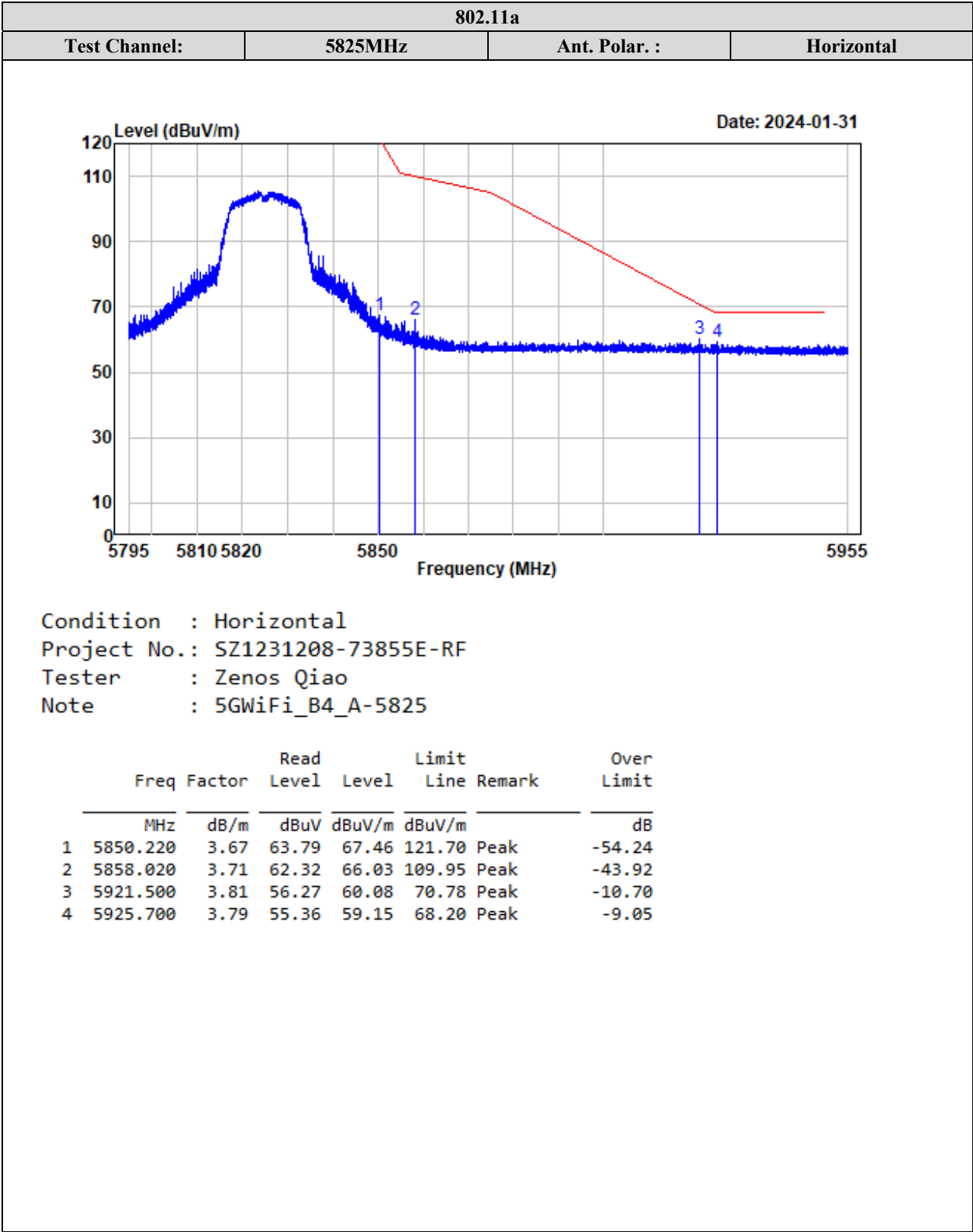


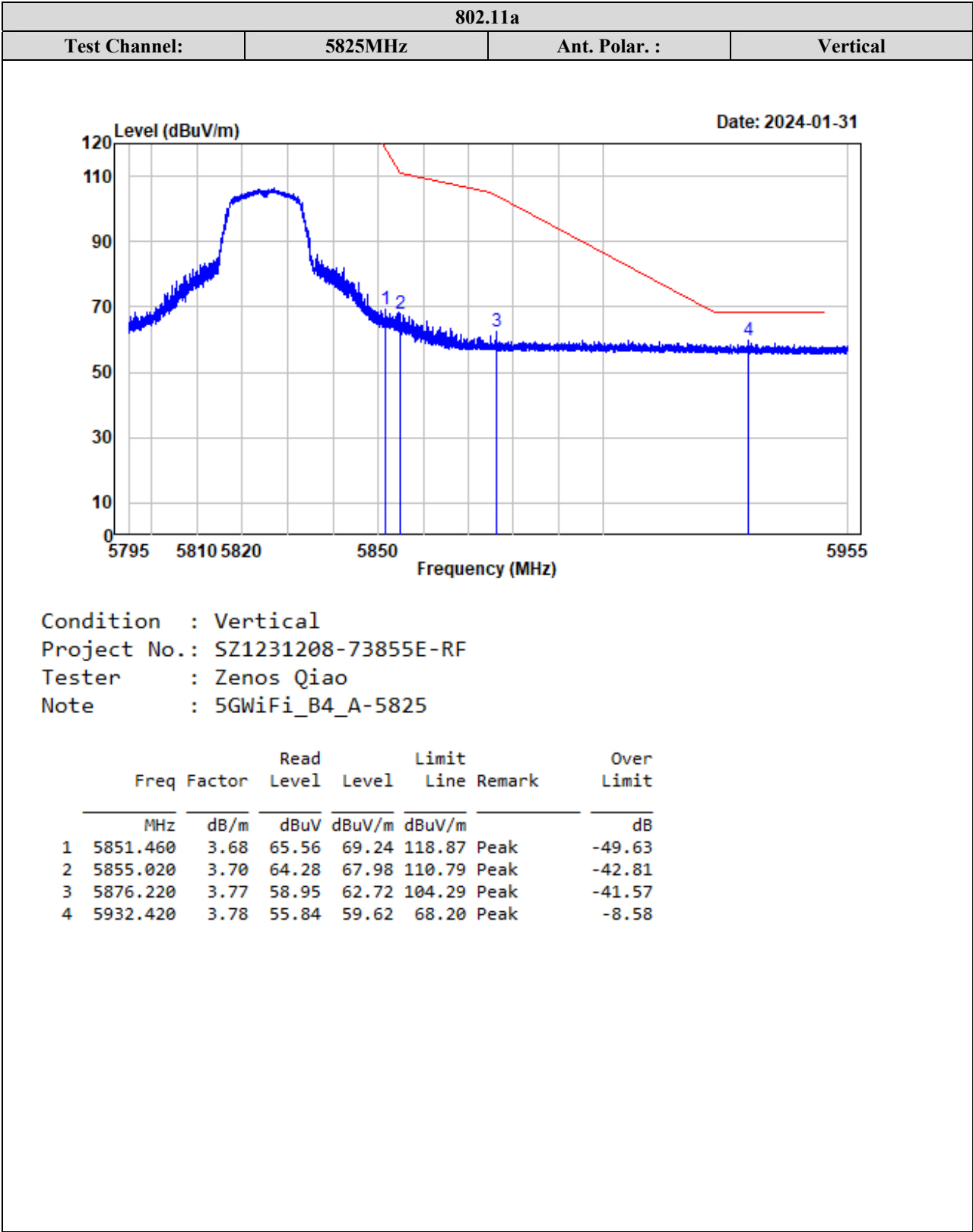


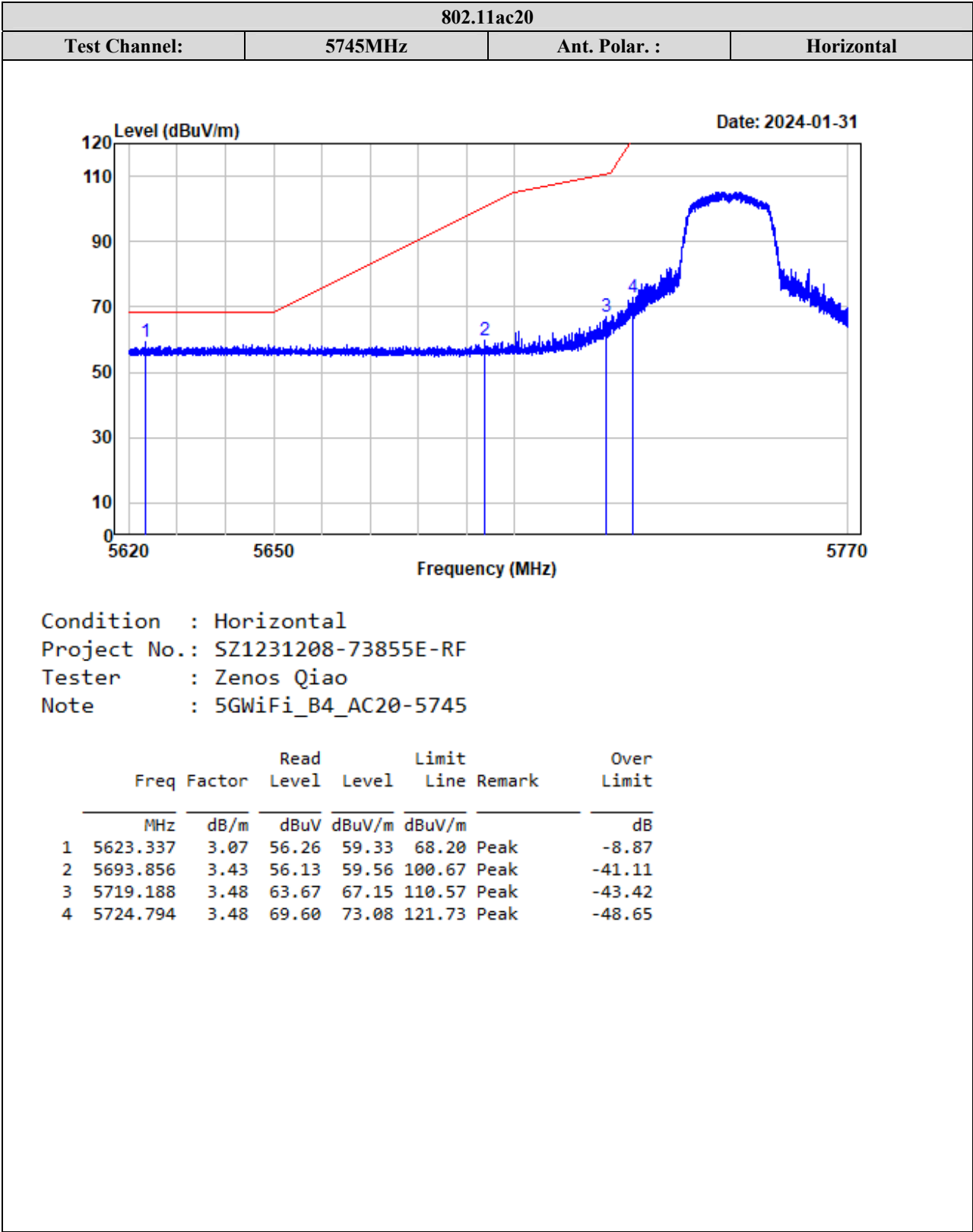
5725-5850MHz:

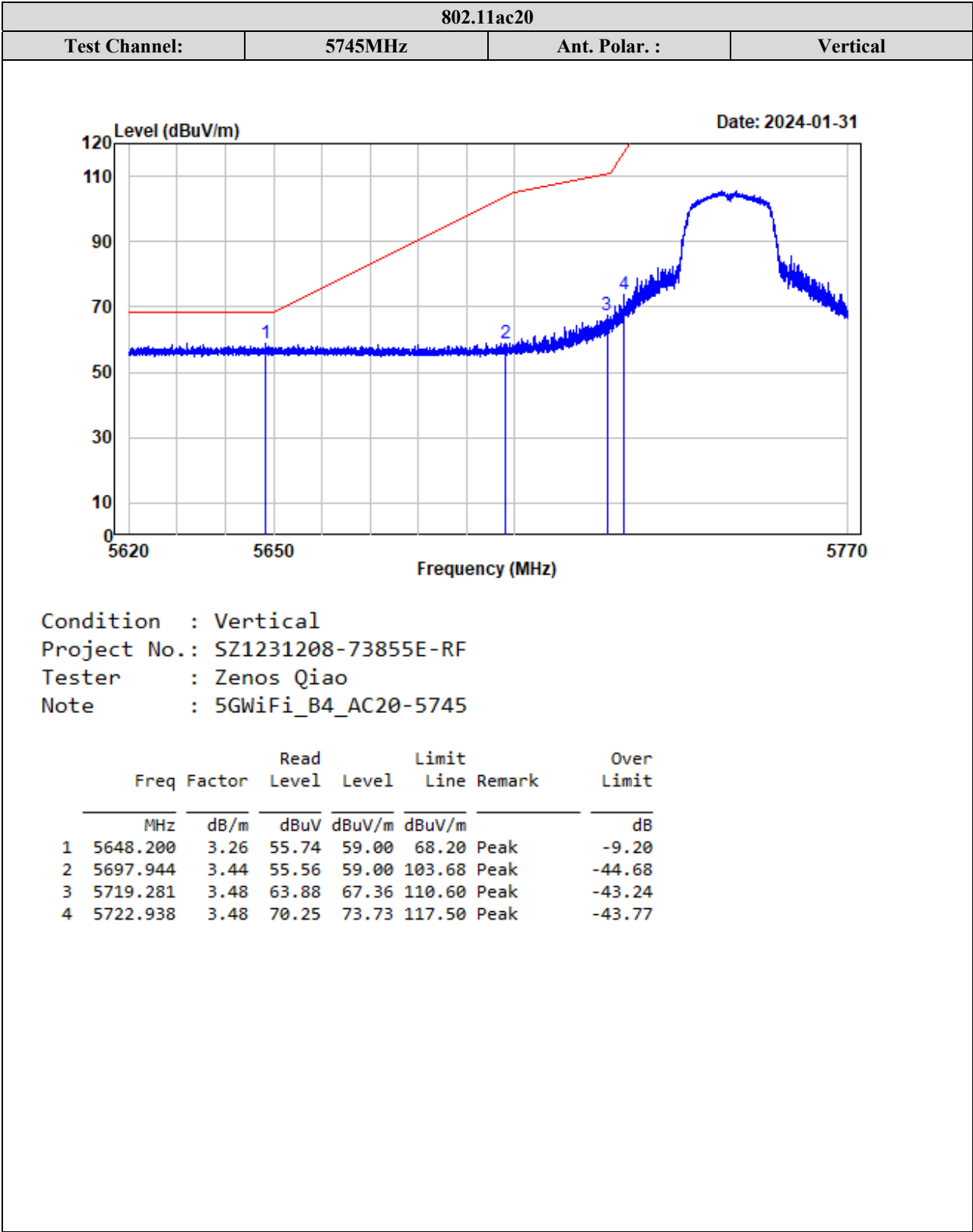


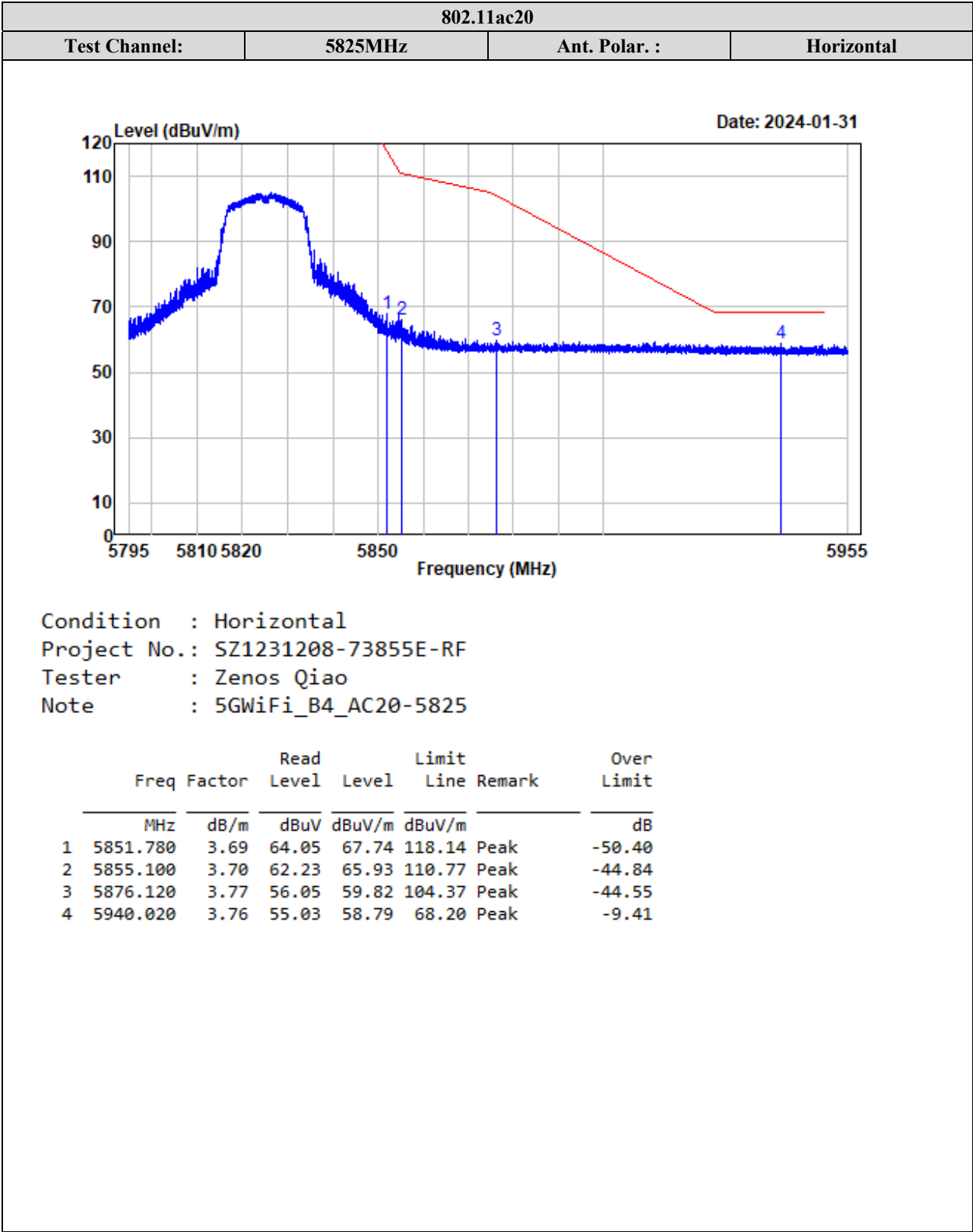


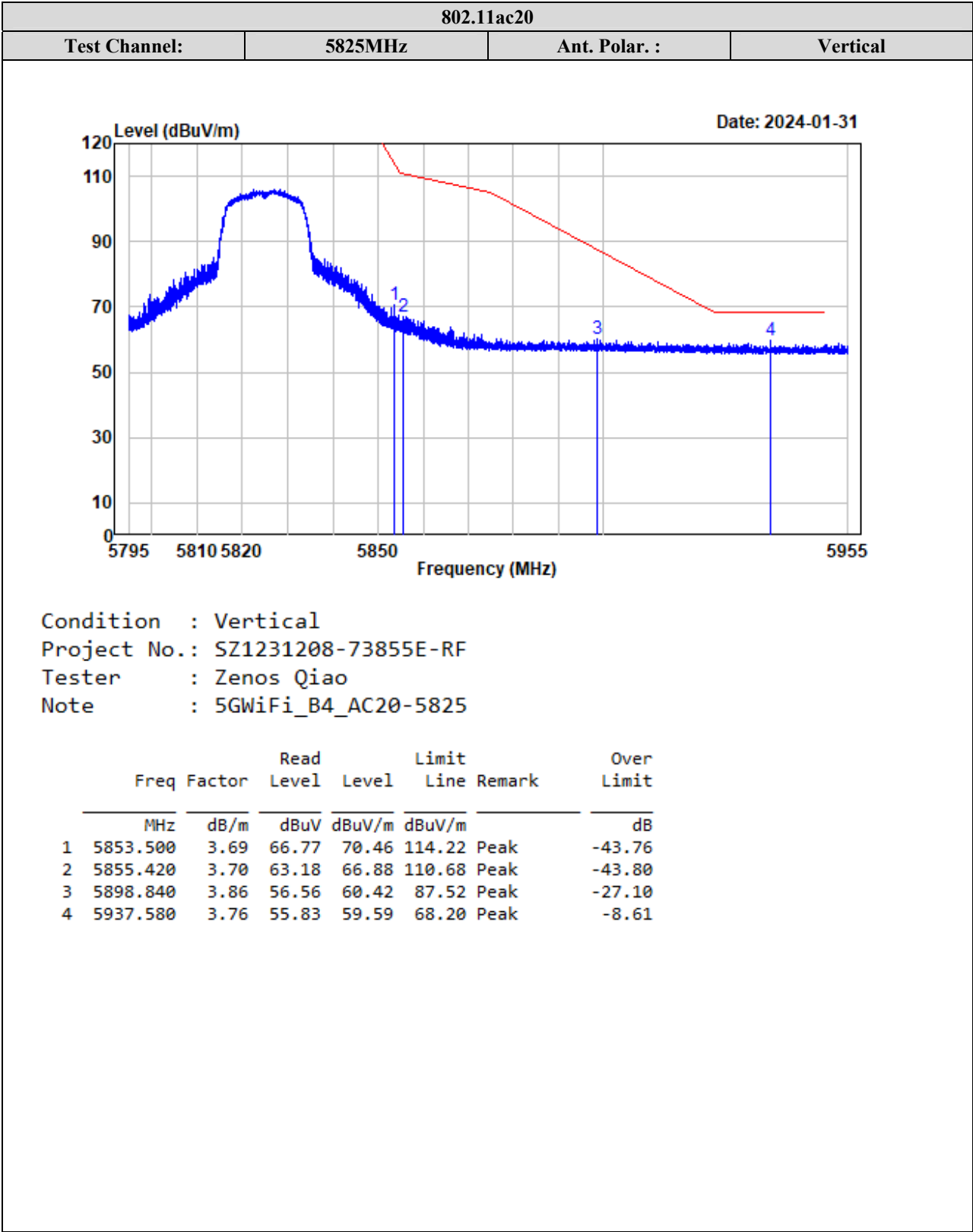








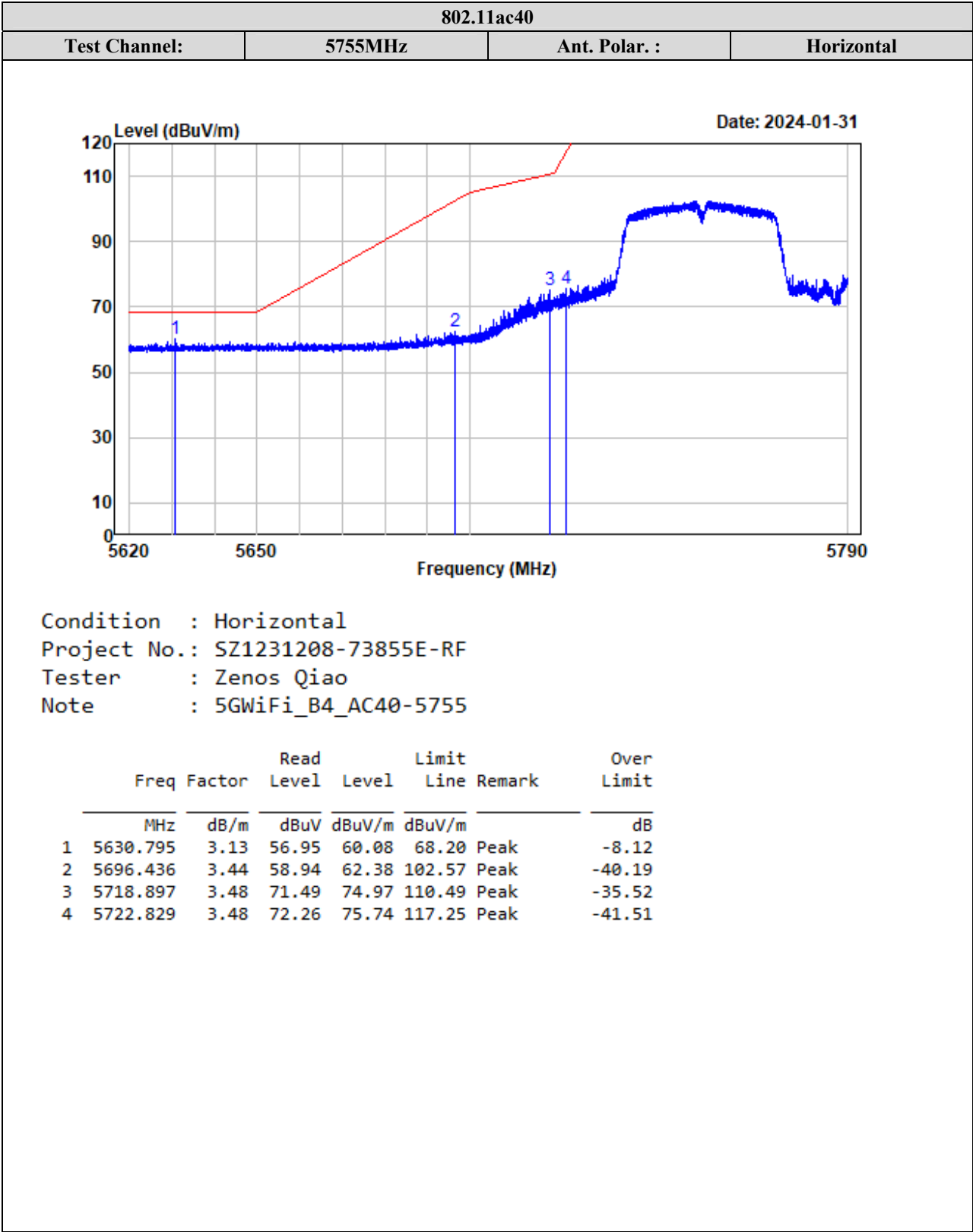


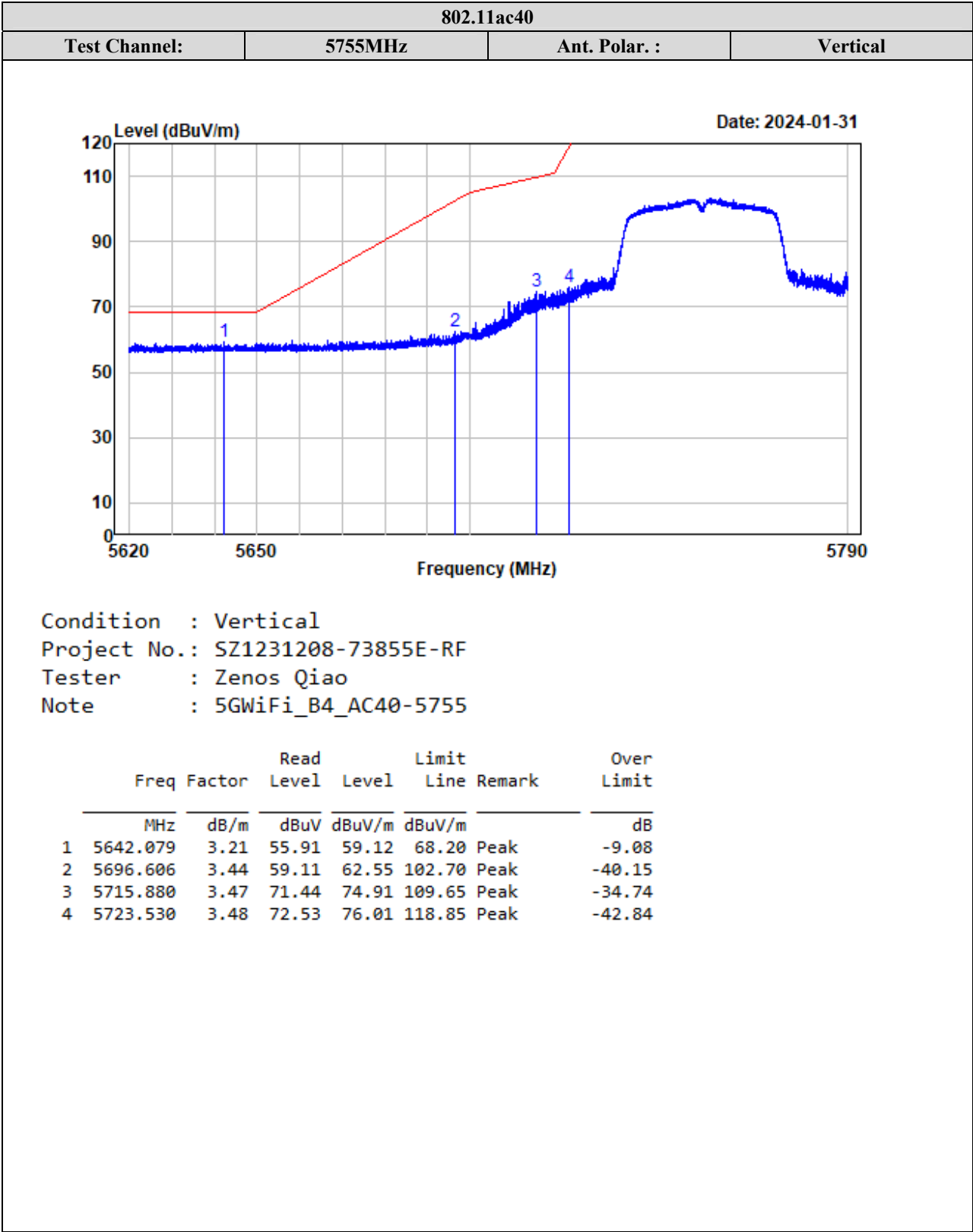


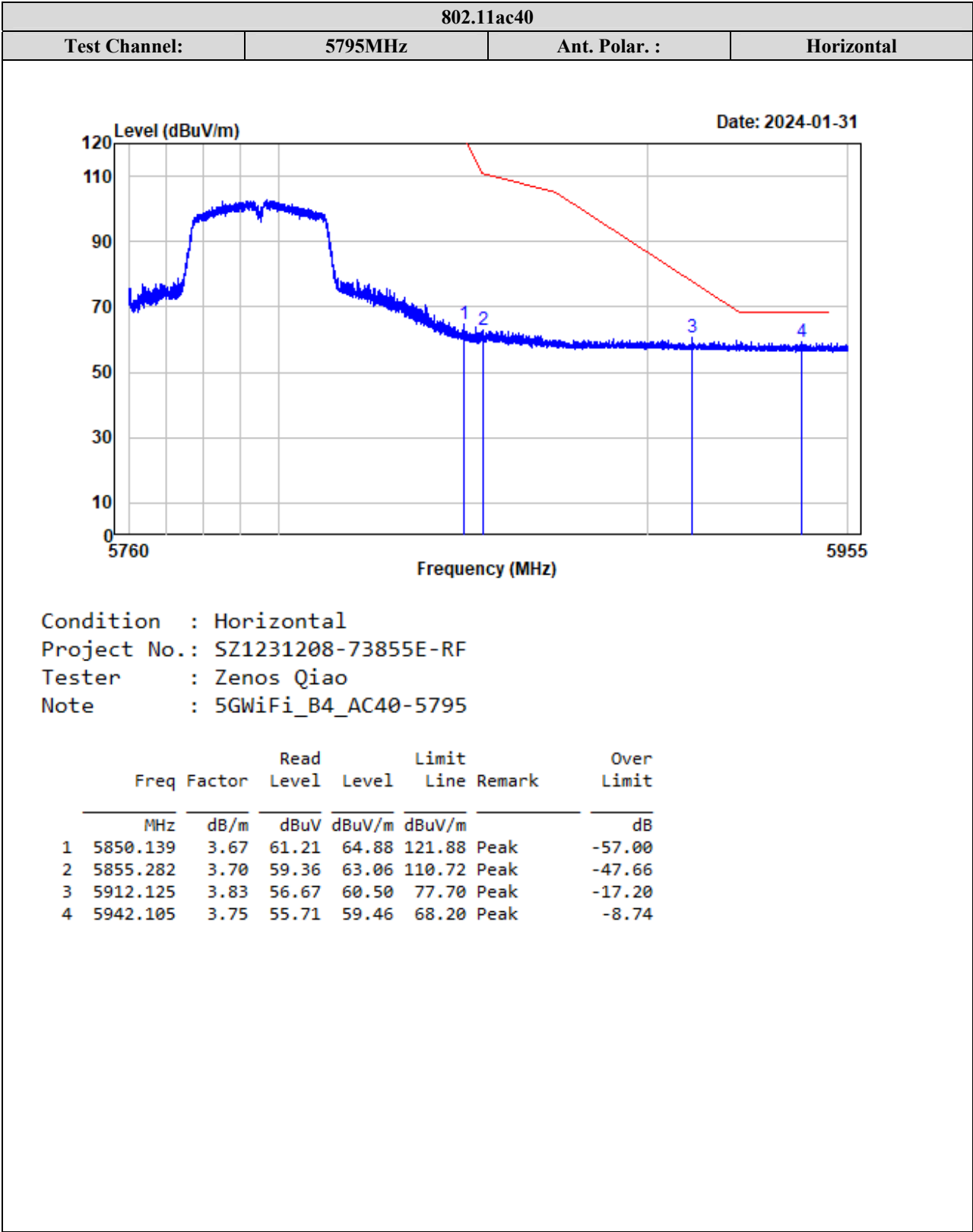
TR-EM-RF015

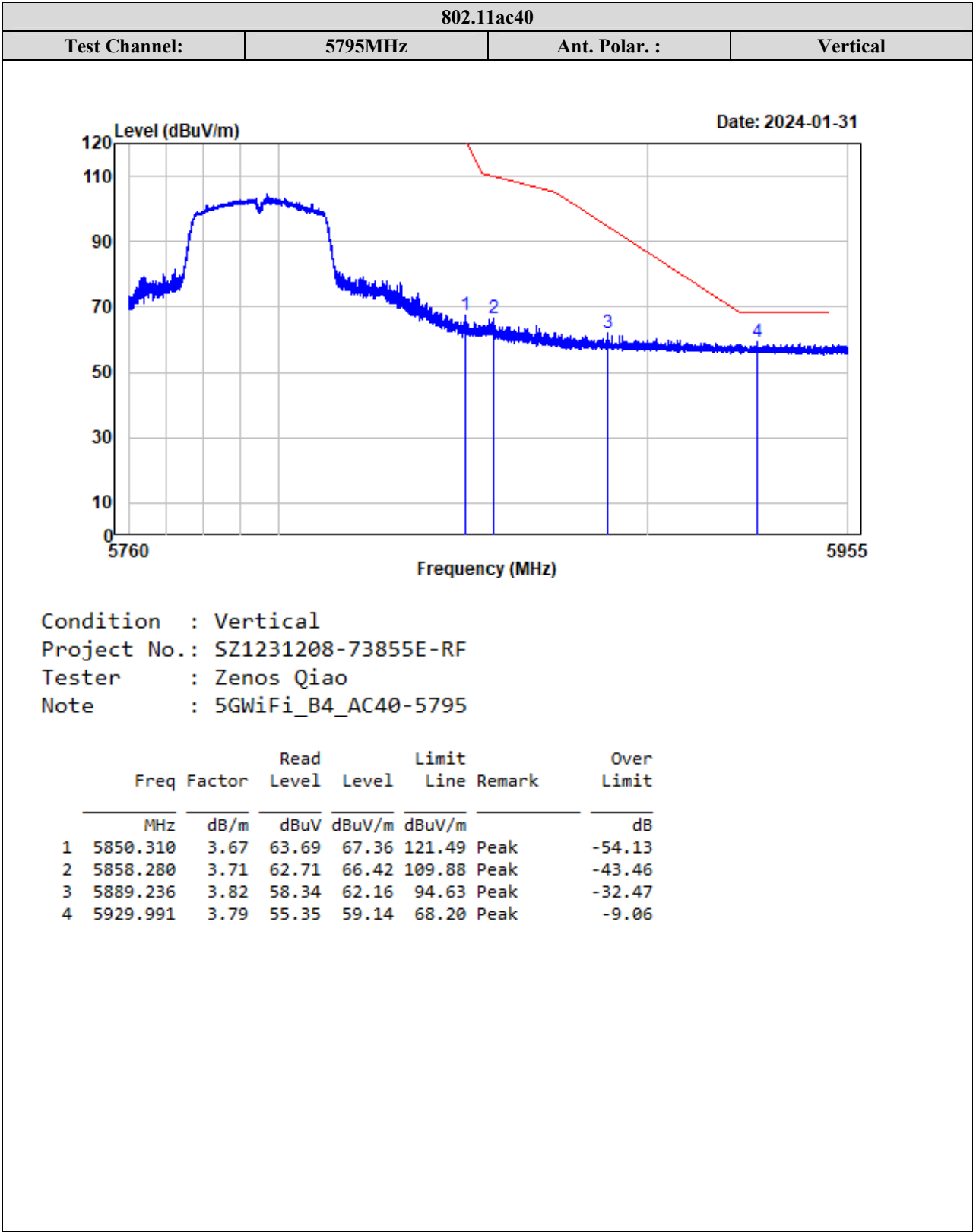
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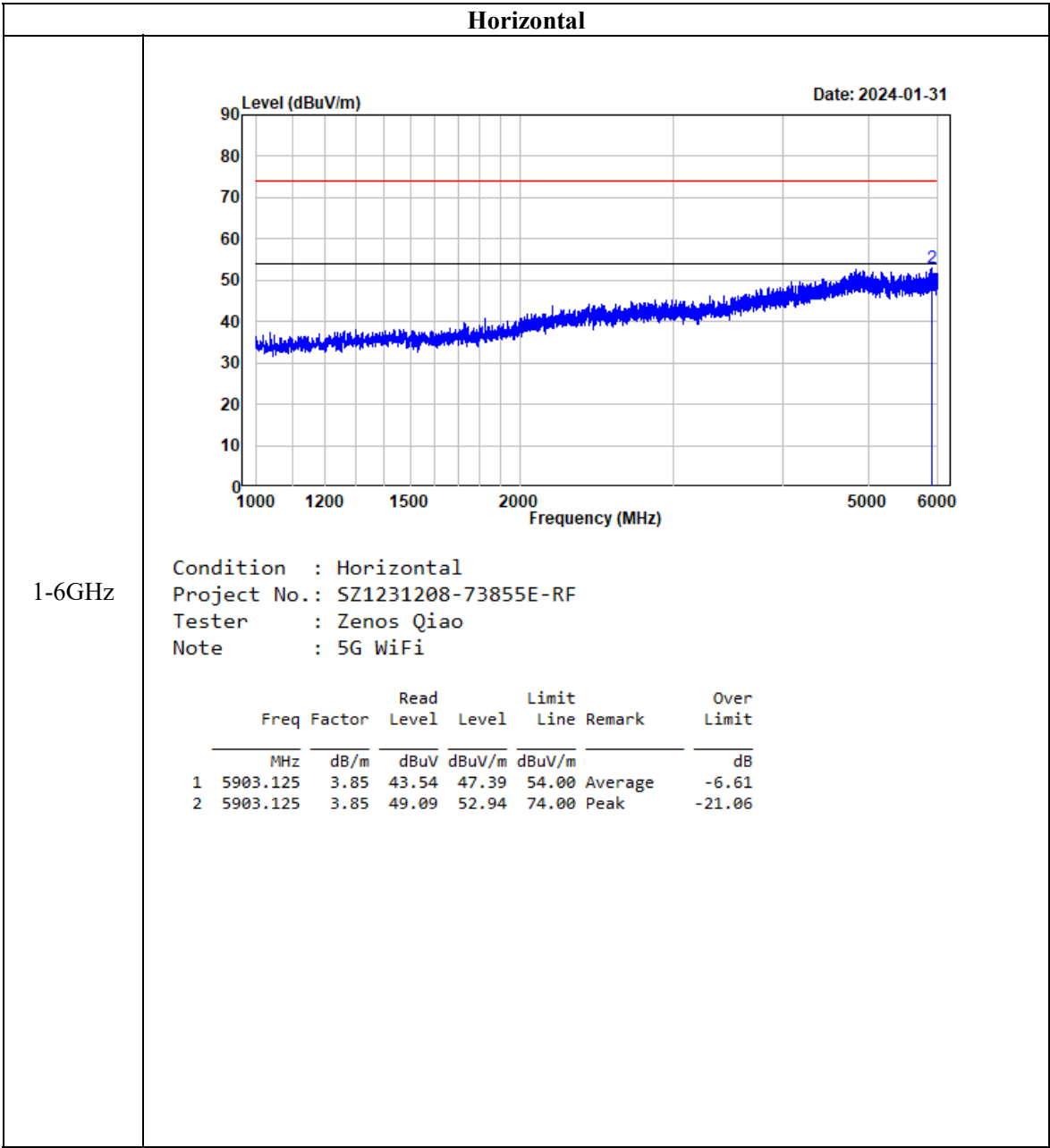


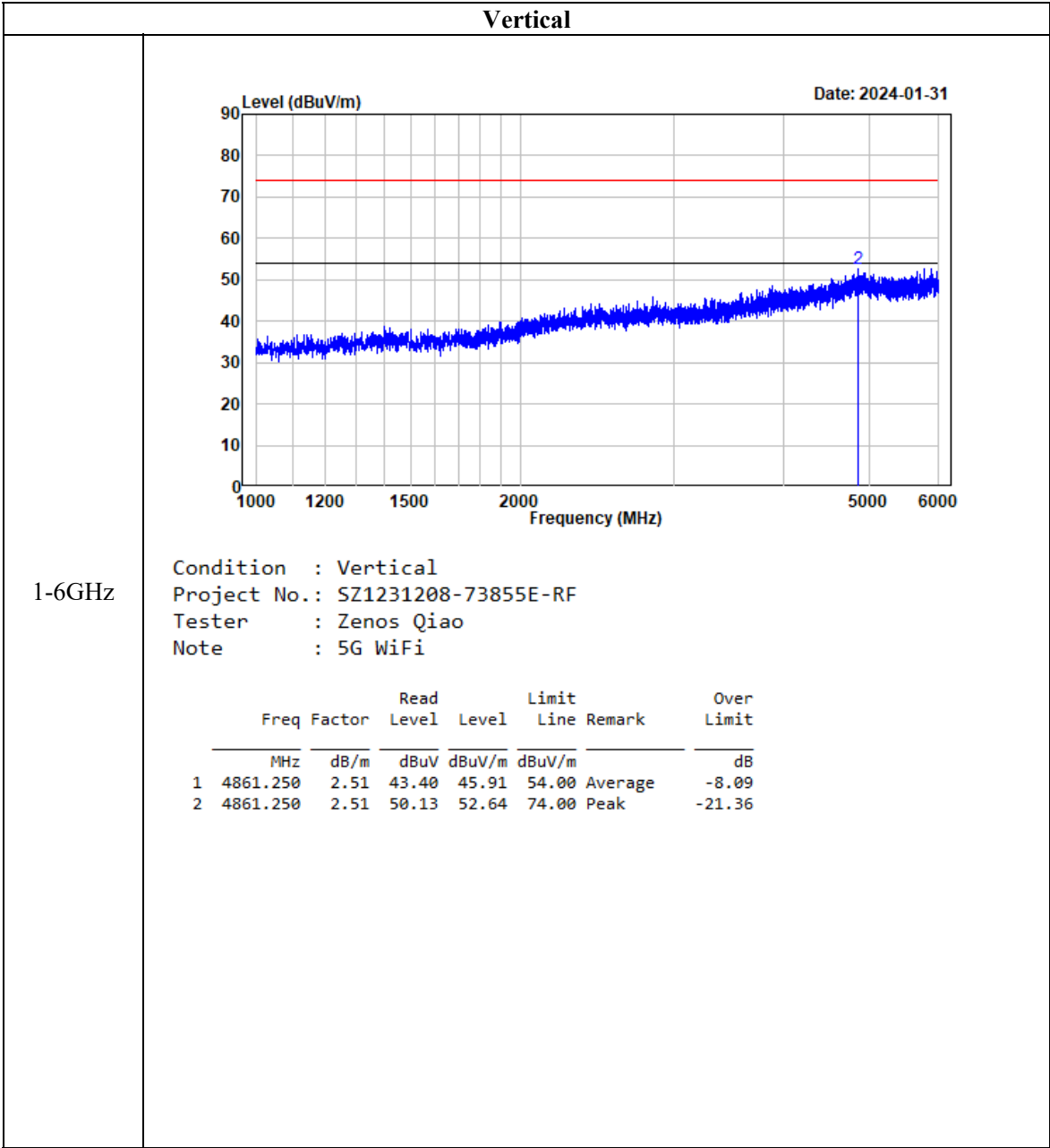


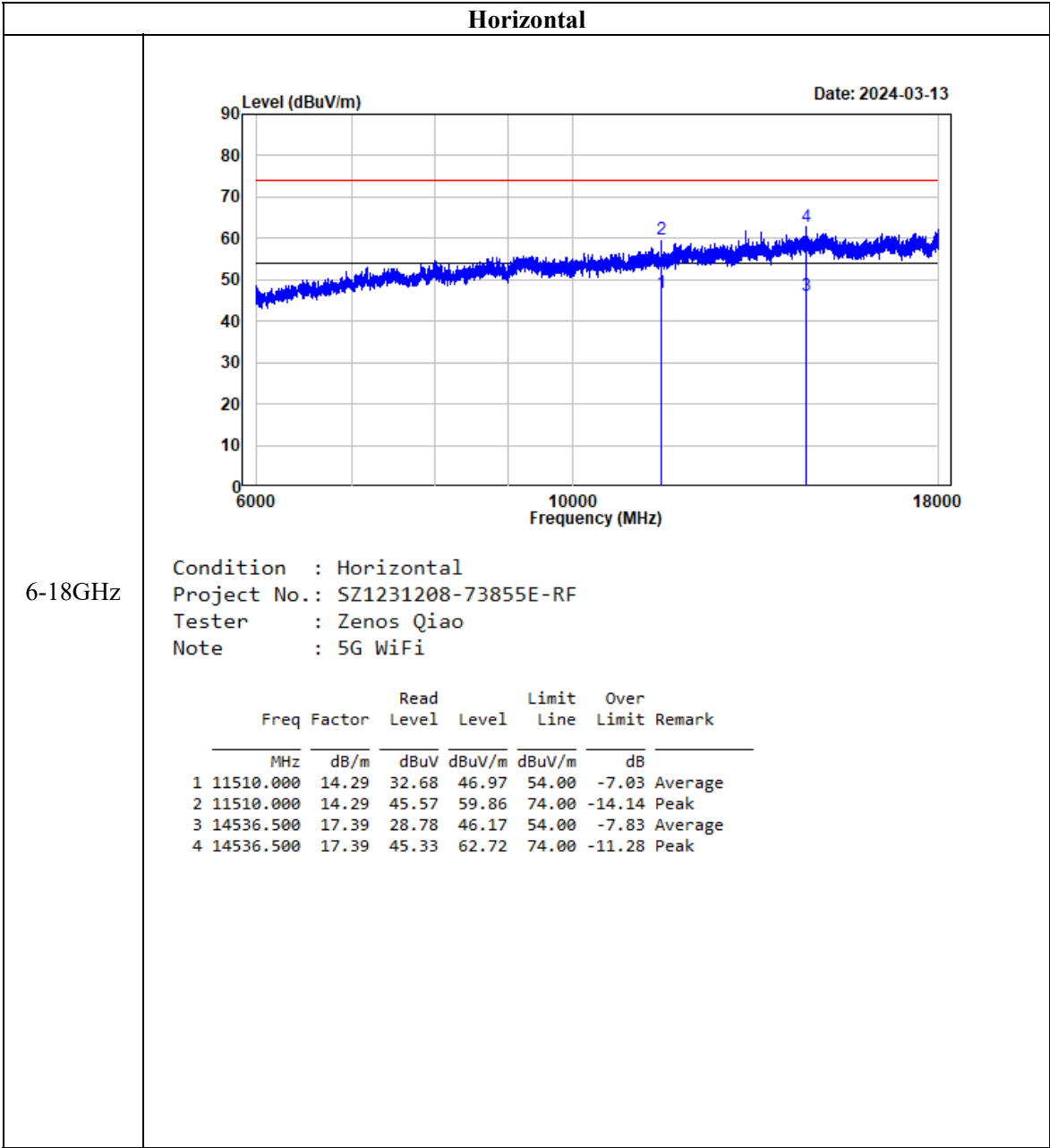


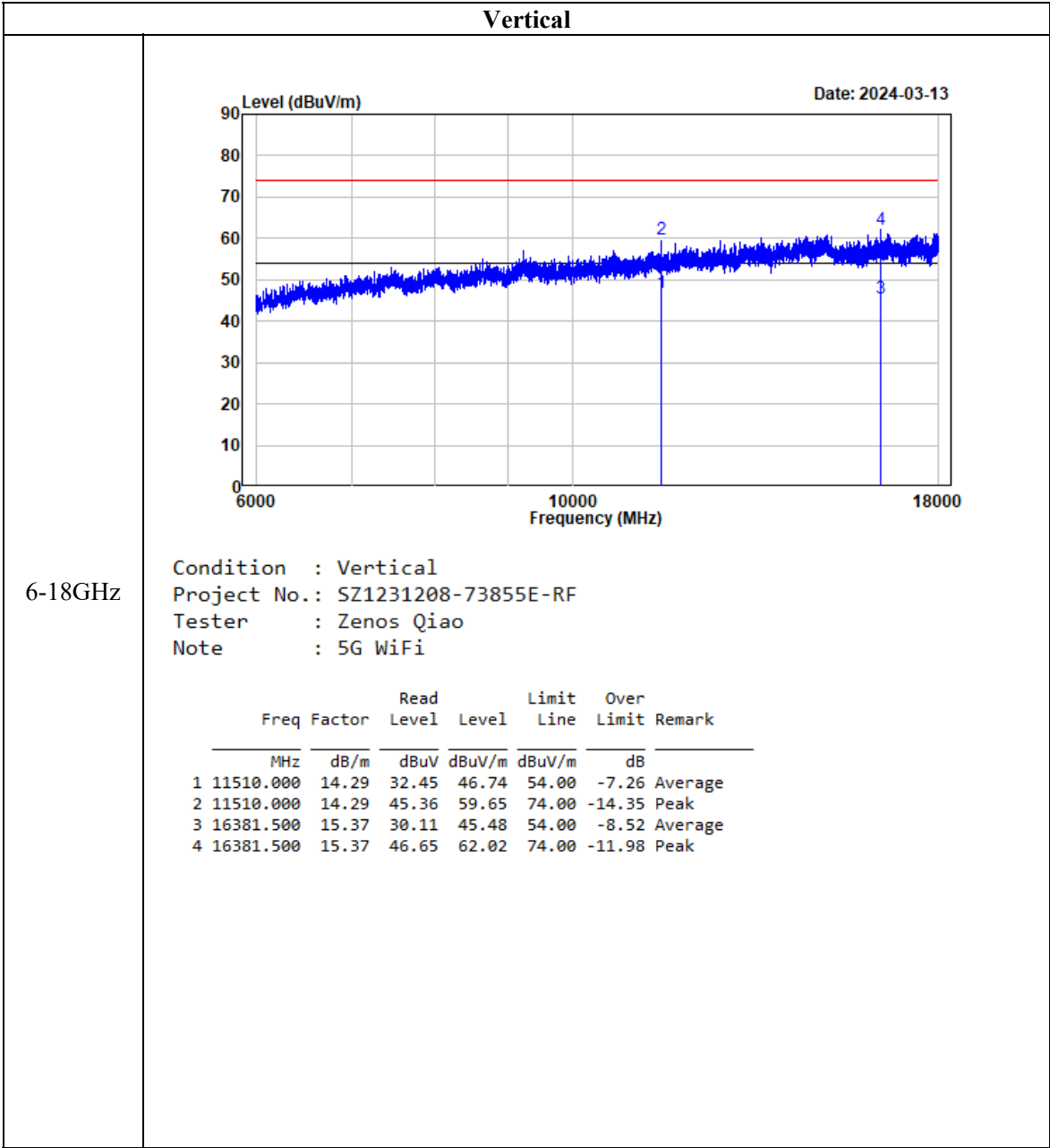


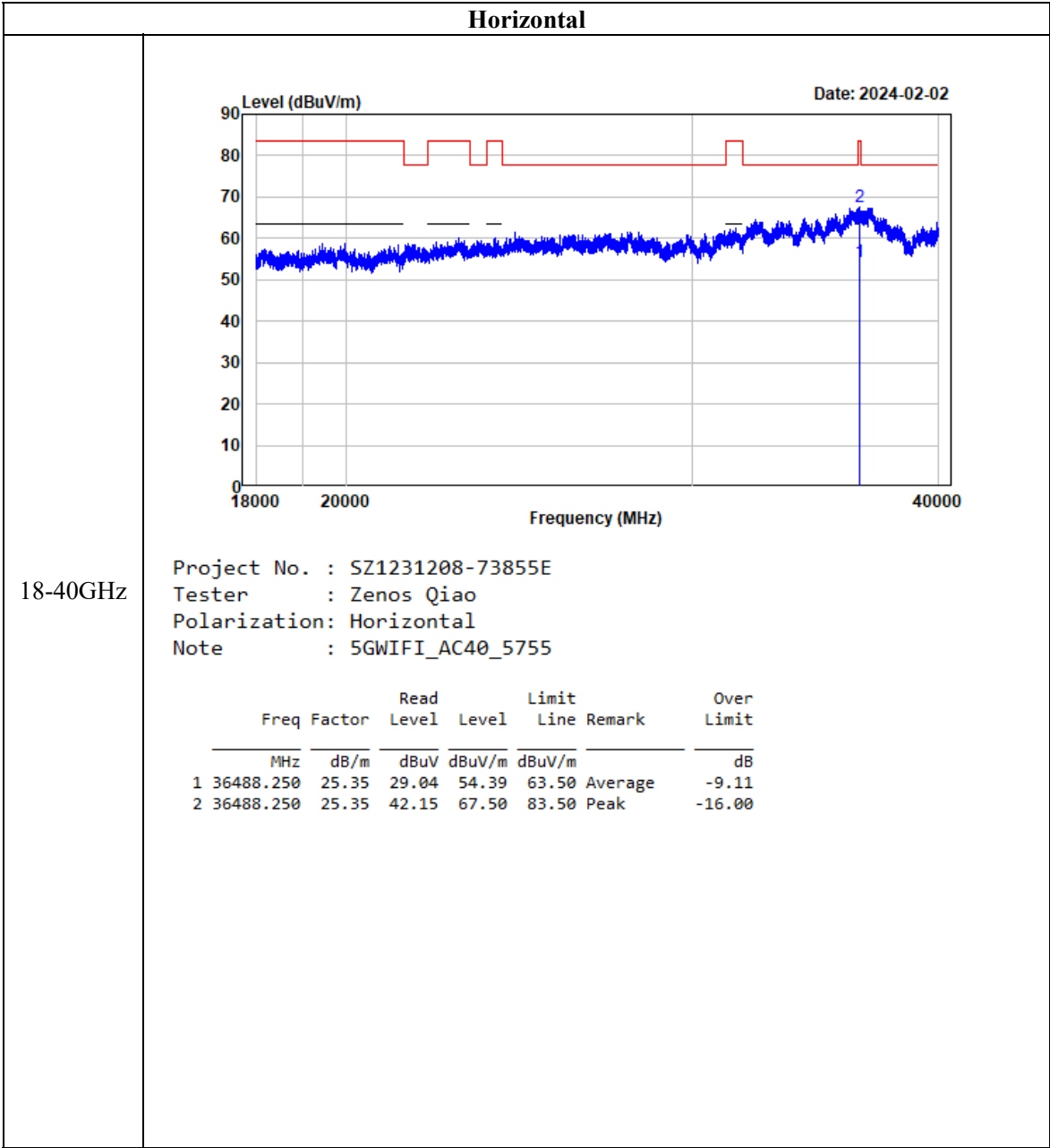
Listed with the worst harmonic margin test plot (802.11ac vht40 5755MHz)

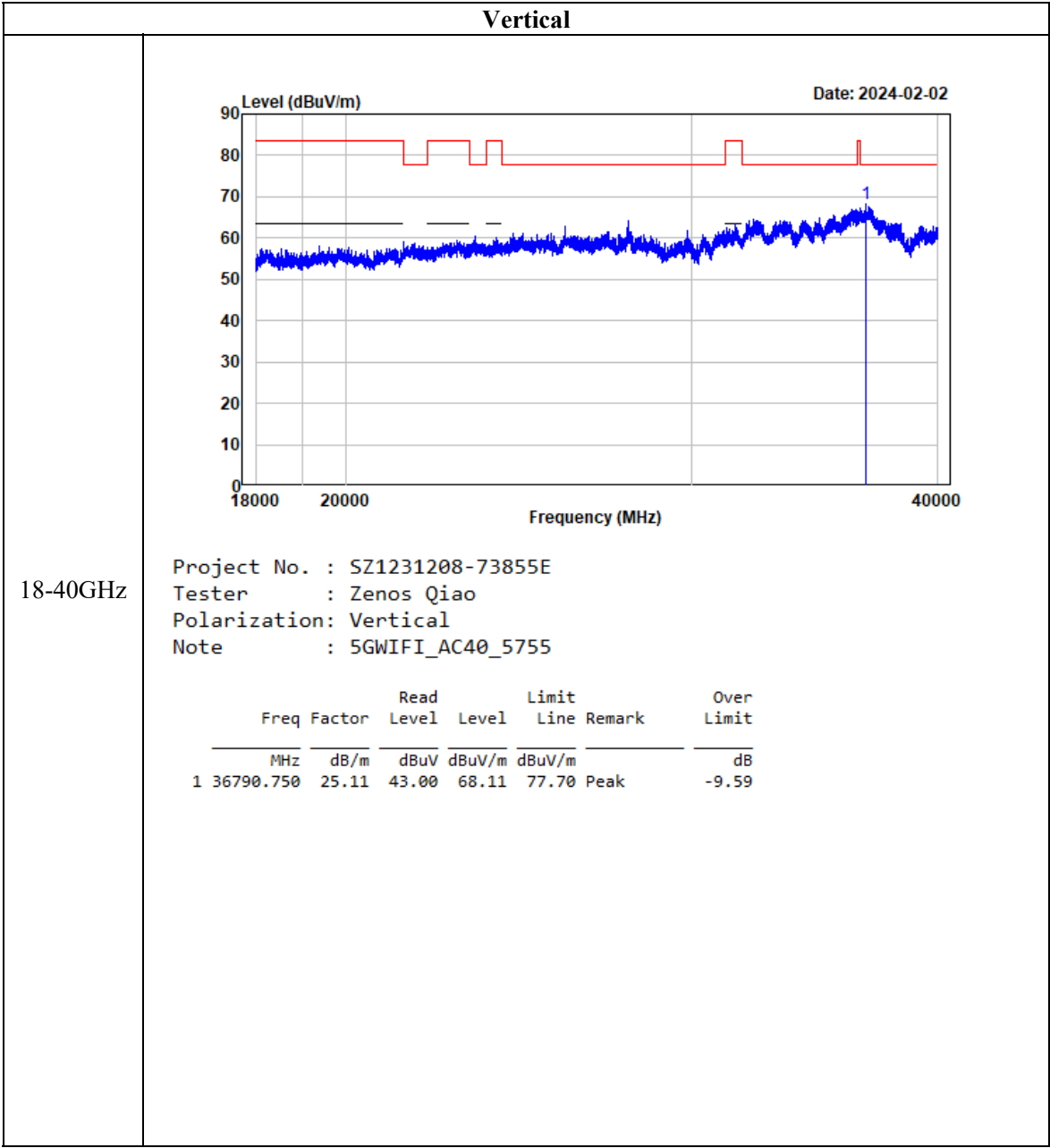












FCC §15.407(a), (e) – 26 dB & 6dB EMISSION BANDWIDTH

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 5.725-5.85 GHz band, 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) $\geq 3 \times$ 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.

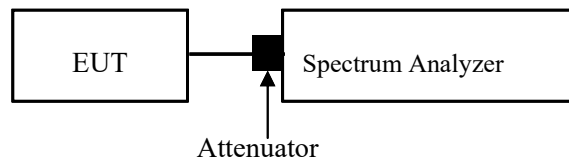
3. 99% Occupied Bandwidth:

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 $[10 \log (\text{OBW/RBW})]$ 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).



Test Data

Environmental Conditions

Temperature:	22~25 °C
Relative Humidity:	39~56 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin from 2024-01-26 to 2024-02-02.

EUT operation mode: Transmitting

Test Result: Compliant.

5150-5250MHz:

Test Modes	Test Frequency (MHz)	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180	23.94	17.24
	5200	25.56	17.08
	5240	25.68	17.12
802.11ac vht20	5180	26.64	17.96
	5200	25.50	18.00
	5240	25.92	17.96
802.11ac vht40	5190	41.12	36.40
	5230	46.08	36.40
Note: The 99% Occupied Bandwidth have not fall into the band 5250-5350MHz, please refer to the test plots of 99% Occupied Bandwidth.			

5725-5850MHz:

Test Modes	Test Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5745	16.40	17.16
	5785	16.36	17.36
	5825	16.40	17.40
802.11ac vht20	5745	17.64	18.04
	5785	17.60	18.12
	5825	17.64	18.12
802.11ac vht40	5755	36.24	36.48
	5795	36.48	36.64
Note: 6dB Emission Bandwidth Limit: ≥ 0.5 MHz. The 99% Occupied Bandwidth have not fall into the band 5470-5725MHz, please refer to the test plots of 99% Occupied Bandwidth.			

26dB Emission Bandwidth

Ref 25 dBm *Att 30 dB Delta [T1] 2.67 dB
 23.94000000 MHz
 1.98 MHz
 Offset 11 dB
 Marker 1 [T1]
 2.67 dB
 5.16728000 GHz
 D1 8.59 dBm
 -02 -17.91 dB
 Center 5.18 GHz 6 MHz/ Span 60 MHz

Ref 25 dBm Att 30 dB RBW 1 MHz VBW 1 MHz SWT 1 s Delta 2 (T1) 2.23 dB 25.560000000 MHz

Offset 11 dB Markers 1 (T1)

-20 -10 -10 -20 -30 -40 -50 -60 -70

01 8.8 dB -02 -7.5 dB

Center 5.2 GHz 6 MHz/ Span 60 MHz

Marker 1 (T1)

-21.90 dBm 5.197400000 GHz

*BW 300 KHz Delta 2 [12.1]
 *VM 1 MHz -0.76 dBm
 *SWT 1 s 25.68000000 MHz

Ref 25 dBm Att 30 dB

Offet 11 dB Marker 1 [5.24]
 -10.00 dBm
 5.228420000 GHz

1.98 MAX

-10
 -20
 -30
 -40
 -50
 -60
 -70

Center 5.24 GHz 6 MHz/ Span 60 MHz

Version 1.0 (2023/10/07)

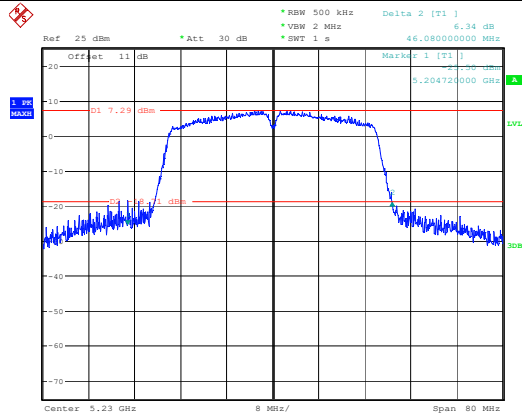
Ref 25 dBm Att 30 dB BW 500 kHz VBW 2 MHz SMT 1 s Delta 2 [T1] 0.40 dB 41.120000000 MHz

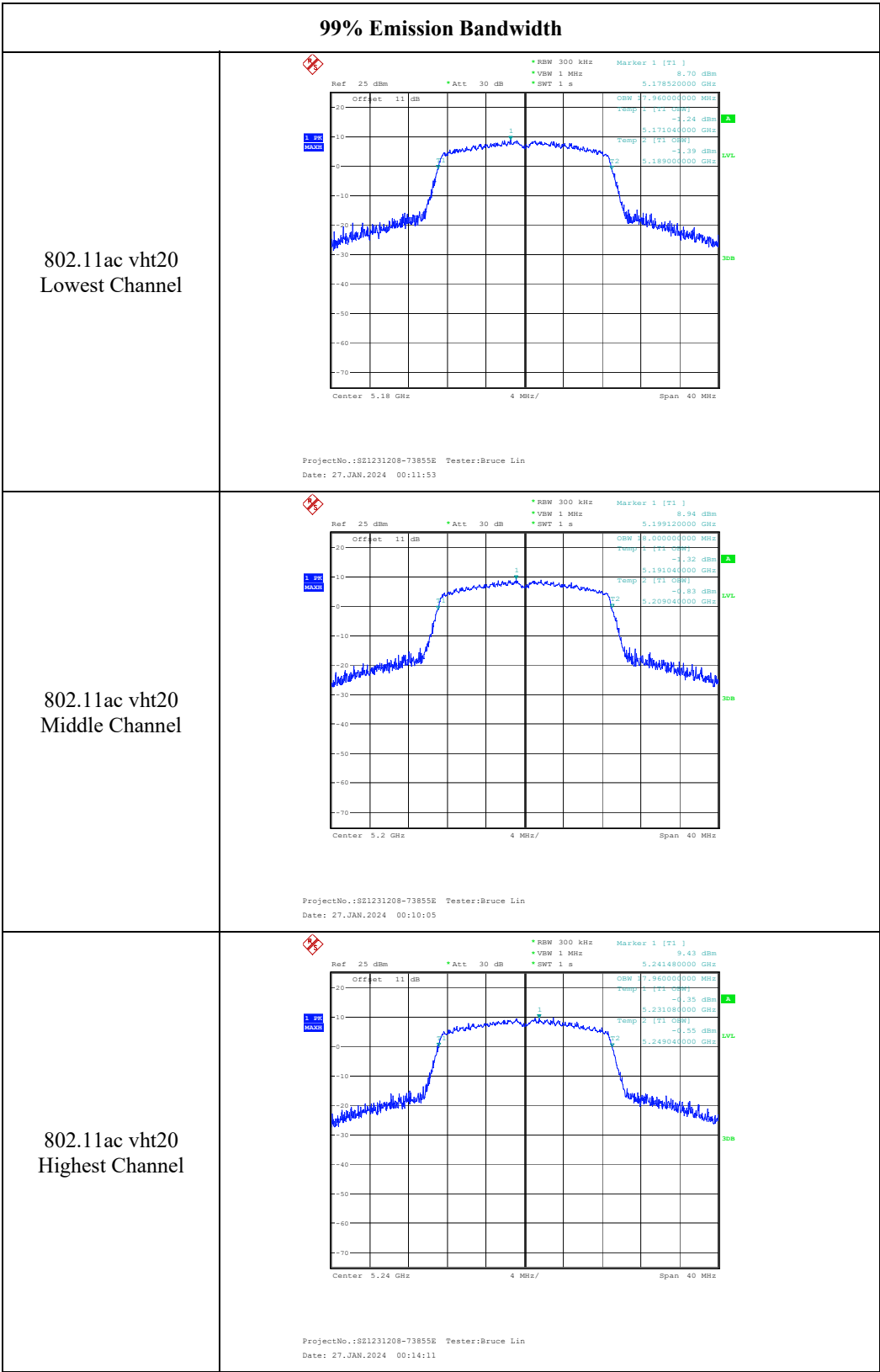
Offset 11 dB Marker 1 [T1] 7.3 dBm 0.169520000 GHz

01 7.3 dBm 02 -10.0 dBm

Center 5.19 GHz 8 MHz/ Span 80 MHz

802.11ac vht40
Lowest Channel

802.11ac vht40
Highest Channel



Ref 25 dBm Att 30 dB BW 500 kHz VBW 2 MHz SMT 1 s Marker 1 [T1] 6.89 dBm 5.187520000 GHz

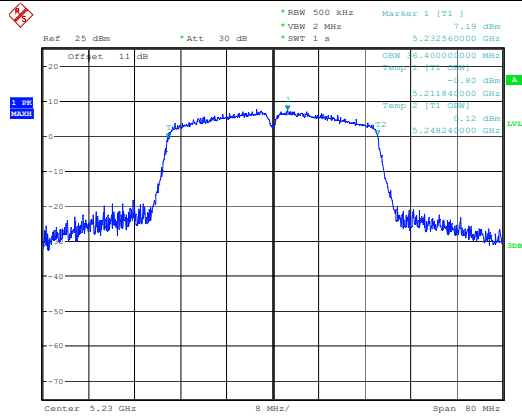
Offset 11 dB

1 dB scale bar

RBW 5.400000000 MHz Temp 1 (11 dBm) -4.63 dBm Temp 2 (T1 0dB) -4.07 dBm 5.028240000 GHz

Center 5.19 GHz 8 MHz/Hz Span 80 MHz

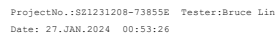
802.11ac vht40
Lowest Channel

802.11ac vht40
Highest Channel

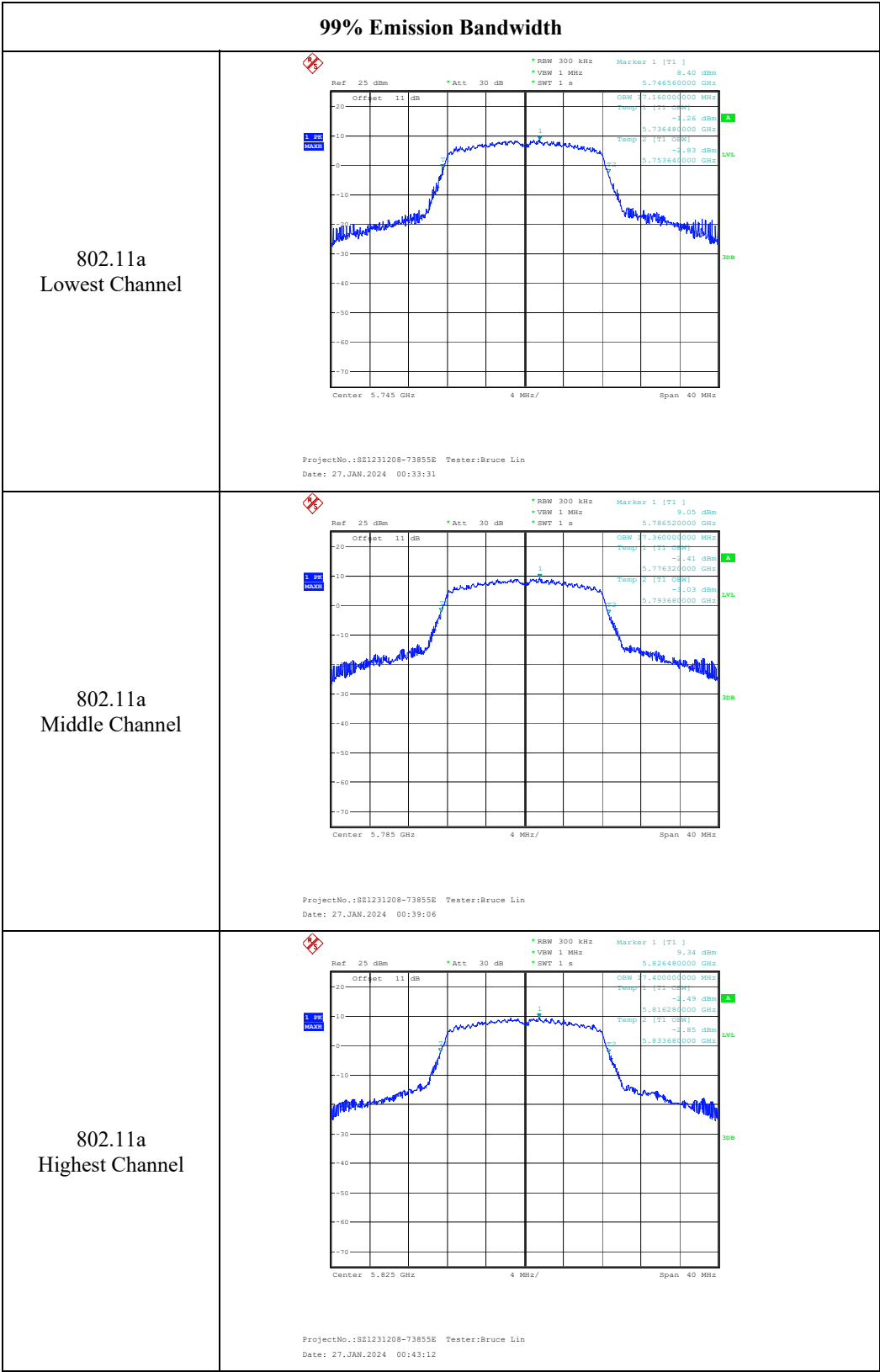
5725-5850MHz:

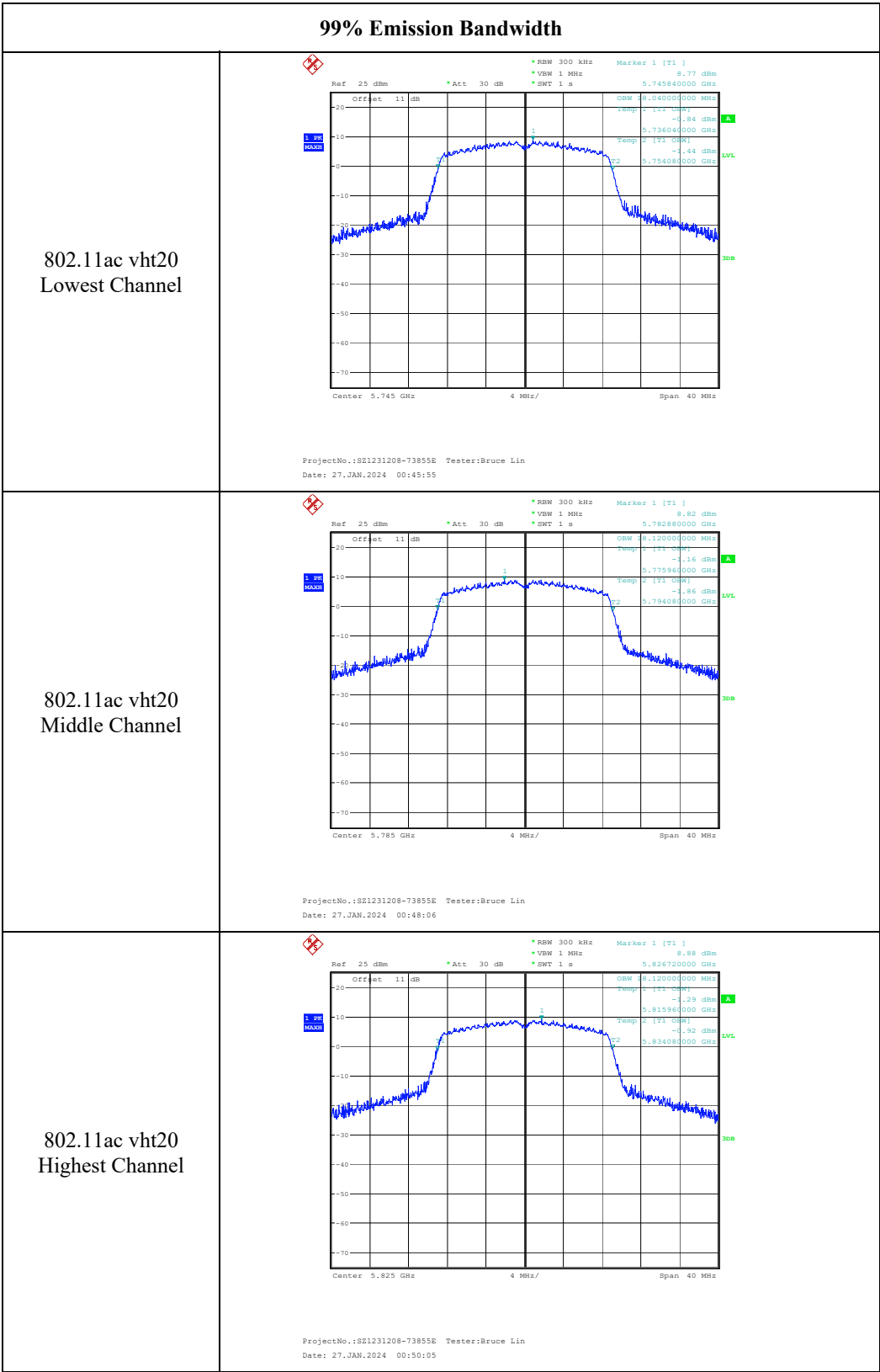
[illegible]

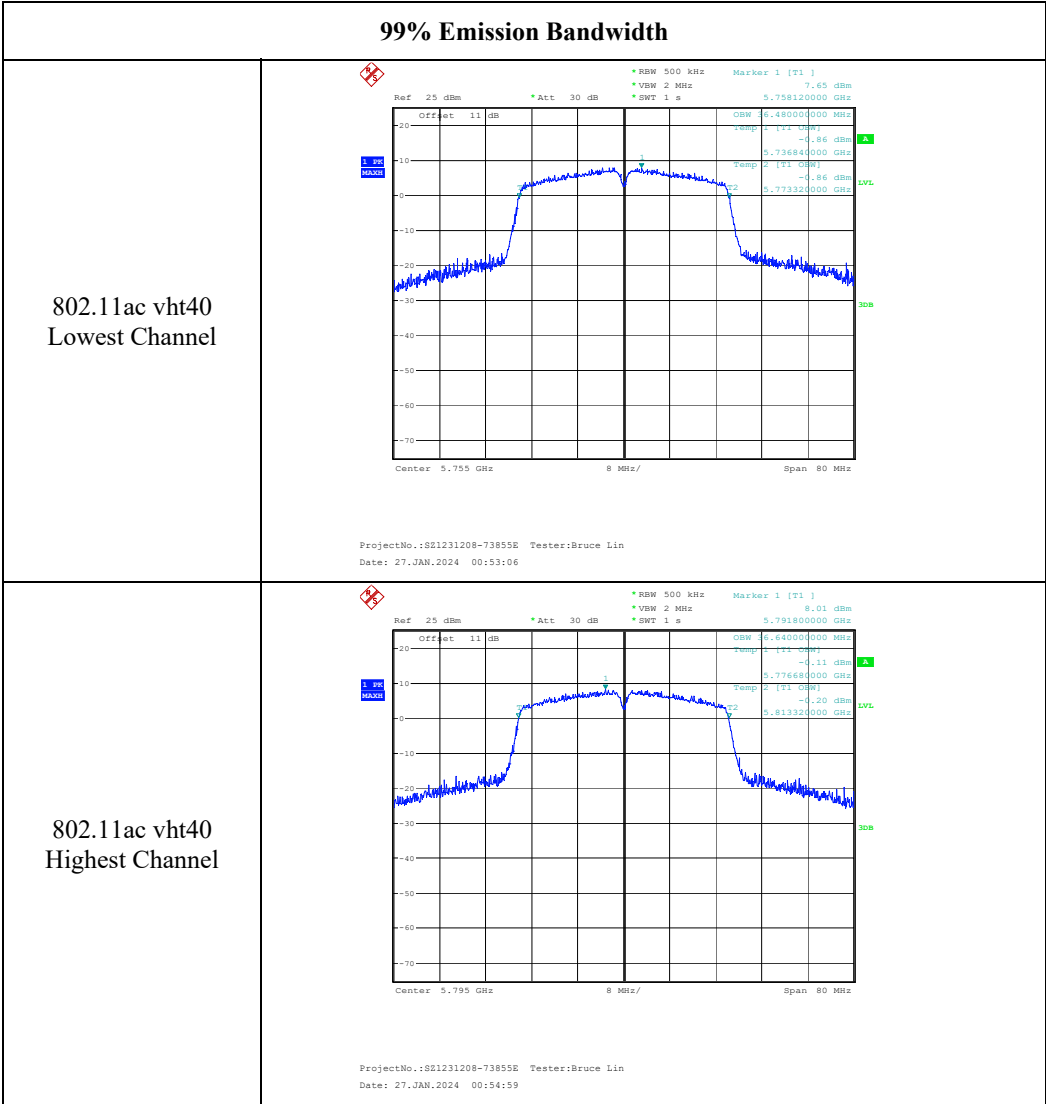
802.11ac vht40
Lowest Channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 27.JAN.2024 00:55:21







FCC §15.407(a) – CONDUCTED TRANSMITTER OUTPUT POWER

Applicable Standard

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.

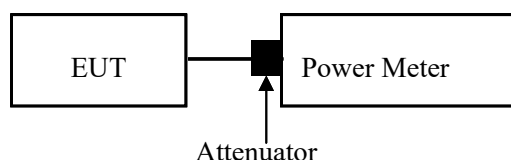
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not 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.

Test Procedure

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

- Place the EUT on a bench and set it in transmitting mode.
- 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:	22~25 °C
Relative Humidity:	39~56 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin from 2024-01-26 to 2024-02-02.

EUT operation mode: Transmitting

Test Result: Compliant.

5150-5250 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power (dBm)	
		Result	Limit
802.11a	5180	12.63	24
	5200	12.42	24
	5240	13.11	24
802.11ac vht20	5180	12.24	24
	5200	12.62	24
	5240	12.99	24
802.11ac vht40	5190	12.87	24
	5230	13.05	24
Note: The device is a client device.			

5725-5850 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power (dBm)	
		Result	Limit
802.11a	5745	12.55	30
	5785	12.91	30
	5825	13.02	30
802.11ac vht20	5745	12.44	30
	5785	12.93	30
	5825	13.02	30
802.11ac vht40	5755	12.90	30
	5795	13.27	30

FCC §15.407(a) - POWER SPECTRAL DENSITY

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.

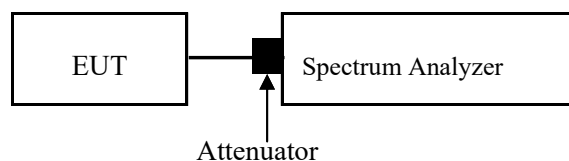
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not 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.

Test Procedure

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

- Set span to encompass the entire EBW(or, alternatively, the entire 99% occupied Bandwidth) of the signal.
- Set sweep trigger to “free run.”
- Set RBW=1MHz or 500kHz Set VBW>3 MHz or 2MHz.
- Number of points in sweep>2 x span/RBW.(This ensures that bin-to-bin spacing is <RBW/2. so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto.
- Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
- Trace mode = max hold.
- Do not use sweep triggering. Allow the sweep to “free run.”
- Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
- Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission).



Test Data

Environmental Conditions

Temperature:	22~25 °C
Relative Humidity:	39~56 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin from 2024-01-26 to 2024-02-02.

EUT operation mode: Transmitting

Test Result: Compliant.

5150-5250 MHz:

Test Modes	Test Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)	
		Result	FCC Limit
802.11a	5180	2.39	11
	5200	2.17	11
	5240	2.87	11
802.11ac ht20	5180	1.80	11
	5200	2.18	11
	5240	2.51	11
802.11ac ht40	5190	-2.84	11
	5230	-2.58	11
Note: Note: The device is a client device. Duty cycle ≥98%, KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-1 was used.			

5725-5850 MHz:

Test Modes	Test Frequency (MHz)	Maximum Power Spectral Density (dBm/500kHz)	
		Result	Limit
802.11a	5745	2.25	30
	5785	2.64	30
	5825	2.78	30
802.11ac ht20	5745	2.02	30
	5785	2.47	30
	5825	2.55	30
802.11ac ht40	5755	-2.73	30
	5795	-2.41	30
Note: Duty cycle $\geq 98\%$, KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-1 was used.			

Maximum power spectral density

Ref 25 dBm Att 30 dB RBW 1 MHz VBW 3 MHz SWF 2 s Marker 1 [73.1] 2.39 dBm 5.181200900 GHz

Offset 11 dB

dB

Center 5.18 GHz 4 MHz/ Span 40 MHz

Ref: 25 dBm *Att: 30 dB RBW 1 MHz Marker 1 [F3.1] 2.17 dBm
 VBW 3 MHz SWF 2 s 5.19884000 GHz

Offset 11 dB
 Center 5.2 GHz 4 MHz/ Span 40 MHz

Ref 25 dBm *Att 30 dB RBW 1 MHz Marker 1 [71.1] 2.87 dBm
 VBW 3 MHz SWT 2 s 5.24100000 GHz

Offset 11 dB

20
10
0
-10
-20
-30
-40
-50
-60
-70

Counter 5.24 GHz 4 MHz/ Span 40 MHz

Version 1.0 (2023/10/07)

Ref 25 dBm Att 30 dB BW 1 MHz VBW 3 MHz SMT 2 s Marker 1 [T1] 1.80 dBm 5.18108000 GHz

Offset 11 dB

dB

20

10

0

-10

-20

-30

-40

-50

-60

-70

3

4

5

MHz

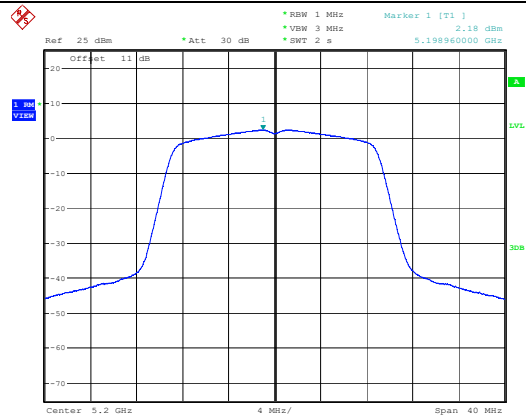
Center 5.18 GHz 4 MHz/ Span 40 MHz

A

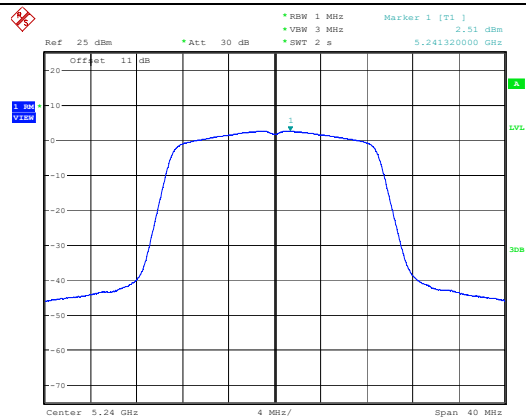
LVL

3dB

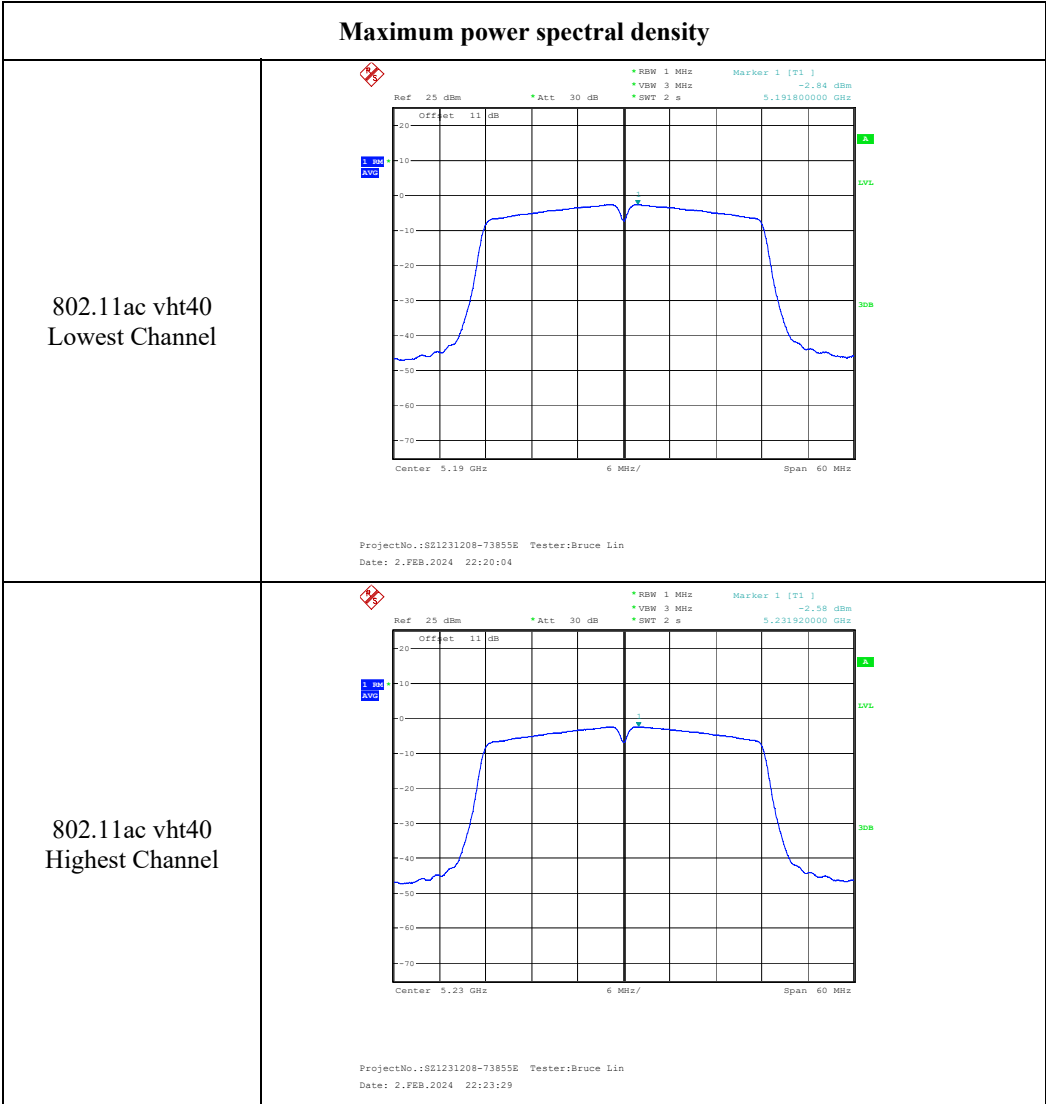
802.11ac vht20
Lowest Channel



802.11ac vht20
Middle Channel



802.11ac vht20
Highest Channel



Maximum power spectral density

Ref 25 dBm Att 30 dB RBW 1 MHz VBW 3 MHz SWF 2 s Marker 1 [F1] 2.25 dBm 5.74396000 GHz

Offset 11 dB

Center 5.745 GHz 4 MHz/ Span 40 MHz

dBm View

Ref 25 dBm *Att 30 dB

RBW 1 MHz VBW 3 MHz SWF 2 s

Marker 1 [93.1] 2.64 dBm 5.78540000 GHz

Offset 11 dB

Center 5.785 GHz 4 MHz/ Span 40 MHz

Project No.: SI2312068855E Tester: Bruce Lin
 Date: 2.FEB.2024 22:00:18

Ref 25 dBm Att 30 dB

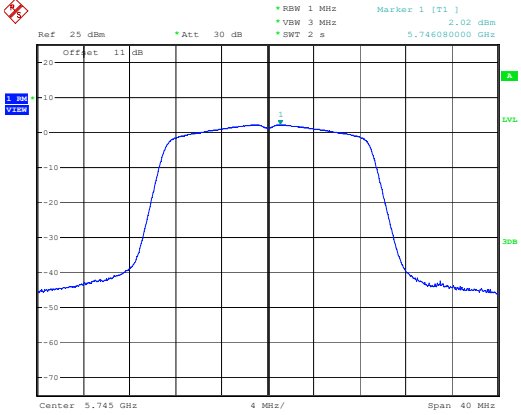
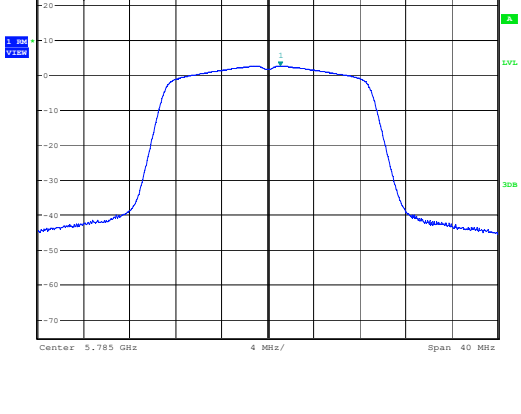
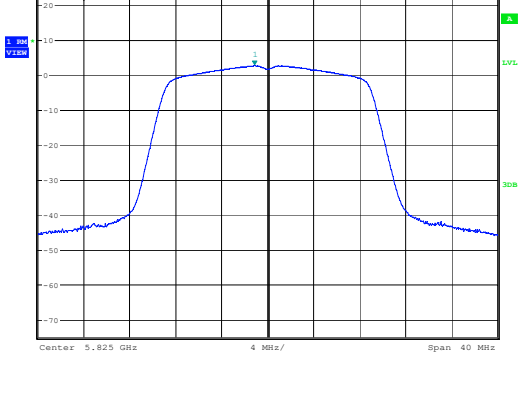
RBW 1 MHz
 VBW 3 MHz
 SMT 2 s

Marker 1 [F1]
 5.824000000 GHz

0 dBm

Center 5.825 GHz 4 MHz/ Span 40 MHz

802.11a
Highest Channel

802.11ac vht20 Lowest Channel	Maximum power spectral density  Ref: 25 dBm *Att: 30 dB *RBW: 1 MHz *VSW: 3 MHz *SWT: 2 s Marker 1 [T1] 2.02 dBm 5.74500000 GHz Offset: 11 dB Center: 5.745 GHz 4 MHz/ Span: 40 MHz ProjectNo.:SZ1231208-73855E Tester:Bruce Lin Date: 2.FEB.2024 22:13:06
802.11ac vht20 Middle Channel	 Ref: 25 dBm *Att: 30 dB *RBW: 1 MHz *VSW: 3 MHz *SWT: 2 s Marker 1 [T1] 2.47 dBm 5.78500000 GHz Offset: 11 dB Center: 5.785 GHz 4 MHz/ Span: 40 MHz ProjectNo.:SZ1231208-73855E Tester:Bruce Lin Date: 2.FEB.2024 22:15:02
802.11ac vht20 Highest Channel	 Ref: 25 dBm *Att: 30 dB *RBW: 1 MHz *VSW: 3 MHz *SWT: 2 s Marker 1 [T1] 2.55 dBm 5.82500000 GHz Offset: 11 dB Center: 5.825 GHz 4 MHz/ Span: 40 MHz ProjectNo.:SZ1231208-73855E Tester:Bruce Lin Date: 2.FEB.2024 22:16:16

The screenshot displays a spectrum analyzer interface. At the top, a red 'OFF' button is visible. The main display area shows a blue trace of a signal. The horizontal axis represents frequency, with a center frequency of 5.755 GHz and a span of 60 MHz. The vertical axis represents power in dBm, ranging from -70 to 20. A green arrow points to a peak in the signal at -2.73 dBm. The signal has a flat top and sharp edges, characteristic of a digital signal. The background is a grid.

Ref 25 dBm * Att 30 dB * RBW 1 MHz Marker 1 [T1] -2.73 dBm
 * VSW 3 MHz * SWT 2 s 5.756800000 GHz

Offset 11 dB

1.00
Avg

Center 5.755 GHz 6 MHz/ Span 60 MHz

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 2.FEB.2024 22:25:40

Ref 25 dBm *Att 30 dB *RBW 1 MHz *VBW 3 MHz *SMT 2 s Marker 1 [T1] -2.41 dBm 5.796740000 GHz

Offset 11 dB

1.00 dBm AVG

Center 5.795 GHz 6 MHz/ Span 60 MHz

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 2.FEB.2024 22:27:26

EUT PHOTOGRAPHS

Please refer to the attachment SZ1231208-73855E-RF External photo and SZ1231208-73855E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment SZ1231208-73855E-RF Test Setup photo.

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