

FCC Test Report

Report No.: 2405W66906EI

Applicant: Shenzhen Neutop Optoelectronics Co., Ltd

Address: 502, BLDG 4, Pingshan minQi Technology Park, No. 65 Lishan Road, Pingshan Community, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China

Product Name: Projector

Product Model: D002

Multiple Models: D001P, D001, D002P, D003, D004, D005

Trade Mark: N/A

FCC ID: 2BEGB-YX03

Standards: FCC CFR Title 47 Part 15E (§15.407)

Test Date: 2024-08-27 to 2024-12-05

Test Result: Complied

Issue Date: 2024-12-10

Reviewed by:

Abel Chen

Approved by:

Jacob Kong

Abel Chen
Project Engineer

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Manager

Prepared by:

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Revision History

Version No.	Issued Date	Description
00	2024-12-10	Original

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1 General Information

1.1 Client Information

Applicant:	Shenzhen Neutop Optoelectronics Co., Ltd
Address:	502, BLDG 4, Pingshan minQi Technology Park, No. 65 Lishan Road, Pingshan Community, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen Neutop Optoelectronics Co., Ltd
Address:	502, BLDG 4, Pingshan minQi Technology Park, No. 65 Lishan Road, Pingshan Community, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China

1.2 Product Description of EUT

The EUT is Projector that contains Classic Bluetooth, BLE, 2.4G and 5G WLAN radios, this report covers the full testing of the 5G WLAN radio.

Sample Serial number	2QJT-2 for CE test, 2QJT-1 for RE test, 2QJT-6 for RF conducted test (assigned by WATC)
Sample Received Date	2024-08-23
Sample Status	Good Condition
Frequency Range	5150 MHz - 5250MHz 5725 MHz - 5850MHz
Maximum Conducted Output Power	5150 MHz - 5250MHz: 12.90dBm 5725 MHz - 5850MHz: 15.39dBm
Modulation Technology	OFDM
Spatial Streams	MIMO (2TX, 2RX)
Antenna Gain [#]	ANT0:3.68dBi ANT1:4.03dBi
Power Supply	DC 29V from adapter
Adapter Information	Model: SOY-2900380-410-B Input: AC100-240V, 50/60Hz, 2.5A Output: DC 29.0V/3.8A 110.2W
Modification	Sample No Modification by the test lab

1.3 Antenna information

15.203 requirement: 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, 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.	
Device Antenna information:	
The Wi-Fi antenna is an internal antenna which cannot replace by end-user. Please see the product internal photos for details.	

1.4 Related Submittal(s)/Grant(s)

FCC Part 15, Subpart C, Equipment Class: DSS, FCC ID: 2BEGB-YX03
FCC Part 15, Subpart C, Equipment Class: DTS, FCC ID: 2BEGB-YX03

1.5 Measurement Uncertainty

Parameter		Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
AC Power Lines Conducted Emissions		±3.14dB
Emissions, Radiated	Below 30MHz	±2.78dB
	Below 1GHz	±4.84dB
	Above 1GHz	±5.44dB
Emissions, Conducted		1.75dB
Conducted Power		0.74dB
Frequency Error		150Hz
Bandwidth		0.34%
Power Spectral Density		0.74dB
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.		

1.6 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: qa@watc.com.cn

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. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

1.7 Test Methodology

FCC CFR 47 Part 2

FCC CFR 47 Part 15

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

2 Description of Measurement

2.1 Test Configuration

Operating channels: (5150-5250MHz)					
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
36	5180	42	5210	48	5240
38	5190	44	5220	/	/
40	5200	46	5230	/	/
According to ANSI C63.10-2013 chapter 5.6.1 Table 11 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:					
802.11a, 802.11n-HT20, 802.11ac-VHT20					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
36	5180	40	5200	48	5240
802.11n-HT40, 802.11ac-VHT40					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
38	5190	/	/	46	5230
802.11ac-VHT80					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
/	/	42	5210	/	/

Test Mode:				
Transmitting mode:		Keep the EUT in continuous transmitting with modulation		
Exercise software [#] :		SecureCRT		
Mode	Data rate	Power Level Setting [#]		
		Low Channel	Middle Channel	High Channel
802.11a	6Mbps	12	12	12
802.11n-HT20	MCS0	15	15	15
802.11n-HT40	MCS0	15	/	15
802.11ac-VHT80	MCS0	/	10	/
The exercise software and the maximum power setting that provided by manufacturer.				

Operating channels: (5725-5850MHz)					
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
149	5745	155	5775	161	5805
151	5755	157	5785	165	5825
153	5765	159	5795	/	/
According to ANSI C63.10-2013 chapter 5.6.1 Table 11 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:					
802.11a, 802.11n-HT20, 802.11ac-VHT20					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
149	5745	157	5785	165	5825
802.11n-HT40, 802.11ac-VHT40					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
151	5755	/	/	159	5795
802.11ac-VHT80					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
/	/	155	5775	/	/

Test Mode:				
Transmitting mode:		Keep the EUT in continuous transmitting with modulation		
Exercise software [#] :		SecureCRT		
Mode	Data rate	Power Level Setting [#]		
		Low Channel	Middle Channel	High Channel
802.11a	6Mbps	15	15	15
802.11n-HT20	MCS0	15	15	15
802.11n-HT40	MCS0	15	/	15
802.11ac-VHT80	MCS0	/	12	/
The exercise software and the maximum power setting that provided by manufacturer.				

Worst-Case Configuration:

For AC power line conducted emission and radiated emission 9kHz-1GHz and above 18GHz were performed with the EUT transmits at the channel with highest output power as worst-case scenario.

For radiated emissions below 30MHz, three antenna orientations (parallel, perpendicular, ground-parallel) were tested, only record the worse case test data in report.

According to manufacturer, the device support MIMO mode, all modes share the same power level setting under the same modulation. So the worst mode MIMO was selected to test

The ac vht20/ac vht40 were reduced test since the identical parameters with n-ht20/n-ht40.

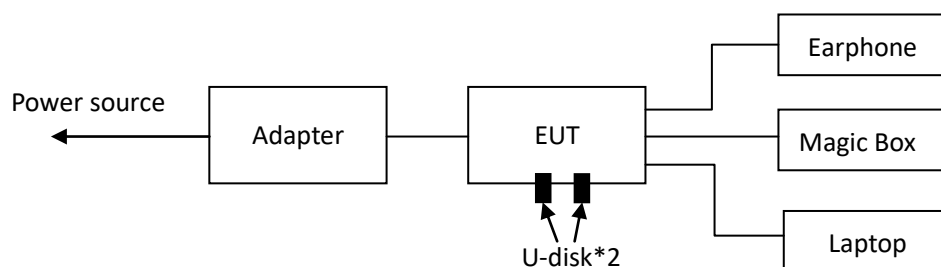
2.2 Test Auxiliary Equipment

Manufacturer	Description	Model	Serial Number
aigo	USB flash disk*2	unknown	unknown
Tmall	Magic Box	M20_C	20081648
unknown	Earphone	unknown	unknown
DELL	Laptop	E5570	52KW7

2.3 Interconnecting Cables

Manufacturer	Description	Length(m)	From	To
SOY	AC Power Cable	0.2	Power source	Adapter
SOY	DC Power Cable	1.5	Adapter	EUT
Unknown	HDMI Cable(Shielding)	1.5	Laptop	EUT
Unknown	AV Cable	1.5	EUT	Magic Box

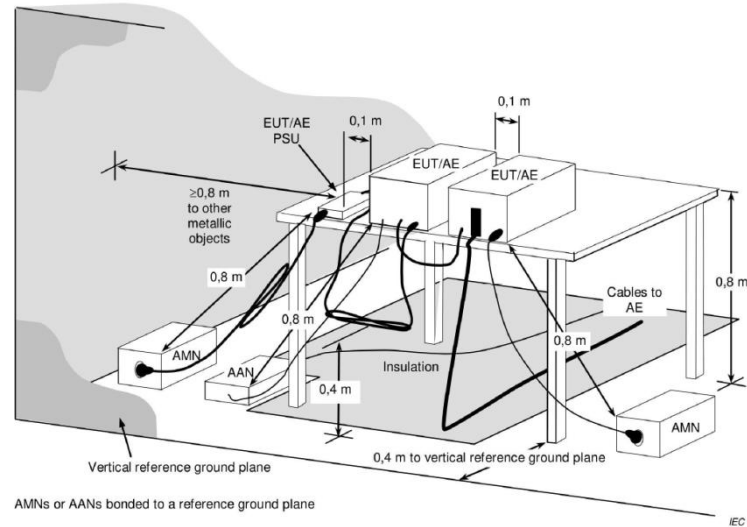
2.4 Block Diagram of Connection between EUT and AE



Note: for reference only, the actual connection setup used for testing please refer to the test photos.

2.5 Test Setup

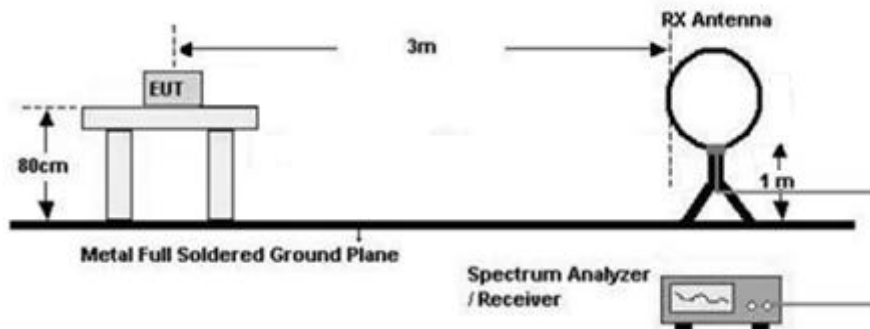
1) Conducted emission measurement:



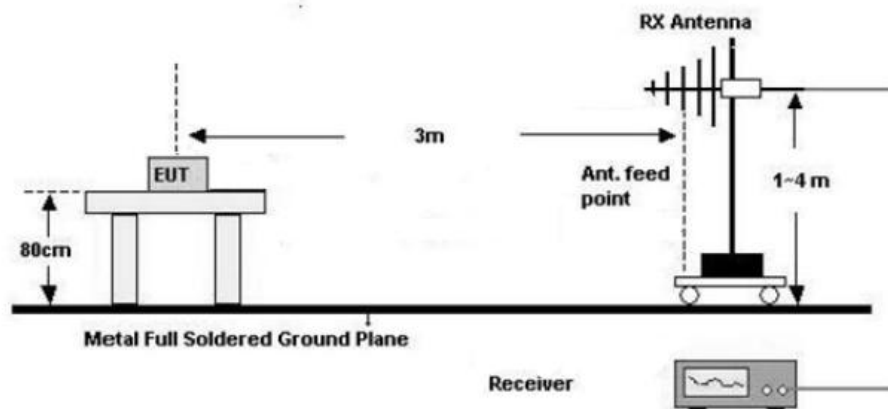
Note: The 0.8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be >0.8 m.

2) Radiated emission measurement:

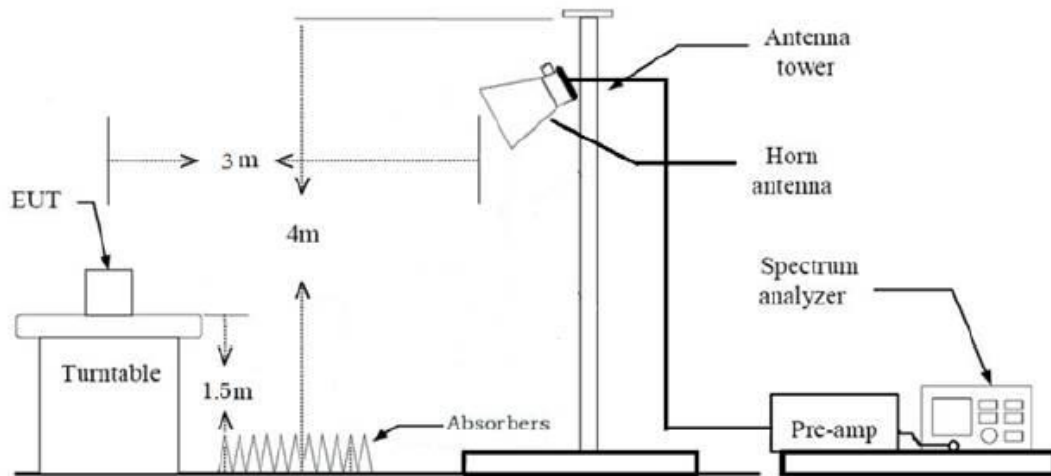
Below 30MHz (3m SAC)



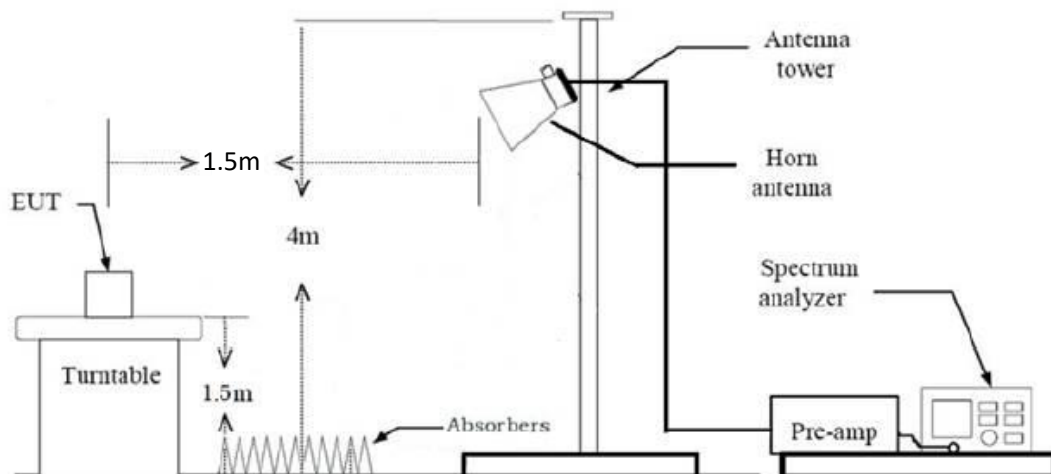
0MHz-1GHz (3m SAC)



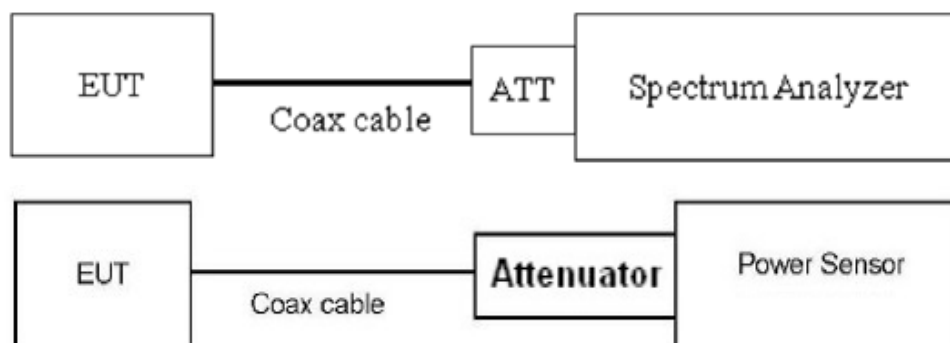
1GHz-18GHz(3m FAC)



Above 18GHz (3m FAC)



3) RF Conducted Test



2.6 Test Procedure

Conducted emission:

1. The E.U.T is placed on a non-conducting table 40cm from the vertical ground plane and 80cm above the horizontal ground plane (Please refer to the block diagram of the test setup and photographs).
2. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
3. Line conducted data is recorded for both Line and Neutral

Radiated Emission Procedure:

a) For below 30MHz

1. All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz- 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were $40 \cdot \log(\text{test distance} / \text{specification distance})$.
2. Loop antenna use, investigation was done on the three antenna orientations (parallel, perpendicular, ground-parallel)

b) For 30MHz-1GHz:

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

c) For above 1GHz:

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m (1-18GHz) and 1.5 m (above 18GHz).
2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
4. Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

RF Conducted Test:

1. The antenna port of EUT was connected to the RF port of the test equipment (Power Meter or

Spectrum analyzer) through Attenuator and RF cable.

2. The cable assembly insertion loss of 6.5dB (including 6.0dB Attenuator and 0.5dB cable) was entered as an offset in the power meter. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 0.5dB was assumed as worst case. This was later verified to be true by laboratory. (if the RF cable provided by client, the cable loss declared by client)
3. The EUT is keeping in continuous transmission mode and tested in all modulation modes.

2.7 Measurement Method

Description of Test	Measurement Method
AC Line Conducted Emissions	ANSI C63.10-2013 Section 6.2
Maximum Conducted Output Power	KDB 789033 D02 v02r01 section E.3. b)
Power Spectral Density	KDB 789033 D02 v02r01 section F
26 dB Emission Bandwidth	KDB 789033 D02 v02r01 section C.1
6 dB Emission Bandwidth	KDB 789033 D02 v02r01 section C.2
99% Occupied Bandwidth	KDB 789033 D02 v02r01 section D.
Unwanted Emissions	KDB 789033 D02 v02r01 section G.
Duty Cycle	KDB 789033 D02 v02r01 section B.

2.8 Measurement Equipment

Manufacturer	Description	Model	Management No.	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
ROHDE& SCHWARZ	EMI TEST RECEIVER	ESR	101817	2024/6/4	2025/6/3
R&S	LISN	ENV216	101748	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.12	N/A	2024/6/6	2025/6/5
Farad	Test Software	EZ-EMC	Ver. EMEC-3A1	/	/
Radiated Emission Test					
R&S	EMI test receiver	ESR3	102758	2024/6/4	2025/6/3
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40-N	101608	2024/6/4	2025/6/3
SONOMA INSTRUMENT	Low frequency amplifier	310	186014	2024/6/4	2025/6/3
A.H. Systems	PREAMPLIFIER	PAM-0118P	531	2024/6/4	2025/6/3

COM-POWER	Amplifier	PAM-840A	461306	2024/8/7	2025/8/6
BACL	Loop Antenna	1313-1A	4010611	2024/2/7	2027/2/6
SCHWARZBECK	Log - periodic wideband antenna	VULB 9163	9163-872	2023/7/7	2026/7/6
Astro Antenna Ltd	Horn antenna	AHA-118S	3015	2023/7/6	2026/7/5
Ducommun technologies	Horn Antenna	ARH-4223-02	1007726-03	2023/7/10	2026/7/9
Ducommun technologies	Horn Antenna	ARH-2823-02	1007726-03	2023/7/10	2026/7/9
Oulitong	Band Reject Filter	OBSF-5150-585 0-S	OE02104371	2024/6/4	2025/6/3
Unknown	6.7G High Pass Filter	Unknown	6.7G	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.9	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.13	N/A	2024/8/7	2025/8/6
N/A	Coaxial Cable	NO.15	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.16	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.17	N/A	2024/6/4	2025/6/3
Audix	Test Software	E3	191218 V9	/	/
RF Conducted Test					
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40	101419	2024/6/4	2025/6/3
ANRITSU	USB Power Sensor	MA24418A	12620	2024/7/11	2025/7/10
MEEA	6dB attenuator	603-06-1	N/A	2024/6/4	2025/6/3

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.

3 Test Results

3.1 Test Summary

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207 (a) §15.407 (b)(9)	AC Line Conducted Emissions	Compliance
§15.407(a)(1)(iv),(3)(i)	Conducted Peak Output Power Power Spectral Density	Compliance
§15.407 (a)(12)	99% Occupied Bandwidth	Compliance
§15.407 (a)	26 dB Emission Bandwidth	Compliance
§15.407 (e)	6 dB Emission Bandwidth	Compliance
§15.205, §15.209, §15.407 (b)(1), (4), (9), (10)	Unwanted Emissions	Compliance
/	Duty Cycle	Report only

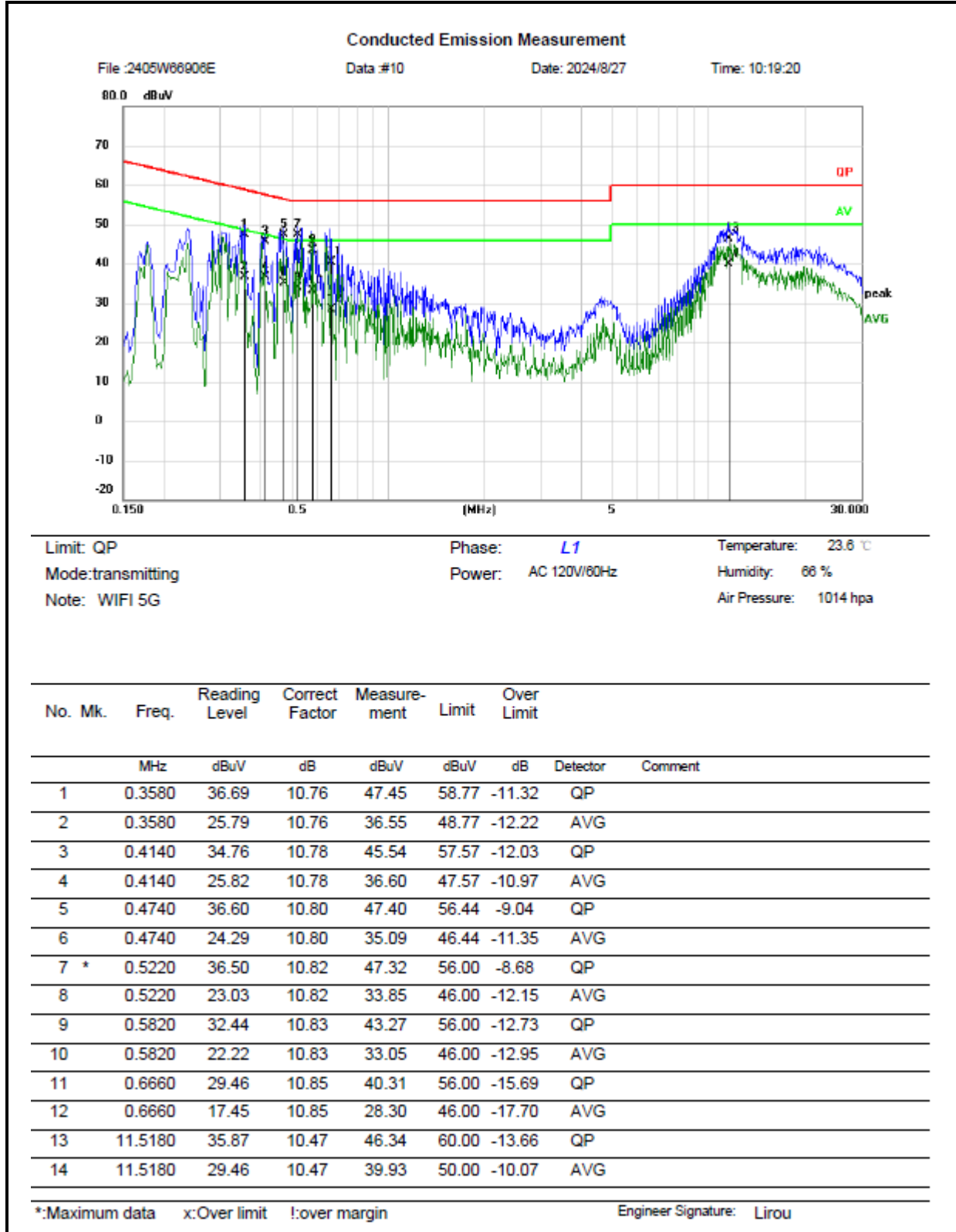
3.2 Limit

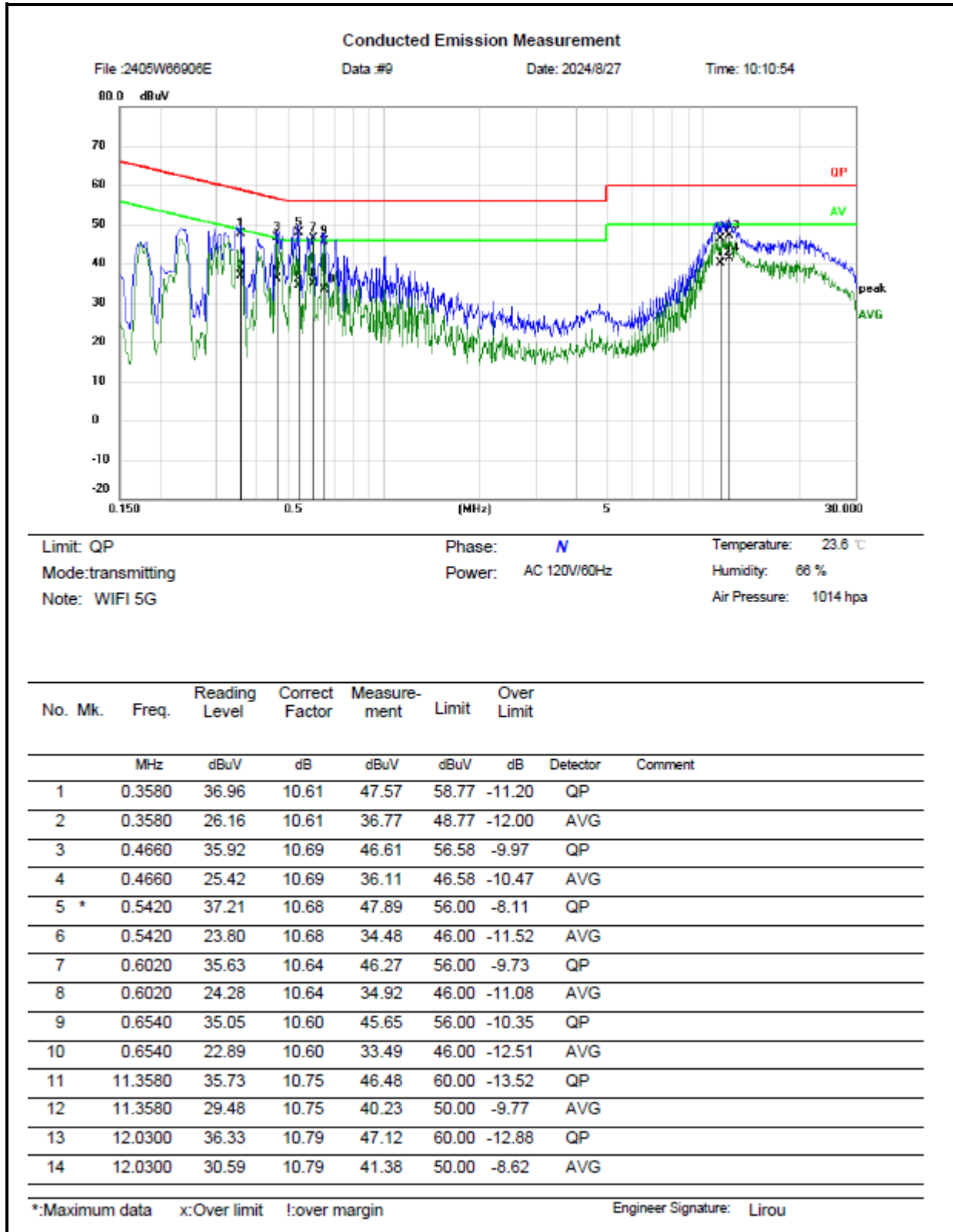
Test items	Limit
AC Power Line Conducted Emission	See details §15.207 (a)
Conducted Peak Output Power	For the band 5.15-5.25 GHz: For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna 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 band 5.725-5.895 GHz: For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W. 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.
Power Spectral Density	
26dB Emission Bandwidth 99% Occupied Bandwidth	N/A
6dB Emission 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.

Unwanted Emissions	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. 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. 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. For transmitters operating solely in the 5.725–5.850 GHz band: 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. The provisions of § 15.205 apply to intentional radiators operating under this section.
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3.3 AC Line Conducted Emissions Test Data

Test Date:	2024-08-27	Test By:	Lirou Li
Environment condition:	Temperature: 23.6°C; Relative Humidity:66%; ATM Pressure: 101.4kPa		





Remark:

Measurement (dBuV)= Reading Level (dBuV) + Correct Factor(dB)

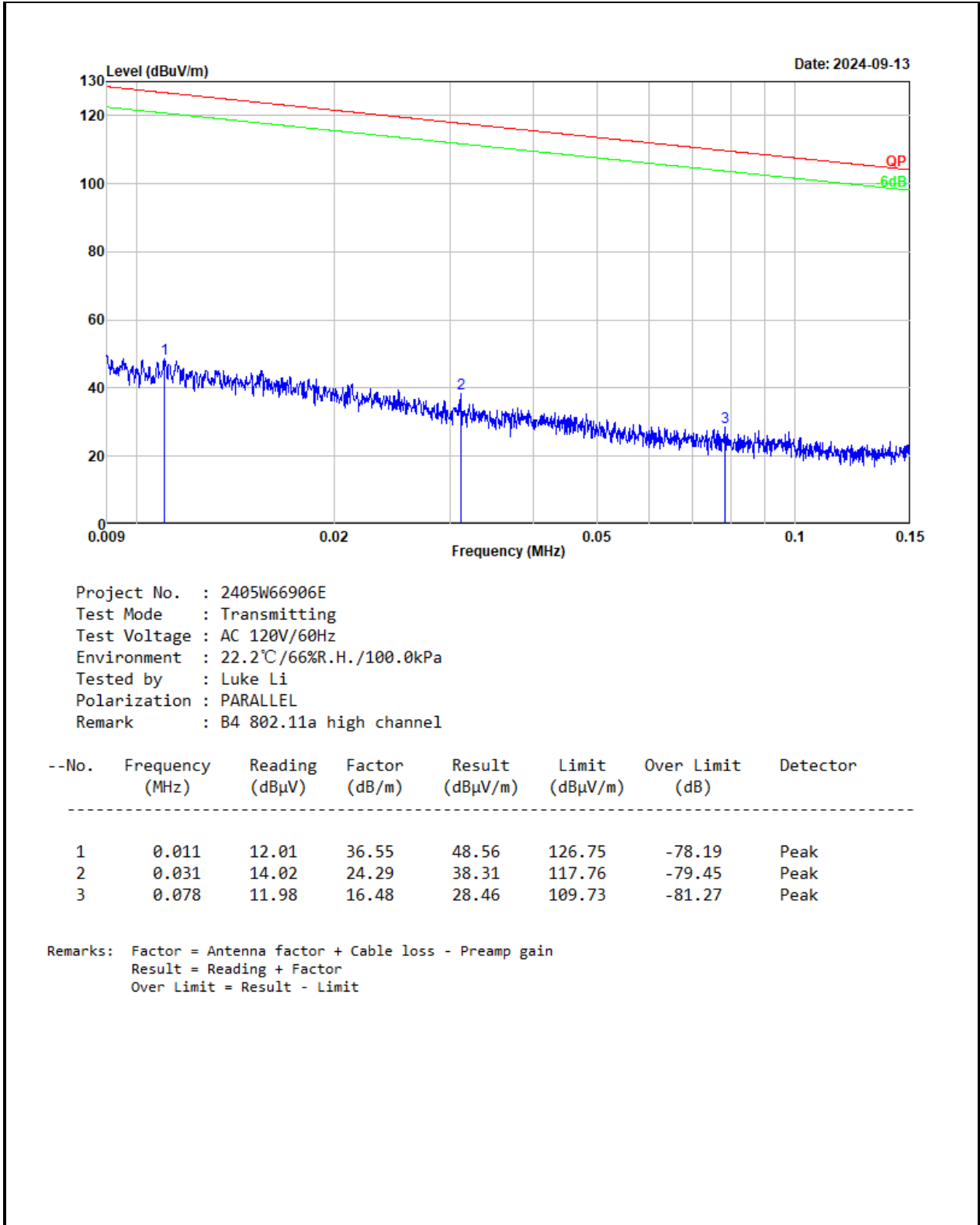
Correct Factor(dB)= LISN Voltage Division Factor (dB)+ Cable loss(dB)

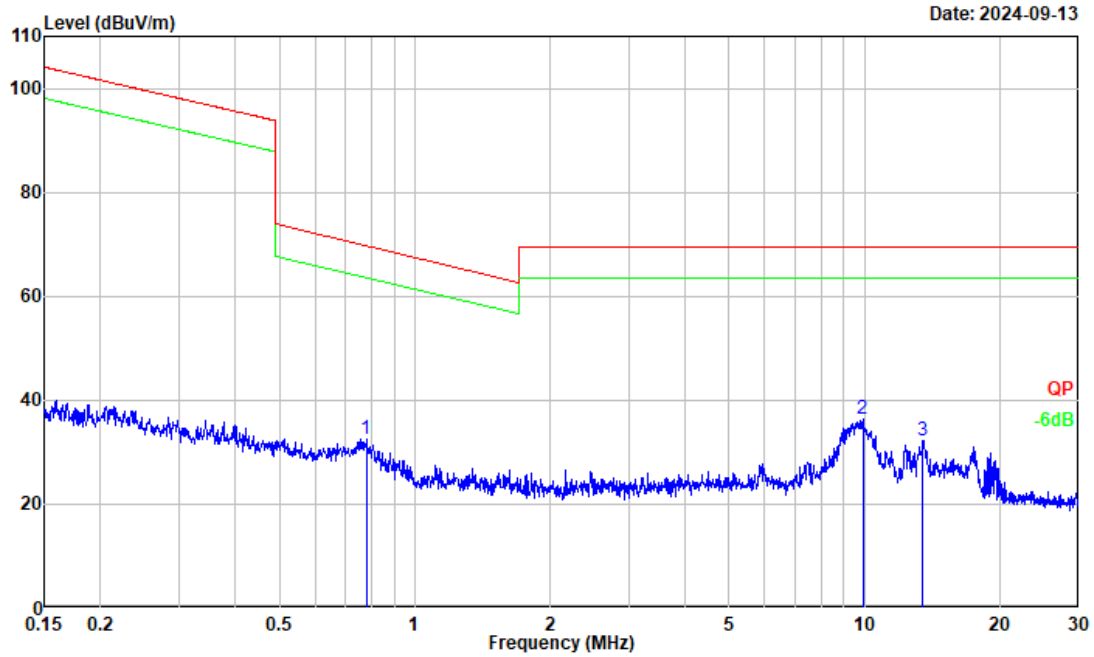
Over Limit = Measurement – Limit

3.4 Radiated emission Test Data

9 kHz-30MHz:

Test Date:	2024-09-13	Test By:	Luke Li
Environment condition:	Temperature: 22.2°C; Relative Humidity:66%; ATM Pressure: 100kPa		





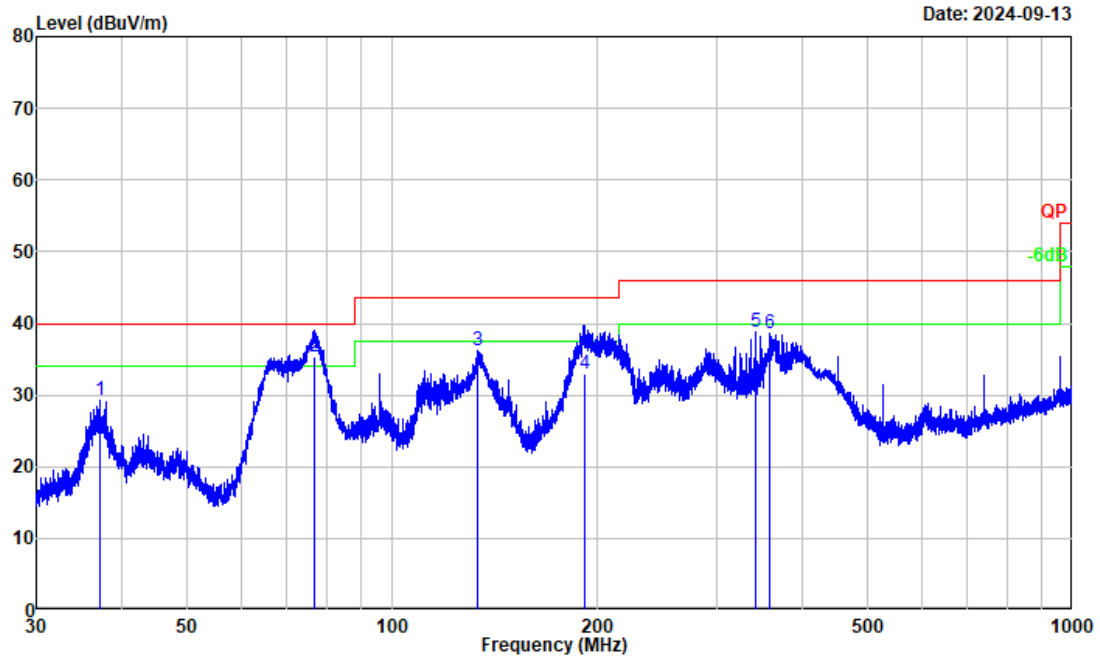
Project No. : 2405W66906E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.2°C/66%R.H./100.0kPa
Tested by : Luke Li
Polarization : PARALLEL
Remark : B4 802.11a high channel

--No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
1	0.780	29.99	2.57	32.56	69.68	-37.12	Peak
2	9.908	39.93	-3.54	36.39	69.54	-33.15	Peak
3	13.474	35.91	-3.58	32.33	69.54	-37.21	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit

30MHz-1GHz:

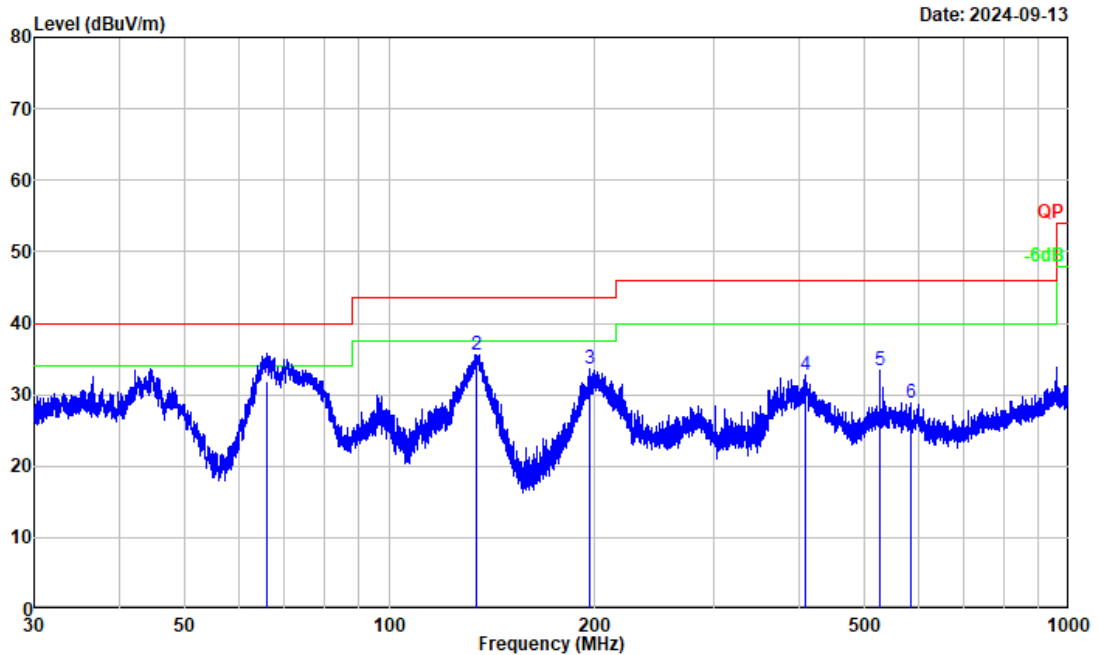
Test Date:	2024-09-13	Test By:	Bard Huang
Environment condition:	Temperature: 22.2°C; Relative Humidity:66%; ATM Pressure: 100kPa		



Project No. : 2405W66906E
 Test Mode : Transmitting
 Test Voltage : AC 120V/60Hz
 Environment : 22.2°C/66%R.H./100.0kPa
 Tested by : Bard Huang
 Polarization : horizontal
 Remark : B4 802.11a high channel

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	37.140	43.58	-14.31	29.27	40.00	-10.73	Peak
2	76.992	53.30	-17.88	35.42	40.00	-4.58	QP
3	133.468	53.36	-17.09	36.27	43.50	-7.23	Peak
4	192.042	46.80	-13.81	32.99	43.50	-10.51	QP
5	341.633	47.66	-8.86	38.80	46.00	-7.20	Peak
6	358.668	47.03	-8.47	38.56	46.00	-7.44	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
 Result = Reading + Factor
 Over Limit = Result - Limit



Project No. : 2405W66906E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.2°C/66%R.H./100.0kPa
Tested by : Bard Huang
Polarization : vertical
Remark : B4 802.11a high channel

--No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
1	66.070	46.30	-14.40	31.90	40.00	-8.10	QP
2	134.055	52.59	-17.07	35.52	43.50	-7.98	Peak
3	196.642	46.95	-13.32	33.63	43.50	-9.87	Peak
4	409.798	39.87	-7.23	32.64	46.00	-13.36	Peak
5	526.585	38.57	-5.28	33.29	46.00	-12.71	Peak
6	583.982	32.82	-3.95	28.87	46.00	-17.13	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit

Above 1GHz:

Test Date:	2024-12-04~2024-12-05	Test By:	Bard Huang
Environment condition:	Temperature: 24.1~25.1°C; Relative Humidity:36~55%; ATM Pressure: 100.9~101kPa		

5150-5250MHz

Frequency (MHz)	Reading level (dBμV)	Polar (H/V)	Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
802.11a							
Low Channel							
15540.000	37.18	horizontal	5.12	42.30	54.00	-11.70	Average
15540.000	49.05	horizontal	5.12	54.17	74.00	-19.83	Peak
15540.000	48.44	vertical	5.12	53.56	74.00	-20.44	Peak
1062.571	59.26	horizontal	-8.01	51.25	68.20	-16.95	Peak
1064.286	61.24	vertical	-8.01	53.23	68.20	-14.97	Peak
Middle Channel							
15600.000	48.03	horizontal	5.02	53.05	74.00	-20.95	Peak
15600.000	47.40	vertical	5.02	52.42	74.00	-21.58	Peak
1065.143	59.33	horizontal	-8.01	51.32	68.20	-16.88	Peak
1053.143	61.78	vertical	-8.04	53.74	68.20	-14.46	Peak
High Channel							
15720.000	46.75	horizontal	4.42	51.17	74.00	-22.83	Peak
15720.000	46.95	vertical	4.42	51.37	74.00	-22.63	Peak
1046.286	59.12	horizontal	-8.07	51.05	68.20	-17.15	Peak
1063.429	62.30	vertical	-8.01	54.29	68.20	-13.91	Peak
802.11n20							
Low Channel							
15540.000	47.76	horizontal	5.12	52.88	74.00	-21.12	Peak
15540.000	48.34	vertical	5.12	53.46	74.00	-20.54	Peak
1052.286	63.12	horizontal	-8.05	55.07	68.20	-13.13	Peak
1061.714	60.49	vertical	-8.02	52.47	68.20	-15.73	Peak
Middle Channel							
15600.000	47.33	horizontal	5.02	52.35	74.00	-21.65	Peak
15600.000	48.05	vertical	5.02	53.07	74.00	-20.93	Peak
1062.571	59.94	horizontal	-8.01	51.93	68.20	-16.27	Peak
1055.714	64.54	vertical	-8.04	56.50	68.20	-11.70	Peak

High Channel							
15720.000	45.68	horizontal	4.42	50.10	74.00	-23.90	Peak
15720.000	45.38	vertical	4.42	49.80	74.00	-24.20	Peak
1060.857	60.51	horizontal	-8.03	52.48	68.20	-15.72	Peak
1060.857	60.48	vertical	-8.03	52.45	68.20	-15.75	Peak
802.11n40							
Low Channel							
15570.000	48.23	horizontal	5.07	53.30	74.00	-20.70	Peak
15570.000	37.85	vertical	5.07	42.92	54.00	-11.08	Average
15570.000	48.99	vertical	5.07	54.06	74.00	-19.94	Peak
1061.714	59.83	horizontal	-8.02	51.81	68.20	-16.39	Peak
1063.429	62.66	vertical	-8.01	54.65	68.20	-13.55	Peak
High Channel							
15690.000	46.47	horizontal	4.45	50.92	74.00	-23.08	Peak
15690.000	47.07	vertical	4.45	51.52	74.00	-22.48	Peak
1063.429	60.24	horizontal	-8.01	52.23	68.20	-15.97	Peak
1056.571	60.04	vertical	-8.04	52.00	68.20	-16.20	Peak
802.11ac80							
15630.000	47.59	horizontal	4.83	52.42	74.00	-21.58	Peak
15630.000	47.60	vertical	4.83	52.43	74.00	-21.57	Peak
1045.429	60.38	horizontal	-8.07	52.31	68.20	-15.89	Peak
1062.571	63.52	vertical	-8.01	55.51	68.20	-12.69	Peak

Note:

Corrected factor=Antenna factor + Cable loss - Amplifier Gain

Corrected Amplitude=Reading level + Correct factor

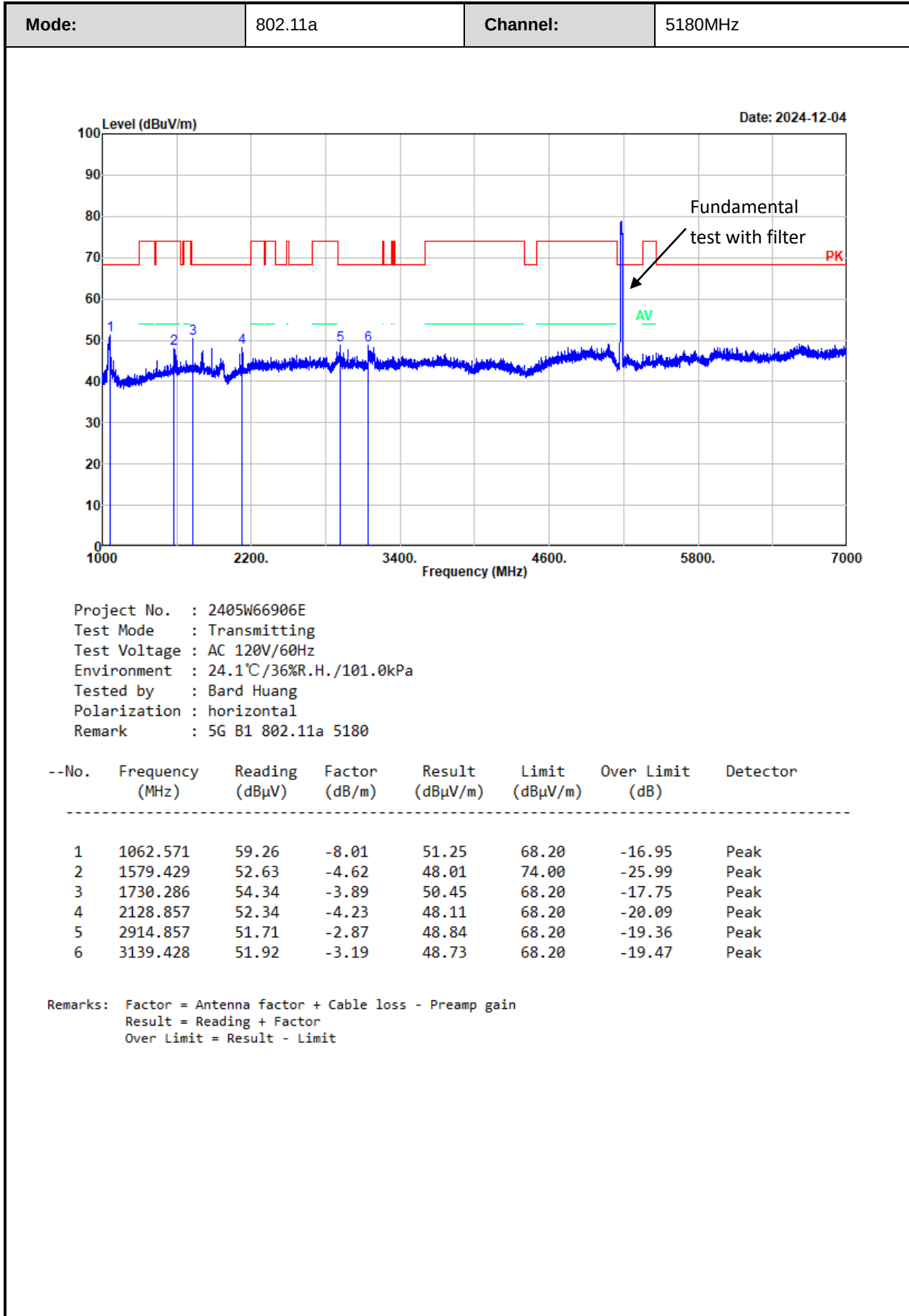
Margin= Corrected Amplitude-Limit

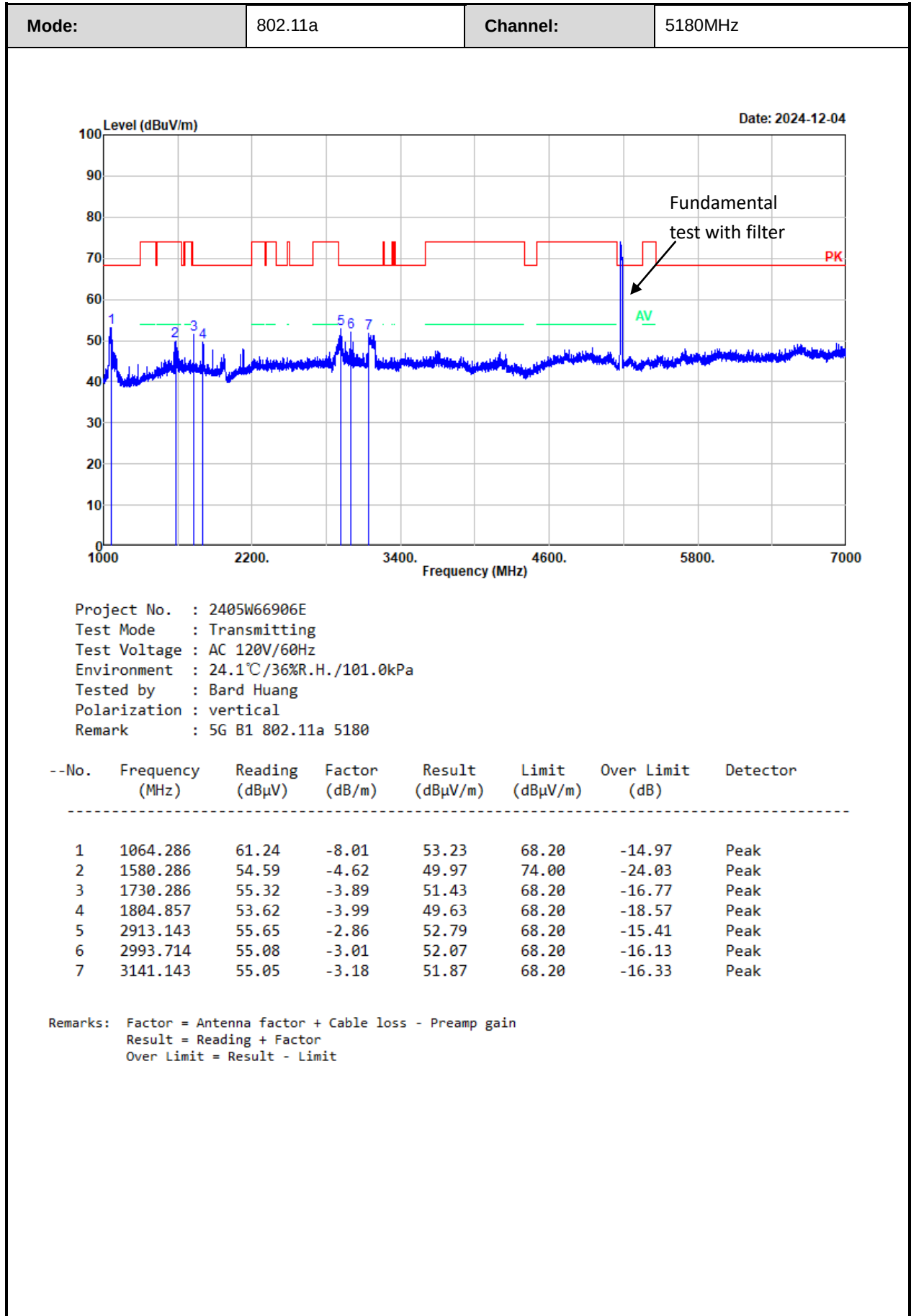
For the test result of Peak below the Peak limit more than 20dB, which can compliance with the average limit, just the Peak level was recorded.

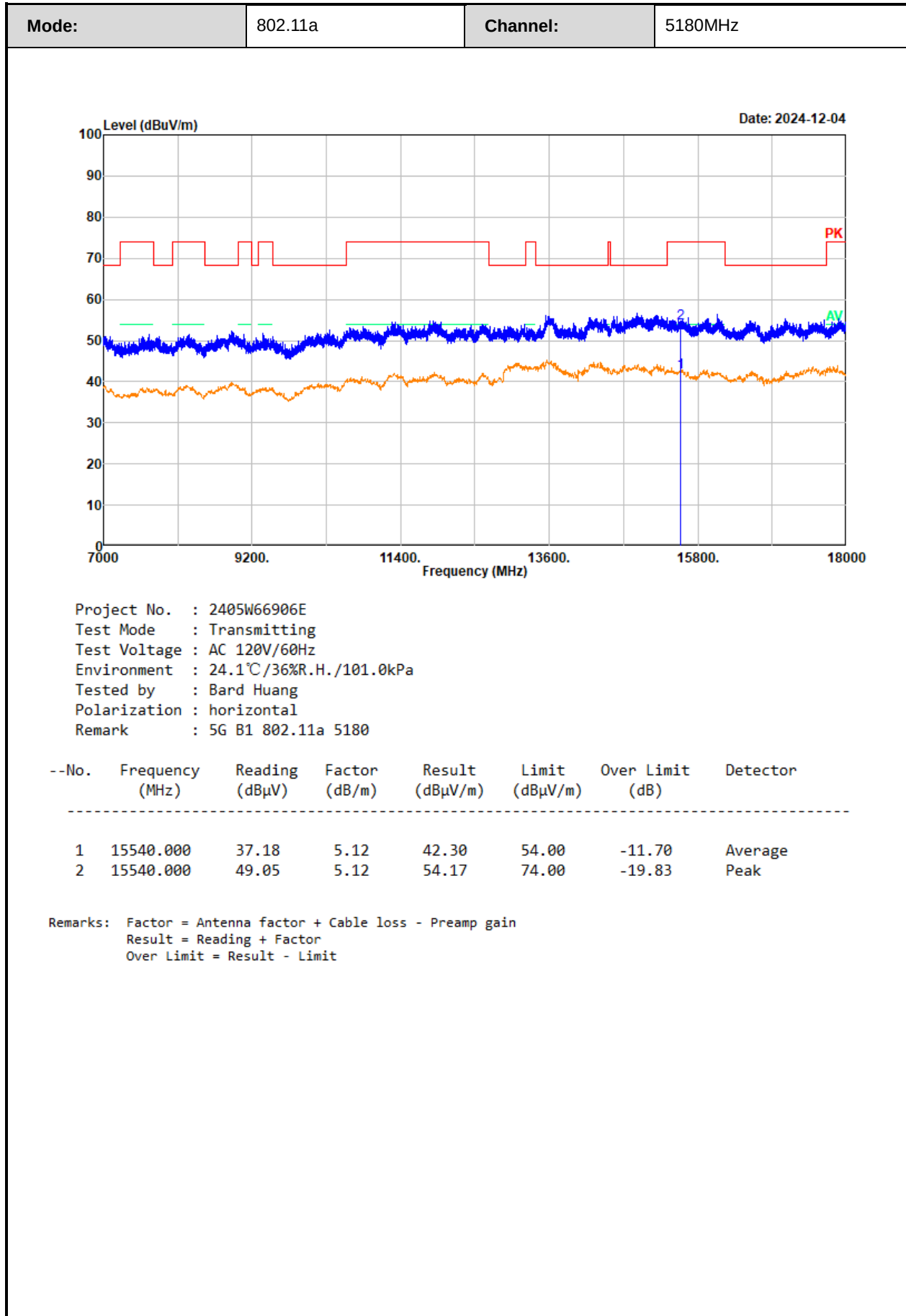
The emission levels of other frequencies that were lower than the limit 20dB not show in test report.

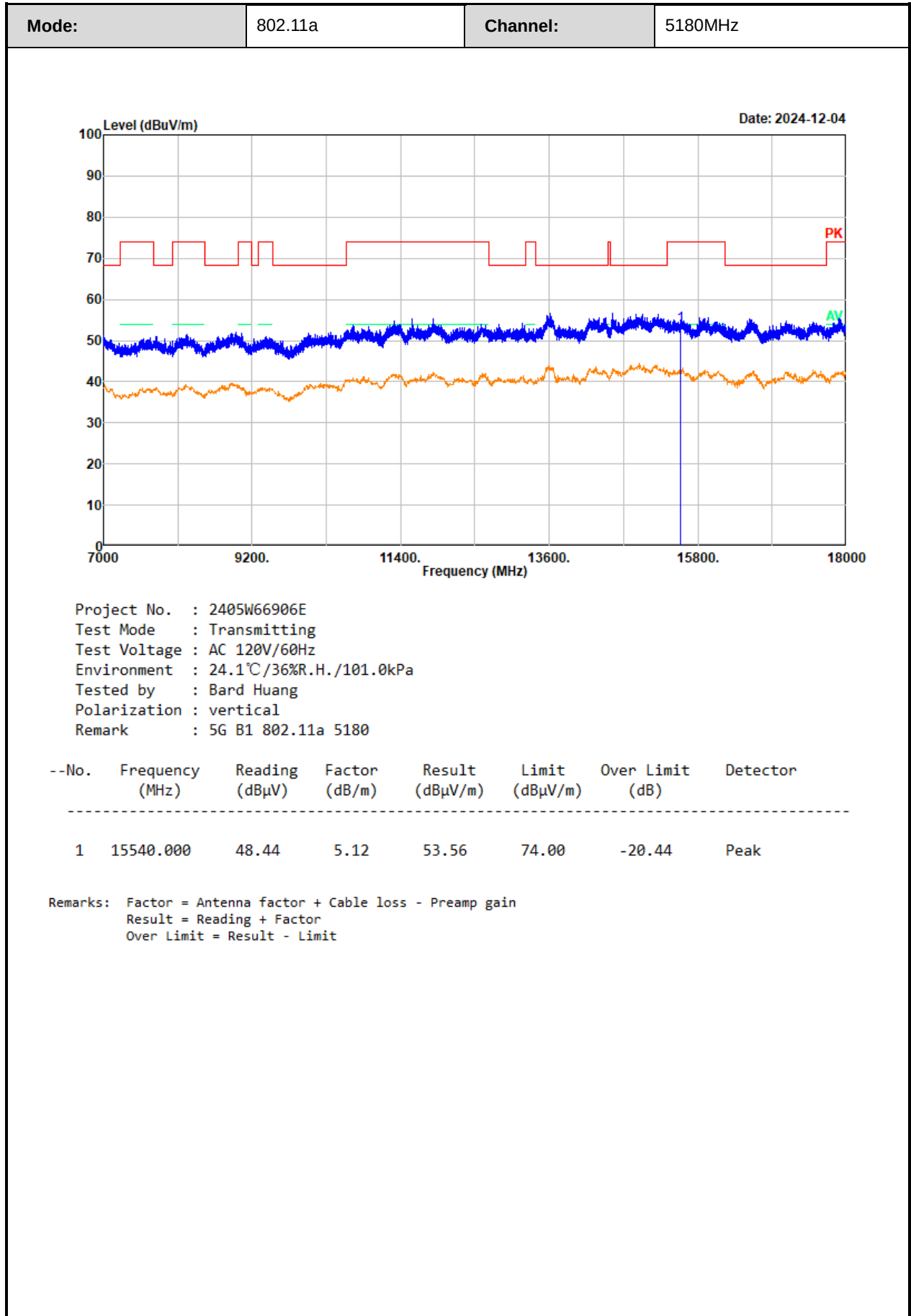
For emissions in 18GHz-40GHz range, all emissions were investigated and in the noise floor level.

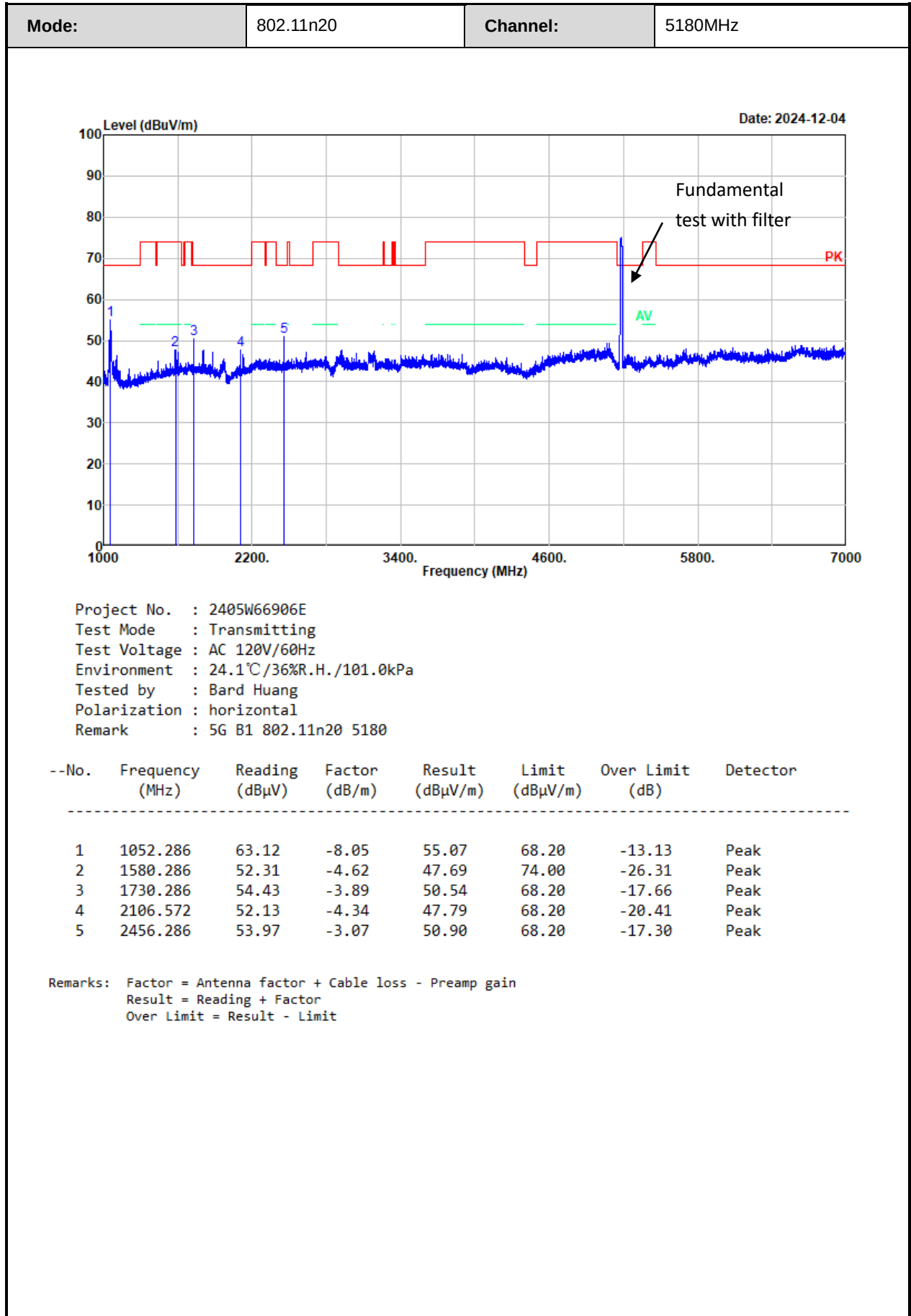
Test plot for example as below:

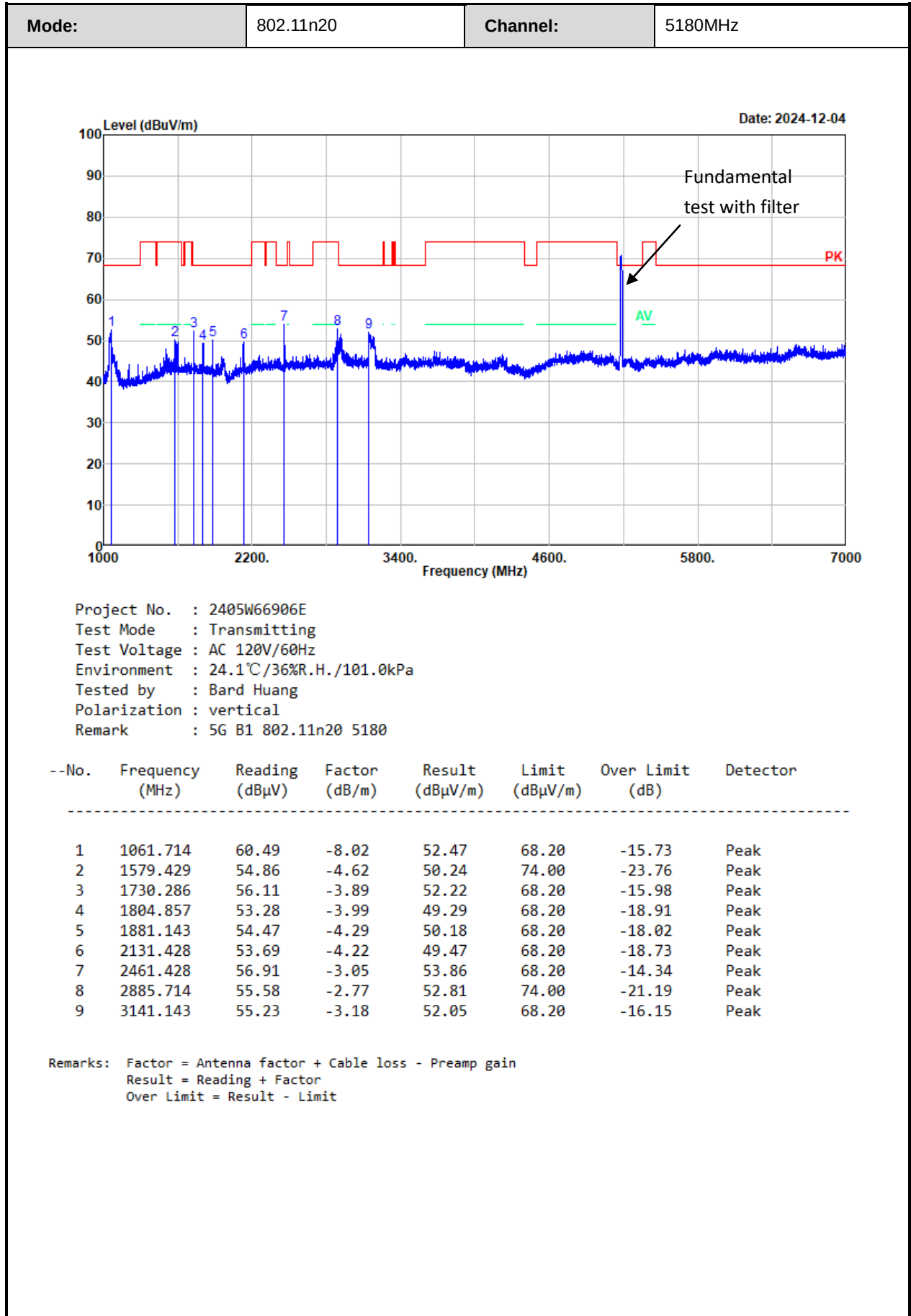


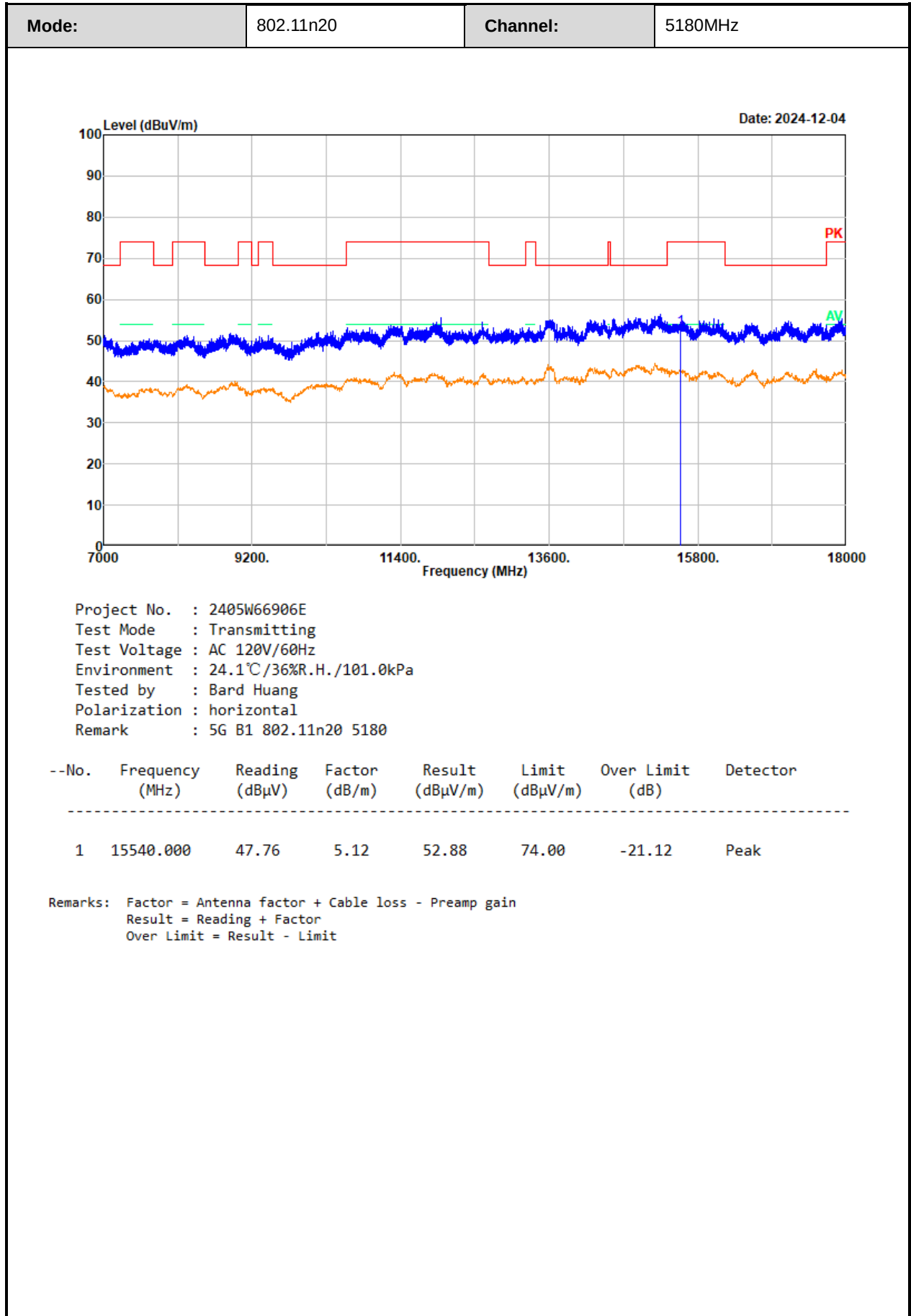


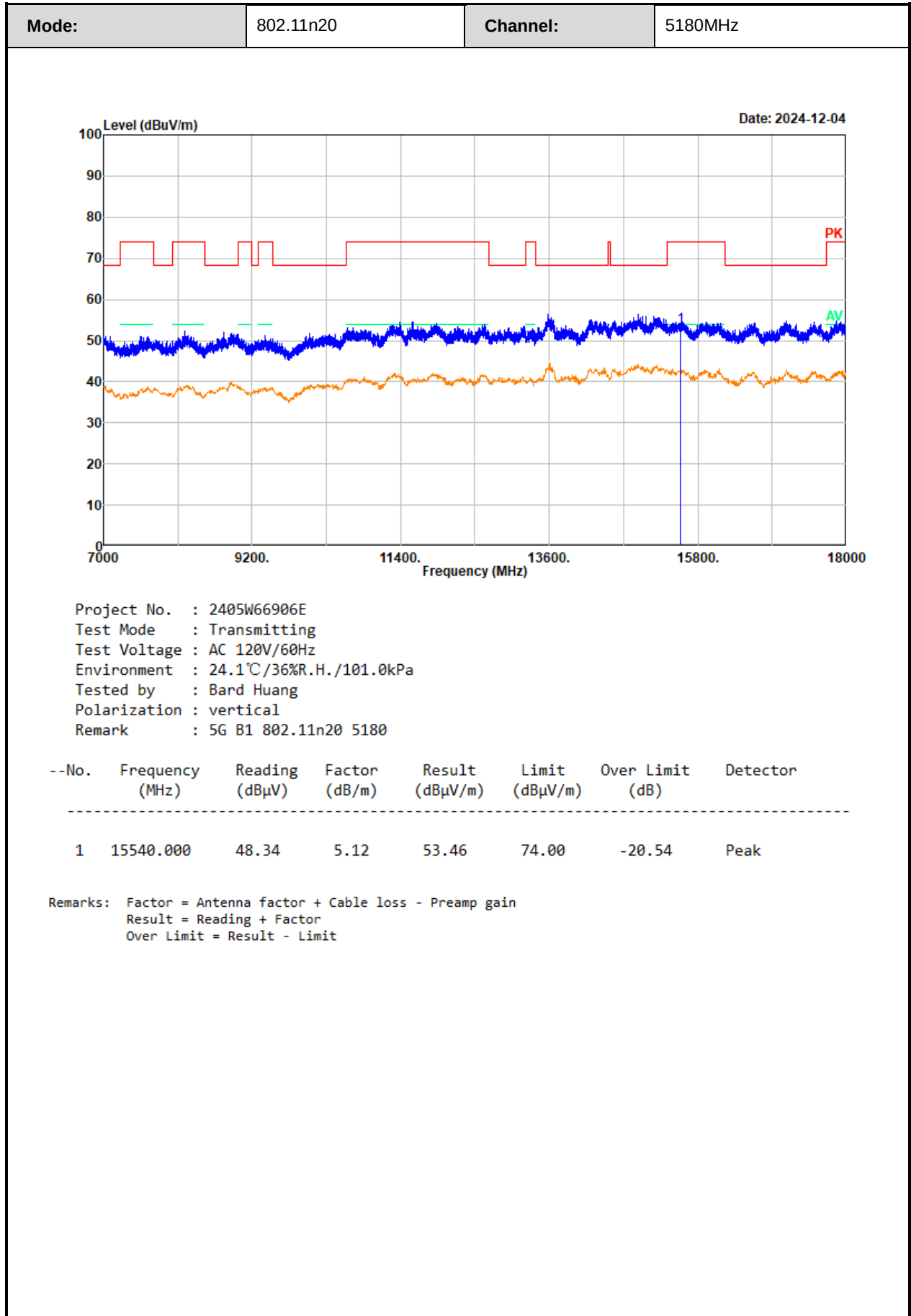


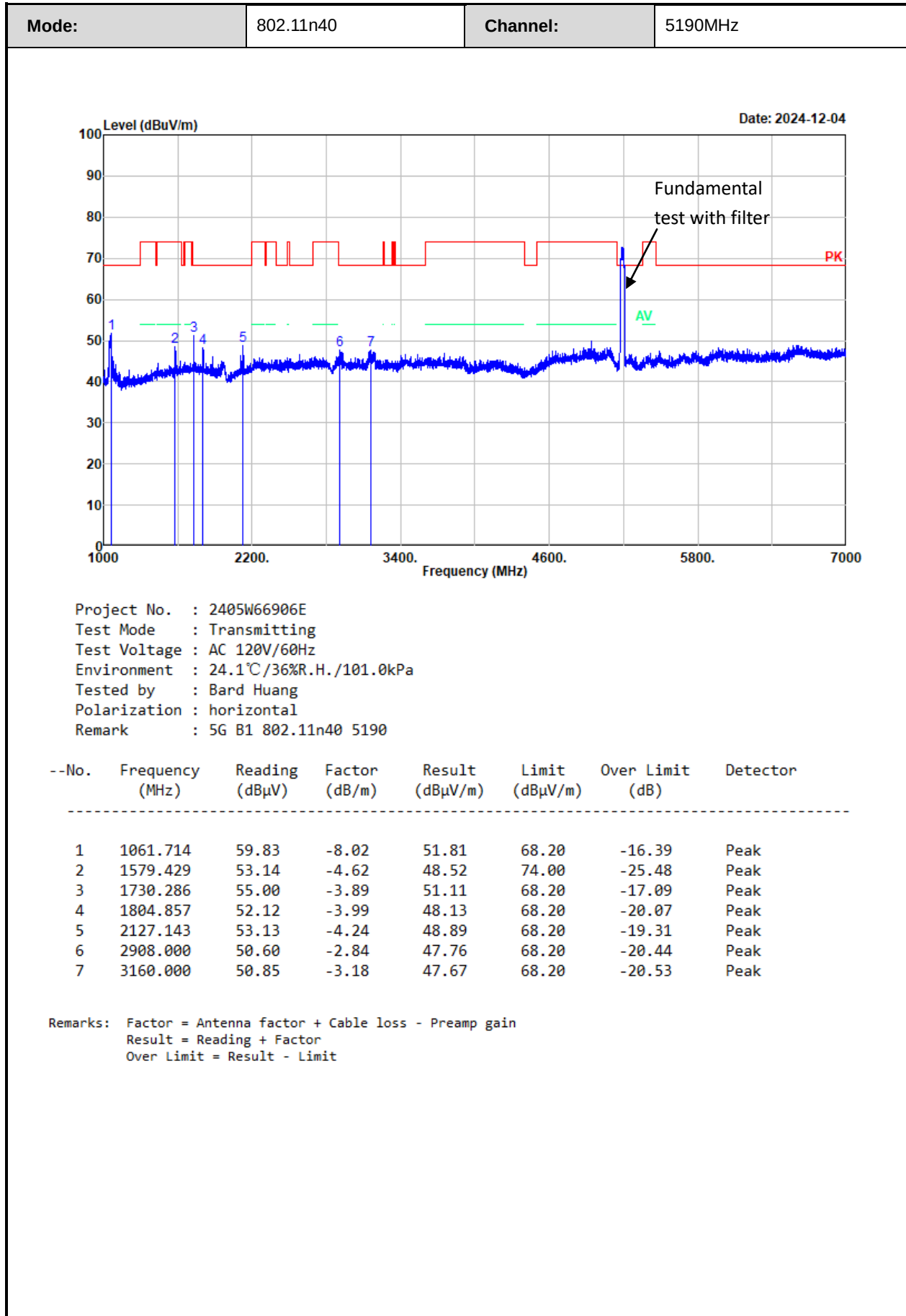


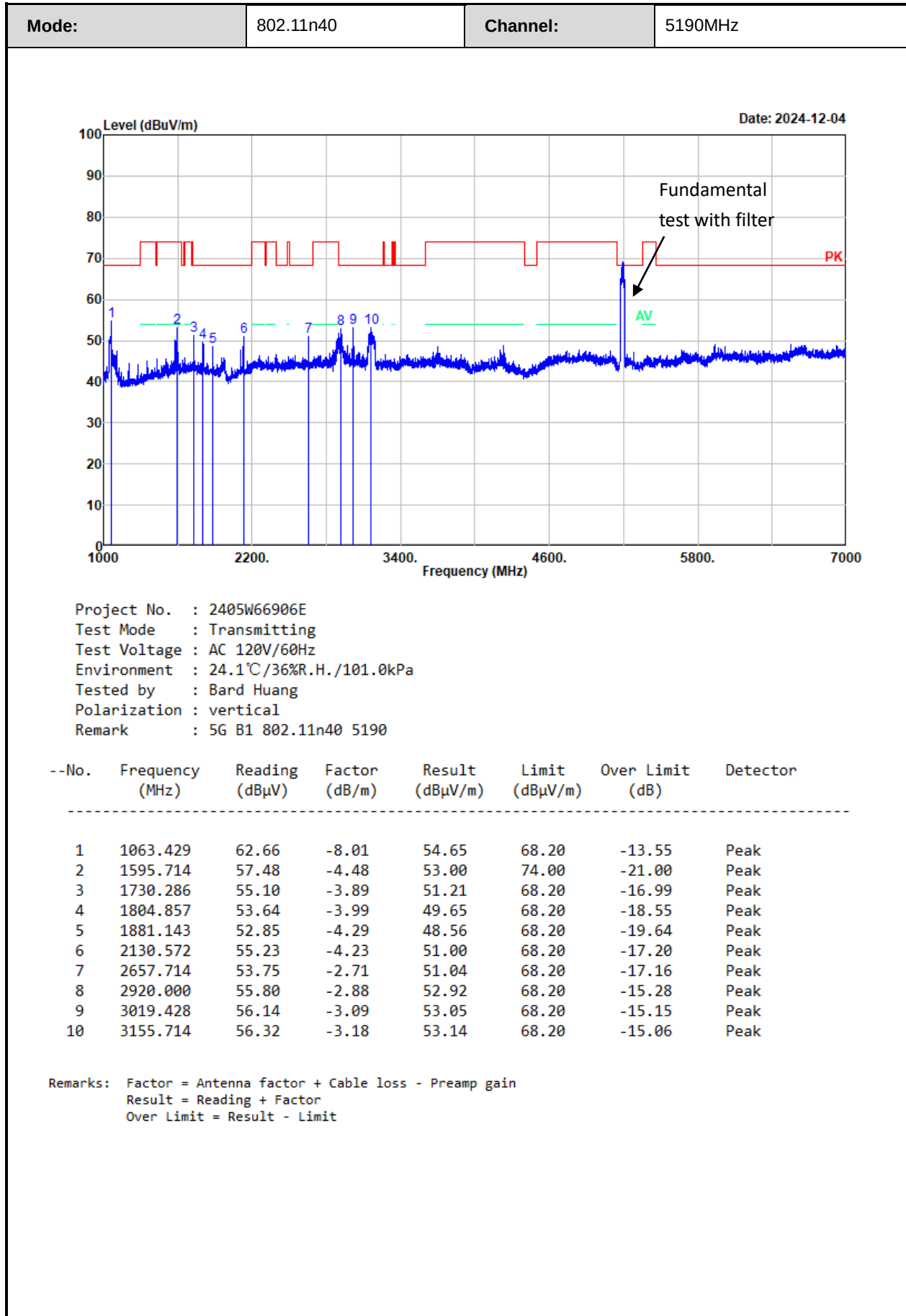


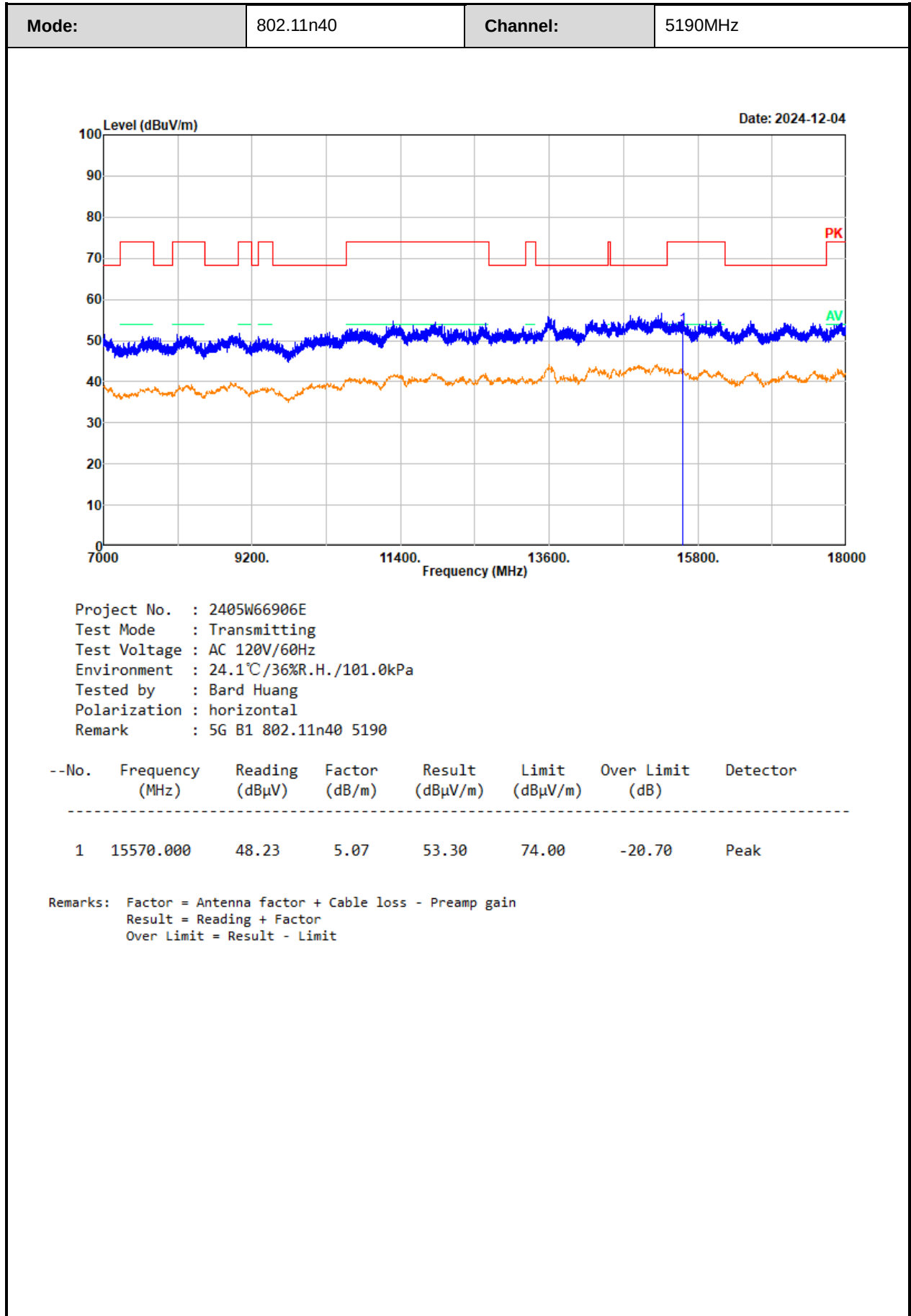


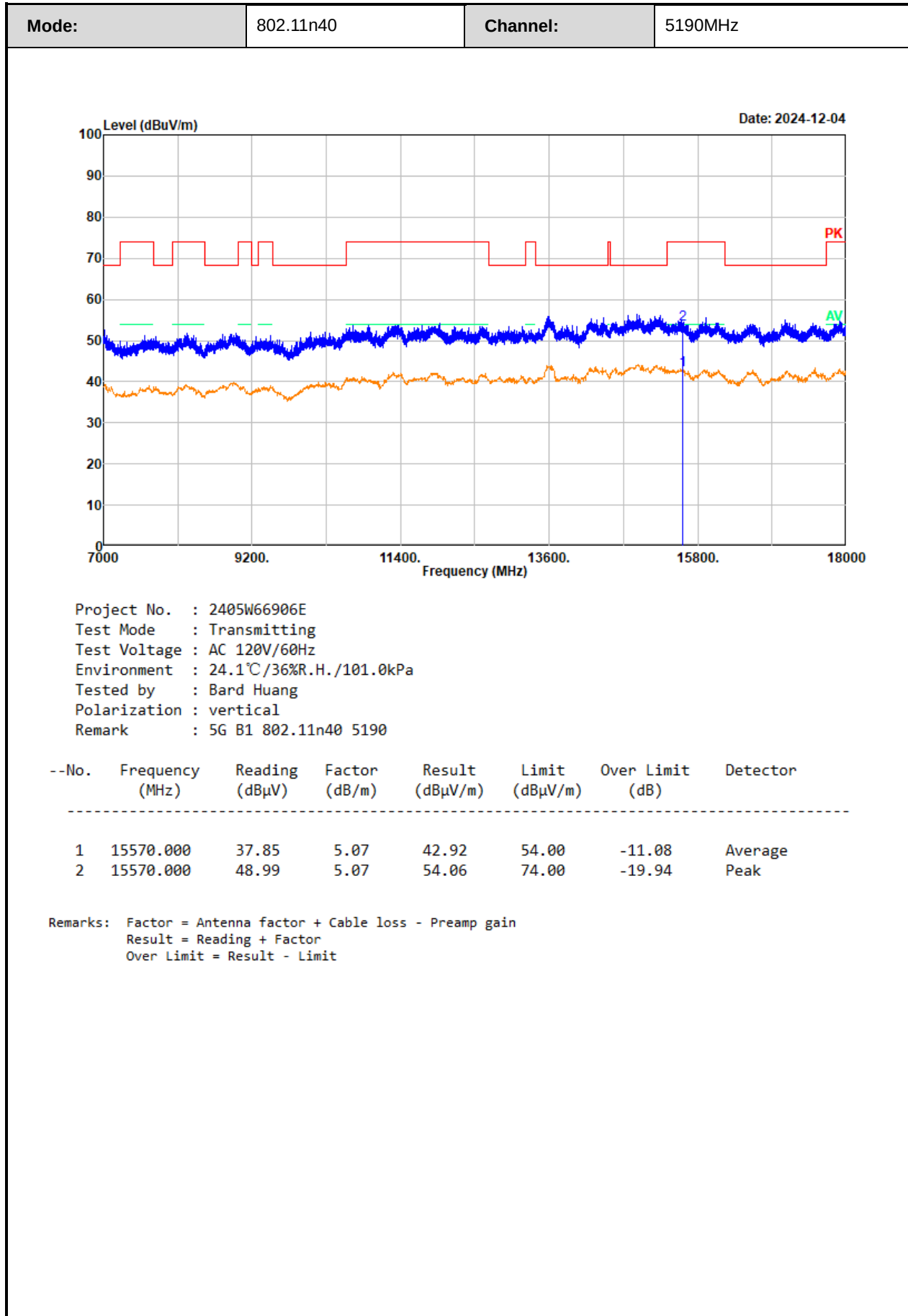


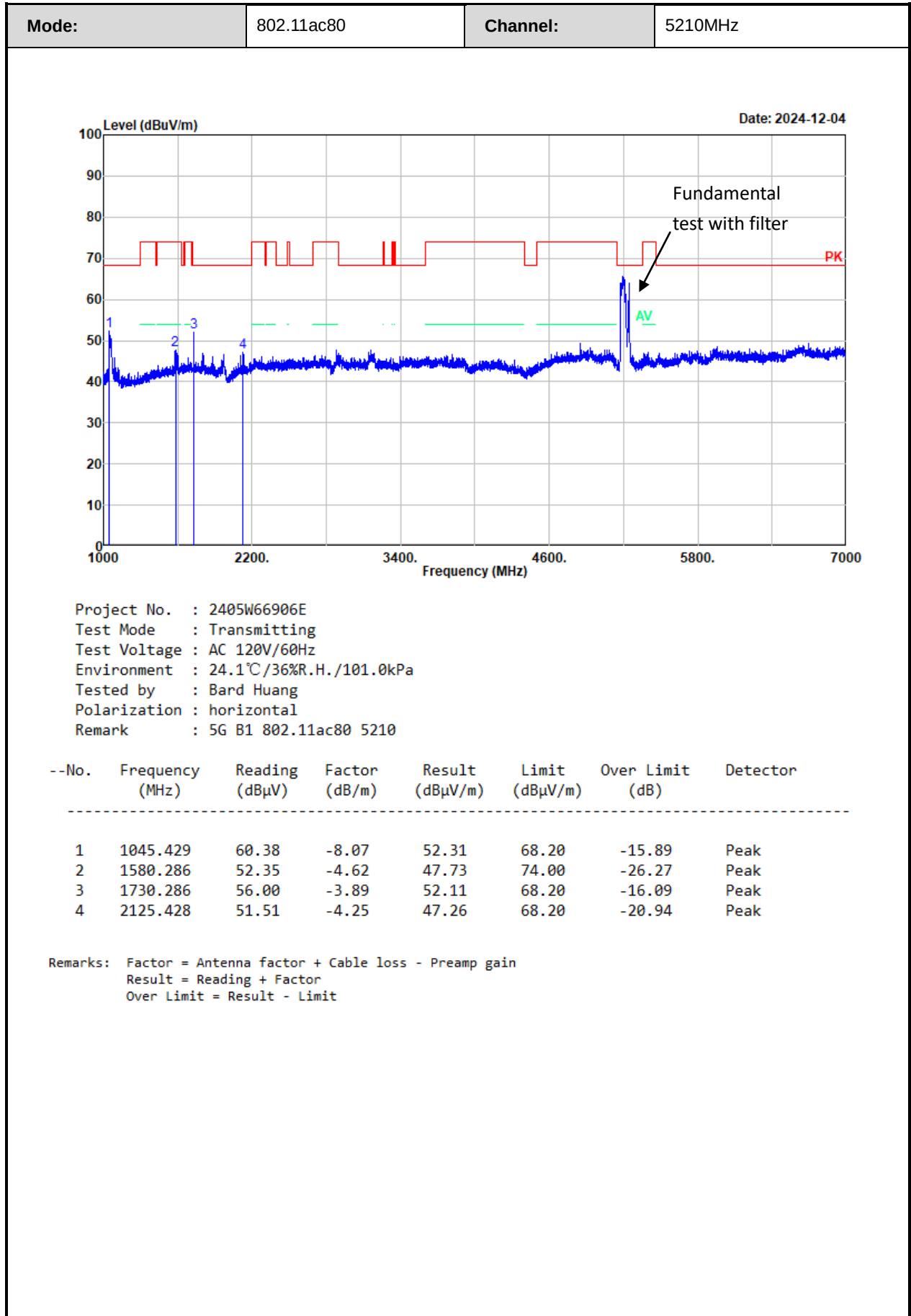


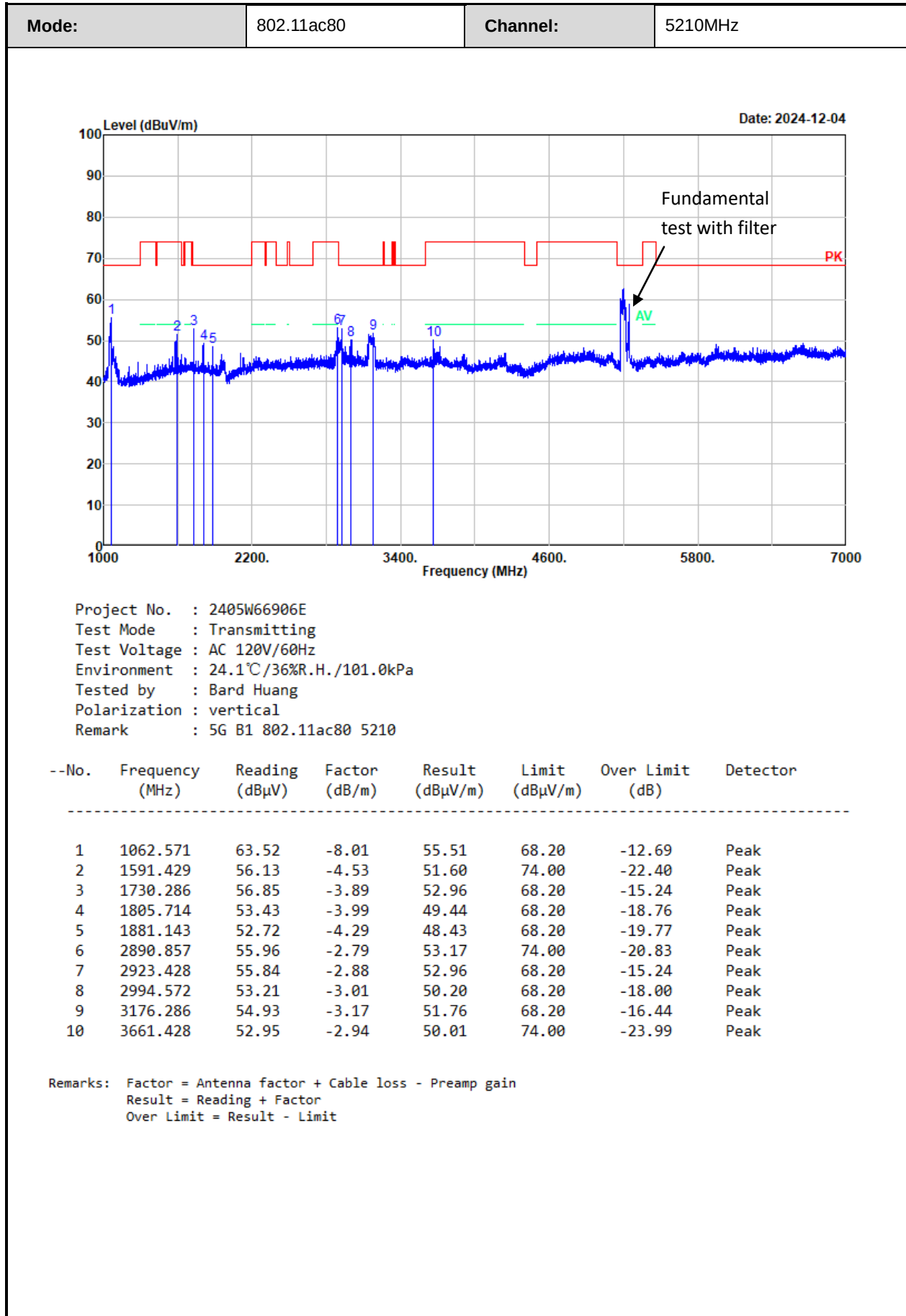


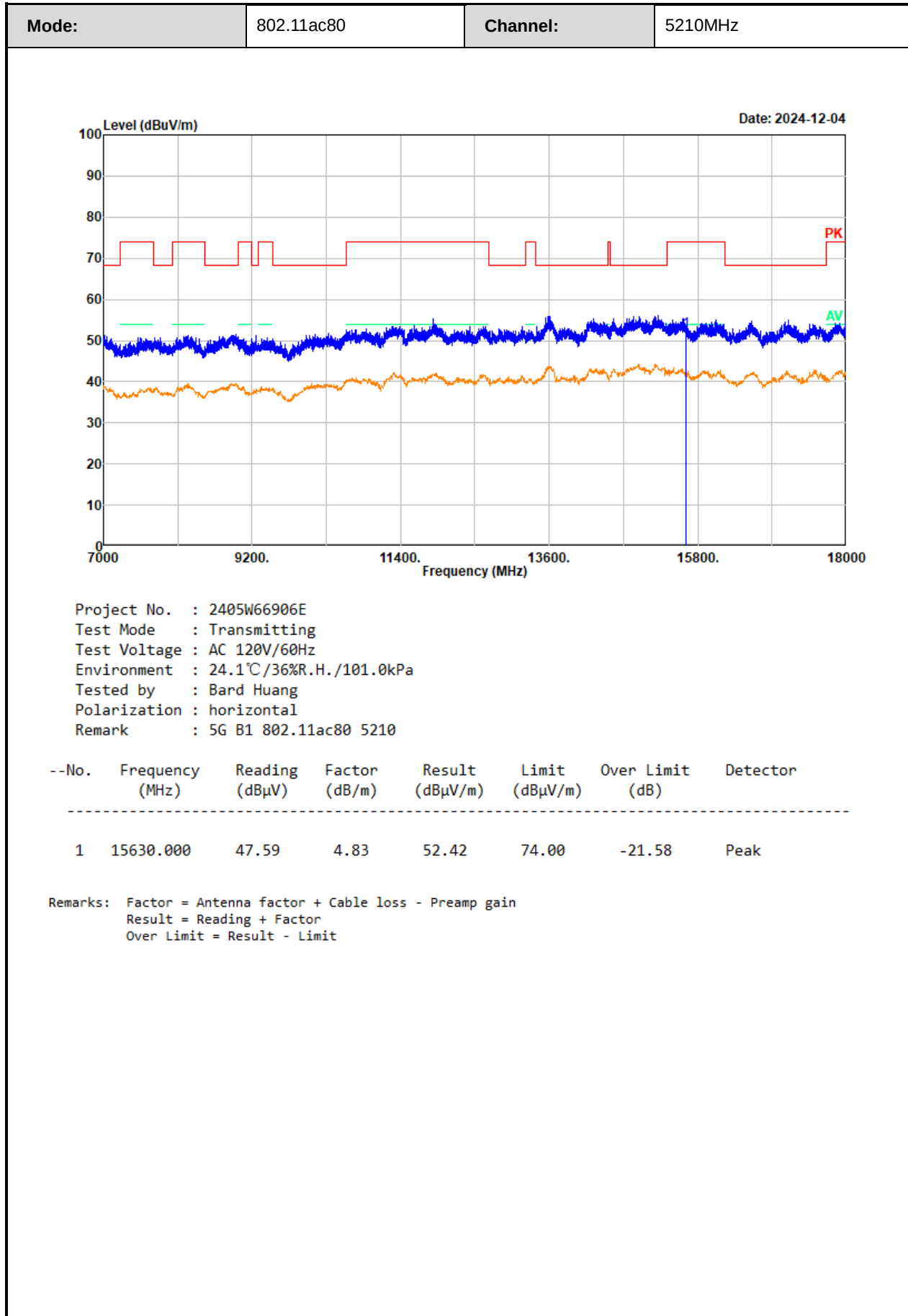


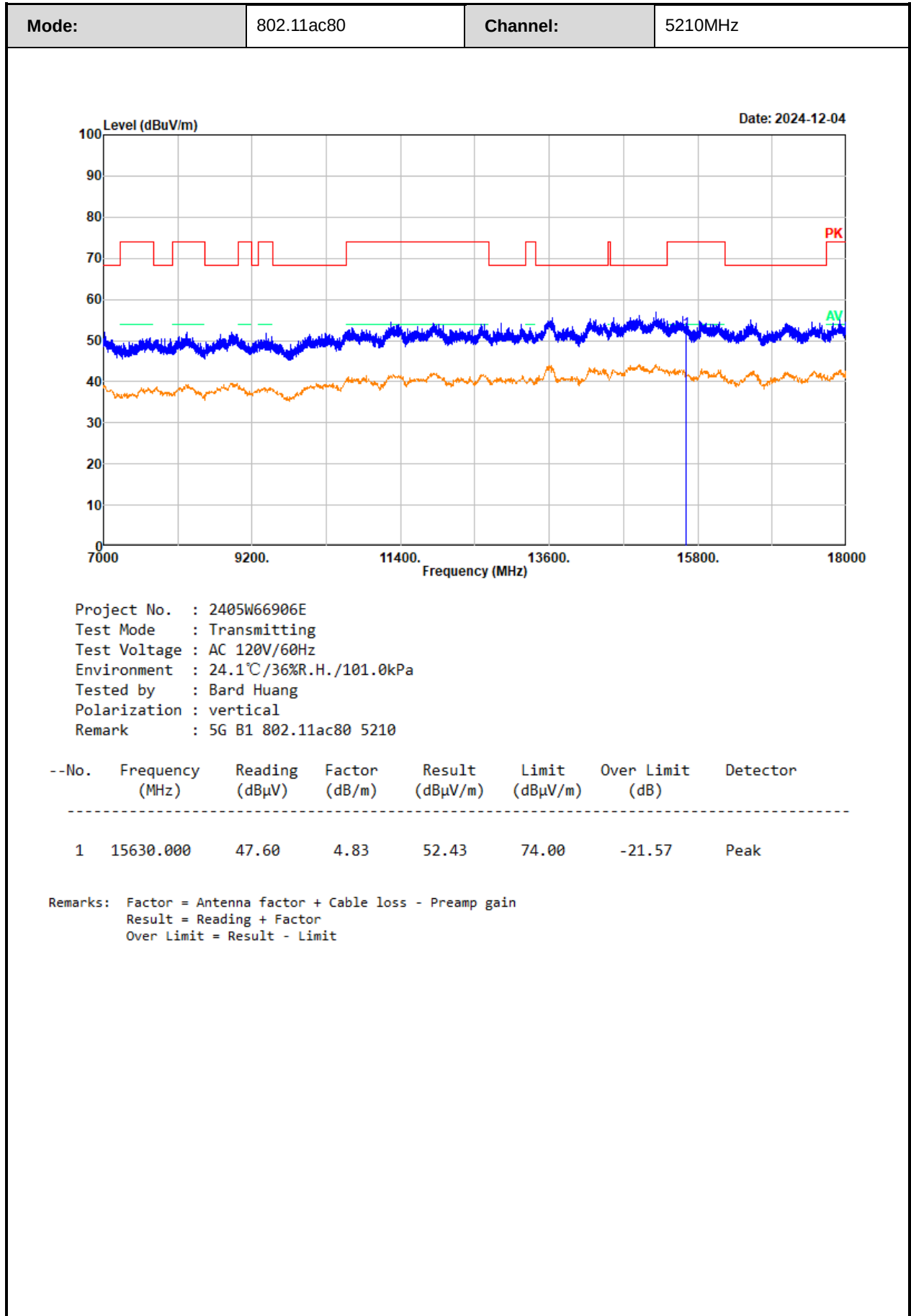


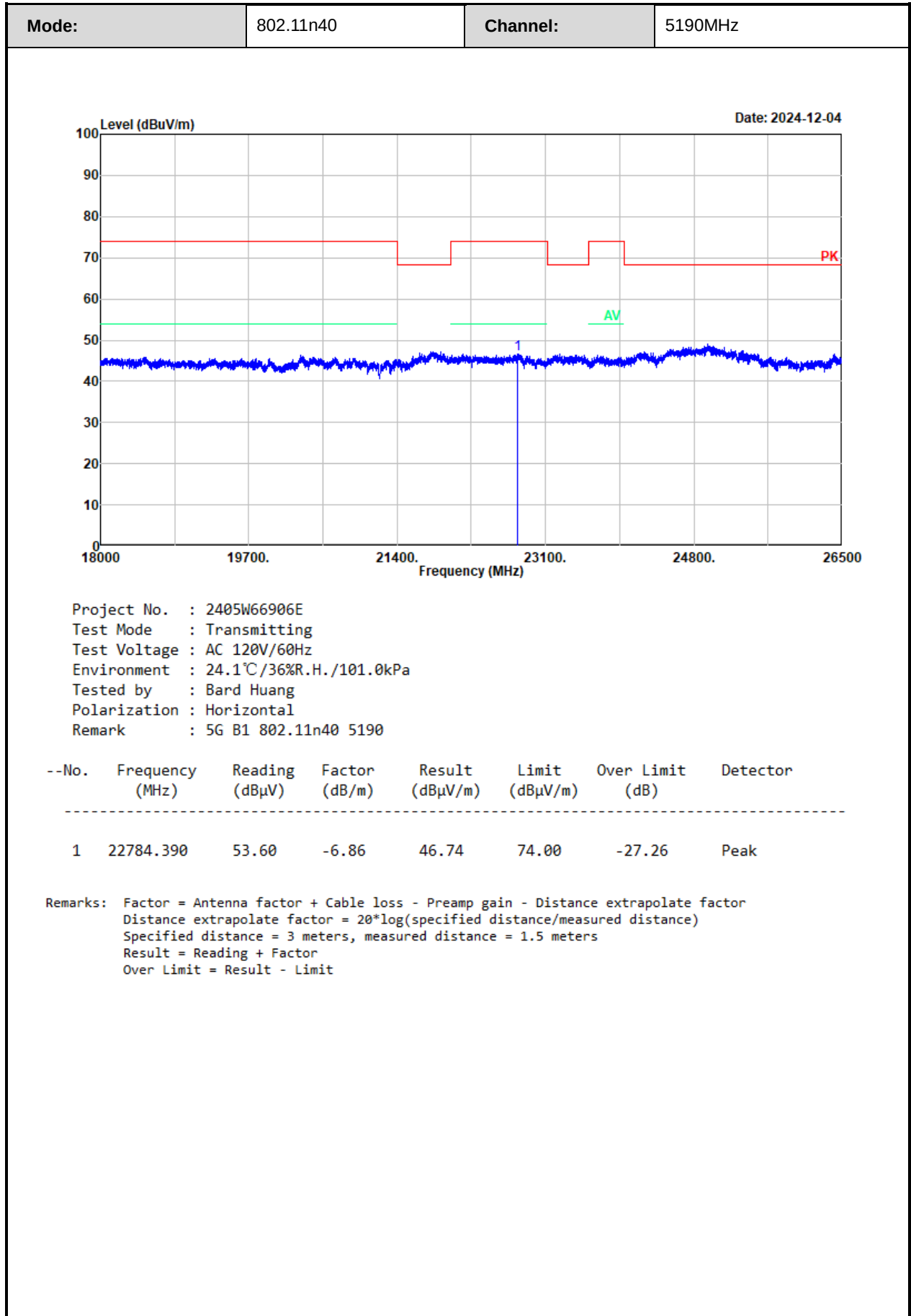


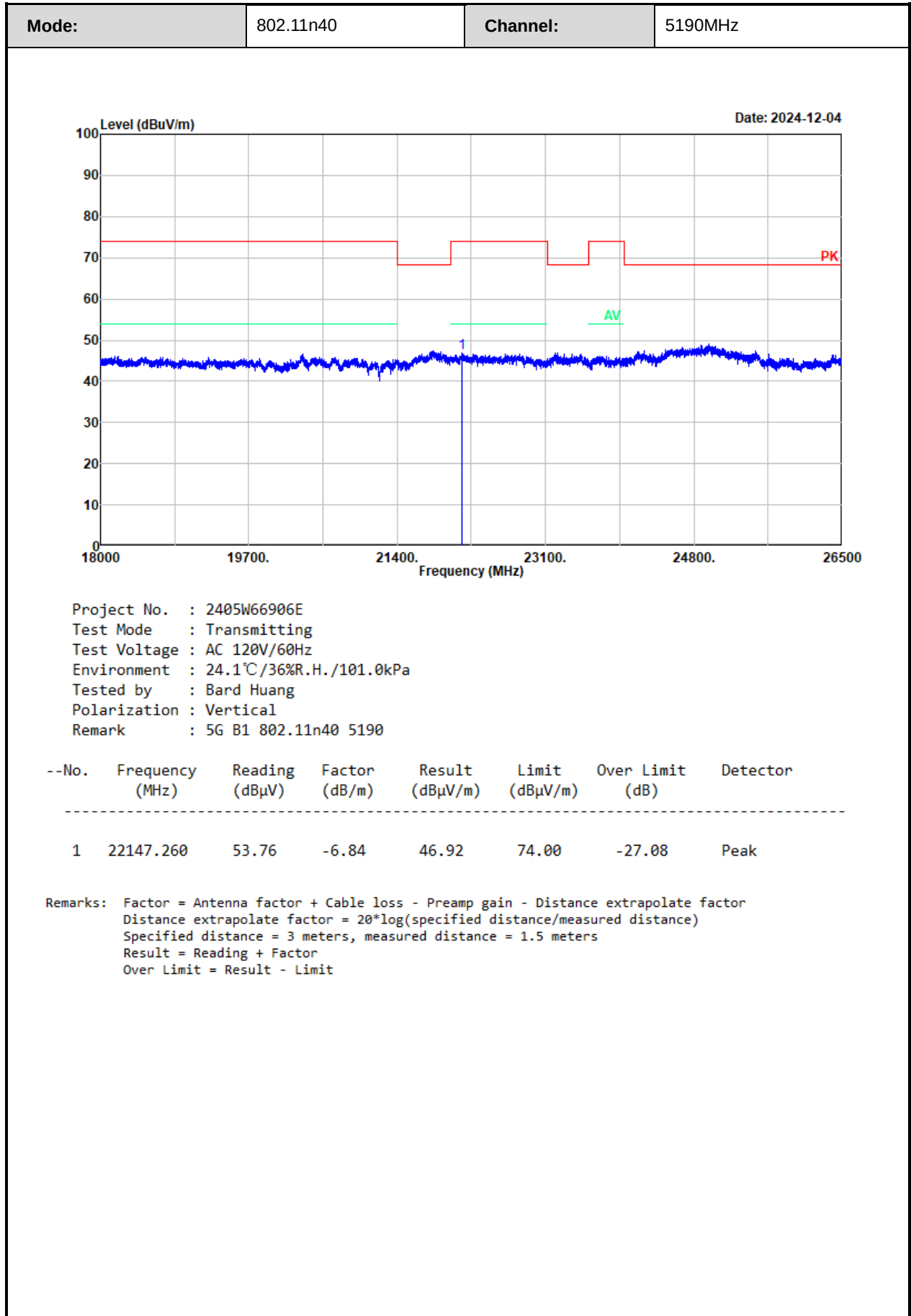


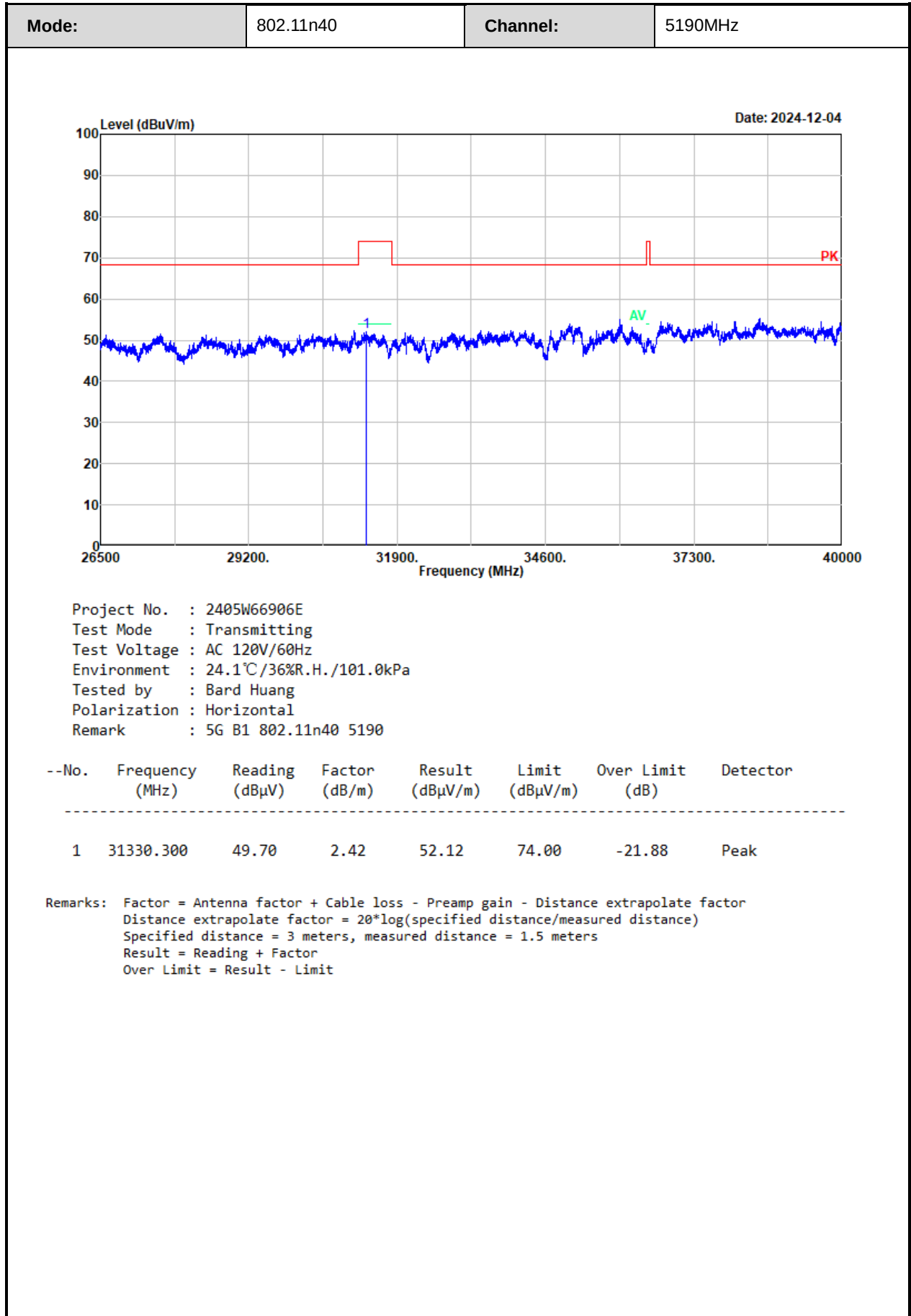


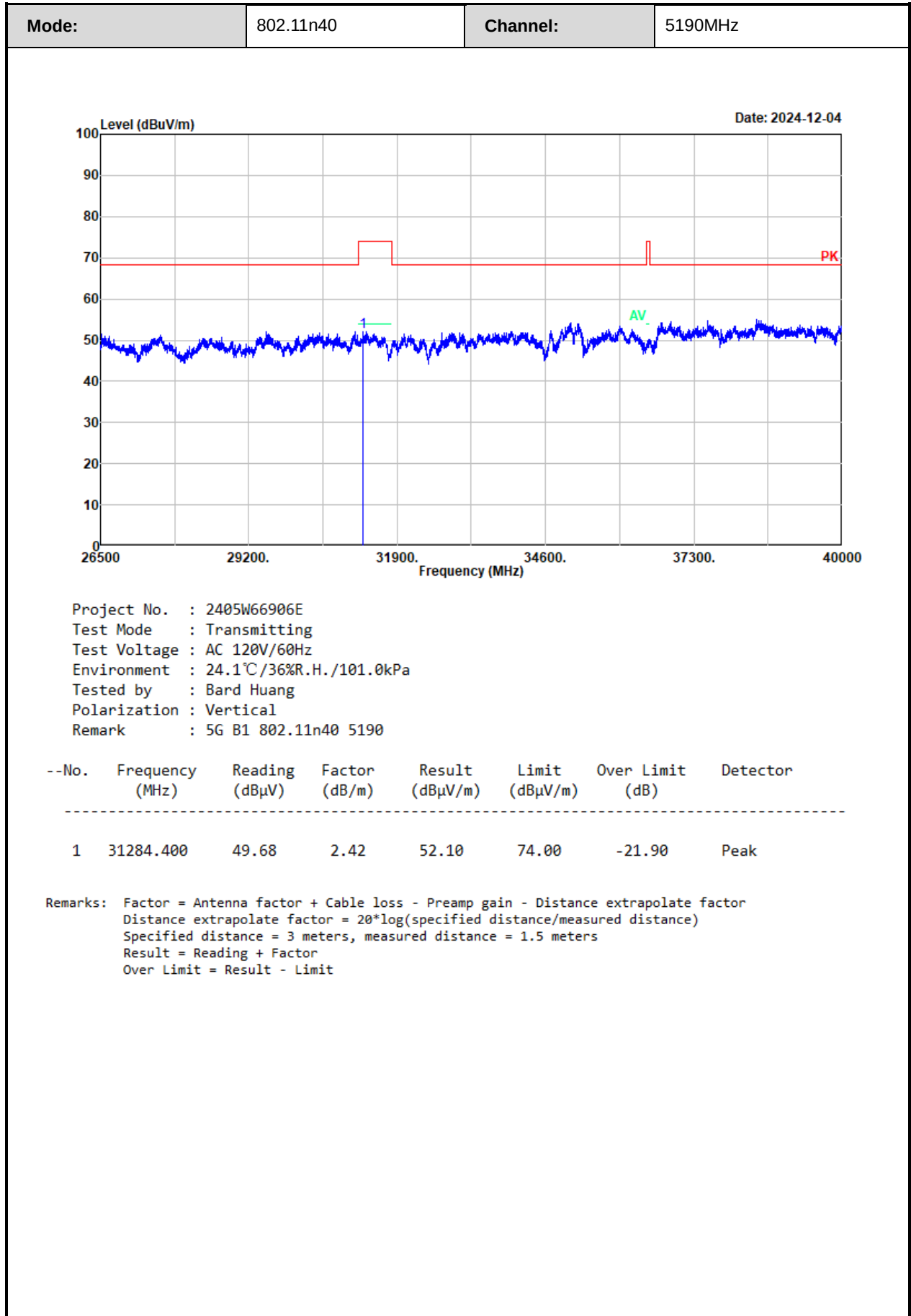




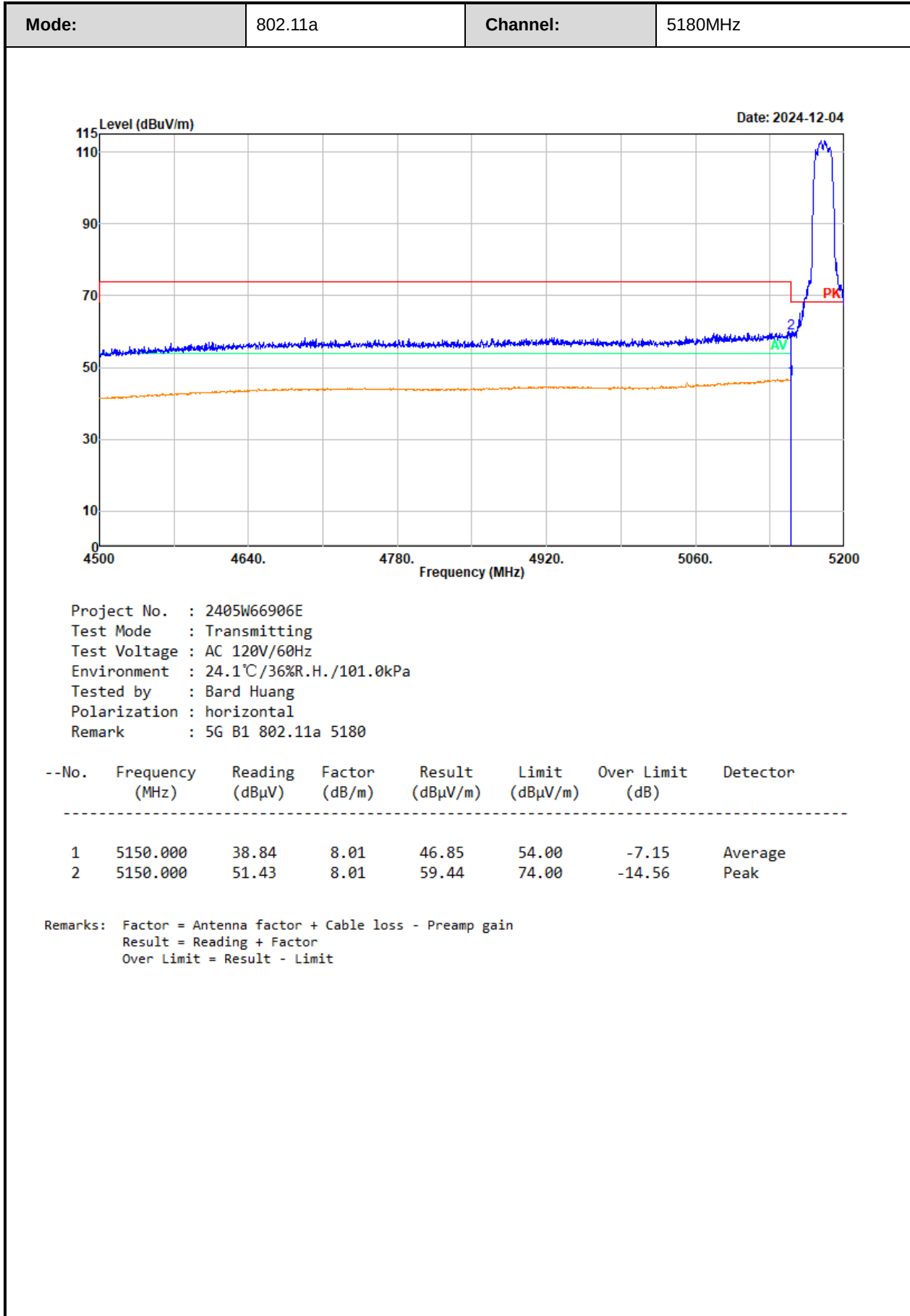


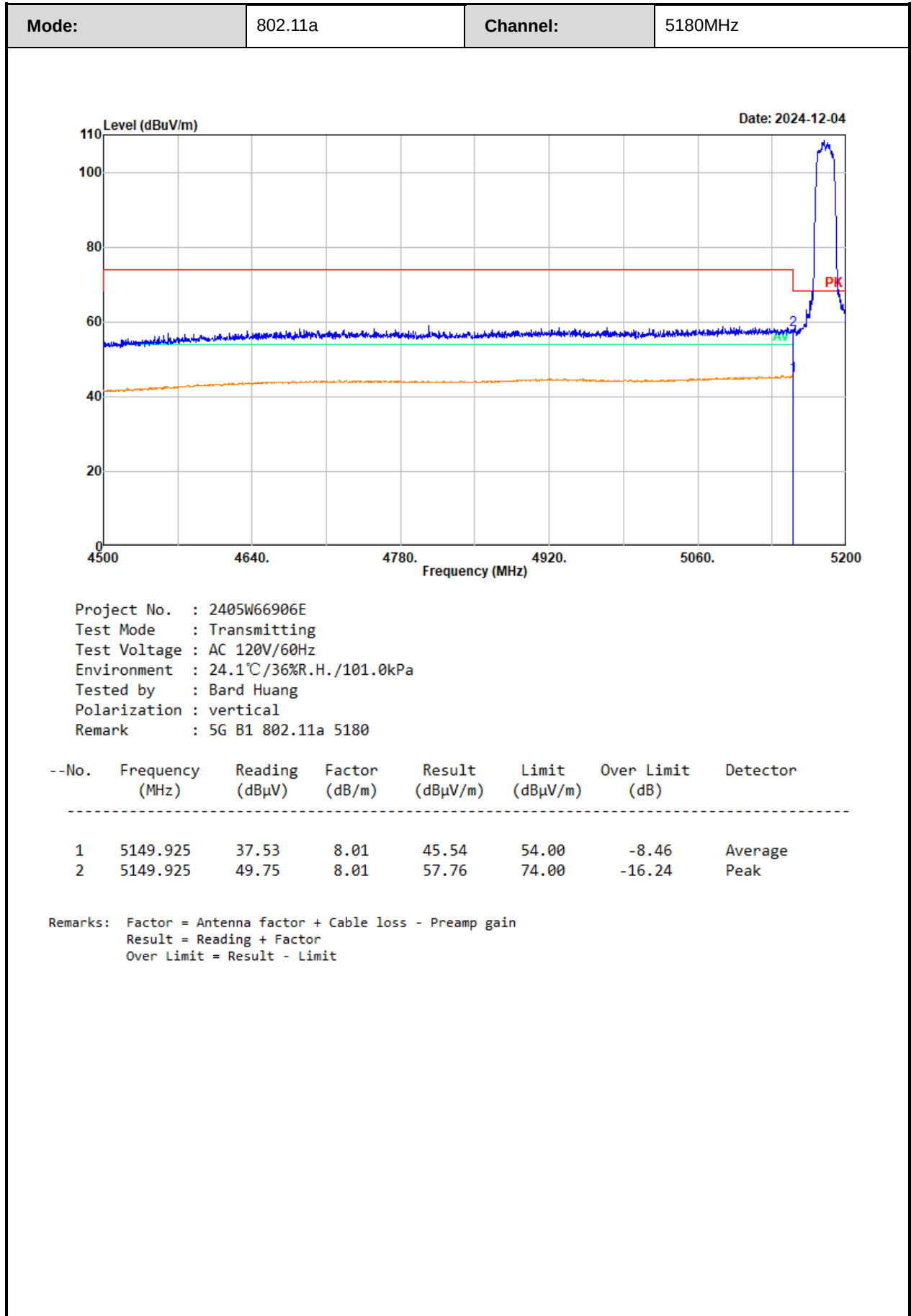


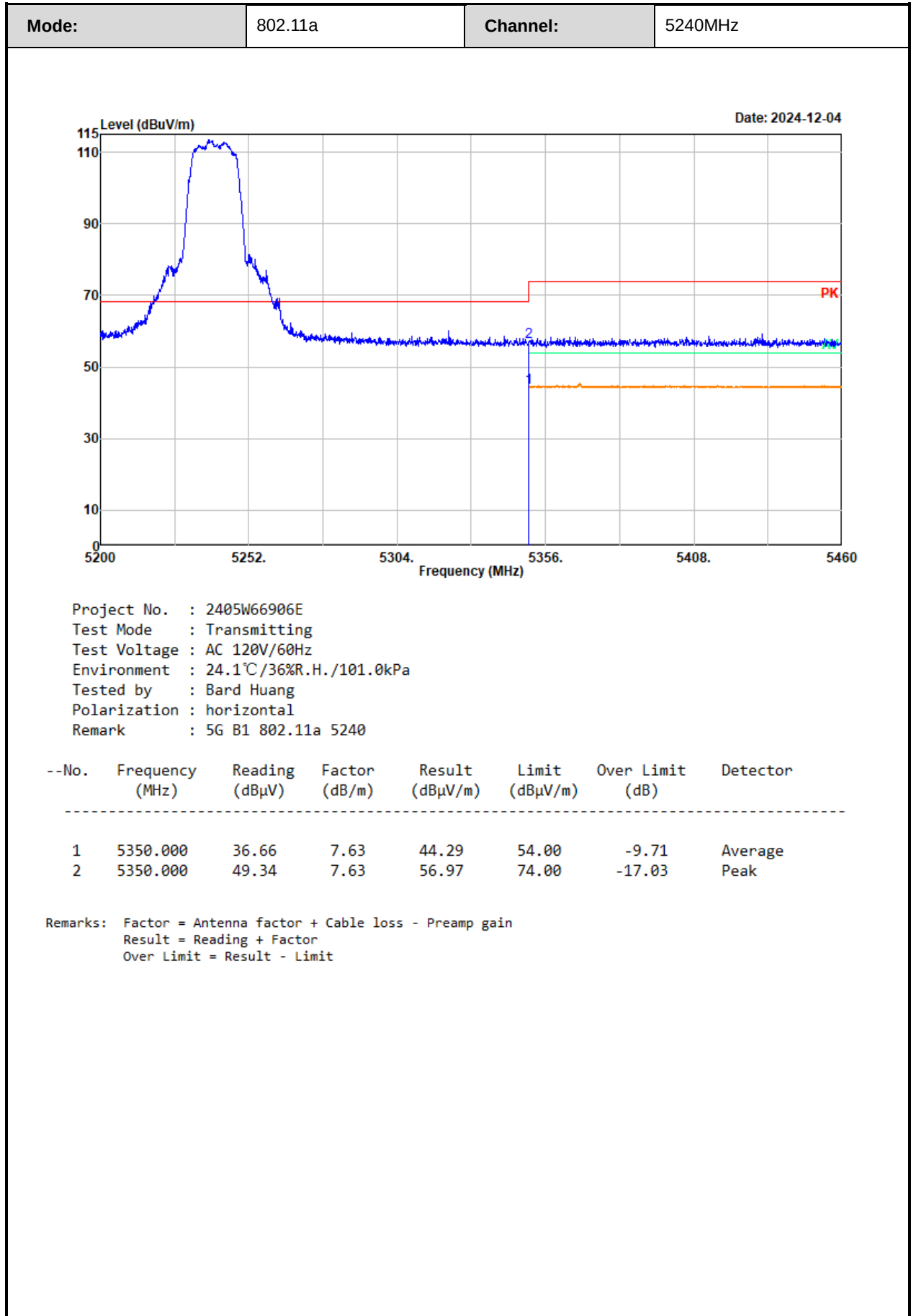


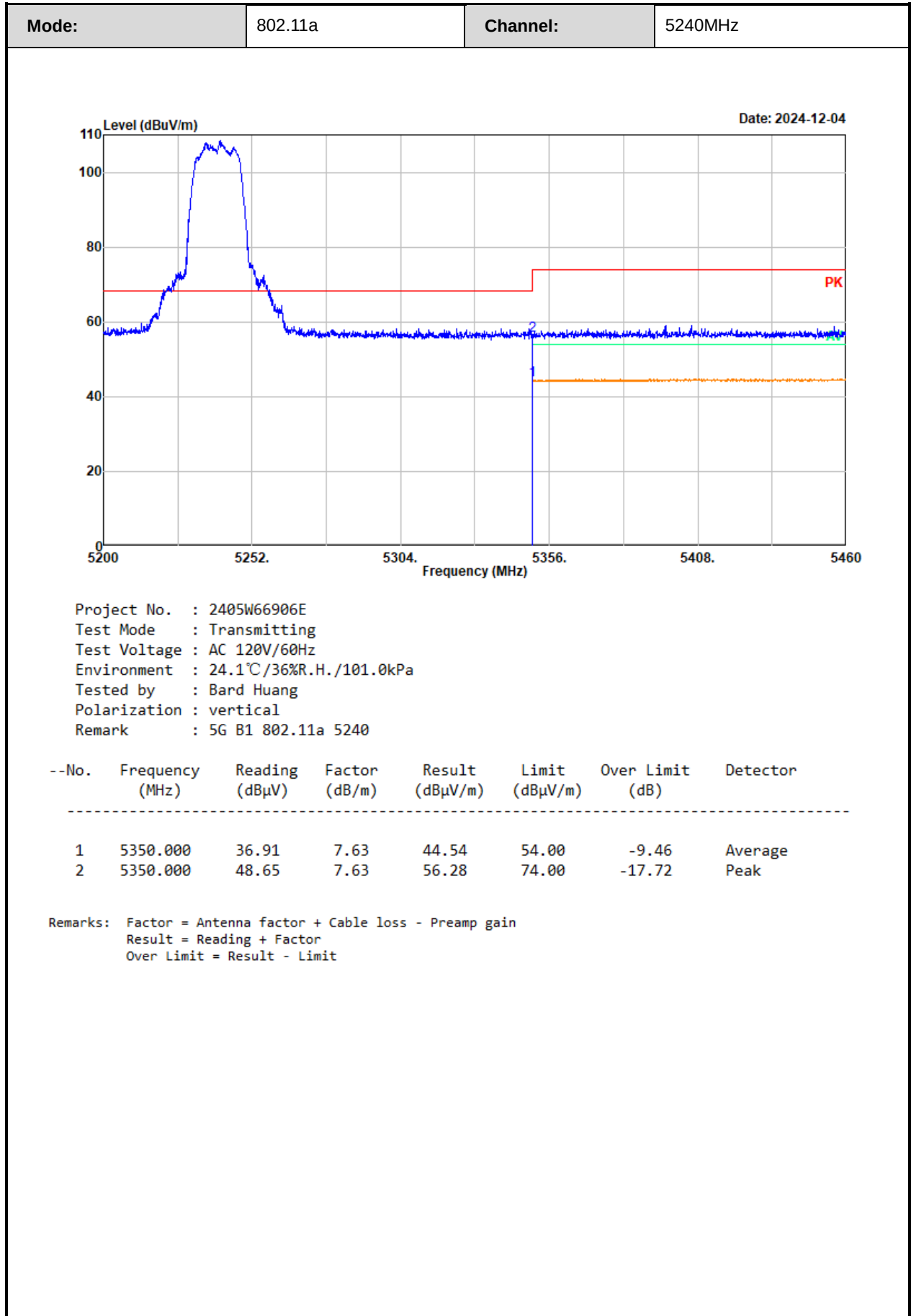


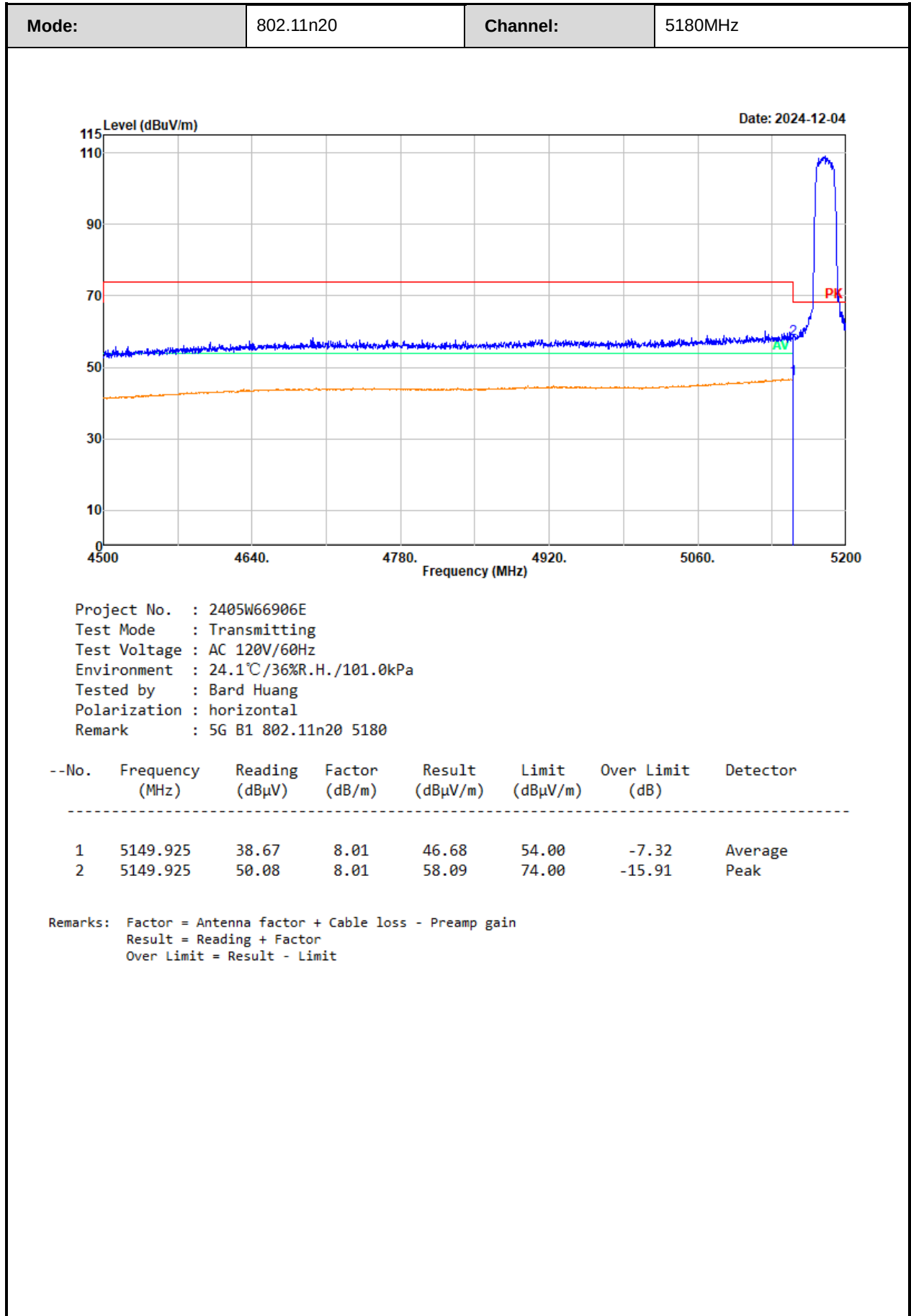
Radiated Band edge:

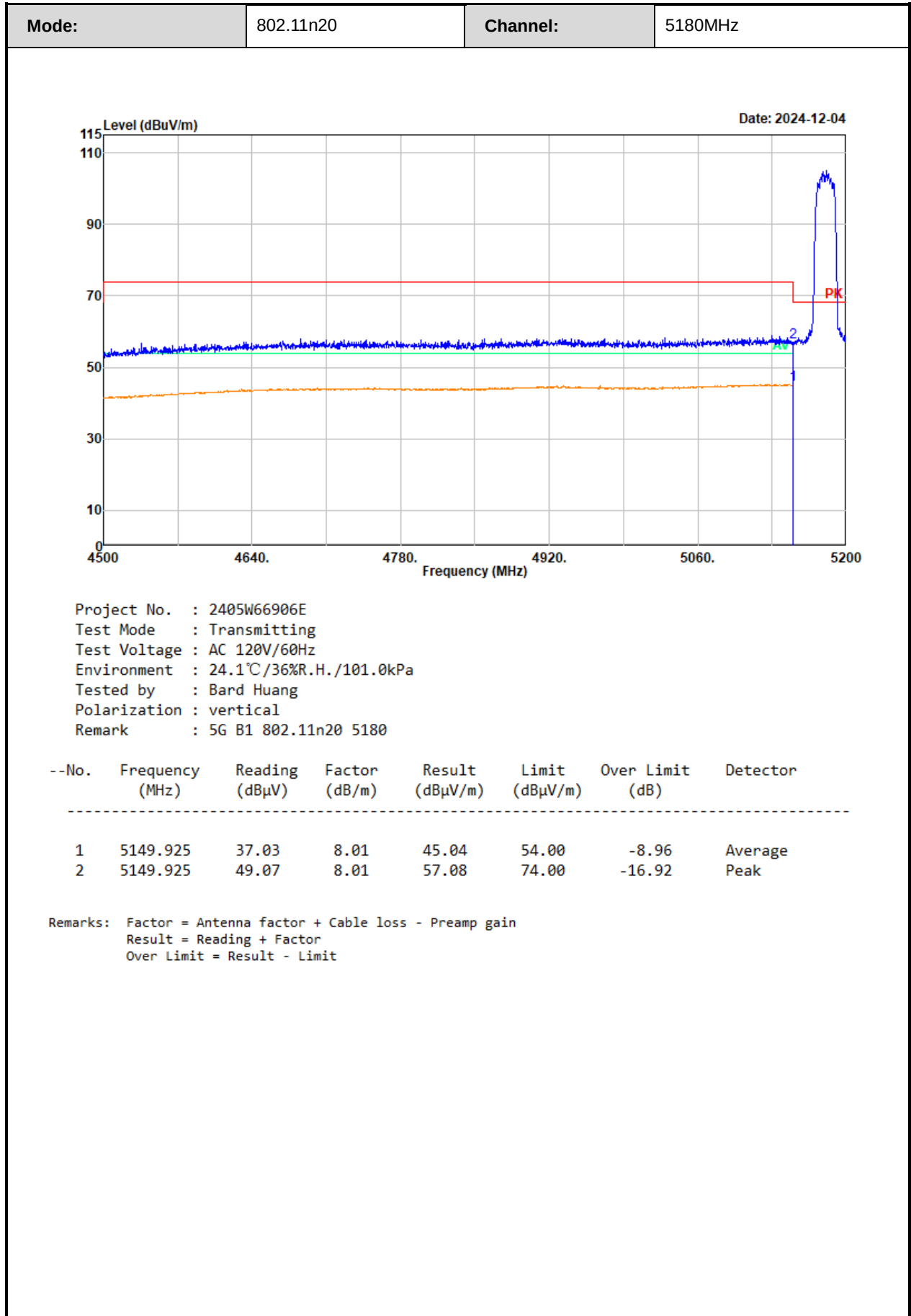


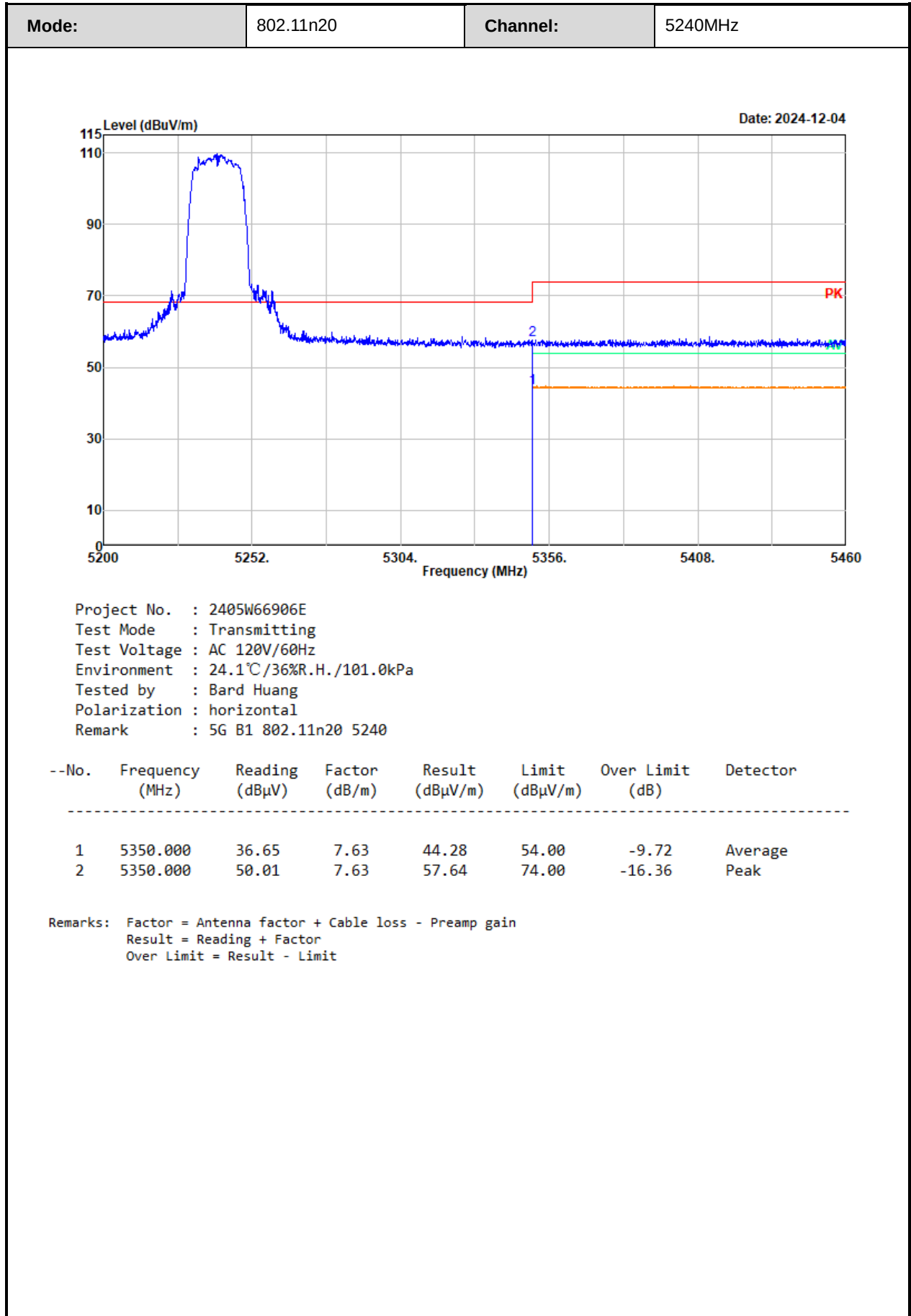


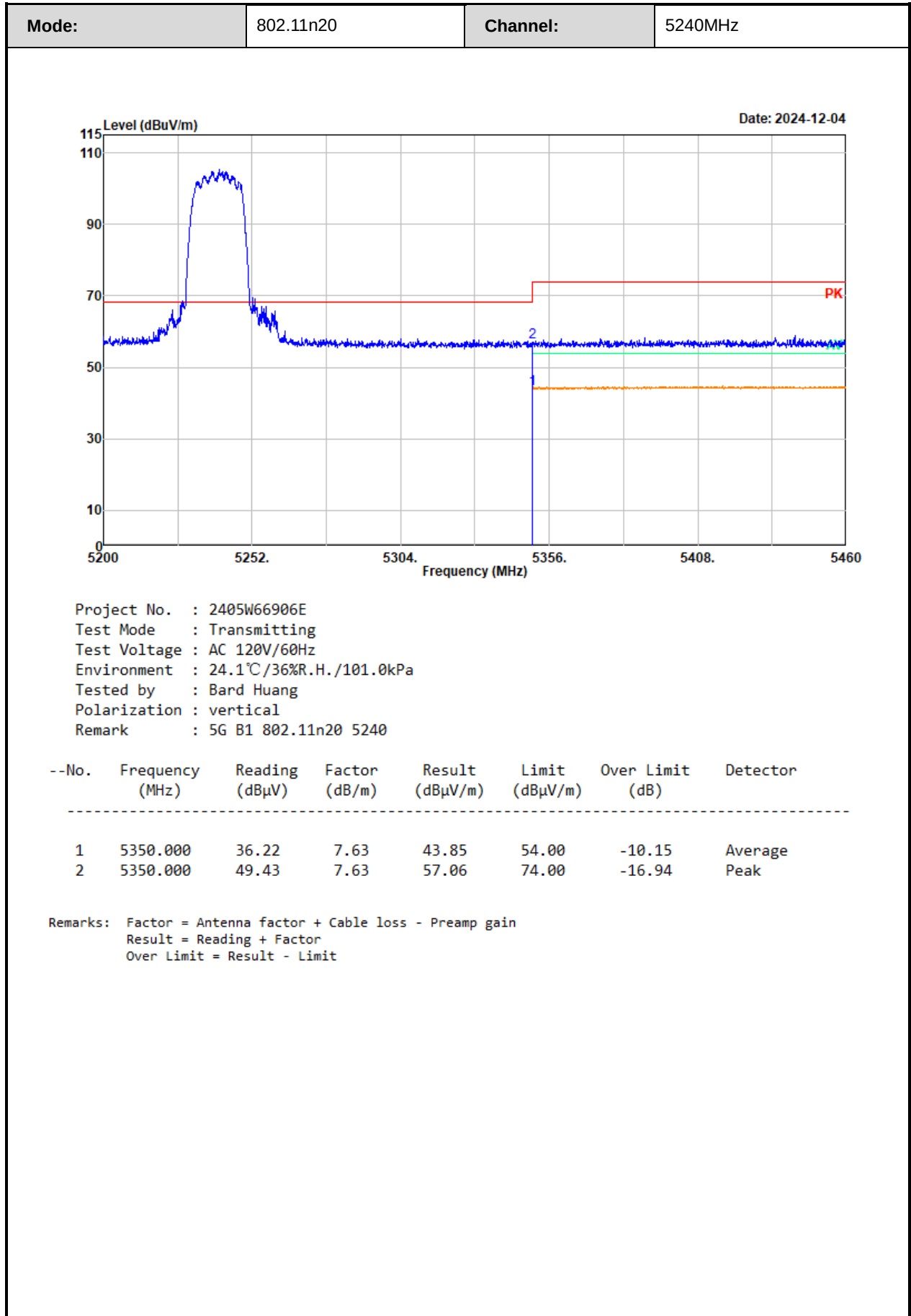


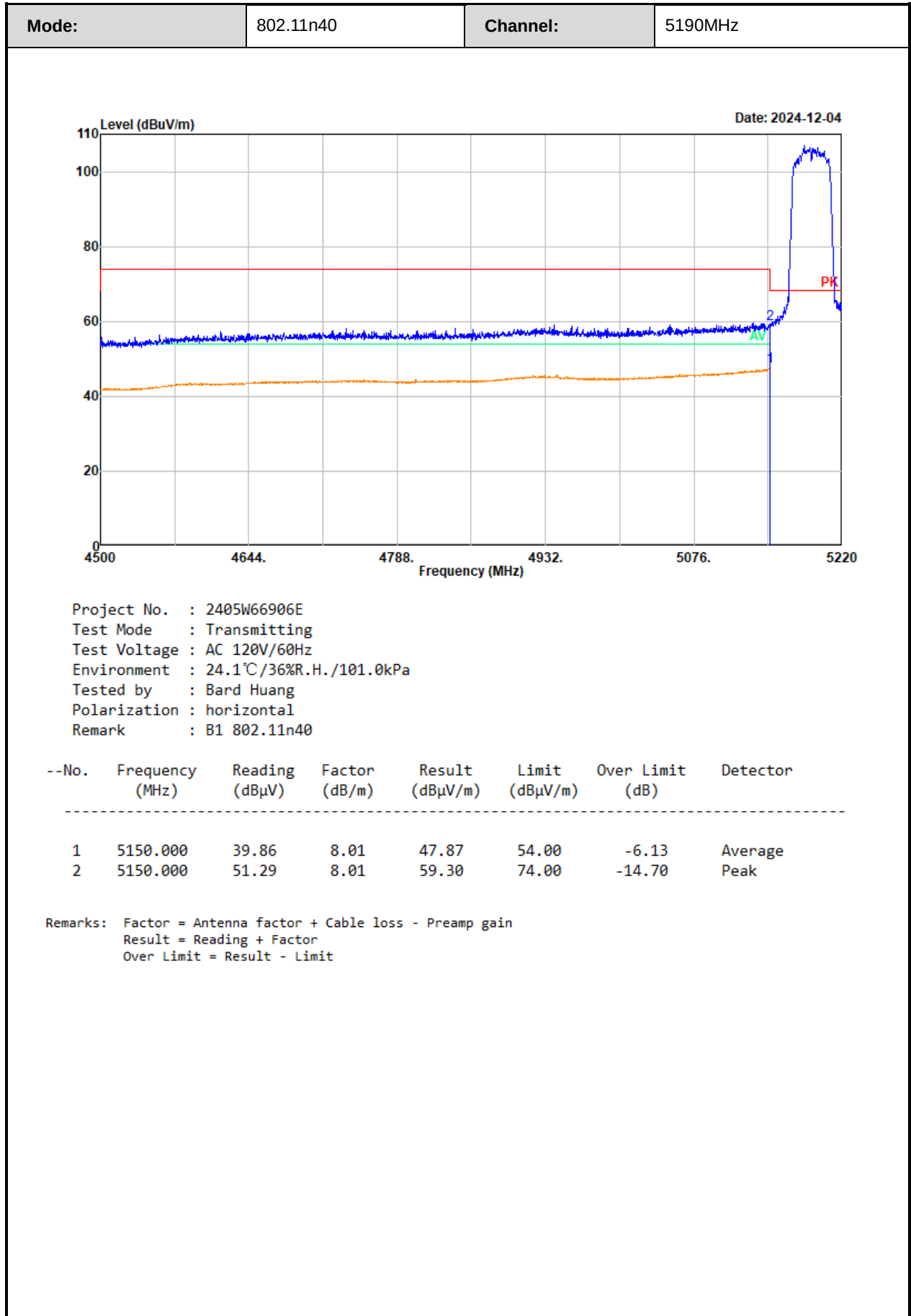


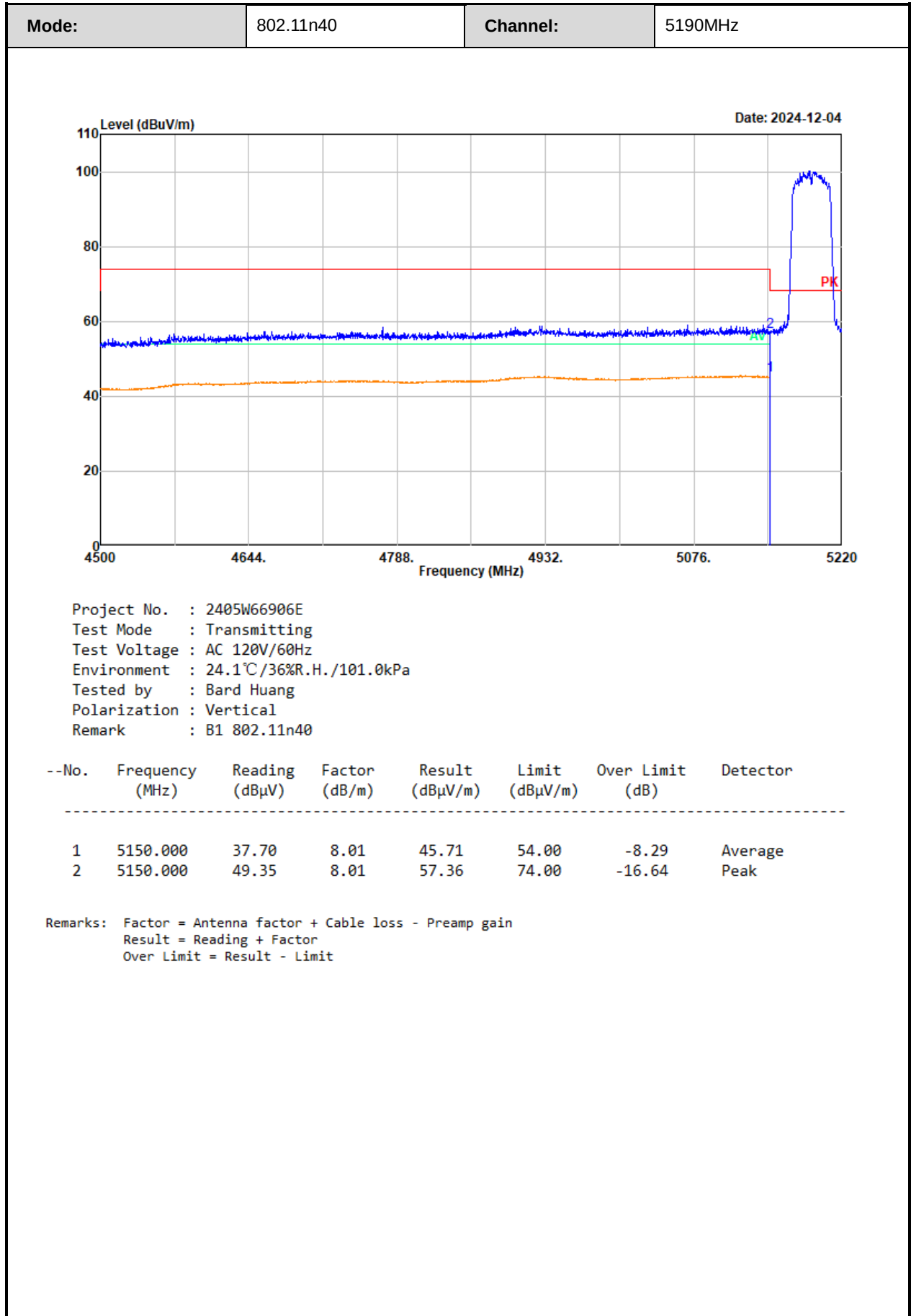


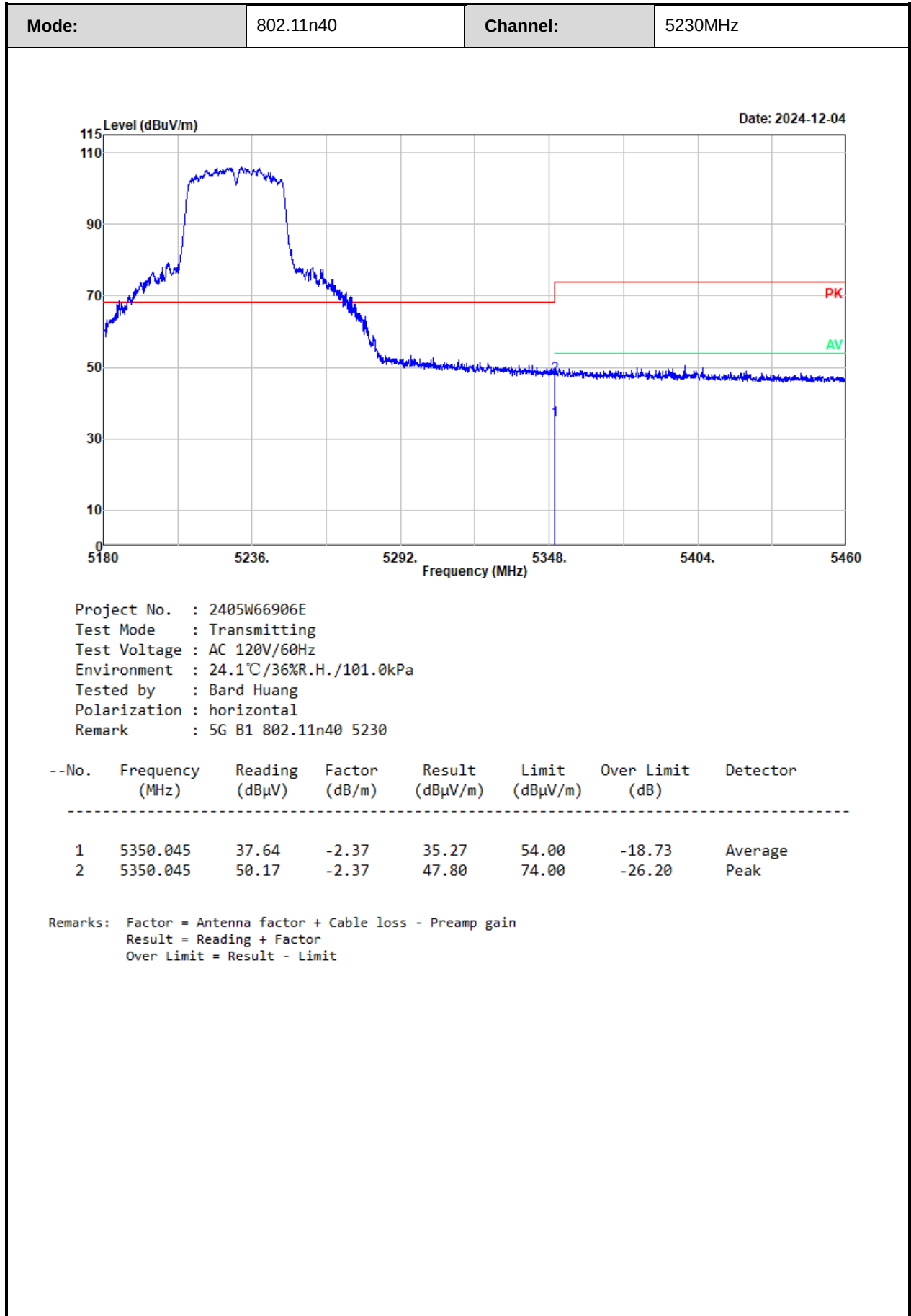


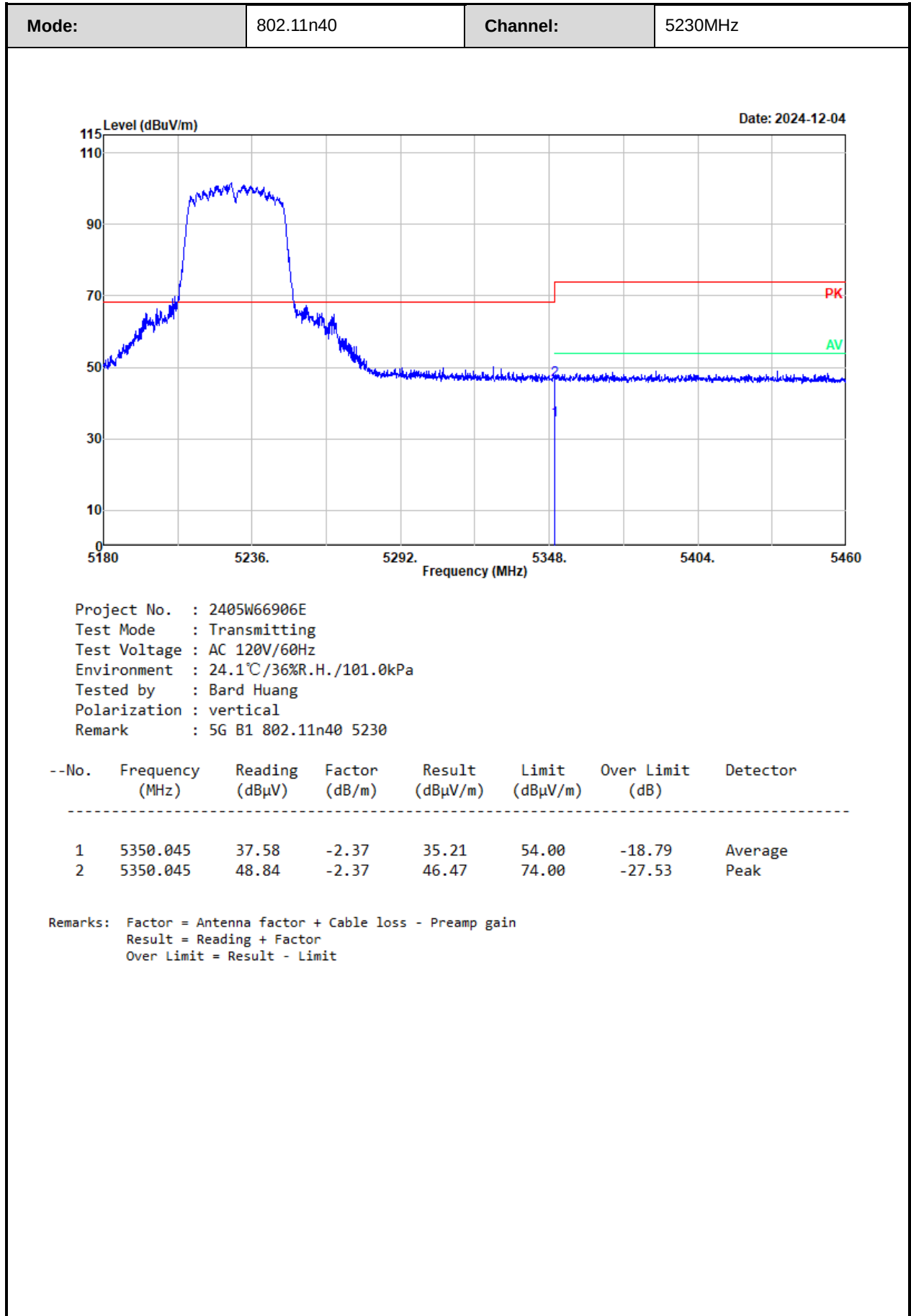


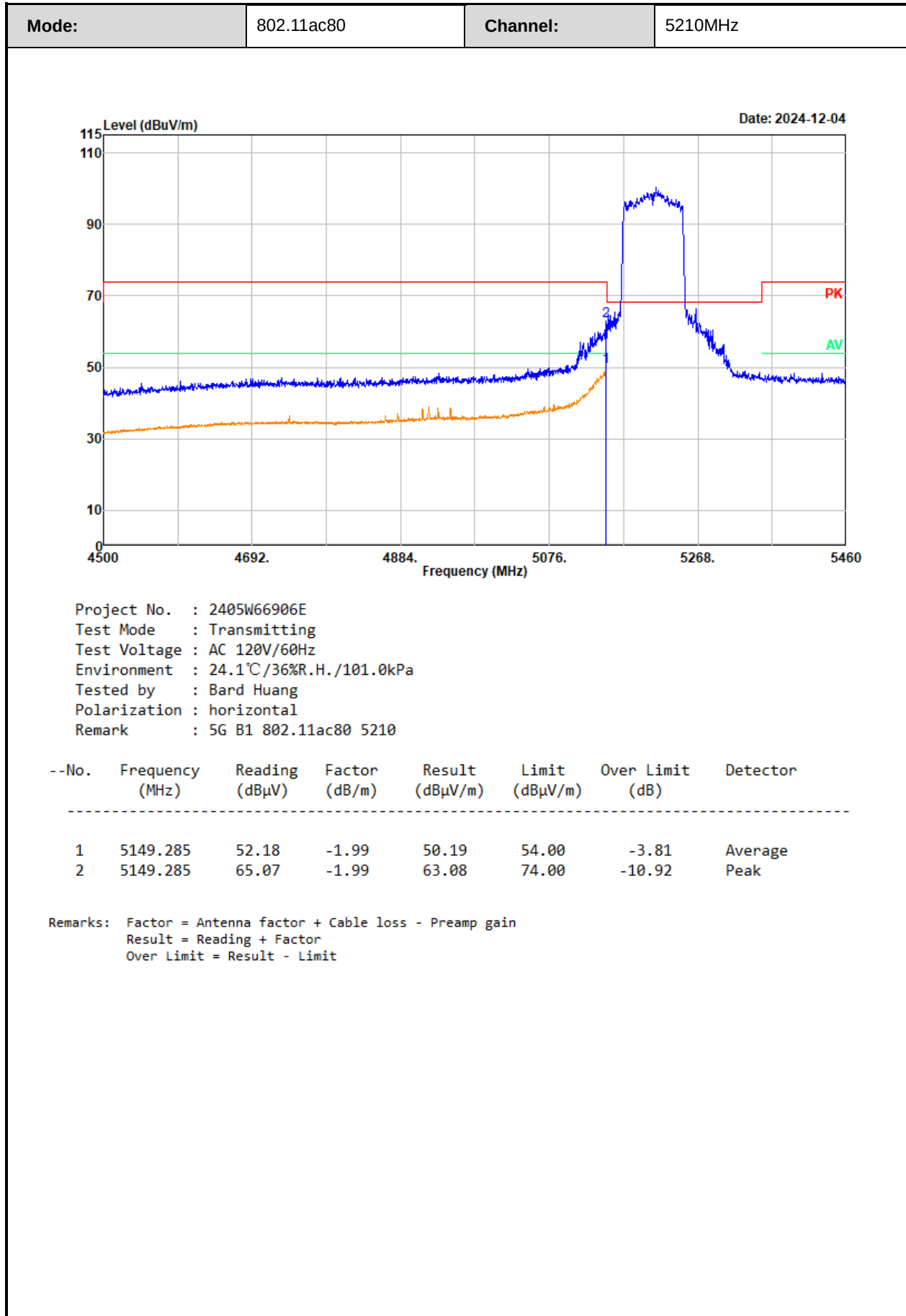


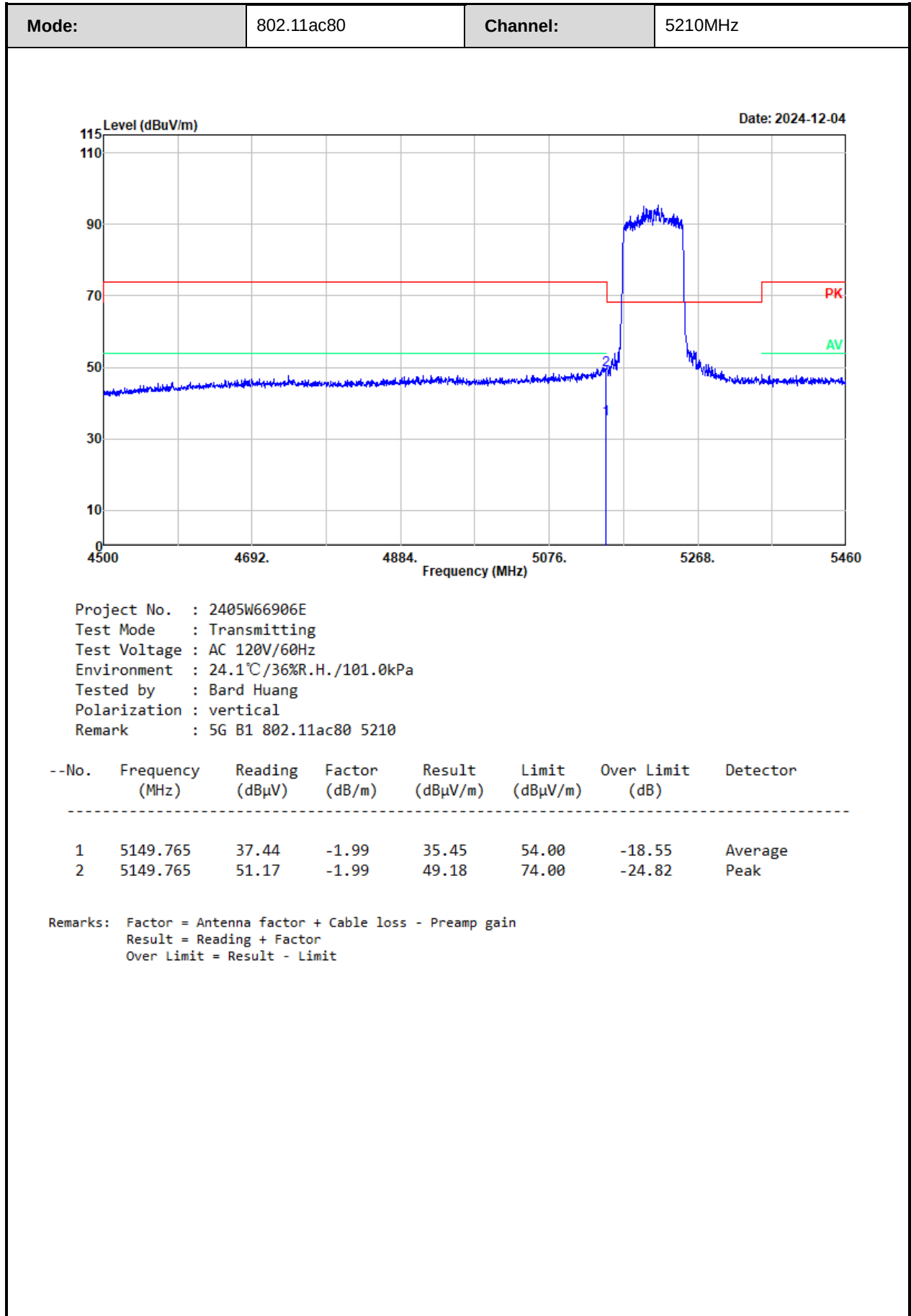












5725-5850MHz

Frequency (MHz)	Reading level (dBμV)	Polar (H/V)	Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
802.11a							
Low Channel							
11490.000	41.79	horizontal	4.54	46.33	54.00	-7.67	Average
11490.000	51.24	horizontal	4.54	55.78	74.00	-18.22	Peak
11490.000	42.27	vertical	4.54	46.81	54.00	-7.19	Average
11490.000	50.80	vertical	4.54	55.34	74.00	-18.66	Peak
1060.000	61.56	horizontal	-8.03	53.53	68.20	-14.67	Peak
1059.143	60.07	vertical	-8.03	52.04	68.20	-16.16	Peak
Middle Channel							
11570.000	40.01	horizontal	3.96	43.97	54.00	-10.03	Average
11570.000	51.46	horizontal	3.96	55.42	74.00	-18.58	Peak
11570.000	40.78	vertical	3.96	44.74	54.00	-9.26	Average
11570.000	53.74	vertical	3.96	57.70	74.00	-16.30	Peak
1059.143	63.33	horizontal	-8.03	55.30	68.20	-12.90	Peak
1052.286	61.07	vertical	-8.05	53.02	68.20	-15.18	Peak
High Channel							
11650.000	40.05	horizontal	3.64	43.69	54.00	-10.31	Average
11650.000	50.99	horizontal	3.64	54.63	74.00	-19.37	Peak
11650.000	40.76	vertical	3.64	44.40	54.00	-9.60	Average
11650.000	53.80	vertical	3.64	57.44	74.00	-16.56	Peak
1060.857	60.06	horizontal	-8.03	52.03	68.20	-16.17	Peak
1064.286	60.30	vertical	-8.01	52.29	68.20	-15.91	Peak
802.11n20							
Low Channel							
11490.000	49.39	horizontal	4.54	53.93	74.00	-20.07	Peak
11490.000	42.37	vertical	4.54	46.91	54.00	-7.09	Average
11490.000	51.04	vertical	4.54	55.58	74.00	-18.42	Peak
1049.714	58.46	horizontal	-8.06	50.40	68.20	-17.80	Peak
1060.857	60.87	vertical	-8.03	52.84	68.20	-15.36	Peak
Middle Channel							
11570.000	40.25	horizontal	3.96	44.21	54.00	-9.79	Average
11570.000	51.44	horizontal	3.96	55.40	74.00	-18.60	Peak
11570.000	40.62	vertical	3.96	44.58	54.00	-9.42	Average
11570.000	51.10	vertical	3.96	55.06	74.00	-18.94	Peak
1063.429	62.38	horizontal	-8.01	54.37	68.20	-13.83	Peak

1059.143	60.92	vertical	-8.03	52.89	68.20	-15.31	Peak
High Channel							
11650.000	50.22	horizontal	3.64	53.86	74.00	-20.14	Peak
11650.000	40.12	vertical	3.64	43.76	54.00	-10.24	Average
11650.000	52.09	vertical	3.64	55.73	74.00	-18.27	Peak
1052.286	63.97	horizontal	-8.05	55.92	68.20	-12.28	Peak
1057.429	64.95	vertical	-8.04	56.91	68.20	-11.29	Peak
802.11n40							
Low Channel							
11510.000	49.09	horizontal	4.47	53.56	74.00	-20.44	Peak
11510.000	40.22	vertical	4.47	44.69	54.00	-9.31	Average
11510.000	50.06	vertical	4.47	54.53	74.00	-19.47	Peak
1057.429	60.76	horizontal	-8.04	52.72	68.20	-15.48	Peak
1064.286	60.99	vertical	-8.01	52.98	68.20	-15.22	Peak
High Channel							
11590.000	39.62	horizontal	3.78	43.40	54.00	-10.60	Average
11590.000	50.25	horizontal	3.78	54.03	74.00	-19.97	Peak
11590.000	38.00	vertical	3.78	41.78	54.00	-12.22	Average
11590.000	50.83	vertical	3.78	54.61	74.00	-19.39	Peak
1063.429	60.28	horizontal	-8.01	52.27	68.20	-15.93	Peak
1053.143	62.58	vertical	-8.04	54.54	68.20	-13.66	Peak
802.11ac80							
11550.000	47.87	horizontal	4.12	51.99	74.00	-22.01	Peak
11550.000	47.34	vertical	4.12	51.46	74.00	-22.54	Peak
1065.143	59.53	horizontal	-8.01	51.52	68.20	-16.68	Peak
1065.143	61.38	vertical	-8.01	53.37	68.20	-14.83	Peak

Note:

Corrected factor=Antenna factor + Cable loss - Amplifier Gain

Corrected Amplitude=Reading level + Correct factor

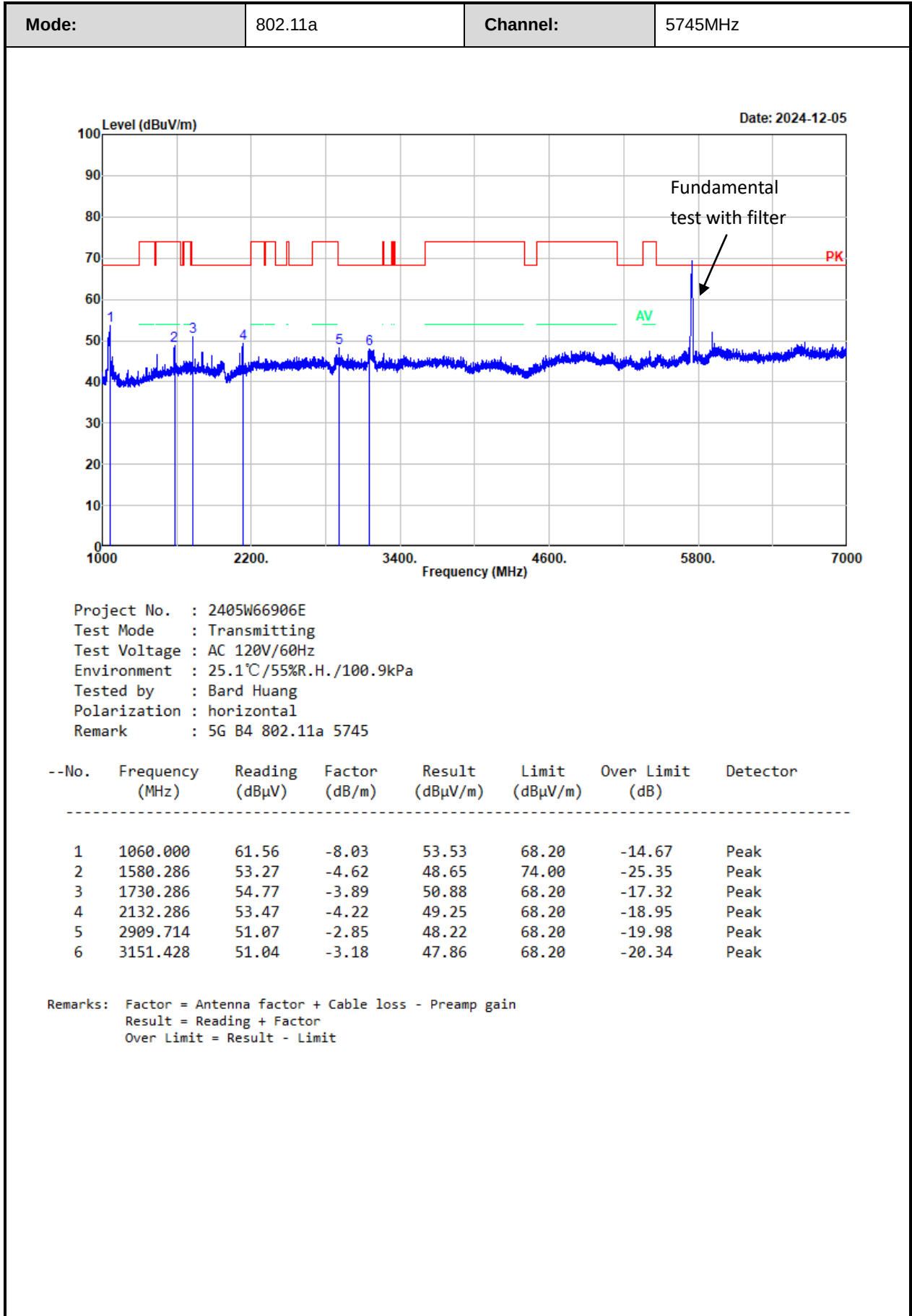
Margin= Corrected Amplitude-Limit

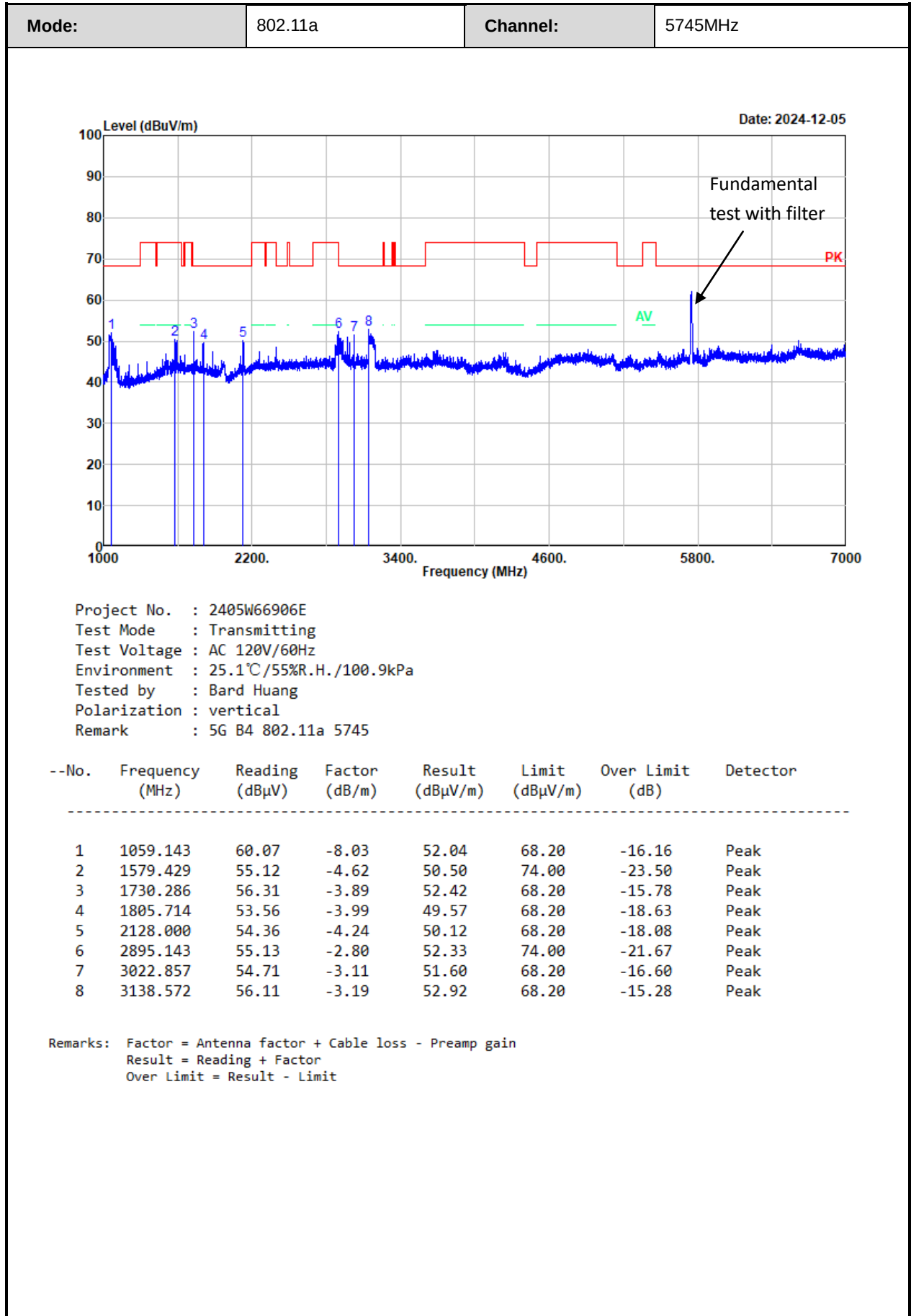
For the test result of Peak below the Peak limit more than 20dB, which can compliance with the average limit, just the Peak level was recorded.

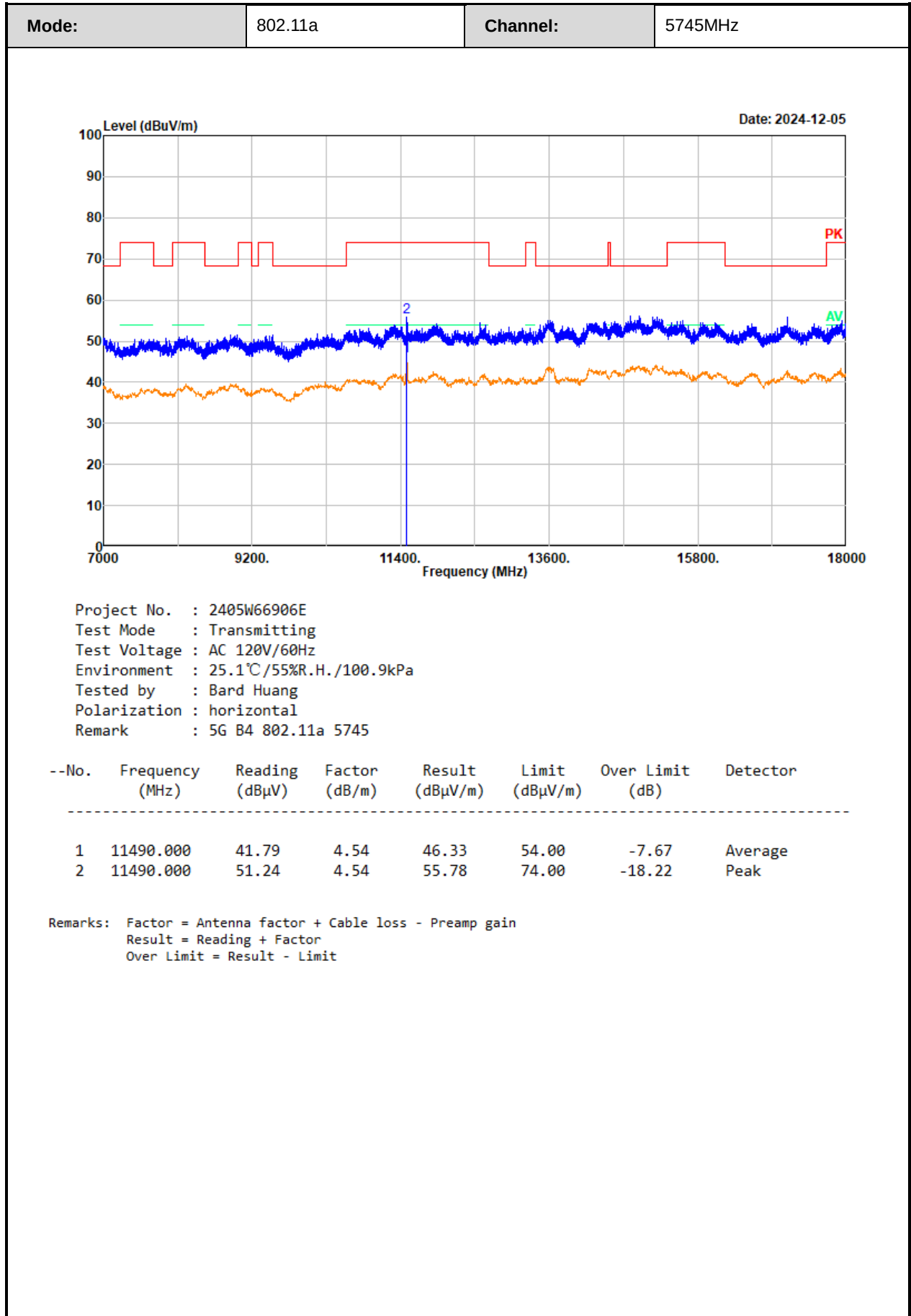
The emission levels of other frequencies that were lower than the limit 20dB not show in test report.

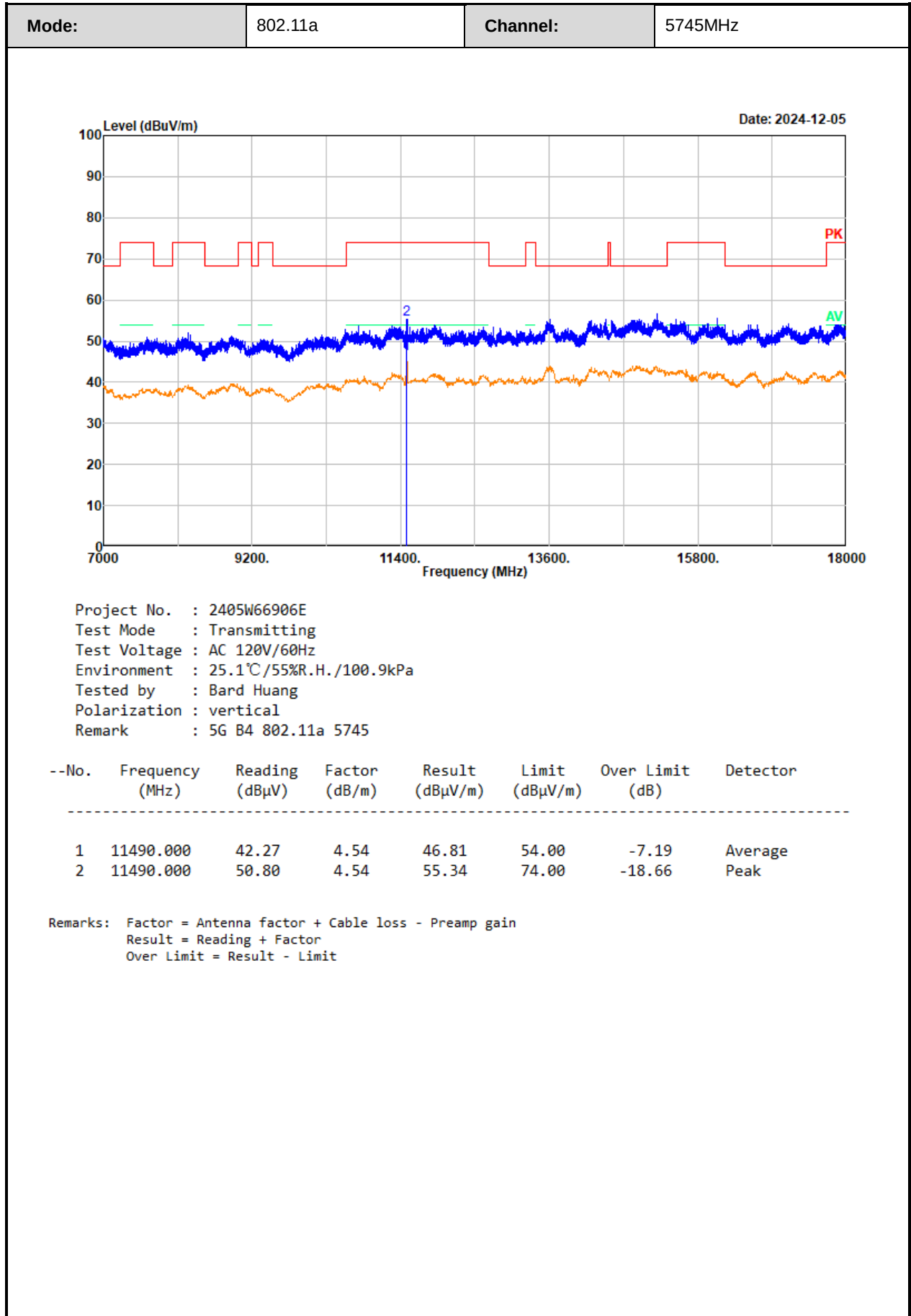
For emissions in 18GHz-40GHz range, all emissions were investigated and in the noise floor level.

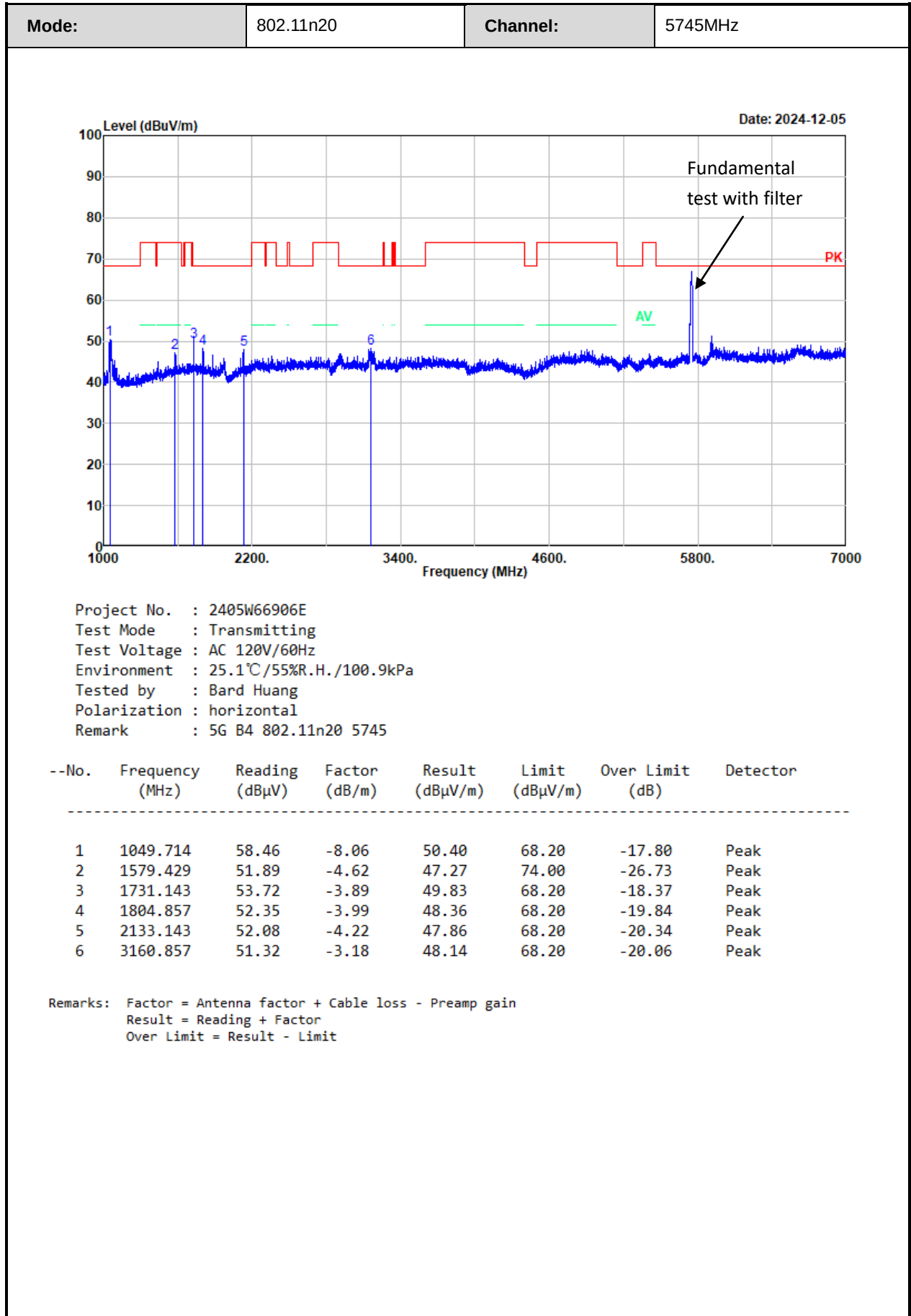
Test plot for example as below:

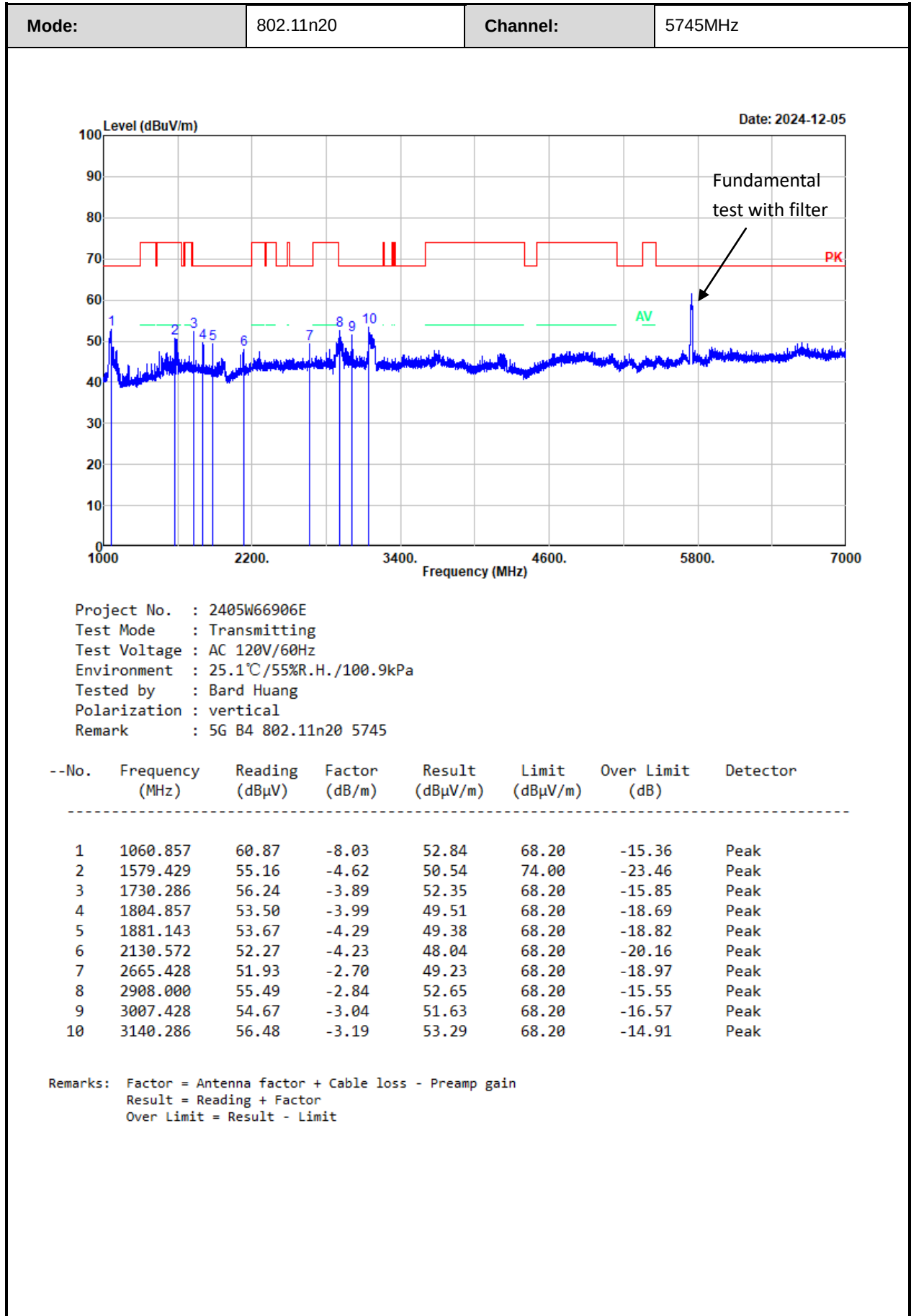


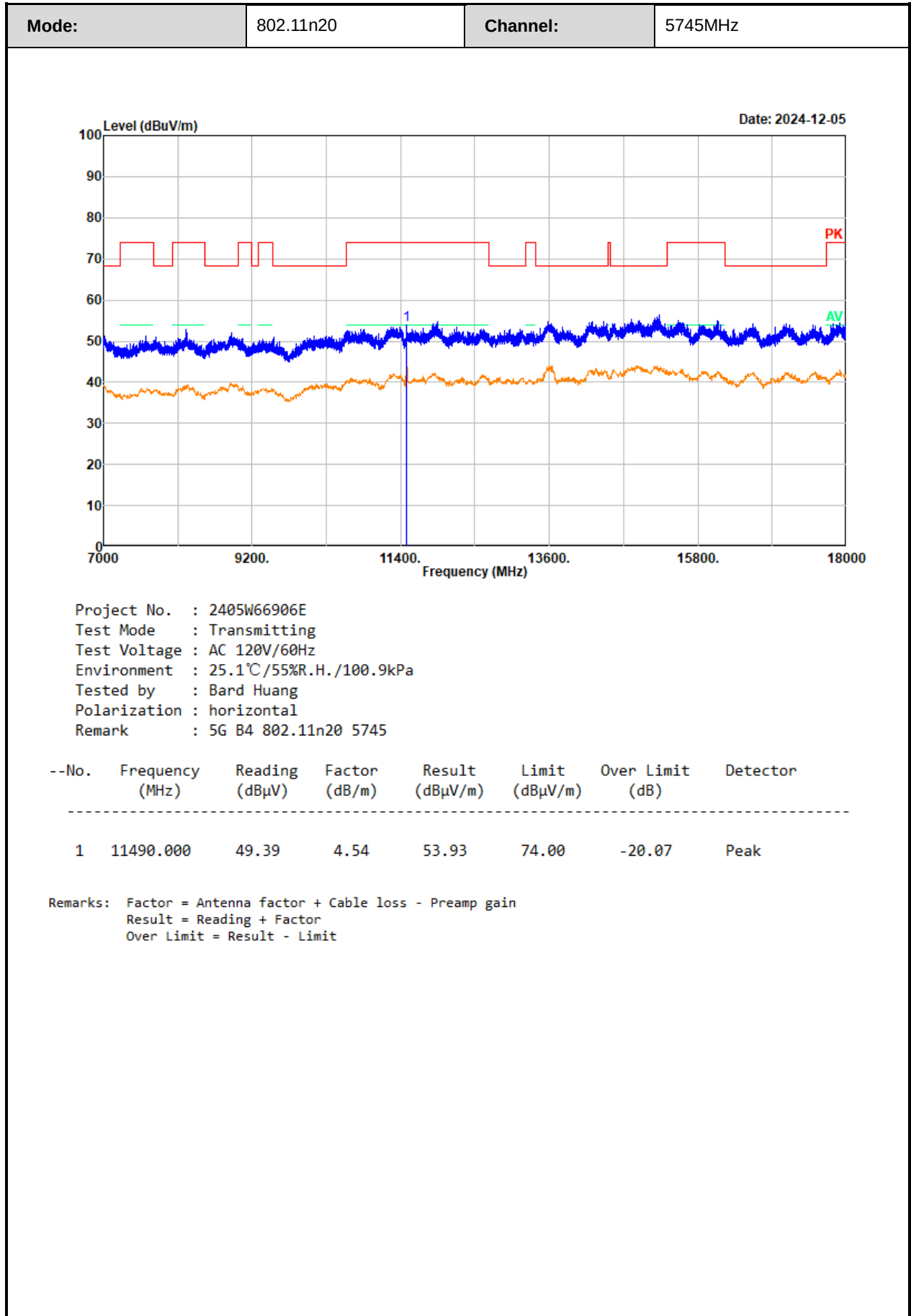


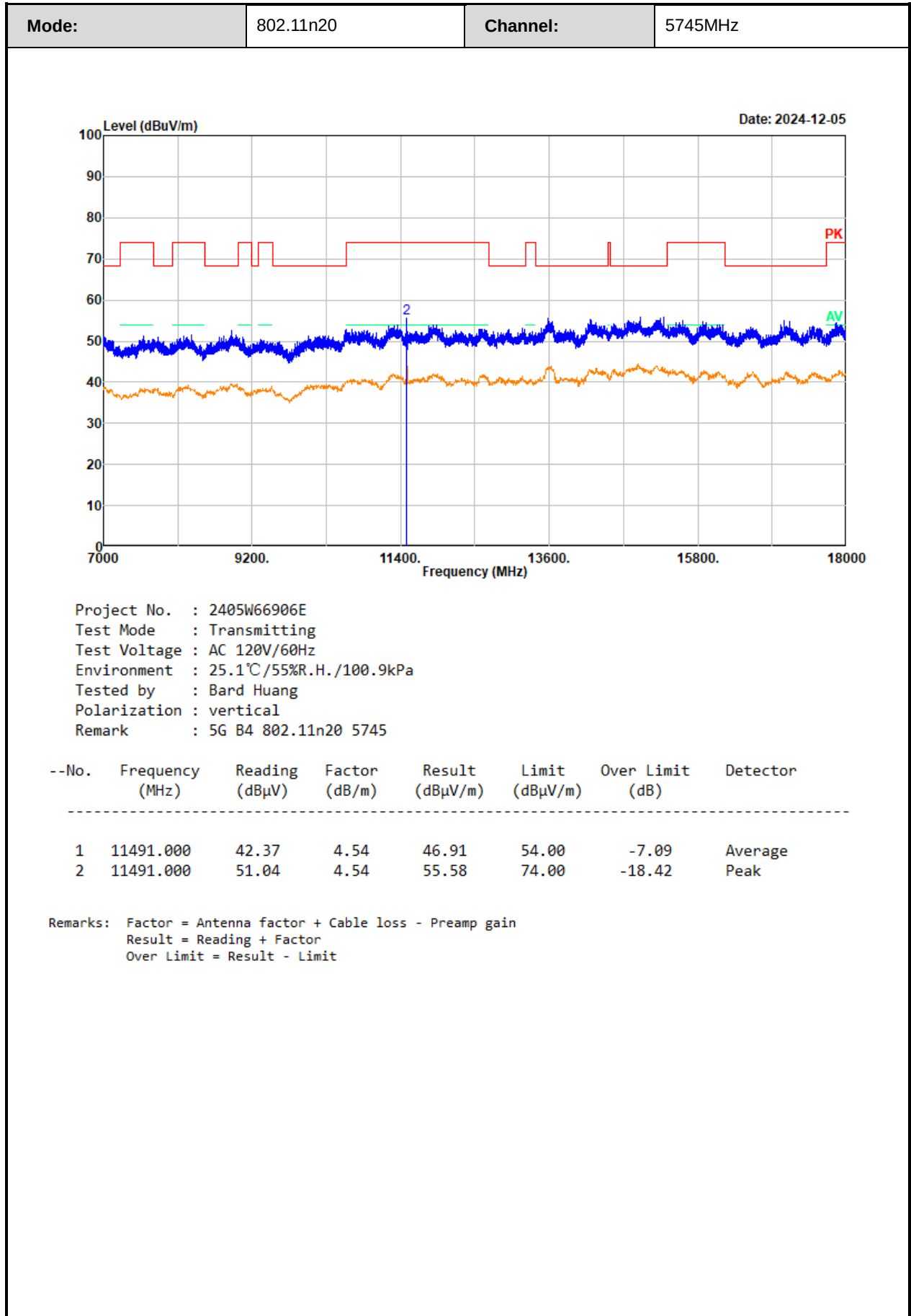


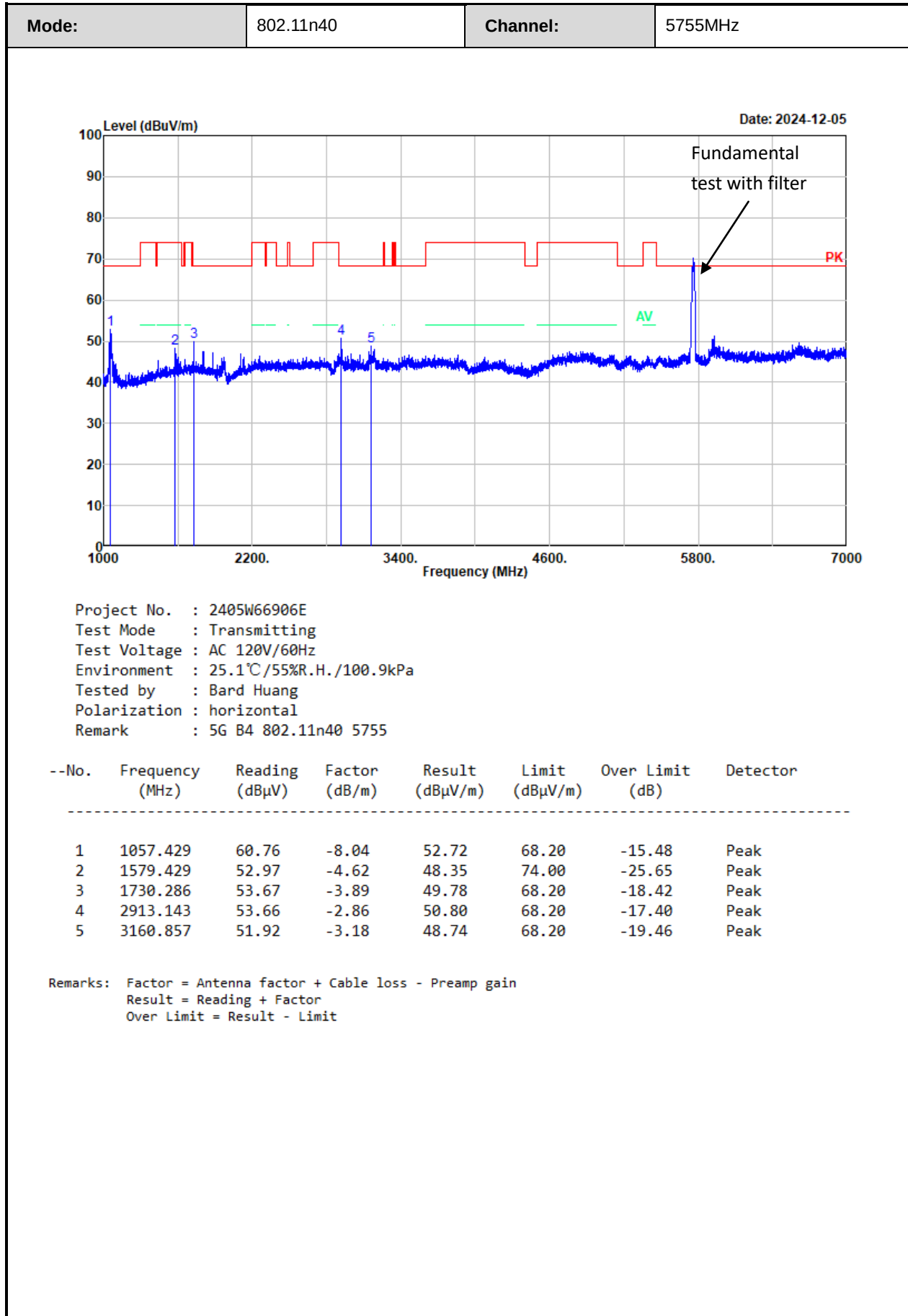


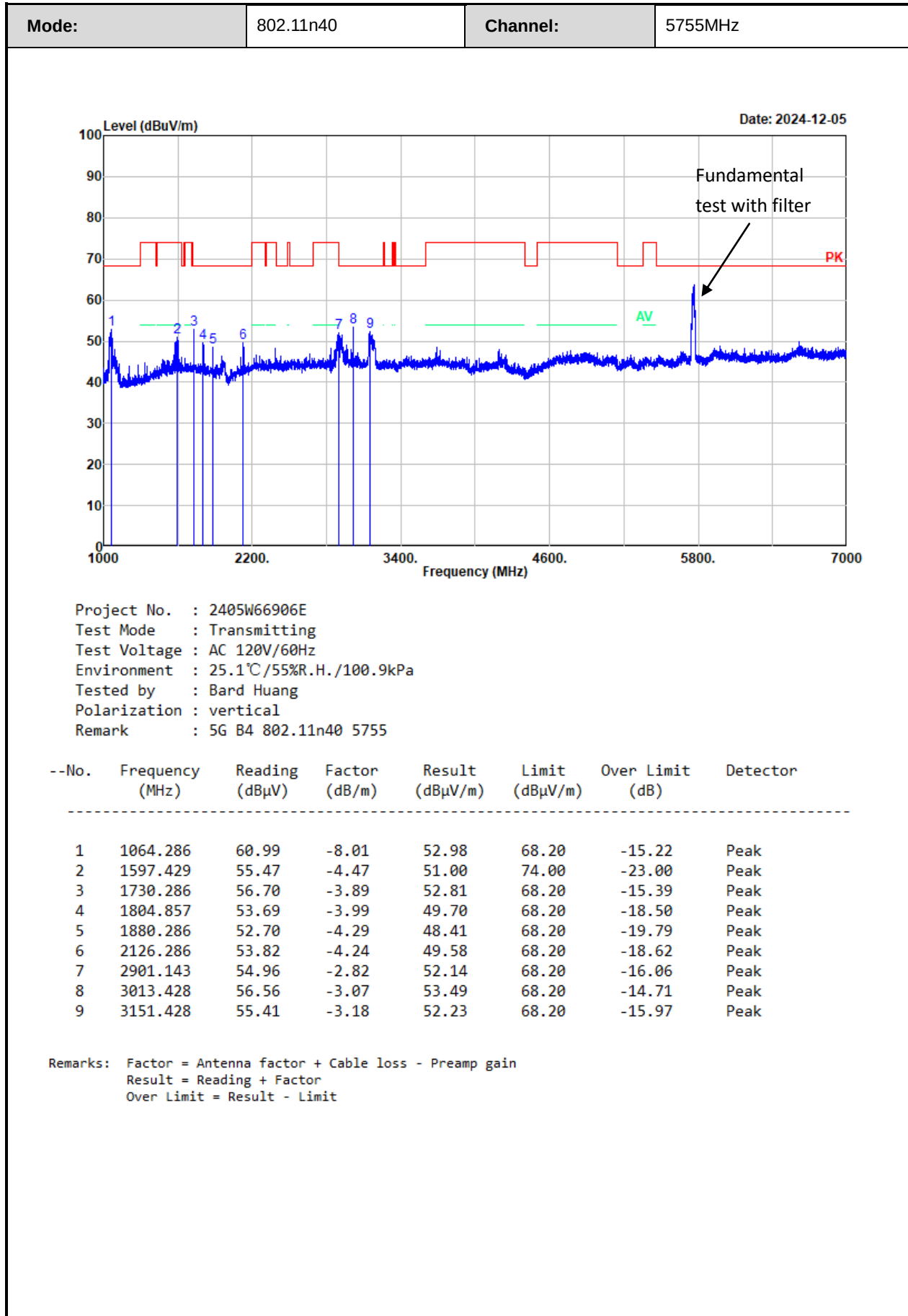


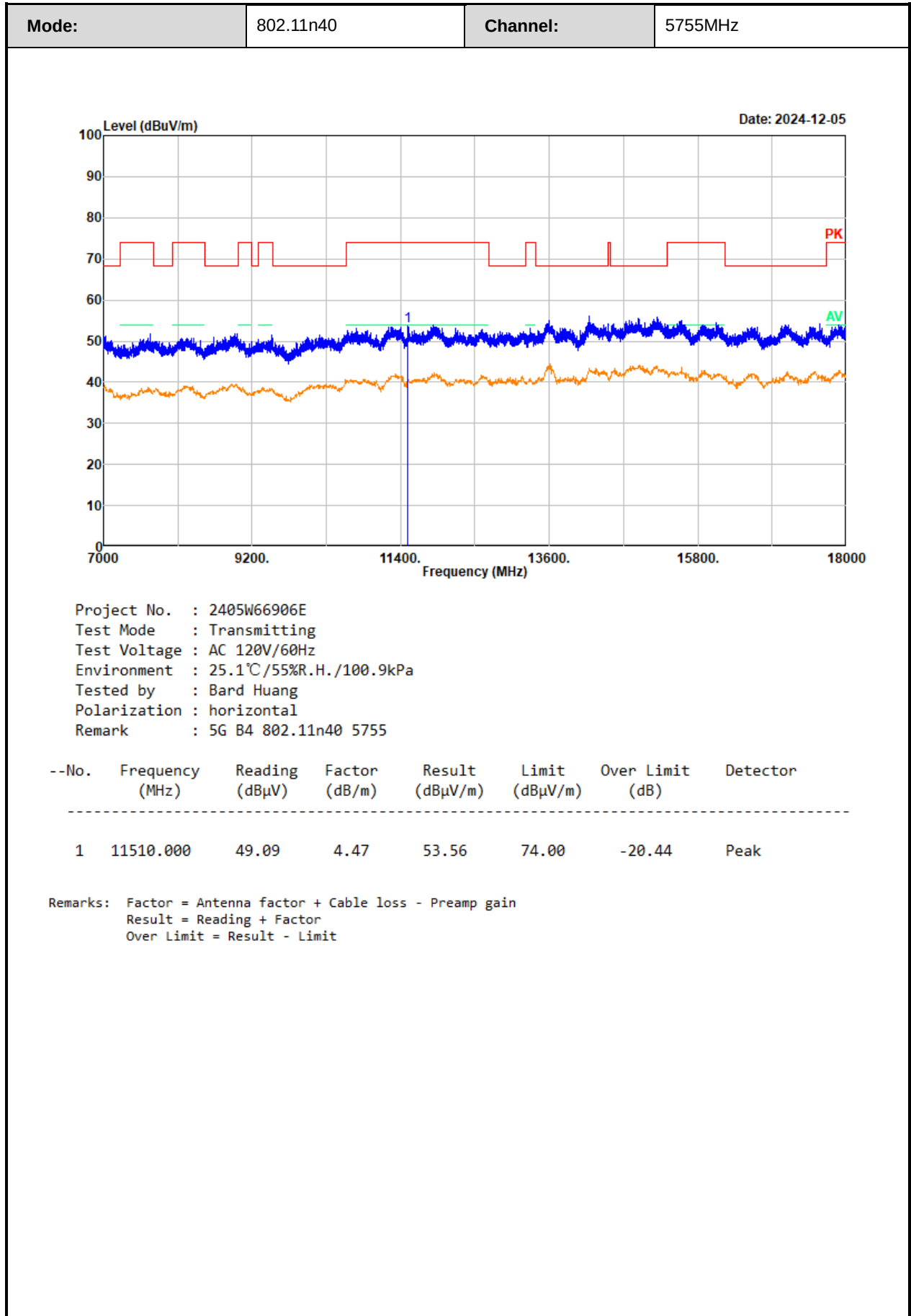


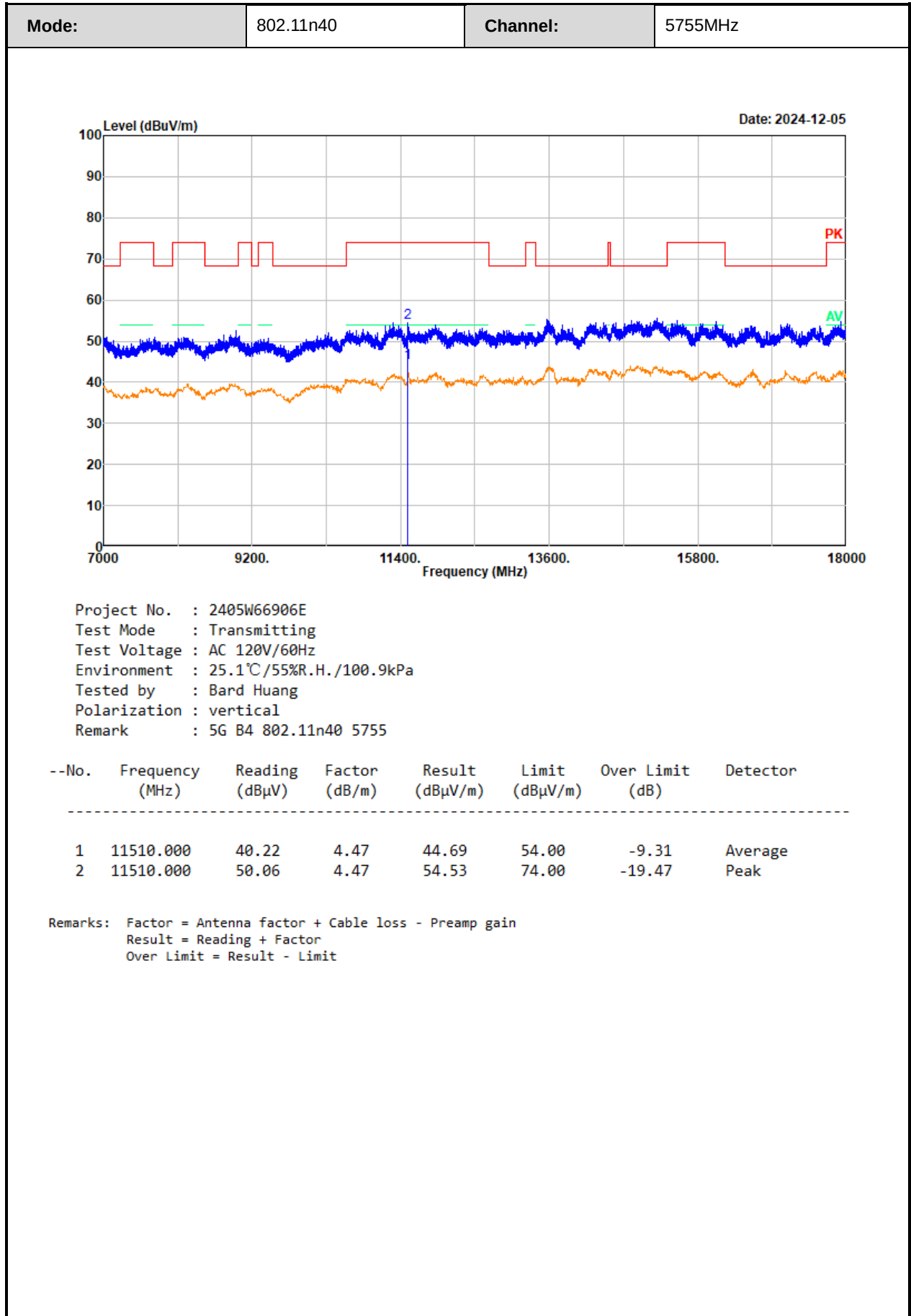


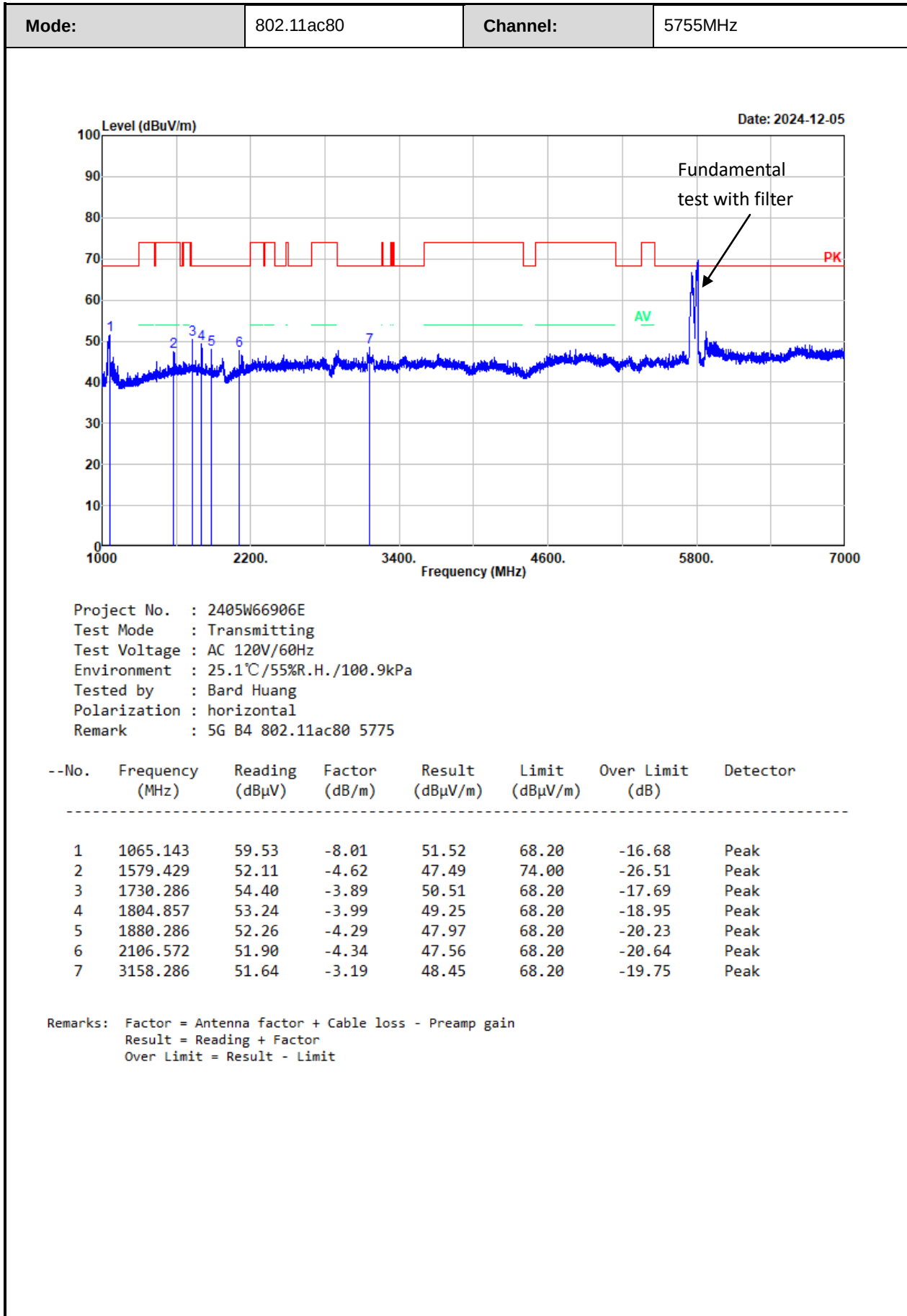


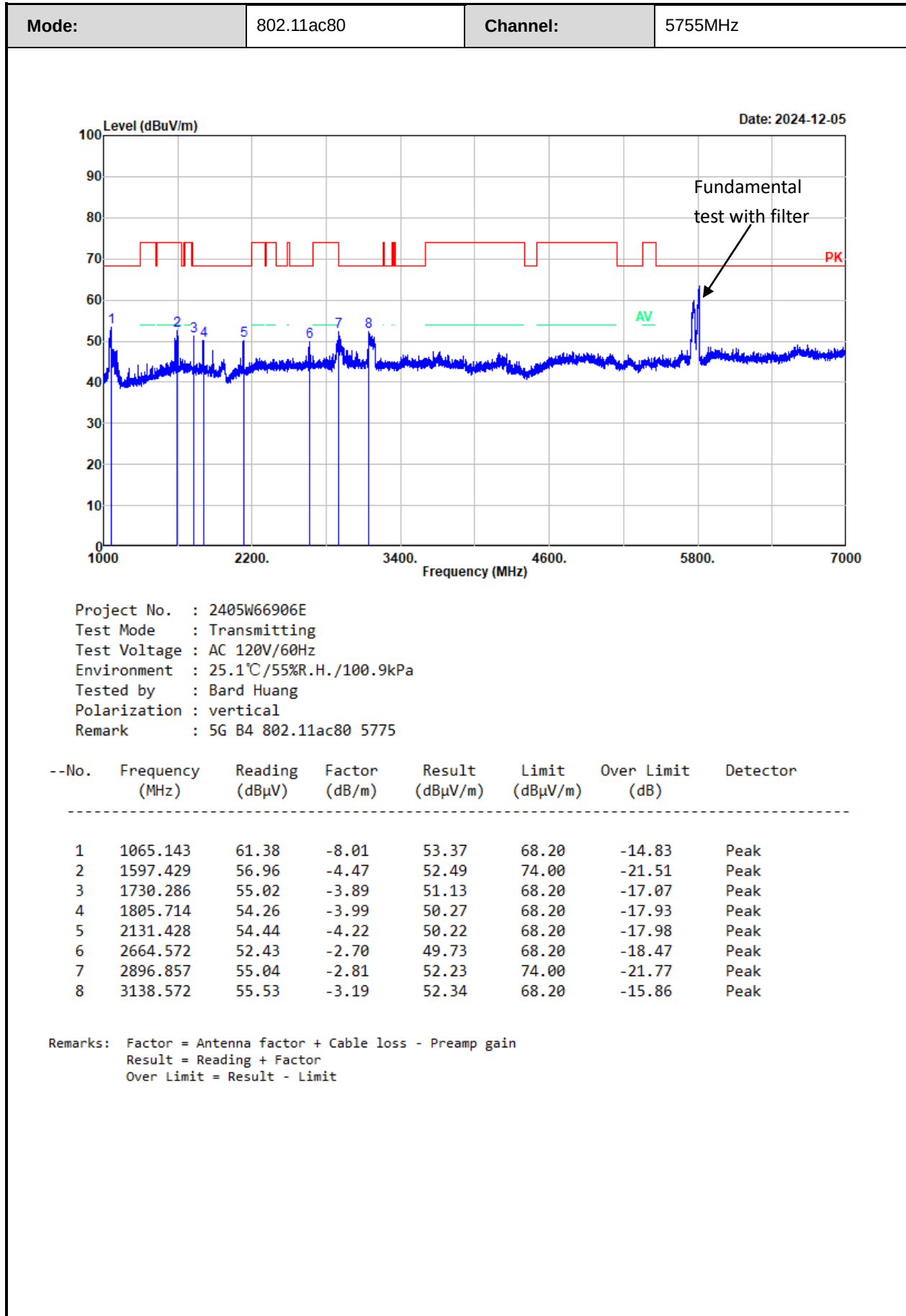


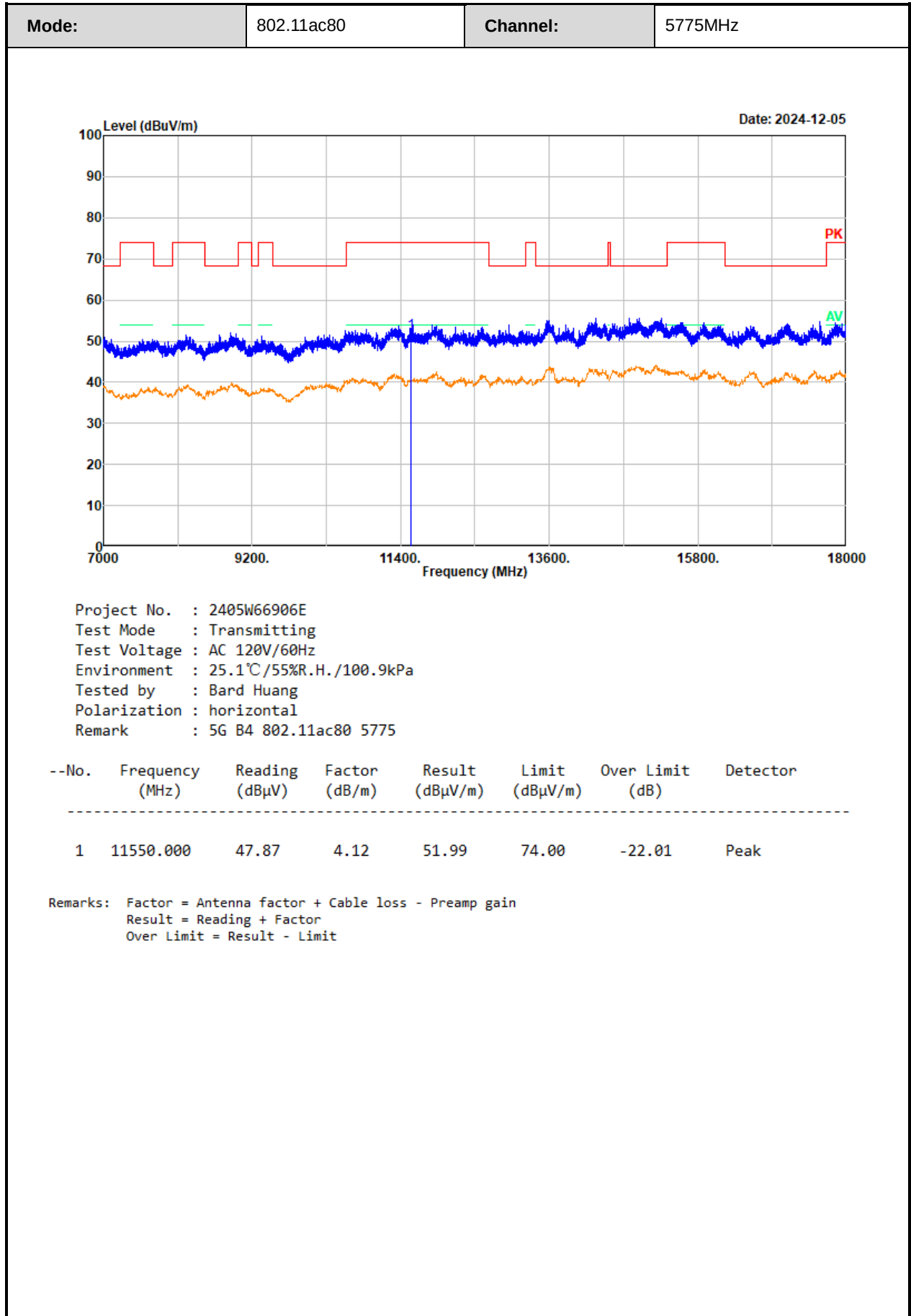


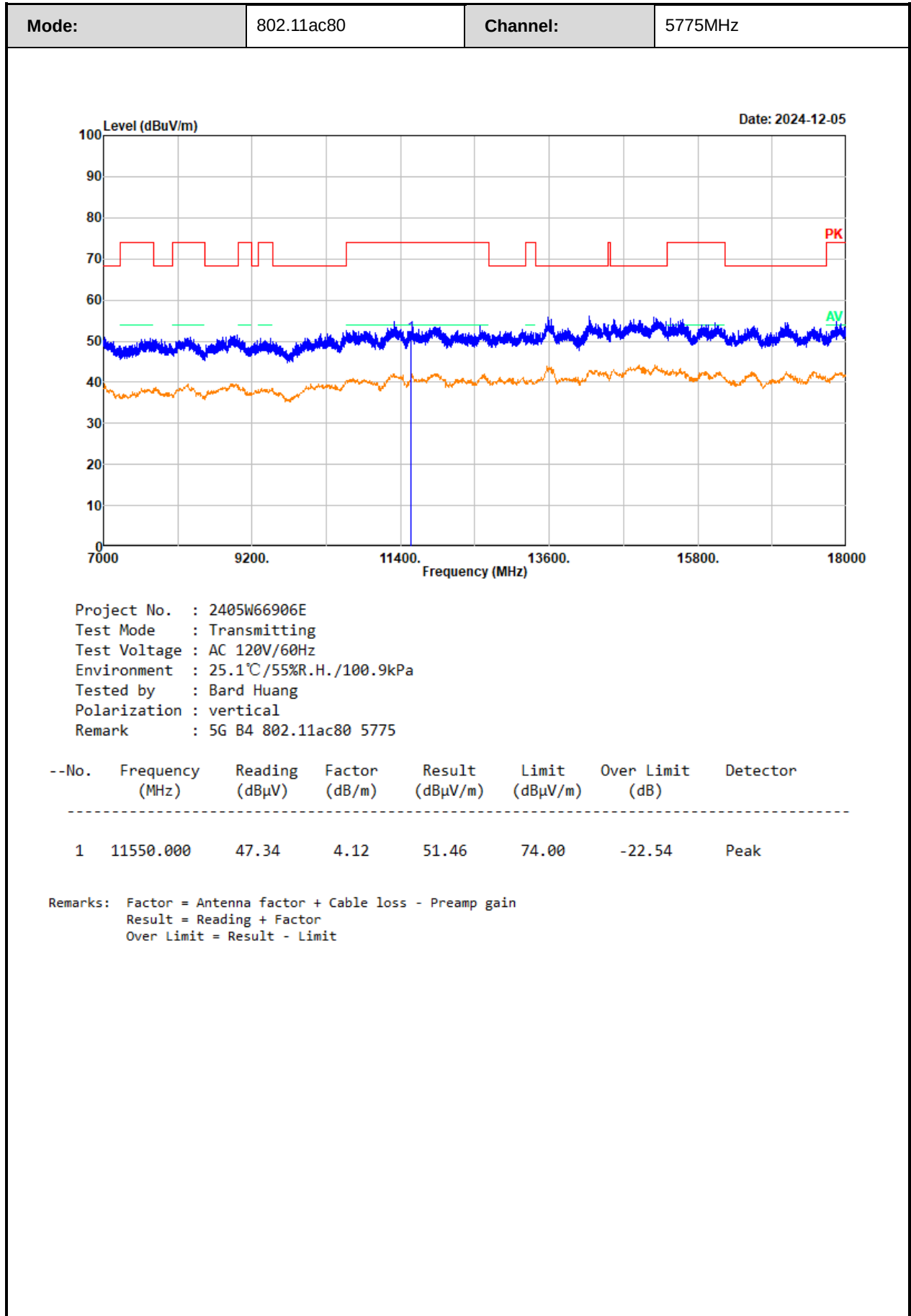


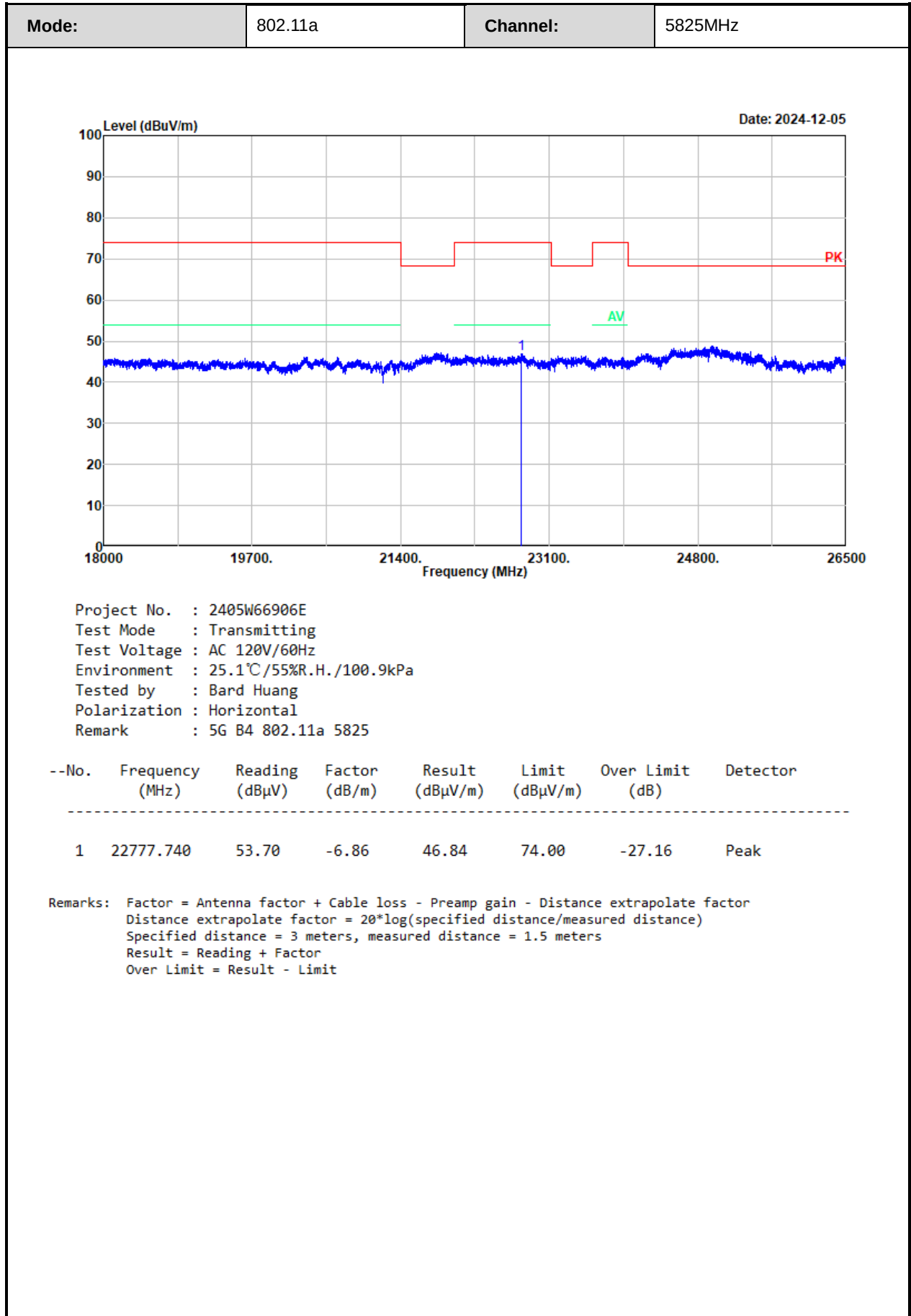


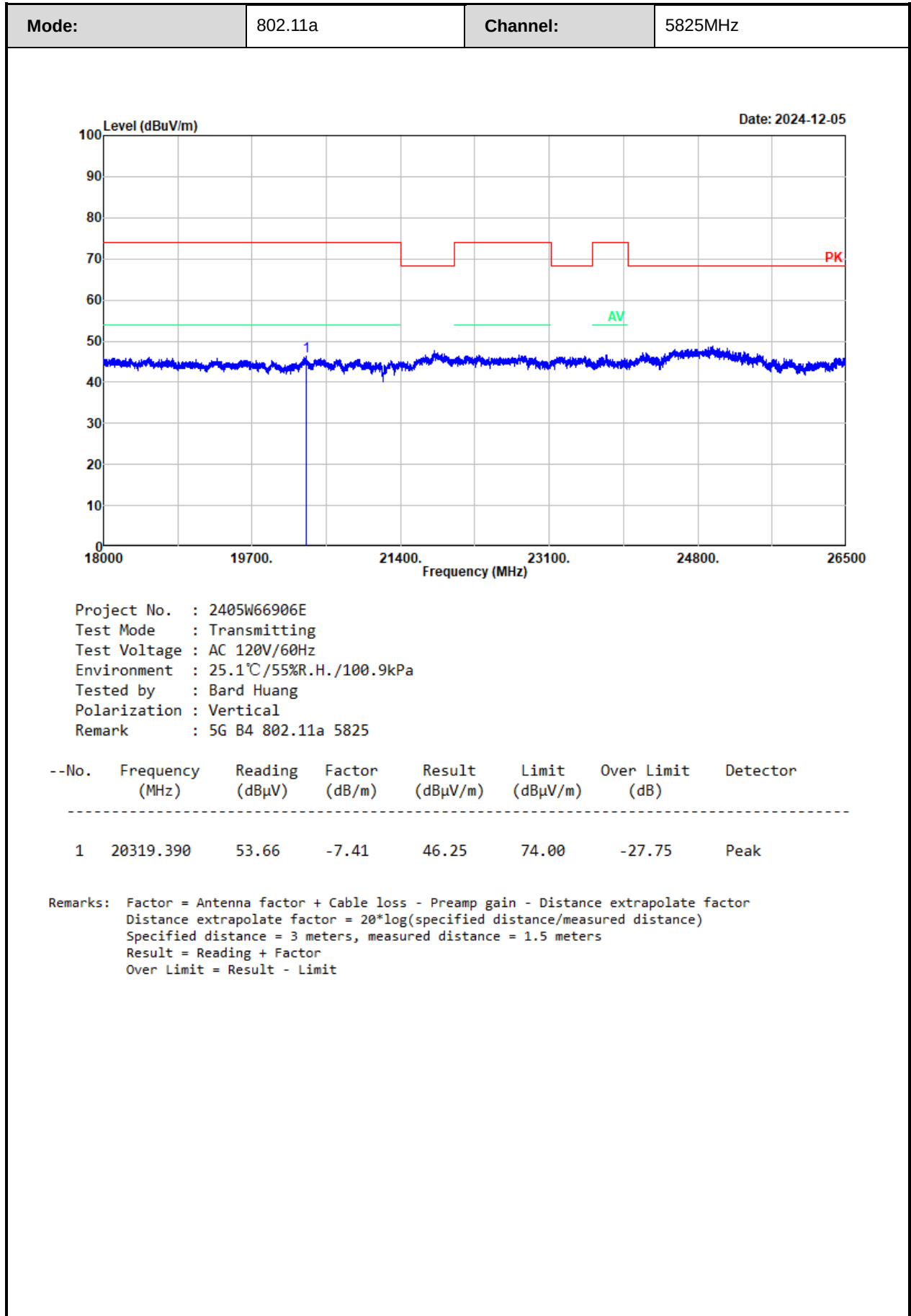


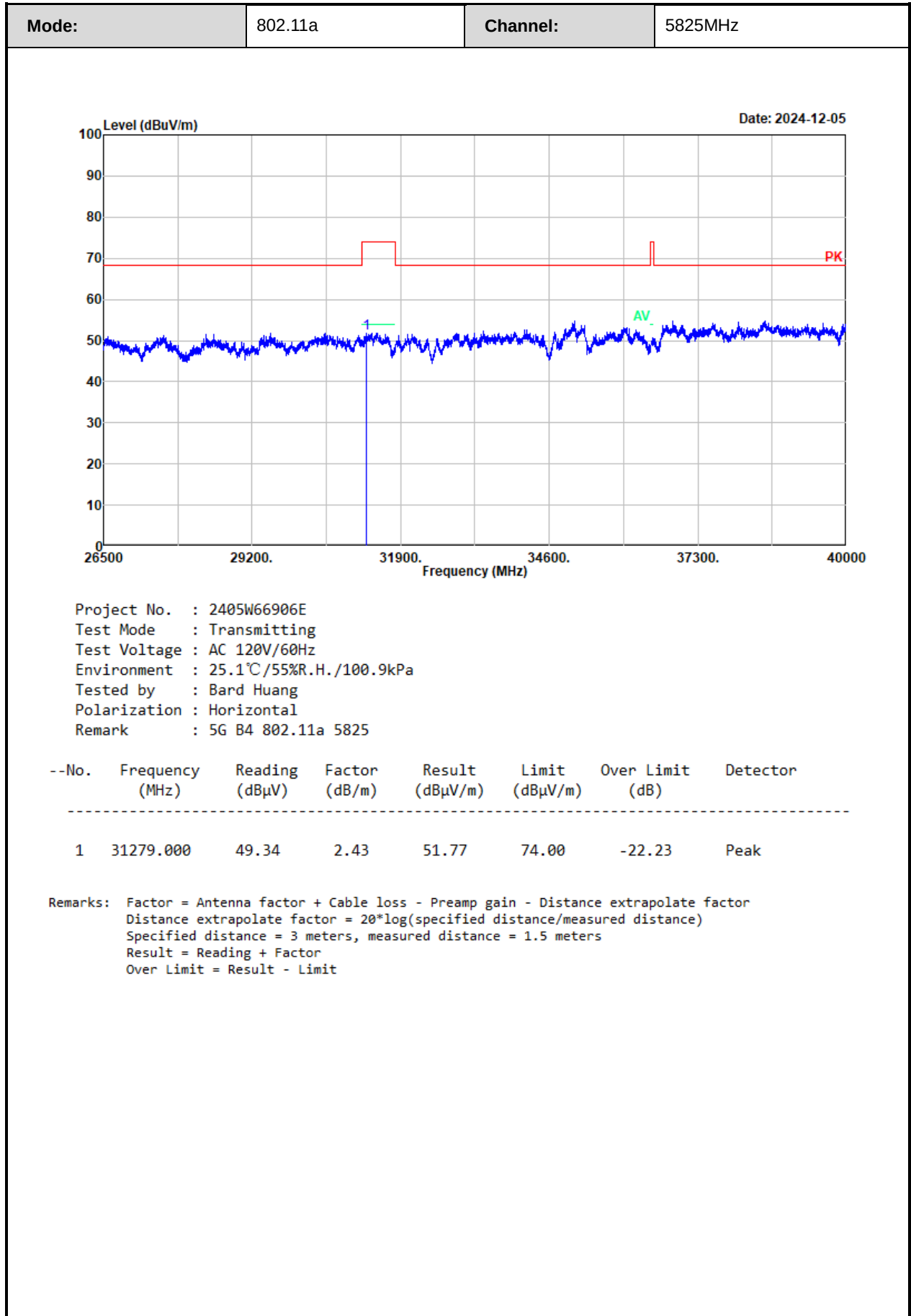


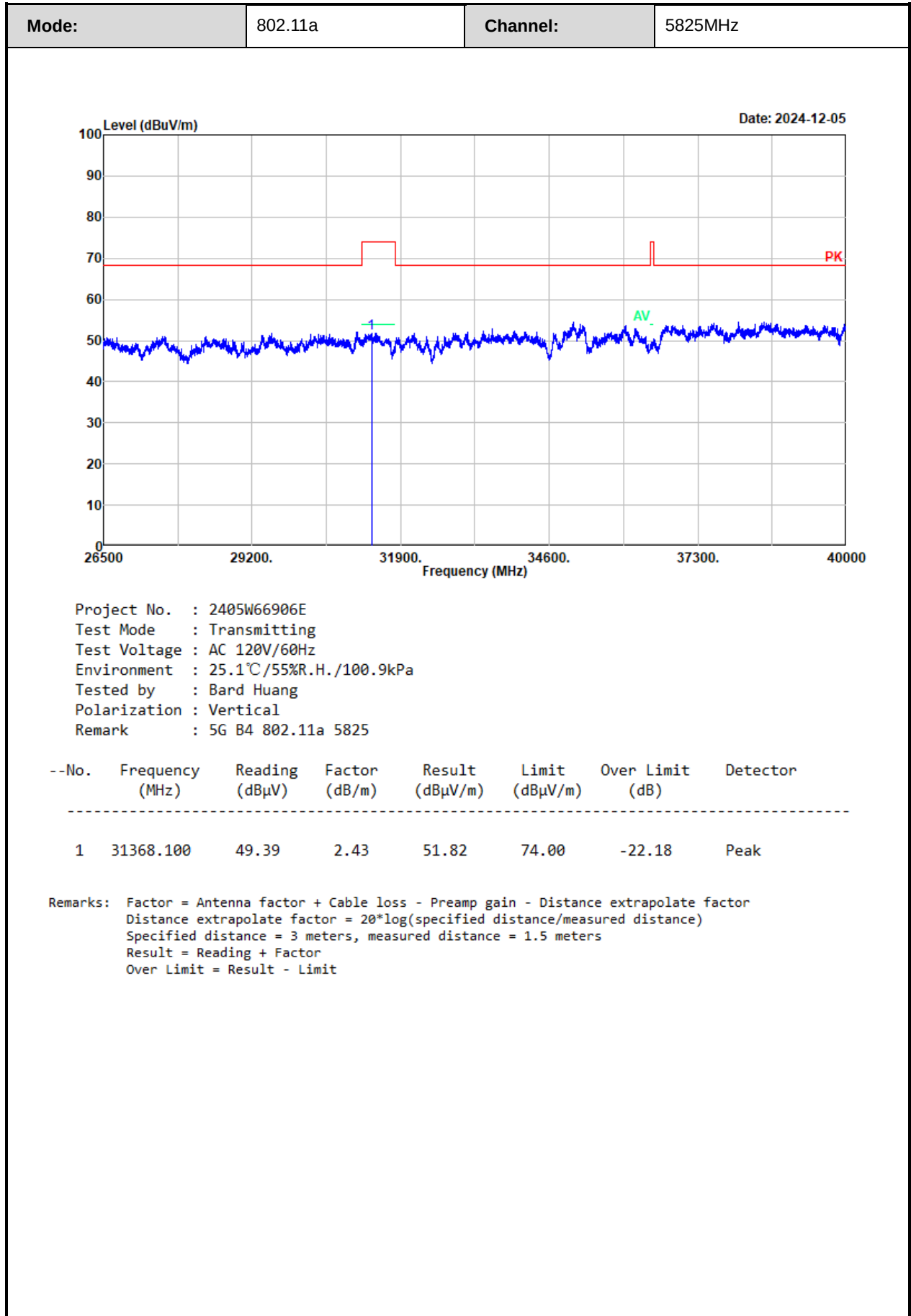






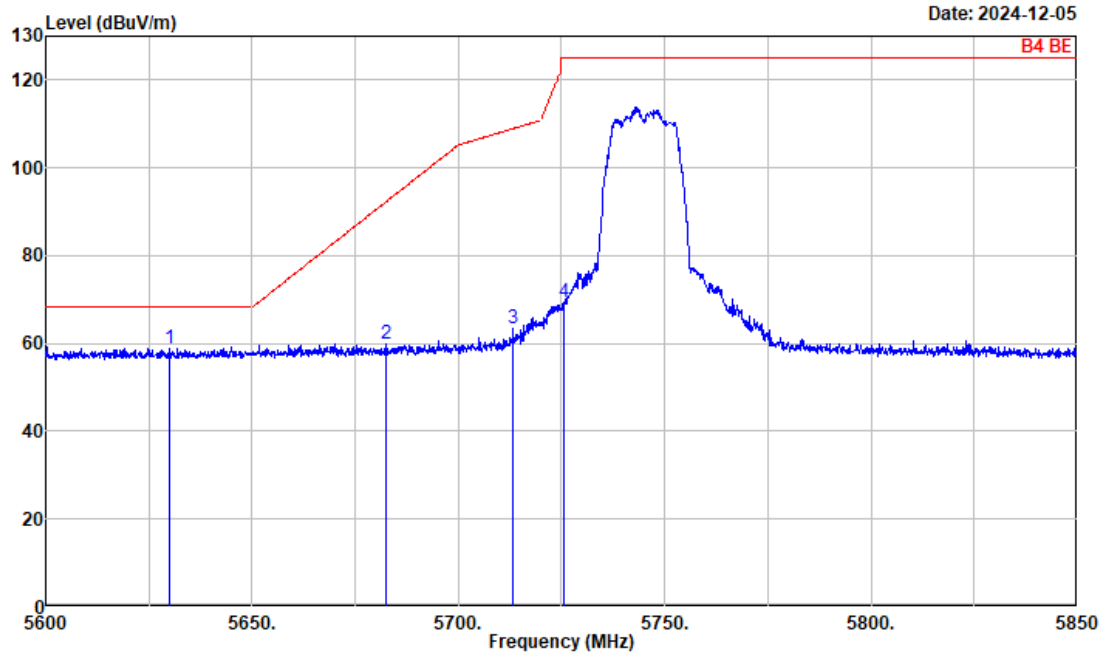






Radiated Band edge:

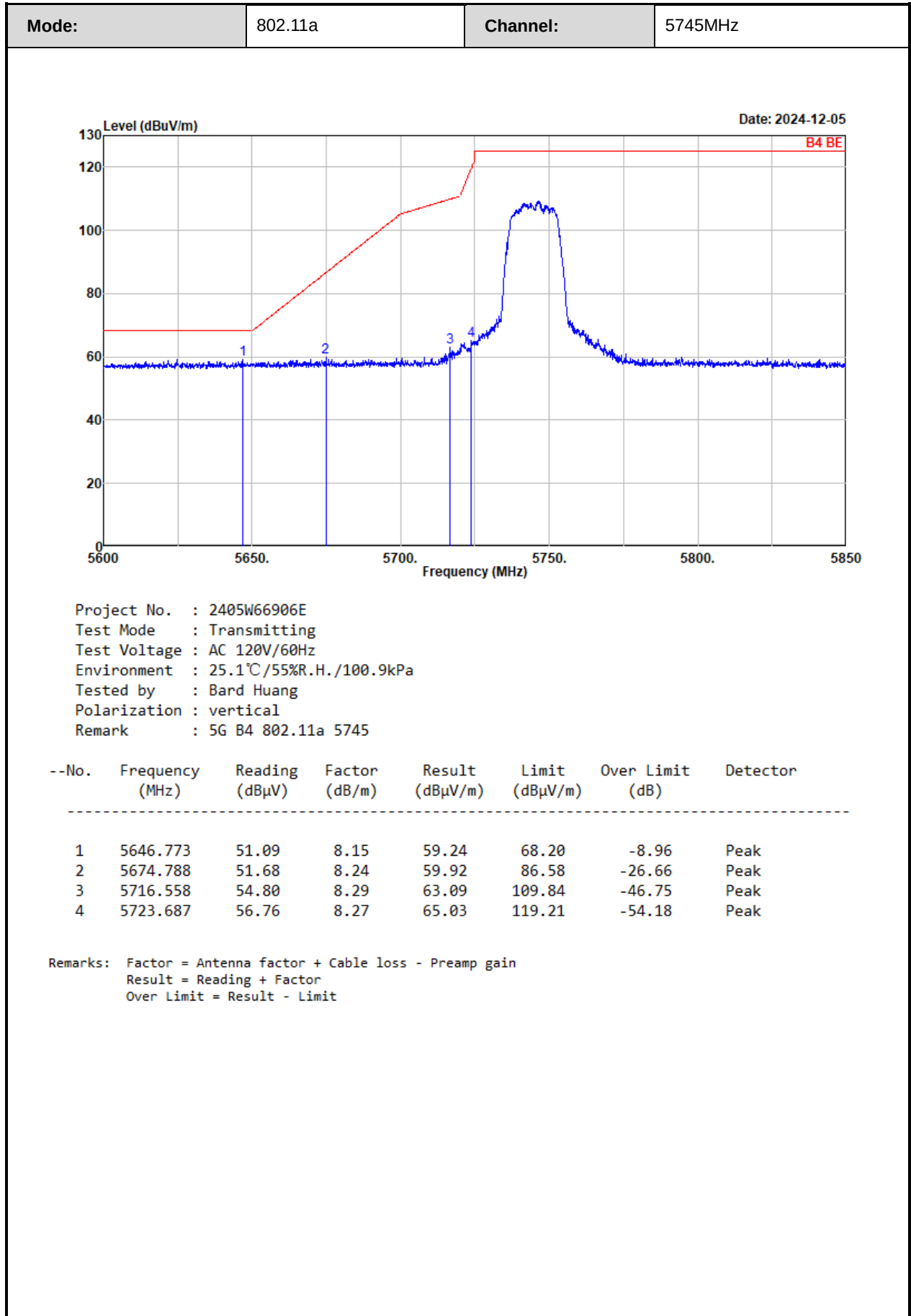
Mode:	802.11a	Channel:	5745MHz
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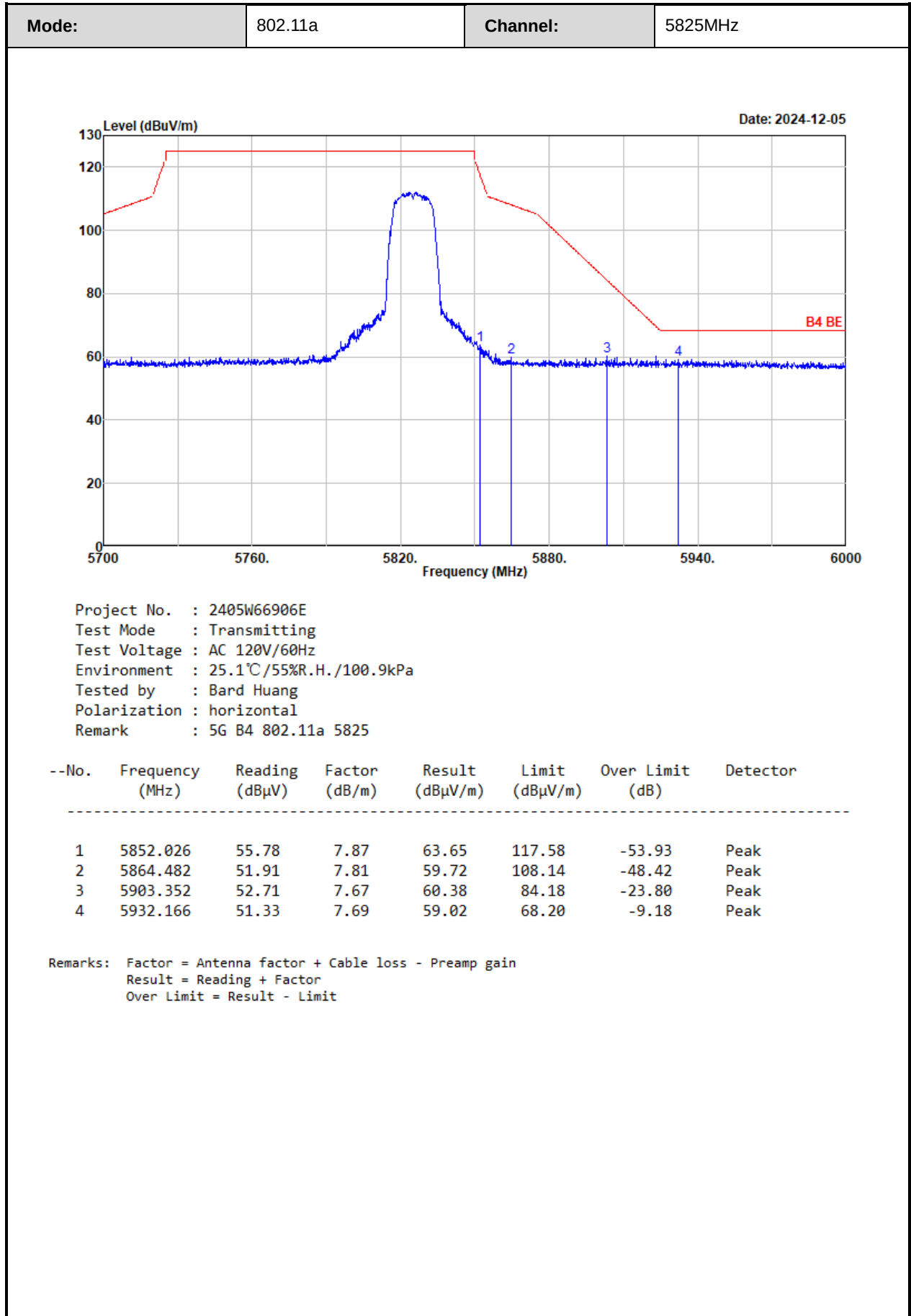


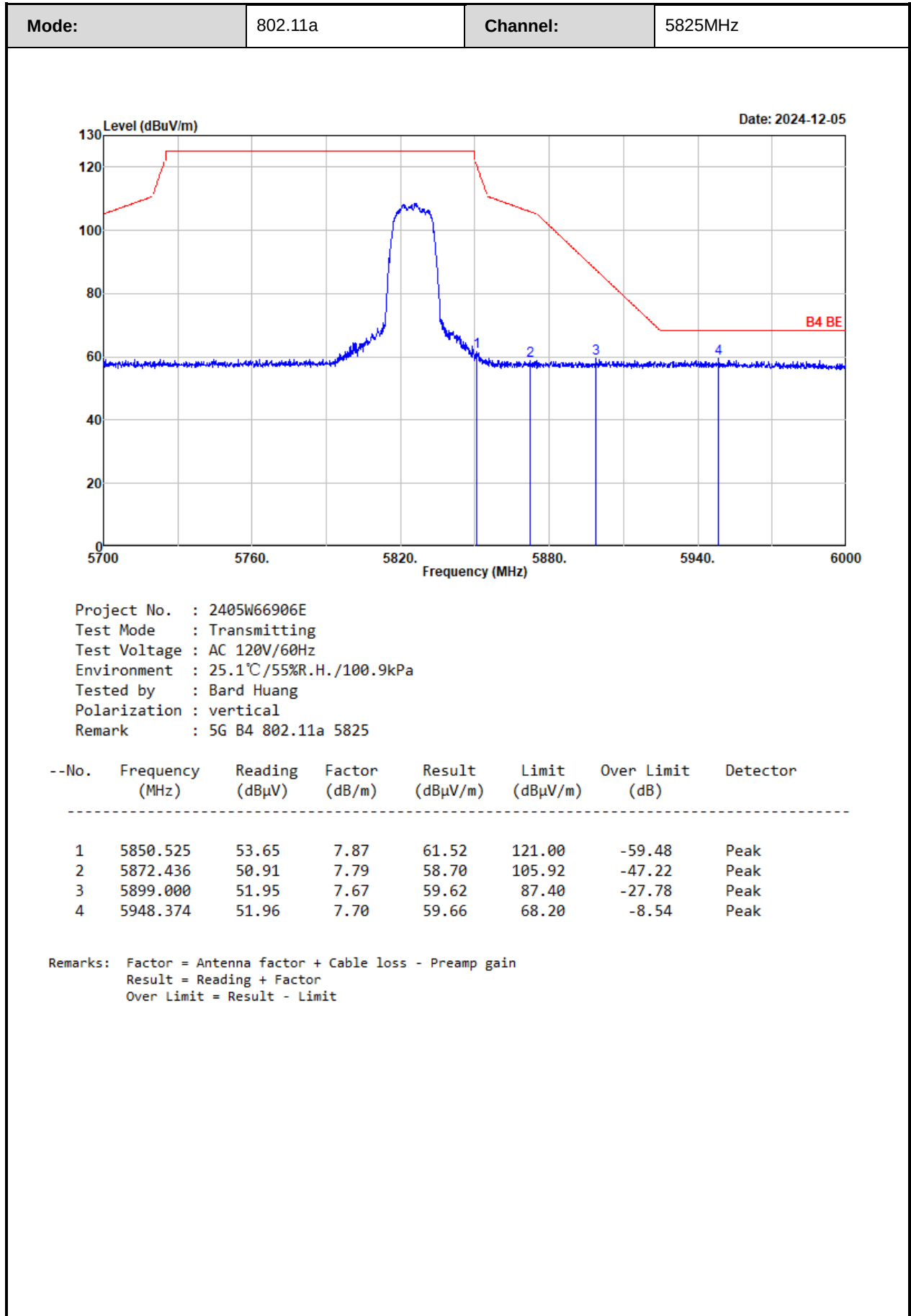
Project No. : 2405W66906E
 Test Mode : Transmitting
 Test Voltage : AC 120V/60Hz
 Environment : 25.1°C/55%R.H./100.9kPa
 Tested by : Bard Huang
 Polarization : horizontal
 Remark : 5G B4 802.11a 5745

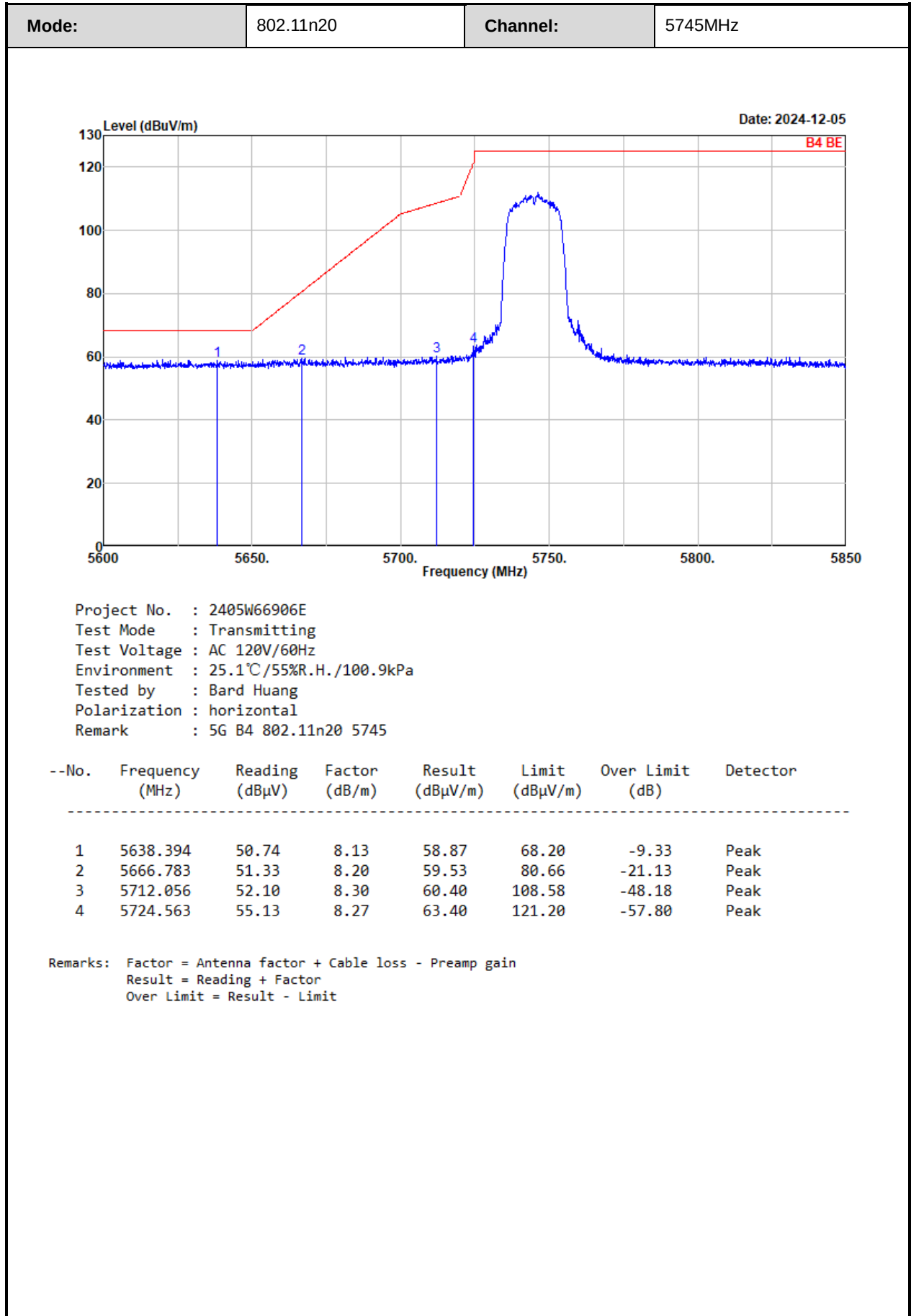
--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	5629.890	50.64	8.12	58.76	68.20	-9.44	Peak
2	5682.291	51.69	8.26	59.95	92.13	-32.18	Peak
3	5713.182	55.15	8.30	63.45	108.89	-45.44	Peak
4	5725.688	61.05	8.27	69.32	125.20	-55.88	Peak

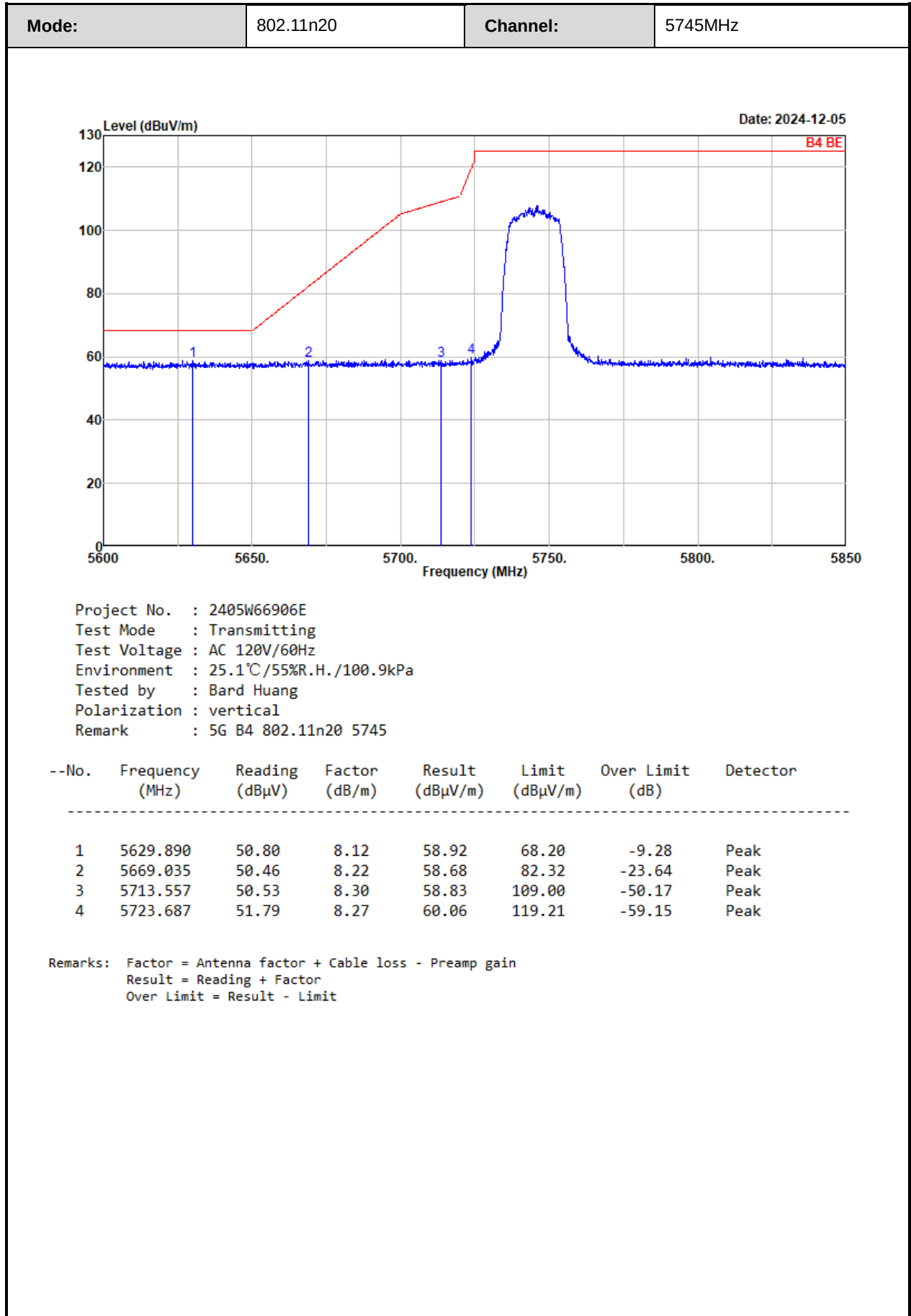
Remarks: Factor = Antenna factor + Cable loss - Preamp gain
 Result = Reading + Factor
 Over Limit = Result - Limit

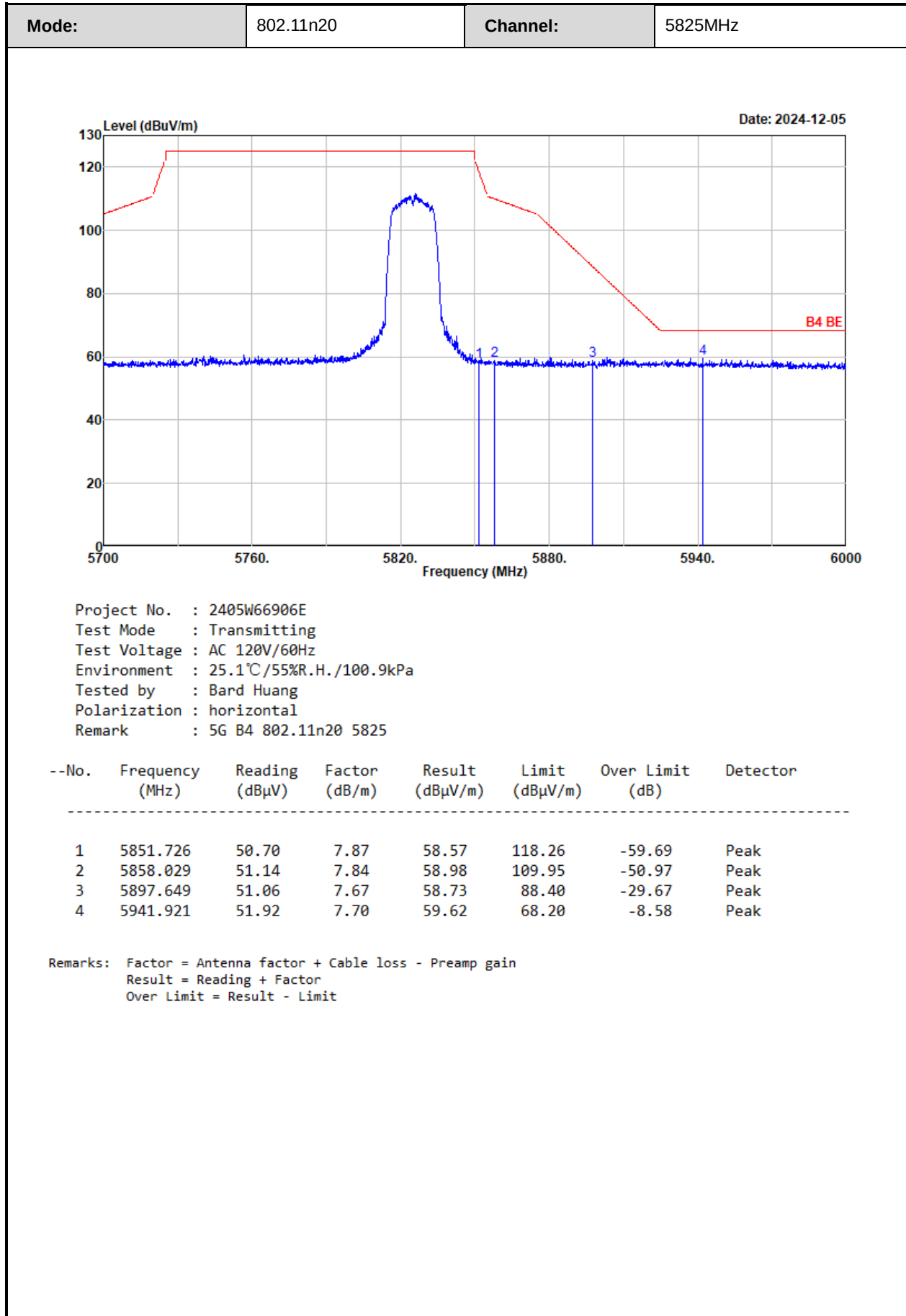


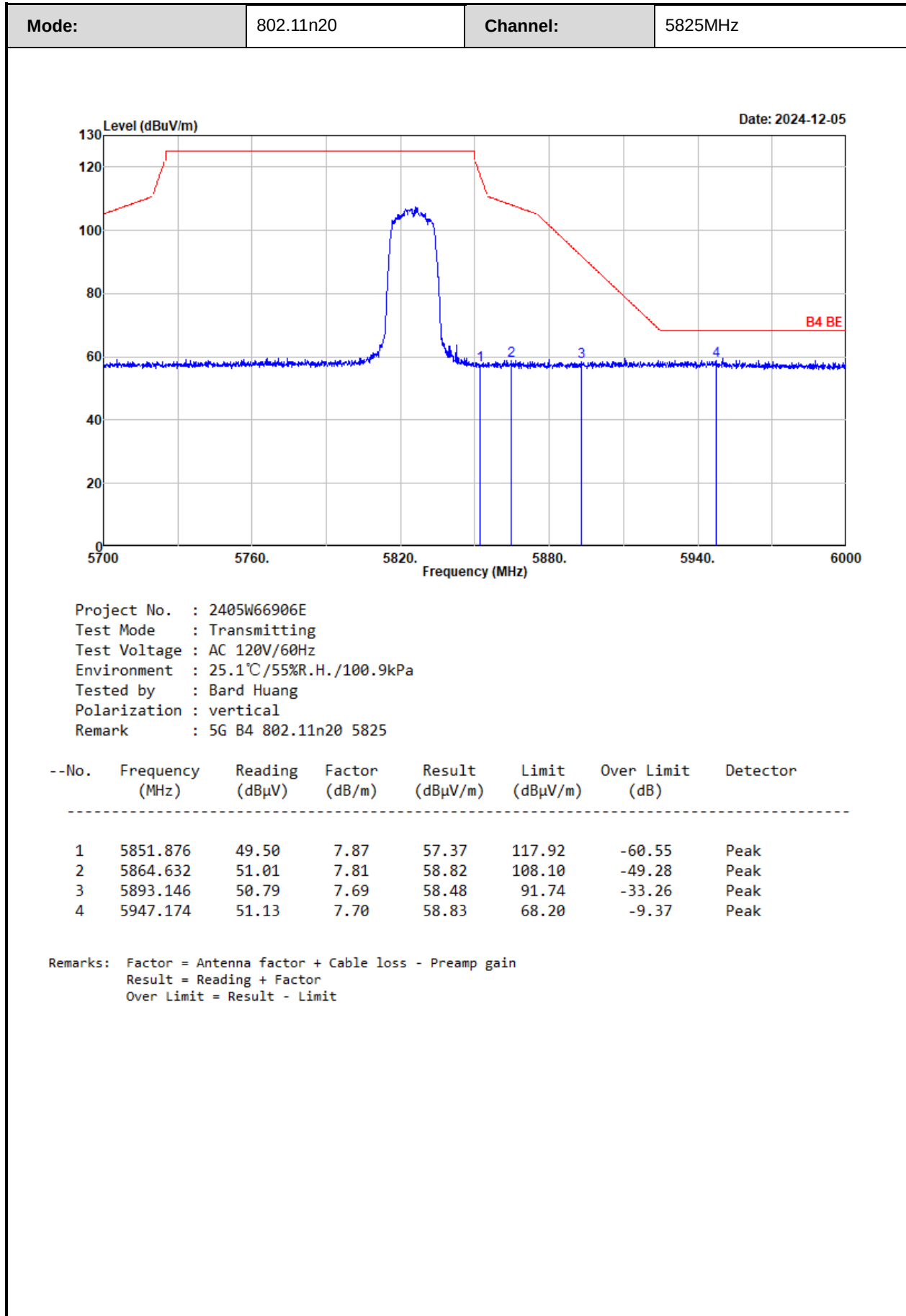


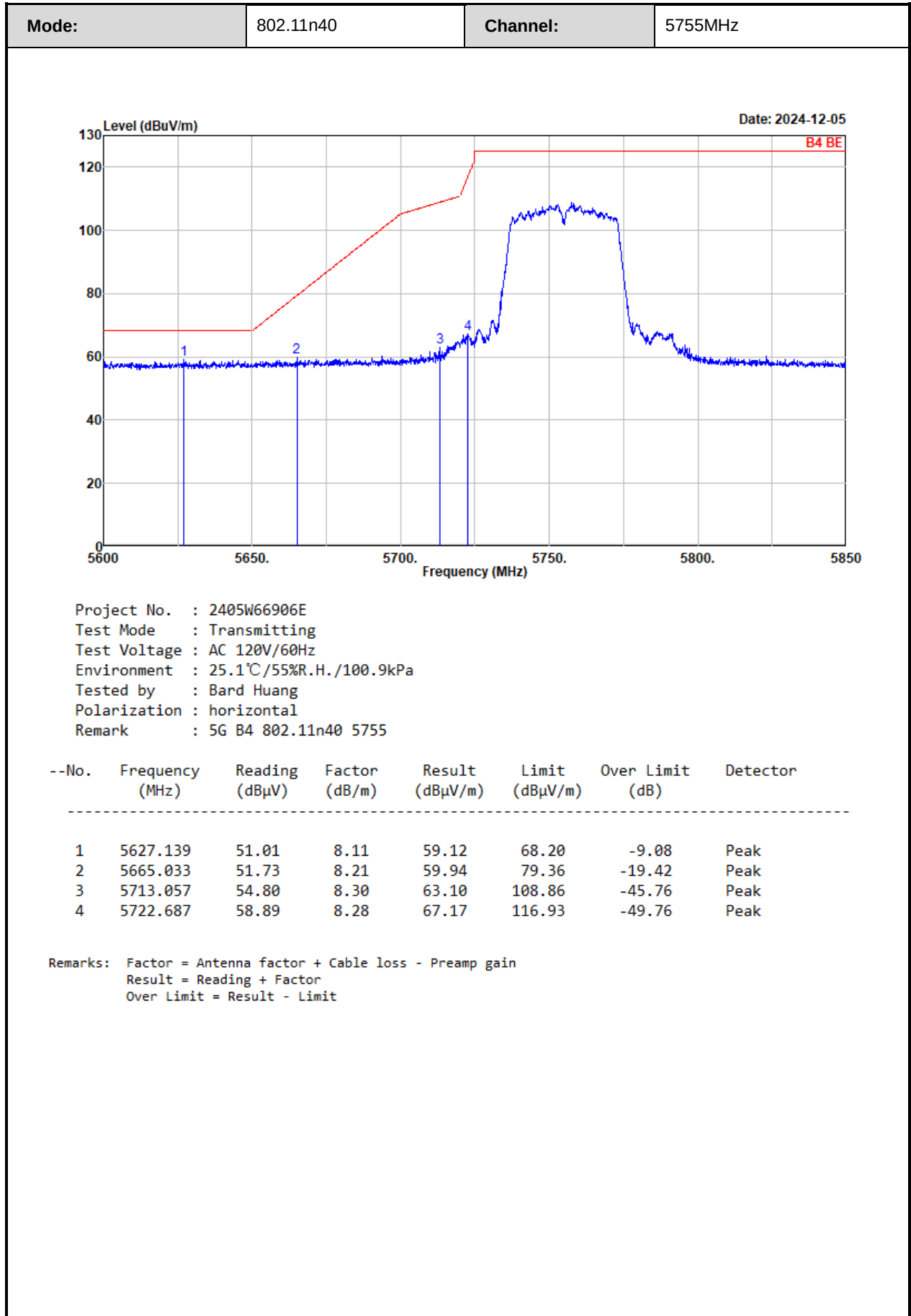


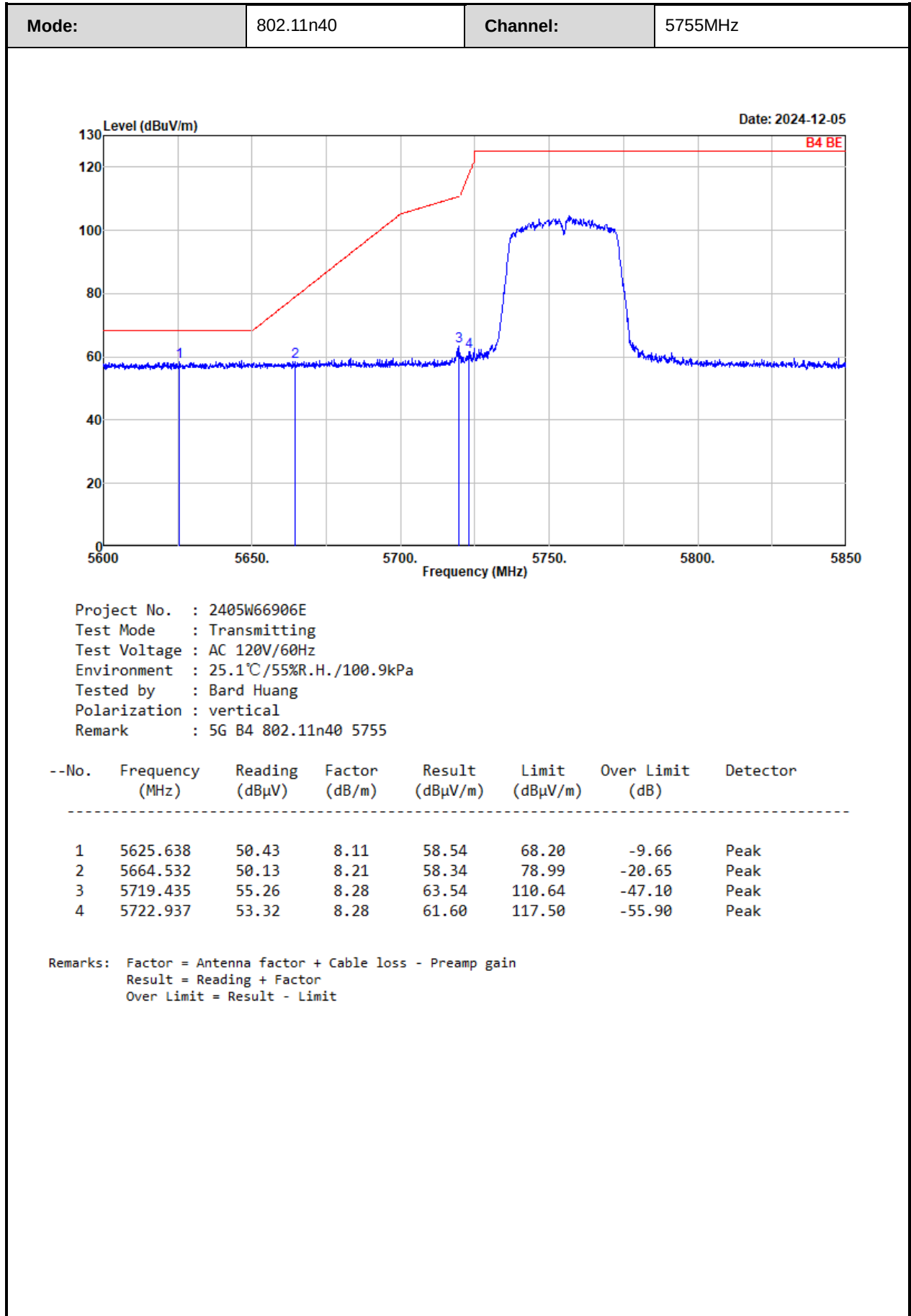


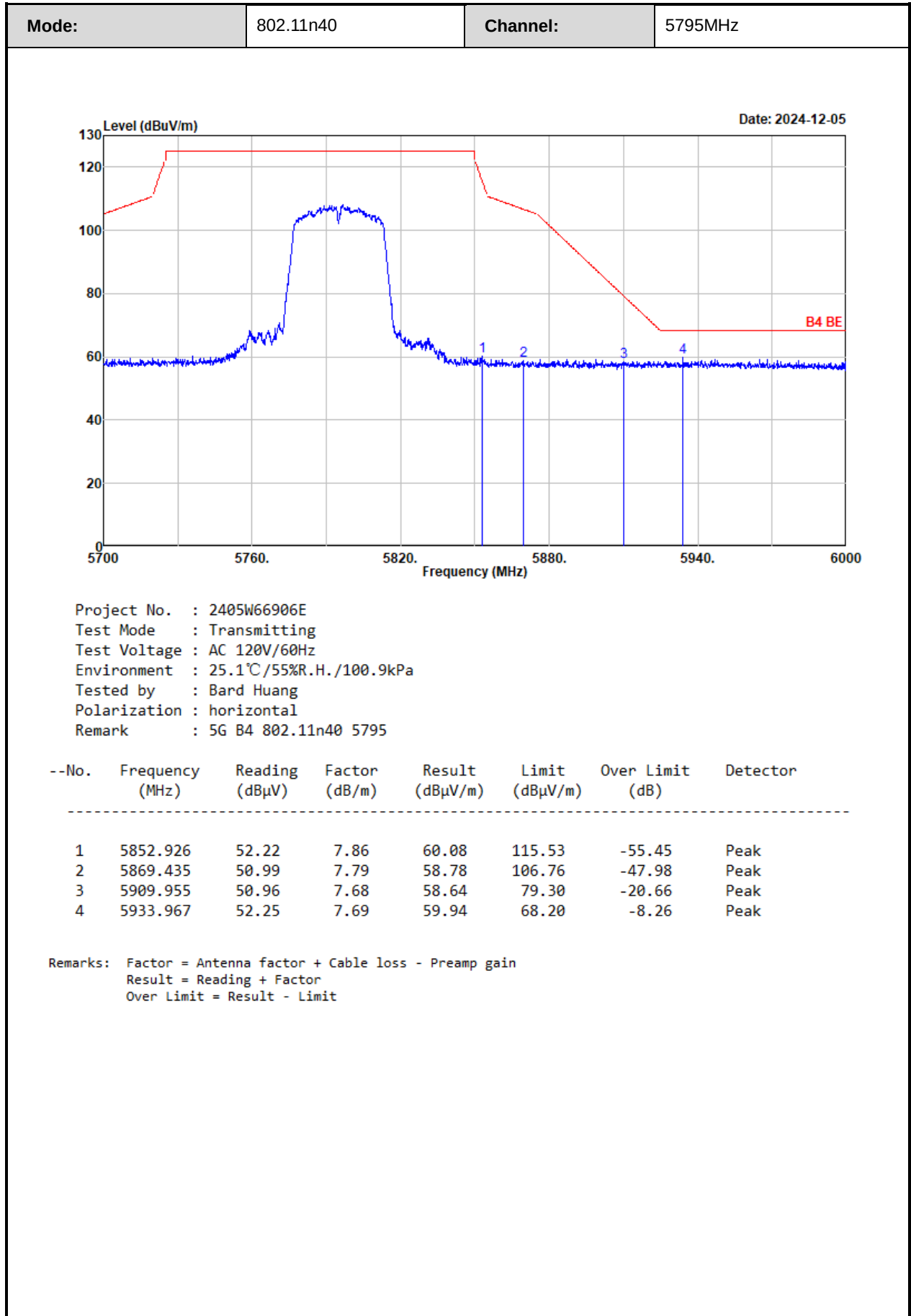


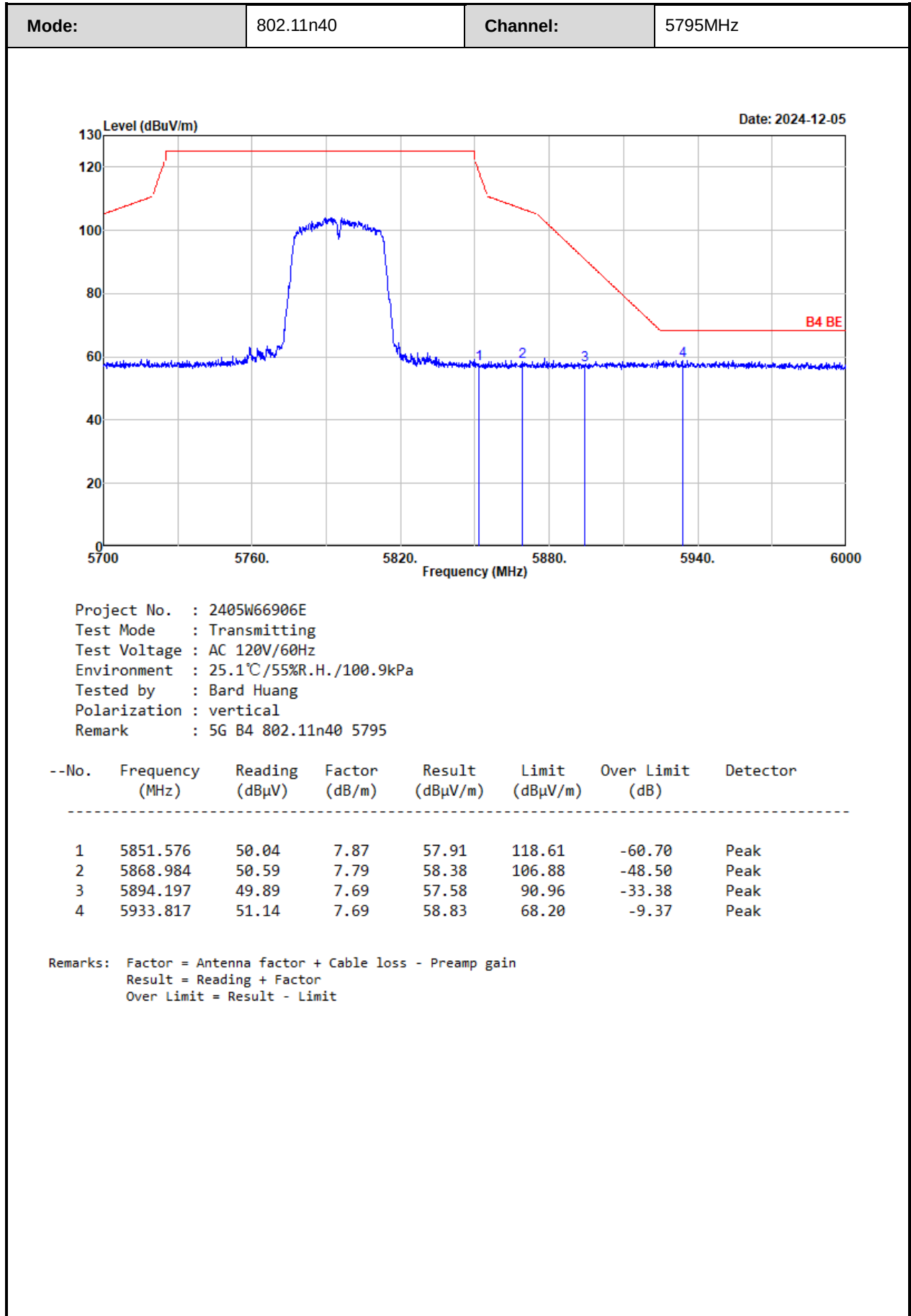


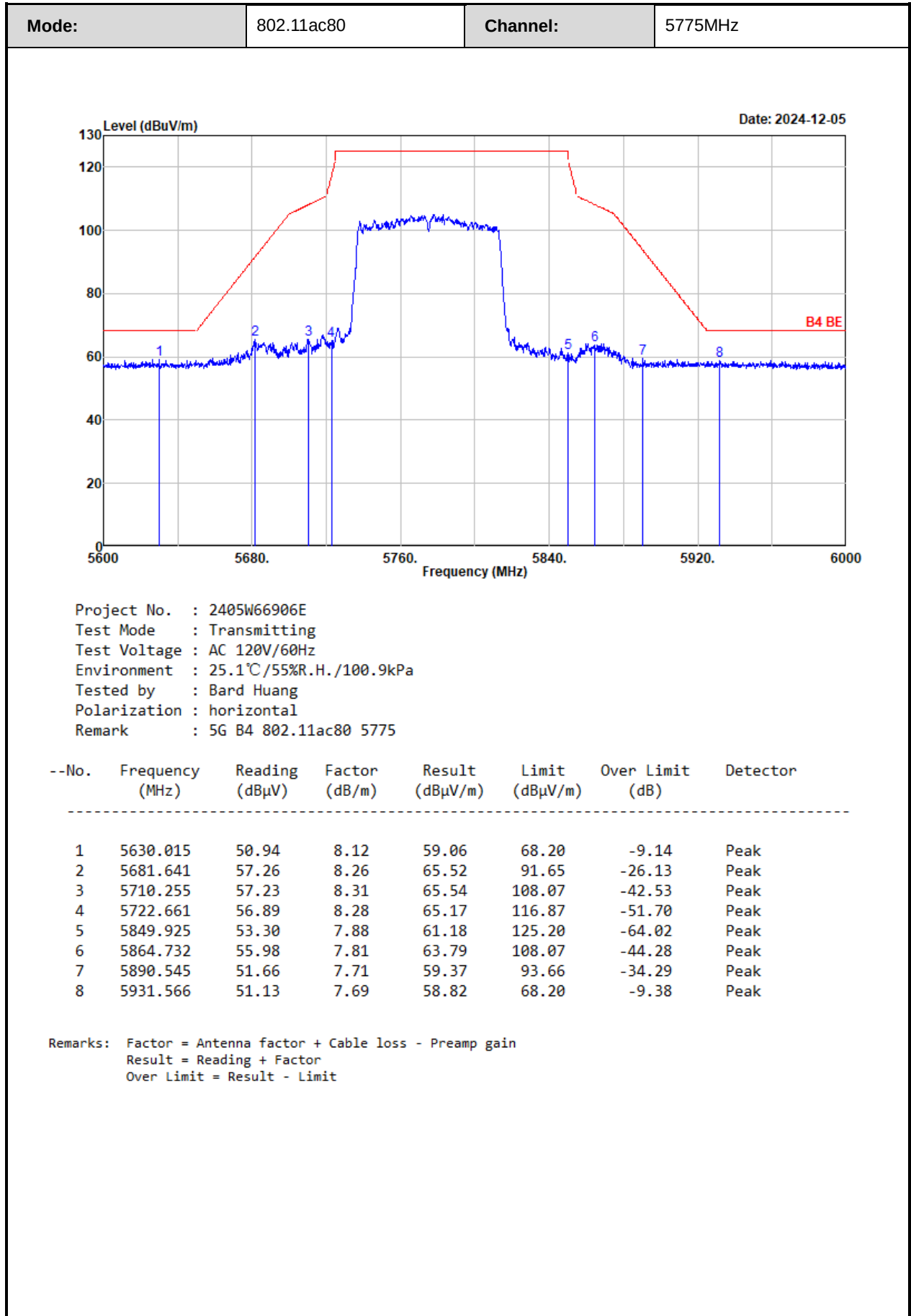


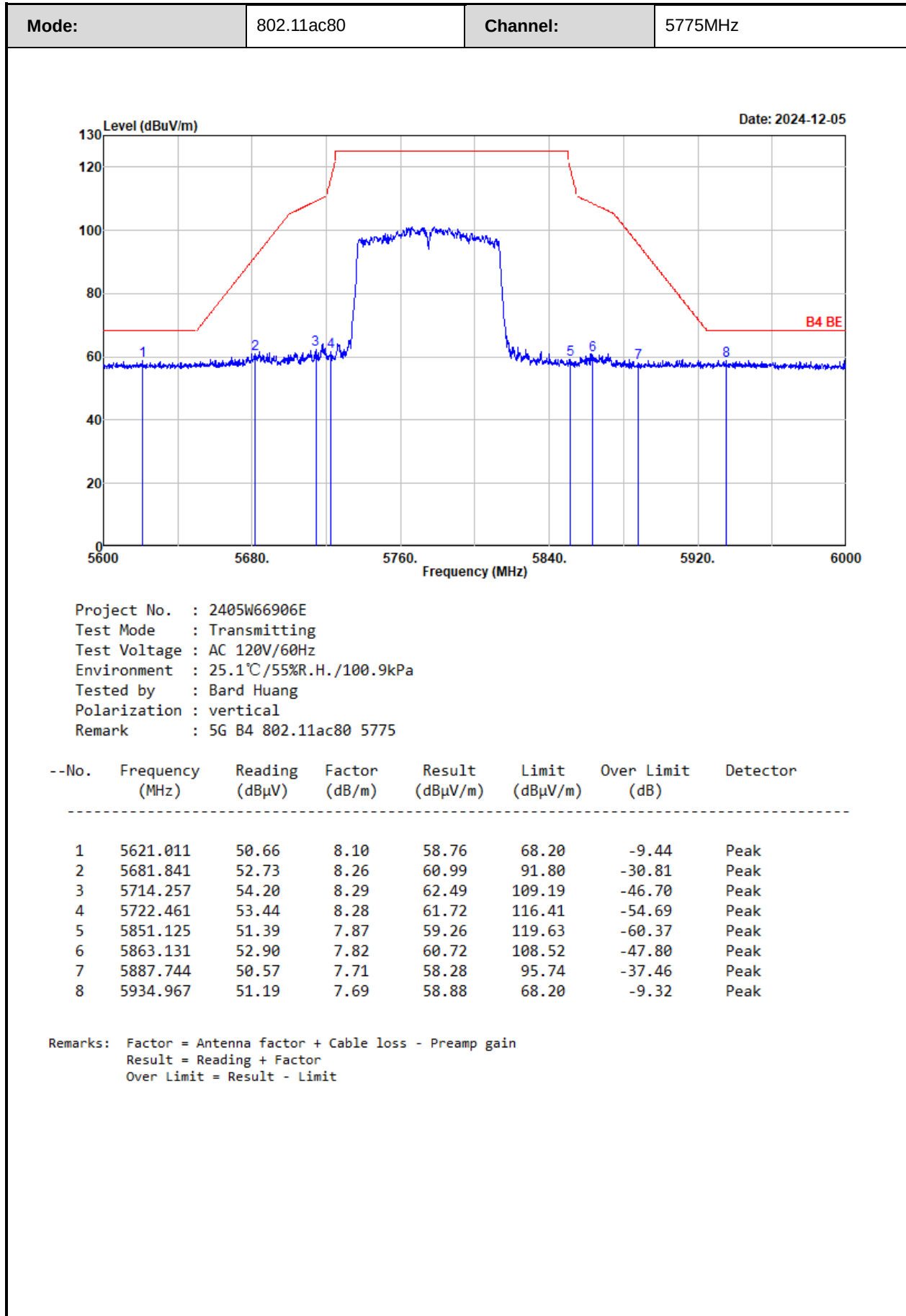












3.5 RF Conducted Test Data

Test Date:	2024-08-30~2024-12-05	Test By:	Ryan Zhang
Environment condition:	Temperature: 25.3~25.6°C; Relative Humidity:58~60%; ATM Pressure:100.1~100.5kPa		

3.5.1 Emission Bandwidth

5150-5250MHz

Mode	Value (MHz)
a_5180MHz_Chain 0	19.920
a_5180MHz_Chain 1	19.870
a_5200MHz_Chain 0	20.342
a_5200MHz_Chain 1	19.920
a_5240MHz_Chain 0	20.291
a_5240MHz_Chain 1	19.920
n20_5180MHz_Chain 0	20.493
n20_5180MHz_Chain 1	20.392
n20_5200MHz_Chain 0	20.594
n20_5200MHz_Chain 1	20.493
n20_5240MHz_Chain 0	20.543
n20_5240MHz_Chain 1	20.392
n40_5190MHz_Chain 0	41.041
n40_5190MHz_Chain 1	40.040
n40_5230MHz_Chain 0	41.041
n40_5230MHz_Chain 1	40.240
ac80_5210MHz_Chain 0	81.882
ac80_5210MHz_Chain 1	80.480

5725-5850MHz

Mode	Value (MHz)	Limit (MHz)	Result
a_5745MHz_Chain 0	15.165	0.5	Pass
a_5745MHz_Chain 1	15.215	0.5	Pass
a_5785MHz_Chain 0	15.165	0.5	Pass
a_5785MHz_Chain 1	15.165	0.5	Pass
a_5825MHz_Chain 0	15.265	0.5	Pass
a_5825MHz_Chain 1	15.215	0.5	Pass
n20_5745MHz_Chain 0	16.316	0.5	Pass
n20_5745MHz_Chain 1	15.866	0.5	Pass
n20_5785MHz_Chain 0	16.667	0.5	Pass
n20_5785MHz_Chain 1	16.066	0.5	Pass
n20_5825MHz_Chain 0	16.166	0.5	Pass
n20_5825MHz_Chain 1	15.465	0.5	Pass
n40_5755MHz_Chain 0	35.335	0.5	Pass
n40_5755MHz_Chain 1	35.335	0.5	Pass
n40_5795MHz_Chain 0	35.335	0.5	Pass
n40_5795MHz_Chain 1	35.335	0.5	Pass
ac80_5775MHz_Chain 0	75.475	0.5	Pass
ac80_5775MHz_Chain 1	76.076	0.5	Pass

3.5.2 99% Occupied Bandwidth

5150-5250MHz

Mode	99% OBW (MHz)
a_5180MHz_Chain 0	16.500
a_5180MHz_Chain 1	16.400
a_5200MHz_Chain 0	16.500
a_5200MHz_Chain 1	16.450
a_5240MHz_Chain 0	16.550
a_5240MHz_Chain 1	16.450
n20_5180MHz_Chain 0	17.550
n20_5180MHz_Chain 1	17.550
n20_5200MHz_Chain 0	17.600
n20_5200MHz_Chain 1	17.550
n20_5240MHz_Chain 0	17.600
n20_5240MHz_Chain 1	17.550
n40_5190MHz_Chain 0	36.100
n40_5190MHz_Chain 1	36.200
n40_5230MHz_Chain 0	36.200
n40_5230MHz_Chain 1	36.100
ac80_5210MHz_Chain 0	75.600
ac80_5210MHz_Chain 1	75.400

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

Mode	99% OBW (MHz)
a_5745MHz_Chain 0	16.550
a_5745MHz_Chain 1	16.400
a_5785MHz_Chain 0	16.600
a_5785MHz_Chain 1	16.400
a_5825MHz_Chain 0	16.650
a_5825MHz_Chain 1	16.450
n20_5745MHz_Chain 0	17.550
n20_5745MHz_Chain 1	17.550
n20_5785MHz_Chain 0	17.550
n20_5785MHz_Chain 1	17.550
n20_5825MHz_Chain 0	17.550
n20_5825MHz_Chain 1	17.550
n40_5755MHz_Chain 0	36.100
n40_5755MHz_Chain 1	36.100
n40_5795MHz_Chain 0	36.100
n40_5795MHz_Chain 1	36.100
ac80_5775MHz_Chain 0	75.600
ac80_5775MHz_Chain 1	75.600

Note:

The 99% Occupied Bandwidth have not fall into the band 5470-5725MHz, please refer to the test plots of 99% Occupied Bandwidth.

3.5.3 Maximum conducted output power

5150-5250MHz

Mode	Average Output Power (dBm)	Limit (dBm)	Result
a_5180MHz_Chain 0	8.76	24	Pass
a_5180MHz_Chain 1	8.50	24	Pass
a_5180MHz_Chain 0+Chain 1	11.64	24	Pass
a_5200MHz_Chain 0	8.81	24	Pass
a_5200MHz_Chain 1	8.61	24	Pass
a_5200MHz_Chain 0+Chain 1	11.72	24	Pass
a_5240MHz_Chain 0	8.8	24	Pass
a_5240MHz_Chain 1	8.43	24	Pass
a_5240MHz_Chain 0+Chain 1	11.63	24	Pass
n20_5180MHz_Chain 0	9.91	24	Pass
n20_5180MHz_Chain 1	9.71	24	Pass
n20_5180MHz_Chain 0+Chain 1	12.82	24	Pass
n20_5200MHz_Chain 0	9.75	24	Pass
n20_5200MHz_Chain 1	9.62	24	Pass
n20_5200MHz_Chain 0+Chain 1	12.69	24	Pass
n20_5240MHz_Chain 0	9.91	24	Pass
n20_5240MHz_Chain 1	9.36	24	Pass
n20_5240MHz_Chain 0+Chain 1	12.65	24	Pass
n40_5190MHz_Chain 0	10.07	24	Pass
n40_5190MHz_Chain 1	9.7	24	Pass
n40_5190MHz_Chain 0+Chain 1	12.90	24	Pass
n40_5230MHz_Chain 0	10.05	24	Pass
n40_5230MHz_Chain 1	9.5	24	Pass
n40_5230MHz_Chain 0+Chain 1	12.79	24	Pass
ac80_5210MHz_Chain 0	9.12	24	Pass
ac80_5210MHz_Chain 1	9.10	24	Pass
ac80_5210MHz_Chain 0+Chain 1	12.12	24	Pass

5725-5850MHz

Mode	Average Output Power (dBm)	Limit (dBm)	Result
a_5745MHz_Chain 0	11.44	30	Pass
a_5745MHz_Chain 1	11.68	30	Pass
a_5745MHz_Chain 0+ Chain 1	14.57	30	Pass
a_5785MHz_Chain 0	11.78	30	Pass
a_5785MHz_Chain 1	12.01	30	Pass
a_5785MHz_Chain 0+ Chain 1	14.91	30	Pass
a_5825MHz_Chain 0	12.24	30	Pass
a_5825MHz_Chain 1	12.51	30	Pass
a_5825MHz_Chain 0+ Chain 1	15.39	30	Pass
n20_5745MHz_Chain 0	9.61	30	Pass
n20_5745MHz_Chain 1	9.7	30	Pass
n20_5745MHz_Chain 0+Chain 1	12.66	30	Pass
n20_5785MHz_Chain 0	10.01	30	Pass
n20_5785MHz_Chain 1	10.16	30	Pass
n20_5785MHz_Chain 0+Chain 1	13.10	30	Pass
n20_5825MHz_Chain 0	10.46	30	Pass
n20_5825MHz_Chain 1	10.7	30	Pass
n20_5825MHz_Chain 0+Chain 1	13.59	30	Pass
n40_5755MHz_Chain 0	9.23	30	Pass
n40_5755MHz_Chain 1	9.46	30	Pass
n40_5755MHz_Chain 0+Chain 1	12.36	30	Pass
n40_5795MHz_Chain 0	9.69	30	Pass
n40_5795MHz_Chain 1	9.88	30	Pass
n40_5795MHz_Chain 0+Chain 1	12.80	30	Pass
ac80_5775MHz_Chain 0	6.29	30	Pass
ac80_5775MHz_Chain 1	6.45	30	Pass
ac80_5775MHz_Chain 0+Chain 1	9.38	30	Pass

Note:

The device employ CDD for MIMO mode, according to KDB 662911 D01 Multiple Transmitter Output v02r01, Directional gain = $G_{ANT} + \text{Array Gain}$

For power measurements on IEEE 802.11 devices:

$\text{Array Gain} = 0 \text{ dB}$, for $N_{ANT} \leq 4$;

$G_{ANT} 1=3.68\text{dBi}$, $G_{ANT} 2=4.03\text{dBi}$, use the higher antenna gain for calculate

Directional gain= $4.03+0=4.03\text{dBi}<6\text{dBi}$

3.5.4 Power Spectral Density

5150-5250MHz

Mode	Value (dBm/MHz)	Duty Cycle Factor(dB)	PSD (dBm/MHz)	Limit (dBm/MHz)	Result
a_5180MHz_Chain 0	-1.44	/	/	9.96	Pass
a_5180MHz_Chain 1	-2.36	/	/	9.96	Pass
a_5180MHz_Chain 0+ Chain 1	1.13	0.14	1.27	9.96	Pass
a_5200MHz_Chain 0	-1.38	/	/	9.96	Pass
a_5200MHz_Chain 1	-2.17	/	/	9.96	Pass
a_5200MHz_Chain 0+ Chain 1	1.25	0.14	1.39	9.96	Pass
a_5240MHz_Chain 0	-0.84	/	/	9.96	Pass
a_5240MHz_Chain 1	-1.89	/	/	9.96	Pass
a_5240MHz_Chain 0+ Chain 1	1.68	0.14	1.82	9.96	Pass
n20_5180MHz_Chain 0	-0.45	/	/	9.96	Pass
n20_5180MHz_Chain 1	-0.98	/	/	9.96	Pass
n20_5180MHz_Chain 0+Chain 1	2.30	0.15	2.45	9.96	Pass
n20_5200MHz_Chain 0	-0.88	/	/	9.96	Pass
n20_5200MHz_Chain 1	-1.12	/	/	9.96	Pass
n20_5200MHz_Chain 0+Chain 1	2.01	0.15	2.16	9.96	Pass
n20_5240MHz_Chain 0	-0.77	/	/	9.96	Pass
n20_5240MHz_Chain 1	-1.44	/	/	9.96	Pass
n20_5240MHz_Chain 0+Chain 1	1.92	0.15	2.07	9.96	Pass
n40_5190MHz_Chain 0	-3.73	/	/	9.96	Pass
n40_5190MHz_Chain 1	-4.30	/	/	9.96	Pass

Mode	Value (dBm/MHz)	Duty Cycle Factor(dB)	PSD (dBm/MHz)	Limit (dBm/MHz)	Result
n40_5190MHz_Chain 0+Chain 1	-1	0.29	-0.71	9.96	Pass
n40_5230MHz_Chain 0	-3.72	/	/	9.96	Pass
n40_5230MHz_Chain 1	-4.13	/	/	9.96	Pass
n40_5230MHz_Chain 0+Chain 1	-0.91	0.29	-0.62	9.96	Pass
ac80_5210MHz_Chain 0	-8.01	/	/	9.96	Pass
ac80_5210MHz_Chain 1	-7.84	/	/	9.96	Pass
ac80_5210MHz_Chain 0+Chain 1	-4.91	0.54	-4.37	9.96	Pass

5725-5850MHz

Mode	Value(dBm /500kHz)	Duty Cycle Factor(dB)	PSD(dBm /500kHz)	Limit(dBm /500kHz)	Result
a_5745MHz_Chain 0	-1.81	/	/	28.96	Pass
a_5745MHz_Chain 1	-1.64	/	/	28.96	Pass
a_5745MHz_Chain 0+ Chain 1	1.29	0.14	1.43	28.96	Pass
a_5785MHz_Chain 0	-1.66	/	/	28.96	Pass
a_5785MHz_Chain 1	-0.95	/	/	28.96	Pass
a_5785MHz_Chain 0+ Chain 1	1.72	0.14	1.86	28.96	Pass
a_5825MHz_Chain 0	-1.11	/	/	28.96	Pass
a_5825MHz_Chain 1	-0.82	/	/	28.96	Pass
a_5825MHz_Chain 0+ Chain 1	2.05	0.14	2.19	28.96	Pass
n20_5745MHz_Chain 0	-3.55	/	/	28.96	Pass
n20_5745MHz_Chain 1	-3.00	/	/	28.96	Pass
n20_5745MHz_Chain 0+Chain 1	-0.26	0.15	-0.11	28.96	Pass
n20_5785MHz_Chain 0	-2.70	/	/	28.96	Pass
n20_5785MHz_Chain 1	-2.84	/	/	28.96	Pass
n20_5785MHz_Chain 0+Chain 1	0.24	0.15	0.39	28.96	Pass
n20_5825MHz_Chain 0	-2.71	/	/	28.96	Pass
n20_5825MHz_Chain 1	-2.47	/	/	28.96	Pass
n20_5825MHz_Chain 0+Chain 1	0.42	0.15	0.57	28.96	Pass
n40_5755MHz_Chain 0	-6.82	/	/	28.96	Pass

Mode	Value(dBm /500kHz)	Duty Cycle Factor(dB)	PSD(dBm /500kHz)	Limit(dBm /500kHz)	Result
n40_5755MHz_Chain 1	-6.70	/	/	28.96	Pass
n40_5755MHz_Chain 0+Chain 1	-3.75	0.29	-3.46	28.96	Pass
n40_5795MHz_Chain 0	-6.58	/	/	28.96	Pass
n40_5795MHz_Chain 1	-6.23	/	/	28.96	Pass
n40_5795MHz_Chain 0+Chain 1	-3.39	0.29	-3.1	28.96	Pass
ac80_5775MHz_Chain 0	-12.43	/	/	28.96	Pass
ac80_5775MHz_Chain 1	-12.63	/	/	28.96	Pass
ac80_5775MHz_Chain 0+Chain 1	-9.52	0.55	-8.97	28.96	Pass

Note:

The device employ CDD for MIMO mode, according to KDB 662911 D01 Multiple Transmitter Output v02r01, Directional gain = $G_{ANT} + \text{Array Gain}$

For power spectral density (PSD) measurements:

$$\text{Array Gain} = 10 \log(N_{ANT}/N_{SS}) \text{ dB};$$

$G_{ANT1}=3.68\text{dBi}$, $G_{ANT2}=4.03\text{dBi}$, use the higher antenna gain for calculate

$$\text{Directional gain}=4.03+10*\log(2)=7.04\text{dBi}>6\text{dBi}$$

So the limit need reduce 1.04dB

3.5.5 Duty Cycle

Mode	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
a_5180MHz_Chain 0	1.390	1.437	96.73	0.14	719	1
a_5180MHz_Chain 1	1.391	1.437	96.80	0.14	719	1
a_5200MHz_Chain 0	1.391	1.437	96.80	0.14	719	1
a_5200MHz_Chain 1	1.390	1.437	96.73	0.14	719	1
a_5240MHz_Chain 0	1.391	1.437	96.80	0.14	719	1
a_5240MHz_Chain 1	1.391	1.437	96.80	0.14	719	1
n20_5180MHz_Chain 0	1.299	1.346	96.51	0.15	770	1
n20_5180MHz_Chain 1	1.299	1.345	96.58	0.15	770	1
n20_5200MHz_Chain 0	1.299	1.346	96.51	0.15	770	1
n20_5200MHz_Chain 1	1.299	1.345	96.58	0.15	770	1
n20_5240MHz_Chain 0	1.299	1.345	96.58	0.15	770	1
n20_5240MHz_Chain 1	1.299	1.345	96.58	0.15	770	1
n40_5190MHz_Chain 0	0.647	0.692	93.50	0.29	1546	2
n40_5190MHz_Chain 1	0.647	0.692	93.50	0.29	1546	2
n40_5230MHz_Chain 0	0.647	0.692	93.50	0.29	1546	2
n40_5230MHz_Chain 1	0.647	0.692	93.50	0.29	1546	2
ac80_5210MHz_Chain 0	0.324	0.368	88.04	0.55	3086	5
ac80_5210MHz_Chain 1	0.324	0.367	88.28	0.54	3086	5

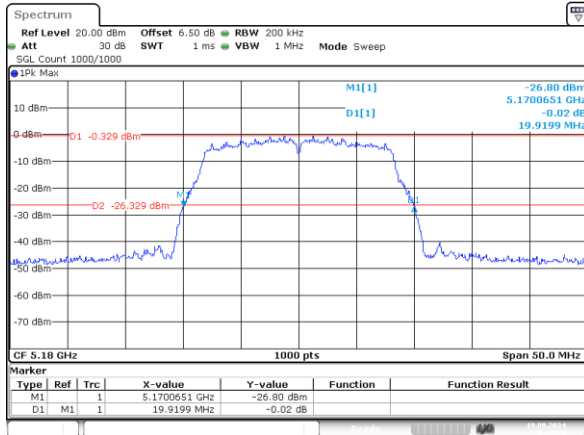
Duty Cycle = Ton/(Ton+Toff)*100%

Test Plots:

Emission Bandwidth

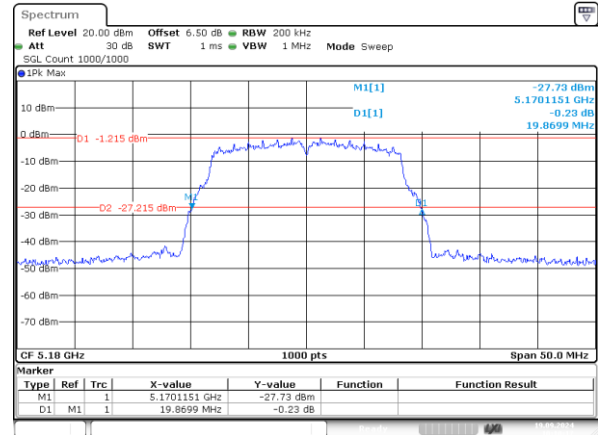
5150-5250MHz

a_5180MHz_Chain 0 19.920MHz



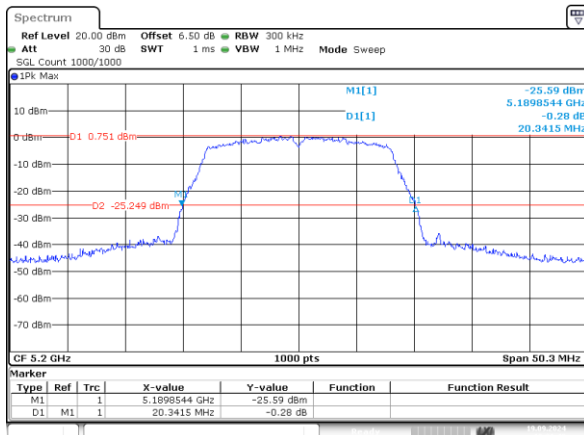
ProjectNo.:2405W66906EH- RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:18:54

a_5180MHz_Chain 1 19.870MHz



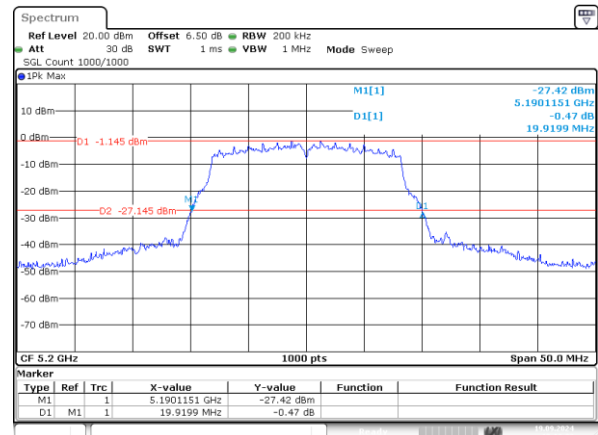
ProjectNo.:2405W66906EH- RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:10:17

a_5200MHz_Chain 0 20.342MHz



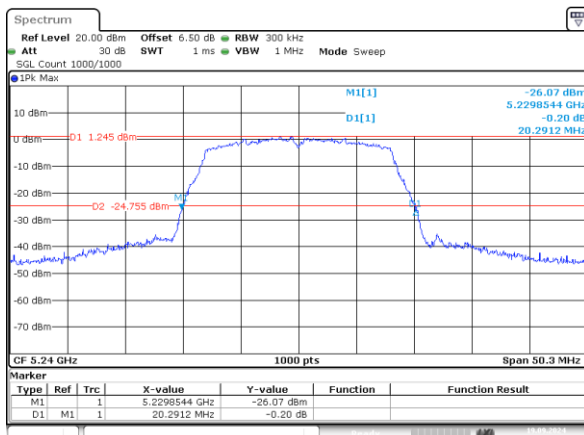
ProjectNo.:2405W66906EH- RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:21:40

a_5200MHz_Chain 1 19.920MHz



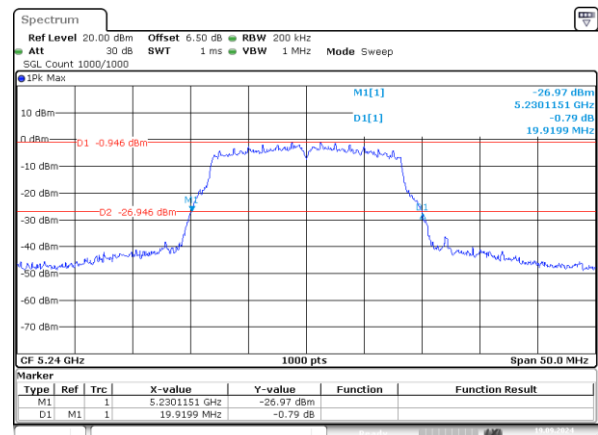
ProjectNo.:2405W66906EH- RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:13:23

a_5240MHz_Chain 0 20.291MHz



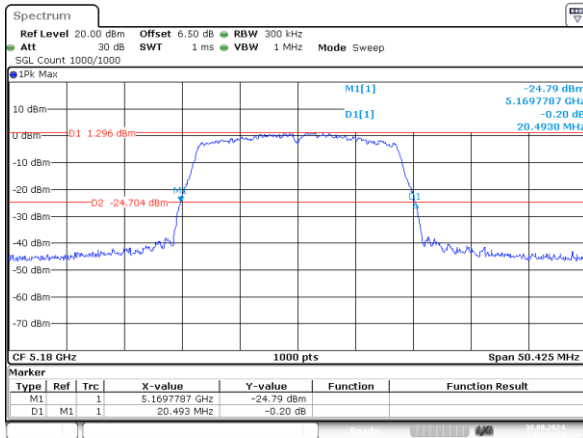
ProjectNo.:2405W66906EH- RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:24:49

a_5240MHz_Chain 1 19.920MHz



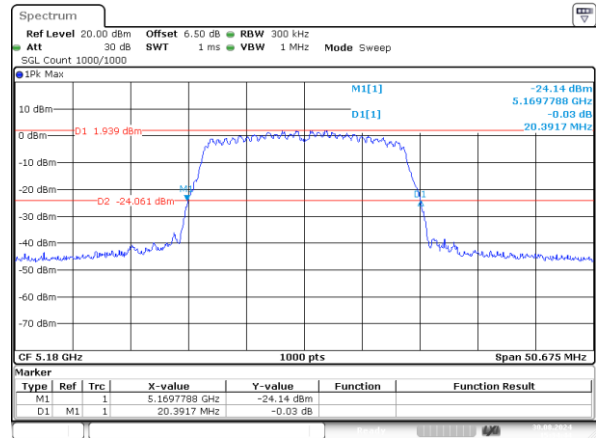
ProjectNo.:2405W66906EH- RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:15:50

n20_5180MHz_Chain 0 20.493MHz



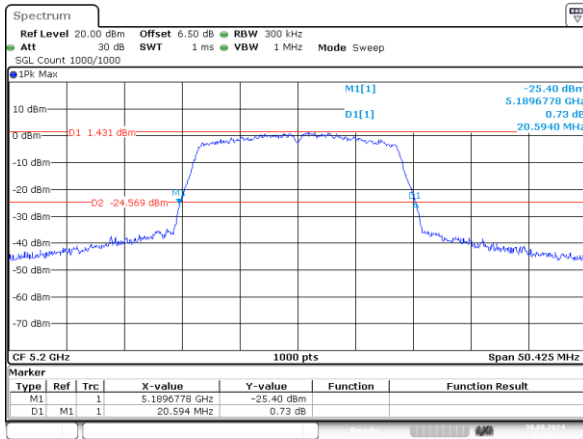
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 14:43:22

n20_5180MHz_Chain 1 20.392MHz



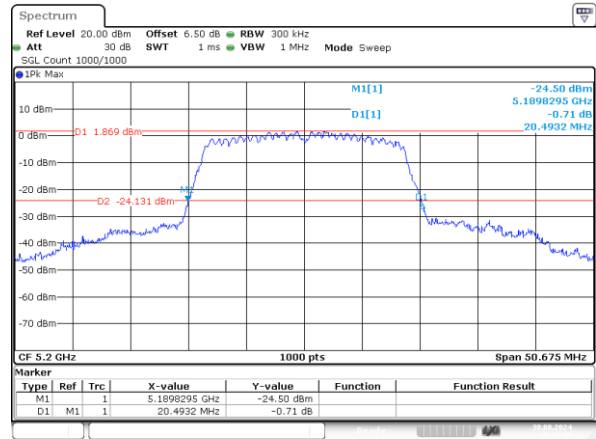
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 15:34:44

n20_5200MHz_Chain 0 20.594MHz



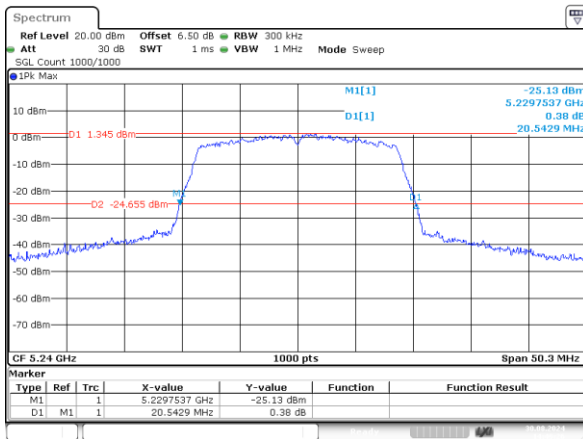
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 14:46:15

n20_5200MHz_Chain 1 20.493MHz



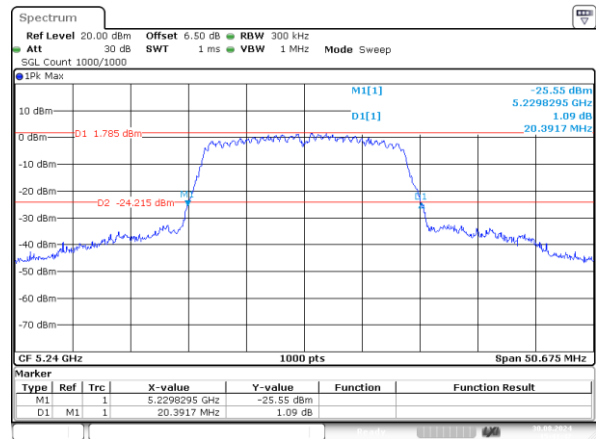
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 15:38:30

n20_5240MHz_Chain 0 20.543MHz



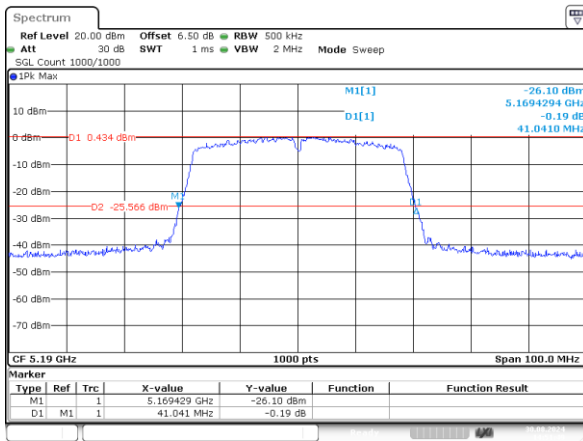
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 14:49:26

n20_5240MHz_Chain 1 20.392MHz



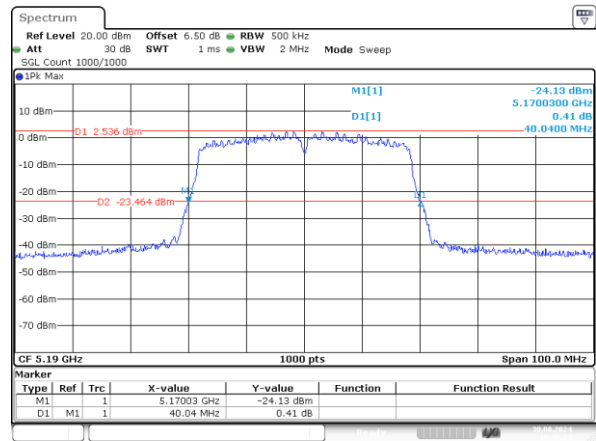
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 15:41:46

n40_5190MHz_Chain 0 41.041MHz



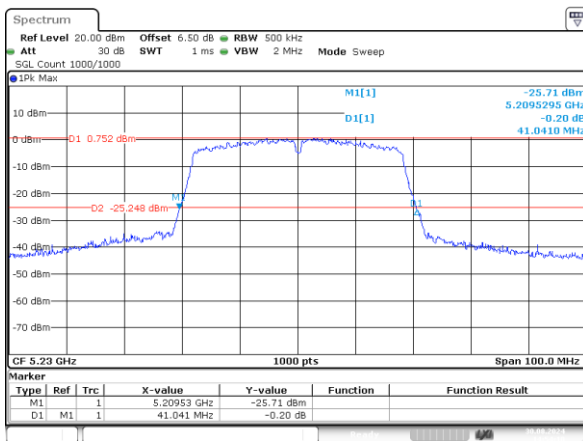
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 14:51:49

n40_5190MHz_Chain 1 40.040MHz



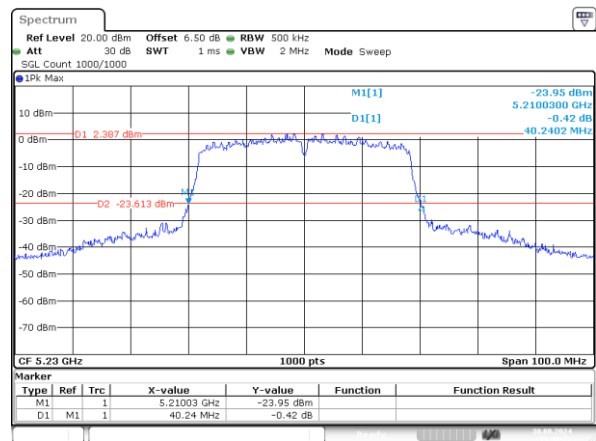
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 15:45:24

n40_5230MHz_Chain 0 41.041MHz



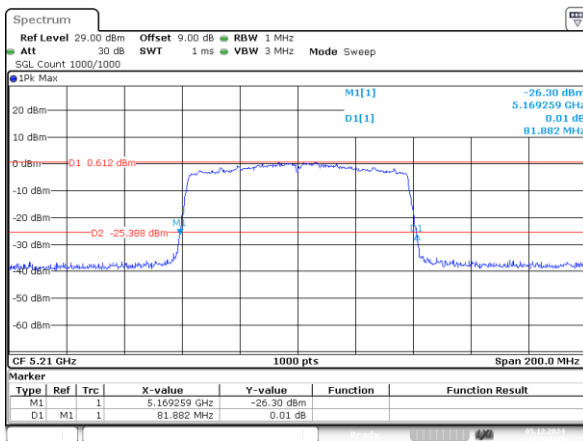
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 14:54:10

n40_5230MHz_Chain 1 40.240MHz



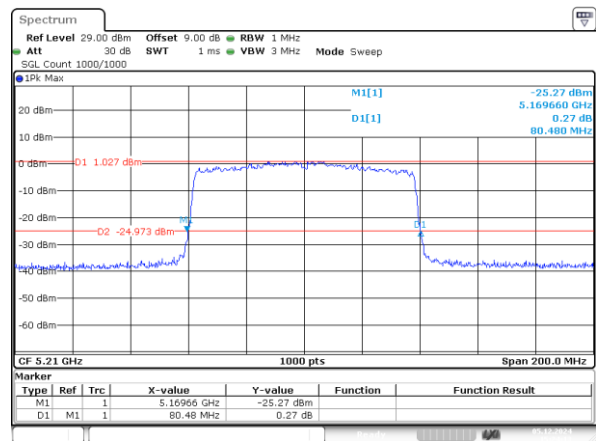
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 15:48:22

802.11ac80_5210MHz_Chain 0 81.882MHz



ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 5.DEC.2024 15:21:27

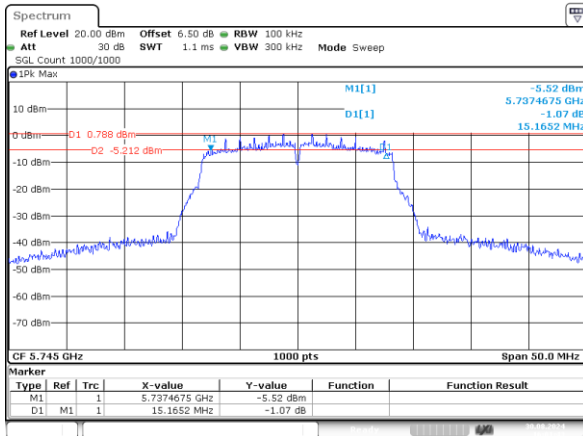
802.11ac80_5210MHz_Chain 1 80.480MHz



ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 5.DEC.2024 15:24:14

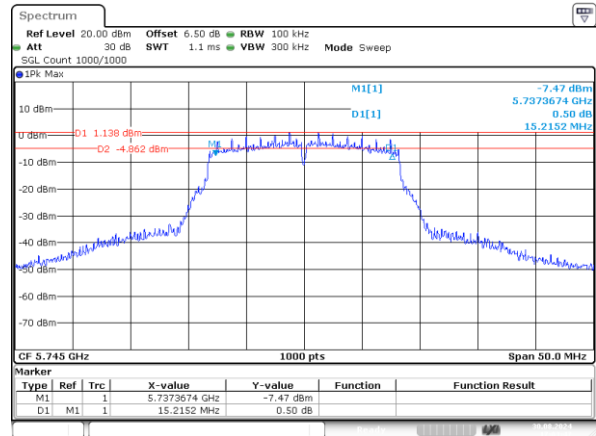
5725-5850MHz

a_5745MHz_Chain 0 15.165MHz



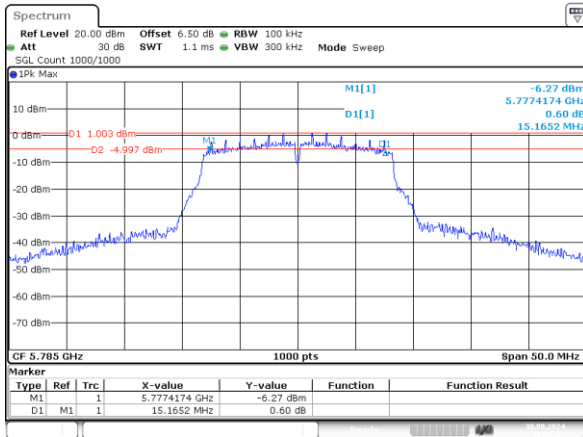
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 16:01:43

a_5745MHz_Chain 1 15.215MHz



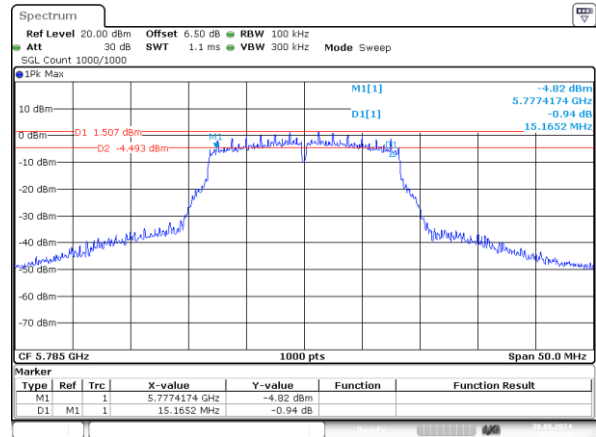
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:03:46

a_5785MHz_Chain 0 15.165MHz



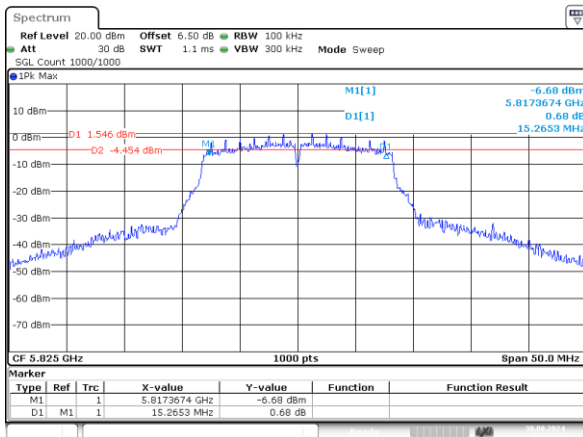
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Date: 30.AUG.2024 16:05:26

a_5785MHz_Chain 1 15.165MHz



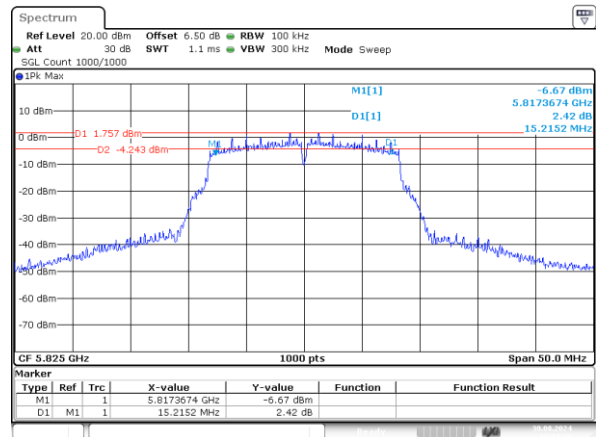
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:08:48

a_5825MHz_Chain 0 15.265MHz



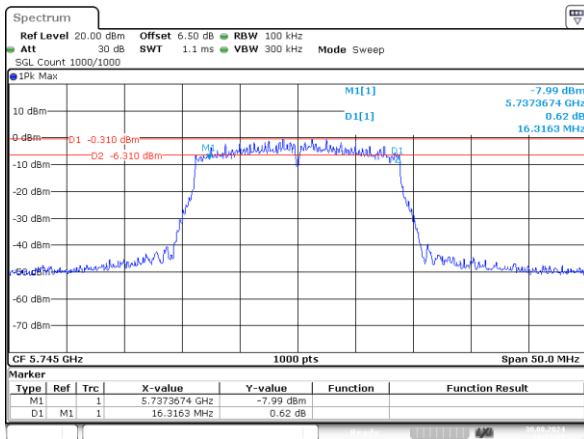
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 16:08:18

a_5825MHz_Chain 1 15.215MHz



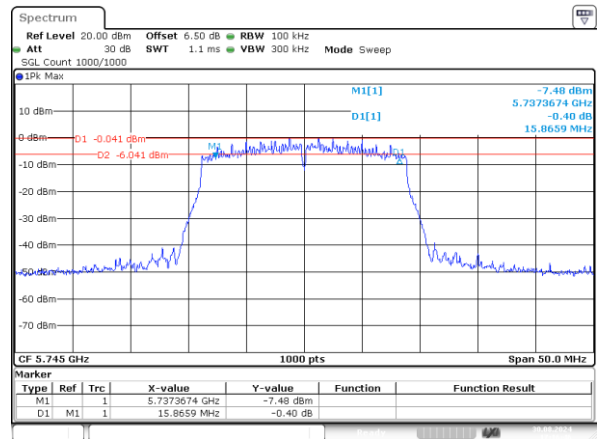
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:12:48

n20_5745MHz_Chain 0 16.316MHz



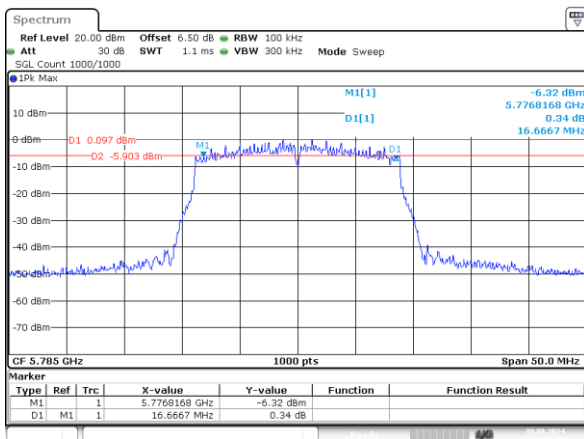
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 16:12:57

n20_5745MHz_Chain 1 15.866MHz



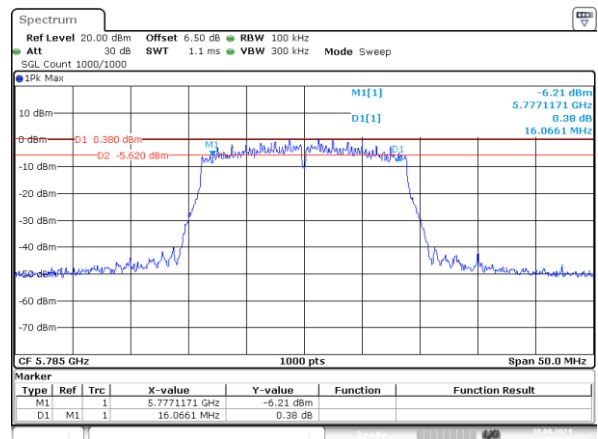
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:16:45

n20_5785MHz_Chain 0 16.667MHz



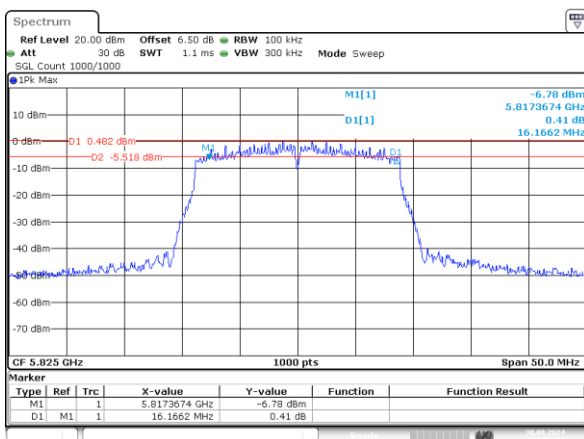
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 16:16:51

n20_5785MHz_Chain 1 16.066MHz



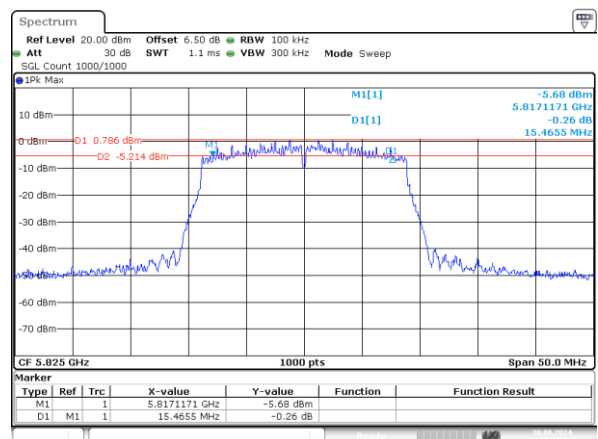
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:21:18

n20_5825MHz_Chain 0 16.166MHz



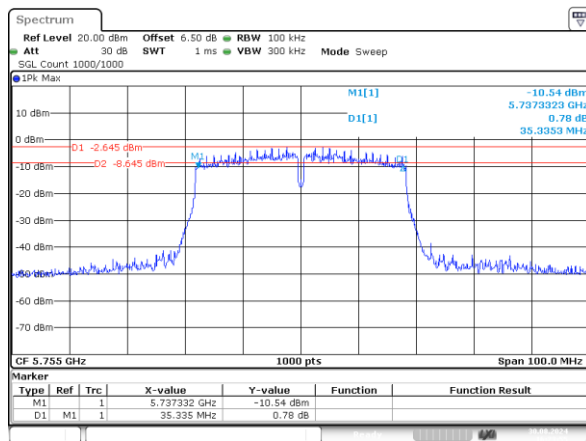
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 16:21:24

n20_5825MHz_Chain 1 15.465MHz



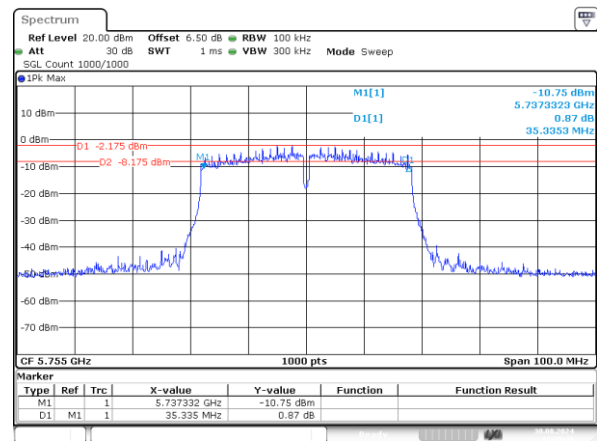
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:25:27

n40_5755MHz_Chain 0 35.335MHz



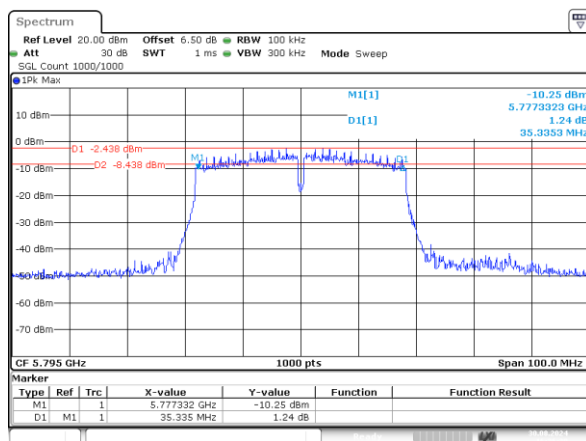
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 16:23:55

n40_5755MHz_Chain 1 35.335MHz



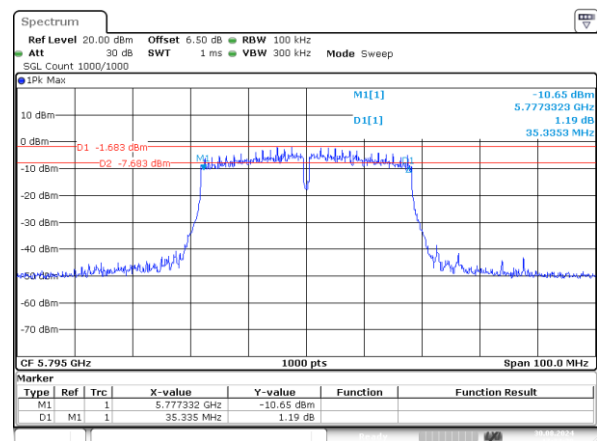
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:28:48

n40_5795MHz_Chain 0 35.335MHz



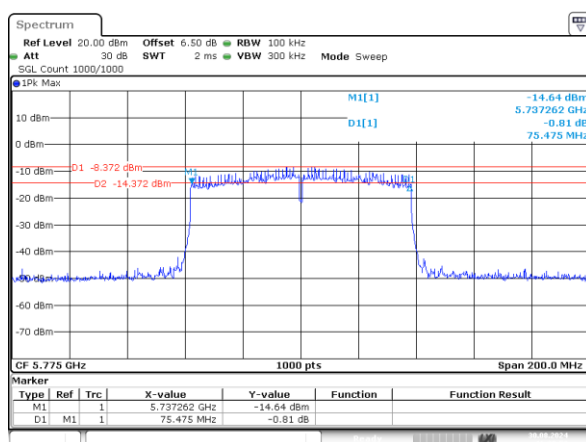
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 16:26:38

n40_5795MHz_Chain 1 35.335MHz



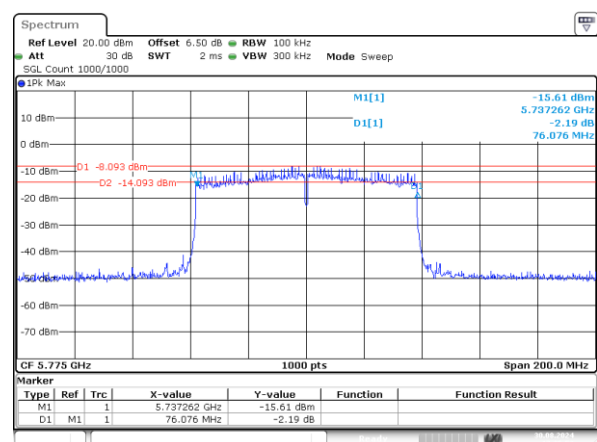
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:32:20

ac80_5775MHz_Chain 0 75.475MHz



ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 16:28:52

ac80_5775MHz_Chain 1 76.076MHz

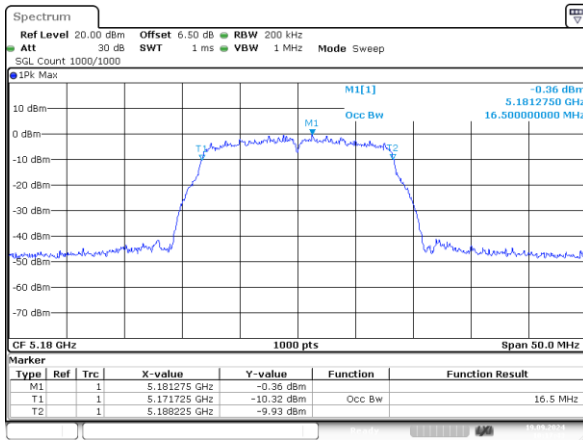


ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 17:35:52

99% Occupied Bandwidth

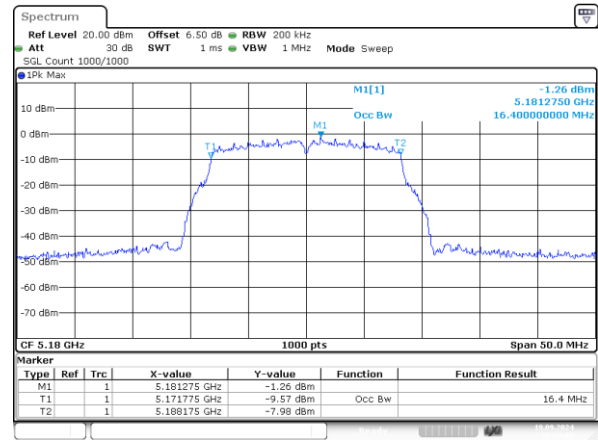
5150-5250MHz

a_5180MHz_Chain 0 16.500MHz



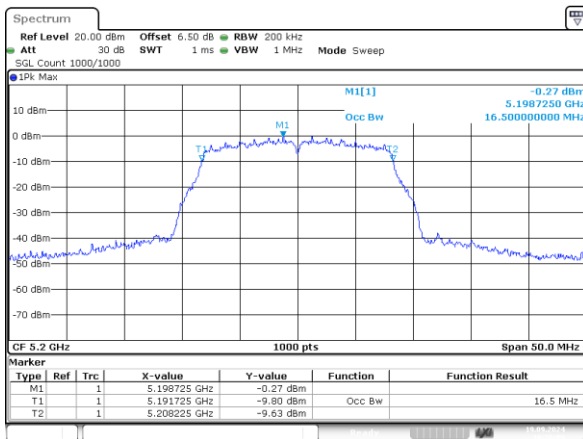
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:17:43

a_5180MHz_Chain 1 16.400MHz



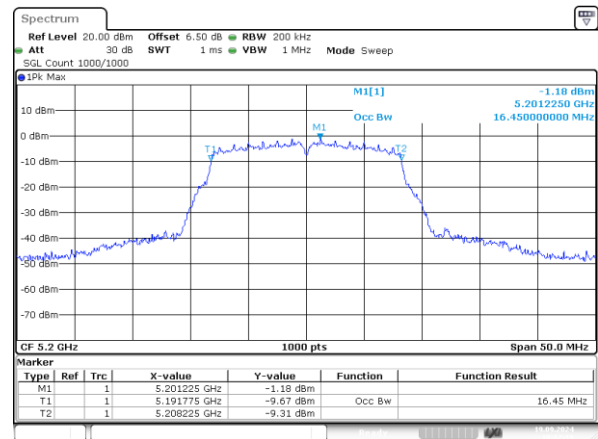
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:09:06

a_5200MHz_Chain 0 16.500MHz



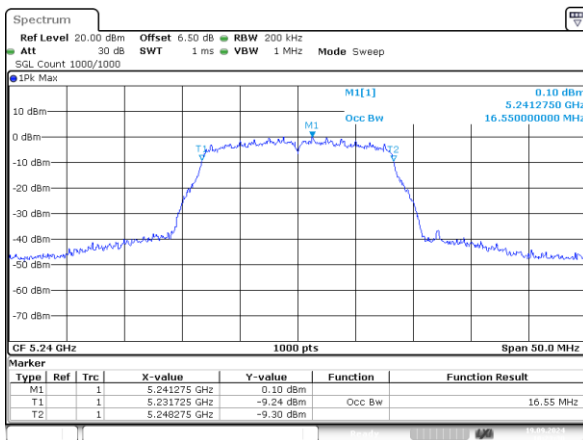
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:20:08

a_5200MHz_Chain 1 16.450MHz



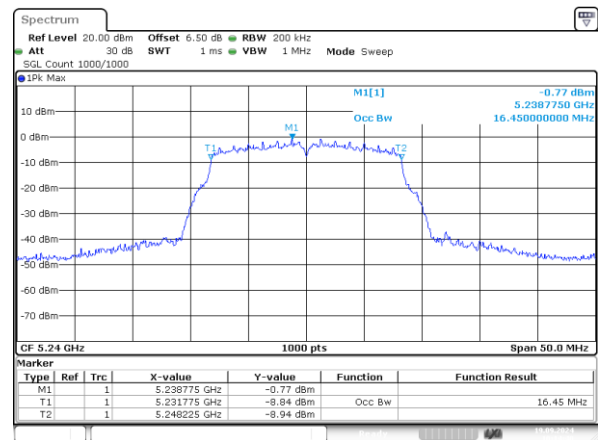
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:12:20

a_5240MHz_Chain 0 16.550MHz



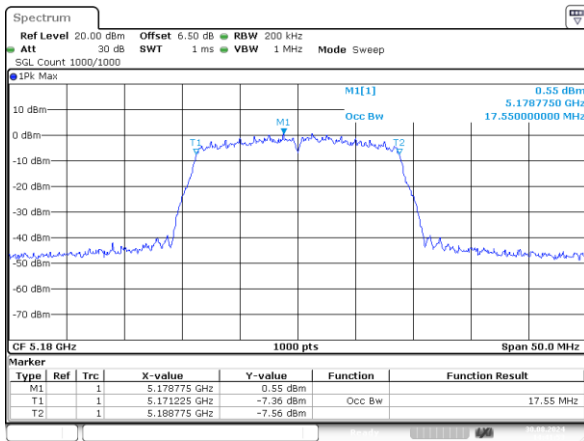
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:23:29

a_5240MHz_Chain 1 16.450MHz



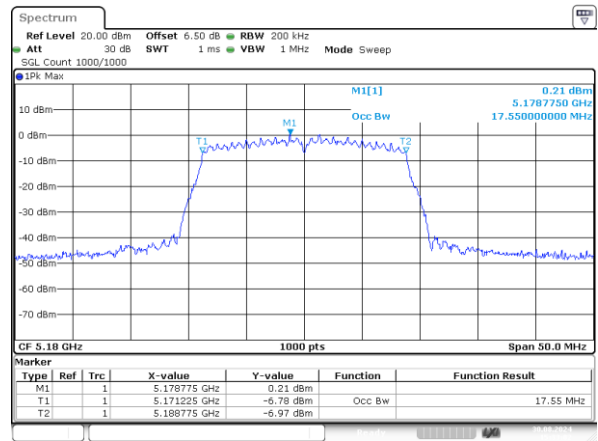
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 19.SEP.2024 10:14:40

n20_5180MHz_Chain 0 17.550MHz



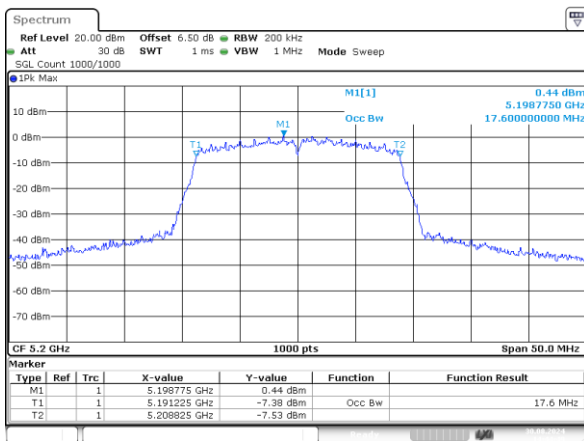
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 14:41:53

n20_5180MHz_Chain 1 17.550MHz



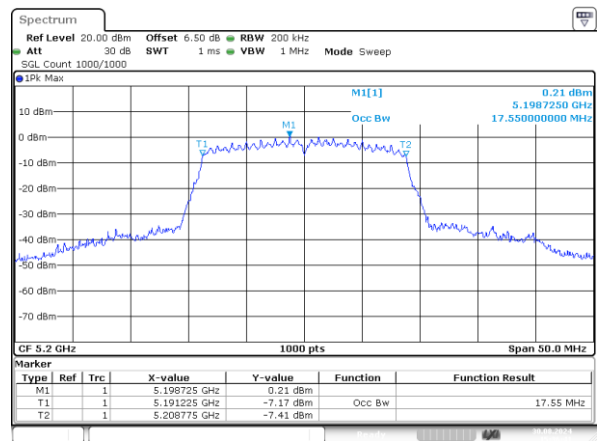
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Date: 30.AUG.2024 15:33:03

n20_5200MHz_Chain 0 17.600MHz



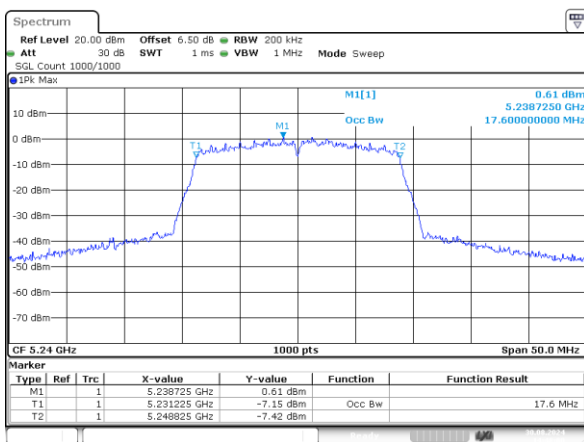
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 14:44:49

n20_5200MHz_Chain 1 17.550MHz



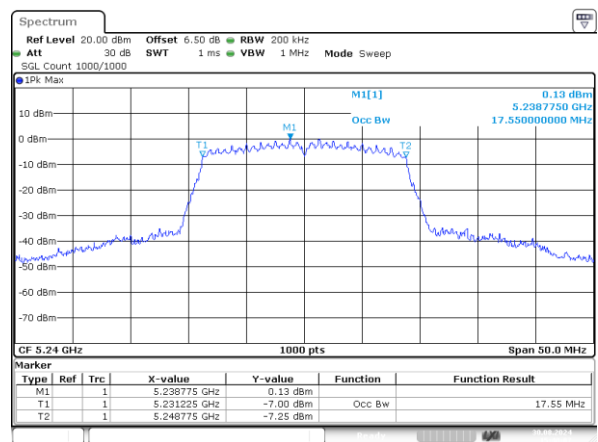
ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 15:16:41

n20_5240MHz_Chain 0 17.600MHz



ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 14:48:00

n20_5240MHz_Chain 1 17.550MHz



ProjectNo.:2405W66906E-RF Tester:Ryan Zhang
Date: 30.AUG.2024 15:40:07