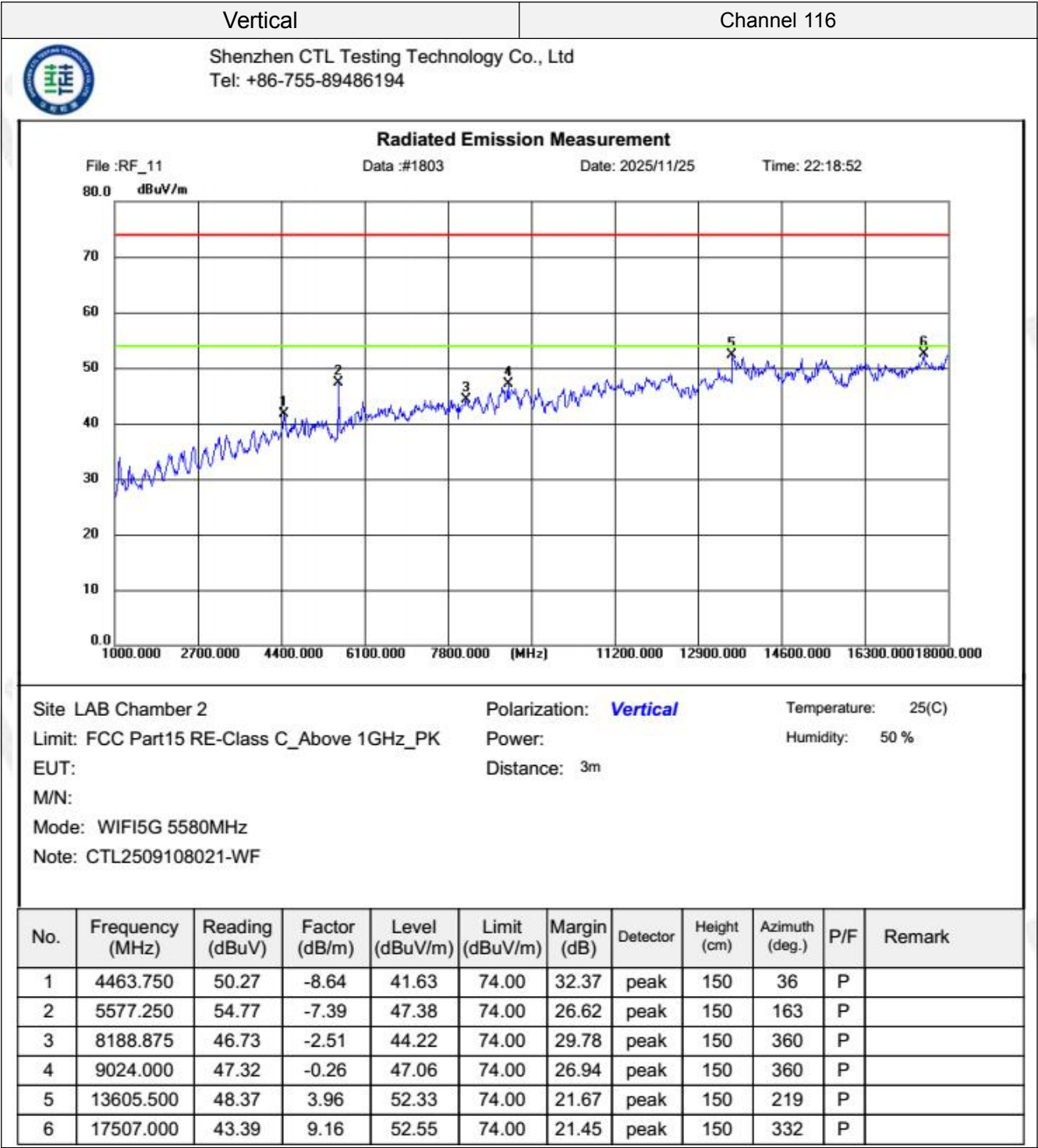
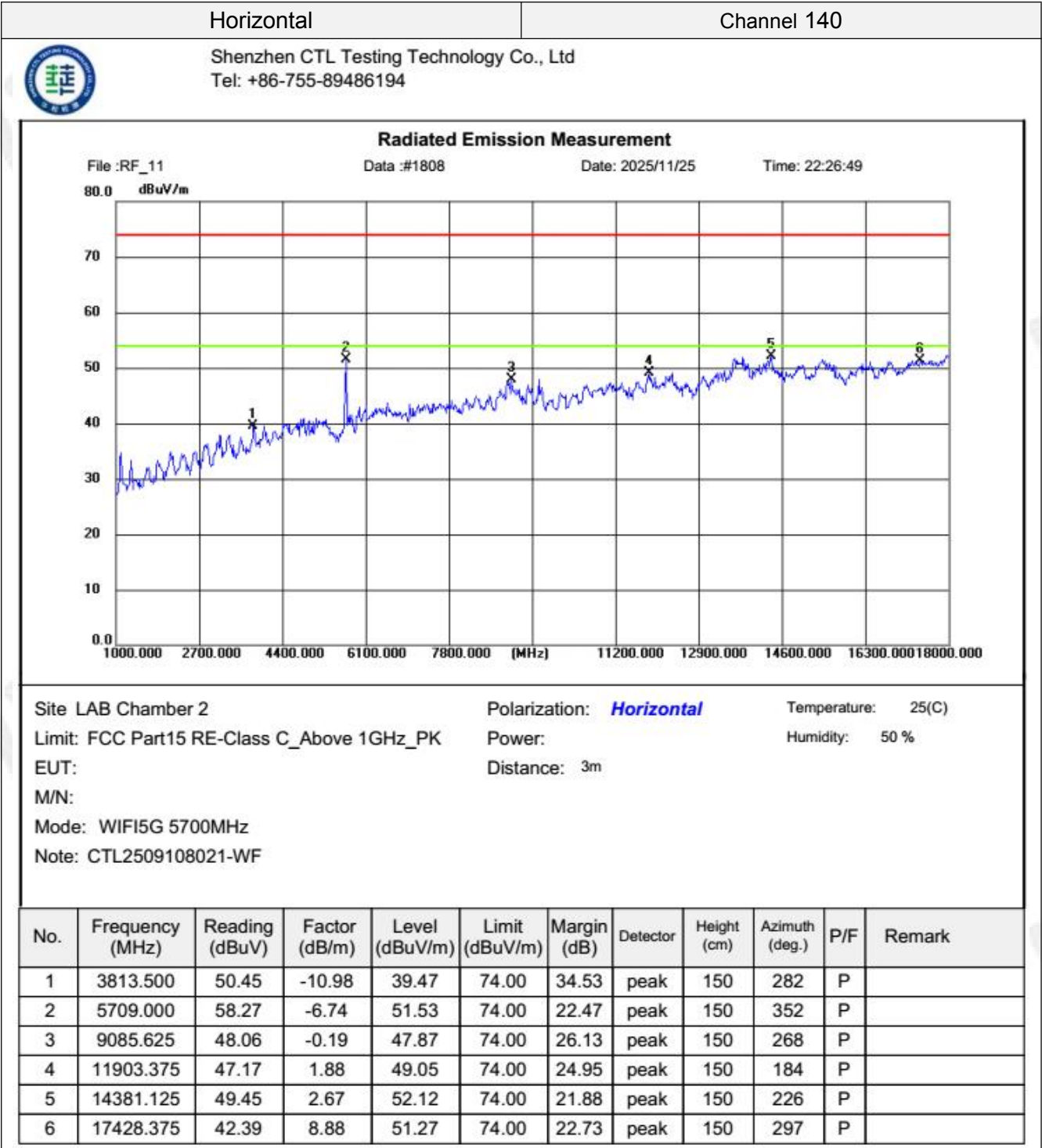
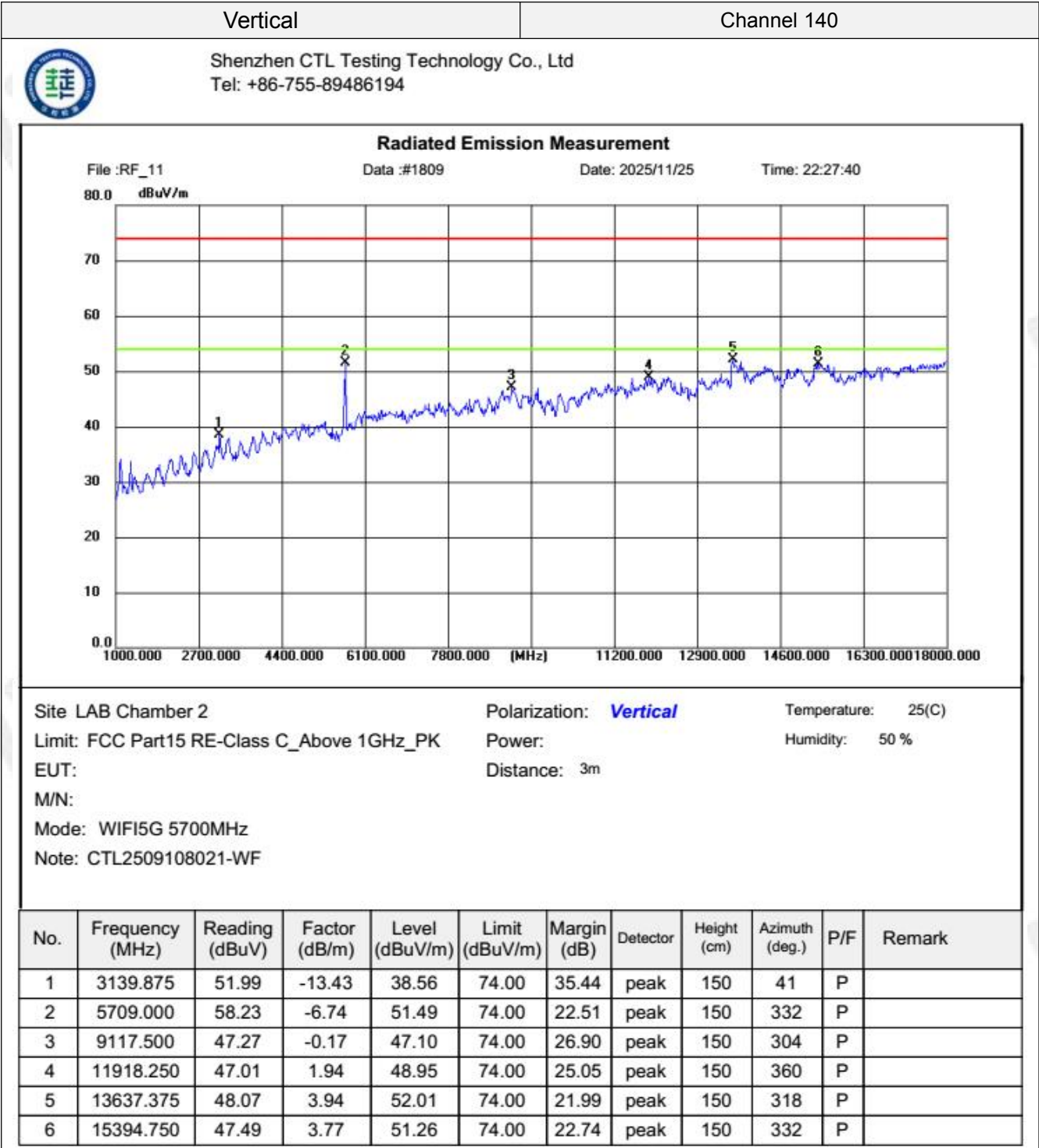


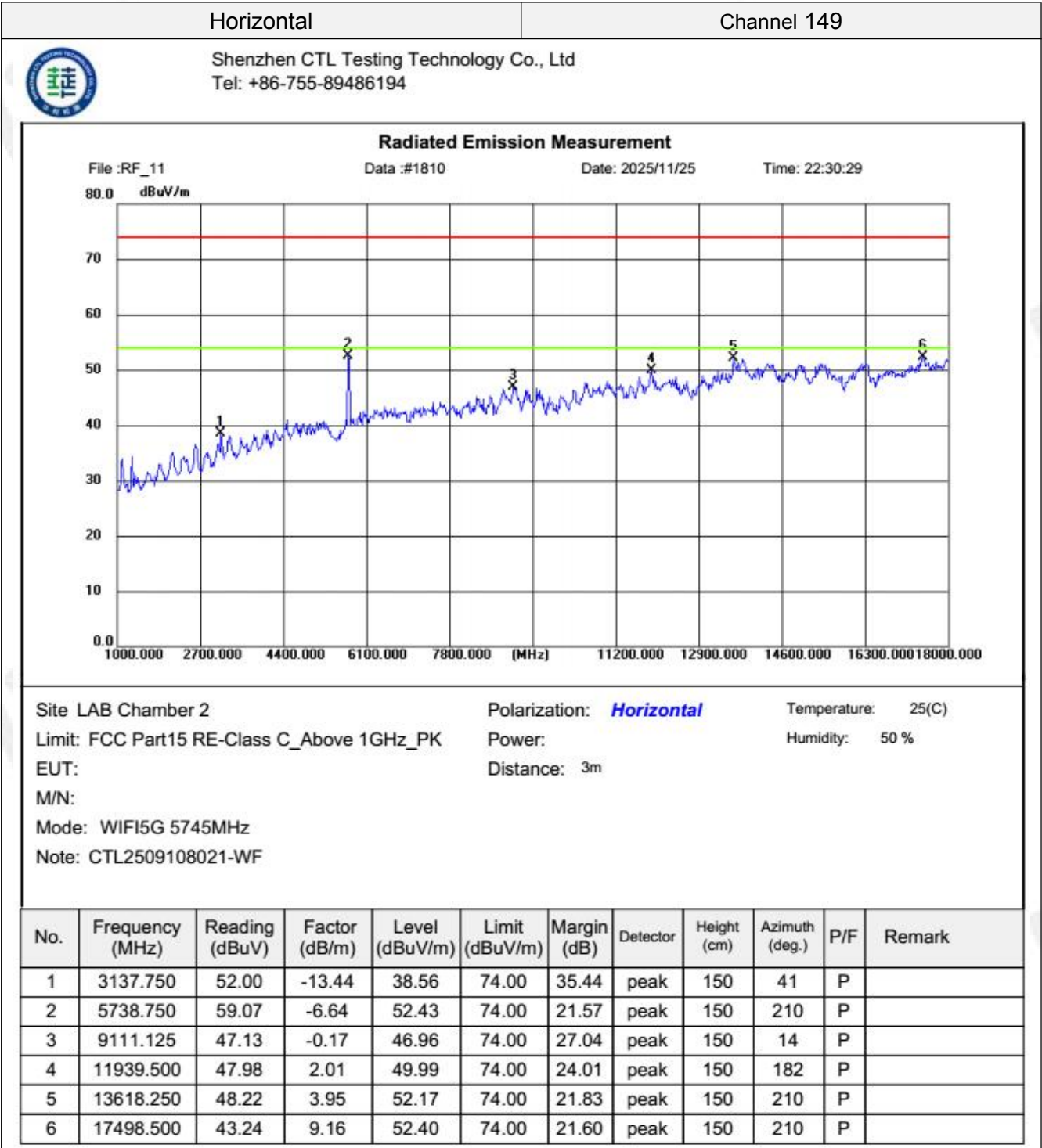


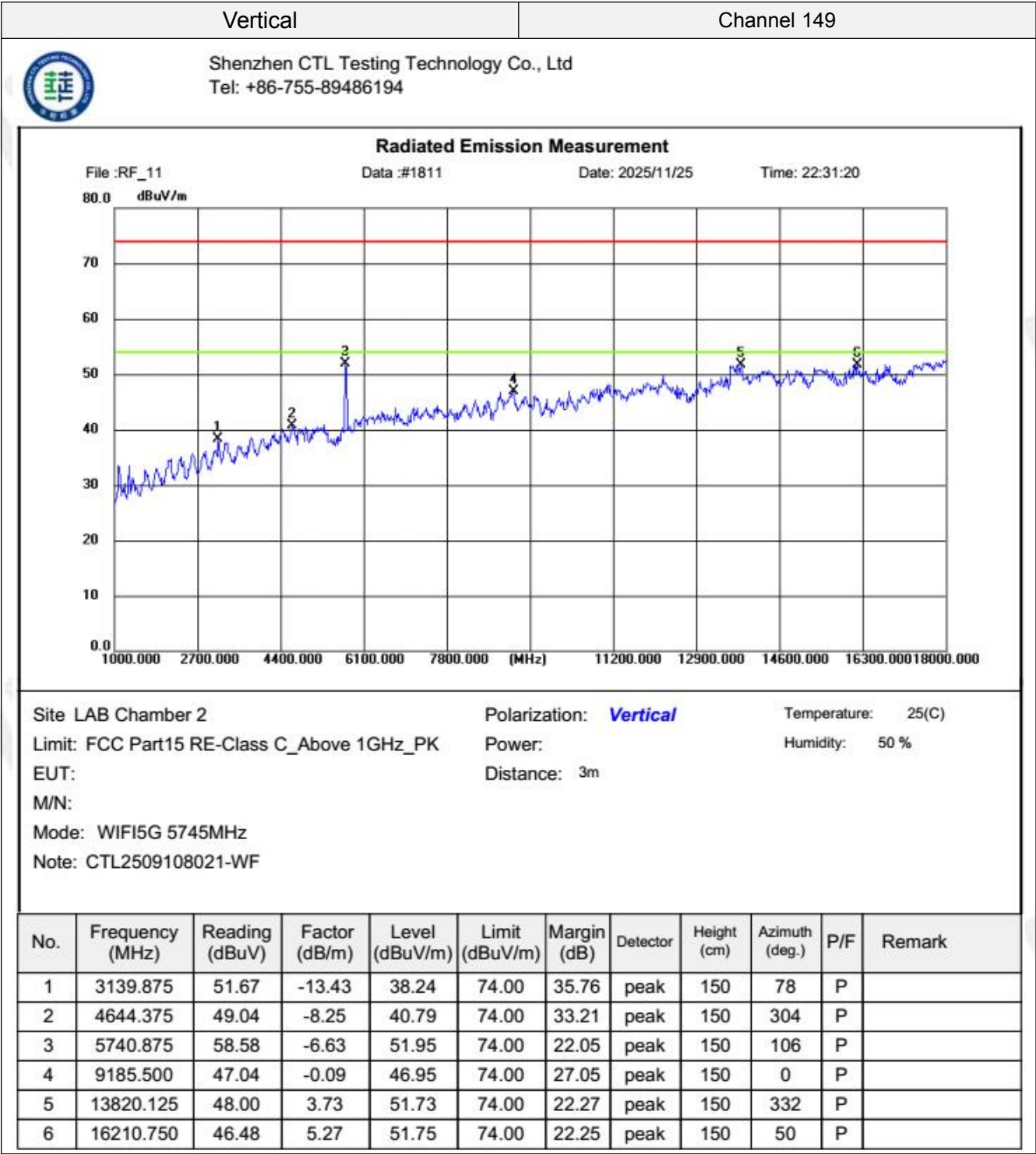


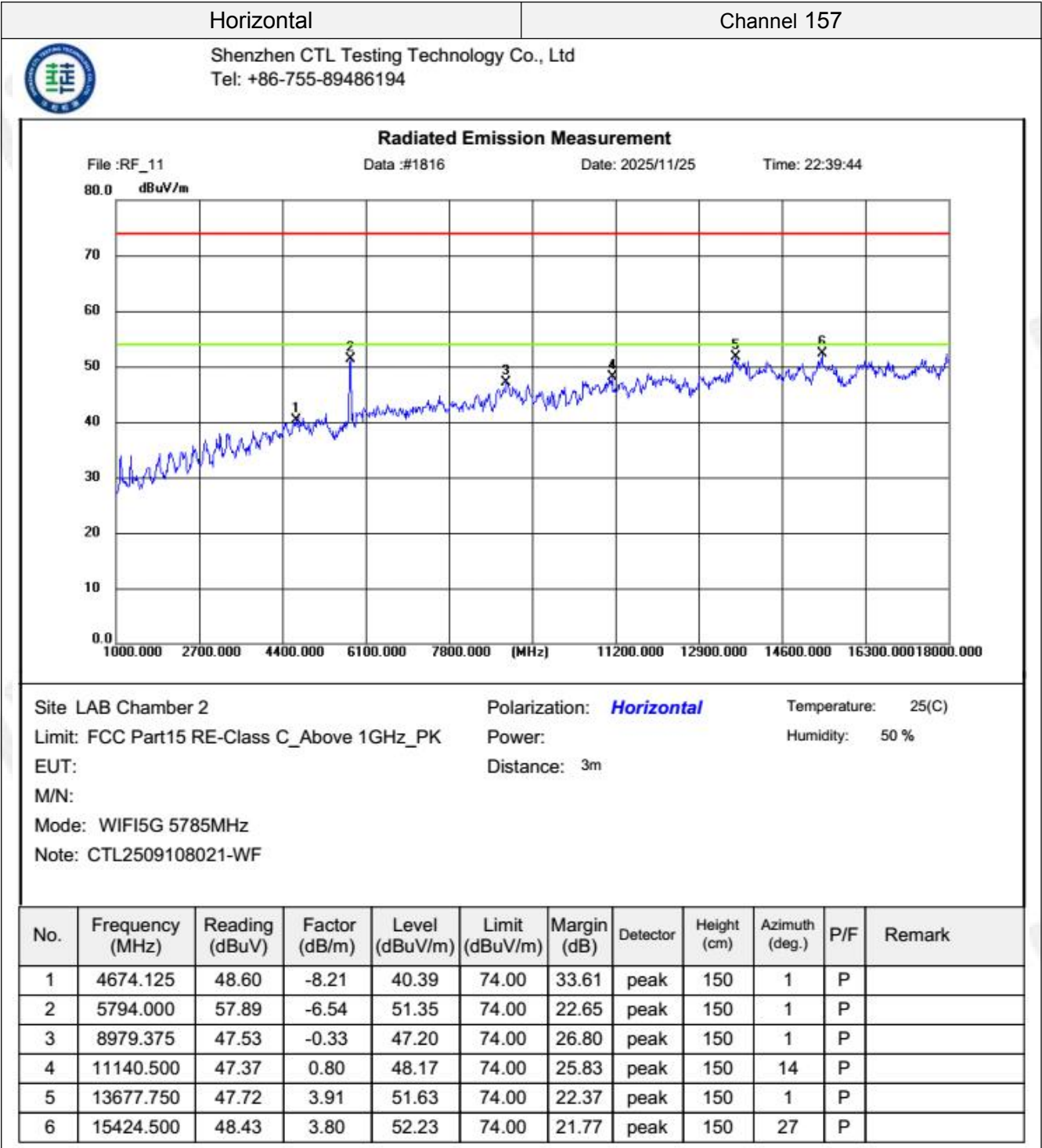


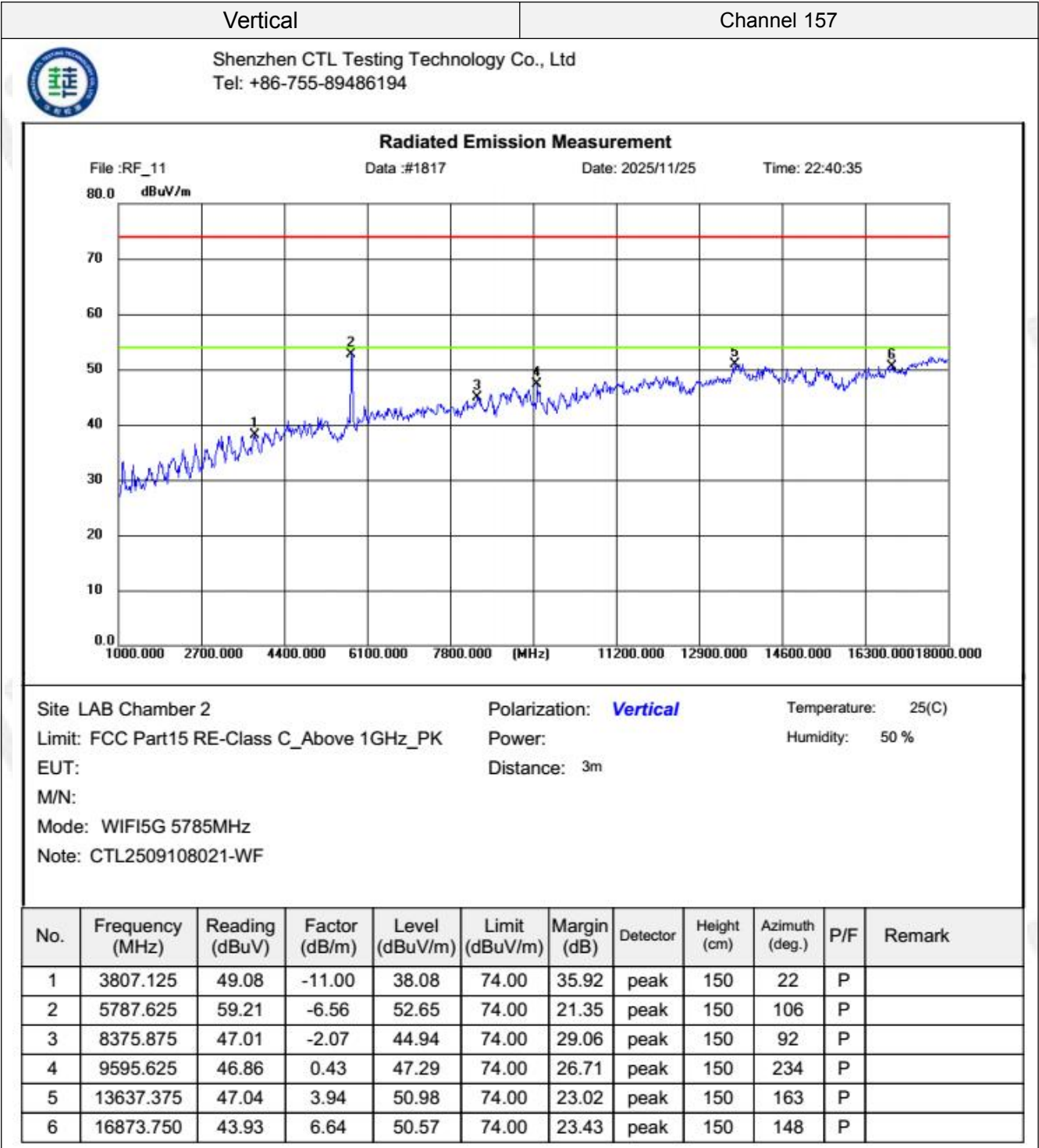
REMARKS:

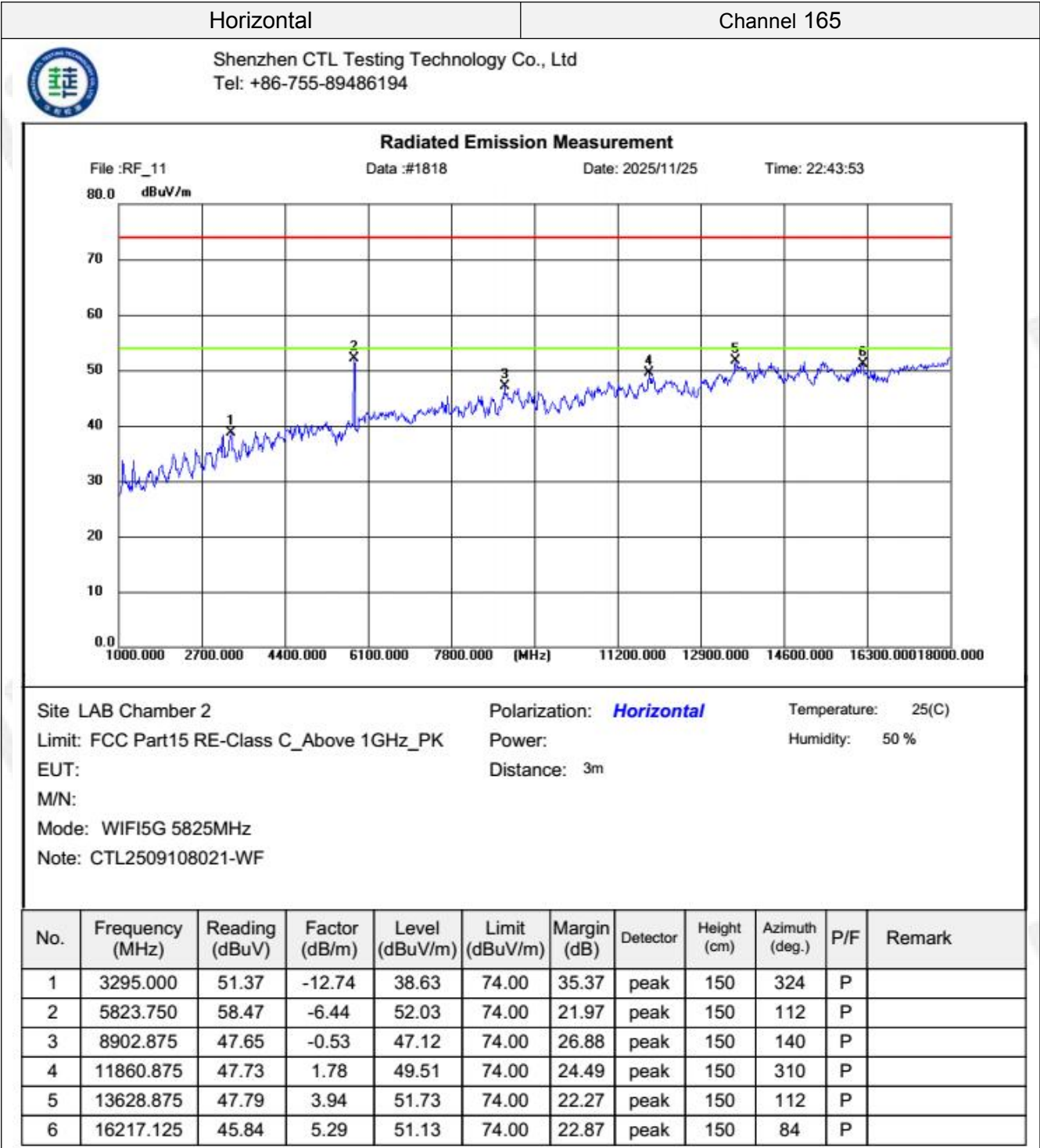
- Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
- Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Limit value- Emission level.
- Mean the PK detector measured value is below average limit.
- RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
- Other emissions are attenuated 20dB below the limits from 9 kHz to 30MHz, so it does not recorded in report.
- 18GHz-40GHz not recorded for no spurious point have a margin of less than 20 dB with respect to the limits.











Vertical

Channel 165



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Radiated Emission Measurement

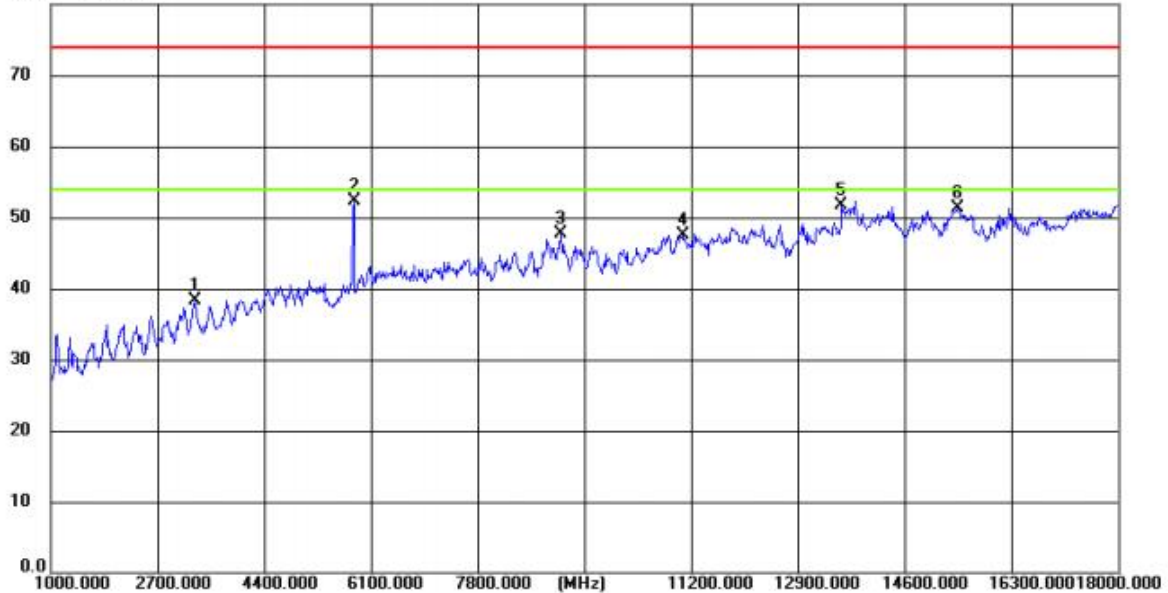
File :RF_11

Data :#1819

Date: 2025/11/25

Time: 22:44:44

80.0 dBuV/m



Site LAB Chamber 2

Polarization: **Vertical**

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N:

Mode: WIFI5G 5825MHz

Note: CTL2509108021-WF

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	3295.000	51.00	-12.74	38.26	74.00	35.74	peak	150	191	P	
2	5830.125	58.72	-6.43	52.29	74.00	21.71	peak	150	107	P	
3	9134.500	47.76	-0.15	47.61	74.00	26.39	peak	150	107	P	
4	11064.000	46.80	0.79	47.59	74.00	26.41	peak	150	318	P	
5	13609.750	47.83	3.96	51.79	74.00	22.21	peak	150	0	P	
6	15460.625	47.55	3.83	51.38	74.00	22.62	peak	150	305	P	

REMARKS:

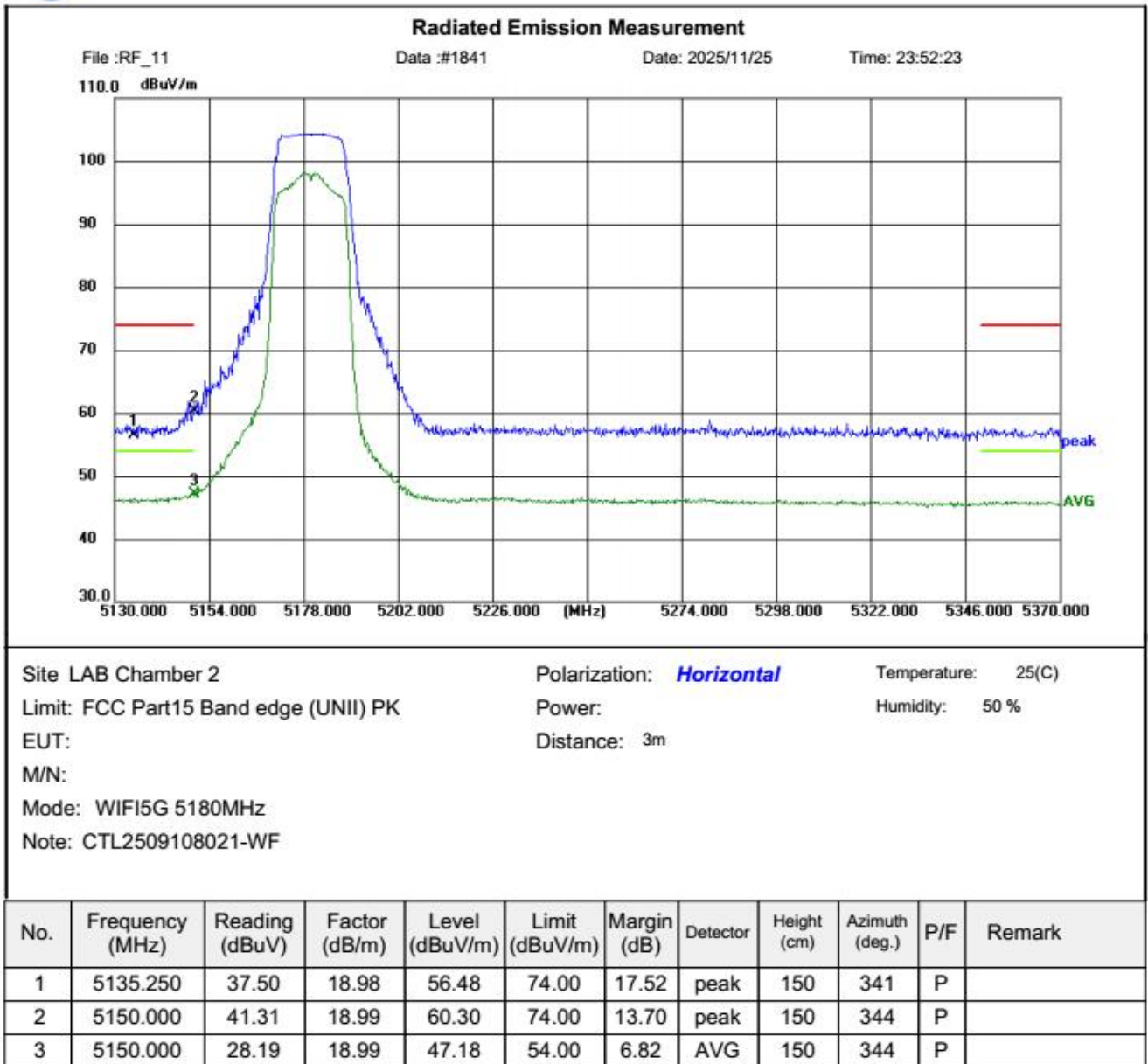
1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
6. Other emissions are attenuated 20dB below the limits from 9 kHz to 30MHz, so it does not recorded in report.
7. 18GHz-40GHz not recorded for no spurious point have a margin of less than 20 dB with respect to the limits.

Band Edge Test Plots of U-NII 1

802.11n (HT20) mode@ Ch36_5180MHz

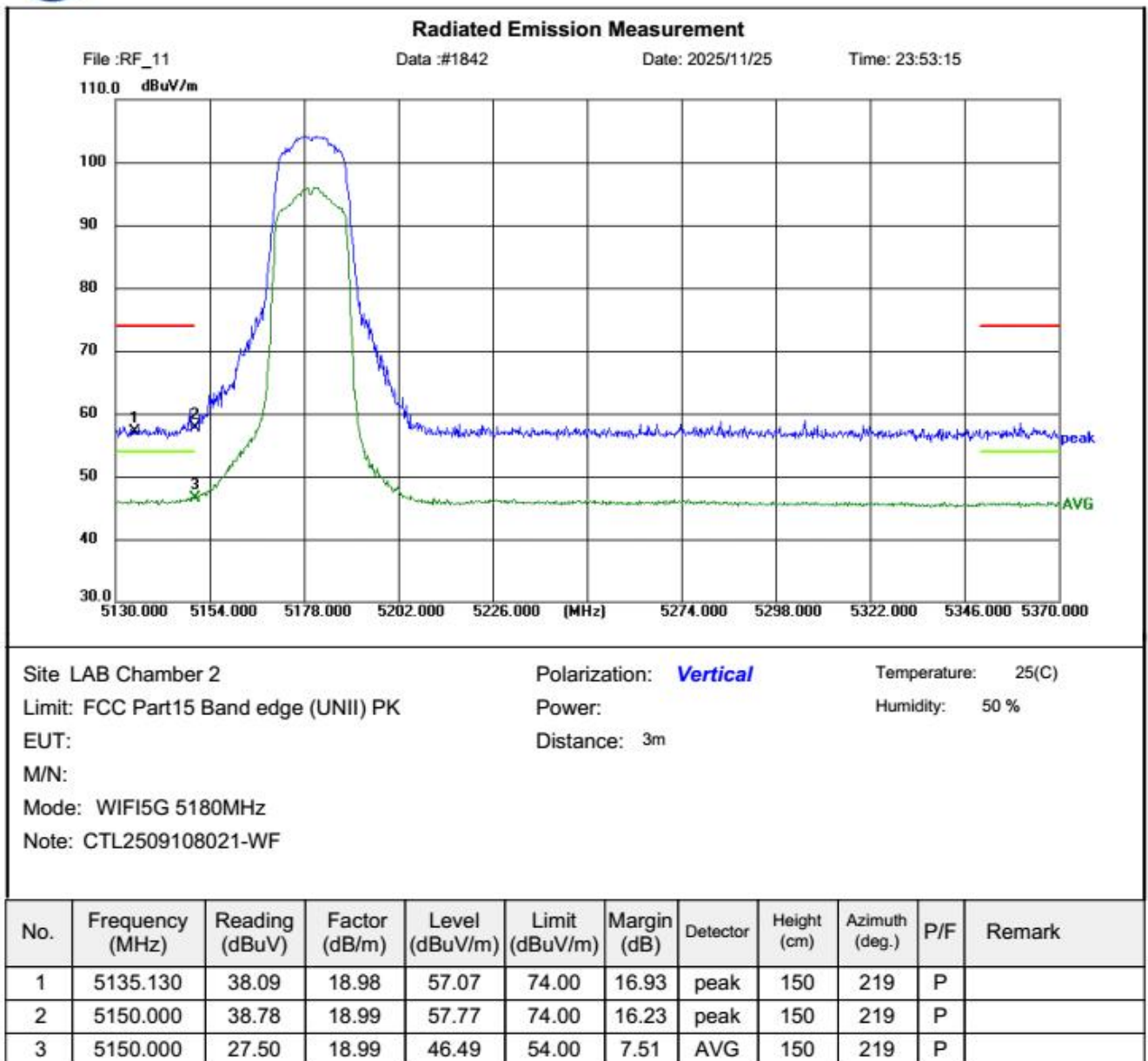


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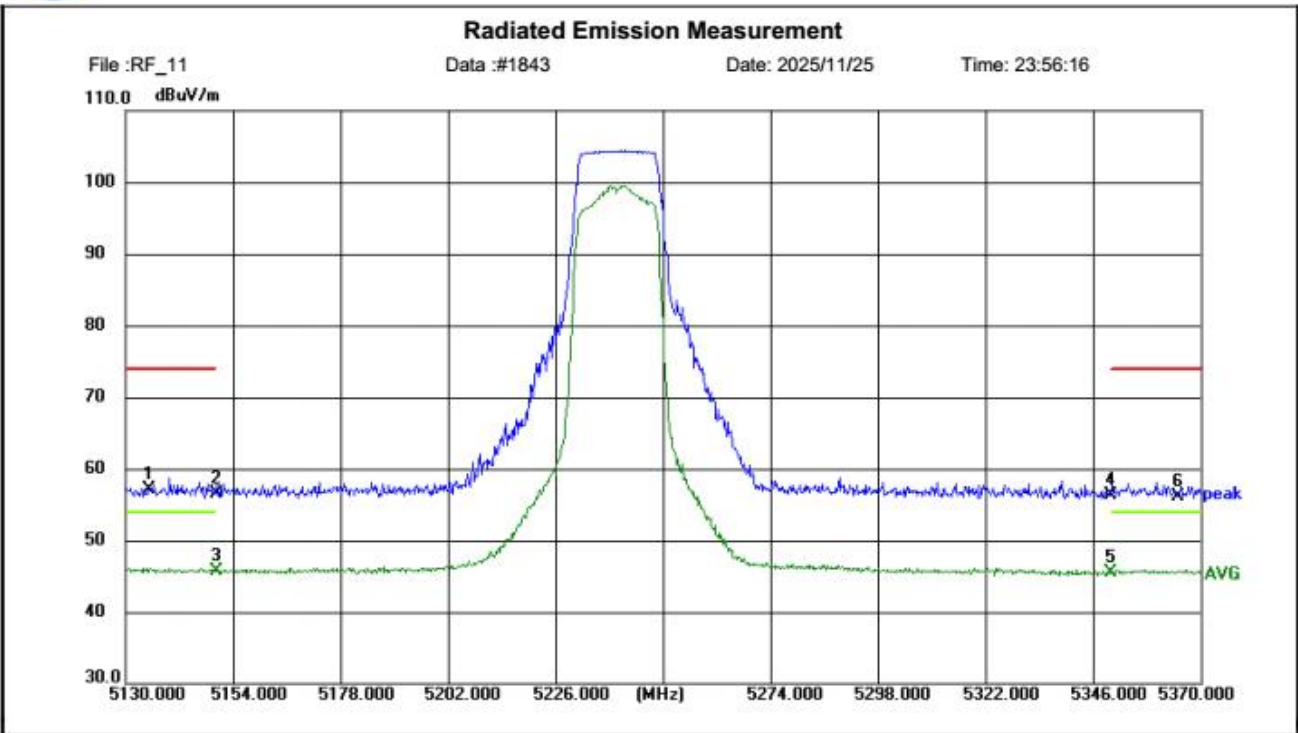


Band Edge Test Plots of U-NII 1

802.11n (HT20) mode@ Ch48_5240MHz



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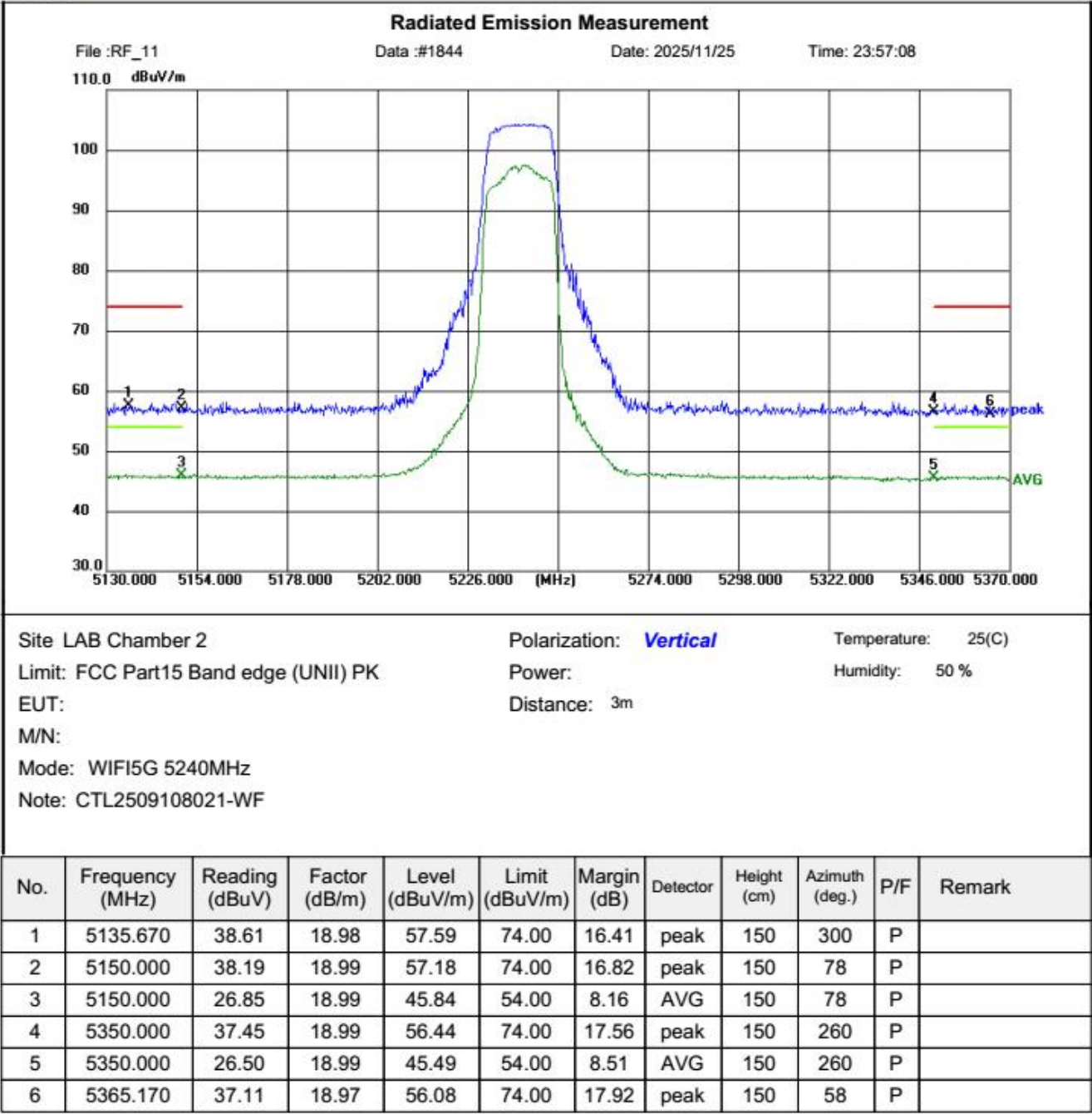
Site LAB Chamber 2
Limit: FCC Part15 Band edge (UNII) PK
EUT:
M/N:
Mode: WIFI5G 5240MHz
Note: CTL2509108021-WF

Polarization: **Horizontal** Temperature: 25(C)
Power: Humidity: 50 %
Distance: 3m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5135.430	38.03	18.98	57.01	74.00	16.99	peak	150	1	P	
2	5150.000	37.43	18.99	56.42	74.00	17.58	peak	150	20	P	
3	5150.000	26.66	18.99	45.65	54.00	8.35	AVG	150	20	P	
4	5350.000	37.25	18.99	56.24	74.00	17.76	peak	150	80	P	
5	5350.000	26.54	18.99	45.53	54.00	8.47	AVG	150	80	P	
6	5365.110	37.09	18.97	56.06	74.00	17.94	peak	150	1	P	



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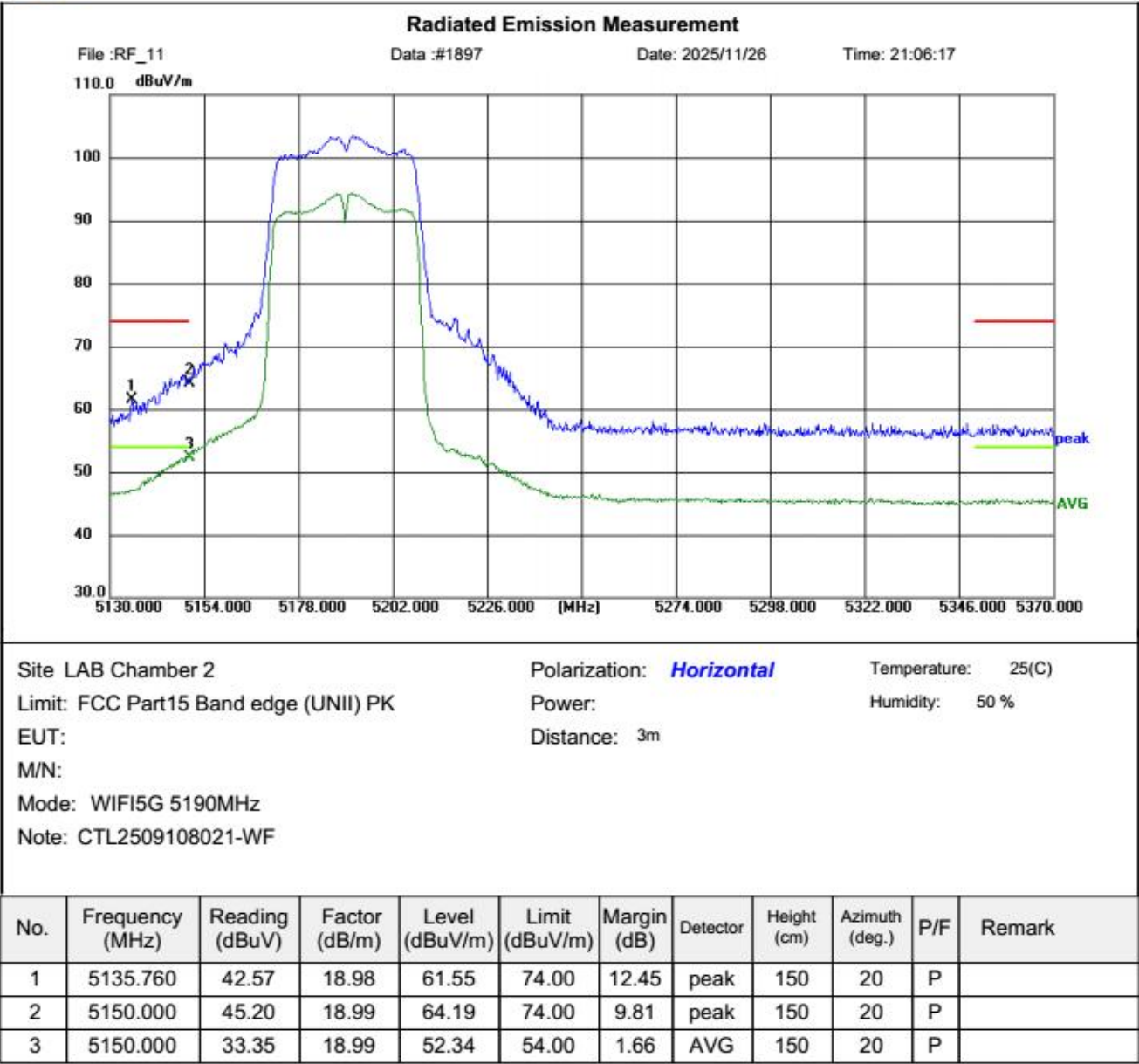


Band Edge Test Plots of U-NII 1

802.11n (HT40) mode@ Ch38_5190MHz

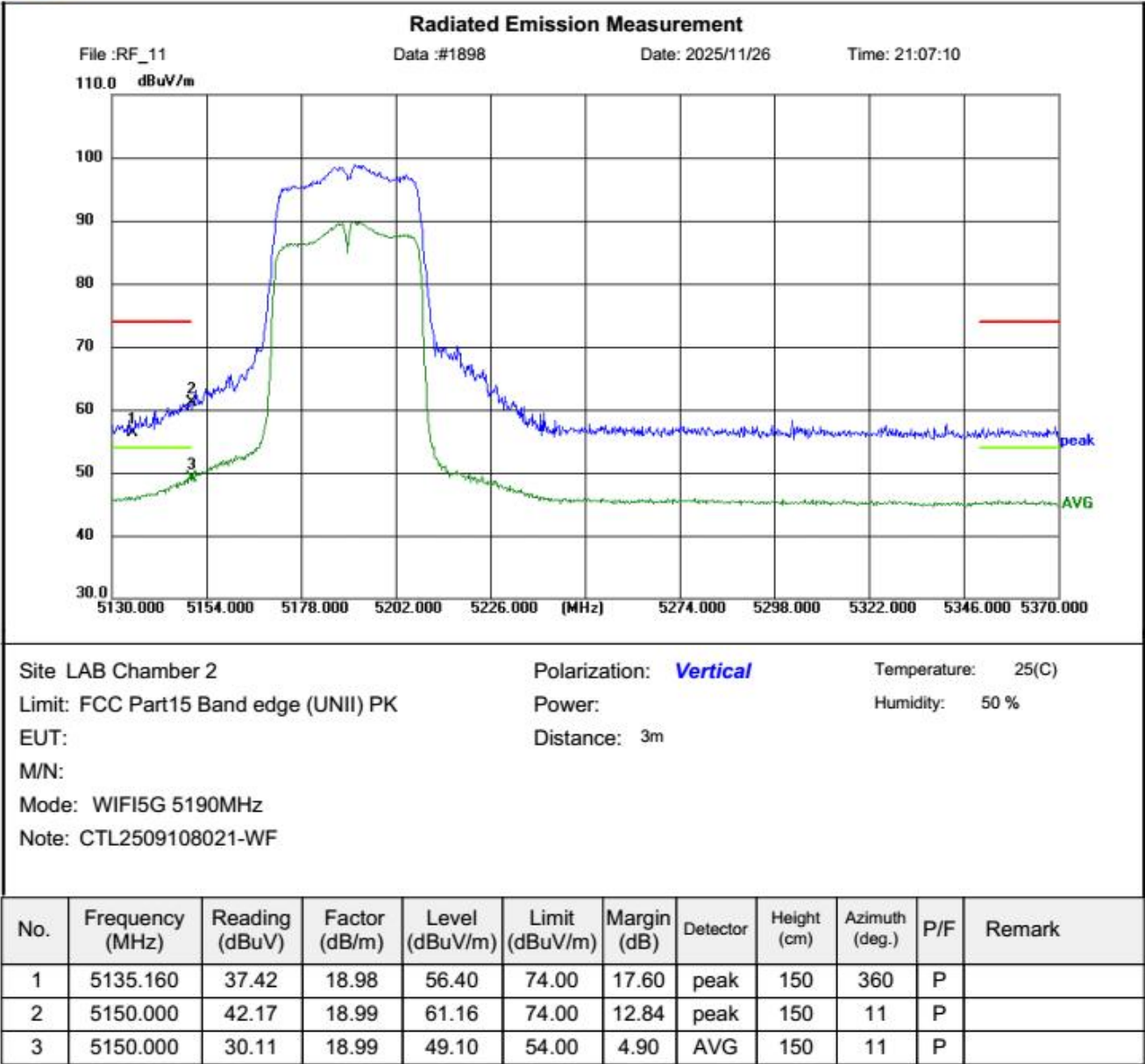


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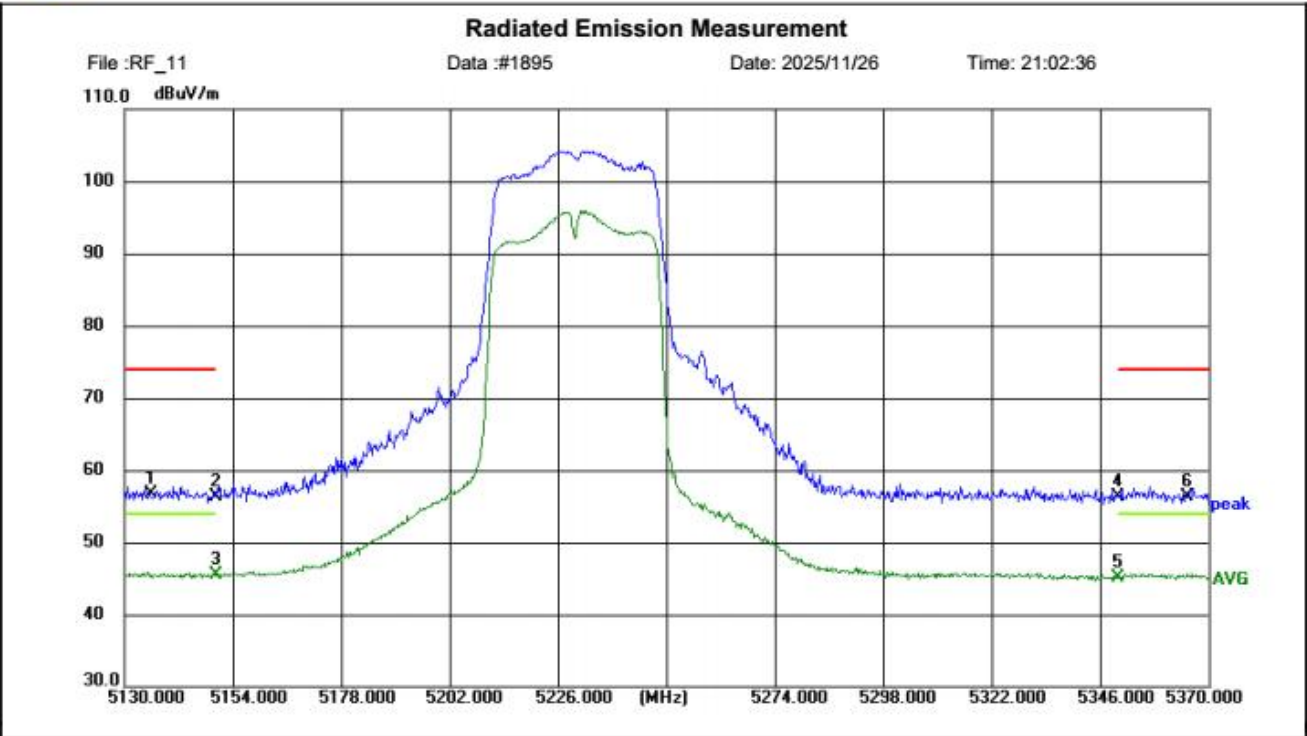


Band Edge Test Plots of U-NII 1

802.11n (HT40) mode@ Ch46_5230MHz



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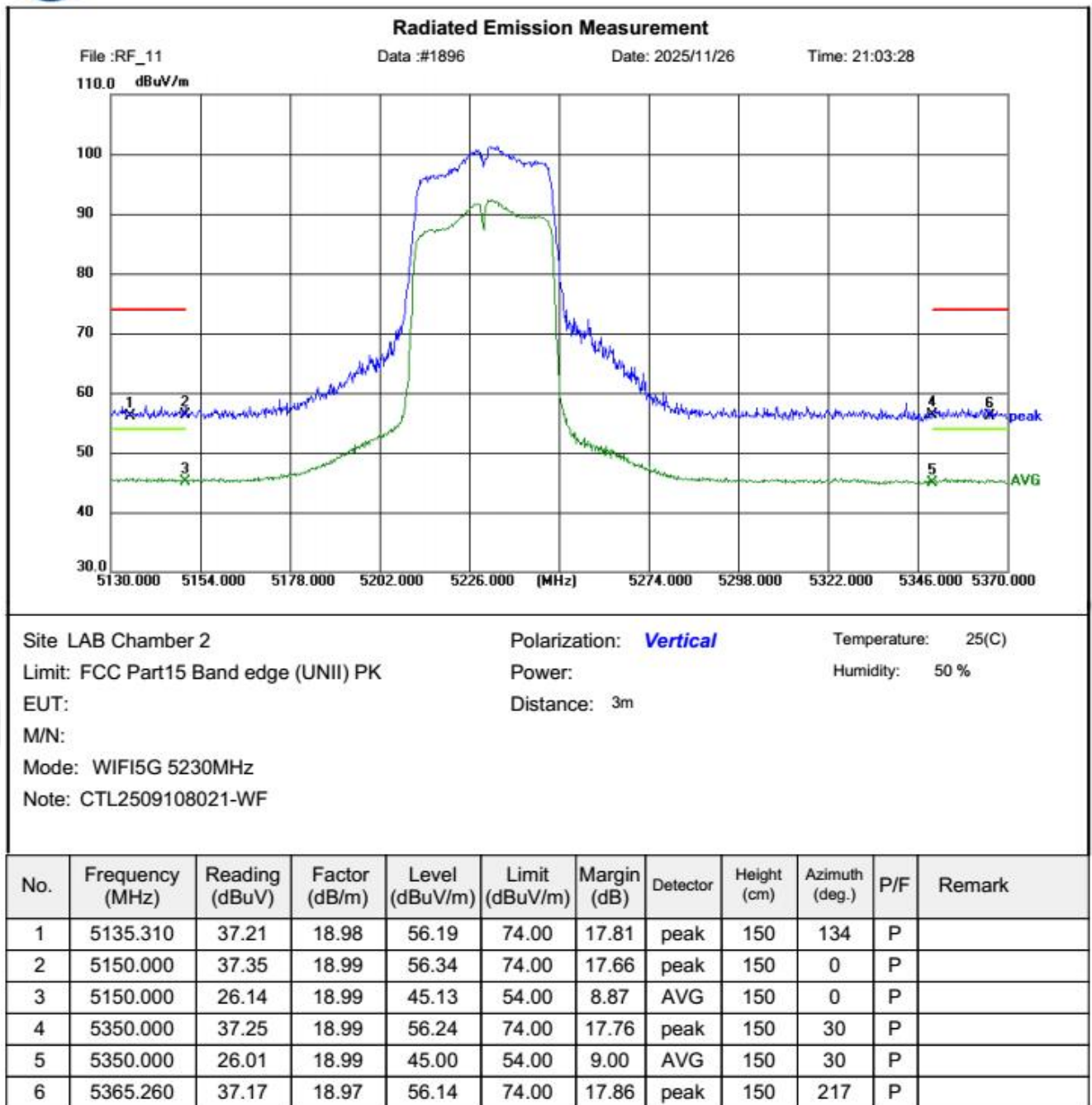
Site LAB Chamber 2
Limit: FCC Part15 Band edge (UNII) PK
EUT:
M/N:
Mode: WIFI5G 5230MHz
Note: CTL2509108021-WF

Polarization: **Horizontal** Temperature: 25(C)
Power: Humidity: 50 %
Distance: 3m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5135.850	37.72	18.98	56.70	74.00	17.30	peak	150	144	P	
2	5150.000	37.32	18.99	56.31	74.00	17.69	peak	150	308	P	
3	5150.000	26.42	18.99	45.41	54.00	8.59	AVG	150	308	P	
4	5350.000	37.36	18.99	56.35	74.00	17.65	peak	150	360	P	
5	5350.000	26.11	18.99	45.10	54.00	8.90	AVG	150	360	P	
6	5365.440	37.25	18.97	56.22	74.00	17.78	peak	150	20	P	



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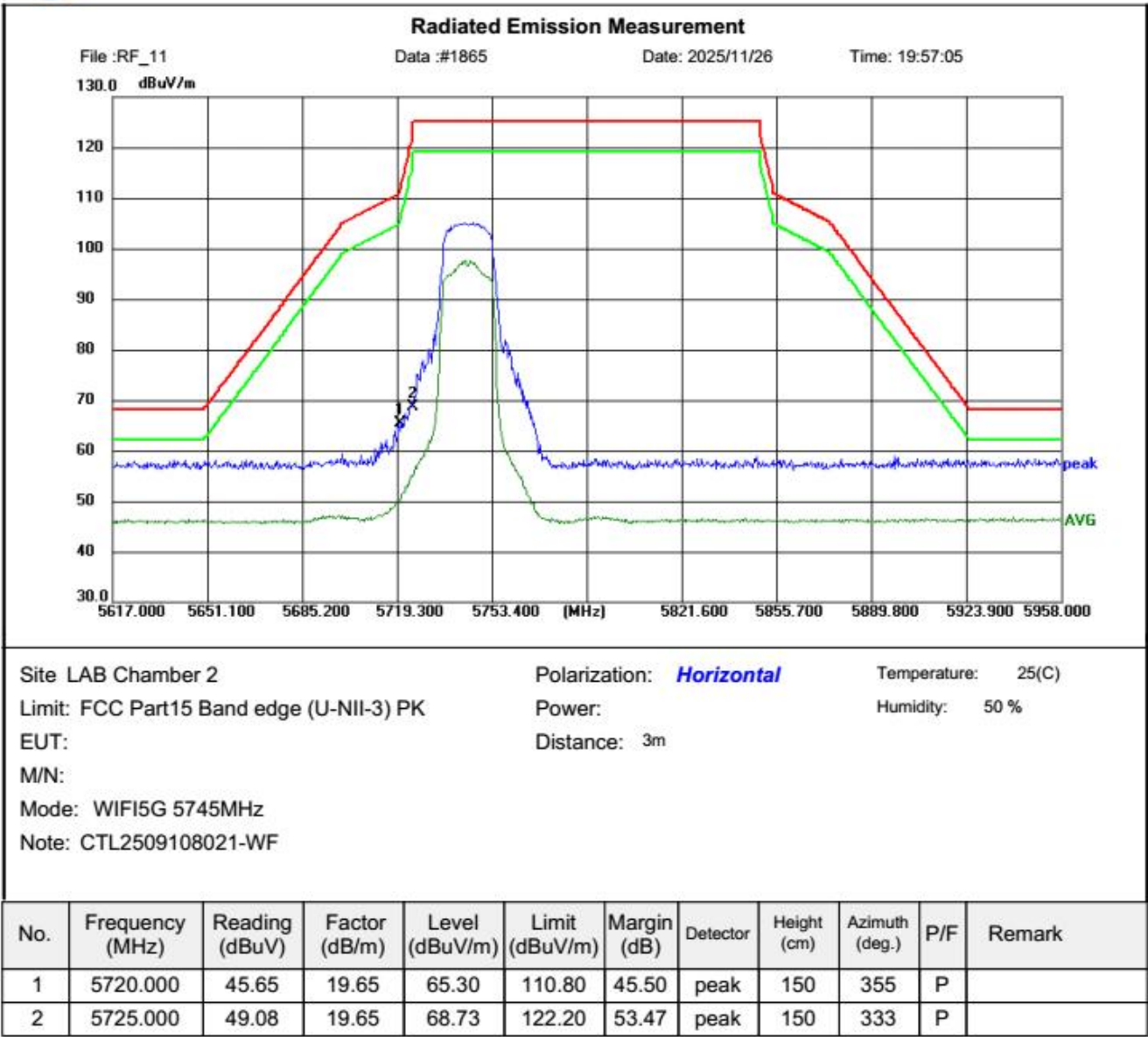


Band Edge Test Plots of U-NII 3

802.11n (HT20) mode@ Ch149_5745MHz

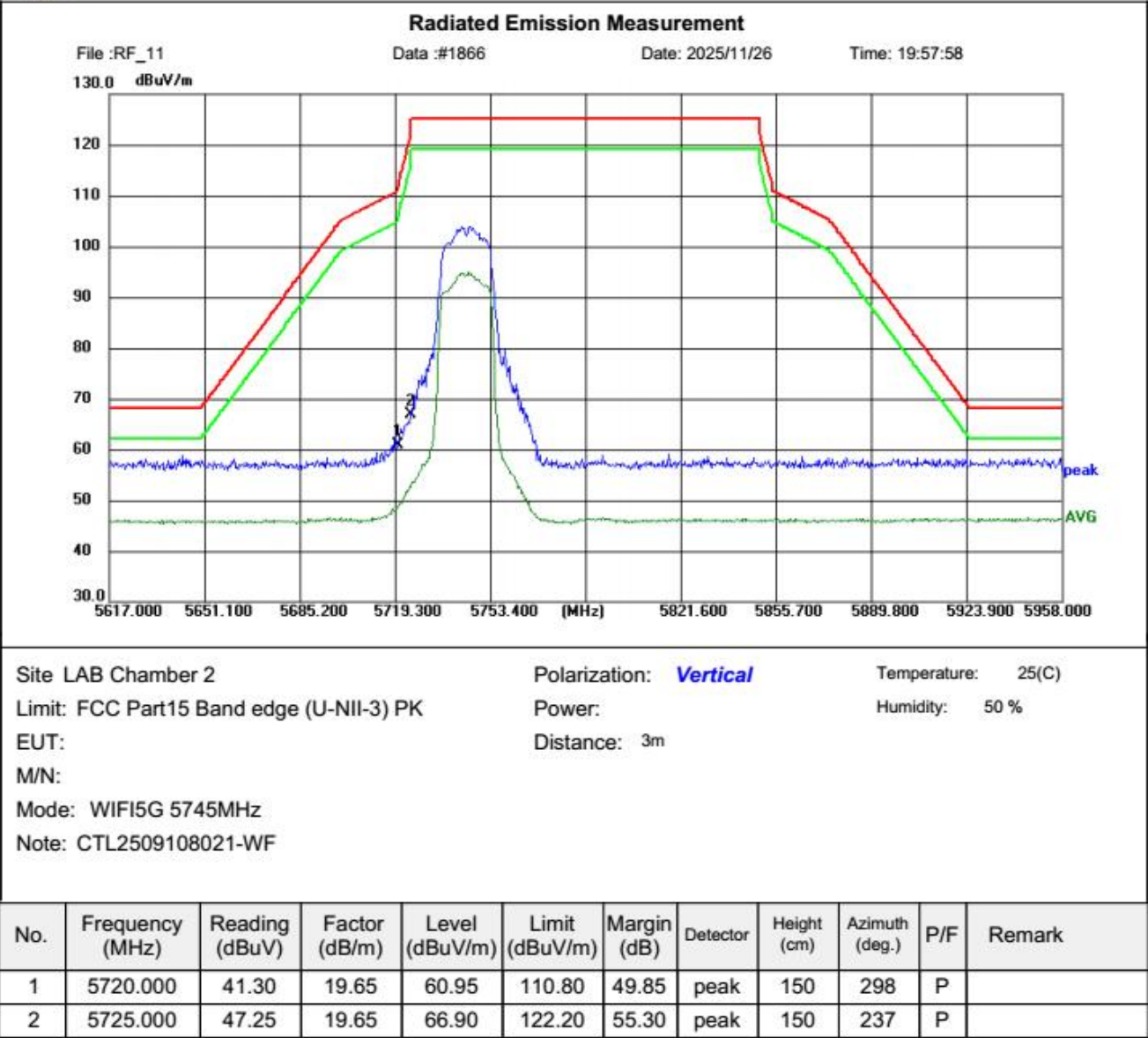


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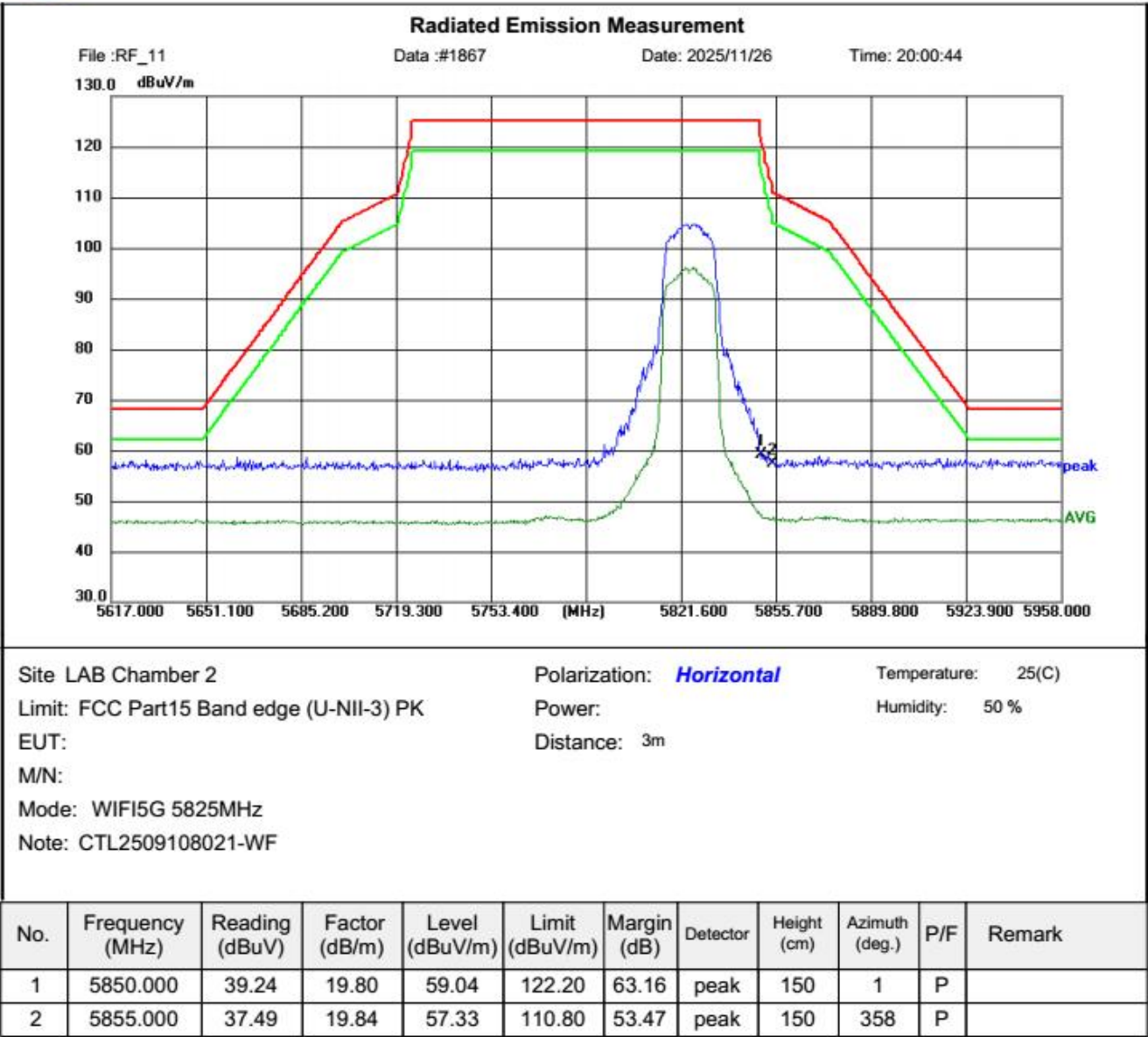


Band Edge Test Plots of U-NII 3

802.11n (HT20) mode@ Ch165_5825MHz

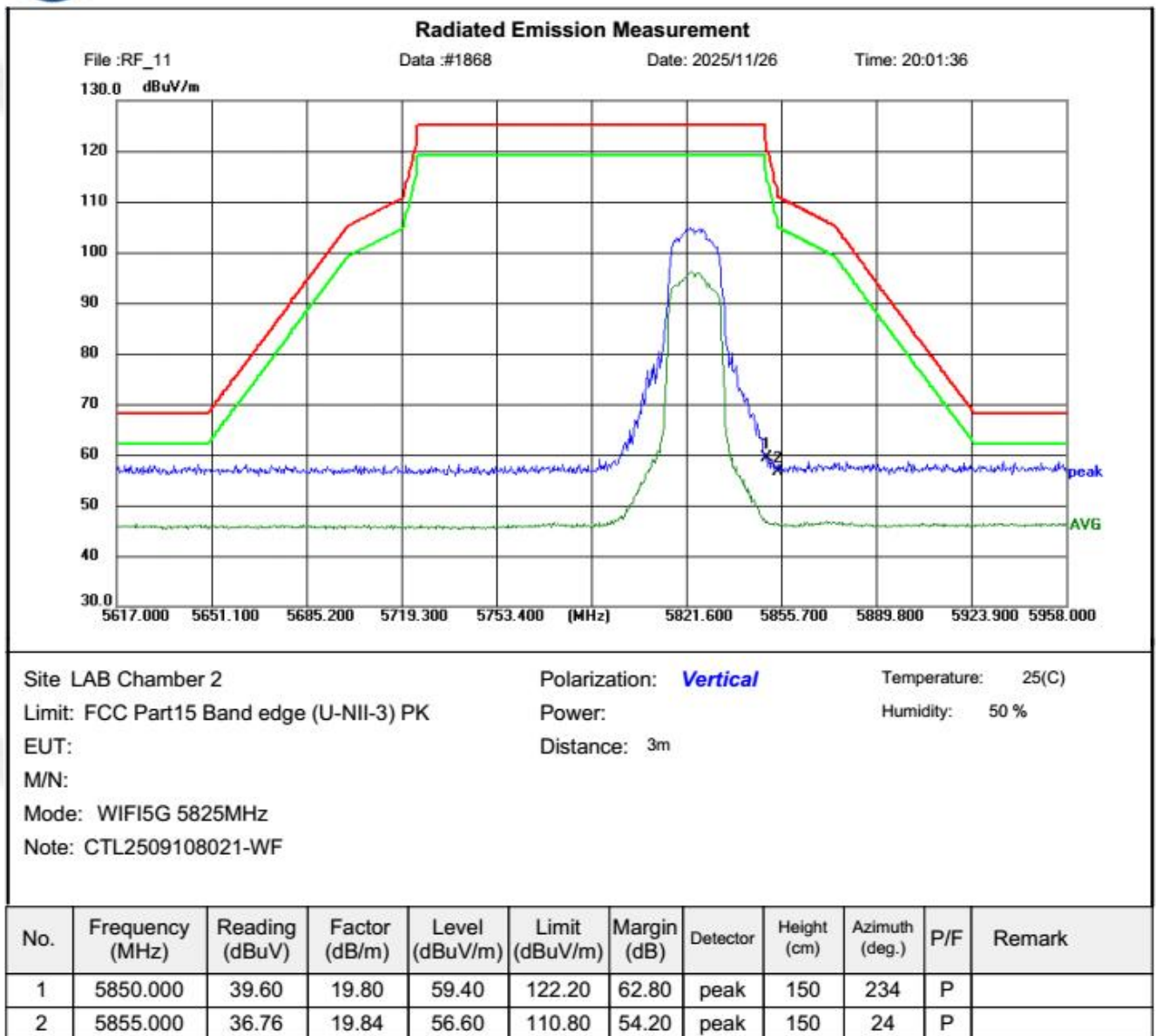


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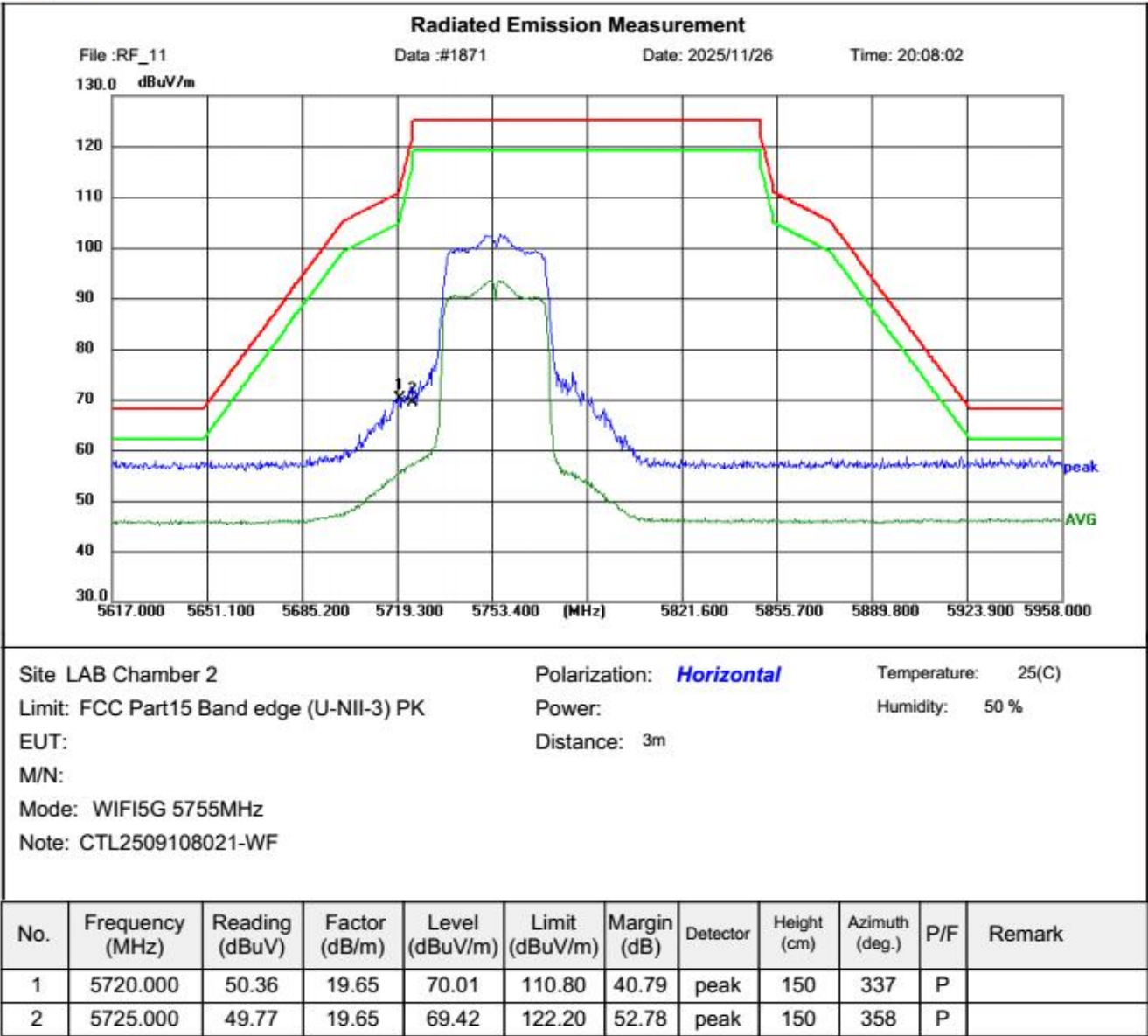


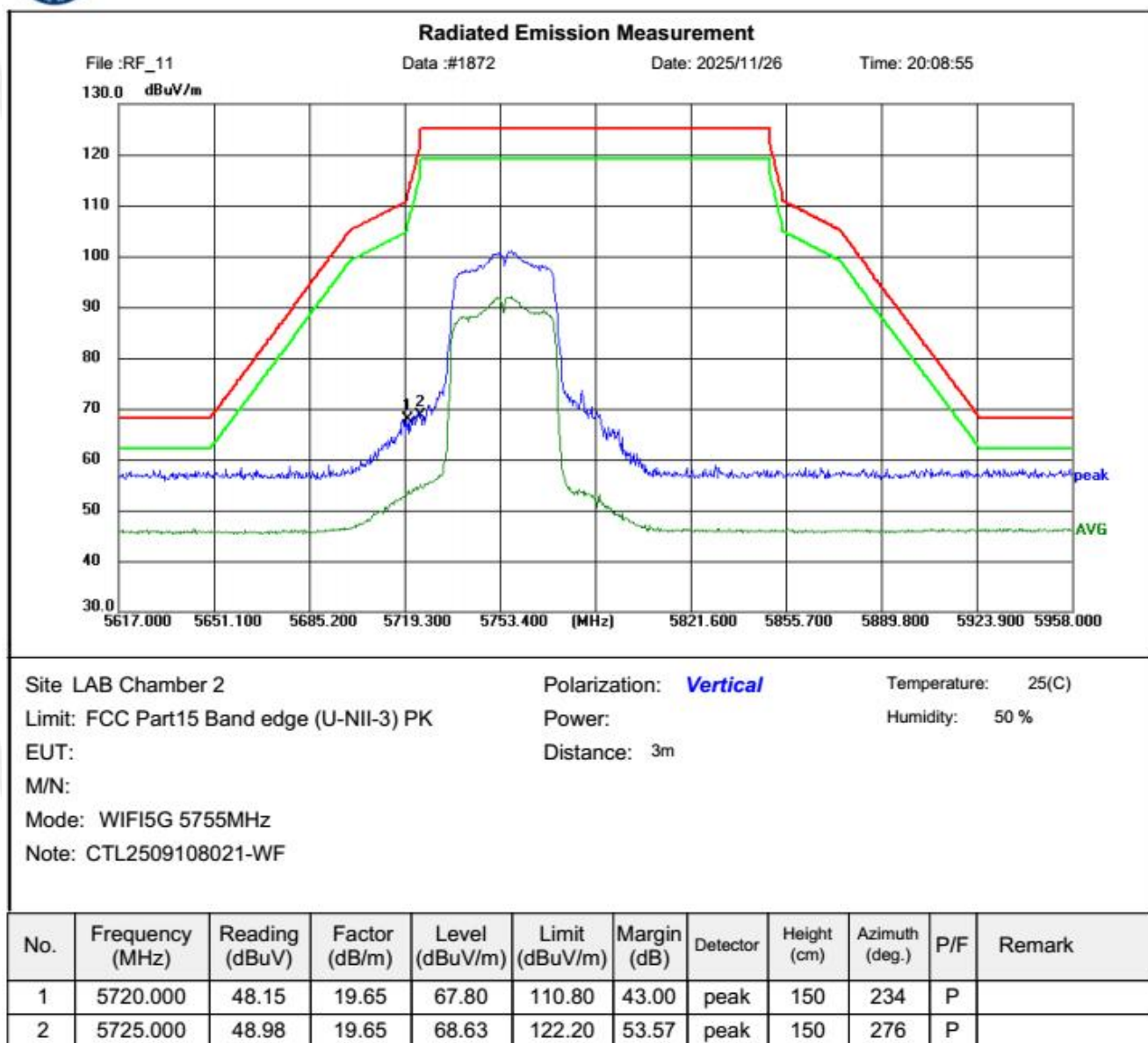
Band Edge Test Plots of U-NII 3

802.11n (HT40) mode@ Ch151_5755MHz



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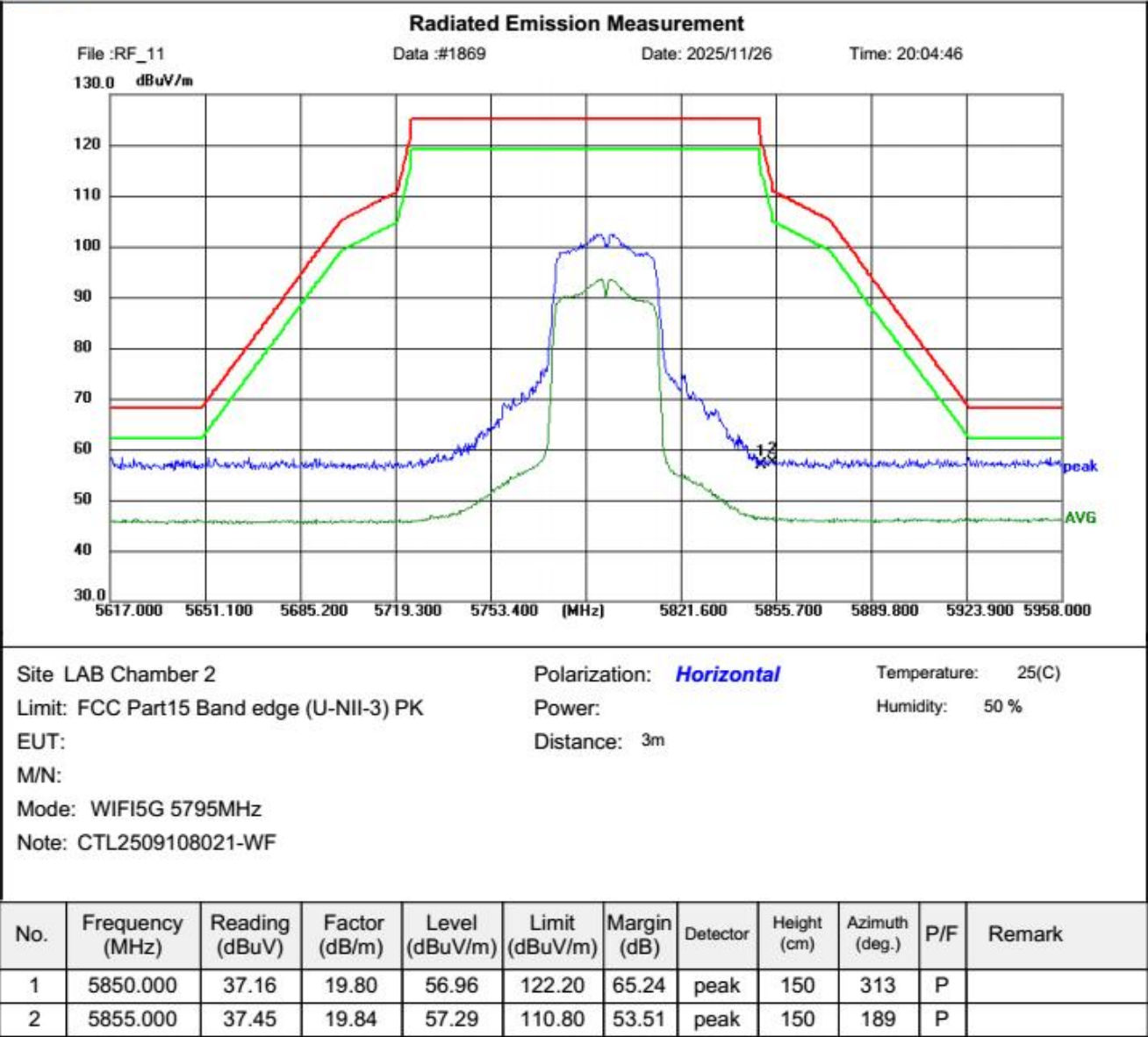


Band Edge Test Plots of U-NII 3

802.11n (HT40) mode@ Ch159_5795MHz

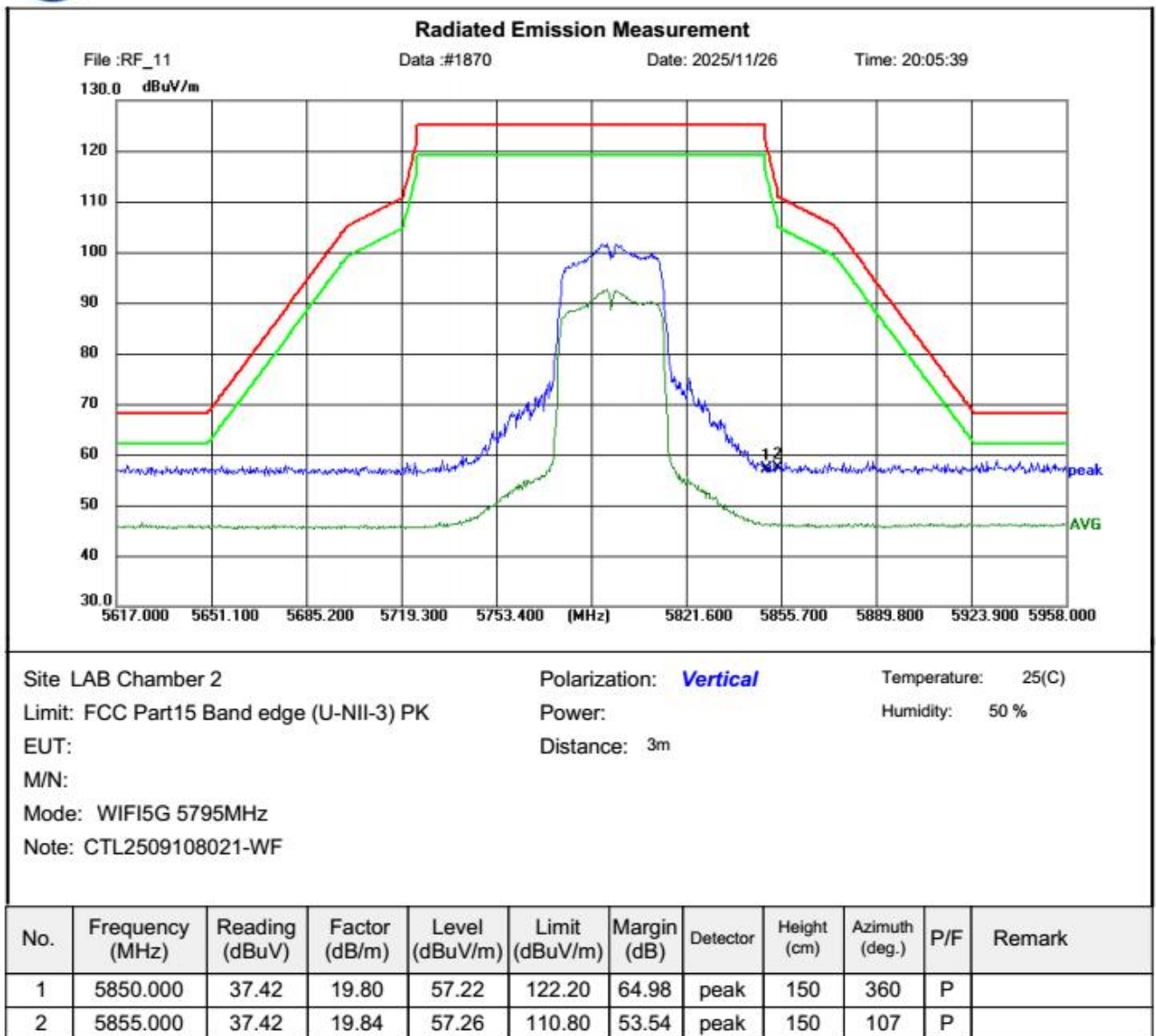


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3.3. Maximum Conducted Average Output Power

Limit

FCC requirement:

For the band 5.15-5.25 GHz.

- (i) For an outdoor 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 6dBi.
- (ii) 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 6dBi.
- (iii) For fixed point-to-point access points 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.
- (iv) 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 250mW provided the maximum antenna gain does not exceed 6dBi.

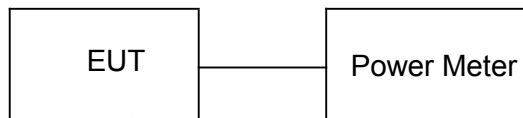
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250mW or $11\text{dBm} + 10\log B$, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power meter.

Test Configuration



Test Results

Raw data reference to CTL2509108021-WF03_5G_Band_1_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_2A_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_2C_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_3_UNII_Appendix.

3.4. Power Spectral Density

Limit

FCC requirement:

For the band 5.15-5.25 GHz.

- (i) For an outdoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17dBm in any 1 MHz band.^{note1}
- (ii) For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17dBm in any 1 MHz band.^{note1}
- (iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23dBi.
- (iv) For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 MHz band.^{note1}

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands

The maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

IC requirement:

For the band 5.15-5.25 GHz.

The e.i.r.p. spectral density shall not exceed 10dBm in any 1.0 MHz band.

Frequency band 5250-5350 MHz

The power spectral density shall not exceed 11dBm in any 1.0 MHz band

Frequency bands 5470-5600 MHz and 5650-5725 MHz

The power spectral density shall not exceed 11dBm in any 1.0 MHz band.

For the band 5.725 - 5.85 GHz

The maximum power spectral density shall not exceed 30dBm in any 500 kHz band.^{note1, note2}

Note1: If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Note2: Fixed point - to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6dBi 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.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 1MHz for U-NII 1, U-NII 2A, U-NII C band and 510KHz for U-NII 3 band.
3. Set the VBW $\geq 3 \times$ RBW.
4. Set the span to encompass the entire EBW.
5. Detector = Average.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.

Test Configuration**Test Results**

Raw data reference to CTL2509108021-WF03_5G_Band_1_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_2A_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_2C_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_3_UNII_Appendix.

3.5. Emission Bandwidth (26dBm Bandwidth)

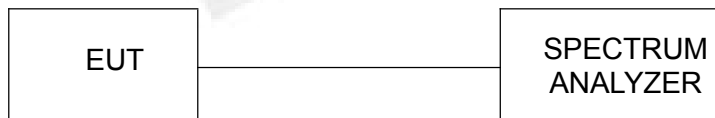
Limit

N/A

Test Procedure

1. Set resolution bandwidth (RBW) = approximately 1 % of the EBW.
2. Set the video bandwidth (VBW) > RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak 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 %.

Test Configuration



Test Results

Raw data reference to CTL2509108021-WF03_5G_Band_1_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_2A_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_2C_UNII_Appendix.

3.6. Minimum Emission Bandwidth (6dBm Bandwidth)

Limit

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725-5.85 GHz

Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth 3 x RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. 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.

Test Configuration



Test Results

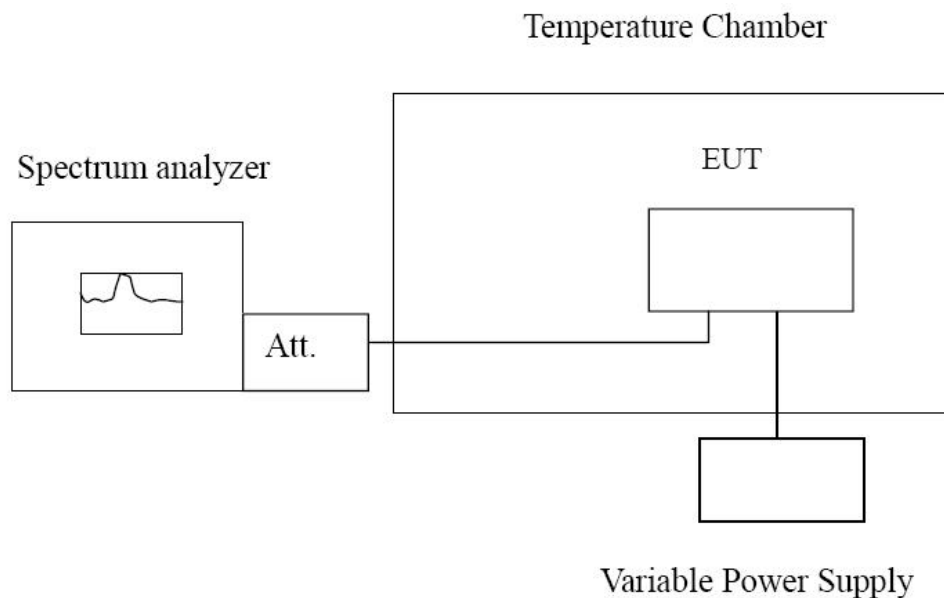
Raw data reference to CTL2509108021-WF03_5G_Band_3_UNII_Appendix.

3.7. Frequency Stability

LIMIT

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

TEST CONFIGURATION



TEST PROCEDURE

Frequency Stability under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +85°C reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

TEST RESULTS

Raw data reference to CTL2509108021-WF03_5G_Band_1_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_2A_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_2C_UNII_Appendix.
Raw data reference to CTL2509108021-WF03_5G_Band_3_UNII_Appendix.

3.8. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 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, 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

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

Refer to statement below for compliance

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

Antenna:FPC Antenna

5180MHz-5240MHz:

Antenna:2.68dBi

5260MHz-5320MHz:

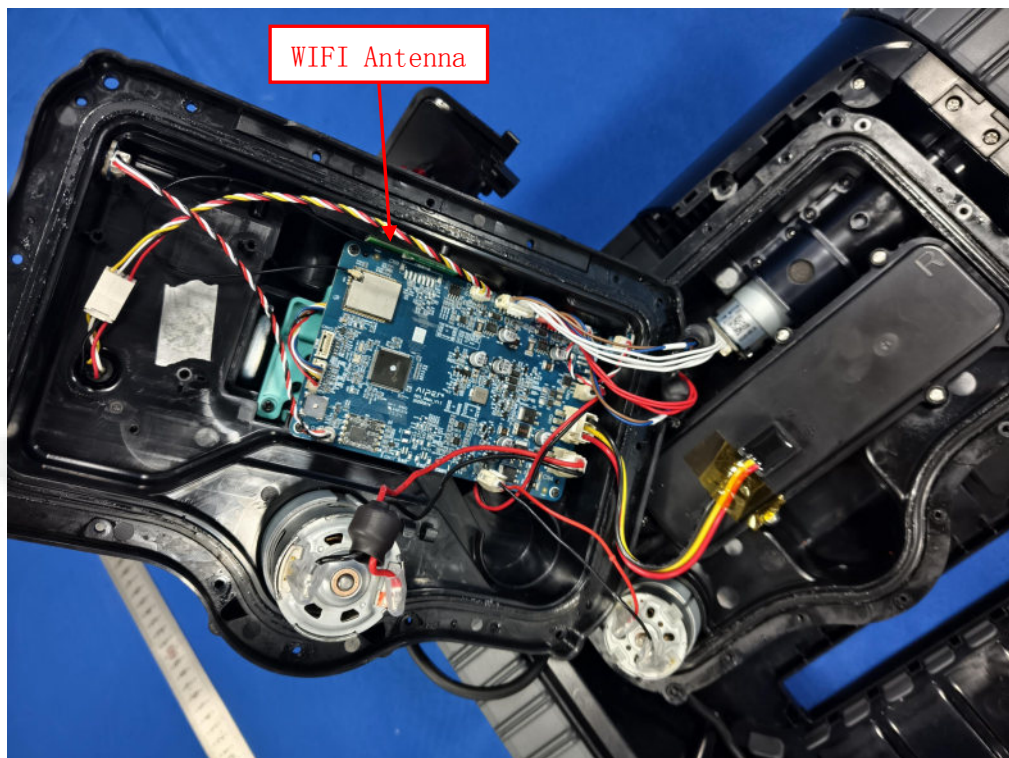
Antenna:3.22dBi

5500MHz-5700MHz:

Antenna:3.63dBi

5745MHz-5825MHz:

Antenna:3.46dBi



4. Test Setup Photos of the EUT

Reference to the test report No.CTL2509108021-WF01.

5. Photos of the EUT

Reference to the test report No.CTL2509108021-WF01.

***** End of Report *****