

TEST REPORT

Applicant: Shenzhen ZO Video Technology Co., Ltd.

Address of Applicant: 2c, 2 / F, building 6, Longbi Industrial Zone, 27 Dafa Road, Longgang District, Shenzhen

Manufacturer/Factory: Shenzhen ZO Video Technology Co., Ltd.

Address of Manufacturer/Factory: 2c, 2 / F, building 6, Longbi Industrial Zone, 27 Dafa Road, Longgang District, Shenzhen

Equipment Under Test (EUT)

Product Name: ZOlink wireless video system

Model No.: ZO600S TX,ZO500 TX ,Matrix 600s TX,Matrix 600 TX

Trade Mark: Shimbol, Moman

FCC ID: 2AZRJ-ZO600STX

Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407

Date of sample receipt: July 21,2021

Date of Test: July 25,2021-August 06,2021

Date of report issue: August 08,2021

Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Luo

Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

| Version No. | Date | Description |
|-------------|----------------|-------------|
| 00 | August 08,2021 | Original |
| | | |
| | | |
| | | |
| | | |

Prepared By:



Date:

August 08,2021

Project Engineer

Check By:



Date:

August 08,2021

Reviewer

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4 Test Summary

| Test Item | Section in CFR 47 | Result |
|----------------------------------|-----------------------------|--------|
| Antenna requirement | 15.203 | PASS |
| AC Power Line Conducted Emission | 15.207 | PASS |
| Peak Transmit Power | 15.407(a)(1) | PASS |
| Power Spectral Density | 15.407(a)(1) | PASS |
| Undesirable Emission | 15.407(b)(6), 15.205/15.209 | PASS |
| Radiated Emission | 15.205/15.209 | PASS |
| Band Edge | 15.407(b)(1) | PASS |
| Frequency Stability | 15.407(g) | PASS |

Remark:

Pass: The EUT complies with the essential requirements in the standard.

4.1 Measurement Uncertainty

| Test Item | Frequency Range | Measurement Uncertainty | Notes |
|----------------------------------|-----------------|-------------------------|-------|
| Radiated Emission | 30MHz-200MHz | 3.8039dB | (1) |
| Radiated Emission | 200MHz-1GHz | 3.9679dB | (1) |
| Radiated Emission | 1GHz-18GHz | 4.29dB | (1) |
| Radiated Emission | 18GHz-40GHz | 3.30dB | (1) |
| AC Power Line Conducted Emission | 0.15MHz ~ 30MHz | 3.44dB | (1) |

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

5 General Information

5.1 General Description of EUT

| | | | | |
|------------------------|---|--------------|----------------------|--------------------|
| Product Name: | ZOlink wireless video system | | | |
| Model No.: | ZO600S TX,ZO500 TX ,Matrix 600s TX,Matrix 600 TX | | | |
| Serial No.: | N/A | | | |
| Hardware Version: | R1.7 | | | |
| Software Version: | R1.0 | | | |
| Test sample(s) ID: | GTSL202108000028-1 | | | |
| Sample(s) Status: | Engineer sample | | | |
| Operation Frequency: | Band | Mode | Frequency Range(MHz) | Number of channels |
| | U-NII Band I | IEEE 802.11a | 5180-5240 | 4 |
| Modulation technology: | IEEE 802.11n/ 20MHz | | | |
| | OFDM(BPSK/QPSK/16QAM/64QAM) | | | |
| | MIMO: 802.11n(HT20) | | | |
| Antenna Type: | SISO: 802.11a, 802.11n(HT20) | | | |
| | internal Antenna | | | |
| | Antenna gain: Antenna number: 2 ANTA:2.5dBi ANTB:2.5dBi MIMO technology Directional gain=5.51dBi | | | |
| Power supply: | DC 5V | | | |

| Channel list for 802.11a/n (HT20) | | | | | | | |
|-----------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 36 | 5180MHz | 40 | 5200MHz | 44 | 5220MHz | 48 | 5240MHz |

5.2 Test mode

| | |
|---|--|
| Transmitting mode | Keep the EUT in transmitting with modulation.. |
| <p><i>Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i></p> | |
| <p>We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:</p> | |
| <p>Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.</p> | |
| Mode | Data rate |
| 802.11a (SISO mode) | 6 Mbps |
| 802.11n(HT20) (SISO mode) | MCS 0 |
| 802.11n(HT20) (MIMO mode) | MCS 8 |

5.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC—Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

- **IC —Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-

anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.4 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.5 Description of Support Units

None.

5.6 Deviation from Standards

None.

5.7 Abnormalities from Standard Conditions

None.

6 Test Instruments list

| Radiated Emission: | | | | | | |
|--------------------|-------------------------------------|-----------------------------|-----------------------------|---------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | 3m Semi- Anechoic Chamber | ZhongYu Electron | 9.2(L)*6.2(W)* 6.4(H) | GTS250 | July. 02 2020 | July. 01 2025 |
| 2 | Control Room | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS251 | N/A | N/A |
| 3 | EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | June. 24 2021 | June. 23 2022 |
| 4 | BiConiLog Antenna | SCHWARZBECK MESS-ELEKTRONIK | VULB9163 | GTS214 | June. 24 2021 | June. 23 2022 |
| 5 | Double -ridged waveguide horn | SCHWARZBECK MESS-ELEKTRONIK | BBHA 9120 D | GTS208 | June. 24 2021 | June. 23 2022 |
| 6 | Horn Antenna | ETS-LINDGREN | 3160 | GTS217 | June. 24 2021 | June. 23 2022 |
| 7 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 8 | Coaxial Cable | GTS | N/A | GTS213 | June. 24 2021 | June. 23 2022 |
| 9 | Coaxial Cable | GTS | N/A | GTS211 | June. 24 2021 | June. 23 2022 |
| 10 | Coaxial cable | GTS | N/A | GTS210 | June. 24 2021 | June. 23 2022 |
| 11 | Coaxial Cable | GTS | N/A | GTS212 | June. 24 2021 | June. 23 2022 |
| 12 | Amplifier(100kHz-3GHz) | HP | 8347A | GTS204 | June. 24 2021 | June. 23 2022 |
| 13 | Amplifier(2GHz-20GHz) | HP | 84722A | GTS206 | June. 24 2021 | June. 23 2022 |
| 14 | Amplifier (18-26GHz) | Rohde & Schwarz | AFS33-18002 650-30-8P-44 | GTS218 | June. 24 2021 | June. 23 2022 |
| 15 | Band filter | Amindeon | 82346 | GTS219 | June. 24 2021 | June. 23 2022 |
| 16 | Power Meter | Anritsu | ML2495A | GTS540 | June. 24 2021 | June. 23 2022 |
| 17 | Power Sensor | Anritsu | MA2411B | GTS541 | June. 24 2021 | June. 23 2022 |
| 18 | Wideband Radio Communication Tester | Rohde & Schwarz | CMW500 | GTS575 | June. 24 2021 | June. 23 2022 |
| 19 | Splitter | Agilent | 11636B | GTS237 | June. 24 2021 | June. 23 2022 |
| 20 | Loop Antenna | ZHINAN | ZN30900A | GTS534 | June. 24 2021 | June. 23 2022 |
| 21 | Breitband hornantenne | SCHWARZBECK | BBHA 9170 | GTS579 | Oct. 18 2020 | Oct. 17 2021 |
| 22 | Amplifier | TDK | PA-02-02 | GTS574 | Oct. 18 2020 | Oct. 17 2021 |
| 23 | Amplifier | TDK | PA-02-03 | GTS576 | Oct. 18 2020 | Oct. 17 2021 |
| 24 | PSA Series Spectrum Analyzer | Rohde & Schwarz | FSP | GTS578 | June. 24 2021 | June. 23 2022 |

| Conducted Emission | | | | | | |
|--------------------|----------------------------|--------------------------|----------------------|---------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | Shielding Room | ZhongYu Electron | 7.3(L)x3.1(W)x2.9(H) | GTS252 | May.15 2019 | May.14 2022 |
| 2 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | June. 24 2021 | June. 23 2022 |
| 3 | Coaxial Switch | ANRITSU CORP | MP59B | GTS225 | June. 24 2021 | June. 23 2022 |
| 4 | ENV216 2-L-V- NETZNACHB.DE | ROHDE&SCHWARZ | ENV216 | GTS226 | June. 24 2021 | June. 23 2022 |
| 5 | Coaxial Cable | GTS | N/A | GTS227 | N/A | N/A |
| 6 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 7 | Thermo meter | KTJ | TA328 | GTS233 | June. 24 2021 | June. 23 2022 |
| 8 | Absorbing clamp | Elektronik- Feinmechanik | MDS21 | GTS229 | June. 24 2021 | June. 23 2022 |
| 9 | ISN | SCHWARZBECK | NTFM 8158 | GTS565 | June. 24 2021 | June. 23 2022 |
| 10 | High voltage probe | SCHWARZBECK | TK9420 | GTS537 | July. 09 2021 | July. 08 2022 |

| RF Conducted Test: | | | | | | |
|--------------------|--|--------------|------------------|------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | MXA Signal Analyzer | Agilent | N9020A | GTS566 | June. 24 2021 | June. 23 2022 |
| 2 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | June. 24 2021 | June. 23 2022 |
| 3 | Spectrum Analyzer | Agilent | E4440A | GTS533 | June. 24 2021 | June. 23 2022 |
| 4 | MXG vector Signal Generator | Agilent | N5182A | GTS567 | June. 24 2021 | June. 23 2022 |
| 5 | ESG Analog Signal Generator | Agilent | E4428C | GTS568 | June. 24 2021 | June. 23 2022 |
| 6 | USB RF Power Sensor | DARE | RPR3006W | GTS569 | June. 24 2021 | June. 23 2022 |
| 7 | RF Switch Box | Shongyi | RFSW3003328 | GTS571 | June. 24 2021 | June. 23 2022 |
| 8 | Programmable Constant Temp & Humi Test Chamber | WEWON | WHTH-150L-40-880 | GTS572 | June. 24 2021 | June. 23 2022 |

| General used equipment: | | | | | | |
|-------------------------|---------------------------------|--------------|-----------|---------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | Humidity/ Temperature Indicator | KTJ | TA328 | GTS243 | June. 24 2021 | June. 23 2022 |
| 2 | Barometer | ChangChun | DYM3 | GTS255 | June. 24 2021 | June. 23 2022 |

7 Test results and Measurement Data

7.1 Antenna requirement:

| | |
|--|--|
| Standard requirement: | FCC Part15 C Section 15.203 |
| <p><i>15.203 requirement:</i></p> <p><i>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.</i></p> | |
| <p>E.U.T Antenna:</p> | |
| | <p><i>The antennas are internal antenna, the best case gain of the antennas are 2.5dBi, reference to the appendix II for details</i></p> |

7.2 Conducted Emissions

| | | | |
|-----------------------|-----------------------------|--------------|-----------|
| Test Requirement: | FCC Part15 C Section 15.207 | | |
| Test Method: | ANSI C63.10:2013 | | |
| Test Frequency Range: | 150KHz to 30MHz | | |
| Class / Severity: | Class B | | |
| Receiver setup: | RBW=9KHz, VBW=30KHz | | |
| Limit: | Frequency range (MHz) | Limit (dBuV) | |
| | | Quasi-peak | Average |
| | 0.15-0.5 | 66 to 56* | 56 to 46* |
| | 0.5-5 | 56 | 46 |
| | 5-30 | 60 | 50 |

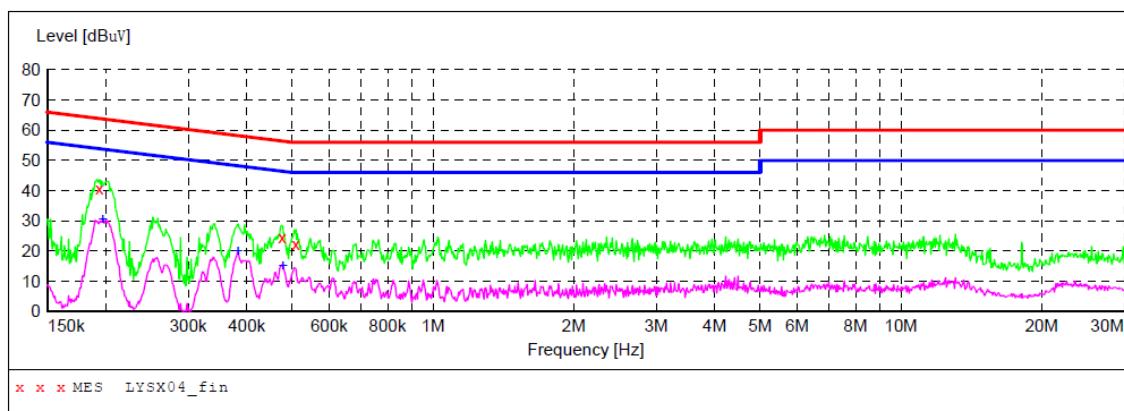
* Decreases with the logarithm of the frequency.

| Test procedure | The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 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 C63.10:2013 on conducted measurement. | | |
| Test setup: | **Reference Plane** **Remark** *E.U.T: Equipment Under Test* *LISN: Line Impedance Stabilization Network* *Test table height=0.8m* | | |
| Test Instruments: | Refer to section 6 for details | | |
| Test mode: | Refer to section 5.2 for details | | |
| Test environment: | Temp.: | 25 °C | Humid.: | 52% | Press.: | 1012mbar |
| Test voltage: | AC 120V, 60Hz | | | | |
| Test results: | Pass | | | | |

Remark: Both high and low voltages have been tested to show only the worst low voltage test data.

Measurement data:**Line:****Voltage Mains Test:FCC PART 15 B**

EUT: Zolink wireless video system M/N:Z0600S TX
Manufacturer: Shenzhen ZO Video Technology Co.,Ltd
Operating Condition: ON WITH WIFI
Test Site: Shielding Room
Operator: Jason
Test Specification: DC 5V (Powered by adaptor)
Comment: L LINE

SCAN TABLE: "Voltage (0.15K-30M) FIN"
Short Description: 150K-30M Voltage**MEASUREMENT RESULT: "LYSX04_fin"**

| 2021-8-6 0:38 | Frequency | Level | Transd | Limit | Margin | Detector | Line | PE |
|---------------|-----------|-------|--------|-------|--------|----------|------|-----|
| | MHz | dBuV | dB | dBuV | dB | | | |
| | 0.193664 | 40.50 | 7.1 | 64 | 23.4 | QP | L1 | GND |
| | 0.475482 | 24.60 | 7.6 | 56 | 31.8 | QP | L1 | GND |
| | 0.508871 | 22.40 | 7.6 | 56 | 33.6 | QP | L1 | GND |

MEASUREMENT RESULT: "LYSX04_fin2"

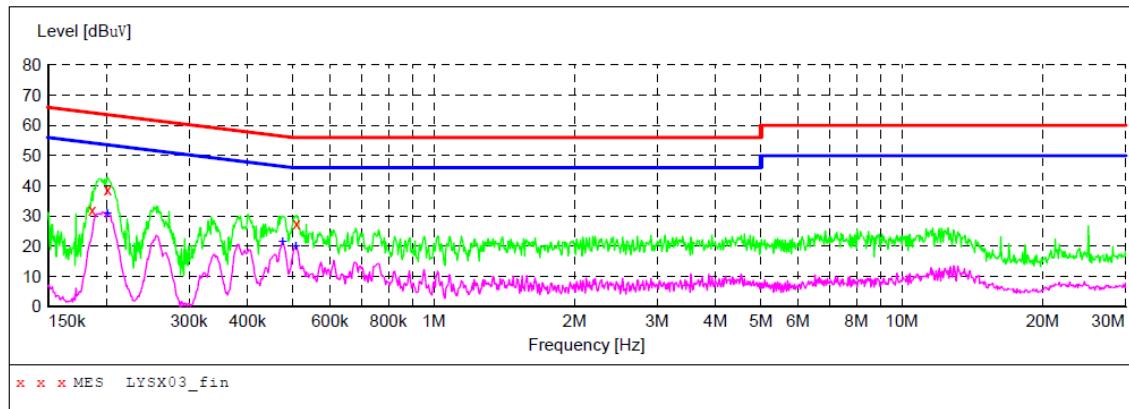
| 2021-8-6 0:38 | Frequency | Level | Transd | Limit | Margin | Detector | Line | PE |
|---------------|-----------|-------|--------|-------|--------|----------|------|-----|
| | MHz | dBuV | dB | dBuV | dB | | | |
| | 0.196781 | 30.50 | 7.1 | 54 | 23.2 | AV | L1 | GND |
| | 0.383278 | 19.90 | 7.5 | 48 | 28.3 | AV | L1 | GND |
| | 0.477384 | 15.00 | 7.6 | 46 | 31.4 | AV | L1 | GND |

Neutral:
Voltage Mains Test:FCC PART 15 B

EUT: Zolink wireless video system M/N:Z0600S TX
 Manufacturer: Shenzhen ZO Video Technology Co.,Ltd
 Operating Condition: ON WITH WIFI
 Test Site: Shielding Room
 Operator: Jason
 Test Specification: DC 5V(Powered by adaptor)
 Comment: N LINE

SCAN TABLE: "Voltage (0.15K-30M) FIN"

Short Description: 150K-30M Voltage


MEASUREMENT RESULT: "LYSX03_fin"

2021-8-6 0:34

| Frequency MHz | Level dBuV | Transd dB | Limit dBuV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.186085 | 32.20 | 7.1 | 64 | 32.0 | QP | N | GND |
| 0.200748 | 38.80 | 7.1 | 64 | 24.8 | QP | N | GND |
| 0.508871 | 27.50 | 7.6 | 56 | 28.5 | QP | N | GND |

MEASUREMENT RESULT: "NYSX03_fin2"

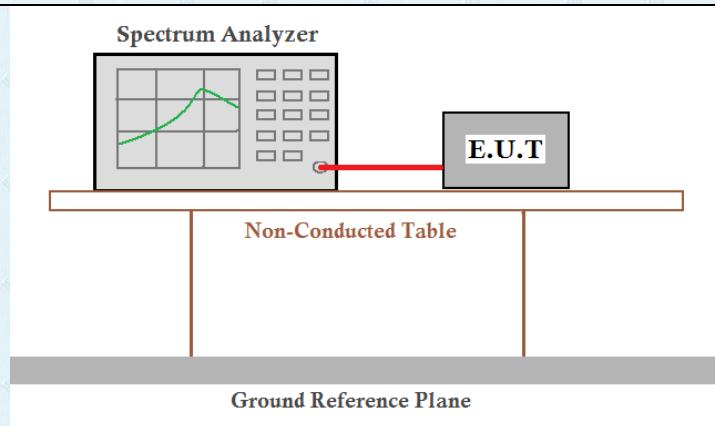
2021-8-6 0:34

| Frequency MHz | Level dBuV | Transd dB | Limit dBuV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.200748 | 30.90 | 7.1 | 54 | 22.7 | AV | N | GND |
| 0.475482 | 21.60 | 7.6 | 46 | 24.8 | AV | N | GND |
| 0.506843 | 20.20 | 7.6 | 46 | 25.8 | AV | N | GND |

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss

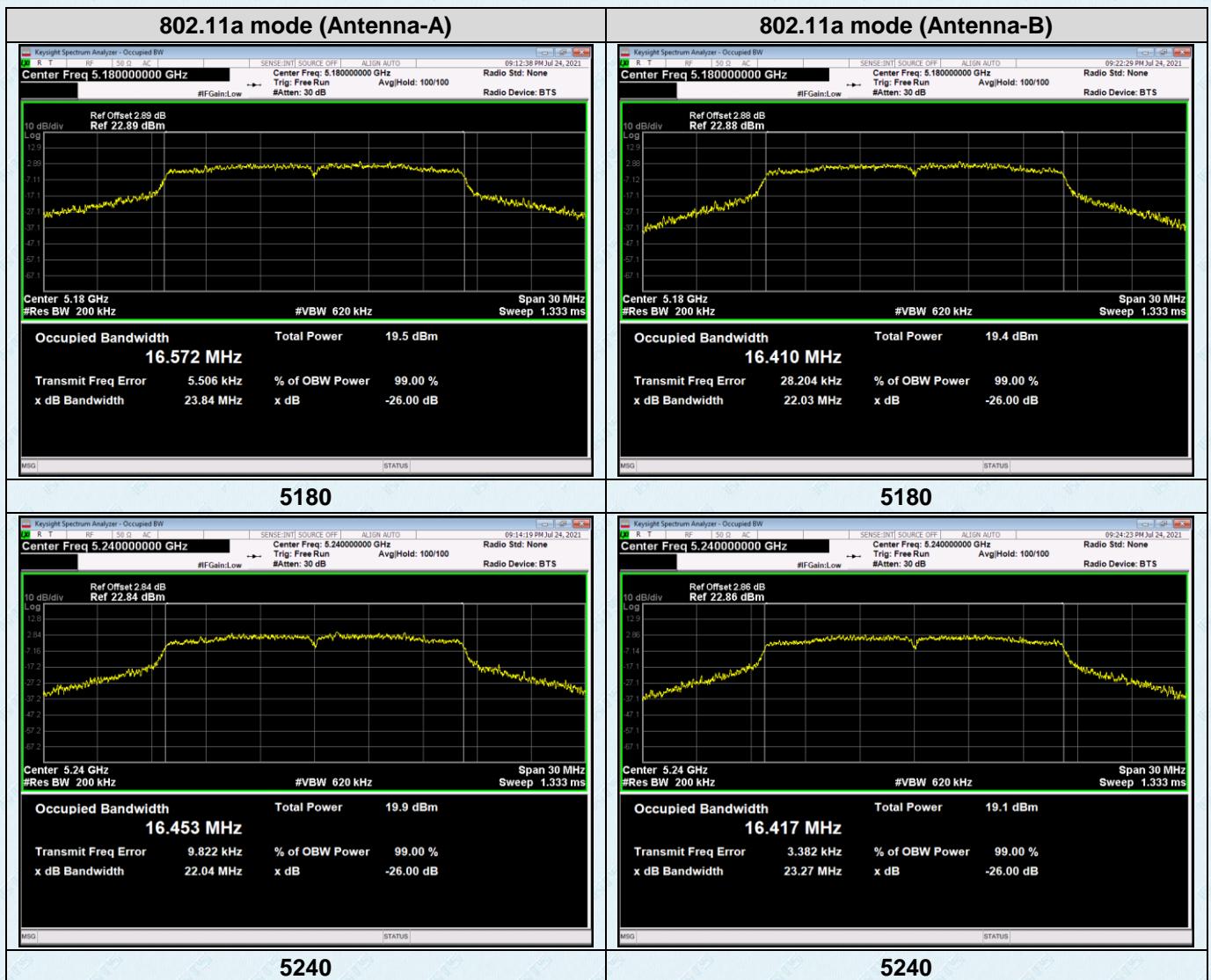
7.3 Emission Bandwidth and 99% Occupied Bandwidth

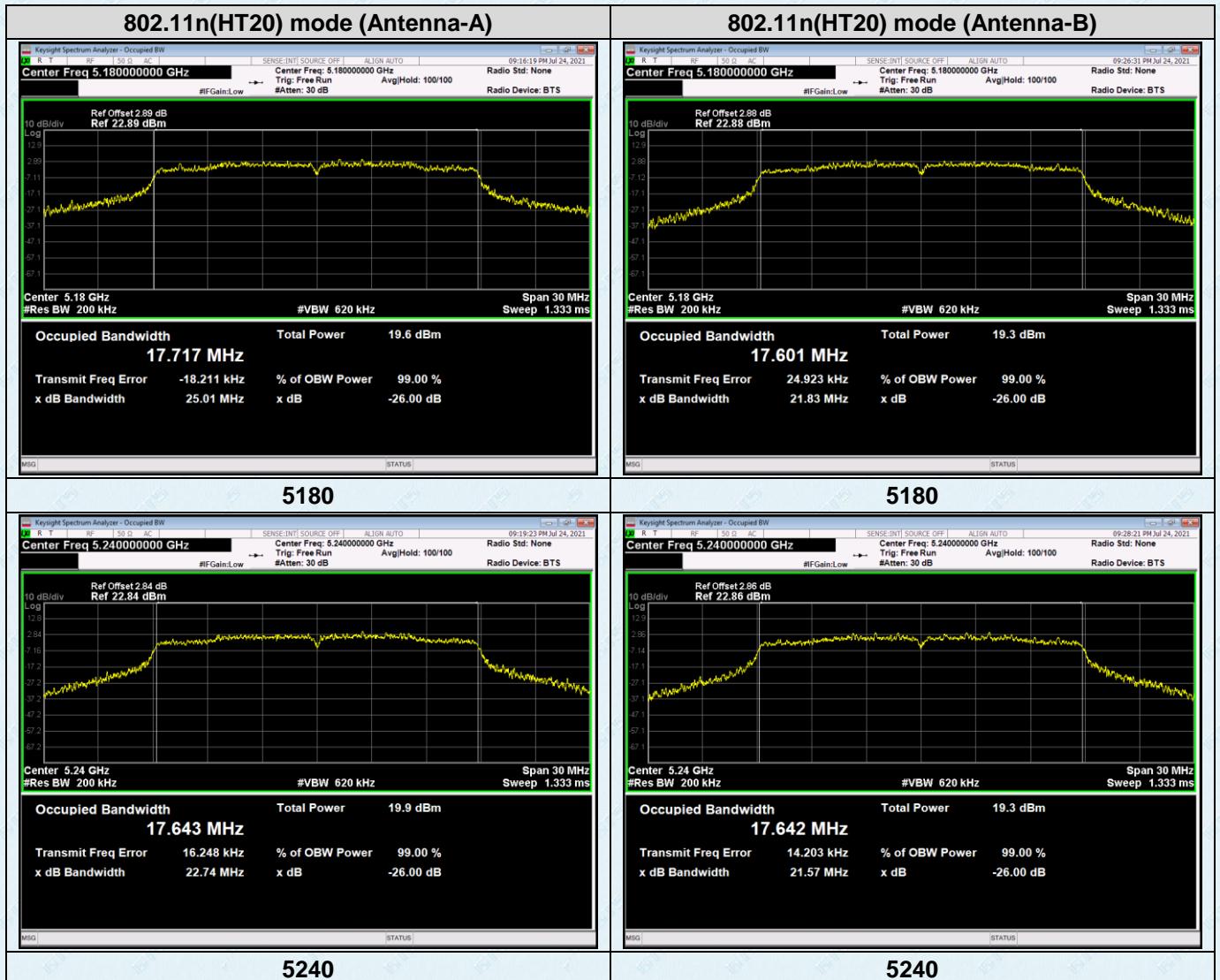
| | |
|-------------------|--|
| Test Requirement: | FCC Part15 E Section 15.407 |
| Test Method: | KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 |
| Limit: | N/A |
| Test setup: |  |
| Test procedure: | According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01. |
| Test Instruments: | Refer to section 6 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

Measurement Data:

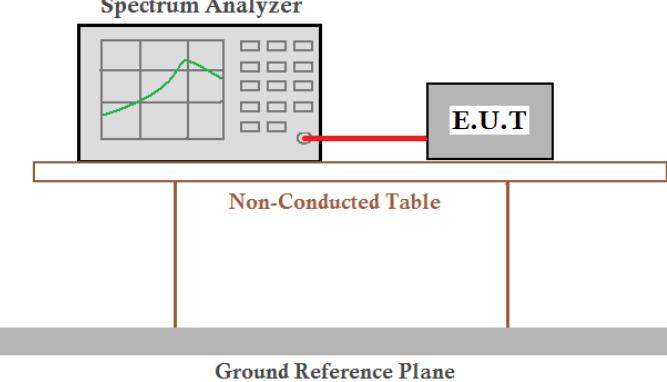
| CH. No. | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | | 26dB Occupied Bandwidth (MHz) | | | |
|------------|--------------------|------------------------------|--------|---------------|--------|-------------------------------|-------|---------------|-------|
| | | 802.11a | | 802.11n(HT20) | | 802.11a | | 802.11n(HT20) | |
| | | ANT-A | ANT-B | ANT-A | ANT-B | ANT-A | ANT-B | ANT-A | ANT-B |
| 36 | 5180 | 16.572 | 16.410 | 17.717 | 17.601 | 23.84 | 22.03 | 25.01 | 21.83 |
| 48 | 5240 | 16.453 | 16.417 | 17.643 | 17.642 | 22.04 | 23.27 | 22.74 | 21.57 |

Test plots as followed:





7.4 Peak Transmit Power

| Test Requirement: | FCC Part15 E Section 15.407 | | | | | | | | |
|----------------------|--|----------------------|-------|-----------|--|-----------|--|-----------|--|
| Test Method: | KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 | | | | | | | | |
| Limit: | <table border="1"> <thead> <tr> <th>Frequency band (MHz)</th> <th>Limit</th> </tr> </thead> <tbody> <tr> <td>5150-5250</td> <td> $\leq 1\text{W}(30\text{dBm})$ for master device $\leq 250\text{mW}(23.98\text{dBm})$ for client device </td> </tr> <tr> <td>5250-5350</td> <td> $\leq 250\text{mW}(23.98\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$ </td> </tr> <tr> <td>5470-5725</td> <td> $\leq 250\text{mW}(23.98\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$ </td> </tr> </tbody> </table> <p>Remark: *Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.</p> | Frequency band (MHz) | Limit | 5150-5250 | $\leq 1\text{W}(30\text{dBm})$ for master device $\leq 250\text{mW}(23.98\text{dBm})$ for client device | 5250-5350 | $\leq 250\text{mW}(23.98\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$ | 5470-5725 | $\leq 250\text{mW}(23.98\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$ |
| Frequency band (MHz) | Limit | | | | | | | | |
| 5150-5250 | $\leq 1\text{W}(30\text{dBm})$ for master device $\leq 250\text{mW}(23.98\text{dBm})$ for client device | | | | | | | | |
| 5250-5350 | $\leq 250\text{mW}(23.98\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$ | | | | | | | | |
| 5470-5725 | $\leq 250\text{mW}(23.98\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$ | | | | | | | | |
| Test setup: |  | | | | | | | | |
| Test procedure: | <ol style="list-style-type: none"> Place the EUT on the table and set it in transmitting mode. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 . Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Spectrum Analyzer. Spectrum Analyzer is used as the auxiliary test equipment to conduct the output power measurement. Set span to encompass the entire emission bandwidth (EBW) of the signal. Set sweep trigger to “free run.” , RBW = 1 MHz, Set VBW $\geq 1/T$, where T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation, Sweep time = auto, Detector = peak.. Video filtering shall be applied to power signal (rms), it shall be set to operate on a linear voltage signal. Trace mode = max hold. Allow max hold to run for at least 60 seconds Repeat above procedures until all frequency (low, middle, and high channel) measured were complete. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01. Total power is the sum of the conducted power levels measured at the various output ports | | | | | | | | |
| Test Instruments: | Refer to section 6 for details | | | | | | | | |
| Test mode: | Refer to section 5.2 for details | | | | | | | | |

| | |
|---------------|------|
| Test results: | Pass |
|---------------|------|

Measurement Data

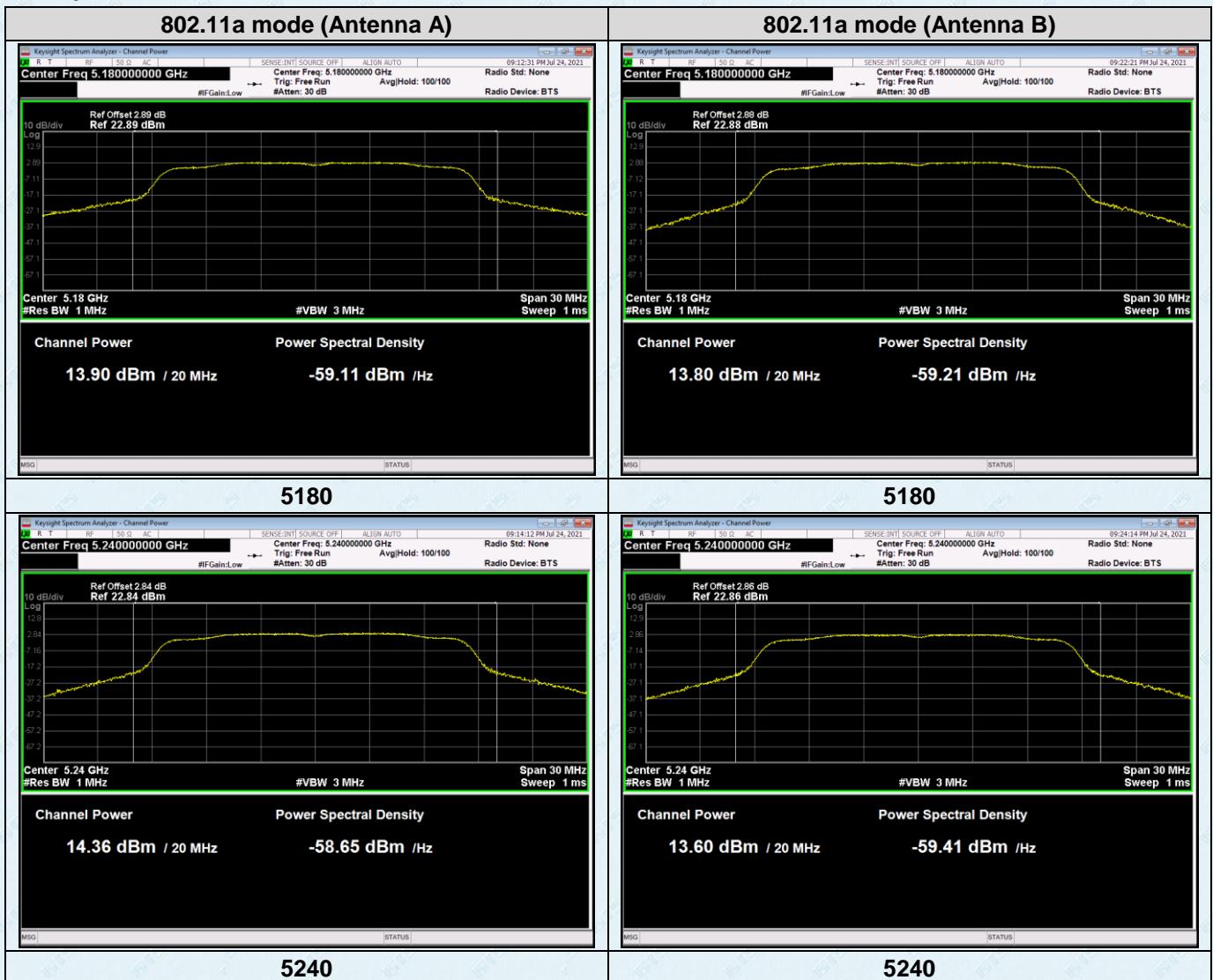
| Modulation | Frequency (MHz) | Duty cycle | | Duty Factor | |
|---------------|-----------------|------------|-----------|-------------|-----------|
| | | Antenna-A | Antenna-B | Antenna-A | Antenna-B |
| 802.11a | 5180 | 99.24 | 99.26 | 0.03 | 0.03 |
| | 5240 | 99.23 | 99.24 | 0.03 | 0.03 |
| 802.11n(HT20) | 5180 | 99.23 | 99.24 | 0.03 | 0.03 |
| | 5240 | 99.23 | 99.23 | 0.03 | 0.03 |

| 802.11a mode | | | | | | | | | | |
|--------------------|-----------------|----------------------|-------|---------|-------------|--------------------|-------|---------|-------------|--------|
| CH No. | Frequency (MHz) | Measured Power (dBm) | | | Duty Factor | Output Power (dBm) | | | Limit (dBm) | Result |
| | | ANT A | ANT B | ANT A+B | | ANT A | ANT B | ANT A+B | | |
| 36 | 5180 | 13.90 | 13.80 | -- | 0.03 | 13.93 | 13.83 | -- | 24 | Pass |
| 48 | 5240 | 14.36 | 13.60 | -- | 0.03 | 14.39 | 13.64 | -- | | |
| 802.11n(HT20) mode | | | | | | | | | | |
| CH No. | Frequency (MHz) | Measured Power (dBm) | | | Duty Factor | Output Power (dBm) | | | Limit (dBm) | Result |
| | | ANT A | ANT B | ANT A+B | | ANT A | ANT B | ANT A+B | | |
| 36 | 5180 | 13.80 | 13.68 | 16.75 | 0.03 | 13.83 | 13.71 | 16.78 | 24 | Pass |
| 48 | 5240 | 14.26 | 13.53 | 16.92 | 0.03 | 14.29 | 13.56 | 16.96 | | |

Note: Output Power = Measured Power + Duty Factor

Duty Factor = $10 \log (1/\text{Duty Cycle})$

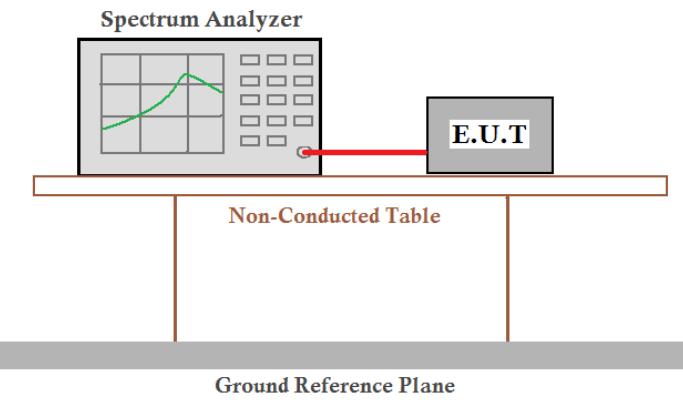
Test plots as followed:





Note: We tested 802.11a/n mode the all data rate and recorded the worst case data for this channel to be 6Mbps for 802.11a mode and MCS0 for 802.11n mode.

7.5 Power Spectral Density

| Test Requirement: | FCC Part15 E Section 15.407 | | | | | | | | |
|----------------------|---|----------------------|-------|-----------|--|-----------|---|-----------|---|
| Test Method: | KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 | | | | | | | | |
| Limit: | <table border="1"> <thead> <tr> <th>Frequency band (MHz)</th> <th>Limit</th> </tr> </thead> <tbody> <tr> <td>5150-5250</td> <td> $\leq 17\text{dBm}$ in 1MHz for master device $\leq 11\text{dBm}$ in 1MHz for client device </td> </tr> <tr> <td>5250-5350</td> <td>$\leq 11\text{dBm}$ in 1MHz for client device</td> </tr> <tr> <td>5470-5725</td> <td>$\leq 11\text{dBm}$ in 1MHz for client device</td> </tr> </tbody> </table> <p>Remark: The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.</p> | Frequency band (MHz) | Limit | 5150-5250 | $\leq 17\text{dBm}$ in 1MHz for master device $\leq 11\text{dBm}$ in 1MHz for client device | 5250-5350 | $\leq 11\text{dBm}$ in 1MHz for client device | 5470-5725 | $\leq 11\text{dBm}$ in 1MHz for client device |
| Frequency band (MHz) | Limit | | | | | | | | |
| 5150-5250 | $\leq 17\text{dBm}$ in 1MHz for master device $\leq 11\text{dBm}$ in 1MHz for client device | | | | | | | | |
| 5250-5350 | $\leq 11\text{dBm}$ in 1MHz for client device | | | | | | | | |
| 5470-5725 | $\leq 11\text{dBm}$ in 1MHz for client device | | | | | | | | |
| Test setup: |  | | | | | | | | |
| Test procedure: | <ol style="list-style-type: none"> 1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power...". 2) Use the peak search function on the instrument to find the peak of the spectrum. 3) Make the following adjustments to the peak value of the spectrum, if applicable: <ol style="list-style-type: none"> a) If Method SA-2 or SA-2 Alternative was used, add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum. b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging. 4) The result is the PSD. | | | | | | | | |
| Test Instruments: | Refer to section 6 for details | | | | | | | | |
| Test mode: | Refer to section 5.2 for details | | | | | | | | |
| Test results: | Pass | | | | | | | | |

Measurement Data

| Modulation | Frequency (MHz) | Duty cycle | | Duty Factor | |
|---------------|-----------------|------------|-----------|-------------|-----------|
| | | Antenna-A | Antenna-B | Antenna-A | Antenna-B |
| 802.11a | 5180 | 99.24 | 99.26 | 0.03 | 0.03 |
| | 5240 | 99.23 | 99.24 | 0.03 | 0.03 |
| 802.11n(HT20) | 5180 | 99.23 | 99.24 | 0.03 | 0.03 |
| | 5240 | 99.23 | 99.23 | 0.03 | 0.03 |

802.11a mode

| CH No. | Frequency (MHz) | Measured PSD (dBm/MHz) | | | Duty Factor | Total PSD Power(dBm/MHz) | | | Limit (dBm/MHz) | Result |
|--------|-----------------|------------------------|-------|---------|-------------|--------------------------|-------|---------|-----------------|--------|
| | | ANT A | ANT B | ANT A+B | | ANT A | ANT B | ANT A+B | | |
| 36 | 5180 | 4.003 | 3.89 | -- | 0.03 | 4.033 | 3.92 | -- | 11 | Pass |
| 48 | 5240 | 4.334 | 3.536 | -- | 0.03 | 4.364 | 3.566 | -- | 11 | Pass |

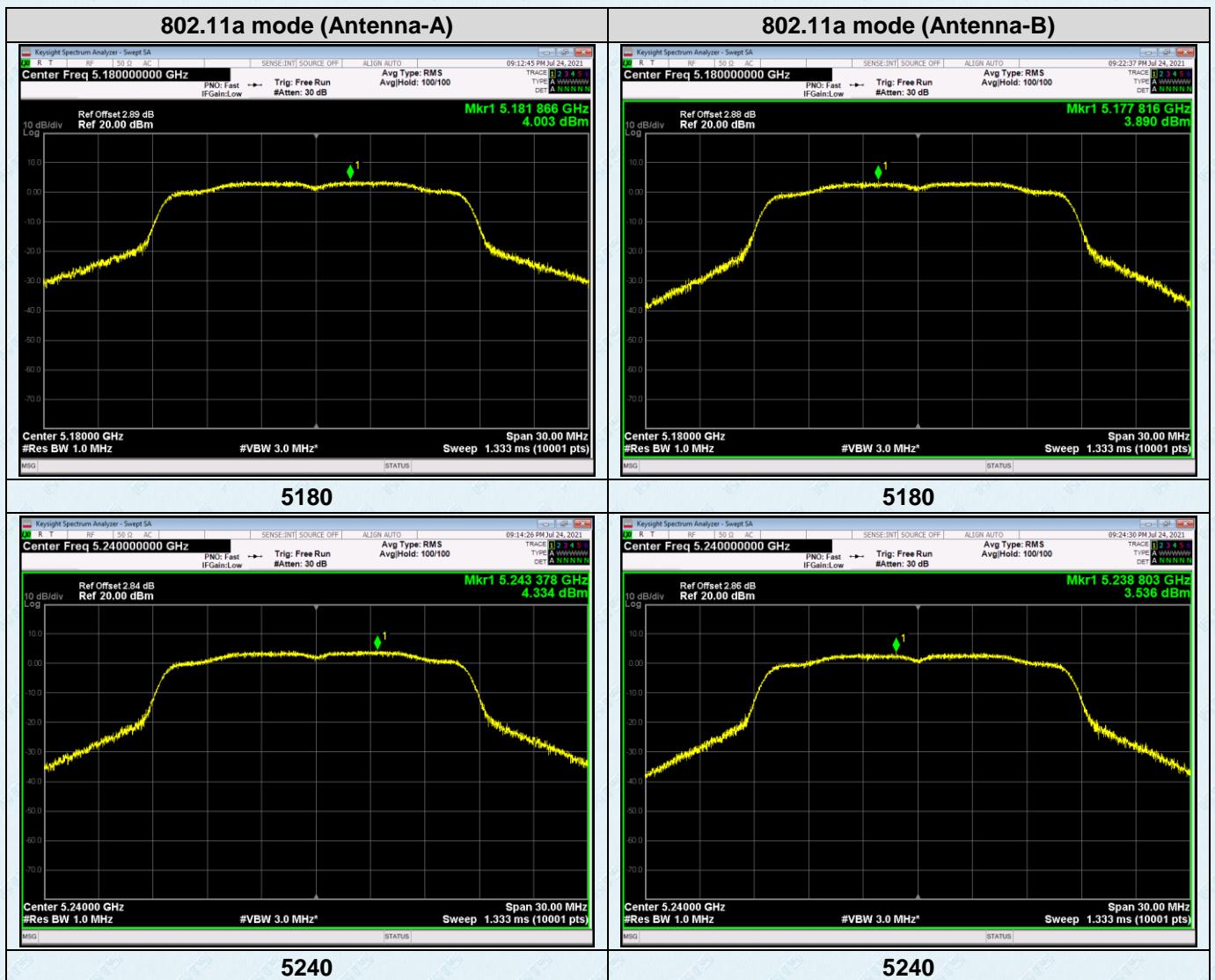
802.11n(HT20) mode

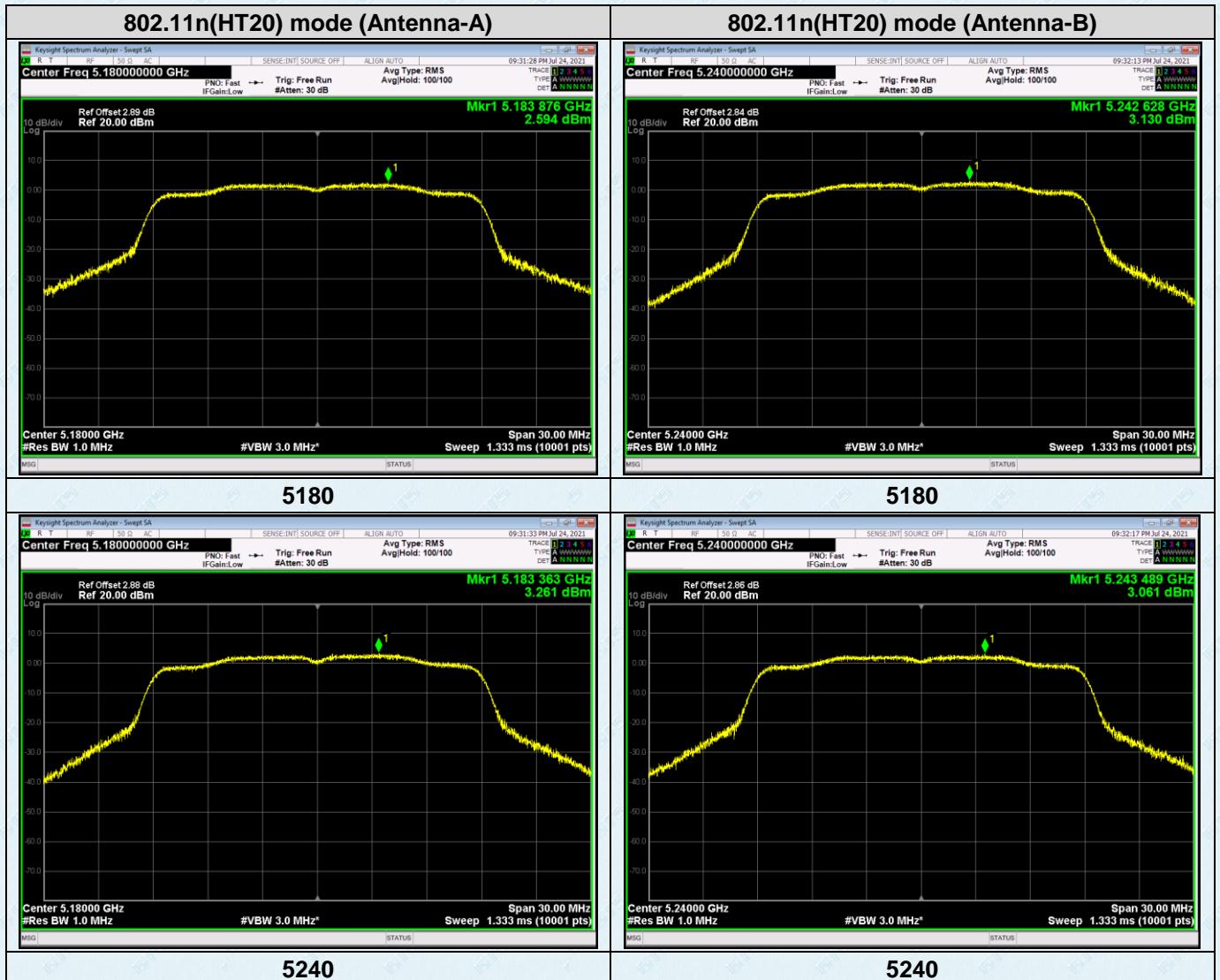
| CH No. | Frequency (MHz) | Measured PSD (dBm/MHz) | | | Duty Factor | Total PSD Power(dBm/MHz) | | | Limit (dBm/MHz) | Result |
|--------|-----------------|------------------------|-------|---------|-------------|--------------------------|-------|---------|-----------------|--------|
| | | ANT A | ANT B | ANT A+B | | ANT A | ANT B | ANT A+B | | |
| 36 | 5180 | 2.594 | 3.13 | 5.951 | 0.03 | 2.624 | 3.16 | 5.981 | 11 | Pass |
| 48 | 5240 | 3.261 | 3.061 | 6.106 | 0.03 | 3.291 | 3.091 | 6.109 | 11 | Pass |

Note: Output Power = Measured Power + Duty Factor

 Duty Factor = $10 \log (1/\text{Duty Cycle})$

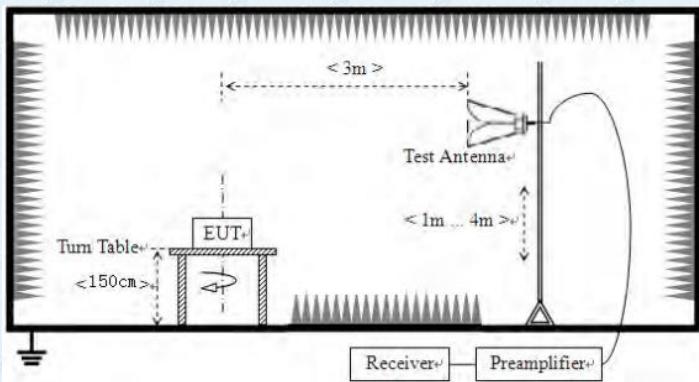
Test plots as followed:





7.6 Band Edge

| Test Requirement: | FCC Part15 E Section 15.407 and 5.205 | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|------------------|--------|------------------|--|-----------|--------------------|--------|-------------|--------|------------------|--------------|--------|------------------|------------------|------------|------------------|-------------|------|------------------|------------|------|---------------|------|---------------|------------|
| Test Method: | ANSI C63.10:2013 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test site: | Measurement Distance: 3m (Semi-Anechoic Chamber) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Receiver setup: | <table border="1"> <thead> <tr> <th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr> </thead> <tbody> <tr> <td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr> <tr> <td>Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr> <tr> <td></td><td>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr> </tbody> </table> | | | | | Frequency | Detector | RBW | VBW | Remark | 30MHz-1GHz | Quasi-peak | 100KHz | 300KHz | Quasi-peak Value | Above 1GHz | Peak | 1MHz | 3MHz | Peak Value | | AV | 1MHz | 3MHz | Average Value | |
| Frequency | Detector | RBW | VBW | Remark | | | | | | | | | | | | | | | | | | | | | | |
| 30MHz-1GHz | Quasi-peak | 100KHz | 300KHz | Quasi-peak Value | | | | | | | | | | | | | | | | | | | | | | |
| Above 1GHz | Peak | 1MHz | 3MHz | Peak Value | | | | | | | | | | | | | | | | | | | | | | |
| | AV | 1MHz | 3MHz | Average Value | | | | | | | | | | | | | | | | | | | | | | |
| Limit: | <table border="1"> <thead> <tr> <th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr> </thead> <tbody> <tr> <td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr> <tr> <td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr> <tr> <td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr> <tr> <td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr> <tr> <td>Above 1GHz</td><td>54.0</td><td>Average Value</td></tr> <tr> <td></td><td>68.2</td><td>Peak Value</td></tr> </tbody> </table> | | | | | Frequency | Limit (dBuV/m @3m) | Remark | 30MHz-88MHz | 40.0 | Quasi-peak Value | 88MHz-216MHz | 43.5 | Quasi-peak Value | 216MHz-960MHz | 46.0 | Quasi-peak Value | 960MHz-1GHz | 54.0 | Quasi-peak Value | Above 1GHz | 54.0 | Average Value | | 68.2 | Peak Value |
| Frequency | Limit (dBuV/m @3m) | Remark | | | | | | | | | | | | | | | | | | | | | | | | |
| 30MHz-88MHz | 40.0 | Quasi-peak Value | | | | | | | | | | | | | | | | | | | | | | | | |
| 88MHz-216MHz | 43.5 | Quasi-peak Value | | | | | | | | | | | | | | | | | | | | | | | | |
| 216MHz-960MHz | 46.0 | Quasi-peak Value | | | | | | | | | | | | | | | | | | | | | | | | |
| 960MHz-1GHz | 54.0 | Quasi-peak Value | | | | | | | | | | | | | | | | | | | | | | | | |
| Above 1GHz | 54.0 | Average Value | | | | | | | | | | | | | | | | | | | | | | | | |
| | 68.2 | Peak Value | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>Undesirable emission limits:</p> <ol style="list-style-type: none"> (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 EIRP 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 EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band. (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 EIRP of -27 dBm/MHz. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Procedure: | <ol style="list-style-type: none"> a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|-------------------|---|
| | have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. |
| Test setup: | For radiated emissions above 1GHz |
| |  |
| Test Instruments: | Refer to section 6 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

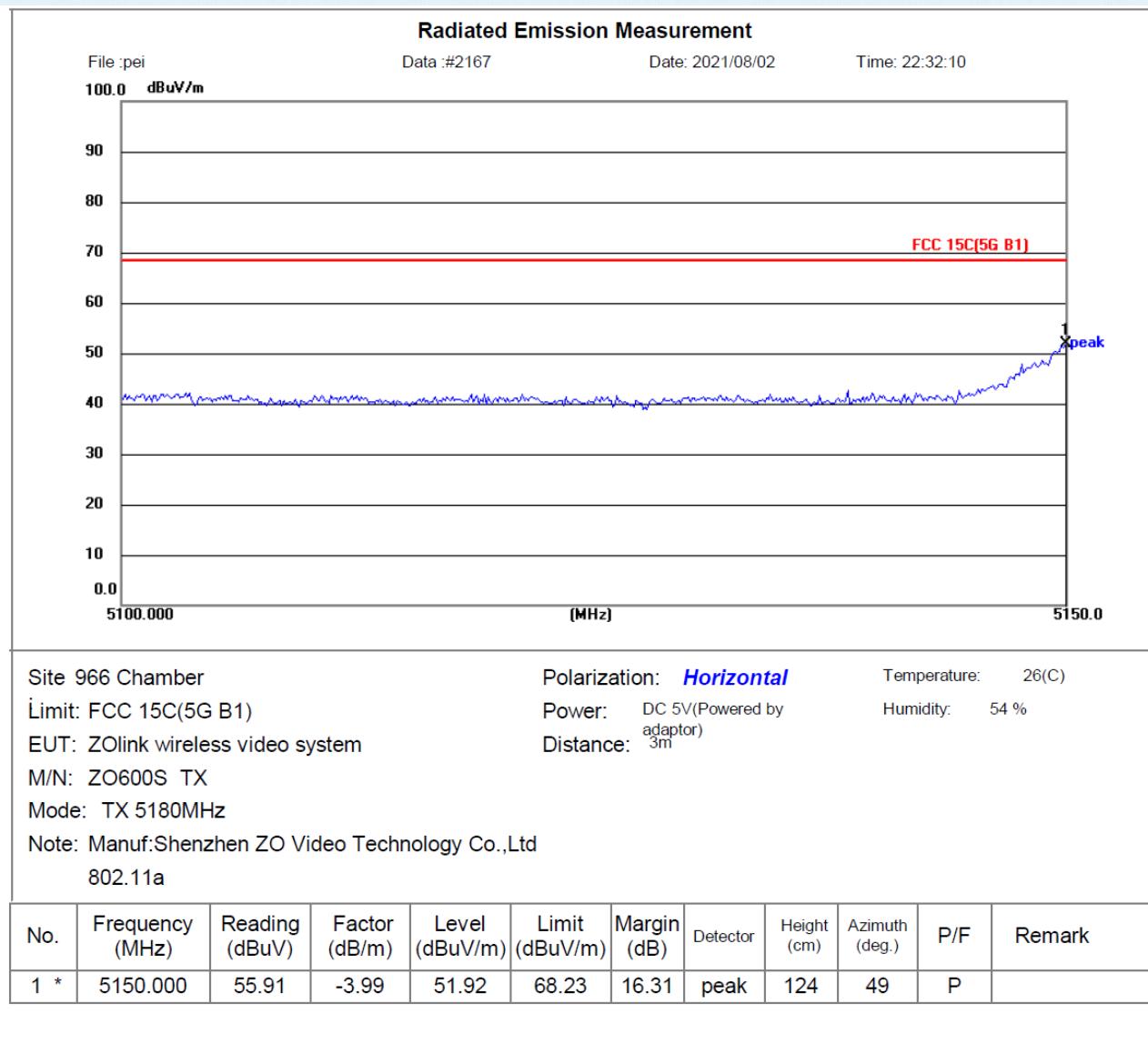
Remarks:

1. Only the worst case Main Antenna test data.
2. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
5. According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

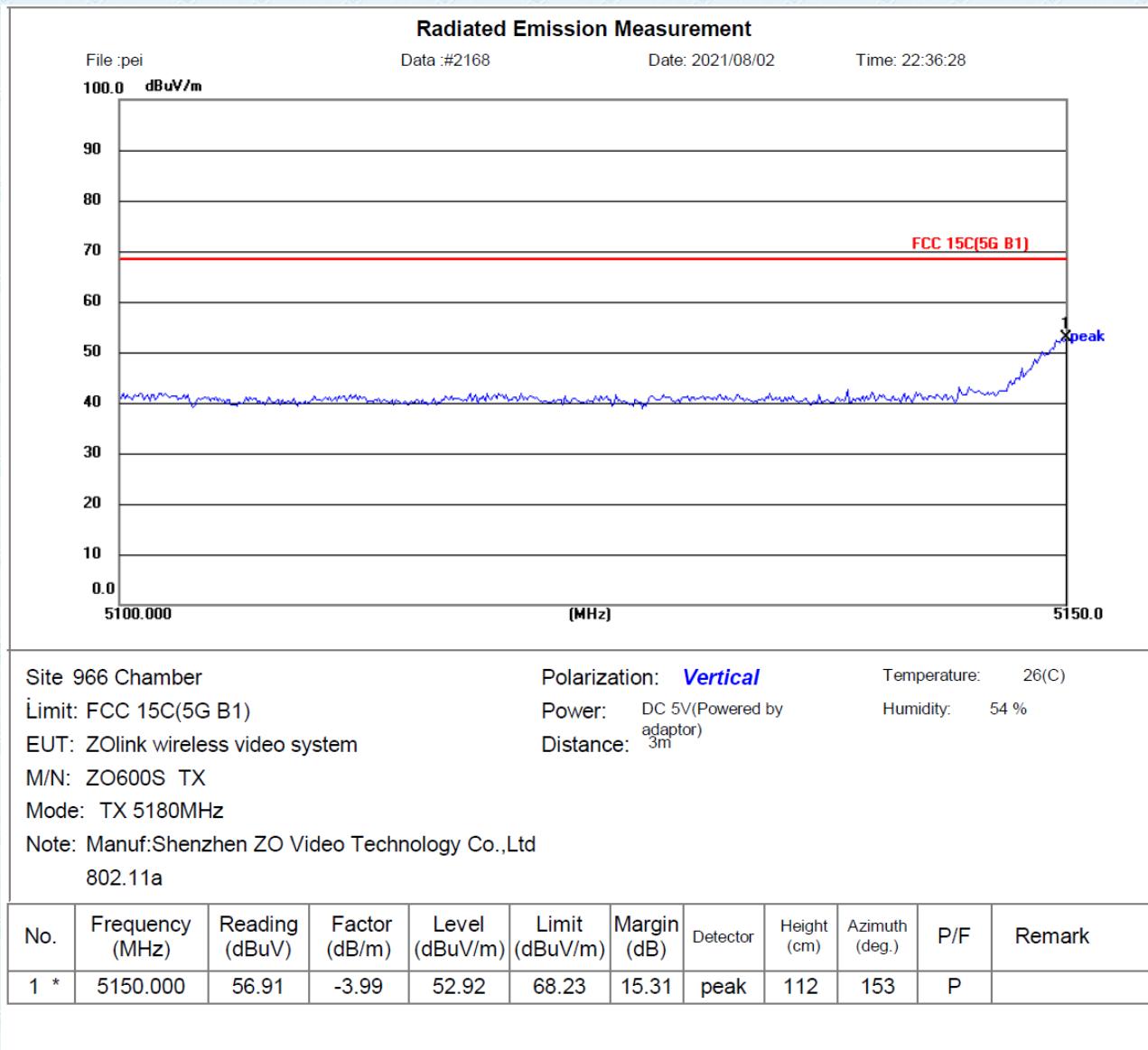
$$E[\text{dBuV/m}] = E\text{IRP}[\text{dBm}] + 95.2;$$

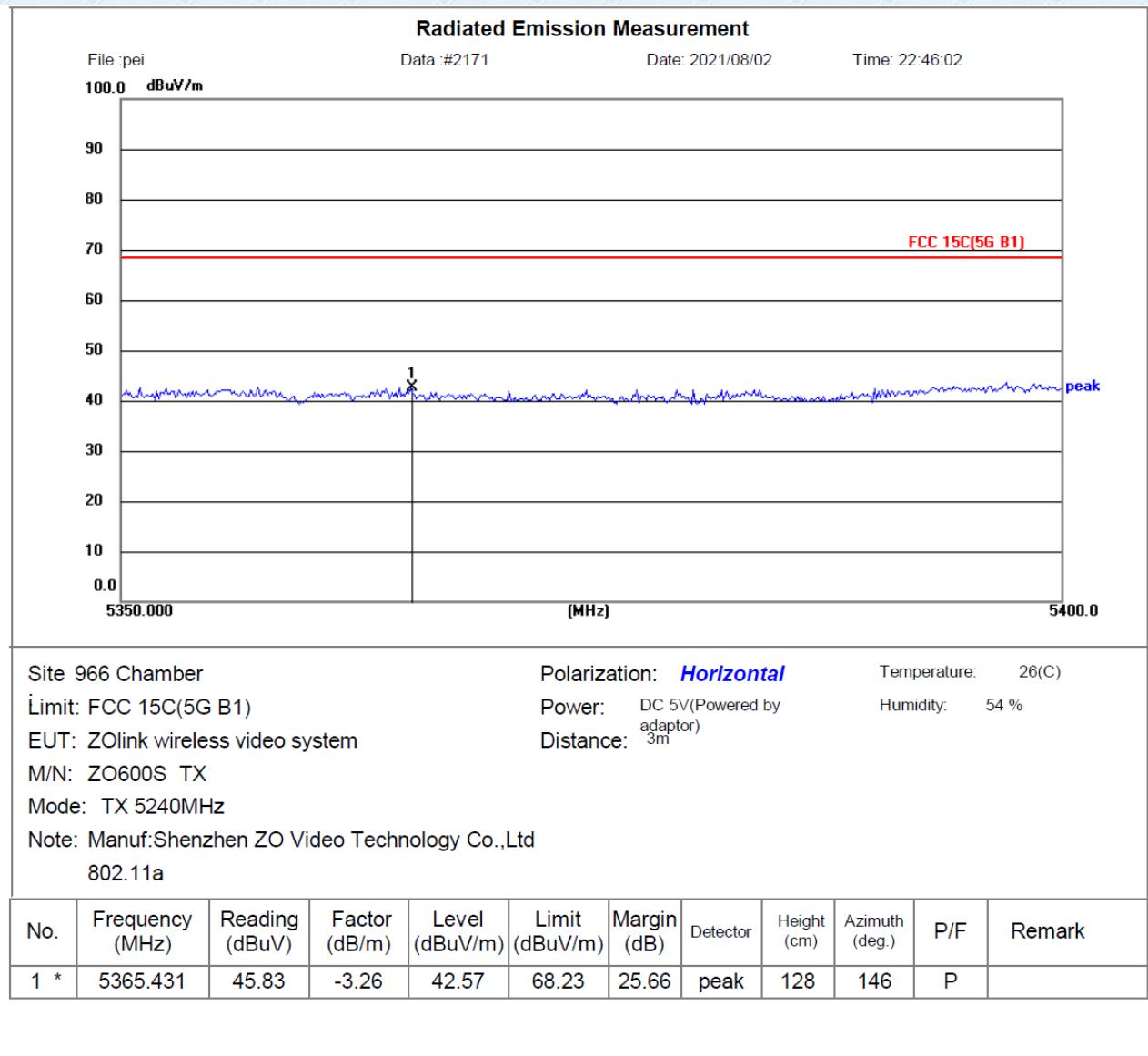
For example, if EIRP = -27dBm

$$E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$$

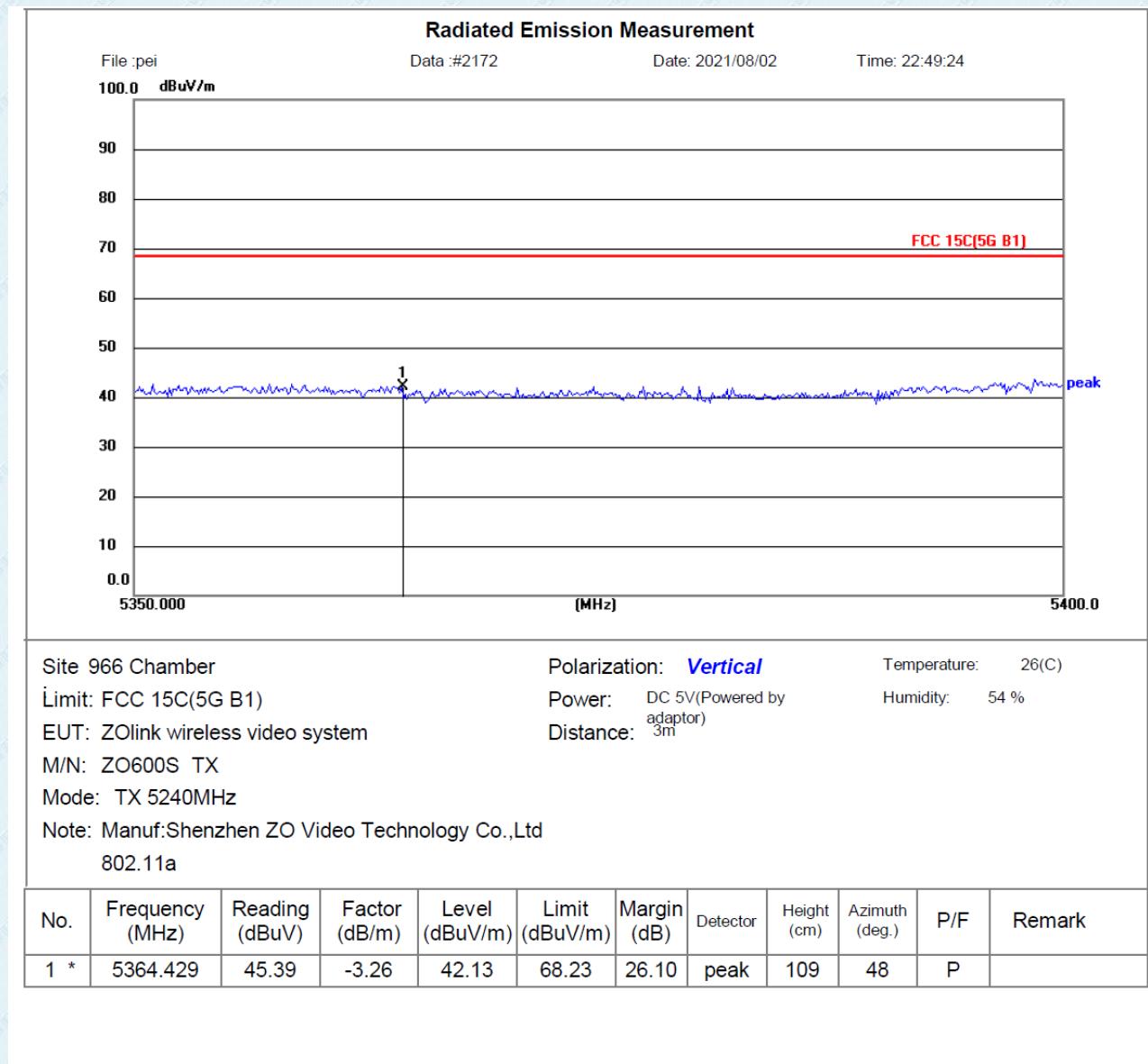
Measurement Data: Radiated Band Edge Result
Horizontal: 802.11a (TX 5180MHz)


Vertical: 802.11a (TX 5180MHz)

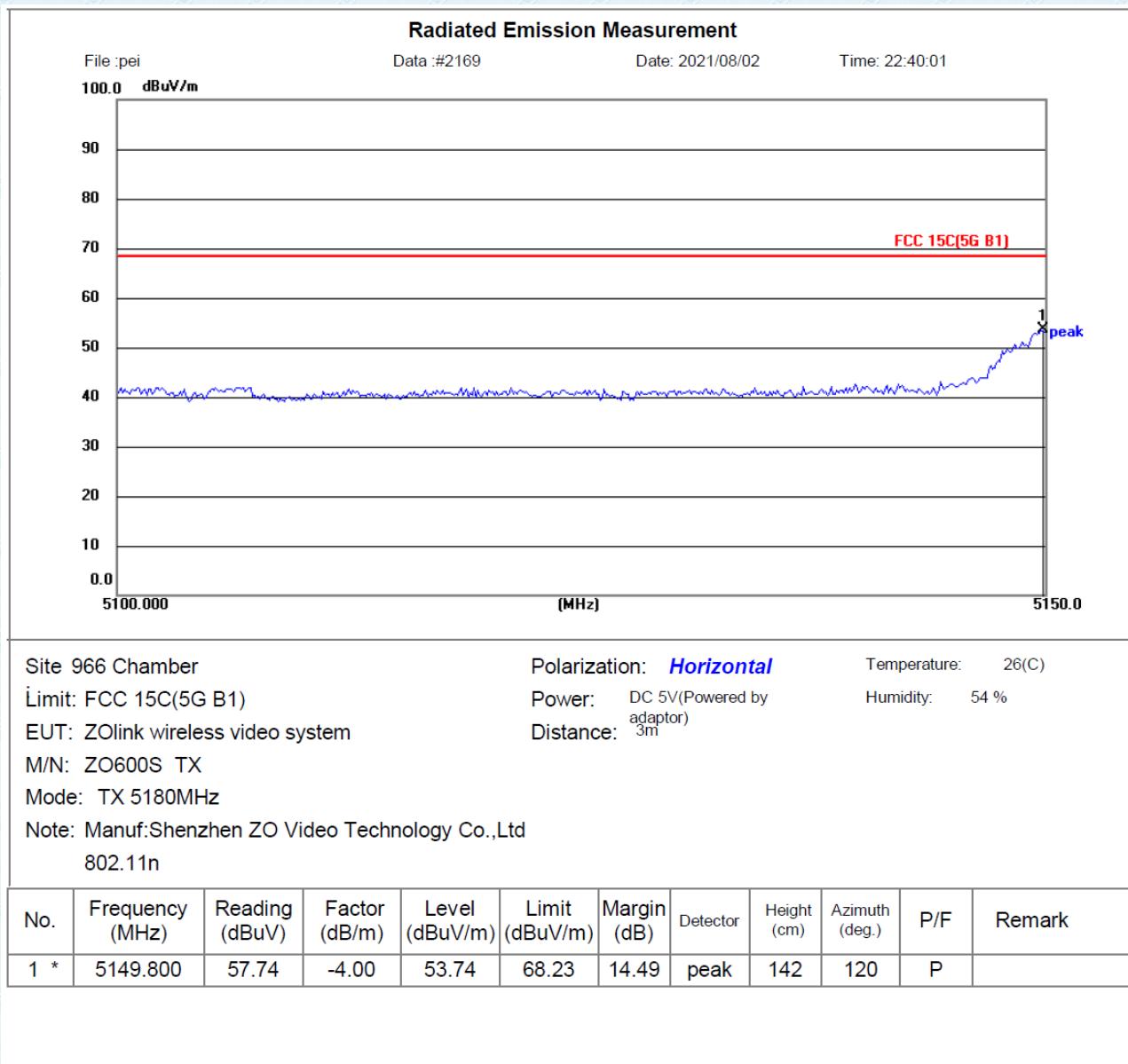


Horizontal: 802.11a (TX 5240MHz)


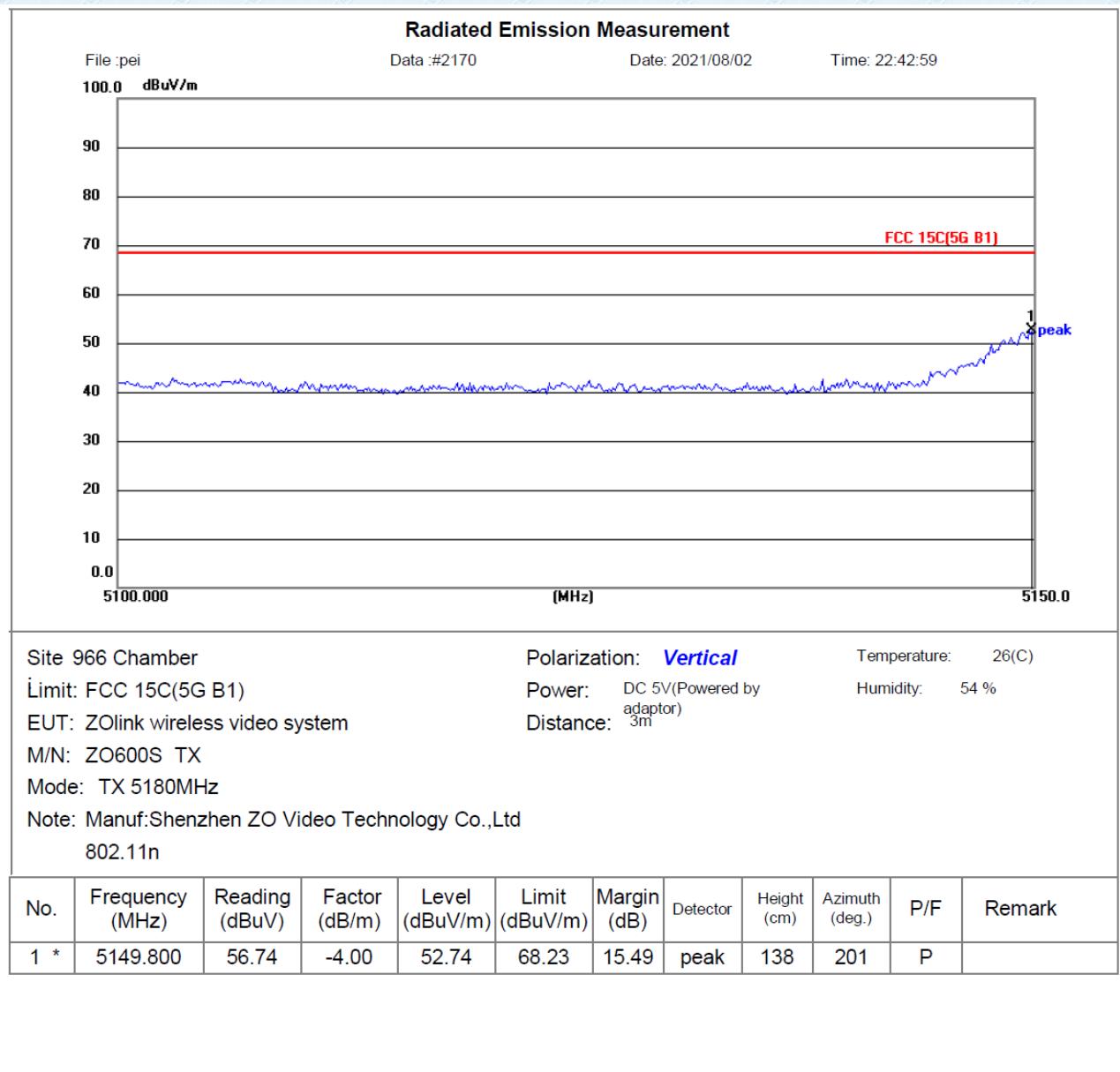
Vertical: 802.11a (TX 5240MHz)



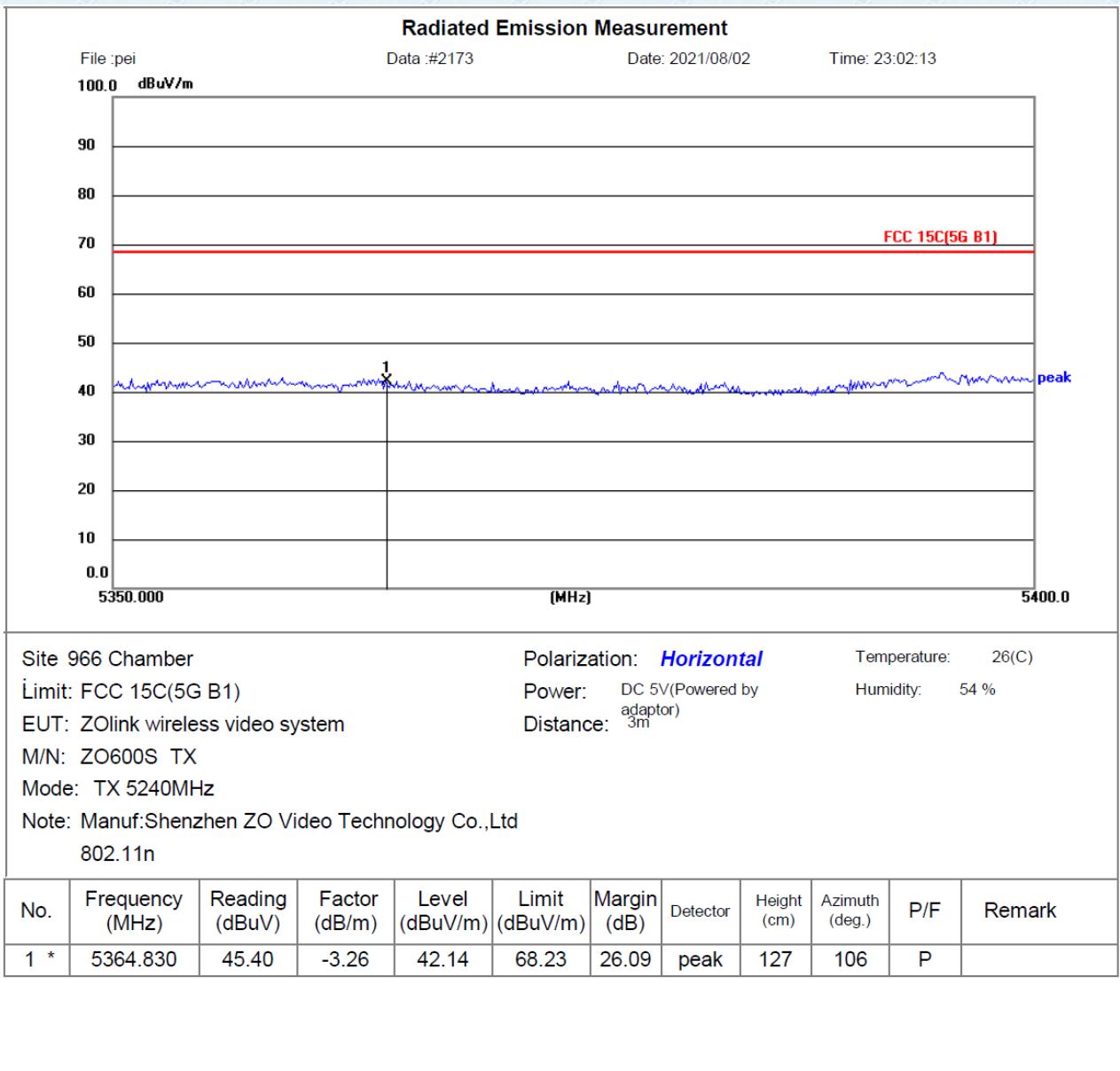
Horizontal: 802.11n-HT20 (TX 5180MHz)



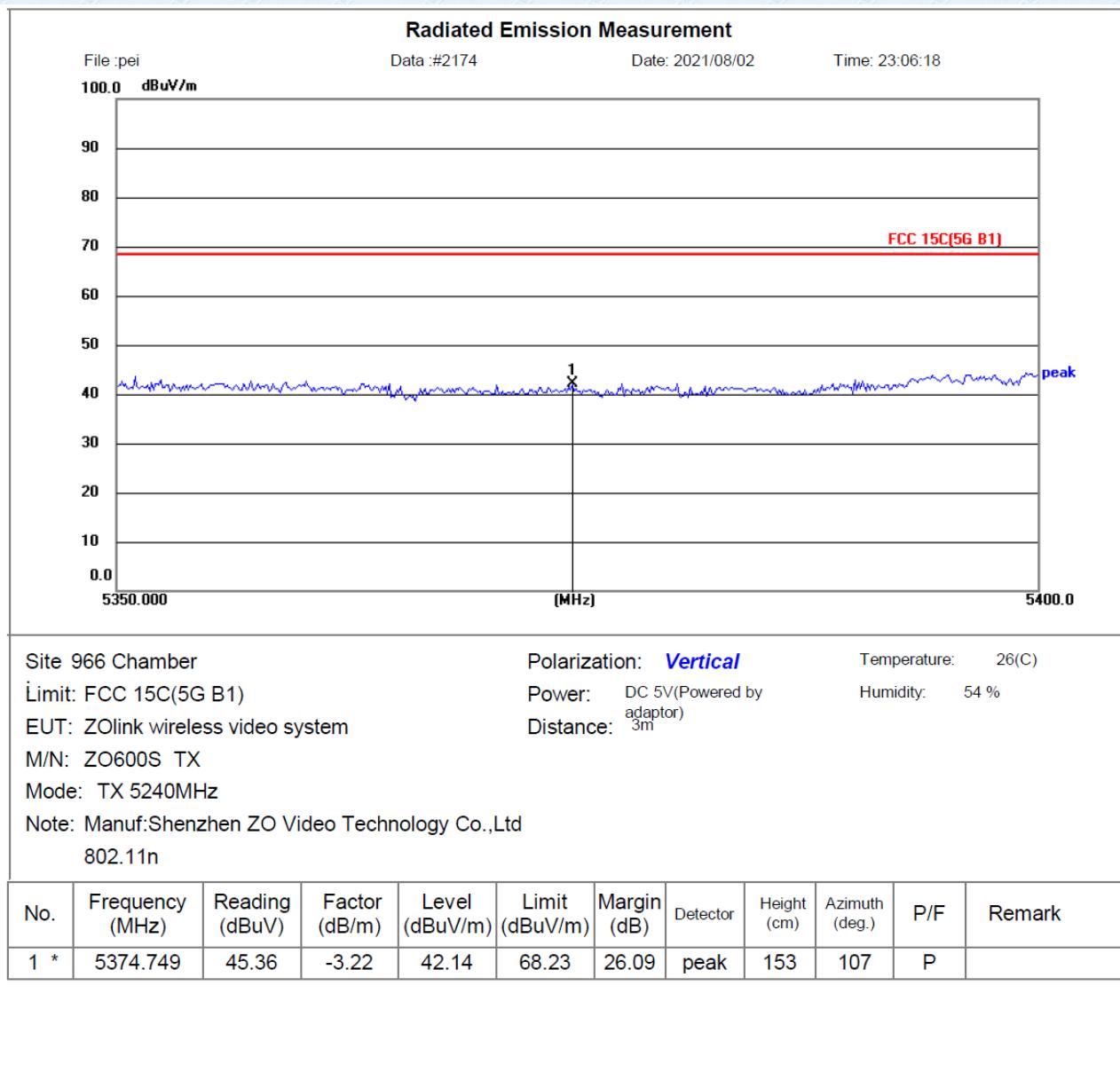
Vertical: 802.11n-HT20 (TX 5180MHz)



Horizontal: 802.11n-HT20 (TX 5240MHz)



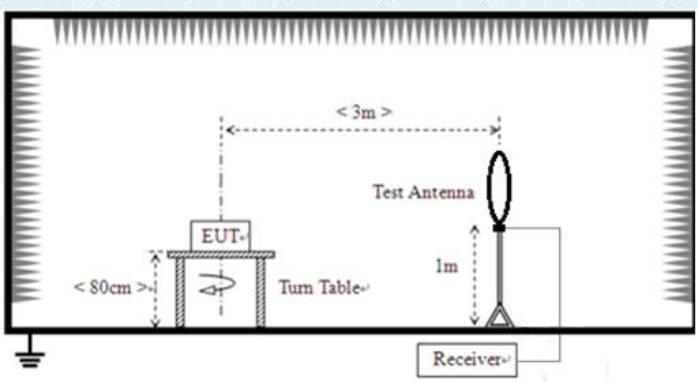
Vertical: 802.11n-HT20 (TX 5240MHz)

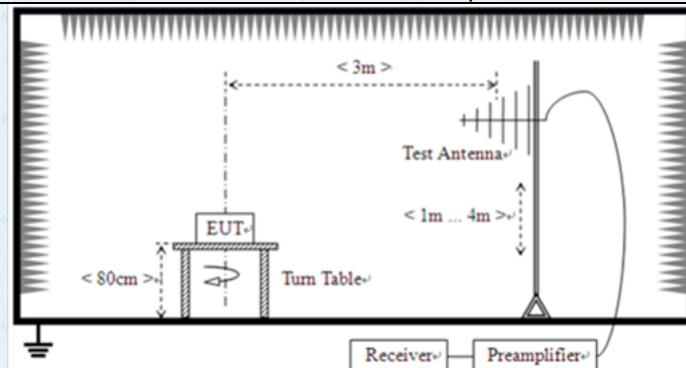


Note: We tested 802.11a/n mode the all data rate and recorded the worst case data for this channel to be 6Mbps for 802.11a mode and MCS0 for 802.11n mode.

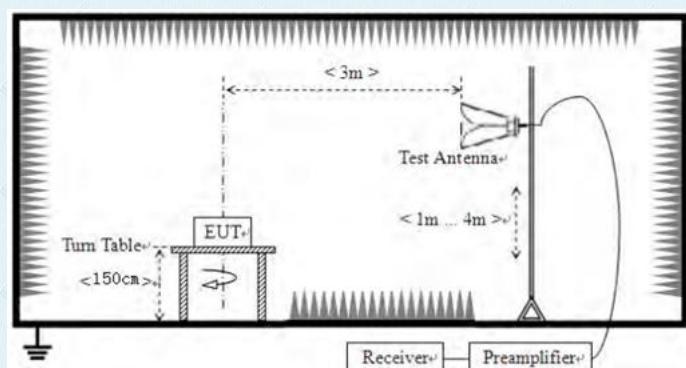
7.7 Radiated Emission

| Test Requirement: | FCC Part15 C Section 15.209 and 15.205 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|--|------------|----------------------|--------|------------------|--------------|-------|----------------------|-------------------|-------------|----|------|-------------------|--------------|----|------|----------------|----|----|-----|-------------|-----|----|----|--------------|-----|----|---------------|-----|----|-------------|-----|----|------------|-----|---------|--|------|------|--|
| Test Method: | ANSI C63.10:2013 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Frequency Range: | 9kHz to 40GHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test site: | Measurement Distance: 3m (Semi-Anechoic Chamber) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Receiver setup: | Frequency | Detector | RBW | VBW | Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 9kHz-150KHz | Quasi-peak | 200Hz | 1kHz | Quasi-peak Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 150kHz-30MHz | Quasi-peak | 9kHz | 30kHz | Quasi-peak Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 30MHz-1GHz | Quasi-peak | 100KHz | 300KHz | Quasi-peak Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Above 1GHz | Peak | 1MHz | 3MHz | Peak Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | AV | 1MHz | 3MHz | Average Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Limit: | <table border="1"> <thead> <tr> <th>Frequency</th><th>Limit (uV/m)</th><th>Value</th><th>Measurement Distance</th></tr> </thead> <tbody> <tr> <td>0.009MHz-0.490MHz</td><td>2400/F(KHz)</td><td>QP</td><td>300m</td></tr> <tr> <td>0.490MHz-1.705MHz</td><td>24000/F(KHz)</td><td>QP</td><td>300m</td></tr> <tr> <td>1.705MHz-30MHz</td><td>30</td><td>QP</td><td>30m</td></tr> <tr> <td>30MHz-88MHz</td><td>100</td><td>QP</td><td rowspan="5">3m</td></tr> <tr> <td>88MHz-216MHz</td><td>150</td><td>QP</td></tr> <tr> <td>216MHz-960MHz</td><td>200</td><td>QP</td></tr> <tr> <td>960MHz-1GHz</td><td>500</td><td>QP</td></tr> <tr> <td>Above 1GHz</td><td>500</td><td>Average</td></tr> <tr> <td></td><td>5000</td><td>Peak</td><td></td></tr> </tbody> </table> | | | | Frequency | Limit (uV/m) | Value | Measurement Distance | 0.009MHz-0.490MHz | 2400/F(KHz) | QP | 300m | 0.490MHz-1.705MHz | 24000/F(KHz) | QP | 300m | 1.705MHz-30MHz | 30 | QP | 30m | 30MHz-88MHz | 100 | QP | 3m | 88MHz-216MHz | 150 | QP | 216MHz-960MHz | 200 | QP | 960MHz-1GHz | 500 | QP | Above 1GHz | 500 | Average | | 5000 | Peak | |
| Frequency | Limit (uV/m) | Value | Measurement Distance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.009MHz-0.490MHz | 2400/F(KHz) | QP | 300m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.490MHz-1.705MHz | 24000/F(KHz) | QP | 300m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.705MHz-30MHz | 30 | QP | 30m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30MHz-88MHz | 100 | QP | 3m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 88MHz-216MHz | 150 | QP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 216MHz-960MHz | 200 | QP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 960MHz-1GHz | 500 | QP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Above 1GHz | 500 | Average | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5000 | Peak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Procedure: | <p>Substitution method was performed to determine the actual ERP emission levels of the EUT.</p> <p>The following test procedure as below:</p> <p>1>.Below 1GHz test procedure:</p> <ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. <p>2>.Above 1GHz test procedure:</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|-------------|---|
| | <ol style="list-style-type: none"> 1. On the test site as test setup graph above, the EUT shall be placed at the 0.8m support on the turntable and in the position closest to normal use as declared by the provider. 2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter. The output of the test antenna shall be connected to the measuring receiver. 3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test. 4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver. 5. Repeat step 4 for test frequency with the test antenna polarized horizontally. 6. Remove the transmitter and replace it with a substitution antenna 7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output. 8. Repeat step 7 with both antennas horizontally polarized for each test frequency. 9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula: $\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$ where: Pg is the generator output power into the substitution antenna. |
| Test setup: | <p>For radiated emissions from 9kHz to 30MHz</p>  <p>For radiated emissions from 30MHz to 1GHz</p> |



For radiated emissions above 1GHz



| | | | | | | |
|-------------------|----------------------------------|-------|---------|-----|---------|----------|
| Test Instruments: | Refer to section 6 for details | | | | | |
| Test mode: | Refer to section 5.2 for details | | | | | |
| Test environment: | Temp.: | 25 °C | Humid.: | 52% | Press.: | 1012mbar |
| Test voltage: | AC 120V, 60Hz | | | | | |
| Test results: | Pass | | | | | |

Remarks:

- Only the worst case Main Antenna test data.
- Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which is worse case.

Measurement Data:

9 kHz ~ 30 MHz

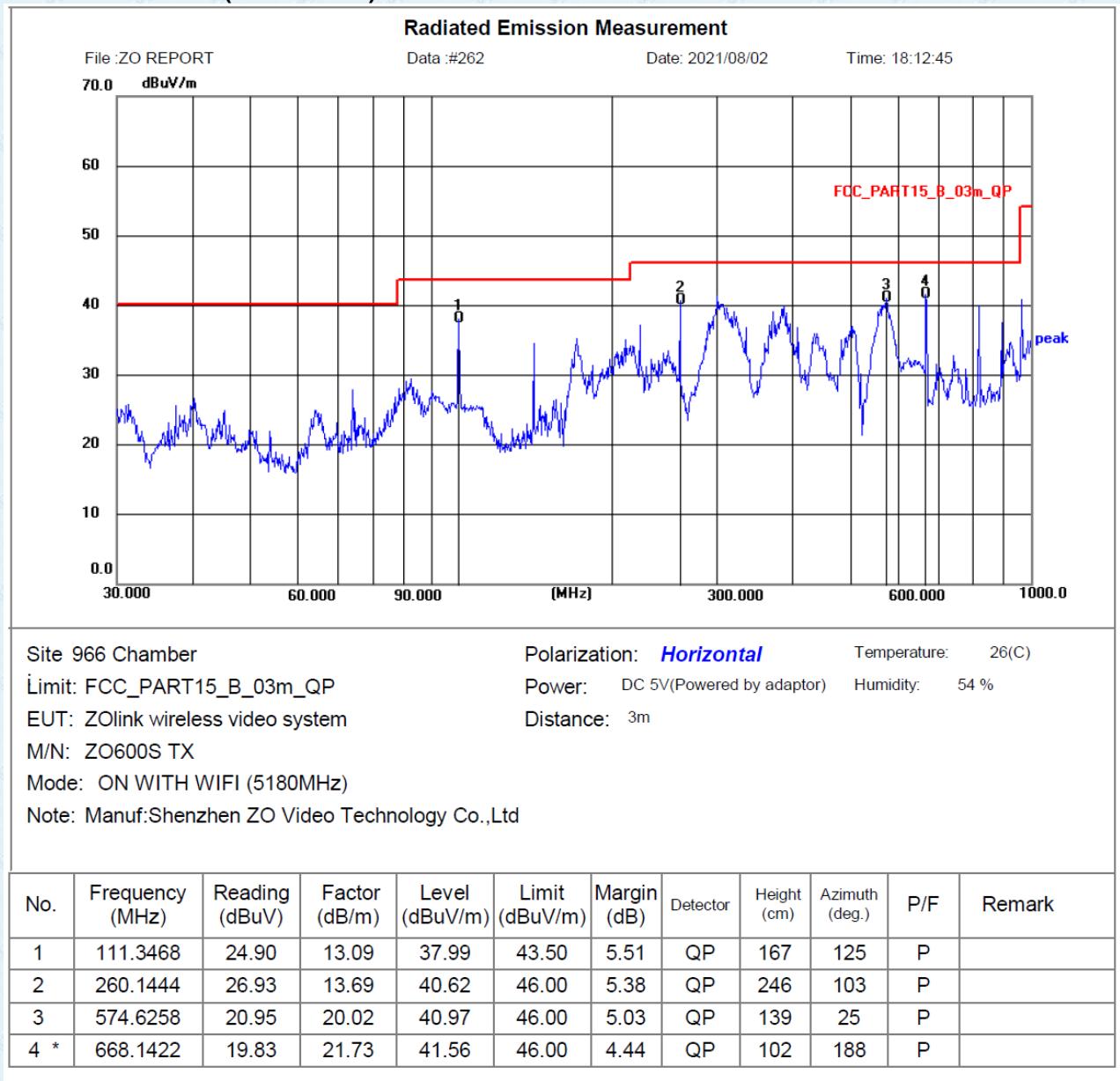
The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

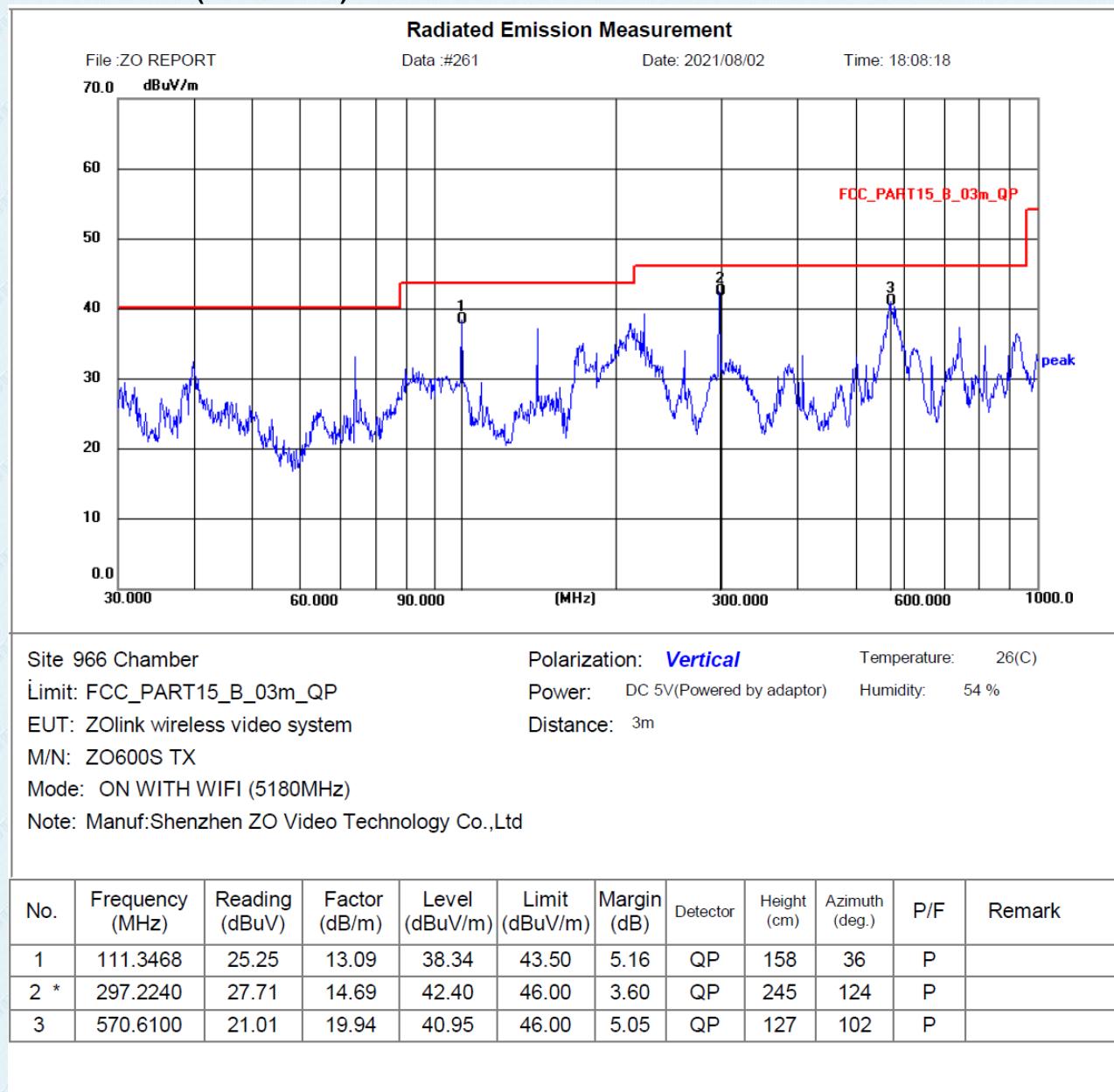
30MHz~ 1GHz

Pre-scan all test modes, found worst case at 802.11a, and so only show the test result of 802.11a

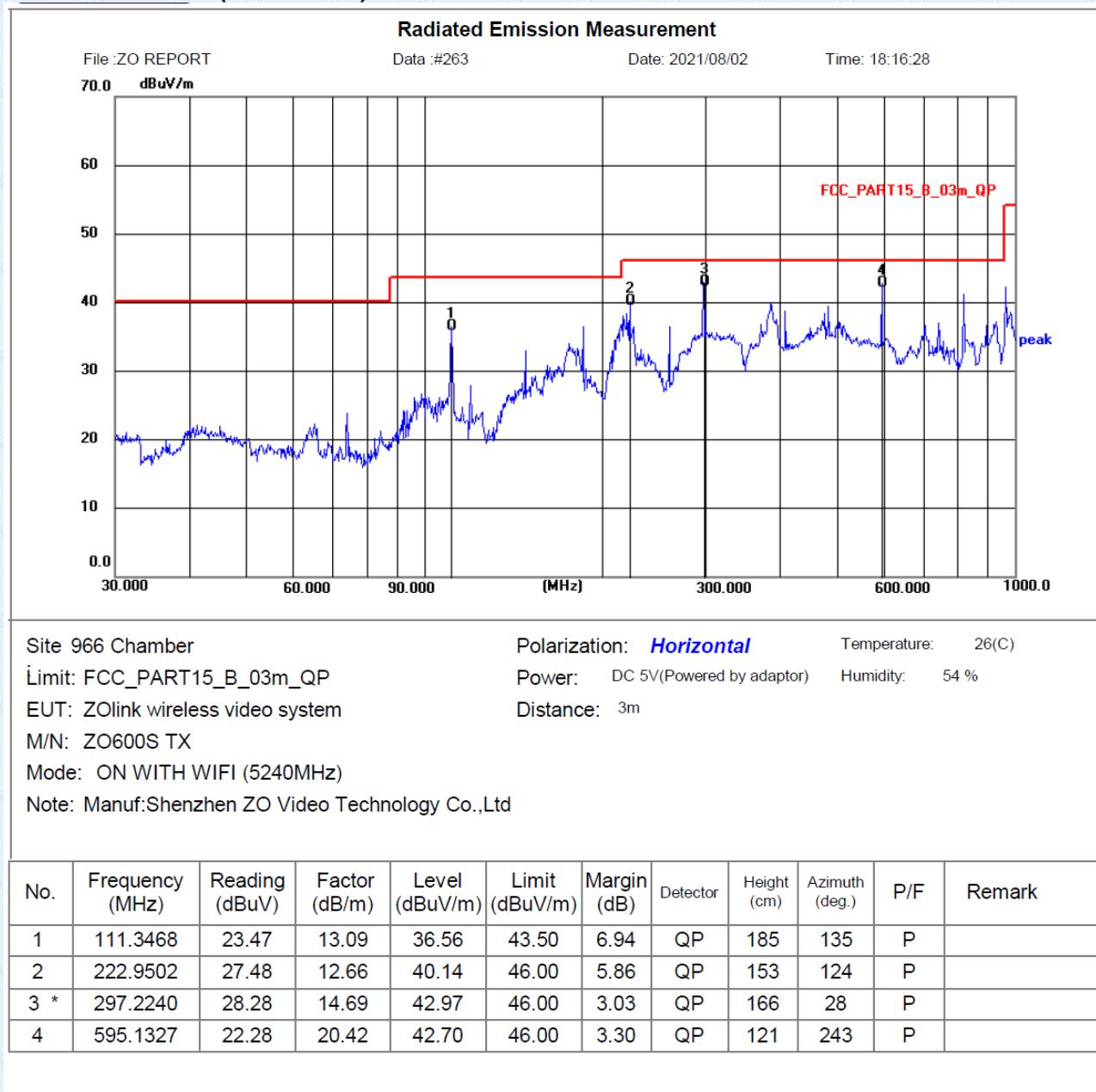
30MHz~ 1GHz

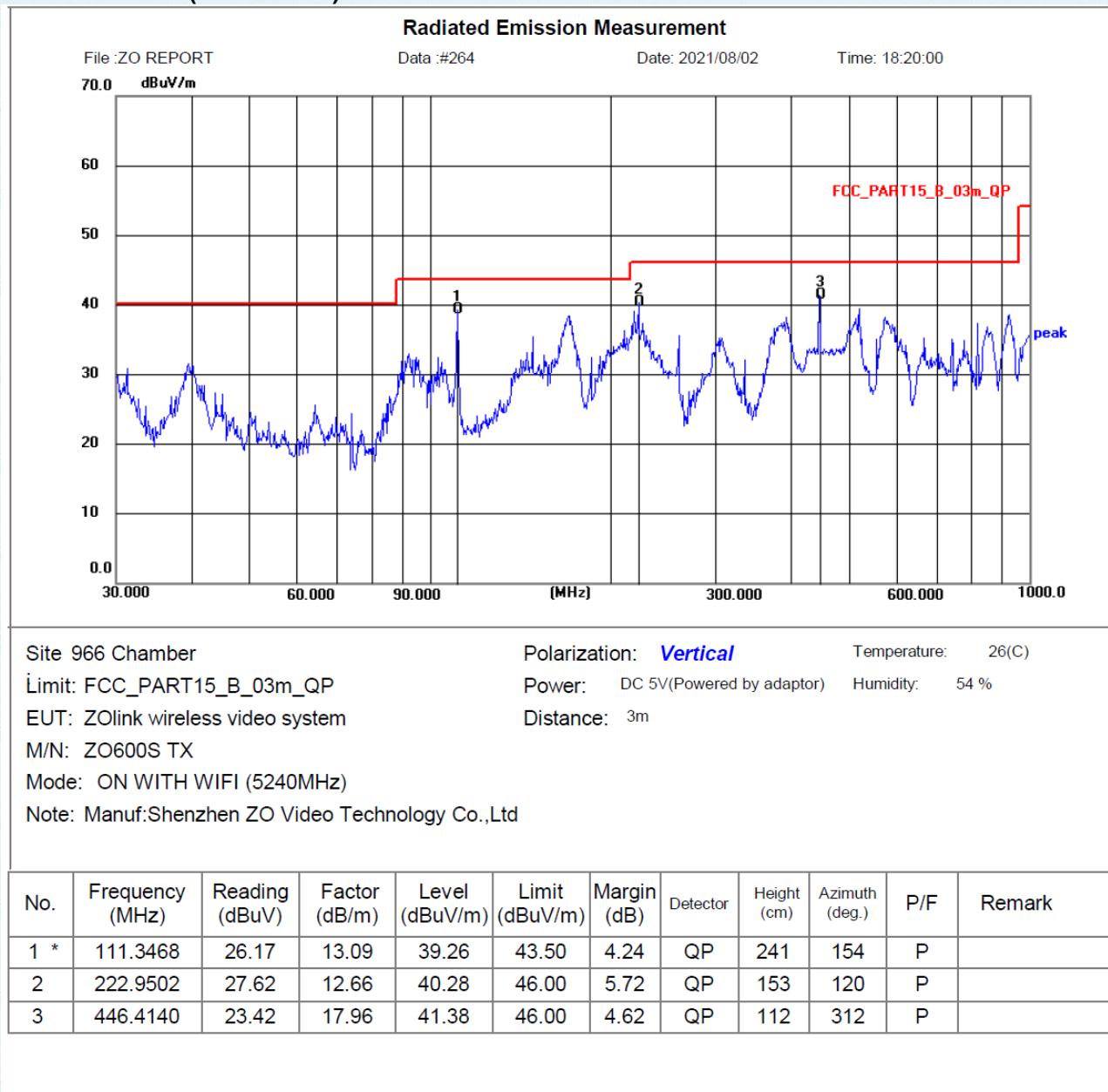
Horizontal: 802.11a (TX 5180MHz)



Vertical: 802.11a (TX 5180MHz)


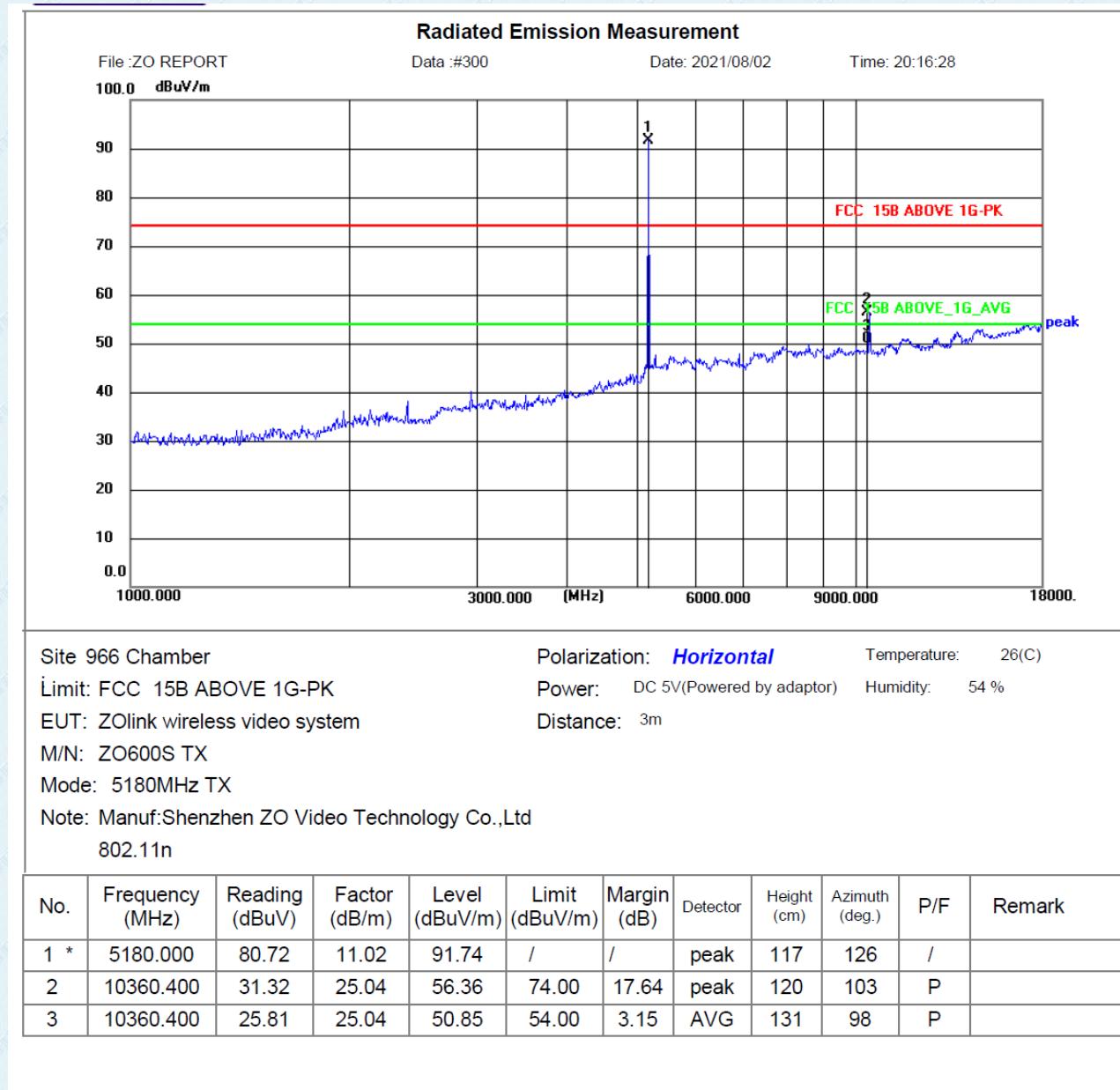
Horizontal: 802.11a (TX 5240MHz)



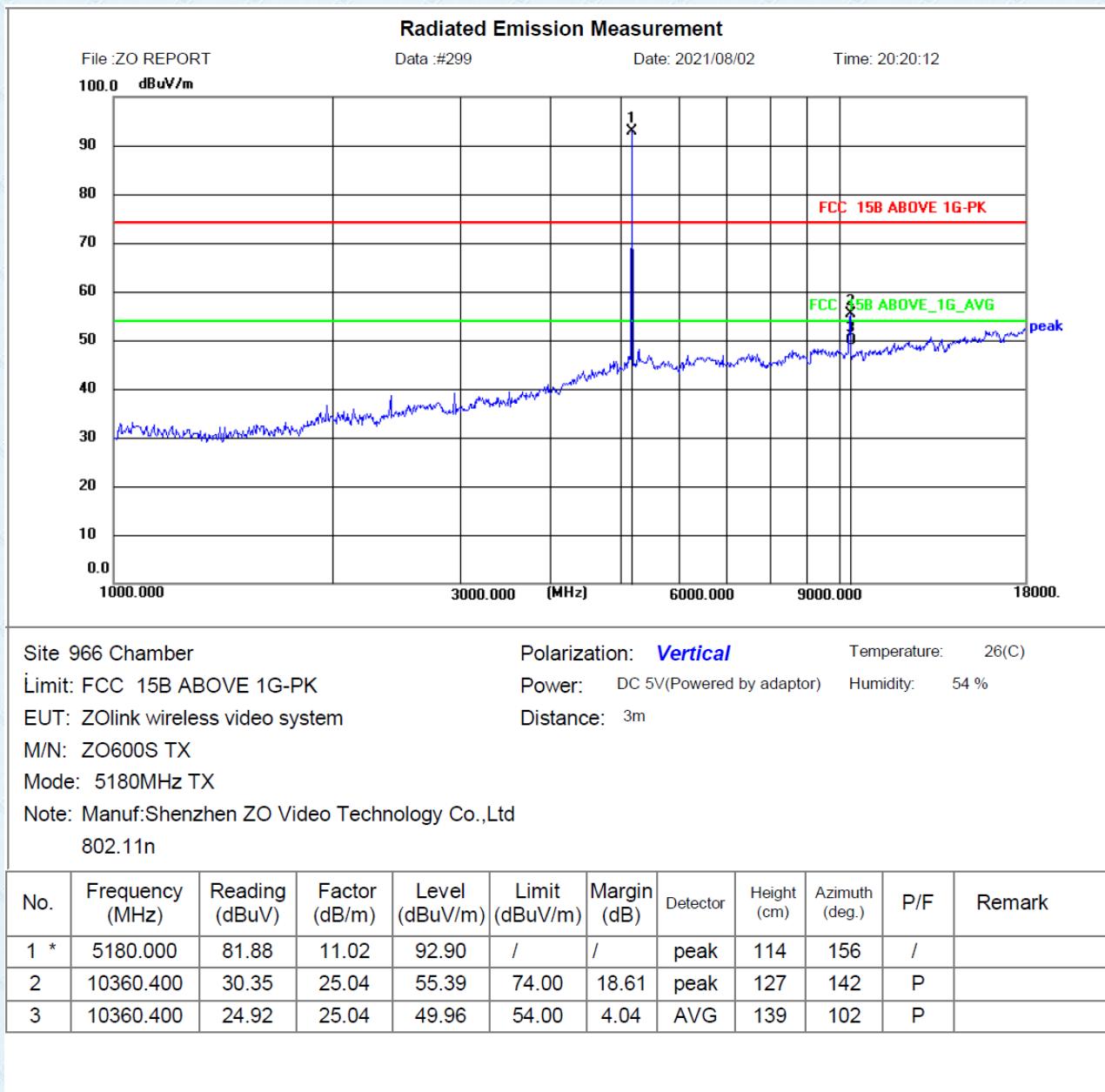
Vertical: 802.11a (TX 5240MHz)


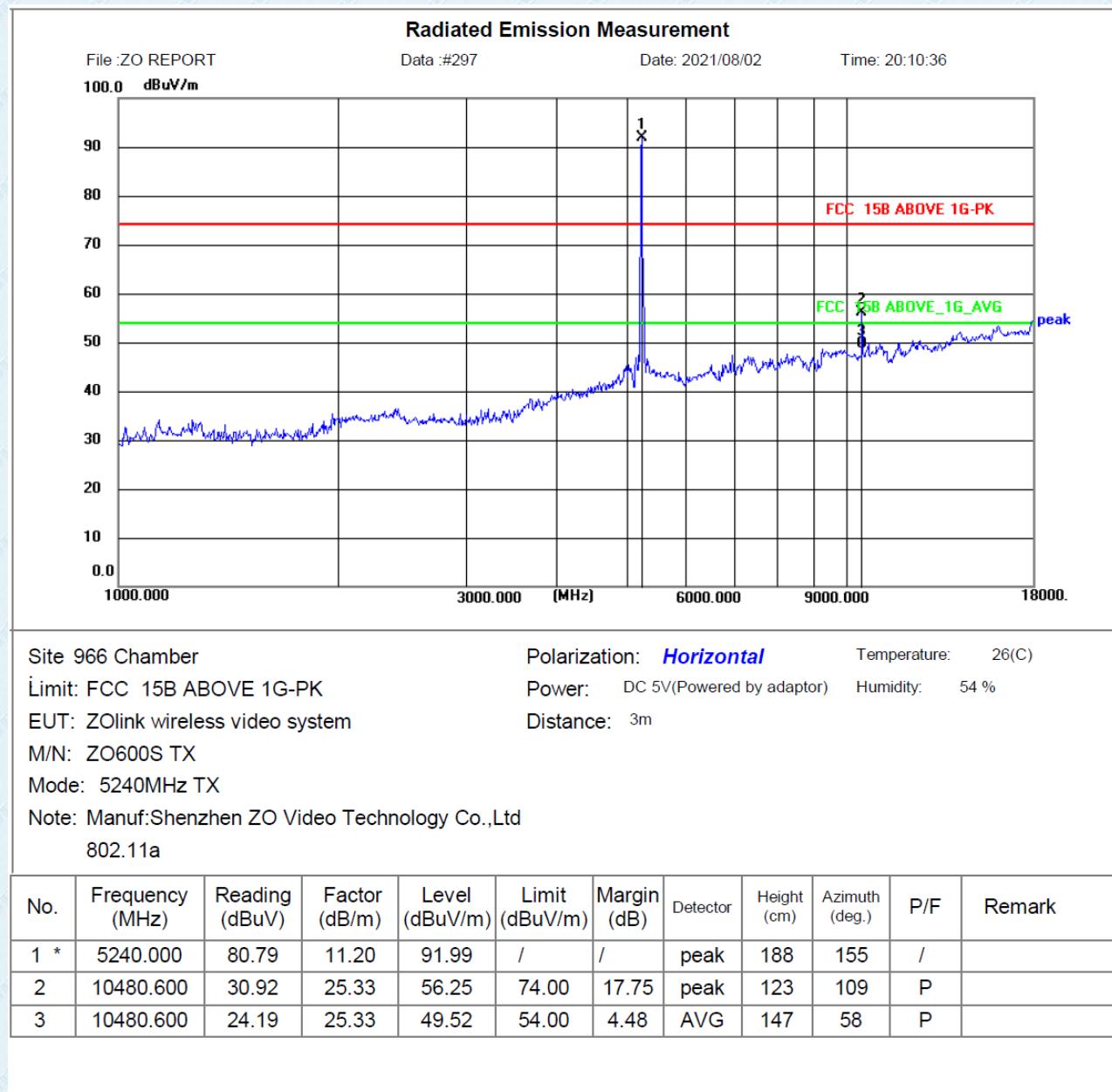
1GHz~ 18GHz

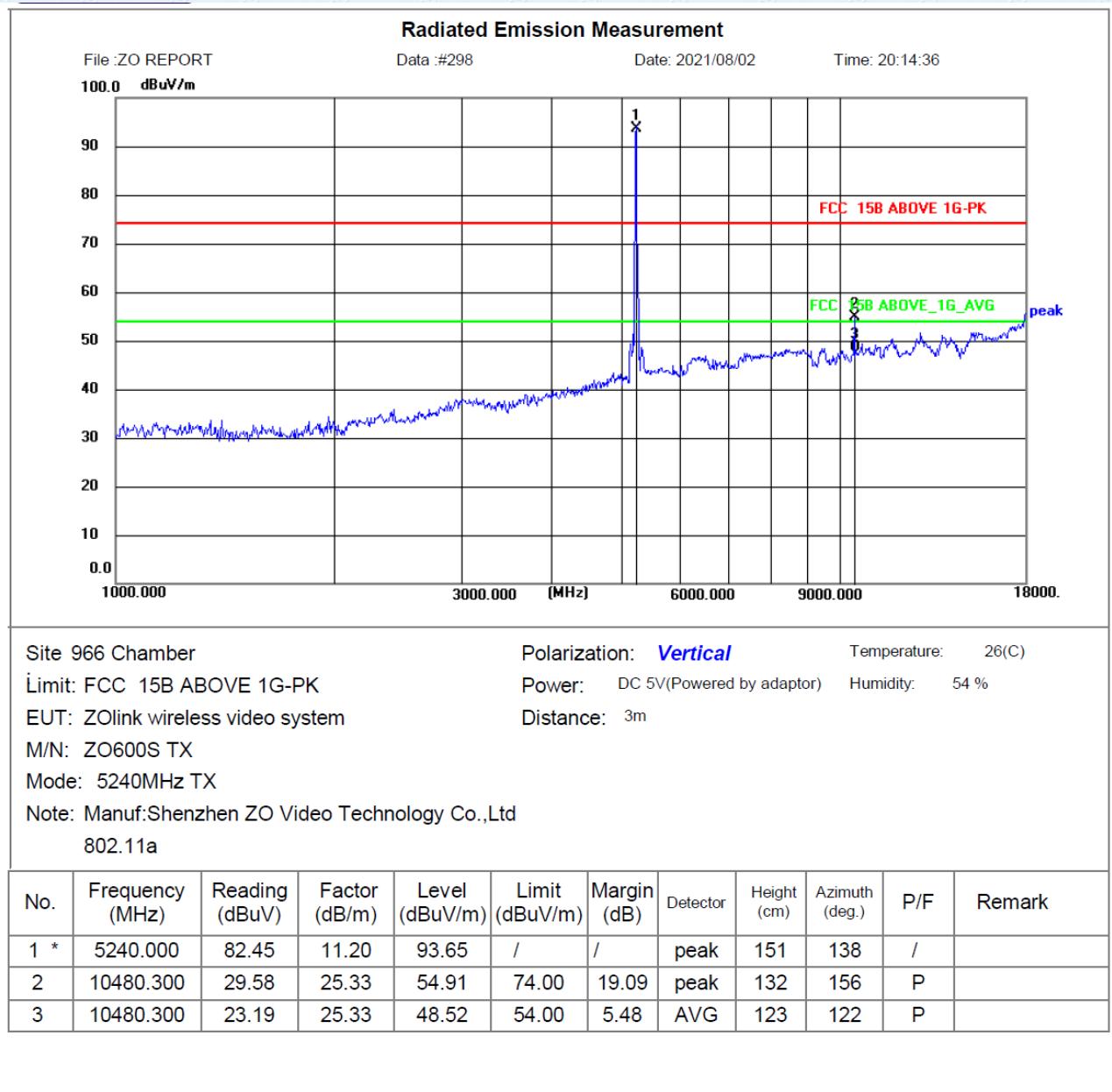
Horizontal: 802.11a (TX 5180MHz)

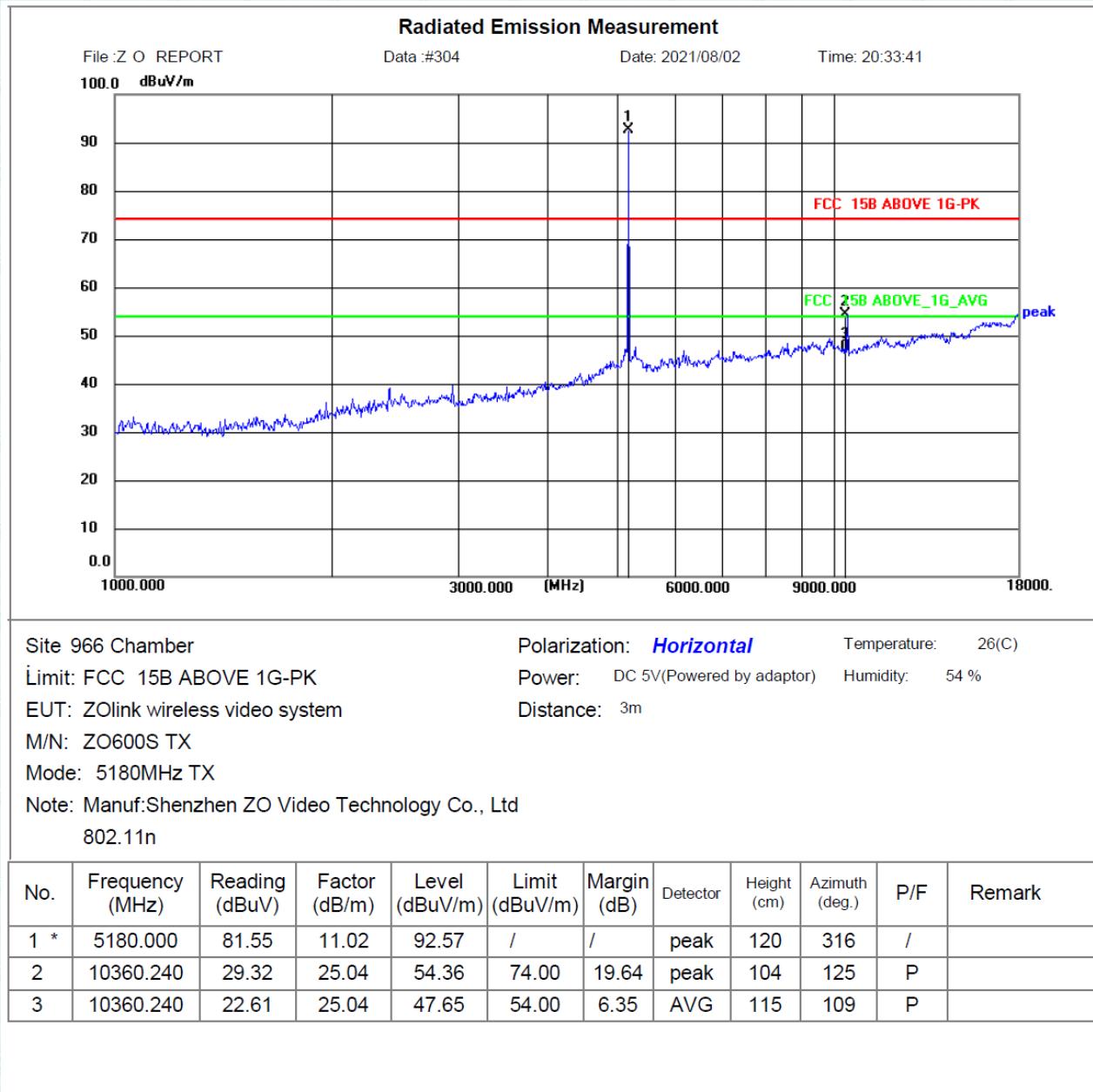


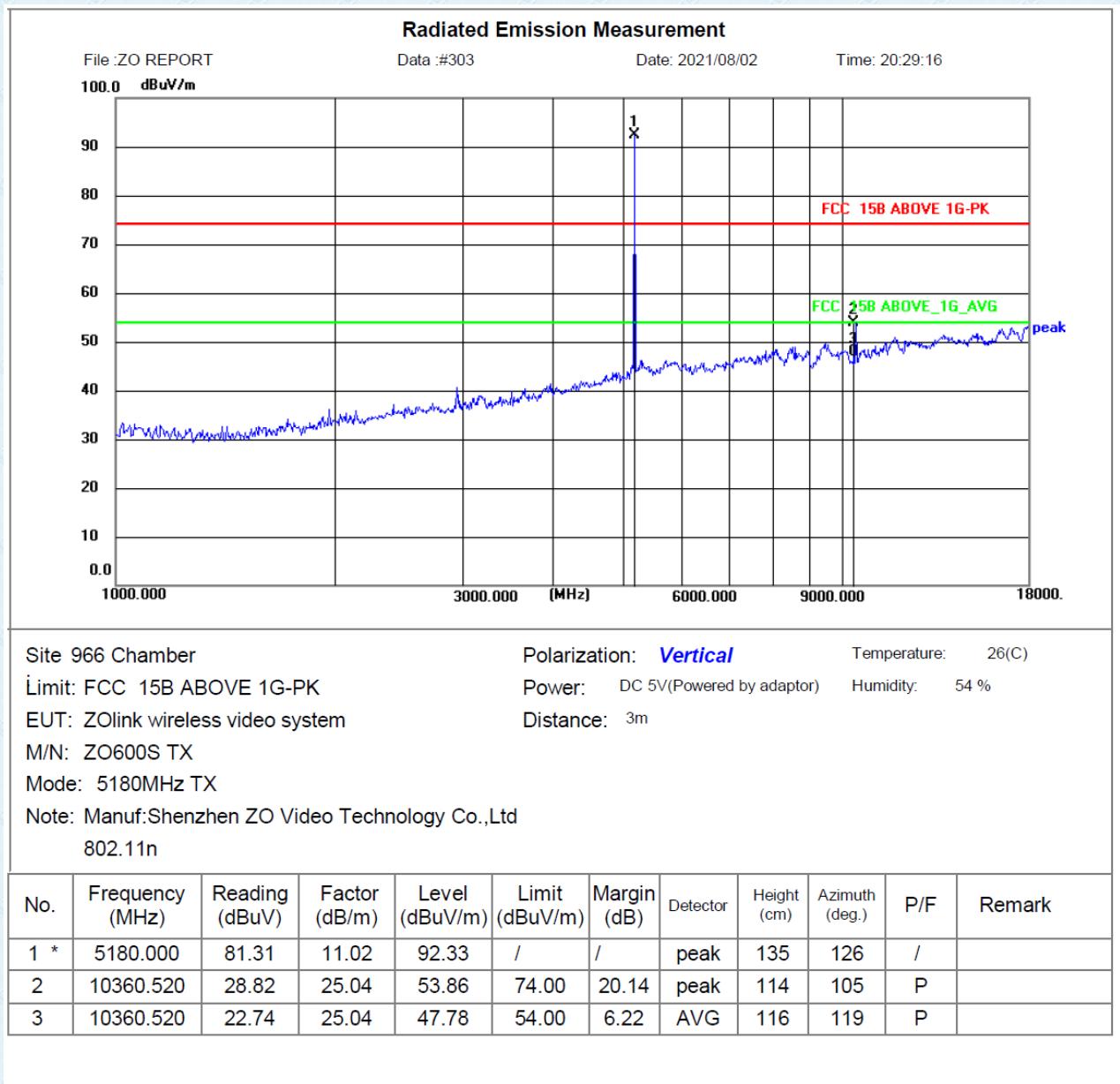
Vertical: 802.11a (TX 5180MHz)

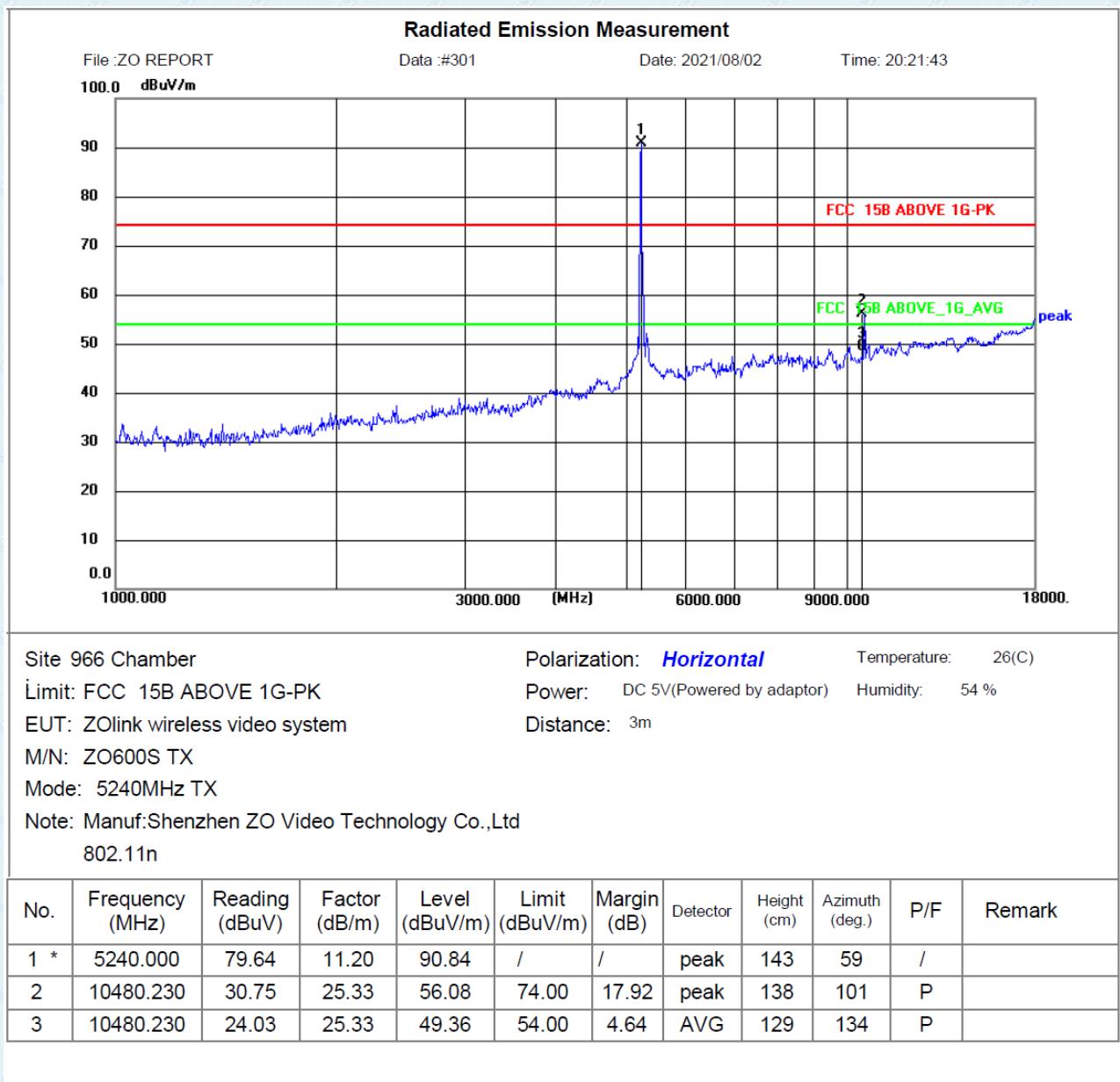


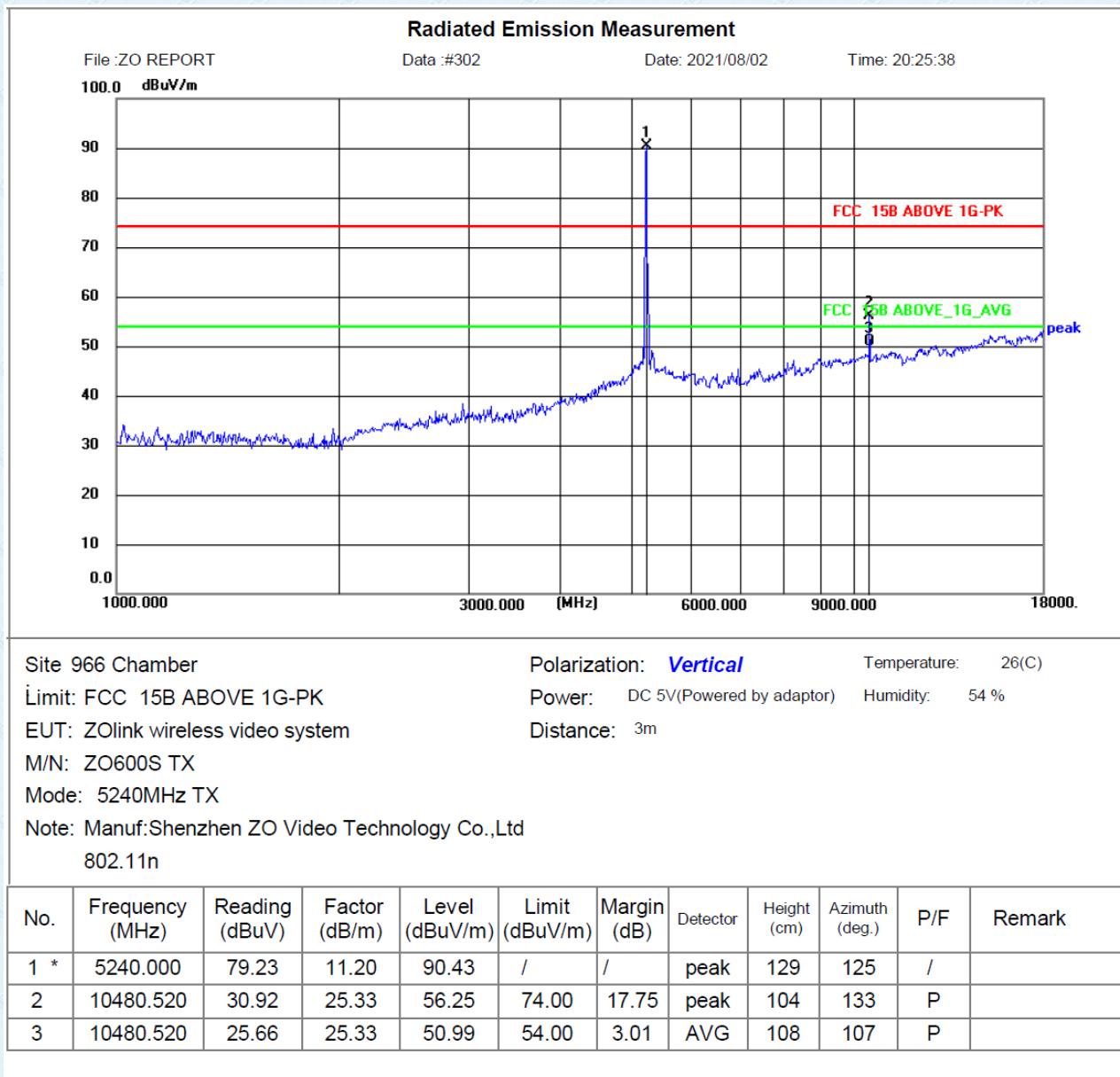
Horizontal: 802.11a (TX 5240MHz)


Vertical: 802.11a (TX 5240MHz)


Horizontal: 802.11n-HT20 (TX 5180MHz)


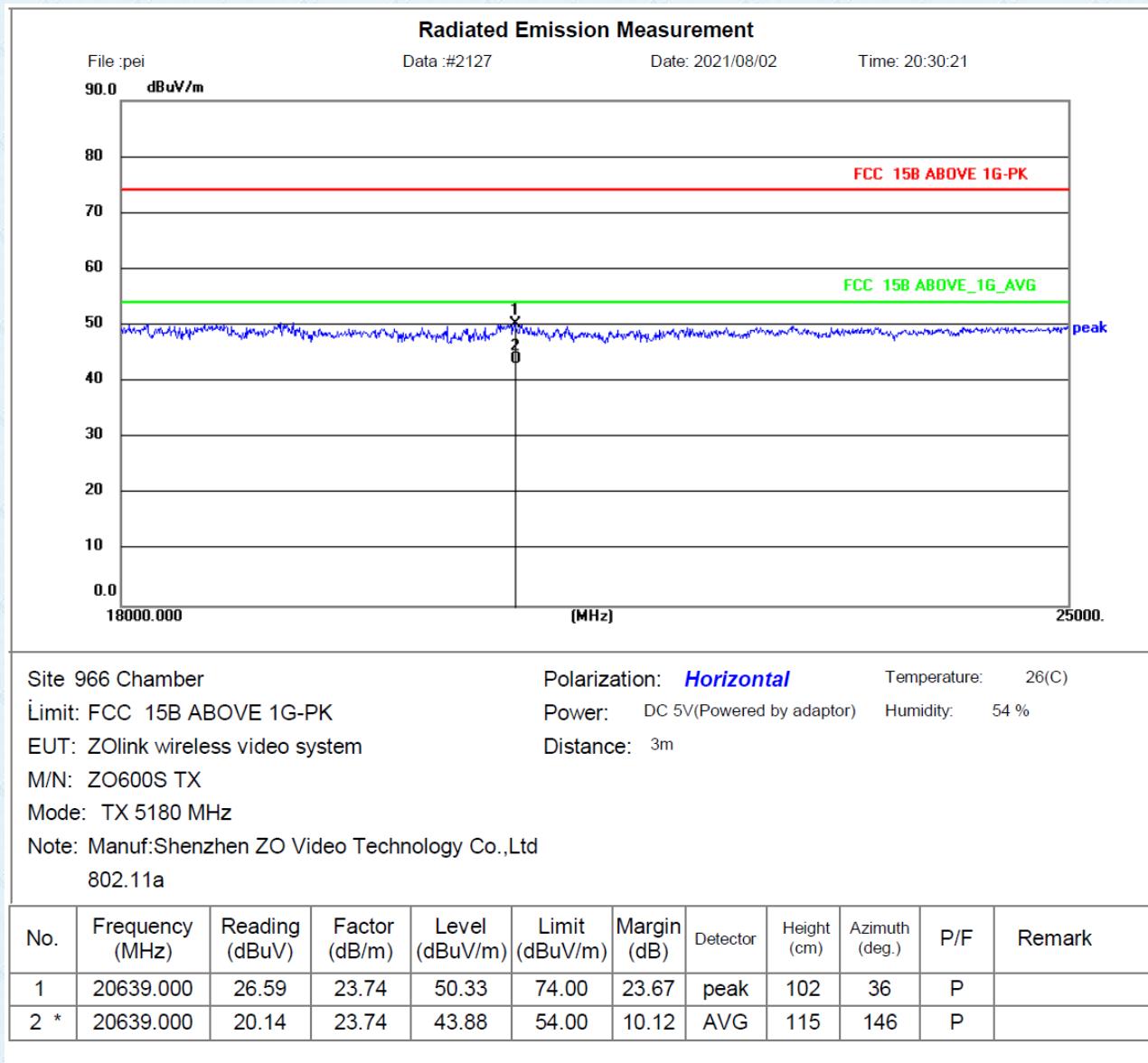
Vertical: 802.11n-HT20 (TX 5180MHz)


Horizontal: 802.11n-HT20 (TX 5240MHz)


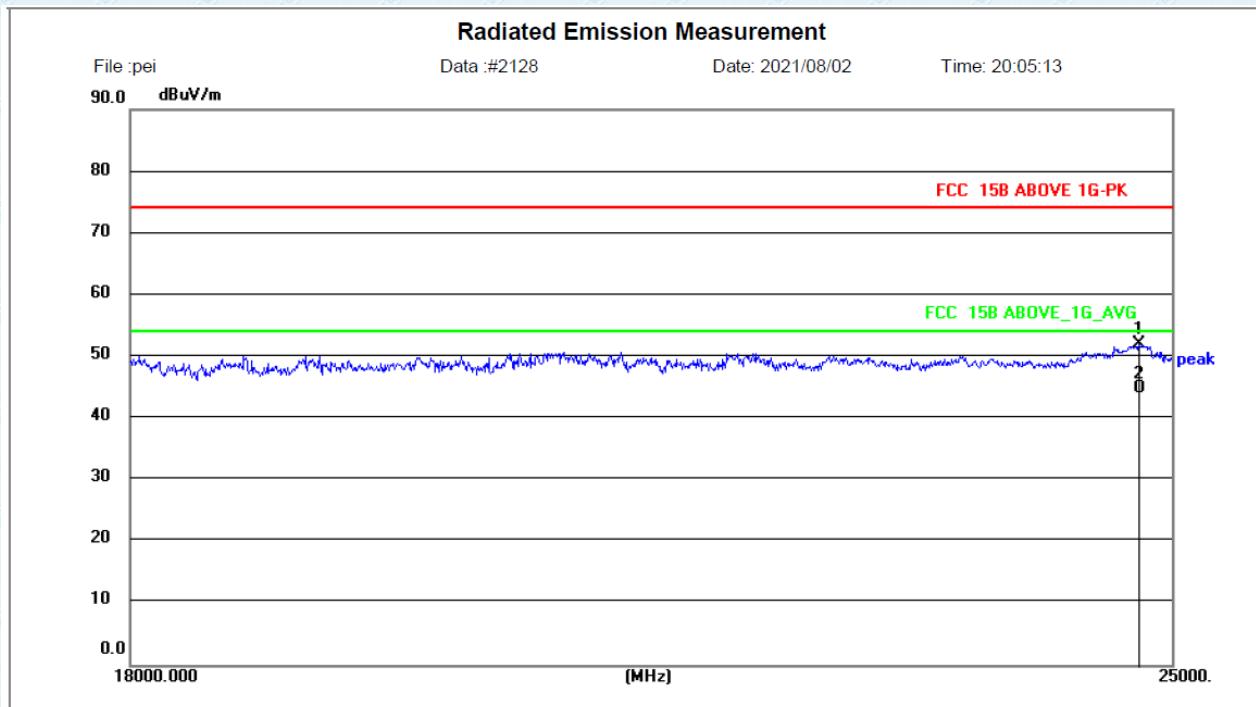
Vertical: 802.11n-HT20 (TX 5240MHz)


18GHz~ 25GHz

Horizontal: 802.11a (TX 5180MHz)



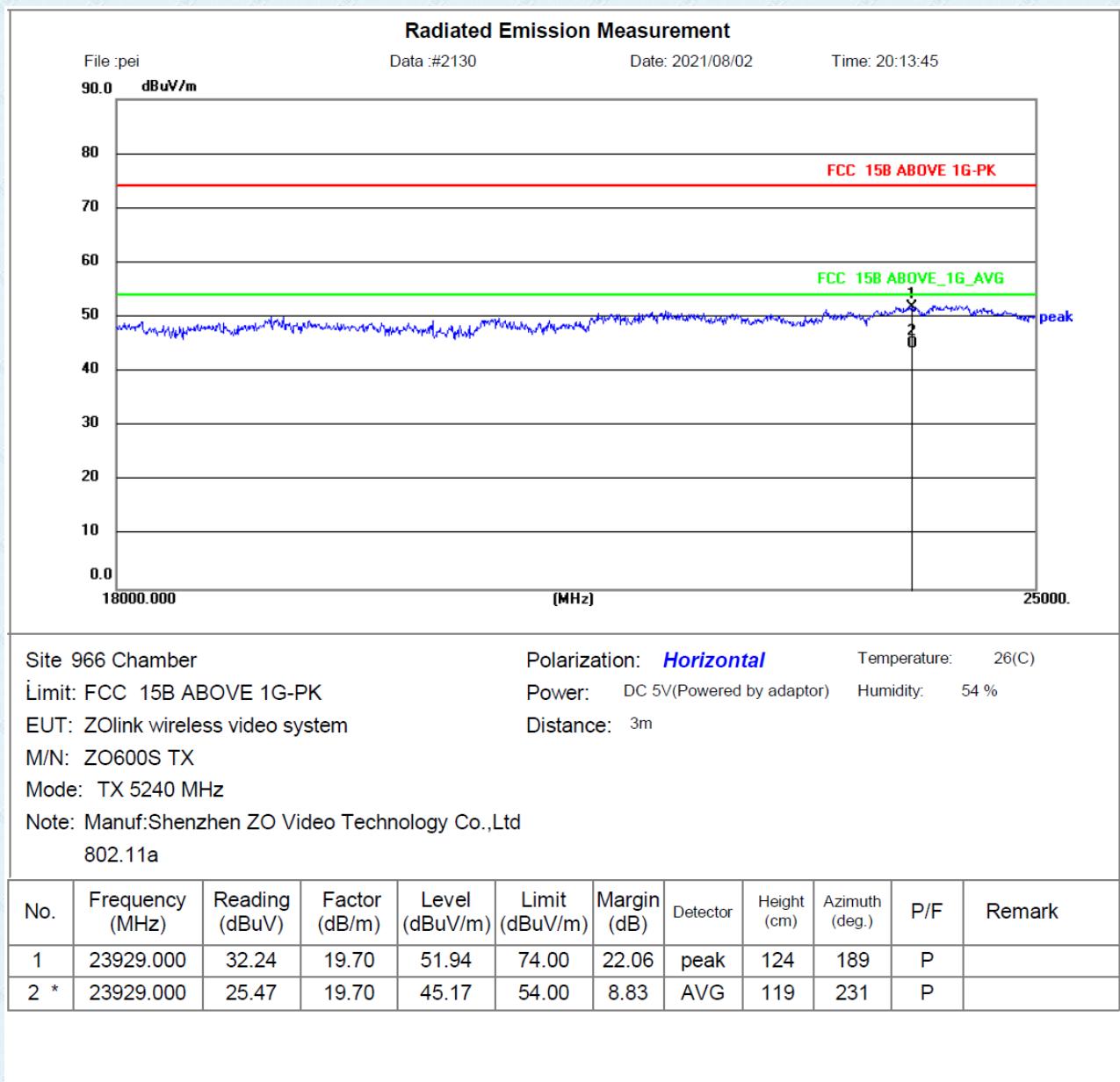
Vertical: 802.11a (TX 5180MHz)



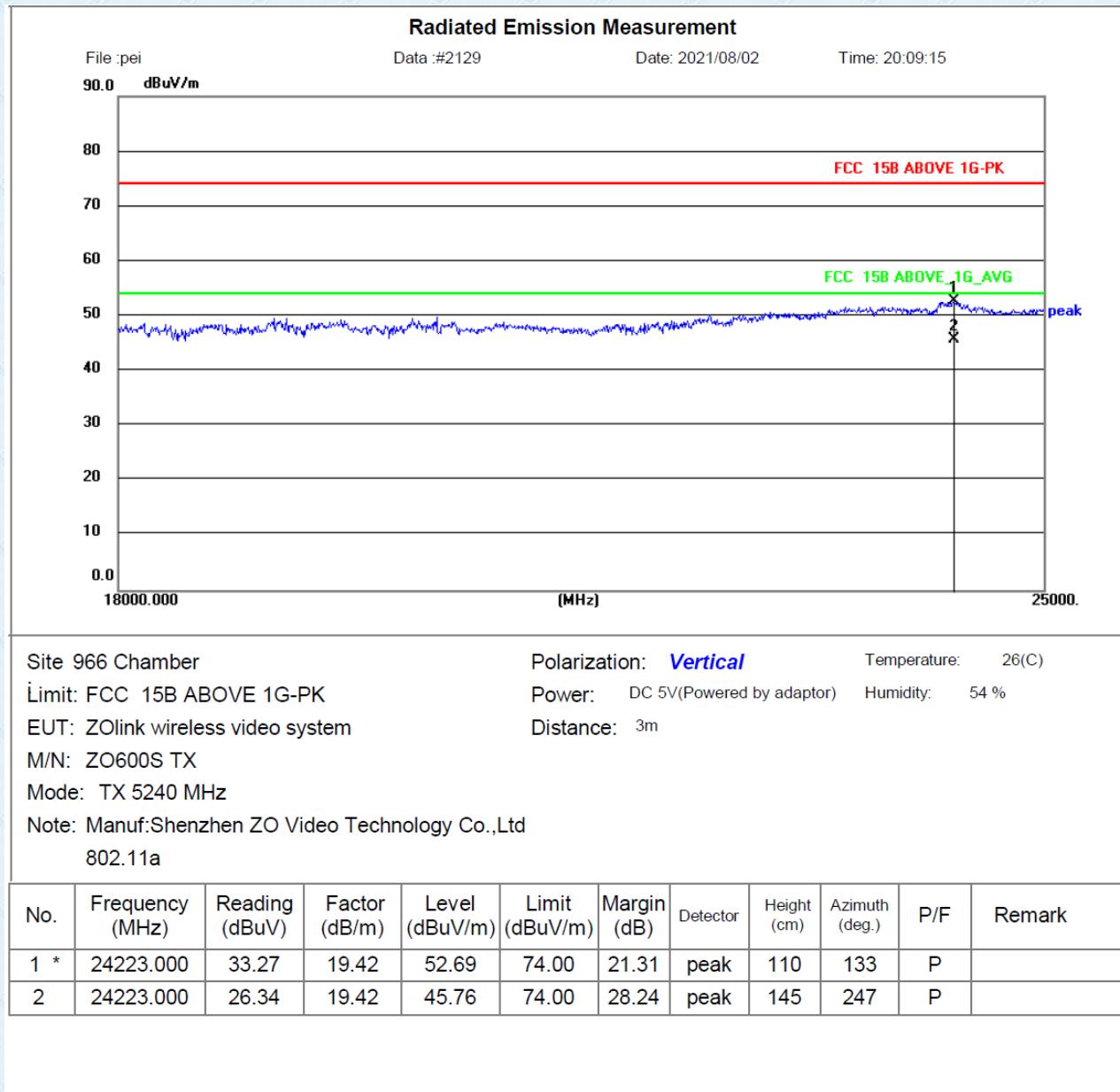
Site 966 Chamber Polarization: **Vertical** Temperature: 26(C)
Limit: FCC 15B ABOVE 1G-PK Power: DC 5V(Powered by adaptor) Humidity: 54 %
EUT: ZOLink wireless video system Distance: 3m
M/N: ZO600S TX
Mode: TX 5180 MHz
Note: Manuf:Shenzhen ZO Video Technology Co.,Ltd
802.11a

| 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 | 24741.000 | 32.69 | 19.30 | 51.99 | 74.00 | 22.01 | peak | 105 | 214 | P | |
| 2 * | 24741.000 | 25.69 | 19.30 | 44.99 | 54.00 | 9.01 | AVG | 117 | 135 | P | |

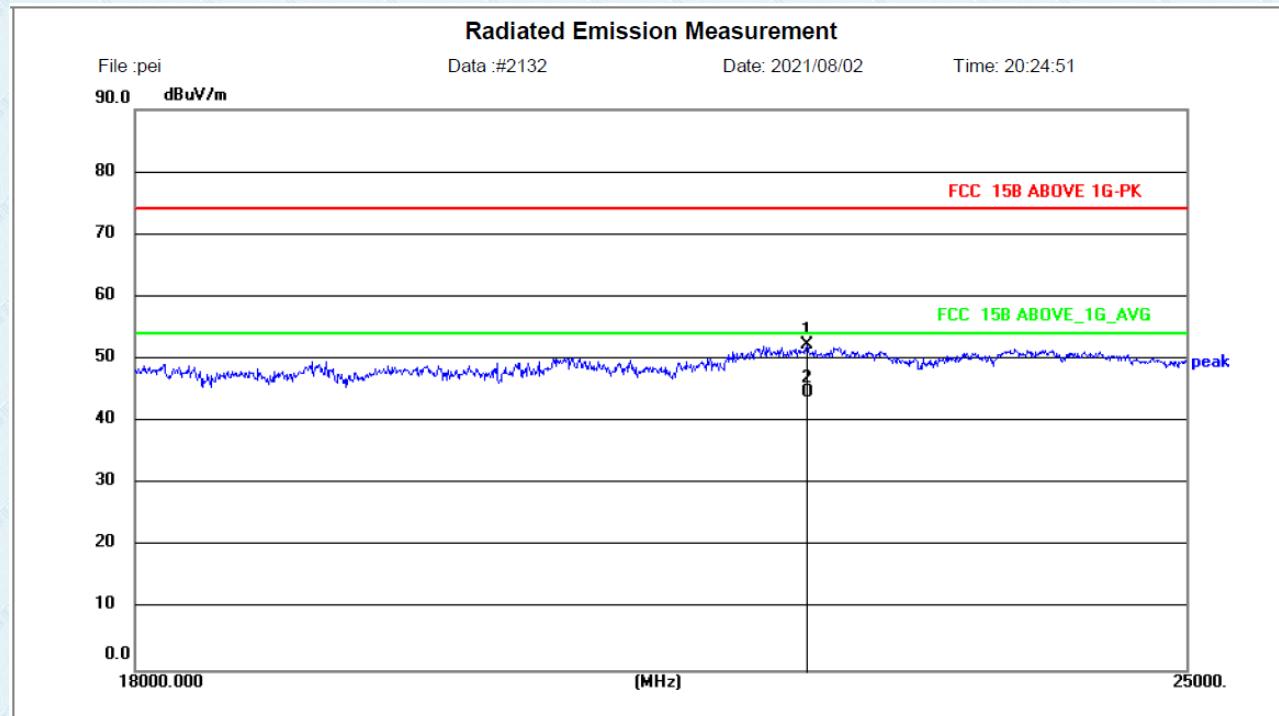
Horizontal: 802.11a (TX 5240MHz)



Vertical: 802.11a (TX 5240MHz)



Horizontal: 802.11n-HT20 (TX 5180MHz)



Site 966 Chamber

Limit: FCC 15B ABOVE 1G-PK

EUT: ZOlink wireless video system

M/N: ZO600S TX

Mode: TX 5180 MHz

Note: Manuf:Shenzhen ZO Video Technology Co.,Ltd

802.11n

Polarization: *Horizontal*

Temperature: 26(C)

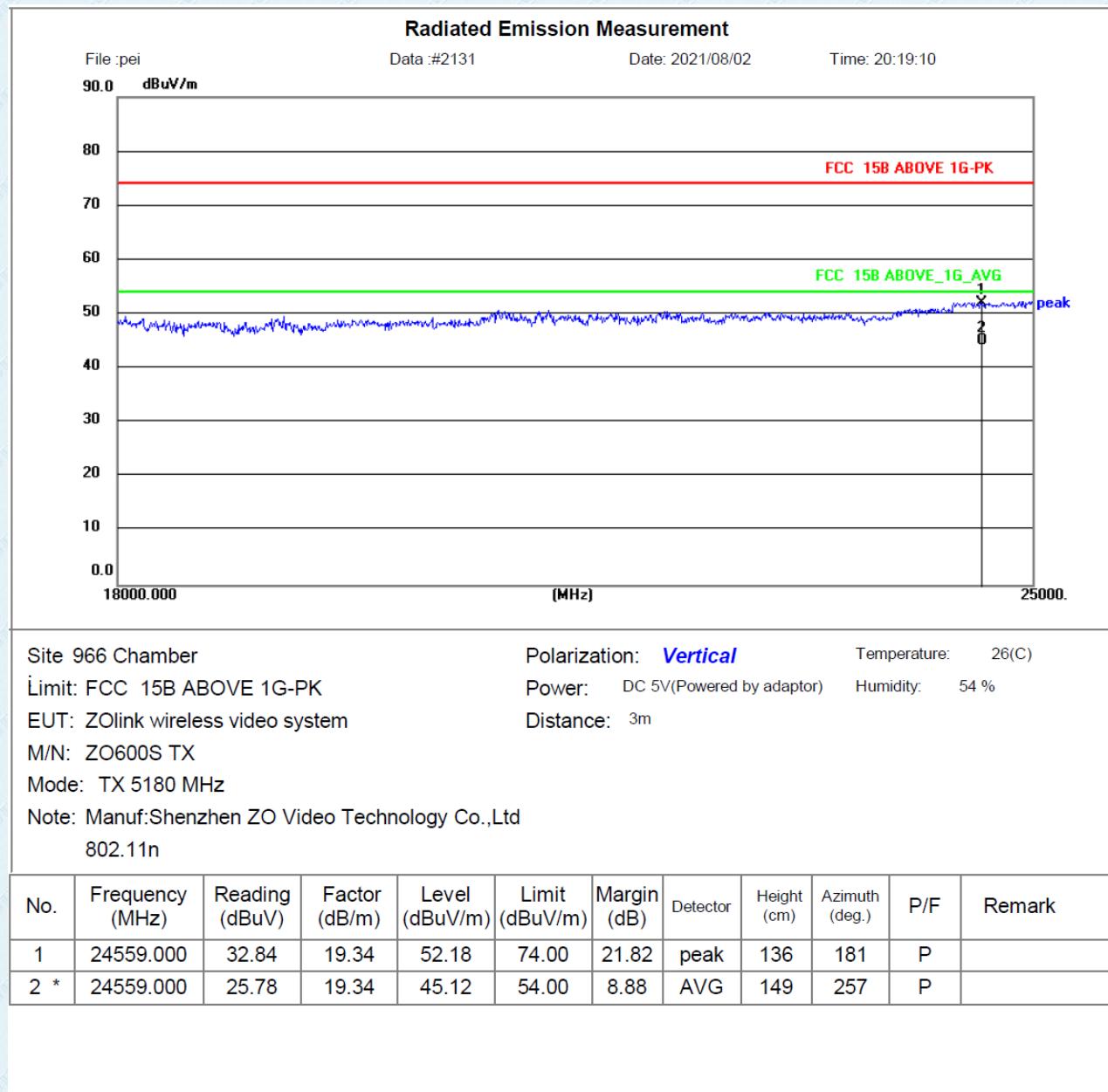
Power: DC 5V(Powered by adaptor)

Humidity: 54 %

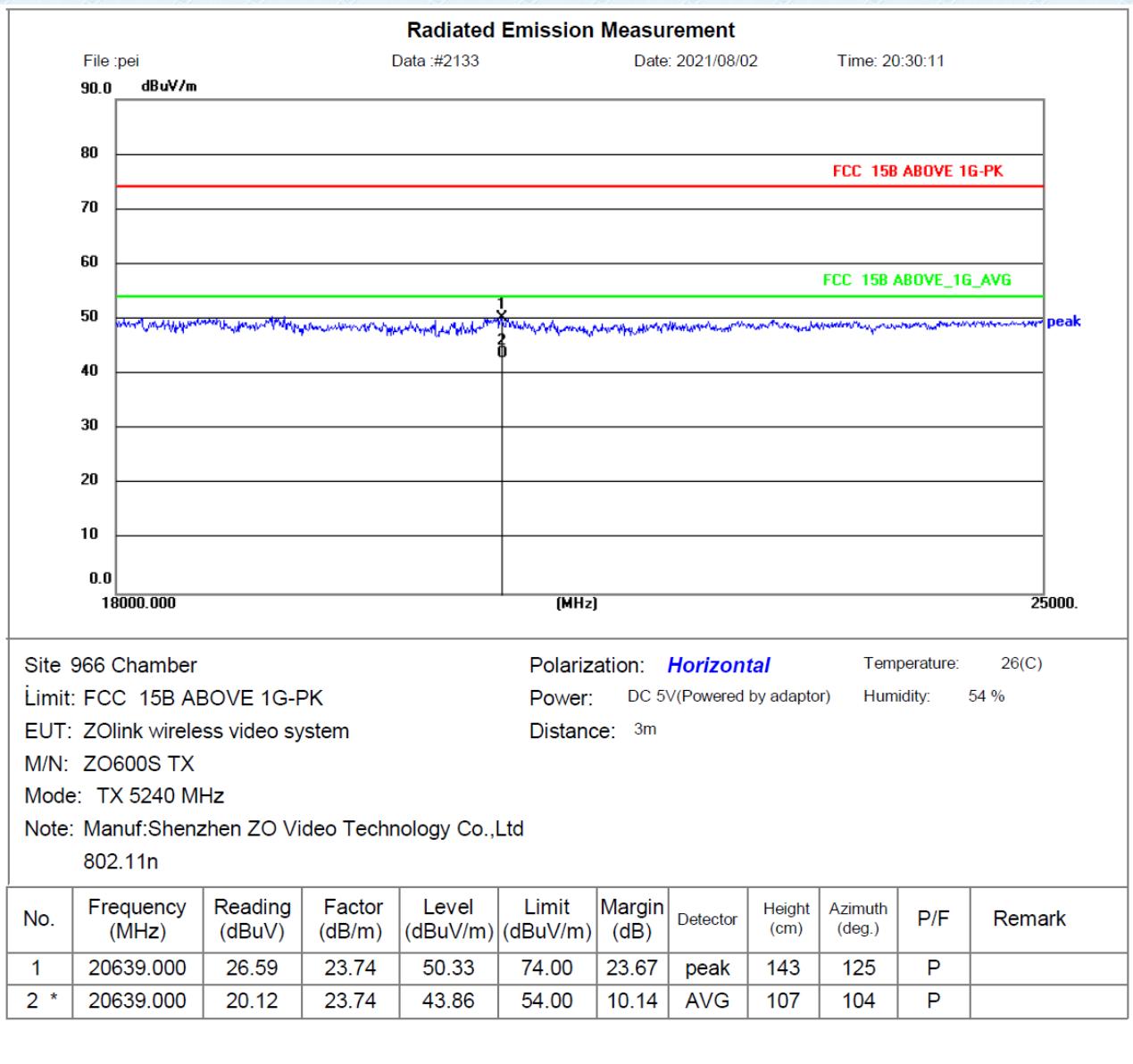
Distance: 3m

| 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 | 22207.000 | 29.86 | 22.34 | 52.20 | 74.00 | 21.80 | peak | 151 | 36 | P | |
| 2 * | 22207.000 | 22.34 | 22.34 | 44.68 | 54.00 | 9.32 | AVG | 148 | 215 | P | |

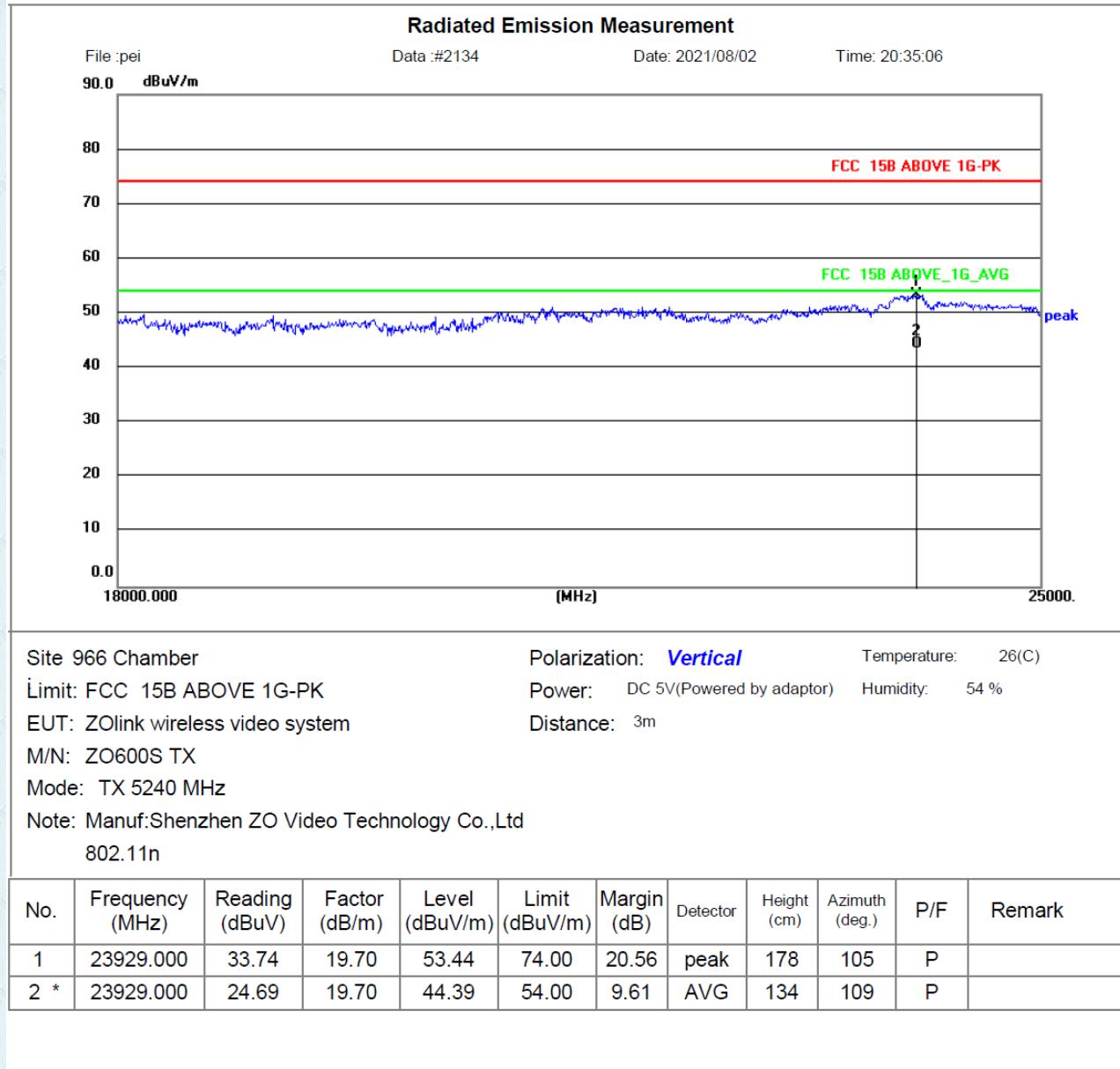
Vertical: 802.11n-HT20 (TX 5180MHz)



Horizontal: 802.11n-HT20 (TX 5240MHz)



Vertical: 802.11n-HT20 (TX 5240MHz)



Notes:

1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.
2. The test trace is same as the ambient noise (the test frequency range: 25GHz~40GHz), therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. We tested 802.11a/n mode the all data rate and recorded the worst case data for this channel to be 6Mbps for 802.11a mode and MCS0 for 802.11n mode.

26.5GHz~ 40GHz

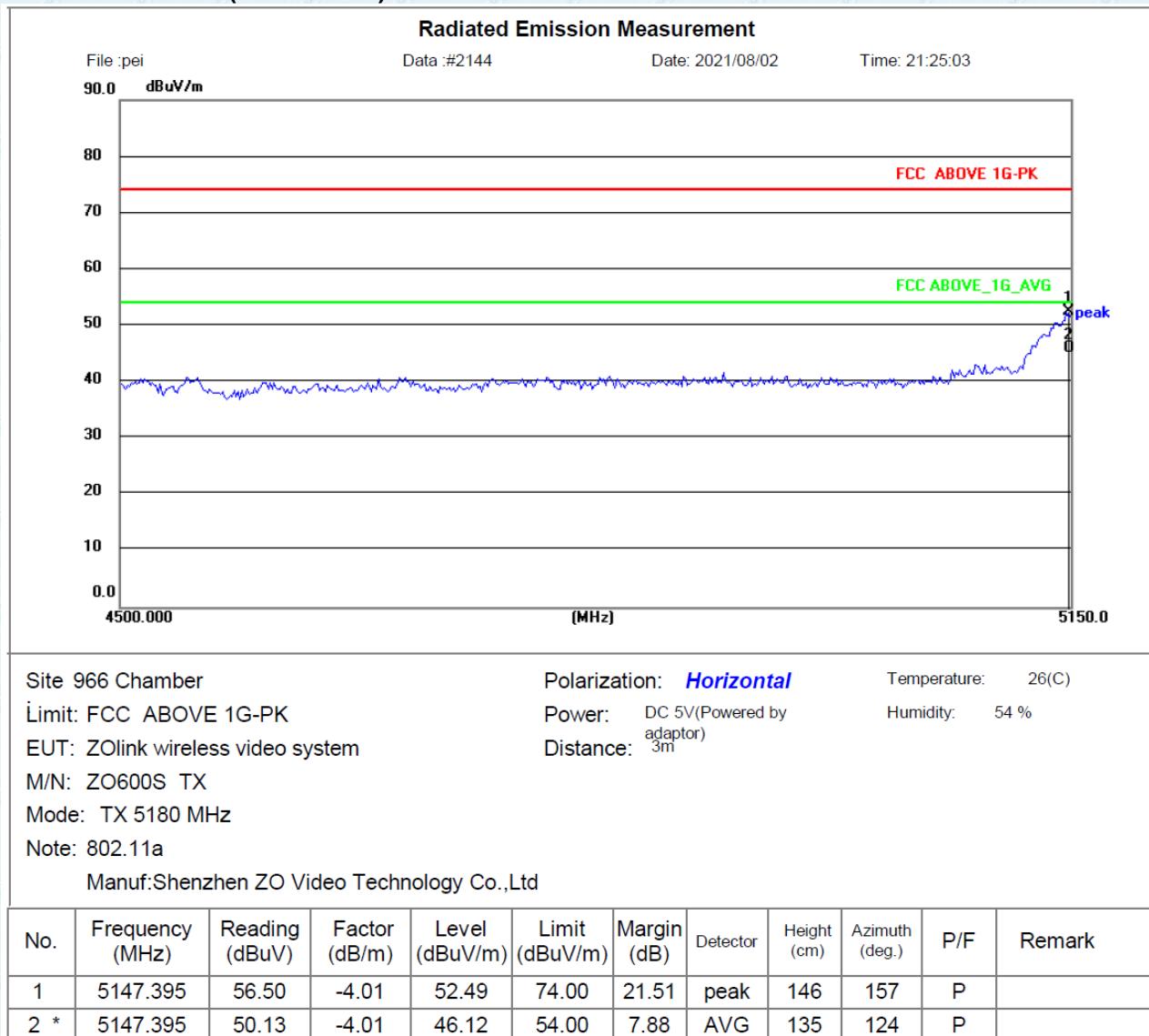
The test trace is same as the ambient noise (the test frequency range: 26.5GHz~40GHz), therefore no data appear in the report.

Notes:

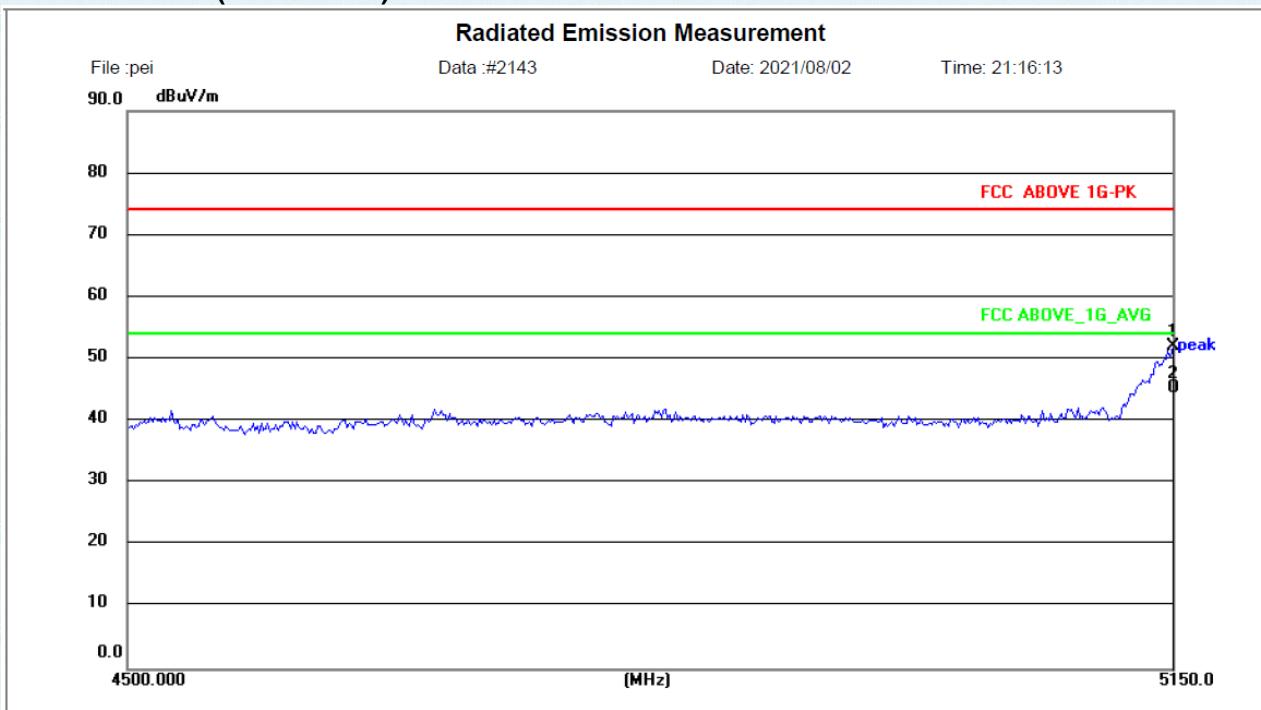
1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.
2. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Spurious Emission in restricted band:

Horizontal: 802.11a (TX 5180MHz)



Vertical: 802.11a (TX 5180MHz)

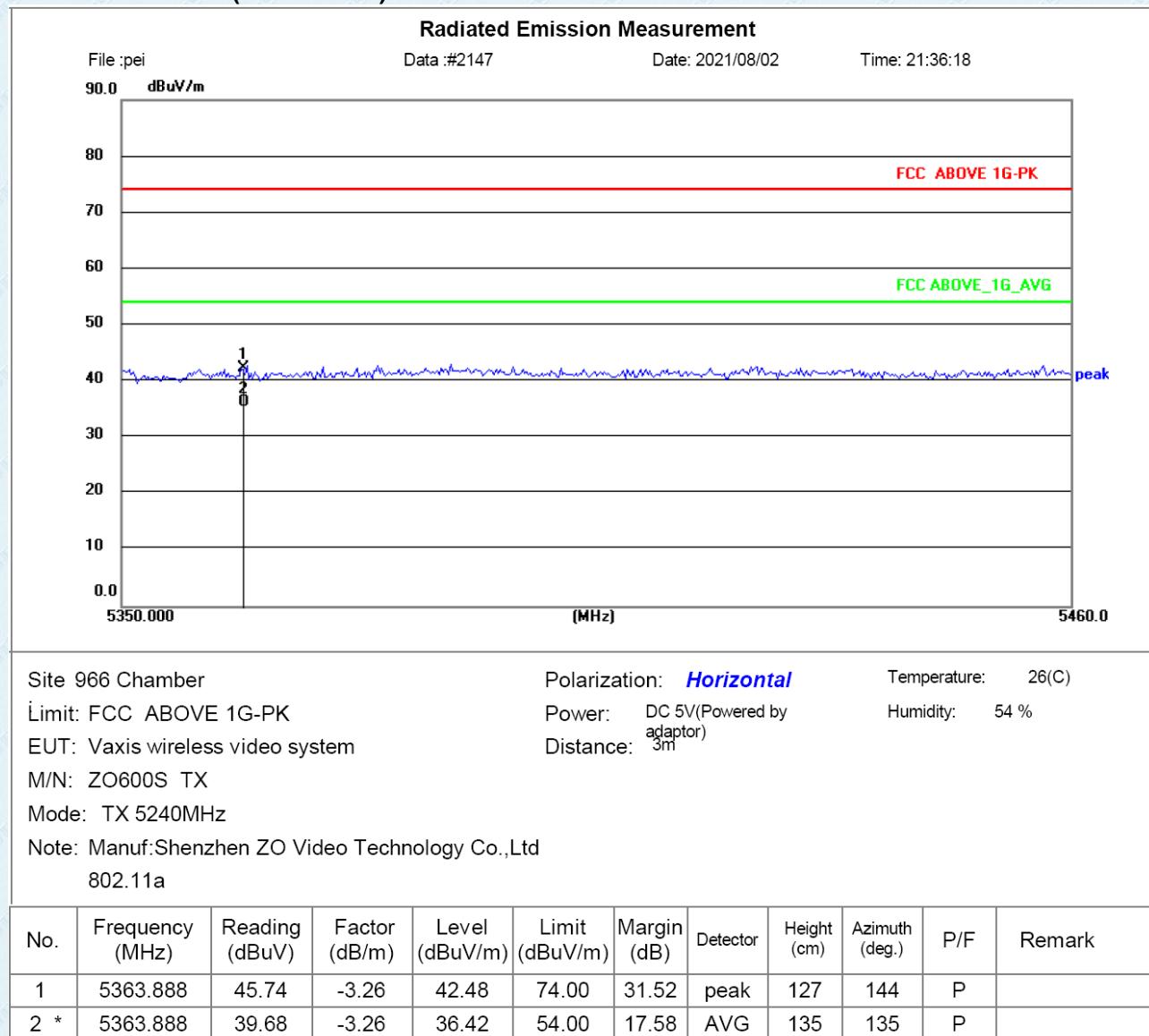


Site 966 Chamber
Limit: FCC ABOVE 1G-PK
EUT: ZOlink wireless video system
M/N: ZO600S TX
Mode: TX 5180 MHz
Note: 802.11a
Manuf:Shenzhen ZO Video T

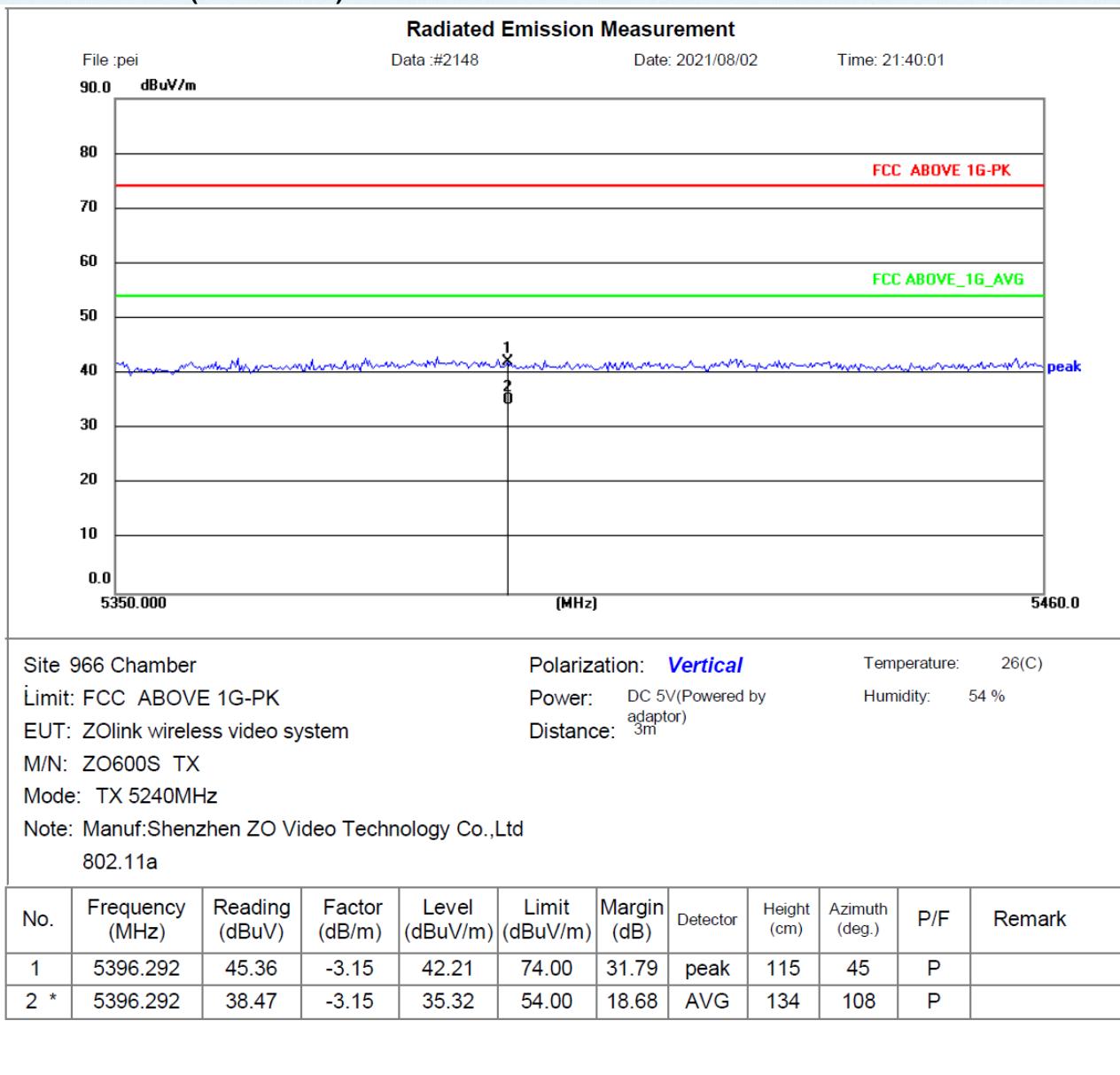
Polarization: **Vertical**
Power: DC 5V(Powered by adaptor)
Distance: 3m

Temperature: 26(C)
Humidity: 54 %

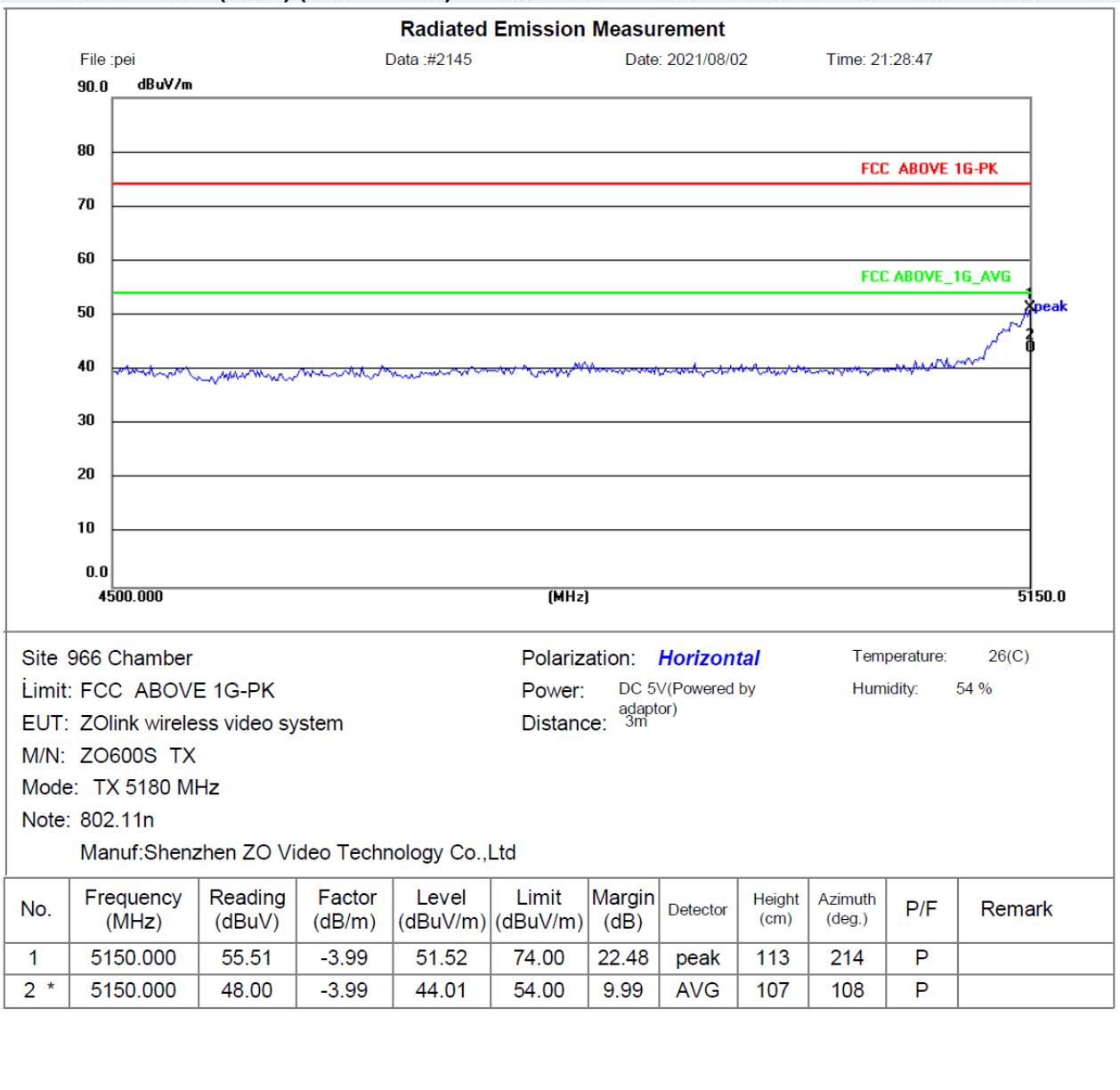
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1 | 5150.000 | 56.01 | -3.99 | 52.02 | 74.00 | 21.98 | peak | 124 | 28 | P | |
| 2 * | 5150.000 | 49.22 | -3.99 | 45.23 | 54.00 | 8.77 | AVG | 128 | 32 | P | |

Horizontal: 802.11a (TX 5240MHz)


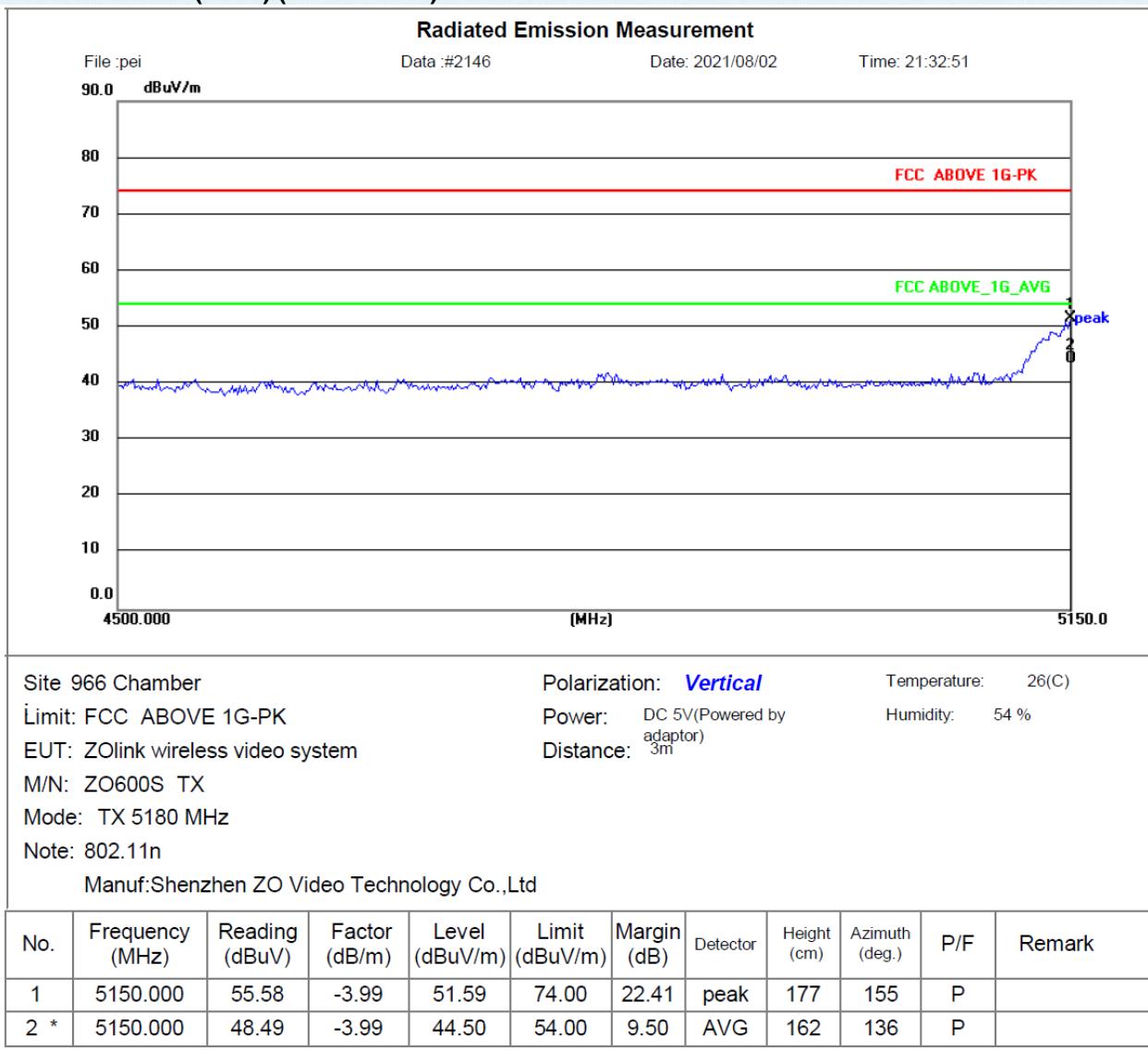
Vertical: 802.11a (TX 5240MHz)



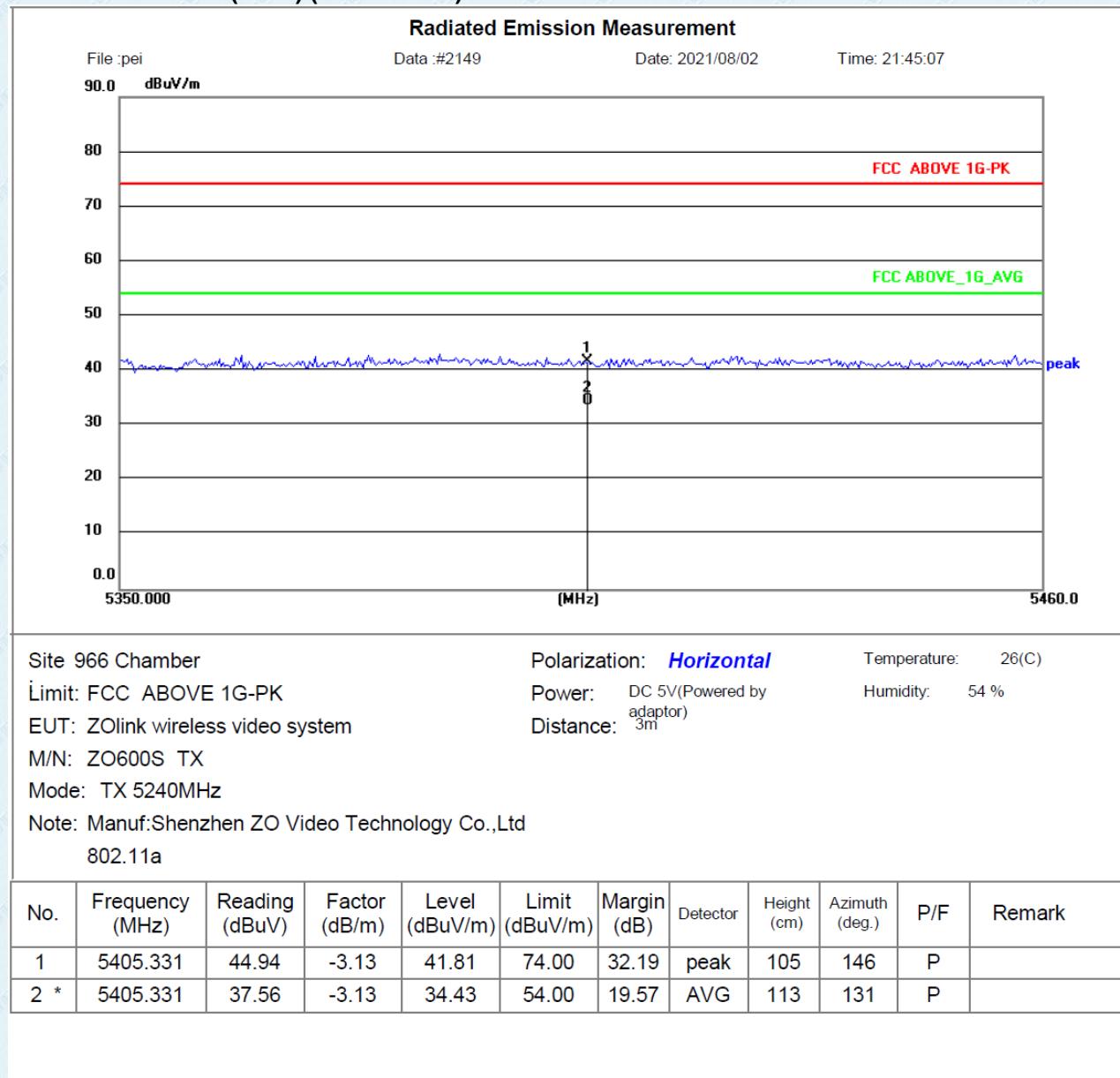
Horizontal: 802.11n (HT20) (TX 5180MHz)



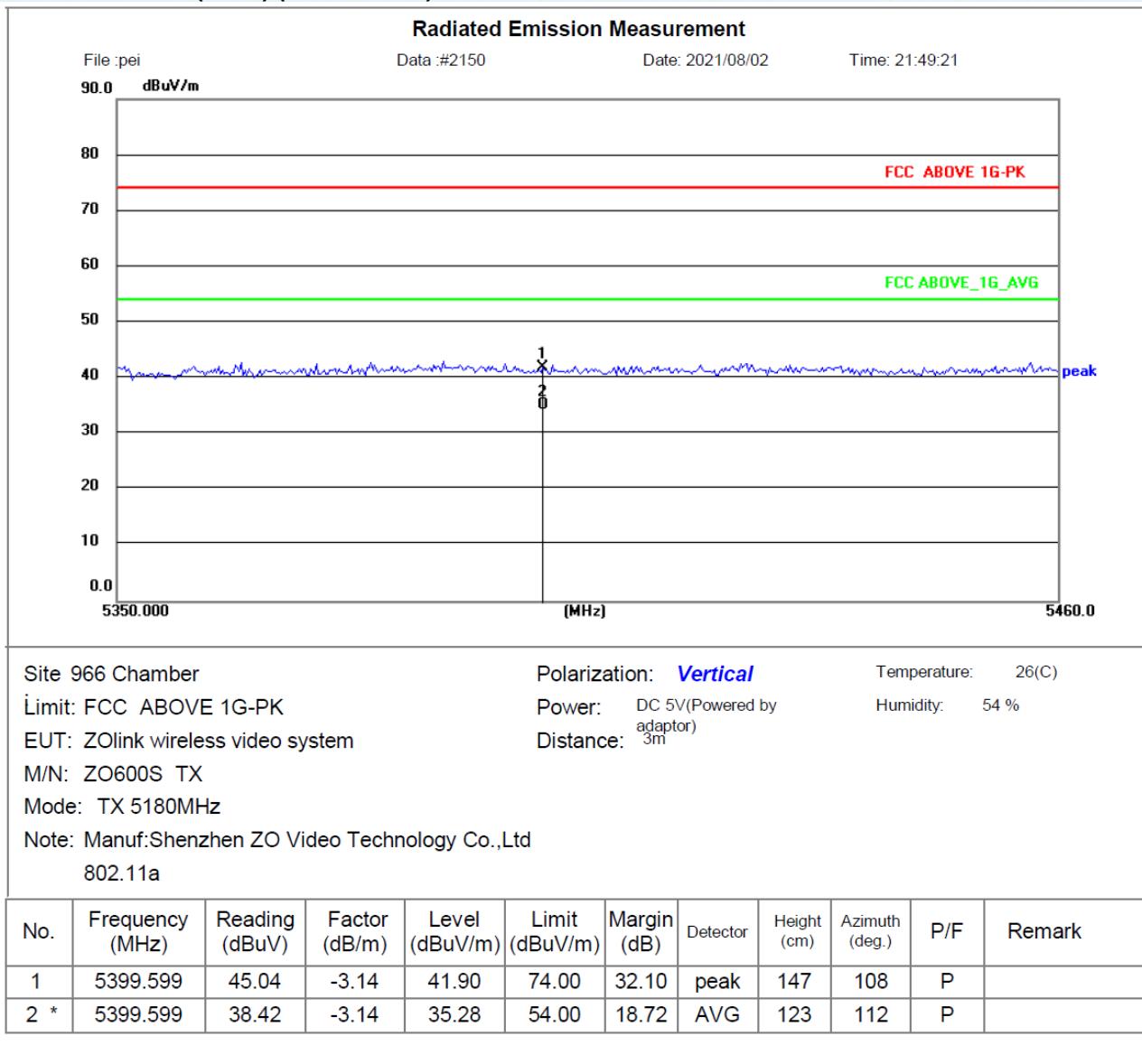
Vertical: 802.11n (HT20) (TX 5180MHz)



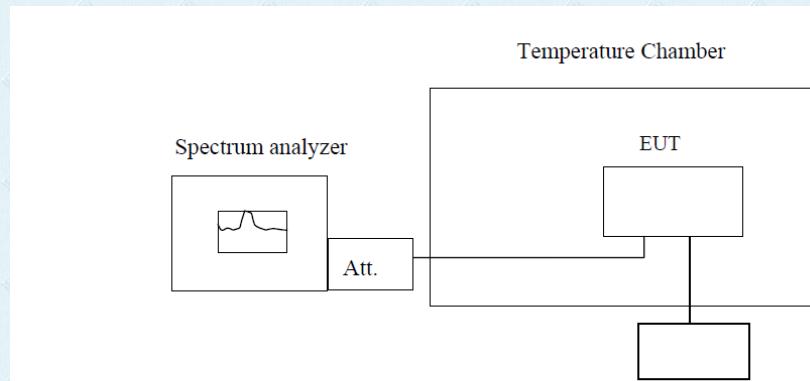
Horizontal: 802.11n (HT20) (TX 5240MHz)



Vertical: 802.11n (HT20) (TX 5240MHz)



7.8 Frequency stability

| | |
|-------------------|--|
| Test Requirement: | FCC Part15 C Section 15.407(g) |
| Test Method: | ANSI C63.10:2013, FCC Part 2.1055 |
| Limit: | Manufactures 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 |
| Test Procedure: | The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements. |
| Test setup: | <p style="text-align: center;">Temperature Chamber</p>  <p style="text-align: center;">Note : Measurement setup for testing on Antenna connector</p> |
| Test Instruments: | Refer to section 6 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

Remark: Set the EUT transmits at un-modulation mode to test frequency stability.

Pre-scan all test modes, found worst case at 802.11a, and so only show the test result of 802.11a

Measurement data:

| Frequency stability versus Temp. | | | | | | | | | |
|---|--------------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|
| Worse Case Operating Frequency: 5180MHz | | | | | | | | | |
| Temp. (°C) | Power Supply (VAC) | 0 minute | | 2 minute | | 5 minute | | 10 minute | |
| | | Measured Frequency (MHz) | Pass /Fail |
| -30 | 120 | 5179.99 | Pass | 5180.00 | Pass | 5179.97 | Pass | 5179.98 | Pass |
| -20 | 120 | 5179.97 | Pass | 5179.99 | Pass | 5179.99 | Pass | 5179.98 | Pass |
| -10 | 120 | 5179.99 | Pass | 5179.98 | Pass | 5180.00 | Pass | 5179.99 | Pass |
| 0 | 120 | 5179.98 | Pass | 5179.99 | Pass | 5179.99 | Pass | 5180.01 | Pass |
| 10 | 120 | 5180.00 | Pass | 5180.01 | Pass | 5179.98 | Pass | 5179.99 | Pass |
| 20 | 120 | 5180.00 | Pass | 5179.99 | Pass | 5179.99 | Pass | 5179.98 | Pass |
| 30 | 120 | 5179.99 | Pass | 5179.98 | Pass | 5180.00 | Pass | 5179.98 | Pass |
| 40 | 120 | 5179.98 | Pass | 5179.99 | Pass | 5179.99 | Pass | 5179.99 | Pass |
| 50 | 120 | 5179.97 | Pass | 5179.99 | Pass | 5179.98 | Pass | 5180.00 | Pass |

| Frequency stability versus Temp. | | | | | | | | | |
|---|--------------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|
| Worse Case Operating Frequency: 5180MHz | | | | | | | | | |
| Temp. (°C) | Power Supply (VAC) | 0 minute | | 2 minute | | 5 minute | | 10 minute | |
| | | Measured Frequency (MHz) | Pass /Fail |
| 25 | 120 | 5179.99 | Pass | 5180.00 | Pass | 5180.00 | Pass | 5179.99 | Pass |

| Frequency stability versus Temp. | | | | | | | | | |
|---|--------------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|
| Worse Case Operating Frequency: 5240MHz | | | | | | | | | |
| Temp. (°C) | Power Supply (VAC) | 0 minute | | 2 minute | | 5 minute | | 10 minute | |
| | | Measured Frequency (MHz) | Pass /Fail |
| -30 | 120 | 5239.98 | Pass | 5239.99 | Pass | 5239.99 | Pass | 5240.00 | Pass |
| -20 | 120 | 5239.99 | Pass | 5239.99 | Pass | 5239.98 | Pass | 5239.99 | Pass |
| -10 | 120 | 5239.99 | Pass | 5240.00 | Pass | 5240.00 | Pass | 5239.99 | Pass |
| 0 | 120 | 5240.00 | Pass | 5239.99 | Pass | 5239.99 | Pass | 5240.00 | Pass |
| 10 | 120 | 5239.99 | Pass | 5239.98 | Pass | 5239.99 | Pass | 5239.99 | Pass |
| 20 | 120 | 5239.98 | Pass | 5239.99 | Pass | 5240.00 | Pass | 5239.98 | Pass |
| 30 | 120 | 5239.99 | Pass | 5239.99 | Pass | 5239.98 | Pass | 5239.98 | Pass |
| 40 | 120 | 5239.98 | Pass | 5239.99 | Pass | 5239.99 | Pass | 5239.99 | Pass |
| 50 | 120 | 5240.00 | Pass | 5240.00 | Pass | 5239.99 | Pass | 5239.99 | Pass |

| Frequency stability versus Temp. | | | | | | | | | |
|---|--------------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|
| Worse Case Operating Frequency: 5240MHz | | | | | | | | | |
| Temp. (°C) | Power Supply (VAC) | 0 minute | | 2 minute | | 5 minute | | 10 minute | |
| | | Measured Frequency (MHz) | Pass /Fail |
| 25 | 120 | 5240.00 | Pass | 5239.99 | Pass | 5239.98 | Pass | 5239.99 | Pass |

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

---END---