

## FCC Part 15, Subpart E Test Report

FCC ID: 2AR2STAB8507RE

Applicant: MMD Hong Kong Holding Limited

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Kwun Tong, Kowloon, Hong Kong

Manufacturer: MMD Hong Kong Holding Limited

Address: Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street,  
Kwun Tong, Kowloon, Hong Kong

Product(s): Soundbar speaker

Brand(s): PHILIPS or 

Test Model(s): TAB8507

Series Model(s): See section 2.1

Test Date: Apr. 06, 2022 ~ Apr. 25, 2022

Issued Date: May 17, 2022

Issued By: Hwa-Hsing (Dongguan) Testing Co., Ltd.

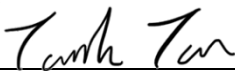
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Test Firm Registration No.: 915896

Standards: FCC Part 15, Subpart E, Section 15.407  
ANSI C63.10:2013

The above equipment has been tested by **Hwa-Hsing (Dongguan) Testing Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

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**Release Control Record**

| Issue No.             | Description      | Date Issued  |
|-----------------------|------------------|--------------|
| 220218KH01-1-RF-US-01 | Original Release | May 17, 2022 |



## 1. Summary of Test Results

| FCC part 15, subpart e (section 15.407 under new rule)<br>ANSI C63.10:2013<br>789033 D02 General UNII Test Procedures New Rules v01r03<br>KDB 662911 D01 v02r01 |                                            |        |                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------|--------------------------------|
| Clause                                                                                                                                                          | Test Item                                  | Result | Remarks                        |
| 15.407(b)(6)                                                                                                                                                    | AC Power Conducted Emissions               | Pass   | Meet the requirement of limit. |
| 15.407(b)<br>(1/2/3/4/6)                                                                                                                                        | Radiated Emissions & Band Edge Measurement | Pass   | Meet the requirement of limit. |
| 15.407(a)(1/2/3)                                                                                                                                                | Max Average Transmit Power                 | Pass   | Meet the requirement of limit. |
| 15.407(a)(1/2/3)                                                                                                                                                | Peak Power Spectral Density                | Pass   | Meet the requirement of limit. |
| 15.407(e)                                                                                                                                                       | 6dB bandwidth                              | Pass   | Meet the requirement of limit. |
| 15.407(g)                                                                                                                                                       | Frequency Stability                        | Pass   | Meet the requirement of limit. |
| 15.203                                                                                                                                                          | Antenna Requirement                        | Pass   | Meet the requirement of limit. |

**Note:** The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC).  
The test report has been issued separately.

### 1.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The listed uncertainties are the worst cases uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

| Measurement                        | Frequency       | Expanded Uncertainty<br>(k=2) (±) |
|------------------------------------|-----------------|-----------------------------------|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz  | 2.66 dB                           |
| Radiated Emissions up to 1 GHz     | 9KHz ~ 30MHz    | 2.16 dB                           |
|                                    | 30MHz ~ 1000MHz | 3.47 dB                           |
| Radiated Emissions above 1 GHz     | 1GHz ~ 18GHz    | 4.84 dB                           |
|                                    | 18GHz ~ 40GHz   | 4.67 dB                           |

### 1.2 Modification Record

There were no modifications required for compliance.



## 2. General Information

### 2.1 General Description of EUT

|                       |                                                                                                                                                                                                                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product(s)            | Soundbar speaker                                                                                                                                                                                                                                                                    |
| Test Model(s)         | TAB8507                                                                                                                                                                                                                                                                             |
| Sample No.            | HS220311-02-07; HS220311-02-09                                                                                                                                                                                                                                                      |
| Series Model(s)       | TAB8507B, TAB8507RE, TAB8507BRE, TAB8507/10, TAB8507B/10, TAB8507RE/10, TAB8507BRE/10, TAB8507/37, TAB8507B/37, TAB8507RE/37, TAB8507BRE/37, TAB8507/98, TAB8507B/98, TAB8507RE/98, TAB8507BRE/98, TAB8507xx/yy, TAB8507Bxx/yy (x=A-Z or blank, yy=00-99 or blank for country code) |
| Status of EUT         | Engineering Prototype                                                                                                                                                                                                                                                               |
| Power Supply Rating   | 100-240V~, 50/60Hz, 35W                                                                                                                                                                                                                                                             |
| Modulation Technology | OFDM                                                                                                                                                                                                                                                                                |
| Modulation Type       | 256QAM, 64QAM, 16QAM, QPSK, BPSK                                                                                                                                                                                                                                                    |
| Transfer Rate         | 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps<br>802.11n: up to 300.0Mbps<br>802.11ac: up to 867Mbps                                                                                                                                                                    |
| Operating Frequency   | 5180~5240MHz, 5260~5320MHz<br>5500~5700MHz, 5745~5825MHz                                                                                                                                                                                                                            |
| Number of Channel     | See the section 2.2                                                                                                                                                                                                                                                                 |
| Maximum Output Power  | 15.07dBm for 5150 ~ 5250MHz (Maximum AVG Power)<br>15.22dBm for 5250 ~ 5350MHz (Maximum AVG Power)<br>15.86dBm for 5470 ~ 5725MHz (Maximum AVG Power)<br>14.41dBm for 5725 ~ 5850MHz (Maximum AVG Power)                                                                            |
| Antenna Type          | FPC Antenna                                                                                                                                                                                                                                                                         |
| Max. Antenna Gain     | 1.88dBi for 5150 ~ 5250MHz (Peak)<br>2.28dBi for 5250 ~ 5350MHz (Peak)<br>2.43dBi for 5470 ~ 5725MHz (Peak)<br>2.19dBi for 5725 ~ 5850MHz (Peak)                                                                                                                                    |
| Antenna Connector     | I-PEX                                                                                                                                                                                                                                                                               |
| Accessory Device      | N/A                                                                                                                                                                                                                                                                                 |
| Data Cable Supplied   | AC Line: 150cm                                                                                                                                                                                                                                                                      |

Note:

1. Please refer to the EUT photo document (220218KH01-1-01&-02) for detailed product photo.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.
3. Model difference: These models are only different for model name for trade purpose.
4. The EUT incorporates SISO function, provides 1 completed Transmit and 1 Receive Chain.

| Support mode   | Transmit and receive mode | Transmit and receive chain |
|----------------|---------------------------|----------------------------|
| 802.11a        | SISO                      | 1TX/1RX                    |
| 802.11n HT20   | SISO                      | 1TX/1RX                    |
| 802.11n HT40   | SISO                      | 1TX/1RX                    |
| 802.11ac VHT20 | SISO                      | 1TX/1RX                    |
| 802.11ac VHT40 | SISO                      | 1TX/1RX                    |
| 802.11ac VHT80 | SISO                      | 1TX/1RX                    |



## 2.2 Description of Test Channels

### For 5150 ~ 5350MHz

8 channels are provided for 802.11a, 802.11ac 20MHz, 802.11n (20MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 36      | 5180 MHz  | 40      | 5200 MHz  |
| 44      | 5220 MHz  | 48      | 5240 MHz  |
| 52      | 5260 MHz  | 56      | 5280 MHz  |
| 60      | 5300 MHz  | 64      | 5320 MHz  |

4 channels are provided for 802.11ac 40MHz, 802.11n (40MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 38      | 5190 MHz  | 46      | 5230 MHz  |
| 54      | 5270 MHz  | 62      | 5310 MHz  |

2 channels are provided for 802.11ac (80MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 42      | 5210MHz   | 58      | 5290MHz   |

### For 5470 ~ 5725MHz

11 channels are provided for 802.11a, 802.11a c 20MHz, 802.11n (20MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 100     | 5500 MHz  | 104     | 5520 MHz  |
| 108     | 5540 MHz  | 112     | 5560 MHz  |
| 116     | 5580 MHz  | 120     | 5600 MHz  |
| 124     | 5620 MHz  | 128     | 5640 MHz  |
| 132     | 5660 MHz  | 136     | 5680 MHz  |
| 140     | 5700 MHz  | --      | --        |

4 channels are provided for 802.11a c 40MHz, 802.11n (40MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 102     | 5510 MHz  | 110     | 5550 MHz  |
| 118     | 5590 MHz  | 134     | 5670 MHz  |

2 channels are provided for 802.11ac (80MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 106     | 5530MHz   | 122     | 5610MHz   |

### For 5725 ~ 5850MHz

5 channels are provided for 802.11a, 802.11a c 20MHz, 802.11n (20MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 149     | 5745MHz   | 153     | 5765MHz   |
| 157     | 5785MHz   | 161     | 5805MHz   |
| 165     | 5825MHz   | --      | --        |

2 channels are provided for 802.11a c 40MHz, 802.11n (40MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 151     | 5755MHz   | 159     | 5795MHz   |

1 channel is provided for 802.11ac (80MHz):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 155     | 5775MHz   | --      | --        |



### 2.3 Power setting value from test software:

| Test mode       | Antenna Chains<br>TX/RX | Freq. Band<br>(MHz) | Power setting value |
|-----------------|-------------------------|---------------------|---------------------|
| 802.11a         | SISO                    | 5150-5350           | Default             |
| 802.11n (20MHz) | SISO                    |                     | Default             |
| 802.11n (40MHz) | SISO                    |                     | Default             |
| 802.11ac 20MHz  | SISO                    |                     | Default             |
| 802.11ac 40MHz  | SISO                    |                     | Default             |
| 802.11ac 80MHz  | SISO                    |                     | Default             |
| 802.11a         | SISO                    | 5470-5725           | Default             |
| 802.11n (20MHz) | SISO                    |                     | Default             |
| 802.11n (40MHz) | SISO                    |                     | Default             |
| 802.11ac 20MHz  | SISO                    |                     | Default             |
| 802.11ac 40MHz  | SISO                    |                     | Default             |
| 802.11ac 80MHz  | SISO                    |                     | Default             |
| 802.11a         | SISO                    | 5725-5850           | Default             |
| 802.11n (20MHz) | SISO                    |                     | Default             |
| 802.11n (40MHz) | SISO                    |                     | Default             |
| 802.11ac 20MHz  | SISO                    |                     | Default             |
| 802.11ac 40MHz  | SISO                    |                     | Default             |
| 802.11ac 80MHz  | SISO                    |                     | Default             |

**2.4 Test Mode Applicability and Tested Channel Detail**

| Applicable test items                                                                         | X-Axis | Y-Axis | Z-Axis | Voltage Supply |
|-----------------------------------------------------------------------------------------------|--------|--------|--------|----------------|
| AC Power Conducted Emission                                                                   | N/A    | N/A    | N/A    | AC120V, 60Hz   |
| Radiated Emissions                                                                            | √      | √      | √      |                |
| Band Edge Measurement                                                                         | N/A    | N/A    | N/A    |                |
| Max Average Transmit Power                                                                    | N/A    | N/A    | N/A    |                |
| Peak Power Spectral Density                                                                   | N/A    | N/A    | N/A    |                |
| Frequency Stability                                                                           | N/A    | N/A    | N/A    |                |
| 1. The EUT had been pre-tested on the positioned of each 3 Axis.<br>2. “N/A” means no effect. |        |        |        |                |

| Applicable test items           | Antenna Transmit and receive mode | X-Axis | Y-Axis | Z-Axis |
|---------------------------------|-----------------------------------|--------|--------|--------|
| Radiated Emissions              | SISO                              | √      | √      | *√     |
| 1. * means the worst-case axis. |                                   |        |        |        |

| Antenna Transmit and receive mode | Test mode      | Centre Frequency | Worst-Axis |
|-----------------------------------|----------------|------------------|------------|
| SISO mode                         | 802.11n HT20   | 5240MHz          | Z          |
|                                   | 802.11ac VHT20 | 5240MHz          | Z          |
|                                   | 802.11n HT40   | 5230MHz          | Z          |
|                                   | 802.11ac VHT40 | 5230MHz          | Z          |

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).  
Following channel(s) was (were) selected for the final test as listed below.

**Power Line Conducted Emission Test:**

| EUT Configure mode | Worst Position | Freq. Band (MHz)                    | Antenna Transmitter technique | Tested channel | Modulation technology | Modulation type | Data rate (Mbps) |
|--------------------|----------------|-------------------------------------|-------------------------------|----------------|-----------------------|-----------------|------------------|
| 802.11a            | -              | 5150-5250<br>5470-5725<br>5725-5850 | SISO                          | 100            | OFDM                  | BPSK            | 6.0              |

**Radiated Emission Test (Below 1GHz):**

| EUT Configure mode | Worst Position | Freq. Band (MHz)                    | Antenna Transmitter technique | Worst case channel | Modulation technology | Modulation type | Data rate (Mbps) |
|--------------------|----------------|-------------------------------------|-------------------------------|--------------------|-----------------------|-----------------|------------------|
| 802.11a            | Z-plane        | 5150-5250<br>5470-5725<br>5725-5850 | SISO                          | 100                | OFDM                  | BPSK            | 6.0              |



**Radiated Emission Test (Above 1GHz):**

| EUT configure mode | Worst position | Freq. Band (MHz) | Antenna Transmitter technique | Tested channel | Modulation technology | Modulation type | Data rate (Mbps) |
|--------------------|----------------|------------------|-------------------------------|----------------|-----------------------|-----------------|------------------|
| 802.11a            | Z-plane        | 5150-5250        | SISO                          | 36, 40, 48     | OFDM                  | BPSK            | 6.0              |
| 802.11n (20MHz)    | Z-plane        |                  | SISO                          | 36, 40, 48     | OFDM                  | BPSK            | 6.5              |
| 802.11n (40MHz)    | Z-plane        |                  | SISO                          | 38, 46         | OFDM                  | BPSK            | 13.5             |
| 802.11ac 80MHz     | Z-plane        |                  | SISO                          | 42             | OFDM                  | BPSK            | V0               |
| 802.11a            | Z-plane        | 5250-5350        | SISO                          | 52, 60, 64     | OFDM                  | BPSK            | 6.0              |
| 802.11n (20MHz)    | Z-plane        |                  | SISO                          | 52, 60, 64     | OFDM                  | BPSK            | MCS0             |
| 802.11n (40MHz)    | Z-plane        |                  | SISO                          | 54, 62         | OFDM                  | BPSK            | MCS0             |
| 802.11ac 80MHz     | Z-plane        |                  | SISO                          | 58             | OFDM                  | BPSK            | V0               |
| 802.11a            | Z-plane        | 5470-5725        | SISO                          | 100, 112, 140  | OFDM                  | BPSK            | 6.0              |
| 802.11n (20MHz)    | Z-plane        |                  | SISO                          | 100, 112, 140  | OFDM                  | BPSK            | MCS0             |
| 802.11n (40MHz)    | Z-plane        |                  | SISO                          | 102, 110, 134  | OFDM                  | BPSK            | MCS0             |
| 802.11ac 80MHz     | Z-plane        |                  | SISO                          | 106            | OFDM                  | BPSK            | V0               |
| 802.11a            | Z-plane        | 5725-5850        | SISO                          | 149, 157, 165  | OFDM                  | BPSK            | 6.0              |
| 802.11n (20MHz)    | Z-plane        |                  | SISO                          | 149, 157, 165  | OFDM                  | BPSK            | MCS0             |
| 802.11n (40MHz)    | Z-plane        |                  | SISO                          | 151, 159       | OFDM                  | BPSK            | MCS0             |
| 802.11ac 80MHz     | Z-plane        |                  | SISO                          | 155            | OFDM                  | BPSK            | V0               |



**Antenna Port Conducted Measurement:**

\*This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

| EUT<br>configure mode | Antenna<br>Transmitter<br>technique | Freq. Band<br>(MHz) | Tested channel | Modulation<br>technology | Modulation<br>type | Data rate<br>(Mbps) |
|-----------------------|-------------------------------------|---------------------|----------------|--------------------------|--------------------|---------------------|
| 802.11a               | SISO                                | 5150-5250           | 36, 40, 48     | OFDM                     | BPSK               | 6.0                 |
| 802.11n (20MHz)       | SISO                                |                     | 36, 40, 48     | OFDM                     | BPSK               | 6.5                 |
| 802.11n (40MHz)       | SISO                                |                     | 38, 46         | OFDM                     | BPSK               | 13.5                |
| 802.11ac 80MHz        | SISO                                |                     | 42             | OFDM                     | BPSK               | V0                  |
| 802.11a               | SISO                                | 5250-5350           | 52, 60, 64     | OFDM                     | BPSK               | 6.0                 |
| 802.11n (20MHz)       | SISO                                |                     | 52, 60, 64     | OFDM                     | BPSK               | MCS0                |
| 802.11n (40MHz)       | SISO                                |                     | 54, 62         | OFDM                     | BPSK               | MCS0                |
| 802.11ac 80MHz        | SISO                                |                     | 58             | OFDM                     | BPSK               | V0                  |
| 802.11a               | SISO                                | 5470-5725           | 100, 112, 140  | OFDM                     | BPSK               | 6.0                 |
| 802.11n (20MHz)       | SISO                                |                     | 100, 112, 140  | OFDM                     | BPSK               | MCS0                |
| 802.11n (40MHz)       | SISO                                |                     | 102, 110, 134  | OFDM                     | BPSK               | MCS0                |
| 802.11ac 80MHz        | SISO                                |                     | 106            | OFDM                     | BPSK               | V0                  |
| 802.11a               | SISO                                | 5725-5850           | 149, 157, 165  | OFDM                     | BPSK               | 6.0                 |
| 802.11n (20MHz)       | SISO                                |                     | 149, 157, 165  | OFDM                     | BPSK               | MCS0                |
| 802.11n (40MHz)       | SISO                                |                     | 151, 159       | OFDM                     | BPSK               | MCS0                |
| 802.11ac 80MHz        | SISO                                |                     | 155            | OFDM                     | BPSK               | V0                  |

**Test Condition:**

| Applicable test items              | Environmental<br>Conditions | Tested by   |
|------------------------------------|-----------------------------|-------------|
| AC Power Conducted Emission        | 25deg. C, 65%RH             | Jim Xu      |
| Radiated Emissions                 | 25deg. C, 65%RH             | Jim Xu      |
| Antenna Port Conducted Measurement | 25deg. C, 65%RH             | Dragon long |



## 2.5 Description of Support Units

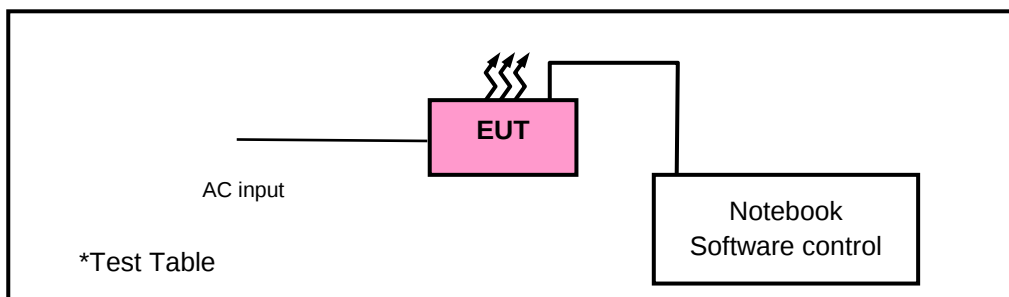
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| No. | Product  | Brand  | Model No.     | Serial No. | FCC ID |
|-----|----------|--------|---------------|------------|--------|
| 1.  | Notebook | Lenovo | ThinkPad X280 | SL10P97665 | N/A    |

Insert Cable Connections to/from EUT provided by test team.

| No. | Signal Cable Description Of The Above Support Units |
|-----|-----------------------------------------------------|
| 1.  | USB serial cable Un-shielding 1.0m                  |

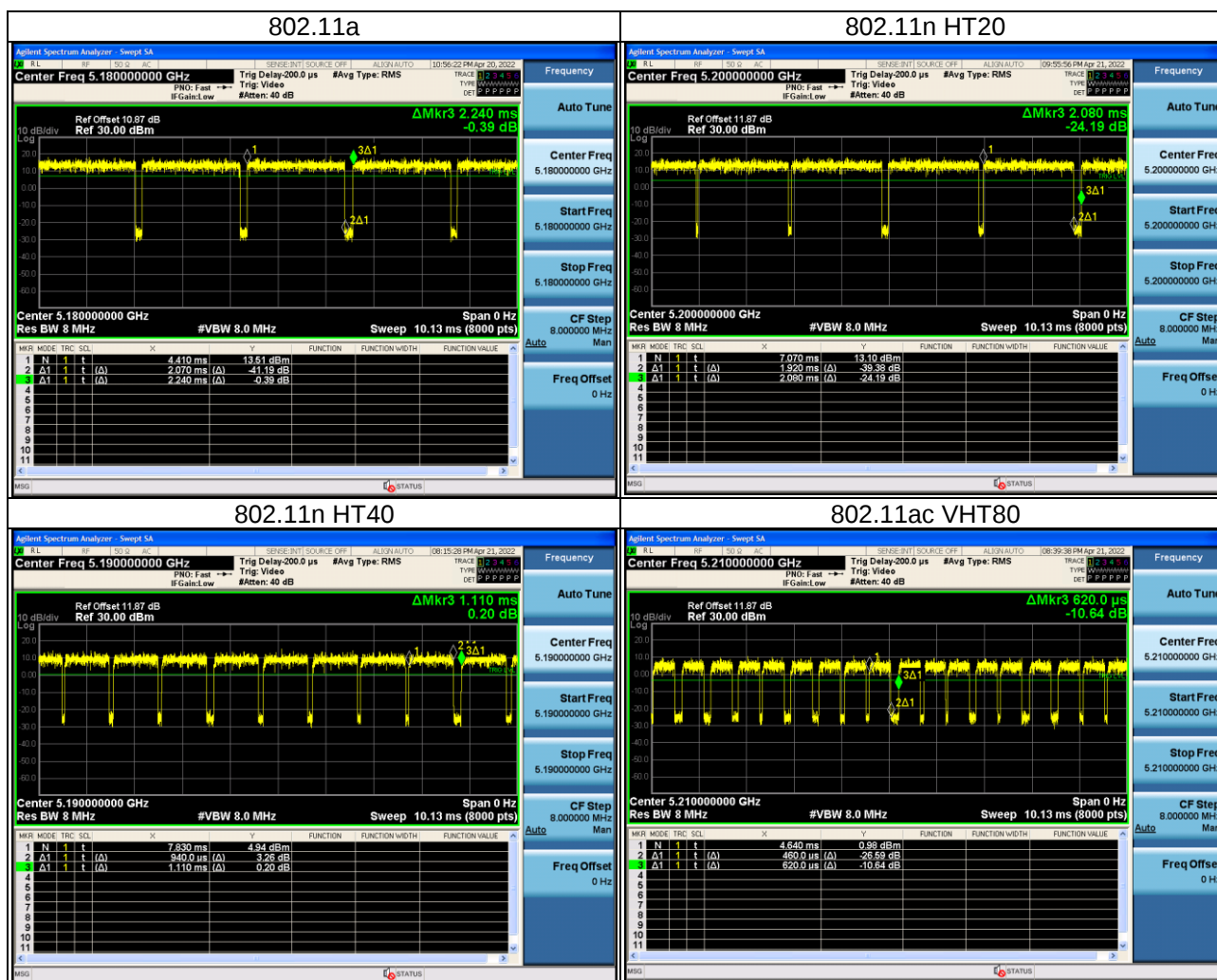
## 2.6 Configuration of System under Test





## 2.7 Duty Cycle of Test Signal

| Test mode      | Duty cycle (%) | Duty cycle factor= $10 \cdot \log(1/\text{duty cycle})$ (dB) |
|----------------|----------------|--------------------------------------------------------------|
| 802.11a        | 92.41%         | 0.34                                                         |
| 802.11n HT20   | 92.31%         | 0.35                                                         |
| 802.11n HT40   | 84.82%         | 0.71                                                         |
| 802.11ac VHT80 | 74.19%         | 1.30                                                         |





### 3. Test Types and Results

#### 3.1 Radiated Emission and Band-edge Measurement

##### 3.1.1 Limits of radiated emission and band-edge measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

| Frequencies (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009 ~ 0.490     | 2400/F(kHz)                       | 300                           |
| 0.490 ~ 1.705     | 24000/F(kHz)                      | 30                            |
| 1.705 ~ 30.0      | 30                                | 30                            |
| 30 ~ 88           | 100                               | 3                             |
| 88 ~ 216          | 150                               | 3                             |
| 216 ~ 960         | 200                               | 3                             |
| Above 960         | 500                               | 3                             |

\* DTS emissions in non-restricted frequency bands Subclause 11.11 of ANSI C63.10 is applicable.

\* DTS emissions in restricted frequency bands Subclause 11.12 of ANSI C63.10 is applicable

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

##### 3.1.2 Limits of unwanted emission out of the restricted bands

| Applicable to                                            | Limit                |                                 |
|----------------------------------------------------------|----------------------|---------------------------------|
| 789033 D02 General UNII Test Procedures New Rules v01r03 | Field strength at 3m |                                 |
|                                                          | PK: 74 (dBuV/m)      | AV: 54 (dBuV/m)                 |
| Applicable to                                            | EIRP Limit           | Equivalent field strength at 3m |
| 15.407(b)(1)                                             | PK: -27 (dBm/MHz)    | PK: 68.2 (dBuV/m)               |
| 15.407(b)(2)                                             |                      |                                 |
| 15.407(b)(3)                                             |                      |                                 |
| 15.407(b)(4)                                             | Note                 | Note                            |

\*For transmitters operating in the 5.725-5.85 GHz band:

Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). An alternative to the band emissions mask is specified in Section 15.407(b)(4)(ii). The alternative limits are based on the highest antenna gain specified in the filing. There are also marketing and importation restrictions for the alternative limit.

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the EIRP (Watts).}$$



### 3.1.3 Test Instruments

Radiated emission below 30MHz:

| Equipment                           | Manufacturer  | Model No. | Serial No.     | Next Cal.   |
|-------------------------------------|---------------|-----------|----------------|-------------|
| EMI Test Receiver                   | Rohde&Schwarz | ESR7      | 100962         | 2023-01-13  |
| 3m Semi-anechoic Chamber            | MAORUI        | 9m*6m*6m  | NSEMC003       | 2023-04-15* |
| Test software                       | FARAD         | FARAD     | EZ EMCV1.1.4.2 | N/A         |
| Loop Antenna                        | EMCI          | HLA 6121  | 56735          | 2023-04-15* |
| Preamplifier                        | EMCI          | EMC001340 | 980201         | 2022-09-08  |
| Antenna Tower                       | MF            | MFA-440H  | NA             | NA          |
| Turn Table                          | MF            | MFT-201SS | NA             | NA          |
| Antenna Tower&Turn Table Controller | MF            | MF-7802   | NA             | NA          |

Frequency Range below 1GHz:

| Equipment                | Manufacturer  | Model No. | Serial No.     | Next Cal.   |
|--------------------------|---------------|-----------|----------------|-------------|
| 3m Semi-anechoic Chamber | MAORUI        | 9m*6m*6m  | NSEMC003       | 2023-04-15* |
| EMI Test Receiver        | Rohde&Schwarz | ESR7      | 100962         | 2023-01-13  |
| Broadband antenna        | Schwarzbeck   | VULB 9168 | 00937          | 2023-09-12* |
| Signal Amplifier         | Com-power     | PAM-103   | 18020051       | 2022-09-08  |
| Attenuator               | Rohde&Schwarz | TS2GA-6dB | 18101101       | N/A         |
| Test software            | FARAD         | FARAD     | EZ EMCV1.1.4.2 | N/A         |

Frequency Range 1-18GHz:

| Equipment                           | Manufacturer | Model No.  | Serial No. | Next Cal.   |
|-------------------------------------|--------------|------------|------------|-------------|
| 3m Semi-anechoic Chamber            | MAORUI       | 9m*6m*6m   | NSEMC003   | 2023-04-15* |
| Horn Antenna                        | Schwarzbeck  | BBHA 9120D | 01959      | 2022-09-12* |
| Broadband Coaxial Preamplifier      | Com-power    | PAM-118A   | 1804003    | 2022-09-07  |
| Spectrum                            | Keysight     | N9020A     | MY51240612 | 2022-09-08  |
| Antenna Tower                       | MF           | MFA-440H   | NA         | NA          |
| Turn Table                          | MF           | MFT-201SS  | NA         | NA          |
| Antenna Tower&Turn Table Controller | MF           | MF-7802    | NA         | NA          |

Frequency Range 18-40GHz:

| Equipment                           | Manufacturer  | Model No.  | Serial No.  | Next Cal.   |
|-------------------------------------|---------------|------------|-------------|-------------|
| 3m Semi-anechoic Chamber            | MAORUI        | 9m*6m*6m   | NSEMC003    | 2023-04-15* |
| Spectrum Analyzer                   | Rohde&Schwarz | FSV-40N    | 101783      | 2023-01-13  |
| Horn Antenna                        | Schwarzbeck   | BBHA 9170  | BBHA9170242 | 2023-04-10* |
| Pre-Amplifier                       | EMCI          | EMC 184045 | 980102      | 2023-01-12  |
| Antenna Tower                       | MF            | MFA-440H   | NA          | NA          |
| Turn Table                          | MF            | MFT-201SS  | NA          | NA          |
| Antenna Tower&Turn Table Controller | MF            | MF-7802    | NA          | NA          |

Note: 1. The calibration interval of the above test instruments is 12/24months(\*) and the calibrations are traceable to CEPREI/CHINA.

2. The test was performed in 966.



### 3.1.4 Test Procedures

#### a. Peak emission levels are measured by setting the instrument as follow:

- 1) RBW & VBW setting as a function of frequency:

| Frequency     | RBW    | VBW    |
|---------------|--------|--------|
| 9kHz~150kHz   | 200Hz  | 600Hz  |
| 0.15MHz~30MHz | 9kHz   | 30kHz  |
| 30MHz~1000MHz | 120kHz | 300kHz |
| >1000MHz      | 1MHz   | 3MHz   |

- 2) Detector = peak.  
3) Sweep time = auto.  
4) Trace mode = max hold.  
5) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be lengthened for low-duty-cycle applications.)

Note: If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement

#### b. Average emission levels are measured by setting the instrument as follow:

##### ● Trace averaging with continuous EUT transmission at full power

If the EUT can be configured or modified to transmit continuously ( $D \geq 98\%$ ), then the average emission levels shall be measured using the following method (with EUT transmitting continuously):

- 1) RBW=1 MHz (unless otherwise specified).  
2) VBW  $\geq 3 \times$  RBW.  
3) Detector =RMS  
4) Sweep time = auto.  
5) Perform a trace average of at least 100 traces.

##### ● Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT ( $D \geq 98\%$ ) cannot be achieved and the duty cycle is constant (duty cycle variations are less than  $\pm 2\%$ ), then the following procedure shall be used

- 1) The EUT shall be configured to operate at the maximum achievable duty cycle.  
2) Measure the duty cycle D of the transmitter output signal as described in 11.6.  
3) RBW=1 MHz (unless otherwise specified).  
4) VBW  $\geq 3 \times$  RBW.  
5) Detector =RMS  
6) Sweep time = auto.  
7) Perform a trace average of at least 100 traces.

A correction factor shall be added to the measurement results prior to comparing with the emission limit to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

\*If power averaging (rms) mode was used in step 5), then the applicable correction factor is  $[10 \log (1/D)]$ , where D is the duty cycle.

\*\*If linear voltage averaging mode was used in step f), then the applicable correction factor is  $[20 \log (1/D)]$ , where D is the duty cycle.

\*\*\*If a specific emission is demonstrated to be continuous ( $D > 98\%$ ) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that



● **Reduced VBW Averaging across ON and OFF times of the EUT transmissions with max hold**

If continuous transmission of the EUT ( $D > 98\%$ ) cannot be achieved and the duty cycle is not constant (duty cycle variations exceed  $\pm 2\%$ ), then the following procedure shall be used:

- 1) RBW = 1MHz.
  - 2) VBW  $\geq 1/T$ .
  - 3) Detector = peak
  - 4) Sweep time = auto.
  - 5) Trace mode = max hold.
  - 6) Allow max hold to run for at least  $[50 \times (1/D)]$  traces
- c. The EUT was placed on the top of a rotating table 0.8 meters (below 1GHz) / 1.5 meters (1-18GHz) / 1.5 meters (18-40GHz) above the reference ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The EUT was set 3meters away from the interference-receiving antenna (Below 1GHz) & (Above 1-18GHz), which was mounted on the top of a variable-height antenna tower. The EUT was set 1meters away from the interference-receiving antenna (18-40GHz).
- e. The height of antenna 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.
- f. 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.
- g. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- h. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth = 3mHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth =  $1/T$  for Average (Duty cycle  $< 98\%$ ) detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is = 10Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

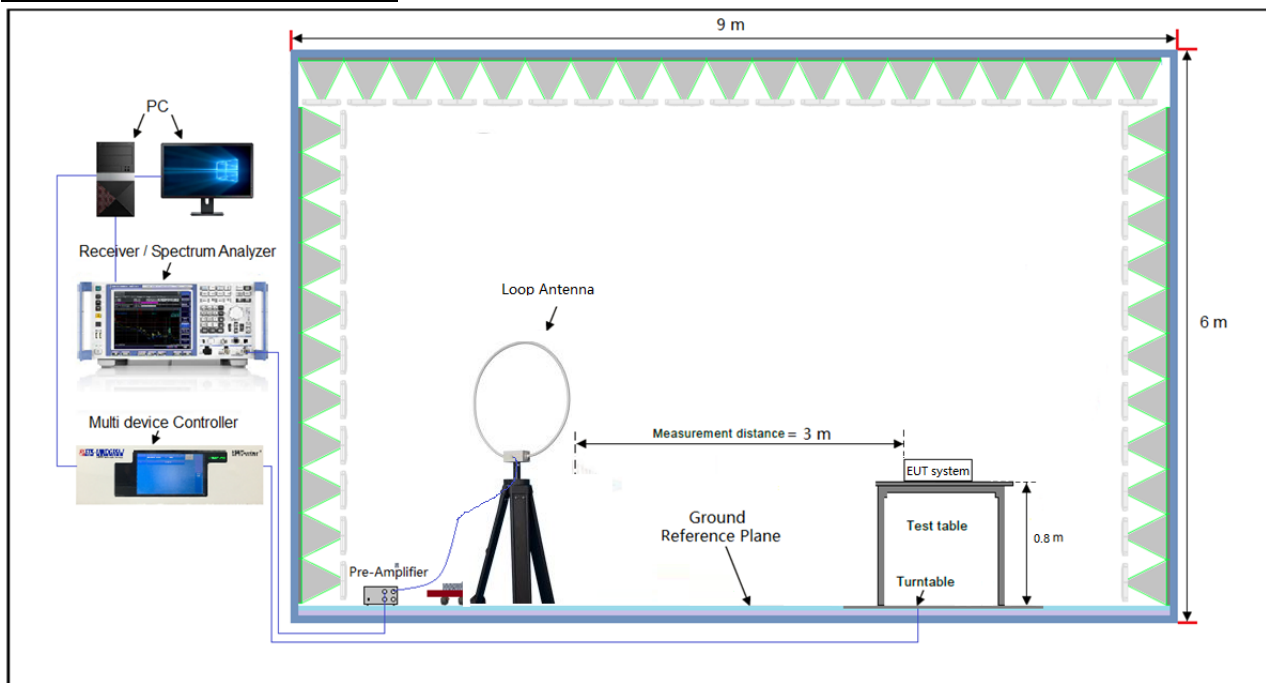
**3.1.5 Deviation from Test Standard**

No deviation.

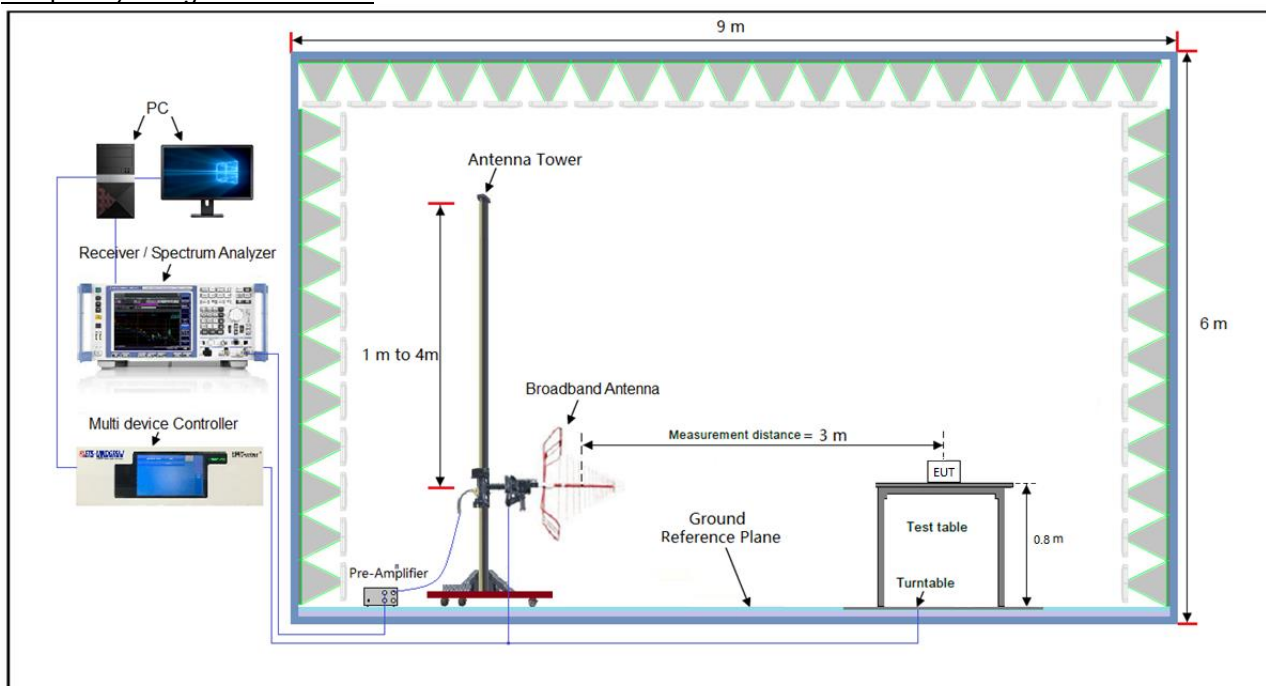


### 3.1.6 Test Setup

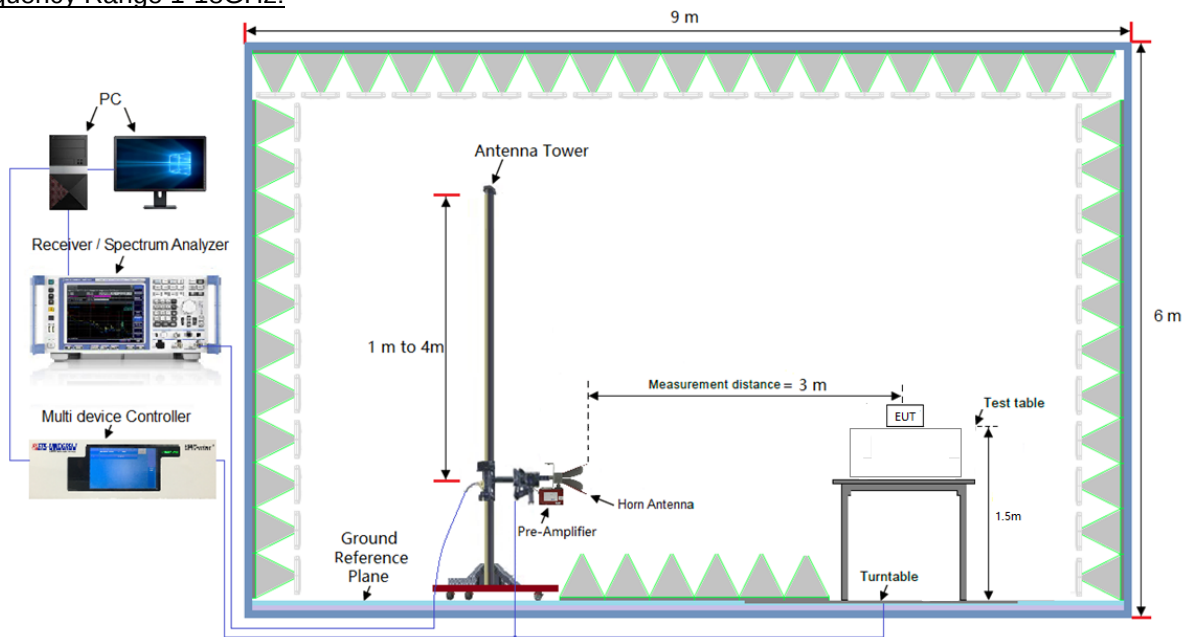
#### Radiated emission below 30MHz:



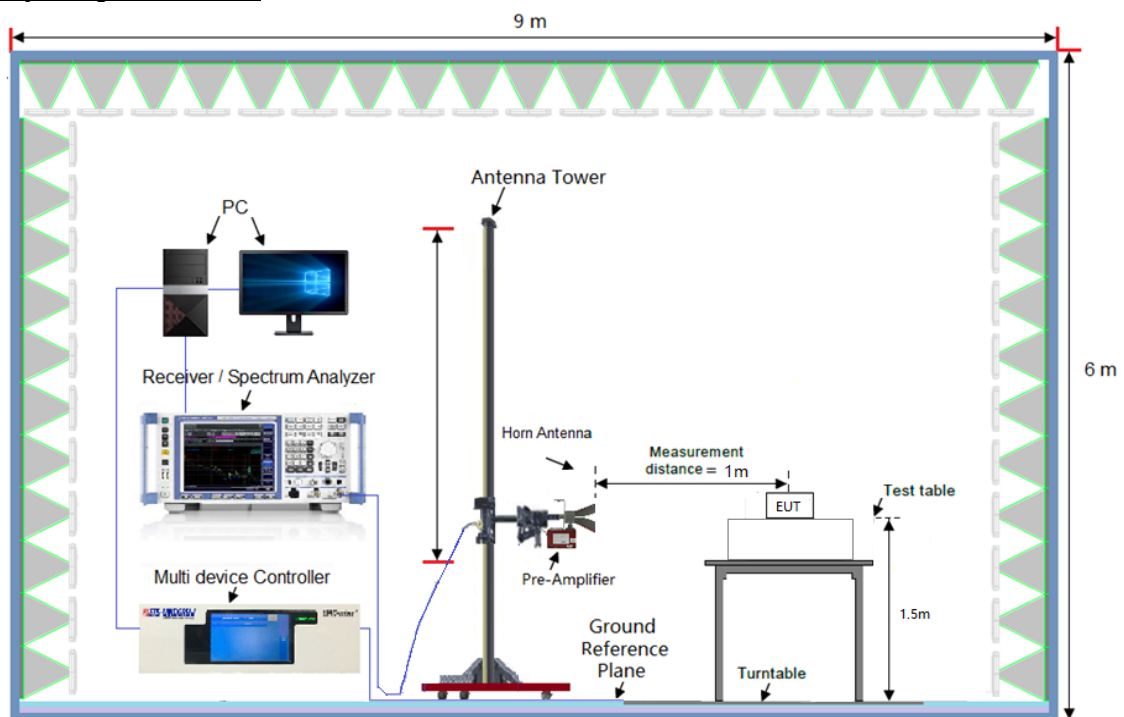
#### Frequency Range below 1GHz:



Frequency Range 1-18GHz:



Frequency Range 18-40GHz:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

### 3.1.7 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.



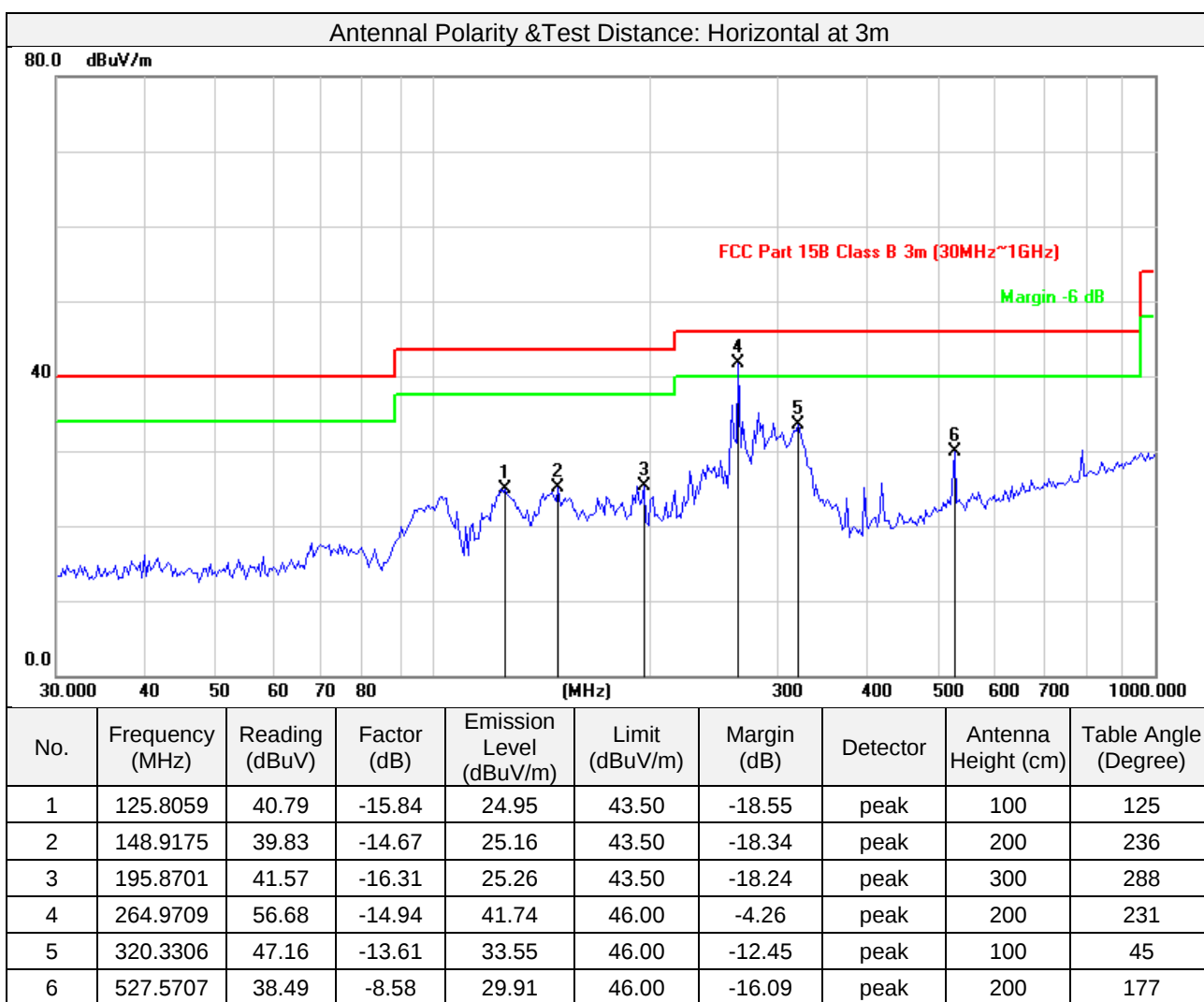
### 3.1.8 Test Results

#### 9kHz ~ 30MHz Data:

The amplitude of spurious emissions attenuated more than 20dB below the permissible value is not required to be report.

#### 30MHz ~ 1GHz Worst-Case Data:

|                   |                              |                 |              |
|-------------------|------------------------------|-----------------|--------------|
| Test Mode         | 802.11a TX                   |                 |              |
| Test Channel      | Channel 100                  | Frequency Range | 30MHz ~ 1GHz |
| Detector Function | Peak (PK)<br>Quasi-peak (QP) | Tested By       | Jim Xu       |

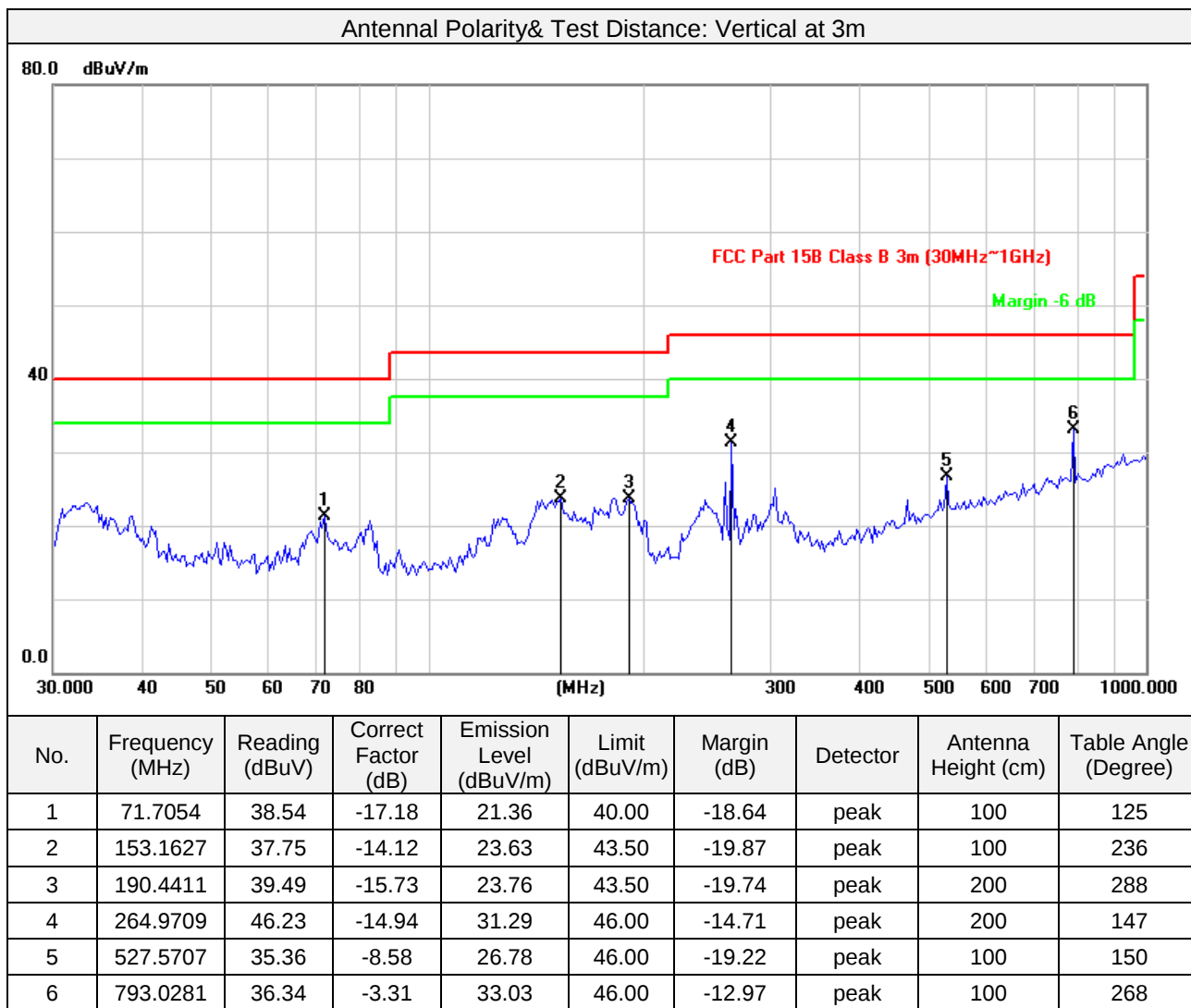


#### Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                              |                 |              |
|-------------------|------------------------------|-----------------|--------------|
| Test Mode         | 802.11a TX                   |                 |              |
| Test Channel      | Channel 100                  | Frequency Range | 30MHz ~ 1GHz |
| Detector Function | Peak (PK)<br>Quasi-peak (QP) | Tested By       | Jim Xu       |



Remarks:

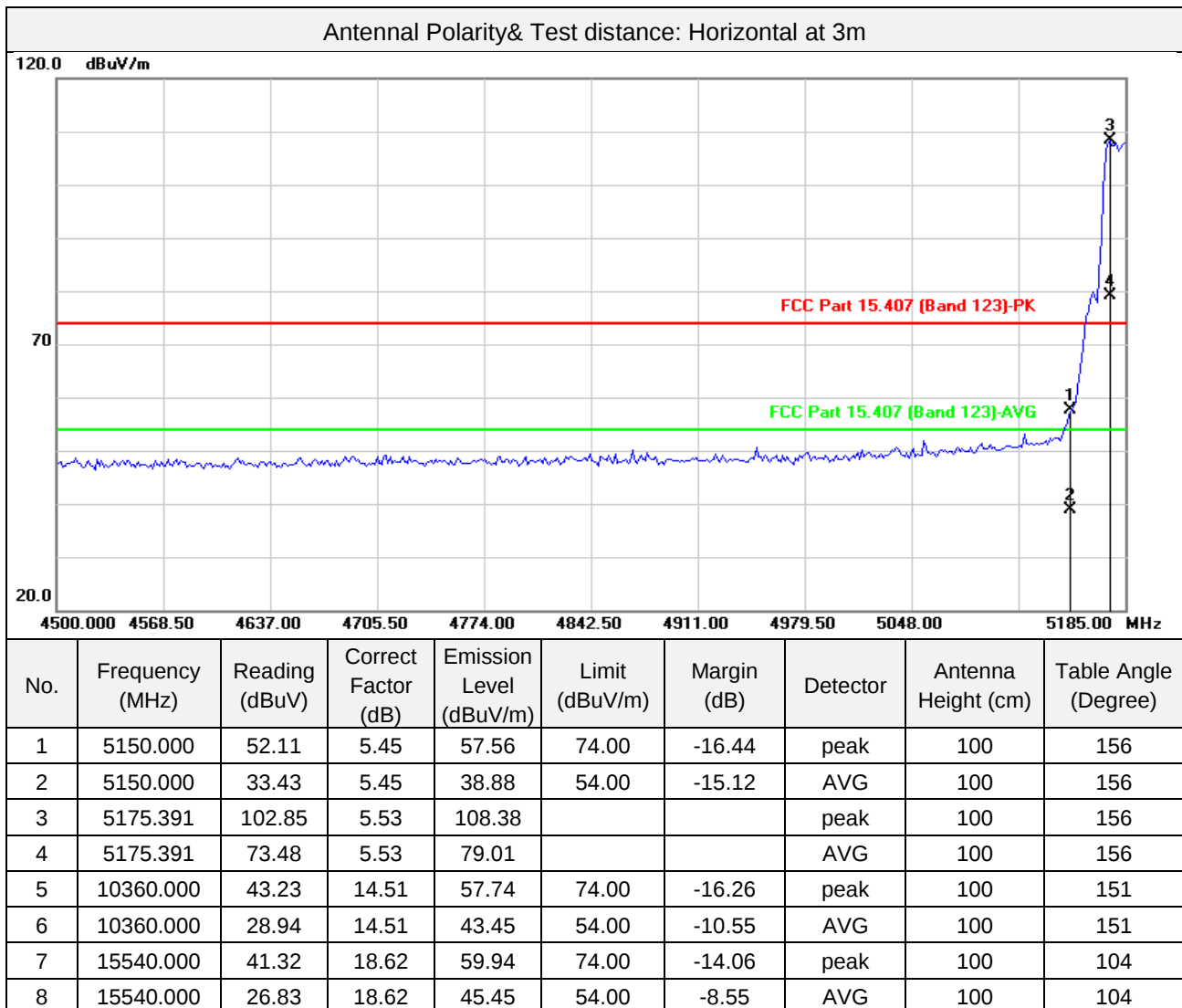
1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



Above 1GHz Data:

802.11a

|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5180MHz            |                 |              |
| Test channel      | 36                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

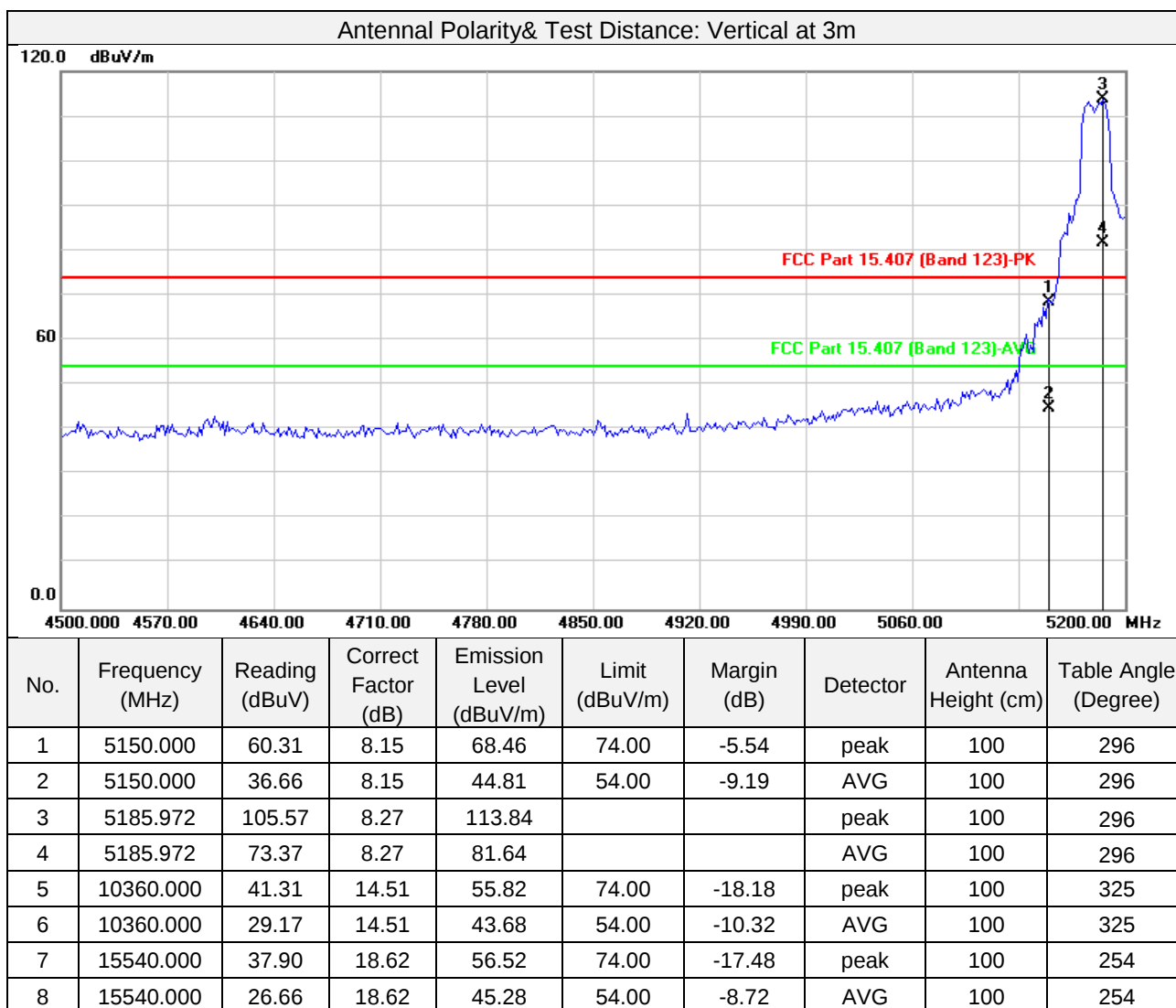


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5180MHz            |                 |              |
| Test channel      | 36                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5240MHz            |                 |              |
| Test channel      | 48                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

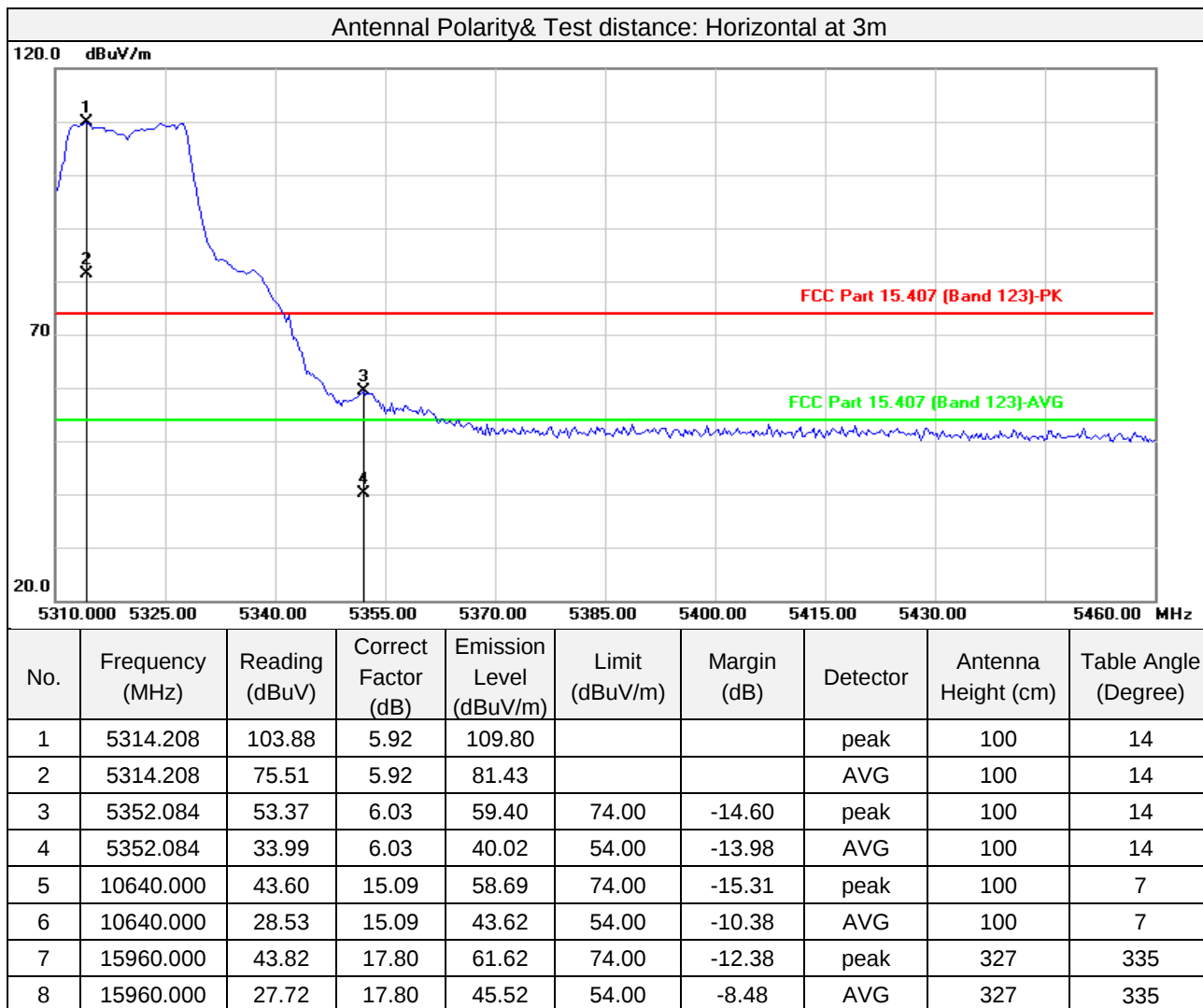
| Antennal Polarity& Test Distance: Horizontal at 3m |                 |                |                     |                         |                |             |          |                     |                      |
|----------------------------------------------------|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| No.                                                | Frequency (MHz) | Reading (dBUV) | Correct Factor (dB) | Emission Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5240.000        | 103.77         | 5.70                | 109.47                  |                |             | peak     | 100                 | 247                  |
| 2                                                  | 5240.000        | 74.97          | 5.70                | 80.67                   |                |             | AVG      | 100                 | 247                  |
| 3                                                  | 10480.000       | 45.03          | 14.75               | 59.78                   | 74.00          | -14.22      | peak     | 100                 | 125                  |
| 4                                                  | 10480.000       | 30.57          | 14.75               | 45.32                   | 54.00          | -8.68       | AVG      | 100                 | 125                  |
| 5                                                  | 15720.000       | 41.78          | 18.27               | 60.05                   | 74.00          | -13.95      | peak     | 277                 | 44                   |
| 6                                                  | 15720.000       | 28.33          | 18.27               | 46.60                   | 54.00          | -7.40       | AVG      | 277                 | 44                   |
| Antennal Polarity& Test Distance: Vertical at 3m   |                 |                |                     |                         |                |             |          |                     |                      |
| No.                                                | Frequency (MHz) | Reading (dBUV) | Factor (dB)         | Emission Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5240.000        | 105.08         | 5.70                | 110.78                  |                |             | peak     | 100                 | 184                  |
| 2                                                  | 5240.000        | 77.59          | 5.70                | 83.29                   |                |             | AVG      | 100                 | 184                  |
| 3                                                  | 10480.000       | 46.58          | 14.75               | 61.33                   | 74.00          | -12.67      | peak     | 100                 | 0                    |
| 4                                                  | 10480.000       | 30.76          | 14.75               | 45.51                   | 54.00          | -8.49       | AVG      | 100                 | 0                    |
| 5                                                  | 15720.000       | 44.44          | 18.27               | 62.71                   | 74.00          | -11.29      | peak     | 100                 | 325                  |
| 6                                                  | 15720.000       | 28.17          | 18.27               | 46.44                   | 54.00          | -7.56       | AVG      | 100                 | 325                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5320MHz            |                 |              |
| Test channel      | 64                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

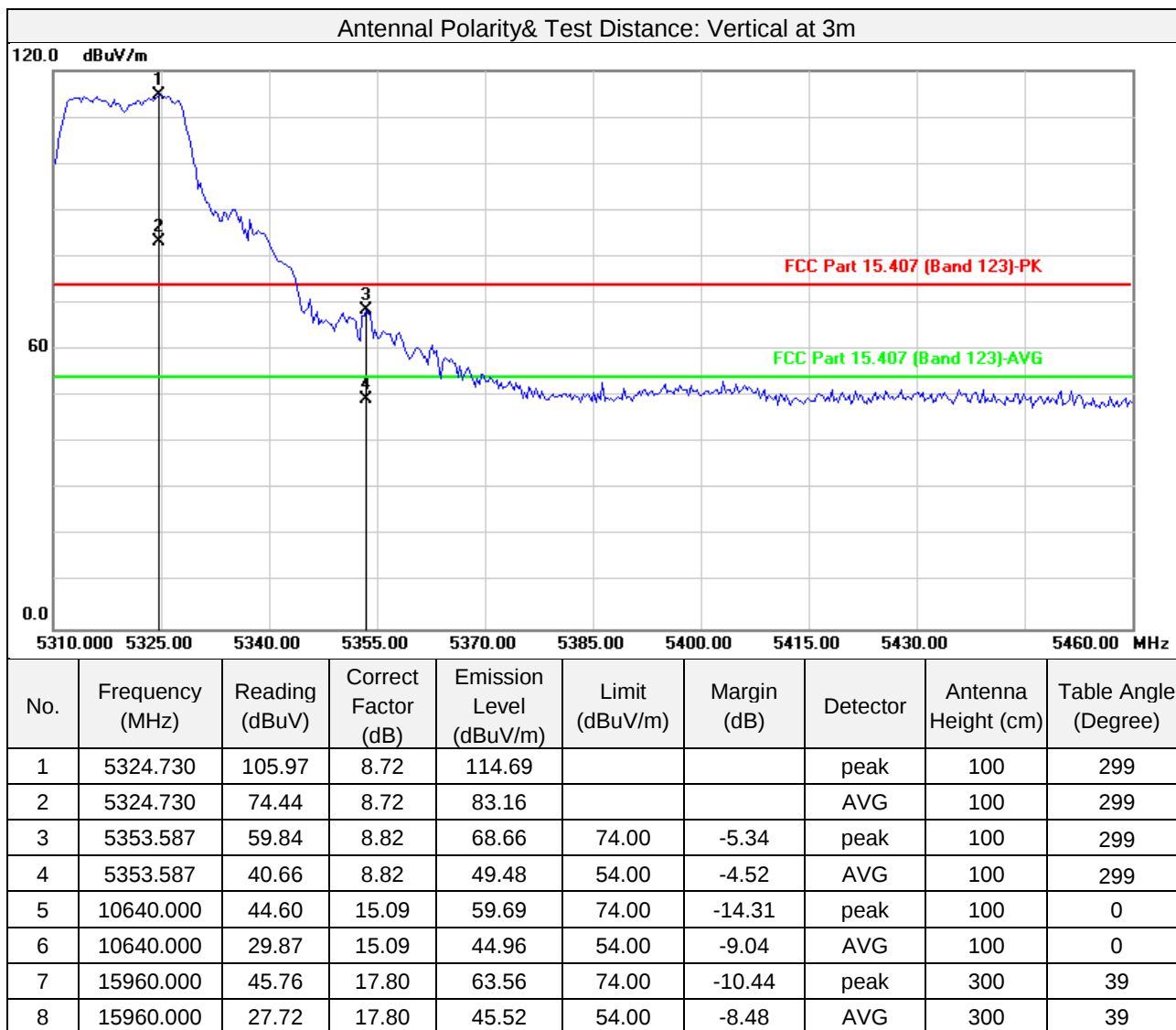


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5320MHz            |                 |              |
| Test channel      | 64                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

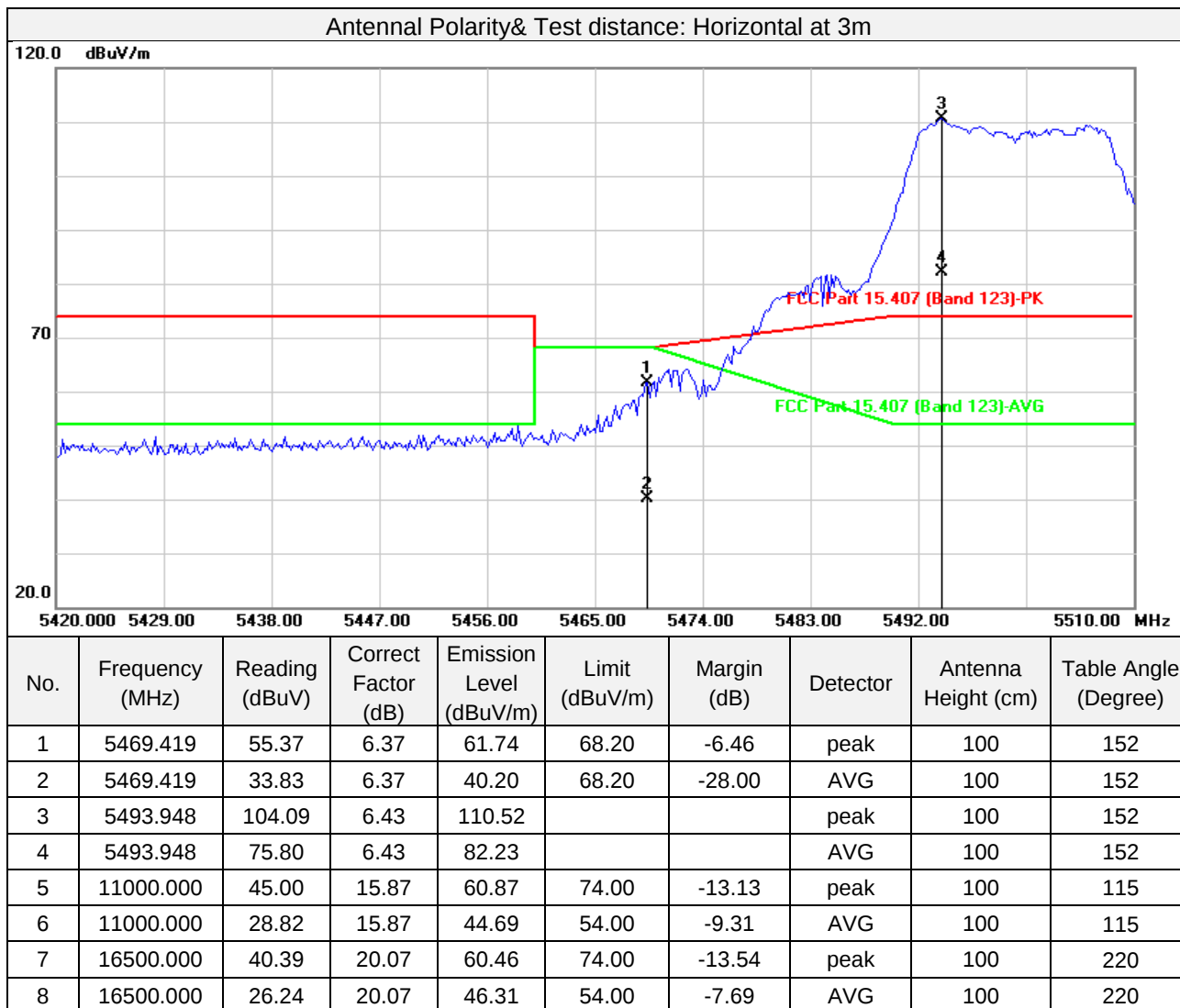


## Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5500MHz            |                 |              |
| Test channel      | 100                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

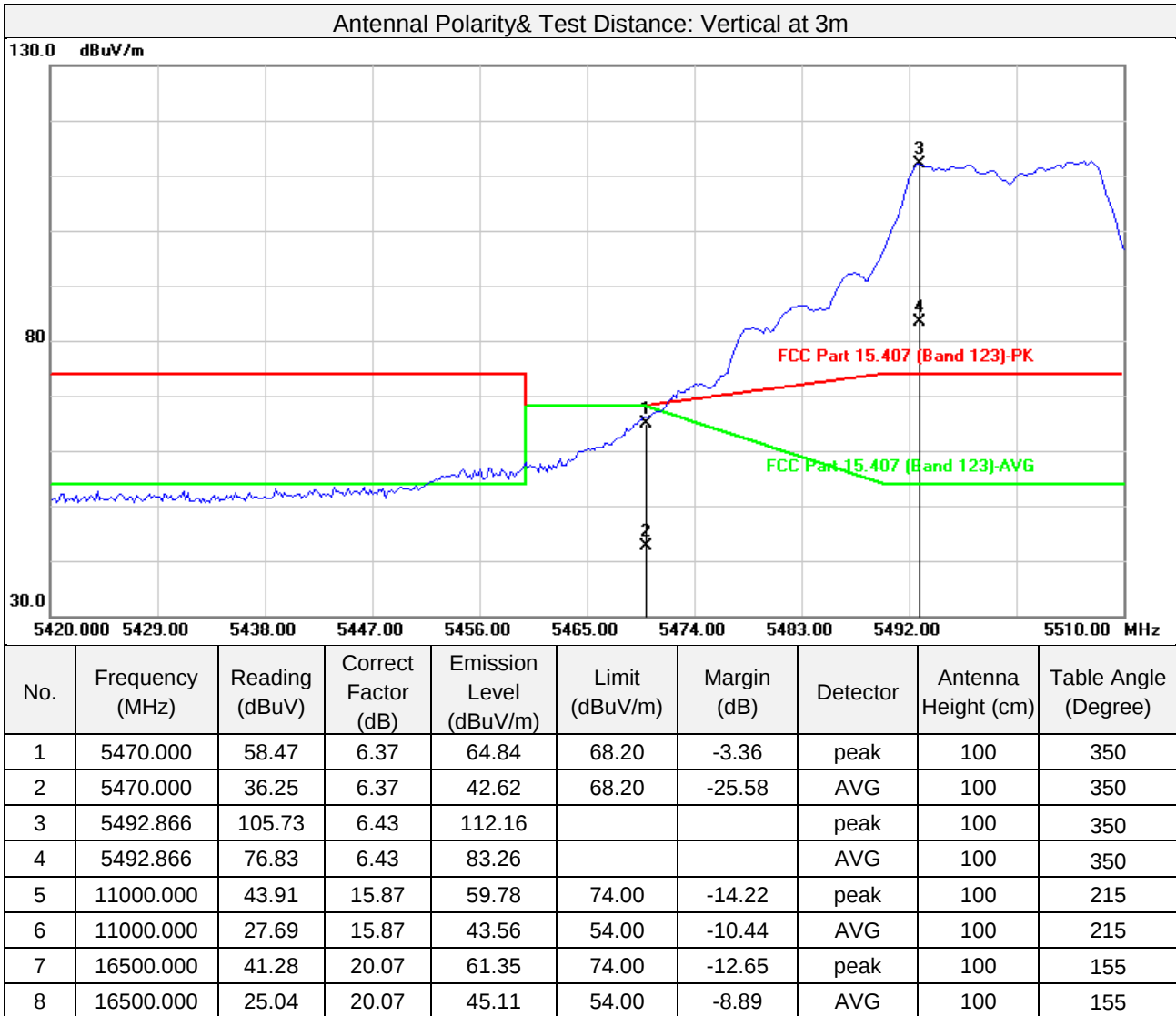


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5500MHz            |                 |              |
| Test channel      | 100                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5580MHz            |                 |              |
| Test channel      | 116                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

| Antennal Polarity& Test Distance: Horizontal at 3m |                 |                |                     |                         |                |             |          |                     |                      |
|----------------------------------------------------|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| No.                                                | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5580.000        | 103.77         | 6.54                | 110.31                  |                |             | peak     | 100                 | 287                  |
| 2                                                  | 5580.000        | 74.82          | 6.54                | 81.36                   |                |             | AVG      | 100                 | 287                  |
| 3                                                  | 11160.000       | 45.34          | 15.94               | 61.28                   | 74.00          | -12.72      | peak     | 100                 | 148                  |
| 4                                                  | 11160.000       | 29.53          | 15.94               | 45.47                   | 54.00          | -8.53       | AVG      | 100                 | 148                  |
| 5                                                  | 16740.000       | 38.57          | 21.21               | 59.78                   | 74.00          | -14.22      | peak     | 100                 | 102                  |
| 6                                                  | 16740.000       | 25.02          | 21.21               | 46.23                   | 54.00          | -7.77       | AVG      | 100                 | 102                  |
| Antennal Polarity& Test Distance: Vertical at 3m   |                 |                |                     |                         |                |             |          |                     |                      |
| No.                                                | Frequency (MHz) | Reading (dBuV) | Factor (dB)         | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5580.000        | 104.10         | 6.54                | 110.64                  |                |             | peak     | 100                 | 231                  |
| 2                                                  | 5580.000        | 76.82          | 6.54                | 83.36                   |                |             | AVG      | 100                 | 231                  |
| 3                                                  | 11160.000       | 44.90          | 15.94               | 60.84                   | 74.00          | -13.16      | peak     | 100                 | 264                  |
| 4                                                  | 11160.000       | 31.03          | 15.94               | 46.97                   | 54.00          | -7.03       | AVG      | 100                 | 264                  |
| 5                                                  | 16740.000       | 39.26          | 21.21               | 60.47                   | 74.00          | -13.53      | peak     | 100                 | 201                  |
| 6                                                  | 16740.000       | 24.66          | 21.21               | 45.87                   | 54.00          | -8.13       | AVG      | 100                 | 201                  |

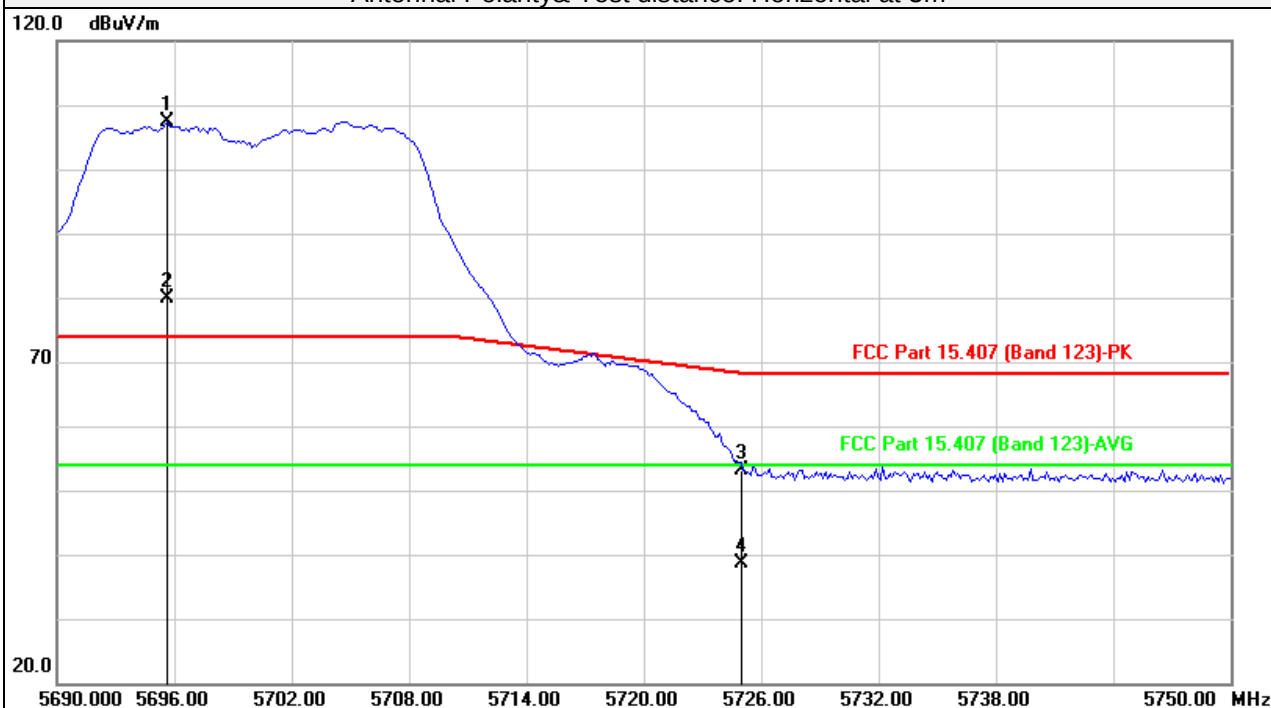
Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5700MHz            |                 |              |
| Test channel      | 140                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

Antennal Polarity& Test distance: Horizontal at 3m



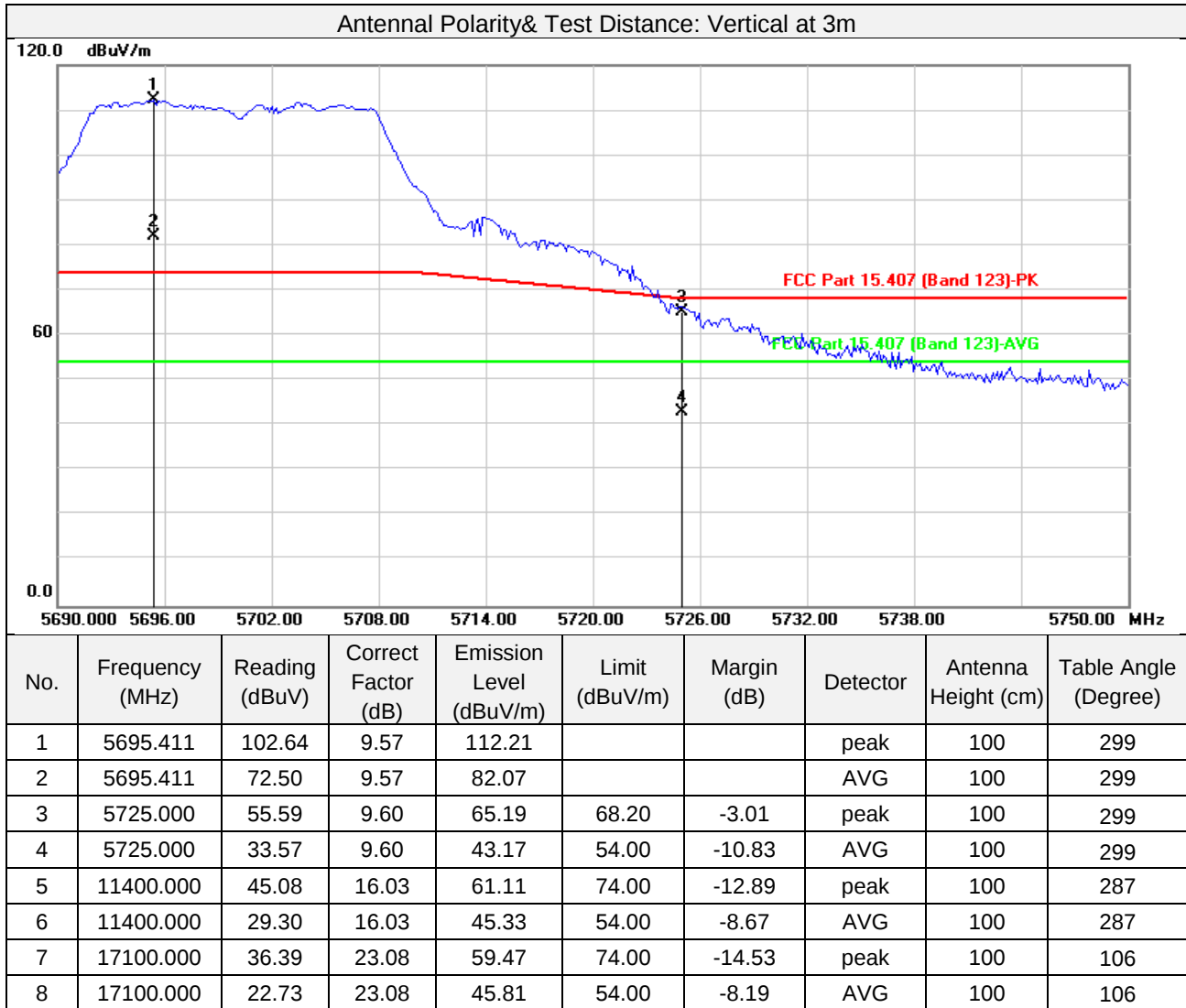
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
|-----|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| 1   | 5695.651        | 100.68         | 6.68                | 107.36                  |                |             | peak     | 100                 | 150                  |
| 2   | 5695.651        | 73.12          | 6.68                | 79.80                   |                |             | AVG      | 100                 | 150                  |
| 3   | 5725.000        | 46.30          | 6.71                | 53.01                   | 68.20          | -15.19      | peak     | 100                 | 150                  |
| 4   | 5725.000        | 31.93          | 6.71                | 38.64                   | 54.00          | -15.36      | AVG      | 100                 | 150                  |
| 5   | 11400.000       | 44.78          | 16.03               | 60.81                   | 74.00          | -13.19      | peak     | 100                 | 218                  |
| 6   | 11400.000       | 28.75          | 16.03               | 44.78                   | 54.00          | -9.22       | AVG      | 100                 | 218                  |
| 7   | 17100.000       | 37.56          | 23.08               | 60.64                   | 74.00          | -13.36      | peak     | 100                 | 236                  |
| 8   | 17100.000       | 23.05          | 23.08               | 46.13                   | 54.00          | -7.87       | AVG      | 100                 | 236                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5700MHz            |                 |              |
| Test channel      | 140                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

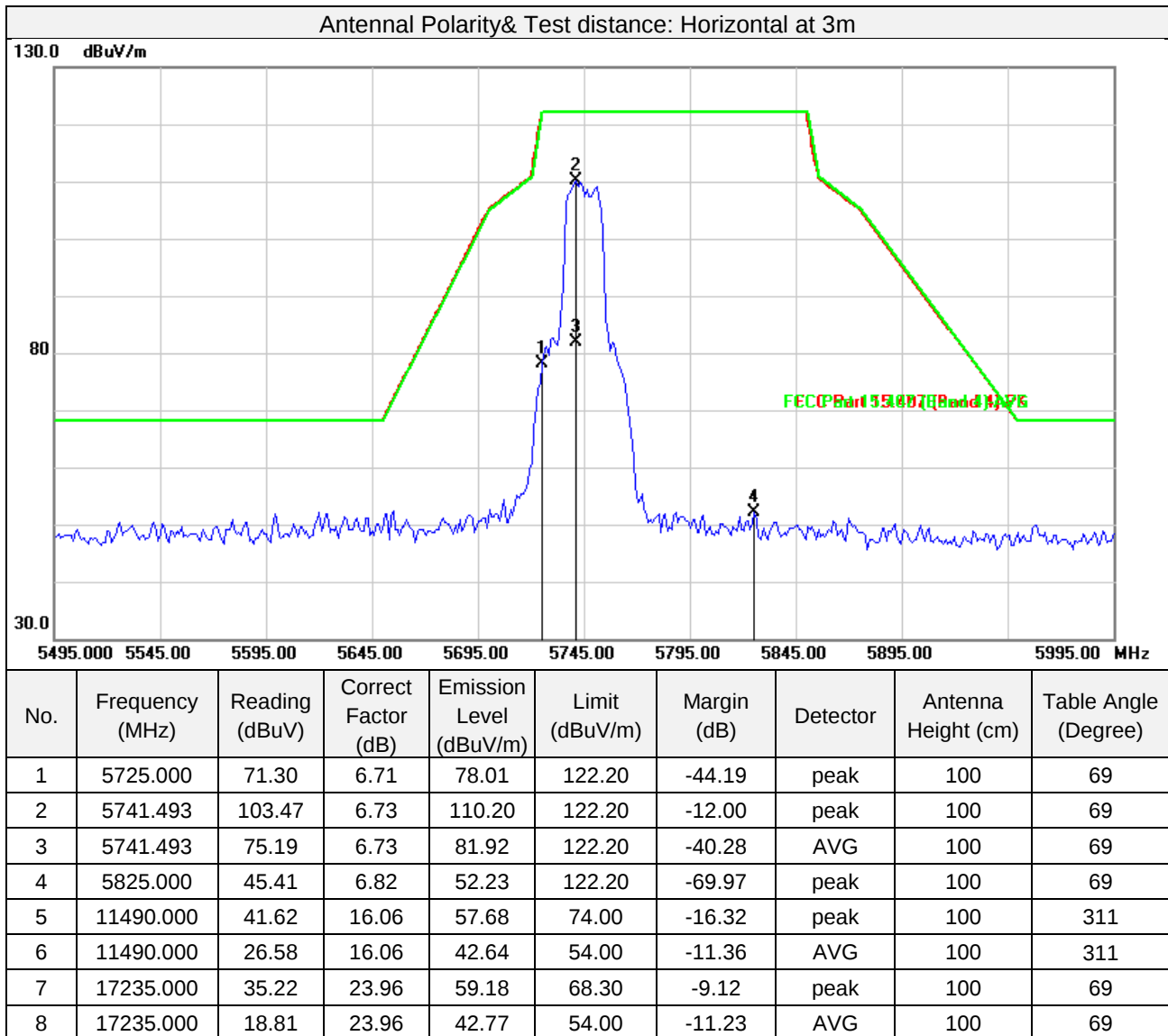


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5745MHz            |                 |              |
| Test channel      | 149                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

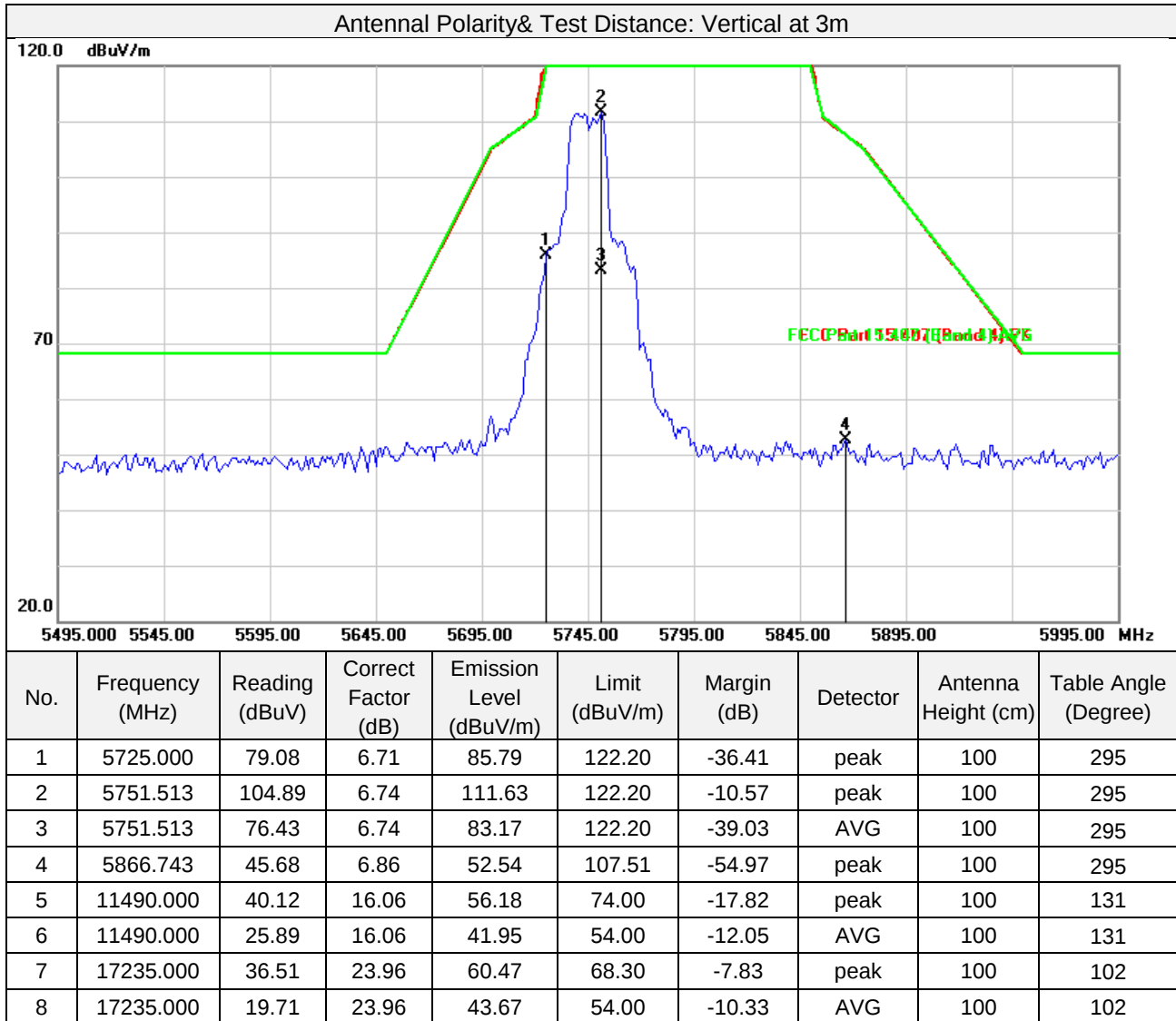


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5745MHz            |                 |              |
| Test channel      | 149                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

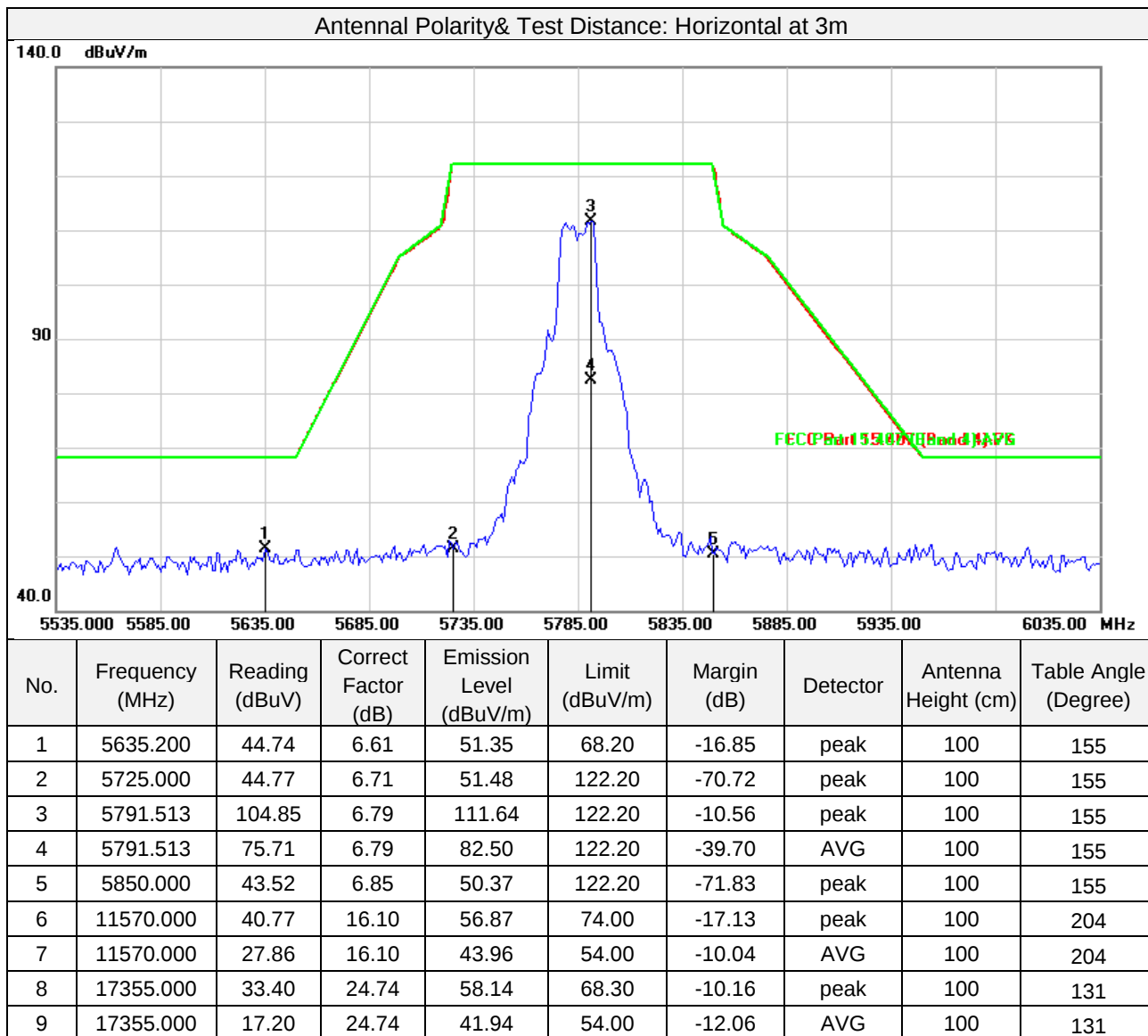


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5785MHz            |                 |              |
| Test channel      | 157                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

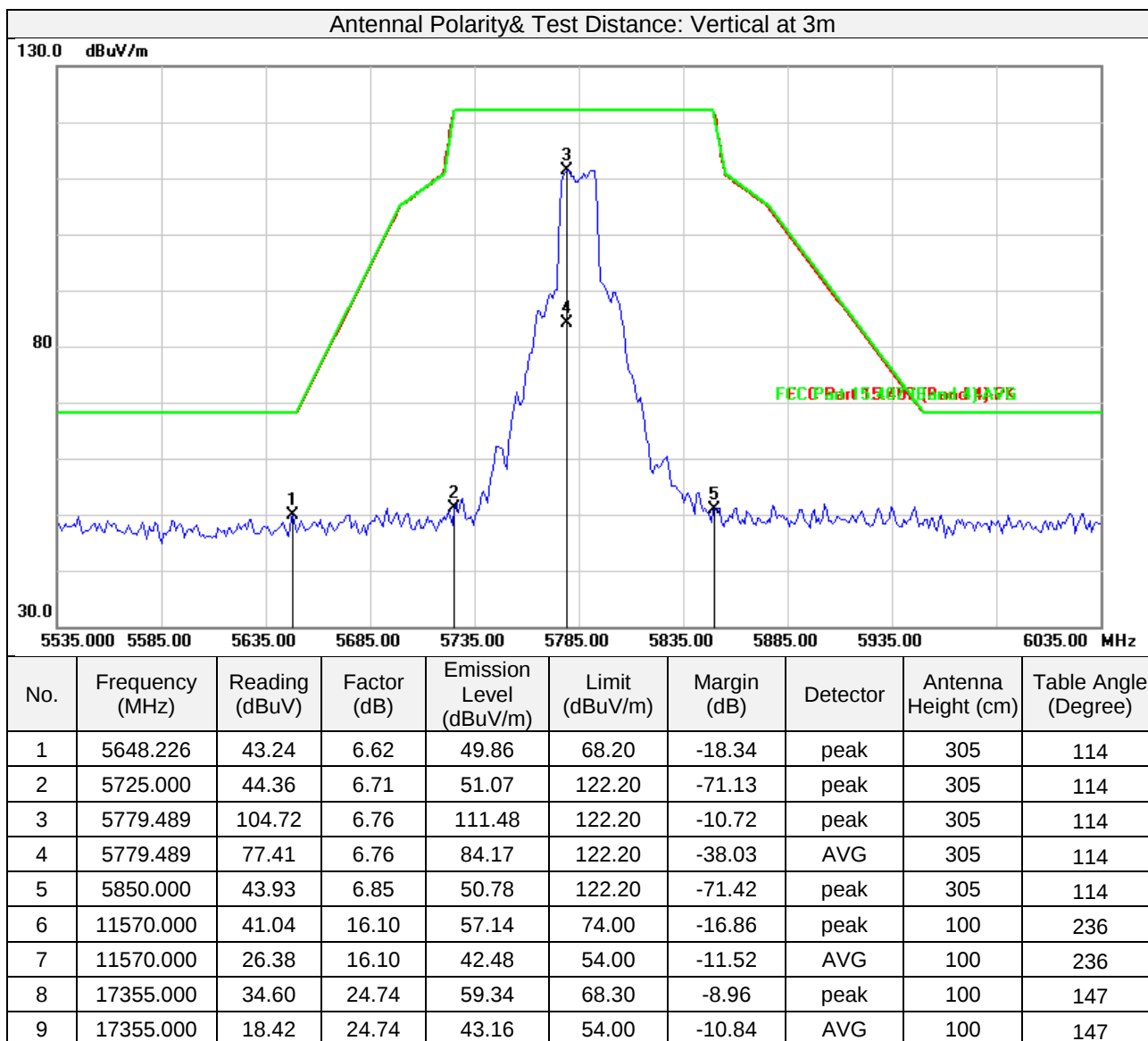


## Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5785MHz            |                 |              |
| Test channel      | 157                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

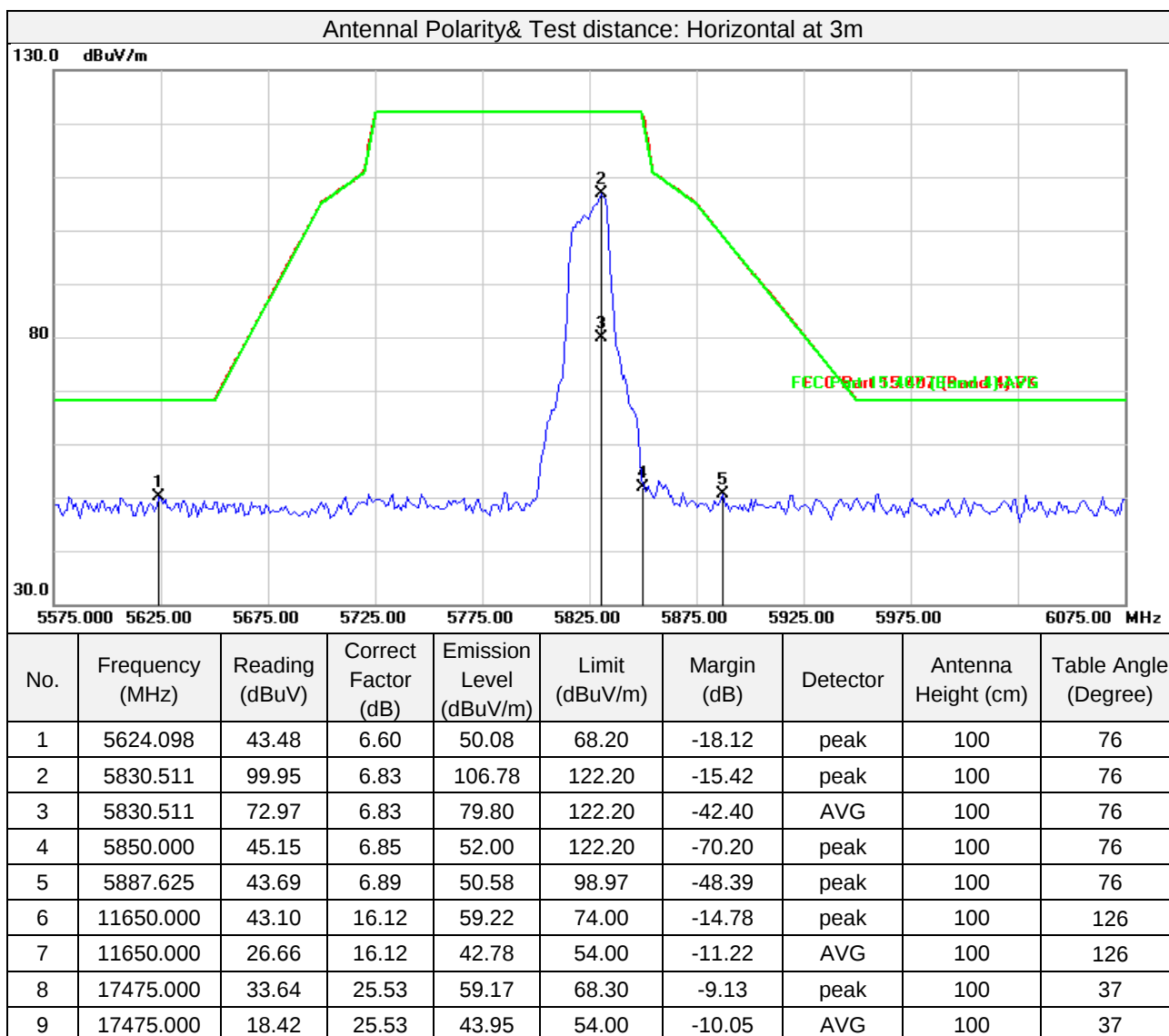


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5825MHz            |                 |              |
| Test channel      | 165                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

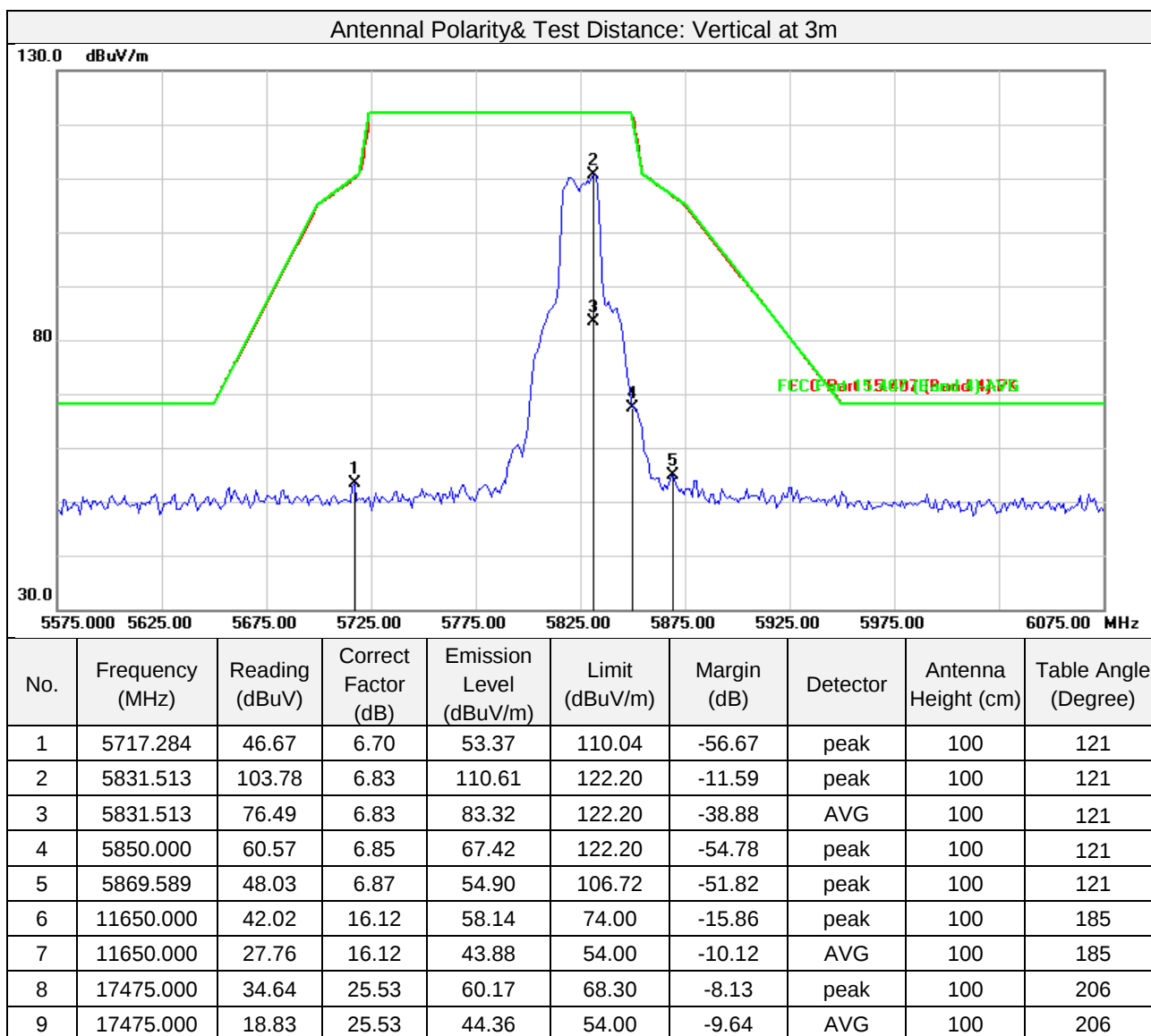


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11a_5825MHz            |                 |              |
| Test channel      | 165                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



Remarks:

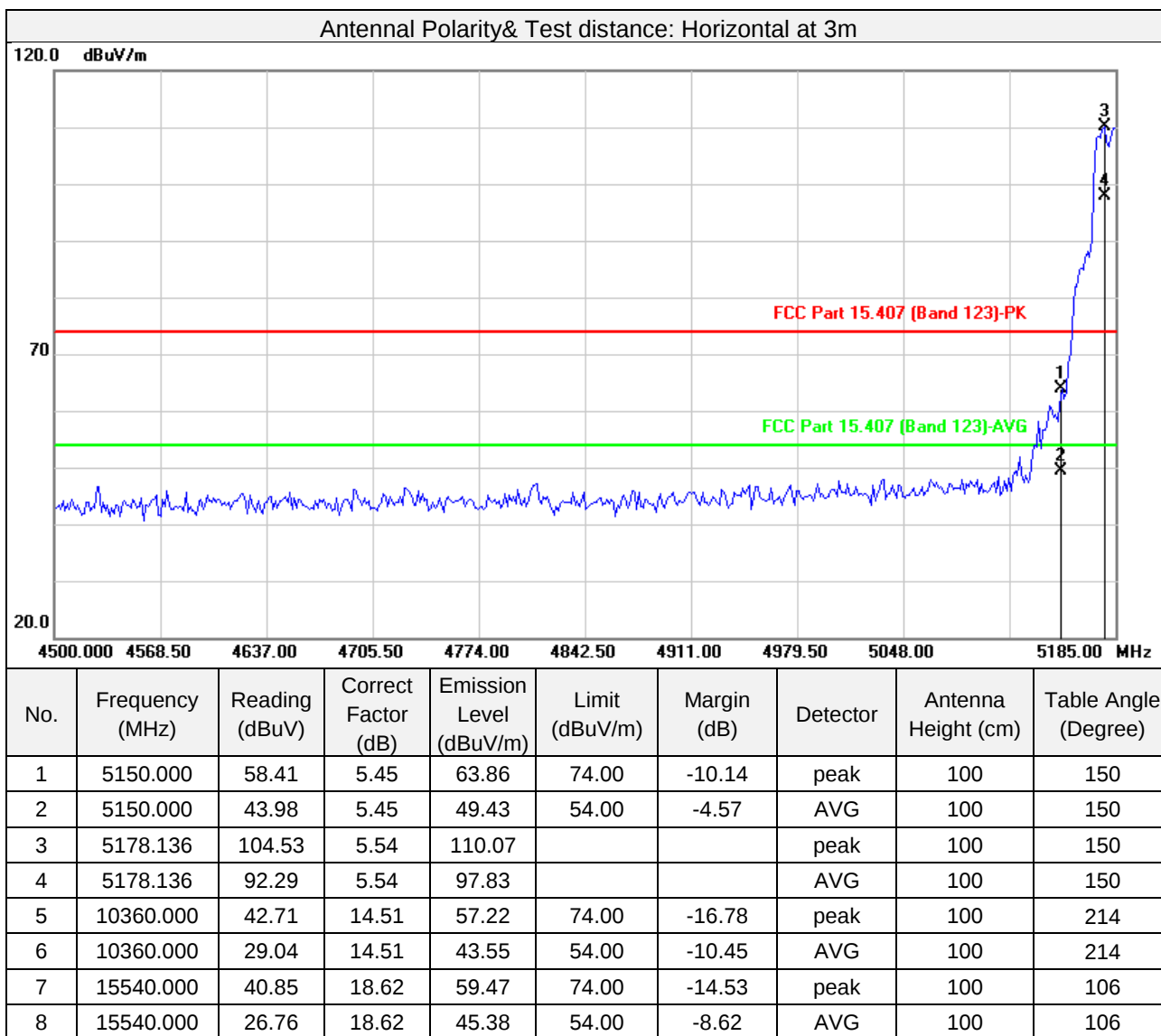
1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



## Above 1GHz Data:

## 802.11n HT20

|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5180MHz       |                 |              |
| Test channel      | 36                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

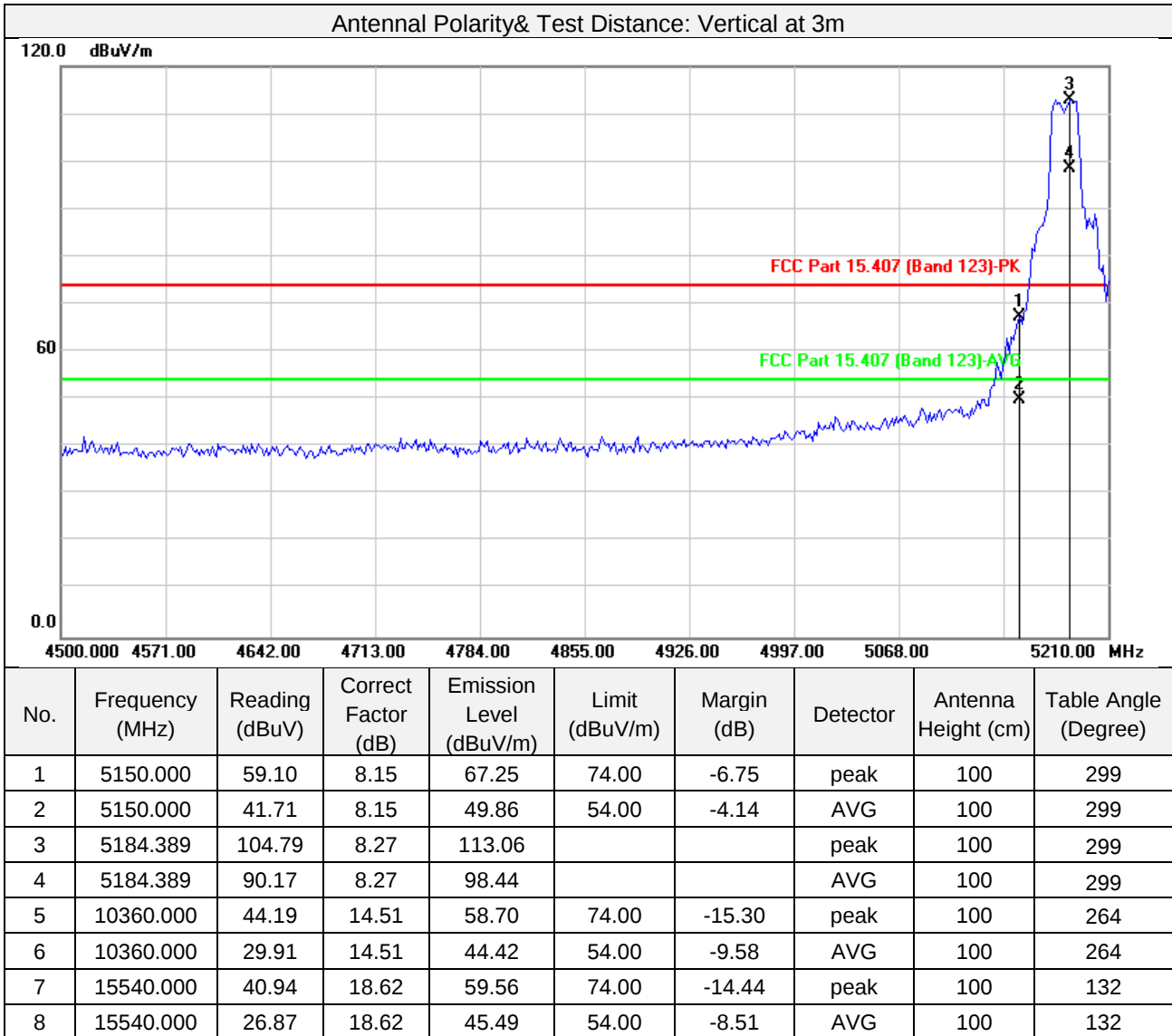


## Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. The other spurious emissions attenuated more than 20 dB below the permissible value is not required to be report



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5180MHz       |                 |              |
| Test channel      | 36                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5240MHz       |                 |              |
| Test channel      | 48                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

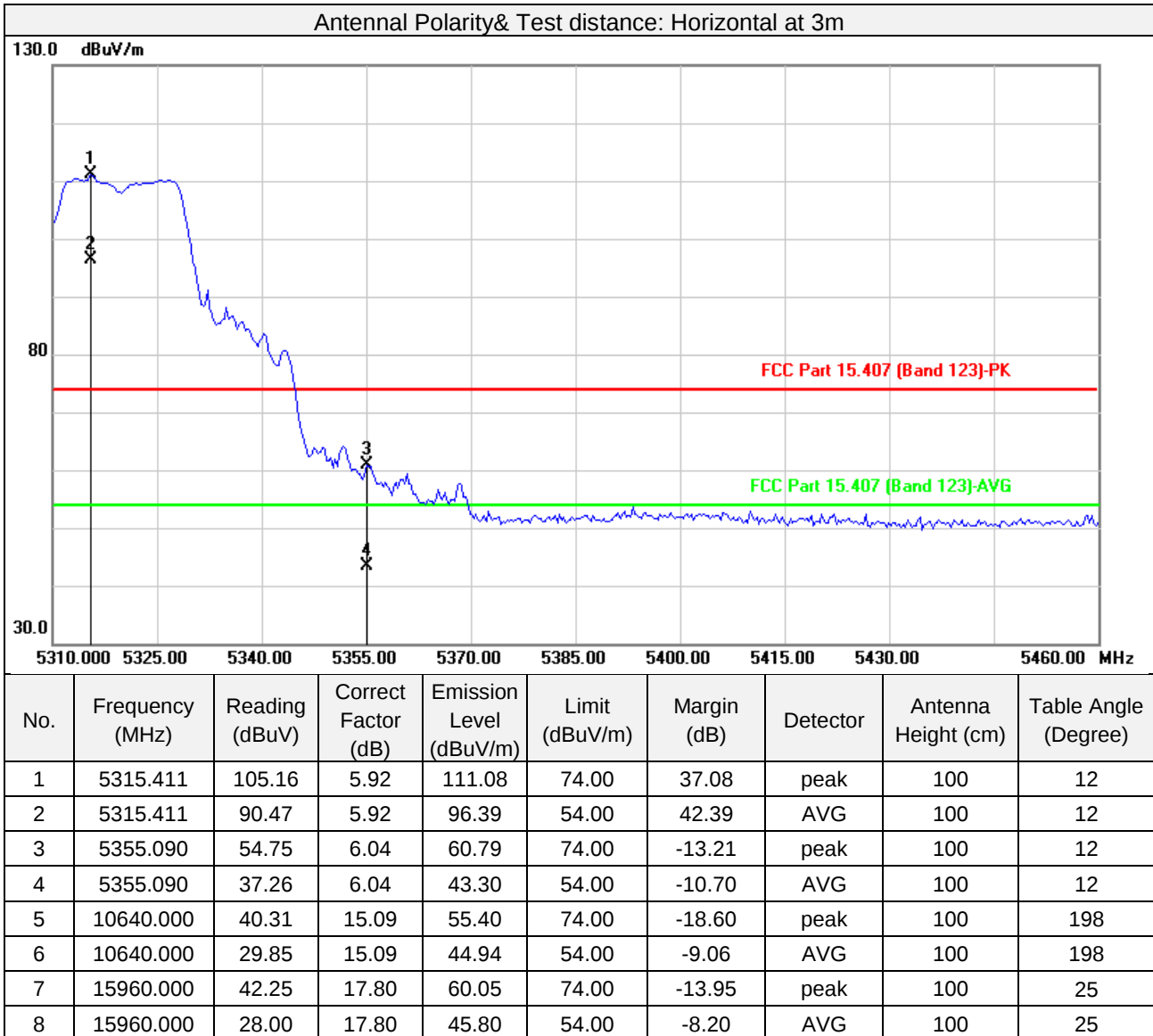
| Antennal Polarity& Test Distance: Horizontal at 3m |                 |                |                     |                         |                |             |          |                     |                      |
|----------------------------------------------------|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| No.                                                | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5240.000        | 106.14         | 5.70                | 111.84                  |                |             | peak     | 100                 | 154                  |
| 2                                                  | 5240.000        | 91.44          | 5.70                | 97.14                   |                |             | AVG      | 100                 | 154                  |
| 3                                                  | 10480.000       | 44.60          | 14.75               | 59.35                   | 74.00          | -14.65      | peak     | 100                 | 0                    |
| 4                                                  | 10480.000       | 29.81          | 14.75               | 44.56                   | 54.00          | -9.44       | AVG      | 100                 | 0                    |
| 5                                                  | 15720.000       | 43.69          | 18.27               | 61.96                   | 74.00          | -12.04      | peak     | 261                 | 42                   |
| 6                                                  | 15720.000       | 27.60          | 18.27               | 45.87                   | 54.00          | -8.13       | AVG      | 261                 | 42                   |
| Antennal Polarity& Test Distance: Vertical at 3m   |                 |                |                     |                         |                |             |          |                     |                      |
| No.                                                | Frequency (MHz) | Reading (dBuV) | Factor (dB)         | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5240.000        | 105.78         | 5.70                | 111.48                  |                |             | peak     | 100                 | 295                  |
| 2                                                  | 5240.000        | 90.78          | 5.70                | 96.48                   |                |             | AVG      | 100                 | 295                  |
| 3                                                  | 10480.000       | 47.24          | 14.75               | 61.99                   | 74.00          | -12.01      | peak     | 100                 | 0                    |
| 4                                                  | 10480.000       | 30.97          | 14.75               | 45.72                   | 54.00          | -8.28       | AVG      | 100                 | 0                    |
| 5                                                  | 15720.000       | 42.24          | 18.27               | 60.51                   | 74.00          | -13.49      | peak     | 100                 | 342                  |
| 6                                                  | 15720.000       | 28.22          | 18.27               | 46.49                   | 54.00          | -7.51       | AVG      | 100                 | 342                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5320MHz       |                 |              |
| Test channel      | 64                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

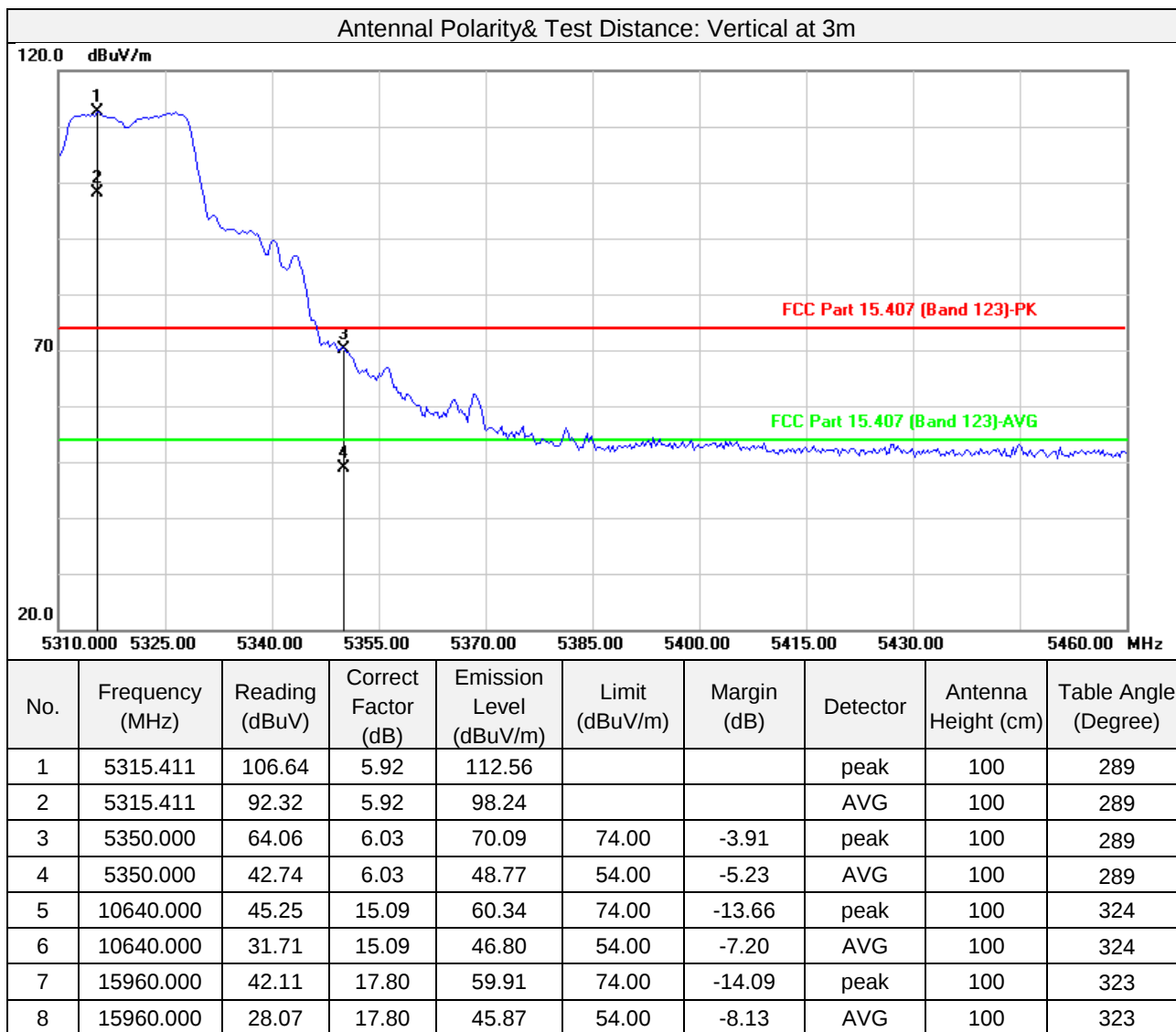


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5320MHz       |                 |              |
| Test channel      | 64                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

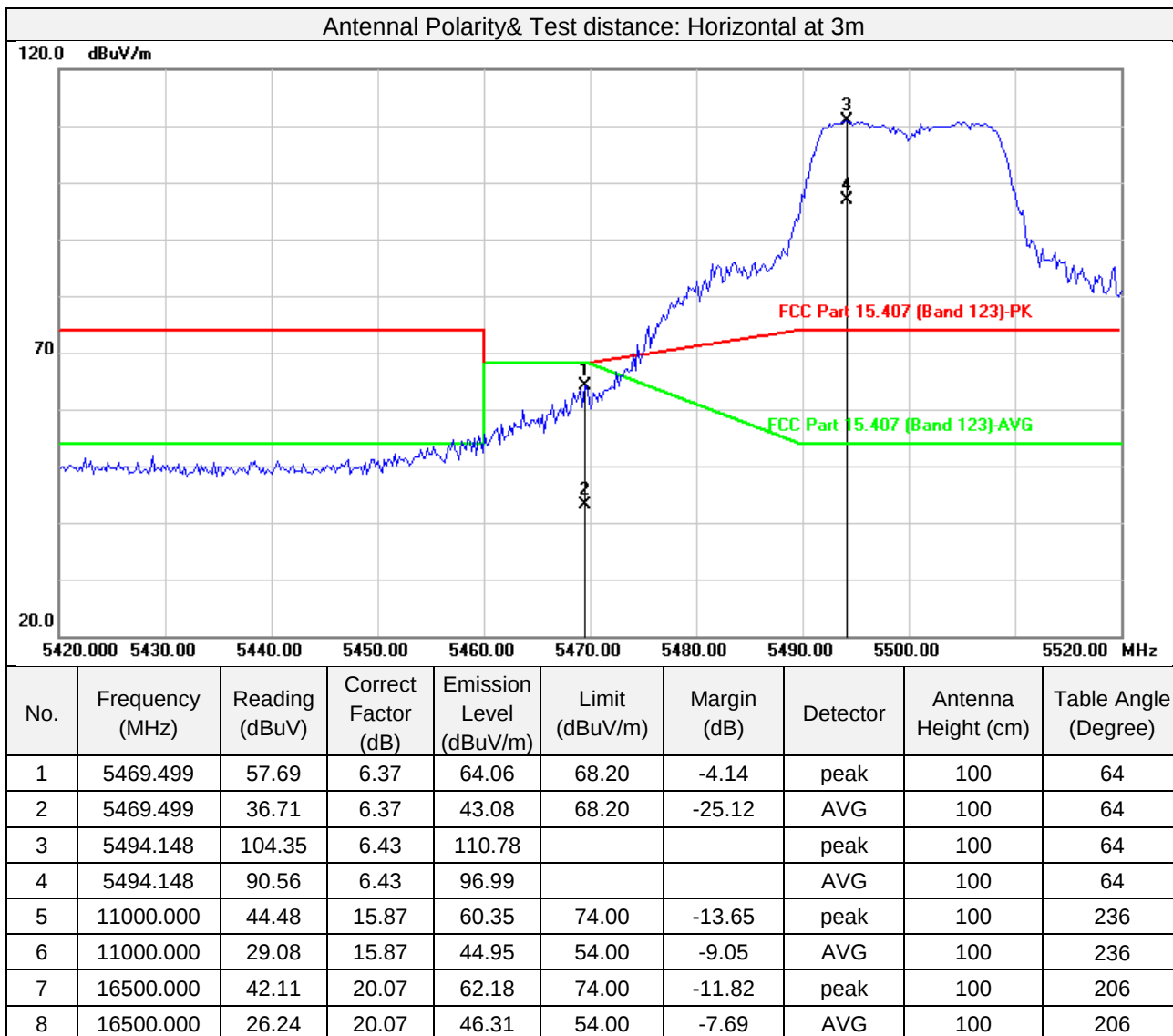


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5500MHz       |                 |              |
| Test channel      | 100                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

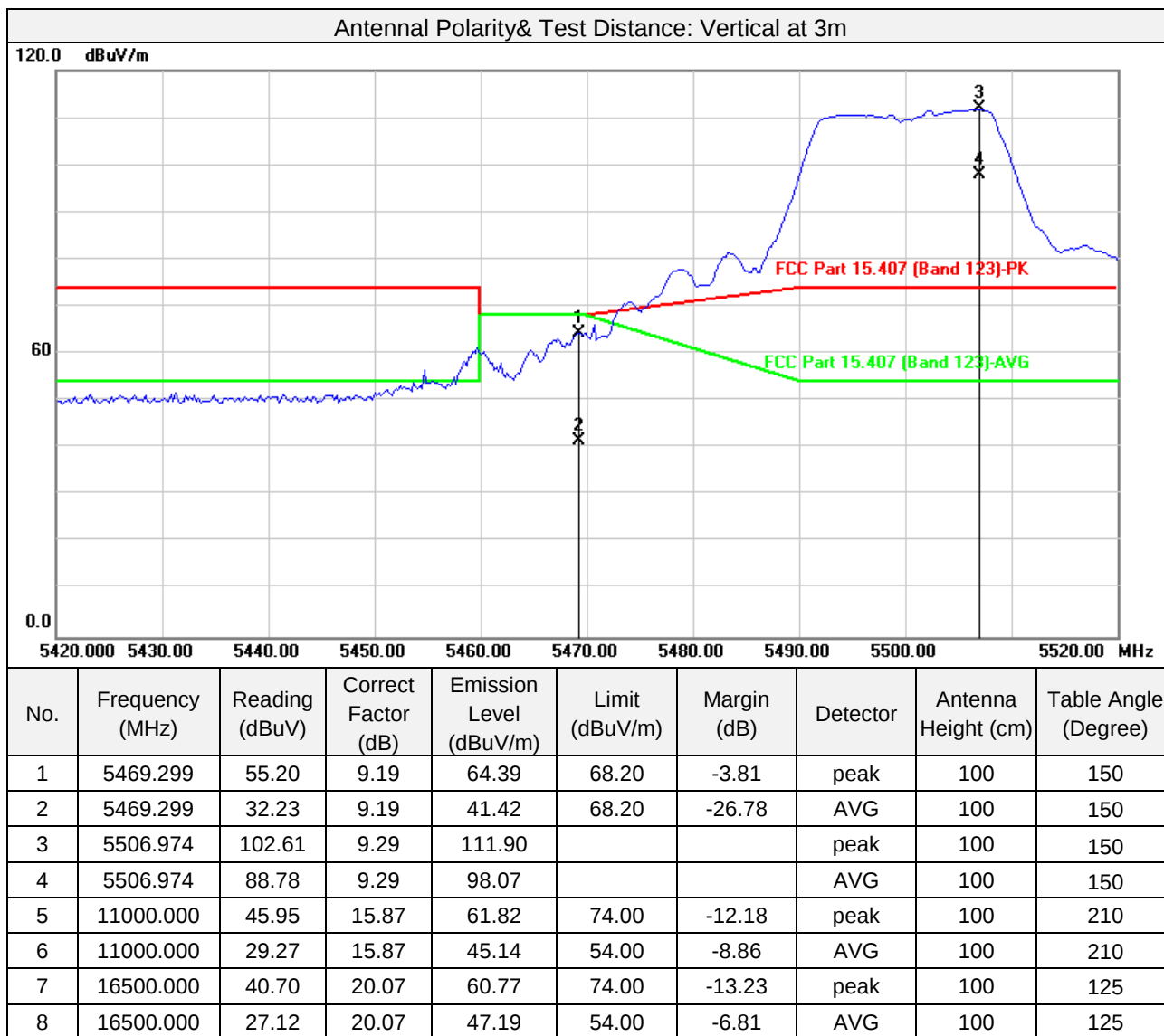


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5500MHz       |                 |              |
| Test channel      | 100                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5580MHz       |                 |              |
| Test channel      | 116                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

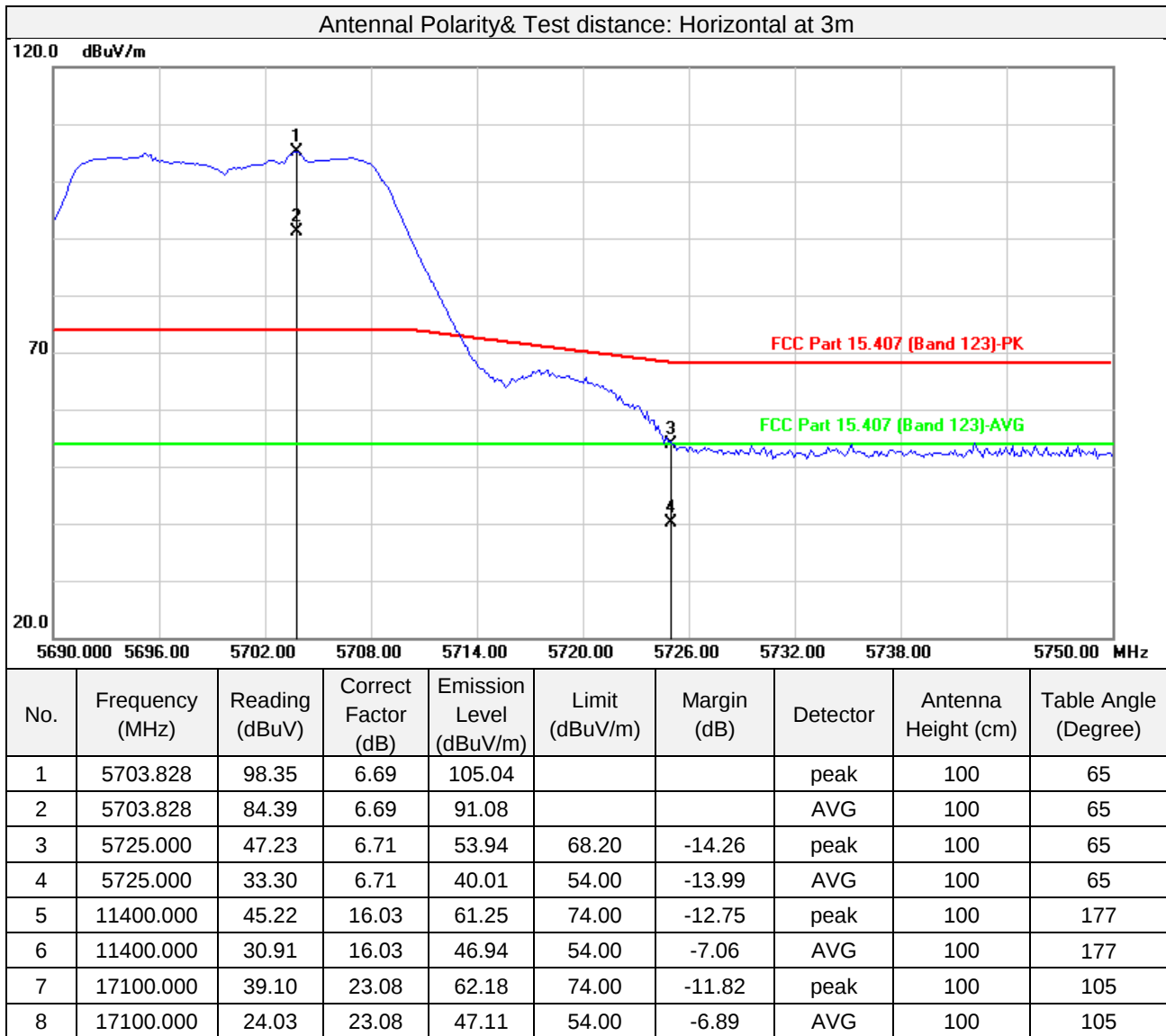
| Antennal Polarity& Test Distance: Horizontal at 3m |                 |                |                     |                         |                |             |          |                     |                      |
|----------------------------------------------------|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| No.                                                | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5580.000        | 103.94         | 6.54                | 110.48                  |                |             | peak     | 100                 | 166                  |
| 2                                                  | 5580.000        | 88.77          | 6.54                | 95.31                   |                |             | AVG      | 100                 | 166                  |
| 3                                                  | 11160.000       | 43.80          | 15.94               | 59.74                   | 74.00          | -14.26      | peak     | 100                 | 208                  |
| 4                                                  | 11160.000       | 29.41          | 15.94               | 45.35                   | 54.00          | -8.65       | AVG      | 100                 | 208                  |
| 5                                                  | 16740.000       | 40.60          | 21.21               | 61.81                   | 74.00          | -12.19      | peak     | 100                 | 106                  |
| 6                                                  | 16740.000       | 23.90          | 21.21               | 45.11                   | 54.00          | -8.89       | AVG      | 100                 | 106                  |
| Antennal Polarity& Test Distance: Vertical at 3m   |                 |                |                     |                         |                |             |          |                     |                      |
| No.                                                | Frequency (MHz) | Reading (dBuV) | Factor (dB)         | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5580.000        | 105.30         | 6.54                | 111.84                  |                |             | peak     | 100                 | 178                  |
| 2                                                  | 5580.000        | 89.60          | 6.54                | 96.14                   |                |             | AVG      | 100                 | 178                  |
| 3                                                  | 11160.000       | 45.94          | 15.94               | 61.88                   | 74.00          | -12.12      | peak     | 100                 | 184                  |
| 4                                                  | 11160.000       | 30.97          | 15.94               | 46.91                   | 54.00          | -7.09       | AVG      | 100                 | 184                  |
| 5                                                  | 16740.000       | 40.83          | 21.21               | 62.04                   | 74.00          | -11.96      | peak     | 100                 | 226                  |
| 6                                                  | 16740.000       | 25.97          | 21.21               | 47.18                   | 54.00          | -6.82       | AVG      | 100                 | 226                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5700MHz       |                 |              |
| Test channel      | 140                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

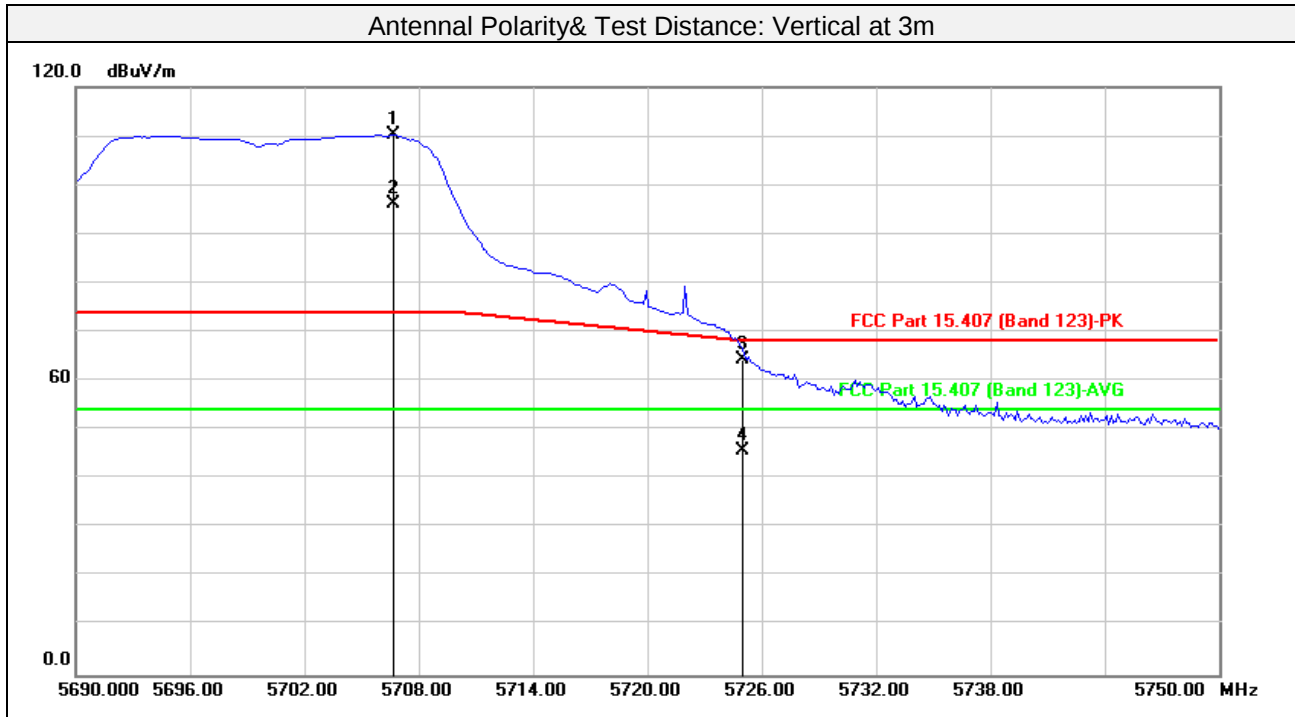


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5700MHz       |                 |              |
| Test channel      | 140                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



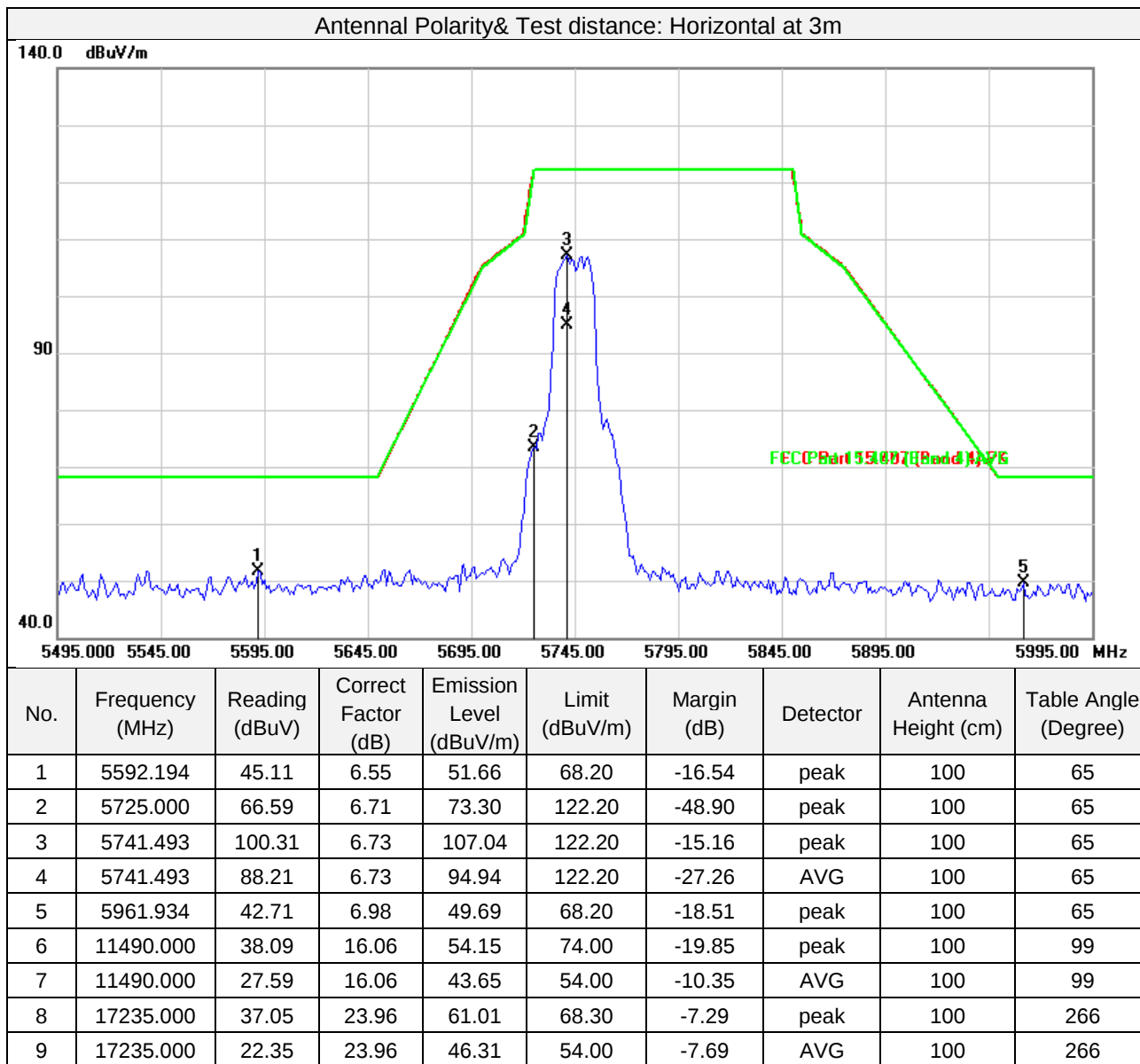
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
|-----|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| 1   | 5706.713        | 100.66         | 9.58                | 110.24                  |                |             | peak     | 100                 | 303                  |
| 2   | 5706.713        | 86.62          | 9.58                | 96.20                   |                |             | AVG      | 100                 | 303                  |
| 3   | 5725.000        | 54.88          | 9.60                | 64.48                   | 68.20          | -3.72       | peak     | 100                 | 303                  |
| 4   | 5725.000        | 36.06          | 9.60                | 45.66                   | 54.00          | -8.34       | AVG      | 100                 | 303                  |
| 5   | 11400.000       | 44.75          | 16.03               | 60.78                   | 74.00          | -13.22      | peak     | 100                 | 211                  |
| 6   | 11400.000       | 29.08          | 16.03               | 45.11                   | 54.00          | -8.89       | AVG      | 100                 | 211                  |
| 7   | 17100.000       | 38.68          | 23.08               | 61.76                   | 74.00          | -12.24      | peak     | 100                 | 206                  |
| 8   | 17100.000       | 23.25          | 23.08               | 46.33                   | 54.00          | -7.67       | AVG      | 100                 | 206                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5745MHz       |                 |              |
| Test channel      | 149                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

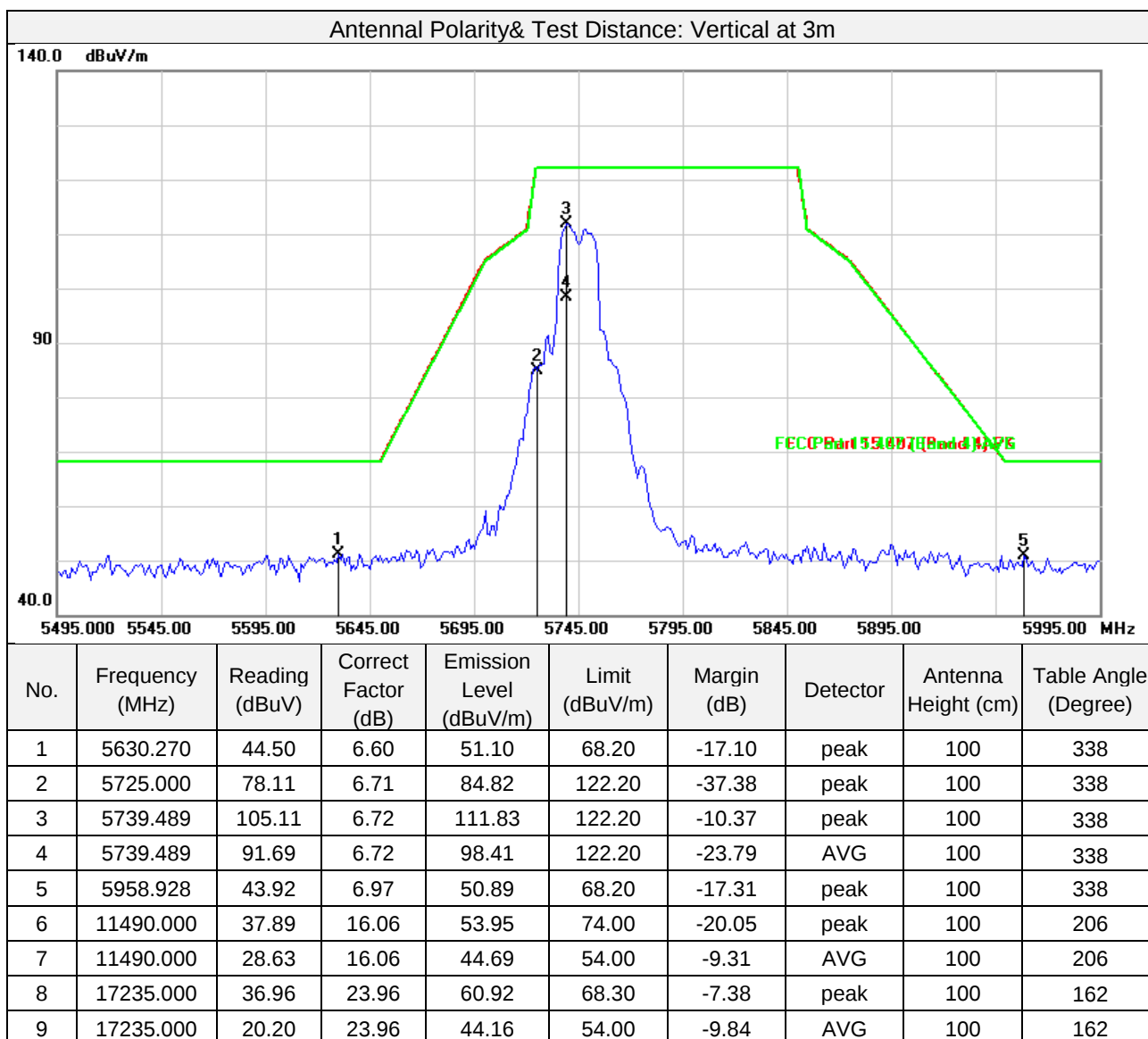


## Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5745MHz       |                 |              |
| Test channel      | 149                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

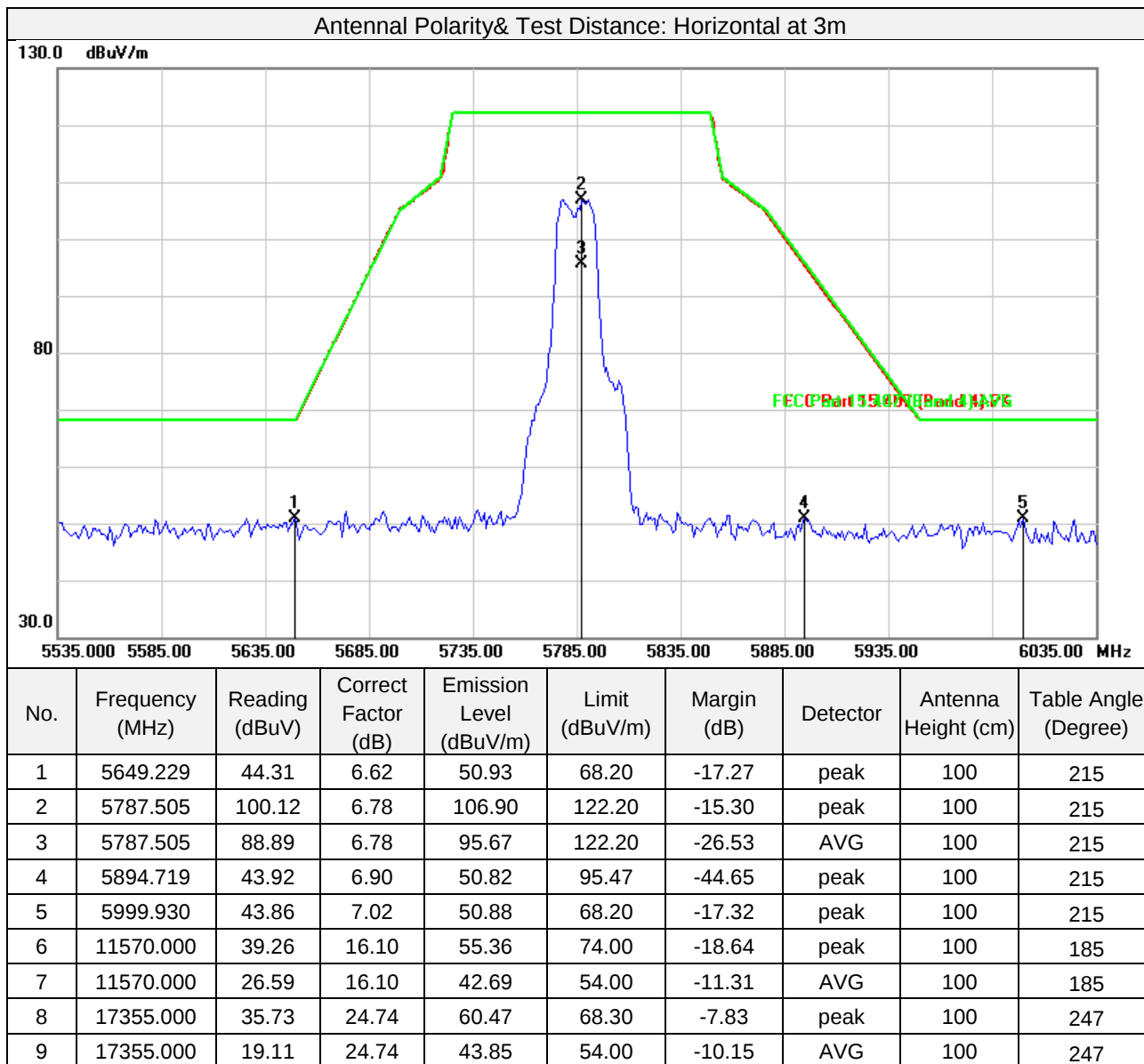


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5785MHz       |                 |              |
| Test channel      | 157                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

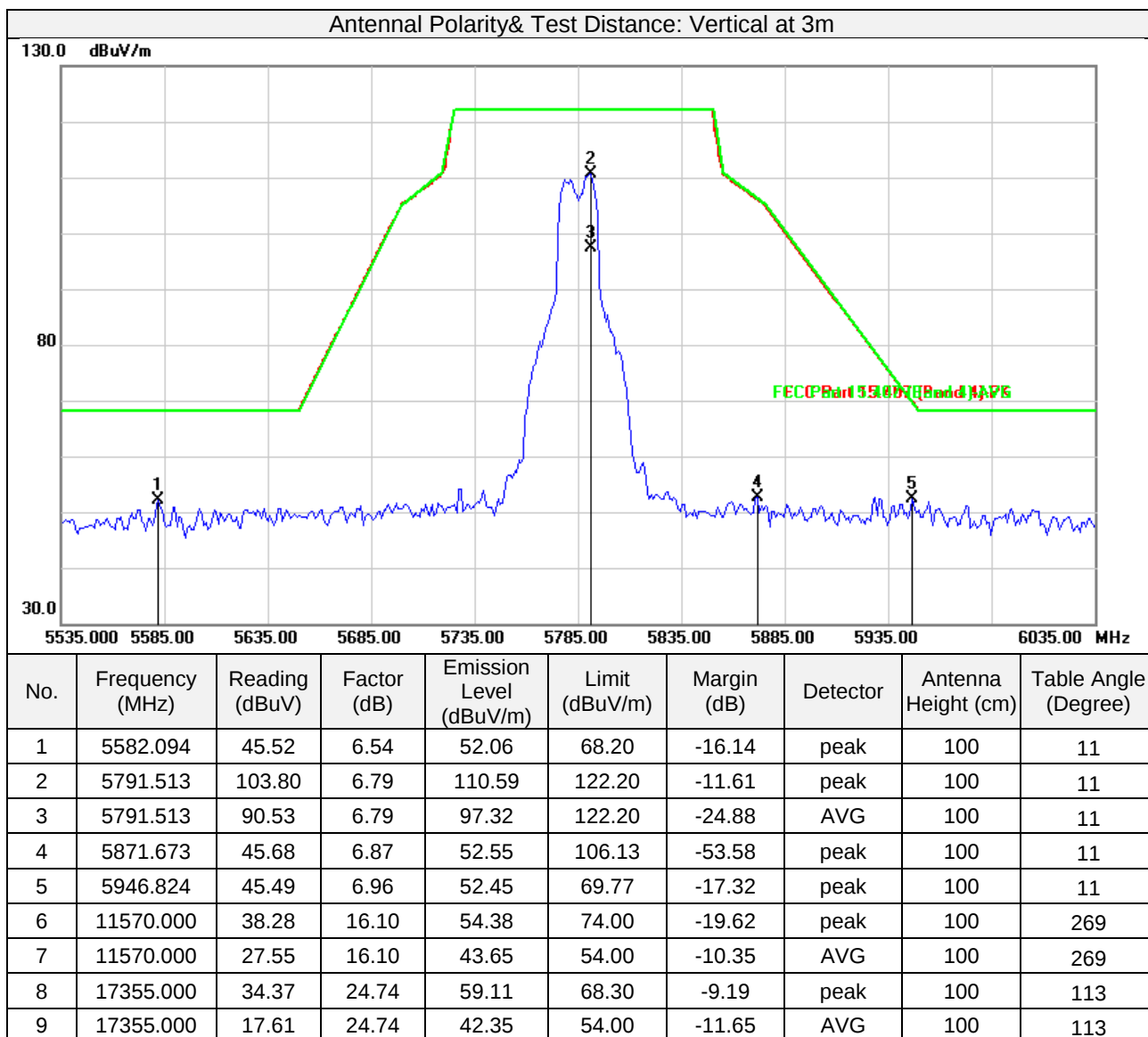


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5785MHz       |                 |              |
| Test channel      | 157                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

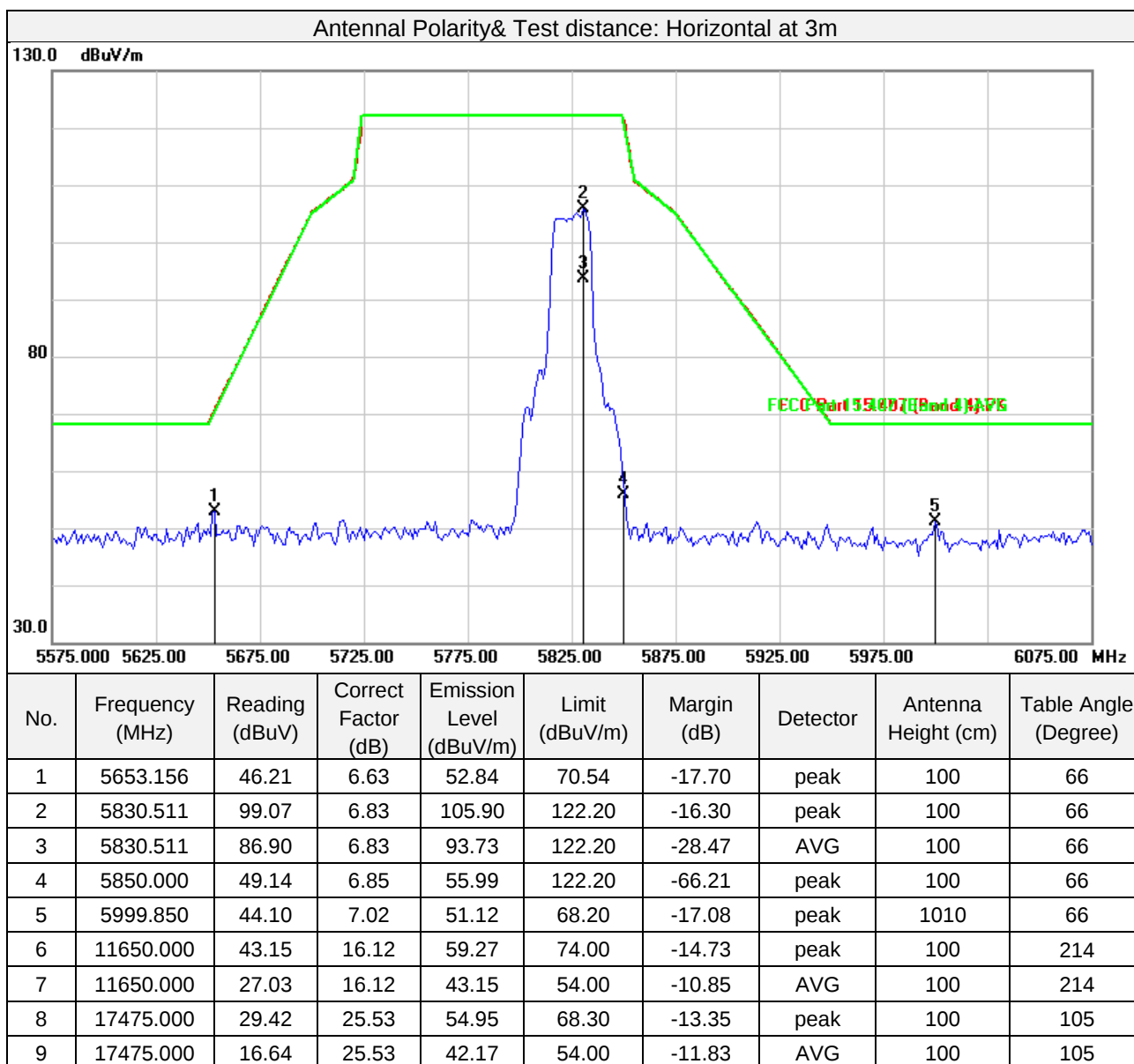


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5825MHz       |                 |              |
| Test channel      | 165                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

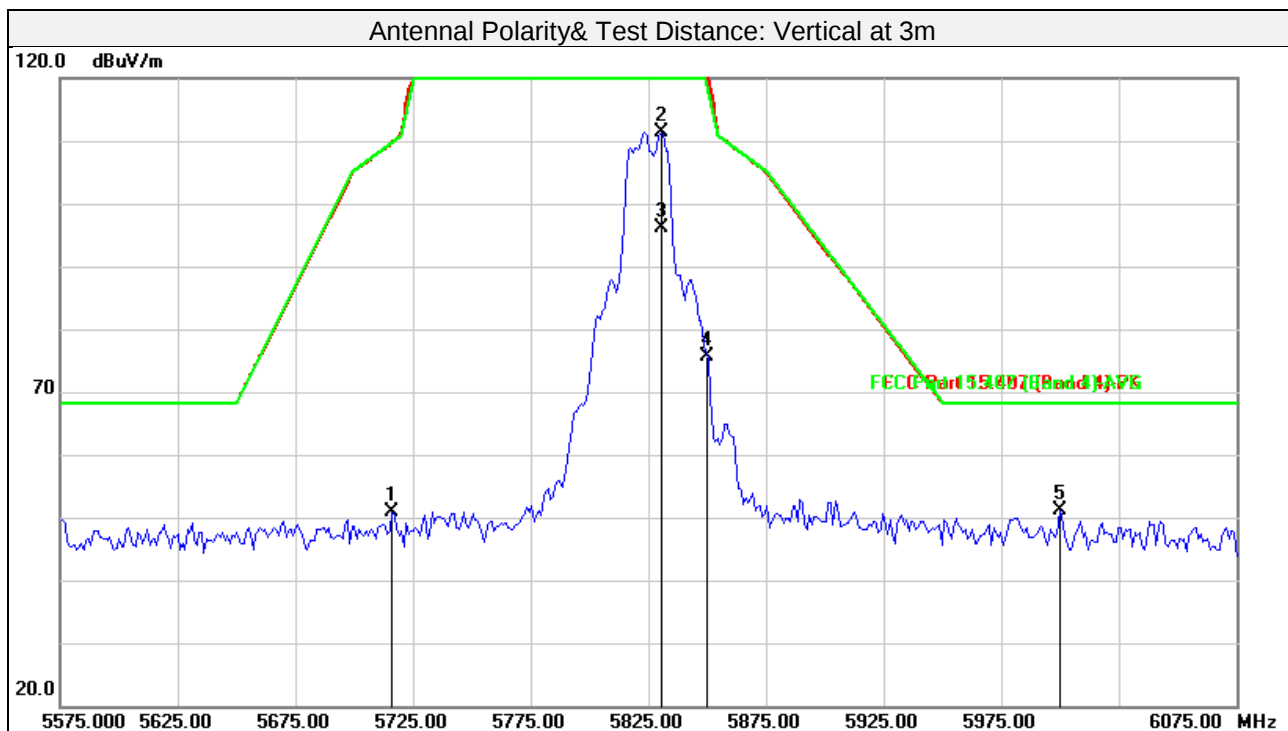


## Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT20_5825MHz       |                 |              |
| Test channel      | 165                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
|-----|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| 1   | 5716.283        | 44.25          | 6.70                | 50.95                   | 109.76         | -58.81      | peak     | 100                 | 214                  |
| 2   | 5830.511        | 104.58         | 6.83                | 111.41                  | 122.20         | -10.79      | peak     | 100                 | 214                  |
| 3   | 5830.511        | 89.31          | 6.83                | 96.14                   | 122.20         | -26.06      | AVG      | 100                 | 214                  |
| 4   | 5850.000        | 68.85          | 6.85                | 75.70                   | 122.20         | -46.50      | peak     | 100                 | 214                  |
| 5   | 5999.850        | 44.02          | 7.02                | 51.04                   | 68.20          | -17.16      | peak     | 100                 | 214                  |
| 6   | 11650.000       | 45.63          | 16.12               | 61.75                   | 74.00          | -12.25      | peak     | 100                 | 158                  |
| 7   | 11650.000       | 26.86          | 16.12               | 42.98                   | 54.00          | -11.02      | AVG      | 100                 | 158                  |
| 8   | 17475.000       | 29.78          | 25.53               | 55.31                   | 68.30          | -12.99      | peak     | 100                 | 244                  |
| 9   | 17475.000       | 18.32          | 25.53               | 43.85                   | 54.00          | -10.15      | AVG      | 100                 | 244                  |

Remarks:

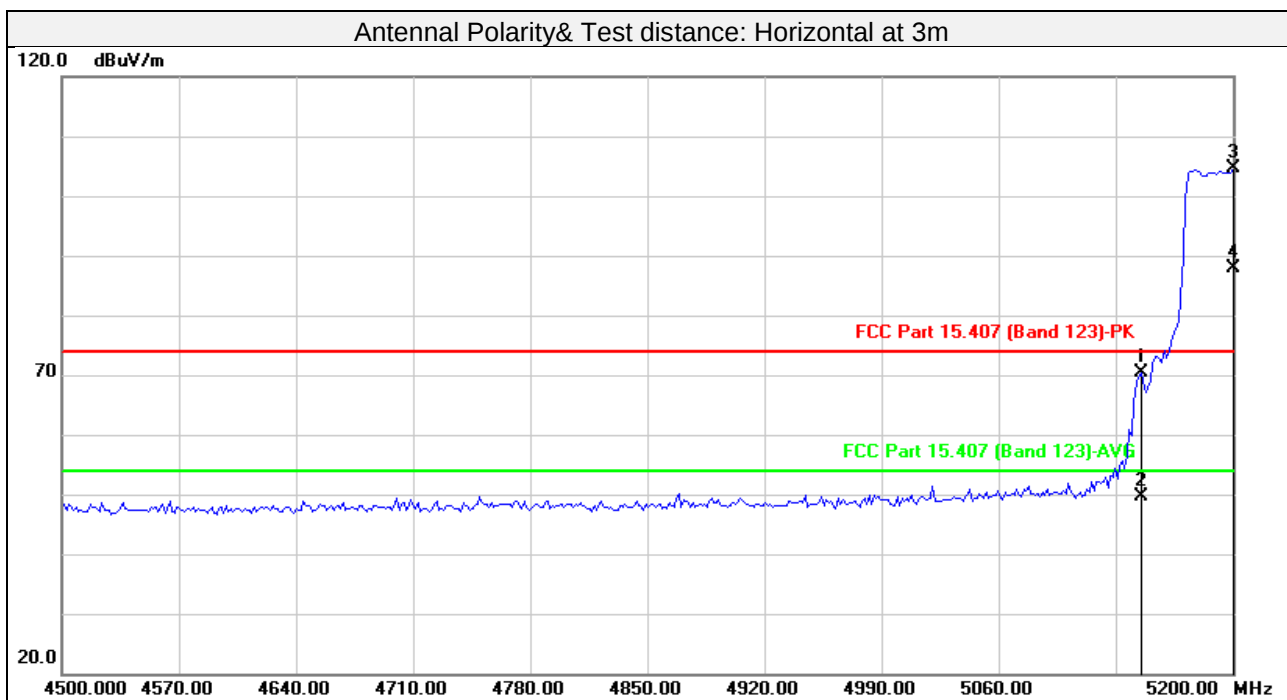
1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



Above 1GHz Data:

802.11n HT40

|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5190MHz       |                 |              |
| Test channel      | 38                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



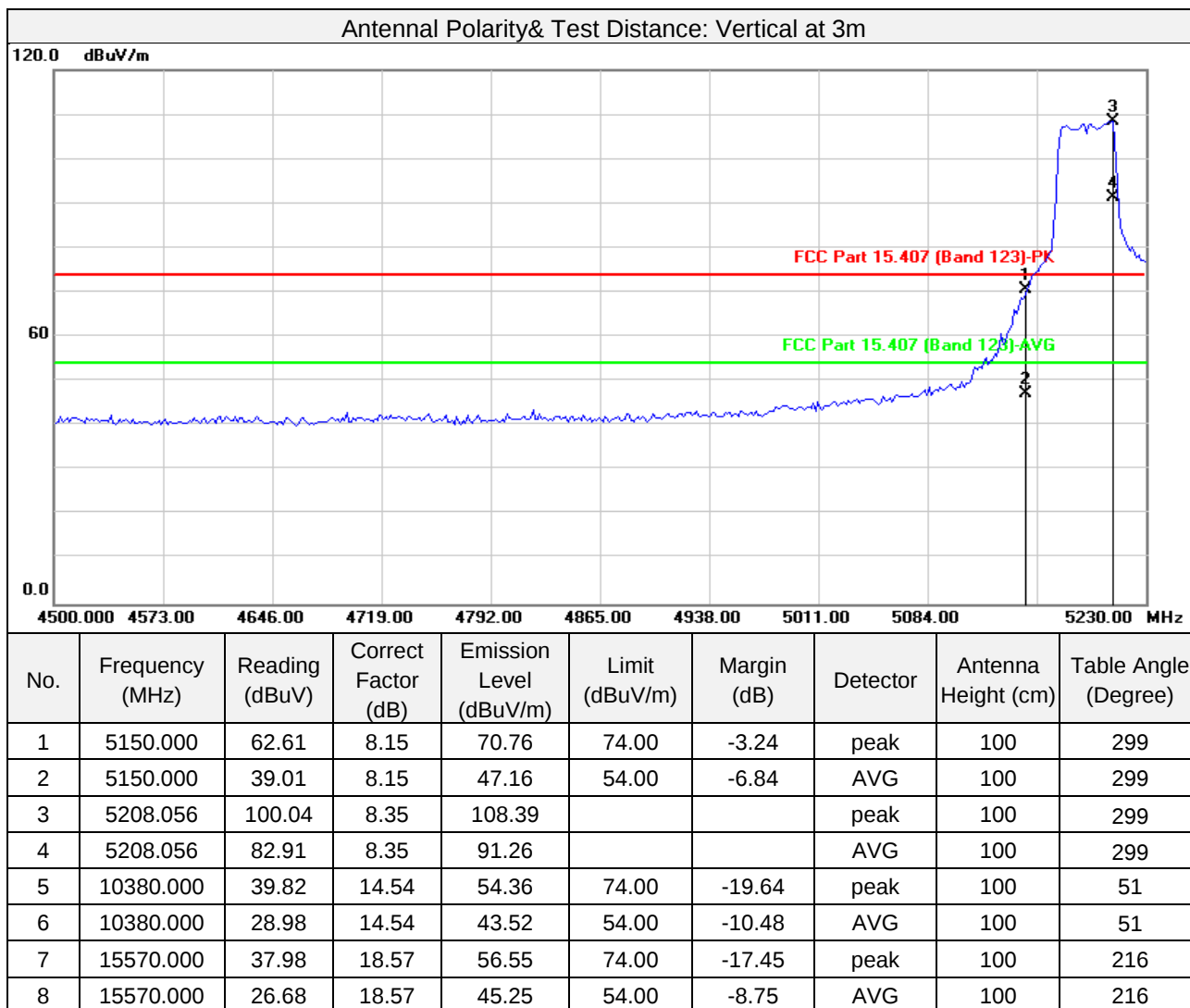
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
|-----|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| 1   | 5145.291        | 64.83          | 5.44                | 70.27                   | 74.00          | -3.73       | peak     | 100                 | 152                  |
| 2   | 5145.291        | 44.19          | 5.44                | 49.63                   | 54.00          | -4.37       | AVG      | 100                 | 152                  |
| 3   | 5200.000        | 99.04          | 5.59                | 104.63                  |                |             | peak     | 100                 | 152                  |
| 4   | 5200.000        | 82.25          | 5.59                | 87.84                   |                |             | AVG      | 100                 | 152                  |
| 5   | 10380.000       | 42.79          | 14.54               | 57.33                   | 74.00          | -16.67      | peak     | 100                 | 115                  |
| 6   | 10380.000       | 29.02          | 14.54               | 43.56                   | 54.00          | -10.44      | AVG      | 100                 | 115                  |
| 7   | 15570.000       | 40.50          | 18.57               | 59.07                   | 74.00          | -14.93      | peak     | 100                 | 106                  |
| 8   | 15570.000       | 26.60          | 18.57               | 45.17                   | 54.00          | -8.83       | AVG      | 100                 | 106                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5190MHz       |                 |              |
| Test channel      | 38                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5230MHz       |                 |              |
| Test channel      | 46                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

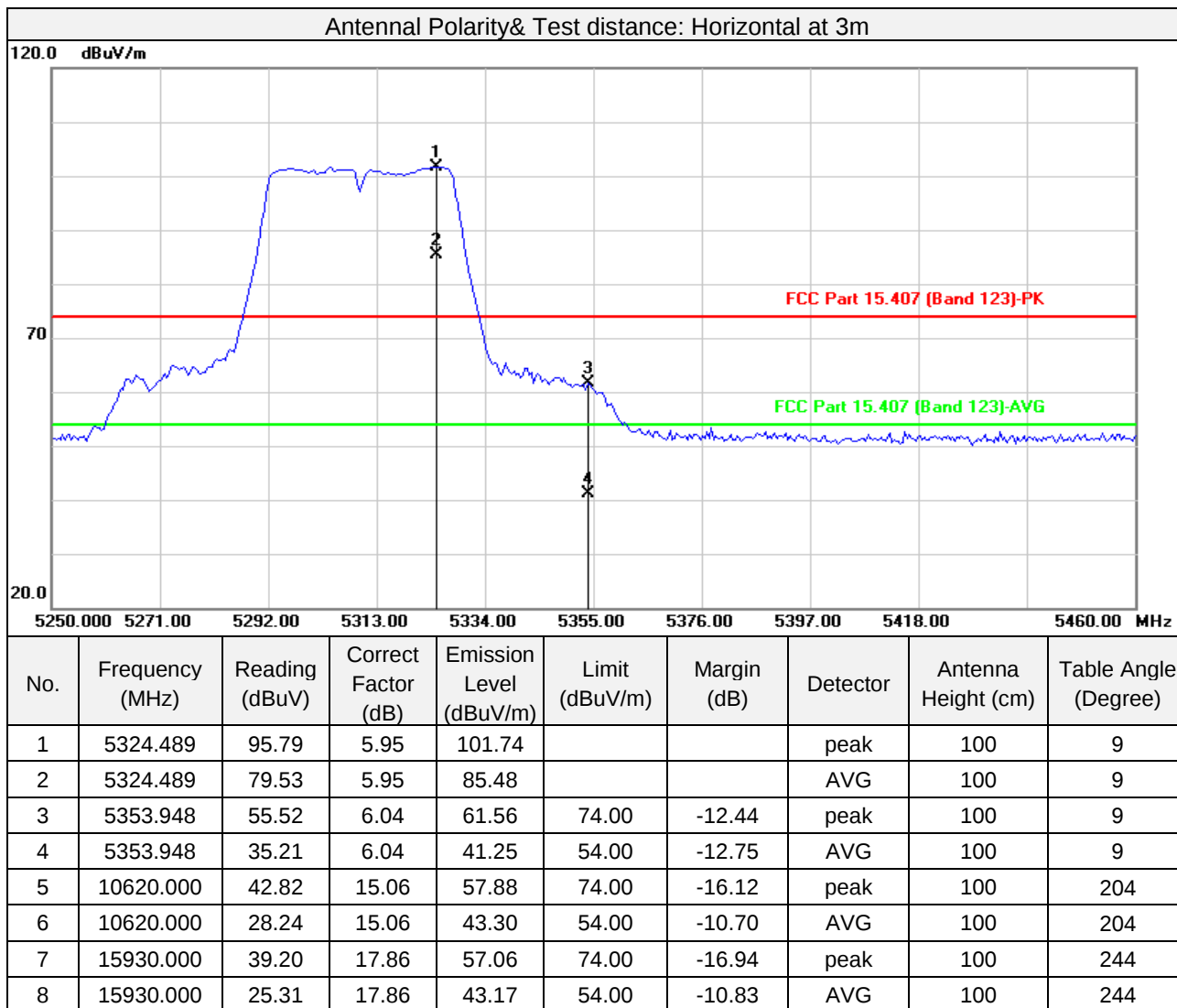
| Antennal Polarity& Test Distance: Horizontal at 3m |                 |                |                     |                         |                |             |          |                     |                      |
|----------------------------------------------------|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| No.                                                | Frequency (MHz) | Reading (dBUV) | Correct Factor (dB) | Emission Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5230.000        | 100.23         | 5.68                | 105.91                  |                |             | peak     | 100                 | 164                  |
| 2                                                  | 5230.000        | 82.78          | 5.68                | 88.46                   |                |             | AVG      | 100                 | 164                  |
| 3                                                  | 10460.000       | 43.47          | 14.71               | 58.18                   | 74.00          | -15.82      | peak     | 100                 | 147                  |
| 4                                                  | 10460.000       | 29.37          | 14.71               | 44.08                   | 54.00          | -9.92       | AVG      | 100                 | 147                  |
| 5                                                  | 15690.000       | 41.57          | 18.32               | 59.89                   | 74.00          | -14.11      | peak     | 100                 | 216                  |
| 6                                                  | 15690.000       | 26.45          | 18.32               | 44.77                   | 54.00          | -9.23       | AVG      | 100                 | 216                  |
| Antennal Polarity& Test Distance: Vertical at 3m   |                 |                |                     |                         |                |             |          |                     |                      |
| No.                                                | Frequency (MHz) | Reading (dBUV) | Factor (dB)         | Emission Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5230.000        | 99.27          | 5.68                | 104.95                  |                |             | peak     | 100                 | 215                  |
| 2                                                  | 5230.000        | 81.46          | 5.68                | 87.14                   |                |             | AVG      | 100                 | 215                  |
| 3                                                  | 10460.000       | 44.65          | 14.71               | 59.36                   | 74.00          | -14.64      | peak     | 100                 | 207                  |
| 4                                                  | 10460.000       | 30.06          | 14.71               | 44.77                   | 54.00          | -9.23       | AVG      | 100                 | 207                  |
| 5                                                  | 15690.000       | 40.67          | 18.32               | 58.99                   | 74.00          | -15.01      | peak     | 100                 | 175                  |
| 6                                                  | 15690.000       | 26.54          | 18.32               | 44.86                   | 54.00          | -9.14       | AVG      | 100                 | 175                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5310MHz       |                 |              |
| Test channel      | 62                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

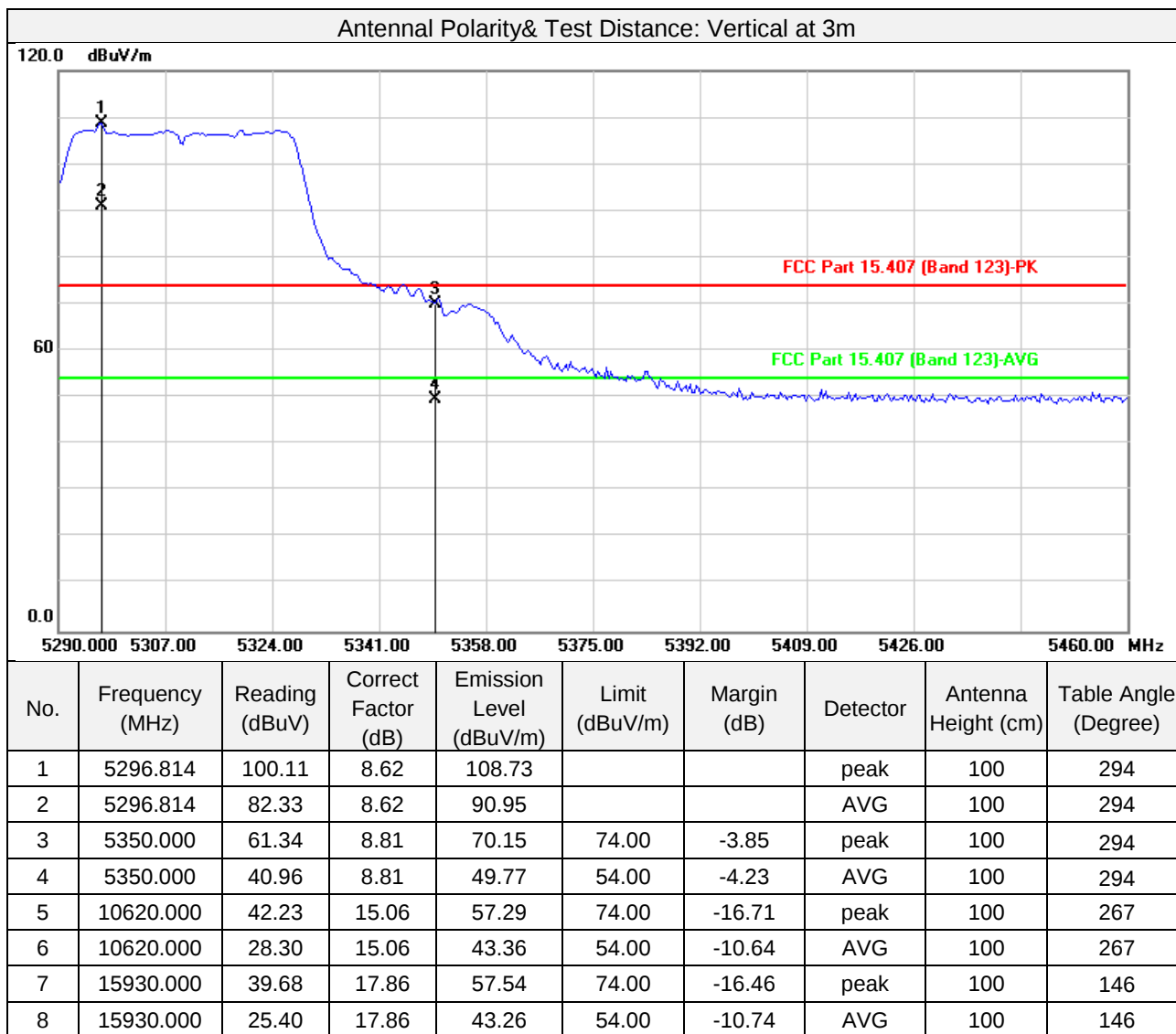


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5310MHz       |                 |              |
| Test channel      | 62                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

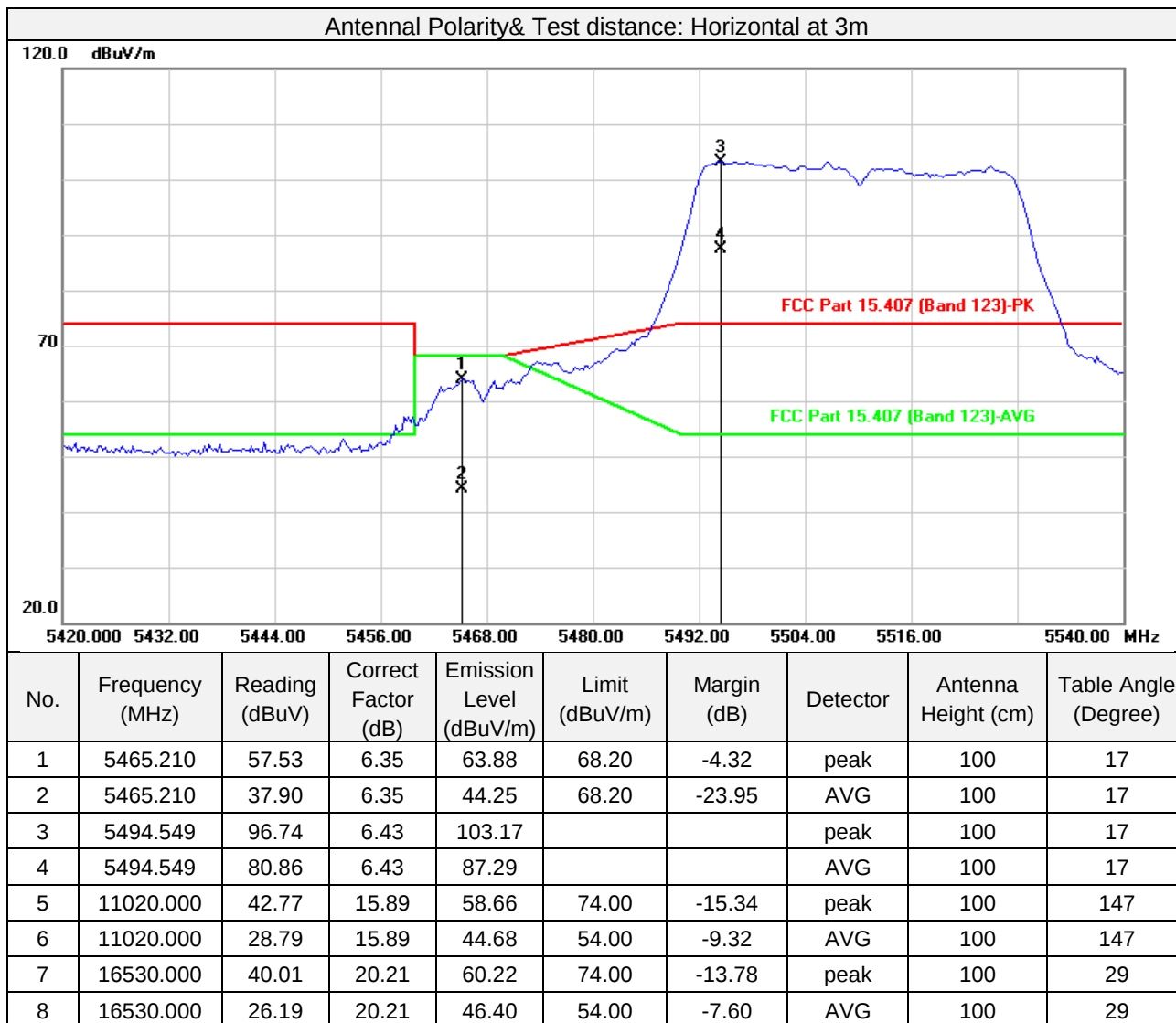


## Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5510MHz       |                 |              |
| Test channel      | 102                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

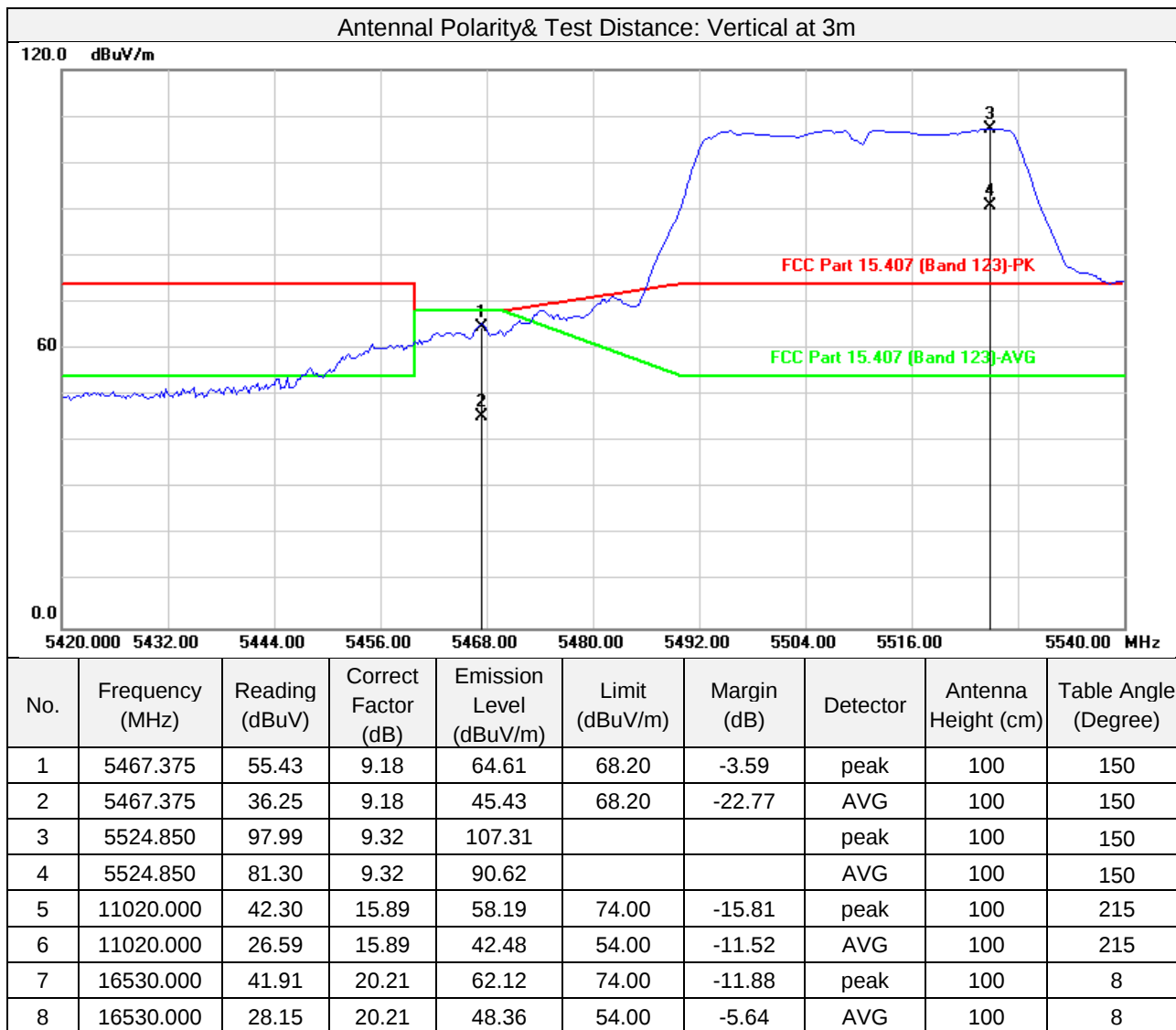


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5510MHz       |                 |              |
| Test channel      | 102                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5550MHz       |                 |              |
| Test channel      | 110                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

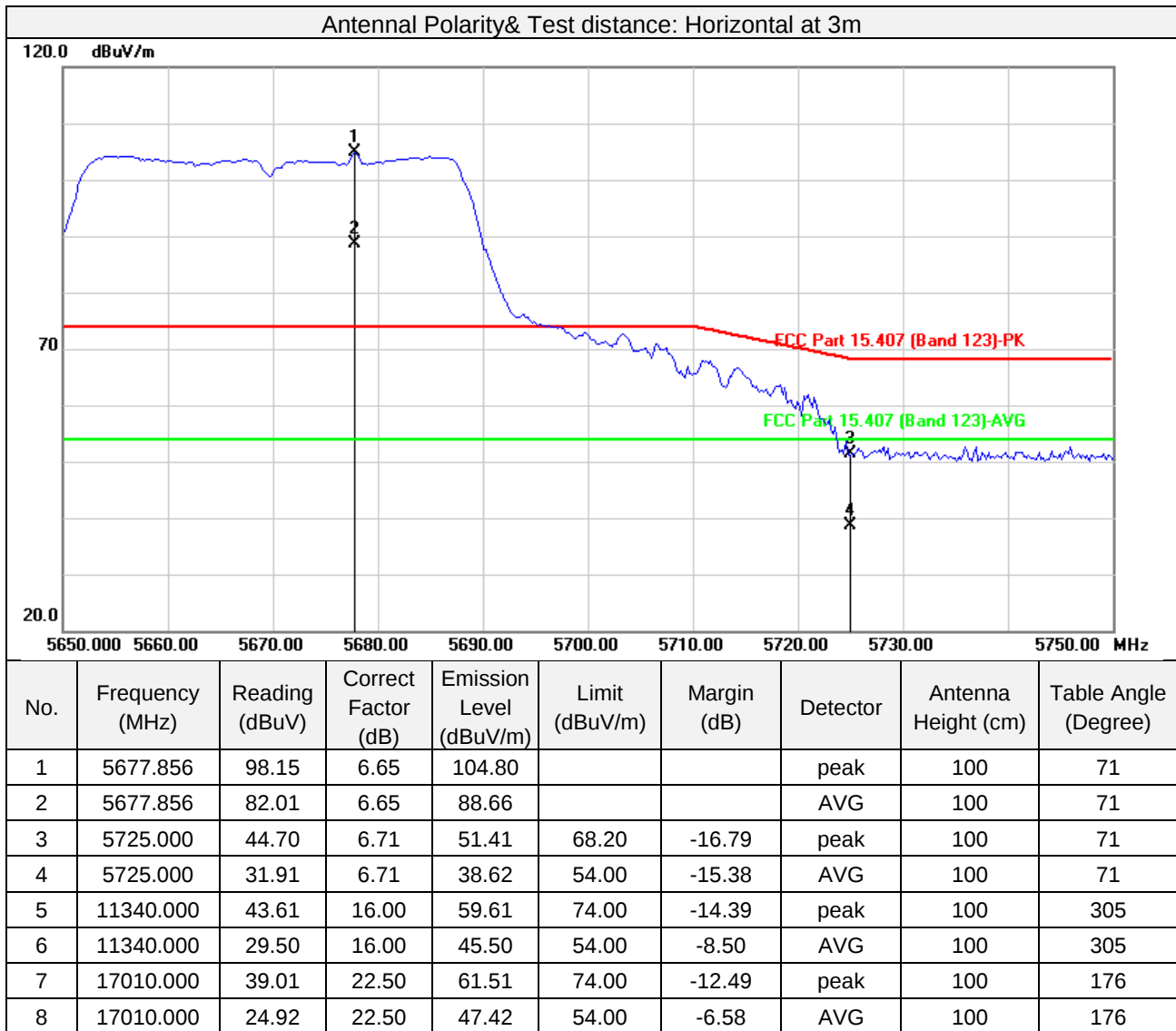
| Antennal Polarity& Test Distance: Horizontal at 3m |                 |                |                     |                         |                |             |          |                     |                      |
|----------------------------------------------------|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| No.                                                | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5550.000        | 97.13          | 6.51                | 103.64                  |                |             | peak     | 100                 | 228                  |
| 2                                                  | 5550.000        | 81.63          | 6.51                | 88.14                   |                |             | AVG      | 100                 | 228                  |
| 3                                                  | 11100.000       | 41.70          | 15.91               | 57.61                   | 74.00          | -16.39      | peak     | 100                 | 305                  |
| 4                                                  | 11100.000       | 28.28          | 15.91               | 44.19                   | 54.00          | -9.81       | AVG      | 100                 | 305                  |
| 5                                                  | 16650.000       | 39.39          | 20.79               | 60.18                   | 74.00          | -13.82      | peak     | 100                 | 211                  |
| 6                                                  | 16650.000       | 25.21          | 20.79               | 46.00                   | 54.00          | -8.00       | AVG      | 100                 | 211                  |
| Antennal Polarity& Test Distance: Vertical at 3m   |                 |                |                     |                         |                |             |          |                     |                      |
| No.                                                | Frequency (MHz) | Reading (dBuV) | Factor (dB)         | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
| 1                                                  | 5550.000        | 98.26          | 6.51                | 104.77                  |                |             | peak     | 100                 | 174                  |
| 2                                                  | 5550.000        | 81.96          | 6.51                | 88.47                   |                |             | AVG      | 100                 | 174                  |
| 3                                                  | 11100.000       | 42.59          | 15.91               | 58.50                   | 74.00          | -15.50      | peak     | 100                 | 315                  |
| 4                                                  | 11100.000       | 28.45          | 15.91               | 44.36                   | 54.00          | -9.64       | AVG      | 100                 | 315                  |
| 5                                                  | 16650.000       | 39.26          | 20.79               | 60.05                   | 74.00          | -13.95      | peak     | 100                 | 264                  |
| 6                                                  | 16650.000       | 25.06          | 20.79               | 45.85                   | 54.00          | -8.15       | AVG      | 100                 | 264                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5670MHz       |                 |              |
| Test channel      | 134                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

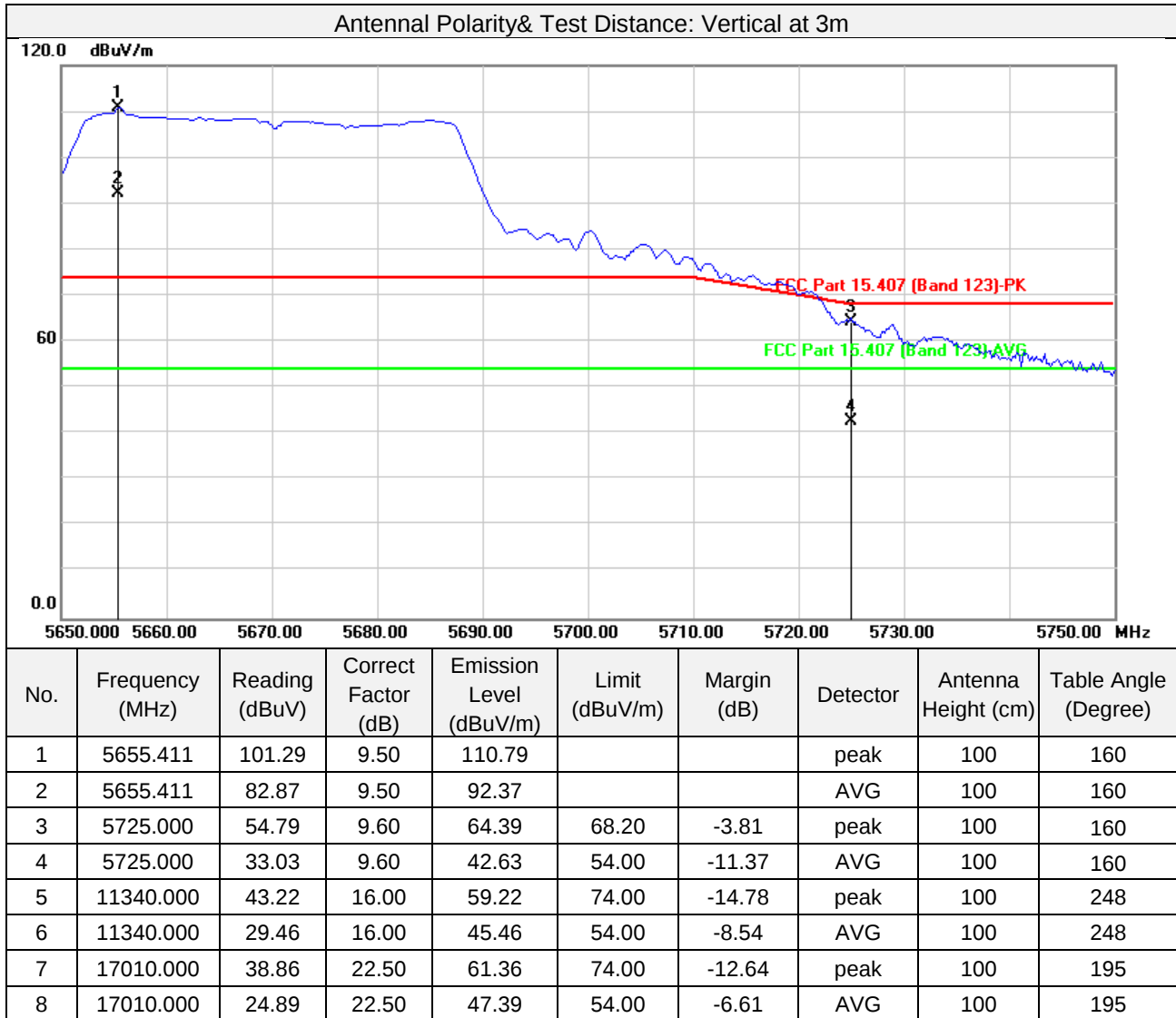


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5670MHz       |                 |              |
| Test channel      | 134                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

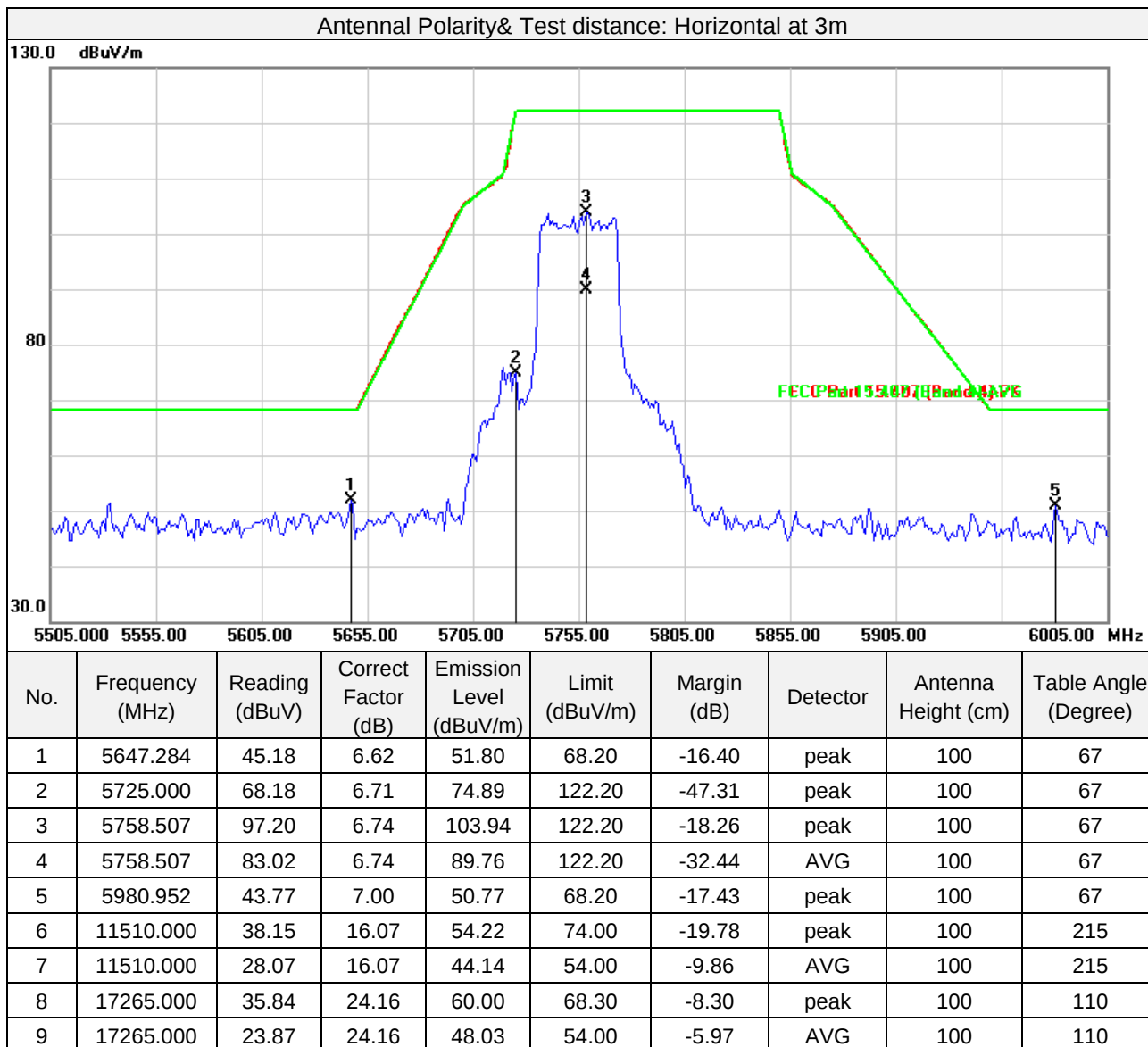


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5755MHz       |                 |              |
| Test channel      | 151                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

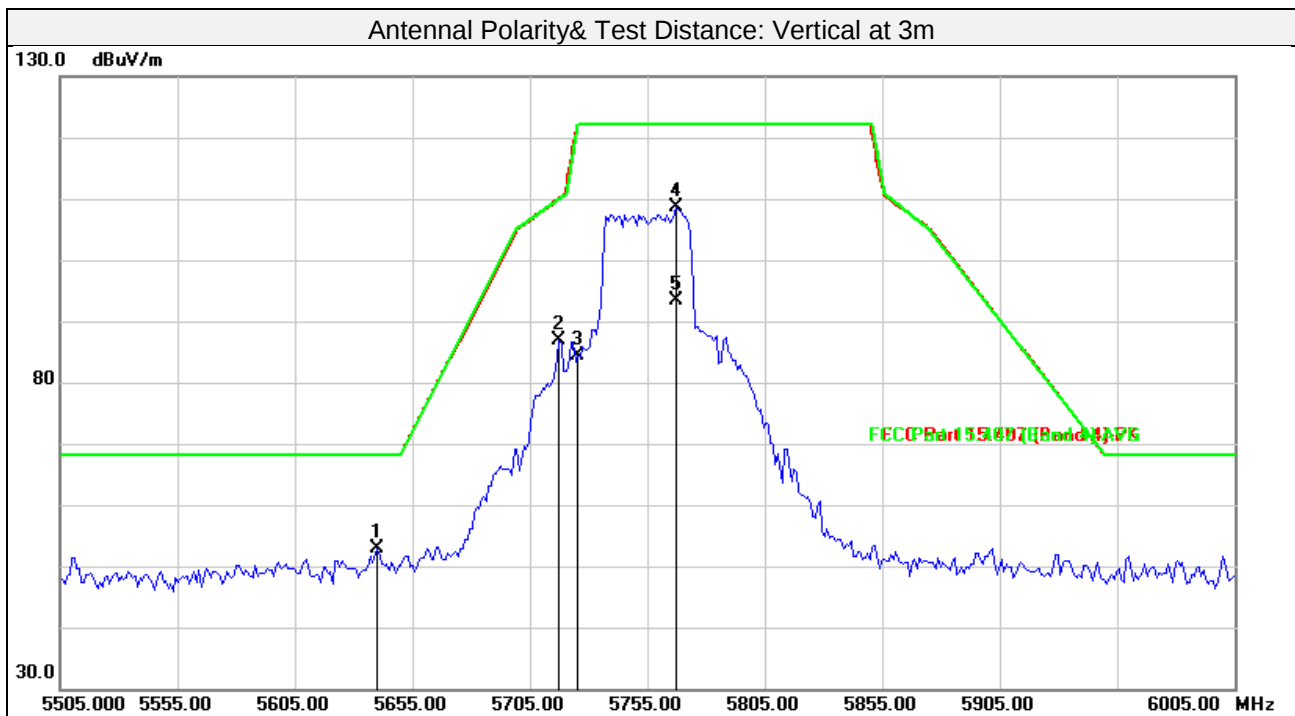


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5755MHz       |                 |              |
| Test channel      | 151                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



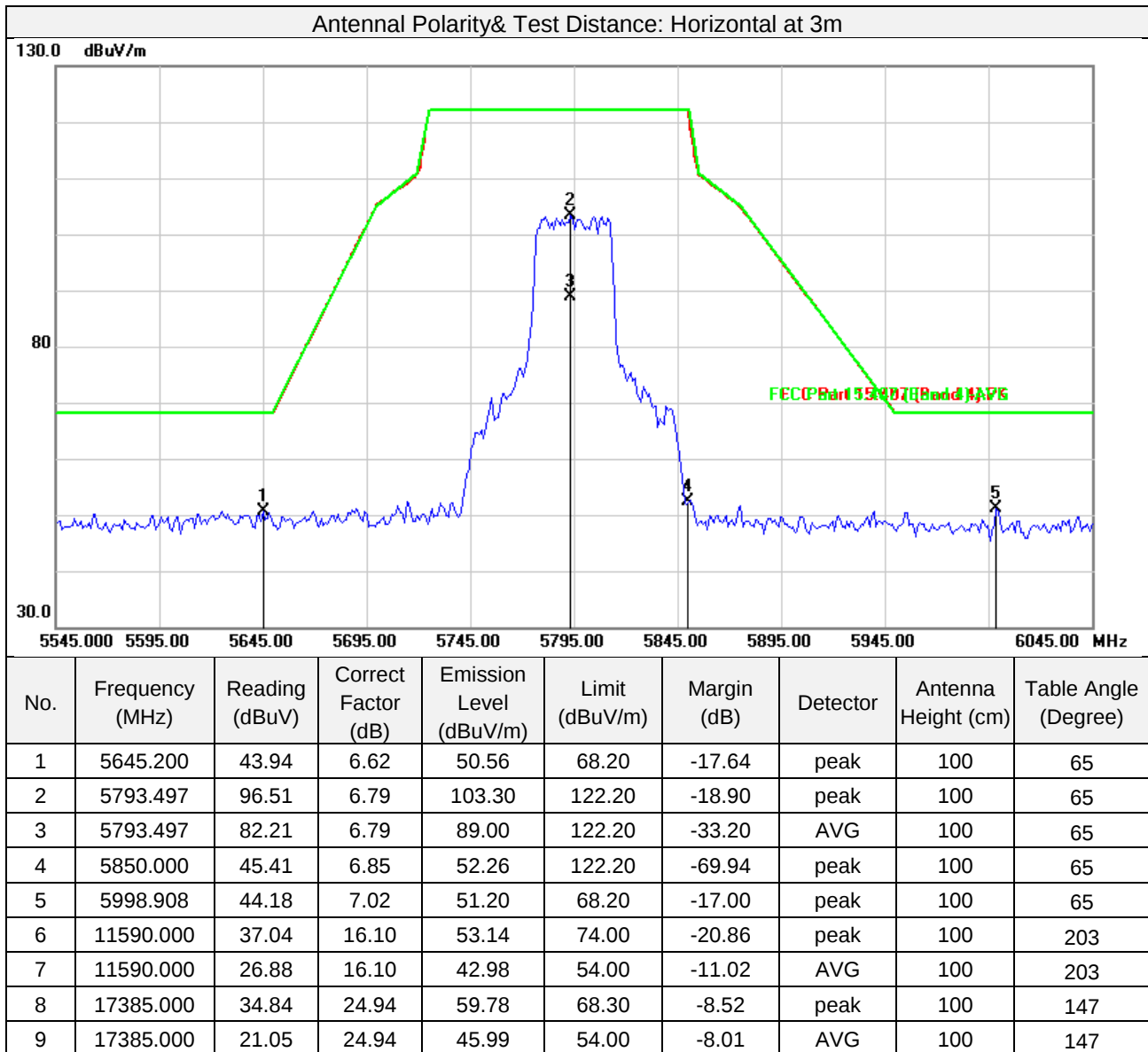
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
|-----|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| 1   | 5640.270        | 46.38          | 6.61                | 52.99                   | 68.20          | -15.21      | peak     | 100                 | 337                  |
| 2   | 5717.425        | 80.08          | 6.70                | 86.78                   | 110.08         | -23.30      | peak     | 100                 | 337                  |
| 3   | 5725.000        | 77.76          | 6.71                | 84.47                   | 122.20         | -37.73      | peak     | 100                 | 337                  |
| 4   | 5767.525        | 101.77         | 6.75                | 108.52                  | 122.20         | -13.68      | peak     | 100                 | 337                  |
| 5   | 5767.525        | 86.65          | 6.75                | 93.40                   | 122.20         | -28.80      | AVG      | 100                 | 337                  |
| 6   | 11510.000       | 37.09          | 16.07               | 53.16                   | 74.00          | -20.84      | peak     | 100                 | 184                  |
| 7   | 11510.000       | 27.04          | 16.07               | 43.11                   | 54.00          | -10.89      | AVG      | 100                 | 184                  |
| 8   | 17265.000       | 35.05          | 24.16               | 59.21                   | 68.30          | -9.09       | peak     | 100                 | 216                  |
| 9   | 17265.000       | 23.97          | 24.16               | 48.13                   | 54.00          | -5.87       | AVG      | 100                 | 216                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5795MHz       |                 |              |
| Test channel      | 159                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

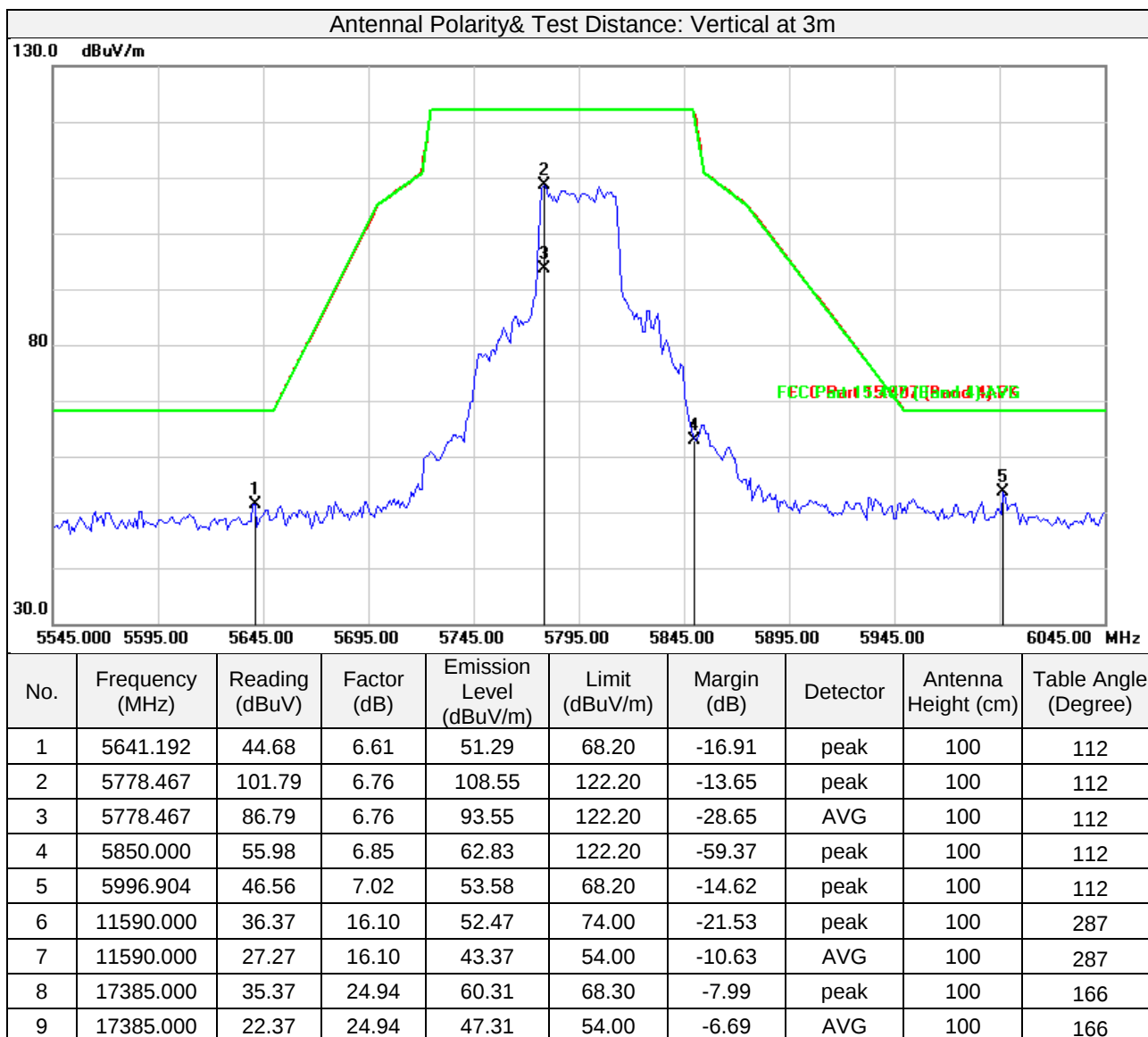


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11n HT40_5795MHz       |                 |              |
| Test channel      | 159                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



## Remarks:

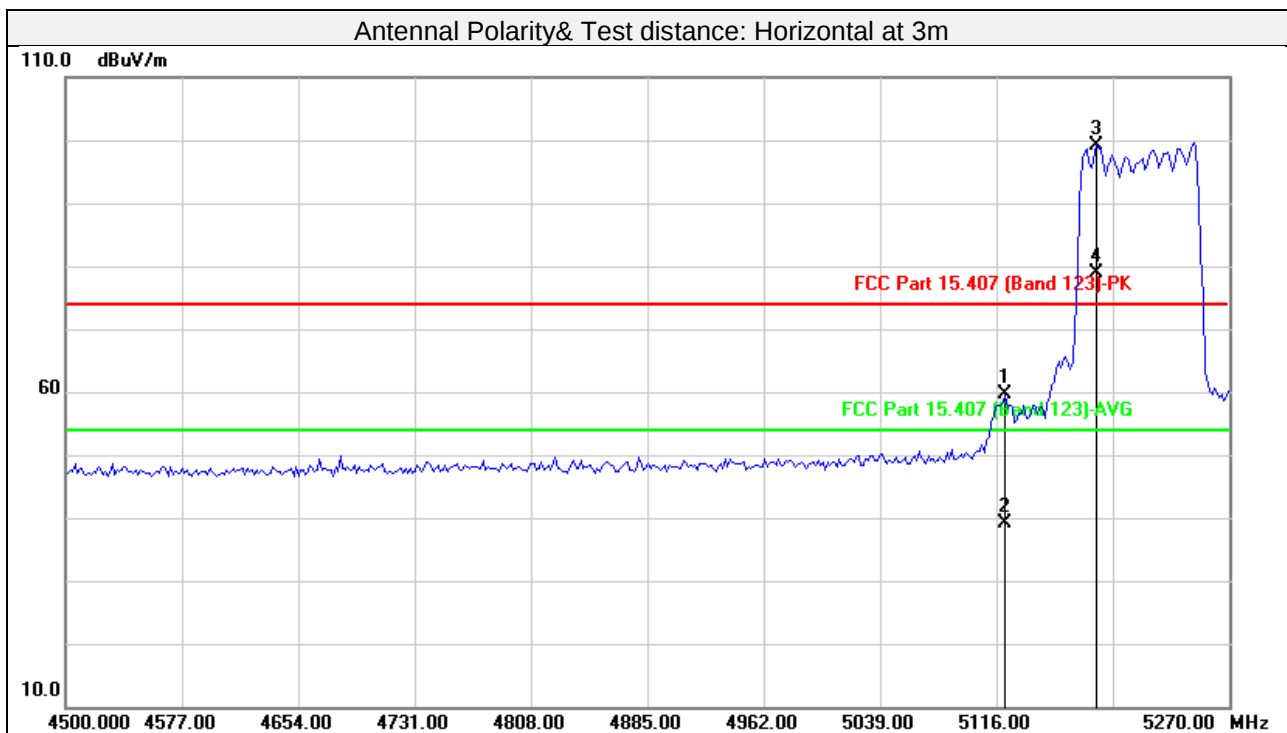
1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



Above 1GHz Data:

802.11ac VHT80

|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5210MHz     |                 |              |
| Test channel      | 42                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



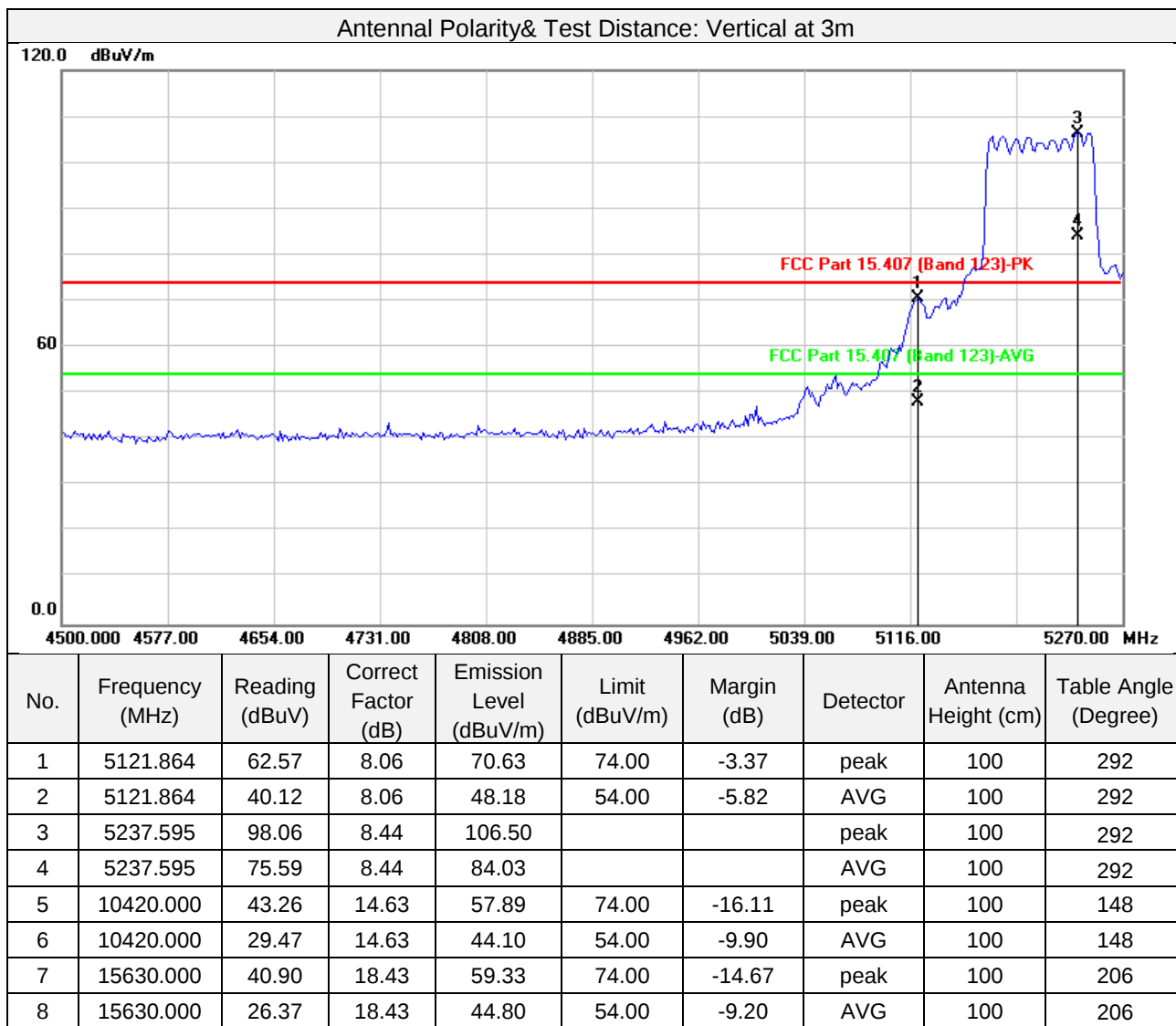
| No. | Frequency (MHz) | Reading (dBUV) | Correct Factor (dB) | Emission Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
|-----|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| 1   | 5121.864        | 54.27          | 5.37                | 59.64                   | 74.00          | -14.36      | peak     | 100                 | 154                  |
| 2   | 5121.864        | 33.78          | 5.37                | 39.15                   | 54.00          | -14.85      | AVG      | 100                 | 154                  |
| 3   | 5182.044        | 93.70          | 5.55                | 99.25                   |                |             | peak     | 100                 | 154                  |
| 4   | 5182.044        | 73.40          | 5.55                | 78.95                   |                |             | AVG      | 100                 | 154                  |
| 5   | 10420.000       | 43.43          | 14.63               | 58.06                   | 74.00          | -15.94      | peak     | 100                 | 246                  |
| 6   | 10420.000       | 29.07          | 14.63               | 43.70                   | 54.00          | -10.30      | AVG      | 100                 | 246                  |
| 7   | 15630.000       | 40.41          | 18.43               | 58.84                   | 74.00          | -15.16      | peak     | 100                 | 206                  |
| 8   | 15630.000       | 26.33          | 18.43               | 44.76                   | 54.00          | -9.24       | AVG      | 100                 | 206                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5210MHz     |                 |              |
| Test channel      | 42                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

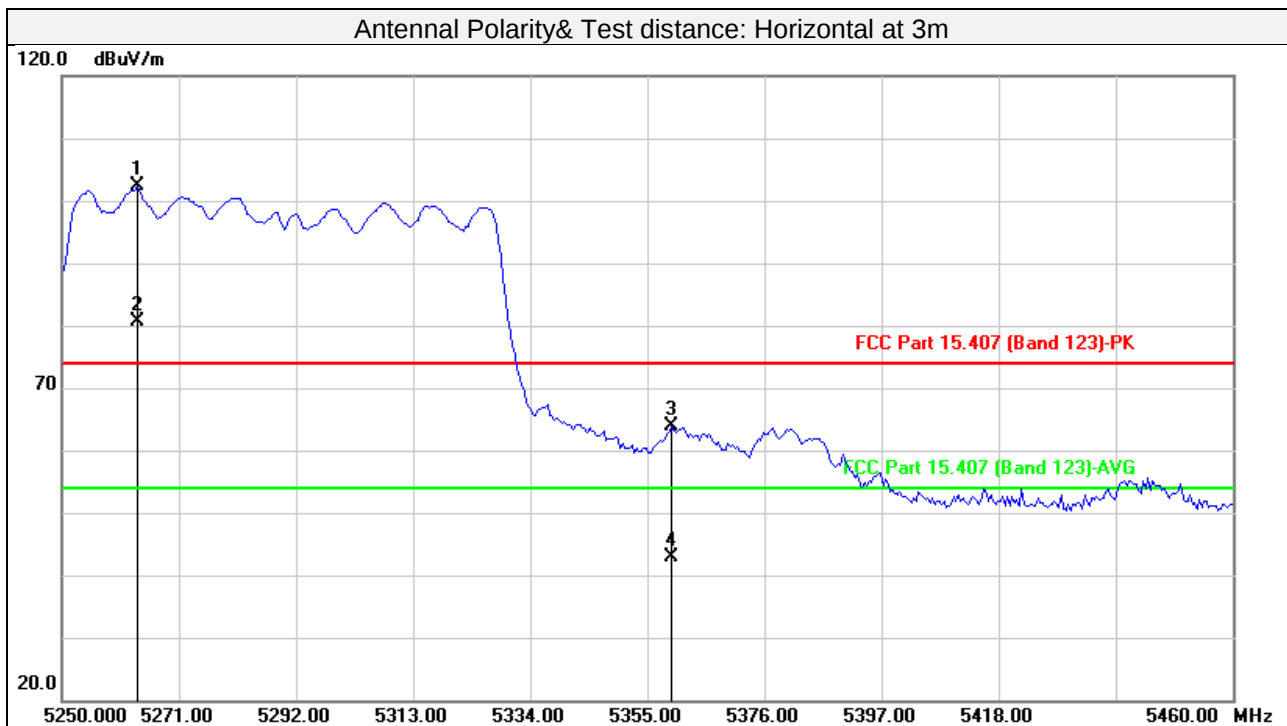


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5290MHz     |                 |              |
| Test channel      | 58                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



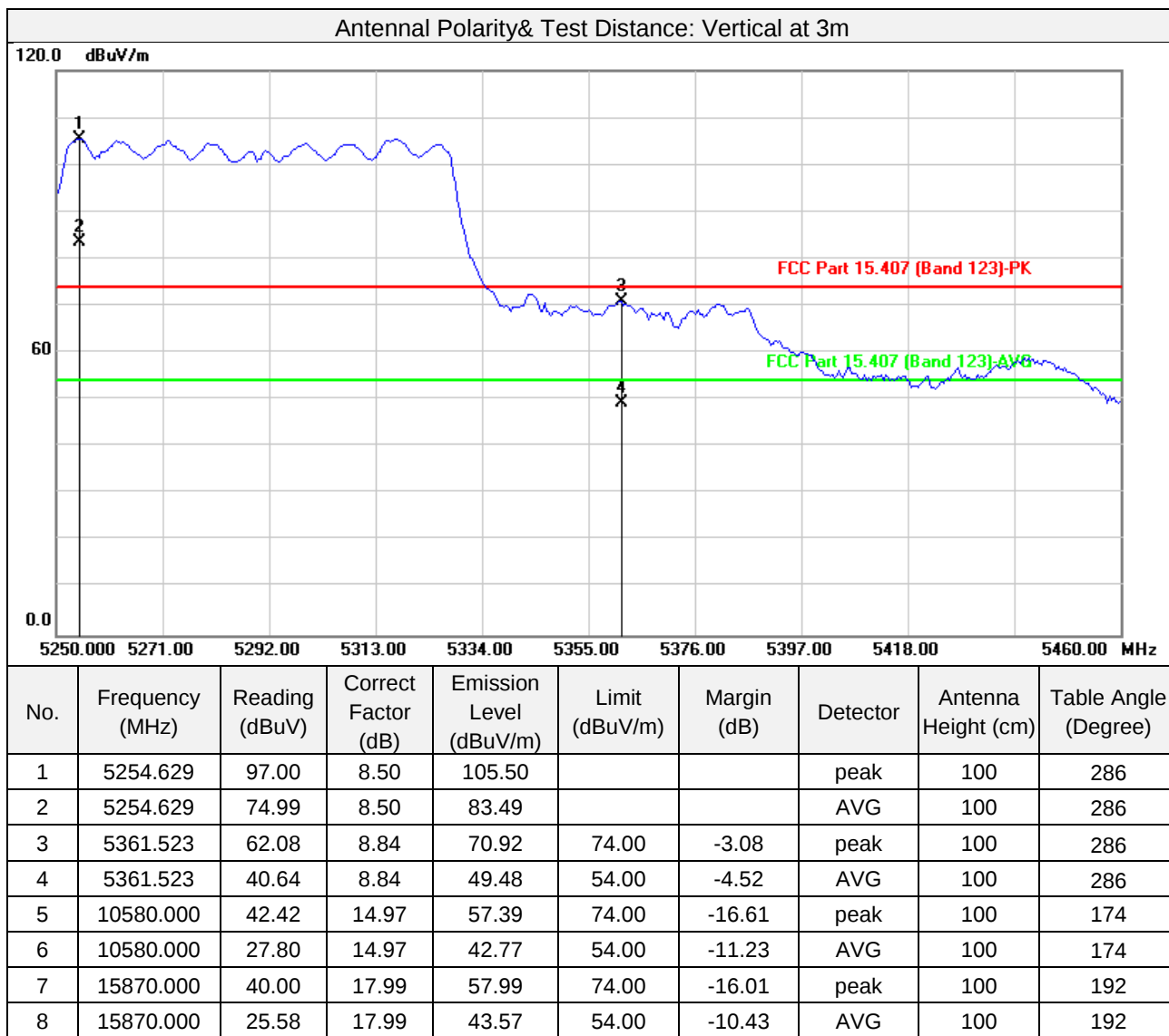
| No. | Frequency (MHz) | Reading (dBUV) | Correct Factor (dB) | Emission Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
|-----|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| 1   | 5263.467        | 96.64          | 5.79                | 102.43                  |                |             | peak     | 100                 | 16                   |
| 2   | 5263.467        | 74.86          | 5.79                | 80.65                   |                |             | AVG      | 100                 | 16                   |
| 3   | 5359.419        | 57.89          | 6.06                | 63.95                   | 74.00          | -10.05      | peak     | 100                 | 16                   |
| 4   | 5359.419        | 36.70          | 6.06                | 42.76                   | 54.00          | -11.24      | AVG      | 100                 | 16                   |
| 5   | 10580.000       | 42.29          | 14.97               | 57.26                   | 74.00          | -16.74      | peak     | 100                 | 277                  |
| 6   | 10580.000       | 28.43          | 14.97               | 43.40                   | 54.00          | -10.60      | AVG      | 100                 | 277                  |
| 7   | 15870.000       | 40.41          | 17.99               | 58.40                   | 74.00          | -15.60      | peak     | 100                 | 186                  |
| 8   | 15870.000       | 25.65          | 17.99               | 43.64                   | 54.00          | -10.36      | AVG      | 100                 | 186                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5290MHz     |                 |              |
| Test channel      | 58                         | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

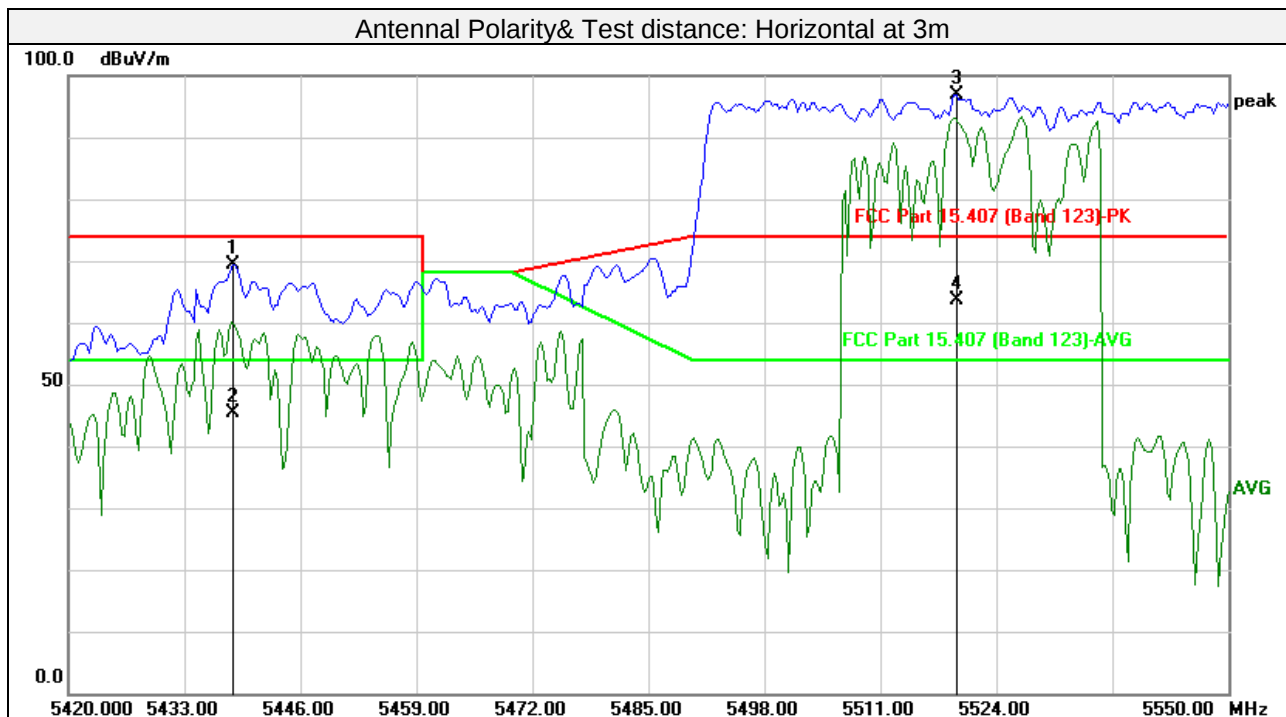


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5530MHz     |                 |              |
| Test channel      | 106                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



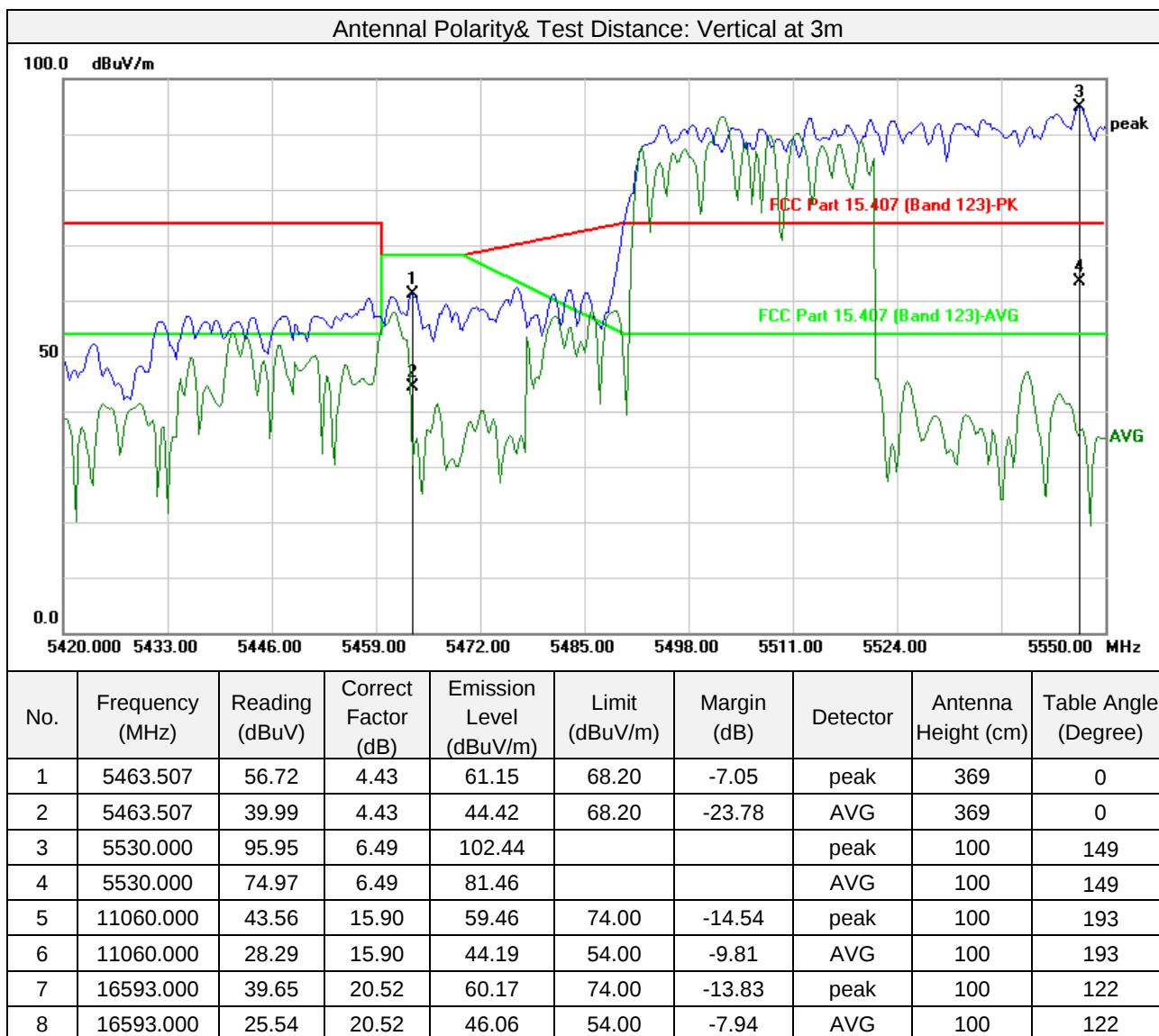
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna Height (cm) | Table Angle (Degree) |
|-----|-----------------|----------------|---------------------|-------------------------|----------------|-------------|----------|---------------------|----------------------|
| 1   | 5438.497        | 64.89          | 4.37                | 69.26                   | 74.00          | -4.74       | peak     | 390                 | 298                  |
| 2   | 5438.497        | 41.02          | 4.37                | 45.39                   | 54.00          | -8.61       | AVG      | 390                 | 298                  |
| 3   | 5530.000        | 93.62          | 6.49                | 100.11                  |                |             | peak     | 100                 | 213                  |
| 4   | 5530.000        | 74.15          | 6.49                | 80.64                   |                |             | AVG      | 100                 | 213                  |
| 5   | 11060.000       | 42.91          | 15.90               | 58.81                   | 74.00          | -15.19      | peak     | 100                 | 257                  |
| 6   | 11060.000       | 28.24          | 15.90               | 44.14                   | 54.00          | -9.86       | AVG      | 100                 | 257                  |
| 7   | 16593.000       | 39.48          | 20.52               | 60.00                   | 74.00          | -14.00      | peak     | 100                 | 159                  |
| 8   | 16593.000       | 25.59          | 20.52               | 46.11                   | 54.00          | -7.89       | AVG      | 100                 | 159                  |

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5530MHz     |                 |              |
| Test channel      | 106                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

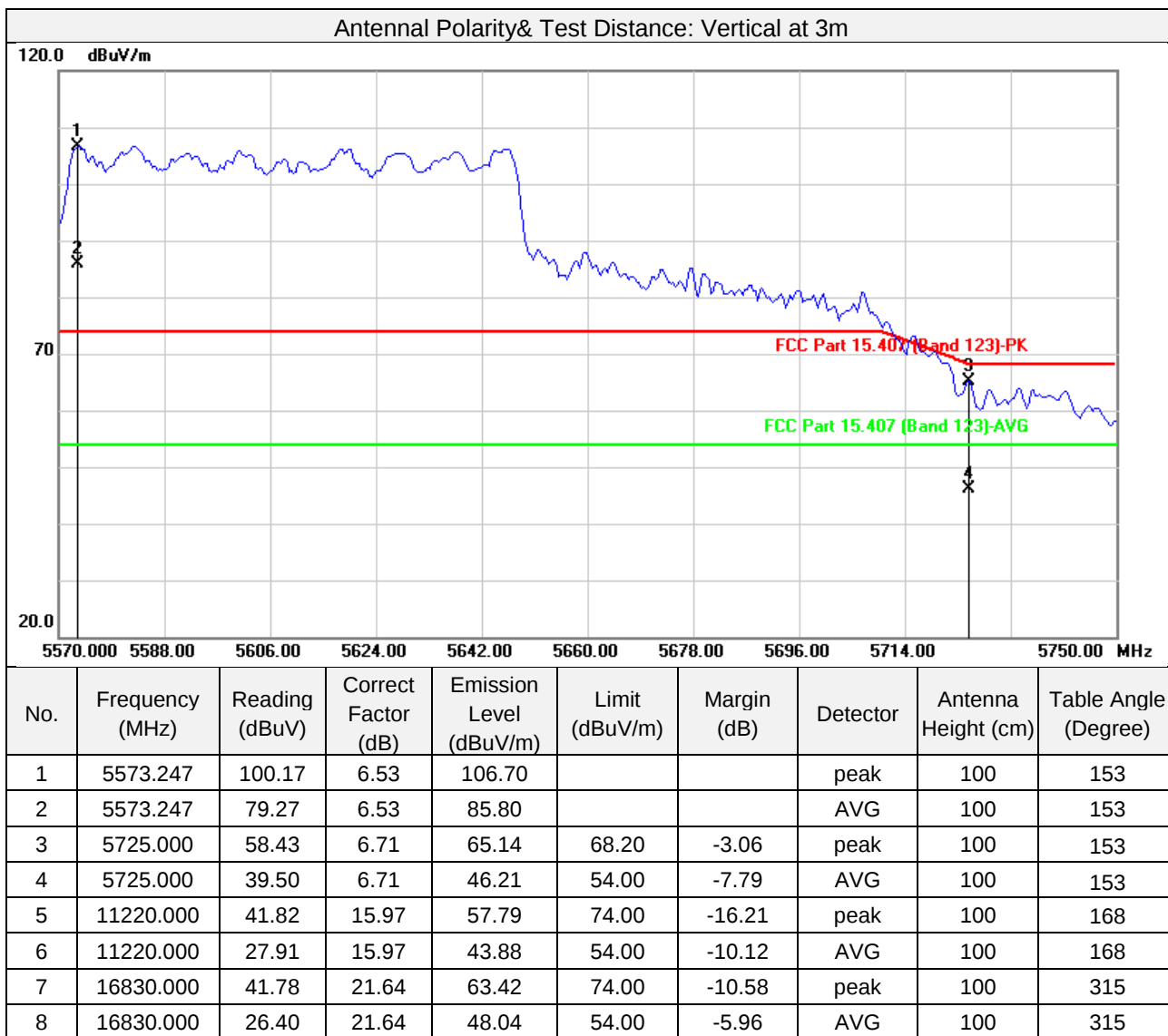


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5610MHz     |                 |              |
| Test channel      | 122                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

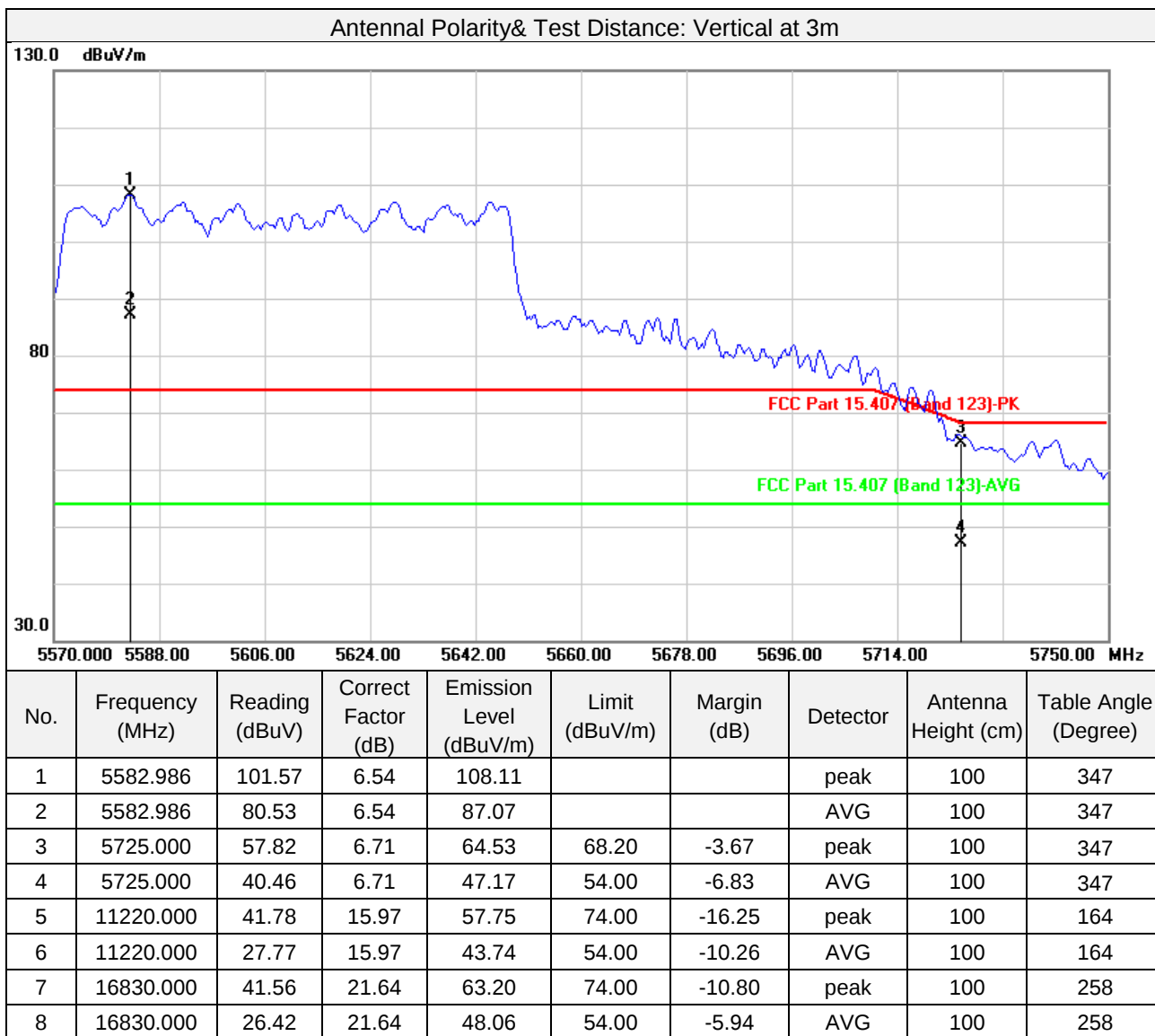


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5610MHz     |                 |              |
| Test channel      | 122                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

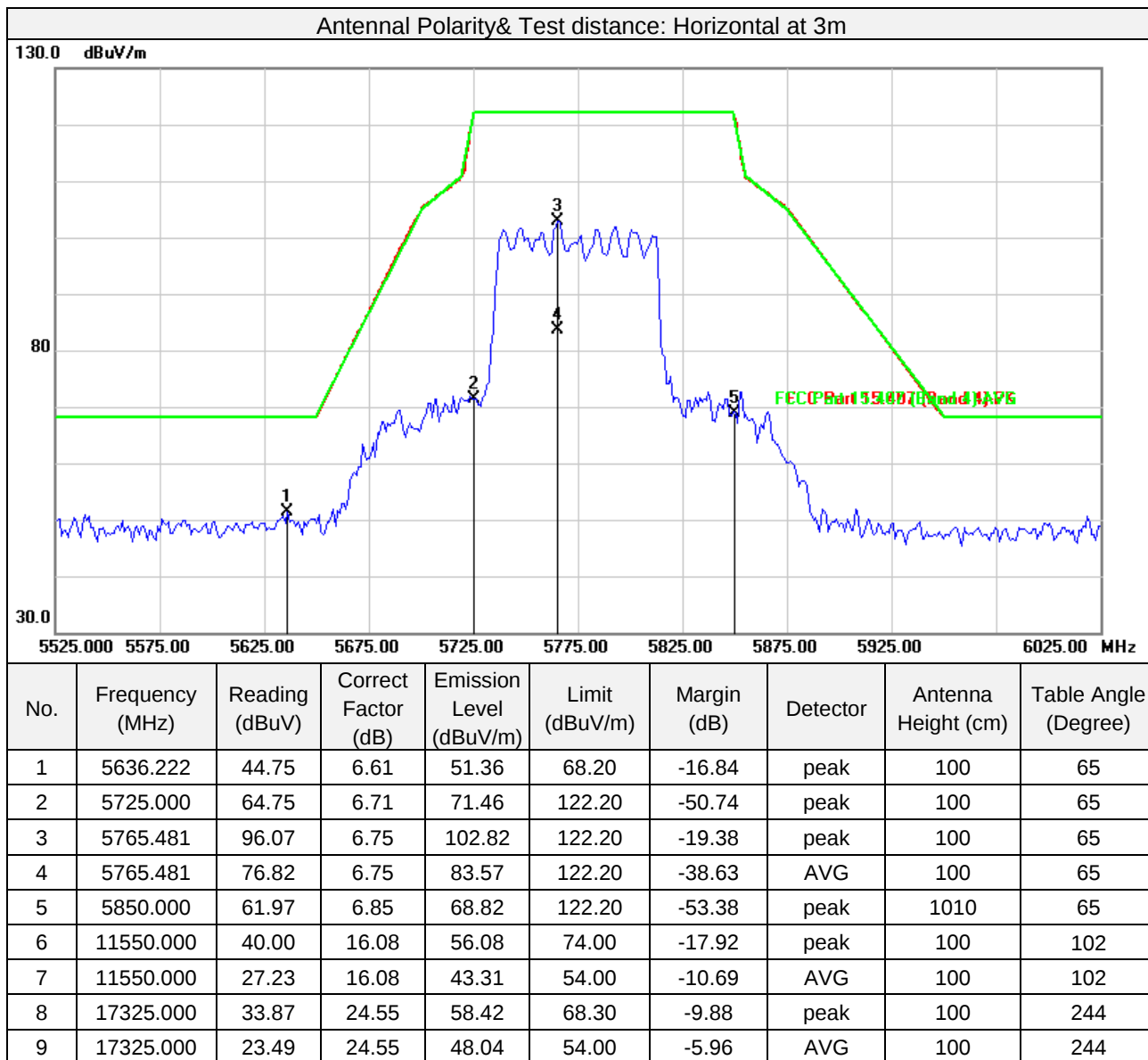


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5775MHz     |                 |              |
| Test channel      | 155                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |

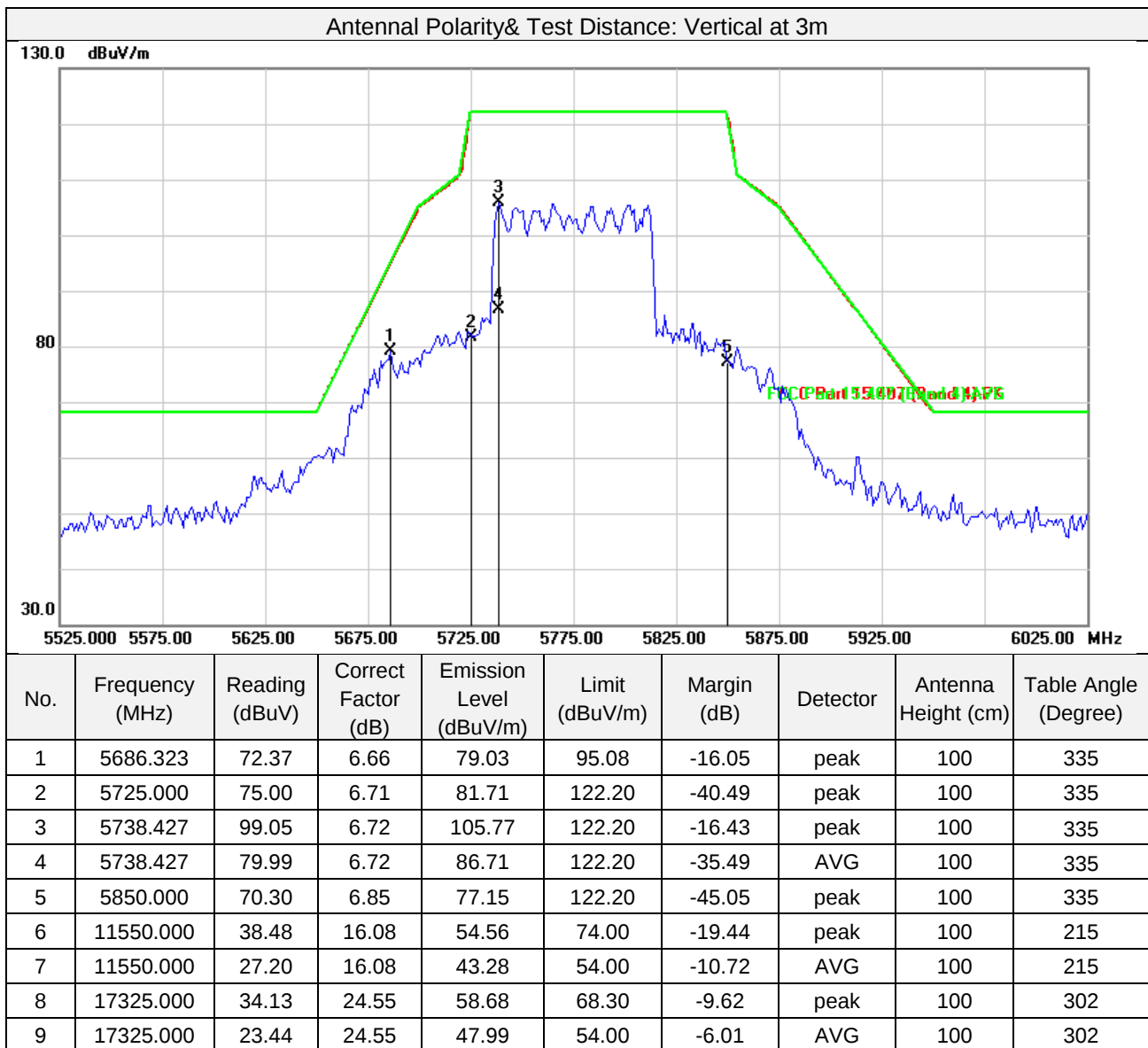


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value



|                   |                            |                 |              |
|-------------------|----------------------------|-----------------|--------------|
| Test Mode         | 802.11ac VHT80_5775MHz     |                 |              |
| Test channel      | 155                        | Frequency Range | 1GHz ~ 40GHz |
| Detector Function | Peak (PK)<br>Average (AVG) | Tested By       | Jim Xu       |



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



### 3.2 Conducted Emission Measurement

#### 3.2.1 Limits of Conducted Emission Measurement

| Frequency (MHz) | Conducted Limit (dBuV) |         |
|-----------------|------------------------|---------|
|                 | Quasi-Peak             | Average |
| 0.15 - 0.5      | 66 - 56                | 56 - 46 |
| 0.50 - 5.0      | 56                     | 46      |
| 5.0 - 30.0      | 60                     | 50      |

- Note: 1. The lower limit shall apply at the transition frequencies.  
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

#### 3.2.2 Test Instruments

| Description & Manufacturer                | Model No.          | Serial No.   | Due Date of Calibration |
|-------------------------------------------|--------------------|--------------|-------------------------|
| EMI Test Receiver<br>Rohde&Schwarz        | ESCI3              | 101418       | 2021/09/05              |
| Artificial Mains Network<br>Rohde&Schwarz | ENV216             | 3560.6550.15 | 2021/09/16              |
| Test software<br>FARAD                    | EZ_EMC<br>V1.1.4.2 | N/A          | N/A                     |
| Hygrothermograph<br>Yuhuaaze              | HTC-1              | NA           | 2021/09/16              |
| Digital Multimeter<br>FLUKE               | 15B+               | 43512617WS   | 2021/09/16              |

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA.  
2. The test was performed in Shielded Room 1.

#### 3.2.3 Test Procedures

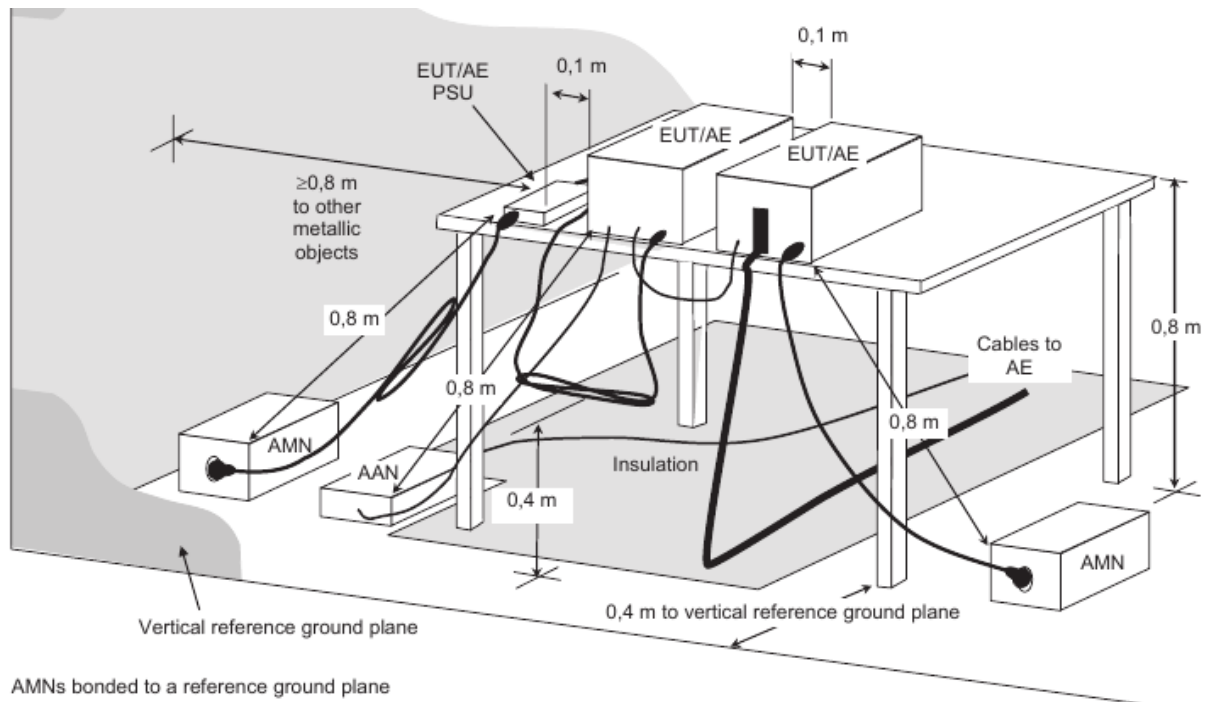
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) was not recorded.

**Note:** All modes of operation were investigated and the worst-case emissions are reported.

#### 3.2.4 Deviation from Test Standard

No deviation.

### 3.2.5 Test setup



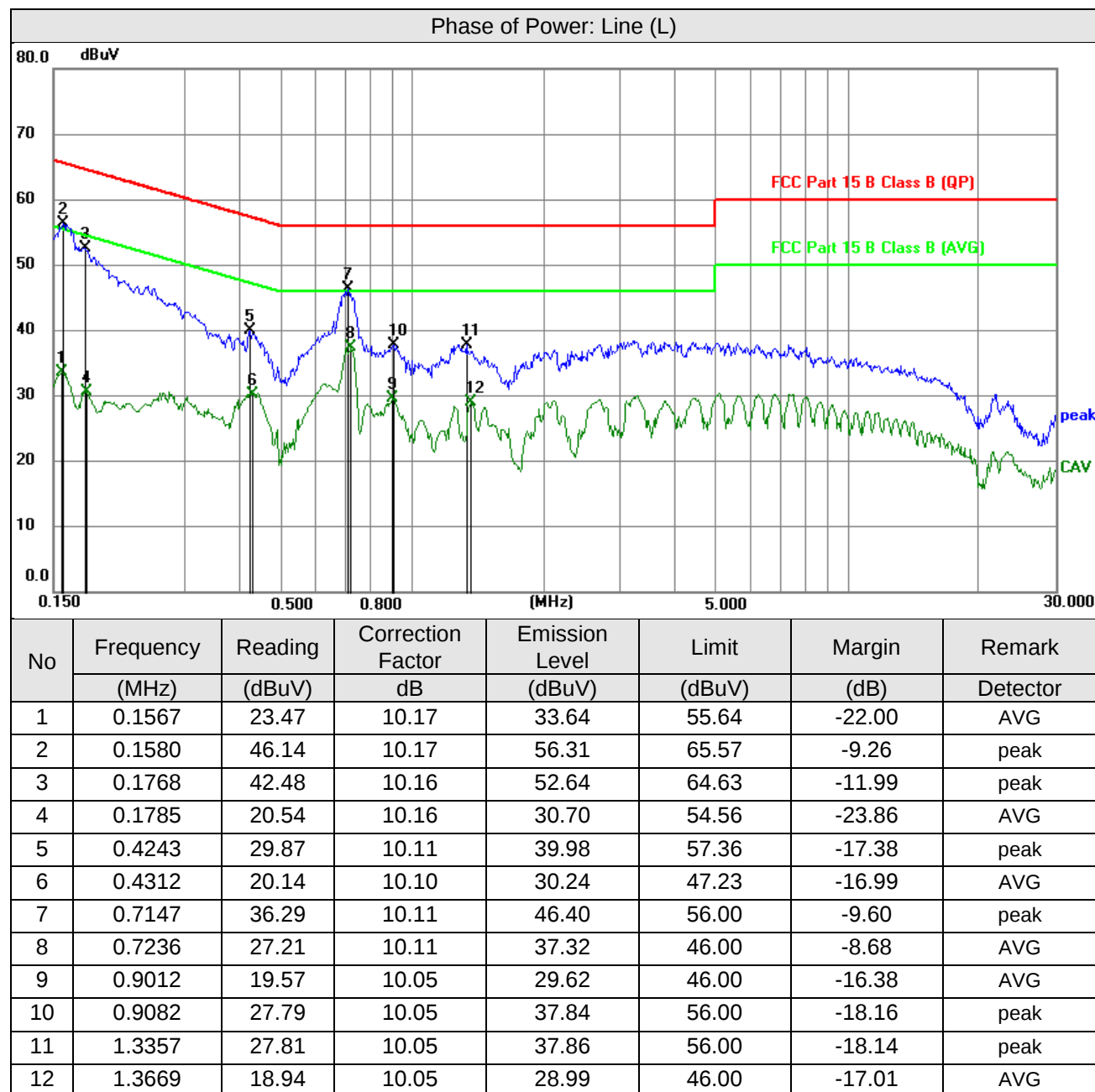
### 3.2.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.



## 3.2.7 Test Results

|                 |                |                                          |                                      |
|-----------------|----------------|------------------------------------------|--------------------------------------|
| Frequency Range | 150kHz ~ 30MHz | Detector Function & Resolution bandwidth | Quasi-Peak (QP) / Average (AV), 9kHz |
|-----------------|----------------|------------------------------------------|--------------------------------------|

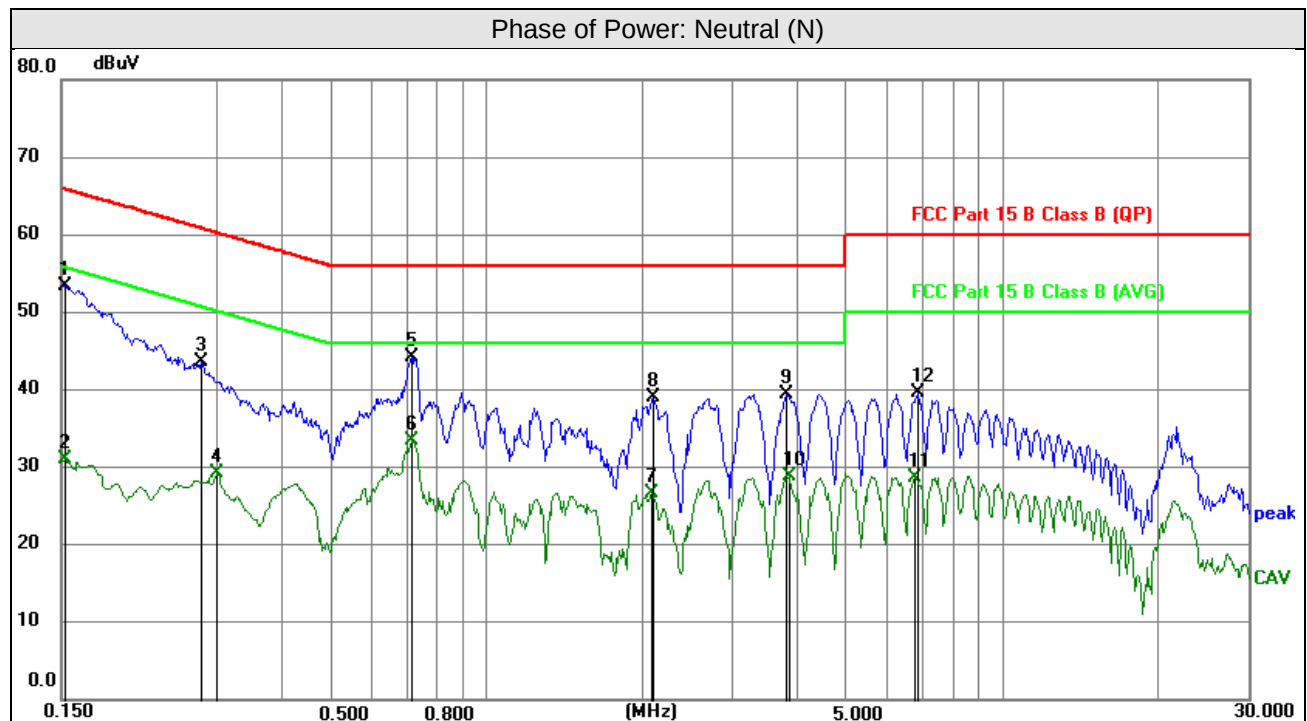


## Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



|                 |                |                                          |                                      |
|-----------------|----------------|------------------------------------------|--------------------------------------|
| Frequency Range | 150kHz ~ 30MHz | Detector Function & Resolution bandwidth | Quasi-Peak (QP) / Average (AV), 9kHz |
|-----------------|----------------|------------------------------------------|--------------------------------------|



| No. | Frequency | Reading | Correction Factor | Emission Level | Limit  | Margin | Remark   |
|-----|-----------|---------|-------------------|----------------|--------|--------|----------|
|     | (MHz)     | (dBuV)  | dB                | (dBuV)         | (dBuV) | (dB)   | Detector |
| 1   | 0.1522    | 43.27   | 10.18             | 53.45          | 65.88  | -12.43 | peak     |
| 2   | 0.1522    | 20.90   | 10.18             | 31.08          | 55.88  | -24.80 | AVG      |
| 3   | 0.2802    | 33.33   | 10.17             | 43.50          | 60.81  | -17.31 | peak     |
| 4   | 0.3007    | 19.04   | 10.18             | 29.22          | 50.22  | -21.00 | AVG      |
| 5   | 0.7186    | 33.99   | 10.10             | 44.09          | 56.00  | -11.91 | peak     |
| 6   | 0.7186    | 23.37   | 10.10             | 33.47          | 46.00  | -12.53 | AVG      |
| 7   | 2.0985    | 16.62   | 10.10             | 26.72          | 46.00  | -19.28 | AVG      |
| 8   | 2.1120    | 28.94   | 10.10             | 39.04          | 56.00  | -16.96 | peak     |
| 9   | 3.8376    | 29.27   | 10.09             | 39.36          | 56.00  | -16.64 | peak     |
| 10  | 3.8668    | 18.64   | 10.09             | 28.73          | 46.00  | -17.27 | AVG      |
| 11  | 6.7896    | 18.51   | 10.03             | 28.54          | 50.00  | -21.46 | AVG      |
| 12  | 6.8887    | 29.51   | 10.04             | 39.55          | 60.00  | -20.45 | peak     |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



### 3.3 Transmit Power Measurement

#### 3.3.1 Limits of Transmit Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

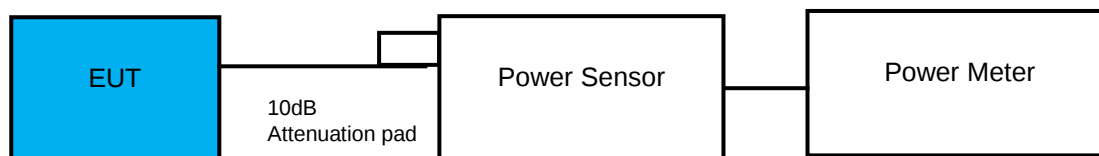
| Operation Band | EUT Category |                                   | Limit                                                                                                                        |
|----------------|--------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| U-NII-1        | -            | Outdoor Access Point              | 1 Watt (30 dBm)<br>(Max. e.i.r.p $\leq$ 125mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon) |
|                | -            | Fixed point-to-point Access Point | 1 Watt (30 dBm)                                                                                                              |
|                | -            | Indoor Access Point               | 1 Watt (30 dBm)                                                                                                              |
|                | √            | Mobile and Portable client device | 250mW (24 dBm)                                                                                                               |
| U-NII-2A       | -            |                                   | 250mW(24dBm) or 11 dBm+10LogB*                                                                                               |
| U-NII-2C       | -            |                                   | 250mW(24dBm) or 11 dBm+10LogB*                                                                                               |
| U-NII-3        | √            |                                   | 1 Watt (30 dBm)                                                                                                              |

\* B is the 26dB emission bandwidth in MHz.

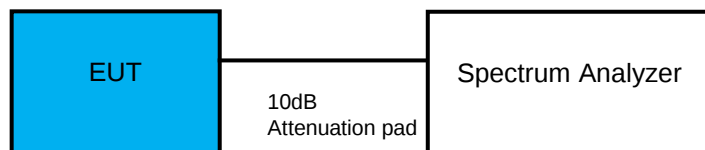
Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,  
Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;  
Array Gain = 0 dB (i.e., no array gain) for channel widths  $20 \leq \text{MHz} < 40$  for any  $N_{ANT}$ ,  
Array Gain =  $5 \log(N_{ANT}/N_{ss})$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $N_{ANT} \geq 5$ .  
For power measurements on all other devices: Array Gain =  $10 \log(N_{ANT}/N_{ss})$  dB.

#### 3.3.2 Test Setup

For conducted power measurement setup:



For 26dB and Occupied Bandwidth measurement setup:



#### 3.3.3 Test Instruments

Refer to section 5 to get information of above instrument.



### 3.3.4 Test Procedures

\*For average power measurement:

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

\*For 26dB bandwidth measurement:

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = RMS.
- 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%.

\*For 6dB bandwidth measurement:

- 1) Set RBW = 100 kHz.
- 2) Set the video bandwidth (VBW)  $\geq 3$  RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Sweep = auto couple.
- 6) Allow the trace to stabilize.
- 7) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 3.3.5 Deviation from Test Standard

No deviation.

### 3.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



### 3.3.7 Test Results

| Test mode     | Channel Number | Freq. (MHz) | Maximum conducted power | Duty cycle factor | Antenna Gain | EIRP         | Conducted Power Limit | Verdict |
|---------------|----------------|-------------|-------------------------|-------------------|--------------|--------------|-----------------------|---------|
|               |                |             | (dBm)                   | (dB)              | (dBi)        | (dBm)        | (dBm)                 |         |
| 11a           | 36             | 5180        | 11.94                   | 0.34              | 1.88         | 14.16        | 24.00                 | Pass    |
|               | 40             | 5200        | 11.39                   | 0.34              | 1.88         | 13.61        | 24.00                 | Pass    |
|               | 48             | 5240        | 12.14                   | 0.34              | 1.88         | 14.36        | 24.00                 | Pass    |
|               | 52             | 5260        | 11.73                   | 0.34              | 2.28         | 14.35        | 24.00                 | Pass    |
|               | 56             | 5280        | 11.59                   | 0.34              | 2.28         | 14.21        | 24.00                 | Pass    |
|               | 64             | 5320        | 11.19                   | 0.34              | 2.28         | 13.81        | 24.00                 | Pass    |
|               | 100            | 5500        | 12.41                   | 0.34              | 2.43         | 15.18        | 24.00                 | Pass    |
|               | 116            | 5580        | 12.07                   | 0.34              | 2.43         | 14.84        | 24.00                 | Pass    |
|               | 140            | 5700        | 12.26                   | 0.34              | 2.43         | 15.03        | 24.00                 | Pass    |
|               | 149            | 5745        | 11.88                   | 0.34              | 2.19         | <b>14.41</b> | 30.00                 | Pass    |
|               | 157            | 5785        | 10.99                   | 0.34              | 2.19         | 13.52        | 30.00                 | Pass    |
|               | 165            | 5825        | 10.61                   | 0.34              | 2.19         | 13.14        | 30.00                 | Pass    |
| 11n<br>HT20   | 36             | 5180        | 11.44                   | 0.35              | 1.88         | 13.67        | 24.00                 | Pass    |
|               | 40             | 5200        | 11.81                   | 0.35              | 1.88         | 14.04        | 24.00                 | Pass    |
|               | 48             | 5240        | 12.84                   | 0.35              | 1.88         | <b>15.07</b> | 24.00                 | Pass    |
|               | 52             | 5260        | 12.59                   | 0.35              | 2.28         | <b>15.22</b> | 24.00                 | Pass    |
|               | 56             | 5280        | 12.52                   | 0.35              | 2.28         | 15.15        | 24.00                 | Pass    |
|               | 64             | 5320        | 11.86                   | 0.35              | 2.28         | 14.49        | 24.00                 | Pass    |
|               | 100            | 5500        | 13.06                   | 0.35              | 2.43         | 15.84        | 24.00                 | Pass    |
|               | 116            | 5580        | 12.84                   | 0.35              | 2.43         | 15.62        | 24.00                 | Pass    |
|               | 140            | 5700        | 12.19                   | 0.35              | 2.43         | 14.97        | 24.00                 | Pass    |
|               | 149            | 5745        | 10.55                   | 0.35              | 2.19         | 13.09        | 30.00                 | Pass    |
|               | 157            | 5785        | 9.91                    | 0.35              | 2.19         | 12.45        | 30.00                 | Pass    |
|               | 165            | 5825        | 10.25                   | 0.35              | 2.19         | 12.79        | 30.00                 | Pass    |
| 11ac<br>VHT20 | 36             | 5180        | 11.33                   | 0.35              | 1.88         | 13.56        | 24.00                 | Pass    |
|               | 40             | 5200        | 11.39                   | 0.35              | 1.88         | 13.62        | 24.00                 | Pass    |
|               | 48             | 5240        | 12.17                   | 0.35              | 1.88         | 14.40        | 24.00                 | Pass    |
|               | 52             | 5260        | 11.99                   | 0.35              | 2.28         | 14.62        | 24.00                 | Pass    |
|               | 56             | 5280        | 11.32                   | 0.35              | 2.28         | 13.95        | 24.00                 | Pass    |
|               | 64             | 5320        | 11.41                   | 0.35              | 2.28         | 14.04        | 24.00                 | Pass    |
|               | 100            | 5500        | 12.20                   | 0.35              | 2.43         | 14.98        | 24.00                 | Pass    |
|               | 116            | 5580        | 11.47                   | 0.35              | 2.43         | 14.25        | 24.00                 | Pass    |
|               | 140            | 5700        | 12.26                   | 0.35              | 2.43         | 15.04        | 24.00                 | Pass    |
|               | 149            | 5745        | 10.42                   | 0.35              | 2.19         | 12.96        | 30.00                 | Pass    |
|               | 157            | 5785        | 9.78                    | 0.35              | 2.19         | 12.32        | 30.00                 | Pass    |
|               | 165            | 5825        | 10.23                   | 0.35              | 2.19         | 12.77        | 30.00                 | Pass    |



| Test mode  | Channel Number | Freq. (MHz) | Maximum conducted power | Duty cycle factor | Antenna Gain | EIRP         | Conducted Power Limit | Verdict |
|------------|----------------|-------------|-------------------------|-------------------|--------------|--------------|-----------------------|---------|
|            |                |             | (dBm)                   | (dB)              | (dBi)        | (dBm)        | (dBm)                 |         |
| 11n HT40   | 38             | 5190        | 10.80                   | 0.71              | 1.88         | 13.39        | 24.00                 | Pass    |
|            | 46             | 5230        | 11.88                   | 0.71              | 1.88         | 14.47        | 24.00                 | Pass    |
|            | 54             | 5270        | 11.95                   | 0.71              | 2.28         | 14.94        | 24.00                 | Pass    |
|            | 62             | 5310        | 11.48                   | 0.71              | 2.28         | 14.47        | 24.00                 | Pass    |
|            | 102            | 5510        | 12.62                   | 0.71              | 2.43         | 15.76        | 24.00                 | Pass    |
|            | 110            | 5550        | 12.12                   | 0.71              | 2.43         | 15.26        | 24.00                 | Pass    |
|            | 134            | 5670        | 11.79                   | 0.71              | 2.43         | 14.93        | 24.00                 | Pass    |
|            | 151            | 5755        | 10.79                   | 0.71              | 2.19         | 13.69        | 30.00                 | Pass    |
|            | 159            | 5795        | 10.08                   | 0.71              | 2.19         | 12.98        | 30.00                 | Pass    |
| 11ac VHT40 | 38             | 5190        | 9.61                    | 0.71              | 1.88         | 12.20        | 24.00                 | Pass    |
|            | 46             | 5230        | 11.01                   | 0.71              | 1.88         | 13.60        | 24.00                 | Pass    |
|            | 54             | 5270        | 10.82                   | 0.71              | 2.28         | 13.81        | 24.00                 | Pass    |
|            | 62             | 5310        | 10.48                   | 0.71              | 2.28         | 13.47        | 24.00                 | Pass    |
|            | 102            | 5510        | 11.73                   | 0.71              | 2.43         | 14.87        | 24.00                 | Pass    |
|            | 110            | 5550        | 11.28                   | 0.71              | 2.43         | 14.42        | 24.00                 | Pass    |
|            | 134            | 5670        | 11.20                   | 0.71              | 2.43         | 14.34        | 24.00                 | Pass    |
|            | 151            | 5755        | 10.18                   | 0.71              | 2.19         | 13.08        | 30.00                 | Pass    |
|            | 159            | 5795        | 9.55                    | 0.71              | 2.19         | 12.45        | 30.00                 | Pass    |
| 11ac VHT80 | 42             | 5210        | 10.95                   | 1.30              | 1.88         | 14.13        | 24.00                 | Pass    |
|            | 58             | 5290        | 11.26                   | 1.30              | 2.28         | 14.84        | 24.00                 | Pass    |
|            | 106            | 5530        | 12.13                   | 1.30              | 2.43         | <b>15.86</b> | 24.00                 | Pass    |
|            | 122            | 5610        | 11.98                   | 1.30              | 2.43         | 15.71        | 24.00                 | Pass    |
|            | 155            | 5775        | 10.40                   | 1.30              | 2.19         | 13.89        | 30.00                 | Pass    |



| Test mode  | Channel Number | Freq. (MHz) | 26dBc bandwidth (MHz) | 11 dBm +10LogB* (dBm) | Occupied Bandwidth (MHz) |
|------------|----------------|-------------|-----------------------|-----------------------|--------------------------|
| 11a        | 36             | 5180        | 23.04                 | -                     | 17.576                   |
|            | 40             | 5200        | 21.26                 | -                     | 17.292                   |
|            | 48             | 5240        | 21.72                 | -                     | 17.381                   |
|            | 52             | 5260        | 21.72                 | 24.37                 | 17.451                   |
|            | 56             | 5280        | 21.60                 | 24.34                 | 17.335                   |
|            | 64             | 5320        | 21.24                 | 24.27                 | 17.251                   |
|            | 100            | 5500        | 21.92                 | 24.41                 | 17.441                   |
|            | 116            | 5580        | 21.80                 | 24.38                 | 17.536                   |
|            | 140            | 5700        | 23.64                 | 24.74                 | 17.263                   |
|            | 149            | 5745        | 18.20                 | -                     | 17.341                   |
|            | 157            | 5785        | 18.04                 | -                     | 17.412                   |
|            | 165            | 5825        | 18.28                 | -                     | 17.581                   |
| 11n HT20   | 36             | 5180        | 22.00                 | -                     | 18.238                   |
|            | 40             | 5200        | 23.48                 | -                     | 18.395                   |
|            | 48             | 5240        | 22.60                 | -                     | 18.365                   |
|            | 52             | 5260        | 21.60                 | 24.34                 | 18.326                   |
|            | 56             | 5280        | 22.28                 | 24.48                 | 18.392                   |
|            | 64             | 5320        | 21.96                 | 24.42                 | 18.221                   |
|            | 100            | 5500        | 22.16                 | 24.46                 | 18.362                   |
|            | 116            | 5580        | 21.92                 | 24.41                 | 18.226                   |
|            | 140            | 5700        | 24.36                 | 24.87                 | 18.172                   |
|            | 149            | 5745        | 19.44                 | -                     | 18.220                   |
|            | 157            | 5785        | 19.44                 | -                     | 18.318                   |
|            | 165            | 5825        | 19.44                 | -                     | 18.454                   |
| 11n HT40   | 38             | 5190        | 42.32                 | -                     | 36.934                   |
|            | 46             | 5230        | 42.56                 | -                     | 37.082                   |
|            | 54             | 5270        | 42.64                 | -                     | 37.083                   |
|            | 62             | 5310        | 42.16                 | -                     | 36.972                   |
|            | 102            | 5510        | 42.64                 | -                     | 37.056                   |
|            | 110            | 5550        | 42.56                 | -                     | 36.967                   |
|            | 134            | 5670        | 49.36                 | -                     | 37.215                   |
|            | 151            | 5755        | 40.00                 | -                     | 36.863                   |
|            | 159            | 5795        | 40.00                 | -                     | 36.988                   |
| 11ac VHT80 | 42             | 5210        | 82.56                 | -                     | 76.281                   |
|            | 58             | 5290        | 83.20                 | -                     | 76.388                   |
|            | 106            | 5530        | 83.72                 | -                     | 76.354                   |
|            | 122            | 5610        | 83.20                 | -                     | 76.463                   |
|            | 155            | 5775        | 81.28                 | -                     | 76.515                   |

26dBc bandwidth

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802.11a



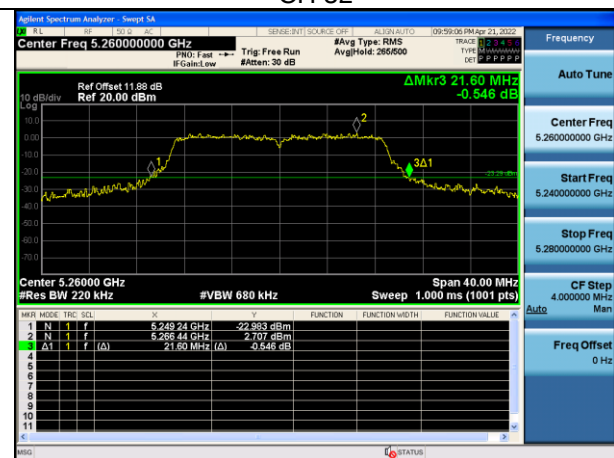
26dBc bandwidth

802.11n HT20

CH 36



CH 52



CH 40



CH 56



CH 48

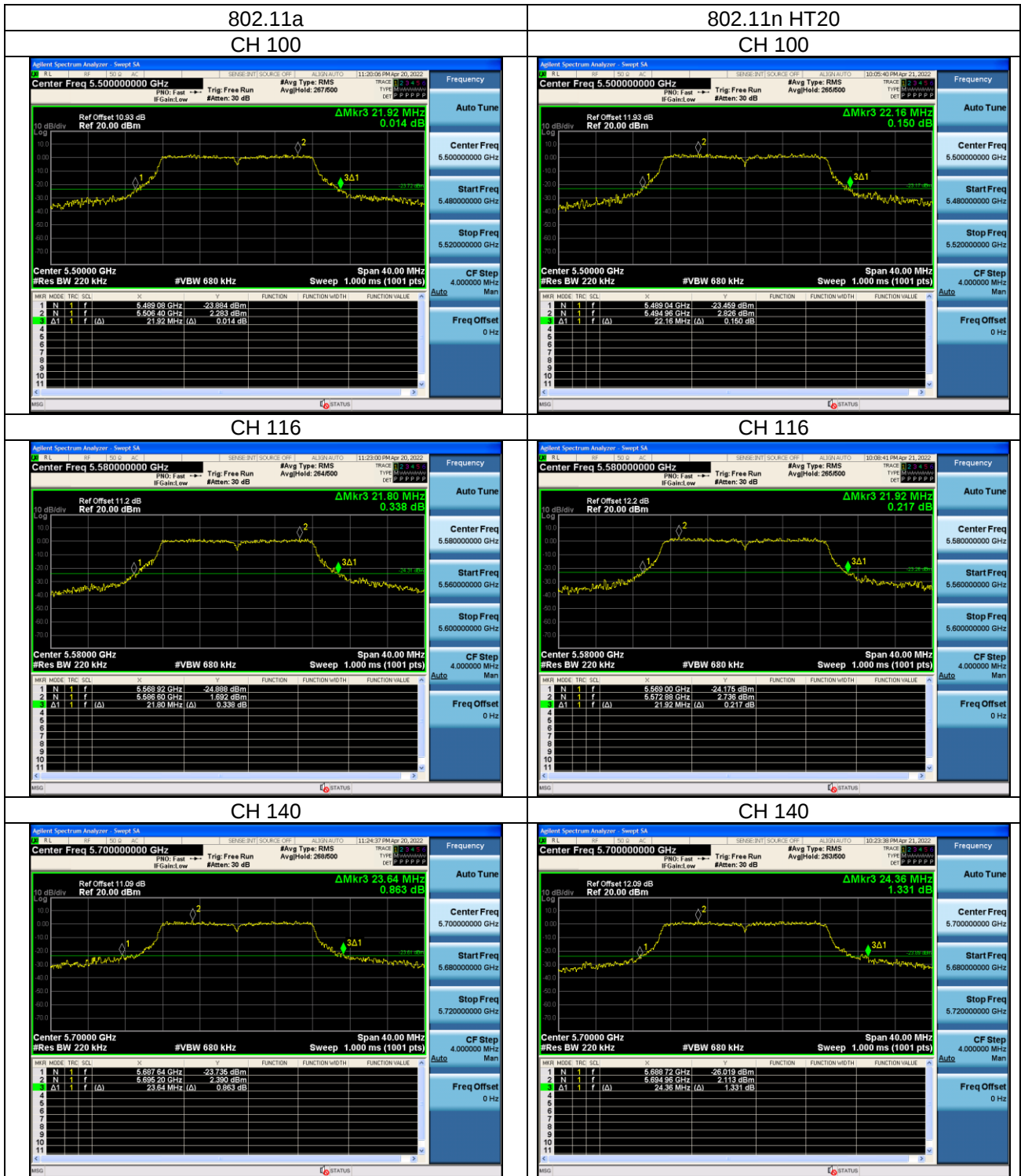


CH 64





26dBc bandwidth





## 26dBc bandwidth

