

# TEST REPORT

**Report No.** ..... : **CTC2026312803**

**FCC ID** ..... : **2A3SE-26001**

**Applicant** ..... : **ShenZhen Sky Blue Ocean Technology Co., Limited**

**Address** ..... : Room 901, Building 6, Digital Intelligent Manufacturing Center,  
No. 238 Longsheng Road, Daliang Street, Longhua District,  
Shenzhen City

**Manufacturer** ..... : ShenZhen Sky Blue Ocean Technology Co., Limited

**Address** ..... : Room 901, Building 6, Digital Intelligent Manufacturing Center,  
No. 238 Longsheng Road, Daliang Street, Longhua District,  
Shenzhen City

**Product Name** ..... : **Wireless Bridge**

**Trade Mark** ..... : ULNA

**Model/Type reference** ..... : CPE806S

**Listed Model** ..... : CPE1800, CPE1200, CPE867, CPE867RT, CPE3000, CPE2400,  
CPE1800RT, CPE3000RT, CPE1800SW, CPE1800SP, CPE806S,  
CPE802T, CPEXXX (XXX can represent numbers, letters, and  
punctuation marks)

**Standard** ..... : **FCC CFR Title 47 Part 15 Subpart E Section 15.407**

**Test Report Form No** ..... : CTC-TR-062\_A5

**Master TRF** ..... : Dated 2026-06-01

**Date of receipt of test sample** ..... : Jun. 5, 2026

**Date of testing** ..... : Jun. 5, 2026~ Jul. 13, 2026

**Date of issue** ..... : Jul. 22, 2026

**Result** ..... : **PASS**

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# 1. TEST SUMMARY

## 1.1. Test Standards

The tests were performed according to following standards:

[FCC Rules Part 15.407](#): for 802.11a/n/ac/ax, the test procedure follows the FCC KDB 789033 D02 General UNII Test Procedures New Rules V02r01.

[ANSI C63.10-2020](#): American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

## 1.2. Report Version

| Revised No. | Report No.    | Date of issue | Description |
|-------------|---------------|---------------|-------------|
| 01          | CTC2026312803 | Jul. 22, 2026 | Original    |
|             |               |               |             |

### 1.3. Test Description

| FCC Part 15 Subpart E (15.407)         |                    |        |        |
|----------------------------------------|--------------------|--------|--------|
| Test Item                              | Standard Section   | Result | Note   |
| Antenna Requirement                    | 15.203             | Pass   | /      |
| Conducted Emission                     | 15.207             | Pass   | /      |
| Band Edge Emissions                    | 15.407(b)          | Pass   | /      |
| 26dB Bandwidth & 99% Bandwidth         | 15.407(a)          | Pass   | /      |
| 6dB Bandwidth (only for UNII-3)        | 15.407(e)          | Pass   | /      |
| Peak Output Power                      | 15.407(a)          | Pass   | /      |
| Power Spectral Density                 | 15.407(a)          | Pass   | /      |
| Transmitter Radiated Spurious Emission | 15.407(b) & 15.209 | Pass   | /      |
| Frequency Stability                    | 15.407(g)          | Pass   | /      |
| Dynamic Frequency Selection (DFS)      | 15.407(h)          | N/A    | N/A    |
| Automatically Discontinue Transmission | 15.407(c)          | Pass   | Note 3 |

Note:

1. The measurement uncertainty is not included in the test result.
2. N/A: means this test item is not applicable for this device according to the technology characteristic of device.
3. During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

## 1.4. Test Facility

### Address of the report laboratory

#### CTC Laboratories, Inc.

Add: Room 107, 108, 207, 208 of Building A, Room 101 of Building B, No.7, Lanqing 1st Road, Luh Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

### Laboratory accreditation

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

#### A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

#### Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

#### FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 951311, Aug 26, 2017.

## 1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.

| Test Items                     | Measurement Uncertainty                                             | Notes |
|--------------------------------|---------------------------------------------------------------------|-------|
| Emission Bandwidth             | $\pm 0.0196\%$                                                      | (1)   |
| Maximum Conduct Output Power   | $\pm 0.766\text{dB}$                                                | (1)   |
| Power Spectral Density         | $\pm 1.22\text{dB}$                                                 | (1)   |
| Band Edge Measurements         | $\pm 1.328\text{dB}$                                                | (1)   |
| Unwanted Emissions Measurement | 9kHz-1GHz: $\pm 0.746\text{dB}$<br>1GHz-26GHz: $\pm 1.328\text{dB}$ | (1)   |
| Frequency Stability            | $\pm 2.76\%$                                                        | (1)   |
| Conducted Emissions 9kHz~30MHz | $\pm 3.08\text{ dB}$                                                | (1)   |
| Radiated Emissions 30~1000MHz  | $\pm 4.51\text{ dB}$                                                | (1)   |
| Radiated Emissions 1~18GHz     | $\pm 5.84\text{ dB}$                                                | (1)   |
| Radiated Emissions 18~40GHz    | $\pm 6.12\text{ dB}$                                                | (1)   |

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## 1.6. Environmental Conditions

|                   |                   |                                                                                                                  |
|-------------------|-------------------|------------------------------------------------------------------------------------------------------------------|
| Normal Condition  | Temperature       | 15 °C to 35 °C                                                                                                   |
|                   | Relative Humidity | 20 % to 75 %                                                                                                     |
|                   | Air Pressure      | 101 kPa                                                                                                          |
|                   | Voltage           | The normal test voltage for the equipment shall be the nominal voltage for which the equipment was designed.     |
| Extreme Condition | Temperature       | Measurements shall be made over the extremes of the operating temperature range as declared by the manufacturer. |
|                   | Voltage           | Measurements shall be made over the extremes of the operating temperature range as declared by the manufacturer. |

|                   |                                    |        |
|-------------------|------------------------------------|--------|
| Normal Condition  | T <sub>N</sub> =Normal Temperature | 25 °C  |
| Extreme Condition | T <sub>L</sub> =Lower Temperature  | -40 °C |
|                   | T <sub>H</sub> =Higher Temperature | 55 °C  |

## 2. GENERAL INFORMATION

### 2.1. Client Information

|               |                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:    | ShenZhen Sky Blue Ocean Technology Co.,Limited                                                                                          |
| Address:      | Room 901, Building 6, Digital Intelligent Manufacturing Center, No. 238 Longsheng Road, Daliang Street, Longhua District, Shenzhen City |
| Manufacturer: | ShenZhen Sky Blue Ocean Technology Co.,Limited                                                                                          |
| Address:      | Room 901, Building 6, Digital Intelligent Manufacturing Center, No. 238 Longsheng Road, Daliang Street, Longhua District, Shenzhen City |
| Factory:      | ShenZhen Sky Blue Ocean Technology Co.,Limited                                                                                          |
| Address:      | Room 901, Building 6, Digital Intelligent Manufacturing Center, No. 238 Longsheng Road, Daliang Street, Longhua District, Shenzhen City |

### 2.2. General Description of EUT

|                       |                                                                                                                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:         | Wireless Bridge                                                                                                                                                                        |
| Trade Mark:           | ULNA                                                                                                                                                                                   |
| Model/Type reference: | CPE806S                                                                                                                                                                                |
| Listed Model:         | CPE1800, CPE1200, CPE867, CPE867RT, CPE3000, CPE2400, CPE1800RT, CPE3000RT, CPE1800SW, CPE1800SP, CPE806S, CPE802T, CPEXXX (XXX can represent numbers, letters, and punctuation marks) |
| Model Difference:     | All these models are identical with the Main in the same PCB, layout and electrical circuit, with only the model names differing.                                                      |
| Sample ID:            | CTC-GC260603-001-S011                                                                                                                                                                  |
| Power Supply:         | Input: 100-240V~ 0.8A from AC/DC Adapter                                                                                                                                               |
| Adapter Model:        | MODEL: GRT-POE15-240100A<br>INPUT: 100-240V~0.8A Max 50/60Hz<br>OUTPUT: 24.0Vdc/1.0A 24.0W                                                                                             |
| Hardware Version:     | /                                                                                                                                                                                      |
| Software Version:     | /                                                                                                                                                                                      |

| 5G Wi-Fi             |                                                                                                                                                                                                          |                                           |                                           |                                             |  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|---------------------------------------------|--|
| Operation Band:      | <input type="checkbox"/> U-NII-1                                                                                                                                                                         | <input type="checkbox"/> U-NII-2A         | <input type="checkbox"/> U-NII-2C         | <input checked="" type="checkbox"/> U-NII-3 |  |
| Operation Frequency: | U-NII-3                                                                                                                                                                                                  | 5745MHz~5825MHz                           |                                           |                                             |  |
| Support Bandwidth:   | 802.11a                                                                                                                                                                                                  | <input checked="" type="checkbox"/> 20MHz |                                           |                                             |  |
|                      | 802.11n                                                                                                                                                                                                  | <input checked="" type="checkbox"/> 20MHz | <input checked="" type="checkbox"/> 40MHz |                                             |  |
|                      | 802.11ac                                                                                                                                                                                                 | <input checked="" type="checkbox"/> 20MHz | <input checked="" type="checkbox"/> 40MHz | <input checked="" type="checkbox"/> 80MHz   |  |
|                      | 802.11ax                                                                                                                                                                                                 | <input checked="" type="checkbox"/> 20MHz | <input checked="" type="checkbox"/> 40MHz | <input checked="" type="checkbox"/> 80MHz   |  |
| Modulation:          | 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)<br>802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) |                                           |                                           |                                             |  |
| Antenna Type:        | CPE Aluminum Plate Antenna                                                                                                                                                                               |                                           |                                           |                                             |  |
| Antenna Gain:        | U-NII-3                                                                                                                                                                                                  | 13.36dBi                                  |                                           |                                             |  |

## 2.3. Accessory Equipment Information

| Equipment Information     |                     |              |              |
|---------------------------|---------------------|--------------|--------------|
| Name                      | Model               | S/N          | Manufacturer |
| Notebook                  | ThinkBook 14 G3 ACL | MP246Q6S     | Lenovo       |
| /                         | /                   | /            | /            |
| Cable Information         |                     |              |              |
| Name                      | Shielded Type       | Ferrite Core | Length       |
| /                         | /                   | /            | /            |
| Test Software Information |                     |              |              |
| Name                      | Version             | /            | /            |
| QATool_Dbg                | MT7915 QA 0.0.2.33  | /            | /            |

## 2.4. Operation State

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting.

Operation Frequency List:

| Operating Band | 20MHz Bandwidth |                 | 40MHz Bandwidth |                 | 80MHz Bandwidth |                 | 160MHz Bandwidth |                 |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|
|                | Channel         | Frequency (MHz) | Channel         | Frequency (MHz) | Channel         | Frequency (MHz) | Channel          | Frequency (MHz) |
| U-NII-3        | 149             | 5745            | 151             | 5755            | 155             | 5775            |                  |                 |
|                | 153             | 5765            |                 |                 |                 |                 |                  |                 |
|                | 157             | 5785            | 159             | 5795            |                 |                 |                  |                 |
|                | 161             | 5805            |                 |                 |                 |                 |                  |                 |
|                | 165             | 5825            |                 |                 |                 |                 |                  |                 |

Test channel is below:

| Operating Band | Test Channel    | 20MHz Bandwidth |                 | 40MHz Bandwidth |                 | 80MHz Bandwidth |                 | 160MHz Bandwidth |                 |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|
|                |                 | Channel         | Frequency (MHz) | Channel         | Frequency (MHz) | Channel         | Frequency (MHz) | Channel          | Frequency (MHz) |
| U-NII-3        | CH <sub>L</sub> | 149             | 5745            | 151             | 5755            | /               | /               | /                | /               |
|                | CH <sub>M</sub> | 157             | 5785            | /               | /               | 155             | 5775            | /                | /               |
|                | CH <sub>H</sub> | 165             | 5825            | 159             | 5795            | /               | /               | /                | /               |

Antenna Specification:

| Ant. | Brand | Model Name | Antenna Type     | Connector | Gain(dBi) |
|------|-------|------------|------------------|-----------|-----------|
| 1    | NA    | NA         | External antenna | /         | 13.36     |
| 2    | NA    | NA         | External antenna | /         | 13.36     |
| 3    | NA    | NA         | External antenna | /         | 13.36     |

This EUT supports MIMO 2X2 with the same antenna gain, and any transmit signals are correlated with each other.

According to KDB 662911 D01, Directional Gain =  $G_{Ant.} + 10\log(N)$  dBi, that is Directional Gain =  $13.36 + 10\log(3)$  dBi = 18.13 dBi. So, output power limit of UNII-3 is  $30 - 18.13 + 6 = 17.87$  dBm. The power spectral density limit of UNII-3 is  $30 - 18.13 + 6 = 17.87$  dBm/500kHz.

Data Rated:

Preliminary tests were performed in different data rate, and found which the below bit rate is worst case mode, so only show data which it is a worst case mode.

| Test Mode                                         | Data Rate (worst mode) |
|---------------------------------------------------|------------------------|
| 802.11a                                           | 6Mbps                  |
| 802.11n(HT20)/ 802.11n(HT40)                      | HT-MCS0                |
| 802.11ac(VHT20)/ 802.11ac(VHT40)/ 802.11ac(VHT80) | VHT-MCS0               |
| 802.11ax(HE20)/ 802.11ax(HE40)/ 802.11ax(HE80)    | HE-MCS0                |

Test Mode:

|                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| For RF test items:                                                                                                                                                                                                            |
| 1. The engineering test program was provided and enabled to make EUT continuous transmit.                                                                                                                                     |
| 2. The measurements for Output Power are tested, the worst case is IEEE 802.11a mode, IEEE 802.11n(HT20) mode, IEEE 802.11n(HT40) mode, IEEE 802.11ac (VHT80) mode, only the worst cases are documented for other test items. |
| For AC power line conducted emissions:                                                                                                                                                                                        |
| The EUT was set to connect with the WLAN AP under large package sizes transmission.                                                                                                                                           |
| For Radiated spurious emissions test item:                                                                                                                                                                                    |
| The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.      |
| For DFS test items:                                                                                                                                                                                                           |
| The EUT has been tested under test mode condition. The Applicant provides software to control the EUT for staying in DFS mode for testing.                                                                                    |

## 2.5. Measurement Instruments List

| Radiated emission |                              |                  |            |                      |               |               |
|-------------------|------------------------------|------------------|------------|----------------------|---------------|---------------|
| Item              | Test Equipment               | Manufacturer     | Model No.  | Serial No.           | Cal. Date     | Cal. Until    |
| 1                 | Trilog-Broadband Antenna     | Schwarzbeck      | VULB 9168  | 9168-759             | Oct. 17, 2025 | Oct. 16, 2027 |
| 2                 | Horn Antenna                 | Schwarzbeck      | BBHA 9120D | 9120D-648            | Dec. 12, 2024 | Dec. 11, 2026 |
| 3                 | Test Receiver                | Keysight         | N9038A     | MY56400071           | Dec. 13, 2025 | Dec. 12, 2026 |
| 4                 | Broadband Amplifier          | Schwarzbeck      | BBV9743B   | 259                  | Dec. 13, 2025 | Dec. 12, 2026 |
| 5                 | Mirowave Broadband Amplifier | Schwarzbeck      | BBV9718C   | 111                  | Dec. 13, 2025 | Dec. 12, 2026 |
| 6                 | RE33L-001                    | COMM             | /          | 014<br>(9kHz-1GHz)   | Feb. 09, 2026 | Feb. 08, 2027 |
| 7                 | RE33L-002                    | COMM             | /          | 015<br>(9kHz-1GHz)   | Feb. 09, 2026 | Feb. 08, 2027 |
| 8                 | RE33H-001                    | SUHB<br>SUCOFLEX | /          | 016<br>(1GHz-18GHz)  | Feb. 09, 2026 | Feb. 08, 2027 |
| 9                 | RE33H-002                    | HUBENR           | /          | 017<br>(1GHz-18GHz)  | Feb. 09, 2026 | Feb. 08, 2027 |
| 10                | RE33H-003                    | HUBENR           | /          | 018<br>(1GHz-18GHz)  | Feb. 09, 2026 | Feb. 08, 2027 |
| 11                | RE33H-003                    | HUBENR           | /          | 019<br>(18GHz-40GHz) | Feb. 09, 2026 | Feb. 08, 2027 |
| 12                | 3m chamber 3                 | YIHENG           | EE106      | /                    | Aug. 29, 2023 | Aug. 28, 2026 |
| Test Software     |                              |                  |            |                      |               |               |
| Name              |                              | Manufacturer     |            | Software Version     |               |               |
| EZ-EMC            |                              | FARA             |            | FA-03A2              |               |               |

| Radiated emission |                          |              |            |                     |               |               |
|-------------------|--------------------------|--------------|------------|---------------------|---------------|---------------|
| Item              | Test Equipment           | Manufacturer | Model No.  | Serial No.          | Cal. Date     | Cal. Until    |
| 1                 | Trilog-Broadband Antenna | Schwarzbeck  | VULB 9168  | 9168-1013           | Dec. 18, 2024 | Dec. 17, 2026 |
| 2                 | Horn Antenna             | Schwarzbeck  | BBHA 9120D | 9120D-647           | Oct. 17, 2025 | Oct. 16, 2027 |
| 3                 | Spectrum Analyzer        | R&S          | FSV40-N    | 101654              | Dec. 13, 2025 | Dec. 12, 2026 |
| 4                 | Pre-Amplifier            | SONOMA       | 310        | 186194              | Dec. 13, 2025 | Dec. 12, 2026 |
| 5                 | Low Noise Pre-Amplifier  | EMCI         | EMC051835  | 980075              | Dec. 13, 2025 | Dec. 12, 2026 |
| 6                 | Test Receiver            | R&S          | ESC17      | 100967              | Dec. 13, 2025 | Dec. 12, 2026 |
| 7                 | RE32L-001                | HUBENR       | /          | 009<br>(9kHz-1GHz)  | Feb. 09, 2026 | Feb. 08, 2027 |
| 8                 | RE32L-002                | HUBENR       | /          | 010<br>(9kHz-1GHz)  | Feb. 09, 2026 | Feb. 08, 2027 |
| 9                 | RE32L-003                | HUBENR       | /          | 011<br>(9kHz-1GHz)  | Feb. 09, 2026 | Feb. 08, 2027 |
| 10                | RE32H-001                | HUBENR       | /          | 012<br>(1GHz-18GHz) | Feb. 09, 2026 | Feb. 08, 2027 |
| 11                | RE32H-002                | HUBENR       | /          | 013<br>(1GHz-18GHz) | Feb. 09, 2026 | Feb. 08, 2027 |
| 12                | 3m chamber 2             | Frankonia    | EE025      | /                   | Oct. 19, 2024 | Oct. 18, 2027 |
| Test Software     |                          |              |            |                     |               |               |
| Name              |                          | Manufacturer |            | Software Version    |               |               |
| EZ-EMC            |                          | FARA         |            | FA-03A2             |               |               |

CTC Laboratories, Inc.

Room 107, 108, 207, 208 of Building A, Room 101 of Building B, No.7, Lanqing 1st Road, Luhua Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

TRF No: CTC-TR-062\_A5

Master TRF : Dated 2026-06-01

| RF Test System – SRD |                                       |              |               |                  |               |               |
|----------------------|---------------------------------------|--------------|---------------|------------------|---------------|---------------|
| Item                 | Test Equipment                        | Manufacturer | Model No.     | Serial No.       | Cal. Date     | Cal. Until    |
| 1                    | Spectrum Analyzer                     | R&S          | FSV40-N       | 101654           | Dec. 13, 2025 | Dec. 12, 2026 |
| 2                    | MXG Vector Signal Generator           | Agilent      | N5182A        | MY47420864       | Dec. 13, 2025 | Dec. 12, 2026 |
| 3                    | PSG Analog Signal Generator           | Agilent      | E8257D        | MY46521908       | Dec. 13, 2025 | Dec. 12, 2026 |
| 4                    | USB Wideband Power Sensor             | Keysight     | U2021XA       | MY55130004       | Mar. 25, 2026 | Mar. 24, 2027 |
| 5                    | USB Wideband Power Sensor             | Keysight     | U2021XA       | MY55130006       | Mar. 25, 2026 | Mar. 24, 2027 |
| 6                    | Wideband Radio Communication Tester   | R&S          | CMW500        | 102257           | Mar. 25, 2026 | Mar. 24, 2027 |
| 7                    | RF Control Unit                       | Tonscend     | JS0806-2      | /                | Mar. 25, 2026 | Mar. 24, 2027 |
| 8                    | High and low temperature test chamber | ESPEC        | MT3035        | /                | Mar. 25, 2026 | Mar. 24, 2027 |
| 9                    | RF Cable                              | HUBER+SUHNER | SUCOFLEX101PE | RF-08            | Apr. 16, 2026 | Apr. 15, 2027 |
| Test Software        |                                       |              |               |                  |               |               |
| Name                 |                                       | Manufacturer |               | Software Version |               |               |
| JS1120-3             |                                       | Tonscend     |               | V2.6.88.0346     |               |               |

Note: 1. The Cal. Interval was one year.

2. The Cal. Interval was three years of the antenna.

3. The cable loss has been calculated in test result which connection between each test instruments.

### 3. TEST ITEM AND RESULTS

#### 3.1. Conducted Emission

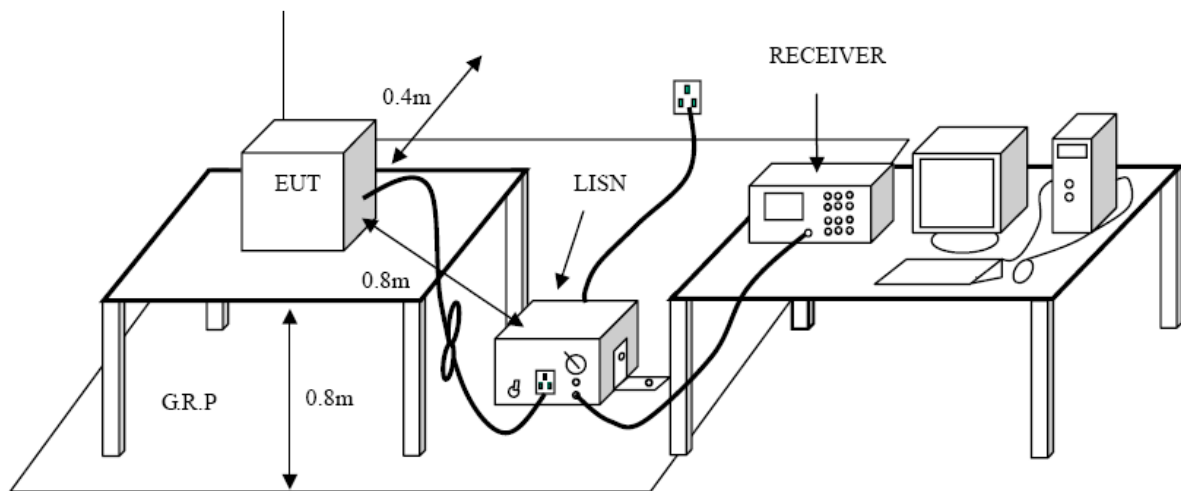
##### Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.207

| Frequency (MHz) | Conducted Limit (dB $\mu$ V) |            |
|-----------------|------------------------------|------------|
|                 | Quasi-peak                   | Average    |
| 0.15 - 0.5      | 66 to 56 *                   | 56 to 46 * |
| 0.5 - 5         | 56                           | 46         |
| 5 - 30          | 60                           | 50         |

\* Decreases with the logarithm of the frequency.

##### Test Configuration



##### Test Procedure

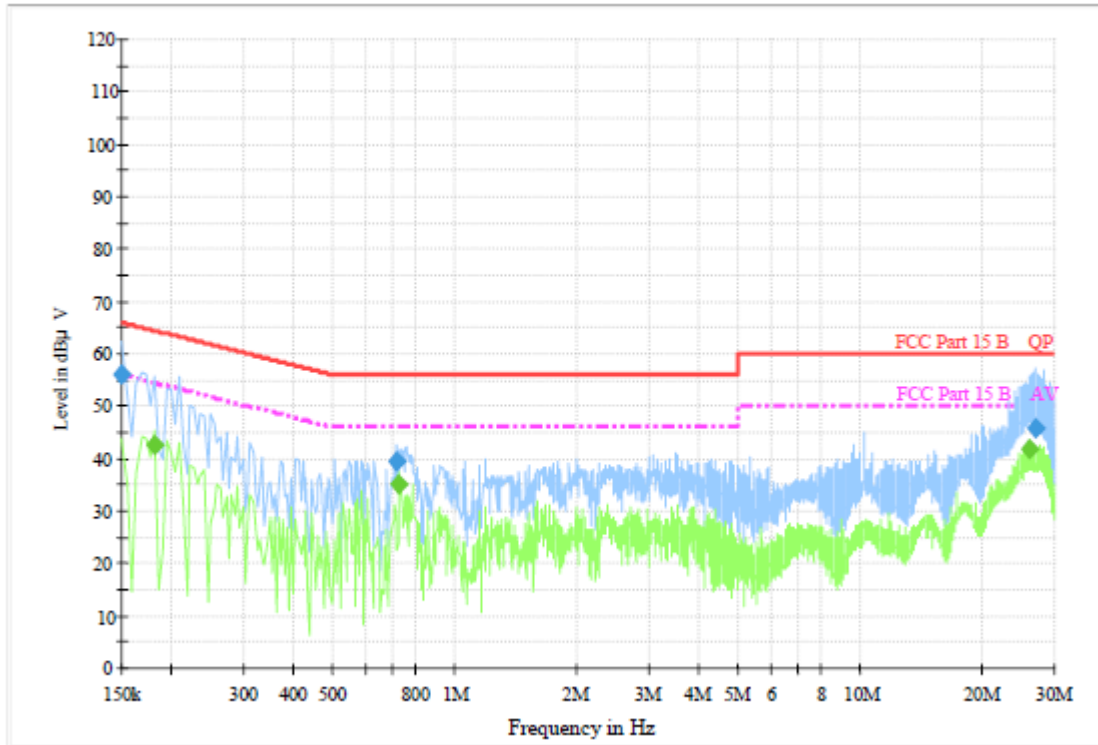
1. The EUT was setup according to ANSI C63.10:2020 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm / 50  $\mu$ H coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

##### Test Mode

Please refer to the clause 2.4.

**Test Result**

|           |      |
|-----------|------|
| Test mode | 1    |
| Terminal  | Line |

**Final Measurement Detector 1**

| Frequency (MHz) | QuasiPeak (dBμ V) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμ V) | Comment |
|-----------------|-------------------|-----------------|-----------------|--------|------|------------|-------------|---------------|---------|
| 0.150000        | 56.2              | 1000.00         | 9.000           | On     | L1   | 9.3        | 9.8         | 66.0          |         |
| 0.717000        | 39.4              | 1000.00         | 9.000           | On     | L1   | 9.7        | 16.6        | 56.0          |         |
| 26.988000       | 45.8              | 1000.00         | 9.000           | On     | L1   | 9.7        | 14.2        | 60.0          |         |

**Final Measurement Detector 2**

| Frequency (MHz) | Average (dBμ V) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμ V) | Comment |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|---------------|---------|
| 0.181500        | 42.6            | 1000.00         | 9.000           | On     | L1   | 9.3        | 11.8        | 54.4          |         |
| 0.726000        | 35.1            | 1000.00         | 9.000           | On     | L1   | 9.7        | 10.9        | 46.0          |         |
| 26.088000       | 42.0            | 1000.00         | 9.000           | On     | L1   | 9.7        | 8.0         | 50.0          |         |

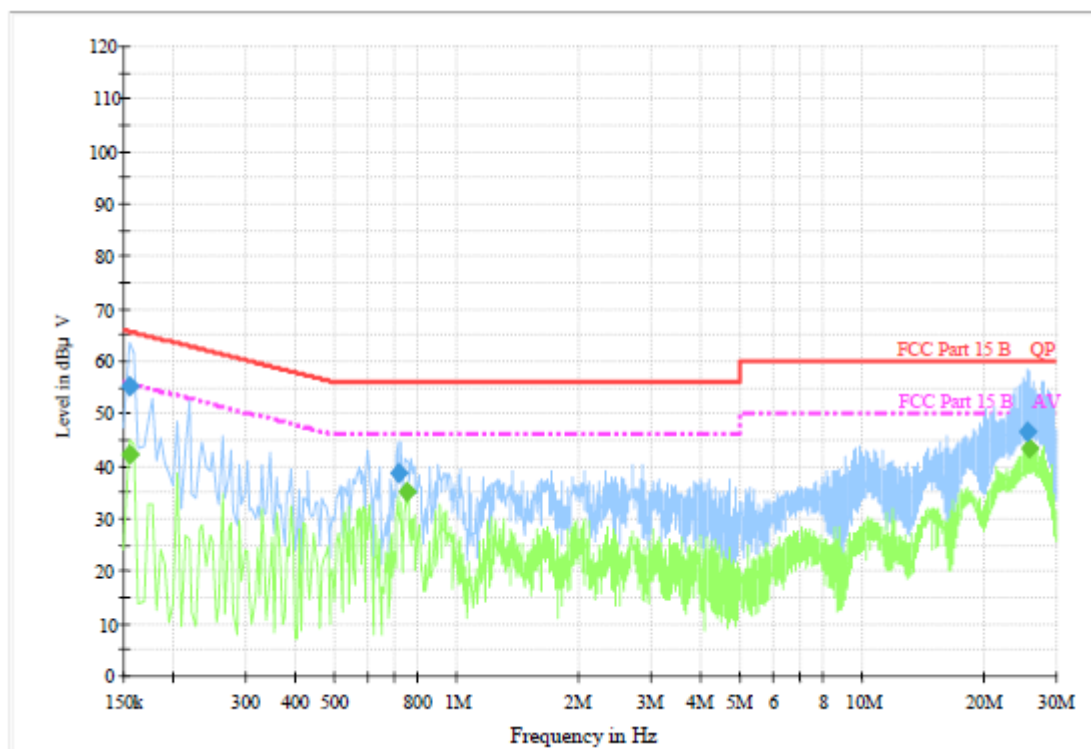
Note:

Factor = Insertion loss of LISN + Cable Loss

Limit = Limit stated in standard

Margin = Limit (dBμV) –Result (dBμV)

|           |         |
|-----------|---------|
| Test mode | 1       |
| Terminal  | Neutral |



### Final Measurement Detector 1

| Frequency (MHz) | QuasiPeak (dBμ V) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμ V) | Comment |
|-----------------|-------------------|-----------------|-----------------|--------|------|------------|-------------|---------------|---------|
| 0.154500        | 55.4              | 1000.00         | 9.000           | On     | N    | 9.4        | 10.4        | 65.8          |         |
| 0.712500        | 38.7              | 1000.00         | 9.000           | On     | N    | 9.1        | 17.3        | 56.0          |         |
| 25.467000       | 46.7              | 1000.00         | 9.000           | On     | N    | 9.7        | 13.3        | 60.0          |         |

### Final Measurement Detector 2

| Frequency (MHz) | Average (dBμ V) | Meas. Time (ms) | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμ V) | Comment |
|-----------------|-----------------|-----------------|-----------------|--------|------|------------|-------------|---------------|---------|
| 0.154500        | 42.3            | 1000.00         | 9.000           | On     | N    | 9.4        | 13.5        | 55.8          |         |
| 0.748500        | 35.0            | 1000.00         | 9.000           | On     | N    | 9.2        | 11.0        | 46.0          |         |
| 25.836000       | 43.6            | 1000.00         | 9.000           | On     | N    | 9.7        | 6.4         | 50.0          |         |

Note:

Factor = Insertion loss of LISN + Cable Loss

Limit = Limit stated in standard

Margin = Limit (dBμV) –Result (dBμV)

### 3.2. Radiated Emission

#### Limit

#### FCC CFR Title 47 Part 15 Subpart C Section 15.209

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(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                                |
| 960~1000           | 500                                  | 3                                |

| Frequency Range (MHz) | dBμV/m (at 3 meters) |         |
|-----------------------|----------------------|---------|
|                       | Peak                 | Average |
| Above 1000            | 74                   | 54      |

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBμV/m)=20log Emission Level (μV/m).

#### Limits of unwanted emission out of the restricted bands FCC CFR Title 47 Part 15 Subpart E Section 15.407(b)

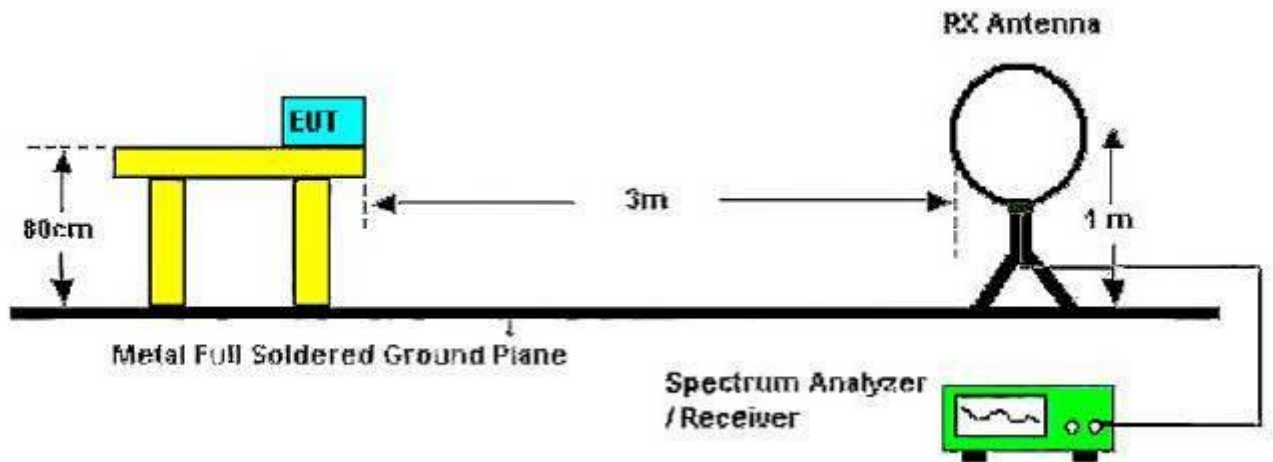
| Frequency<br>(MHz) | EIRP Limits<br>(dBm) | Equivalent Field Strength<br>at 3m (dBμV/m) |
|--------------------|----------------------|---------------------------------------------|
| 5150~5250          | -27                  | 68.2                                        |
| 5250~5350          | -27                  | 68.2                                        |
| 5470~5725          | -27                  | 68.2                                        |
| 5725~5825          | -27 (Note 2)         | 68.2                                        |
|                    | 10 (Note 2)          | 105.2                                       |
|                    | 15.6 (Note 2)        | 110.8                                       |
|                    | 27 (Note 2)          | 122.2                                       |

Note:

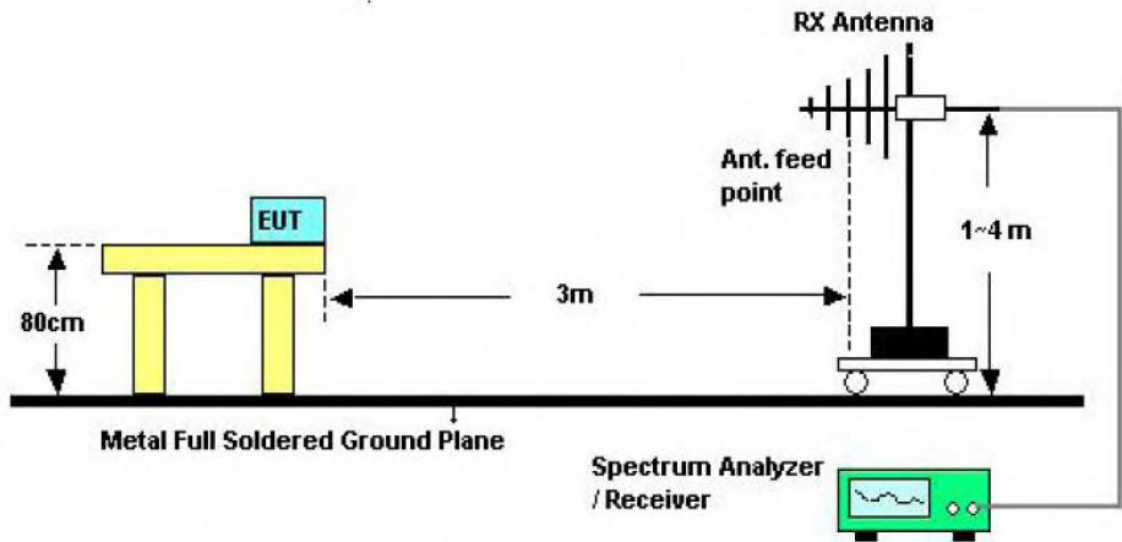
1. The following formula is used to convert the equipment isotropic radiated power (eirp) to field

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

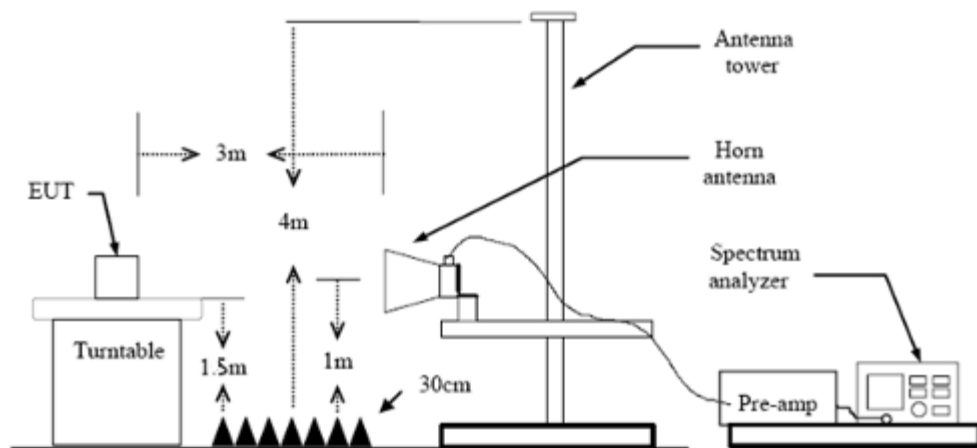
2. According to FCC 16-24, all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27dBm/MHz at the band edge.

**Test Configuration**

Below 30MHz Test Setup



30-1000MHz Test Setup



Above 1GHz Test Setup

## **Test Procedure**

1. The EUT was setup and tested according to ANSI C63.10:2020.
  2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
  3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
  4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
  5. Set to the maximum power setting and enable the EUT transmit continuously.
  6. Use the following spectrum analyzer settings
    - (1) Span shall wide enough to fully capture the emission being measured;
    - (2) 9k – 150kHz:  
RBW=300 Hz, VBW=1 kHz, Sweep=auto, Detector function=peak, Trace=max hold
    - (3) 0.15M – 30MHz:  
RBW=10 kHz, VBW=30 kHz, Sweep=auto, Detector function=peak, Trace=max hold
    - (4) 30M - 1 GHz:  
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold

If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

  - (5) From 1 GHz to 10<sup>th</sup> harmonic:  
RBW=1MHz, VBW=3MHz Peak detector for Peak value.  
RBW=1MHz, VBW see note 1 with Peak Detector for Average Value.
- Note 1: For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause Duty Cycle.

## **Test Mode**

Please refer to the clause 2.4.

## **Test Result**

Note:

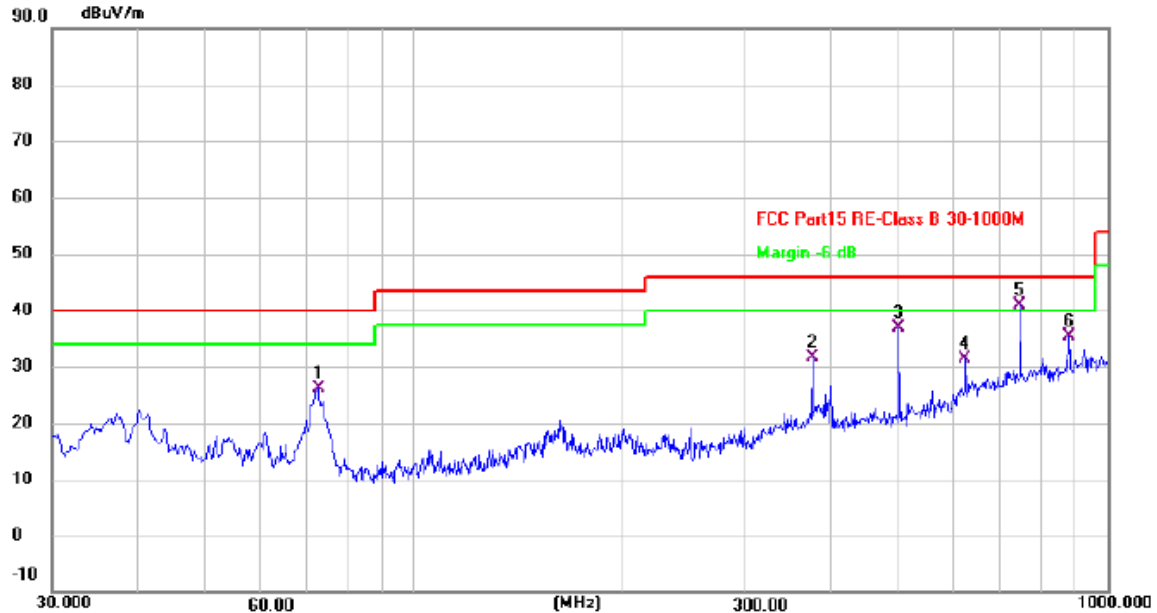
1. Testing is carried out with frequency rang 9kHz to the tenth harmonics.
2. The highest emissions are the fundamental waves.
3. All modes for required channel tested, only the worst-case reported.

### **9 kHz~30 MHz**

From 9 kHz to 30 MHz: The conclusion is PASS.

**30MHz-1GHz**

|                   |                                   |
|-------------------|-----------------------------------|
| <b>Ant. No.</b>   | Ant 1                             |
| <b>Ant. Pol.</b>  | Horizontal                        |
| <b>Test Mode:</b> | TX 802.11a Mode 5745MHz (U-NII-3) |
| <b>Remark:</b>    | Only worse case is reported.      |

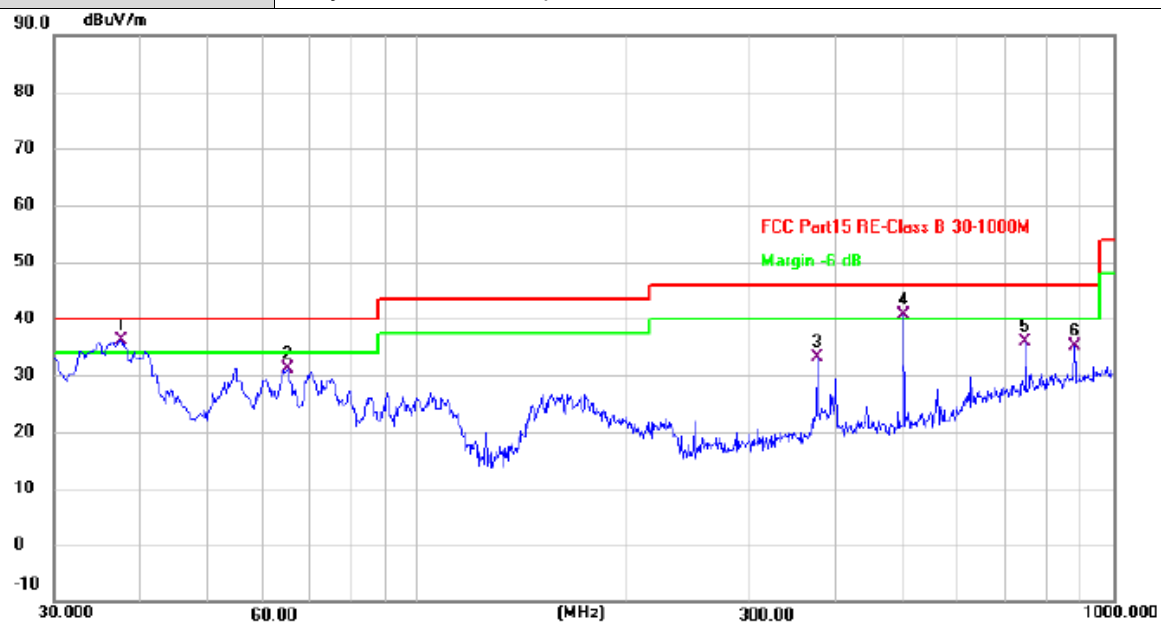


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 72.6800         | 45.78          | -19.60        | 26.18          | 40.00          | -13.82      | QP       |
| 2   | 374.9967        | 44.83          | -13.15        | 31.68          | 46.00          | -14.32      | QP       |
| 3   | 500.1267        | 47.16          | -10.29        | 36.87          | 46.00          | -9.13       | QP       |
| 4   | 624.9333        | 38.63          | -7.33         | 31.30          | 46.00          | -14.70      | QP       |
| 5 * | 750.0633        | 45.90          | -5.12         | 40.78          | 46.00          | -5.22       | QP       |
| 6   | 880.0433        | 38.73          | -3.44         | 35.29          | 46.00          | -10.71      | QP       |

**Remarks:**

1. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor
2. Margin value = Level - Limit value

|            |                                   |
|------------|-----------------------------------|
| Ant. No.   | Ant 1                             |
| Ant. Pol.  | Vertical                          |
| Test Mode: | TX 802.11a Mode 5745MHz (U-NII-3) |
| Remark:    | Only worse case is reported.      |

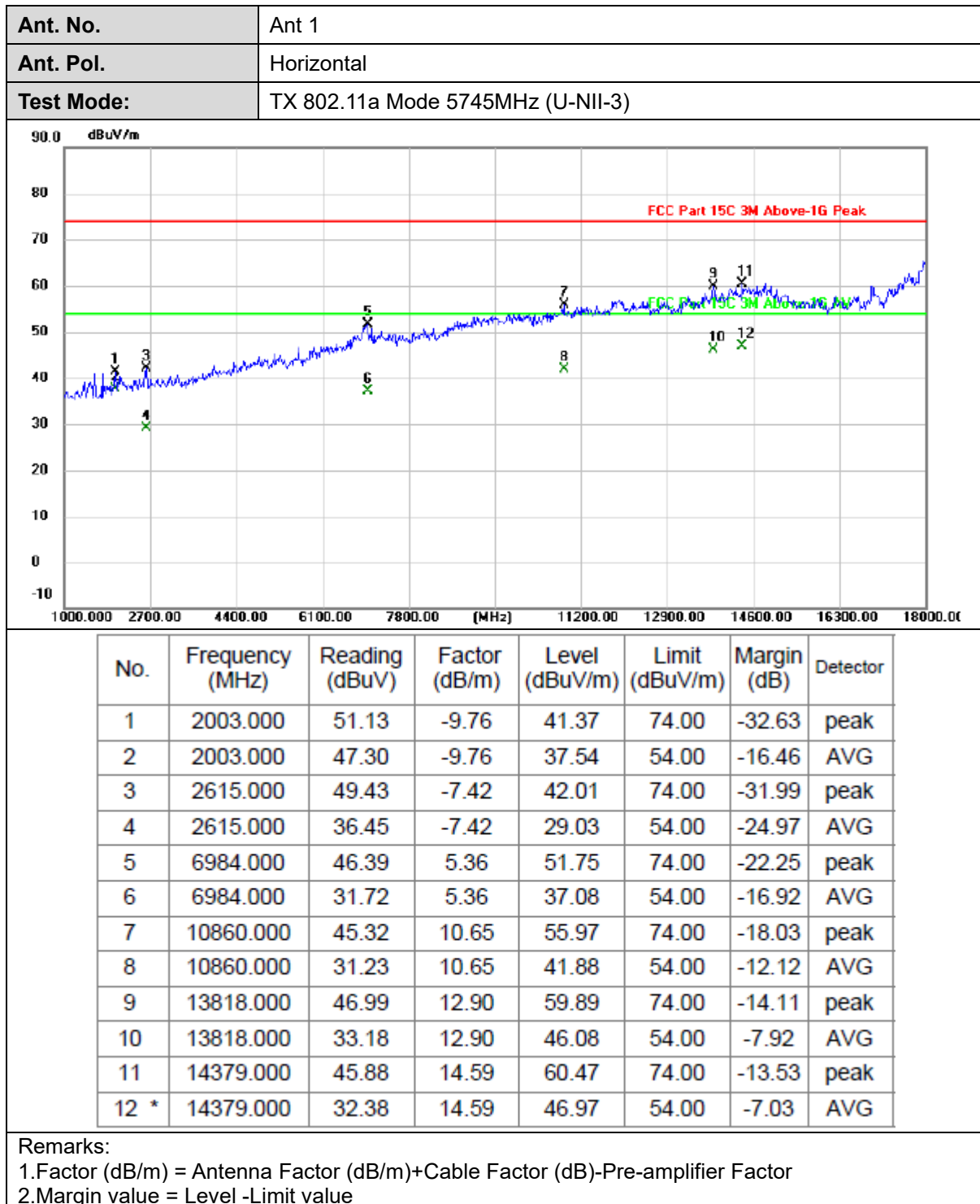


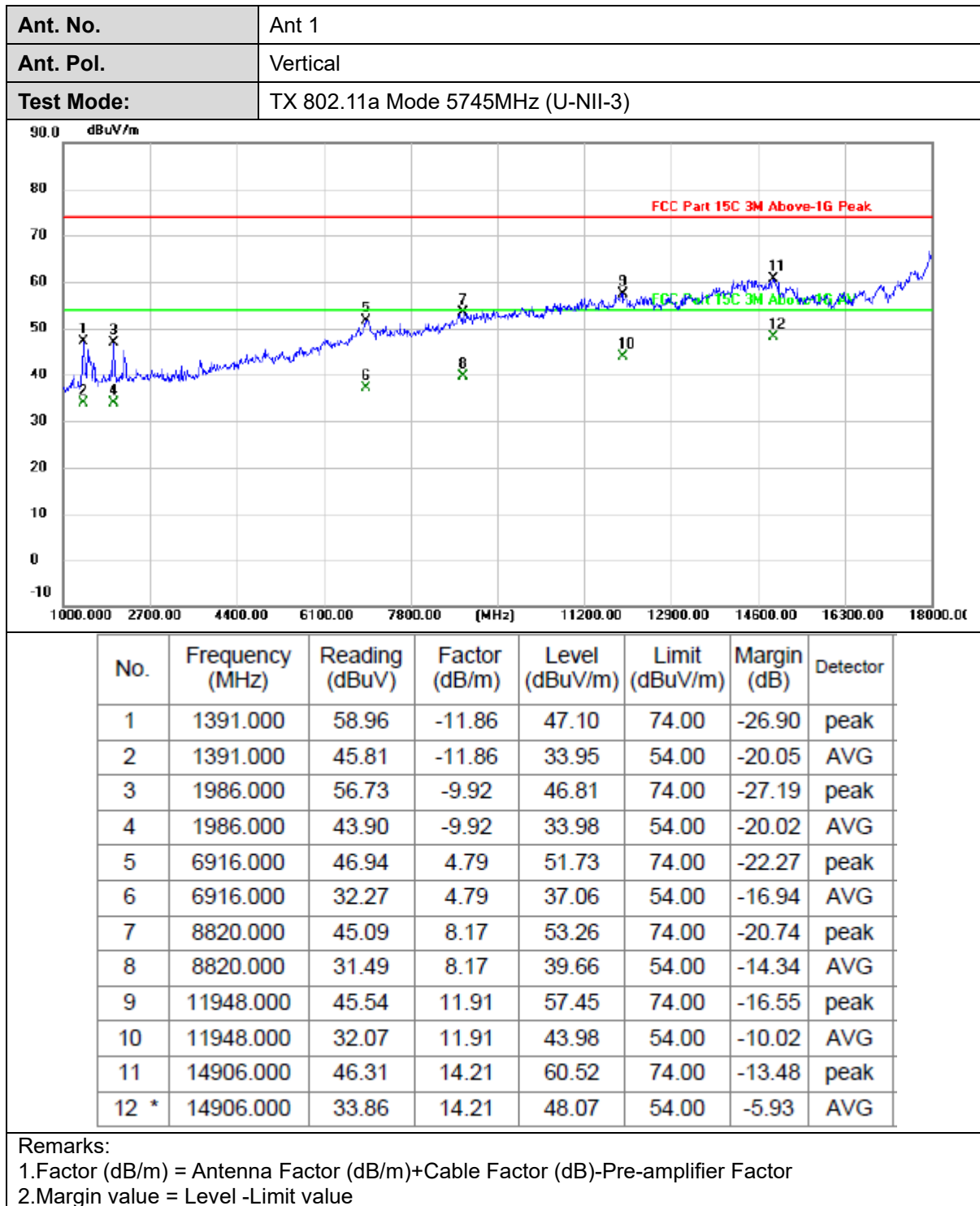
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1 * | 37.4367         | 51.66          | -15.52        | 36.14          | 40.00          | -3.86       | QP       |
| 2   | 64.9200         | 49.06          | -17.95        | 31.11          | 40.00          | -8.89       | QP       |
| 3   | 374.9967        | 46.16          | -13.15        | 33.01          | 46.00          | -12.99      | QP       |
| 4 ! | 500.1267        | 50.93          | -10.29        | 40.64          | 46.00          | -5.36       | QP       |
| 5   | 750.0633        | 40.88          | -5.12         | 35.76          | 46.00          | -10.24      | QP       |
| 6   | 880.0433        | 38.52          | -3.44         | 35.08          | 46.00          | -10.92      | QP       |

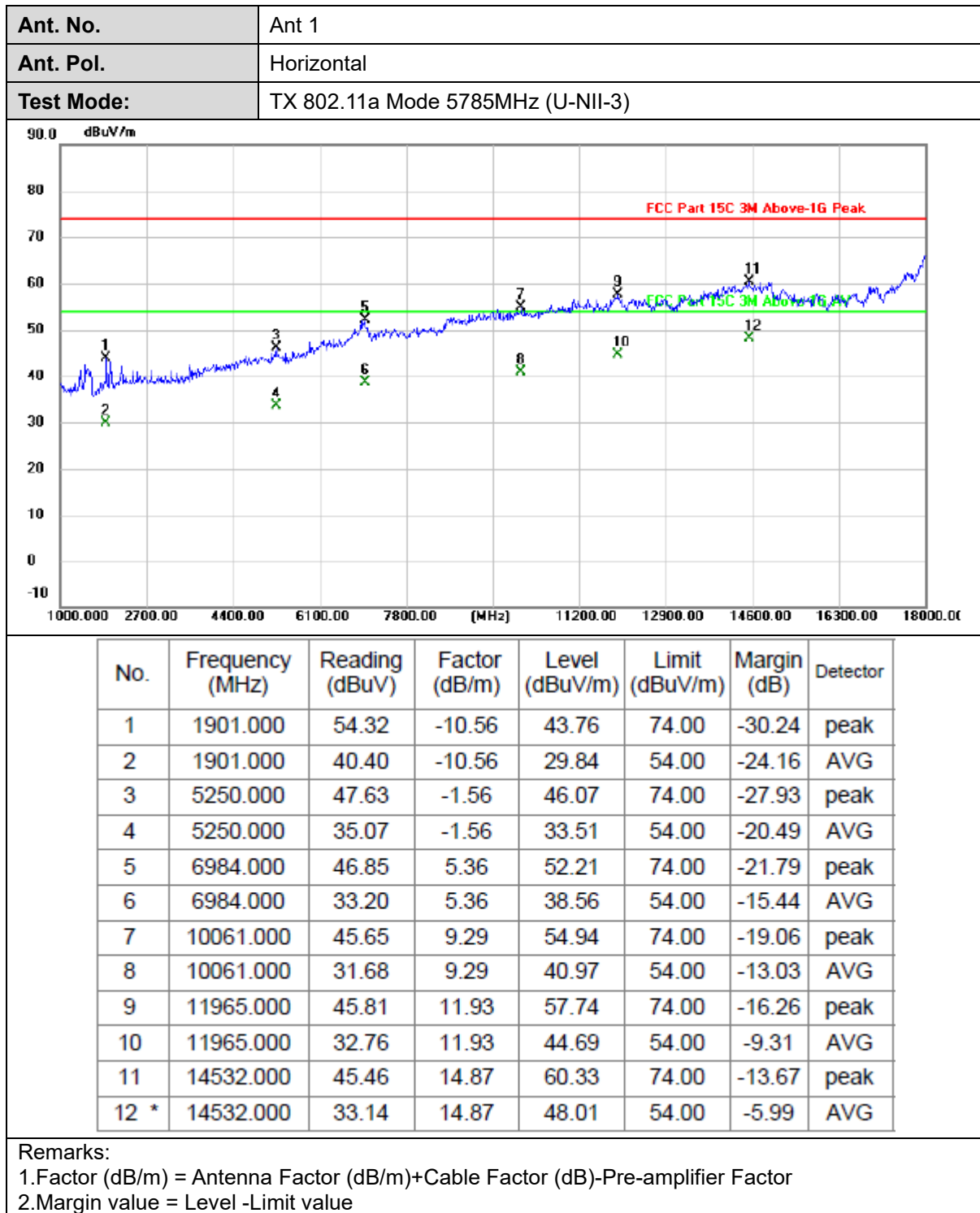
## Remarks:

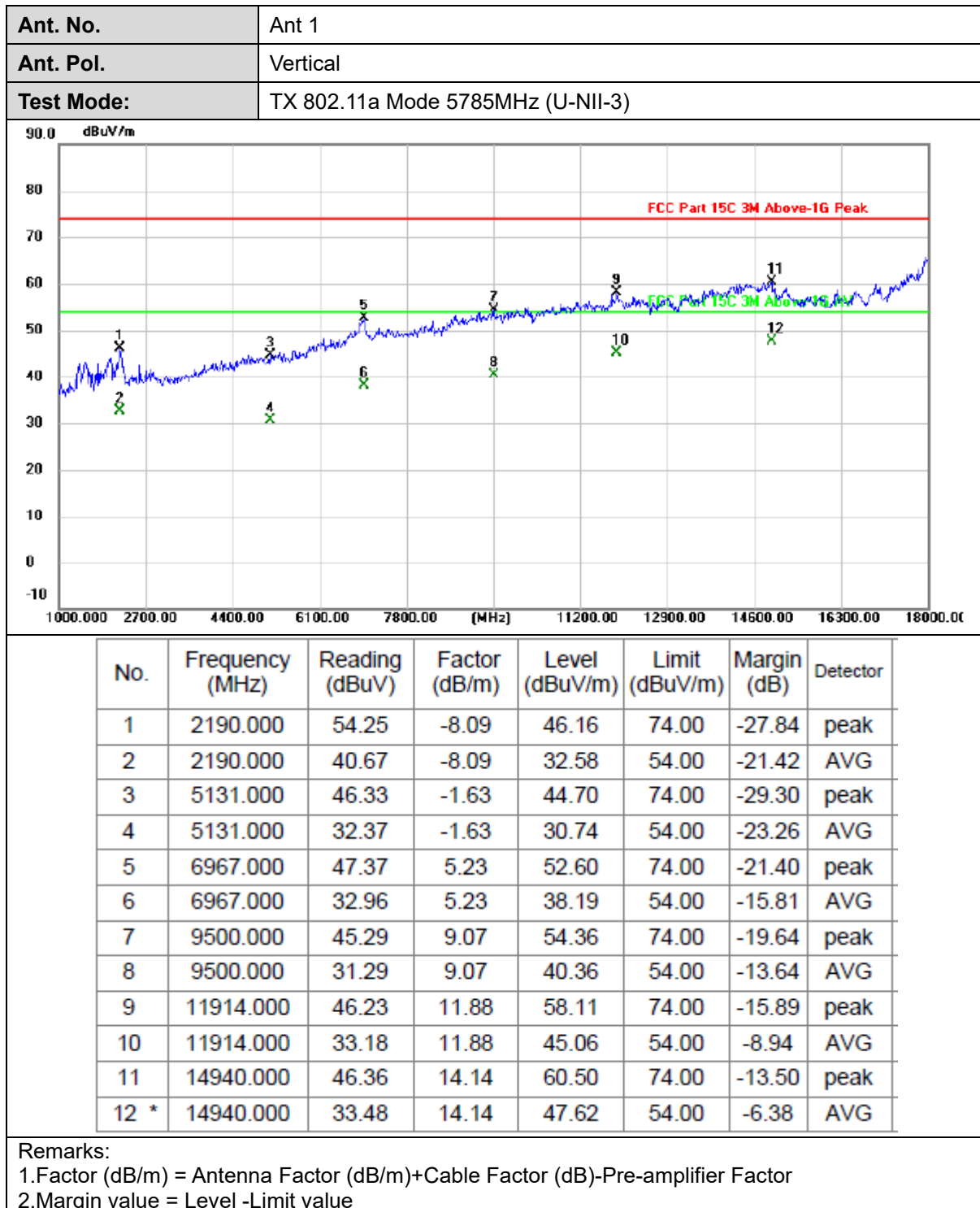
1. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor

2. Margin value = Level - Limit value

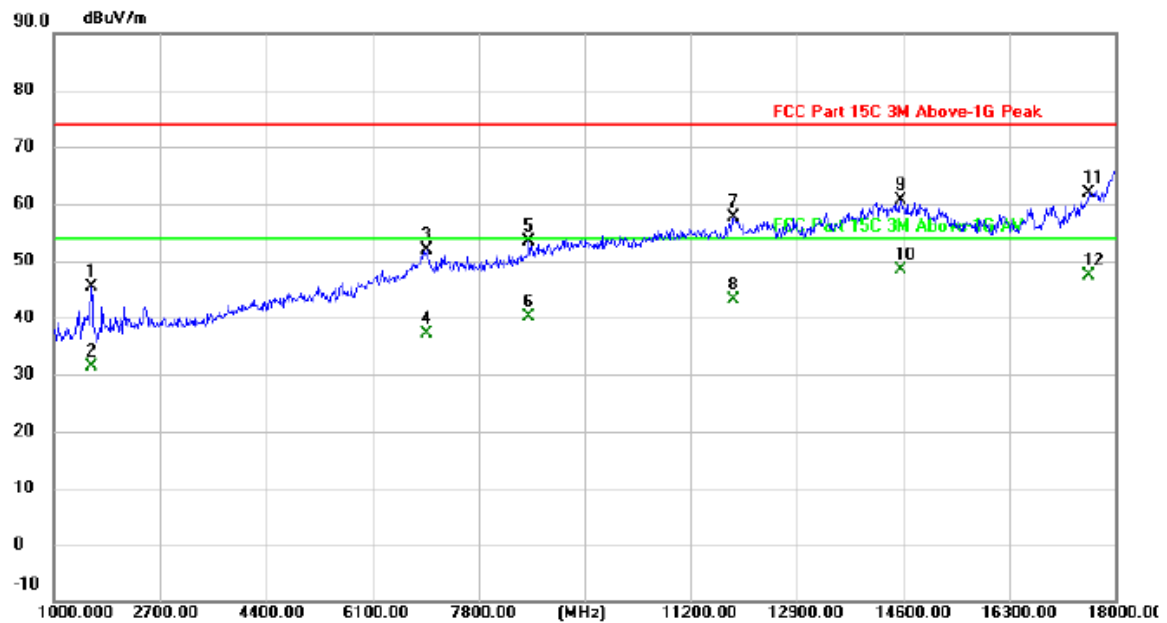
**1GHz-18GHz**







|            |                                   |
|------------|-----------------------------------|
| Ant. No.   | Ant 1                             |
| Ant. Pol.  | Horizontal                        |
| Test Mode: | TX 802.11a Mode 5825MHz (U-NII-3) |

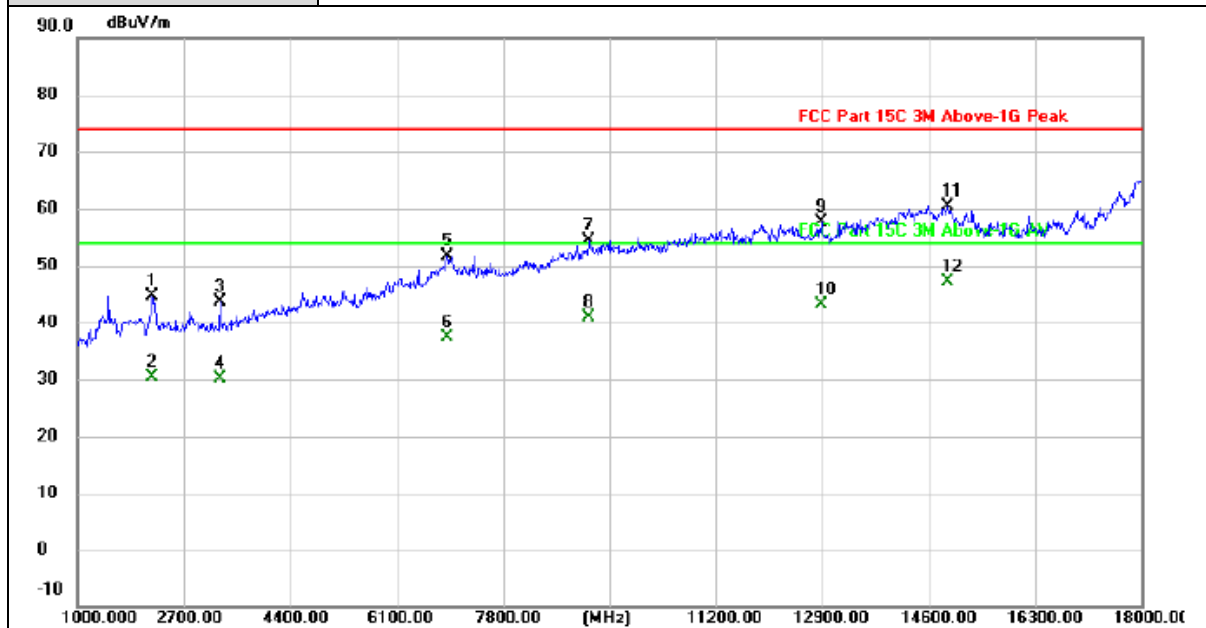


| No.  | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|------|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1    | 1595.000        | 57.14          | -11.67        | 45.47          | 74.00          | -28.53      | peak     |
| 2    | 1595.000        | 42.93          | -11.67        | 31.26          | 54.00          | -22.74      | AVG      |
| 3    | 6967.000        | 46.63          | 5.23          | 51.86          | 74.00          | -22.14      | peak     |
| 4    | 6967.000        | 31.86          | 5.23          | 37.09          | 54.00          | -16.91      | AVG      |
| 5    | 8599.000        | 45.62          | 7.65          | 53.27          | 74.00          | -20.73      | peak     |
| 6    | 8599.000        | 32.42          | 7.65          | 40.07          | 54.00          | -13.93      | AVG      |
| 7    | 11880.000       | 45.81          | 11.85         | 57.66          | 74.00          | -16.34      | peak     |
| 8    | 11880.000       | 31.30          | 11.85         | 43.15          | 54.00          | -10.85      | AVG      |
| 9    | 14566.000       | 45.78          | 14.88         | 60.66          | 74.00          | -13.34      | peak     |
| 10 * | 14566.000       | 33.57          | 14.88         | 48.45          | 54.00          | -5.55       | AVG      |
| 11   | 17575.000       | 46.23          | 15.72         | 61.95          | 74.00          | -12.05      | peak     |
| 12   | 17575.000       | 31.64          | 15.72         | 47.36          | 54.00          | -6.64       | AVG      |

## Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value

|            |                                   |
|------------|-----------------------------------|
| Ant. No.   | Ant 1                             |
| Ant. Pol.  | Vertical                          |
| Test Mode: | TX 802.11a Mode 5825MHz (U-NII-3) |



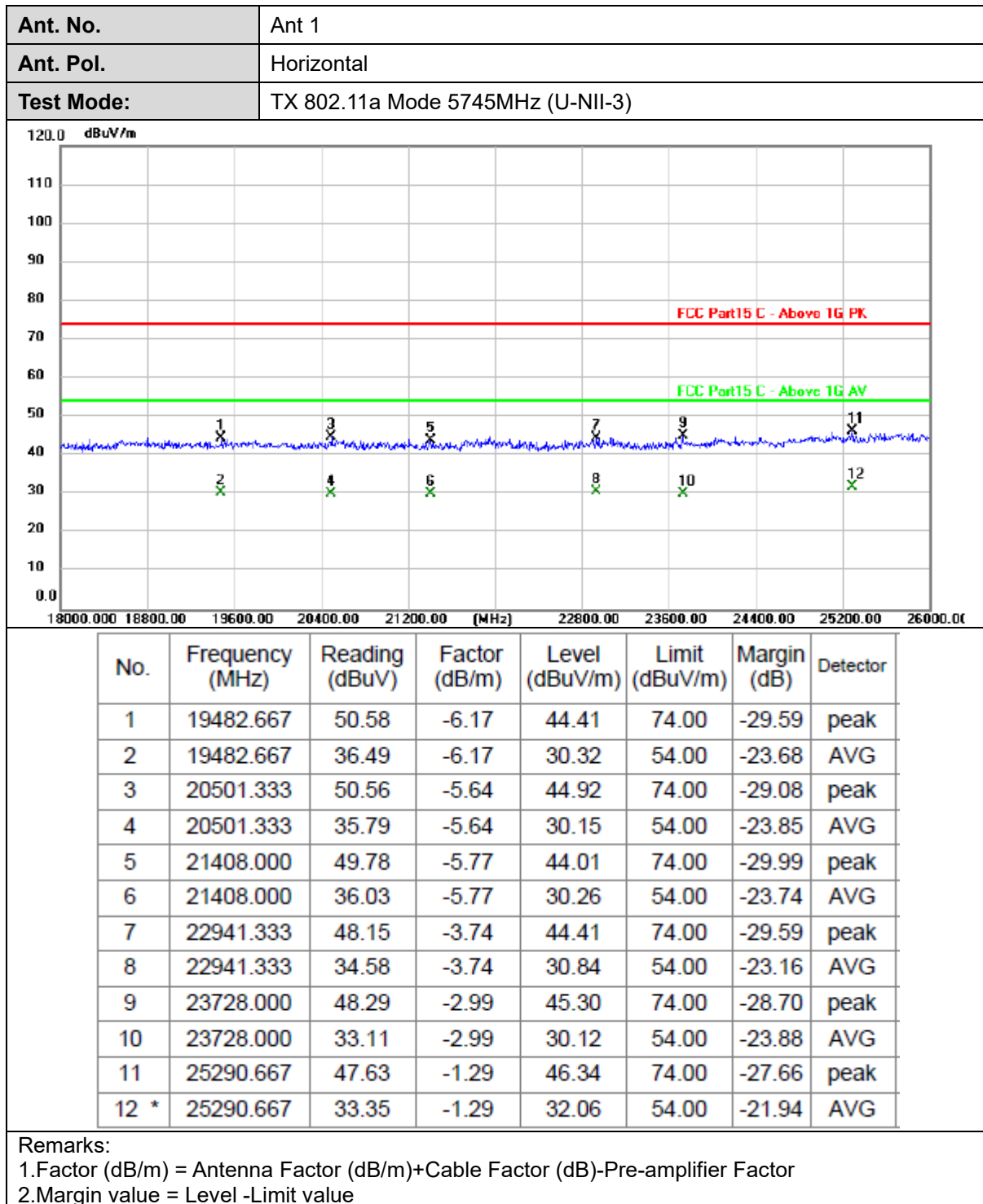
| No.  | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|------|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1    | 2190.000        | 52.67          | -8.09         | 44.58          | 74.00          | -29.42      | peak     |
| 2    | 2190.000        | 38.50          | -8.09         | 30.41          | 54.00          | -23.59      | AVG      |
| 3    | 3278.000        | 50.50          | -6.85         | 43.65          | 74.00          | -30.35      | peak     |
| 4    | 3278.000        | 36.92          | -6.85         | 30.07          | 54.00          | -23.93      | AVG      |
| 5    | 6899.000        | 46.98          | 4.64          | 51.62          | 74.00          | -22.38      | peak     |
| 6    | 6899.000        | 32.72          | 4.64          | 37.36          | 54.00          | -16.64      | AVG      |
| 7    | 9177.000        | 45.50          | 8.94          | 54.44          | 74.00          | -19.56      | peak     |
| 8    | 9177.000        | 31.93          | 8.94          | 40.87          | 54.00          | -13.13      | AVG      |
| 9    | 12883.000       | 46.04          | 11.51         | 57.55          | 74.00          | -16.45      | peak     |
| 10   | 12883.000       | 31.64          | 11.51         | 43.15          | 54.00          | -10.85      | AVG      |
| 11   | 14906.000       | 46.14          | 14.21         | 60.35          | 74.00          | -13.65      | peak     |
| 12 * | 14906.000       | 32.85          | 14.21         | 47.06          | 54.00          | -6.94       | AVG      |

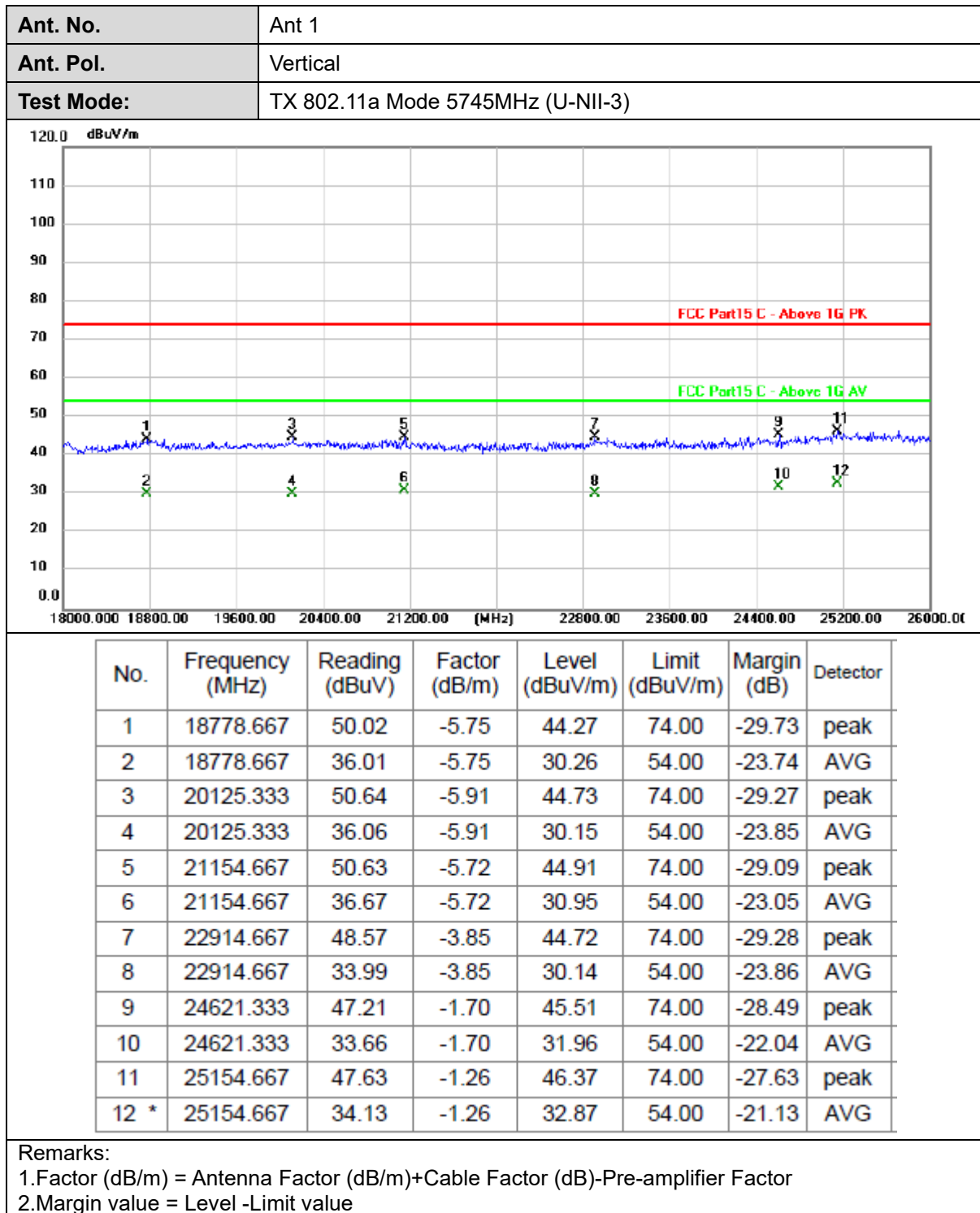
Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor

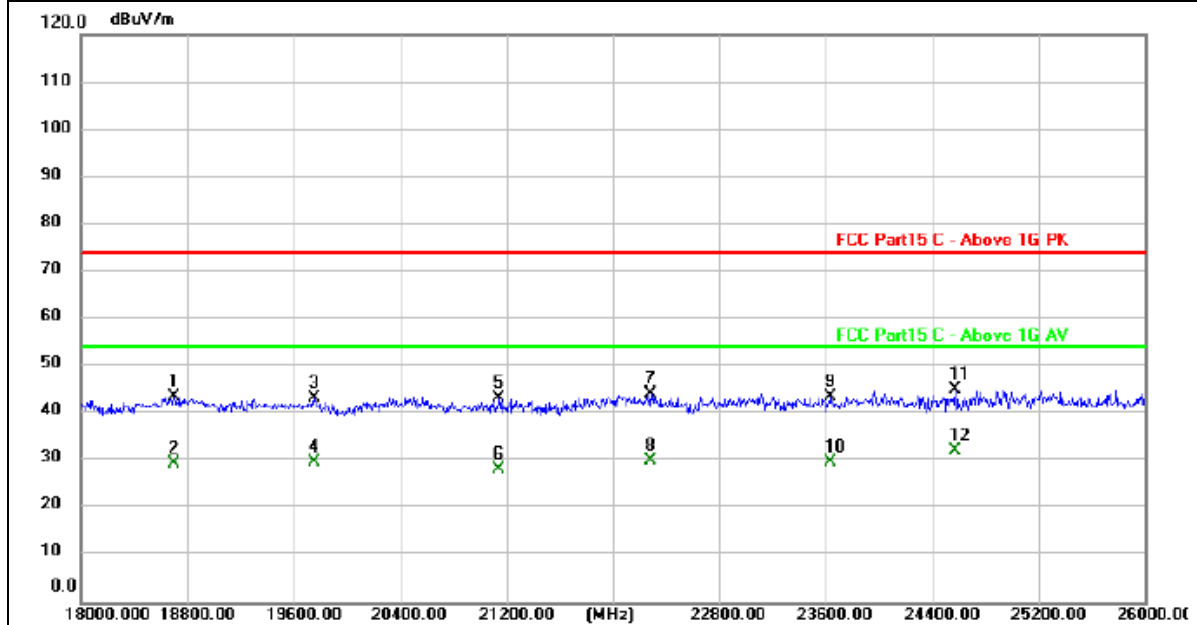
2. Margin value = Level - Limit value

## 18GHz-26GHz





|            |                                   |
|------------|-----------------------------------|
| Ant. No.   | Ant 1                             |
| Ant. Pol.  | Horizontal                        |
| Test Mode: | TX 802.11a Mode 5785MHz (U-NII-3) |

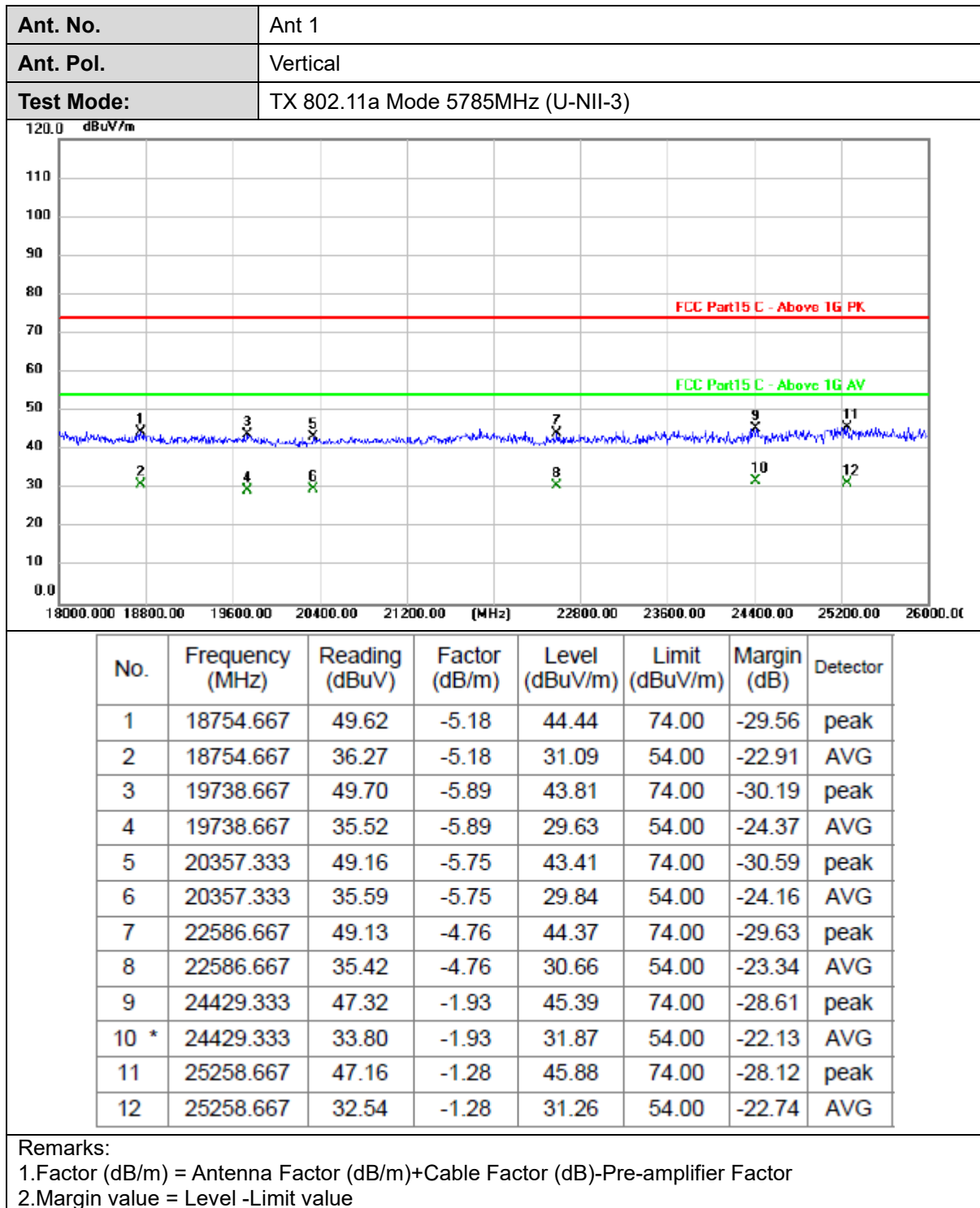


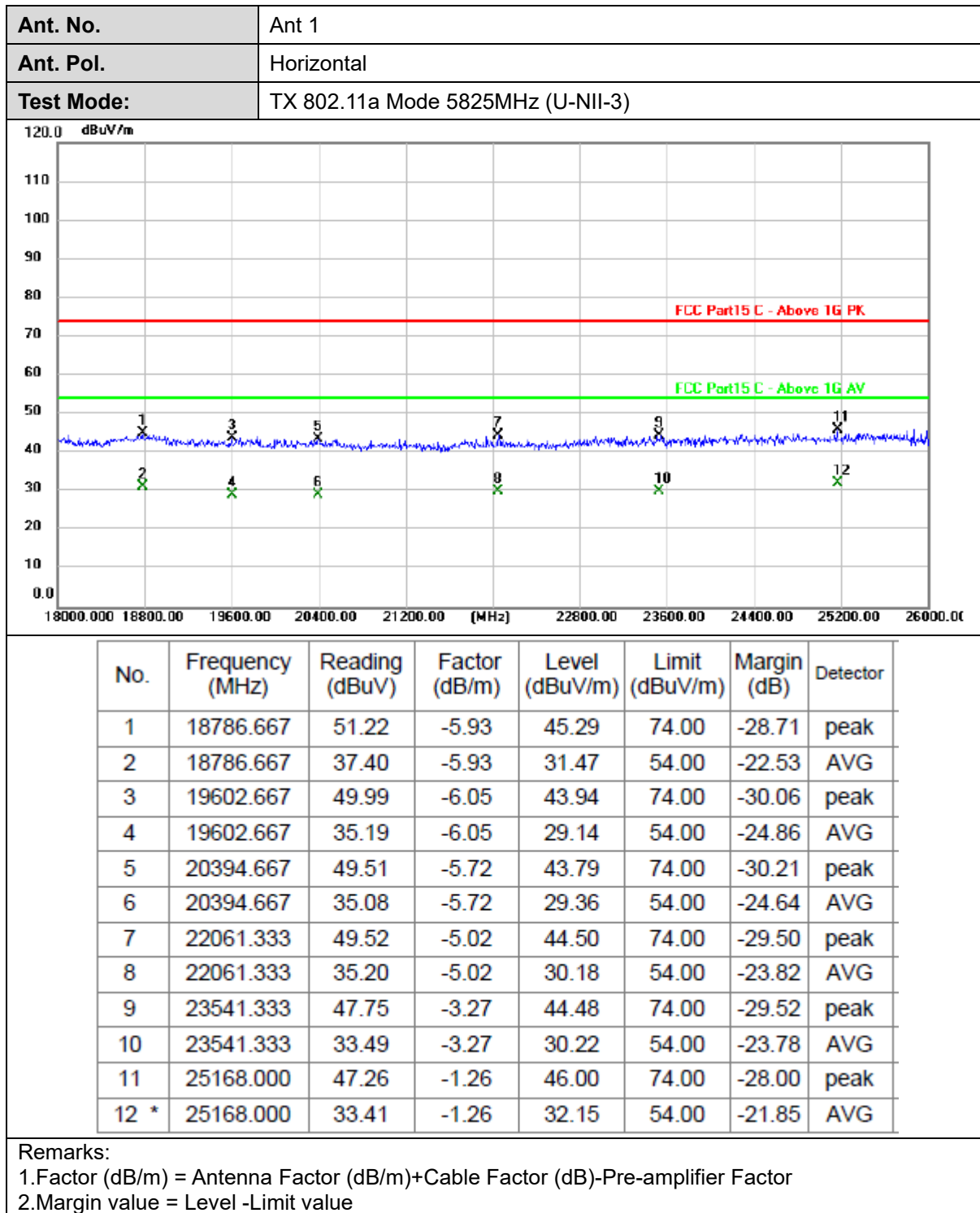
| No.  | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|------|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1    | 18696.000       | 50.03          | -6.36         | 43.67          | 74.00          | -30.33      | peak     |
| 2    | 18696.000       | 35.99          | -6.36         | 29.63          | 54.00          | -24.37      | AVG      |
| 3    | 19754.667       | 49.27          | -5.89         | 43.38          | 74.00          | -30.62      | peak     |
| 4    | 19754.667       | 35.73          | -5.89         | 29.84          | 54.00          | -24.16      | AVG      |
| 5    | 21146.667       | 48.94          | -5.73         | 43.21          | 74.00          | -30.79      | peak     |
| 6    | 21146.667       | 34.09          | -5.73         | 28.36          | 54.00          | -25.64      | AVG      |
| 7    | 22293.333       | 49.24          | -4.94         | 44.30          | 74.00          | -29.70      | peak     |
| 8    | 22293.333       | 35.10          | -4.94         | 30.16          | 54.00          | -23.84      | AVG      |
| 9    | 23645.333       | 46.66          | -3.12         | 43.54          | 74.00          | -30.46      | peak     |
| 10   | 23645.333       | 32.99          | -3.12         | 29.87          | 54.00          | -24.13      | AVG      |
| 11   | 24576.000       | 47.02          | -1.75         | 45.27          | 74.00          | -28.73      | peak     |
| 12 * | 24576.000       | 33.89          | -1.75         | 32.14          | 54.00          | -21.86      | AVG      |

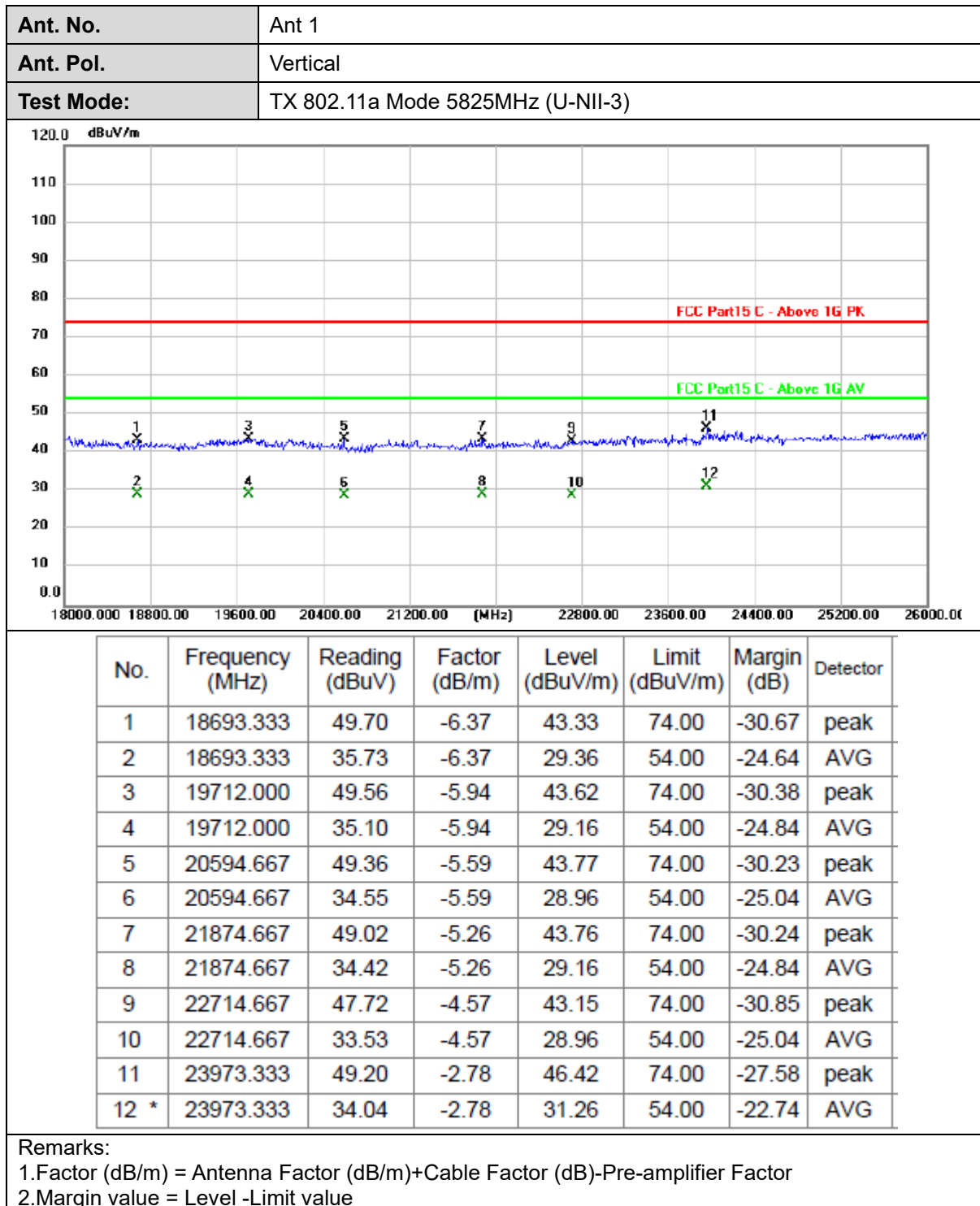
Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor

2. Margin value = Level - Limit value

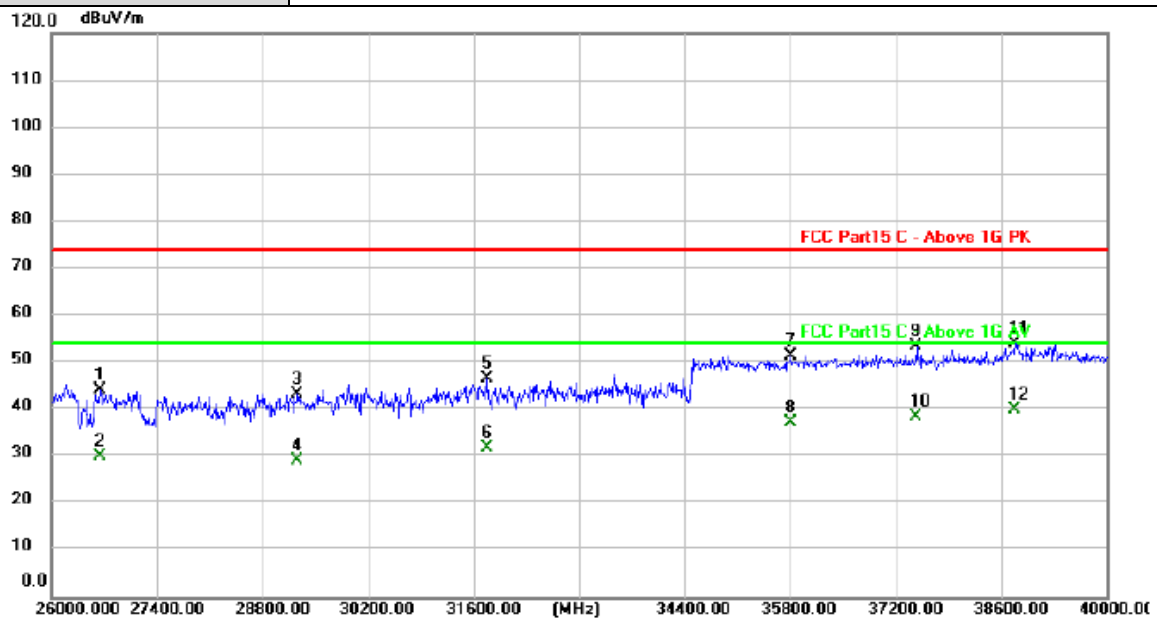






**26GHz-40GHz**

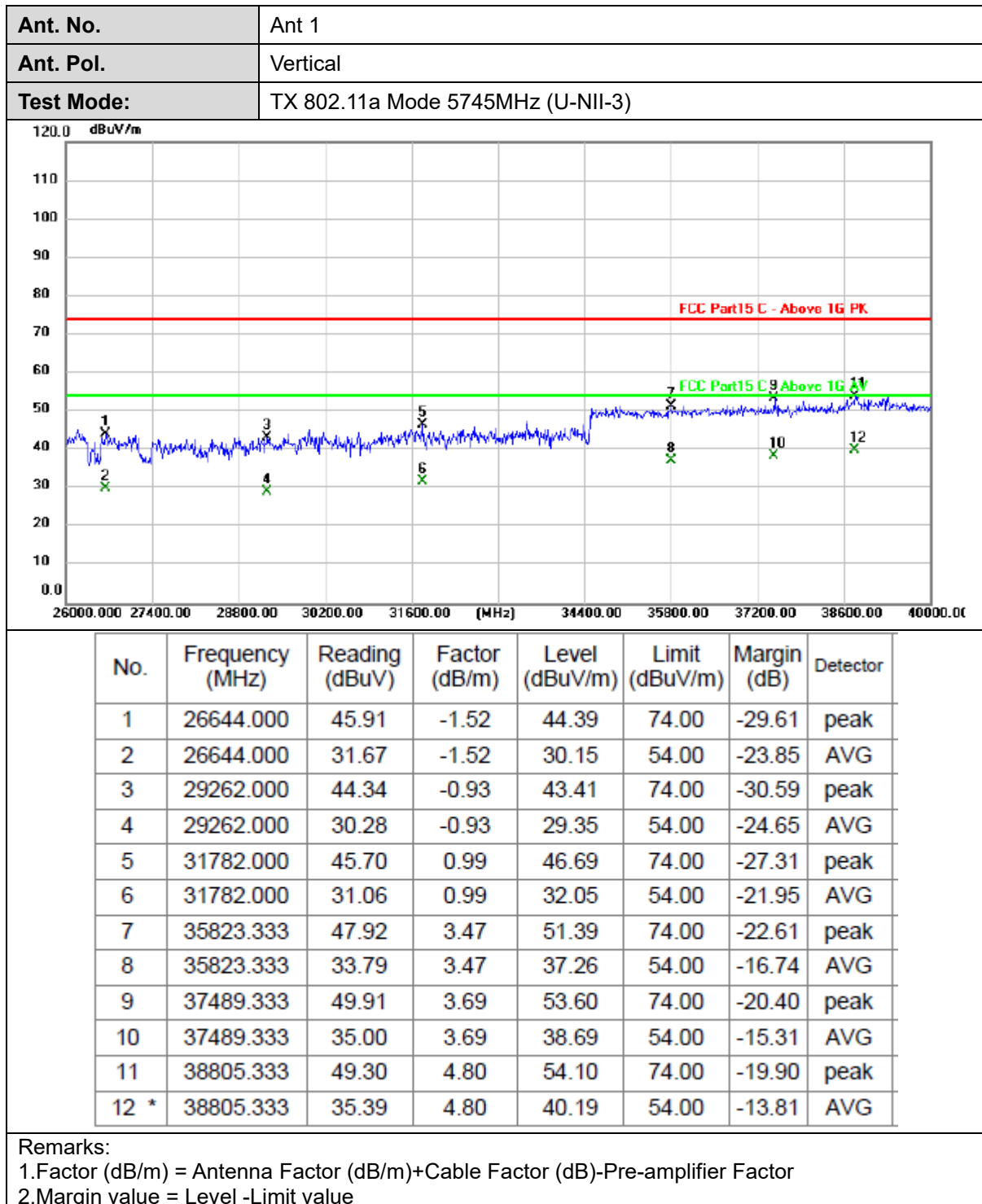
|                   |                                   |
|-------------------|-----------------------------------|
| <b>Ant. No.</b>   | Ant 1                             |
| <b>Ant. Pol.</b>  | Horizontal                        |
| <b>Test Mode:</b> | TX 802.11a Mode 5745MHz (U-NII-3) |

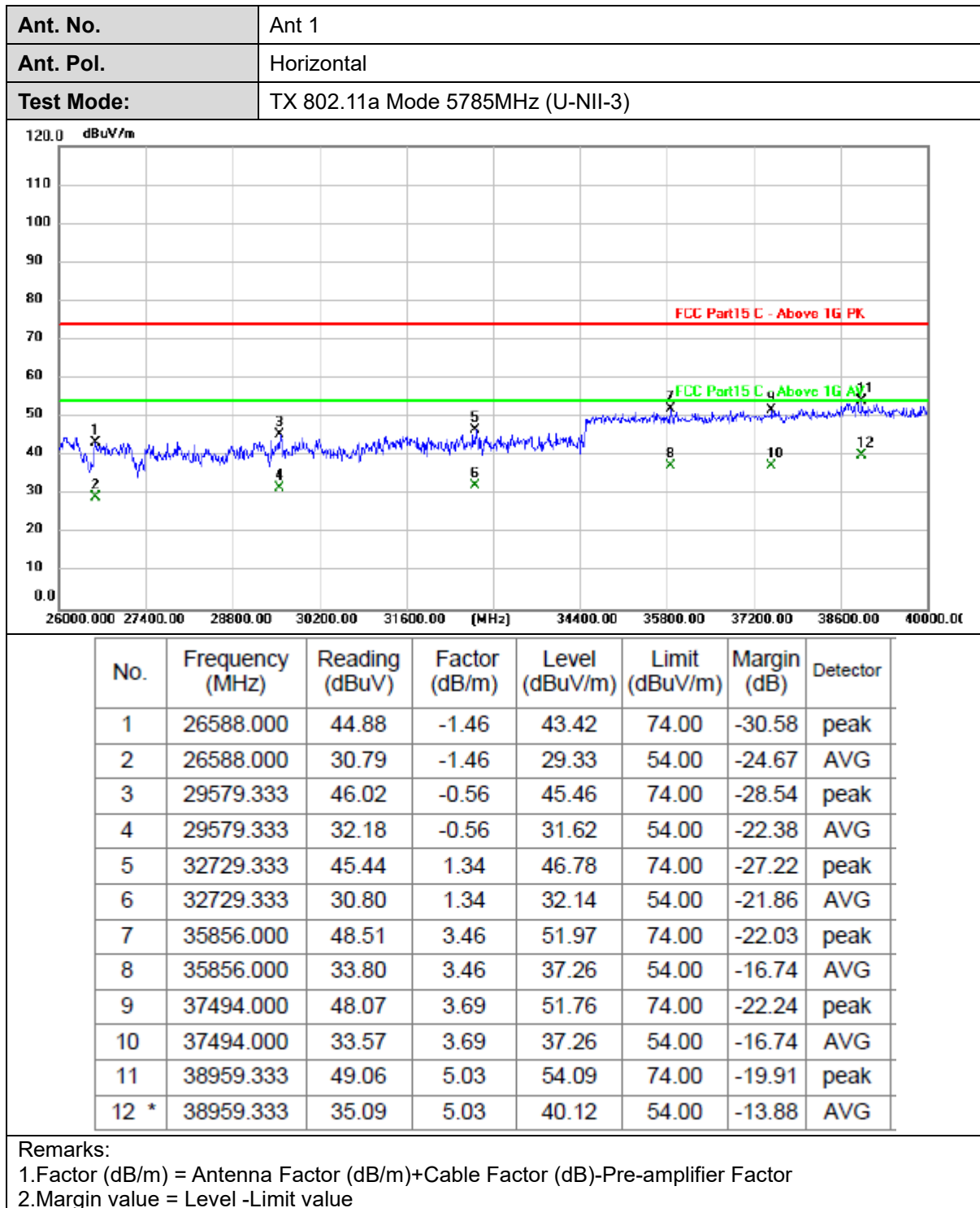


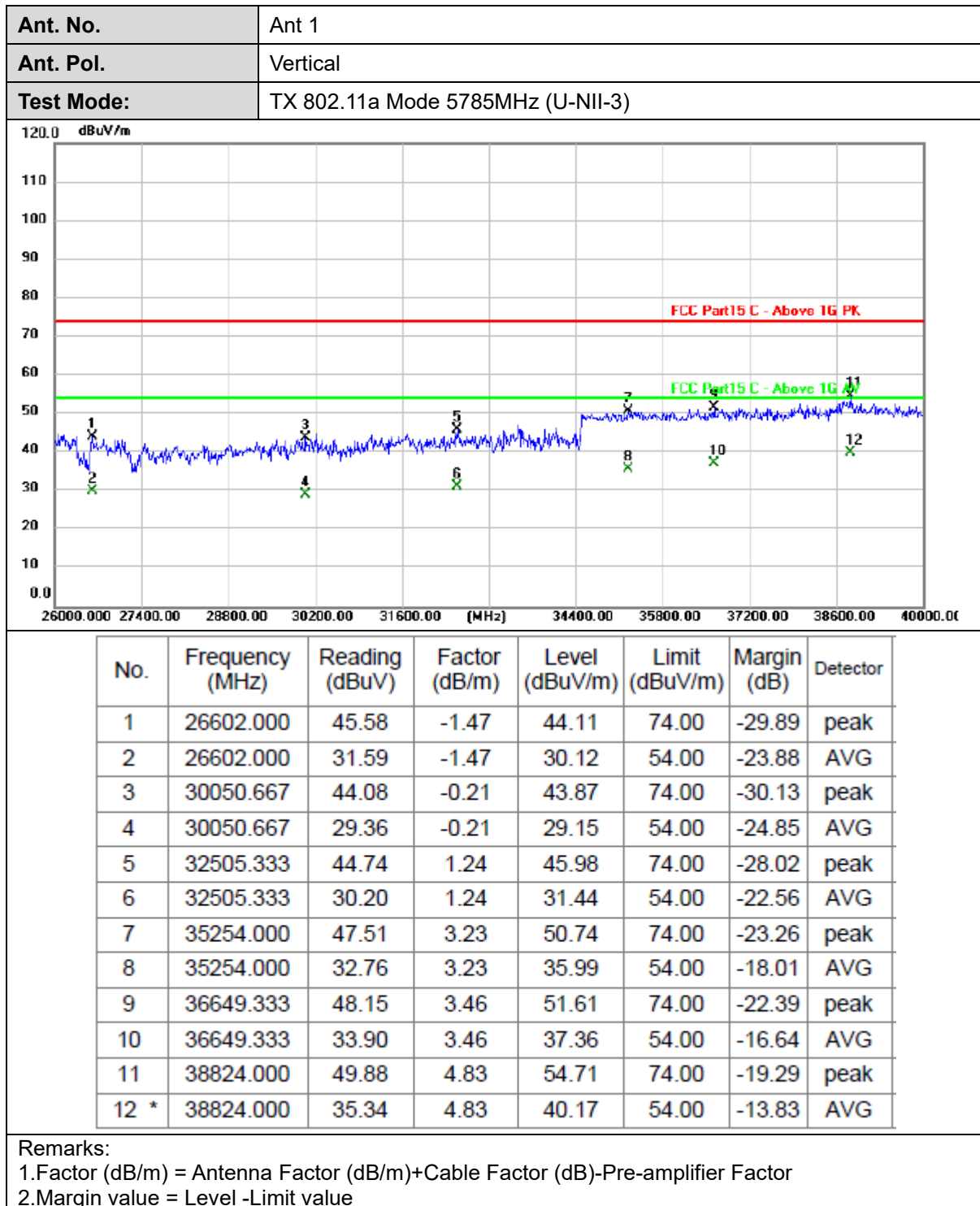
| No.  | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|------|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1    | 26644.000       | 45.91          | -1.52         | 44.39          | 74.00          | -29.61      | peak     |
| 2    | 26644.000       | 31.67          | -1.52         | 30.15          | 54.00          | -23.85      | AVG      |
| 3    | 29262.000       | 44.34          | -0.93         | 43.41          | 74.00          | -30.59      | peak     |
| 4    | 29262.000       | 30.28          | -0.93         | 29.35          | 54.00          | -24.65      | AVG      |
| 5    | 31782.000       | 45.70          | 0.99          | 46.69          | 74.00          | -27.31      | peak     |
| 6    | 31782.000       | 31.06          | 0.99          | 32.05          | 54.00          | -21.95      | AVG      |
| 7    | 35823.333       | 47.92          | 3.47          | 51.39          | 74.00          | -22.61      | peak     |
| 8    | 35823.333       | 33.79          | 3.47          | 37.26          | 54.00          | -16.74      | AVG      |
| 9    | 37489.333       | 49.91          | 3.69          | 53.60          | 74.00          | -20.40      | peak     |
| 10   | 37489.333       | 35.00          | 3.69          | 38.69          | 54.00          | -15.31      | AVG      |
| 11   | 38805.333       | 49.30          | 4.80          | 54.10          | 74.00          | -19.90      | peak     |
| 12 * | 38805.333       | 35.39          | 4.80          | 40.19          | 54.00          | -13.81      | AVG      |

**Remarks:**

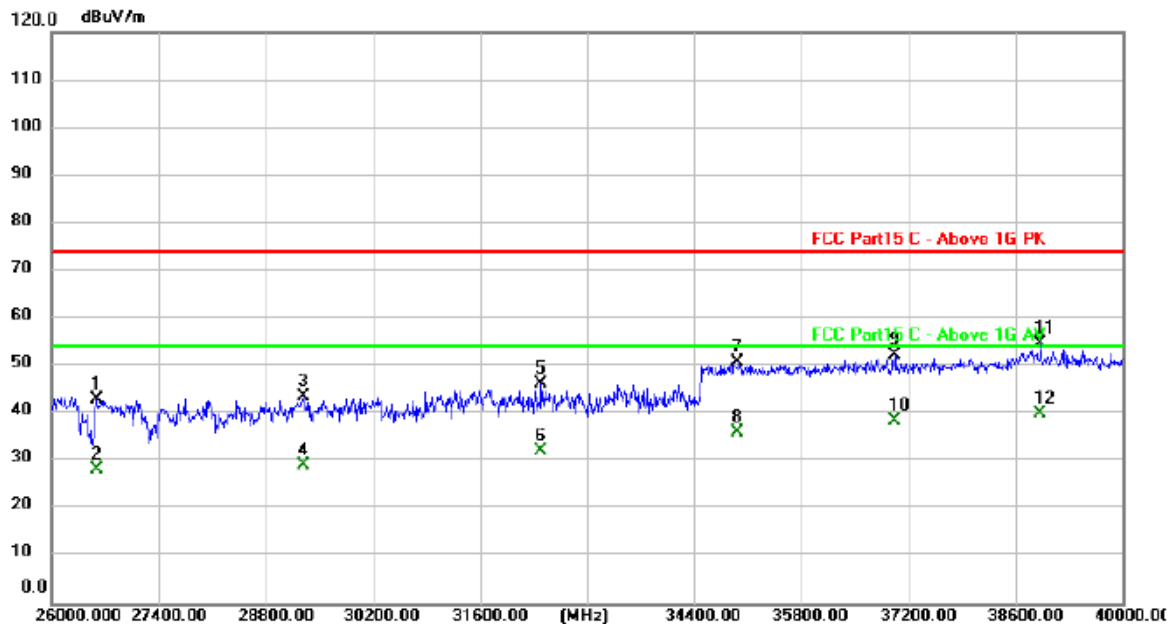
- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value







|            |                                   |
|------------|-----------------------------------|
| Ant. No.   | Ant 1                             |
| Ant. Pol.  | Horizontal                        |
| Test Mode: | TX 802.11a Mode 5825MHz (U-NII-3) |

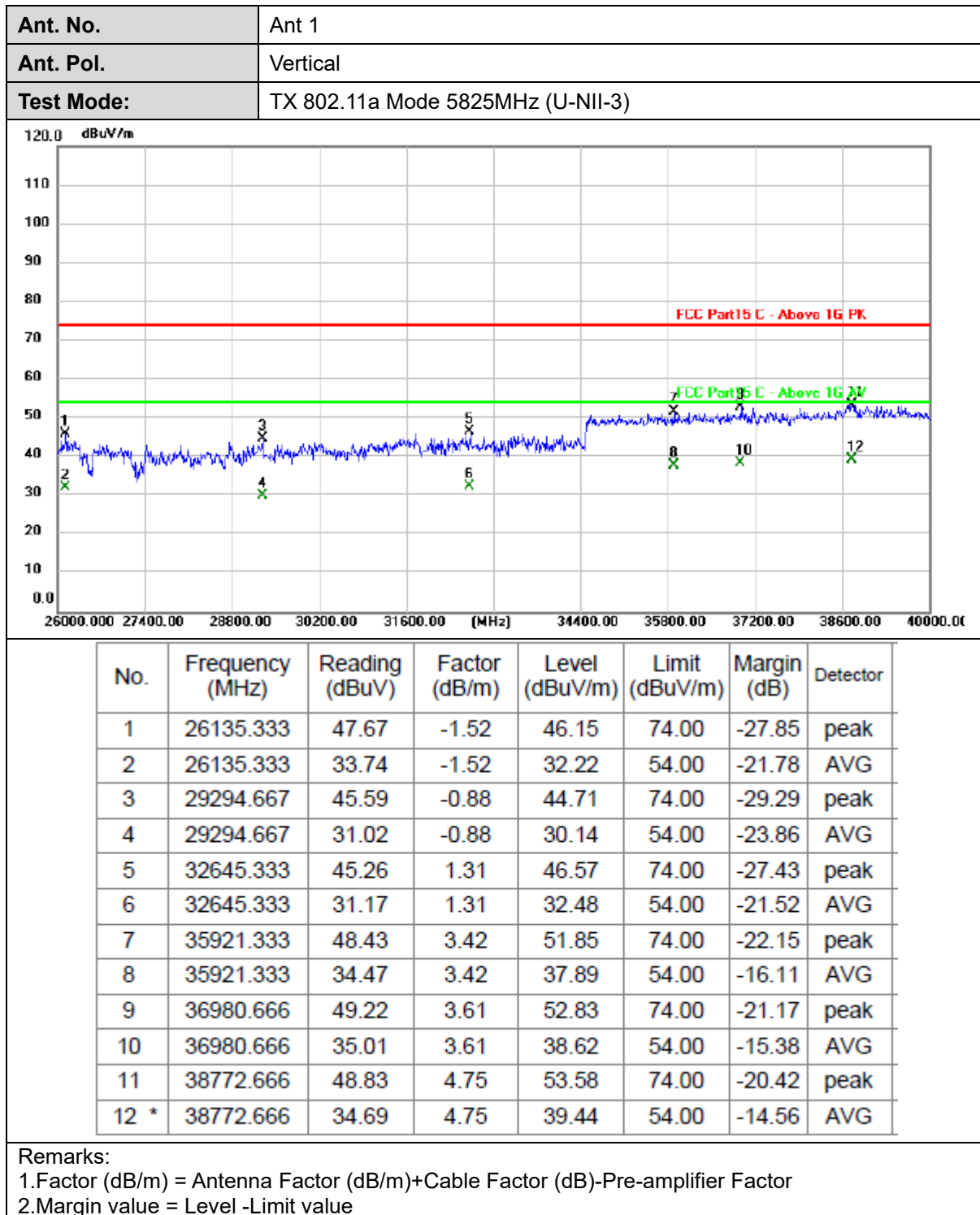


| No.  | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|------|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1    | 26588.000       | 44.51          | -1.46         | 43.05          | 74.00          | -30.95      | peak     |
| 2    | 26588.000       | 29.82          | -1.46         | 28.36          | 54.00          | -25.64      | AVG      |
| 3    | 29290.000       | 44.60          | -0.89         | 43.71          | 74.00          | -30.29      | peak     |
| 4    | 29290.000       | 30.22          | -0.89         | 29.33          | 54.00          | -24.67      | AVG      |
| 5    | 32398.000       | 44.98          | 1.31          | 46.29          | 74.00          | -27.71      | peak     |
| 6    | 32398.000       | 30.79          | 1.31          | 32.10          | 54.00          | -21.90      | AVG      |
| 7    | 34997.333       | 47.61          | 3.25          | 50.86          | 74.00          | -23.14      | peak     |
| 8    | 34997.333       | 33.00          | 3.25          | 36.25          | 54.00          | -17.75      | AVG      |
| 9    | 37036.666       | 48.85          | 3.63          | 52.48          | 74.00          | -21.52      | peak     |
| 10   | 37036.666       | 34.99          | 3.63          | 38.62          | 54.00          | -15.38      | AVG      |
| 11   | 38940.666       | 49.78          | 5.01          | 54.79          | 74.00          | -19.21      | peak     |
| 12 * | 38940.666       | 35.11          | 5.01          | 40.12          | 54.00          | -13.88      | AVG      |

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor

2. Margin value = Level - Limit value



### 3.3. Band Edge Emissions

#### Limit

Limits of unwanted emission out of the restricted bands

FCC CFR Title 47 Part 15 Subpart E Section 15. 407(b)

| Frequency<br>(MHz) | EIRP Limits<br>(dBm) | Equivalent Field Strength<br>at 3m (dBμV/m) |
|--------------------|----------------------|---------------------------------------------|
| 5150~5250          | -27                  | 68.2                                        |
| 5250~5350          | -27                  | 68.2                                        |
| 5470~5725          | -27                  | 68.2                                        |
| 5725~5825          | -27 (Note 2)         | 68.2                                        |
|                    | 10 (Note 2)          | 105.2                                       |
|                    | 15.6 (Note 2)        | 110.8                                       |
|                    | 27 (Note 2)          | 122.2                                       |

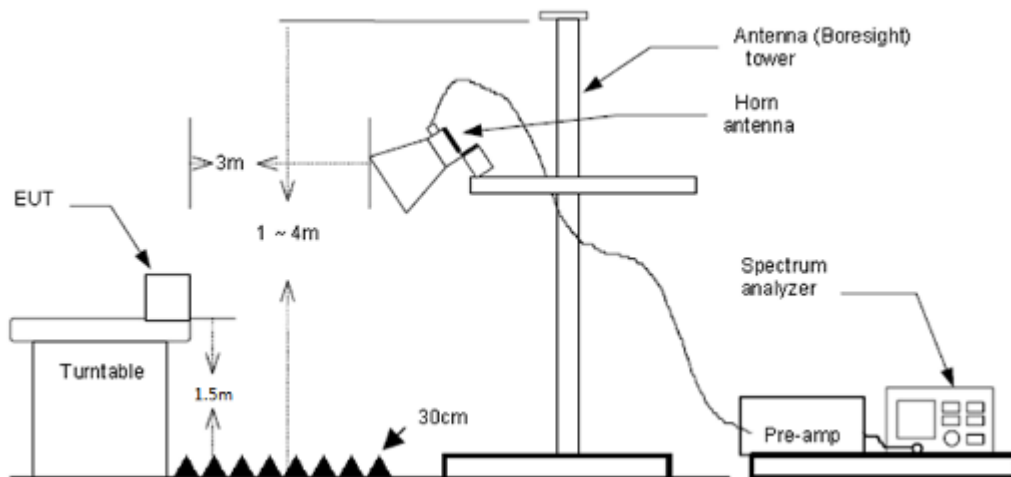
Note:

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

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

2. According to FCC 16-24, 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 25MHz 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 27dBm/MHz at the band edge.

#### Test Configuration



**Test Procedure**

1. The EUT was setup and tested according to ANSI C63.10:2020 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2020 on radiated measurement.
5. The receiver set as follow:  
RBW=1MHz, VBW=3MHz Peak detector for Peak value.  
RBW=1MHz, VBW see note 1 with Peak Detector for Average Value.

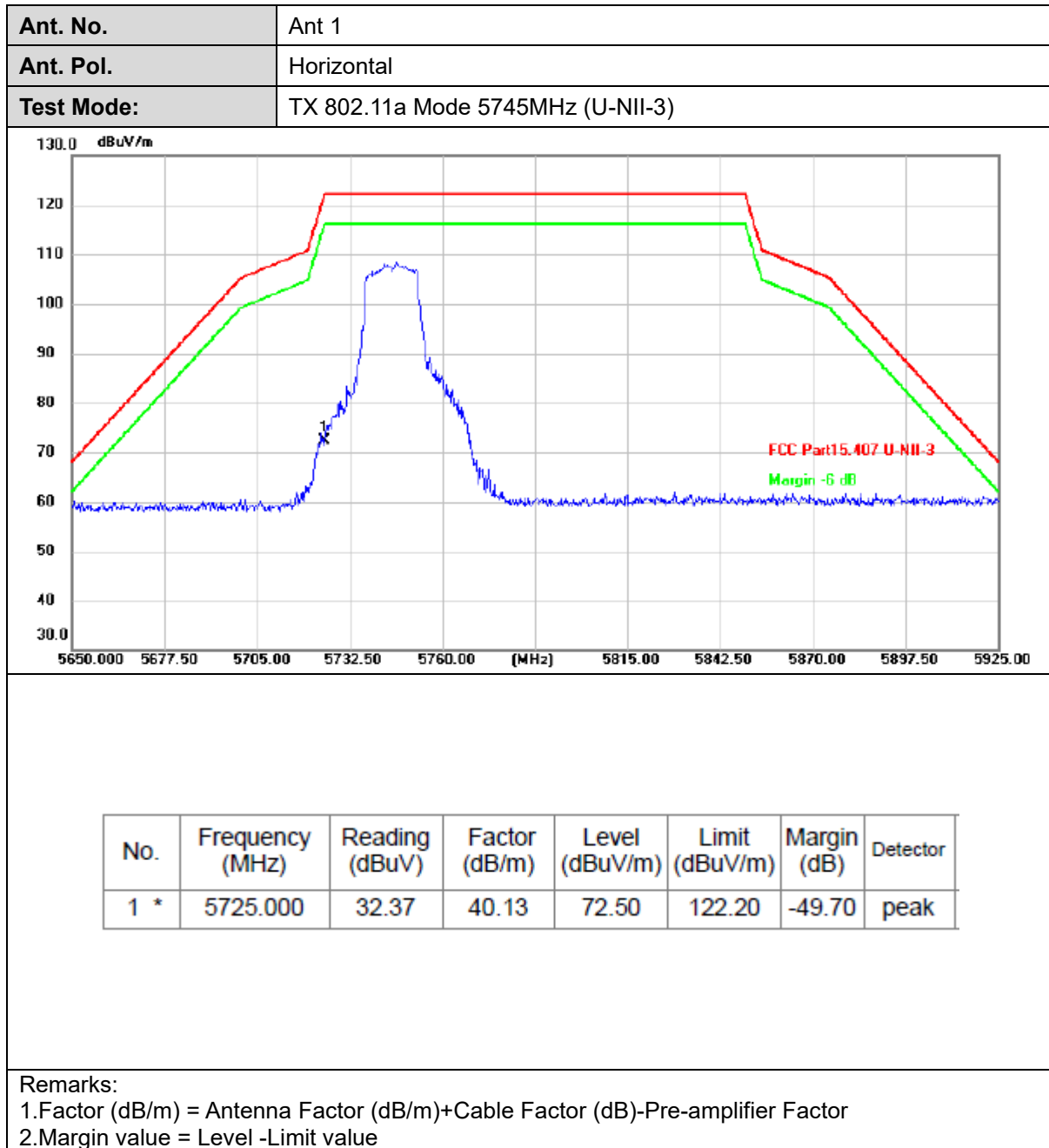
Note 1: For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause Duty Cycle.

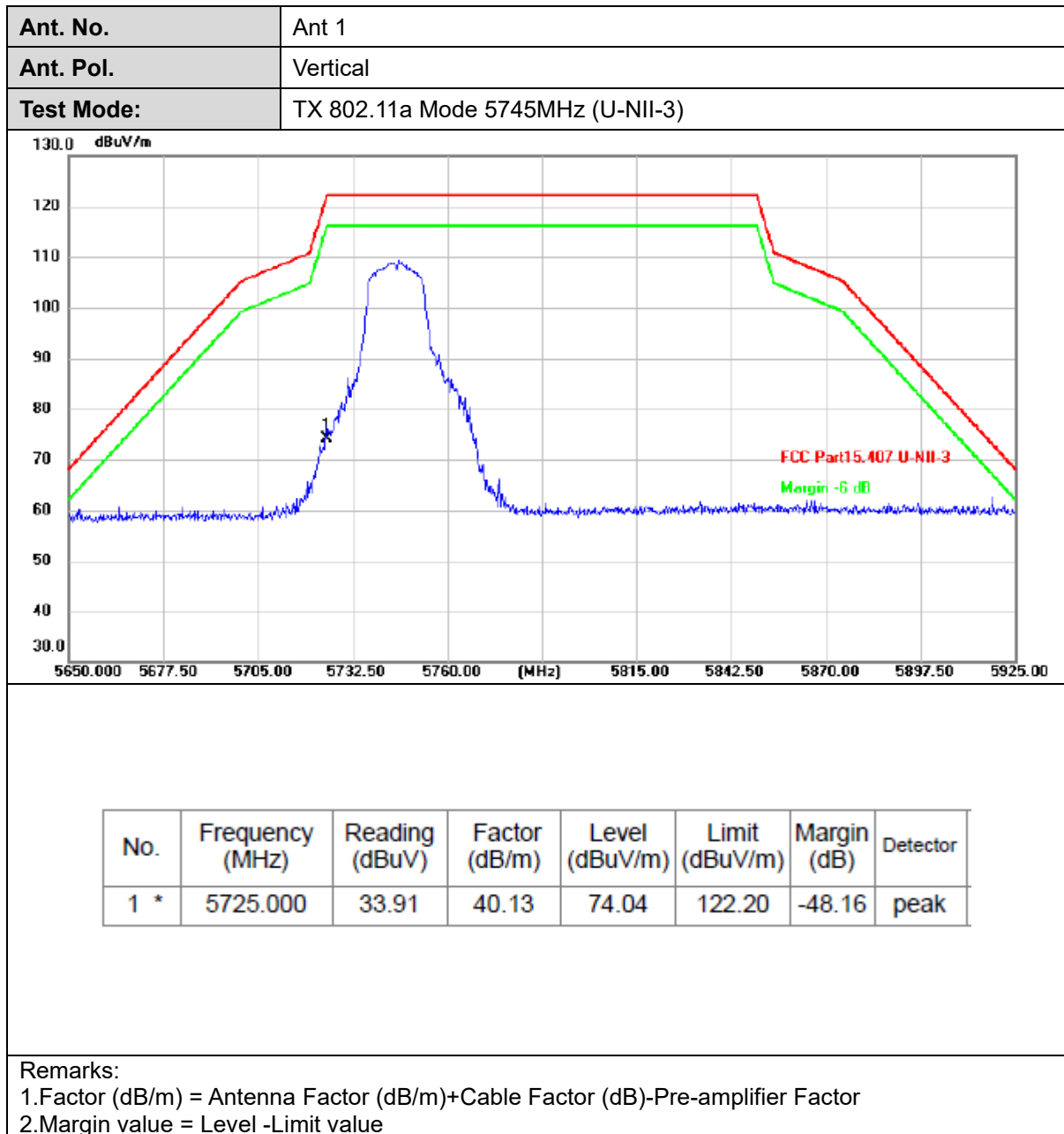
**Test Mode**

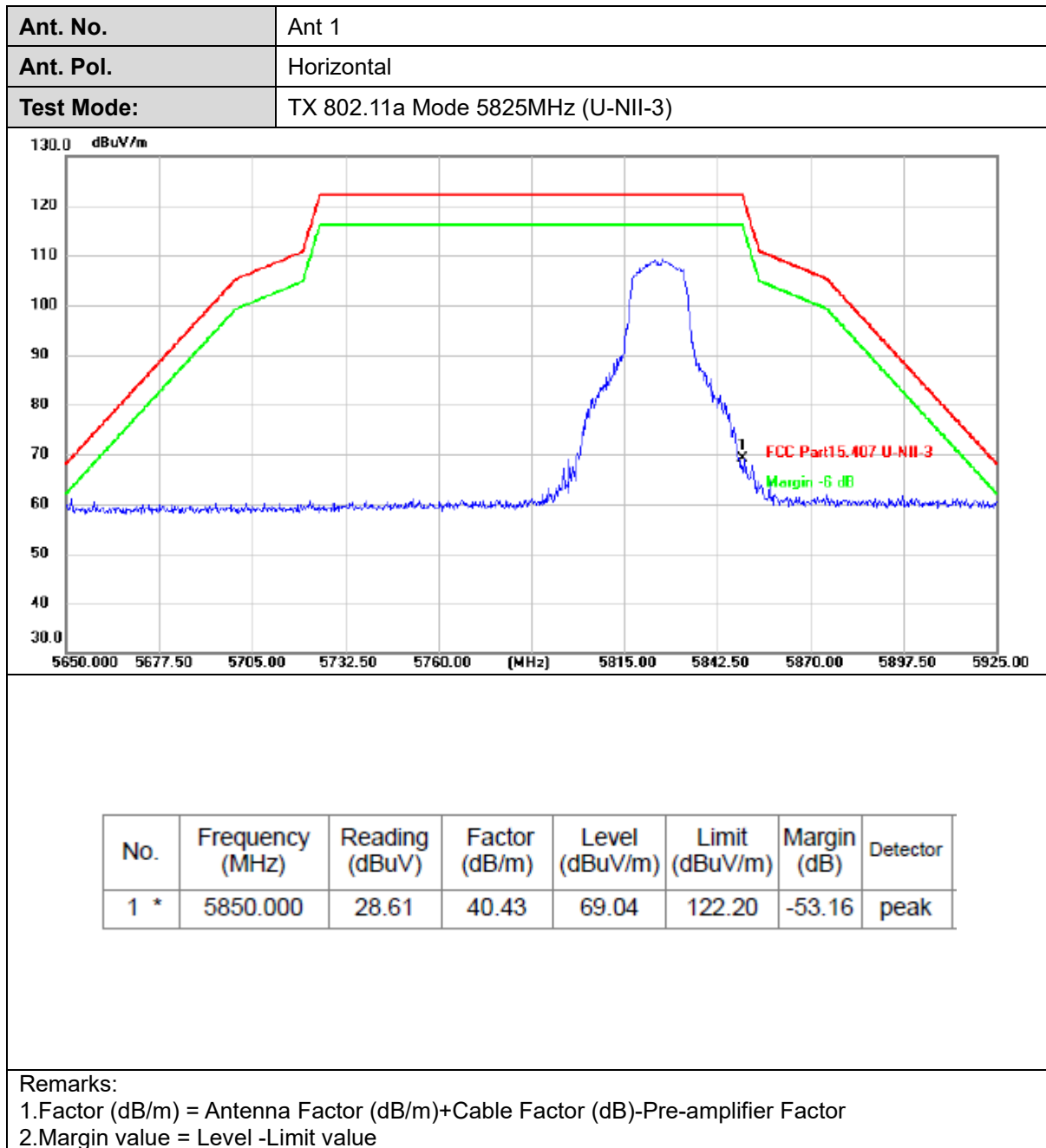
Please refer to the clause 2.4.

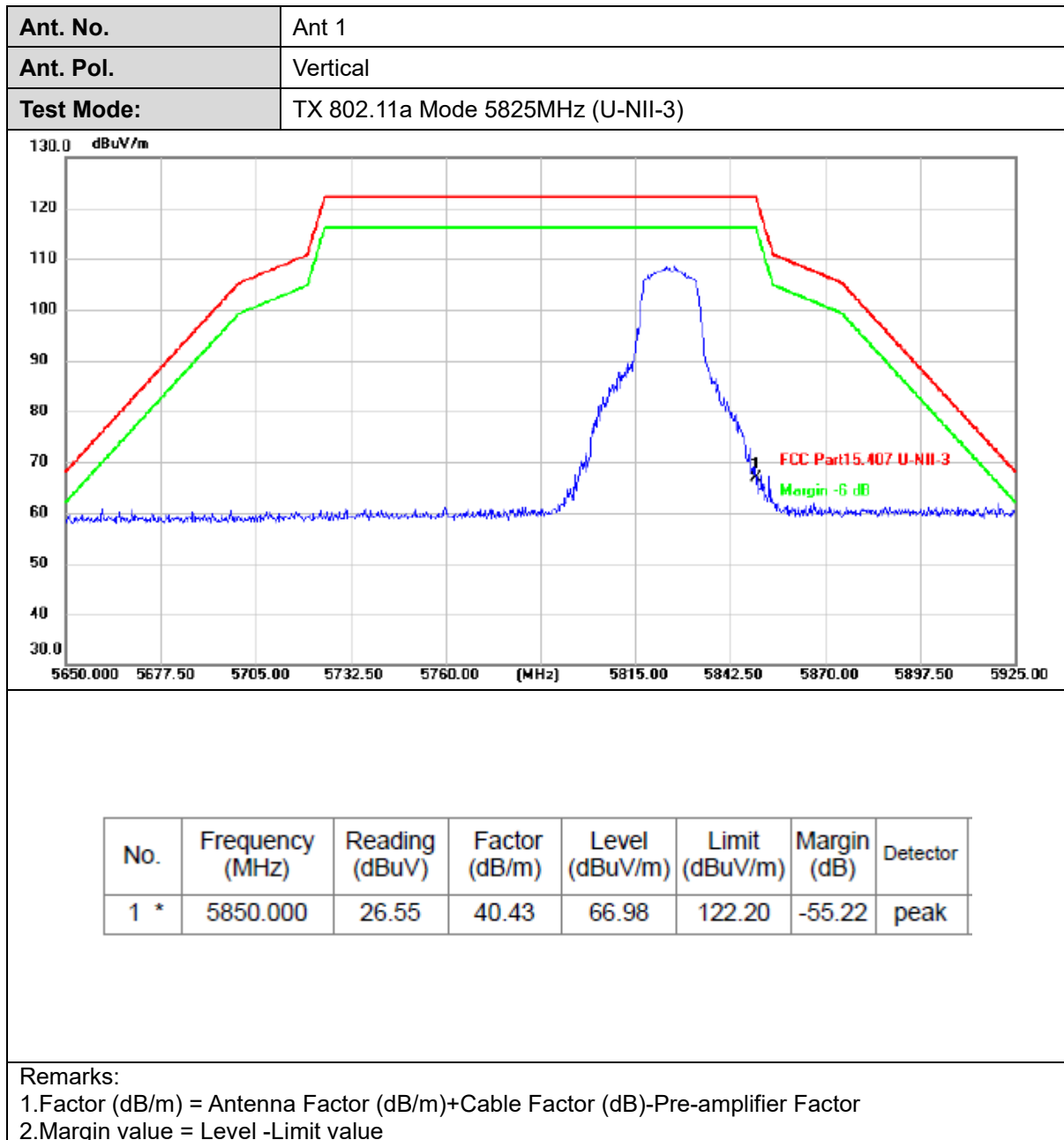
**Test Result**

Note: 1. Pre-scan both 4500-5150MHz were investigated, report only shows the test data for worst case.  
 2. Pre-scan all antenna, only show the test data for worse case antenna on the test report.

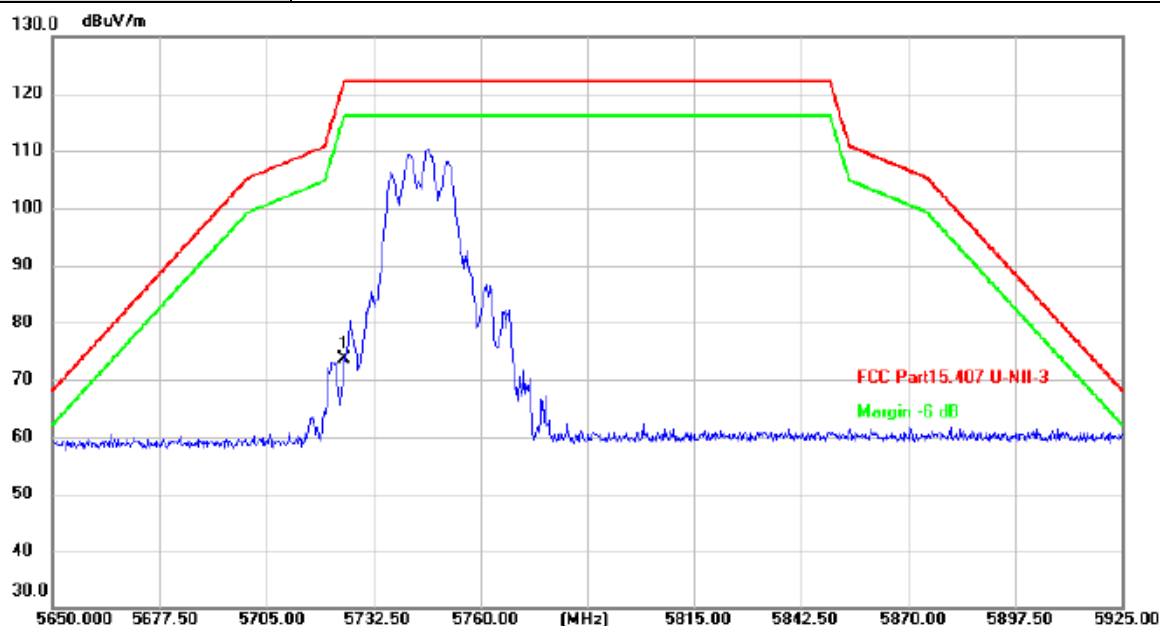








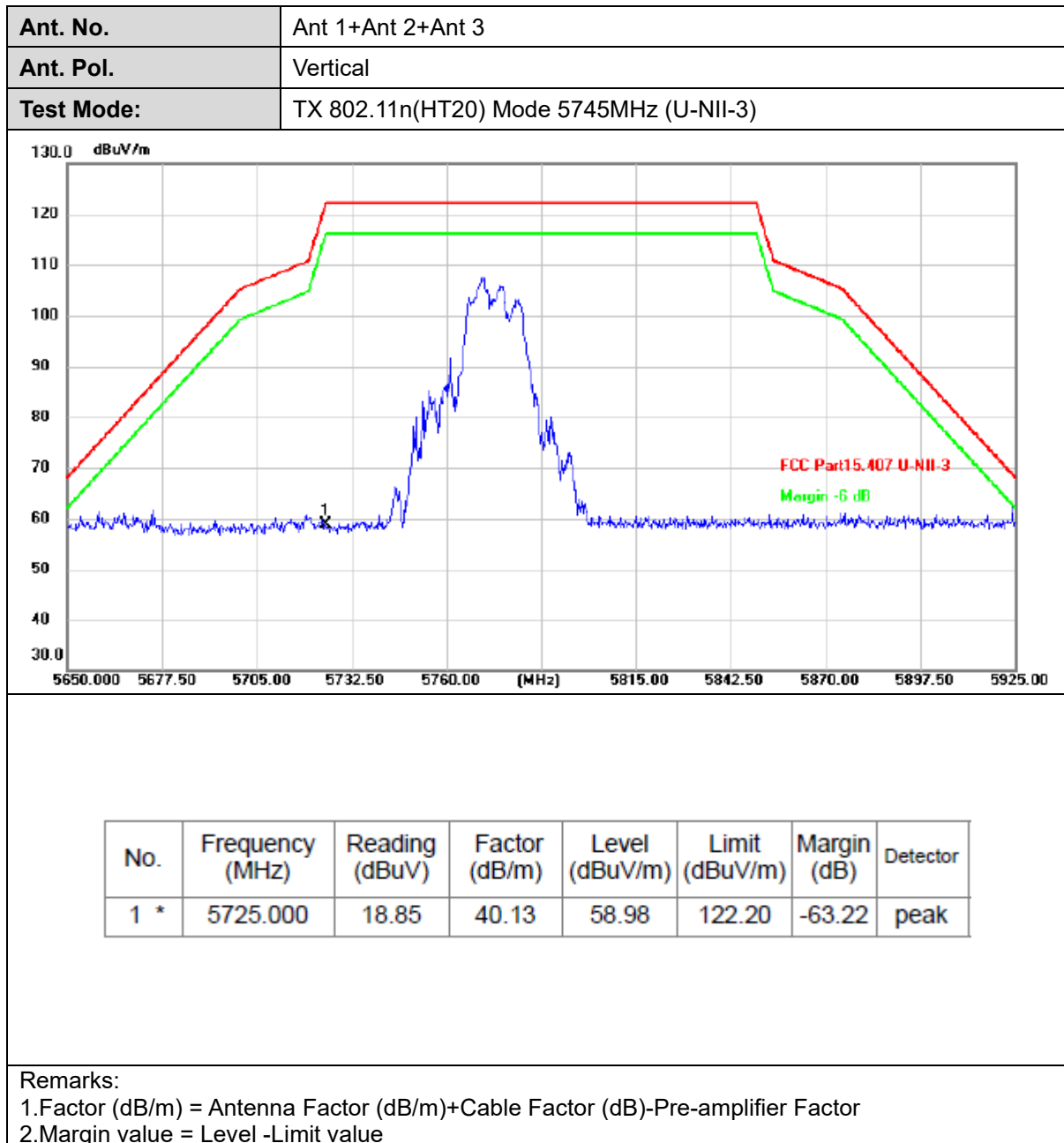
|                   |                                         |
|-------------------|-----------------------------------------|
| <b>Ant. No.</b>   | Ant 1+Ant 2+Ant 3                       |
| <b>Ant. Pol.</b>  | Horizontal                              |
| <b>Test Mode:</b> | TX 802.11n(HT20) Mode 5745MHz (U-NII-3) |

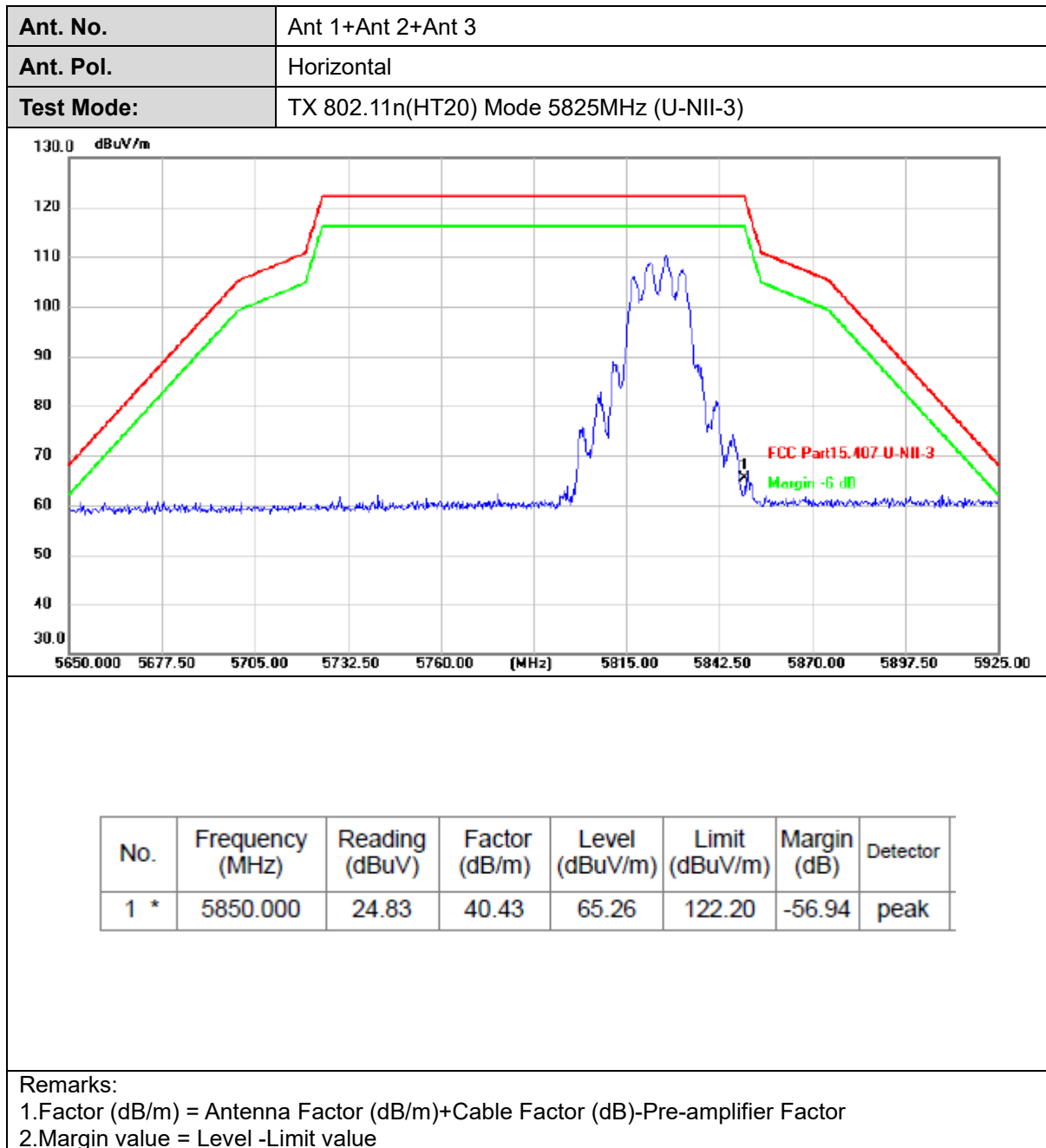


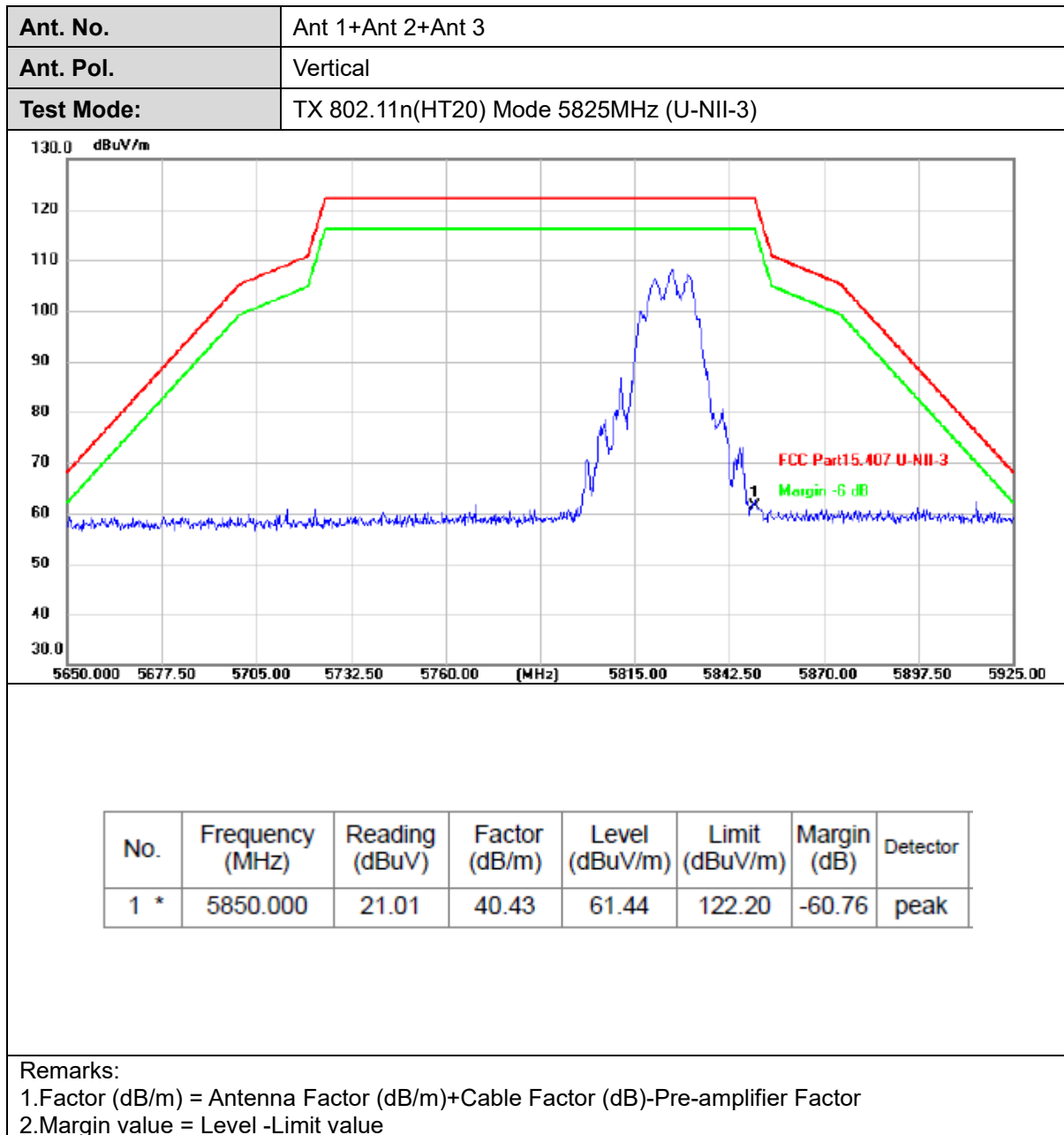
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1 * | 5725.000        | 33.61          | 40.13         | 73.74          | 122.20         | -48.46      | peak     |

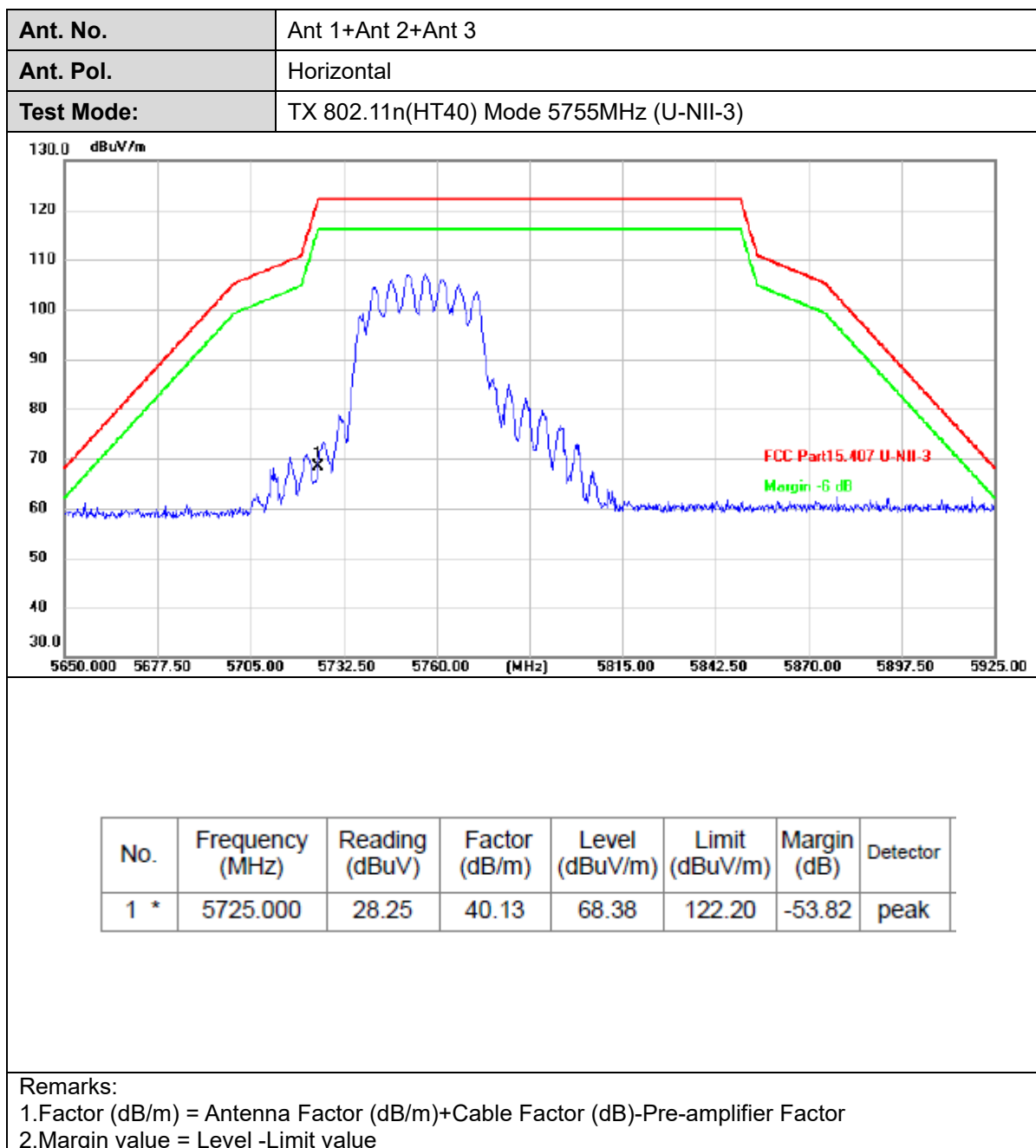
**Remarks:**

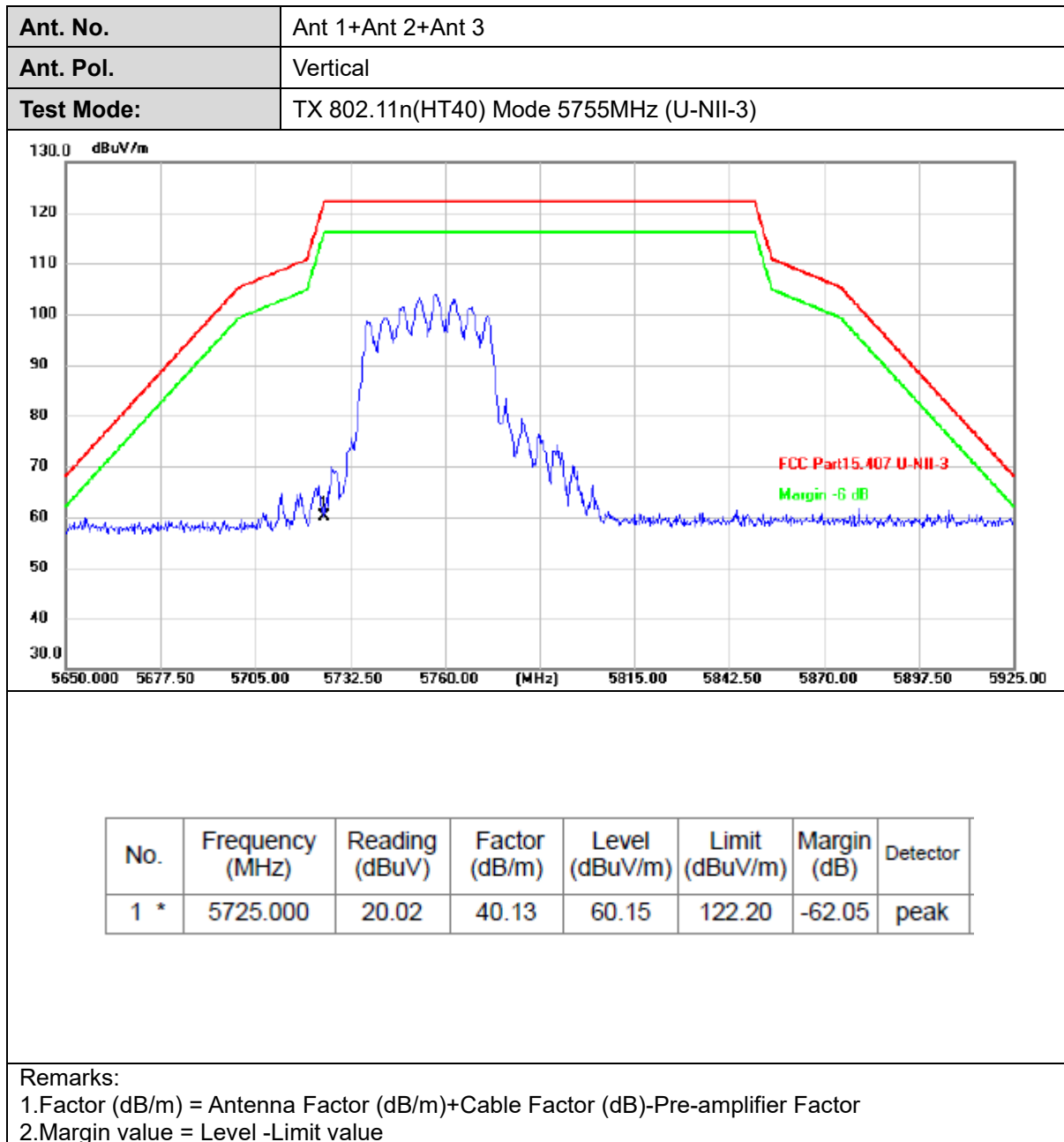
- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value

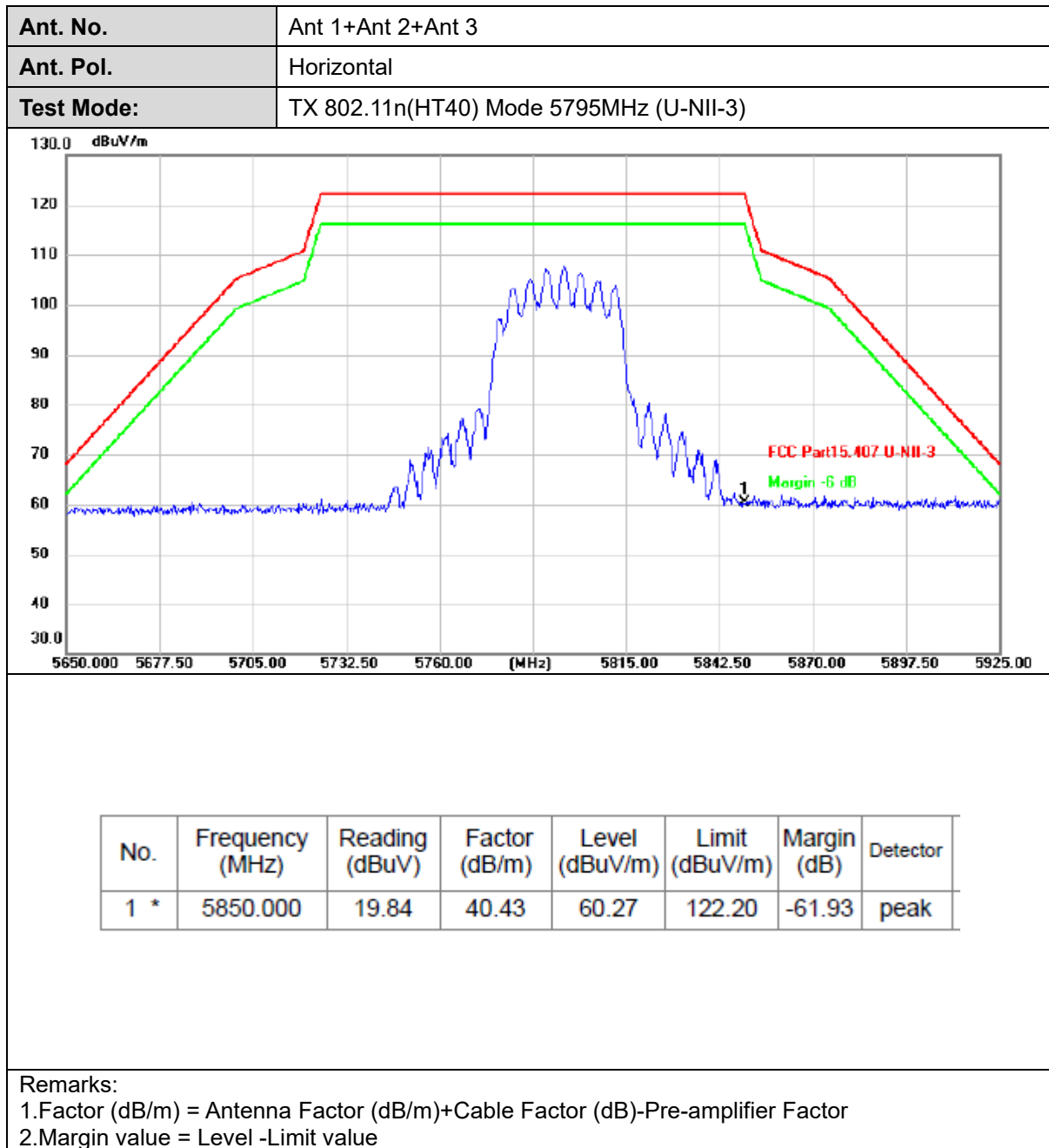


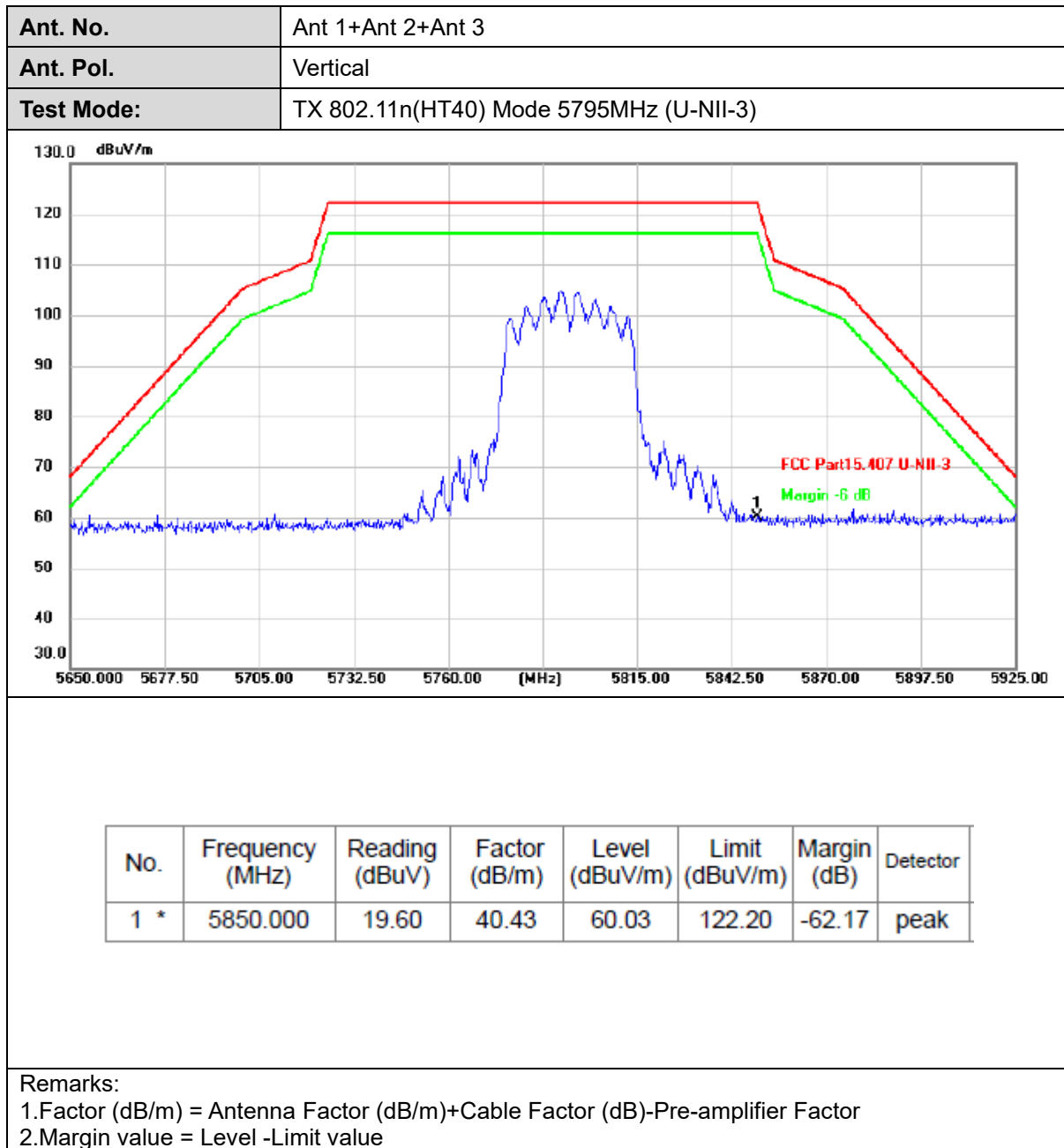




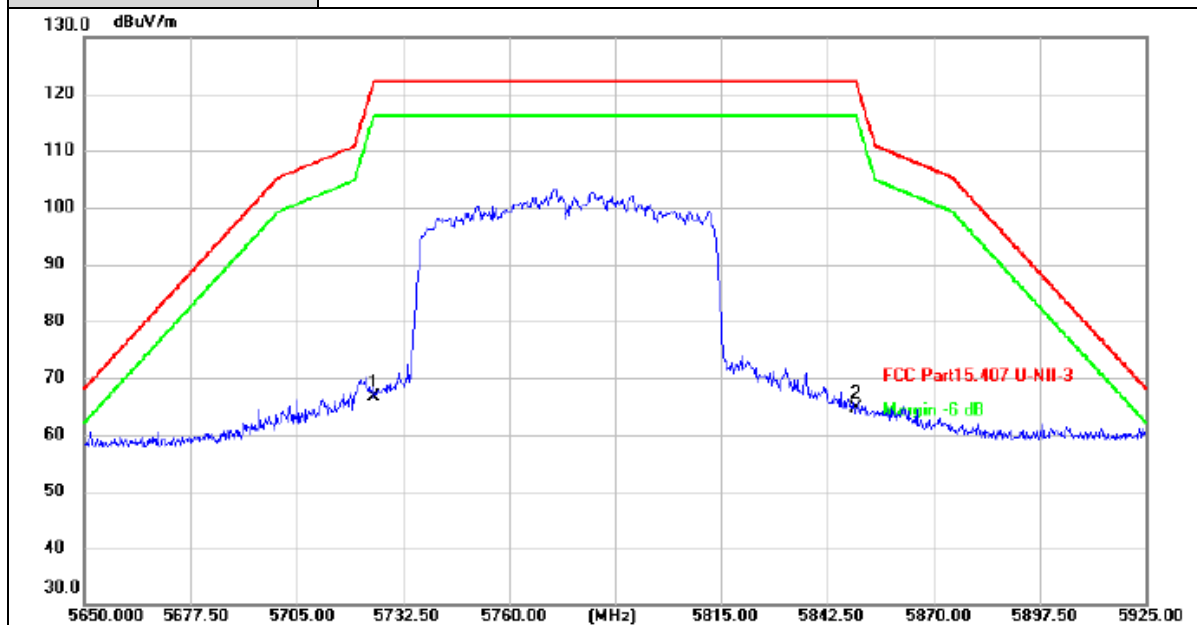








|                   |                                           |
|-------------------|-------------------------------------------|
| <b>Ant. No.</b>   | Ant 1+Ant 2+Ant 3                         |
| <b>Ant. Pol.</b>  | Horizontal                                |
| <b>Test Mode:</b> | TX 802.11ac(VHT80) Mode 5775MHz (U-NII-3) |

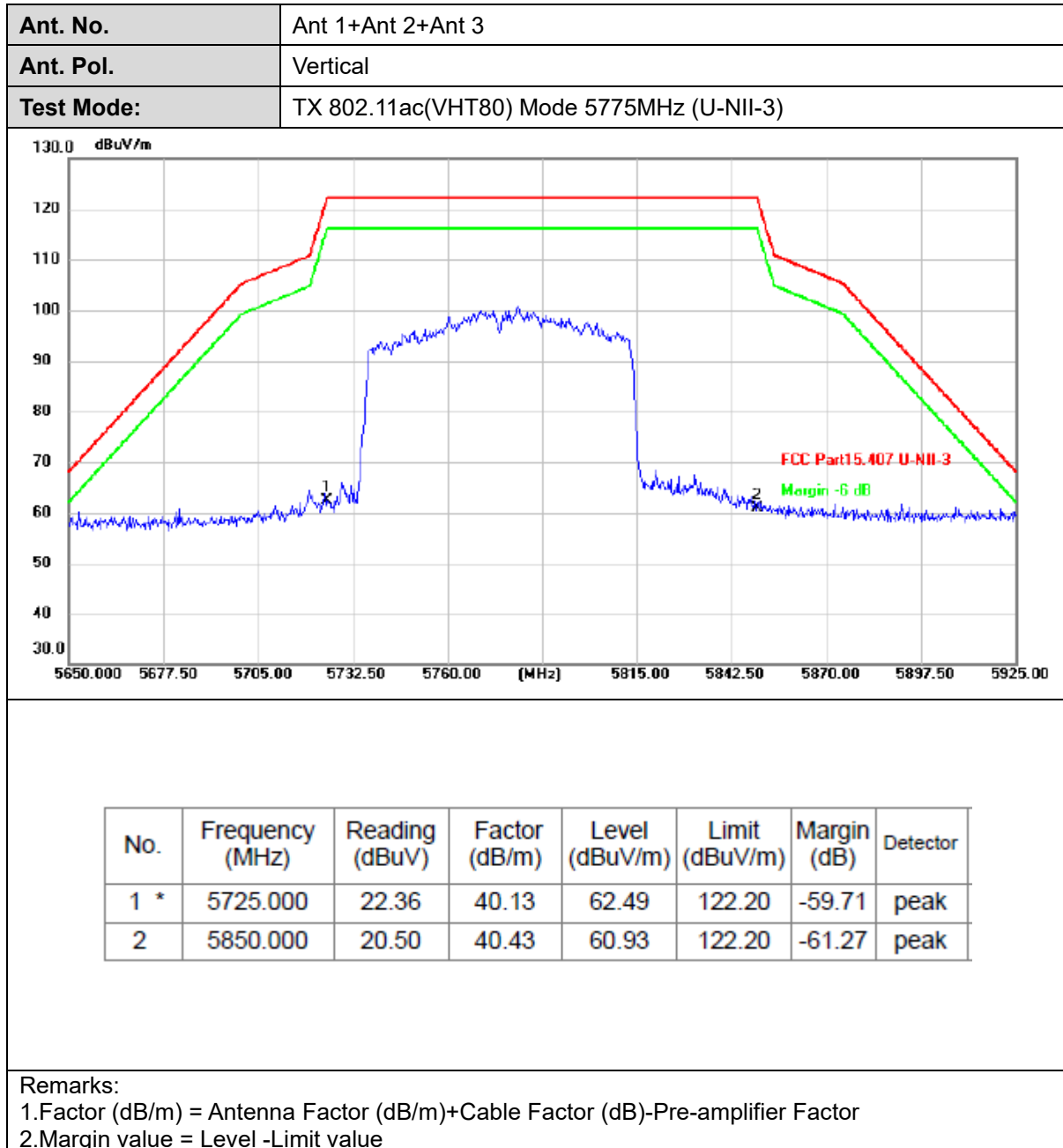


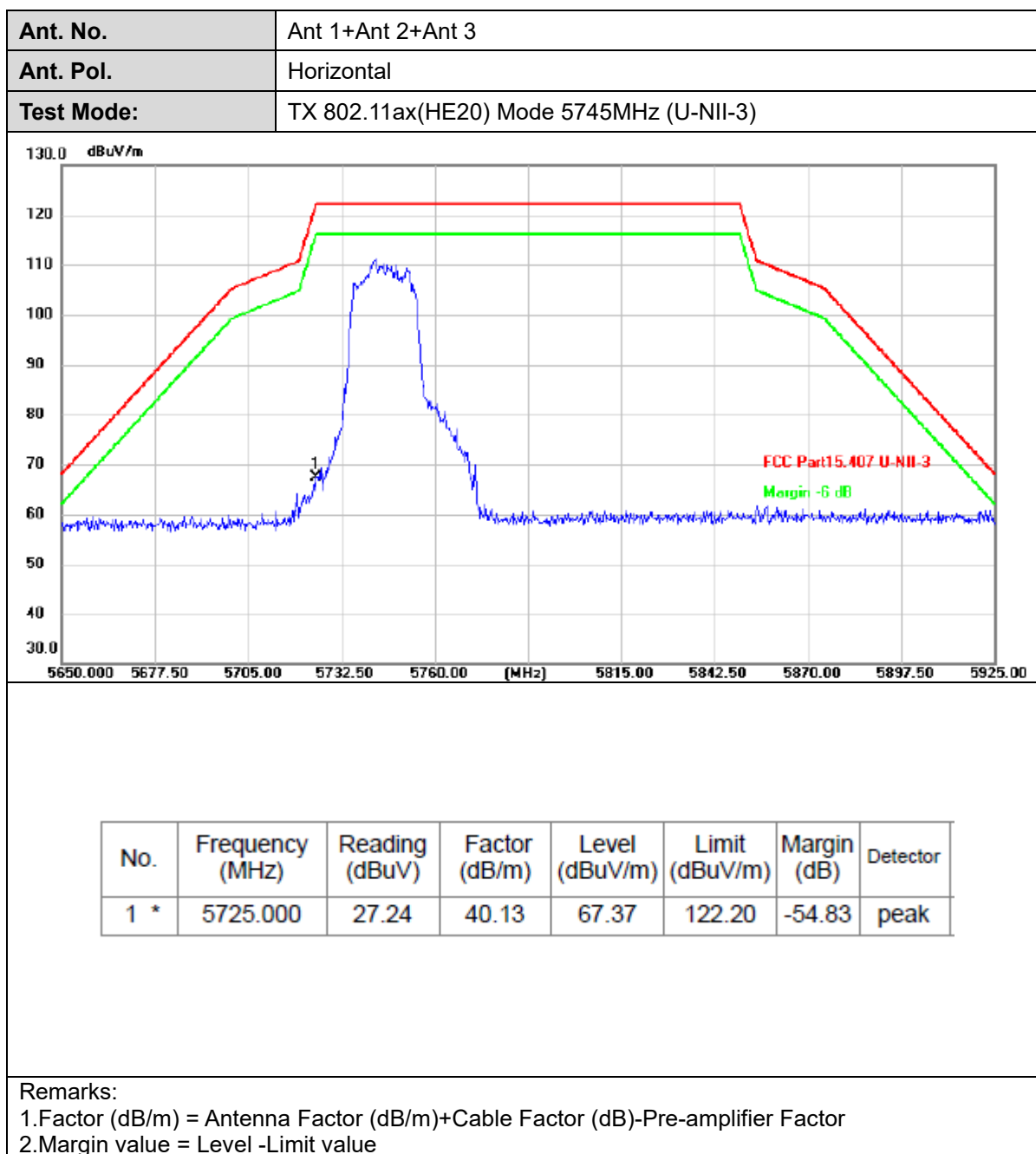
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1 * | 5725.000        | 26.45          | 40.13         | 66.58          | 122.20         | -55.62      | peak     |
| 2   | 5850.000        | 24.22          | 40.43         | 64.65          | 122.20         | -57.55      | peak     |

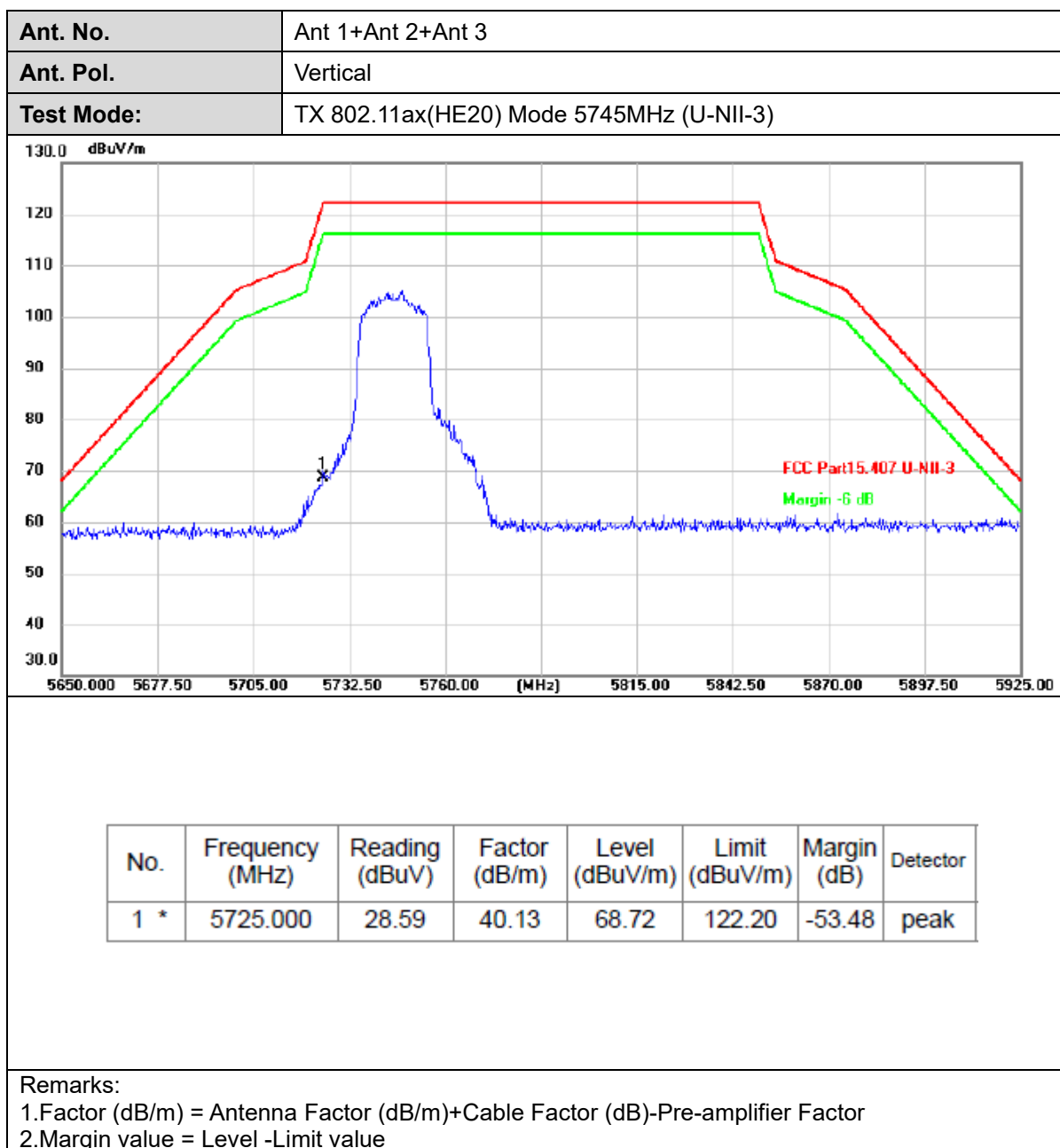
## Remarks:

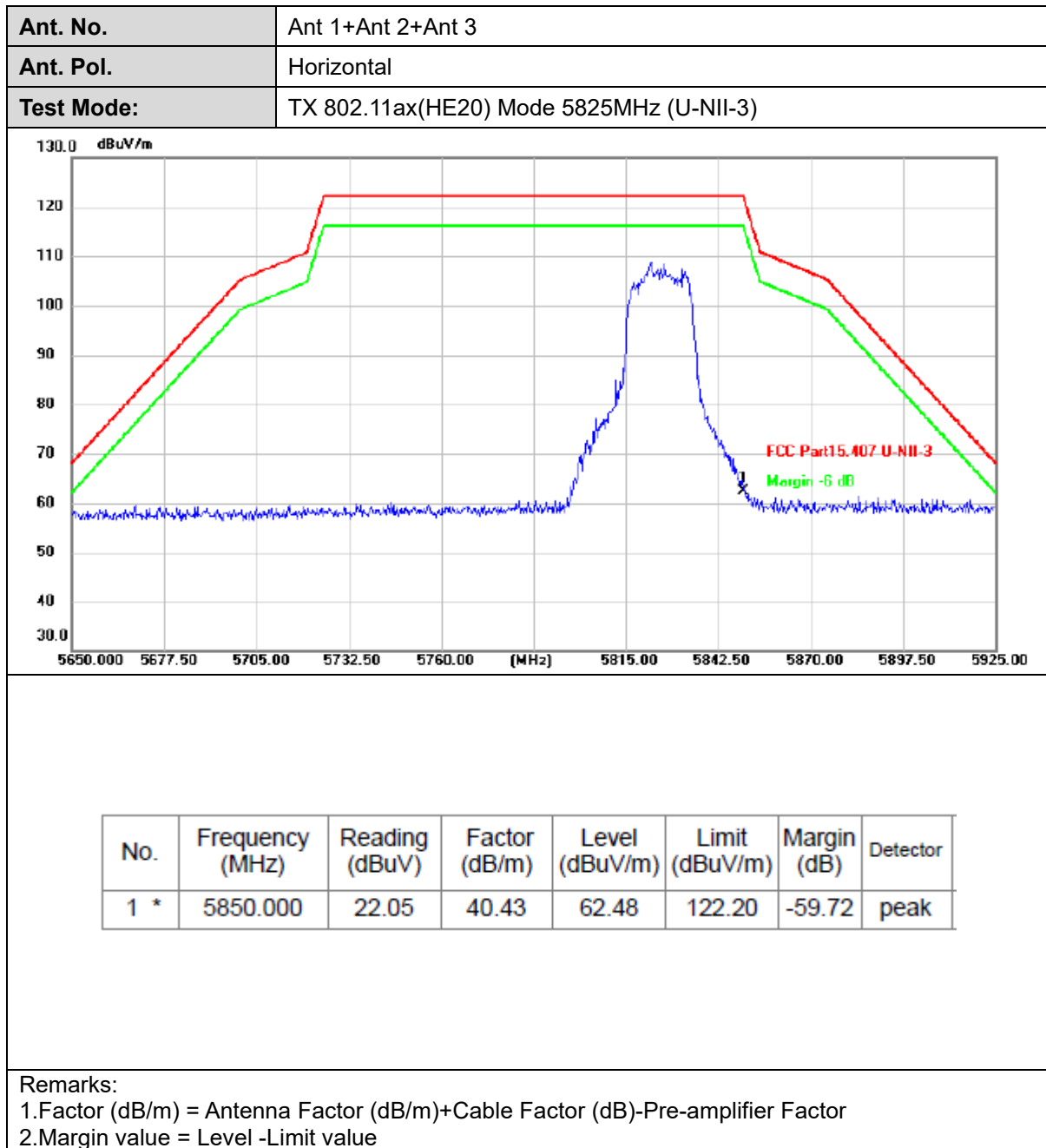
1. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor

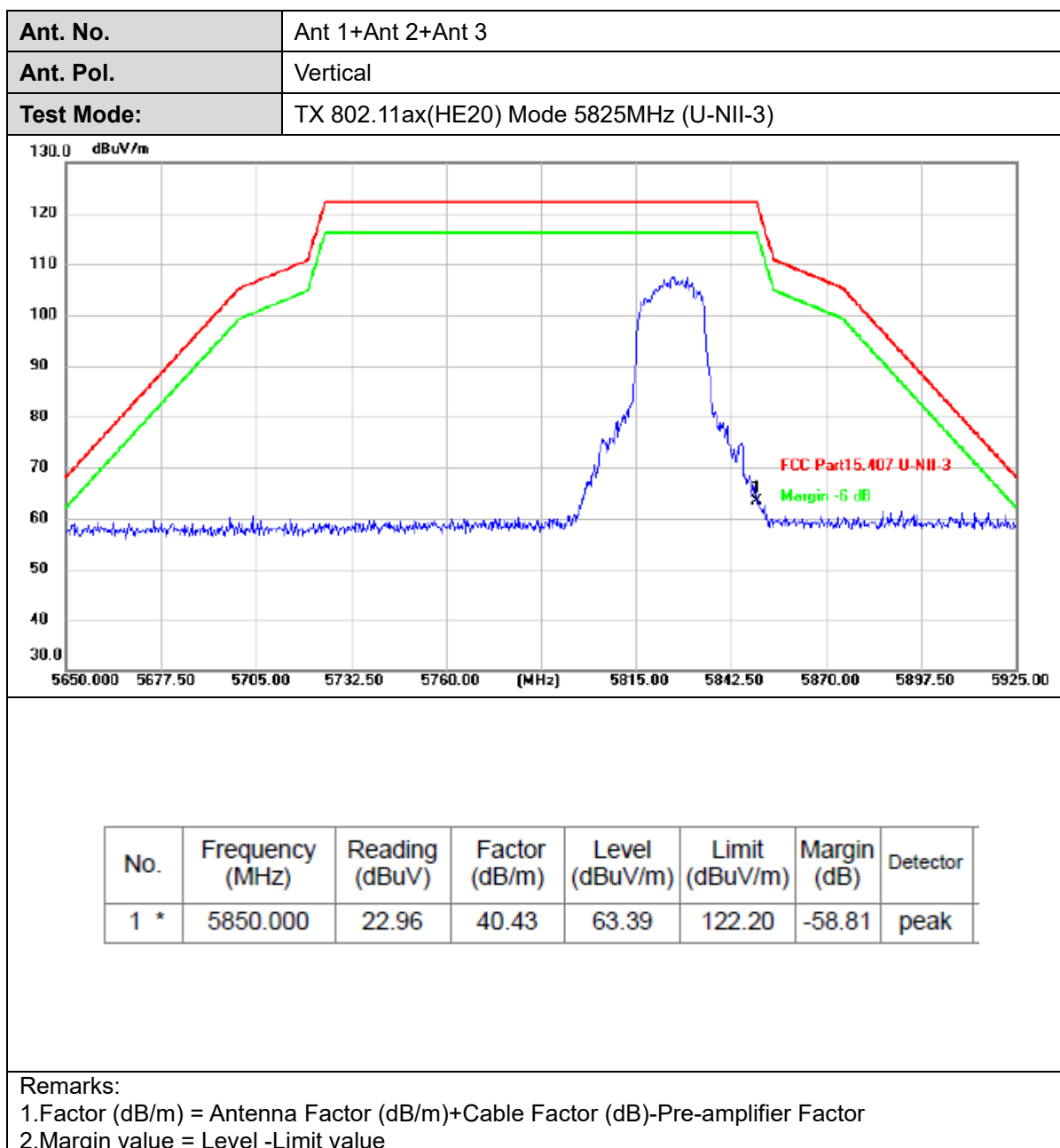
2. Margin value = Level - Limit value

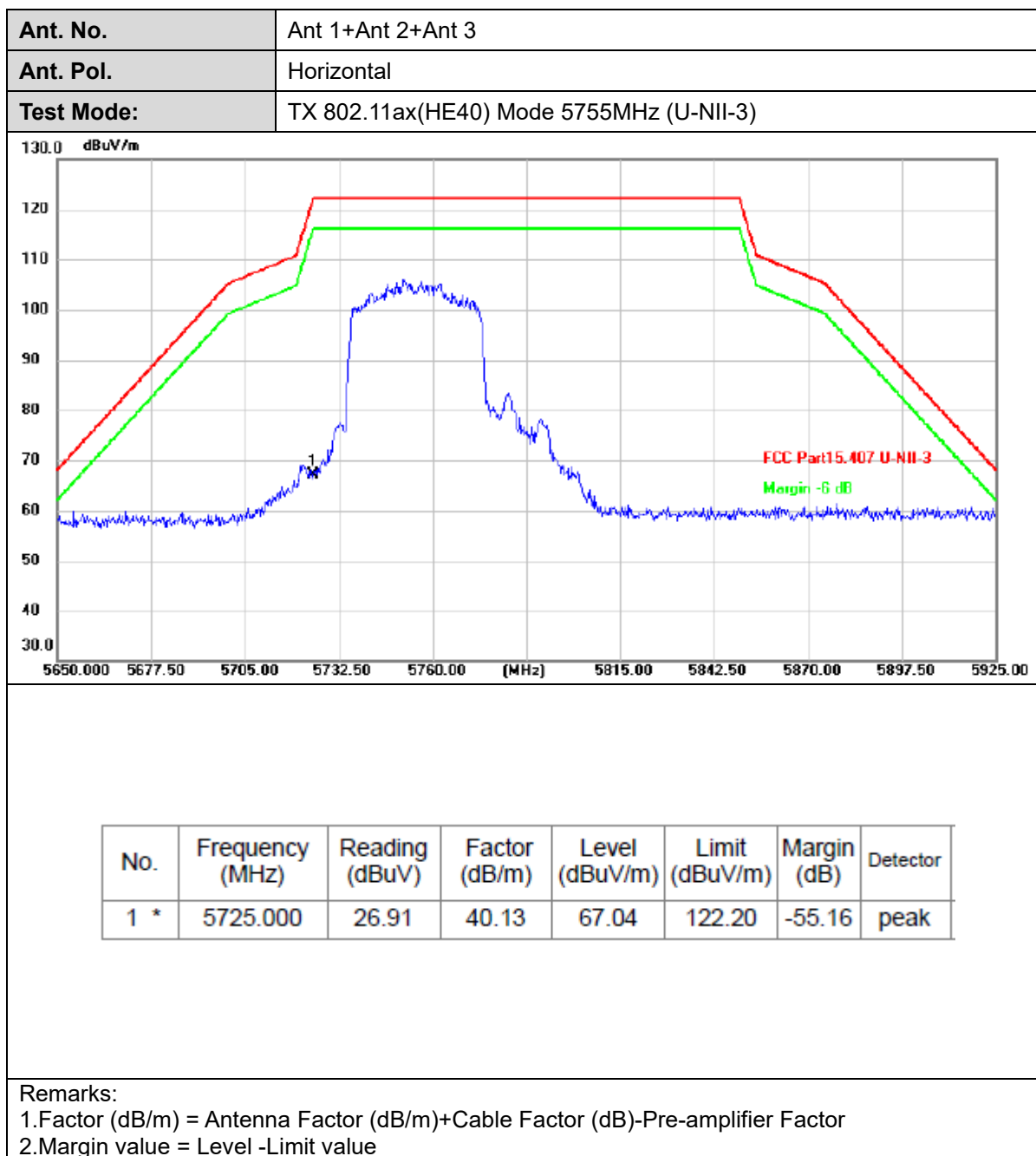


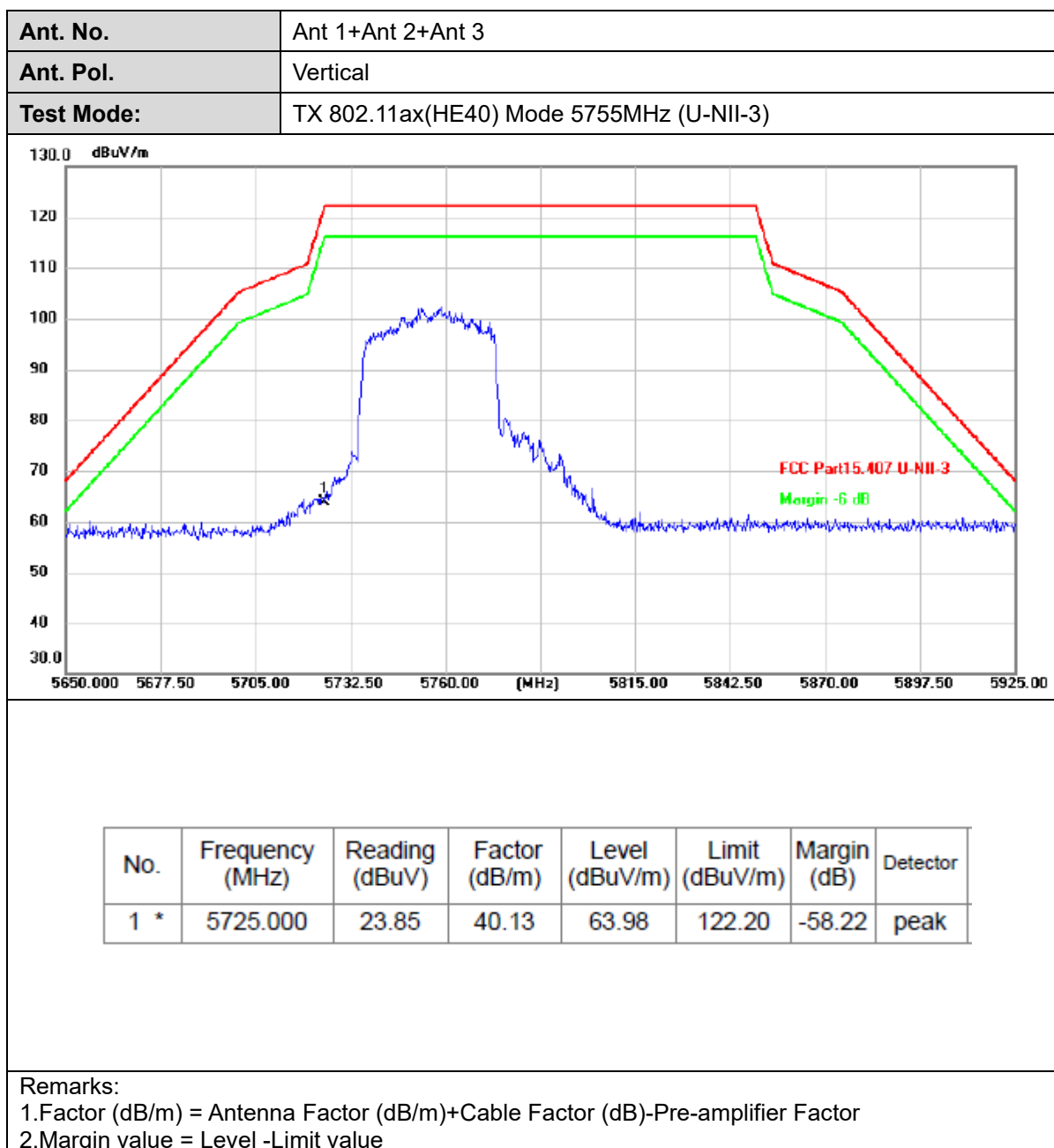


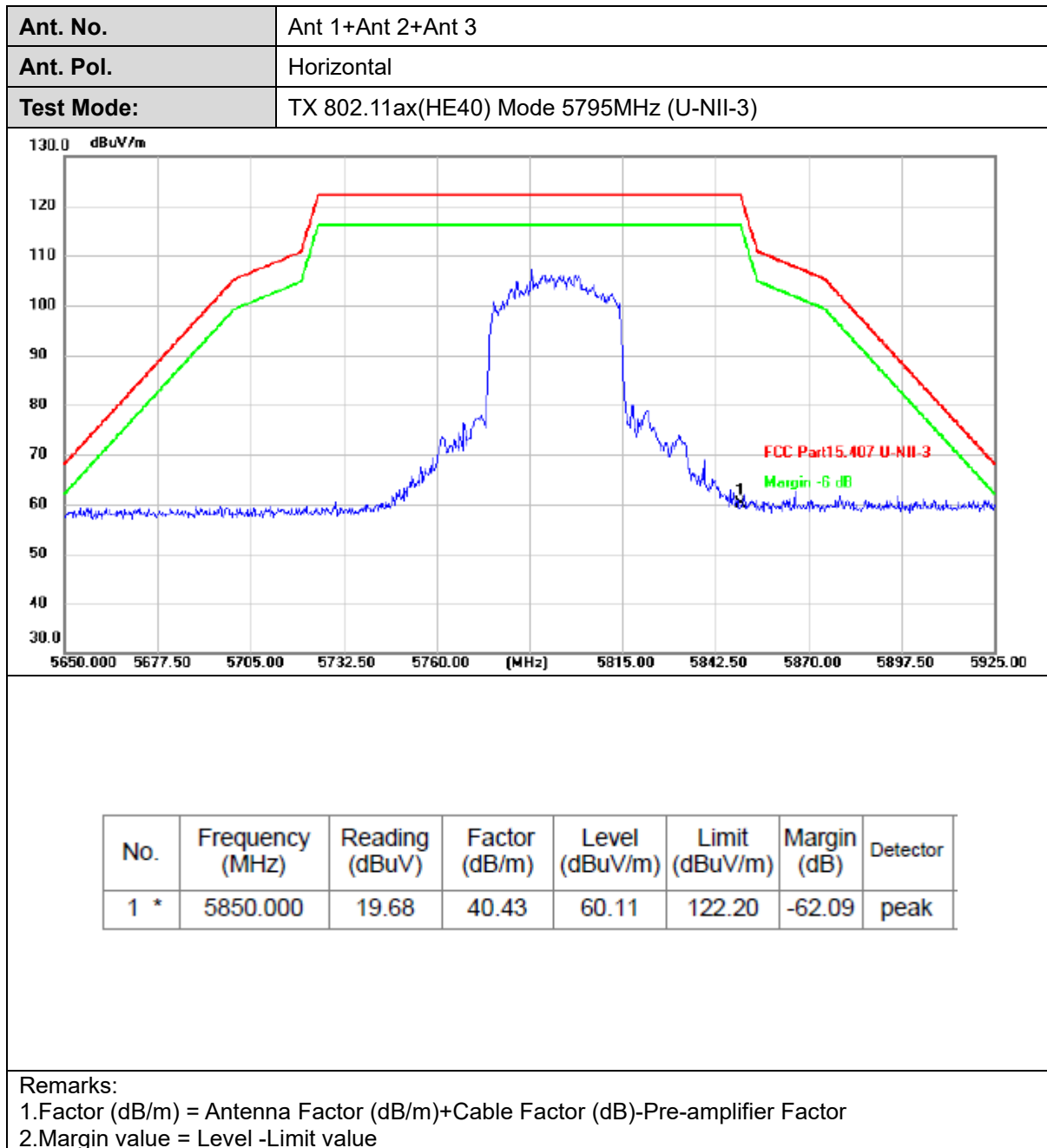


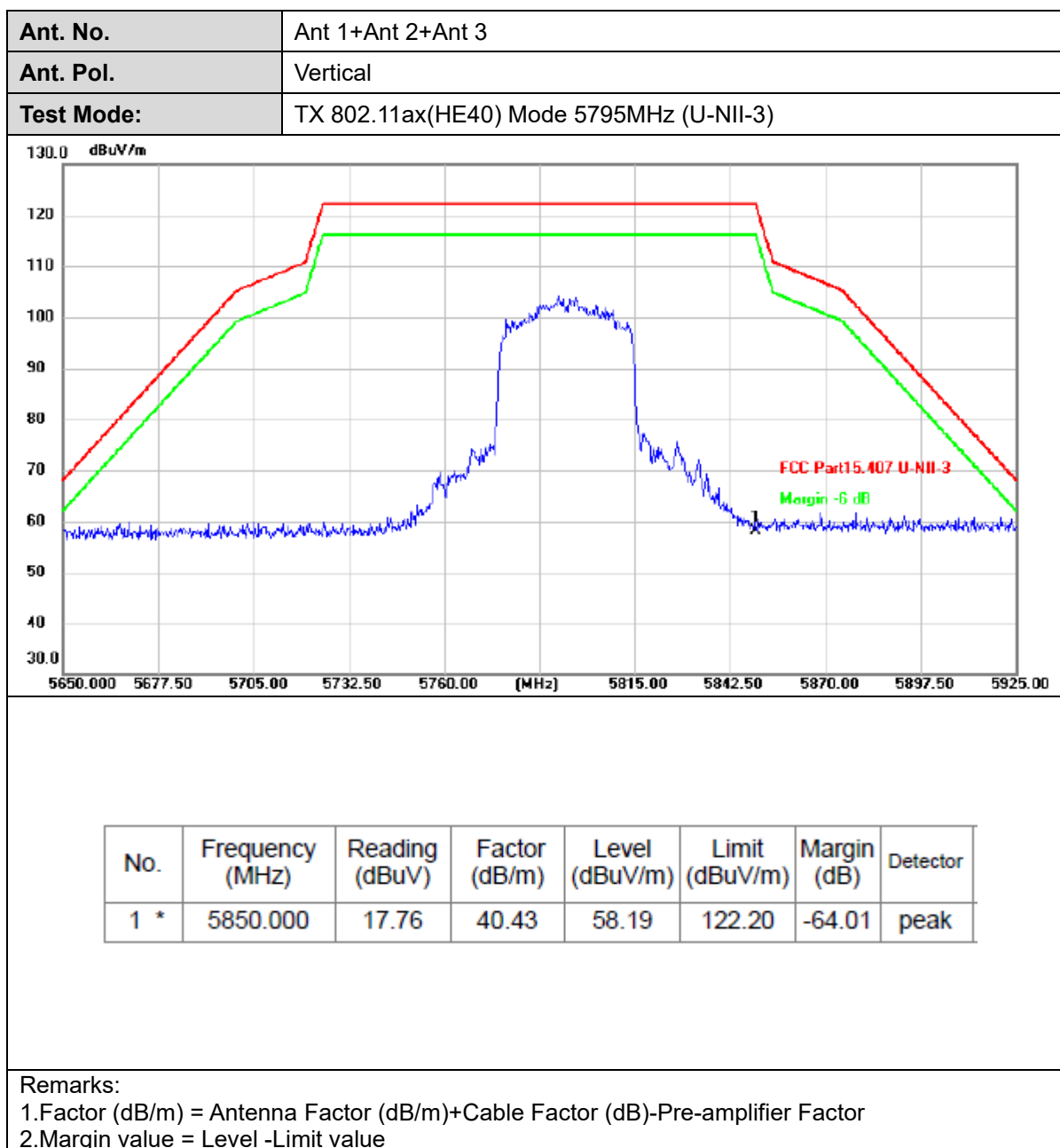


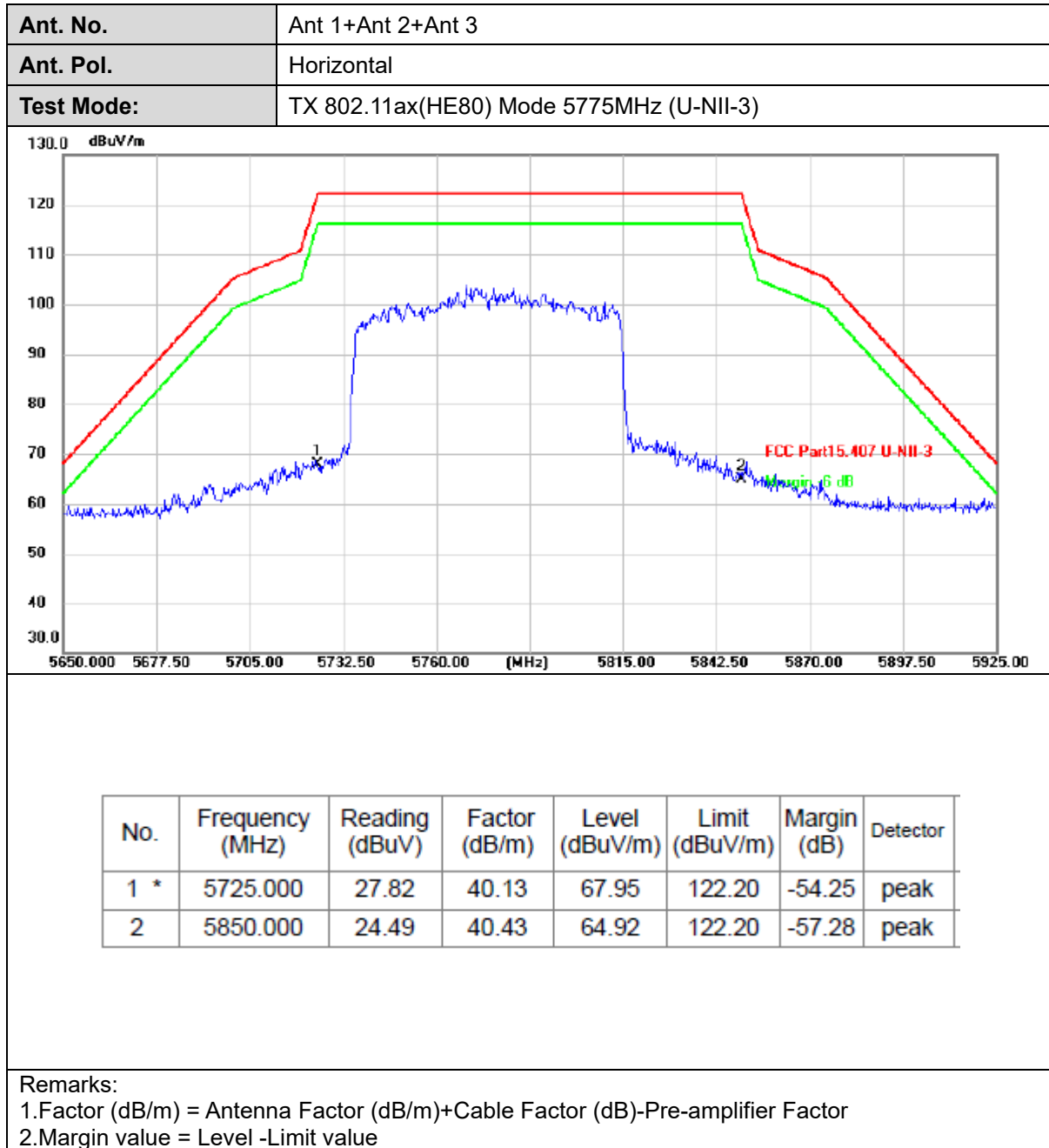


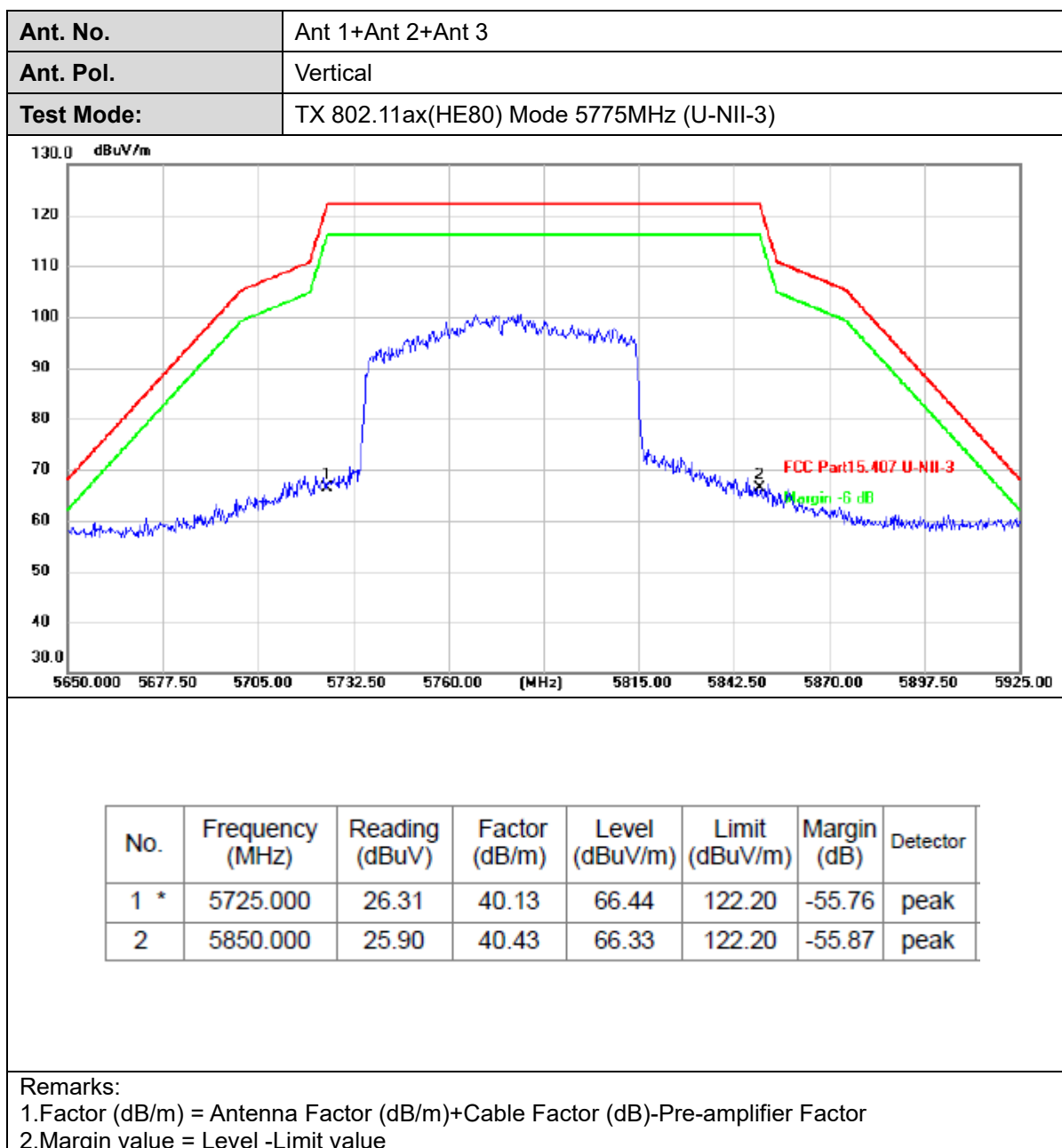












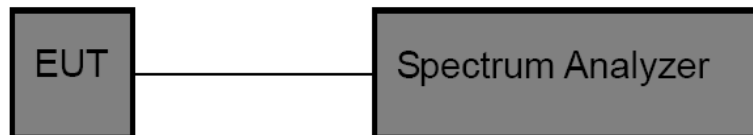
### 3.4. Bandwidth

#### Limit

#### FCC CFR Title 47 Part 15 Subpart E Section 15.407(a) & (e)

| Test Item                        | Limit    | Frequency Range (MHz) |
|----------------------------------|----------|-----------------------|
| 26dB Bandwidth&<br>99% Bandwidth | N/A      | 5150~5250             |
|                                  |          | 5250~5350             |
|                                  |          | 5500~5700             |
| 6 dB Bandwidth                   | ≥500 kHz | 5725~5850             |

#### Test Configuration



#### Test Procedure

Please refer to KDB789033 D02 for the measurement methods.

#### The setting of the spectrum analyzer as below:

| 26dB Bandwidth Test |                                            |
|---------------------|--------------------------------------------|
| Spectrum Parameters | Setting                                    |
| Attenuation         | Auto                                       |
| Span                | >26 dB Bandwidth                           |
| RBW                 | Approximately 1% of the emission bandwidth |
| VBW                 | >RBW                                       |
| Detector            | Peak                                       |
| Trace               | Max Hold                                   |
| Sweep Time          | Auto                                       |

| 6dB Bandwidth Test          |                            |
|-----------------------------|----------------------------|
| Spectrum Parameters         | Setting                    |
| Attenuation                 | Auto                       |
| Span                        | >6 dB Bandwidth            |
| RBW                         | 100 kHz                    |
| VBW                         | $\geq 3 \times \text{RBW}$ |
| Detector                    | Peak                       |
| Trace                       | Max Hold                   |
| Sweep Time                  | Auto                       |
| 99% Occupied Bandwidth Test |                            |
| Spectrum Parameters         | Setting                    |
| Attenuation                 | Auto                       |
| RBW                         | 1% to 5% of the OBW        |
| VBW                         | $\geq 3 \times \text{RBW}$ |
| Detector                    | Peak                       |
| Trace                       | Max Hold                   |

NOTE: The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.

#### **Test Mode**

Please refer to the clause 2.4.

**Test Result****26dB Bandwidth & 99% Bandwidth**

| TestMode   | Antenna | Freq(MHz) | 26db EBW [MHz] | OCB [MHz] |
|------------|---------|-----------|----------------|-----------|
| 11A        | Ant1    | 5745      | 26.56          | 17.542    |
|            | Ant2    | 5745      | 24.28          | 16.823    |
|            | Ant3    | 5745      | 25.44          | 17.383    |
|            | Ant1    | 5785      | 22.16          | 16.863    |
|            | Ant2    | 5785      | 24.80          | 16.823    |
|            | Ant3    | 5785      | 21.76          | 16.783    |
|            | Ant1    | 5825      | 26.96          | 17.502    |
|            | Ant2    | 5825      | 25.76          | 17.263    |
|            | Ant3    | 5825      | 24.36          | 17.143    |
| 11N20MIMO  | Ant1    | 5745      | 23.72          | 18.142    |
|            | Ant2    | 5745      | 23.96          | 17.942    |
|            | Ant3    | 5745      | 25.32          | 18.102    |
|            | Ant1    | 5785      | 21.16          | 18.062    |
|            | Ant2    | 5785      | 20.84          | 17.782    |
|            | Ant3    | 5785      | 22.52          | 17.942    |
|            | Ant1    | 5825      | 27.88          | 18.142    |
|            | Ant2    | 5825      | 24.40          | 17.982    |
|            | Ant3    | 5825      | 28.08          | 18.062    |
| 11N40MIMO  | Ant1    | 5755      | 42.80          | 36.044    |
|            | Ant2    | 5755      | 45.52          | 36.044    |
|            | Ant3    | 5755      | 48.16          | 36.843    |
|            | Ant1    | 5795      | 39.76          | 36.044    |
|            | Ant2    | 5795      | 39.68          | 36.044    |
|            | Ant3    | 5795      | 40.24          | 35.964    |
| 11AC20MIMO | Ant1    | 5745      | 22.88          | 18.022    |
|            | Ant2    | 5745      | 24.08          | 17.822    |
|            | Ant3    | 5745      | 23.60          | 17.982    |
|            | Ant1    | 5785      | 21.08          | 17.822    |
|            | Ant2    | 5785      | 21.00          | 17.862    |
|            | Ant3    | 5785      | 21.28          | 17.822    |
|            | Ant1    | 5825      | 24.16          | 18.062    |
|            | Ant2    | 5825      | 23.36          | 18.062    |
|            | Ant3    | 5825      | 24.28          | 17.982    |
| 11AC40MIMO | Ant1    | 5755      | 45.20          | 36.124    |
|            | Ant2    | 5755      | 43.60          | 36.204    |
|            | Ant3    | 5755      | 49.60          | 36.204    |
|            | Ant1    | 5795      | 40.24          | 36.444    |
|            | Ant2    | 5795      | 39.84          | 36.364    |
|            | Ant3    | 5795      | 39.52          | 36.284    |
| 11AC80MIMO | Ant1    | 5775      | 79.52          | 75.285    |
|            | Ant2    | 5775      | 79.20          | 74.645    |
|            | Ant3    | 5775      | 79.36          | 75.285    |
| 11AX20MIMO | Ant1    | 5745      | 23.84          | 18.901    |
|            | Ant2    | 5745      | 23.60          | 19.181    |
|            | Ant3    | 5745      | 25.04          | 18.861    |
|            | Ant1    | 5785      | 21.92          | 18.981    |
|            | Ant2    | 5785      | 21.16          | 18.781    |
|            | Ant3    | 5785      | 21.32          | 18.861    |
|            | Ant1    | 5825      | 23.36          | 19.101    |
|            | Ant2    | 5825      | 22.16          | 19.101    |
|            | Ant3    | 5825      | 25.04          | 19.101    |
| 11AX40MIMO | Ant1    | 5755      | 42.24          | 37.483    |
|            | Ant2    | 5755      | 39.52          | 37.562    |
|            | Ant3    | 5755      | 45.44          | 37.562    |
|            | Ant1    | 5795      | 39.68          | 37.403    |
|            | Ant2    | 5795      | 39.60          | 37.642    |
|            | Ant3    | 5795      | 39.60          | 37.483    |
| 11AX80MIMO | Ant1    | 5775      | 80.16          | 76.723    |
|            | Ant2    | 5775      | 80.00          | 76.883    |
|            | Ant3    | 5775      | 80.16          | 77.363    |

CTC Laboratories, Inc.

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Fax: (86)755-27521011

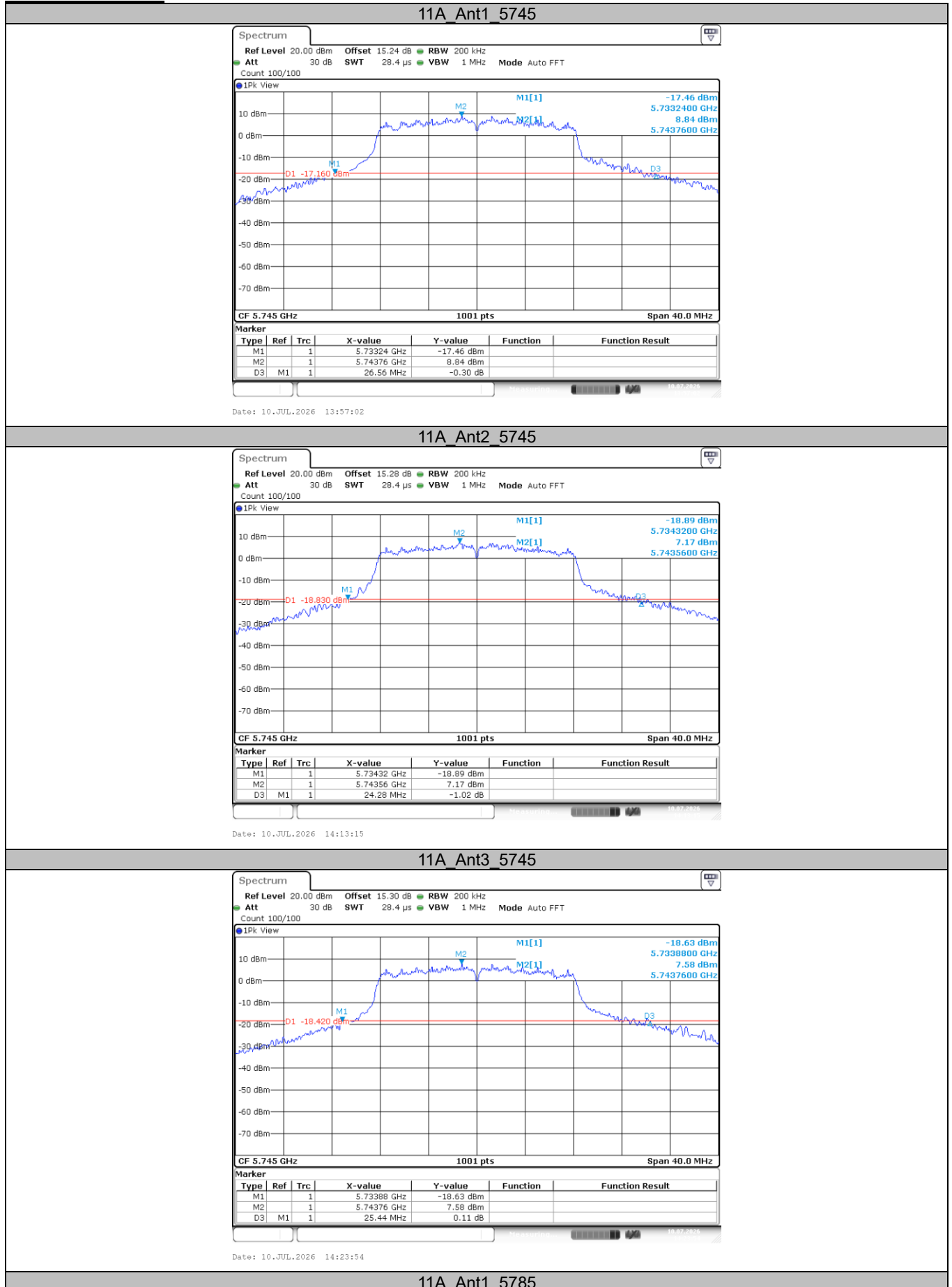
Http://www.sz-ctc.org.cn

TRF No: CTC-TR-062\_A5

Master TRF : Dated 2026-06-01

**6dB Bandwidth**

| TestMode   | Antenna | Freq(MHz) | 6db EBW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|------------|---------|-----------|---------------|---------|---------|------------|---------|
| 11A        | Ant1    | 5745      | 16.32         | 5736.84 | 5753.16 | 0.5        | PASS    |
|            | Ant2    | 5745      | 16.32         | 5736.84 | 5753.16 | 0.5        | PASS    |
|            | Ant3    | 5745      | 16.36         | 5736.84 | 5753.20 | 0.5        | PASS    |
|            | Ant1    | 5785      | 16.36         | 5776.84 | 5793.20 | 0.5        | PASS    |
|            | Ant2    | 5785      | 15.32         | 5777.48 | 5792.80 | 0.5        | PASS    |
|            | Ant3    | 5785      | 16.28         | 5776.88 | 5793.16 | 0.5        | PASS    |
|            | Ant1    | 5825      | 16.36         | 5816.84 | 5833.20 | 0.5        | PASS    |
|            | Ant2    | 5825      | 16.36         | 5816.84 | 5833.20 | 0.5        | PASS    |
|            | Ant3    | 5825      | 16.36         | 5816.84 | 5833.20 | 0.5        | PASS    |
| 11N20MIMO  | Ant1    | 5745      | 16.92         | 5736.64 | 5753.56 | 0.5        | PASS    |
|            | Ant2    | 5745      | 16.92         | 5736.28 | 5753.20 | 0.5        | PASS    |
|            | Ant3    | 5745      | 15.72         | 5736.88 | 5752.60 | 0.5        | PASS    |
|            | Ant1    | 5785      | 17.60         | 5776.24 | 5793.84 | 0.5        | PASS    |
|            | Ant2    | 5785      | 17.60         | 5776.24 | 5793.84 | 0.5        | PASS    |
|            | Ant3    | 5785      | 17.56         | 5776.28 | 5793.84 | 0.5        | PASS    |
|            | Ant1    | 5825      | 17.56         | 5816.28 | 5833.84 | 0.5        | PASS    |
|            | Ant2    | 5825      | 17.56         | 5816.28 | 5833.84 | 0.5        | PASS    |
|            | Ant3    | 5825      | 17.56         | 5816.28 | 5833.84 | 0.5        | PASS    |
| 11N40MIMO  | Ant1    | 5755      | 33.20         | 5738.76 | 5771.96 | 0.5        | PASS    |
|            | Ant2    | 5755      | 35.76         | 5737.48 | 5773.24 | 0.5        | PASS    |
|            | Ant3    | 5755      | 35.04         | 5737.48 | 5772.52 | 0.5        | PASS    |
|            | Ant1    | 5795      | 31.04         | 5780.04 | 5811.08 | 0.5        | PASS    |
|            | Ant2    | 5795      | 33.84         | 5778.76 | 5812.60 | 0.5        | PASS    |
|            | Ant3    | 5795      | 25.12         | 5783.72 | 5808.84 | 0.5        | PASS    |
| 11AC20MIMO | Ant1    | 5745      | 15.72         | 5737.48 | 5753.20 | 0.5        | PASS    |
|            | Ant2    | 5745      | 16.52         | 5736.68 | 5753.20 | 0.5        | PASS    |
|            | Ant3    | 5745      | 15.68         | 5737.52 | 5753.20 | 0.5        | PASS    |
|            | Ant1    | 5785      | 17.56         | 5776.28 | 5793.84 | 0.5        | PASS    |
|            | Ant2    | 5785      | 16.28         | 5776.92 | 5793.20 | 0.5        | PASS    |
|            | Ant3    | 5785      | 17.60         | 5776.28 | 5793.88 | 0.5        | PASS    |
|            | Ant1    | 5825      | 17.60         | 5816.24 | 5833.84 | 0.5        | PASS    |
|            | Ant2    | 5825      | 15.72         | 5817.48 | 5833.20 | 0.5        | PASS    |
|            | Ant3    | 5825      | 15.08         | 5817.52 | 5832.60 | 0.5        | PASS    |
| 11AC40MIMO | Ant1    | 5755      | 33.84         | 5738.76 | 5772.60 | 0.5        | PASS    |
|            | Ant2    | 5755      | 35.12         | 5737.48 | 5772.60 | 0.5        | PASS    |
|            | Ant3    | 5755      | 25.68         | 5738.76 | 5764.44 | 0.5        | PASS    |
|            | Ant1    | 5795      | 35.12         | 5777.48 | 5812.60 | 0.5        | PASS    |
|            | Ant2    | 5795      | 35.12         | 5777.48 | 5812.60 | 0.5        | PASS    |
|            | Ant3    | 5795      | 31.36         | 5779.96 | 5811.32 | 0.5        | PASS    |
| 11AC80MIMO | Ant1    | 5775      | 73.92         | 5738.68 | 5812.60 | 0.5        | PASS    |
|            | Ant2    | 5775      | 62.72         | 5743.64 | 5806.36 | 0.5        | PASS    |
|            | Ant3    | 5775      | 70.08         | 5739.96 | 5810.04 | 0.5        | PASS    |
| 11AX20MIMO | Ant1    | 5745      | 15.56         | 5737.48 | 5753.04 | 0.5        | PASS    |
|            | Ant2    | 5745      | 16.56         | 5736.00 | 5752.56 | 0.5        | PASS    |
|            | Ant3    | 5745      | 17.28         | 5736.24 | 5753.52 | 0.5        | PASS    |
|            | Ant1    | 5785      | 16.96         | 5775.84 | 5792.80 | 0.5        | PASS    |
|            | Ant2    | 5785      | 18.28         | 5776.00 | 5794.28 | 0.5        | PASS    |
|            | Ant3    | 5785      | 16.76         | 5777.28 | 5794.04 | 0.5        | PASS    |
|            | Ant1    | 5825      | 17.28         | 5816.48 | 5833.76 | 0.5        | PASS    |
|            | Ant2    | 5825      | 16.40         | 5817.44 | 5833.84 | 0.5        | PASS    |
|            | Ant3    | 5825      | 16.80         | 5816.24 | 5833.04 | 0.5        | PASS    |
| 11AX40MIMO | Ant1    | 5755      | 33.92         | 5738.68 | 5772.60 | 0.5        | PASS    |
|            | Ant2    | 5755      | 34.08         | 5738.68 | 5772.76 | 0.5        | PASS    |
|            | Ant3    | 5755      | 32.56         | 5739.96 | 5772.52 | 0.5        | PASS    |
|            | Ant1    | 5795      | 33.28         | 5779.24 | 5812.52 | 0.5        | PASS    |
|            | Ant2    | 5795      | 29.60         | 5778.68 | 5808.28 | 0.5        | PASS    |
|            | Ant3    | 5795      | 35.04         | 5777.48 | 5812.52 | 0.5        | PASS    |
| 11AX80MIMO | Ant1    | 5775      | 73.92         | 5738.68 | 5812.60 | 0.5        | PASS    |
|            | Ant2    | 5775      | 73.92         | 5738.68 | 5812.60 | 0.5        | PASS    |
|            | Ant3    | 5775      | 62.08         | 5739.96 | 5802.04 | 0.5        | PASS    |

**26dB Bandwidth:**

CTC Laboratories, Inc.

Room 107, 108, 207, 208 of Building A, Room 101 of Building B, No.7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

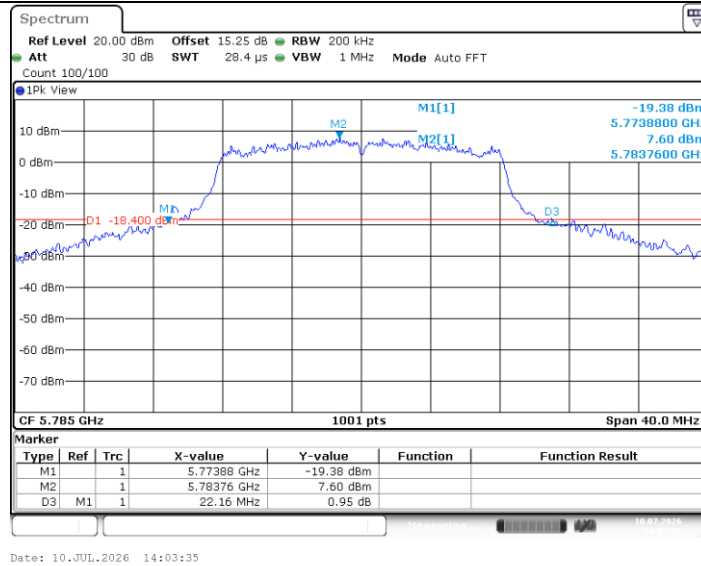
Tel.: (86)755-27521059

Fax: (86)755-27521011

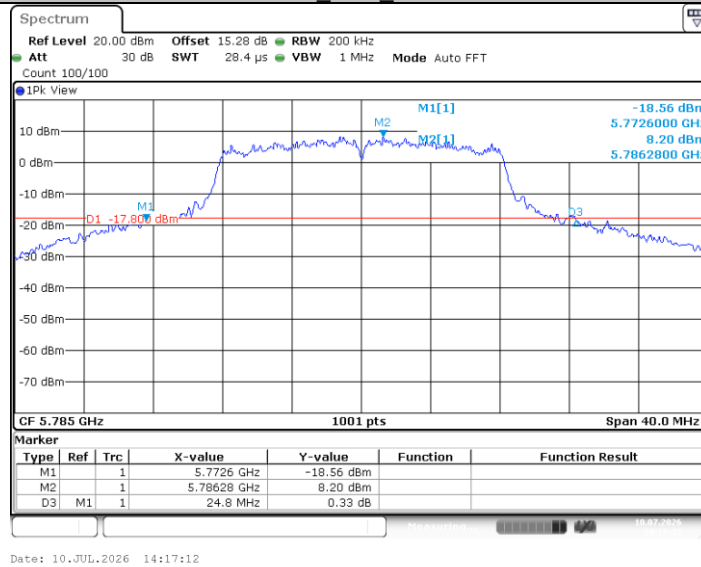
Http://www.sz-ctc.org.cn

TRF No: CTC-TR-062\_A5

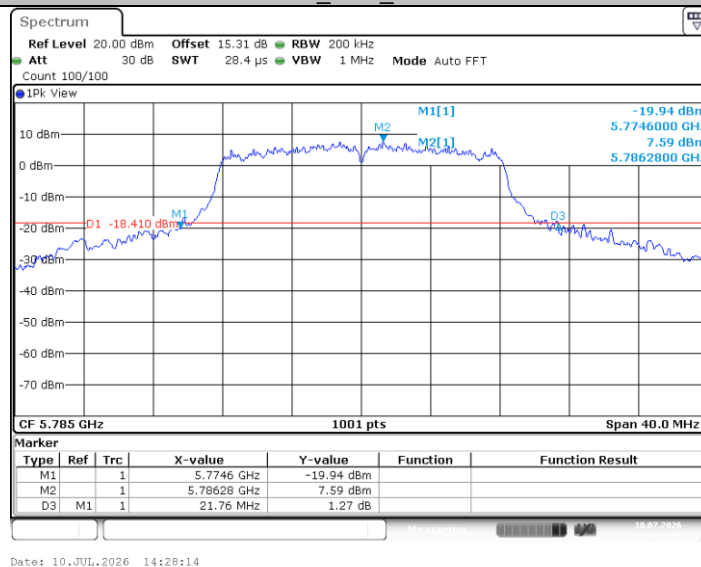
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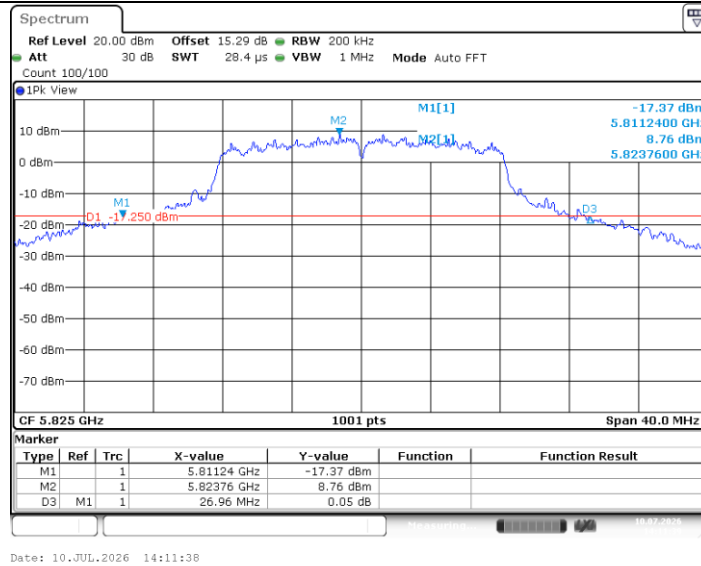
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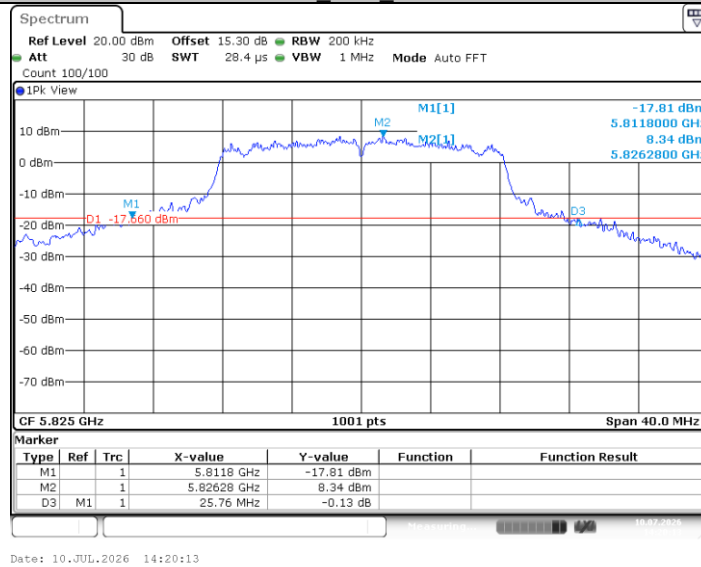
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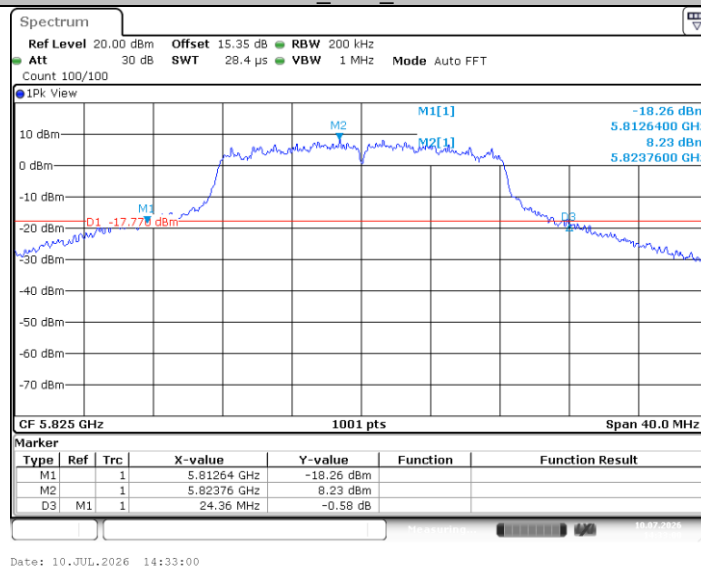
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## 11A\_Ant2\_5825



## 11A\_Ant3\_5825



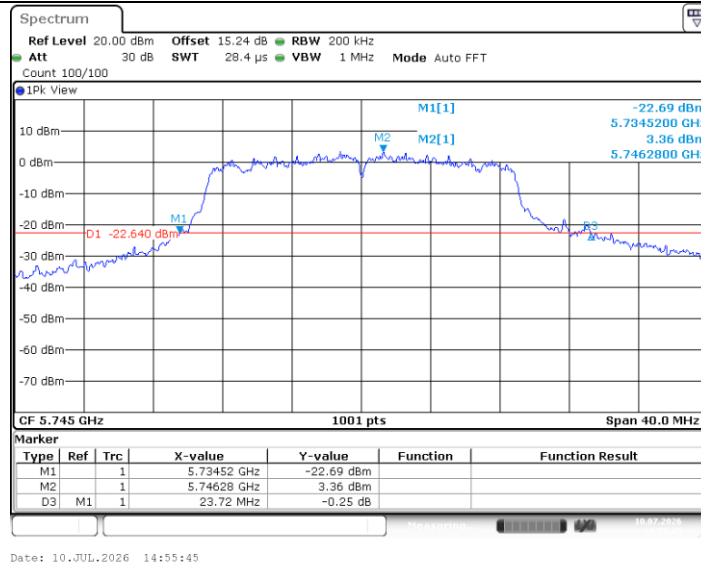
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CTC Laboratories, Inc.

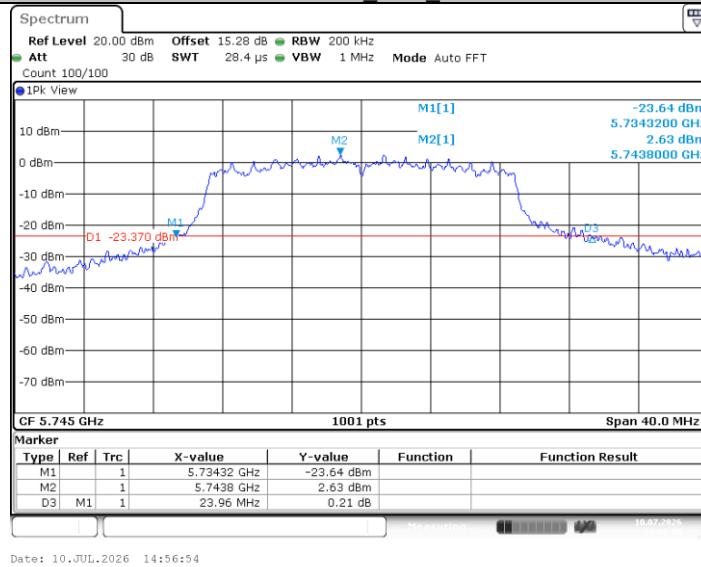
Room 107, 108, 207, 208 of Building A, Room 101 of Building B, No.7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn

TRF No: CTC-TR-062\_A5

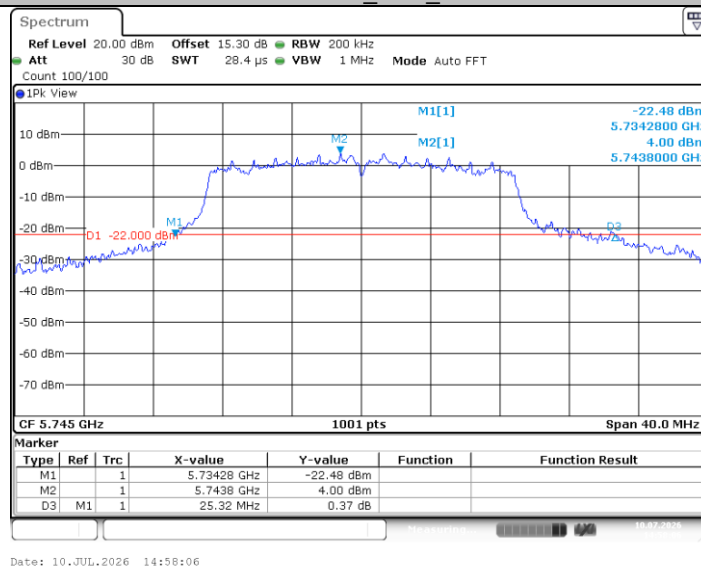
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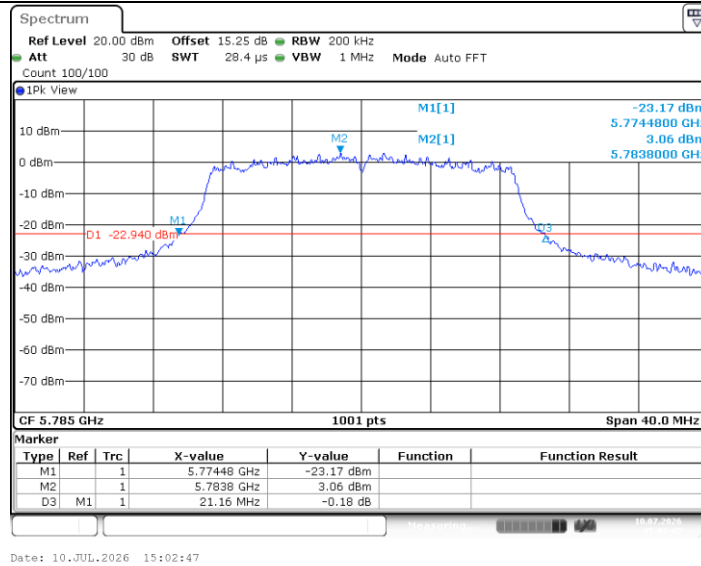
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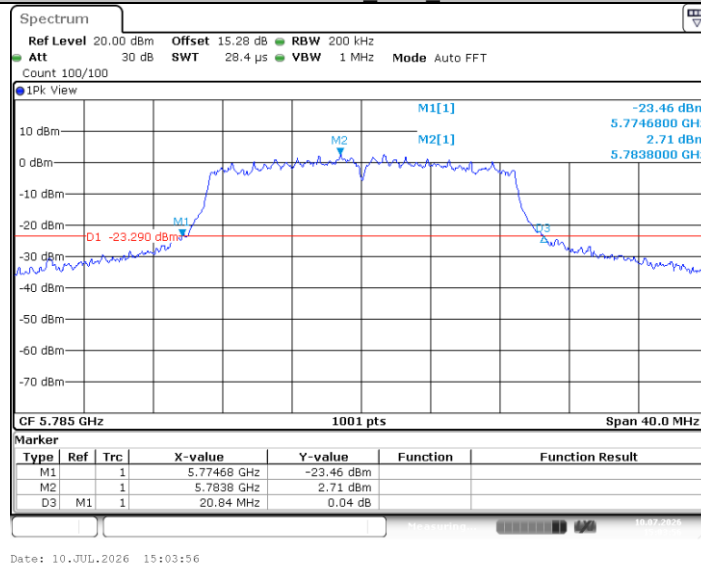
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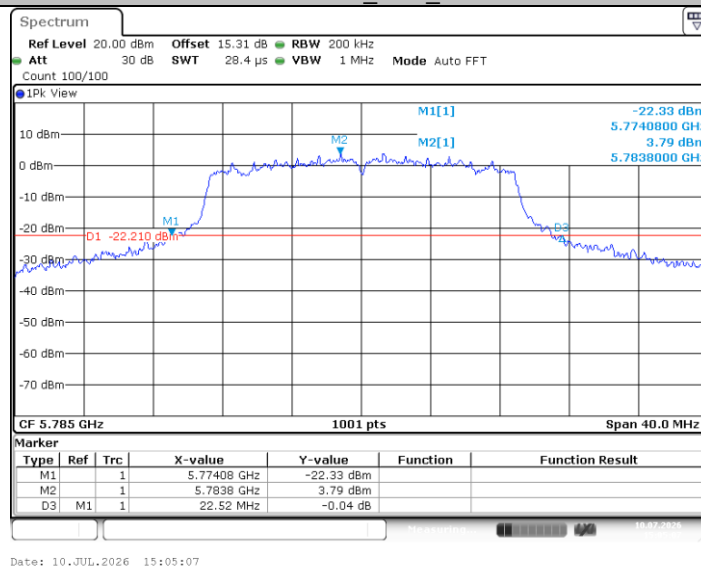
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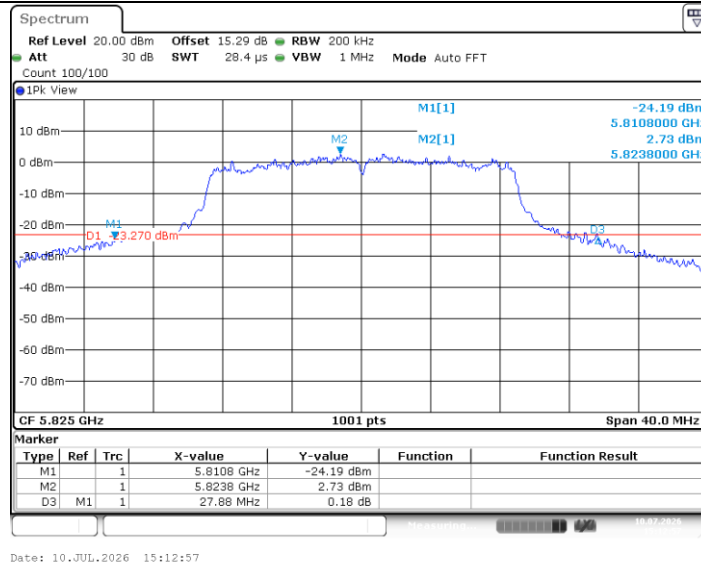
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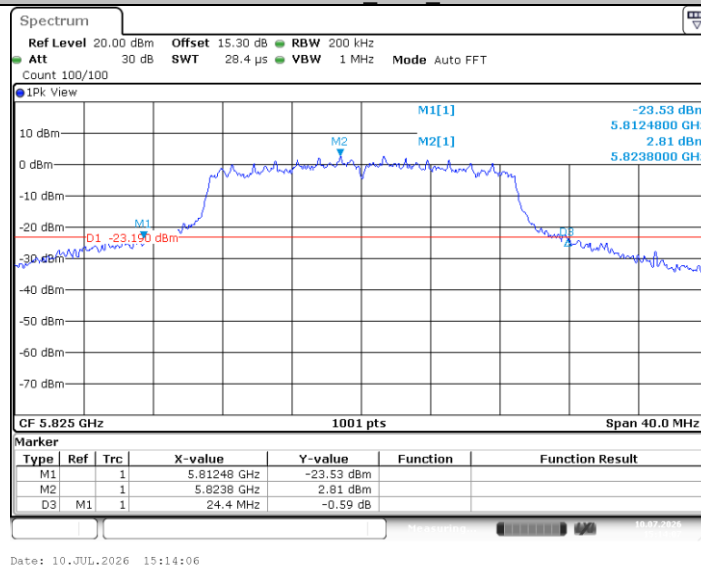
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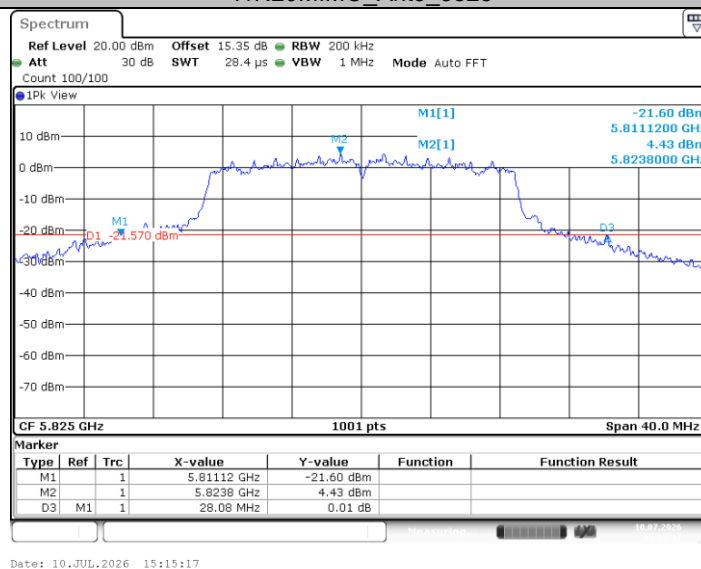
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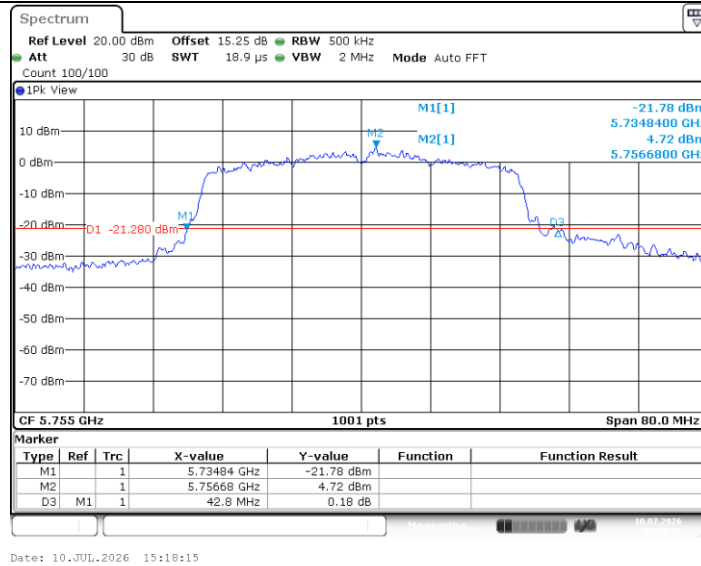
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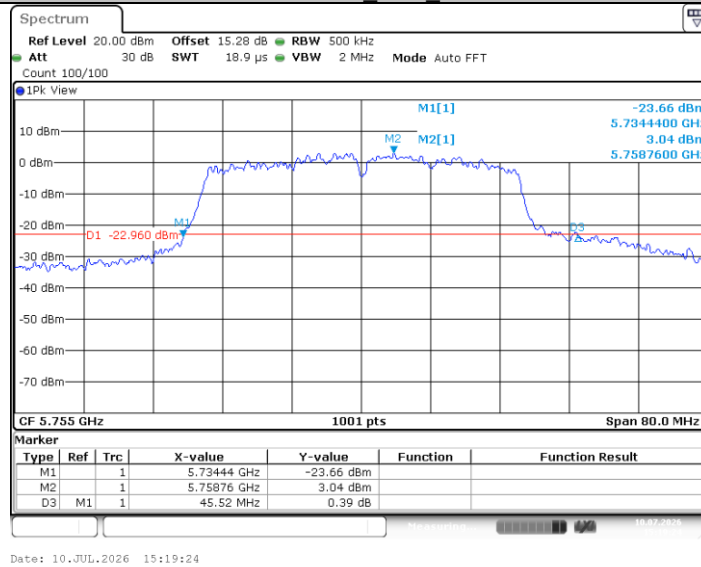
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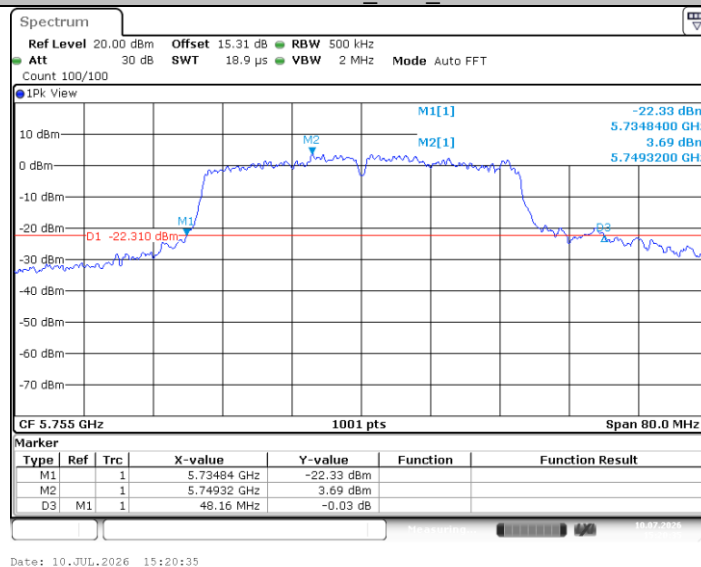
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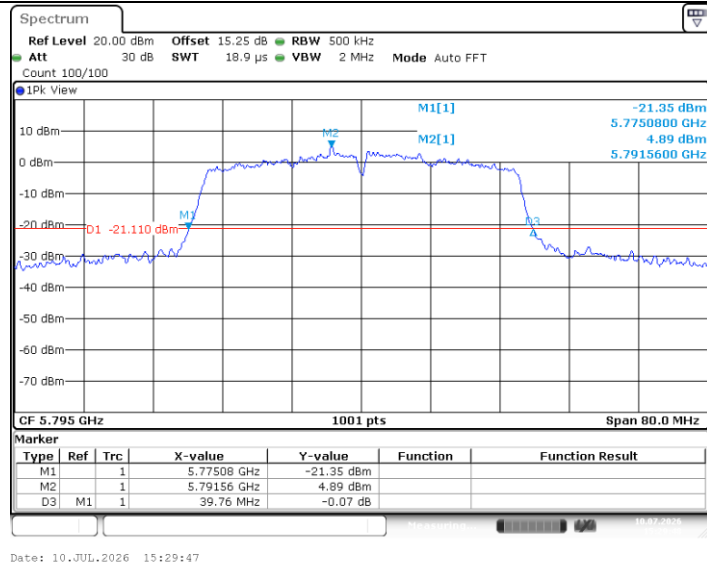
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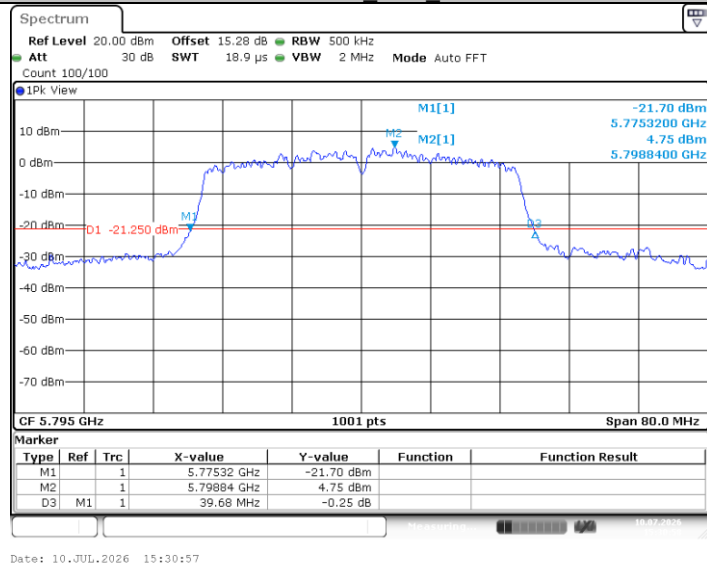
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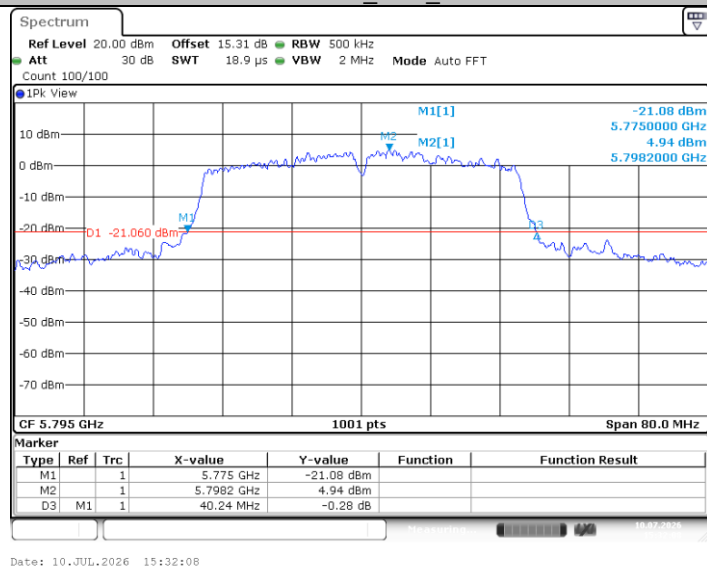
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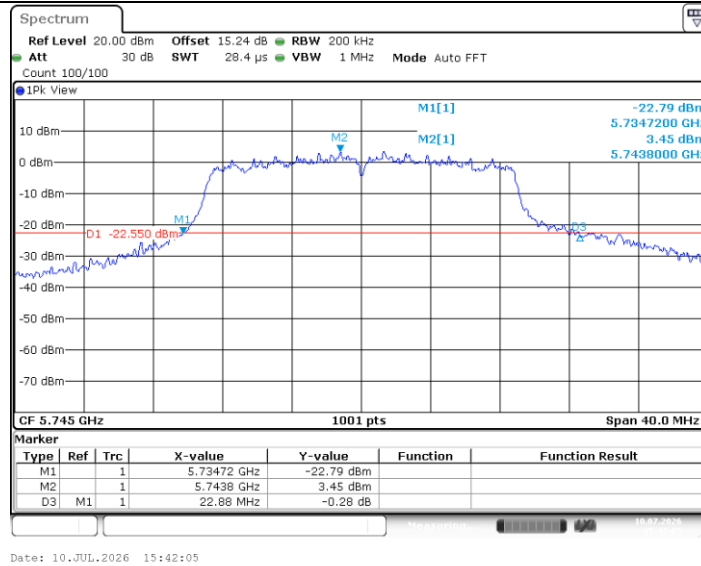
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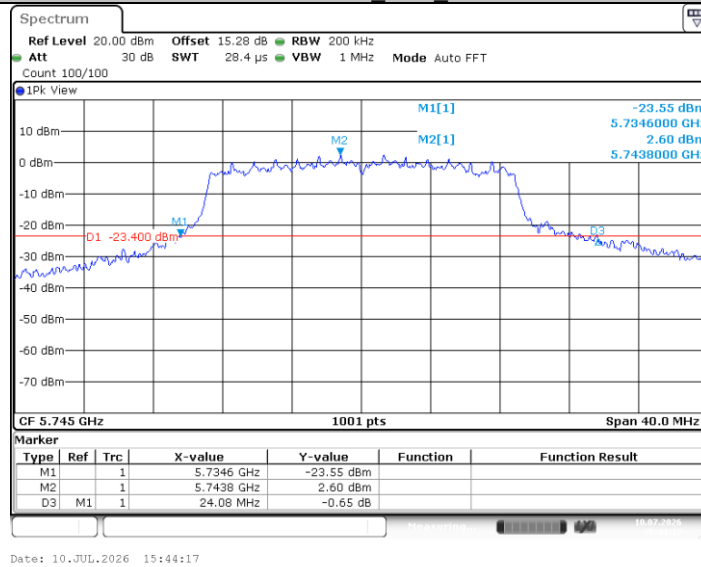
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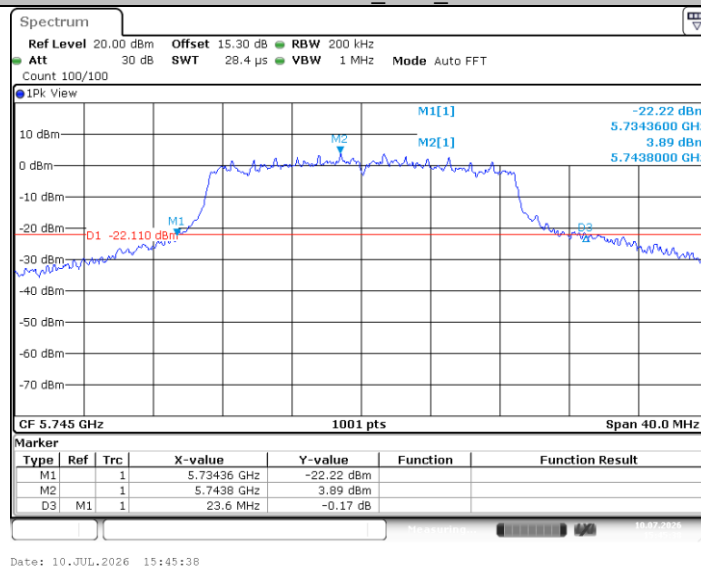
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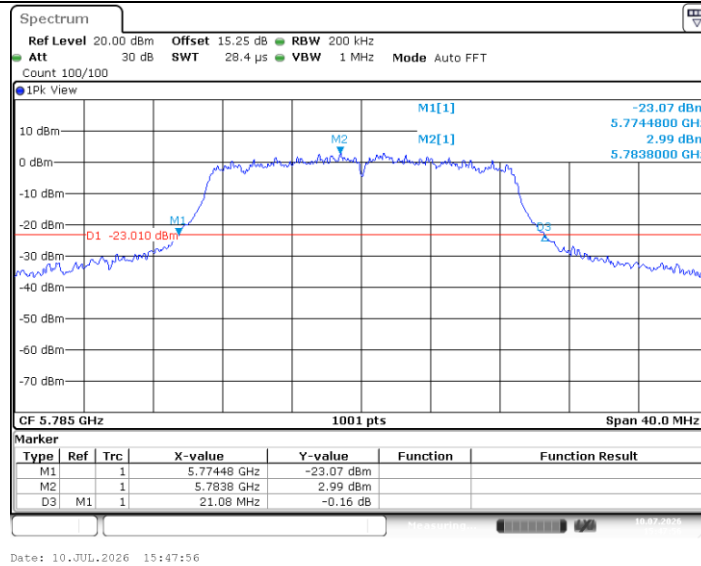
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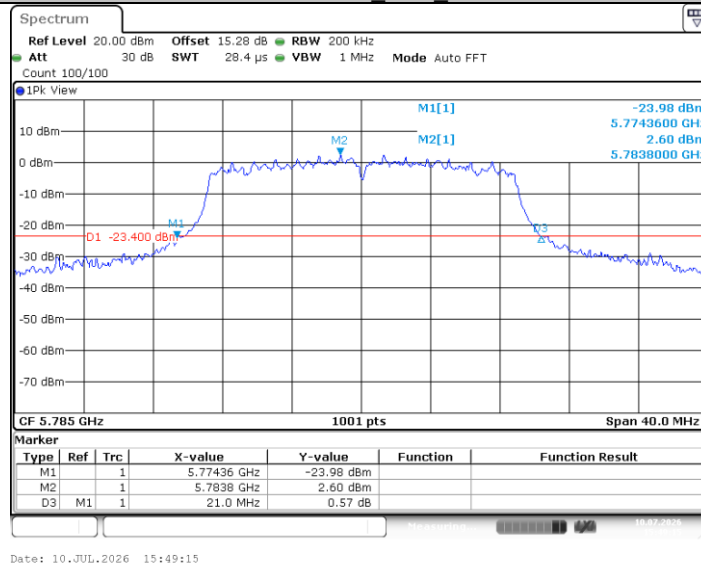
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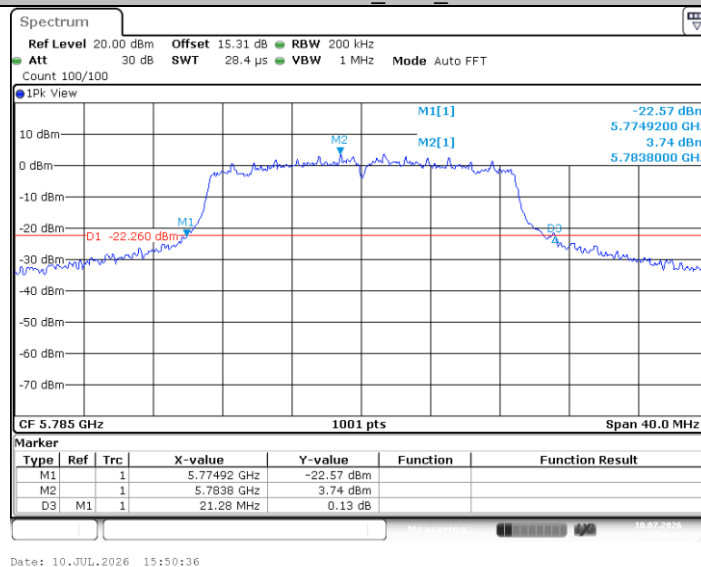
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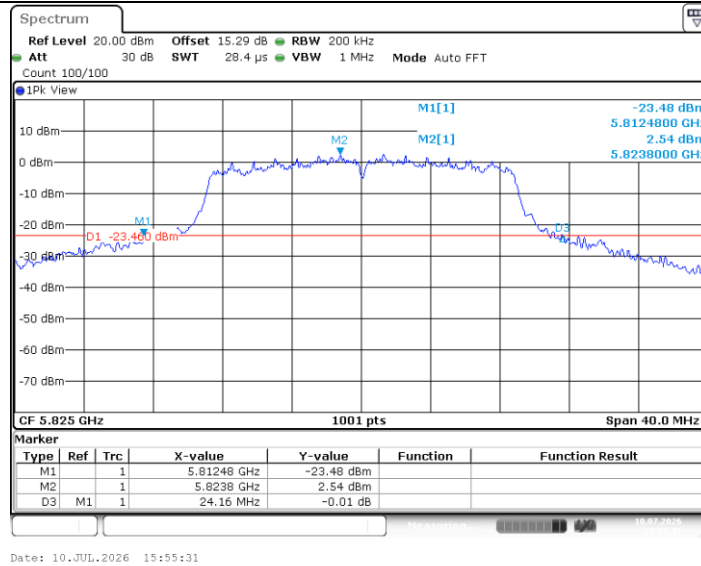
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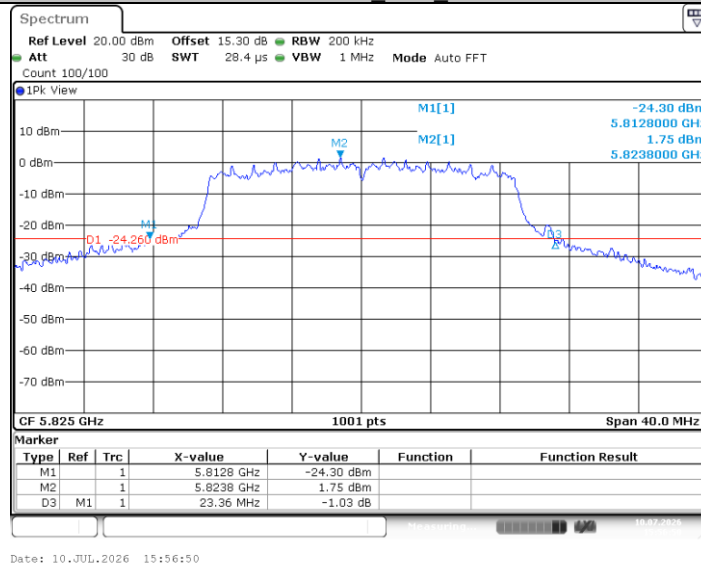
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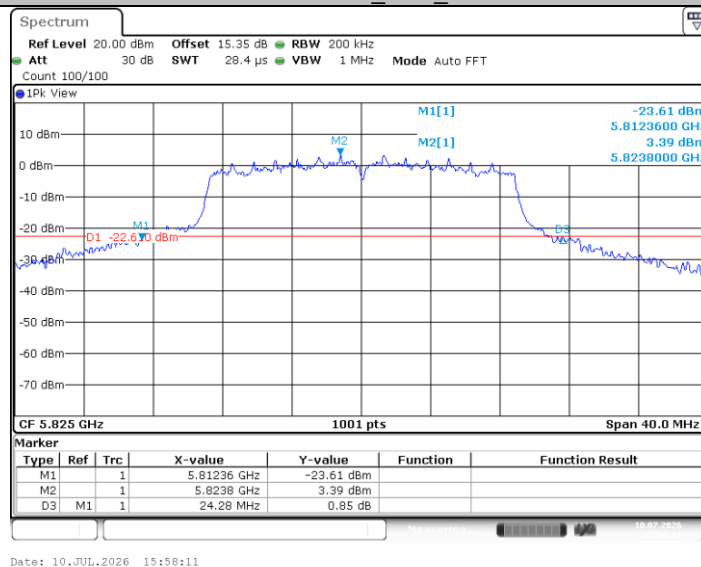
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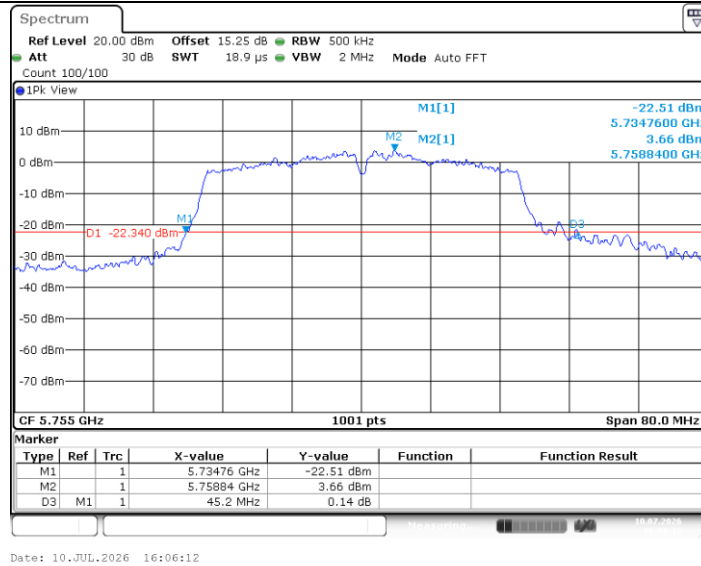
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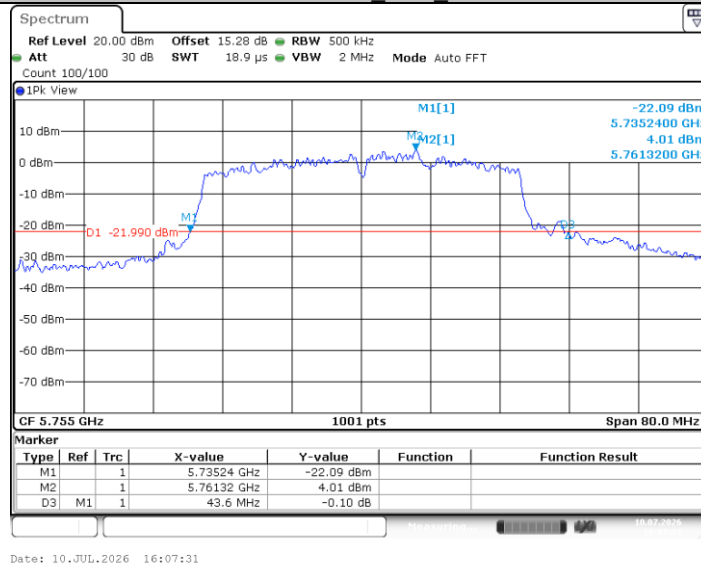
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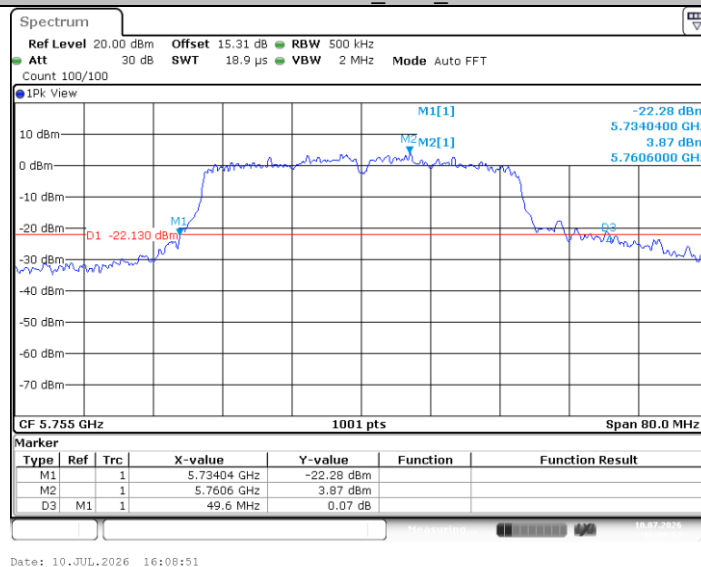
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## 11AC40MIMO\_Ant2\_5755



## 11AC40MIMO\_Ant3\_5755



## 11AC40MIMO\_Ant1\_5795