



RF Test Report

FCC ID: 2AW68-NP3081GC

Change II

Report No. : TBR-C-202407-0114-61

Applicant : Shenzhen SDMC Technology Co., Ltd.

Equipment Under Test (EUT)

EUT Name : AX3000 Dual Band Wi-Fi6 GPON Terminal

Model No. : NP3081GC

Series Model No. : NP3081GB

Brand Name : N/A

Sample ID : HC-C-202407-0114-03-01&HC-C-202407-0114-06-01

Receipt Date : 2024-11-05

Test Date : 2024-11-05 to 2024-11-07

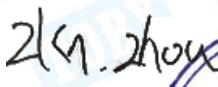
Issue Date : 2024-11-08


Standards : FCC Part 15 Subpart E 15.407


Test Method : ANSI C63.10: 2013
KDB 789033 D02 General UNII Test Procedures New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01

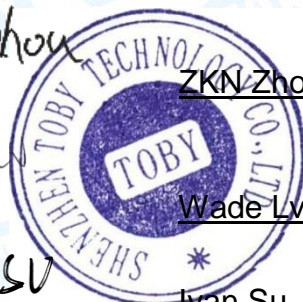
Conclusions : **PASS**

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

Test By :  ZKN Zhou

Reviewed By :  Wade Ly

Approved By :  Ivan Su



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

Contents

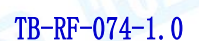
| | |
|---|-----------|
| CONTENTS..... | 2 |
| REVISION HISTORY..... | 4 |
| 1. GENERAL INFORMATION ABOUT EUT..... | 5 |
| 1.1 Client Information..... | 5 |
| 1.2 General Description of EUT (Equipment Under Test) | 5 |
| 1.3 Block Diagram Showing the Configuration of System Tested..... | 7 |
| 1.4 Description of Support Units | 7 |
| 1.5 Description of Test Mode..... | 8 |
| 1.6 Description of Test Software Setting | 10 |
| 1.7 Measurement Uncertainty | 12 |
| 1.8 Test Facility..... | 13 |
| 2. TEST SUMMARY..... | 14 |
| 3. TEST SOFTWARE..... | 14 |
| 4. TEST EQUIPMENT AND TEST SITE..... | 15 |
| 5. CONDUCTED EMISSION TEST | 16 |
| 5.1 Test Standard and Limit..... | 16 |
| 5.2 Test Setup..... | 16 |
| 5.3 Test Procedure..... | 16 |
| 5.4 Deviation From Test Standard..... | 16 |
| 5.5 EUT Operating Mode | 17 |
| 5.6 Test Data..... | 17 |
| 6. RADIATED UNWANTED EMISSIONS | 18 |
| 6.1 Test Standard and Limit..... | 18 |
| 6.2 Test Setup..... | 19 |
| 6.3 Test Procedure..... | 20 |
| 6.4 Deviation From Test Standard..... | 22 |
| 6.5 EUT Operating Mode | 22 |
| 6.6 Test Data..... | 22 |
| 7. ANTENNA REQUIREMENT..... | 23 |
| 7.1 Test Standard and Limit..... | 23 |
| 7.2 Deviation From Test Standard..... | 23 |
| 7.3 Antenna Connected Construction | 23 |
| 7.4 Test Data..... | 23 |



| | |
|--|----|
| ATTACHMENT A--CONDUCTED EMISSION TEST DATA | 24 |
| ATTACHMENT B--UNWANTED EMISSIONS DATA | 26 |



Revision History

[illegible]

1. General Information about EUT

1.1 Client Information

| | | |
|---------------------|---|---|
| Applicant | : | Shenzhen SDMC Technology Co., Ltd. |
| Address | : | Floor 1, Building 5, Hengtongfa Industrial Zone, Tangtou Industrial Park, Tangtou Community, Shiyan Street, Baoan District, Shenzhen, China |
| Manufacturer | : | Shenzhen SDMC Technology Co., Ltd. |
| Address | : | Floor 1, Building 5, Hengtongfa Industrial Zone, Tangtou Industrial Park, Tangtou Community, Shiyan Street, Baoan District, Shenzhen, China |

1.2 General Description of EUT (Equipment Under Test)

| | | | | | | |
|--|---|--|--|--------------------|----------------|-------------|
| EUT Name | : | AX3000 Dual Band Wi-Fi6 GPON Terminal | | | | |
| Models No. | : | NP3081GB, NP3081GC | | | | |
| Model Different | : | NP3081GB and NP3081GC models are identical in the same PCB, layout and electrical circuit, The only difference is adapter and 5.8G built-in antenna. NP3081GB without 2.5G port. | | | | |
| Product Description | : | Operation Frequency: U-NII-1: 5180MHz~5240MHz, U-NII-2A: 5250MHz~5320MHz U-NII-2C: 5500MHz~5720MHz, U-NII-3: 5745MHz~5825MHz | | | | |
| | | Antenna Gain: | Antenna | Gain(dBi)-NP3081GB | | |
| | | | | Ant. 1(Dipole) | Ant. 2(Dipole) | Ant. 3(PCB) |
| | | | Band(U-NII-1): | 5.02 | 5.04 | 4.66 |
| | | | Band(U-NII-2A): | 5.02 | 5.04 | 4.66 |
| | | | Band(U-NII-2C): | 5.02 | 5.04 | 4.66 |
| | | | Band(U-NII-3): | 5.02 | 5.04 | 4.66 |
| | | Modulation Type: | 802.11a: OFDM (QPSK, BPSK, 16QAM, 64QAM) 802.11n: OFDM (QPSK, BPSK, 16QAM, 64QAM) 802.11ac: OFDM (QPSK, BPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (QPSK, BPSK, 16QAM, 64QAM, 256QAM, 1024QAM) | | | |
| Power Rating (NP3081GC) | : | AC Adapter (Model: AD-0181200150NOM): Input: 100-240V~, 50/60Hz, 0.6A Output: 12.0V=1.5A | | | | |
| Power Rating (NP3081GB) | : | AC Adapter (Model: F24L15-120300SPAU): Input: 100-240V~, 50/60Hz, 0.6A Output: 12.0V=2.0A 24.0W | | | | |
| Software Version | : | N/A | | | | |
| Hardware Version | : | N/A | | | | |
| Remark: (1)The antenna gain and adapter provided by the applicant, the verified for the RF conduction test provided by TOBY test lab. (2)The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible. (3) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. | | | | | | |

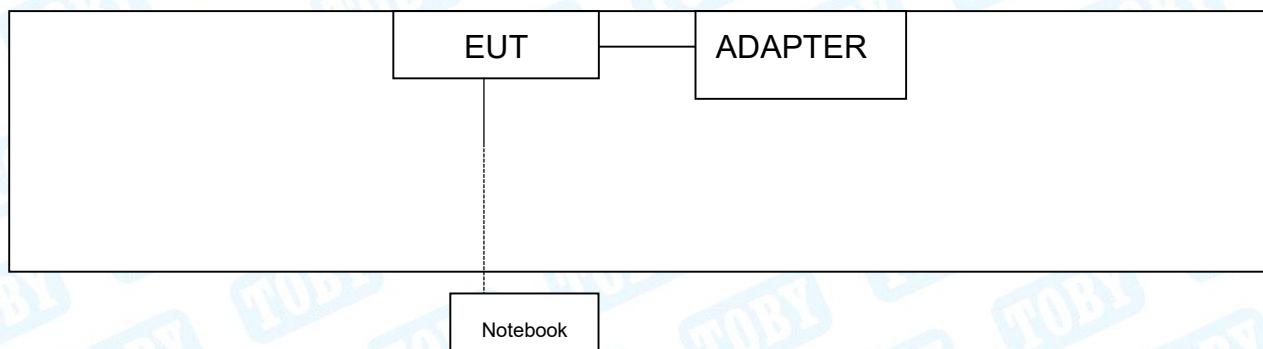


(4)Channel List:

| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
|--|-------------|-----------|-------------|-----------|
| 5180~5240MHz (U-NII-1) | 36 | 5180 MHz | 44 | 5220 MHz |
| | 38 | 5190 MHz | 46 | 5230 MHz |
| | 40 | 5200 MHz | 48 | 5240 MHz |
| | 42 | 5210 MHz | | |
| For 20 MHz Bandwidth, use channel 36, 40, 44, 48. For 40 MHz Bandwidth, use channel 38, 46. For 80 MHz Bandwidth, use channel 42. | | | | |
| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
| 5250~5320 MHz (U-NII-2A) | 50 | 5250 MHz | 58 | 5290MHz |
| | 52 | 5260 MHz | 60 | 5300 MHz |
| | 54 | 5270 MHz | 62 | 5310MHz |
| | 56 | 5280MHz | 64 | 5320 MHz |
| For 20 MHz Bandwidth, use channel 52, 56, 60, 64. For 40 MHz Bandwidth, use channel 54, 62. For 80 MHz Bandwidth, use channel 58. For 160 MHz Bandwidth, use channel 50. | | | | |
| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
| 5500~5720 MHz (U-NII-2C) | 100 | 5500 MHz | 122 | 5610 MHz |
| | 102 | 5510 MHz | 124 | 5620 MHz |
| | 104 | 5520 MHz | 126 | 5630 MHz |
| | 106 | 5530 MHz | 128 | 5640 MHz |
| | 108 | 5540 MHz | 132 | 5660 MHz |
| | 110 | 5550 MHz | 134 | 5670 MHz |
| | 112 | 5560 MHz | 136 | 5680 MHz |
| | 114 | 5570 MHz | 138 | 5690 MHz |
| | 116 | 5580 MHz | 140 | 5700 MHz |
| | 118 | 5590 MHz | 142 | 5710 MHz |
| | 120 | 5600 MHz | 144 | 5720 MHz |
| For 20 MHz Bandwidth, use channel 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144 For 40 MHz Bandwidth, use channel 102, 110, 118, 126, 134, 142 For 80 MHz Bandwidth, use channel 106, 122, 138. For 160 MHz Bandwidth, use channel 114. | | | | |
| Frequency Band | Channel No. | Frequency | Channel No. | Frequency |
| 5745~5825MHz (U-NII-3) | 149 | 5745 MHz | 157 | 5785 MHz |
| | 151 | 5755 MHz | 159 | 5795 MHz |
| | 153 | 5765 MHz | 161 | 5805 MHz |
| | 155 | 5775 MHz | 165 | 5825 MHz |
| For 20 MHz Bandwidth, use channel 149, 153, 157, 161, 165. For 40 MHz Bandwidth, use channel 151, 159. For 80 MHz Bandwidth, use channel 155. | | | | |



1.3 Block Diagram Showing the Configuration of System Tested



1.4 Description of Support Units

| Equipment Information | | | | |
|-----------------------|---------------|--------------|--------------|----------|
| Name | Model | FCC ID/VOC | Manufacturer | Used “√” |
| Notebook | Inspiron 5493 | ---- | DELL | √ |
| Cable Information | | | | |
| Number | Shielded Type | Ferrite Core | Length | Note |
| ---- | ---- | ---- | ---- | ---- |



1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

| For Conducted Test | | |
|---|-----------------|--|
| Final Test Mode | | Description |
| Mode 1 | | TX a Mode(5180MHz) |
| For Radiated Test Below 1GHz | | |
| Final Test Mode | | Description |
| Mode 2 | | TX a Mode(5180MHz) |
| For Radiated Above 1GHz and RF Conducted Test | | |
| Test Band | Final Test Mode | Description |
| U-NII-1 | Mode 3 | TX Mode 802.11a Mode Channel 36/40/48 |
| | Mode 4 | TX Mode 802.11n(HT20) Mode Channel 36/40/48 |
| | Mode 5 | TX Mode 802.11ac(VHT20) Mode Channel 36/40/48 |
| | Mode 6 | TX Mode 802.11ax(HE20) Mode Channel 36/40/48 |
| | Mode 7 | TX Mode 802.11n(HT40) Mode Channel 38/46 |
| | Mode 8 | TX Mode 802.11ac(VHT40) Mode Channel 38/46 |
| | Mode 9 | TX Mode 802.11ax(HE40) Mode Channel 38/46 |
| | Mode 10 | TX Mode 802.11ac(VHT80) Mode Channel 42 |
| U-NII-2A | Mode 11 | TX Mode 802.11ax(HE80) Mode Channel 42 |
| | Mode 12 | TX Mode 802.11a Mode Channel 52/56/64 |
| | Mode 13 | TX Mode 802.11n(HT20) Mode Channel 52/56/64 |
| | Mode 14 | TX Mode 802.11ac(VHT20) Mode Channel 52/56/64 |
| | Mode 15 | TX Mode 802.11ax(HE20) Mode Channel 52/56/64 |
| | Mode 16 | TX Mode 802.11n(HT40) Mode Channel 54/62 |
| | Mode 17 | TX Mode 802.11ac(VHT40) Mode Channel 54/62 |
| | Mode 18 | TX Mode 802.11ax(HE40) Mode Channel 54/62 |
| | Mode 19 | TX Mode 802.11ac(VHT80) Mode Channel 58 |
| | Mode 20 | TX Mode 802.11ax(HE80) Mode Channel 58 |
| | Mode 21 | TX Mode 802.11ac(VHT160) Mode Channel 50 |
| | Mode 22 | TX Mode 802.11ax(HE160) Mode Channel 50 |
| U-NII-2C | Mode 23 | TX Mode 802.11a Mode Channel 100/116/144 |
| | Mode 24 | TX Mode 802.11n(HT20) Mode Channel 100/116/144 |
| | Mode 25 | TX Mode 802.11ac(VHT20) Mode Channel 100/116/144 |
| | Mode 26 | TX Mode 802.11ax(HE20) Mode Channel 100/116/144 |
| | Mode 27 | TX Mode 802.11n(HT40) Mode Channel 102/110/134/142 |
| | Mode 28 | TX Mode 802.11ac(VHT40) Mode Channel 102/110/142 |
| | Mode 29 | TX Mode 802.11ax(HE40) Mode Channel 102/110/142 |
| | Mode 23 | TX Mode 802.11ac(VHT80) Mode Channel 106/122/138 |
| | Mode 24 | TX Mode 802.11ax(HE80) Mode Channel 106/122/138 |
| | Mode 25 | TX Mode 802.11ac(VHT160) Mode Channel 114 |
| U-NII-3 | Mode 26 | TX Mode 802.11ax(HE160) Mode Channel 114 |
| | Mode 27 | TX Mode 802.11a Mode Channel 149/157/165 |
| | Mode 28 | TX Mode 802.11n(HT20) Mode Channel 149/157/165 |
| | Mode 29 | TX Mode 802.11ac(VHT20) Mode Channel 149/157/165 |
| | Mode 30 | TX Mode 802.11ax(HE20) Mode Channel 149/157/165 |
| | Mode 31 | TX Mode 802.11n(HT40) Mode Channel 151/159 |
| | Mode 32 | TX Mode 802.11ac(VHT40) Mode Channel 151/159 |
| | Mode 33 | TX Mode 802.11ax(HE40) Mode Channel 151/159 |
| | Mode 34 | TX Mode 802.11ac(VHT80) Mode Channel 155 |
| | Mode 35 | TX Mode 802.11ax(HE80) Mode Channel 155 |



Note:

- (1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

| Mode | Data Rate |
|---------------------|-----------|
| A Mode-SISO/CDD | 6Mbps |
| N(HT20) Mode-CDD | MCS0 |
| N(HT40) Mode-CDD | MCS0 |
| AC(VHT20) Mode-CDD | MCS0 |
| AC(VHT40) Mode-CDD | MCS0 |
| AC(VHT80) Mode-CDD | MCS0 |
| AC(VHT160) Mode-CDD | MCS0 |
| AX(HE20) Mode-CDD | MCS0 |
| AX(HE40) Mode-CDD | MCS0 |
| AX(HE80) Mode-CDD | MCS0 |
| AX(HE160) Mode-CDD | MCS0 |

- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a Mobile unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.



1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF setting.

| Test Software: QATool Dbg.exe | | | | | | |
|-------------------------------|-----------------|------------|----|----|------|---|
| U-NII-1 for FCC | | | | | | |
| Mode | Frequency (MHz) | Parameters | | | | |
| | | SISO | | | CDD | / |
| 1 | 2 | 3 | | | | |
| 802.11a | 5180 | 17 | 17 | 17 | 16 | / |
| | 5200 | 17 | 17 | 17 | 16 | / |
| | 5240 | 17 | 17 | 17 | 16 | / |
| 802.11n(HT20) | 5180 | / | | | 16 | / |
| | 5200 | / | | | 16 | / |
| | 5240 | / | | | 16 | / |
| 802.11ac(VHT20) | 5180 | / | | | 16 | / |
| | 5200 | / | | | 16 | / |
| | 5240 | / | | | 16 | / |
| 802.11ax(HE20) | 5180 | / | | | 16 | / |
| | 5200 | / | | | 16 | / |
| | 5240 | / | | | 16 | / |
| 802.11n(HT40) | 5190 | / | | | 16 | / |
| | 5230 | / | | | 16 | / |
| 802.11ac(VHT40) | 5190 | / | | | 16 | / |
| | 5230 | / | | | 16 | / |
| 802.11ax(HE40) | 5190 | / | | | 16 | / |
| | 5230 | / | | | 16 | / |
| 802.11ac(VHT80) | 5210 | / | | | 12 | / |
| 802.11ax(HE80) | 5210 | / | | | 12 | / |
| U-NII-2A | | | | | | |
| Mode | Frequency (MHz) | Parameters | | | | |
| | | SISO | | | CDD | / |
| 1 | 2 | 3 | | | | |
| 802.11a | 5260 | 17 | 17 | 17 | 12 | / |
| | 5280 | 17 | 17 | 17 | 12 | / |
| | 5320 | 17 | 17 | 17 | 12 | / |
| 802.11n(HT20) | 5260 | / | | | 12.5 | / |
| | 5280 | / | | | 12.5 | / |
| | 5320 | / | | | 12.5 | / |
| 802.11ac(VHT20) | 5260 | / | | | 12.5 | / |
| | 5280 | / | | | 12.5 | / |
| | 5320 | / | | | 12.5 | / |
| 802.11ax(HE20) | 5260 | / | | | 12.5 | / |
| | 5280 | / | | | 12.5 | / |
| | 5320 | / | | | 12.5 | / |
| 802.11n(HT40) | 5270 | / | | | 15.5 | / |
| | 5310 | / | | | 15.5 | / |
| 802.11ac(VHT40) | 5270 | / | | | 15.5 | / |
| | 5310 | / | | | 15.5 | / |
| 802.11ax(HE40) | 5270 | / | | | 15.5 | / |
| | 5310 | / | | | 15.5 | / |
| 802.11ac(VHT80) | 5290 | / | | | 14 | / |
| 802.11ax(HE80) | 5290 | / | | | 14 | / |
| 802.11ac(VHT160) | 5250 | / | | | 16 | / |
| 802.11ax(HE160) | 5250 | / | | | 16 | / |



| Test Software: QATool_Dbg.exe | | | | | | |
|-------------------------------|-----------------|------------|----|----|------|---|
| U-NII-2C | | | | | | |
| Mode | Frequency (MHz) | Parameters | | | | |
| | | SISO | | | CDD | / |
| | | 1 | 2 | 3 | | |
| 802.11a | 5500 | 17 | 17 | 17 | 12 | / |
| | 5580 | 17 | 17 | 17 | 11 | / |
| | 5720 | 17 | 17 | 17 | 11 | / |
| 802.11n(HT20) | 5500 | / | | | 13 | / |
| | 5580 | / | | | 13 | / |
| | 5720 | / | | | 11.5 | / |
| 802.11ac(VHT20) | 5500 | / | | | 13 | / |
| | 5580 | / | | | 13 | / |
| | 5720 | / | | | 11.5 | / |
| 802.11ax(HE20) | 5500 | / | | | 13 | / |
| | 5580 | / | | | 13 | / |
| | 5720 | / | | | 11.5 | / |
| 802.11n(HT40) | 5510 | / | | | 15 | / |
| | 5550 | / | | | 15 | / |
| | 5710 | / | | | 13.5 | / |
| 802.11ac(VHT40) | 5510 | / | | | 15 | / |
| | 5550 | / | | | 15 | / |
| | 5710 | / | | | 13.5 | / |
| 802.11ax(HE40) | 5510 | / | | | 15 | / |
| | 5550 | / | | | 15 | / |
| | 5710 | / | | | 13.5 | / |
| 802.11ac(VHT80) | 5530 | / | | | 14 | / |
| | 5610 | / | | | 14 | / |
| | 5690 | / | | | 14 | / |
| 802.11ax(HE80) | 5530 | / | | | 14 | / |
| | 5610 | / | | | 14 | / |
| | 5690 | / | | | 14 | / |
| 802.11ac(VHT160) | 5570 | / | | | 15 | / |
| 802.11ax(HE160) | 5570 | / | | | 15 | / |
| U-NII-3 | | | | | | |
| Mode | Frequency (MHz) | Parameters | | | | |
| | | SISO | | | CDD | / |
| | | 1 | 2 | 3 | | |
| 802.11a | 5745 | 17 | 17 | 17 | 17 | / |
| | 5785 | 17 | 17 | 17 | 17 | / |
| | 5825 | 17 | 17 | 17 | 17 | / |
| 802.11n(HT20) | 5745 | / | | | 17 | / |
| | 5785 | / | | | 17 | / |
| | 5825 | / | | | 17 | / |
| 802.11ac(VHT20) | 5745 | / | | | 17 | / |
| | 5785 | / | | | 17 | / |
| | 5825 | / | | | 17 | / |
| 802.11ax(HE20) | 5745 | / | | | 17 | / |
| | 5785 | / | | | 17 | / |
| | 5825 | / | | | 17 | / |
| 802.11n(HT40) | 5755 | / | | | 17 | / |
| | 5795 | / | | | 17 | / |
| 802.11ac(VHT40) | 5755 | / | | | 17 | / |
| | 5795 | / | | | 17 | / |
| 802.11ax(HE40) | 5755 | / | | | 17 | / |
| | 5795 | / | | | 17 | / |
| 802.11ac(VHT80) | 5775 | / | | | 17 | / |
| 802.11ax(HE80) | 5775 | / | | | 17 | / |



1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

| Test Item | Parameters | Expanded Uncertainty (U_{Lab}) |
|----------------------------------|---|------------------------------------|
| Conducted Emission | Level Accuracy: 9kHz~150kHz 150kHz to 30MHz | ± 3.50 dB ± 3.10 dB |
| Radiated Emission | Level Accuracy: 9kHz to 30 MHz | ± 4.60 dB |
| Radiated Emission | Level Accuracy: 30MHz to 1000 MHz | ± 4.50 dB |
| Radiated Emission | Level Accuracy: Above 1000MHz | ± 4.20 dB |
| RF Power-Conducted | / | ± 0.95 dB |
| Power Spectral Density-Conducted | / | ± 3 dB |
| Occupied Bandwidth | / | $\pm 3.8\%$ |
| Unwanted Emission-Conducted | / | ± 2.72 dB |



1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.



2. Test Summary

| Standard Section | Test Item | Test Sample(s) | Judgment |
|------------------------|--------------------------------|------------------------|----------|
| FCC 15.207(a) | Conducted Emission | HC-C-202407-0114-06-02 | PASS |
| FCC 15.209 & 15.407(b) | Radiated Unwanted Emissions | HC-C-202407-0114-06-02 | PASS |
| FCC 15.203 | Antenna Requirement | HC-C-202407-0114-03-01 | PASS* |
| FCC 15.407(a) | -26dB Emission Bandwidth | HC-C-202407-0114-03-01 | PASS* |
| FCC 15.407(a) | 99% Occupied Bandwidth | / | N/A |
| FCC 15.407(e) | -6dB Min Emission Bandwidth | HC-C-202407-0114-03-01 | PASS* |
| FCC 15.407(a) | Maximum Conducted Output Power | HC-C-202407-0114-03-01 | PASS* |
| FCC 15.407(a) | Power Spectral Density | HC-C-202407-0114-03-01 | PASS* |
| FCC 15.407(b)& 15.205 | Emissions in Restricted Bands | HC-C-202407-0114-03-02 | PASS* |
| FCC 15.407(b)&15.209 | Conducted Unwanted Emissions | HC-C-202407-0114-03-01 | PASS* |
| FCC 15.407(g) | Frequency Stability | HC-C-202407-0114-03-01 | PASS* |
| / | On Time and Duty Cycle | HC-C-202407-0114-03-01 | / |

Note: (1) N/A is an abbreviation for Not Applicable.
(2) PASS*: Change the AC/DC adapter, 5.8Gb built-in antenna and the 2.5G port is deleted, As there is no change regard RF transmitter portion, Radiated emission up to 1GHz& above 1GHz and Conducted Emission of AC Power by judging for experience.
(3) This report is a change II report, and only the change part of NP3081GB has been evaluated and tested, and only test the worst case data. More information about the test data please refer to the original test report.

3. Test Software

| Test Item | Test Software | Manufacturer | Version No. |
|--------------------|---------------|--------------|-------------|
| Conducted Emission | EZ-EMC | EZ | CDI-03A2 |
| Radiation Emission | EZ-EMC | EZ | FA-03A2RE |
| Radiation Emission | EZ-EMC | EZ | FA-03A2RE+ |
| RF Test System | JS1120-3 | Tonscend | V3.2.22 |



4. Test Equipment and Test Site

| Test Site | | | | |
|-------------|------------------------|--------------|-----------------|------|
| No. | Test Site | Manufacturer | Specification | Used |
| TB-EMCSR001 | Shielding Chamber #1 | YIHENG | 7.5*4.0*3.0 (m) | ✓ |
| TB-EMCSR002 | Shielding Chamber #2 | YIHENG | 8.0*4.0*3.0 (m) | ✓ |
| TB-EMCCA001 | 3m Anechoic Chamber #A | ETS | 9.0*6.0*6.0 (m) | X |
| TB-EMCCB002 | 3m Anechoic Chamber #B | YIHENG | 9.0*6.0*6.0 (m) | ✓ |

| Conducted Emission Test | | | | | |
|---------------------------------|----------------------------------|--------------------|-------------|---------------|---------------|
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
| EMI Test Receiver | Rohde & Schwarz | ESCI | 100321 | Jun. 17, 2024 | Jun. 16, 2025 |
| RF Switching Unit | Compliance Direction Systems Inc | RSU-A4 | 34403 | Jun. 17, 2024 | Jun. 16, 2025 |
| AMN | SCHWARZBECK | NNBL 8226-2 | 8226-2/164 | Jun. 17, 2024 | Jun. 16, 2025 |
| LISN | Rohde & Schwarz | ENV216 | 101131 | Jun. 17, 2024 | Jun. 16, 2025 |
| Radiation Emission Test(B Site) | | | | | |
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Due Date |
| Spectrum Analyzer | Agilent | N9020A | MY49100060 | Aug. 29, 2024 | Aug. 28, 2025 |
| Spectrum Analyzer | Rohde & Schwarz | FSV40-N | 102197 | Jun. 17, 2024 | Jun. 16, 2025 |
| EMI Test Receiver | Rohde & Schwarz | ESU-8 | 100472/008 | Feb. 23, 2024 | Feb.22, 2025 |
| Bilog Antenna | SCHWARZBECK | VULB 9168 | 1225 | Nov. 13, 2023 | Nov. 12, 2025 |
| Horn Antenna | SCHWARZBECK | BBHA 9120 D | 2463 | Jun. 14, 2024 | Jun. 13, 2026 |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | 1118 | Feb. 27, 2024 | Feb.26, 2026 |
| Loop Antenna | SCHWARZBECK | FMZB 1519 B | 1519B-059 | Jun. 14, 2024 | Jun. 13, 2026 |
| HF Amplifier | Tonscend | TAP9E6343 | AP21C806117 | Aug. 29, 2024 | Aug. 28, 2025 |
| HF Amplifier | Tonscend | TAP051845 | AP21C806141 | Aug. 29, 2024 | Aug. 28, 2025 |
| HF Amplifier | Tonscend | TAP0184050 | AP21C806129 | Aug. 29, 2024 | Aug. 28, 2025 |
| Pre-amplifier | HP | 8449B | 3008A00849 | Feb. 23, 2024 | Feb.22, 2025 |
| Highpass Filter | CD | HPM-6.4/18G | --- | N/A | N/A |
| Highpass Filter | CD | HPM-2.8/18G | --- | N/A | N/A |
| Highpass Filter | XINBO | XBLBQ-HTA67(8-25G) | 22052702-1 | N/A | N/A |



5. Conducted Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard

FCC Part 15.207

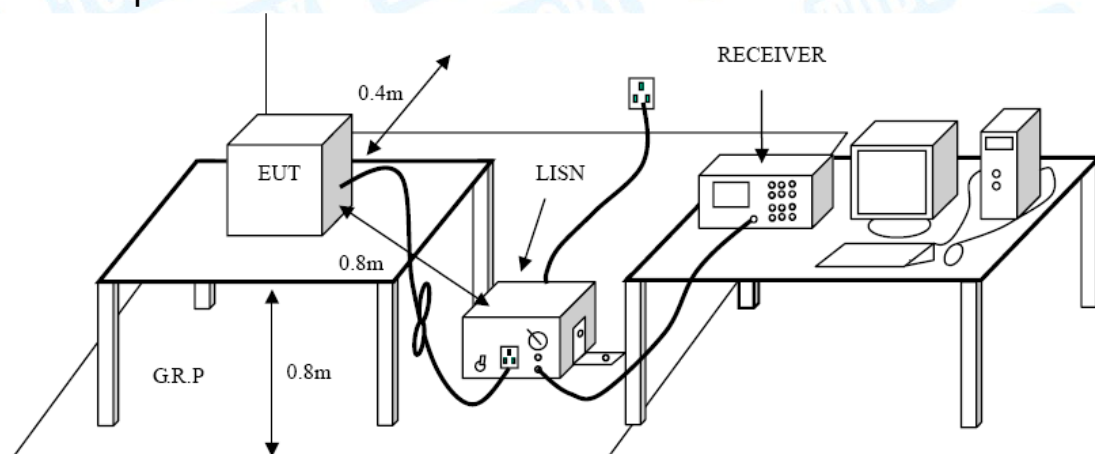
5.1.2 Test Limit

| Frequency | Maximum RF Line Voltage (dBμV) | |
|---------------|--------------------------------|---------------|
| | Quasi-peak Level | Average Level |
| 150kHz~500kHz | 66 ~ 56 * | 56 ~ 46 * |
| 500kHz~5MHz | 56 | 46 |
| 5MHz~30MHz | 60 | 50 |

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.2 Test Setup



5.3 Test Procedure

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- The bandwidth of EMI test receiver is set at 9 kHz, and the test frequency band is from 0.15MHz to 30MHz.

5.4 Deviation From Test Standard

No deviation



5.5 EUT Operating Mode

Please refer to the description of test mode.

5.6 Test Data

Please refer to the Attachment A inside test report.



6. Radiated Unwanted Emissions

6.1 Test Standard and Limit

6.1.1 Test Standard

FCC Part 15.209 & FCC Part 15.407(b)

6.1.2 Test Limit

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

| General field strength limits at frequencies Below 30MHz | | |
|--|----------------------------------|-------------------------------|
| Frequency (MHz) | Field Strength (microvolt/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 |

Note: 1, The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

| General field strength limits at frequencies above 30 MHz | | |
|---|------------------------------|-------------------------------|
| Frequency (MHz) | Field strength (μV/m at 3 m) | Measurement Distance (meters) |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

| General field strength limits at frequencies Above 1000MHz | | |
|--|-------------------------|---------|
| Frequency (MHz) | Distance of 3m (dBuV/m) | |
| | Peak | Average |
| Above 1000 | 74 | 54 |

Note:

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

Limits of unwanted emission out of the restricted bands

| Frequency (MHz) | EIRP Limits (dBm) | Equivalent Field Strength at 3m (dBuV/m) |
|-----------------|-------------------|--|
| 5150~5250 | -27 | 68.3 |
| 5250~5350 | -27 | 68.3 |
| 5470~5725 | -27 | 68.3 |
| 5725~5825 | -27(Note 2) | 68.3 |
| | 10(Note 2) | 105.3 |
| | 15.6(Note 2) | 110.9 |
| | 27(Note 2) | 122.3 |

NOTE:

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



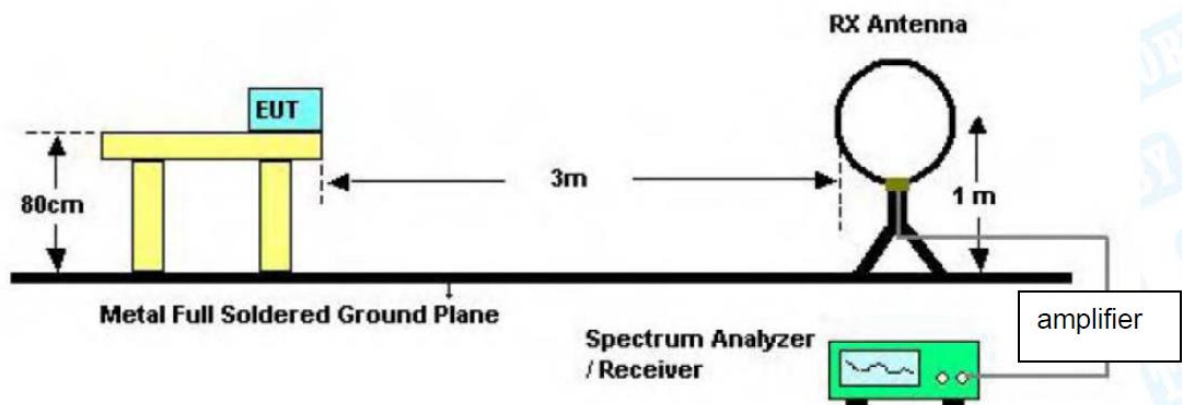
$$E = \frac{1000000\sqrt{30P}}{3} \text{ uV/m, where P is the eirp (Watts)}$$

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.

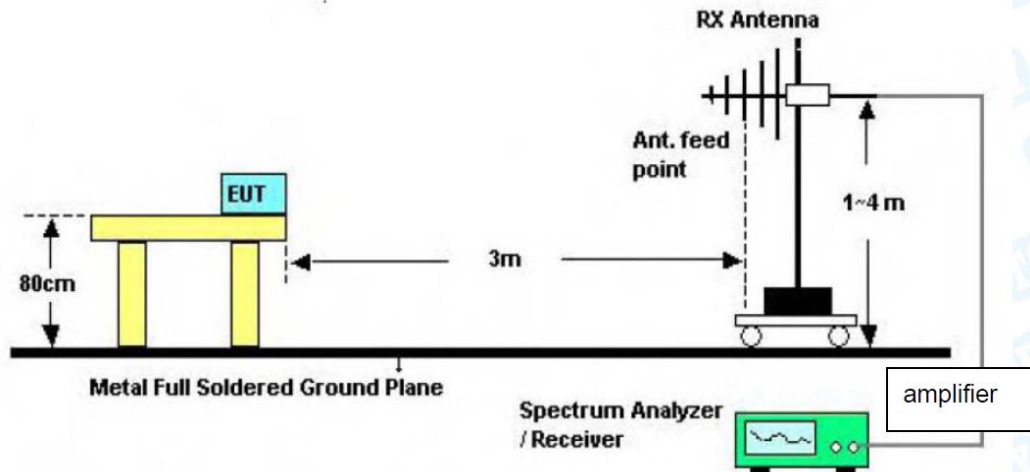
3, For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

6.2 Test Setup

Radiated measurement

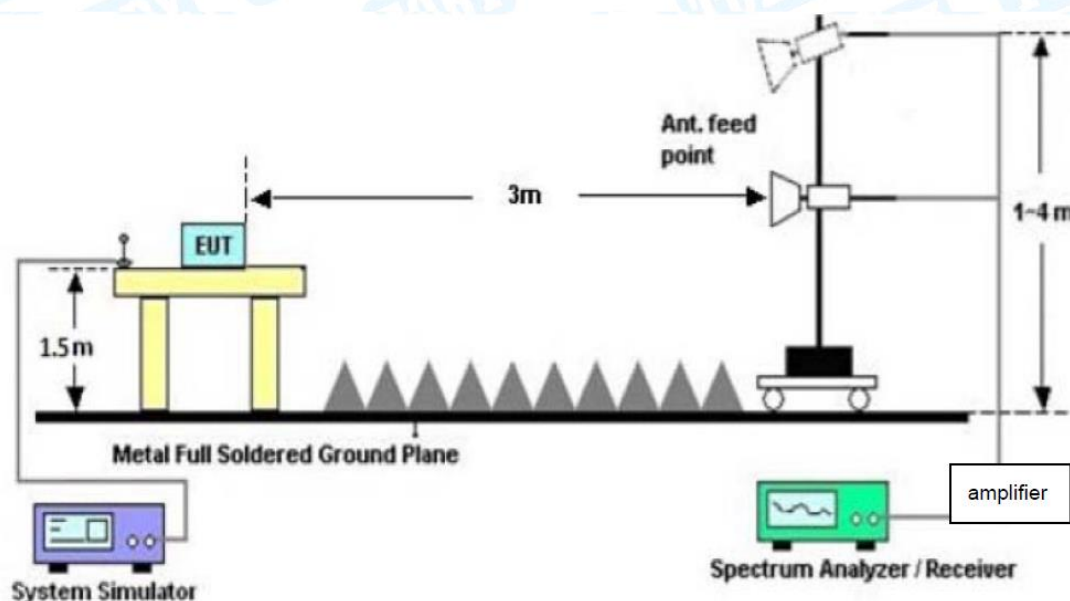


Below 30MHz Test Setup

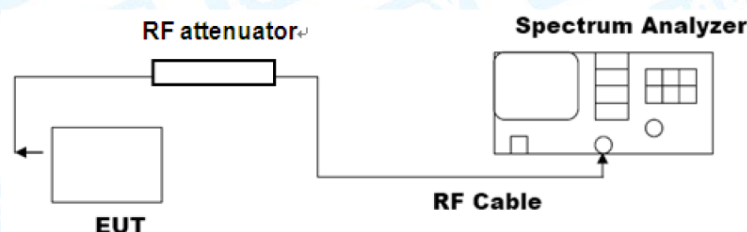


Below 1000MHz Test Setup





Above 1GHz Test Setup



Conducted measurement

6.3 Test Procedure

---Radiated measurement

- The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Below 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to



comply with applicable limit above 1 GHz.

● Testing frequency range 30MHz-1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection. Testing frequency range 9KHz-150Hz the measuring instrument use VBW=200Hz with Quasi-peak detection. Testing frequency range 9KHz-30MHz the measuring instrument use VBW=9kHz with Quasi-peak detection.

● Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

● For the actual test configuration, please see the test setup photo.

--- Conducted measurement

● Reference level measurement

Establish a reference level by using the following procedure:

- Set instrument center frequency to DTS channel center frequency.
- Set the span to ≥ 1.5 times the DTS bandwidth.
- Set the RBW = 100 kHz.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

● Emission level measurement

Establish an emission level by using the following procedure:

- Set the center frequency and span to encompass frequency range to be measured.
- Set the RBW = 100 kHz.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.



6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Mode

Please refer to the description of test mode.

6.6 Test Data

Radiated measurement please refer to the Attachment B inside test report.

Conducted measurement please refer to the external appendix report of 5G Wi-Fi.



7. Antenna Requirement

7.1 Test Standard and Limit

7.1.1 Test Standard

FCC Part 15.203

7.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

7.2 Deviation From Test Standard

No deviation

7.3 Antenna Connected Construction

The max. gains of the antenna used for transmitting is 5.07dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

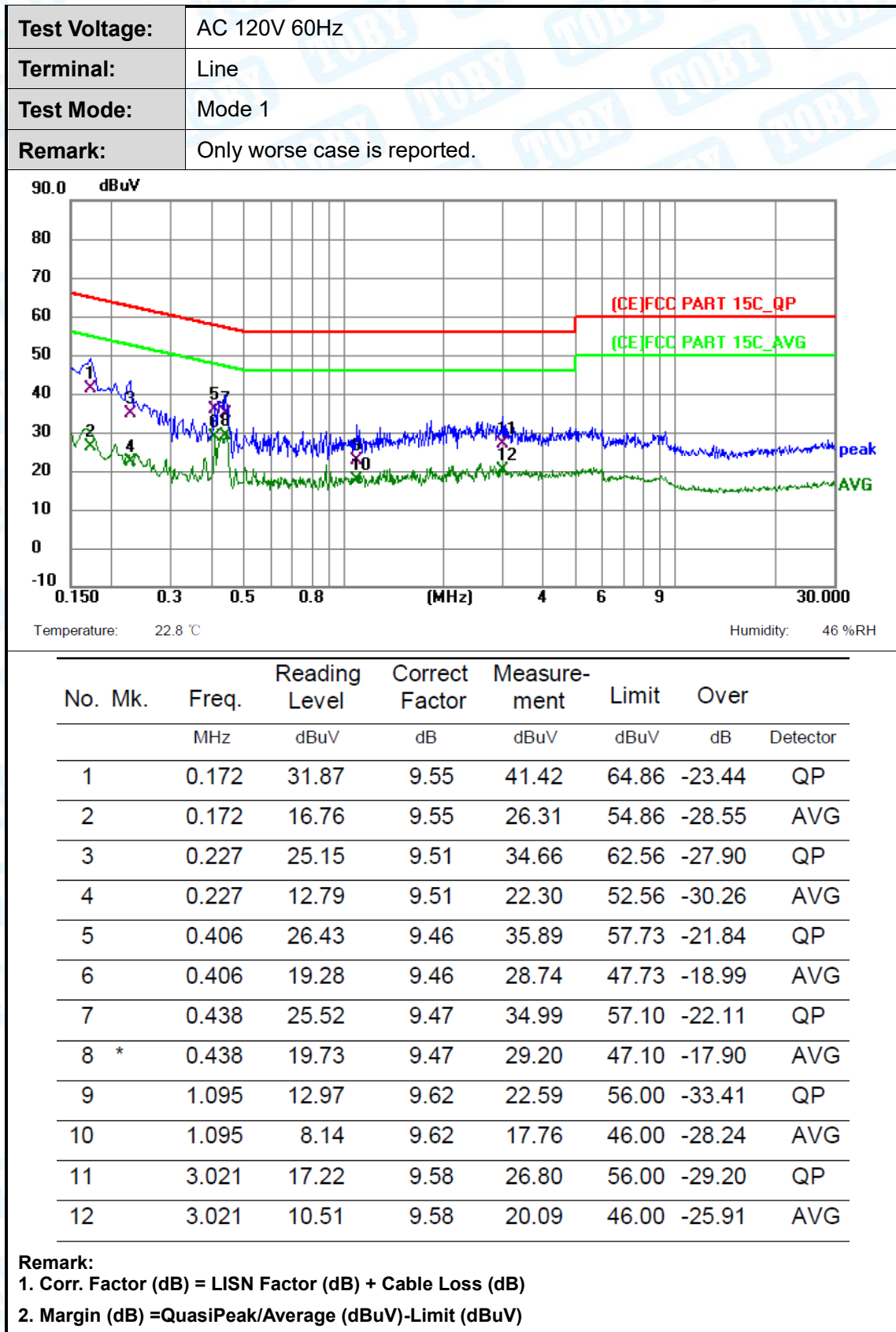
7.4 Test Data

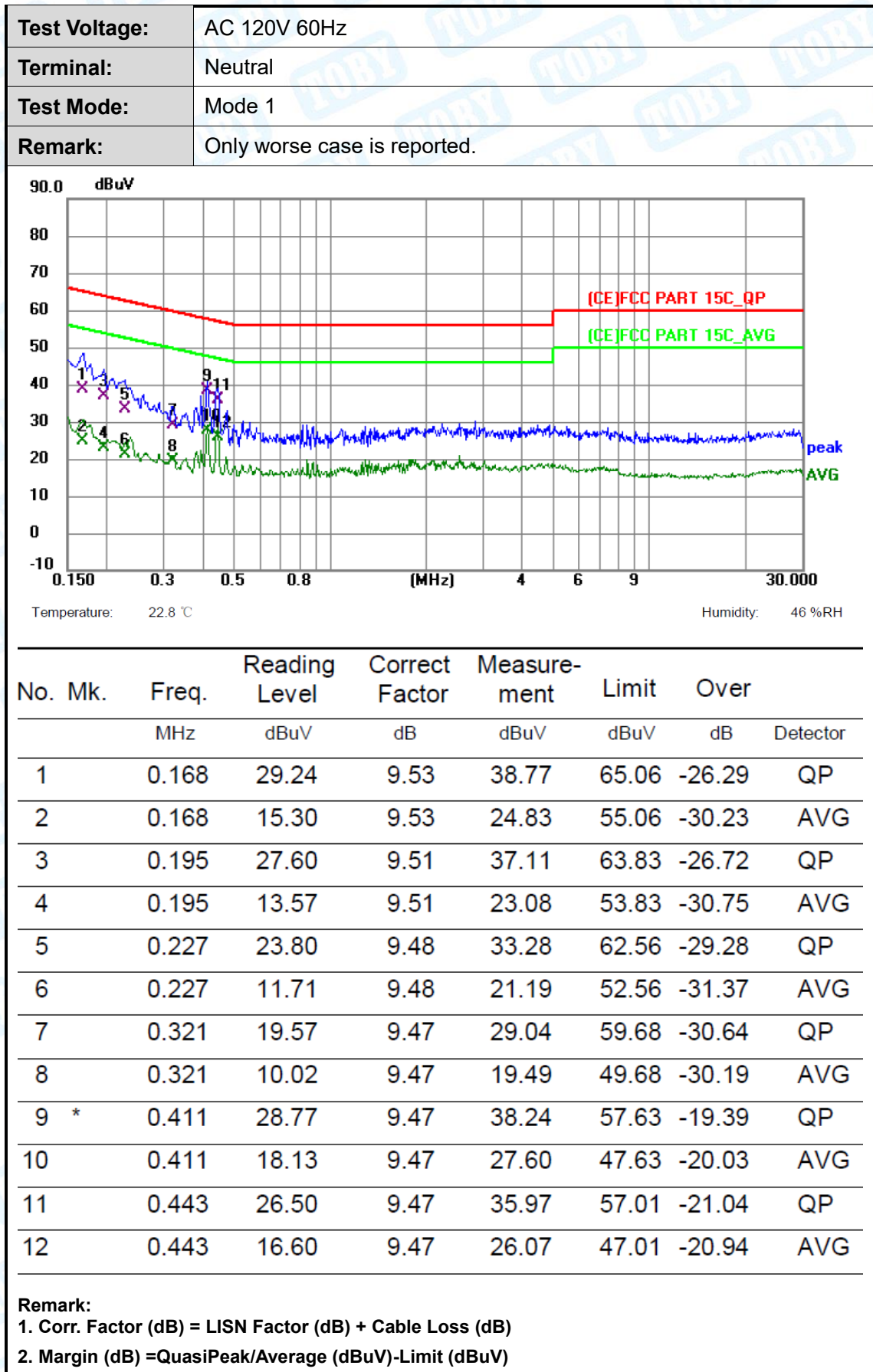
The EUT antenna is a PCB&Dipole Antenna. It complies with the standard requirement.

| Antenna Type | |
|-------------------------------------|-----------------------------------|
| <input type="checkbox"/> | Permanent attached antenna |
| <input checked="" type="checkbox"/> | Unique connector antenna |
| <input type="checkbox"/> | Professional installation antenna |



Attachment A--Conducted Emission Test Data





Attachment B--Unwanted Emissions Data

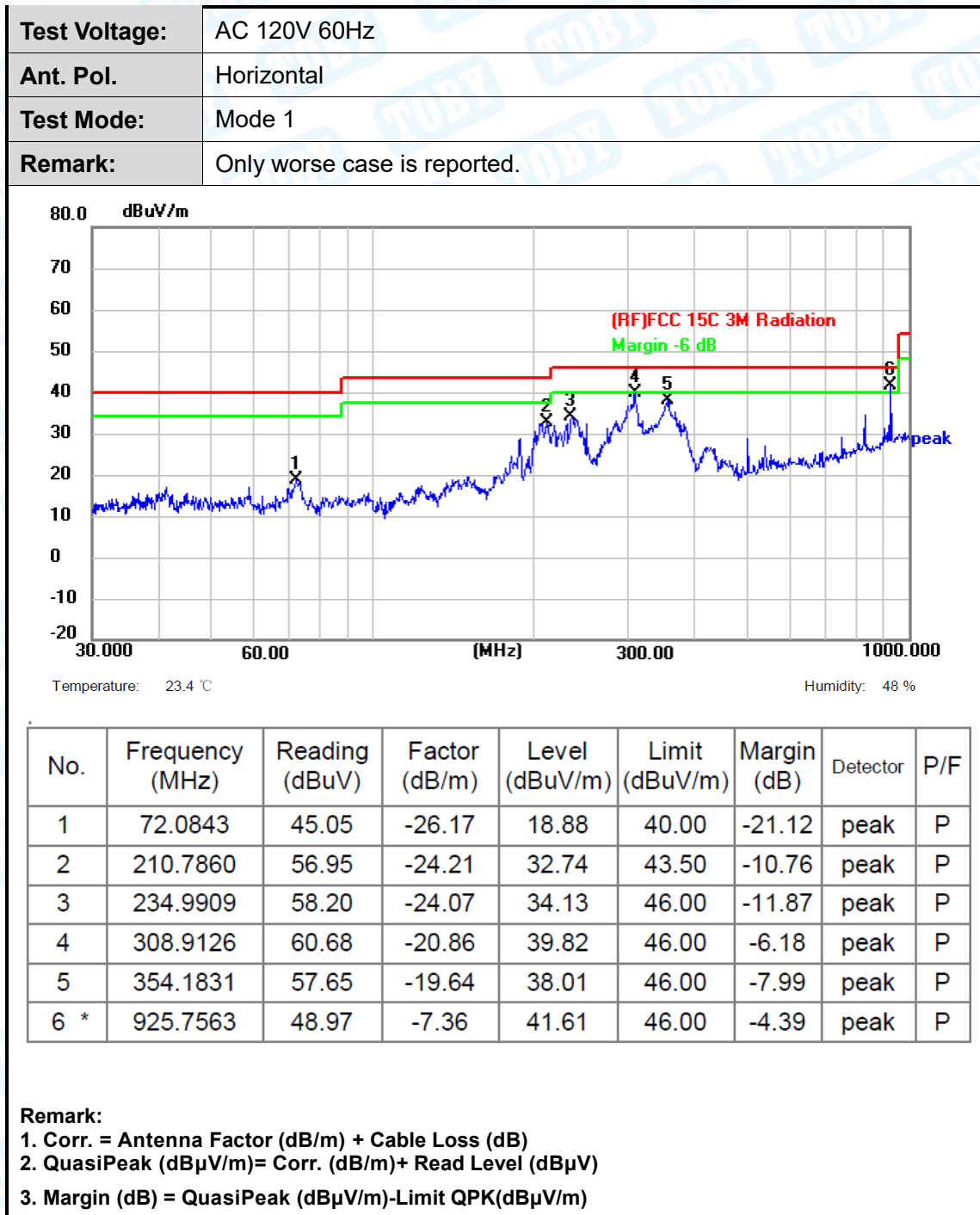
---Radiated Unwanted Emissions

9 KHz~30 MHz

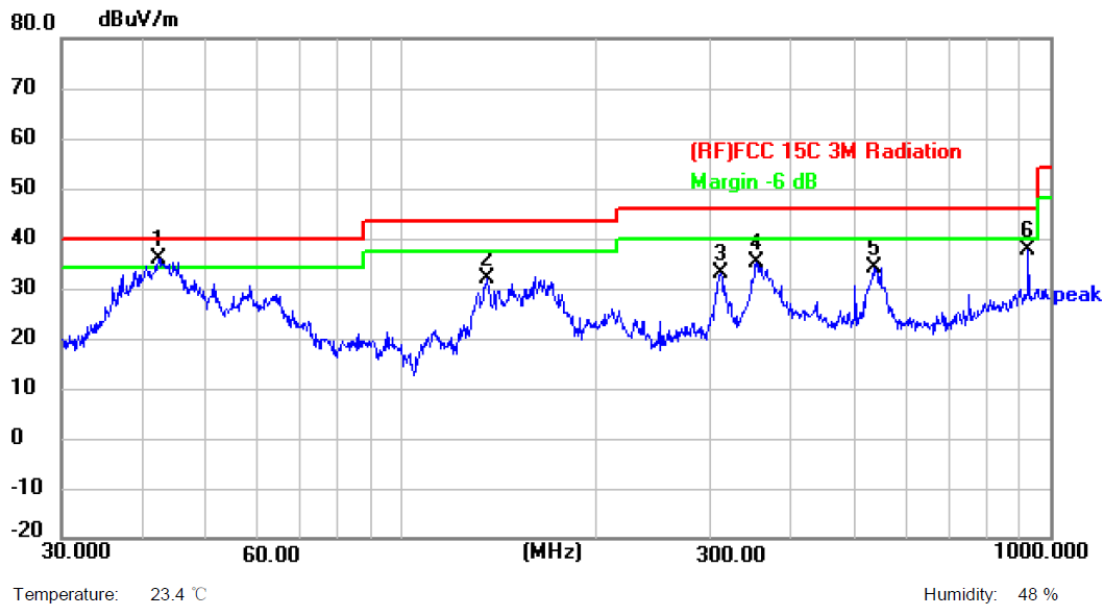
From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB Below the permissible value has no need to be reported.

30MHz~1GHz



| | |
|---------------|------------------------------|
| Test Voltage: | AC 120V 60Hz |
| Ant. Pol. | Vertical |
| Test Mode: | Mode 1 |
| Remark: | Only worse case is reported. |



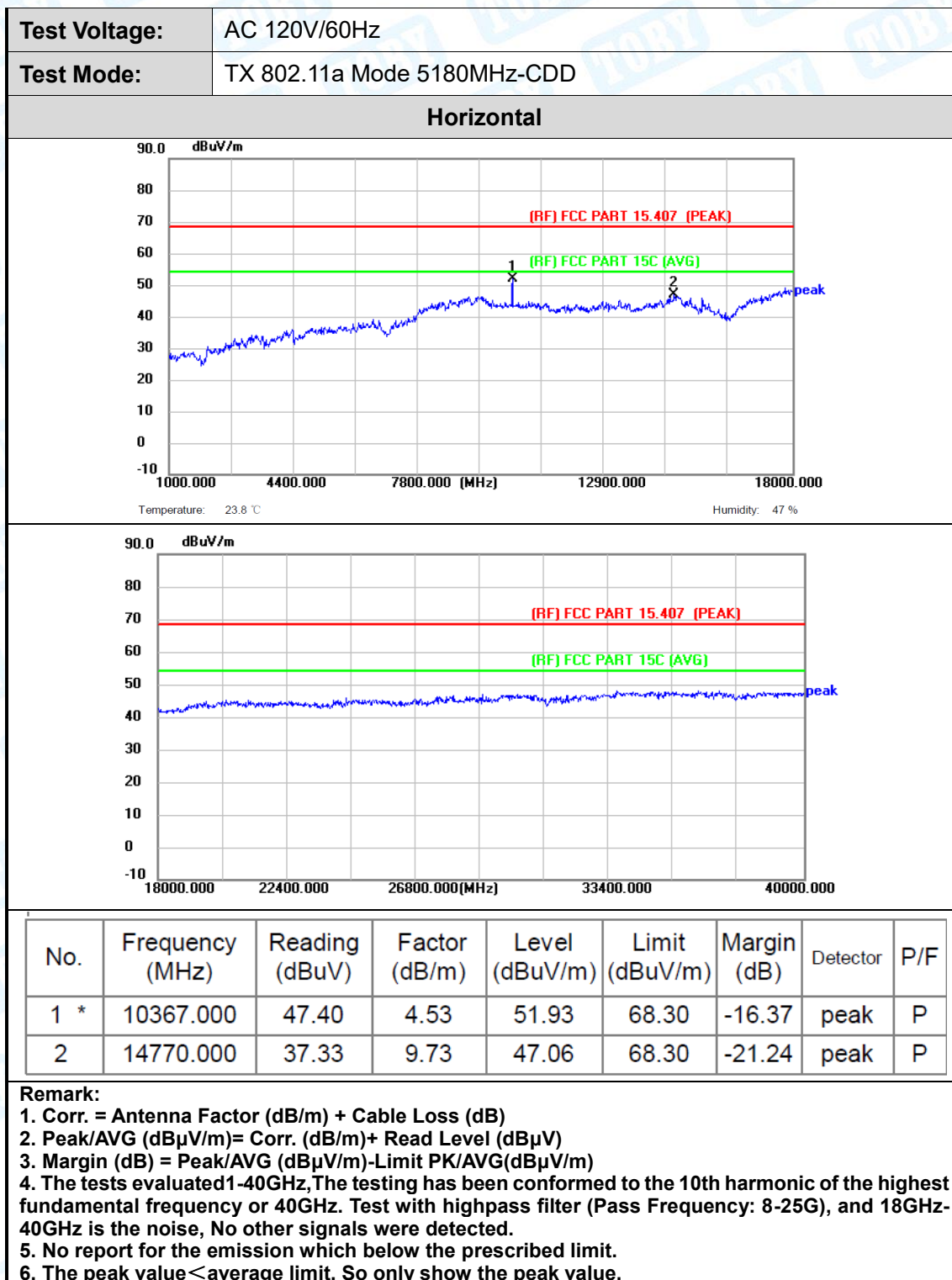
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | P/F |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-----|
| 1 * | 42.4508 | 59.94 | -23.89 | 36.05 | 40.00 | -3.95 | peak | P |
| 2 | 135.5062 | 54.15 | -22.28 | 31.87 | 43.50 | -11.63 | peak | P |
| 3 | 311.0867 | 53.89 | -20.82 | 33.07 | 46.00 | -12.93 | peak | P |
| 4 | 352.9433 | 54.89 | -19.72 | 35.17 | 46.00 | -10.83 | peak | P |
| 5 | 537.5891 | 49.15 | -15.15 | 34.00 | 46.00 | -12.00 | peak | P |
| 6 | 925.7563 | 44.91 | -7.36 | 37.55 | 46.00 | -8.45 | peak | P |

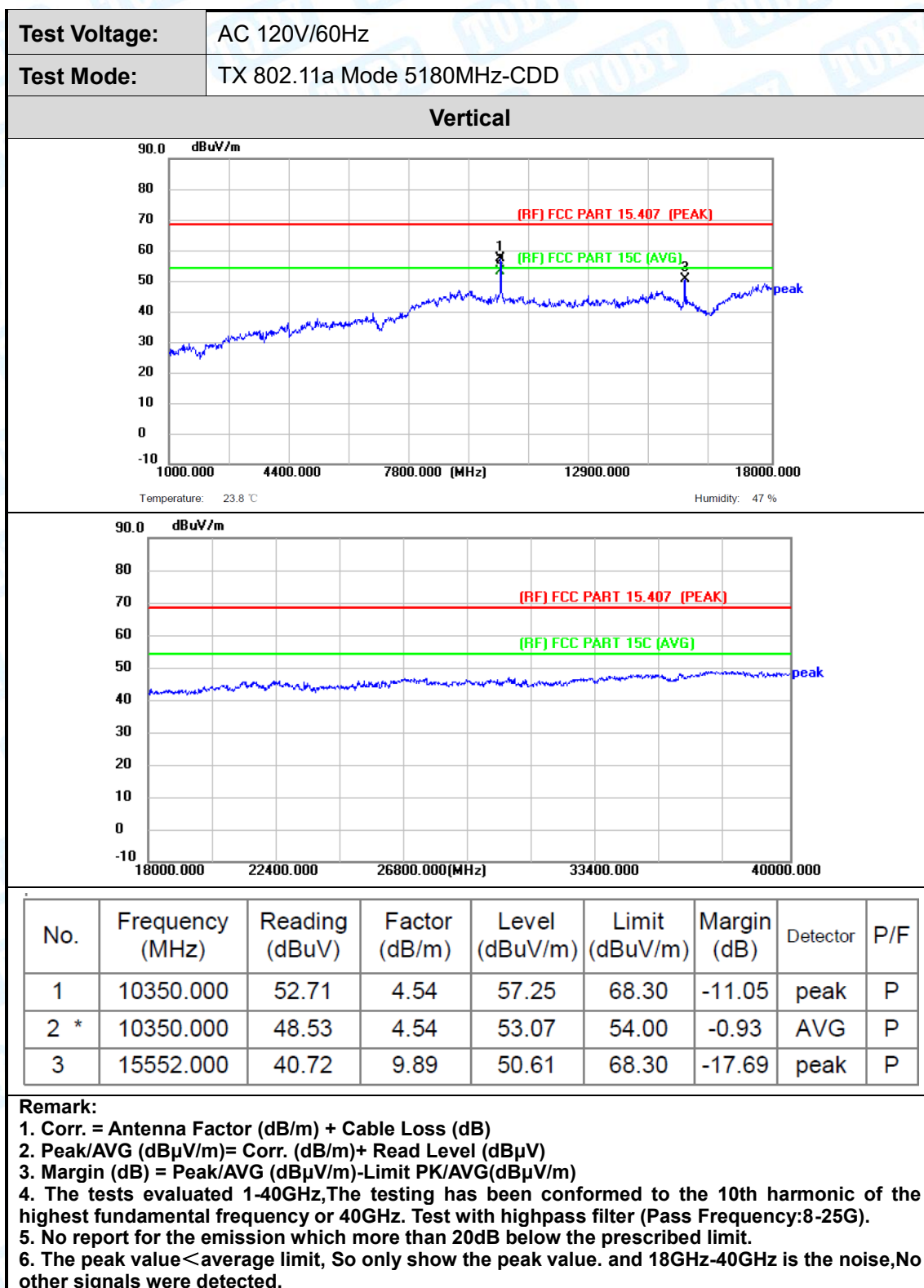
Remark:

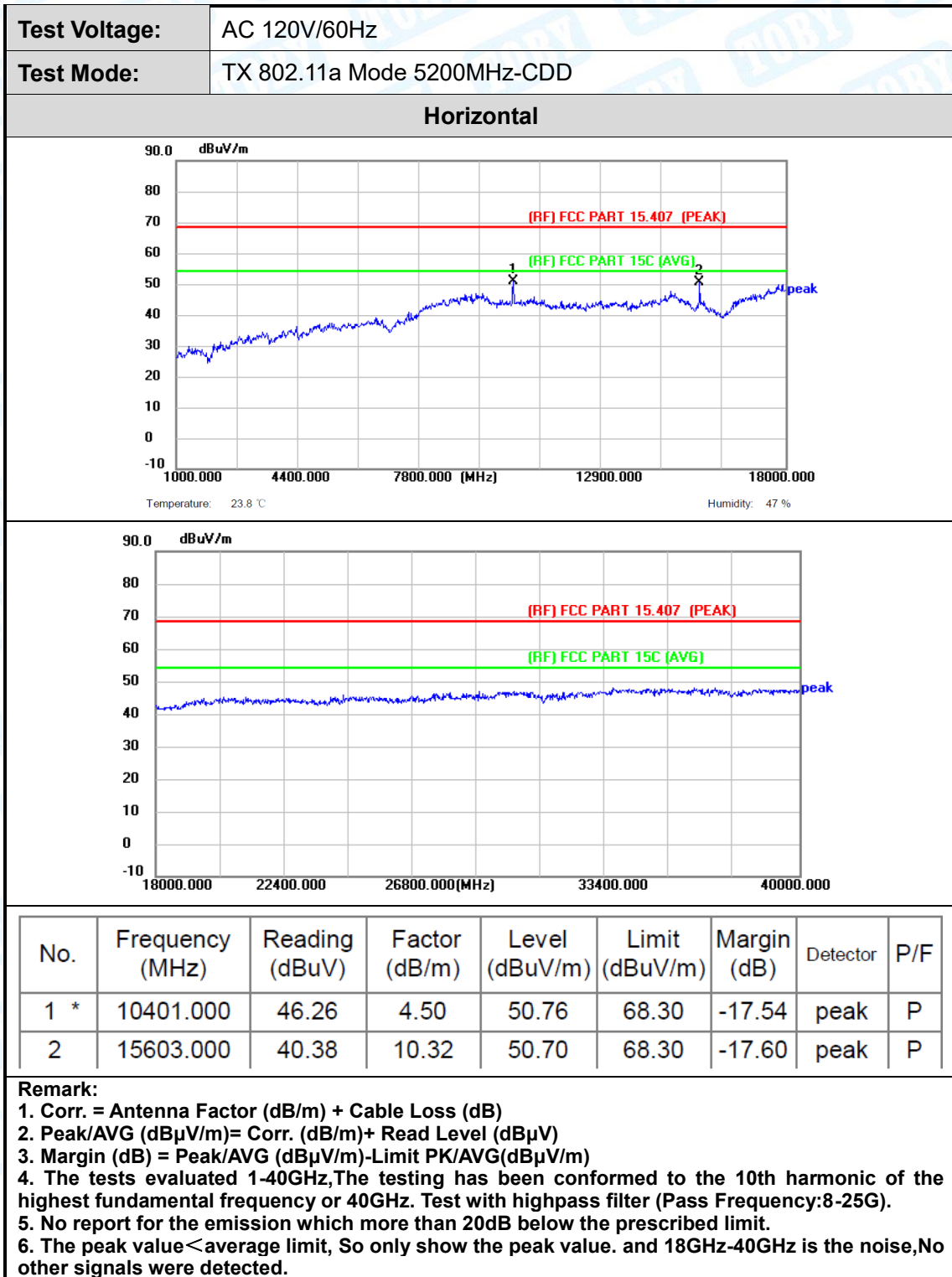
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = QuasiPeak (dBμV/m)-Limit QPK(dBμV/m)

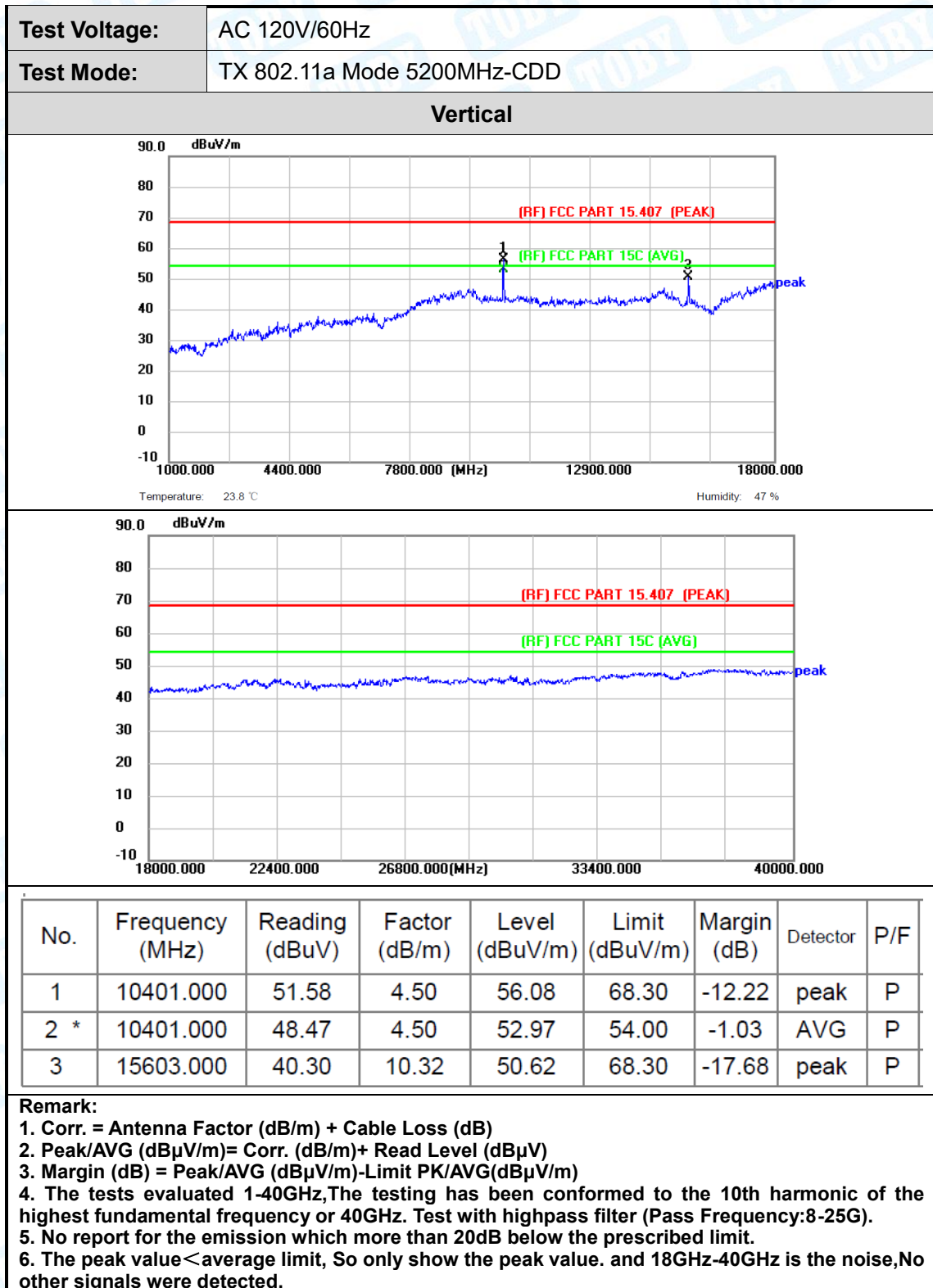


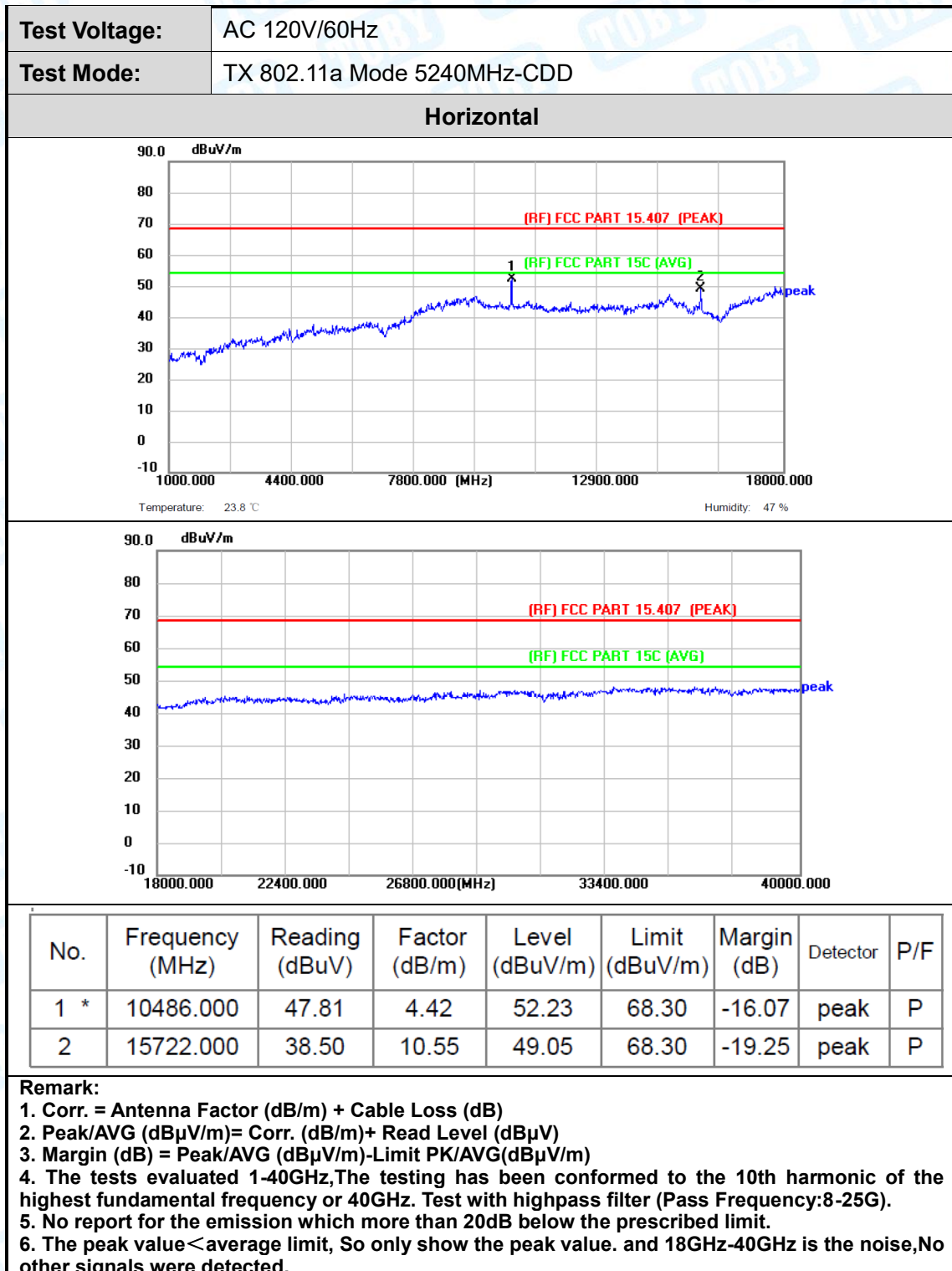
Above 1GHz (only show the worst data)

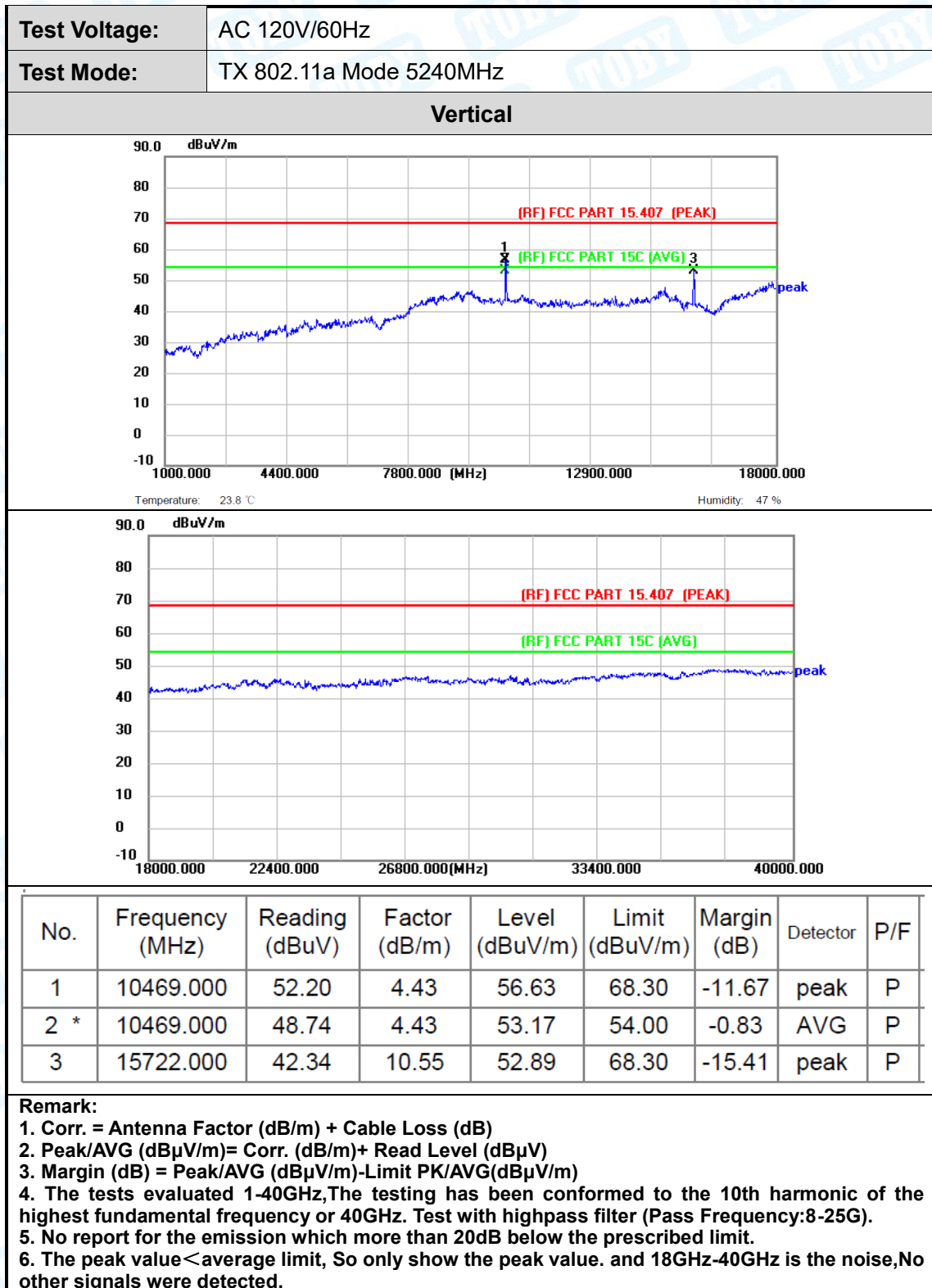


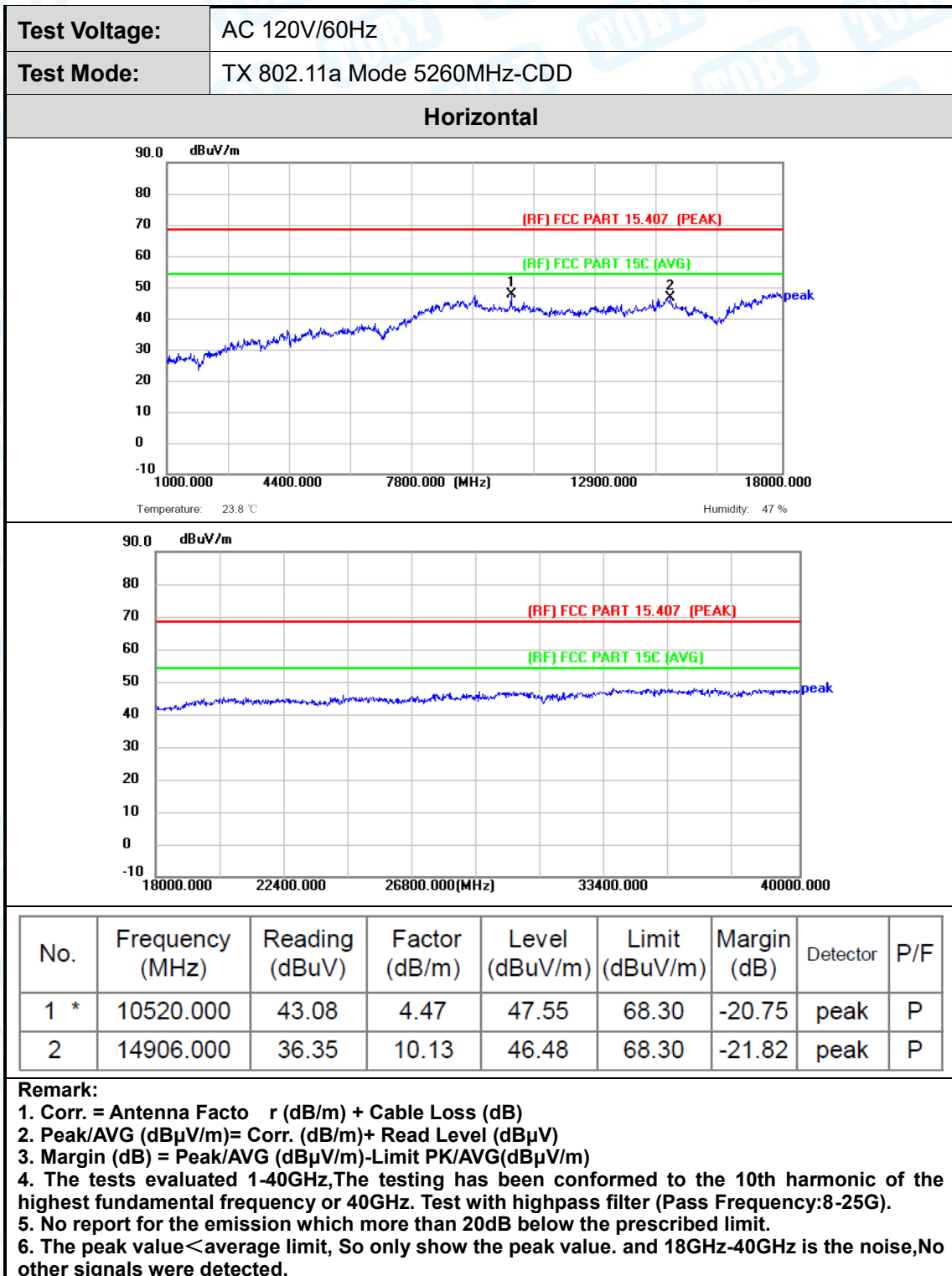


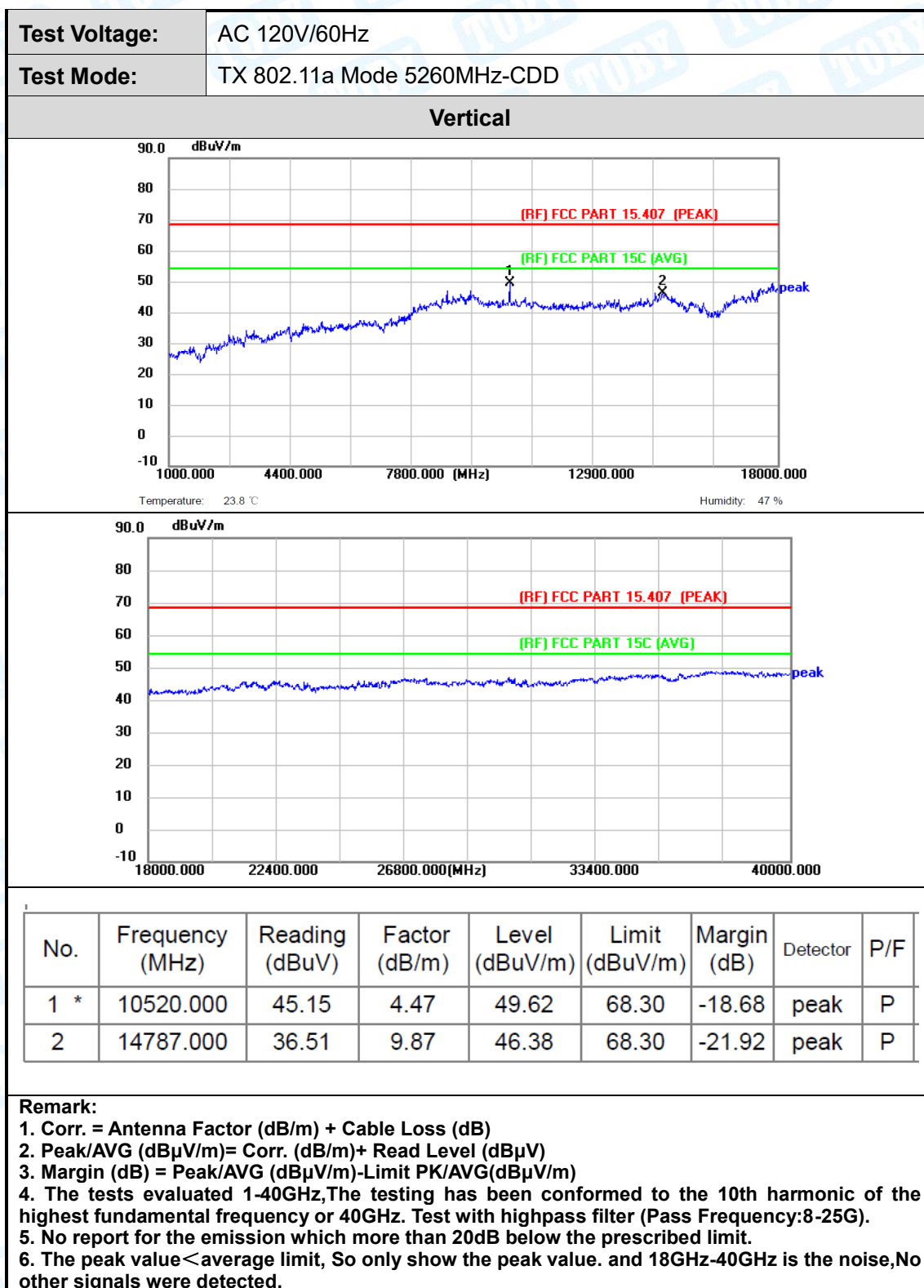


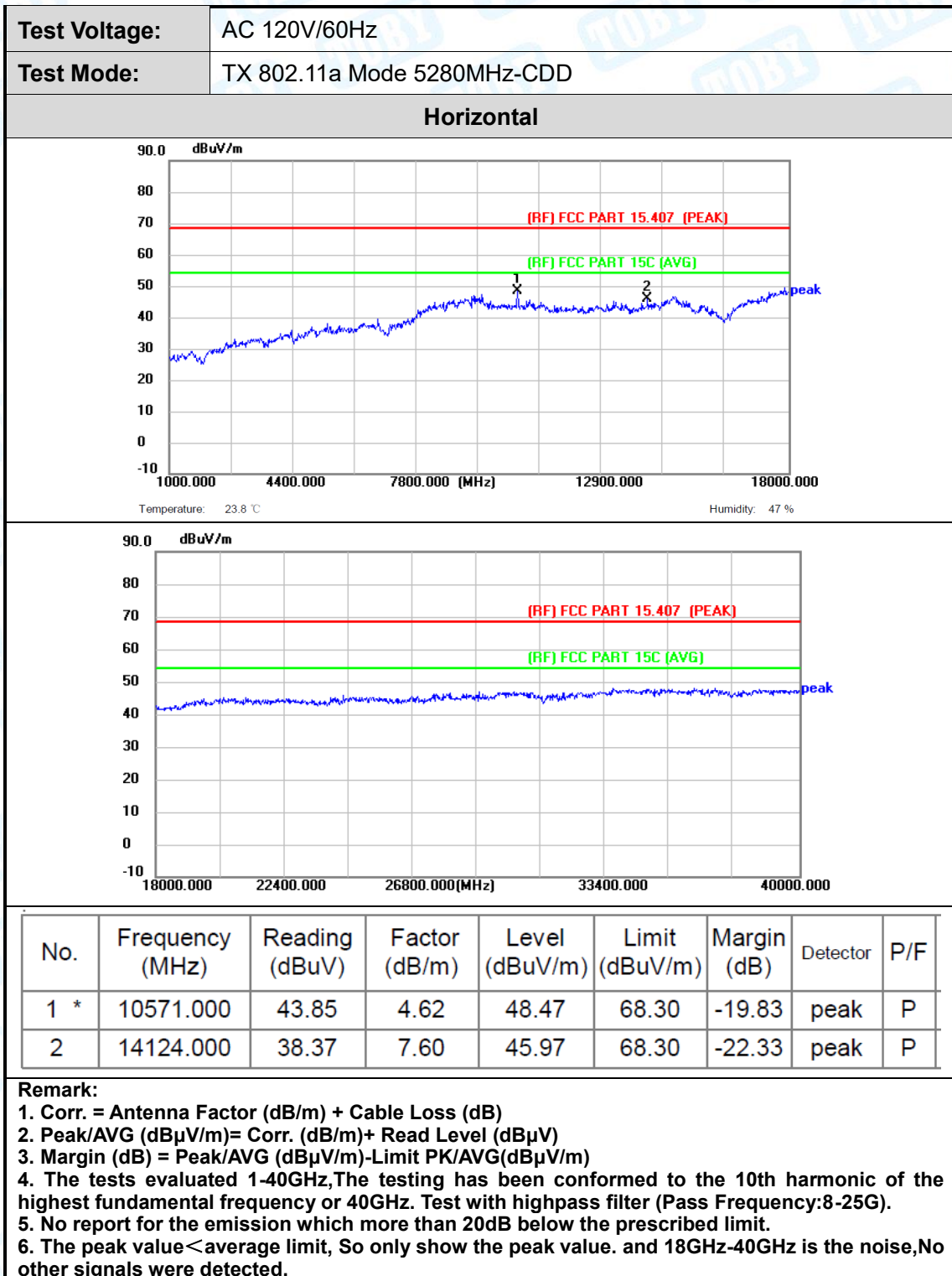


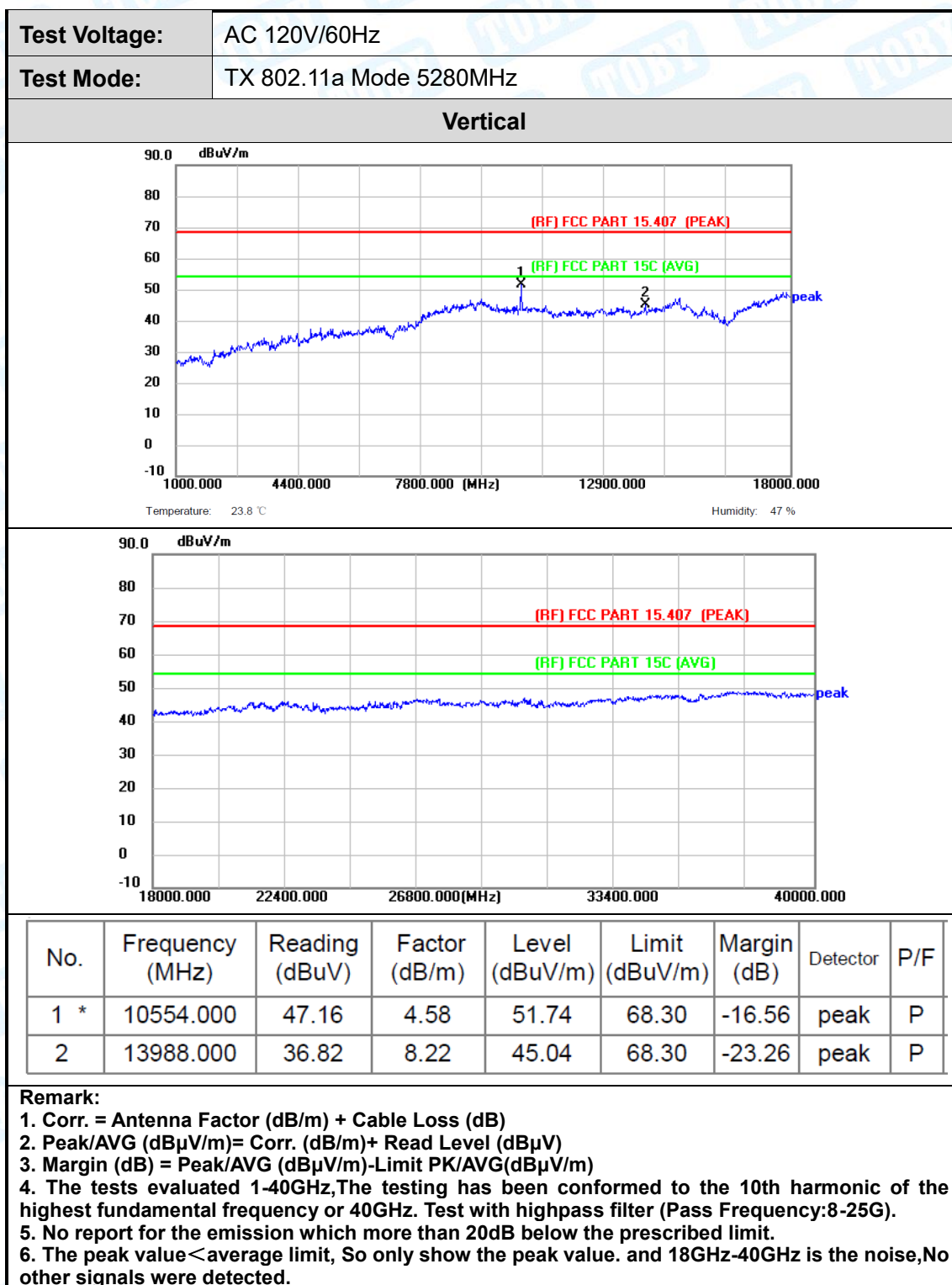


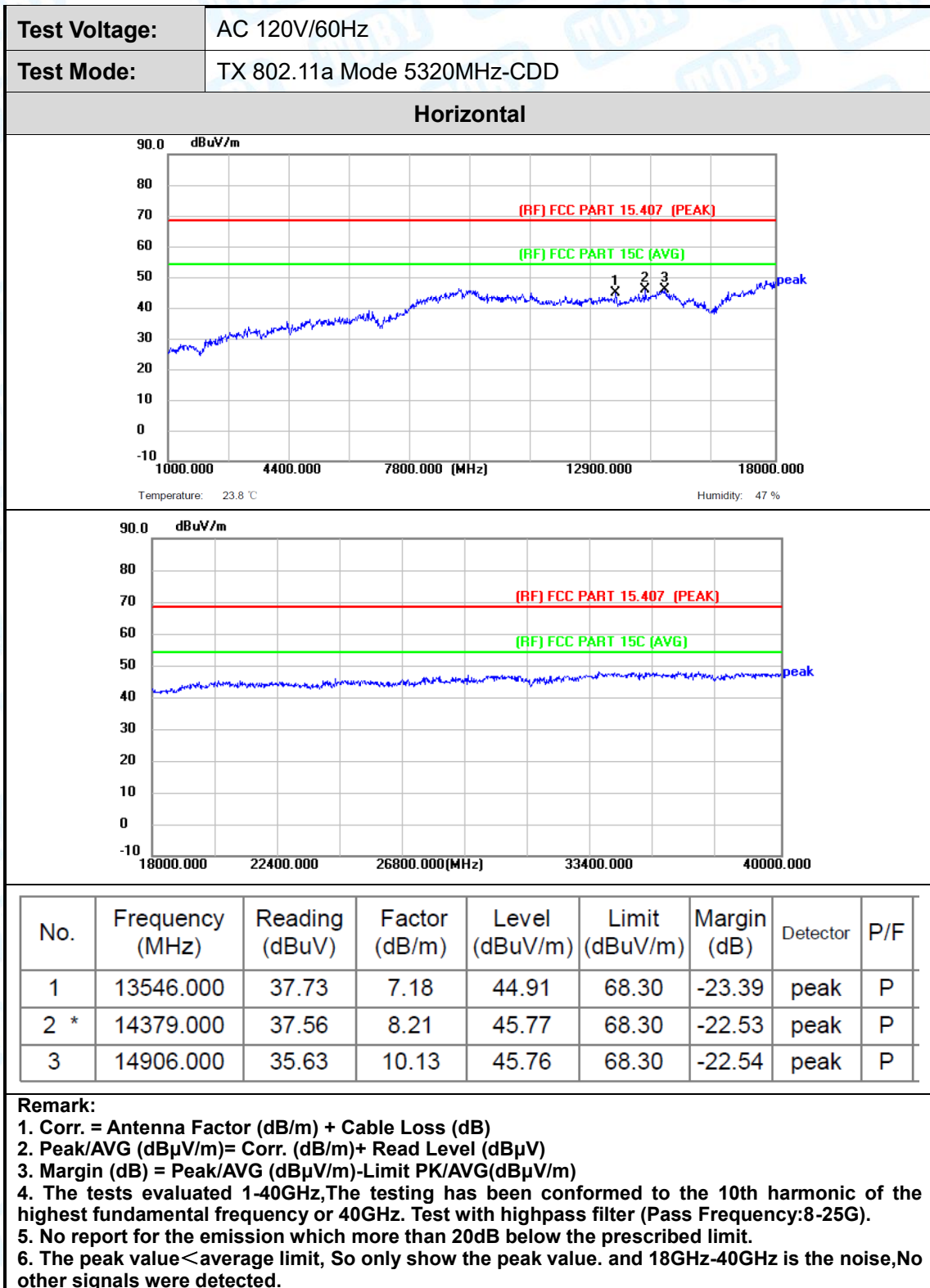


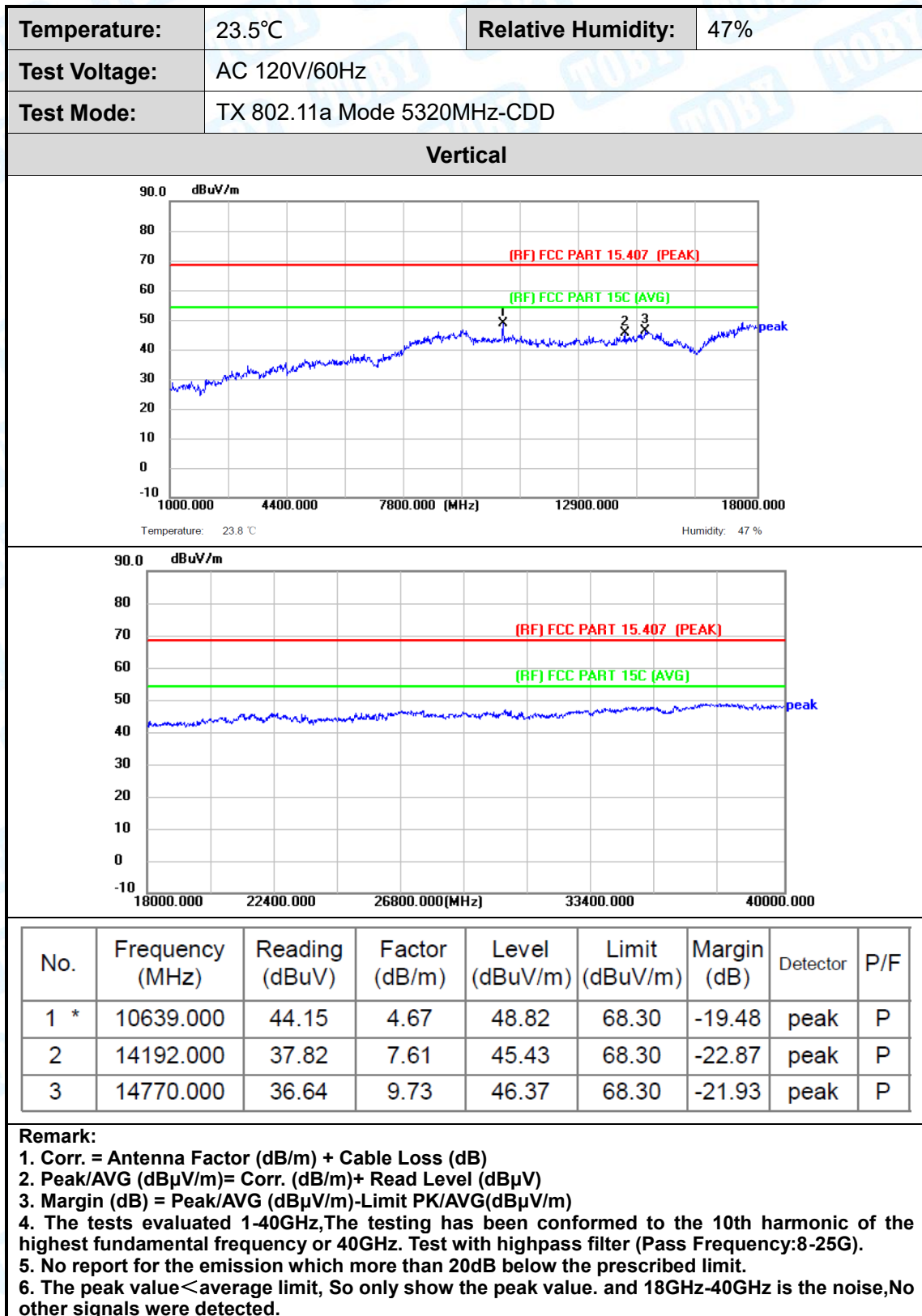


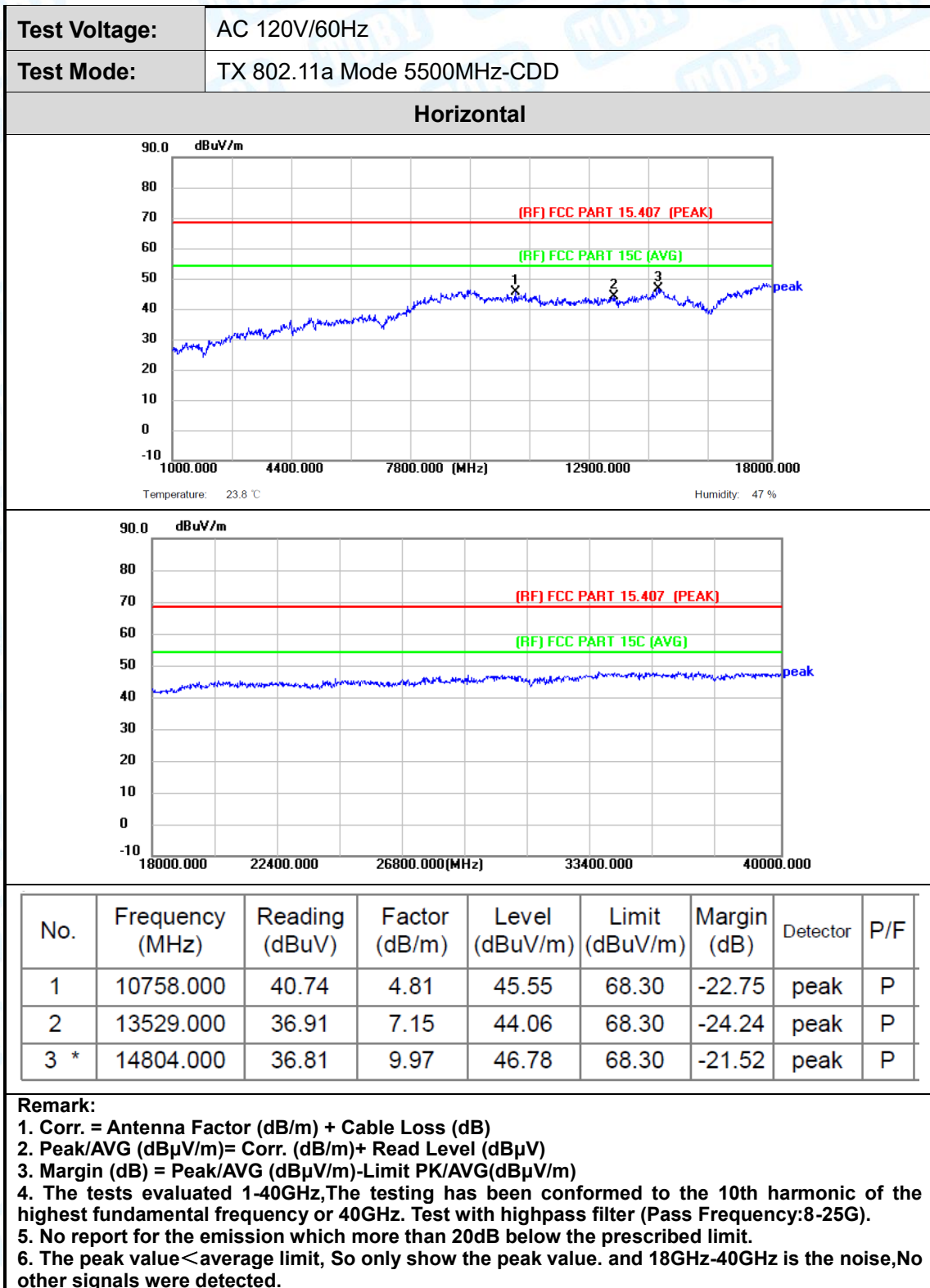


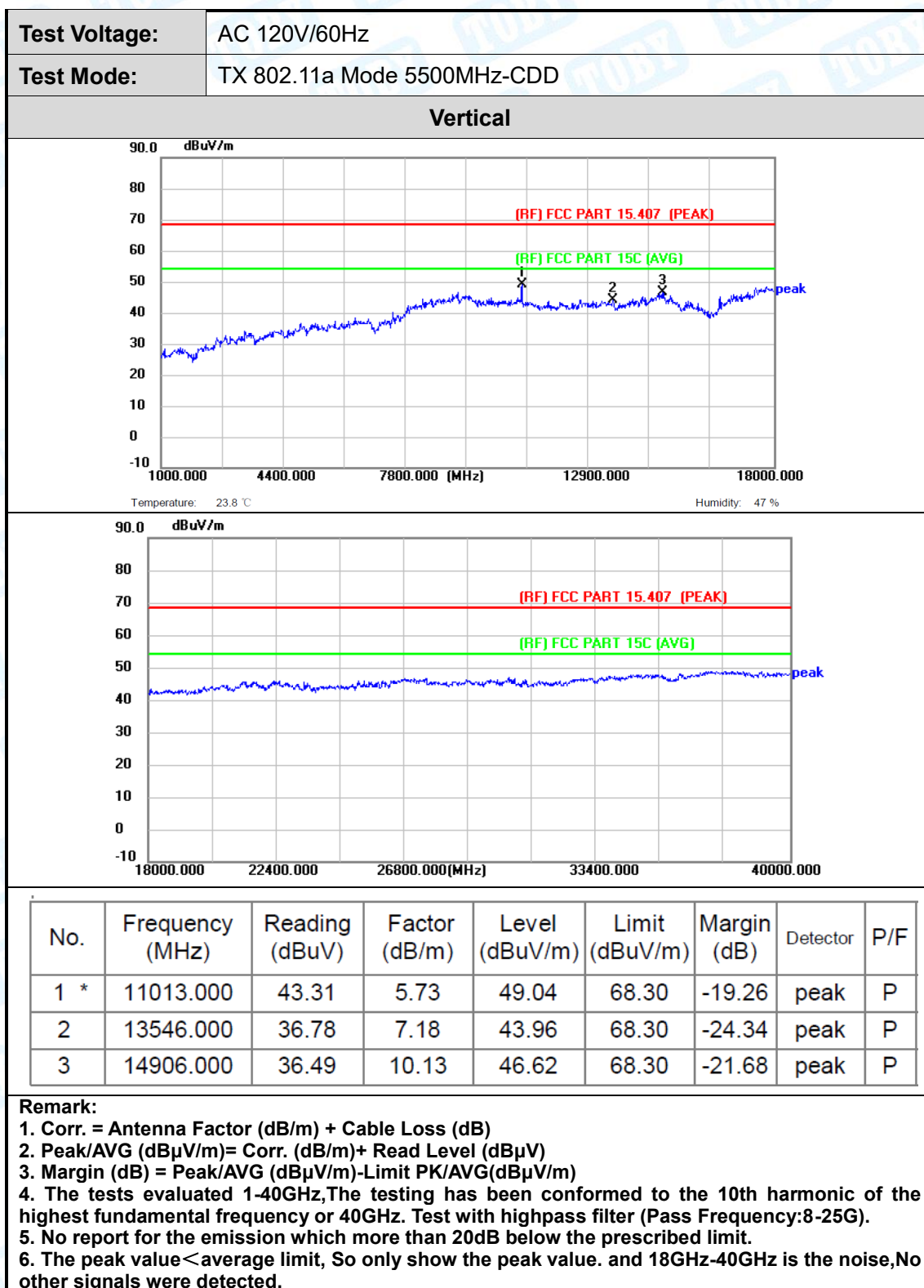


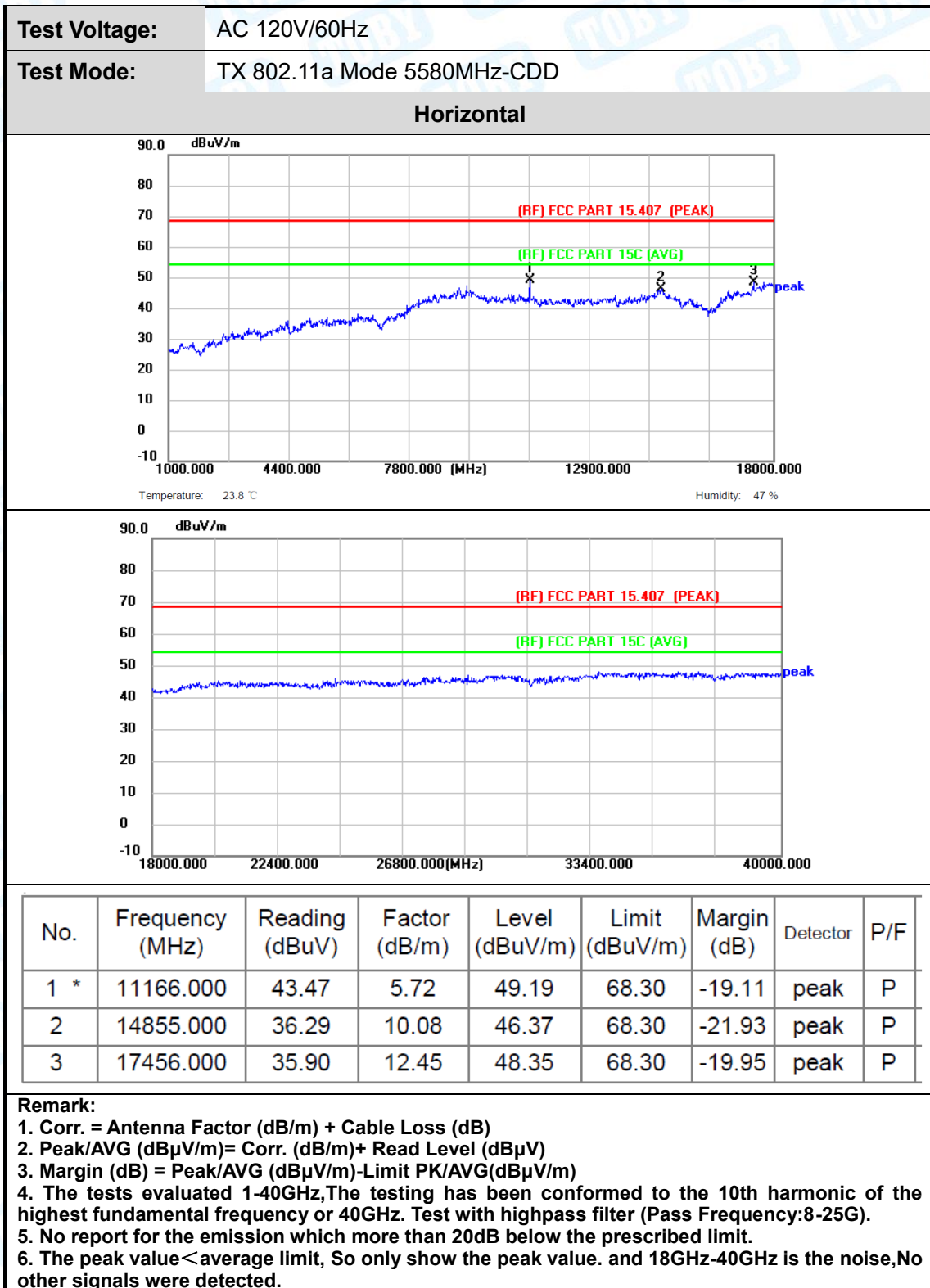


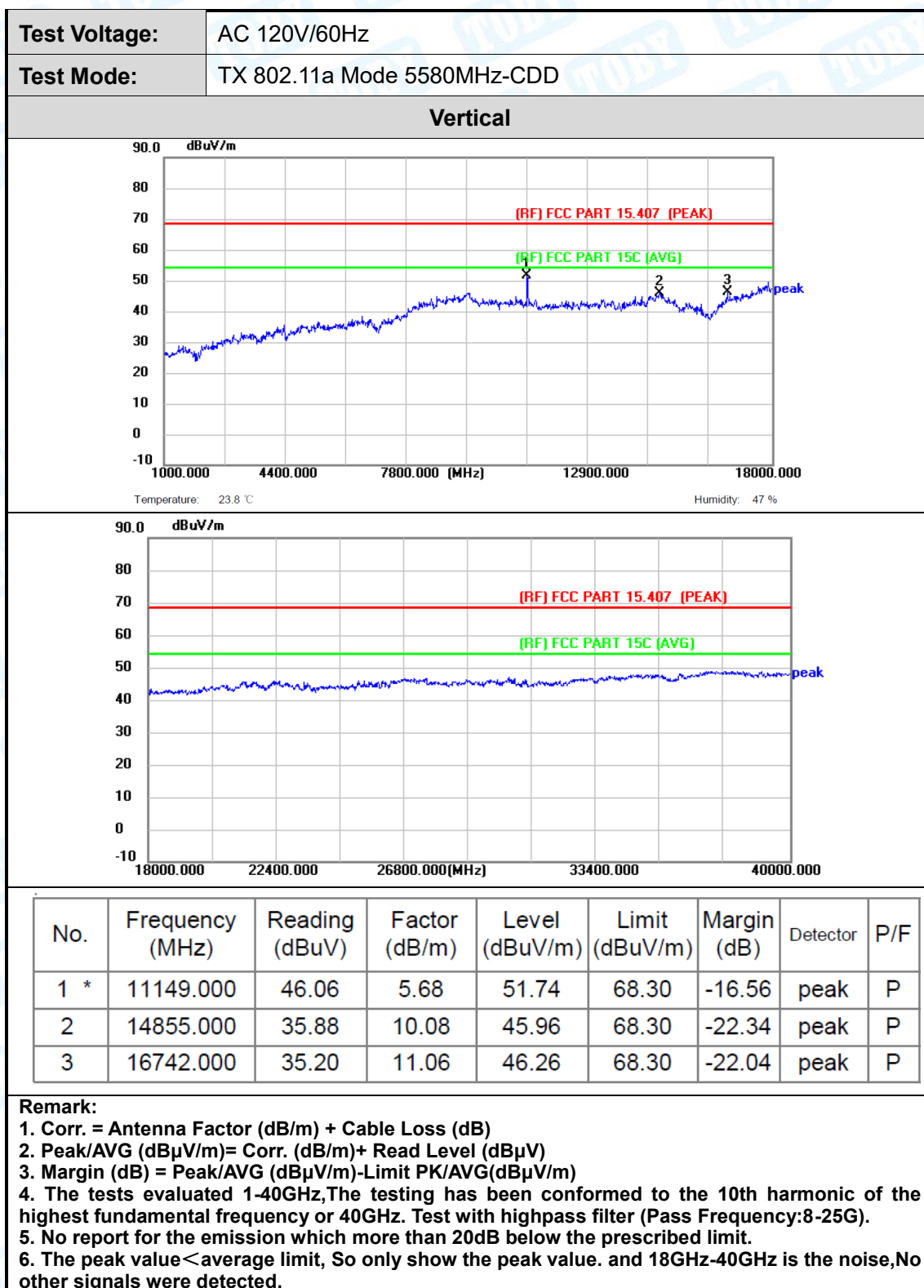


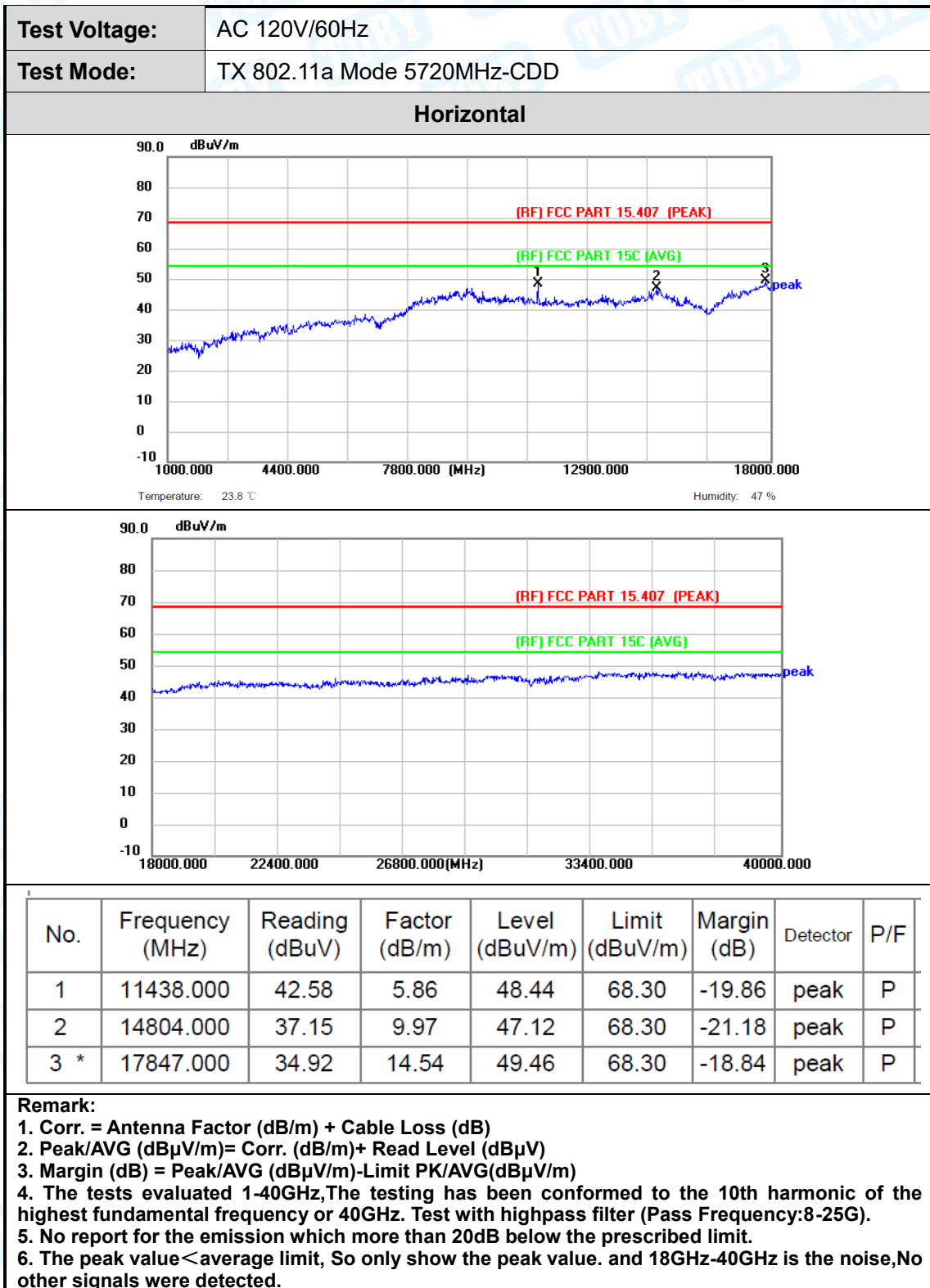


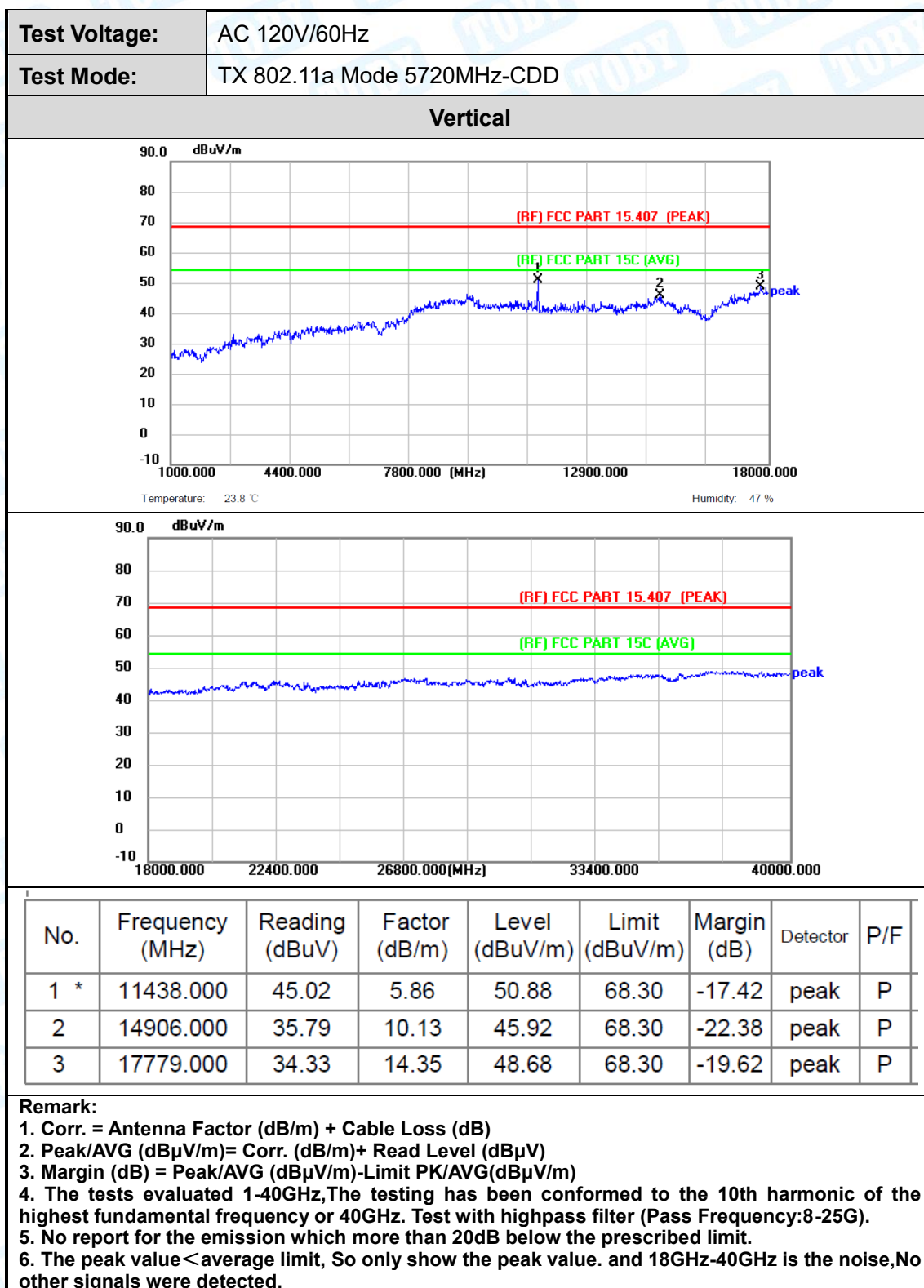


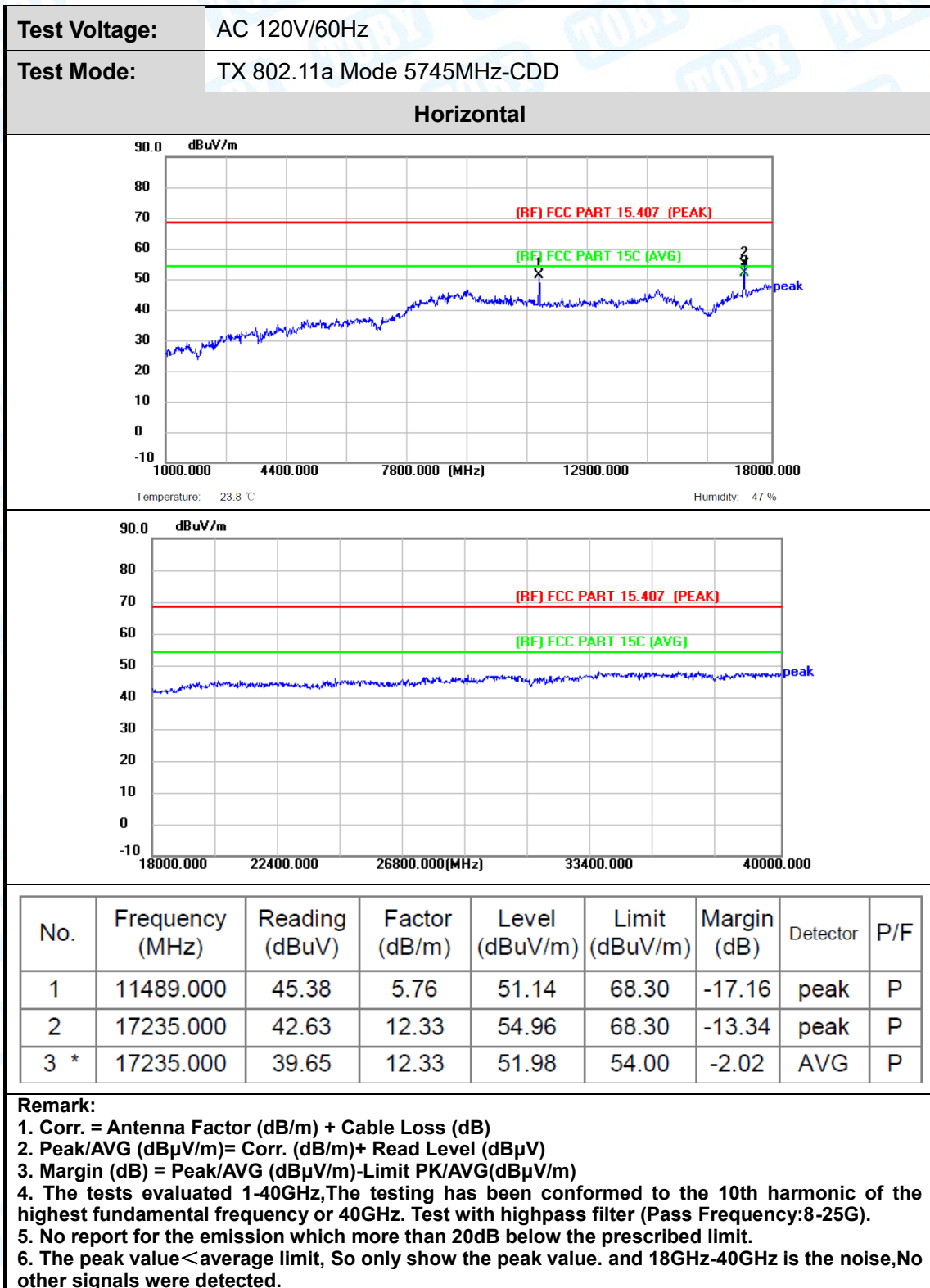


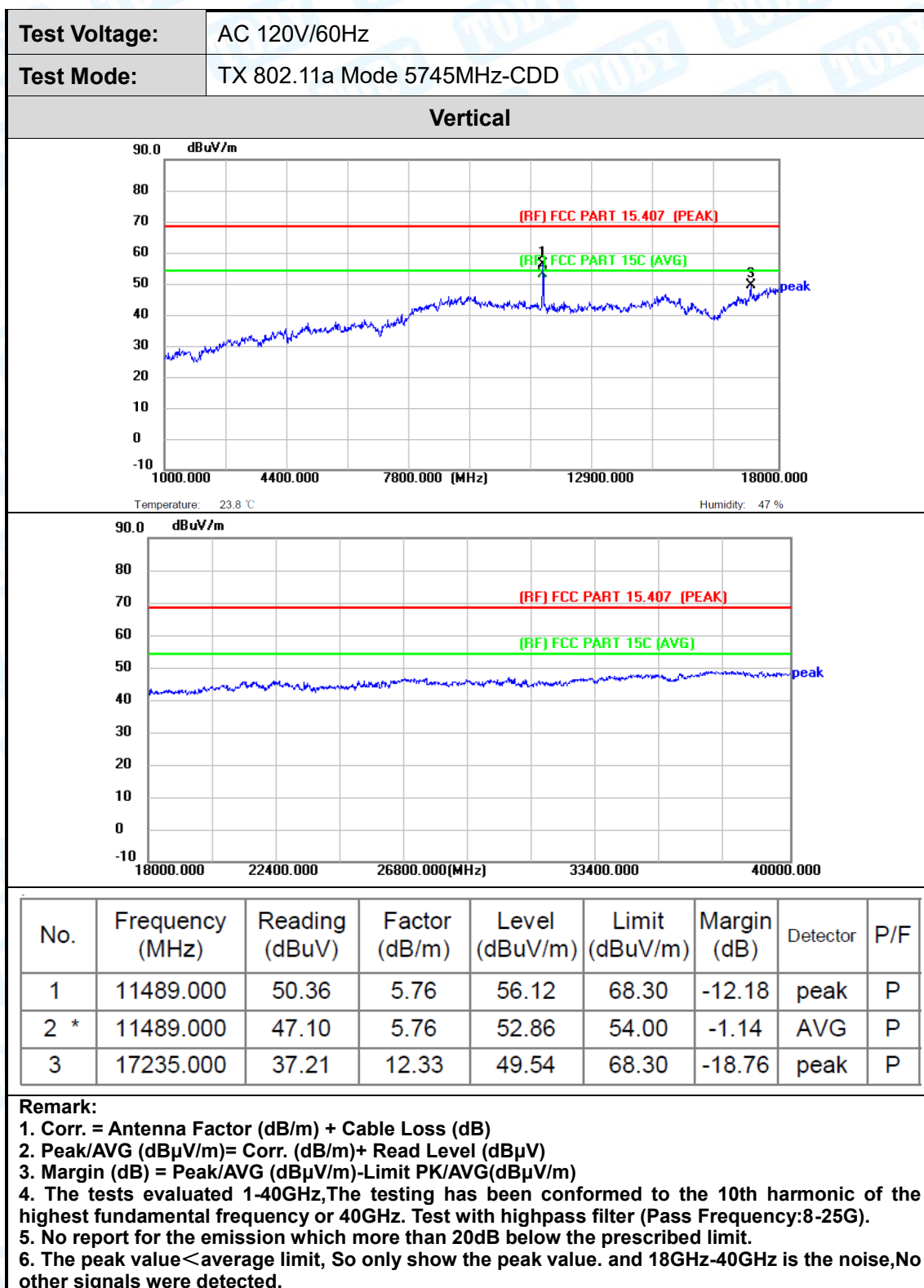


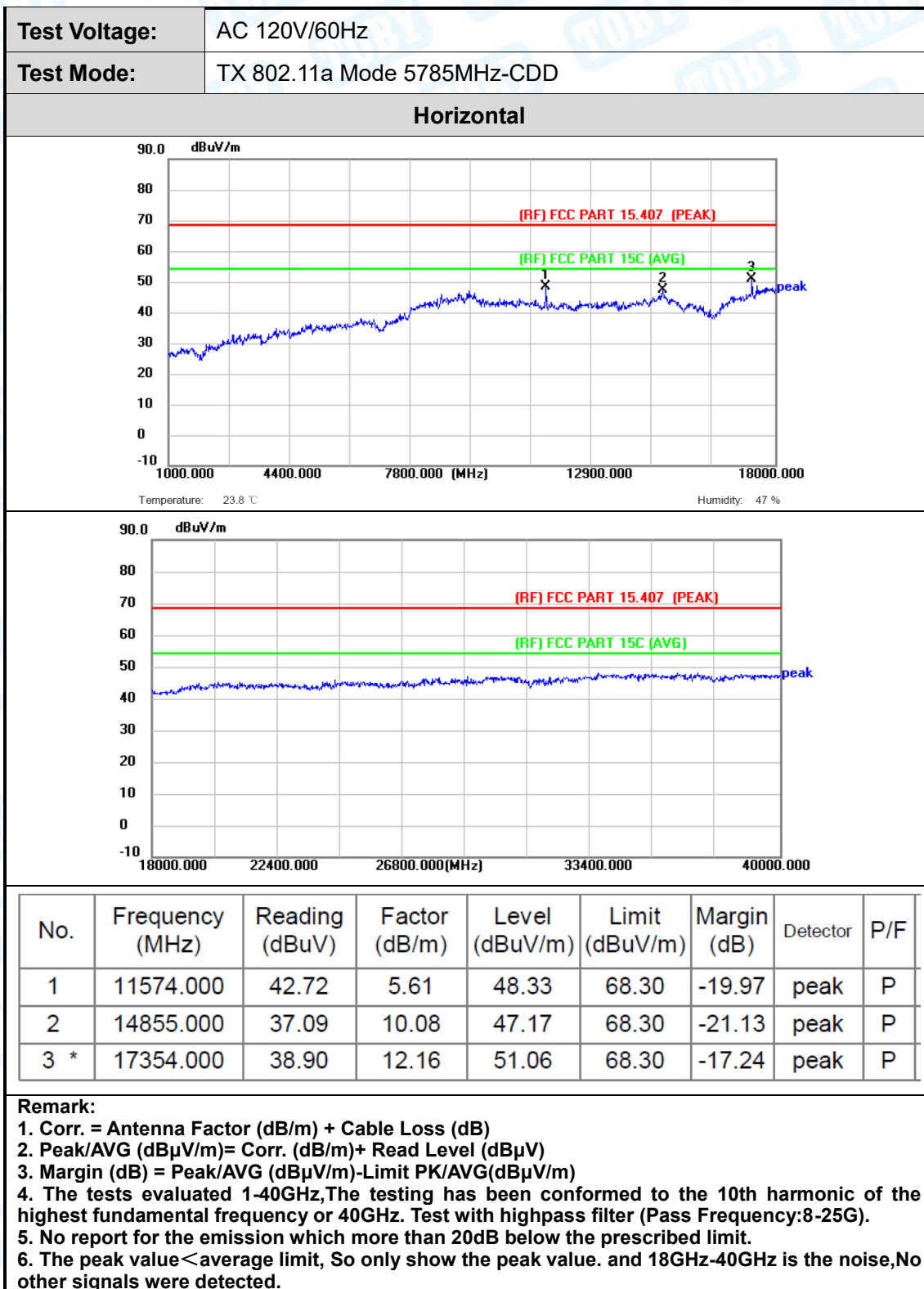


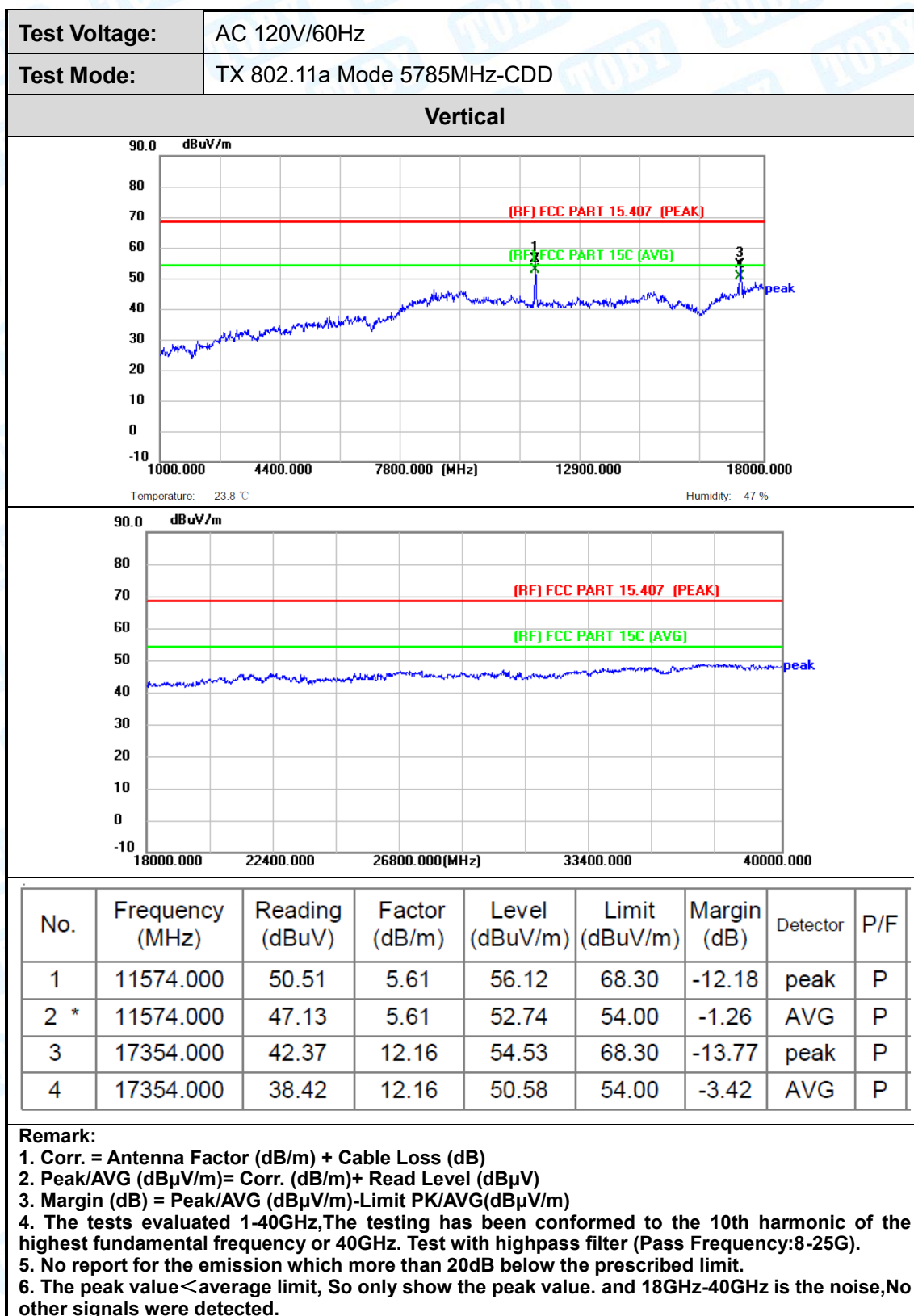


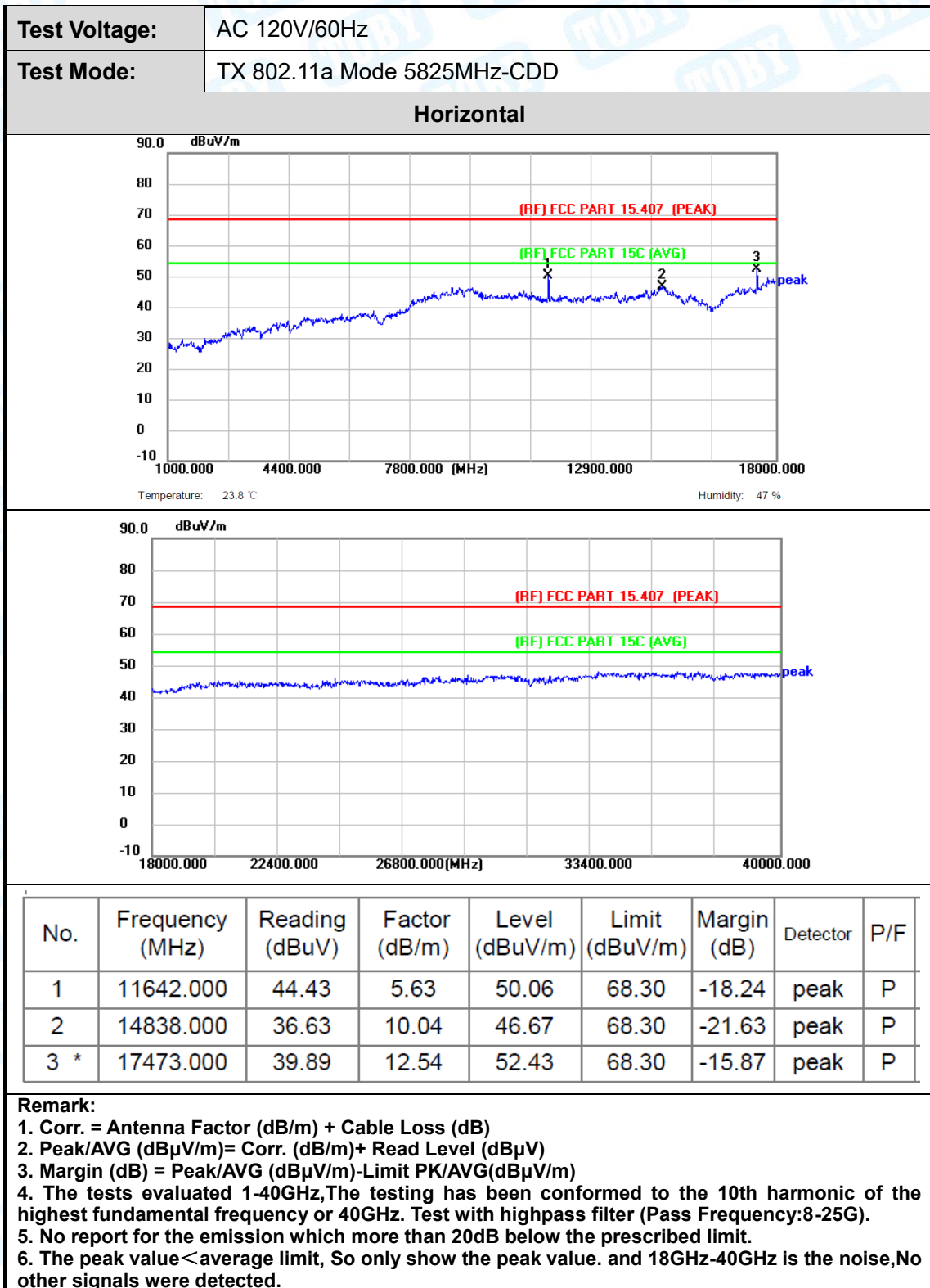


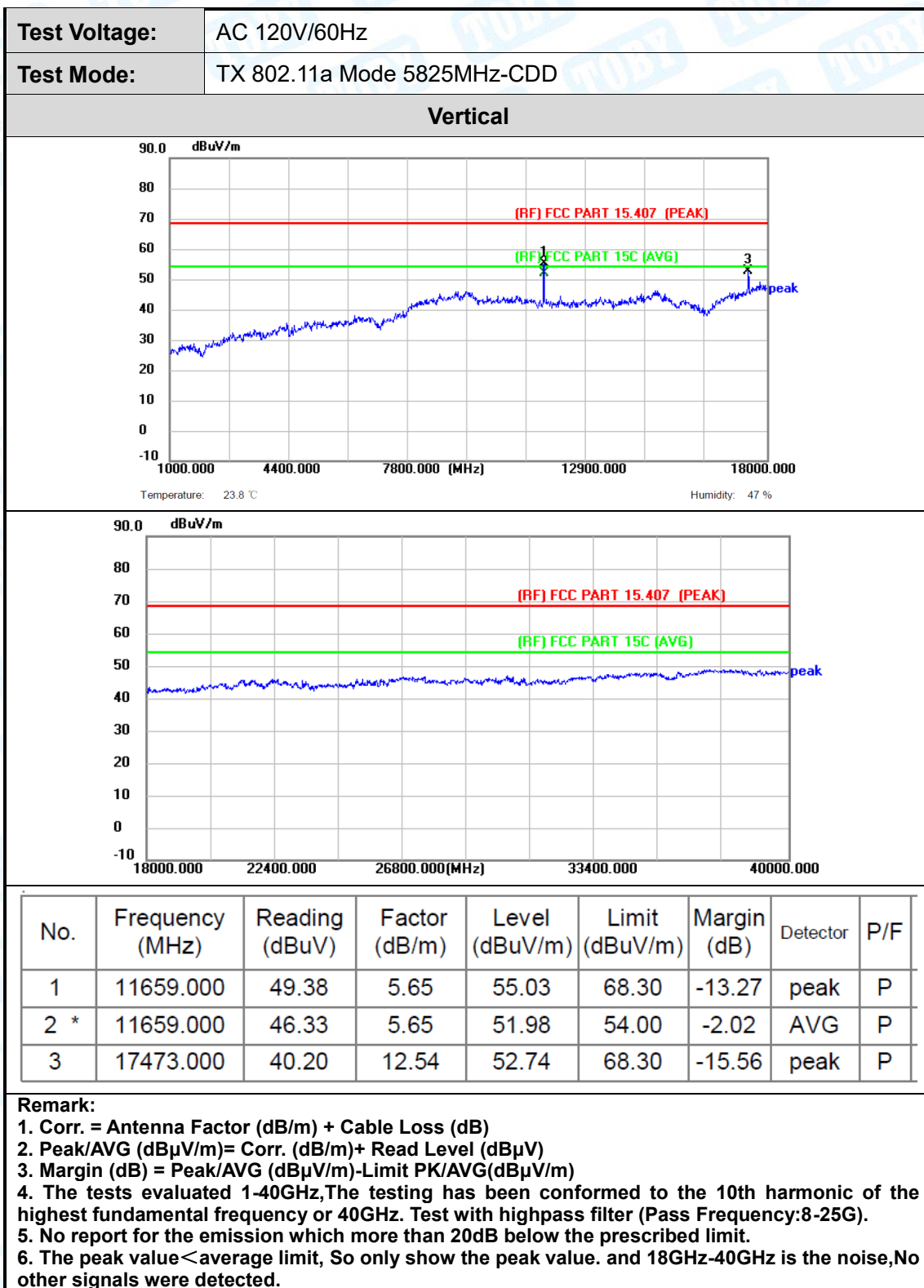












-----END OF THE REPORT-----

