



# FCC RADIO TEST REPORT

**FCC ID** : PY7-16813Y  
**Equipment** : GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII  
a/b/g/n/ac/ax, GPS, WPC and NFC  
**Brand Name** : Sony  
**Applicant** : Sony Corporation  
1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan  
**Manufacturer** : Sony Corporation  
1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan  
**Standard** : FCC Part 15 Subpart C §15.209

The product was received on Mar. 08, 2021 and testing was started from Mar. 30, 2021 and completed on Apr. 20, 2021. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this spot check data report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

*Louis Wu*

Approved by: Louis Wu

**Sporton International Inc. Wensan Laboratory**

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



## Table of Contents

**History of this test report.....3**

**Summary of Test Result.....4**

**1. General Description .....5**

    1.1 Product Feature of Equipment Under Test ..... 5

    1.2 Modification of EUT ..... 5

    1.3 Testing Location ..... 6

    1.4 Applicable Standards..... 6

**2. Test Configuration of Equipment Under Test.....7**

    2.1 Descriptions of Test Mode ..... 7

    2.2 Connection Diagram of Test System ..... 7

    2.3 Support Unit used in test configuration and system ..... 7

    2.4 EUT Operation Test Setup ..... 7

**3. Test Results .....8**

    3.1 Radiated Emissions Measurement ..... 8

    3.2 Antenna Requirements..... 11

**4. List of Measuring Equipment ..... 12**

**5. Uncertainty of Evaluation ..... 13**

**Appendix A. Test Results of Radiated Test Items**

    A1. Test Result of Field Strength of Fundamental Emissions

    A2. Results of Radiated Emissions (9 kHz~30MHz)

    A3. Results of Radiated Emissions (30MHz~1GHz)



### History of this test report

| Report No. | Version | Description   | Issued Date   |
|------------|---------|---|---------------|
| FR0D2217H  | 01      | Initial issue of report   | Apr. 09, 2021 |
| FR0D2217H  | 02      | 1. Add description in section 3.2.6 and 2.1<br>2. Revise test date of radiated emissions (9 kHz~30MHz)<br>3. Revise description in summary of test result | Apr. 15, 2021 |
| FR0D2217H  | 03      | Revise test date of radiated emissions (9 kHz~30MHz)  | Apr. 20, 2021 |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |
|            |         |   |               |



### Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items                              | Result (PASS/FAIL) | Remark                               |
|---------------|-----------------|---|--------------------|--------------------------------------|
| -             | 15.207          | AC Power Line Conducted Emissions       | -                  | See Note                             |
| -             | 15.215(c)       | 20dB Spectrum Bandwidth                 | -                  | See Note                             |
|               | 2.1049          | 99% OBW Spectrum Bandwidth              | -                  | See Note                             |
| 3.1           | 15.209          | Field Strength of Fundamental Emissions | Pass               | Max level -17.54 dBµV/m at 0.148 MHz |
|               |                 | Radiated Spurious Emissions             | Pass               | Under limit 13.28 dB at 956.350MHz   |
| 3.2           | 15.203          | Antenna Requirements                    | Pass               | -                                    |

**Note:** The RF circuit, output power level and antenna performance is the same in WPT function across all two FCC ID PY7-16813Y and PY7-26726G, since the change, only verify radiated spurious emission test data the worst mode was reported in this report.

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

**Reviewed by: Wii Chang**

**Report Producer: Dara Chiu**



# 1. General Description

## 1.1 Product Feature of Equipment Under Test

GSM/WCDMA/LTE, Bluetooth, DTS/UNII a/b/g/n/ac/ax, FM Receiver, NFC, WPC/WPT, and GNSS

| Standards-related Product Specification |              |
|---|--------------|
| Antenna Type                            | Loop Antenna |

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

| EUT Information List |            |            |                            |
|----------------------|------------|------------|----------------------------|
| HW Version           | SW Version | S/N        | Performed Test Item        |
| A                    | 0.505      | QV7200KK6J | Radiated Spurious Emission |

| Accessory List |                     |
|----------------|---------------------|
| Earphone       | Model Name : STH40D |
|                | S/N : N/A           |

**Note:**

1. Above EUT list used are electrically identical per declared by manufacturer.
2. Above the accessories list are used to exercise the EUT during test, and the serial number of each type of accessories is listed in each section of this report. .
3. For other wireless features of this EUT, test report will be issued separately.

## 1.2 Modification of EUT

No modifications are made to the EUT during all test items.



### 1.3 Testing Location

|                           |  |
|---------------------------|--|
| <b>Test Site</b>          | Sporton International Inc. Wensan Laboratory   |
| <b>Test Site Location</b> | No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist.,<br>Taoyuan City 333010, Taiwan (R.O.C.)<br>TEL: +886-3-327-0868<br>FAX: +886-3-327-0855 |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b><br>03CH11-HY   |
| <b>Test Engineer</b>      | Fu Chen and Troye Hsieh  |
| <b>Temperature</b>        | 19.2 ~ 20.4°C  |
| <b>Relative Humidity</b>  | 53.2 ~ 68.7%   |

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW0007

### 1.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.209
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01
- ♦ ANSI C63.10-2013

**Remark:** The TAF code is not including all the FCC KDB listed without accreditation.

## 2. Test Configuration of Equipment Under Test

### 2.1 Descriptions of Test Mode

Investigation has been done on all the possible configurations.

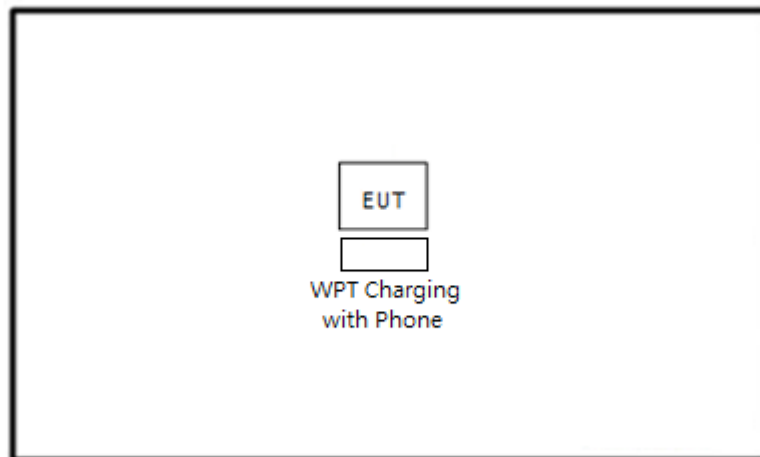
The following table is a list of the test modes shown in this test report.

| Test Items                              |  |
|---|--|
| Field Strength of Fundamental Emissions |  |
| Radiated Spurious Emissions 9kHz~30MHz  | Radiated Spurious Emissions 30MHz~1GHz |

Pre-scanned tests, X, Y, Z in three orthogonal panels to determine the final configuration (X Plane as worst plane) from all possible combinations.

For Test Cases, the WPT worst case was EUT charging with mobile phone and confirm by manufacturer.

### 2.2 Connection Diagram of Test System



### 2.3 Support Unit used in test configuration and system

| Item | Equipment | Brand Name | Model Name | FCC ID     | Data Cable | Power Cord |
|------|-----------|------------|------------|------------|------------|------------|
| 1.   | Phone     | Sony       | N/A        | PY7-16813Y | N/A        | N/A        |

### 2.4 EUT Operation Test Setup

The Wireless Charging with Phone via wireless power transfer function.



### 3. Test Results

#### 3.1 Radiated Emissions Measurement

##### 3.1.1 Limit

The field strength of any emissions which appear band shall not exceed the general radiated emissions limits.

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

##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Measuring Instrument Setting

The following table is the setting of receiver:

| Receiver Parameter             | Setting             |
|--------------------------------|---------------------|
| Attenuation                    | Auto                |
| Frequency Range: 9kHz~150kHz   | RBW 200Hz for QP    |
| Frequency Range: 150kHz~30MHz  | RBW 9kHz for QP     |
| Frequency Range: 30MHz~1000MHz | RBW 120kHz for Peak |

**Note:** The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz and 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.



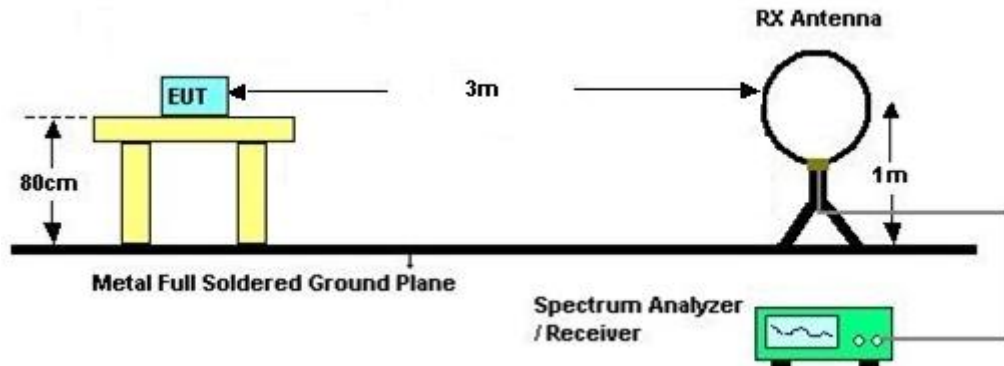


### 3.1.4 Test Procedures

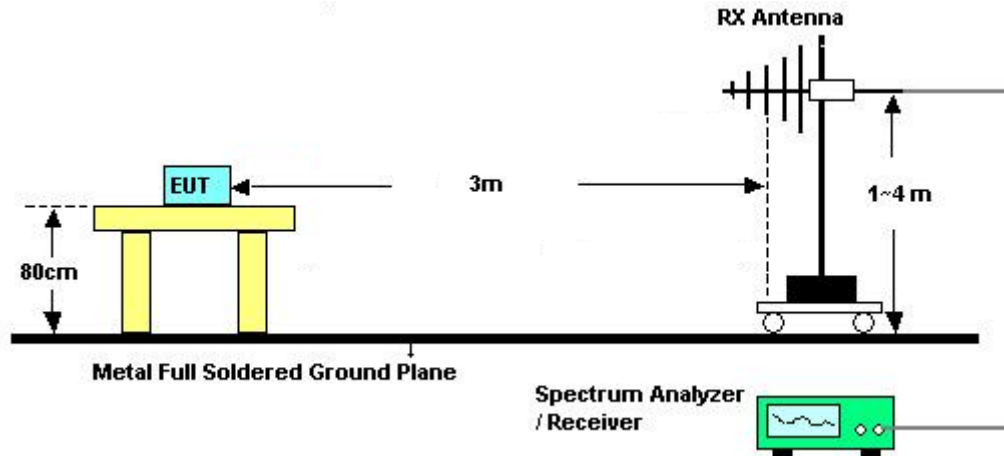
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
7. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver.

### 3.1.5 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



### 3.1.6 Test Result of Radiated Emissions Measurement

Please refer to Appendix A.

**Remark:**

1. There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.
2. According to C63.10 radiated Test, the EUT pre-scanned horizontal, vertical, and ground-parallel three polarization's, the worst case is horizontal & vertical polarization, test data of two mode was reported.



## **3.2 Antenna Requirements**

### **3.2.1 Standard Applicable**

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

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 rule.

### **3.2.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.



## 4. List of Measuring Equipment

| Instrument        | Brand Name      | Model No.             | Serial No.       | Characteristics               | Calibration Date | Test Date                     | Due Date      | Remark                |
|-------------------|-----------------|-----------------------|------------------|-------------------------------|------------------|-------------------------------|---------------|-----------------------|
| Bilog Antenna     | TESEQ           | CBL 6111D & N-6-06    | 35414 & AT-N0602 | 30MHz~1GHz                    | Oct. 11, 2020    | Mar. 30, 2021 ~ Apr. 20, 2021 | Oct. 10, 2021 | Radiation (03CH11-HY) |
| Loop Antenna      | Rohde & Schwarz | HFH2-Z2               | 100488           | 9 kHz~30 MHz                  | Jul. 14, 2020    | Mar. 30, 2021 ~ Apr. 20, 2021 | Jul. 13, 2021 | Radiation (03CH11-HY) |
| Amplifier         | SONOMA          | 310N                  | 187312           | 9kHz~1GHz                     | Dec. 02, 2020    | Mar. 30, 2021 ~ Apr. 20, 2021 | Dec. 01, 2021 | Radiation (03CH11-HY) |
| Spectrum Analyzer | Keysight        | N9010A                | MY54200486       | 10Hz~44GHz                    | Oct. 23, 2020    | Mar. 30, 2021 ~ Apr. 20, 2021 | Oct. 22, 2021 | Radiation (03CH11-HY) |
| Software          | Audix           | E3<br>6.2009-8-24     | RK-001053        | N/A                           | N/A              | Mar. 30, 2021 ~ Apr. 20, 2021 | N/A           | Radiation (03CH11-HY) |
| Controller        | EMEC            | EM 1000               | N/A              | Control Turn table & Ant Mast | N/A              | Mar. 30, 2021 ~ Apr. 20, 2021 | N/A           | Radiation (03CH11-HY) |
| Antenna Mast      | EMEC            | AM-BS-4500-B          | N/A              | 1~4m                          | N/A              | Mar. 30, 2021 ~ Apr. 20, 2021 | N/A           | Radiation (03CH11-HY) |
| Turn Table        | EMEC            | TT 2000               | N/A              | 0~360 Degree                  | N/A              | Mar. 30, 2021 ~ Apr. 20, 2021 | N/A           | Radiation (03CH11-HY) |
| Filter            | Wainwright      | WHK20/1000C<br>7/40SS | SN2              | 20M High Pass                 | Sep. 14, 2020    | Mar. 30, 2021 ~ Apr. 20, 2021 | Sep. 13, 2021 | Radiation (03CH11-HY) |
| RF Cable          | HUBER + SUHNER  | SUCOFLEX<br>104       | MY9837/4PE       | 9kHz-30MHz                    | Mar. 11, 2021    | Mar. 30, 2021 ~ Apr. 20, 2021 | Mar. 10, 2022 | Radiation (03CH11-HY) |
| RF Cable          | HUBER + SUHNER  | SUCOFLEX<br>104       | MY9837/4PE       | 30M-18G                       | Mar. 11, 2021    | Mar. 30, 2021 ~ Apr. 20, 2021 | Mar. 10, 2022 | Radiation (03CH11-HY) |
| RF Cable          | HUBER + SUHNER  | SUCOFLEX<br>102       | MY2859/2         | 30MHz-40GHz                   | Mar. 11, 2021    | Mar. 30, 2021 ~ Apr. 20, 2021 | Mar. 10, 2022 | Radiation (03CH11-HY) |
| Hygrometer        | TECPEL          | DTN-303B              | TP200880         | QA-3-031                      | Oct. 22, 2020    | Mar. 30, 2021 ~ Apr. 20, 2021 | Oct. 21, 2021 | Radiation (03CH11-HY) |



## 5. Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (9 kHz ~ 30 MHz)

|   |     |
|---|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 3.4 |
|---|-----|

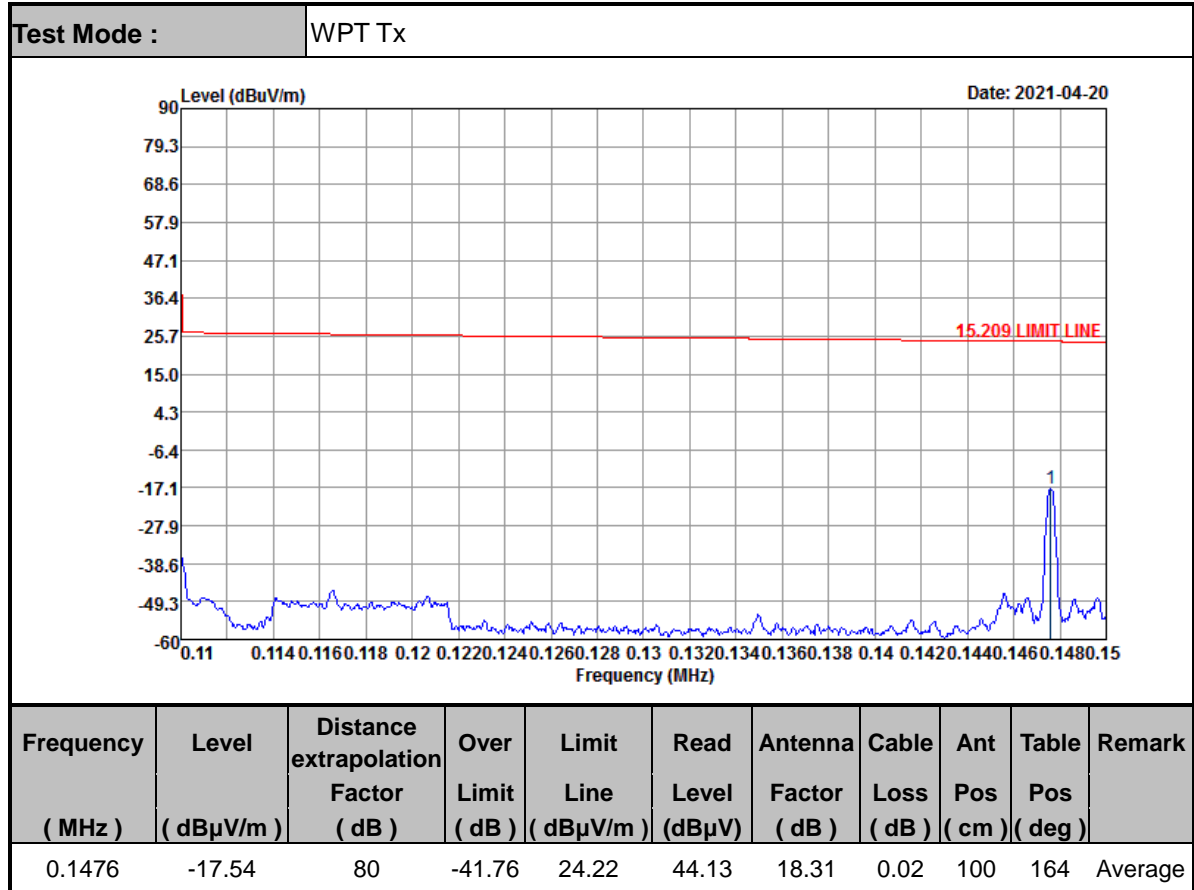
### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

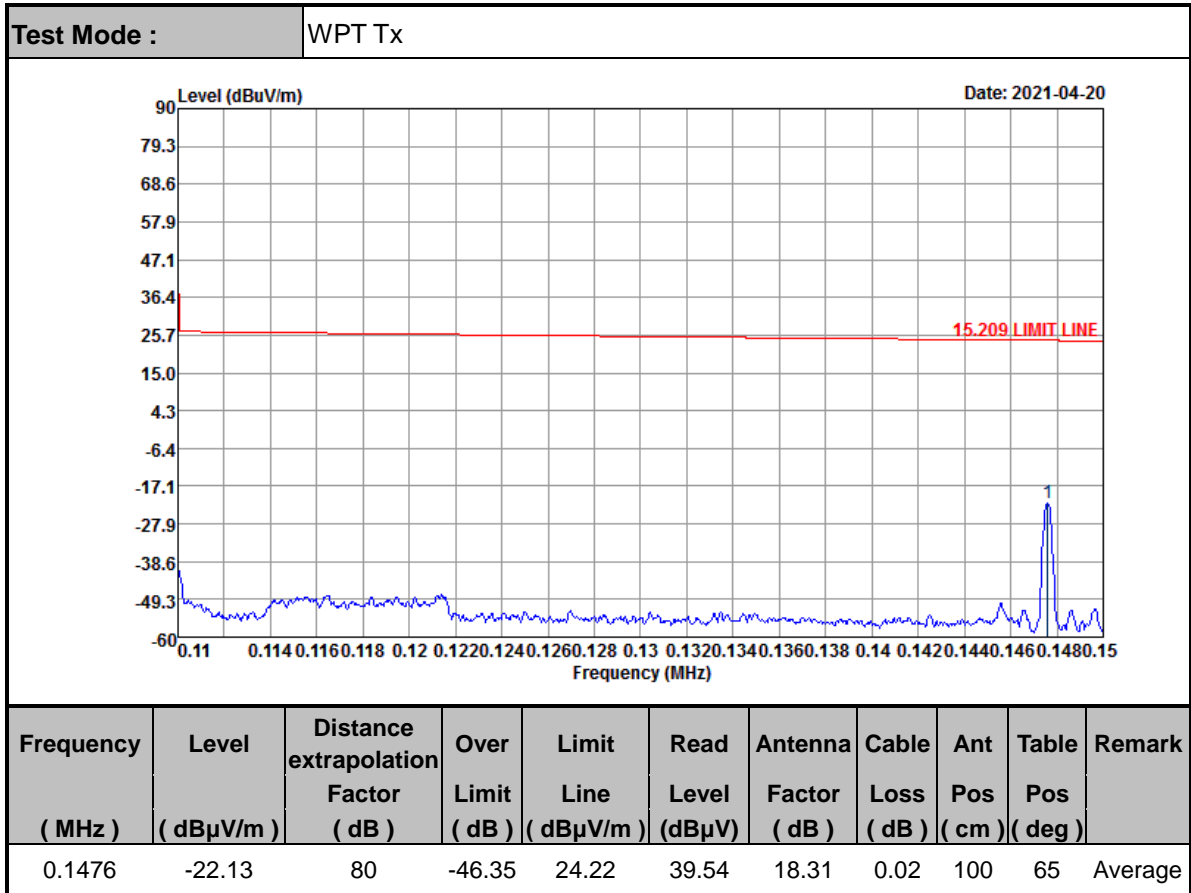
|   |     |
|---|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.4 |
|---|-----|



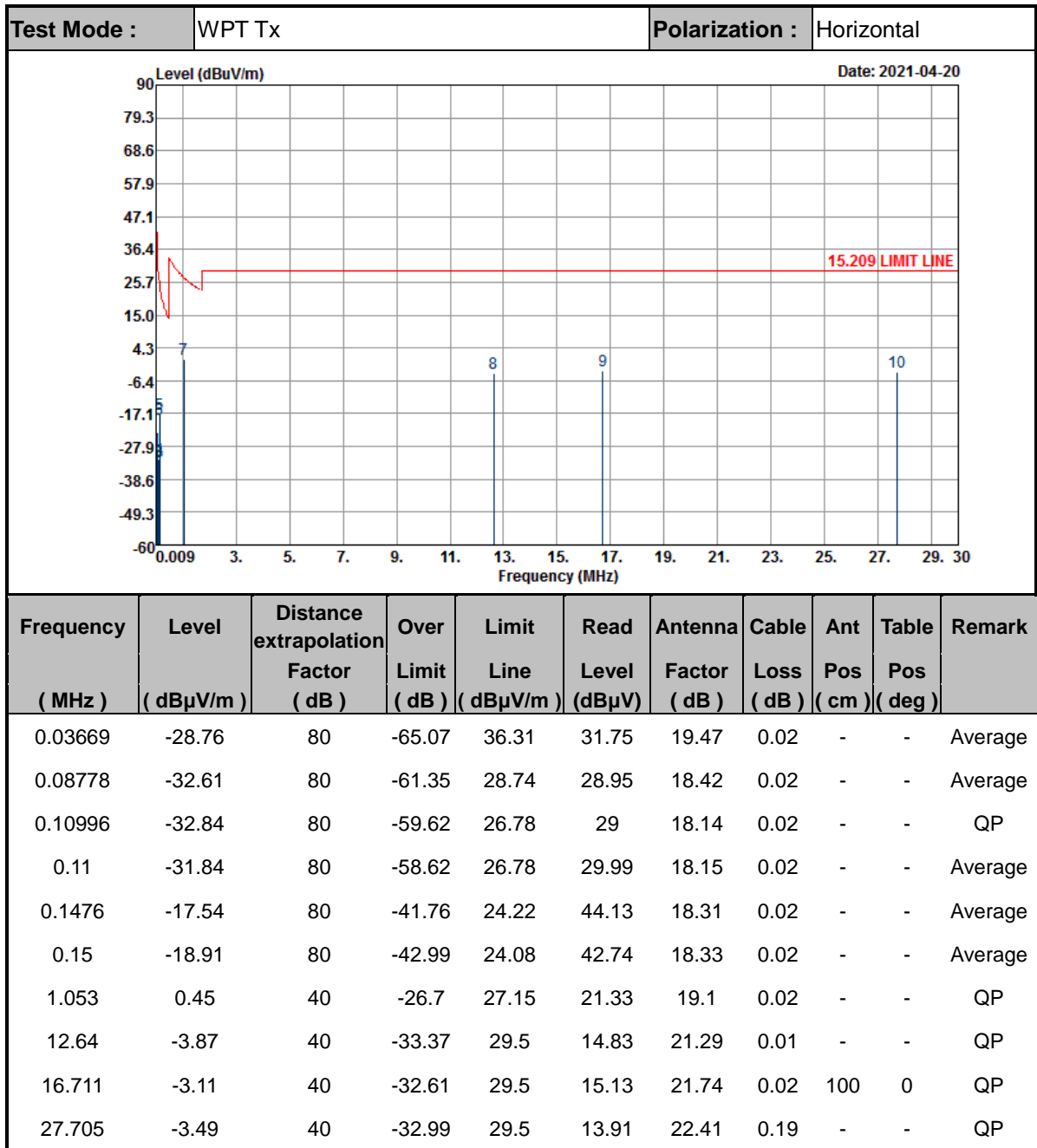
## Appendix A. Test Results of Radiated Test Items

### A1. Test Result of Field Strength of Fundamental Emissions

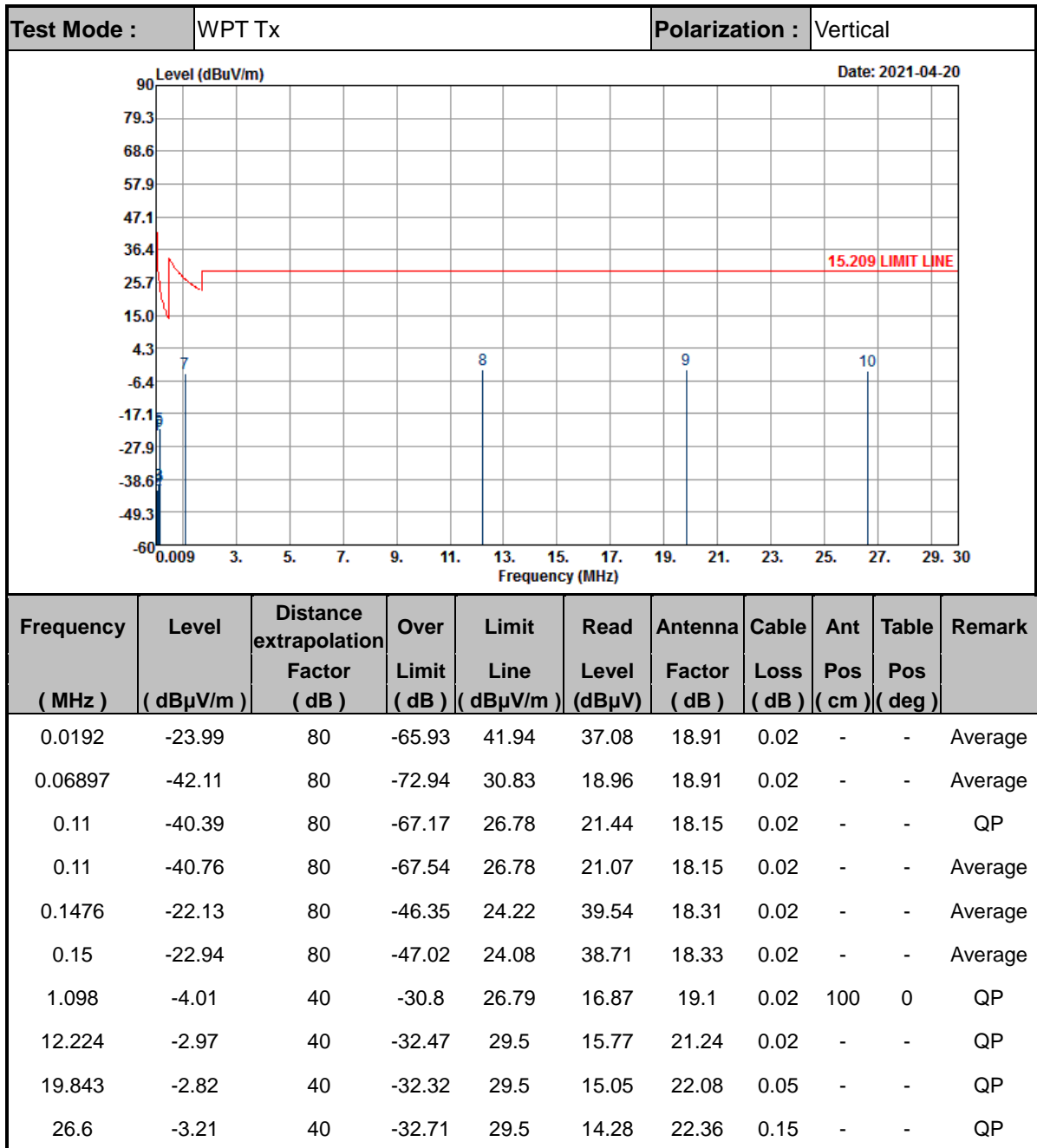




**A2. Results of Radiated Spurious Emissions (9 kHz~30MHz)**





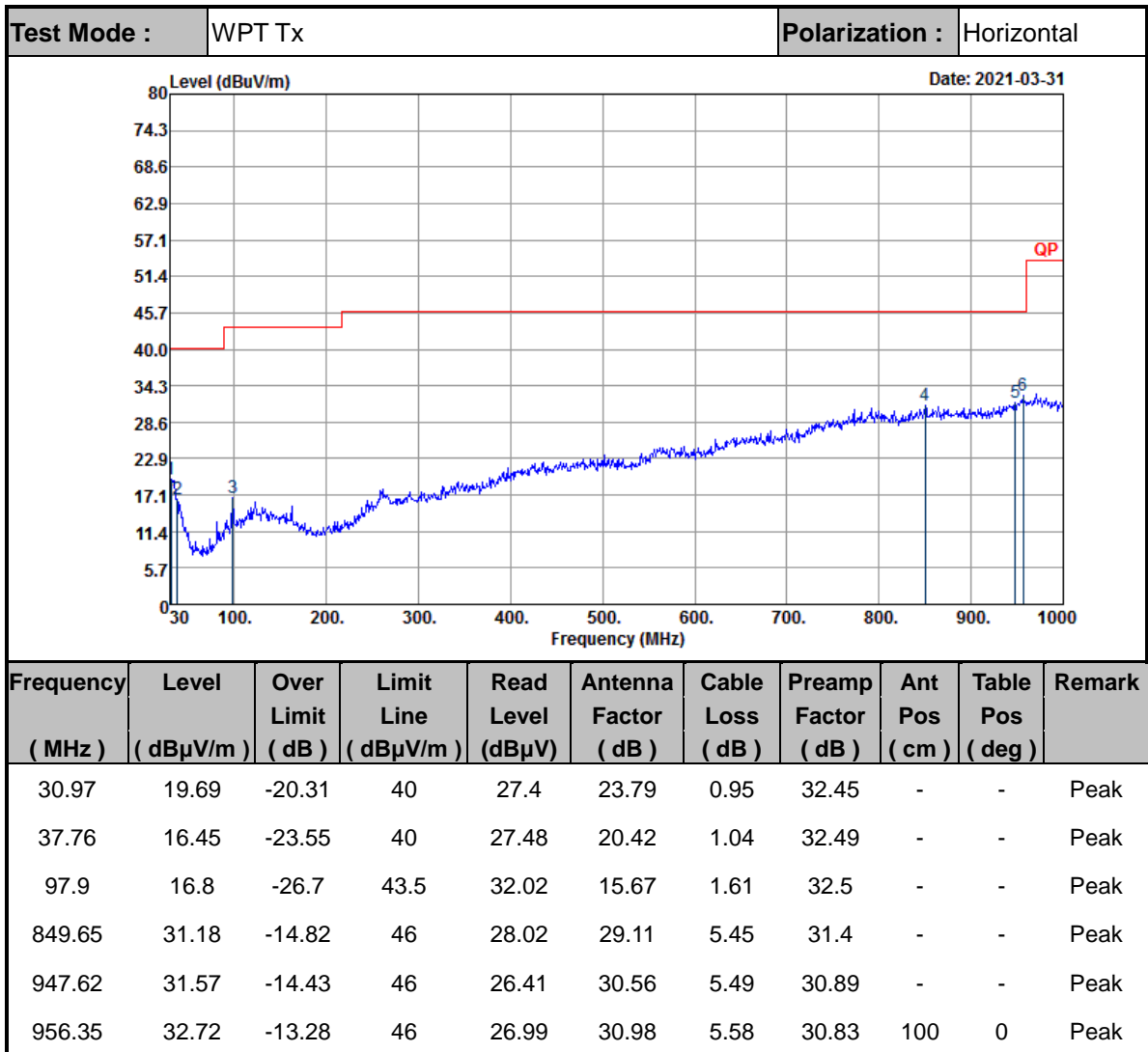


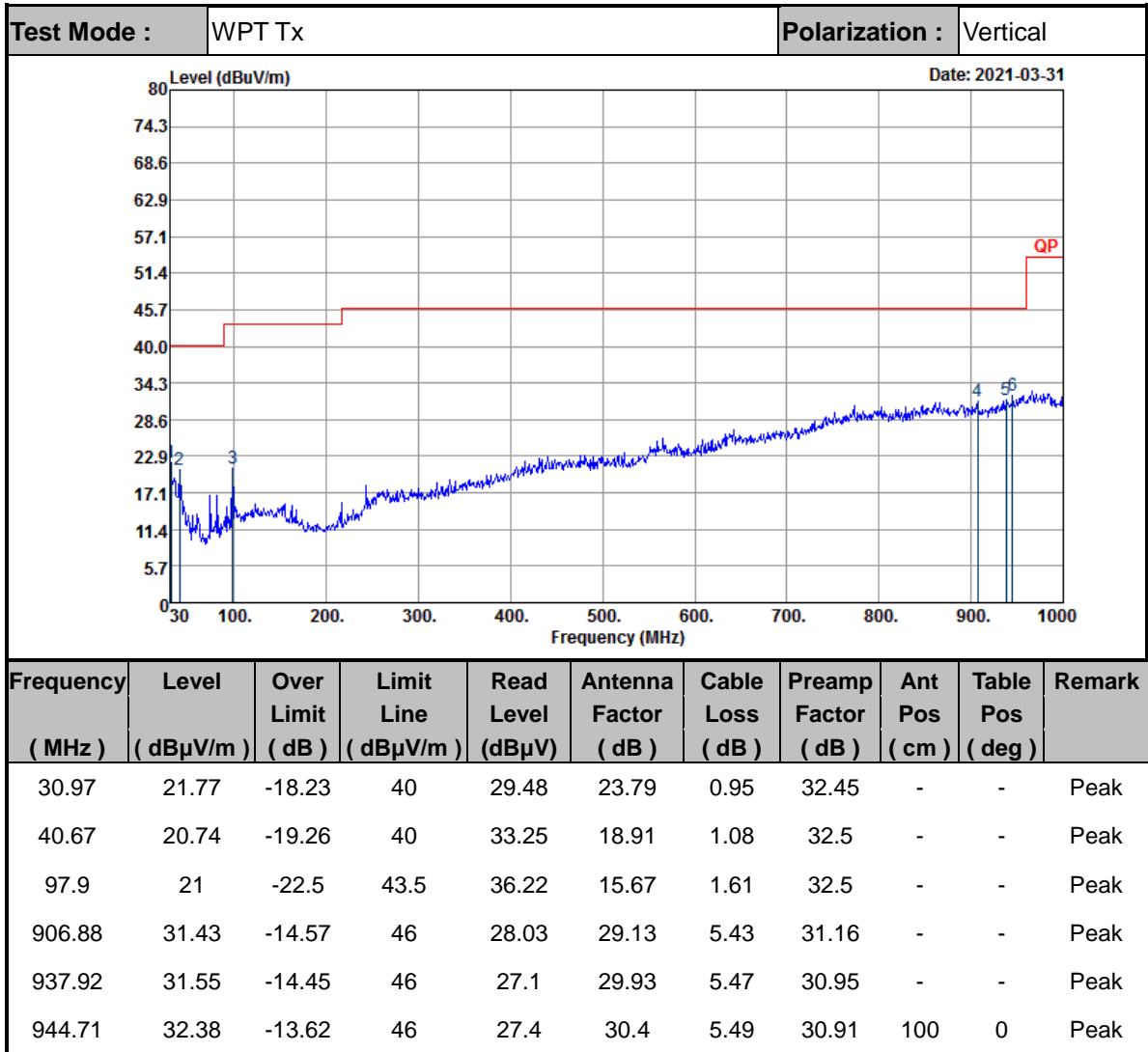
**Note:**

1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
3. Limit line = specific limits (dBuV) + distance extrapolation factor.



A3. Results of Radiated Spurious Emissions (30MHz~1GHz)





**Note:**

1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Emission level (dBμV/m) = 20 log Emission level (μV/m).
3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor= Level.

————THE END————