

# FCC CERTIFICATION TEST REPORT

## FOR

|                             |   |                                            |
|-----------------------------|---|--------------------------------------------|
| <b>Applicant</b>            | : | Scosche Industries Inc                     |
| <b>Address</b>              | : | 1550 Pacific Avenue, Oxnard, CA 93033, USA |
| <b>Equipment under Test</b> | : | Wireless Charging Pad                      |
| <b>Model No.</b>            | : | MSQP                                       |
| <b>Trade Mark</b>           | : | Scosche                                    |
| <b>FCC ID</b>               | : | IKQMSQP                                    |
| <b>Manufacturer</b>         | : | Scosche Industries Inc                     |
| <b>Address</b>              | : | 1550 Pacific Avenue, Oxnard, CA 93033, USA |

**Issued By: Dongguan Dongdian Testing Service Co., Ltd.**

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# REPORT

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## Test Report Declare

|                             |   |                                                                                                                              |
|-----------------------------|---|------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>            | : | Scosche Industries Inc                                                                                                       |
| <b>Address</b>              | : | 1550 Pacific Avenue, Oxnard, CA 93033, USA                                                                                   |
| <b>Equipment under Test</b> | : | Wireless Charging Pad                                                                                                        |
| <b>Model No.</b>            | : | MSQP                                                                                                                         |
| <b>Trade Mark</b>           | : | Scosche                                                                                                                      |
| <b>Manufacturer</b>         | : | Scosche Industries Inc                                                                                                       |
| <b>Address</b>              | : | 1550 Pacific Avenue, Oxnard, CA 93033, USA                                                                                   |
| <b>Factory</b>              | : | Power7 Technology (Dong Guan) Co., Ltd.                                                                                      |
| <b>Address</b>              | : | No.28 Binjiang Street.Shishuikou Village,Qiaotou Town,Dongguan City,GuangDong Province P.R.China                             |
| <b>Factory</b>              | : | POWER 7 TECHNOLOGY VIET NAM COMPANY LIMITED                                                                                  |
| <b>Address</b>              | : | Lot P-9 Trang Due Industrial zone, a part of Dinh Vu - Cat Hai, An Hoa Commune, An Duong District, Hai Phong City, Viet Nam. |

### Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C

### Test procedure used:

ANSI C63.10:2013

### We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

**After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.**

|                         |                    |                      |                               |
|-------------------------|--------------------|----------------------|-------------------------------|
| <b>Report No.:</b>      | DDT-R22060621-2E01 |                      |                               |
| <b>Date of Receipt:</b> | Jun. 07, 2022      | <b>Date of Test:</b> | Jun. 07, 2022 ~ Jun. 11, 2022 |

**Prepared By:**

*Ella Gong*

**Ella Gong/Engineer**

**Approved By:**



**Damon Hu/EMC Manager**

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

## Revision History

| Rev. | Revisions     | Issue Date    | Revised By |
|------|---------------|---------------|------------|
| ---  | Initial issue | Jun. 11, 2022 |            |
|      |               |               |            |

## 1 Summary of Test Results

| Description of Test Item       | Standard            | Results |
|--------------------------------|---------------------|---------|
| 20 dB Bandwidth                | FCC Part 15: 15.215 | Pass    |
| Radiated Emission              | FCC Part 15: 15.209 | Pass    |
| Power Line Conducted Emissions | FCC Part 15: 15.207 | Pass    |
| Antenna Requirement            | FCC Part 15: 15.203 | Pass    |

## 2 General Test Information

### 2.1. Description of EUT

|                                       |                                                           |
|---------------------------------------|-----------------------------------------------------------|
| EUT* Name                             | : Wireless Charging Pad                                   |
| Model Number                          | : MSQP                                                    |
| EUT function description              | : Please reference user manual of this device             |
| Power Supply                          | : Input:5V=2A, 9V=2A,12V=2A<br>Output: 5W, 7.5W, 10W, 15W |
| Wireless charging Operation frequency | : 110.5 kHz - 147 kHz                                     |
| Antenna Type                          | : Inductive loop coil antenna                             |
| Sample Type                           | : N/A                                                     |
| Sample Number                         | : S22060621-02                                            |

Note: EUT is the abbreviation of equipment under test.

In section 15.31(m), regards to the operating frequency range less than 1 MHz, only one of channel was selected to perform the test.

|                 |                 |
|-----------------|-----------------|
| Channel         | Frequency (kHz) |
| Testing channel | 127.66          |

### 2.2. Accessories of EUT

| Description of Accessories | Manufacturer | Model number | Description | Remark |
|----------------------------|--------------|--------------|-------------|--------|
| N/A                        | N/A          | N/A          | N/A         | N/A    |

### 2.3. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | EMC Compliance | Other                                                        |
|---------------------|--------------|--------------|----------------|--------------------------------------------------------------|
| AC Adapter          | HUAWEI       | HW-050450C00 | N/A            | Input: 100-240V~50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A |
| Dummy load          | N/A          | N/A          | N/A            | N/A                                                          |

## 2.4. Block diagram of EUT configuration for test

For mode 1: Tx mode (5W load, 7.5W load, 10W load, 15W load):



For mode 2: Standby mode:



Note: Scan with mode 1 and mode 2, the worst case is mode 1 Tx mode (15W load) and recorded in this report.

## 2.5. Deviations of test standard

No deviation.

## 2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

|                    |            |
|--------------------|------------|
| Temperature range: | 21-25 °C   |
| Humidity range:    | 40-75%     |
| Pressure range:    | 86-106 kPa |

## 2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: [ddt@dgddt.com](mailto:ddt@dgddt.com)

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118



**2.8. Measurement uncertainty**

| Test Item                                                    | Uncertainty                   |
|--------------------------------------------------------------|-------------------------------|
| Uncertainty for Conduction emission test                     | 3.32 dB (150 kHz - 30 MHz)    |
|                                                              | 3.72 dB (9 kHz - 150 kHz)     |
| Uncertainty for Radiation Emission Test<br>(9 kHz – 30 MHz)  | 3.44 dB                       |
| Uncertainty for Radiation Emission test<br>(30 MHz - 1 GHz)  | 4.70 dB (Antenna Polarize: V) |
|                                                              | 4.84 dB (Antenna Polarize: H) |
| Uncertainty for Radiation Emission test<br>(1 GHz to 18 GHz) | 4.10 dB (1-6 GHz)             |
|                                                              | 4.40 dB (6 GHz - 18 GHz)      |
| Bandwidth                                                    | 1.1%                          |

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

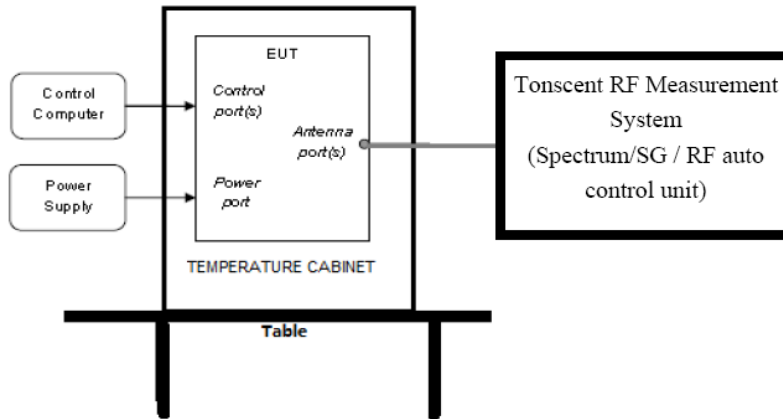


### 3 Equipment Used During Test

| Equipment                                                                                 | Manufacturer | Model No.   | Serial No.      | Last Cal.     | Cal. Interval |
|-------------------------------------------------------------------------------------------|--------------|-------------|-----------------|---------------|---------------|
| <input checked="" type="checkbox"/> RF Connected Test (Tonscend RF Measurement System 1#) |              |             |                 |               |               |
| SIGNAL ANALYZER                                                                           | R&S          | FSQ26       | 101272          | May 18, 2022  | 1 Year        |
| Wideband Radio Communication tester                                                       | R&S          | CMW500      | 120259          | Sep. 02, 2021 | 1 Year        |
| Vector Signal Generator                                                                   | Agilent      | E8267D      | US49060192      | Oct. 15, 2021 | 1 Year        |
| Vector Signal Generator                                                                   | Agilent      | N5182A      | MY48180737      | May 18, 2022  | 1 Year        |
| RF Control Unit                                                                           | Tonsend      | JS0806-2    | 158060010       | May 18, 2022  | 1 Year        |
| Temp&Humi Programmable                                                                    | ZHIXIANG     | ZXGDJS-150L | ZX170110-A      | May 26, 2022  | 1 Year        |
| Test Software                                                                             | JS Tonscend  | JS1120-3    | Ver.2.6.77.0518 | N/A           | N/A           |
| <input checked="" type="checkbox"/> Radiation 3#chamber                                   |              |             |                 |               |               |
| EMI Test Receiver                                                                         | R&S          | ESU         | 100472          | May 18, 2022  | 1 Year        |
| Spectrum analyzer                                                                         | Agilent      | E4447A      | MY50180031      | May 18, 2022  | 1 Year        |
| Active Loop antenna                                                                       | Schwarzbeck  | FMZB-1519   | 1519-038        | Sep. 19, 2021 | 1 Year        |
| Trilog Broadband Antenna                                                                  | Schwarzbeck  | VULB 9163   | 01429           | Aug. 07, 2021 | 1 Year        |
| Double Ridged Horn Antenna                                                                | Schwarzbeck  | BBHA9120    | 02468           | Nov. 17, 2021 | 1 Year        |
| Broad Band Horn Antenna                                                                   | Schwarzbeck  | BBHA 9170   | 790             | May 06, 2022  | 1 Year        |
| Pre-amplifier                                                                             | COM-POWER    | PAM-118A    | 18040084        | Sep. 02, 2021 | 1 Year        |
| Pre-amplifier                                                                             | COM-POWER    | PAM-840A    | 461369          | Apr. 11, 2022 | 1 Year        |
| Test software                                                                             | Audix        | E3          | V 6.1.1.1       | N/A           | N/A           |
| <input checked="" type="checkbox"/> Power Line Conducted Emissions Test 1#                |              |             |                 |               |               |
| Test Receiver                                                                             | R&S          | ESCI        | 100551          | Sep. 02, 2021 | 1 Year        |
| LISN 1                                                                                    | R&S          | ENV216      | 101109          | Sep. 02, 2021 | 1 Year        |
| LISN 2                                                                                    | R&S          | ESH2-Z5     | 100309          | Sep. 02, 2021 | 1 Year        |
| Pulse Limiter                                                                             | R&S          | ESH3-Z2     | 101242          | Sep. 02, 2021 | 1 Year        |
| CE Cable 1                                                                                | HUBSER       | N/A         | W10.01          | Sep. 02, 2021 | 1 Year        |
| LISN 3                                                                                    | SCHWARZBECK  | NSLK 8163   | 00017           | Sep. 02, 2021 | 1 Year        |
| Test software                                                                             | Audix        | E3          | V 6.11111b      | N/A           | N/A           |

## 4 20 dB Bandwidth

### 4.1. Block diagram of test setup



### 4.2. Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

### 4.3. Test procedure

(1) Connect EUT to spectrum analyzer and use the following settings:

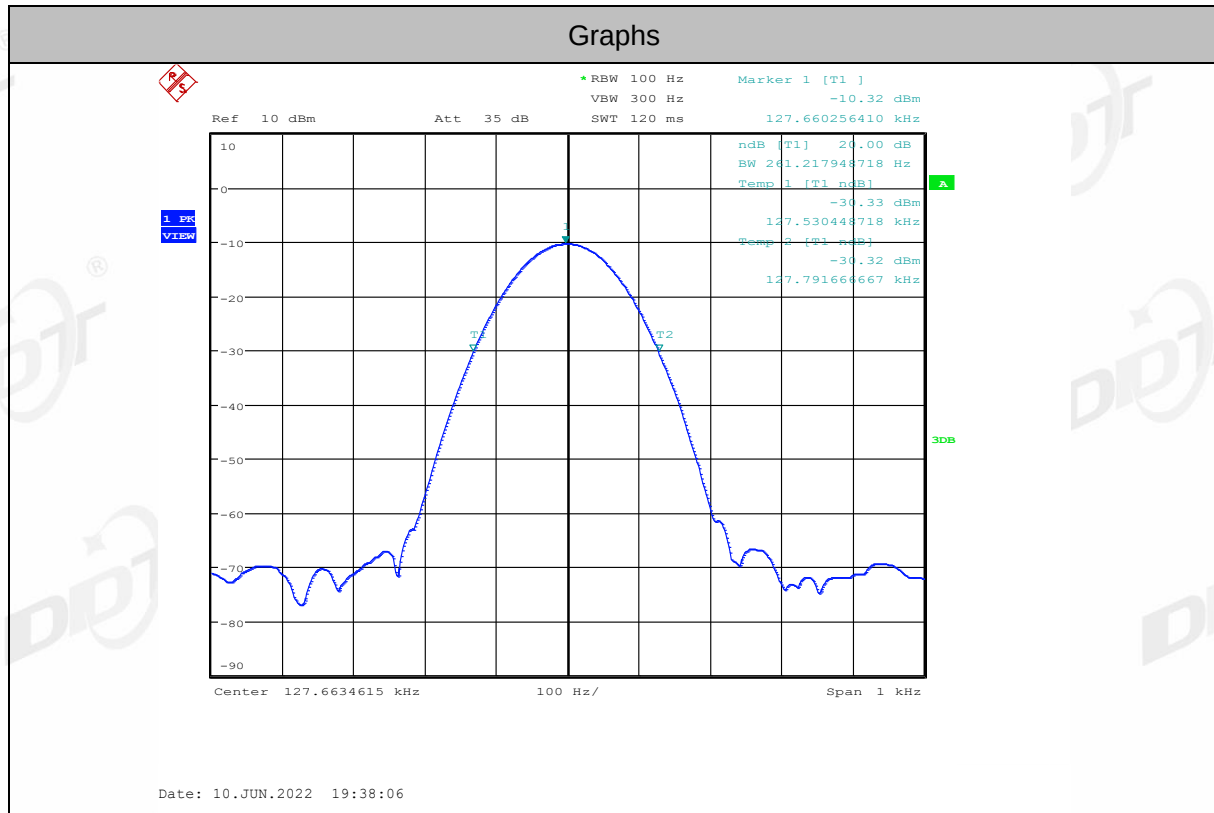
|                  |                                                |
|------------------|------------------------------------------------|
| Centre Frequency | The centre frequency of the channel under test |
| Detector         | Peak                                           |
| RBW              | 1% to 5% of the occupied bandwidth             |
| VBW              | Approximately 3xRBW                            |
| Trace            | Max hold                                       |
| Sweep            | Auto                                           |

(2) The 20 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

#### 4.4. Test result

| Freq.<br>(kHz) | 20 dB bandwidth<br>Result (Hz) | Conclusion |
|----------------|--------------------------------|------------|
| 127.66         | 261.218                        | Pass       |

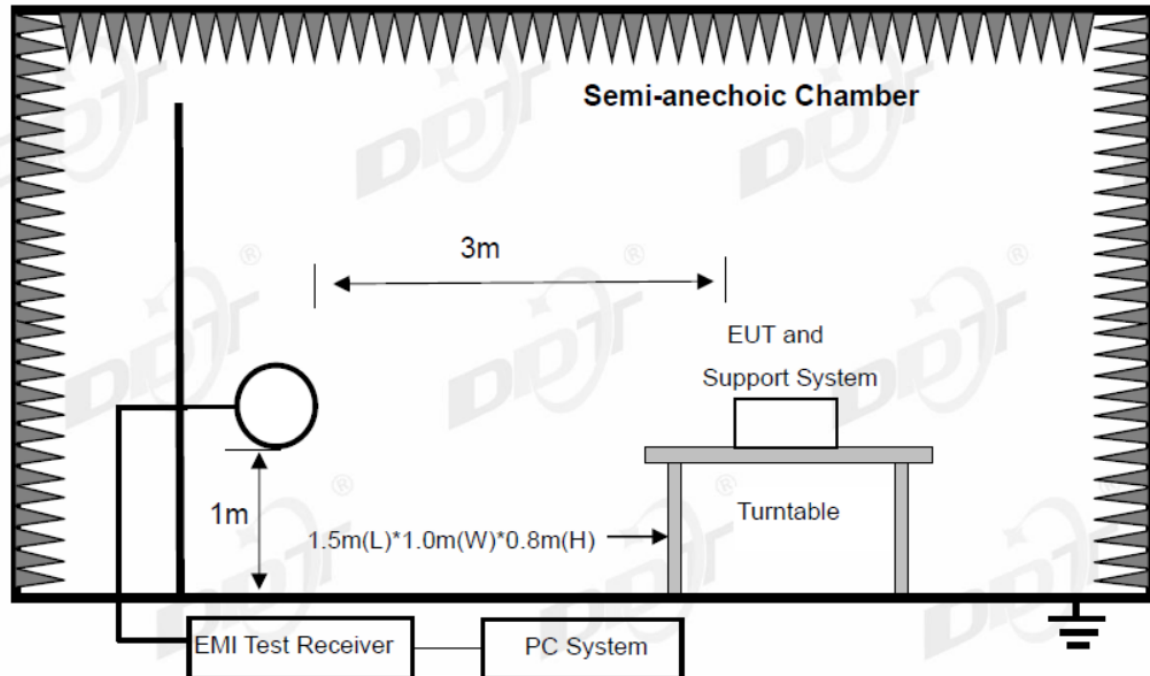
#### 4.5. Original test data



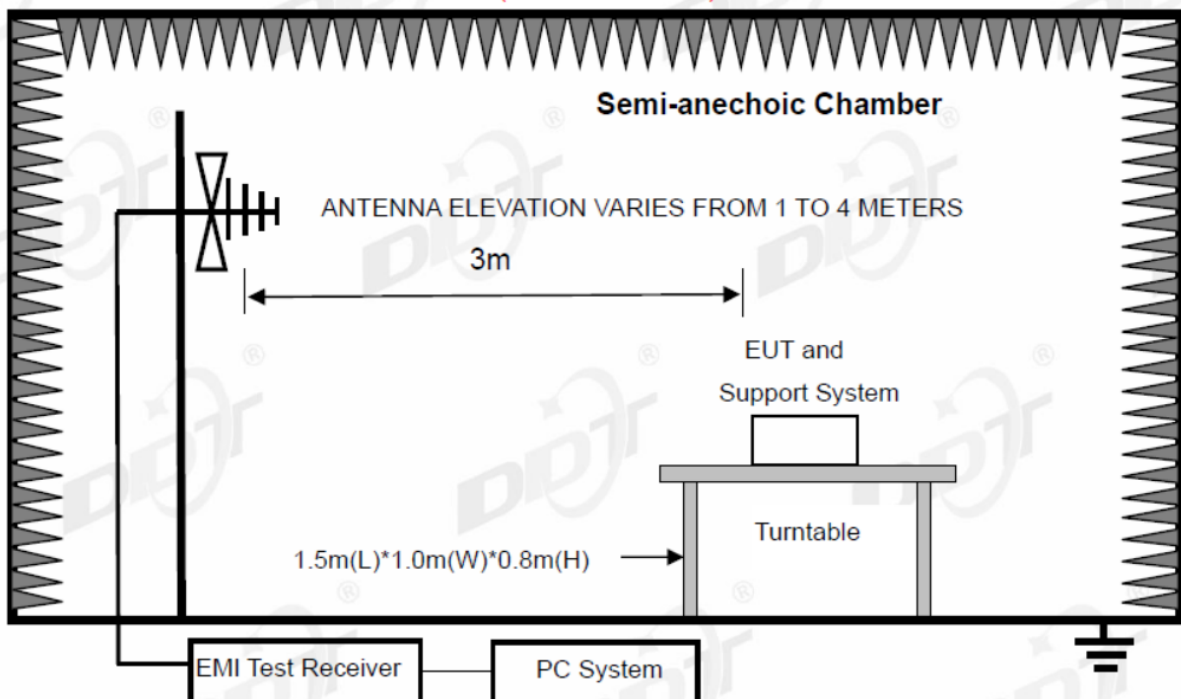
## 5 Radiated Emission

### 5.1. Block diagram of test setup

In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



## 5.2. Limit

| FREQUENCY<br>MHz | DISTANCE<br>Meters | FIELD STRENGTHS LIMIT |                                   |
|------------------|--------------------|-----------------------|-----------------------------------|
|                  |                    | $\mu\text{V/m}$       | $\text{dB}(\mu\text{V})/\text{m}$ |
| 0.009 ~ 0.490    | 300                | $2400/F(\text{kHz})$  | $67.6-20\log(F)$                  |
| 0.490 ~ 1.705    | 30                 | $24000/F(\text{kHz})$ | $87.6-20\log(F)$                  |
| 1.705 ~ 30.0     | 30                 | 30                    | 29.54                             |
| 30 ~ 88          | 3                  | 100                   | 40.0                              |
| 88 ~ 216         | 3                  | 150                   | 43.5                              |
| 216 ~ 960        | 3                  | 200                   | 46.0                              |
| 960 ~ 1000       | 3                  | 500                   | 54.0                              |

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3\text{m}}(\text{dB}\mu\text{V/m}) = \text{Limit}_{300\text{m}}(\text{dB}\mu\text{V/m}) + 40\log(300\text{m}/3\text{m}) = \text{Limit}_{300\text{m}}(\text{dB}\mu\text{V/m}) + 80$$

$$\text{Limit}_{3\text{m}}(\text{dB}\mu\text{V/m}) = \text{Limit}_{30\text{m}}(\text{dB}\mu\text{V/m}) + 40\log(30\text{m}/3\text{m}) = \text{Limit}_{30\text{m}}(\text{dB}\mu\text{V/m}) + 40$$

## 5.3. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

| Test frequency range | Test antenna used        | Test antenna distance |
|----------------------|--------------------------|-----------------------|
| 9 kHz - 30 MHz       | Active Loop antenna      | 3 m                   |
| 30 MHz - 1 GHz       | Trilog Broadband Antenna | 3 m                   |

According ANSI C63.10:2013 clause 6.4.6 and 6.5.3, for measurements below 30 MHz, Antenna was located 3 m from EUT, the loop antenna was positioned in three antenna orientations (parallel, perpendicular, and round-parallel), for each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable, and the lowest height of the magnetic antenna shall be 1 m above the ground. For measurement above 30 MHz, the Trilog Broadband Antenna or Horn Antenna was located 3 m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 1 GHz:



(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1 m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produce highest emissions. Spectrum frequency from 9 kHz to 1 GHz (tenth harmonic of fundamental frequency) was investigated.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission.

Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz, for emissions from 9 kHz - 90 kHz, 110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW.

| Frequency band   | RBW     |
|------------------|---------|
| 9 kHz - 150 kHz  | 200 Hz  |
| 150 kHz - 30 MHz | 9 kHz   |
| 30 MHz - 1 GHz   | 120 kHz |

#### 5.4. Test result

**Pass. (See below detailed test result)**

Below 30 MHz:

**TR-4-E-009 Radiated Emission Test Result**

Test Site : DDT 3m Chamber 3#

D:\E3 6.111\2022 Report Data\Q22060621-2E MSQP\FCC  
BELOW 1G 9K-30M.EM6

Test Date : 2022-06-09

Tested By : James Gan

EUT : Wireless Charging Pad

Model Number : MSQP

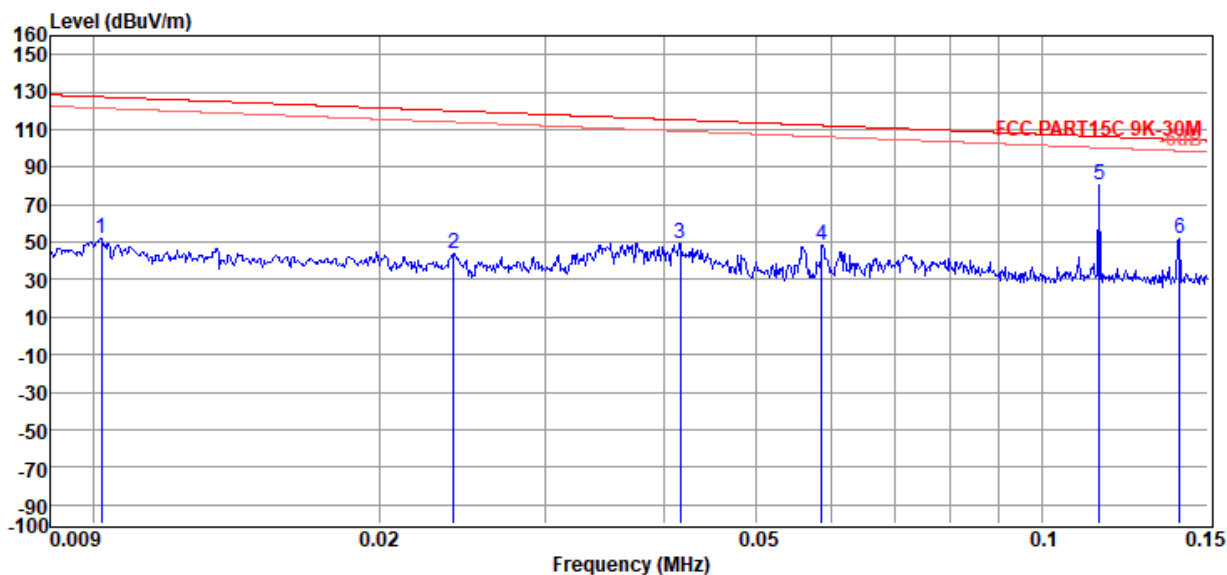
Power Supply : AC 120V/60Hz

Test Mode : TX Mode

Condition : Temp:23°C,Humi:55.5%,Press:100.1kPa

Antenna/Distance : 2021 FMZB1519/3m

Memo : X axis

Data:  
1

| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>dB | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 0.01           | 28.66                   | 23.37                       | 0.03                | 52.06                       | 127.44                    | -75.38                | Peak     | VERTICAL     |
| 2              | 0.02           | 21.97                   | 22.13                       | 0.00                | 44.10                       | 120.02                    | -75.92                | Peak     | VERTICAL     |
| 3              | 0.04           | 26.86                   | 22.12                       | -0.02               | 48.96                       | 115.23                    | -66.27                | Peak     | VERTICAL     |
| 4              | 0.06           | 25.75                   | 22.27                       | -0.03               | 47.99                       | 112.25                    | -64.26                | Peak     | VERTICAL     |
| 5              | 0.12           | 58.70                   | 22.07                       | -0.02               | 80.75                       | 106.38                    | -25.63                | Peak     | VERTICAL     |
| 6              | 0.14           | 29.93                   | 22.04                       | -0.01               | 51.96                       | 104.70                    | -52.74                | Peak     | VERTICAL     |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 300 Hz, VBW: 1 kHz, Sweep time: auto.



## TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\E3 6.111\2022 Report Data\Q22060621-2E MSQP\FCC  
BELOW 1G 9K-30M.EM6

Test Date : 2022-06-09

Tested By : James Gan

EUT : Wireless Charging Pad

Model Number : MSQP

Power Supply : AC 120V/60Hz

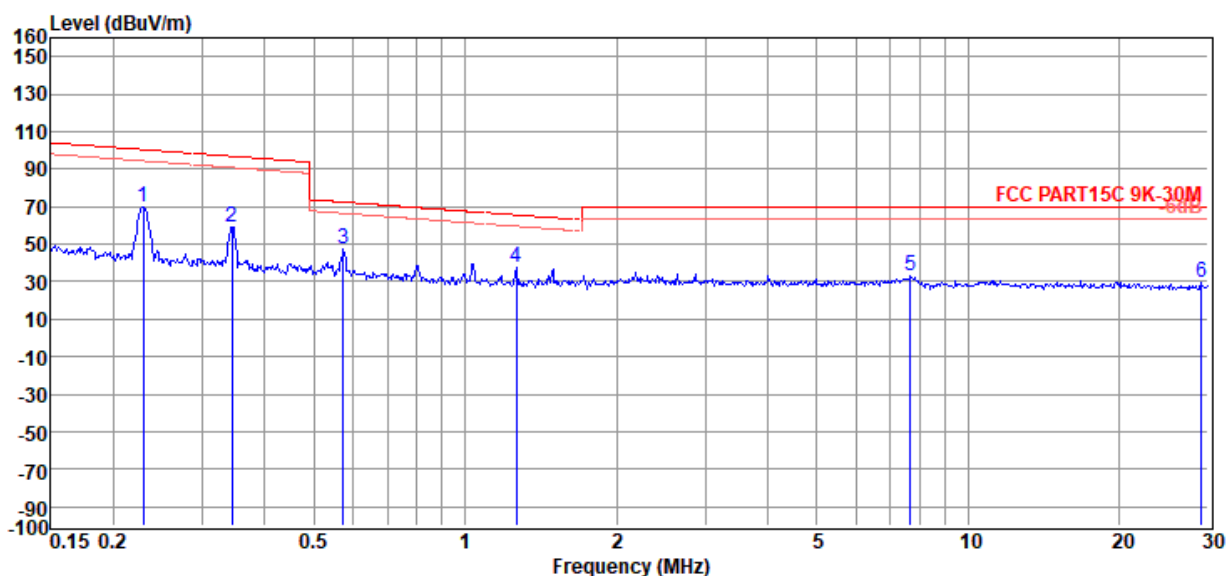
Test Mode : TX Mode

Condition : Temp:23°C,Humi:55.5%,Press:100.1kPa

Antenna/Distance : 2021 FMZB1519/3m

Memo : X axis

Data:  
2



Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 10 kHz, VBW: 30 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\E3 6.111\2022 Report Data\Q22060621-2E MSQP\FCC  
BELOW 1G 9K-30M.EM6

Test Date : 2022-06-09

Tested By : James Gan

EUT : Wireless Charging Pad

Model Number : MSQP

Power Supply : AC 120V/60Hz

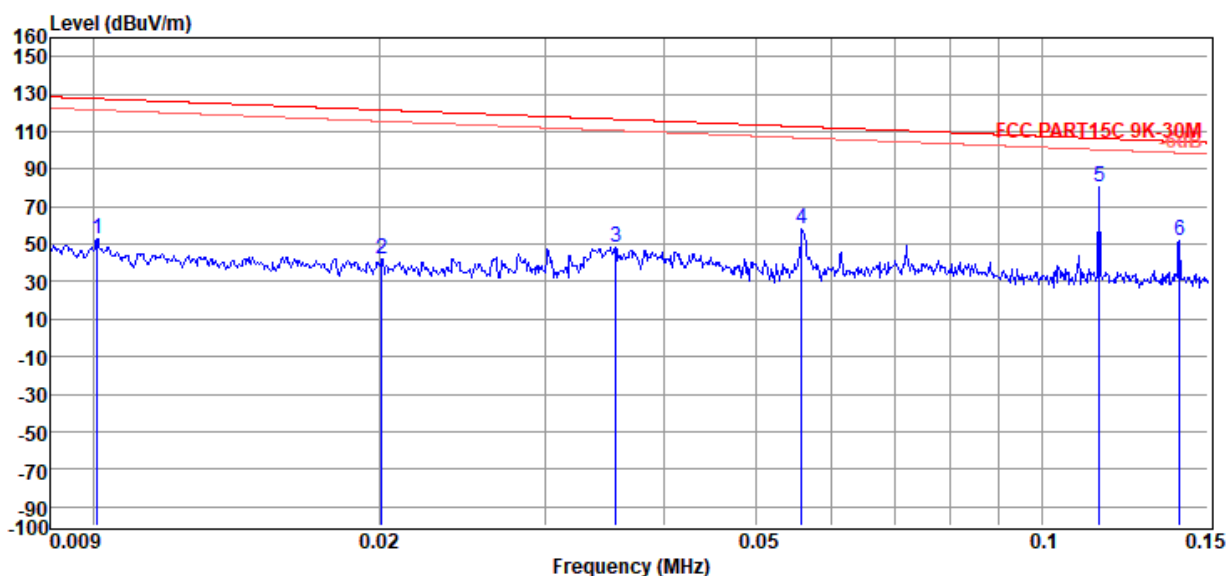
Test Mode : TX Mode

Condition : Temp:23°C,Humi:55.5%,Press:100.1kPa

Antenna/Distance : 2021 FMZB1519/3m/VERTICAL

Memo : Y axis

Data:  
3



| Item<br>(Mark) | Freq.<br>(MHz) | Read Level<br>(dBuV) | Antenna Factor<br>(dB/m) | Cable Loss<br>dB | Result Level<br>(dBuV/m) | Limit Line<br>(dBuV/m) | Over Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|----------------------|--------------------------|------------------|--------------------------|------------------------|--------------------|----------|--------------|
| 1              | 0.01           | 29.70                | 23.39                    | 0.03             | 53.12                    | 127.54                 | -74.42             | Peak     | VERTICAL     |
| 2              | 0.02           | 19.77                | 22.38                    | 0.00             | 42.15                    | 121.53                 | -79.38             | Peak     | VERTICAL     |
| 3              | 0.04           | 26.77                | 21.97                    | -0.02            | 48.72                    | 116.60                 | -67.88             | Peak     | VERTICAL     |
| 4              | 0.06           | 35.98                | 22.28                    | -0.03            | 58.23                    | 112.66                 | -54.43             | Peak     | VERTICAL     |
| 5              | 0.12           | 58.57                | 22.07                    | -0.02            | 80.62                    | 106.38                 | -25.76             | Peak     | VERTICAL     |
| 6              | 0.14           | 29.45                | 22.04                    | -0.01            | 51.48                    | 104.70                 | -53.22             | Peak     | VERTICAL     |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 300 Hz, VBW: 1 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\E3 6.111\2022 Report Data\Q22060621-2E MSQP\FCC  
BELOW 1G 9K-30M.EM6

Test Date : 2022-06-09

Tested By : James Gan

EUT : Wireless Charging Pad

Model Number : MSQP

Power Supply : AC 120V/60Hz

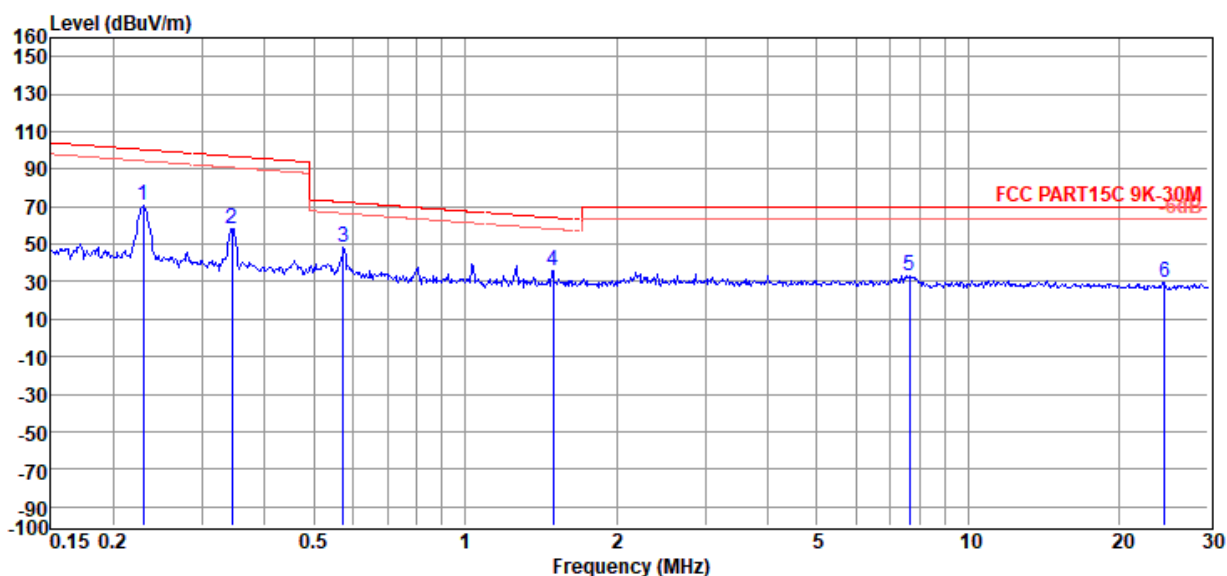
Test Mode : TX Mode

Condition : Temp:23°C,Humi:55.5%,Press:100.1kPa

Antenna/Distance : 2021 FMZB1519/3m/VERTICAL

Memo : Y axis

Data:  
4



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>dB | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 0.23           | 48.37                   | 21.95                       | 0.01                | 70.33                       | 100.40                    | -30.07                | Peak     | VERTICAL     |
| 2              | 0.34           | 36.68                   | 21.90                       | -0.02               | 58.56                       | 96.86                     | -38.30                | Peak     | VERTICAL     |
| 3              | 0.57           | 26.36                   | 21.87                       | -0.02               | 48.21                       | 72.44                     | -24.23                | Peak     | VERTICAL     |
| 4              | 1.50           | 13.87                   | 21.80                       | -0.10               | 35.57                       | 64.11                     | -28.54                | Peak     | VERTICAL     |
| 5              | 7.65           | 11.49                   | 21.88                       | 0.14                | 33.51                       | 69.54                     | -36.03                | Peak     | VERTICAL     |
| 6              | 24.53          | 7.85                    | 21.37                       | 0.22                | 29.44                       | 69.54                     | -40.10                | Peak     | VERTICAL     |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 10 kHz, VBW: 30 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\E3 6.111\2022 Report Data\Q22060621-2E MSQP\FCC  
BELOW 1G 9K-30M.EM6

Test Date : 2022-06-09

Tested By : James Gan

EUT : Wireless Charging Pad

Model Number : MSQP

Power Supply : AC 120V/60Hz

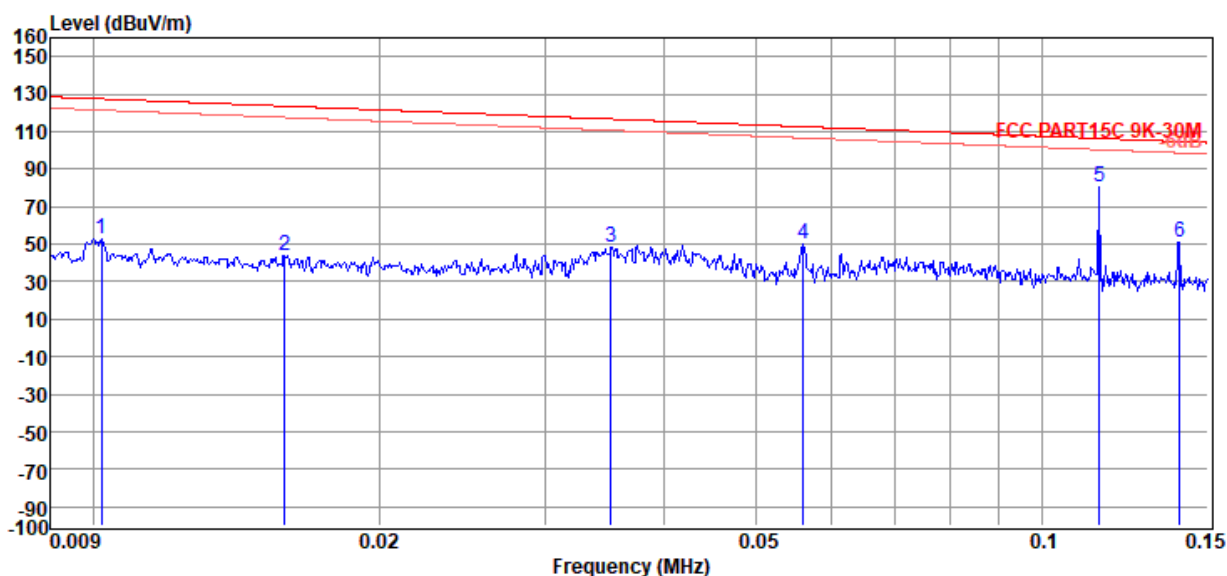
Test Mode : TX Mode

Condition : Temp:23°C,Humi:55.5%,Press:100.1kPa

Antenna/Distance : 2021 FMZB1519/3m/VERTICAL

Memo : Z axis

Data:  
5



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>dB | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 0.01           | 29.50                   | 23.37                       | 0.03                | 52.90                       | 127.44                    | -74.54                | Peak     | VERTICAL     |
| 2              | 0.02           | 21.26                   | 22.73                       | 0.01                | 44.00                       | 123.58                    | -79.58                | Peak     | VERTICAL     |
| 3              | 0.04           | 26.53                   | 21.95                       | -0.02               | 48.46                       | 116.69                    | -68.23                | Peak     | VERTICAL     |
| 4              | 0.06           | 28.12                   | 22.28                       | -0.03               | 50.37                       | 112.64                    | -62.27                | Peak     | VERTICAL     |
| 5              | 0.12           | 58.72                   | 22.07                       | -0.02               | 80.77                       | 106.38                    | -25.61                | Peak     | VERTICAL     |
| 6              | 0.14           | 28.93                   | 22.04                       | -0.01               | 50.96                       | 104.70                    | -53.74                | Peak     | VERTICAL     |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 300 Hz, VBW: 1 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\E3 6.111\2022 Report Data\Q22060621-2E MSQP\FCC  
BELOW 1G 9K-30M.EM6

Test Date : 2022-06-09

Tested By : James Gan

EUT : Wireless Charging Pad

Model Number : MSQP

Power Supply : AC 120V/60Hz

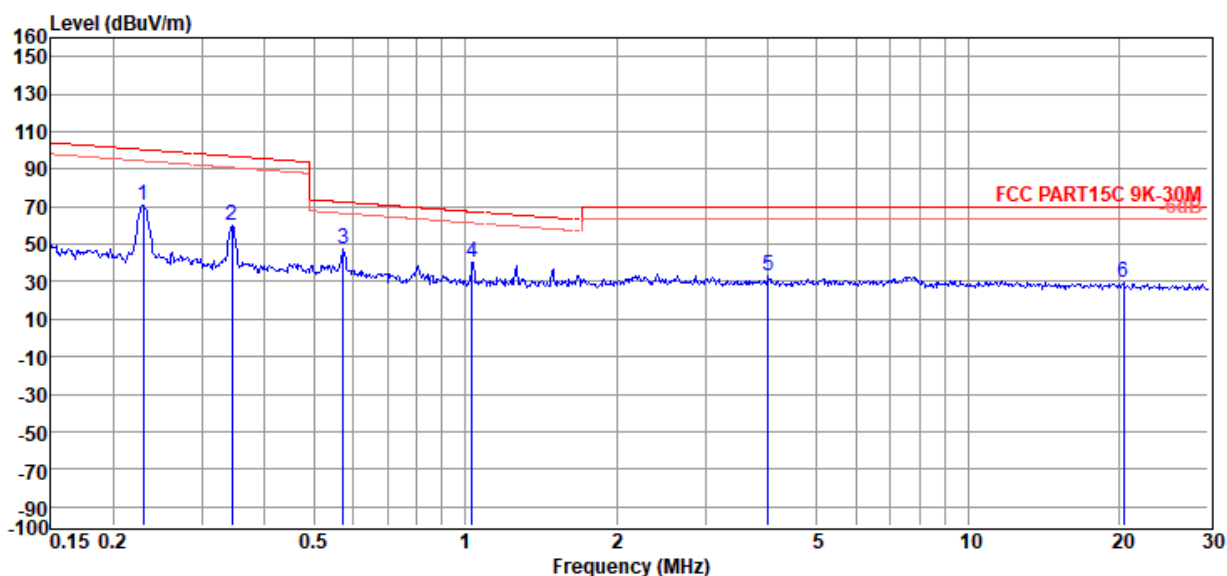
Test Mode : TX Mode

Condition : Temp:23°C,Humi:55.5%,Press:100.1kPa

Antenna/Distance : 2021 FMZB1519/3m/VERTICAL

Memo : Z axis

Data:  
6



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>dB | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 0.23           | 48.42                   | 21.95                       | 0.01                | 70.38                       | 100.40                    | -30.02                | Peak     | VERTICAL     |
| 2              | 0.34           | 37.85                   | 21.90                       | -0.02               | 59.73                       | 96.86                     | -37.13                | Peak     | VERTICAL     |
| 3              | 0.57           | 25.83                   | 21.87                       | -0.02               | 47.68                       | 72.44                     | -24.76                | Peak     | VERTICAL     |
| 4              | 1.03           | 18.58                   | 21.80                       | -0.10               | 40.28                       | 67.33                     | -27.05                | Peak     | VERTICAL     |
| 5              | 4.01           | 11.49                   | 21.80                       | 0.06                | 33.35                       | 69.54                     | -36.19                | Peak     | VERTICAL     |
| 6              | 20.38          | 7.19                    | 21.76                       | 0.21                | 29.16                       | 69.54                     | -40.38                | Peak     | VERTICAL     |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 10 kHz, VBW: 30 kHz, Sweep time: auto.

Above 30 MHz:

**TR-4-E-009 Radiated Emission Test Result**

Test Site : DDT 3m Chamber 3#

D:\E3 6.111\2022 Report Data\Q22060621-2E MSQP\FCC  
BELOW 1G.EM6

Test Date : 2022-06-10

Tested By : James Gan

EUT : Wireless Charging Pad

Model Number : MSQP

Power Supply : AV 120V/50Hz

Test Mode : TX Mode

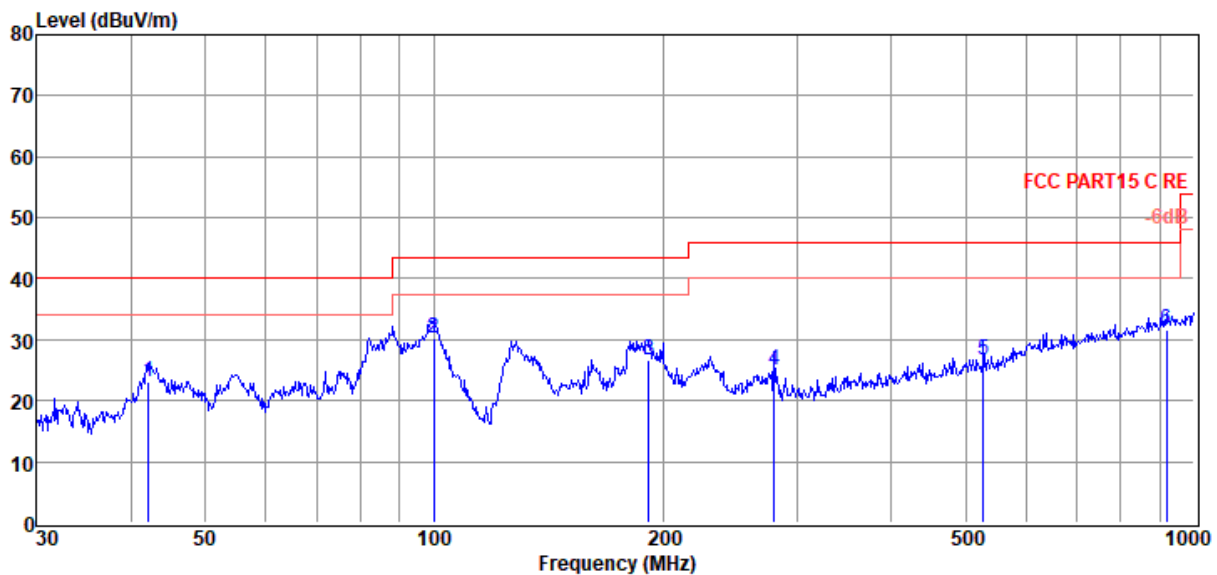
Condition : Temp:23.1°C,Humi:56%,Press:100.3kPa

Antenna/Distance : 2021 VLUB 9163 #3/3m/VERTICAL

Memo :

Data:

1



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>dB | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 42.15          | 5.48                    | 13.89                       | 3.63                | 23.00                       | 40.00                     | -17.00                | QP       | VERTICAL     |
| 2              | 99.88          | 14.68                   | 11.50                       | 3.98                | 30.16                       | 43.50                     | -13.34                | QP       | VERTICAL     |
| 3              | 191.75         | 11.28                   | 11.05                       | 4.42                | 26.75                       | 43.50                     | -16.75                | QP       | VERTICAL     |
| 4              | 280.02         | 7.53                    | 12.80                       | 4.76                | 25.09                       | 46.00                     | -20.91                | QP       | VERTICAL     |
| 5              | 528.25         | 3.72                    | 17.30                       | 5.54                | 26.56                       | 46.00                     | -19.44                | QP       | VERTICAL     |
| 6              | 919.29         | 2.56                    | 22.40                       | 6.52                | 31.48                       | 46.00                     | -14.52                | QP       | VERTICAL     |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



## TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\E3 6.111\2022 Report Data\Q22060621-2E MSQP\FCC  
BELOW 1G.EM6

Test Date : 2022-06-10

Tested By : James Gan

EUT : Wireless Charging Pad

Model Number : MSQP

Power Supply : AV 120V/50Hz

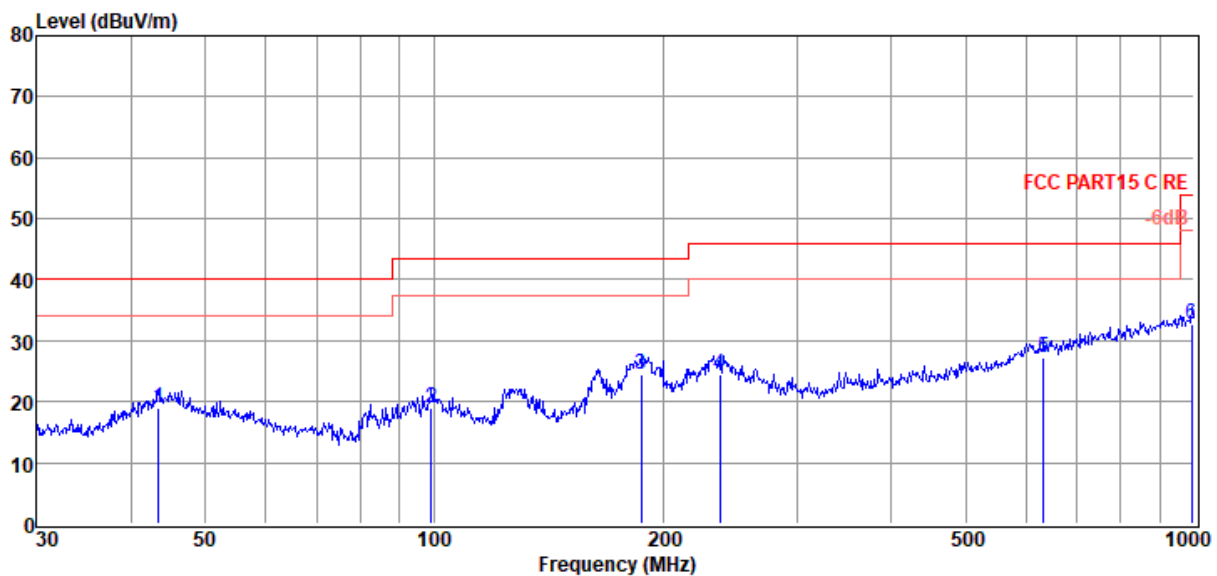
Test Mode : TX Mode

Condition : Temp:23.1°C,Humi:56%,Press:100.3kPa

Antenna/Distance : 2021 VLUB 9163 #3/3m/HORIZONTAL

Memo :

Data:  
2



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>(dB/m) | Cable<br>Loss<br>dB | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 43.35          | 0.63                    | 14.61                       | 3.64                | 18.88                       | 40.00                     | -21.12                | QP       | HORIZONTAL   |
| 2              | 99.18          | 3.50                    | 11.50                       | 3.98                | 18.98                       | 43.50                     | -24.52                | QP       | HORIZONTAL   |
| 3              | 187.10         | 9.78                    | 10.22                       | 4.40                | 24.40                       | 43.50                     | -19.10                | QP       | HORIZONTAL   |
| 4              | 237.48         | 7.49                    | 12.40                       | 4.61                | 24.50                       | 46.00                     | -21.50                | QP       | HORIZONTAL   |
| 5              | 633.91         | 2.50                    | 18.88                       | 5.82                | 27.20                       | 46.00                     | -18.80                | QP       | HORIZONTAL   |
| 6              | 993.01         | 3.38                    | 22.40                       | 6.80                | 32.58                       | 54.00                     | -21.42                | QP       | HORIZONTAL   |

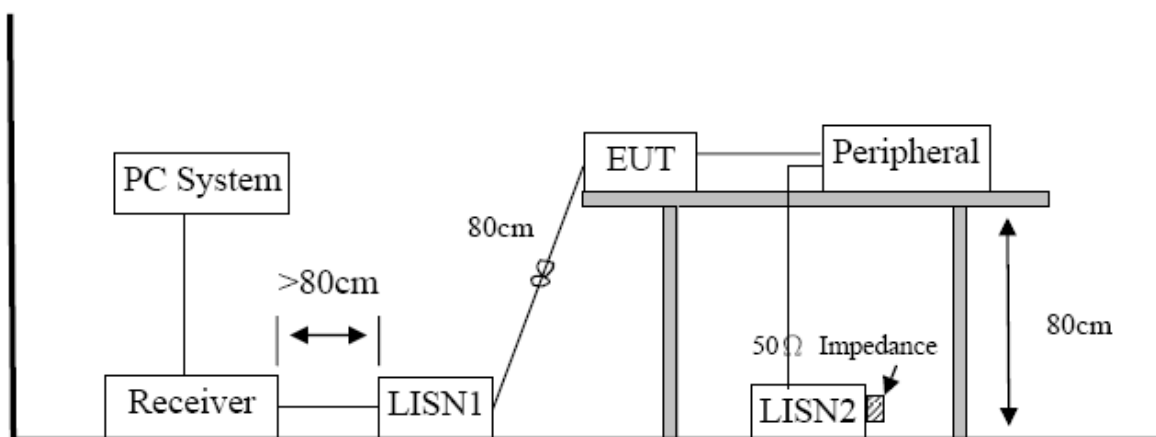
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

## 6 Power Line Conducted Emission

### 6.1. Block diagram of test setup



### 6.2. Power line conducted emission limits

| Frequency         | Quasi-Peak Level<br>dB(μV) | Average Level<br>dB(μV) |
|-------------------|----------------------------|-------------------------|
| 150 kHz ~ 500 kHz | 66 ~ 56*                   | 56 ~ 46*                |
| 500 kHz ~ 5 MHz   | 56                         | 46                      |
| 5 MHz ~ 30 MHz    | 60                         | 50                      |

Note 1: \* Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

### 6.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80 cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were

recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

#### **6.4. Test result**

**Pass. (See below detailed test result)**

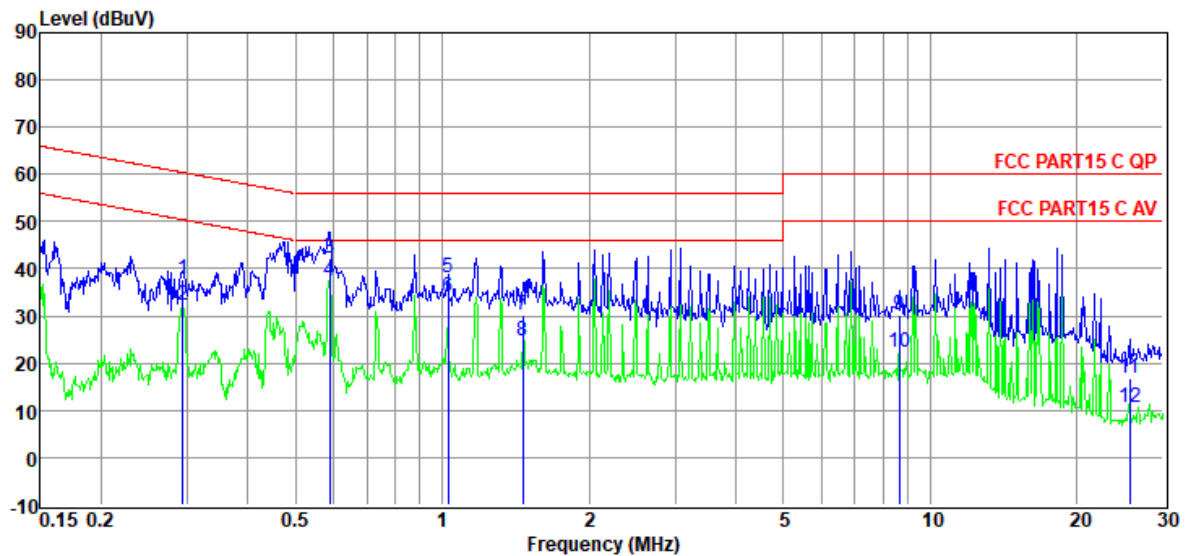
Note1: All emissions not reported below are too low against the prescribed limits.

Note2: “----” means Peak detection; “-----” means Average detection.

Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/60Hz, recorded worse case (AC 120V/60Hz).

## TR-4-E-010 Conducted Emission Test Result

**Test Site** : DDT 1# Shield Room **D:\2022 CE report date\Q22060621-2E MSQP\FCC.EM6**  
**Test Date** : 2022-06-08 **Tested By** : James Gan  
**EUT** : Wireless Charging Pad **Model Number** : MSQP  
**Power Supply** : AC 120V/60Hz **Test Mode** : TX  
**Condition** : TEMP:23.8°C, RH:62.0%, BP:101.2kPa **LISN** : 2021 1# ENV216/LINE  
**Memo** :



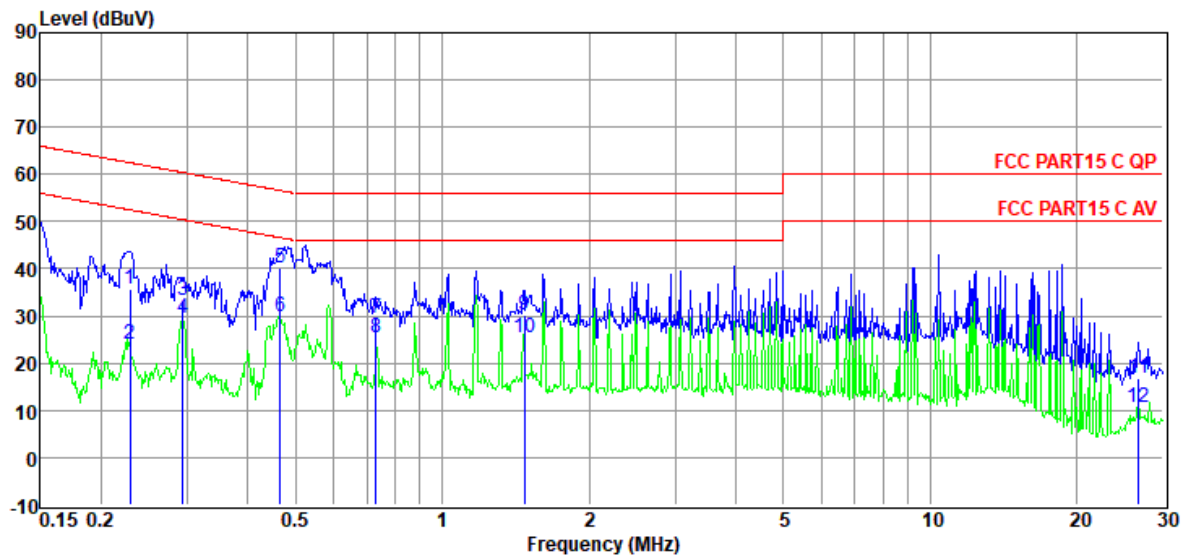
| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Limiter<br>Factor<br>(dB) | Result<br>Level<br>(dBμV) | Limit<br>Line<br>(dBμV) | Over<br>Limit<br>(dB) | Detector | Phase |
|----------------|----------------|-------------------------|------------------------|-----------------------|------------------------------------|---------------------------|-------------------------|-----------------------|----------|-------|
| 1              | 0.29           | 18.28                   | 9.72                   | 0.02                  | 9.92                               | 37.94                     | 60.41                   | -22.47                | QP       | LINE  |
| 2              | 0.29           | 12.50                   | 9.72                   | 0.02                  | 9.92                               | 32.16                     | 50.41                   | -18.25                | Average  | LINE  |
| 3              | 0.59           | 22.66                   | 9.55                   | 0.02                  | 9.91                               | 42.14                     | 56.00                   | -13.86                | QP       | LINE  |
| 4              | 0.59           | 17.97                   | 9.55                   | 0.02                  | 9.91                               | 37.45                     | 46.00                   | -8.55                 | Average  | LINE  |
| 5              | 1.03           | 18.70                   | 9.60                   | 0.03                  | 9.89                               | 38.22                     | 56.00                   | -17.78                | QP       | LINE  |
| 6              | 1.03           | 14.43                   | 9.60                   | 0.03                  | 9.89                               | 33.95                     | 46.00                   | -12.05                | Average  | LINE  |
| 7              | 1.46           | 10.83                   | 9.55                   | 0.04                  | 9.89                               | 30.31                     | 56.00                   | -25.69                | QP       | LINE  |
| 8              | 1.46           | 5.20                    | 9.55                   | 0.04                  | 9.89                               | 24.68                     | 46.00                   | -21.32                | Average  | LINE  |
| 9              | 8.64           | 10.66                   | 9.50                   | 0.10                  | 9.94                               | 30.20                     | 60.00                   | -29.80                | QP       | LINE  |
| 10             | 8.64           | 2.83                    | 9.50                   | 0.10                  | 9.94                               | 22.37                     | 50.00                   | -27.63                | Average  | LINE  |
| 11             | 25.59          | -2.92                   | 9.66                   | 0.19                  | 9.98                               | 16.91                     | 60.00                   | -43.09                | QP       | LINE  |
| 12             | 25.59          | -9.12                   | 9.66                   | 0.19                  | 9.98                               | 10.71                     | 50.00                   | -39.29                | Average  | LINE  |

Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

## TR-4-E-010 Conducted Emission Test Result

**Test Site** : DDT 1# Shield Room **D:\2022 CE report date\Q22060621-2E MSQP\FCC.EM6**  
**Test Date** : 2022-06-08 **Tested By** : James Gan  
**EUT** : Wireless Charging Pad **Model Number** : MSQP  
**Power Supply** : AC 120V/60Hz **Test Mode** : TX  
**Condition** : TEMP:23.8°C, RH:62.0%, BP:101.2kPa **LISN** : 2021 1# ENV216/NEUTRAL  
**Memo** :



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Limiter<br>Factor<br>(dB) | Result<br>Level<br>(dBμV) | Limit<br>Line<br>(dBμV) | Over<br>Limit<br>(dB) | Detector | Phase   |
|----------------|----------------|-------------------------|------------------------|-----------------------|------------------------------------|---------------------------|-------------------------|-----------------------|----------|---------|
| 1              | 0.23           | 16.02                   | 9.76                   | 0.02                  | 9.92                               | 35.72                     | 62.48                   | -26.76                | QP       | NEUTRAL |
| 2              | 0.23           | 4.21                    | 9.76                   | 0.02                  | 9.92                               | 23.91                     | 52.48                   | -28.57                | Average  | NEUTRAL |
| 3              | 0.29           | 13.65                   | 9.67                   | 0.02                  | 9.92                               | 33.26                     | 60.41                   | -27.15                | QP       | NEUTRAL |
| 4              | 0.29           | 9.81                    | 9.67                   | 0.02                  | 9.92                               | 29.42                     | 50.41                   | -20.99                | Average  | NEUTRAL |
| 5              | 0.47           | 20.89                   | 9.52                   | 0.02                  | 9.91                               | 40.34                     | 56.58                   | -16.24                | QP       | NEUTRAL |
| 6              | 0.47           | 10.24                   | 9.52                   | 0.02                  | 9.91                               | 29.69                     | 46.58                   | -16.89                | Average  | NEUTRAL |
| 7              | 0.73           | 9.78                    | 9.79                   | 0.03                  | 9.91                               | 29.51                     | 56.00                   | -26.49                | QP       | NEUTRAL |
| 8              | 0.73           | 5.52                    | 9.79                   | 0.03                  | 9.91                               | 25.25                     | 46.00                   | -20.75                | Average  | NEUTRAL |
| 9              | 1.47           | 10.70                   | 9.64                   | 0.04                  | 9.89                               | 30.27                     | 56.00                   | -25.73                | QP       | NEUTRAL |
| 10             | 1.47           | 5.72                    | 9.64                   | 0.04                  | 9.89                               | 25.29                     | 46.00                   | -20.71                | Average  | NEUTRAL |
| 11             | 26.70          | -3.30                   | 9.87                   | 0.20                  | 9.99                               | 16.76                     | 60.00                   | -43.24                | QP       | NEUTRAL |
| 12             | 26.70          | -9.61                   | 9.87                   | 0.20                  | 9.99                               | 10.45                     | 50.00                   | -39.55                | Average  | NEUTRAL |

Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

## 7 Antenna Requirements

For intentional device, according to FCC 47 CFR Section 15.203, 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.

Conclusion: The antenna used for this product is inductive loop coil antenna and that no antenna other than that furnished by the responsible party shall be used with the device.