



TEST REPORT

FCC ID: 2A9AW-TL02

Applicant: zhu hai wen er ke ji you xian gong si
Address: PING DONG ER LU 8 HAO CHENG XING CHE JIAN (A DONG) 2 LOU 214 FANG JIAN,
NANPING ZHUHAI GUANGDONG CHINA 519000
Manufacturer: zhu hai wen er ke ji you xian gong si
Address: PING DONG ER LU 8 HAO CHENG XING CHE JIAN (A DONG) 2 LOU 214 FANG JIAN,
NANPING ZHUHAI GUANGDONG CHINA 519000
EUT: 3 IN 1 Fast Wireless Charger
Trade Mark: TELSOR
Model Number: TL02
Date of Receipt: Dec. 05, 2022
Test Date: Dec. 05, 2022 - Dec. 17, 2022
Date of Report: Dec. 17, 2022
Prepared By: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong
Street, Longgang District, Shenzhen, Guangdong, China
Applicable Standards: FCC PART 15 Subpart C
ANSI C63.10:2013
Test Result: Pass
Report Number: DL-20221217016E

Prepared (Engineer): Lily Fu
Reviewer (Supervisor): Jack Bu
Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



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**1. VERSION**

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 00 | Dec. 17, 2022 | Original |
| | | |
| | | |

2. TEST SUMMARY

| EMC Emission | | | |
|----------------------------------|-------------------|--------|--------|
| Test Item | Section in CFR 47 | Result | Remark |
| AC Power Line Conducted Emission | 15.207 | PASS | |
| Spurious Emission | 15.209(a)(f) | PASS | |
| 20dB Bandwidth | 15.215 | PASS | |
| Antenna requirement | 15.203 | PASS | |

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

(2) Test Facility: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone,
Baolong Street, Longgang District, Shenzhen, Guangdong, China



3. GENERAL INFORMATION

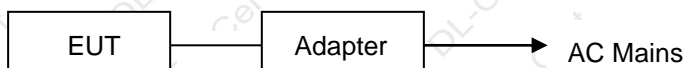
3.1 Description of Device (EUT)

Product Name: 3 IN 1 Fast Wireless Charger
Trade Mark: TELSOR
Model No.: TL02
Model Difference: N/A
Serial No.: N/A
Hardware version: H1.0
Software version: S1.0
Operation Frequency: 115kHz ~ 205KHz
Modulation type: MSK
Antenna Type: Inductive loop coil Antenna
Antenna gain: 0dBi
Power supply: Input: DC 9V/2A, 12V/1.5A or 12V/2A
Phone Output: 5W/7.5W/10W/15W
Earphone Output: 3W
Iwatch Output: 2.5W

3.2 Tested System Details

None.

3.3 Block Diagram of Test Set-up



3.4 Test Mode Description

- Mode1. Phone Wireless Charge Mode
- Mode2. Headphone Wireless Charge Mode
- Mode3. Watch Wireless Charge Mode
- Mode4. Phone+Headphone Wireless Charge Mode
- Mode5. Phone+Watch Wireless Charge Mode
- Mode6. Headphone+Watch Wireless Charge Mode
- Mode7. Phone+Headphone+Watch Wireless Charge Mode

Note: We have evaluated 1%, 50% and 99% battery charging mode, and the worst mode (99%) is showed in this report.



3.5 Test Auxiliary Equipment

Adapter (Provide by test lab):

Manufacturer: XIAOMI

Model: AD65G

I/P: AC 100-240V 50/60Hz

O/P: DC 5V/3A, DC 9V/3A, DC 10V/5A, DC 12V/3A,

DC 15V/3A, DC 20V/3.25A

Watch (Provide by test lab):

Manufacturer: Apple

Model: Series 6

Mobile phone (Provide by test lab):

Manufacturer: SAMSUNG

Model: Galaxy S21 5G

Headset (Provide by test lab):

Manufacturer: Apple

Model: AirPods Pro

3.6 Test Uncertainty

Conducted Emission Uncertainty(150KHz-30MHz) : $\pm 2.56\text{dB}$

20dB Bandwidth : $\pm 0.5\text{kHz}$

Radiated Emission Uncertainty(9KHz-1GHz) : $\pm 3.24\text{dB}$

**4. TEST INSTRUMENT USED****For Conducted Emission Test (843 Shielded Room)**

| Equipment | Manufacturer | Model | Serial | Last Cal. | Next Cal. |
|-------------------|--------------|-----------|--------|---------------|---------------|
| 843 Shielded Room | ChengYu | 843 Room | 843 | Sep. 20, 2022 | Sep. 19, 2025 |
| EMI Receiver | R&S | ESR | 101421 | Nov. 05, 2022 | Nov. 04, 2023 |
| LISN | R&S | ENV216 | 102417 | Nov. 05, 2022 | Nov. 04, 2023 |
| Clamp | COM-POWER | CLA-050 | 431071 | Nov. 05, 2022 | Nov. 04, 2023 |
| 3-Loop Antenna | DAZE | ZN30401 | 13021 | Nov. 05, 2022 | Nov. 04, 2023 |
| ISN T8 | Schwarzbeck | NTFM 8158 | 101135 | Nov. 05, 2022 | Nov. 04, 2023 |
| ISN T5 | Schwarzbeck | NTFM 8158 | 101136 | Nov. 05, 2022 | Nov. 04, 2023 |
| 843 Cable 1# | ChengYu | CE Cable | 001 | Nov. 05, 2022 | Nov. 04, 2023 |
| 843 Cable 1# | ChengYu | CE Cable | 002 | Nov. 05, 2022 | Nov. 04, 2023 |

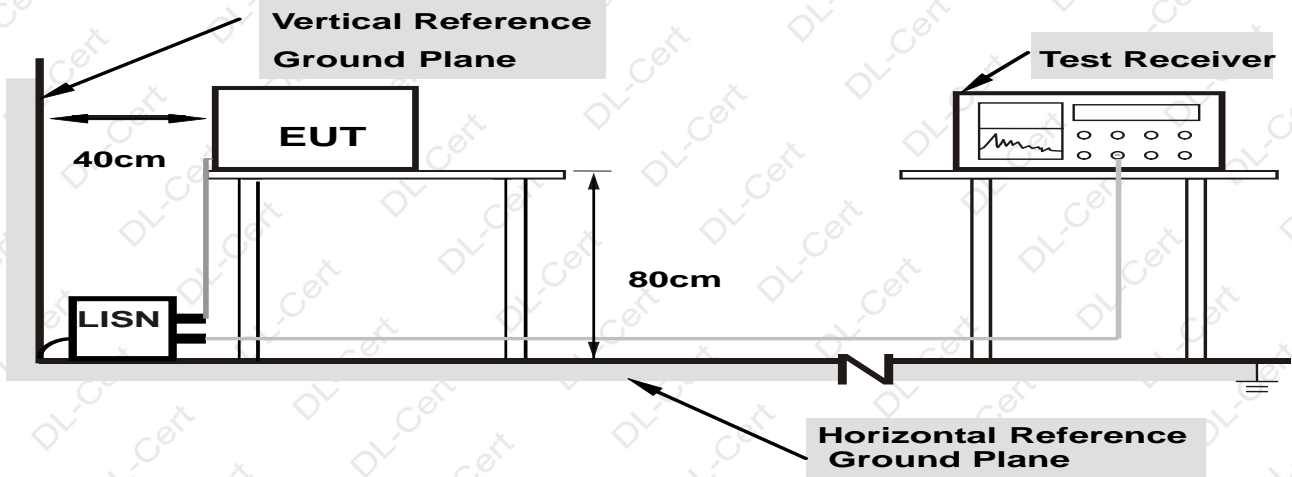
For Radiated Emission Test (966 chamber)

| Equipment | Manufacturer | Model | Serial | Last Cal. | Next Cal. |
|--------------------------|--------------|-----------|------------|---------------|---------------|
| 966 Chamber | ChengYu | 966 Room | 966 | Sep. 20, 2022 | Sep. 19, 2025 |
| Spectrum Analyzer | Agilent | E4408B | MY50140780 | Nov. 05, 2022 | Nov. 04, 2023 |
| EMI Receiver | R&S | ESRP7 | 101393 | Nov. 05, 2022 | Nov. 04, 2023 |
| Amplifier | Schwarzbeck | BBV9743B | 00153 | Nov. 05, 2022 | Nov. 04, 2023 |
| Amplifier | EMEC | EM01G8GA | 00270 | Nov. 05, 2022 | Nov. 04, 2023 |
| Broadband Trilog Antenna | Schwarzbeck | VULB9162 | 00306 | Nov. 05, 2022 | Nov. 04, 2023 |
| Horn Antenna | Schwarzbeck | BBHA9120D | 02139 | Nov. 05, 2022 | Nov. 04, 2023 |
| Loop Antenna | ZHINAN | ZN30900A | / | Nov. 05, 2022 | Nov. 04, 2023 |
| 966 Cable 1# | ChengYu | 966 | 004 | Nov. 05, 2022 | Nov. 04, 2023 |
| 966 Cable 2# | ChengYu | 966 | 003 | Nov. 05, 2022 | Nov. 04, 2023 |

5. CONDUCTED EMISSION TEST

5.1 Block Diagram of Test Setup

For Mains Terminals Test



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

5.2 Test Standard and Limit

FCC Part 15 Subpart C

| Frequency MHz | Limits dB(μV) | |
|------------------|------------------|---------------|
| | Quasi-peak Level | Average Level |
| 0.15~0.50 | 66 ~ 56* | 55 ~ 46* |
| 0.50~5.00 | 56 | 46 |
| 5.00~30.00 | 60 | 50 |

Notes: 1. *Decreasing linearly with logarithm of frequency.

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

5.3 EUT Configuration on Test

The following equipment's are installed on conducted emission test to meet FCC Part 15 Subpart C requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

5.4 Operating Condition of EUT

5.4.1 Setup the EUT and simulators as shown in Section 5.1.

5.4.2 Turn on the power of all equipments.

5.4.3 Let the EUT work in test modes and test it.



5.5 Test Procedure

The EUT is put on the table and connected to the AC mains through a Artificial Mains Network (AMN) or ISN. This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **ANSI C63.4** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESR) is set at 10KHz.

The frequency range from 150 KHz to 30 MHz is investigated.

Notes:

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Measurement Level = Reading level + Correct Factor

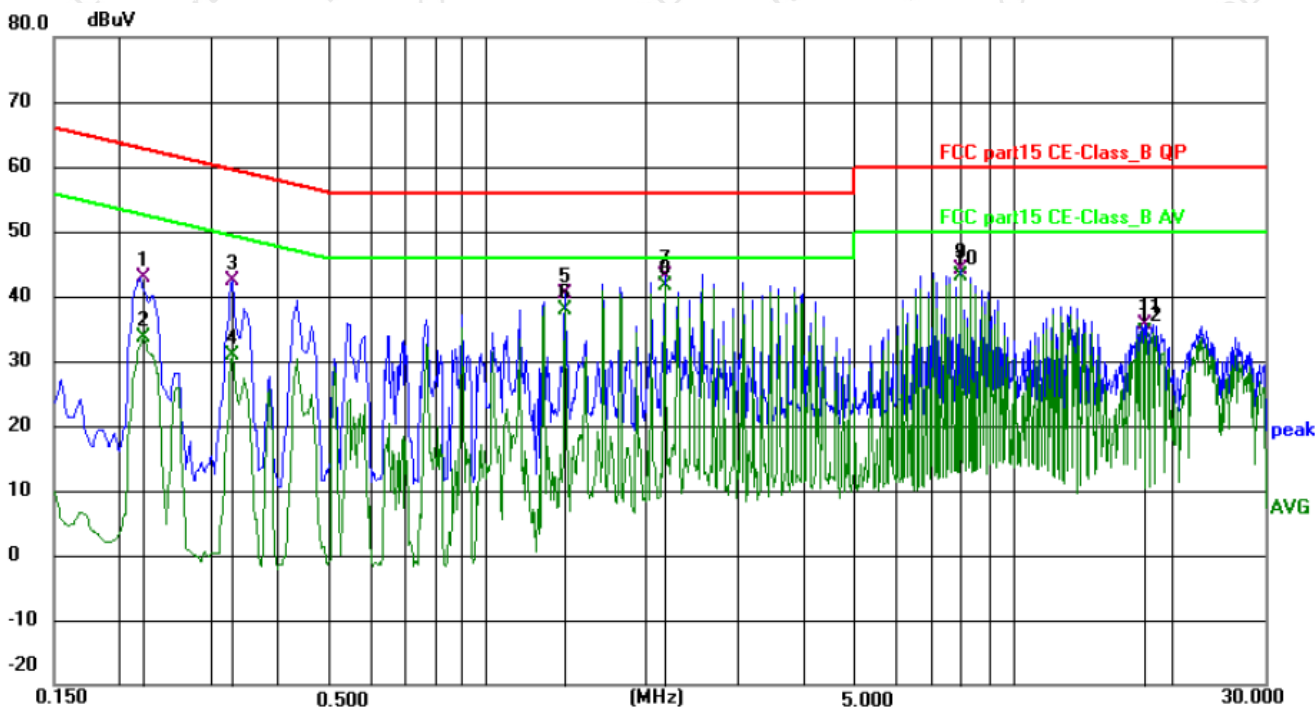
5.6 Test Result

PASS

Please refer to the following page.



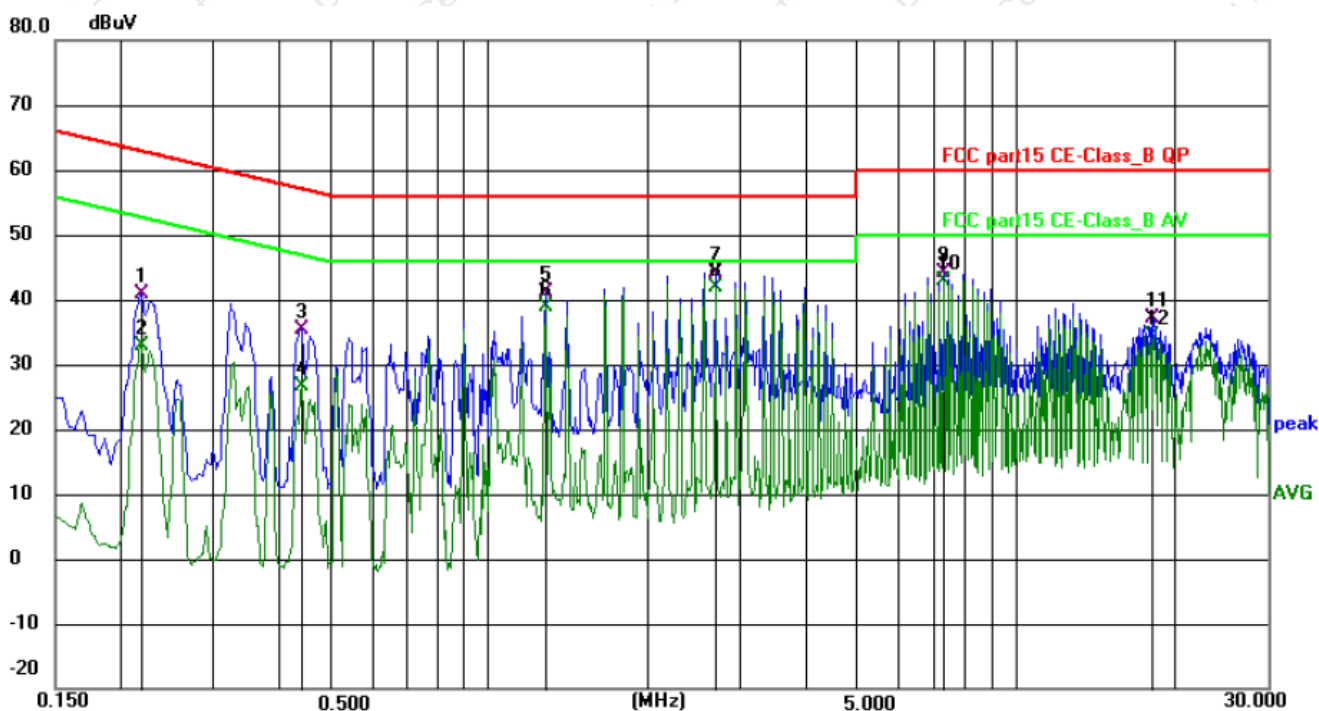
| Conducted Emission Test Data | | | |
|------------------------------|--------------|--------------------|--------|
| Temperature: | 24.5 °C | Relative Humidity: | 54% |
| Pressure: | 1009hPa | Phase: | Line |
| Test Voltage: | AC 120V/60Hz | Test Mode: | Mode 7 |



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1 | 0.222000 | 33.37 | 9.41 | 42.78 | 62.74 | -19.96 | QP | P | |
| 2 | 0.222000 | 24.14 | 9.41 | 33.55 | 52.74 | -19.19 | AVG | P | |
| 3 | 0.325500 | 33.37 | 9.03 | 42.40 | 59.57 | -17.17 | QP | P | |
| 4 | 0.325500 | 21.84 | 9.03 | 30.87 | 49.57 | -18.70 | AVG | P | |
| 5 | 1.405500 | 30.82 | 9.52 | 40.34 | 56.00 | -15.66 | QP | P | |
| 6 | 1.405500 | 28.27 | 9.52 | 37.79 | 46.00 | -8.21 | AVG | P | |
| 7 | 2.175000 | 33.54 | 9.64 | 43.18 | 56.00 | -12.82 | QP | P | |
| 8 * | 2.175000 | 32.00 | 9.64 | 41.64 | 46.00 | -4.36 | AVG | P | |
| 9 | 7.926000 | 34.33 | 9.79 | 44.12 | 60.00 | -15.88 | QP | P | |
| 10 | 7.926000 | 33.37 | 9.79 | 43.16 | 50.00 | -6.84 | AVG | P | |
| 11 | 17.772000 | 25.39 | 10.28 | 35.67 | 60.00 | -24.33 | QP | P | |
| 12 | 17.772000 | 24.00 | 10.28 | 34.28 | 50.00 | -15.72 | AVG | P | |



| Conducted Emission Test Data | | | |
|------------------------------|--------------|--------------------|---------|
| Temperature: | 24.5 °C | Relative Humidity: | 54% |
| Pressure: | 1009hPa | Phase: | Neutral |
| Test Voltage: | AC 120V/60Hz | Test Mode: | Mode 7 |

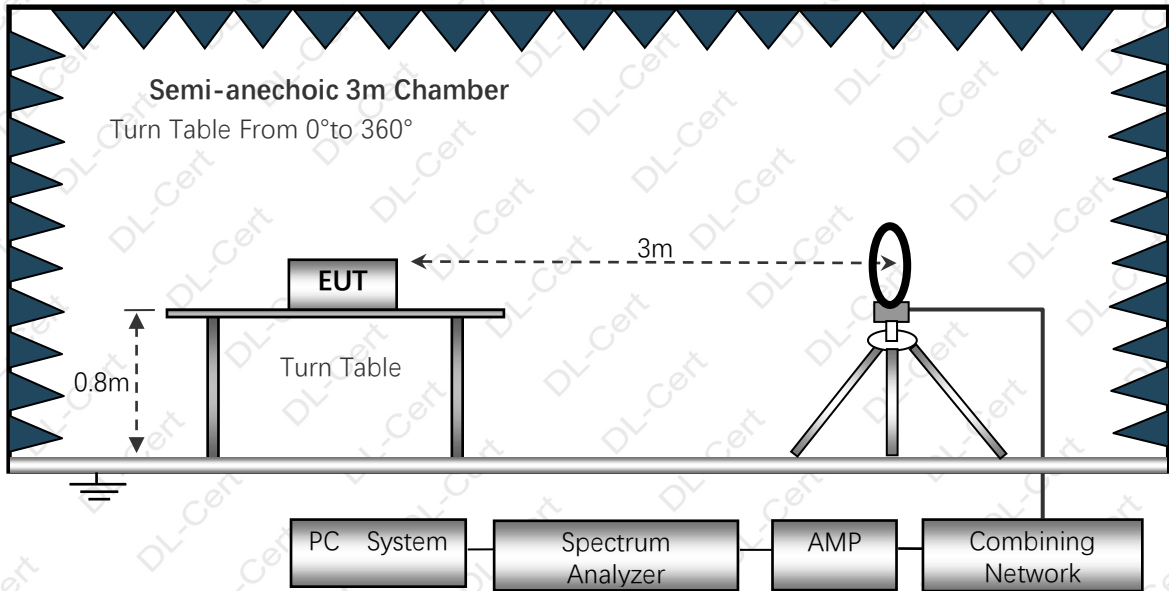


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1 | 0.217400 | 32.01 | 8.89 | 40.90 | 62.92 | -22.02 | QP | P | |
| 2 | 0.217400 | 24.03 | 8.89 | 32.92 | 52.92 | -20.00 | AVG | P | |
| 3 | 0.438000 | 26.09 | 9.29 | 35.38 | 57.10 | -21.72 | QP | P | |
| 4 | 0.438000 | 17.46 | 9.29 | 26.75 | 47.10 | -20.35 | AVG | P | |
| 5 | 1.279500 | 31.55 | 9.53 | 41.08 | 56.00 | -14.92 | QP | P | |
| 6 | 1.279500 | 29.39 | 9.53 | 38.92 | 46.00 | -7.08 | AVG | P | |
| 7 | 2.688000 | 34.21 | 9.83 | 44.04 | 56.00 | -11.96 | QP | P | |
| 8 * | 2.688000 | 32.16 | 9.83 | 41.99 | 46.00 | -4.01 | AVG | P | |
| 9 | 7.291500 | 34.26 | 9.88 | 44.14 | 60.00 | -15.86 | QP | P | |
| 10 | 7.291500 | 32.89 | 9.88 | 42.77 | 50.00 | -7.23 | AVG | P | |
| 11 | 18.293900 | 26.64 | 10.38 | 37.02 | 60.00 | -22.98 | QP | P | |
| 12 | 18.293900 | 24.02 | 10.38 | 34.40 | 50.00 | -15.60 | AVG | P | |

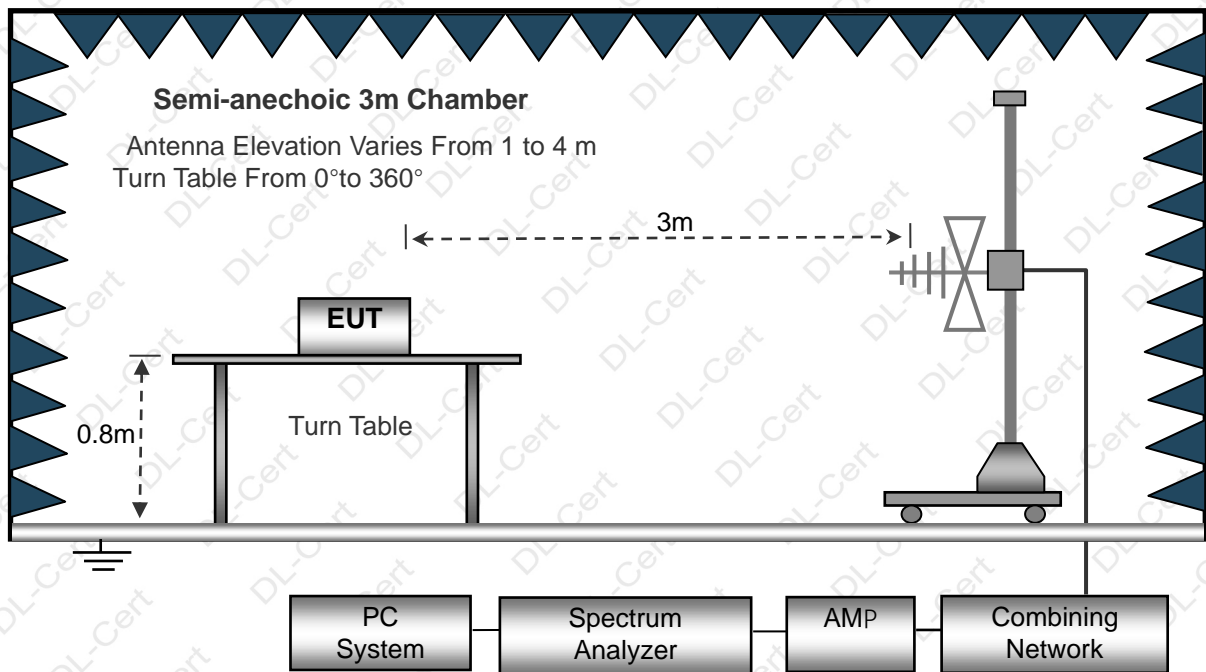
6. RADIATION EMISSION TEST

6.1 Block Diagram of Test Setup

Radiated Emission Test-Up Frequency Below 30MHz



Below 1GHz



6.2 Test Standard and Limit

FCC Part 15 Subpart C



Limits for frequency below 30MHz

| Frequency | Limit (uV/m) | Measurement Distance(m) | Remark |
|-------------|--------------|-------------------------|------------------|
| 0.009-0.090 | 2400/F(kHz) | 300 | AVERAGE |
| 0.090-0.110 | 2400/F(kHz) | 300 | Quasi-peak Value |
| 0.110-0.490 | 2400/F(kHz) | 300 | AVERAGE |
| 0.490-1.705 | 24000/F(kHz) | 30 | Quasi-peak Value |
| 1.705-30 | 30 | 30 | Quasi-peak Value |

Above 30MHz

| Frequency (MHz) | Distance (Meters) | Field Strengths Limits (dBμV/m) | Remark |
|-----------------|-------------------|---------------------------------|------------------|
| 30 ~ 88 | 3 | 40.0 | Quasi-peak Value |
| 88 ~ 216 | 3 | 43.5 | Quasi-peak Value |
| 216 ~ 960 | 3 | 46.0 | Quasi-peak Value |
| 960 ~ 1000 | 3 | 54.0 | Quasi-peak Value |
| Above 1000 | 3 | 74.0 | PEAK |
| | | 54.0 | AVERAGE |

Remark:

(1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument, antenna and the closed point of any part of the device or system.

6.3 EUT Configuration on Test

The FCC Part 15 Subpart C regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 5.3.

6.4 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 5.4 except the test set up replaced as Section 6.2.

6.5 Test Procedure

1) The radiated emissions test was conducted in a semi-anechoic chamber.

2) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

3) Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.

4) The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

5) The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz.

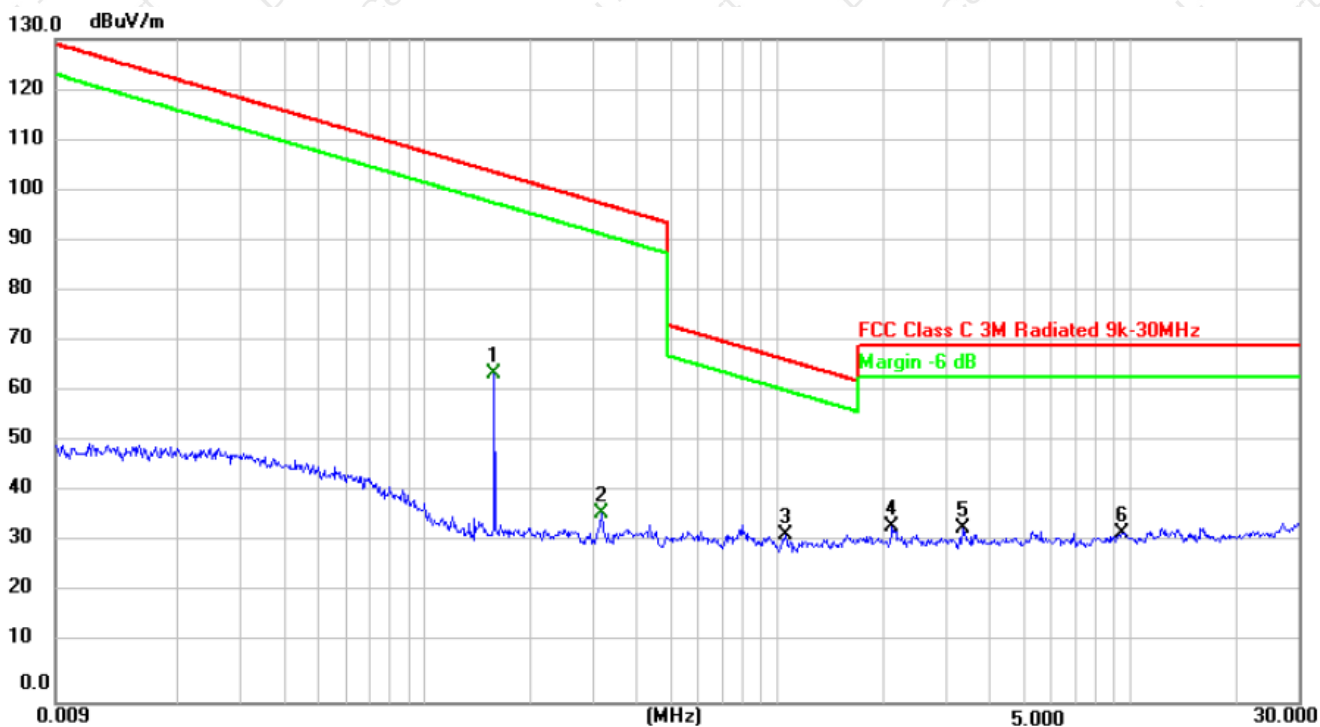
6) The frequency range from 30MHz to 1000MHz is checked.

6.6 Test Result

PASS, Please refer to the following page.



| Radiation Emission Test Data 9 kHz~30 MHz | | | |
|---|--------------|--------------------|--------|
| Temperature: | 24.5 °C | Relative Humidity: | 54% |
| Pressure: | 1009hPa | Polarization: | / |
| Test Voltage: | AC 120V/60Hz | Test Mode: | Mode 7 |



| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 0.1575 | 64.54 | 20.11 | 84.65 | 103.94 | -19.29 | AVERAGE |
| 0.3168 | 37.14 | 20.22 | 57.36 | 97.82 | -40.46 | QP |
| 1.0523 | 30.85 | 20.32 | 51.17 | 67.26 | -16.09 | QP |
| 2.1141 | 30.24 | 20.39 | 50.63 | 70 | -19.37 | QP |
| 3.3570 | 27.41 | 20.47 | 47.88 | 70 | -22.12 | QP |
| 9.4814 | 14.51 | 20.58 | 35.09 | 70 | -34.91 | QP |

Note:

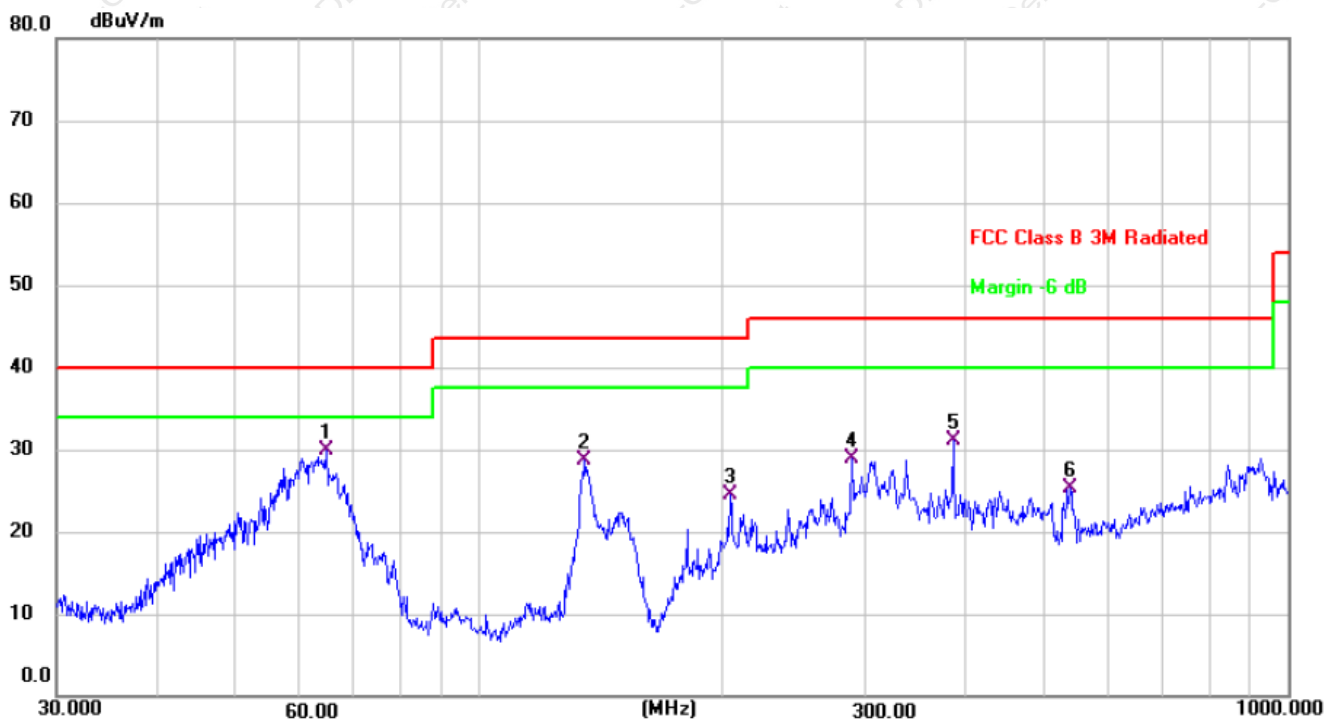
Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

Margin = Emission Level(Meter Reading+ Factor) - Limit.



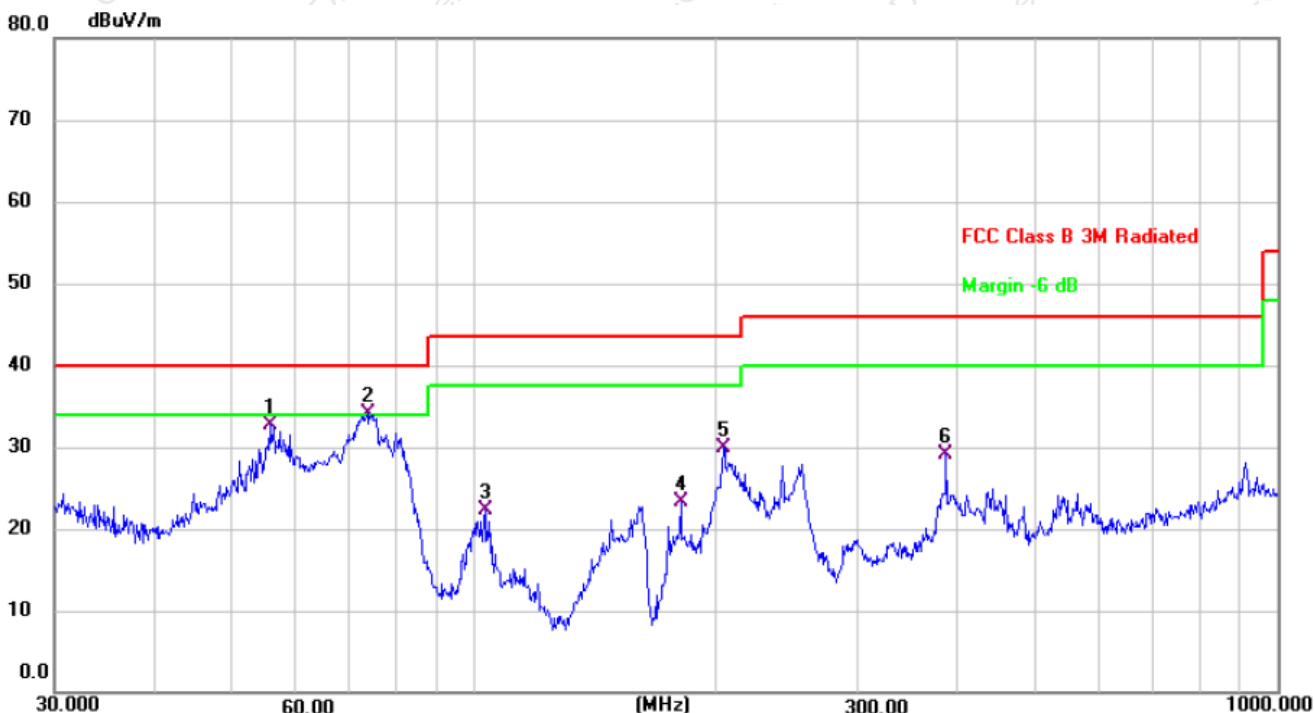
| Radiation Emission Test Data | | | |
|------------------------------|--------------|--------------------|------------|
| Temperature: | 24.5 °C | Relative Humidity: | 54% |
| Pressure: | 1009hPa | Polarization: | Horizontal |
| Test Voltage: | AC 120V/60Hz | Test Mode: | Mode 7 |



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dB/m | Margin dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|--------------|----------|
| 1 | * | 64.6594 | 42.33 | -12.44 | 29.89 | 40.00 | -10.11 | QP |
| 2 | | 135.0319 | 44.75 | -16.02 | 28.73 | 43.50 | -14.77 | QP |
| 3 | | 204.2377 | 37.71 | -13.17 | 24.54 | 43.50 | -18.96 | QP |
| 4 | | 289.0021 | 39.87 | -10.93 | 28.94 | 46.00 | -17.06 | QP |
| 5 | | 385.2805 | 40.58 | -9.50 | 31.08 | 46.00 | -14.92 | QP |
| 6 | | 537.5891 | 31.64 | -6.36 | 25.28 | 46.00 | -20.72 | QP |



| Radiation Emission Test Data | | | |
|------------------------------|--------------|--------------------|----------|
| Temperature: | 24.5 °C | Relative Humidity: | 54% |
| Pressure: | 1009hPa | Polarization: | Vertical |
| Test Voltage: | AC 120V/60Hz | Test Mode: | Mode 7 |



| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dB/m | Margin dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|--------------|----------|
| 1 | | 55.6094 | 44.35 | -11.59 | 32.76 | 40.00 | -7.24 | QP |
| 2 | * | 73.6170 | 49.99 | -15.81 | 34.18 | 40.00 | -5.82 | QP |
| 3 | | 103.0800 | 37.61 | -15.33 | 22.28 | 43.50 | -21.22 | QP |
| 4 | | 180.6488 | 37.63 | -14.42 | 23.21 | 43.50 | -20.29 | QP |
| 5 | | 204.2377 | 42.76 | -12.83 | 29.93 | 43.50 | -13.57 | QP |
| 6 | | 386.6338 | 37.60 | -8.48 | 29.12 | 46.00 | -16.88 | QP |

Remarks:

1. Final Level = Receiver Read level + Correct factor (Antenna Factor + Cable Loss – Pre-amplifier Factor)
2. The emission levels of other frequencies are very lower than the limit and not show in test report.



7. BANDWIDTH TEST

7.1 TEST SETUP

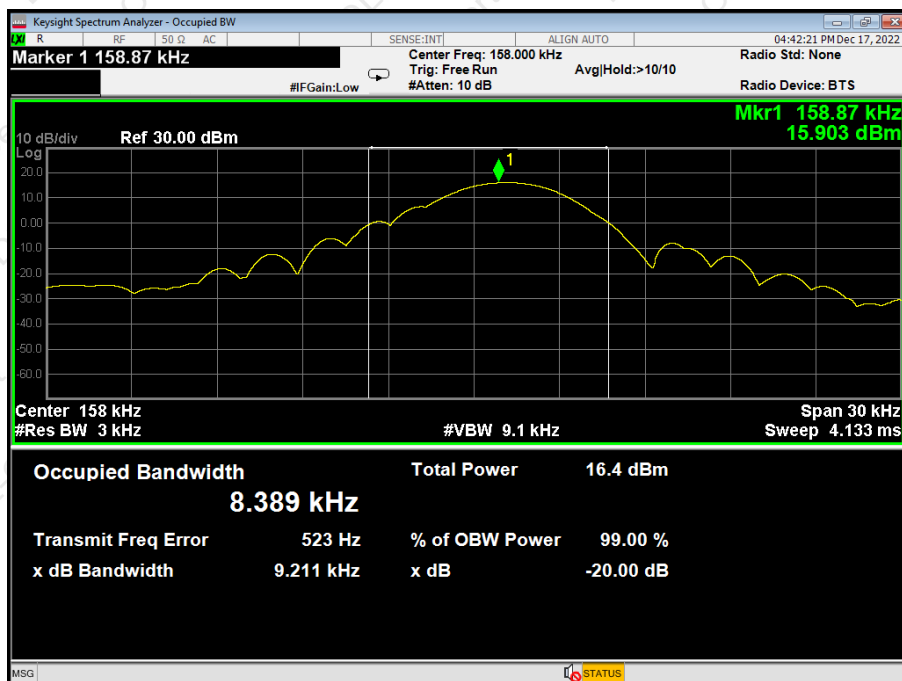
1. Set RBW = 3kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

7.2 TEST SETUP



7.3 TEST Result

| Frequency (KHz) | 20dB bandwidth (KHz) | Result |
|-----------------|----------------------|--------|
| 158 | 9.211 | Pass |





8. SETUP PHOTOGRAPHS

Reference to the setup photo for details.

9. EUT PHOTOGRAPHS

Reference to the external and internal photo for details.

******* END OF REPORT *******