

TEST REPORT

Product Name : Wireless Silent Mouse
Brand Mark : TECKNET/TeckNet
Model No. : TK-MS008
Report Number : BLA-EMC-202304-A1004
FCC ID : 2AK8Q-TKMS008
Date of Sample Receipt : 2023/4/6
Date of Test : 2023/4/7 to 2023/4/27
Date of Issue : 2023/4/27
Test Standard : 47 CFR Part 15, Subpart C 15.249
Test Result : Pass

Prepared for:

Shenzhen Unichain Technology Co., Ltd
201, 111-3, Huangjinshan District, Bantian Community, Bantian Street,
Longgang District, Shenzhen, China

Prepared by:

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.
Building C, No. 107, Shihuan Road, Shiyuan Sub-District, Baoan District,
Shenzhen, Guangdong Province, China
TEL: +86-755-23059481

Compiled by:

Jozu

Approved by:

Blue Zheng

Review by:

Sueels

Date:

2023/4/27



REPORT REVISE RECORD

| Version No. | Date | Description |
|--------------------|-------------|--------------------|
| 00 | 2023/4/27 | Original |

BlueAsia

TABLE OF CONTENTS

| | | |
|-----------|---|-----------|
| 1 | TEST SUMMARY | 5 |
| 2 | GENERAL INFORMATION | 6 |
| 3 | GENERAL DESCRIPTION OF E.U.T. | 6 |
| 4 | TEST ENVIRONMENT | 7 |
| 5 | TEST MODE | 7 |
| 6 | MEASUREMENT UNCERTAINTY | 7 |
| 7 | DESCRIPTION OF SUPPORT UNIT | 8 |
| 8 | LABORATORY LOCATION | 8 |
| 9 | TEST INSTRUMENTS LIST | 9 |
| 10 | RADIATED EMISSIONS | 11 |
| 10.1 | LIMITS | 11 |
| 10.2 | BLOCK DIAGRAM OF TEST SETUP | 12 |
| 10.3 | PROCEDURE | 12 |
| 10.4 | TEST DATA | 13 |
| 11 | RESTRICTED BAND AROUND FUNDAMENTAL FREQUENCY | 21 |
| 11.1 | LIMITS | 21 |
| 11.2 | BLOCK DIAGRAM OF TEST SETUP | 22 |
| 11.3 | PROCEDURE | 22 |
| 11.4 | TEST DATA | 24 |
| 12 | FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL (15.249(A)) | 28 |
| 12.1 | LIMITS | 28 |
| 12.2 | BLOCK DIAGRAM OF TEST SETUP | 29 |
| 12.3 | PROCEDURE | 29 |
| 12.4 | TEST DATA | 31 |
| 13 | 20DB BANDWIDTH | 32 |
| 13.1 | LIMITS | 32 |
| 13.2 | BLOCK DIAGRAM OF TEST SETUP | 32 |
| 1.1 | TEST DATA | 32 |
| 1.2 | TEST PLOTS | 33 |
| 14 | ANTENNA REQUIREMENT | 35 |

| | | |
|--|-----------------|-----------|
| 14.1 | CONCLUSION..... | 35 |
| APPENDIX A: PHOTOGRAPHS OF TEST SETUP | | 36 |
| APPENDIX B: PHOTOGRAPHS OF EUT | | 37 |

BlueAsia

1 TEST SUMMARY

| Test item | Test Requirement | Test Method | Class/Severity | Result |
|--|----------------------------------|--|---|--------|
| Radiated Emissions | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.4&6.5&6.6 | 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d) | Pass |
| Restricted Band Around Fundamental Frequency | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.4&6.5&6.6 | 47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209 | Pass |
| Field Strength of the Fundamental Signal (15.249(a)) | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.5&6.6 | 47 CFR Part 15, Subpart C 15.249(a) | Pass |
| 20dB Bandwidth | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.9 | 47 CFR Part 15, Subpart C 15.215 | Pass |
| Conducted Emissions at AC Power Line (150kHz-30MHz) | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.2 | 47 CFR Part 15, Subpart C 15.207 | N/A |
| Antenna Requirement | 47 CFR Part 15, Subpart C 15.249 | N/A | 47 CFR Part 15, Subpart C 15.203 | Pass |

2 GENERAL INFORMATION

| | |
|-----------------------|--|
| Applicant | Shenzhen Unichain Technology Co., Ltd |
| Address | 201, 111-3, Huangjinshan District, Bantian Community, Bantian Street, Longgang District, Shenzhen, China |
| Manufacturer | Shenzhen Unichain Technology Co., Ltd |
| Address | 201, 111-3, Huangjinshan District, Bantian Community, Bantian Street, Longgang District, Shenzhen, China |
| Factory | Shenzhen Unichain Technology Co., Ltd |
| Address | 201, 111-3, Huangjinshan District, Bantian Community, Bantian Street, Longgang District, Shenzhen, China |
| Product Name | Wireless Silent Mouse |
| Test Model No. | TK-MS008 |

3 GENERAL DESCRIPTION OF E.U.T.

| | |
|-----------------------------|-------------------------------|
| Hardware Version | N/A |
| Software Version | N/A |
| Operation Frequency: | 2403MHz-2480MHz |
| Channel numbers: | 16 |
| Modulation type: | GFSK |
| Antenna Type: | PCB antenna |
| Antenna gain: | 1.8dBi (Provided by customer) |
| Power supply: | DC 1.5V |

Channel:

| | | | | | | | |
|------|------|------|------|------|------|------|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2403 | 2426 | 2441 | 2463 | 2407 | 2422 | 2445 | 2466 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 2414 | 2436 | 2459 | 2473 | 2419 | 2439 | 2453 | 2480 |

4 TEST ENVIRONMENT

| Environment | Temperature | Voltage |
|-------------|-------------|---------|
| Normal | 25°C | DC1.5V |

5 TEST MODE

| TEST MODE | TEST MODE DESCRIPTION |
|-----------|-----------------------------------|
| TX | Keep the EUT in transmitting mode |

6 MEASUREMENT UNCERTAINTY

| Parameter | Expanded Uncertainty (Confidence of 95%) |
|--|--|
| Radiated Emission(9kHz-30MHz) | ±4.34dB |
| Radiated Emission(30Mz-1000MHz) | ±4.24dB |
| Radiated Emission(1GHz-18GHz) | ±4.68dB |
| AC Power Line Conducted Emission(150kHz-30MHz) | ±3.45dB |

7 DESCRIPTION OF SUPPORT UNIT

| Device Type | Manufacturer | Model Name | Serial No. | Remark |
|-------------|--------------|------------|------------|--------|
| N/A | N/A | N/A | N/A | N/A |

8 LABORATORY LOCATION

All tests were performed at:
BlueAsia of Technical Services(Shenzhen) Co.,Ltd.
Building C, No. 107, Shihuan Road, Shiyuan Sub-District, Baoan District, Shenzhen, Guangdong Province,
China
Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

9 TEST INSTRUMENTS LIST

| Test Equipment Of Radiated Spurious Emissions | | | | | |
|---|--------------|------------------------|------------------|------------|------------|
| Equipment | Manufacturer | Model | S/N | Cal.Date | Cal.Due |
| Chamber 1 | SKET | 966 | N/A | 2020/11/10 | 2023/11/9 |
| Chamber 2 | SKET | 966 | N/A | 2021/07/20 | 2024/07/19 |
| Spectrum | R&S | FSP40 | 100817 | 2022/09/15 | 2023/09/14 |
| Receiver | R&S | ESR7 | 101199 | 2022/09/15 | 2023/09/14 |
| Receiver | R&S | ESPI7 | 101477 | 2022/07/16 | 2023/07/15 |
| broadband Antenna | Schwarzbeck | VULB9168 | 00836 P:00227 | 2022/09/15 | 2023/09/14 |
| Horn Antenna | Schwarzbeck | BBHA9120D | 01892 P:00331 | 2022/09/13 | 2025/09/12 |
| Amplifier | SKET | LNPA_30M01G-30 | SK2021060801 | 2022/07/16 | 2023/07/15 |
| Amplifier | SKET | PA-000318G-45 | N/A | 2022/09/13 | 2023/09/12 |
| Amplifier | SKET | LNPA_18G40G-50 | SK2022071301 | 2022/07/14 | 2023/07/13 |
| Filter group | SKET | 2.4G/5G Filter group r | N/A | 2022/07/16 | 2023/07/15 |
| EMI software | EZ | EZ-EMC | EEMC-3A1 | N/A | N/A |
| Loop antenna | SCHNARZBECK | FMZB1519B | 00102 | 2022/9/14 | 2025/9/13 |
| Controller | SKET | N/A | N/A | N/A | N/A |
| Coaxial Cable | BlueAsia | BLA-XC-02 | N/A | N/A | N/A |
| Coaxial Cable | BlueAsia | BLA-XC-03 | N/A | N/A | N/A |
| Coaxial Cable | BlueAsia | BLA-XC-01 | N/A | N/A | N/A |

| Test Equipment Of RF Conducted Test | | | | | |
|--|---------------------|--------------|-----------------|-----------------|----------------|
| Equipment | Manufacturer | Model | S/N | Cal.Date | Cal.Due |
| Spectrum | R&S | FSP40 | 100817 | 2022/09/15 | 2023/09/14 |
| Spectrum | Agilent | N9020A | MY49100060 | 2022/09/07 | 2023/09/06 |
| Spectrum | KEYSIGHT | N9030A | MY52350152 | 2022/07/01 | 2023/06/30 |
| Spectrum | KEYSIGHT | N9010A | MY54330814 | 2022/07/01 | 2023/06/30 |
| Signal Generator | Agilent | N5182A | MY47420955 | 2022/09/07 | 2023/09/06 |
| Signal Generator | Agilent | E8257D | MY44320250 | 2022/07/01 | 2023/06/30 |
| Signal Generator | Agilent | N5181A | MY46240904 | 2022/08/02 | 2023/08/01 |
| Signal Generator | R&S | CMW500 | 132429 | 2022/09/07 | 2023/09/06 |
| BluetoothTester | Anritsu | MT8852B | 06262047872 | 2022/09/07 | 2023/09/06 |
| Power probe | DARE | RPR3006W | 14I00889SN042 | 2022/09/07 | 2023/09/06 |
| DCPowersupply | zhaoxin | KXN-305D | 20K305D1221363 | 2022/09/14 | 2023/09/13 |
| DCPowersupply | zhaoxin | RXN-1505D | 19R1505D050168 | 2022/09/14 | 2023/09/13 |
| 2.4GHz/5GHz RF Test software | MTS | MTS 8310 | Version 2.0.0.0 | N/A | N/A |
| Audio Analyzer | Audioprecision | N/A | ATSI-41094 | 2022/7/1 | 2023/6/30 |

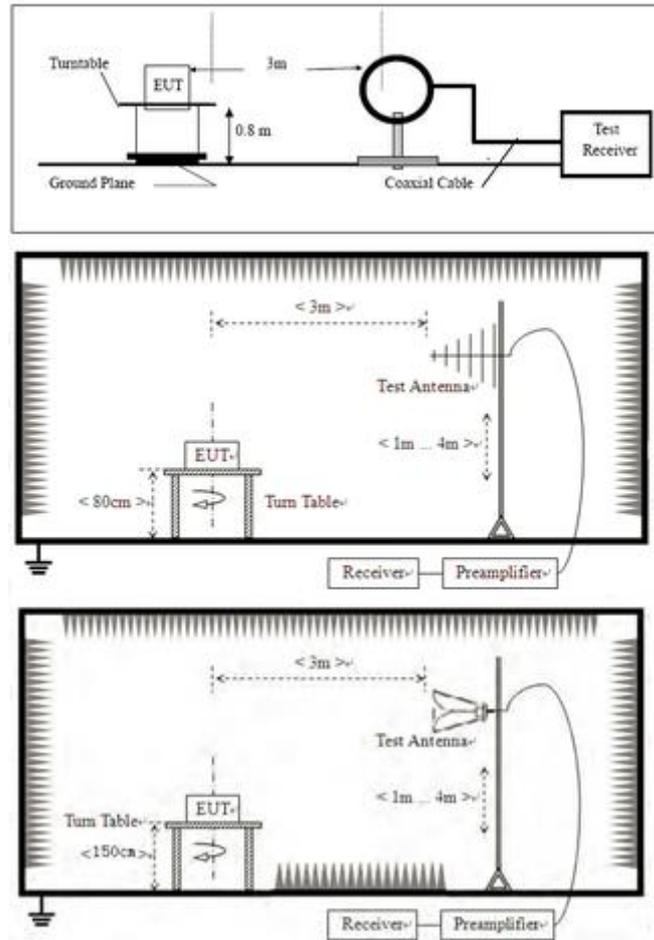
10 RADIATED EMISSIONS

| | |
|-------------------------------|--|
| Test Standard | 47 CFR Part 15, Subpart C 15.249 |
| Test Method | ANSI C63.10 (2013) Section 6.4&6.5&6.6 |
| Test Mode (Pre-Scan) | TX |
| Test Mode (Final Test) | TX |
| Tester | Jozu |
| Temperature | 25°C |
| Humidity | 60% |

10.1 LIMITS

| Frequency(MHz) | Field strength (microvolts/meter) | Limit (dBuV/m) | Detector | Measurement Distance (meters) |
|----------------|--------------------------------------|-------------------|----------|----------------------------------|
| 0.009-0.490 | 2400/F(kHz) | - | - | 300 |
| 0.490-1.705 | 24000/F(kHz) | - | - | 30 |
| 1.705-30 | 30 | - | - | 30 |
| 30-88 | 100 | 40.0 | QP | 3 |
| 88-216 | 150 | 43.5 | QP | 3 |
| 216-960 | 200 | 46.0 | QP | 3 |
| 960-1000 | 500 | 54.0 | QP | 3 |
| Above 1000 | 500 | 54.0 | AV | 3 |

10.2 BLOCK DIAGRAM OF TEST SETUP



10.3 PROCEDURE

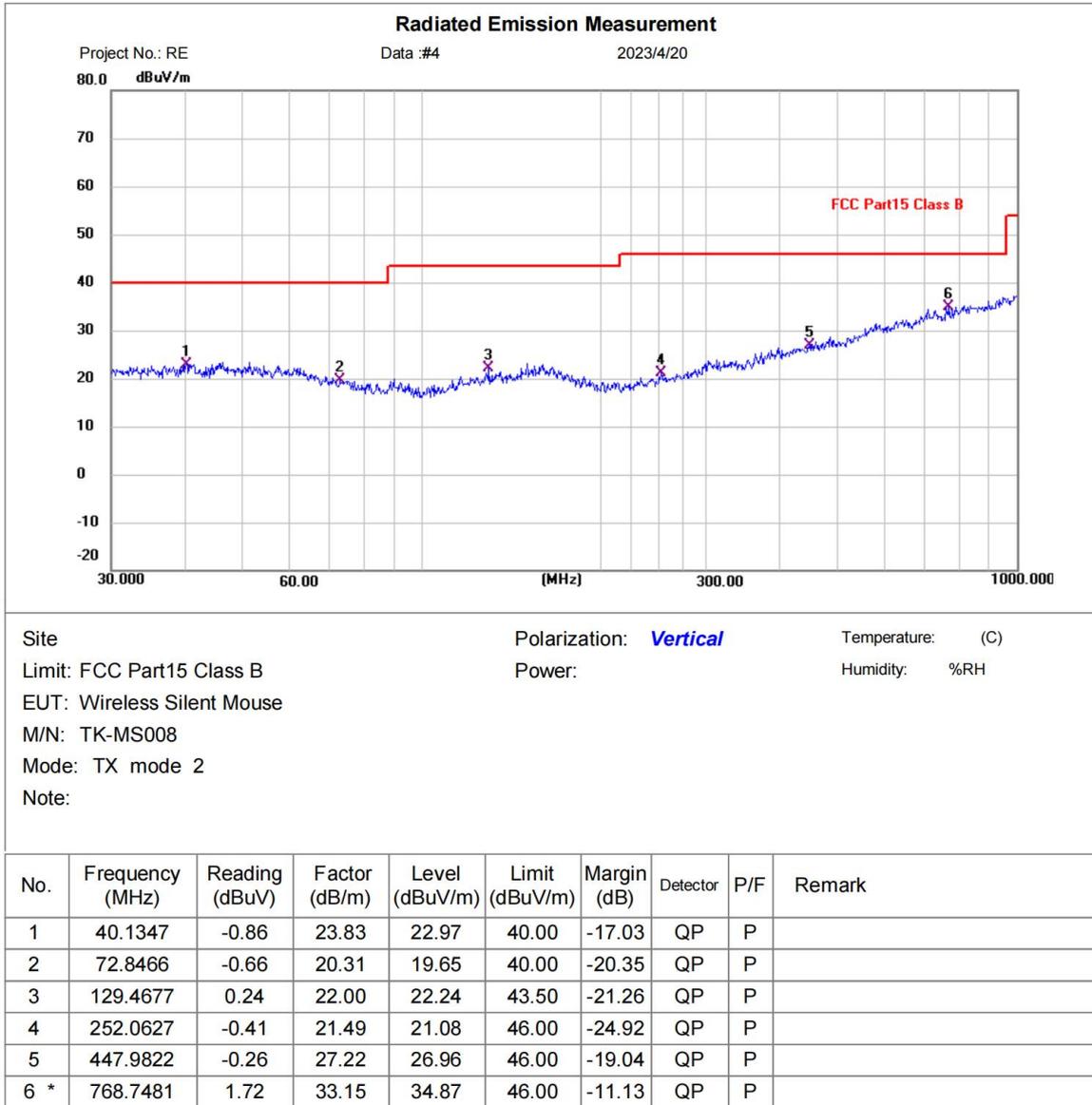
For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

Remark:

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. fundamental frequency is blocked by filter, and only spurious emission is shown.
- 4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

10.4 TEST DATA

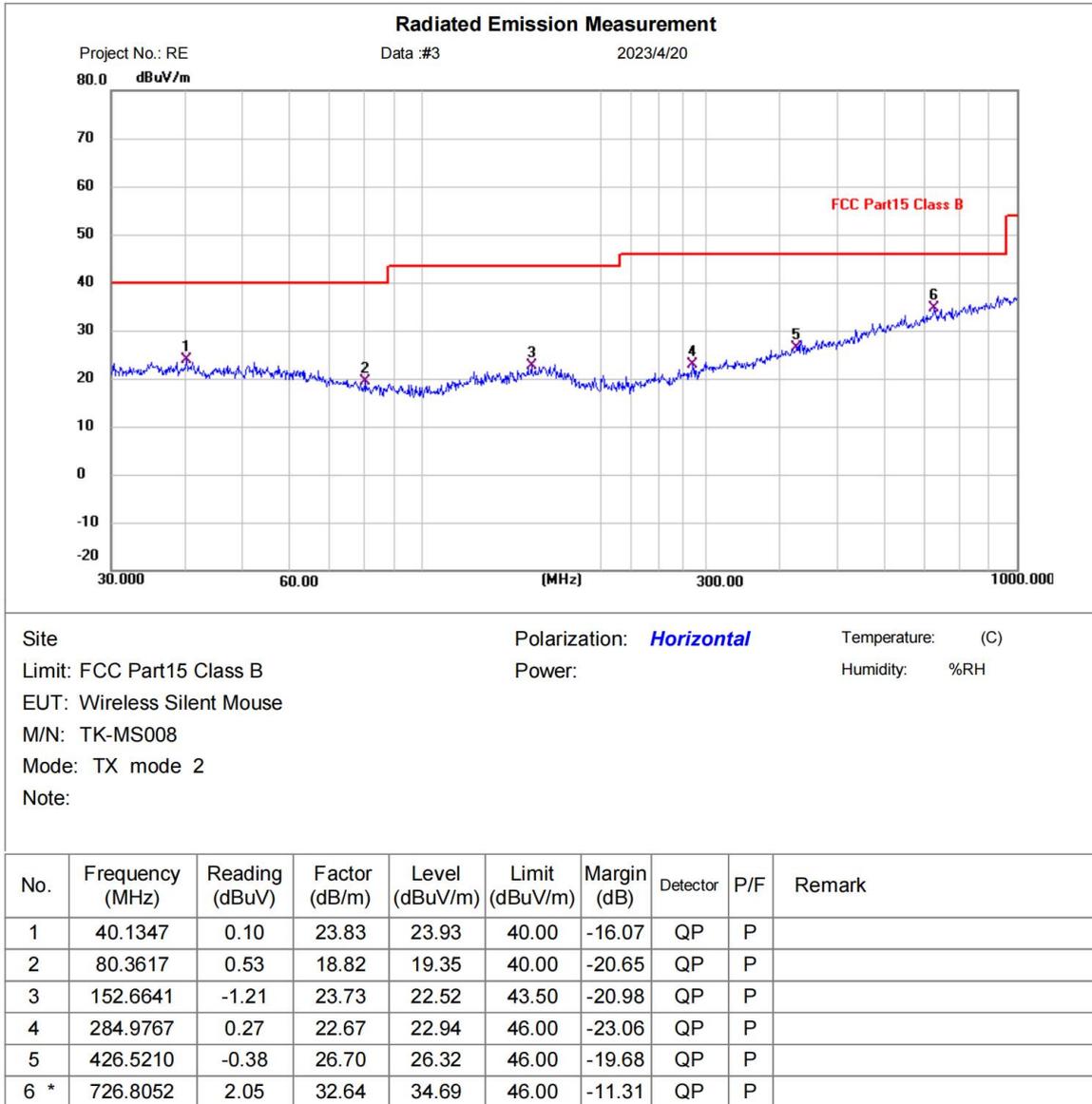
[TestMode: TX below 1G]; [Polarity: Vertical]



*:Maximum data x:Over limit !:over margin

Test Result: Pass

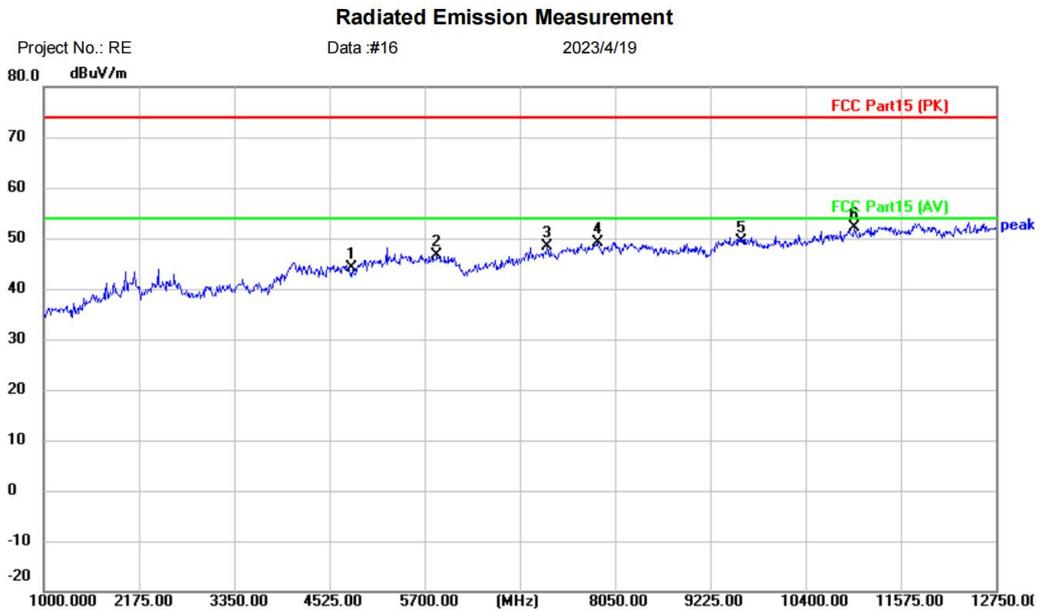
[TestMode: TX below 1G]; [Polarity: Horizontal]



*:Maximum data x:Over limit !:over margin

Test Result: Pass

[TestMode: TX low channel]; [Polarity: Vertical]



| | | |
|----------------------------|-------------------------------|------------------|
| Site | Polarization: Vertical | Temperature: (C) |
| Limit: FCC Part15 (PK) | Power: | Humidity: %RH |
| EUT: Wireless Silent Mouse | | |
| M/N: TK-MS008 | | |
| Mode: TX-L 2 | | |
| Note: | | |

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 4806.000 | 40.09 | 4.06 | 44.15 | 74.00 | -29.85 | peak | |
| 2 | | 5852.750 | 39.91 | 6.80 | 46.71 | 74.00 | -27.29 | peak | |
| 3 | | 7209.000 | 40.34 | 7.94 | 48.28 | 74.00 | -25.72 | peak | |
| 4 | | 7838.500 | 40.38 | 8.81 | 49.19 | 74.00 | -24.81 | peak | |
| 5 | | 9612.000 | 38.45 | 10.90 | 49.35 | 74.00 | -24.65 | peak | |
| 6 | * | 10999.25 | 38.73 | 13.45 | 52.18 | 74.00 | -21.82 | peak | |

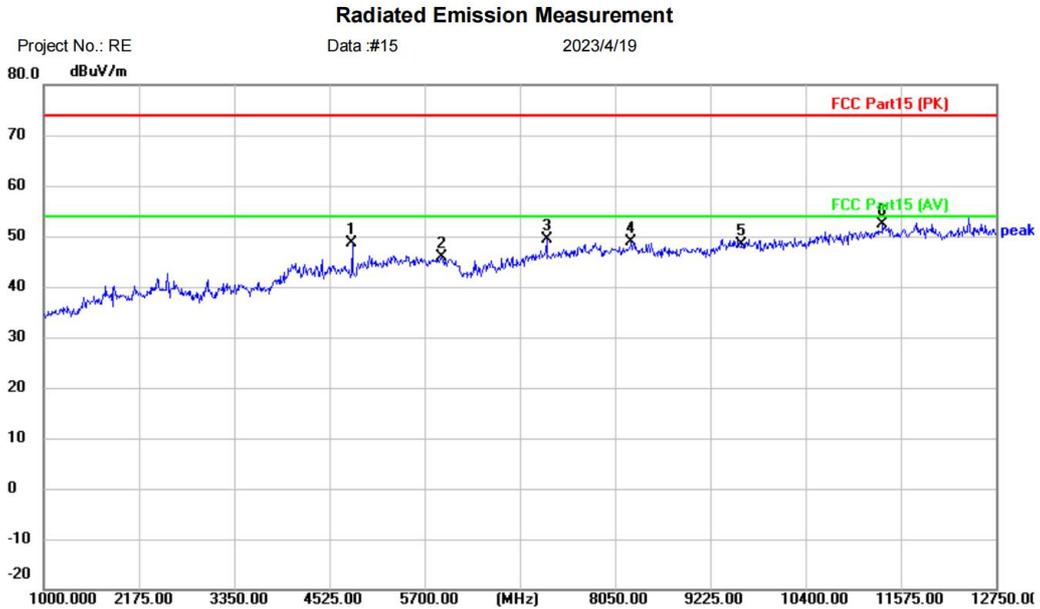
*:Maximum data x:Over limit !:over margin

⟨Reference Only⟩

Receiver: ESR_1 Spectrum Analyzer: FSP40
 Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

[TestMode: TX low channel]; [Polarity: Horizontal]



| | | |
|----------------------------|---------------------------------|------------------|
| Site | Polarization: Horizontal | Temperature: (C) |
| Limit: FCC Part15 (PK) | Power: | Humidity: %RH |
| EUT: Wireless Silent Mouse | | |
| M/N: TK-MS008 | | |
| Mode: TX-L 2 | | |
| Note: | | |

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 4806.000 | 44.64 | 4.06 | 48.70 | 74.00 | -25.30 | peak | |
| 2 | | 5911.500 | 38.96 | 6.85 | 45.81 | 74.00 | -28.19 | peak | |
| 3 | | 7204.000 | 41.40 | 7.93 | 49.33 | 74.00 | -24.67 | peak | |
| 4 | | 8249.750 | 39.92 | 9.01 | 48.93 | 74.00 | -25.07 | peak | |
| 5 | | 9612.000 | 37.36 | 10.90 | 48.26 | 74.00 | -25.74 | peak | |
| 6 | * | 11351.75 | 38.87 | 13.61 | 52.48 | 74.00 | -21.52 | peak | |

*:Maximum data x:Over limit !:over margin

⟨Reference Only

Receiver: ESR_1

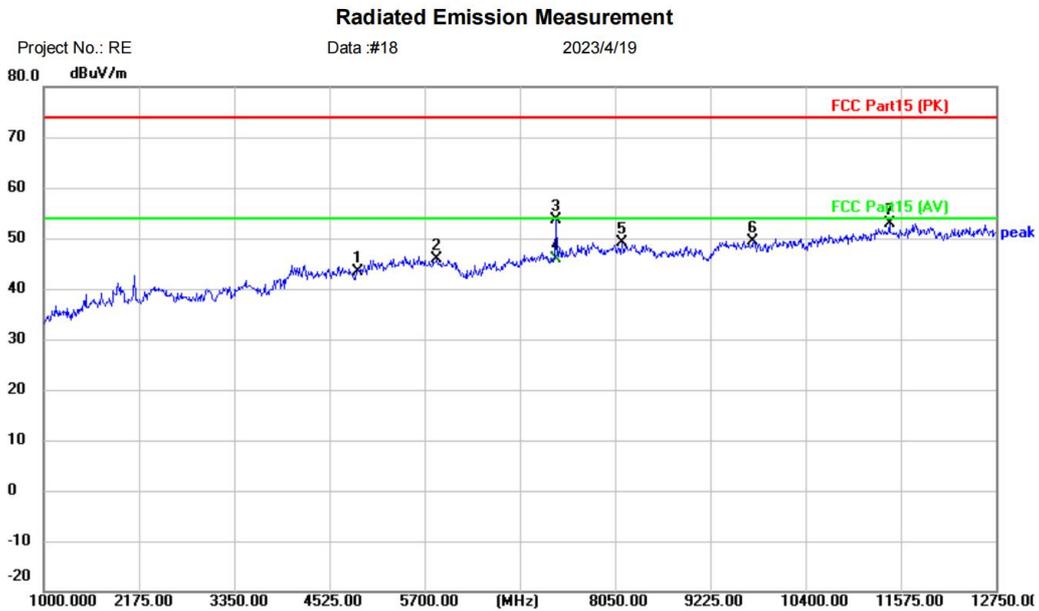
Spectrum Analyzer: FSP40

Antenna: EZ 9120D 1G-18G

Engineer Signature:

Test Result: Pass

[TestMode: TX mid channel]; [Polarity: Vertical]



Site: Polarization: **Vertical** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: Wireless Silent Mouse
 M/N: TK-MS008
 Mode: TX-M 2
 Note:

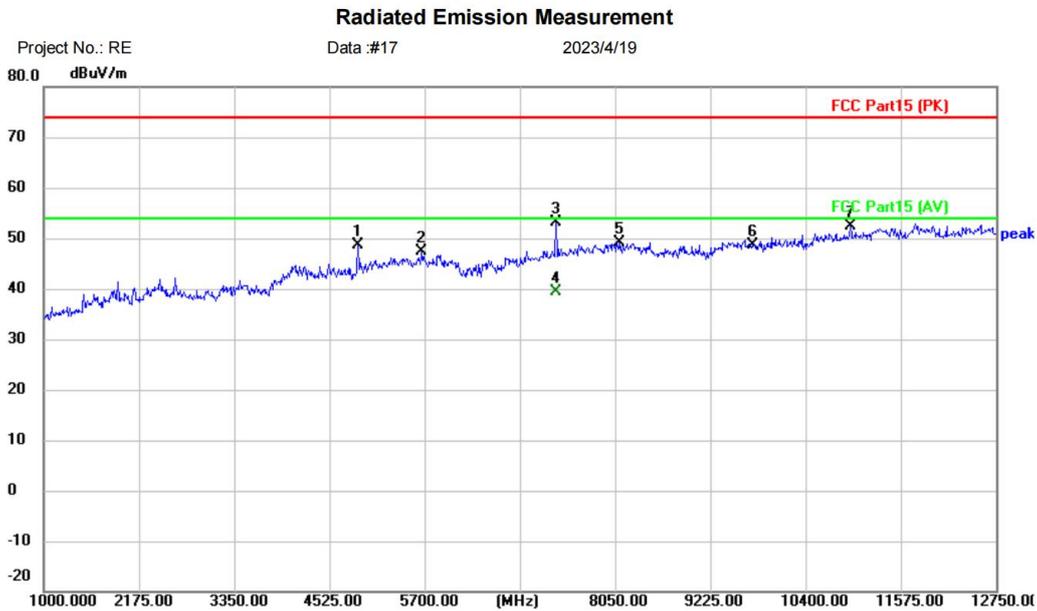
| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 4882.000 | 39.06 | 4.37 | 43.43 | 74.00 | -30.57 | peak | |
| 2 | | 5852.750 | 39.17 | 6.80 | 45.97 | 74.00 | -28.03 | peak | |
| 3 | | 7321.500 | 45.33 | 8.20 | 53.53 | 74.00 | -20.47 | peak | |
| 4 | * | 7321.500 | 37.62 | 8.20 | 45.82 | 54.00 | -8.18 | AVG | |
| 5 | | 8132.250 | 40.05 | 8.96 | 49.01 | 74.00 | -24.99 | peak | |
| 6 | | 9764.000 | 38.01 | 11.30 | 49.31 | 74.00 | -24.69 | peak | |
| 7 | | 11434.00 | 39.16 | 13.64 | 52.80 | 74.00 | -21.20 | peak | |

*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40
 Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

[TestMode: TX mid channel]; [Polarity: Horizontal]



| | | |
|----------------------------|---------------------------------|------------------|
| Site | Polarization: Horizontal | Temperature: (C) |
| Limit: FCC Part15 (PK) | Power: | Humidity: %RH |
| EUT: Wireless Silent Mouse | | |
| M/N: TK-MS008 | | |
| Mode: TX-M 2 | | |
| Note: | | |

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 4877.500 | 44.17 | 4.35 | 48.52 | 74.00 | -25.48 | peak | |
| 2 | | 5664.750 | 40.66 | 6.77 | 47.43 | 74.00 | -26.57 | peak | |
| 3 | | 7321.500 | 44.98 | 8.20 | 53.18 | 74.00 | -20.82 | peak | |
| 4 | * | 7321.500 | 31.25 | 8.20 | 39.45 | 54.00 | -14.55 | AVG | |
| 5 | | 8108.750 | 40.19 | 8.95 | 49.14 | 74.00 | -24.86 | peak | |
| 6 | | 9764.000 | 37.34 | 11.30 | 48.64 | 74.00 | -25.36 | peak | |
| 7 | | 10952.25 | 38.93 | 13.37 | 52.30 | 74.00 | -21.70 | peak | |

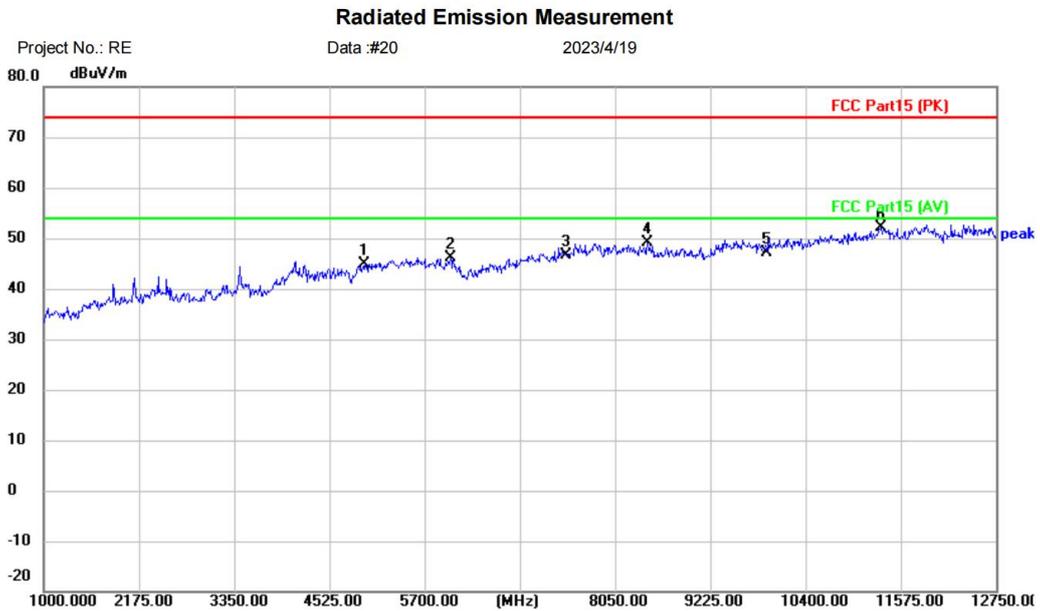
*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Vertical]



| | | |
|----------------------------|-------------------------------|------------------|
| Site | Polarization: Vertical | Temperature: (C) |
| Limit: FCC Part15 (PK) | Power: | Humidity: %RH |
| EUT: Wireless Silent Mouse | | |
| M/N: TK-MS008 | | |
| Mode: TX-H 2 | | |
| Note: | | |

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 4960.000 | 39.40 | 5.42 | 44.82 | 74.00 | -29.18 | peak | |
| 2 | | 6017.250 | 42.24 | 3.97 | 46.21 | 74.00 | -27.79 | peak | |
| 3 | | 7440.000 | 38.04 | 8.48 | 46.52 | 74.00 | -27.48 | peak | |
| 4 | | 8449.500 | 40.12 | 9.10 | 49.22 | 74.00 | -24.78 | peak | |
| 5 | | 9920.000 | 35.56 | 11.69 | 47.25 | 74.00 | -26.75 | peak | |
| 6 | * | 11328.25 | 38.47 | 13.59 | 52.06 | 74.00 | -21.94 | peak | |

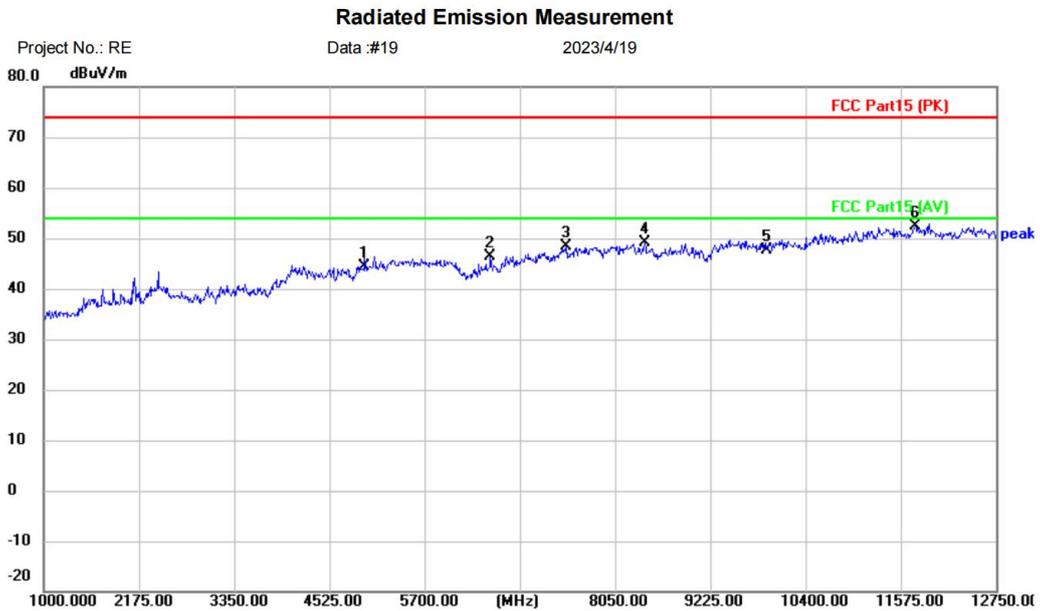
*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Horizontal]



Site: Polarization: **Horizontal** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: Wireless Silent Mouse
 M/N: TK-MS008
 Mode: TX-H 2
 Note:

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 4960.000 | 38.85 | 5.42 | 44.27 | 74.00 | -29.73 | peak | |
| 2 | | 6510.750 | 40.46 | 6.01 | 46.47 | 74.00 | -27.53 | peak | |
| 3 | | 7440.000 | 39.84 | 8.48 | 48.32 | 74.00 | -25.68 | peak | |
| 4 | | 8414.250 | 40.12 | 9.08 | 49.20 | 74.00 | -24.80 | peak | |
| 5 | | 9920.000 | 36.01 | 11.69 | 47.70 | 74.00 | -26.30 | peak | |
| 6 | * | 11751.25 | 38.52 | 13.79 | 52.31 | 74.00 | -21.69 | peak | |

*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40
 Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

11 RESTRICTED BAND AROUND FUNDAMENTAL FREQUENCY

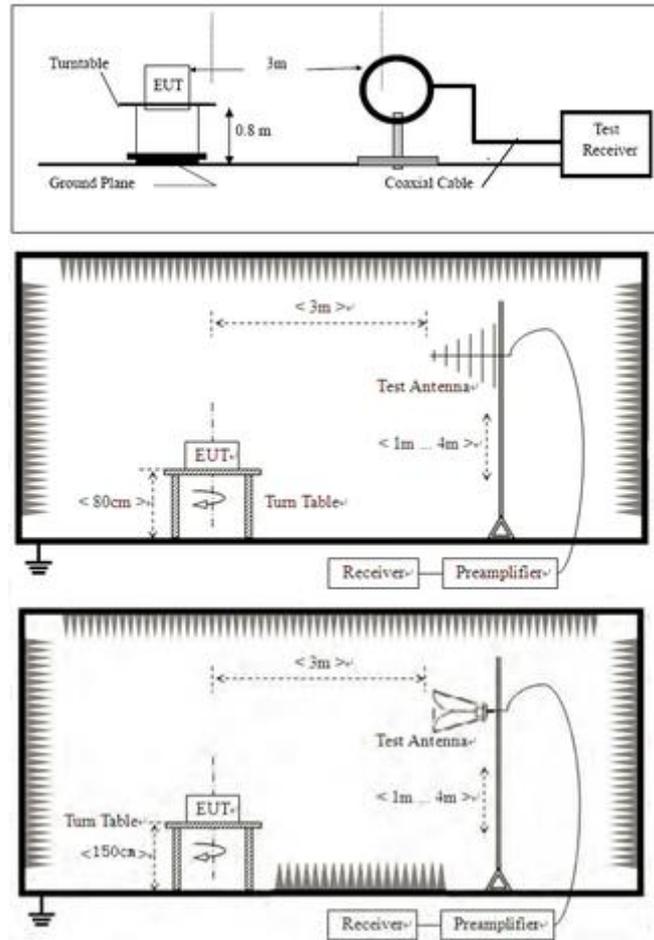
| | |
|-------------------------------|--|
| Test Standard | 47 CFR Part 15, Subpart C 15.249 |
| Test Method | ANSI C63.10 (2013) Section 6.4&6.5&6.6 |
| Test Mode (Pre-Scan) | TX |
| Test Mode (Final Test) | TX |
| Tester | Jozu |
| Temperature | 25°C |
| Humidity | 60% |

11.1 LIMITS

| Frequency | Limit (dBuV/m @3m) | Remark |
|---------------|--------------------|------------------|
| 30MHz-88MHz | 40.0 | Quasi-peak Value |
| 88MHz-216MHz | 43.5 | Quasi-peak Value |
| 216MHz-960MHz | 46.0 | Quasi-peak Value |
| 960MHz-1GHz | 54.0 | Quasi-peak Value |
| Above 1GHz | 54.0 | Average Value |
| Above 1GHz | 74.0 | Peak Value |

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

11.2 BLOCK DIAGRAM OF TEST SETUP



11.3 PROCEDURE

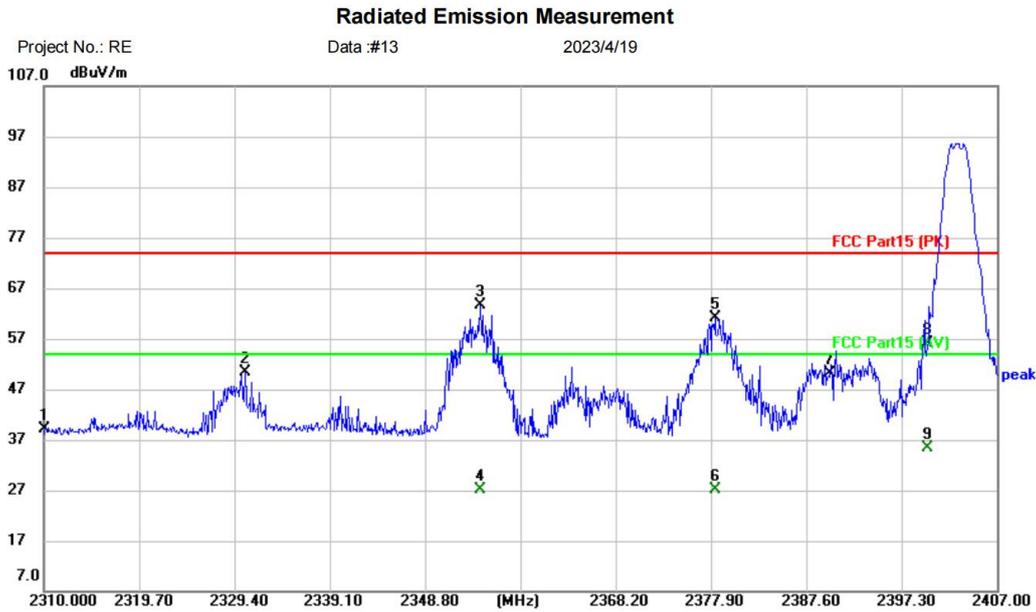
- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
 - i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
 - j. Repeat above procedures until all frequencies measured was complete.
- Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

BlueAsia

11.4 TEST DATA

[TestMode: TX low channel]; [Polarity: Horizontal]



Site: Polarization: **Horizontal** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: Wireless Silent Mouse
 M/N: TK-MS008
 Mode: TX-L 2
 Note:

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 2310.000 | 43.46 | -4.27 | 39.19 | 74.00 | -34.81 | peak | |
| 2 | | 2330.467 | 54.48 | -4.15 | 50.33 | 74.00 | -23.67 | peak | |
| 3 | * | 2354.426 | 67.71 | -4.01 | 63.70 | 74.00 | -10.30 | peak | |
| 4 | | 2354.426 | 31.09 | -4.01 | 27.08 | 54.00 | -26.92 | AVG | |
| 5 | | 2378.288 | 65.05 | -3.89 | 61.16 | 74.00 | -12.84 | peak | |
| 6 | | 2378.288 | 31.08 | -3.89 | 27.19 | 54.00 | -26.81 | AVG | |
| 7 | | 2390.000 | 53.98 | -3.82 | 50.16 | 74.00 | -23.84 | peak | |
| 8 | | 2400.000 | 60.00 | -3.77 | 56.23 | 74.00 | -17.77 | peak | |
| 9 | | 2400.000 | 39.13 | -3.77 | 35.36 | 54.00 | -18.64 | AVG | |

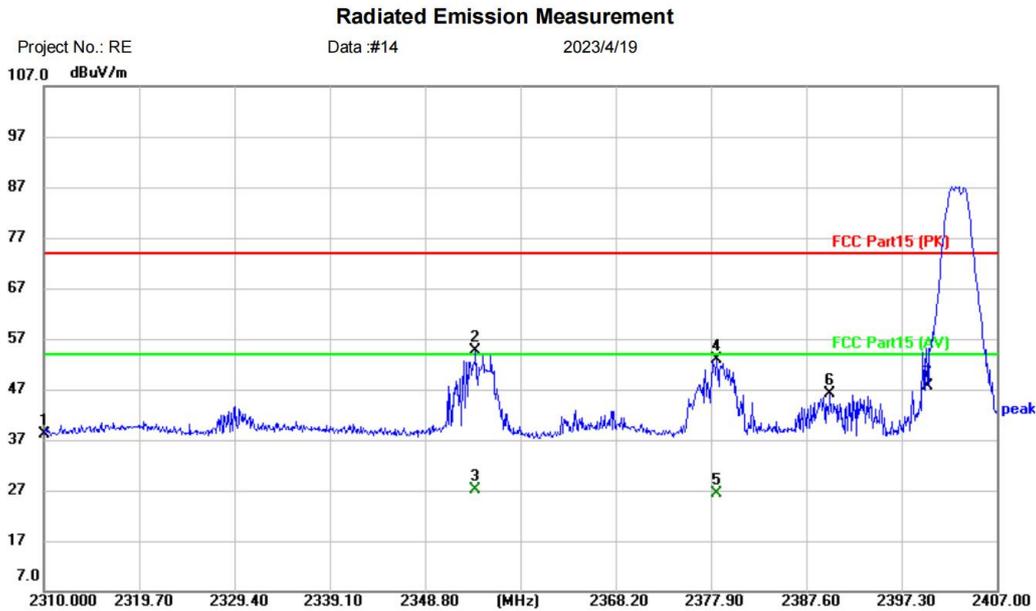
*:Maximum data x:Over limit !:over margin

(Reference Only)

Receiver: ESR_1 Spectrum Analyzer: FSP40
 Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

[TestMode: TX low channel]; [Polarity: Vertical]



| | | |
|----------------------------|-------------------------------|------------------|
| Site | Polarization: Vertical | Temperature: (C) |
| Limit: FCC Part15 (PK) | Power: | Humidity: %RH |
| EUT: Wireless Silent Mouse | | |
| M/N: TK-MS008 | | |
| Mode: TX-L 2 | | |
| Note: | | |

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 2310.000 | 42.51 | -4.27 | 38.24 | 74.00 | -35.76 | peak | |
| 2 | * | 2353.941 | 58.63 | -4.01 | 54.62 | 74.00 | -19.38 | peak | |
| 3 | | 2353.941 | 31.23 | -4.01 | 27.22 | 54.00 | -26.78 | AVG | |
| 4 | | 2378.482 | 56.70 | -3.89 | 52.81 | 74.00 | -21.19 | peak | |
| 5 | | 2378.482 | 30.38 | -3.89 | 26.49 | 54.00 | -27.51 | AVG | |
| 6 | | 2390.000 | 49.85 | -3.82 | 46.03 | 74.00 | -27.97 | peak | |
| 7 | | 2400.000 | 51.33 | -3.77 | 47.56 | 74.00 | -26.44 | peak | |

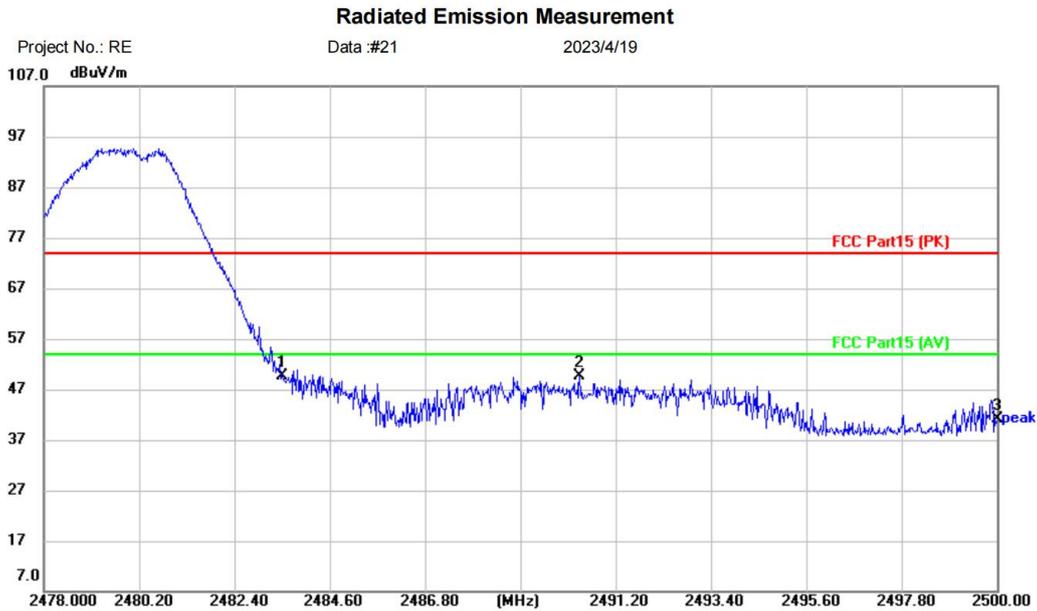
*:Maximum data x:Over limit !:over margin

<Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40
 Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Horizontal]



| | | |
|----------------------------|---------------------------------|------------------|
| Site | Polarization: Horizontal | Temperature: (C) |
| Limit: FCC Part15 (PK) | Power: | Humidity: %RH |
| EUT: Wireless Silent Mouse | | |
| M/N: TK-MS008 | | |
| Mode: TX-H 2 | | |
| Note: | | |

| No. | Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | Limit dBuV/m | Over dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1 | | 2483.500 | 53.49 | -3.96 | 49.53 | 74.00 | -24.47 | peak | |
| 2 | * | 2490.364 | 53.57 | -3.97 | 49.60 | 74.00 | -24.40 | peak | |
| 3 | | 2500.000 | 45.19 | -4.00 | 41.19 | 74.00 | -32.81 | peak | |

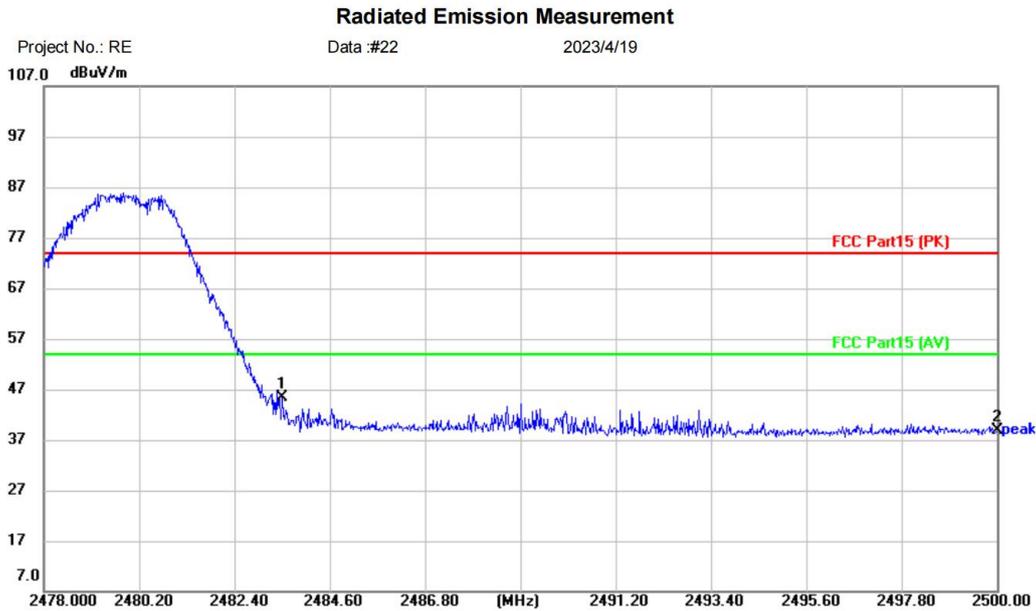
*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Vertical]



| | | |
|----------------------------|-------------------------------|------------------|
| Site | Polarization: Vertical | Temperature: (C) |
| Limit: FCC Part15 (PK) | Power: | Humidity: %RH |
| EUT: Wireless Silent Mouse | | |
| M/N: TK-MS008 | | |
| Mode: TX-H 2 | | |
| Note: | | |

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measurement | Limit | Over | Detector | Comment |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | | |
| 1 | * | 2483.500 | 49.32 | -3.96 | 45.36 | 74.00 | -28.64 | peak | |
| 2 | | 2500.000 | 42.95 | -4.00 | 38.95 | 74.00 | -35.05 | peak | |

*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Antenna: EZ 9120D 1G-18G Engineer Signature:

Test Result: Pass

12 FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL (15.249(A))

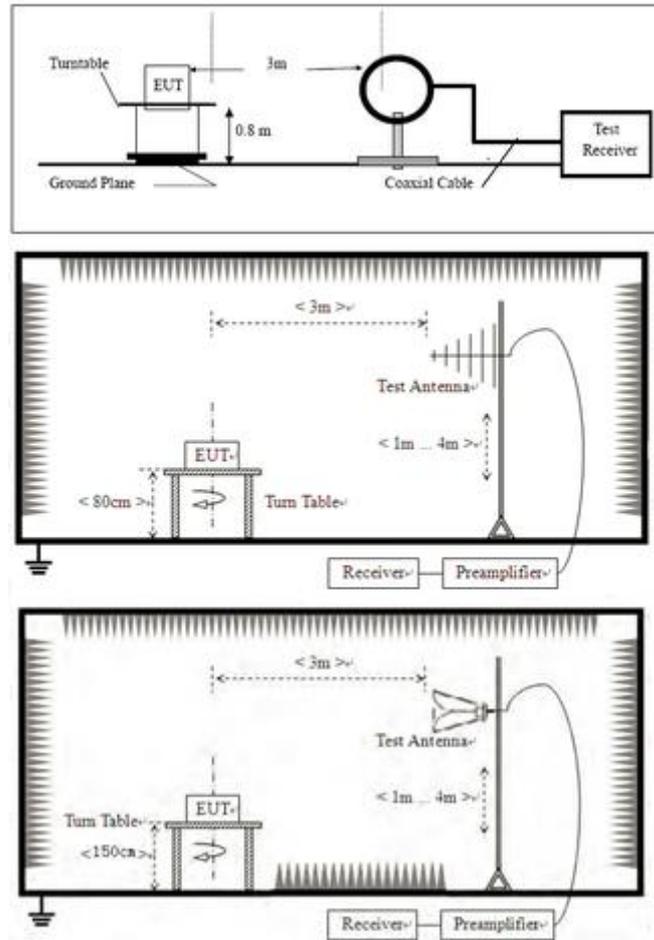
| | |
|-------------------------------|------------------------------------|
| Test Standard | 47 CFR Part 15, Subpart C 15.249 |
| Test Method | ANSI C63.10 (2013) Section 6.5&6.6 |
| Test Mode (Pre-Scan) | TX |
| Test Mode (Final Test) | TX |
| Tester | Jozu |
| Temperature | 25°C |
| Humidity | 60% |

12.1 LIMITS

| Fundamental frequency(MHz) | Field strength of fundamental(microvolts/meter) | Field strength of harmonics(microvolts/meter) |
|-----------------------------------|--|--|
| 902-928 | 50 | 500 |
| 2400-2483.5 | 50 | 500 |
| 5725-5875 | 50 | 500 |
| 24000-24250 | 250 | 2500 |

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

12.2 BLOCK DIAGRAM OF TEST SETUP



12.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
 - i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
 - j. Repeat above procedures until all frequencies measured was complete.
- Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

BlueAsia

12.4 TEST DATA

Peak value:

| Frequency (MHz) | Reading Level (dBuV) | Correct Factor (dB) | Level (dB μ V/m) | Limit (dB μ V/m) | Over Limit (dB) | Antenna Polaxis |
|-----------------|----------------------|---------------------|----------------------|----------------------|-----------------|-----------------|
| 2403 | 100.73 | -3.78 | 96.95 | 114.00 | -17.05 | H |
| 2403 | 91.53 | -3.78 | 87.75 | 114.00 | -26.25 | V |
| 2441 | 99.83 | -3.85 | 95.98 | 114.00 | -18.02 | H |
| 2441 | 91.85 | -3.85 | 88.00 | 114.00 | -26 | V |
| 2480 | 98.99 | -3.95 | 95.04 | 114.00 | -18.96 | H |
| 2480 | 97.26 | -3.95 | 93.31 | 114.00 | -20.69 | V |

Average value:

| Frequency (MHz) | Reading Level (dBuV) | Correct Factor (dB) | Level (dB μ V/m) | Limit (dB μ V/m) | Over Limit (dB) | Antenna Polaxis |
|-----------------|----------------------|---------------------|----------------------|----------------------|-----------------|-----------------|
| 2403 | 67.66 | -3.78 | 63.88 | 94.00 | -30.12 | H |
| 2403 | 60.74 | -3.78 | 56.96 | 94.00 | -37.04 | V |
| 2441 | 66.67 | -3.85 | 62.82 | 94.00 | -31.18 | H |
| 2441 | 61.23 | -3.85 | 57.38 | 94.00 | -36.62 | V |
| 2480 | 65.60 | -3.95 | 61.65 | 94.00 | -32.35 | H |
| 2480 | 60.22 | -3.95 | 56.27 | 94.00 | -37.73 | V |

NOTE: RBW 3MHz VBW 10MHz · PK detector is for PK value ,RMS detector is for AV value.

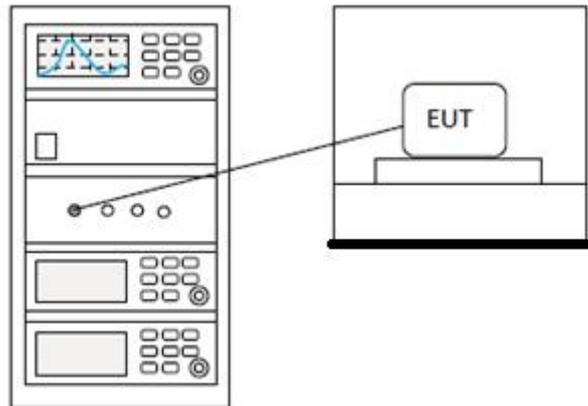
13 20DB BANDWIDTH

| | |
|-------------------------------|----------------------------------|
| Test Standard | 47 CFR Part 15, Subpart C 15.249 |
| Test Method | ANSI C63.10 (2013) Section 6.9 |
| Test Mode (Pre-Scan) | TX |
| Test Mode (Final Test) | TX |
| Tester | Jozu |
| Temperature | 25°C |
| Humidity | 60% |

13.1 LIMITS

| | |
|---------------|-----|
| Limit: | N/A |
|---------------|-----|

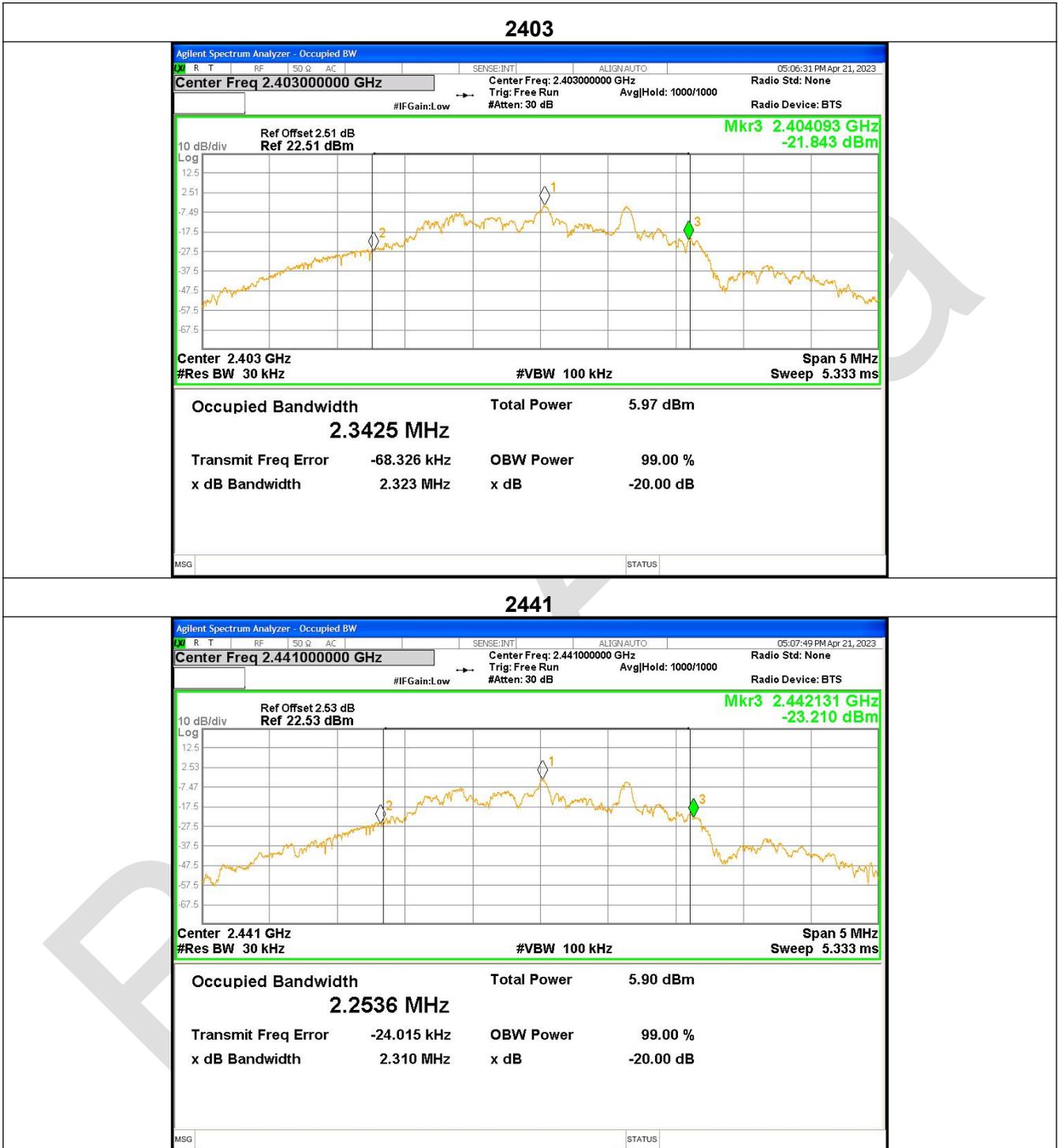
13.2 BLOCK DIAGRAM OF TEST SETUP



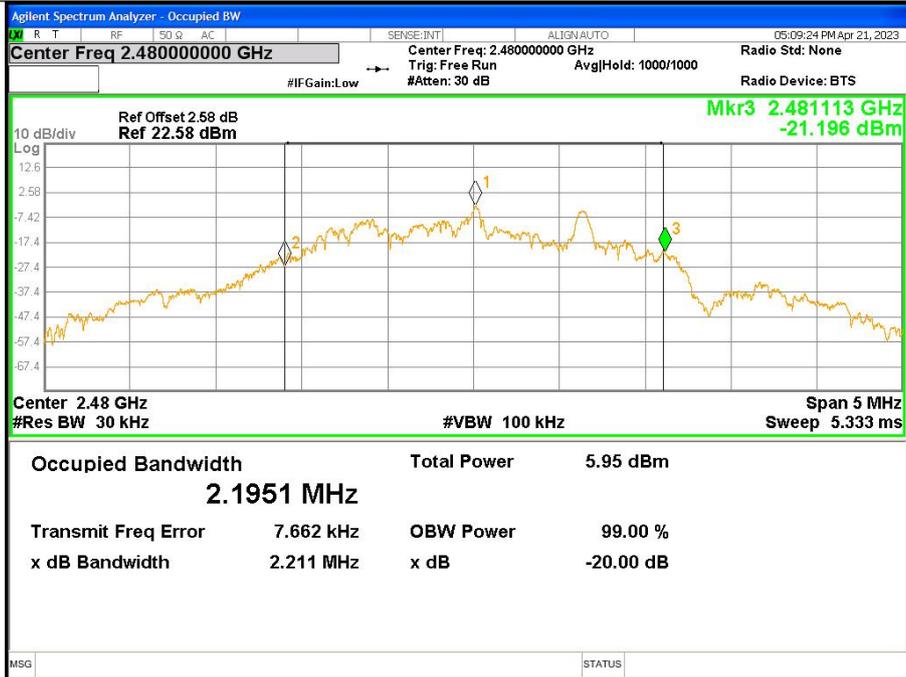
1.1 TEST DATA

| Test Frequency MHz | 20dB Bandwidth kHz | Result |
|-----------------------|-----------------------|--------|
| 2403 | 2.323 | Pass |
| 2441 | 2.310 | Pass |
| 2480 | 2.211 | Pass |

1.2 TEST PLOTS



2480



14 ANTENNA REQUIREMENT

| | |
|---------------|----------------------------------|
| Test Standard | 47 CFR Part 15, Subpart C 15.249 |
| Test Method | N/A |

14.1 CONCLUSION

Standard Requirement:

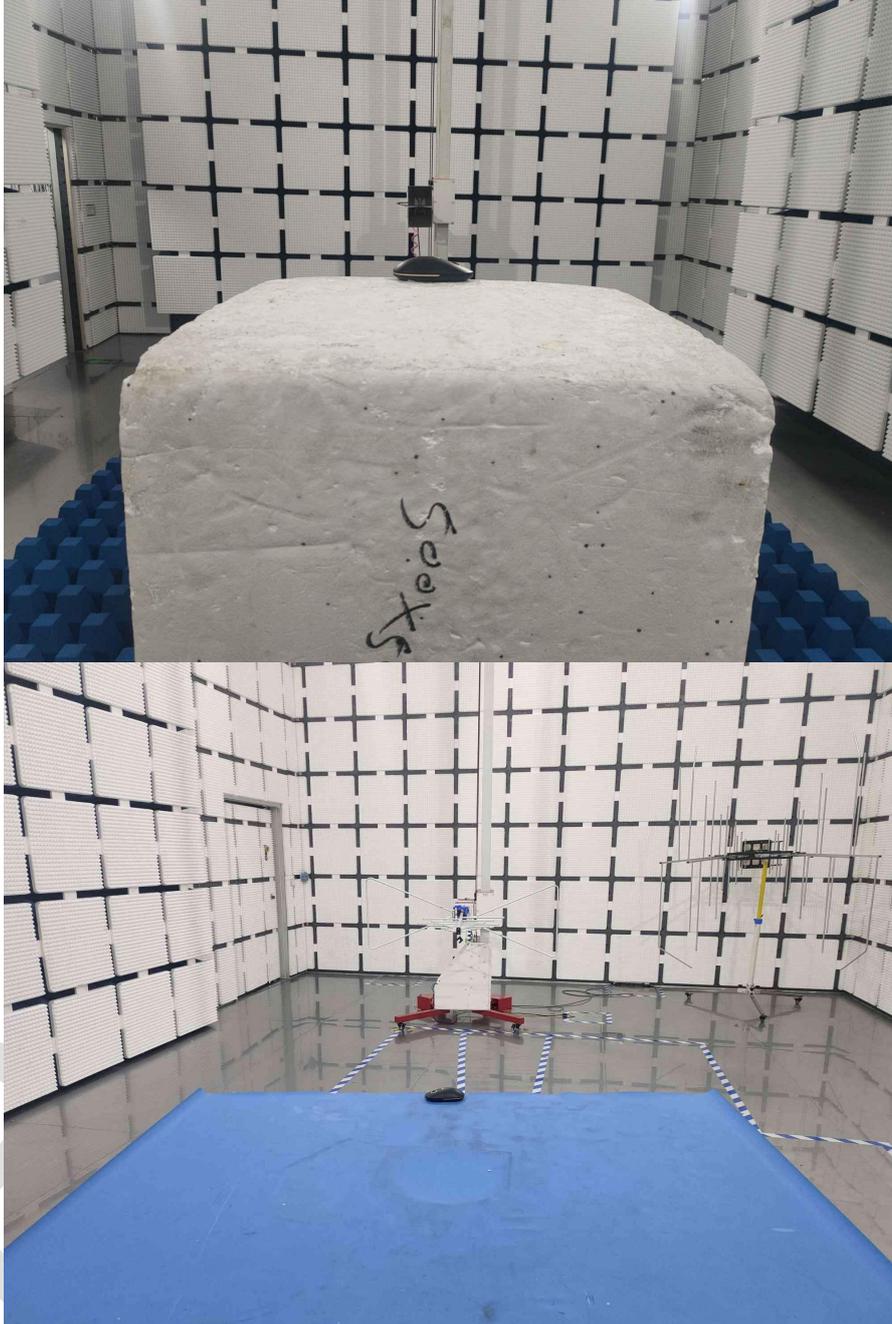
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of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

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.8dBi..

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Radiated Emissions



APPENDIX B: PHOTOGRAPHS OF EUT

Reference to the test report No. BLA-EMC-202304-A1001

----END OF REPORT----

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of BlueAsia, this report can't be reproduced except in full.

BlueAsia