| 3M full-anechoic Chamber | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial Number** | **Cal. Date (mm-dd-yyyy)** | **Cal. Due date (mm-dd-yyyy)** |
| Fully Anechoic Chamber | TDK | FAC-3 | --- | 01-29-2024 | 01-28-2027 |
| Receiver | Keysight | N9038A | MY57290136 | 12-22-2025 | 12-21-2026 |
| Spectrum Analyzer | Keysight | N9020B | MY57111112 | 12-21-2025 | 12-20-2026 |
| Spectrum Analyzer | Keysight | N9030B | MY57140871 | 12-21-2025 | 12-20-2026 |
| TRILOG Broadband Antenna | Schwarzbeck | VULB 9163 | 9163-1148 | 03-29-2026 | 03-28-2027 |
| Horn Antenna | Schwarzbeck | BBHA 9170 | 9170-832 | 04-03-2026 | 04-02-2027 |
| Horn Antenna | ETS-LINDGREN | 3117 | 57407 | 05-10-2026 | 05-09-2027 |
| Preamplifier | EMCI | EMC001330 | 980563 | 02-06-2026 | 02-05-2027 |
| Preamplifier | EMCI | EMC051845SE | 980380 | 11-25-2025 | 11-24-2026 |
| Preamplifier | Tonscend | TAP-011858 | AP21B806112 | 06-22-2026 | 06-21-2027 |
| Communication test set | R&S | CMW500 | 104466 | 11-25-2025 | 11-24-2026 |
| Temperature/ Humidity Indicator | biaozhi | GM1360 | EE1186631 | 03-24-2026 | 03-23-2027 |
| RSE Automatic test software | JS Tonscend | JS36-RSE | V5.0.0.1 | --- | --- |
| Cable line | Times | SFT205-NMSM-2.50M | 394812-0001 | 01-29-2024 | 01-28-2027 |
| Cable line | Times | SFT205-NMSM-2.50M | 394812-0002 | 01-29-2024 | 01-28-2027 |
| Cable line | Times | SFT205-NMSM-2.50M | 394812-0003 | 01-29-2024 | 01-28-2027 |
| Cable line | Times | SFT205-NMSM-2.50M | 393495-0001 | 01-29-2024 | 01-28-2027 |
| Cable line | Times | EMC104-NMNM-1000 | SN160710 | 01-29-2024 | 01-28-2027 |
| Cable line | Times | SFT205-NMSM-3.00M | 394813-0001 | 01-29-2024 | 01-28-2027 |
| Cable line | Times | SFT205-NMNM-1.50M | 381964-0001 | 01-29-2024 | 01-28-2027 |
| Cable line | Times | SFT205-NMSM-7.00M | 394815-0001 | 01-29-2024 | 01-28-2027 |
| Cable line | Times | HF160-KMKM-3.00M | 393493-0001 | 01-29-2024 | 01-28-2027 |

| 3M Semi-anechoic Chamber (2)- Radiated disturbance Test | | | | | |
|---|---|---|---|---|---|
| Equipment | Manufacturer | Model No. | Serial Number | Cal. date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| 3M Chamber & Accessory Equipment | TDK | SAC-3 | --- | 01/13/2024 | 01/12/2027 |
| Receiver | R&S | ESCI7 | 100938-003 | 09/03/2025<br>09-01-2026 | 09/02/2026<br>08-31-2027 |
| TRILOG Broadband Antenna | schwarzbeck | VULB 9163 | 9163-618 | 05/11/2026 | 05/10/2027 |
| Loop Antenna | Schwarzbeck | FMZB 1519B | 1519B-076 | 03/29/2026 | 03/28/2027 |
| Microwave Preamplifier | Tonscend | EMC051845SE | 980380 | 11/25/2025 | 11/24/2026 |
| Horn Antenna | A.H.SYSTEMS | SAS-574 | 374 | 05-16-2026 | 05-15-2027 |
| Horn Antenna | ETS-LINGREN | BBHA 9120D | 9120D-1869 | 03/31/2026 | 03/30/2027 |
| Preamplifier | Agilent | 11909A | 12-1 | 02/06/2026 | 02/05/2027 |
| Preamplifier | CD | PAP-1840-60 | 6041.6042 | 05/16/2026 | 05/15/2027 |
| Test software | Fara | EZ-EMC | EMEC-3A1-Pre | --- | --- |
| Cable line | Fulai(7M) | SF106 | 5219/6A | 01/13/2024 | 01/12/2027 |
| Cable line | Fulai(6M) | SF106 | 5220/6A | 01/13/2024 | 01/12/2027 |
| Cable line | Fulai(3M) | SF106 | 5216/6A | 01/13/2024 | 01/12/2027 |
| Cable line | Fulai(3M) | SF106 | 5217/6A | 01/13/2024 | 01/12/2027 |

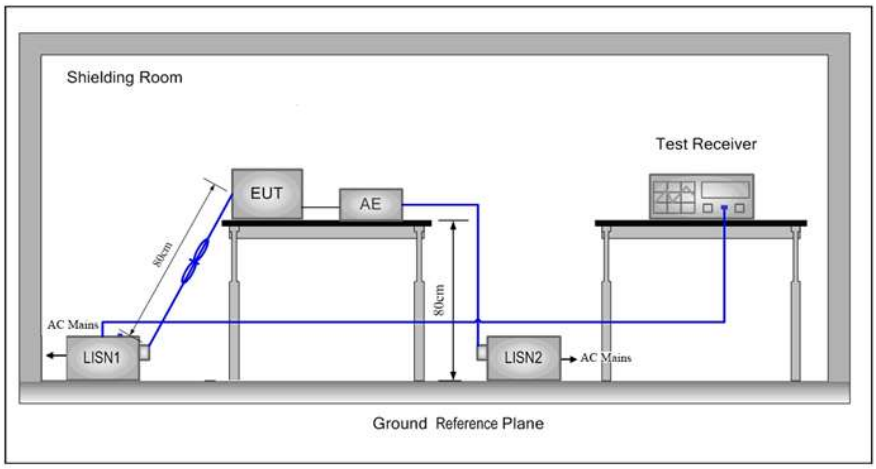
| Conducted disturbance Test | | | | | |
|---|---|---|---|---|---|
| Equipment | Manufacturer | Model No. | Serial Number | Cal. date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| Receiver | R&S | ESCI | 100435 | 04-07-2026 | 04-06-2027 |
| Temperature/ Humidity Indicator | Defu | TH128 | / | 03-24-2026 | 03-23-2027 |
| LISN | R&S | ENV216 | 100098 | 09-13-2025 | 09-12-2026 |
| Barometer | changchun | DYM3 | 1188 | --- | --- |
| Test software | Fara | EZ-EMC | EMC-CON 3A1.1 | --- | --- |
| Capacitive voltage probe | Schwarzbeck | CVP 9222C | 00124 | 06-10-2026 | 06-09-2027 |
| ISN | TESEQ | ISN T800 | 30297 | 11-24-2025 | 11-23-2026 |

# 5 Test results and Measurement Data

## 5.1 Antenna Requirement

| **Standard requirement:** | 47 CFR Part 15C Section 15.203 /247(c) |
|---|---|
| 15.203 requirement:<br>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, 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.<br>15.247(b) (4) requirement:<br>The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi. | |
| **EUT Antenna:** | Please see Internal photos |
| The antenna is Chip Antenna. The best case gain of the antenna is 2.95dBi. | |

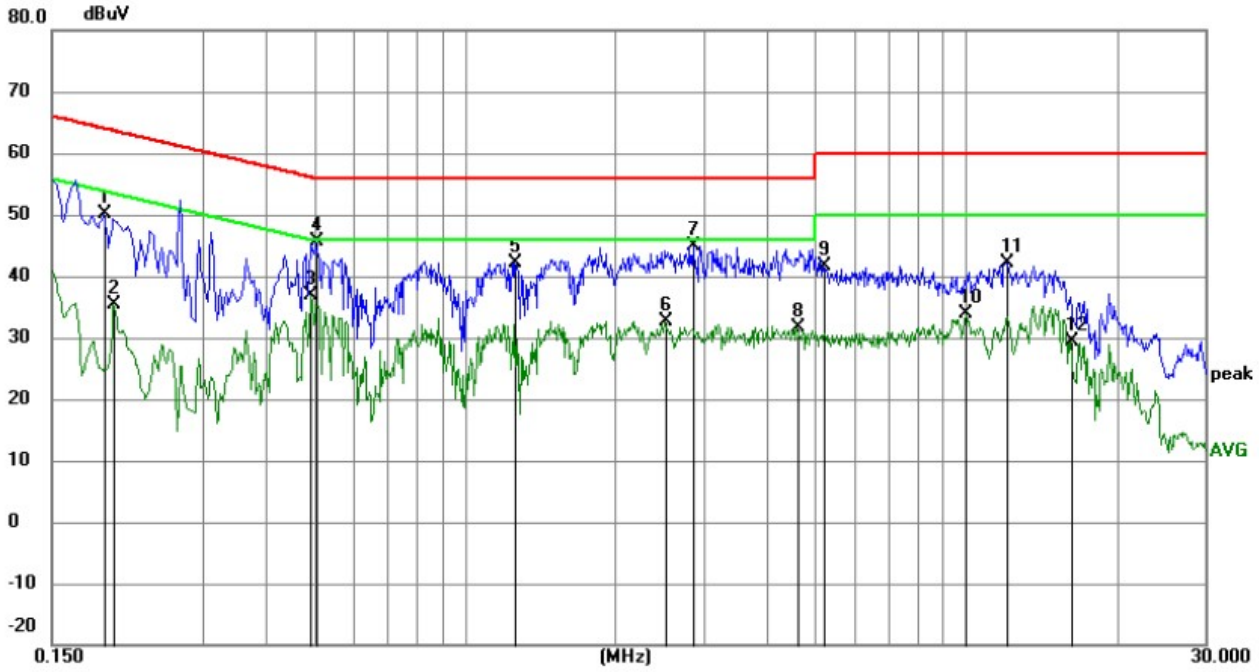
## 5.2 AC Power Line Conducted Emissions

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.207 |
| Test Method: | ANSI C63.10-2020 |
| Test Frequency Range: | 150kHz to 30MHz |
| Receiver setup: | RBW=9 kHz, VBW=30 kHz, Sweep time=auto |
| Limit: | Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average<br>0.15-0.5: 66 to 56* / 56 to 46*<br>0.5-5: 56 / 46<br>5-30: 60 / 50<br>* Decreases with the logarithm of the frequency. |
| Test Setup: |  |
| Test Procedure: | 1) The mains terminal disturbance voltage test was conducted in a shielded room.<br>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.<br>3) 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.<br>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.<br>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10-2020 on conducted measurement. |
| Test Mode: | All modes were tested, only the worse case lowest channel of 1Mbps for 802.11b was recorded in the report. |

| Test Results: | Pass |
|---|---|

**Measurement Data**

Live line:



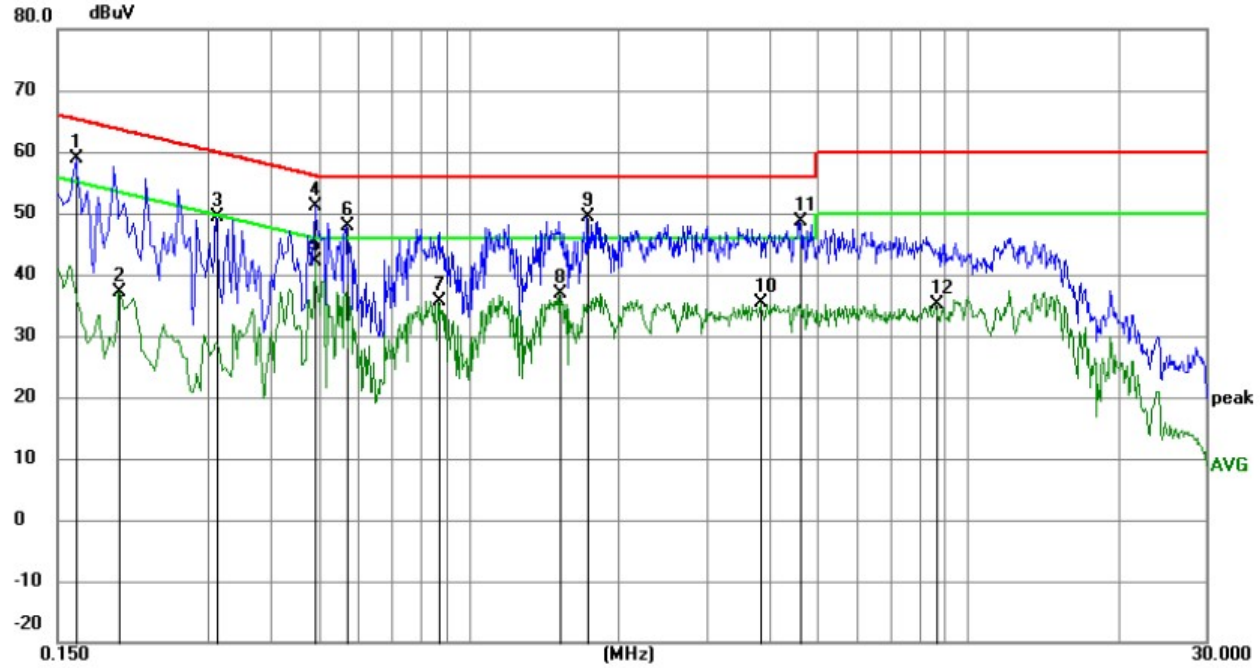

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1905 | 39.90 | 10.27 | 50.17 | 64.01 | -13.84 | QP | |
| 2 | | 0.1995 | 24.99 | 10.27 | 35.26 | 53.63 | -18.37 | AVG | |
| 3 | * | 0.4920 | 26.81 | 10.08 | 36.89 | 46.13 | -9.24 | AVG | |
| 4 | | 0.5055 | 35.50 | 10.07 | 45.57 | 56.00 | -10.43 | QP | |
| 5 | | 1.2615 | 31.96 | 10.21 | 42.17 | 56.00 | -13.83 | QP | |
| 6 | | 2.5035 | 22.57 | 10.11 | 32.68 | 46.00 | -13.32 | AVG | |
| 7 | | 2.8545 | 34.81 | 10.09 | 44.90 | 56.00 | -11.10 | QP | |
| 8 | | 4.6185 | 21.72 | 10.00 | 31.72 | 46.00 | -14.28 | AVG | |
| 9 | | 5.2035 | 31.70 | 9.97 | 41.67 | 60.00 | -18.33 | QP | |
| 10 | | 10.0004 | 24.08 | 9.84 | 33.92 | 50.00 | -16.08 | AVG | |
| 11 | | 12.0390 | 32.49 | 9.75 | 42.24 | 60.00 | -17.76 | QP | |
| 12 | | 16.1610 | 19.62 | 9.66 | 29.28 | 50.00 | -20.72 | AVG | |

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. Margin=Measurement-Limit.

4. Measurement=Reading Level+Correct Factor.
5. In the test results, an asterisk (*) indicates Maximum Data, a cross (X) indicates over Limit.
6. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:

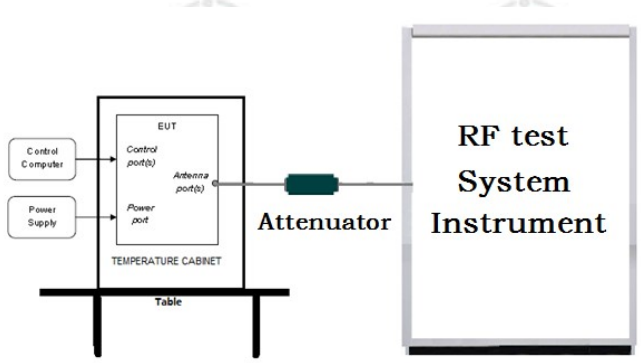



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1635 | 48.58 | 10.28 | 58.86 | 65.28 | -6.42 | QP | |
| 2 | | 0.1995 | 26.88 | 10.27 | 37.15 | 53.63 | -16.48 | AVG | |
| 3 | | 0.3120 | 39.33 | 10.06 | 49.39 | 59.92 | -10.53 | QP | |
| 4 | | 0.4920 | 41.05 | 10.08 | 51.13 | 56.13 | -5.00 | QP | |
| 5 | * | 0.4920 | 32.16 | 10.08 | 42.24 | 46.13 | -3.89 | AVG | |
| 6 | | 0.5685 | 37.89 | 10.08 | 47.97 | 56.00 | -8.03 | QP | |
| 7 | | 0.8700 | 25.39 | 10.21 | 35.60 | 46.00 | -10.40 | AVG | |
| 8 | | 1.5225 | 26.82 | 10.18 | 37.00 | 46.00 | -9.00 | AVG | |
| 9 | | 1.7295 | 39.14 | 10.16 | 49.30 | 56.00 | -6.70 | QP | |
| 10 | | 3.8580 | 25.31 | 10.04 | 35.35 | 46.00 | -10.65 | AVG | |
| 11 | | 4.6005 | 38.65 | 10.00 | 48.65 | 56.00 | -7.35 | QP | |
| 12 | | 8.6415 | 25.20 | 9.85 | 35.05 | 50.00 | -14.95 | AVG | |

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. Margin=Measurement-Limit.
4. Measurement=Reading Level+Correct Factor.
5. In the test results, an asterisk (*) indicates Maximum Data, a cross (X) indicates over Limit.
6. If the Peak value under Average limit, the Average value is not recorded in the report.

## 5.3 Maximum Conducted Output Power

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (b)(3) |
| Test Method: | ANSI C63.10-2020 |
| Test Setup: |  |
| Test Procedure: | 1. PKPM1 Peak power meter measurement<br>The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector. |
| Limit: | 30dBm |
| Test Mode: | Refer to clause 3.3 |
| Test Results: | Refer to Appendix A |