# FCC 47 CFR PART 15 SUBPART C & INDUSTRY CANADA RSS-210

## TEST REPORT

## For

## Video Intercom

## Model No.: TD63-HW / TD53-HW

## Trade Name: Verkada

Issued to

**FCC: Verkada Inc**
**405 E. 4th Ave. San Mateo California United States 94401**
**IC:Verkada, Inc.**
**405 E. 4th Ave. San Mateo CA 94401 United States Of America (Excluding The States Of Alaska**

Issued by

**Compliance Certification Services Inc.**
**Wugu Laboratory**
**No.11, Wugong 6th Rd., Wugu Dist.,**
**New Taipei City, Taiwan.**
**Issued Date: October 29, 2024**

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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# Revision History

| Rev. | Issue Date | Revisions | Effect Page | Revised By |
|---|---|---|---|---|
| 00 | October 22, 2024 | Initial Issue | ALL | Peggy Tsai |
| 01 | October 28, 2024 | See the following Note Rev. (01) | P.4, 21-26 | Peggy Tsai |
| 02 | October 29, 2024 | See the following Note Rev. (02) | P.5 | Peggy Tsai |

**Note:**
**Rev. (01)**
1. Modify Standard in section 1.
2. Delete the 300m remark of Actual FS and add setting information in section 7.2.

**Rev. (02)**
1. Modify Remark in section 2.

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# 1. TEST RESULT CERTIFICATION

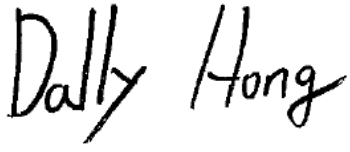
| | |
|---|---|
| **Applicant:** | FCC: Verkada Inc<br>405 E. 4th Ave. San Mateo California United States 94401<br>IC: Verkada, Inc.<br>405 E. 4th Ave. San Mateo CA 94401 United States Of America (Excluding The States Of Alaska |
| **Manufacturer:** | CHICONY ELECTRONICS ( THAILAND) CO., LTD<br>82 MOO 4 T. THAKHAM A. BANGPAKONG,<br>CHACHOENGSAO, THAILAND 24130 |
| **Equipment Under Test:** | Video Intercom |
| **Trade Name:** | Verkada |
| **Model No.:** | TD63-HW / TD53-HW |
| **Date of Test:** | June 25 ~ September 6, 2024 |

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULT** |
| FCC 47 CFR Part 15 Subpart C &<br>RSS-210 Issue 11 and RSS-GEN Issue 5 | Compliance |
| **Statements of Conformity** | |
| Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty. | |

## We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.225.
The test results of this report relate only to the tested sample identified in this report.

Approved by:



Dally Hong
Sr. Engineer

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# 2. EUT DESCRIPTION

| | |
|---|---|
| **Product** | Video Intercom |
| **Trade** | Verkada |
| **Model No.** | TD63-HW / TD53-HW |
| **Model Discrepancy** | Difference of the model number (list on this report) is just with or without keypad and corresponding housing. All the other HW and FW features are all the same. |
| **Received Date** | May 31, 2024 |
| **Power Supply** | Power from Poe Adapter.<br>ZYXEL / PoE12-60W<br>I/P: 100-240VAC, 2.0A, 50-60Hz<br>O/P: 56.0VDC, 1.161A, 65.1W |
| **Frequency Range** | 13.56MHz |
| **Modulation Technique** | ASK |
| **Number of Channels** | 1 Channel |
| **Antenna Requirement** | Type: PCB Antenna<br>Model: F-OW-51-6008-001-00 |
| **PMN** | TD63-HW: TD63<br>TD53-HW: TD53 |
| **EUT Serial #** | TD63-HW: KENW-T9L4-7D7H<br>TD53-HW: LKEJ-6CR7-LNWW |
| **HW Version** | B02 |
| **FW Version** | v259 |

**Remark:**
1. For more details, refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. Disclaimer: The variant model numbers are assessed as identical in hardware and software to each other, hence all variants are fully covered by the test results in this test report without further verification test.
4. The manufacturer stated that the PoE adapter will provide corresponding current according to the product.

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# 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC CFR 47 Part 15.207, 15.209, 15.215, 15.225.

The tests documented in this report were performed in accordance with IC RSS-210, IC RSS-Gen, and ANSI C63.10: 2013

## 3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

## 3.2 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| [1]0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.52525 | 2655 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 156.7 - 156.9 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 162.0125 - 167.17 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 167.72 - 173.2 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 240 - 285 | 3600 - 4400 | ([2]) |
| 13.36 - 13.41 | 322 - 335.4 | | |

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

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## 3.3 RSS GEN SECTION 8.10 RESTRICTED BANDS OF OPERATIONS

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

(a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).

(b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.

(c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

**Table 7 – Restricted frequency bands** Note 1

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 608 - 614 | 9.0 - 9.2 |
| 0.495 - 0.505 | 16.69475 - 16.69525 | 960 - 1427 | 9.3 - 9.5 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 1435 - 1626.5 | 10.6 - 12.7 |
| 3.020 - 3.026 | 25.5 - 25.67 | 1645.5 - 1646.5 | 13.25 - 13.4 |
| 4.125 - 4.128 | 37.5 - 38.25 | 1660 - 1710 | 14.47 - 14.5 |
| 4.17725 - 4.17775 | 73 - 74.6 | 1718.8 - 1722.2 | 15.35 - 16.2 |
| 4.20725 - 4.20775 | 74.8 - 75.2 | 2200 - 2300 | 17.7 - 21.4 |
| 5.677 – 5.683 | 108 – 138 | 2310 - 2390 | 22.01 - 23.12 |
| 6.215 - 6.218 | 149.9 - 150.05 | 2483.5 - 2500 | 23.6 - 24.0 |
| 6.26775 - 6.26825 | 156.52475 - | 2655 - 2900 | 31.2 - 31.8 |
| 6.31175 - 6.31225 | 156.52525 | 3260 – 3267 | 36.43 - 36.5 |
| 8.291 - 8.294 | 156.7 - 156.9 | 3332 - 3339 | Above 38.6 |
| 8.362 - 8.366 | 162.0125 - 167.17 | 3345.8 - 3358 | |
| 8.37625 - 8.38675 | 167.72 - 173.2 | 3500 – 4400 | |
| 8.41425 - 8.41475 | 240 – 285 | 4500 - 5150 | |
| 12.29 - 12.293 | 322 - 335.4 | 5350 - 5460 | |
| 12.51975 - 12.52025 | 399.9 - 410 | 7250 - 7750 | |
| 12.57675 - 12.57725 | | 8025 – 8500 | |
| 13.36 - 13.41 | | | |

**Note 1:** Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

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## 3.4 DESCRIPTION OF TEST MODES

The EUT had been tested under engineering test mode condition and the EUT staying in continuous transmitting mode.

All modes and data rates were investigated and it was determined that ISO 14443A/B and ISO 18092 Type y, 106/212/424/848 kbps.

All data rates were investigated and it was determined that 106 Kbps was considered worst-case. Therefore, all testing was performed in 106 Kbps mode.

### 3.4.1 The worst mode of measurement

| AC Power Line Conducted Emission | |
|---|---|
| **Test Condition** | **AC Power line conducted emission for line and neutral** |
| **Power supply Mode** | **Mode 1: EUT Power by PoE Adapter(TD63-HW)**<br>**Mode 2: EUT Power by PoE Adapter(TD53-HW)** |
| **Worst Mode** | ☒ **Mode 1** ☒ **Mode 2** ☐ **Mode 3** ☐ **Mode 4** |

| Radiated Emission Measurement Below 1G | |
|---|---|
| **Test Condition** | **Radiated Emission Below 1G** |
| **Power supply Mode** | **Mode 1: EUT power by PoE Adapter (TD53-HW)**<br>**Mode 2: EUT power by PoE Adapter (TD63-HW)** |
| **Worst Mode** | ☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4** |

**Remark:**

1. The worst mode was record in this test report.
2. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as worse case.
3. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report.

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# 4. TEST SUMMARY

| FCC Standard Sec. | IC Standard Sec. | Chapter | Test Item | Result |
|---|---|---|---|---|
| 15.203 | RSS-GEN Sec. 6.8 | 2 | Antenna Requirement | Pass |
| 15.215 | RSS-GEN Sec 6.7 | 7.1 | Occupied Bandwidth (99%) and 20dB Bandwidth | Pass |
| 15.225 (a,b,c,d) 15.209 15.205 | Sec B.6, a RSS-GEN Sec 8.9 / 8.10 | 7.2 | Radiated Emissions | Pass |
| 15.255 (e) | Sec B.6, b | 7.3 | Frequency Stability | Pass |
| 15.207 | RSS-GEN Sec. 8.8 | 7.4 | AC Power-line Conducted Emission | Pass |

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# 5. INSTRUMENT CALIBRATION

## 5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

## 5.2 MEASUREMENT EQUIPMENT USED

**Equipment Used for Emissions Measurement**

| Conducted_FCC/IC/NCC(All) | | | | | |
|---|---|---|---|---|---|
| **Name of Equipment** | **Manufacturer** | **Model** | **Serial Number** | **Calibration Date** | **Calibration Due** |
| Loop Probe | LANGER EMV-TECHNIK | RF-R 50-1 | 02-2644 | 2024-01-02 | 2025-01-01 |
| Constant Temperature Humidity Chamber | TERCHY | MHG-150LF | 930619 | 2023-10-26 | 2024-10-25 |
| EXA Signal Analyzer | Keysight | N9030B | MY62291089 | 2023-10-13 | 2024-10-12 |
| **Software** | N/A | | | | |

| 966A_Radiated Below 30MHz | | | | | |
|---|---|---|---|---|---|
| **Name of Equipment** | **Manufacturer** | **Model** | **Serial Number** | **Calibration Date** | **Calibration Due** |
| Signal Analyzer | KEYSIGHT | N9010A | MY52220817 | 2024-03-15 | 2025-03-14 |
| Active Loop Antenna | SCHWARZBECK | FMZB 1513-60 | 1513-60-028 | 2023-12-13 | 2024-12-12 |
| Thermo-Hygro Meter | WISEWIND | 1206 | D07 | 2023-12-07 | 2024-12-06 |
| Bi-Log Antenna | Sunol Sciences | JB3 | A030105 | 2023-08-08 | 2024-08-07 |
| | | | | 2024-07-12 | 2025-07-11 |
| Preamplifier | EMEC | EM330 | 060609 | 2024-02-21 | 2025-02-20 |
| Cable | Huber+Suhner | 104PEA | 20995+21000+182330 | 2024-02-21 | 2025-02-20 |
| Turn Table | CCS | CC-T-1F | N/A | N.C.R | N.C.R |
| Controller | CCS | CC-C-1F | N/A | N.C.R | N.C.R |
| Antenna Tower | CCS | CC-A-1F | N/A | N.C.R | N.C.R |
| **Software** | e3 V9-210616c | | | | |

**Remark:**
1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Request.

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| AC Mains Conduction | | | | | |
|---|---|---|---|---|---|
| **Name of Equipment** | **Manufacturer** | **Model** | **Serial Number** | **Calibration Date** | **Calibration Due** |
| EMI Test Receiver | R&S | ESCI | 100064 | 2024-06-14 | 2025-06-13 |
| LISN | TESEQ | LN2-16N | 22012 | 2024-02-29 | 2025-02-27 |
| Cable | Woken | SFL402 | 185A | 2024-07-08 | 2025-07-07 |
| **Software** | e3 V6-110812 | | | | |

**Remark:**
1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Request.

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## 5.3 MEASUREMENT UNCERTAINTY

| PARAMETER | UNCERTAINTY |
|---|---|
| AC Powerline Conducted Emission | ± 2.213 dB |
| Channel Bandwidth | ± 2.7% |
| Freqeuncy Stability | ± 0.03 ppm |
| Radiated Emission_9kHz-30MHz | ± 3.761 dB |
| Radiated Emission_30MHz-200MHz | ± 3.473 dB |
| Radiated Emission_200MHz-1GHz | ± 3.946 dB |

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

## 5.4 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.
CAB identifier: TW1309

| Test site | Test Engineer | Remark |
|---|---|---|
| AC Conduction Room | Ben Yang | - |
| Radiation | Ray Li、Tony Chao | - |
| RF Conducted | Marco Chan | - |

**Remark:** The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC pubic Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309

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# 6. SETUP OF EQUIPMENT UNDER TEST

## 6.1 SUPPORT EQUIPMENT

| EUT Accessories Equipment | | | | | | |
|---|---|---|---|---|---|---|
| **No.** | **Equipment** | **Brand** | **Model** | **Series No.** | **FCC ID** | **IC** |
| | N/A | | | | | |

| Support Equipment (Conducted) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Equipment** | **Brand** | **Model** | **Series No.** | **FCC ID** |
| 1 | NB(B) | Lenovo | T470 | N/A | N/A |
| 2 | Adapter | Lenovo | ADLX45DLC3A | N/A | N/A |
| 3 | PoE Injector | Zyxel | PoE12-60W | S212L41486914 | N/A |
| 4 | RJ45 | LINKOMM | E530529 | N/A | N/A |
| 5 | RJ45 | LINKOMM | E530529 | N/A | N/A |
| A | Card | N/A | N/A | N/A | N/A |

| Support Equipment (RSE) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Equipment** | **Brand** | **Model** | **Series No.** | **FCC ID** |
| 1 | NB(D) | Lenovo | ThinkPad X260 | N/A | N/A |
| 2 | Adapter | Lenovo | ADLX45DLC3A | N/A | N/A |
| 3 | PoE Injector | Zyxel | PoE12-60W | S212L41486914 | N/A |
| 4 | Ethernet Cable | Rasto | R-PCC004 | N/A | N/A |
| 5 | Ethernet Cable | Atake | AC6-FL10 | N/A | N/A |
| A | Card | N/A | N/A | N/A | N/A |

| Support Equipment (Conduction) | | | | | |
|---|---|---|---|---|---|
| **No.** | **Equipment** | **Brand** | **Model** | **Series No.** | **FCC ID** |
| 1 | NB(D) | Lenovo | ThinkPad X260 | N/A | N/A |
| 2 | PoE Injector | Zyxel | PoE12-60W | S212L41486914 | N/A |
| 3 | Ethernet Cable | Rasto | R-PCC004 | N/A | N/A |
| 4 | Ethernet Cable | Atake | AC6-FL10 | N/A | N/A |
| A | Card | N/A | N/A | N/A | N/A |

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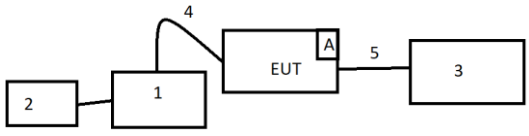
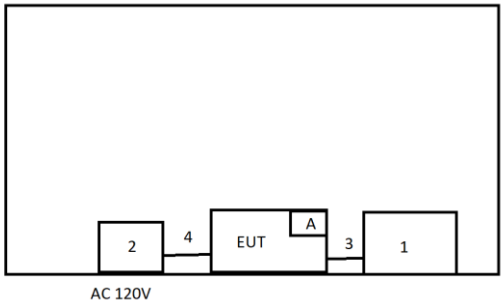
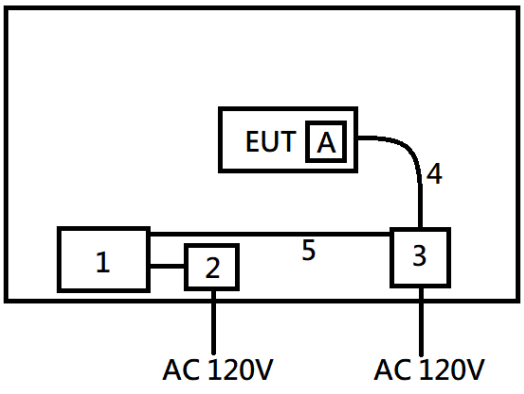
## 6.2 SETUP CONFIGURATION OF EUT

| Conducted | Conduction |
|---|---|
|  |  |

**RSE**




## 6.3 TEST PROGRAM

This EUT uses "Tera term v4.73" software and setup command to set the frequency, modulation, and power to allow the sample to continuously transmit.

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# 7. FCC PART 15.225 REQUIREMENTS & RSS-210 REQUIREMENTS

## 7.1 OCCUPIED BANDWIDTH(99%) AND 20 dB BANDWIDTH

### TEST CONFIGURATION

Refer to section 6.2.

### TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW & VBW (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth (VBW) shall not be smaller than three times the RBW value.
4. Record the max. reading.

### TEST RESULTS

Compliance

| | | | |
|---|---|---|---|
| **Temperature:** | 22 ~ 22.5℃ | **Tested by:** | Marco Chan |
| **Humidity:** | 54 ~ 57% RH | **Test Date:** | June 25 ~ 26, 2024 |

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| Test Condition | Frequency(MHz) | Occupied Bandwidth 99% (kHz) | 20 dB Bandwidth (kHz) |
|---|---|---|---|
| NFC | 13.56 | 2.124 | 2.505 |

**Note**
Because the measured signal adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice ~ three the RBW.

## Test Plot


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## 7.2 FUNDAMENTAL AND RADIATED EMISSIONS

### LIMIT

According to §15.225

(a) The field strength of any emissions within the band 13.553 – 13.567 MHz shall not exceed 15,848 microvolts / meter at 30 meters.
(b) Within the bands 13.410 – 13.553 MHz and 13.567 -13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts / meter at 30 meters.
(c) Within the bands 13.110 – 13.410 MHz and 13.710 – 14.010 MHz the field strength of any emissions shall not exceed 106 microvolts / meter at 30 meters.
(d) The field strength of any emissions appearing outside of the 13.110 – 14.010 MHz and shall not exceed the general radiated emission limits in §15.209.

According to §15.225, except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (μV/m at meter) | Measurement Distance (meter) |
|---|---|---|
| 0.009 – 0.490 | 2400 / F (kHz) | 300 |
| 0.490 – 1.705 | 24000 / F (kHz) | 30 |
| 1.705 – 30.0 | 30 | 30 |
| 30 - 88 | 100** | 3 |
| 88-216 | 150** | 3 |
| 216-960 | 200** | 3 |
| Above 960 | 500 | 3 |

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

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According to RSS 210 §B.6

The field strength of any emission shall not exceed the following limits:

(a) 15.848 mV/m (84 dBμV/m) at30 m, within the band 13.553-13.567 MHz;
(b) 334 μV/m (50.5 dBμV/m) at 30 m,within the bands 13.410-13.553 MHz and 13.567‑13.710 MHz;
(c) 106 μV/m (40.5 dBμV/m) at 30 m,within the bands 13.110-13.410 MHz and 13.710‑14.010 MHz; and
(d) RSS-Gen general field strength limits for frequencies outside the band 13.110‑14.010 MHz.

**Below 30 MHz**

| Frequency | Magnetic field strength (H-Field) (μA/m) | Measurement Distance (metres) |
|---|---|---|
| 9-490 kHz Note 1 | 6.37/F (F in kHz) | 300 |
| 490-1,705 kHz | 63.7/F (F in kHz) | 30 |
| 1.705-30 MHz | 0.08 | 30 |

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

**Above 30 MHz**

| Frequency | Field strength (μV/m at 3 m) |
|---|---|
| 30-88 | 100 |
| 88-216 | 150 |
| 216-960 | 200 |
| Above 960 | 500 |

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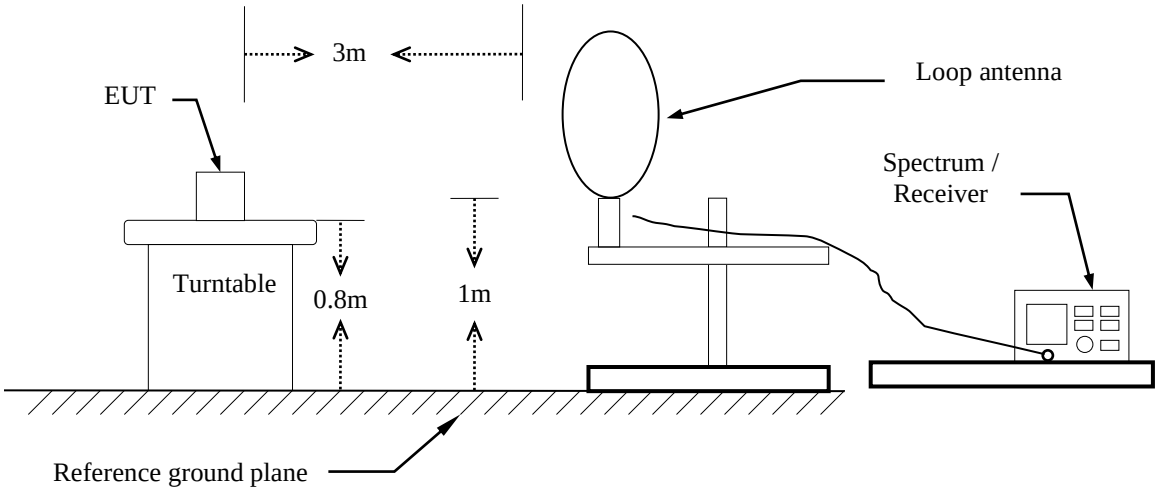
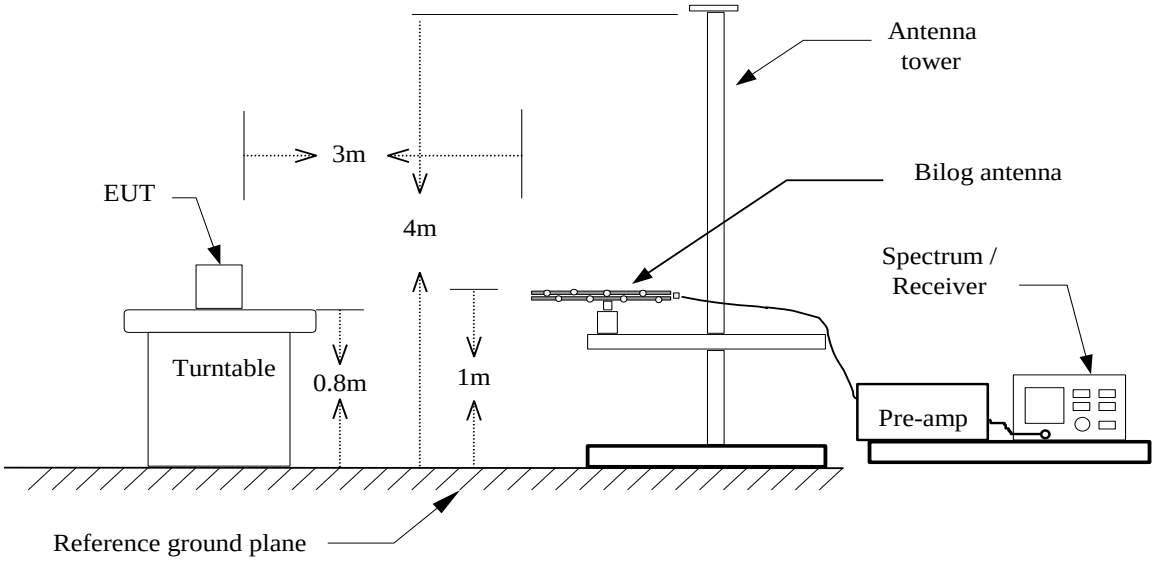
## Test Configuration

### 9kHz ~ 30MHz




### 30MHz ~ 1GHz

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# TEST PROCEDURE

**For 9kHz ~ 30MHz**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, The lower edge of the loop shall be 1 m above the ground then to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Set the spectrum analyzer in the following setting as:
   9KHz-490KHz : RBW=200Hz / VBW=1kHz / Sweep=AUTO
   490KHz-30MHz : RBW=10kHz / VBW=30kHz / Sweep=AUTO
6. Repeat above procedures until the measurements for all frequencies are complete.

**For 30MHz ~ 1GHz**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving
   antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:
   RBW=100kHz / VBW=300kHz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

**Remark :**

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

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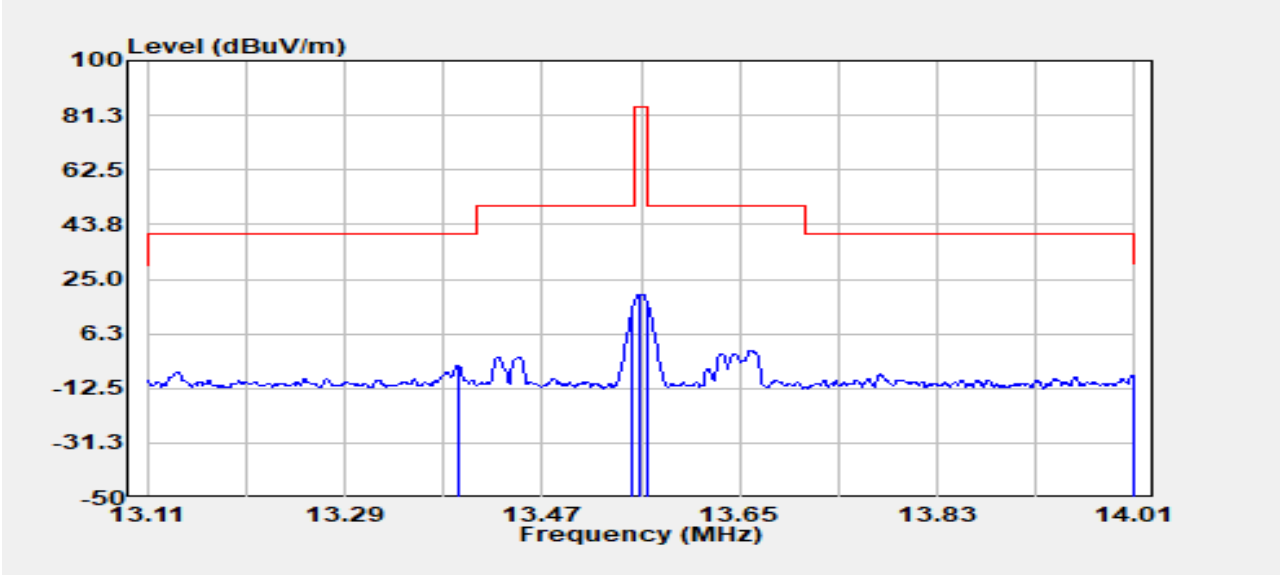
| | | | |
|---|---|---|---|
| Project No | :TM-2405000384P | Test Date | :2024-07-08 |
| Operation Band | :NFC | Temp./Humi. | :24.6/56 |
| Frequency | :13.56 MHz | Antenna Pol. | :Horizontal |
| Operation Mode | :Main | Engineer | :Ray Li |
| EUT Pol | :E1 | Test Chamber | : 966A |
| Setting | :Default | | |




| Freq. | Detector Mode | Spectrum Read Level @3m | Factor @3m | Actual FS @3m | Factor @30m&300m | Actual FS @30m | Limit | Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | PK/QP/AV | dBµV | dB | dBµV/m | dB | dBµV/m | dBµV/m | dB |
| 13.394 | Peak | 18.59 | 16.68 | 35.27 | -40.00 | -4.73 | 40.51 | -45.23 |
| 13.553 | Peak | 38.71 | 16.65 | 55.36 | -40.00 | 15.36 | 50.47 | -35.11 |
| 13.560 | Peak | 43.21 | 16.65 | 59.86 | -40.00 | 19.86 | 84.00 | -64.14 |
| 13.567 | Peak | 39.81 | 16.65 | 56.46 | -40.00 | 16.46 | 50.47 | -34.01 |
| 14.009 | Peak | 15.93 | 16.57 | 32.50 | -40.00 | -7.50 | 40.51 | -48.01 |

**Remark:**

1. Radiated emissions measured were made with an instrument using peak/quasi-peak/average detector mode.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).
4. Result=Read level+Factor@3m-Distance factor
5. Distance factor=40log(30m/3m)
6. Factor=antenna factor+cable loss

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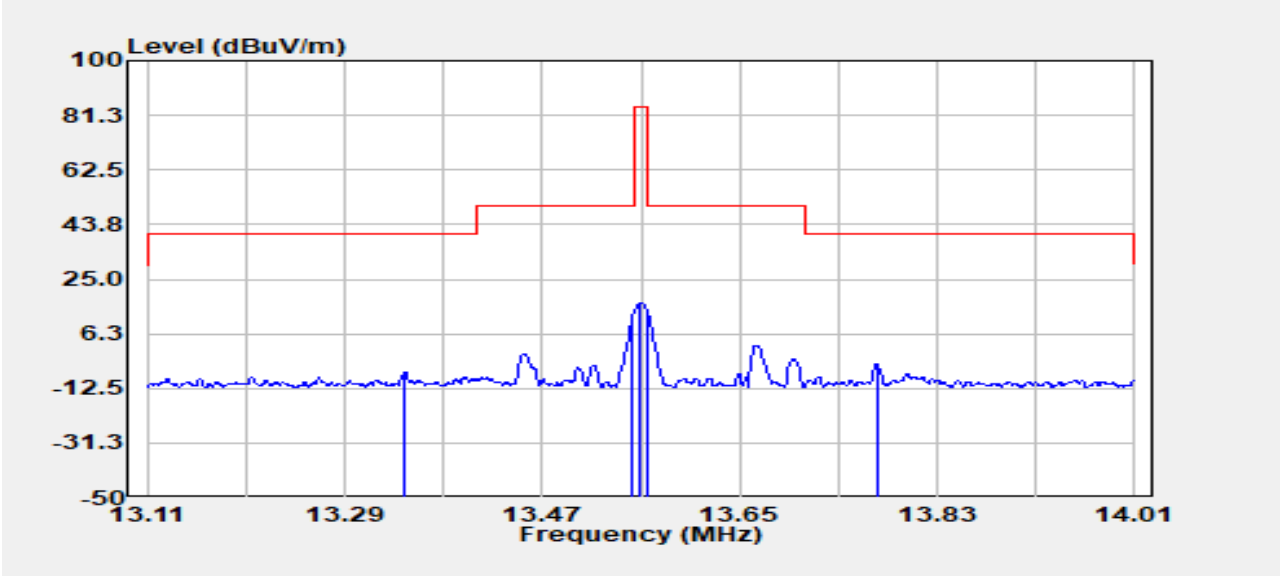
| | | | |
|---|---|---|---|
| Project No | :TM-2405000384P | Test Date | :2024-07-08 |
| Operation Band | :NFC | Temp./Humi. | :24.6/56 |
| Frequency | :13.56 MHz | Antenna Pol. | :Vertical |
| Operation Mode | :Main | Engineer | :Ray Li |
| EUT Pol | :E1 | Test Chamber | : 966A |
| Setting | :Default | | |




| Freq. | Detector Mode | Spectrum Read Level @3m | Factor @3m | Actual FS @3m | Factor @30m&300m | Actual FS @30m | Limit | Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | PK/QP/AV | dBµV | dB | dBµV/m | dB | dBµV/m | dBµV/m | dB |
| 13.345 | Peak | 16.27 | 16.69 | 32.95 | -40.00 | -7.05 | 40.51 | -47.55 |
| 13.553 | Peak | 35.58 | 16.65 | 52.23 | -40.00 | 12.23 | 50.47 | -38.24 |
| 13.560 | Peak | 40.14 | 16.65 | 56.79 | -40.00 | 16.79 | 84.00 | -67.21 |
| 13.567 | Peak | 36.77 | 16.65 | 53.42 | -40.00 | 13.42 | 50.47 | -37.05 |
| 13.775 | Peak | 19.00 | 16.61 | 35.61 | -40.00 | -4.39 | 40.51 | -44.90 |

**Remark:**

1. Radiated emissions measured were made with an instrument using peak/quasi-peak/average detector mode.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).
4. Result=Read level+Factor@3m-Distance factor
5. Distance factor=40log(30m/3m)
6. Factor=antenna factor+cable loss

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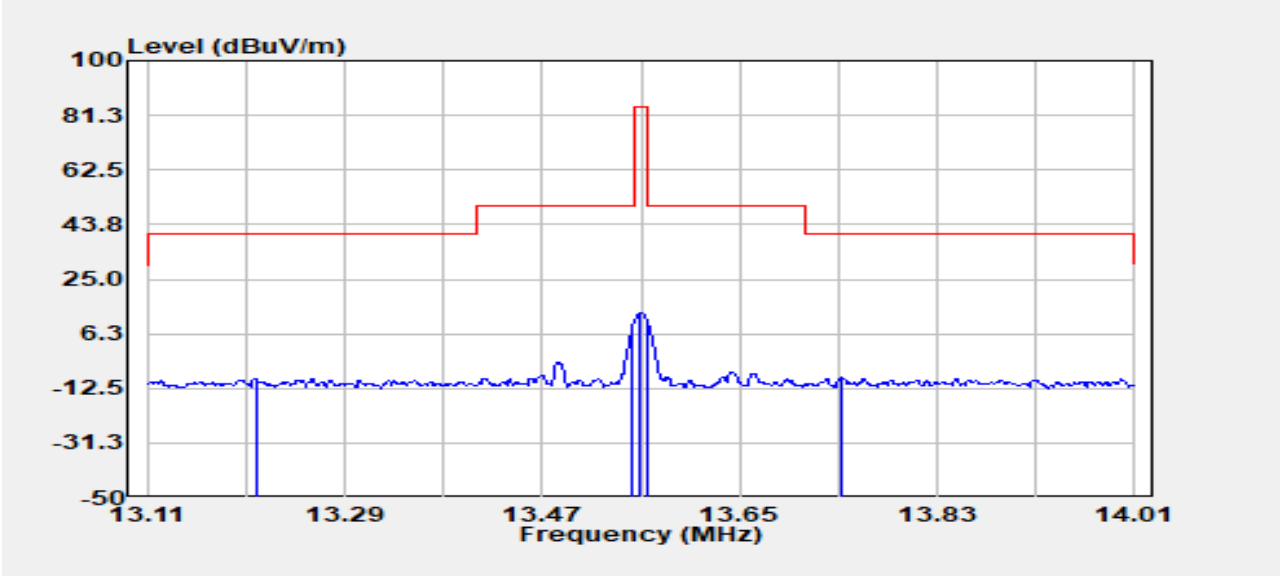
| | | | |
|---|---|---|---|
| Project No | :TM-2405000384P | Test Date | :2024-07-09 |
| Operation Band | :NFC | Temp./Humi. | :24.6/56 |
| Frequency | :13.56 MHz | Antenna Pol. | :Vertical |
| Operation Mode | :Main | Engineer | :Ray Li |
| EUT Pol | :E1 | Test Chamber | : 966A |
| Setting | :Default | | |




| Freq. | Detector Mode | Spectrum Read Level @3m | Factor @3m | Actual FS @3m | Factor @30m&300m | Actual FS @30m | Limit | Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | PK/QP/AV | dBµV | dB | dBµV/m | dB | dBµV/m | dBµV/m | dB |
| 13.209 | Peak | 14.13 | 16.71 | 30.84 | -40.00 | -9.16 | 40.51 | -49.67 |
| 13.553 | Peak | 32.30 | 16.65 | 48.95 | -40.00 | 8.95 | 50.47 | -41.52 |
| 13.560 | Peak | 36.89 | 16.65 | 53.54 | -40.00 | 13.54 | 84.00 | -70.46 |
| 13.567 | Peak | 33.37 | 16.65 | 50.02 | -40.00 | 10.02 | 50.47 | -40.45 |
| 13.743 | Peak | 14.56 | 16.61 | 31.17 | -40.00 | -8.83 | 40.51 | -49.34 |

**Remark:**

1. Radiated emissions measured were made with an instrument using peak/quasi-peak/average detector mode.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).
4. Result=Read level+Factor@3m-Distance factor
5. Distance factor=40log(30m/3m)
6. Factor=antenna factor+cable loss

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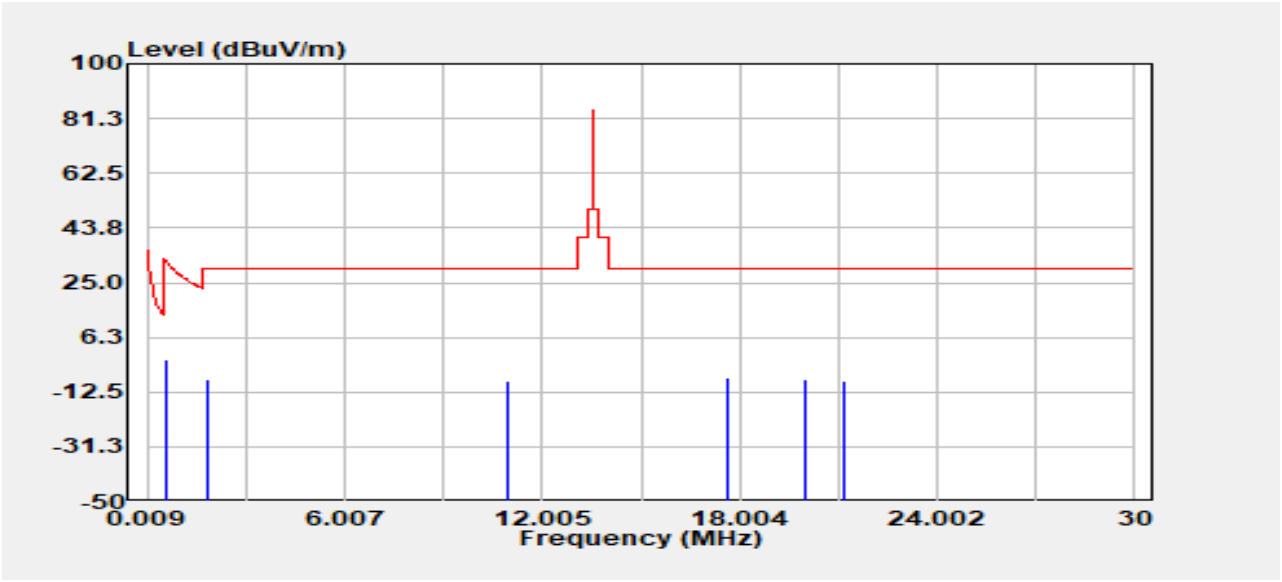
**9kHz ~ 30MHz**

| | | | |
|---|---|---|---|
| Project No | :TM-2405000384P | Test Date | :2024-07-09 |
| Operation Band | :NFC | Temp./Humi. | :24.6/56 |
| Frequency | :13.56 MHz | Antenna Pol. | :Horizontal |
| Operation Mode | :TX | Engineer | :Ray Li |
| EUT Pol | :E1 | Test Chamber | : 966A |
| Setting | :Default | | |




| Freq. | Detector Mode | Spectrum Read Level @3m | Factor @3m | Actual FS @3m | Factor @30m&300m | Actual FS @30m&300m | Limit | Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | PK/QP/AV | dBµV | dB | dBµV/m | dB | dBµV/m | dBµV/m | dB |
| 0.604 | Peak | 24.13 | 14.51 | 38.65 | -40.00 | -1.35 | 31.99 | -33.34 |
| 1.834 | Peak | 17.33 | 14.81 | 32.14 | -40.00 | -7.86 | 29.54 | -37.40 |
| 10.920 | Peak | 14.41 | 17.09 | 31.51 | -40.00 | -8.49 | 29.54 | -38.03 |
| 17.660 | Peak | 14.87 | 17.59 | 32.46 | -40.00 | -7.54 | 29.54 | -37.08 |
| 19.982 | Peak | 14.17 | 17.46 | 31.64 | -40.00 | -8.36 | 29.54 | -37.90 |
| 21.135 | Peak | 14.53 | 17.02 | 31.55 | -40.00 | -8.45 | 29.54 | -37.99 |

**Remark:**

1. 9kHz to 490kHz Limit(@3m) = 2400(F/kHz)
   490kHz to 1.705MHz Limit (@3m) = 2400(F/kHz)
   1.705MHz to 30MHz Limit (@3m) = 29.54
2. Distance factor=40log(300m/3m)@9-490kHz ; 40log(30m/3m)@490kHz-30MHz
3. Result=Read level+Factor@3m-Distance factor

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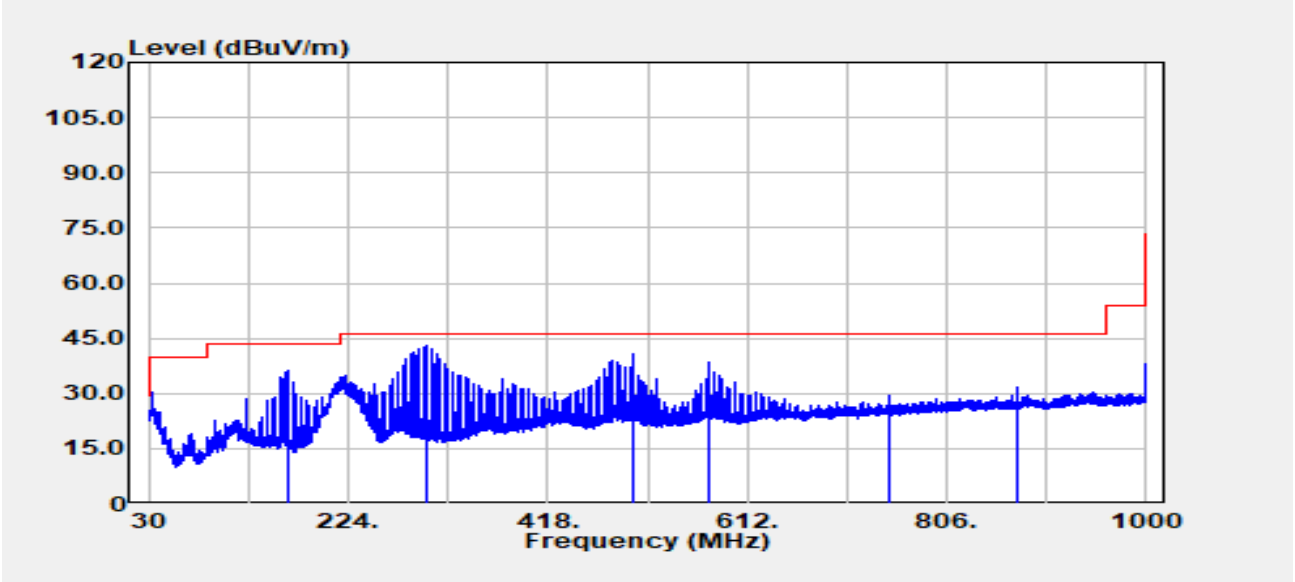
**30MHz ~ 1GHz**

| | | | |
|---|---|---|---|
| Project No | :TM-2405000384P | Test Date | :2024-09-06 |
| Operation Band | :NFC | Temp./Humi. | :24.6/57 |
| Frequency | :13.56 MHz | Antenna Pol. | :VERTICAL |
| Operation Mode | :TX | Engineer | :Tony Chao |
| EUT Pol | :E1 | Test Chamber | : 966A |
| Setting | :Default | | |




| Freq. MHz | Detector Mode PK/QP/AV | Spectrum Read Level dBµV | Factor dB | Actual FS dBµV/m | Limit dBµV/m | Margin dB |
|---|---|---|---|---|---|---|
| 165.92 | Peak | 47.68 | -11.50 | 36.18 | 43.50 | -7.32 |
| 301.12 | Peak | 52.11 | -9.31 | 42.80 | 46.00 | -3.20 |
| 499.97 | Peak | 44.95 | -4.40 | 40.55 | 46.00 | -5.45 |
| 575.02 | Peak | 41.57 | -3.19 | 38.38 | 46.00 | -7.62 |
| 749.98 | Peak | 29.61 | -0.25 | 29.36 | 46.00 | -16.64 |
| 874.99 | Peak | 30.01 | 1.50 | 31.51 | 46.00 | -14.49 |

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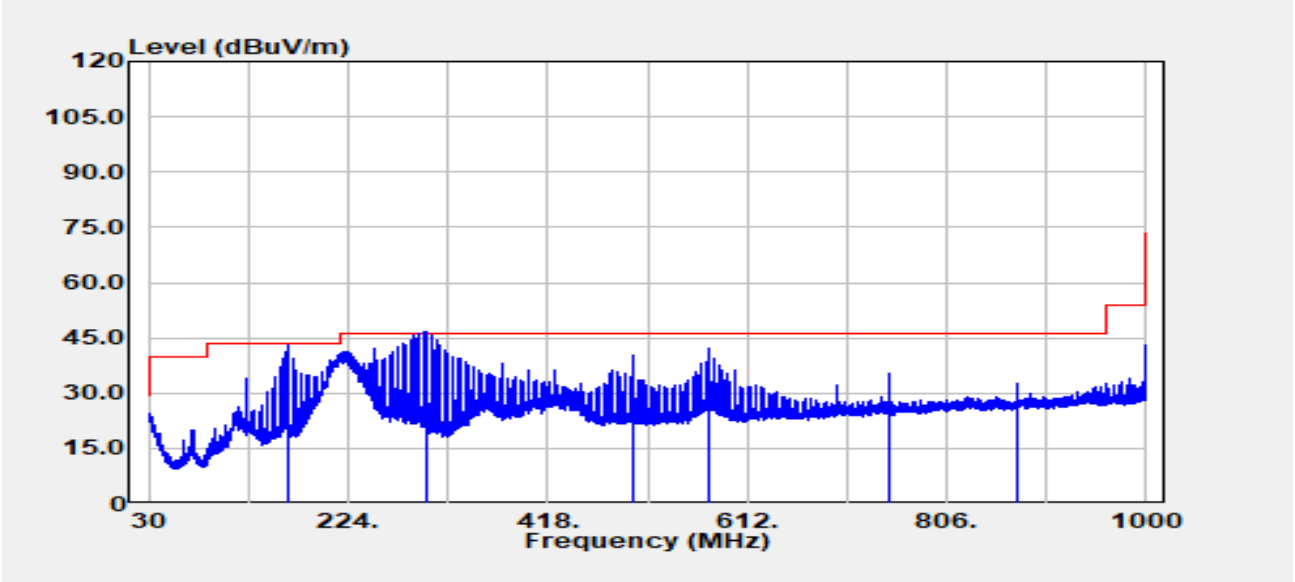
| | | | |
|---|---|---|---|
| Project No | :TM-2405000384P | Test Date | :2024-09-06 |
| Operation Band | :NFC | Temp./Humi. | :24.6/57 |
| Frequency | :13.56 MHz | Antenna Pol. | :HORIZONTAL |
| Operation Mode | :TX | Engineer | :Tony Chao |
| EUT Pol | :E1 | Test Chamber | : 966A |
| Setting | :Default | | |




| Freq. MHz | Detector Mode PK/QP/AV | Spectrum Read Level dBµV | Factor dB | Actual FS dBµV/m | Limit dBµV/m | Margin dB |
|---|---|---|---|---|---|---|
| 165.92 | Peak | 54.35 | -11.50 | 42.85 | 43.50 | -0.65 |
| 301.12 | QP | 54.90 | -9.31 | 45.59 | 46.00 | -0.41 |
| 499.97 | Peak | 44.84 | -4.40 | 40.44 | 46.00 | -5.56 |
| 575.02 | Peak | 45.46 | -3.19 | 42.27 | 46.00 | -3.73 |
| 749.98 | Peak | 35.61 | -0.25 | 35.36 | 46.00 | -10.64 |
| 874.99 | Peak | 31.30 | 1.50 | 32.80 | 46.00 | -13.20 |

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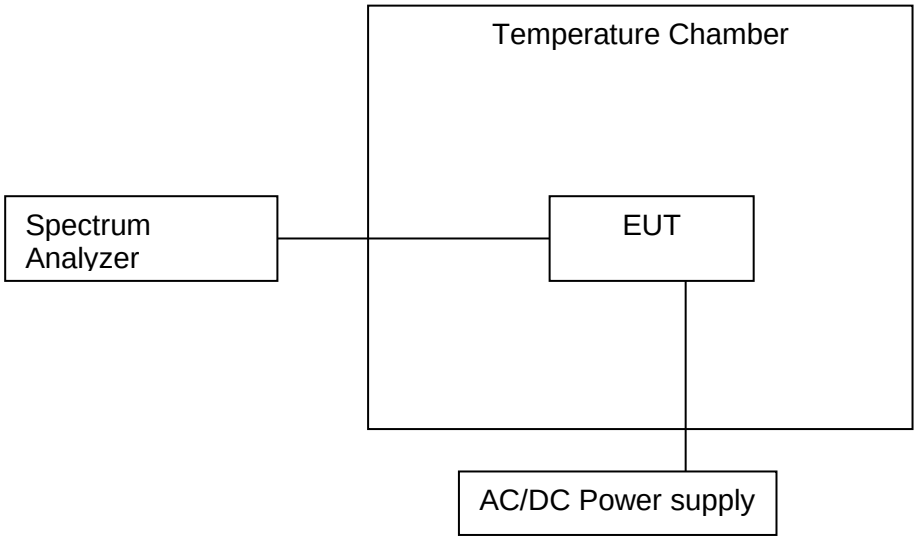
## 7.3 FREQUENCY STABILITY

### LIMIT

According to §15.225(e) and RSS-210, B.6,
The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

### Test Configuration

**Temperature and Voltage Measurement (under normal and extreme test conditions)**




### TEST PROCEDURE

1. Turn the EUT off, and place it inside the environmental temperature chamber.
2. Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.
3. Set the spectrum analyzer as RBW=1kHz, VBW = RBW, Span = 200kHz, Sweep = auto.
4. Turn the EUT on and record the operating frequency at startup and two, five, and ten minutes after the EUT is energized.
5. Switch off the EUT and Lower the chamber temperature by not more than 10 °C and allow the temperature inside the chamber to stabilize.
6. Mark the peak frequency and measure the frequency tolerance using frequency counter function.
7. Repeat step 4 through step 6 down to the specified temperature.

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## TEST RESULTS

Compliance

| | | | |
|---|---|---|---|
| **Temperature:** | 22 ~ 22.5℃ | **Tested by:** | Marco Chan |
| **Humidity:** | 54 ~ 57% RH | **Test Date:** | June 25 ~ 26, 2024 |

## TEST DATA

| **Startup** | | | | |
|---|---|---|---|---|
| A. Temperature Variation | | | | |
| Power Supply | Environment | Frequency | Delta (kHz) | Limit (kHz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 120 | -20 | 13.5600428 | 0.04280 | +/- 1.356 |
| 120 | -10 | 13.5600446 | 0.04460 | +/- 1.356 |
| 120 | 0 | 13.5600492 | 0.04920 | +/- 1.356 |
| 120 | 10 | 13.5600392 | 0.03920 | +/- 1.356 |
| 120 | 20 | 13.5600430 | 0.04300 | +/- 1.356 |
| 120 | 30 | 13.5600357 | 0.03570 | +/- 1.356 |
| 120 | 40 | 13.5600520 | 0.05200 | +/- 1.356 |
| 120 | 50 | 13.5600384 | 0.03840 | +/- 1.356 |
| B. Supply Voltage Variation | | | | |
| Power Supply | Environment | Frequency | Delta (kHz) | Limit (kHz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 138 | 20 | 13.5600417 | 0.04170 | +/- 1.356 |
| 120 | 20 | 13.5600430 | 0.04300 | +/- 1.356 |
| 102 | 20 | 13.5600499 | 0.04990 | +/- 1.356 |

**Note:** Extreme temperatures are declared by the manufacturer

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| 2 minutes | | | | |
|---|---|---|---|---|
| A. Temperature Variation | | | | |
| Power Supply | Environment | Frequency | Delta (kHz) | Limit (kHz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 120 | -20 | 13.5600398 | 0.03980 | +/- 1.356 |
| 120 | -10 | 13.5600432 | 0.04320 | +/- 1.356 |
| 120 | 0 | 13.5600493 | 0.04930 | +/- 1.356 |
| 120 | 10 | 13.5600488 | 0.04880 | +/- 1.356 |
| 120 | 20 | 13.5600333 | 0.03330 | +/- 1.356 |
| 120 | 30 | 13.5600337 | 0.03370 | +/- 1.356 |
| 120 | 40 | 13.5600448 | 0.04480 | +/- 1.356 |
| 120 | 50 | 13.5600330 | 0.03300 | +/- 1.356 |
| B. Supply Voltage Variation | | | | |
| Power Supply | Environment | Frequency | Delta (kHz) | Limit (kHz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 138 | 20 | 13.560040 | 0.04000 | +/- 1.356 |
| 120 | 20 | 13.5600333 | 0.03330 | +/- 1.356 |
| 102 | 20 | 13.5600453 | 0.04530 | +/- 1.356 |

**Note:** Extreme temperatures are declared by the manufacturer

| 5 minutes | | | | |
|---|---|---|---|---|
| A. Temperature Variation | | | | |
| Power Supply | Environment | Frequency | Delta (kHz) | Limit (kHz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 120 | -20 | 13.5600520 | 0.05200 | +/- 1.356 |
| 120 | -10 | 13.5600420 | 0.04200 | +/- 1.356 |
| 120 | 0 | 13.5600344 | 0.03440 | +/- 1.356 |
| 120 | 10 | 13.5600469 | 0.04690 | +/- 1.356 |
| 120 | 20 | 13.5600484 | 0.04840 | +/- 1.356 |
| 120 | 30 | 13.5600351 | 0.03510 | +/- 1.356 |
| 120 | 40 | 13.5600492 | 0.04920 | +/- 1.356 |
| 120 | 50 | 13.5600493 | 0.04930 | +/- 1.356 |
| B. Supply Voltage Variation | | | | |
| Power Supply | Environment | Frequency | Delta (kHz) | Limit (kHz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 138 | 20 | 13.5600398 | 0.03980 | +/- 1.356 |
| 120 | 20 | 13.5600484 | 0.04840 | +/- 1.356 |
| 102 | 20 | 13.5600449 | 0.04490 | +/- 1.356 |

**Note:** Extreme temperatures are declared by the manufacturer

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| 10 minutes | | | | |
|---|---|---|---|---|
| A. Temperature Variation | | | | |
| Power Supply | Environment | Frequency | Delta (kHz) | Limit (kHz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 120 | -20 | 13.5600385 | 0.03850 | +/- 1.356 |
| 120 | -10 | 13.5600451 | 0.04510 | +/- 1.356 |
| 120 | 0 | 13.5600482 | 0.04820 | +/- 1.356 |
| 120 | 10 | 13.5600343 | 0.03430 | +/- 1.356 |
| 120 | 20 | 13.5600445 | 0.04450 | +/- 1.356 |
| 120 | 30 | 13.5600486 | 0.04860 | +/- 1.356 |
| 120 | 40 | 13.5600426 | 0.04260 | +/- 1.356 |
| 120 | 50 | 13.5600418 | 0.04180 | +/- 1.356 |
| B. Supply Voltage Variation | | | | |
| Power Supply | Environment | Frequency | Delta (kHz) | Limit (kHz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 138 | 20 | 13.5600468 | 0.04680 | +/- 1.356 |
| 120 | 20 | 13.5600445 | 0.04450 | +/- 1.356 |
| 102 | 20 | 13.5600416 | 0.04160 | +/- 1.356 |

**Note:** Extreme temperatures are declared by the manufacturer

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## 7.4 AC POWERLINE CONDUCTED EMISSIONS

### LIMIT

According to §15.207(a) and RSS-Gen §8.8 for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

| Frequency Range (MHz) | Limits (dBµV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56* | 56 to 46* |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

***** Decreases with the logarithm of the frequency.

### TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked and Average measurement records.

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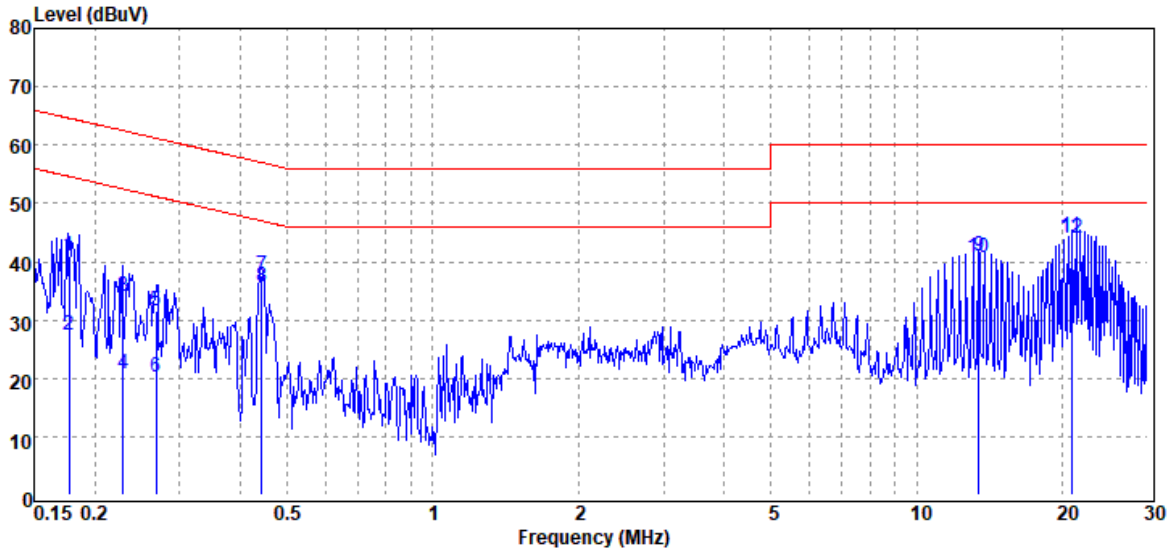
| | | | |
|---|---|---|---|
| Project No | : TM-2405000384P | Test Date | : 2024-07-10 |
| Operation Mode | : NFC | Temp./Humi. | : 23.4°C / 54% |
| Test Chamber | : Conduction | Engineer | : Ben Yang |
| Probe | : LINE | Test Voltage | : AC 120V/60Hz |
| Note | : | | |




| Freq. | Detector Mode | Spectrum Read Level | Factor | Actual FS | Limit | Margin |
|---|---|---|---|---|---|---|
| MHz | PK/QP/AV | dBµV | dB | dBµV | dBµV | dB |
| 0.178 | QP | 40.77 | 0.28 | 41.05 | 64.60 | -23.55 |
| 0.178 | Average | 27.07 | 0.28 | 27.35 | 54.60 | -27.25 |
| 0.229 | QP | 33.63 | 0.39 | 34.02 | 62.49 | -28.47 |
| 0.229 | Average | 20.38 | 0.39 | 20.77 | 52.49 | -31.72 |
| 0.268 | QP | 31.28 | 0.39 | 31.67 | 61.17 | -29.50 |
| 0.268 | Average | 19.89 | 0.39 | 20.28 | 51.17 | -30.89 |
| 0.444 | QP | 37.23 | 0.38 | 37.61 | 56.99 | -19.38 |
| 0.444 | Average | 35.32 | 0.38 | 35.70 | 46.99 | -11.29 |
| 13.417 | QP | 40.44 | 0.41 | 40.85 | 60.00 | -19.15 |
| 13.417 | Average | 40.34 | 0.41 | 40.75 | 50.00 | -9.25 |
| 20.915 | QP | 43.72 | 0.49 | 44.21 | 60.00 | -15.79 |
| 20.915 | Average | 43.58 | 0.49 | 44.07 | 50.00 | -5.93 |

Note: 1. Actual FS= Spectrum Read Level + Factor
Note: 2. Margin= Actual FS - Limit

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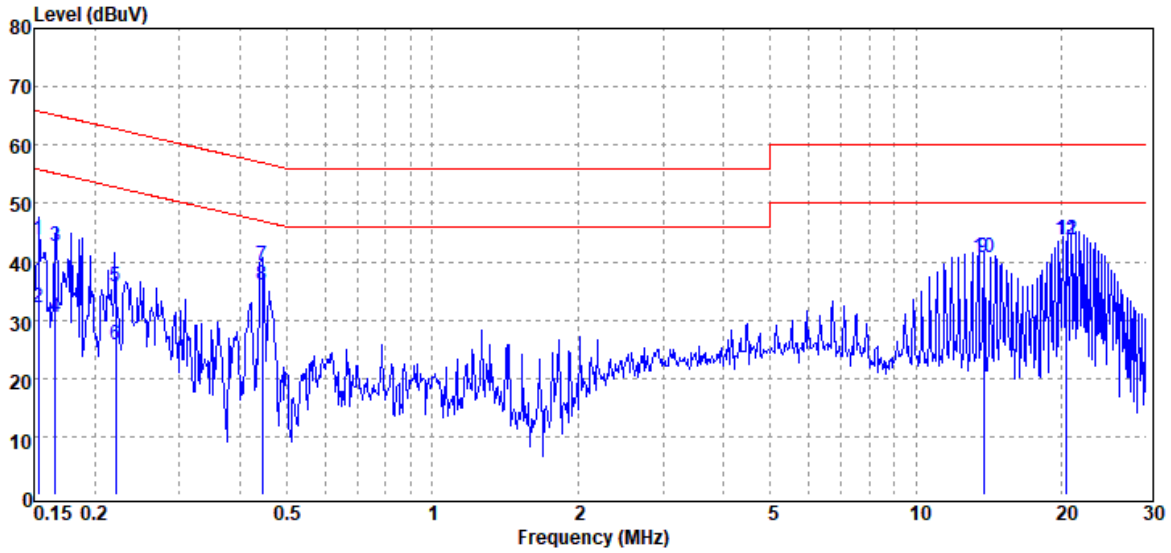
| | | | |
|---|---|---|---|
| Project No | : TM-2405000384P | Test Date | : 2024-07-10 |
| Operation Mode | : NFC | Temp./Humi. | : 23.4°C / 54% |
| Test Chamber | : Conduction | Engineer | : Ben Yang |
| Probe | : NEUTRAL | Test Voltage | : AC 120V/60Hz |
| Note | : | | |




| Freq. | Detector Mode | Spectrum Read Level | Factor | Actual FS | Limit | Margin |
|---|---|---|---|---|---|---|
| MHz | PK/QP/AV | dBµV | dB | dBµV | dBµV | dB |
| 0.153 | QP | 43.63 | 0.12 | 43.75 | 65.82 | -22.07 |
| 0.153 | Average | 31.93 | 0.12 | 32.05 | 55.82 | -23.77 |
| 0.166 | QP | 42.48 | 0.19 | 42.67 | 65.16 | -22.49 |
| 0.166 | Average | 30.27 | 0.19 | 30.46 | 55.16 | -24.70 |
| 0.221 | QP | 35.26 | 0.36 | 35.62 | 62.78 | -27.16 |
| 0.221 | Average | 25.27 | 0.36 | 25.63 | 52.78 | -27.15 |
| 0.445 | QP | 38.83 | 0.35 | 39.18 | 56.96 | -17.78 |
| 0.445 | Average | 35.75 | 0.35 | 36.10 | 46.96 | -10.86 |
| 13.813 | QP | 40.42 | 0.38 | 40.80 | 60.00 | -19.20 |
| 13.813 | Average | 40.40 | 0.38 | 40.78 | 50.00 | -9.22 |
| 20.522 | QP | 43.28 | 0.45 | 43.73 | 60.00 | -16.27 |
| 20.522 | Average | 43.21 | 0.45 | 43.66 | 50.00 | -6.34 |

Note: 1. Actual FS= Spectrum Read Level + Factor
Note: 2. Margin= Actual FS - Limit

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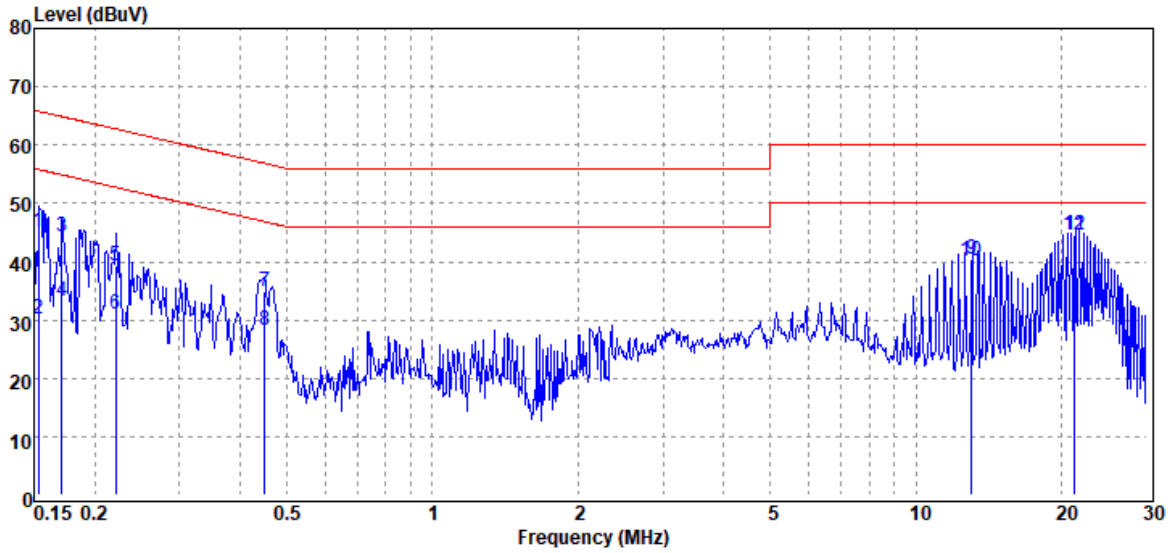
| | | | |
|---|---|---|---|
| Project No | : TM-2405000384P | Test Date | : 2024-07-10 |
| Operation Mode | : NFC | Temp./Humi. | : 23.4°C / 54% |
| Test Chamber | : Conduction | Engineer | : Ben Yang |
| Probe | : LINE | Test Voltage | : AC 230V/60Hz |
| Note | : | | |




| Freq. | Detector Mode | Spectrum Read Level | Factor | Actual FS | Limit | Margin |
|---|---|---|---|---|---|---|
| MHz | PK/QP/AV | dBµV | dB | dBµV | dBµV | dB |
| 0.153 | QP | 44.88 | 0.14 | 45.02 | 65.81 | -20.79 |
| 0.153 | Average | 30.10 | 0.14 | 30.24 | 55.81 | -25.57 |
| 0.172 | QP | 44.15 | 0.25 | 44.40 | 64.89 | -20.49 |
| 0.172 | Average | 33.08 | 0.25 | 33.33 | 54.89 | -21.56 |
| 0.221 | QP | 38.90 | 0.39 | 39.29 | 62.77 | -23.48 |
| 0.221 | Average | 30.62 | 0.39 | 31.01 | 52.77 | -21.76 |
| 0.449 | QP | 34.60 | 0.38 | 34.98 | 56.89 | -21.91 |
| 0.449 | Average | 27.85 | 0.38 | 28.23 | 46.89 | -18.66 |
| 13.020 | QP | 39.91 | 0.40 | 40.31 | 60.00 | -19.69 |
| 13.020 | Average | 39.77 | 0.40 | 40.17 | 50.00 | -9.83 |
| 21.308 | QP | 44.08 | 0.51 | 44.59 | 60.00 | -15.41 |
| 21.308 | Average | 44.00 | 0.51 | 44.51 | 50.00 | -5.49 |

Note: 1. Actual FS= Spectrum Read Level + Factor
Note: 2. Margin= Actual FS - Limit

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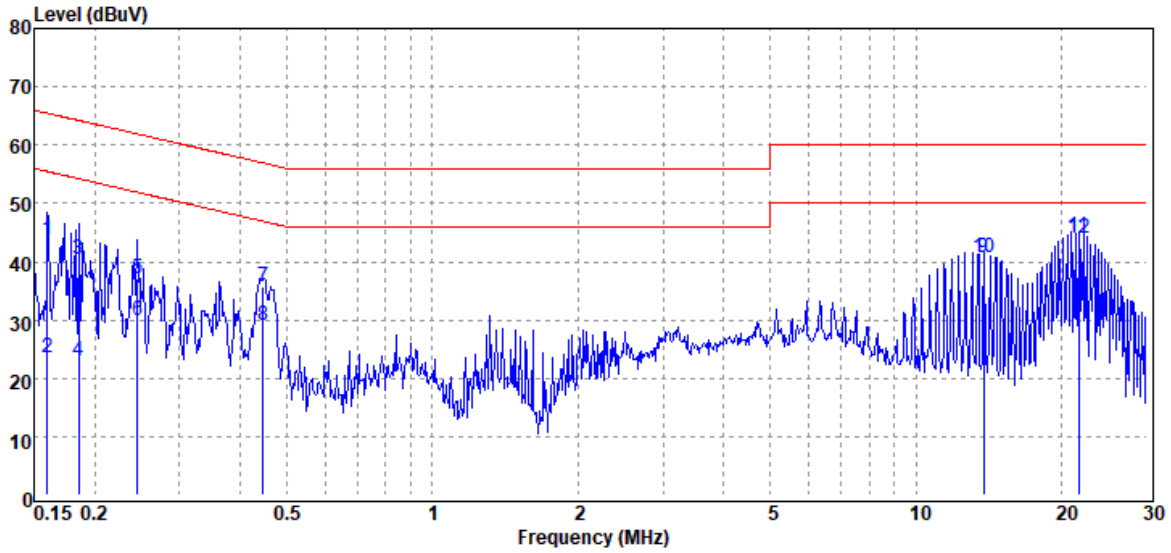
| | | | |
|---|---|---|---|
| Project No | : TM-2405000384P | Test Date | : 2024-07-10 |
| Operation Mode | : NFC | Temp./Humi. | : 23.4°C / 54% |
| Test Chamber | : Conduction | Engineer | : Ben Yang |
| Probe | : NEUTRAL | Test Voltage | : AC 230V/60Hz |
| Note | : | | |




| Freq. | Detector Mode | Spectrum Read Level | Factor | Actual FS | Limit | Margin |
|---|---|---|---|---|---|---|
| MHz | PK/QP/AV | dBµV | dB | dBµV | dBµV | dB |
| 0.160 | QP | 43.50 | 0.16 | 43.66 | 65.46 | -21.80 |
| 0.160 | Average | 23.36 | 0.16 | 23.52 | 55.46 | -31.94 |
| 0.186 | QP | 40.22 | 0.30 | 40.52 | 64.22 | -23.70 |
| 0.186 | Average | 22.67 | 0.30 | 22.97 | 54.22 | -31.25 |
| 0.245 | QP | 36.75 | 0.36 | 37.11 | 61.92 | -24.81 |
| 0.245 | Average | 29.62 | 0.36 | 29.98 | 51.92 | -21.94 |
| 0.447 | QP | 35.44 | 0.35 | 35.79 | 56.93 | -21.14 |
| 0.447 | Average | 28.79 | 0.35 | 29.14 | 46.93 | -17.79 |
| 13.814 | QP | 40.36 | 0.38 | 40.74 | 60.00 | -19.26 |
| 13.814 | Average | 40.31 | 0.38 | 40.69 | 50.00 | -9.31 |
| 21.705 | QP | 43.71 | 0.47 | 44.18 | 60.00 | -15.82 |
| 21.705 | Average | 43.56 | 0.47 | 44.03 | 50.00 | -5.97 |

Note: 1. Actual FS= Spectrum Read Level + Factor
Note: 2. Margin= Actual FS - Limit

**- End of Test Report -**

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