



TEST REPORT

| Applicant | Yardi Systems Inc. |
|-----------|--|
| Address | 430 South Fairview Ave Goleta, CA 93117 |

| FCC ID | 2BAL9YDIZW |
|---------------------|-----------------------------|
| ISED Canada IC | 30221-YDIZW |
| Product Description | IoT Hub |
| PMN | RentCafe Home IQ Hub |
| Model/HVIN | H4P3-TWC, H4P3-TW |
| | 1.19.5 |
| Additional Models | See Section 3.1 for details |
| Date of tests | Apr 9 – Apr 11, 2024 |
| FCC Test Firm DN | US1028 |
| Canada CABID | US0106 |
| | |

The tests have been carried out according to the requirements of the following standard:

☑ FCC Part 15, Subpart C, Section 15.247 ☑ ISED Canada RSS-247 Issue 3

CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement

| Prepared by | Approved by | | | |
|---|-----------------|--|--|--|
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| y. E. July | aits | | | |
| Report Issue Date: Sep 20, 2024 | Issue Number: 3 | | | |
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respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute you unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.





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RELEASE CONTROL RECORD

| ISSUE NO. | REASON FOR CHANGE | DATE ISSUED |
|-----------|--|--------------|
| 1 | Original release | Apr 25, 2024 |
| 2 | Corrected cover page for product description, PMN and HVIN Clarified lowest frequency used/generated in the device in Section 3.1 Clarified the operating state of previously certified modules in the device in Section 3.2 | |
| 3 | To address TCB review comments: - PMN was corrected on cover page | Sep 20, 2024 |





1 SUMMARY OF TEST RESULTS

EUT was tested against the following requirements:

| APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247), RSS-247 | | | | | |
|--|------------|--------------------------------------|------------|--------|--|
| STANDARD SECTION | | TEST TYPE AND LIMIT | APPLICABLE | RESULT | |
| 47CFR15 | RSS | | | | |
| 15.207 | Gen 8.8 | AC Power Line Conducted Emissions | Y | PASS | |
| | 247 3.3 | | | | |
| 15.205 | 247 5.5 | Radiated Sourious Emissions | Y | PASS | |
| 15.209 | Gen 8.9 | | I I | 1700 | |
| | Gen 8.10 | | | | |
| 15.247(d) | 247 5.5 | Conducted Spurious Emissions | Y | PASS | |
| 15.247(a)(2) | 247 5.2(a) | 6dB Bandwidth | Y | PASS | |
| | Gen 6.7 | 99% Occupied Bandwidth | Y | PASS | |
| 15.247(b)(3) | 247 5.4(d) | Conducted Output Power | Y | PASS | |
| 15.247(e) | 247 5.2(b) | Power Spectral Density | Y | PASS | |
| 15.203 | Gen 6.8 | Antenna Requirement | Y | PASS | |





2 MEASUREMENT UNCERTAINTY

The listed uncertainties are the worst-case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results. Values for measurement uncertainty are calculated per ETSI TR 100 028 (2001).

| Measurement | Expanded Uncertainty k=2 | Maximum allowable uncertainty |
|--|--------------------------|-------------------------------|
| Radio frequency (@ 2.4GHz) | 3.23 x 10 ⁻⁸ | 1 x 10 ⁻⁷ |
| RF power, conducted | 0.40dB | 0.75dB |
| Maximum frequency deviation: Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency | 3.4% 0.3dB | 5% 3dB |
| Adjacent channel power | 1.9dB | 3dB |
| Conducted spurious emission of transmitter, valid up to 12.75GHz | 2.39dB | 3dB |
| Conducted emission of receivers | 1.3dB | 3dB |
| Radiated emission of transmitter, valid up to 26.5GHz | 3.9dB | 6dB |
| Radiated emission of transmitter, valid up to 80GHz | 3.3dB | 6dB |
| Radiated emission of receiver, valid up to 26.5GHz | 3.9dB | 6dB |
| Radiated emission of receiver, valid up to 80GHz | 3.3dB | 6dB |
| Humidity | 2.37% | 5% |
| Temperature | 0.7°C | 1.0°C |
| Time | 4.1% | 10% |
| RF Power Density, Conducted | 0.4dB | 3dB |
| DC and low frequency voltages | 1.3% | 3% |
| Voltage (AC, <10kHz) | 1.3% | 2% |
| Voltage (DC) | 0.62% | 1% |
| The above reflects a 95% confidence level | | |

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

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3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

| | | EUT Configu | ration | | | | | |
|------------------------|-----------------------------------|----------------|-----------------|---------|---------------|----------|--------|----------------|
| | | Model Name | | | Part Number | | | |
| | | | | | | | | |
| EUT: | IoT H4P3-TWC Hub (LTE Version) | H4P3-TWC | | | None | | | |
| | IoT H4P3-TW Hub (Non-LTE Version) | H4P3-TW | | | None | | | |
| | CUI INC AC/DC Adapter | SWI25-12-N | | | SWI25-12-N-P5 | | | |
| | CUI INC AC/DC Adapter | SWI18-12-N | | | SWI18-12-N-P5 | | | |
| EUT Description: | HomeIQ Hub | | | | | | | |
| Support Equipment: | | MN | | | | | | SN |
| DELL Laptop | | LATITUDE E6400 | | | | | | X463M A00 |
| DELL AC Adapter | | PA-1900-02D2 | | | | | | U7809 |
| LINKSYS WirelessRouter | | WRV200 | | | | | | MMH006806414 |
| LINKSYS Power Adapter | | AD 12/1A | | | | | | RH48-1201000DU |
| EUT Ports: | | | | | | | | |
| Port Label | Port Type | No. of ports | No. Populate | Cable | Shielded | Forritos | Length | Max Length |
| | Fort Type | No. or ports | u | Type | Unielueu | rennes | Lengui | max Lengui |
| Power | DC Power | 1 | 1 | 2-wires | No | No | 2m | 2m |
| Ethernet | RJ45 | 1 | 1 | Cat 6 | No | No | 5m | 100m |

Lowest frequency used/generated in the device: 32.768kHz

| NOMINAL VOLTAGE | 12VDC via external power supply |
|--------------------------------------|---|
| MODULATION TYPES | OQPSK |
| DATA RATES | 100kbps |
| OPERATING FREQUENCY | 912MHz, 920MHz |
| EUT Power Setting | 140 (max setting) |
| OUTPUT POWER 16.9mW (Peak Conducted) | |
| ANTENNA TYPE | Surface-mount patch antenna with 0.3dBi peak gain |





List of Models and Differences

| Model | Description | |
|----------|--|---|
| H4P3-TW | Includes the following previously certified two radio modules | Y |
| | FCC ID: 2ABCB-RPICM4, IC: 20953-RPICM4 | |
| | FCC ID: 2BAL9YDITRZB, IC: 30221-YDITRZB | |
| H4P3-TWC | Same as H4P3-TW with a previously certified cellular modem and Y | |
| | two extra antennas. | |
| | FCC ID: XMR201807EG95NA, IC: 10224A-2018EG95NA | |
| | Includes supporting components for the cellular modem on the | |
| | base module PCBA | |

NOTES:

- 1. For a more detailed description of the EUT, please refer to the manufacturer's specifications or the user's manual.
- 2. For photos of the EUT, please refer to External and Internal Photos exhibits.

3.2 DESCRIPTION OF TEST MODES

EUT channel list:

| CHANNEL | FREQ. (MHZ) |
|---------|----------------|
| 1 | 912 |
| 2 | 920 |

1 radiated sample of each the LTE and non-LTE versions of the EUT were provided for testing. Also 1 conducted antenna port sample of the LTE version was provided. External control software was supplied by the customer to put the units into required test modes.

Previously certified radio modules referenced in "List of Models and Differences" section of this report, were installed in the device in idle condition during all the testing.

EUT configuration modes:

| TEST MODE | DESCRIPTION |
|-----------|---|
| А | Continuous Transmit at 912MHz, OQPSK, 100kbps (100% Duty-cycle) |
| В | Continuous Transmit at 920MHz, OQPSK, 100kbps (100% Duty-cycle) |

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EUT SETUP BLOCK DIAGRAMS



Following channels/modes were selected for the applicable tests below.

| TEST | TEST MODE | Notes |
|-----------|-----------|------------|
| СОР | А, В | 5, 6 |
| PSD | А, В | 5, 6 |
| CBE | А, В | 5, 6 |
| 6DB | А, В | 5, 6 |
| OBW | А, В | 5, 6 |
| CSE | А, В | 5, 6 |
| RSE<30MHz | В | 1, 2, 3, 5 |
| RSE<1G | А, В | 1, 2, 5 |
| RSE≥1G | А, В | 1, 2, 5 |
| PLCE | В | 1, 4 |

Note 1: Non-LTE version was identified as the worst case model based on radiated emission pre-scans. All final testing was performed on the non-LTE version of the product.

Note 2: For radiated emissions, worst-case orientation was found when the EUT was positioned on X axis as shown in the Test Setup Photos exhibit.

Note 3: Testing below 30MHz was limited to 1 channel only since no emissions were detected in this range.

Note 4: Testing was limited to 1 channel and data rate only since emission profile remained similar between different transmit modes of the EUT.

Note 5: Power supply SWI25-12-N was identified as the worst-case power supply based on pre-scans, therefore this power supply was used for all radiated and antenna port tests.

Note 6: Due to identical transmitter circuitry between the EUT versions, only LTE version was tested for antenna port measurements.

COP: Conducted Output Power

PSD: Power Spectral Density

CBE: Conducted Band-edge

6DB: 6dB Bandwidth

OBW: 99% Occupied Bandwidth

CSE: Conducted Spurious Emissions

RSE: Radiated Spurious Emissions

PLCE: Power Line Conducted Emissions

Environmental conditions are listed on the corresponding data tables.

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3.3 MEASUREMENT PROCEDURES USED

All tests were performed in accordance with the following measurement procedures:

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2013

RSS-Gen Issue 5

3.4 DESCRIPTION OF SUPPORT EQUIPMENT

As listed in Section 3.1 of this report.





4 TEST RESULTS

4.1 AC LINE CONDUCTED EMISSIONS

4.1.1 LIMITS

| FREQUENCY OF EMISSION (MHz) | CONDUCTED | LIMIT (dBµV) |
|-----------------------------|------------|--------------|
| | Quasi-peak | Average |
| 0.15 ~ 0.5 | 66 to 56 | 56 to 46 |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

NOTE: 1. Lower limit applies at the transition frequencies.

2. Limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.1.2 TEST EQUIPMENT USED

| Rev. 4/17/2024 | | | | | | | | |
|--|--------------|----------------|-------------------|-----------|-------|-----|-----------------|---------------|
| Conducted Test Sites (Mains / Telco) | FCC Code | | VCCI Code | | | Cat | Calibration Due | Calibrated on |
| CEMI 1 | 719150 | | A-0015 | | | Ш | NA | N/A |
| Meteorological Meters/Chambers | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | BA928 | Oregon Scientific | C3166-1 | 831 | 1 | 12/15/2025 | 12/15/2022 |
| Asset #2657 | | 1235C97 | Control Company | 200435369 | 2657 | 1 | 8/18/2025 | 8/18/2022 |
| Cables | Range | | Mfr | | | Cat | Calibration Due | Calibrated on |
| CEMI-02 | 9kHz - 2GHz | | C-S | | | П | 1/26/2025 | 1/26/2024 |
| Attenuators | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| 20dB ATT(A#2507) | 9kHz-2GHz | PE7014-20 | Pasternack | 2030 | 2507 | П | 18-Oct-24 | 18-Oct-23 |
| LISNs/Measurement Probes | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| LISN Asset 1726 | 150kHz-30MHz | LI-150A | Com-Power | 201092 | 1726 | I. | 1/17/2025 | 1/17/2024 |
| LISN Asset 1727 | 150kHz-30MHz | LI-150A | Com-Power | 201093 | 1727 | Т | 1/17/2025 | 1/17/2024 |
| Spectrum Analyzers / Receivers /Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Gauss TDEMI Ultra 40 | 9kHz-40Ghz | TDEMI Ultra 40 | Gauss | 2305001 | 2558 | 1 | 7/9/2024 | 7/9/2023 |
| | | | | | | | | |

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.





4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit 20dB) were not recorded. RBW of 9kHz and VBW of 30kHz were used during measurement.

4.1.4 DEVIATIONS

No deviations from the standard.





4.1.5 TEST SETUP





For the actual test configuration, please refer to Test Setup Photos exhibit.

4.1.6 EUT OPERATING CONDITIONS

a. EUT was operated according to manufacturer's specifications.





4.1.7 TEST RESULTS

Test Date: 04/09/2024, Environmental Conditions: 20.7C, 35.9% RH, 1008mbar

Power supply: SWI18-12-N

EUT Mode: 920MHz, 100kbps, OQPSK, Line



Scan1: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 15.0 s MaxPeak, Att AutodB, LISN-LISN_1726_Line-L

| f | Mag [dBuV] | Limit | Diff | Trans | Name |
|----------------|------------|-------|-------|-------|------------|
| 150 kHz | 61.13 | 66.00 | 4.87 | 20.19 | FCC15BCQPK |
| 604.737701 kHz | 49.88 | 56.00 | 6.12 | 20.23 | FCC15BCQPK |
| 6.67903214 MHz | 41.43 | 60.00 | 18.57 | 20.27 | FCC15BCQPK |
| 16.1659453 MHz | 39.30 | 60.00 | 20.70 | 20.29 | FCC15BCQPK |

Scan2: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 15.0 s CAV, Att AutodB, LISN-LISN_1726_Line-L

| f | Mag [dBuV] | Limit | Diff | Trans | Name |
|----------------|------------|-------|-------|-------|------------|
| 604.737701 kHz | 39.11 | 46.00 | 6.89 | 20.23 | FCC15BCAV; |
| 6.67903214 MHz | 24.91 | 50.00 | 25.09 | 20.27 | FCC15BCAV; |
| 16.1659453 MHz | 27.38 | 50.00 | 22.62 | 20.29 | FCC15BCAV; |

EUT Mode: 920MHz, 100kbps, OQPSK, Neutral



Scan1: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 15.0 s MaxPeak, Att AutodB, LISN-LISN_1727_Neutral-N

| f | Mag [dBuV] | Limit | Diff | Trans | Name |
|----------------|------------|-------|-------|-------|------------|
| 154.171906 kHz | 61.34 | 65.77 | 4.43 | 20.20 | FCC15BCQPK |
| 604.737701 kHz | 54.43 | 56.00 | 1.57 | 20.23 | FCC15BCQPK |
| 6.58307831 MHz | 44.40 | 60.00 | 15.60 | 20.23 | FCC15BCQPK |
| 8.38534149 MHz | 43.58 | 60.00 | 16.42 | 20.24 | FCC15BCQPK |
| 16.2285239 MHz | 43.33 | 60.00 | 16.67 | 20.29 | FCC15BCQPK |

Scan2: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 15.0 s CAV, Att AutodB, LISN-LISN_1727_Neutral-N

| f | Mag [dBuV] | Limit | Diff | Trans | Name |
|----------------|------------|-------|-------|-------|------------|
| 604.737701 kHz | 44.25 | 46.00 | 1.75 | 20.23 | FCC15BCAV; |
| 6.69989166 MHz | 30.71 | 50.00 | 19.29 | 20.24 | FCC15BCAV; |

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| 8.38534149 MHz | 29.65 | 50.00 | 20.35 | 20.24 | FCC15BCAV; |
|----------------|-------|-------|-------|-------|------------|
| 16.2285239 MHz | 31.67 | 50.00 | 18.33 | 20.29 | FCC15BCAV; |

Power supply: SWI25-12-N

EUT Mode: 920MHz, 100kbps, OQPSK, Line



Scan1: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 15.0 s MaxPeak, Att AutodB, LISN-LISN_1726_Line-L

| f | Mag [dBuV] | Limit | Diff | Trans | Name |
|----------------|------------|-------|-------|-------|------------|
| 150 kHz | 57.64 | 66.00 | 8.36 | 20.19 | FCC15BCQPK |
| 412.830048 kHz | 53.45 | 57.59 | 4.14 | 20.21 | FCC15BCQPK |
| 6.56221878 MHz | 46.56 | 60.00 | 13.44 | 20.27 | FCC15BCQPK |
| 9.04867447 MHz | 49.38 | 60.00 | 10.62 | 20.28 | FCC15BCQPK |
| 16.2285239 MHz | 41.94 | 60.00 | 18.06 | 20.29 | FCC15BCQPK |
| 23.1288556 MHz | 39.99 | 60.00 | 20.01 | 20.30 | FCC15BCQPK |

Scan2: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 15.0 s CAV, Att AutodB, LISN-LISN_1726_Line-L

| f | Mag [dBuV] | Limit | Diff | Trans | Name |
|----------------|------------|-------|-------|-------|------------|
| 150 kHz | 42.02 | 56.00 | 13.98 | 20.19 | FCC15BCAV; |
| 412.830048 kHz | 43.47 | 47.59 | 4.12 | 20.21 | FCC15BCAV; |
| 6.51632782 MHz | 33.46 | 50.00 | 16.54 | 20.27 | FCC15BCAV; |
| 9.04867447 MHz | 35.91 | 50.00 | 14.09 | 20.28 | FCC15BCAV; |
| 16.2285239 MHz | 32.92 | 50.00 | 17.08 | 20.29 | FCC15BCAV; |
| 23.1288556 MHz | 30.31 | 50.00 | 19.69 | 20.30 | FCC15BCAV; |

EUT Mode: 920MHz, 100kbps, OQPSK, Neutral



Scan1: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 15.0 s MaxPeak, Att AutodB, LISN-LISN_1727_Neutral-N

| f | Mag [dBuV] | Limit | Diff | Trans | Name |
|----------------|------------|-------|------|-------|------------|
| 150 kHz | 56.39 | 66.00 | 9.61 | 20.20 | FCC15BCQPK |
| 412.830048 kHz | 55.93 | 57.59 | 1.66 | 20.22 | FCC15BCQPK |
| 6.40785828 MHz | 51.76 | 60.00 | 8.24 | 20.21 | FCC15BCQPK |
| 9.04033066 MHz | 53.67 | 60.00 | 6.33 | 20.27 | FCC15BCQPK |

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| 16.2285239 MHz | 45.23 | 60.00 | 14.77 | 20.29 | FCC15BCQPK |
|----------------|-------|-------|-------|-------|------------|
| 18.2435542 MHz | 43.08 | 60.00 | 16.92 | 20.28 | FCC15BCOPK |

Scan2: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 15.0 s CAV, Att AutodB, LISN-LISN_1727_Neutral-N

| f | Mag [dBuV] | Limit | Diff | Trans | Name |
|----------------|------------|-------|-------|-------|------------|
| 404.486237 kHz | 47.46 | 47.76 | 0.30 | 20.22 | FCC15BCAV; |
| 412.830048 kHz | 47.27 | 47.59 | 0.32 | 20.22 | FCC15BCAV; |
| 6.5789064 MHz | 38.19 | 50.00 | 11.81 | 20.23 | FCC15BCAV; |
| 9.04033066 MHz | 41.96 | 50.00 | 8.04 | 20.27 | FCC15BCAV; |
| 16.2285239 MHz | 37.14 | 50.00 | 12.86 | 20.29 | FCC15BCAV; |
| 18.2435542 MHz | 34.92 | 50.00 | 15.08 | 20.28 | FCC15BCAV; |





4.2 RADIATED SPURIOUS EMISSIONS

4.2.1 LIMITS

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emissions limits specified in Section 15.209(a).

| FREQUENCIES (MHz) | FIELD STRENGTH (microvolts/meter) | MEASUREMENT DISTANCE (meters) |
|----------------------|--------------------------------------|----------------------------------|
| 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 |

NOTE:

- 1. Lower limit applies at the transition frequencies.
- 2. dB μ V/m = 20*log(μ V/m).
- 3. As specified in 15.35(b), for frequencies above 1000MHz, field strength limits are based on the use of measurement instrumentation employing an average detector function. However, there is also a limit on the peak level of the emissions that is 20 dB above the maximum permitted average emission limit.
- 4. Limit conversion below 30MHz is done by using the square of an inverse linear distance extrapolation factor (40 dB/decade) as allowed in FCC 15.31(f)(2).

Limit(3m) = Limit(30m) + 40*log(30/3) = Limit(30m) + 40

- Limit (3m) = Limit (300m) + 40*log(300/3) = Limit (300m) + 80
- 5. RSS-GEN Table 6 H-field limits are 51.5dB lower than FCC 15.209(a) E-field limits. Measurements are performed in terms of magnetic field and converted to electric field using the free space impedance of 377Ω (E-field = H-field +51.5). Therefore resulting pass/fail margin would be the same if an E-field reading is compared to an E-field limit or an H-field reading is compared to an H-field limit.





4.2.2 TEST EQUIPMENT USED

| Rev. 4/17/2024 | | | | | | | | |
|---|----------------|--------------------|--------------------|------------|-------|-----|-----------------|---------------|
| Radiated Emissions Sites | FCC Code | IC Code | VCCI Code | Range | Asset | Cat | Calibration Due | Calibrated on |
| EMI Chamber 1 | 719150 | 2762A-6 | A-0015 | 30-1000MHz | 1685 | 1 | 11/29/2024 | 11/29/2022 |
| EMI Chamber 1 | 719150 | 2762A-6 | A-0015 | 1-18GHz | 1685 | I | 12/29/2024 | 12/29/2022 |
| Spectrum Analyzers / Receivers / Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Gauss TDEMI Ultra 40 | 9kHz-40Ghz | TDEMI Ultra 40 | Gauss | 2305001 | 2558 | 1 | 7/9/2024 | 7/9/2023 |
| Antennas | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Red-White Bilog | 30-2000MHz | JB1 | Sunol | A091604-1 | 1105 | I | 11/2/2025 | 11/2/2023 |
| Blue Horn | 1-18Ghz | 3117 | ETS | 157647 | 1861 | I | 3/27/2025 | 3/27/2023 |
| 2615 Active Loop Antenna | 9KHz-30MHz | 6502 | EMCO | 2049 | 2615 | Т | 1/18/2025 | 1/18/2023 |
| Cables | Range | | Mfr | | | Cat | Calibration Due | Calibrated on |
| Asset #2466 | 9KHz-18GHz | | MegaPhase | | | П | 11/2/2024 | 11/2/2023 |
| Asset #2608 | 9KHz-18GHz | | Pasternack | | | П | 11/2/2024 | 11/2/2023 |
| Asset #2681 | 9KHz-18GHz | | Pasternack | | | П | 12/7/2024 | 12/7/2023 |
| Preamps /Couplers Attenuators / Filters | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| 2311 PA | 1-1000MHz | PAM-103 | COM-POWER | 441174 | 2311 | П | 10/18/2024 | 10/18/2023 |
| 2111 HF Preamp | 0.5-18GHz | PAM-118A | COM-POWER | 551063 | 2111 | П | 10/18/2024 | 10/18/2023 |
| 2130 BRF | 9KHz-10GHz | BRM18770 | Micro-Tronics | 1 | 2130 | П | 4/30/2024 | 1/3/2023 |
| Meteorological Meters/Chambers | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 12/15/2025 | 12/15/2022 |
| Asset #2847 | | 1235C97 | Control Company | 200435382 | 2847 | 1 | 8/18/2025 | 8/18/2022 |
| All equipment is calibrated using standards traceable | to NIST or oth | er nationally reco | gnized calibration | standard. | | | | |





4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber.
- b. For below 30MHz, a loop antenna with its lowest point 1m above the ground was placed 3m away from the EUT and it was rotated 0 and 90 degrees around its vertical axis.
- c. In 30MHz-1GHz range, a biconilog antenna was mounted on a variable-height antenna tower and placed 3m away from the EUT. Antenna height was varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were investigated. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. In 1GHz-10GHz range, a horn antenna was mounted on a variable-height antenna tower and placed 3m away from the EUT. Antenna height was varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were investigated. The table was rotated 360 degrees to determine the position of the highest radiation.

| Freq. (MHz) | RBW | VBW | Pre-scan | Final |
|-------------|--------|--------|----------|---|
| 0.009-0.15 | 200Hz | 1kHz | Peak | Quasi Peak |
| 0.15-30 | 9kHz | 30kHz | Peak | Quasi Peak |
| 30-1000 | 120kHz | 300kHz | Peak | Quasi Peak |
| >1000 | 1MHz | 3MHz | Peak | Peak Max Hold and RMS Power Avg (Trace Avg) |

e. Following bandwidths were used during emissions testing:

Per FCC §15.209(d), limits §15.209(a) are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. If peak measurements in these frequency bands were below the applicable limits, QPk and RMS measurements were not performed.





4.2.4 DEVIATIONS

No deviations from the standard.

4.2.5 TEST SETUP

Below 30MHz Test Setup







Bureau Veritas Consumer Product Services Inc.

One Distribution Center Circle, #1 Littleton, MA Tel.: (978) 486-8880 Fax: (978) 486-8828





1GHz – 10GHz Test Setup



Note: For the actual test configuration, please refer to the Test Setup Photos exhibit.

4.2.6 EUT OPERATING CONDITIONS

EUT was operated according to the manufacturer's specifications.





4.2.7 TEST RESULTS

Test Date: 4/11/2024, Environmental Conditions: 20.2C, 41.2% RH, 1010mbar

Below 30MHz

EUT Mode: 920MHz, 100kbps, OQPSK



Scan1: 9.0 kHz, 100.0 Hz, 150.0 kHz; IF:200Hz, 100.0 ms MaxPeak, Att 10dB

| f | | Mag [dBuV/m] | Limit | Diff | Polarization | Height [cm] | Angle [°] | Trans | Name | |
|-----|--|--------------|--------|-------|--------------|-------------|-----------|-------|------------|--|
| 9.1 | l kHz | 65.08 | 128.41 | 63.34 | Parallel | 100 | 359 | 19.12 | FCC_15.209 | |
| Sca | Scan2: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 100.0 ms MaxPeak, Att 10dB | | | | | | | | | |

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Height [cm] | Angle [°] | Trans | Name |
|-----------|--------------|-------|-------|--------------|-------------|-----------|-------|------------|
| 507.5 kHz | 50.36 | 73.49 | 23.14 | Parallel | 100 | 71.463 | 10.10 | FCC_15.209 |

0.009-0.15MHz Parallel



Scan1: 9.0 kHz, 100.0 Hz, 150.0 kHz; IF:200Hz, 100.0 ms MaxPeak, Att 10dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Height [cm] | Angle [°] | Trans | Name | | |
|--|--------------|--------|-------|---------------|-------------|-----------|-------|------------|--|--|
| 9.2 kHz | 65.05 | 128.32 | 63.27 | Perpendicular | 100 | 272.481 | 19.07 | FCC_15.209 | | |
| Scan2: 150.0 kHz, 5.0 kHz, 30.0 MHz; IF:9kHz, 100.0 ms MaxPeak, Att 10dB | | | | | | | | | | |
| f | Mag [dBuV/m] | Limit | Diff | Polarization | Height [cm] | Angle [°] | Trans | Name | | |

500 kHz 50.80 73.62 22.82 Perpendicular 100 5.901 10.08 FCC_15.209

0.009-0.15MHz Perpendicular

Bureau Veritas Consumer Product Services Inc. One Distribution Center Circle, #1 Littleton, MA Tel.: (978) 486-8880 Fax: (978) 486-8828





30MHz-1GHz

EUT Mode: 912MHz, 100kbps, OQPSK



Scan1: 30.0 MHz, 50.0 kHz, 1.0 GHz; IF:120kHz, 100.0 ms MaxPeak, Att 10dB

| f | Mag [dBuV/m] | Polarization | Height [cm] | Angle [°] | Trans |
|-------------|--------------|--------------|-------------|-----------|--------|
| 30.575 MHz | 36.72 | V | 100 | 226.272 | -8.14 |
| 122.625 MHz | 32.73 | V | 100 | 316.912 | -15.36 |
| 146.925 MHz | 33.84 | V | 100 | 42.15 | -16.15 |
| 165.35 MHz | 32.50 | V | 100 | 255.723 | -16.97 |
| 231.325 MHz | 32.32 | V | 100 | 226.272 | -17.22 |
| 681.225 MHz | 35.69 | V | 100 | 42.15 | -6.47 |

Final 1: 30.0 MHz, 50.0 kHz, 683.2 MHz; IF:120kHz, 200.0 ms QP, Att 10dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 30.25 MHz | 29.79 | 40.00 | 10.21 | V | 226.272 | 112.356 | -7.66 | FCC_15.209 |
| 122.4 MHz | 24.28 | 43.50 | 19.22 | V | 316.912 | 113.705 | -15.53 | FCC_15.209 |
| 146.875 MHz | 25.42 | 43.50 | 18.08 | V | 42.15 | 100.011 | -16.08 | FCC_15.209 |
| 165.125 MHz | 28.40 | 43.50 | 15.10 | V | 255.723 | 100 | -16.76 | FCC_15.209 |
| 231.25 MHz | 27.68 | 46.00 | 18.32 | V | 226.272 | 100 | -17.30 | FCC_15.209 |
| 682.25 MHz | 20.11 | 46.00 | 25.89 | V | 42.15 | 165 | -6.51 | FCC_15.209 |

30MHz - 1GHz Vertical

Note: No emissions detected in notch filter range.

One Distribution Center Circle, #1 Littleton, MA



GAUS

Test Report for Yardi Systems Inc. Report No. EX0965-3 Issue 3





Scan1: 30.0 MHz, 50.0 kHz, 1.0 GHz; IF:120kHz, 100.0 ms MaxPeak, Att 10dB

| f | Mag [dBuV/m] | Polarization | Height [cm] | Angle [°] | Trans |
|-------------|--------------|--------------|-------------|-----------|--------|
| 30.9 MHz | 35.62 | Н | 100 | 273.192 | -8.39 |
| 104.65 MHz | 27.76 | Н | 200 | 315.268 | -18.12 |
| 158 MHz | 30.02 | Н | 200 | 114.006 | -16.62 |
| 163.225 MHz | 30.19 | Н | 200 | 247.969 | -16.75 |
| 231.275 MHz | 36.38 | Н | 100 | 296.255 | -17.22 |
| 682.05 MHz | 32.61 | Н | 100 | 191.339 | -6.46 |

Final 1: 30.0 MHz, 50.0 kHz, 684.0 MHz; IF:120kHz, 200.0 ms QP, Att 10dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 30.5 MHz | 30.36 | 40.00 | 9.64 | Н | 273.192 | 158.1 | -7.66 | FCC_15.209 |
| 104 MHz | 20.55 | 43.50 | 22.95 | Н | 315.268 | 187.05 | -18.66 | FCC_15.209 |
| 159.1 MHz | 26.12 | 43.50 | 17.38 | Н | 114.006 | 164 | -16.51 | FCC_15.209 |
| 163.575 MHz | 26.41 | 43.50 | 17.09 | Н | 247.969 | 227.944 | -16.73 | FCC_15.209 |
| 231.2 MHz | 30.66 | 46.00 | 15.34 | Н | 296.255 | 142.3 | -17.31 | FCC_15.209 |
| 681.9 MHz | 22.91 | 46.00 | 23.09 | Н | 191.339 | 181.525 | -6.49 | FCC_15.209 |

30MHz-1GHz Horizontal

Note: No emissions detected in notch filter range.





EUT Mode: 920MHz, 100kbps, OQPSK



Scan1: 30.0 MHz, 50.0 kHz, 1.0 GHz; IF:120kHz, 100.0 ms MaxPeak, Att 10dB

| f | Mag [dBuV/m] | Polarization | Height [cm] | Angle [°] | Trans |
|-------------|--------------|--------------|-------------|-----------|--------|
| 30.65 MHz | 36.53 | V | 100 | 215.706 | -8.20 |
| 147.125 MHz | 32.98 | V | 100 | 3.056 | -16.16 |
| 231.1 MHz | 31.83 | V | 100 | 204.19 | -17.23 |
| 558.4 MHz | 32.62 | V | 200 | 360 | -8.95 |
| 669.3 MHz | 37.76 | V | 300 | 0 | -6.63 |
| 824.425 MHz | 35.39 | V | 300 | 0 | -2.71 |

Final 1: 30.0 MHz, 50.0 kHz, 826.4 MHz; IF:120kHz, 200.0 ms QP, Att 10dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 30.5 MHz | 31.00 | 40.00 | 9.00 | V | 215.706 | 166.1 | -7.66 | FCC_15.209 |
| 146.95 MHz | 30.05 | 43.50 | 13.45 | V | 3.056 | 132.04 | -16.09 | FCC_15.209 |
| 231.2 MHz | 26.44 | 46.00 | 19.56 | V | 204.19 | 100.567 | -17.33 | FCC_15.209 |
| 556.4 MHz | 18.74 | 46.00 | 27.26 | V | 360 | 243.125 | -9.09 | FCC_15.209 |
| 669.3 MHz | 20.84 | 46.00 | 25.16 | V | 0 | 315.2 | -6.64 | FCC_15.209 |
| 825 MHz | 23.65 | 46.00 | 22.35 | V | 0 | 199.956 | -2.82 | FCC_15.209 |

30MHz – 1GHz Vertical

Note: No emissions detected in notch filter range.

One Distribution Center Circle, #1 Littleton, MA



GAUSS

Test Report for Yardi Systems Inc. Report No. EX0965-3 Issue 3





Scan1: 30.0 MHz, 50.0 kHz, 1.0 GHz; IF:120kHz, 100.0 ms MaxPeak, Att 10dB

| f | Mag [dBuV/m] | Polarization | Height [cm] | Angle [°] | Trans |
|-------------|--------------|--------------|-------------|-----------|--------|
| 30.9 MHz | 35.87 | Н | 100 | 55.397 | -8.39 |
| 103.35 MHz | 29.04 | Н | 200 | 121.584 | -18.50 |
| 163.675 MHz | 30.18 | Н | 200 | 285.458 | -16.80 |
| 231.175 MHz | 35.69 | Н | 100 | 133.684 | -17.23 |
| 663.875 MHz | 33.28 | Н | 100 | 328.67 | -6.61 |
| 677.575 MHz | 39.18 | Н | 100 | 321.376 | -6.53 |

Final 1: 30.0 MHz, 50.0 kHz, 679.6 MHz; IF:120kHz, 200.0 ms QP, Att 10dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 30.325 MHz | 30.15 | 40.00 | 9.85 | Н | 55.397 | 103.178 | -7.66 | FCC_15.209 |
| 103.55 MHz | 23.72 | 43.50 | 19.78 | Н | 121.584 | 188.111 | -18.94 | FCC_15.209 |
| 165.275 MHz | 26.61 | 43.50 | 16.89 | Н | 285.458 | 208.553 | -16.73 | FCC_15.209 |
| 231.2 MHz | 31.57 | 46.00 | 14.43 | Н | 133.684 | 140.8 | -17.32 | FCC_15.209 |
| 663.9 MHz | 20.25 | 46.00 | 25.75 | Н | 328.67 | 135.1 | -6.51 | FCC_15.209 |
| 677.925 MHz | 20.02 | 46.00 | 25.98 | Н | 321.376 | 165.25 | -6.55 | FCC_15.209 |

30MHz-1GHz Horizontal

Note: No emissions detected in notch filter range.





Emissions above 1GHz





Final 1: 1.6 GHz, 50.0 kHz, 9.8 GHz; IF:1MHz, 100.0 ms MaxPeak, Att 20dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 1.59525 GHz | 48.82 | 74.00 | 25.18 | V | 212.358 | 226.2 | -10.00 | FCC_15.209 |
| 1.9785 GHz | 50.49 | 74.00 | 23.51 | V | 219.35 | 100 | -5.79 | FCC_15.209 |
| 8.849 GHz | 53.75 | 74.00 | 20.25 | V | 71.762 | 199.809 | 4.78 | FCC_15.209 |
| 9.6085 GHz | 53.83 | 74.00 | 20.17 | V | 217.561 | 400.05 | 4.96 | FCC_15.209 |
| 9.7835 GHz | 53.72 | 74.00 | 20.28 | V | 344,405 | 140.57 | 3.93 | FCC 15.209 |

Final 2: 1.6 GHz, 50.0 kHz, 9.8 GHz; IF:1MHz, 100.0 ms RMS, Att 20dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 1.5955 GHz | 27.24 | 54.00 | 26.76 | V | 212.358 | 163.875 | -10.00 | FCC_15.209 |
| 1.978 GHz | 30.77 | 54.00 | 23.23 | V | 219.35 | 100 | -5.79 | FCC_15.209 |
| 8.84875 GHz | 40.73 | 54.00 | 13.27 | V | 71.762 | 100 | 4.78 | FCC_15.209 |
| 9.60925 GHz | 41.30 | 54.00 | 12.70 | V | 217.561 | 200 | 4.96 | FCC_15.209 |
| 9.7835 GHz | 41.33 | 54.00 | 12.67 | V | 344.405 | 176.451 | 3.93 | FCC_15.209 |

1-10GHz Vertical



GAUSS

Test Report for Yardi Systems Inc. Report No. EX0965-3 Issue 3





Final 1: 1.6 GHz, 50.0 kHz, 9.8 GHz; IF:1MHz, 100.0 ms MaxPeak, Att 20dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 1.59675 GHz | 52.76 | 74.00 | 21.24 | Н | 282.075 | 230.612 | -10.01 | FCC_15.209 |
| 1.97675 GHz | 56.94 | 74.00 | 17.06 | Н | 64.425 | 269.526 | -5.83 | FCC_15.209 |
| 8.80425 GHz | 53.14 | 74.00 | 20.86 | Н | 0 | 224.952 | 4.82 | FCC_15.209 |
| 9.30075 GHz | 53.70 | 74.00 | 20.30 | Н | 360 | 165.905 | 5.02 | FCC_15.209 |
| 9.7915 GHz | 54.13 | 74.00 | 19.87 | Н | 8.106 | 122.397 | 3.99 | FCC_15.209 |

Final 2: 1.6 GHz, 50.0 kHz, 9.8 GHz; IF:1MHz, 100.0 ms RMS, Att 20dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 1.59425 GHz | 27.78 | 54.00 | 26.22 | Н | 282.075 | 230.612 | -10.01 | FCC_15.209 |
| 1.978 GHz | 32.27 | 54.00 | 21.73 | Н | 64.425 | 188.304 | -5.83 | FCC_15.209 |
| 8.80425 GHz | 40.76 | 54.00 | 13.24 | Н | 0 | 100 | 4.82 | FCC_15.209 |
| 9.298 GHz | 40.98 | 54.00 | 13.02 | Н | 360 | 168.811 | 5.02 | FCC_15.209 |
| 9.79475 GHz | 41.34 | 54.00 | 12.66 | Н | 8.106 | 100 | 3.99 | FCC_15.209 |

1-10GHz Horizontal





EUT Mode: 920MHz, 100kbps, OQPSK



Final 1: 1.6 GHz, 50.0 kHz, 9.6 GHz; IF:1MHz, 100.0 ms MaxPeak, Att 20dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 1.5895 GHz | 51.91 | 74.00 | 22.09 | V | 280.275 | 296.325 | -10.03 | FCC_15.209 |
| 2.231 GHz | 42.64 | 74.00 | 31.36 | V | 174.725 | 313.575 | -6.58 | FCC_15.209 |
| 8.71675 GHz | 53.46 | 74.00 | 20.54 | V | 273.023 | 180.105 | 4.28 | FCC_15.209 |
| 9.30425 GHz | 53.54 | 74.00 | 20.46 | V | 0 | 284.269 | 5.02 | FCC_15.209 |
| 9.5945 GHz | 53.55 | 74.00 | 20.45 | V | 281.047 | 179.789 | 4.92 | FCC_15.209 |

Final 2: 1.6 GHz, 50.0 kHz, 9.6 GHz; IF:1MHz, 100.0 ms RMS, Att 20dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 1.5895 GHz | 28.56 | 54.00 | 25.44 | V | 280.275 | 296.325 | -10.03 | FCC_15.209 |
| 2.231 GHz | 30.30 | 54.00 | 23.70 | V | 174.725 | 217.307 | -6.58 | FCC_15.209 |
| 8.71675 GHz | 40.53 | 54.00 | 13.47 | V | 273.023 | 191.119 | 4.28 | FCC_15.209 |
| 9.3015 GHz | 40.89 | 54.00 | 13.11 | V | 0 | 200 | 5.02 | FCC_15.209 |
| 9.5905 GHz | 41.04 | 54.00 | 12.96 | V | 281.047 | 200 | 4.92 | FCC_15.209 |

1-10GHz Vertical



GAUSS

Test Report for Yardi Systems Inc. Report No. EX0965-3 Issue 3





Final 1: 1.6 GHz, 50.0 kHz, 9.8 GHz; IF:1MHz, 100.0 ms MaxPeak, Att 20dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 1.583 GHz | 52.16 | 74.00 | 21.84 | Н | 341.674 | 200 | -10.04 | FCC_15.209 |
| 1.9795 GHz | 55.30 | 74.00 | 18.70 | Н | 29.451 | 243.517 | -5.76 | FCC_15.209 |
| 8.82225 GHz | 54.08 | 74.00 | 19.92 | Н | 72.15 | 174.065 | 4.84 | FCC_15.209 |
| 9.28675 GHz | 53.32 | 74.00 | 20.68 | Н | 80.4 | 182.635 | 4.93 | FCC_15.209 |
| 9.78875 GHz | 53.85 | 74.00 | 20.15 | Н | 267.775 | 199.492 | 3.97 | FCC_15.209 |

Final 2: 1.6 GHz, 50.0 kHz, 9.8 GHz; IF:1MHz, 100.0 ms RMS, Att 20dB

| f | Mag [dBuV/m] | Limit | Diff | Polarization | Angle [°] | Height [cm] | Trans | Name |
|-------------|--------------|-------|-------|--------------|-----------|-------------|--------|------------|
| 1.583 GHz | 28.22 | 54.00 | 25.78 | Н | 341.674 | 215.792 | -10.04 | FCC_15.209 |
| 1.9775 GHz | 32.13 | 54.00 | 21.87 | Н | 29.451 | 243.517 | -5.76 | FCC_15.209 |
| 8.82225 GHz | 41.06 | 54.00 | 12.94 | Н | 72.15 | 122.937 | 4.84 | FCC_15.209 |
| 9.2875 GHz | 40.89 | 54.00 | 13.11 | Н | 80.4 | 185.835 | 4.93 | FCC_15.209 |
| 9.7875 GHz | 41.22 | 54.00 | 12.78 | Н | 267.775 | 100 | 3.97 | FCC_15.209 |

1-10GHz Horizontal





4.3 6dB CHANNEL BANDWIDTH & 99% OBW

4.3.1 LIMITS

The minimum 6 dB bandwidth shall be 500 kHz.

4.3.2 TEST SETUP



4.3.3 TEST EQUIPMENT USED

| ev. 4/17/2024 | | | | | | | | |
|---|----------------------|-----------|-----------------------|---------|-------|-----|-----------------|---------------|
| Spectrum Analyzers / Receivers /Preselectors | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| FSV40 Spectrum Analyzer | 10Hz-40GHz | FSV40 | ROHDE & SCHWARZ | 101551 | 2200 | I | 10/9/2024 | 10/9/2023 |
| Cables | Range | | Mfr | | | Cat | Calibration Due | Calibrated on |
| Asset #2595 | 9KHz-40GHz | | Carlisle | | | П | 2/17/2025 | 2/17/2024 |
| Attenuators | Range | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| API - 30dB 20W Attenuator | 9KHz-40GHz | 89-30-11 | API Weinschel | 703 | 2121 | П | 2/16/2025 | 2/16/2024 |
| Meteorological Meters/Chambers | | MN | Mfr | SN | Asset | Cat | Calibration Due | Calibrated on |
| Weather Clock (Pressure Only) | | BA928 | Oregon Scientific | C3166-1 | 831 | I | 12/15/2025 | 12/15/2022 |
| Asset #2657 | | 1235C97 | Control Company | 2E+08 | 2657 | I | 8/18/2025 | 8/18/2022 |
| All equipment is calibrated using standards traceable to NIST o | r other nationally r | ecoanized | calibration standard. | | | | | |

Test Date: 04/12/2024

Environmental Conditions: 20.4C, 41.5%, 1008mbar

4.3.4 TEST PROCEDURES

6dB CHANNEL BANDWIDTH

- a. Set RBW = 100 kHz.
- b. Set the video bandwidth (VBW) \geq 3 RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Sweep = auto couple.
- f. Allow the trace to stabilize.
- g. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.





99% OBW

- a. The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c. Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
- d. Step a) through step c) might require iteration to adjust within the specified range.
- e. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f. Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

4.3.5 DEVIATIONS

No deviations from the standard.

4.3.6 EUT OPERATING CONDITIONS

EUT was operated according to manufacturer's specifications.





4.3.7 TEST RESULTS

| CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (kHz) | 99% OBW (kHz) | PASS / FAIL | |
|-------------------------------|---------------------------|---------------|-------------|--|
| 912 | 606.70 | 915.13 | Pass | |
| 920 | 610.45 | 917.78 | Pass | |

Note: All insertion losses in the measurement are included in the reference level offset to the spectrum analyzer.

912MHz



920MHz



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4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

4.4.2 TEST SETUP

Refer to section 4.3.2.

4.4.3 TEST EQUIPMENT USED

Refer to section 4.3.3.

4.4.4 TEST PROCEDURES

Peak conducted output power was measured in accordance with ANSI C63.10 - 2013 Section 11.9.1.1 (RBW \geq DTS bandwidth).

4.4.5 DEVIATIONS

No deviations from the standard.

4.4.6 EUT OPERATING CONDITIONS

EUT was operated according to manufacturer's specifications





4.4.7 TEST RESULTS

| CHANNEL FREQUENCY (MHz) | PEAK POWER (dBm) | PEAK POWER (mW) | PEAK POWER LIMIT (W) | PASS/FAIL |
|-------------------------------|------------------------|-----------------------|----------------------------|-----------|
| 912 | 12.10 | 16.2 | 1 | Pass |
| 920 | 12.27 | 16.9 | 1 | Pass |

Note: All insertion losses in the measurement are included in the reference level offset to the spectrum analyzer.







4.5 POWER SPECTRAL DENSITY

4.5.1 LIMITS

The limit for Power Spectral Density is 8dBm/3KHz.

4.5.2 TEST SETUP

Refer to section 4.3.2.

4.5.3 TEST EQUIPMENT USED

Refer to section 4.3.3.

- 4.5.4 TEST PROCEDURES
 - 1. Set the span to 1.5 times the DTS bandwidth
 - 2. Set the RBW = 3 kHz, VBW \ge 3 x RBW, Detector = peak.
 - 3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
 - 4. Use the peak marker function to determine the maximum amplitude level.

4.5.5 DEVIATIONS

No deviations from the standard.

4.5.6 EUT OPERATING CONDITIONS

EUT was operated according to manufacturer's specifications.





4.5.7 TEST RESULTS

| FREQ. (MHz) | PSD (dBm/3kHz) | Limit (dBm/3kHz) | PASS /FAIL | |
|----------------|-------------------|---------------------|---------------|--|
| 912 | -0.55 | 8 | Pass | |
| 920 | -0.25 | 8 | Pass | |

Note: All insertion losses in the measurement are included in the reference level offset to the spectrum analyzer.



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4.6 CONDUCTED SPURIOUS EMISSIONS AND BAND-EDGES

4.6.1 LIMITS

20dB below the highest emission level in the operating band (in 100kHz RBW).

4.6.2 TEST SETUP

Refer to section 4.3.2.

4.6.3 TEST EQUIPMENT USED

Refer to section 4.3.3.

4.6.4 TEST PROCEDURES

MEASUREMENT PROCEDURE REF

- 1. Set the RBW = 100 kHz.
- 2. Set the VBW \ge 300 kHz.
- 3. Detector = peak.
- 4. Sweep time = auto couple.
- 5. Trace mode = max hold.
- 6. Allow trace to fully stabilize.
- 7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.





MEASUREMENT PROCEDURE OOBE

- 1. Set RBW = 100 kHz.
- 2. Set VBW ≥ 300 kHz.
- 3. Set span to encompass the spectrum to be examined
- 4. Detector = peak.
- 5. Trace Mode = max hold.
- 6. Sweep = auto couple.

4.6.5 DEVIATIONS

No deviations from the standard.

4.6.6 EUT OPERATING CONDITIONS

EUT was operated according to manufacturer's specifications.





4.6.7 TEST RESULTS



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5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the Test Setup Photos exhibit.





6 APPENDIX A – MODIFICATIONS

No modifications were made to the EUT during testing.

---END OF REPORT----

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