



Test Report No. 7512304419

Applicant: AMIAD Water Systems LTD.

Equipment Under Test: ADI-M

FCC ID: 2BOTL-ADI-M

Model: Rev1

Issued by:

***The Standards Institution of Israel
Electrical & Electronics Laboratory
EMC Branch***



Certificate Number: AT-1359

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| | |
|-------------------------------------|--------------------------|
| Applicant: | AMIAD Water Systems LTD. |
| Address: | Kibbutz Amiad |
| Sample for test selected by: | The customer |
| The date of test: | April 2025 |

**Description of Equipment
under Test (EUT):**

| | |
|--------------------------|--------------------------|
| Model: | ADI-M |
| Software version: | Rev1 |
| Hardware version: | TBD |
| Manufactured by: | V1 |
| | AMIAD Water Systems LTD. |

Reference Documents:

- ❖ CFR 47 FCC (2020) Rules and Regulations: Part 15. Radio frequency devices, Subpart C: Intentional radiators. Section 15.247: Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz

Test Results

The EUT was found to be in compliance with the following standard:
CFR47 Part 15 Subpart C
sections: 15.203, 15.205, 15.207, 15.209 and 15.247.

This Test Report contains 36 pages
and may be used only in its entirety.

This Test Report applies only to the specimen tested and may not
be applied to other specimens of the same product.



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1. Summary of Test Results

| Transmitter characteristic | Ref. Section | Test Result |
|--|-------------------------------|-------------|
| 6dB and occupied bandwidth | 15.247 (a) (2) | Complies |
| Maximum peak conducted output power | 15.247 (b) (3) | Complies |
| Power spectral density | 15.247 (e) | Complies |
| Radiated emission in restricted and non-restricted bands | 15.247 (d), 15.209, 15.205 | Complies |
| Band-edge compliance of RF conducted emission | 15.247 (d) | Complies |
| AC power line conducted emission measurements | 15.207 | N/A |
| Antenna requirement | 15. 203 | Complies |

Name: Eng. Yuri Rozenberg
Position: Head of Branch

Electrical & Electronics
Laboratory

31 July 2025

Tested by: Alexander Konkov
Position: Testing Engineer

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2. EUT Description

Note: All information in this section was provided by the customer.

2.1. General description:

The EUT, is battery powered Bluetooth controlled, filter flush controller, for use on automatic water filter, outdoor Bluetooth controlled.

The modulation GFSK provided by Nordic NRF52832, The transmitter is a RADIO operating at 2402-2480MHz band. The transmitter is powered by 4*1.5 volt AA primary batteries and the transmitting frequency is crystal controlled. The operation is achieved by different combinations of form pulse modulating signal on the carrier frequency.

The test data contained in this report pertains only to the emissions due to the EUT's BLE transmitter.

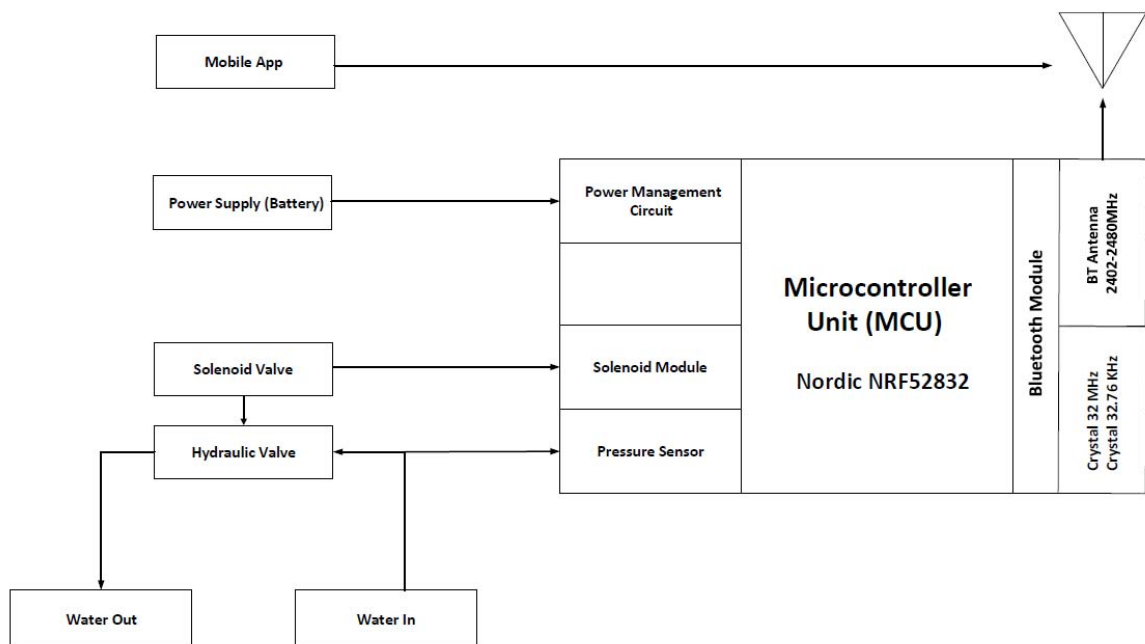


Figure 1. Block diagram

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Figure 2. ADI-M

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2.2. Transmitter description:

| | | |
|--|---|----------------------|
| Type of equipment | | |
| Combined equipment (Equipment where the radio part is fully integrated within another type of equipment) | | |
| | | |
| BLE standards | BLE 5 | |
| | | |
| Assigned frequency range | from 2400MHz to 2483.5MHz | |
| Operating frequency range | from 2402MHz to 2480MHz (BLE transceiver) | |
| RF channel spacing | 1MHz | |
| Maximum rated output power | Effective radiated power (for equipment with no RF connector) | -0.34 dBm = 0.925 mW |
| Declare temperature range: | 5°C - 60°C | |
| | | |
| Antenna information | | |
| Antenna MIFA PCB printed - without temporary RF connector | | |
| Manufacturer: AMIAD | | |
| Antenna gain = -1.25 dBi | | |
| | | |
| Transmitter 99% power bandwidth | | |
| Type of modulation | GFSK | |
| Modulating test signal (baseband) | GFSK | |
| | | |
| Transmitter power source | | |
| Nominal rated voltage | 6 VDC | |
| Type of battery | AA, 4*1.5Volt | |

2.3. Test setup:

The EUT was tested per the guidance ANSI C63.10: 2020.
The test setup is shown in Figures 3 and 4. EUT gets 6 V DC power from battery.

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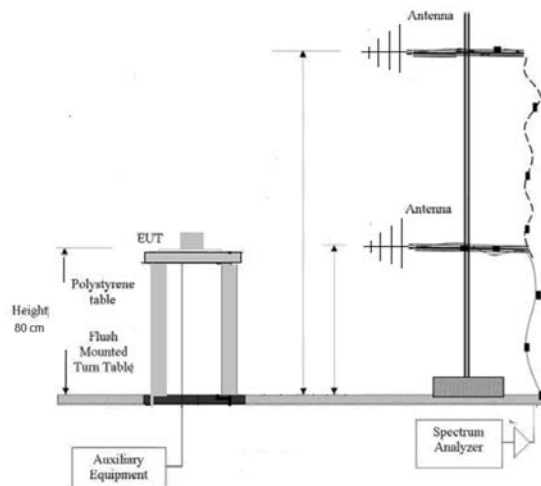


Figure 3. EUT test setup

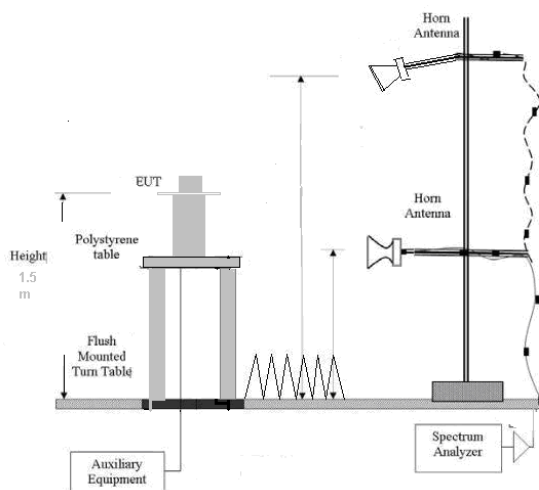


Figure 4. RE test setup above 1 GHz.

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2.4. System test configuration:

Table 1. BLE channels / frequencies

| Channel | Frequency MHz | Channel | Frequency MHz |
|---------|---------------|---------|---------------|
| 37 | 2402 | 18 | 2442 |
| 0 | 2404 | 19 | 2444 |
| 1 | 2406 | 20 | 2446 |
| 2 | 2408 | 21 | 2448 |
| 2 | 2410 | 22 | 2450 |
| 4 | 2412 | 23 | 2452 |
| 5 | 2414 | 24 | 2454 |
| 6 | 2416 | 25 | 2456 |
| 7 | 2418 | 26 | 2458 |
| 8 | 2420 | 27 | 2460 |
| 9 | 2422 | 28 | 2462 |
| 10 | 2424 | 29 | 2464 |
| 38 | 2426 | 30 | 2466 |
| 11 | 2428 | 31 | 2468 |
| 12 | 2430 | 32 | 2470 |
| 13 | 2432 | 33 | 2472 |
| 14 | 2434 | 34 | 2474 |
| 15 | 2436 | 35 | 2476 |
| 16 | 2438 | 36 | 2478 |
| 17 | 2440 | 39 | 2480 |

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3. Test specification, methods and procedures

- ❖ CFR 47 FCC Rules and Regulations: Part 15. Radio frequency devices, Subpart C: Intentional radiators (2020)
- ❖ ANSI C63.4:2014 American National Standard for Method of Measurement of Radio Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range 9 kHz to 40 GHz.
- ❖ ANSI C63.10: 2020 American National Standard for Testing of Unlicensed Wireless Devices

4. Testing Facility:

| | |
|----------------------------------|---|
| Laboratory Name | Standards Institution of Israel (SII) |
| Test site location | 42 Haim Levanon st., Tel-Aviv Israel |
| Laboratory Accreditations | <u>ANAB</u> : AT-1359 <u>FCC Designator number</u> : IL1003 <u>VCCI</u> : C-14675, T-12211, R-14189, G-10824, R-14190 |

5. Measurement uncertainty

The test equipment has been calibrated according to its recommended procedures and is within the manufacturer's published limit of error.

The laboratory calibrates its standards by a third party (traceable to NIST, USA) on a regular basis according to equipment manufacturer requirements.

| Test description | Calculated uncertainty U _{LAB} |
|--|---|
| Conducted measurements | |
| Frequency error | 37.6 Hz |
| Spurious emission | ± 2.98 dB |
| Radiated measurements | |
| Electric field strength in a SAR at 3 m distance 30 MHz – 1.0 GHz | ±4.32 dB |
| Electric field strength in a FAR at 3 m distance 1.0 GHz – 18 GHz | ± 4.47 |
| Substitution measurements | |
| In a FAR at 3 m distance 1.0 GHz – 18 GHz | ± 3.41 dB |

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6. Transmitter characteristics - test results

6.1. Duty Cycle

Limits & methods:

| | | | | | |
|---------------------|------|--|-----|--------------|---------|
| FCC requirements | | 15.247 | | | |
| Test procedure | | ANSI 63.10 --- 11.6 Duty cycle Radiated Measurement | | | |
| Operating mode | | BLE, Hight Mid and Low | | | |
| Ambient Temperature | 23°C | Relative Humidity | 49% | Air Pressure | 1003hPa |

Results:

Table 2. Transmitter characteristics - result parameters

| | | |
|----|-----|---|
| DT | 100 | % |
|----|-----|---|

The results are presented in Plots 1 , Tx Low 2.402GHz and Tx High 2.48GHz



Plot 1

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6.2. 6dB and Occupied Bandwidth

Limits & methods:

| | | | |
|---------------------|---|-------------------|-----------------------------|
| FCC requirements | 15.247(a)(2) | | |
| Test procedure | ANSI 63.10 -- 11.8.2 Option 2 Radiated Measurement | | |
| Operating mode | BLE, Hight Mid and Low | | |
| Ambient Temperature | 23°C | Relative Humidity | 49% Air Pressure 1003hPa |

Limit:

The minimum 6dB bandwidth shall be at least 500 kHz.

Test procedure

The measurements were performed in hopping transmission mode of operation for carrier (channel) frequency at bottom, middle and at the top of 2402MHz to 2480MHz frequency band and maximum transmitting data rate.

Results:

Table 3. 6dB Bandwidth & Occupied Bandwidth Results

| Frequency MHz | 6dB Bandwidth kHz | Limit (min) kHz | Verdict | Ref. Plot |
|------------------|----------------------|--------------------|---------|-----------|
| 2402 | 746.9 | 500 | Pass | 2 |
| 2440 | 746.7 | 500 | Pass | 3 |
| 2480 | 739.2 | 500 | Pass | 4 |

Note: Detector = peak
Trace mode = max-hold.

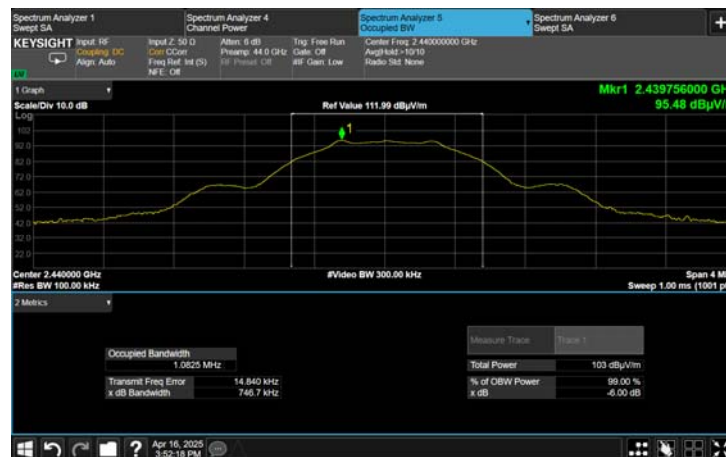
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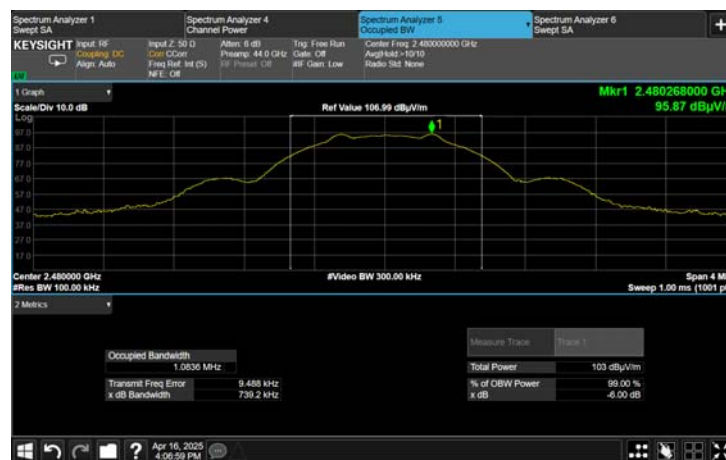
BLE



Plot 2



Plot 3



Plot 4

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6.3. Maximum Peak Conducted Output Power

Limits & methods:

| | | | |
|--------------------------|---|--------------|---------|
| FCC requirements | 15.247(b)(3) | | |
| Test procedure | ANSI 63.10 11.9.1.1 Method RBW \geq DTS bandwidth Radiated Measurement | | |
| Operating mode | BLE, Hight Mid and Low | | |
| Ambient Temperature 23°C | Relative Humidity 49% | Air Pressure | 1003hPa |

Limit

The maximum peak conducted output power shall not exceed 1 watt.

Test procedure

The measurements were performed in hopping transmission mode of operation for carrier (channel) frequency at bottom, middle and at the top of 2402 MHz to 2480 MHz frequency band and maximum transmitting data rate.

Results:

Table 4. Maximum Peak Conducted Output Power Results

| Freq. MHz | Mesure dBm | Calculated mWatt | Limit Watt | Verdict | Plot |
|-----------|------------|------------------|------------|---------|------|
| 2402 | -1.13 | 0.771 | 1 | Pass | 5 |
| 2440 | -0.42 | 0.908 | 1 | Pass | 6 |
| 2480 | -0.34 | 0.925 | 1 | Pass | 7 |

Note:

Total power(dBm) = P Mesure(dBuV/m) – 95.2 – Antenna Gain(dBi)

In our case the Antenna Gain(dBi) = -1.25 (dBi)

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Plot 5



Plot 6



Plot 7

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6.4. Power Spectral Density

Limits & methods:

| | | | |
|--------------------------|--|--------------|---------|
| FCC requirements | 15.247(e) | | |
| Test procedure | ANSI 63.10 11.10.2 Method PKPSD (peak PSD) Radiated Measurement | | |
| Operating mode | BLE, Hight Mid and Low | | |
| Ambient Temperature 22°C | Relative Humidity 46% | Air Pressure | 1006hPa |

Limit

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission

Test procedure

The measurements were performed in hopping transmission mode of operation for carrier (channel) frequency at bottom, middle and at the top of 2402MHz to 2480MHz frequency band and maximum transmitting data rate.

Results:

Table 5. Power Spectral Density Test Results

| Freq. MHz | Measure dBm/3kHz | Limit dBm/3kHz | Verdict | Plot |
|--------------|---------------------|-------------------|---------|------|
| 2402 | -1.70 | 8 | Pass | 8 |
| 2440 | -1.00 | 8 | Pass | 9 |
| 2480 | -0.62 | 8 | Pass | 10 |

Note:

$PSD (dBm/3kHz) = PSD \text{ Measure}(dBuV/m) - 95.2 - \text{Antenna Gain}(dBi)$

In our case the Antenna Gain(dBi) = -1.25 (dBi)

Worst case RBW=100 kHz maximum.

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Plot 8



Plot 9



Plot 10

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6.5. Radiated Emissions in Restricted and non-Restricted bands

Limits & methods:

| | | | |
|---------------------|--|-------------------|-----------------------------|
| FCC requirements | 15.247(d), 15.209, 15.205 | | |
| Test procedure | ANSI 63.10 Sections 6.5, 6.6, 11.11, 11.12 Radiated Measurement | | |
| Operating mode | BLE, Hight, Mid and Low | | |
| Ambient Temperature | 23°C | Relative Humidity | 49% Air Pressure 1009hPa |

Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

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

| 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 |

Test procedure

The frequency spectrum was investigated from the lowest radio frequency signal generated in the equipment and up to ten harmonics. The measurements were performed in hopping transmission mode of operation for carrier (channel) frequency at bottom, middle and at the top 2402MHz to 2480MHz frequency band and maximum transmitting data rate.

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Results:

Range: 9 kHz-30 MHz

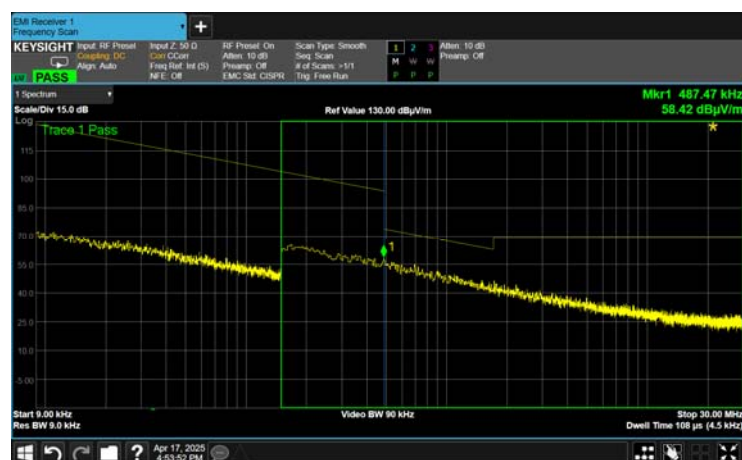
All detected emissions in this range meet the -20dBc requirement. Plots 11, 20 and 29.

Range: 30 MHz – 40 GHz:

Table 6. CH37 2402 MHz – modulation PRBS - Results

| Frequency MHz | Meas Freq. MHz | Pk Det. dbuV/m | QPk Det. dbuV/m | Limit Pk dbuV/m | Limit QPk dbuV/m | Verdict | Ref. Plot |
|---------------|----------------|----------------|------------------------|-----------------|------------------------------|---------|-----------|
| CH 37 2402 | 33.474 | 25.375 | 19.607 | - | 40 | Pass | 12 |
| | 619.96 | 38.116 | 32.031 | - | 46 | Pass | 12 |
| | 986.51* | 41.897 | 35.556 | - | 54 | Pass | 12 |
| | | | AVG Det. dbuV/m | | Limit AVG Det. dbuV/m | | |
| | 2289.62* | 52.03 | 30.335 | 74 | 54 | Pass | 13 |
| | 2400 | 54.09 | 39.923 | 74 | 54 | Pass | 13 |
| | 2497.6* | 53.17 | 27.119 | 74 | 54 | Pass | 14 |
| | 2513.7 | 56.48 | 32.599 | 74 | 54 | Pass | 14 |
| | 2529.6 | 54.80 | 34.939 | 74 | 54 | Pass | 14 |
| | 7206 | 55.91 | - | 74 | - | Pass | 15,16 |
| | 7212 | - | 48.14 | - | 54 | Pass | 15 |
| | 13839 | 59.04 | 50.47 | 74 | 54 | Pass | 17 |
| | 17400 | 55.89 | 47.94 | 74 | 54 | Pass | 18 |
| | 25992 | 58.05 | 49.23 | 74 | 54 | Pass | 19 |

Note: The table shows the results of measurements made relative to the "Restricted bands" limit, as the worst case. The asterisk indicates the frequency in the "Restricted bands".



Plot 11

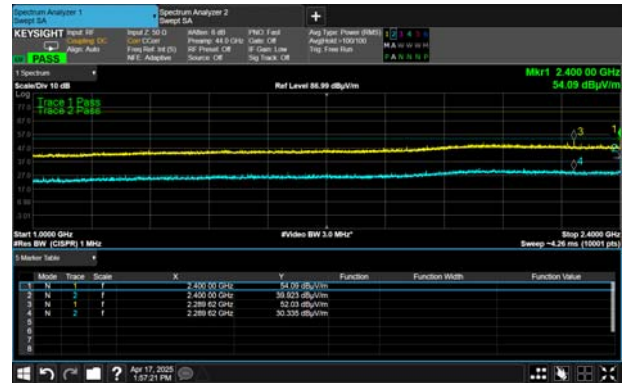


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Plot 12



Plot 13



Plot 14



Plot 15



Plot 16



Plot 17

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Plot 18



Plot 19

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Table 7. CH17 2440 MHz – modulation PRBS - Results

| Frequency MHz | Meas Freq. MHz | Pk Det. dbuV/m | QPk Det. dbuV/m | Limit Pk dbuV/m | Limit QPk dbuV/m | Verdict | Ref. Plot |
|---------------|----------------|----------------|------------------------|-----------------|------------------------------|---------|-----------|
| CH 17 2440 | 30.060 | 27.762 | 21.234 | - | 40 | Pass | 21 |
| | 621.14 | 38.227 | 32.103 | - | 46 | Pass | 21 |
| | 998.20* | 41.171 | 35.756 | | 54 | Pass | 21 |
| | | | AVG Det. dbuV/m | | Limit AVG Det. dbuV/m | | |
| | 2043.0 | 50.52 | 28.558 | 74 | 54 | Pass | 22 |
| | 2135.71 | 50.39 | 30.387 | 74 | 54 | Pass | 22 |
| | 2328.18* | 53.30 | 31.072 | 74 | 54 | Pass | 22 |
| | 2552.3 | 53.91 | 31.531 | 74 | 54 | Pass | 23 |
| | 4639.5 | 54.13 | 33.718 | 74 | 54 | Pass | 23 |
| | 5950.1 | 55.43 | 34.559 | 74 | 54 | Pass | 23 |
| | 7319.246* | 52.10 | - | 74 | - | Pass | 25,24 |
| | 7320.781* | 50.81 | - | 74 | - | Pass | 25.24 |
| | 14499* | 58.62 | 50.92 | 74 | 54 | Pass | 26 |
| | 17787* | 55.63 | 47.54 | 74 | 54 | Pass | 27 |
| | 25704 | 59.19 | 48.95 | 74 | 54 | Pass | 28 |

Note: The table shows the results of measurements made relative to the "Restricted bands" limit, as the worst case. The asterisk indicates the frequency in the "Restricted bands".



Plot 20

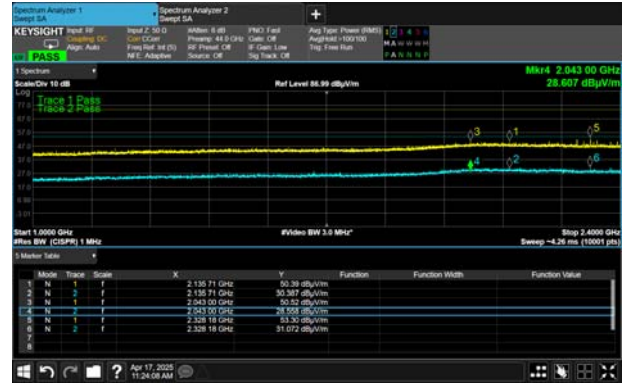


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Plot 21



Plot 22



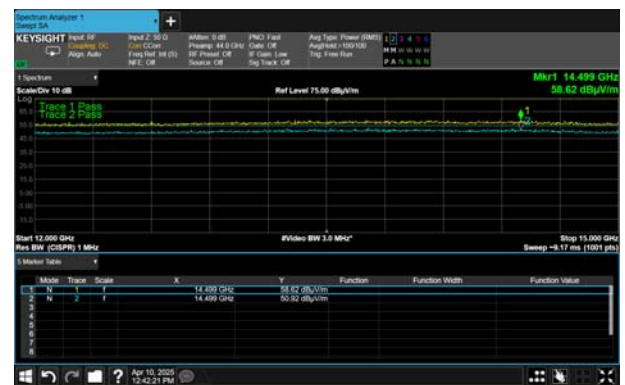
Plot 23



Plot 24



Plot 25



Plot 26

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Plot 27



Plot 28

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Table 8. CH39 2480 MHz – modulation PRBS - Results

| Frequency MHz | Meas Freq. MHz | Pk Det. dbuV/m | QPk Det. dbuV/m | Limit Pk dbuV/m | Limit QPk dbuV/m | Verdict | Ref. Plot |
|---------------|----------------|----------------|-----------------|-----------------|-----------------------|---------|-----------|
| CH 39 2480 | 33.42 | 28.043 | 22.087 | - | 40 | Pass | 30 |
| | 622.11 | 37.936 | 32.119 | | 46 | Pass | 30 |
| | 993.58* | 41.876 | 35.820 | - | 54 | Pass | 30 |
| | | | AVG Det. dbuV/m | | Limit AVG Det. dbuV/m | | |
| | 2368.69* | 53.47 | 28.129 | 74 | 54 | Pass | 31 |
| | 2352.40* | 53.71 | 31.665 | 74 | 54 | Pass | 31 |
| | 2486.2* | 53.88 | 30.510 | 74 | 54 | Pass | 32 |
| | 2487.9* | 45.88 | 35.603 | 74 | 54 | Pass | 32 |
| | 4652.2 | 52.72 | 34.042 | 74 | 54 | Pass | 32 |
| | 7441.4 | 53.04 | - | 74 | - | Pass | 34,33 |
| | 7438.5 | 58.89 | - | 74 | - | Pass | 34,33 |
| | 13.899 | 58.77 | 50.86 | 74 | 54 | Pass | 35 |
| | 17928* | 56.10 | 47.28 | 74 | 54 | Pass | 36 |
| | 25232 | 58.78 | 48.47 | 74 | 54 | Pass | 37 |

Note: The table shows the results of measurements made relative to the "Restricted bands" limit, as the worst case. The asterisk indicates the frequency in the "Restricted bands".



Plot 29

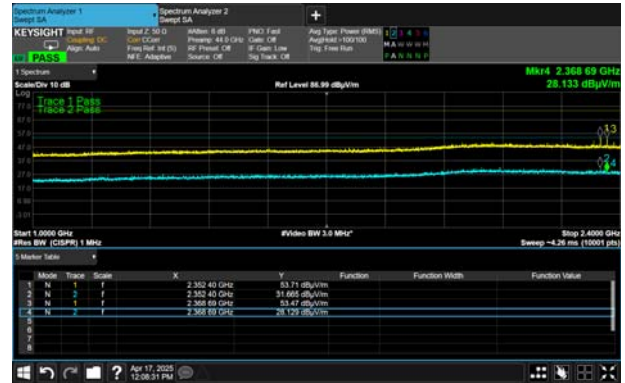


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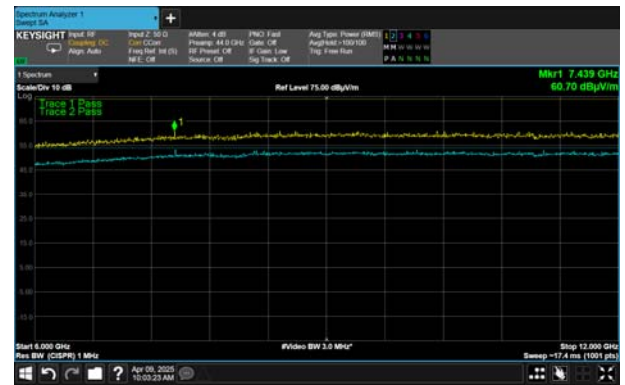
Plot 30



Plot 31



Plot 32



Plot 33



Plot 34



Plot 35



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Plot 36



Plot 37

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6.6. Band-edge measurements

Limits & methods:

| | | | |
|-------------------------------|--|---------------------------|--|
| FCC requirements | 15.247(d) | | |
| Test procedure | ANSI 63.10 Section 11.13 Radiated Measurement | | |
| Operating mode | BLE, Hight Mid and Low | | |
| Ambient Temperature 22°C | Relative Humidity 46% | Air Pressure 1006hPa | |

Limit

In any 100 kHz bandwidth outside the frequency band the radio frequency power shall be at least 20 dB below that in the 100 kHz bandwidth within the band

Results:

Table 9. Band-edge Results

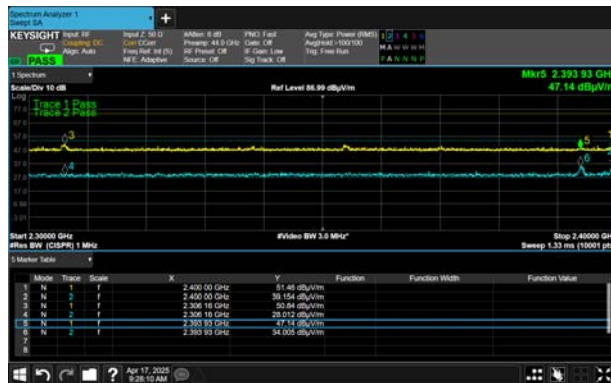
| Channel | Freq MHz | Peak, dBμV/m | Limit Peak dBμV/m | AVG, dBμV/m | Limit AVG dBμV/m | Verdict | Plot |
|-------------------|-------------|-----------------|-------------------------|----------------|------------------------|---------|------|
| CH 37 2402 MHz | 2400.00 | 51.46 | 74 | 39.154 | 54 | Pass | 38 |
| | 2498.1289* | 55.90 | 74 | 31.521 | 54 | Pass | 39 |
| CH 17 2440 MHz | 2328.29 | 52.96 | 74 | 30.737 | 54 | Pass | 40 |
| | 2487.8362* | 53.21 | 74 | 29.285 | 54 | Pass | 41 |
| CH 39 2480 MHz | 2351.92 | 56.60 | 74 | 30.473 | 54 | Pass | 42 |
| | 2488.07875* | 49.52 | 74 | 39.494 | 54 | Pass | 43 |

Note: The table shows the results of measurements made relative to the "Restricted bands" limit, as the worst case. The asterisk indicates the frequency in the "Restricted bands".
Each channel has maximum measurements in the table.



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Plot 38



Plot 39



Plot 40



Plot 41



Plot 42



Plot 43

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6.7. AC power line conducted emission measurement

Limits & methods:

| | | | |
|---------------------|------------------------|-------------------|--------------------------|
| FCC requirements | 15.207 | | |
| Test procedure | ANSI 63.10 Section 6.2 | | |
| Ambient Temperature | 22°C | Relative Humidity | 46% Air Pressure 1006hPa |

Limit:

| Frequency, MHz | Class B equipment, dB (μV) | |
|----------------|----------------------------|----------|
| | QP | AVRG |
| 0.15 - 0.5 | 66 - 56* | 56 - 46* |
| 0.5 - 5 | 56 | 46 |
| 5 - 30 | 60 | 50 |

* Decreases linearly with the logarithm of the frequency.

Test Procedure:

EUT was connected to 120VAC main via auxiliary power supply. The EUT was placed on a table in shielded room at a height 80 cm from floor and 40 cm from the vertical reference plane and at more than 80 cm from any other metal surfaces. The measurements were performed at mains terminals by means of LISN, connected to spectrum analyzer in the frequency range as referred to in the table above. The measurements were made with quasi-peak(CISPR) and average detectors. The position of the EUT cables was varied to determine maximum emission level.

Results:

Not applicable!

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7. Antenna requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section.”

The antenna of the device is - inside case box and non-detachable antenna.
 There are no provisions for connection to an external antenna.

Conclusion: The unit complies with the requirement of §15.203.

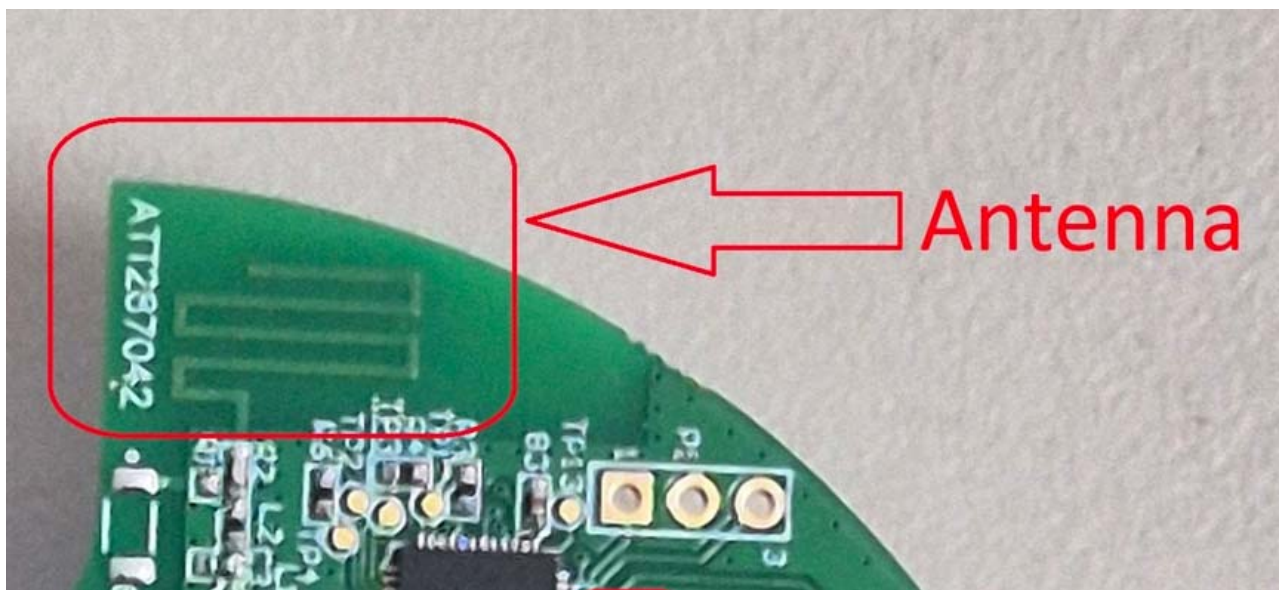


Figure 5. Antenna MIFA PCB printed

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8. Appendix 1: Test equipment used

All measurements equipment is on SII calibration schedule with a recalibration interval not exceeding one year.

| Instrument | Manufacturer | Model | SII No. | Last calibration date | Next calibration date |
|---|----------------------------------|--------------------------|----------------|-----------------------|-----------------------|
| EMI Test Receiver 3 Hz - 44 GHz | Keysight | N9038B | 6505208 | 11/24 | 11/25 |
| LISN 9 kHz – 30 MHz | Schwarbeck Mess Elektronik | NSLK 8128 | 6505753 | 08/24 | 08/25 |
| Biconilog Antenna 20 MHz - 6000 MHz | ETS LINDGREN | 3142D | 6503046 | 12/23 | 12/25 |
| Double Ridged Waveguide horn Antenna 1-18 GHz | ETS Lindgren | 3115 | 143138 | 07/23 | 07/25 |
| Double Ridged Waveguide horn Antenna 10-40GHz | ETS Lindgren | 3116 | 00143127 | 07/23 | 07.25 |
| Cable RF 1 m | SUCOFLEX | 104PE | 21325 | 04/25 | 04/26 |
| Cable RF 3 m | VPO 2930 | K30K30-5003- 300cm5VI | 005 | 04/25 | 04/26 |
| Attenuator 10dB 5W | - | 5W | 6502987 | 04/23 | 05/25 |
| Attenuator 20dB 5W | - | 5W | 6502992 | 04/23 | 05/25 |
| USB preamplifier 2 GHz – 50 GHz | Keysight | U7227F | MY 55380004 | 11/24 | 11/26 |
| Cable Sets 9 kHz-18GHz | - | - | - | 12/24 | 12/25 |
| Cable Sets 9 kHz-1GHz RE Cbl Set | - | - | - | 04/25 | 04/26 |
| Semi Anechoic Chamber | ETS-Lindgren | RFSD-F/A- 100 | 5002 | N/A | N/A |
| Multi-Device Positioning Controller | ETS-Lindgren | 2090 | 5002 | N/A | N/A |
| Antenna Tower | ETS-Lindgren | 2175 | 5002 | N/A | N/A |
| Boresight Antenna Tower | ETS-Lindgren | 2171B | 5002 | N/A | N/A |
| Turntable | ETS-Lindgren | 2188 | 5002 | N/A | N/A |

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9. Appendix 2: Antenna Factor and Cable Loss

Cable Loss (SAC, frequency range: 30 MHz-1.0 GHz)

| No. | Frequency (MHz) | Attenuation (dB) | Frequency (MHz) | Attenuation (dB) | Frequency (MHz) | Attenuation (dB) |
|-----|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| 1 | 28.71 | 0.4 | 97.21 | 1.0 | 329.17 | 1.7 |
| 2 | 30.14 | 0.4 | 102.07 | 1.0 | 345.63 | 1.8 |
| 3 | 31.65 | 0.5 | 107.17 | 1.0 | 362.91 | 1.8 |
| 4 | 33.23 | 0.5 | 112.53 | 1.0 | 381.06 | 1.8 |
| 5 | 34.89 | 0.5 | 118.15 | 1.0 | 400.11 | 1.9 |
| 6 | 36.64 | 0.5 | 124.06 | 1.1 | 420.12 | 2.0 |
| 7 | 38.47 | 0.5 | 130.27 | 1.1 | 441.12 | 2.0 |
| 8 | 40.39 | 0.6 | 136.78 | 1.1 | 463.18 | 2.1 |
| 9 | 42.41 | 0.6 | 143.62 | 1.1 | 486.34 | 2.1 |
| 10 | 44.53 | 0.6 | 150.80 | 1.1 | 510.66 | 2.2 |
| 11 | 46.76 | 0.6 | 158.34 | 1.1 | 536.19 | 2.2 |
| 12 | 49.10 | 0.6 | 166.26 | 1.1 | 563.00 | 2.4 |
| 13 | 51.55 | 0.6 | 174.57 | 1.2 | 591.15 | 2.4 |
| 14 | 54.13 | 0.7 | 183.30 | 1.2 | 620.70 | 2.5 |
| 15 | 56.83 | 0.7 | 192.46 | 1.3 | 651.74 | 2.6 |
| 16 | 59.68 | 0.7 | 202.08 | 1.3 | 684.33 | 2.6 |
| 17 | 62.66 | 0.7 | 212.19 | 1.3 | 718.54 | 2.8 |
| 18 | 65.79 | 0.8 | 222.80 | 1.4 | 754.47 | 2.9 |
| 19 | 69.08 | 0.8 | 233.94 | 1.4 | 792.19 | 2.9 |
| 20 | 72.54 | 0.8 | 245.63 | 1.4 | 831.80 | 3.0 |
| 21 | 76.16 | 0.8 | 257.92 | 1.5 | 873.39 | 3.2 |
| 22 | 79.97 | 0.9 | 270.81 | 1.5 | 917.06 | 3.2 |
| 23 | 83.97 | 0.9 | 284.35 | 1.5 | 962.92 | 3.3 |
| 24 | 88.17 | 0.9 | 298.57 | 1.6 | 1011.06 | 3.4 |
| 25 | 92.58 | 0.9 | 313.50 | 1.6 | -- | -- |

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Antenna Factor
Biconilog Antenna, Model Number: 3142D S/N: 6503046 3 m distance

| No. | f / MHz | ACF / dB/m | f / MHz | AF / dB/m |
|-----|---------|------------|---------|-----------|
| 1 | 30 | 22.7 | 200 | 16.7 |
| 2 | 35 | 20.4 | 250 | 18.0 |
| 3 | 40 | 17.8 | 300 | 19.8 |
| 4 | 45 | 15.7 | 400 | 22.7 |
| 5 | 50 | 14.2 | 500 | 25.8 |
| 6 | 60 | 13.0 | 600 | 27.4 |
| 7 | 70 | 13.0 | 700 | 28.4 |
| 8 | 80 | 12.4 | 800 | 30.0 |
| 9 | 90 | 13.3 | 900 | 31.3 |
| 10 | 100 | 14.2 | 1000 | 32.8 |
| 11 | 120 | 13.3 | 1250 | 35.8 |
| 12 | 140 | 13.3 | 1500 | 42.9 |
| 13 | 160 | 14.6 | 1750 | 36.1 |
| 14 | 180 | 16.3 | 2000 | 34.6 |

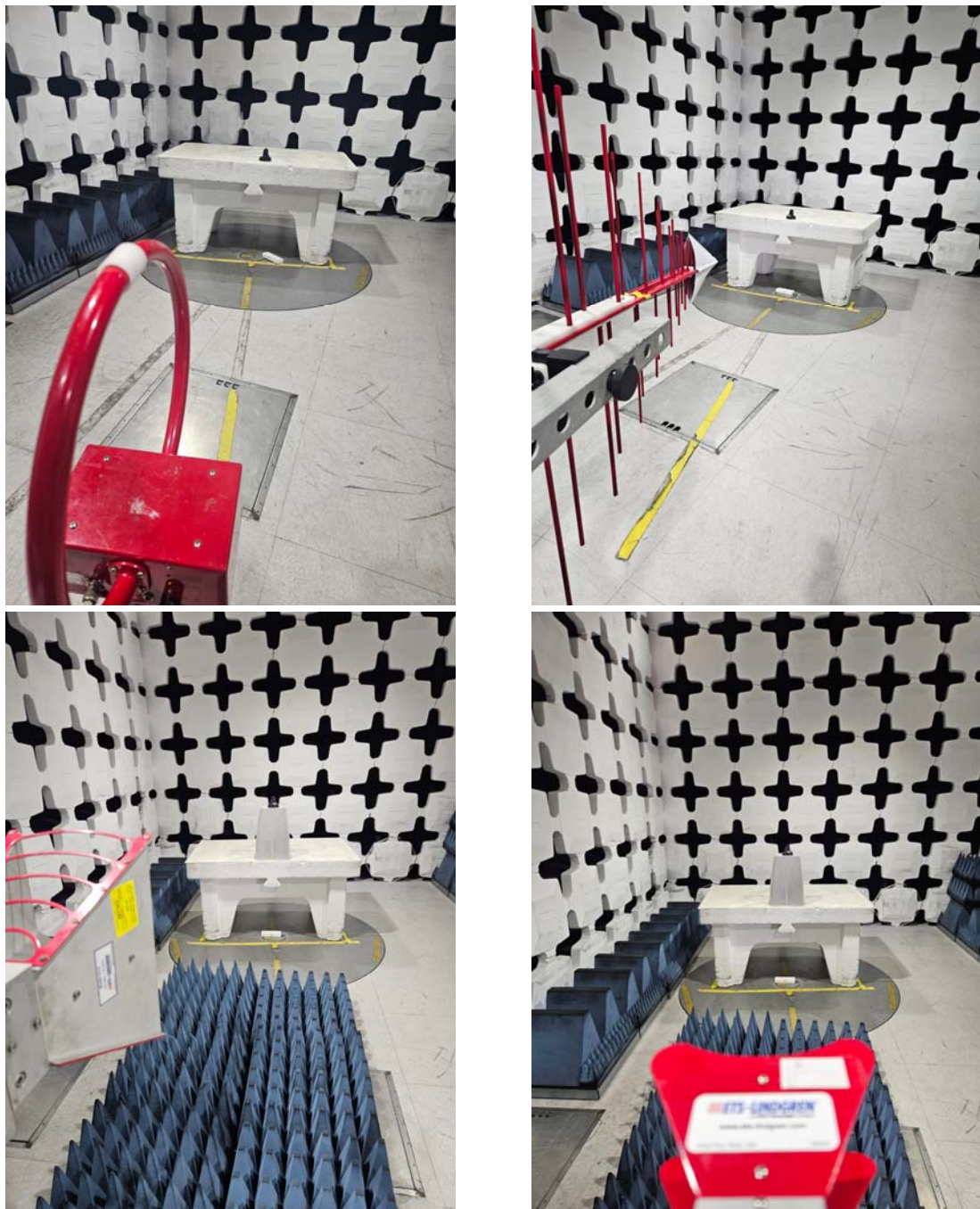
Antenna Factor
Double Ridged Waveguide Antenna Model Number: 3115 S/N 0143138
3m distance

| No. | f / MHz | AF / dB/m | f / MHz | AF / dB/m | f / MHz | AF / dB/m |
|-----|---------|-----------|---------|-----------|---------|-----------|
| 1 | 1000 | 23.6 | 7000 | 36.7 | 13000 | 39.7 |
| 2 | 1500 | 25.6 | 7500 | 37.3 | 13500 | 40.3 |
| 3 | 2000 | 28.2 | 8000 | 37.0 | 14000 | 41.0 |
| 4 | 2500 | 27.8 | 8500 | 37.6 | 14500 | 41.0 |
| 5 | 3000 | 29.3 | 9000 | 37.8 | 15000 | 39.6 |
| 6 | 3500 | 30.7 | 9500 | 38.0 | 15500 | 38.8 |
| 7 | 4000 | 31.8 | 10000 | 38.3 | 16000 | 39.1 |
| 8 | 4500 | 32.1 | 10500 | 38.6 | 16500 | 40.0 |
| 9 | 5000 | 32.9 | 11000 | 38.6 | 17000 | 40.9 |
| 10 | 5500 | 32.9 | 11500 | 38.9 | 17500 | 42.3 |
| 11 | 6000 | 34.0 | 12000 | 38.8 | 18000 | 42.5 |
| 12 | 6500 | 35.3 | 12500 | 38.9 | -- | -- |

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10. Appendix 3: Test illustrations



Picture 1
Radiated emission test setup.

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Picture 2. Radiated emission test setup on table

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